



# WAGO Full Line Catalogs



## Volume 1, Rail-Mount Terminal Block Systems

- Rail-Mount Terminal Blocks
- Rail-Mount Terminal Blocks with Pluggable Connector (X-COM®-SYSTEM)
- Patchboard Systems
- Terminal Strips
- PUSH WIRE® Connectors for Junction Boxes
- Lighting Connectors
- Shield Connecting System



## Volume 2, PCB Terminal Blocks and Connectors

- PCB Terminal Blocks
- SMD PCB Terminal Blocks
- *MULTI CONNECTION SYSTEM (MCS)*
- Pluggable PCB Terminal Blocks
- Feedthrough Terminal Blocks
- Specialty Connectors
- Empty Housings



## Volume 3, Automation Technology

- Software
- Operating & Monitoring
- Controllers
- Modular I/O-SYSTEM, IP20/IP67
- Industrial Switches
- Radio Technology, *TO-PASS®* Telecontrol Technology
- IP67 Sensor/Actuator Boxes, IP67 Cables and Connectors



## Volume 4, Interface Electronic

- Relay and Optocoupler Modules
- *JUMPFLEX®* Signal Conditioners and Isolation Amplifiers
- Current and Energy Measurement Technology
- *EPSITRON®* Power Supply System
- Interface Modules and System Wiring
- Overvoltage Protection
- Empty Housings



## Volume 5, WINSTA® – The Pluggable Connection System

- Pluggable Connectors
- Snap-In Device Connectors
- Pluggable PCB Connectors
- Distribution Connectors
- Cable Assemblies
- Flat Cable Systems
- Distribution Boxes




## Volume 6, Marking

- Terminal Block Marking
- Cable and Conductor Marking
- Device Marking
- Printer
- Software
- Marker Carriers



# Connection Technology for Lighting and Electrical Equipment

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# We Connect

## Connection Technology for LED Modules

### Why use WAGO?

- Flexible and modular applications
- Low profile and white housing minimize on-board shadowing
- Component high quality and durability

Our space-saving and modular connection systems can easily be implemented in already existing installations. Whether round, linear modules or retrofits, WAGO's connection solutions are easy to use while providing the quality you can rely on.



### Series



2059 Series



2060 Series



2061 Series



2065 Series



2070 Series



2075 Series

## Connection Technology for LED Drivers

### Why use WAGO?

- Wide product range for multiple applications
- Automated wiring solutions
- Compact solutions with custom color coding options

The perfect connection technology: A vast array of PCB terminal blocks for LED drivers offers you the best solution for various applications. Whether outdoor, compact or linear drivers – click here to find the ideal solution for your application.



### Series



250 Series



250 Series



235 Series



235 Series



805 Series



804 Series



744 Series



251 Series



253 Series



735 Series

# Your Light



## Lighting Connection

### Why use WAGO?

- Easy and safe wiring of lights and appliances
- Compact, easy-to-use design, transparent housing, two test slots
- Electrical installations can be plugged in easily, safely and error-free with the **WINSTA®** Pluggable Connection System
- Circuits can be created quickly, expanded flexibly and adapted to new requirements

Regardless of whether the power connection is located inside or outside of the lamps, or whether the lighting systems are used for street lighting, homes, or in a hospital – you can rely on quality from WAGO for every application.

### Series



294 Series



Linect® 294 Series



272 Series



862 Series



WINSTA®



221 Series



2273 Series



773 Series



224 Series



243 Series



267 Series



873 Series



## Lighting Management

### Why use WAGO?

- Maximize every potential for savings! With proper lighting management, you can reduce your energy consumption for lighting by up to 70%.
- Applications: office buildings, production facilities, warehouses
- Fast lighting implementations via PFC200 Controller and DALI protocol
- Easy configuration and commissioning via standard Web browser
- Easy to operate and control



WAGO I/O-SYSTEM  
with  
DALI Master Module



PFC200



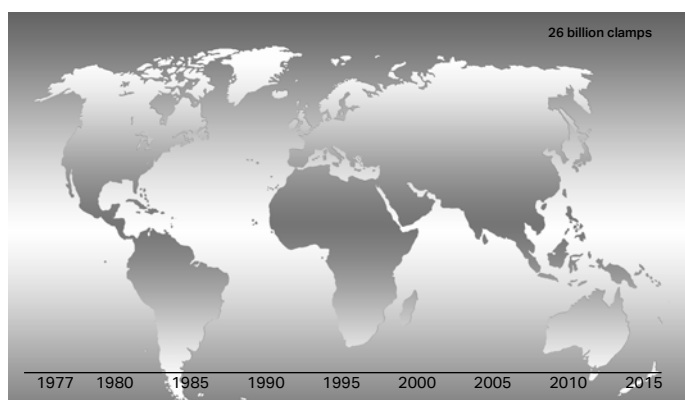
WINSTA®

## From Pioneer to Leader

When the first screwless terminal blocks debuted at the Hanover Fair in 1951, they represented a significant advancement in manufacturing. At the time, manufacturing terminal blocks was not possible because the carbon steel available then did not meet the high quality requirements.

Undeterred, WAGO was quite active in the years leading up to the 1977 debut of the first series of CAGE CLAMP®-equipped rail-mount terminal blocks from 0.08–16 mm<sup>2</sup> (28–6 AWG).

With numerous developments – from the Suprafix banana plug product family up to the first range of rail-mount terminal blocks for conductors up to 16 mm<sup>2</sup> (6 AWG) – WAGO has firmly established itself as an innovator.



Number of CAGE CLAMP® springs produced to date

With this reputation and the need for "vibration-proof, fast and maintenance-free" connections, CAGE CLAMP® quickly outperformed all previous connection technologies to become a worldwide industrial standard.

Today, CAGE CLAMP® technology has several imitators, yet it remains unmatched. And WAGO continues to set new standards with further developments, such as CAGE CLAMP® Compact (1996) for ultra-compact applications and the WAGO POWER CAGE CLAMP (1998) for a rated cross-section up to 185 mm<sup>2</sup> (350 kcmil). Figures speak for themselves: More than 26 billion CAGE CLAMP® springs have been sold worldwide, and every day, millions of clamps are added to that number.

In 1951, WAGO was founded in Minden, Germany. Now, the WAGO Group consists of 32 companies with more than 6,700 employees, worldwide operations and global sales of 706 million euros (2015).

The first factory was located in Minden, Germany, which is also our global headquarters. As part of WAGO's international expansion, additional factories have been built: 1977 in Domdidier (Switzerland), 1979 in Milwaukee (USA), 1995 in Sondershausen (Germany) and Delhi (India), as well as 1997 in Tianjin (China) and Wroclaw (Poland).

Products manufactured locally for domestic and foreign markets create the starting point for localized distribution networks that cover WAGO's complete product portfolio. Such organization enables WAGO subsidiaries and sales offices to develop and deliver custom-designed products that comply with local regulations and meet local demand. More than half of WAGO's global staff of 6,700 is employed outside of Germany.



# WAGO Worldwide



WAGO Minden, Germany – Global Headquarters



WAGO Sondershausen, Germany



WAGO Switzerland



WAGO Poland



WAGO India



WAGO USA



WAGO China



## Operating WAGO Connection Technologies

Please follow the applicable product-specific termination instructions:

### PUSH-IN CAGE CLAMP®



Push-in CAGE CLAMP® terminates the following copper conductors: solid



stranded



fine-stranded, also with tinned single strands



fine-stranded, tip-bonded



fine-stranded, with ferrule (gastight crimped)



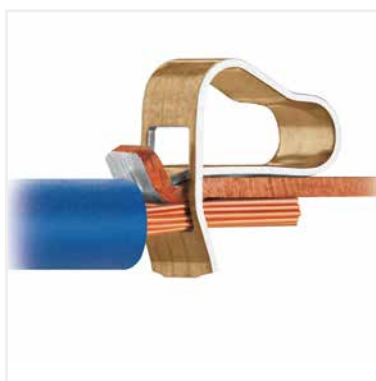
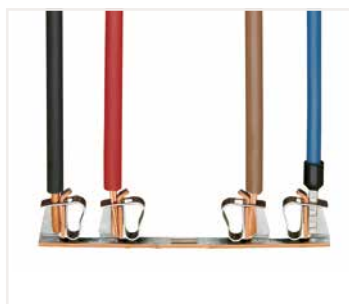
fine-stranded, with pin terminal (gastight crimped)

The universal connection with an additional advantage: Push-in connection  
Terminate solid and stranded, as well as ferruled conductors, by simply pushing them in – no tools required.

Termination for all conductor types:

- Open clamping unit
- Insert the conductor
- Release clamp – done!

### CAGE CLAMP®



CAGE CLAMP® terminates the following copper conductors: solid



stranded



fine-stranded, also with tinned single strands



fine-stranded, tip-bonded



fine-stranded, with ferrule (gastight crimped)



fine-stranded, with pin terminal (gastight crimped)

The universal connection for solid, stranded and fine-stranded conductors

Termination:

- Open clamping unit
- Insert the conductor
- Release clamp – done!

## Operating WAGO Connection Technologies

Please follow the applicable product-specific termination instructions:

### POWER CAGE CLAMP®



POWER CAGE CLAMP terminates the following copper conductors:  
solid



stranded



fine-stranded,  
also with tinned  
single strands



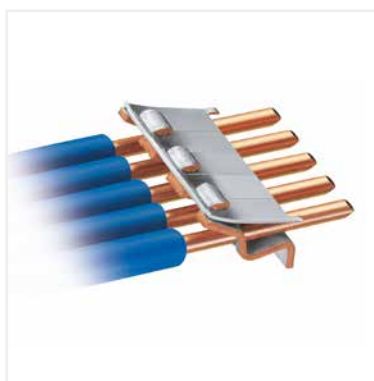
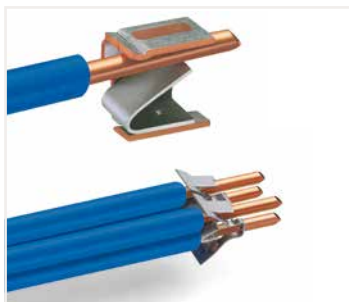
fine-stranded,  
with ferrule  
(gastight crimped)

The universal connection for conductors larger than 35 mm<sup>2</sup> (2 AWG)

Termination:

- Open clamp by turning a T-wrench counter-clockwise
- Press the integrated latch to open clamping unit for hands-free wiring
- Insert the conductor
- A short counter-clockwise rotation closes the clamp, securing the conductor

### PUSH WIRE®



PUSH WIRE® terminates the following copper conductors:  
solid

PUSH WIRE® connection for solid and stranded conductors  
(depending on the model used)

Termination:






Tool-free, twist-free terminations for solid and rigid stranded conductors – simply push into unit





## SMD Terminal Blocks for LED Modules

## SMD Terminal Blocks for LED Modules

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## SMD PCB Terminal Block; 0.5 mm<sup>2</sup>

Pin Spacing: 3 mm

2059 Series

1



- SMD PCB terminal blocks with PUSH WIRE® connection technology
- Push-in termination of solid conductors\*
- Easy conductor removal via operating tool
- Just 2.7 mm tall
- Assemble terminal blocks without pole loss
- Available in tape-and-reel packaging for automated assembly

Electrical Data	1-pole			2-/3-pole		
	3 mm / 0.118 inch			3 mm / 0.118 inch		
Pin spacing	3 mm / 0.118 inch			3 mm / 0.118 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	63 V	160 V	320 V	63 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Rated current	3 A	3 A	3 A	3 A	3 A	3 A
Approvals per	UL 1977			UL 1977		
Rated voltage	600 V			250 V		
Rated current	3 A			3 A		

Connection Data	
Connection technology	PUSH WIRE®
Strip length	6 ... 7.5 mm / 0.24 ... 0.3 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.14 ... 0.34 mm <sup>2</sup> / 26 ... 22 AWG
Solid conductor	0.5 mm <sup>2</sup> / 20 AWG

Material Data	
Material group	I
Insulating material	Polyphthalamide (PPA GF)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated

### Application notes:

Suitable for lead-free, reflow-soldering profiles per DIN EN 61760-1 and IEC 60068-2-58 up to max. 260°C peak temperature. Due to customer-specific variables (e.g., component configuration and orientation, type of soldering machine, solder paste), trial runs are recommended to ensure product and process compatibility under actual manufacturing conditions.

### Note (conductor cross-sections):

- No reconnection of smaller conductor cross-sections (0.5 mm<sup>2</sup>/20 AWG)
- For conductors that are not rigid enough, the clamping unit must be opened using an operating tool.

### Recommendation for SMD stencil:

150 µm material thickness; pattern layout identical to solder pad layout

# SMD PCB Terminal Block; 0.5 mm<sup>2</sup>; in Tape-and-Reel Packaging

## Pin Spacing: 3 mm

### 2059 Series

1

White\*; Reel diameter: 330 mm

Black; Reel diameter: 330 mm



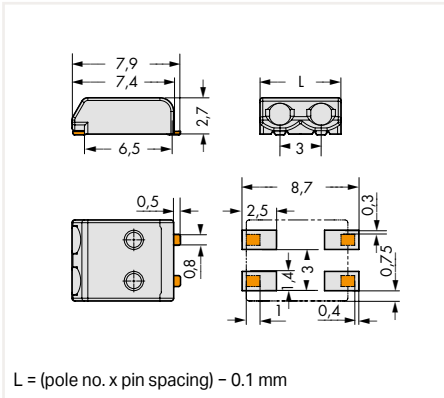
Push-in termination of solid conductors

Pole No.	Item No.	Pack. Unit
1	2059-301/998-403	31800 (2650)
2	2059-302/998-403	21000 (1750)
3	2059-303/998-403	21000 (1750)

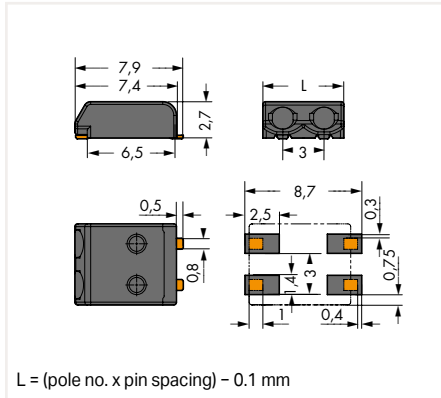
Pole No.	Item No.	Pack. Unit
1	2059-321/998-403	31800 (2650)
2	2059-322/998-403	21000 (1750)
3	2059-323/998-403	21000 (1750)

\*Depending on reflow soldering temperatures and times, color deviations may occur. These deviations will have no impact on functionality.

Dimensions (in mm):

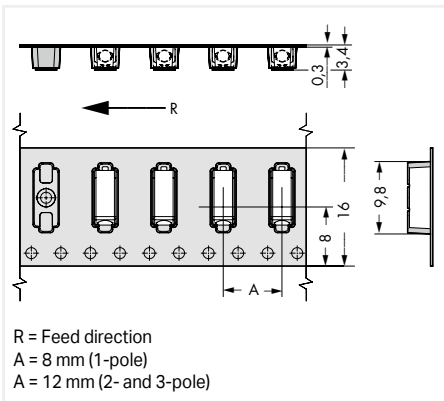


Dimensions (in mm):

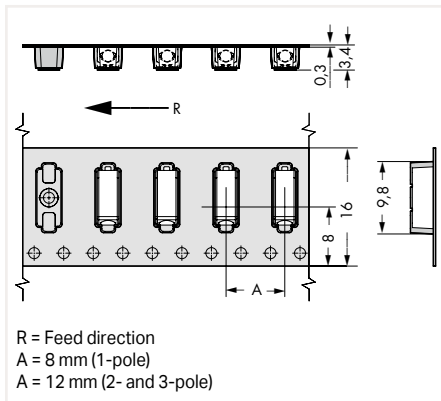


Easy conductor removal (e.g., via 206-859 Operating Tool)

Dimensions (in mm):



Dimensions (in mm):



Available in tape-and-reel packaging for automated assembly

# SMD PCB Terminal Block with Push-Buttons; 0.75 mm<sup>2</sup>

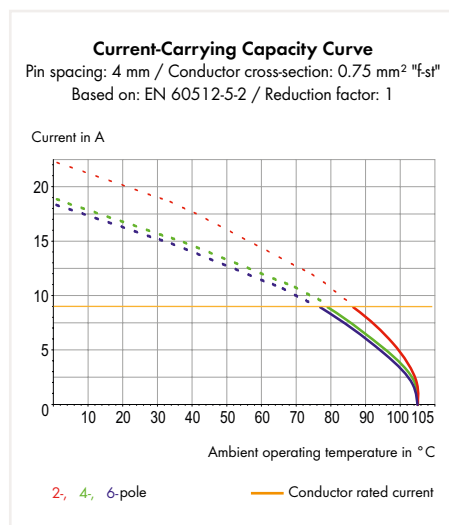
## Pin Spacing: 4 mm

### 2060 Series

1



- SMD PCB terminal blocks with Push-in CAGE CLAMP® connection technology and push-buttons
- Push-in termination of solid and ferruled conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Just 4.5 mm tall
- Available in tape-and-reel packaging for automated assembly



Electrical Data	1-pole			2-/3-pole		
Pin spacing	4 mm / 0.157 inch			4 mm / 0.157 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	63 V	160 V	320 V	63 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Rated current	9 A	9 A	9 A	9 A	9 A	9 A
Approvals per	UL 1977			UL 1977		
Rated voltage	600 V			320 V		
Rated current	9 A			9 A		

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	7 ... 9 mm <sup>2</sup> / 0.28 ... 0.35 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG
Fine-stranded conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 0.34 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 0.34 mm <sup>2</sup>

Material Data	
Material group	I
Insulating material	Polyphthalamide (PPA GF)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated

#### Application notes:

Suitable for lead-free, reflow-soldering profiles per DIN EN 61760-1 and IEC 60068-2-58 up to max. 260°C peak temperature. Due to customer-specific variables (e.g., component configuration and orientation, type of soldering machine, solder paste), trial runs are recommended to ensure product and process compatibility under actual manufacturing conditions.

#### Recommendation for SMD stencil:

150 µm material thickness; pattern layout identical to solder pad layout

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

# SMD PCB Terminal Block with Push-Buttons; in Tape-and-Reel Packaging; 0.75 mm<sup>2</sup>; Pin Spacing: 4 mm 2060 Series

White\*; Reel diameter: 330 mm

Black; Reel diameter: 330 mm



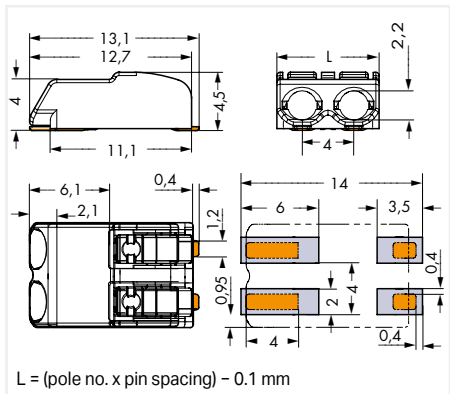
Push-in termination of solid conductors

Pole No.	Item No.	Pack. Unit
1	2060-451/998-404	13500 (1500)
2	2060-452/998-404	9000 (1000)
3	2060-453/998-404	6750 (750)

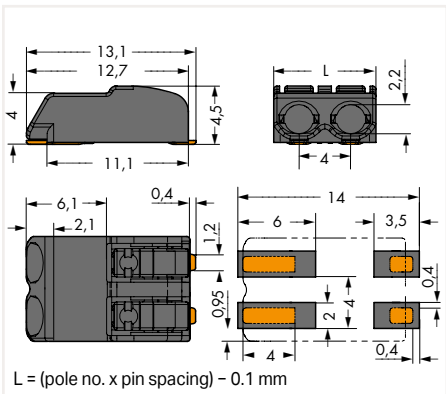
Pole No.	Item No.	Pack. Unit
1	2060-471/998-404	13500 (1500)
2	2060-472/998-404	9000 (1000)
3	2060-473/998-404	6750 (750)

\*Depending on reflow soldering temperatures and times, color deviations may occur. These deviations will have no impact on functionality.

Dimensions (in mm):



Dimensions (in mm):

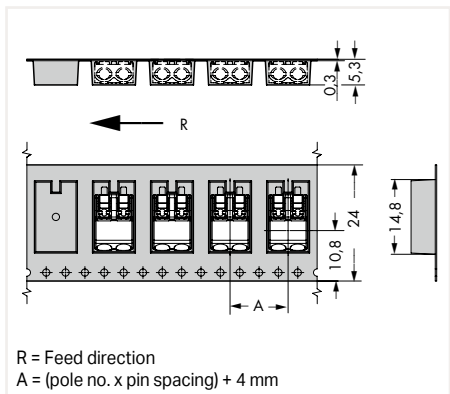


Inserting/removing fine-stranded conductors by lightly pressing on a push-button (e.g. via 206-860 Operating Tool).



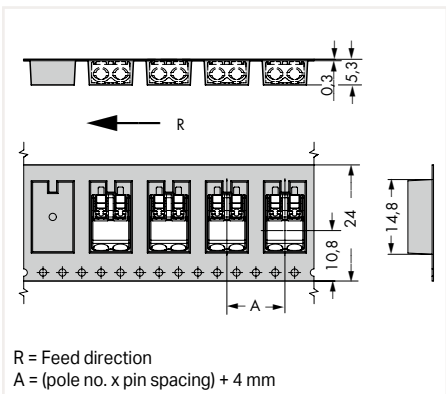
Terminal blocks can be arranged side-by-side without loss of poles.

Dimensions (in mm):



R = Feed direction  
A = (pole no. x pin spacing) + 4 mm

Dimensions (in mm):



R = Feed direction  
A = (pole no. x pin spacing) + 4 mm



Available in tape-and-reel packaging for automated assembly

1

# SMD PCB Terminal Block with Push-Buttons; 0.75 mm<sup>2</sup>

## Pin Spacing: 8 mm

### 2060 Series

1



- SMD PCB terminal blocks with Push-in CAGE CLAMP® connection technology and push-buttons
- 8 mm pin spacing version for higher-rated voltages
- Push-in termination of solid and ferruled conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Height of just 4.5 mm minimizes on-board LED shadowing
- Available in tape-and-reel packaging for automated assembly

#### Electrical Data

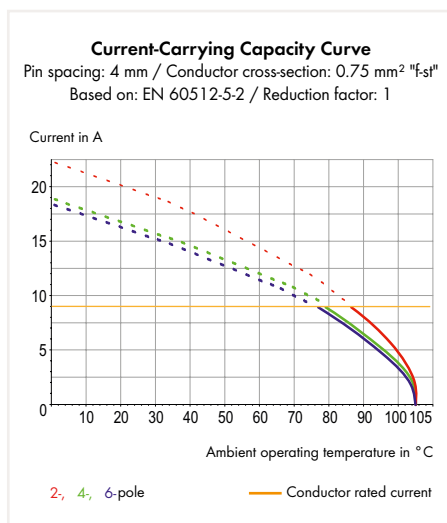
Pin spacing	8 mm / 0.314 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Rated current	9 A	9 A	9 A
Approvals per	UL 1977		
Rated voltage	600 V		
Rated current	9 A		

#### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	7 ... 9 mm <sup>2</sup> / 0.28 ... 0.35 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG
Fine-stranded conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 0.34 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 0.34 mm <sup>2</sup>

#### Material Data

Material group	I
Insulating material	Polyphthalamide (PPA GF)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated



#### Application notes:

Suitable for lead-free, reflow-soldering profiles per DIN EN 61760-1 and IEC 60068-2-58 up to max. 260°C peak temperature. Due to customer-specific variables (e.g., component configuration and orientation, type of soldering machine, solder paste), trial runs are recommended to ensure product and process compatibility under actual manufacturing conditions.

#### Recommendation for SMD stencil:

150 µm material thickness; pattern layout identical to solder pad layout

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2



# SMD PCB Terminal Block with Push-Buttons; in Tape-and-Reel Packaging; 0.75 mm<sup>2</sup>; Pin Spacing: 8 mm 2060 Series

White\*; Reel diameter: 330 mm

Black; Reel diameter: 330 mm



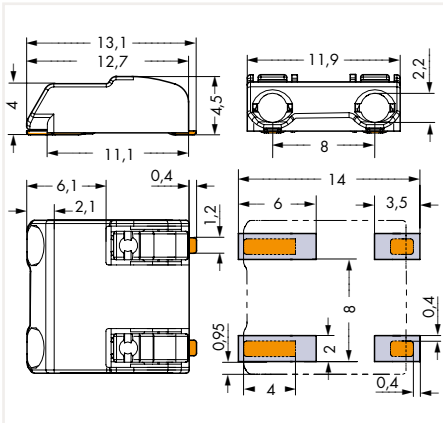
Inserting solid conductors via push-in termination (picture shows 2060 Series).

Pole No.	Item No.	Pack. Unit
2	2060-852/998-404	6750 (750)

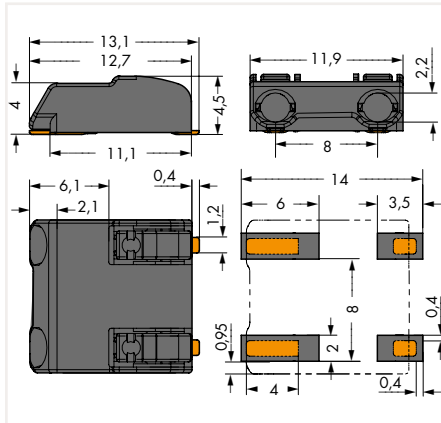
Pole No.	Item No.	Pack. Unit
2	2060-872/998-404	6750 (750)

\*Depending on reflow soldering temperatures and times, color deviations may occur. These deviations will have no impact on functionality.

Dimensions (in mm):

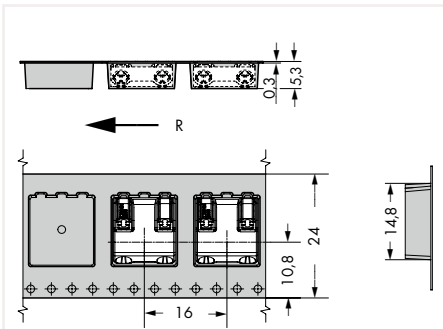


Dimensions (in mm):



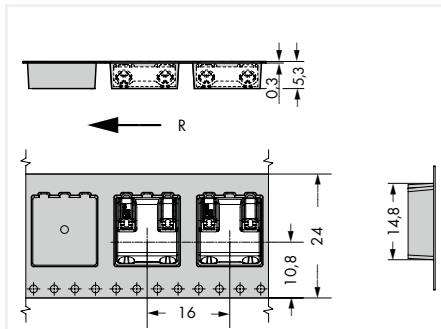
Inserting/removing fine-stranded conductors by lightly pressing on a push-button (e.g., via 206-860 Operating Tool).

Dimensions (in mm):



R = Feed direction

Dimensions (in mm):



R = Feed direction



Available in tape-and-reel packaging for automated assembly

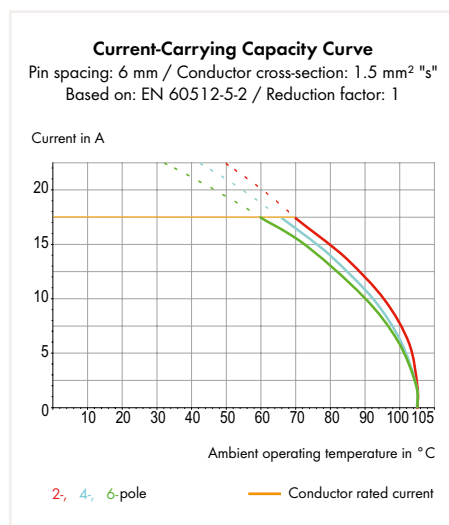
# SMD PCB Terminal Block with Push-Buttons; 1.5 mm<sup>2</sup>

## Pin Spacing: 6 mm

### 2061 Series



- SMD PCB terminal blocks with Push-in CAGE CLAMP® connection technology and push-buttons
- Just 5.6 mm tall
- Push-in termination of solid and ferruled conductors
- Push-button for easy connection and disconnection of all conductor types
- Available in tape-and-reel packaging for automated assembly



Electrical Data	1-pole			2-/3-pole		
Pin spacing	6 mm / 0.157 inch			6 mm / 0.157 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Rated current	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A
Approvals per	UL 1977			UL 1977		
Use group	B	D		B	D	
Rated voltage	600 V	600 V		300 V	300 V	
Rated current	10 A	5 A		10 A	10 A	

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	7 ... 10 mm <sup>2</sup> / 0.28 ... 0.39 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Fine-stranded conductor	0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.5 ... 0.75 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.5 ... 0.75 mm <sup>2</sup>

Material Data	
Material group	I
Insulating material	Polyphthalamide (PPA GF)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated

#### Application notes:

Suitable for lead-free, reflow-soldering profiles per DIN EN 61760-1 and IEC 60068-2-58 up to max. 260°C peak temperature. Due to customer-specific variables (e.g., component configuration and orientation, type of soldering machine, solder paste), trial runs are recommended to ensure product and process compatibility under actual manufacturing conditions.

#### Recommendation for SMD stencil:

150 µm material thickness; pattern layout identical to solder pad layout

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

# SMD PCB Terminal Block with Push-Buttons; in Tape-and-Reel Packaging; 1.5 mm<sup>2</sup>; Pin Spacing: 6 mm 2061 Series

White\*; Reel diameter: 330 mm

Black; Reel diameter: 330 mm

1



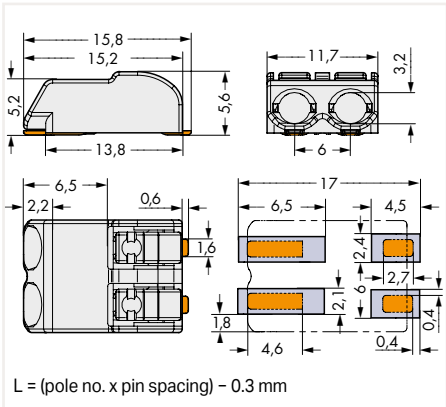
Push-in termination of solid conductors

Pole No.	Item No.	Pack. Unit
1	2061-601/998-404	8100 (900)
2	2061-602/998-404	6300 (700)
3	2061-603/998-404	4050 (450)

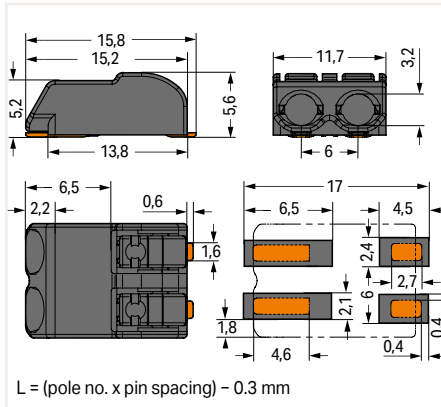
Pole No.	Item No.	Pack. Unit
1	2061-621/998-404	8100 (900)
2	2061-622/998-404	6300 (700)
3	2061-623/998-404	4050 (450)

\*Depending on reflow soldering temperatures and times, color deviations may occur. These deviations will have no impact on functionality.

Dimensions (in mm):

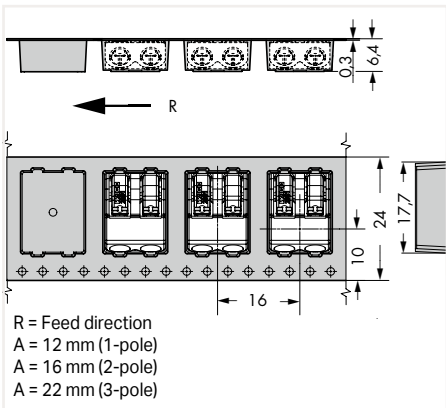


Dimensions (in mm):

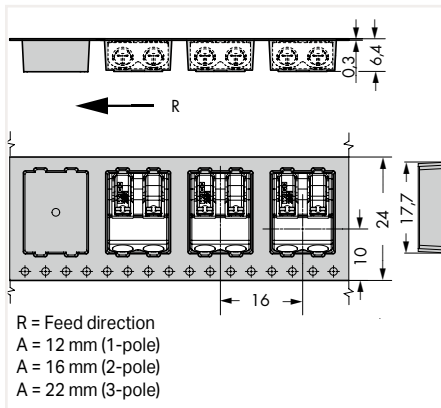


Inserting/removing fine-stranded conductors by lightly pressing on a push-button (e.g. via 206-861 Operating Tool).

Dimensions (in mm):



Dimensions (in mm):



Available in tape-and-reel packaging for automated assembly

## Board-to-Board Link for SMD PCB Terminal Blocks ; 0.5 mm<sup>2</sup>; Pin Spacing: 3 mm 2059 Series

1



- Board-to-board links simplify LED module assembly
- Easy push-in connection and disconnection

Electrical Data				
Pin spacing	3 mm / 0.118 inch			
Ratings per	IEC/EN 60664-1			
Overvoltage category	III	III	II	
Pollution degree	3	2	2	
Rated voltage	63 V	160 V	320 V	
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	
Rated current	3 A	3 A	3 A	

Material Data	
Material group	I
Insulating material	Polyamide (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Silver-plated

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

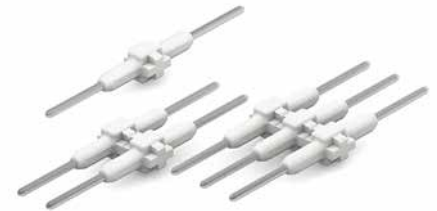
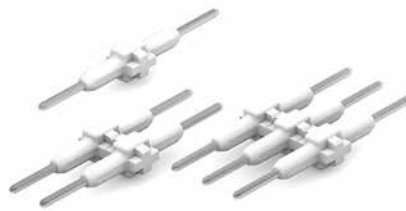
# Board-to-Board Link for SMD PCB Terminal Blocks ; 0.5 mm<sup>2</sup>; Pin Spacing: 3 mm 2059 Series

Pin length: 15.3 mm

Pin length: 17.5 mm

Pin length: 20.5 mm

1

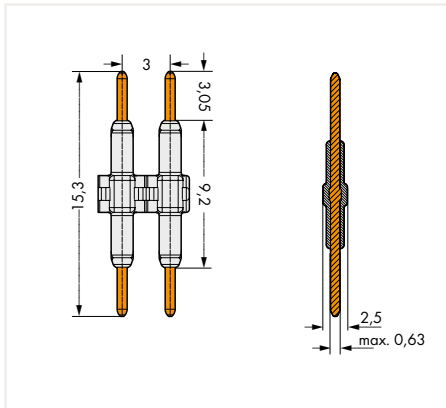


Pole No.	Item No.	Pack. Unit
1	2059-901	1500
2	2059-902	500
3	2059-903	375
4	2059-904	250

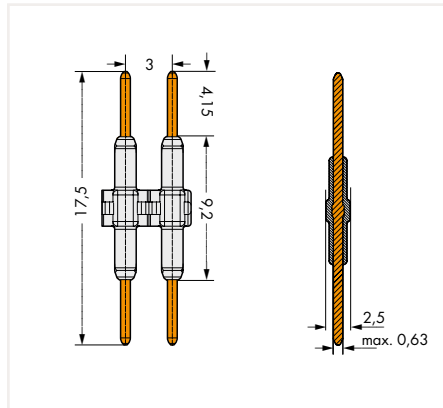
Pole No.	Item No.	Pack. Unit
1	2059-901/018-000	1500
2	2059-902/018-000	500
3	2059-903/018-000	375
4	2059-904/018-000	250

Pole No.	Item No.	Pack. Unit
1	2059-901/021-000	1500
2	2059-902/021-000	500
3	2059-903/021-000	375
4	2059-904/021-000	250

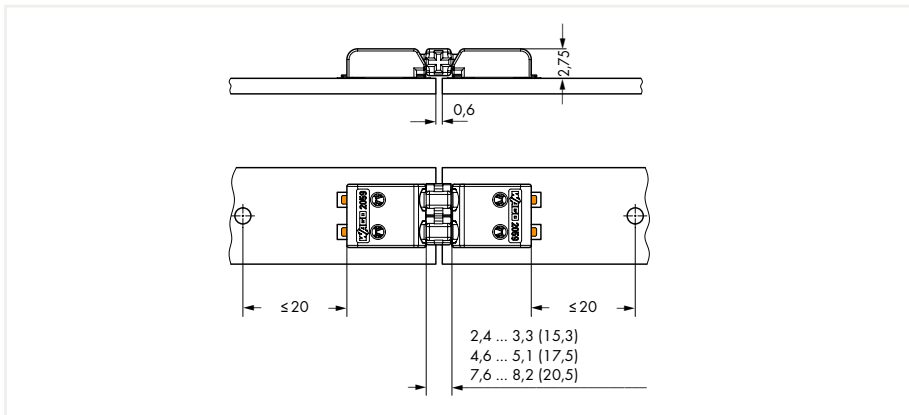
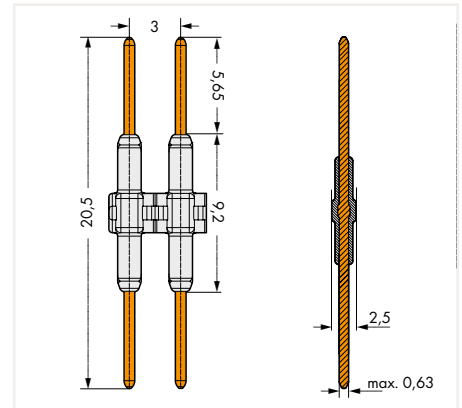
Dimensions (in mm):



Dimensions (in mm):



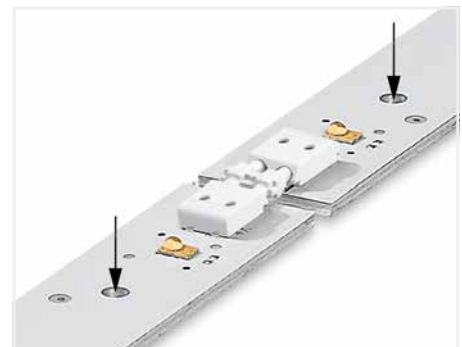
Dimensions (in mm):



Inserting a board-to-board link into the terminal block.



Assembly: Place PCBs on a flat surface and connect terminal blocks on adjoining PCBs via board-to-board link. Disassembly: Pull PCBs apart (max. 10 mating cycles).



The PCBs must be secured.

## Board-to-Board Link for SMD PCB Terminal Blocks with Push-Buttons; 0.75 mm<sup>2</sup>; Pin Spacing: 4 mm, 8 mm 2060 Series

1



- Board-to-board links simplify in-line assembly of LED modules
- Easy push-in connection and disconnection without push-button actuation

Electrical Data							
Pin spacing	4 mm / 0.157 inch			8 mm / 0.314 inch			
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1			
Overvoltage category	III	III	II	III	III	II	
Pollution degree	3	2	2	3	2	2	
Rated voltage	63 V	160 V	320 V	400 V	630 V	1000 V	
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	6 kV	6 kV	6 kV	
Rated current	9 A	9 A	9 A	9 A	9 A	9 A	
Approvals per	UL 1977			UL 1977			
Rated voltage	250 V			600 V			
Rated current	9 A			9 A			

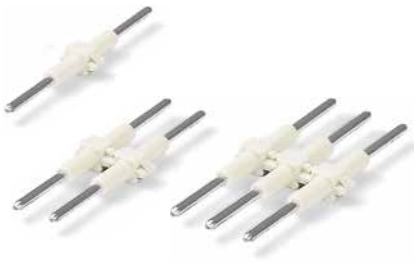
Material Data	
Material group	I
Insulating material	Polyamide (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Silver-plated

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

# Board-to-Board Link for SMD PCB Terminal Blocks with Push-Buttons; 0.75 mm<sup>2</sup>; Pin Spacing: 4 mm, 8 mm 2060 Series

Pin spacing: 4 mm/0.157 inch; Pin length: 28 mm; White

Pin spacing: 8 mm/0.314 inch; Pin length: 28 mm; White

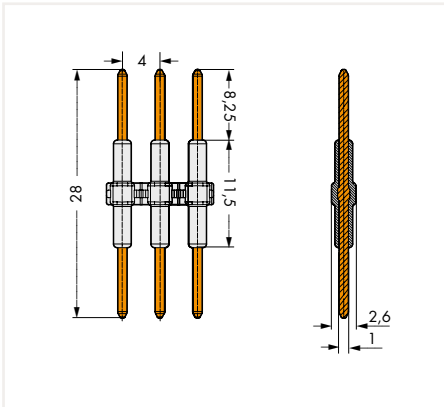


1

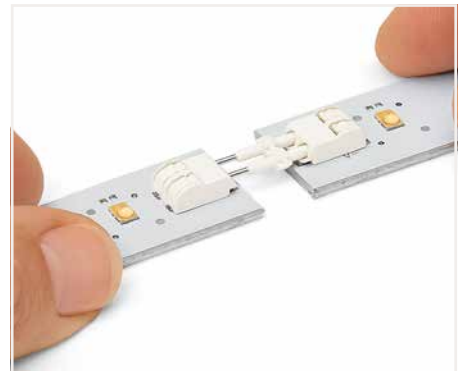
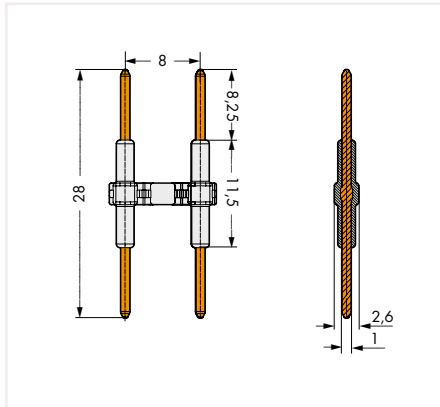
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
1	2060-951/028-000	1500	2	2060-962/028-000	375
2	2060-952/028-000	500			
3	2060-953/028-000	375			
4	2060-954/028-000	250			

Inserting a board-to-board link into the terminal block.

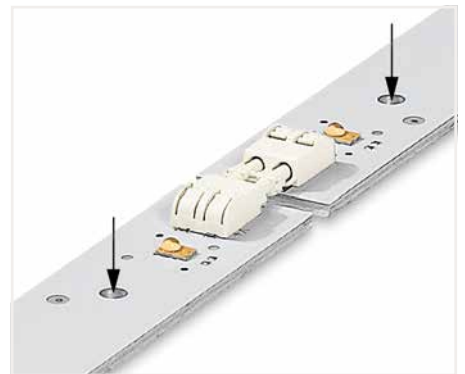
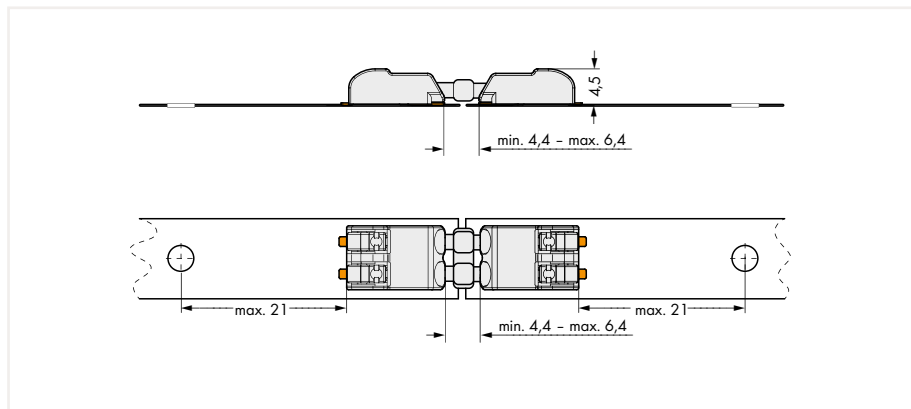
Dimensions (in mm):



Dimensions (in mm):



Assembly: Place PCBs on a flat surface and connect terminal blocks on adjoining PCBs via board-to-board link. Disassembly: Pull PCBs apart (max. 10 mating cycles).



The PCBs must be secured.



## Board-to-Board Link for SMD PCB Terminal Blocks with Push-Buttons; 1.5 mm<sup>2</sup>;

### Pin Spacing: 6 mm

### 2061 Series

1



- Board-to-board link simplifies LED module assembly
- Easy push-in connection and disconnection without push-button actuation

#### Electrical Data

Pin spacing	6 mm / 0.236 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	9 A	9 A	9 A

#### Material Data

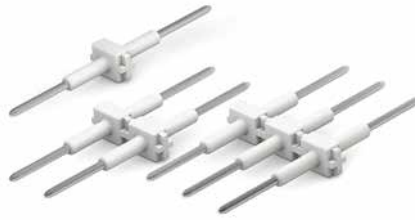
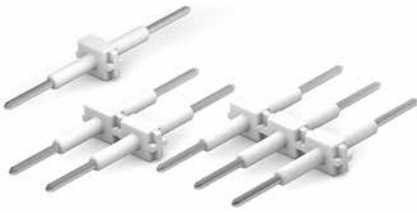
Material group	I
Insulating material	Polyamide (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Silver-plated

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

# Board-to-Board Link for SMD PCB Terminal Blocks with Push-Buttons; 1.5 mm<sup>2</sup>; Pin Spacing: 6 mm 2061 Series

Pin length: 30 mm; White

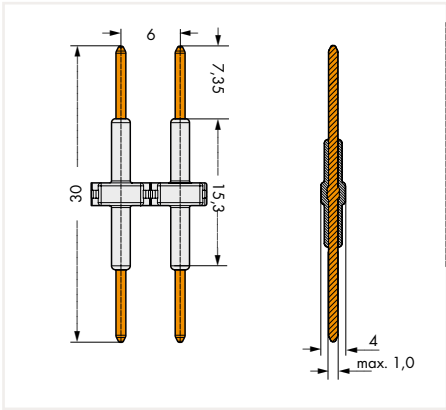
Pin length: 34 mm; White



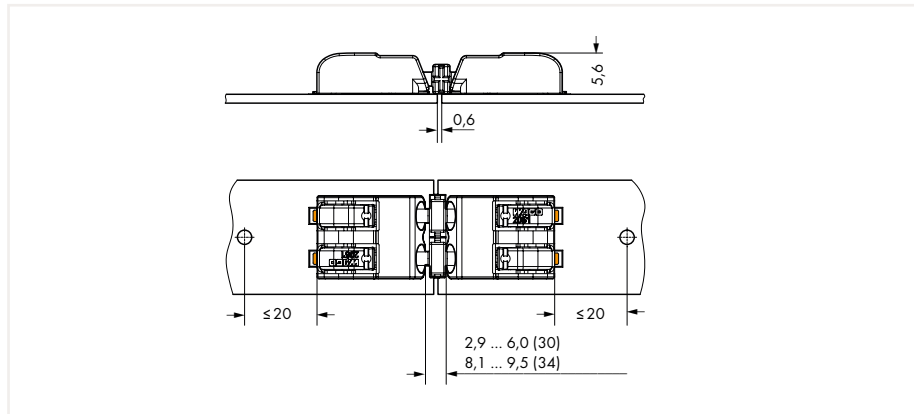
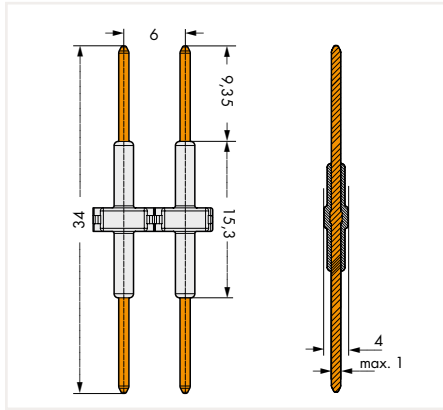
Pole No.	Item No.	Pack. Unit
1	2061-901	700
2	2061-902	300
3	2061-903	200
4	2061-904	100

Pole No.	Item No.	Pack. Unit
1	2061-901/034-000	700
2	2061-902/034-000	300
3	2061-903/034-000	200
4	2061-904/034-000	100

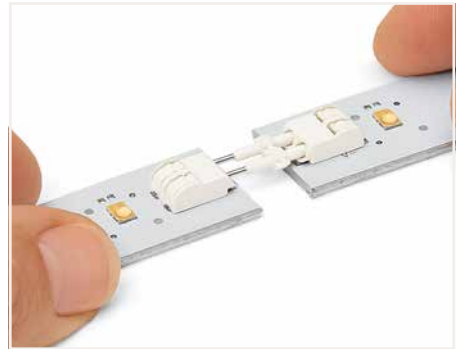
Dimensions (in mm):



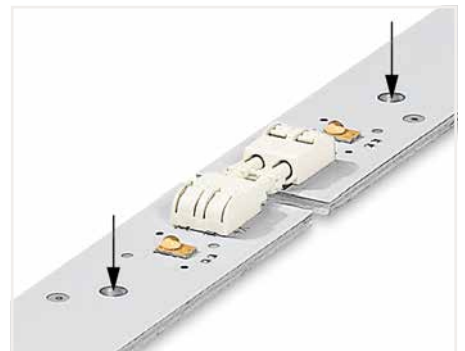
Dimensions (in mm):



Inserting a board-to-board link into the terminal block.



Assembly: Place PCBs on a flat surface and connect terminal blocks on adjoining PCBs via board-to-board link. Disassembly: Pull PCBs apart (max. 10 mating cycles).



The PCBs must be secured.

1

## SMD PCB Terminal Block; 0.75 mm<sup>2</sup> 2065 Series

1



- SMD PCB terminal block with Push-in CAGE CLAMP® and Push-Button
- Connect solid conductors via push-in termination
- Convenient termination/removal of fine-stranded conductors via push-button and operating tool
- Just 2.7 mm tall
- Available in tape-and-reel packaging for automated assembly
- Also available in a PUSH WIRE® variant without push-button (only for solid conductors)

Electrical Data	Push-in CAGE CLAMP®			PUSH WIRE®		
Pin spacing	6.5 mm / 0.256 inch			6 mm / 0.236 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Rated current	9 A	9 A	9 A	9 A	9 A	9 A
Approvals per	UL 1977			UL 1977		
Rated voltage	600 V			600 V		
Rated current	9 A			9 A		

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	7.5 ... 9.5 mm <sup>2</sup> / 0.3 ... 0.37 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG
Fine-stranded conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG
Connection technology	PUSH WIRE®
Strip length	7.5 ... 9.5 mm <sup>2</sup> / 0.3 ... 0.37 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG

Material Data	
Limit temperature range	-60 ... +120 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Copper alloy
Contact plating	Tin-plated

**NOTE: Terminal block without insulation housing!**  
Protection against accidental contact must be provided at voltages higher than low voltages (e.g., SELV/PELV) for the relevant application.

The layout must meet the requirements of the insulation coordination standard EN/IEC 60664-1 and applicable end product standards.

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

# SMD PCB Terminal Block; 0.75 mm<sup>2</sup> 2065 Series

With push-button; Push-in CAGE CLAMP® connection;  
Reel diameter: 330 mm; Pin spacing: 6.5 mm

Without push-button; PUSH WIRE® connection; Reel  
diameter 330; mm; Pin spacing: 6 mm

Operating tool for 2065 Series



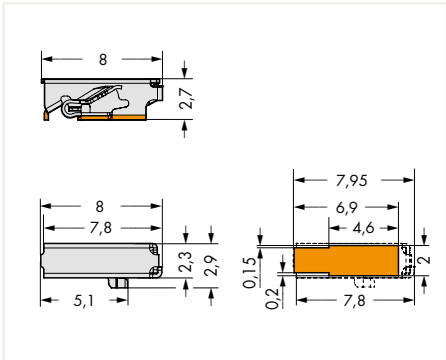
1

Pole No.	Item No.	Pack. Unit
1	2065-100/998-403	31800 (2650)

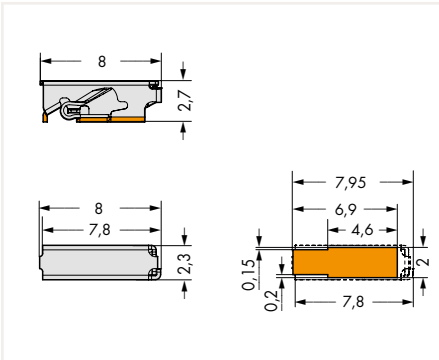
Pole No.	Item No.	Pack. Unit
1	2065-101/998-403	31800 (2650)

Item No.	Pack. Unit
2065-189	600 (50)

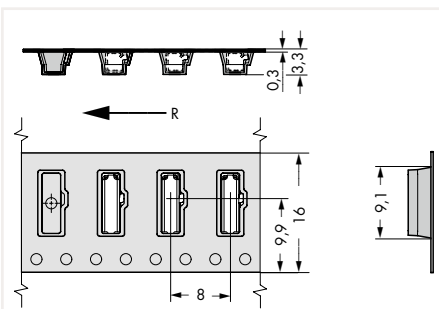
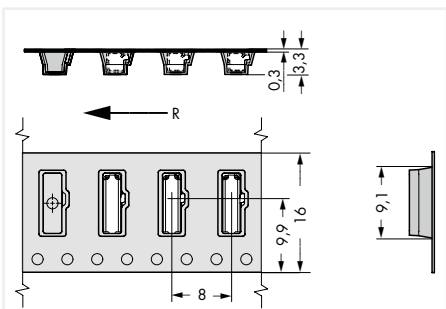
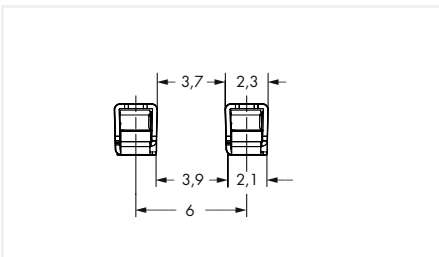
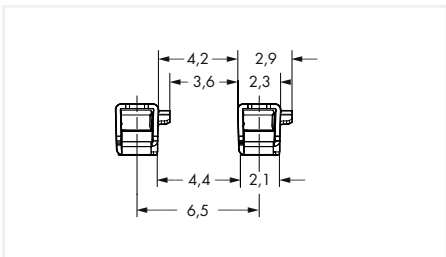
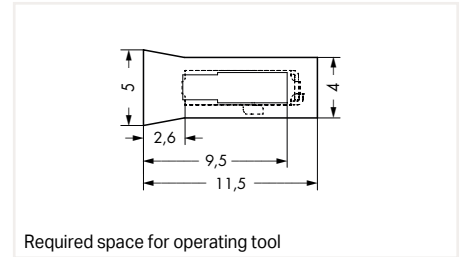
Dimensions (in mm):



Dimensions (in mm):

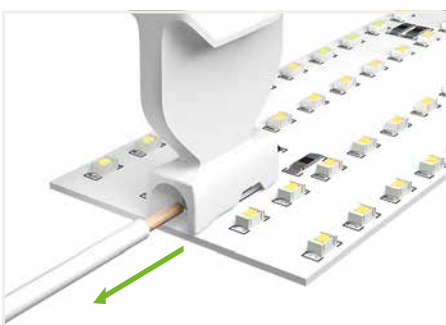


Dimensions (in mm):

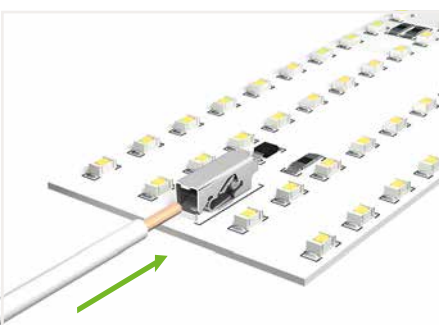


R = Feed direction

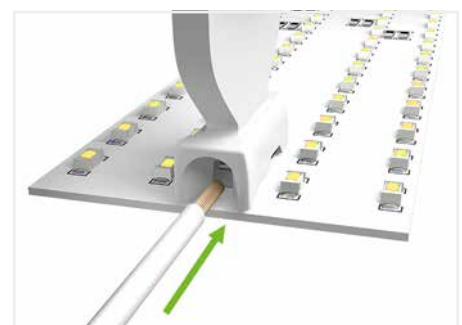
R = Feed direction



Push-in CAGE CLAMP® variant:  
Insert fine-stranded conductors and remove all conductor types via operating tool. Solid conductors can also be terminated by simply pushing them in.



PUSH WIRE® variant without push-button:  
Even more space savings when using exclusively solid conductors



The 2065-189 Operating Tool's funneled conductor entry securely guides all conductor types into the Push-in CAGE CLAMP®.

## Through-Board SMD PCB Terminal Block; 0.75 mm<sup>2</sup>

Pin Spacing: 6.5 mm

2070 Series

1



- SMD PCB terminal block with Push-in CAGE CLAMP® connection for back-side wiring of LED modules
- Low profile of just 1.1 mm on the module's front side
- Connect solid conductors via push-in termination
- Insert fine-stranded conductors and remove all conductors via operating tool

Electrical Data	FR4 PCB Type			Metal-Core PCBs		
Pin spacing	6.5 mm / 0.256 inch			6.5 mm / 0.256 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	200 V	320 V	500 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Rated current	9 A	9 A	9 A	9 A	9 A	9 A
Approvals per	UL 1977			UL 1977		
Rated voltage	600 V			600 V		
Rated current	9 A			9 A		

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	8.5 ... 10 mm <sup>2</sup> / 0.345 ... 0.395 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG
Fine-stranded conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG

Material Data	
Material group	I
Insulating material	Polyphthalamide (PPA GF)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated

Clearance and creepage distances  $\geq 3.0$  mm:  
500 V in applications per EN 60598-1

\*(III / 2)  $\hat{=}$  Overtoltage category III /  
Pollution degree 2

# Through-Board SMD PCB Terminal Block with Cover; in Tape-and-Reel Packaging; 0.75 mm<sup>2</sup>; Pin Spacing: 6.5 mm 2070 Series

Reel diameter: 330 mm

Reel diameter: 330 mm

Reel diameter: 330 mm

1

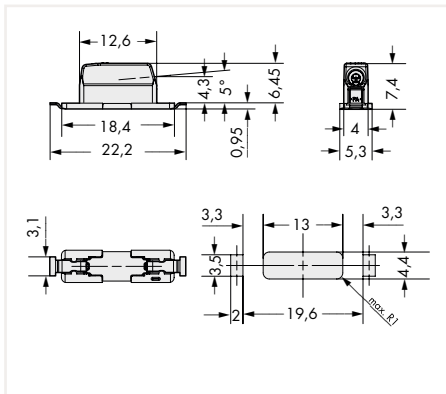


Pole No.	Item No.	Pack. Unit
1	2070-461/998-406	4770 (954)

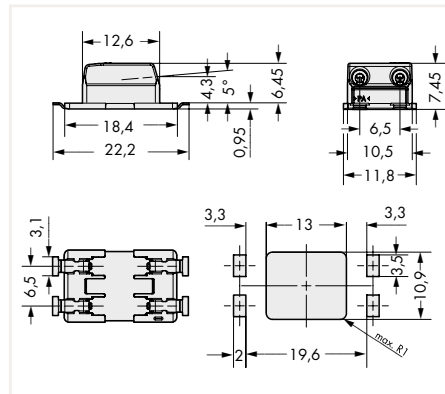
Pole No.	Item No.	Pack. Unit
2	2070-462/998-406	2385 (477)

Pole No.	Item No.	Pack. Unit
3	2070-463/998-406	1590 (318)

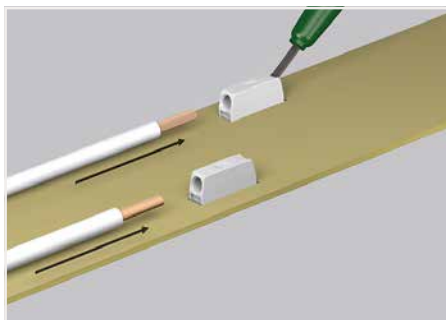
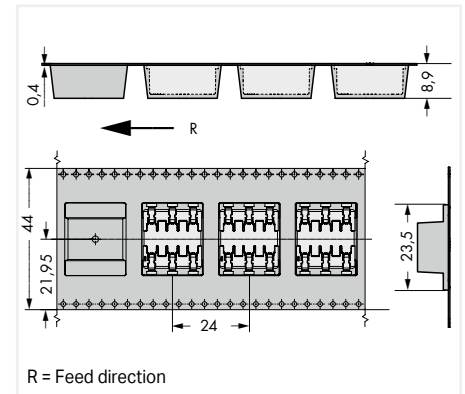
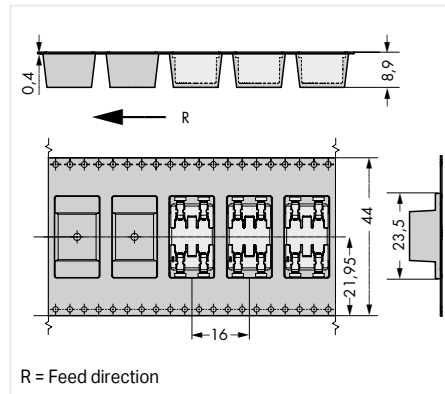
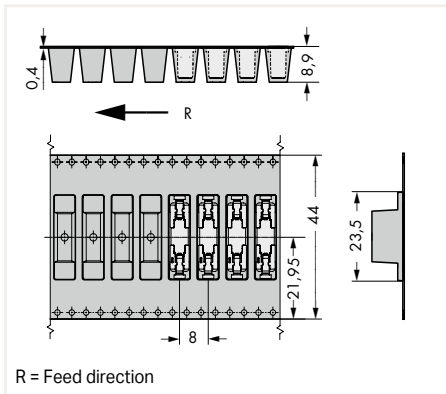
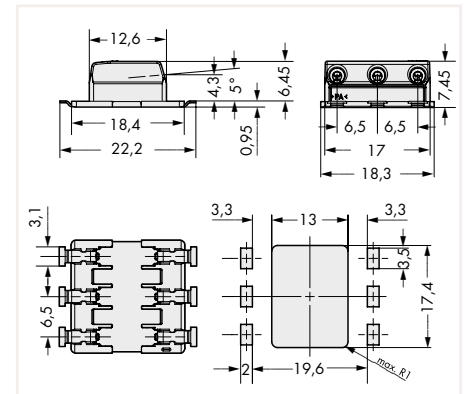
Dimensions (in mm):



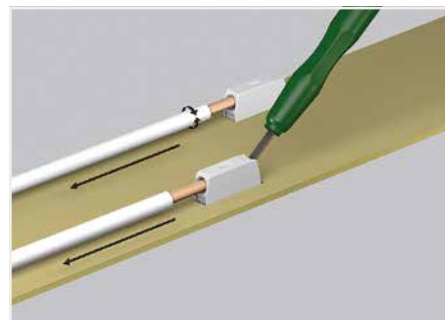
Dimensions (in mm):



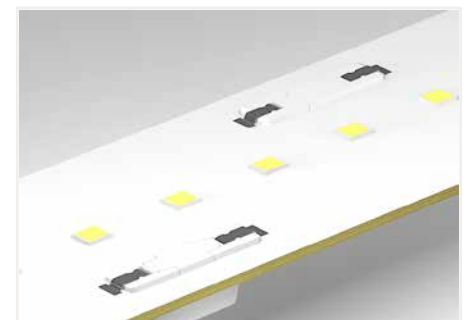
Dimensions (in mm):



Insert fine-stranded conductors and remove all conductor types via operating tool. Solid conductors can also be terminated by simply pushing them in.



Use an operating tool or simply "twist and pull" to remove solid conductors.



The variants with cover feature a center contact surface for easy pick-and-place assembly and minimum shadowing.

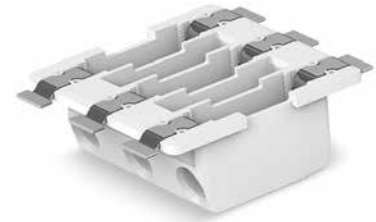
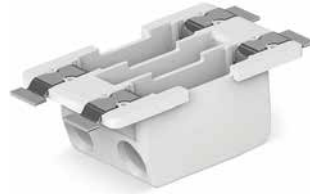
# Through-Board SMD PCB Terminal Block without Cover; in Tape-and-Reel Packaging; 0.75 mm<sup>2</sup>; Pin Spacing: 6.5 mm 2070 Series

Reel diameter: 330 mm

Reel diameter: 330 mm

Reel diameter: 330 mm

1

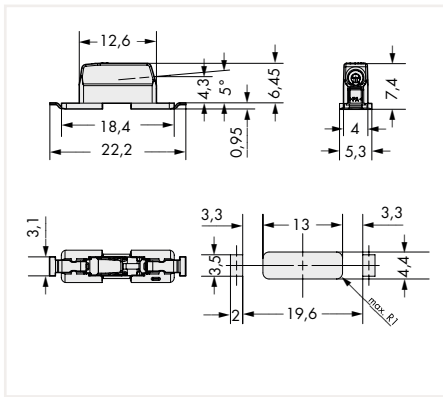


Pole No.	Item No.	Pack. Unit
1	2070-451/998-406	4770 (954)

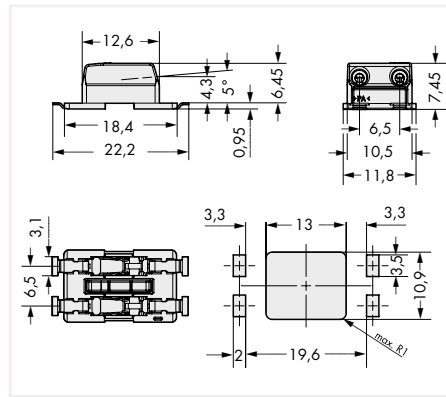
Pole No.	Item No.	Pack. Unit
2	2070-452/998-406	2385 (477)

Pole No.	Item No.	Pack. Unit
3	2070-453/998-406	1590 (318)

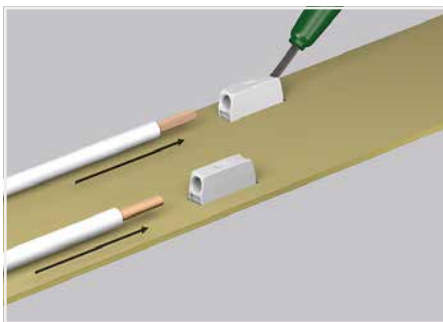
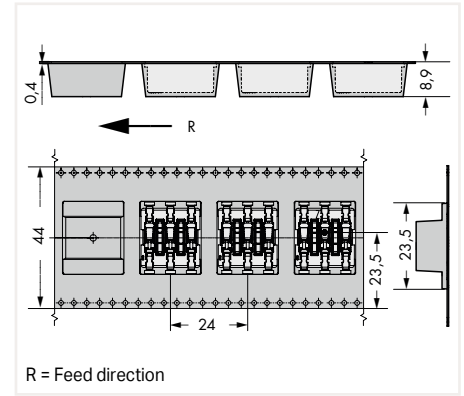
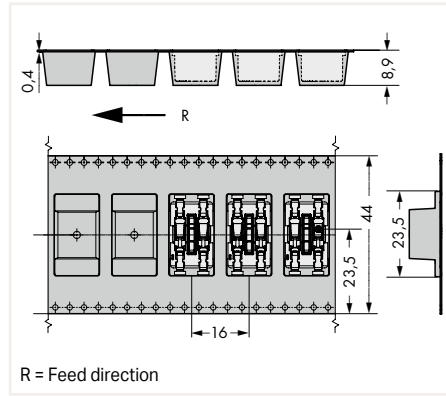
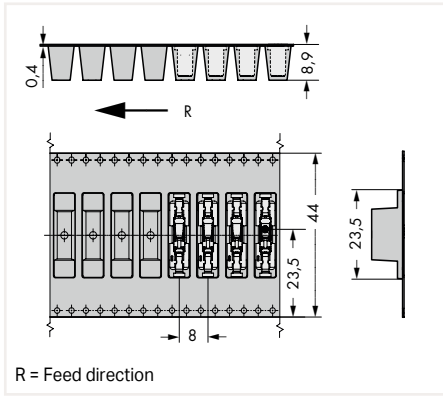
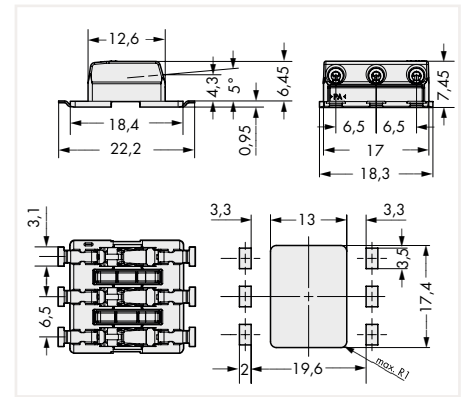
Dimensions (in mm):



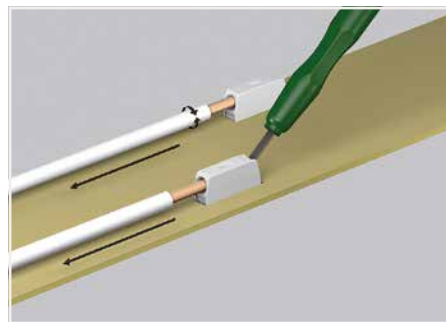
Dimensions (in mm):



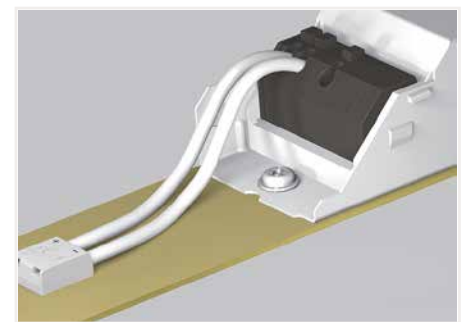
Dimensions (in mm):



Insert fine-stranded conductors and remove all conductor types via operating tool. Solid conductors can also be terminated by simply pushing them in.



Use an operating tool or simply "twist and pull" to remove solid conductors.



Shift wiring to the back of the LED module via 2070 Series SMD PCB Terminal Blocks.



# Through-Board SMD PCB Terminal Block with Cover and Marking; in Tape-and-Reel Packaging; 0.75 mm<sup>2</sup>; Pin Spacing: 6.5 mm 2070 Series

1

Marking (+); Reel diameter: 330 mm

Marking (+ -); Reel diameter: 330 mm

Marking (+ - plain); Reel diameter: 330 mm

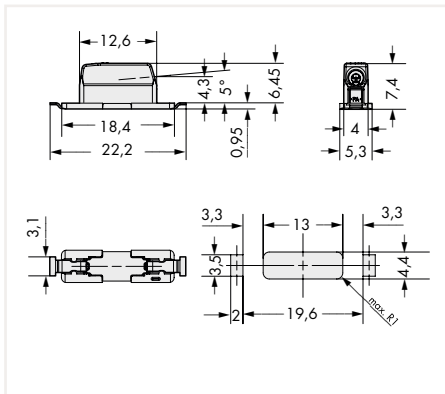


Pole No.	Item No.	Pack. Unit
1	2070-521/998-406	4770 (954)

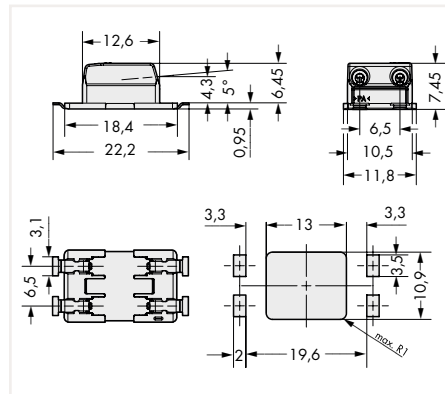
Pole No.	Item No.	Pack. Unit
2	2070-522/998-406	2385 (477)

Pole No.	Item No.	Pack. Unit
3	2070-523/998-406	1590 (318)

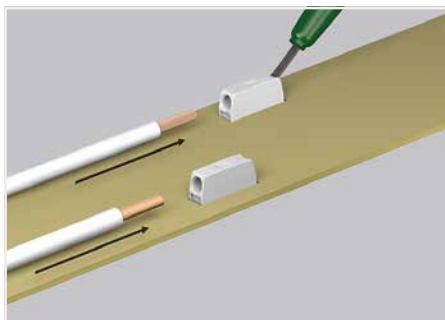
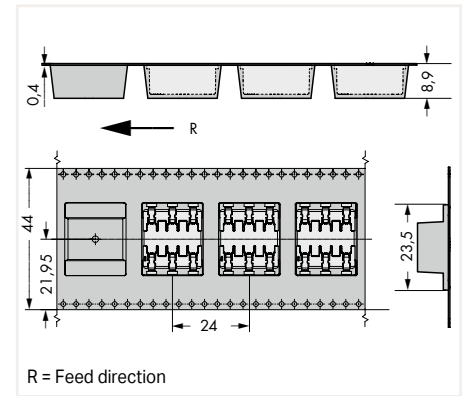
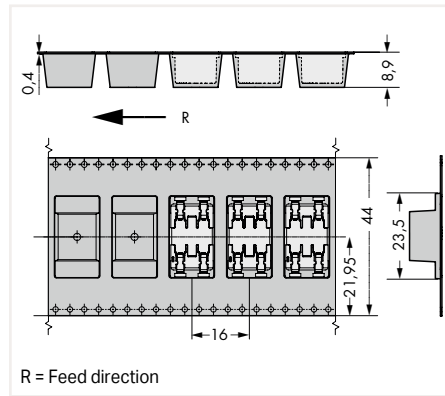
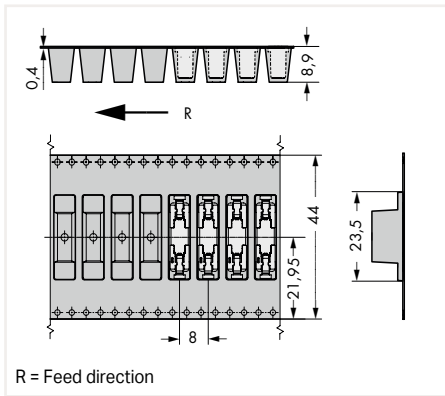
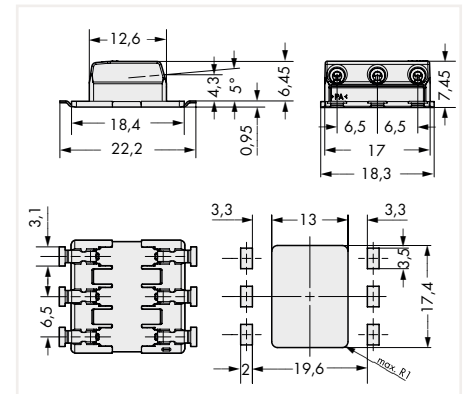
Dimensions (in mm):



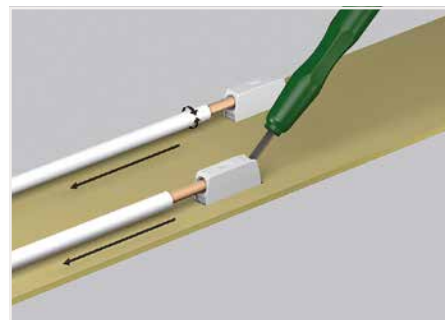
Dimensions (in mm):



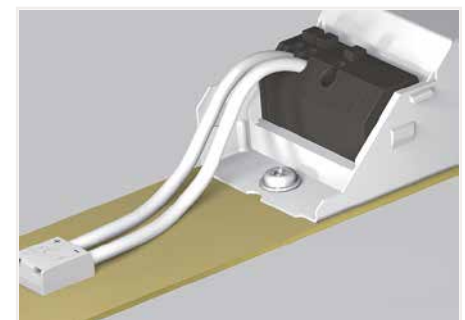
Dimensions (in mm):



Insert fine-stranded conductors and remove all conductor types via operating tool. Solid conductors can also be terminated by simply pushing them in.



Use an operating tool or simply "twist and pull" to remove solid conductors.



The printed variants offer unique pole marking on the back of the module.

# Through-Board SMD PCB Terminal Block with Cover and Marking; in Tape-and-Reel Packaging; 0.75 mm<sup>2</sup>; Pin Spacing: 6.5 mm 2070 Series

**PUSH-IN CAGE CLAMP®**

1

Marking (-); Reel diameter: 330 mm

Marking (- +); Reel diameter: 330 mm

Marking (plain +); Reel diameter: 330 mm

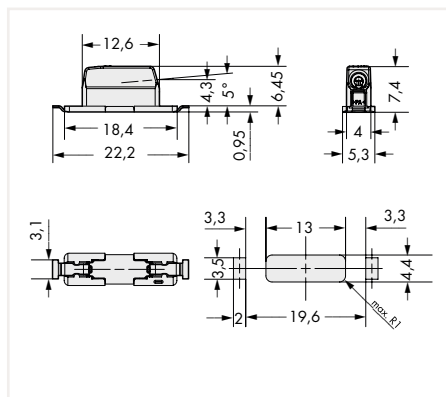


Pole No.	Item No.	Pack. Unit
1	2070-541/998-406	4770 (954)

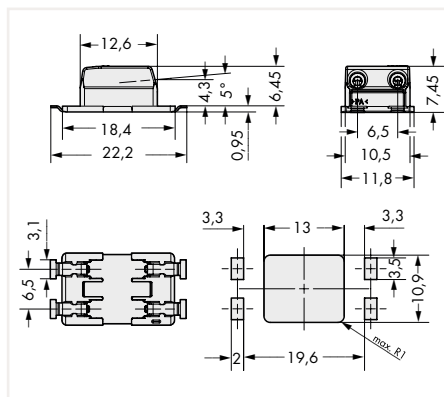
Pole No.	Item No.	Pack. Unit
2	2070-542/998-406	2385 (477)

Pole No.	Item No.	Pack. Unit
3	2070-543/998-406	1590 (318)

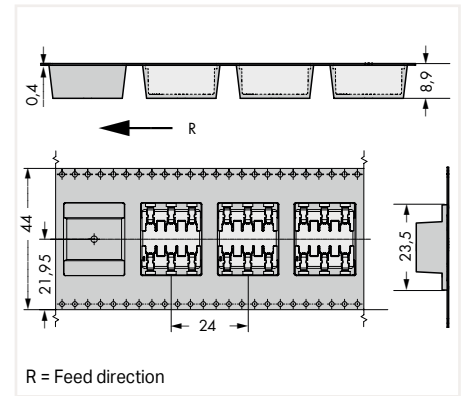
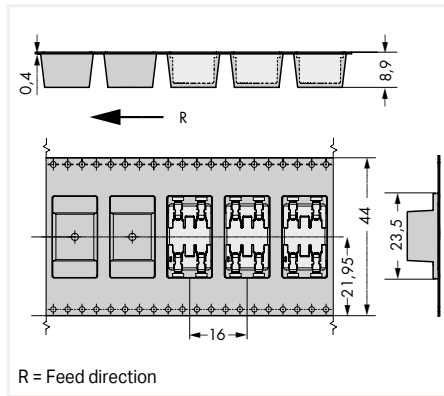
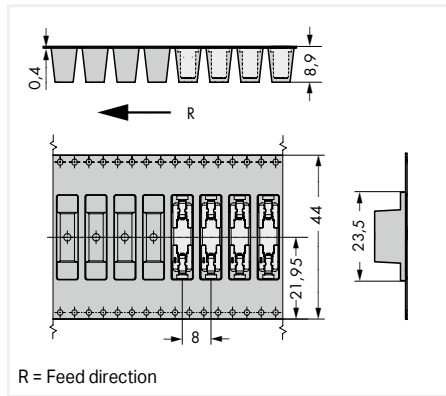
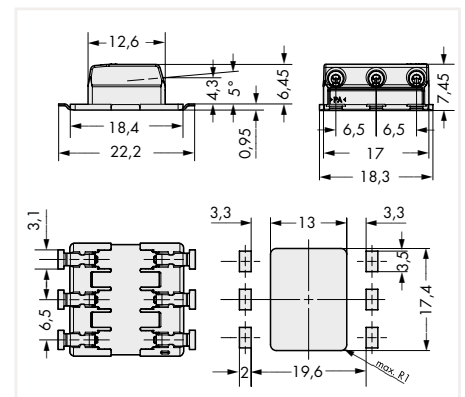
Dimensions (in mm):



Dimensions (in mm):



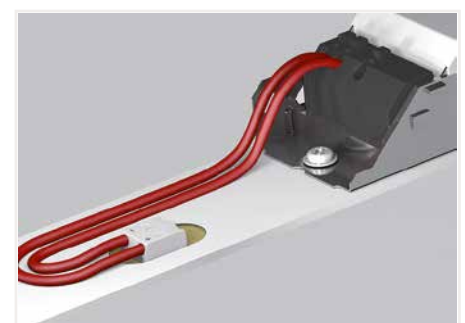
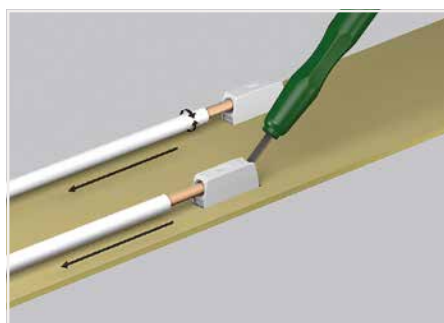
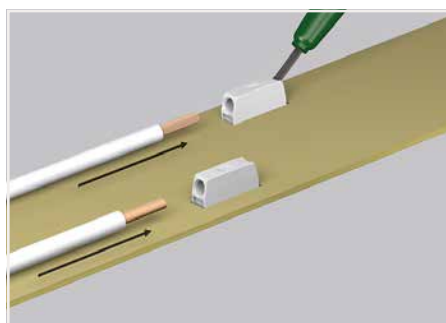
Dimensions (in mm):



R = Feed direction

R = Feed direction

R = Feed direction



Insert fine-stranded conductors and remove all conductor types via operating tool. Solid conductors can also be terminated by simply pushing them in.

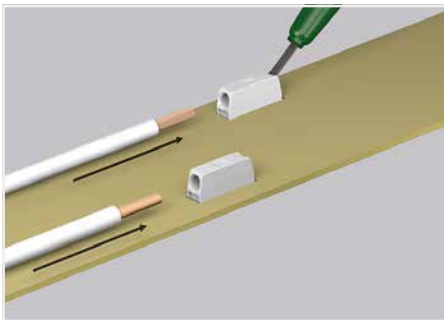
Use an operating tool or simply "twist and pull" to remove solid conductors.

The printed variants offer unique pole marking on the back of the module.

## Operating Tool 2070 Series



Item No.	Pack. Unit
2070-400	1



Insert fine-stranded conductors and remove all conductor types via operating tool. Solid conductors can also be terminated by simply pushing them in.

## Through-Board SMD PCB Terminal Block 2075 Series

1



- For vertical wiring
- Wiring performed on the back of the LED module simplifies lighting manufacturing
- Low installation height minimizes on-board LED shadowing
- Compact design provides uniform light distribution
- An economical alternative to wire soldering
- For manual and automated wiring systems

### Electrical Data

Pin spacing	3 mm / 0.118 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	200 V	–	500 V
Rated surge voltage	4 kV	–	4 kV
Rated current	9 A	9 A	9 A

### Connection Data

Connection technology	PUSH WIRE®
Strip length	3.65 mm / 0.14 inch
Conductor entry angle to the PCB	90°
Conductor range	
Solid conductor	0.5 ... 0.75 mm <sup>2</sup> / 20 ... 18 AWG

### Material Data

Limit temperature range	–60 ... +105 °C
Contact material	Electrolytic copper (Ecu)
Contact plating	Tin-plated

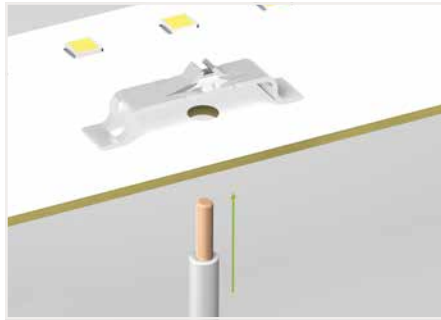
#### Note:

Terminal block without insulation housing!  
Protection against accidental contact must be provided at voltages higher than low voltages (e.g., SELV/PELV) for the relevant application.

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

# Through-Board SMD PCB Terminal Block in Tape-and-Reel Packaging; without Housing 2075 Series

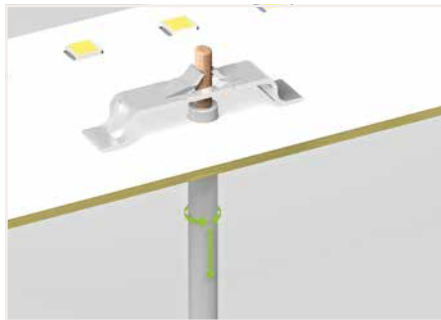
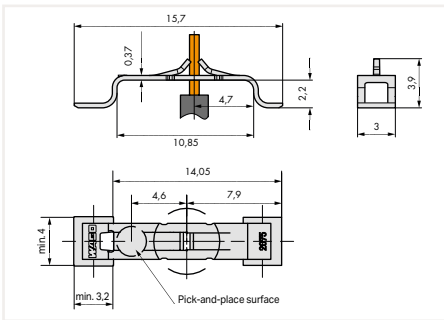
Reel diameter: 330 mm



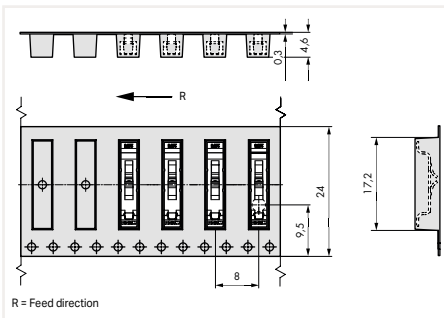
Push-in termination of solid conductors

Pole No.	Item No.	Pack. Unit
1	2075-381/997-404	18000 (2000)

Dimensions (in mm):

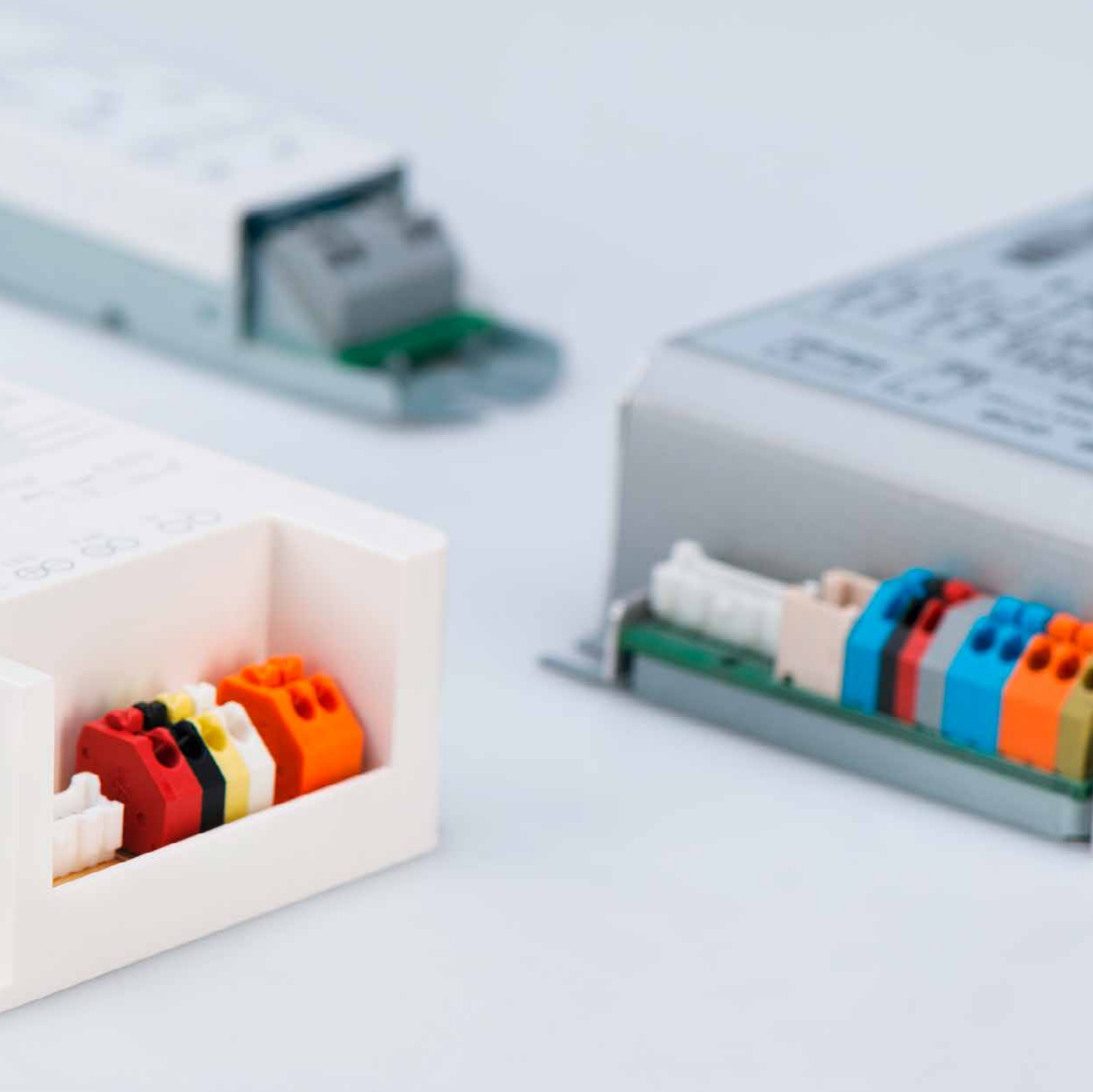


Simply twist and pull to remove conductors – no tools required.



R = Feed direction

1



## PCB Terminal Blocks for Drivers and Electronics



## PCB Terminal Blocks for Drivers and Electronics

		Nominal Cross-Sections	Series	Page
	THR PCB Terminal Block with Push-Buttons	0.75 mm <sup>2</sup>	2060	44
		1.5 mm <sup>2</sup>	2060	48
	PCB Terminal Strips with Push-Buttons and Push-in CAGE CLAMP® Connection	0.5 mm <sup>2</sup>	250	50
		1.5 mm <sup>2</sup>	250	54
			805	68
			235	78
		2.5 mm <sup>2</sup>	235	84
		804	74	
	THR Terminal Strips with Push-Buttons and Push-in CAGE CLAMP® Connection	0.5 mm <sup>2</sup>	250	56
		1.5 mm <sup>2</sup>	250	58
			805	72
	Double-Deck PCB Terminal Strips with Push-Buttons and Push-in CAGE CLAMP® Connection	1.5 mm <sup>2</sup>	250	62
	Combi PCB Terminal Blocks with PUSH WIRE® and IDC Connections		251	64
	Two-Conductor PCB Terminal Strips with PUSH WIRE® Connection	1.5 mm <sup>2</sup>	253	66
	PCB Terminal Blocks with Operating Slot and PUSH WIRE® Connection	1.5 mm <sup>2</sup>	744	76
	Modular PCB Terminal Blocks with Push-Buttons and Push-in CAGE CLAMP® Connection	1.5 mm <sup>2</sup>	235	78
		2.5 mm <sup>2</sup>	235	84
	PCB Terminal Strips with PUSH WIRE® Connection	2.5 mm <sup>2</sup>	235	86
	PCB Terminal Blocks with Push-Buttons and PUSH WIRE® Connection	1.5 mm <sup>2</sup>	735	88
	PCB Terminal Blocks with Levers and Push-in CAGE CLAMP® Connection	4 mm <sup>2</sup>	2604	92
	PCB Terminal Blocks with Push-in CAGE CLAMP® Connection	4 mm <sup>2</sup>	2624	96

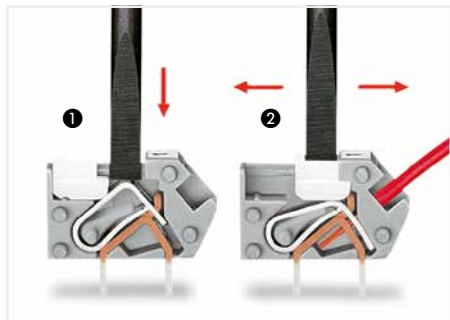
# PCB Terminal Blocks

## Description and Installation

### Product Overview by Pin Spacing

2

#### Actuation with Locking Slide/Push-Button/Lever



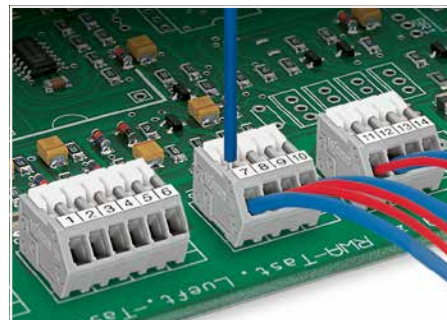
Conductor termination: **1** To momentarily open the clamping unit, use screwdriver and then insert a stripped conductor. **2** To open clamping unit for an extended period, move locking slide toward conductor entry hole. Then fully insert stripped conductor and move locking slide back to original position (also possible to perform with fingernail).

#### Actuation without Locking Slide/Push-Button/Lever

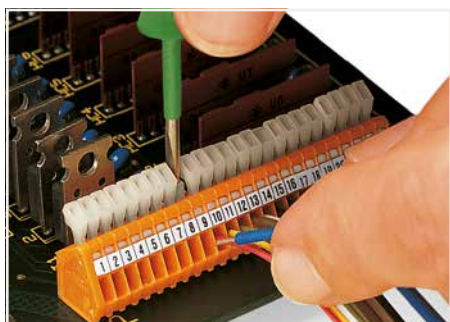


Inserting a conductor via operating tool (3.5 mm blade). Conductor entry and clamp operation are parallel.

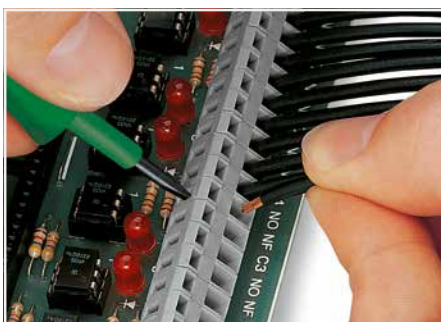
#### Testing



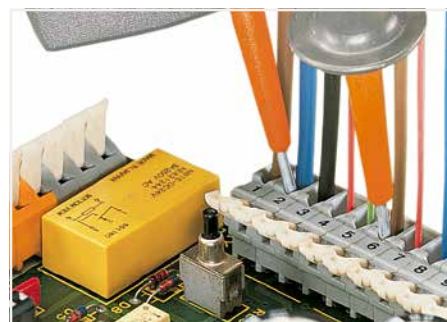
Inserting/removing a conductor.



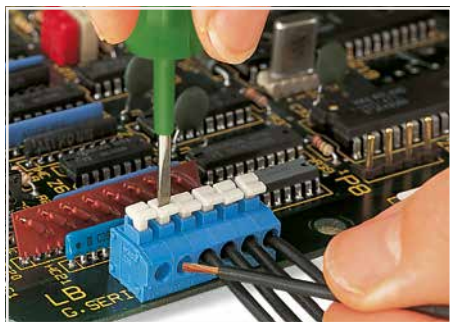
Inserting/removing a conductor.



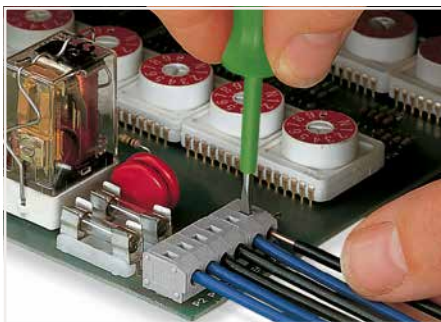
Inserting a conductor via operating tool (3.5 mm blade). Screwdriver actuation perpendicular to conductor entry



Testing with test probes.



Inserting/removing fine-stranded conductors via push-button.

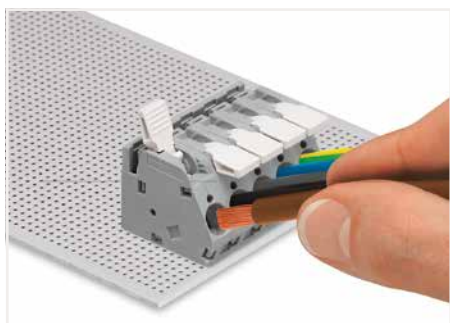


Removing a conductor without push-button.

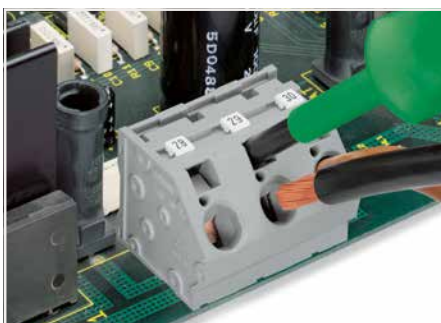


Inserting/removing a conductor (257 Series) via finger-operated lever.

For terminal strips with finger-operated levers, see Full Line Catalog.



Inserting/removing a conductor – 2706 and 2716 Series.



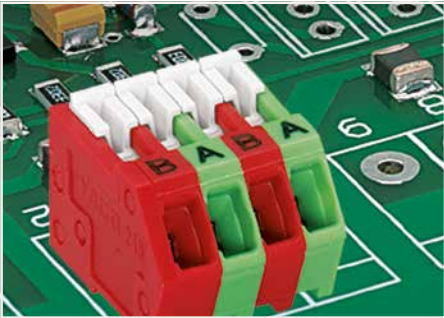
Inserting a conductor via operating tool (5.5 mm blade).



Testing with a 2 mm Ø test plug.



Marking



Factory direct marking

Commoning



Inserting a comb-style jumper bar.

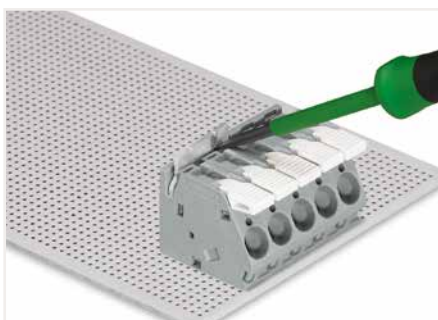
Specialty Functions



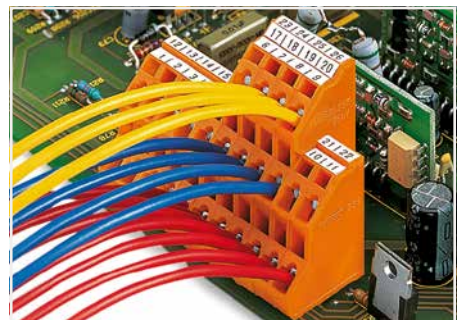
For terminal strips in other colors, please contact factory.



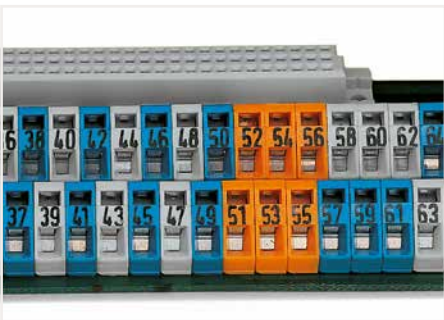
Marking via self-adhesive marking strips (above) or factory direct marking.



Push jumper bar down firmly using a screwdriver until it hits the backstop – 2706 and 2716 Series.



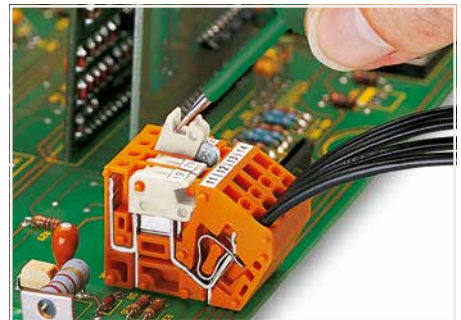
Space-saving triple-deck terminal strip



Mixed-color terminal strips with factory direct marking



Custom terminal strips are available upon request.



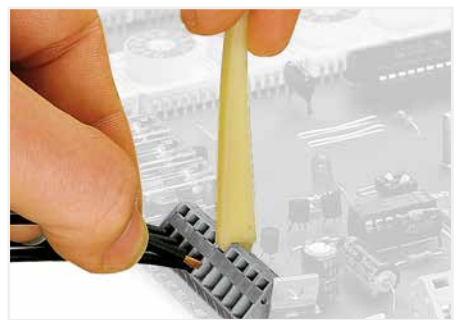
Opening a knife disconnect.



Marking via Mini-WSB and WMB markers or factory direct marking – 745 Series.



Horizontal commoning: Connection of adjacent terminals  
Note: Interruption of horizontal commoning reduces spacing to the adjacent solder pins.



Inserting a conductor via operating tool.





# PCB Terminal Blocks

## Product Overview by Pin Spacing

2

Colors available:

-  green-yellow
-  gray
-  dark gray
-  light gray
-  white
-  orange
-  light green
-  black
-  blue
-  red
-  yellow
-  brown
-  green
-  violet
-  pink

-  Ex II approval
-  Press-in technology
-  Through-hole reflow soldering
-  Surface-mount technology
-  Only available in this pin spacing

2.5 mm		2.54 mm		3.5 mm		3.81 mm	
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
233 Series, 2 ... 24 poles, 160 V / 6 A		233 Series, 2 ... 24 poles, 160 V / 6 A		739 Series, 2 ... 12 poles, 160 V / 17.5 A		739 Series, 2 ... 12 poles, 320 V / 17.5 A	
              		     	          	      			
0.08 ... 0.5 mm <sup>2</sup> / 28 ... 20 AWG		0.08 ... 0.5 mm <sup>2</sup> / 28 ... 20 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG	
233-102 600		233-402 600		739-302 560		739-332 520	
233-124 80		233-424 80		739-312 100		739-342 100	
233 Series, 2 ... 24 poles, 160 V / 6 A		233 Series, 2 ... 24 poles, 160 V / 6 A		805 Series, 2 ... 24 poles, 320 V / 17.5 A		235 Series, 2 ... 48 poles, 320 V / 17.5 A	
    		     		 		      	
0.08 ... 0.5 mm <sup>2</sup> / 28 ... 20 AWG		0.08 ... 0.5 mm <sup>2</sup> / 28 ... 20 AWG		0.2 ... 1.5 mm <sup>2</sup> / 24 ... 16 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG	
233-202 600		233-502 600		805-102 580		235-101 520	
233-224 80		233-524 80		805-124 40		235-148 20	
234 Series, 2 ... 24 poles, 160 V / 6 A		234 Series, 2 ... 24 poles, 160 V / 6 A		805 Series, 2 ... 8 poles, 320 V / 17.5 A		235 Series, 2 ... 48 poles, 320 V / 17.5 A	
     		 		 		 	
0.08 ... 0.5 mm <sup>2</sup> / 28 ... 20 AWG		0.08 ... 0.5 mm <sup>2</sup> / 28 ... 20 AWG		0.2 ... 1.5 mm <sup>2</sup> / 24 ... 16 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG "s"	
234-202 600		234-502 600		805-302/200-604 600		235-101/330-000 520	
234-224 80		234-524 80		805-308/200-604 160		235-148/330-000 20	
250 Series, 2 ... 24 poles, 160 V / 4 A		250 Series, 2 ... 24 poles, 160 V / 4 A		250 Series, 2 ... 24 poles, 160 V / 8 A		735 Series, 2 ... 7 poles, 320 V / 10 A	
     		     		     		     	
0.2 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG		0.2 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG		0.2 ... 1.5 mm <sup>2</sup> / 24 ... 16 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG "s"	
250-402 720		250-1402 720		250-102 560		735-122 660	
250-424 60		250-1424 60		250-124 40		735-127 180	
250 Series, 2 ... 8 poles, 160 V / 4 A		250 Series, 2 ... 8 poles, 160 V / 4 A		250 Series, 2 ... 8 poles, 320 V / 8 A			
     		     		     		     	
0.2 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG		0.2 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG		0.2 ... 1.5 mm <sup>2</sup> / 24 ... 16 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG "s"	
250-402/350-604 720				250-202/353-604 560			
250-408/350-604 220				250-208/353-604 160			
218 Series, 2 ... 24 poles, 160 V / 6 A		218 Series, 2 ... 24 poles, 160 V / 6 A		739 Series, 3 ... 12 poles, 160 V / 4 A		739 Series, 3 ... 12 poles, 160 V / 4 A	
     		     		 		 	
0.08 ... 0.5 mm <sup>2</sup> / 28 ... 20 AWG		0.08 ... 0.5 mm <sup>2</sup> / 28 ... 20 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG	
218-102 1000		218-502 1000		739-303/100-000 400		739-333/100-000 360	
218-124 60		218-524 60		739-312/100-000 100		739-342/100-000 100	
218 Series, 2 ... 7 poles, 160 V / 6 A		218 Series, 2 ... 7 poles, 160 V / 6 A		744 Series, 2 ... 10 poles, 320 V / 2 A			
     		     		 		 	
0.08 ... 0.5 mm <sup>2</sup> / 28 ... 20 AWG		0.08 ... 0.5 mm <sup>2</sup> / 28 ... 20 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG "s"			
218-102/000-604 1000		218-502/000-604 1000		744-292 1000			
218-107/000-604 240		218-507/000-604 240		744-210 200			
				251 Series, 2 ... 7 poles, 320 V / 2 A (6 A)			
				  			
				0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG "s"			
				251-102 600			
				251-107 180			



# PCB Terminal Blocks

## Product Overview by Pin Spacing

5 mm				5.08 mm			
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
236 Series, 2 ... 48 poles, 320 V / 24 A		236 Series, 2 ... 6 poles, 320 V / 24 A		742 Series, 1 ... 3 conductors, 320 V / 16 A		236 Series, 2 ... 48 poles, 320 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
236-101 420		236-402/334-604 420		742-101 384		236-101 420	742-106 384
236-148 20		236-406/334-604 140		742-153 100		236-148 20	742-158 100
736 Series, 2 x 2 ... 24 x 2 poles, 320 V / 21 A		740 Series, 2 ... 24 poles, 320 V / 16 A		742 Series, 1 conductor/2 conductors, 320 V / 16 A		736 Series, 2 x 2 ... 24 x 2 poles, 320 V / 21 A	742 Series, 1 conductor/2 conductors, 320 V / 16 A
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG
736-102 161		740-102 460		742-121 300		736-302 161	742-126 300
736-124 14		740-124 40		742-178 200		736-324 14	742-176 200
737 Series, 2 x 3 ... 24 x 3 poles, 320 V / 21 A		253 Series, 2 ... 16 poles, 320 V / 17.5 A		742 Series, 1 ... 3 conductors, 320 V / 15 A		737 Series, 2 x 3 ... 24 x 3 poles, 320 V / 21 A	742 Series, 1 ... 3 conductors, 320 V / 15 A
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG "s"		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG
737-102 92		253-102 400		742-111 300		737-302 92	742-116 300
737-124 8		253-116 40		742-163 100		737-324 8	742-168 100
738 Series, 2 x 4 ... 24 x 4 poles, 320 V / 18 A		250 Series, 2 ... 16 poles, 320 V / 17.5 A		741 Series, 2 ... 16 poles, 320 V / 16 A		738 Series, 2 x 4 ... 24 x 4 poles, 320 V / 18 A	741 Series, 2 ... 16 poles, 320 V / 16 A
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG
738-102 72		250-502 400		741-102 400		738-302 72	741-202 400
738-124 6		250-516 40		741-116 40		738-324 6	741-216 40
255 Series, 2 ... 48 poles, 320 V / 24 A		250 Series, 2 ... 24 poles, 320 V / 10 A		735 Series, 2 ... 7 poles, 320 V / 10 A		255 Series, 2 ... 48 poles, 320 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG "s"		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
255-401 400		250-702 264		735-302 500		255-401 400	
255-448 20		250-724 24		735-307 140		255-448 20	
256 Series, 2 ... 48 poles, 320 V / 24 A		816 Series, 2 ... 12 poles, 320 V / 14 A		235 Series, 2 ... 48 poles, 320 V / 24 A		256 Series, 2 ... 48 poles, 320 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		2 x 0.2 ... 1.5 mm <sup>2</sup> / 2 x 24 ... 16 AWG		0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG "s"		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG "s"
256-401 400		816-102 400		235-402 421		256-401 400	235-401 420
256-448 20		816-112 60		235-448 20		256-448 20	235-448 20
257 Series, 2 ... 48 poles, 320 V / 24 A		254 Series, 2 ... 48 poles, 320 V / 24 A		745 Series, 2 ... 12 poles, 320 V / 32 A		257 Series, 2 ... 48 poles, 320 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 2.5 mm <sup>2</sup> / 20 ... 12 AWG "s"		0.08 ... 4 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	0.5 ... 2.5 mm <sup>2</sup> / 20 ... 12 AWG "s"
257-401 400		254-451 420		745-3102 276		257-401 400	254-451 420
257-448 20		254-498 20		745-3112 48		257-448 20	254-498 20
739 Series, 2 ... 24 poles, 320 V / 24 A		804 Series, 2 ... 16 poles, 320 V / 24 A		745 Series, 2 ... 12 poles, 320 V / 32 A		739 Series, 2 ... 24 poles, 320 V / 24 A	739 Series, 3 ... 12 poles, 320 V / 8 A
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.25 ... 2.5 mm <sup>2</sup> / 20 ... 12 AWG		0.08 ... 4 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG
739-102 400		804-102 420		745-102 230		739-152 400	739-153/100-000 360
739-124 20		804-116 60		745-112 40		739-174 20	739-162/100-000 100

2

# PCB Terminal Blocks

## Product Overview by Pin Spacing

2

7.5 mm				7.62 mm			
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
236 Series, 2 ... 24 poles, 630 V / 24 A		235 Series, 2 ... 24 poles, 630 V / 17.5 A		745 Series, 2 ... 12 poles, 630 V / 32 A		236 Series, 2 ... 24 poles, 630 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 14 AWG		0.08 ... 4 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
236-201 280		235-501/331-000 280		745-3152 228		236-201 280	
236-224 20		235-524/331-000 20		745-3162 36		236-224 20	
736 Series, 2 x 2 ... 16 x 2 poles, 630 V / 21 A		235 Series, 2 ... 24 poles, 630 V / 24 A		745 Series, 2 ... 12 poles, 630 V / 32 A		736 Series, 2 x 2 ... 16 x 2 poles, 630 V / 21 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG "s"		0.08 ... 4 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
736-502 133		235-501 280		745-152 180		736-602 133	
736-516 14		235-524 20		745-162 30		736-616 14	
737 Series, 2 x 3 ... 16 x 3 poles, 630 V / 21 A		254 Series, 2 ... 24 poles, 630 V / 24 A		745 Series, 2 ... 12 poles, 630 V / 41 A		737 Series, 2 x 3 ... 16 x 3 poles, 630 V / 21 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 2.5 mm <sup>2</sup> / 20 ... 12 AWG "s"		0.2 ... 6 mm <sup>2</sup> / 24 ... 10 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
737-502 76		254-551 280		745-302 128		737-602 76	
737-516 8		254-574 20		745-312 16		737-616 8	
255 Series, 2 ... 24 poles, 630 V / 24 A		741 Series, 2 ... 10 poles, 630 V / 16 A		2706 Series, 2 ... 12 poles, 630 V / 41 A		255 Series, 2 ... 24 poles, 630 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 6 mm <sup>2</sup> / 20 ... 10 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
255-501 280		741-302 340		2706-102 85		255-501 280	
255-524 20		741-310 60		2706-112 15		255-524 20	
256 Series, 2 ... 24 poles, 320 V / 24 A		250 Series, 2 ... 12 poles, 630 V / 17.5 A		2706 Series, 2 ... 12 poles, 630 V / 41 A		256 Series, 2 ... 24 poles, 320 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG		0.5 ... 6 mm <sup>2</sup> / 20 ... 10 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
256-501 280		250-602 340		2706-152 85		256-501 280	
256-524 20		250-612 40		2706-162 15		256-524 20	
257 Series, 2 ... 24 poles, 630 V / 24 A		804 Series, 2 ... 12 poles, 320 V / 24 A		746 Series, 2 ... 12 poles, 1000 V / 50 A		257 Series, 2 ... 24 poles, 630 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.25 ... 2.5 mm <sup>2</sup> / 20 ... 12 AWG		2 x 0.5 ... 10 mm <sup>2</sup> / 2 x 20 ... 8 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
257-501 280		804-302 340		746-2302 60		257-501 280	
257-524 20		804-312 40		746-2312 16		257-524 20	
739 Series, 2 ... 12 poles, 630 V / 24 A						739 Series, 2 ... 12 poles, 630 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG						0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
739-202 340						739-232 340	
739-212 40						739-242 40	
739 Series, 3 ... 12 poles, 630 V / 8 A						739 Series, 3 ... 12 poles, 630 V / 8 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG						0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
739-203/100-000 220						739-233/100-000 220	
739-212/100-000 40						739-242/100-000 40	



# PCB Terminal Blocks

## Product Overview by Pin Spacing





















10 mm				10.16 mm			
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
236 Series, 2 ... 24 poles, 1000 V / 10 A		235 Series, 2 ... 24 poles, 1000 V / 17.5 A		745 Series, 2 ... 12 poles, 1000 V / 32 A		236 Series, 2 ... 24 poles, 1000 V / 10 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 1.5 mm <sup>2</sup> / 20 ... 14 AWG		0.08 ... 4 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
236-301 200		235-801/331-000 220		745-202 160		236-301 200	
236-324 20		235-824/331-000 20		745-212 20		236-324 20	
736 Series, 2 x 2 ... 12 x 2 poles, 1000 V / 21 A		235 Series, 2 ... 24 poles, 1000 V / 24 A		745 Series, 2 ... 12 poles, 1000 V / 41 A		736 Series, 2 x 2 ... 12 x 2 poles, 1000 V / 21 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG "s"		0.2 ... 6 mm <sup>2</sup> / 24 ... 10 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
736-702 112		235-801 220		745-352 104		736-802 112	
736-712 14		235-824 20		745-362 16		736-812 14	
737 Series, 2 x 3 ... 12 x 3 poles, 1000 V / 21 A		254 Series, 2 ... 24 poles, 1000 V / 24 A		745 Series, 2 ... 12 poles, 1000 V / 41 A		737 Series, 2 x 3 ... 12 x 3 poles, 1000 V / 21 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.5 ... 2.5 mm <sup>2</sup> / 20 ... 12 AWG "s"		0.2 ... 6 mm <sup>2</sup> / 24 ... 10 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
737-702 64		254-651 280		745-1352 104		737-802 64	
737-712 8		254-674 20		745-1362 16		737-812 8	
255 Series, 2 ... 24 poles, 1000 V / 24 A		741 Series, 2 ... 8 poles, 1000 V / 16 A		745 Series, 2 ... 5 poles, 320 V / 76 A		255 Series, 2 ... 24 poles, 1000 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG		0.2 ... 16 mm <sup>2</sup> / 24 ... 6 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
255-601 200		741-502 280		745-502/006-000 48		255-601 200	
255-624 20		741-508 60		745-505/006-000 20		255-624 20	
256 Series, 2 ... 24 poles, 630 V / 24 A				2706 Series, 2 ... 12 poles, 1000 V / 41 A		256 Series, 2 ... 24 poles, 630 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG				0.5 ... 6 mm <sup>2</sup> / 20 ... 10 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
256-601 200				2706-202 70		256-601 200	
256-624 20				2706-212 10		256-624 20	
257 Series, 2 ... 24 poles, 1000 V / 24 A				2706 Series, 2 ... 12 poles, 1000 V / 41 A		257 Series, 2 ... 24 poles, 1000 V / 24 A	
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG				0.5 ... 6 mm <sup>2</sup> / 20 ... 10 AWG		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
257-601 200				2706-252 70		257-601 200	
257-624 20				2706-262 10		257-624 20	
739 Series, 2 ... 12 poles, 630 V / 24 A				2716 Series, 2 ... 8 poles, 320 V / 75 A			
0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG				1.5 ... 16 mm <sup>2</sup> / 16 ... 6 AWG			
739-3202 280				2716-102 65			
739-3212 40				2716-108 15			
745 Series, 2 ... 12 poles, 1000 V / 32 A				2716 Series, 2 ... 8 poles, 1000 V / 76 A			
0.08 ... 4 mm <sup>2</sup> / 28 ... 12 AWG				1.5 ... 16 mm <sup>2</sup> / 16 ... 6 AWG			
745-3202 192				2716-152 52			
745-3212 24				2716-158 12			

2

# PCB Terminal Blocks

## Product Overview by Pin Spacing; Pluggable PCB Terminal Block; Jumper

2

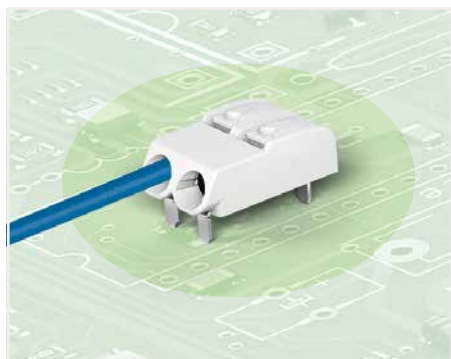
12.5 mm		15 mm		20 mm		Pluggable PCB Terminal Block		Jumper	
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
745 Series, 2 ... 12 poles, 1000 V / 32 A	 168	745 Series, 2 ... 12 poles, 1000 V / 41 A	 64	745 Series, 2 ... 5 poles, 1000 V / 76 A	 32	252 Series, 2 ... 10 poles, 320 V / 2 A	 600	Comb-style jumper bar; 5 mm pin spacing; for 745 Series - 4 mm <sup>2</sup>	 250
0.08 ... 4 mm <sup>2</sup> / 28 ... 12 AWG	745-3252	0.2 ... 6 mm <sup>2</sup> / 24 ... 10 AWG	745-1452	0.2 ... 16 mm <sup>2</sup> / 24 ... 6 AWG	745-652/006-000	2 x 0.4 ... 0.8 mm Ø / 2 x 26 ... 20 AWG "s"	252-102	745-181	
	745-3262		745-1462		745-655/006-000		252-110	745-185	
745 Series, 2 ... 12 poles, 1000 V / 41 A	 12	745 Series, 2 ... 5 poles, 1000 V / 76 A	 8			252 Series, 2 ... 10 poles, 320 V / 2 A	 150	Comb-style jumper bar; 7.5 mm pin spacing; for 745 Series - 4 mm <sup>2</sup>	 200
0.2 ... 6 mm <sup>2</sup> / 24 ... 10 AWG	745-1402	0.2 ... 16 mm <sup>2</sup> / 24 ... 6 AWG	745-602/006-000			2 x 0.4 ... 0.8 mm Ø / 2 x 26 ... 20 AWG "s"	252-152	745-191	
	745-1412		745-605/006-000				252-160	745-195	
2706 Series, 2 ... 12 poles, 1000 V / 41 A	 65	2716 Series, 2 ... 8 poles, 1000 V / 76 A	 50			243 Series, 2 ... 8 poles, 320 V / 6 A	 50	Comb-style jumper bar; 10 mm pin spacing; for 745 Series - 4 mm <sup>2</sup>	 250
0.5 ... 6 mm <sup>2</sup> / 20 ... 10 AWG	2706-302	1.5 ... 16 mm <sup>2</sup> / 16 ... 6 AWG	2716-202			4 x 0.4 ... 1.0 mm Ø / 4 x 24 ... 18 AWG	243-742	745-281	
	2706-312		2716-208				243-748	745-285	
		2716 Series, 2 ... 8 poles, 1000 V / 76 A	 40			806 Series, 2 ... 12 poles, 320 V / 10 A	 400	Comb-style jumper bar; 7.5 mm pin spacing; for 745 Series and 2706 Series - 6 mm <sup>2</sup>	 250
		1.5 ... 16 mm <sup>2</sup> / 16 ... 6 AWG	2716-252			2 x 0.2 ... 1.5 mm / 2 x 24 ... 16 AWG	806-102	745-381	
			2716-258				806-112	745-385	
								Comb-style jumper bar; 10 mm pin spacing; for 745 Series and 2706 Series - 6 mm <sup>2</sup>	 250
								745-391	250
								745-395	200
								Comb-style jumper bar; 10 mm pin spacing; for 745 Series and 2716 Series - 16 mm <sup>2</sup>	 200
								745-582	400
								745-585	200
								Comb-style jumper bar; 15 mm pin spacing; for 745 Series and 2716 Series - 16 mm <sup>2</sup>	 200
								745-631	200
								745-635	200
								Comb-style jumper bar; 20 mm pin spacing; for 745 Series and 2716 Series - 16 mm <sup>2</sup>	 200
								745-681	300
								745-685	200

2

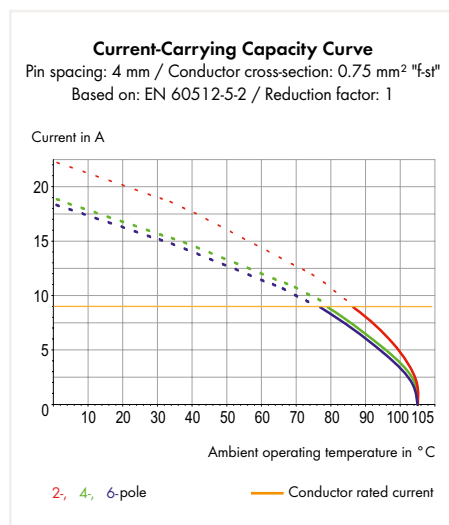
## THR PCB Terminal Block with Push-Buttons; 0.75 mm<sup>2</sup>

Pin Spacing: 4 mm

2060 Series



- THR PCB terminal blocks with Push-in CAGE CLAMP® connection technology and push-buttons
- Push-in termination of solid and ferruled conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Just 4.5 mm tall
- Available in tape-and-reel packaging for automated assembly
- Also suitable for wave soldering



Electrical Data	1-pole			2-/3-pole		
Pin spacing	4 mm / 0.157 inch			4 mm / 0.157 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overtoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	63 V	160 V	320 V	63 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Rated current	9 A	9 A	9 A	9 A	9 A	9 A
Approvals per	UL 1977			UL 1977		
Rated voltage	600 V			320 V		
Rated current	9 A			9 A		

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	6 ... 7 mm <sup>2</sup> / 0.24 ... 0.28 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG
Fine-stranded conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 0.34 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 0.34 mm <sup>2</sup>

Solder Pin Data	
Solder pin length	2.4 mm
Solder pin dimensions	1.2 x 0.75 mm
Plated through-hole diameter	1.5 <sup>+1.0</sup> mm

Material Data	
Material group	I
Insulating material	Polyphthalamide (PPA GF)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated

### Application notes:

Suitable for lead-free, reflow-soldering profiles per DIN EN 61760-1 and IEC 60068-2-58 up to max. 260°C peak temperature. Due to customer-specific variables (e.g., component configuration and orientation, type of soldering machine, solder paste), trial runs are recommended to ensure product and process compatibility under actual manufacturing conditions.

### Recommendation for stencil:

150 µm material thickness

The stencil hole diameter is identical to the outer diameter of the metal-plated PCB hole.

\*(III / 2) ≙ Overtoltage category III / Pollution degree 2

# THR PCB Terminal Block with Push-Buttons; in Tape-and-Reel Packaging; 0.75 mm<sup>2</sup>; Pin Spacing: 4 mm 2060 Series

2 solder pins/pole; White\*; Reel diameter: 330 mm

2 solder pins/pole; Black; Reel diameter: 330 mm



Push-in termination of solid conductors

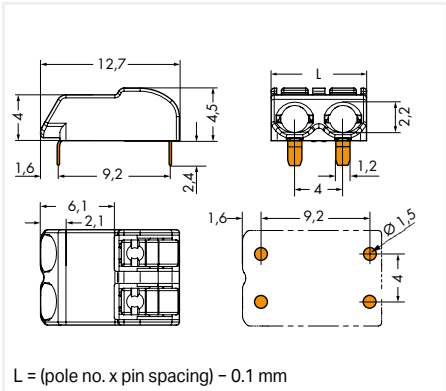
2

Pole No.	Item No.	Pack. Unit
1	2060-1451/998-404	10800 (1200)
2	2060-1452/998-404	6750 (750)
3	2060-1453/998-404	4950 (550)

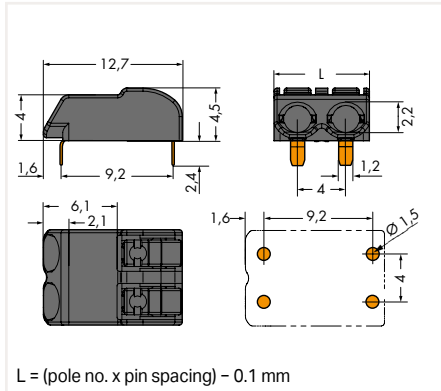
Pole No.	Item No.	Pack. Unit
1	2060-1471/998-404	10800 (1200)
2	2060-1472/998-404	6750 (750)
3	2060-1473/998-404	4950 (550)

\*Depending on reflow soldering temperatures and times, color deviations may occur. These deviations will have no impact on functionality.

Dimensions (in mm):

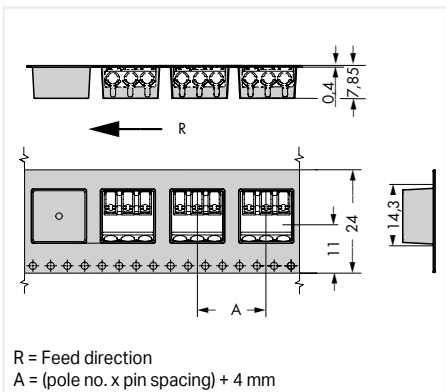


Dimensions (in mm):

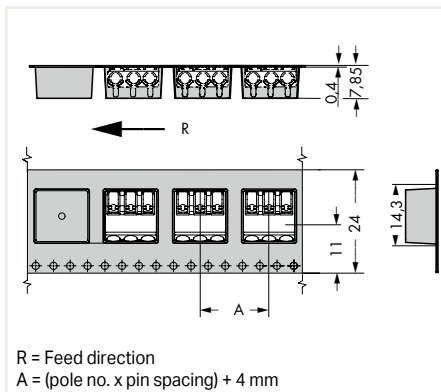


Inserting/removing fine-stranded conductors by lightly pressing on a push-button (e.g. via 206-860 Operating Tool).

Dimensions (in mm):



Dimensions (in mm):



Available in tape-and-reel packaging for automated assembly

## THR PCB Terminal Block with Push-Buttons; 0.75 mm<sup>2</sup>

### Pin Spacing: 8 mm

### 2060 Series



- THR PCB terminal blocks with Push-in CAGE CLAMP® connection technology and push-buttons
- Push-in termination of solid and ferruled conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Just 4.5 mm tall
- Available in tape-and-reel packaging for automated assembly
- Also suitable for wave soldering

#### Electrical Data

Pin spacing	8 mm / 0.314 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	630 V	1000 V
Rated surge voltage	6 kV	6 kV	6 kV
Rated current	9 A	9 A	9 A
Approvals per	UL 1977		
Rated voltage	600 V		
Rated current	9 A		

#### Connection Data

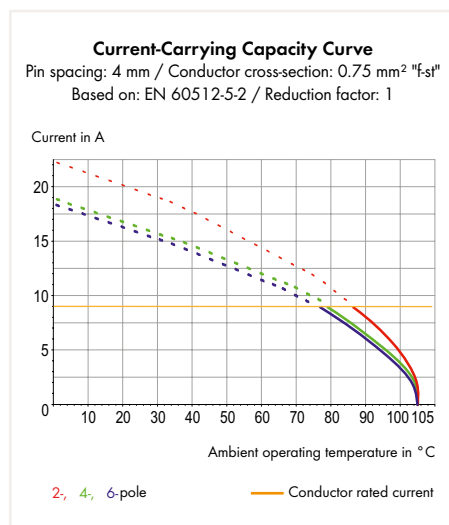
Connection technology	Push-in CAGE CLAMP®
Strip length	6 ... 7 mm <sup>2</sup> / 0.24 ... 0.28 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG
Fine-stranded conductor	0.2 ... 0.75 mm <sup>2</sup> / 24 ... 18 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 0.34 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 0.34 mm <sup>2</sup>

#### Solder Pin Data

Solder pin length	2.4 mm
Solder pin dimensions	1.2 x 0.75 mm
Plated through-hole diameter	1.5 <sup>+1.0</sup> mm

#### Material Data

Material group	I
Insulating material	Polyphthalamide (PPA GF)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated



#### Application notes:

Suitable for lead-free, reflow-soldering profiles per DIN EN 61760-1 and IEC 60068-2-58 up to max. 260°C peak temperature. Due to customer-specific variables (e.g., component configuration and orientation, type of soldering machine, solder paste), trial runs are recommended to ensure product and process compatibility under actual manufacturing conditions.

#### Recommendation for stencil:

150 µm material thickness

The stencil hole diameter is identical to the outer diameter of the metal-plated PCB hole.

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2



**PUSH-IN CAGE CLAMP®**

# THR PCB Terminal Block with Push-Buttons; in Tape-and-Reel Packaging; 0.75 mm<sup>2</sup>; Pin Spacing: 8 mm 2060 Series

2 solder pins/pole; White\*; Reel diameter: 330 mm

2 solder pins/pole; Black; Reel diameter: 330 mm



Inserting solid conductors via push-in termination (picture shows 2060 Series).

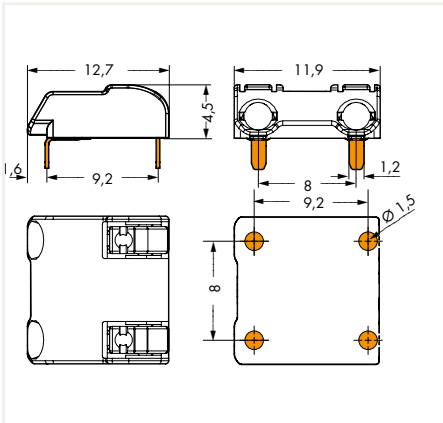
2

Pole No.	Item No.	Pack. Unit
2	2060-1852/998-404	4950 (550)

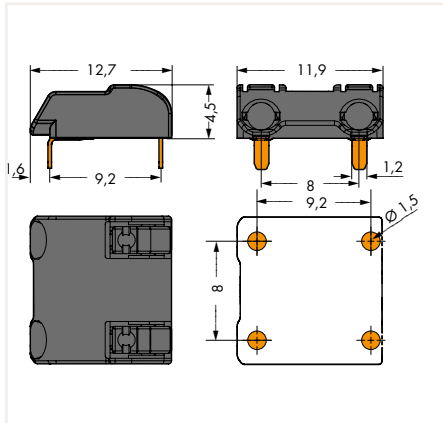
Pole No.	Item No.	Pack. Unit
2	2060-1872/998-404	4950 (550)

\*Depending on reflow soldering temperatures and times, color deviations may occur. These deviations will have no impact on functionality.

Dimensions (in mm):

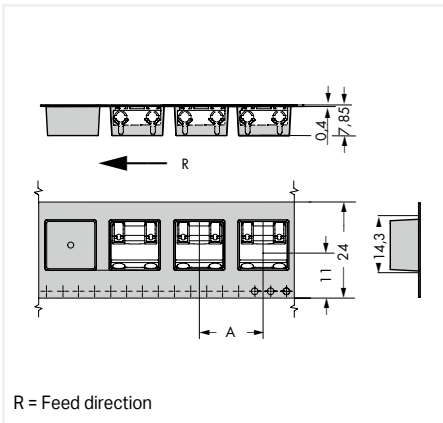


Dimensions (in mm):

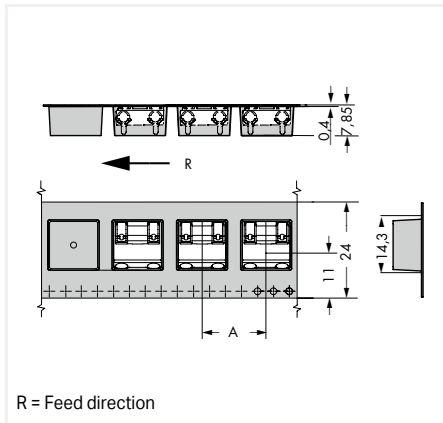


Inserting/removing fine-stranded conductors by lightly pressing on a push-button (e.g., via 206-860 Operating Tool).

Dimensions (in mm):



Dimensions (in mm):

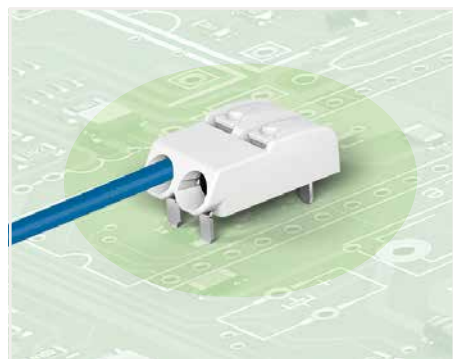


Available in tape-and-reel packaging for automated assembly

## THR PCB Terminal Block with Push-Buttons; 1.5 mm<sup>2</sup>

### Pin Spacing: 6 mm

### 2061 Series



- THR PCB terminal blocks with Push-in CAGE CLAMP® connection technology and push-buttons
- Push-in termination of solid and ferruled conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Just 5.6 mm tall
- Available in tape-and-reel packaging for automated assembly
- Also suitable for wave soldering
- Assemble terminal blocks without pole loss

Electrical Data	1-pole			2-/3-pole		
Pin spacing	6 mm / 0.157 inch			6 mm / 0.157 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Rated current	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A

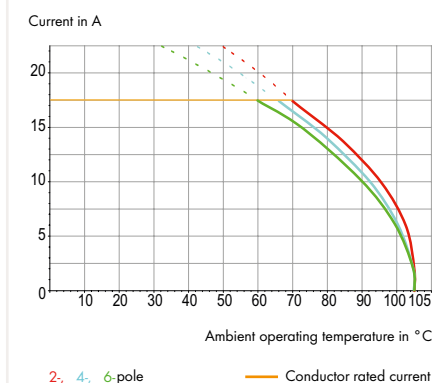
Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	7 ... 10 mm <sup>2</sup> / 0.28 ... 0.39 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Fine-stranded conductor	0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.5 ... 0.75 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.5 ... 0.75 mm <sup>2</sup>

Solder Pin Data	
Solder pin length	2.4 mm
Solder pin dimensions	1.2 x 0.75 mm
Plated through-hole diameter	1.5 <sup>+1.0</sup> mm

Solder Pin Data	
Solder pin length	1.5 mm
Solder pin dimensions	1.2 x 0.75 mm
Plated through-hole diameter	1.5 <sup>+1.0</sup> mm

Material Data	
Material group	I
Insulating material	Polyphthalamide (PPA GF)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated

**Current-Carrying Capacity Curve**  
Pin spacing: 6 mm / Conductor cross-section: 1.5 mm<sup>2</sup> "s"  
Based on: EN 60512-5-2 / Reduction factor: 1



#### Application notes:

Suitable for lead-free, reflow-soldering profiles per DIN EN 61760-1 and IEC 60068-2-58 up to max. 260°C peak temperature. Due to customer-specific variables (e.g., component configuration and orientation, type of soldering machine, solder paste), trial runs are recommended to ensure product and process compatibility under actual manufacturing conditions.

#### Recommendation for stencil:

150 µm material thickness

The stencil hole diameter is identical to the outer diameter of the metal-plated PCB hole.

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

# THR PCB Terminal Block with Push-Buttons; in Tape-and-Reel Packaging; 1.5 mm<sup>2</sup>; Pin Spacing: 6 mm 2061 Series

2 solder pins/pole; White\*; Reel diameter: 330 mm

2 solder pins/pole; Black; Reel diameter: 330 mm



Push-in termination of solid conductors

2

2.4 mm long solder pin		
Pole No.	Item No.	Pack. Unit
1	2061-1601/998-404	5760 (640)
2	2061-1602/998-404	4320 (480)
3	2061-1603/998-404	2880 (320)

2.4 mm long solder pin		
Pole No.	Item No.	Pack. Unit
1	2061-1621/998-404	5760 (640)
2	2061-1622/998-404	4320 (480)
3	2061-1623/998-404	2880 (320)

1.5 mm long solder pin		
Pole No.	Item No.	Pack. Unit
1	2061-1641/998-404	5760 (640)
2	2061-1642/998-404	4320 (480)
3	2061-1643/998-404	2880 (320)

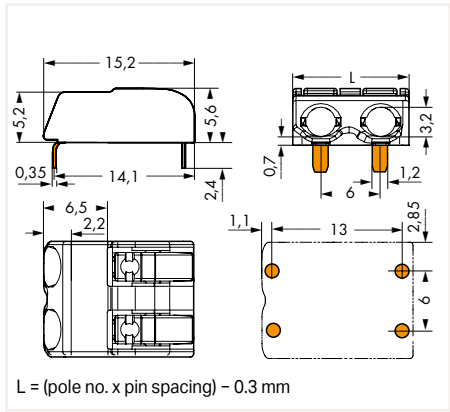
1.5 mm long solder pin		
Pole No.	Item No.	Pack. Unit
1	2061-1661/998-404	5760 (640)
2	2061-1662/998-404	4320 (480)
3	2061-1663/998-404	2880 (320)

\*Depending on reflow soldering temperatures and times, color deviations may occur. These deviations will have no impact on functionality.

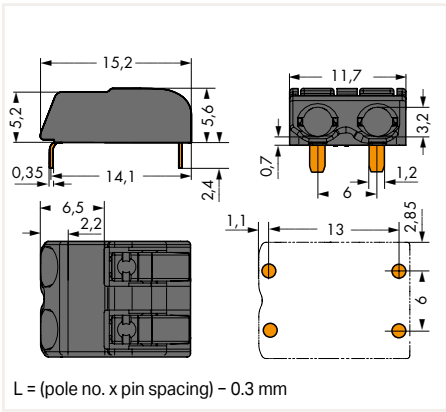


Inserting/removing fine-stranded conductors by lightly pressing on a push-button (e.g. via 206-861 Operating Tool).

Dimensions (in mm):

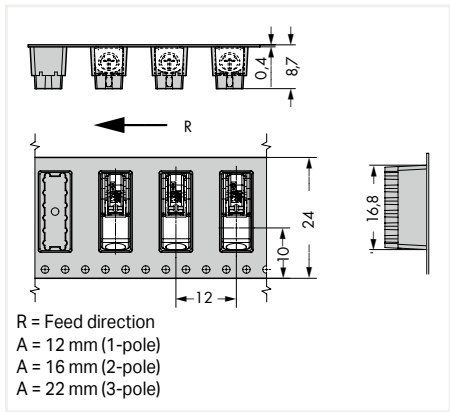


Dimensions (in mm):

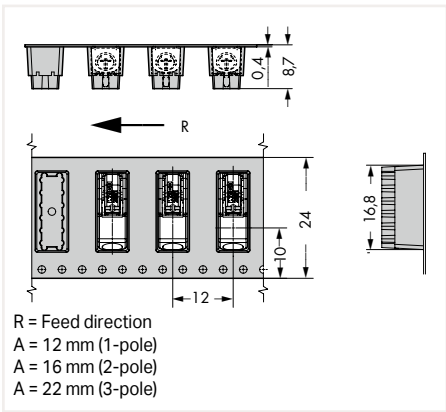


Available in tape-and-reel packaging for automated assembly

Dimensions (in mm):



Dimensions (in mm):



## PCB Terminal Strip; with Push-Buttons; 1 Staggered Solder Pin/Pole; 0.5 mm<sup>2</sup>

Pin Spacing: 2.5 mm; 2.54 mm

250 Series



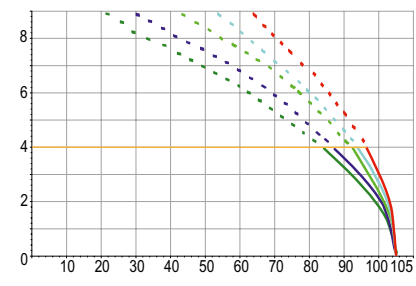
- Compact PCB terminal strips with push-buttons
- Push-in termination of solid conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring
- Custom color combinations
- Terminal strips also available with spacers upon request

2

### Current-Carrying Capacity Curve

Pin spacing: 2.5 mm / Conductor cross-section: 0.5 mm<sup>2</sup> "f-st"  
Based on: EN 60512-5-2 / Reduction factor: 1

Current in A



2, 4, 6, 12, 24-pole

— Conductor rated current

### Electrical Data

Pin spacing	2.5 mm / 0.098 inch			2.54 mm / 0.1 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	160 V	160 V	320 V	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV	2.5 kV
Rated current	4 A	4 A	4 A	4 A	4 A	4 A

Approvals per	UL 1059			UL 1059		
Use group	B	C	D	B	C	D
Rated voltage	300 V	–	300 V	300 V	–	600 V
Rated current	5 A	–	5 A	5 A	–	5 A

Approvals per	CSA			CSA		
Use group	B	C	D	B	C	D
Rated voltage	300 V	–	300 V	300 V	–	300 V
Rated current	2 A	–	2 A	2 A	–	2 A

### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	8.5 ... 9.5 mm / 0.32 ... 0.36 inch
Conductor entry angle to the PCB	45°
Conductor range	
Solid conductor	0.14 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG
Fine-stranded conductor	0.2 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG

### Solder Pin Data

Solder pin length	3.6 mm
Solder pin dimensions	0.4 x 0.75 mm
Drilled hole diameter	1.1 <sup>+0.1</sup> mm

### Material Data

Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	–60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

# PCB Terminal Strip; with Push-Buttons; 1 Staggered Solder Pin/Pole; 0.5 mm<sup>2</sup>; Pin Spacing: 2.5 mm; 2.54 mm 250 Series

2

Pin spacing: 2.5 mm / 0.098 inch

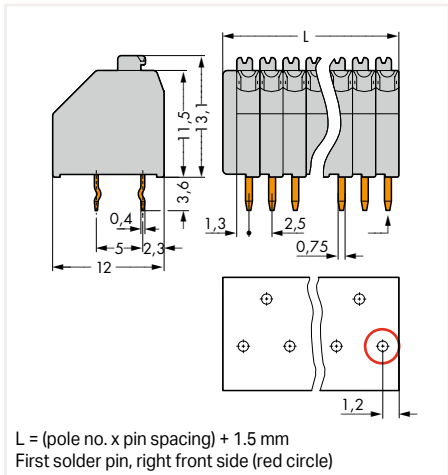
Pin spacing: 2.54 mm / 0.1 inch



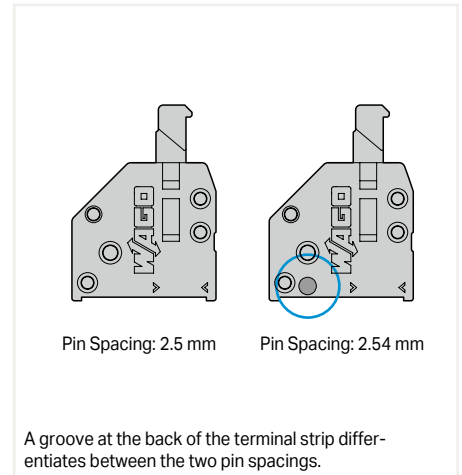
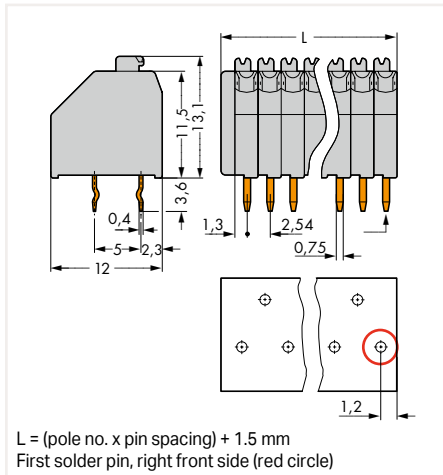
Pole No.	Item No.	Pack. unit
2	250-402	720 (80)
3	250-403	520 (130)
4	250-404	400 (100)
5	250-405	340 (85)
6	250-406	280 (70)
7	250-407	240 (60)
8	250-408	220 (55)
9	250-409	200 (50)
10	250-410	180 (45)
11	250-411	160 (40)
12	250-412	140 (35)
13	250-413	140 (35)
14	250-414	120 (30)
15	250-415	120 (30)
16	250-416	100 (25)
17	250-417	100 (25)
18	250-418	80 (20)
19	250-419	80 (20)
20	250-420	80 (20)
21	250-421	80 (20)
22	250-422	80 (20)
23	250-423	80 (20)
24	250-424	60 (15)

Pole No.	Item No.	Pack. unit
2	250-1402	720 (80)
3	250-1403	520 (130)
4	250-1404	400 (100)
5	250-1405	340 (85)
6	250-1406	280 (70)
7	250-1407	240 (60)
8	250-1408	200 (50)
9	250-1409	180 (45)
10	250-1410	160 (40)
11	250-1411	160 (40)
12	250-1412	140 (35)
13	250-1413	120 (30)
14	250-1414	120 (30)
15	250-1415	120 (30)
16	250-1416	100 (25)
17	250-1417	100 (25)
18	250-1418	100 (25)
19	250-1419	80 (20)
20	250-1420	80 (20)
21	250-1421	80 (20)
22	250-1422	80 (20)
23	250-1423	60 (15)
24	250-1424	60 (15)

Dimensions (in mm):



Dimensions (in mm):



Available upon request (depending on quantity required):

- Other pole numbers
- Other colors: ● black, ● red, ● green, ● orange, ● blue, ○ light gray, ○ white, ● violet
- Mixed-color PCB connector strips
- Terminal strips with spacers
- Direct marking

## PCB Terminal Strip; with Push-Buttons; 1 In-Line Solder Pin/Pole; 0.5 mm<sup>2</sup>

### Pin Spacing: 2.5 mm

### 250 Series



- Compact PCB terminal strips with push-buttons
- Version with in-line solder pins
- Push-in termination of solid conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring
- Custom color combinations
- Terminal strips also available with spacers upon request

#### Electrical Data

Pin spacing	2.5 mm / 0.098 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	100 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Rated current	4 A	4 A	4 A

#### Connection Data

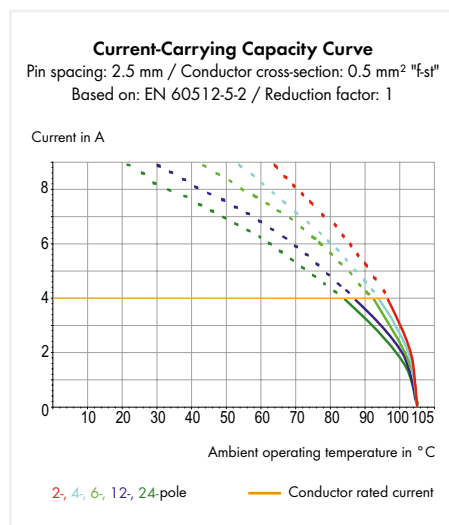
Connection technology	Push-in CAGE CLAMP®
Strip length	8.5 ... 9.5 mm / 0.32 ... 0.36 inch
Conductor entry angle to the PCB	45°
Conductor range	
Solid conductor	0.14 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG
Fine-stranded conductor	0.2 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG

#### Solder Pin Data

Solder pin length	3.6 mm
Solder pin dimensions	0.4 x 0.75 mm
Drilled hole diameter	1.1 <sup>+0.1</sup> mm

#### Material Data

Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated



\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2



PCB Terminal Strip; with Push-Buttons; 1 In-Line Solder Pin/Pole; 0.5 mm<sup>2</sup>

PUSH-IN CAGE CLAMP®

Pin Spacing: 2.5 mm

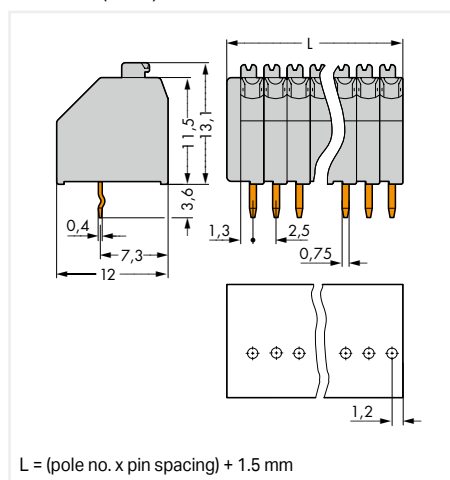
250 Series

Pin spacing: 2.5 mm / 0.098 inch



Pole No.	Item No.	Pack. unit
2	250-302	720 (80)
3	250-303	520 (130)
4	250-304	400 (100)
5	250-305	340 (85)
6	250-306	280 (70)
7	250-307	240 (60)
8	250-308	220 (55)
9	250-309	200 (50)
10	250-310	180 (45)
11	250-311	160 (40)
12	250-312	140 (35)
13	250-313	140 (35)
14	250-314	120 (30)
15	250-315	120 (30)
16	250-316	100 (25)
17	250-317	100 (25)
18	250-318	80 (20)
19	250-319	80 (20)
20	250-320	80 (20)
21	250-321	80 (20)
22	250-322	80 (20)
23	250-323	80 (20)
24	250-324	60 (15)

Dimensions (in mm):



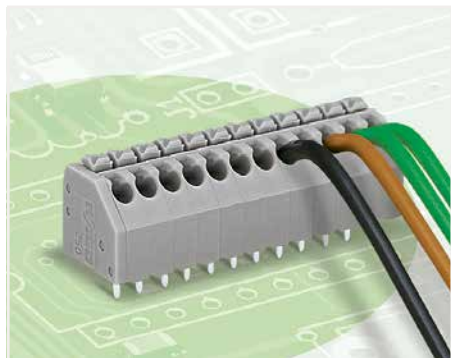
Available upon request (depending on quantity required):

- Other pole numbers
- Other colors: ● black, ● red, ● green, ● orange, ● blue, ○ light gray, ○ white, ● violet
- Mixed-color PCB connector strips
- Terminal strips with spacers
- Direct marking

## PCB Terminal Strip; with Push-Buttons; 1.5 mm<sup>2</sup>

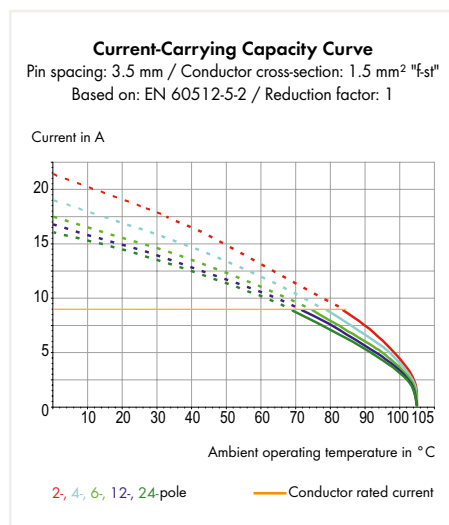
### Pin Spacing: 3.5 mm

### 250 Series



- Compact PCB terminal strips with push-buttons
- Push-in termination of solid conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring
- Custom color combinations
- Terminal strips also available with spacers upon request

2



Electrical Data	1 front solder pin/pole			1 solder pin/pole, staggered		
Pin spacing	3.5 mm / 0.138 inch			3.5 mm / 0.138 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	160 V	160 V	320 V	250 V	320 V	630 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV	4 kV	4 kV	4 kV
Rated current	8 A	8 A	8 A	8 A	8 A	8 A
Approvals per	UL 1059			UL 1059		
Use group	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Rated current	5 A	-	5 A	5 A	-	5 A
Approvals per	CSA			CSA		
Use group	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V
Rated current	10 A	-	10 A	10 A	-	10 A

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	8.5 ... 9.5 mm / 0.32 ... 0.36 inch
Conductor entry angle to the PCB	45°
Conductor range	
Solid conductor	0.2 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG
Fine-stranded conductor	0.2 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1 mm <sup>2</sup>

Solder Pin Data	
Solder pin length	3.6 mm
Solder pin dimensions	0.4 x 0.75 mm
Drilled hole diameter	1.1 <sup>+0.1</sup> mm

Material Data	
Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

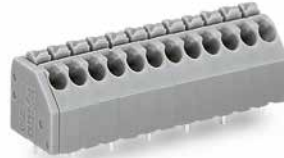
# PCB Terminal Strip; with Push-Buttons; 1.5 mm<sup>2</sup>

Pin Spacing: 3.5 mm

250 Series

1 solder pin/pole, front in-line

1 solder pin/pole, staggered

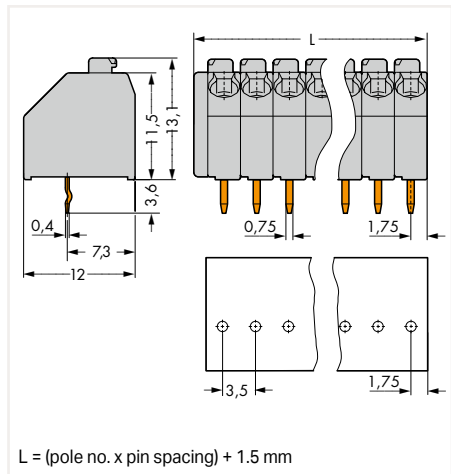


2

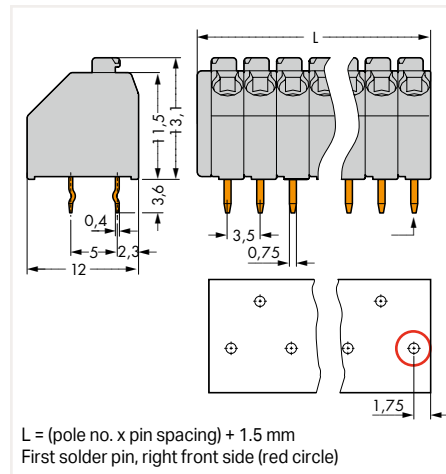
Pole No.	Item No.	Pack. unit
2	250-102	560 (140)
3	250-103	400 (100)
4	250-104	300 (75)
5	250-105	240 (60)
6	250-106	200 (50)
7	250-107	180 (45)
8	250-108	160 (40)
9	250-109	140 (35)
10	250-110	120 (30)
11	250-111	120 (30)
12	250-112	100 (25)
13	250-113	100 (25)
14	250-114	80 (20)
15	250-115	80 (20)
16	250-116	80 (20)
17	250-117	80 (20)
18	250-118	60 (15)
19	250-119	60 (15)
20	250-120	60 (15)
21	250-121	60 (15)
22	250-122	60 (15)
23	250-123	60 (15)
24	250-124	40 (10)

Pole No.	Item No.	Pack. unit
2	250-202	560 (140)
3	250-203	400 (100)
4	250-204	300 (75)
5	250-205	240 (60)
6	250-206	200 (50)
7	250-207	180 (45)
8	250-208	160 (40)
9	250-209	140 (35)
10	250-210	120 (30)
11	250-211	120 (30)
12	250-212	100 (25)
13	250-213	100 (25)
14	250-214	80 (20)
15	250-215	80 (20)
16	250-216	80 (20)
17	250-217	80 (20)
18	250-218	60 (15)
19	250-219	60 (15)
20	250-220	60 (15)
21	250-221	60 (15)
22	250-222	60 (15)
23	250-223	60 (15)
24	250-224	40 (10)

Dimensions (in mm):



Dimensions (in mm):



Available upon request (depending on quantity required):

- Other pole numbers
- Other colors: ● black, ● red, ● green, ● orange, ● blue, ○ light gray, ● brown, ● light green, ● yellow, ● violet, ○ white, ● pink
- Mixed-color PCB connector strips
- Terminal strips with spacers
- Direct marking

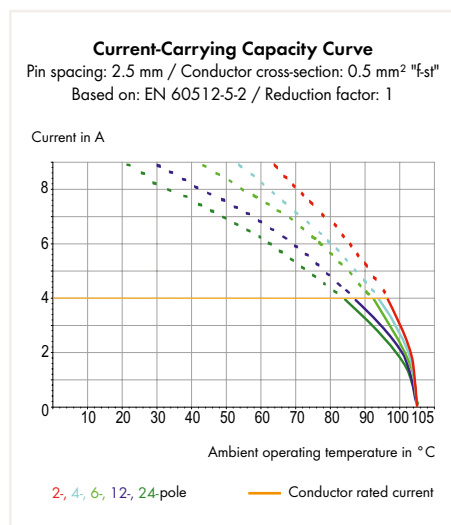
## THR Terminal Strip; with Push-Buttons; 0.5 mm<sup>2</sup>

Pin Spacing: 2.5 mm

250 Series



- Cost-effective integration of high-temperature resistant THR terminal strips into SMT reflow soldering processes
- Versions with suction pads are available in tape-and-reel packaging for automated assembly
- Push-in termination of solid and ferruled conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring



Electrical Data			
Pin spacing	2.5 mm / 0.098 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	250 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Rated current	4 A	4 A	4 A
Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	5 A	-	5 A
Approvals per	CSA		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	2 A	-	2 A
Connection Data			
Connection technology	Push-in CAGE CLAMP®		
Strip length	8.5 ... 9.5 mm / 0.32 ... 0.36 inch		
Conductor entry angle to the PCB	45°		
Conductor range			
Solid conductor	0.14 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG		
Fine-stranded conductor	0.2 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG		
Solder Pin Data			
Solder pin length	3.6 mm		
Solder pin dimensions	0.4 x 0.75 mm		
Drilled hole diameter	1 <sup>+0.1</sup> mm		
Material Data			
Material group	III a		
Insulating material	Polyamide 46 (PA 46)		
Flammability class per UL94	V2		
Limit temperature range	-60 ... +105 °C		
Contact material	Copper alloy		
Contact plating	Tin-plated		

\*(III / 2) ± Overvoltage category III / Pollution degree 2

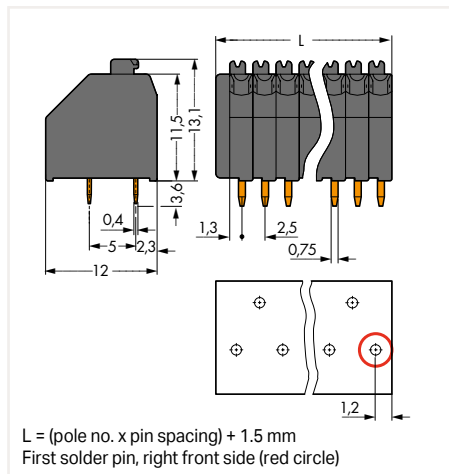
## THR Terminal Strip; with Push-Buttons; 0.5 mm<sup>2</sup> Pin Spacing: 2.5 mm 250 Series

1 solder pin/pole, staggered



Pole No.	Item No.	Pack. unit
2	250-402/350-604	720 (180)
3	250-403/350-604	520 (130)
4	250-404/350-604	400 (100)
5	250-405/350-604	340 (85)
6	250-406/350-604	280 (70)
7	250-407/350-604	240 (60)
8	250-408/350-604	220 (55)

Dimensions (in mm):



Available upon request (depending on quantity required):

- Other pole numbers
- Direct marking

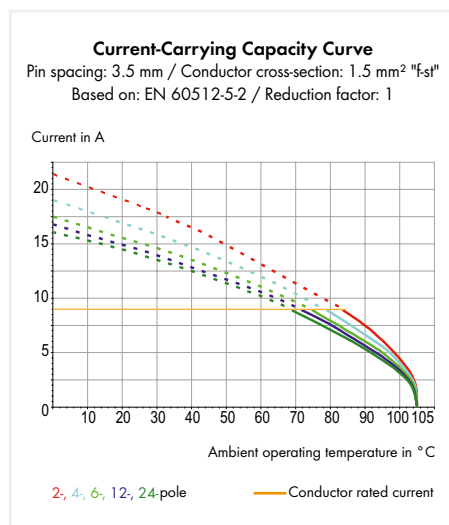
## THR Terminal Strip; with Push-Buttons; 1 Staggered Solder Pin/Pole; 1.5 mm<sup>2</sup>

### Pin Spacing: 3.5 mm

### 250 Series



- Cost-effective integration of high-temperature resistant THR terminal strips into SMT reflow soldering processes
- Versions with suction pads are available in tape-and-reel packaging for automated assembly
- Push-in termination of solid and ferruled conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring



Electrical Data	1 front solder pin/pole		
Pin spacing	3.5 mm / 0.138 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	200 V	320 V	320 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	8 A	8 A	8 A

Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	5 A	-	5 A

Approvals per	CSA		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	10 A	-	10 A

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	8.5 ... 9.5 mm / 0.32 ... 0.36 inch
Conductor entry angle to the PCB	45°
Conductor range	
Solid conductor	0.2 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG
Fine-stranded conductor	0.2 ... 0.5 mm <sup>2</sup> / 24 ... 20 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1 mm <sup>2</sup>

Solder Pin Data	
Solder pin length	2.4 mm
Solder pin dimensions	0.4 x 0.75 mm
Drilled hole diameter	1 <sup>+0.1</sup> mm

Material Data	
Material group	III a
Insulating material	Polyamide 46 (PA 46)
Flammability class per UL94	V2
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2



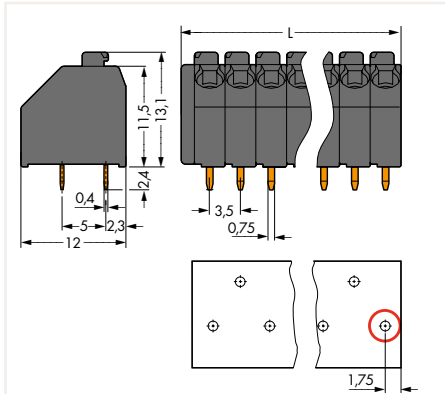
# THR Terminal Strip; with Push-Buttons; 1 Staggered Solder Pin/Pole; 1.5 mm<sup>2</sup>; Pin Spacing: 3.5 mm 250 Series

With additional suction pad in tape-and-reel packaging  
per IEC 60286-3; 330 mm reel diameter; 160 units/reel



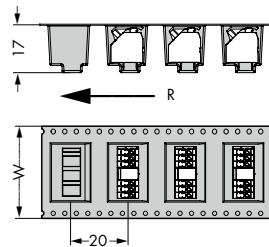
Pole No.	Item No.	Pack. unit	Pole No.	Item No.	W (mm)
2	250-202/353-604	560 (140)	2	250-202/353-604/997-404	24
3	250-203/353-604	400 (100)	3	250-203/353-604/997-404	24
4	250-204/353-604	300 (75)	4	250-204/353-604/997-405	32
5	250-205/353-604	240 (60)	5	250-205/353-604/997-405	32
6	250-206/353-604	200 (50)	6	250-206/353-604/997-406	44
7	250-207/353-604	180 (45)	7	250-207/353-604/997-406	44
8	250-208/353-604	160 (40)	8	250-208/353-604/997-406	44

Dimensions (in mm):



$L = (\text{pole no.} \times \text{pin spacing}) + 1.5 \text{ mm}$   
First solder pin, right front side (red circle)

Dimensions (in mm):



W= Tape width  
R = Feed direction

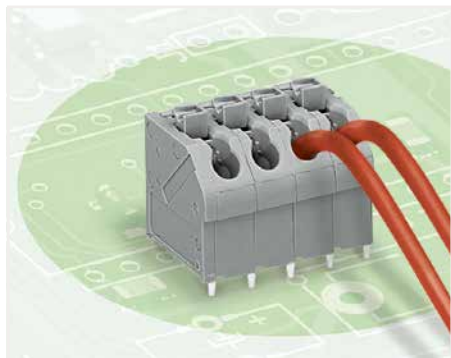
Available upon request (depending on quantity required):

- Other pole numbers
- Direct marking

## PCB Terminal Strip; with Push-Buttons; 1 In-Line Solder Pin/Pole; 1.5 mm<sup>2</sup>

Pin Spacing: 5 mm; 7.5 mm

250 Series

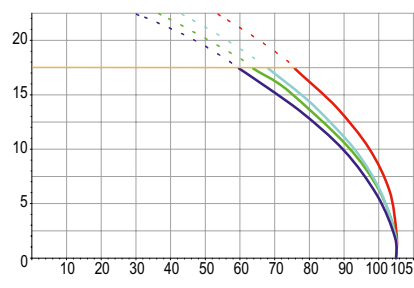


- Compact PCB terminal strips with push-buttons
- Push-in termination of solid conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring

### Current-Carrying Capacity Curve

Pin spacing: 5 mm / Conductor cross-section: 1.5 mm<sup>2</sup> "s"  
Based on: EN 60512-5-2 / Reduction factor: 1

Current in A



2, 4, 6, 12-pole

— Conductor rated current

### Electrical Data

Pin spacing	5 mm / 0.197 inch			7.5 mm / 0.295 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	320 V	320 V	630 V	500 V	630 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV
Rated current	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A

Approvals per	UL 1059			UL 1059		
Use group	B	C	D	B	C	D
Rated voltage	300 V	–	300 V	300 V	–	300 V
Rated current	2 A	–	2 A	2 A	–	2 A

Approvals per	CSA			CSA		
Use group	B	C	D	B	C	D
Rated voltage	300 V	–	300 V	300 V	–	300 V
Rated current	10 A	–	10 A	10 A	–	10 A

### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 ... 10 mm / 0.35 ... 0.39 inch
Conductor entry angle to the PCB	45°
Conductor range	
Solid conductor	0.5 ... 1.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor	0.75 ... 1.5 mm <sup>2</sup> / 18 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.5 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.5 ... 1 mm <sup>2</sup>

### Solder Pin Data

Solder pin length	4 mm
Solder pin dimensions	0.5 x 0.75 mm
Drilled hole diameter	1.2 <sup>+0.1</sup> mm

### Material Data

Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	–60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

# PCB Terminal Strip; with Push-Buttons; 1 In-Line Solder Pin/Pole; 1.5 mm<sup>2</sup> Pin Spacing: 5 mm; 7.5 mm 250 Series

PUSH-IN CAGE CLAMP®

5 mm (0.197 inch) pin spacing

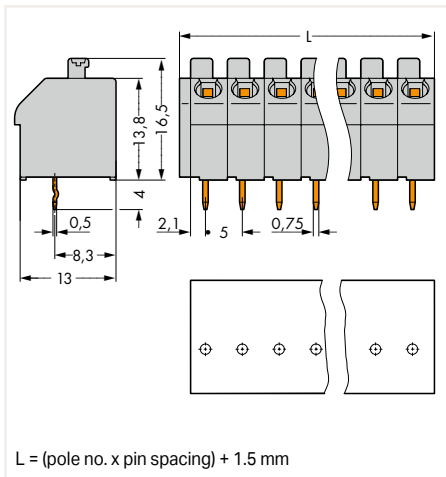
7.5 mm (0.295 inch) pin spacing



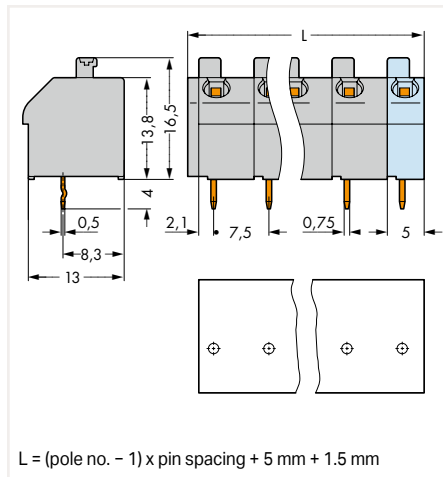
Pole No.	Item No.	Pack. Unit
2	250-502	400 (100)
3	250-503	280 (70)
4	250-504	220 (55)
5	250-505	180 (45)
6	250-506	140 (35)
7	250-507	120 (30)
8	250-508	100 (25)
9	250-509	100 (25)
10	250-510	80 (20)
11	250-511	80 (20)
12	250-512	60 (15)
13	250-513	60 (15)
14	250-514	60 (15)
15	250-515	60 (15)
16	250-516	40 (10)

Pole No.	Item No.	Pack. Unit
2	250-602	340 (85)
3	250-603	200 (50)
4	250-604	160 (40)
5	250-605	120 (30)
6	250-606	100 (25)
7	250-607	80 (20)
8	250-608	80 (20)
9	250-609	60 (15)
10	250-610	60 (15)
11	250-611	40 (10)
12	250-612	40 (10)

Dimensions (in mm):



Dimensions (in mm):



Available upon request (depending on quantity required):

- Other pole numbers
- Other colors: ● red, ● orange, ● blue, ○ light gray, ● brown, ● light green, ● yellow, ○ white
- Mixed-color PCB connector strips
- Direct marking

## Double-Deck PCB Terminal Strip; with Push-Buttons; 1.5 mm<sup>2</sup>

### Pin Spacing: 5 mm

### 250 Series



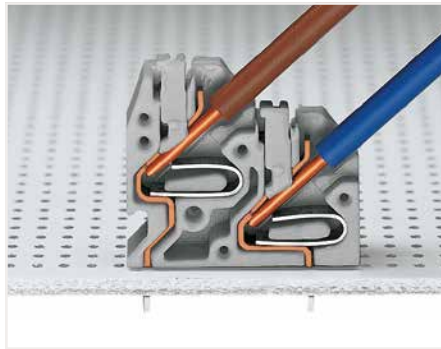
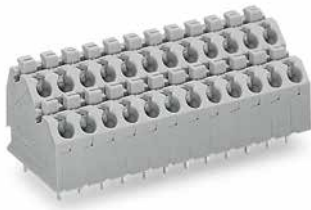
- Space-saving, double-deck terminal strips with push-buttons
- Push-in termination of solid and ferruled conductors
- Termination/removal of fine-stranded conductors via push-buttons
- 45° conductor entry angle provides easy, space-saving wiring

Electrical Data			
Pin spacing	5 mm / 0.197 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	10 A	10 A	10 A
Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	10 A	-	10 A
Approvals per	CSA		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	10 A	-	10 A
Connection Data			
Connection technology	Push-in CAGE CLAMP®		
Strip length	9 ... 10 mm / 0.35 ... 0.39 inch		
Conductor entry angle to the PCB	45°		
Conductor range			
Solid conductor	0.5 ... 1.5 mm <sup>2</sup> / 20 ... 14 AWG		
Fine-stranded conductor	0.75 ... 1.5 mm <sup>2</sup> / 18 ... 16 AWG		
Fine-stranded conductor; with insulated ferrule	0.5 ... 1 mm <sup>2</sup>		
Fine-stranded conductor; with uninsulated ferrule	0.5 ... 1 mm <sup>2</sup>		
Solder Pin Data			
Solder pin length	4 mm		
Solder pin dimensions	0.5 x 0.75 mm		
Drilled hole diameter	1.2 <sup>+0.1</sup> mm		
Material Data			
Material group	I		
Insulating material	Polyamide 66 (PA 66)		
Flammability class per UL94	V0		
Limit temperature range	-60 ... +105 °C		
Clamping spring material	Chrome nickel spring steel (CrNi)		
Contact material	Electrolytic copper (E <sub>Cu</sub> )		
Contact plating	Tin-plated		

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

## Double-Deck PCB Terminal Strip; with Push-Buttons; 1.5 mm<sup>2</sup> Pin Spacing: 5 mm 250 Series

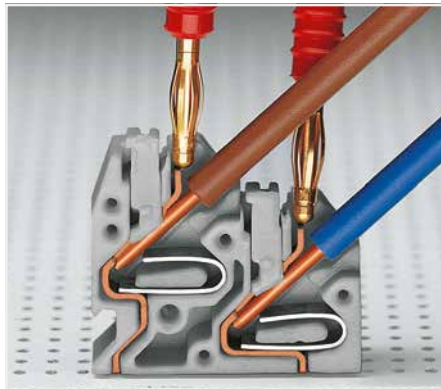
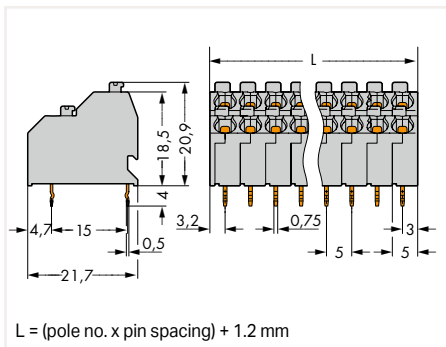
2 in-line solder pins/pole



Space-saving wiring –  
push-in termination of solid conductors.

Pole No.	Item No.	Pack. Unit
2 x 2	250-702	264 (66)
3 x 2	250-703	180 (45)
4 x 2	250-704	132 (33)
6 x 2	250-706	84 (21)
8 x 2	250-708	72 (18)
10 x 2	250-710	48 (12)
12 x 2	250-712	48 (12)
16 x 2	250-716	36 (9)
24 x 2	250-726	24 (6)

Dimensions (in mm):



Testing with 2 mm Ø test plug – touch contact.

Available upon request (depending on quantity required):

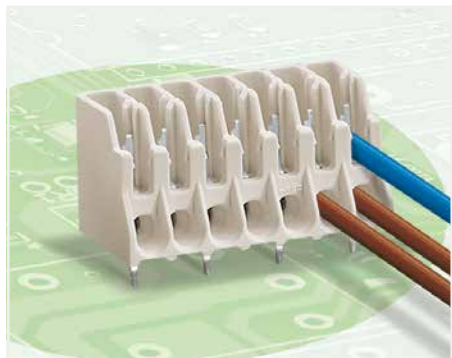
- Other pole numbers
- Other colors: ● orange, ● blue
- Direct marking



## Combi PCB Terminal Blocks "Low Version"; with PUSH WIRE® and IDC Connections

Pin Spacing: 3.5 mm

251 Series



- Compact Combi PCB terminal blocks – streamlined for automated wiring in the lighting industry
- Low conductor insertion forces
- PUSH WIRE® and IDC connections – ideal for automated wiring systems

2

Electrical Data			
Pin spacing	3.5 mm / 0.138 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	6 A	6 A	6 A
Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	4 A	-	4 A

Connection Data	
Connection technology	PUSH WIRE®
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.5 ... 1 mm <sup>2</sup> / 20 ... 18 AWG
Connection technology	IDC connection
Strip length	7.5 ... 8.5 mm / 0.29 ... 0.32 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.5 mm <sup>2</sup> (PVC insulation, simple)
Fine-stranded conductor	0.75 mm <sup>2</sup> (PVC insulation, simple)

Solder Pin Data	
Solder pin length	3.2 mm
Solder pin dimensions	0.75 x 0.5 mm
Drilled hole diameter	1.1 <sup>+0.1</sup> mm

Material Data	
Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact material	Copper alloy
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

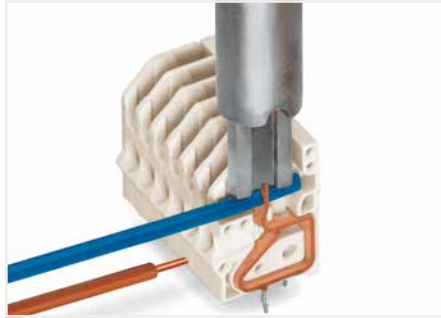
# Combi PCB Terminal Blocks "Low Version"; with PUSH WIRE® and IDC Connections

## Pin Spacing: 3.5 mm

### 251 Series

PUSH WIRE®

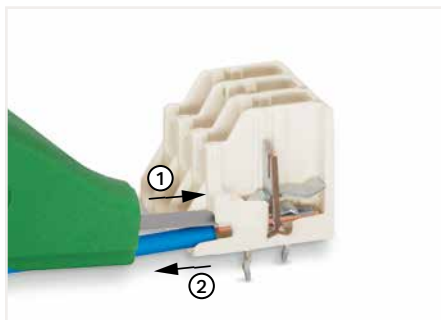
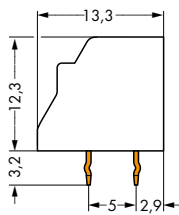
1 solder pin/pole, staggered



Conductor termination:  
 PUSH WIRE®: Simply push in conductor.  
 IDC: Push in conductor via 206-831 Operating Tool.

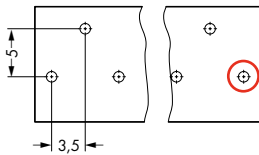
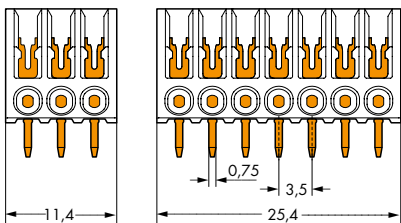
Pole No.	Item No.	Pack. Unit
3	251-303	420 (105)
4	251-304	320 (80)
6	251-306	200 (50)
7	251-307	180 (45)
8	251-308	160 (40)
10	251-310	120 (30)

Dimensions (in mm):



Conductor removal:  
 PUSH WIRE®: Twist conductor and pull out, or fully insert 206-830 Disconnection Tool over the conductor (1) and pull it out (2).

IDC: Pull up vertically on conductor to remove it (10x re-connection cycles possible when used properly – before re-using, cut off old contact point from conductor).



$L = (\text{pole no.} \times \text{pin spacing}) + 0.9 \text{ mm}$   
 First solder pin, right front side (red circle)

Available upon request (depending on quantity required):

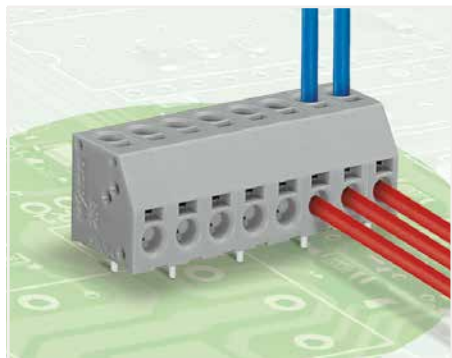
- Other pole numbers
- Direct marking

2

## 2-Conductor PCB Terminal Strip; 1.5 mm<sup>2</sup>

Pin Spacing: 5 mm

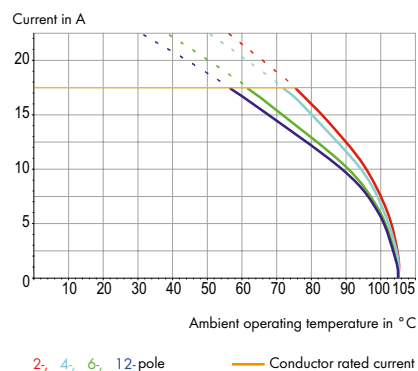
253 Series



- PCB terminal strips with PUSH WIRE® connection and screwdriver actuation
- Double-conductor connection provides top-entry (vertical) and/or side-entry (horizontal) wiring
- Push-in termination of solid conductors
- Double entries for power supply and potential distribution

### Current-Carrying Capacity Curve Conductor – Solder Pin

Pin spacing: 5 mm / Conductor cross-section: 1.5 mm<sup>2</sup> "e"  
Based on: EN 60512-5-2 / Reduction factor: 1



#### Electrical Data

Pin spacing	5 mm / 0.197 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	17.5 A	17.5 A	17.5 A

Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	–	300 V
Rated current	8 A	–	8 A

Approvals per	CSA		
Use group	B	C	D
Rated voltage	300 V	–	300 V
Rated current	8 A	–	8 A

#### Connection Data

Connection technology	PUSH WIRE®
Strip length	8.5 ... 9.5 mm / 0.32 ... 0.36 inch
Conductor entry angle (1) to the PCB	0°
Conductor entry angle (2) to the PCB	90°
Conductor range	
Solid conductor	0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG

#### Solder Pin Data

Solder pin length	3.6 mm
Solder pin dimensions	0.5 x 0.8 mm
Drilled hole diameter	1.1 <sup>+0.1</sup> mm

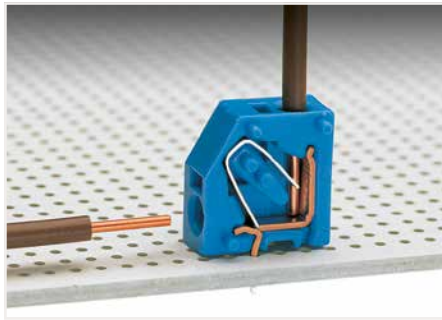
#### Material Data

Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	–60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

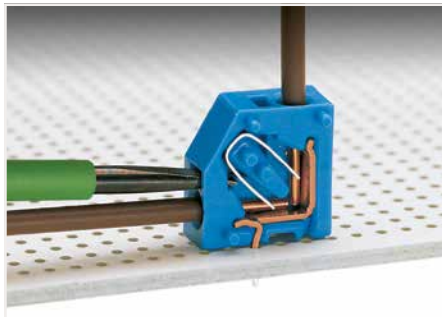
## 2-Conductor PCB Terminal Strip; 1.5 mm<sup>2</sup> Pin Spacing: 5 mm 253 Series

1 solder pin/pole, staggered



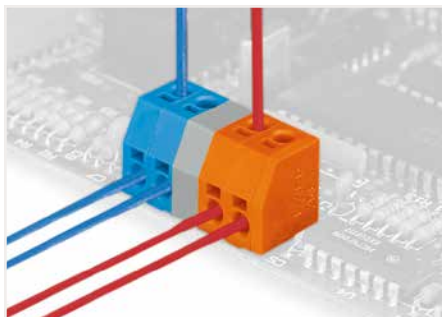
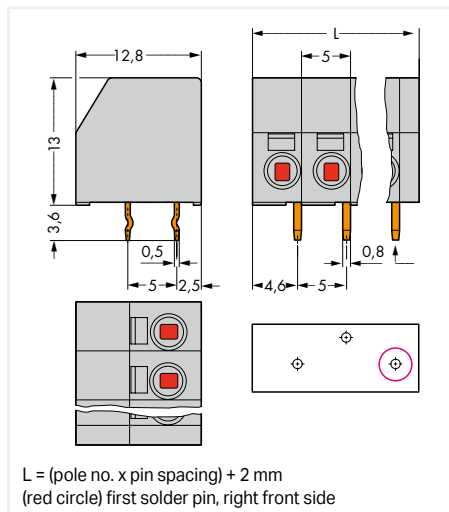
Inserting a conductor via push-in termination.

Pole No.	Item No.	Pack. Unit
2	253-102	400 (100)
3	253-103	280 (70)
4	253-104	220 (55)
5	253-105	160 (40)
6	253-106	140 (35)
7	253-107	120 (30)
8	253-108	100 (25)
9	253-109	100 (25)
10	253-110	80 (20)
11	253-111	80 (20)
12	253-112	60 (15)
13	253-113	60 (15)
14	253-114	60 (15)
15	253-115	60 (15)
16	253-116	40 (10)



Removing a conductor via 2.5 mm screwdriver.

Dimensions (in mm):



Mixed-color terminal strips (with or without spacer) are available upon request.

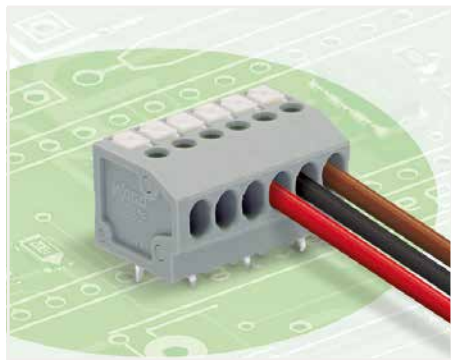
Available upon request (depending on quantity required):

- Other pole numbers
- Other colors: ● red, ○ light gray, ● blue, ○ white, ● yellow, ● light green, ● black, ● orange, ● violet
- Mixed-color PCB connector strips
- Direct marking

## PCB Terminal Strip; with Push-Buttons; 1 Staggered Solder Pin/Pole; 1.5 mm<sup>2</sup>

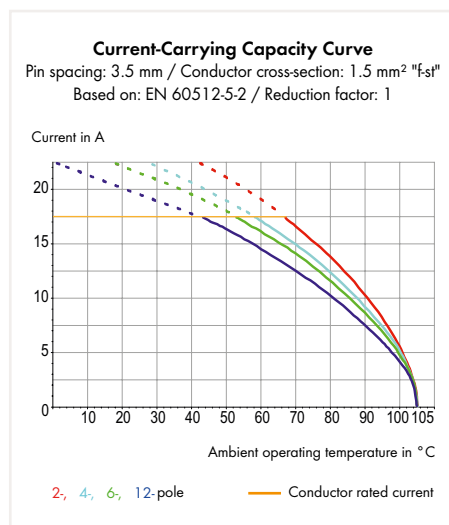
### Pin Spacing: 3.5 mm

### 805 Series



- PCB terminal strips with push-buttons and Push-in CAGE CLAMP® connection
- Push-in termination of solid and ferruled, fine-stranded conductors
- Flush-mount push-buttons that close with minimal force for convenient termination/removal of fine-stranded conductors
- Convenient, tool-free operation
- Versions with/without test slots and spacers
- Versions available with custom internal commoning (factory assembly), e.g., commoning ground conductor

2



Electrical Data			
Pin spacing	3.5 mm / 0.138 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	17.5 A	17.5 A	17.5 A
Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	150	300 V
Rated current	10 A	10 A	10 A

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	9 ... 10 mm / 0.35 ... 0.39 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 1.5 mm <sup>2</sup> / 24 ... 16 AWG
Fine-stranded conductor	0.2 ... 1.5 mm <sup>2</sup> / 24 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1 mm <sup>2</sup>

Solder Pin Data	
Solder pin length	3.2 mm
Solder pin dimensions	0.5 x 0.75 mm
Drilled hole diameter	1.1 <sup>+0.1</sup> mm

Material Data	
Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2



# PCB Terminal Strip; with Push-Buttons; 1 Staggered Solder Pin/Pole; 1.5 mm<sup>2</sup>; Pin Spacing: 3.5 mm 805 Series

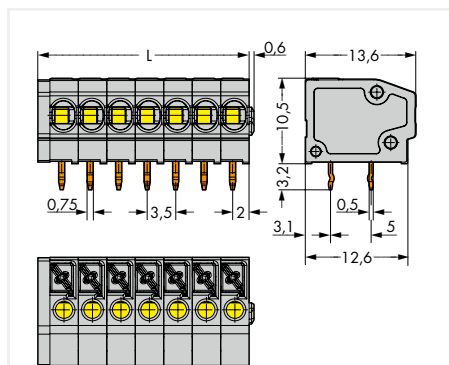
Slots for 2 mm Ø test plug



2

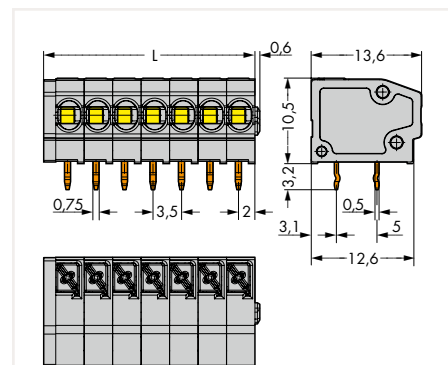
Pole No.	Item No.	Pack. unit	Pole No.	Item No.	Pack. unit
2	805-102	580 (145)	2	805-302	580 (145)
3	805-103	420 (105)	3	805-303	420 (105)
4	805-104	320 (80)	4	805-304	320 (80)
5	805-105	260 (65)	5	805-305	260 (65)
6	805-106	220 (55)	6	805-306	220 (55)
7	805-107	180 (45)	7	805-307	180 (45)
8	805-108	160 (40)	8	805-308	160 (40)
9	805-109	140 (35)	9	805-309	140 (35)
10	805-110	120 (30)	10	805-310	120 (30)
11	805-111	100 (25)	11	805-311	100 (25)
12	805-112	100 (25)	12	805-312	100 (25)
13	805-113	100 (25)	13	805-313	100 (25)
14	805-114	100 (25)	14	805-314	100 (25)
15	805-115	80 (20)	15	805-315	80 (20)
16	805-116	80 (20)	16	805-316	80 (20)
17	805-117	80 (20)	17	805-317	80 (20)
18	805-118	60 (15)	18	805-318	60 (15)
19	805-119	60 (15)	19	805-319	60 (15)
20	805-120	60 (15)	20	805-320	60 (15)
21	805-121	60 (15)	21	805-321	60 (15)
22	805-122	60 (15)	22	805-322	60 (15)
23	805-123	60 (15)	23	805-323	60 (15)
24	805-124	40 (10)	24	805-324	40 (10)

Dimensions (in mm):

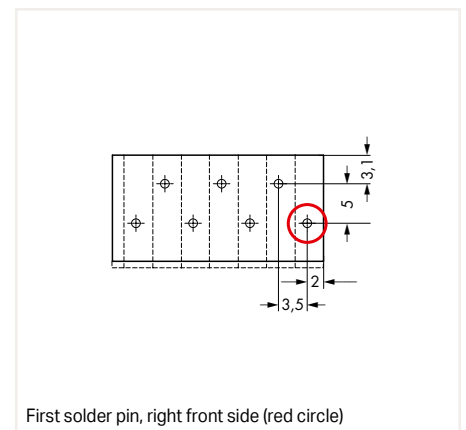


L = (pole no. x pin spacing) + 1.5 mm

Dimensions (in mm):



L = (pole no. x pin spacing) + 1.5 mm



First solder pin, right front side (red circle)

Available upon request (depending on quantity required):

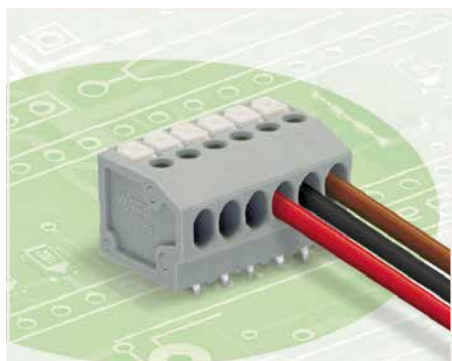
- Other pole numbers
- Other colors: ● blue, ● orange
- Mixed-color PCB connector strips
- Direct marking

## PCB Terminal Strip; with Push-Buttons; 1 In-Line Solder Pin/Pole; 1.5 mm<sup>2</sup>

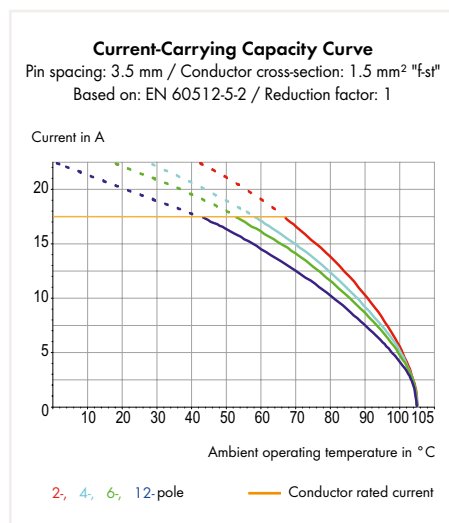
### Pin Spacing: 3.5 mm

### 805 Series

2



- PCB terminal strips with push-buttons and Push-in CAGE CLAMP® connection
- Version with in-line solder pins
- Push-in termination of solid and ferruled, fine-stranded conductors
- Flush-mount push-buttons that close with minimal force for convenient termination/removal of fine-stranded conductors
- Convenient, tool-free operation
- Versions with/without test slots and spacers
- Versions available with custom internal commoning (factory assembly), e.g., commoning ground conductor



Electrical Data			
Pin spacing	3.5 mm / 0.138 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	160 V	160 V	320 V
Rated surge voltage	2.5 kV	2.5 kV	2.5 kV
Rated current	17.5 A	17.5 A	17.5 A

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	9 ... 10 mm / 0.35 ... 0.39 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 1.5 mm <sup>2</sup> / 24 ... 16 AWG
Fine-stranded conductor	0.2 ... 1.5 mm <sup>2</sup> / 24 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1 mm <sup>2</sup>

Solder Pin Data	
Solder pin length	3.2 mm
Solder pin dimensions	0.5 x 0.75 mm
Drilled hole diameter	1.1 <sup>+0.1</sup> mm

Material Data	
Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>CU</sub> )
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

PCB Terminal Strip; with Push-Buttons; 1 In-Line Solder Pin/Pole; 1.5 mm<sup>2</sup>

PUSH-IN CAGE CLAMP®

Pin Spacing: 3.5 mm

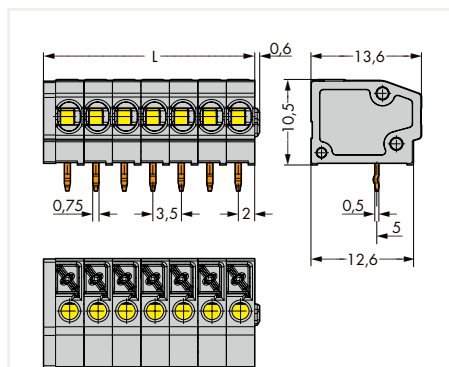
805 Series

Slots for 2 mm Ø test plug



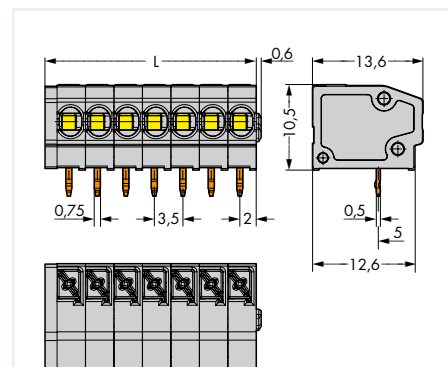
Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
2	805-152	600 (150)	2	805-352	600 (150)
3	805-153	420 (105)	3	805-353	420 (105)
4	805-154	300 (75)	4	805-354	300 (75)
5	805-155	260 (65)	5	805-355	260 (65)
6	805-156	220 (55)	6	805-356	220 (55)
7	805-157	180 (45)	7	805-357	180 (45)
8	805-158	160 (40)	8	805-358	160 (40)
9	805-159	140 (35)	9	805-359	140 (35)
10	805-160	120 (30)	10	805-360	120 (30)
11	805-161	100 (25)	11	805-361	100 (25)
12	805-162	100 (25)	12	805-362	100 (25)
13	805-163	100 (25)	13	805-363	100 (25)
14	805-164	100 (25)	14	805-364	100 (25)
15	805-165	80 (20)	15	805-365	80 (20)
16	805-166	80 (20)	16	805-366	80 (20)
17	805-167	80 (20)	17	805-367	80 (20)
18	805-168	60 (15)	18	805-368	60 (15)
19	805-169	60 (15)	19	805-369	60 (15)
20	805-170	60 (15)	20	805-370	60 (15)
21	805-171	60 (15)	21	805-371	60 (15)
22	805-172	60 (15)	22	805-372	60 (15)
23	805-173	60 (15)	23	805-373	60 (15)
24	805-174	40 (10)	24	805-374	40 (10)

Dimensions (in mm):



L = (pole no. x pin spacing) + 1.5 mm

Dimensions (in mm):



L = (pole no. x pin spacing) + 1.5 mm

Available upon request (depending on quantity required):

- Other pole numbers
- Other colors: ● blue, ● orange
- Mixed-color PCB connector strips
- Direct marking

## THR Terminal Strip; with Push-Buttons; 1 Staggered Solder Pin/Pole; 1.5 mm<sup>2</sup>

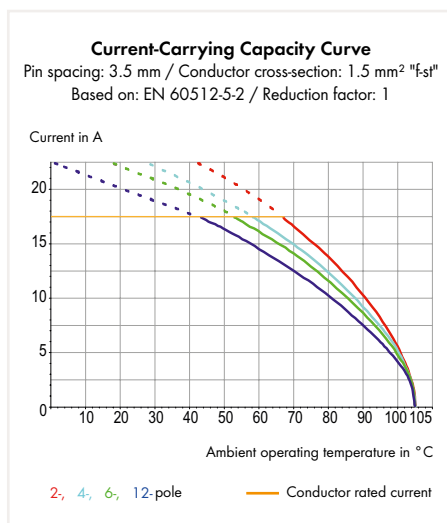
### Pin Spacing: 3.5 mm

### 805 Series

2



- THR PCB terminal strips with push-buttons and Push-in CAGE CLAMP® connection
- Push-in termination of solid and ferruled, fine-stranded conductors
- Flush-mount push-buttons that close with minimal force for convenient termination/removal of fine-stranded conductors
- Convenient, tool-free operation



Electrical Data			
Pin spacing	3.5 mm / 0.138 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	200 V	320 V	320 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	17.5 A	17.5 A	17.5 A

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	9 ... 10 mm / 0.35 ... 0.39 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 1.5 mm <sup>2</sup> / 24 ... 16 AWG
Fine-stranded conductor	0.2 ... 1.5 mm <sup>2</sup> / 24 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1 mm <sup>2</sup>

Solder Pin Data	
Solder pin length	2.2 mm
Solder pin dimensions	0.5 x 0.75 mm
Drilled hole diameter	1.1 <sup>+0.1</sup> mm

Material Data	
Material group	III a
Insulating material	Polyamide 46 (PA 46)
Flammability class per UL94	V2
Limit temperature range	-60 ... +115 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>CU</sub> )
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

# THR Terminal Strip; with Push-Buttons; 1 Staggered Solder Pin/Pole; 1.5 mm<sup>2</sup>; Pin Spacing: 3.5 mm 805 Series

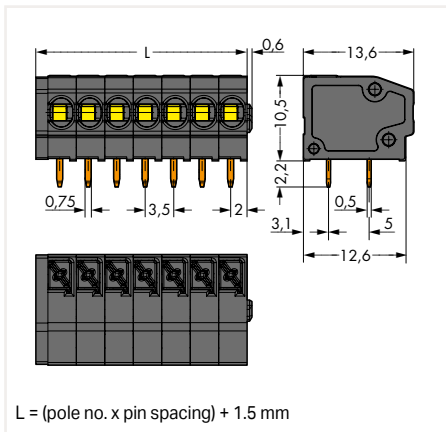
With additional suction pad in tape-and-reel packaging per IEC 60286-3; 330 mm reel diameter; 160 units/reel



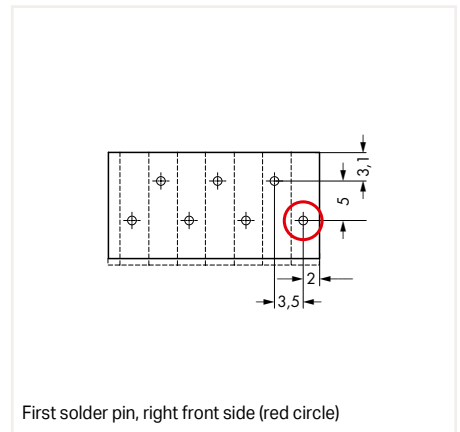
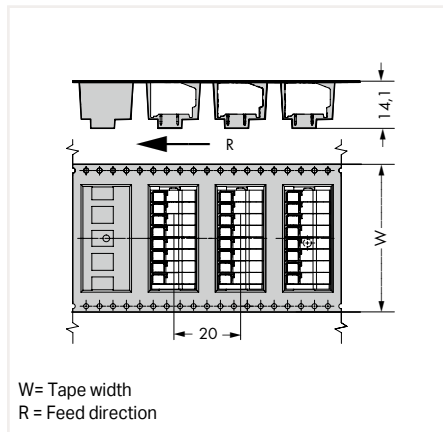
2

Pole No.	Item No.	Pack. Unit	Pole No.	Item No.	W (mm)
2	805-302/200-604	600 (150)	2	805-302/200-604/997-404	24
3	805-303/200-604	420 (105)	3	805-303/200-604/997-405	32
4	805-304/200-604	300 (75)	4	805-304/200-604/997-405	32
5	805-305/200-604	260 (65)	5	805-305/200-604/997-405	32
6	805-306/200-604	220 (55)	6	805-306/200-604/997-406	44
7	805-307/200-604	180 (45)	7	805-307/200-604/997-406	44
8	805-308/200-604	160 (40)	8	805-308/200-604/997-406	44

Dimensions (in mm):



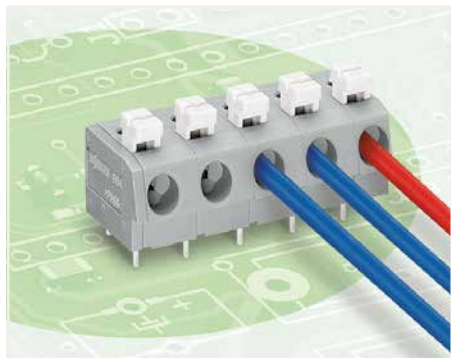
Dimensions (in mm):



## PCB Terminal Strip; with Push-Buttons; 2 Staggered Solder Pins/Pole; 2.5 mm<sup>2</sup>

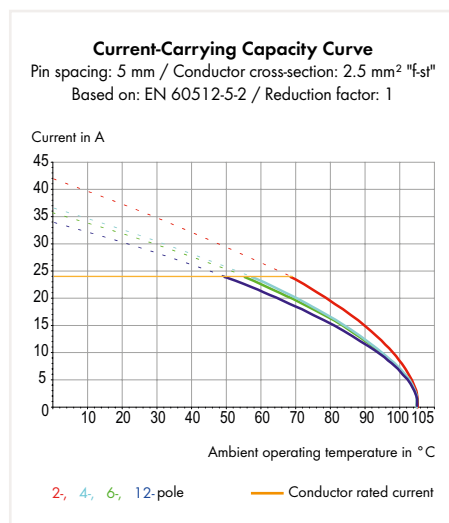
Pin Spacing: 5 mm; 7.5 mm

804 Series



- PCB terminal strips with push-buttons and Push-in CAGE CLAMP® connection
- Push-in termination of solid and ferruled, fine-stranded conductors
- A large conductor entry accommodates conductors with a cross-section up to 12 AWG with an insulation diameter up to 4.2 mm
- Terminal strips with spacers to increase pin spacing
- Versions available with custom internal commoning (factory assembly), e.g., commoning ground conductor

2



Electrical Data						
Pin spacing	5 mm / 0.197 inch			7.5 mm / 0.295 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV	4 kV	4 kV	4 kV
Rated current	24 A	24 A	24 A	24 A	24 A	24 A

Approvals per						
UL 1059						
Use group	B	C	D	B	C	D
Rated voltage	300 V	–	300 V	300 V	–	300 V
Rated current	10 A	–	10 A	10 A	–	10 A

Approvals per						
CSA						
Use group	B	C	D	B	C	D
Rated voltage	300 V	–	300 V	300 V	–	300 V
Rated current	10 A	–	10 A	10 A	–	10 A

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	10 ... 11 mm / 0.39 ... 0.43 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.25 ... 2.5 mm <sup>2</sup> / 20 ... 12 AWG
Fine-stranded conductor	0.25 ... 2.5 mm <sup>2</sup> / 20 ... 12 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 1.5 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 2.5 mm <sup>2</sup>

Solder Pin Data	
Solder pin length	3.6 mm
Solder pin dimensions	0.8 x 0.6 mm
Drilled hole diameter	1.1 <sup>+0.1</sup> mm

Material Data	
Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	–60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated

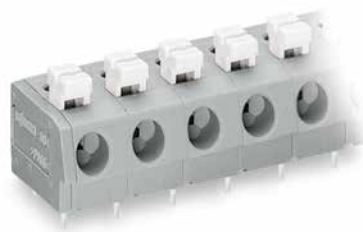
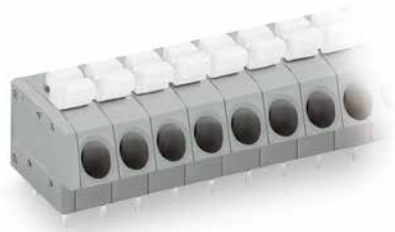
\*(III / 2) ≙ Overvoltage category III / Pollution degree 2



# PCB Terminal Strip; with Push-Buttons; 2 Staggered Solder Pins/Pole; 2.5 mm<sup>2</sup>; Pin Spacing: 5 mm; 7.5 mm 804 Series

Pin spacing: 2.5 mm / 0.098 inch

Pin spacing: 2.54 mm / 0.1 inch

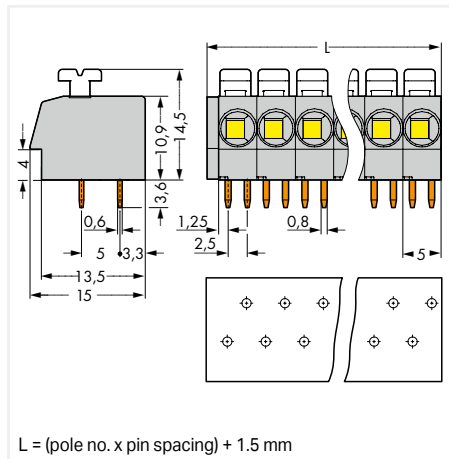


2

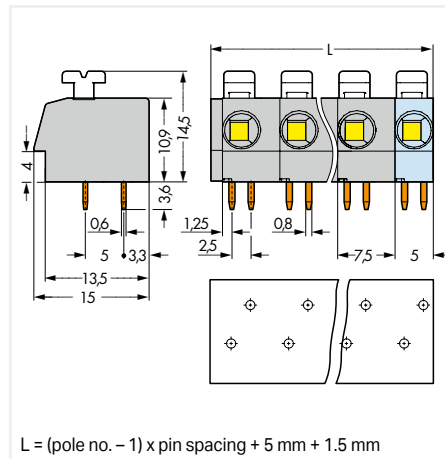
Pole No.	Item No.	Pack. Unit
2	804-102	420 (105)
3	804-103	300 (75)
4	804-104	220 (55)
5	804-105	180 (45)
6	804-106	140 (35)
7	804-107	120 (30)
8	804-108	100 (25)
9	804-109	100 (25)
10	804-110	80 (20)
11	804-111	80 (20)
12	804-112	80 (20)
13	804-113	60 (15)
14	804-114	60 (15)
15	804-115	60 (15)
16	804-116	60 (15)

Pole No.	Item No.	Pack. Unit
2	804-302	340 (85)
3	804-303	220 (55)
4	804-304	160 (40)
5	804-305	120 (30)
6	804-306	100 (25)
7	804-307	80 (20)
8	804-308	80 (20)
9	804-309	60 (15)
10	804-310	60 (15)
11	804-311	60 (15)
12	804-312	40 (10)

Dimensions (in mm):



Dimensions (in mm):



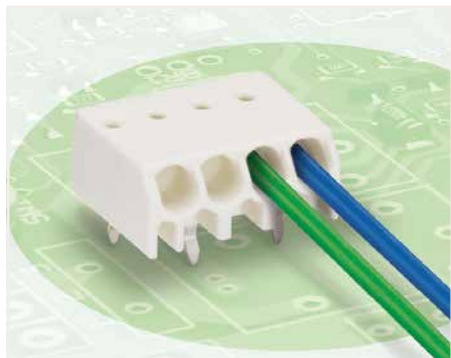
Available upon request (depending on quantity required):

- Other pole numbers
- Other colors: ● red, ● orange, ● light green, ● pink, ● blue (● blue for Ex i applications)
- Mixed-color PCB connector strips
- 10 mm pin spacing version with spacers
- Direct marking

## PCB Terminal Block; with Disconnecting Slot; 1 Staggered Solder Pin/Pole; 1.5 mm<sup>2</sup>

### Pin Spacing: 3.5 mm

### 744 Series



- PCB terminal blocks with PUSH WIRE® connection
- Push-in termination of solid conductors – low insertion forces
- Just 6.6 mm tall
- Conductor removal via disconnection tool or by twist and pull

2

Electrical Data			
Pin spacing	3.5 mm / 0.138 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	2 A	2 A	2 A
Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	2 A	-	2 A

Connection Data	
Connection technology	PUSH WIRE®
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG

Solder Pin Data	
Solder pin length	3.5 mm
Solder pin dimensions	0.35 x 0.9 mm
Drilled hole diameter	1.1 <sup>-0.1</sup> mm

Material Data	
Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Contact Material	Copper alloy
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

# PCB Terminal Block; with Disconnecting Slot; 1 Staggered Solder Pin/Pole; 1.5 mm<sup>2</sup> **PUSH WIRE®**

## Pin Spacing: 3.5 mm

### 744 Series

2



Pole No.	Item No.	Pack. Unit
2	744-392	1500
3	744-303	1000
4	744-304	800
6	744-306	500
7	744-307	300
8	744-308	300
10	744-310	200

Dimensions (in mm):

Two-pole version with additional anti-rotating pin



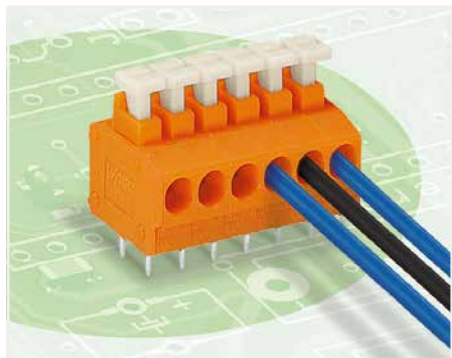
Inserting a conductor via push-in termination.

For 3 poles and more,  $L = (\text{pole no.} \times \text{pin spacing}) + 0.9 \text{ mm}$   
 First solder pin, right front side (red circle)

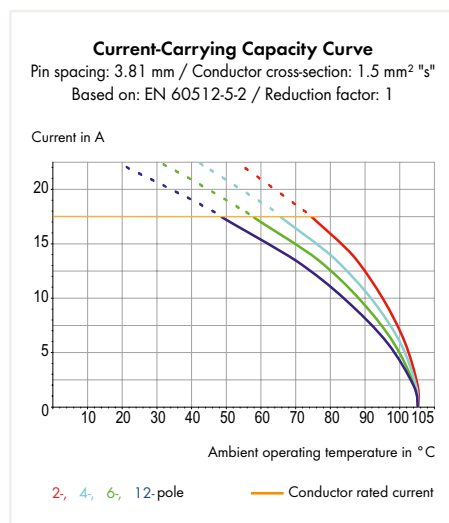


Removing a conductor via 1.0 mm Ø 206-841 Disconnection Tool.

## Modular PCB Terminal Block and PCB Terminal Strip; with Push-Buttons; 2 Solder Pins/Pole; 1.5 mm<sup>2</sup>; Pin Spacing: 3.81 mm 235 Series



- Push-in termination of solid and ferruled conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons



Electrical Data			
Pin spacing	3.81 mm / 0.15 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	200 V	320 V	500 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	17.5 A	17.5 A	17.5 A

Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	–	300 V
Rated current	10 A	–	10 A

Approvals per	CSA		
Use group	B	C	D
Rated voltage	300 V	–	–
Rated current	10 A	–	–

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	9 ... 10 mm / 0.35 ... 0.39 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Fine-stranded conductor	0.75 ... 1.5 mm <sup>2</sup> / 18 ... 16 AWG (I max. 4 A)
Fine-stranded conductor; with insulated ferrule	0.25 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1 mm <sup>2</sup>

Solder Pin Data	
Solder pin length	3.6 mm
Solder pin dimensions	0.4 x 0.8 mm
Drilled hole diameter	1 <sup>+0.1</sup> mm

Material Data	
Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	–60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>Cu</sub> )
Contact plating	Tin-plated

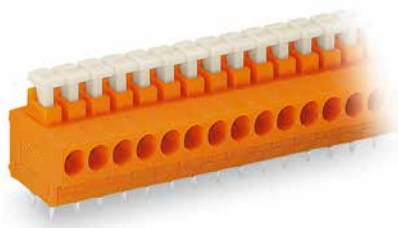
\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

## Modular PCB Terminal Block and PCB Terminal Strip; with Push-Buttons; 2 Solder Pins/Pole; 1.5 mm<sup>2</sup>; Pin Spacing: 3.81 mm 235 Series

Modular terminal block with push-button

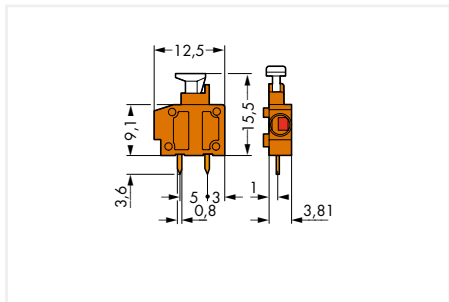


Terminal strip with push-buttons

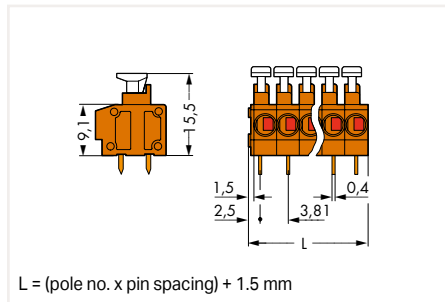


Color	Item No.	Pack. Unit	Pole No.	Item No.	Pack. Unit
orange	235-101	800 (100)	2	235-102	520 (130)
red	235-770	800 (100)	3	235-103	360 (90)
gray	235-771	800 (100)	4	235-104	280 (70)
dark gray	235-772	800 (100)	5	235-105	220 (55)
blue	235-774	800 (100)	6	235-106	180 (45)
white	235-775	800 (100)	7	235-107	160 (40)
yellow	235-776	800 (100)	8	235-108	140 (35)
light green	235-777	800 (100)	9	235-109	120 (30)
black	235-778	800 (100)	10	235-110	120 (30)

Dimensions (in mm):



Dimensions (in mm):



### Accessories, for all products on this page



End plates for modular terminal blocks; snap-on type; 1 mm thick		
Color	Item No.	Pack. Unit
orange	235-600	100
red	235-800	100
gray	235-100	100
dark gray	235-200	100
blue	235-400	100
white	235-850	100
yellow	235-550	100
light green	235-700	100
black	235-500	100



Spacer, doubles 3.81 mm (0.15 inch) pin spacing		
Color	Item No.	Pack. Unit
orange	235-316	100

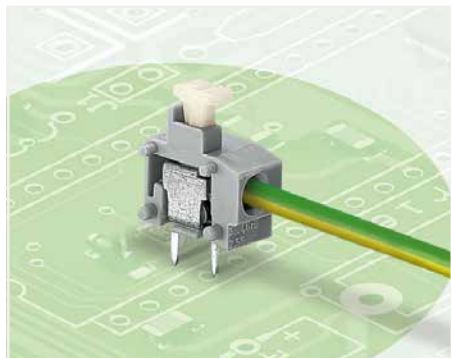
Available upon request (depending on quantity required):

- Other pole numbers
- Other colors for terminal strips: ● red, ○ gray, ● dark gray, ● blue, ○ white, ● yellow, ● light green, ● black
- Mixed-color PCB connector strips
- Direct marking

## Modular PCB Terminal Block; with Push-Buttons; 2 Solder Pins/Pole; 1.5 mm<sup>2</sup>

Pin Spacing: 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm

235 Series

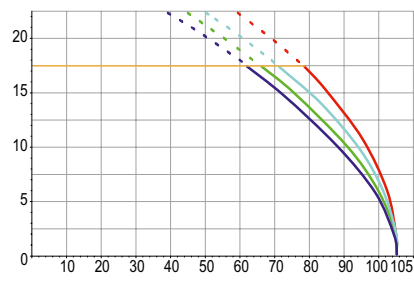


- Modular PCB terminal blocks with push-buttons for custom terminal strip assemblies
- Push-in termination of solid and ferruled conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Set to metric or inch pin spacing by compressing PCB terminal strips or pulling them apart
- For two-conductor versions, visit [www.wago.com](http://www.wago.com).

### Current-Carrying Capacity Curve

Pin spacing: 5 mm / Conductor cross-section: 1.5 mm<sup>2</sup> \*s\*  
Based on: EN 60512-5-2 / Reduction factor: 1

Current in A



2, 4, 6, 12-pole

— Conductor rated current

### Electrical Data

Pin spacing	5/5.08 mm / 0.2 inch			7.5/7.62 mm / 0.3 inch			10/10.16 mm / 0.4 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Rated current	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A	17.5 A

Approvals per	UL 1059			UL 1059			UL 1059		
Use group	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	–	300 V	300 V	–	300 V	300 V	–	300 V
Rated current	10 A	–	10 A	10 A	–	10 A	10 A	–	10 A

Approvals per	CSA			CSA			CSA		
Use group	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	–	–	300 V	–	–	300 V	–	–
Rated current	15 A	–	–	15 A	–	–	15 A	–	–

### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 ... 10 mm / 0.35 ... 0.39 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 1.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor	0.25 ... 0.5 mm <sup>2</sup> (I max. 2 A)
Fine-stranded conductor	0.75 ... 1.5 mm <sup>2</sup> (I max. 6 A)
Fine-stranded conductor; with insulated ferrule	0.25 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1 mm <sup>2</sup>

### Solder Pin Data

Solder pin length	3.6 mm
Solder pin dimensions	0.4 x 0.8 mm
Drilled hole diameter	1 <sup>+0.1</sup> mm

### Material Data

Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	–60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>Cu</sub> )
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2



# Modular PCB Terminal Block; with Push-Buttons; 2 Solder Pins/Pole; 1.5 mm<sup>2</sup>; Pin Spacing: 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 235 Series

2

Pin spacing: 5/5.08 mm / 0.2 inch

Pin spacing: 7.5/7.62 mm / 0.3 inch

Pin spacing: 10/10.16 mm / 0.4 inch

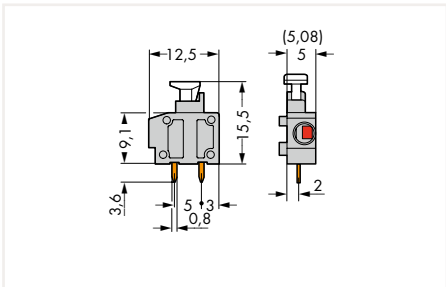


Color	Item No.	Pack. Unit
○ gray	235-401/331-000	800 (100)
● red	235-740/331-000	800 (100)
● yellow	235-741/331-000	800 (100)
● dark gray	235-742/331-000	800 (100)
○ light gray	235-743/331-000	800 (100)
● blue	235-744/331-000	800 (100)
○ white	235-745/331-000	800 (100)
● orange	235-746/331-000	800 (100)
● light green	235-747/331-000	800 (100)
● black	235-748/331-000	800 (100)
● violet	235-749/331-000	800 (100)

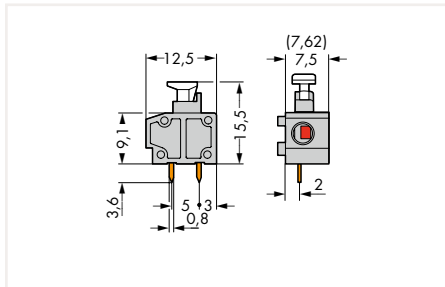
Color	Item No.	Pack. Unit
○ gray	235-501/331-000	600 (100)
● dark gray	235-752/331-000	600 (100)
○ light gray	235-753/331-000	600 (100)
● blue*	235-754/331-000	600 (100)
● orange	235-756/331-000	600 (100)
● light green	235-757/331-000	600 (100)
● black	235-758/331-000	600 (100)

Color	Item No.	Pack. Unit
○ gray	235-801/331-000	400 (100)
● dark gray	235-762/331-000	400 (100)
○ light gray	235-763/331-000	400 (100)
● blue*	235-764/331-000	400 (100)
● orange	235-766/331-000	400 (100)
● light green	235-767/331-000	400 (100)
● black	235-768/331-000	400 (100)

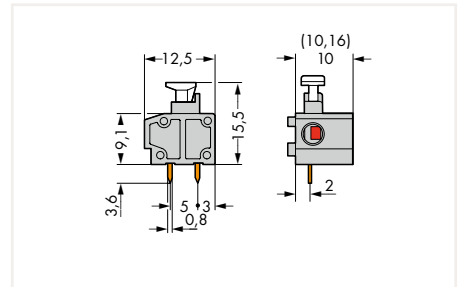
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



\*Suitable for Ex i applications

Accessories, for all products on this page



Spacer, doubles 5/5.08 mm (0.2 inch) pin spacing

Color	Item No.	Pack. Unit
○ gray	235-701	100

End plates for modular terminal blocks; snap-on type; 1 mm thick

Color	Item No.	Pack. Unit
○ gray	235-100	100
● dark gray	235-200	100
○ light gray	235-300	100
● blue	235-400	100
● black	235-500	100
● yellow	235-550	100
● orange	235-600	100
● violet	235-650	100
● light green	235-700	100
● red	235-800	100
○ white	235-850	100

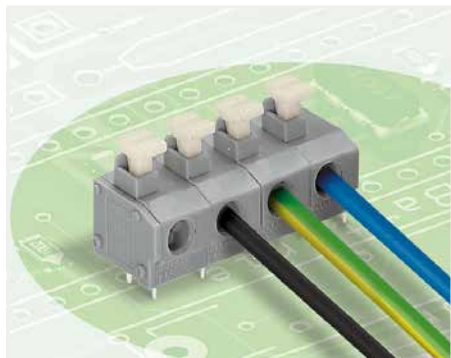
Available upon request (depending on quantity required):

- Other colors

## PCB Terminal Strip; with Push-Buttons; 2 Solder Pins/Pole; 1.5 mm<sup>2</sup>

Pin Spacing: 5/5.08 mm

235 Series

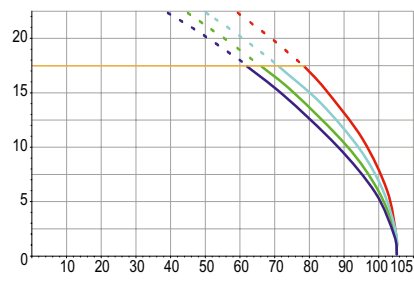


- PCB terminal strips with push-buttons
- Push-in termination of solid and ferruled conductors
- Convenient termination/removal of fine-stranded conductors via push-buttons
- Set to metric or inch pin spacing by compressing PCB terminal strips or pulling them apart

### Current-Carrying Capacity Curve

Pin spacing: 5 mm / Conductor cross-section: 1.5 mm<sup>2</sup> "s"  
Based on: EN 60512-5-2 / Reduction factor: 1

Current in A



2, 4, 6, 12-pole

Ambient operating temperature in °C

— Conductor rated current

### Electrical Data

Pin spacing	5/5.08 mm / 0.2 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	17.5 A	17.5 A	17.5 A

Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	–	300 V
Rated current	10 A	–	10 A

Approvals per	CSA		
Use group	B	C	D
Rated voltage	300 V	–	–
Rated current	15 A	–	–

### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 ... 10 mm / 0.35 ... 0.39 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 1.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor	0.25 ... 0.5 mm <sup>2</sup> (I max. 2 A)
Fine-stranded conductor	0.75 ... 1.5 mm <sup>2</sup> (I max. 6 A)
Fine-stranded conductor; with insulated ferrule	0.25 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1 mm <sup>2</sup>

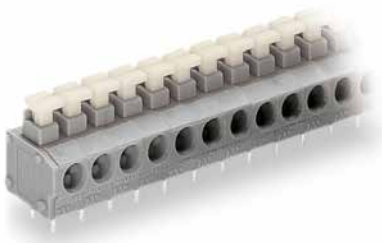
### Solder Pin Data

Solder pin length	3.6 mm
Solder pin dimensions	0.4 x 0.8 mm
Drilled hole diameter	1 <sup>+0.1</sup> mm

### Material Data

Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	–60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated

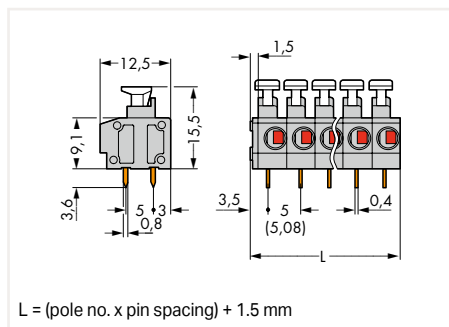
\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

**PCB Terminal Strip; with Push-Buttons; 2 Solder Pins/Pole; 1.5 mm<sup>2</sup>****Pin Spacing: 5/5.08 mm****235 Series**

2

Pole No.	Item No.	Pack. Unit
2	235-402/331-000	420 (105)
3	235-403/331-000	280 (70)
4	235-404/331-000	220 (55)
5	235-405/331-000	180 (45)
6	235-406/331-000	140 (35)
7	235-407/331-000	120 (30)
8	235-408/331-000	100 (25)
9	235-409/331-000	100 (25)
10	235-410/331-000	80 (20)
12	235-412/331-000	60 (15)

Dimensions (in mm):



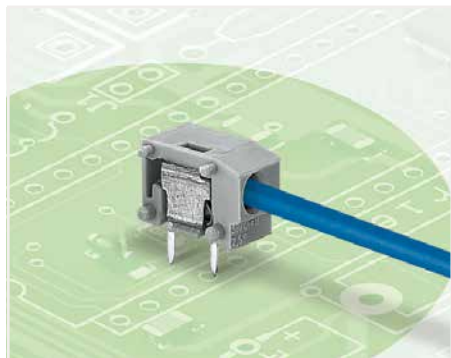
Available upon request (depending on quantity required):

- Other pole numbers
- Terminal strips with 7.5/7.62 mm and 10/10.16 mm pin spacing
- Other colors: ● red, ○ light gray, ● dark gray, ● blue, ○ white, ● yellow, ● light green, ● black, ● orange, ● violet
- Mixed-color PCB connector strips
- Direct marking

## Modular PCB Terminal Block; 2 Solder Pins/Pole; 2.5 mm<sup>2</sup>

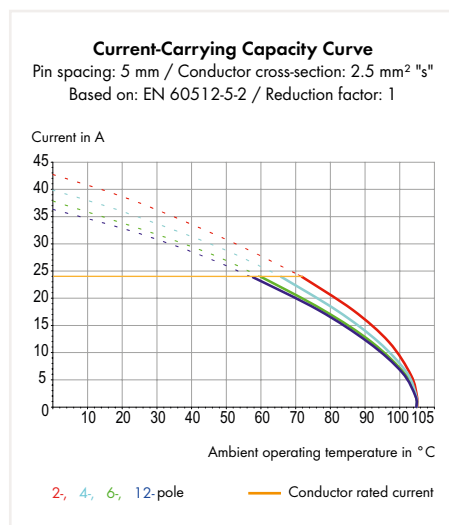
Pin Spacing: 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm

235 Series



- Low-profile modular PCB terminal blocks with PUSH WIRE® connection for custom terminal strip assemblies
- Push-in termination of solid conductors
- Double solder pins for high mechanical stability
- Conductor removal via (2.5 x 0.4) mm screwdriver
- Set to metric or inch pin spacing by compressing PCB terminal strips or pulling them apart
- For two-conductor versions, visit [www.wago.com](http://www.wago.com).

2



Electrical Data									
Pin spacing	5/5.08 mm / 0.2 inch			7.5/7.62 mm / 0.3 inch			10/10.16 mm / 0.4 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	250 V	320 V	630 V	400 V	630 V	1000 V	630 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Rated current	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A	24 A

Approvals per									
UL 1059									
Use group	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	-	300 V	300 V	-	300 V
Rated current	10 A	-	10 A	10 A	-	10 A	10 A	-	10 A

Approvals per									
CSA									
Use group	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	-	300 V	-	-	300 V	-	-
Rated current	15 A	-	-	15 A	-	-	15 A	-	-

Connection Data	
Connection technology	PUSH WIRE®
Strip length	9 ... 10 mm / 0.35 ... 0.39 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1 mm <sup>2</sup>

Solder Pin Data	
Solder pin length	3.6 mm
Solder pin dimensions	0.4 x 0.8 mm
Drilled hole diameter	1 <sup>+0.1</sup> mm

Material Data	
Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>C</sub> )
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

# Modular PCB Terminal Block; 2 Solder Pins/Pole; 2.5 mm<sup>2</sup> Pin Spacing: 5/5.08 mm, 7.5/7.62 mm, 10/10.16 mm 235 Series

2

Pin spacing: 5/5.08 mm / 0.2 inch

Pin spacing: 7.5/7.62 mm / 0.3 inch

Pin spacing: 10/10.16 mm / 0.4 inch

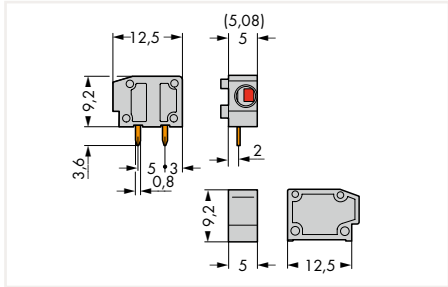


Color	Item No.	Pack. Unit
○ gray	235-401	800 (100)
● dark gray	235-742	800 (100)
○ light gray	235-743	800 (100)
● blue	235-744	800 (100)
● orange	235-746	800 (100)
● light green	235-747	800 (100)

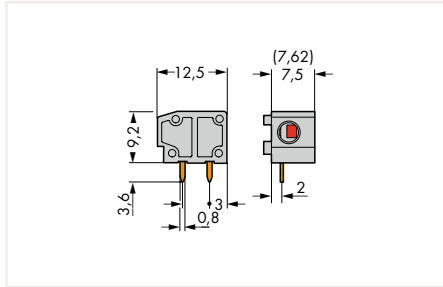
Color	Item No.	Pack. Unit
○ gray	235-501	600 (100)
● dark gray	235-752	600 (100)
○ light gray	235-753	600 (100)
● blue*	235-754	600 (100)
● orange	235-756	600 (100)
● light green	235-757	600 (100)

Color	Item No.	Pack. Unit
○ gray	235-801	400 (100)
● dark gray	235-762	400 (100)
○ light gray	235-763	400 (100)
● blue*	235-764	400 (100)
● orange	235-766	400 (100)
● light green	235-767	400 (100)

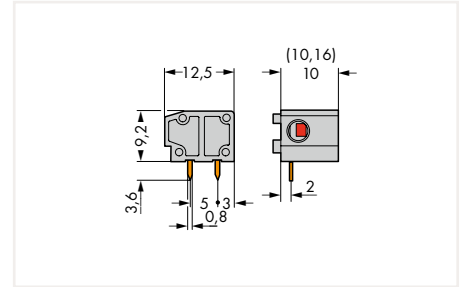
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



\*Suitable for Ex i applications

## Accessories, for all products on this page



### Spacer, doubles 5/5.08 mm (0.2 inch) pin spacing

Color	Item No.	Pack. Unit
○ gray	235-701	100

### End plates for modular terminal blocks; snap-on type; 1 mm thick

Color	Item No.	Pack. Unit
○ gray	235-100	100
● dark gray	235-200	100
○ light gray	235-300	100
● blue	235-400	100
● black	235-500	100
● yellow	235-550	100
● orange	235-600	100
● violet	235-650	100
● light green	235-700	100
● red	235-800	100
○ white	235-850	100

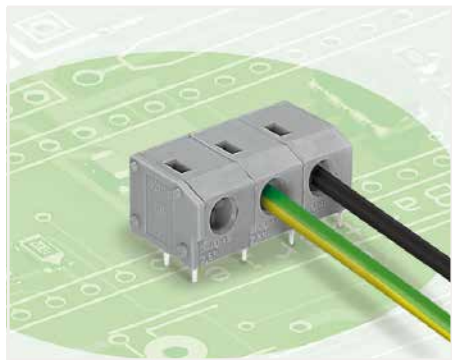
Available upon request (depending on quantity required):

- Other colors

## PCB Terminal Strip; 2 Solder Pins/Pole; 2.5 mm<sup>2</sup>

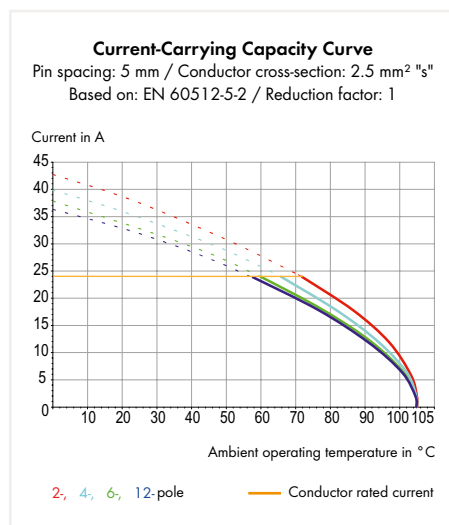
Pin Spacing: 5/5.08 mm

235 Series



- Low-profile PCB terminal strips with PUSH WIRE® connection and screwdriver actuation
- Push-in termination of solid conductors
- Double solder pins for high mechanical stability
- Set to metric or inch pin spacing by compressing PCB terminal strips or pulling them apart

2



Electrical Data			
Pin spacing	5/5.08 mm / 0.2 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	24 A	24 A	24 A

Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	–	300 V
Rated current	10 A	–	10 A

Approvals per	CSA		
Use group	B	C	D
Rated voltage	300 V	–	–
Rated current	15 A	–	–

Connection Data	
Connection technology	PUSH WIRE®
Strip length	9 ... 10 mm / 0.35 ... 0.39 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1 mm <sup>2</sup>

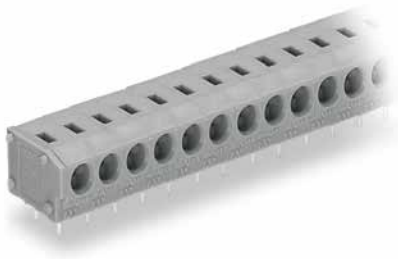
Solder Pin Data	
Solder pin length	3.6 mm
Solder pin dimensions	0.4 x 0.8 mm
Drilled hole diameter	1 <sup>+0.1</sup> mm

Material Data	
Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	–60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>C</sub> )
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2



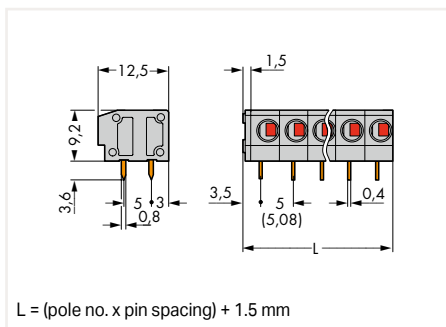
## PCB Terminal Strip; 2 Solder Pins/Pole; 2.5 mm<sup>2</sup> Pin Spacing: 5/5.08 mm 235 Series



2

Pole No.	Item No.	Pack. Unit
2	235-402	420 (105)
3	235-403	280 (70)
4	235-404	220 (55)
5	235-405	180 (45)
6	235-406	140 (35)
7	235-407	120 (30)
8	235-408	100 (25)
9	235-409	100 (25)
10	235-410	80 (20)
12	235-412	60 (15)

Dimensions (in mm):

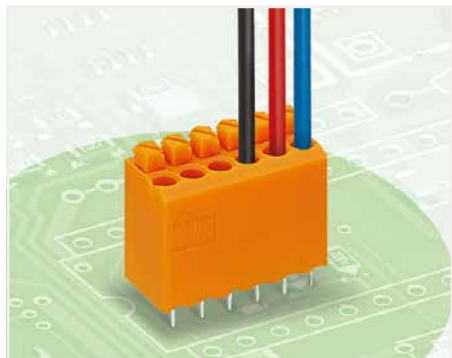


Available upon request (depending on quantity required):

- Other pole numbers
- Terminal strips with 7.5/7.62 mm and 10/10.16 mm pin spacing
- Other colors: ● blue, ○ light gray, ● dark gray, ● light green, ● orange
- Mixed-color PCB connector strips
- Direct marking

## Compact PCB Terminal Block with Push-Buttons; High Version; 2 Solder Pins/Pole; 1.5 mm<sup>2</sup> Pin Spacing: 3.81 mm

### 735 Series



- PCB Terminal Blocks with Push-Buttons and PUSH WIRE® Connection
- Top-of-unit, push-button actuation and conductor termination save space on the PCB
- Push-in termination of solid conductors
- Terminal blocks can be arranged side-by-side without loss of poles.

2

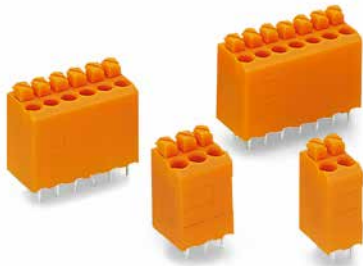
Electrical Data			
Pin spacing	3.81 mm / 0.15 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	10 A	10 A	10 A
Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	10 A	-	10 A
Approvals per	CSA		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	10 A	-	10 A
Connection Data			
Connection technology	PUSH WIRE®		
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch		
Conductor entry angle to the PCB	90°		
Conductor range			
Solid conductor	0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG		
Fine-stranded conductor; with insulated ferrule	0.5 ... 1 mm <sup>2</sup>		
Fine-stranded conductor; with uninsulated ferrule	0.5 ... 1 mm <sup>2</sup>		
Solder Pin Data			
Solder pin length	3.5 mm		
Solder pin dimensions	0.4 x 0.9 mm		
Drilled hole diameter	1 <sup>+0.1</sup> mm		
Material Data			
Material group	I		
Insulating material	Polyamide 66 (PA 66)		
Flammability class per UL94	V0		
Limit temperature range	-60 ... +105 °C		
Clamping spring material	Chrome nickel spring steel (CrNi)		
Contact Material	Electrolytic copper (E <sub>Cu</sub> )		
Contact plating	Tin-plated		

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

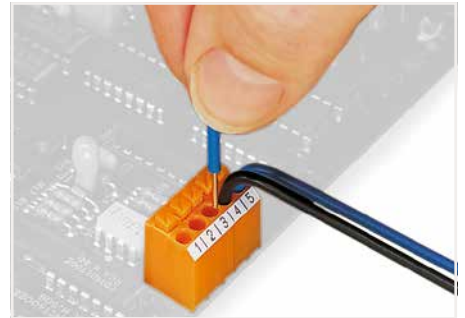
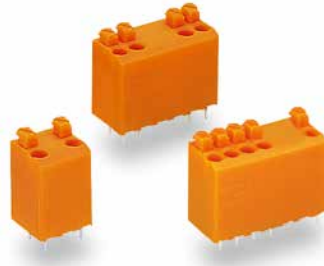
# Compact PCB Terminal Block with Push-Buttons; High Version; 2 Solder Pins/Pole; 1.5 mm<sup>2</sup>; Pin Spacing: 3.81 mm 735 Series

**PUSH WIRE®**

Compact PCB terminal block with push-buttons



Compact PCB terminal block with push-buttons and spacer



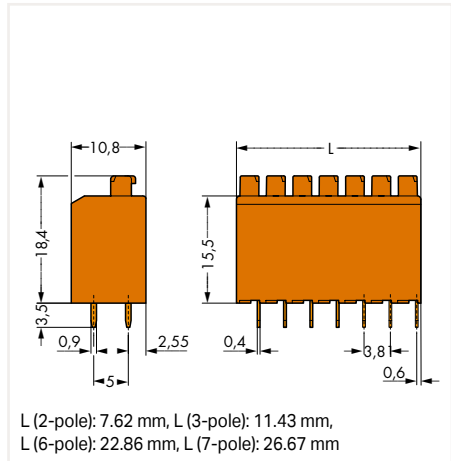
Push-in termination of solid conductors

Pole No.	Item No.	Pack. Unit
2	735-122	660 (165)
3	735-123	440 (110)
6	735-126	220 (55)
7	735-127	180 (45)

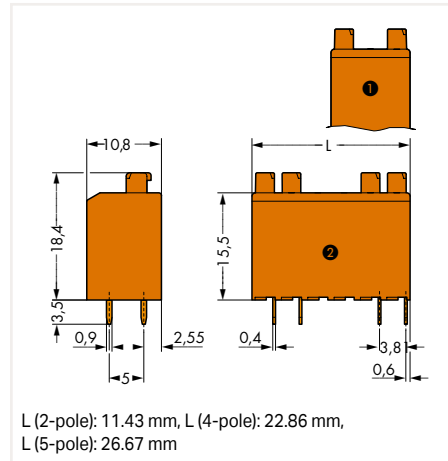
Pole No.	Item No.	Pack. Unit
2	735-123/001-000 *	440 (110)
4	735-126/001-000	220 (55)
5	735-127/001-000	180 (45)

\*Technical data, visit [www.wago.com](http://www.wago.com)

Dimensions (in mm):



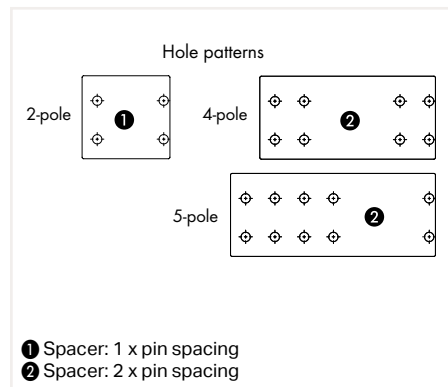
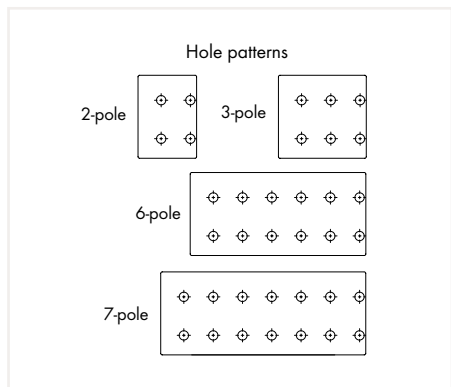
Dimensions (in mm):



Removing a conductor via push-button.



Terminal blocks can be arranged side-by-side without loss of poles.



Testing via 1 mm Ø test pin.

Available upon request (depending on quantity required):  
• Direct marking

## Compact PCB Terminal Block with Push-Buttons; Low Version; 2 Solder Pins/Pole; 1.5 mm<sup>2</sup> Pin Spacing: 5 mm

### 735 Series



- PCB Terminal Blocks with Push-Buttons and PUSH WIRE® Connection
- Top-of-unit, push-button actuation and conductor termination save space on the PCB
- Push-in termination of solid conductors
- Terminal blocks can be arranged side-by-side without loss of poles.

Electrical Data			
Pin spacing	5 mm / 0.197 inch		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	320 V	320 V	630 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	10 A	10 A	10 A
Approvals per	UL 1059		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	10 A	-	10 A
Approvals per	CSA		
Use group	B	C	D
Rated voltage	300 V	-	300 V
Rated current	10 A	-	10 A
Connection Data			
Connection technology	PUSH WIRE®		
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch		
Conductor entry angle to the PCB	90°		
Conductor range			
Solid conductor	0.5 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG		
Fine-stranded conductor; with insulated ferrule	0.5 ... 1 mm <sup>2</sup>		
Fine-stranded conductor; with uninsulated ferrule	0.5 ... 1 mm <sup>2</sup>		
Solder Pin Data			
Solder pin length	3.5 mm		
Solder pin dimensions	0.4 x 0.9 mm		
Drilled hole diameter	1 <sup>+0.1</sup> mm		
Material Data			
Material group	I		
Insulating material	Polyamide 66 (PA 66)		
Flammability class per UL94	V0		
Limit temperature range	-60 ... +105 °C		
Clamping spring material	Chrome nickel spring steel (CrNi)		
Contact Material	Electrolytic copper (E <sub>Cu</sub> )		
Contact plating	Tin-plated		

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2

# Compact PCB Terminal Block with Push-Buttons; Low Version; 2 Solder Pins/Pole; 1.5 mm<sup>2</sup>; Pin Spacing: 5 mm

## 735 Series

**PUSH WIRE®**

Compact PCB terminal block with push-buttons



Pole No.	Item No.	Pack. Unit
2	735-302	500 (125)
3	735-303	320 (80)
4	735-304	240 (60)
6	735-306	160 (40)
7	735-307	140 (35)

Compact terminal block with push-buttons and spacer for 1 x pin spacing



Pole No.	Item No.	Pack. Unit
2	735-303/001-000 *	320 (80)
5	735-306/003-000	160 (40)
6	735-307/001-000	140 (35)

\*Technical data, visit [www.wago.com](http://www.wago.com)

Compact terminal block with push-buttons and spacer for 2 x pin spacing

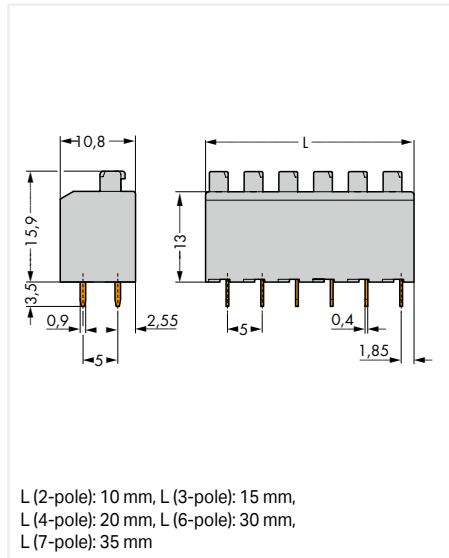


Pole No.	Item No.	Pack. Unit
4	735-306/001-000	160 (40)

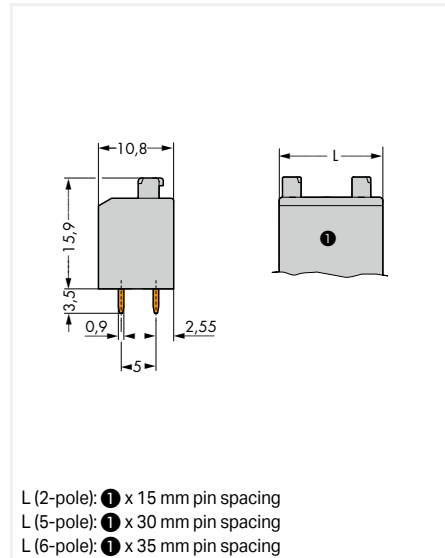
Compact terminal block with push-buttons and spacer for 3 x pin spacing

Pole No.	Item No.	Pack. Unit
4	735-307/002-000	140 (35)

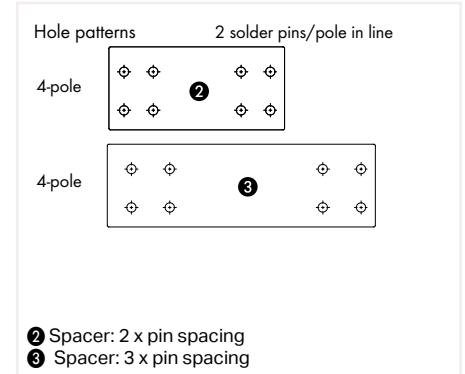
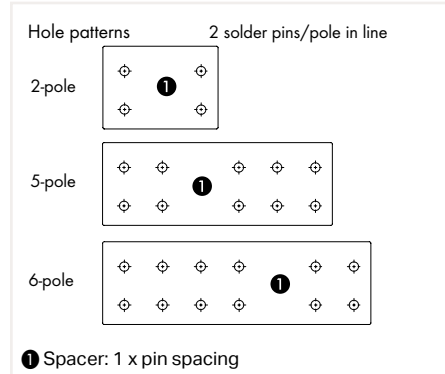
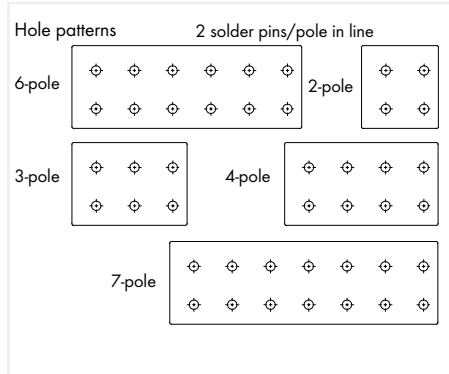
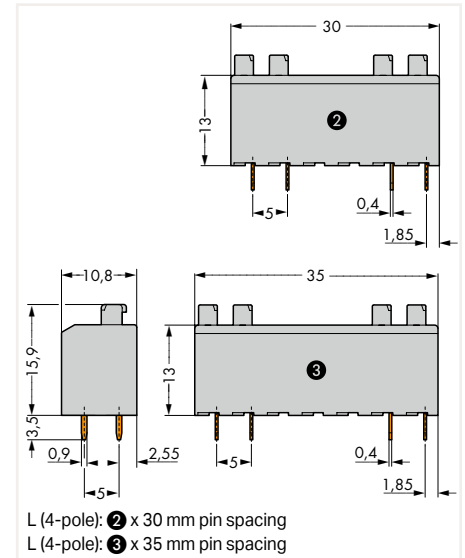
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



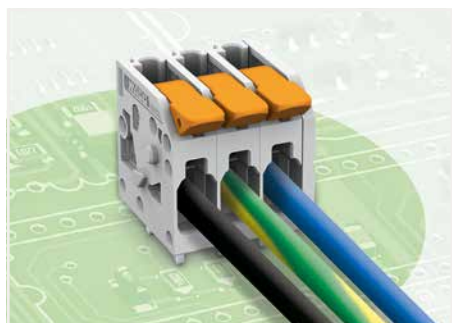
Available upon request (depending on quantity required):

- Direct marking

## PCB Terminal Block with Levers; 2 Solder Pins/Pole; 4 mm<sup>2</sup>

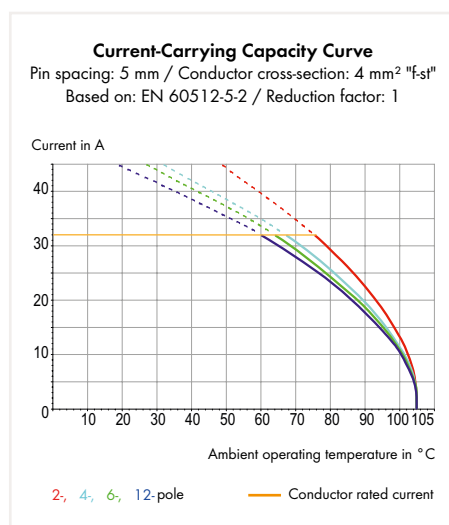
Pin Spacing: 5 mm; 7.5 mm; 11.5 mm

2604 Series



- PCB terminal block with levers and Push-in CAGE CLAMP®
- Push-in termination of solid and ferruled conductors
- Intuitive and tool-free operation
- Several clamping units can be held open simultaneously – convenient for terminating multi-core cables
- Testing can be performed both parallel and perpendicular to conductor entry

2



Electrical Data									
Pin spacing	5 mm / 0.197 inch			7.5 mm / 0.295 inch			11.5 mm / 0.453 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	400 V	630 V	630 V	630 V	1000 V	1000 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Rated current	32 A	32 A	32 A	32 A	32 A	32 A	32 A	32 A	32 A
Approvals per	UL 1059			UL 1059			UL 1059		
Use group	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	–	300 V	300 V	300 V	600 V	600 V	600 V	–
Rated current	20 A	–	10 A	20 A	20 A	5 A	20 A	20 A	–
Connection Data									
Connection technology	Push-in CAGE CLAMP®								
Strip length	9 ... 11 mm / 0.35 ... 0.43 inch								
Conductor entry angle to the PCB	0°								
Conductor range									
Solid conductor	0.2 ... 4 mm <sup>2</sup> / 24 ... 12 AWG								
Fine-stranded conductor	0.2 ... 4 mm <sup>2</sup> / 24 ... 12 AWG								
Fine-stranded conductor; with insulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 14 AWG								
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 14 AWG								
Fine-stranded conductor; with twin ferrule	0.25 ... 1.5 mm <sup>2</sup>								
Solder Pin Data									
Solder pin length	4 mm								
Solder pin dimensions	0.8 x 1 mm								
Drilled hole diameter	1.3 <sup>+0.1</sup> mm								
Material Data									
Material group	I								
Insulating material	Polyamide 66 (PA 66)								
Flammability class per UL94	V0								
Limit temperature range	–60 ... +105 °C								
Clamping spring material	Chrome nickel spring steel (CrNi)								
Contact Material	Electrolytic copper (E <sub>Cu</sub> )								
Contact plating	Tin-plated								

\*(III / 2) ≙ Overvoltage category III / Pollution degree 2



# PCB Terminal Block with Levers; 2 Solder Pins/Pole; 4 mm<sup>2</sup> Pin Spacing: 5 mm; 7.5 mm; 11.5 mm 2604 Series

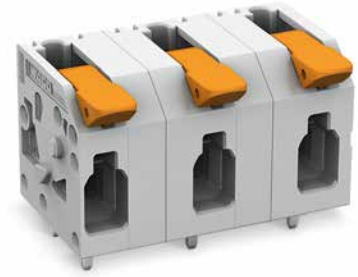
Pin spacing: 5 mm / 0.197 inch



Pin spacing: 7.5 mm / 0.295 inch



Pin spacing: 11.5 mm / 0.453 inch



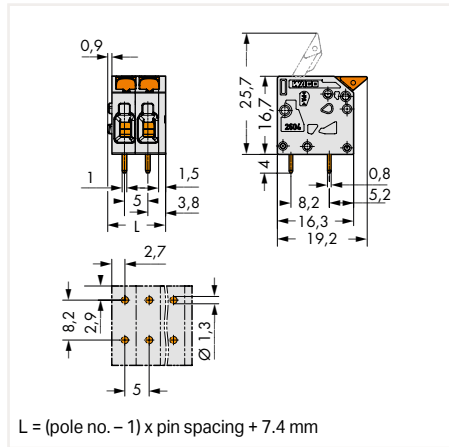
2

Pole No.	Item No.	Pack. Unit
1	2604-1101	300
2	2604-1102	200
3	2604-1103	130
4	2604-1104	100
5	2604-1105	80
6	2604-1106	60
7	2604-1107	60
8	2604-1108	50
9	2604-1109	40
10	2604-1110	40
11	2604-1111	30
12	2604-1112	30

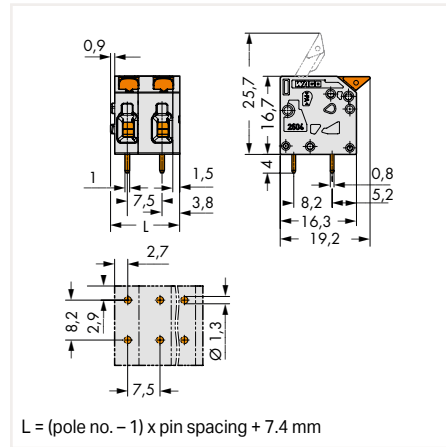
Pole No.	Item No.	Pack. Unit
2	2604-1302	150
3	2604-1303	100
4	2604-1304	70
5	2604-1305	60
6	2604-1306	45
7	2604-1307	40
8	2604-1308	35
9	2604-1309	30
10	2604-1310	25
11	2604-1311	25
12	2604-1312	25

Pole No.	Item No.	Pack. Unit
2	2604-1502	120
3	2604-1503	70
4	2604-1504	50
5	2604-1505	40
6	2604-1506	30
7	2604-1507	25
8	2604-1508	25
9	2604-1509	25
10	2604-1510	20
11	2604-1511	20
12	2604-1512	15

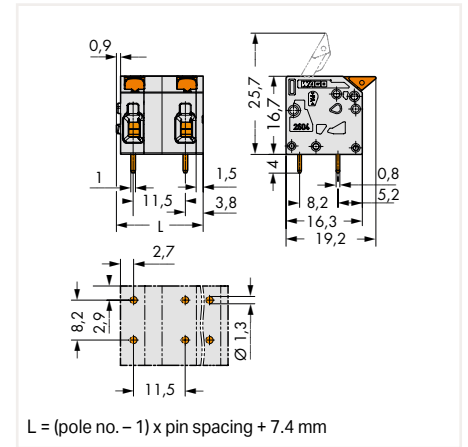
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



Available upon request (depending on quantity required):

- Other pole numbers
- Other colors
- Direct marking

## PCB Terminal Block; with Levers; 2 Solder Pins/Pole; 4 mm<sup>2</sup>

Pin Spacing: 5 mm; 7.5 mm; 11.5 mm

2604 Series

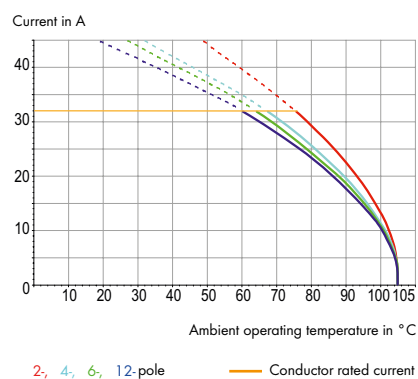


- PCB terminal block with levers and Push-in CAGE CLAMP®
- Push-in termination of solid and ferruled conductors
- Intuitive and tool-free operation
- Several clamping units can be held open simultaneously – convenient for terminating multi-core cables
- Testing can be performed both parallel and perpendicular to conductor entry

2

### Current-Carrying Capacity Curve

Pin spacing: 5 mm / Conductor cross-section: 4 mm<sup>2</sup> "f-st"  
Based on: EN 60512-5-2 / Reduction factor: 1



### Electrical Data

Pin spacing	5 mm / 0.197 inch			7.5 mm / 0.295 inch			11.5 mm / 0.453 inch		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	400 V	630 V	630 V	630 V	1000 V	1000 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Rated current	32 A	32 A	32 A	32 A	32 A	32 A	32 A	32 A	32 A

Approvals per	UL 1059			UL 1059			UL 1059		
Use group	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	300 V	600 V	600 V	600 V	-
Rated current	20 A	-	10 A	20 A	20 A	5 A	20 A	20 A	-

### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 ... 11 mm / 0.35 ... 0.43 inch
Conductor entry angle to the PCB	90°
Conductor range	
Solid conductor	0.2 ... 4 mm <sup>2</sup> / 24 ... 12 AWG
Fine-stranded conductor	0.2 ... 4 mm <sup>2</sup> / 24 ... 12 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 14 AWG
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 14 AWG
Fine-stranded conductor; with twin ferrule	0.25 ... 1.5 mm <sup>2</sup>

### Solder Pin Data

Solder pin length	4 mm
Solder pin dimensions	0.8 x 1 mm
Drilled hole diameter	1.3 <sup>+0.1</sup> mm

### Material Data

Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>Cu</sub> )
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

# PCB Terminal Block; with Levers; 2 Solder Pins/Pole; 4 mm<sup>2</sup> Pin Spacing: 5 mm; 7.5 mm; 11.5 mm 2604 Series

Pin spacing: 5 mm / 0.197 inch



Pin spacing: 7.5 mm / 0.295 inch



Pin spacing: 11.5 mm / 0.453 inch



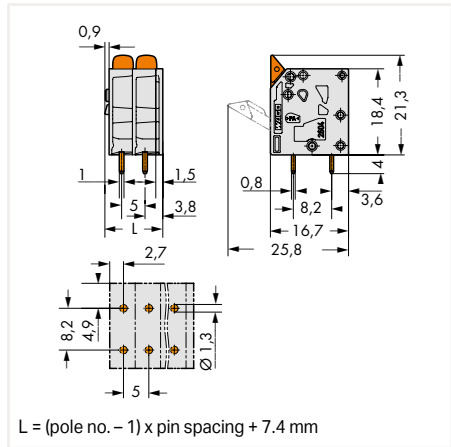
2

Pole No.	Item No.	Pack. Unit
1	2604-3101	250
2	2604-3102	180
3	2604-3103	120
4	2604-3104	90
5	2604-3105	70
6	2604-3106	50
7	2604-3107	50
8	2604-3108	40
9	2604-3109	40
10	2604-3110	30
11	2604-3111	30
12	2604-3112	30

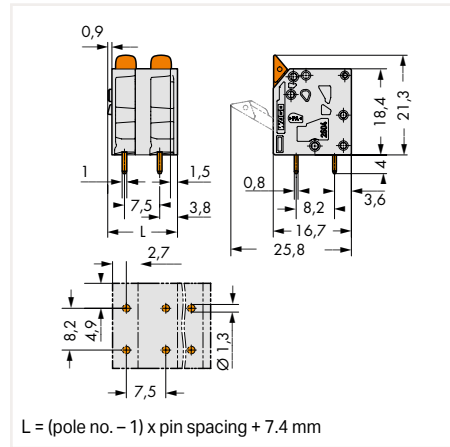
Pole No.	Item No.	Pack. Unit
2	2604-3302	150
3	2604-3303	100
4	2604-3304	70
5	2604-3305	50
6	2604-3306	45
7	2604-3307	40
8	2604-3308	30
9	2604-3309	30
10	2604-3310	25
11	2604-3311	25
12	2604-3312	25

Pole No.	Item No.	Pack. Unit
2	2604-3502	120
3	2604-3503	70
4	2604-3504	50
5	2604-3505	40
6	2604-3506	30
7	2604-3507	25
8	2604-3508	25
9	2604-3509	25
10	2604-3510	20
11	2604-3511	20
12	2604-3512	15

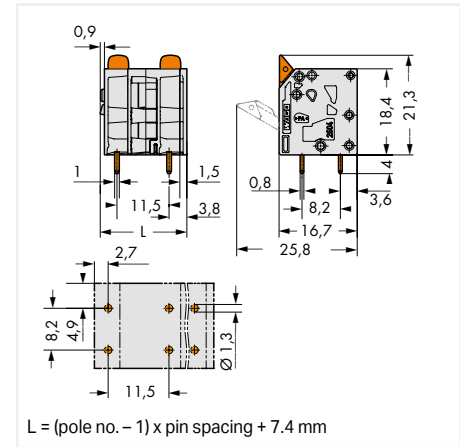
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



Available upon request (depending on quantity required):

- Other pole numbers
- Other colors
- Direct marking

## PCB Terminal Block; 2 Solder Pins/Pole; 4 mm<sup>2</sup>

Pin Spacing: 5 mm; 7.5 mm; 11.5 mm

2624 Series

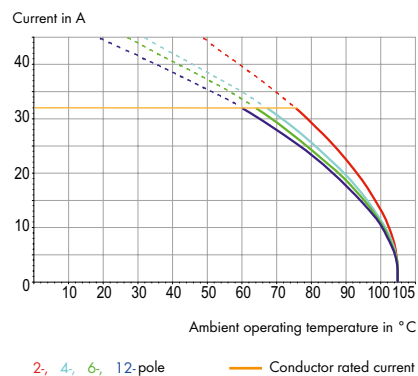


- PCB terminal block with Push-in CAGE CLAMP® connection
- Push-in termination of solid and ferruled conductors
- Ideal for panel feedthrough applications via operation parallel to conductor entry
- Testing can be performed both parallel and perpendicular to conductor entry

2

### Current-Carrying Capacity Curve

Pin spacing: 5 mm / Conductor cross-section: 4 mm<sup>2</sup> "f-st"  
Based on: EN 60512-5-2 / Reduction factor: 1



### Electrical Data

Pin spacing	5 mm / 0.197 inch			7.5 mm / 0.295 inch			11.5 mm / 0.453 inch		
	IEC/EN 60664-1								
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	400 V	630 V	630 V	630 V	1000 V	1000 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Rated current	41 A	41 A	41 A	41 A	41 A	41 A	41 A	41 A	41 A

Approvals per	UL 1059			UL 1059			UL 1059		
	B	C	D	B	C	D	B	C	D
Use group	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	150 V	300 V	600 V	600 V	-
Rated current	26 A	-	10 A	26 A	26 A	10 A	26 A	26 A	-

### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	10 ... 12 mm / 0.39 ... 0.47 inch
Conductor entry angle to the PCB	0°
Conductor range	
Solid conductor	0.2 ... 6 mm <sup>2</sup> / 24 ... 10 AWG
Fine-stranded conductor	0.2 ... 6 mm <sup>2</sup> / 24 ... 10 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 14 AWG
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 14 AWG
Fine-stranded conductor; with twin ferrule	0.25 ... 1.5 mm <sup>2</sup>

### Solder Pin Data

Solder pin length	4 mm
Solder pin dimensions	0.8 x 1 mm
Drilled hole diameter	1.3 <sup>+0.1</sup> mm

### Material Data

Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2

PUSH-IN CAGE CLAMP®

PCB Terminal Block; 2 Solder Pins/Pole; 4 mm<sup>2</sup>

Pin Spacing: 5 mm; 7.5 mm; 11.5 mm

2624 Series

Pin spacing: 5 mm / 0.197 inch



Pin spacing: 7.5 mm / 0.295 inch



Pin spacing: 11.5 mm / 0.453 inch



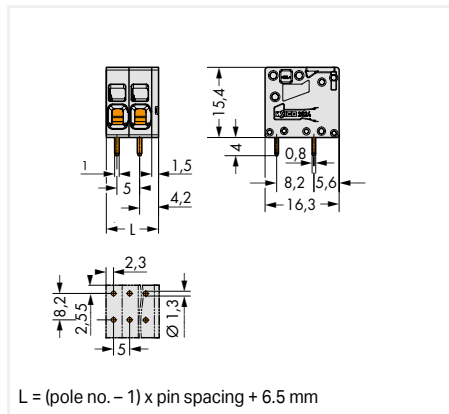
2

Pole No.	Item No.	Pack. Unit
1	2624-1101	300
2	2624-1102	200
3	2624-1103	150
4	2624-1104	100
5	2624-1105	100
6	2624-1106	80
7	2624-1107	50
8	2624-1108	50
9	2624-1109	50
10	2624-1110	40
11	2624-1111	35
12	2624-1112	35

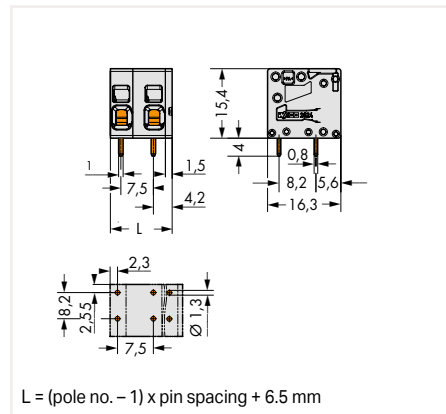
Pole No.	Item No.	Pack. Unit
2	2624-1302	200
3	2624-1303	120
4	2624-1304	80
5	2624-1305	70
6	2624-1306	50
7	2624-1307	50
8	2624-1308	40
9	2624-1309	35
10	2624-1310	35
11	2624-1311	25
12	2624-1312	25

Pole No.	Item No.	Pack. Unit
2	2624-1502	100
3	2624-1503	80
4	2624-1504	50
5	2624-1505	40
6	2624-1506	40
7	2624-1507	30
8	2624-1508	25
9	2624-1509	25
10	2624-1510	20
11	2624-1511	20
12	2624-1512	20

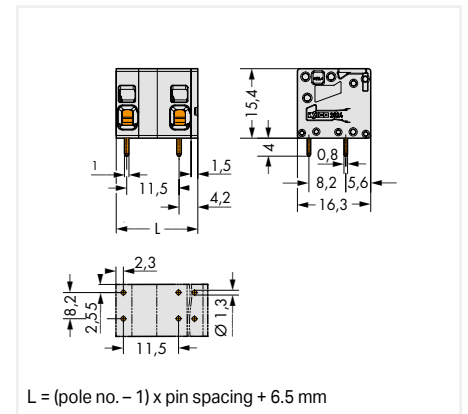
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



Available upon request (depending on quantity required):

- Other pole numbers
- Other colors
- Direct marking

## PCB Terminal Block; 2 Solder Pins/Pole; 4 mm<sup>2</sup>

Pin Spacing: 5 mm; 7.5 mm; 11.5 mm

2624 Series

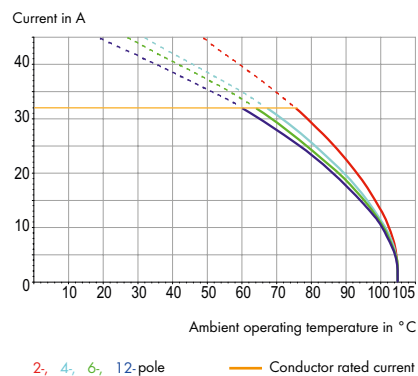


- PCB terminal block with Push-in CAGE CLAMP® connection
- Push-in termination of solid and ferruled conductors
- Ideal for panel feedthrough applications via operation parallel to conductor entry
- Testing can be performed both parallel and perpendicular to conductor entry

2

### Current-Carrying Capacity Curve

Pin spacing: 5 mm / Conductor cross-section: 4 mm<sup>2</sup> "f-st"  
Based on: EN 60512-5-2 / Reduction factor: 1



### Electrical Data

Pin spacing	5 mm / 0.197 inch			7.5 mm / 0.295 inch			11.5 mm / 0.453 inch		
	IEC/EN 60664-1								
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2	3	2	2
Rated voltage	320 V	400 V	630 V	630 V	630 V	1000 V	1000 V	1000 V	1000 V
Rated surge voltage	4 kV	4 kV	4 kV	6 kV	6 kV	6 kV	8 kV	8 kV	8 kV
Rated current	41 A	41 A	41 A	41 A	41 A	41 A	41 A	41 A	41 A

Approvals per	UL 1059			UL 1059			UL 1059		
	B	C	D	B	C	D	B	C	D
Use group	B	C	D	B	C	D	B	C	D
Rated voltage	300 V	-	300 V	300 V	150 V	300 V	600 V	600 V	-
Rated current	26 A	-	10 A	26 A	26 A	10 A	26 A	26 A	-

### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	10 ... 12 mm / 0.39 ... 0.47 inch
Conductor entry angle to the PCB	90°
Conductor range	
Solid conductor	0.2 ... 6 mm <sup>2</sup> / 24 ... 10 AWG
Fine-stranded conductor	0.2 ... 6 mm <sup>2</sup> / 24 ... 10 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 14 AWG
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 24 ... 14 AWG
Fine-stranded conductor; with twin ferrule	0.25 ... 1.5 mm <sup>2</sup>

### Solder Pin Data

Solder pin length	4 mm
Solder pin dimensions	0.8 x 1 mm
Drilled hole diameter	1.3 <sup>+0.1</sup> mm

### Material Data

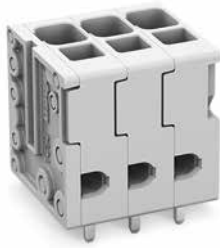
Material group	I
Insulating material	Polyamide 66 (PA 66)
Flammability class per UL94	V0
Limit temperature range	-60 ... +105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>Cu</sub> )
Contact plating	Tin-plated

\*(III / 2) ≙ Overvoltage category III /  
Pollution degree 2



**PUSH-IN CAGE CLAMP®****PCB Terminal Block; 2 Solder Pins/Pole; 4 mm<sup>2</sup>****Pin Spacing: 5 mm; 7.5 mm; 11.5 mm****2624 Series**

Pin spacing: 5 mm / 0.197 inch



Pin spacing: 7.5 mm / 0.295 inch



Pin spacing: 11.5 mm / 0.453 inch

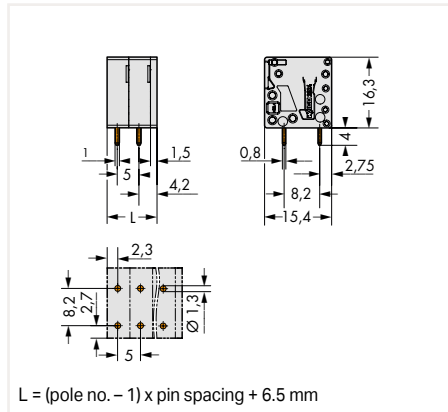
**2**

Pole No.	Item No.	Pack. Unit
1	2624-3101	300
2	2624-3102	200
3	2624-3103	150
4	2624-3104	100
5	2624-3105	100
6	2624-3106	80
7	2624-3107	50
8	2624-3108	50
9	2624-3109	50
10	2624-3110	40
11	2624-3111	35
12	2624-3112	35

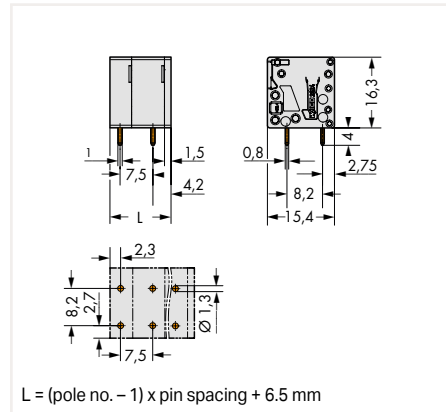
Pole No.	Item No.	Pack. Unit
2	2624-3302	200
3	2624-3303	120
4	2624-3304	80
5	2624-3305	70
6	2624-3306	50
7	2624-3307	50
8	2624-3308	40
9	2624-3309	35
10	2624-3310	35
11	2624-3311	25
12	2624-3312	25

Pole No.	Item No.	Pack. Unit
2	2624-3502	100
3	2624-3503	80
4	2624-3504	50
5	2624-3505	40
6	2624-3506	40
7	2624-3507	30
8	2624-3508	25
9	2624-3509	25
10	2624-3510	20
11	2624-3511	20
12	2624-3512	20

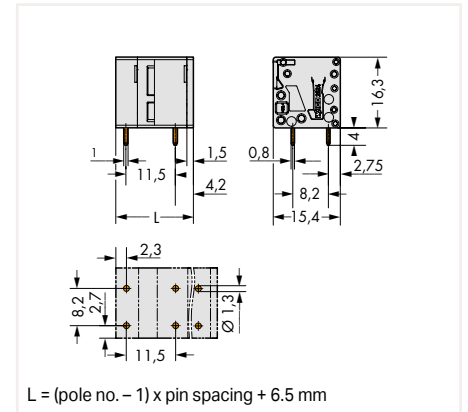
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



Available upon request (depending on quantity required):

- Other pole numbers
- Other colors
- Direct marking



## ***MULTI CONNECTION SYSTEM***

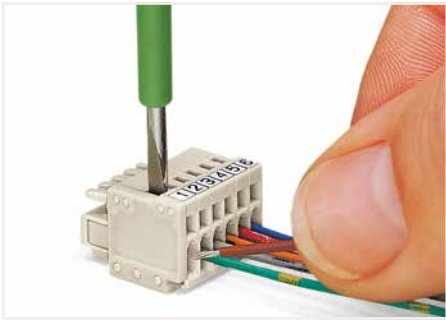
**MULTI CONNECTION SYSTEM**

			Page
	MICRO; Pin Spacing: 2.5 mm	733 Series	103
	MINI HD; Pin Spacing: 3.5 mm	713 Series	103
	MINI SL; Pin Spacing: 3.5 mm	714 Series	103
	MINI; Pin Spacing: 3.5 mm	734 Series 2734 Series	104
	MINI; Pin Spacing: 3.81 mm	734 Series Seire 2734	105
	MIDI; Pin Spacing: 5 mm	721 Series 722 Series 2721 Series	106
	MIDI Classic; Pin Spacing: 5 mm	231 Series 232 Series 731 Series 2231 Series	107
	MIDI Classic; Pin Spacing: 5.08 mm	231 Series 232 Series 2231 Series	108
	MIDI; Pin Spacing: 7.5 mm	721 Series 722 Series 723 Series 2721 Series	109
	MIDI Classic; Pin Spacing: 7.5 mm	231 Series 232 Series 731 Series 2231 Series	110
	MIDI Classic; Pin Spacing: 7.62 mm	231 Series 232 Series 731 Series 732 Series 2231 Series	111
	MAXI; Pin Spacing: 7.62	831 Series	111

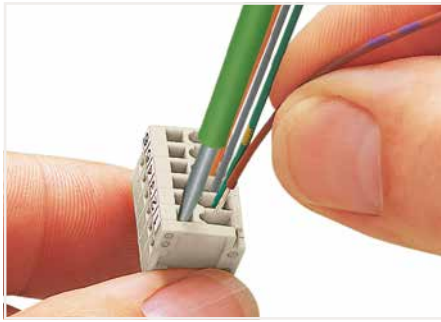
## MCS – MULTI CONNECTION SYSTEM

### Description and Installation, e.g., for CAGE CLAMP® Connection

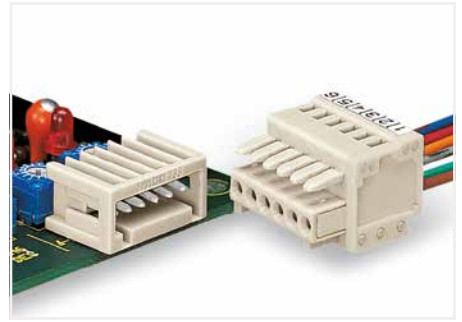
3



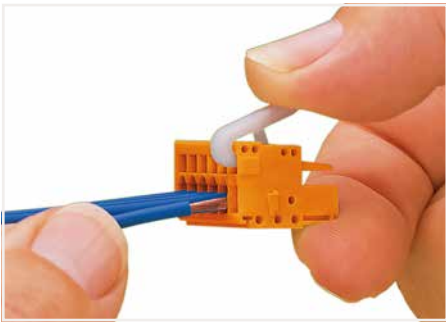
Inserting a conductor via (2.5 x 0.4) mm screwdriver. Operation is performed perpendicular to conductor entry.



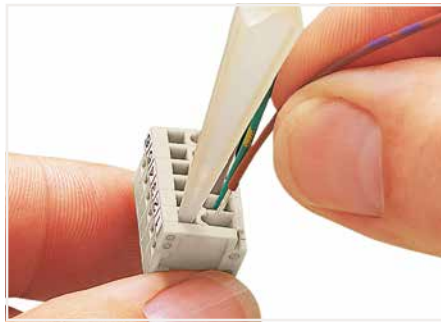
Inserting a conductor via (2.5 x 0.4) mm screwdriver. Operation parallel to conductor entry



Male header and female connector – 100% protected against mismatching  
Only mating halves with the same pole number can be connected.



Inserting a conductor via push-button. (Item No. 734-230)



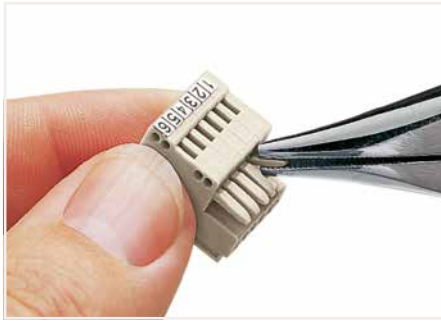
Inserting a conductor via operating tool. (Item No. 233-332)  
Operation parallel to conductor entry



Testing via 1 mm Ø test pin (Item No. 735-500), touch contact.



Coding a male header – fitting coding key(s).



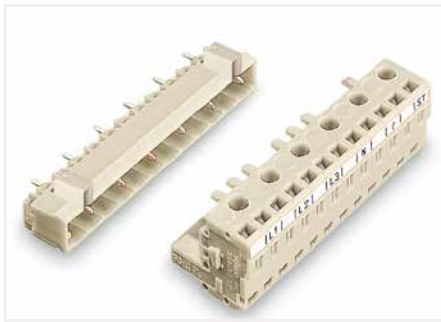
Coding a female connector – removing coding finger(s).



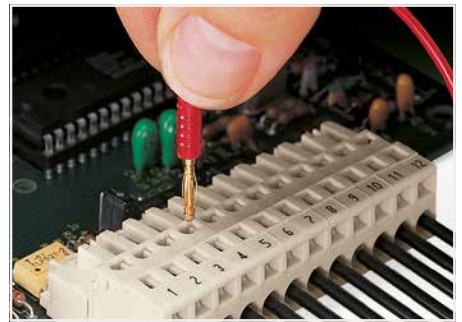
Factory marking or custom marking via self-adhesive strips.



Prevents the insulation of smaller conductors from being inserted into the clamping unit.



For 10 mm pin spacing, please contact factory.



Testing with 2 mm or 2.3 mm Ø test plug.

# MCS – MULTI CONNECTION SYSTEM

## Product Overview by Pin Spacing

2.5 mm							
733 Series; MICRO; 100% Mismatching Protection; 160 V; 6 A							
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Male headers with straight solder pins; 2 ... 12 poles		Male headers with straight solder pins; 2 ... 12 poles		Male headers with press-in pins; 2 ... 12 poles		Female connectors; 2 ... 12 poles	
733-332	200	733-332/105-604	200	733-332/100-000	200	733-102	200
733-342	100	733-342/105-604	100	733-342/100-000	100	733-112	50
Male headers with angled solder pins; 2 ... 12 poles		Male headers with angled solder pins; 2 ... 12 poles				Female connectors with locking levers; 2 ... 12 poles	
733-362	200	733-362/105-604	200			733-102/037-000	100
733-372	100	733-372/105-604	100			733-112/037-000	50

3.5 mm							
713 Series; MINI HD; 100% Mismatching Protection; 160 V; 10 A							
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Male headers with straight solder pins; 6 ... 36 poles		Male headers with angled solder pins; 6 ... 36 poles		Male headers with straight solder pins; 6 ... 36 poles		Male headers with angled solder pins; 6 ... 36 poles	
713-1403	100	713-1423	100	713-1403/105-000	100	713-1423/105-000	100
713-1418	20	713-1438	20	713-1418/105-000	20	713-1438/105-000	20
Male headers with straight solder pins and levers; 6 ... 36 poles		Male headers with angled solder pins and levers; 6 ... 36 poles		Male headers with straight solder pins and levers; 6 ... 36 poles		Male headers with angled solder pins and levers; 6 ... 36 poles	
713-1403/037-000	50	713-1423/037-000	50	713-1403/116-000	50	713-1423/116-000	50
713-1418/037-000	10	713-1438/037-000	10	713-1418/116-000	10	713-1438/116-000	10
Male headers with straight solder pins and threaded flanges; 6 ... 36 poles		Male headers with angled solder pins and threaded flanges; 6 ... 36 poles		Male headers with straight solder pins and threaded flanges; 6 ... 36 poles		Male headers with angled solder pins and threaded flanges; 6 ... 36 poles	
713-1403/107-000	50	713-1423/107-000	50	713-1403/117-000	50	713-1423/117-000	50
713-1418/107-000	10	713-1438/107-000	10	713-1418/117-000	10	713-1438/117-000	10
						Female connectors; 6 ... 36 poles	
						0.08 ... 1.5 mm <sup>2</sup> / 28 ... 16 AWG	
						Female connectors with levers; 6 ... 36 poles	
						0.08 ... 1.5 mm <sup>2</sup> / 28 ... 16 AWG	
						Female connectors with threaded flanges; 6 ... 36 poles	
						0.08 ... 1.5 mm <sup>2</sup> / 28 ... 16 AWG	

3.5 mm							
714 Series; MINI SL; 160 V; 8 A							
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Male headers with straight solder pins; 2 ... 16 poles		Male headers with angled solder pins; 2 ... 16 poles		Female connectors; 2 ... 16 poles			
714-132	200	714-162	200	714-102	200		
714-146	100	714-176	100	714-116	50		

Press-in technology Through-hole reflow soldering



# MCS – MULTI CONNECTION SYSTEM





















## Product Overview by Pin Spacing

3.5 mm									
734/2734 Series; MINI; 100% Mismatch Protection									
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit		
Male headers with straight solder pins; 2 ... 24 poles		Female headers with straight solder pins; 2 ... 24 poles		Female connectors; 2 ... 24 poles		Male connectors; 2 ... 24 poles		Combi strips; 2 ... 12 poles	
○		○		○		○		○	
734-132	200	734-462	200	734-102	200	734-302	200	734-362	100
734-154	50	734-484	25	734-124	25	734-324	25	734-372	25
0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG	
Male headers with angled solder pins; 2 ... 24 poles		Female headers with angled solder pins; 2 ... 24 poles		Female connectors with locking levers; 2 ... 24 poles		Male connectors with mounting flanges; 2 ... 24 poles		Combi strips with locking levers; 2 ... 12 poles	
○		○		○		○		○	
734-162	200	734-532	200	734-102/037-000	100	734-302/019-000	100	734-362/037-000	100
734-184	50	734-554	25	734-124/037-000	10	734-324/019-000	10	734-372/037-000	25
0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG	
Male headers with straight solder pins; 2 ... 16 poles		Female headers with straight solder pins and locking levers; 2 ... 24 poles		Female connectors with snap-in mounting feet; 2 ... 24 poles		Male connectors with snap-in mounting feet; 2 ... 24 poles		Combi strips with snap-in mounting feet; 2 ... 12 poles	
●		○		○		○		○	
734-132/105-604	200	734-462/037-000	100	734-102/008-000	200	734-302/018-000	200	734-362/008-000	100
734-146/105-604	50	734-484/037-000	10	734-124/008-000	25	734-324/018-000	25	734-372/008-000	25
0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG	
Male headers with angled solder pins; 2 ... 16 poles		Female headers with angled solder pins and locking levers; 2 ... 24 poles							
●		○							
734-162/105-604	200	734-532/037-000	100						
734-176/105-604	50	734-554/037-000	10						
Male headers with straight press-in pins; 2 ... 12 poles								Female connectors with push-buttons; 2 ... 24 poles	
○								○	
734-132/100-000	200							0.2 ... 1.5 mm <sup>2</sup> / 24 ... 14 AWG	2734-102
734-142/100-000	100								2734-124
Double-deck male headers with angled solder pins; 4 ... 24 poles								Female connectors with push-buttons and locking levers; 2 ... 24 poles	
○								○	
734-402	100							0.2 ... 1.5 mm <sup>2</sup> / 24 ... 14 AWG	2734-102/037-000
734-412	50								2734-124/037-000
Double-deck male headers with angled solder pins and support; 4 ... 24 poles								Female connectors with push-buttons and mounting flanges; 2 ... 24 poles	
○								○	
734-402/001-000	100							0.2 ... 1.5 mm <sup>2</sup> / 24 ... 14 AWG	2734-102/031-000
734-412/001-000	50								2734-124/031-000
Male headers with straight solder pins and threaded flanges; 2 ... 24 poles		Male headers with angled solder pins and threaded flanges; 2 ... 24 poles		Female connectors with screw flanges; 2 ... 24 poles		Male connectors with threaded flanges; 2 ... 24 poles		Female connectors with push-buttons and screw flanges; 2 ... 24 poles	
○		○		○		○		○	
734-132/108-000	200	734-162/108-000	200	734-102/107-000	100	734-302/109-000	100	2734-102/107-000	100
734-154/108-000	50	734-184/108-000	50	734-124/107-000	10	734-324/109-000	10	2734-124/107-000	10
0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.2 ... 1.5 mm <sup>2</sup> / 24 ... 14 AWG	



# MCS – MULTI CONNECTION SYSTEM



































## Product Overview by Pin Spacing

3.81 mm									
734/2734 Series; MINI; 100% Mismatch Protection									
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit		
Male headers with straight solder pins; 2 ... 20 poles		Female headers with straight solder pins; 2 ... 20 poles		Female connectors; 2 ... 20 poles		Male connectors; 2 ... 20 poles		Female connectors with push-buttons; 2 ... 20 poles	
734-232	200	734-502	200	734-202	200	734-332	200	2734-202	200
734-250	50	734-520	25	734-220	25	734-350	25	2734-220	25
0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.2 ... 1.5 mm <sup>2</sup> / 24 ... 14 AWG	
Male headers with angled solder pins; 2 ... 20 poles		Female headers with angled solder pins; 2 ... 20 poles		Female connectors with locking levers; 2 ... 20 poles		Male connectors with mounting flanges; 2 ... 20 poles		Female connectors with push-buttons and locking levers; 2 ... 20 poles	
734-262	200	734-562	200	734-202/037-000	100	734-332/019-000	100	2734-202/037-000	100
734-280	50	734-580	25	734-220/037-000	10	734-350/019-000	10	2734-220/037-000	10
0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.2 ... 1.5 mm <sup>2</sup> / 24 ... 14 AWG	
Male headers with straight solder pins; 2 ... 16 poles		Female headers with straight solder pins and locking levers; 2 ... 20 poles		Female connectors with snap-in mounting feet; 2 ... 20 poles		Male connectors with snap-in mounting feet; 2 ... 20 poles		Female connectors with push-buttons and mounting flanges; 2 ... 20 poles	
734-232/105-604	200	734-502/037-000	100	734-202/008-000	200	734-332/018-000	200	2734-202/031-000	100
734-242/105-604	100	734-520/037-000	10	734-220/008-000	25	734-350/018-000	25	2734-220/031-000	10
0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.08 ... 1.5 mm <sup>2</sup> / 28 ... 14 AWG		0.2 ... 1.5 mm <sup>2</sup> / 24 ... 14 AWG	
Male headers with angled solder pins; 2 ... 16 poles		Female headers with angled solder pins and locking levers; 2 ... 20 poles							
734-262/105-604	200	734-562/037-000	100						
734-272/105-604	100	734-580/037-000	10						
Male headers with straight press-in pins; 2 ... 12 poles									
734-232/100-000	200								
734-242/100-000	100								
Double-deck male headers with angled solder pins; 4 ... 24 poles									
734-432	100								
734-442	50								
Double-deck male headers with angled solder pins and support; 4 ... 24 poles									
734-432/001-000	100								
734-442/001-000	50								

3

# MCS – MULTI CONNECTION SYSTEM

## Product Overview by Pin Spacing

5 mm									
721/722/2721 Series; MIDI; 100% Mismatch Protection; 320 V; 12 A (16 A)									
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit		
Male headers with straight solder pins; 2 ... 20 poles		Female headers with straight solder pins; 2 ... 20 poles		Female connectors; 2 ... 20 poles		Male connectors; 2 ... 20 poles		Female connectors with push-buttons; 2 ... 20 poles	
○		○		○		○		○	
721-132/001-000	200	722-132	100	721-102/026-000	100	721-602	100	7271-102/026-000	100
721-150/001-000	50	722-150	10	721-120/026-000	10	721-620	10	2721-120/026-000	10
Male headers with angled solder pins; 2 ... 20 poles		Female headers with angled solder pins; 2 ... 20 poles		Female connectors with locking levers; 2 ... 20 poles		Male connectors with mounting flanges; 2 ... 20 poles		Female connectors with push-buttons and locking levers; 2 ... 20 poles	
○		○		○		○		○	
721-432/001-000	200	722-232	100	721-102/037-000	100	721-602/019-000	100	2721-102/037-000	100
721-450/001-000	50	722-250	10	721-120/037-000	10	721-620/019-000	10	2721-120/037-000	10
Male headers with straight press-in pins; 8 A; 2 ... 12 poles		Female headers with straight solder pins and locking levers; 2 ... 20 poles		Female connectors with snap-in mounting feet; 2 ... 20 poles		Male connectors with snap-in mounting feet; 2 ... 20 poles		Female connectors with push-buttons and snap-in mounting feet; 2 ... 20 poles	
○		○		○		○		○	
721-162/100-000	200	722-132/039-000	100	721-102/008-000	100	721-602/018-000	100	2721-102/008-000	100
721-172/100-000	100	722-150/039-000	10	721-120/008-000	10	721-620/018-000	10	2721-120/008-000	10
Male headers with straight solder pins; 16 A; 2 ... 20 poles		Female headers with angled solder pins and locking levers; 2 ... 20 poles		Female connectors with mounting flanges; 2 ... 20 poles		Male connectors with snap-in flanges; 2 ... 20 poles		Female connectors with push-buttons and mounting flanges; 2 ... 20 poles	
○		○		○		○		○	
721-162/001-000	200	722-232/039-000	100	721-102/031-000	100	721-602/114-000	100	2721-102/031-000	100
721-180/001-000	50	722-250/039-000	10	721-120/031-000	10	721-620/114-000	10	2721-120/031-000	10
Male headers with angled solder pins; 16 A; 2 ... 20 poles		Female headers with straight solder pins and mounting flanges; 2 ... 20 poles		Angled female connectors, conductor entry same direction as latches; 2 ... 20 poles					
○		○		○					
721-462/001-000	200	722-132/031-000	100	722-202/026-000	100				
721-480/001-000	50	722-150/031-000	10	722-220/026-000	10				
Male connectors for rail-mount terminal blocks; 2 ... 20 poles		Female headers with angled solder pins and mounting flanges; 2 ... 20 poles		Angled female connectors, conductor entry opposite of latches; 2 ... 20 poles					
○		○		○					
721-162/003-000	200	722-232/031-000	100	722-102/026-000	100				
721-180/003-000	50	722-250/031-000	10	722-120/026-000	10				
Female connectors for rail-mount terminal blocks; 2 ... 20 poles		Female headers with straight solder pins and spacers; 2 ... 20 poles		2-conductor female connectors; 2 ... 16 poles				Female connectors with flanges for panel mounting; 2 ... 20 poles	
○		○		○				○	
722-132/005-000	100	722-132/047-000	100	721-2102/026-000	100			721-302/031-000	100
722-150/005-000	10	722-150/047-000	10	721-2116/026-000	25			721-320/031-000	10
Female connectors with locking levers for rail-mount terminal blocks; 2 ... 20 poles		Female headers with angled solder pins and spacers; 2 ... 20 poles		2-conductor female connectors with locking levers; 2 ... 16 poles				Female connectors with snap-in feet for panel mounting; 2 ... 20 poles	
○		○		○				○	
722-132/005-000/039-000	100	722-232/047-000	100	721-2102/037-000	100			721-302/008-000	100
722-150/005-000/039-000	10	722-250/047-000	10	721-2116/037-000	10			721-320/008-000	10

# MCS – MULTI CONNECTION SYSTEM

## Product Overview by Pin Spacing

5 mm									
231/232/731/2231 Series; MIDI Classic; 320 V; 12 A									
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Male headers with straight solder pins; 2 ... 24 poles		Female headers with straight solder pins; 2 ... 24 poles		Female connectors; 2 ... 24 poles		Male connectors; 2 ... 24 poles		Female connectors with push-buttons; 2 ... 24 poles	
231-132/001-000	200	232-132	100	231-102/026-000	100	231-602	100	2231-102/026-000	100
231-154/001-000	50	232-154	10	231-124/026-000	10	231-624	10	2231-124/026-000	10
Male headers with angled solder pins; 2 ... 24 poles		Female headers with angled solder pins; 2 ... 24 poles		Female connectors with locking levers; 2 ... 24 poles		Male connectors with mounting flanges; 2 ... 24 poles		Female connectors with push-buttons and locking levers; 2 ... 24 poles	
231-432/001-000	200	232-232	100	231-102/037-000	100	231-602/019-000	100	2231-102/037-000	100
231-454/001-000	50	232-254	10	231-124/037-000	10	231-624/019-000	10	2231-124/037-000	10
Male headers with straight solder pins and mounting flanges; 2 ... 14 poles		Female headers with straight solder pins and locking levers; 2 ... 24 poles		Female connectors with snap-in mounting feet; 2 ... 24 poles		Male connectors with snap-in mounting feet; 2 ... 24 poles		Female connectors with push-buttons and snap-in mounting feet; 2 ... 24 poles	
231-132/040-000	200	232-132/039-000	100	231-102/008-000	100	231-602/018-000	100	2231-102/008-000	100
231-144/040-000	50	232-154/039-000	10	231-124/008-000	10	231-624/018-000	10	2231-124/008-000	10
Male headers with angled solder pins and mounting flanges; 2 ... 14 poles		Female headers with angled solder pins and locking levers; 2 ... 24 poles		Female connectors with mounting flanges; 2 ... 24 poles		Male connectors with snap-in flanges; 2 ... 24 poles		Female connectors with push-buttons and mounting flanges; 2 ... 24 poles	
231-432/040-000	200	232-232/039-000	100	231-102/031-000	100	231-602/114-000	50	2231-102/031-000	100
231-444/040-000	50	232-254/039-000	10	231-124/031-000	10	231-624/114-000	10	2231-124/031-000	10
Male headers with straight solder pins; 2 ... 12 poles		Female headers with straight solder pins and mounting flanges; 2 ... 24 poles		Angled female connectors, conductor entry same direction as latches; 2 ... 24 poles				Female connectors with push-buttons and integrated end plate; 2 ... 24 poles	
231-132/001-000/105-604	200	232-132/031-000	100	232-202/026-000	100			2231-102/102-000	100
231-142/001-000/105-604	100	232-154/031-000	10	232-224/026-000	10			2231-124/102-000	10
Male headers with angled solder pins; 2 ... 12 poles		Female headers with angled solder pins and mounting flanges; 2 ... 24 poles		Angled female connectors, conductor entry opposite of latches; 2 ... 24 poles				Double-pin male connectors for DIN-35 rail mounting; 2 ... 24 poles	
231-432/001-000/105-604	200	232-232/031-000	100	232-102/026-000	100			232-502/007-000	100
231-442/001-000/105-604	100	232-254/031-000	10	232-124/026-000	10			232-524/007-000	10
Double-deck male headers; 2 ... 16 poles				2-conductor female connectors; 2 ... 16 poles				Female connectors with mounting flanges for panel mounting; 2 ... 20 poles	
232-332	100			0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12 AWG				0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
232-346	25			231-2102/026-000	100			731-502/031-000	100
				231-2116/026-000	25			731-520/031-000	10
Male connectors for rail-mount terminal blocks; 2 ... 20 poles		Female connectors for rail-mount terminal blocks; 2 ... 20 poles		2-conductor female connectors with locking levers; 2 ... 16 poles				Female connectors with snap-in feet for panel mounting; 2 ... 20 poles	
231-162/003-000	200	232-132/005-000	100	231-2102/037-000	100			0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
231-180/003-000	50	232-150/005-000	10	231-2116/037-000	10			731-502/008-000	100
								731-520/008-000	10

3

# MCS – MULTI CONNECTION SYSTEM

## Product Overview by Pin Spacing

3

5.08 mm										
231/232/731/2231 Series; MIDI Classic; 320 V; 12 A (16 A)										
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit			
Male headers with straight solder pins; 2 ... 24 poles		Female headers with straight solder pins; 2 ... 24 poles		Female connectors; 2 ... 24 poles		Male connectors; 2 ... 24 poles		Female connectors with push-buttons; 2 ... 24 poles		
231-332/001-000	200	232-162	100	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	231-302/026-000	100	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12 AWG	2231-302/026-000	100
231-354/001-000	50	232-184	10	231-324/026-000	10	231-654	10	2231-324/026-000	10	
Male headers with angled solder pins; 2 ... 24 poles		Female headers with angled solder pins; 2 ... 24 poles		Female connectors with locking levers; 2 ... 24 poles		Male connectors with mounting flanges; 2 ... 24 poles		Female connectors with push-buttons and locking levers; 2 ... 24 poles		
231-532/001-000	200	232-262	100	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	231-302/037-000	100	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12 AWG	2231-302/037-000	100
231-554/001-000	50	232-284	10	231-324/037-000	10	231-654/019-000	10	2231-324/037-000	10	
Male headers with straight solder pins; 16 A; 2 ... 24 poles		Female headers with straight solder pins and locking levers; 2 ... 24 poles		Female connectors with snap-in mounting feet; 2 ... 24 poles		Male connectors with snap-in mounting feet; 2 ... 24 poles		Female connectors with push-buttons and snap-in mounting feet; 2 ... 24 poles		
231-362/001-000	200	232-162/039-000	100	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	231-302/008-000	100	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12 AWG	2231-302/008-000	100
231-384/001-000	50	232-184/039-000	10	231-324/008-000	10	231-654/018-000	10	2231-324/008-000	10	
Male headers with angled solder pins; 16 A; 2 ... 24 poles		Female headers with angled solder pins and locking levers; 2 ... 24 poles		Female connectors with mounting flanges; 2 ... 24 poles		Male connectors with snap-in flanges; 2 ... 24 poles		Female connectors with push-buttons and mounting flanges; 2 ... 24 poles		
231-562/001-000	200	232-262/039-000	100	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	231-302/031-000	100	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12 AWG	2231-302/031-000	100
231-584/001-000	50	232-284/039-000	10	231-324/031-000	10	231-654/114-000	10	2231-324/031-000	10	
Double-deck male headers; 2 ... 16 poles		Female headers with straight solder pins and mounting flanges; 2 ... 24 poles		2-conductor female connectors; 2 ... 16 poles				Angled female connectors, conductor entry same direction as latches; 2 ... 24 poles		
232-362	100	232-162/031-000	100	0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12 AWG	231-2302/026-000	100		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	232-402/026-000	100
232-376	25	232-184/031-000	10	231-2316/026-000	25			232-424/026-000	10	
		Female headers with angled solder pins and mounting flanges; 2 ... 24 poles		2-conductor female connectors with locking levers; 2 ... 16 poles				Angled female connectors, conductor entry opposite of latches; 2 ... 24 poles		
		232-262/031-000	100	0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12 AWG	231-2302/037-000	100		0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	232-302/026-000	100
		232-284/031-000	10	231-2316/037-000	10			232-324/026-000	10	
Male headers with straight solder pins and threaded flanges; 2 ... 16 poles				2-conductor female connectors with screw flanges; 2 ... 16 poles		Male connectors with snap-in and threaded flanges; 2 ... 16 poles		Double-pin male connectors for DIN-35 rail mounting; 2 ... 24 poles		
231-332/108-000	200			0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12 AWG	231-2302/107-000	100	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	232-532/007-000	100	
231-346/108-000	50			231-2316/107-000	10	231-646/129-000	10	232-554/007-000	10	
Male headers with angled solder pins and threaded flanges; 2 ... 16 poles				Female connectors with screw flanges; 2 ... 16 poles		Male connectors with threaded flanges; 2 ... 16 poles		Female connectors with push-buttons and screw flanges; 2 ... 24 poles		
231-532/108-000	200			0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	231-302/107-000	100	0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12 AWG	2231-302/107-000	100
231-546/108-000	50			231-316/107-000	10	231-646/109-000	10	2231-316/107-000	10	



# MCS – MULTI CONNECTION SYSTEM

## Product Overview by Pin Spacing

7.5 mm									
721/722/723/2721 Series; MIDI; 100% Mismatch Protection; 630 V; 12 A (16 A)									
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit		
Male headers with straight solder pins; 2 ... 12 poles		Female headers with straight solder pins; 2 ... 12 poles		Female connectors; 2 ... 12 poles		Male connectors; 2 ... 12 poles		Female connectors with push-buttons; 2 ... 12 poles	
721-232/001-000	200	722-732	100	721-202/026-000	100	723-602	100	7271-202/026-000	100
721-242/001-000	50	722-742	10	721-212/026-000	25	723-612	25	7271-212/026-000	25
Male headers with angled solder pins; 2 ... 12 poles		Female headers with angled solder pins; 2 ... 12 poles		Female connectors with locking levers; 2 ... 12 poles		Male connectors with mounting flanges; 2 ... 12 poles		Female connectors with push-buttons and locking levers; 2 ... 20 poles	
721-832/001-000	200	722-832	100	721-202/037-000	50	723-602/019-000	100	7271-202/037-000	50
721-842/001-000	50	722-842	10	721-212/037-000	10	723-612/019-000	25	7271-212/037-000	10
Male headers with straight solder pins; 16 A; 2 ... 12 poles		Female headers with straight solder pins and locking levers; 2 ... 12 poles		Female connectors with snap-in mounting feet; 2 ... 12 poles		Male connectors with snap-in mounting feet; 2 ... 12 poles		Female connectors with push-buttons and snap-in mounting feet; 2 ... 12 poles	
721-262/001-000	200	722-732/039-000	100	721-202/008-000	50	723-602/018-000	100	7271-202/008-000	100
721-272/001-000	50	722-742/039-000	10	721-212/008-000	10	723-612/018-000	25	7271-212/008-000	25
Male headers with angled solder pins; 16 A; 2 ... 12 poles		Female headers with angled solder pins and locking levers; 2 ... 12 poles		Female connectors with mounting flanges; 2 ... 12 poles		Male connectors with snap-in flanges; 2 ... 12 poles		Female connectors with push-buttons and mounting flanges; 4 ... 12 poles	
721-862/001-000	200	722-832/039-000	100	721-202/031-000	50	723-602/114-000	100	7271-202/031-000	50
721-872/001-000	50	722-842/039-000	10	721-212/031-000	10	723-612/114-000	25	7271-212/031-000	10
		Female headers with straight solder pins and mounting flanges; 2 ... 12 poles		2-conductor female connectors; 2 ... 16 poles					
				0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12 AWG					
			722-732/031-000	100	721-2202/026-000	100			
			722-742/031-000	10	721-2212/026-000	25			
		Female headers with angled solder pins and mounting flanges; 2 ... 12 poles		2-conductor female connectors with locking levers; 2 ... 16 poles					
				0.2 ... 2.5 mm <sup>2</sup> / 24 ... 12 AWG					
			722-832/031-000	100	721-2202/037-000	100			
			722-842/031-000	10	721-2212/037-000	25			
		Female headers with straight solder pins and spacers; 2 ... 12 poles						Female connectors with flanges for panel mounting; 2 ... 12 poles	
								0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
			722-732/047-000	100				721-332/031-000	50
			722-742/047-000	10				721-342/031-000	10
		Female headers with angled solder pins and spacers; 2 ... 12 poles						Female connectors with snap-in feet for panel mounting; 2 ... 12 poles	
								0.08 ... 2.5 mm <sup>2</sup> / 28 ... 12 AWG	
			722-832/047-000	100				721-332/008-000	100
			722-842/047-000	10				721-342/008-000	25

3

# MCS – MULTI CONNECTION SYSTEM

## Product Overview by Pin Spacing

3

7.5 mm									
231/232/731/732/2231 Series; MIDI Classic; 100% Mismatch Protection; 630 V; 12 A (16 A)									
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit		
Male headers with straight solder pins; 2 ... 16 poles		Female headers with straight solder pins; 2 ... 16 poles		Female connectors; 2 ... 16 poles		Male connectors; 2 ... 16 poles		Female connectors with push-buttons; 2 ... 16 poles	
231-232/001-000	200	232-732	100	231-202/026-000	100	731-602	100	2231-202/026-000	100
231-246/001-000	50	232-746	10	231-216/026-000	10	731-616	10	2231-216/026-000	10
Male headers with angled solder pins; 2 ... 16 poles		Female headers with angled solder pins; 2 ... 16 poles		Female connectors with locking levers; 2 ... 16 poles		Male connectors with mounting flanges; 2 ... 16 poles		Female connectors with push-buttons and locking levers; 2 ... 16 poles	
231-832/001-000	200	232-832	100	231-202/037-000	50	731-602/019-000	100	2231-202/037-000	50
231-846/001-000	50	232-846	10	231-216/037-000	10	731-616/019-000	10	2231-216/037-000	10
Male headers with straight solder pins; 16 A; 2 ... 16 poles		Female headers with straight solder pins and locking levers; 2 ... 16 poles		Female connectors with snap-in mounting feet; 2 ... 16 poles		Male connectors with snap-in mounting feet; 2 ... 16 poles		Female connectors with push-buttons and snap-in mounting feet; 2 ... 16 poles	
231-262/001-000	200	232-732/039-000	100	231-202/008-000	100	731-602/018-000	100	2231-202/008-000	100
231-276/001-000	50	232-746/039-000	10	231-216/008-000	10	731-616/018-000	10	2231-216/008-000	10
Male headers with angled solder pins; 16 A; 2 ... 16 poles		Female headers with angled solder pins and locking levers; 2 ... 16 poles		Female connectors with mounting flanges; 2 ... 16 poles		Male connectors with snap-in flanges; 2 ... 16 poles		Female connectors with push-buttons and mounting flanges; 2 ... 16 poles	
231-862/001-000	200	232-832/039-000	100	231-202/031-000	50	731-602/114-000	50	2231-202/031-000	50
231-876/001-000	50	232-846/039-000	10	231-216/031-000	10	731-616/114-000	10	2231-216/031-000	10
Male headers with straight solder pins; 2 ... 12 poles		Female headers with straight solder pins and mounting flanges; 2 ... 16 poles		2-conductor female connectors; 2 ... 12 poles					
231-232/001-000/105-604	200	232-732/031-000	100	231-2202/026-000	100				
231-242/001-000/105-604	50	232-746/031-000	10	231-2212/026-000	25				
Male headers with angled solder pins; 2 ... 12 poles		Female headers with angled solder pins and mounting flanges; 2 ... 16 poles		2-conductor female connectors with locking levers; 2 ... 12 poles				Double-pin male connectors for DIN-35 rail mounting; 2 ... 24 poles	
231-832/001-000/105-604	200	232-832/031-000	100	231-2202/037-000	100			232-562/007-000	50
231-842/001-000/105-604	50	232-846/031-000	10	231-2212/037-000	25			232-572/007-000	10
Male headers with straight solder pins; 16 A; 2 ... 12 poles		Female headers with straight solder pins and spacers; 2 ... 16 poles						Angled female connectors with mounting flanges; 2 ... 12 poles	
231-262/001-000/105-604	200	232-732/047-000	100					731-532/031-000	50
231-272/001-000/105-604	50	232-746/047-000	10					731-546/031-000	10
Male headers with angled solder pins; 16 A; 2 ... 12 poles		Female headers with angled solder pins and spacers; 2 ... 16 poles						Female connectors with snap-in mounting feet; 2 ... 20 poles	
231-862/001-000/105-604	200	232-832/047-000	100					731-532/008-000	100
231-872/001-000/105-604	50	232-846/047-000	10					731-546/008-000	10



# MCS – MULTI CONNECTION SYSTEM

## Product Overview by Pin Spacing




7.62 mm									
231/232/731/2231 Series; MIDI Classic; 100% Mismatching Protection; 630 V; 12 A (16 A)									
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Male headers with straight solder pins; 2 ... 12 poles		Female headers with straight solder pins; 2 ... 12 poles		Female connectors; 2 ... 12 poles		Male connectors; 2 ... 12 poles		Female connectors with push-buttons; 2 ... 12 poles	
231-732/001-000	200	232-762	100	231-702/026-000	100	731-632	50	2231-702/026-000	100
231-742/001-000	50	232-772	10	231-712/026-000	10	731-642	10	2231-712/026-000	10
Male headers with angled solder pins; 2 ... 12 poles		Female headers with angled solder pins; 2 ... 12 poles		Female connectors with locking levers; 2 ... 12 poles		Male connectors with mounting flanges; 2 ... 12 poles		Female connectors with push-buttons and locking levers; 2 ... 12 poles	
231-932/001-000	200	232-862	100	231-702/037-000	50	731-632/019-000	50	2231-702/037-000	50
231-942/001-000	50	232-872	10	231-712/037-000	10	731-642/019-000	10	2231-712/037-000	10
Male headers with straight solder pins; 16 A; 2 ... 12 poles		Female headers with straight solder pins and locking levers; 2 ... 12 poles		Female connectors with snap-in mounting feet; 2 ... 12 poles		Male connectors with snap-in mounting feet; 2 ... 12 poles		Female connectors with push-buttons and snap-in mounting feet; 2 ... 12 poles	
231-762/001-000	200	232-762/039-000	100	231-702/008-000	100	731-632/018-000	100	2231-702/008-000	100
231-772/001-000	50	232-772/039-000	10	231-712/008-000	10	731-642/018-000	10	2231-712/008-000	10
Male headers with angled solder pins; 16 A; 2 ... 12 poles		Female headers with angled solder pins and locking levers; 2 ... 12 poles		Female connectors with mounting flanges; 2 ... 12 poles		Male connectors with snap-in flanges; 2 ... 12 poles		Female connectors with push-buttons and mounting flanges; 2 ... 12 poles	
231-962/001-000	200	232-862/039-000	100	231-702/031-000	50	731-632/114-000	50	2231-702/031-000	50
231-972/001-000	50	232-872/039-000	10	231-712/031-000	10	731-646/114-000	10	2231-712/031-000	10
		Female headers with straight solder pins and mounting flanges; 2 ... 12 poles		2-conductor female connectors; 2 ... 12 poles		Double-pin male connectors for DIN-35 rail mounting; 2 ... 24 poles		Angled female connectors, conductor entry opposite of latches; 2 ... 12 poles	
		232-762/031-000	100	231-2702/026-000	100	232-582/007-000	50	732-122/026-000	100
		232-772/031-000	10	231-2712/026-000	25	232-592/007-000	10	732-132/026-000	25

7.62 mm									
831 Series; MAXI; 100% Mismatching Protection; 1000 V; 41 A									
Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit	Item No.	Pack. Unit
Male headers with straight solder pins; 2 ... 9 poles		Female connectors; 2 ... 9 poles		Male connectors; 2 ... 9 poles		Male connectors with integrated mounting adapter for DIN-35 rail; 2 ... 9 poles			
831-3602	48			831-3102	48	831-3202	48	831-3202/007-000	48
831-3609	12			831-3109	12	831-3209	12	831-3209/007-000	12
Male headers with angled solder pins; 2 ... 9 poles		Female connectors with locking levers; 2 ... 9 poles							
831-3622	48			831-3102/037-000	48				
831-3629	12			831-3109/037-000	12				



## Field-Wiring Terminal Blocks for Lighting

## Field-Wiring Terminal Blocks for Lighting

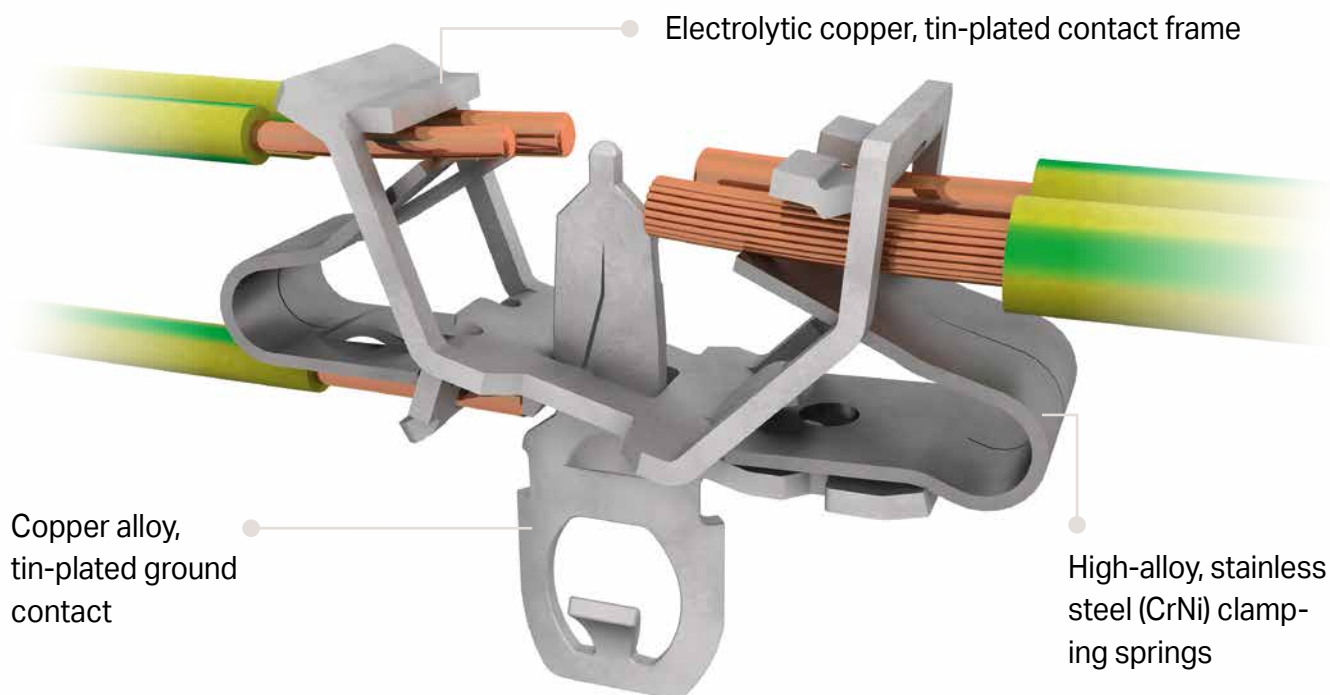
			Page
	Lighting Terminal Blocks	294 Series	118
	Dividable Terminal Strips, Compact Terminal Blocks	272 Series	130
	4-Conductor, Chassis-Mount Terminal Strips	862 Series	136

## Connect Lighting and Equipment Worldwide

### 294 Series

## Contact Technology

4



**Internal connection:**  
**PUSH WIRE®** for internal wiring with solid conductors

#### EUROPE

1 x 0.5 ... 2.5 mm<sup>2</sup>; "s"

1 x 0.5 ... 1.5 mm<sup>2</sup>; "s"

1 x 0.5 ... 0.75 mm<sup>2</sup>; "s"

#### AMERICA

1 x 18 ... 14 AWG; "s"

1 x 18 ... 16 AWG; "s"

1 x 18 AWG; "s"

#### JAPAN

1 x Ø 0.8 ... 1.6 mm; "s"

1 x Ø 0.8 ... 1.0 mm; "s"

1 x Ø 0.8 mm; "s"

**External connection:**  
**CAGE CLAMP® S** for power supply connections for all conductor types

#### EUROPE

2 x 0.5 ... 2.5 mm<sup>2</sup>; "s; st; f-st"

#### AMERICA

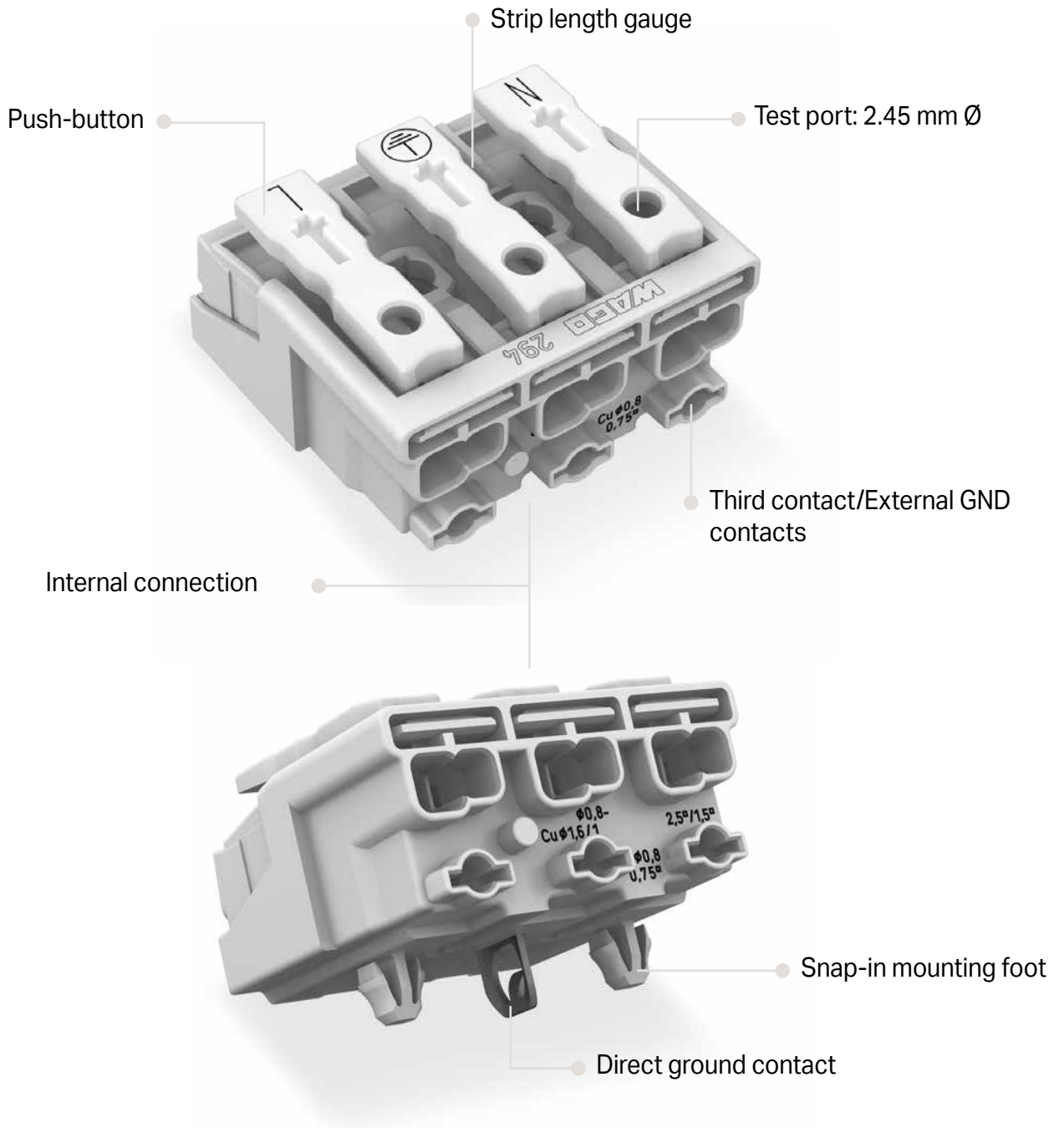
2 x 18 ... 12 AWG; "s"

2 x 18 ... 14 AWG; "st; f-st"

#### JAPAN

2 x Ø 0.8 ... 2.0 mm; "s"

2 x 0.5 ... 2.0 mm<sup>2</sup>; "st; f-st"



## 294 Series with Two Snap-In Mounting Feet










Pole No.	Marking	Without GND contact Item No.	With direct GND contact Item No.	With screw-type GND contact Item No.	With snap-in GND contact Item No.	With angled snap-in GND contact Item No.
2	plain	294-5002	-	-	-	-
	N L	294-5012	-	-	-	-
	N' L'	294-5022	-	-	-	-
	DA- DA+	294-5032	-	-	-	-
	- +	294-5072	-	-	-	-
	1 N	294-5052	-	-	-	-
2 1	294-5042	-	-	-	-	
3	plain	294-5003	-	-	-	-
	N ⊕ L	294-5013	294-5113	294-5413	294-5213	294-5313
	N' ⊕ L'	294-5023	294-5123	294-5423	294-5223	294-5323
	1 ⊕ N	294-5053	294-5153	294-5453	294-5253	294-5353
	3 2 1	294-5043	-	-	-	-
	N E L	294-5093/3025-000	-	-	-	-
4	plain	294-5004	-	-	-	-
	1/L' 2/L ⊕ N	294-5024	294-5124	294-5424	294-5224	294-5324
	1 2 ⊕ N	294-5014	294-5114	294-5414	294-5214	294-5314
	4 3 2 1	294-5044	-	-	-	-
	1/L' 2/L E N	294-5094/4025-000	-	-	-	-
5	plain	294-5005	-	-	-	-
	L3 L2 L1 ⊕ N	294-5015	-	294-5415	294-5215	294-5315
	L' N' L ⊕ N	294-5025	-	294-5425	294-5225	294-5325
	DA+ DA- L ⊕ N	294-5035	-	294-5435	294-5235	294-5335
	DA- N ⊕ L DA+	294-5075	294-5175	294-5475	294-5275	294-5375
	3 N ⊕ 1 2	294-5055	294-5155	294-5455	294-5255	294-5355
	5 4 3 2 1	294-5045	-	-	-	-
	DA+ DA- L E N	294-5095/5025-000	-	-	-	-
	L3 L2 L1 E N	294-5095/5026-000	-	-	-	-
	L' N' L E N	294-5095/5027-000	-	-	-	-

4



## 294 Series without Snap-In Mounting Feet

Pole No.	Marking					
		Item No.	Item No.	Item No.	Item No.	Item No.
 2	plain	294-4002	-	-	-	-
	N L	294-4012	-	-	-	-
	N' L'	294-4022	-	-	-	-
	DA- DA+	294-4032	-	-	-	-
	- +	294-4072	-	-	-	-
	1 N	294-4052	-	-	-	-
	2 1	294-4042	-	-	-	-
 3	plain	294-4003	-	-	-	-
	N ⊕ L	294-4013	-	294-4413	294-4213	294-4313
	N' ⊕ L'	294-4023	-	294-4423	294-4223	294-4323
	1 ⊕ N	294-4053	-	294-4453	294-4253	294-4353
	3 2 1	294-4043	-	-	-	-
	N E L	294-4093/3025-000	-	-	-	-
	-	-	-	-	-	-
 4	plain	294-4004	-	-	-	-
	1/L' 2/L ⊕ N	294-4024	-	294-4424	294-4224	294-4324
	1 2 ⊕ N	294-4014	-	294-4414	294-4214	294-4314
	4 3 2 1	294-4044	-	-	-	-
	1/L' 2/L E N	294-4094/4025-000	-	-	-	-
 5	plain	294-4005	-	-	-	-
	L3 L2 L1 ⊕ N	294-4015	-	294-4415	294-4215	294-4315
	L' N' L ⊕ N	294-4025	-	294-4425	294-4225	294-4325
	DA+ DA- L ⊕ N	294-4035	-	294-4435	294-4235	294-4335
	DA- N ⊕ L DA+	294-4075	-	294-4475	294-4275	294-4375
	3 N ⊕ 1 2	294-4055	-	294-4455	294-4255	294-4355
	5 4 3 2 1	294-4045	-	-	-	-
	DA+ DA- L E N	294-4095/5025-000	-	-	-	-
	L3 L2 L1 E N	294-4095/5026-000	-	-	-	-
	L' N' L E N	294-4095/5027-000	-	-	-	-
 6	plain	294-4006	-	-	-	-
	-	-	-	-	-	-
 7	plain	294-4007	-	-	-	-
	-	-	-	-	-	-

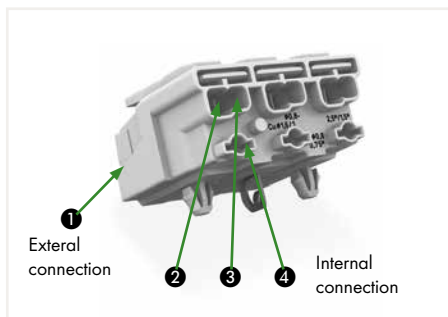
4

## Lighting Terminal Blocks

### 294 Series



- External connection of solid, stranded and fine-stranded conductors
- Universal conductor termination (AWG, metric)
- Third contact located at the bottom of internal connection end
- Strain relief plate can be retrofitted



1  
External  
connection

2 3 4  
Internal  
connection

#### Electrical Data

Ratings per	IEC/EN 60998-1	IEC/EN 60998-2-2
Overvoltage category	III	II
Pollution degree	2	2
Rated voltage	500 V	500 V
Rated surge voltage	4 kV	4 kV
Rated current	24 A	24 A

#### Connection Data for External Connection

Connection technology	Push-in CAGE CLAMP®
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch
Conductor range (conductor termination ❶)	
Solid, stranded or fine-stranded conductor	2 x 0.5 ... 2.5 mm <sup>2</sup>
Solid, stranded or fine-stranded conductor; with ferrule	2 x 0.5 ... 1.5 mm <sup>2</sup>
Solid conductor (AWG)	2 x 18 ... 12
Fine-stranded and stranded conductor (AWG)	2 x 18 ... 14

#### Connection Data for Internal Connection

Connection technology	PUSH WIRE®
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch
Conductor range (conductor termination ❷)	
Solid conductor	0.5 ... 2.5 mm <sup>2</sup> / 18 ... 14 AWG
Fine-stranded conductor; with uninsulated ferrule	0.5 ... 1.5 mm <sup>2</sup>
Fine-stranded conductor; with insulated ferrule	0.5 ... 1 mm <sup>2</sup>
Conductor range (conductor termination ❸)	
Solid conductor	0.5 ... 1.5 mm <sup>2</sup> / 18 ... 16 AWG
Fine-stranded conductor; with uninsulated ferrule	0.5 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with insulated ferrule	0.5 ... 0.75 mm <sup>2</sup>
Conductor range (conductor termination ❹)	
Solid conductor	0.5 ... 0.75 mm <sup>2</sup> / 18 AWG

#### Material Data

Material group	IIa
Insulation material	Polycarbonate (PC)
Flammability class per UL94	V0
Temperature stability	Relative Temperature Index (RTI) of 120°C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated

4

## Lighting Terminal Block; 2-Pole 294 Series

Without GND contact



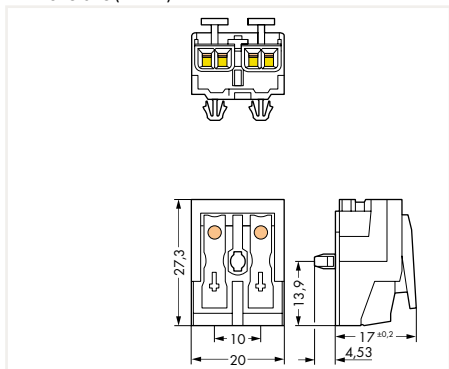
Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
plain	294-5002	1000
N L	294-5012	1000
N' L'	294-5022	1000
DA- DA+	294-5032	1000
- +	294-5072	1000
2 1	294-5042	1000
1 N	294-5052	1000

Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
plain	294-4002	1000
N L	294-4012	1000
N' L'	294-4022	1000
DA- DA+	294-4032	1000
- +	294-4072	1000
2 1	294-4042	1000
1 N	294-4052	1000

Dimensions (in mm):



# Lighting Terminal Block; 3-Pole 294 Series

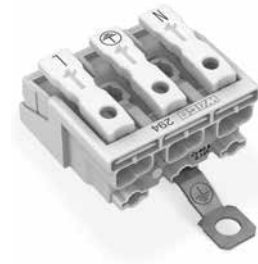
Without GND contact



With direct GND contact



With screw-type GND contact



4

Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
plain	294-5003	500
N ⊕ L	294-5013	500
N' ⊕ L'	294-5023	500
1 ⊕ N	294-5053	500
3 2 1	294-5043	500
N E L	294-5093/3025-000	500

Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
N ⊕ L	294-5113	500
N' ⊕ L'	294-5123	500
1 ⊕ N	294-5153	500

Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
N ⊕ L	294-5413	500
N' ⊕ L'	294-5423	500
1 ⊕ N	294-5453	500

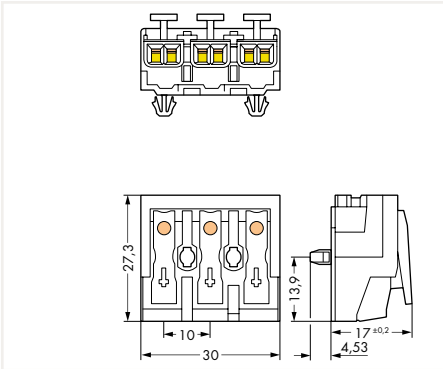
Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
plain	294-4003	500
N ⊕ L	294-4013	500
N' ⊕ L'	294-4023	500
1 ⊕ N	294-4053	500
3 2 1	294-4043	500
N E L	294-4093/3025-000	500

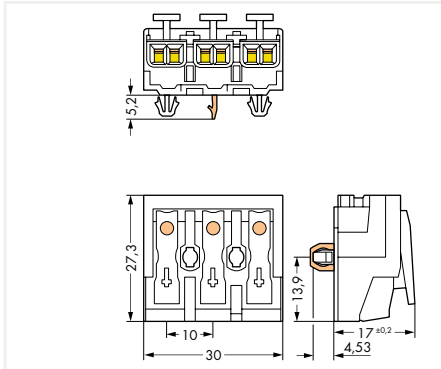
Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
N ⊕ L	294-4413	500
N' ⊕ L'	294-4423	500
1 ⊕ N	294-4453	500

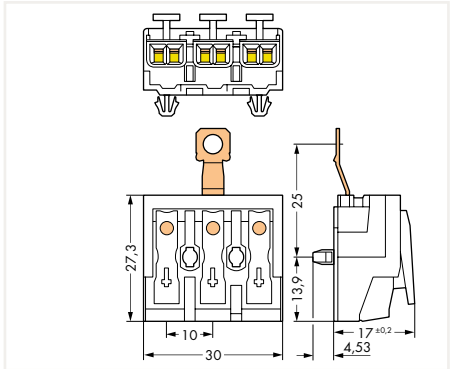
Dimensions (in mm):



Dimensions (in mm):

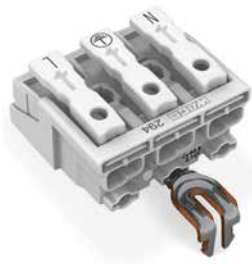


Dimensions (in mm):

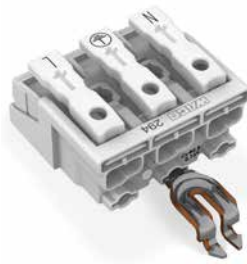


# Lighting Terminal Block; 3-Pole 294 Series

With snap-in GND contact



With angled snap-in GND contact



Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
N ⊕ L	294-5213	500
N' ⊕ L'	294-5223	500
1 ⊕ N	294-5253	500

Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
N ⊕ L	294-5313	500
N' ⊕ L'	294-5323	500
1 ⊕ N	294-5353	500

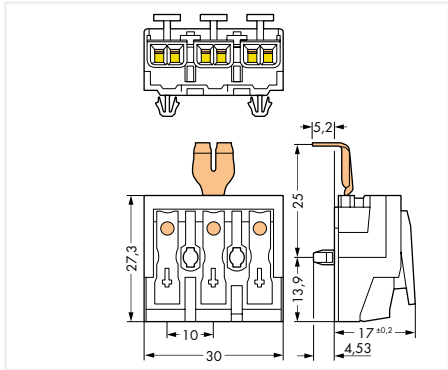
Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
N ⊕ L	294-4213	500
N' ⊕ L'	294-4223	500
1 ⊕ N	294-4253	500

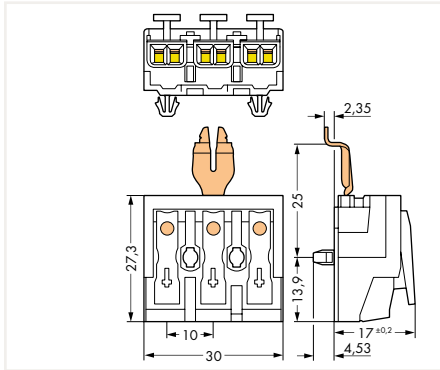
Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
N ⊕ L	294-4313	500
N' ⊕ L'	294-4323	500
1 ⊕ N	294-4353	500

Dimensions (in mm):



Dimensions (in mm):

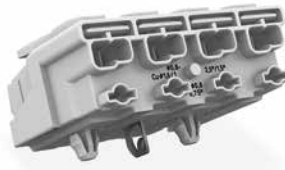


# Lighting Terminal Block; 4-Pole 294 Series

Without GND contact



With direct GND contact



With screw-type GND contact



Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
plain	294-5004	500
1/L' 2/L ⊕ N	294-5024	500
1 2 ⊕ N	294-5014	500
4 3 2 1	294-5044	500
1/L' 2/L E N	294-5094/4025-000	500

Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
plain	294-4004	500
1/L' 2/L ⊕ N	294-4024	500
1 2 ⊕ N	294-4014	500
4 3 2 1	294-4044	500
1/L' 2/L E N	294-4094/4025-000	500

Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
1/L' 2/L ⊕ N	294-5124	500
1 2 ⊕ N	294-5114	500

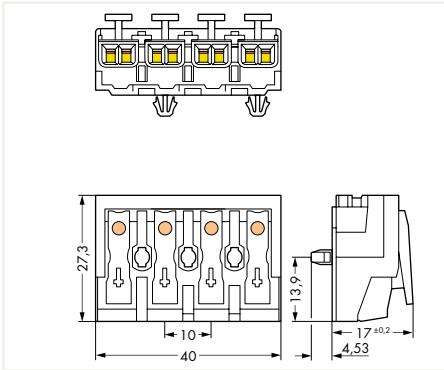
Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
1/L' 2/L ⊕ N	294-5424	500
1 2 ⊕ N	294-5414	500

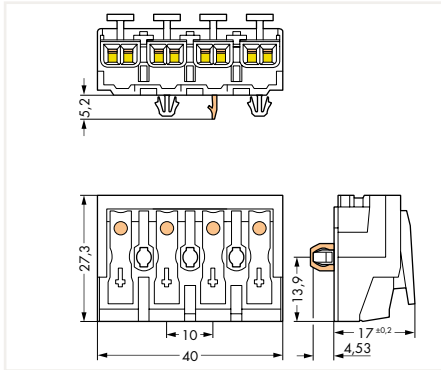
Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
1/L' 2/L ⊕ N	294-4424	500
1 2 ⊕ N	294-4414	500

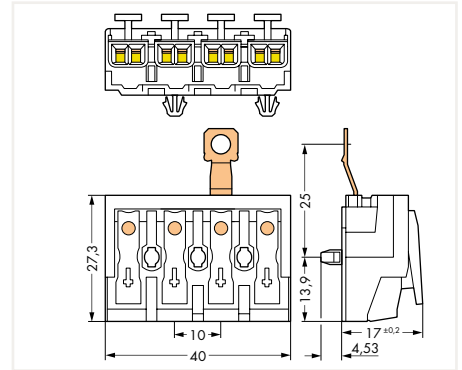
Dimensions (in mm):



Dimensions (in mm):



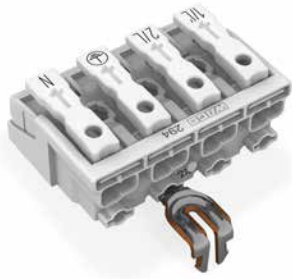
Dimensions (in mm):





# Lighting Terminal Block; 4-Pole 294 Series

With snap-in GND contact



With angled snap-in GND contact



Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
1/L' 2/L ⊕ N	294-5224	500
1 2 ⊕ N	294-5214	500

Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
1/L' 2/L ⊕ N	294-5324	500
1 2 ⊕ N	294-5314	500

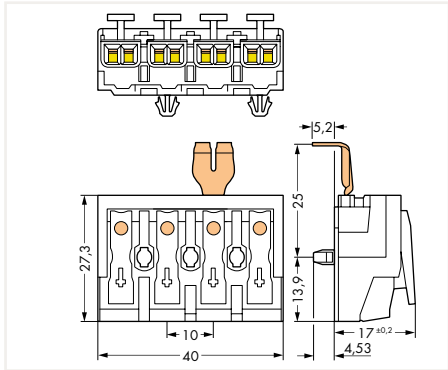
Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
1/L' 2/L ⊕ N	294-4224	500
1 2 ⊕ N	294-4214	500

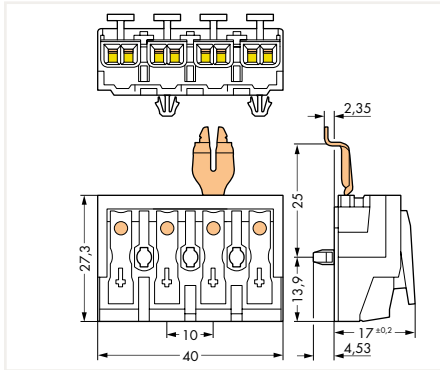
Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
N ⊕ L	294-4324	500
N' ⊕ L'	294-4314	500

Dimensions (in mm):

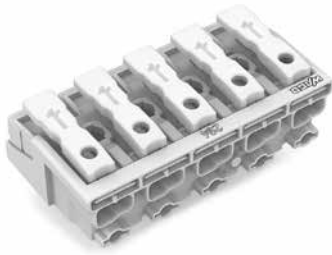


Dimensions (in mm):

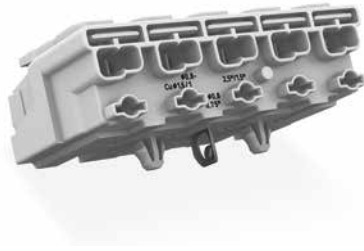


# Lighting Terminal Block; 5-Pole 294 Series

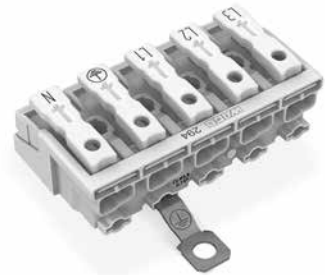
Without GND contact



With direct GND contact



With screw-type GND contact



Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
plain	294-5005	250
L3 L2 L1 ⊕ N	294-5015	250
L' N' L ⊕ N	294-5025	250
DA+ DA- L ⊕ N	294-5035	250
DA- N ⊕ L DA+	294-5075	250
3 N ⊕ 1 2	294-5055	250
5 4 3 2 1	294-5045	250
DA+ DA- L E N	294-5095/5025-000	250
L3 L2 L1 E N	294-5095/5026-000	250
L' N' L E N	294-5095/5027-000	250

Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
DA- N ⊕ L DA+	294-5175	250
3 N ⊕ 1 2	294-5155	250

Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
L3 L2 L1 ⊕ N	294-5415	250
L' N' L ⊕ N	294-5425	250
DA+ DA- L ⊕ N	294-5435	250
DA- N ⊕ L DA+	294-5475	250
3 N ⊕ 1 2	294-5455	250

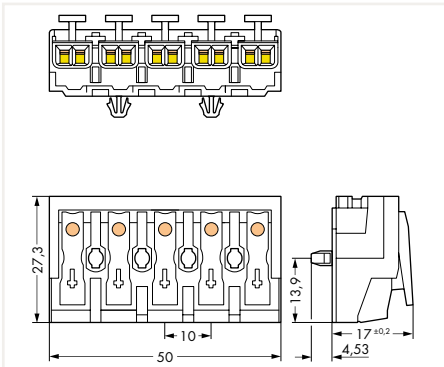
Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
plain	294-4005	250
L3 L2 L1 ⊕ N	294-4015	250
L' N' L ⊕ N	294-4025	250
DA+ DA- L ⊕ N	294-4035	250
DA- N ⊕ L DA+	294-4075	250
3 N ⊕ 1 2	294-4055	250
5 4 3 2 1	294-4045	250
DA+ DA- L E N	294-4095/5025-000	250
L3 L2 L1 E N	294-4095/5026-000	250
L' N' L E N	294-4095/5027-000	250

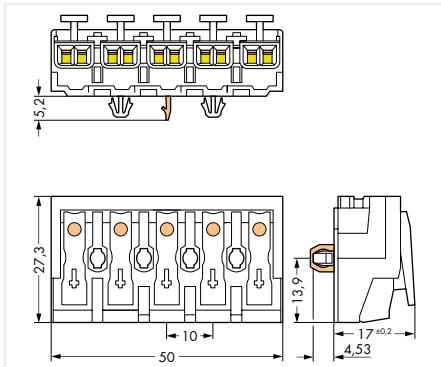
Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
L3 L2 L1 ⊕ N	294-4415	250
L' N' L ⊕ N	294-4425	250
DA+ DA- L ⊕ N	294-4435	250
DA- N ⊕ L DA+	294-4475	250
3 N ⊕ 1 2	294-4455	250

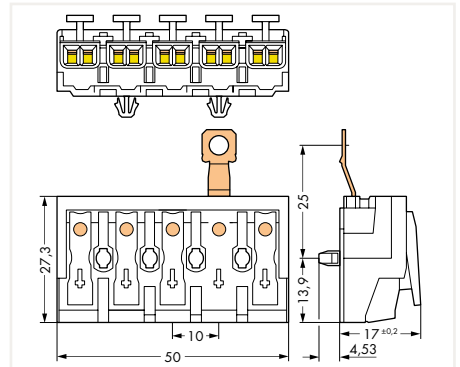
Dimensions (in mm):



Dimensions (in mm):

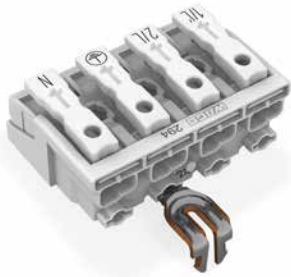


Dimensions (in mm):

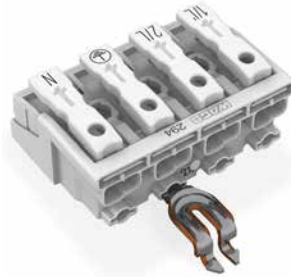


## Lighting Terminal Block; 5-Pole 294 Series

With snap-in GND contact



With angled snap-in GND contact



Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
L3 L2 L1 ⊕ N	294-5215	250
L' N' L ⊕ N	294-5225	250
DA+ DA- L ⊕ N	294-5235	250
DA- N ⊕ L DA+	294-5275	250
3 N ⊕ 1 2	294-5255	250

Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
L3 L2 L1 ⊕ N	294-4215	250
L' N' L ⊕ N	294-4225	250
DA+ DA- L ⊕ N	294-4235	250
DA- N ⊕ L DA+	294-4275	250
3 N ⊕ 1 2	294-4255	250

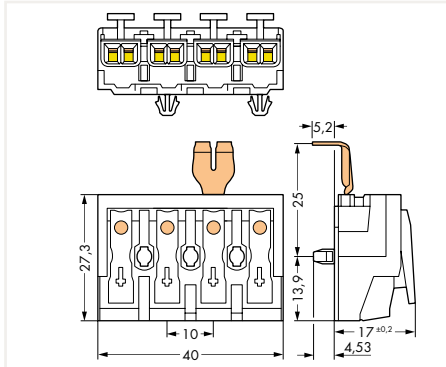
Versions with snap-in mounting feet:

Marking	Item No.	Pack. Unit
L3 L2 L1 ⊕ N	294-5315	250
L' N' L ⊕ N	294-5325	250
DA+ DA- L ⊕ N	294-5335	250
DA- N ⊕ L DA+	294-5375	250
3 N ⊕ 1 2	294-5355	250

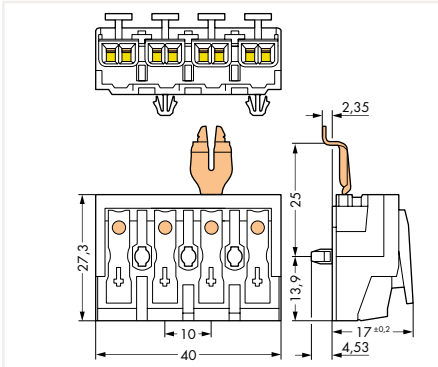
Versions without snap-in mounting feet

Marking	Item No.	Pack. Unit
L3 L2 L1 ⊕ N	294-4315	250
L' N' L ⊕ N	294-4325	250
DA+ DA- L ⊕ N	294-4335	250
DA- N ⊕ L DA+	294-4375	250
3 N ⊕ 1 2	294-4355	250

Dimensions (in mm):



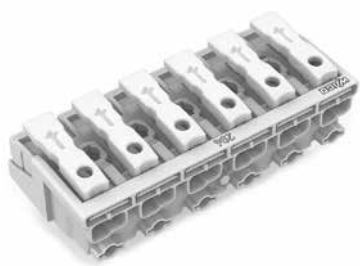
Dimensions (in mm):



# Lighting Terminal Block; 6- and 7-Pole 294 Series

6-pole; without GND contact

7-pole; without direct GND contact



Versions without snap-in mounting feet

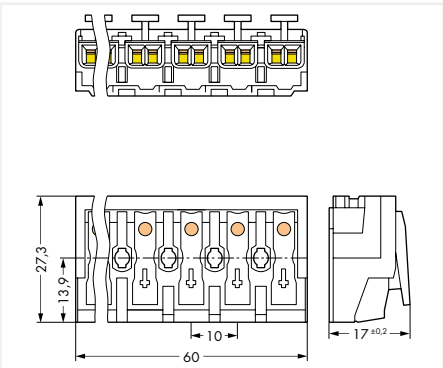
Marking	Item No.	Pack. Unit
plain	294-4006	200

Versions without snap-in mounting feet

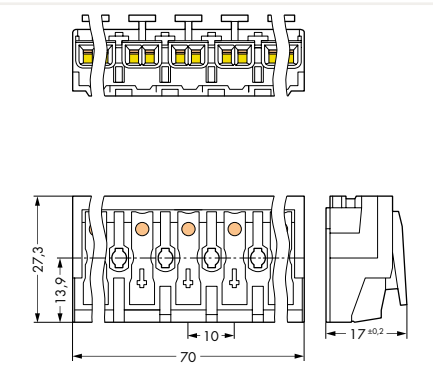
Marking	Item No.	Pack. Unit
plain	294-4007	200

4

Dimensions (in mm):



Dimensions (in mm):



## Accessories 294 Series



Strain relief plate; for multicore cable: 1 x 5.2 ... 12 mm outer diameter

Color	Item No.	Pack. Unit
○ white	294-364	50



Strain relief; with snap-in mounting feet; for 4.5 ... 12 mm cable diameter

Color	Item No.	Pack. Unit
○ white	294-370	500



Disconnection tool; removes conductors from PUSH WIRE® connections; for 294 Series

Item No.	Pack. Unit
206-294	1

4



Strain relief plate; for single strands: min. 3 x 0.5 mm<sup>2</sup>, max. 5 x 2.5 mm<sup>2</sup> or 7 x 1.5 mm<sup>2</sup>

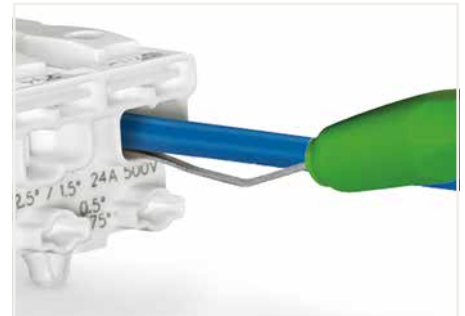
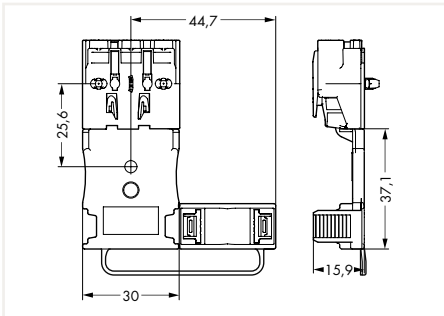
Color	Item No.	Pack. Unit
○ white	294-384	1



Strain relief; for screw/rivet mounting; for 4.5 ... 12 mm cable diameter

Color	Item No.	Pack. Unit
○ white	294-375	500

Dimensions (in mm):

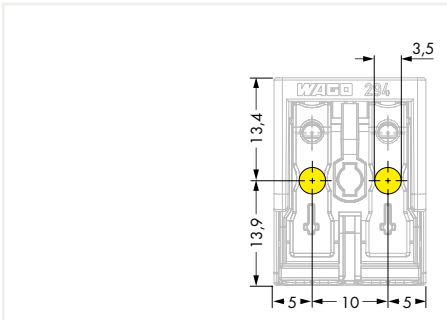


Conductor removal: Slide disconnection tool beneath the conductor and pull conductor out.

# Drilled-Hole Patterns for Snap-In Mounting Feet 294 Series

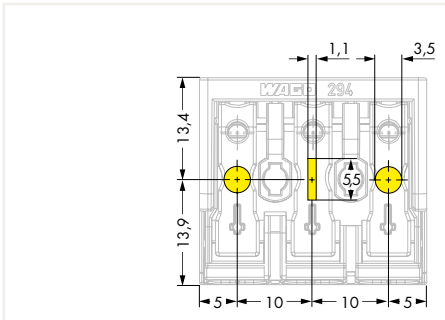
2-pole; without GND contact

Dimensions (in mm):



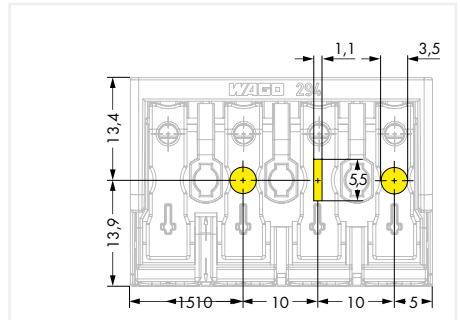
3-pole; with direct GND contact

Dimensions (in mm):



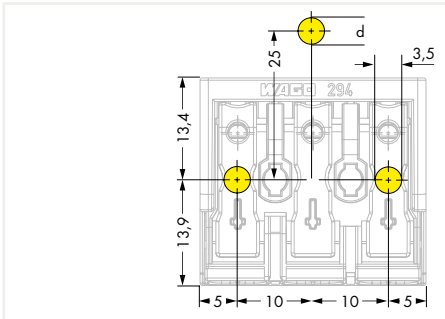
4-pole; with direct GND contact

Dimensions (in mm):



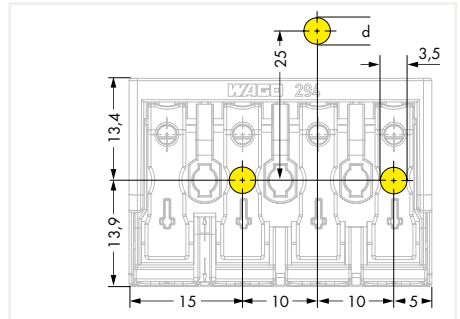
3-pole; with snap-in GND contact (d = 4.9 mm); with screw-type GND contact (d ≤ 4.1 mm)

Dimensions (in mm):



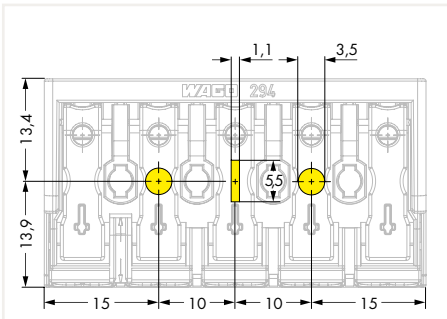
4-pole; with snap-in GND contact (d = 4.9 mm); with screw-type GND contact (d ≤ 4.1 mm)

Dimensions (in mm):



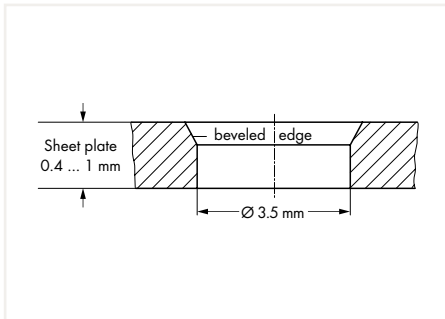
5-pole; with direct GND contact

Dimensions (in mm):



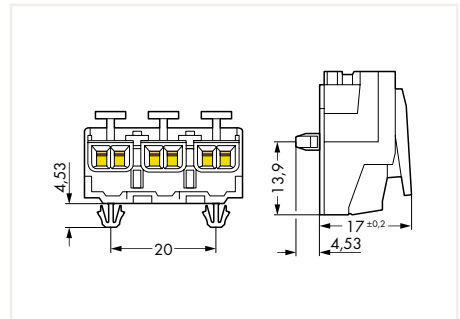
Drilled hole for snap-in mounting foot

Dimensions (in mm):



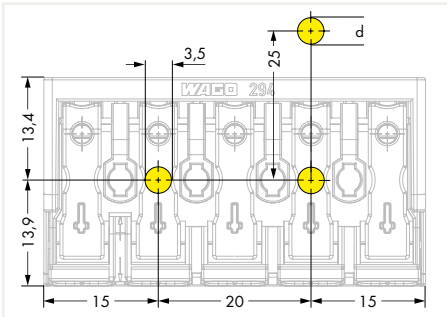
Snap-in mounting foot

Dimensions (in mm):



5-pole; with snap-in GND contact (d = 4.9 mm); with screw-type GND contact (d ≤ 4.1 mm)

Dimensions (in mm):

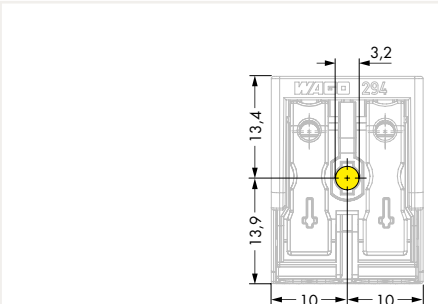
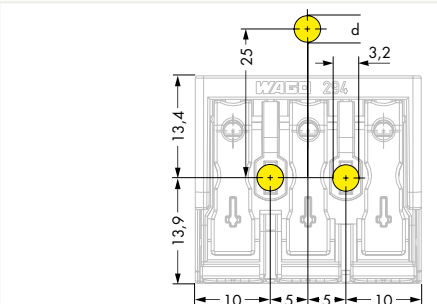
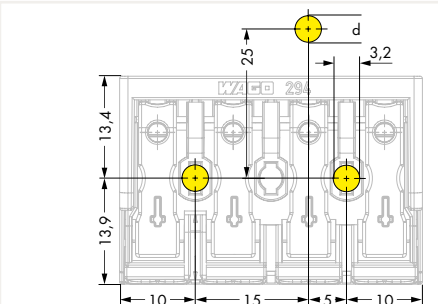
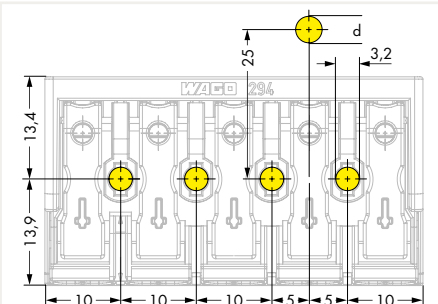
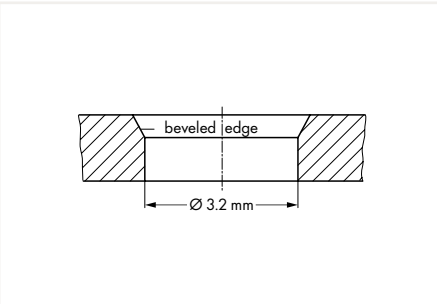
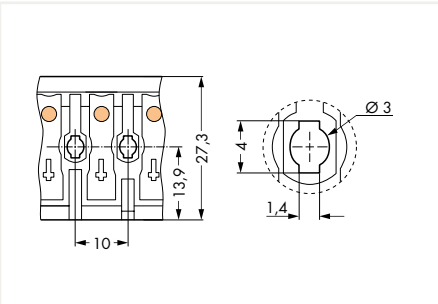


4



# Drilled-Hole Patterns for Screw Mounting

## 294 Series

<p>2-pole; without GND contact</p>	<p>3-pole; with snap-in GND contact (d = 4.9 mm); with screw-type GND contact (d ≤ 4.1 mm)</p>	<p>4-pole; with snap-in GND contact (d = 4.9 mm); with screw-type GND contact (d ≤ 4.1 mm)</p>
<p>Dimensions (in mm):</p>  <p>Technical drawing showing a 2-pole terminal block with dimensions: total width 20 mm, pole spacing 10 mm, mounting hole diameter 3.2 mm, distance from top edge to mounting hole center 13.4 mm, and distance from bottom edge to mounting hole center 13.9 mm.</p>	<p>Dimensions (in mm):</p>  <p>Technical drawing showing a 3-pole terminal block with dimensions: total width 25 mm, pole spacing 10 mm, 5 mm, 5 mm, 10 mm, mounting hole diameter d, distance from top edge to mounting hole center 25 mm, distance from bottom edge to mounting hole center 13.4 mm, and distance from bottom edge to mounting hole center 13.9 mm.</p>	<p>Dimensions (in mm):</p>  <p>Technical drawing showing a 4-pole terminal block with dimensions: total width 35 mm, pole spacing 10 mm, 15 mm, 5 mm, 10 mm, mounting hole diameter d, distance from top edge to mounting hole center 25 mm, distance from bottom edge to mounting hole center 13.4 mm, and distance from bottom edge to mounting hole center 13.9 mm.</p>
<p>5-pole; with snap-in GND contact (d = 4.9 mm); with screw-type GND contact (d ≤ 4.1 mm)</p>	<p>Hole for screw mount</p>	<p>Mounting hole for screw</p>
<p>Dimensions (in mm):</p>  <p>Technical drawing showing a 5-pole terminal block with dimensions: total width 40 mm, pole spacing 10 mm, 10 mm, 10 mm, 5 mm, 5 mm, 10 mm, mounting hole diameter d, distance from top edge to mounting hole center 25 mm, distance from bottom edge to mounting hole center 13.4 mm, and distance from bottom edge to mounting hole center 13.9 mm.</p>	<p>Dimensions (in mm):</p>  <p>Technical drawing showing a hole for screw mount with a beveled edge and a diameter of Ø 3.2 mm.</p>	<p>Dimensions (in mm):</p>  <p>Technical drawing showing a mounting hole for screw with dimensions: total height 27.3 mm, distance from top edge to mounting hole center 13.9 mm, distance from bottom edge to mounting hole center 10 mm, mounting hole diameter Ø 3 mm, and distance from side edge to mounting hole center 1.4 mm.</p>

4

Notice: The maximum thread diameter for self-tapping screws is 3.0 mm.  
 Drilled-hole patterns at 1:1 scale

# Dividable Terminal Strip 272 Series

Technical Data	
2 x 0.5 ... 1.5 mm <sup>2</sup> "s"	2 x 20 ... 16 AWG sol.*
2 x 0.5 ... 2.5 mm <sup>2</sup> "s"	2 x 20 ... 14 AWG sol.**
380 V~, size B	300 V, 10 A
I <sub>N</sub> 18 A	300 V
8 ... 9 mm / 0.33 inch	

Technical Data	
2 x 0.5 ... 1.5 mm <sup>2</sup> "s"	2 x 20 ... 16 AWG sol.*
2 x 0.5 ... 2.5 mm <sup>2</sup> "s"	2 x 20 ... 14 AWG sol.**
380 V~, size B	300 V, 10 A
I <sub>N</sub> 18 A	300 V
8 ... 9 mm / 0.33 inch	



- Dividable terminal strips; with additional push-wire connection for 0.5/0.75 mm<sup>2</sup> H07V-U (NYA) per pole; » for screw or screwless mounting (WAGO pins); ground contact, for screw/rivet or snap-in contact (pluggable)
- \* Gray terminal block side
- \*\* White terminal block side
- » ① For tool-free mounting
- » ② For wiring on white terminal block side only
- » ③ Factory-assembled ground contacts; (please indicate position when ordering)

### Accessories

#### Connecting pin; for plate thickness:

	1 mm	271-702	1000
	1 mm ①	271-711	1000
	1.5 mm ①	271-712	1000

#### Push-button; loose; for retrofit

	271-120	1000
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#### Assembly tool; for terminal blocks with GND contact

	249-100	1
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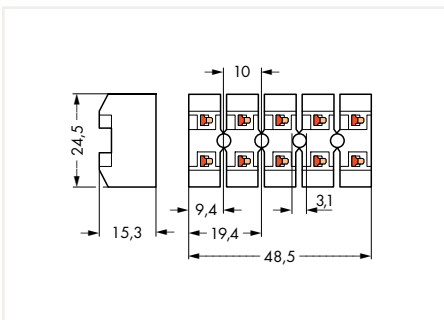
#### Felt-tip pen; for direct, permanent manual marking

	210-110	1
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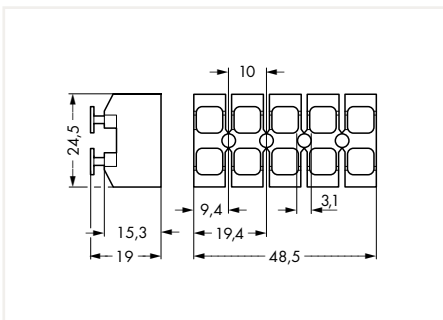
Terminal strip; without push-buttons; white		
Pole No.	Item No.	Pack. Unit
1	272-101	1000
2	272-102	1000
3	272-103	500
4	272-104	500
5	272-105	500
12	272-112	40
With screw-type GND contact ③		
3	272-103/1xx-00	500
4	272-104/1xx-00	500
5	272-105/1xx-00	500
With snap-in GND contact ③		
3	272-103/2xx-00	500
4	272-104/2xx-00	500
5	272-105/2xx-00	500

Terminal strip; with push-buttons on both sides; white		
Pole No.	Item No.	Pack. Unit
1	272-301	500
2	272-302	500
3	272-303	500
4	272-304	500
5	272-305	500
12	272-312	40
With screw-type GND contact ③		
3	272-303/1xx-00	500
4	272-304/1xx-00	500
5	272-305/1xx-00	500
With snap-in GND contact ③		
3	272-303/2xx-00	500
4	272-304/2xx-00	500
5	272-305/2xx-00	500

Dimensions (in mm):



Dimensions (in mm):



### Item-Specific Accessories

#### Pin terminal; insulated

	green; 0.5/0.75 mm <sup>2</sup> diameter ②	209-151	500
	gray; 1/1.5 mm <sup>2</sup> diameter ②	209-164	500
	blue; 1.5/2.5 mm <sup>2</sup> diameter ②	209-157	

#### Crimping tool; for pin terminals; 0.5 ... 2.5 mm<sup>2</sup> crimping range

	210-176	1
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# Dividable Terminal Strip 272 Series

Technical Data	
2 x 0.5 ... 1.5 mm <sup>2</sup> "s"	2 x 20 ... 16 AWG sol.*
2 x 0.5 ... 2.5 mm <sup>2</sup> "s"	2 x 20 ... 14 AWG sol.**
380 V~, size B	300 V, 10 A
I <sub>N</sub> 18 A	300 V
8 ... 9 mm / 0.33 inch	



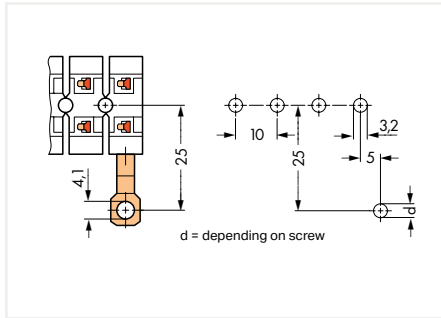
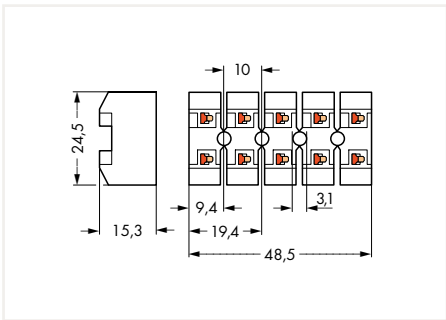
Terminal strip; with standard marking; without push-buttons; white

Pole No.	Marking	Item No.	Pack. Unit
1	L1, N	272-102/001-000	1000
2	, N, L1	272-103/001-000	1000
3	, N, L1, L2	272-104/001-000	500
4	, N, L1, L2, L3	272-105/001-000	500

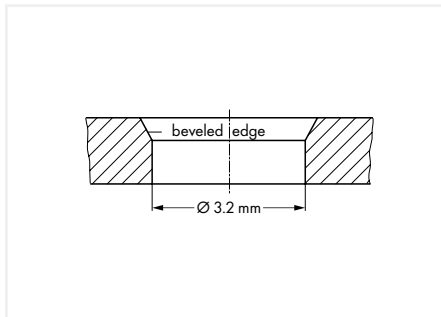
Item number examples for a 3-pole terminal strip without push-buttons:

- a) Without marking:  
Without GND contact 272-103
- b) With printing ; N; L1:  
Without GND contact 272-103/001-000  
With snap-in GND contact 272-103/201-000  
With screw-type GND contact 272-103/101-000

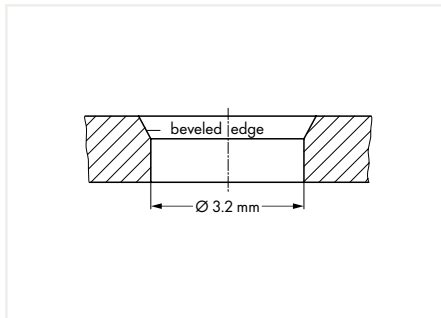
Dimensions (in mm):



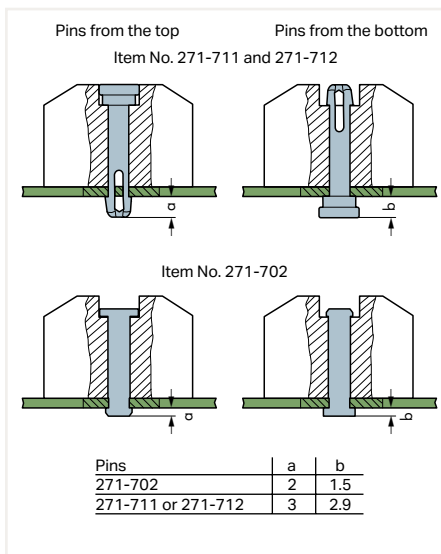
Mounting holes for GND contacts  
(GND contact for screw/rivet mounting)



Mounting holes for GND contacts  
(snap-in GND contact)



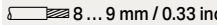
Mounting holes for pins



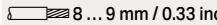
Screwless mounting with pins

# Dividable Terminal Strip 272 Series

### Technical Data

1 x 0.5 ... 0.75 mm <sup>2</sup> "s"	1 x 20 ... 18 AWG sol.*
1 x 0.5 ... 2.5 mm <sup>2</sup> "s"	1 x 20 ... 14 AWG sol.*
2 x 0.5 ... 2.5 mm <sup>2</sup> "s"	2 x 20 ... 14 AWG sol.**
380 V~, size B; I <sub>N</sub> 18 A	300 V $\overline{\text{VA}}$ ; 300 V $\text{\textcircled{E}}$
 8 ... 9 mm / 0.33 inch	

### Technical Data

1 x 0.5 ... 0.75 mm <sup>2</sup> "s"	1 x 20 ... 18 AWG sol.*
1 x 0.5 ... 2.5 mm <sup>2</sup> "s"	1 x 20 ... 14 AWG sol.*
2 x 0.5 ... 2.5 mm <sup>2</sup> "s"	2 x 20 ... 14 AWG sol.**
380 V~, size B; I <sub>N</sub> 18 A	300 V $\overline{\text{VA}}$ ; 300 V $\text{\textcircled{E}}$
 8 ... 9 mm / 0.33 inch	



Dividable terminal strips; with additional push-wire connection for 0.5/0.75 mm<sup>2</sup> H07V-U (NYA) per pole; for screw or screwless mounting (WAGO pins); with snap-in mounting foot for mounting holes 3.5 mm Ø, mounting plate 0.6 ... 1.2 mm thick; ground contact, for screw/riquet or snap-in contact (pluggable)

- \* Gray terminal block side
- \*\* White terminal block side
- » ❶ Item no. suffix for standard printings: 001-000
- » ❷ For tool-free mounting
- » ❸ Factory-assembled ground contacts; (please indicate position when ordering)

### Accessories

Push-button; loose; for retrofit	271-120	1000
		

### Assembly tool; for terminal blocks with GND contact

	249-100	1
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### Felt-tip pen; for direct, permanent manual marking

	210-110	1
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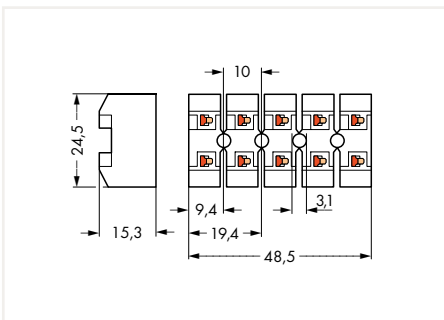
### Terminal strip; without push-buttons; white

Pole No.	Item No.	Pack. Unit
1	272-581	1000
2 ❶	272-582	1000
3 ❶	272-583	500
4 ❶	272-584	500
5 ❶	272-585	500
12	272-592	40
With screw-type GND contact ❸		
3	272-583/1xx-00	500
4	272-584/1xx-00	500
5	272-585/1xx-00	500
With snap-in GND contact ❸		
3	272-583/2xx-00	500
4	272-584/2xx-00	500
5	272-585/2xx-00	500

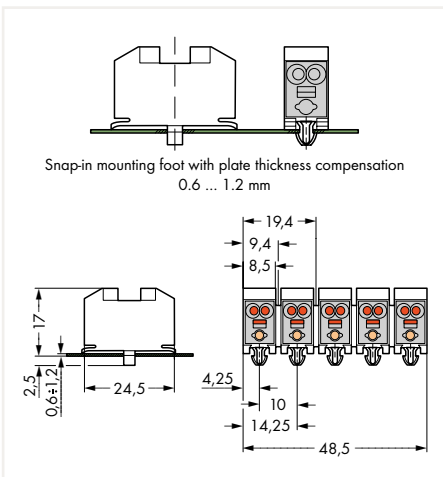
### Terminal strip; with snap-in mounting foot; white

Pole No.	Item No.	Pack. Unit
1	272-681	500
2 ❶	272-682	500
3 ❶	272-683	500
4 ❶	272-684	500
5 ❶	272-685	500
12	272-692	40
With screw-type GND contact ❸		
3	272-683/1xx-00	500
4	272-684/1xx-00	500
5	272-685/1xx-00	500
With snap-in GND contact ❸		
3	272-683/2xx-00	500
4	272-684/2xx-00	500
5	272-685/2xx-00	500




### Dimensions (in mm):



### Dimensions (in mm):



### Item-Specific Accessories

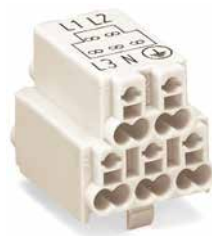
Connecting pin; for plate thickness:			
	1 mm	271-702	1000
	1 mm ❶	271-711	1000
	1.5 mm ❶	271-712	1000

4

# Dividable Terminal Strip, Compact Terminal Block 272 Series

Technical Data	
2 x 0.5 ... 1.5 mm <sup>2</sup> "s"	2 x 20 ... 16 AWG sol.*
2 x 0.5 ... 2.5 mm <sup>2</sup> "s"	2 x 20 ... 14 AWG sol.**
380 V~, size B	300 V, 10 A
I <sub>N</sub> 18 A	300 V
8 ... 9 mm / 0.33 inch	

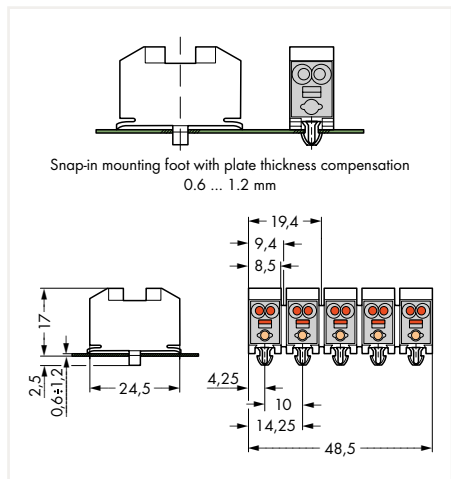
Technical Data	
2 x 0.5 ... 1.5 mm <sup>2</sup> "s"	2 x 20 ... 16 AWG sol.*
380 V~, size B	300 V, 10 A
I <sub>N</sub> 26 A	300 V
8 ... 9 mm / 0.33 inch	



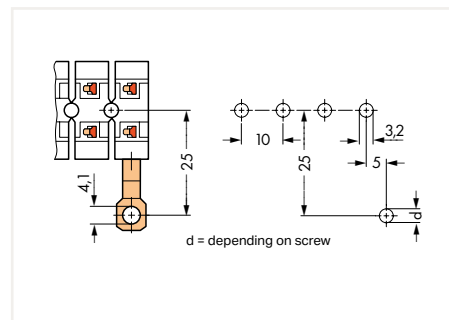
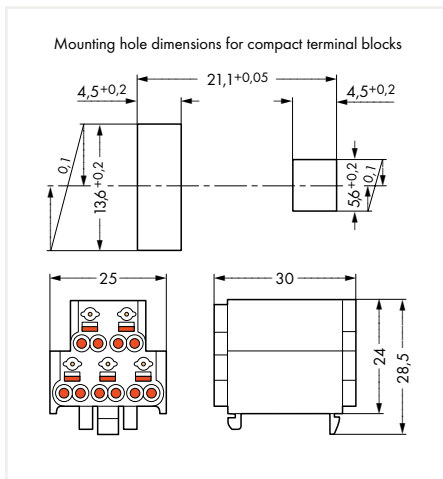
Terminal strip; with snap-in mounting foot; white		
Pole No.	Item No.	Pack. Unit
1	272-131	500
2	272-132	500
3	272-133	500
4	272-134	500
5	272-135	500
12	272-142	40
With screw-type GND contact		
3	272-133/1xx-00	500
4	272-134/1xx-00	500
5	272-135/1xx-00	500
With snap-in GND contact		
3	272-133/2xx-00	500
4	272-134/2xx-00	500
5	272-135/2xx-00	500

Compact terminal block; with snap-in mounting feet; white; for cutouts; plate thickness up to 1 mm; with additional push-wire connection for 0.5/0.75 mm <sup>2</sup> H07 V-U (NYA) per pole		
Pole No.	Item No.	Pack. Unit
5	272-122	500
With printing: L1; L2 (upper level); L3; N;		
5	272-122/001-00	500

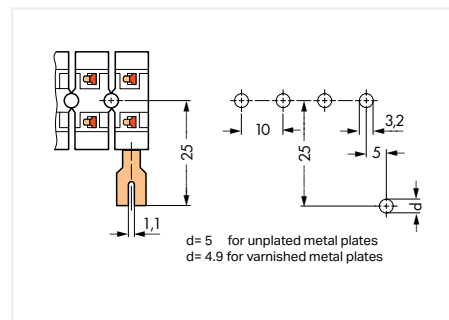
Dimensions (in mm):



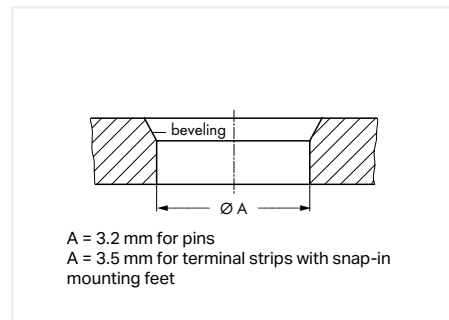
Dimensions (in mm):



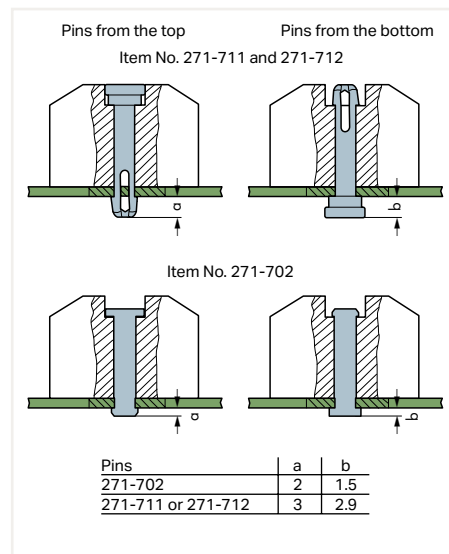
Mounting holes for GND contacts  
(GND contact for screw/riev mounting)



Mounting holes for GND contacts  
(snap-in GND contact)



Mounting holes for pins

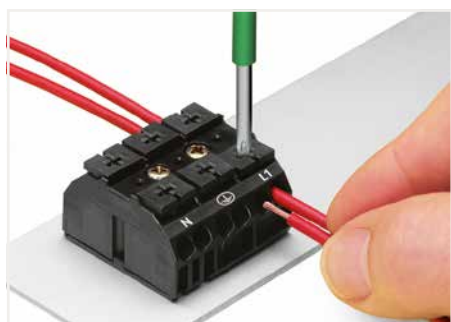


Screwless mounting with pins

## 4-Conductor Chassis-Mount Terminal Strips

### Description and Installation

#### 862 Series



Terminating four conductors per pole – solid and fine-stranded.



Marking by direct, one-side printing or marking strips



Testing with a 2 mm Ø test plug.

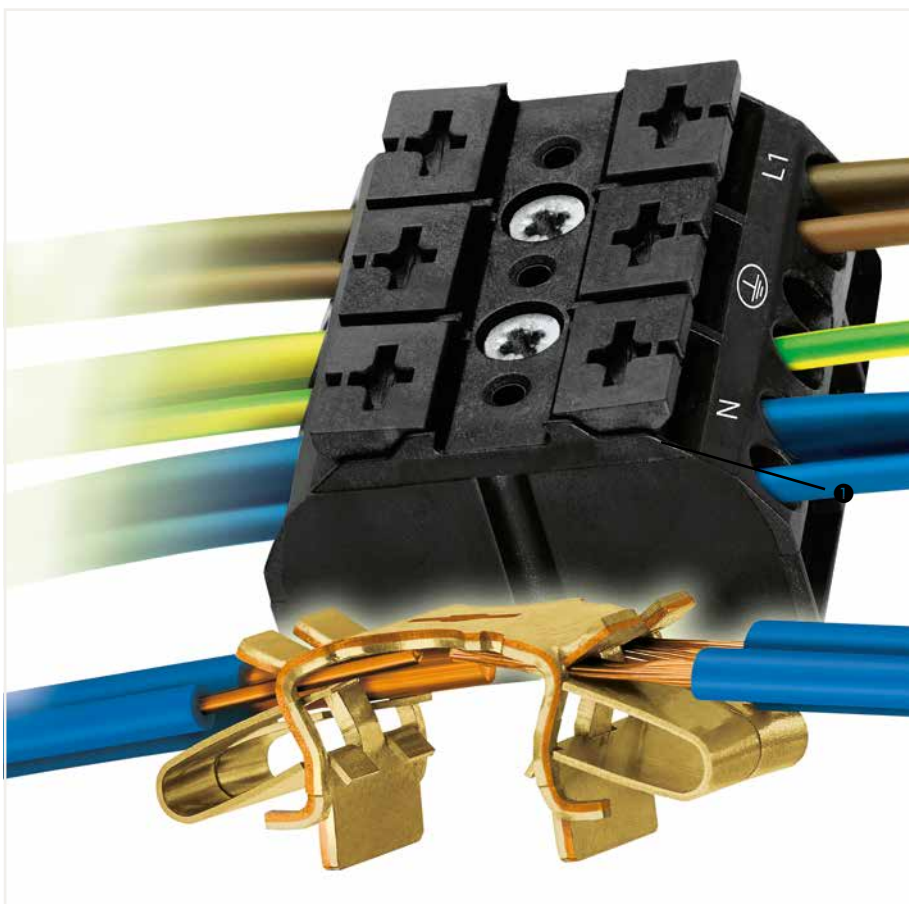
4



Makes an automatic contact to the mounting plate. The plate's varnish is instantly penetrated.



Commoning with comb-style jumper bar.



#### Cost-effective features:

WAGO's 862 Series Chassis-Mount Terminal Strips were developed specifically to minimize wiring costs, while accommodating requirements for flexible mounting, multiple connection points and easy handling:

- Equipped with Push-in CAGE CLAMP®, the 862 Series connects up to four conductors sized 0.5 to 4 mm<sup>2</sup> (20–12 AWG). Due to multiple connection points per pole, different conductor sizes can be used within the same terminal block position.
- For factory wiring, Push-in CAGE CLAMP® Connection

Technology allows solid conductors, fine-stranded conductors with ferrules or ultrasonically bonded conductors from 0.5 to 4 mm<sup>2</sup> (20–12 AWG) to be terminated by simply pushing them into unit (length of bonded conductor end: min. 10 mm).

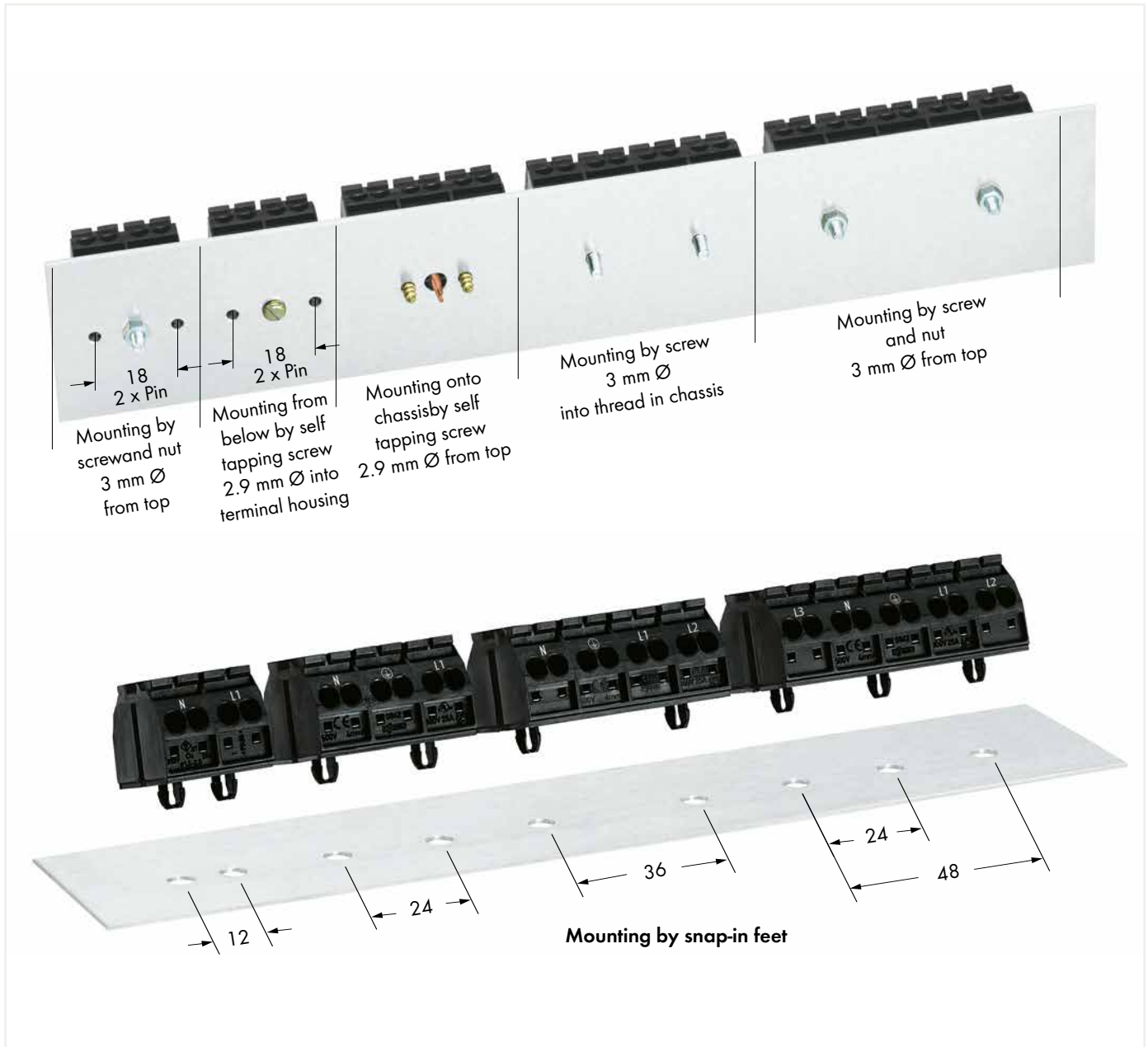
- Convenient automatic grounding contact optional
- Snap-in mounting feet for fast assembly
- Push-buttons for easy installation with an operating tool or by hand
- Built-in test points simplify testing with 2 mm Ø test plug
- Flexible marking options with standard marking (pre-marked), marking strip or custom marked for large orders



# 4-Conductor Chassis-Mount Terminal Strips

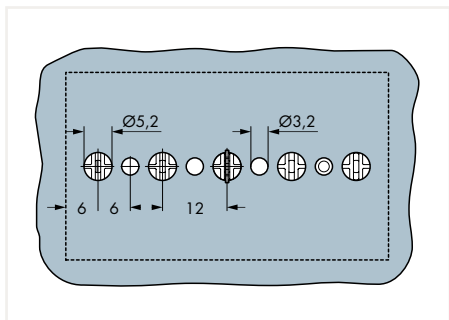
## Mounting Types

### 862 Series

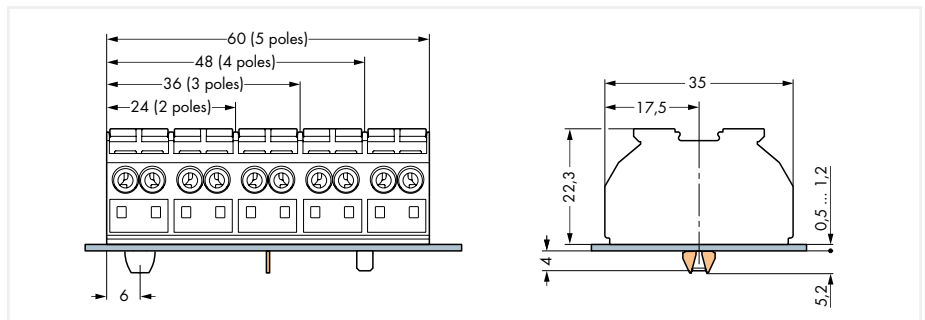


4

Dimensions (in mm):

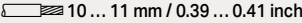
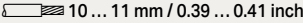


Dimensions (in mm) for GND contact and snap-in mounting foot (Ø 5.2 mm)



Dimensions (in mm) for chassis-mount terminal strips

# 4-Conductor Chassis-Mount Terminal Strip; 2- and 3-Pole; 4 mm<sup>2</sup> 862 Series

Technical Data		Technical Data	
0.5 ... 4 mm <sup>2</sup>	20 ... 12 AWG	0.5 ... 4 mm <sup>2</sup>	20 ... 12 AWG
500 V/6 kV/3	300 V, 20 A $I_N$	500 V/6 kV/3	300 V, 20 A $I_N$
$I_N$ 32 A	300 V, 20 A $I_N$	$I_N$ 32 A	300 V, 20 A $I_N$
Module width: 5.2 mm / 0.205 inch		Module width: 5.2 mm / 0.205 inch	
			



4

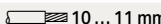
Without GND contact		With GND contact		2-pole			3-pole		
For mounting via M3 screw and nut or for 2.9 mm Ø self-tapping screw from top				Item No.	Item No.	Pack. Unit	Item No.	Item No.	Pack. Unit
plain				● 862-552	○ 862-652	500	● 862-503	○ 862-603	250
L1-N				● 862-1552	○ 862-1652	500			
N-L1				● 862-2552	○ 862-2652	500			
⊕-N-L1							● 862-1503	○ 862-1603	250
N-⊕-L1							● 862-2503	○ 862-2603	250
		N-⊕-L1					● 862-8503	○ 862-8603	250
		⊕-N-L1					● 862-9503	○ 862-9603	250
For mounting via 2.9 mm Ø self-tapping screw from bottom									
plain				● 862-562	○ 862-662	500			
L1-N				● 862-1562	○ 862-1662	500			
N-L1				● 862-2562	○ 862-2662	500			
1 snap-in mounting foot per pole									
plain				● 862-532	○ 862-632	500	● 862-533	○ 862-633	250
L1-N				● 862-1532	○ 862-1632	500			
N-L1				● 862-2532	○ 862-2632	500			
⊕-N-L1							● 862-1533	○ 862-1633	250
N-⊕-L1							● 862-2533	○ 862-2633	250
		N-⊕-L1					● 862-8533	○ 862-8633	250
		⊕-N-L1					● 862-9533	○ 862-9633	250
Snap-in foot at pos. 1+3									
plain							● 862-593	○ 862-693	250
⊕-N-L1							● 862-1593	○ 862-1693	250
N-⊕-L1							● 862-2593	○ 862-2693	250
		N-⊕-L1					● 862-8593	○ 862-8693	250
		⊕-N-L1					● 862-9593	○ 862-9693	250

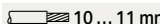
### 862 Series Accessories



Comb-style jumper bar; simply push into the conductor entry; $I_N$ 32 A			Test plug; with 500 mm cable; 2 mm Ø			Test plug; with 500 mm cable; 2.3 mm Ø		
Item No.	Pack. Unit		Color	Item No.	Pack. Unit	Color	Item No.	Pack. Unit
862-482	5		● red	210-136	50	● yellow	210-137	50

### 4-Conductor Chassis-Mount Terminal Strip; 4- and 5-Pole; 4 mm<sup>2</sup> 862 Series


Technical Data	
0.5 ... 4 mm <sup>2</sup>	20 ... 12 AWG
500 V/6 kV/3	300 V, 20 A <b>VA</b>
I <sub>N</sub> 32 A	300 V, 20 A <b>A</b>
Module width: 5.2 mm / 0.205 inch	
 10 ... 11 mm / 0.39 ... 0.41 inch	

Technical Data	
0.5 ... 4 mm <sup>2</sup>	20 ... 12 AWG
500 V/6 kV/3	300 V, 20 A <b>VA</b>
I <sub>N</sub> 32 A	300 V, 20 A <b>A</b>
Module width: 5.2 mm / 0.205 inch	
 10 ... 11 mm / 0.39 ... 0.41 inch	



Without GND contact	With GND contact	
For mounting via M3 screw and nut or for 2.9 mm Ø self-tapping screw from top		
plain		
⊕-N-L1-L2		
N-⊕-L1-L2		
	N-⊕-L1-L2	
	⊕-N-L1-L2	
⊕-N-L1-L2-L3		
L3-N-⊕-L1-L2		
	L3-N-⊕-L1-L2	
	⊕-N-L1-L2-L3	
1 snap-in mounting foot per pole		
plain		
⊕-N-L1-L2		
N-⊕-L1-L2		
	N-⊕-L1-L2	
	⊕-N-L1-L2	
⊕-N-L1-L2-L3		
L3-N-⊕-L1-L2		
	L3-N-⊕-L1-L2	
	⊕-N-L1-L2-L3	
Snap-in foot at pos. 1+4		
plain		
⊕-N-L1-L2		
N-⊕-L1-L2		
	N-⊕-L1-L2	
	⊕-N-L1-L2	
Snap-in mounting foot at pos. 1+3+5		
plain		
⊕-N-L1-L2-L3		
L3-N-⊕-L1-L2		
	L3-N-⊕-L1-L2	
	⊕-N-L1-L2-L3	

Item No.	Item No.	Pack. Unit
● 862-504	○ 862-604	200
● 862-1504	○ 862-1604	200
● 862-2504	○ 862-2604	200
● 862-8504	○ 862-8604	200
● 862-9504	○ 862-9604	200
● 862-534	○ 862-634	200
● 862-1534	○ 862-1634	200
● 862-2534	○ 862-2634	200
● 862-8534	○ 862-8634	200
● 862-9534	○ 862-9634	200
● 862-594	○ 862-694	200
● 862-1594	○ 862-1694	200
● 862-2594	○ 862-2694	200
● 862-8594	○ 862-8694	200
● 862-9594	○ 862-9694	200

Item No.	Item No.	Pack. Unit
● 862-505	○ 862-605	200
● 862-1505	○ 862-1605	200
● 862-2505	○ 862-2605	200
● 862-8505	○ 862-8605	200
● 862-9505	○ 862-9605	200
● 862-525	○ 862-625	200
● 862-1525	○ 862-1625	200
● 862-2525	○ 862-2625	200
● 862-8525	○ 862-8625	200
● 862-9525	○ 862-9625	200
● 862-515	○ 862-615	200
● 862-1515	○ 862-1615	200
● 862-2515	○ 862-2615	200
● 862-8515	○ 862-8615	200
● 862-9515	○ 862-9615	200

**862 Series Accessories**





Operating tool with a partially insulated shaft; type 2; (3.5 x 0.5) mm blade	
Item No.	Pack. Unit
210-720	1

Marking strip; plain; 7.5 mm wide; 50 m reel		
Color	Item No.	Pack. Unit
○ white	709-178	1



## Lighting Terminal Blocks and Connectors for Linect®

## Lighting Terminal Blocks and Connectors for Linect®

			Page
	Lighting Terminal Blocks for Linect®	294 Series	144
	Connectors for Linect® T-Connectors for Linect®	770 Series	152

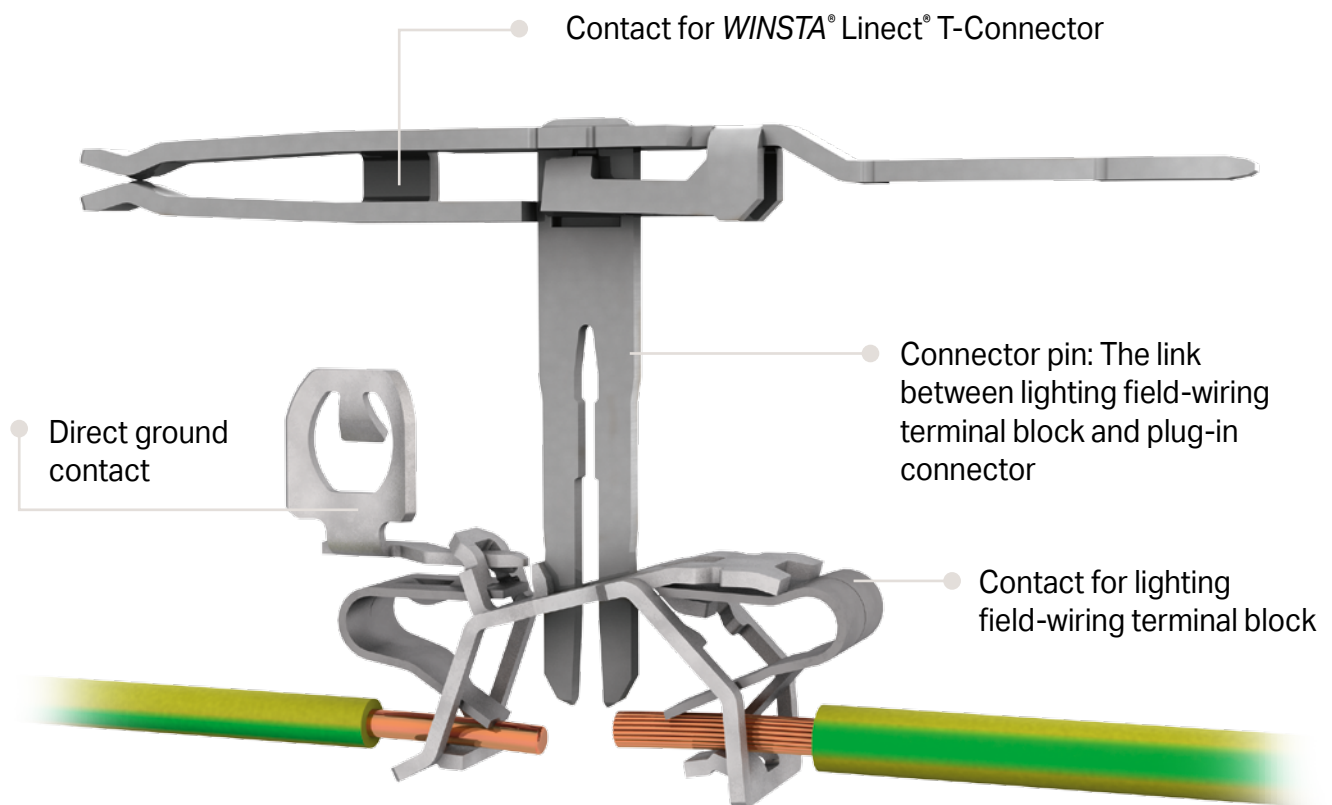
## For Universal Lighting Connections

### Linect®; 294 Series

Lights offered under the Linect® name permit both conventional field-wiring and pluggable connections. Linect®-branded interfaces can be used by any lighting manufacturer worldwide. This enables lights carrying the Linect® logo to be connected to any Linect®-marked connectors – regardless of manufacturer!

### Contact Technology with Linect® Interface:

5

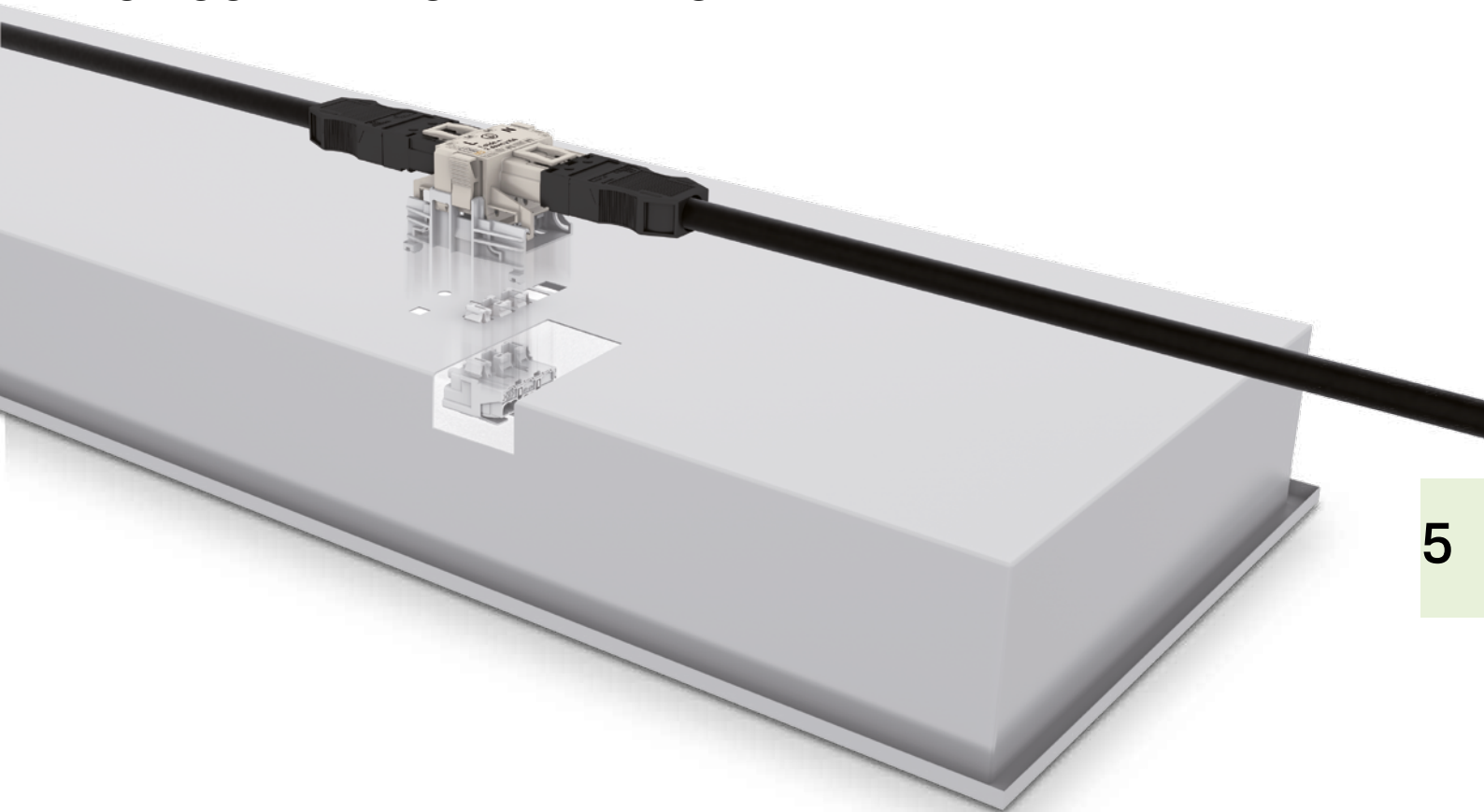


PUSH WIRE® for internal lighting wiring with solid conductors

Push-in CAGE CLAMP® for standard lighting wiring with all conductor types



# PLUGGABLE ELECTRICAL INSTALLATION OR CONVENTIONAL WIRING?



## Linect® DOES IT ALL!

### Modern Lights Need Modern, Pluggable Connections

The modern connection system for lighting installation has a name – Linect®. Lights with a Linect® interface provide connections for both conventional field-wiring terminal blocks and pluggable connectors – regardless of the manufacturer. Modern, pluggable electrical installation with Linect® enables fast and easy installation of recessed luminaires with various pluggable connector systems.

As lighting manufacturers, planners and electricians, you will benefit from Linect® – the universal light connection system.

# Lighting Terminal Blocks

## Description and Installation

### Linect®; 294 Series



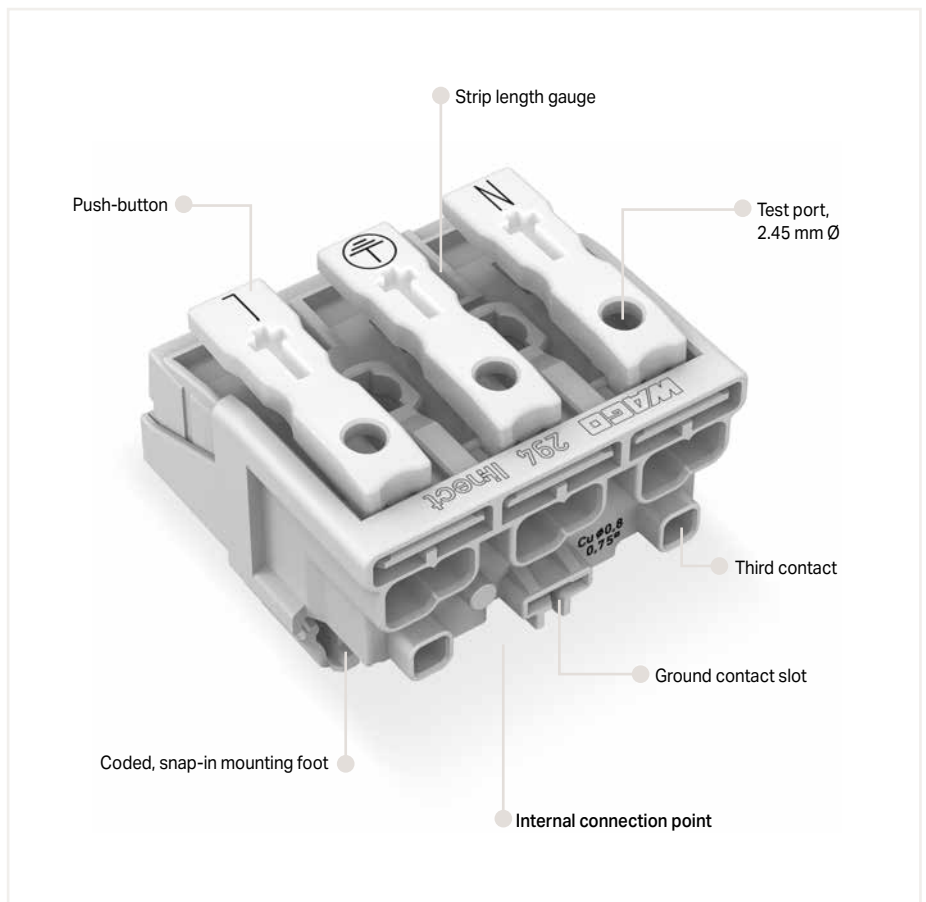
WAGO's 294 Series Lighting Terminal Blocks allow worldwide connection of luminaires via WINSTA® Pluggable Connectors or conventional wiring.

WAGO Linect® Lighting Terminal Blocks are ideal for connecting additional consumers that were not originally planned (e.g., spots). The maximum current between WINSTA® Linect® T-Connector and Lighting Terminal Block is 16 A.

5



Integrated strip length gauge



Position the T-connector within the two square recesses.



Move the T-connector toward the square cutouts until it is locked in position.



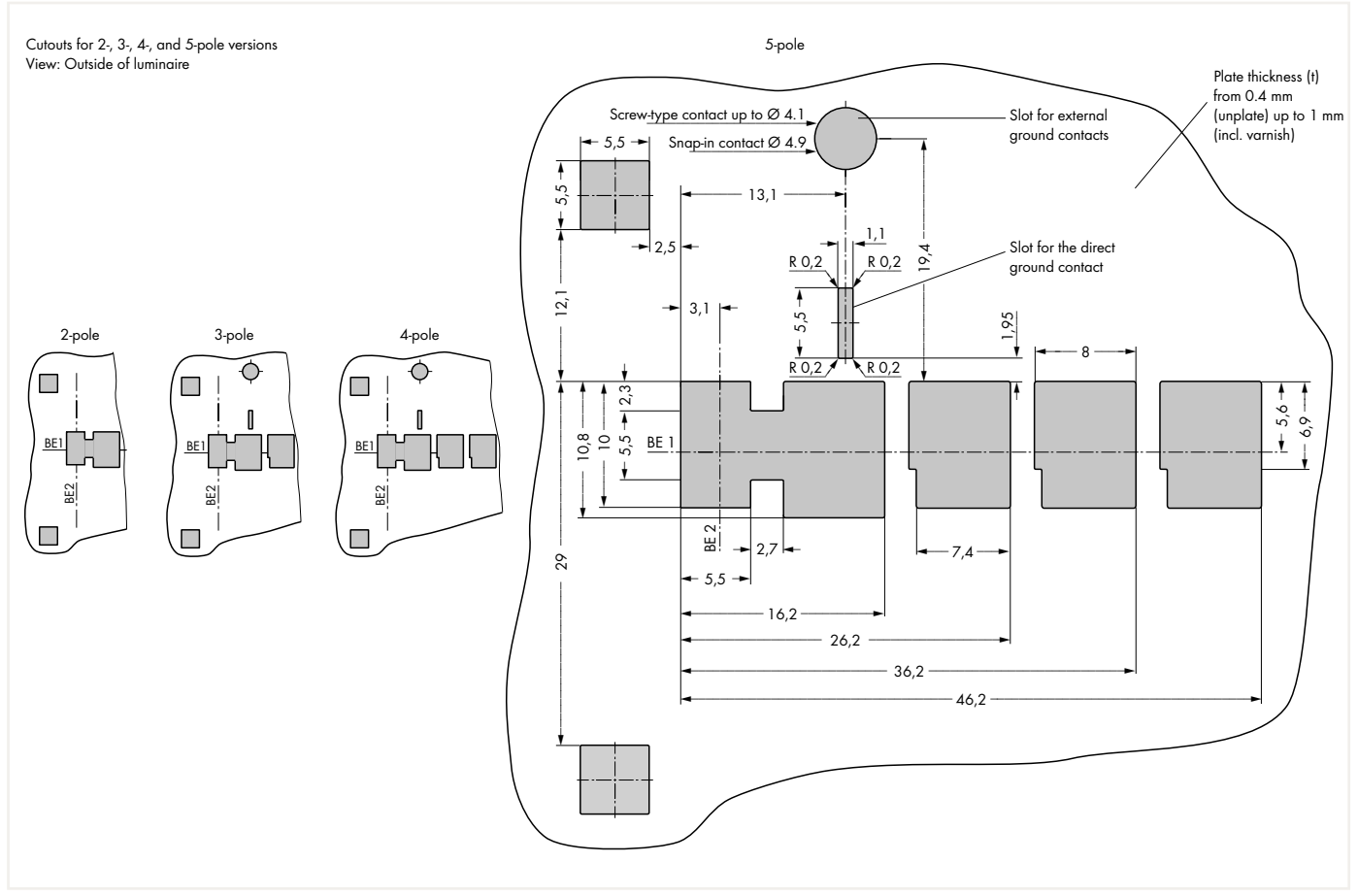
Push connector down until fully engaged – done!

# Description and Installation

## Linect®; 294 Series

Pole No.	Marking	Without GND contact	With direct GND contact	With screw-type GND contact	With snap-in GND contact	With angled snap-in GND contact
2	N' L' DA+ DA-	Item No. 294-8022 294-8032	Item No. -	Item No. -	Item No. -	Item No. -
3	N ⊕ L (mains) N E L	294-8013 294-8093/3025-000	294-8113 -	294-8413 -	294-8213 -	294-8313 -
4	1/L' 2/L ⊕ N 1/L' 2/L E N	294-8024 294-8094/4025-000	294-8124 -	294-8424 -	294-8224 -	294-8324 -
5	DA+ DA- L ⊕ N L' N' L ⊕ N L3 L2 L1 ⊕ N DA+ DA- L E N L3 L2 L1 E N L' N' L E N	294-8035 294-8025 294-8015 294-8095/5025-000 294-8095/5026-000 294-8095/5027-000	294-8135 294-8125 294-8115 - - -	294-8435 294-8425 294-8415 - - -	294-8235 294-8225 294-8215 - - -	294-8335 294-8325 294-8315 - - -

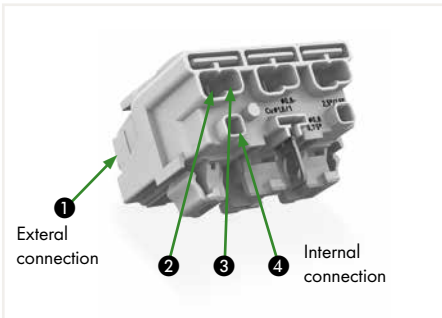
5



## Lighting Terminal Block Linect®; 294 Series



- External connection of solid, stranded and fine-stranded conductors
- Universal conductor termination (AWG, metric)
- Third contact located at the bottom of internal connection end
- Strain relief plate can be retrofitted



Electrical Data	Linect® Connector		
Ratings per	IEC/EN 60998-1	IEC/EN 60998-2-2	IEC/EN 60664-1
Overvoltage category	II	II	II
Pollution degree	2	2	2
Rated voltage	500 V	500 V	500 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	24 A	24 A	16 A
Temperature marking	T 85	T 85	
Degree of protection			IP 2 XC
Storage temperature			-35 ... +85 °C
Processing temperature			-5 ... +40 °C

Connection Data for External Connection	
Connection technology	Push-in CAGE CLAMP®
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch
Conductor range (conductor termination ①)	
Solid, stranded or fine-stranded conductor	2 x 0.5 ... 2.5 mm <sup>2</sup>
Solid, stranded or fine-stranded conductor; with ferrule	2 x 0.5 ... 1.5 mm <sup>2</sup>
Solid conductor (AWG)	2 x 18 ... 12
Fine-stranded and stranded conductor (AWG)	2 x 18 ... 14

Connection Data for Internal Connection	
Connection technology	PUSH WIRE®
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch
Conductor range (conductor termination ②)	
Solid conductor	0.5 ... 2.5 mm <sup>2</sup> / 18 ... 14 AWG
Fine-stranded conductor; with uninsulated ferrule	0.5 ... 1.5 mm <sup>2</sup>
Fine-stranded conductor; with insulated ferrule	0.5 ... 1 mm <sup>2</sup>
Conductor range (conductor termination ③)	
Solid conductor	0.5 ... 1.5 mm <sup>2</sup> / 18 ... 16 AWG
Fine-stranded conductor; with uninsulated ferrule	0.5 ... 1 mm <sup>2</sup>
Fine-stranded conductor; with insulated ferrule	0.5 ... 0.75 mm <sup>2</sup>
Conductor range (conductor termination ④)	
Solid conductor	0.5 ... 0.75 mm <sup>2</sup> / 18 AWG

Material Data	
Material group	IIa
Insulation material	Polycarbonate (PC)
Flammability class per UL94	V0
Temperature stability	Relative Temperature Index (RTI) of 120°C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated

PUSH-IN CAGE CLAMP®

PUSH WIRE®

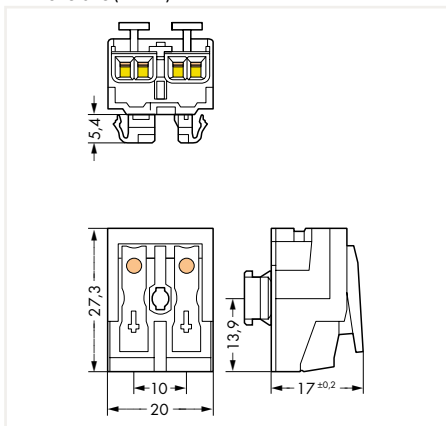
## Lighting Terminal Block; 2-Pole Linect®; 294 Series

Without GND contact



Marking	Item No.	Pack. Unit
N' L'	294-8022	1000
DA+ DA-	294-8032	1000

Dimensions (in mm):

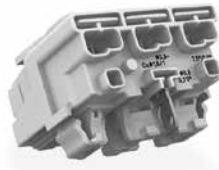


# Lighting Terminal Block; 3-Pole Linect®; 294 Series

Without GND contact



With direct GND contact



With screw-type GND contact

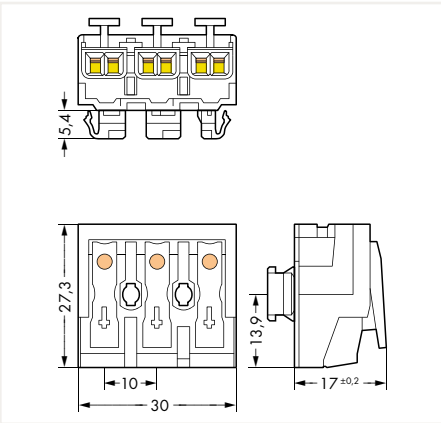


Marking	Item No.	Pack. Unit
N ⊕ L (mains)	294-8013	500
N E L	294-8093/3025-000	500

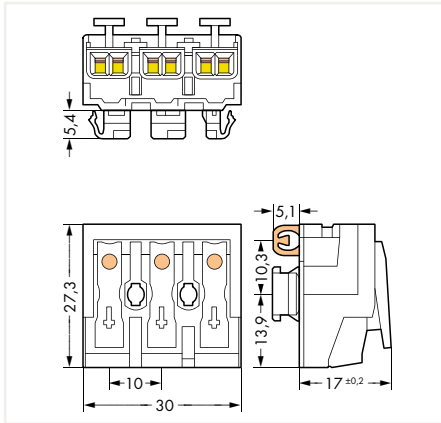
Marking	Item No.	Pack. Unit
N ⊕ L (mains)	294-8113	500

Marking	Item No.	Pack. Unit
N ⊕ L (mains)	294-8413	500

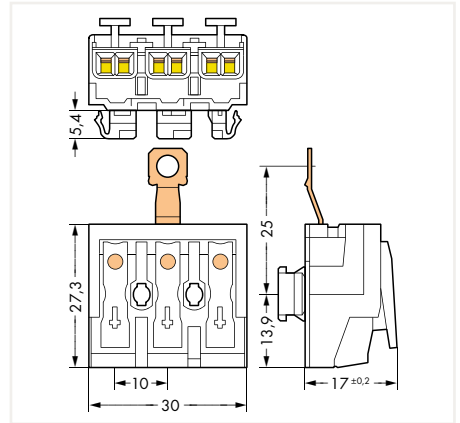
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



5



PUSH-IN CAGE CLAMP®

PUSH WIRE®

# Lighting Terminal Block; 3-Pole Linect®; 294 Series

With snap-in GND contact



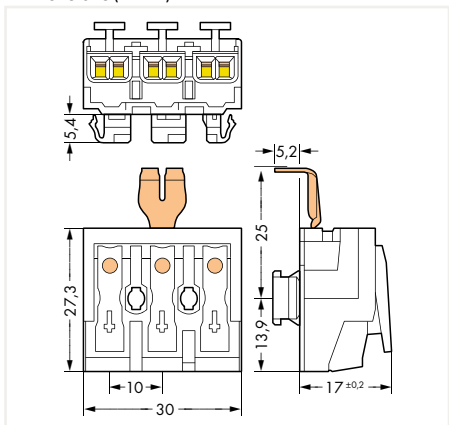
With angled snap-in GND contact



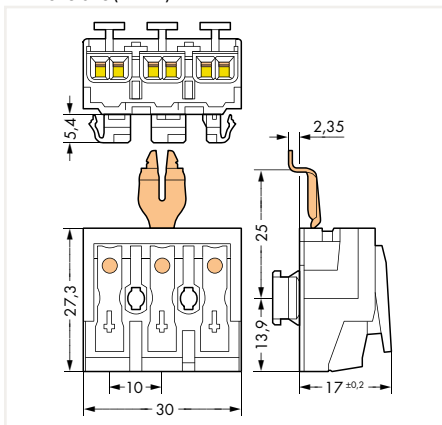
Marking	Item No.	Pack. Unit
N ⊕ L (mains)	294-8213	500

Marking	Item No.	Pack. Unit
N ⊕ L (mains)	294-8313	500

Dimensions (in mm):



Dimensions (in mm):



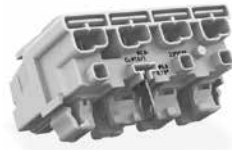
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# Lighting Terminal Block; 4-Pole Linect®; 294 Series

Without GND contact



With direct GND contact



With screw-type GND contact

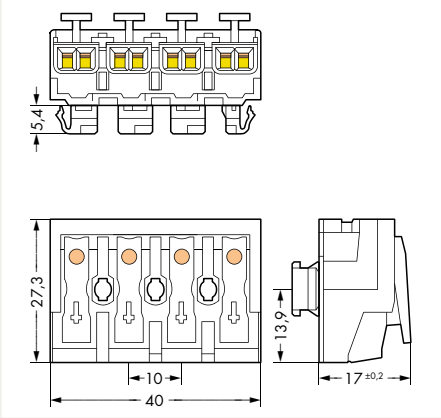


Marking	Item No.	Pack. Unit
1/L' 2/L' ⊕ N	294-8024	500
1/L' 2/L' E N	294-8094/4025-000	500

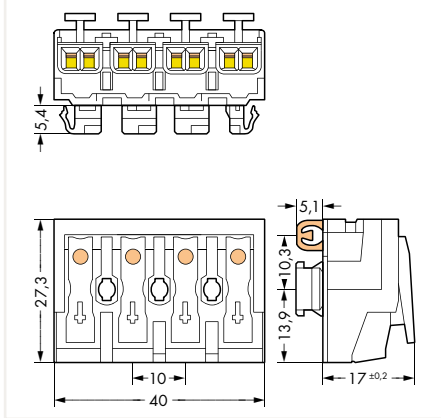
Marking	Item No.	Pack. Unit
1/L' 2/L' ⊕ N	294-8124	500

Marking	Item No.	Pack. Unit
1/L' 2/L' ⊕ N	294-8424	500

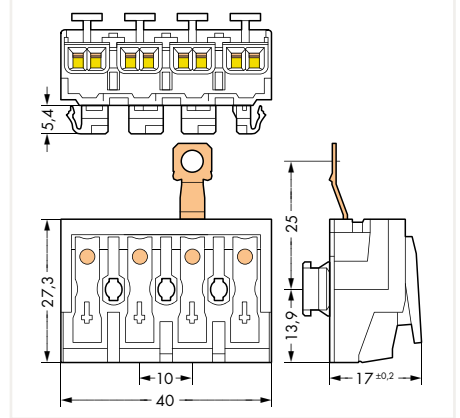
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



5

PUSH-IN CAGE CLAMP®

PUSH WIRE®

# Lighting Terminal Block; 4-Pole Linect®; 294 Series

With snap-in GND contact

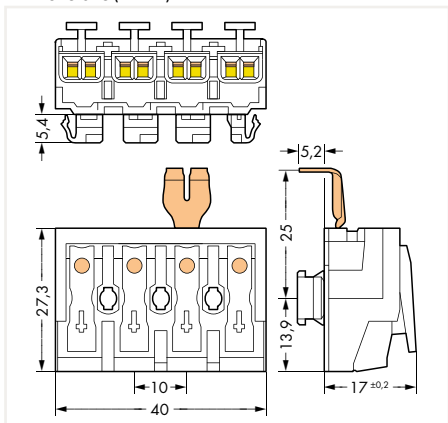
With angled snap-in GND contact



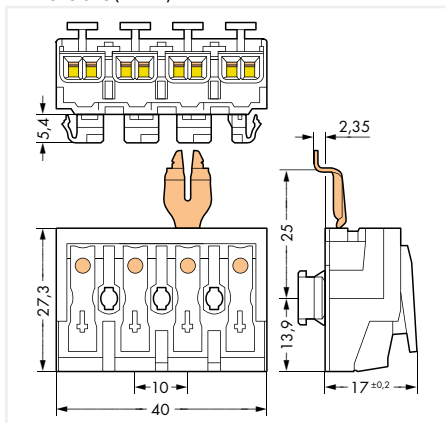
Marking	Item No.	Pack. Unit
1/L' 2/L' ⊕ N	294-8224	500

Marking	Item No.	Pack. Unit
1/L' 2/L' ⊕ N	294-8324	500

Dimensions (in mm):



Dimensions (in mm):



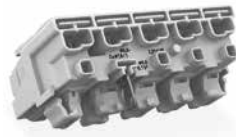
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# Lighting Terminal Block; 5-Pole Linect®; 294 Series

Without GND contact



With direct GND contact



With screw-type GND contact



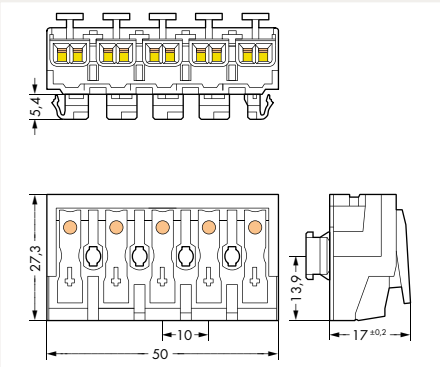
Marking	Item No.	Pack. Unit
DA+ DA- L ⊕ N	294-8035	250
L' N' L ⊕ N	294-8025	250
L3 L2 L1 ⊕ N	294-8015	250
DA+ DA- L E N	294-8095/5025-000	250
L3 L2 L1 E N	294-8095/5026-000	250
L' N' L E N	294-8095/5027-000	250

Marking	Item No.	Pack. Unit
DA+ DA- L ⊕ N	294-8135	250
L' N' L ⊕ N	294-8125	250
L3 L2 L1 ⊕ N	294-8115	250

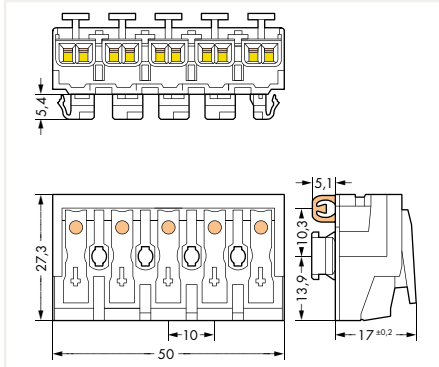
Marking	Item No.	Pack. Unit
DA+ DA- L ⊕ N	294-8435	250
L' N' L ⊕ N	294-8425	250
L3 L2 L1 ⊕ N	294-8415	250

5

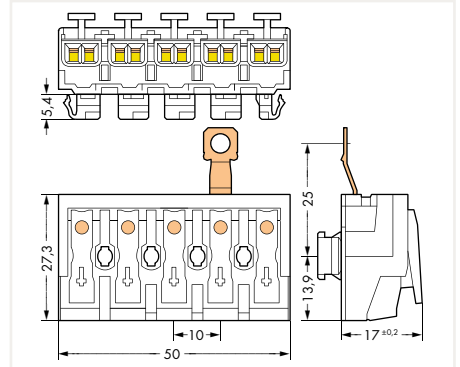
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



PUSH-IN CAGE CLAMP®

PUSH WIRE®

# Lighting Terminal Block; 5-Pole Linect®; 294 Series

With snap-in GND contact

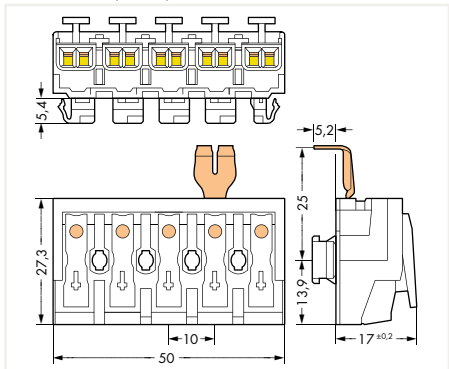
With angled snap-in GND contact



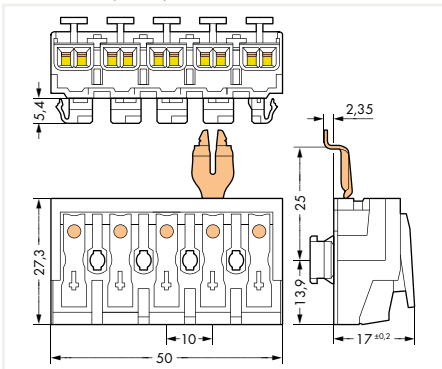
Marking	Item No.	Pack. Unit
DA+ DA- L ⊕ N	294-8235	250
L' N' L ⊕ N	294-8225	250
L3 L2 L1 ⊕ N	294-8215	250

Marking	Item No.	Pack. Unit
DA+ DA- L ⊕ N	294-8335	250
L' N' L ⊕ N	294-8325	250
L3 L2 L1 ⊕ N	294-8315	250

Dimensions (in mm):



Dimensions (in mm):




## Linect® Connector for Conventional Wiring; 3-Pole 770 Series



- Linect® Connectors for conventional, external wiring
- Push-in CAGE CLAMP® for all conductor types up to 2.5 mm<sup>2</sup>
- Quick and easy replacement of lights for maintenance or retrofits
- Opening the light is not necessary

Electrical Data	Push-in CAGE CLAMP® connection	Linect® Connector
Ratings per	IEC/EN 61984	IEC/EN 61984
Overvoltage category	II	II
Pollution degree	2	2
Rated voltage	250 V	250 V
Rated surge voltage	4 kV	4 kV
Rated current	24 A	16 A
Degree of protection	IP 2 XC	IP 2 XC
Storage temperature	-35 ... +85 °C -5 ... +40 °C	-35 ... +85 °C -5 ... +40 °C

### Connection Data for External Connection

Connection technology	Push-in CAGE CLAMP®
Strip length	8 ... 9 mm / 0.31 ... 0.35 inch
Conductor range (conductor termination  )	
Solid, stranded or fine-stranded conductor	2 x 0.5 ... 2.5 mm <sup>2</sup>
Solid, stranded or fine-stranded conductor; with ferrule	2 x 0.5 ... 2.5 mm <sup>2</sup>
Solid conductor (AWG)	2 x 20 ... 12
Fine-stranded and stranded conductor (AWG)	2 x 18 ... 14

### Material Data

Material group	IIIa
Insulation material	Polycarbonate (PC)
Flammability class per UL94	V0
Temperature stability	Relative Temperature Index (RTI) of 120°C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated



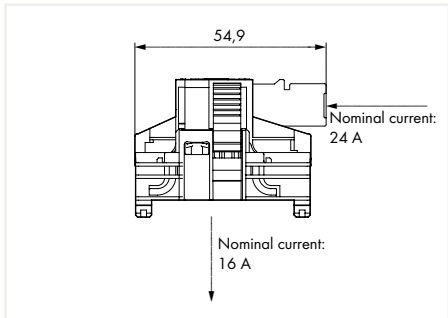
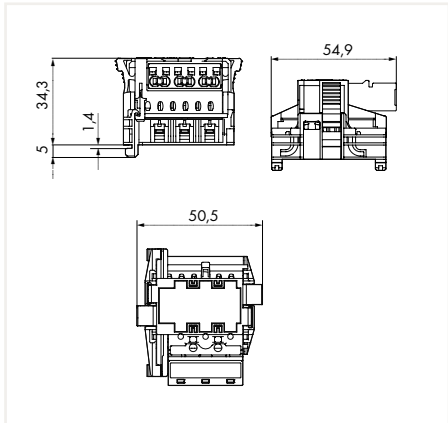
# Linect® Connector for Conventional Wiring; 3-Pole 770 Series

Linect® Connector; 3-pole; socket – plug



Color	Item No.	Pack. Unit
○ white	770-6229	25

Dimensions (in mm):



3-pole		
○ white	A-coding	(L ⊕ N)

Accessories; item-specific

Strain relief housing; for 1 cable; 4.5 ... 8 mm diameter

	black	770-503/023-000	50
	white	770-513/023-000	50

Strain relief housing; for 2 cables; 8 ... 11.5 mm diameter

	black	770-503	50
	white	770-513	50

Strain relief housing; angled; for 2 cables; 8 ... 11.5 mm diameter

	black	770-503/032-000	50
	white	770-513/032-000	50

Strain relief housing; for 4 mm² cables; for 1 cable; 9 ... 13 mm diameter

	black	770-503/021-000	50
	white	770-513/021-000	50

Strain relief housing; for quick assembly; for 1 cable; 7 ... 11 mm diameter

	black	770-503/035-000	50
	white	770-513/035-000	50

# WINSTA® MIDI

## Linect® T-Connector, 2-, 3- and 4-Pole

### 770 Series

Technical Data	
250 V / 4 kV / 3	
$I_n$ 25 A (16 A)	



Linect® T-Connector; 2-pole; socket – plug; white housing; blue cover; for DALI applications		
Color	Item No.	Pack. Unit
● blue	770-7102	25

Technical Data	
250 V / 4 kV / 3	
$I_n$ 25 A (16 A)	



Linect® T-Connector; 3-pole; socket – plug; white housing; white cover		
Color	Item No.	Pack. Unit
○ white	770-6223	25

Technical Data	
400 V / 6 kV / 3	
$I_n$ 25 A (16 A)	

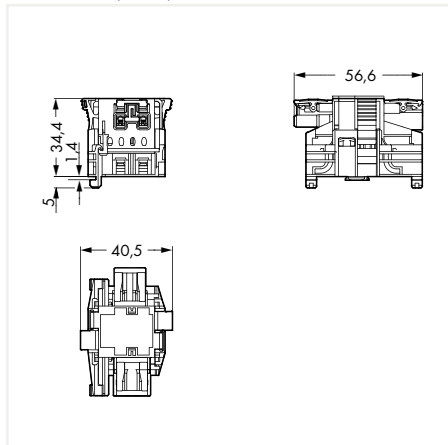


Linect® T-Connector; 4-pole; socket – plug; white housing; white cover		
Color	Item No.	Pack. Unit
○ white	770-6224	25

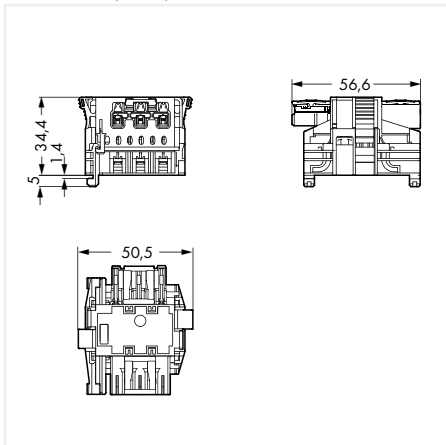
5

Linect® T-Connector; 2-pole; socket – plug; white housing; dark gray cover; for emergency power		
Color	Item No.	Pack. Unit
● dark gray	770-7502	25

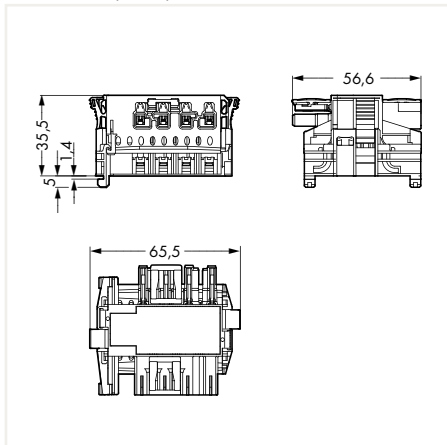
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



Accessories; item-specific		
Coding pin; for plug (A- and B-coding)		
gray	770-401	1000



Accessories; item-specific		
Coding pin; for plug (A- and B-coding)		
gray	770-401	1000



# WINSTA® MIDI

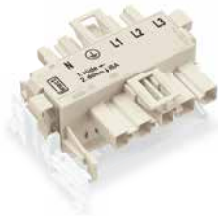
## Linect® T-Connector, 5-Pole

### 770 Series

**Technical Data**

400 V / 6 kV / 3

I<sub>N</sub> 25 A (16 A)



**Technical Data**

400 V / 6 kV / 3

I<sub>N</sub> 25 A (16 A)



Linect® T-Connector; 5-pole; socket – plug; white housing; white cover

Color	Item No.	Pack. Unit
○ white	770-6225	25

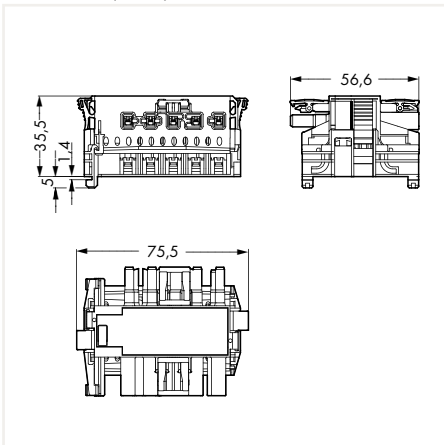
Linect® T-Connector; 5-pole; socket – plug; white housing; blue cover; for DALI applications

Color	Item No.	Pack. Unit
● blue	770-7105	25

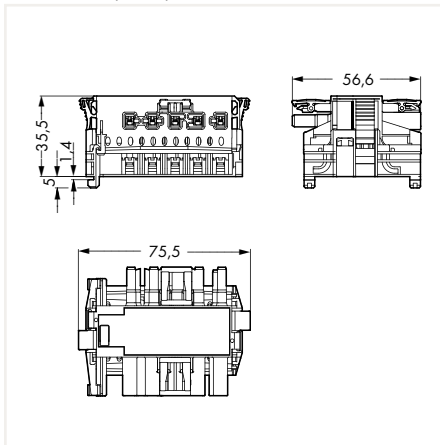
Linect® T-Connector; 5-pole; socket – plug; white housing; dark gray cover; for emergency power

Color	Item No.	Pack. Unit
● dark gray	770-7505	25

Dimensions (in mm):



Dimensions (in mm):




2-pole		
● blue	L-coding	(DA+ DA-)
● dark gray	L-coding	(L' N')
3-pole		
○ white	A-coding	(L ⊕ N)
4-pole		
○ white	A-coding	(N ⊕ 2/L 1/L')
5-pole		
○ white	A-coding	(N ⊕ L1 L2 L3)
● blue	L-coding	(N ⊕ L DA- DA+)
● dark gray	L-coding	(N ⊕ L N' L')

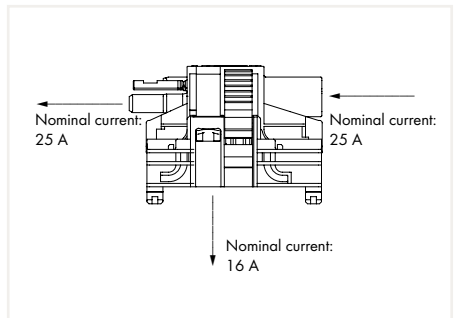
**Accessories**

Lockout cap; for socket; separable; 12-pole

	black	770-201	100
	white	770-221	100

Lockout cap; for plug; separable; 5-pole

	yellow	770-360	100
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## Luminaire Connectors

## Luminaire Connectors

			Page
	Pluggable Connection System with Phase Selection for Fluorescent Lighting Fixtures	267 Series	160
	Connectors for In-Line Mounting of Fluorescent Lighting Fixtures	267 Series	167
	Luminaire Disconnect Connector	873 Series	168

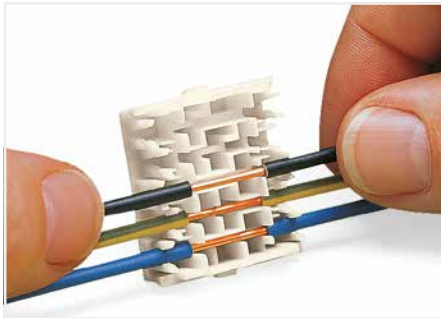
# Pluggable Connection System for Partially Stripped Conductors

## Description and Installation

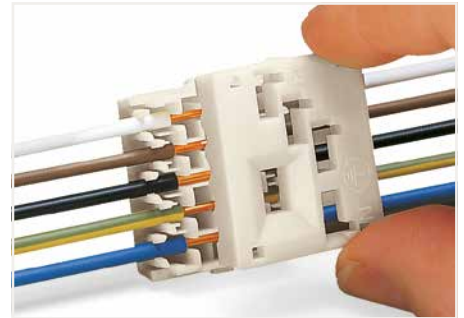
### 267 Series



- ❶ Socket with direct ground contact to lighting fixture panel
- ❷ Socket with PUSH WIRE® connection for ground conductors



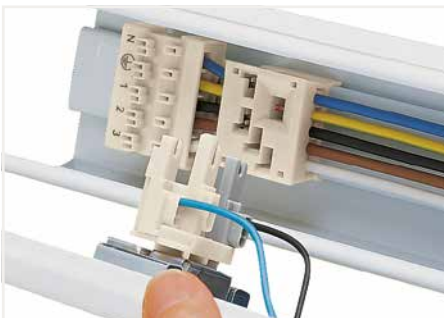
Snapping a partially stripped conductor into the conductor support base. Conductor supports replace standard sockets.



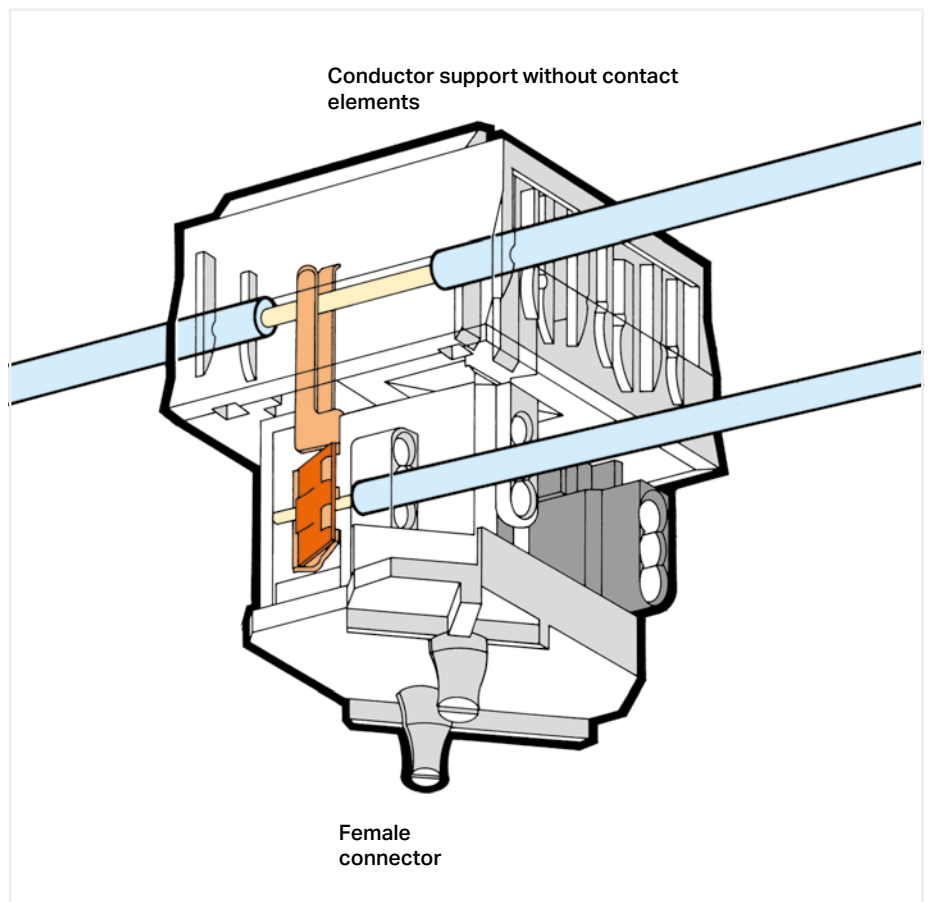
Latching conductor support cover



Inserting a conductor. Insert the conductor until it hits backstop!



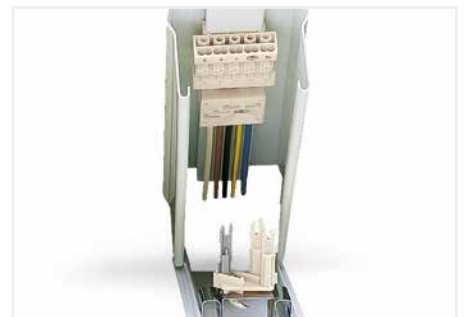
Inserting the socket into the conductor support.



Field-wiring terminal block with direct ground contact to lighting fixture panel



Terminal block matched to the rail profile; shown here with snap-in foot



Fluorescent lighting fixture with pluggable connector and field-wiring terminal block

6

# Pluggable Connection System with Insulation Displacement Connection (IDC)

**PUSH WIRE®**

## Description and Installation

### 267 Series



Socket with PUSH WIRE® connection for ground conductors



Snap-on type socket, 2- to 4-pole



Securing the base socket to the snap-on type socket (system expansion: 7 + 4 poles).



Insulation Displacement Connection (IDC)



System expansion assembly: socket and conductor support



System expansion assembly: conductor support



Conductor support cover with dovetail mount for snap-on type conductor support



Snap-on type conductor support, 4-pole



Securing the snap-on type conductor support to the cover (system expansion: 7 + 4 poles)

6



# Pluggable Connection System with Phase Selection for Fluorescent Lighting Fixtures

## Conductor Support

### 267 Series



#### 267 Series for Partially Stripped Conductors:

- Non-contacting conductor support
- Compact design

#### 267 Series with Insulation Displacement Connection (IDC):

- Flexible, modular 5- to 11-pole pluggable connection system
- IDC connection for through-wiring applications
- Future system expansions possible

Electrical Data	PUSH WIRE® Connection (connector for in-line mounting of fluo- rescent lighting fixtures and snap-on type conductor support)	PUSH WIRE® Connection (socket)	IDC (conductor support)
Ratings per	IEC/EN 61984	IEC/EN 61984	IEC/EN 61984
Overvoltage category	II	II	II
Pollution degree	2	2	2
Rated voltage	500 V	500 V	500 V
Rated surge voltage	4 kV	4 kV	4 kV
Rated current	16 A	6 A	6 A
Approvals per	UL 1977	UL 1977	UL 1977
Rated voltage	600 V	600 V	600 V
Nominal current UL	15 A	6 A	6 A

#### Material Data

Material group	I
Insulation material	Polyamide 6.6 (PA66)
Flammability class per UL94	V0
Temperature stability	105 °C
Clamping spring material	Chrome nickel spring steel (CrNi)
Contact Material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated

# Pluggable Connection System with Phase Selection for Fluorescent Lighting Fixtures

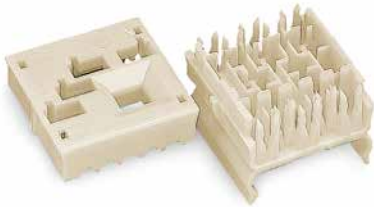
## Conductor Support for Partially Stripped Conductors

### 267 Series

Technical Data	
5 x 1.5 ... 2.5 mm <sup>2</sup> "s"	5 x 16 ... 14 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A

Technical Data	
5 x 1.5 ... 2.5 mm <sup>2</sup> "s"	5 x 16 ... 14 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A

Technical Data	
5 x 1.5 ... 2.5 mm <sup>2</sup> "s"	5 x 16 ... 14 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A



Conductor support with snap-on foot; consisting of base and cover; with molded pole marking on cover (N ⊕ 1 2 3); white

Pole No.	Item No.	Pack. Unit
Cover		
5	267-140	500
Base		
5	267-141	500

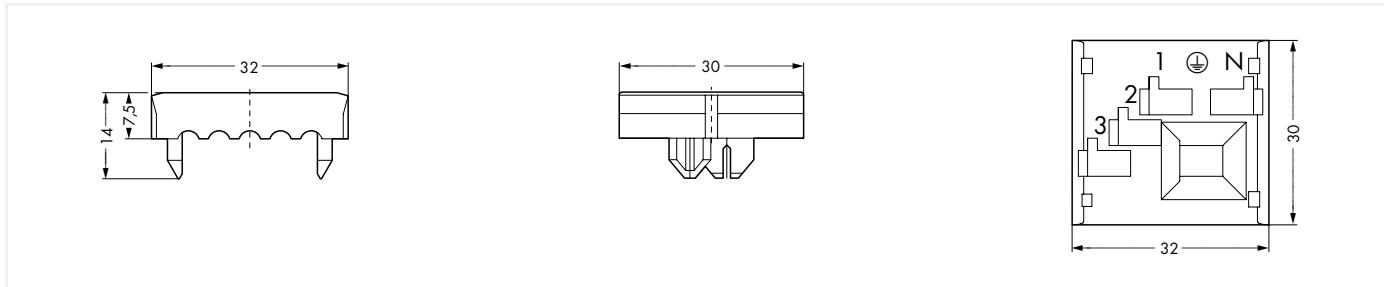
Conductor support with dovetail; consisting of base and cover; with molded pole marking on cover (N ⊕ 1 2 3); white

Pole No.	Item No.	Pack. Unit
Cover		
5	267-140	500
Base		
5	267-143	500

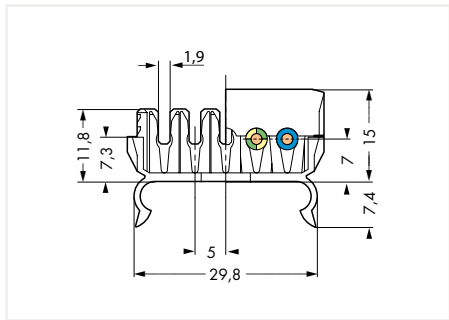
Conductor support with custom foot; consisting of base and cover; with molded pole marking on cover (N ⊕ 1 2 3); white

Pole No.	Item No.	Pack. Unit
Cover		
5	267-140	500
Base		
5	267-xxx ①	500

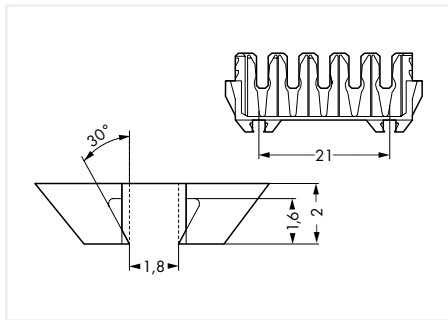
Dimensions (in mm):



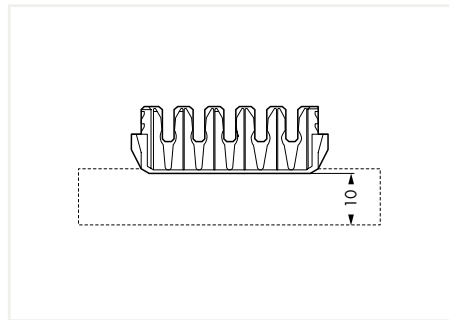
Dimensions (in mm):



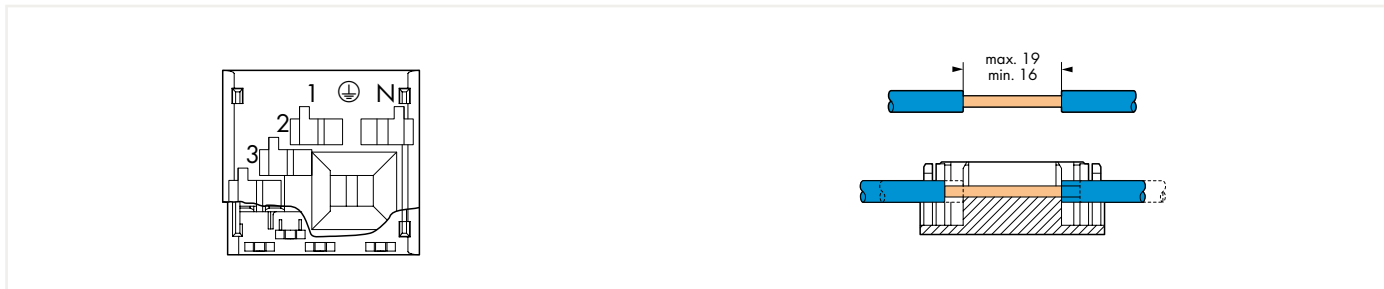
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



① per customer specifications

# Pluggable Connection System with Phase Selection for Fluorescent Lighting Fixtures

## Socket for Partially Stripped Conductors

### 267 Series

Technical Data	
0.5 ... 1 mm <sup>2</sup> "s"	22 ... 18 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A
8 mm / 0.31 inch	

Technical Data	
0.5 ... 1 mm <sup>2</sup> "s"	22 ... 18 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A
8 mm / 0.31 inch	



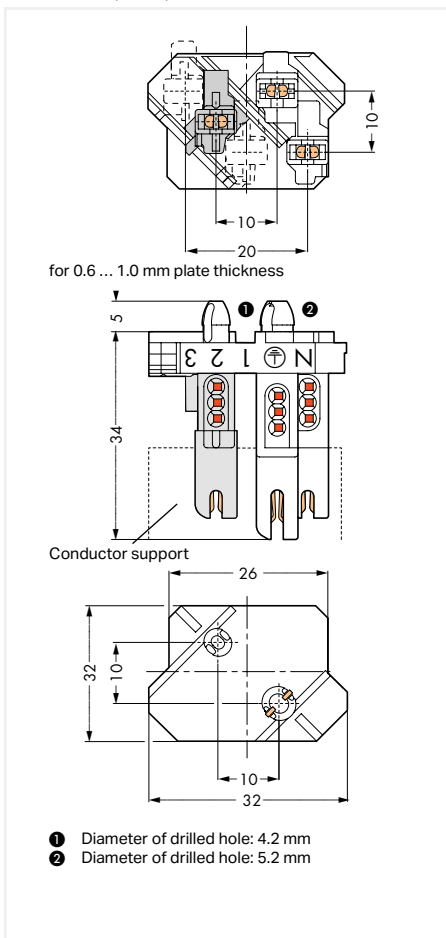
Socket; with snap-in mounting feet and ground conductor connection; white/gray; with molded pole marking; gray socket for phase selection to 1 – 2 – 3 (not possible with 5-pole sockets)

Pole No.	Item No.	Pack. Unit
3	267-113	500
4	267-114	500
5	267-115	500

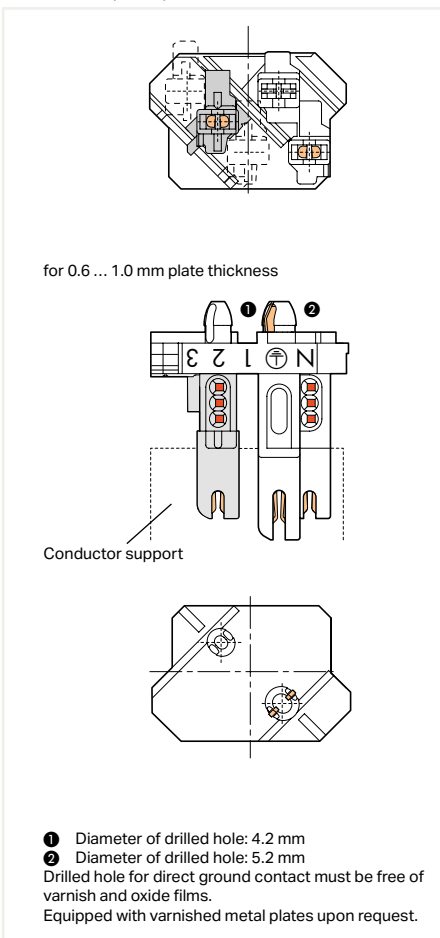
Socket; with snap-in mounting feet and direct ground contact; white/gray; with molded pole marking; gray socket for phase selection to 1 – 2 – 3 (not possible with 5-pole sockets)

Pole No.	Item No.	Pack. Unit
3	267-123	500
4	267-124	500
5	267-125	500

Dimensions (in mm):



Dimensions (in mm):



6

# Pluggable Connection System with Phase Selection for Fluorescent Lighting Fixtures

## Conductor Support with Field-Wiring Connection

### 267 Series

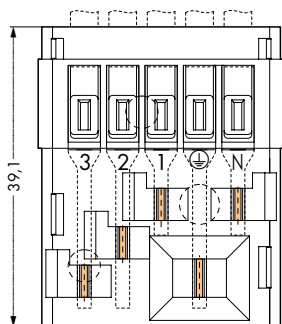
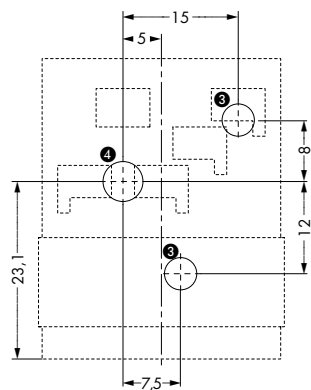
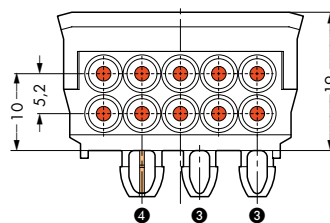
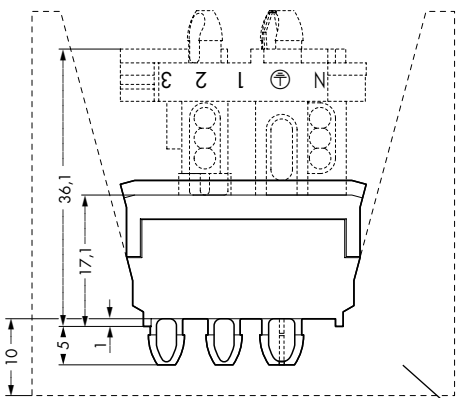
Technical Data	
5 x 2/1,5 ... 2.5 mm <sup>2</sup> "s"	5 x 16 ... 14 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A
11 ... 12 mm / 0.45 inch	

Technical Data	
5 x 2/1,5 ... 2.5 mm <sup>2</sup> "s"	5 x 16 ... 14 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A
11 ... 12 mm / 0.45 inch	



Conductor support; with field-wiring connection and snap-in mounting feet; white			
Pole No.	Marking	Item No.	Pack. Unit
3	N, PE, 1	267-313	50
4	N, PE, 1, 2	267-314	50
5	N, PE, 1, 2, 3	267-315	50

Conductor support; with field-wiring connection and snap-in mounting feet; with direct GND contact; white			
Pole No.	Marking	Item No.	Pack. Unit
3	N, PE, 1	267-303	50
4	N, PE, 1, 2	267-304	50
5	N, PE, 1, 2, 3	267-305	50



Custom foot adjustment

for 0.5 ... 1.0 mm plate thickness

- ③ Diameter of drilled hole: 4.2 mm
  - ④ Diameter of drilled hole: 5.2 mm
- Drilled hole for direct ground contact must be free of varnish and oxide films.  
Equipped with varnished metal plates upon request.

# Pluggable Connection System with Phase Selection for Fluorescent Lighting Fixtures

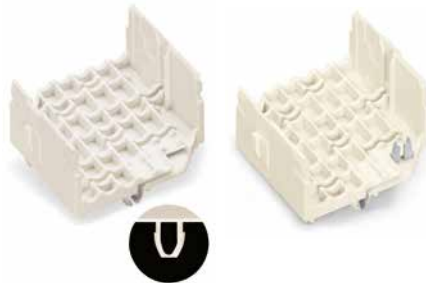
## Conductor Support with Insulation Displacement Connection (IDC)

### 267 Series

Technical Data	
1.5 ... 2.5 mm <sup>2</sup> "s"	16 ... 14 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A

Technical Data	
1.5 ... 2.5 mm <sup>2</sup> "s"	16 ... 14 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A

Technical Data	
500 V / 4 kV / 16 A	600 V/15 A
□ 11 ... 12 mm / 0.45 inch	



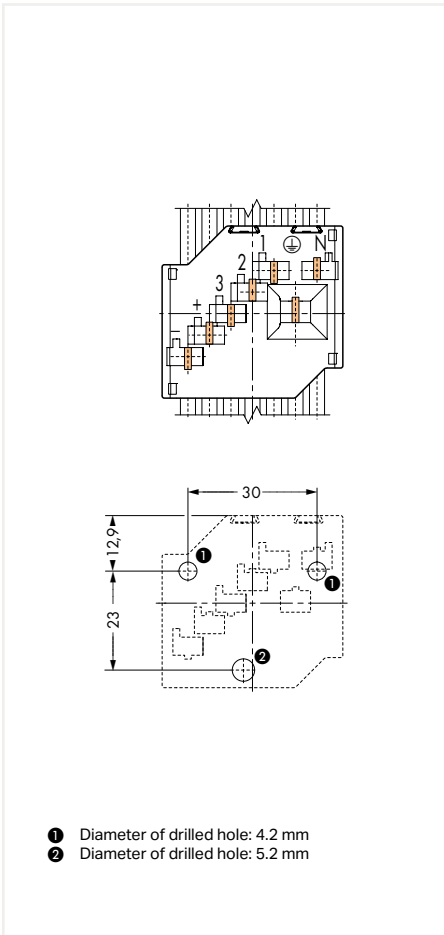
Conductor support cover; with dovetail guide and IDC contacts; with molded pole marking; white			
Pole No.	Marking	Item No.	Pack. Unit
5	N, ⊕, 1, 2, 3	267-435	50
7	N, ⊕, 1, 2, 3, +, -	267-437	50

Conductor support base; with snap-in mounting feet; white		
Description	Item No.	Pack. Unit
Without snap-in GND contact	267-412	250
With snap-in GND contact	267-422	250

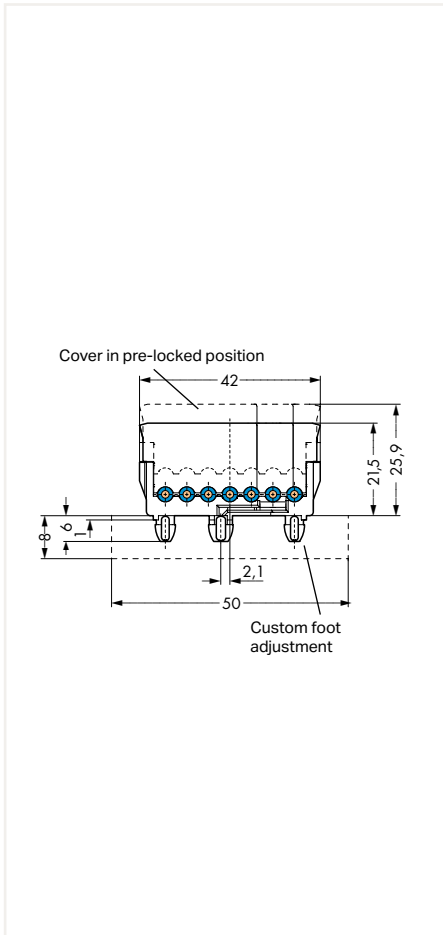
Snap-on type conductor support; 4-pole		
Color	Item No.	Pack. Unit
○ 0.75 ... 1.5 mm <sup>2</sup>		
○ White cover	267-324	500
○ 1.5 ... 2.5 mm <sup>2</sup>		
○ Gray cover	267-328	500

6

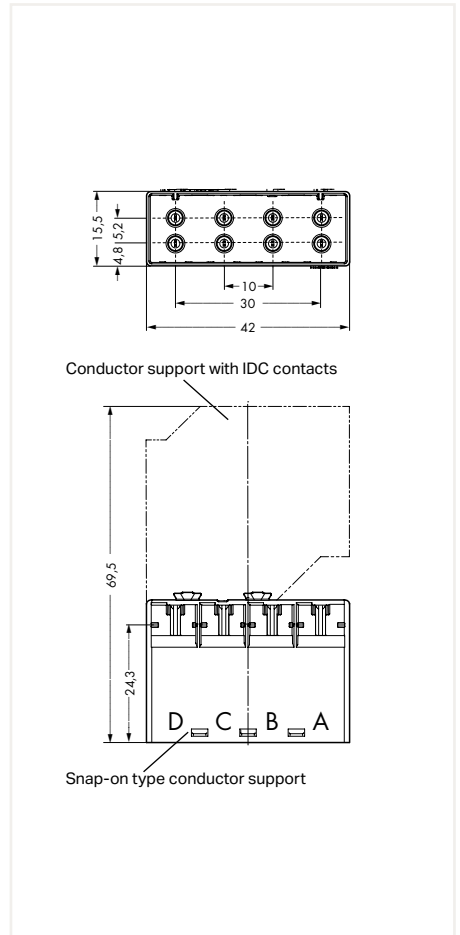
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



# Pluggable Connection System with Phase Selection for Fluorescent Lighting Fixtures Socket for Conductor Support with Insulation Displacement Connection (IDC) 267 Series

Technical Data	
0.5 ... 1 mm <sup>2</sup> "s"	22 ... 18 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A
8 mm / 0.31 inch	



Technical Data	
0.5 ... 1 mm <sup>2</sup> "s"	22 ... 18 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A
8 mm / 0.31 inch	



Technical Data	
0.5 ... 1 mm <sup>2</sup> "s"	22 ... 18 AWG "sol."
500 V / 4 kV / 6 A	600 V/6 A
8 mm / 0.31 inch	



Socket; with ground conductor connection and strain relief plate; white/gray

Pole No.	Item No.	Pack. Unit
3	267-223	500
4	267-224	500
5	267-225	500
6	267-226	500
7	267-227	500

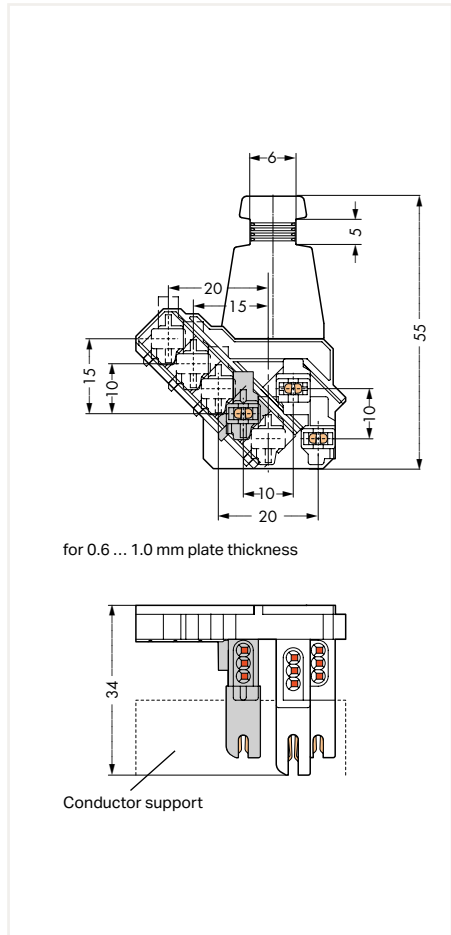
Socket; with snap-in mounting feet and ground conductor connection; white/gray; with molded pole marking; gray socket for phase selection to 1, 2, 3, +, - (not possible with 7-pole socket)

Pole No.	Item No.	Pack. Unit
3	267-163	500
4	267-164	500
5	267-165	500
6	267-166	500
7	267-167	500

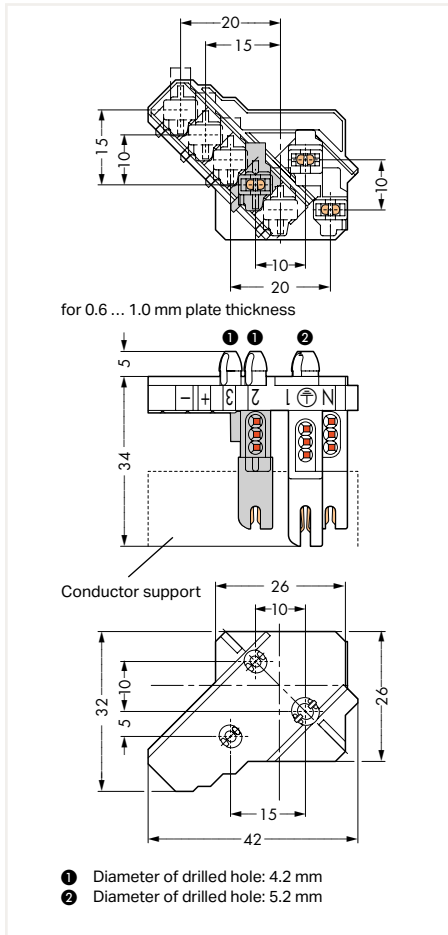
Socket; with snap-in mounting feet and direct ground contact; white/gray; with molded pole marking; gray socket for phase selection to 1, 2, 3, +, - (not possible with 7-pole socket)

Pole No.	Item No.	Pack. Unit
3	267-173	500
4	267-174	500
5	267-175	500
6	267-176	500
7	267-177	500

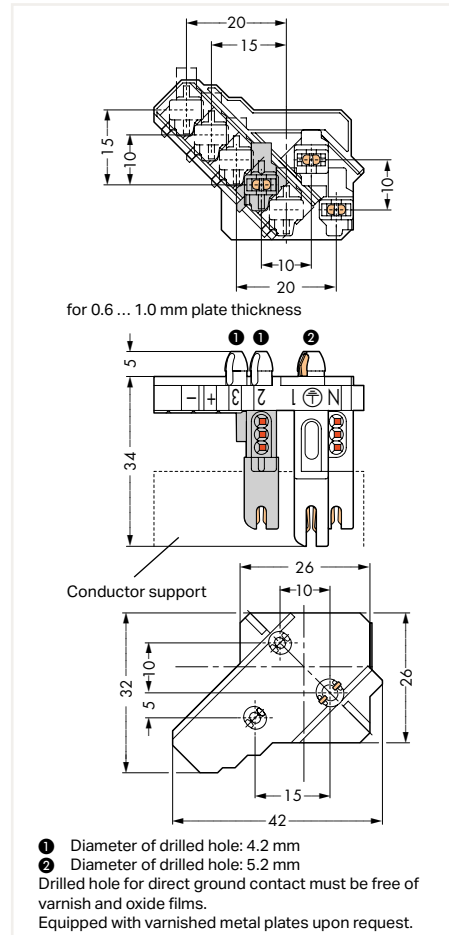
Dimensions (in mm):



Dimensions (in mm):



Dimensions (in mm):



## Pluggable Connection System with Phase Selection for Fluorescent Lighting Fixtures

### Socket/Socket Module for Conductor Support with Insulation Displacement Connection (IDC)

#### 267 Series

#### Technical Data

0.5 ... 1 mm <sup>2</sup> "s"	16 ... 14 AWG "sol."
500 V / 4 kV / 16 A	600 V/6 A
8 mm / 0.31 inch	

#### Technical Data

3 x 0.5 ... 1 mm <sup>2</sup> "s"	16 ... 14 AWG "sol."
500 V / 4 kV / 16 A	600 V/6 A
8 mm / 0.31 inch	



#### Snap-on type socket

Pole No.	Item No.	Pack. Unit
2	267-232	500
3	267-233	500
4	267-234	500

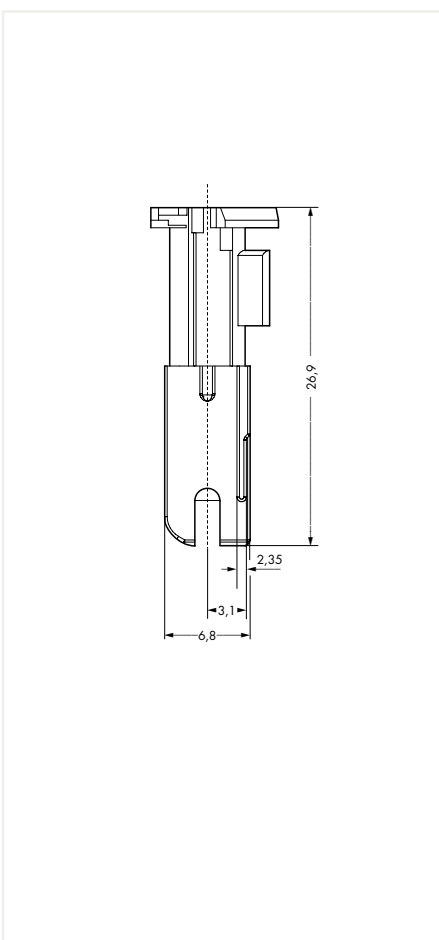
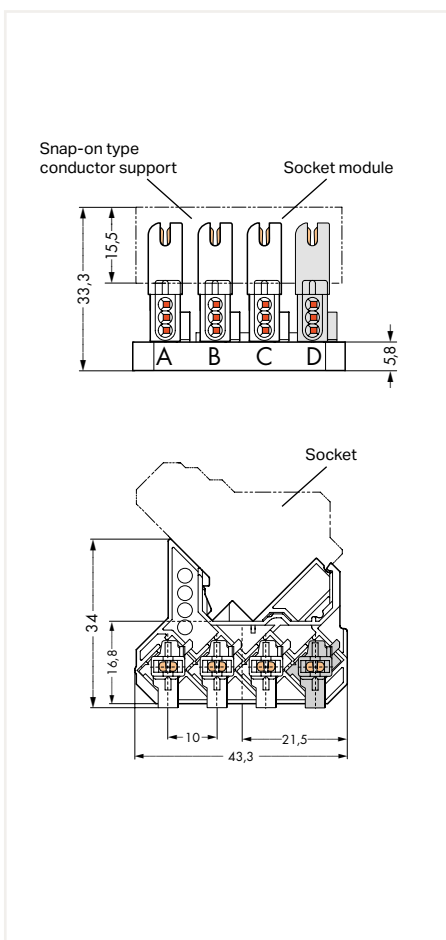
#### Socket module; 1-pole

Color	Item No.	Pack. Unit
● black	267-109	500
● gray	267-101	500
● red	267-120	500
● yellow	267-110	500
● violet	267-119	500

Dimensions (in mm):


Dimensions (in mm):


6






# Connectors for In-Line Mounting of Fluorescent Lighting Fixtures 267 Series

Technical Data	
1.5 ... 2.5 mm <sup>2</sup> "s"	16 ... 14 AWG "sol."
500 V / 4 kV / 16 A	600 V/15 A
 11 ... 12 mm / 0.45 inch	

Technical Data	
1.5 ... 2.5 mm <sup>2</sup> "s"	16 ... 14 AWG "sol."
500 V / 4 kV / 16 A	600 V/15 A
 11 ... 12 mm / 0.45 inch	

Technical Data	
1.5 ... 2.5 mm <sup>2</sup> "s"	16 ... 14 AWG "sol."
0.75 ... 1.5 mm <sup>2</sup> "s"	18 ... 16 AWG "sol."
500 V / 4 kV / 16 A	600 V/15 A
 11 ... 12 mm / 0.45 inch	



Socket; without ground contact tab; white			
Pole No.	Marking	Item No.	Pack. Unit
7	N, ⊕, 1, 2, 3, +, -	267-501	50
5	N, ⊕, 1, 2, 3	267-502	50

Plug; with connection for ground contact tab; white			
Pole No.	Marking	Item No.	Pack. Unit
7	N, ⊕, 1, 2, 3, +, -	267-510	50
5	N, ⊕, 1, 2, 3	267-519	50

Plug; with connection for ground contact tab; white			
Pole No.	Marking	Item No.	Pack. Unit
7	N, ⊕, 1, 2, 3, +, -	267-521	50

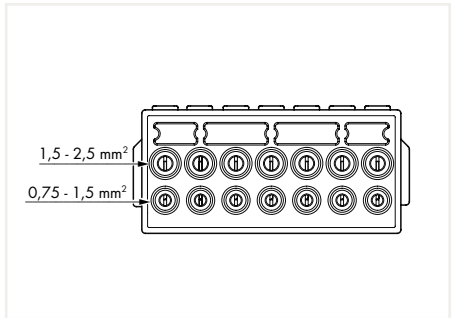
Socket; without ground contact tab; gray			
Pole No.	Marking	Item No.	Pack. Unit
4	A, B, C, D	267-506	50

Plug; with connection for ground contact tab; enhanced locking strength; white			
Pole No.	Marking	Item No.	Pack. Unit
7	N, ⊕, 1, 2, 3, +, -	267-516	50

Socket; without ground contact tab; yellow			
Pole No.	Marking	Item No.	Pack. Unit
4	A, B, C, D	267-507	50

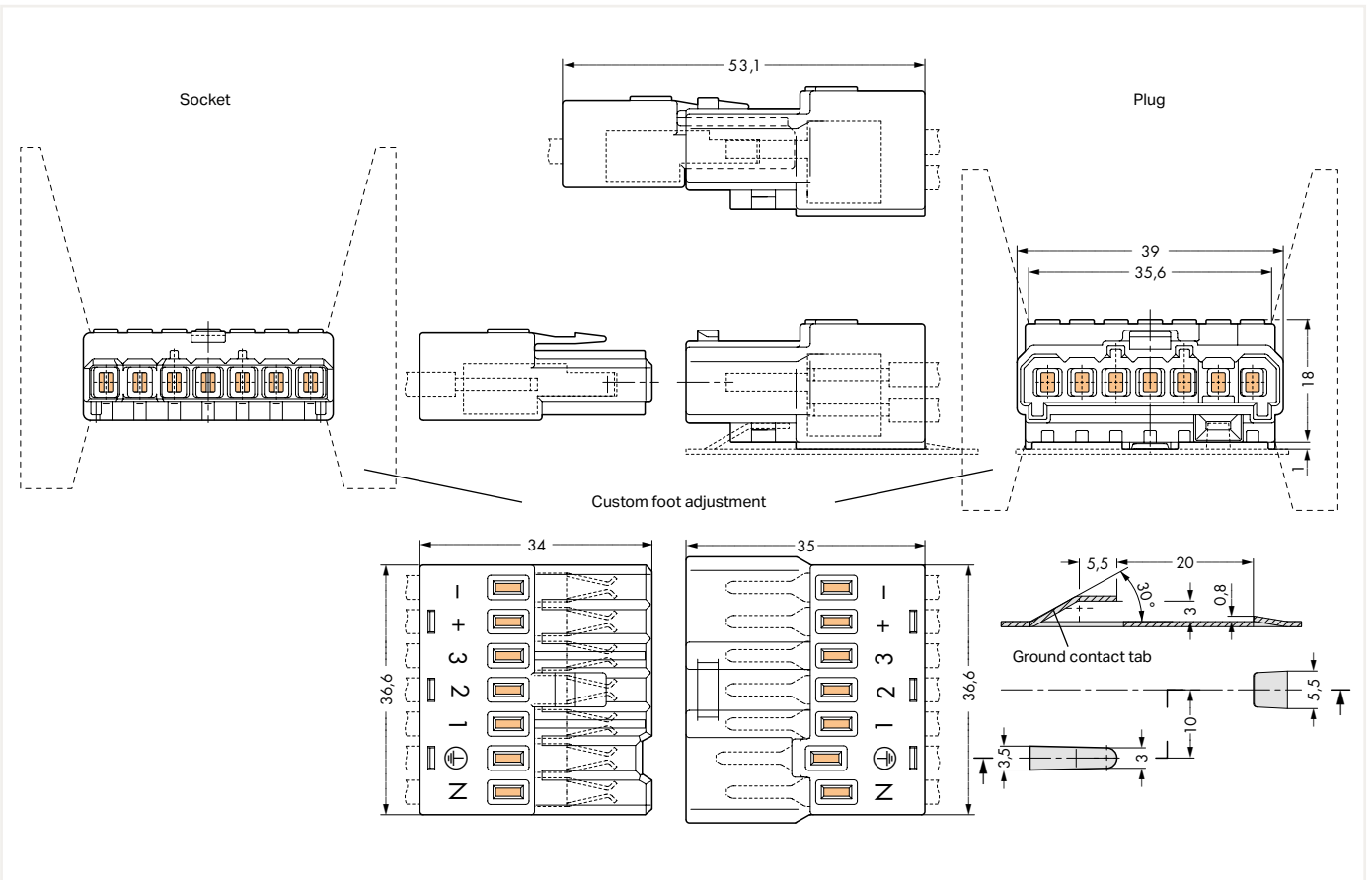
Plug; with connection for ground contact tab; gray			
Pole No.	Marking	Item No.	Pack. Unit
4	A, B, C, D	267-518	50

Plug; with connection for ground contact tab; yellow			
Pole No.	Marking	Item No.	Pack. Unit
4	A, B, C, D	267-520	50



**6**

Dimensions (in mm):



# Luminaire Disconnect Connector 873 Series

### Technical Data

3-conductor plug ❶	1-conductor socket ❷
18 ... 12 AWG "s"	18 AWG "s"
16 ... 12 AWG "st"	600 V, 6 A
11 ... 13 mm / 0.47 inch ❶	
9 ... 11 mm / 0.39 inch ❷	

### Technical Data

3-conductor plug ❶	1-conductor socket ❷
18 ... 12 AWG "s"	18 AWG "s"
16 ... 12 AWG "st"	600 V, 6 A
11 ... 13 mm / 0.47 inch ❶	
9 ... 11 mm / 0.39 inch ❷	



### Luminaire Disconnect Connector

Pole No.	Item No.	Pack. Unit
2	873-902	40

### Luminaire Disconnect Connector

Pole No.	Item No.	Pack. Unit
3	873-903	20

Touchproof connectors are required for ballast supply cables in the USA and Canada. When exchanging a ballast:

1. The touch-proof plug-in connection is disconnected first
2. The ballast is replaced
3. Network connection is restored by plugging the connection. This streamlines ballast replacement while enhancing safety by safeguarding the installer from electric shock. The 873 Series connectors are approved according to UL 2459 and CSA 22.2 for this type of application.

873 Series approvals per EN 60998 and EN 61984:

- EN 60998
- 0.75 mm<sup>2</sup> (solid), 6 A for socket
- 1.5 ... 4 mm<sup>2</sup> (solid), 32 A for plug
- » 400 V/4 kV/2
- EN 61984
- 0.75 mm<sup>2</sup> (solid), 6 A for socket
- 0.75 ... 4 mm<sup>2</sup> (solid), 32 A for plug
- 400 V/4 kV/2

- » ❶ 2-conductor plug
- » ❷ 1-conductor socket

6

Luminaire Disconnect  
Sectionneur du luminaire

PUSH




<p>✓  18-12 AWG CU, SOL, UL/CSA 0,75 - 4 mm<sup>2</sup></p> <p>✓  16-12 AWG (≤ 19 str.) CU, UL 14-12 AWG (≤ 19 str.) CU, CSA 1,5 - 4 mm<sup>2</sup> One-time use only - Do not reuse N'utiliser qu'une seule fois</p> <p> <del>16-12 AWG (≤ 19 str.) CU, UL</del></p> <p> <del>14-12 AWG (≤ 19 str.) CU, CSA</del></p> <p> 0.45 inch / 11 - 13 mm</p>	<p>✓  18 AWG CU, SOL, UL/CSA 0,75 mm<sup>2</sup></p> <p> <del>16-12 AWG (≤ 19 str.) CU, UL</del></p> <p> <del>14-12 AWG (≤ 19 str.) CU, CSA</del></p> <p> 0.35 inch / 9 - 11 mm</p>
---	---

**Correct method of solid wire removal**  
Hold wire to be removed in one hand, the connector in the other - twist slightly while pulling the connector.

**Déconnexion correcte du conducteur rigide**  
Tenir d'une main le conducteur à déconnecter et de l'autre main le connecteur - Opérer une légère torsion du conducteur tout en tirant sur le connecteur.

## Luminaire Disconnect Connector 873 Series

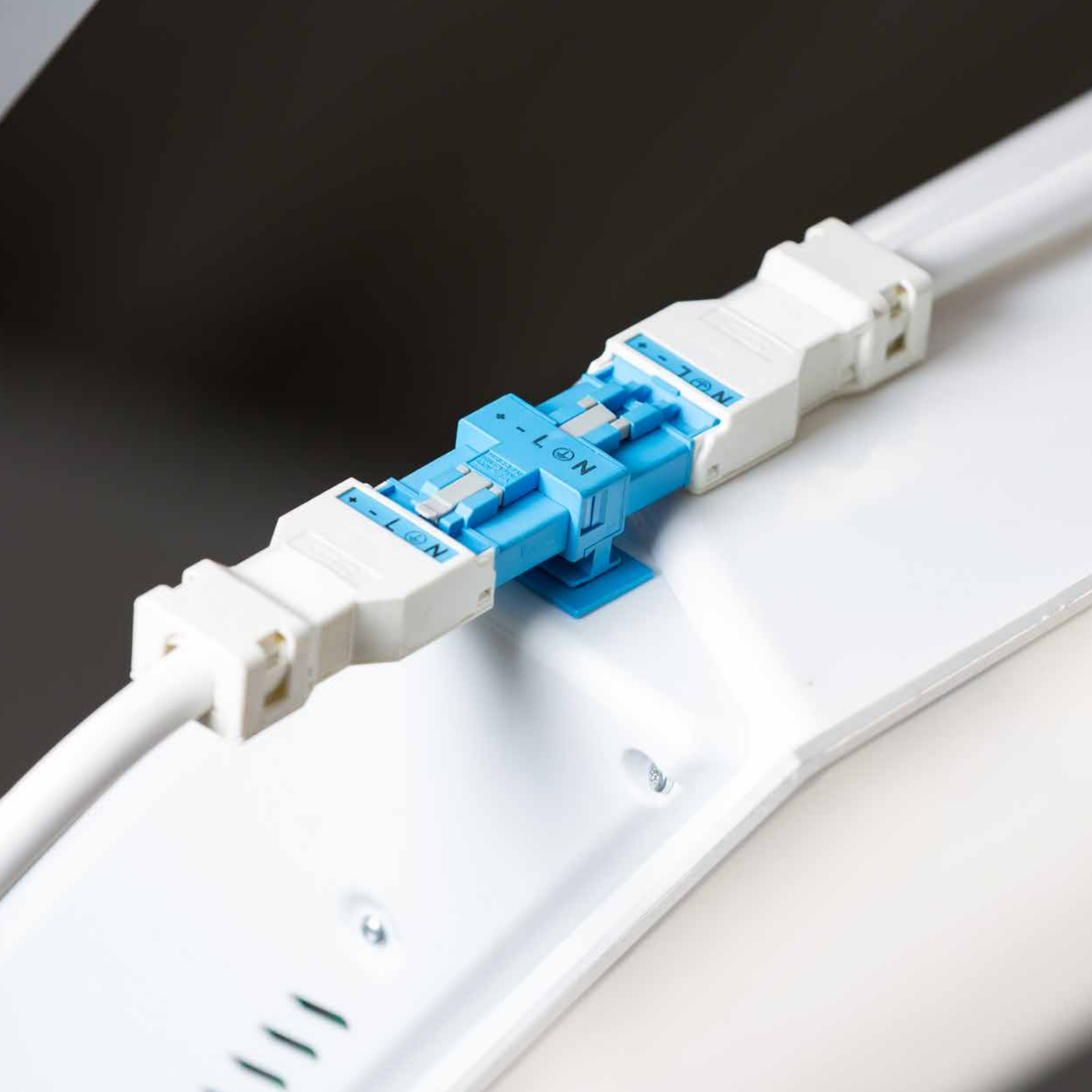
### Technical Data

3-conductor plug ❶	1-conductor socket ❷
18 ... 12 AWG "s"	18 AWG "s"
16 ... 12 AWG "st"	600 V, 6 A 
 11 ... 13 mm / 0.47 inch ❶	
 9 ... 11 mm / 0.39 inch ❷	





Luminaire disconnect connector; preceding ground contact; center position

Pole No.	Item No.	Pack. Unit
3	873-953	500



# **WINSTA<sup>®</sup> – The Pluggable Connection System**

## WINSTA® – The Pluggable Connection System

			Page
	WINSTA® MINI	890 Series	176
	WINSTA® MIDI	770 Series	192

# THE BUILDINGS OF TOMORROW ARE BUILT USING THE WINSTA® SYSTEM OF TODAY

Perfectly Plugged Electrical Building Installations





# SUCCESS THROUGH EXPERTISE

## Project Planning with WAGO

WAGO offers consulting and project planning services to help devise the best possible solution for your project. Our experienced team of professionals will gladly help you implement your project with our products.

### Installation Examples:



In suspended ceilings



WINSTA® MINI/MINI special  
0.25 ... 1.5 mm<sup>2</sup> / 16 A / 400 V



WINSTA® MIDI/MIDI special  
0.5 ... 4 mm<sup>2</sup> / 25 A / 400 V



WINSTA® MIDI Linect®  
0.5 ... 4 mm<sup>2</sup> / 25 A / 400 V



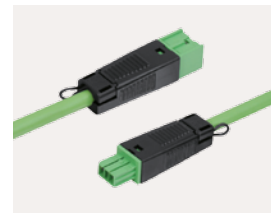
Power distribution



WINSTA® MAXI  
0.5 ... 6 mm<sup>2</sup> / 35 A / 400 V



WINSTA® RD  
1.5 and 2.5 mm<sup>2</sup> / 20 A / 250 V



WINSTA® KNX  
Max. Ø 0.8 mm / 3 A / 50 V



In raised floors



WINSTA® IDC  
0.5 ... 1.5 mm<sup>2</sup> / 3 A / 50 V



WINSTA® IDC  
2.5 ... 16 mm<sup>2</sup> / 76 A / 400 V



## WINSTA® – The Pluggable Connection System

### WINSTA® MINI

#### For Space-Restricted Applications

- Sensors (switches, push-buttons, window contacts, pressure switches, temperature sensors, etc.)
- Actuators (control valves, magnetic valves, servo motors, blinds/sun protection, etc.)
- Protection class II for halogen lamps and luminaires
- Control signals
- 1.5 mm<sup>2</sup> (16 AWG), 250 V, 16 A

2 ... 5 poles  
890 and 891 Series



### WINSTA® MIDI

#### For Maximum Possibilities

- General building installation, ideal for modern buildings
- Standard lighting fixtures and safety lights
- Tradeshow and shop installation
- Motor homes
- Lab work stations
- Rolling stock
- Marine applications
- 4 mm<sup>2</sup> (12 AWG), 250/400 V, 25 A

2 ... 5 poles  
770 and 771 Series



### WINSTA® MAXI

#### For High-Current Applications

- Power supply via 6 mm<sup>2</sup> (10 AWG) cable for extended cable runs
- 32 A power supply in distribution boxes for high energy requirements
- 6 mm<sup>2</sup> (10 AWG), 250/400 V, 35 A

5 poles  
831 Series



7

### WINSTA® MINI special

#### For Specialty Applications

2 ... 5 poles  
890 and 891 Series



### WINSTA® MIDI special

#### For Specialty Applications

2 ... 5 poles  
770 and 771 Series



### WINSTA® Boxes

#### Distribution Boxes

899 Series



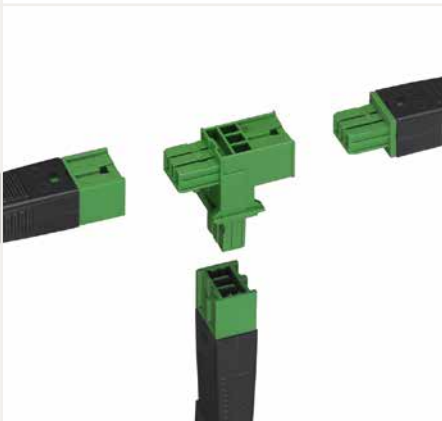
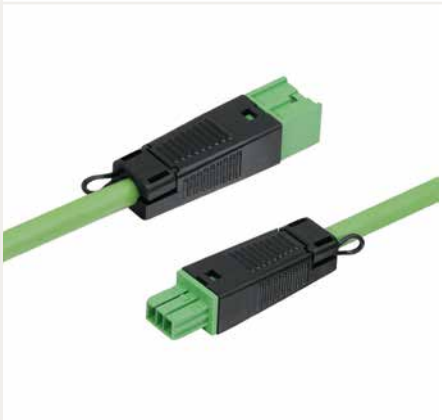
**WINSTA® KNX**

For the Standardized Bus

- KNX/EIB
- Control signals
- Ø 0.8 mm, 50 V, 3 A

2 poles

893 and 894 Series

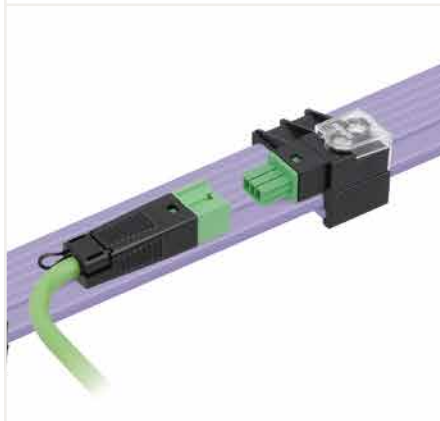
**WINSTA® IDC**

For Maximum Flexibility

- Supply and tap off is possible at any time and at any location along the flat cable. No cutting, no stripping, no dismantling – very user-friendly
- A 120° rotation is all that is required to connect the flat cable
- Space-efficient across the flat cable through longitudinal tap off
- 2.5/4 mm<sup>2</sup> (14/12 AWG), 400 V, 25 A
- 10 mm<sup>2</sup> (8 AWG), 690 V, 57 A
- 16 mm<sup>2</sup> (6 AWG), 690 V, 76 A

2, 3, 5 and 7 poles

772, 893, 895, 896 and 897 Series

**WINSTA® RD**

For Round Conduits and Ducts

- Outside diameter of 17.5 mm for applications in electrical conduits with an inner diameter > 18 mm
- Prefabricated houses
- Recessed luminaires
- Wall and ceiling cutouts

3 and 4 poles

774 Series



## Socket and Plug; without Strain Relief Housing

### 2-Pole

### WINSTA® MINI; 890 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

Electrical Data			
Coding	A, I		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	-	-
Rated surge voltage	4 kV	-	-
Rated current	16 A	-	-
Approvals per	UL 1977		
Rated voltage (UL)	600 V		
Rated current (UL)	14 A		

Clearances and creepage distances	≥ 5.5 mm to exposed surfaces
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Solid conductor; push-in termination	0.75 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Stranded conductor	0.25 ... 1 mm <sup>2</sup> / 22 ... 18 AWG
Fine-stranded conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 0.75 mm <sup>2</sup> / 22 ... 20 AWG
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 20 AWG

Mechanical Data	
Mating cycles	200 (without resistive load) 100 (with resistive load $I_N = 16 A, 1.5 mm^2$ )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	Ø 3.8 ... 8.2 mm
Protection type	IP2xC (with strain relief housing)

Material Data	
Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper ( $E_{Cu}$ )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

Environmental Requirements	
Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

# Socket and Plug

## 2-Pole

### WINSTA® MINI; 890 Series

Socket

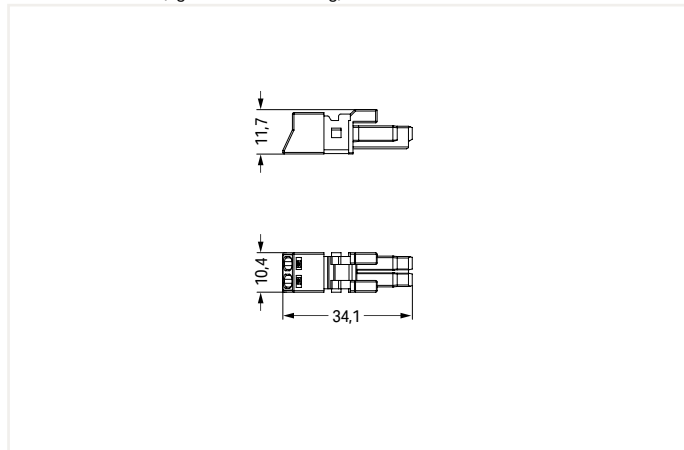
Plug



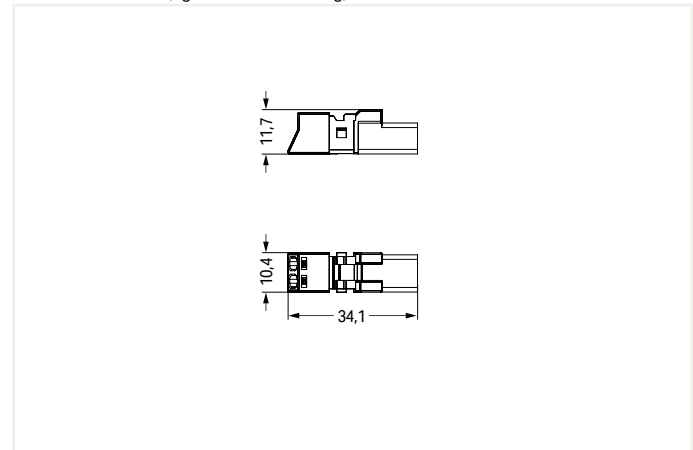
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L N	890-202	50
○ white	A	L N	890-222	50
● blue	I	+ -	890-1102	50

Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L N	890-212	50
○ white	A	L N	890-232	50
● blue	I	+ -	890-1112	50

Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



7

Accessories; for all products on this page



Strain relief housing; 3.8 ... 8.2 mm cable diameter; 32 mm strip length

Color	Item No.	Pack. Unit
black	890-502	50
white	890-512	50



Locking lever; for flying leads; manually operated

Color	Item No.	PU   SPU
black	890-101	100   50
white	890-121	100   50



Locking lever; for flying leads; tool operated

Color	Item No.	PU   SPU
black	890-111	100   50
white	890-131	100   50



Mounting carrier; for 2- to 5-pole flying leads

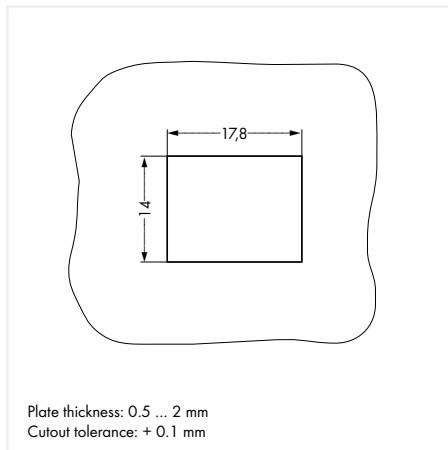
Color	Item No.	Pack. Unit
black	890-310	100
white	890-311	100



Operating tool with a partially insulated shaft; type 1; (2.5 x 0.4) mm blade

Color	Item No.	Pack. Unit
green	210-719	1

## Snap-In Socket and Plug 2-Pole WINSTA® MINI; 890 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

Electrical Data			
Coding	A, I		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	-	-
Rated surge voltage	4 kV	-	-
Rated current	16 A	-	-
Approvals per	UL 1977		
Rated voltage (UL)	600 V		
Rated current (UL)	14 A		

Clearances and creepage distances	≥ 5.5 mm (with strain relief ≥ 6.5 mm to exposed surfaces – protection class II)
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Solid conductor; push-in termination	0.75 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Stranded conductor	0.25 ... 1 mm <sup>2</sup> / 22 ... 18 AWG
Fine-stranded conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 mm <sup>2</sup>

Mechanical Data	
Mating cycles	200 (without resistive load) 100 (with resistive load $I_N = 16 A, 1.5 mm^2$ )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	∅ 3.8 ... 8.2 mm
Protection type	IP2xC (with strain relief housing)

Material Data	
Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper ( $E_{Cu}$ )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

Environmental Requirements	
Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

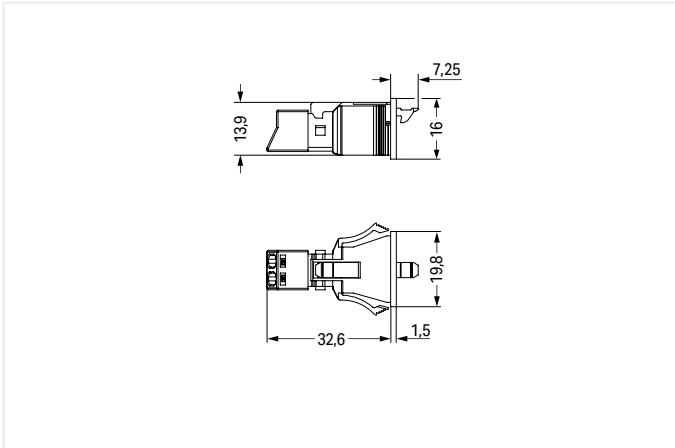
# Snap-In Socket and Plug

## 2-Pole

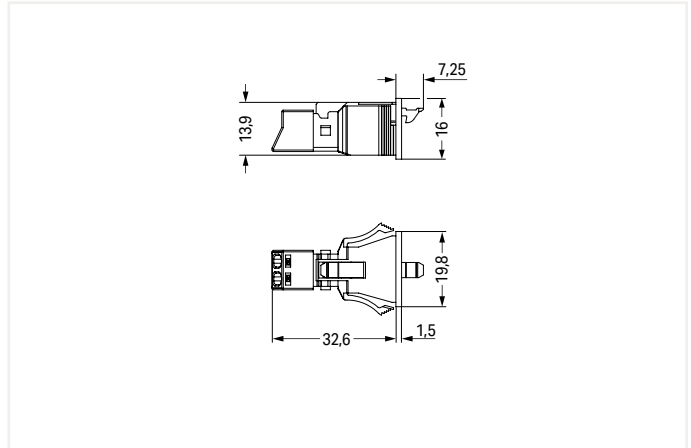
### WINSTA® MINI; 890 Series



Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



Socket				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L N	890-702	50
○ white	A	L N	890-722	50
● blue	I	+ -	890-2102	50

Plug				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L N	890-712	50
○ white	A	L N	890-732	50
● blue	I	+ -	890-2112	50

Accessories; for all products on this page



Lockout cap; for cutout; 2-pole			
Color	Item No.	Pack. Unit	
● black	890-642	100	
○ white	890-692	100	



Operating tool; partially insulated; 2-way			
Color	Item No.	Pack. Unit	
● green	770-382	1	

## Socket and Plug; without Strain Relief Housing

### 3-Pole

### WINSTA® MINI; 890 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

Electrical Data			
Coding	A		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	-	-
Rated surge voltage	4 kV	-	-
Rated current	16 A	-	-
Approvals per	UL 1977		
Rated voltage (UL)	600 V		
Rated current (UL)	14 A		

Clearances and creepage distances	≥ 5.5 mm to exposed surfaces
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Solid conductor; push-in termination	0.75 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Stranded conductor	0.25 ... 1 mm <sup>2</sup> / 22 ... 18 AWG
Fine-stranded conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 0.75 mm <sup>2</sup> / 22 ... 20 AWG
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 20 AWG

Mechanical Data	
Mating cycles	200 (without resistive load) 100 (with resistive load $I_N = 16 A, 1.5 mm^2$ )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	Ø 4.5 ... 10 mm
Protection type	IP2xC (with strain relief housing)

Material Data	
Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper ( $E_{Cu}$ )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

Environmental Requirements	
Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.



# Socket and Plug

## 3-Pole

### WINSTA® MINI; 890 Series

**Socket**

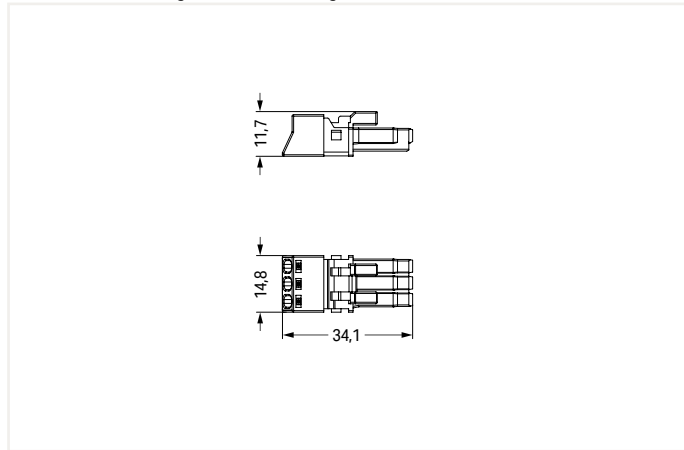
**Plug**



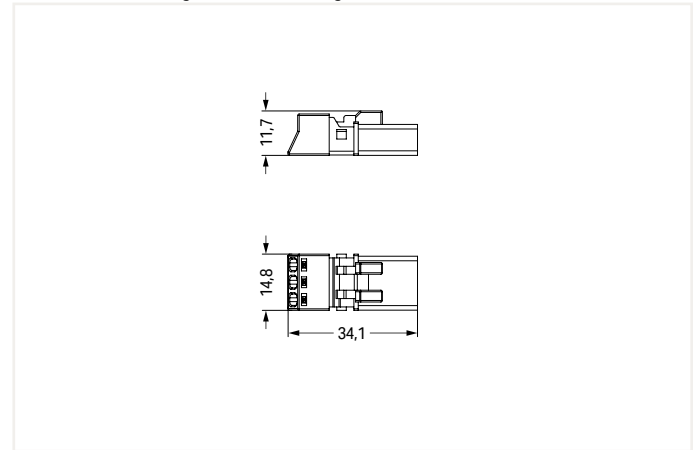
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L ⊕ N	890-203	50
○ white	A	L ⊕ N	890-223	50

Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L ⊕ N	890-213	50
○ white	A	L ⊕ N	890-233	50

Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



7

**Accessories; for all products on this page**



Strain relief housing; 4.5 ... 10 mm cable diameter; 40 mm strip length

Color	Item No.	Pack. Unit
black	890-503	50
white	890-513	50



Locking lever; for flying leads; manually operated

Color	Item No.	PU   SPU
black	890-101	100   50
white	890-121	100   50



Locking lever; for flying leads; tool operated

Color	Item No.	PU   SPU
black	890-111	100   50
white	890-131	100   50



Mounting carrier; for 2- to 5-pole flying leads

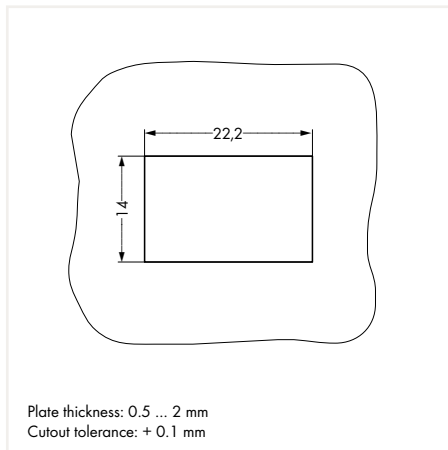
Color	Item No.	Pack. Unit
black	890-310	100
white	890-311	100



Operating tool with a partially insulated shaft; type 1; (2.5 x 0.4) mm blade

Color	Item No.	Pack. Unit
green	210-719	1

## Snap-In Socket and Plug 3-Pole WINSTA® MINI; 890 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

Electrical Data			
Coding	A		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	-	-
Rated surge voltage	4 kV	-	-
Rated current	16 A	-	-
Approvals per	UL 1977		
Rated voltage (UL)	600 V		
Rated current (UL)	14 A		

Clearances and creepage distances	≥ 5.5 mm (with strain relief ≥ 6.5 mm to exposed surfaces – protection class II)
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Solid conductor; push-in termination	0.75 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Stranded conductor	0.25 ... 1 mm <sup>2</sup> / 22 ... 18 AWG
Fine-stranded conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 mm <sup>2</sup>

Mechanical Data	
Mating cycles	200 (without resistive load) 100 (with resistive load $I_N = 16 A, 1.5 mm^2$ )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	Ø 4.5 ... 10 mm
Protection type	IP2xC (with strain relief housing)

Material Data	
Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper ( $E_{Cu}$ )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

Environmental Requirements	
Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

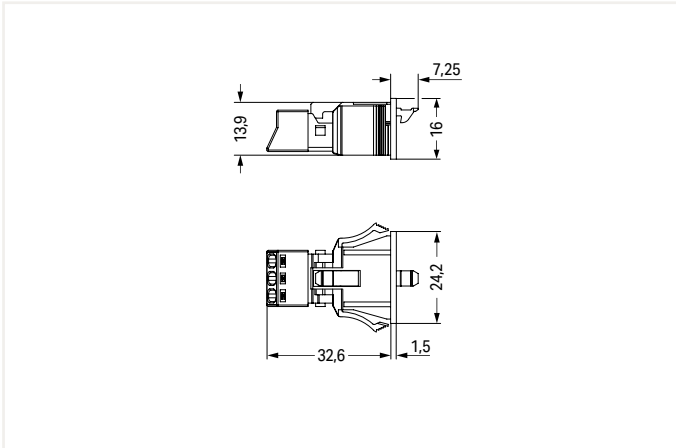
# Snap-In Socket and Plug

## 3-Pole

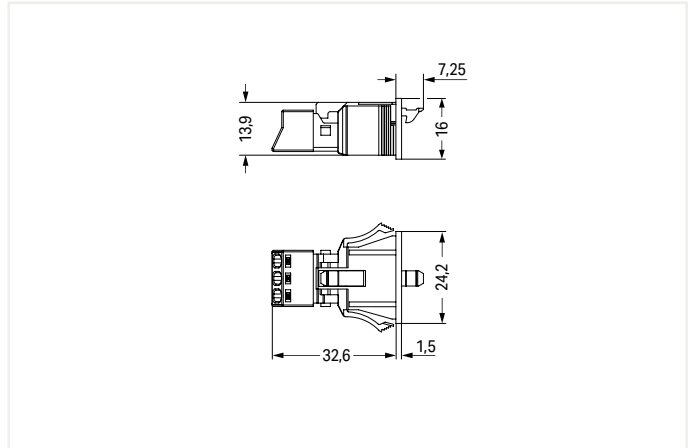
### WINSTA® MINI; 890 Series



Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



Socket				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L ⊕ N	890-703	50
○ white	A	L ⊕ N	890-723	50

Plug				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L ⊕ N	890-713	50
○ white	A	L ⊕ N	890-733	50

7

Accessories; for all products on this page



Lockout cap; for cutout; 3-pole			
Color	Item No.	Pack. Unit	
● black	770-643	100	
○ white	770-693	100	



Operating tool; partially insulated; 3-way			
Color	Item No.	Pack. Unit	
● green	770-383	1	

## Socket and Plug; without Strain Relief Housing

### 4-Pole

### WINSTA® MINI; 890 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

#### Electrical Data

Coding	A		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	-	-
Rated surge voltage	6 kV	-	-
Rated current	16 A	-	-
Approvals per	UL 1977		
Rated voltage (UL)	600 V		
Rated current (UL)	12 A		

Clearances and creepage distances  $\geq 5.5$  mm to exposed surfaces

Contact resistance Approx. 1 m $\Omega$  (approx. 0.25 m $\Omega$  contact transition socket – plug)

#### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Solid conductor; push-in termination	0.75 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Stranded conductor	0.25 ... 1 mm <sup>2</sup> / 22 ... 18 AWG
Fine-stranded conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 0.75 mm <sup>2</sup> / 22 ... 20 AWG
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 20 AWG

#### Mechanical Data

Mating cycles	200 (without resistive load) 100 (with resistive load $I_N = 16$ A, 1.5 mm <sup>2</sup> )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	$\varnothing$ 6.5 ... 10.5 mm
Protection type	IP2xC (with strain relief housing)

#### Material Data

Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper (E <sub>C</sub> )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

#### Environmental Requirements

Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

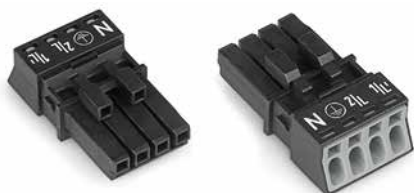
- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

# Socket and Plug

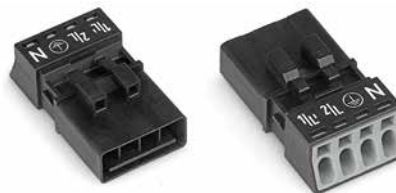
## 4-Pole

### WINSTA® MINI; 890 Series

Socket



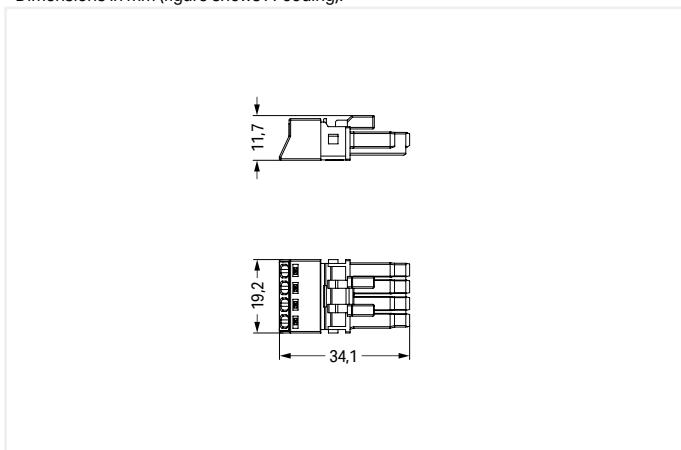
Plug



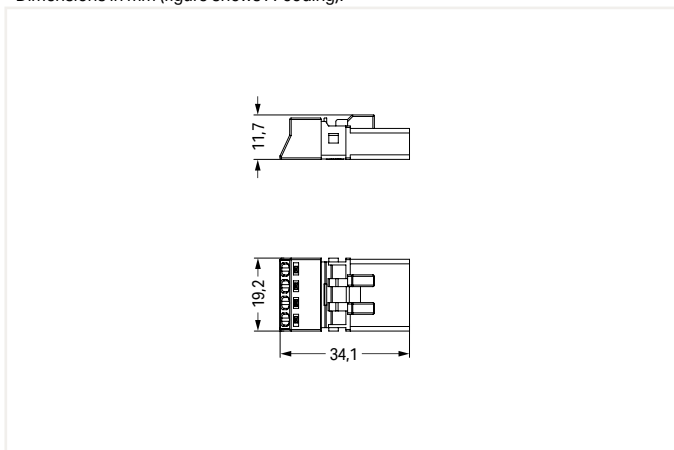
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 2L 1L	890-204	50
○ white	A	N ⊕ 2L 1L	890-224	50

Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 2L 1L	890-214	50
○ white	A	N ⊕ 2L 1L	890-234	50

Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



7

Accessories; for all products on this page



Strain relief housing; 6.5 ... 10.5 mm cable diameter; 45 mm strip length

Color	Item No.	Pack. Unit
black	890-504	50
white	890-514	50



Locking lever; for flying leads; manually operated

Color	Item No.	PU   SPU
black	890-101	100   50
white	890-121	100   50



Locking lever; for flying leads; tool operated

Color	Item No.	PU   SPU
black	890-111	100   50
white	890-131	100   50



Mounting carrier; for 2- to 5-pole flying leads

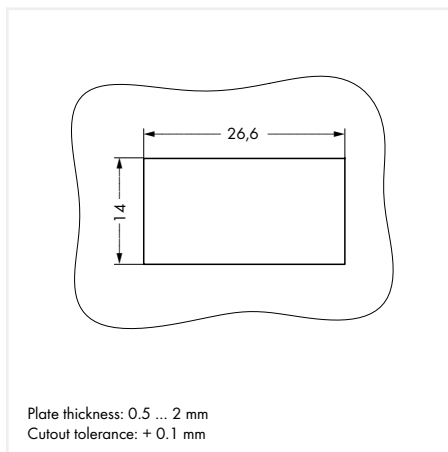
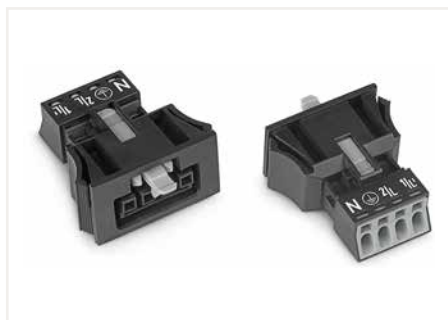
Color	Item No.	Pack. Unit
black	890-310	100
white	890-311	100



Operating tool with a partially insulated shaft; type 1; (2.5 x 0.4) mm blade

Color	Item No.	Pack. Unit
green	210-719	1

## Snap-In Socket and Plug 4-Pole WINSTA® MINI; 890 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

### Electrical Data

Coding	A		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	-	-
Rated surge voltage	6 kV	-	-
Rated current	16 A	-	-
Approvals per	UL 1977		
Rated voltage (UL)	600 V		
Rated current (UL)	14 A		

Clearances and creepage distances	≥ 5.5 mm (with strain relief ≥ 6.5 mm to exposed surfaces – protection class II)
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Solid conductor; push-in termination	0.75 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Stranded conductor	0.25 ... 1 mm <sup>2</sup> / 22 ... 18 AWG
Fine-stranded conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 mm <sup>2</sup>

### Mechanical Data

Mating cycles	200 (without resistive load) 100 (with resistive load $I_N = 16 A, 1.5 mm^2$ )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	Ø 6.5 ... 10.5 mm
Protection type	IP2xC (with strain relief housing)

### Material Data

Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper ( $E_{Cu}$ )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

### Environmental Requirements

Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

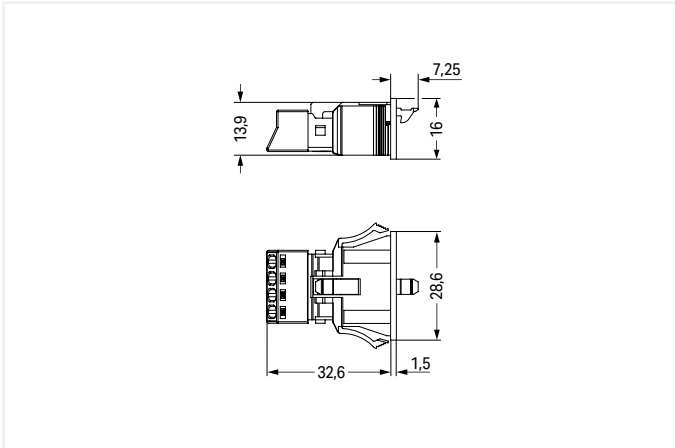
# Snap-In Socket and Plug

## 4-Pole

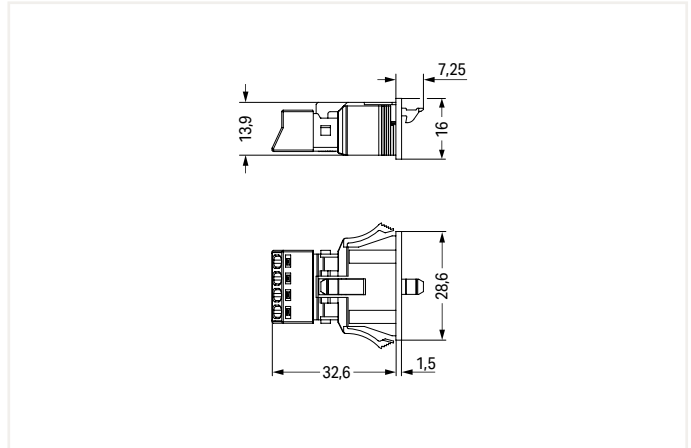
### WINSTA® MINI; 890 Series



Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



Socket				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 2L 1L	890-704	50
○ white	A	N ⊕ 2L 1L	890-724	50

Plug				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 2L 1L	890-714	50
○ white	A	N ⊕ 2L 1L	890-734	50

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Accessories; for all products on this page



Lockout cap; for cutout; 4-pole			
Color	Item No.	Pack. Unit	
● black	770-644	100	
○ white	770-694	100	



Similar to picture			
Operating tool; partially insulated; 4-way			
Color	Item No.	Pack. Unit	
● green	770-384	1	



## Socket and Plug; without Strain Relief Housing

### 5-Pole

### WINSTA® MINI; 890 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

#### Electrical Data

Coding	A, I		
	IEC/EN 60664-1		
Ratings per	III	III	II
Overvoltage category	3	2	2
Pollution degree	400 V	-	-
Rated voltage	6 kV	-	-
Rated surge voltage	13 A	-	-
Rated current	UL 1977		
Approvals per	600 V		
Rated voltage (UL)	12 A		
Rated current (UL)			

Clearances and creepage distances  $\geq 5.5$  mm to exposed surfaces

Contact resistance Approx. 1 m $\Omega$  (approx. 0.25 m $\Omega$  contact transition socket – plug)

#### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Solid conductor; push-in termination	0.75 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Stranded conductor	0.25 ... 1 mm <sup>2</sup> / 22 ... 18 AWG
Fine-stranded conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 0.75 mm <sup>2</sup> / 22 ... 20 AWG
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 20 AWG

#### Mechanical Data

Mating cycles	200 (without resistive load) 100 (with resistive load $I_N = 16$ A, 1.5 mm <sup>2</sup> )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	$\varnothing$ 6.5 ... 10.5 mm
Protection type	IP2xC (with strain relief housing)

#### Material Data

Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper (E <sub>C</sub> )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

#### Environmental Requirements

Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

# Socket and Plug

## 5-Pole

### WINSTA® MINI; 890 Series

**Socket**

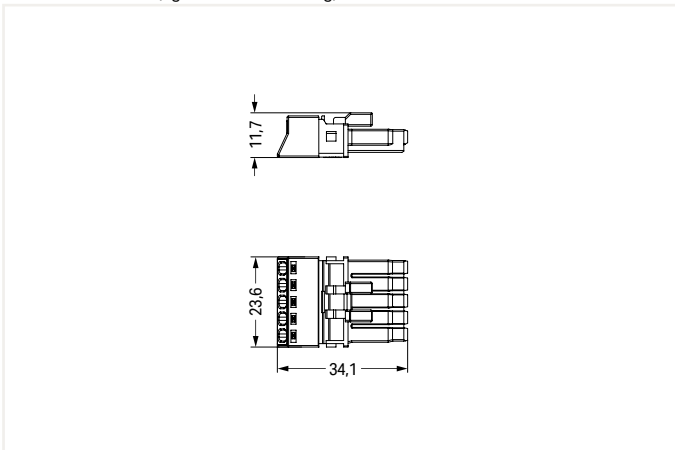
**Plug**



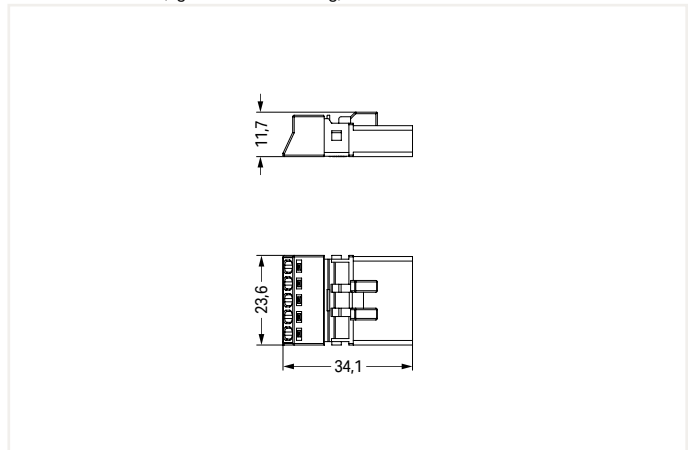
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 1 2 3	890-205	50
○ white	A	N ⊕ 1 2 3	890-225	50
● blue	I	N ⊕ L + -	890-1105	50

Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 1 2 3	890-215	50
○ white	A	N ⊕ 1 2 3	890-235	50
● blue	I	N ⊕ L + -	890-1115	50

Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



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**Accessories; for all products on this page**



Strain relief housing; 6.5 ... 10.5 mm cable diameter; 45 mm strip length

Color	Item No.	Pack. Unit
black	890-505	50
white	890-515	50



Locking lever; for flying leads; manually operated

Color	Item No.	PU   SPU
black	890-101	100   50
white	890-121	100   50



Locking lever; for flying leads; tool operated

Color	Item No.	PU   SPU
black	890-111	100   50
white	890-131	100   50



Mounting carrier; for 2- to 5-pole flying leads

Color	Item No.	Pack. Unit
black	890-310	100
white	890-311	100



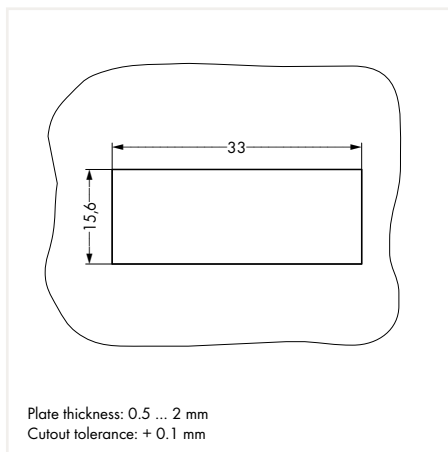
Operating tool with a partially insulated shaft; type 2; (3.5 x 0.5) mm blade

Color	Item No.	Pack. Unit
green	210-720	1

## Snap-In Socket and Plug

### 5-Pole

### WINSTA® MINI; 890 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

#### Electrical Data

Coding	A, I		
Ratings per	IEC/EN 60664-1		
Overtolerance category	III	III	II
Pollution degree	3	2	2
Rated voltage	400 V	-	-
Rated surge voltage	6 kV	-	-
Rated current	13 A	-	-
Approvals per	UL 1977		
Rated voltage (UL)	600 V		
Rated current (UL)	14 A		

Clearances and creepage distances	≥ 5.5 mm (with strain relief ≥ 6.5 mm to exposed surfaces – protection class II)
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

#### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Solid conductor; push-in termination	0.75 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Stranded conductor	0.25 ... 1 mm <sup>2</sup> / 22 ... 18 AWG
Fine-stranded conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 mm <sup>2</sup>

#### Mechanical Data

Mating cycles	200 (without resistive load) 100 (with resistive load $I_N = 16 A, 1.5 mm^2$ )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	∅ 6.5 ... 10.5 mm
Protection type	IP2xC (with strain relief housing)

#### Material Data

Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper ( $E_{Cu}$ )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

#### Environmental Requirements

Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

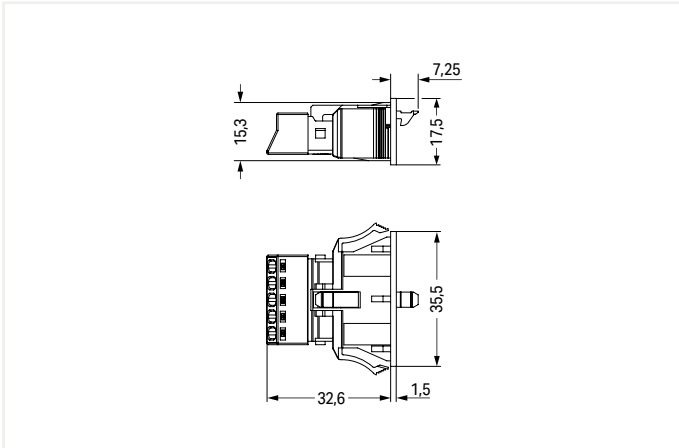
# Snap-In Socket and Plug

## 5-Pole

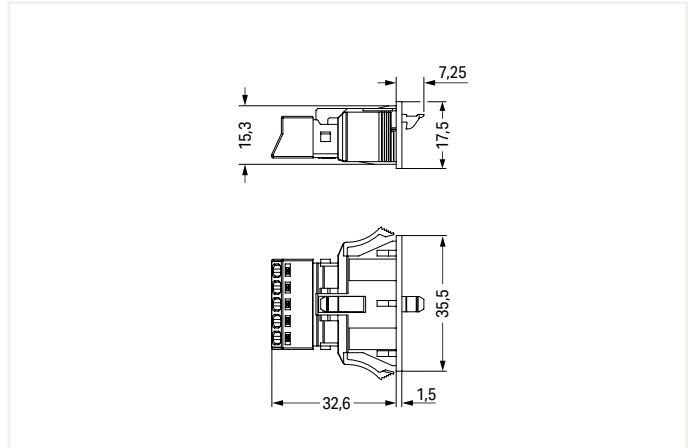
### WINSTA® MINI; 890 Series



Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



Socket				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 1 2 3	890-705	50
○ white	A	N ⊕ 1 2 3	890-725	50
● blue	I	N ⊕ L + -	890-2105	50

Plug				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 1 2 3	890-715	50
○ white	A	N ⊕ 1 2 3	890-735	50
● blue	I	N ⊕ L + -	890-2115	50

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Accessories; for all products on this page



Lockout cap; for cutout; 2-pole			
Color	Item No.	Pack. Unit	
● black	770-645	100	
○ white	770-695	100	



Operating tool; partially insulated; 2-way			
Color	Item No.	Pack. Unit	
● green	770-382	1	

## Socket and Plug; without Strain Relief Housing

### 2-Pole

### WINSTA® MIDI; 770 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

Electrical Data			
Coding	A, I, L		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	-	-
Rated surge voltage	4 kV	-	-
Rated current	25 A	-	-
Approvals per	UL 1977		
Rated voltage (UL)	600 V		
Rated current (UL)	23 A		

Clearances and creepage distances	≥ 5.5 mm to exposed surfaces
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.5 ... 4 mm <sup>2</sup> / 20 ... 12 AWG
Solid conductor; push-in termination	1.5 ... 4 mm <sup>2</sup> / 16 ... 12 AWG
Stranded conductor	0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor	0.5 ... 4 mm <sup>2</sup> / 20 ... 12 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG

Mechanical Data	
Mating cycles	200 (without resistive load) 100 (with resistive load $I_N = 25$ A, 4 mm <sup>2</sup> )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	Ø 7 ... 10.5 mm
Protection type	IP2xC (with strain relief housing)

Material Data	
Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper (E <sub>C</sub> )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

Environmental Requirements	
Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

# Socket and Plug

## 2-Pole

### WINSTA® MIDI; 770 Series

**Socket**



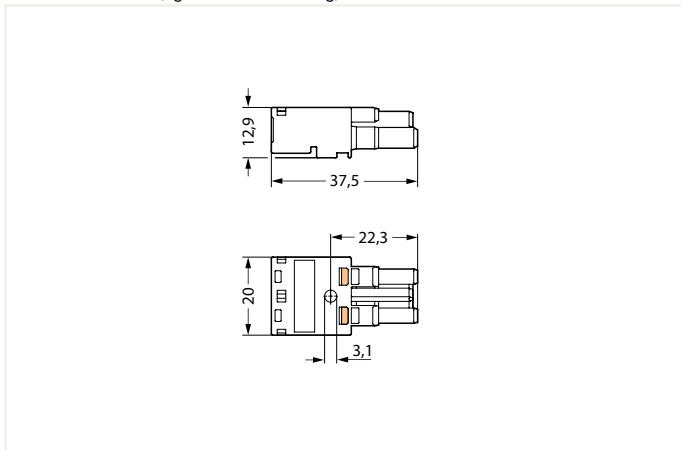
**Plug**



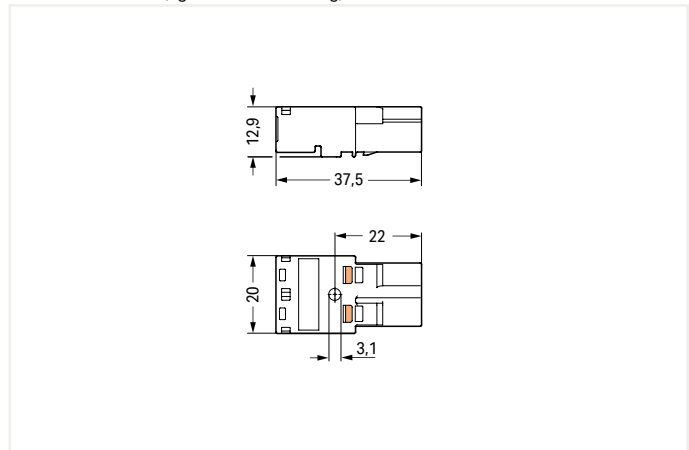
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L N	770-202	100
○ white	A	L N	770-222	100
● blue	I	DA+ DA-	770-1102	100
● dark gray	L	L' N'	770-1162	100

Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L N	770-212	100
○ white	A	L N	770-232	100
● blue	I	DA+ DA-	770-1112	100
● dark gray	L	L' N'	770-1172	100

Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



7

**Accessories; for all products on this page**



Strain relief housing; 7 ... 10.5 mm cable diameter; 35 mm strip length

Color	Item No.	Pack. Unit
black	770-502/041-000	50
white	770-512/041-000	50



Locking lever; for flying leads; manually operated

Color	Item No.	PU   SPU
black	770-101	100   25
white	770-121	100   25



Locking lever; for flying leads; tool operated

Color	Item No.	PU   SPU
black	770-111	100   25
white	770-131	100   25



Lockout cap; for socket; separable; 12-pole

Color	Item No.	Pack. Unit
black	770-201	100
white	770-221	100



Lockout cap; for plug; separable; 5-pole

Color	Item No.	Pack. Unit
yellow	770-360	100



Operating tool with a partially insulated shaft; type 2; (3.5 x 0.5) mm blade

Color	Item No.	Pack. Unit
green	210-620	1

## Socket and Plug; without Strain Relief Housing

### 3-Pole

### WINSTA® MIDI; 770 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

#### Electrical Data

	A, P, R, S		
Coding	IEC/EN 60664-1		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	-	-
Rated surge voltage	6 kV	-	-
Rated current	25 A	-	-
Approvals per	UL 1977		
Rated voltage (UL)	600 V		
Rated current (UL)	23 A		

Clearances and creepage distances

≥ 5.5 mm to exposed surfaces

Contact resistance

Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

#### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.5 ... 4 mm <sup>2</sup> / 20 ... 12 AWG
Solid conductor; push-in termination	1.5 ... 4 mm <sup>2</sup> / 16 ... 12 AWG
Stranded conductor	0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor	0.5 ... 4 mm <sup>2</sup> / 20 ... 12 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG

#### Mechanical Data

Mating cycles	200 (without resistive load) 100 (with resistive load $I_N = 25$ A, 4 mm <sup>2</sup> )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	Ø 8 ... 11.5 mm
Protection type	IP2xC (with strain relief housing)

#### Material Data

Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper (E <sub>C</sub> )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

#### Environmental Requirements

Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.



# Socket and Plug

## 3-Pole

### WINSTA® MIDI; 770 Series

Socket



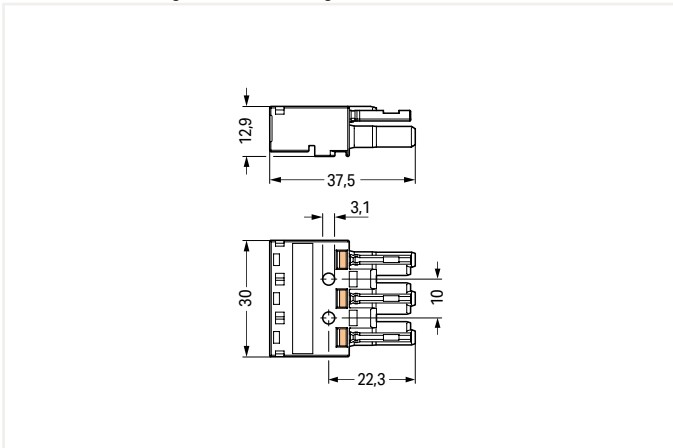
Plug



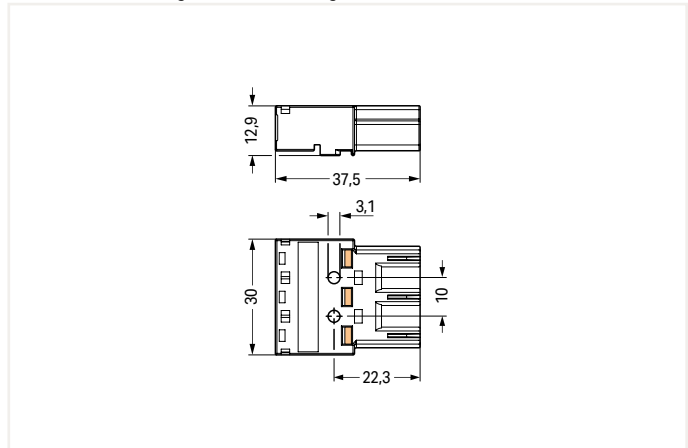
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L ⊕ N	770-203	100
○ white	A	L ⊕ N	770-223	100
● red	P	L ⊕ N	770-1303	100
● orange	R	LON LON S	770-1343	100
● brown	S	1 2 S	770-1363	100

Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L ⊕ N	770-213	50
○ white	A	L ⊕ N	770-233	50
● red	P	L ⊕ N	770-1313	100
● orange	R	LON LON S	770-1353	100
● brown	S	1 2 S	770-1373	100

Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



7

Accessories; for all products on this page



Strain relief housing; for two cables; 8 ... 11.5 mm cable diameter; 55 mm strip length

Color	Item No.	Pack. Unit
black	770-503	50
white	770-513	50



Locking lever; for flying leads; manually operated

Color	Item No.	PU   SPU
black	770-101	100   25
white	770-121	100   25



Locking lever; for flying leads; tool operated

Color	Item No.	PU   SPU
black	770-111	100   25
white	770-131	100   25



Lockout cap; for socket; separable; 12-pole

Color	Item No.	Pack. Unit
black	770-201	100
white	770-221	100



Lockout cap; for plug; separable; 5-pole

Color	Item No.	Pack. Unit
yellow	770-360	100



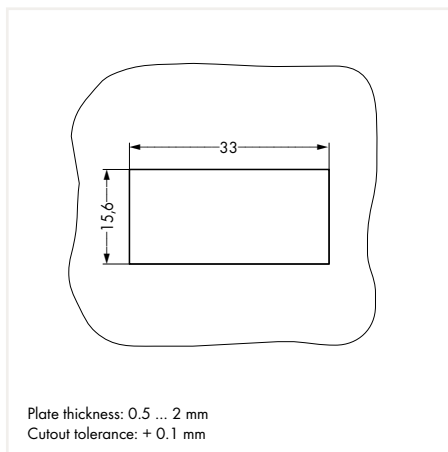
Operating tool with a partially insulated shaft; type 2; (3.5 x 0.5) mm blade

Color	Item No.	Pack. Unit
green	210-620	1

## Snap-In Socket and Plug

### 3-Pole

### WINSTA® MIDI; 770 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

#### Electrical Data

	A, P, R, S		
Coding	IEC/EN 60664-1		
Ratings per	IEC/EN 60664-1		
Overvoltage category	III	III	II
Pollution degree	3	2	2
Rated voltage	250 V	-	-
Rated surge voltage	4 kV	-	-
Rated current	25 A	-	-
Approvals per	UL 1977		
Rated voltage (UL)	600 V		
Rated current (UL)	14 A		

Clearances and creepage distances	≥ 5.5 mm (with strain relief ≥ 6.5 mm to exposed surfaces – protection class II)
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

#### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Solid conductor; push-in termination	0.75 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Stranded conductor	0.25 ... 1 mm <sup>2</sup> / 22 ... 18 AWG
Fine-stranded conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 mm <sup>2</sup>

#### Mechanical Data

Mating cycles	200 (without resistive load) 100 (with resistive load $I_N = 16$ A, 1.5 mm <sup>2</sup> )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	Ø 8 ... 11.5 mm
Protection type	IP2xC (with strain relief housing)

#### Material Data

Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

#### Environmental Requirements

Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

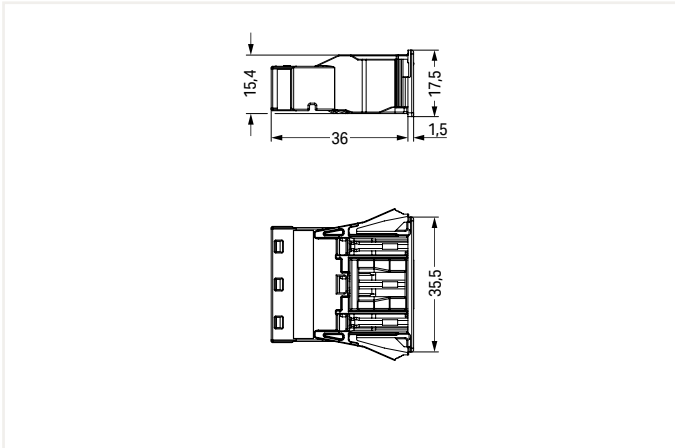
# Snap-In Socket and Plug

## 3-Pole

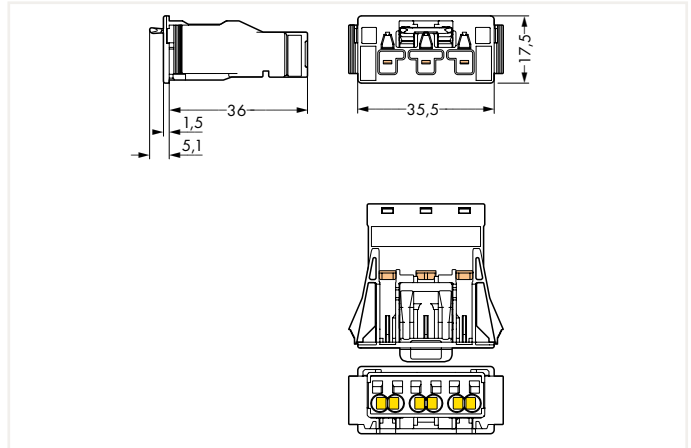
### WINSTA® MIDI; 770 Series



Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



Socket				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L ⊕ N	770-703	100
○ white	A	L ⊕ N	770-723	100
● red	P	L ⊕ N	770-2303	100
● orange	R	LON LON S	770-2343	100
● brown	S	1 2 L	770-2363	100

Plug				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	L ⊕ N	770-713	100
○ white	A	L ⊕ N	770-733	100
● red	P	L ⊕ N	770-2313	100
● orange	R	LON LON S	770-2353	100

Accessories; for all products on this page



Lockout cap; for cutout; 3-pole		
Color	Item No.	Pack. Unit
● black	770-643	100
○ white	770-693	100



Operating tool; partially insulated; 3-way		
Color	Item No.	Pack. Unit
● green	770-383	1

## Socket and Plug; without Strain Relief Housing

### 4-Pole

### WINSTA® MIDI; 770 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

Electrical Data						
Coding	A			Q		
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	400 V	-	-	400 V	-	-
Rated surge voltage	6 kV	-	-	6 kV	-	-
Rated current	25 A	-	-	32 A	-	-
Approvals per	UL 1977					
Rated voltage (UL)	600 V					
Rated current (UL)	23 A					

Clearances and creepage distances	≥ 5.5 mm to exposed surfaces
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

Connection Data	
Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.5 ... 4 mm <sup>2</sup> / 20 ... 12 AWG
Solid conductor; push-in termination	1.5 ... 4 mm <sup>2</sup> / 16 ... 12 AWG
Stranded conductor	0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor	0.5 ... 4 mm <sup>2</sup> / 20 ... 12 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG

Mechanical Data	
Mating cycles	200 (without resistive load) 100 (with resistive load I <sub>N</sub> = 25 A, 4 mm <sup>2</sup> )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	∅ 9 ... 13 mm
Protection type	IP2xC (with strain relief housing)

Material Data	
Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper (E <sub>Cu</sub> )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

Environmental Requirements	
Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

# Socket and Plug

## 4-Pole

### WINSTA® MIDI; 770 Series

Socket



Plug



Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 2 <sub>L</sub> 1 <sub>L</sub>	770-204	50
○ white	A	N ⊕ 2 <sub>L</sub> 1 <sub>L</sub>	770-224	50

Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 2 <sub>L</sub> 1 <sub>L</sub>	770-214	50
○ white	A	N ⊕ 2 <sub>L</sub> 1 <sub>L</sub>	770-234	50

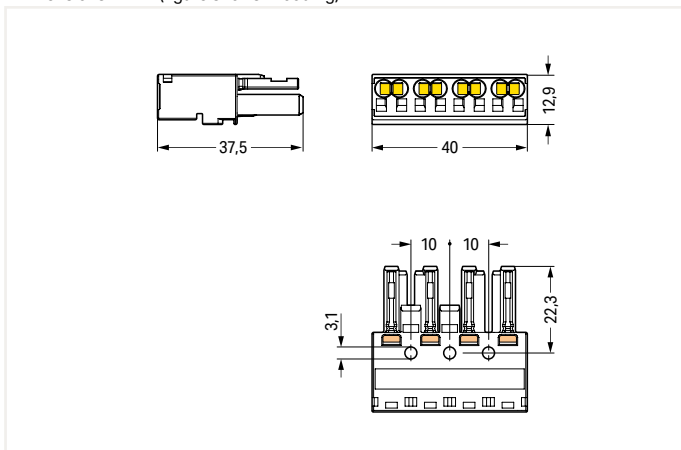
For "Clean Earth" applications; rated up to 32 A

Color	Coding	Marking	Item No.	Pack. Unit
● green	Q	N PE1 PE2 L	770-1324	50

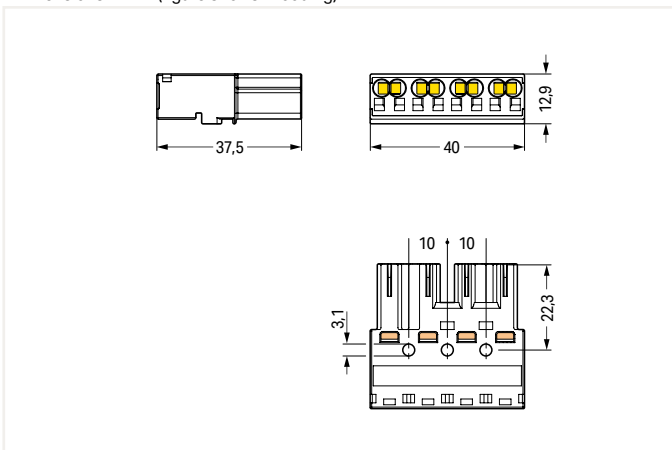
For "Clean Earth" applications; rated up to 32 A

Color	Coding	Marking	Item No.	Pack. Unit
● green	Q	N PE1 PE2 L	770-1334	50

Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



Accessories; for all products on this page



Strain relief housing; for two cables; 9 ... 13 mm cable diameter; 55 mm strip length

Color	Item No.	Pack. Unit
black	770-504	50
white	770-514	50



Locking lever; for flying leads; manually operated

Color	Item No.	PU   SPU
black	770-101	100   25
white	770-121	100   25



Locking lever; for flying leads; tool operated

Color	Item No.	PU   SPU
black	770-111	100   25
white	770-131	100   25



Lockout cap; for socket; separable; 12-pole

Color	Item No.	Pack. Unit
black	770-201	100
white	770-221	100



Lockout cap; for plug; separable; 5-pole

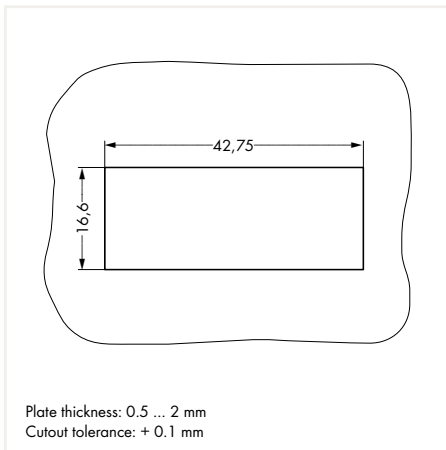
Color	Item No.	Pack. Unit
yellow	770-360	100



Operating tool with a partially insulated shaft; type 2; (3.5 x 0.5) mm blade

Color	Item No.	Pack. Unit
green	210-620	1

## Snap-In Socket and Plug 4-Pole WINSTA® MIDI; 770 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

### Electrical Data

Coding	A			Q		
	IEC/EN 60664-1					
Ratings per	IEC/EN 60664-1			IEC/EN 60664-1		
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	400 V	-	-	400 V	-	-
Rated surge voltage	4 kV	-	-	6 kV	-	-
Rated current	25 A	-	-	32 A	-	-
Approvals per	UL 1977					
Rated voltage (UL)	600 V					
Rated current (UL)	14 A					

Clearances and creepage distances	≥ 5.5 mm (with strain relief ≥ 6.5 mm to exposed surfaces – protection class II)
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.5 ... 4 mm <sup>2</sup> / 20 ... 12 AWG
Solid conductor; push-in termination	0.75 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Stranded conductor	0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 mm <sup>2</sup>

### Mechanical Data

Mating cycles	200 (without resistive load) 100 (with resistive load I <sub>N</sub> = 16 A, 1.5 mm <sup>2</sup> )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	∅ 9 ... 13 mm
Protection type	IP2xC (with strain relief housing)

### Material Data

Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

### Environmental Requirements

Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

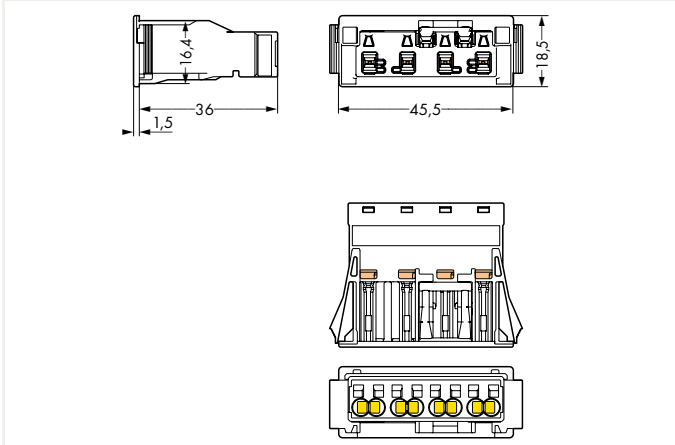
# Snap-In Socket and Plug

## 4-Pole

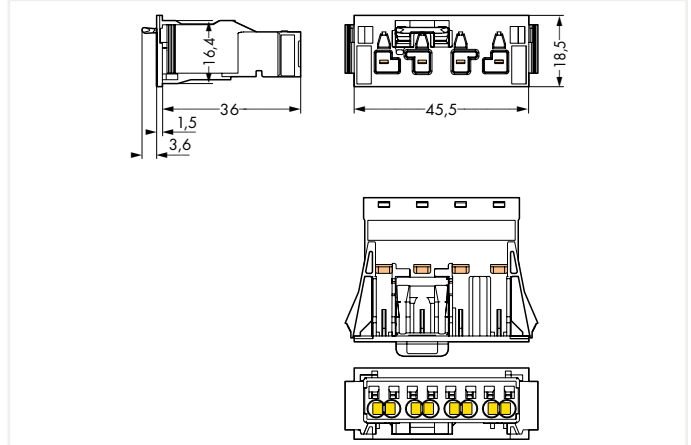
### WINSTA® MIDI; 770 Series



Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



Socket				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 2L 1L	770-704	100
○ white	A	N ⊕ 2L 1L	770-724	100

Plug				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ 2L 1L	770-714	100
○ white	A	N ⊕ 2L 1L	770-734	100

For "Clean Earth" applications; rated up to 32 A				
Color	Coding	Marking	Item No.	Pack. Unit
● green	Q	N PE1 PE2 L	770-2324	100

For "Clean Earth" applications; rated up to 32 A				
Color	Coding	Marking	Item No.	Pack. Unit
● green	Q	N PE1 PE2 L	770-2334	100

Accessories; for all products on this page



Lockout cap; for cutout; 4-pole		
Color	Item No.	Pack. Unit
● black	770-644	100
○ white	770-694	100



Operating tool with a partially insulated shaft; type 2; (3.5 x 0.5) mm blade		
Color	Item No.	Pack. Unit
● green	210-720	1



## Socket and Plug; without Strain Relief Housing

### 5-Pole

### WINSTA® MIDI; 770 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

#### Electrical Data

Coding	A, I, L, P			Q		
	IEC/EN 60664-1			IEC/EN 60664-1		
Ratings per						
Overvoltage category	III	III	II	III	III	II
Pollution degree	3	2	2	3	2	2
Rated voltage	400 V	-	-	400 V	-	-
Rated surge voltage	6 kV	-	-	6 kV	-	-
Rated current	25 A	-	-	32 A	-	-
Approvals per	UL 1977					
Rated voltage (UL)	600 V					
Rated current (UL)	23 A					

Clearances and creepage distances	≥ 5.5 mm to exposed surfaces
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

#### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.5 ... 4 mm <sup>2</sup> / 20 ... 12 AWG
Solid conductor; push-in termination	1.5 ... 4 mm <sup>2</sup> / 16 ... 12 AWG
Stranded conductor	0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor	0.5 ... 4 mm <sup>2</sup> / 20 ... 12 AWG
Fine-stranded conductor; with insulated ferrule	0.25 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor; with uninsulated ferrule	0.25 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG

#### Mechanical Data

Mating cycles	200 (without resistive load) 100 (with resistive load I <sub>N</sub> = 25 A, 4 mm <sup>2</sup> )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	∅ 9 ... 13 mm
Protection type	IP2xC (with strain relief housing)

#### Material Data

Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper (E <sub>C</sub> )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

#### Environmental Requirements

Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

# Socket and Plug

## 5-Pole

### WINSTA® MIDI; 770 Series

**Socket**

**Plug**



Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ L1 L2 L3	770-205	50
○ white	A	N ⊕ L1 L2 L3	770-225	50
● blue	I	N ⊕ L DA- DA+	770-1105	50
● dark gray	L	N ⊕ L N' L'	770-1165	50
● red	P	N ⊕ L1 L2 L3	770-1305	50

Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ L1 L2 L3	770-215	50
○ white	A	N ⊕ L1 L2 L3	770-235	50
● blue	I	N ⊕ L DA- DA+	770-1115	50
● dark gray	L	N ⊕ L N' L'	770-1175	50
● red	P	N ⊕ L1 L2 L3	770-1315	50

For "Clean Earth" applications; rated up to 32 A

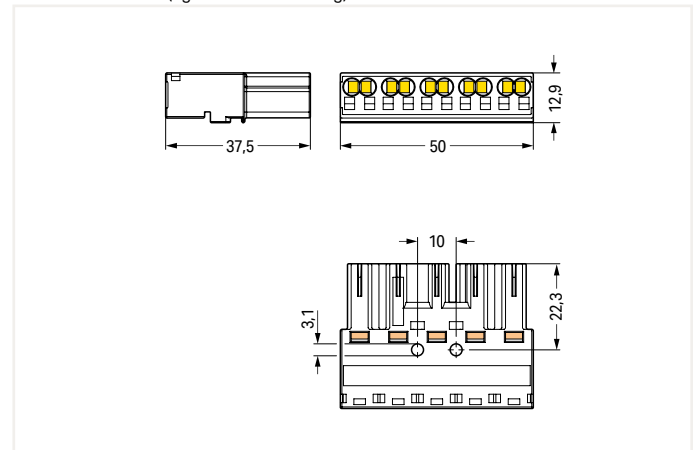
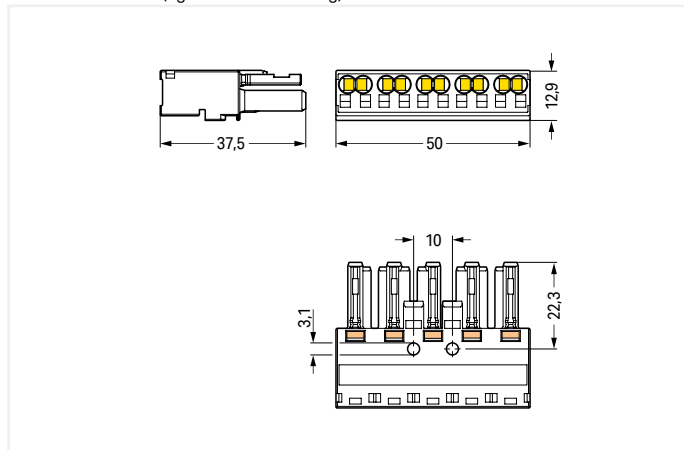
For "Clean Earth" applications; rated up to 32 A

Color	Coding	Marking	Item No.	Pack. Unit
● green	Q	N PE1 PE2 PE3 L	770-1325	50

Color	Coding	Marking	Item No.	Pack. Unit
● green	Q	N PE1 PE2 PE3 L	770-1335	50

Dimensions in mm (figure shows A-coding):

Dimensions in mm (figure shows A-coding):



Accessories; for all products on this page



Strain relief housing; for two cables; 9 ... 13 mm cable diameter; 55 mm strip length

Color	Item No.	Pack. Unit
black	770-505	25
white	770-515	25

Locking lever; for flying leads; manually operated

Color	Item No.	PU   SPU
black	770-101	100   25
white	770-121	100   25

Locking lever; for flying leads; tool operated

Color	Item No.	PU   SPU
black	770-111	100   25
white	770-131	100   25



Lockout cap; for socket; separable; 12-pole

Color	Item No.	Pack. Unit
black	770-201	100
white	770-221	100

Lockout cap; for plug; separable; 5-pole

Color	Item No.	Pack. Unit
yellow	770-360	100

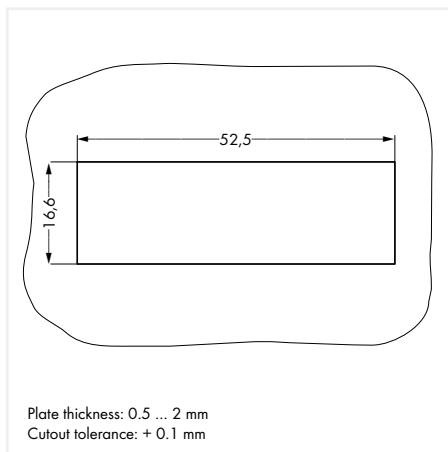
Operating tool with a partially insulated shaft; type 2; (3.5 x 0.5) mm blade

Color	Item No.	Pack. Unit
green	210-620	1

## Snap-In Socket and Plug

### 5-Pole

### WINSTA® MIDI; 770 Series



- Installation connectors are designed for connection and disconnection while not under load.
- There is no hazard-inducing interchangeability with systems based on IEC 60309, IEC 60320, IEC 60906 and with national connector and socket systems.
- Compliance with the standards (IEC 61535) does not guarantee hazard-preventing, non-interchangeability with installation connector systems from various manufacturers.
- Installation connector systems are not a substitute for residential connector/socket systems.

#### Electrical Data

Coding	A, I, P			Q		
	IEC/EN 60664-1			IEC/EN 60664-1		
Ratings per	III	III	II	III	III	II
Overvoltage category	3	2	2	3	2	2
Pollution degree	400 V	-	-	400 V	-	-
Rated voltage	4 kV	-	-	6 kV	-	-
Rated surge voltage	25 A	-	-	32 A	-	-
Rated current	UL 1977					
Approvals per	600 V					
Rated voltage (UL)	14 A					
Rated current (UL)						

Clearances and creepage distances	≥ 5.5 mm (with strain relief ≥ 6.5 mm to exposed surfaces – protection class II)
Contact resistance	Approx. 1 mΩ (approx. 0.25 mΩ contact transition socket – plug)

#### Connection Data

Connection technology	Push-in CAGE CLAMP®
Strip length	9 mm / 0.35 inch
Conductor range	
Solid conductor	0.5 ... 4 mm <sup>2</sup> / 22 ... 12 AWG
Solid conductor; push-in termination	0.75 ... 1.5 mm <sup>2</sup> / 20 ... 16 AWG
Stranded conductor	0.5 ... 2.5 mm <sup>2</sup> / 20 ... 14 AWG
Fine-stranded conductor	0.25 ... 1.5 mm <sup>2</sup> / 22 ... 16 AWG
Fine-stranded conductor; with insulated ferrule	0.25 mm <sup>2</sup>
Fine-stranded conductor; with uninsulated ferrule	0.25 mm <sup>2</sup>

#### Mechanical Data

Mating cycles	200 (without resistive load) 100 (with resistive load I <sub>N</sub> = 16 A, 1.5 mm <sup>2</sup> )
Mating forces	20 ... 70 Nm (depending on pole number)
Unmating forces	20 ... 70 Nm (depending on pole number); when unlocked
Retention forces	> 80 Nm; unlocked
Cable diameter	∅ 3.8 ... 8.2 mm
Protection type	IP2xC (with strain relief housing)

#### Material Data

Insulation material	Polyamide 66 (PA 66)
Contact material	Electrolytic copper (E <sub>cu</sub> )
Contact plating	Tin-plated
Clamping spring material	Chrome nickel spring steel (CrNi)

#### Environmental Requirements

Processing temperature	-5 ... +40 °C
Continuous operating temperature:	-35 ... +85 °C

#### Note:

- All connectors for mounted installations (snap-in versions, pluggable PCB connectors, distribution connectors) are factory-equipped with locking levers to ensure plugs and sockets are securely locked. Additional locking levers are only required for "flying leads" (plug/socket).
- Codings feature a mechanical protection against mismatching.

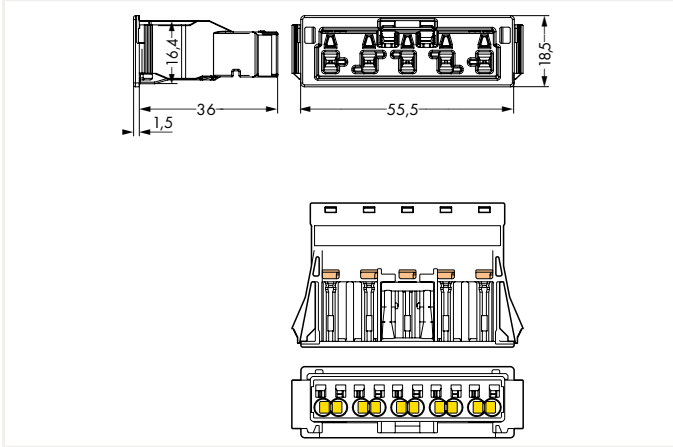
# Snap-In Socket and Plug

## 5-Pole

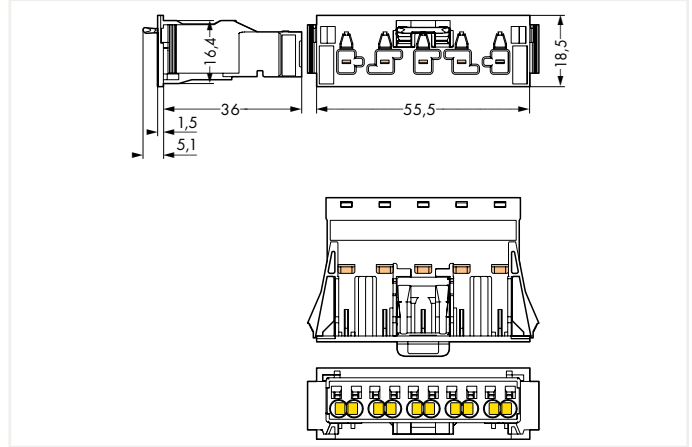
### WINSTA® MIDI; 770 Series



Dimensions in mm (figure shows A-coding):



Dimensions in mm (figure shows A-coding):



Socket				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ L1 L2 L3	770-705	50
○ white	A	N ⊕ L1 L2 L3	770-725	50
● blue	I	N ⊕ L DA- DA+	770-2105	50
● red	P	N ⊕ L1 L2 L3	770-2305	50

Plug				
Color	Coding	Marking	Item No.	Pack. Unit
● black	A	N ⊕ L1 L2 L3	770-715	50
○ white	A	N ⊕ L1 L2 L3	770-735	50
● blue	I	N ⊕ L DA- DA+	770-2115	50
● red	P	N ⊕ L1 L2 L3	770-2315	50

For "Clean Earth" applications; rated up to 32 A

Color	Coding	Marking	Item No.	Pack. Unit
● green	Q	N PE1 PE2 PE3 L	770-2325	50

For "Clean Earth" applications; rated up to 32 A

Color	Coding	Marking	Item No.	Pack. Unit
● green	Q	N PE1 PE2 PE3 L	770-2335	50

Accessories; for all products on this page



Lockout cap; for cutout; 5-pole			
Color	Item No.	Pack. Unit	
● black	770-645	100	
○ white	770-695	100	








Operating tool with a partially insulated shaft; type 2; (3.5 x 0.5) mm blade			
Color	Item No.	Pack. Unit	
● green	210-720	1	



## Installation Connectors

## Installation Connectors

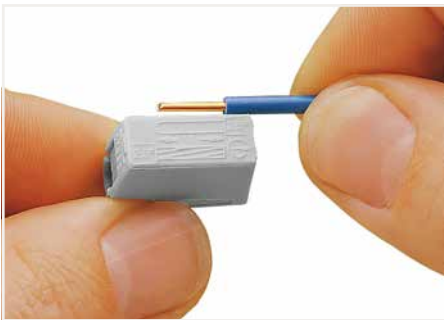
			Page
	Lighting Connectors Service Connectors	224 Series	209
	COMPACT PUSH WIRE® Connectors for Junction Boxes	2273 Series	211
	PUSH WIRE® Connectors for Junction Boxes Ex PUSH WIRE® Connectors for Junction Boxes	773 Series	213
	COMPACT Splicing Connectors	221 Series	217
	Mounting Carriers for Single Connectors	221 Series	221
	Splicing Connectors for All Conductor Types	222 Series	223
	MICRO PUSH WIRE® Connectors for Junction Boxes	243 Series	225



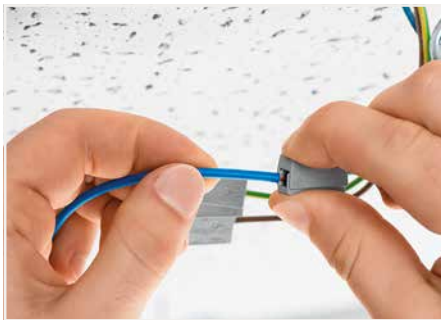
# Lighting Connectors and Service Connectors

## Description and Installation

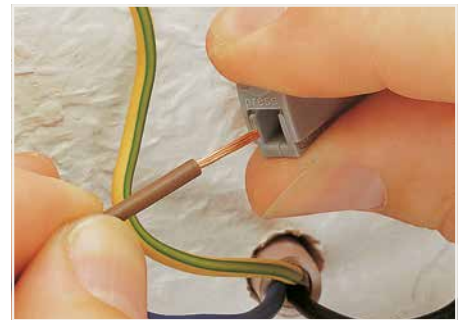
### 224 Series



Strip conductor to 9 ... 11 mm (0.35 ... 0.43 inch).



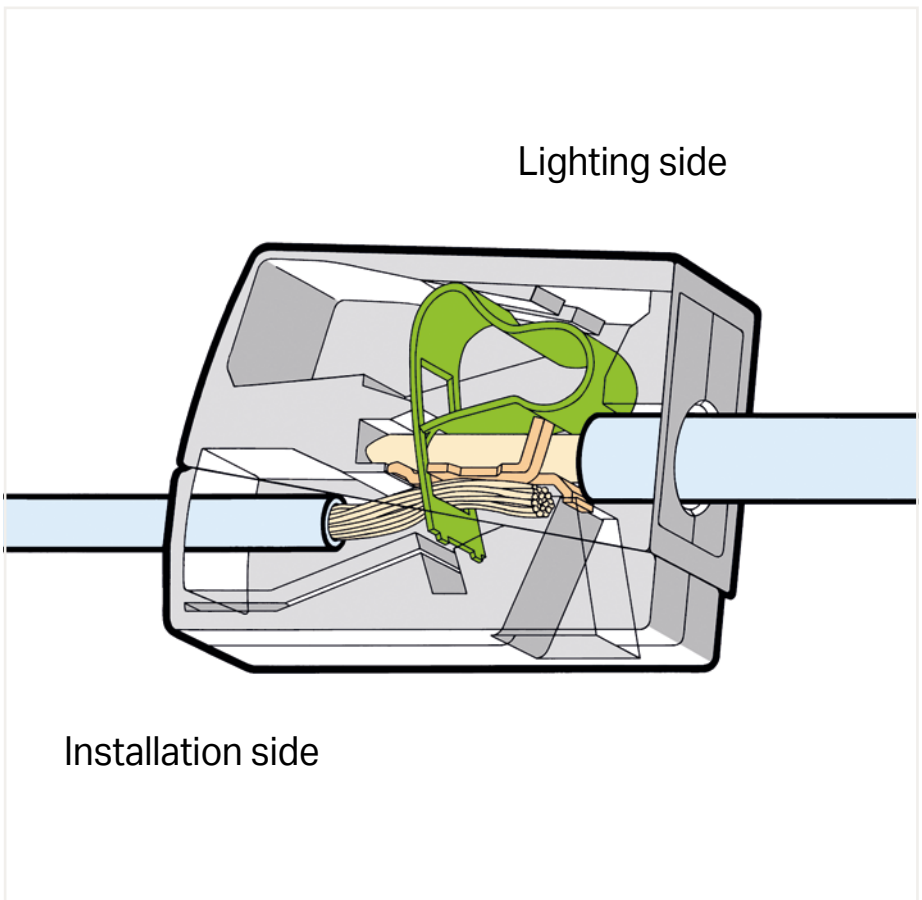
To connect: Press button fully, insert stripped conductor into square entry and release.



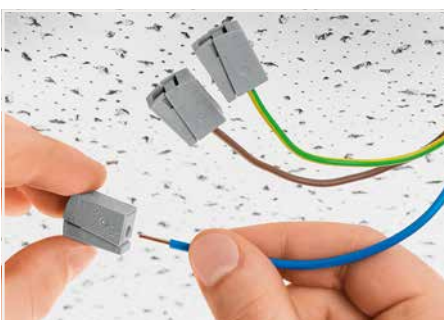
To remove: Press button and withdraw conductor.

Lighting side

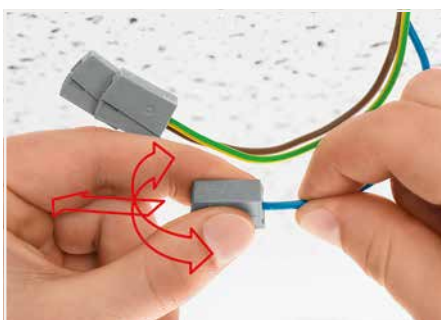
CAGE CLAMP® terminates the following copper conductors:



8



To connect: Insert stripped solid conductor into circular entry and push until it hits the backstop.



To remove: Hold conductor to be removed and twist alternately left and right while slightly pulling the connector.



Testing via separate test ports.



Installation side

PUSH WIRE® terminates the following copper conductors:  
solid



# Lighting Connector; Service Connector 224 Series

Technical Data	
Installation side	
1 ... 2.5 mm <sup>2</sup> "s"	14 ... 12 AWG
Lighting side	
0.5 ... 2.5 mm <sup>2</sup> "s+f-st"	20 ... 16 AWG
400 V / 4 kV / 2 ①; I <sub>N</sub> 24 A	300 V / 20 A ②③
9 ... 11 mm / 0.35 ... 0.39 inch	



Lighting connector; standard version; approved continuous operating temperature: 105°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
○ gray	224-101	1000 (10x100)

Lighting connector; version for increased continuous operating temperature of 120°C; ambient temperature (max.): 75°C

Color	Item No.	Pack. Unit
● black	224-104	1000 (10x100)

Technical Data	
Installation side	
2 x 1 ... 2.5 mm <sup>2</sup> "s"	14 ... 12 AWG
Lighting side	
0.5 ... 2.5 mm <sup>2</sup> "s+f-st"	20 ... 16 AWG
400 V / 4 kV / 2 ①; I <sub>N</sub> 24 A	300 V / 20 A ②③
9 ... 11 mm / 0.35 ... 0.39 inch	



2-conductor lighting connector; for looping through on the installation side; approved continuous operating temperature: 105°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
○ white	224-112	1000 (10x100)

2-conductor lighting connector; for looping through on the installation side; version for increased continuous operating temperature of 120°C; ambient temperature (max.): 75°C

Color	Item No.	Pack. Unit
● black	224-114	1000 (10x100)

Technical Data	
0.5 ... 2.5 mm <sup>2</sup> "s+f-st"	20 ... 16 AWG
400 V / 4 kV / 2 ①; I <sub>N</sub> 24 A	
300 V / 20 A ②	
9 ... 11 mm / 0.35 ... 0.39 inch	



Service connector; approved continuous operating temperature: 105°C

Color	Item No.	Pack. Unit
○ gray	224-201	50

WAGO's lighting connectors ideally connect solid conductors with fine-stranded conductors. Tested and approved as isolated splicing connectors per EN 60998, WAGO's 224 Series Lighting Connectors can also be used in applications requiring a connection between solid and fine-stranded conductors. For example, 224 Series connects:

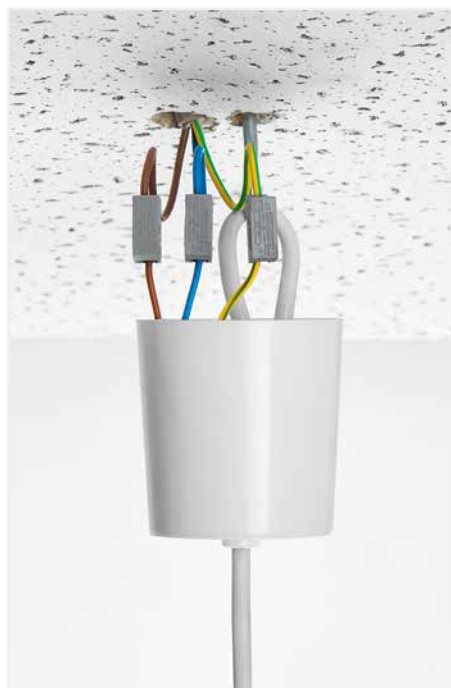
- Blinds, sliding shutters or awning motors
- Window or bathroom fans
- Circulation pumps
- Furnace control systems
- Electrical devices via permanent flexible cables

- ① In grounded power lines  
400 V = rated voltage
- » 4 kV = rated surge voltage  
2/3 = pollution degree

### 224 Series Accessories



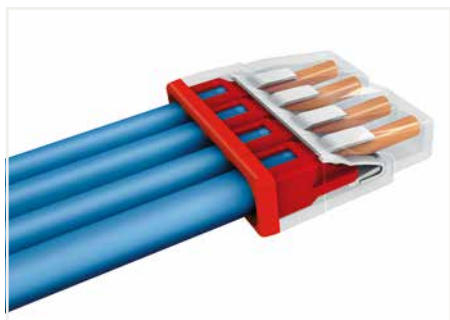
Syringe; contains 20 ml "Alu-Plus" contact paste		
Item No.	Pack. Unit	
249-130	20	



# COMPACT PUSH WIRE® Connectors for Junction Boxes and Solid Conductors

## Description and Installation

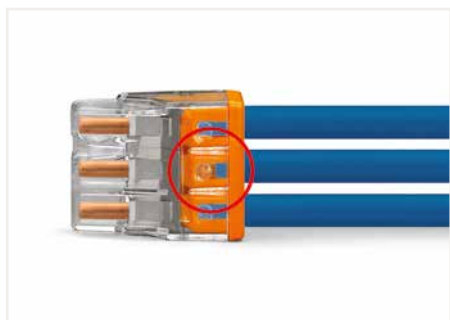
### 2273 Series



Strip solid conductor to 11 mm/0.43 inch (see marking).



Insert the stripped solid conductor until it hits backstop.



The transparent housing shows if conductors are fully inserted; within the colored base, a clear port shows if the conductor's strip length is correct. Conductors are correctly stripped if the clear port shows no bare conductor on the unprinted connector side. Picture shows center conductor with exceeded strip length.



Removal: Hold conductor to be removed and twist alternately left and right while pulling the connector.



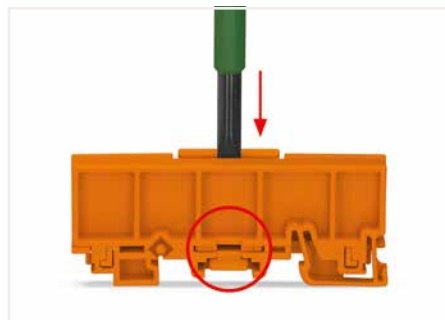
Testing via test port opposite to conductor entry.

8

One single carrier can hold up to 24 clamping units in a very narrow space. Previously, this was only possible using rail-mount terminal blocks.

**Advantages:**

- Mount carrier onto DIN-35 rail or via screws – easily and quickly
- Accommodate three 2.5 mm<sup>2</sup> (12 AWG) 2273 Series Connectors in a single carrier
- Easily exchange connectors
- Large marking area for self-adhesive marking strips or for direct marking with permanent felt-tip pen



To adjust the mounting carrier, unlock the latch via operating tool (5.5 mm blade) and move the clamping slide to the required width by rotating the tool.



The mounting carrier is suitable for both connector widths.

**PUSH WIRE® Connectors in Distribution Boxes**

During distribution box retrofits or expansions, conductors often require extensions or additional clamping points. Individual PUSH WIRE® connectors (e.g., 2273 Series) are approved as interconnect components for building wiring applications per EN 60998. Application standards for building installation (e.g., Parts 510 and 520 from DIN VDE 0100) also place the following requirements on junction box connectors:

- They must be arranged so that operation, inspection, maintenance and access to the removable connectors is simplified.
- It must be possible to test them.
- Conductors connected from outside must be clearly and permanently assigned to their associated circuits.

These requirements cannot be met with WAGO WIRE® connectors alone. In combination with WAGO mounting carriers, the PUSH WIRE® connectors clearly meet these requirements, making them comparable to rail-mount terminal blocks. Using PUSH WIRE® connectors with mounting carriers in distribution boxes is accepted by testing authorities.



PUSH WIRE® terminates the following copper conductors: solid

# COMPACT PUSH WIRE® Connector for Junction Boxes 2273 Series

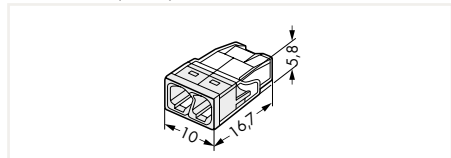
Technical Data	
2 x 0.5 ... 2.5 mm <sup>2</sup> "s"	2 x 18 ... 14 AWG "s"
450 V / 4 kV / 2; I <sub>N</sub> 24 A	
11 mm / 0.43 inch	



COMPACT PUSH WIRE® connector for junction boxes; 2-wire connector; transparent housing; continuous operating temperature (max.): 105°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
○ white	2273-202	1000 (10x100)

Dimensions (in mm):



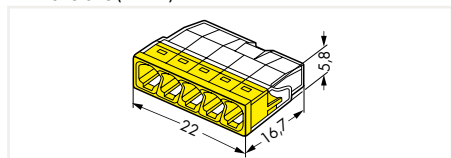
Technical Data	
5 x 0.5 ... 2.5 mm <sup>2</sup> "s"	2 x 18 ... 14 AWG "s"
450 V / 4 kV / 2; I <sub>N</sub> 24 A	
11 mm / 0.43 inch	



COMPACT PUSH WIRE® connector for junction boxes; 5-wire connector; transparent housing; continuous operating temperature (max.): 105°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
● yellow	2273-205	1000 (10x100)

Dimensions (in mm):



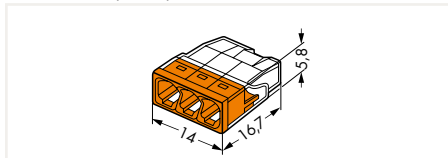
Technical Data	
3 x 0.5 ... 2.5 mm <sup>2</sup> "s"	3 x 18 ... 14 AWG "s"
450 V / 4 kV / 2; I <sub>N</sub> 24 A	
11 mm / 0.43 inch	



COMPACT PUSH WIRE® connector for junction boxes; 3-wire connector; transparent housing; continuous operating temperature (max.): 105°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
● orange	2273-203	1000 (10x100)

Dimensions (in mm):



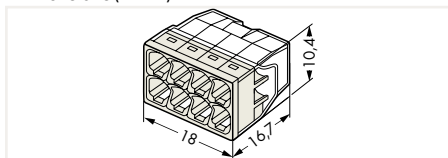
Technical Data	
8 x 0.5 ... 2.5 mm <sup>2</sup> "s"	3 x 18 ... 14 AWG "s"
450 V / 4 kV / 2; I <sub>N</sub> 24 A	
11 mm / 0.43 inch	



COMPACT PUSH WIRE® connector for junction boxes; 8-wire connector; transparent housing; continuous operating temperature (max.): 105°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
○ light gray	2273-208	500 (10x50)

Dimensions (in mm):



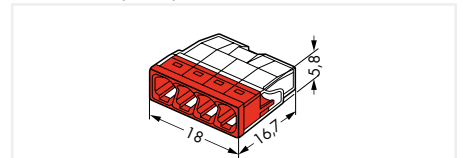
Technical Data	
4 x 0.5 ... 2.5 mm <sup>2</sup> "s"	4 x 18 ... 14 AWG "s"
450 V / 4 kV / 2; I <sub>N</sub> 24 A	
11 mm / 0.43 inch	



COMPACT PUSH WIRE® connector for junction boxes; 4-wire connector; transparent housing; continuous operating temperature (max.): 105°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
● red	2273-204	1000 (10x100)

Dimensions (in mm):



## 2273 Series Accessories



Mounting carrier; for single- and double-row 2273 Series Connectors; carrier width: 14/18.5 mm

Color	Item No.	Pack. Unit
● orange	2273-500	500



Self-adhesive marking strip; plain; 5 mm high; 48 self-adhesive strips per card

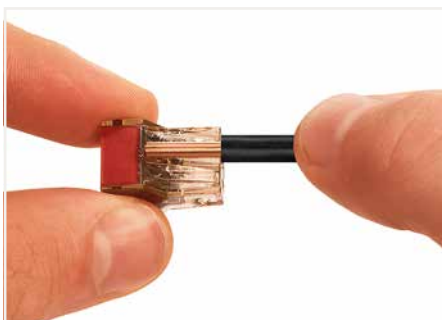
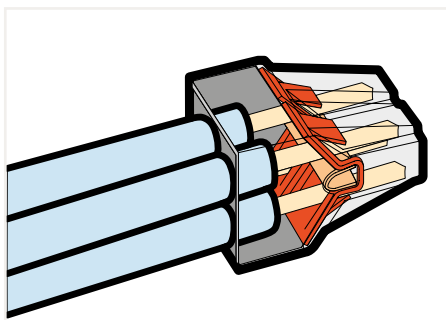
Color	Item No.	Pack. Unit
○ white	210-334	1



# PUSH WIRE® Connectors for Junction Boxes

## Description and Installation

### 773 Series



Strip a solid conductor to 12 mm (0.47 inch).



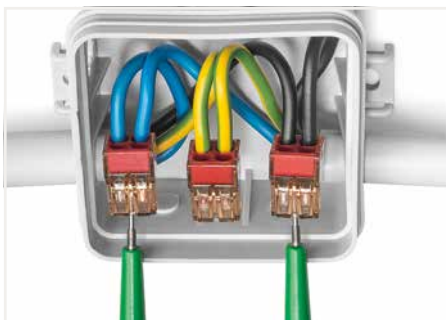
Termination: Insert stripped solid conductor until it hits backstop.



Removal: Hold conductor to be removed and twist alternately left and right while pulling the connector.



8



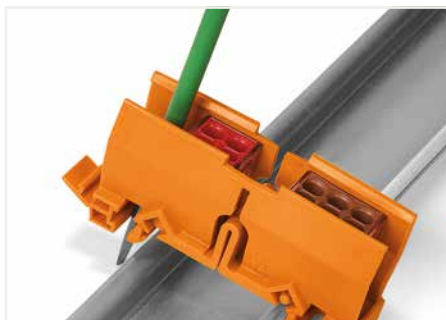
Testing



Use the cover as an end plate.



Snap the mounting carrier onto the DIN-rail.



Remove the mounting carrier from the DIN-rail.

# PUSH WIRE® Connector for Junction Boxes 773 Series

Technical Data	
3 x 2.5 ... 6 mm <sup>2</sup> "s+st"	3 x 14 ... 10 AWG "s+st"
400 V / 4 kV / 2 <b>1</b> ; I <sub>N</sub> 41 A	600 V; 30 A <b>2</b> / 20 A <b>3</b>
□ 12 ... 13 mm / 0.47 ... 0.51 inch	

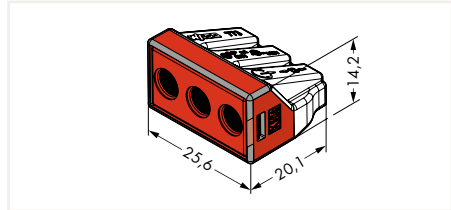
Technical Data	
4 x 0.75 ... 2.5 mm <sup>2</sup> "s"	4 x 18 ... 12 AWG "s"
4 x 1.5 ... 2.5 mm <sup>2</sup> "st"	4 x 16 ... 12 AWG "st"
400 V / 4 kV / 2 <b>1</b> ; I <sub>N</sub> 24 A	600 V; 20 A <b>2</b> <b>3</b>
□ 12 mm / 0.47 inch	



PUSH WIRE® connector for junction boxes; 3-wire connector; transparent housing; continuous operating temperature (max.): 105°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
● red	773-173	500 (10x50)

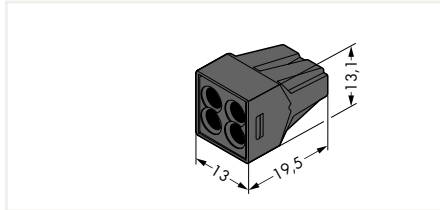
Dimensions (in mm):



PUSH WIRE® connector for junction boxes; 4-wire connector; transparent housing; continuous operating temperature (max.): 150°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
● black	773-514	1000 (10x100)

Dimensions (in mm):



A mounting carrier (see accessories) suits applications where the connector must be marked and secured in position. The mounting carrier fits up to two 6 mm<sup>2</sup> connectors and must be snapped directly onto the DIN-35 rail or secured to a smooth surface by two screws.  
Using this PUSH WIRE® connector, a large range of wiring applications can be achieved in distribution or junction boxes. To mention just a few: potential multiplication and changing from or to 6 mm<sup>2</sup> (10 AWG) conductor size.

» Approvals are available online at: [www.wago.com](http://www.wago.com)

- 1 In grounded power lines  
400 V = rated voltage
- » 4 kV = rated surge voltage  
2 = pollution degree

### 773 Series Accessories



Mounting carrier; carrier width: 18 mm

Color	Item No.	Pack. Unit
● orange	773-332	50




Self-adhesive marking strip; plain; 5 mm high; 48 self-adhesive strips per card


Color	Item No.	Pack. Unit
○ white	210-334	1




# Ex PUSH WIRE® Connector for Junction Boxes 773 Series

Technical Data	
0.75 ... 2.5 mm <sup>2</sup> "s"	18 ... 12 AWG "s"
550 V*; I <sub>N</sub> 24 A	600 V; 20 A
 12 mm / 0.47 inch	



Technical Data	
0.75 ... 2.5 mm <sup>2</sup> "s"	18 ... 12 AWG "s"
550 V*; I <sub>N</sub> 24 A	600 V; 20 A
 12 mm / 0.47 inch	



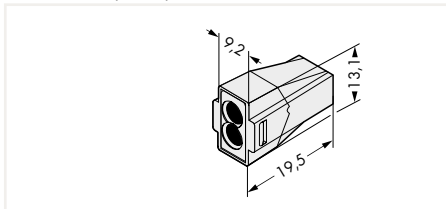
Technical Data	
0.75 ... 2.5 mm <sup>2</sup> "s"	18 ... 12 AWG "s"
550 V*; I <sub>N</sub> 24 A	600 V; 20 A
 12 mm / 0.47 inch	



PUSH WIRE® connector for junction boxes; 2-wire connector; suitable for Ex e II applications

Color	Item No.	Pack. Unit
○ light gray	773-492	1000 (10x100)

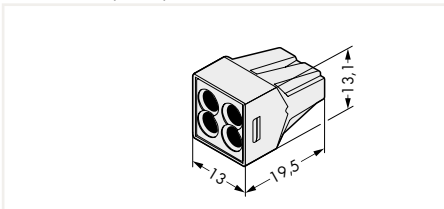
Dimensions (in mm):



PUSH WIRE® connector for junction boxes; 4-wire connector; suitable for Ex e II applications

Color	Item No.	Pack. Unit
○ light gray	773-494	1000 (10x100)

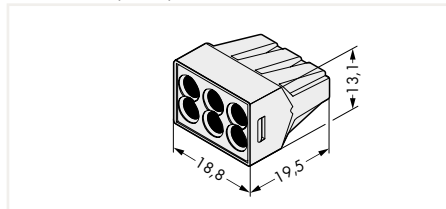
Dimensions (in mm):




PUSH WIRE® connector for junction boxes; 6-wire connector; suitable for Ex e II applications

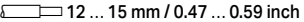
Color	Item No.	Pack. Unit
○ light gray	773-496	1000 (10x100)

Dimensions (in mm):



Technical Data	
0.75 ... 2.5 mm <sup>2</sup> "s"	18 ... 12 AWG "s"
550 V*; I <sub>N</sub> 24 A	600 V; 20 A
 12 mm / 0.47 inch	



Technical Data	
2.5 ... 6 mm <sup>2</sup> "s"	14 ... 10 AWG "s"
550 V*; I <sub>N</sub> 42 A	600 V; 20 A
 12 ... 15 mm / 0.47 ... 0.59 inch	



To be used only in conjunction with 773-331 Mounting Carrier.  
 » \*275 V at a distance < 10 mm to parts of other potentials

**Accessories**

Mounting carrier; carrier width: 18 mm

light gray	773-331	50
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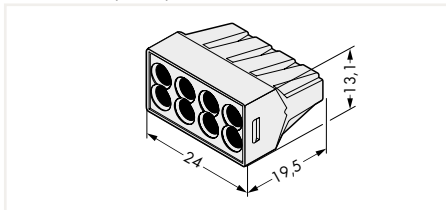
Self-adhesive marking strip; plain; 5 mm high; 48 self-adhesive strips per card

white	210-334	1
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PUSH WIRE® connector for junction boxes; 8-wire connector; suitable for Ex e II applications

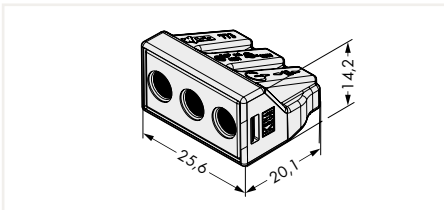
Color	Item No.	Pack. Unit
○ light gray	773-498	1000 (10x100)

Dimensions (in mm):



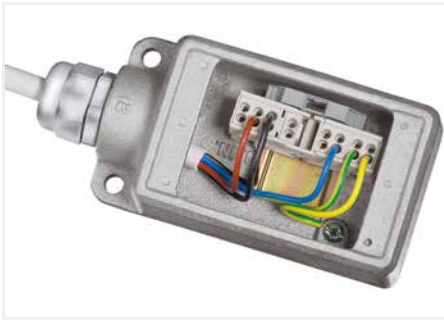
PUSH WIRE® connector for junction boxes; 3-wire connector; suitable for Ex e II applications

Color	Item No.	Pack. Unit
○ light gray	773-493	500 (10x50)



8

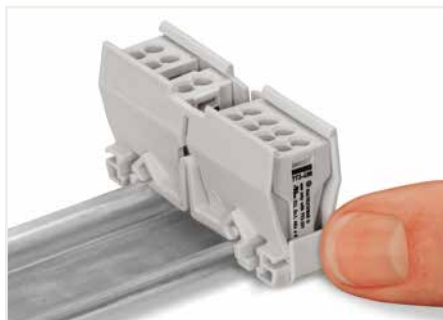
## Ex PUSH WIRE® Connectors for Junction Boxes Installation 773 Series



Wiring example in an Ex junction box



Insert the connectors into the carrier.



Use the cover as an end plate.



Snap the mounting carrier onto the DIN-rail.



Remove the mounting carrier from the DIN-rail.

WAGO's Ex PUSH WIRE® connectors are ideal for distribution and junction boxes, as well as control and operating systems. When used in hazardous areas, they offer the following advantages over traditional connectors:

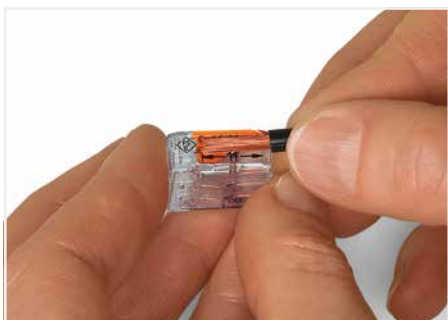
- Time- and cost-saving PUSH WIRE® connection
- Vibration-proof, maintenance-free connections
- 100% touch-proof
- Connectors can be secured in position via mounting carriers
- One single carrier equipped with 2-, 4-, 6- and 8-wire connectors holds up to 16 clamping units according to user requirements, saving materials and related costs
- Available as OEM products for manufacturers and suppliers of enclosures and distribution boxes used in hazardous areas



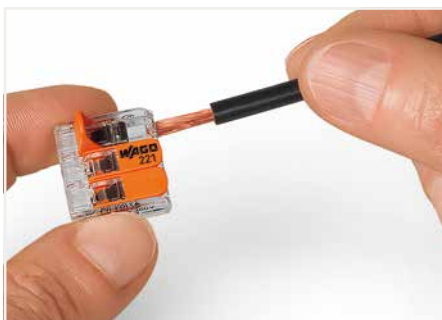
# COMPACT Splicing Connectors for All Conductor Types

## Description and Installation

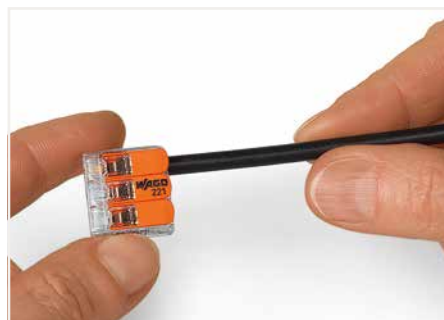
### 221 Series



Strip conductor to 11 mm (0.43 inch).



Termination: Lift the lever to open the clamping unit and insert a stripped conductor.



Then, lower the lever to close the clamp.



Wiring fine-stranded conductors in a junction box.



8



Custom low-voltage lighting systems



Wiring fine-stranded conductors in a junction box.



Lighting distribution in ceiling canopy



Pendant light connection in suspended ceilings

# COMPACT Splicing Connector for All Conductor Types; 4 mm<sup>2</sup> 221 Series

### Technical Data

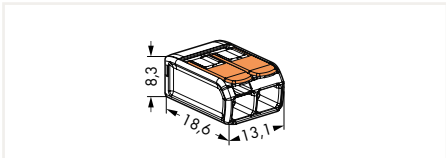
0.2 ... 4 mm <sup>2</sup> "s+st"	24 ... 12 AWG
0.14 ... 4 mm <sup>2</sup> "f-st"	
450 V / 4 kV / 2 ①; I <sub>N</sub> 32 A	
☞ 11 mm / 0.43 inch ②	



COMPACT PUSH WIRE® connector for junction boxes; 2-wire connector; with levers; continuous operating temperature (max.): 105°C; ambient temperature (max.): 85°C

	Item No.	Pack. Unit
	221-412	1000 (10x100)

Dimensions (in mm):



### Technical Data

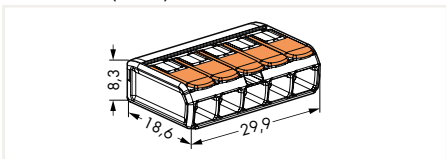
0.2 ... 4 mm <sup>2</sup> "s+st"	24 ... 12 AWG
0.14 ... 4 mm <sup>2</sup> "f-st"	
450 V / 4 kV / 2 ①; I <sub>N</sub> 32 A	
☞ 11 mm / 0.43 inch ②	



COMPACT PUSH WIRE® connector for junction boxes; 5-wire connector; with levers; continuous operating temperature (max.): 105°C; ambient temperature (max.): 85°C

	Item No.	Pack. Unit
	221-415	250 (10x25)

Dimensions (in mm):



### Technical Data

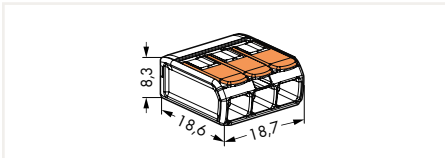
0.2 ... 4 mm <sup>2</sup> "s+st"	24 ... 12 AWG
0.14 ... 4 mm <sup>2</sup> "f-st"	
450 V / 4 kV / 2 ①; I <sub>N</sub> 32 A	
☞ 11 mm / 0.43 inch ②	



COMPACT PUSH WIRE® connector for junction boxes; 3-wire connector; with levers; continuous operating temperature (max.): 105°C; ambient temperature (max.): 85°C

	Item No.	Pack. Unit
	221-413	500 (10x50)

Dimensions (in mm):



Strain relief via cable ties on the mounting carrier (transverse to the connectors' wiring direction) – clamping units labeled via marking strips (210-334)



Vertical mounting with strain relief plate on DIN-35 rail

### COMPACT Splicing Connectors

They connect up to five stripped, fine-stranded conductors from 0.14 to 4 mm<sup>2</sup>, as well as solid or stranded conductors from 0.2 to 4 mm<sup>2</sup> (24–12 AWG) – without tools!

**How these work:**  
Pull up one of the orange operating levers to open the clamping unit. Then insert the conductor and push the lever back down, flush with the connector housing.

**Safety:**  
The specially designed rest position of the lever reliably prevents accidental unclamping of a connected conductor. Application safety, for any type of conductor (solid, stranded, fine-stranded), is confirmed by approvals like ENEC or UL.

ENEC is the European mark for electrical products that demonstrates compliance with European safety standards. The ENEC mark is subjected to the same EN standards as the VDE mark. While the VDE mark is only permitted in Germany, the ENEC mark is accepted in more than 20 European countries.

- ① In grounded power lines  
450 V = rated voltage  
4 kV = rated surge voltage  
2 = pollution degree
- ☞ ② Strip length, see packaging or instructions

### Accessories

Mounting carrier; for 2-, 3- and 5-wire connectors; carrier width: 17.5 mm

orange	221-500	50
--------	---------	----

Angled DIN-rail adapter; in combination with mounting carrier for DIN-35 rail mounting; carrier width: 18.5 mm

gray	222-510	50
------	---------	----

Strain relief plate; for mounting carrier (221-500 and 222-505); 4 mm thick

orange	222-505	50
--------	---------	----

Self-adhesive marking strip; plain; 5 mm high; 48 self-adhesive strips per card

white	210-334	1
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Horizontal mounting on DIN-35 rail using an angled DIN-rail adapter

# COMPACT Splicing Connectors for All Conductor Types

## Description and Installation

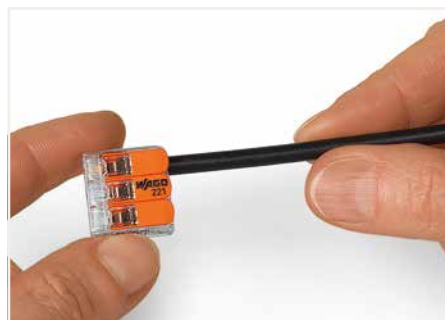
### 221 Series



Strip conductor to 11 mm (0.43 inch).



Termination: Lift the lever to open the clamping unit and insert a stripped conductor.



Then, lower the lever to close the clamp.



Wiring fine-stranded conductors in a junction box.



8



Custom low-voltage lighting systems



Wiring fine-stranded conductors in a junction box.



Lighting distribution in ceiling canopy



Pendant light connection in suspended ceilings



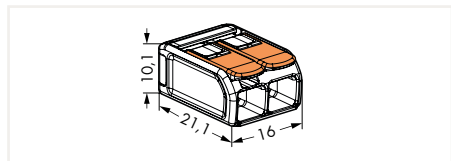
# COMPACT Splicing Connector for All Conductor Types; 6 mm<sup>2</sup> 221 Series

Technical Data	
0.5 ... 6 mm <sup>2</sup>	20 ... 10 AWG
450 V / 4 kV / 2 ①; I <sub>N</sub> 41 A	
12 ... 14 mm / 0.47 ... 0.55 inch ②	



COMPACT PUSH WIRE® connector for junction boxes; 2-wire connector; with levers; continuous operating temperature (max.): 105°C; ambient temperature (max.): 85°C

Item No.	Pack. Unit
221-612	500 (10x50)

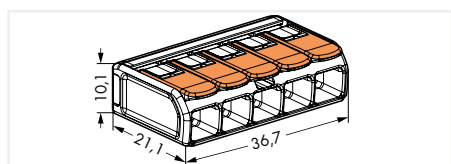


Technical Data	
0.5 ... 6 mm <sup>2</sup>	20 ... 10 AWG
450 V / 4 kV / 2 ①; I <sub>N</sub> 41 A	
12 ... 14 mm / 0.47 ... 0.55 inch ②	



COMPACT PUSH WIRE® connector for junction boxes; 3-wire connector; with levers; continuous operating temperature (max.): 105°C; ambient temperature (max.): 85°C

Item No.	Pack. Unit
221-613	400 (10x40)

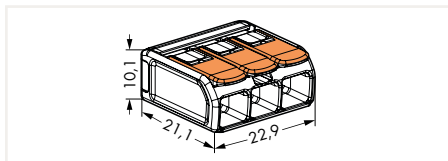


Technical Data	
0.5 ... 6 mm <sup>2</sup>	20 ... 10 AWG
450 V / 4 kV / 2 ①; I <sub>N</sub> 41 A	
12 ... 14 mm / 0.47 ... 0.55 inch ②	



COMPACT PUSH WIRE® connector for junction boxes; 5-wire connector; with levers; continuous operating temperature (max.): 105°C; ambient temperature (max.): 85°C

Item No.	Pack. Unit
221-510	50



Strain relief via cable ties on the mounting carrier (transverse to the connectors' wiring direction) – clamping units labeled via marking strips (210-334)



Vertical mounting with strain relief plate on DIN-35 rail

**COMPACT Splicing Connectors**  
» They connect up to five conductors from 0.5 to 6 mm<sup>2</sup> (20–10 AWG) – without tools!

**How these work:**  
» Pull up one of the orange operating levers to open the clamping unit. Then insert the conductor and push the lever back down, flush with the connector housing.

**Safety:**  
The specially designed rest position of the lever reliably prevents accidental unclamping of a connected conductor. Application safety, for any type of conductor (solid, stranded, fine-stranded), is confirmed by approvals like ENEC or UL.

» ENEC is the European mark for electrical products that demonstrates compliance with European safety standards. The ENEC mark is subjected to the same EN standards as the VDE mark. While the VDE mark is only permitted in Germany, the ENEC mark is accepted in more than 20 European countries.

- ① In grounded power lines  
450 V = rated voltage
- » 4 kV = rated surge voltage  
2 = pollution degree
- » ② Strip length, see packaging or instructions

**Accessories**  
Mounting carrier; for 2-, 3- and 5-wire connectors; carrier width: 19.3 mm

orange	221-510	50
--------	---------	----

Angled DIN-rail adapter; in combination with mounting carrier for DIN-35 rail mounting; carrier width: 18.5 mm

gray	222-510	50
------	---------	----

Strain relief plate; for mounting carrier (221-500 and 222-505); 4 mm thick

orange	222-505	50
--------	---------	----

Self-adhesive marking strip; plain; 5 mm high; 48 self-adhesive strips per card

white	210-334	1
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Horizontal mounting on DIN-35 rail using an angled DIN-rail adapter

# Mounting Carriers for Single Connectors Installation 221 Series



Inserting a connector into the mounting carrier.



Removing a connector from the mounting carrier.



Inserting a conductor.



Use a cable tie to secure the conductors to the strain relief plate.



Labeling



Testing a connector mounted on the carrier via test slot.

8



The strain relief plate can be removed.



Horizontal screw mounting



Vertical screw mounting



Horizontal mounting via snap-in foot



Vertical mounting via snap-in foot



Connecting a light to the mains.

# Mounting Carriers for Single Connectors 221 Series

for 2-wire connectors



For screw mounting; dimensions from the surface (mm)  
W x H x D: 18.1 x 16.9 x 52.8

Color	Item No.	Pack. Unit
○ white	221-502	50 (5x10)
● black	221-502/000-004	50 (5x10)

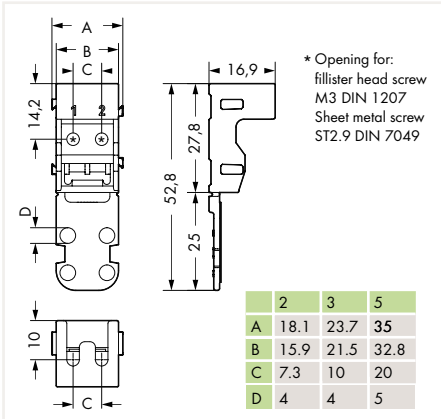
With snap-in mounting foot for horizontal mounting;  
dimensions from the surface (mm) W x H x D:  
18.1 x 16.9 (+4.5 snap-in mounting foot)x 52.8

Color	Item No.	Pack. Unit
○ white	221-512	50 (5x10)
● black	221-512/000-004	50 (5x10)

With snap-in mounting foot for vertical mounting; dimen-  
sions from the surface (mm) W x H x D:  
18.1 x 52.8 (+4.5 snap-in mounting foot)x 16.9

Color	Item No.	Pack. Unit
○ white	221-522	50 (5x10)
● black	221-522/000-004	50 (5x10)

Dimensions (in mm):



for 3-wire connectors



For screw mounting; dimensions from the surface (mm)  
W x H x D: 23.7 x 16.9 x 52.8

Color	Item No.	Pack. Unit
○ white	221-503	50 (5x10)
● black	221-503/000-004	50 (5x10)

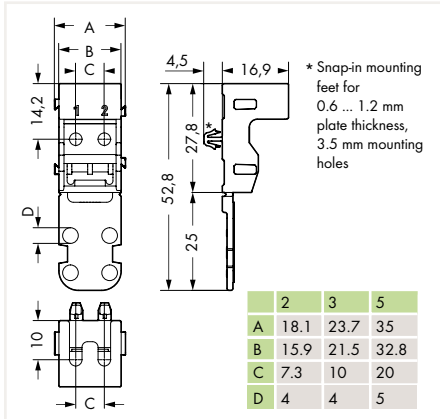
With snap-in mounting foot for horizontal mounting;  
dimensions from the surface (mm) W x H x D:  
23.7 x 16.9 (+4.5 snap-in mounting foot)x 52.8

Color	Item No.	Pack. Unit
○ white	221-513	50 (5x10)
● black	221-513/000-004	50 (5x10)

With snap-in mounting foot for vertical mounting; dimen-  
sions from the surface (mm) W x H x D:  
23.7 x 52.8 (+4.5 snap-in mounting foot)x 16.9

Color	Item No.	Pack. Unit
○ white	221-523	50 (5x10)
● black	221-523/000-004	50 (5x10)

Dimensions (in mm):



for 5-wire connectors



For screw mounting; dimensions from the surface (mm)  
W x H x D: 35 x 16.9 x 52.8

Color	Item No.	Pack. Unit
○ white	221-505	50 (5x10)
● black	221-505/000-004	50 (5x10)

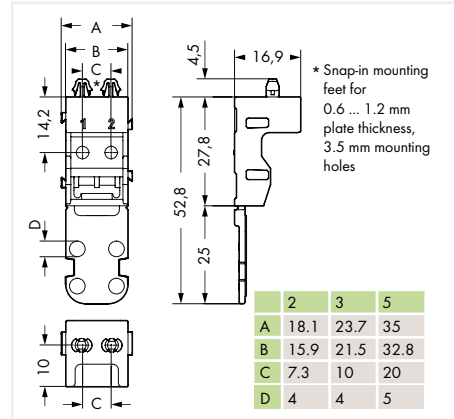
With snap-in mounting foot for horizontal mounting;  
dimensions from the surface (mm) W x H x D:  
35 x 16.9 (+4.5 snap-in mounting foot)x 52.8

Color	Item No.	Pack. Unit
○ white	221-515	50 (5x10)
● black	221-515/000-004	50 (5x10)

With snap-in mounting foot for vertical mounting; dimen-  
sions from the surface (mm) W x H x D:  
35 x 52.8 (+4.5 snap-in mounting foot)x 16.9

Color	Item No.	Pack. Unit
○ white	221-525	50 (5x10)
● black	221-525/000-004	50 (5x10)

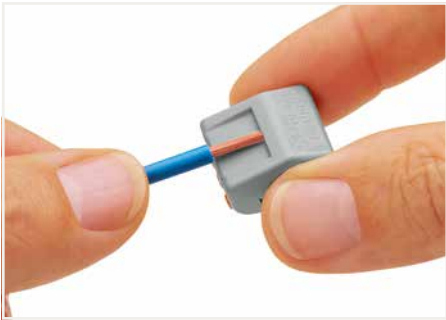
Dimensions (in mm):



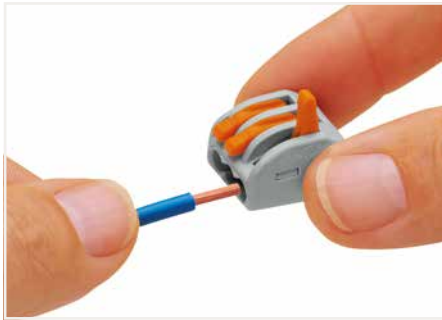
## Splicing Connectors for All Conductor Types

### Description and Installation

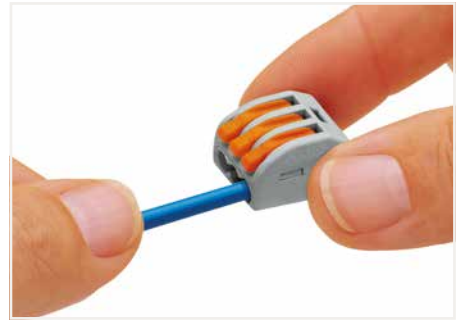
#### 222 Series



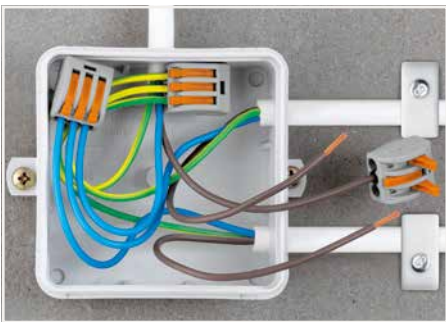
Strip conductor to 9 ... 10 mm (0.35 ... 0.39 inch).



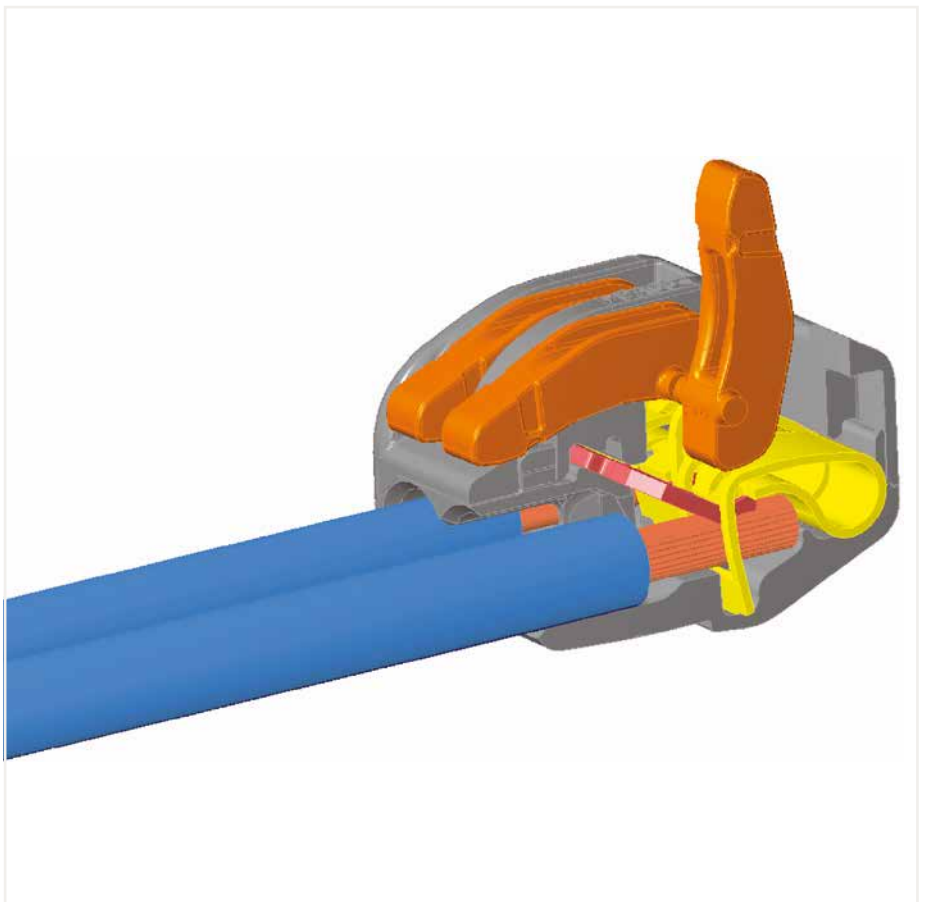
Termination: Lift the lever to open the clamping unit and insert a stripped conductor.



Then, lower the lever to close the clamp.



Wiring fine-stranded conductors in a junction box.



Testing the wired connectors



# Compact Splicing Connector for All Conductor Types 222 Series

### Technical Data

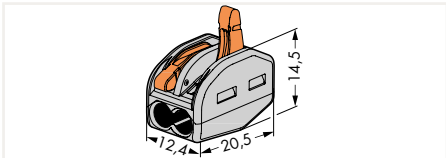
2 x 0.08 ... 2.5 mm <sup>2</sup> "s+st"	28 ... 12 AWG "s+st"
2 x 0.08 ... 4 mm <sup>2</sup> "f-st"	28 ... 12 AWG "f-st"
400 V / 4 kV / 2 Ⓢ; I <sub>N</sub> 32 A	600 V; 20 A; Ⓢ
9 ... 10 mm / 0.35 ... 0.39 inch	



Splicing connector; 2-wire connector; with levers; continuous operating temperature (max.): 85°C; ambient temperature (max.): 40°C

Color	Item No.	Pack. Unit
○ gray	222-412	1000 (10x100)

Dimensions (in mm):



### Technical Data

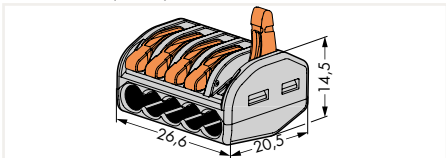
5 x 0.08 ... 2.5 mm <sup>2</sup> "s+st"	28 ... 12 AWG "s+st"
5 x 0.08 ... 4 mm <sup>2</sup> "f-st"	28 ... 12 AWG "f-st"
400 V / 4 kV / 2 Ⓢ; I <sub>N</sub> 32 A	600 V; 20 A; Ⓢ
9 ... 10 mm / 0.37 inch	



Splicing connector; 5-wire connector; with levers; continuous operating temperature (max.): 85°C; ambient temperature (max.): 40°C

Color	Item No.	Pack. Unit
○ gray	222-415	500 (10x50)

Dimensions (in mm):



### Technical Data

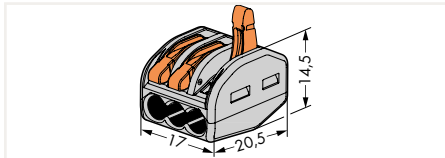
3 x 0.08 ... 2.5 mm <sup>2</sup> "s+st"	28 ... 12 AWG "s+st"
3 x 0.08 ... 4 mm <sup>2</sup> "f-st"	28 ... 12 AWG "f-st"
400 V / 4 kV / 2 Ⓢ; I <sub>N</sub> 32 A	600 V; 20 A; Ⓢ
9 ... 10 mm / 0.35 ... 0.39 inch	



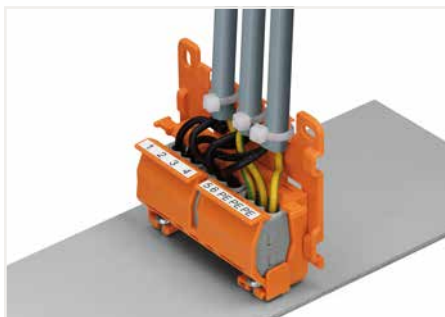
Splicing connector; 3-wire connector; with levers; continuous operating temperature (max.): 85°C; ambient temperature (max.): 40°C

Color	Item No.	Pack. Unit
○ gray	222-413	500 (10x50)

Dimensions (in mm):



Strain relief via cable ties on the mounting carrier (perpendicular to the connectors' wiring direction); molded marking clamping units



Mounting carrier with strain relief plate mounted vertically on a plate; round cable secured via strain relief lug

### CLASSIC Splicing Connectors

They connect up to five stripped, fine-stranded conductors from 0.08 to 4 mm<sup>2</sup> (28–12 AWG), as well as solid or stranded conductors from up to 2.5 mm<sup>2</sup> (12 AWG) – without tools!

#### How these work:

Pull up one of the orange operating levers to open the clamping unit so that the lever engages and keeps the clamp in its opened position. Then insert the conductor and push the lever back down, flush with the connector housing.

#### Safety:

The specially designed rest position of the lever reliably prevents accidental unclamping of a connected conductor.

Application safety, for any type of conductor (solid, stranded, fine-stranded), is confirmed by approvals like ENEC or UL.

ENEC is the European mark for electrical products that demonstrates compliance with European safety standards. The ENEC mark is subjected to the same EN standards as the VDE mark.

While the VDE mark is only permitted in Germany, the ENEC mark is accepted in more than 20 European countries.

- Ⓢ In grounded power lines  
400 V = rated voltage
- » 4 kV = rated surge voltage  
2 = pollution degree

### Accessories

Mounting carrier; for 2-, 3- and 5-wire connectors; carrier width: 22 mm

orange	222-500	50
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Strain relief plate; for mounting carrier (221-500 and 222-505); 4 mm thick

orange	222-505	50
--------	---------	----

Angled DIN-rail adapter; in combination with mounting carrier for DIN-35 rail mounting; carrier width: 18.5 mm

gray	222-510	50
------	---------	----

Self-adhesive marking strip; plain; 5 mm high; 48 self-adhesive strips per card

white	210-334	1
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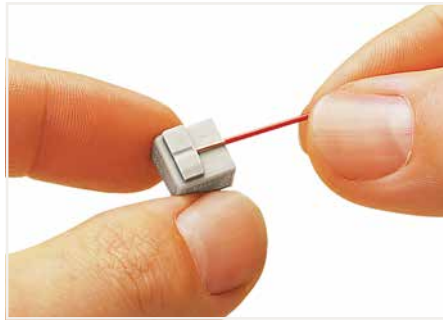
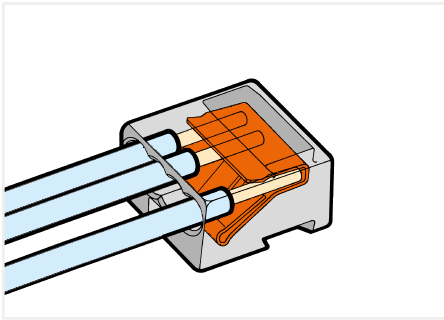


Horizontal mounting with strain relief plate on DIN-35 rail using an angled DIN-rail adapter

# MICRO PUSH WIRE® Connectors for Junction Boxes and Solid Conductors

## Description and Installation

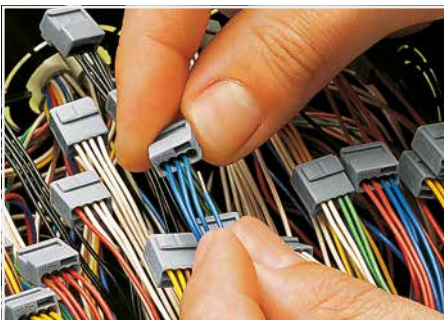
### 243 Series



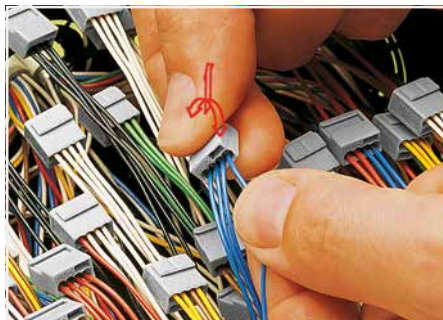
Strip solid conductors to 5 ... 6 mm (0.19 ... 0.23 inch).



Connector strips:  
Assembling modular connectors into connector strips.



Termination: Insert stripped conductor until it hits back-stop.



Removal: Hold conductor to be removed and twist alternately left and right while pulling the connector.

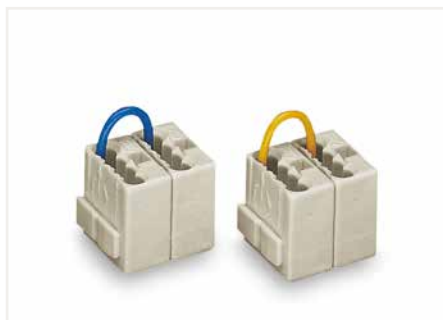


Power supply

8



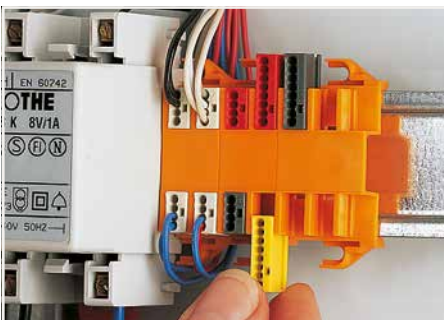
Testing



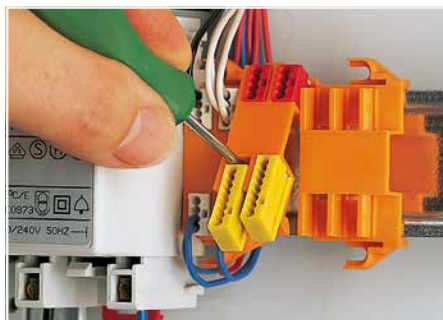
Commoned connector strips



Switch interface



Inserting a MICRO junction box connector into the mounting carrier.



Removing a mounting carrier from the assembly.

# MICRO PUSH WIRE® Connector for Junction Boxes 243 Series

### Technical Data

Ø 0.6 ... 0.8 mm "s"	22 ... 20 AWG "s"
100 V / 1.5 kV / 2; I <sub>N</sub> 6 A	150 V; 7 A;

5 ... 6 mm / 0.2 ... 24 inch



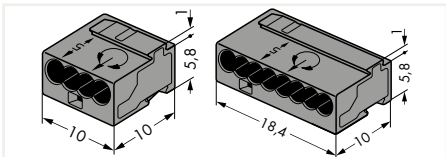
4-wire connector; continuous operating temperature (max.): 150°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
dark gray	243-204	1000 (10x100)
red	243-804	1000 (10x100)
light gray	243-304	1000 (10x100)
yellow	243-504	1000 (10x100)

8-wire connector; continuous operating temperature (max.): 150°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
dark gray	243-208	500 (10x50)
red	243-808	500 (10x50)
light gray	243-308	500 (10x50)
yellow	243-508	500 (10x50)

Dimensions (in mm):



### Technical Data

Ø 0.4 ... 0.5 mm "s"	26 ... 24 AWG "s"
100 V / 1.5 kV / 2; I <sub>N</sub> 6 A	

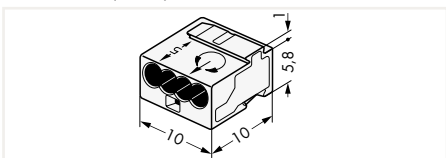
5 ... 6 mm / 0.2 ... 24 inch



4-wire connector; continuous operating temperature (max.): 150°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
transparent	243-144	1000 (10x100)

Dimensions (in mm):



### Technical Data

4 x Ø 0.6 ... 0.8 mm² "s"	
100 V ≈ / I <sub>N</sub> 6 A	

5 ... 6 mm / 0.2 ... 24 inch



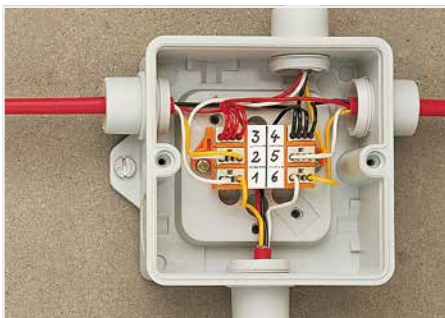
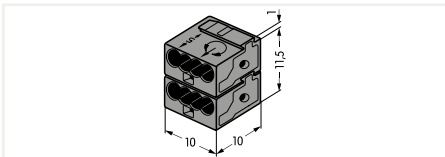
Connector strip; continuous operating temperature (max.): 150°C; ambient temperature (max.): 60°C

Color	Item No.	Pack. Unit
dark gray	243-211	50 (5x10)
assembled with red connector		

Additional version equipped with the same dovetail joints

Color	Item No.	Pack. Unit
light gray	243-212	50 (5x10)
assembled with yellow connector		

Dimensions (in mm):



Typical application in a terminal box for burglar alarm - screw mount



DIN-35 rail-mount application (residential door bell)

WAGO's 243 Series MICRO PUSH WIRE® Connectors for junction boxes can be used in both communication and alarm systems according to the VdS (German Association of Property Insurers) guidelines.

No general approval is given to PUSH WIRE® connectors by the VdS association. The connectors must be tested together with the different parts of the system.

" The requirements for connectors are specified in the VdS guidelines for junction boxes (VdS 2116) in section 9.8: "The junction box connectors must be designed to guarantee a reliable and stable connection."

The verification of the fulfillment of these requirements is documented in the VDE test report No. 2574-1440-4031 for the insulated 243 Series PUSH WIRE® Connectors for junction boxes.

- ① In grounded power lines
- 100 V = rated voltage
- 1.5 kV = rated surge voltage
- 2 = pollution degree

### Accessories

Mounting carrier; for 4- and 8-wire connectors (243 Series)

	orange, 4 connectors	243-112	50
	orange, 4 connectors	243-113	

Marking strip; 3 strips per card

	243-110	1
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Felt-tip pen

	210-110	1
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Example of a residential intercom application





# WAGO Lighting Management

## WAGO Lighting Management

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Component Overview	Page
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PFC200 Controller	750 Series	229
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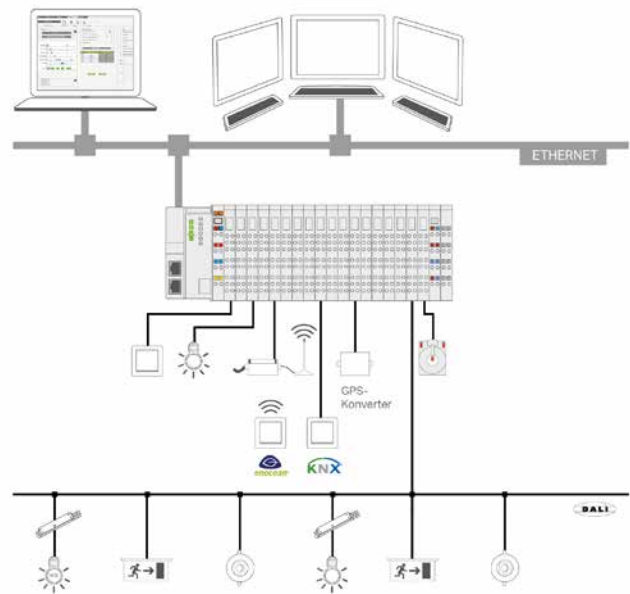
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## WAGO Lighting Management



WAGO Lighting Management is a proven concept based on predefined hardware and preconfigured software, which greatly simplifies planning, commissioning and operation. The basic idea: WAGO Lighting Management is based on different lighting requirements in warehouses and production facilities.

For example, a production facility is divided into virtual rooms in which the light can be flexibly adapted. Each virtual room receives signals from sensors and actuators in order to automatically set the appropriate light intensity. By using the virtual rooms, conversions and room remodeling can be implemented quickly and simply via Web configuration.



### WAGO Lighting Management

	Components	Item No.	Note
Base unit	Lighting Management – Controller	750-8202/000-012	The controllers can communicate with each other.
	Lighting Management – Software	Free of charge	Download: <a href="http://wago.com/applicationcontroller">wago.com/applicationcontroller</a>
	DALI Multi-Master Module	753-647	In addition to 64 DALI actuators (ECGs), a DALI-Multi Master supports up to 16 DALI-Multi sensors (max. 64 sensor addresses); max. 10 DALI modules per base package.
	End Module	750-600	An end module must be snapped onto the assembly at the end of a fieldbus node.
	Power Supply to I/O Node	787-1012	24 VDC supply voltage for controllers and additional modules
Extension for inputs/push-buttons	Power Supply to DALI Multi-Master	787-1007	Power supply to max. 5 DALI Multi-Masters
	16-Channel Digital Input; 24 VDC; 3 ms	750-1405	For 1–16 light push-buttons/switch inputs; max. 4 extensions per base package
Extension for outputs/actuators	16-Channel Digital Output; 24 VDC; 0.5 A	750-1504	For 1–16 actuators/lamps/relays/ECG control; max. 2 extensions per base package
	Relay socket with relay and status indicator; 1 make contact; 24 VDC	788-357	Light switching via relay
Extension for EnOcean radio	RS-232/-485 Serial Interface	750-652	Serial interface connects to STC65-RS485 EVC EnOcean Radio Transmitter/Receiver (for 1–64 rocker switches)
	EnOcean Receiver/Transmitter	2852-7101	EnOcean radio signal recording and transmission to the I/O node
	EnOcean Repeater	2852-7102	Extends the transmission range (for more planning information, visit the EnOcean website).
	EnOcean easyfit PTM 250 Radio Transmitter; 2-channel lighting control	758-940/001-000	1–2 or 1–4 signals; range of 30 meters in buildings to the radio receiver
	EnOcean easyfit PTM 250 Radio Transmitter; 4-channel lighting control	758-940/003-000	1–2 or 1–4 signals; range of 30 meters in buildings to the radio receiver
Extension for external time request	Real-Time Clock Module	750-640	Time synchronization module, if no time server connection is possible
	GPS DCF Converter	2852-7901	Converter/external receiver for time synchronization
Extension for energy data measurement	3-Phase Power Measurement; 690 VAC	750-495/xxx-xxx	
	Current and voltage connections	2007-8874, 2007-8877	Pre-assembled terminal block assemblies for easy connection and short-circuiting of current transformers (current transformers, see Full Line Catalog Volume 4)
Extension for KNX buttons	KNX/EIB/TP1 Interface	753-646	Connects KNX buttons to the I/O node.
	DALI Multi-Sensor Kit	2851-8201	Brightness measurement and motion sensor: Kit connects to a DALI bus system
Extension for sensors	DALI Sensor Coupler	2851-8202	Sensor coupler for connecting MULTI-3-CI sensors to DALI Max. 16 DALI sensor couplers per DALI Multi Master (753-647)
	DALI HIGHBAY ADAPTER + HIGH BAY	2852-7207, 2852-7201	Brightness measurement and motion sensor for large installation heights (3 ... 13 m)
	DALI HIGHBAY ADAPTER + VISION	2852-7207, 2852-7202	Motion sensor for large areas, open offices, hallways or warehouses
	DALI LS/PD LI	2852-7203	Motion sensor for office lighting (1 ... 5 meters)
	DALI Sensor Coupler HF LS LI + Radar Sensor HF LS LI	2852-7205	Light and recessed ceiling sensor: combined daylight and motion detection, motion detection via radar
	4p4c Connecting Cable, 50 cm,	2852-7206	
		2852-7208	
	DALI XC	2852-7301	Push-button coupler connects 4 conventional push-buttons to DALI.
DALI Sensor Coupler E	2852-7204	Sensor coupler connects standard sensors to DALI.	

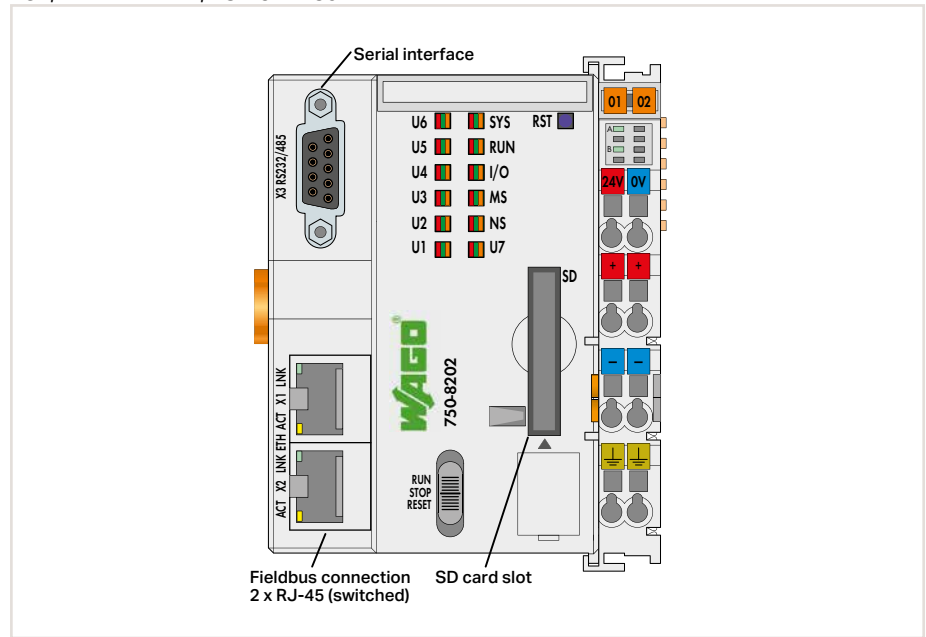


# PFC200 Controller 750 Series

FG2; 2 x ETHERNET; RS-232/-485



Figure: 750-8202



Item Description	PFC200
Version	FG2 2ETH RS
Item No.	750-8202/000-012

Technical Data	
Fieldbus	Modbus TCP
Protocols	DHCP, DNS, NTP, FTP, FTPS, SNMP, HTTP, HTTPS, SSH, MODBUS (TCP, UDP, RTU)
Communication	RS-232/-485 serial interface (switchable)
Visualization	Web-Visu, Webservice
Programming	WAGO-I/O-PRO V2.3 (based on CODESYS V2.3), e!COCKPIT (based on CODESYS V3)
CPU	Cortex A8, 600 MHz
Operating system	Real-time Linux (with RT-Preempt patch)
Main memory (RAM)/internal memory (flash)/non-volatile memory (hardware)	256 MB / 256 MB / 128 KB
Program memory/data memory/non-volatile memory (software)	CODESYS 2: 16 MB / 64 MB / 128 kB e!RUNTIME: 60 MB* / 60 MB* / 128 kB
Number of I/O modules per node (max.)	250
Input and output process image (internal) max.	1000 words
Input and output process image (MODBUS) max.	CODESYS 2: 1000 words e!RUNTIME: 32000 words
Supply voltage (system)	24 VDC (-25 ... +30 %)
Total current (system supply)	1700 mA
Ambient temperature (operation)	0 ... +55 °C
Dimensions W x H x D	78.6 x 71.9 x 100 mm
Approvals	CE, UL 508, ANSI/ISA, ATEX/IECEx
Data sheet and further information, see:	wago.com/750-8202/000-012

Accessories	
Description	Item No.
SD Memory Card, 2 GB	758-879/000-001
WAGO Communication Cable	750-923

\*Program and data memory (dynamically distributed)

e!COCKPIT Software, WAGO-I/O-PRO V2.3  
See Full Line Catalog, Volume 3










Mini-WSB Quick Marking System,  
See Full Line Catalog, Volume 6





## **Accessories and Tools**

## Accessories and Tools

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	Operating Tools	206 Series 209 Series 210 Series 233 Series 236 Series 2059 Series 2060 Series 2061 Series	232
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# Operating Tool 210 Series



Operating tool; type 1; (2.5 x 0.4) mm blade; with partially insulated shaft

Item No.	Pack. Unit
210-719	1

Operating tool set (210-719, 210-720, 210-721)

Item No.	Pack. Unit
210-722	1

Operating tool; type 1; short; (2.5 x 0.4) mm straight blade; with a partially insulated shaft

Item No.	Pack. Unit
210-647	1

Operating tool; type 2; (3.5 x 0.5) mm blade; with partially insulated shaft

Item No.	Pack. Unit
210-720	1

Operating tool; type 2; short; (3.5 x 0.5) mm straight blade; with a partially insulated shaft

Item No.	Pack. Unit
210-657	1

Operating tool; type 3; (5.5 x 0.8) mm blade; with partially insulated shaft

Item No.	Pack. Unit
210-721	1

Operating tool; type 1; short; (2.5 x 0.4) mm angled blade; with a partially insulated shaft

Item No.	Pack. Unit
210-648	1

Operating tool; type 2; short; (3.5 x 0.5) mm angled blade; with a partially insulated shaft

Item No.	Pack. Unit
210-658	1

## 10



The blade dimensions of the above-listed operating tools are ideal for operating both PCB terminal blocks and MCS connectors.



The above-listed operating tools with blade dimensions per DIN 5624 are ideal for operating PCB terminal blocks.

# Operating Tool

## 233, 236, 206 Series



Operating tool; for factory wiring of PCB terminal strips; metal, partially insulated

Color	Item No.	Pack. Unit
● green	233-335	1



Operating tool; for factory wiring of PCB terminal strips; insulated

Item No.	Pack. Unit
236-332	1



Operating tool; suitable for IDC termination of 251 Series

Item No.	Pack. Unit
206-831	1

Operating tool; for factory wiring of PCB terminal strips; insulated

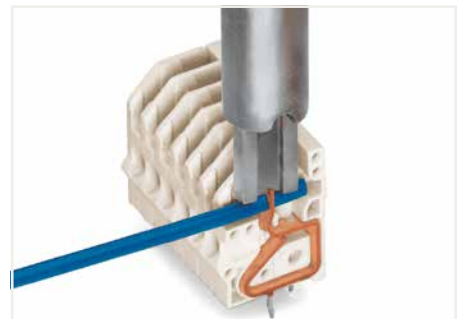
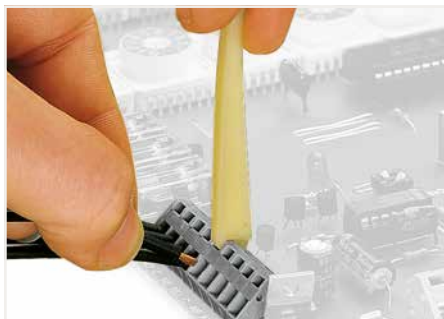
Color	Item No.	Pack. Unit
natural	233-332	25

Operating tool; for factory wiring of PCB terminal strips; metal

Item No.	Pack. Unit
236-335	1

Operating tool; for factory wiring of PCB terminal strips; insulated

Color	Item No.	Pack. Unit
● yellow	233-331	25



Compared to standard screwdrivers, these operating tools are far more convenient for wiring PCB terminal strips at factory.

## Operating Tool

### 209, 280, 206 Series



Operating tool; insulated; 5/5.08 mm pin spacing; operation parallel to conductor entry; for male and female connectors with CAGE CLAMP® connection

	Item No.	Pack. Unit
1-way	209-130	1
2-way	280-432	
3-way	280-433	
4-way	280-434	
5-way	280-435	
6-way	280-436	
7-way	280-437	
8-way	280-438	
9-way	280-439	
10-way	280-440	



Operating tool; insulated; 5/5.08 mm pin spacing; operation perpendicular to conductor entry; for male and female connectors with CAGE CLAMP® connection

	Item No.	Pack. Unit
2-way	209-132	1



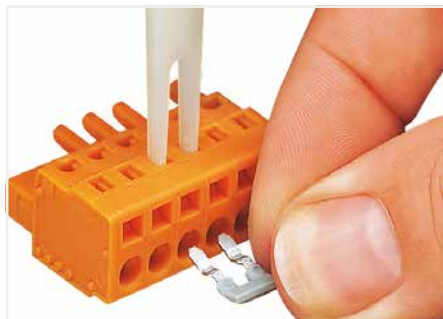
Operating tool; for 2080 Series terminal strips

	Item No.	Pack. Unit
	206-880	1

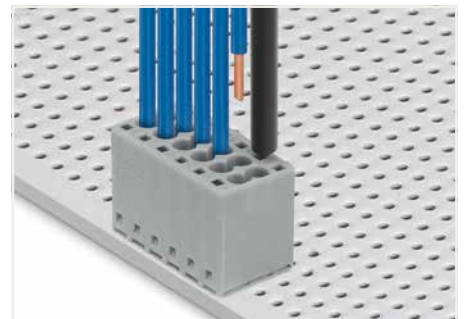
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Inserting a male connector with long contact pins into a front-entry rail-mount terminal block via 6-pole operating tool.



Commoning a female connector with comb-style jumper bar (231-902) via 2-pole operating tool.



Removing conductor (2080 Series) via push-button and 1 mm Ø operating tool.

## Operating Tool

206, 2059, 2060, 2061; 2065; 2070 Series



Operating tool; for 2059 Series PCB Terminal Blocks		
Item No.	Pack. Unit	
206-859	5	

Operating tool; for 2059 Series PCB Terminal Blocks; insulated		
Item No.	Pack. Unit	
2059-189	600	

Operating tool; for 2065 Series PCB Terminal Blocks; insulated		
Item No.	Pack. Unit	
2065-189	600	

Operating tool; for 2060 Series PCB Terminal Blocks		
Item No.	Pack. Unit	
206-860	5	

Operating tool; for 2060 Series PCB Terminal Blocks; insulated		
Item No.	Pack. Unit	
2060-189	300	

Operating tool; for 2061 Series PCB Terminal Blocks		
Item No.	Pack. Unit	
206-861	5	

Operating tool; for 2061 Series PCB Terminal Blocks; insulated		
Item No.	Pack. Unit	
2061-189	300	



Operating tool; for 2070 Series PCB Terminal Blocks; insulated		
Item No.	Pack. Unit	
2070-400	1	



Inserting/removing fine-stranded conductors by lightly pressing on a push-button.



# WINSTA® Operating Tool

## 890, 770 Series



Operating tool; 2-pole; for WINSTA® MINI Connectors		
Color	Item No.	Pack. Unit
● green	890-382	1



Operating tool; 3-pole; for WINSTA® MINI Connectors		
Color	Item No.	Pack. Unit
● green	890-383	1



Operating tool; 4-pole; for WINSTA® MINI Connectors		
Color	Item No.	Pack. Unit
● green	890-384	1



Operating tool; 5-pole; for WINSTA® MINI Connectors		
Color	Item No.	Pack. Unit
● green	890-385	1



Operating tool; 2-pole; for WINSTA® MIDI Connectors		
Color	Item No.	Pack. Unit
● green	770-382	1



Operating tool; 3-pole; for WINSTA® MIDI Connectors		
Color	Item No.	Pack. Unit
● green	770-383	1

# Disconnection Tool 206 Series



Disconnection tool; with two replacement blades in the handle; removes conductors from 251 Series PUSH WIRE® connections

Item No.	Pack. Unit
206-830	1



Disconnection tool; removes conductors from 744 Series PUSH WIRE® connections

Item No.	Pack. Unit
206-841	1



Disconnection tool; removes conductors from 294 Series PUSH WIRE® connections

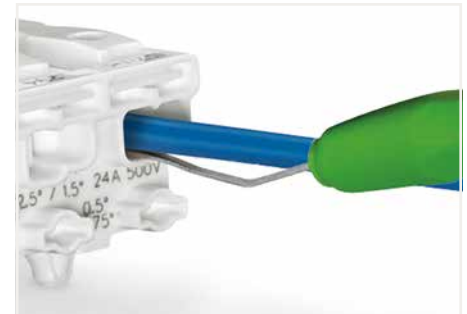
Item No.	Pack. Unit
206-294	1



Conductor removal – PUSH WIRE®: Fully insert disconnection tool over the conductor and pull it out.



Remove the conductor by inserting a disconnection tool into the operating slot and pull it out.



Conductor removal: Slide disconnection tool beneath the conductor and pull conductor out.



Disconnection tool includes two replacement blades in the handle.

# Cable Stripper 206 Series



Cable stripper; for round cables with 2.5 ... 11 mm outer diameter

Item No.	Pack. Unit
206-171	1



Cable stripper; for round cables with 4.5 ... 45 mm outer diameter

Item No.	Pack. Unit
206-174	1

**206-171 Cable Stripper:**

- 10-position adjustment wheel ensures consistent stripping results
- Precision via 10-position blade cutting depth adjustment
- Strips the sheath from multi-core and fiber optic cables up to 11 mm/0.43 inch diameter
- Safe and easy to use through closed stripping cavity

**206-174 Cable Stripper:**

- Safe and easy to use: Three locking positions for circular, longitudinal and spiral cuts
- High cable stripping capacity of up to 45 mm diameter
- Ergonomic design features rests for thumb, index and pinky fingers to ease raising of the cable retention hook
- Replacement blades can be stored within the tool's handle

Accessories; item-specific



Replacement blade; for 2.5 ... 11 mm Ø

Item No.	Pack. Unit
206-170	1

Accessories; item-specific



Replacement blade; for 4.5 ... 45 mm Ø

Item No.	Pack. Unit
206-173	1

10



Set the cable diameter.



Precision via 10-position blade cutting depth adjustment



Strip the cable.



Safe and easy to use through closed stripping cavity

# Stripping Tool 206 Series



"Quickstrip 10" wire stripper; 0.02 ... 10 mm<sup>2</sup> "f-st" (6 mm<sup>2</sup> "s"); wire cutter up to 10 mm<sup>2</sup> "f-st" (1.5 mm<sup>2</sup> "s")

Item No.	Pack. Unit
206-124	1

"Quickstrip 16" wire stripper; 4 ... 16 mm<sup>2</sup>; wire cutter up to 10 mm<sup>2</sup> "f-st" (1.5 mm<sup>2</sup> "s")

Item No.	Pack. Unit
206-125	1

Accessories; item-specific



"Standard" blade cassette; 0.02 ... 10 mm<sup>2</sup>

Item No.	Pack. Unit
206-126	1

Accessories; item-specific



"Standard" blade cassette; 4 ... 16 mm<sup>2</sup>

Item No.	Pack. Unit
206-128	1



V-blade cassette; 0.1 ... 4 mm<sup>2</sup> for PTFE

Item No.	Pack. Unit
206-127	1



Cutting a conductor.



Cutting a conductor.



Stripping a conductor.



Stripping a conductor.

# Cable Cutter and Crimping Tool 206 Series



Cable cutter; for copper and aluminum cables up to 35 mm<sup>2</sup> (2 AWG)

Item No.	Pack. Unit
206-118	1



"Variocrimp 4" crimping tool; for insulated and uninsulated ferrules; crimping range: 0.25 ... 4 mm<sup>2</sup>

Item No.	Pack. Unit
206-204	1



"Variocrimp 16" crimping tool; for insulated and uninsulated ferrules; crimping range: 6 ... 16 mm<sup>2</sup>

Item No.	Pack. Unit
206-216	1

**Application notes:**

- The built-in crimping pressure control of "Variocrimp 4" automatically adjusts the crimping force to the conductor cross-section.
- Select the wire gauge on "Variocrimp 16" before crimping.
- Only one crimping station is needed to handle the specified conductor range.
- Uniform, compact crimping on all four sides for high conductor retention
- No need to center the conductor into the ferrule
- Crimping can be performed from either side (for left- or right-handed users).
- Built-in ratchet mechanism ensures gas-tight crimp connection.
- Crimping tools open automatically after crimping operation is complete.
- Ergonomically designed handles.

**What is a "gas-tight" connection?**

In a gas-tight connection, the conductor and the ferrule are compressed, eliminating all spaces. Under normal atmospheric conditions, neither a liquid nor gaseous medium can penetrate the crimped connection.

Oxidation between crimped single conductors is prevented, virtually eliminating the possibility of any increase in the crimped connection's resistance. In some exceptional cases, minute, isolated spaces may be present. However, these instances can be considered as closed off due to the twisted conductor.

Inadequate crimping can allow the conductor to be pulled out of the connection. Hollow spaces also remain, permitting oxidation formation and leading to an increase in contact resistance.

Elevated resistance is detrimental for both signal transmission (signal flow is damped) and power transmission, resulting in power loss and contact heating (risk of fire).

Crimping tools with built-in ratchets are recommended, such as the WAGO Variocrimp tools.

These tools open automatically after the crimping operation is complete. Space-saving crimping from all four sides is ideal for spring clamp termination. Ferruled conductor sizes specified for WAGO products are based on this crimping method.

10



Cut the cable.



Insert the ferruled conductor into the crimping station.



Squeeze handles until ratchet mechanism is released.



A perfect gas-tight crimp – both electrically and mechanically reliable

# Ferrule 206 Series

Sleeve for mm <sup>2</sup>	AWG	Color Code	Strip Length mm	L	L1	D	D1	D2	Item No.	Pack. Unit
Ferrule; insulated; extra long for TOBJOB® S Terminal Blocks										
0.5	22	○	12	16	10	3.1	2.6	1	216-241	1000
0.75	20	○	12	16	10	3.3	2.8	1.2	216-242	1000
0.75	20	○	14	18	12	3.3	2.8	1.2	216-262	1000
1	18	○	12	16	10	3.5	3	1.4	216-243	1000
1	18	●	14	18	12	3.5	3	1.4	216-263	1000
1.5	16	○	12	16	10	4	3.5	1.7	216-244	1000
1.5	16	●	14	18	12	4	3.5	1.7	216-264	1000
1.5	16	○	20	24	18	4	3.5	1.7	216-284	1000
2.5	14	●	12	17	10	4.7	4.2	2.2	216-246	1000
2.5	14	○	14	19	12	4.7	4.2	2.2	216-266	1000
2.5	14	●	20	25	18	4.7	4.2	2.2	216-286	1000
4	12	○	14	20	12	5.4	4.8	2.8	216-267	500
4	12	○	20	26	18	5.4	4.8	2.8	216-287	500
6	10	○	14	20	12	6.9	6.3	3.5	216-208	500
6	10	●	20	26	18	6.9	6.3	3.5	216-288	500
10	8	○	20	28	18	8.4	7.6	4.5	216-289	500
16	6	●	23	28	18	9.6	8.8	5.8	216-210	500

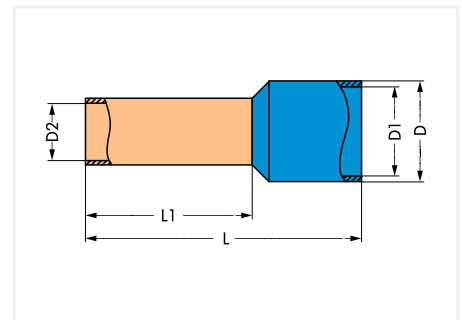
Ferrule; insulated; in standard length										
0.25	24	○	7.5	10.5	6	2.5	2	0.8	216-321	1000
0.25	24	●	9.5	12.5	8	2.5	2	0.8	216-301	1000
0.35	24	○	7.5	10.5	6	2.5	2	0.8	216-322	1000
0.34	24	●	9.5	12.5	8	2.5	2	0.8	216-302	1000
0.5	22	○	7.5	11.5	6	3	2.5	1.1	216-221	1000
0.5	22	○	9.5	13.5	8	3	2.5	1.1	216-201	1000
0.75	20	○	8	12	6	3.3	2.8	1.3	216-222	1000
0.75	20	○	10	14	8	3.3	2.8	1.3	216-202	1000
1	18	○	8	12	6	3.6	3	1.5	216-223	1000
1	18	●	10	14	8	3.6	3	1.5	216-203	1000
1.5	16	○	8	12	6	4	3.4	1.8	216-224	1000
1.5	16	●	10	14	8	4	3.4	1.8	216-204	1000
2.08	14	○	10	14.5	8	4.2	3.6	2.05	216-205	1000
2.5	14	●	10	15	8	4.8	4.2	2.3	216-206	1000
4	12	○	12	16.8	9.5	5.4	4.8	2.9	216-207	1000
6	10	●	14	20	12	6.8	6.2	3.5	216-208	100
10	8	○	16	21	12	8.1	7.5	4.6	216-209	100
16	6	●	23	28	18	9.6	8.8	5.8	216-210	100

Twin ferrule; insulated; extra long for TOBJOB® S Terminal Blocks										
2 x 0.5	2 x 20	○	10	16.4	10	3.5x2.0	2.9x1.4	1.4	216-530	500
2 x 1.0	2 x 18	●	12	19.2	12	5.8x3.2	5.2x2.6	2	216-542	500
2 x 1.5	2 x 16	○	12	20	12	6.5x3.6	5.9x3.0	2.2	216-543	500
2 x 2.5	2 x 14	●	12	21	12	8.0x4.5	7.2x3.7	2.8	216-545	500
2 x 4.0	2 x 12	○	12	22	12	9.0x5.2	8.0x4.2	3.5	216-546	500
2 x 6.0	2 x 10	●	12	23	12	11.4x6.2	10.4x5.2	4.5	216-547	500

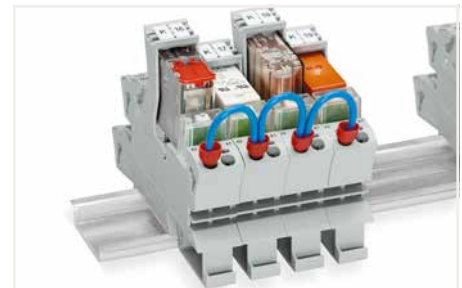
Ferrule; uninsulated; in standard length										
0.25	24	○	5	5		1.7		0.75	216-151	1000
0.25	24	○	7	7		1.7		0.75	216-131	1000
0.34	24	○	5	5		1.7		0.85	216-152	1000
0.34	24	○	7	7		1.7		0.85	216-132	1000
0.5	22	○	6	6		2.1		1	216-121	1000
0.5	22	○	8	8		2.1		1	216-101	1000
0.75	20	○	6	6		2.3		1.2	216-122	1000
0.75	20	○	8	8		2.3		1.2	216-102	1000
1	18	○	6	6		2.5		1.4	216-123	1000
1	18	○	8	8		2.5		1.4	216-103	1000
1.5	16	○	6	6		2.8		1.7	216-124	1000
1.5	16	○	8	8		2.8		1.7	216-104	1000
2.5	14	○	10	10		3.4		2.2	216-106	1000
4	12	○	10	10		4		2.8	216-107	1000
6	10	○	12	12		4.7		3.5	216-108	250
10	8	○	12	12		5.8		4.5	216-109	250
16	6	○	12	15		7.5		5.8	216-110	250



Insulated ferrules



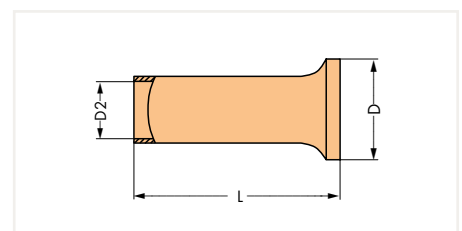
Insulated ferrule  
For letters with the corresponding dimensions, see table opposite.



Wire bridge with twin ferrules



Uninsulated ferrules



Uninsulated ferrule



## Test and Measurement Device

### 206 Series



Multi-Tester; digital multimeter with non-contact voltage tester; with bag; measures up to 600 V AC/DC and 10 A AC/DC; resistance measurement up to 20 M $\Omega$

Item No.	Pack. Unit
206-810	1



Amp-Tester; digital clamp meter; true RMS measurement; with bag; measurement range: 0.01 ... 200 A AC/DC, up to 400 Hz (sinus); protection class: IP44

Item No.	Pack. Unit
206-815	1



Clamp-Multi-Tester; digital clamp meter; measures DC and AC current up to 600 A; true RMS and min./max. value measurement; DC and AC voltage up to 600 V; manual or automatic measurement range selection

Item No.	Pack. Unit
206-816	1

#### Accessories; item-specific



Replacement test leads; red/black

Item No.	Pack. Unit
206-811	1

#### Accessories; item-specific



Replacement test leads; red/black

Item No.	Pack. Unit
206-811	1



Additional Multi-Tester features:

- Contact-less voltage test AC > 100 V (optical and acoustical)
- Resistance measurement up to 20 M $\Omega$
- Acoustical continuity test
- Diode test
- Data hold function
- Auto power-off function
- LED torch lamp function
- CAT IV 600 V
- TÜV/GS tested and approved
- IEC/EN 61010-1 (DIN VDE 0411)



Additional Amp-Tester features:

- AC and DC current measurement
- True RMS measurement
- Data hold function
- Maximum jaw opening: 21 mm  $\emptyset$
- Compact design for measuring in tight spaces
- Resolution: 0.01 A at 40 A
- Resolution: 0.1 A at 200 A
- Sampling rate: 3 times per second
- Auto power-off function
- CAT III 300 V
- TÜV/GS tested and approved
- IEC/EN 61010-1 (DIN VDE 0411)



Additional Clamp-Multi-Tester features:

- Resistance up to 60 M $\Omega$
- Capacitance measurement
- Acoustical continuity testing
- Diode test
- Data hold function
- Large LCD with backlight
- LED measuring point lighting
- CAT III 600 V overvoltage protection
- IEC/EN 61010-1 (DIN VDE 0411)
- Includes batteries, measurement leads and carrying bag

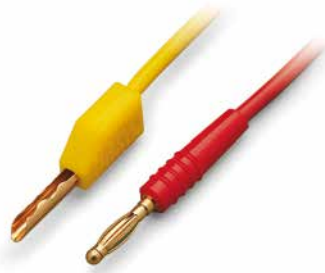
## Test and Measurement Device; Test Plug; Test Pin

### 206, 210, 735 Series



Testboy; non-contact voltage tester; with integrated flashlight; voltage range: 12 ... 1000 VAC

Item No.	Pack. Unit
206-804	1



Test plug; 500 mm cable length

Color	Ø	Item No.	Pack. Unit
red	2 mm	210-136	50
yellow	2.3 mm	210-137	50



Test pin; with solder connection; for test cable

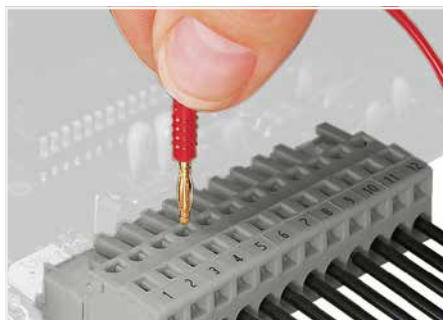
Ø	Item No.	Pack. Unit
1 mm	735-500	1



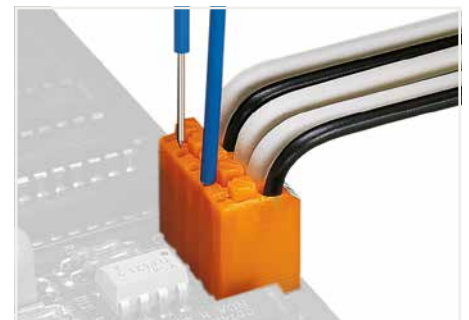
A device that will reliably detect AC voltage in cables, sockets, fuses, switches, outlets and other installations.

Testboy can detect the following:

- Live conductors
- Cable breaks
- Blown fuses (in cartridges or holders)
- Defective switches
- Defective lamps in strings of lights



Testing with a 2 mm Ø test plug.



Testing with a 1 mm Ø test pin – touch contact.

## "Alu-Plus" Contact Paste 249 Series



"Alu-Plus" syringe; contains 20 ml "Alu-Plus" contact paste; for reliable connection of solid aluminum conductors\* up to 4 mm<sup>2</sup> in WAGO spring clamp terminal blocks

Item No.	Pack. Unit
249-130	20 (4 x 5)

### "Alu-Plus" Contact Paste

- Prevents fresh oxidation at the clamping point.
- » • Prevents electrolytic corrosion between aluminum and copper conductors.
- Provides long-term protection against corrosion.

\* Aluminum conductors per IEC 61545 standard,  
» Class B, "Alloy 1370" with 90–180 N/mm<sup>2</sup> tensile strength and 1–4 % elongation.

Use "Alu-Plus" contact paste when terminating solid  
» aluminum conductors in WAGO spring clamp terminal blocks.

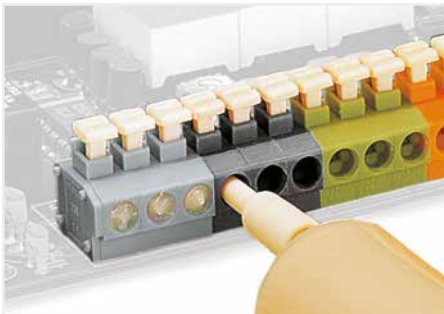
"Alu-Plus" contact paste also allows WAGO spring  
» clamp terminal blocks to properly terminate solid aluminum conductors up to 4 mm<sup>2</sup>/12 AWG.

Using terminal blocks with CAGE CLAMP® Spring Pressure Connection Technology, aluminum conductors must first be cleaned and then immediately be inserted into the clamping units filled with "Alu-Plus" contact paste.

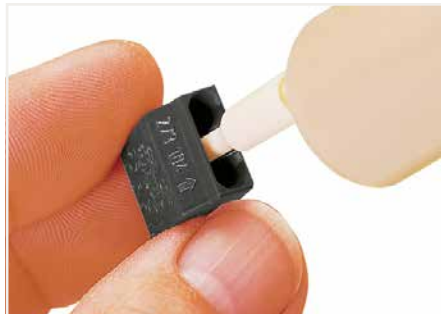
It is also possible to apply WAGO "Alu-Plus" additionally  
» on the whole surface of the aluminum conductor before termination.

Please note that the nominal currents must be adapted to the reduced conductivity of the aluminum conductors:

2.5 mm<sup>2</sup> (14 AWG) = 16 A  
4 mm<sup>2</sup> (12 AWG) = 22 A



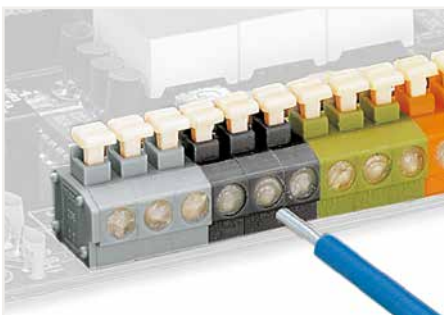
Push nozzle of the "Alu-Plus" syringe into every open conductor entry hole (one after the other).



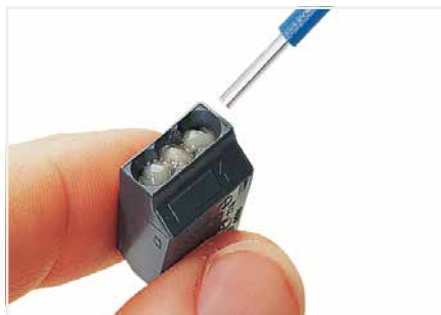
WAGO Junction Box Connectors  
Push nozzle of the "Alu-Plus" syringe into the center conductor entry hole of the WAGO junction box connector.



WAGO Lighting Connectors  
Push nozzle of the "Alu-Plus" syringe first into the circular and then into the square conductor entry hole of the WAGO lighting connector.



Press plunger down until "Alu-Plus" has filled all conductor entry holes.



Press plunger down until "Alu-Plus" is visible in the other holes.



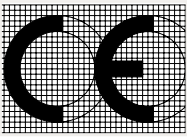

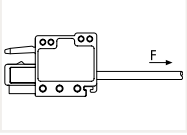




Press plunger down until the "Alu-Plus" has filled both entry holes.





## Technical Section

## Technical Section

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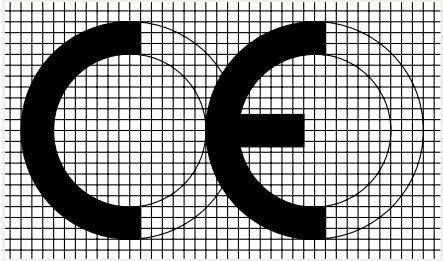


11

## CE Marking and EC Directives

### CE Conformity Marking:

The CE conformity marking consists of the characters "CE" with the following script:



Communauté Européenne  
(European Community)

**EC directives** are legally binding specifications for the European Union. Their goal is aligning legal and administrative specifications in the various EU member countries, in order to prevent trading hindrances arising from different national specifications.

In order to launch a product on the market, it must comply with the relevant directives. Several directives may apply for one single product, for example, EMC and low voltage directives.

The following EC directives apply to WAGO products:

#### 2014/35/EU – Low Voltage Directive (LVD)

The LVD covers all electrical equipment operating with a voltage between 50 and 1000 VAC and between 75 and 1500 VDC.

This directive applies to products, such as rail-mount terminal blocks, splicing connectors, modular terminal blocks, terminal strips, etc., which comply with the specifications of the coordinated European standards and their specific parts (e.g., EN 60947 for rail-mount terminal blocks and EN 60998 for splicing connectors). The CE conformity marking must be applied to all electrical equipment; should on-unit marking not be possible, mark the smallest packing unit. With this marking, manufacturers attest conformity of their products to relevant directives.

In addition to the CE marking, manufacturers provide an EC "Declaration of Conformity" for their products. This declaration of con-

formity must be retained and submitted to a national surveillance authority upon request.

#### 2014/30/EU – EMC Directive

This directive applies to any devices, equipment and systems containing electric or electronic components. The German Federal Office for Post and Telecommunications (Bundesamt für Post und Telekommunikation, BAPT) is authorized to draw a distinction between elementary and complex components. Elementary components, such as resistors, transformers, ICs, relays, etc., are not provided with marking. For complex components, such as electro-motors, electronic cards, thermostats, etc., the EMC directives apply only if these components are sold directly to the end user.

All products subject to the application scope of the EMC directive must display the CE marking on their housing. This marking proves conformity with the corresponding standards.

#### 2006/42/EC – Machinery Directive

This directive applies to complete machines or equipment.

The manufacturers of machines or equipment are, however, obliged to use components which meet the corresponding EC directives (e.g., Low Voltage or EMC Directives).

Fulfillment and conformity with these directives is required for the free exchange of goods within Europe.

#### 2014/34/EU – ATEX Directive

Explosion-proof devices – General Technical Information on Electrical Equipment Used in Hazardous Areas

## IEC/EN Specifications

The following standards apply to the design and application of the terminal blocks and connectors contained in this catalog:

IEC 60364-1 HD 60364-1 VDE 0100-100 / Low-voltage electrical installations - Part 1: Fundamental principles, assessment of general characteristics, definitions	IEC 60079-7 EN 60079-7 VDE 0170-6 / Explosive atmospheres – - Part 7: Equipment protection by increased safety "e"	EN 61439-3 VDE 0660-600-3 /- Low-voltage switchgear and controlgear assemblies - Part 3: Distribution boards intended to be operated by ordinary persons (DBO)
IEC 61140 EN 61140 VDE 0140-1 / Protection against electric shock - Common aspects for installation and equipment	IEC 60079-11 EN 60079-11 VDE 0170-7 / Explosive atmospheres – - Part 11: Equipment protection by intrinsic safety "i"	IEC 61643-11 EN 61643-11 VDE 0675-6-11 / Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods
IEC 60364-7-710 HD 60364-7-710 VDE 0100-710 - Part 7-710: Requirements for special installations or locations - Medically used areas	IEC 60079-14 EN 60079-14 VDE 0165-1 / Explosive atmospheres – - Part 14: Electrical installations design, selection and erection	IEC 60335-1 EN 60335-1 VDE 0700-1 / Safety of household and similar electrical appliances - Part 1: General requirements
IEC 60364-7-718 HD 60364-7-718 VDE 0100-718 - Part 7-718: Requirements for special installations or locations - Communal facilities and workplaces	IEC 60079-15 EN 60079-15 VDE 0170-16 / Explosive atmospheres – - Part 15: Equipment protection by type of protection "n"	IEC 60598-1 EN 60598-1 VDE 0711-1 / Lighting fixtures - Part 1: General requirements and tests
EN 50110-1 VDE 0105-1 / Operation of electrical installations - Part 1: General requirements	IEC 60038 EN 60038 VDE 0175-1 / IEC CENELEC standard voltages	IEC 60715 EN 60715 / Standardized mounting on rails for mechanical support of electrical devices in switchgear and controlgear installations
IEC 60664-1 EN 60664-1 VDE 0110-1 / Insulation coordination for equipment with in low-voltage systems - Part 1: Principles, requirements and tests	VDE 0298-4 / Application of cables and flexible cords in power installations - Part 4: Recommended values for current carrying capacities of cables for fixed installation and for flexible cables	IEC 60999-1 EN 60999-1 VDE 0609-1 / Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units - Part 1: General requirements and particular requirements for clamping units for conductors from 0.2 mm <sup>2</sup> up to 35 mm <sup>2</sup> (included)
IEC 60204-1 EN 60204-1 VDE 0113-1 / Electrical equipment for machinery - Part 1: General requirements	IEC 60112 EN 60112 VDE 0303-11 / Method for determining the comparative and the proof tracking indices of solid insulating materials	IEC 60999-2 EN 60999-2 VDE 0609-101 - Part 2: General requirements and particular requirements for clamping units for conductors from 35 mm <sup>2</sup> up to 300 mm <sup>2</sup> (included)
IEC 60079-0 EN 60079-0 VDE 0170-1 / Explosive atmospheres Part 0: Equipment - General requirements	IEC 60529 EN 60529 VDE 0470-1 / Degrees of protection provided by enclosures (IP code) - Testing equipment and testing method	
	IEC 61439-1 EN 61439-1 VDE 0660-600-1 / Low-voltage switchgear and control-gear assemblies - Part 1: General rules IEC 61439-3	

IEC 60998-1 EN 60998-1 E VDE 0613-1 / Connecting devices for low-voltage circuits for household and similar purposes - Part 1: General requirements	IEC 61984 EN 61984 VDE 0627 / Connectors - Safety requirements and tests	IEC 60352-7 EN 60352-7 - Part 7: Spring clamp connections - General requirements, test methods and practical guidance
IEC 60998-2-1 EN 60998-2-1 VDE 0613-2-1 - Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units	IEC 60512-1 EN 60512-1 / Connectors for electronic equipment – Tests and measurements - Part 1: General	
IEC 60998-2-2 EN 60998-2-2 VDE 0613-2-2 - Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units	IEC 60320-1 EN 60320-1 VDE 0625-1 / Appliance couplers for household and similar general purposes - Part 1: General requirements	
IEC 60998-2-3 EN 60998-2-3 VDE 0613-2-3, - Part 2-3: Particular requirements for connecting devices as separate entities with insulation-piercing clamping units	IEC 60352-1 EN 60352-1 / Solderless connections; - Part 1: Wrapped connections - General requirements, test methods and practical guidance	
IEC 60947-1 EN 60947-1 VDE 0660-100 / Low-voltage switchgear and controlgear - Part 1: General rules	IEC 60352-2 EN 60352-2 / Solderless connections; - Part 2: Crimped connections - General requirements, test methods and practical guidance	
IEC 60947-7-1 EN 60947-7-1 VDE 0611-1 - Part 7-1: Ancillary equipment Terminal blocks for copper conductors	IEC 60352-3 EN 60352-3 - Part 3: Solderless accessible insulation displacement connections - General requirements, test methods and practical guidance	
IEC 60947-7-2 EN 60947-7-2 VDE 0611-3 - Part 7-2: Ancillary equipment Protective conductor terminal blocks for copper conductors	IEC 60352-4 EN 60352-4 - Part 4: Solderless non-accessible insulation displacement connections - General requirements, test methods and practical guidance	
IEC 60947-7-3 EN 60947-7-3 VDE 0611-6 - Part 7-3: Ancillary equipment Safety requirements for fuse terminal blocks	IEC 60352-5 EN 60352-5 - Part 5: Press-in connections - General requirements, test methods and practical guidance	
IEC 60947-7-4 EN 60947-7-4 VDE 0611-4 - Part 7-4: Ancillary equipment – PCB terminal blocks for copper conductors	IEC 60352-6 EN 60352-6 Part 6: Insulation piercing connections - General requirements, test methods and practical guidance	

## Tests and Testing Procedures per IEC/EN Standards (continued)

Products such as connecting devices, rail-mount terminal blocks and connectors, etc., have their own product-specific test specifications. The following sections describe the most important tests and are limited to a description of the test procedures and an explanation of the test purpose. The data shown (e.g., voltages, temperatures, forces) only serve as illustration and may differ depending on the test.

### Mechanical Tests

All WAGO products meet requirements for the following mechanical tests:

#### • Termination Requirements

##### Conductor Termination

Two WAGO connection systems are proven in the field of Spring Pressure Connection Technology:

The PUSH WIRE® connection for applications requiring solid conductors ranging from 0.2 ... 4 mm<sup>2</sup> / 0.28 ... 4 AWG (e.g., for lighting and building wiring, telecommunications, house communication or alarm systems).

The universal CAGE CLAMP® spring pressure connection for solid, stranded and fine-stranded conductors ranging from 0.08 to 35 mm<sup>2</sup> (28 ... 2 AWG) and designed for a variety of industrial, electrical and electronic applications (e.g., fine-stranded conductors in the elevator industry, in power stations, in the chemical and automotive

industry, and aboard ships).

The **Push-in CAGE CLAMP® connection** takes universal CAGE CLAMP® connections further by allowing the termination of 0.2 to 16 mm<sup>2</sup> (24 ... 6 AWG) solid, stranded and fine-stranded conductors (25 mm<sup>2</sup>/4 AWG only "f-st") and offering all the benefits and safety of the original CAGE CLAMP®. Furthermore, the Push-in CAGE CLAMP® connection technology allows solid and stranded conductors from 0.5 to 16 mm<sup>2</sup> (20 ... 6 AWG), as well as 0.5 to 16 mm<sup>2</sup> (20 ... 6 AWG) ferruled stranded conductors to be terminated by simply pushing them in. Fine-stranded conductors of small or very small size are highly flexible, and deform when pushed against the conductor stop in terminal blocks. As a result, the conductor

insulation – not the copper conductor – may be clamped, causing intermittent contact or no contact at all.

In order to prevent conductor insulation from being inserted into the clamp, insulation stops are available, even providing protection for 0.08 mm<sup>2</sup> (28 AWG) conductors.

### Rated Cross-Sections and Connectable Conductors

I. Per IEC 60999-1 / EN 60999-1 / VDE 0609, Part 1, Table 1:

Rated Cross-Section	Theoretical Largest Conductor Diameter							Connectable Conductor	
	Metric			AWG				Rigid	Flexible
	Rigid		Flexible	Rigid		Flexible			
	Solid	Stranded			b) Solid	b) Class B Stranded	c) Class I, K, M Stranded		
mm <sup>2</sup>	mm	mm	mm	Conductor Size	mm	mm	mm		
0.2	0.51	0.53	0.61	24	0.54	0.61	0.64	To be defined in the corresponding product standard	
0.34	0.63	0.66	0.8	22	0.68	0.71	0.8		
0.5	0.9	1.1	1.1	20	0.85	0.97	1.02		
0.75	1.0	1.2	1.3	18	1.07	1.23	1.28		
1.0	1.2	1.4	1.5	–	–	–	–		
1.5	1.5	1.7	1.8	16	1.35	1.55	1.6		
2.5	1.9	2.2	2.3 <sup>a)</sup>	14	1.71	1.95	2.08		
4.0	2.4	2.7	2.9 <sup>a)</sup>	12	2.15	2.45	2.7		
6.0	2.9	3.3	3.9 <sup>a)</sup>	10	2.72	3.09	3.36		
10.0	3.7	4.2	5.1	8	3.34	3.89	4.32		
16.0	4.6	5.3	6.3	6	4.32	4.91	5.73		
25.0	–	6.6	7.8	4	5.45	6.18	7.26		
35.0	–	7.9	9.2	2	6.87	7.78	9.02		

NOTE: The diameters of the largest rigid and flexible conductors are based on Table 1 of IEC 60228 A/IEC 60344 and on ASTM B172-71 [4], IECA Publication S-19-81 [5], IECA Publication S-66-524 [6], as well as IECA Publication S-66-516 [7] for AWG conductors.

a) Dimensions for Class 5 flexible conductors only (IEC 60228 A)

b) Nominal diameter + 5%

c) Largest diameter for conductors of classes I, K, M + 5%

**In practical use, the conductor cross-sections are approximately 5% below the values stated in the table!**

The IEC 60999-1/EN 60999-1/VDE 0609 Specification (Part 1, Section 7.1) requires that:

**Clamping units must be able to connect unprepared conductors.**

Under normal operating conditions, direct clamping (i.e., directly connecting a conductor to the terminal block's current bar) provides optimal contact quality, because all risk factors arising from anti-splaying methods are prevented. Occasionally, conductor anti-splaying protection may be required, including various methods (see illustrations below).

Special requirements apply only in special application areas exposed to extremely corrosive atmospheres.

In this case, we recommend using either solid copper conductors or fine-stranded copper conductors with properly crimped, tin-coated copper ferrules or copper pin terminals.

As with solid copper conductors, the fine strands are crimped to a dense inner core. This prevents ingress of aggressive atmospheres (depending on the ppm concentration), which can diffuse into the conductor bundle along the individual strands and

cause corrosion deposits between individual strands and the clamping point.

**One Conductor per Clamping Unit**

A number of VDE specifications specify that **only one conductor must be connected per clamping unit** (e.g., DIN VDE 0611, Part 4, 02.91, Section 3.1.9). The same applies to the recommendations of the German Automotive Industry Association (VDA) "Supply specification for the electrical equipment of machines, mechanical installations and buildings in the automotive industry" according to Section 15.1.1.3; Draft 8.93.

Other VDE and EN specifications also recommend the connection of **only one conductor per clamping unit**, unless the clamping unit is specifically tested and approved for the connection of several conductors, for example:

- VDE 0609-1, 12.00/
- EN 60999-1:2000, Section 7.1
- VDE 0660, Part 600, 06.12
- EN 61439-1:2011, Section 8.6.3
- VDE 0113-1, 06.07/
- EN 60204-1:2006, Section 13.1.1

One conductor per clamping unit is therefore recommended to meet the safety requirements of these relevant specifications. This WAGO principle is the basis for a number of other technical and economic advantages:


- Each conductor may be terminated or removed without affecting previously connected conductors.
- Where re-wiring is required, only the conductor to be changed is removed from the clamping point, all other conductors remain safely clamped.
- Each conductor is clamped independently.
- Any conductor size combination can be connected.

II. Per IEC 60999-2 / EN 60999-2 / VDE 0609, Part 101, Table 1:


Rated Cross-Section	Theoretical Largest Conductor Diameter					Connectable Conductor	
	Metric		AWG/Kcmil				
	Rigid	Fine-Stranded <sup>a)</sup>	Gauge	Rigid	Fine-Stranded	Rigid	Flexible
Stranded		Stranded					
mm <sup>2</sup>	mm	mm		mm	mm		
50	9,1	11	0	9.64	12.08	To be defined in the corresponding product standard	
70	11	13.1	00	11.17	13.54		
95	12.9	15.1	000	12.54	15.33		
-	-	-	0000	14.08	17.22		
120	14.5	17	250	15.34	19.01		
150	16.2	19	300	16.8	20.48		
185	18.0	21	350	18.16	22.05		
-	-	-	400	19.42	24.05		
240	20.6	24	500	21.68	26.57		
300	23.1	27	600	23.82	30.03		

a) Dimensions for Class 5 flexible conductors only (IEC 60228A)


NOTE: The diameters of the largest rigid and flexible conductors are based on Table 1 and Table 3 of IEC 60228 and on ASTM B172-71 [1], IECA Publication S-19-81 [2], IECA Publication S-66-524 [3], as well as IECA Publication S-66-516 [7] for AWG conductors.




Tip-bonded conductor



Tin-plated copper ferrule (gas-tight crimped)



Ultronically bonded conductor



Crimped pin terminal (gas-tight), preferably made of copper with a tin-plated surface

Anti-splaying methods require a terminal block one size larger than the nominal cross-section of the conductor to be terminated.

**Ferruled conductor cross-sections specified for individual products are based on WAGO's Variocrimp square crimping technology.**

Gas-tight, crimped twin ferrules may be used, provided the ferrule is inserted all the way into the clamping unit and that there is a sufficient clearance and creepage distance between adjacent potentials.

WAGO provides 2-conductor terminal blocks and connectors to increase the number of clamping units.



## Tests and Testing Procedures per IEC/EN Standards (continued)

### Mechanical Tests (continued)

- Pull-Out Test per IEC/EN 60947-7-1, IEC/EN 60998-2-2, IEC/EN 60999-1

The pull-out test simulates the mechanical stress on the clamping unit when, for example, the installer pushes the conductor aside to better access/operate the adjacent clamping unit, or verifies if the conductor is connected properly by briefly pulling on it.

During the test, a pulling force is applied without jerking, for one minute, to the connected conductor. The pulling force is selected according to the cross-sectional area. The larger the cross-section of the conductor, the higher the pull-out force that is selected. For example, the pulling force is 40 N for a conductor having a cross-section of 1.5 mm<sup>2</sup> (16 AWG) and 100 N for a conductor with a cross-section of 16 mm<sup>2</sup> (6 AWG). The values specified by these standards are the same for both screw clamp and spring clamp terminal blocks. During the test, the conductor must neither slip out of the clamping unit, nor break near the clamping unit.

#### Conductor Pull-Out Forces

The clamping units of screwless terminal blocks must withstand the pull-out forces as follows:

IEC 60947-1/EN 60947-1/VDE 0660-100, Table 5:

Low-voltage switchgear and controlgear – General rules

IEC 60947-7-1/EN 60947-7-1/

VDE 0611-1, rail-mount terminal blocks for copper conductors

IEC 60998-2-1/EN 60998-2-1/

VDE 0613-2-1, Table 104

IEC 60998-2-2/ EN 60998-2-2/VDE

0613-2-2, Table 103:

Connecting devices for low-voltage circuits for household and similar purposes

Particular requirements for connecting devices as separate entities with screw clamp or screwless terminal blocks

IEC 60999-1/EN 60999-1/VDE 0609-1,

Table 3:

IEC 60999-2/EN 60999-2, /VDE 0609-101,

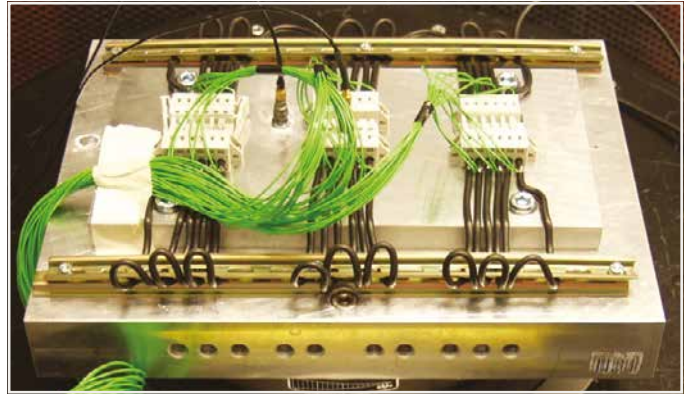
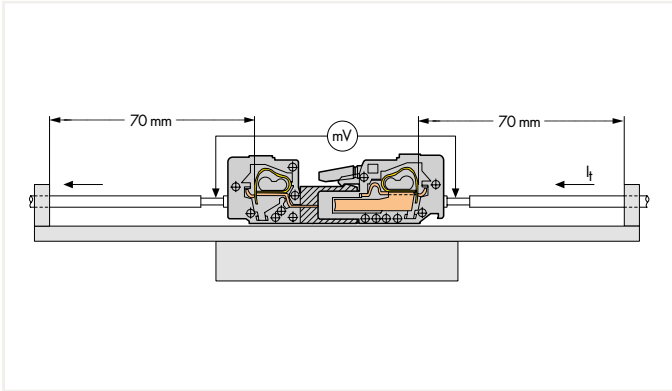
Table 2:

Safety requirements for screw-clamp and screwless clamping units for electrical copper conductors

Rated Cross-Section		Pull-Out Forces per IEC/EN		
mm <sup>2</sup>	AWG/kcmil	60947-7-1 N	60998-2-2 N	60999-1/-2 N
0.2	24	10	10	10
0.34	22	15	15	15
0.5	20	20	20	20
0.75	18	30	30	30
1.0	–	35	35	35
1.5	16	40	40	40
2.5	14	50	50	50
4.0	12	60	60	60
6.0	10	80	80	80
10	8	90	90	90
16	6	100	100	100
25	4	135	135	135
–	3	156		
35	2	190	190	190
–	1	236		
50	0	236		236
70	00	285		285
95	000	351		351
–	0000	427		427
120	250	427		427
150	300	427		427
185	350	503		503
–	400	503		503
240	500	578		578
300	600	578		578

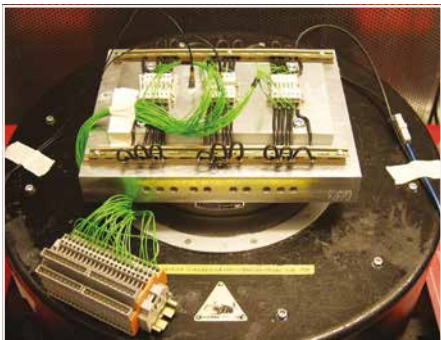
- Shock/Vibration Test per IEC/EN 60068-2-6; DNV GL, LR (Marine Applications); IEC/EN 61373 (Railway Applications)

The vibration test determines whether vibrations, such as those produced in the vicinity of machines or in vehicles, will permanently affect the electrical connection, or if contact breaks will occur during vibrations. Using a vibration table, the test specimen is subjected to vibration in each of the X, Y and Z axes (see pictures). The amplitude, acceleration and in particular the frequency of the vibration must vary during the test.

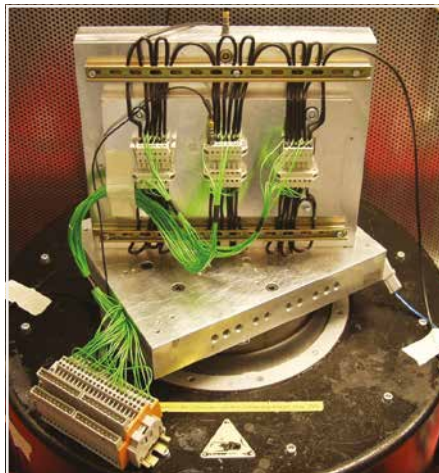


The "open length" of the conductor up to the point where the conductor is attached in the application must be kept as short as possible (length = 70 mm in this example).

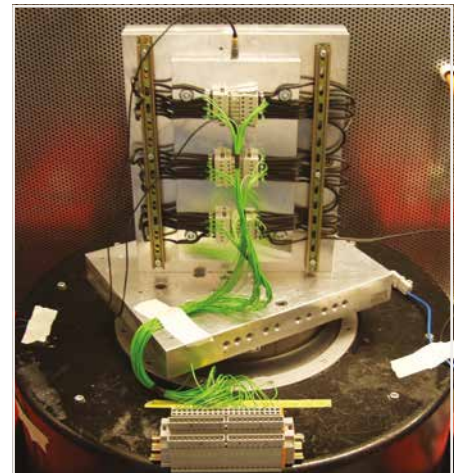
1st Axis



2nd Axis



3rd Axis



The exact test procedure may vary considerably, depending on how the product will be used.

Application Examples per IEC/EN 60068-2-6	Associated Test Levels
Devices attached to heavy, rotating machines	1 ... 35 Hz, 50 m/s <sup>2</sup> (5 g) or 100 m/s <sup>2</sup> (10 g)
Devices designed for use in large-scale power plants and general industrial applications	10 ... 55 Hz, 20 m/s <sup>2</sup> (2 g) or 50 m/s <sup>2</sup> (5 g)
Devices designed for use in large-scale power plants and general industrial applications if it has been determined that detectable vibration components greater than 55 Hz exist	10 ... 150 Hz, 20 m/s <sup>2</sup> (2 g) or 50 m/s <sup>2</sup> (5 g)

Some test specifications require the determination of possible resonant frequencies, i.e., determining if resonance occurs within the frequency spectrum to be passed through. Analyzing the specimen behavior under the influence of resonant frequencies is performed using a special testing procedure.

## Tests and Testing Procedures per IEC/EN Standards (continued)

### Mechanical Tests (continued)

Beyond these standard procedures, each market segment performs additional testing. Examples include railway authorities testing rolling electrical equipment, or the testing performed multiple marine agencies (e.g., DNV GL Group, Lloyd's Register of Shipping). Though the requirements of such testing procedures are particularly demanding, test arrangements are identical for all of them. During vibrations, possible contact breaks are monitored on an oscilloscope. Voltage drop is measured before and after the test to detect permanent failures, i.e., checking if electrical resistance at the clamping unit has not increased beyond the permissible limit. The smaller this value is, the smaller the contact resistance of the clamping unit.

The test is passed if:

- the conductor has neither slipped out of the terminal block nor been damaged,
- the maximum permissible voltage drop has not been exceeded
- and neither contact breaks have occurred nor a defined break time has been exceeded.

The test specimen must not be damaged in any way that might affect future use.

Since their inception, both CAGE CLAMP® and Push-in CAGE CLAMP® connections have been routinely tested for their resistance to shock/vibration in connection with approval tests.

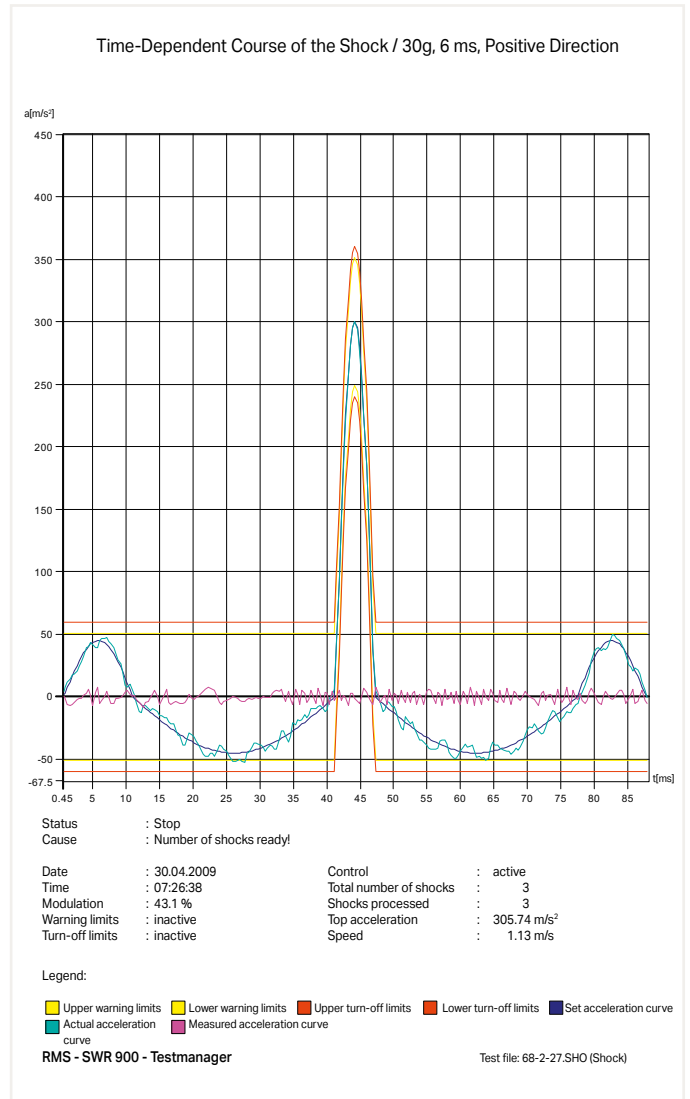
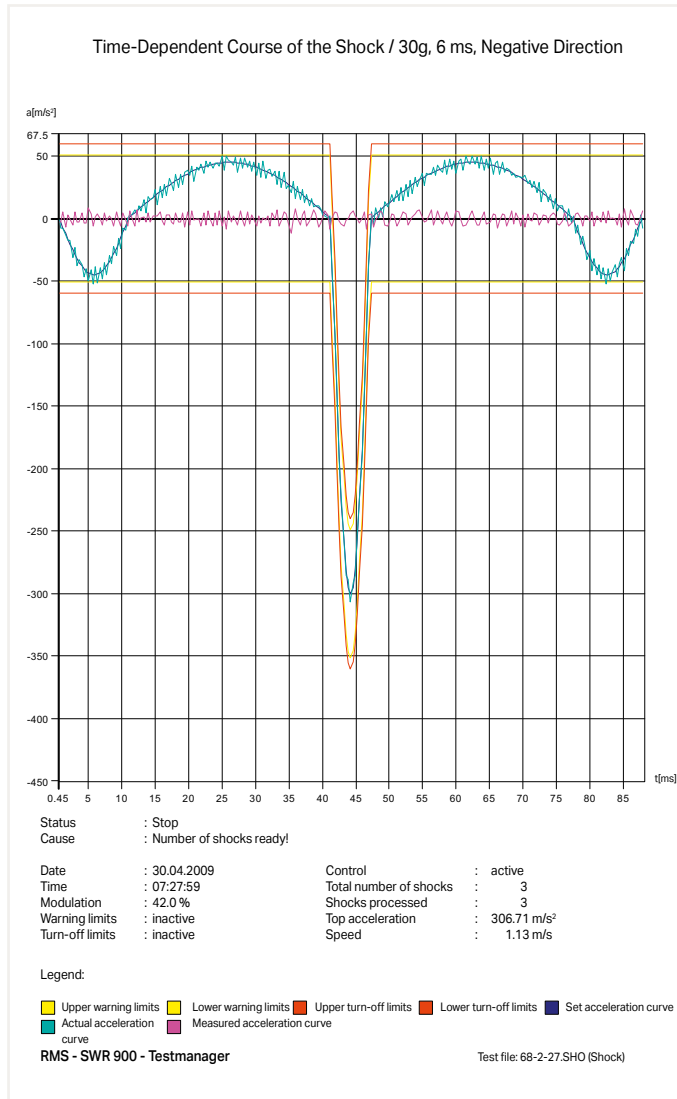
Notes:

These test results are based solely on tests conducted under "laboratory conditions." Connector usage in actual applications must be evaluated by the user.

• Shock Test per IEC/EN 60068-2-27; IEC/EN 61373 (Railway Applications)

The shock test is similar to the vibration test except that, instead of continuous vibrations, single shocks are applied to the specimen. Shock tests are usually performed with an acceleration of 15g, for example, over a period of 11 ms. Tests for special requirements often call for much higher values. Like the vibration tests, shock tests are primarily used to test the voltage drop variation or contact breaks, etc.

E.g.: **Shock requirement**  
 per IEC/EN 60068-2-27 (half-sine shock)  
 30g acceleration, 6 ms duration  
 Shock direction: 3 axes (3 shocks each in positive and negative direction)



## Tests and Testing Procedures per IEC/EN Standards (continued)

### Electrical Tests

All WAGO products meet requirements for the following electrical tests:

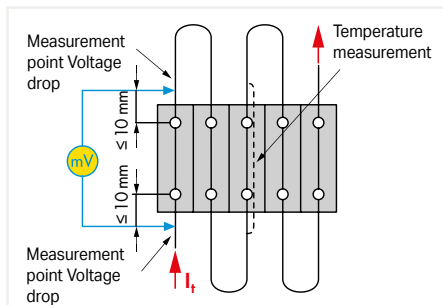
- Temperature-Rise Test per IEC/EN 61984, IEC/EN 60947-7-1, IEC/EN 60998-1

The temperature-rise test examines the clamping unit – including the surrounding insulation – at rated current, over-current and short-circuit current levels.

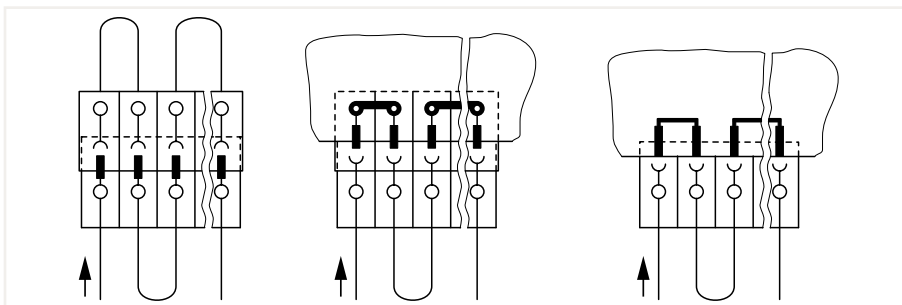
Unless otherwise specified in the related equipment specification, e.g., by specifying the nominal currents of the equipment, terminal blocks and connectors are tested with current loads as specified in the respective construction specification.

For rail-mount terminal blocks complying with IEC 60947-7-1/EN 60947-7-1/VDE 0611-1, or terminal blocks complying with IEC 60998-1/EN 60998-1/VDE 0613-1, the temperature rise must not exceed 45 Kelvin.

Connectors must withstand the upper and lower values of the temperature range as specified in the detail or manufacturer’s specification. The sum of the ambient operating temperature and the temperature rise of a connector must not exceed the upper temperature limit.



Test arrangement: “Temperature-Rise Test” per IEC/EN 60947-7-1



Test arrangement: “Temperature-Rise Test” per IEC/EN 61984

Rated Cross-Section	Test Current per IEC/EN		Conductor Size	Test Current per IEC/EN 60947-7-1 Table 5
	60947-7-1 Table 4	60998-1 Table 2		
mm <sup>2</sup>	A	A	AWG/kcmil	A
0.2	4.0	4.0	24	4
0.34	5.0	5.0	22	6
0.5	6.0	6.0	20	8
	9.0	9.0		10
1.0	13.5	13.5	16	16
	17.5	17.5		22
2.5	24	24	12	29
	32	32		38
6.0	41	41	8	50
	57	57		67
16	76	76	4	90
	101	101		121
35	125	125	1	139
				162
50	150	192	0	185
				217
95	232	309	000	242
				271
120	269	353	250 kcmil	309
				309
185	353	415	350 kcmil	415
				415
240	415	520	500 kcmil	520
				520
300	520	520	600 kcmil	520
				520

- Current-Carrying Capacity Curve (Derating Curve) per EN 60512-5-2

Both the design requirements (e.g., dimensions) and the current-carrying capacity of a connector must be checked by the user when selecting connectors.

This information depends on the following factors: conductor size, ambient operating temperature, number of simultaneously loaded poles, internal resistance of the connector, PCB layout, width and thickness of the printed circuits and connector materials.

A current-carrying capacity curve (basic curve) is determined based on the EN 60512-5-2 standard, accounting for the upper temperature limit.

The relationship between current, ambient operating temperature and temperature rise up to the connector's upper temperature limit is illustrated via current-carrying capacity curve (derating curve, reduction factor: 0.8).

The connector must only be operated up to this temperature limit (sum of the self-generated heat and the ambient operating temperature) without being damaged or destroyed during operation.

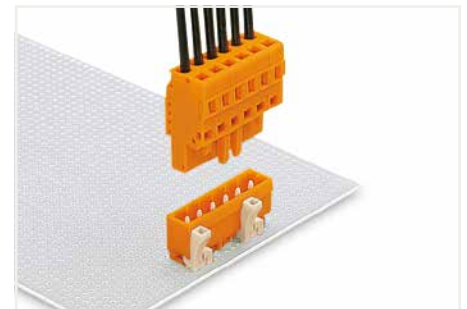
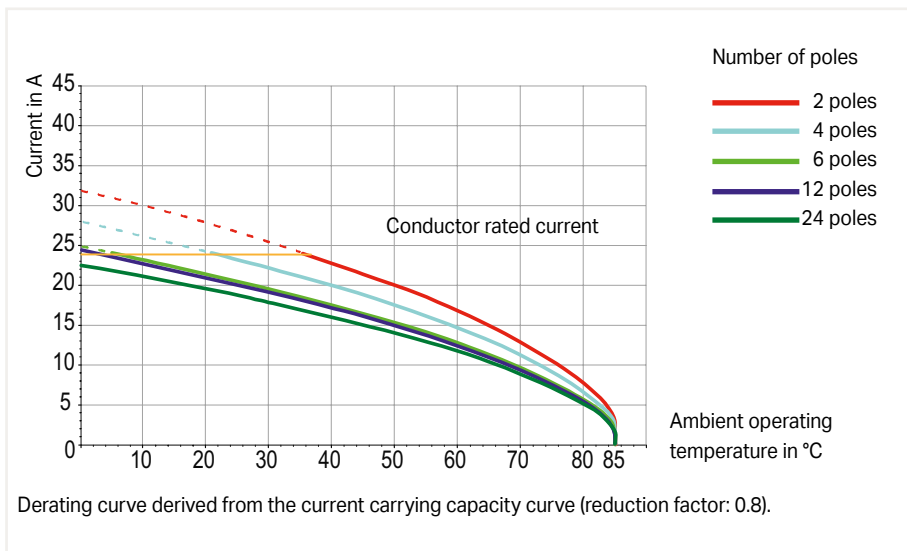
**The nominal current figures given for the WAGO PCB Connectors are based on the maximum number of poles, the maximum conductor cross-section and a maximum temperature rise of 45 K.**

Note: Current-carrying capacity curves merely document the self-generated heat of the connectors and terminal blocks under defined test conditions (conductor length, commoning of solder pins).

Usability of the components in actual applications must be investigated by the user.

Functioning of a current-carrying capacity curve (derating curve) per EN 60512-5-2 is shown by an application using a derating curve for the **MULTI CONNECTION SYSTEM**:

This application requires each pole of a 4-pole connector be subjected to a load of 20 A. Based on the derating curve determined for this pole number with a conductor cross-section of 2.5 mm<sup>2</sup>, it has been determined the maximum ambient operating temperature is 39°C (102.2°F). The current must be reduced at higher ambient operating temperatures, e.g., to 11 A at an ambient operating temperature of 70°C (158°F).



Male header with straight solder pins and female connector with CAGE CLAMP® connection

The non-reduced current-carrying capacity curves (basic curves, reduction factor: 1) can be used when selecting WAGO's PCB terminal blocks!

The nominal current values given are based on a 4-pole PCB terminal strip with a temperature rise of 45 K.



E.g.: 4-pole 2706 Series PCB Terminal Strip

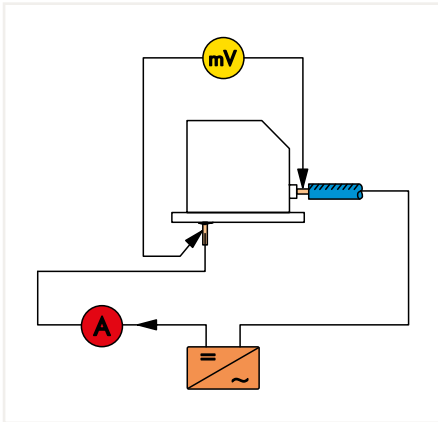


## Tests and Testing Procedures per IEC/EN Standards (continued)

### Electrical Tests (continued)

- Voltage Drop Test per IEC/EN 60947-7-1, IEC/EN 60999-1

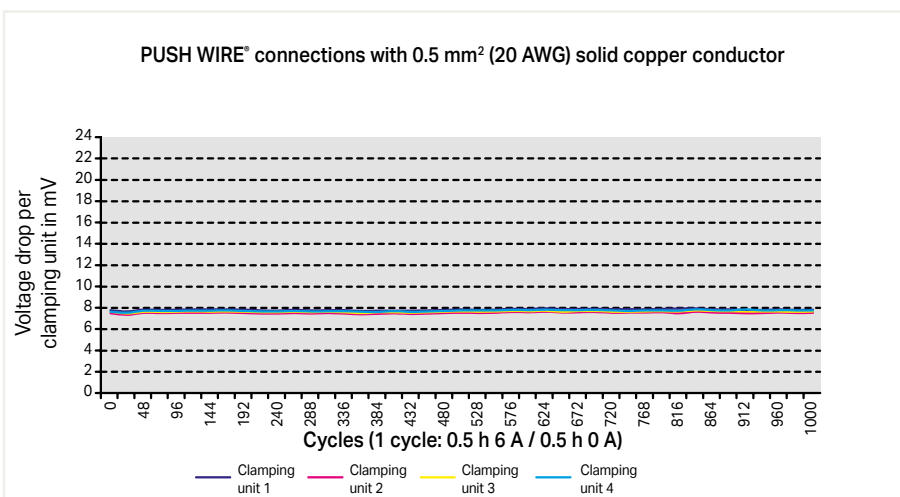
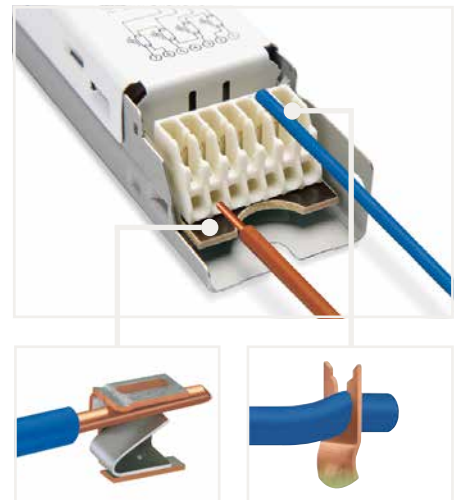
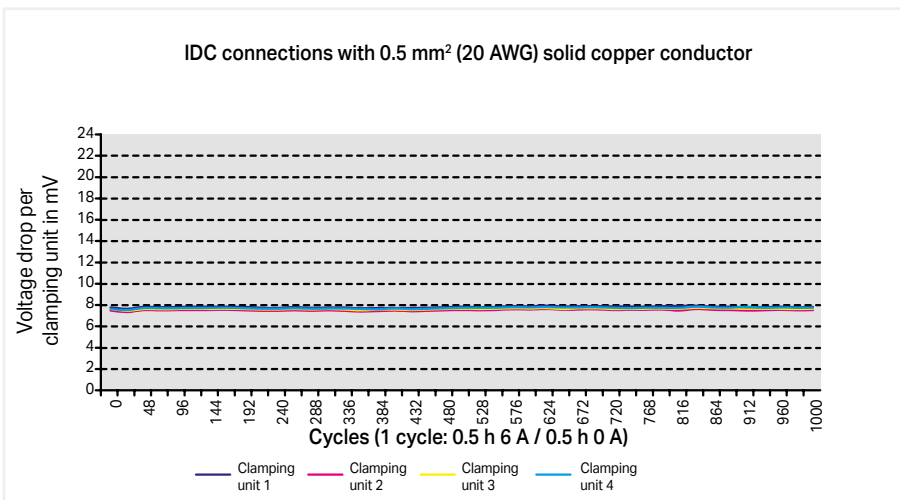
The voltage drop test evaluates clamping point quality under stress such as vibration, temperature change, industrial climate and salt spray, in order to verify that the contact point is gas-tight.



Test arrangement: "Voltage Drop Test"

Example: Current load cycling test result for Combi PCB terminal blocks with IDC and PUSH WIRE® connections

Voltage drop variation over longer periods under current load cycling conditions is shown for 251-3xx Combi PCB Terminal Blocks using solid copper conductors. The diagram shows that the voltage drop is constant, far beyond the 192 cycles required in IEC/EN 60998-2-2.



(The voltage drop was determined at rated current.)

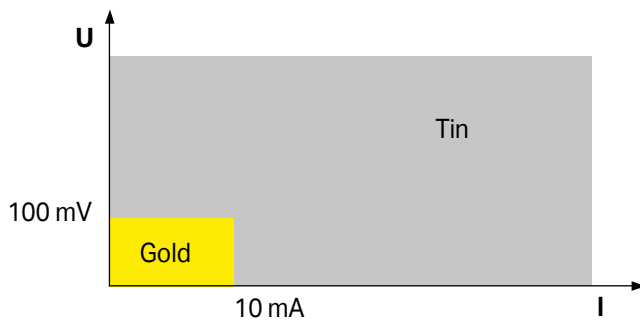
#### • Minimum Current / Specialty Connector Applications

The contact surfaces of WAGO connectors are tin-plated. This surface exhibits excellent conductivity, along with outstanding protection against corrosion. Pollution layer deposits may penetrate this pure tin coating when the contacts are connected, lowering contact resistance.

The following information regarding proper selection of suitable WAGO components should be considered for applications in which connectors are used with minimal current and voltage levels and under special conditions, involving, for example, temperature, aggressive gases, vibration, shock, etc.

Signal corruption may occur in applications with minimal current and voltage levels under the special conditions cited above. In such cases, we recommend using gold-plated contacts. Here, the user must always examine the suitability of the connectors for the application at hand.

The diagram below is based on practical experience.



WAGO also offers connectors with gold-plated contacts upon request.

Fig.: Selection of surface properties for special conditions

## Tests and Testing Procedures per IEC/EN Standards (continued)

### Electrical Tests (continued)

#### • Insulation Parameters per IEC/EN 60664-1

#### Clearances and Creepage Distances

The following generally applies:

The equipment specification contains data for the measurement of clearances and creepage distances, or refers to the data contained in the new revised edition of the basic standard DIN EN 60664-1/VDE 0110-1.

This standard contains new clearances and creepage distances in compliance with insulation coordination requirements. That is, the insulation parameters of equipment are assigned to:

- the anticipated surge voltages,
- the parameters of the protection device against surge voltage and
- the anticipated environmental conditions and the protection measures against pollution.

This standard is based on IEC 60604-1.

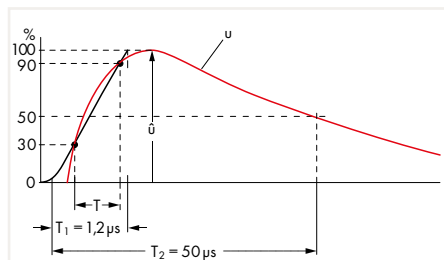
#### Clearances, Rated Surge Voltages, Overvoltage Categories, Pollution Degrees

Surge voltages (Table 1) are a decisive factor in determining clearances.

The basis forms the **overvoltage category**, i.e., the allocation of the equipment to the expected overvoltage, and the **conductor-ground voltage derived from the rated line voltage in installations with a grounded Y (star) point**.

In ungrounded installations, or installations where the conductor is not grounded, the voltage between conductors is applicable in the same way as conductor voltage to ground.

- ① Voltage pulse: 1.2/50  $\mu$ s



per DIN EN 60060-1/VDE 0432-1

#### Overvoltage Categories for Electrical Equipment:

A specific overvoltage category must be defined on the basis of the following, general description:

- Equipment in overvoltage category I is intended to be connected to the fixed electrical installations of a building. Protective means are taken outside the equipment – either in the fixed installation or between the fixed installation and the equipment – to limit transient overvoltages to the specific level.
- Equipment in overvoltage category II is to be connected to the fixed electrical installations of a building.  
Note: Examples of such equipment are household appliances, portable tools and similar loads.
- Equipment in overvoltage category III is part of the fixed electrical installations and other equipment where a higher degree of availability is expected.  
Note: Examples of such equipment are distribution boards, circuit breakers, wiring systems (IEV 826-16-08, including cables, bus bars, junction boxes, switches, socket outlets) in the fixed installation and equipment for industrial use and other equipment, e.g., stationary motors with permanent connection to the fixed installation.
- Equipment in overvoltage category IV is for use in or near the feed-in in electrical building installations upstream of the main distribution board in the direction of the network.  
Note: Examples include electricity meters, primary overcurrent protection devices and ripple control units.

The rated impulse voltage must be selected from Table 1 corresponding to the overvoltage category specified and to the rated voltage of the equipment.

Table F.1: Rated surge voltage for equipment energized directly from the low-voltage mains (DIN EN 60664-1/VDE 0110-1)

- ① Voltage curve: 1.2/50  $\mu$ s per DIN EN 60060-1/VDE 0432-1

Nominal voltage of the supply system <sup>1)</sup> (mains) per IEC 60038 <sup>3)</sup>		Conductor-to-neutral voltage, derived from the nominal AC or DC voltage up to and including: V	Rated surge voltage <sup>2)</sup>			
Three-phase V	Single-phase V		Overvoltage category <sup>4)</sup>			
			I V	II V	III V	IV V
		50	330	500	800	1500
		100	500	800	1500	2500
	120-240	150 <sup>5)</sup>	800	1500	2500	4000
230/400 277/480		300	1500	2500	4000	6000
400/690		600	2500	4000	6000	8000
1000		1000	4000	6000	8000	12000

<sup>1)</sup> See Annex B for application to existing different low-voltage mains and their nominal voltages.

<sup>2)</sup> Equipment with these rated impulse voltage levels can be used in installations complying with IEC 60364-4-443.

<sup>3)</sup> The / mark indicates a three-phase, 4-wire system. The lower value is the conductor-to-neutral voltage, while the higher value is the conductor-to-conductor voltage. Where only one value is indicated, it refers to three-phase, 3-conductor systems and specifies the conductor-to-conductor voltage.

<sup>4)</sup> See 4.3.3.2.2 for an explanation of the overvoltage categories.

<sup>5)</sup> The nominal voltages for single-phase systems in Japan are 100 V or 100 ... 200 V. The value for the rated impulse voltage is, however, derived from the voltage gaps conductor-to-neutral for a voltage level of 150 V (see Annex B).

The nominal supply voltage and the corresponding rated impulse voltage values apply for grounded and ungrounded circuits.

• Insulation Parameters per IEC/EN 60664-1 (continued)

### Pollution Degrees

Pollution factors are all solid, liquid or gaseous foreign matter which may reduce the dielectric strength or the specific surface resistance. Factors are divided into four classes based on expected environmental conditions:

		Examples of pollution degrees for assigned areas:
Pollution degree 1:	No pollution, or only dry, non-conductive pollution occurs. Pollution has no influence.	Open, unprotected insulated equipment in air-conditioned or clean, dry rooms
Pollution degree 2:	Only non-conductive pollution occurs. Occasional, temporary conductivity caused by condensation can also be expected.	Open, unprotected insulated equipment in occupied areas, shops, laboratories, mechanical workshops and medical rooms.
Pollution degree 3:	Conductive pollution occurs, or dry, non-conductive pollution occurs which will become conductive due to condensation.	Open, unprotected insulated equipment in industrial, business and farming areas ( e.g., unheated rooms, workshops and boiler rooms)
Pollution degree 4:	The pollution generates persistent conductivity caused by conductive dust, rain or wet conditions.	Open, unprotected insulated equipment for outdoor use

### Dimensioning Clearances

See Table F.2 for specifications per DIN EN 60664-1/ VDE 0110, Part 1. Select the minimum clearances in accordance with the rated surge voltages and pollution degrees. To maximize the operating life of the equipment, do not go below these minimum clearances.

Table F.2 contains a list of information for Case A, the inhomogeneous field and for Case B, the homogeneous field. This involves an electric field with essentially constant (Case B) or non-constant (Case A) voltage gradients between the electrodes.

**Equipment with a clearance that is dimensioned per Case A, in other words rated for the most unfavorable case, requires no verification by the impulse voltage test.**

Equipment with a clearance that is dimensioned per Case B, or between A and B, requires verification by the impulse voltage test.

The clearances shown in Table F.2 are applicable for an installation height of up to 2000 m above sea level.

Values for clearances above 2000 m must be multiplied by a high correction factor in accordance with Table A.2.

**Table F.2: Clearances to Withstand Transient Overvoltages**  
DIN EN 60664-1 / VDE 0110-1

Required impulse withstand voltage <sup>1)5)</sup> kV	Minimum clearances in air up to 2000 m above sea level					
	Case A (inhomogeneous field, see 3.15)			Case B (homogeneous field, see 3.14)		
	Pollution degree <sup>6)</sup>			Pollution degree <sup>6)</sup>		
	1 mm	2 mm	3 mm	1 mm	2 mm	3 mm
0.33 <sup>2)</sup>	0.01	0.2 <sup>3)4)</sup>	0.8 <sup>4)</sup>	0.01	0.2 <sup>3)4)</sup>	0.8 <sup>4)</sup>
0.40	0.02			0.02		
0.50 <sup>2)</sup>	0.04			0.04		
0.60	0.06			0.06		
0.80 <sup>2)</sup>	0.10			0.10		
1.0	0.15			0.15		
1.2	0.25	0.25	0.2	0.3		
1.5 <sup>2)</sup>	0.5	0.5	0.3	0.45	0.45	
2.0	1.0	1.0	0.45	0.60	0.60	
2.5 <sup>2)</sup>	1.5	1.5	0.60	0.80	0.80	
3.0	2.0	2.0	0.80	1.2	1.2	1.2
4.0 <sup>2)</sup>	3.0	3.0	1.2	1.5	1.5	1.5
5.0	4.0	4.0	1.5	2.0	2.0	2.0
6.0 <sup>2)</sup>	5.5	5.5	2.0	3.0	3.0	3.0
8.0 <sup>2)</sup>	8.0	8.0	3.0	3.5	3.5	3.5
10	11	11	3.5	4.5	4.5	4.5
12 <sup>2)</sup>	14	14	4.5	5.5	5.5	5.5
15	18	18	5.5	8.0	8.0	8.0
20	25	25	8.0	10	10	10
25	33	33	10	12.5	12.5	12.5
30	40	40	12.5	17	17	17
40	60	60	17	22	22	22
50	75	75	22	27	27	27
60	90	90	27	35	35	35
80	130	130	35	45	45	45
100	170	170	45			

<sup>1)</sup> This voltage is

- Functional insulation: the maximum impulse voltage expected to occur across the clearance (see 5.1.5)
- Basic insulation directly exposed to or significantly influenced by transient overvoltages from the low-voltage mains (see 4.3.3.3, 4.3.3.4.1 and 5.1.6): the rated impulse voltage for the equipment;
- Other basic insulation (see 4.3.3.4.2): the highest impulse voltage that can occur in the circuit For reinforced insulation, see 5.1.6.

<sup>2)</sup> Preferred values specified in 4.2.3

<sup>3)</sup> For printed wiring material, the values for pollution degree 1 apply, except that the value must not be less than 0.04 mm, as specified in Table F.4.

<sup>4)</sup> The minimum clearances given for pollution degree 2 and 3 are based on the reduced withstand characteristics of the associated creepage distance under humidity conditions (see IEC 60664-5).

<sup>5)</sup> For parts or circuit within equipment subject to surge voltages based on 4.3.3.4.2, interpolation of values is allowed. However, standardization is achieved by using the preferred series of impulse voltage values based on 4.2.3.

<sup>6)</sup> The dimensions for pollution degree 4 are as specified for pollution degree 3, except that the minimum clearance is 1.6 mm.

## Tests and Testing Procedures per IEC/EN Standards (continued)

### Electrical Tests (continued)

**Table A.2:**  
Altitude Correction Factors  
(DIN EN 60664-1/VDE 0110-1)

Altitude m	Standard air pressure kPa	Multiplier for clearances
2000	80	1
3000	70	1.14
4000	62	1.29
5000	54	1.48
6000	47	1.7
7000	41	1.95
8000	35.5	2.25
9000	30.5	2.62
10000	26.5	3.02
15000	12	6.67
20000	5.5	14.5



### Creepage Distances, Rated Voltages, Material Groups

Criteria for dimensioning creepage distances are the rated voltages, pollution degrees and material groups.

The pollution degrees specified for the clearances, and its quoted allocation to locations, is also applicable for creepage distances.

Tables F.3 a and F.3 b of DIN EN 60664-1/VDE 0110-1 contain the rated voltages that have to be considered for dimensioning the minimum creepage distances.

**Table F.3a: Single-Phase, 3- or 2-Wire, AC or DC Systems**

Nominal voltage of the power supply system (mains)*	Voltages for Table F.4	
	For insulation conductor-to-conductor <sup>1)</sup>	For insulation conductor-to-ground <sup>1)</sup>
	All systems  V	Three-conductor systems, center-point grounded  V
12.5	12.5	
24 25	25	
30	32	
42 48 50**	50	
60	63	
30 - 60	63	32
100**	100	
110 120	125	
150**	160	
200	200	
110 - 200	200	100
220	250	
110 - 220 120 - 240	250	
300**	320	
220 - 440	500	250
600**	630	
480 - 960	1000	500
1000**	1000	


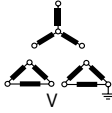
<sup>1)</sup> Conductor-to-ground insulation level for non-grounded or impedance-grounded systems equals that for conductor-to-conductor, as the operating voltage to ground of any line can, in practice, approach full conductor-to-conductor voltage. This is because the actual voltage to ground is determined by the insulation resistance and capacitive reactance of each conductor to ground; thus, low (but acceptable) insulation resistance of one line can in effect ground it and raise the other two to full conductor-to-conductor voltage to ground.

\*For the relationship to rated voltage, see 4.3.2.

\*\*These values correspond to the values given in Table F.1.

• Insulation Parameters per IEC/EN 60664-1 (continued)

Table F.3b: Single-Phase, 4- or 3-Conductor AC Systems

Nominal voltage of the power supply system (mains)*	Voltages for Table F.4		
	For insulation conductor-to-conductor1)	For insulation conductor-to-ground1)	
	All systems	Three-phase, 4-conductor systems with grounded neutral conductor <sup>2)</sup>	Three-phase, 3-conductor systems, non-grounded <sup>1)</sup> or grounded conductor
V	V	 V	 V
60	63	32	63
110 120 127	125	80	125
150**	160		160
200	200		200
208	200	125	200
220 230 240	250	160	250
300**	320		320
380 400 415	400	250	400
440	500	250	500
480 500	500	320	500
575	630	400	630
600**	630		630
660 690	630	400	630
720 830	800	500	800
960	1000	630	1000
1000**	1000		1000

<sup>1)</sup> Conductor-to-ground insulation level for non-grounded or impedance-grounded systems equals that for conductor-to-conductor, as the operating voltage to ground of any line can, in practice, approach full conductor-to-conductor voltage. This is because the actual voltage to ground is determined by the insulation resistance and capacitive reactance of each conductor to ground; thus, low (but acceptable) insulation resistance of one line can in effect ground it and raise the other two to full conductor-to-conductor voltage to ground.

<sup>2)</sup> For equipment used on both three-phase, 4-conductor and three-phase, 3-conductor systems, grounded and non-grounded, use only the values for 3-conductor systems.

\*For the relationship to rated voltage, see 4.3.2.

\*\*These values correspond to the values given in Table F.1.

### Material Groups

Insulation materials are classified into four groups according to their Comparative Tracking Index (CTI) as follows:

- Material group I:  $600 \leq \text{CTI}$
- Material group II:  $400 \leq \text{CTI} < 600$
- Material group III a:  $175 \leq \text{CTI} < 400$
- Material group III b:  $100 \leq \text{CTI} < 175$

The CTI values above refer to values obtained in accordance with DIN EN 60664-1/VDE 0110-1 on samples specially made for this purpose and tested with Solution A.



## Tests and Testing Procedures per IEC/EN Standards (continued)

### Electrical Tests (continued)

Table F.4: Creepage Distances to Avoid Failure due to Tracking (Excerpt)  
DIN EN 60664-1 / VDE 0110-1

Voltage <sup>1)</sup> (RMS)  V	Minimum Creepage Distances								
	Printed Circuits		Pollution Degree						
	Pollution Degree		1	2	2	2	3	3	3
	1 All Material Groups	2 All Mat. Gr. except IIIb	1 All Material Groups	2 Material Group I	2 Material Group II	2 Material Group III	3 Material Group I	3 Material Group II	3 Material Group III <sup>2)</sup>
mm	mm	mm	mm	mm	mm	mm	mm	mm	
10	0.025	0.040	0.080	0.400	0.400	0.400	1.000	1.000	1.000
12.5	0.025	0.040	0.090	0.420	0.420	0.420	1.050	1.050	1.050
16	0.025	0.040	0.100	0.450	0.450	0.450	1.100	1.100	1.100
20	0.025	0.040	0.110	0.480	0.480	0.480	1.200	1.200	1.200
25	0.025	0.040	0.125	0.500	0.500	0.500	1.250	1.250	1.250
32	0.025	0.040	0.14	0.53	0.53	0.53	1.30	1.30	1.30
40	0.025	0.040	0.16	0.56	0.80	1.10	1.40	1.60	1.80
50	0.025	0.040	0.18	0.60	0.85	1.20	1.50	1.70	1.90
63	0.040	0.063	0.20	0.63	0.90	1.25	1.60	1.80	2.00
80	0.063	0.100	0.22	0.67	0.95	1.30	1.70	1.90	2.10
100	0.100	0.160	0.25	0.71	1.00	1.40	1.80	2.00	2.20
125	0.160	0.250	0.28	0.75	1.05	1.50	1.90	2.10	2.40
160	0.250	0.400	0.32	0.80	1.10	1.60	2.00	2.20	2.50
200	0.400	0.630	0.42	1.00	1.40	2.00	2.50	2.80	3.20
250	0.560	1.00	0.56	1.25	1.80	2.50	3.20	3.60	4.00
320	0.75	1.60	0.75	1.60	2.20	3.20	4.00	4.50	5.00
400	1.0	2.0	1.0	2.0	2.8	4.0	5.0	5.6	6.3
500	1.3	2.5	1.3	2.5	3.6	5.0	6.3	7.1	8.0 (7.9) <sup>4)</sup>
630	1.8	3.2	1.8	3.2	4.5	6.3	8.0 (7.9) <sup>4)</sup>	9.0 (8.4) <sup>4)</sup>	10.0 (9.0) <sup>4)</sup>
800	2.4	4.0	2.4	4.0	5.6	8.0	10.0 (9.0) <sup>4)</sup>	11.0 (9.6) <sup>4)</sup>	12.5 (10.2) <sup>4)</sup>
1000	3.2	5.0	3.2	5.0	7.1	10.0	12.5 (10.2) <sup>4)</sup>	14.0 (11.2) <sup>4)</sup>	16.0 (12.8) <sup>4)</sup>
1250			4.2	6.3	9.0	12.5	16.0 (12.8) <sup>4)</sup>	18.0 (14.4) <sup>4)</sup>	20.0 (16.0) <sup>4)</sup>
1600			5.6	8.0	11.0	16.0	20.0 (16.0) <sup>4)</sup>	22.0 (17.6) <sup>4)</sup>	25.0 (20.0) <sup>4)</sup>
2000			7.5	10.0	14.0	20.0	25.0 (20.0) <sup>4)</sup>	28.0 (22.4) <sup>4)</sup>	32.0 (25.6) <sup>4)</sup>
2500			10.0	12.5	18.0	25.0	32.0 (25.6) <sup>4)</sup>	36.0 (28.8) <sup>4)</sup>	40.0 (32.0) <sup>4)</sup>
3200			12.5	16.0	22.0	32.0	40.0 (32.0) <sup>4)</sup>	45.0 (36.0) <sup>4)</sup>	50.0 (40.0) <sup>4)</sup>
4000			16.0	20.0	28.0	40.0	50.0 (40.0) <sup>4)</sup>	56.0 (44.8) <sup>4)</sup>	63.0 (50.4) <sup>4)</sup>
5000			20.0	25.0	36.0	50.0	63.0 (50.4) <sup>4)</sup>	71.0 (56.8) <sup>4)</sup>	80.0 (64.0) <sup>4)</sup>
6300			25.0	32.0	45.0	63.0	80.0 (64.0) <sup>4)</sup>	90.0 (72.0) <sup>4)</sup>	100.0 (80.0) <sup>4)</sup>
8000			32.0	40.0	56.0	80.0	100.0 (80) <sup>4)</sup>	110.0 (88.0) <sup>4)</sup>	125.0 (100.0) <sup>4)</sup>
10000			40.0	50.0	71.0	100.0	125.0 (100.0) <sup>4)</sup>	140.0 (112.0) <sup>4)</sup>	160.0 (128.0) <sup>4)</sup>
12500			50.0 <sup>3)</sup>	63.0 <sup>3)</sup>	90.0 <sup>3)</sup>	125.0 <sup>3)</sup>			
16000			63.0 <sup>3)</sup>	80.0 <sup>3)</sup>	110.0 <sup>3)</sup>	160.0 <sup>3)</sup>			
20000			80.0 <sup>3)</sup>	100.0 <sup>3)</sup>	140.0 <sup>3)</sup>	200.0 <sup>3)</sup>			
25000			100.0 <sup>3)</sup>	125.0 <sup>3)</sup>	180.0 <sup>3)</sup>	250.0 <sup>3)</sup>			
32000			125.0 <sup>3)</sup>	160.0 <sup>3)</sup>	220.0 <sup>3)</sup>	320.0 <sup>3)</sup>			
40000			160.0 <sup>3)</sup>	200.0 <sup>3)</sup>	280.0 <sup>3)</sup>	400.0 <sup>3)</sup>			
50000			200.0 <sup>3)</sup>	250.0 <sup>3)</sup>	360.0 <sup>3)</sup>	500.0 <sup>3)</sup>			
63000			250.0 <sup>3)</sup>	320.0 <sup>3)</sup>	450.0 <sup>3)</sup>	600.0 <sup>3)</sup>			

<sup>1)</sup> This voltage is for:

- functional insulation: the working voltage
- Basic and supplementary insulation of the circuit energized directly from the mains (see 4.3.2.2.1): for the voltage rationalized through Table F.3a or F.3b, based on the rated voltage of the equipment, or the rated insulation voltage
- Basic and supplementary insulation of systems, equipment and internal circuits not energized directly from the mains (see 4.3.2.2.2): the highest rms voltage which can occur in the system, equipment or internal circuit when supplied at rated voltage and under the most taxing combination of operation conditions within equipment rating

<sup>2)</sup> Material group IIIb is not recommended for applications in pollution degree 3 above 630 V.

<sup>3)</sup> Provisional data based on extrapolation. Technical committees who have other information based on experience may use their dimensions.

<sup>4)</sup> The values in brackets must only be applied for reducing creepage distances if a rib is used (see 5.2.5).

The high degree of accuracy of the creepage distances given in the table does not imply that the measuring accuracy must be of the same quality.

- Insulation Parameters per IEC/EN 60664-1 (continued)

Depending on the intended use, WAGO's terminal blocks, splicing and pluggable connectors are suitable for pollution degrees 2 or 3 and for overvoltage categories II or III.

The rated voltages of WAGO's PCB terminal blocks and connectors are based on pollution degree 2 and overvoltage category III in per IEC/EN 60664-1 (insulation parameters).

Example:

**WAGO PCB Terminal Strips, 236 Series**  
(Pin spacing 5/5.08 mm / 0.197/0.2 in.)

320 V/4kV/2

Rated voltage	320 V
Rated surge voltage	4kV
Pollution degree	2
Overvoltage category	III

The specific values for pollution degree 3 and overvoltage category II are also given in the technical data.

The clearances and creepage distances required for defined voltage values in Table 3 of IEC/EN 60998-1 deviate somewhat from the requirements specified in the insulation parameters.

**Table 3: Clearances and Creepage Distances**  
(IEC/EN 60998-1)

Rated Insulation Voltage V	Creepage Distances, Clearances mm
≤ 130	1.5
> 130 and ≤ 250	3.0
> 250 and ≤ 450	4.0
> 450 and ≤ 750	6.0
> 750	8.0

It must be determined in the end application which clearance and creepage distance requirements are to be observed for approval.

## Tests and Testing Procedures per IEC/EN Standards (continued)

### Electrical Tests (continued)

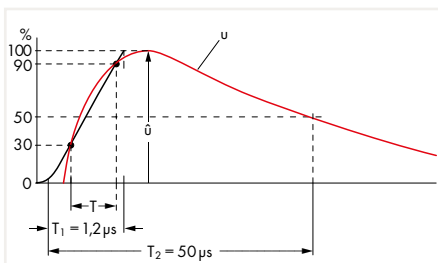
#### • Power-Frequency Withstand Voltage Test per IEC/EN 60998-1

This testing procedure verifies creepage distances. Creepage distances, i.e., the distances of creeping currents, are caused by conductive impurities on the surface of the insulation housing. Apart from the amount of impurities to which a terminal block is subjected, for example, the plastic material and housing design are also involved in generating creeping currents. The insulation material of the housing may be carbonized by a creeping current, which increases conductivity even more.

The specimen is tested using a power-frequency withstand voltage for a short time. For example, a PCB terminal block designed to operate at 320 V nominal voltage is usually tested using 2500 V alternating voltage for one minute. The test is passed if no flashovers or breakdowns have occurred.

#### • Rated Impulse Withstand Voltage Test per IEC/EN 60664-1

This test verifies the clearances of a product. In simplified terms, a clearance is the distance between two poles of a terminal block. If this distance is too small, voltage peaks may cause flashovers or breakdowns. The arrangement of the rated impulse withstand voltage test is identical to that of the power frequency withstand voltage test; the test voltages, however, are comparatively higher and the testing times shorter, e.g., 7.385 kV over 50 µs (see figure).



Voltage pulse: measurement curve (red) and auxiliary curve (black) for calculating the rate of rise of the pulse and the resulting (virtual) peak of the curve.

- T Time interval for calculating the rate of rise
- T1 Front time (duration between start of impulse and reaching the peak)
- T2 Total pulse duration

The test values are the values at sea level as specified in the relevant test specification.

The values indicated in the catalog correspond to an altitude of 2000 m.

The test is passed if no flashovers or breakdowns have occurred.

#### • IP Ratings for Electrical Equipment per IEC/EN 60529

Alphanumeric Nomenclature for Type of Protection			
Code letters IP	Protection against accidental contact and against the penetration of foreign objects or water	IP (Ingress Protection) = International degree of protection	
First code number 0 to 6	Indicates the degree of protection against accidental contact and the penetration of foreign objects.	If indicating the degree of protection requires only one digit, the other (second) digit must be substituted for with an X.	
Second code number 0 to 8	Indicates the degree of protection against water penetration.		
First code number:		Second code number:	
IP0X	No protection against accidental contact or the penetration of foreign objects	IPX0	No protection against water
IP1X	Protection against foreign objects > 50 mm	IPX1	Protection against vertically falling water
IP2X	Protection against foreign objects > 12 mm (e.g., finger)	IPX2	Protection against diagonally dripping water (15° angle)
IP3X	Protection against foreign objects > 2.5 mm	IPX3	Protection against water spray
IP4X	Protection against foreign objects > 1 mm	IPX4	Protection against water spray
IP5X	Protection against damaging dust deposits	IPX5	Protection against water jet, e.g., from a nozzle
IP6X	Protection against dust penetration	IPX6	Protection against flooding
		IPX7	Protection against temporary immersion
		IPX8	Protection against continuous immersion
		IPX9	Protection against high-pressure and high-temperature water jets

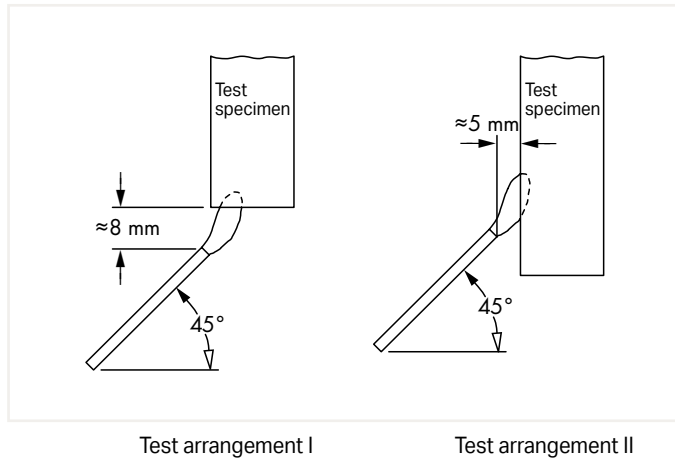
IP vs. NEMA	
IP Code	NEMA
10	1
11	2
54	3
14	3R
54	3S
55	4&4x
52	5
67	6&6P
52	12&12K
54	13

## Material Tests

All WAGO products meet requirements for the following material tests:

- Needle Flame Test per IEC/EN 60695-11-5

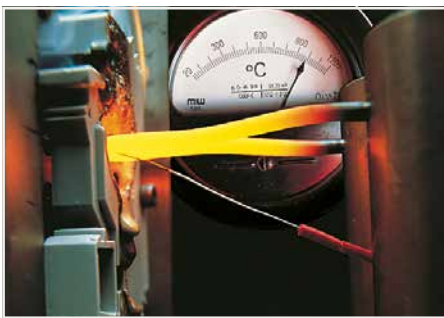
This test simulates flames that may arise under certain conditions (e.g. fault current over a creepage distance, overloading of parts or components). Nearby parts can also be affected by such flames. Not only the ignition of the test specimen resulting from an intrinsic defect is tested, but also its behavior when other parts ignite.



Flames must not be fuelled by the insulation materials used, thus creating a larger fire. The test specimen is exposed to a standard gas flame during a defined time period (e.g., ten seconds). After the test flame has been removed, the specimen must self-extinguish within 30 seconds. Furthermore, a layer of tissue paper located beneath the specimen must not be ignited by glowing particles falling from the specimen.

- Glow-Wire Test per IEC/EN 60998-1, IEC/EN 60695-2-11

In the event of failure, a high current may cause a conductor to glow.



However, the glowing conductor must not cause ignition of the product involved (e.g., a rail-mount terminal block). For the glow-wire test, the tip of the glow-wire is pressed against a surface of the test specimen (see picture). The position of the test specimen, surface to be tested, test duration and glow-wire temperature (e.g., 960°C/1760°F over 30 seconds, or 850°C/1562°F over 5 seconds) are specified in the standards.

The specimen must be positioned such that the tip of the glow-wire acts on the surface section of the specimen (vertical surface of the specimen) that is most likely to be exposed to thermal loading during normal use.

As the highest temperature in the event of a fault is anticipated at the contact insert/wire connection, the tip of the glow-wire must act upon the section of the insulation housing that is the closest to this contact point. The test is passed if there are no visible flames or permanent glowing, or if flames or glowing extinguish within 30 seconds after removal of the glow-wire. Furthermore, a layer of tissue paper located beneath the specimen must not be ignited by glowing particles falling from the specimen.

## Tests and Testing Procedures per IEC/EN Standards (continued)

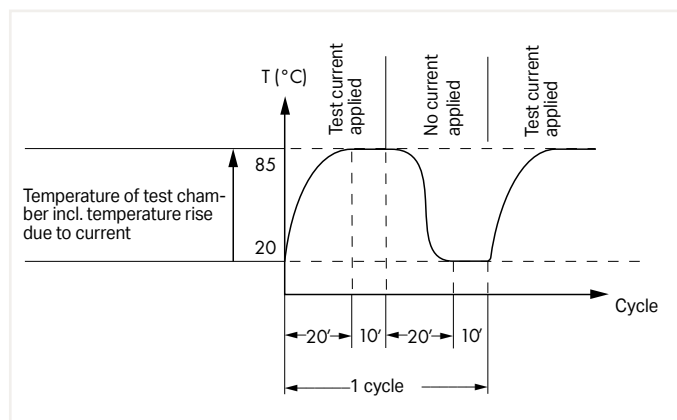
### Environmental Tests

The following tests show how a product reacts when exposed to an aggressive environment. Climatic chambers simulate standard atmospheres that could impact long-term constancy of clamping units.

All WAGO products meet requirements for the following environmental tests:

- Temperature Cycling Test per IEC/EN 60947-7-1, IEC/EN 60998-2-2

This test shows the change of voltage drop over longer periods under temperature cycling conditions. The test procedure usually consists of 192 temperature cycles, for example, each cycle having a duration of 60 minutes (see diagram).



The rated current is applied to the test specimen during temperature rise and when the temperature has reached its maximum value; during the second half of the cycle, the current is zero. Voltage drop is measured every 24 cycles and must not exceed a maximum value or vary greatly. The voltage drop measured at the end of the 192nd cycle must not exceed 1.5 times the value measured after the 24th cycle. After the test, an inspection must show no changes that would impair further use of the product.

- Industrial Atmospheres per EN ISO 6988, IEC/EN 60068-2-42, IEC/EN 60068-2-60

Sulphur and its combustion products are particularly aggressive pollutants commonly found in industrial environments. A test procedure simulating such corrosive conditions consists of exposing a test specimen to water condensation in variable atmospheres containing sulphur dioxide.



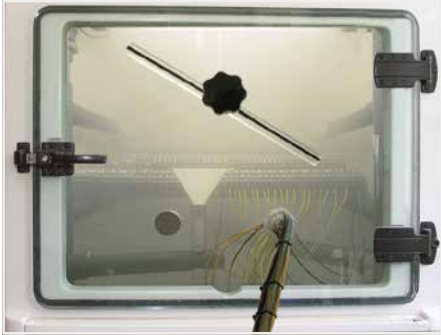
A saturated atmosphere is first created in a climatic chamber by heating an aqueous sulphur dioxide solution. After less than half an hour, the test specimen is fully saturated by the condensing vapors and exposed to this atmosphere for eight hours.

After exposure to a humid atmosphere, the test specimen is subjected to dry and cooler conditions at room temperature for 16 hours. Depending on the test severity, the specimen is exposed to both these conditions several times. The gas-tightness of the clamping unit is verified by a voltage drop test.

In other test procedures, products are exposed to a dry corrosive gas atmosphere containing sulfide, nitrogen and sulfur oxides or chloride gas. These tests can be performed over a period of four to 21 days.

• Salt Spray Test per IEC/EN 60068-2-11; DNV GL, LR (Marine Applications)

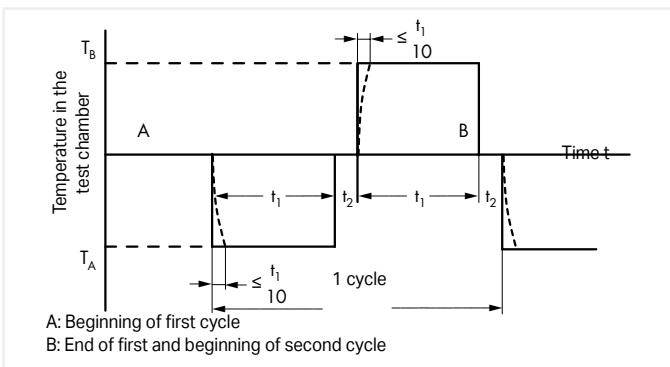
This test is similar to the test performed in water condensation alternating atmospheres, except that instead of industrial atmospheres, salt mist conditions will be simulated in a heated test chamber (see picture).



Depending on the test procedure being used, the test specimen is sprayed with salt mist for 16 hours up to 672 hours (4 weeks). Salt spray tests are widely used, especially for marine approvals. However, this test is performed differently than the test procedures described previously for general applications: During a typical test, the test specimen is sprayed with a salt solution for two hours and is then stored for seven days in an atmosphere with a relative humidity between 90 and 95%. This procedure is repeated four times. Voltage drop measurements are used as an evaluation criterion.

• Quick Change of Temperature per IEC/EN 60068-2-14

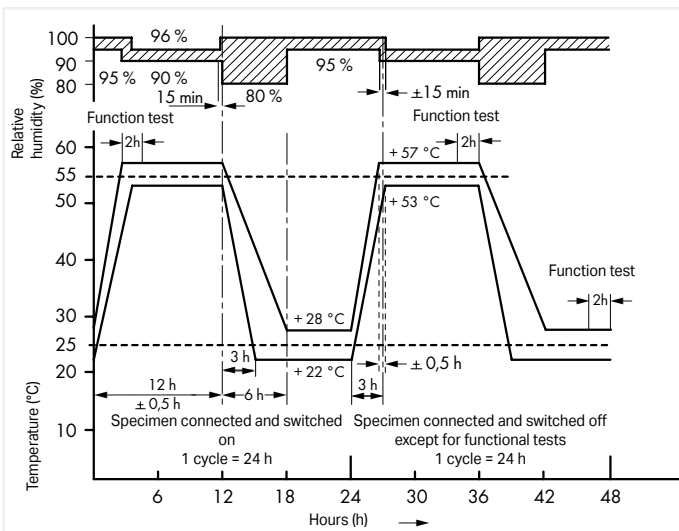
Without air-conditioning, distribution panels and terminal boxes are exposed to seasonal (and ever-changing) temperature extremes – especially on the open field side. In process technology, for example, a terminal block is exposed to even quicker changes in temperature.



To simulate such conditions, the test specimen is exposed to repeated temperature changes, for example, between  $T_A - 40^{\circ}\text{C}$  ( $-104^{\circ}\text{F}$ ) and  $T_B + 70^{\circ}\text{C}$  ( $+158^{\circ}\text{F}$ ). The dwell time  $t_1$  depends on the thermal capacity of the test specimen and should be between maximum of 3 hours and minimum of 10 minutes and the transition time  $t_2$  2 ... 3 min., 20 ... 30 sec. or less than 10 seconds. The mechanical and electrical properties of the product are checked at the end of the test.

• Damp Heat, Cyclic (12 + 12 Hour Cycle) per IEC/EN 60068-2-30, DNV GL, LR (Marine Applications)

This test determines the suitability of electrical equipment for use and storage under conditions of high relative humidity when combined with cyclic temperature changes and, in general, producing condensation on the surface of the specimen.



In addition to the salt spray tests, the damp heat test is also used for marine approvals. For this test, the specimens are subjected to temperatures varying cyclically between  $+25^{\circ}\text{C}$  ( $+77^{\circ}\text{F}$ ) and  $+55^{\circ}\text{C}$  ( $+131^{\circ}\text{F}$ ) with a relative humidity of 95% (for tolerances see figure). Functional tests are performed at defined times during the storage period. The mechanical and electrical properties of the product are checked at the end of the test.



## UL Specifications – Underwriters Laboratories, USA

WAGO terminal blocks and connectors are tested by Underwriters Laboratories Inc. according to one or more of the relevant following UL standards:

- PCB terminal strips (e.g., 236, 745 Series) are approved as non-stand-alone components per UL 1059 in connection with UL 486E.

UL 1059 Standard for terminal blocks  
UL 486 E Equipment wiring terminals for use with aluminum and/or copper conductors
- The *MULTI CONNECTION SYSTEM "MCS-MIDI"* is approved as terminal blocks per UL 1059 standard in connection with UL 486 E. It is therefore defined for "field and factory wiring" at 300 V.
- It is also approved as connectors for use in data, signal, control and power applications per UL 1977 for factory wiring at 600 V (i.e., the clamping unit must be wired under controlled manufacturing conditions).

UL 1977 Component connectors for use in data, signal, control and power applications
- Für Klemmen Ex e II trifft UL 60079-7 zu.
- Insulation materials are tested for flammability and performance in accordance with UL 94.

UL 60079-7 Electrical apparatus for explosive gas atmospheres – Part 7: Increased safety  
UL 94 Tests for flammability of plastic materials for parts in devices and appliances

### Tests and Testing Procedures per UL Standards

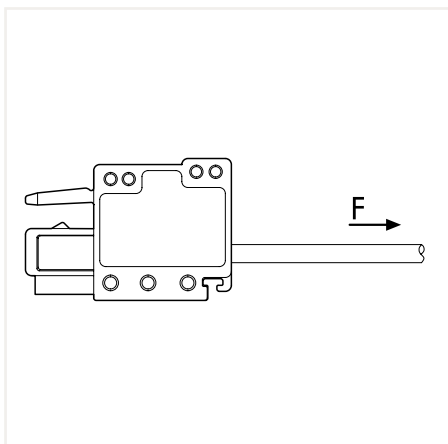
All WAGO products meet requirements for the following tests:

- Pull-Out Test per UL 1059, UL 486 E

In this test, the connected conductors are subjected to the appropriate pull-out forces specified in the following table without jerking for a period of one minute.

Conductor Size		Pull-Out Force, Pounds (N)				
AWG or	kcmil	(mm <sup>2</sup> )	UL 486 E, Table 22			
			Copper		Aluminum	
30		(0.05)	0.5	(2.2)	-	-
28		(0.08)	1	(4.5)	-	-
26		(0.13)	2	(8.9)	-	-
24		(0.20)	3	(13.4)	-	-
22		(0.32)	4.5	(20)	-	-
20		(0.52)	6.75	(30)	-	-
18		(0.82)	6.75	(30)	-	-
16		(1.3)	9	(40)	-	-
14		(2.1)	11.5	(50)	-	-
12		(3.3)	13.5	(60)	10	(44)
10		(5.3)	18	(80)	10	(44)
8		(8.4)	20.5	(90)	10	(44)
6		(13.3)	21	(94)	28	(124)
4		(21.2)	30	(133)	36	(160)
3		(26.7)	35	(156)	42	(187)
2		(33.6)	42	(186)	50	(222)
1		(42.4)	53	(236)	61	(271)
1/0		(53.5)	64	(285)	72	(320)
2/0		(67.4)	64	(285)	78	(347)
3/0		(85.0)	79	(351)	97	(432)
4/0		(107)	96	(427)	116	(516)
250		(127)	96	(427)	116	(516)
300		(156)	99	(441)	116	(516)

### Test Arrangement per UL 1059, UL 486 E:



## UL Specifications – Underwriters Laboratories, USA (continued)

### Tests and Testing Procedures per UL Standards (continued)

#### • Heat Cycling Test per UL 1059, UL 486 E

Tests performed:  
**UL 1059**

Test performed with maximum rated cross-section  
Test current: 150% of maximum rated current

84 cycles of: 3 1/2 h ON / 1/2 h OFF

The temperature rise is measured after the first and the 84th cycle.

The temperature rise must not exceed 5°C (41°F) after the 84th cycle, compared to the temperature measured after the first cycle.

per **UL 486 E** (equipment wiring terminals)

Test performed with maximum rated cross-section  
Test current: Increased test current per UL 486 E, Table 4

500 cycles of: 1 h ON / 1 h OFF  
1 1/2 h ON / 1 1/2 h OFF  
(from 4/0 AWG up to 400 kcmil per UL 486 E)

The temperature rises at the terminal blocks and control conductors are measured and recorded after: 1, 25, 50, 75, 100, 125, 175, 225, 275, 350, 425 and 500 cycles.

The temperature rise must not exceed 125°C (257°F) and the stability factor "S" must not exceed ± 10.

Conductor Size		Test Current for Copper Conductors in A			
		UL 486 E, Table 4			
AWG or kcmil	(mm <sup>2</sup> )	Assigned max. Ampere Rating <sup>b</sup>	Static Heating <sup>a,c,g</sup>	Heat Cycling Temperature Rating <sup>a</sup>	
				75 °C <sup>d,g</sup>	90 °C <sup>e,g</sup>
30	(0.05)	-	3	3.5	4
28	(0.08)	-	3.5	4	5
26	(0.13)	-	5.5	6	8
24	(0.20)	-	7	8	10
22	(0.32)	-	9	12	13
20	(0.52)	-	12	16	17
18	(0.82)	-	17	19	24
16	(1.3)	-	18	20	31
14	(2.1)	15	[20] 30	[22] 33	[27] 40
12	(3.3)	20	[25] 35	[28] 39	[40] 54
10	(5.3)	30	[40] 50	[45] 56	[60] 75
8	(8.4)	50	70	80	100
6	(13.3)	65	95	105	131
4	(21.2)	85	125	140	175
3	(26.7)	100	145	165	205
2	(33.6)	115	170	190	240
1	(42.4)	130	195	220	275
1/0	(53.5)	150	230	255	320
2/0	(67.4)	175	265	300	370
3/0	(85.0)	200	310	345	435
4/0	(107)	230	360	405	505
250	(127)	255	405	445	565
300	(152)	285	445	500	625

<sup>a</sup> See Section 7.2, 8.2 and 9.2 (UL 486 E)

<sup>b</sup> Values are for 75°C (167°F), not more than 3 conductors in raceway or cable ampacities, National Electric Code, ANSI/NFPA 70.

<sup>c</sup> Values are for 75°C (167°F) single conductors in free air ampacities, National Electric Code, ANSI/NFPA 70.

<sup>d</sup> Values are approximately 112% of the static heating test currents.

<sup>e</sup> Values for 8 AWG and larger conductors are approximately 140% of the static heating test currents.

<sup>f</sup> See Section 9.2.4

<sup>g</sup> Values in parentheses apply to connectors with assigned ampere ratings.

- Conditioning – Temperature-Rise Rest per UL 1059

Tests performed:

**UL 1059** (terminal blocks)

Conditioning:

The clamping units are pre-wired/pre-inserted nine times using a conductor with maximum rated cross-section. On the 10th time, a new conductor is connected.

After this, a static heating test is performed.

Static Heating Test:

Test current: Terminal block rated current

Test duration: 30 days

Max. permissible

temperature rise: 30 °C

## UL Specifications – Underwriters Laboratories, USA (continued)

### Tests and Testing Procedures per UL Standards (continued)

#### • Insulation Parameters per UL 1059

The table below shows the potential involved and the corresponding clearances and creepage distances required in different applications.

#### Minimum Acceptable Spacing for Terminal Blocks, UL Standard 1059, Table 8.1:

Use group	Application	Potential Involved in Volts	Spacing in inches (mm) between uninsulated live parts of opposite polarity, uninsulated live parts and uninsulated grounded parts other than the enclosure			
			Through Air		Over Surfaces	
S.	Dead-front switchboards, panelboards, service equipment and similar applications	51 ... 150	1/2	(12.7)	3/4	(19.1)
		151 ... 300	3/4	(19.1)	1...1/4	(31.8)
		301 ... 600	1	(25.4)	2	(50.8)
B.	Commercial appliances, including business equipment, electronic data processing equipment and similar applications	51 ... 150	1/16 <sup>a</sup>	(1.6) <sup>a</sup>	1/16 <sup>a</sup>	(1.6) <sup>a</sup>
		151 ... 300	3/32 <sup>a</sup>	(2.4) <sup>a</sup>	3/32 <sup>a</sup>	(2.4) <sup>a</sup>
		301 ... 600	3/8	(9.5)	1/2	(12.7)
C.	Industrial, general	51 ... 150	1/8 <sup>a</sup>	(3.2) <sup>a</sup>	1/4	(6.4)
		151 ... 300	1/4	(6.4)	3/8	(9.5)
		301 ... 600	3/8	(9.5)	1/2	(12.7)
D.	Industrial, devices having limited ratings <sup>b</sup>	51 ... 300	1/16 <sup>a</sup>	(1.6) <sup>a</sup>	1/8 <sup>a</sup>	(3.2) <sup>a</sup>
		301 ... 600	3/16 <sup>a</sup>	(4.8) <sup>a</sup>	3/8	(9.5)
E.	Terminal blocks rated 601 ... 1500 V <sup>c</sup>	601 ... 1000	0,55	(14.0)	0,85	(21.6)
		1001 ... 1500	0,70	(17.8)	1,20	(30.5)

#### Notes

1 A slot, groove, or similar, 0.013 inch (0.33 mm) wide or less in the contour of the insulating material is to be disregarded.

2 Air space of 0.33 mm or less between a live part and an insulating surface is to be disregarded for the purpose of measuring over surface spacing.

<sup>a</sup> The spacing between terminal blocks of opposite polarity and the spacing between a terminal block and a grounded dead metal part shall not be less than 1/4 inch (6.4 mm) if short-circuiting or grounding of such terminal blocks may result from protruding wire strands.

<sup>b</sup> See Section 8.5 (UL 1059)  
The spacing values indicated in sub-paragraph D in Table 8.1 are applicable to a terminal block for use only in or with industrial control equipment where the load on any single circuit of the terminal block does not exceed 15 A at 51 ... 150 V, 10 A at 151 ... 300 V, 5 A at 301 ... 600 V or the maximum ampere rating, whichever is less.

<sup>c</sup> Applies only to terminal blocks investigated to Part II of this standard. See Section 22.1 (UL 1059).

#### • Flammability Test per UL 94

This test provides an indication of the material's ability to extinguish a flame, once ignited.

Several ratings can be applied, based on the rated of burning, time to extinguish, ability to resist dripping, and after-glow extinguishing time. Each material tested may receive several ratings, depending on the wall thickness.

UL 94 rating categories:

#### V2

- Specimen mounted vertically
- Burning stops within 30 seconds after the flame is removed
- Flaming drips allowed
- After-glow extinguishes within 60 seconds max.

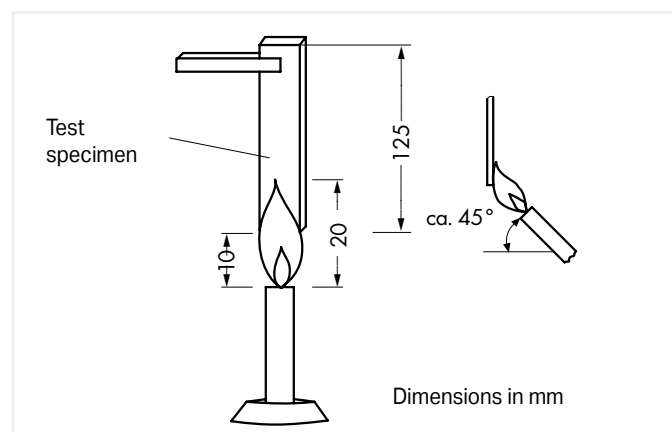
#### V1

- Specimen mounted vertically
- Burning stops within 30 seconds after the flame is removed
- No flaming drips allowed
- After-glow extinguishes within 60 seconds max.

#### V0

- Specimen mounted vertically
- Burning stops within 10 seconds after the flame is removed
- No flaming drips allowed
- After-glow extinguishes within 30 seconds max.

During the test, a 3/4 inch (20 ±1 mm) flame is applied for two 10-second intervals to the specified bar specimen held vertically.



## Terminating Aluminum Conductors

WAGO "Alu-Plus" Contact Paste also allows WAGO spring clamp terminal blocks to properly terminate solid aluminum conductors up to 4 mm<sup>2</sup>/12 AWG. ❶

"Alu-Plus" Contact Paste:

- Prevents fresh oxidation at the clamping point.
- Prevents electrolytic corrosion between aluminum and copper conductors.
- Provides long-term protection against corrosion.

Using terminal blocks with CAGE CLAMP® Spring Pressure Connection Technology, aluminum conductors must first be cleaned and then immediately be inserted into the clamping units filled with WAGO "Alu-Plus" Contact Paste.

It is also possible to apply WAGO "Alu-Plus" additionally on the whole surface of the aluminum conductor before termination.

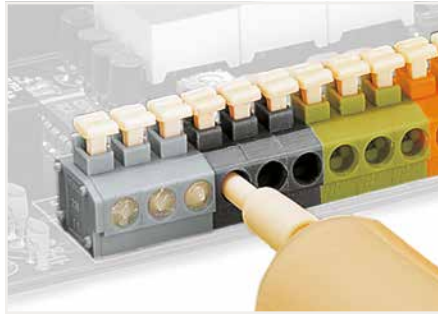
Please note that the nominal currents must be adapted to the reduced conductivity of the aluminum conductors:

2.5 mm<sup>2</sup> (14 AWG) = 16 A  
4 mm<sup>2</sup> (12 AWG) = 22 A

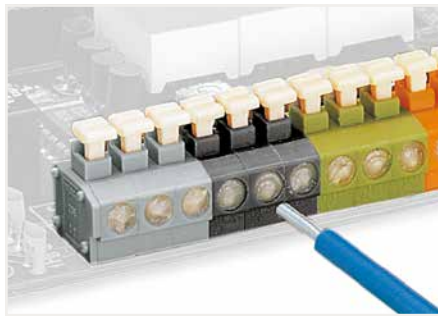
❶ Aluminum conductors per IEC 61545 standard, Class B, "Alloy 1370" with 90 ... 180 N/mm<sup>2</sup> tensile strength and 1 ... 4 % elongation.  
Standard values: 90 ... 180 MPa tensile strength,  
1 ... 4 % elongation (per EN 615.4.1)

WAGO "Alu-Plus" in the syringe offers a higher degree of reliability and cleanness when terminating solid aluminum conductors.

Filling is, for example, quickly performed on WAGO PCB terminal trips:



1. Push nozzle of the "Alu-Plus" syringe into every open conductor entry hole (one after the other).



2. Press plunger down until "Alu-Plus" has filled all conductor entry holes.



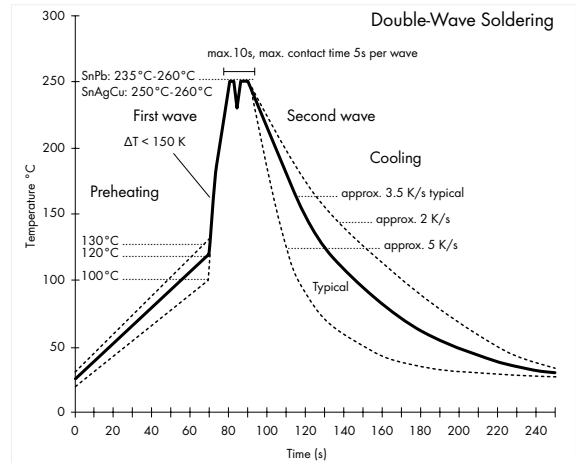
# Processing Information and Material Specifications

## • Soldering Information

### Wave Soldering:

WAGO's PCB terminal blocks and connectors comply with the 2011/65/EU Directive of June 08, 2011 and display the "RoHS compliant" logo on their packaging.

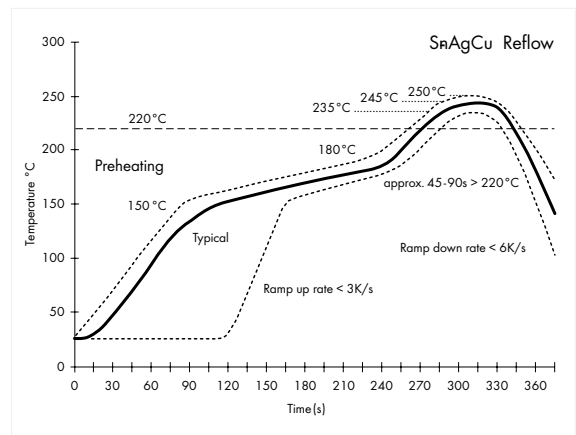
In accordance with IEC 61760-1, the maximum double-wave soldering temperature is 260°C for a maximum 10 seconds or 5 seconds per wave.



### Reflow Soldering:

WAGO's THR and SMD PCB terminal blocks and connectors have high-temperature-resistant insulated housings and reflow solder contacts.

In accordance with IEC 61760-1 or IEC 60068-2-58, the maximum soldering temperature is 260°C (peak temperature). Due to customer-specific variables (e.g., component configuration and orientation, type of soldering machine, solder paste), trial runs are recommended to ensure product and process compatibility under actual manufacturing conditions.



## • Insulation Materials

WAGO primarily uses polyamide (PA 66 and PA 46) for housing current-conducting parts, as well as polyphthalamide (PPA) and polycarbonate (PC) for insulation material (see table). For more than 50 years, these materials have proven themselves in WAGO products and all are approved by certified, third-party agencies. All listed halogen-free and flame-retardant polymer materials do not contain any heavy metals, silicone, asbestos, or formaldehyde as formulation components.

Table: Standard Insulation Materials

Material	PA 66	PA 66 GF	PPA GF	PA 46	PC	PC
Flammability UL 94 flammability test ratings	V0	V0	V0	V2	V2	V0
Oxygen Index (OI) per EN ISO 4589-2	> 32 %	> 33 %	> 37 %	> 27 %	> 26 %	> 35 %
Glow-wire test per IEC 60695-2-12 GWF1* IEC 60695-2-13 GWIT*	850 °C 775 °C	850 °C 775 °C	850 °C 775 °C	750 °C 725 °C	800 °C 850 °C	960 °C 850 °C
Comparative Tracking Index (CTI) per IEC 60112	600 V	600 V	600 V	375 V	225 V	225 V
Temperature of the ball indentation hardness test per EN ISO 2039-1 IEC 60695-10-2	≥ 125 °C	≥ 175 °C	≥ 225 °C	n.s.**	≥ 125 °C	≥ 125 °C
RTI impact per UL 746B	105 °C	100 °C	115 °C	115 °C	125 °C	120 °C
Heat deflection temperature (HDT/B) per ISO 75 (at 0.45 MPa bending stress)	215 °C	235 °C	285 °C	280 °C	130 °C (1.8 MPa)	130 °C (1.8 MPa)
Surface resistivity per IEC 60093	10 <sup>12</sup> Ω	10 <sup>12</sup> Ω	10 <sup>15</sup> Ω	10 <sup>13</sup> Ω	10 <sup>15</sup> Ω	10 <sup>15</sup> Ω
Specific contact resistance per IEC 60093	10 <sup>15</sup> Ω/cm	10 <sup>15</sup> Ω/cm	10 <sup>13</sup> Ω/cm	10 <sup>13</sup> Ω/cm	10 <sup>11</sup> Ω/cm	10 <sup>13</sup> Ω/cm
Dielectric strength per IEC 60243-1	30 kV/mm	40 kV/mm	25 kV/mm	25 kV/mm	25 kV/mm	29 kV/mm

\*Value depends on wall thickness, EN 60335 compliance upon request; \*\*n.s. = not specified

**Polyamide (PA 66)**

WAGO uses modified, halogen-free, flame-retardant polyamides. These materials do not corrode, are difficult to ignite and feature self-extinguishing properties (V0 rating per UL 94). Adhering to UL 746C, the polyamides used at WAGO have a continuous operating temperature of 105°C (221°F) based on the relative temperature index with impact load (RTIimp). This ensures that the necessary electrical and mechanical insulating properties are maintained at a sufficiently guaranteed level over a long period of time. The short-term upper temperature limit is 200°C (392°F). In lower temperature ranges, it has been determined that no damage to the insulation material occurs during usage down to -35°C (-31°F). After installation and wiring, WAGO products can even be used at temperatures down to -60°C (-76°F). Environmental humidity (up to 2.5% in a standard atmosphere) is absorbed, providing the polyamides with optimum elasticity, strength and durability. In practical use, basic stabilization of WAGO's polyamides has been proven over many years as sufficient to prevent damage caused by ozone or UV radiation exposure in intended applications. Polyamides have excellent resilience against the most demanding climates and have proven themselves in tropical applications worldwide. Insulation parts made of polyamide are resistant to insects. The material does not provide oxygen or other biogenic elements to microorganisms. The presence of anaerobic earth bacteria, mold, fungus and enzymes does not degrade the material. Polyamides are resistant to most fuels, greases, and oils, as well as the most commonly used cleaners, such as alcohol, Freon, Frigen, and carbon tetrachloride. Acid resistance depends on the acid type and concentration, as well as the exposure time. The use of insulation materials during in-house production at WAGO only occurs after acceptance of factory test certificates and specified material tests.

**Glass Fiber-Reinforced Polyamide (PA 66 GF)**

WAGO uses glass-fiber-reinforced polyamides for components with increased mechanical demands, such as levers, push-buttons or housings exposed to high stresses, because glass-reinforced polyamides have significantly higher characteristic properties than non-reinforced polyamides. In general, materials are used that have excellent creepage current resistance, flammability ratings and high temperature resistance. More data can be found in the table.

**Polyphthalamide (PPA GF)**

Glass-fiber-reinforced, high-performance polyamides are ideal for high-temperature applications, due to the material's high level of thermal dimensional stability, its low dependence on ambient conditions and its excellent strength properties. The material's outstanding tracking resistance permits short creepage distances to be incorporated into miniature components. Fire protection equipment enables placement into flammability class V0 per UL 94 – even for extremely thin walls. PPA GF absorbs minute amounts of moisture from the ambient air, making it ideal for reflow soldering applications and for thin-walled, dimensionally stable components. More data can be found in the table.

**Polyamide (PA 46)**

In comparison with PA 66, PA 46 has substantially higher dimensional stability under heat. The relative temperature index with impact load (RTIimp) is 115°C (239°F) for PA 4.6. The reliable short-term temperature for the type used by WAGO is 280°C (536°F). More data can be found in the table.

**Polycarbonate (PC)**

Polycarbonate has excellent dimensional stability under heat. The electrical and mechanical properties remain intact at extremely high temperatures up to approximately 120°C (248°F) per UL Yellow Card. Its excellent electrical insulating properties and dimensional stability are virtually independent of environmental conditions, such as humidity and temperature. Highly precise components can be created due to the low shrinkage of the material during injection molding. Polycarbonate has excellent weather resistance and is also highly resistant to high-energy radiation. If the PC is not colored, then the components are glass-clear. Thanks to its desirable properties (e.g., dimensional stability, heat resistance, non-flammability, durability and transparency), PC is a proven and widely used material in the electrical industry. Depending on the demands placed on the finished product, WAGO uses polycarbonates that carry flammability classifications V2 and V0 per UL 94. Medium-viscosity PC is used that features excellent chemical resistance.

## Material Specifications (continued)

### Contact Materials

Hard and extra-hard electrolytic copper (ECu), as well as extra-hard copper alloys are the standard materials used for the current-carrying parts of all WAGO products.

These materials combine excellent conductivity and good chemical resistance without the risk of stress-induced cracking.

### Contact Plating

The special tin layer, which is the standard layer for all current-carrying parts in WAGO products, ensures perfect long-term protection against corrosive substances. Furthermore, these layers provide a gas-tight contact that ensures a durable transition resistance.

At the clamping unit, the conductor is embedded into the soft tin layer via high contact pressure. This protects the contact area against corrosion.

The thick tin layer also ensures good solderability of both PCB terminal block and connector solder pins.

### Clamping Spring Material

Every WAGO clamping spring is made of high-quality, accurately tested austenitic chrome nickel steel (CrNi) with high tensile strength, which boasts proven corrosion resistance through long-term usage.

It is resistant to sea spray, city pollutants and industrial emissions (e.g., sulfur dioxide, hydrogen sulfide).

At room temperatures of approximately 20°C (68°F), the material is resistant to salt solutions up to 30 % and dilute phosphoric acids up to 30%.

Even after decades of use, no galvanic corrosion between the chrome nickel spring steel (in connection with the contact materials used by WAGO) and the connected copper conductors has been detected.

The relaxation of the material as a function of time and surrounding temperatures up to 105°C (221°F) can be ignored. Samples loaded with 500 N/mm<sup>2</sup> at a temperature of 250°C (482°F) showed a relaxation of only 1.5%.

In certain product lines, the clamping springs are thermally treated at temperatures between 350°C (662°F) and 420°C (788°F) after production.

This treatment reduces internal stress due to the material's mechanical deformation, which may result in a slight brown discoloration of the spring surface.

WAGO only accepts deliveries of chrome nickel spring steel against certificates of conformity and after select material tests have been performed.

## General Technical Information on Electrical Equipment Used in Hazardous Areas

A prerequisite for a potentially explosive hazard is the formation of an explosive atmosphere. Such an atmosphere can be produced at any location where flammable gases or liquids are manufactured, processed, transported and/or stored.

Such **hazardous areas** can be found in a wide range of industries, including chemical plants, refineries, power plants, paint producing facilities, painting shops, filling stations, vehicles, sewage treatment plants, airports, grain mills or harbor facilities.

### THE FOLLOWING APPLIES AS A GUIDELINE FOR THE UNDERLYING PRINCIPLE FOR EXPLOSION PROTECTION:

#### General Requirements

The European EN 60079-0 Standard – VDE 0170-1 Classification – contains general requirements for the design and testing of electrical equipment to be used in hazardous areas. This ensures this equipment does not cause an explosion in the surrounding atmosphere.

#### Electrical Equipment

Electrical equipment includes all items used in whole or in part with electricity. This includes items for generation, transport, distribution, storage, measurement, control, conversion and consumption of electrical power, as well as telecommunications.

#### Ex Components

Ex components are elements of electrical equipment for hazardous areas that are marked with the "U" letter. These components must not be used on their own in such areas and require an additional certificate when used in such areas when installed in the electrical equipment.

#### Ignition Protection Categories

Only explosion-proof (protected) equipment must be used in areas in which an explosive atmosphere may still be expected despite the implementation of prevention measures. Explosion-protected electrical equipment can have various types of protection in accordance with the EN 60079 standard requirements.

Protection used by the manufacturer essentially depends on the type and function of the apparatus. From a safety point of view, all standardized types of protection should be viewed as equal.

The ignition protection category "n" exclusively describes the use of explosion-protected electrical components in Zone 2. This zone includes areas in which hazardous, potentially explosive atmospheres are likely to occur rarely or short-term. This represents a transition between Zone 1, in which explosion protection is required, and the safe area in which, for example, welding may be performed at any time. Regulations covering these electrical components are being prepared worldwide. Organizations such as KEMA in the Netherlands, or PTB in Germany certify that the devices meet the requirements of the EN 60079-15 standard. Ignition protection category "n" also requires that electrical equipment be provided with additional ID markings as follows:

A – non-sparking (function modules without relays/switches)

AC – sparking, contacts protected with seals (function modules with relays/without switches)

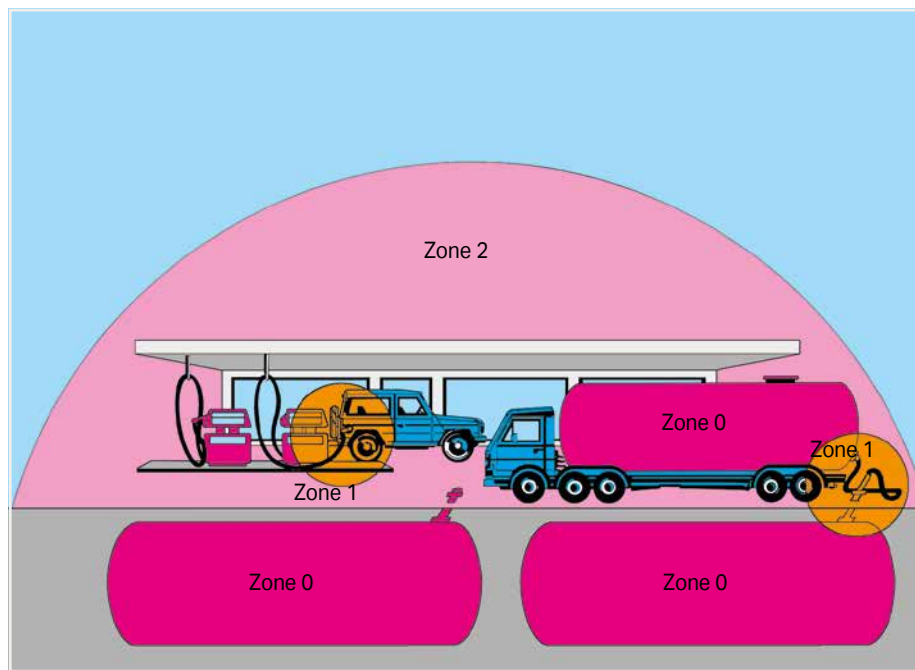
L – limited power (function modules with switches)

## General Technical Information on Electrical Equipment Used in Hazardous Areas (continued)

Hazardous areas are zones in which the atmosphere may become explosive. An explosive atmosphere is a mixture of flammable substances in the form of gases, vapors or mixtures with air under atmospheric conditions in critically mixed ratios such that

excessive high temperature, arcs or sparks may cause an explosion.

DIN EN 1127-1 and all other related standards that are well-known divide up hazardous areas according to the likelihood of the occurrence of an explosive atmosphere into the following zones:



- ❶ Hazardous areas due to explosive gases, vapors and mists

### Zone 0:

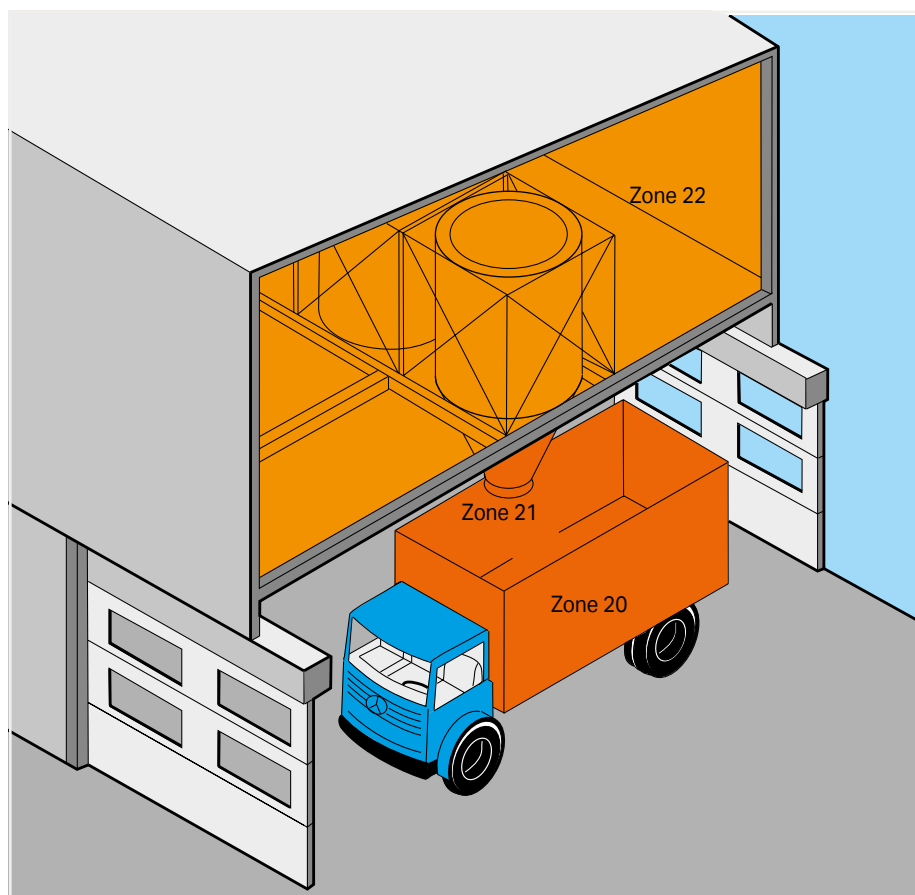
Areas in which an explosive atmosphere is present continuously, for long periods or frequently.

### Zone 1:

Areas in which an explosive atmosphere is likely to occur occasionally during normal operation.

### Zone 2:

Areas in which an explosive atmosphere is likely to occur rarely or only for a short period during normal operation.



- ❷ Hazardous areas due to explosive dust/air mixtures

### Zone 20:

Areas in which an explosive atmosphere due to dust/air mixtures is present continuously, for long periods or frequently and in which dust deposits of known or excessive thickness may form. Dust deposits alone do not constitute a Zone 20.

### Zone 21:

Areas in which the occurrence of an explosive atmosphere due to dust/air mixtures is to be expected occasionally and in which deposits or layers of combustible dust can generally be present.

### Zone 22:

Areas in which an explosive atmosphere due to dust/air mixtures is not likely to occur during normal operation and, if it occurs, will only exist for a short period, or in which accumulations or layers of combustible dust are present.

EN 60079-0 also classifies electrical equipment for use in hazardous areas into two groups:

**Group I:**

Electrical equipment for mines susceptible to firedamp

**Group II:**

Electrical equipment for hazardous areas, except for mines susceptible to firedamp. As this broad application range encompasses a large number of potentially flammable gases, Group II is broken down into sub-groups IIA, IIB and IIC. This breakdown is based on different gases/materials exhibiting differing ignition power levels as parameters. Therefore, representative gases have been allocated to these three sub-groups:

- IIA – Propane
- IIB – Ethylene
- IIC – Hydrogen

Publication of the WBK Mining Authority dated March 1989.  
Quote: "... terminal blocks that have been certified for the type of protection Ex e II will also be accepted, for example, for Group I – equipment with "e" (increased safety) protection type."

This information is also given under Item 12 in the EC Prototype Test Certificates, based on which the terminal blocks have been approved for Group I and Group II.

Temperature Category	Maximum Surface Temperature °C
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

Depending on the maximum surface temperature, electrical equipment in Group II are classified in temperature categories T1 to T6 for all protection types. The ambient temperature, which must be accounted for in dimensioning, is defined as 40°C/104°F (deviations are acceptable under some conditions).

Terminal blocks for "e" (increased safety) protection type are generally assigned to temperature category T 6. When terminal blocks are used in equipment of temperature categories T1 to T5, ensure that the highest temperature on the insulating parts does not exceed 85°C (185°F). The highest measured surface temperature rise must not exceed 40 K.

Thermal resistance of the insulation material must be at least 20°C (68°F) greater than the highest operating temperature. Low temperature stability is considered to be sufficient when the insulation material can withstand 24-hour storage at a temperature of -60°C (-76°F) without nullifying the type of protection.

**Special Requirements  
Increased safety Ex e**

The European EN 60079-7 Standard – VDE 0170-6 Classification – contains special requirements for the design and testing of electrical equipment with "e" (increased safety) protection type for use in hazardous areas.

This standard is a supplement to EN 60079-0 and applies to equipment or parts thereof that neither generate sparks or arcing under normal operating conditions, nor exhibit hazardous temperatures.

This standard describes special measures, which have to be observed to obtain a safety degree according to the "e" (increased safety) protection type.

Ex components such as PCB terminal blocks are covered by Section 4.2 "Terminal Blocks for External Conductors."

The following are the most important design requirements for terminal blocks for external supply conductors to electrical equipment: These must:

- be sufficiently large to permit reliable connection of external supply conductors with cross-section of at least the size required by the nominal current of the equipment
- be protected against self-loosening and designed such that the supply conductors cannot slip out of their clamping units
- be designed such that adequate contact pressure is ensured without damaging the conductors
- be designed such that their contact pressure does not change with temperature cycling
- be equipped with a spring connecting link for the connection of stranded conductors
- be designed so as to allow secure connection of smaller conductors for terminal blocks up to 4 mm<sup>2</sup> (12 AWG).

**Minimum Ignition Power of Typical Gases:**

Explosion Group	I	IIA	IIB	IIC
Gas	Methane	Propane	Ethylene	Hydrogen
Ignition Power	280	250	82	16

The following table shows a comparison between the current practice based on ElexV, DIN VDE 0165: 1991 and the new EN 1127-1:

Device Group II				
Category	Protection degree	Adequate safety for	Comparable to current practice	New, based on EN 1127
1 Ex atmosphere is very probable, swirled dust	Highest	Two protective measures Two faults	Group II, Zone 0 Zone 10	Zone 0 Zone 20
2 Occasional Ex atmosphere	Increased	Equipment failure or fault	Group II, Zone 1	Zone 1 Zone 21
3 Low probability of Ex atmosphere, settled dust	Normal	Fault-free operation	Group II, Zone 2 Zone 11	Zone 2 Zone 22



## General Technical Information on Electrical Equipment Used in Hazardous Areas (continued)

It is expressly prohibited to use insulating parts for transferring contact forces. Terminal blocks with sharp edges which could damage supply lines and those types that can be rotated, turned or permanently deformed when fixed in place are not permitted for use. Terminal blocks for internal connections in electrical equipment must not be subjected to excessive mechanical stress. These items must fulfill the requirements for terminal blocks used for external supply conductors.

Clearances between conductive parts having different potentials must be at least 3 mm for external connections, as specified in Table 1. The value of the creepage distances depends on the working voltage, surface geometry of the insulating parts and tracking resistance of the insulation material.

Grooves on the surface may only be considered if they are at least 2.5 mm deep and wide; ribs on the surface only if their height is at least 2.5 mm and their width corresponds to the mechanical strength of the material, however not smaller than 1 mm.

**Table 1: Creepage Distances and Clearances**

Voltage <sup>1)</sup> RMS Value for AC or DC Voltage	Minimum Creepage Distance mm			Minimum Clearance
	Material Group			
	V	I	II	III a
10 <sup>2)</sup>	1.6	1.6	1.6	1.6
12.5	1.6	1.6	1.6	1.6
16	1.6	1.6	1.6	1.6
20	1.6	1.6	1.6	1.6
25	1.7	1.7	1.7	1.7
32	1.8	1.8	1.8	1.8
40	1.9	2.4	3	1.9
50	2.1	2.6	3.4	2.1
63	2.1	2.6	3.4	2.1
80	2.2	2.8	3.6	2.2
100	2.4	3	3.8	2.4
125	2.5	3.2	4	2.5
160	3.2	4	5	3.2
200	4	5	6.3	4
250	5	6.3	8	5
320	6.3	8	10	6
400 (440) <sup>*)</sup>	8	10	12.5	6
500 (550) <sup>*)</sup>	10	12.5	16	8
630 (690) <sup>*)</sup>	12	16	20	10
800	16	20	25	12
1000	20	25	32	14
1250	22	26	32	18
1600	23	27	32	20
2000	25	28	32	23
2500	32	36	40	29
3200	40	45	50	36
4000	50	56	63	44
5000	63	71	80	50
6300	80	90	100	60
8000	100	110	125	80
10000	125	140	160	100

1) The listed voltages are taken from IEC 60664-1. The working voltage \*) may exceed the voltage indicated in the table by 10%. This is based on the simplification of the supply voltages in accordance with Table 3b for IEC 60664-1. The listed values for creepage distances and clearances are based on a maximum limit deviation for supply voltage of  $\pm 10\%$ .

2) CTI values are not applicable for voltages of 10 V or less. Materials that do not meet the requirements of material group III a can be used.

Classification of insulation materials according to their tracking resistance is based on their Comparative Tracking Index (CTI) and is defined in Table 2 as follows:

This classification applies to insulating parts without ribs or grooves.

If the insulating parts have ribs or grooves sufficiently large to be considered, the minimum creepage distances must be set according to values for the insulation materials in the next-higher level (e.g., Group I, instead of Group II).

Accounting for the ambient operating temperature of 40°C (104°F) specified for electrical equipment, the current-carrying capacity of rubber-insulated conductors is reduced to 82%, based on DIN VDE 0298-4:2013-06, Table 12 and to 87% for PVC-insulated conductors for the current-carrying capacity defined for 30°C (86°F) in accordance with Item 4.3.3 in DIN VDE 0298-4:2013-06.

**Table 2: Tracking Resistance for Insulation Materials**

Material Group	Comparative Tracking Index
I	$600 \leq \text{CTI}$
II	$400 \leq \text{CTI} < 600$
III a	$175 \leq \text{CTI} < 400$

### Conductor Types and Conductor Preparation

In accordance with EN 60079-14/DIN VDE 0165-1, the ends of stranded and fine-stranded conductors must be protected against splaying (e.g., via cable lugs or ferrules) or by the type of terminal blocks used. Soldering alone is not sufficient. The conductor entry funnels of WAGO PCB terminal blocks fulfill this requirement.

According to EN 60069-7/DIN VDE 0170, Part 6, connecting electrical equipment to terminal blocks having an "e" (increased safety) protection type must not lead to a reduction of the clearances and creepage distances.

Based on experience through the application of terminal blocks in aggressive atmospheres in the chemical industry, WAGO recommends gas-tight tinned copper ferrules or tinned copper pin terminals when connecting fine-stranded conductors to terminal blocks in corrosive atmospheres.

**Approvals**

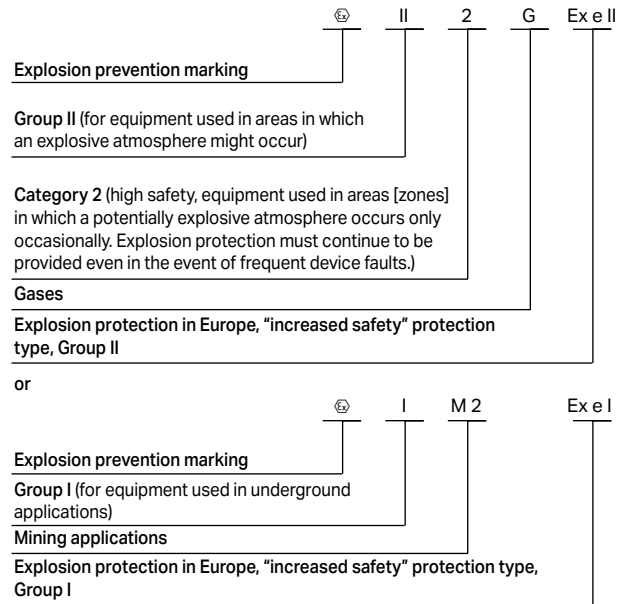
Terminal blocks may be used in Zones 1 and 2, provided that the terminal blocks are accommodated in an enclosure that has a minimum IP54 protection and an Ex e certification.

Terminal blocks are considered to be Ex components, because they are a part of the equipment. Part certificates provided by Ex Certification Agencies serve as a basis for issuing the complete conformity declaration for the unit.

An EC-type examination certificate is issued in accordance with the 2014/34/EU ATEX Directive.

In addition, an IEXEx certificate may also be obtained from an appropriate, recognized certification agency in accordance with the IECEx Certification Agreement that is accepted throughout Europe and also in countries such as Canada, China and Australia. These certificates can also be viewed at: [www.iecex.com](http://www.iecex.com)

**Terminal block marking per 2014/34/EU ATEX Directive:**

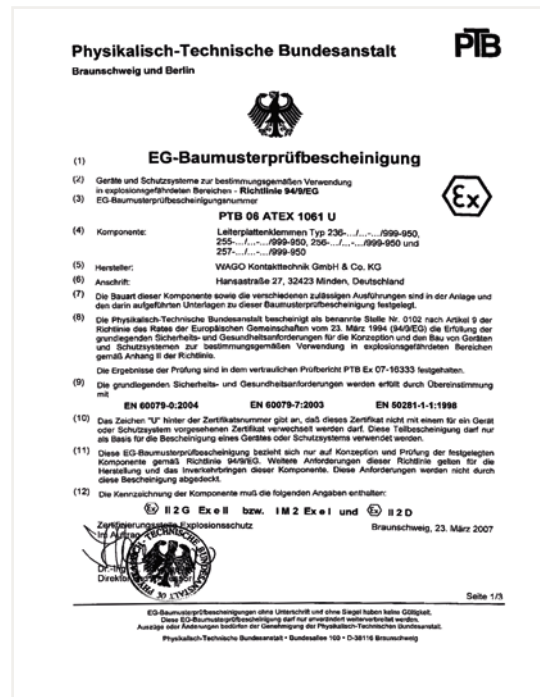
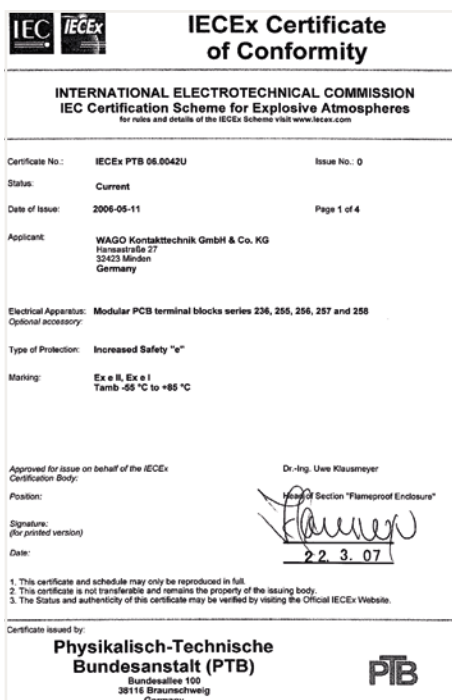


Marking only with the Ex code 4 is also adequate as an alternative.

EC-type examination certificates have been granted to all WAGO terminal blocks listed in this catalog. WAGO terminal blocks approved for use in Ex e II areas are manufactured of flame-resistant, self-extinguishing Polyamide 66. The same applies to the terminal blocks used in

non-hazardous areas. Tracking resistance with a CTI value of 600 as per IEC 60112 and a constant operating temperature of 105°C (22°F) in accordance with IEC 60216-1 and -2 are provided. Factory part quality tests are performed on all PCB terminal blocks with Ex e II approval

to monitor and ensure the quality features described above.



## General Technical Information on Electrical Equipment Used in Hazardous Areas (continued)

### Special Requirements "Intrinsic safety Ex i"

The European EN 60079-11 Standard – DIN EN 60079-11 Classification (VDE 0170-7) – contains special requirements for the design and testing of electrical equipment with "i" (intrinsic safety) protection type for use in hazardous areas.

A circuit is "intrinsically safe" when, under normal operating conditions and in the event of specific fault conditions, no sparks or thermal effects can occur and cause the ignition of a certain explosive atmosphere.

A distinction is made here between:

- intrinsically safe electrical equipment when all circuits are intrinsically safe and
- associated electrical equipment including both intrinsically and non-intrinsically safe circuits, and being designed such that the non-intrinsically safe circuits cannot affect the intrinsically safe ones.

Intrinsically safe electrical equipment and intrinsically safe parts of associated electrical equipment are classified at "ia" or "ib" protection level. Electrical equipment classified Ex "ia" must not ignite when current is applied in the following cases:

- a) During fault-free operation, with those non-discreet faults present that result in the most adverse condition;
- b) During fault-free operation and with a discreet fault,

plus those non-discreet faults that result in unfavorable conditions.

- c) During fault-free operation with two discreet faults, plus those non-discreet faults that result in the most adverse conditions.

Electrical equipment classified Ex "ib" must not ignite when current is applied in the following cases:

- a) During fault-free operation, with those non-discreet faults present that result in the most adverse condition;
- b) During fault-free operation and with a discreet fault, plus those non-discreet faults that result in unfavorable conditions.

**No special approval is required for terminal blocks used as simple electrical equipment for "Ex i" protection type, as they do not contain a voltage source and precise information is available concerning electrical data and temperature rise performance.**

The terminal blocks must be identifiable, for example by their type designation, and the following design requirements must also be upheld:

- The clearance between bare, conducting parts of terminal blocks of different intrinsically safe circuits has to be equal or higher than the values specified in the standard. In addition, clearances between the terminal blocks must be so that the clearances between the bare, conductive parts of the connected external conductors is at least 6 mm when measured. Each possible motion of metallic parts that are not rigidly secured must be considered.
- When a possible connection has not been considered during safety analysis, the minimum clearance between grounded metallic or other conducting parts and the uninsulated conducting parts of the conductors that are connected to the terminal blocks must be 3 mm.

**Terminal block marking must be unique and clearly visible. If a color is used for this, the color must be light blue (similar to RAL 5015).**

Note also when using terminal blocks: Terminal blocks used for intrinsically safe circuits must be isolated from those used in non-intrinsically safe circuits. This is accomplished by several accepted methods. First, intrinsically safe circuits are separated by at least 50 mm of air space from non-intrinsically safe circuits. Second, intrinsically safe circuits are housed in a separate enclosure. Third, intrinsically safe terminal blocks are separated from non-intrinsically safe terminal blocks by either an insulated partition or grounded metal partition. The partition size must allow for either 1.5 mm or less distance from the sides of the housing or provide at least 50 mm of creepage distance between the intrinsically and non-intrinsically safe circuits in all directions.

Requirements pertaining to the necessary distances as appropriate for use of the terminal blocks in the area DIN EN 60079-11 (VDE 0170-7) "Explosive atmosphere – Part 11: Device protection by intrinsically safe features "i" (IEC 60079-11)" are defined under Section 6.2 "Connecting point for external circuits," Section 6.2.1 "Terminal blocks." In general, the following can be stated for terminal blocks based on figure 1: "Example of isolation of intrinsically safe terminal blocks with partition" in conjunction with figure 2: "Example of isolation of conductive parts," considering Table 5 – "Clearances, Creepage and Isolation Distances."

#### Outside:

a) Isolated intrinsically safe circuits: at least 6 mm

**All PCB terminal blocks listed on the ordering pages as suitable for Ex "i" applications fulfill these requirements.**

b) Intrinsically safe circuits and normal circuits (non-intrinsically safe):  $\geq 50$  mm

#### Inside:

a) Ex "i" to Ex "i"

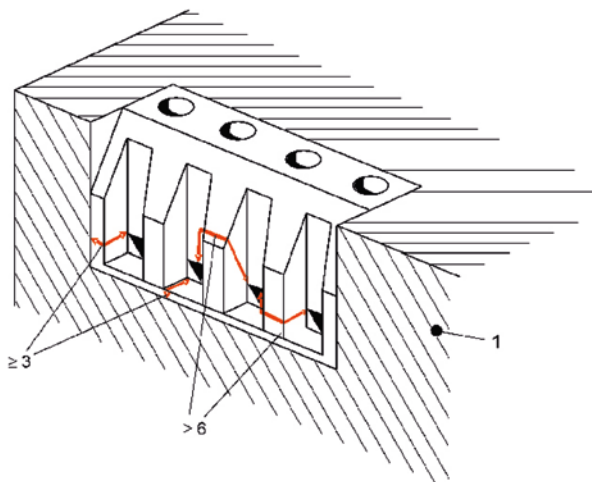
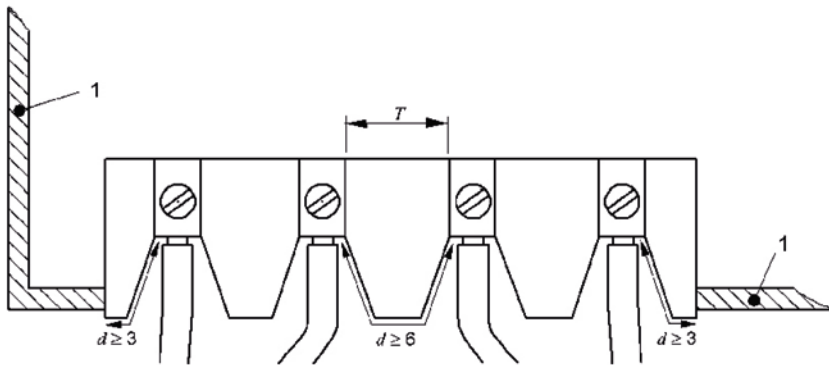
b) Ex "i" to normal circuits

c) Ex "i" to ground

Based on Figure 2 and Table 5 (see next page) in accordance with the selected protection level and the special requirements for isolation distances as described in Sections 6.3.1 to 6.3.13, or in accordance with the alternative procedure for dimensioning of isolation distances given in Annex F.

Terminal blocks with smaller pin spacing may also be used for internal connections, provided they meet the requirements laid out in Table 5 (see below).

The exact clearances and creepage distances as well as separation distances based on Table 5 must be derived from the application items cited above.



#### Legend:

1: Conductive cover

T: Distances based on Table 5

d: Distance at outer connecting parts of the terminal blocks according to 6.2.1

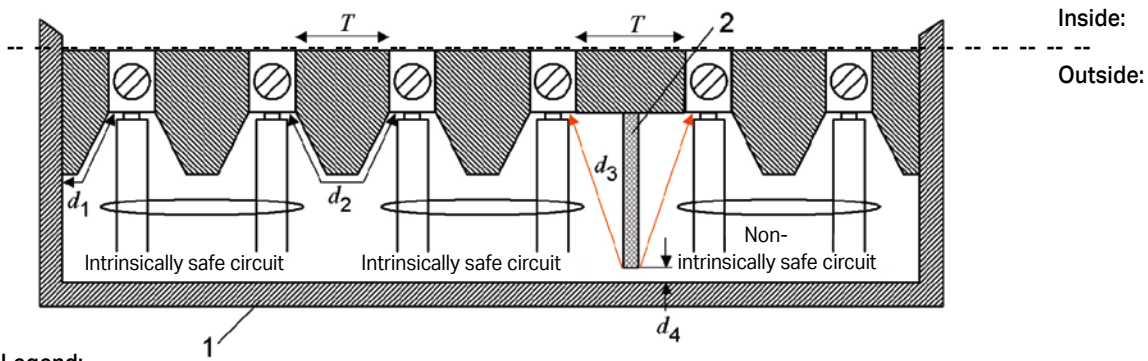
#### Note:

The dimensions indicated here represent the clearances and creepage distances around the insulation and not the thickness of the insulation.

Dimensions in mm

Figure 1a: Requirements for clearances and creepage distances for terminal blocks with isolated, intrinsically safe circuits

# General Technical Information on Electrical Equipment Used in Hazardous Areas (continued)



**Legend:**

- 1 Cover: non-conductive or conductive and grounded
- 2: Partition based on 6.2.1 b); in this example, the partition must end at the base
- T: Distances based on Table 5
- $d_1 \geq 3 \text{ mm}$ , when the cover is conductive and grounded  $\geq 6 \text{ mm}$
- $d_3 \geq 50 \text{ mm}$  or  $d_4 \leq 1.5 \text{ mm}$

**Note:**

The dimensions indicated here represent the clearances around the insulation and not the thickness of the insulation!

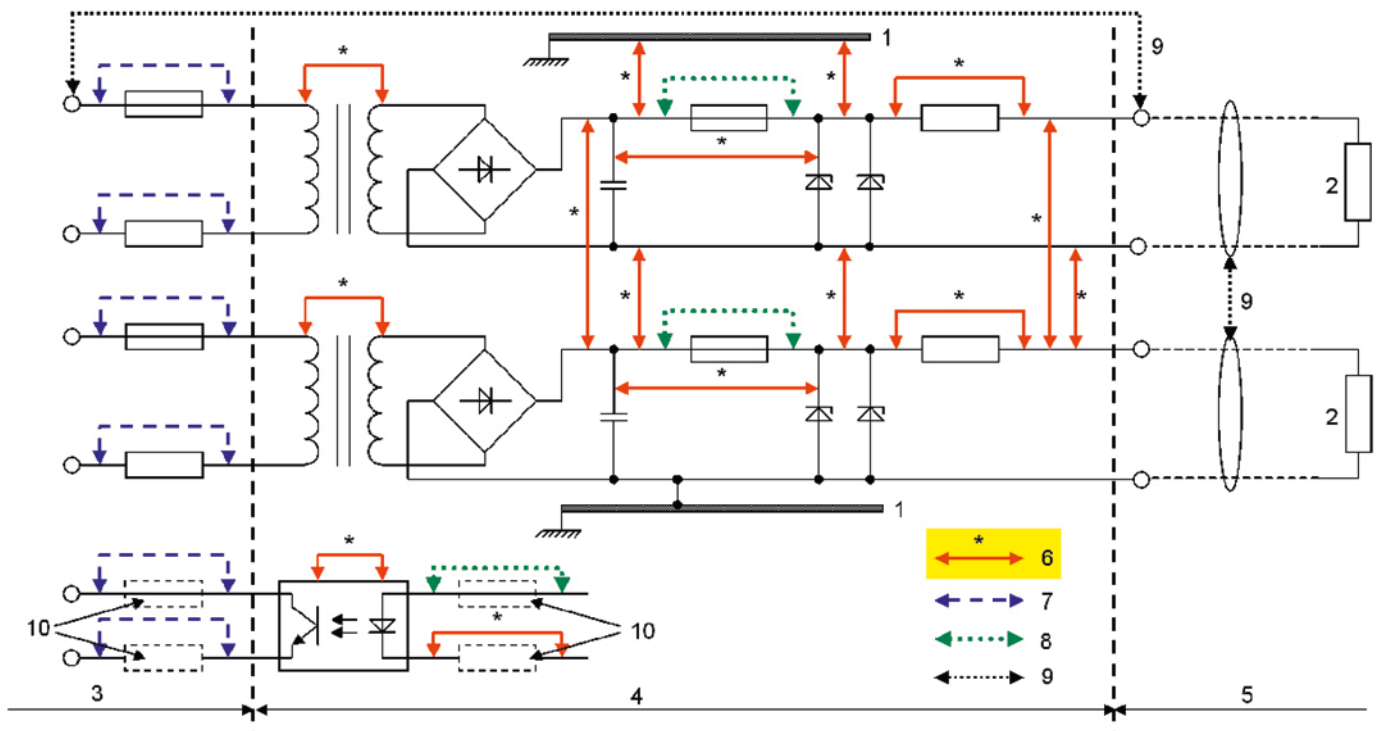
**Figure 1b:** Example of isolation of intrinsically safe and non-intrinsically safe terminal blocks by a partition

**Table 5:** Clearances, Creepage and Isolation Distances

1 Voltage (Peak) (V)	2 Clearance (in mm)		3 Separation by Encapsulation (in mm)		4 Separation by Fixed Insulation (in mm)		5 Creepage Distance through Air (in mm)		6 Creepage Distance beneath Protective Layer (in mm)		7 Comparative Tracking Index (CTI)	
	ia, ib	ic	ia, ib	ic	ia, ib	ic	ia, ib	ic	ia, ib	ic	ia	ib, ic
10	1.5	0.4	0.5	0.2	0.5	0.2	1.5	1.0	0.5	0.3	--	
30	2.0	0.8	0.7	0.2	0.5	0.2	2.0	1.3	0.7	0.3	100	100
60	3.0	0.8	1.0	0.3	0.5	0.3	3.0	1.9	1.0	0.6	100	100
90	4.0	0.8	1.3	0.3	0.7	0.3	4.0	2.1	1.3	0.6	100	100
190	5.0	1.5	1.7	0.6	0.8	0.6	8.0	2.5	2.6	1.1	175	175
375	6.0	2.5	2.0	0.6	1.0	0.6	10.0	4.0	3.3	1.7	175	175
550	7.0	4.0	2.4	0.8	1.2	0.8	15.0	6.3	5.0	2.4	275	175
750	8.0	5.0	2.7	0.9	1.4	0.9	18.0	10.0	6.0	2.9	275	175
1000	10.0	7.0	3.3	1.1	1.7	1.1	25.0	12.5	8.3	4.0	275	175
1300	14.0	8.0	4.6	1.7	2.3	1.7	36.0	13.0	12.0	5.8	275	175
1575	16.0	10.0	5.3	*	2.7	*	49.0	15.0	16.3	*	275	175
3.3k	*	18.0	9.0	*	4.5	*	*	32.0	*	*	*	*
4.7k	*	22.0	12.0	*	6.0	*	*	50.0	*	*	*	*
9.5k	*	45.0	20.0	*	10.0	*	*	100.0	*	*	*	*
15.6k	*	70.0	33.0	*	16.5	*	*	150.0	*	*	*	*

Note 1: \*At present, no values have been recommended for these voltages.

Note 2: Proof of fulfillment of the CTI requirements for the insulating materials must be provided by the manufacturer. Defining a CTI is not required for insulation materials for voltage levels up to 10 V.

**Legend:**

- 1: Chassis
- 2: Load
- 3: Non-intrinsically safe circuit defined by  $U_m$
- 4: Portion of intrinsically safe circuit, item is not intrinsically safe
- 5: Intrinsically safe circuit
- 6: Dimensions for which Table 5 applies
- 7: Dimensions for which general industrial standards apply
- 8: Dimensions per 7.3
- 9: Dimensions based on 6.2.1 for output terminal blocks between isolated intrinsically safe circuits ( $d_2 \geq 6 \text{ mm}$ ) and between intrinsically safe circuits and non-intrinsically safe circuits ( $d_3 \geq 50 \text{ mm}$ )
- 10: Where required






**Figure 2: Isolation examples for conductive parts**

In accordance with DIN EN 60079-14 (VDE 0165-1), in intrinsically safe circuits, the ends of stranded and fine-stranded conductors must be protected against splaying (e.g., via cable lugs or ferrules) or by the type of terminal blocks used. Soldering alone is not sufficient. The conductor entry funnels of WAGO PCB terminal blocks fulfill this requirement.



WAGO recommends gas-tight tinned copper ferrules or tinned copper pin terminals when connecting fine-stranded conductors to terminal blocks in corrosive atmospheres.



## International Certification Organizations – Overview

		Abbreviation			Abbreviation
	Underwriters Laboratories USA <a href="http://www.ul.com">http://www.ul.com</a>	UL		Danmarks Elektriske Materielkon- trol Denmark <a href="http://www.demko.dk">http://www.demko.dk</a>	DEMKO
	Underwriters Laboratories USA <a href="http://www.ul.com">http://www.ul.com</a>	UL		CENELEC CERTIFICATION AGREE- MENT Danmarks Elektriske Materielkon- trol Denmark <a href="http://www.cenelec.org">http://www.cenelec.org</a>	CCA Appr. No. with NL
Y	Underwriters Laboratories USA <a href="http://www.ul.com">http://www.ul.com</a>	cURus			
	Underwriters Laboratories USA <a href="http://www.ul.com">http://www.ul.com</a>	cULus		SETI – FEMKO Sähkötarastuskeskus Elinspeck- tionscentralen Finland <a href="http://www.seti.fi">http://www.seti.fi</a>	
	Canadian Standards Association Canada <a href="http://www.csa.ca">http://www.csa.ca</a>	CSA		Sähkötarastuskeskus Elinspeck- tionscentralen Finland <a href="http://www.fimko.com">http://www.fimko.com</a>	FIMKO
	VDE-Gutachten mit Ferti- gungsüberwachung Germany <a href="http://www.vde.de/vde/html/e/home.htm">http://www.vde.de/vde/html/e/ home.htm</a>	VDE	<b>SABS</b>	South African Bureau of Standards South Africa <a href="http://www.sabs.co.za">http://www.sabs.co.za</a>	SABS
	VDE – Deutscher Verband für Elektrotechnik Germany <a href="http://www.vde.de">http://www.vde.de</a>			RosTesT Russia <a href="http://www.rostest.ru">http://www.rostest.ru</a>	ROTEST
VDE	VDE – Prüfbericht Germany			Departamentul Moldovastandard Moldova <a href="http://www.moldova.md/ro/govern-&lt;br/&gt;ment/oll/D_STAND/en/strcent2.htm">http://www.moldova.md/ro/govern- ment/oll/ D_STAND/en/strcent2.htm</a>	CSM
	Österreichischer Verband für Elektrotechnik Austria <a href="http://www.ove.at">http://www.ove.at</a>	ÖVE		Certificate of Registration Great Britain <a href="http://www.astacertification.com">http://www.astacertification.com</a>	ASTA
	Schweizerischer Elektrotech- nischer Verein Switzerland <a href="http://www.sev.ch/">http://www.sev.ch/</a>	SEV		Rheinisch-Westfälischer Tech- nischer Überwachungsverein e.V. Germany <a href="http://www.rwtuv.de">http://www.rwtuv.de</a>	RWTüv
	N.V. tot Keuring van Elektrotech- nische Materialen Netherlands <a href="http://www.kema.nl">http://www.kema.nl</a>	KEMA		Elektrotechnick´y v´yskumn´y a projektov´y ústav Czech Republic <a href="http://www.ezu.cz">http://www.ezu.cz</a>	EZU
CCA	CENELEC CERTIFICATION AGREE- MENT N.V. tot Keuring van Elektrotech- nische Materialen Netherlands <a href="http://www.cenelec.org">http://www.cenelec.org</a>	CCA Appr. No. with NL		Stowarzyszenie Elektrykow Pol- skich Poland <a href="http://www.sep.com.pl">http://www.sep.com.pl</a>	BBJ
	Norges Elektriske Materialkontroll Norway <a href="http://express.nemko.com">http://express.nemko.com</a>	NEMKO		Stowarzyszenie Elektrykow Pol- skich Poland <a href="http://www.bbj.pl">http://www.bbj.pl</a>	SEP
	Svenska Elektriska Materielkon- trollanstalten AB Sweden <a href="http://www.semko.com">http://www.semko.com</a>	SEMKO			

For complete, up-to-date approval information, visit [www.wago.com](http://www.wago.com).

		Abbreviation		Abbreviation	
<b>CNET</b>	Centre National d'Etudes des Télécommunications France <a href="http://www.lannion.cnet.fr">http://www.lannion.cnet.fr</a>	CNET	,	Robbanásbiztos Villamos Berendezések Hungary <a href="http://www.bki.hu">http://www.bki.hu</a>	BKI
<b>LCIE</b>	Laboratoire Central des Industries Electriques France <a href="http://www.lcie.fr">http://www.lcie.fr</a>	LCIE	CB	CB – TEST CERTIFICATE India <a href="http://www.ul-europe.com">http://www.ul-europe.com</a>	CB
	Fyzikálne Technické Ústav, Ostrava-Radvanice Czech Republic <a href="http://www.ftzu.cz">http://www.ftzu.cz</a>	FTZU	CB	CB – TEST CERTIFICATE China <a href="http://www.ul-europe.com">http://www.ul-europe.com</a>	CB
				UL-International Demko A/S Denmark <a href="http://www.ul-europe.com">http://www.ul-europe.com</a>	ENEC
<b>Marine Approvals</b>					
	Germanischer Lloyd Germany <a href="http://www.gl-group.com">http://www.gl-group.com</a>	GL	Ex Approvals		
	Bureau Veritas France <a href="http://www.bureauveritas.fr">http://www.bureauveritas.fr</a>	BV	P	Physikalisch Technische Bundesanstalt Germany Ex e II <a href="http://www.ptb.de">http://www.ptb.de</a>	PTB
	Lloyd's Register of Shipping Great Britain <a href="http://www.lloydsregister.com">http://www.lloydsregister.com</a>	LR	Y	Underwriters Laboratories USA <a href="http://www.ul.com">http://www.ul.com</a>	cURus-EX
	NV – Det Norske Veritas Norway <a href="http://www.dnv.com">http://www.dnv.com</a>	DNV	K	N.V. tot Keuring van Elektrotechnische Materialen Netherlands <a href="http://www.kemaquality.com">http://www.kemaquality.com</a>	KEMA-EX
	Russian Maritime Register of Shipping GUS <a href="http://www.rs-head.spb.ru">http://www.rs-head.spb.ru</a>	RMR	GOSENERGO-Ex GOSENERGONADZOR Russia		GOSENERGO-EX
	Polski Rejestr Statków Poland <a href="http://www.prs.pl">http://www.prs.pl</a>	PRS	-	Fyzikálne Technické Ústav, Ostrava-Radvanice Czech Republic <a href="http://www.ftzu.cz">http://www.ftzu.cz</a>	FTZU
	Korean Register of Shipping Korea <a href="http://www.krs.co.kr">http://www.krs.co.kr</a>	KR	,	Robbanásbiztos Villamos Berendezések Hungary <a href="http://www.bki.hu">http://www.bki.hu</a>	BKI-Ex
	American Bureau of Shipping USA <a href="http://www.eagle.org">http://www.eagle.org</a>	ABS			

## Electrical Engineering Laboratory

### Product Safety for Our Customers

To use terminal blocks globally, they must satisfy certain standards and obtain test certificates. These requirements apply to every manufacturer. WAGO also conducts its own tests to increase standards and offer greater reliability with its products. Products undergo a full range of mechanical, electrical and climatic testing, and we'll share a few of those processes with you.

#### WAGO Test Lab

This means that WAGO's products can be used safely and reliably both in Europe and anywhere globally for a wide variety of applications. We heavily emphasize the importance of global acceptance during development. As a result, we can present documentation that verifies our high levels of product safety and reliability while ensuring the fulfillment and accuracy of technical data, which are the highest priorities for our customers and users worldwide.

On December 22, 2009, our test lab was accredited by the German Accreditation Association (Deutsche Gesellschaft für Akkreditierung GmbH) in accordance with DIN EN ISO/IEC 17025.

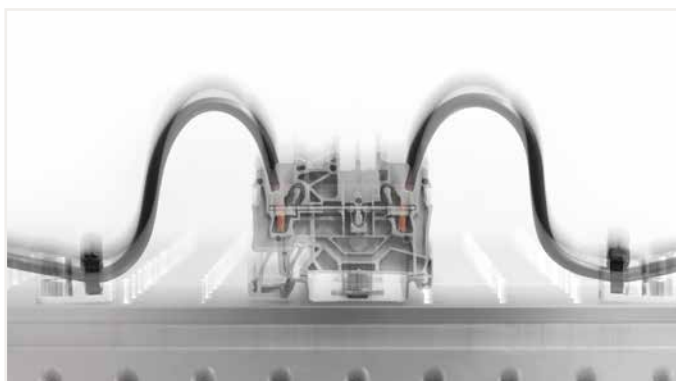
#### Pull-Out Test (per EN 60947-7-1, EN 60998-2-2)

During the pull-out force test, a conductor is pulled on until it is removed from the clamping unit. The design of the terminals means that extraction only occurs after the standard pull-out force has been exceeded many times over.



#### Vibration Test (per IEC/EN 60068-2-6)

Depending on the application, such as railway (per EN 61373) or marine (per GL, LR, DNV), there are various testing requirements to determine if the long-term effects of vibrations degrade electrical connections. The test specimen is subjected to different loads on three axes in an electrodynamic vibration system. The amplitude, the acceleration, and particularly the frequency of the vibration vary during the test. The test values are increased many times over the standard values to meet special customer requirements.



#### Shock Test (per IEC/EN 60068-2-27)

The shock test is very similar to the vibration test except that, instead of continuous vibrations, single shocks are applied to the test specimen. Shock tests are usually performed, for example, at an acceleration of 20g over a period of 11 ms. Tests for special requirements often call for much higher values and are also conducted in our laboratory. Single-deck TOPJOB® S Rail-Mount Terminal Blocks, for example, pass shock tests up to 500g.



#### Voltage Drop Test under Bending Stress (per EN 60947-7-1, EN 60999-1)

The voltage drop test under bending stress simulates mechanical stress on the clamping unit. In everyday use, this stress can occur during installation, for example, when an electrician shoves connected conductors to the side in order to access a specific component. The quality of the clamping unit when moving a connected conductor can be validated by the constantly stable measured value of the voltage drop.





## Deutsche Akkreditierungsstelle GmbH

**Beliehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV**  
Unterzeichnerin der Multilateralen Abkommen  
von EA, ILAC und IAF zur gegenseitigen Anerkennung

# Akkreditierung



Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

**WAGO Kontakttechnik GmbH & Co. KG**  
**Hansastraße 27, 32423 Minden**

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

**Elektrische und mechanische Prüfungen an Klemmen und Steckverbinder  
sowie Umweltsimulation**

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 18.12.2014 mit der Akkreditierungsnummer D-PL-19704-01 und ist gültig bis 17.12.2019. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 5 Seiten.

Registrierungsnummer der Urkunde: **D-PL-19704-01-00**

Frankfurt am Main, 18.12.2014

Siehe Hinweise auf der Rückseite

  
Im Auftrag Dipl.-Ing. (FH) Ralf Egnér  
Abteilungsleiter



# Indexes and Addresses

## Indexes and Addresses

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206-804	243	216-286	241	231-154/001-000	107	231-842/001-000/105-604	110
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206-815	242	216-289	241	231-202/008-000	110	231-862/001-000/105-604	110
206-816	242	216-301	241	231-202/026-000	110	231-872/001-000/105-604	110
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2059-901	19	2070-541/998-406	30	2604-1505	93	2624-3105	99
2059-901/018-000	19	2070-542/998-406	30	2604-1506	93	2624-3106	99
2059-901/021-000	19	2070-543/998-406	30	2604-1507	93	2624-3107	99
2059-902	19			2604-1508	93	2624-3108	99
2059-902/018-000	19	<b>2075 Series</b>		2604-1509	93	2624-3109	99
2059-902/021-000	19	2075-381/997-404	33	2604-1510	93	2624-3110	99
2059-903	19			2604-1511	93	2624-3111	99
2059-903/018-000	19	<b>2231 Series</b>		2604-1512	93	2624-3112	99
2059-903/021-000	19	2231-102/008-000	107	2604-3101	95	2624-3302	99
2059-904	19	2231-102/026-000	107	2604-3102	95	2624-3303	99
2059-904/018-000	19	2231-102/031-000	107	2604-3103	95	2624-3304	99
2059-904/021-000	19	2231-102/037-000	107	2604-3104	95	2624-3305	99
		2231-102/102-000	107	2604-3105	95	2624-3306	99
<b>2060 Series</b>		2231-102/102-000	107	2604-3106	95	2624-3307	99
2060-189	235	2231-124/008-000	107	2604-3107	95	2624-3308	99
2060-451/998-404	13	2231-124/026-000	107	2604-3108	95	2624-3309	99
2060-452/998-404	13	2231-124/031-000	107	2604-3109	95	2624-3310	99
2060-453/998-404	13	2231-124/037-000	107	2604-3110	95	2624-3311	99
2060-471/998-404	13	2231-124/102-000	107	2604-3111	95	2624-3312	99
2060-472/998-404	13	2231-202/008-000	110	2604-3112	95	2624-3502	99
2060-473/998-404	13	2231-202/026-000	110	2604-3302	95	2624-3503	99
2060-852/998-404	15	2231-202/031-000	110	2604-3303	95	2624-3504	99
2060-872/998-404	15	2231-202/037-000	110	2604-3304	95	2624-3505	99
2060-951/028-000	21	2231-216/008-000	110	2604-3305	95	2624-3506	99
2060-952/028-000	21	2231-216/026-000	110	2604-3306	95	2624-3507	99
2060-953/028-000	21	2231-216/031-000	110	2604-3307	95	2624-3508	99
2060-954/028-000	21	2231-216/037-000	110	2604-3308	95	2624-3509	99
2060-962/028-000	21	2231-302/008-000	108	2604-3309	95	2624-3510	99
2060-1451/998-404	45	2231-302/026-000	108	2604-3310	95	2624-3511	99
2060-1452/998-404	45	2231-302/031-000	108	2604-3311	95	2624-3512	99
2060-1453/998-404	45	2231-302/037-000	108	2604-3312	95		
2060-1471/998-404	45	2231-302/107-000	108	2604-3502	95	<b>2706 Series</b>	
2060-1472/998-404	45	2231-316/107-000	108	2604-3503	95	2706-102	40
2060-1473/998-404	45	2231-324/008-000	108	2604-3504	95	2706-112	40
2060-1852/998-404	47	2231-324/026-000	108	2604-3505	95	2706-152	40
2060-1872/998-404	47	2231-324/031-000	108	2604-3506	95	2706-162	40
		2231-324/037-000	108	2604-3507	95	2706-202	41
<b>2061 Series</b>		2231-702/008-000	111	2604-3508	95	2706-212	41
2061-189	235	2231-702/026-000	111	2604-3509	95	2706-252	41
2061-601/998-404	17	2231-702/031-000	111	2604-3510	95	2706-262	41
2061-602/998-404	17	2231-702/037-000	111	2604-3511	95	2706-302	42
2061-603/998-404	17	2231-712/008-000	111	2604-3512	95	2706-312	42
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2721-202/031-000	109						
2721-202/037-000	109						
2721-212/008-000	109						
2721-212/026-000	109						
2721-212/031-000	109						
2721-212/037-000	109						
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2734-102	104						
2734-102/031-000	104						
2734-102/037-000	104						
2734-102/107-000	104						
2734-124	104						
2734-124/031-000	104						
2734-124/037-000	104						
2734-124/107-000	104						
2734-202	105						
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2852-7206	228						
2852-7207	228						
2852-7207	228						
2852-7208	228						
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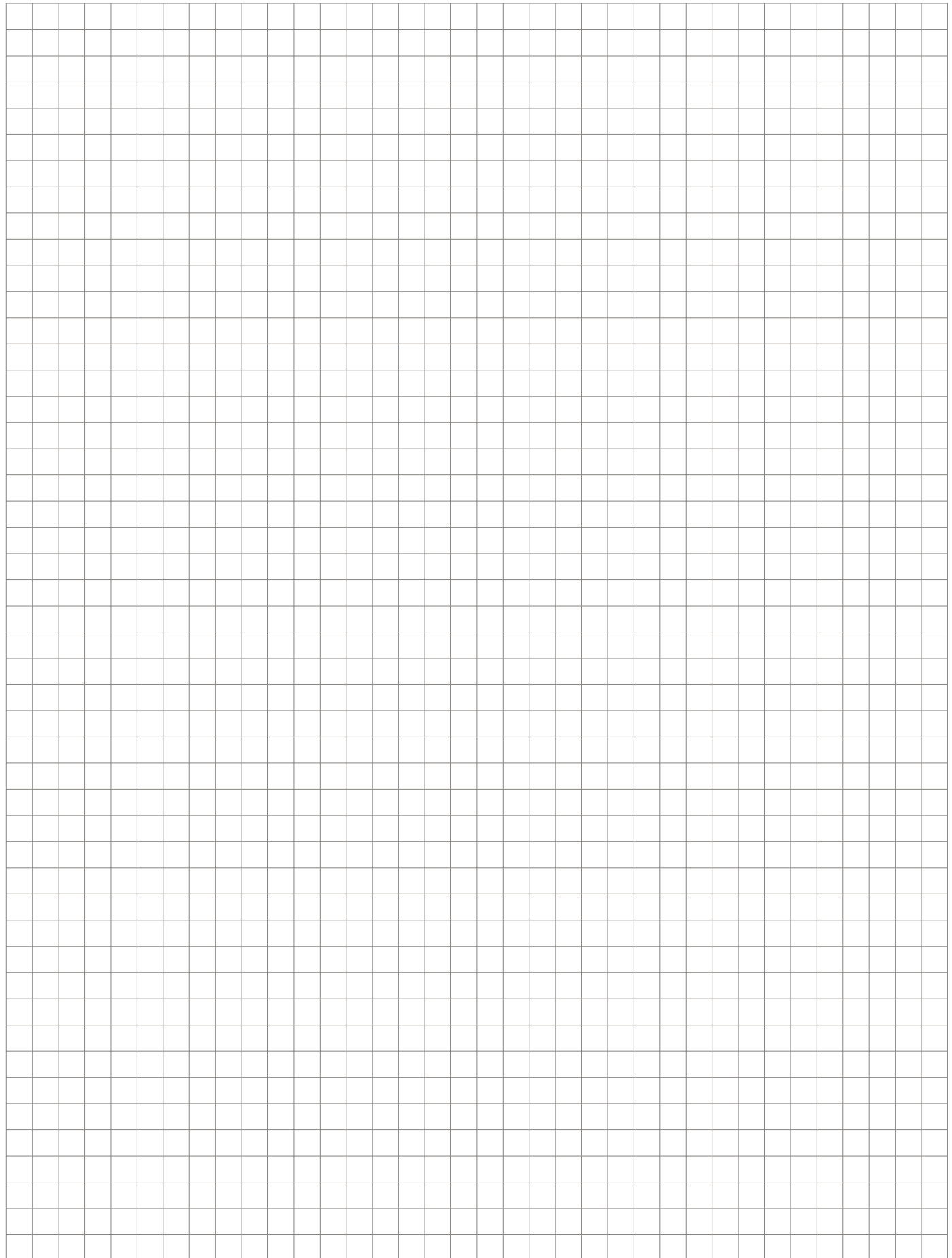
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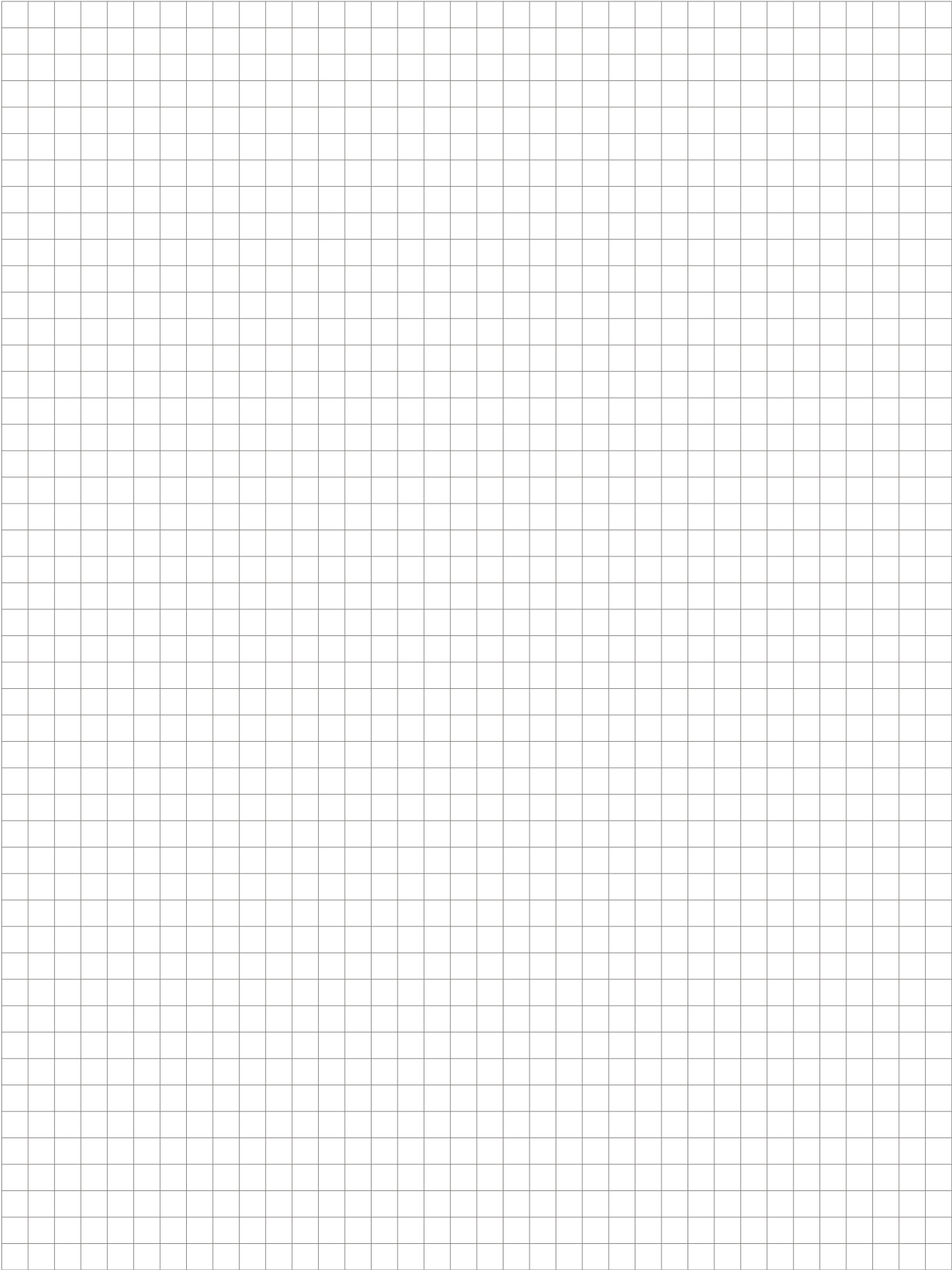


# Notes

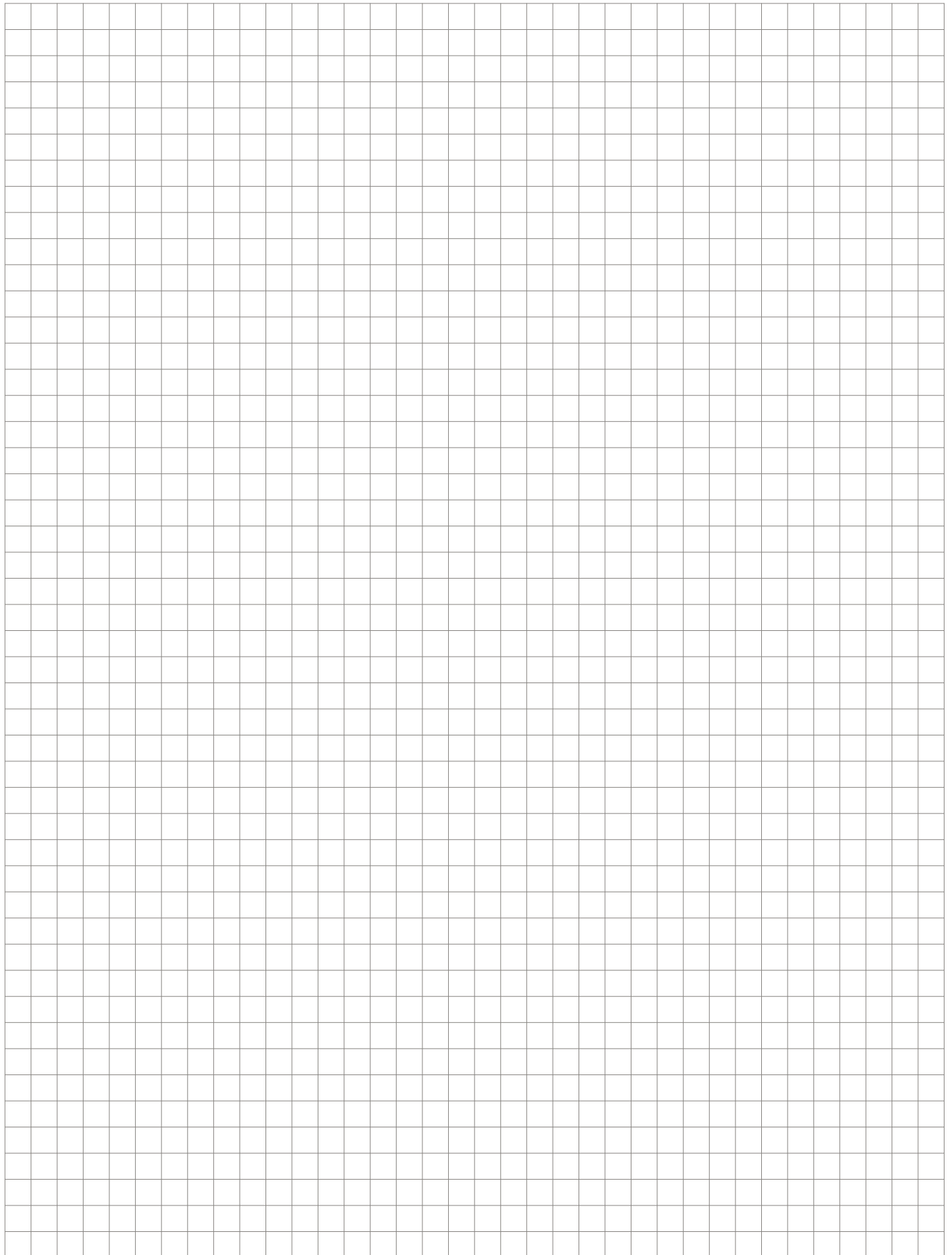


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**Notes**



## Notes





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