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WAGO *SPEEDWAY 767*

Modular IP67 I/O System

Where previously discrete wiring was once required, fieldbuses now provide communication between control unit, system and machine.

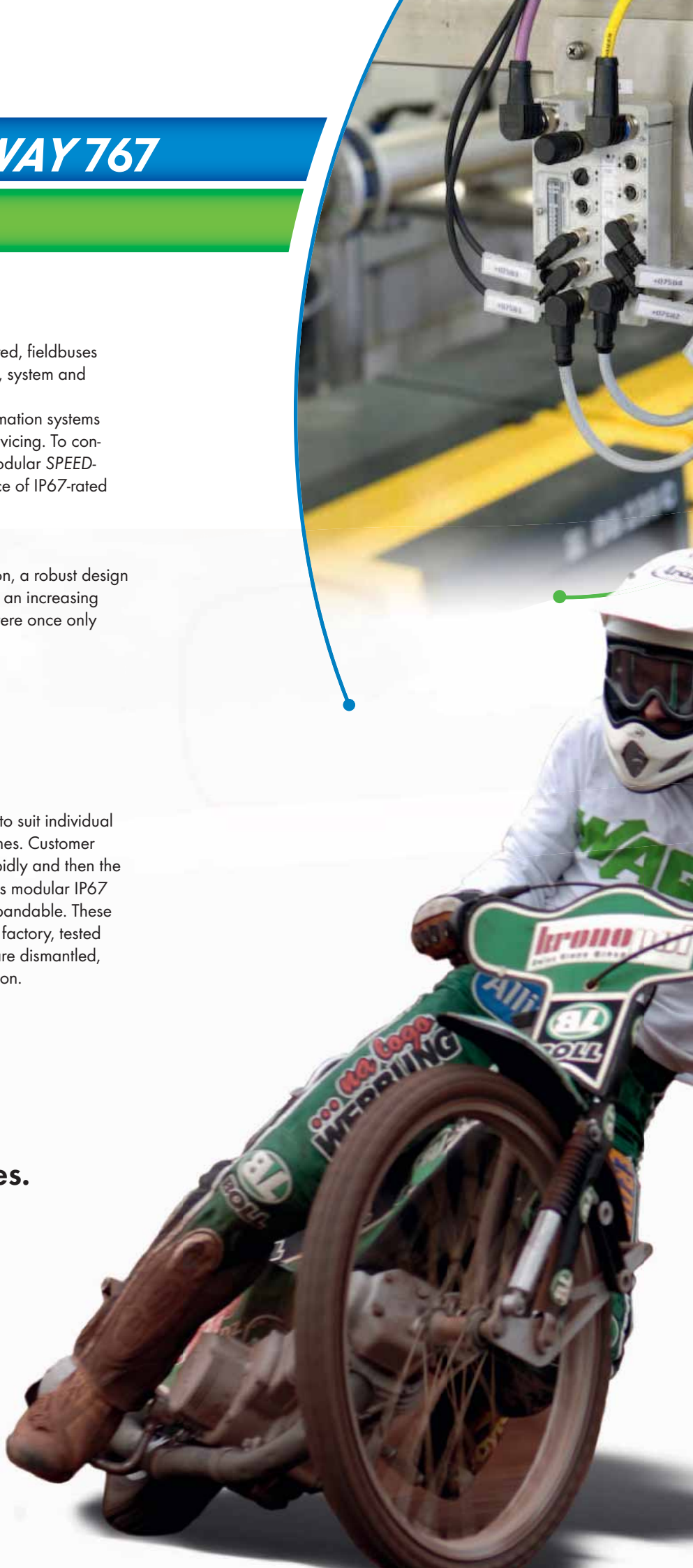
Depending on equipment type, cabinet-free automation systems help minimize costs for planning, start-up, and servicing. To continue leading the way, WAGO has throttled its modular *SPEEDWAY 767* I/O-SYSTEM, boosting the performance of IP67-rated components.

In addition to requiring a high degree of protection, a robust design and standardized connection technology, there is an increasing demand for highly functional IP67 features that were once only reserved for IP20 systems, such as:

- Fast
- Programmable
- Parameterizable
- Diagnostic capable
- Updatable

Typically, machines and systems must be tailored to suit individual requirements while meeting tight customer deadlines. Customer requirements must be incorporated easily and rapidly and then the system must be designed and installed. This makes modular IP67 systems ideal, as they are easily scalable and expandable. These systems allow machines to be first mounted in the factory, tested and then accepted by the customers. Then, they are dismantled, re-installed on customer's site and put into operation.

WAGO-SPEEDWAY 767
offers all of these features.



System Features



Modular Design

- Application-oriented signal acquisition/output



High-Performance Data Transfer

- Fast data exchange



Programmable via CoDeSys 3

- Integrated signal preprocessing



Wide Variety of Parameterization Options

- Fieldbus dependent/independent



Servicing Convenience

- Update-capable, parameter-saving and flexible



Fieldbus Independence

- Meets specific market/system requirements



Asynchronous and Synchronous Diagnostics

- Fast and precise error analysis



Efficient Power Supply Solution

- Convenient module supply



Temperature Range of -25°C to $+60^{\circ}\text{C}$

- Ideal for extreme environments



Excellent Protection

- EMC, water and dust protection



Screw and DIN-Rail Mount Options

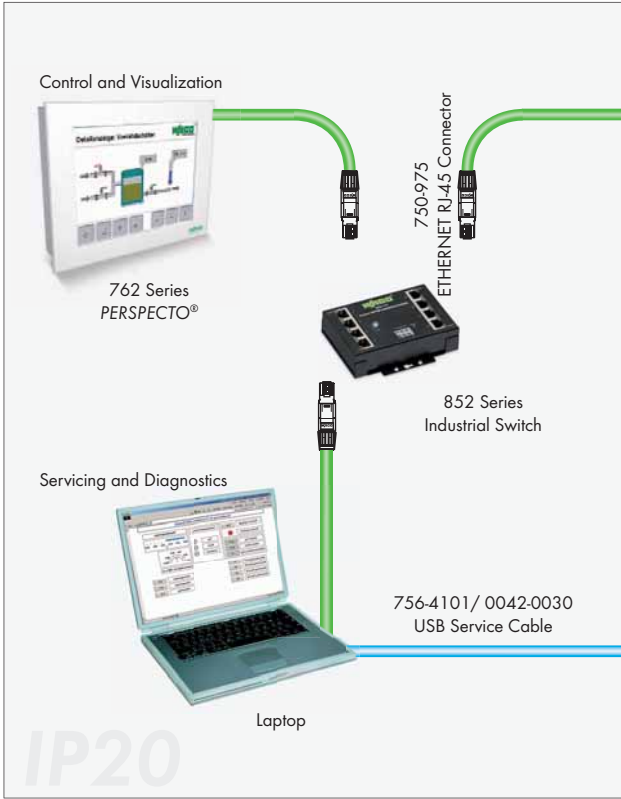
- Flexible module assembly



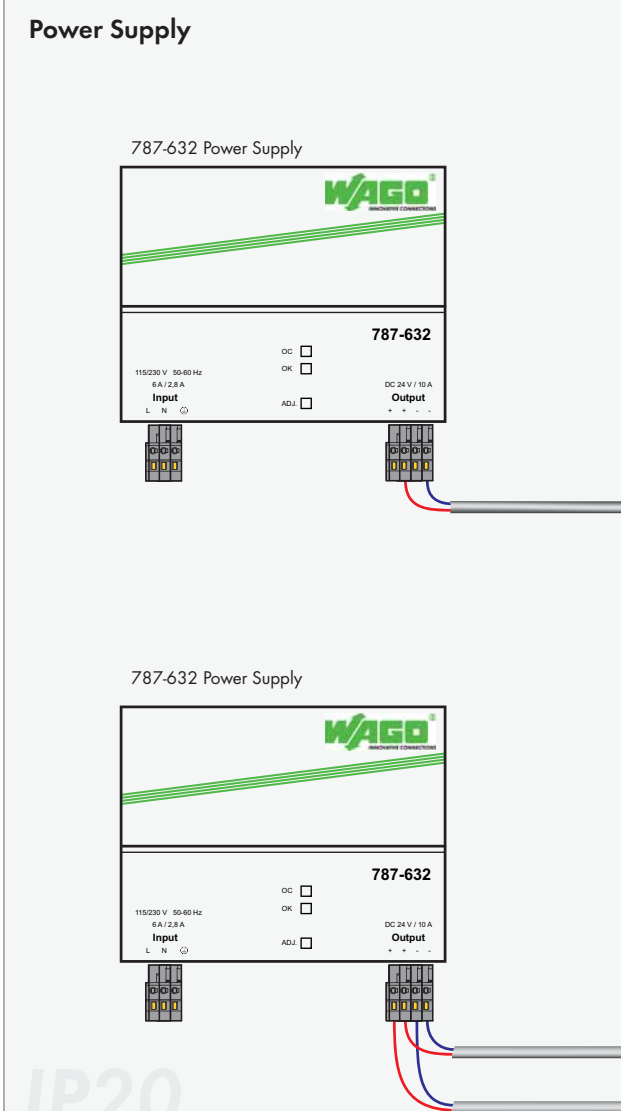
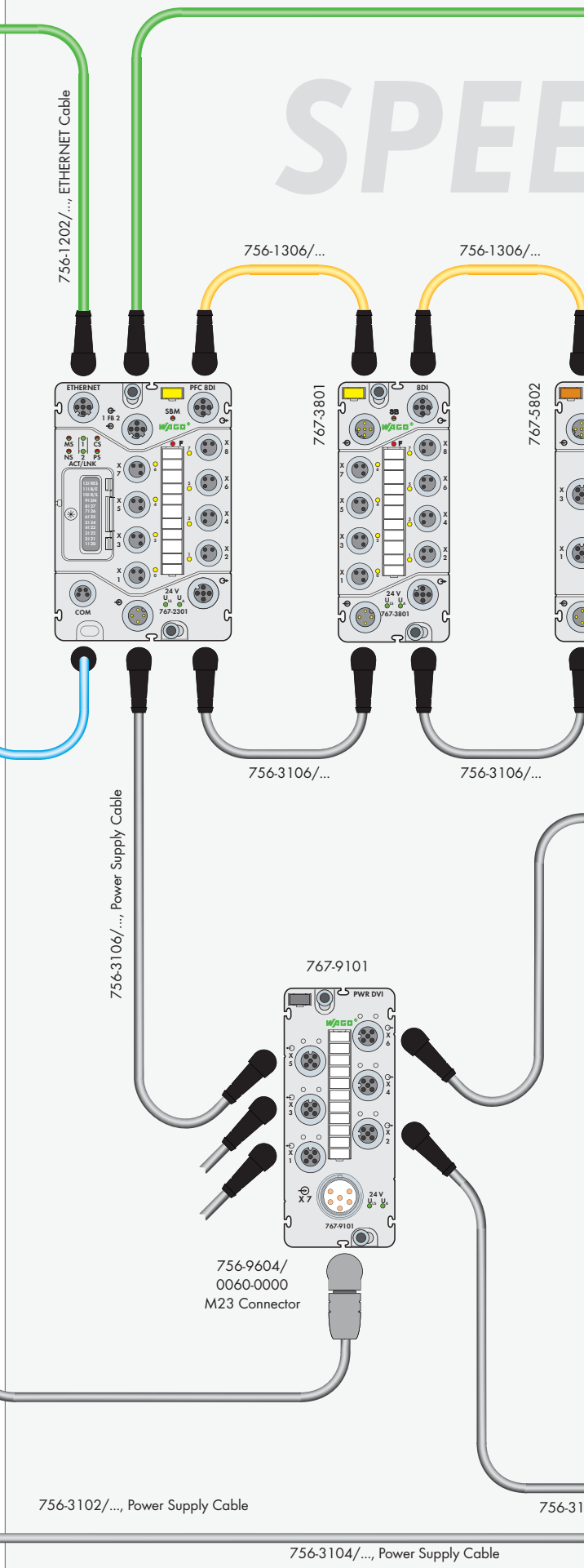
Ergonomic Design

- User-friendly modules design

Topology Example (ETHERNET System incl. Accessories)

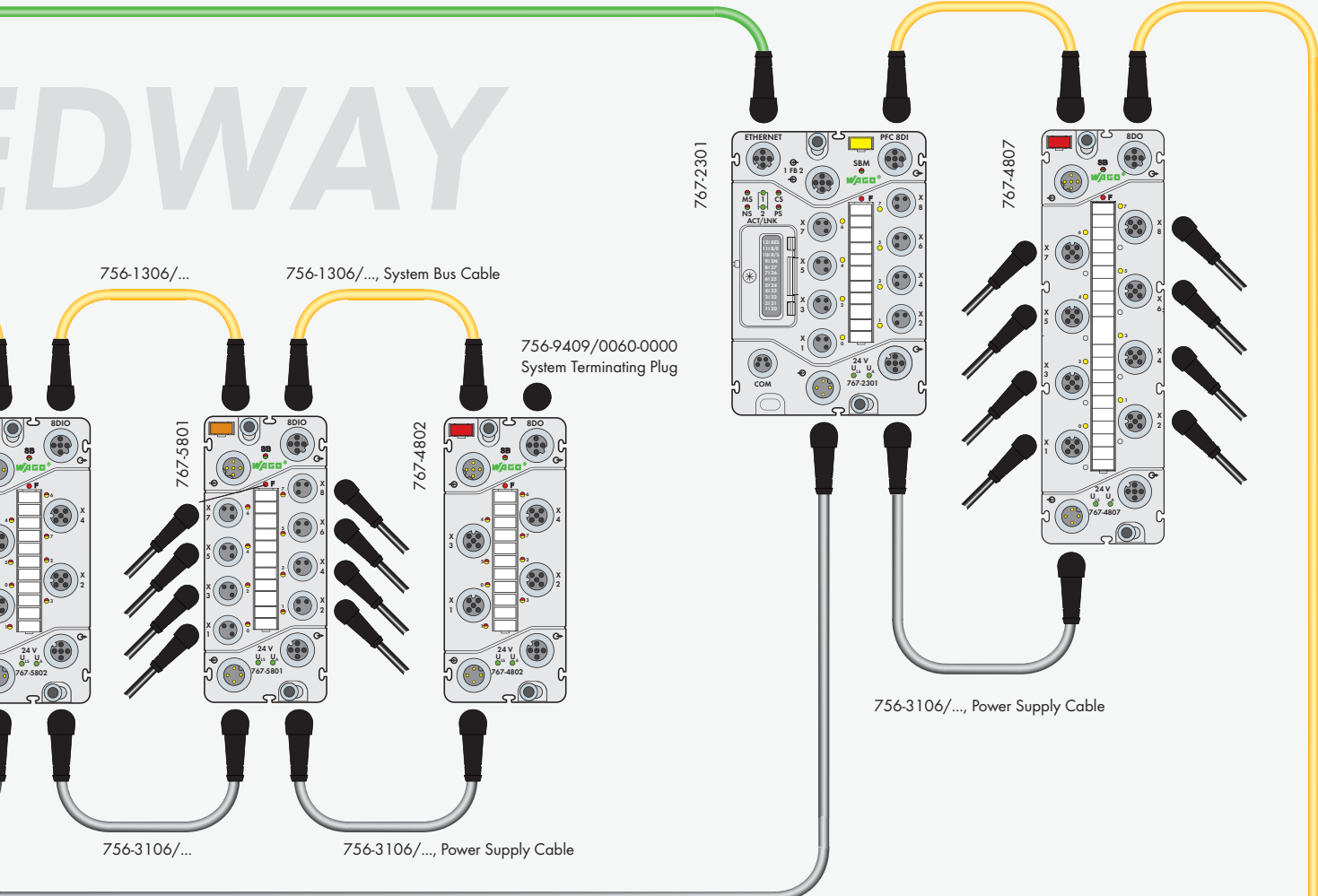


WAGO SPEEDWAY 767



756-1204/..., ETHERNET Cable

756-1306/..., System Bus Cable



756-1306/...

756-1306/..., System Bus Cable

756-9409/0060-0000 System Terminating Plug

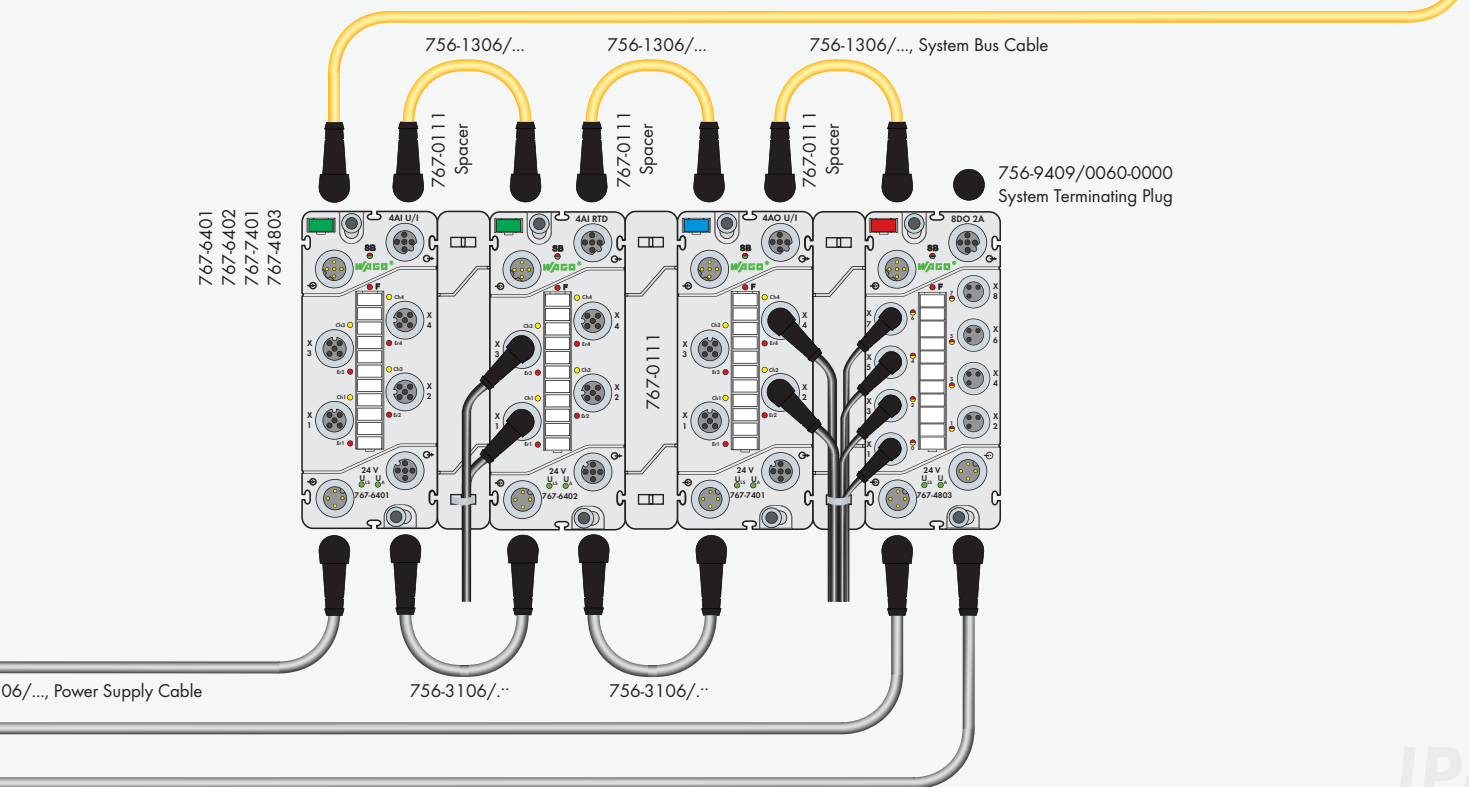
756-3106/...

756-3106/..., Power Supply Cable

756-3106/..., Power Supply Cable

756-3106/..., Power Supply Cable

756-1306/..., System Bus Cable



756-1306/...

756-1306/...

756-1306/..., System Bus Cable

767-0111 Spacer

767-0111 Spacer

767-0111 Spacer

756-9409/0060-0000 System Terminating Plug

767-6401
767-6402
767-7401
767-4803

06/..., Power Supply Cable

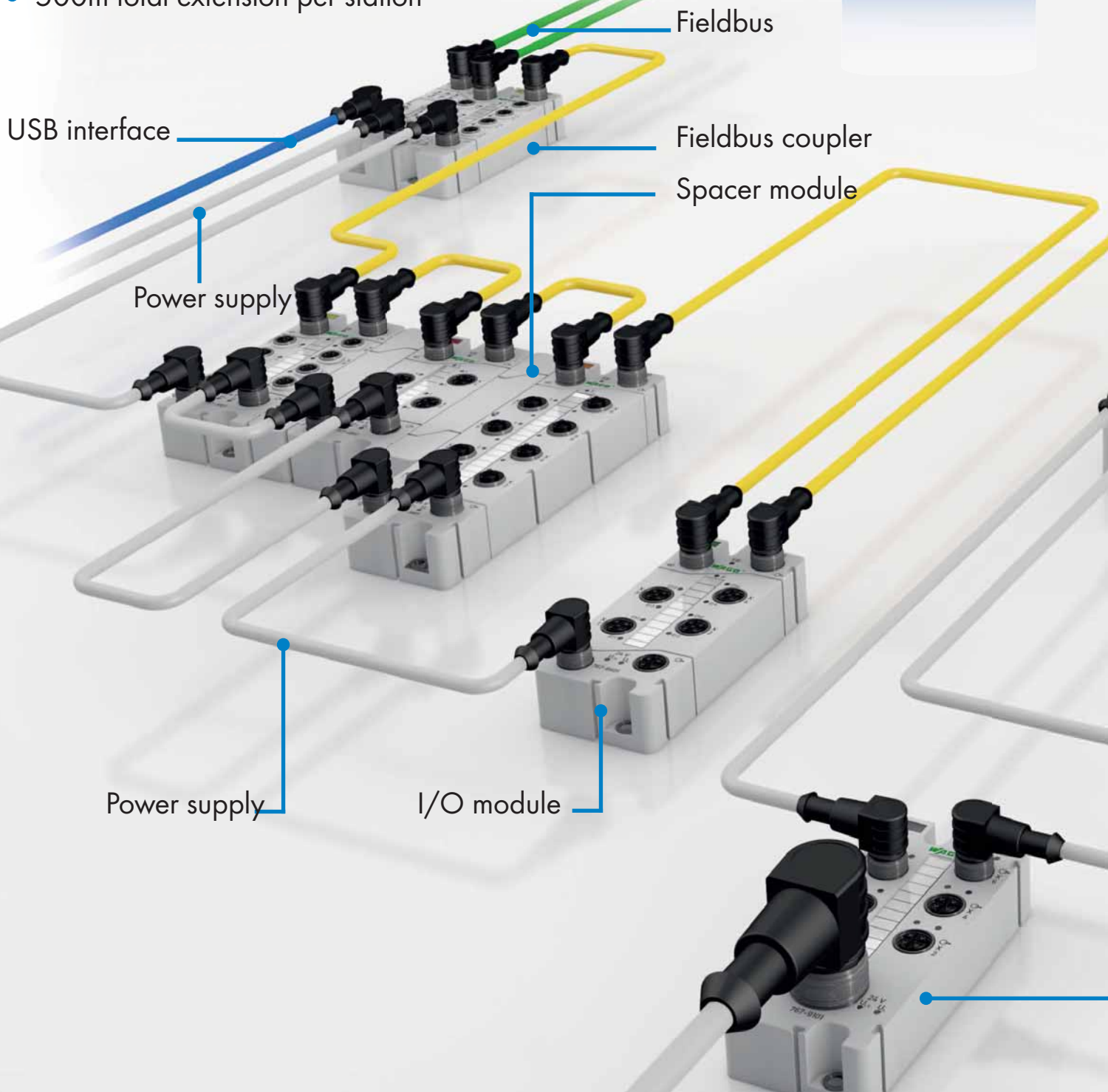
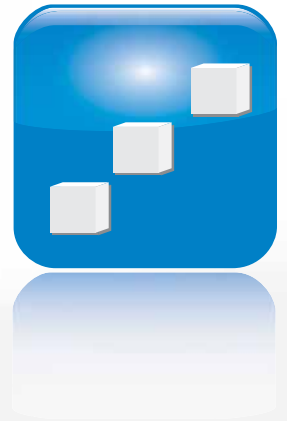
756-3106/...

756-3106/...

Modular Design for Application-Oriented Signal Acquisition/Output

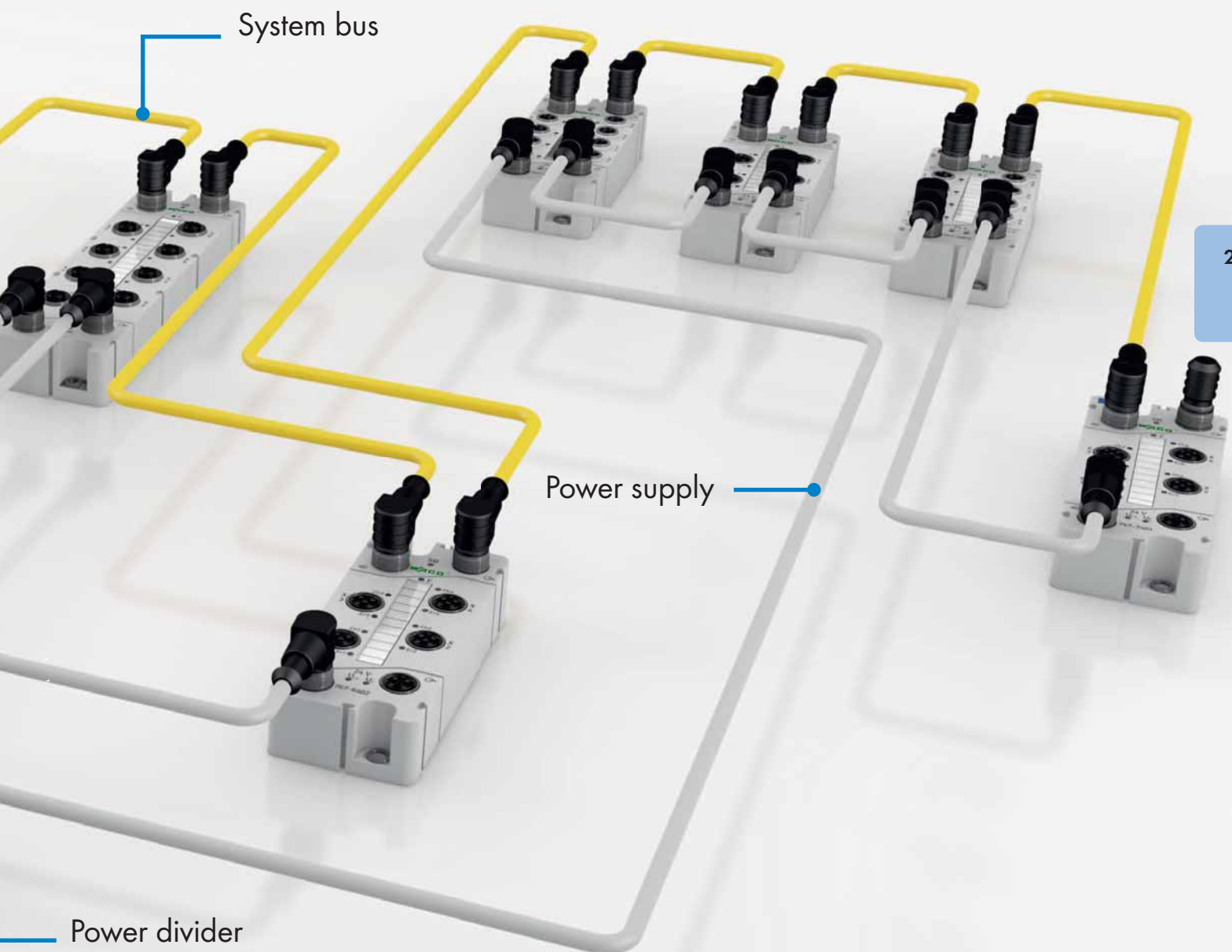
Up to:

- 64 I/O modules per station
- 8 channels per module
- 520 channels per station
- 50m between two modules
- 500m total extension per station



WAGO SPEEDWAY 767 is a modular IP67 I/O system. SPEEDWAY connects to a fieldbus and on to higher-level control systems via (programmable) fieldbus coupler. The fieldbus coupler features digital inputs. An integrated system bus interface allows connection to other I/O modules (e.g., analog, digital). This permits signals to be received and transmitted directly in the field, as based on application requirements. When used in areas of high signal concentration, the modules can be installed in an extreme-

ly compact manner. The I/O modules are connected to each other via data line (system bus) and supply line, allowing additional power supply to be performed via power dividers (e.g., when higher power demand is required or greater distances must be bridged). Depending on the fieldbus type, configuration, programming, servicing and diagnostics can be performed via integrated USB port and fieldbus interface.



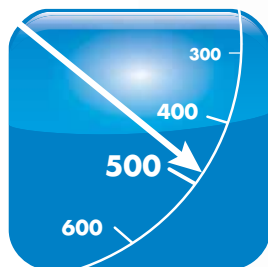
High-Performance Data Transfer

Fast Data Exchange

- Up to 512 digital signals, approx. 700 μ s
- Up to 256 digital signals + 64 analog signals, approx. 700 μ s
- Up to 32 digital signals + 8 analog signals, approx. 400 μ s

Increasing degrees of system automation and the trend toward fast ETHERNET-based controllers or fieldbus protocols call for a high communication bandwidth. Large data volumes are forwarded in short cycles for signal acquisition and transmission within the I/O system.

WAGO SPEEDWAY 767 is designed for this purpose, also offering high synchrony, low jitter/skew and low latency for optimal control of dynamic system processes.



Updatable, Parameter-Saving and Flexible



Updatable


Acquisition and operating costs of a system are steadily increasing. This is why your return on investment is now more important than ever. The *SPEEDWAY 767* System is updatable, providing a valuable contribution to cost optimization.

Both coupler and I/O module firmware can be easily updated. This allows quick access to new functionalities, while errors can be fixed without replacing components.

System parameter handling

All parameterizable *SPEEDWAY* modules feature factory default settings. The modules can be customized to suit specific systems requirements. *SPEEDWAY* provides the freedom of system parameter handling – not every control system permits direct data parameterization, administration and archiving.

This way, parameter settings won't be lost in case of a module exchange. System parameter handling provides archiving of

- Updatable
- System parameter handling
- "Options handling" for 

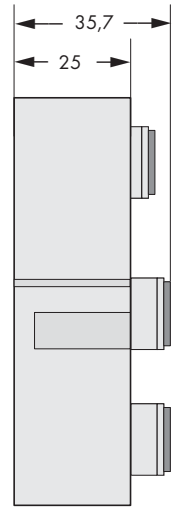
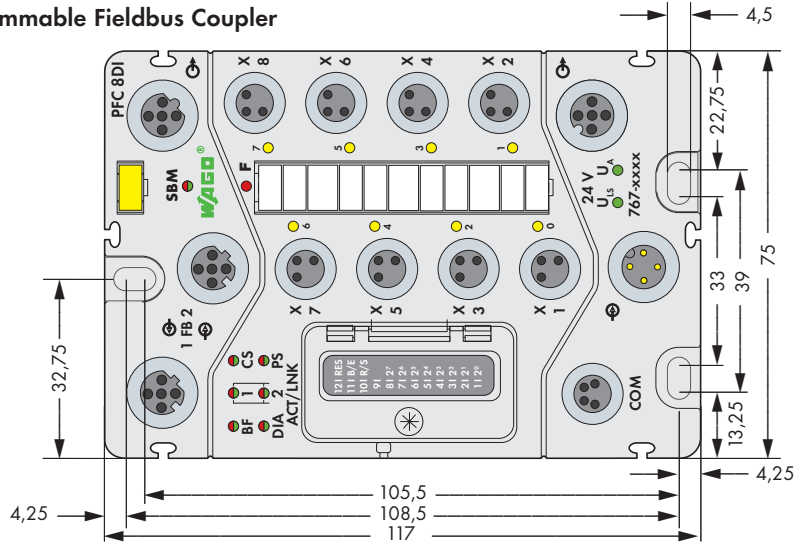
all settings and checks (e.g., when exchanging an I/O module) if the right replacement module is used. In the event of a failure, parameter data can be restored quickly and reliably. Optionally, current hardware, software and firmware versions can be checked.

"Options handling"

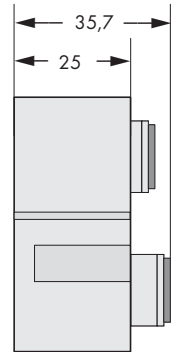
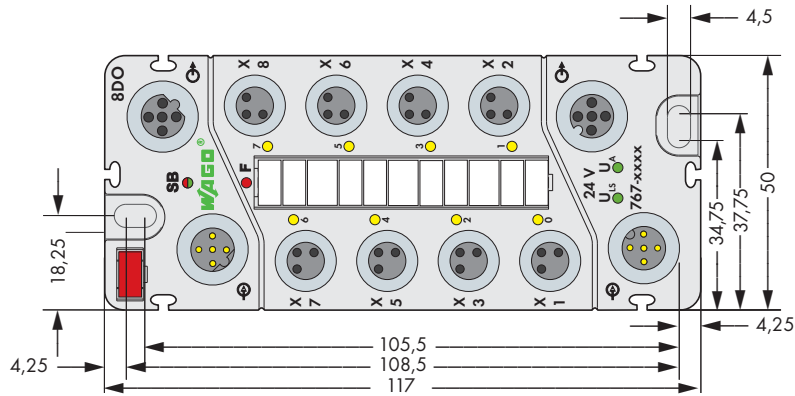
Operation-related, variable I/O station configurations of a system (e.g., tool replacement in processing center) can often only be customized with extensive engineering before a changed production process can start. *With PROFIBUS, SPEEDWAY 767 supports variable system configuration without engineering modification.*

Supporting this, the higher-level control system defines various expansion stages within a maximum engineering configuration. This allows the control system to identify a *SPEEDWAY* station modification (number and type of modules) and run a sub-program without engineering modification.

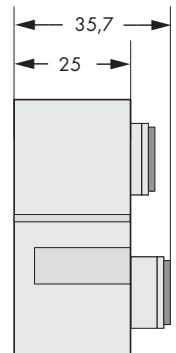
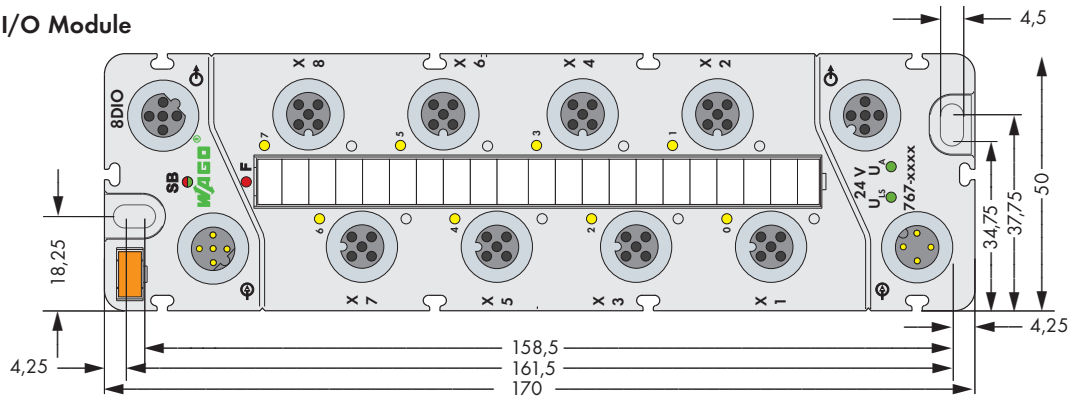
Fieldbus Coupler/Programmable Fieldbus Coupler



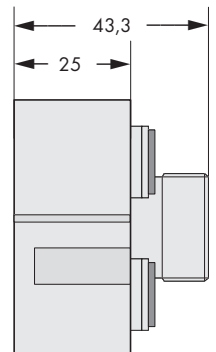
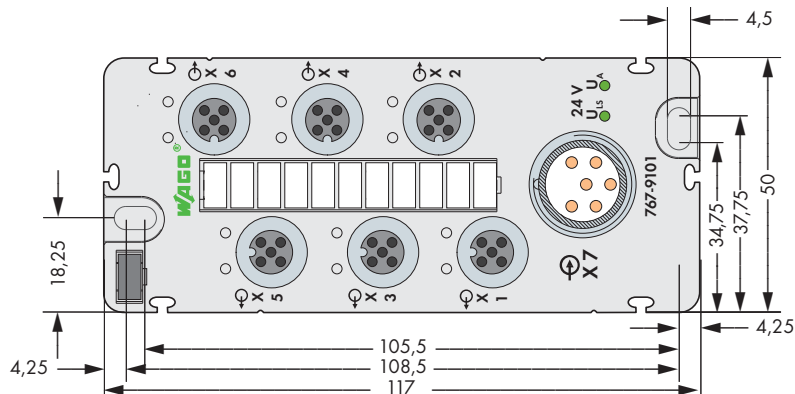
I/O Module



I/O Module



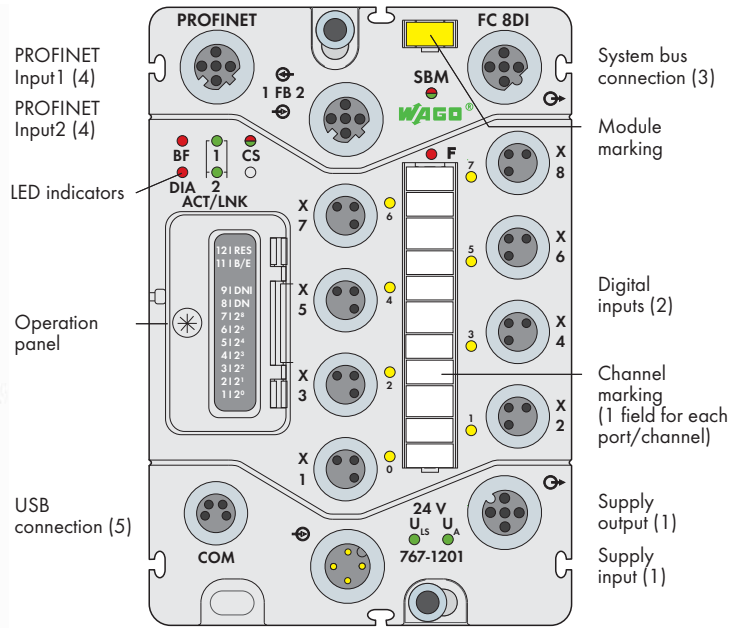
Power Divider



Technical Data		
Materials:		
Enclosures	Polyamide (PA)	light gray (RAL7035)
	Makrolon (address switch cover)	transparent
	Flammability acc. to UL94-V0	
Sealing	halogen-, silicon-free	
	Polyurethane (PUR)	
M8+M12 connectors	halogen-, silicon-free	
	M8x1 Ms nickel-plated tapped bush	
	M12x1 Ms nickel-plated tapped bush	
	CUSn6 contacts (Ni/Au surface)	
	50 mating cycles	
Viton seal		
Transportation and storage requirements:		
Free fall	≤1 m	EN 61131-2
Temperature	-40 °C ... +85 °C	
Relative humidity	5 ... 95 %	without condensation
Air pressure	1.080 ... 660 hPa	-1.000 ... 3.500 m
Operating conditions:		
Operating temperature	-25 ... +60 °C	any fitting position
Temperature change	3 K/ s	
Air pressure	1.080 ... 795 hPa	-1.000 ... 2.000 m
Pollutant concentration	SO2: <0.5 ppm	
	H2S: <0.1 ppm	
Degree of pollution	3	IEC60664 (IEC61131)
Protection class	III	IEC60536 (VDE0106, Part1)
Degree of protection	IP67 (NEMA 6&6P)	DIN40050 (EN60529)
UV resistance:		
acc. to DIN EN ISO 4892-2B	1000 hrs UV exposure	
Mechanical capacities: acc. to IEC61131-2		
Test specification	Criterion	Limit values
IEC 60068-2-6 Vibration resistance	5 Hz ≤ f < 59 Hz	0.35 mm amplitude (permanent)
	59 Hz ≤ f ≤ 500 Hz	5 g (permanent, +/- 10 %)
	Frequency change	1 octave/minute
	Vibration direction	3 mutually perpendicular axes
	Duration	10 frequency cycles per axis
IEC 60068-2-27 Shock resistance (temporary)	Type of shock	Half sine peak value
	Shock intensity	50 g
	Shock duration	11 ms
	Shock direction	3 mutually perpendicular axes in ± direction
	Number of shocks	3 shocks in each axis
IEC 60068-2-29 Shock resistance (permanent)	Type of shock	Half sine peak value
	Shock intensity	30 g
	Shock duration	6 ms
	Shock direction	3 mutually perpendicular axes
	Number of shocks	1000 shocks in each axis
Electromagnetic compatibility:		
Immunity to interference	acc. to EN 61000-6-2	
Emission of interference	acc. to EN 61000-6-4	

PROFINET IO Fielbus Coupler

incl. 8 digital inputs (8 x M8)



Short description:

PROFINET IO is the ETHERNET-based, manufacturer-independent and open fieldbus standard from PROFIBUS & PROFINET International (PI). This standard offers solutions for manufacturing/process automation and safety applications in addition to covering an entire range of needs from drive technology to synchronous motion control applications.

The fieldbus coupler links the WAGO SPEEDWAY 767 I/O modules to PROFINET IO. The fieldbus coupler creates a process image of all inputs and outputs depending on the station's module structure and the configuration data transmitted by the IO controller. In addition, the coupler provides the connected I/O modules with the parametrization data provided by the device description (GSDML file) and transferred by the IO controller. The device signals existing module and channel errors as diagnostic alarms.

Characteristics:

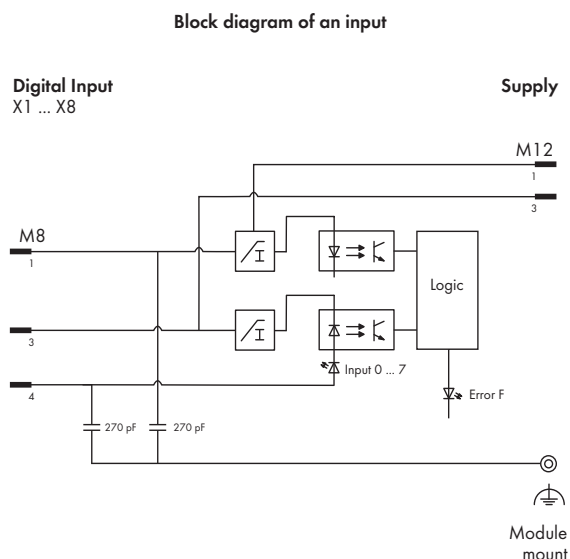
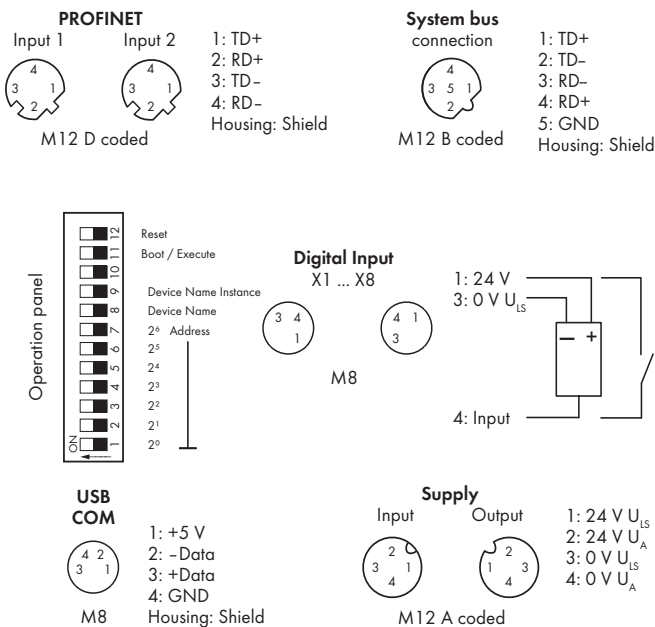
- Conformance Class B
- Shared device support
- Integrated switch
- 8 digital 24VDC inputs included
- Modular and extendable up to 64 I/O modules (via system bus connection)
- Configuration and system update either via fieldbus or USB interface
- Parametrization via GSDML or FDT/DTM (incl. diagnostics and simulation)
- Enclosed operation panel (operating mode and address switch)

Included:

- Module WMB marker card, yellow (1 pcs)
- Channel marker strips (1 pcs)
- M8 protective caps (2 pcs)

Description	Item No.	Pack. Unit
FC PROFINET IO 8DI 24V DC	767-1201	1
Accessories		
PROFINET cable + accessories	see pages 432 + 437	
System bus/power supply cable + accessories	see pages 422 ... 427 + 436	
General accessories	see pages 438 ... 439	
GSDML file	Download: www.wago.com	
DTM (Device Type Manager)	Download: www.wago.com	

Technical Data	
Fieldbus:	
Device type	PROFINET IO device
Connection type (4)	M12 connectors, D coded, 5 poles
Baud rate	100 Mbit/s, full duplex
Transmission medium	100Base-TX, twisted pair copper cables
Station name	Adjustable via operation panel or DCP
Protocols	PROFINET IO, DCP, ILLDP, SNMP
Additional data	see manual
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U _{IS} : 4 A, U _A : 4 A)
Supply voltage	
Logic and sensor voltage U _{IS}	24 V DC (-25 % ... +30 %)
Actuator voltage U _A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I _{IS}	typ. 125 mA + sensors (max. 400 mA)
Actuator current I _A	5mA
Protection	Reverse voltage protection for U _{IS} + U _A ; short circuit protection for sensor supply

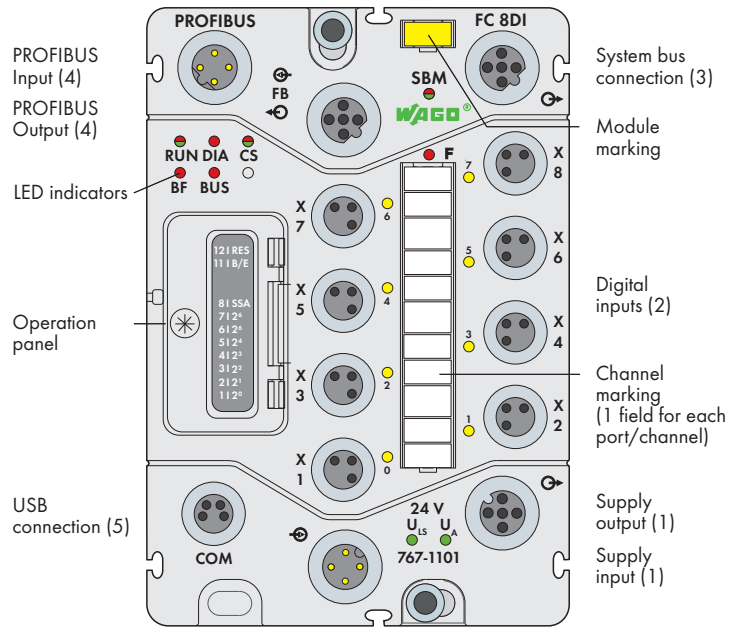


Technical Data	
Digital inputs:	
Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Input filter	parametrizable
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 V DC (-30 V DC < U _{IN} < +30 V DC)
Input current (typ.)	2.8 mA
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect
System bus:	
Number of expendable modules	64
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Isolation:	
Channel - Channel	No
U _{IS} , U _A , system bus, fieldbus	500 V DC each
Service:	
Type	USB standard 1.1
Connection type (5)	M8 connectors, 4 poles
Standards and approvals:	
PROFINET	IEC 61158
UL 508	
Conformity marking	CE
Configurable functions:	
Fieldbus coupler	see manual
Digital Inputs	
Input filter (per channel)	0.1/ 0.5/ 3 /15 /20 ms/ filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U _{IS} + U _A)

Technical Data	
Process image:	
Input process image	512 bytes
Output process image	512 bytes
LED indicators:	
BF : PROFINET IO bus error	LED (red)
DIA : PROFINET IO diagnostics	LED (red)
ACT/LNK 1 : Network connection FB1	LED (green)
ACT/LNK 2 : Network connection FB2	LED (green)
CS : Fieldbus coupler status	LED (green/red)
SBM : System bus master status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	75 x 35.7 x 117
Weight	377.1 g

2 PROFIBUS DP-V1 Fieldbus Coupler

incl. 8 digital inputs (8 x M8)



Short description:

PROFIBUS DP is the manufacturer-independent and open fieldbus standard from PROFIBUS & PROFINET International (PI). This standard offers solutions for manufacturing/process automation and safety applications in addition to covering an entire range of needs from drive technology to synchronous motion control applications. The fieldbus coupler links the WAGO SPEEDWAY 767 I/O modules to PROFIBUS DP. The coupler creates a process image of all inputs and outputs depending on the station's module structure and the configuration data transmitted by the DP master. In addition, the coupler provides the connected I/O modules with the parametrization data provided by the device description (GSD file) and transferred by the DP master, if required. In DP-V0 operation mode, the device provides device, identification and channel related diagnostics as well as module status. In DP-V1 operation mode, status messages and optional diagnostic alarms are provided instead of identification and channel based diagnostics.

Characteristics:

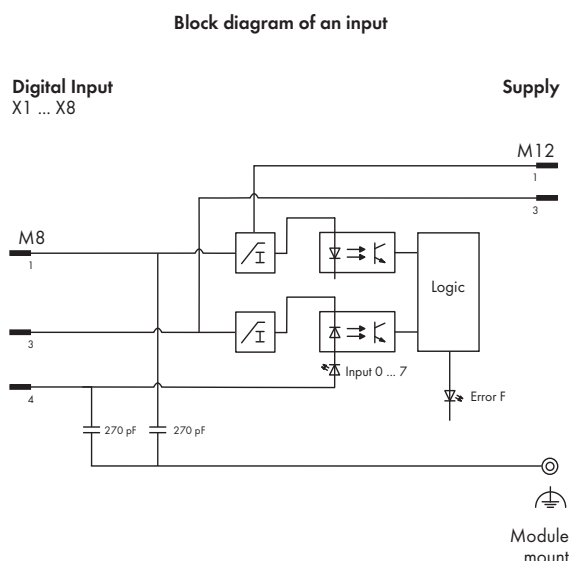
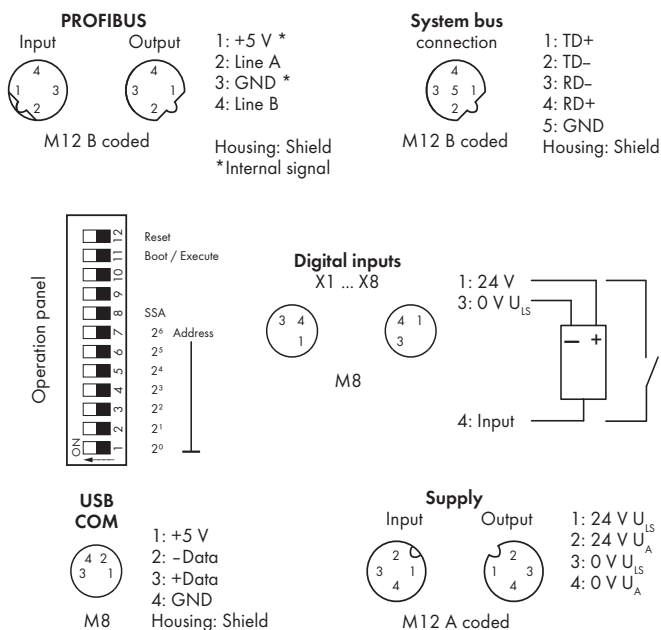
- 8 digital 24VDC inputs included
- Modular and extendable up to 63 I/O modules (via system bus connection)
- USB Interface for servicing purposes
- Parametrization via GSD or FDT/ DTM (incl. diagnostics and simulation)
- Enclosed operation panel (operating mode and address switch)

Included:

- Module WMB marker card, yellow (1 pcs)
- Channel marker strips (1 pcs)
- M8 protective caps (2 pcs)

Description	Item No.	Pack. Unit
FC PROFIBUS DP 8DI 24V DC	767-1101	1
Accessories		
PROFIBUS cable + accessories	see pages 428 ... 429	
System bus/power supply cable + accessories	see pages 422 ... 427 + 436	
General accessories	see pages 438 ... 439	
GSD files	Download: www.wago.com	
DTM (Device Type Manager)	Download: www.wago.com	

Technical Data	
Fieldbus:	
Device type	PROFIBUS DP-V1 slave
Connection type (4)	M12 connectors, B coded, 4 poles
Baud rate	9.6 kBd ... 12 MBd (automatic recognition)
Transmission medium	RS-485 / 2-core copper cable acc. to IEC 61158 and EN50170
Station address	0 - 125 (adjustable via operation panel or PROFIBUS)
Protocols	PROFIBUS DP
Additional data	see manual
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U _{IS} : 4 A, U _A : 4 A)
Supply voltage	
Logic and sensor voltage U _{IS}	24 V DC (-25 % ... +30 %)
Actuator voltage U _A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I _{IS}	typ. 110 mA + sensors (max. 400 mA)
Actuator current I _A	5mA
Protection	Reverse voltage protection for U _{IS} + U _A ; short circuit protection for sensor supply

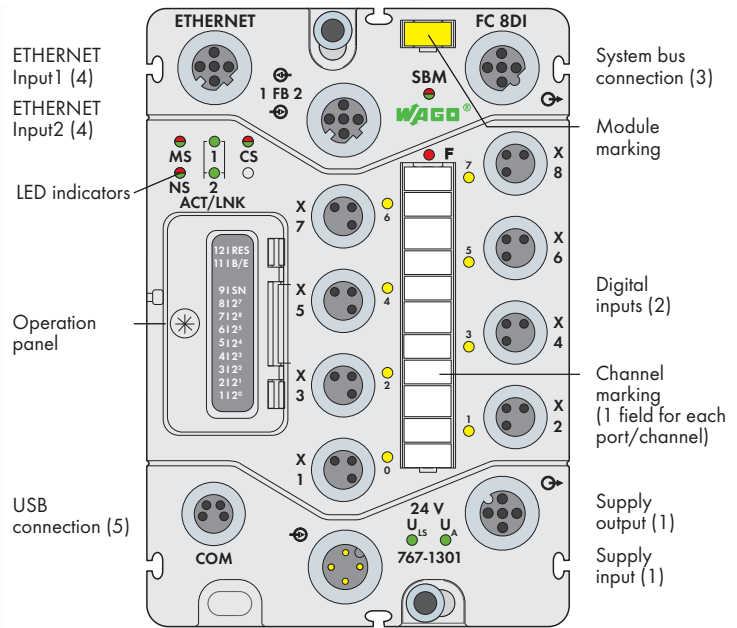


Technical Data	
Digital inputs:	
Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Input filter	parametrizable
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 V DC (-30 V DC < U _{IN} < +30 V DC)
Input current (typ.)	2.8 mA
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect
System bus:	
Number of expendable modules	63
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Isolation:	
Channel - Channel	No
U _{IS} , U _A system bus, fieldbus	500 V DC each
Service:	
Type	USB standard 1.1
Connection type (5)	M8 connectors, 4 poles
Standards and approvals:	
PROFIBUS	IEC 61158
UL 508	
Conformity marking	CE
Configurable functions:	
Fieldbus coupler	see manual
Digital Inputs	
Input filter (per channel)	0.1/ 0.5/ 3 /15 /20 ms/ filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U _{IS} + U _A)

Technical Data	
Process image:	
Input process image	244 bytes
Output process image	244 bytes
LED indicators:	
RUN : Fieldbus coupler initialization	LED (green/red)
BF : PROFIBUS DP bus error	LED (red)
DIA : PROFIBUS DP diagnostics	LED (red)
BUS : PROFIBUS DP projecting error	LED (red)
CS : Fieldbus coupler status	LED (green/red)
SBM : System bus master status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	75 x 35.7 x 117
Weight	405 g

ETHERNET Fieldbus Coupler

incl. 8 digital inputs (8 x M8)



Short description:

In addition to MODBUS/TCP, the ETHERNET/IP protocol has proven itself as an industrial communication standard over ETHERNET. The fieldbus coupler links the WAGO SPEEDWAY 767 system to ETHERNET. When initializing, the buscoupler determines the station's module structure and creates a process image of all inputs and outputs. The application protocols MODBUS/TCP and ETHERNET/IP are available for process data and the protocol services Http, BootP, DHCP, DNS, SNTP, FTP and SNMP (on request) for the system administration and diagnostics.

Characteristics:

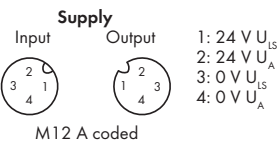
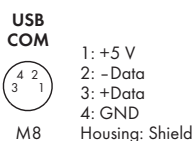
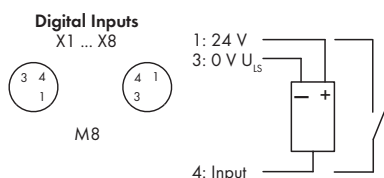
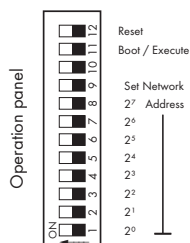
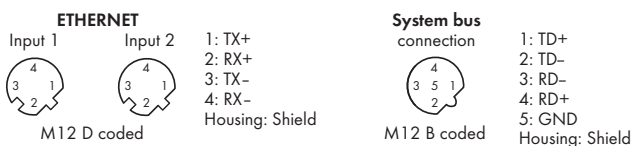
- Integrated switch
- 8 digital 24VDC inputs included
- Modular and extendable up to 64 I/O modules (via system bus connection)
- USB interface for servicing purposes
- FDT/DTM configuration and system update either via fieldbus or USB interface
- Enclosed operation panel (operating mode and address switch)

Included:

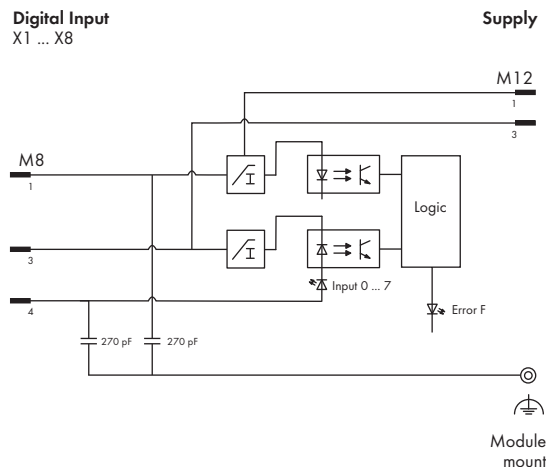
- Module WMB marker card, yellow (1 pcs)
- Channel marker strips (1 pcs)
- M8 protective caps (2 pcs)

Description	Item No.	Pack. Unit
FC ETHERNET 8DI 24V DC	767-1301	1
Accessories		
ETHERNET cable + accessories	see pages 432 + 437	
System bus/power supply cable + accessories	see pages 422 ... 427 + 436	
General accessories	see pages 438 ... 439	
DTM (Device Type Manager)	Download: www.wago.com	

Technical Data	
Fieldbus:	
Device type	ETHERNET device
Connection type (4)	M12 connectors, D coded, 5 poles
Baud rate	10/100 Mbit/s
Transmission medium	Copper cable
Station address	1-255 (last byte of IP address adjustable via operation panel)
Protocols	MODBUS/TCP (UDP), EtherNet/IP
Additional data	see manual
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U _{IS} : 4 A, U _A : 4 A)
Supply voltage	
Logic and sensor voltage U _{IS}	24 V DC (-25 % ... +30 %)
Actuator voltage U _A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I _{IS}	typ. 125 mA + sensors (max. 400 mA)
Actuator current I _A	5 mA
Protection	Reverse voltage protection for U _{IS} + U _A ; short circuit protection for sensor supply



Block diagram of an input

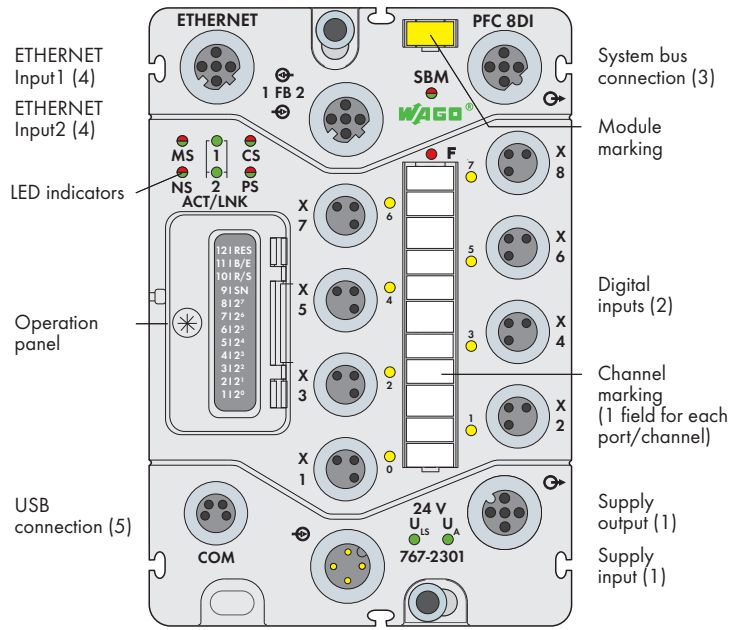


Technical Data	
Digital inputs:	
Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Input filter	parametrizable
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 V DC (-30 V DC <math>< U_{IN} <math> +30 V DC)
Input current (typ.)	2.8 mA
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect
System bus:	
Number of expendable modules	64
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Isolation:	
Channel - Channel	No
U_{IS}, U_{A} system bus, fieldbus	500 V DC each
Service:	
Type	USB standard 1.1
Connection type (5)	M8 connectors, 4 poles
Standards and approvals:	
UL 508	
Conformity marking	CE
Configurable functions:	
Fieldbus coupler	see manual
Digital Inputs	
Input filter (per channel)	0.1/ 0.5/ 3 /15 /20 ms/ filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage ($U_{IS} + U_{A}$)

Technical Data	
Process image:	
Input process image	2048 bytes
Output process image	2048 bytes
LED indicators:	
MS : ETHERNET module status	LED (green/red)
NS : ETHERNET network status	LED (green/red)
ACT/LNK 1 : ETHERNET data exchange/network connection	LED (green)
ACT/LNK 2 : ETHERNET data exchange/network connection	LED (green)
CS : Fieldbus coupler status	LED (green/red)
SBM : System bus master status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
$U_{IS} + U_{A}$: Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	75 x 35.7 x 117
Weight	400 g

ETHERNET Programmable Fieldbus Coupler (PLC)

incl. 8 digital inputs (8 x M8)



Short description:

In addition to MODBUS/TCP, the ETHERNET/IP protocol has proven itself as an industrial communication standard over ETHERNET. The fieldbus coupler links the WAGO SPEEDWAY 767 system to ETHERNET. When initializing, the buscoupler determines the station's module structure and creates a process image of all inputs and outputs. The application protocols MODBUS/TCP and ETHERNET/IP are available for process data and the protocol services Http, BootP, DHCP, DNS, SNTP, FTP and SNMP (on request) for the system administration and diagnostics. In addition, this fieldbus coupler is programmable to IEC61131-3 and can thus relieve the central control system and fieldbus, reduce response times, define the operating mode in the event of failure (fieldbus failure) as well as divide complex applications into independent, functional units.

Characteristics:

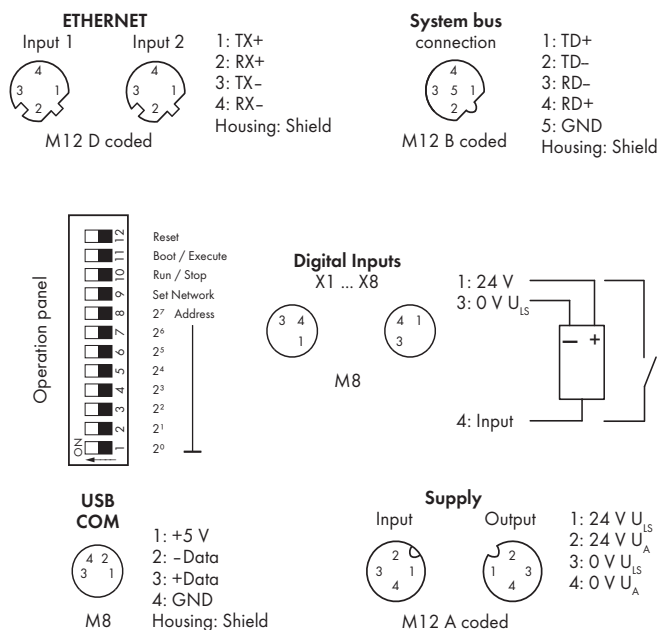
- Integrated switch
- 8 digital 24VDC inputs included
- Modular and extendable up to 64 I/O modules (via system bus connection)
- Programming, FDT/DTM configuration and system update either via fieldbus or USB interface
- Programmable to IEC61131-3
- Enclosed operation panel (operating mode and address switch)

Included:

- Module WMB marker card, yellow (1 pcs)
- Channel marker strips (1 pcs)
- M8 protective caps (2 pcs)

Description	Item No.	Pack. Unit
PFC ETHERNET 8DI 24V DC	767-2301	1
Accessories		
ETHERNET cable + accessories	see pages 432 + 437	
System bus/power supply cable + accessories	see pages 422 ... 427 + 436	
General accessories	see pages 438 ... 439	
DTM (Device Type Manager)	Download: www.wago.com	
CoDeSys 3	759-915 (see page 440)	

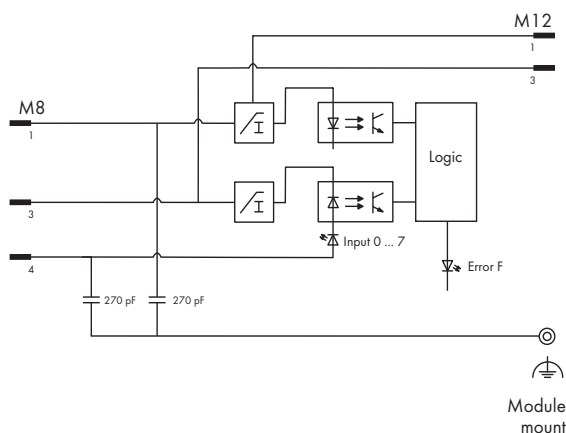
Technical Data	
Fieldbus:	
Device type	ETHERNET device
Connection type (4)	M12 connectors, D coded, 5 poles
Baud rate	10/ 100 Mbits
Transmission medium	Copper cable
Station address	1-255 (last byte of IP address adjustable via operation panel)
Protocols	MODBUS/TCP (UDP), EtherNet/IP
Additional data	see manual
Programming:	
CoDeSys 3	Development system for programming and visualization according to IEC 61131-3
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U _{IS} : 4 A, U _A : 4 A)
Supply voltage	
Logic and sensor voltage U _{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U _A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I _{LS}	typ. 125 mA + sensors (max. 400 mA)
Actuator current I _A	5mA
Protection	Reverse voltage protection for U _{IS} + U _A ; short circuit protection for sensor supply



Block diagram of an input

Digital Input
X1 ... X8

Supply

**Technical Data****Digital inputs:**

Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Input filter	parametrizable
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 V DC (-30 V DC < U_{IN} < +30 V DC)
Input current (typ.)	2.8 mA
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect

System bus:

Number of expendable modules	64
Connection type (3)	M12 connectors, B coded, 5 poles, shielded

Isolation:

Channel - Channel	No
U_{IS} , U_A , system bus, fieldbus	500 V DC each

Service:

Type	USB standard 1.1
Connection type (5)	M8 connectors, 4 poles

Standards and approvals:

UL 508	
Conformity marking	CE

Configurable functions:

Fieldbus coupler	see manual
Digital Inputs	
Input filter (per channel)	0.1/ 0.5/ 3 /15 /20 ms/ filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U_{IS} + U_A)
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Technical Data**Process image:**

Input process image	2048 bytes
Output process image	2048 bytes
Input variables	512 bytes
Output variables	512 bytes
Program memory	1024 Kbytes
Data memory	256 Kbytes
Remanent memory	32 Kbytes (20 Kbytes retain, 12 Kbytes flag)

LED indicators:

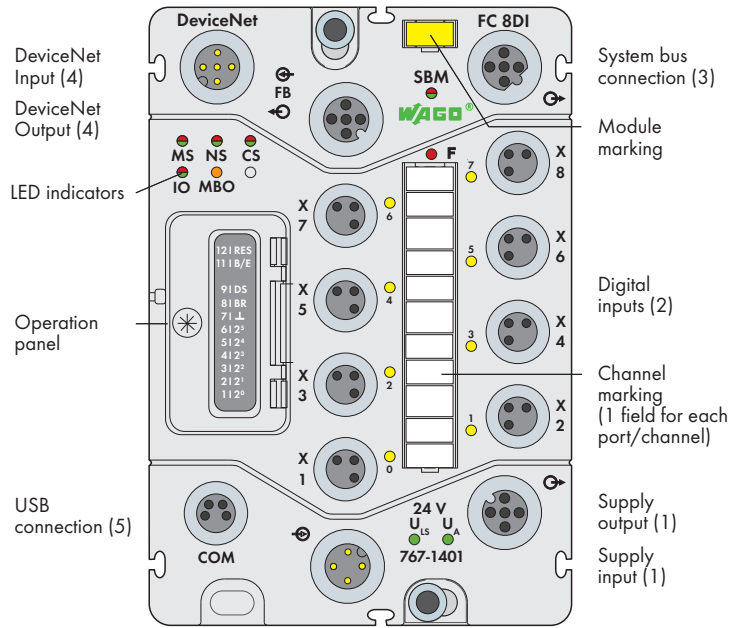
MS : ETHERNET module status	LED (green/red)
NS : ETHERNET network status	LED (green/red)
ACT/LNK 1 : ETHERNET data exchange/network connection	LED (green)
ACT/LNK 2 : ETHERNET data exchange/network connection	LED (green)
CS : Fieldbus coupler status	LED (green/red)
PS: Program status	LED (green/red)
SBM : System bus master status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U_{IS} + U_A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	75 x 35.7 x 117
Weight	330 g

DeviceNet Fieldbus Coupler

incl. 8 digital inputs (8 x M8)



Short description:

DeviceNet is a manufacturer-independent, open CAN-based fieldbus protocol typically used for networking sensors and actuators with higher-level automation devices. It operates in both master-slave and multi-master modes, while active participants communicate via a point-to-point or a multipoint connection. As a slave, the fieldbus coupler links the WAGO SPEEDWAY 767 system to DeviceNet. When initializing, the buscoupler determines the station's module structure and creates a process image of all inputs and outputs.

Characteristics:

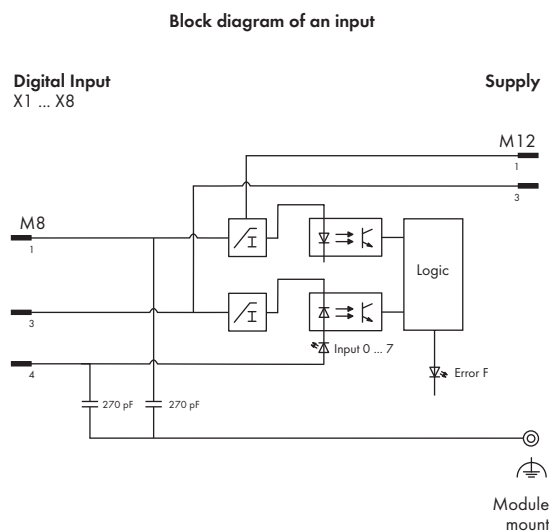
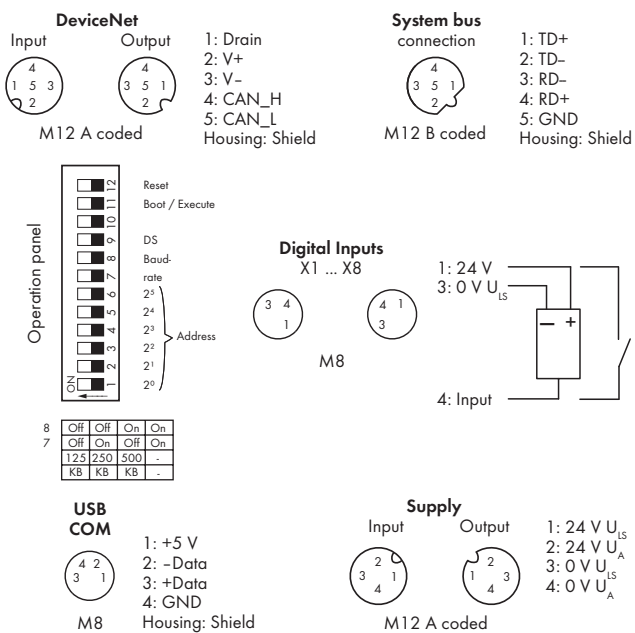
- 8 digital 24VDC inputs included
- Modular and extendable up to 64 I/O modules (via system bus connection)
- USB interface for servicing purposes (FDT/DTM configuration and system update)
- Enclosed operation panel (operating mode and address switch)

Included:

- Module WMB marker card, yellow (1 pcs)
- Channel marker strips (1 pcs)
- M8 protective caps (2 pcs)

Description	Item No.	Pack. Unit
FC DeviceNet 8DI 24V DC	767-1401	1
Accessories		
DeviceNet cable + accessories	see pages 430 ... 431	
System bus/power supply cable + accessories	see pages 422 ... 427 + 436	
General accessories	see pages 438 ... 439	
EDS files	Download: www.wago.com	
DTM (Device Type Manager)	Download: www.wago.com	

Technical Data	
Fieldbus:	
Device type	DevieNet Slave
Connection type (4)	M12 connectors, A coded, 5 poles
Baud rate	125/ 250/ 500 Kbit/s
Transmission medium	Copper cable
Station address	0-63 (adjustable via operation panel)
Additional data	see manual
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U _{IS} : 4 A, U _A : 4 A)
Supply voltage	
Logic and sensor voltage U _{IS}	24 V DC (-25 % ... +30 %)
Actuator voltage U _A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I _{IS}	typ. 80 mA + sensors (max. 400 mA)
Actuator current I _A	5mA
Protection	Reverse voltage protection for U _{IS} + U _A ; short circuit protection for sensor supply

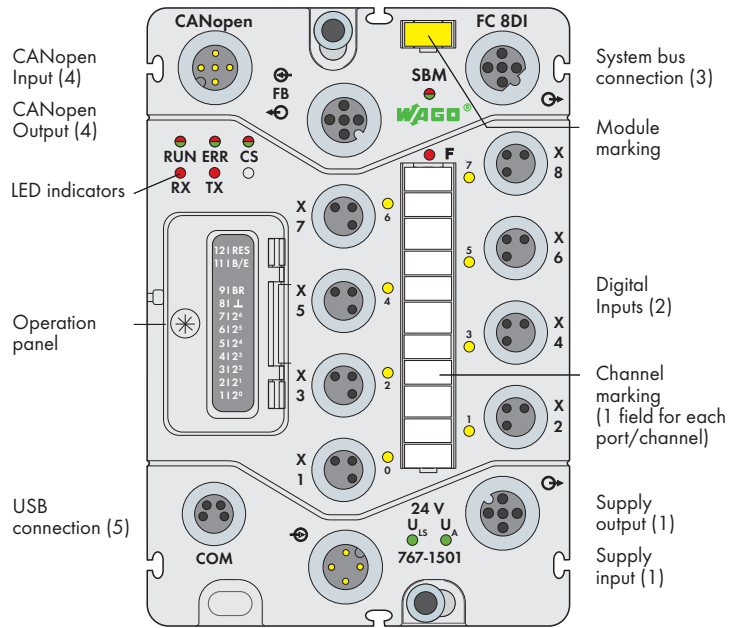


Technical Data	
Digital inputs:	
Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Input filter	parametrizable
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 V DC (-30 V DC < U _{IN} < +30 V DC)
Input current (typ.)	2.8 mA
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect
System bus:	
Number of expendable modules	64
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Isolation:	
Channel - Channel	No
U _{IS} , U _A system bus, fieldbus	500 V DC each
Service:	
Type	USB standard 1.1
Connection type (5)	M8 connectors, 4 poles
Standards and approvals:	
DeviceNet	IEC62026-3, EN50325-2
UL 508	
Conformity marking	CE
Configurable functions:	
Fieldbus coupler	see manual
Digital Inputs	
Input filter (per channel)	0.1/ 0.5/ 3 /15 /20 ms/ filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U _{IS} + U _A)

Technical Data	
Process image:	
Input process image	2048 bytes
Output process image	2048 bytes
LED indicators:	
MS: DeviceNet module status	LED (green/red)
IO: IO status	LED (green/red)
NS: DeviceNet network status	LED (green/red)
MBO: MAC-ID/Baud rate overwritten	
	LED (orange)
CS : Fieldbus coupler status	LED (green/red)
SBM : System bus master status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	75 x 35.7 x 117
Weight	388 g

CANopen Fieldbus Coupler

incl. 8 digital inputs (8 x M8)



Short description:

CANopen is an industrial fieldbus protocol based on the Controller Area Network (CAN) system. CANopen links the WAGO SPEEDWAY 767 system as a slave to the master. Data is transmitted using PDOs and SDOs. When initializing, the buscoupler determines the station's module structure and creates a process image of all inputs and outputs. The process image is divided into two data zones containing: data received and data to be sent. Process data is available to the bus participants via object directory.

Characteristics:

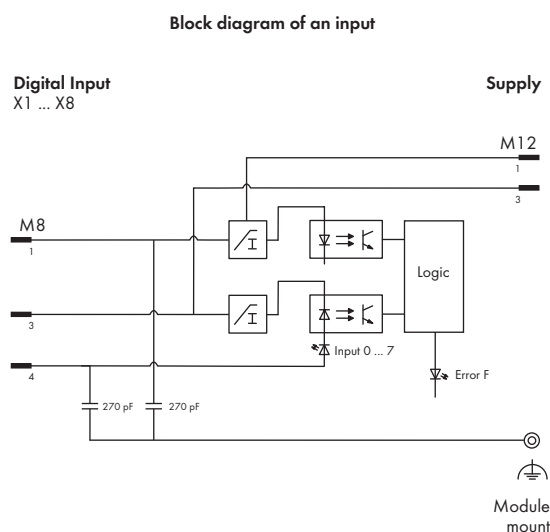
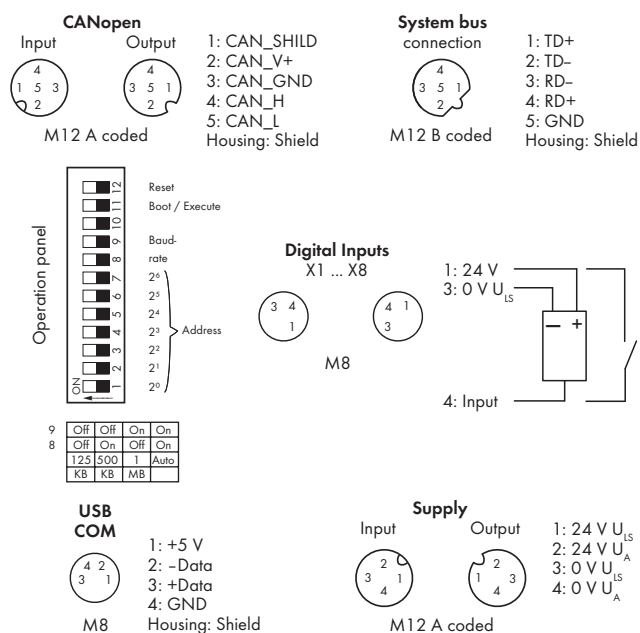
- 8 digital 24VDC inputs included
- Modular and extendable up to 64 I/O modules (via system bus connection)
- USB interface for servicing purposes (FDT/DTM configuration and system update)
- Enclosed operation panel (operating mode and address switch)

Included:

- Module WMB marker card, yellow (1 pcs)
- Channel marker strips (1 pcs)
- M8 protective caps (2 pcs)

Description	Item No.	Pack. Unit
FC CANopen 8DI 24V DC	767-1501	1
Accessories		
CANopen cable + accessories	see pages 430 ... 431	
System bus/power supply cable + accessories	see pages 422 ... 427 + 436	
General accessories	see pages 438 ... 439	
EDS files	Download: www.wago.com	
DTM (Device Type Manager)	Download: www.wago.com	

Technical Data	
Fieldbus:	
Device type	CANopen slave
Connection type (4)	M12 connectors, A coded, 5 poles
Baud rate	125/ 500/ 1000 Kbits Auto-baudrate detection
Transmission medium	Copper cable
Station address	1-127 (adjustable via operation panel)
Additional data	see manual
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U _{IS} : 4 A, U _A : 4 A)
Supply voltage	
Logic and sensor voltage U _{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U _A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I _{LS}	typ. 85 mA + sensors (max. 400 mA)
Actuator current I _A	5mA
Protection	Reverse voltage protection for U _{IS} + U _A ; short circuit protection for sensor supply



Technical Data

Digital inputs:

Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Input filter	parametrizable
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 V DC (-30 V DC < U _{IN} < +30 V DC)
Input current (typ.)	2.8 mA
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect

System bus:

Number of expendable modules	64
Connection type (3)	M12 connectors, B coded, 5 poles, shielded

Isolation:

Channel - Channel	No
U _{IS} , U _A , system bus, fieldbus	500 V DC each

Service:

Type	USB standard 1.1
Connection type (5)	M8 connectors, 4 poles

Standards and approvals:

UL 508	
Conformity marking	CE

Configurable functions:

Fieldbus coupler	see manual
Digital Inputs	
Input filter (per channel)	0.1/ 0.5/ 3 /15 /20 ms/ filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U _{IS} + U _A)
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Technical Data

Process image:

Input process image	512 bytes
Output process image	512 bytes

LED indicators:

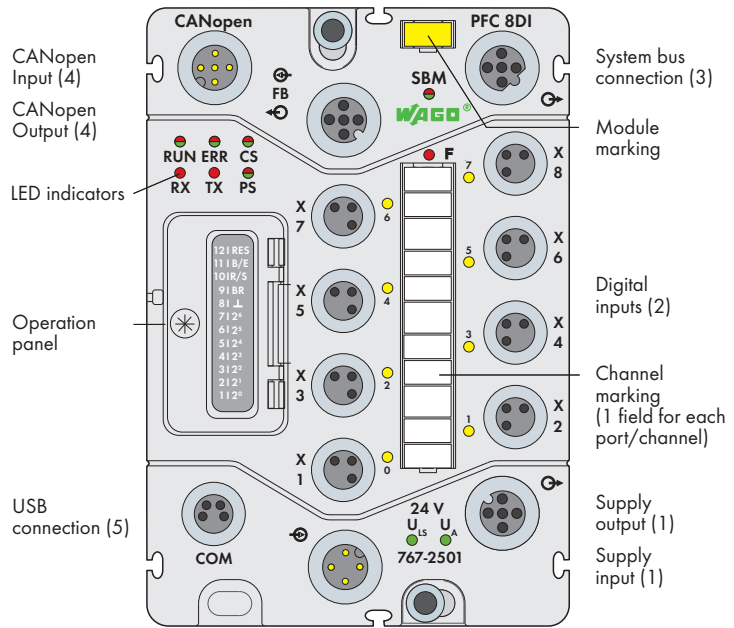
RUN: CANopen status	LED (green/red)
RX: CANopen receiver buffer	LED (red)
ERR: CANopen bus error	LED (green/red)
TX: CANopen transmit buffer	LED (red)
CS : Fieldbus coupler status	LED (green/red)
SBM : System bus master status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	75 x 35.7 x 117
Weight	377 g

CANopen Programmable Fieldbus Coupler (PLC)

incl. 8 digital inputs (8 x M8)



Short description:

CANopen is an industrial fieldbus protocol based on the Controller Area Network (CAN) system. CANopen links the WAGO SPEEDWAY 767 system as a slave to the master. Data is transmitted using PDOs and SDOs. When initializing, the buscoupler determines the station's module structure and creates a process image of all inputs and outputs. The process image is divided into two data zones containing: data received and data to be sent. Process data is available to the bus participants via object directory. In addition, this fieldbus coupler is programmable to IEC61131-3 and can thus relieve the central control system and fieldbus, reduce response times, define the operating mode in the event of failure (fieldbus failure) as well as divide complex applications into independent, functional units.

Characteristics:

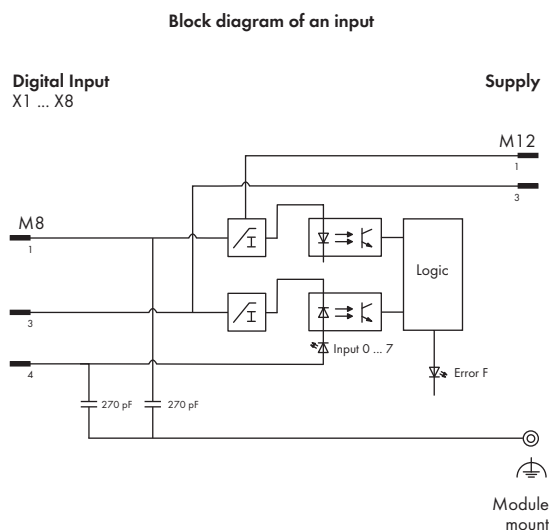
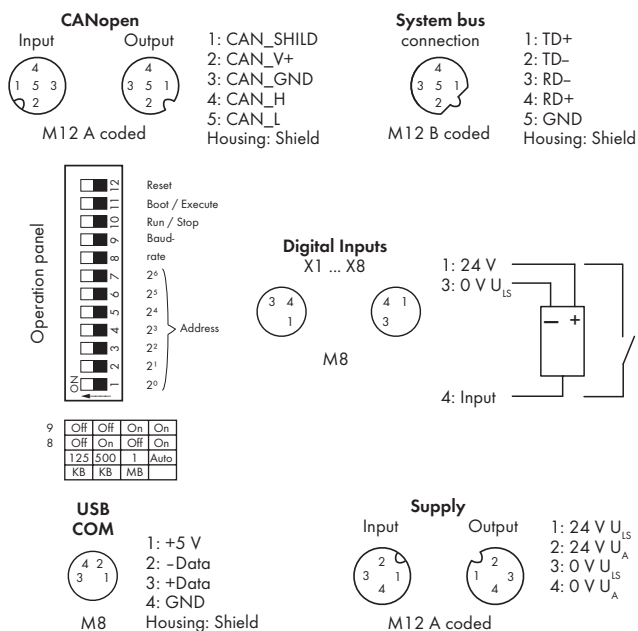
- 8 digital DC24V inputs included
- Modular and extendable up to 64 I/O modules (via system bus connection)
- USB interface for servicing purposes (FDT/DTM configuration and system update)
- Programmable to IEC61131-3
- Enclosed operation panel (operating mode and address switch)

Included:

- Module WMB marker card, yellow (1 pcs)
- Channel marker strips (1 pcs)
- M8 protective caps (2 pcs)

Description	Item No.	Pack. Unit
PFC CANopen 8DI 24V DC	767-2501	1
Accessories		
CANopen cable + accessories	see pages 430 ... 431	
System bus/power supply cable + accessories	see pages 422 ... 427 + 436	
General accessories	see pages 438 ... 439	
EDS files	Download: www.wago.com	
DTM (Device Type Manager)	Download: www.wago.com	
CoDeSys 3	759-915 (see page 440)	

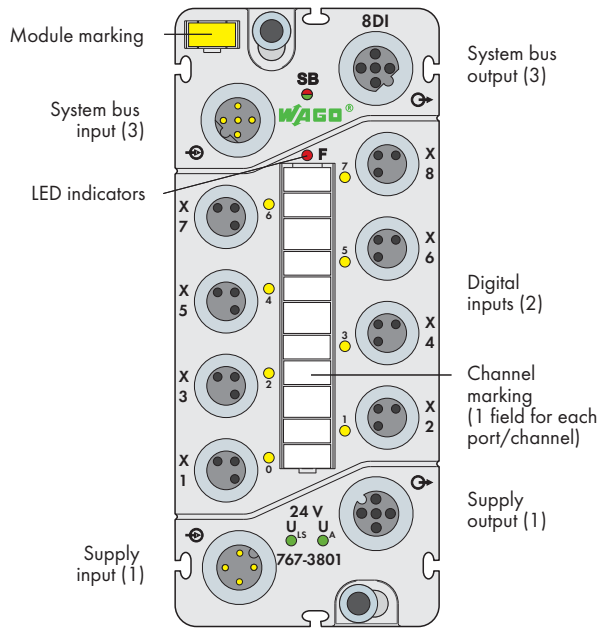
Technical Data	
Fieldbus:	
Device type	CANopen slave
Connection type (4)	M12 connectors, A coded, 5 poles
Baud rate	125/ 500/ 1000 Kbits
Transmission medium	Copper cable
Station address	1-127 (adjustable via operation panel)
Additional data	see manual
Programming:	
CoDeSys 3	Development system for programming and visualization according to IEC 61131-3
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U _{IS} : 4 A, U _A : 4 A)
Supply voltage	
Logic and sensor voltage U _{IS}	24 V DC (-25 % ... +30 %)
Actuator voltage U _A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I _{IS}	typ. 85 mA + sensors (max. 400 mA)
Actuator current I _A	5mA
Protection	Reverse voltage protection for U _{IS} + U _A ; short circuit protection for sensor supply



Technical Data	
Digital inputs:	
Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- to 3-wire
Input filter	parametrizable
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 V DC (-30 V DC < U _{IN} < +30 V DC)
Input current (typ.)	2.8 mA
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect
System bus:	
Number of expendable modules	64
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Isolation:	
Channel - Channel	No
U _{LS} , U _A : system bus, fieldbus	500 V DC each
Service:	
Type	USB standard 1.1
Connection type (5)	M8 connectors, 4 poles
Standards and approvals:	
UL 508	
Conformity marking	CE
Configurable functions:	
Fieldbus coupler	see manual
Digital Inputs	
Input filter (per channel)	0.1/ 0.5/ 3 /15 /20 ms/ filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U _{LS} + U _A)

Technical Data	
Process image:	
Input process image	512 bytes
Output process image	512 bytes
Input variables	512 bytes
Output variables	512 bytes
Program memory	1024 Kbytes
Data memory	256 Kbytes
Remanent memory	32 Kbytes (20 Kbytes retain, 12 Kbytes flag)
LED indicators:	
RUN: CANopen status	LED (green/red)
RX: CANopen receiver buffer	LED (red)
ERR: CANopen bus error	LED (green/red)
TX: CANopen transmit buffer	LED (red)
CS : Fieldbus coupler status	LED (green/red)
PS: Program status	LED (green/red)
SBM : System bus master status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U _{LS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	75 x 35.7 x 117
Weight	378 g

Digital Input Module 24 V DC
8 inputs (8 x M8)



Short description:

This digital input module records binary signals from switches, sensors and proximity switches (BEROs).

Characteristics:

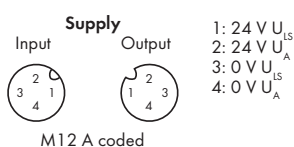
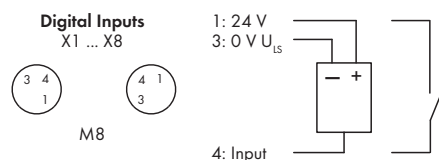
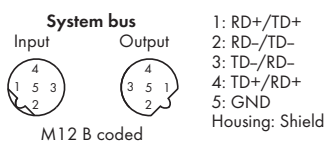
- 8 digital inputs, 24VDC
- Diagnostic capable (per module)
- Parametrizable (filter, inversion, online simulation and diagnostics)

Included:

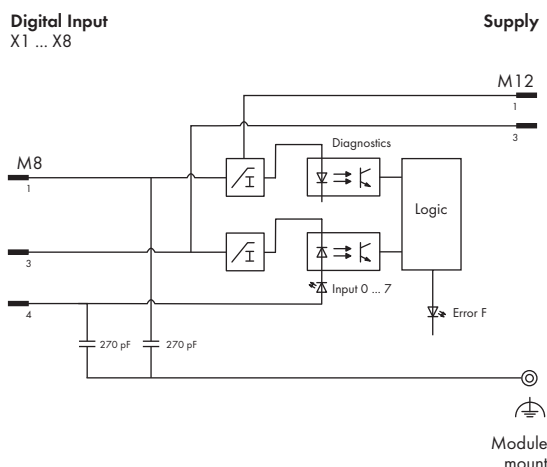
- 1 x WMB marker, yellow
- 1 x marking strip
- 2 x M8 protective cap

Description	Item No.	Pack. Unit
8DI 24V DC (8xM8)	767-3801	1
Accessories		
Marking strips, marking pen, spacer	see pages 438 ... 439	
module and protective caps		
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I_{LS}	typ. 40 mA + sensors (max. 400 mA)
Actuator current I_A	5 mA
Protection	Reverse voltage protection for U_{IS} + U_A ; short circuit protection for sensor supply
Digital inputs:	
Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Input filter	Hardware: $\leq 80 \mu s$ Software: parametrizable
Input characteristic	Type 2, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+11 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 V DC (-30 V DC < U_{IN} < +30 V DC)
Input current (typ.)	7.3 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect



Block diagram of an input

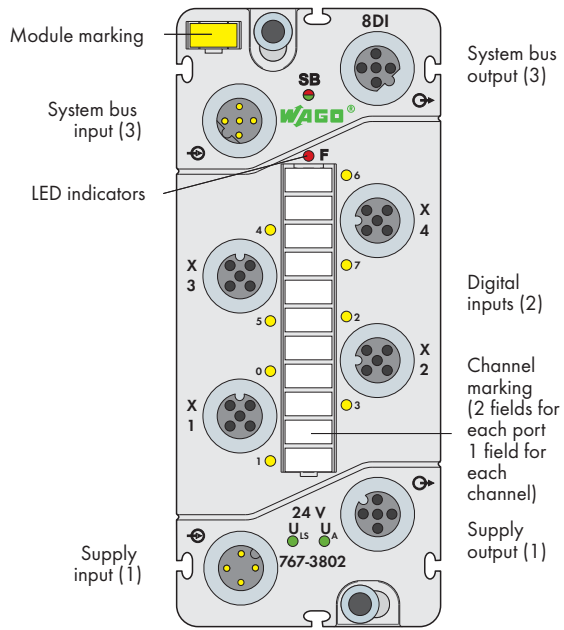


Technical Data	
Input characteristic:	
Input voltage	Typical input current
-30 V DC < U _{IN} < 0 V DC	0
5 V	2.4 mA
11 V	6.4 mA
24 V	7.3 mA
30 V	7.4 mA
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE

Technical Data	
Isolation:	
Channel - Channel	No
U _{IS} , U _A system bus	500 V DC each
Configurable functions:	
Input filter (per channel)	0.1 / 0.5 / 3 / 15 / 20 ms / filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U _{IS} + U _A)
Process image:	
Process data width	1-byte data + status
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	270 g

Digital Input Module 24 V DC

8 inputs (4 x M12, two outputs per connector)



Short description:

Digital input module records binary signals from switches, sensors and proximity switches (BEROs).

Characteristics:

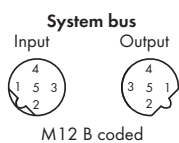
- 8 digital inputs 24 VDC
- Diagnostic capable (per module)
- Parametrizable (filter, inversion, online simulation and diagnostics)

Included:

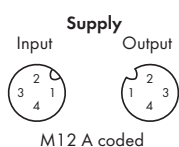
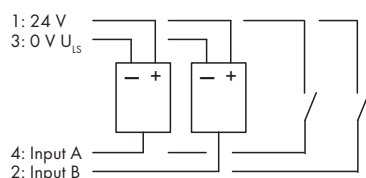
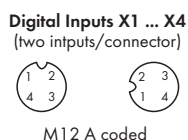
- 1 x WMB marker, yellow
- 1 x marking strip
- 2 x M12 protective cap

Description	Item No.	Pack. Unit
8DI 24V DC (4xM12)	767-3802	1
Accessories		
Marking strips, marking pen, spacer	see pages 438 ... 439	
module and protective caps		
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{IS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I_{IS}	typ. 40 mA + sensors (max. 400 mA)
Actuator current I_A	5 mA
Protection	Reverse voltage protection for U_{IS} + U_A ; short circuit protection for sensor supply
Digital inputs:	
Number of inputs	8
Connection type (2)	M12 connectors, A coded, 4 poles
Wire connection	2- or 3-wire
Input filter	Hardware: $\leq 80 \mu s$ Software: parametrizable
Input characteristic	Type 2, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+11 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 V DC (-30 V DC < U_{IN} < +30 V DC)
Input current (typ.)	7.3 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect

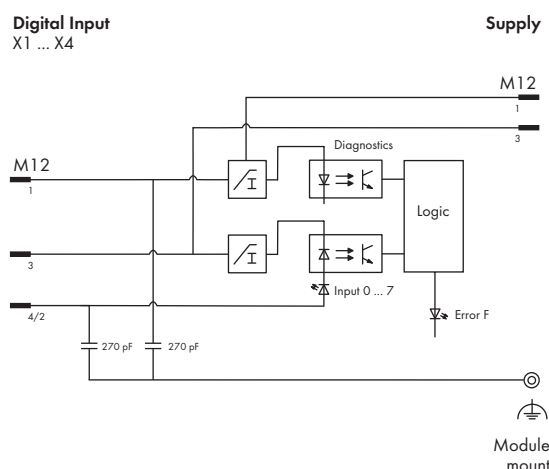


1: RD+/TD+
2: RD-/TD-
3: TD-/RD-
4: TD+/RD+
5: GND
Housing: Shield



1: 24 V U_{IS}
2: 24 V U_A
3: 0 V U_{IS}
4: 0 V U_A

Block diagram of an input



Technical Data

Input characteristic:

Input voltage	Typical input current
-30 V DC <math> < U_{IN} < 0 < /math> V DC	0
5 V	2.4 mA
11 V	6.4 mA
24 V	7.3 mA
30 V	7.4 mA

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
---------------------	--

Standards and approvals:

UL 508	
Conformity marking	CE

Technical Data

Isolation:

Channel - Channel	No
U_{IS} , U_A system bus	500 V DC each

Configurable functions:

Input filter (per channel)	0.1 / 0.5 / 3 / 15 / 20 ms / filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U_{IS} + U_A)
------------------------------	---

Process image:

Process data width	1-byte data + status
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LED indicators:

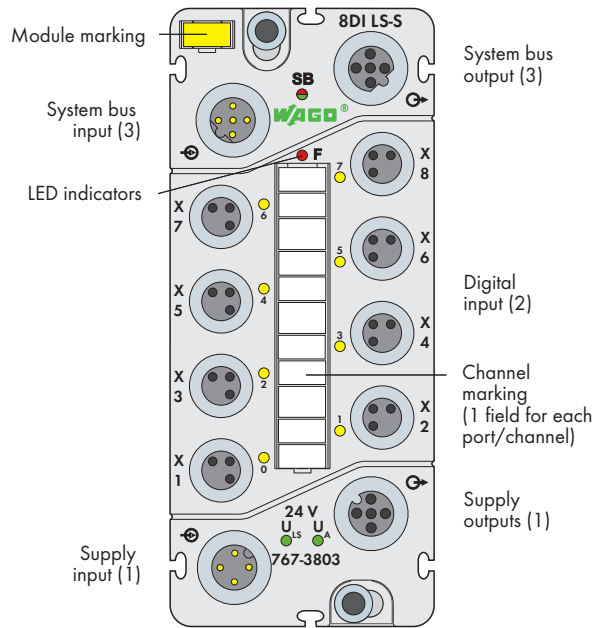
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U_{IS} + U_A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	282 g

Digital Input Module 24 V DC

8 inputs (8 x M8), low-side switching



Short description:

This digital input module records binary signals from switches, sensors and proximity switches (BEROs).

Characteristics:

- 8 digital inputs 24 VDC, low-side switching
- Diagnostic capable (per module)
- Parametrizable (filter, inversion, online simulation and diagnostics)

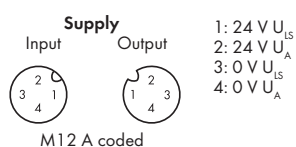
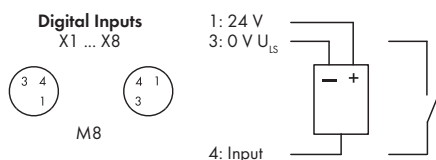
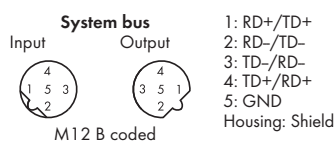
Included:

- 1 x WMB marker, yellow
- 1 x marking strip
- 2 x M8 protective cap

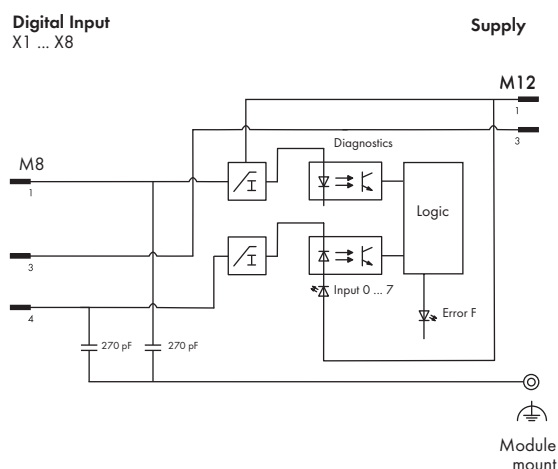
Description	Item No.	Pack. Unit
8DI 24V DC LS SWITCH (8xM8)	767-3803	1

Accessories	Item No.
Marking strips, marking pen, spacer module and protective caps	see pages 438 ... 439
IP67 cables and connectors	see pages 422 ... 437 + chapter 5

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I_{LS}	Typ. 40 mA + sensors (max. 400 mA)
Actuator current I_A	5 mA
Protection	Reverse voltage protection for U_{IS} + U_A ; Short circuit protection for sensor supply
Digital inputs:	
Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Input filter	HW: $\leq 80 \mu s$ SW: parametrizable
Signal voltage (0)	$(U_{IS} - 5V) \dots U_{IS}$
Signal voltage (1)	- 3V ... $(U_{IS} - 11V)$
Input wiring	Low-side switching
Input voltage	24 V DC (-3 V DC < U_{IN} < +30 V DC)
Input current (typ.)	7 mA
Connection of 2-wire BEROs	Permitted bias current: max. 1.5 mA
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect



Block diagram of an input



Technical Data

Input characteristic:

Input voltage	Typical input current
U_{IN}	0mA
$U_{IN} - 5V$	2.2 mA
$U_{IN} - 11V$	6.1 mA ... 6.3 mA
$-3 V < U_{IN} < 0 V$	7mA

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
---------------------	--

Standards and approvals:

UL 508	
Conformity marking	CE

Technical Data

Isolation:

Channel - Channel	No
U_{IS} , U_{A} system bus	500 V DC each

Configurable functions:

Input filter (per channel)	0.1 / 0.5 / 3 / 15 / 20 ms / filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage ($U_{IS} + U_{A}$)
------------------------------	---

Process image:

Process data width	1-byte data + status
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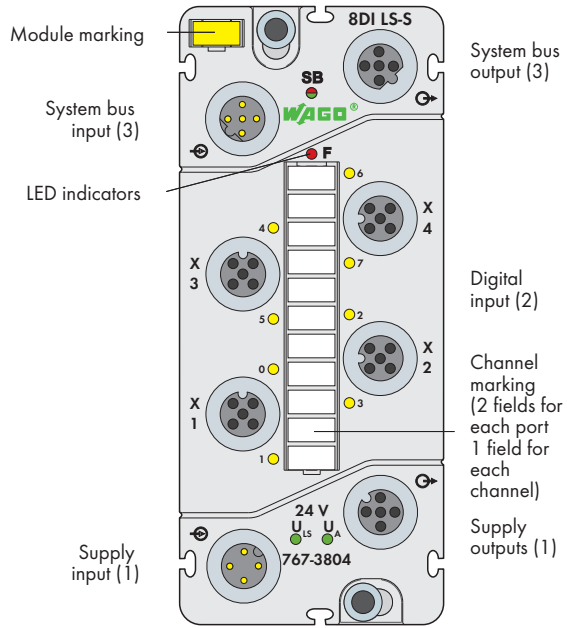
LED indicators:

SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
$U_{IS} + U_{A}$: Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	270 g

2 Digital Input Module 24 V DC
386 8 inputs (4 x M12, two inputs per connector), low-side switching



Short description:

This digital input module records binary signals from switches, sensors and proximity switches (BEROs).

Characteristics:

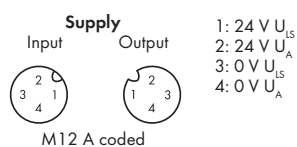
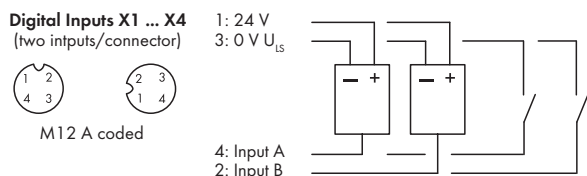
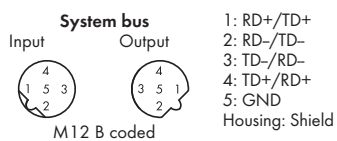
- 8 digital inputs 24 VDC, low-side switching
- Diagnostic capable (per module)
- Parametrizable (filter, inversion, online simulation and diagnostics)

Included:

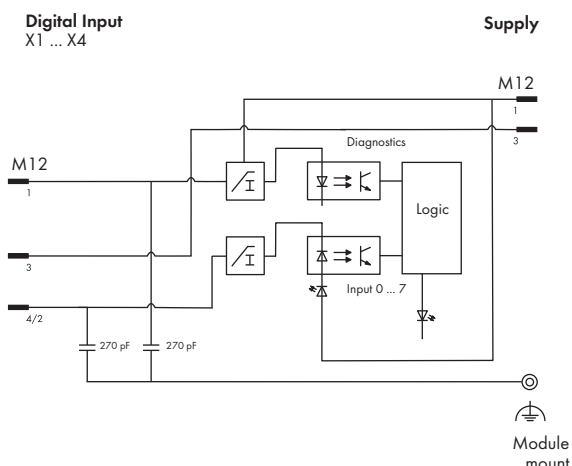
- 1 x WMB marker, yellow
- 1 x marking strip
- 2 x M12 protective cap

Description	Item No.	Pack. Unit
8DI 24V DC LS SWITCH (4xM12)	767-3804	1
Accessories		
Marking strips, marking pen, spacer	see pages 438 ... 439	
module and protective caps		
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I_{LS}	Typ. 40 mA + sensors (max. 400 mA)
Actuator current I_A	5 mA
Protection	Reverse voltage protection for U_{IS} + U_A ; Short circuit protection for sensor supply
Digital inputs:	
Number of inputs	8
Connection type (2)	M12 connectors, A coded, 4 poles
Wire connection	2- or 3-wire
Input filter	Hardware: $\leq 80 \mu s$ Software: parametrierbar
Signal voltage (0)	$(U_{IS} - 5V) \dots U_{IS}$
Signal voltage (1)	- 3V ... $(U_{IS} - 11V)$
Input wiring	Low-side switching
Input voltage	24 V DC (-3 V DC < U_{IN} < +30 V DC)
Input current (typ.)	7 mA
Connection of 2-wire BEROs	Permitted bias current: max. 1.5 mA
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect



Block diagram of an input

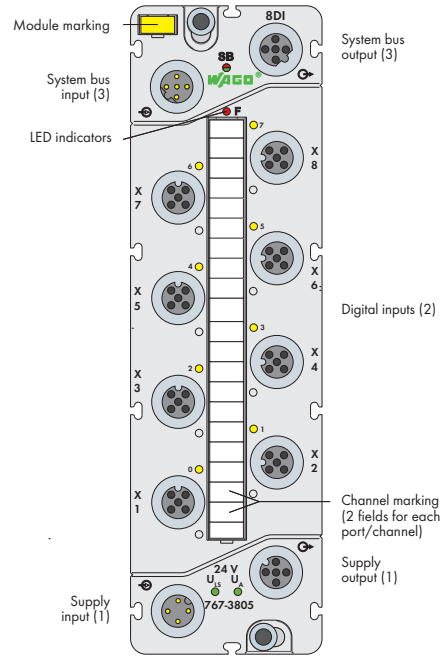


Technical Data	
Input characteristic:	
Input voltage	Typical input current
U_{IN}	0mA
$U_{IN} - 5V$	2.2 mA
$U_{IN} - 11V$	6.1 mA ... 6.3 mA
$-3 V < U_{IN} < 0 V$	7mA
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE

Technical Data	
Isolation:	
Channel - Channel	No
U_{IS} , U_{A} system bus	500 V DC each
Configurable functions:	
Input filter (per channel)	0.1 / 0.5 / 3 / 15 / 20 ms / filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage ($U_{IS} + U_{A}$)
Process image:	
Process data width	1-byte data + status
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
$U_{IS} + U_{A}$: Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	270 g

Digital Input Module 24 V DC

8 inputs (8 x M12)



Short description:

This digital input module records binary signals from switches, sensors and proximity switches (BEROs).

Characteristics:

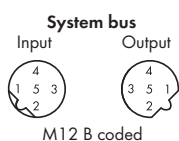
- 8 digital inputs, 24VDC
- Diagnostic capable (per module)
- Parametrizable (filter, inversion, online simulation and diagnostics)

Included:

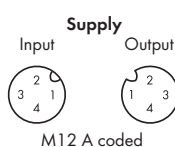
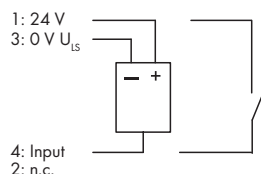
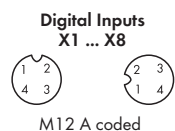
- 1 x WMB marker, yellow
- 1 x marking strip
- 2 x M12 protective cap

Description	Item No.	Pack. Unit
8DI 24V DC (8xM12)	767-3805	1
Accessories	Item No.	
Marking strips, marking pen, spacer module and protective caps	see pages 438 ... 439	
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	max. 8 A (U _{IS} : 4 A, U _A : 4 A)
Supply voltage	
Logic and sensor voltage U _{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U _A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I _{LS}	typ. 40 mA + sensors (max. 400 mA)
Actuator current I _A	5 mA
Protection	Reverse voltage protection for U _{IS} + U _A Short-circuit protection for sensor/actuator
Digital inputs:	
Number of inputs	8
Connection type (2)	M12 connectors, A coded, 4 poles
Wire connection	2- or 3-wire
Input filter	Hardware: ≤ 80 µs Software: parametrizable
Input characteristic	Type 2, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+11 V ... +30 V DC
Input wiring	High-side switching
Input voltage	24 V DC (-30 V DC < U _{IN} < +30 V DC)
Input current (typ.)	7.3 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect

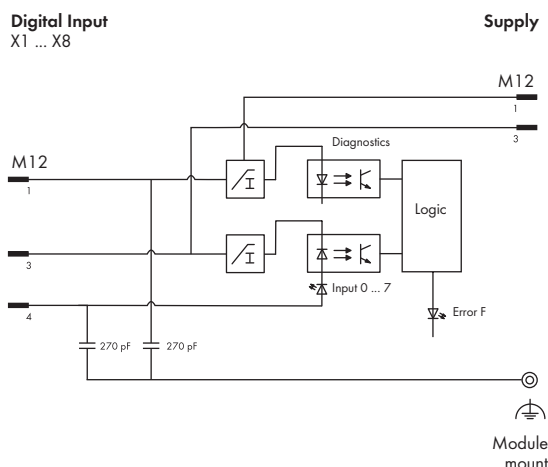


1: RD+/TD+
2: RD-/TD-
3: TD-/RD-
4: TD+/RD+
5: GND
Housing: Shield



1: 24 V U_{IS}
2: 24 V U_A
3: 0 V U_{IS}
4: 0 V U_A

Block diagram of an input



Technical Data

Input characteristic:

Input voltage	Typical input current
-30 V DC < U _{IN} < 0 V DC	0
5 V	2.4 mA
11 V	6.4 mA
24 V	7.3 mA
30 V	7.4 mA

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
---------------------	--

Standards and approvals:

UL 508	
Conformity marking	CE

Technical Data

Isolation:

Channel - Channel	no
U _{IS} , U _A , system bus	500 V DC each

Configurable functions:

Input filter (per channel)	0.1 / 0.5 / 3 / 15 / 20 ms / filter off
Inversion (per channel)	On/off
Online simulation (per channel)	Lock/unlock; simulation value: 0/1
Online simulation (per module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per module)	Short circuit of sensor supply Undervoltage (U _{IS} + U _A)
------------------------------	--

Process image:

Process data width	1-byte data + status
--------------------	----------------------

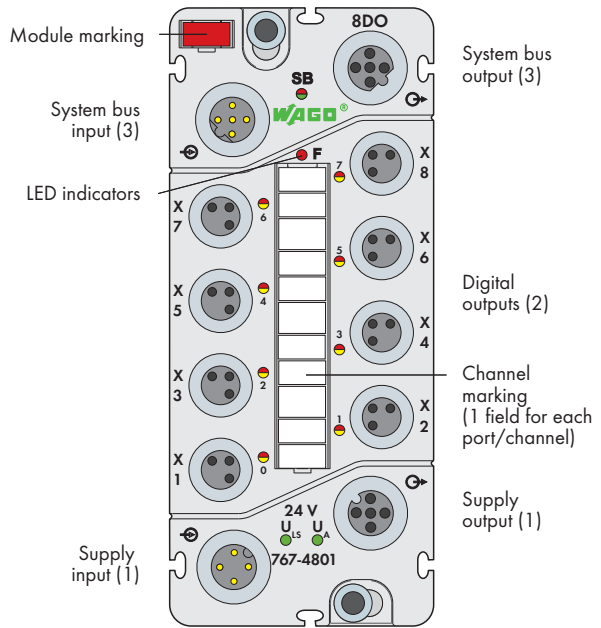
LED indicators:

SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 ... 7: Input signal status	LED (yellow)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 170
Weight	270

2 Digital Output Module 24 V DC / 0.5 A
390 8 outputs (8 x M8)



Short description:

Digital output module for actuator control (e.g., magnetic valves, DC contactors, indicators).

Characteristics:

- 8 digital outputs 24 VDC / 0.5 A
- Diagnostic capable (per channel)
- Parametrizable (inversion, substitute value strategy, substitute value, manual operation, online simulation and diagnostics)

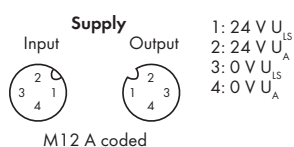
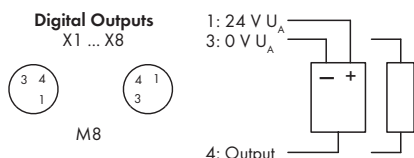
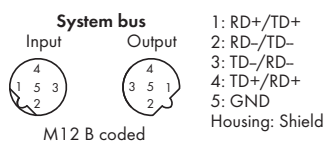
Included:

- 1 x WMB marker, red
- 1 x marking strip
- 2 x M8 protective cap

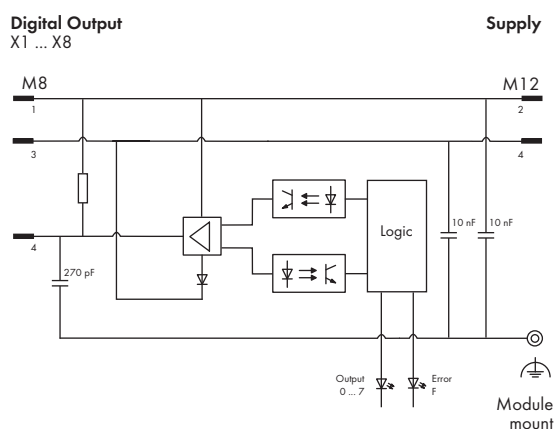
Description	Item No.	Pack. Unit
8DO 24V DC 0.5A (8xM8)	767-4801	1
8DO 24V DC 0.5A IF (8xM8)*	767-4801/000-800	1
* Interference-free for safety function applications (see manual)		

Accessories	Item No.
Marking strips, marking pen, spacer module and protective caps	see pages 438 ... 439
IP67 cables and connectors	see pages 422 ... 437 + chapter 5

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %)
Supply current	
Logic and sensor current I_{LS}	typ. 45 mA (only logic part)
Actuator current I_A	typ. 25 mA + actuators
Protection	Reverse voltage protection for U_{IS} + U_A
Digital outputs:	
No. of outputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Output voltage	$\leq U_A$
Output current (per channel)	0.5 A (max. 0.6 A), short-circuit/overload proof (thermal disconnection)
Voltage drop against U_A at 500 mA	Max. 0.2 V DC
Output current (module)	max. 4 A
Leakage current in OFF state	typ. 150 μ A
Output circuit	High-side switching



Block diagram of an output



Technical Data

Information on actuator selection:

Delay time HW	
from "0" to "1" (0-90%)	Typ. 75 μ s (resistive load)
Delay time HW	
from "1" to "0" (0-90%)	Typ. 270 μ s (resistive load)
Rise time from "0" to "1"	typ. 40 μ s (resistive load)
Fall time from "1" to "0"	Typ. 50 μ s (resistive load)
Cable length	\leq 30 m
Protection against reverse voltages	\leq 0.5 A
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz
Parallel connection of 2 outputs	Lamp load approx. 500 Hz for power boost for redundant actuation of a load
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	$<$ 0.4 Ω

Operating state influence on output:

PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
---------------------	--

Standards and approvals:

UL 508	
Conformity marking	CE

Technical Data

Isolation:

Channel - Channel	No
U_{IS} , U_{A} system bus	500 V DC each

Configurable functions:

Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock; simulation value: 0/1
Online simulation (per channel/module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per channel)	Short circuit (actuators) Wire break (actuators) Overtemperature
I/O diagnostics (per module)	Undervoltage (U_{IS} + U_{A})

Process image:

Process data width	1-byte data + status
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LED indicators:

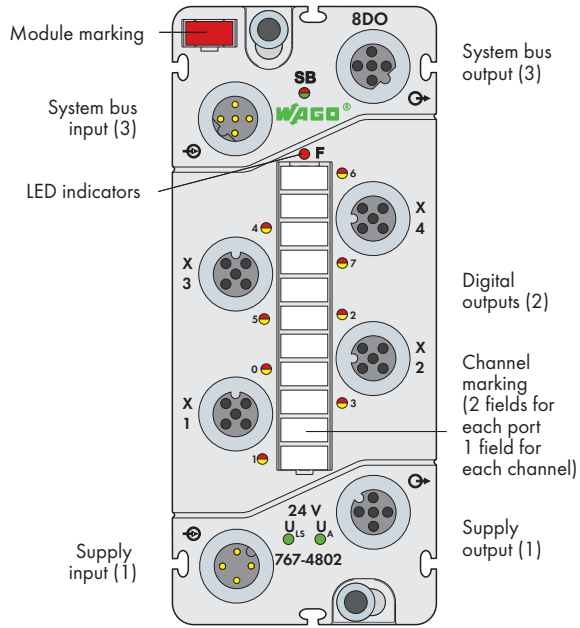
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Output signal status	LED (yellow/red)
U_{IS} + U_{A} : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	270 g

2 Digital Output Module 24 V DC / 0.5 A

392 8 outputs (4 x M12, two outputs per connector)



Short description:

Digital output module for actuator control (e.g., magnetic valves, DC contactors, indicators).

Characteristics:

- 8 digital outputs 24 VDC / 0.5 A
- Diagnostic capable (per channel)
- Parametrizable (inversion, substitute value strategy, substitute value, manual operation, online simulation and diagnostics)

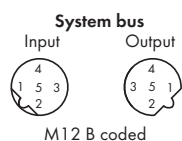
Included:

- 1 x WMB marker, red
- 1 x marking strip
- 2 x M12 protective cap

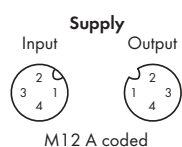
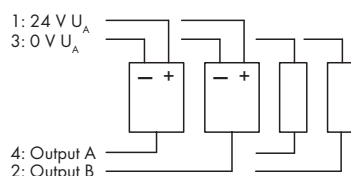
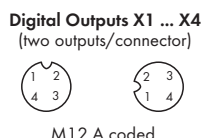
Description	Item No.	Pack. Unit
8DO 24V DC 0.5A (4xM12)	767-4802	1
8DO 24V DC 0.5A IF (4xM12)*	767-4802/000-800	1
* Interference-free for safety function applications (see manual)		

Accessories	Item No.
Marking strips, marking pen, spacer module and protective caps	see pages 438 ... 439
IP67 cables and connectors	see pages 422 ... 437 + chapter 5

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %)
Supply current	
Logic and sensor current I_{LS}	typ. 45 mA (only logic part)
Actuator current I_A	typ. 25 mA + actuators
Protection	Reverse voltage protection for U_{IS} + U_A
Digital outputs:	
No. of outputs	8
Connection type (2)	M12 connectors, A coded, 4 poles
Wire connection	2- or 3-wire
Output voltage	$\leq U_A$
Output current (per channel)	0.5 A (max. 0.6 A), short-circuit/overload proof (thermal disconnection)
Voltage drop against U_A at 500 mA	Max. 0.2 V DC
Output current (module)	max. 4 A
Leakage current in OFF state	typ. 150 μ A
Output circuit	High-side switching

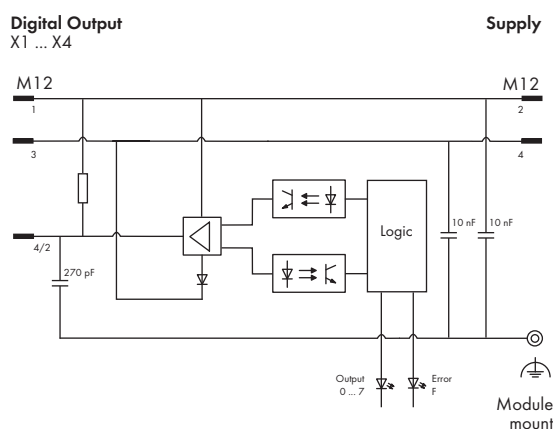


- 1: RD+/TD+
 - 2: RD-/TD-
 - 3: TD-/RD-
 - 4: TD+/RD+
 - 5: GND
- Housing: Shield



- 1: 24 V U_{IS}
- 2: 24 V U_A
- 3: 0 V U_{IS}
- 4: 0 V U_A

Block diagram of an output



Technical Data

Information on actuator selection:

Delay time HW	
from "0" to "1" (0-90%)	Typ. 75 µs (resistive load)
Delay time HW	
from "1" to "0" (0-90%)	Typ. 270 µs (resistive load)
Rise time from "0" to "1"	Typ. 40 µs (resistive load)
Fall time from "1" to "0"	Typ. 50 µs (resistive load)
Cable length	≤ 30 m
Protection against reverse voltages	≤ 0.5 A
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz
Parallel connection of 2 outputs	Lamp load approx. 500 Hz for power boost for redundant actuation of a load
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	< 0.4 Ω

Operating state influence on output:

PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
---------------------	--

Standards and approvals:

UL 508	
Conformity marking	CE

Technical Data

Isolation:

Channel - Channel	No
U _{IS} , U _A system bus	500 V DC each

Configurable functions:

Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock; simulation value: 0/1
Online simulation (per channel/module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per channel)	Short circuit (actuators) Wire break (actuators) Overtemperature
I/O diagnostics (per module)	Undervoltage (U _{IS} + U _A)

Process image:

Process data width	1-byte data + status
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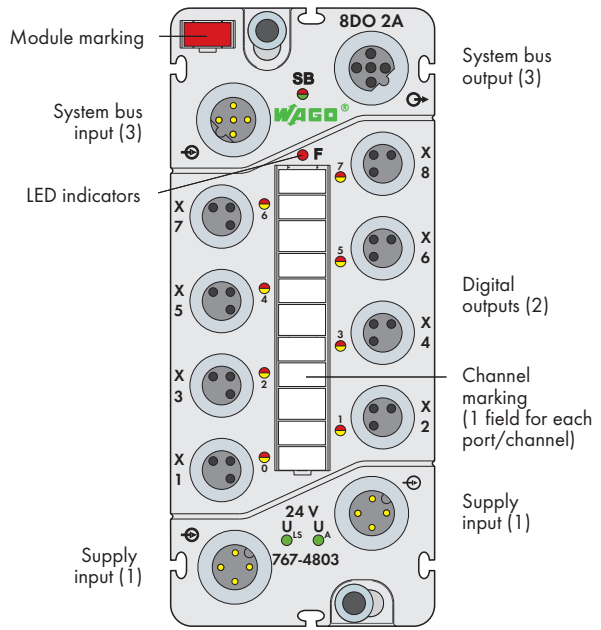
LED indicators:

SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Output signal status	LED (yellow/red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	260 g

2 Digital Output Module 24 V DC / 2.0 A
8 outputs (8 x M8)



Short description:

Digital output module for actuator control (e.g., magnetic valves, DC contactors, indicators).

Characteristics:

- 8 digital outputs 24 VDC / 2.0 A
- Diagnostic capable (per channel)
- Parametrizable (inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

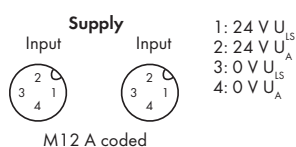
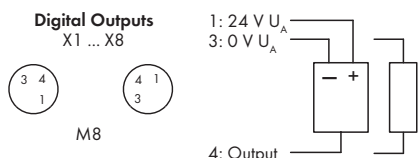
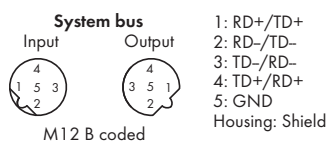
Included:

- 1 x WMB marker, red
- 1 x marking strip
- 2 x M8 protective cap

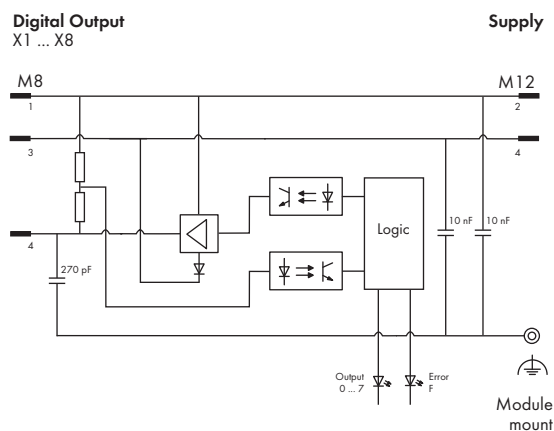
Description	Item No.	Pack. Unit
8DO 24V DC 2.0A (8xM8)	767-4803	1
8DO 24V DC 2.0A IF (8xM8)*	767-4803/000-800	1
* Interference-free for safety function applications (see manual)		

Accessories	Item No.
Marking strips, marking pen, spacer module and protective caps	see pages 438 ... 439
IP67 cables and connectors	see pages 422 ... 437 + chapter 5

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{IS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %)
Supply current	
Logic and sensor current I_{IS}	typ. 45 mA (only logic part)
Actuator current I_A	typ. 55 mA + actuators
Protection	Reverse voltage protection for U_{IS} + U_A
Digital outputs:	
No. of outputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Output voltage	$\leq U_A$
Output current (per channel)	2.0 A (max. 2.4 A), short-circuit/overload proof (thermal disconnection)
Voltage drop against U_A at 2.0 A	Max. 0.2 V DC
Output current (module)	max. 8 A
Leakage current in OFF state	typ. 780 μ A
Output circuit	High-side switching



Block diagram of an output



Technical Data

Information on actuator selection:

Delay time HW	
from "0" to "1" (0-90%)	Typ. 75 μs (resistive load)
Delay time HW	
from "1" to "0" (0-90%)	Typ. 265 μs (resistive load)
Rise time from "0" to "1"	Typ. 30 μs (resistive load)
Fall time from "1" to "0"	Typ. 50 μs (resistive load)
Cable length	≤ 30 m
Protection against reverse voltages	≤ 2 A
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz
Parallel connection of 2 outputs	Lamp load approx. 500 Hz for power boost for redundant actuation of a load
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	max. 0.1 Ω

Operating state influence on output:

PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
---------------------	--

Standards and approvals:

UL 508	
Conformity marking	CE

Technical Data

Isolation:

Channel - Channel	No
U _{LS} , U _A system bus	500 V DC each

Configurable functions:

Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock; simulation value: 0/1
Online simulation (per channel/module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per channel)	Short circuit (actuators) Wire break (actuators) Overtemperature
I/O diagnostics (per module)	Undervoltage (U _{LS} + U _A)

Process image:

Process data width	1-byte data + status
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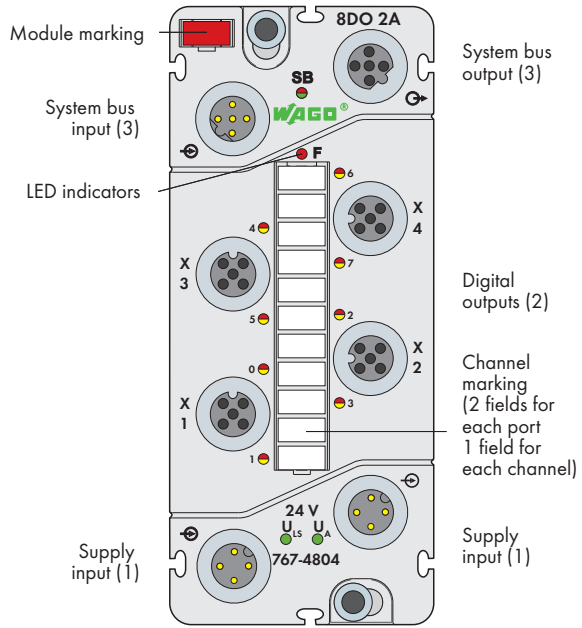
LED indicators:

SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Output signal status	LED (yellow/red)
U _{LS} + U _A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	277 g

2 Digital Output Module 24 V DC / 2.0 A
8 outputs (4 x M12, two outputs per connector)



Short description:

Digital output module for actuator control (e.g., magnetic valves, DC contactors, indicators).

Characteristics:

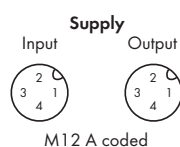
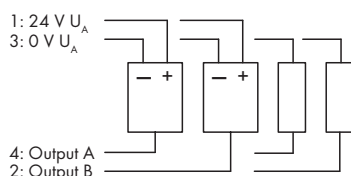
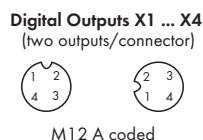
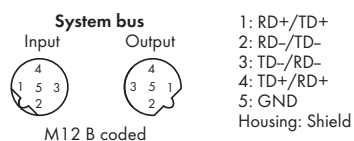
- 8 digital outputs 24 VDC / 2.0 A
- Diagnostic capable (per channel)
- Parametrizable (inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:

- 1 x WMB marker, red
- 1 x marking strip
- 2 x M12 protective cap

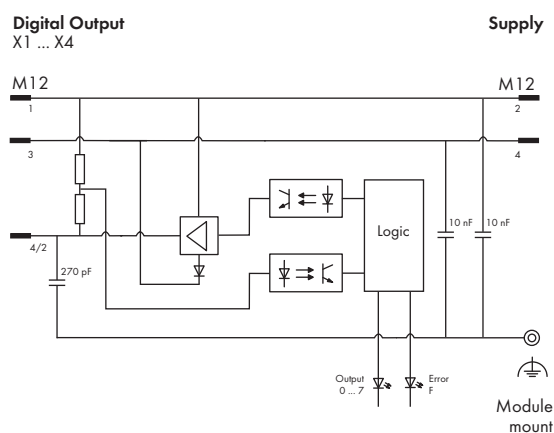
Description	Item No.	Pack. Unit
8DO 24V DC 2.0A (4xM12)	767-4804	1
8DO 24V DC 2.0A IF (4xM12)*	767-4804/000-800	1
* Interference-free for safety function applications (see manual)		
Accessories	Item No.	
Marking strips, marking pen, spacer module and protective caps	see pages 438 ... 439	
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %)
Supply current	
Logic and sensor current I_{LS}	typ. 45 mA (only logic part)
Actuator current I_A	typ. 55 mA + actuators
Protection	Reverse voltage protection for U_{IS} + U_A
Digital outputs:	
No. of outputs	8
Connection type (2)	M12 connectors, A coded, 4 poles
Wire connection	2- or 3-wire
Output voltage	$\leq U_A$
Output current (per channel)	2.0 A (max. 2.4 A), short-circuit/overload proof (thermal disconnection)
Voltage drop against U_A at 2.0 A	Max. 0.2 V DC
Output current (module)	max. 8 A
Leakage current in OFF state	typ. 780 μ A
Output circuit	High-side switching



- 1: 24 V U_{IS}
2: 24 V U_{IS}
3: 0 V U_{IS}
4: 0 V U_A

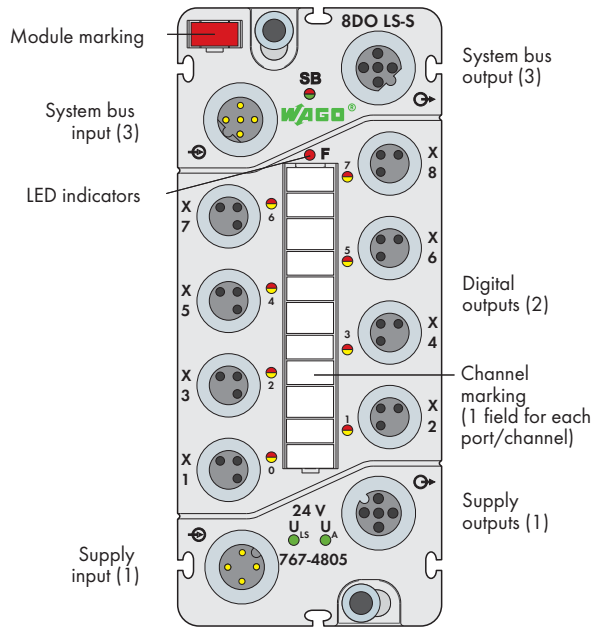
Block diagram of an output



Technical Data	
Information on actuator selection:	
Delay time HW	
from "0" to "1" (0-90%)	Typ. 75 μs (resistive load)
Delay time HW	
from "1" to "0" (0-90%)	Typ. 265 μs (resistive load)
Rise time from "0" to "1"	Typ. 30 μs (resistive load)
Fall time from "1" to "0"	Typ. 50 μs (resistive load)
Cable length	≤ 30 m
Protection against reverse voltages	≤ 2 A
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz
Parallel connection of 2 outputs	Lamp load approx. 500 Hz for power boost for redundant actuation of a load
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	max. 0.1 Ω
Operating state influence on output:	
PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE

Technical Data	
Isolation:	
Channel - Channel	No
U _{IS} , U _A system bus	500 V DC each
Configurable functions:	
Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock; simulation value: 0/1
Online simulation (per channel/module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Short circuit (actuators) Wire break (actuators) Overtemperature
I/O diagnostics (per module)	Undervoltage (U _{IS} + U _A)
Process image:	
Process data width	1-byte data + status
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Output signal status	LED (yellow/red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	250 g

2 Digital Output Module 24 V DC / 0.5 A
398 8 outputs (8 x M8), low-side switching



Short description:

Digital output module for actuator control (e.g., magnetic valves, DC contactors, indicators).

Characteristics:

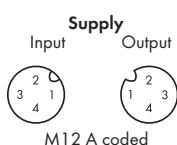
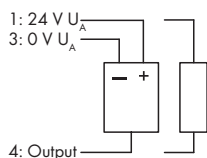
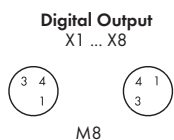
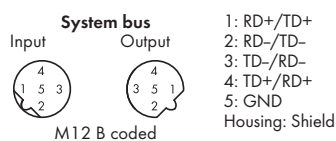
- 8 digital outputs 24 VDC / 0.5 A, low-side switching
- Diagnostic capable (per channel)
- Parametrizable (inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:

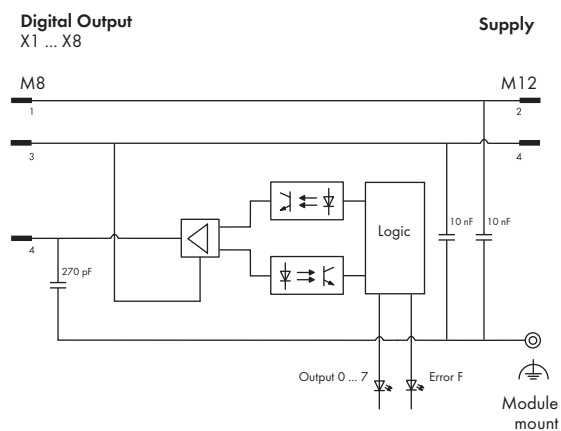
- 1 x WMB marker, red
- 1 x marking strip
- 2 x M8 protective cap

Description	Item No.	Pack. Unit
8DO 24V DC 0.5A LS SWITCH (8xM8)	767-4805	1
Accessories		
Marking strips, marking pen, spacer module and protective caps	see pages 438 ... 439	
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %)
Supply current	
Logic and sensor current I_{LS}	Typ. 40 mA (only logic part)
Actuator current I_A	Typ. 20 mA + actuators
Protection	Reverse voltage protection for U_{IS} + U_A
Digital outputs:	
No. of outputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Output voltage	$\geq 0V U_A$
Output current (per channel)	0.5 A (max. 0.6 A), short-circuit/overload protection (thermal shutdown)
Voltage drop against U_A at 500 mA	Max. 0.2 V DC ($0V U_A$)
Output current (module)	max. 4 A
Leakage current in OFF state	typ. 150 μ A
Output circuit	Low-side switching



Block diagram of an output



Technical Data

Information on actuator selection:

Delay time HW	
from "0" to "1" (0-90%)	Typ. 75 µs (resistive load)
Delay time HW	
from "1" to "0" (0-90%)	Typ. 270 µs (resistive load)
Rise time from "0" to "1"	Typ. 150 µs (resistive load)
Fall time from "1" to "0"	Typ. 150 µs (resistive load)
Cable length	≤ 30 m
Protection against reverse voltages	≤ 0.5 A
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz Lamp load approx. 500 Hz
Parallel connection of 2 outputs	For power boost For redundant load actuation
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	< 0.4 Ω

Operating state influence on output:

PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
---------------------	--

Standards and approvals:

UL 508	
Conformity marking	CE

Technical Data

Isolation:

Channel - Channel	No
U _{IS} , U _A , system bus	500 V DC each

Configurable functions:

Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value / hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock; simulation value: 0/1
Online simulation (per channel/module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per channel)	Overtemperature
I/O diagnostics (per module)	Undervoltage (U _{IS} + U _A)

Process image:

Process data width	1-byte data + status
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LED indicators:

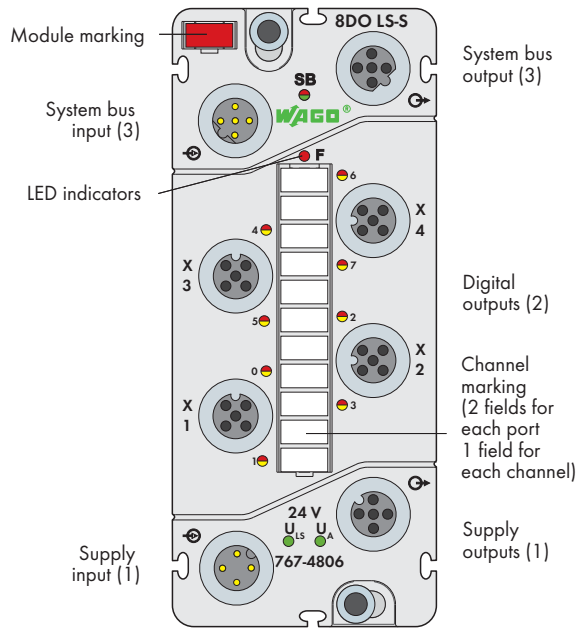
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Output signal status	LED (yellow/red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	270 g

2 Digital Output Module 24 V DC / 0.5 A

400 8 outputs (4 x M12, two inputs per connector), low-side switching



Short description:

Digital output module for actuator control (e.g., magnetic valves, DC contactors, indicators).

Characteristics:

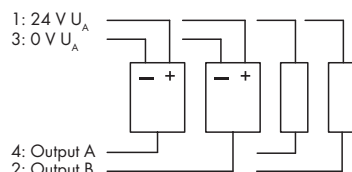
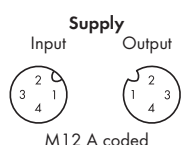
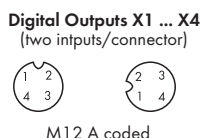
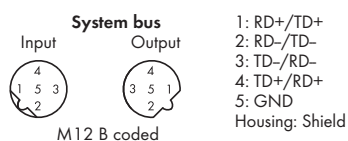
- 8 digital outputs 24 VDC / 0.5 A, low-side switching
- Diagnostic capable (per channel)
- Parametrizable (inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:

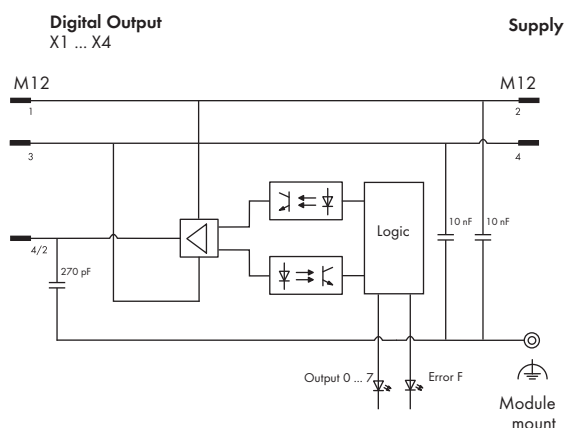
- 1 x WMB marker, red
- 1 x marking strip
- 2 x M12 protective cap

Description	Item No.	Pack. Unit
8DO 24V DC 0.5A (4xM12)	767-4806	1
Accessories		
Marking strips, marking pen, spacer	see pages 438 ... 439	
module and protective caps		
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	

Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %)
Supply current	
Logic and sensor current I_{LS}	Typ. 40 mA (only logic part)
Actuator current I_A	Typ. 20 mA + actuators
Protection	Reverse voltage protection for U_{IS} + U_A
Digital outputs:	
No. of outputs	8
Connection type (2)	M12 connectors, A coded, 4 poles
Wire connection	2- or 3-wire
Output voltage	$\geq 0V U_A$
Output current (per channel)	0.5 A (max. 0.6 A), short-circuit/overload protection (thermal shutdown)
Voltage drop against U_A at 500 mA	Max. 0.2 V DC ($0 V U_A$)
Output current (module)	max. 4 A
Leakage current in OFF state	typ. 150 μA
Output circuit	Low-side switching

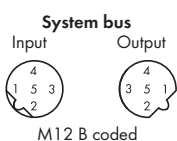


Block diagram of an output

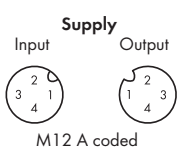
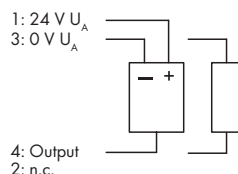
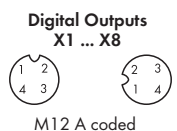


Technical Data	
Information on actuator selection:	
Delay time HW	
from "0" to "1" (0-90%)	Typ. 75 µs (resistive load)
Delay time HW	
from "1" to "0" (0-90%)	Typ. 270 µs (resistive load)
Rise time from "0" to "1"	Typ. 150 µs (resistive load)
Fall time from "1" to "0"	Typ. 150 µs (resistive load)
Cable length	≤ 30 m
Protection against reverse voltages	≤ 0.5 A
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz Lamp load approx. 500 Hz
Parallel connection of 2 outputs	For power boost For redundant load actuation
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	< 0.4 Ω
Operating state influence on output:	
PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE

Technical Data	
Isolation:	
Channel - Channel	No
U _{IS} , U _A system bus	500 V DC each
Configurable functions:	
Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value / hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock; simulation value: 0/1
Online simulation (per channel/module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Overtemperature
I/O diagnostics (per module)	Undervoltage (U _{IS} + U _A)
Process image:	
Process data width	1-byte data + status
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Output signal status	LED (yellow/red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	270 g

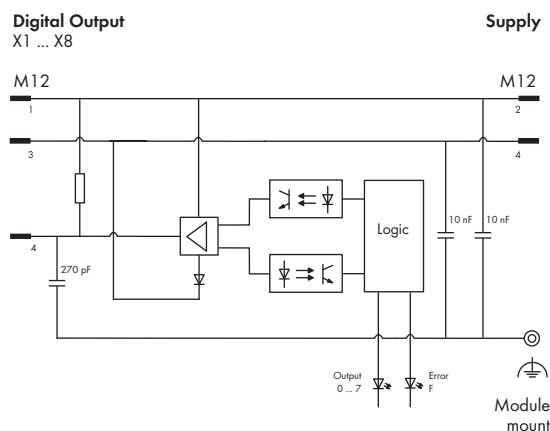


- 1: RD+/TD+
 - 2: RD-/TD-
 - 3: TD-/RD-
 - 4: TD+/RD+
 - 5: GND
- Housing: Shield



- 1: 24 V U_{IS}
- 2: 24 V U_A
- 3: 0 V U_{IS}
- 4: 0 V U_A

Block diagram of an output



Technical Data

Information on actuator selection:

Delay time HW	
from "0" to "1" (0-90%)	typ. 65 μs (resistive load)
Delay time HW	
from "1" to "0" (0-90%)	typ. 190 μs (resistive load)
Rise time from "0" to "1"	typ. 40 μs (resistive load)
Fall time from "1" to "0"	typ. 50 μs (resistive load)
Cable length	≤ 30 m
Protection against reverse voltages	≤ 0.5 A
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz
Parallel connection of 2 outputs	Lamp load approx. 500 Hz for power boost for redundant actuation of a load
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	< 0.4 Ω

Operating state influence on output:

PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
---------------------	--

Standards and approvals:

UL 508	
Conformity marking	CE

Technical Data

Isolation:

Channel - Channel	no
U _{IS} , U _A system bus	500 V DC each

Configurable functions:

Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock; simulation value: 0/1
Online simulation (per channel/module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per channel)	Short circuit (actuators) Wire break (actuators) Overtemperature
I/O diagnostics (per module)	Undervoltage (U _{IS} + U _A)

Process image:

Process data width	1-byte data + status
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LED indicators:

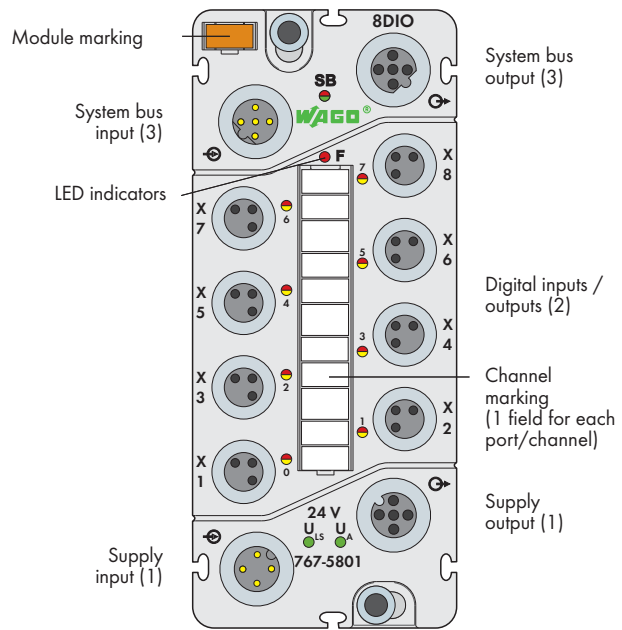
SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 ... 7: Output signal status	LED (yellow/red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 170
Weight	270

Digital Input/Output Module 24 V DC / 0.5 A

8 inputs/outputs (8 x M8)



Short description:

This digital input/output module records binary signals from switches, sensors and proximity switches (BEROs), and it controls actuators (e.g., magnetic valves, DC contactors, indicators).

Characteristics:

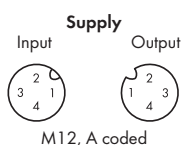
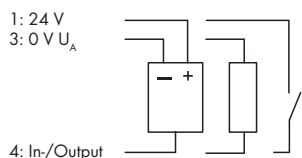
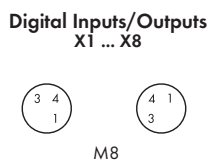
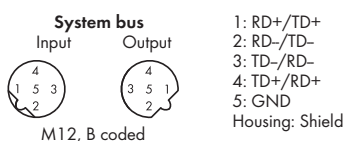
- 8 digital inputs/outputs 24 V DC / 0.5 A
- Input/output, parametrizable channel for channel
- Diagnostic capable (per channel/per module)
- Parametrizable (operating mode, filter, inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:

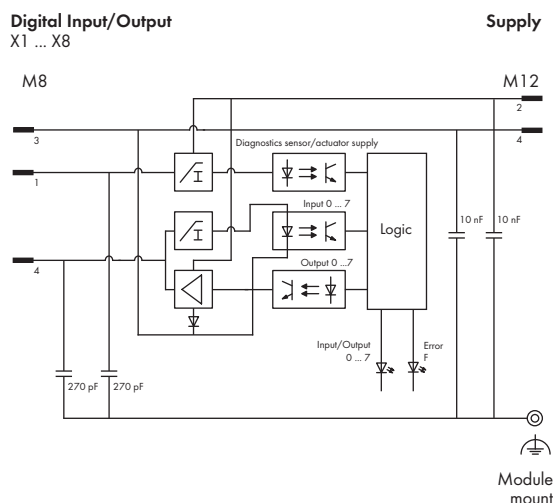
- 1 x WMB module marker card, orange
- 1 x marker strip
- 2 x M8 protective cap

Description	Item No.	Pack. Unit
8DIO 24V DC 0.5A (8xM8)	767-5801	1
8DIO 24V DC 0.5A IF (8xM8)*	767-5801/000-800	1
* Interference-free for safety function applications (see manual)		
Accessories	Item No.	
Marking strips, marking pen, spacer module and protective caps	see pages 438 ... 439	
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	
Technical Data		
Module supply:		
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed	
Current carrying capacity of supply connections	max. 8 A (U_{IS} : 4 A, U_A : 4 A)	
Supply voltage		
Logic and sensor voltage U_{IS}	24 V DC (-25 % ... +30 %)	
Actuator voltage U_A	24 V DC (-25 % ... +30 %)	
Supply current		
Logic and sensor current I_{IS}	typ. 45 mA (only logic part)	
Actuator current I_A	typ. 75 mA + sensors/actuators (max. 800 mA) + load	
Protection	Reverse voltage protection for U_{IS} + U_A Short-circuit protection for sensor/actuator supply	

Technical Data	
Digital inputs:	
Number of inputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Input filter	Hardware: $\leq 110 \mu s$ Software: parametrizable
Input characteristic	Type 2, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+11 V ... +30 V DC
Input wiring	High-side switching
Input voltage	24 VDC ($-3 \text{ VDC} < U_{IN} < +30 \text{ VDC}$); Power from U_A is strongly recommended, recovery for voltages $> U_A$
Input current (typ.)	7.0 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, unshielded	$\leq 30 \text{ m}$
Input characteristic:	
Input voltage	Typical input current
0 V DC	0
5 V	2.7 mA
11 V	6.8 mA
24 V	7 mA
30 V	7.1 mA



Block diagram of an input/output

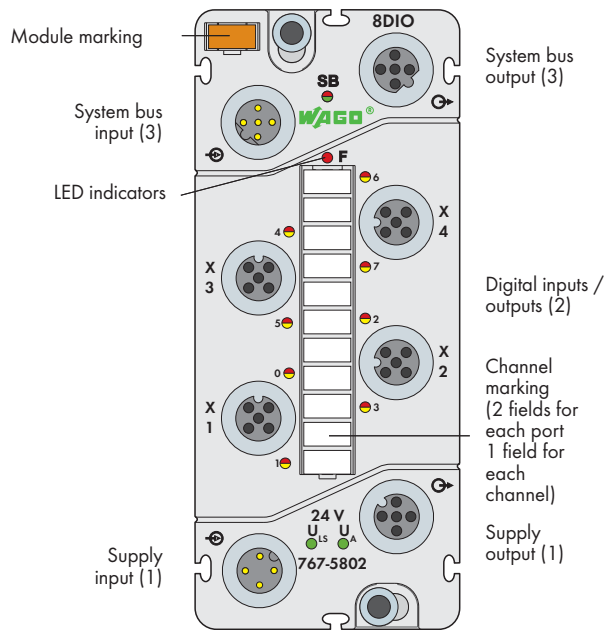


Technical Data	
Digital outputs:	
No. of outputs	8
Connection type (2)	M8 connectors, 3 poles
Wire connection	2- or 3-wire
Output voltage	≤ U _A
Output current (per channel)	0.5 A (max. 0.6 A), short-circuit/overload proof (thermal disconnection)
Voltage drop against U _A at 500 mA	max. 0.2 V DC
Output current (module)	max. 4 A
Leakage current in OFF state	typ. 5 μA
Output circuit	High-side switching
Information on actuator selection:	
Delay time HW	
from "0" to "1" (0-90%)	typ. 90 μs (resistive load)
Delay time HW	
from "1" to "0" (0-90%)	typ. 310 μs (resistive load)
Rise time from "0" to "1"	typ. 60 μs (resistive load)
Fall time from "1" to "0"	typ. 45 μs (resistive load)
Cable length	≤ 30 m
Reverse current (in case of recovery for	≤ 0.5 A (error: 1 channel)
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz Lamp load approx. 500 Hz
Parallel connection of 2 outputs	for power boost for redundant actuation of a load
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	< 0.4 Ω
Operating state influence on output:	
PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart
Counters:	
No. of counters	2
Counter type	Event, gate time, pulse duration counter
Counting/switching frequency	0 Hz ... 1 kHz

Technical Data	
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	UL 508
Conformity marking	CE
Isolation:	
Channel - Channel	no
U _{IS} , U _A system bus	500 V DC each
Configurable functions:	
Operating mode (per module)	DO-Module/DI-Module/DIO-Module/ DIO + 1 counter/DIO + 2 counters
Input filter (per channel)	0.1/ 0.5/ 3 / 15 / 20 ms/ filter off
Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock; simulation value: 0/1
Online simulation (per channel/module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Overtemperature
I/O diagnostics (per module)	Short-circuit of sensor/actuator supply Undervoltage (U _{IS} + U _A)
Process image:	
Process data width	Depends on operating mode
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input and output signal status	LED (yellow)
0 ... 7: Output diagnostics	LED (red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	260 g

Digital Input/Output Module 24 V DC / 0.5 A

8 inputs/outputs (4 x M12, two inputs/outputs per connector)



Short description:

This digital input/output module records binary signals from switches, sensors and proximity switches (BEROs), and it controls actuators (e.g., magnetic valves, DC contactors, indicators).

Characteristics:

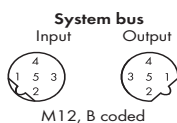
- 8 digital inputs/outputs 24 VDC / 0.5 A
- Input/output, parametrizable channel for channel
- Diagnostic capable (per channel/per module)
- Parametrizable (operating mode, filter, inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:

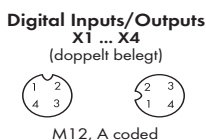
- 1 x WMB module marker card, orange
- 1 x marker strip
- 2 x M8 protective cap

Description	Item No.	Pack. Unit
8DIO 24V DC 0.5A (4xM12)	767-5802	1
8DIO 24V DC 0.5A IF (4xM12)*	767-5802/000-800	1
* Interference-free for safety function applications (see manual)		
Accessories	Item No.	
Marking strips, marking pen, spacer module and protective caps	see pages 438 ... 439	
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	
Technical Data		
Module supply:		
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed	
Current carrying capacity of supply connections	max. 8 A (U_{IS} : 4 A, U_A : 4 A)	
Supply voltage		
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)	
Actuator voltage U_A	24 V DC (-25 % ... +30 %)	
Supply current		
Logic and sensor current I_{LS}	typ. 45 mA (only logic part)	
Actuator current I_A	typ. 75 mA + sensors/actuators (max. 800 mA) + load	
Protection	Reverse voltage protection for U_{IS} + U_A Short-circuit protection for sensor/actuator supply	

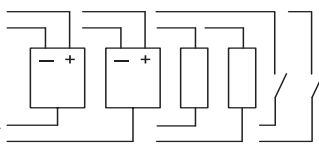
Technical Data	
Digital inputs:	
Number of inputs	8
Connection type (2)	M12 connectors, A coded, 4 poles
Wire connection	2- or 3-wire
Input filter	Hardware: $\leq 110 \mu s$ Software: parametrizable
Input characteristic	Type 2, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+11 V ... +30 V DC
Input wiring	High-side switching
Input voltage	24 VDC ($-3 \text{ VDC} < U_{IN} < +30 \text{ VDC}$); Power from U_A is strongly recommended, recovery for voltages $> U_A$
Input current (typ.)	7.0 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, unshielded	$\leq 30 \text{ m}$
Input characteristic:	
Input voltage	Typical input current
0 V DC	0
5 V	2.7 mA
11 V	6.8 mA
24 V	7 mA
30 V	7.1 mA



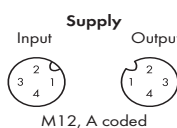
1: RD+/TD+
2: RD-/TD-
3: TD-/RD-
4: TD+/RD+
5: GND
Housing: Shield



1: 24 V
3: 0 V U_A

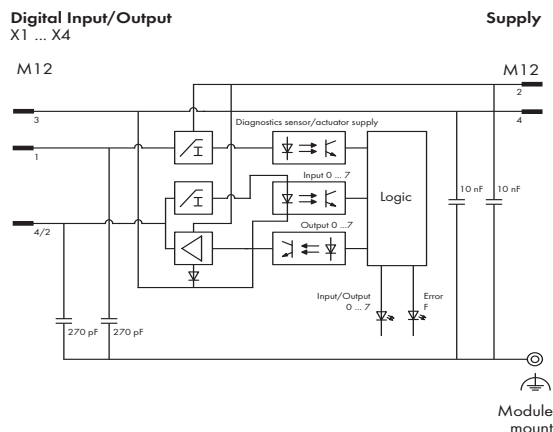


4: In-/Output A
2: In-/Output B



1: 24 V U_{IS}
2: 24 V U_A
3: 0 V U_{IS}
4: 0 V U_A

Block diagram of an input/output



Technical Data

Digital outputs:

No. of outputs	8
Connection type (2)	M12 connectors, A coded, 4 poles
Wire connection	2- or 3-wire
Output voltage	≤ U _A
Output current (per channel)	0.5 A (max. 0.6 A), short-circuit/overload proof (thermal disconnection)
Voltage drop against U _A at 500 mA	max. 0.2 V DC
Output current (module)	max. 4 A
Leakage current in OFF state	typ. 5 μA
Output circuit	High-side switching

Information on actuator selection:

Delay time HW	
from "0" to "1" (0-90%)	typ. 90 μs (resistive load)
Delay time HW	
from "1" to "0" (0-90%)	typ. 310 μs (resistive load)
Rise time from "0" to "1"	typ. 60 μs (resistive load)
Fall time from "1" to "0"	typ. 45 μs (resistive load)
Cable length	≤ 30 m
Reverse current (in case of recovery for	≤ 0.5 A (error: 1 channel)
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz Lamp load approx. 500 Hz
Parallel connection of 2 outputs	for power boost for redundant actuation of a load
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	< 0.4 Ω

Operating state influence on output:

PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart

Counters:

No. of counters	2
Counter type	Event, gate time, pulse duration counter
Counting/switching frequency	0 Hz ... 1 kHz

Technical Data

System bus:

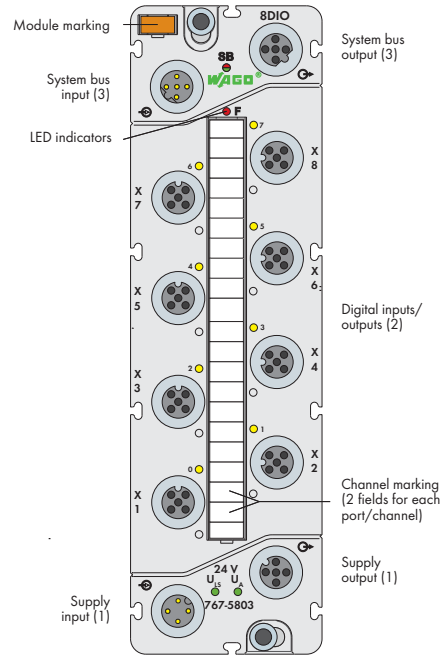
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE
Isolation:	
Channel - Channel	no
U _{IS} , U _A , system bus	500 V DC each
Configurable functions:	
Operating mode (per module)	DO-Module/DI-Module/DIO-Module/ DIO + 1 counter/DIO + 2 counters
Input filter (per channel)	0.1/ 0.5/ 3 /15 /20 ms/ filter off
Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock; simulation value: 0/1
Online simulation (per channel/module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Overtemperature
I/O diagnostics (per module)	Short-circuit of sensor/actuator supply Undervoltage (U _{IS} + U _A)
Process image:	
Process data width	Depends on operating mode
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input and output signal status	LED (yellow)
0 ... 7: Output diagnostics	LED (red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	255 g

Digital Input/Output Module 24 V DC / 0.5 A

8 inputs/outputs (8 x M12)



Short description:

This digital input/output module records binary signals from switches, sensors and proximity switches (BEROs). The module also controls actuators, such as magnetic valves, DC contactors and indicators.

Characteristics:

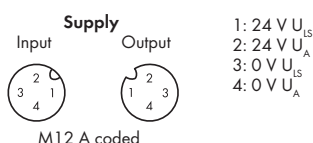
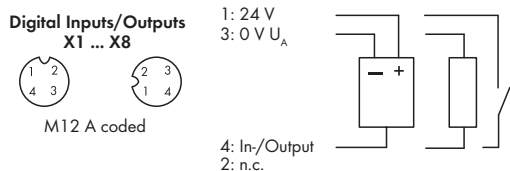
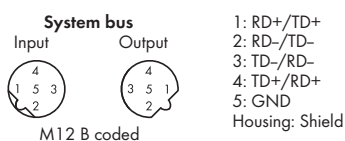
- 8 digital inputs/outputs, 24VDC / 0.5A
- Input/output, parametrizable channel for channel
- Diagnostic capable (per channel/per module)
- Parametrizable (operating mode, counter, filter, inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:

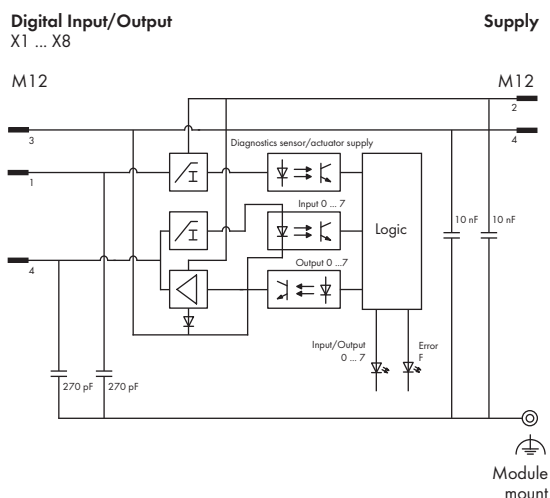
- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

Description	Item No.	Pack. Unit
8DIO 24V DC 0.5A (8xM12)	767-5803	1
8DIO 24V DC 0.5A IF (8xM12)*	767-5803/000-800	1
* Interference-free for safety function applications (see manual)		
Accessories		
Marking strips, marking pen, spacer	see pages 438 ... 439	
module and protective caps		
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	
Technical Data		
Module supply:		
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed	
Current carrying capacity of supply connections	max. 8 A (U _{IS} : 4 A, U _A : 4 A)	
Supply voltage		
Logic and sensor voltage U _{LS}	24 V DC (-25 % ... +30 %)	
Actuator voltage U _A	24 V DC (-25 % ...+30 %)	
Supply current		
Logic and sensor current I _{LS}	typ. 45 mA (only logic part)	
Actuator current I _A	typ. 75 mA + sensors/actuators (max. 800 mA) + load	
Protection	Reverse voltage protection for U _{IS} + U _A Short-circuit protection for sensor/actuator supply	

Technical Data	
Digital inputs:	
Number of inputs	8
Connection type (2)	M12 connectors, A coded, 4 poles
Wire connection	2 oder 3 Leiter
Input filter	Hardware: ≤ 60 µs Software: parametrizable
Input characteristic	Type 2, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+11 V ... +30 V DC
Input wiring	High-side switching
Input voltage	24 VDC (-3 VDC < U _{IN} < +30 VDC); Power from U _A is strongly recommended, recovery for voltages > U _A
Input current (typ.)	7 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, unshielded	≤ 30 m
Input characteristic:	
Input voltage	Typical input current
0 V DC	0
5 V	2.7 mA
11 V	6.8 mA
24 V	7 mA
30 V	7.1 mA

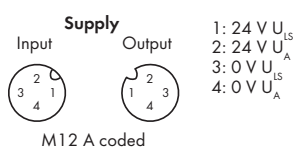
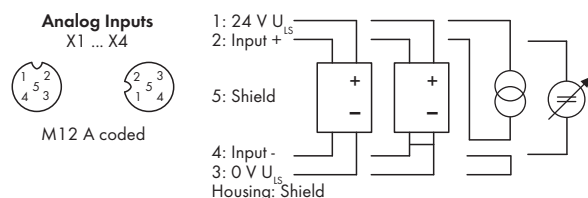
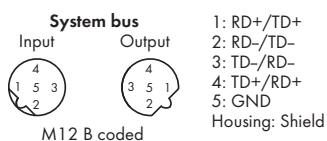


Block diagram of an input/output

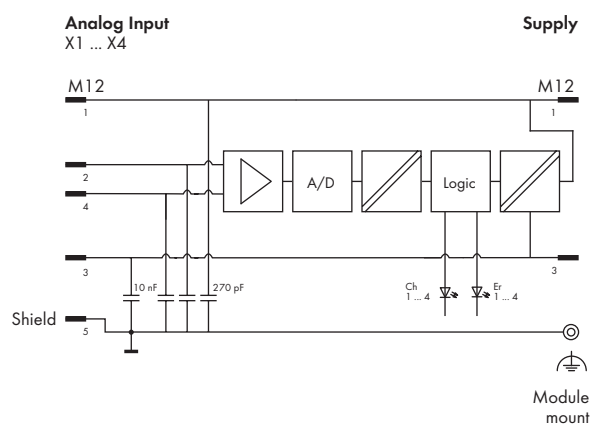


Technical Data	
Digital outputs:	
No. of outputs	8
Connection type (2)	M12 connectors, A coded, 4 poles
Wire connection	2- or 3-wire
Output voltage	≤ U _A
Output current (per channel)	0.5 A (max. 0.6 A), short-circuit/overload proof (thermal disconnection)
Voltage drop against U _A at 500 mA	max. 0.2 V DC
Output current (module)	max. 4 A
Leakage current in OFF state	typ. 5 μA
Output circuit	High-side switching
Information on actuator selection:	
Delay time HW from "0" to "1" (0-90%)	typ. 70 μs (resistive load)
Delay time HW from "1" to "0" (0-90%)	typ. 180 μs (resistive load)
Rise time from "0" to "1"	typ. 40 μs (resistive load)
Fall time from "1" to "0"	typ. 40 μs (resistive load)
Cable length	≤ 30 m
Reverse current (in case of recovery for	≤ 0,5 A (error: 1 channel)
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz Lamp load approx. 500 Hz
Parallel connection of 2 outputs	for power boost for redundant actuation of a load
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	< 0.4 Ω
Operating state influence on output:	
PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage	
tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded

Technical Data	
Counters:	
No. of counters	2
Counter type	Event/gate time counter, pulse duration
Counting/switching frequency	0 Hz ... 1 kHz
Standards and approvals:	
UL 508	UL 508
Conformity marking	CE
Isolation:	
Channel - Channel	no
U _{IS} , U _A , system bus	500 V DC each
Configurable functions:	
Operating mode (per module)	DO-Module/DI-Module/DIO-Module/ DIO + 1 counter/DIO + 2 counters
Counter	Count direction, start/limit value switching output, gate time
Input filter (per channel)	0.1/ 0.5/ 3 /15 /20 ms/ filter off
Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock; simulation value: 0/1
Online simulation (per channel/module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Overtemperature
I/O diagnostics (per module)	Short-circuit of sensor/actuator supply Undervoltage (U _{IS} + U _A)
Process image:	
Process data width	Depends on operating mode
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 ... 7: Input and output signal status	LED (yellow/red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 170
Weight	260

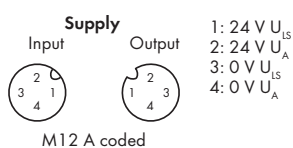
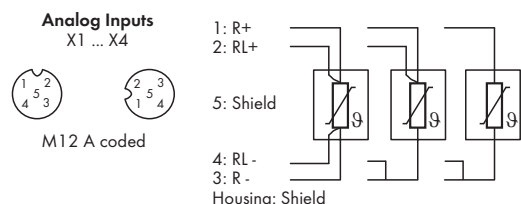
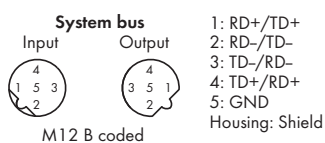


Block diagram of an input

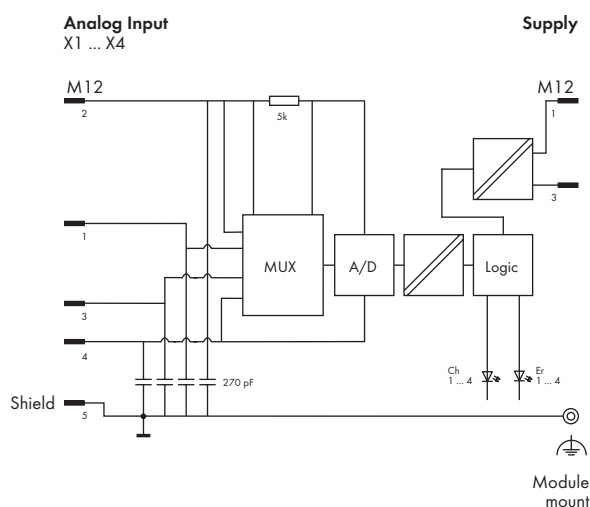


Technical Data	
Analog value creation:	
Resolution	16 bits
Conversion method	SAR
Monotonicity without error code	yes
Conversion time	1 ms
Sampling delay	1 ms (module)
	< 100 μs (channel/channel)
Sampling repeat time	1ms
Failures and errors:	
Voltage proof	up to 32 V (internal current limitation)
Max. measuring error at 25°C	≤ ± 0.2 % of the measuring range
Temperature error	≤ 100 ppm/K of measuring range
Maximum error over the full temperature range	≤ ± 0.6 % of the measuring range
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE

Technical Data	
Isolation:	
Channel - Channel	No
U _{IS} , U _A system bus	500 V DC each
Configurable functions:	
Measuring range (per channel)	0-20 mA, 0-22 mA, 4-20 mA, ±20 mA, 0-10 V, ±10 V, user-defined
Limiting values (per channel)	Min./Max.
Input filter (per channel)	50 Hz / 60 Hz / filter off
Substitute value (per channel)	Value
Online simulation (per channel)	Lock/unlock; simulation value: (according to measuring range)
Online simulation (per channel/module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Overrange/measuring range underflow and wire break at 4-20 mA Overcurrent Limit value violation (min/max)
I/O diagnostics (per module)	Short circuit (sensor power supply) Undervoltage (U _{IS} + U _A)
Process image:	
Process data width	8-byte data + status
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
Ch1 ... Ch4: Input signal status	LED (yellow)
Er1 ... Er4: Input signal error	LED (red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	282 g



Block diagram of an input

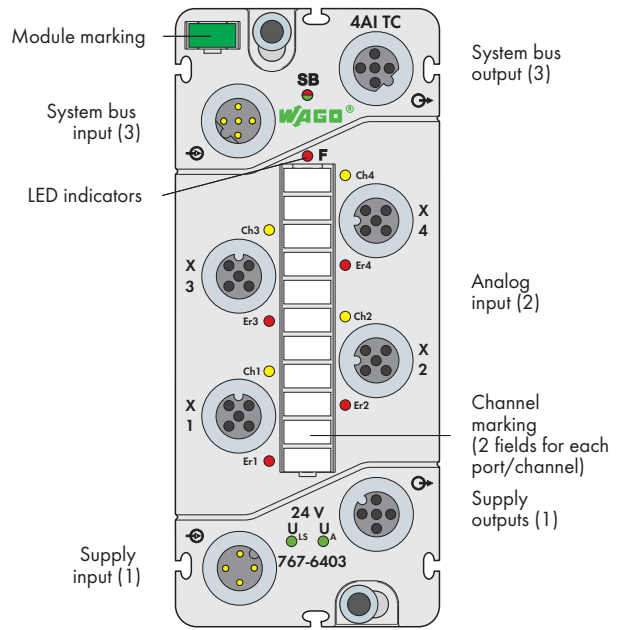


Technical Data	
Analog value creation:	
Resolution	16 bits
Integration time	2 - 120ms
Conversion method	SigmaDelta
Monotonicity without error code	yes
Conversion time	1/Input sampling frequency (s)
Sampling repeat time	Number of active channels x conversion time x 2
Linearization	See free characteristic
Failures and errors:	
Max. measuring error at 25°C	± 0.1 % of the measuring range
Temperature error	± 0.001 % of the measuring range/ K
Maximum error over the full temperature range	< 2°C
Maximum temporary deviation	0.05 °C
Repeat accuracy	0.05 °C
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Isolation:	
Channel - Channel	No
U_{IS} , U_A system bus	500 V DC each
Standards and approvals:	
UL 508	
Conformity marking	CE

Technical Data	
Configurable functions:	
Measuring range (per channel)	Pt100/ Pt200/ Pt500/ Pt1000, Ni100/ Ni120/ Ni1000; 1 kΩ / 4 kΩ; 0 ... 100 % setting angle (for 1 kΩ and 4 kΩ); user-defined
Wire connection (per channel)	2-wire/3-wire/4-wire
Limiting values (per channel)	Min./Max.
Integration time (per channel)	2, 4, 8, 16.7, 20, 30, 60, 120ms
Linearization (per channel)	Linear/Pt/Ni/Ni TK 5000
Substitute value (per channel)	Value
Online simulation (per channel)	Lock/unlock; simulation value: (according to measuring range)
Online simulation (per channel/module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Overrange/measuring range underflow Limit value violation (min/max) Wire break
I/O diagnostics (per module)	Undervoltage (U_{IS} + U_A)
Process image:	
Process data width	8-byte data + status
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
Ch1 ... Ch4: Input signal status	LED (yellow)
Er1 ... Er4: Input signal error	LED (red)
U_{IS} + U_A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	280 g

Analog Input Module for Thermocouples (TCs)

4 inputs



Short description:

This analog input module receives the measured values from thermocouples and voltage sensors.

Characteristics:

- 4 analog inputs TC*
- Diagnostic capable
- Parametrizable (measuring range, limiting values, filter, cold junction compensation, substitute value, online simulation and diagnostics)

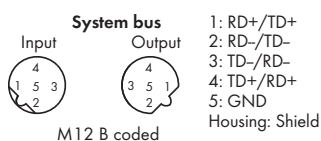
* Preassembled connector for cold junction compensation available as accessory.

Included:

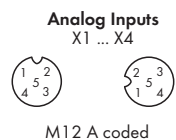
- 1 x WMB marker, green
- 1 x marking strips
- 2 x M12 protective caps

Description	Item No.	Pack. Unit
4AI TC	767-6403	1
Accessories		
Marking strips, marking pen, spacer	see pages 438 ... 439	
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	
Compensation connector, M12 plug, straight, spring clamp technology	756-9207/050-000	

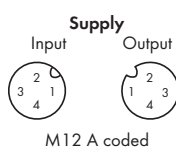
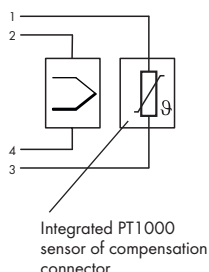
Technical Data	
Module supply:	
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)
Supply voltage	
Logic and sensor voltage U_{LS}	24 V DC (-25 % ... +30 %)
Actuator voltage U_A	24 V DC (-25 % ... +30 %); Also required for power supply transmission
Supply current	
Logic and sensor current I_{LS}	Typ. 40 mA
Actuator current I_A	≤ 5mA
Protection	Reverse voltage protection for U_{LS} + U_A
Analog inputs:	
Number of inputs	4
Connection type (2)	M12 connectors, A coded, 5 poles
Type of signal	-
Wire connection	2-wire (external shield (screen) via connector pin 5)



- 1: RD+/TD+
 - 2: RD-/TD-
 - 3: TD-/RD-
 - 4: TD+/RD+
 - 5: GND
- Housing: Shield

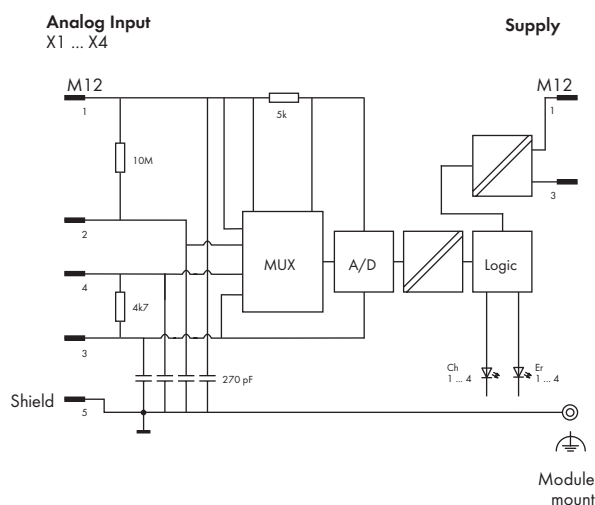


- 1: Compln/Pt1000
- 2: In+/TC+
- 3: GND/Pt1000
- 4: In-/TC-
- 5: Shield



- 1: 24 V U_{LS}
- 2: 24 V U_A
- 3: 0 V U_{LS}
- 4: 0 V U_A

Block diagram of an input



Technical Data

Analog inputs:

Signal measuring range	
Measuring range	Thermocouples:
	Type B: +200 °C ... +1,820 °C
	Type C: 0 °C ... +2320 °C
	Type E: -250 °C ... +1000 °C
	Type J: -210 °C... +1200 °C
	Type K: -210 °C ... +1370 °C
	Type N: -210 °C ... +1300 °C
	Type R: -50 °C ... +1768 °C
	Type S: -50 °C ... +1768 °C
	Type T: -210 °C ... +400 °C
	Voltage sensors:
	MB1: ± 36 mV
	MB2: ± 72 mV
	MB3: ± 145 mV
	MB4: ± 290 mV
Resolution (over entire range)	0.1 °C or 0.01 mV
Input resistance	≥ 10MΩ
Type of cable, cable length	shielded, ≤ 30 m
Analog value creation:	
Resolution	16 bits
Integration time	2 - 120ms
Conversion method	SigmaDelta
Monotonicity without error code	Yes
Conversion time	Integration time x 3
Sampling repeat time	Number of active channels x conversion time
Linearization	Acc. to sensor type
Failures and errors:	
Max. measuring error (without temperature compensation)	≤ ± 1 K over the entire measuring range (for type K)
Max. measuring error cold junction	≤ ± 1K
Temperature error	± 0.05 K/K (type K)
Maximum error over the full temperature range	± 3K
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded

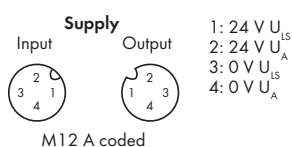
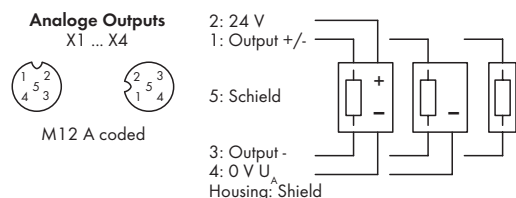
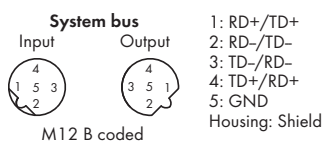
Technical Data

Standards and approvals:

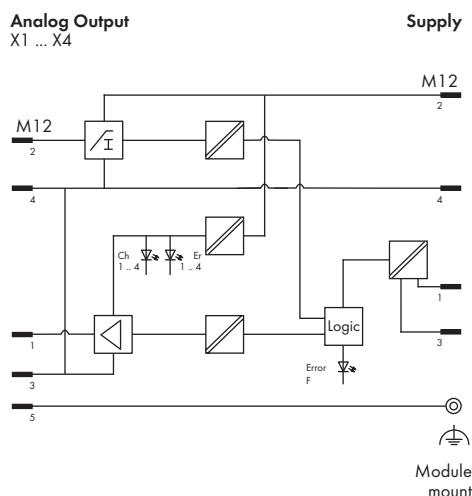
UL 508	
Conformity marking	CE
Isolation:	
Channel - Channel	No
U _{LS} , U _A , system bus	500 V DC each
Configurable functions:	
Measuring range (per channel)	Type B; C; E; J; K; N; R; S; T MB 1; MB 2; MB 3; MB 4; user-defined
Limiting values (per channel)	Min./Max.
Integration time (per channel)	2, 4, 8, 16.7, 20, 30, 60, 120ms
Substitute value (per channel)	Value
Cold junction compensation (per channel)	Type: Fixed temperature; Compensation connector on the current input; Compensation connector on the previous input;
	Temperature: Value
	Offset: Value
Online simulation (per channel)	Lock/unlock; simulation value: (according to measuring range)
Online simulation (per channel/module)	Diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Overrange/measuring range underflow Limit value violation (min/max) Wire break
I/O diagnostics (per module)	Undervoltage (U _{LS} + U _A)
Process image:	
Process data width	8-byte data + status
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
Ch1 ... Ch4: Input signal status	LED (yellow)
Er1 ... Er4: Input signal error	LED (red)
U _{LS} + U _A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	280 g



Block diagram of an output

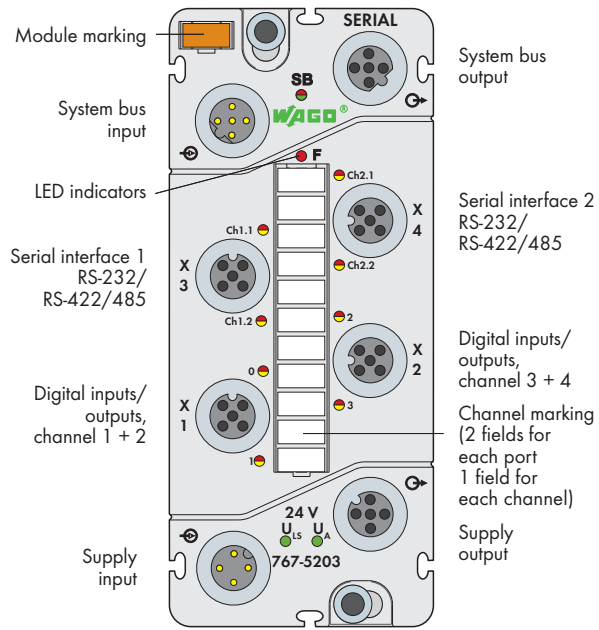


Technical Data	
Analog value creation:	
Resolution	15-bit unipolar, 16-bit bipolar
Monotonicity	yes
Cycle time	approx. 1 ms
Recovery time for resistive, inductive and capacitive loads	approx. 1 ms
Failures and errors:	
Maximum continuous overload (without failure)	0 Ω
Max. measuring error at 25°C	≤ ± 0.2 % of the measuring range
Temperature error	≤ 100 ppm/K of measuring range
Maximum error over the full temperature range	≤ ± 0.6 % of the measuring range
Overshooting	approx. ± 0.05 % of the measuring range
Output ripple	approx. ± 0.02 % of the measuring range
Crosstalk between the channels at DC voltage and AC voltage 50 Hz and 60 Hz	- 90 dB
Short circuit protection	electronic
Nominal output current	max. 1 A
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded
Standards and approvals:	
UL 508	
Conformity marking	CE

Technical Data	
Isolation:	
Channel - Channel	No
U _{IS} , U _A system bus	500 V DC each
Configurable functions:	
Measuring range (per channel)	0-20 mA, 4-20 mA, ±20 mA, 0-10 V, ±10 V, user-defined
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0 mA bzw. 0 V / substitute value according to measuring range
Manual mode (per channel)	On/off
Manual mode value (per channel)	Value
Online simulation (per channel)	Lock/unlock; simulation value: (according to measuring range)
Online simulation (per channel/	Diagnostics
I/O diagnostics:	
I/O diagnostics (per channel)	Short circuit (voltage) Wire break (current) Overtemperature
I/O diagnostics (per module)	Short circuit (actuator supply) Undervoltage (U _{IS} + U _A)
Process image:	
Process data width	8-byte data + status
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
Ch1 ... Ch4 : Output signal status	LED (yellow)
Er1 ... Er4 : Output signal error	LED (red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	282 g

2 Serial Interface (RS-232, RS-422/-485)

2 interfaces (2xM12) + 4 digital inputs/outputs (2xM12, two inputs/outputs per connector)



Short description:

The serial interface module controls/monitors both devices (e.g., barcode readers, printers, scales, laser measurement systems, operator panels, transponders) and integrated digital inputs/outputs.

Characteristics:

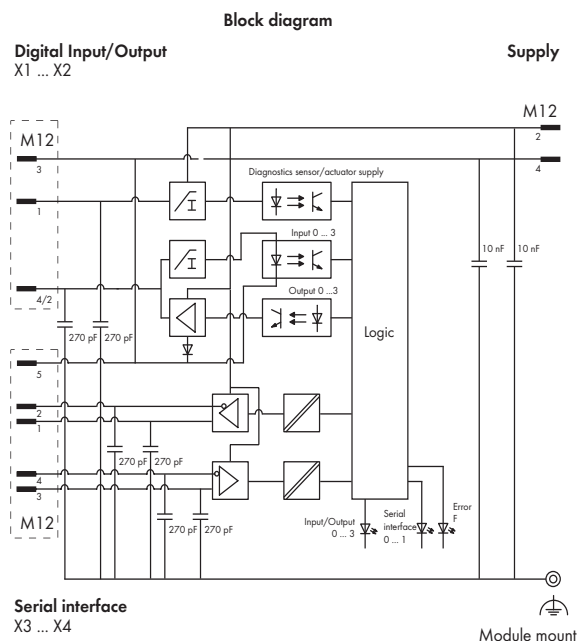
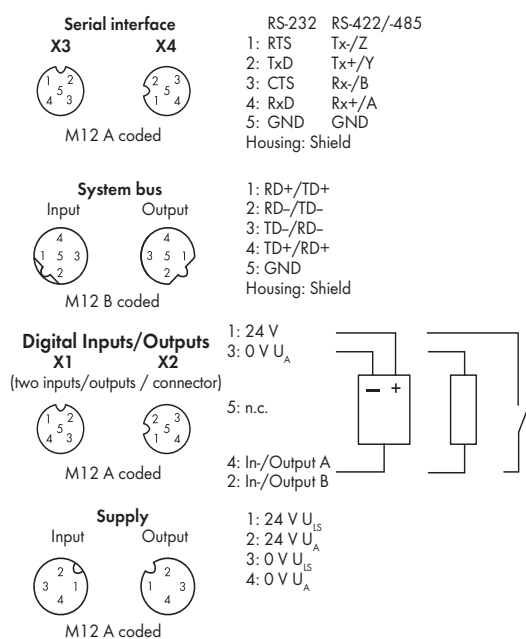
- 2 serial interfaces (RS-232, RS-422/-485)
- 4 digital inputs/outputs, 24 VDC / 0.5 A
- Diagnostic capable (per channel/per module)
- Parametrizable (serial interface, operating mode, filter, inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:

- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

Description	Item No.	Pack. Unit
Serial Interface (RS-232, RS-422/-485)	767-5203	1
Accessories		
Marking strips, marking pen, spacer	see pages 438 ... 439	
module and protective caps		
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	
Technical Data		
Module supply:		
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed	
Current carrying capacity of supply connections	max. 8 A (U _{IS} : 4 A, U _A : 4 A)	
Supply voltage		
Logic and sensor voltage U _{LS}	24 V DC (-25 % ... +30 %)	
Actuator voltage U _A	24 V DC (-25 % ...+30 %)	
Supply current		
Logic and sensor current I _{LS}	typ. 75 mA + sensors (max. 400 mA)	
Actuator current I _A	typ. 25 mA + actuators 2.4 A (4 x 600 mA)	
Protection	Reverse voltage protection for U _{IS} + U _A Short-circuit protection for sensor/actuator supply	

Technical Data	
Serial interface:	
Interfaces	2
Connection type (2)	M12 connectors, A coded, 5 poles
Transmission channels	1 Rx/D / 1 Tx/D (full/half duplex)
Type of cable, cable length	15 m (RS-232); 1000 m (RS-422/-485)
Baud rate	300 - 115,200 baud
Buffer	4 KB (In); 4 KB (Out)
Digital inputs:	
Number of inputs	4
Connection type (2)	M12 connectors, A coded, 5 poles
Wire connection	2- or 3-wire
Input filter	Hardware: ≤ 110 μs Software: parametrizable
Input characteristic	Type 2, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+11 V ... U _A DC
Input wiring	High-side switching
Input voltage	24 VDC (-3 VDC < U _{IN} < +30 VDC); Power from U _A is strongly recommended, recovery for voltages > U _A
Input current (typ.)	7.3 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Cable length, unshielded	≤ 30 m
Wrong connection of inputs	No effect
Input characteristic:	
Input voltage	Typical input current
-3 V < U _{IN} < 0 V	0 mA
5 V	2.3 mA ... 2.5 mA
11 V	6.4 mA ... 6.7 mA
24 V < U _A < 31.2 V	7.3 mA ... 7.5 mA

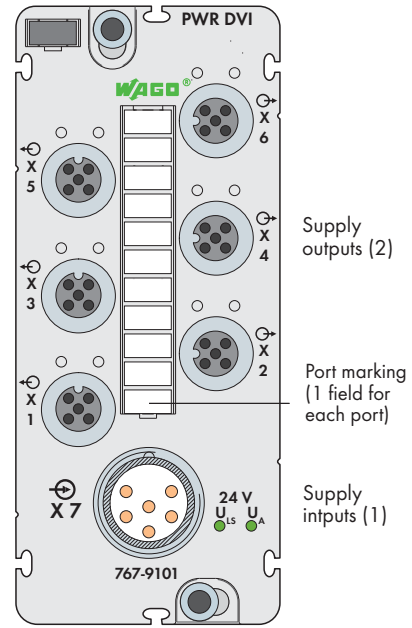


Technical Data	
Digital outputs:	
No. of outputs	4
Connection type (2)	M12 connectors, A coded, 5 poles
Wire connection	2- or 3-wire
Output voltage	≤ U _A
Output current (per channel)	0.5 A (max. 0.6 A), short-circuit/overload proof (thermal disconnection)
Voltage drop against U _A at 500 mA	max. 0.2 V DC
Output current (module)	max. 2 A
Leakage current in OFF state	typ. 500 μA
Output circuit	High-side switching
Information on actuator selection:	
Delay time HW from "0" to "1" (0-90%)	typ. 90 μs (resistive load)
Delay time HW from "1" to "0" (0-90%)	typ. 310 μs (resistive load)
Rise time from "0" to "1"	typ. 60 μs (resistive load)
Fall time from "1" to "0"	typ. 45 μs (resistive load)
Cable length	≤ 30 m
Reverse current (in case of recovery for voltages > U _A)	≤ 1 A (error: 1 channel)
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load approx. 20 Hz Resistive load approx. 500 Hz Lamp load approx. 500 Hz
Parallel connection of 2 outputs	for power boost for redundant actuation of a load
Type of protective circuit	External protection (e.g., recovery diodes)
Output resistance	< 0.4 Ω
Operating state influence on output:	
PLC CPU stop	Acc. to substitute value strategy
Supply voltage under rated voltage tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart
System bus:	
Connection type (3)	M12 connectors, B coded, 5 poles, shielded

Technical Data	
Standards and approvals:	
UL 508	
Conformity marking	CE
Isolation:	
Channel - Channel	no
U _{IS} , U _A , system bus	500 V DC each
Parameterizable functions, serial interface:	
Operating mode (per channel)	RS-232; RS-422/-485
Baud rate (per channel)	300 - 115,700 baud
Data bits (per channel)	7/8
Parity	None/Even/Odd
Stop bits	1/2
Flow-Control	None/Xon+Xoff/RTS+CTS
Parameterizable functions, digital inputs/outputs:	
Operating mode, input filter, inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics	For details, see manual.
I/O diagnostics:	
I/O diagnostics (per channel)	Overtemperature
I/O diagnostics (per module)	Short-circuit of sensor/actuator supply Undervoltage (U _{IS} + U _A)
Process image:	
Process data width	Interface: 10 bytes (data In/Out + status); DIO: 1-byte data In/Out + 1-byte status
LED indicators:	
SB: System bus status	LED (green/red)
F: Error status	LED (red)
0 - 3: Signal status, inputs/outputs	LED (yellow/red)
Ch1.1 + Ch2.1: Transmission status	LED (yellow/red)
Ch1.2 + Ch2.2: Reception status	LED (yellow/red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching
General Specifications	
Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	260

Power Divider 24 V DC

6 outputs (6xM12)



Short description:

Power divider for supplying SPEEDWAY modules distributed over a large network.

Included:

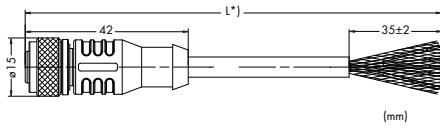
- 1 x WMB marker, gray
- 1 x marking strips
- 2 x M12 protective caps

Description	Item No.	Pack. Unit
Power Divider	767-9101	1
Accessories	Item No.	
Marking strips, marking pen, spacer module and protective caps	see pages 438 ... 439	
IP67 cables and connectors	see pages 422 ... 437 + chapter 5	

Technical Data	
Module supply:	
Connection type (1)	M23 connector, 6 poles; Derating must be observed
Supply voltage	
Logic and sensor voltage U _L	24 V DC (-25 % ... +30 %)
Actuator voltage U _A	24 V DC (-25 % ... +30 %)
Supply current	
Logic and sensor current I _L	typ. 4 mA
Actuator current I _A	typ. 4mA
Supply outputs	
No. of outputs	6
Connection type (2)	M12 connectors, A coded, 4 poles; Derating must be observed
Current carrying capacity / connector	Max. 8 A (U _L : 4 A, U _A : 4 A); Derating must be observed
Current carrying capacity / module	Max. 24 A (U _L max. 8 A) (U _A max. 16 A); Derating must be observed
Short circuit protection	no
Isolation:	
U _L -U _A	500VDC
Standards and approvals:	
UL 508	
Conformity marking	CE

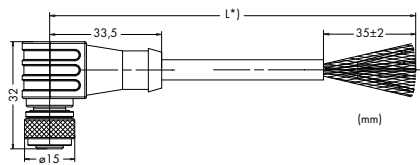
WAGO-SPEEDWAY 767

S-BUS cable suitable for drag chains (system bus cable), assembled on one end



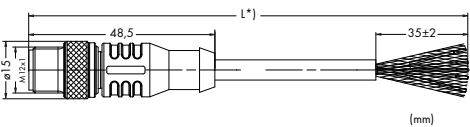
Pin 1 - 5: 0.14 mm²
 1 red
 2 black
 3 blue
 4 brown
 5 yellow, green,
 orange, gray

M12 socket, straight, B coded, suitable for drag chains	Item No.	Pack. Unit
M12 socket, straight, one free cable end, 2.0 m	756-1501/060-020	1
M12 socket, straight, one free cable end, 5.0 m	756-1501/060-050	1
M12 socket, straight, one free cable end, 10.0 m	756-1501/060-100	1
M12 socket, straight, one free cable end, 20.0 m	756-1501/060-200	1



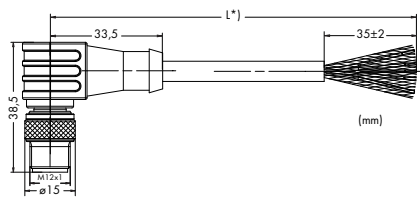
Pin 1 - 5: 0.14 mm²
 1 red
 2 black
 3 blue
 4 brown
 5 yellow, green,
 orange, gray

M12 socket, right angle, B coded, suitable for drag chains	Item No.	Pack. Unit
M12 socket, right angle, one free cable end, 2.0 m	756-1502/060-020	1
M12 socket, right angle, one free cable end, 5.0 m	756-1502/060-050	1
M12 socket, right angle, one free cable end, 10.0 m	756-1502/060-100	1
M12 socket, right angle, one free cable end, 20.0 m	756-1502/060-200	1



Pin 1 - 5: 0.14 mm²
 1 red
 2 black
 3 blue
 4 brown
 5 yellow, green,
 orange, gray

M12 plug, straight, B coded, suitable for drag chains	Item No.	Pack. Unit
M12 plug, straight, one free cable end, 2.0 m	756-1503/060-020	1
M12 plug, straight, one free cable end, 5.0 m	756-1503/060-050	1
M12 plug, straight, one free cable end, 10.0 m	756-1503/060-100	1
M12 plug, straight, one free cable end, 20.0 m	756-1503/060-200	1



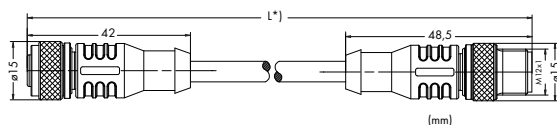
Pin 1 - 5: 0.14 mm²
 1 red
 2 black
 3 blue
 4 brown
 5 yellow, green,
 orange, gray

M12 plug, right angle, B coded, suitable for drag chains	Item No.	Pack. Unit
M12 plug, right angle, one free cable end, 2.0 m	756-1504/060-020	1
M12 plug, right angle, one free cable end, 5.0 m	756-1504/060-050	1
M12 plug, right angle, one free cable end, 10.0 m	756-1504/060-100	1
M12 plug, right angle, one free cable end, 20.0 m	756-1504/060-200	1

*) Cable length

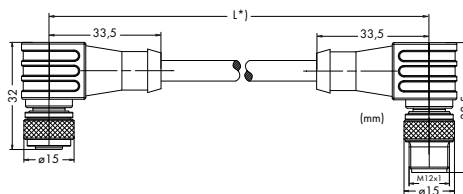
WAGO-SPEEDWAY 767

S-BUS cable suitable for drag chains (system bus cable), assembled on both ends and unassembled



Pin 1 - 5: 0.14 mm²
 1 red
 2 black
 3 blue
 4 brown
 5 yellow, green, orange, gray

M12 socket, straight / M12 plug, straight, B coded, suitable for drag chains	Item No.	Pack. Unit
M12 socket, straight, M12 plug, straight, 0.2 m	756-1505/060-002	1
M12 socket, straight, M12 plug, straight, 0.3 m	756-1505/060-003	1
M12 socket, straight, M12 plug, straight, 0.5 m	756-1505/060-005	1
M12 socket, straight, M12 plug, straight, 1.0 m	756-1505/060-010	1
M12 socket, straight, M12 plug, straight, 2.0 m	756-1505/060-020	1
M12 socket, straight, M12 plug, straight, 5.0 m	756-1505/060-050	1
M12 socket, straight, M12 plug, straight, 10.0 m	756-1505/060-100	1
M12 socket, straight, M12 plug, straight, 20.0 m	756-1505/060-200	1
M12 socket, straight, M12 plug, straight, 50.0 m	756-1505/060-500	1



Pin 1 - 5: 0.14 mm²
 1 red
 2 black
 3 blue
 4 brown
 5 yellow, green, orange, gray

M12 socket, right angle / M12 plug, right angle, B coded, suitable for drag chains	Item No.	Pack. Unit
M12 socket, right angle, M12 plug, right angle, 0.2 m	756-1506/060-002	1
M12 socket, right angle, M12 plug, right angle, 0.3 m	756-1506/060-003	1
M12 socket, right angle, M12 plug, right angle, 0.5 m	756-1506/060-005	1
M12 socket, right angle, M12 plug, right angle, 1.0 m	756-1506/060-010	1
M12 socket, right angle, M12 plug, right angle, 2.0 m	756-1506/060-020	1
M12 socket, right angle, M12 plug, right angle, 5.0 m	756-1506/060-050	1
M12 socket, right angle, M12 plug, right angle, 10.0 m	756-1506/060-100	1
M12 socket, right angle, M12 plug, right angle, 20.0 m	756-1506/060-200	1
M12 socket, right angle, M12 plug, right angle, 50.0 m	756-1506/060-500	1

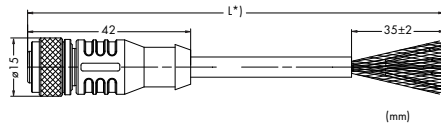
*) Cable length



S-Bus cable, not fitted with connectors, suitable for drag chains	Item No.	Pack. Unit
S-BUS cable, not fitted with connectors, 25.0 m	756-1500/000-250	1
S-BUS cable, not fitted with connectors, 50.0 m	756-1500/000-500	1
S-BUS cable, not fitted with connectors, 100.0 m	756-1500/000-1000	1

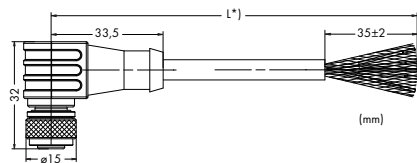
WAGO-SPEEDWAY 767

S-BUS cables, with one end of cable fitted



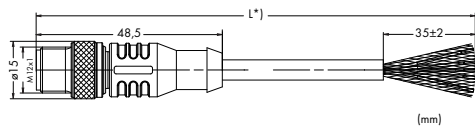
- Pin 1 - 5: 0.14 mm²
 1 white/blue
 2 blue
 3 white/orange
 4 orange
 5 white/green, green,
 white/brown, brown

M12 socket, straight, B coded	Item No.	Pack. Unit
M12 socket, straight, one free cable end, 2.0 m	756-1301/060-020	1
M12 socket, straight, one free cable end, 5.0 m	756-1301/060-050	1
M12 socket, straight, one free cable end, 10.0 m	756-1301/060-100	1
M12 socket, straight, one free cable end, 20.0 m	756-1301/060-200	1



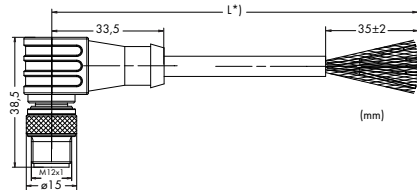
- Pin 1 - 5: 0.14 mm²
 1 white/blue
 2 blue
 3 white/orange
 4 orange
 5 white/green, green,
 white/brown, brown

M12 socket, right angle, B coded	Item No.	Pack. Unit
M12 socket, right angle, one free cable end, 2.0 m	756-1302/060-020	1
M12 socket, right angle, one free cable end, 5.0 m	756-1302/060-050	1
M12 socket, right angle, one free cable end, 10.0 m	756-1302/060-100	1
M12 socket, right angle, one free cable end, 20.0 m	756-1302/060-200	1



- Pin 1 - 5: 0.14 mm²
 1 white/blue
 2 blue
 3 white/orange
 4 orange
 5 white/green, green,
 white/brown, brown

M12 plug, straight, B coded	Item No.	Pack. Unit
M12 plug, straight, one free cable end, 2.0 m	756-1303/060-020	1
M12 plug, straight, one free cable end, 5.0 m	756-1303/060-050	1
M12 plug, straight, one free cable end, 10.0 m	756-1303/060-100	1
M12 plug, straight, one free cable end, 20.0 m	756-1303/060-200	1



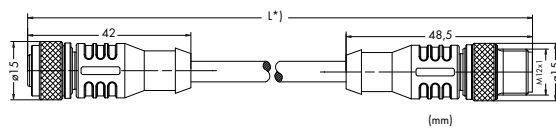
- Pin 1 - 5: 0.14 mm²
 1 white/blue
 2 blue
 3 white/orange
 4 orange
 5 white/green, green,
 white/brown, brown

M12 plug, right angle, B coded	Item No.	Pack. Unit
M12 plug, right angle, one free cable end, 2.0 m	756-1304/060-020	1
M12 plug, right angle, one free cable end, 5.0 m	756-1304/060-050	1
M12 plug, right angle, one free cable end, 10.0 m	756-1304/060-100	1
M12 plug, right angle, one free cable end, 20.0 m	756-1304/060-200	1

*) Cable length

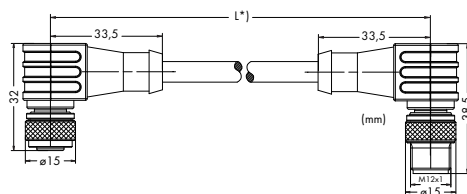
WAGO-SPEEDWAY 767

S-BUS cables, with both ends of cable fitted and not fitted with connectors



- Pin 1 - 5: 0.14 mm²
- 1 white/blue
 - 2 blue
 - 3 white/orange
 - 4 orange
 - 5 white/green, green, white/brown, brown

M12 socket, straight / M12 plug, straight, B coded	Item No.	Pack. Unit
M12 socket, straight, M12 plug, straight, 0.2 m	756-1305/060-002	1
M12 socket, straight, M12 plug, straight, 0.3 m	756-1305/060-003	1
M12 socket, straight, M12 plug, straight, 0.5 m	756-1305/060-005	1
M12 socket, straight, M12 plug, straight, 1.0 m	756-1305/060-010	1
M12 socket, straight, M12 plug, straight, 2.0 m	756-1305/060-020	1
M12 socket, straight, M12 plug, straight, 5.0 m	756-1305/060-050	1
M12 socket, straight, M12 plug, straight, 10.0 m	756-1305/060-100	1
M12 socket, straight, M12 plug, straight, 20.0 m	756-1305/060-200	1
M12 socket, straight, M12 plug, straight, 50.0 m	756-1305/060-500	1



- Pin 1 - 5: 0.14 mm²
- 1 white/blue
 - 2 blue
 - 3 white/orange
 - 4 orange
 - 5 white/green, green, white/brown, brown

M12 socket, right angle / M12 plug, right angle, B coded	Item No.	Pack. Unit
M12 socket, right angle, M12 plug, right angle, 0.2 m	756-1306/060-002	1
M12 socket, right angle, M12 plug, right angle, 0.3 m	756-1306/060-003	1
M12 socket, right angle, M12 plug, right angle, 0.5 m	756-1306/060-005	1
M12 socket, right angle, M12 plug, right angle, 1.0 m	756-1306/060-010	1
M12 socket, right angle, M12 plug, right angle, 2.0 m	756-1306/060-020	1
M12 socket, right angle, M12 plug, right angle, 5.0 m	756-1306/060-050	1
M12 socket, right angle, M12 plug, right angle, 10.0 m	756-1306/060-100	1
M12 socket, right angle, M12 plug, right angle, 20.0 m	756-1306/060-200	1
M12 socket, right angle, M12 plug, right angle, 50.0 m	756-1306/060-500	1

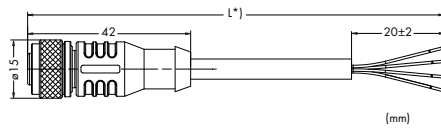


S-Bus cable, not fitted with connectors	Item No.	Pack. Unit
S-BUS cable, not fitted with connectors, 25.0 m	756-1300/000-250	1
S-BUS cable, not fitted with connectors, 50.0 m	756-1300/000-500	1
S-BUS cable, not fitted with connectors, 100.0 m	756-1300/000-1000	1

*) Cable length

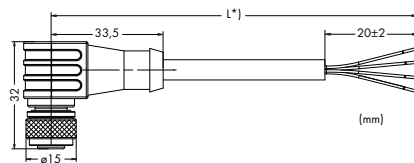
WAGO-SPEEDWAY 767

Power supply cables, with one end of cable fitted



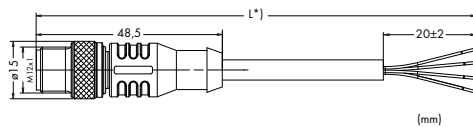
Pin 1 - 4: 0.75 mm²
 1 brown
 2 white
 3 blue
 4 black

M12 socket, straight, A coded	Item No.	Pack. Unit
M12 socket, straight, one free cable end, 2.0 m	756-3101/040-020	1
M12 socket, straight, one free cable end, 5.0 m	756-3101/040-050	1
M12 socket, straight, one free cable end, 10.0 m	756-3101/040-100	1
M12 socket, straight, one free cable end, 20.0 m	756-3101/040-200	1



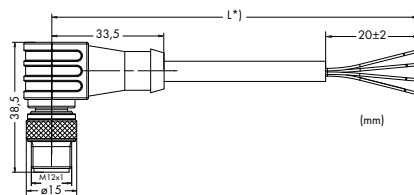
Pin 1 - 4: 0.75 mm²
 1 brown
 2 white
 3 blue
 4 black

M12 socket, right angle, A coded	Item No.	Pack. Unit
M12 socket, right angle, one free cable end, 2.0 m	756-3102/040-020	1
M12 socket, right angle, one free cable end, 5.0 m	756-3102/040-050	1
M12 socket, right angle, one free cable end, 10.0 m	756-3102/040-100	1
M12 socket, right angle, one free cable end, 20.0 m	756-3102/040-200	1



Pin 1 - 4: 0.75 mm²
 1 brown
 2 white
 3 blue
 4 black

M12 plug, straight, A coded	Item No.	Pack. Unit
M12 plug, straight, one free cable end, 2.0 m	756-3103/040-020	1
M12 plug, straight, one free cable end, 5.0 m	756-3103/040-050	1
M12 plug, straight, one free cable end, 10.0 m	756-3103/040-100	1
M12 plug, straight, one free cable end, 20.0 m	756-3103/040-200	1



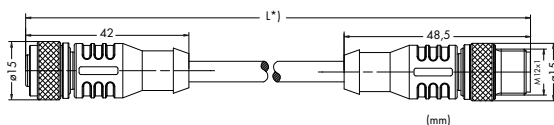
Pin 1 - 4: 0.75 mm²
 1 brown
 2 white
 3 blue
 4 black

M12 plug, right angle, A coded	Item No.	Pack. Unit
M12 plug, right angle, one free cable end, 2.0 m	756-3104/040-020	1
M12 plug, right angle, one free cable end, 5.0 m	756-3104/040-050	1
M12 plug, right angle, one free cable end, 10.0 m	756-3104/040-100	1
M12 plug, right angle, one free cable end, 20.0 m	756-3104/040-200	1

*) Cable length

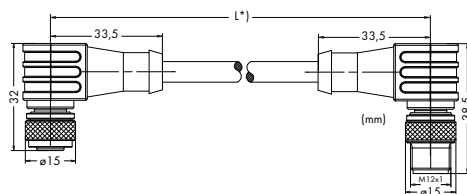
WAGO-SPEEDWAY 767

Power supply cables, with both ends fitted and not fitted with connectors



Pin 1 - 4: 0.75 mm²
1 brown
2 white
3 blue
4 black

M12 socket, straight / M12 plug, straight, A coded	Item No.	Pack. Unit
M12 socket, straight, M12 plug, straight, 0.2 m	756-3105/040-002	1
M12 socket, straight, M12 plug, straight, 0.3 m	756-3105/040-003	1
M12 socket, straight, M12 plug, straight, 0.5 m	756-3105/040-005	1
M12 socket, straight, M12 plug, straight, 1.0 m	756-3105/040-010	1
M12 socket, straight, M12 plug, straight, 2.0 m	756-3105/040-020	1
M12 socket, straight, M12 plug, straight, 5.0 m	756-3105/040-050	1
M12 socket, straight, M12 plug, straight, 10.0 m	756-3105/040-100	1
M12 socket, straight, M12 plug, straight, 20.0 m	756-3105/040-200	1



Pin 1 - 4: 0.75 mm²
1 brown
2 white
3 blue
4 black

M12 socket, right angle / M12 plug, right angle, A coded	Item No.	Pack. Unit
M12 socket, right angle, M12 plug, right angle, 0.2 m	756-3106/040-002	1
M12 socket, right angle, M12 plug, right angle, 0.3 m	756-3106/040-003	1
M12 socket, right angle, M12 plug, right angle, 0.5 m	756-3106/040-005	1
M12 socket, right angle, M12 plug, right angle, 1.0 m	756-3106/040-010	1
M12 socket, right angle, M12 plug, right angle, 2.0 m	756-3106/040-020	1
M12 socket, right angle, M12 plug, right angle, 5.0 m	756-3106/040-050	1
M12 socket, right angle, M12 plug, right angle, 10.0 m	756-3106/040-100	1
M12 socket, right angle, M12 plug, right angle, 20.0 m	756-3106/040-200	1

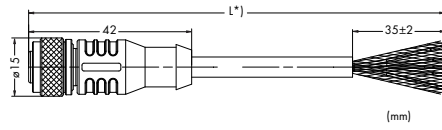


Power supply cable, not fitted with connectors	Item No.	Pack. Unit
Versorgungskabel, unkonfektioniert, 25,0 m	756-3100/000-250	1
Power supply cable, not fitted with connectors, 50.0 m	756-3100/000-500	1
Power supply cable, not fitted with connectors, 100.0 m	756-3100/000-1000	1

*) Cable length

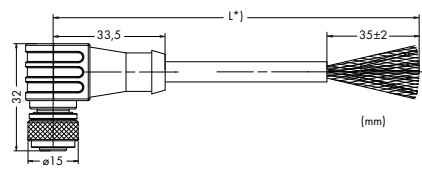
WAGO-SPEEDWAY 767

PROFIBUS cables, with one end of cable fitted



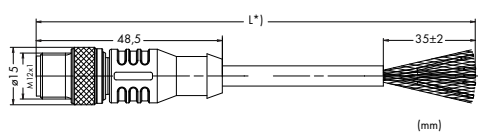
Pin 2 and 4: 0.34 mm²
 1 n.c.
 2 green
 3 n.c.
 4 red
 5 n.c.

M12 socket, straight, B coded	Item No.	Pack. Unit
M12 socket, straight, one free cable end, 2.0 m	756-1101/060-020	1
M12 socket, straight, one free cable end, 5.0 m	756-1101/060-050	1
M12 socket, straight, one free cable end, 10.0 m	756-1101/060-100	1
M12 socket, straight, one free cable end, 20.0 m	756-1101/060-200	1



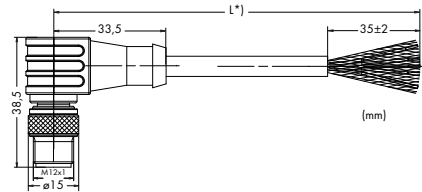
Pin 2 and 4: 0.34 mm²
 1 n.c.
 2 green
 3 n.c.
 4 red
 5 n.c.

M12 socket, right angle, B coded	Item No.	Pack. Unit
M12 socket, right angle, one free cable end, 2.0 m	756-1102/060-020	1
M12 socket, right angle, one free cable end, 5.0 m	756-1102/060-050	1
M12 socket, right angle, one free cable end, 10.0 m	756-1102/060-100	1
M12 socket, right angle, one free cable end, 20.0 m	756-1102/060-200	1



Pin 2 and 4: 0.34 mm²
 1 n.c.
 2 green
 3 n.c.
 4 red
 5 n.c.

M12 plug, straight, B coded	Item No.	Pack. Unit
M12 plug, straight, one free cable end, 2.0 m	756-1103/060-020	1
M12 plug, straight, one free cable end, 5.0 m	756-1103/060-050	1
M12 plug, straight, one free cable end, 10.0 m	756-1103/060-100	1
M12 plug, straight, one free cable end, 20.0 m	756-1103/060-200	1



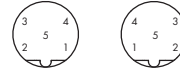
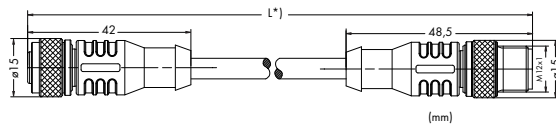
Pin 2 and 4: 0.34 mm²
 1 n.c.
 2 green
 3 n.c.
 4 red
 5 n.c.

M12 plug, right angle, B coded	Item No.	Pack. Unit
M12 plug, right angle, one free cable end, 2.0 m	756-1104/060-020	1
M12 plug, right angle, one free cable end, 5.0 m	756-1104/060-050	1
M12 plug, right angle, one free cable end, 10.0 m	756-1104/060-100	1
M12 plug, right angle, one free cable end, 20.0 m	756-1104/060-200	1

*) Cable length

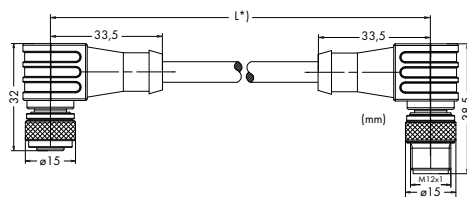
WAGO-SPEEDWAY 767

PROFIBUS cables, with both ends of cable fitted



Pin 2 and 4: 0.34 mm²
 1 n.c.
 2 green
 3 n.c.
 4 red
 5 n.c.

M12 socket, straight / M12 plug, straight, B coded	Item No.	Pack. Unit
M12 socket, straight, M12 plug, straight, 2.0 m	756-1105/060-020	1
M12 socket, straight, M12 plug, straight, 5.0 m	756-1105/060-050	1
M12 socket, straight, M12 plug, straight, 10.0 m	756-1105/060-100	1
M12 socket, straight, M12 plug, straight, 20.0 m	756-1105/060-200	1



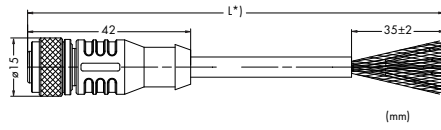
Pin 2 and 4: 0.34 mm²
 1 n.c.
 2 green
 3 n.c.
 4 red
 5 n.c.

M12 socket, right angle / M12 plug, right angle, B coded	Item No.	Pack. Unit
M12 socket, right angle, M12 plug, right angle, 2.0 m	756-1106/060-020	1
M12 socket, right angle, M12 plug, right angle, 5.0 m	756-1106/060-050	1
M12 socket, right angle, M12 plug, right angle, 10.0 m	756-1106/060-100	1
M12 socket, right angle, M12 plug, right angle, 20.0 m	756-1106/060-200	1

*] Cable length

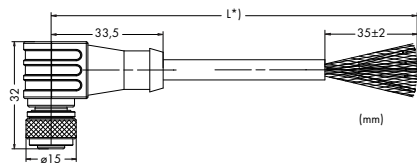
WAGO-SPEEDWAY 767

CANopen, DeviceNet cables, with one end of cable fitted



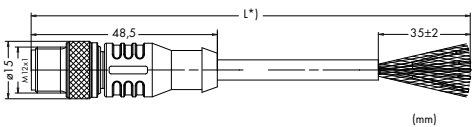
Pin 2 and 3: 0.38 mm²
 Pin 4 and 5: 0.67 mm²
 1 = Shield
 2 = red
 3 = black
 4 = white
 5 = blue

M12 socket, straight, A coded	Item No.	Pack. Unit
M12 socket, straight, one free cable end, 2.0 m	756-1401/060-020	1
M12 socket, straight, one free cable end, 5.0 m	756-1401/060-050	1
M12 socket, straight, one free cable end, 10.0 m	756-1401/060-100	1
M12 socket, straight, one free cable end, 20.0 m	756-1401/060-200	1



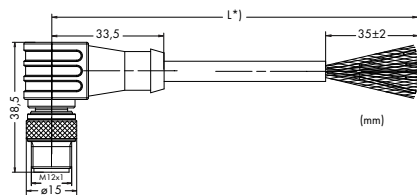
Pin 2 and 3: 0.38 mm²
 Pin 4 and 5: 0.67 mm²
 1 = Shield
 2 = red
 3 = black
 4 = white
 5 = blue

M12 socket, right angle, A coded	Item No.	Pack. Unit
M12 socket, right angle, one free cable end, 2.0 m	756-1402/060-020	1
M12 socket, right angle, one free cable end, 5.0 m	756-1402/060-050	1
M12 socket, right angle, one free cable end, 10.0 m	756-1402/060-100	1
M12 socket, right angle, one free cable end, 20.0 m	756-1402/060-200	1



Pin 2 and 3: 0.38 mm²
 Pin 4 and 5: 0.67 mm²
 1 = Shield
 2 = red
 3 = black
 4 = white
 5 = blue

M12 plug, straight, A coded	Item No.	Pack. Unit
M12 plug, straight, one free cable end, 2.0 m	756-1403/060-020	1
M12 plug, straight, one free cable end, 5.0 m	756-1403/060-050	1
M12 plug, straight, one free cable end, 10.0 m	756-1403/060-100	1
M12 plug, straight, one free cable end, 20.0 m	756-1403/060-200	1

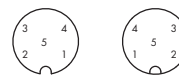
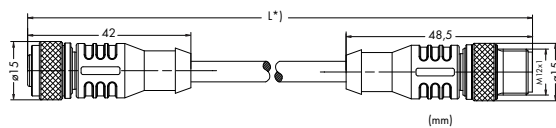


Pin 2 and 3: 0.38 mm²
 Pin 4 and 5: 0.67 mm²
 1 = Shield
 2 = red
 3 = black
 4 = white
 5 = blue

M12 plug, right angle, A coded	Item No.	Pack. Unit
M12 plug, right angle, one free cable end, 2.0 m	756-1404/060-020	1
M12 plug, right angle, one free cable end, 5.0 m	756-1404/060-050	1
M12 plug, right angle, one free cable end, 10.0 m	756-1404/060-100	1
M12 plug, right angle, one free cable end, 20.0 m	756-1404/060-200	1

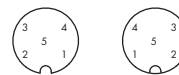
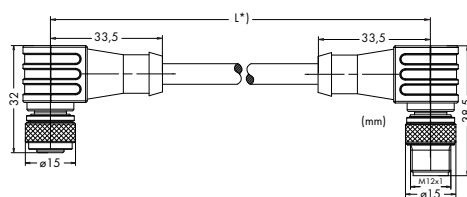
WAGO-SPEEDWAY 767

CANopen, DeviceNet cables, with both ends of cable fitted



Pin 2 and 3: 0.38 mm²
 Pin 4 and 5: 0.67 mm²
 1 = Shield
 2 = red
 3 = black
 4 = white
 5 = blue

M12 socket, straight / M12 plug, straight, A coded	Item No.	Pack. Unit
M12 socket, straight, M12 plug, straight, 2.0 m	756-1405/060-020	1
M12 socket, straight, M12 plug, straight, 5.0 m	756-1405/060-050	1
M12 socket, straight, M12 plug, straight, 10.0 m	756-1405/060-100	1
M12 socket, straight, M12 plug, straight, 20.0 m	756-1405/060-200	1

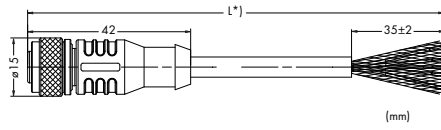


Pin 2 and 3: 0.38 mm²
 Pin 4 and 5: 0.67 mm²
 1 = Shield
 2 = red
 3 = black
 4 = white
 5 = blue

M12 socket, right angle / M12 plug, right angle, A coded	Item No.	Pack. Unit
M12 socket, right angle, M12 plug, right angle, 2.0 m	756-1406/060-020	1
M12 socket, right angle, M12 plug, right angle, 5.0 m	756-1406/060-050	1
M12 socket, right angle, M12 plug, right angle, 10.0 m	756-1406/060-100	1
M12 socket, right angle, M12 plug, right angle, 20.0 m	756-1406/060-200	1

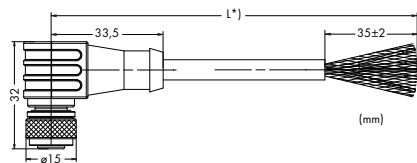
WAGO-SPEEDWAY 767

ETHERNET, PROFINET cables, with one or both ends of cable fitted



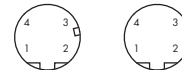
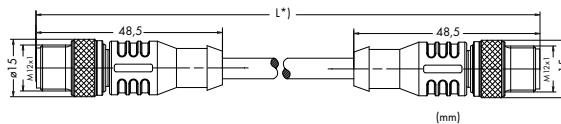
- Pin 1 - 4: 0.34 mm²
 1 yellow
 2 white
 3 orange
 4 blue

M12 plug, straight, D coded	Item No.	Pack. Unit
M12 plug, straight, one free cable end, 2.0 m	756-1201/060-020	1
M12 plug, straight, one free cable end, 5.0 m	756-1201/060-050	1
M12 plug, straight, one free cable end, 10.0 m	756-1201/060-100	1
M12 plug, straight, one free cable end, 20.0 m	756-1201/060-200	1



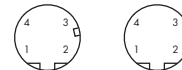
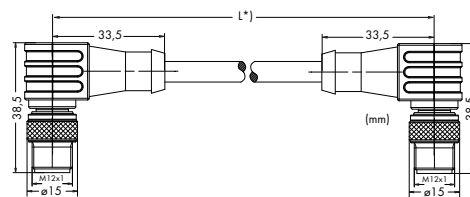
- Pin 1 - 4: 0.34 mm²
 1 yellow
 2 white
 3 orange
 4 blue

M12 plug, right angle, D coded	Item No.	Pack. Unit
M12 plug, right angle, one free cable end, 2.0 m	756-1202/060-020	1
M12 plug, right angle, one free cable end, 5.0 m	756-1202/060-050	1
M12 plug, right angle, one free cable end, 10.0 m	756-1202/060-100	1
M12 plug, right angle, one free cable end, 20.0 m	756-1202/060-200	1



- Pin 1 - 4: 0.34 mm²
 1 yellow
 2 white
 3 orange
 4 blue

M12 plug, straight / M12 plug, straight, D coded	Item No.	Pack. Unit
M12 plug, straight, M12 plug, straight, 2.0 m	756-1203/060-020	1
M12 plug, straight, M12 plug, straight, 5.0 m	756-1203/060-050	1
M12 plug, straight, M12 plug, straight, 10.0 m	756-1203/060-100	1
M12 plug, straight, M12 plug, straight, 20.0 m	756-1203/060-200	1



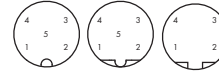
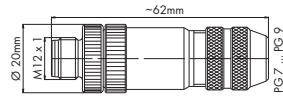
- Pin 1 - 4: 0.34 mm²
 1 yellow
 2 white
 3 orange
 4 blue

M12 plug, right angle / M12 plug, right angle, D coded	Item No.	Pack. Unit
M12 plug, right angle, M12 plug, right angle, 2.0 m	756-1204/060-020	1
M12 plug, right angle, M12 plug, right angle, 5.0 m	756-1204/060-050	1
M12 plug, right angle, M12 plug, right angle, 10.0 m	756-1204/060-100	1
M12 plug, right angle, M12 plug, right angle, 20.0 m	756-1204/060-200	1

*) Cable length

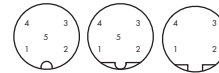
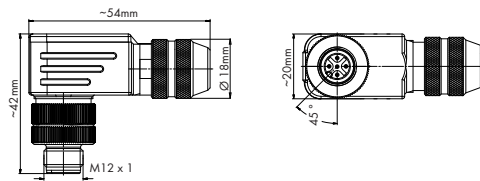
WAGO-SPEEDWAY 767

Configurable shielded connectors



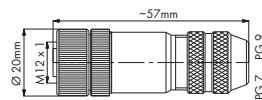
Conductor size
Ø 6 ... 8 mm / 0.14 - 0.5 mm²

M12 plug, straight, shielded	Item No.	Pack. Unit
M12 plug, A coded, straight, spring clamp technology	CANopen / DeviceNet	756-9207/060-000 1
M12 plug, B coded, straight, spring clamp technology	PROFIBUS / S-BUS	756-9401/060-000 1
M12 plug, D coded, straight, spring clamp technology	ETHERNET / PROFINET	756-9501/060-000 1



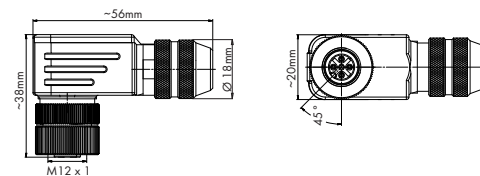
Conductor size
Ø 6 ... 8 mm / 0.14 - 0.5 mm²

M12 plug, right angle, shielded	Item No.	Pack. Unit
M12 plug, A coded, right angle, spring clamp technology	CANopen / DeviceNet	756-9211/060-000 1
M12 plug, B coded, right angle, spring clamp technology	PROFIBUS / S-BUS	756-9403/060-000 1
M12 plug, D coded, right angle, spring clamp technology	ETHERNET / PROFINET	756-9501/040-000 1



Conductor size
Ø 6 ... 8 mm / 0.14 - 0.5 mm²

M12 socket, straight, shielded	Item No.	Pack. Unit
M12 socket, A coded, straight, spring clamp technology	CANopen / DeviceNet	756-9208/060-000 1
M12 socket, B coded, straight, spring clamp technology	PROFIBUS / S-BUS	756-9402/060-000 1

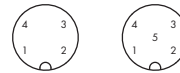
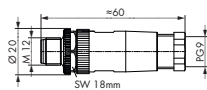


Conductor size
Ø 6 ... 8 mm / 0.14 - 0.5 mm²

M12 socket, right angle, shielded	Item No.	Pack. Unit
M12 socket, A coded, right angle, spring clamp technology	CANopen / DeviceNet	756-9210/060-000 1
M12 socket, B coded, right angle, spring clamp technology	PROFIBUS / S-BUS	756-9404/060-000 1

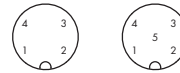
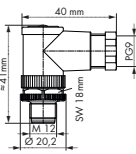
WAGO-SPEEDWAY 767

Configurable connectors with PG9 thread



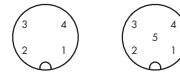
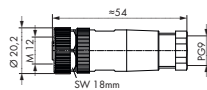
Conductor size
Ø 6 ... 8 mm / 0.14 - 0.5 mm²

M12 plug, straight, A coded, unshielded			Item No.	Pack. Unit
M12 plug, straight, screw clamp connection PG9	4-pole	Supply	756-9203/040-000	5
M12 plug, straight, spring clamp technology PG9	5-pole	CANopen / DeviceNet	756-9203/050-000	5



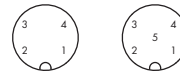
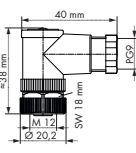
Conductor size
Ø 6 ... 8 mm / 0.14 - 0.5 mm²

M12 plug, right angle, A coded, unshielded			Item No.	Pack. Unit
M12 plug, right angle, screw clamp connection PG9	4-pole	Supply	756-9206/040-000	5
M12 plug, right angle, spring clamp technology PG9	5-pole	CANopen / DeviceNet	756-9206/050-000	5



Conductor size
Ø 6 ... 8 mm / 0.14 - 0.5 mm²

M12 socket, straight, A coded, unshielded			Item No.	Pack. Unit
M12 socket, straight, screw clamp connection PG9	4-pole	Supply	756-9213/040-000	5
M12 socket, straight, spring clamp technology PG9	5-pole	CANopen / DeviceNet	756-9213/050-000	5

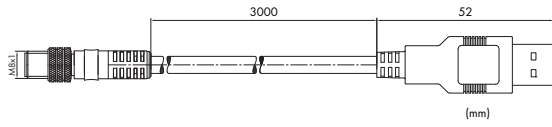


Conductor size
Ø 6 ... 8 mm / 0.14 - 0.5 mm²

M12 socket, right angle, A coded, unshielded			Item No.	Pack. Unit
M12 socket, right angle, screw clamp connection PG9	4-pole	Supply	756-9216/040-000	5
M12 socket, right angle, spring clamp technology PG9	5-pole	CANopen / DeviceNet	756-9216/050-000	5

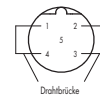
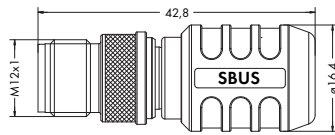
WAGO-SPEEDWAY 767

USB communication cable, terminating resistors

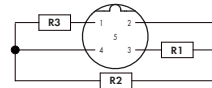
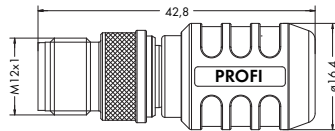


Pin 1 = red
Pin 2 = white
Pin 3 = green
Pin 4 = black

Description	Item No.	Pack. Unit
USB communication cable	756-4101/042-030	1

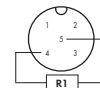
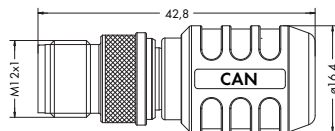


Description	Item No.	Pack. Unit
M12 system bus terminating plug, B coded, straight	756-9409/060-000	1



R3=390 Ω 0,4 W
R2=220 Ω 0,4 W
R1=390 Ω 0,4 W

Description	Item No.	Pack. Unit
M12 PROFIBUS terminating plug, B coded, straight	756-9405/060-000	1

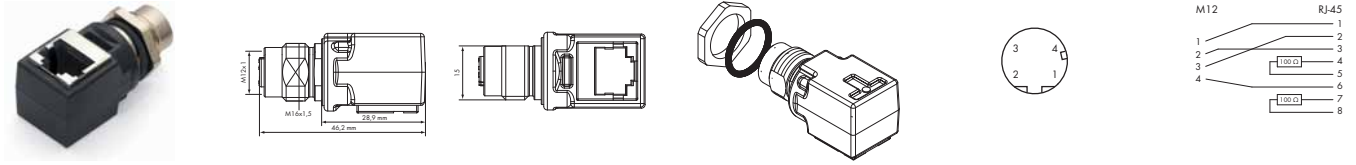


R1=120 Ω 0,25 W

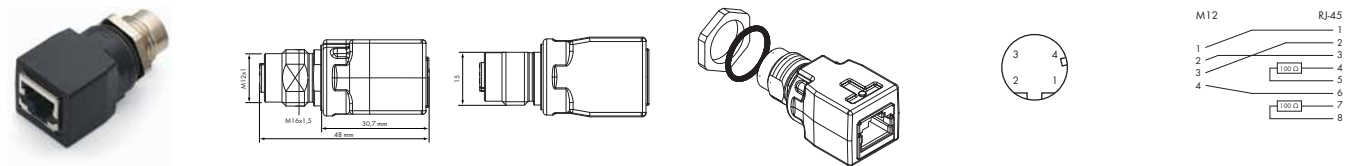
Description	Item No.	Pack. Unit
M12 CANopen, DeviceNet terminating plug, A coded, straight	756-9209/060-000	1

WAGO-SPEEDWAY 767

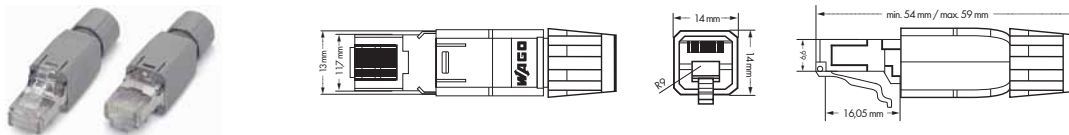
ETHERNET, PROFINET accessories



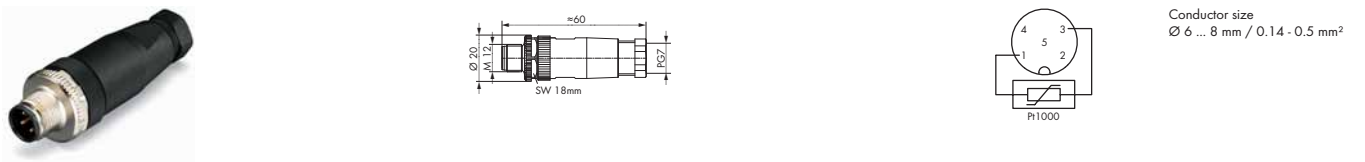
Description	Item No.	Pack. Unit
Adapter, right angle, M12 socket, D coded/RJ-45 socket (also ideally suited for control cabinet feed-through applications or connecting IP67/IP20 components)	756-9503/040-000	1



Description	Item No.	Pack. Unit
Adapter, straight, M12 socket, D coded/RJ-45 socket (also ideally suited for control cabinet feed-through applications) or connecting IP67/IP20 components)	756-9504/040-000	1



Description	Item No.	Pack. Unit
ETHERNET RJ-45 connector, IP20	750-975	1
PROFINET RJ-45 connector, IP20	750-976	1

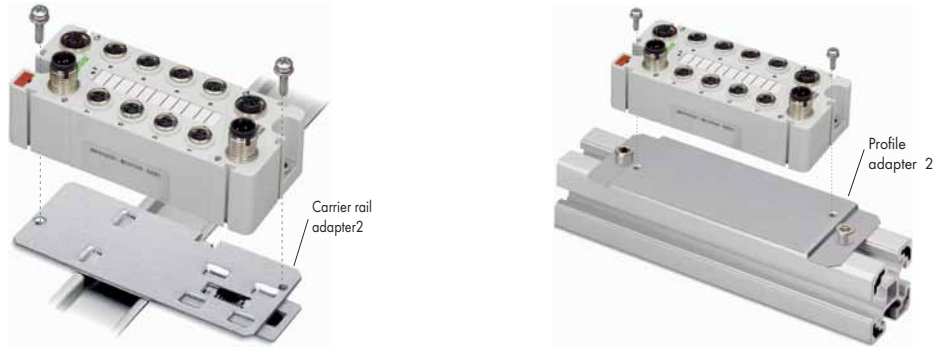


Description	Item No.	Pack. Unit
Preassembled M12 plug, axial, A coded, unshielded		
Compensation connector, 5-pole for 767-6403 Thermocoupler Module (Pt1000 sensor integrated)	756-9207/050-000	1
M12 plug, straight, spring clamp technology		

WAGO-SPEEDWAY 767

General accessories

Application examples: I/O module



Carrier rail and profile adapters	Item No.	Pack. Unit
Carrier rail adapter 1 for couplers/progr. couplers	767-121	1
Carrier rail adapter 2 for I/O and power distribution modules	767-122	1
Profile adapter 1 for couplers/progr. couplers	767-123	1
Profile adapter 2 for I/O and power distribution modules	767-124	1



Protective caps (for covering unused sensor/actuator connectors)	Item No.	Pack. Unit	
M8 protective cap	for unused sockets	756-8101	1
M12 protective cap	for unused sockets	756-8102	1
M12 protective cap (fieldbus)	for unused plugs	755-809	1
M23 protective cap (fieldbus/supply)	for unused plugs	755-837	1



M23 plug, can be pre-assembled	Item No.	Pack. Unit	
6 poles	M23 plug, straight, soldering technology	756-9601/060-000	1
6 poles	M23 plug, right angle, soldering technology	756-9602/060-000	1



M23 socket, can be pre-assembled	Item No.	Pack. Unit	
6 poles	M23 socket, straight, soldering technology	756-9603/060-000	1
6 poles	M23 socket, right angle, soldering technology	756-9604/060-000	1

WAGO-SPEEDWAY 767

General accessories

Marker strip

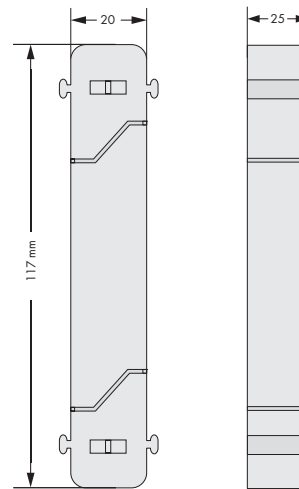
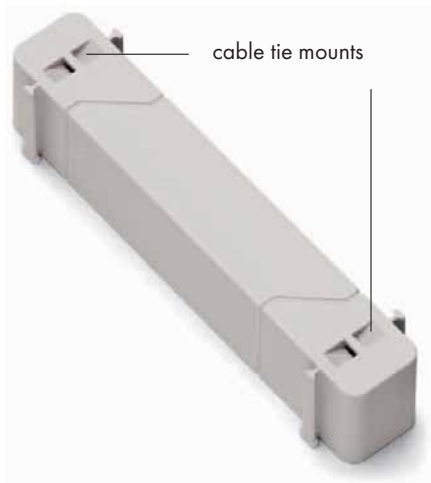


Marking pen with fibre tip



Marking accessories	Item No.	Pack. Unit
Marker strips 8xM8 (for couplers / I/O modules)	767-101	10
Marker strips 4xM12 (for I/O modules)	767-102	10
Marker strips for power distribution modules	767-103	10
Marking pen	210-110	1

Spacer module



Description	Item No.	Pack. Unit
Spacer module	767-111	1

