

WAGO SYSTEM **750**

Connection of *WINSTA*[®] Sunblind Boxes to the WAGO-I/O-SYSTEM

Application Note

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Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we always appreciate any information or suggestions for improving the documentation.

We wish to point out that the software and hardware names, as well as the trademarks of companies used and/or mentioned in the present manual, are generally protected by trademark or patent.

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1 Important Notes

To ensure quick installation and start-up of the units, please carefully read and adhere to the following information and explanations.

1.1 Legal Principles

1.1.1 Copyright

This document, including all figures and illustrations contained therein, is subject to copyright protection. Any use of this document that infringes upon the copyright provisions stipulated herein is prohibited. Reproduction, translation, electronic and phototechnical filing/archiving (e.g., photocopying) as well as any amendments require the written consent of WAGO Kontakttechnik GmbH, Minden, Germany. Non-observance will involve the right to assert damage claims.

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WAGO Kontakttechnik GmbH owns all rights arising from the granting of patents or from the legal protection of utility patents. Third-party products are always mentioned without any reference to patent rights. Thus, the existence of such rights cannot be excluded.

1.1.2 Personnel Qualification

The use of the product detailed in this document is geared exclusively to specialists having qualifications in PLC programming, electrical specialists or persons instructed by electrical specialists who are also familiar with the valid standards. WAGO Kontakttechnik GmbH assumes no liability resulting from improper action and damage to WAGO products and third-party products due the disregard of the information contained in this document.

1.1.3 Intended Use

For each individual application, the components are supplied from the factory with a dedicated hardware and software configuration. Modifications are only admitted within the framework of the possibilities documented in this document. WAGO Kontakttechnik GmbH will be exempted from any liability in case of changes in hardware or software as well as to non-compliant usage of components.

Please send your requests for modified and new hardware or software configurations directly to WAGO Kontakttechnik GmbH.

1.2 Scope of Validity

This application note is based on the stated hardware and software from the specific manufacturer, as well as the associated documentation. This application note is therefore only valid for the described installation.
New hardware and software versions may need to be handled differently.

Please note the detailed description in the specific manuals.

1.3 Symbols



DANGER

Always observe this information to protect persons from injury.



NOTICE

Always observe this information to prevent damage to the device.



NOTE

Marginal conditions that must always be observed to ensure smooth operation.



Note

Routines or advice for efficient use of a device and software optimization.



Additional Information

References to additional literature, manuals, data sheets and INTERNET pages.

2 Description

This application note describes the basic procedure for controlling *WINSTA*[®] sunblind boxes in bus operation. The sunblind boxes are connected to the WAGO-I/O-SYSTEM with the help of serial modules.

The sample program shows the activation of individual drives, boxes, and groups, as well as the moving of all drives into a weather protection position.

3 Material

Supplier	Qty.	Designation	Item No.
WAGO	1	Programmable fieldbus controller	750-8xx
WAGO	2	4-channel digital input module DC 24 V	750-402
WAGO	1	Serial interface RS-485	750-653/003-000
WAGO	1	End module	750-600
WAGO	2	<i>WINSTA</i> [®] Sunblind Box	770-629/130-000

The following software is also required for programming and commissioning:

WAGO	WAGO-I/O-PRO CAA	759-333
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Optional:

WAGO	USB communication cable	750-923
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NOTE:

The node structure described is only one example of how communication with the *WINSTA*[®] sunblind boxes can be realized. The modules may be expanded as required by the respective application.



Additional Information:

The library and documentation used are available at www.wago.com/Service/Downloads/Libraries

4 Set-Up

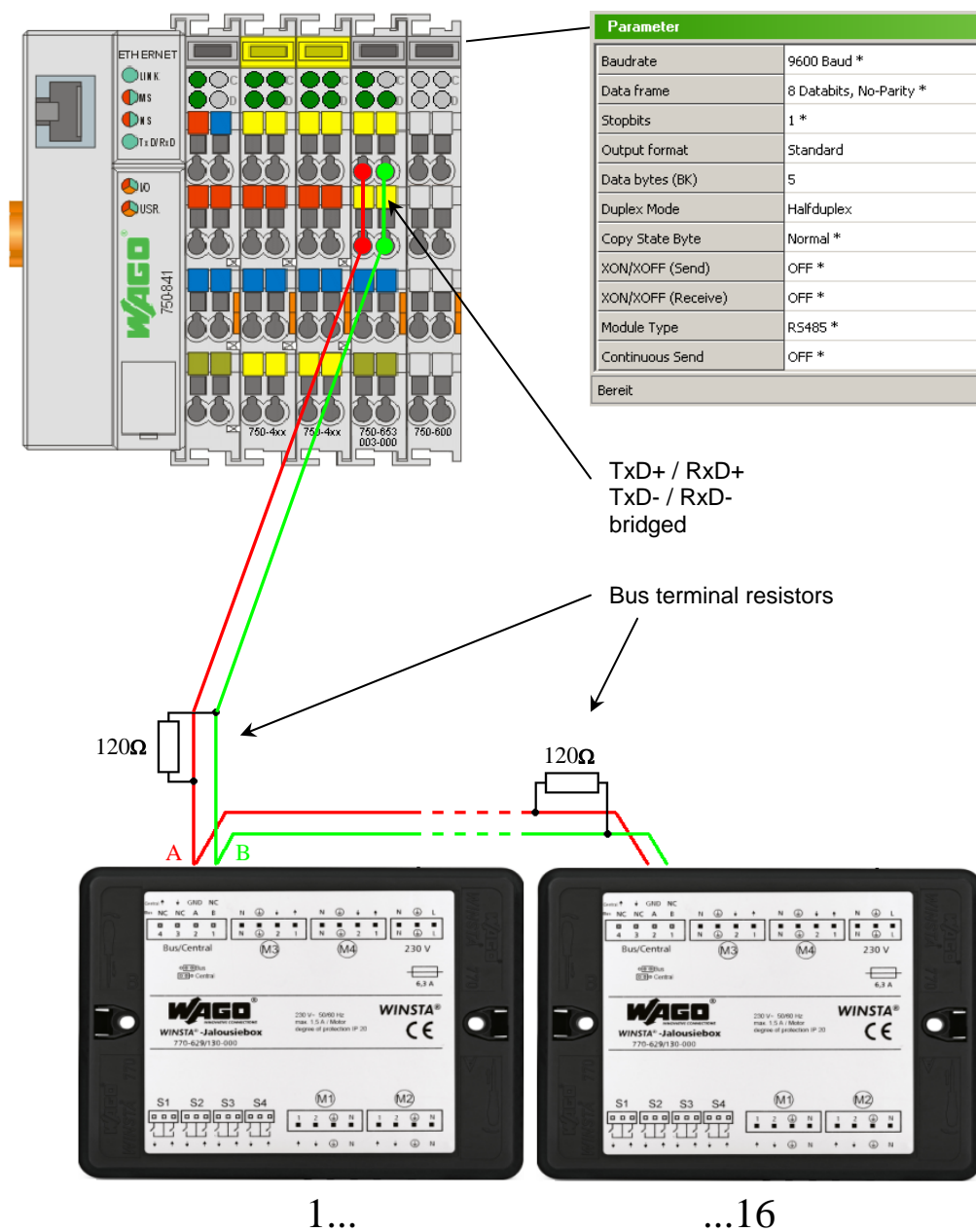


Fig. 4.1: Connection plan for WAGO-I/O-SYSTEM / WINSTA® sunblind boxes



Note:

The node structure described is only one example. The structure may be expanded as required by the respective application. The required 24V supply of the controller and the 230V supply of the sunblind boxes are not shown.

5 Activation of the Sunblind Boxes

5.1 Task

In this application example, two *WINSTA*[®] sunblind boxes should be activated by the WAGO-I/O-SYSTEM. To do this, the sunblind boxes are connected with a serial interface module (see Figure 4.1). The serial interface module must be set to the mapped parameters with the WAGO-I/O-CHECK program. Application programming is described briefly below.

5.2 CoDeSys Program

The following figures show the basic structure for programming a sunblind application in the CoDeSys software. A prerequisite for communicating with sunblind boxes is the *"FbWinsta_BC_Master"* function block. The COM port of the serial interface module must be assigned to this function block (counting mode, see library description). Error messages are displayed on the *"bError"* output. For each serial interface module, *"FbWinsta_BC_Master"* may be addressed only once. Data exchange of additional *WINSTA*[®] BC function modules with the master module is performed via the *"typWinsta_BC_Joblist"* variable structure.

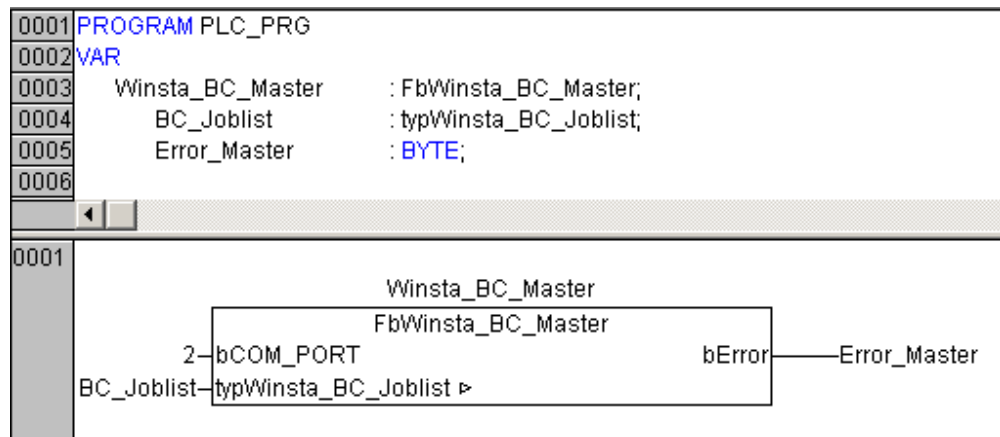


Fig. 5.1: CoDeSys program with *WINSTA*[®]-BC-Master module and declaration

The signals of the digital inputs DI_1 to DI_6 are created on the inputs "xUp_n" and "xDown_n" of the "FbWinsta_BC_Box" module. They have the same function as the on-site buttons that are connected directly to the WINSTA® sunblind box. By creating these variables on several module inputs, a group formation of individual drives is undertaken, which can also be undertaken across boxes. The module inputs "xBox_Up" and "xBox_Down" are used to activate all drives of a box.

The current positions of the drives are output on the module outputs "eBC_Position_n." The status of the communication is indicated on the output "eWinsta_BC_Error."

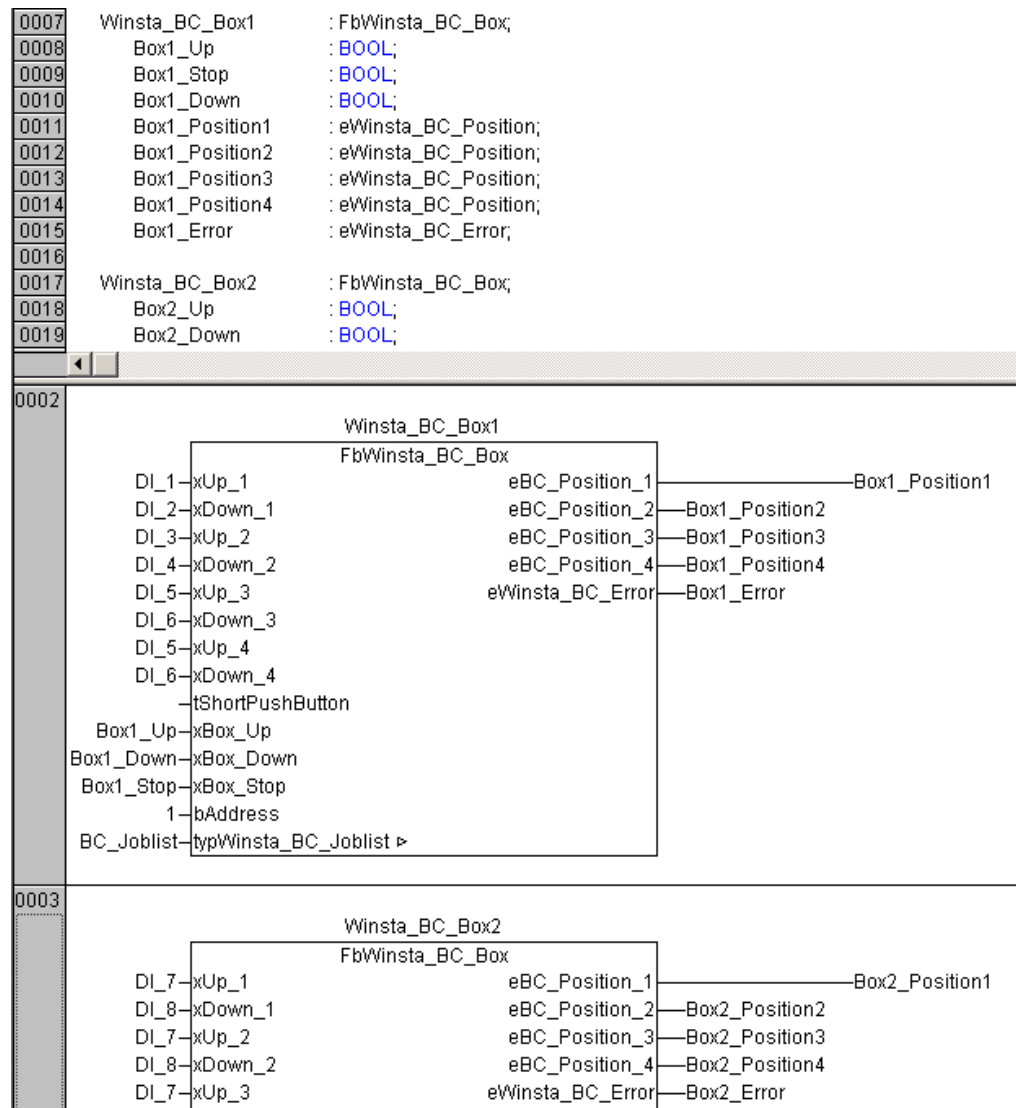


Fig. 5.2: Application modules for individual activation

The application module *"FbWinsta_BC_Group"* shown in Figure 5.3 on network 4 allows the combination of individual boxes into a facade control system through group addressing. For group addressing, the respective bits for the drives to be addressed are set to "1" in the WORD on the *"wSelect"* input. In this example, the boxes with the addresses 1 and 2 are selected. With the variables *"Group1_Up"* and *"Group1_Down"* the drives of these boxes can be moved up and down.

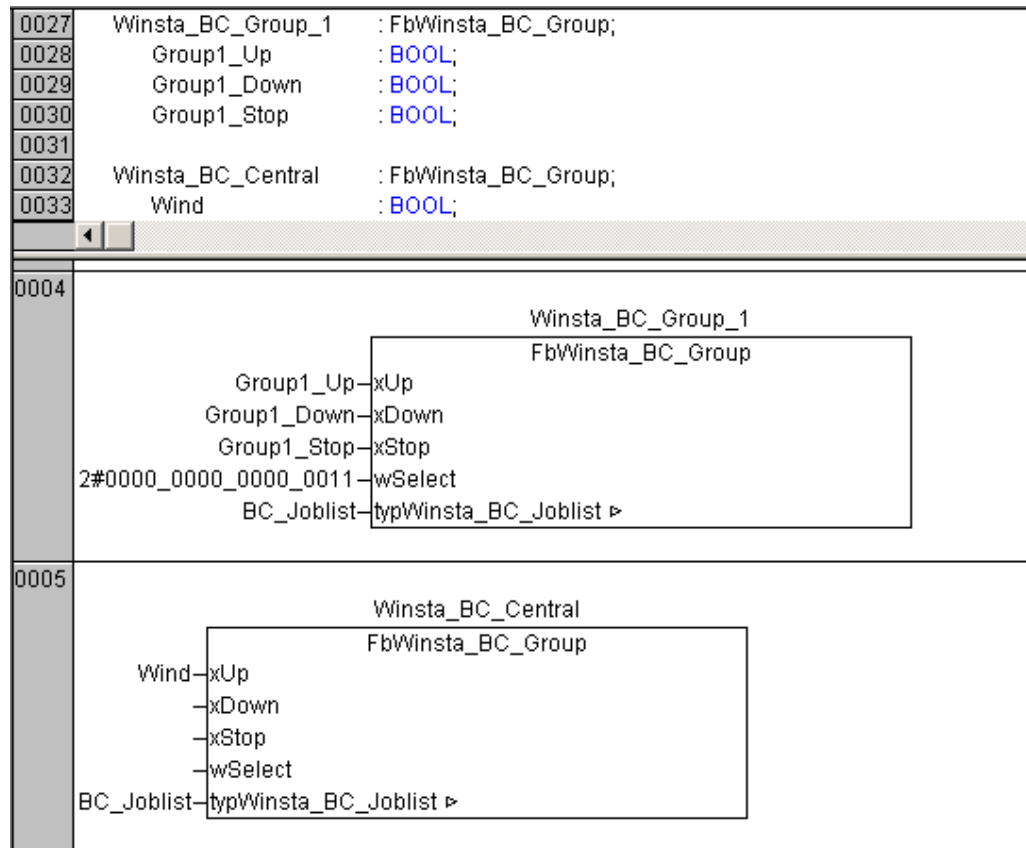


Fig. 5.3: Function modules for group and weather protection control

On network 5, the *"FbWinsta_BC_Group"* module is used to activate a weather protection position. By leaving the input *"wSelect"* free, all sunblind boxes on this bus segment are addressed. With a permanent signal on the inputs *"xUp"* and *"xDown,"* the move commands of the on-site buttons and the application modules *"FbWinsta_BC_Box"* are overridden.

Moving sunblind box drives to a sun protection position is performed via “FbWinsta_BC_Position” function block. A positive edge at the “xMoveToShadowPosition” input, moves the drives to the parameterized sun protection position. The required moving times are set in the “typWinsta_BC_Position” variable structure. This can also be performed via visualization interface (see Fig. 6.2). The “xReady” output shows when the position has been reached.

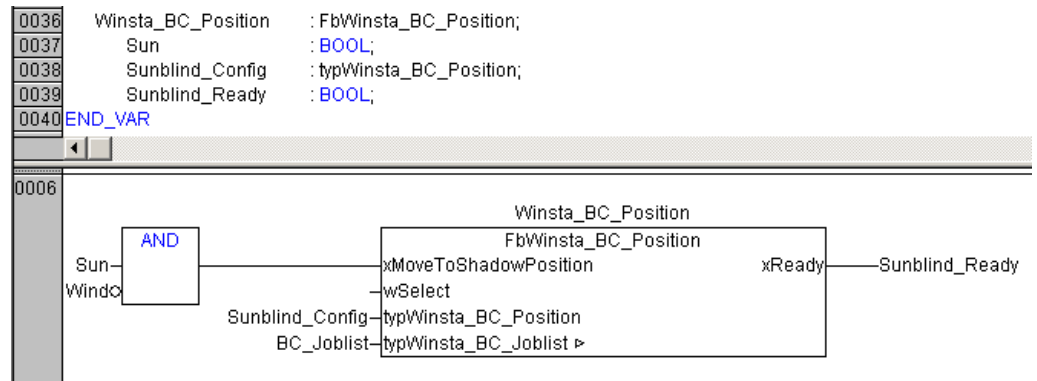


Fig. 5.4: Function block for sun protection

6 Visualization Interface



Note:

WAGO-I/O-PRO CAA visualization requires that the PC is connected to the WAGO fieldbus controller. Depending on the fieldbus controller used, two options are available.

The first option is available for all types of fieldbus controllers. Here, connection to the fieldbus controller's service interface is established via 750-923 Communication Cable. With ETHERNET fieldbus controllers, connection is also possible using the ETHERNET interface.

6.1 Start Page (PLC_VISU)

The start page in this example shows the activation of the sunblind boxes and shows the various command levels. The move commands for the sunblind boxes can be given individually or group by group. Additionally, both "Sun protection" and "Wind alarm" can be simulated.

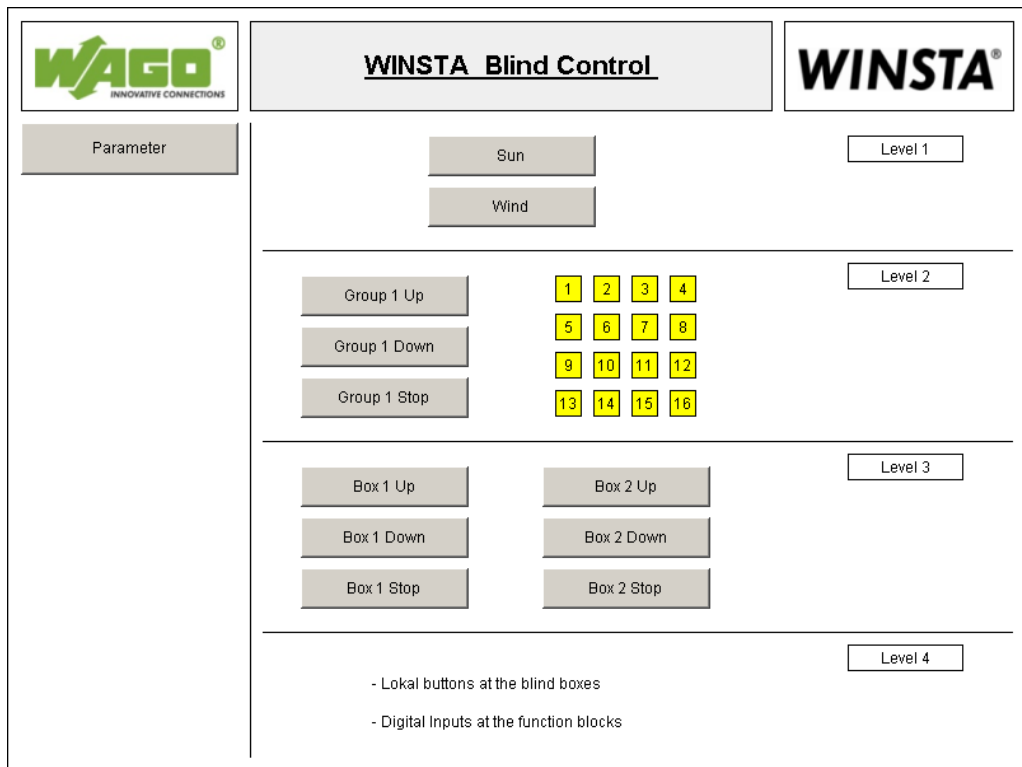


Fig. 6.1: Visualization interface

6.2 Parameter Settings

Both the position and the behavior of incoming and outgoing sun protection commands can be set on the parameter page. The visualization interface accesses the contents of the “typWinsta_BC_Position” variable.

Sunblind parameter settings

Gewählte Variable:

Auto move up

Automatically move to UP position after completion of sun protection function.

Blind from top

Performs a reference motion to the top prior to positioning

T#4m0s0ms

Time for reference motion to the top

T#2m0s0ms

Time for moving to shadow position

T#500ms

Time for turning slats up

BACK

Fig. 6.2: Visualization interface for parameter settings

7 Appendix

7.1 Required Files for WAGO-I/O-PRO CAA

Library	Description
Winsta_BC_02.lib	Application modules for the <i>WINSTA</i> [®] sunblind box
Serial_Interface_01.lib	Communications block for the serial module
SerComm.lib	Basic serial interface functions
Standard.lib	Standard functions



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