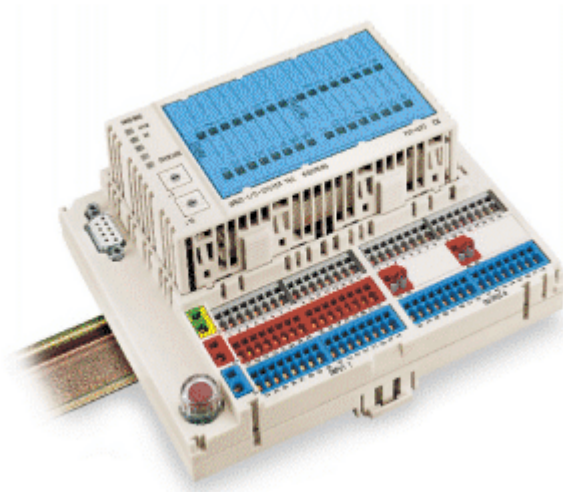


WAGO → I/O → SYSTEM 752

Fieldbus Dependent I/O Module

PROFIBUS



Manual

Technical Description,
Installation and
Configuring

752-121/000-002
Version 1.0.0

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Every conceivable measure has been taken to ensure the correctness and completeness of this documentation. However, as errors can never be fully excluded we would appreciate any information or ideas at any time.

We expressively point out that the software and hardware designations and brand names of individual companies used in this manual are subject to general trade name, trademark or patent protection.

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1 Important Explanations

To allow the user fast installation and commissioning of the units described in this manual it is necessary to attentively read and observe the following notes and explanations.

1.1 Legal Basis

1.1.1 Copyright

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1.1.2 Personnel Qualification

The use of the product described in this manual is solely intended for qualified persons trained in PLC programming, qualified electricians or persons instructed by qualified electricians who are also familiar with the applicable standards and directives. WAGO Kontakttechnik declines all liability for faulty operation and damages to WAGO products and products from other suppliers resulting from non-observance of the information contained in this manual.

1.1.3 Intended Use

For the individual application, the components are supplied with a defined hardware and software configuration. Changes are only admitted within the framework of the possibilities documented in the manuals. All other changes to the hardware or software and any use of the components other than that intended entail the exclusion of liability on part of WAGO Kontakttechnik GmbH.

Please contact WAGO Kontakttechnik GmbH for any wishes in terms of a modified or a new hardware or software configuration.

1.2 Scope of Validity

This manual describes the fieldbus dependent I/O module of the WAGO-I/O-SYSTEM 752 for the PROFIBUS.

Components	Article No.
Electronic module	752-323
Base module	752-823

1.3 Symbols



Warning

Observe this information in all cases to protect the system from damage.



Attention

Marginal conditions to be observed in all cases to ensure a troublefree operation.



ESD (Electrostatic Discharge)

Warning of danger to the components by electrostatic discharge. Precautionary measure when handling components subject to electrostatic discharges.



Note

Routines or advice for an efficient use of the unit and for software optimisation.



Further information

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

1.4 Abbreviations

BF	Bus Failure
DGND	Data transmission potential (according to VP)
DIx	Digital input „x“
DOx	Digital output „x“
DSx	Diagnostic status for the output group „x“
GSD	Gerätstammdaten (master file of devices)
PNO	PROFIBUS Nutzerorganisation e.V. (User Organisation)
RTS	Request To Send
RxD/TxD-N	Receive and Transmit Data -N, A line
RxD/TxD-P	Receive and Transmit Data -P, B line
VP	Voltage Supply Plus, (+5 V) of the terminating resistor

2 System Description

The WAGO-I/O-SYSTEM 752 for PROFIBUS is part of the compact series of WAGO field bus nodes for distributed automation. It has a fixed number of digital inputs (DI) and digital outputs (DO) and transmits the signals to a higher ranking control system via PROFIBUS.

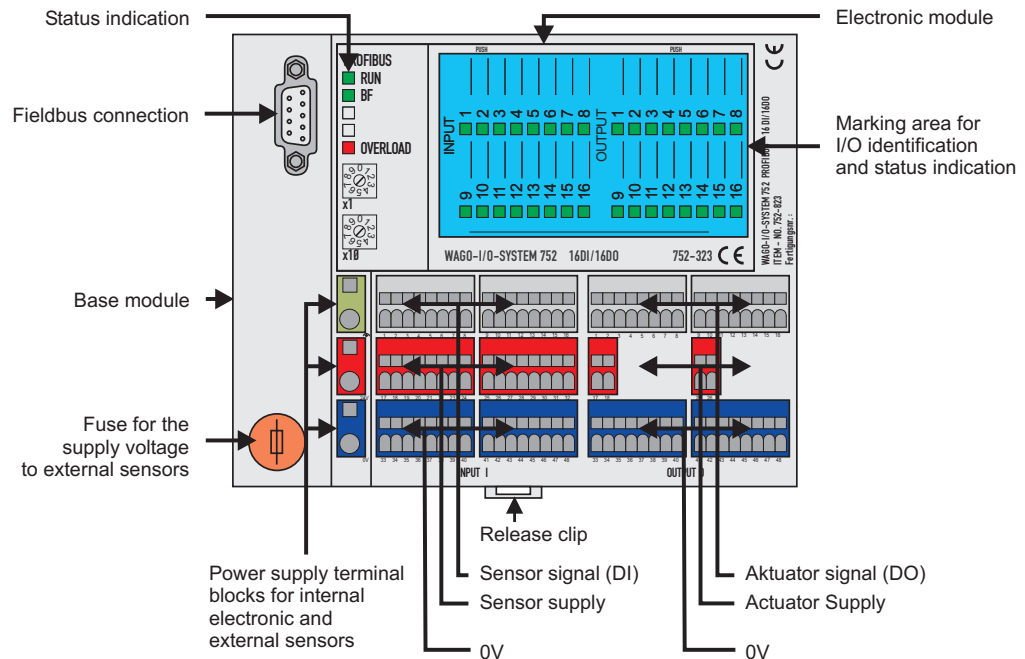


Fig. 2-1: I/O module for PROFIBUS

g1x2301e

The fieldbus dependent I/O module consists of

- the **base module** allows prewiring of the fieldbus, power supply, and sensor/actuator connections.
- the plug-in **electronic module** contains the processing unit, the fieldbus interface module, and the input and output circuits.

The electronic and base modules are supplied separately packed.

2.1 Base Module

The base module is the interface for all external wiring, including the fieldbus, power supply, and sensor/actuator connections. A multi-conductor connector links the external wiring to the plug-in electronic module.

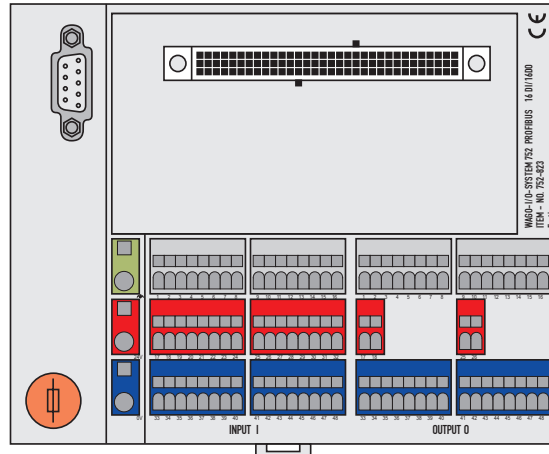


Fig. 2-2: Base Module

g1x2306x

- Fieldbus connection, 9 pole D-SUB
- Module power supply, terminal block with CAGE CLAMP[®] 2.5 mm² connection
- Sensor connection, 3 conductors, terminal block with CAGE CLAMP[®] 1.5 mm² connection
- Actuator connection, 2 conductors, terminal block with CAGE CLAMP[®] 1.5 mm² connection
- Separate output supply voltage, terminal block with CAGE CLAMP[®] 1.5 mm² connection
- Fuse holder with protective cap for input supply voltage fuse.
- Clear labeling of the connection group (INPUT or OUTPUT) and each individual terminal block (numbered)
- Wiring can be performed independent of the plug-in electronic module.

2.2 Electronic Module

The plug-in electronic module includes all electronic circuits, i. e. the power pack, the electrically isolated fieldbus interface module, the processing unit, the input and output circuits, and their corresponding status indicators.

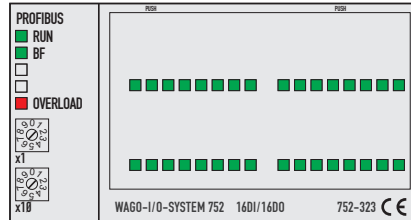


Fig. 2-3: Electronic Module

g1x2307x

- Plug-in design provides easily installation into the base module.
- If a replacement of the electronic module is necessary, the wiring remains undisturbed.
- Status indicators for fast diagnostics.

The electronic module includes a marking label for input/output identification.

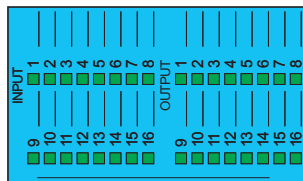


Fig. 2-4: Marking label

g1x2308x

Text can be added to the marking label using a permanent felt tip pen (order no. 210-110), or can be labeled by means of a plotter or a laser printer. The WAGO SCRIPT marking system has templates available for easy and professional customization of marking labels.

3 Technical Data

PROFIBUS DP System data	
Number of nodes	96 with repeatern
Max. no. I/O points	approx. 6000 (depends on master)
Transmission medium	Cu cable according to EN 50 170
Max. length of fieldbus segment	100 m ... 1,200 m (depends on baud rate /on the cable)
Baud rate	9,6 kBaud ... 12 MBaud
Buscoupler connection	9-pole D-SUB, female

Supply	
Supply voltage	DC 24 V (– 15 % / + 20 %)
Current input (module without load)	< 100 mA for 24 V DC
Total loss of power	< 4.5 W
Fuse F1 for sensor supply	TR5 250 V / 6.3A T

General information	
Dimensions W x H x L	(155 x 129 x 60*) mm
Housing material	polycarbonate
Fixing	Snap mounting onto 35 DIN carrier rail EN 50022-35
Fitting position	vertical and horizontal
Weight	approx. 500 g

* from upper edge of DIN 35 rail

Wire connection	
Power supply	CAGE CLAMP® 0.08 mm² ... 2.5 mm², AWG 28-12*
Sensors, actuators	CAGE CLAMP® 0.08 mm² ... 1.5 mm², AWG 28-16
Supply voltage for outputs (8 circuit group)	CAGE CLAMP® 0.08 mm² ... 1.5 mm², AWG 28-16

* AWG12: THHN, TWHN

Inputs	
Number of inputs	16
Input	in accordance with EN 61131-2, type 1
Wire connection	for 3 conductors
Signal voltage (0)	DC -3 V ... +5 V
Signal voltage (1)	DC 15 V ... 30 V
Time constant	5 ms
Insulation electronics/field side	none

Outputs	
Number of outputs	16
Rated voltage	DC 24 V
Rated current – max. per output – max. per group (8 outputs) – max. per module 16 DO	500 mA 4 A 8 A
Leakage current	< 2 mA
Short circuit protection	electronic, automatic restart
Max. operating frequency (without bus) – resistive load – inductive load	1 kHz utilization category DC 13, equals 6 Hz
Insulation electronics/field side	none
Diagnosis	Short circuit display by LED (OVERLOAD) for the entire module; signalling via bus for 4 outputs each
Feeding	<ul style="list-style-type: none"> all through supply terminal blocks 24 V, 0 V, \oplus in groups via supply terminal blocks for 8 outputs each

Degree of Protection	
Degree of protection according to EN 60 529	IP 20 protection against physical contact with standard test probes

Conformity and Certification	
Conformity labelling	CE
UL	E175199, UL 508

Climatic Environmental Conditions	
Operating temperature	0 °C ... 55 °C
Storage temperature	-25 °C ... +70 °C
Relative air humidity	10 ... 45 % , no dew formation
Air pressure in operation	86 ... 106 hPa
Maximum altitude	max. 2000 m above sea level
Strain by harmful substances	Inspection according to IEC 60068-2-42 and IEC 60068-2-43
Special conditions	Exercise caution when subjecting the I/O modules to the following conditions: – dust, corrosive vapors or gasses – ionized radiation.

Mechanical Strength	
Vibration	According to IEC 60068-2-6, inspection Fc 10 ... 57 Hz constant amplitude 0.075 mm 57 ... 150 Hz constant acceleration 1 g
Impact	According to IEC 60068- 2-27; 15 g, 11 ms

Electrical Safety	
Reverse voltage protection	Yes
Air and creepage distances	According to DIN EN 61131-2 and DIN EN 50178 between current circuits and body as well as between electrically isolated, separate current circuits, according to over-voltage category II, degree of pollution 2
Isolation	Yes, between fieldbus and internal electronics
Test voltage	DC 500 V

Electromagnetic Compatibility			
Interference Resistance according to EN50082-2 : 1995			
EN 61000-4-2	4kV/8kV	(2/4)	B
EN 61000-4-3	10V/m 80% AM	(3)	A
EN 61000-4-4	2kV	(3/4)	B
EN 61000-4-6	10V/m 80% AM	(3)	A
Interference emission according to EN50081-2 : 1994			
EN 55011	30 dB μ V/m	(30 m)	
	37 dB μ V/m		

Dimensions / Distances

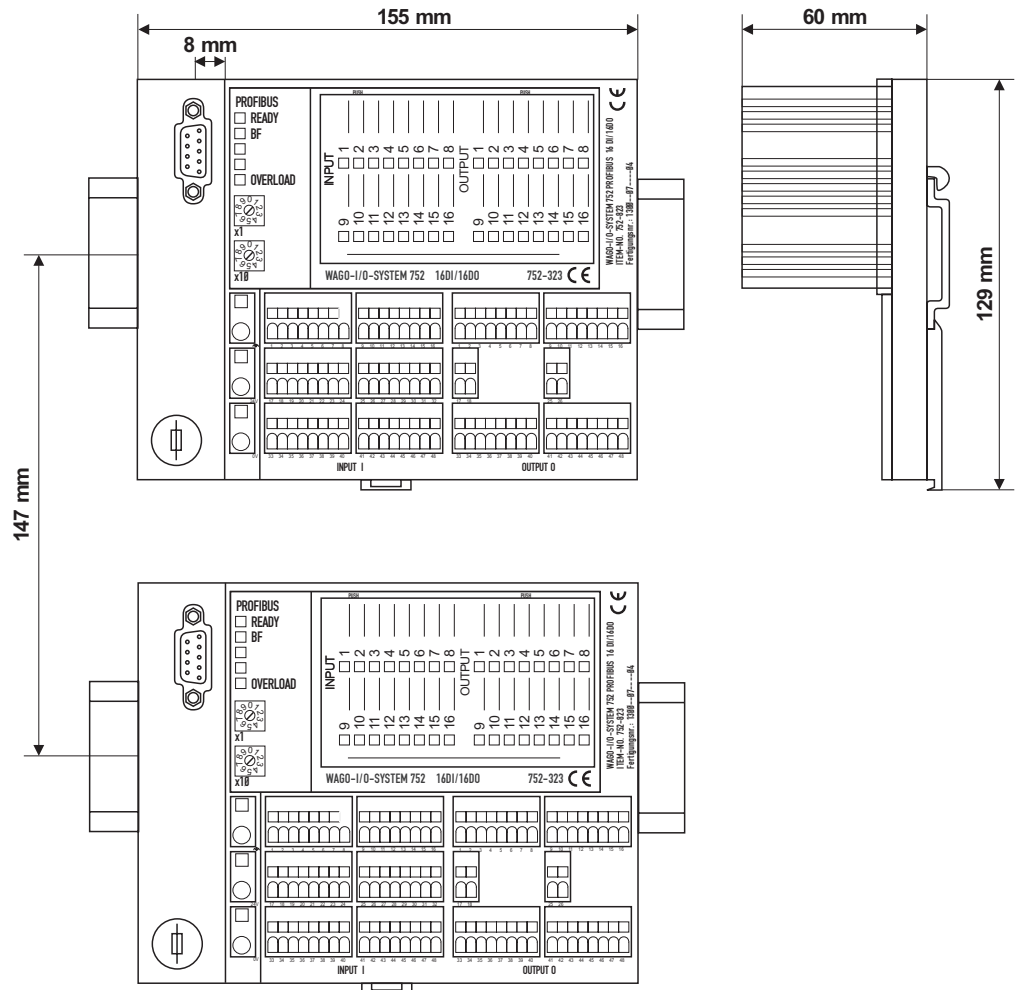


Fig. 3-1: Dimensions

g1x2310x

Distances to building walls	
RH / LH:	0 mm
Top:	20 mm
Bottom:	20 mm
Front:	0 mm when fitted 150 mm fitting space



Attention

The distances between I/O module(s) and building walls have to be observed in order to guarantee sufficient ventilation.

4 Installation

4.1 Mechanical Installation

4.1.1 Snapping on / Detaching the Base Module

The WAGO-I/O-SYSTEM 752 is intended for mounting on a TS35 type carrier rail. The base module snaps onto the carrier rail.

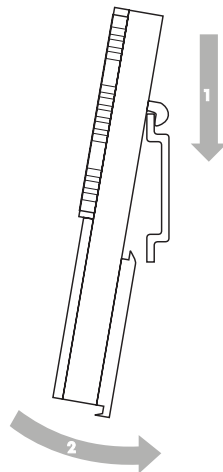


Fig. 4-1: Snapping the base module onto the carrier rail

g1xxx08x

The module can be detached from the carrier rail by releasing the latch using a suitable tool (screw driver).

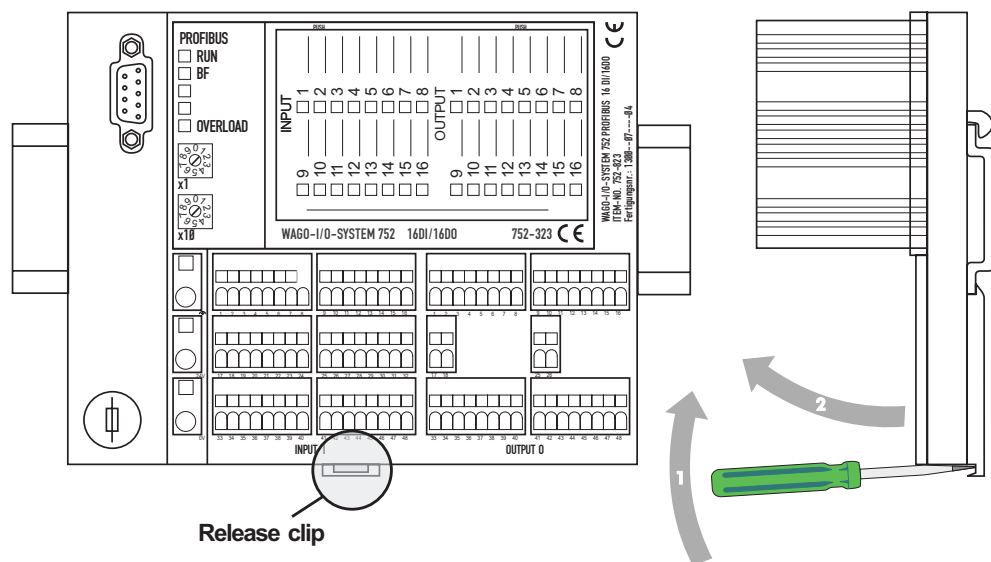


Fig. 4-2: Detachment of the I/O module from the carrier rail

g1x2311e

4.1.2 Insertion/Extraction of the Electronic Module

The electronic module is plugged onto the base module.



Attention

Remove power from the base module before installing the electronic module.

Apply force at the positions marked “PUSH” when plugging in the electronic module.

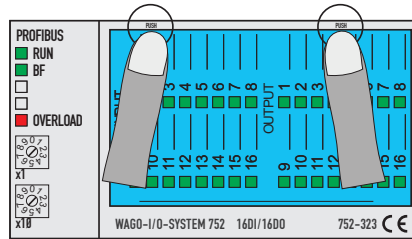


Fig. 4-3: Plugging in the electronic module

g1x2302x

The electronic module is correctly inserted when all four latches have engaged.

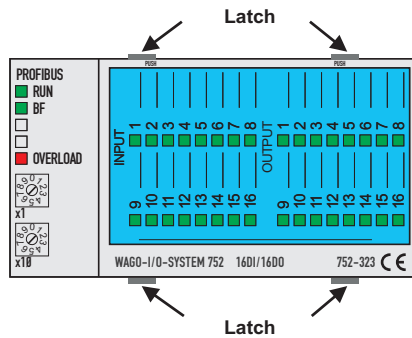


Fig. 4-4: Extracting the electronic module

g1x2303e

The electronic module can be extracted by pressing the 4 latches and simultaneously pulling it from the base module.

4.1.3 Marking Label

The plastic marking label can be removed from the mounting points by applying slight finger force. To accomplish this, slide the label from one side such that the label bends.

Insert the label by proceeding in the reverse order.

4.1.4 Station address

The desired node address is set by means of the two encoding switches located on the electronic module. The address is adjustable in the range of 0....99..

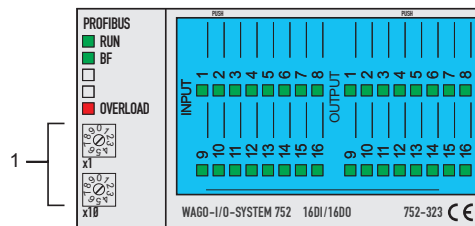


Abb. 4-5: Setting of the station address

g1x2304x

- 1 **Address selection:**
Switch „x1“ determines the units digit of the address.
Switch „x10“ determines the tens digit of the address.

With the unpermissible address 0 the station use the address 126.

The station address is taken over by the I/O module after power-on. Changes during the operation have no effect.

4.2 Electrical Installation

4.2.1 General



ESD (Electrostatic Discharge)

The components are equipped with electronic components susceptible to be destroyed when exposed to electrostatic load. Therefore, when handling these components, ensure proper grounding of the surrounding objects and persons (workplace, packing). Avoid contact with electrically conductive components, e. g. the pins of a plug.

All connecting terminal blocks for the supply voltages and sensor and actuator connections are equipped with CAGE CLAMP® connectors.

These CAGE CLAMP® connectors are suitable for fine-stranded and solid conductors. When using ferrules, select the next smaller nominal cross section for the conductor.

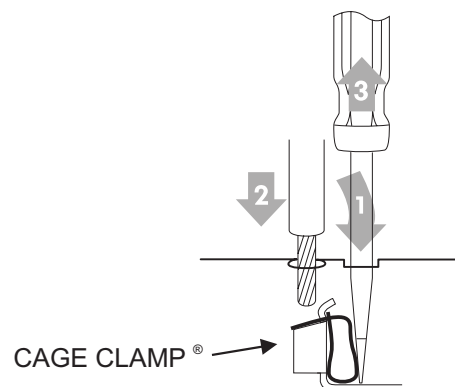


Fig. 4-6: How to operate the CAGE CLAMP®

g1xxx10x

The WAGO-I/O-SYSTEM 752 requires a 24 V DC supply.

The sensors supply voltage is short circuit protected by means of the plug-in fuse F1 (TR 5 / 250 V / 6.3A T).



Note

Use UL-Recognized fuse only

The supply voltage for the outputs can be fed through the module, or sourced separately.

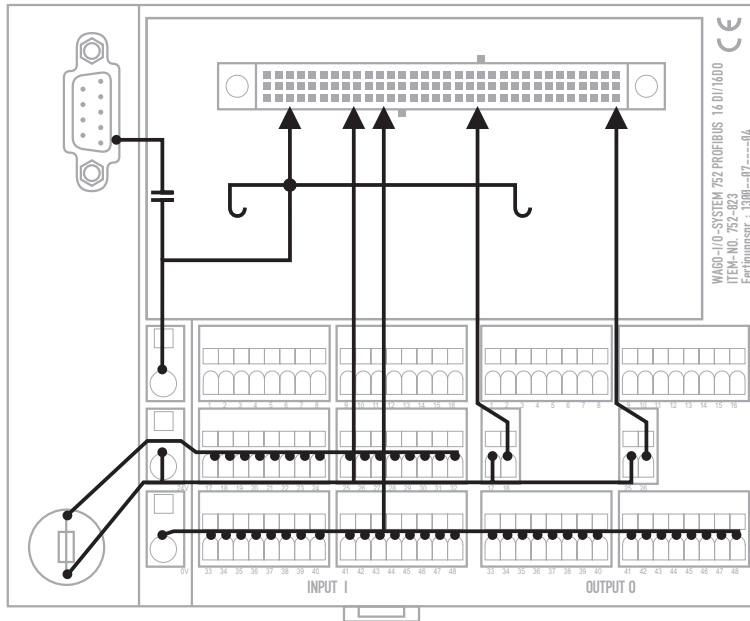


Fig. 4-7: Power supply

g1x2300x

Two carrier rail contacts are provided on the underside of the base module to ensure electrical contact between the grounded carrier rail and the I/O module. The contacts are directly connected to the ⚡ terminal block.



Attention

Ensure that solid contact is made between the carrier rail contacts on the underside of the base module and the carrier rail itself. The carrier rail must be grounded.

4.2.2 Connection of the Module Supply Voltage

The connection of the module supply voltage and earth ground is made on terminal blocks carrying the following labeling:

- 24 V (red terminal block)
- 0 V (blue terminal block)
- ⚡ (green terminal block)

Connection of earth ground to the base module's ground terminal is required for reliable module operation.

4.2.3 Connection of the Input Signals

The input signal connection group is identified by the imprint "INPUT" on the base module. Three terminals are available for each digital input. The terminals for one input are shown superimposed.

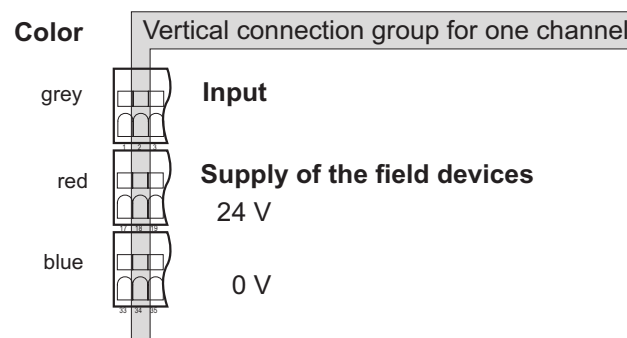


Fig. 4-8: Sensor connection

g1xxx03e

2-conductor sensors, e. g. switches, are connected to the grey and red terminal blocks.

3-conductor sensors receive their 24 VDC supply voltage through the connection to the red and the blue terminal blocks. The output signal of the 3-conductor sensor is connected to the grey terminal block.

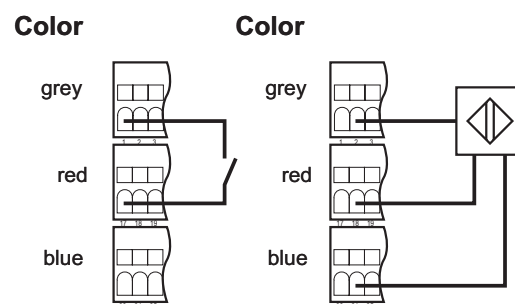


Fig. 4-9: Examples of a sensor connection

g1xxx04e

4.2.4 Connection of the Output Supply Voltage

The supply voltage for the two output groups of 8 connections each can be provided either internally using the supply voltage for the module, or externally from a separate power source. The base modules are provided with two sets of terminal blocks in the middle row of the output terminals. The left-hand terminal of each set carries the 24VDC module power, while the right-hand terminal provides a connection point for the output supply voltage.

The base modules are shipped with jumpers installed in each of these terminals, connecting 24VDC module power to connection point for the output supply voltage.

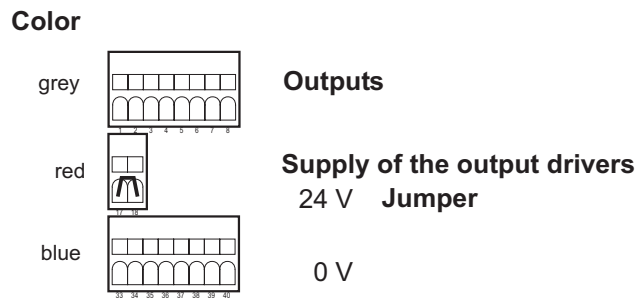


Fig. 4-10: Output supply voltage, internal

g1xxx05e

The factory-installed jumper has to be removed when a separate power supply for a group of 8 digital outputs is required. The separately fused or switchable power supply is connected to the right-hand connection point.

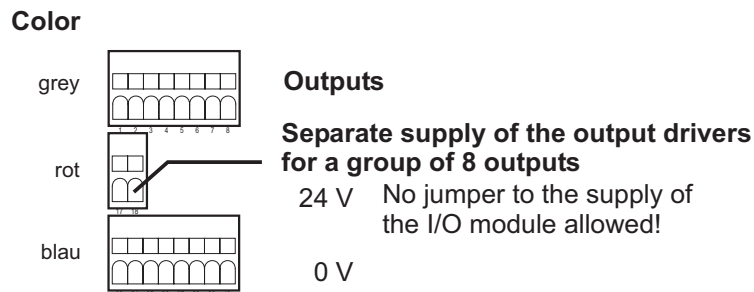


Fig. 4-11: Output supply voltage, separate

g1xxx06e



Attention

When providing a separate output supply voltage to a group of 8 outputs, the supply voltage common must be terminated on the base module using the 0 V potential of the WAGO-I/O-SYSTEM 752 (blue terminal block).

The entire current load is applied to the common terminal connection. If more than 6 Amps is applied to the common terminals, separate terminal blocks should be used. Connect all common connections to the terminal blocks, and then connect the 752 common to the terminal blocks. This row of terminal blocks will be wired back to the source common of the supply potential.

4.2.5 Connection of the Output Signals

The output signal terminals are identified by the imprint “OUTPUT” on the base module.

Two terminals are available for each digital output. The terminals for one output are shown superimposed.

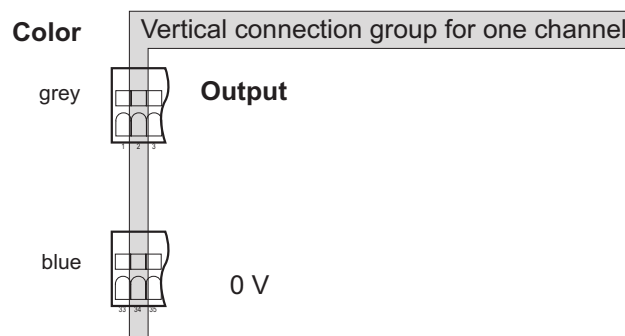


Fig. 4-12: Actuator connection

g1xxx07e

The positive connection of an actuator is wired to the grey output terminal block. The negative connection of an actuator is wired to the blue output terminal block.

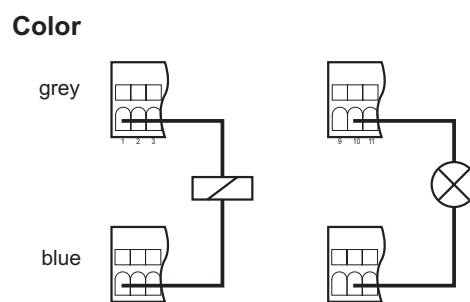


Fig. 4-13: Examples of an actuator connection

g1xxx09e

4.2.6 Connection of the Fieldbus Interface

The WAGO-I/O-SYSTEM 752 for PROFIBUS is provided with a 9 pole D-SUB plug connector for interfacing to the PROFIBUS network.

9-pol. D-Sub-Buchse

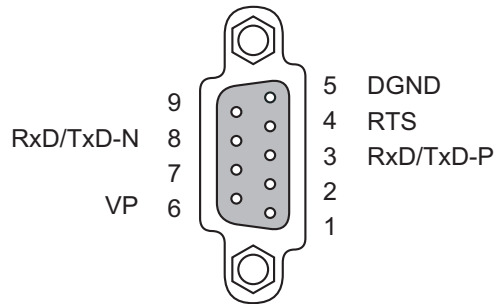


Fig. 4-14: Connection design

g1xx300d

4.2.7 Cabling of the Fieldbus Conductors

On the PROFIBUS with RS 485 transmission technology all devices are connected in a line structure. The bus line comprises of a twisted and screened pair of wires.

The fieldbus line is specified in EN 50 170 as a line type A and must provide certain line parameters. The line type B also described in the EN 50 170 is an old type and should no longer be used.

Parameter	Value
Wave resistance	135 ... 165 Ω
Operating capacity	< 30 pF/m
Loop resistance	110 Ω/km
Wire diameter ^{*)}	> 0.64 mm
Wire cross section ^{*)}	> 0.34 mm ²

^{*)} The wire cross sections used must conform with connection possibilities on the bus plug.

Line type A allows maximum line lengths for a bus segment dependent upon the transmission speed.

Transmission speed	Max. bus segment length
9.6 / 19.2 / 45.45 / 93.75 kBaud	1200 m
187.5 kBaud	1000 m
500 kBaud	400 m
1500 kBaud	200 m
3000 / 6000 / 12000 kBaud	100 m

The plugs available on the market offer the possibility that arriving and departing data cables can be directly connected to the plug. In this manner drop cables are avoided and the bus plug can be connected to or disconnected from the bus at any time without interrupting the data traffic. A cut-in type bus connection is integrated in these plugs. Due to the capacitive load of the subscribers and the resulting generated line reflection the connection plugs used should have integrated length inductivity. This is indispensable for transmission rates of > 1.5 MBaud.

The width of the plug can be maximum 16 mm.

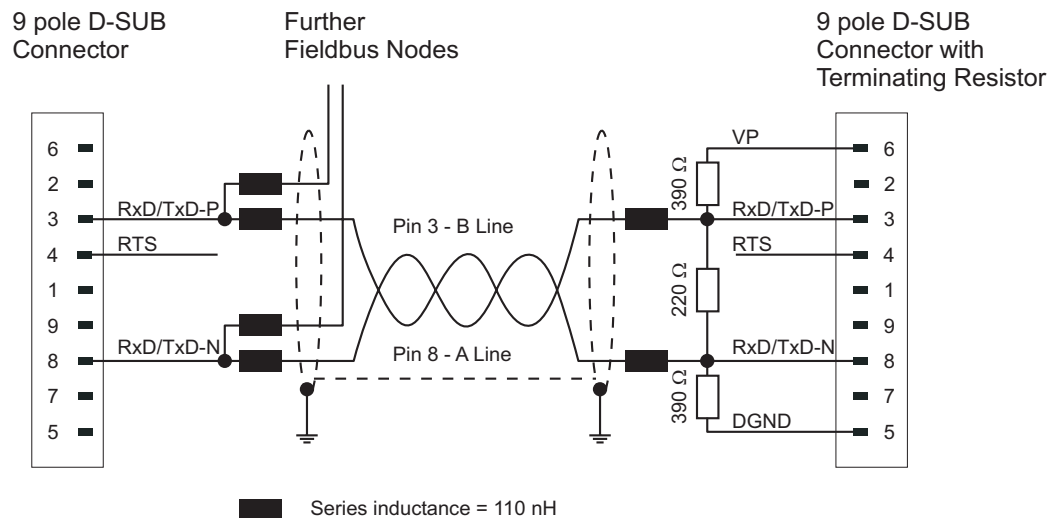


Fig. 4-15: Cabling and bus termination

g1xx302e



Attention

When connecting the subscriber ensure that the data lines are not mixed up.

The bus termination at the start and end of the bus line must be installed. The bus connection requires the supply voltage V_P from the device. For this reason ensure that the slave unit installed on the bus termination, is always supplied with voltage.

Due to the integrated series inductance in the connection plug ensure that the plug is installed without connected field devices as the missing capacity of the device could cause transmission faults.

In order to achieve a high disturbance resistance of the system against electromagnetic radiated interference ensure that a screened PROFIBUS cable is used. Where possible connect the screen at both ends with good conduction and using large surface area screen clips. In addition ensure that the cables are laid separated from all power line cables if possible. With a data rate of ≥ 1.5 Mbit/s ensure that spur lines are avoided.

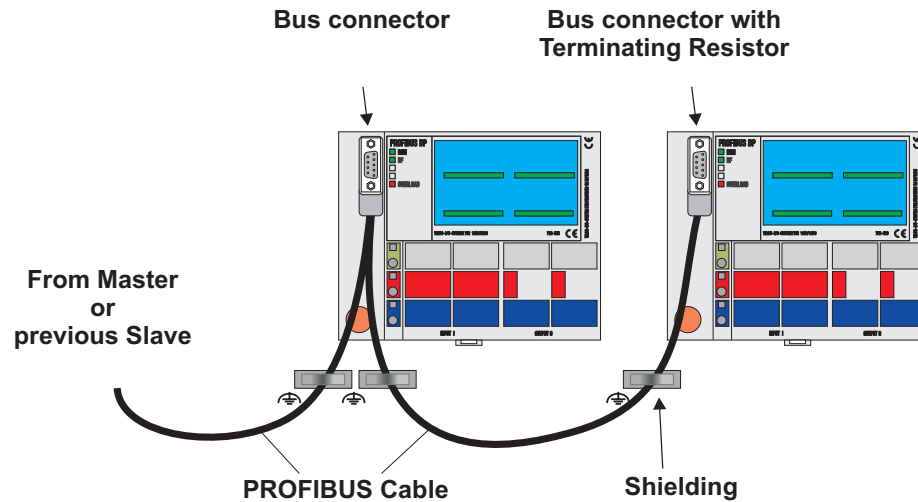


Fig. 4-16: Example of a PROFIBUS cabling section

g1xx301e



Further information

The PNO provides further documentation for its members in INTERNET. Cable specification information can be obtained from, for example, the „Installation Guideline for PROFIBUS-FMS/DP“, 2.112

<http://www.profibus.com/>



Note

WAGO offers this screen connection system for the optimum connection between fieldbus screening and function earth.

5 Schematic Circuit Diagram

A basic representation of the input, output and supply circuitry are shown in the schematic circuit diagram.

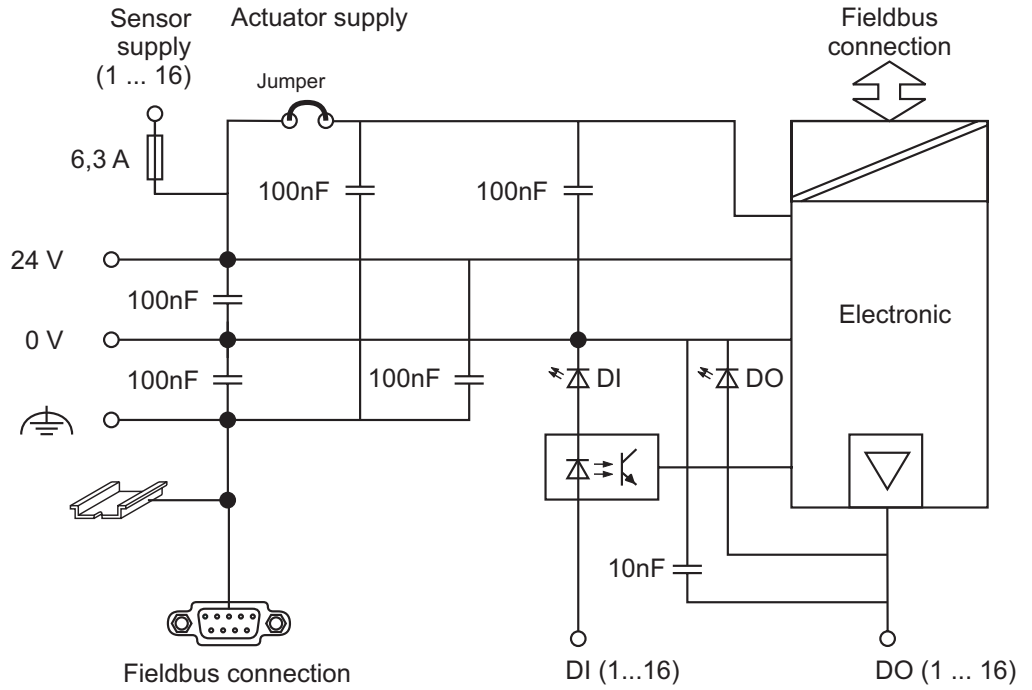


Fig. 5-1: Schematic Circuit Diagram

g1x2309e

6 Status Indicators

The electronic module incorporates LED's for displaying the status of the fieldbus connection, the status of the inputs and outputs, and interference in the output circuit.

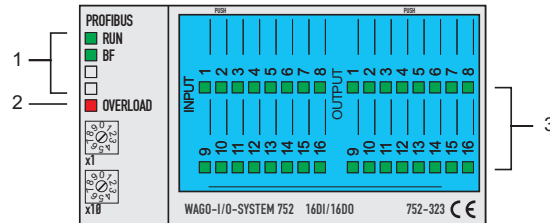


Fig. 6-1: Status Indicators

g1x2305x

- 1 Fieldbus (PROFIBUS) specific status indicators.
- 2 Interference in the output circuit is displayed as a collective fault marked “OVERLOAD”.
- 3 Status LED's for the inputs and outputs are integrated in the area of the marking label.

6.1 Input Status Indicators

The LED's are connected in series with the base module sensor connections, and will illuminate when a threshold input voltage is present.

Input voltage	Input value	LED
-3 V ... +5 V	'0'	OFF
+5 V...+15 V	Not defined	Not defined
+15 V...+30 V	'1'	ON

6.2 Output Status Indicators

The output status LED's display the actual state of each output. They will not be illuminated in the event of a short circuit at the output or a missing supply voltage to the output drivers.

Output value of the higher ranking controls	Fault	LED
'1'	None	ON
'0'	None	OFF
'1'	Short circuit	OFF
'0'	Short circuit	OFF
'1'	No supply	OFF
'0'	No supply	OFF

'1' = Output switched on

'0' = Output switched off

6.3 Fieldbus Interface Status Indicators

LED	Color	Status	Meaning
RUN <i>Operational</i>	Green	ON	The supply voltage is within the tolerance range, the equipment is operative
		OFF	Equipment not operative, insufficient supply voltage
BF <i>Bus Failure</i>	Red	ON	The watchdog of the station has detected a time-out in the communication with the PROFIBUS DP master or the station has not yet been parameterized and configurized by the master.
		OFF	The data is being transmitted between the station and the PROFIBUS DP master.

6.4 Overload Status Indicator

The LED designated “OVERLOAD”, when illuminated, indicates the presence of an output fault.

Possible output faults:

- Short circuit of one or more outputs
- Missing supply voltage to the output drivers
- Fault of an output driver
- Feedback

A fault is detected if a transmitted value of “1” by the master controller does not produce a threshold voltage at a corresponding output.

When an output fault is detected, the electronic module transmits a periphery fault signal to the fieldbus controller board. The I/O module switches the LED off again once the fault has been corrected, and after a 1 second delay, cancels the periphery fault message.

7 PROFIBUS

7.1 Review

The PROFIBUS-Specification (EN 50 170, Vol. 2) specifies the technical and functional features for the networking of distributed field automation devices. PROFIBUS distinguishes Master and Slave devices. The WAGO PROFIBUS I/O Module belong to the Slave device category and transfer or accept messages to/from the Master.



Further information

The PNO provides further documentation for its members in INTERNET:

- Technical descriptions
- Guidelines

<http://www.profibus.com/>

7.2 GSD files

Under PROFIBUS DP the features of the modules are defined by the manufacturers in the form of a GSD file (unit basic data).

Structure, content and coding of this unit main data are standardised and made available to the user allowing to project optional DP slaves using the project units of various manufacturers.



Further information

The PNO provides information about the GSD files of all listed manufacturers.

GSD and symbol files for the configuration of the I/O modules are available under the order number 750-910 on disks or from the WAGO INTERNET page.

<http://www.wago.com>

GSD files for I/O Module 752-323	WAGOB760.GSD
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The GSD file is read by the configuration software and the corresponding settings transmitted. For the necessary inputs and handling steps please refer to the software user manuals.

7.3 Parameterization

The I/O Module expect 12 Byte parameter from the master

- 7 Standard parameter (Byte 0 ... Byte 6)
- 5 User parameter (Byte 7 ... Byte 11)

Byte	Information	Description
0	Stations status	Standard parameter see EN 50170 Vol. 2
1	Watchdog factor 1	
2	Watchdog factor 2	
3	Min T _{SDR}	
4	Manufacturer code (high byte)	
5	Manufacturer code (low byte)	
6	Group allocation	
7	0 0 0 0 0 0 WD 0 0	Watchdog Base (0 = Time base 10 ms, 1 = Time base 1 ms)
8	0 0 0 0 0 0 0 0 0	reserved (ever 0)
9	0 0 0 0 0 0 0 0 0	reserved (ever 0)
10	0 0 0 0 0 0 0 0 0	reserved (ever 0)
11	0 0 0 0 0 0 0 0 0	reserved (ever 0)

The Bit “Watchdog Base” determines the referred time base for the Watchdog factor.

7.4 Configuration

The configuration of inputs and outputs are defined with two identifier bytes. The identifier bytes of the respective process data image have no consistency.

I/O Module		Identifier	
		Byte 1 Inputs	Byte 0 Outputs
Electronic-Module	752-323	0x11 (17)	0x21 (33)
Base-Module	752-823		

The identification bytes contain information about the design and structure of the unit inputs and outputs.

Bit								Meaning	
7	6	5	4	3	2	1	0		
				0	0	0	0	Data length 1 byte or word	
				0	0	0	1	2 bytes or words	
				0	0	1	0	3 bytes or words	
				
				1	1	1	1	16 bytes or words	
		0	0					Input and output spec. identification formats	
		0	1					Input	
		1	0					Output	
		1	1					Input and output	
	0							Format 0 = Byte structure	
	1							1 = Word structure	
0								Consistence over Byte or word	
1								Total length	

7.5 Diagnosis

The slave diagnosis of the I/O module provides 6 Byte standard diagnosis and 7 Byte device status diagnosis.

Byte	Information								Meaning
0	Station status 1								Standard diagnosis see EN 50170 Vol. 2
1	Station status 2								
2	Station status 3								
3	Master address								
4	Manufacturer code High Byte								
5	Manufacturer code Low Byte								
6	0	0	0	0	0	1	1	1	Diagnostic header (7 Byte ext. Diagnostic incl. header)
7	0	0	0	0	DS4	DS3	DS2	DS1	diagnostic bit (0=no error, 1=error)
8	0	0	0	0	0	0	0	0	reserved (ever 0)
9	0	0	0	0	0	0	0	0	reserved (ever 0)
10	0	0	0	0	0	0	0	0	reserved (ever 0)
11	0	0	0	0	0	0	0	0	reserved (ever 0)
12	0	0	0	0	0	0	0	0	reserved (ever 0)

A diagnostic bit DSx covers a group of 4 outputs.

diagnostic bit	Corresponding output group
DS1	DO1 ... DO4
DS2	DO5 ... DO8
DS3	DO9 ... DO12
DS4	DO13 ... DO16

The diagnostic status bit is set to '0' when the status of an output does not coincide with the status read back internally.

Valid reasons for the activation of a diagnostic message:

- Missing voltage supply to the output drivers
- Short circuit of an output conductor
- Overload at the output
- Internal fault of an output driver

A diagnostic status bit is set if a transmitted value of '1' by the master controller does not produce a threshold voltage at a corresponding output.

When such a fault is detected, the electronic module transmits a periphery fault signal to the fieldbus controller board, and illuminates the "OVERLOAD" LED. The I/O module switches the LED off again once the fault has been corrected, and after a 1 second delay, cancels the periphery fault message.

7.6 Process Data Image

The Process Data Image is divided into the input and the output image.

Abbreviation	Description
DIx	Status of the Digital Input „x“
DOx	Status of the Digital Output „x“
Byte 0 (in)	1. Byte of the I/O Module in the Input Process Image
Byte 1 (in)	2. Byte of the I/O Module in the Input Process Image
Byte 0 (out)	1. Byte of the I/O Module in the Output Process Image
Byte 1 (out)	2. Byte of the I/O Module in the Output Process Image
.x	Bit position in the byte

7.6.1 Process Data Input Image

Byte		.7	.6	.5	.4	.3	.2	.1	.0
0 (In)	DIx	8	7	6	5	4	3	2	1
1 (In)	DIx	16	15	14	13	12	11	10	9

7.6.2 Process Data Output Image

Byte		.7	.6	.5	.4	.3	.2	.1	.0
0 (Out)	DOx	8	7	6	5	4	3	2	1
1 (Out)	DOx	16	15	14	13	12	11	10	9

7.7 Fieldbus Controller Boards

Master control systems such as PLC's communicate to fieldbus devices on a network via fieldbus controller boards.

WAGO offers the WAGO-I/O-SYSTEM 758 PC Interface PCB fieldbus controller board.

Fieldbus controller boards for programmable logical controls are available from other manufacturers.

7.8 Configuration Software

Before a PLC can communicate I/O data with a fieldbus device, the fieldbus controller board has to be configured for each field bus device on the network.

To accomplish this, the WAGO-I/O-SYSTEM 758 fieldbus controller board is delivered with WAGO *NETCON* software for configuring and diagnosing fieldbus networks.

Configuration Software are available from other manufacturers.



Further Informationen

GDS and Symbol files for the configuration of I/O modules available with the item no. 750-910 on floppy disk or on the INTERNET Site of WAGO.

<http://www.wago.com>

8 Accessories

Accessories	Article No.	Pcs. per packing unit
Type and GSD files (floppy disk)	750-910	1
Marking label 16 DI/16DO	752-102	1 sheet (9 labels)
Replacement fuse F1 (TR 5 / 250 V / 6.3A T) Micro-fuse according to IEC 127-3 Note: Use UL-Recognized fuse only	752-180	5
Felt tipped pen for non-smudge writing	210-110	1
Operating tool (screw driver)		
- Blade (2.5x0.4) mm	210-119	1
- Blade (3.5x0.4) mm	210-120	1
- with part. insulated shank, blade (2.5x0.4) mm	210-619	1
- with part. insulated shank, blade (3.5x0.4) mm	210-620	1

9 Glossary

Actuator	Device driven by the I/O module.
Base Module	Wiring level to connect the supply, the fieldbus conductors and the sensors and actuators.
Electronic Module	Plug-in component from the WAGO-I/O-SYSTEM 752
Fieldbus controller board	<p>[Master] Bus master which, as a higher ranking unit, controls the data transmission on the bus. It interrogates the input and status values of the slave devices and transmits output and control data to them. Processing unit for the interrogation of and access to the decentral fieldbus equipment. It is the fieldbus master which co-ordinates the bus traffic and transfers the data to a control system.</p>
Group	<p>[Input / output group, connection group] General grouping of I/O channels. With their 8 channels, outputs form a supply group.</p>
I/O addresses	<p>[I/O register] Input / output area(s) for the I/O data</p>
I/O data	Input / Output data
I/O module	Any fieldbus device from the WAGO-I/O-SYSTEM 752 series consisting of a base module and an electronic module for the recording and output of digital signals.
I/O point	Input / output point, signal input or output
Master	Fieldbus controller board
Sensor	<p>[Generator, initiator] Device interrogated by the I/O module.</p>
Slave	Bus slave addressed by a fieldbus master.



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