WAGO I/O System 750/753

Controller PFC300; 2 x ETHERNET, RS-485

750-8302

Product manual
Valid for FW version 04.06.xx(28)
3130953995 | 3 | en-US | 2024-12-16 12:40

WAGO GmbH & Co. KG
Hansastraße 27
D - 32423 Minden
Phone: +49 571/887 – 0
Fax: +49 571/887 – 844169
E-Mail: ✉ **info@wago.com**
Internet: **www.wago.com**

Technical Support
Phone: +49 571/887 – 44555
Fax: +49 571/887 – 844555
E-Mail: ✉ **support@wago.com**

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.

E-Mail: ✉ **documentation@wago.com**

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

WAGO is a registered trademark of WAGO Verwaltungsgesellschaft mbH.

Table of Contents

1 Provisions ... 4
1.1 Scope of Applicability ... 4

2 Overview ... 5

3 Properties ... 6
3.1 View ... 6
3.2 Connections ... 7
3.2.1 Power Supply ... 7
3.2.2 Network Interfaces ... 7
3.2.3 Service Interface ... 8
3.2.4 Communication Interface ... 8
3.3 Power Jumper Contacts/Field Supply ... 9
3.4 Memory Card Slot ... 9
3.5 Indicators ... 10
3.5.1 Power Supply LED Indicators ... 10
3.5.2 System/Fieldbus LED Indicators ... 10
3.5.3 Network Connection LED Indicators ... 11
3.5.4 Memory Card Slot LED Indicator ... 11
3.6 Control Elements ... 11
3.6.1 Mode Selector Switch ... 11
3.6.2 Reset Button ... 12
3.7 Schematic Circuit Diagram ... 12

4 Functions ... 13
4.1 Function Overview ... 13
4.2 WBM Page Overview and Access Rights ... 13

5 Planning ... 16
5.1 Requirements for Wiring and Accessories ... 16
5.1.1 Overcurrent Protection ... 16
5.1.2 Using the Network Interfaces ... 16
5.1.3 Using the Communication Interface ... 17
5.1.4 Using the Memory Card ... 18
5.1.5 Accessories ... 18
5.2 CODESYS V3 Compatibility ... 19

6 Diagnostics ... 20
6.1 Diagnostics via Indicators ... 20
6.1.1 Diagnostics via LED Indicators – Power Supply ... 20
6.1.2 Diagnostics via LED Indicators – System/Fieldbus ... 20
6.1.3 Diagnostics via LED Indicators – Network Connections ... 23
6.1.4 Diagnostics via LED Indicators – Memory Card Slot ... 23

7 Service ... 25
7.1 Inserting and Removing a Memory Card ... 25

8 Appendix ... 26
8.1 Technical Data, Approvals, Guidelines and Standards ... 26
8.1.1 Data Sheet 750-8302 ... 27

1 Provisions

1.1 Scope of Applicability

This document applies to the following products:

750-8302 (PFC300; 2ETH RS485)
Controller PFC300; 2 x ETHERNET, RS-485

Version Firmware	04.06.xx(28)
Detailed Product Page	http://www.wago.com/750-8302

Note

Note applicable documents!

The complete operating instructions for the products consist of several applicable documents. The products must only be installed and operated in accordance with the complete operating instructions. Knowledge of all applicable documents is required for proper use. Please find all documents and information on the detailed product pages.

Applicable documents

System Manual I/O System 750/753

- Provisions
- Safety
- Planning
- Transport and Storage
- Assembly and Disassembly
- Conductor Termination
- Decommissioning

Function Manual Controller PFC100 G2/PFC200 G2/PFC300

- Functions
- Commissioning
- Configuration
- Service

Additional documents

Manual to CODESYS V3.5

Manual Migration Guide; Migration from ***e!****COCKPIT* to CODESYS V3.5

2 Overview

The PFC300 Controller is a compact PLC for the modular WAGO I/O System. Besides network and fieldbus interfaces, the controller supports all digital, analog and specialty modules found within the 750/753 Series. Two ETHERNET interfaces and an integrated switch enable line topology wiring. An integrated Webserver provides user configuration options, while displaying PFC300 status information. Besides the processing industry and building automation, typical applications for the PFC300 include standard machinery and equipment control (e.g., packaging, bottling and manufacturing systems, as well as textile, metal and wood processing machines).

3 Properties

3.1 View

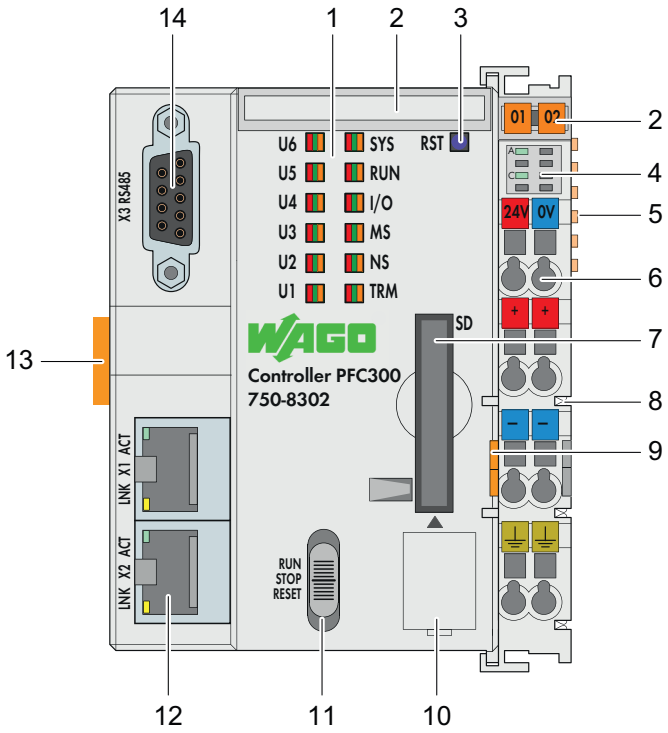

Figure 1: View

1	LED Indicators – System/Fieldbus	System/Fieldbus LED Indicators [▶ 10]
2	Slot for Mini-WSB (optional)	System Manual I/O System 750/753
3	Reset button (in hole)	Reset Button [▶ 12]
4	LED Indicators – Power Supply	Power Supply LED Indicators [▶ 10]
5	Data contacts	System Manual I/O System 750/753
6	CAGE CLAMP® connections for power supply	Power Supply [▶ 7]
7	Slot for memory card	Memory Card Slot [▶ 9]
8	Power jumper contacts for power supply of down-circuit I/O modules	Power Jumper Contacts/Field Supply [▶ 9]
9	Release tab	System Manual I/O System 750/753
10	Service interface (behind the flap)	Service Interface [▶ 8]
11	Mode selector switch	Mode Selector Switch [▶ 11]
12	ETHERNET connections (RJ45) – X1, X2	Network Interfaces [▶ 7] Network Connection LED Indicators [▶ 11]
13	DIN-rail locking cam	System Manual I/O System 750/753
14	Communication interface – X3	Communication Interface [▶ 8]

3.2 Connections

3.2.1 Power Supply

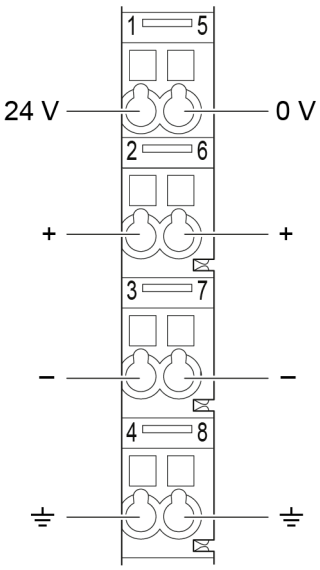

Figure 2: Wiring Interface

Connection	Designation	Description
1	24 V	System power supply voltage: +24 V
2	+	Field supply voltage U_V
3	–	Field supply voltage: 0 V
4	Ground	Field supply voltage ground
5	0 V	System power supply voltage: 0 V
6	+	Field supply voltage U_V
7	–	Field supply voltage: 0 V
8	Ground	Field supply voltage ground

3.2.2 Network Interfaces

The “X1” and “X2” network interfaces are designed as RJ45 sockets.

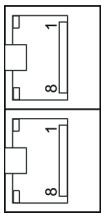

Figure 3: Network Interfaces (RJ45)

Contact	Signal	Description
1	D1+	
2	D1–	
3	D2+	
4	D3+	
5	D3–	
6	D2–	
7	D4+	

Contact	Signal	Description
8	D4−	

3.2.3 Service Interface

The service interface is designed as a USB-C interface and is located behind a cover flap.

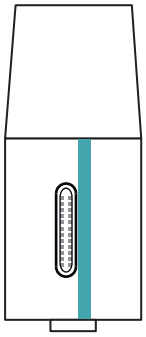

Figure 4: USB Service Port

3.2.4 Communication Interface

The communication interface is designed as a 9-pole SUB-D socket.

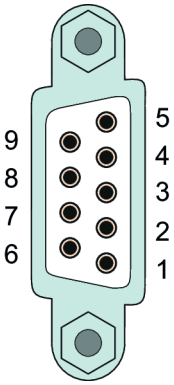

Figure 5: Communication Interface

Table 1: Pin Assignment of Communication Interface

Contact	RS-485	
	Signal	Description
1	NC	Not assigned
2	NC	Not assigned
3	A (Tx/Rx+)	Transmit/receive data +
4	NC	Not assigned
5	FB_GND	Ground
6	FB_5V	Power supply
7	NC	Not assigned
8	B (Tx/Rx−)	Transmit/receive data −
9	NC	Not assigned
Housing	Shield	Shield

The communication interface has a two-stage, on/off switchable bias network (1) and an on/off switchable bus termination resistor (2).

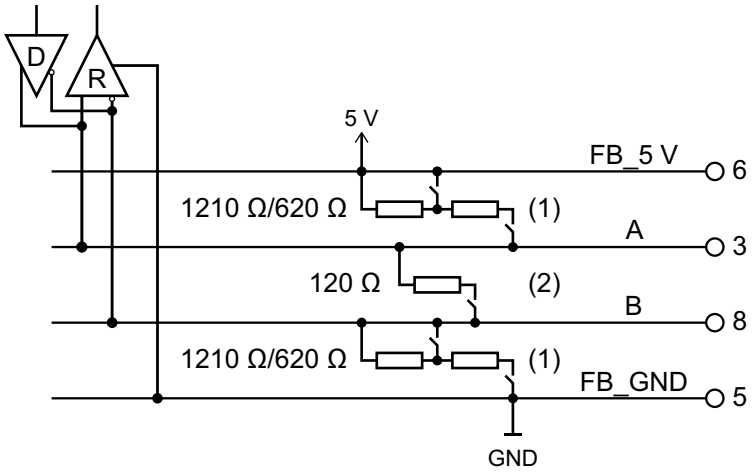

Figure 6: Communication interface, bus termination and bias network

3.3 Power Jumper Contacts/Field Supply

The self-cleaning power jumper contacts on the housing side have a spring-contact design.
The field supply voltage is passed on to downstream I/O modules via these contacts.

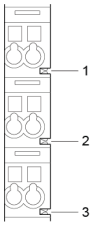

Figure 7: Power Jumper Contacts

Contact	Type	Function
1	Spring contact	Potential transmission (U_V) for field supply
2	Spring contact	Potential transmission (0 V) for field supply
3	Spring contact	Potential transmission (ground) for field supply

3.4 Memory Card Slot

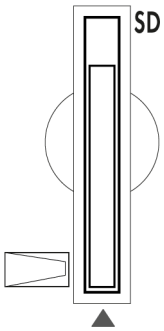

Figure 8: Memory Card Slot

The slot for the SD memory card is located on the front of the housing. The memory card is locked in the housing with a push-push mechanism. Inserting and removing the memory card is described in the section **Inserting and Removing a Memory Card [▶ 25]**! The memory card is protected by a cover flap. The cover flap is sealable.

3.5 Indicators

3.5.1 Power Supply LED Indicators

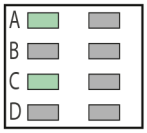

Figure 9: LED Indicators – Power Supply

Designation	Color	Description
A	Green/off	Status of system power supply voltage
C	Green/off	Status of field-side power supply voltage

The meanings of the indicated states are described in **Diagnostics via LED Indicators – Power Supply [▶ 20]**.

3.5.2 System/Fieldbus LED Indicators

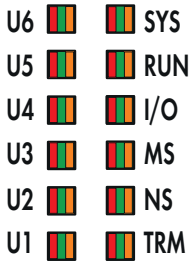

Figure 10: System/Fieldbus LED Indicators

Designation	Color	Description
SYS	Red/green/orange/off	System status
RUN	Red/green/orange/off	PLC program status
I/O	Red/green/orange/off	Local bus status
MS	Red/green/orange/off	Module status
NS	Red/green/orange/off	No function
TRM	Red/green/orange/off	Termination of the communication interface
U6 ... U1	Red/green/orange/off	User LED, programmable using function blocks from the WAGO libraries for LED control

The meanings of the indicated states are described in **Diagnostics via LED Indicators – System/Fieldbus [▶ 20]**.

3.5.3 Network Connection LED Indicators

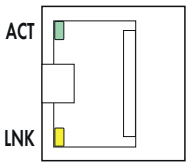

Figure 11: Network Connection LED Indicators

Designation	Color	Description
ACT	Green/Off	ETHERNET data exchange
LNK	Yellow/Off	ETHERNET connection status

The meanings of the indicated states are described in **Diagnostics via LED Indicators – Network Connections [▶ 23]**.

3.5.4 Memory Card Slot LED Indicator

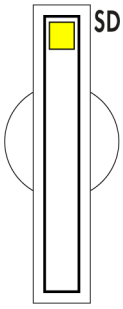

Figure 12: Memory Card Slot LED Indicator

Designation	Color	Description
SD	Yellow/off	Memory card status

The meanings of the indicated states are described in **Diagnostics via LED Indicators – Memory Card Slot [▶ 23]**.

3.6 Control Elements

3.6.1 Mode Selector Switch

Figure 13: Mode Selector Switch

The operating mode switch has the following functions:

Table 2: Mode Selector Switch

Pos.	Actuation	Function
RUN	Latching	**Normal operation** CODESYS V3 applications are running

Pos.	Actuation	Function
STOP	Latching	**Stop** All CODESYS V3 applications have stopped
RESET	Spring-return	Warmstart Reset or Coldstart Reset (depending on how long it is actuated)

Other functions can also be triggered with the reset button.

3.6.2 Reset Button

Figure 14: Reset Button

The reset button is installed within a recess to prevent accidental operation. It is a short-travel button with a low actuating force of 1.1 … 2.1 N (110 … 210 gf). The button can be pressed with suitable object (e.g., a pen).

You can use the reset button to trigger various functions depending on the position of the mode selector switch:

- Temporarily set fixed IP addresses
- Perform a software reset (restart)
- Reset settings

3.7 Schematic Circuit Diagram

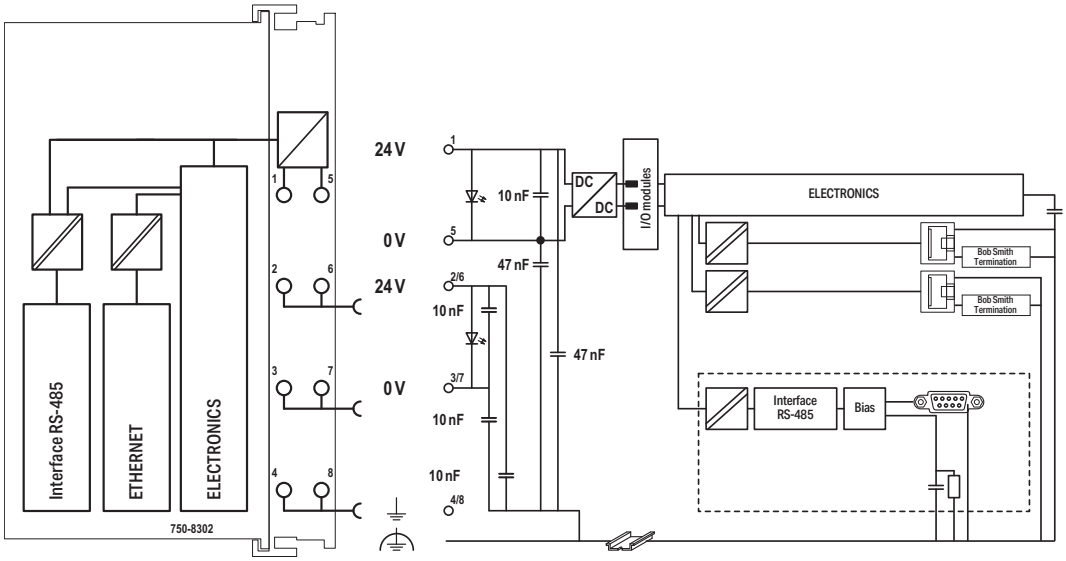

Figure 15: Schematic Circuit Diagram

4 Functions

4.1 Function Overview

System Functions

- Product and system status
- Real-time clock
- Data backup
- Memory card function
- CODESYS V3 runtime environment

Hardware Functions

- Mode selector switch/reset button
- Communication Interface
- Service Interface

Configuration Functions

- Web-based Management (WBM)

Network Functions

- Network configuration
- Network security
- Network services

Cloud Connectivity

Fieldbus Functions

- BACnet
- OPC UA

Diagnostic Functions

- Diagnostics via Indicators
- Diagnostics via WBM

4.2 WBM Page Overview and Access Rights

The WBM pages require the access rights listed in the table below. Users with lower privileges may not be able to access the pages or may only be able to view them.

Table 3: Access Rights for WBM Pages

Tab	Navigation	WBM Page Title	User
Information	Device Status	Device Status	user
	Vendor Information	Vendor Information	user
	PLC Runtime	PLC Runtime Information	user
	Legal Information		
	WAGO Licenses	WAGO Software License Agreement	user

Tab	Navigation		WBM Page Title	User
		Open Source Licenses	Open Source Licenses	user
		WBM Licenses	WBM Third Party License Information	user
		Trademarks Information	Trademarks Information	
	WBM Version		WBM Version Info	user
Configuration	PLC Runtime		PLC Runtime Configuration	user
	Networking			
		TCP/IP Configuration	TCP/IP Configuration	user
		Ethernet Configuration	Ethernet Configuration	user
		Host-/Domain Name	Configuration of Host and Domain Name	user
		Routing	Routing	user
		STP/RSTP	Spanning Tree Protocol	user
	Clock		Clock Settings	user
	Administration			
		Serial Interface	Configuration of Serial Interface RS485	admin
		Service Interface	Configuration of Service Interface	admin
		Create Image	Create bootable Image	admin
	Package Server			
		Firmware Backup	Firmware Backup	admin
		Firmware Restore	Firmware Restore	admin
		Active System	Active System	admin
	Mass Storage		Mass Storage	admin
	Software Uploads		Software Uploads	admin
	Ports and Services			
		Network Services	Configuration of Network Services	admin
		NTP Client	Configuration of NTP Client	admin
		PLC Runtime Services	PLC Runtime Services	admin
		SSH	SSH Server Settings	admin
		DHCP Server	DHCP Server Configuration	admin
		DNS	Configuration of DNS Server	admin
	Cloud Connectivity			
		Status	Overview	admin
		Connection 1	Configuration	admin
		Connection 2	Configuration	admin
	SNMP			
		General Configuration	Configuration of general SNMP Parameters	admin
		SNMP v1/v2c	Configuration of SNMP v1/v2c Parameters	admin
		SNMP v3	Configuration of SNMP v3 Parameters	admin
	Commissioning		Commissioning Settings	admin
	Docker		Docker Settings	admin
	Users		WBM User Configuration	admin
Fieldbus	OPC UA		OPC UA Configuration	admin
Security	Open VPN/IPsec		OpenVPN / IPsec Configuration	admin
	Firewall			
		General Configuration	General Firewall Configuration	admin
		Interface Configuration	Interface Configuration	admin
		MAC Address Filter	Configuration of MAC address filter	admin
		User Filter	Configuration of User Filter	admin

Tab	Navigation	WBM Page Title	User
	Certificates	Certificates	admin
	Boot Mode	Boot mode configuration	admin
	TLS	Security Settings	admin
	Integrity	Advanced Intrusion Detection Environment (AIDE)	admin
	WAGO Device Access	WAGO Device Access	admin
Diagnostic	Log Message	Log Message Viewer	user
	Download	Download	admin
	Network Capture	Network Capture	admin

5 Planning

This section provides helpful information for planing the use of the product in a node.

5.1 Requirements for Wiring and Accessories

5.1.1 Overcurrent Protection

The controller has no internal overcurrent protection.

For each power supply to the controller, appropriate overcurrent protection must be implemented externally, e.g., via fuses.

Without overcurrent protection, the controller electronics can be damaged.

If you implement overcurrent protection for the power supply via external fuses, use the following fuses:

Table 4: Protection of the Power Supply

24 V Input Voltage	Suitable Fuse
System power supply	Max. 2 A, slow; min. 30 VDC
Field supply	max. 10 A; min. 30 VDC

Additional information, e.g., on the type of power supply (SELV/PELV), can be found in 🕮 **System Manual I/O System 750/753**.

5.1.2 Using the Network Interfaces

As delivered, all ports are assigned to Bridge1. The “Configuration mode” is set to “DHCP.”

One common network with one common IP address for both ports

Figure 16: 1 bridge with 2 ports

Table 5: Assignment of MAC IDs and IP addresses for 1 bridge with 2 ports

Bridge	MAC ID	IP Addr.	Port	MAC ID	Port	MAC ID
1	01	1	X1	02	X2	03

Two separate networks where each port has its own IP address

Figure 17: 2 bridges with 1/1 ports

Table 6: MAC ID and IP address assignment for 2 bridges with 1/1 ports

Bridge	MAC ID	IP Addr.	Port	MAC ID	Port	MAC ID
1	01	1	X1	01		
2	02	2			X2	02

5.1.3 Using the Communication Interface

ⓘ Note

Attention — bus termination!

The RS-485 bus must be terminated at both ends! No more than two terminations per bus segment may be used! Terminations may not be used in stub and branch lines! Drop cables must be kept as short as possible! Operation without proper termination of the RS-485 network may result in transmission errors.

To minimize reflection at the end of the line, the RS-485 line must be connected at both ends with a line terminator. If required, one pull-up/pull-down resistor may be used as a bias network. This bias network ensures a defined level on the bus when no subscriber is active, i.e., when all subscribers are in "Tri-State".

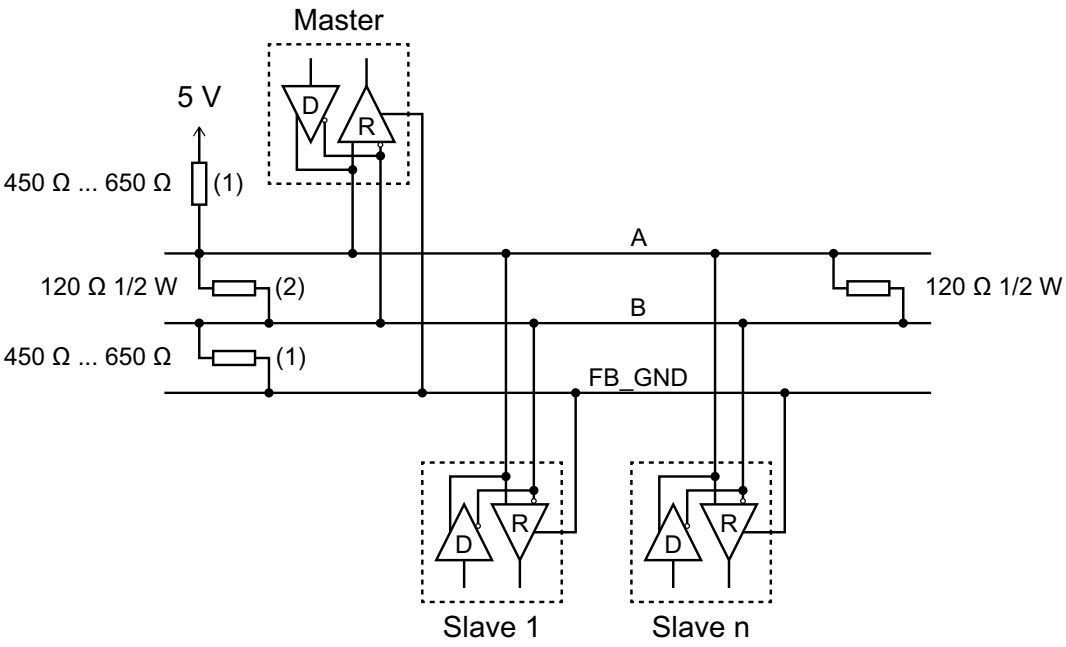

Figure 18: RS-485 Bus Termination

For easier wiring, the bias and termination resistors built into the communication interface can be activated." Observe the above information!

The external BIAS resistors (1) and the external terminating resistor (2) are only required if the built-in resistors are not enabled.

ⓘ Note

Transmission errors in the event of inappropriate RS-485 configuration!

For baud rates lower than 115200 baud, configure the RS-485 interface with two stop bits and parity enabled (even or odd) to avoid transmission errors.

5.1.4 Using the Memory Card

Use of a memory card is optional. A memory card is not included with delivery and must be ordered separately (see Accessories [▶ 18]).

Only use memory cards available from and recommended by WAGO, as these are specified for industrial applications under adverse environmental conditions and for use in this device. Compatibility with other commercially available memory cards cannot be guaranteed.

5.1.5 Accessories

Table 7: Recommended Accessories

Item No.	Item Description
Memory Cards	
758-879/000-001	SD Memory Card; SLC NAND, 2 GB; temperature: −40 … 90 °C
758-879/000-2108	SD Memory Card; pSLC-NAND; 8 GB Temperature range: −40 … +90 °C

5.2 CODESYS V3 Compatibility

Table 8: Compatibility Overview

Device Description	Firmware *)	Compiler	Visualization Profile
6.3.1.xx	04.06.xx (28)	3.5.19.7	CODESYS Visualization 4.6.0.0

***) Notes on firmware versions:**

- Not every new firmware contains a new version of the runtime environment, which is why the compiler version and visualization profile may remain unchanged.
- As a general rule, the compatibility also extends to hotfix and patch versions of the firmware, assuming only the bugfix point of the firmware version is different (example: “FW:01.02.xx(03)”).

6 Diagnostics

6.1 Diagnostics via Indicators

6.1.1 Diagnostics via LED Indicators – Power Supply

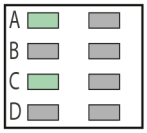

Figure 19: LED Indicators – Power Supply

The “A” (system power supply) LED indicates the following diagnostics:

Table 9: Diagnostics LED – System Power Supply

Status	Explanation	Remedy
Green	24 V system power supply present	--
Off	No 24 V system power supply present	1. Turn the power supply on. 2. Check the power supply.

The “C” (field supply) LED displays the following diagnostics:

Table 10: Diagnostics LED – Field Supply

Status	Explanation	Remedy
Green	24 V field power supply present	--
Off	No 24 V field power supply present	1. Turn the power supply on. 2. Check the power supply.

6.1.2 Diagnostics via LED Indicators – System/Fieldbus

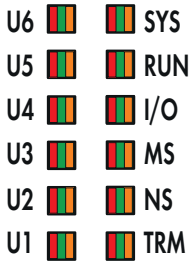

Figure 20: System/Fieldbus LED Indicators

The “SYS” LED indicates the following diagnostics:

Table 11: “SYS” Diagnostic LED

Status	Explanation	Remedy
Green	Ready for operation; system start completed without errors	---
Orange	Device startup/boot process in progress and RST button not pressed	---
Orange, flashing	“Fix IP Address” mode; temporary setting until next reboot	1. Connect to the device via the default address (192.168.1.17). 2. Restart the device to restore the original value setting.

Status	Explanation	Remedy
Geen/red, flashing	Firmware update mode	---
Red, flashing	No license, evaluation period has expired	The libraries or device functions in question are ??? shown. 1. Activate the associated licenses immediately. 2. Alternatively, remove the libraries or device functions from your application.
Red/orange, flashing	No license, evaluation period not yet expired	The libraries or device functions in question are shown ???. 1. Activate the associated licenses before the trial period expires. 2. Alternatively, remove the libraries or device functions from your application. The device has unrestricted functionality until the evaluation period ends. Once the evaluation period ends, it is no longer possible to start the device without activating the corresponding licenses.

The “RUN” LED displays the PLC program status with the following diagnostics:

Table 12: “RUN” Diagnostic LED

Status	Explanation	Remedy
Green	Applications loaded and all have status “RUN”	---
Green, flashing	No application and no boot project loaded	• Load an application or boot project.
Red	Applications loaded and all have status “STOP”	• Set the mode selector switch to “RUN” to start the application.
Geen/red, flashing	At least one application with status “RUN” and status ”STOP”	• Start the stopped application.
Red, goes out briefly once	Warm start reset completed	---
Red, goes out longer once	Cold start reset completed	---
Red, flashing	At least one application after exception (e.g., memory access error) in the “STOP” status	1. Restart the application by resetting via the mode selector switch or in the associated IDE. 2. If the application cannot be started, restart the controller. 3. Contact WAGO Support if the error occurs again.
Orange/green, flashing	Load above threshold value 1	• Try to reduce the load on the system: • Change the CODESYS program. • Terminate any fieldbus communication that is not essential or reconfigure the fieldbuses. • Remove any non-critical tasks from the RT area. • Select a longer cycle time for IEC tasks.

Status	Explanation	Remedy
Orange	Runtime system in debug state (breakpoint, step mode, individual cycle)	1. Resume the application in the associated IDE with step mode or start. If applicable, remove breakpoints. 2. If the connection has been interrupted, set the mode selector switch to “STOP” and then back to “RUN” to enable the application to continue.
Off	No runtime system loaded	• Activate a runtime system, e.g., via the WBM.

The “I/O” LED indicates the following diagnostics:

Table 13: “I/O” Diagnostic LED

Status	Explanation	Remedy
Green	Data cycle on the local bus, normal operating status.	---
Orange, flashing	Startup phase; the local bus is being initialized. The startup phase is indicated by rapid flashing for about 1 ... 2 seconds.	• Wait until initialization has completed.
Red	A hardware fault is present.	• Contact WAGO Support.
Red, flashing (2 Hz)	An error is present which it may be possible to eliminate.	1. First, try to eliminate the error by switching the device (power supply) off and then back on. 2. Check the entire node structure for any errors. 3. If you cannot eliminate the error, contact WAGO Support.
Red, flashing (flashing sequence)	There is a local bus error.	An explanation of the flashing sequence can be found in section “Diagnostics via Flashing Sequences.” • Follow the instructions described there.
Off	A library was not loaded, or a library function was not called.	• Restart the device. If you cannot eliminate the error, contact WAGO Support.

The “MS” LED indicates the following diagnostics:

Table 14: “MS” Diagnostic LED

Status	Explanation	Remedy
Off	No error	---
Red, flashing (flashing sequence)	There is a configuration error.	An explanation of the flashing sequence can be found in section “Diagnostics via Flashing Sequences.” • Follow the instructions described there.

The “TRM” LED indicates the following diagnostics:

Table 15: Diagnostic LED "TRM"

Status	Explanation	Remedy
Off	No bus termination and no BIAS network enabled at the communication interface	---
Green	Bus termination and/or BIAS network enabled at the communication interface	---

6.1.3 Diagnostics via LED Indicators – Network Connections

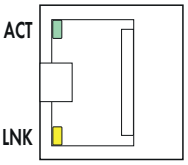

Figure 21: Network Connection LED Indicators

The “ACT” LED displays ETHERNET communications status with the following diagnostics:

Table 16: “ACT” diagnostic LED

Status	Explanation	Remedy
Off	No network communication	• If necessary, check the network connections and network settings.
Green, flashing	Network communication occurring.	---

The “LNK” LED displays ETHERNET connection status with the following diagnostics:

Table 17: “LNK” Diagnostic LED

Status	Explanation	Remedy
Off	No network connection established	• If necessary, check the network connections and network settings.
Yellow	Network connection established.	---

6.1.4 Diagnostics via LED Indicators – Memory Card Slot

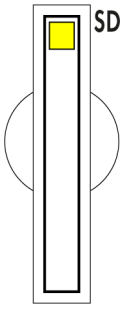

Figure 22: Memory Card Slot LED Indicator

The LED for the memory card slot displays the memory card status with the following diagnostics:

Table 18: Memory Card Slot Diagnostic LED

Status	Explanation	Remedy
Off	No read or write access to the memory card	---
Flashing yellow	Read or write access to the memory card	---
Yellow, steady	Read or write access to the memory card	---

7 Service

7.1 Inserting and Removing a Memory Card

Inserting a Memory Card

1. Use an operating tool or screwdriver to open the transparent cover flap by folding it upwards. An error indicates where to apply the tool.
2. Hold the memory card as depicted in the figure below, with the contacts visible on the right and the diagonal edge upwards.
3. Insert the memory card into the slot provided for it in this position.
4. Push the memory card all the way in. When you let go, the memory card will move back a little and then snap in place (a push-push mechanism).
5. Push the cover flap back in by folding it downwards until it snaps in.
6. You can seal the closed flap through the hole in the enclosure next to the flap.

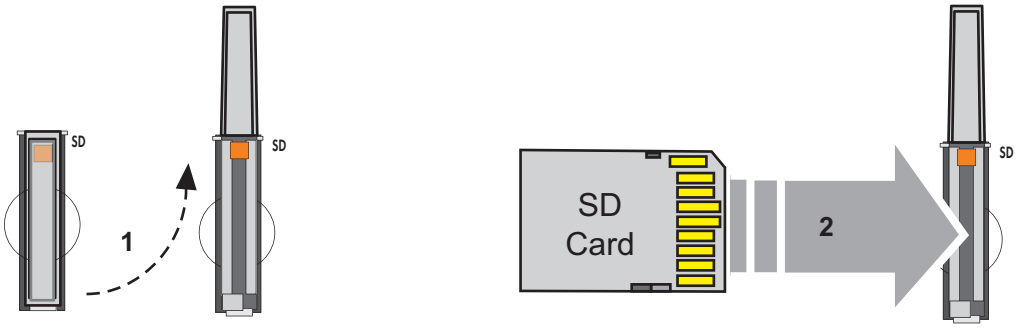

Figure 23: Inserting a Memory Card

Removing a Memory Card

1. Remove any seal.
2. Use an operating tool or screwdriver to open the transparent cover flap by folding it upwards. An error indicates where to apply the tool.
3. To remove the memory card, you must first push it slightly into the slot (a push-push mechanism). This releases the mechanical locking mechanism.
4. As soon as you let go of the memory card, the spring pushes the memory card out a bit.
5. Remove the memory card.
6. Push the cover flap back in by folding it downwards until it snaps in.

8 Appendix

8.1 Technical Data, Approvals, Guidelines and Standards

Note

Subject to changes!

Please also observe the further product documentation! You can generate the current datasheet at any time at: www.wago.com /<item number>.

See also

Data Sheet 750-8302 [▶ 27]

Data Sheet | Item Number: 750-8302
Controller PFC300; 2 x ETHERNET, RS-485
https://www.wago.com/750-8302

The PFC300 Controller is a compact PLC for the modular WAGO I/O System. Besides network and fieldbus interfaces, the controller supports all digital, analog and specialty modules found within the 750/753 Series.
Two ETHERNET interfaces and an integrated switch enable line topology wiring.
An integrated Webserver provides user configuration options, while displaying PFC300 status information.
Besides the processing industry and building automation, typical applications for the PFC300 include standard machinery and equipment control (e.g., packaging, bottling and manufacturing systems, as well as textile, metal and wood processing machines).

Advantages:
- Programmable per IEC 61131-3
- Programmable via CODESYS V3.5
- Direct connection of WAGO I/O Modules
- 2 x ETHERNET (configurable), RS-485
- Linux operating system with RT-Preempt patch
- Configuration via CODESYS or Web-Based Management user interface
- Maintenance-free

Technical data

Communications	ETHERNET RS-485 interface MQTT Fieldbuses integrated into CODESYS: Modbus TCP master/slave Modbus (UDP), WagoAppPlcModbus Library Modbus (RTU), WagoAppPlcModbus Library EtherNet/IP™ Adapter (slave) EtherNet/IP™ Scanner EtherCAT® Master PROFINET Controller (limited) OPC UA Server/Client OPC UA Pub/Sub (can be installed later)
ETHERNET protocols	DHCP DNS NTP SFTP FTP FTPS SNMP HTTP HTTPS SSH
Visualization	Web-Visu
Operating system	Real-time Linux (with PREEMPT_RT patch)
CPU	Dual Core Cortex A53 1.25 GHz
Programming languages per IEC 61131-3	Instruction List (IL) Ladder Diagram (LD) Function Block Diagram (FBD) Continuous Function Chart (CFC) Structured Text (ST) Sequential Function Chart (SFC)
Programming environment	CODESYS V3.5 Includes the following CODESYS features: MULTICORE, WebVisu, License for IIoT Libraries, License for OPC UA PUB/SUB
Configuration options	CODESYS V3 WAGO-I/O-*CHECK* Web-Based Management CODESYS Library
Transmission rate	100/1000 Mbit/s
Transmission medium (communication/fieldbus)	Twisted pair S-UTP; 100 Ω; Cat. 5e; 100 m maximum cable length
Main memory (RAM)	2 GB, LPDDR4 RAM
Internal memory (flash)	32 GB, eMMC Flash
Non-volatile hardware memory	128 KB
Program memory	32 MB
Data memory	512 MB

Technical data

Non-volatile software memory	128 KB
Type of memory card	SD, SDHC and SDXC (all guaranteed properties only valid with the WAGO memory card)
Memory Card Slot	Push-push mechanism; cover lid (sealable)
Number of modules per node (max.)	250
Number of modules without a bus extension (max.)	64
Input and output process image (internal) max.	1000 words/1000 words
Input and output process image (Modbus®) max.	CODESYS V3: 32000 words/32000 words
Indicators	LED (SYS, RUN, I/O, U1 … U7) red/green/orange: Status of system, program, local data bus, status programmable by user (can be used via CODESYS library); LED (A, B) green: Status of system power supply, field supply
Supply voltage (system)	24 VDC (-25 … +30 %); via pluggable connector (CAGE CLAMP® connection)
Input current (typ.) at nominal load (24 V)	550 mA
Total current (system supply)	1700 mA
Supply voltage (field)	24 VDC (-25 … +30 %); via power jumper contacts
Current carrying capacity (power jumper contacts)	10 A
Number of outgoing power jumper contacts	3
Isolation	500 VDC system/field

Connection data

Connection technology: communication/fieldbus	Modbus (TCP, UDP): 2 x RJ-45; Modbus RTU: 1 x D-sub 9 socket; RS-485 interface: 1 x D-sub 9 socket
Connection technology: system supply	2 x CAGE CLAMP®
Connection technology: field supply	6 x CAGE CLAMP®
Connectable conductor materials	Copper
Connection type 1	System/field supply
Solid conductor	0.08 … 2.5 mm² / 28 … 14 AWG
Fine-stranded conductor	0.08 … 2.5 mm² / 28 … 14 AWG
Strip length	8 … 9 mm / 0.31 … 0.35 inches
Connection technology: device configuration	1 x USB-C 2.0

Physical data

Width	78.6 mm / 3.094 inches
Height	100 mm / 3.937 inches
Depth	71.9 mm / 2.831 inches
Depth from upper-edge of DIN-rail	64.7 mm / 2.547 inches

Mechanical data

Weight	207.7 g
Housing material	Polycarbonate; polyamide 6.6
Conformity marking	CE

Environmental requirements

Ambient temperature (operation)	-25 … +60 °C
Ambient temperature (storage)	-25 … +85 °C
Protection type	IP20
Pollution degree	2 per IEC 61131-2
Operating altitude	without temperature derating: 0 … 2000 m; with temperature derating: 2000 … 5000 m (0.5 K/100 m); 5000 m (max.)
Relative humidity (without condensation)	95 %
Mounting position	Horizontal left, horizontal right, horizontal top, horizontal bottom, vertical top and vertical bottom
Mounting type	DIN-35 rail
Vibration resistance	4g per IEC 60068-2-6
Shock resistance	15g per IEC 60068-2-27

Continued on next page

Environmental requirements

EMC immunity to interference	per EN 61000-6-2, marine applications in preparation
EMC emission of interference	per EN 61000-6-3, marine applications in preparation
Exposure to pollutants	per IEC 60068-2-42 and IEC 60068-2-43
Fire load	2.523 MJ
Permissible H_2S contaminant concentration at a relative humidity 75 %	10 ppm
Permissible SO_2 contaminant concentration at a relative humidity 75 %	25 ppm

Environmental Product Compliance

RoHS Compliance Status	Compliant,With Exemption
RoHS Exemption	6(c) 7(a) 7(c)-I 7(c)-II

List of Tables

Table 1	Pin Assignment of Communication Interface	8
Table 2	Mode Selector Switch	11
Table 3	Access Rights for WBM Pages	13
Table 4	Protection of the Power Supply	16
Table 5	Assignment of MAC IDs and IP addresses for 1 bridge with 2 ports	16
Table 6	MAC ID and IP address assignment for 2 bridges with 1/1 ports	17
Table 7	Recommended Accessories	18
Table 8	Compatibility Overview	19
Table 9	Diagnostics LED – System Power Supply	20
Table 10	Diagnostics LED – Field Supply	20
Table 11	“SYS” Diagnostic LED	20
Table 12	“RUN” Diagnostic LED	21
Table 13	“I/O” Diagnostic LED	22
Table 14	“MS” Diagnostic LED	22
Table 15	Diagnostic LED "TRM"	23
Table 16	“ACT” diagnostic LED	23
Table 17	“LNK” Diagnostic LED	23
Table 18	Memory Card Slot Diagnostic LED	24

List of Figures

Figure 1	View	6
Figure 2	Wiring Interface	7
Figure 3	Network Interfaces (RJ45)	7
Figure 4	USB Service Port	8
Figure 5	Communication Interface	8
Figure 6	Communication interface, bus termination and bias network	9
Figure 7	Power Jumper Contacts	9
Figure 8	Memory Card Slot	9
Figure 9	LED Indicators – Power Supply	10
Figure 10	System/Fieldbus LED Indicators	10
Figure 11	Network Connection LED Indicators	11
Figure 12	Memory Card Slot LED Indicator	11
Figure 13	Mode Selector Switch	11
Figure 14	Reset Button	12
Figure 15	Schematic Circuit Diagram	12
Figure 16	1 bridge with 2 ports	16
Figure 17	2 bridges with 1/1 ports	17
Figure 18	RS-485 Bus Termination	18
Figure 19	LED Indicators – Power Supply	20
Figure 20	System/Fieldbus LED Indicators	20
Figure 21	Network Connection LED Indicators	23
Figure 22	Memory Card Slot LED Indicator	23
Figure 23	Inserting a Memory Card	25

WAGO GmbH & Co. KG
Postfach 2880 · D - 32385 Minden
Hansastraße 27 · D - 32423 Minden
✉ **info@wago.com**
www.wago.com

Headquaters	+49 571/887 – 0
Sales	+49 (0) 571/887 – 44 222
Order Service	+49 (0) 571/887 – 44 333
Fax	+49 571/887 – 844169