Controllers

Touch-Panel 600 Standard/Advanced Line; Hardware configuration Control Panel

- Merging of control and visualization
- 10.9 … 25.7 cm (4.3 … 10.1")

◄ Section 3

Controllers PFC200 XTR

The advantages of the PFC Controller combined with the capabilities for extreme environments:

- High processing speed
- Multiple interfaces
- eXTRemely robust and maintenance-free

Section 4.2 ►►

Controllers 750 XTR

For demanding applications in which the following are critical:

- Extreme temperature stability
- Immunity to electromagnetic interference and impulse voltages
- Vibration and shock resistance

Section 4.4 ►►►►

Controllers PFC100/PFC200

- Maximum performance in a minimum space
- Also programmable in high-level languages based on Linux®
- Security packages with SSH and SSL/TLS
- Runtime system for CODESYS V2 (only PFC200) and V3

Section 4.1 ►

Controllers 750

- Controllers for all prominent fieldbus systems
- Programmable to IEC 61131-3
- Combinable with the modules of the WAGO-I/O-SYSTEM 750

Section 4.3 ►►►

Starter Kits

To get you up and running quickly, we offer starter kits to suit the most diverse applications:

- With Controller PFC100
- With Controller PFC200
- With Controller 750 ETHERNET
- With Controller 750 KNX IP or BACnet/IP

Section 4.5 ►►►►►

Controllers
Overview

Advantages:

- Fieldbus-independent – Support all standard fieldbus protocols and ETHERNET standards
- Scalable performance – Controllers, Control Panels, PFC100 and PFC200
- Programming per IEC 61131-3
- Flexible platform adapts to diverse applications and environments
- Combinable with the WAGO-I/O-SYSTEM 750 – Modular, compact, versatile

Controllers PFC100/PFC200

Touch-Panel 600 Standard/Advanced Line; Hardware configuration Control Panel

- Merging of control and visualization
- 10.9 … 25.7 cm (4.3 … 10.1")

◄ Section 3

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Section 4.3 ►►

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Section 4.5 ►►►►

Controllers PFC100/PFC200
Contents

	CPU	Modbus (TCP, UDP)	EtherNet/IP	EtherCAT	PROFINET	PROFIBUS	CANopen	Modbus RTU	Telecontrol protocols	IoT Protocols	Description	Item No. Default	Item No. Ext. Temperature	Page
	Cortex A8; 600 MHz	M/S	S							x	Controller PFC100; 2 x ETHERNET; Eco	750-8100		78
	Cortex A8; 600 MHz	M/S	S							x	Controller PFC100; 2 x ETHERNET	750-8101	750-8101/025-000	79
		M/S	S					x		x	Controller PFC100; 2 x ETHERNET, RS-232/-485	750-8102	750-8102/025-000	79
	Cortex A8; 1 GHz	M/S	S	M*				x		x	Controller PFC200; 2nd generation; 2 x ETHERNET, RS-232/-485	750-8212	750-8212/025-000	80
		M/S						x	x	x	Controller PFC200; 2nd generation; 2 x ETHERNET, RS-232/-485; Telecontrol technology		750-8212/025-001 750-8212/025-002	80
	Cortex A8; 1 GHz	M/S	S	M*			M/S			x	Controller PFC200; 2nd generation; 2 x ETHERNET, CAN, CANopen	750-8213		81
	Cortex A8; 1 GHz	M/S	S	M*			M/S	x		x	Controller PFC200; 2nd generation; 2 x ETHERNET, RS-232/-485, CAN, CANopen	750-8214		82
	Cortex A8; 1 GHz	M/S	S	M*	S		M/S			x	Controller PFC200; 2nd generation; 4 x ETHERNET, CAN, CANopen, USB	750-8215		83
	Cortex A8; 1 GHz	M/S	S	M*		S	M/S	x		x	Controller PFC200; 2nd generation; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Slave	750-8216	750-8216/025-000	84
		M/S				S	M/S	x	x	x	Controller PFC200; 2nd generation; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Slave; Telecontrol technology		750-8216/025-001	84
	Cortex A8; 600 MHz	M/S	S					x		x	Controller PFC200; 2 x ETHERNET, RS-232/-485, Mobile radio module	750-8207	750-8207/025-000	85
		M/S						x	x	x	Controller PFC200; 2 x ETHERNET, RS-232/-485, Mobile radio module; Telecontrol technology; Ext. temperature		750-8207/025-001	85
	Cortex A8; 600 MHz	M/S	S			M		x		x	Controller PFC200; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Master	750-8208	750-8208/025-000	86
		M/S				M		x	x	x	Controller PFC200; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Master; Telecontrol technology		750-8208/025-001	86
	Cortex A8; 600 MHz	M/S	S							x	Controller PFC100; FG0; 2 x ETHERNET	750-8101/000-010		89
	Cortex A8; 600 MHz	M/S	S					x		x	Controller PFC200; FG1; 2 x ETHERNET, RS-232/-485	750-8202/000-011		90
		M/S	S					x		x	Controller PFC200; FG2; 2 x ETHERNET, RS-232/-485	750-8202/000-012		91
		M/S	S					x		x	Controller PFC200; Energy data management application; 2 x ETHERNET; RS-232/-485	750-8202/000-022		92
	Cortex A8; 600 MHz	M/S	S					x		x	Controller PFC200; Energy data management application; 2 x ETHERNET, RS-232/-485; Mobile radio module	750-8207/000-022		93

M: Master, S: Slave; *requires an additional license

Controllers PFC100/PFC200
General Product Information

PFC100/PFC200: Maximum Performance in a Minimum Space

As a member of the WAGO control family, the PFC100 and PFC200 Controllers with ***e!RUNTIME*** excel with high processing speed and multiple interfaces for parallel communication. They offer at least two ETHERNET connections in all variants and, depending on the version, additional interfaces. The CANopen, PROFIBUS DP, Modbus TCP/UPD/RTU, PROFINET, EtherNet/IP and EtherCAT protocols provide a flexible connection to fieldbus systems and external input/output devices. These fieldbus systems can be easily configured directly in WAGO's easy-to-use e!COCKPIT development environment.
The ETHERNET interfaces with an integrated switch also support all major IT protocols. In addition to multiple interfaces, the PFC100/PFC200 offers ample memory for your applications thanks to the internal Flash memory and an integrated interface for memory cards.

Industry 4.0 / IoT

Recording, digitizing and linking data profitably – this is the core concept behind Industry 4.0. Using a dedicated library, the WAGO PFC100 and PFC200 Controllers become IoT controllers that send data from the field level to the cloud. Here, they can be aggregated and used for analysis. This creates true added value for your company – be it for increasing the efficiency of in-house production, implementing energy management in buildings, or developing further end customer services. Existing systems also become IoT-ready, making them sustainable into the future. The WAGO PFC family of controllers thus forms the basis for a sustainable corporate world.

Telecontrol Technology

Standardized telecontrol protocols according to IEC 60870-5, IEC 61850, IEC 61400-25 or DNP3 ensure use of the PFC Controllers in telecontrol technology.

Starter Kits

For a quick start, WAGO offers every customer the unique opportunity to purchase a starter kit that already contains all the components needed to begin programming and getting to know the controllers. For starter kits, see Section 4.5.

Link between Process Data and IT Application

The PFC100/PFC200 ideally combines real-time requirements with IT functionality. It supports both MODBUS/TCP and ETHERNET/IP for use in industrial environments. HTTP, SNTP, SNMP, FTP, BootP, DHCP, DNS, Telnet, SSH and other protocols simplify integration into IT environments.
Integrated Web pages and Web-based visualization provide IT applications with real-time process data. Furthermore, the 750 Series Controllers incorporate library functions for email, SOAP, ASP, IP configuration, ETHERNET sockets and file system.

Security on Board

The topics of ETHERNET communication and security are closely linked. To provide PFC Controller users with a high level of security, mechanisms for secure connections such as VPN, integrated firewall, HTTPS, FTPS, SSH and SSL/TLS are standard.

Demand-Oriented Extensibility

Some controllers offer the option of activating functions that go beyond the standard via runtime licenses, making it possible to price as needed. This also offers the advantage that with the same exact controller, different functions can be realized and also combined, which otherwise would only be replicated via additional variants. The licenses are simply loaded into the controller together with the project. The additional licenses available for each controller are specified by the controller and described in detail in the "Software" section.

Application Controllers

For some specific solutions, variants of standard controllers are available that must be paired with the appropriate solutions. You will find these solutions in Section 1.

Modular and Expandable

With the WAGO-I/O-SYSTEM 750, the PFC100/PFC200 can be expanded to almost any input/output interface. A modular, DIN-rail-mount design permits easy installation, expansion and modification of the I/O node without tools. The straightforward design prevents installation errors. In addition, proven CAGE CLAMP® technology offers fast, vibration-proof and maintenance-free connections that are independent of operator skill. Depending on the I/O module's granularity, field levels can be directly wired using 1-, 2-, 3- or 4-wire technology.

Maximum Reliability and Ruggedness

The PFC100/PFC200 is engineered and tested for use in the most demanding environments (e.g., temperature cycling, shock/vibration loading and ESD) according to the highest standards. Spring pressure connection technology guarantees continuous operation. Integrated QA measures in the production process and 100% function testing ensure consistent quality.

Open-Source Software and Linux®

We unite what belongs together: High-performance WAGO hardware and the future-ready Linux® operating system. WAGO's controllers offer programming in either IEC 61131 or directly in Linux® to create complex tasks. WAGO's "Embedded Linux" Controllers impress with base images that are expandable via open-source packages. As a "Gold Member" of the Open Source Automation Development Lab (OSADL), WAGO supports both financing and further development of Linux® in the industrial sector. The controller firmware itself is available as a "Board Support Package" (BSP).
If you are interested, simply contact our Technical Support *AUTOMATION*.

Advantages:

- Programming per IEC 61131-3
- Applications with higher-level languages
- Linux® real-time operating system
- Robust and maintenance-free
- Integrated cybersecurity packages
- IoT ready

Controllers PFC100/PFC200
Versions

Extended Temperature Range

Industrial automation technology is typically operated in temperatures ranging from 0°C to 55°C. However, there are applications like telecontrol technology that require an extended temperature range. These versions are available in an extended temperature range of –20°C to +60°C.

Eco

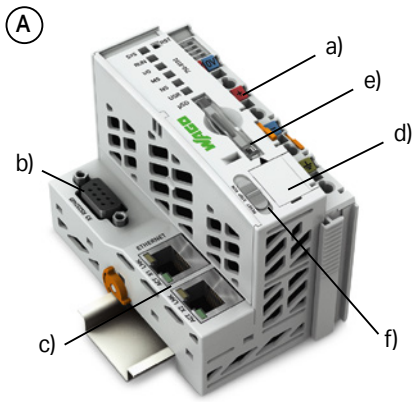
The Eco version of the PFC200 limits the number of stackable I/O modules to four.

Telecontrol Technology

The telecontrol technology versions of the PFC200 are distinguished by their integrated, standardized telecontrol technology:

- IEC 60870-5
- IEC 61850
- IEC 61400-25
- DNP3

Interfaces and Types



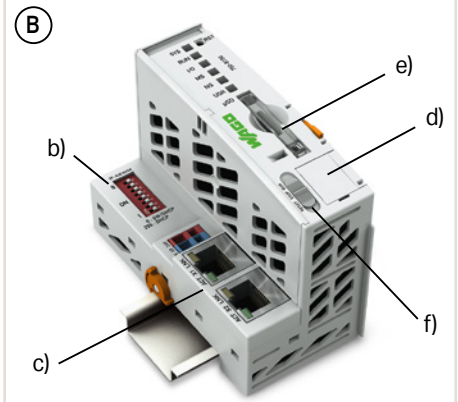
- Including supply module to power downstream I/O modules (a)
- Technical differences on the connection level (b)
- ETHERNET 2 x RJ-45 (c)
- Service interface (d)

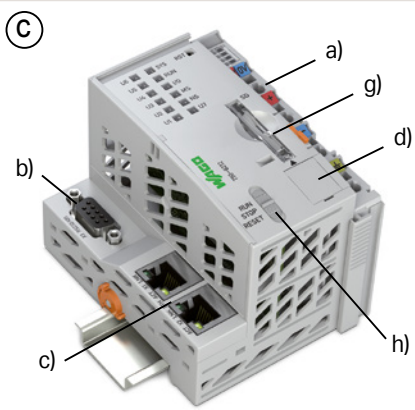
Housing design (A)

- microSD card slot for external storage media (e)
- Start/stop switch (f)
- W x H x D (mm) 61.5 x 71.9 x 100
- Connection technology (system/field supply): CAGE CLAMP®
- Conductor cross section: 0.08 … 2.5 mm²/28 … 14 AWG

Housing design (B)

- microSD card slot for external storage media (e)
- Start/stop switch (f)
- W x H x D (mm) 49.5 x 71.9 x 96.8
- Connection technology (system supply): CAGE CLAMP®
- Conductor cross section: 0.08 … 1.5 mm²/28 … 16 AWG



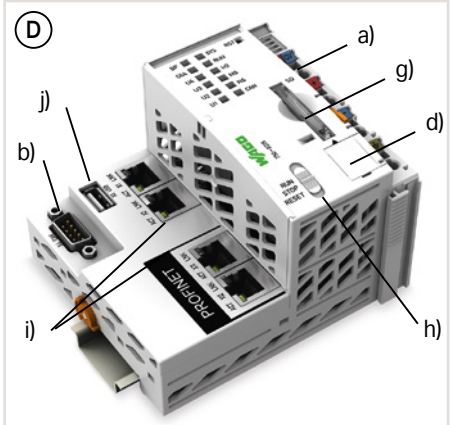


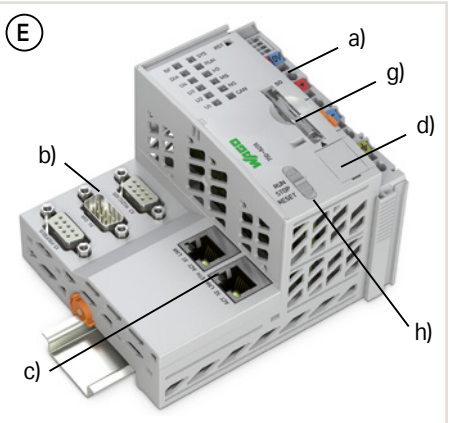
Housing design (C)

- SD card slot for external storage media (g)
- Start/stop switch (h)
- W x H x D (mm) 78.6 x 71.9 x 100
- Connection technology (system/field supply): CAGE CLAMP®
- Conductor cross section: 0.08 … 2.5 mm²/28 … 14 AWG

Housing design (D)

- SD card slot for external storage media (g)
- Start/stop switch (h)
- ETHERNET 4 x RJ-45 (i)
- USB interface (j)
- W x H x D (mm) 112 x 71.9 x 100
- Connection technology (system/field supply): CAGE CLAMP®
- Conductor cross section: 0.08 … 2.5 mm²/28 … 14 AWG



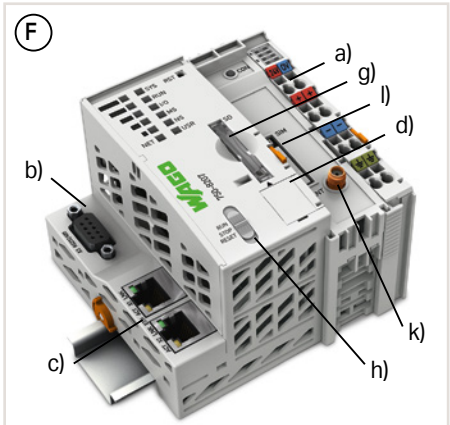


Housing design (E)

- SD card slot for external storage media (g)
- Start/stop switch (h)
- W x H x D (mm) 112 x 71.9 x 100
- Connection technology (system/field supply): CAGE CLAMP®
- Conductor cross section: 0.08 … 2.5 mm²/28 … 14 AWG

Housing design (F)

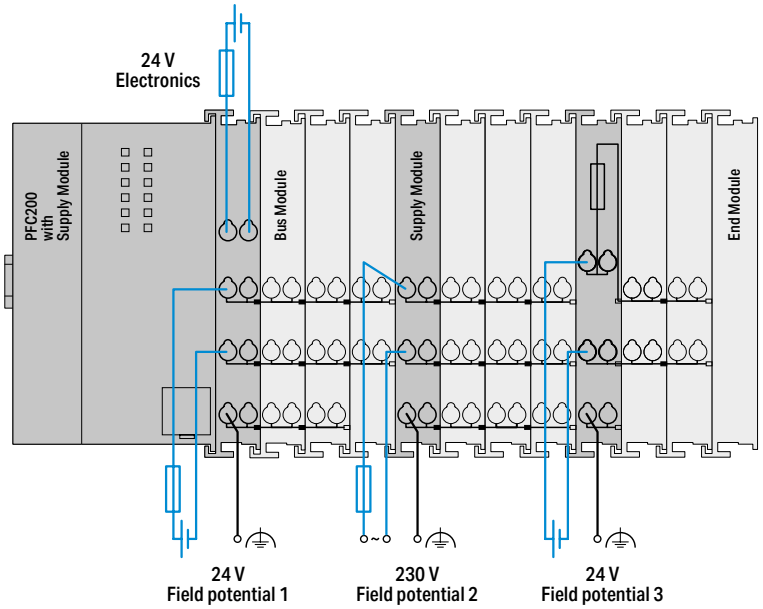
- SD card slot for external storage media (g)
- Start/stop switch (h)
- GSM antenna connection(k)
- SIM card slot (l)
- W x H x D (mm) 102.5 x 71.9 x 100
- Connection technology (system/field supply): CAGE CLAMP®
- Conductor cross section: 0.08 … 2.5 mm²/28 … 14 AWG



Controllers PFC100/PFC200
Installation Instructions

Power Supply

The internal electronics are powered by the controller. The power supply to the field-side supply is electrically isolated. The division enables a separate supply for sensors and actuators. Snapping the I/O modules together automatically routes the supply voltages. Supply modules with diagnostics enable additional monitoring of the power supply. This configuration ensures a flexible, user-specific supply design for a station. The current supply to the electronics is limited by a maximum value. If the sum of the internal current demand of all the I/O modules should exceed this value, an additional system supply module is necessary. Even in this case, power supply to the field-side supply of 10 A may not be exceeded. However, different power supply modules allow a new power supply, formation of potential groups and the implementation of emergency stops.



Notes

Additional steps must be implemented based on where the I/O system is installed:

Specific power and field-side power supply filters (750-624 or 750-626) are required for marine and onshore/offshore applications.
A specific supply module (750-606) is required to operate intrinsically safe Ex i modules.

Additionally, both a supply module and a field-side power supply filter are recommended when operating intrinsically safe Ex i modules for marine and onshore/offshore applications.
As part of operating safety-related I/O modules, PELV/SELV power supply units must be used for 24 VDC supply of electronics and field. In addition, specific power and field-side power supply filters must be provided (750-626).

Please refer to the manual for details about the power supply's design.

Item Number Key

Explanation of the components of an item number key

Item No.: 750-81xx = PFC100
- 00: 2 x ETHERNET, Eco
- 01: 2 x ETHERNET
- 02: 2 x ETHERNET, RS-232/-485

Item No.: 750-82xy = PFC200
- 0y: Generation 1
- 1y: Generation 2
  - x2: 2 x ETHERNET, RS-232/-485
  - x3: 2 x ETHERNET, CAN
  - x4: 2 x ETHERNET, RS-232/-485, CAN
  - x5: 4 x ETHERNET, CAN, CANopen, USB
  - x6: 2 x ETHERNET, RS-232/-485, CAN, PROFIBUS-DP slave
  - x7: 2 x ETHERNET, RS-232/-485, mobile radio module
  - x8: 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS master

.../025-yyy: Extended temperature range of −20 … +60 °C
- 000: Standard
- 001: Telecontrol technology
- 002: Telecontrol Eco

Controllers PFC100/PFC200
Standards and Rated Conditions

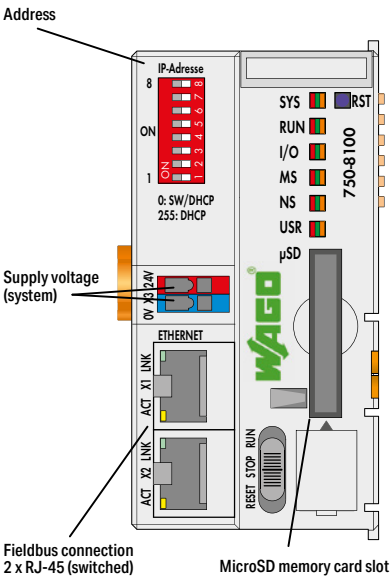
General Specifications	
Supply voltage (system)	24 VDC (−25 … +30 %)*; *for all marine-certified controllers
Isolation	500 V (system/supply)
Surrounding air temperature (operation)	0 … +55 °C
Surrounding air temperature (operation) for versions with an extended temperature range	−20 … +60 °C
Surrounding air temperature (storage)	−40 … +85 °C
Relative humidity	95 % (non condensing)
Relative humidity for versions with an extended temperature range	Max. 95 %, short-term condensation per Class 3K6 / IEC EN 60721-3-3 and E DIN 40046-721-3, taking a temperature range of −20 … +60 °C into consideration (except wind-driven precipitation, water and ice formation)
Operating altitude	0 … 2000 m
Pollution degree	2 per IEC 61131-2
Vibration resistance	0.5g (4g for all marine-certified controllers) per IEC 60068-2-6
Shock resistance	15g per IEC 60068-2-27
EMC immunity to interference	Per EN 61000-6-2
EMC emission of interference	Per EN 61000-6-3
Protection type	IP20
Mounting type	DIN-35 rail
Housing material	Polycarbonate; polyamid 6.6
Exposure to pollutants	Per IEC 60068-2-42 and IEC 60068-2-43
Permissible SO_2 contaminant concentration at a relative humidity < 75 %	25 ppm
Permissible H_2S contaminant concentration at a relative humidity < 75 %	10 ppm
Connection technology	CAGE CLAMP®
Conductor cross sections; strip length Standard PFC100/200	0.08 … 2.5 mm²/28 … 14 AWG; 8 … 9 mm / 0.31 … 0.35 inch
Conductor cross sections; strip length PFC100 Eco	0.08 … 1.5 mm²/28 … 16 AWG; 5 … 6 mm / 0.2 … 0.24 inch
Current carrying capacity (power jumper contacts)	10 A

4.1

Approvals

Overview of the approvals in the article comparison in Section 11, Technical Appendix, or online at www.wago.com

Controller PFC100; 2 x ETHERNET; Eco



4.1

Item description	Controller PFC100; 2 x ETHERNET; Eco
Version	Default
Item No.	750-8100
Order text	PFC100; 2ETH; Eco

Technical Data	
Communication	Modbus (TCP, UDP); EtherNet/IP adapter (slave)[1]; MQTT
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH
Visualization	Web-Visu
Programming	*e!COCKPIT* (based on CODESYS V3)
CPU	Cortex A8; 600 MHz
Operating system	Real-time Linux (with RT-Preempt patch)
Non-volatile memory (hardware)	64 KB
Program memory/data memory/non-volatile memory (software)	10 MB* / 10 MB* / 64 KB
Number of modules per node (max.)	250
Input and output process image (internal) max.	1000 words
Input and output process image (MODBUS) max.	32000 words
Supply voltage (system)	24 VDC (−25 … +30 %), via wiring level
Input current (typ.) at nominal load (24 V)	300 mA
Total current (system supply)	700 mA
Surrounding air temperature (operation)	0 … +55 °C
Dimensions W x H x D	49.5 x 71.9 x 96.8 mm
Approvals	CE; Marine; OrdLoc/HazLoc; ATEX/IECEx
Data sheet and further information, see:	wago.com/750-8100

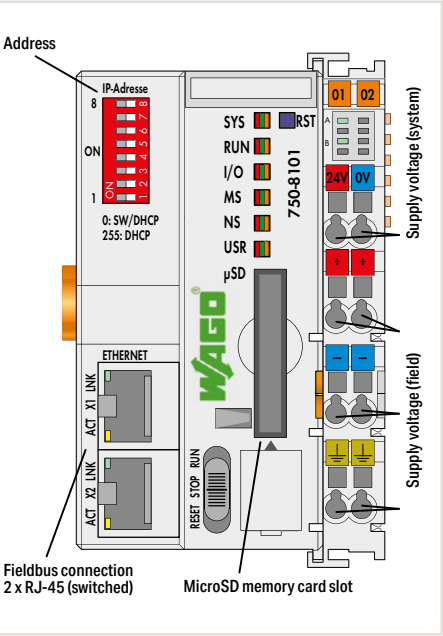
Accessories	Item No.	Page
microSD memory card; 2 GB	758-879/000-3102	470

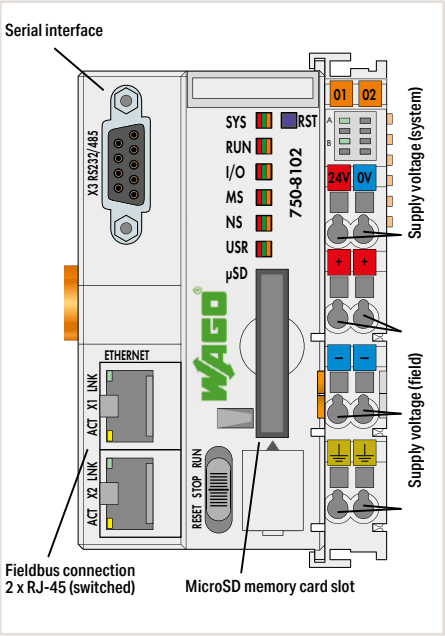
[1] Library for *e!RUNTIME*
*For memory configuration via *e!RUNTIME*, the program and data memory together have a maximum size of 10 MB and can be distributed dynamically.

- Software *e!COCKPIT*, WAGO-I/O-*PRO* V2.3, see Section 2, page 26 and 32
- Mini-WSB marker card and mounting accessories, see Section "Accessories and Tools"
- Approvals and corresponding ratings, see page 516 or www.wago.com

Controller PFC100; 2 x ETHERNET or 2 x ETHERNET; RS-232/-485

Figure: 750-8102





4.1

Item description	Controller PFC100; 2 x ETHERNET		PFC100 Controller; 2 x ETHERNET; RS-232/-485	
Version	Default	Ext. temperature	Default	Ext. temperature
Item No.	750-8101	750-8101/025-000	750-8102	750-8102/025-000
Order text	PFC100; 2ETH	PFC100; 2ETH; T	PFC100; 2ETH RS	PFC100; 2ETH RS; T
Technical Data				
Communication	Modbus (TCP, UDP); EtherNet/IP adapter (slave)[1]; MQTT		Modbus (TCP, UDP, RTU); EtherNet/IP adapter (slave)[1]; MQTT; RS-232/-485 interface	
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH		DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH	
Visualization	Web-Visu		Web-Visu	
Programming	*e!COCKPIT* (based on CODESYS V3)		*e!COCKPIT* (based on CODESYS V3)	
CPU	Cortex A8; 600 MHz		Cortex A8; 600 MHz	
Operating system	Real-time Linux 3.18 (with RT-Preempt patch)		Real-time Linux 3.18 (with RT-Preempt patch)	
Non-volatile memory (hardware)	64 KB		128 KB	
Program memory/data memory/non-volatile memory (software)	12 MB* / 12 MB* / 64 KB		12 MB* / 12 MB* / 128 KB	
Number of modules per node (max.)	250		250	
Input and output process image (internal) max.	1000 words		1000 words	
Input and output process image (MODBUS) max.	32000 words		32000 words	
Supply voltage (system)	24 VDC (−25 … 30 %); via wiring level (CAGE CLAMP® connection)		24 VDC (−25 … 30 %); via wiring level (CAGE CLAMP® connection)	
Supply voltage (field)	24 VDC (−25 … +30 %); via power jumper contacts		24 VDC (−25 … +30 %); via power jumper contacts	
Input current (typ.) at nominal load (24 V)	550 mA		550 mA	
Total current (system supply)	1700 mA		1700 mA	
Surrounding air temperature (operation)	0 … +55 °C	−20 … +60 °C	0 … +55 °C	−20 … +60 °C
Dimensions W x H x D	61.5 x 71.9 x 100 mm		61.5 x 71.9 x 100 mm	
Approvals	CE; KC; Marine; cULus OrdLoc/HazLoc; ATEX/IECEx		CE; KC; Marine; cULus OrdLoc/HazLoc; ATEX/IECEx	
Data sheet and further information, see:	wago.com/750-8101		wago.com/750-8102	

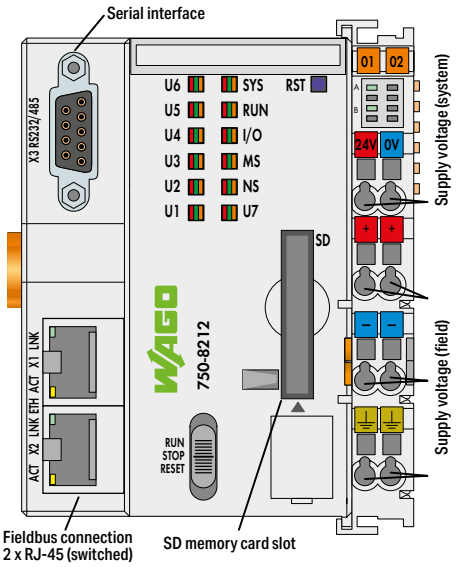
Accessories	Item No.	Page	Item No.	Page
microSD memory card; 2 GB	758-879/000-3102	470	758-879/000-3102	470

[1]Library for *e!RUNTIME*
*For memory configuration via *e!RUNTIME*, the program and data memory together have a maximum size of 12 MB and can be distributed dynamically.

[1]Library for *e!RUNTIME*
*For memory configuration via *e!RUNTIME*, the program and data memory together have a maximum size of 12 MB and can be distributed dynamically.

Controller PFC200; 2nd Generation; 2 x ETHERNET, RS-232/-485

Figure: 750-8212



4.1

Item description	Controller PFC200; 2nd generation; 2 x ETHERNET, RS-232/-485			
Version	Default	Ext. temperature	Telecontrol technology; ext. temperature	Telecontrol technology; ext. temperature; Eco
Item No.	750-8212	750-8212/025-000	750-8212/025-001	750-8212/025-002
Order text	PFC200; G2; 2ETH RS	PFC200; G2; 2ETH RS; T	PFC200; G2; 2ETH RS; Tele; T	PFC200; G2; 2ETH RS; Tele; T; Eco

Technical Data				
Communication	Modbus (TCP, UDP, RTU); EtherNet/IP adapter (slave)1); MQTT; RS-232/-485 interface; EtherCAT-Master[2)]		Modbus (TCP, UDP, RTU); MQTT; Telecontrol protocols; RS-232/-485 interface	
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH			
Telecontrol protocols			IEC 60870-5-101/-103/-104; IEC 61850-7-4; IEC 61400-25; DNP3	
Visualization	Web-Visu			
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3); *e!COCKPIT* (based on CODESYS V3)		WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)	
CPU	Cortex A8; 1 GHz			
Operating system	Real-time Linux (with RT-Preempt patch)			
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)	512 MB / 4 GB / 128 KB			
Program memory/data memory/non-volatile memory (software)	CODESYS V2:	16 MB / 64 MB / 128 KB		
	e!RUNTIME:	60 MB* / 60 MB* / 128 KB		
Number of modules per node (max.)	250			4
Input and output process image (internal) max.	1000 words			
Input and output process image (MODBUS) max.	CODESYS V2:	1000 words		
	e!RUNTIME:	32000 words		
Supply voltage (system)	24 VDC (−25 … 30 %); via wiring level (CAGE CLAMP® connection)			
Supply voltage (field)	24 VDC (−25 … +30 %); via power jumper contacts			
Input current (typ.) at nominal load (24 V)	550 mA			
Total current (system supply)	1700 mA			
Surrounding air temperature (operation)	0 … +55 °C	−20 … +60 °C		
Dimensions W x H x D	78.6 x 71.9 x 100 mm			
Approvals	CE; KC; Marine; cULus OrdLoc**/HazLoc; ATEX/IECEx			
Data sheet and further information, see:	wago.com/750-8212			

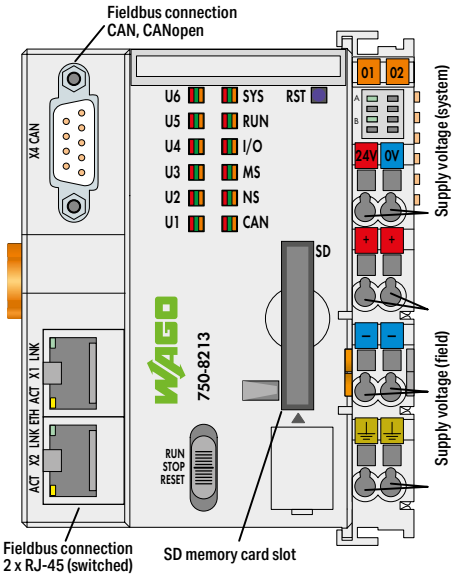
Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470
e!RUNTIME; EtherCAT Master 300; Single license	2759-263/210-1000	45

„ Software *e!COCKPIT* , WAGO-I/O-*PRO* V2.3, see Section 2, page 26 and 32

„ Approvals and corresponding ratings, see page 516 or www.wago.com

[1)]Library for *e!RUNTIME*
[2)]for *e!RUNTIME*; requires an additional license
*For memory configuration via *e!RUNTIME*, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.
**Pending

Controller PFC200; 2nd Generation; 2 x ETHERNET, CAN, CANopen



4.1

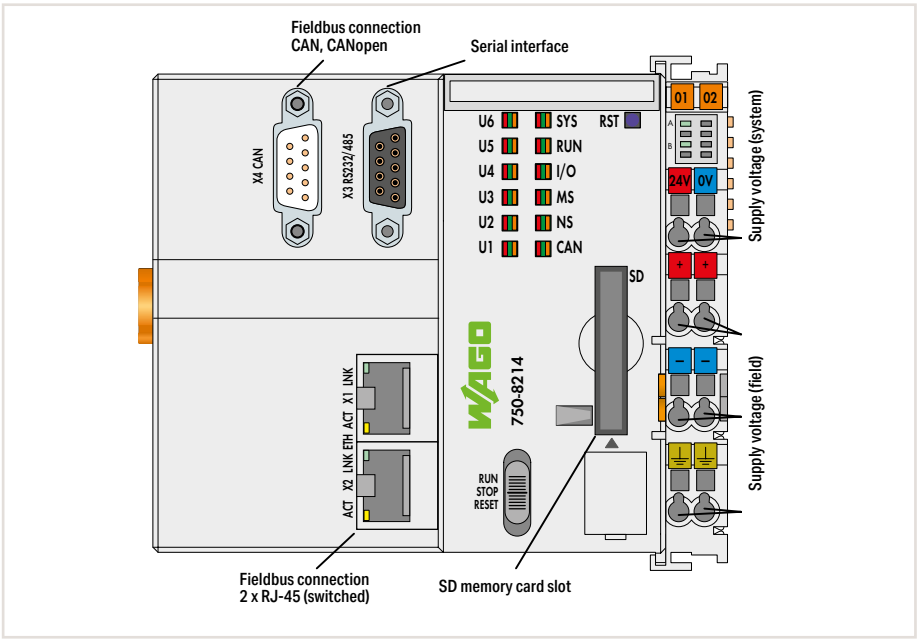
Item description	Controller PFC200; 2nd generation; 2 x ETHERNET, CAN, CANopen
Version	Default
Item No.	750-8213
Order text	PFC200; G2; 2ETH CAN

Technical Data		
Communication		Modbus (TCP, UDP); EtherNet/IP adapter (slave)[1]; MQTT; CANopen; EtherCAT Master[2]
ETHERNET protocols		DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH
Visualization		Web-Visu
Programming		WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3); *e!COCKPIT* (based on CODESYS V3)
CPU		Cortex A8; 1 GHz
Operating system		Real-time Linux (with RT-Preempt patch)
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)		512 MB / 4 GB / 128 KB
Program memory/data memory/non-volatile memory (software)	CODESYS V2:	16 MB / 64 MB / 128 KB
	e!RUNTIME:	60 MB* / 60 MB* / 128 KB
Number of modules per node (max.)		250
Input and output process image (internal) max.		1000 words
Input and output process image (MODBUS)/(CAN) max.	CODESYS V2:	1000 words / 2000 words
	e!RUNTIME:	32000 words / 2000 words
Supply voltage (system)		24 VDC (−25 … 30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)		24 VDC (−25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)		550 mA
Total current (system supply)		1700 mA
Surrounding air temperature (operation)		0 … +55 °C
Dimensions W x H x D		78.6 x 71.9 x 100 mm
Approvals		CE; KC; Marine; cULus OrdLoc**/HazLoc; ATEX/IECEx
Data sheet and further information, see:		wago.com/750-8213

Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470
e!RUNTIME; EtherCAT Master 300; Single license	2759-263/210-1000	45

[1] Library for *e!RUNTIME*
[2] for *e!RUNTIME*; requires an additional license
*For memory configuration via *e!RUNTIME*, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.
**Pending

Controller PFC200; 2nd Generation; 2 x ETHERNET, RS-232/-485, CAN, CANopen



4.1

Item description	Controller PFC200; 2nd generation; 2 x ETHERNET, RS-232/-485, CAN, CANopen
Version	Default
Item No.	750-8214
Order text	PFC200; G2; 2ETH RS CAN

Technical Data		
Communication		Modbus (TCP, UDP, RTU); EtherNet/IP adapter (slave)1); MQTT; CANopen; RS-232/-485 interface; EtherCAT Master[2)]
ETHERNET protocols		DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH
Visualization		Web-Visu
Programming		WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3); ***e!COCKPIT*** (based on CODESYS V3)
CPU		Cortex A8; 1 GHz
Operating system		Real-time Linux (with RT-Preempt patch)
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)		512 MB / 4 GB / 128 KB
Program memory/data memory/non-volatile memory (software)	CODESYS V2:	16 MB / 64 MB / 128 KB
	e!RUNTIME:	60 MB* / 60 MB* / 128 KB
Number of modules per node (max.)		250
Input and output process image (internal) max.		1000 words
Input and output process image (MODBUS)/(CAN) max.	CODESYS V2:	1000 words / 2000 words
	e!RUNTIME:	32000 words / 2000 words
Supply voltage (system)		24 VDC (−25 … 30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)		24 VDC (−25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)		550 mA
Total current (system supply)		1700 mA
Surrounding air temperature (operation)		0 … +55 °C
Dimensions W x H x D		78.6 x 71.9 x 100 mm
Approvals		CE; KC; Marine; cULus OrdLoc**/HazLoc; ATEX/IECEx
Data sheet and further information, see:		wago.com/750-8214

Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470
e!RUNTIME; EtherCAT Master 300; Single license	2759-263/210-1000	45

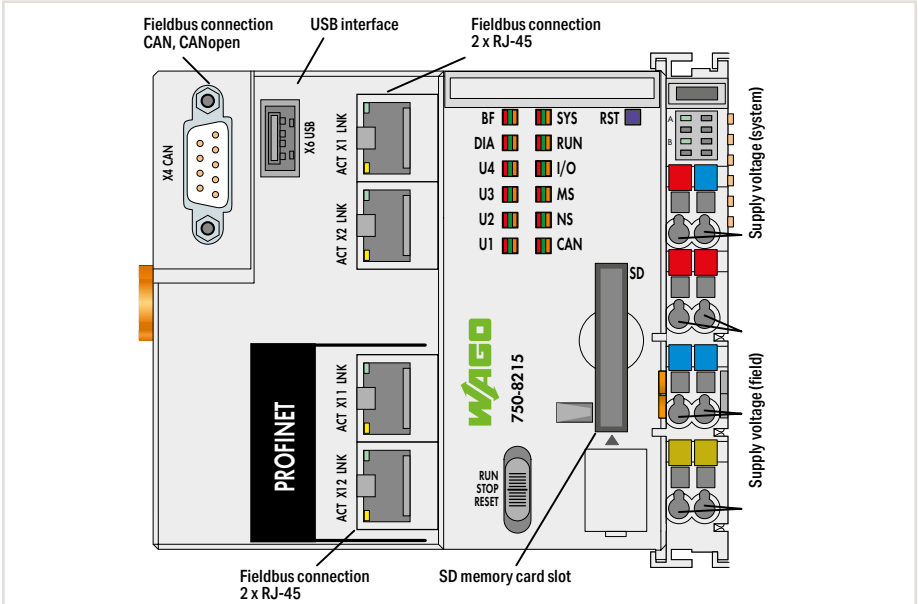
[1)]Library for ***e!RUNTIME***
[2)]for ***e!RUNTIME***; requires an additional license
*For memory configuration via ***e!RUNTIME***, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.
**Pending

„ Software ***e!COCKPIT*** , WAGO-I/O-*PRO* V2.3, see Section 2, page 26 and 32

„ Mini-WSB marker card and mounting accessories, see Section "Accessories and Tools"

„ Approvals and corresponding ratings, see page 516 or www.wago.com

Controller PFC200; 2nd Generation; 4 x ETHERNET, CAN, CANopen, USB



4.1

Item description	Controller PFC200; 2nd generation; 4 x ETHERNET, CAN, CANopen, USB
Version	Default
Item No.	750-8215
Order text	PFC200; G2; 4ETH CAN USB

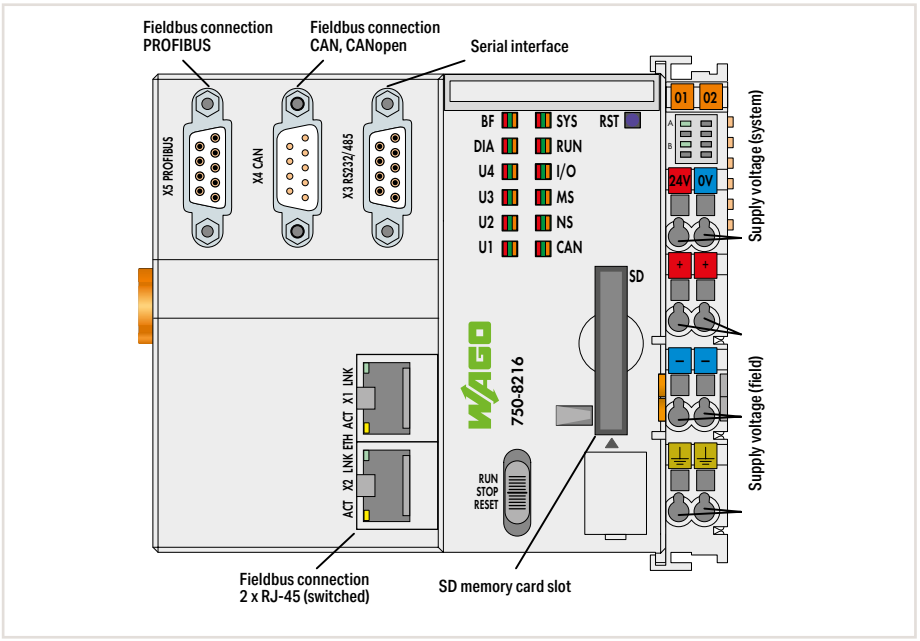
Technical Data	
Communication	PROFINET RT (Slave); Modbus (TCP, UDP); CANopen, EtherNet/IP adapter (slave)[1]; MQTT; EtherCAT Master[2]
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH
PROFINET IO features	PROFINET IO V2.3; Media redundancy (MRP); Shared device
Visualization	Web-Visu
Programming	*e!COCKPIT* (based on CODESYS V3)
CPU	Cortex A8; 1 GHz
Operating system	Real-time Linux (with RT-Preempt patch)
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)	512 MB / 4 GB / 128 KB
Program memory/data memory/non-volatile memory (software)	16 MB* / 64 MB* / 128 KB
Number of modules per node (max.)	250
Input and output process image (internal) max.	1000 words
Input and output process image (MODBUS)/ (PROFINET)/(CAN) max.	1000 words / 1024 bytes** / 2000 words
Supply voltage (system)	24 VDC (–25 … 30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)	24 VDC (–25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)	550 mA
Total current (system supply)	1700 mA
Surrounding air temperature (operation)	0 … +55 °C
Dimensions W x H x D	112 x 71.9 x 100 mm
Approvals	CE; Marine***; OrdLoc***/HazLoc; ATEX/IECEx
Data sheet and further information, see:	wago.com/750-8215

Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470
e!RUNTIME; EtherCAT Master 300; Single license	2759-263/210-1000	45

[1]Library for *e!RUNTIME*
[2]for *e!RUNTIME*; requires an additional license
*For memory configuration via *e!RUNTIME*, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.
**per application relation (AR)
***Pending

Controller PFC200; 2nd Generation; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Slave

Figure: 750-8216



4.1

Item description	Controller PFC200; 2nd generation; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Slave		
Version	**Default**	**Ext. temperature**	**Telecontrol technology; ext. temperature**
Item No.	**750-8216**	**750-8216/025-000**	**750-8216/025-001**
Order text	PFC200; G2; 2ETH RS CAN DPS	PFC200; G2; 2ETH RS CAN DPS; T	PFC200; G2; 2ETH RS CAN DPS; Tele; T
Technical Data			
Communication	Modbus (TCP, UDP, RTU); EtherNet/IP adapter (slave)1); MQTT; PROFIBUS; CANopen; RS-232/-485 interface; EtherCAT-Master[2)]		Modbus (TCP, UDP, RTU); MQTT; PROFIBUS; CANopen; Telecontrol protocols; RS-232/-485 interface
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH		
Telecontrol protocols			IEC 60870-5-101/-103/-104; IEC 61850-7-4; IEC 61400-25; DNP3
Visualization	Web-Visu		
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3); *e!COCKPIT* (based on CODESYS V3)		WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
CPU	Cortex A8; 1 GHz		
Operating system	Real-time Linux (with RT-Preempt patch)		
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)	512 MB / 4 GB / 128 KB		
Program memory/data memory/non-volatile memory (software)	CODESYS V2:	16 MB / 64 MB / 128 KB	
	e!RUNTIME:	60 MB* / 60 MB* / 128 KB	
Number of modules per node (max.)	250		
Input and output process image (internal) max.	1000 words		
Input and output process image (MODBUS)/ (PROFIBUS)/(CAN) max.	CODESYS V2:	1000 words / 244 bytes / 2000 words	
	e!RUNTIME:	32000 words / 244 bytes / 2000 words	
Supply voltage (system)	24 VDC (–25 … 30 %); via wiring level (CAGE CLAMP® connection)		
Supply voltage (field)	24 VDC (–25 … +30 %); via power jumper contacts		
Input current (typ.) at nominal load (24 V)	550 mA		
Total current (system supply)	1700 mA		
Surrounding air temperature (operation)	0 … +55 °C	–20 … +60 °C	
Dimensions W x H x D	112 x 71.9 x 100 mm		
Approvals	CE; KC; Marine; cULus OrdLoc**/HazLoc; ATEX/IECEx		
Data sheet and further information, see:	wago.com/750-8216		

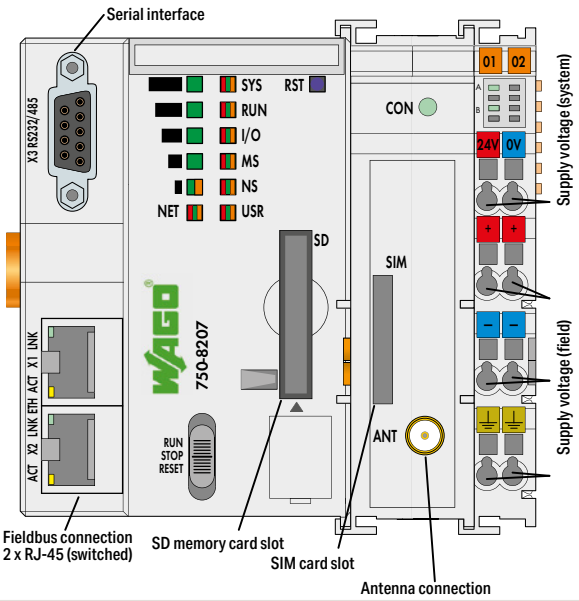
Accessories	Item No.	Page
SD memory card; 2 GB	**758-879/000-001**	470
e!RUNTIME; EtherCAT Master 300; Single license	**2759-263/210-1000**	45

„ Approvals and corresponding ratings, see page 516 or www.wago.com

[1)]Library for *e!RUNTIME*; [2)]for *e!RUNTIME*; requires an additional license
*For memory configuration via *e!RUNTIME*, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.
**Pending

Controller PFC200; 2 x ETHERNET, RS-232/-485, Mobile Radio Module

Figure: 750-8207



4.1

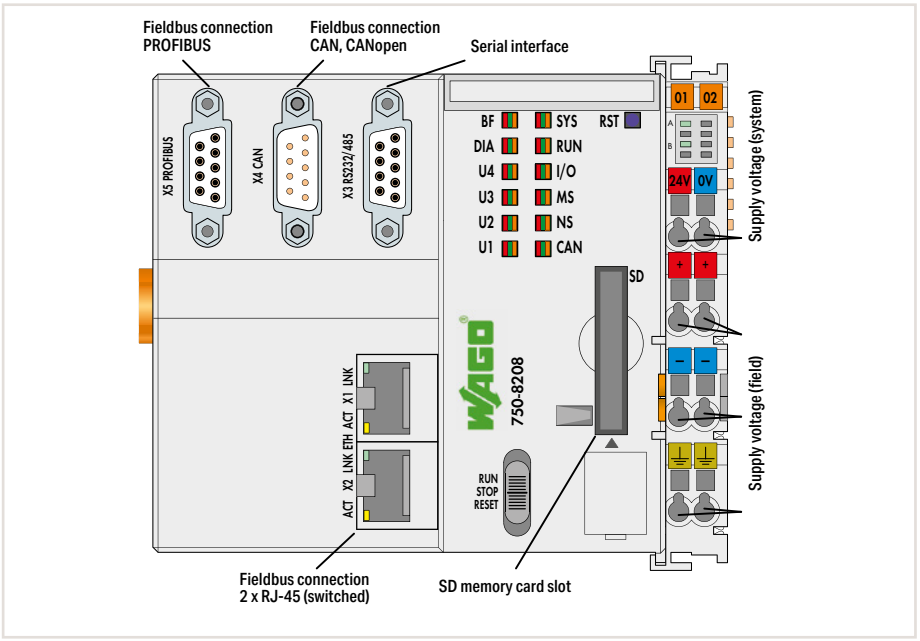
Item description	Controller PFC200; 2 x ETHERNET, RS-232/-485, Mobile radio module		
Version	**Default**	**Ext. temperature**	**Telecontrol technology; ext. temperature**
Item No.	**750-8207**	**750-8207/025-000**	**750-8207/025-001**
Order text	PFC200; 2ETH RS 3G	PFC200; 2ETH RS 3G; T	PFC200; 2ETH RS 3G; Tele; T
Technical Data			
Communication	Modbus (TCP, UDP, RTU); EtherNet/IP adapter (slave)[1]; MQTT; RS-232/-485 interface		Modbus (TCP, UDP, RTU); MQTT; Telecontrol protocols; RS-232/-485 interface
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH		
Telecontrol protocols			IEC 60870-5-101/-103/-104; IEC 61850-7-4; IEC 61400-25; DNP3
Radio technology	GSM/Edge/UMTS/HSPA+		
Frequency band	GSM quad-band		
Services	SMS (bidirectional); GPRS connection to Internet		
Security encryption	OpenVPN; IPsec; firewall		
Visualization	Web-Visu		
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3); *e!COCKPIT* (based on CODESYS V3)		WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
CPU	Cortex A8; 600 MHz		
Operating system	Real-time Linux (with RT-Preempt patch)		
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)	256 MB / 256 MB / 128 KB		
Program memory/data memory/non-volatile memory (software)	CODESYS V2:	16 MB / 64 MB / 128 KB	
	e!RUNTIME:	60 MB* / 60 MB* / 128 KB	
Number of modules per node (max.)	250		
Input and output process image (internal) max.	1000 words		
Input and output process image (MODBUS) max.	CODESYS V2:	1000 words	
	e!RUNTIME:	32000 words	
Supply voltage (system)	24 VDC (–25 … 30 %); via wiring level (CAGE CLAMP® connection)		
Supply voltage (field)	24 VDC (–25 … +30 %); via power jumper contacts		
Input current (typ.) at nominal load (24 V)	550 mA		
Total current (system supply)	700 mA		
Surrounding air temperature (operation)	0 … +55 °C	–20 … +60 °C	
Dimensions W x H x D	102.5 x 71.9 x 100 mm		
Approvals	CE; EAC; cULus OrdLoc**		
Data sheet and further information, see:	wago.com/750-8207		

Accessories	Item No.	Page
SD memory card; 2 GB	**758-879/000-001**	470
Antenna, GSM	**758-965**	471

[1]Library for ***e!RUNTIME***; *For memory configuration via ***e!RUNTIME***, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.
**Pending

Controller PFC200; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Master

Figure: 750-8208



4.1

Item description	Controller PFC200; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Master		
Version	Default	Ext. temperature	Telecontrol technology; ext. temperature
Item No.	750-8208	750-8208/025-000	750-8208/025-001
Order text	PFC200; 2ETH RS CAN DPM	PFC200; 2ETH RS CAN DPM; T	PFC200; 2ETH RS CAN DPM; Tele; T

Technical Data			
Communication	PROFIBUS DP Master; CAN; CANopen; Modbus (TCP, UDP, RTU); MQTT; RS-232-/485 interface		PROFIBUS DP Master; CAN; CANopen; Modbus (TCP, UDP, RTU); MQTT; Telecontrol protocols; RS-232/-485 interface
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH		
Telecontrol protocols			IEC 60870-5-101/-103/-104; IEC 61850-7-4; IEC 61400-25; DNP3
Visualization	Web-Visu		
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)		
CPU	Cortex A8; 600 MHz		
Operating system	Real-time Linux (with RT-Preempt patch)		
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)	256 MB / 256 MB / 128 KB		
Program memory/data memory/non-volatile memory (software)	16 MB / 64 MB / 128 KB		
Number of modules per node (max.)	250		
Input and output process image (internal) max.	1000 words		
Input and output process image (MODBUS)/ (PROFIBUS)/(CAN) max.	1000 words / 5000 bytes* / 2000 words		
Supply voltage (system)	24 VDC (–25 … 30 %); via wiring level (CAGE CLAMP® connection)		
Supply voltage (field)	24 VDC (–25 … +30 %); via power jumper contacts		
Input current (typ.) at nominal load (24 V)	550 mA		
Total current (system supply)	1700 mA		
Surrounding air temperature (operation)	0 … +55 °C	–20 … +60 °C	
Dimensions W x H x D (mm)	112 x 71.9 x 100 mm		
Approvals	CE; Marine; OrdLoc**; ATEX/IECEx		
Data sheet and further information, see:	wago.com/750-8208		

Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470

„ Software WAGO-I/O-*PRO* V2.3, see Section 2, page 32

„ Mini-WSB marker card and mounting accessories, see Section "Accessories and Tools"

„ Approvals and corresponding ratings, see page 516 or www.wago.com

*Input and output process image (PROFIBUS) max.: 5000 bytes (a maximum 125 slaves are supported, because a slave's process image can have up to 244 bytes/244 bytes)
**Pending

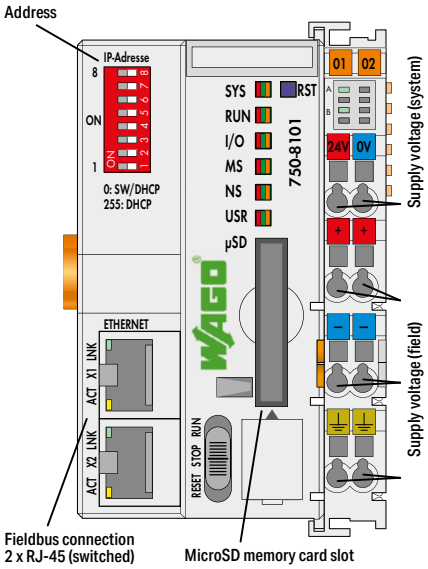
WAGO Application Controllers

Machine Data Collection with MTConnect		Item No.
Application Controllers	Controller PFC100; FG0; 2 x ETHERNET	750-8101/000-010
Software	digitalTAP™ Application Software	Download: wago.com/applicationcontroller
Room Management with *flex*ROOM®		
Application Controllers	Controller PFC200; FG1; 2 x ETHERNET; RS-232/-485	750-8202/000-011
Software	***flex*ROOM®** Application Software	Download: wago.com/applicationcontroller
Lighting Management		
Application Controllers	Controller PFC200; FG2; 2 x ETHERNET; RS-232/-485	750-8202/000-012
Software	Lighting Management	Download: wago.com/applicationcontroller
Energy Data Management		
Application Controllers	Controller PFC200; Energy data management application; 2 x ETHERNET; RS-232/-485	750-8202/000-022
	Controller PFC200; Energy data management application; 2 x ETHERNET; RS-232/-485; Mobile radio module	750-8207/000-022
Software	Energy Data Management	Download: wago.com/applicationcontroller

Application controllers are designed for special solutions and must be paired appropriately. You will find the appropriate solutions in Section 1.

Controller PFC100; FG0; 2 x ETHERNET

Figure: 750-8101



4.1

Item description	Controller PFC100; FG0; 2 x ETHERNET
Item No.	750-8101/000-010
Order text	PFC100; FG0; 2ETH

Technical Data	
Communication	Modbus (TCP, UDP); EtherNet/IP adapter (slave)[1)]
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH
Visualization	Web-Visu
Programming	*e!COCKPIT* (based on CODESYS V3)
CPU	Cortex A8; 600 MHz
Operating system	Real-time Linux 3.18 (with RT-Preempt patch)
Non-volatile memory (hardware)	64 KB
Program memory/data memory/non-volatile memory (software)	12 MB* / 12 MB* / 64 KB
Number of modules per node (max.)	250
Input and output process image (internal) max.	1000 words
Input and output process image (MODBUS) max.	32000 words
Supply voltage (system)	24 VDC (−25 … 30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)	24 VDC (−25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)	550 mA
Total current (system supply)	1700 mA
Surrounding air temperature (operation)	0 … +55 °C
Dimensions W x H x D	61.5 x 71.9 x 100 mm
Approvals	CE; Marine; OrdLoc/HazLoc; ATEX/IECEx
Data sheet and further information, see:	wago.com/750-8101/000-010

Accessories	Item No.	Page
microSD memory card; 2 GB	758-879/000-3102	470

[1)] Library for ***e!RUNTIME***
*For memory configuration via ***e!RUNTIME***, the program and data memory together have a maximum size of 12 MB and can be distributed dynamically.

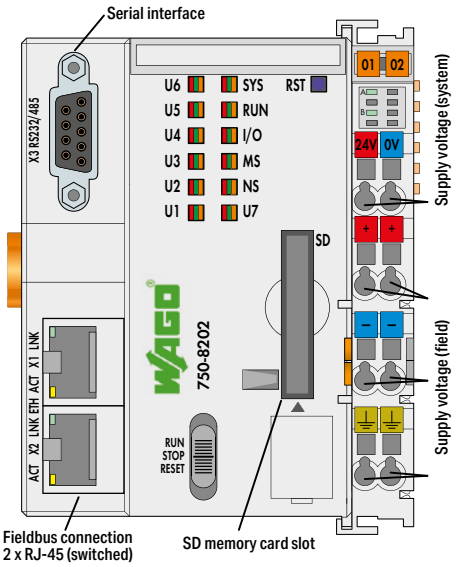
Suitable software application:
- Machine Data Collection with MTConnect
see Section 1

„ *e!COCKPIT* Software, see Section 2, page 26

„ Mini-WSB marker card and mounting accessories, see Section "Accessories and Tools"

Controller PFC200; FG1; 2 x ETHERNET; RS-232/-485

Figure: 750-8202



4.1

Item description	Controller PFC200; FG1; 2 x ETHERNET; RS-232/-485	
Item No.	750-8202/000-011	
Order text	PFC200; FG1; 2ETH RS	
Technical Data		
Communication	Modbus (TCP, UDP, RTU); EtherNet/IP adapter (slave)[1]; RS-232/-485 interface	
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH	
Visualization	Web-Visu	
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3), ***e!COCKPIT*** (based on CODESYS V3)	
CPU	Cortex A8; 600 MHz	
Operating system	Real-time Linux (with RT-Preempt patch)	
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)	256 MB / 256 MB / 128 KB	
Program memory/data memory/non-volatile memory (software)	CODESYS V2:	16 MB / 64 MB / 128 KB
	e!RUNTIME:	60 MB* / 60 MB* / 128 KB
Number of I/O modules per node (max.)	250	
Input and output process image (internal) max.	1000 words	
Input and output process image (MODBUS) max.	CODESYS V2:	1000 words
	e!RUNTIME:	32000 words
Supply voltage (system)	24 VDC (–25 … 30 %); via wiring level (CAGE CLAMP® connection)	
Supply voltage (field)	24 VDC (–25 … +30 %); via power jumper contacts	
Input current (typ.) at nominal load (24 V)	550 mA	
Total current (system supply)	1700 mA	
Surrounding air temperature (operation)	0 … +55 °C	
Dimensions W x H x D	78.6 x 71.9 x 100 mm	
Approvals	CE; Marine; OrdLoc/HazLoc; ATEX/IECEx	
Data sheet and further information, see:	wago.com/750-8202/000-011	

Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470
WAGO Communication Cable	750-923	469

[1]Library for ***e!RUNTIME***

*For memory configuration via ***e!RUNTIME***, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.

Suitable software application:
- Machine Data Collection with MTConnect
- Room Management with ***flex***ROOM®

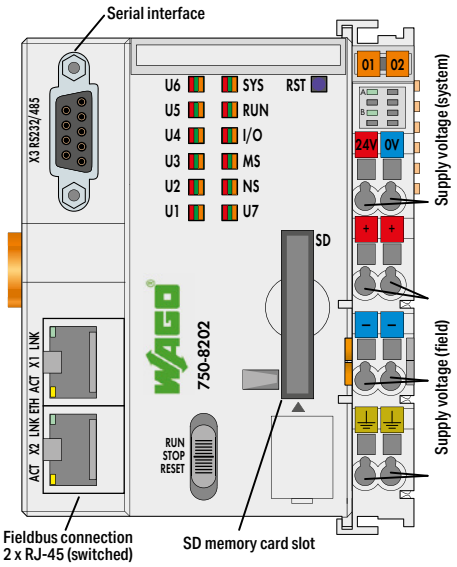
see Section 1

„ Software ***e!COCKPIT*** , WAGO-I/O-*PRO* V2.3, see Section 2, page 26 and 32

„ Mini-WSB marker card and mounting accessories, see Section "Accessories and Tools"

Controller PFC200; FG2; 2 x ETHERNET; RS-232/-485

Figure: 750-8202



4.1

Item description	Controller PFC200; FG2; 2 x ETHERNET; RS-232/-485	
Item No.	750-8202/000-012	
Order text	PFC200; FG2; 2ETH RS	
Technical Data		
Communication	Modbus (TCP, UDP, RTU); EtherNet/IP adapter (slave)[1]; RS-232/-485 interface	
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH	
Visualization	Web-Visu	
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3); ***e!COCKPIT*** (based on CODESYS V3)	
CPU	Cortex A8; 600 MHz	
Operating system	Real-time Linux (with RT-Preempt patch)	
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)	256 MB / 256 MB / 128 KB	
Program memory/data memory/non-volatile memory (software)	CODESYS V2:	16 MB / 64 MB / 128 KB
	e!RUNTIME:	60 MB* / 60 MB* / 128 KB
Number of I/O modules per node (max.)	250	
Input and output process image (internal) max.	1000 words	
Input and output process image (MODBUS) max.	CODESYS V2:	1000 words
	e!RUNTIME:	32000 words
Supply voltage (system)	24 VDC (−25 … 30 %); via wiring level (CAGE CLAMP® connection)	
Supply voltage (field)	24 VDC (−25 … +30 %); via power jumper contacts	
Input current (typ.) at nominal load (24 V)	550 mA	
Total current (system supply)	1700 mA	
Surrounding air temperature (operation)	0 … +55 °C	
Dimensions W x H x D	78.6 x 71.9 x 100 mm	
Approvals	CE; KC; Marine; cULus OrdLoc/HazLoc; Ex ATEX/IECEx	
Data sheet and further information, see:	wago.com/750-8202/000-012	

Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470
WAGO Communication Cable	750-923	469

[1]Library for ***e!RUNTIME***
*For memory configuration via ***e!RUNTIME***, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.

Suitable software application:
- Machine Data Collection with MTConnect
- Lighting Management

see Section 1

Controller PFC200; Energy Data Management Application; 2 x ETHERNET; RS-232/-485

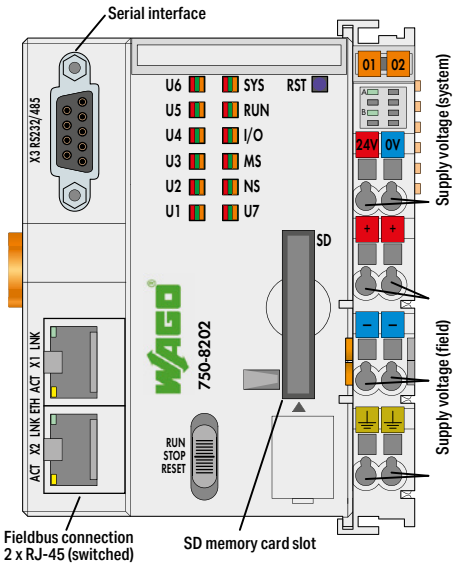


Figure: 750-8202

4.1

Item description	Controller PFC200; Energy data management application; 2 x ETHERNET; RS-232/-485
Item No.	750-8202/000-022
Order text	PFC200; FGE; 2ETH RS

Technical Data

Communication		Modbus (TCP, UDP, RTU); EtherNet/IP adapter (slave)[1]; RS-232/-485 interface
ETHERNET protocols		DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH
Visualization		Web-Visu
Programming		WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3); ***e!COCKPIT*** (based on CODESYS V3)
CPU		Cortex A8; 600 MHz
Operating system		Real-time Linux (with RT-Preempt patch)
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)		256 MB / 256 MB / 128 KB
Program memory/data memory/non-volatile memory (software)	CODESYS V2:	16 MB / 64 MB / 128 KB
	e!RUNTIME:	60 MB* / 60 MB* / 128 KB
Number of I/O modules per node (max.)		250
Input and output process image (internal) max.		1000 words
Input and output process image (MODBUS) max.	CODESYS V2:	1000 words
	e!RUNTIME:	32000 words
Supply voltage (system)		24 VDC (–25 … 30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)		24 VDC (–25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)		550 mA
Total current (system supply)		1700 mA
Surrounding air temperature (operation)		0 … +55 °C
Dimensions W x H x D		78.6 x 71.9 x 100 mm
Approvals		CE; Marine; OrdLoc/HazLoc; ATEX/IECEx
Data sheet and further information, see:		wago.com/750-8202/000-022

Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470
WAGO Communication Cable	750-923	469

[1]Library for ***e!RUNTIME***

*For memory configuration via ***e!RUNTIME***, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.

Suitable software application:
- Energy Data Management

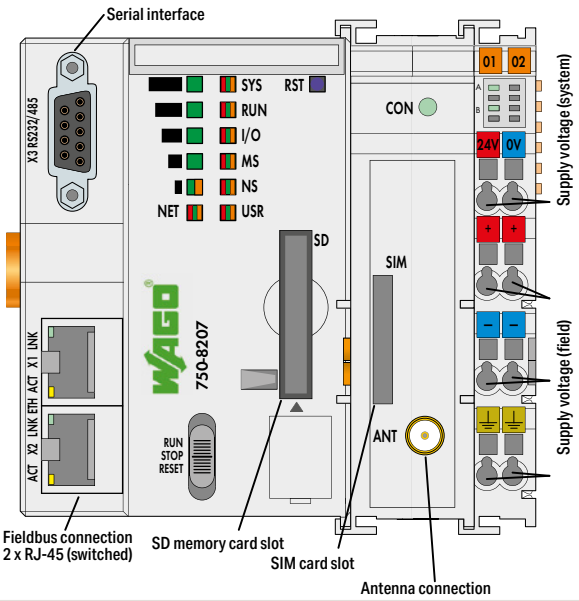
see Section 1

„ Software ***e!COCKPIT***, WAGO-I/O-*PRO* V2.3, see Section 2, page 26 and 32

„ Mini-WSB marker card and mounting accessories, see Section "Accessories and Tools"

Controller PFC200; Energy Data Management Application; 2 x ETHERNET; RS-232/-485; Mobile Radio Module

Figure: 750-8207



4.1

Item description	Controller PFC200; Energy data management application; 2 x ETHERNET; RS-232/-485; Mobile radio module
Item No.	750-8207/000-022
Order text	PFC200; FGE; 2ETH RS 3G

Technical Data		
Communication		Modbus (TCP, UDP, RTU); EtherNet/IP adapter (slave)[1]; RS-232/-485 interface
ETHERNET protocols		DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH
Radio technology		GSM/Edge/UMTS/HSPA+
Frequency band		GSM quad-band
Services		SMS (bidirectional); GPRS connection to Internet
Security encryption		OpenVPN; IPsec; firewall
Visualization		Web-Visu
Programming		WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3); ***e!****COCKPIT* (based on CODESYS V3)
CPU		Cortex A8; 600 MHz
Operating system		Real-time Linux (with RT-Preempt patch)
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)		256 MB / 256 MB / 128 KB
Program memory/data memory/non-volatile memory (software)	CODESYS V2:	16 MB / 64 MB / 128 KB
	e!*RUNTIME*:	60 MB* / 60 MB* / 128 KB
Number of I/O modules per node (max.)		250
Input and output process image (internal) max.		1000 words
Input and output process image (MODBUS) max.	CODESYS V2:	1000 words
	e!*RUNTIME*:	32000 words
Supply voltage (system)		24 VDC (−25 … 30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)		24 VDC (−25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)		550 mA
Total current (system supply)		700 mA
Surrounding air temperature (operation)		0 … +55 °C
Dimensions W x H x D		102.5 x 71.9 x 100 mm
Approvals		CE; cULus OrdLoc
Data sheet and further information, see:		wago.com/750-8207/000-022

Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470
WAGO Communication Cable	750-923	469
Antenna; GSM	758-965	471

[1]Library for ***e!****RUNTIME*
*For memory configuration via ***e!****RUNTIME*, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.

Suitable software application:
- Energy Data Management
see Section 1

Controllers PFC200 XTR

Touch-Panel 600 Standard/Advanced Line; Hardware configuration Control Panel

- Merging of control and visualization
- 10.9 … 25.7 cm (4.3 … 10.1")

◄◄ Section 3

Controllers PFC200 XTR

The advantages of the PFC Controller combined with the capabilities for extreme environments:

- High processing speed
- Multiple interfaces
- eXTRemely robust and maintenance-free

Controllers 750 XTR

For demanding applications in which the following are critical:

- Extreme temperature stability
- Immunity to electromagnetic interference and impulse voltages
- Vibration and shock resistance

Section 4.4 ►►

Controllers PFC100/PFC200

- Maximum performance in a minimum space
- Also programmable in high-level languages based on Linux®
- Security packages with SSH and SSL/TLS
- Runtime system for CODESYS V2 (only PFC200) and V3

◄ Section 4.1

Controllers 750

- Controllers for all prominent fieldbus systems
- Programmable to IEC 61131-3
- Combinable with the modules of the WAGO-I/O-SYSTEM 750

Section 4.3 ►

Starter Kits

To get you up and running quickly, we offer starter kits to suit the most diverse applications:

- With Controller PFC100
- With Controller PFC200
- With Controller 750 ETHERNET
- With Controller 750 KNX IP or BACnet/IP

Section 4.5 ►►►

Controllers PFC200 XTR
Contents

	CPU	Modbus (TCP, UDP)	EtherNet/IP	PROFIBUS	CANopen	Modbus RTU	Telecontrol Protocols: IEC 60870, IEC 61850/61400, DNP3	IoT Protocols: MQTT	Description	Item No.	
	Cortex A8; 600 MHz	M/S	S			x		x	Controller PFC200; 2 x ETHERNET, RS-232/-485; extreme	**750-8202/040-000**	100
	Cortex A8; 600 MHz	M/S	S			x	x	x	Controller PFC200; 2 x ETHERNET, RS-232/485; Telecontrol technology; extreme	**750-8202/040-001**	100
	Cortex A8; 600 MHz	M/S	S	S	M/S	x		x	Controller PFC200; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Slave; extreme	**750-8206/040-000**	101
	Cortex A8; 600 MHz	M/S	S	S	M/S	x	x	x	Controller PFC200; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Slave; Telecontrol technology; extreme	**750-8206/040-001**	101

M: Master, S: Slave

Controllers PFC200 XTR
General Product Information

PFC200 XTR:

Taking It to the eXTReme – The Standard for 750 XTR

With the dark gray XTR version of the PFC200 Controller, you will benefit from the unique added value of this fast and highly communicative multi-talented controller for applications that are subjected to extreme environments.

The PFC200 XTR Controller excels with high processing speed and multiple interfaces for parallel communication. All variants of this controller feature two ETHERNET ports and – depending on the model – additional interfaces. The CANopen, PROFIBUS DP and MODBUS TCP/UDP/RTU protocols provide a flexible connection to fieldbus systems and external input/output devices. These fieldbus systems can be easily configured directly in WAGO's easy-to-use e!COCKPIT development environment. The ETHERNET interfaces with an integrated switch also support all major IT protocols. In addition to multiple interfaces, the PFC200 XTR offers ample memory for your applications, provided by the internal flash memory and an integrated interface for SD/SDHC cards.

Extremely temperature-resistant, immune to interference, as well as unfazed by vibrations and impulse voltages – WAGO's 750 XTR is the first choice for demanding applications including:

- Marine systems and onshore/offshore industry
- Renewable energy systems (wind turbines, solar systems and biogas plants)
- Transformer stations and power distribution systems
- Petrochemical processing
- Water and wastewater treatment systems
- Custom machines
- Railway applications

Industry 4.0 / IoT

Recording, digitizing and linking data profitably – this is the core concept behind Industry 4.0. Using a dedicated library, the WAGO PFC100 and PFC200 Controllers now become IoT controllers that send data from the field level to the cloud. Here, they can be aggregated and used for analysis. This creates true added value for your company – be it for increasing the efficiency of in-house production, implementing energy management in buildings, or developing further end customer services. Existing systems also become IoT-ready, making them sustainable into the future. The WAGO PFC family of controllers thus forms the basis for a sustainable corporate world.

Link between Process Data and IT Application — Even under eXTReme Conditions

The PFC200 XTR ideally combines real-time requirements with IT functionality. It supports both MODBUS/TCP and ETHERNET/IP for use in industrial environments. HTTP, SNTP, SNMP, FTP, BootP, DHCP, DNS and other protocols simplify integration into IT environments. Integrated Web pages and Web-based visualization provide IT applications with real-time process data. Furthermore, the 750 Series Controllers incorporate library functions for email, SOAP, ASP, IP configuration, ETHERNET sockets and file system.

Security on Board

The topics of ETHERNET communication and security are closely linked. To provide PFC Controller users with a high level of security, mechanisms for secure connections such as HTTPS, FTPS, SSH and SSL/TLS are standard.

Worldwide Approvals

International approvals for industrial automation, building technology, shipbuilding and onshore/offshore applications guarantee worldwide use even under harsh operating conditions, e.g., Germanischer Lloyd, Det Norske Veritas, American Bureau of Shipping, Korean Register of Shipping, Nippon Kaiji Kyokai, Registro Italiano Navale and Polski Rejestr Stratkow.

Superior Reliability in Extreme Climates

Engineered for freezing cold, extreme heat and high humidity, the WAGO-I/O-SYSTEM 750 XTR provides absolute dependability in virtually any weather. The XTR version of the PFC200 is unfazed by both freezing cold down to –40°C and scorching heat up to +70°C. And this applies equally for both start-up and ongoing operation. The maximum approved operating altitude of 5,000 m is another highlight. Even in the thin air of a mountain-top station, the system impressively demonstrates its high performance and availability.

Additional Protection Against Interference Pulses

The WAGO-I/O-SYSTEM 750 XTR provides greater isolation up to 5 kV of impulse voltage, lower EMC emission of interference and higher insensitivity to EMC interference. These strengths add up to trouble-free operation.

High Mechanical Performance

Automation systems must be incredibly vibration-resistant, especially when installed close to vibration-prone and shock-generating system components. Powerful motors and power circuit breakers are just two examples from a wide range of applications that can stress automation systems. The WAGO-I/O-SYSTEM 750 XTR continues to set new standards here. Count on long-lasting, trouble-free operation and industry-topping levels of safety – even in the most severe applications, such as tunnel boring machines.

Modular and Expandable

With the WAGO-I/O-SYSTEM 750 XTR, the PFC200 can be expanded to almost any input/output interface. Using an industry-leading platform, the 750 XTR boasts the same proven benefits.

Open-Source Software and Linux®

We unite what belongs together: High-performance WAGO hardware and the future-ready Linux® operating system. WAGO's controllers offer programming in either IEC 61131 or directly in Linux® to create complex tasks. WAGO's "Embedded Linux" Controllers impress with base images that are expandable via open-source packages. As a "Gold Member" of the Open Source Automation Development Lab (OSADL), WAGO supports both financing and further development of Linux® in the industrial sector. The controller firmware itself is available as a "Board Support Package" (BSP).
If you are interested, simply contact our Technical Support *AUTOMATION*.

Advantages:

- Controllers for eXTReme environmental conditions
  - No air conditioning required
  - Can be used in unshielded areas
  - Install close to vibrating and shock-generating system components
- Programming per IEC 61131-3
- Can be combined with high-level languages
- Linux® real-time operating system
- Robust and maintenance-free
- Integrated IT security standards
- IoT ready

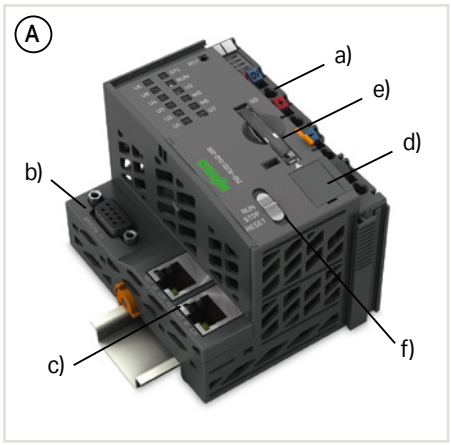
Controllers PFC200 XTR
Versions

Telecontrol Technology

The telecontrol technology versions of the PFC200 are distinguished by their integrated, standardized telecontrol technology:
- IEC 60870-5
- IEC 61850
- IEC 61400-25
- DNP3

The increased requirements for dielectric strength and interference immunity according to EN 60870-2-1 are also completely fulfilled.

Interfaces and Types



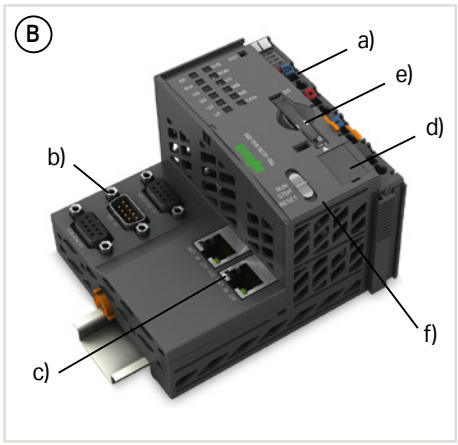
- Including supply module to power downstream I/O modules (a)
- Technical differences on the connection level (b)
- ETHERNET 2 x RJ-45 (c)
- Service interface (d)
- SD card slot for external storage media (e)
- Start/stop switch (f)

Housing design (A)

- W x H x D (mm) 78.6 x 71.9 x 100

Housing design (B)

- W x H x D (mm) 112 x 71.9 x 100



Item Number Key

Explanation of the components of an item number key

Item No. : 750-82xx/040-000

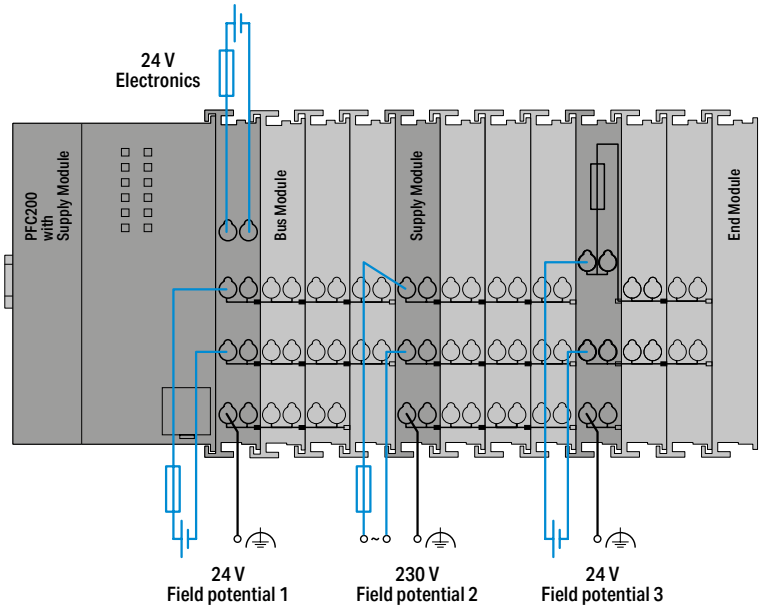
02: 2 x ETHERNET, RS-232/-485
06: 2 x ETHERNET, RS-232/-485, CAN, PROFIBUS-DP slave

.../040-000: Standard
.../040-001: Telecontrol technology

Controllers PFC200 XTR
Installation Instructions

Power Supply

The internal electronics are powered by the controller. The power supply to the field-side supply is electrically isolated. The division enables a separate supply for sensors and actuators. Snapping the I/O modules together automatically routes the supply voltages. Supply modules with diagnostics enable additional monitoring of the power supply. This configuration ensures a flexible, user-specific supply design for a station. The current supply to the electronics is limited by a maximum value. If the sum of the internal current demand of all the I/O modules should exceed this value, an additional system supply module is necessary. Even in this case, power supply to the field-side supply of 10 A may not be exceeded. However, different power supply modules allow a new power supply, formation of potential groups and the implementation of emergency stops.



4.2

Notes

Additional steps must be implemented based on where the I/O system is installed:

Specific power and field-side power supply filters (750-624/040-001 or 750-626/040-000) are ready for marine and onshore/offshore applications, as well as in telecontrol and rail technology.

Please refer to the manual for details about the power supply's design.

Mixed Operation

Mixed operation (standard/XTR modules) within a node is possible when groups of I/O modules are electrically isolated on the field side, i.e., electrically isolated power supply. The combination may be useful, for example, when there are only increased requirements for dielectric strength and immunity to interference, but the surrounding air temperature is not critical.

Standards and Rated Conditions for Rail Applications (EN 50155)

Railway Applications (EN 50155)	Class/Standard Compliance
4.1 Rated operating conditions	
4.1.1 Altitude above sea level	AX (EN 50125-1)
4.1.2 Surrounding air temperature	TX
4.1.3 Shock and vibration	1A and 1B (EN 61373)
4.1.4 Relative humidity	95 % (coated PCBs)
5.1 Power supply	
5.1.1.1 Master voltage fluctuations	
Minimum voltage	0.725 x Un
Maximum voltage	1.3 x Un
5.1.1.2 Power interruptions	S1
5.4 Surge, ESD, burst tests	EN 50121-3-2
5.5 EMC (emission of interference, immunity to interference)	EN 50121-3-2, EN 50121-4, -5
Fire behavior: per EN 45545-2 hazard level HL3	

WAGO is certified in accordance with the **IRIS** quality standard.

Controllers PFC200 XTR
Standards and Rated Conditions

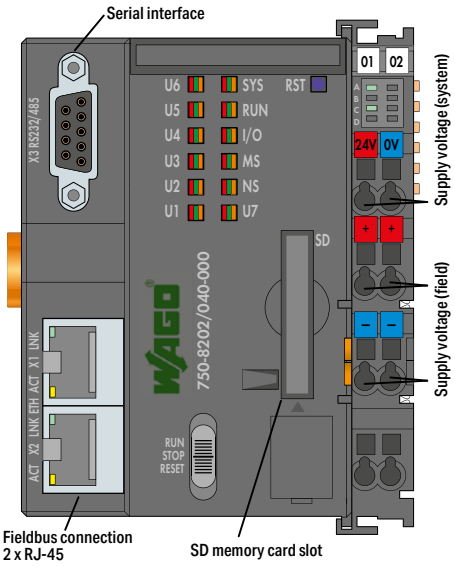
General Specifications	
Supply voltage (system)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection); Specified values for surrounding air temperature: +15 … +35 °C For −40 … +55 °C: 24 V (−25 … +20 %); For +55 … +70 °C: 24 V (−25 … +10 %); Lower limit in all temperature ranges: −27.5 % (including 15 % residual ripple)
Input current (typ.) at nominal load (24 V)	550 mA
Surrounding air temperature (operation)	−40 … +70 °C
Surrounding air temperature (storage)	−40 … +85 °C
Relative humidity	Max. 95 %; Short-term condensation per Class 3K7 / IEC EN 60721-3-3 and E DIN 40046-721-3 (except wind-driven precipitation, water and ice formation)
Operating altitude	Without temperature derating: 0 … 2000 m; With temperature derating: 2000 … 5000 m (0.5 K/100 m); max.: 5000 m
Pollution degree	2 per IEC 61131-2
Immunity to impulse voltages	Per EN 60870-2-1 510 VAC/775 VDC Isolation: rated surge voltage 1 kV (Class VW1 per EN 60870-2-1) Surge: 1 kV (L - L) / 2 kV (L - E)
Vibration resistance	Per IEC 60068-2-6 (acceleration: 5g); EN 60870-2-2; IEC 60721-3-1, -3; EN 50155; EN 61373
Shock resistance	Per IEC 60068-2-27 (15g/11 ms/half-sine/1,000 shocks; 25g/6 ms/1,000 shocks); EN 50155; EN 61373
EMC immunity to interference	Per EN 61000-6-1, -2; EN 61131-2; Marine applications; EN 50121-3-2, -4, -5; EN 60255-26; EN 60870-2-1; EN 61850-3; IEC 61000-6-5; IEEE 1613; VDEW: 1994
EMC emission of interference	Per EN 61000-6-3, -4; EN 61131-2; EN 60255-26; Marine applications; EN 60870-2-1; EN 61850-3; EN 50121-3-2; -4, -5
Protection type	IP20
Mounting position	Horizontal (standing/lying) or vertical
Mounting type	DIN-35 rail
Housing material	Polycarbonate; polyamid 6.6
Exposure to pollutants	Per IEC 60068-2-42 and IEC 60068-2-43
Permissible SO_2 contaminant concentration at a relative humidity < 75 %	25 ppm
Permissible H_2S contaminant concentration at a relative humidity < 75 %	10 ppm
Connection technology	CAGE CLAMP®
Conductor cross sections Strip length	0.25 … 2.5 mm²/24 … 14 AWG 8 … 9 mm / 0.31 … 0.35 inch
Current carrying capacity (power jumper contacts)	10 A

Approvals

Overview of the approvals in the article comparison in Section 11, Technical Appendix, or online at www.wago.com

Controller PFC200; 2 x ETHERNET, RS-232/-485; Extreme

Figure: 750-8202/040-000



Item description	Controller PFC200; 2 x ETHERNET; RS-232/-485	
Version	Extreme	Telecontrol technology; extreme
Item No.	750-8202/040-000	750-8202/040-001
Order text	PFC200; 2ETH RS; XTR	PFC200; 2ETH RS; Tele; XTR

4.2

Technical Data		
Communication	Modbus (TCP, UDP, RTU); EtherNet/IP adapter (slave)[1]; MQTT; RS-232/-485 interface	Modbus (TCP, UDP, RTU); MQTT; Telecontrol protocols; RS-232/-485 interface
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH	
Telecontrol protocols		IEC 60870-5-101/-103/-104; IEC 61850-7-4; IEC 61400-25; DNP3
Visualization	Web-Visu	
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3); *e!COCKPIT* (based on CODESYS V3)	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
CPU	Cortex A8; 600 MHz	
Operating system	Real-time Linux (with RT-Preempt patch)	
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)	256 MB / 256 MB / 128 KB	
Program memory/data memory/non-volatile memory (software)	CODESYS V2: 16 MB / 64 MB / 128 KB	
	e!RUNTIME: 60 MB* / 60 MB* / 128 KB	
Number of modules per node (max.)	64	
Input and output process image (internal) max.	1000 words	
Input and output process image (MODBUS) max.	CODESYS V2: 1000 words	
	e!RUNTIME: 32000 words	
Supply voltage (system)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection); Specified values for surrounding air temperature: +15 … +35 °C; For −40 … +55 °C: 24 V (−25 … +20 %); For +55 … +70 °C: 24 V (−25 … +10 %); Lower limit in all temperature ranges: −27.5 % (including 15 % residual ripple)	
Supply voltage (field)	24 VDC; via power jumper contacts	
Input current (typ.) at nominal load (24 V)	550 mA	
Current consumption – system supply (5 V)	510 mA	
Total current (system supply)	1700 mA	
Surrounding air temperature (operation)	−40 … +70 °C	
Dimensions W x H x D	78.6 x 71.9 x 100 mm	
Approvals	CE; Marine; OrdLoc/HazLoc; ATEX/IECEx	
Data sheet and further information, see:	wago.com/750-8202/040-000	wago.com/750-8202/040-001

Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470

[1] Library for *e!RUNTIME*

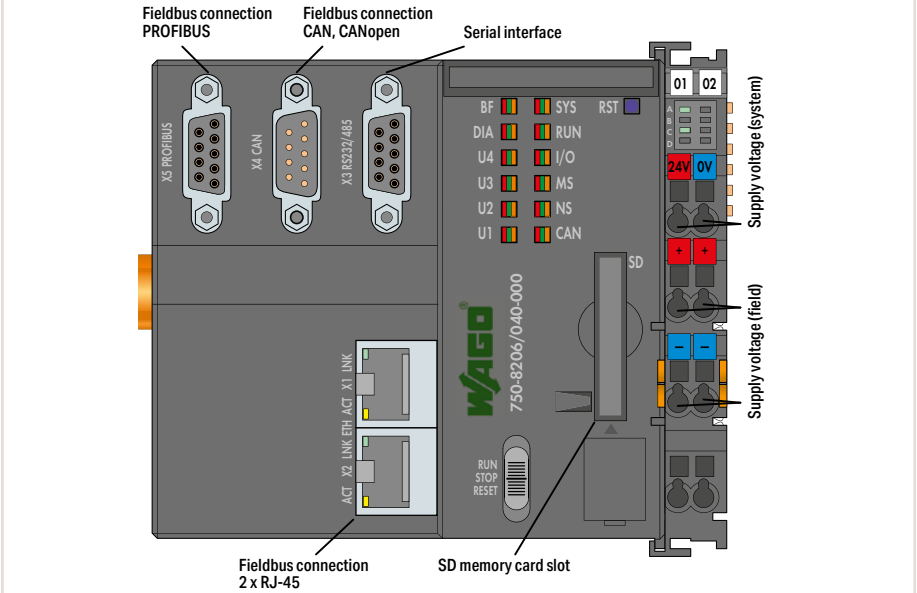
*For memory configuration via *e!RUNTIME*, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.

„ Software *e!COCKPIT*, WAGO-I/O-*PRO* V2.3, see Section 2, page 26 and 32

„ Approvals and corresponding ratings, see page 516 or www.wago.com

Controller PFC200; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Slave; Extreme

Figure: 750-8206/040-000



Item description	Controller PFC200; 2 x ETHERNET, RS-232/-485, CAN, CANopen, PROFIBUS Slave	
Version	**Extreme**	**Telecontrol technology; extreme**
Item No.	**750-8206/040-000**	**750-8206/040-001**
Order text	PFC200; 2ETH RS CAN DPS; XTR	PFC200; 2ETH RS CAN DPS; Tele; XTR

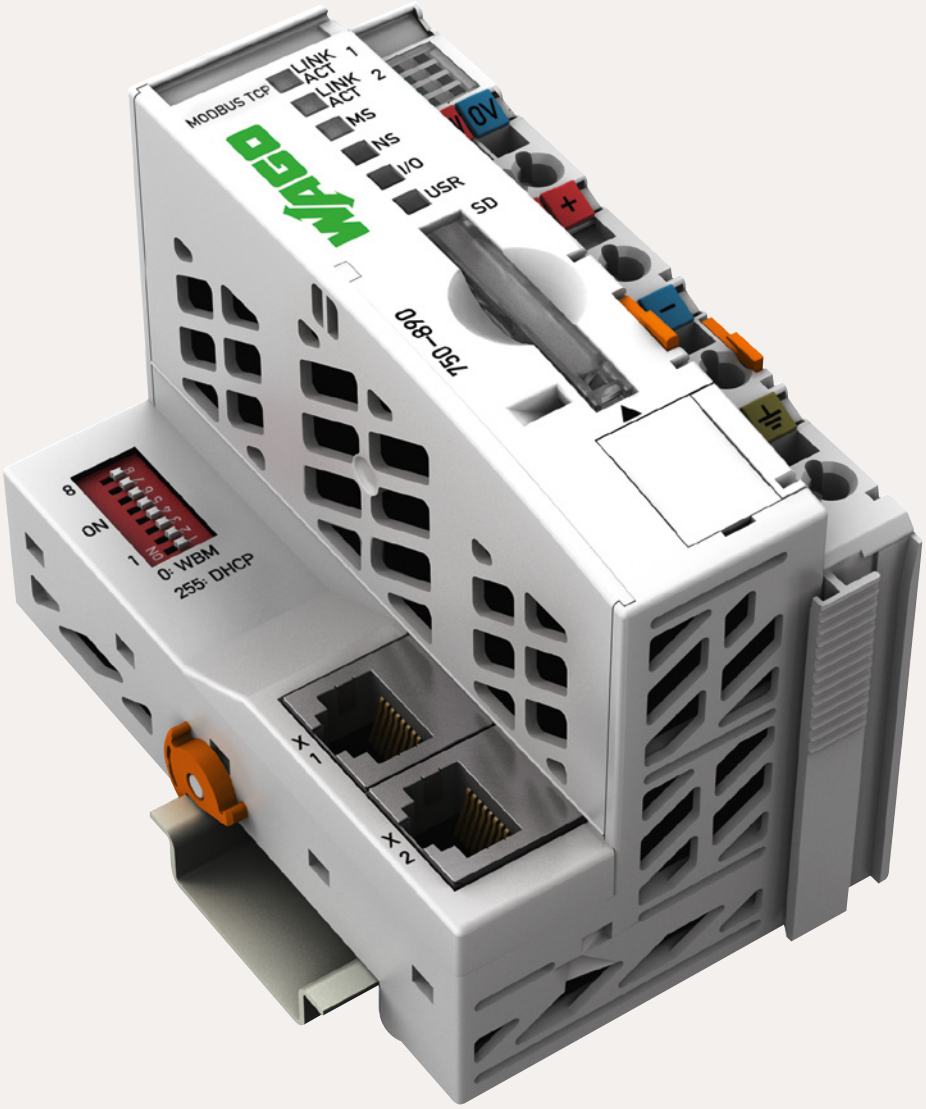
Technical Data

Communication	Modbus (TCP, UDP, RTU); EtherNet/IP adapter (slave)1); MQTT; PROFIBUS; CANopen; RS-232/-485 interface	Modbus (TCP, UDP, RTU); MQTT; PROFIBUS; CAN; CANopen; Telecontrol protocols; RS-232/-485 interface
ETHERNET protocols	DHCP; DNS; NTP; FTP; FTPS; SNMP; HTTP; HTTPS; SSH	
Telecontrol protocols		IEC 60870-5-101/-103/-104; IEC 61850-7-4; IEC 61400-25; DNP3
Visualization	Web-Visu	
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3); ***e!COCKPIT*** (based on CODESYS V3)	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
CPU	Cortex A8; 600 MHz	
Operating system	Real-time Linux (with RT-Preempt patch)	
Main memory (RAM)/internal memory (flash)/ non-volatile memory (hardware)	256 MB / 256 MB / 128 KB	
Program memory/data memory/non-volatile memory (software)	CODESYS V2: 16 MB / 64 MB / 128 KB	
	e!RUNTIME: 60 MB* / 60 MB* / 128 KB	
Number of modules per node (max.)	64	
Input and output process image (internal) max.	1000 words	
Input and output process image (MODBUS)/ (PROFIBUS)/(CAN) max.	CODESYS V2: 1000 words / 244 bytes / 2000 words	
	e!RUNTIME: 32000 words / 244 bytes / 2000 words	
Supply voltage (system)	24 VDC (–25 … +30 %); via wiring level (CAGE CLAMP® connection); Specified values for surrounding air temperature: +15 … +35 °C; For –40 … +55 °C: 24 V (–25 … +20 %); For +55 … +70 °C: 24 V (–25 … +10 %); Lower limit in all temperature ranges: –27.5 % (including 15 % residual ripple)	
Supply voltage (field)	24 VDC; via power jumper contacts	
Input current (typ.) at nominal load (24 V)	550 mA	
Current consumption – system supply (5 V)	600 mA	
Total current (system supply)	1700 mA	
Surrounding air temperature (operation)	–40 … +70 °C	
Dimensions W x H x D	112 x 71.9 x 100 mm	
Approvals	CE; KC; Marine; OrdLoc/HazLoc; ATEX/IECEx	
Data sheet and further information, see:	wago.com/750-8206/040-000	wago.com/750-8206/040-001

Accessories	Item No.	Page
SD memory card; 2 GB	**758-879/000-001**	470

[1)] Library for ***e!RUNTIME***

*For memory configuration via ***e!RUNTIME***, the program and data memory together have a maximum size of 60 MB and can be distributed dynamically.



Controllers 750

Touch-Panel 600 Standard/Advanced Line; Hardware configuration Control Panel

- Merging of control and visualization
- 10.9 … 25.7 cm (4.3 … 10.1")

◄◄◄ Section 3

Controllers PFC200 XTR

The advantages of the PFC Controller combined with the capabilities for extreme environments:

- High processing speed
- Multiple interfaces
- eXTRemely robust and maintenance-free

◄ Section 4.2

Controllers 750 XTR

For demanding applications in which the following are critical:

- Extreme temperature stability
- Immunity to electromagnetic interference and impulse voltages
- Vibration and shock resistance

Section 4.4 ►

Controllers PFC100/PFC200

- Maximum performance in a minimum space
- Also programmable in high-level languages based on Linux®
- Security packages with SSH and SSL/TLS
- Runtime system for CODESYS V2 (only PFC200) and V3

◄◄ Section 4.1

Controllers 750

- Controllers for all prominent fieldbus systems
- Programmable to IEC 61131-3
- Combinable with the modules of the WAGO-I/O-SYSTEM 750

Starter Kits

To get you up and running quickly, we offer starter kits to suit the most diverse applications:

- With Controller PFC100
- With Controller PFC200
- With Controller 750 ETHERNET
- With Controller 750 KNX IP or BACnet/IP

Section 4.5 ►►

Controllers 750
Contents

	CPU	ETHERNET: Modbus (TCP, UDP)	ETHERNET: EtherNet/IP	ETHERNET: BACnet/IP	ETHERNET: KNX IP	Modbus RTU	Telecontrol Protocols: IEC 60870, IEC 61850/61400, DNP3	BACnet MS/TP	DeviceNet	PROFIBUS	CANopen	Description	Item No. Default	Item No. Ext. Temperature	
	32 bits	M/S	S									Controller ETHERNET; 3rd generation; SD card slot	**750-880**	**750-880/025-000**	108
		M/S	S				x					Controller ETHERNET; 3rd generation; SD card slot; Telecontrol technology; Ext. temperature		**750-880/025-001**	108
		M/S	S				x					Controller ETHERNET; 3rd generation; SD card slot; Telecontrol technology; Ext. temperature; Eco		**750-880/025-002**	108
		M/S										Controller Modbus TCP; 4th generation; SD card slot	**750-890**		109
		M/S	S									Controller ETHERNET; 3rd generation	**750-881**		109
		M/S										Controller Modbus TCP; 4th generation	**750-891**		109
		M/S	S									Controller ETHERNET; 3rd generation; SD card slot; Media redundancy	**750-885**	**750-885/025-000**	110
		M/S	S									Controller ETHERNET; 3rd generation; Media redundancy	**750-882**		110
	32 bits	M/S	S									Controller ETHERNET; 3rd generation; Eco	**750-852**		111
		M/S										Controller Modbus TCP; 4th generation; Eco	**750-862**		111
	16 bits	M/S										Controller ETHERNET; 1st generation	**750-842**		112
		M/S										Controller ETHERNET; 1st generation; Eco	**750-843**		112
	32 bits	M/S			x							Controller KNX/IP	**750-889**		113
	32 bits	M/S		x								Controller BACnet/IP	**750-831**		114
		M/S		x								Controller BACnet/IP; Eco	**750-831/000-002**		114
	32 bits	M/S						x				Controller BACnet MS/TP	**750-829**		115
	16 bits								x			Controller DeviceNet	**750-806**		116
	16 bits					x						Controller MODBUS; RS-485; 115.2 kBd	**750-815/300-000**	**750-815/325-000**	117
						x						Controller MODBUS; RS-232; 115.2 kBd	**750-816/300-000**		117
	16 bits									S		Controller PROFIBUS Slave	**750-833**	**750-833/025-000**	118
	16 bits										M/S	Controller CANopen; 128/64 KB Program/RAM; *MCS*	**750-837**		119
											M/S	Controller CANopen; 640/832 KB Program/RAM; *MCS*	**750-837/021-000**		119
											M/S	Controller CANopen; 128/64 KB Program/RAM; D-Sub	**750-838**		119
											M/S	Controller CANopen; 640/832 KB Program/RAM; D-Sub	**750-838/021-000**		119

M: Master, S: Slave

Controllers 750
General Product Information

Controllers 750:

Open – Flexible – Compact

WAGO's controllers are ideal for a wide variety of applications ranging from industrial, process and building automation to measurement and data collection. Based on the fieldbus couplers for all standard fieldbus systems, they are programmable to IEC 61131-3. Direct connection to a wide range of I/O modules from the WAGO-I/O-SYSTEM 750 optimizes adaptation to the application.

Building Automation

Thanks to specific characteristics, controllers for the BACnet/IP and KNX IP bus systems are optimized for building automation. The diverse product range of stackable I/O modules allows integration of external systems such as lighting control (DALI), sun protection (SMI), wireless switches (EnOcean) and much more.

Marine Systems and Onshore/Offshore Industry

International approvals coupled with industry-specific features permit use in shipbuilding and other harsh sectors. Addressing requirements inherent in specific industries and operating environments has enabled use on marine diesels and in the EMC-sensitive area of a vessel's bridge. Because the requirements are significantly greater for immunity to interference or emission of interference, along with superior mechanical performance in these sensitive areas, the WAGO-I/O-SYSTEM can readily meet the needs of other industries.

Telecontrol Technology

Standardized IEC 60870-5, IEC 61850 or IEC 61400-25 telecontrol protocols allow the 750 Series Controllers to be used in telecontrol applications.

Starter Kits

For a quick start, WAGO offers every customer the unique opportunity to purchase a starter kit that already contains all the components needed to begin programming and getting to know the controllers. For starter kits, see Section 4.5.

Link between Process Data and IT Application

The controllers ideally combine real-time requirements with IT functionality. They support Modbus/TCP and EtherNet/IP for use in industrial environments. HTTP, HTTPS, SNTP, SNMP, FTP, BootP, DHCP, DNS and other protocols simplify integration into IT environments. Integrated Web pages and Web-based visualization provide IT applications with real-time process data. Furthermore, the 750 Series Controllers incorporate library functions for email, SOAP, ASP, IP configuration, ETHERNET sockets and file system.

Worldwide Approvals

International approvals for building and industrial automation, as well as the process and marine industries, guarantee worldwide use – even under harsh operating conditions. These recognitions include: ATEX, BR-Ex, IECEx, UL508, UL ANSI/ISA, AEx and numerous marine certifications.

Modular and Expandable

With the WAGO-I/O-SYSTEM 750, the 750 Series Controllers can be expanded to almost any input/output interface. A modular, DIN-rail-mount design permits easy installation, expansion and modification of the I/O node without tools.
The straightforward design prevents installation errors. In addition, proven CAGE CLAMP® technology offers fast, vibration-proof and maintenance-free connections that are independent of operator skill. Depending on the I/O module's granularity, field levels can be directly wired using 1-, 2-, 3- or 4-wire technology.

Maximum Reliability and Ruggedness

The WAGO-I/O-SYSTEM is engineered and tested for use in the most demanding environments (e.g., temperature cycling, shock/vibration loading and ESD) according to the highest standards. Spring pressure connection technology guarantees continuous operation. Integrated QA measures in the production process and 100% function testing ensure consistent quality.

Advantages:

- Controllers for all prominent fieldbus systems
- Industry-specific features
- Programmable via CODESYS per IEC 61131-3
- Expandable with the comprehensive WAGO-I/O-SYSTEM 750 product range
- Extensive IT integration possibilities
- Tested and approved worldwide
- Maintenance-free

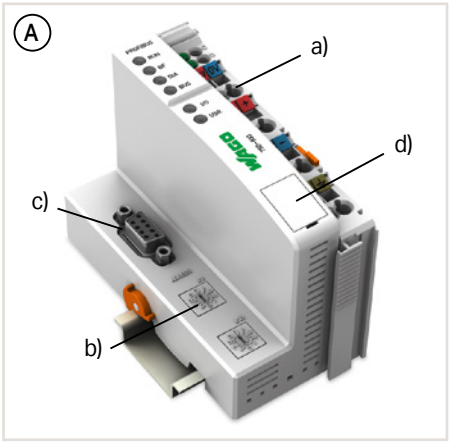
Controllers 750
Versions

Extended Temperature Range

Industrial automation technology is typically operated in temperatures ranging from 0°C to 55°C. However, there are applications that require an extended temperature range. Select controllers are available in an extended temperature range of –20°C to +60°C.

For extreme applications, where even this extended temperature range is not sufficient, the WAGO- I/O-SYSTEM 750 XTR is available.

Interfaces and Types



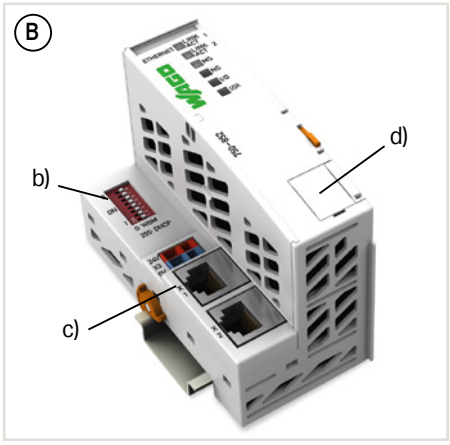
- Technical differences on the connection level; optional addressing switch (b) and fieldbus interface (c)
- Service interface (d)

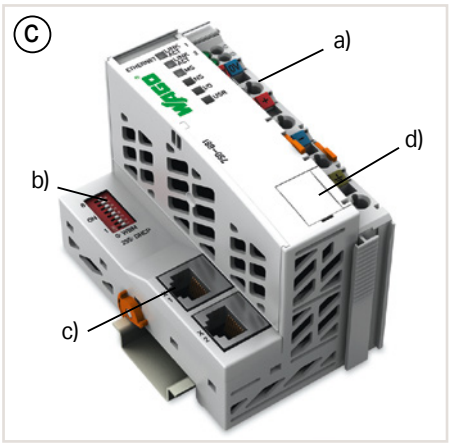
Housing design (A)

- Including supply module to power downstream I/O modules (a)
- W x H x D (mm) 50.5 x 71.1 x 100

Housing design Eco (B)

- W x H x D (mm) 49.5 x 71.9 x 96.8



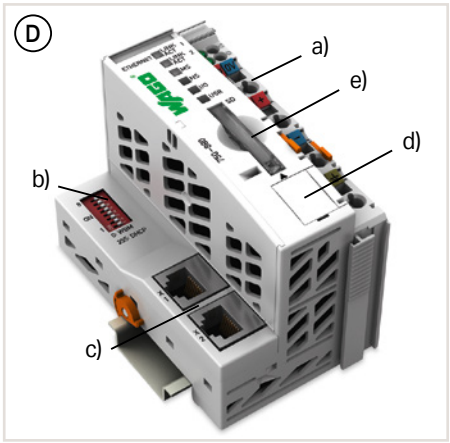


Housing design (C)

- Including supply module to power downstream I/O modules (a)
- W x H x D (mm) 61.5 x 71.9 x 100

Housing design (D)

- Including supply module to power downstream I/O modules (a)
- SD card slot for external storage media (e)
- W x H x D (mm) 61.5 x 71.9 x 100



Item Number Key

Explanation of the components of an item number key

Item No.: 750-8xx

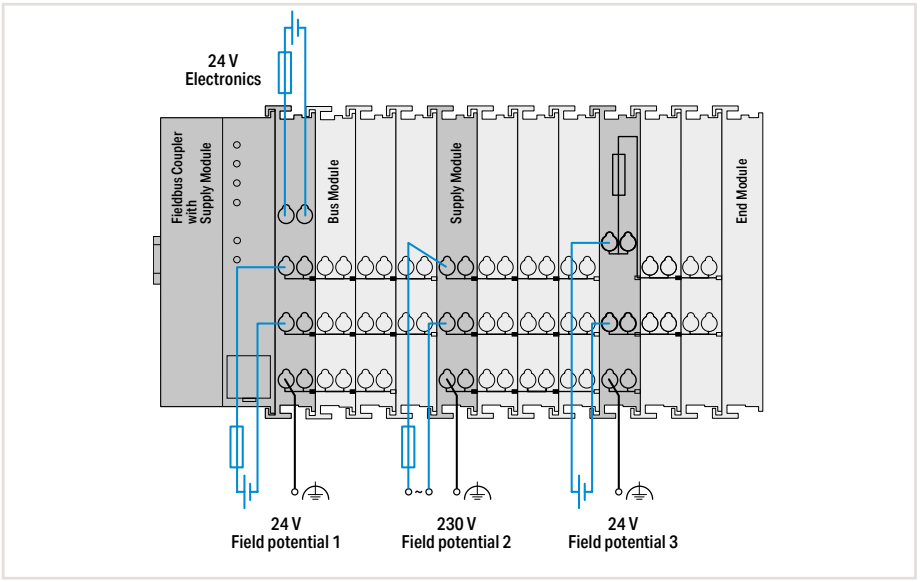
0x, 1x: 16-bit CPU	INTERBUS, DeviceNet, MODBUS
2x, 3x:	BACnet, PROFIBUS, CANopen
4x:	ETHERNET
5x, 6x: 32 bits	ETHERNET Eco
7x, 8x: 32-bit multitasking	ETHERNET, telecontrol technology, media redundancy, KNX IP

.../025–000: Extended temperature range of –20 ... +60 °C

Controllers 750
Installation Instructions

Power Supply

The internal electronics are powered by the controller. The field-side power supply is electrically isolated via the supply module on the controller or a separate power supply module. The division enables a separate supply for sensors and actuators. Snapping the I/O modules together automatically routes the supply voltages (system power supply 5 VDC via the data contacts and field supply via the optional power jumper contacts). Supply modules with diagnostics enable additional monitoring of the power supply. This ensures a flexible, user-specific supply design for a station.
The current supply to the electronics is limited by a maximum value. This value is dependent on the controller used. If the sum of the internal current demand of all the I/O modules should exceed this value, an additional system supply module is necessary. Even in this case, power supply to the field-side supply of 10 A may not be exceeded. However, different power supply modules allow a new power supply, formation of potential groups and the implementation of emergency stops.



Interference-Free in Safety-Related Applications

4.3

To easily and safely perform cost-effective, centralized deactivation of complete actuator groups, the actuator's power supply can be switched off using a safety switching device. This can either be performed for each individual actuator or by turning off the power supply to a group of control outputs.
In the event of failure, ensure that no interference from other current or power circuits occurs – even when the control voltage is switched off – so the defined safety function properties (logic and time response) remain unchanged.

Some modules are designed to provide interference-free safety functionality. These modules comply with safety requirements up to Category 4 of DIN EN ISO 13849-1:2007. Safety category and performance level depend solely on the safety components and their wiring.

Notice:

WAGO's interference-free I/O modules are not a component of the safety function and do not replace the safety switching device! When using the components in safety functions, the corresponding notes must be observed in the relevant manual.

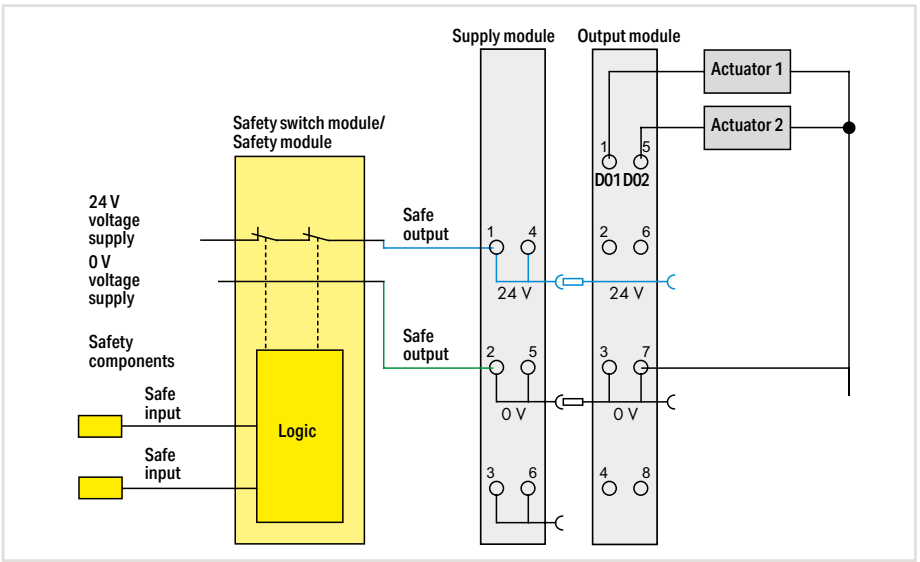
Notes

Additional steps must be implemented based on where the I/O system is installed:

- Specific power and field-side power supply filters (750-624 or 750-626) are required for marine and onshore/offshore applications.
- A specific supply module (750-606) is required to operate intrinsically safe Ex i modules.

Additionally, both a supply module and a field-side power supply filter are recommended when operating intrinsically safe Ex i modules for marine and onshore/offshore applications.
As part of operating safety-related I/O modules, PELV/SELV power supply units must be used for 24 VDC supply of electronics and field. In addition, specific power and field-side power supply filters must be provided (750-626).

Please refer to the manual for details about the power supply's design.



Example: 2-channel, double-pole power supply disconnection

Controllers 750
Standards and Rated Conditions

General Specifications	
Supply voltage (system)	24 VDC (−25 … +30 %)*; *for all marine-certified controllers
Isolation	500 V (system/supply)
Surrounding air temperature (operation)	0 … +55 °C
Surrounding air temperature (operation) for versions with an extended temperature range	−20 … +60 °C
Surrounding air temperature (storage)	−40 … +85 °C
Relative humidity	95 % (non condensing)
Relative humidity for versions with an extended temperature range	Max. 95 %, short-term condensation per Class 3K6 / IEC EN 60721-3-3 and E DIN 40046-721-3, taking a temperature range of −20 to +60 °C into consideration (except wind-driven precipitation, water and ice formation)
Operating altitude	0 … 2000 m
Pollution degree	2 per IEC 61131-2
Vibration resistance	0.5g (4g for all marine-certified controllers) per IEC 60068-2-6
Shock resistance	15g per IEC 60068-2-27
EMC immunity to interference	Per EN 61000-6-2
EMC emission of interference	Per EN 61000-6-3, EN 61000-6-4
Protection type	IP20
Mounting type	DIN-35 rail mounting
Housing material	Polycarbonate; polyamid 6.6
Exposure to pollutants	Per IEC 60068-2-42 and IEC 60068-2-43
Permissible SO_2 contaminant concentration at a relative humidity < 75 %	25 ppm
Permissible H_2S contaminant concentration at a relative humidity < 75 %	10 ppm
Connection technology	CAGE CLAMP®
Conductor cross sections; strip length for standard controllers: Eco Controllers:	0.08 … 2.5 mm²/28 … 14 AWG; 8 … 9 mm / 0.31 … 0.35 inch 0.08 … 1.5 mm²/28 … 16 AWG; 5 … 6 mm / 0.2 … 0.24 inch
Current carrying capacity (power jumper contacts)	10 A

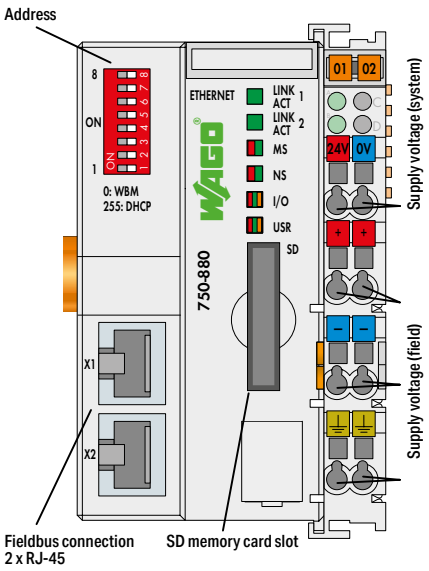
Approvals

Overview of the approvals in the article comparison in Section 11, Technical Appendix, or online at www.wago.com

Controller ETHERNET; Modbus TCP

Figure: 750-880

Figure: 750-881



Item description	Controller ETHERNET; 3rd generation; SD card slot			
Version	**Default**	**Ext. temperature**	**Telecontrol technology; ext. temperature**	**Telecontrol technology; ext. temperature; Eco**
Item No.	**750-880**	**750-880/025-000**	**750-880/025-001**	**750-880/025-002**
Order text	Controller ETHERNET; G3; SD	Controller ETHERNET; G3; SD; T	Controller ETHERNET; G3; SD; Tele; T	Controller ETHERNET; G3; SD; Tele; T; Eco

For new installations, please consider the 750-890 Controller with extended functionality.

4.3

Technical Data

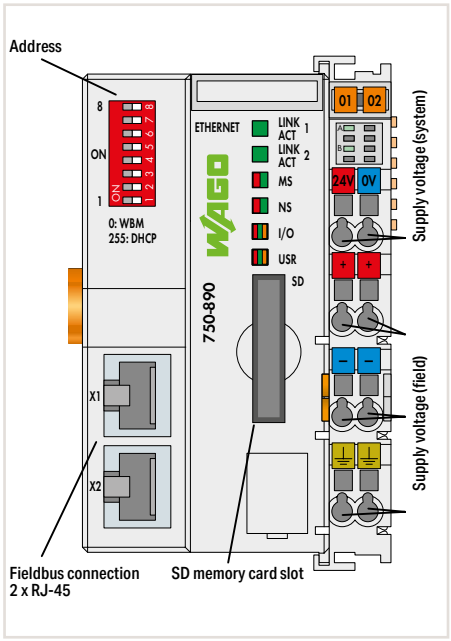
Communication	EtherNet/IP; Modbus (TCP, UDP)	EtherNet/IP; Modbus (TCP, UDP); Telecontrol protocols	
ETHERNET protocols	HTTP; BootP; DHCP; DNS; SNTP; FTP; SNMP		
Telecontrol protocols		IEC 60870-5-101/-103/-104; IEC 61850-7-4; IEC 61400-25; DNP3	
Connection technology: Fieldbus input/output	2 x RJ-45		
Baud rate	10/100 Mbit/s		
Visualization	Web-Visu		
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)		
Type of memory card	SD and SDHC to 32 GB*		
Program memory/data memory/non-volatile memory (software)	1024 KB / 1024 KB / 32 KB		
Number of modules per node (max.)	250	4	
Input and output process image (internal) max.	1020 words		
Supply voltage (system)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection)		
Supply voltage (field)	24 VDC (−25 … +30 %); via power jumper contacts		
Input current (typ.) at nominal load (24 V)	500 mA		
Current consumption – system supply (5 V)	450 mA		
Total current (system supply)	1700 mA		
Surrounding air temperature (operation)	0 … +55 °C	−20 … +60 °C	
Dimensions W x H x D	61.5 x 71.9 x 100 mm		
Approvals	CE; Marine; OrdLoc/HazLoc; ATEX/IECEx		
Data sheet and further information, see:	wago.com/750-880		

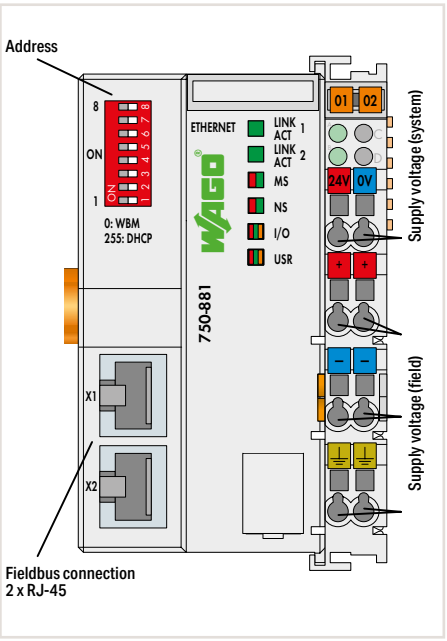
Accessories	Item No.	Page
SD memory card; 2 GB	**758-879/000-001**	470

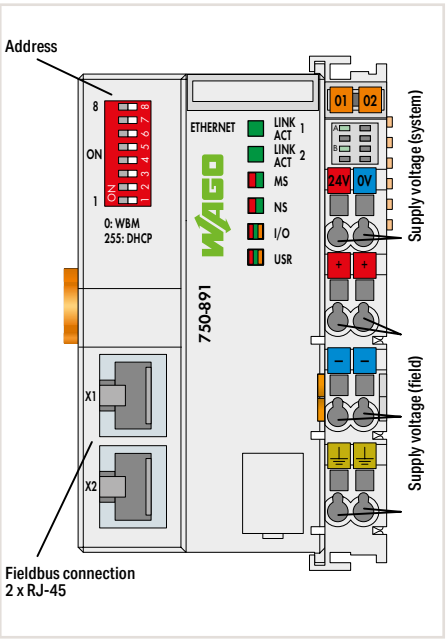
„ WAGO-I/O-*PRO* V2.3 Software, see Section 2, page 32

„ Approvals and corresponding ratings, see page 516 or www.wago.com

*All guaranteed specifications are only valid with the WAGO memory card listed as an accessory.







Controller Modbus TCP; 4th generation; SD card slot	Controller ETHERNET; 3rd generation	Controller Modbus TCP; 4th generation
Default	Default	Default
750-890	750-881	750-891
Controller Modbus TCP; G4; SD	Controller ETHERNET; G3	Controller Modbus TCP; G4
	For new installations, please consider the 750-891 Controller with extended functionality.	
Modbus (TCP, UDP)	EtherNet/IP; Modbus (TCP, UDP)	Modbus (TCP, UDP)
HTTP(S); BootP; DHCP; DNS; SNTP; (S)FTP; SNMP	HTTP; BootP; DHCP; DNS; SNTP; FTP; SNMP	HTTP(S); BootP; DHCP; DNS; SNTP; (S)FTP; SNMP
2 x RJ-45	2 x RJ-45	2 x RJ-45
10/100 Mbit/s	10/100 Mbit/s	10/100 Mbit/s
Web-Visu	Web-Visu	Web-Visu
WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
SD and SDHC to 32 GB*		
8192 KB / 8192 KB / 32 KB	1024 KB / 512 KB / 32 KB	4096 KB / 4096 KB / 32 KB
250	250	250
1020 words	1020 words	1020 words
24 VDC (−25 … 30 %); via wiring level (CAGE CLAMP® connection)	24 VDC (−25 … 30 %), via wiring level (CAGE CLAMP® connection)	24 VDC (−25 … 30 %), via wiring level (CAGE CLAMP® connection)
24 VDC (−25 … +30 %); via power jumper contacts	24 VDC (−25 … +30 %); via power jumper contacts	24 VDC (−25 … +30 %); via power jumper contacts
500 mA	500 mA	500 mA
440 mA	450 mA	390 mA
1700 mA	1700 mA	1700 mA
0 … +55 °C	0 … +55 °C	0 … +55 °C
61.5 x 71.9 x 100 mm	61.5 x 71.9 x 100 mm	61.5 x 71.9 x 100 mm
CE; Marine; OrdLoc**/HazLoc; ATEX/IECEx	CE; Marine; OrdLoc/HazLoc; ATEX/IECEx	CE; Marine; OrdLoc*/HazLoc; ATEX/IECEx
wago.com/750-890	wago.com/750-881	wago.com/750-891

Item No.	Page
758-879/000-001	470

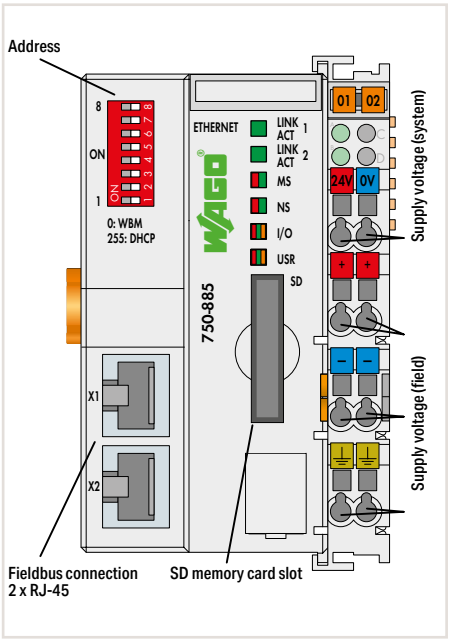
*All guaranteed specifications are only valid with the WAGO memory card listed as an accessory.
**Pending

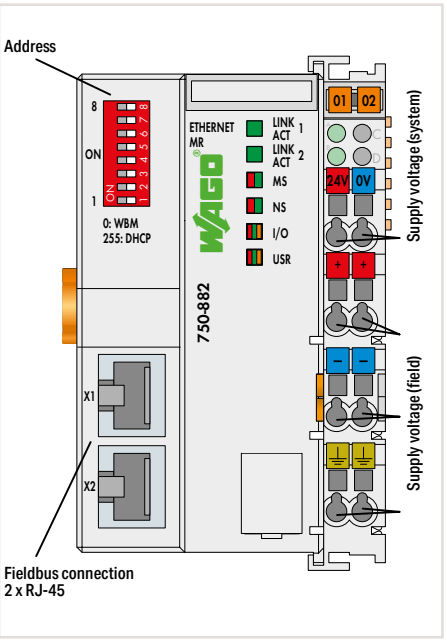
*Pending

Controller ETHERNET; Media Redundancy

Figure: 750-885

Figure: 750-882





Item description	Controller ETHERNET; 3rd generation; SD card slot; Media redundancy		Controller ETHERNET; 3rd generation; Media redundancy
Version	**Default**	**Ext. temperature**	**Default**
Item No.	**750-885**	**750-885/025-000**	**750-882**
Order text	Controller ETHERNET; G3; SD; MR	Controller ETHERNET; G3; SD; MR; T	Controller ETHERNET; G3; MR
Technical Data			
Communication	EtherNet/IP; Modbus (TCP, UDP)		EtherNet/IP; Modbus (TCP, UDP)
ETHERNET protocols	HTTP; BootP; DHCP; DNS; SNTP; FTP; SNMP		HTTP; BootP; DHCP; DNS; SNTP; FTP; SNMP
Connection technology: Fieldbus input/output	2 x RJ-45		2 x RJ-45
Baud rate	10/100 Mbit/s		10/100 Mbit/s
Redundancy function	Application-based communication redundancy		Application-based communication redundancy
Visualization	Web-Visu		Web-Visu
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)		WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
Type of memory card	SD and SDHC to 32 GB*		
Program memory/data memory/non-volatile memory (software)	1024 KB / 1024 KB / 32 KB		1024 KB / 512 KB / 32 KB
Number of modules per node (max.)	250		250
Input and output process image (internal) max.	1020 words		1020 words
Supply voltage (system)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection)		24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)	24 VDC (−25 … +30 %); via power jumper contacts		24 VDC (−25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)	500 mA		500 mA
Current consumption – system supply (5 V)	450 mA		450 mA
Total current (system supply)	1700 mA		1700 mA
Surrounding air temperature (operation)	0 … +55 °C	−20 … +60 °C	0 … +55 °C
Dimensions W x H x D	61.5 x 71.9 x 100 mm		61.5 x 71.9 x 100 mm
Approvals	CE; KC; Marine; cULus OrdLoc/HazLoc; ATEX/IECEx		CE; KC; Marine; cULus OrdLoc/HazLoc; ATEX/IECEx
Data sheet and further information, see:	wago.com/750-885		wago.com/750-882

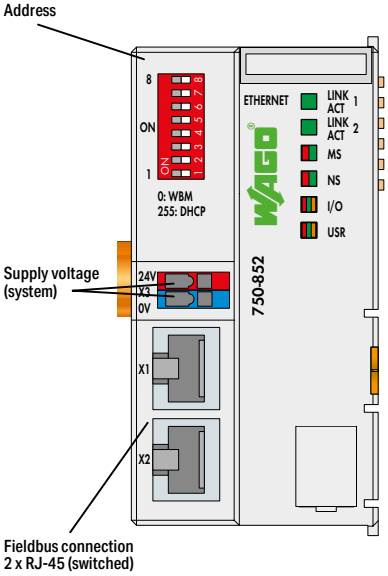
Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470

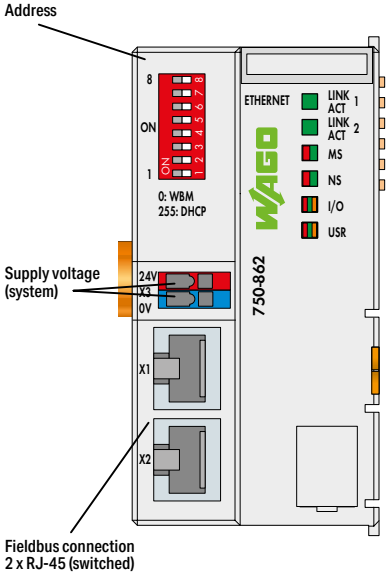
*All guaranteed specifications are only valid with the WAGO memory card listed as an accessory.

- WAGO-I/O-*PRO* V2.3 Software, see Section 2, page 32
- Mini-WSB marker card and mounting accessories, see Section "Accessories and Tools"
- Approvals and corresponding ratings, see page 516 or www.wago.com

Controller ETHERNET; Modbus TCP; Eco

Figure: 750-852



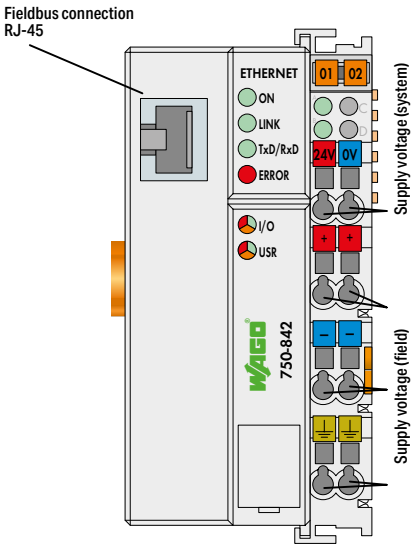


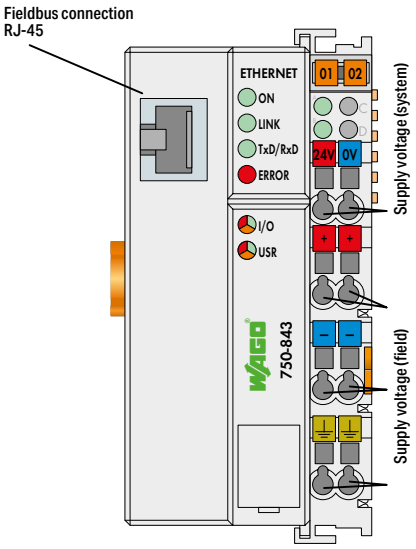
Item description	Controller ETHERNET; 3rd generation; Eco	Controller Modbus TCP; 4th generation; Eco
Item No.	**750-852**	**750-862**
Order text	Controller ETHERNET; G3; Eco For new installations, please consider the 750-862 Controller with extended functionality.	Controller Modbus TCP; G4; Eco
Technical Data		
Communication	EtherNet/IP; Modbus (TCP, UDP)	Modbus (TCP, UDP)
ETHERNET protocols	HTTP; BootP; DHCP; DNS; SNTP; FTP	HTTP(S); BootP; DHCP; DNS; SNTP; (S)FTP; SNMP
Connection technology: Fieldbus input/output	2 x RJ-45	2 x RJ-45
Baud rate	10/100 Mbit/s	10/100 Mbit/s
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
Program memory/data memory/non-volatile memory (software)	512 KB / 256 KB / 8 KB	2048 KB / 2048 KB / 16 KB
Number of modules per node (max.)	250	250
Input and output process image (internal) max.	1020 words	1020 words
Supply voltage (system)	24 VDC (–25 … +30 %), via wiring level	24 VDC (–25 … +30 %), via wiring level
Input current (typ.) at nominal load (24 V)	300 mA	300 mA
Current consumption – system supply (5 V)	400 mA	390 mA
Total current (system supply)	700 mA	700 mA
Surrounding air temperature (operation)	0 … +55 °C	0 … +55 °C
Dimensions W x H x D	49.5 x 71.9 x 96.8 mm	49.5 x 71.9 x 96.8 mm
Approvals	CE; Marine; OrdLoc/HazLoc; ATEX/IECEx	CE; Marine; OrdLoc*/HazLoc; ATEX/IECEx
Data sheet and further information, see:	wago.com/750-852	wago.com/750-862

*Pending

Controller ETHERNET

Figure: 750-842





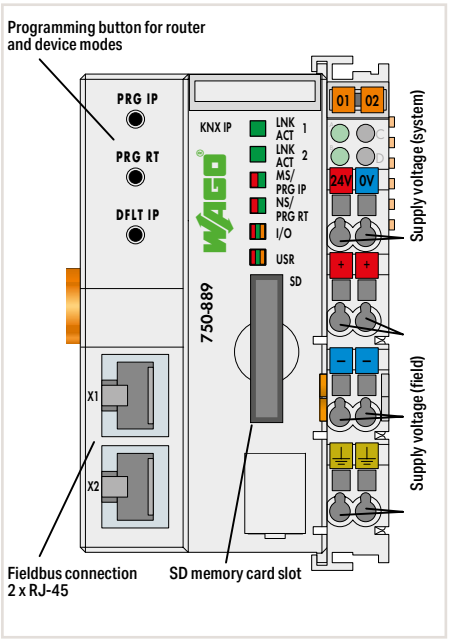
Item description	Controller ETHERNET; 1st generation	Controller ETHERNET; 1st generation; Eco
Item No.	750-842	750-843
Order text	Controller ETHERNET; G1	Controller ETHERNET; G1; Eco
Technical Data		
Communication	Modbus (TCP, UDP)	Modbus (TCP, UDP)
ETHERNET protocols	HTTP; BootP	HTTP; BootP
Connection technology: Fieldbus input/output	RJ-45	RJ-45
Baud rate	10 Mbit/s	10 Mbit/s
Visualization	Without	Without
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
Program memory/data memory/non-volatile memory (software)	128 KB / 64 KB / 8 KB	64 KB / 64 KB / 8 KB
Number of modules per node (max.)	64	64
Input and output process image (internal) max.	512 bytes	512 bytes
Memory for fieldbus input and output variables (max.)	512 bytes	512 bytes
Supply voltage (system)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)	24 VDC (−25 … +30 %); via power jumper contacts	24 VDC (−25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)	500 mA	500 mA
Current consumption – system supply (5 V)	200 mA	200 mA
Total current (system supply)	1800 mA	1800 mA
Surrounding air temperature (operation)	0 … +55 °C	0 … +55 °C
Dimensions W x H x D	50.5 x 71.1 x 100 mm	50.5 x 71.1 x 100 mm
Approvals	CE; KC; Marine; cULus OrdLoc/HazLoc; ATEX/IECEx	CE; KC; Marine; cULus OrdLoc/HazLoc; ATEX/IECEx
Data sheet and further information, see:	wago.com/750-842	wago.com/750-843

„ WAGO-I/O-*PRO* V2.3 Software, see Section 2, page 32

„ Mini-WSB marker card and mounting accessories, see Section "Accessories and Tools"

„ Approvals and corresponding ratings, see page 516 or www.wago.com

Controller KNX/IP



Item description	Controller KNX/IP
Item No.	750-889
Order text	Controller KNX/IP
Technical Data	
Communication	KNXnet/IP; Modbus (TCP, UDP)
ETHERNET protocols	HTTP; BootP; DHCP; DNS; AutoIP; SNTP; FTP; SNMP V3; SMTP
Connection technology: Fieldbus input/output	2 x RJ-45
Baud rate	10/100 Mbit/s
Visualization	Web-Visu
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
Type of memory card	SD and SDHC to 32 GB*
KNX/TP1 bus specification	1.0
Number of group addresses	254
Number of communication objects	253
Program memory/data memory/non-volatile memory (software)	1024 KB / 1024 KB / 32 KB
Number of modules per node (max.)	250
Input and output process image (internal) max.	2 KB
Memory for fieldbus input and output variables (max.)	512 bytes
Supply voltage (system)	24 VDC (–25 … +30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)	24 VDC (–25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)	500 mA
Current consumption – system supply (5 V)	450 mA
Total current (system supply)	1700 mA
Surrounding air temperature (operation)	0 … +55 °C
Dimensions W x H x D	61.5 x 71.9 x 100 mm
Approvals	CE; KC; Marine; cULus OrdLoc/HazLoc
KNX certified	IP Controller: 61/8316/08; IP Router: 61/8317/08
Data sheet and further information, see:	wago.com/750-889

Accessories	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470
WAGO ETS Plug-In	Download	see Section 2

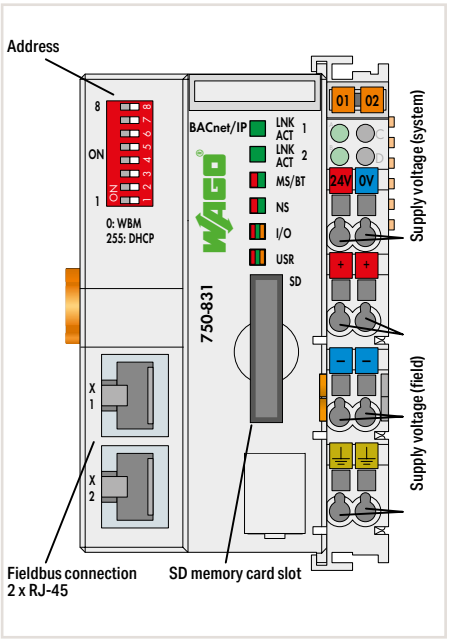
*All guaranteed specifications are only valid with the WAGO memory card listed as an accessory.

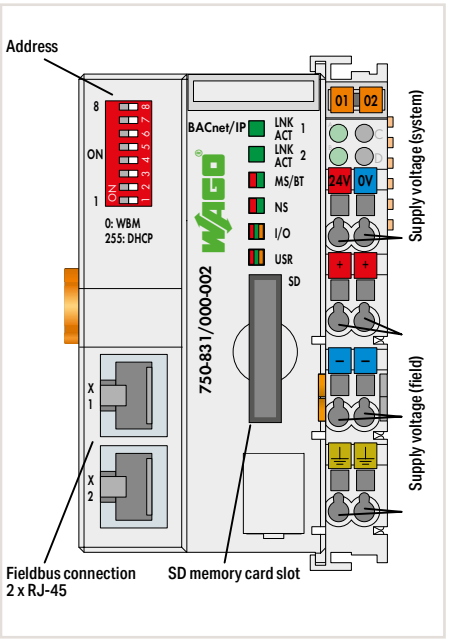
This controller can accommodate two KNX logic devices at the same time:
- Programmable controller
- KNX Router in connection with KNX/EIB/TP1 Module

Commissioning (KNX-side):
via ETS plug-in, 2 programming buttons

Controller BACnet/IP

Figure: 750-831





Item description	Controller BACnet/IP	Controller BACnet/IP
Version		Eco
Item No.	750-831	750-831/000-002
Order text	Controller BACnet/IP	Controller BACnet/IP; Eco
		750-831/000-002 Controllers support a maximum of 256 BACnet objects.
Technical Data		
Communication	BACnet/IP; Modbus (TCP, UDP)	BACnet/IP; Modbus (TCP, UDP)
ETHERNET protocols	HTTP; BootP; DHCP; DNS; SNTP; FTP; SNMP	HTTP; BootP; DHCP; DNS; SNTP; FTP; SNMP
Connection technology: Fieldbus input/output	2 x RJ-45	2 x RJ-45
Baud rate	10/100 Mbit/s	10/100 Mbit/s
Visualization	Web-Visu	Web-Visu
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
Type of memory card	SD and SDHC to 32 GB*	SD and SDHC to 32 GB*
BACnet device profile	B-BC (BACnet Building Controller)	B-BC (BACnet Building Controller)
BACnet revision	1.7	1.7
Program memory/data memory/non-volatile memory (software)	1024 KB / 1024 KB / 28 KB	1024 KB / 1024 KB / 28 KB
Number of modules per node (max.)	99	99
Input and output process image (internal) max.	1020 words	1020 words
Supply voltage (system)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)	24 VDC (−25 … +30 %); via power jumper contacts	24 VDC (−25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)	500 mA	500 mA
Current consumption – system supply (5 V)	450 mA	450 mA
Total current (system supply)	1700 mA	1700 mA
Surrounding air temperature (operation)	0 … +55 °C	0 … +55 °C
Dimensions W x H x D	61.5 x 71.9 x 100 mm	61.5 x 71.9 x 100 mm
Approvals	CE; Marine; OrdLoc	CE; Marine; OrdLoc
BACnet approvals	WSPCert certification: ISO 16484-5:2012; BTL listing: BTL (BACnet® Testing Labs Product Listing) AMEV certificate: AMEV profile AS-A	
Data sheet and further information, see:	wago.com/750-831	wago.com/750-831/000-002

Accessories	Item No.	Page	Item No.	Page
SD memory card; 2 GB	758-879/000-001	470	758-879/000-001	470
BACnet Configurator	Download	see Section 2	Download	see Section 2

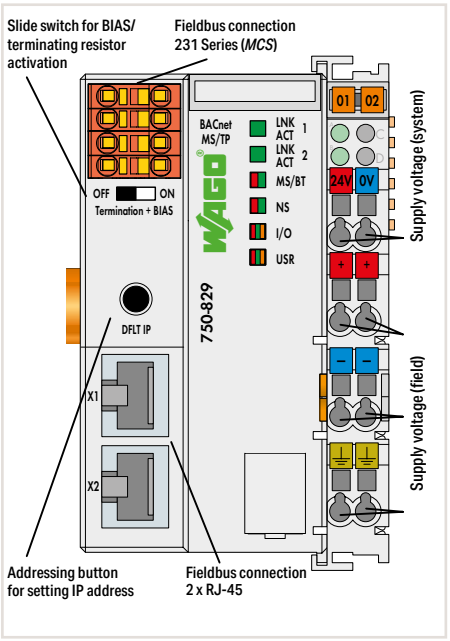
*All guaranteed specifications are only valid with the WAGO memory card listed as an accessory.

*All guaranteed specifications are only valid with the WAGO memory card listed as an accessory.

„ WAGO-I/O-*PRO* V2.3 Software, see Section 2, page 32

„ Approvals and corresponding ratings, see page 516 or www.wago.com

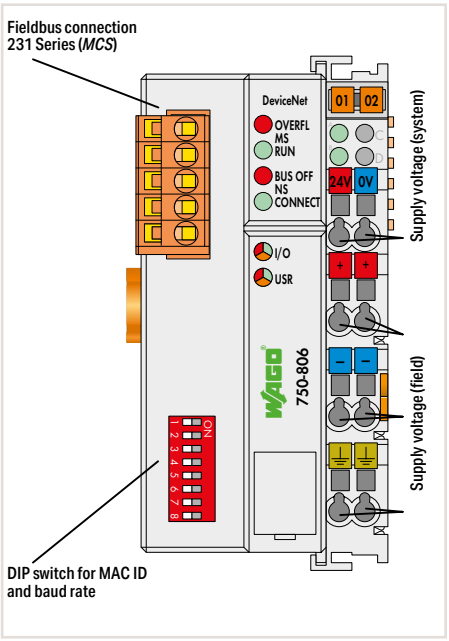
Controller BACnet MS/TP



Item description	Controller BACnet MS/TP
Item No.	750-829
Order text	Controller BACnet MS/TP
Technical Data	
Communication	BACnet MS/TP; Modbus (TCP, UDP)
ETHERNET protocols	HTTP; BootP; DHCP; DNS; SNTP; FTP; SNMP; SMTP
Connection technology: Fieldbus input/output	4-pole male connector
Baud rate	9600, 19200, 38400*, 57600, 76800, 115200 Bd (per BACnet standard); *Factory setting
Connection technology: Fieldbus input/output (2)	2 x RJ-45
Baud rate (2)	10/100 Mbit/s
Visualization	Web-Visu
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
BACnet device profile	B-BC (BACnet Building Controller)
BACnet revision	1.7
Program memory/data memory/non-volatile memory (software)	1024 KB / 1024 KB / 32 KB
Number of modules per node (max.)	99
Input and output process image (internal) max.	2 KB
Memory for fieldbus input and output variables (max.)	512 bytes
Supply voltage (system)	24 VDC (–25 … +30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)	24 VDC (–25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)	500 mA
Current consumption – system supply (5 V)	450 mA
Total current (system supply)	1700 mA
Surrounding air temperature (operation)	0 … +55 °C
Dimensions W x H x D	61.5 x 71.9 x 100 mm
Approvals	CE; KC; cULus OrdLoc/HazLoc
BACnet approvals	WSPCert certification: Pending BTL listing: Pending
Data sheet and further information, see:	wago.com/750-829

Accessories	Item No.	Page
BACnet Configurator	**Download**	**see Section 2**

Controller DeviceNet



Item description	Controller DeviceNet
Item No.	750-806
Order text	Controller DeviceNet
Technical Data	
Communication	DeviceNet
Connection technology: Fieldbus input/output	5-pole male connector
Baud rate	125 kBd; 250 kBd; 500 kBd
Number of fieldbus nodes on master (max.)	64
Visualization	Without
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
Program memory/data memory/non-volatile memory (software)	128 KB / 64 KB / 8 KB
Number of modules per node (max.)	64
Input and output process image (internal) max.	1024 bytes
Memory for fieldbus input and output variables (max.)	512 bytes
Supply voltage (system)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)	24 VDC (−25 … +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)	500 mA
Current consumption – system supply (5 V)	350 mA
Input current via DeviceNet interface at 11 V	120 mA
Total current (system supply)	1650 mA
Surrounding air temperature (operation)	0 … +55 °C
Dimensions W x H x D	50.5 x 71.1 x 100 mm
Approvals	CE; Marine; OrdLoc/HazLoc; ATEX/IECEx
Data sheet and further information, see:	wago.com/750-806

4.3

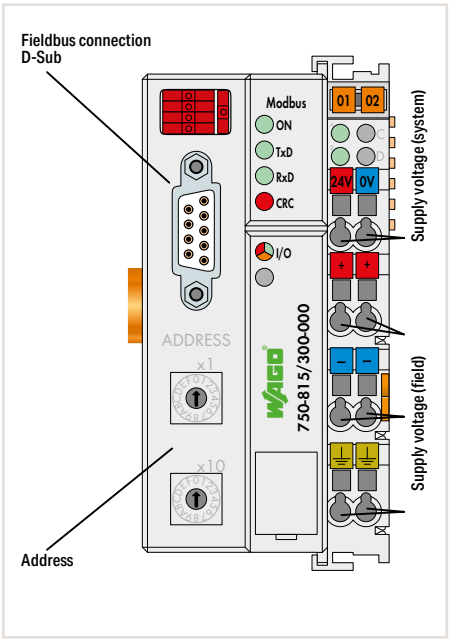
„ WAGO-I/O-*PRO* V2.3 Software, see Section 2, page 32

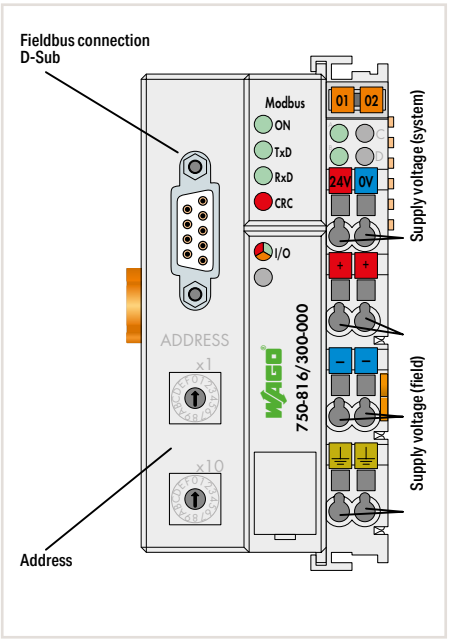
„ Mini-WSB marker card and mounting accessories, see Section "Accessories and Tools"

„ Approvals and corresponding ratings, see page 516 or www.wago.com

Controller MODBUS

Figure: 750-815/300-000

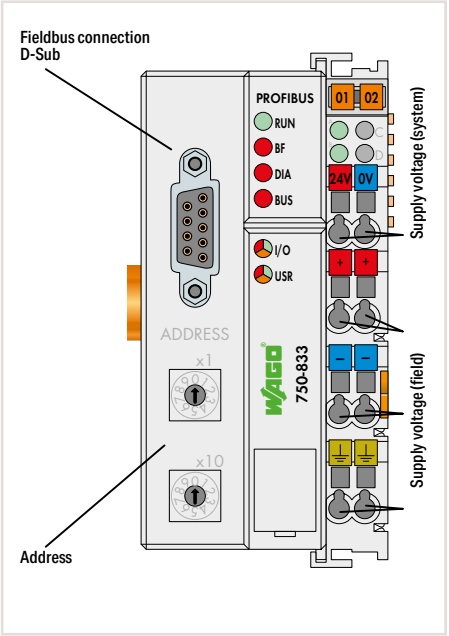




Item description	Controller MODBUS; RS-485; 115.2 kBd		Controller MODBUS; RS-232; 115.2 kBd
Version	Default	Ext. temperature	Default
Item No.	750-815/300-000	750-815/325-000	750-816/300-000
Order text	Controller MODBUS; RS-485; 115.2 kBd	Controller MODBUS; RS-485; 115.2 kBd; T	Controller MODBUS; RS-232; 115.2 kBd
Technical Data			
Communication	MODBUS		MODBUS
Connection technology: Fieldbus input/output	D-sub 9 socket		D-sub 9 socket
Baud rate	150 Bd ... 115.2 KBd		150 Bd ... 115.2 KBd
Number of fieldbus nodes on master (max.)	247		247
Visualization	Without		Without
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)		WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
Program memory/data memory/non-volatile memory (software)	32 KB / 32 KB / 8 KB		32 KB / 32 KB / 8 KB
Number of modules per node (max.)	64		64
Input and output process image (internal) max.	1024 bytes		1024 bytes
Memory for fieldbus input and output variables (max.)	512 bytes		512 bytes
Supply voltage (system)	24 VDC (−25 ... +30 %); via wiring level (CAGE CLAMP® connection)		24 VDC (−25 ... +30 %); via wiring level (CAGE CLAMP® connection)
Supply voltage (field)	24 VDC (−25 ... +30 %); via power jumper contacts		24 VDC (−25 ... +30 %); via power jumper contacts
Input current (typ.) at nominal load (24 V)	500 mA		500 mA
Current consumption – system supply (5 V)	350 mA		350 mA
Total current (system supply)	1650 mA		1650 mA
Surrounding air temperature (operation)	0 ... +55 °C	−20 ... +60 °C	0 ... +55 °C
Dimensions W x H x D	50.5 x 71.1 x 100 mm		50.5 x 71.1 x 100 mm
Approvals	CE; KC; Marine; cULus OrdLoc/HazLoc; ATEX/IECEx		CE; KC; Marine; cULus OrdLoc/HazLoc; ATEX/IECEx
Data sheet and further information, see:	wago.com/750-815/300-000		wago.com/750-816/300-000

Controller PROFIBUS Slave

Figure: 750-833



Item description	Controller PROFIBUS Slave	
Version		Ext. temperature
Item No.	750-833	750-833/025-000
Order text	Controller PROFIBUS Slave	Controller PROFIBUS Slave; T
Technical Data		
Communication	PROFIBUS	
Connection technology: Fieldbus input/output	D-sub 9 socket	
Baud rate	9.6 KBd ... 12 MBd	
Number of fieldbus nodes on master (max.)	99	
Visualization	Without	
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)	
Program memory/data memory/non-volatile memory (software)	128 KB / 64 KB / 8 KB	
Number of modules per node (max.)	63	
Input and output process image (internal) max.	244 bytes	
Memory for fieldbus input and output variables (max.)	244 bytes	
Supply voltage (system)	24 VDC (−25 ... +30 %); via wiring level (CAGE CLAMP® connection)	
Supply voltage (field)	24 VDC (−25 ... +30 %); via power jumper contacts	
Input current (typ.) at nominal load (24 V)	500 mA	
Current consumption – system supply (5 V)	200 mA	
Total current (system supply)	1800 mA	
Surrounding air temperature (operation)	0 ... +55 °C	−20 ... +60 °C
Dimensions W x H x D	50.5 x 71.1 x 100 mm	
Approvals	CE; KC; Marine; cULus OrdLoc/HazLoc; ATEX/IECEx	
Data sheet and further information, see:	wago.com/750-833	

4.3

„ WAGO-I/O-*PRO* V2.3 Software, see Section 2, page 32

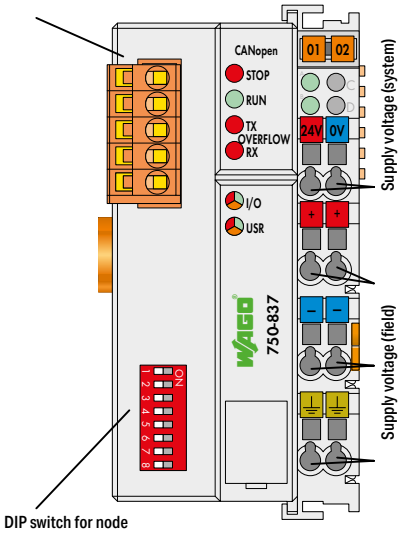
„ Mini-WSB marker card and mounting accessories, see Section "Accessories and Tools"

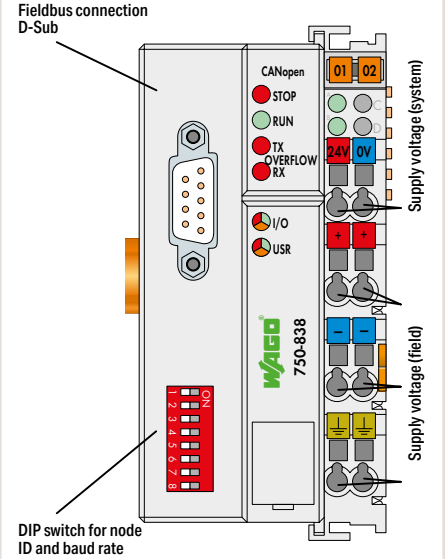
„ Approvals and corresponding ratings, see page 516 or www.wago.com

Controller CANopen

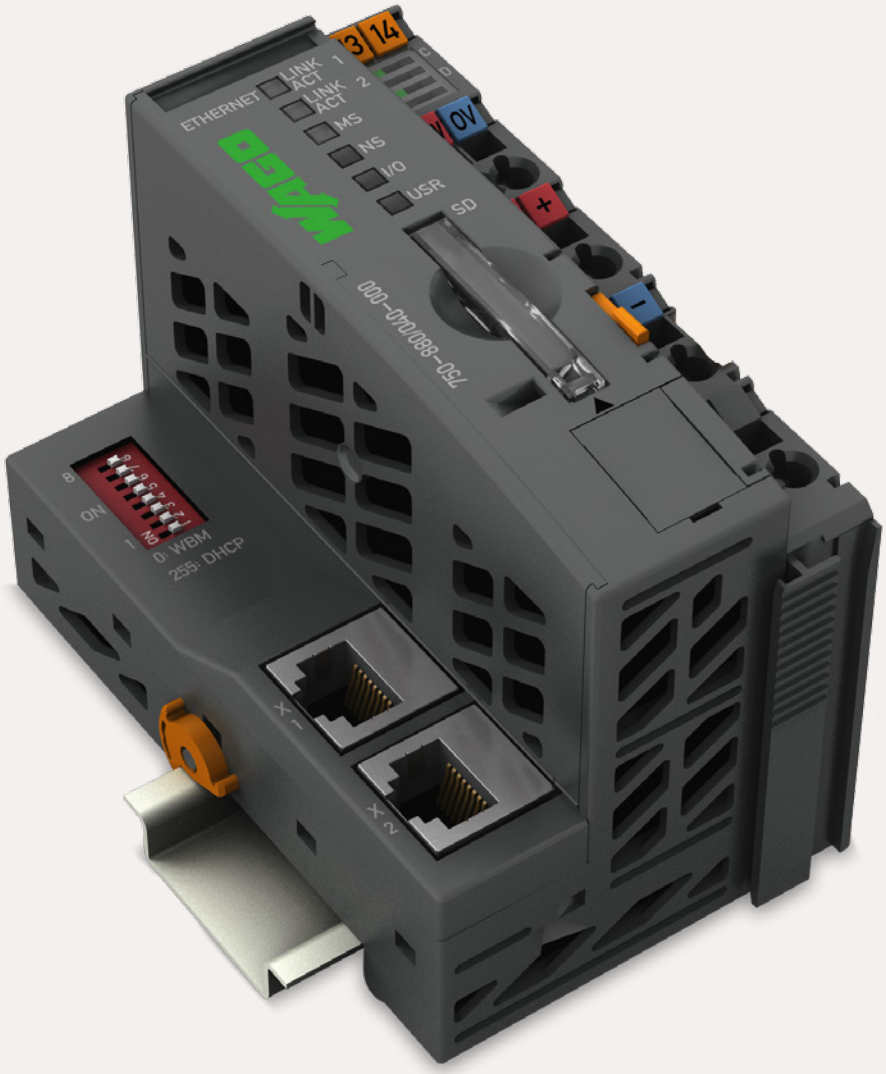
Figure: 750-837

Figure: 750-838





Item description	Controller CANopen; 128/64 KB Program/RAM; *MCS*		Controller CANopen; 128/64 KB Program/RAM; D-Sub	
Version	**Default**	**640/832 KB Program/ RAM**	**Default**	**640/832 KB Program/ RAM**
Item No.	**750-837**	**750-837/021-000**	**750-838**	**750-838/021-000**
Order text	Controller CANopen; M1; MCS	Controller CANopen; M3; MCS	Controller CANopen; M1; D-Sub	Controller CANopen; M3; D-Sub
Technical Data				
Communication	CANopen		CANopen	
Connection technology: Fieldbus input/output	5-pole male connector		D-Sub 9 connector	
Baud rate	10 KBd … 1 MBd		10 KBd … 1 MBd	
Number of fieldbus nodes on master (max.)	110		110	
Visualization	Without		Without	
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)		WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)	
Program memory	128 KB	640 KB	128 KB	640 KB
Data memory	64 KB	832 KB	64 KB	832 KB
Non-volatile memory (software)	8 KB		8 KB	
Number of modules per node (max.)	64		64	
Input and output process image (internal) max.	512 bytes		512 bytes	
Memory for fieldbus input and output variables (max.)	512 bytes		512 bytes	
Communication profile	DS-301 V4.01		DS-301 V4.01	
Device profile	DS-401 V2.0		DS-401 V2.0	
Number of PDOs	32 Tx / 32 Rx		32 Tx / 32 Rx	
Number of SDOs	2 servers SDO / 16 clients SDO		2 servers SDO / 16 clients SDO	
Supply voltage (system)	24 VDC (–25 … +30 %); via wiring level (CAGE CLAMP® connection)		24 VDC (–25 … +30 %); via wiring level (CAGE CLAMP® connection)	
Supply voltage (field)	24 VDC (–25 … +30 %); via power jumper contacts		24 VDC (–25 … +30 %); via power jumper contacts	
Input current (typ.) at nominal load (24 V)	500 mA		500 mA	
Current consumption – system supply (5 V)	500 mA		500 mA	
Total current (system supply)	1650 mA		1650 mA	
Surrounding air temperature (operation)	0 … +55 °C		0 … +55 °C	
Dimensions W x H x D	50.5 x 71.1 x 100 mm		50.5 x 71.1 x 100 mm	
Approvals	CE; KC; Marine; OrdLoc/HazLoc; ATEX/IECEx		CE; KC; Marine; OrdLoc/HazLoc; ATEX/IECEx	
Data sheet and further information, see:	wago.com/750-837		wago.com/750-838	



Controllers 750 XTR

Touch-Panel 600 Standard/Advanced Line; Hardware configuration Control Panel

- Merging of control and visualization
- 10.9 … 25.7 cm (4.3 … 10.1")

◄◄◄◄ Section 3

Controllers PFC200 XTR

The advantages of the PFC Controller combined with the capabilities for extreme environments:

- High processing speed
- Multiple interfaces
- eXTRemely robust and maintenance-free

◄◄ Section 4.2

Controllers 750 XTR

For demanding applications in which the following are critical:

- Extreme temperature stability
- Immunity to electromagnetic interference and impulse voltages
- Vibration and shock resistance

Controllers PFC100/PFC200

- Maximum performance in a minimum space
- Also programmable in high-level languages based on Linux®
- Security packages with SSH and SSL/TLS
- Runtime system for CODESYS V2 (only PFC200) and V3

◄◄◄ Section 4.1

Controllers 750

- Controllers for all prominent fieldbus systems
- Programmable to IEC 61131-3
- Combinable with the modules of the WAGO-I/O-SYSTEM 750

◄ Section 4.3

Starter Kits

To get you up and running quickly, we offer starter kits to suit the most diverse applications:

- With Controller PFC100
- With Controller PFC200
- With Controller 750 ETHERNET
- With Controller 750 KNX IP or BACnet/IP

Section 4.5 ►

Controllers 750 XTR
Contents

	CPU	ETHERNET: Modbus (TCP, UDP)	ETHERNET: EtherNet/IP	CANopen	Telecontrol Protocols: IEC 60870, IEC 61850/61400, DNP3	Description	Item No.	
	32 bits	M/S	S			Controller ETHERNET; 3rd generation; SD card slot; extreme	750-880/040-000	126
	32 bits	M/S	S		x	Controller ETHERNET; 3rd generation; SD card slot; Telecontrol technology; extreme	750-880/040-001	126
	32 bits			M/S		Controller CANopen; 640/832 KB Program/RAM; D-Sub; extreme	750-838/040-000	127

M: Master, S: Slave

Controllers 750 XTR
General Product Information

Controllers 750 XTR: From Standard to eXTReme — Standard for 750 XTR

The Controllers 750 XTR are easily recognized by their dark gray housings. Take advantage of the WAGO-I/O-SYSTEM 750 XTR's unique features, which make it ideal for extreme environments or applications.

Extremely temperature-resistant, immune to interference, as well as unfazed by vibrations and impulse voltages – these are impressive features of the WAGO-I/O-SYSTEM 750 XTR. WAGO's 750 XTR is the first choice for demanding applications including:

- Marine systems and onshore/offshore installations
- Renewable energy systems (wind turbines, solar systems and biogas plants)
- Transformer stations and power distribution systems
- Petrochemical processing
- Water and wastewater treatment systems
- Custom machines
- Railway applications

Marine Systems and Onshore/Offshore Industry

International approvals coupled with industry-specific features permit use in shipbuilding and other harsh sectors. Addressing requirements inherent in specific industries and operating environments has enabled use on marine diesels and in the EMC-sensitive area of a vessel's bridge. Because the requirements are significantly greater for immunity to interference or emission of interference, along with superior mechanical performance in these sensitive areas, the WAGO-I/O-SYSTEM can readily meet the needs of other industries.

Telecontrol Technology

Standardized Telecontrol protocols according to IEC 60870-5, IEC 61850 or IEC 61400-25 and DNP3 ensure use of the Controllers 750 XTR in telecontrol technology. They also meet increased impulse-voltage withstand requirements per EN 60870-2-1.
The result is a tailor-made solution for demanding telecontrol applications that readily meets all requirements.

Link between Process Data and IT Application — Even under eXTReme Conditions

The controllers ideally combine real-time requirements with IT functionality. They support Modbus/TCP and EtherNet/IP for use in industrial environments. HTTP, SNTP, SNMP, FTP, BootP, DHCP, DNS and other protocols simplify integration into IT environments. Integrated Web pages and Web-based visualization provide IT applications with real-time process data. Furthermore, the 750 Series Controllers incorporate library functions for email, SOAP, ASP, IP configuration, ETHERNET sockets and file system.

Modular and Expandable

With the WAGO-I/O-SYSTEM 750 XTR, the controllers can be expanded to almost any input/output interface. Using an industry-leading platform, the 750 XTR boasts the same proven benefits.

Worldwide Approvals

International approvals for industrial automation, building technology, shipbuilding and onshore/offshore applications guarantee worldwide use – even under harsh operating conditions, e.g., Germanischer Lloyd, Det Norske Veritas, American Bureau of Shipping, Korean Register of Shipping, Nippon Kaiji Kyokai, Registro Italiano Navale and Polski Rejestr Stratkow.

Superior Reliability in Extreme Climates

Engineered for freezing cold, extreme heat and high humidity, the WAGO-I/O-SYSTEM 750 XTR provides absolute dependability in virtually any weather. The XTR version of the 750 Series Controllers is unfazed by both freezing cold down to −40°C and scorching heat up to +70°C. And this applies equally for both start-up and ongoing operation. The maximum approved operating altitude of 5,000 m is another highlight. Even in the thin air of a mountain-top station, the system impressively demonstrates its high performance and availability.

Additional Protection Against Interference Pulses

The WAGO-I/O-SYSTEM 750 XTR provides greater isolation up to 5 kV of impulse voltage, lower EMC emission of interference and higher insensitivity to EMC interference. These strengths add up to trouble-free operation.

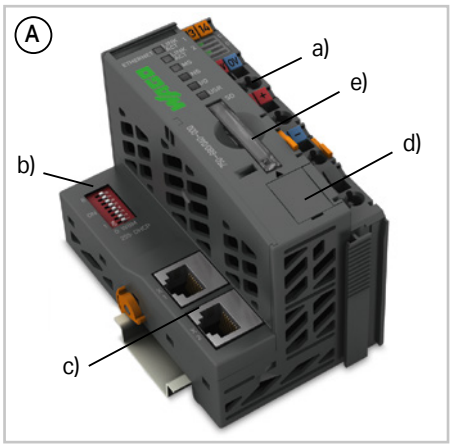
High Mechanical Performance

Automation systems must be incredibly vibration-resistant, especially when installed close to vibration-prone and shock-generating system components. Powerful motors and power circuit breakers are just two examples from a wide range of applications that can stress automation systems. The WAGO-I/O-SYSTEM 750 XTR continues to set new standards here. Count on long-lasting, trouble-free operation and industry-topping levels of safety – even in the most severe applications, such as tunnel boring machines.

Advantages:

- Controllers for eXTReme environmental conditions
  - No air conditioning required
  - Can be used in unshielded areas
  - Install close to vibrating and shock-generating system components
- Extensive IT integration possibilities
- Expandable with the WAGO-I/O-SYSTEM 750 XTR's comprehensive product range
- Maintenance-free
- Vibration-proof, fast and maintenance-free CAGE CLAMP® spring connections

Controllers 750 XTR
Interfaces and Types



- Including supply module to power downstream I/O modules (a)
- Technical differences on the connection level;
  addressing switch (b)
  and fieldbus interface (c)
- Service interface (d)

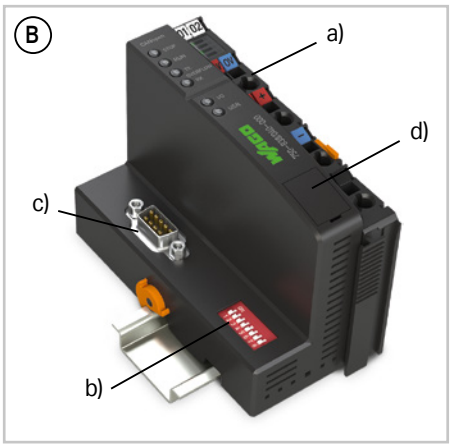
Housing design (A)

- SD card slot for external storage media (e)
- W x H x D (mm) 61.5 x 71.9 x 100

Housing design Eco (B)

- W x H x D (mm) 50.5 x 71.1 x 100

*Height from upper edge of DIN-rail



Item Number Key

Explanation of the components of an item number key

Item No.: 750-8xx/040-00y

3x: 16-bit	CANopen
8x: 32-bit multitasking	ETHERNET
001:	Telecontrol Technology

4.4

Standards and Rated Conditions for Rail Applications (EN 50155)

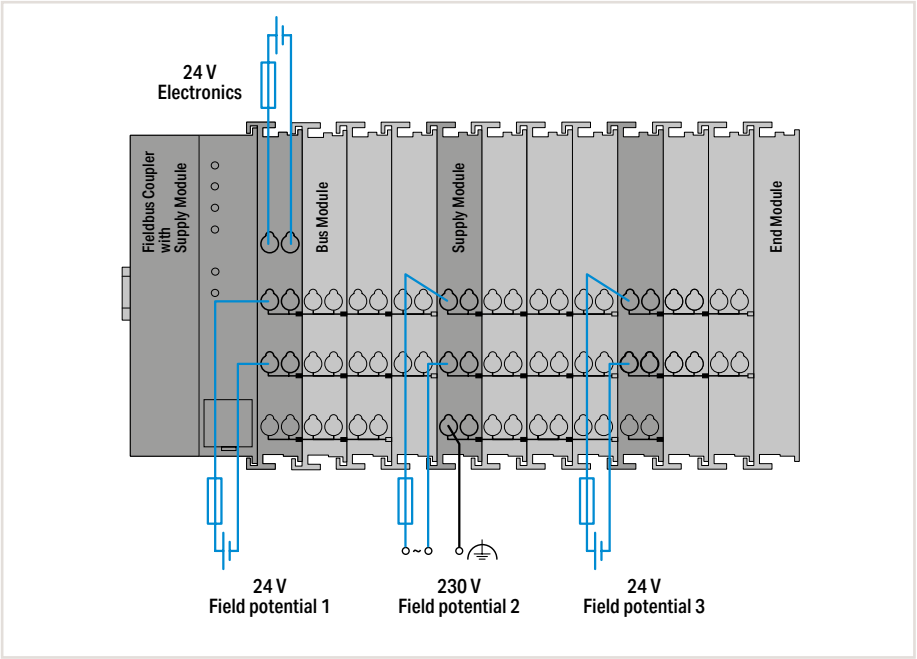
Railway Applications (EN 50155)	Class/Standard Compliance
4.1 Rated operating conditions	
4.1.1 Altitude above sea level	AX (EN 50125-1)
4.1.2 Surrounding air temperature	TX
4.1.3 Shock and vibration	1A and 1B (EN 61373)
4.1.4 Relative humidity	95 % (coated PCBs)
5.1 Power supply	
5.1.1.1 Master voltage fluctuations	
Minimum voltage	0.725 x Un
Maximum voltage	1.3 x Un
5.1.1.2 Power interruptions	S1
5.4 Surge, ESD, burst tests	EN 50121-3-2
5.5 EMC (emission of interference, immunity to interference)	EN 50121-3-2, EN 50121-4, -5
Fire behavior: per EN 45545-2 hazard level HL3	

WAGO is certified in accordance with the **IRIS** quality standard.

Controllers 750 XTR
Installation Instructions

Power Supply

The internal electronics are powered by the controller. The power supply to the field-side supply is electrically isolated. The division enables a separate supply for sensors and actuators. Snapping the I/O modules together automatically routes the supply voltages. Supply modules with diagnostics enable additional monitoring of the power supply. This ensures a flexible, user-specific supply design for a station.
The current supply to the electronics is limited by a maximum value. This value is dependent on the controller used. If the sum of the internal current demand of all the I/O modules should exceed this value, an additional system supply module is necessary. Even in this case, power supply to the field-side supply of 10 A may not be exceeded. However, different power supply modules allow a new power supply, formation of potential groups and the implementation of emergency stops.



Interference-Free in Safety-Related Applications

To easily and safely perform cost-effective, centralized deactivation of complete actuator groups, the actuator's power supply can be switched off using a safety switching device. This can either be performed for each individual actuator or by turning off the power supply to a group of control outputs.
In the event of failure, ensure that no interference from other current or power circuits occurs – even when the control voltage is switched off – so the defined safety function properties (logic and time response) remain unchanged.

All 750 XTR Series Digital Output Modules provide interference-free safety functionality. The modules can be used in safety applications up to category 4 per DIN EN ISO 13849-1:2007. Safety category and performance level depend solely on the safety components and their wiring.

Notice:

WAGO's interference-free I/O modules have no active influence on the safety function, they are not an active part of the safety application and are not a substitute for the safety switching device! When using the components in safety functions, the corresponding notes must be observed in the relevant manual.

Notes

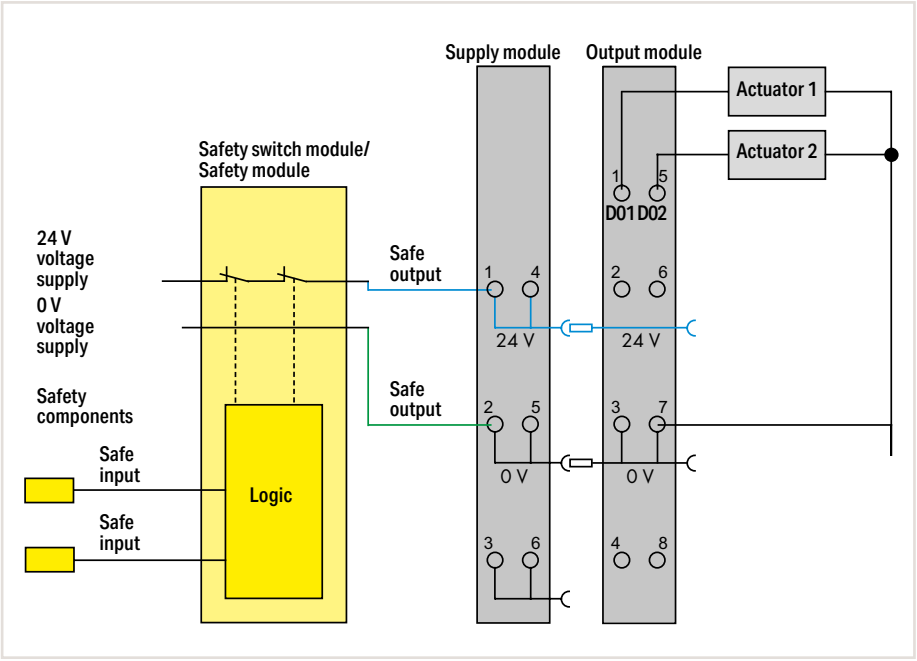
Additional steps must be implemented based on where the I/O system is installed:

Specific power and field-side power supply filters (750-624/040-001 or 750-626/040-000) are required for marine and onshore/offshore applications, as well as in telecontrol and rail technology.

Please refer to the manual for details about the power supply's design.

Mixed Operation

Mixed operation (standard/XTR modules) within a node is possible when groups of I/O modules are electrically isolated on the field side, i.e., electrically isolated power supply. The combination may be useful, for example, when there are only increased requirements for dielectric strength and immunity to interference, but the surrounding air temperature is not critical.



Controllers 750 XTR
Standards and Rated Conditions

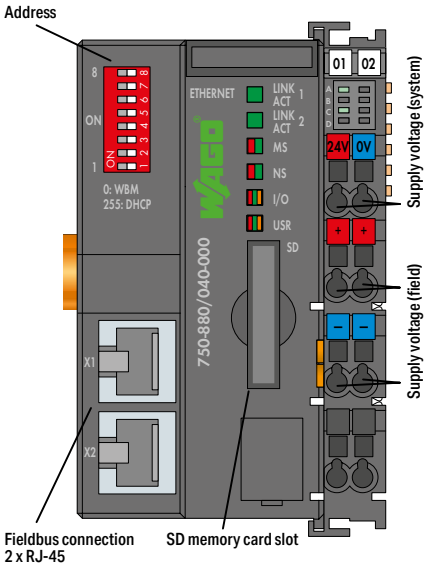
General Specifications	
Supply voltage (system)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection); Specified values for surrounding air temperature: +15 … +35 °C For −40 … +55 °C: 24 V (−25 … +20 %); For +55 … +70 °C: 24 V (−25 … +10 %); Lower limit in all temperature ranges: −27.5 % (including 15 % residual ripple)
Surrounding air temperature (operation)	−40 … +70 °C
Surrounding air temperature (storage)	−40 … +85 °C
Relative humidity	Max. 95 %; Short-term condensation per Class 3K7 / IEC EN 60721-3-3 and E DIN 40046-721-3 (except wind-driven precipitation, water and ice formation)
Operating altitude	Without temperature derating: 0 … 2000 m; With temperature derating: 2000 … 5000 m (0.5 K/100 m); max.: 5000 m
Pollution degree	2 per IEC 61131-2
Immunity to impulse voltages	Per EN 60870-2-1 510 VAC/775 VDC Isolation: rated surge voltage (EN 60079-11) 1 kV (Class VW1 per EN 60870-2-1) Surge: 1 kV (L - L) / 2 kV (L - E)
Vibration resistance	Per IEC 60068-2-6 (acceleration: 5g); EN 60870-2-2; IEC 60721-3-1, -3; EN 50155; EN 61373
Shock resistance	Per IEC 60068-2-27 (15g/11 ms/half-sine/1,000 shocks; 25g/6 ms/1,000 shocks); EN 50155; EN 61373
EMC immunity to interference	Per EN 61000-6-1, -2; EN 61131-2; Marine applications; EN 50121-3-2; EN 50121-4, -5; EN 60255-26; EN 60870-2-1; EN 61850-3; IEC 61000-6-5; IEEE 1613; VDEW: 1994
EMC emission of interference	Per EN 61000-6-3, -4; EN 61131-2; EN 60255-26; Marine applications; EN 60870-2-1 (industrial and residential areas); EN 61850-3 (industrial and residential areas); EN 50121-3-2; EN 50121-4, -5
Protection type	IP20
Mounting position	Horizontal (standing/lying) or vertical
Mounting type	DIN-35 rail mounting
Housing material	Polycarbonate; polyamid 6.6
Exposure to pollutants	Per IEC 60068-2-42 and IEC 60068-2-43
Permissible SO_2 contaminant concentration at a relative humidity < 75 %	25 ppm
Permissible H_2S contaminant concentration at a relative humidity < 75 %	10 ppm
Connection technology	CAGE CLAMP®
Conductor cross sections; Strip length	0.25 … 2.5 mm²/AWG 24 … 14; 8 … 9 mm / 0.31 … 0.35 inch
Current carrying capacity (power jumper contacts)	10 A

Approvals

Overview of the approvals in the article comparison in Section 11, Technical Appendix, or online at www.wago.com

Controller ETHERNET

Figure: 750-880/040-000



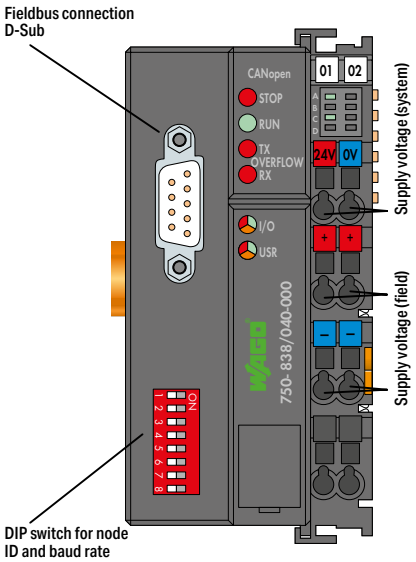
Item description	Controller ETHERNET; 3rd generation; SD card slot	
Version	**Extreme**	**Telecontrol technology; extreme**
Item No.	**750-880/040-000**	**750-880/040-001**
Order text	Controller ETHERNET; G3; SD; XTR	Controller ETHERNET; G3; SD; Tele; XTR
Technical Data		
Communication	EtherNet/IP; Modbus (TCP, UDP)	EtherNet/IP; Modbus (TCP, UDP); Telecontrol protocols
ETHERNET protocols	HTTP; BootP; DHCP; DNS; SNTP; FTP; SNMP	
Telecontrol protocols		IEC 60870-5-101/-103/-104; IEC 61850-7; IEC 61400-25; DNP3
Connection technology: Fieldbus input/output	2 x RJ-45	
Baud rate	10/100 Mbit/s	
Visualization	Web-Visu	
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)	
Type of memory card	SD and SDHC to 32 GB*	
Program memory/data memory/non-volatile memory (software)	1024 KB / 1024 KB / 32 KB	
Number of modules per node (max.)	64	
Input and output process image (internal) max.	1020 words	
Supply voltage (system)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection); Specified values for surrounding air temperature: +15 … +35 °C; For −40 … +55 °C: 24 V (−25 … +20 %); For +55 … +70 °C: 24 V (−25 … +10 %); Lower limit in all temperature ranges: −27.5 % (including 15 % residual ripple)	
Supply voltage (field)	24 VDC; via power jumper contacts	
Input current (typ.) at nominal load (24 V)	500 mA	
Current consumption – system supply (5 V)	450 mA	
Total current (system supply)	1700 mA (surrounding air (operating) temperature < 60 °C), 1500 mA (surrounding air (operating) temperature: 60 … 70 °C)	
Surrounding air temperature (operation)	−40 … +70 °C	
Dimensions W x H x D	61.5 x 71.9 x 100 mm	
Approvals	CE; KC; Marine; cULus OrdLoc/HazLoc; ATEX/IECEx	
Data sheet and further information, see:	wago.com/750-880/040-000	wago.com/750-880/040-001

Accessories	Item No.	Page
SD memory card; 2 GB	**758-879/000-001**	470

*All guaranteed specifications are only valid with the WAGO memory card listed as an accessory.

- WAGO-I/O-*PRO* V2.3 Software, see Section 2, page 32
- Mini-WSB marker card and mounting accessories, see Section "Accessories and Tools"
- Approvals and corresponding ratings, see page 516 or www.wago.com

Controller CANopen



Item description	**Controller CANopen; 640/832 KB Program/RAM; D-Sub**
Version	**Extreme**
Item No.	**750-838/040-000**
Order text	Controller CANopen; M3; DSub; XTR

Technical Data	
Communication	CANopen
Connection technology: Fieldbus input/output	D-Sub 9 connector
Bus segment length (max.)	1000 m
Baud rate	10 KBd … 1 MBd
Number of fieldbus nodes on master (max.)	110
Visualization	Without
Programming	WAGO-I/O-*PRO* V2.3 (based on CODESYS V2.3)
Program memory/data memory/non-volatile memory (software)	640 KB / 832 KB / 8 KB
Number of modules per node (max.)	64
Input and output process image (internal) max.	512 bytes
Memory for fieldbus input and output variables (max.)	512 bytes
Communication profile	DS-301 V4.01
Device profile	DS-401 V2.0
Number of PDOs	32 Tx / 32 Rx
Number of SDOs	2 servers SDO / 16 clients SDO
Supply voltage (system)	24 VDC (−25 … +30 %); via wiring level (CAGE CLAMP® connection); Specified values for surrounding air temperature: +15 … +35 °C; For −40 … +55 °C: 24 V (−25 … +20 %); For +55 … +70 °C: 24 V (−25 … +10 %); Lower limit in all temperature ranges: −27.5 % (including 15 % residual ripple)
Supply voltage (field)	24 VDC; via power jumper contacts
Input current (typ.) at nominal load (24 V)	500 mA
Current consumption – system supply (5 V)	350 mA
Total current (system supply)	1650 mA (surrounding air (operating) temperature < 60 °C), 1250 mA (surrounding air (operating) temperature: 60 … 70 °C)
Surrounding air temperature (operation)	−40 … +70 °C
Dimensions W x H x D	50.5 x 71.1 x 100 mm
Approvals	CE; Marine; OrdLoc/HazLoc; ATEX/IECEx
Data sheet and further information, see:	wago.com/750-838/040-000

Starter Kits

Controllers PFC100/PFC200

- Maximum performance in a minimum space
- Also programmable in high-level languages based on Linux®
- Security packages with SSH and SSL/TLS
- Runtime system for CODESYS V2 (only PFC200) and V3

◄◄◄◄ Section 4.1

Controllers 750

- Controllers for all prominent fieldbus systems
- Programmable to IEC 61131-3
- Combinable with the modules of the WAGO-I/O-SYSTEM 750

◄◄ Section 4.3

I/O System – 750 and 753 Series

- Highly versatile
- More than 500 modules available
- Functional safety
- Ex i

Section 5 ►

Starter Kits

To get you up and running quickly, we offer starter kits to suit the most diverse applications:

- With Controller PFC100
- With Controller PFC200
- With Controller 750 ETHERNET
- With Controller 750 KNX IP or BACnet/IP

WAGO Starter Kits
Contents

M: Master, S: Slave

Starter Kit; *e!COCKPIT* with Controller PFC100; 2 x ETHERNET; Eco

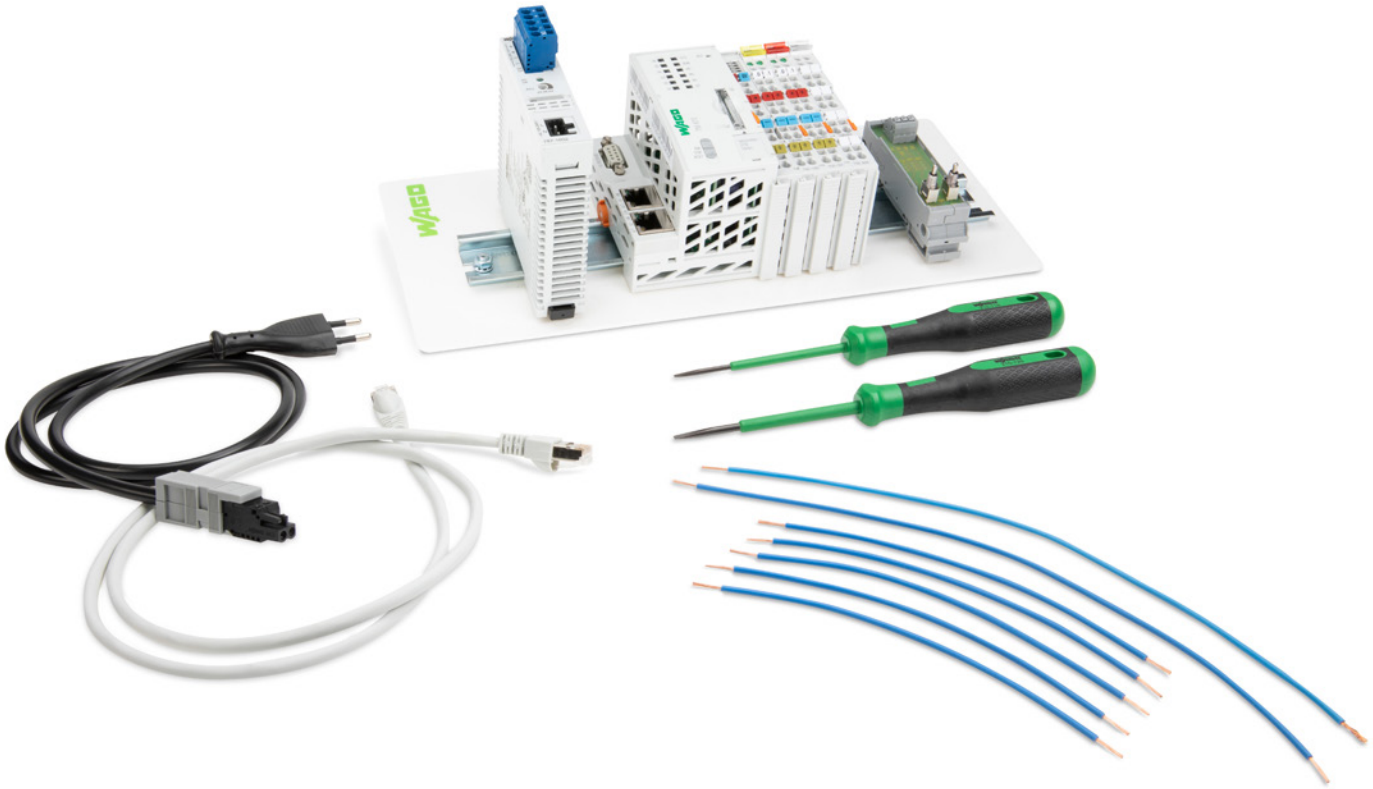
The PFC100 Controller can be seamlessly integrated into WAGO's *e!*COCKPIT Engineering Software, which can be used for hardware configuration, programming, simulation and visualization of complex control tasks.

Tightly integrated automation software and controller hardware provide the ideal platform for advanced and intuitive CODESYS V3-based engineering.

4.5

Item Description	Item No.
Starter Kit; *e!COCKPIT*	**8003-099/750-8100**
The *e!COCKPIT* Starter Kit includes:	
Controller PFC100; 2 x ETHERNET; Eco	750-8100
Supply Module; 24 VDC	750-602
2-Channel Digital Input; 24 VDC; 3 ms	750-400
2-Channel Digital Output; 24 VDC; 0.5 A	750-501
End Module	750-600
Power Supply "Classic"; 24 VDC output voltage; 1 A	787-1602
Switching Module; 2-way DI simulator	288-863
Development Environment *e!COCKPIT*; Licence for 1 PC	2759-0101/1111-5000
USB Communication Cable; 2.5 m	750-923
microSD Memory Card; 2 Gbytes	758-879/000-3102
Operating Tool; Type 1; (3.5 x 0.5) mm blade	210-720
Operating Tool; Type 1; (2.5 x 0.4) mm blade	210-719
Patch Cable; 1.0 m	

Starter Kit; Linux®
with Controller PFC200



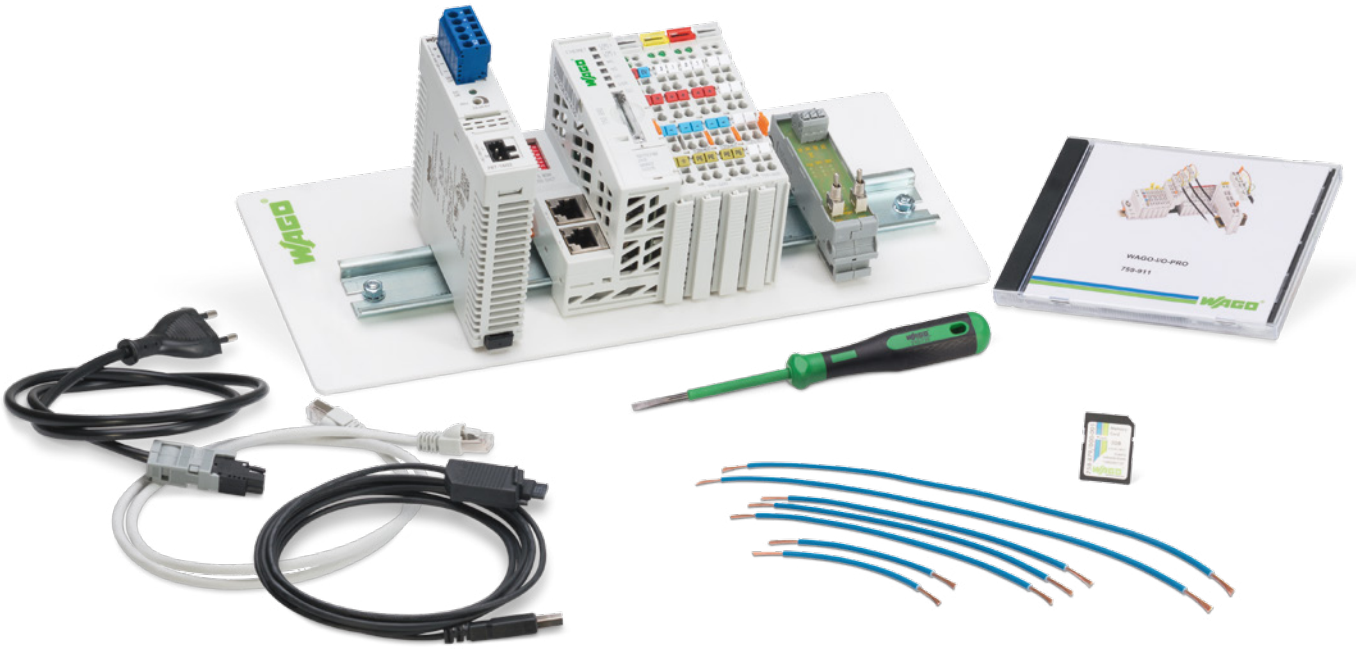
With the PFC200 Controller as its central component, the Linux® Starter Kit provides an entry to the world of open programming. In addition to its scalability through the open-source community, the primary advantage of having a controller with an open-source operating system is that it is continually being developed further and maintained.

Besides the PFC200, other components of the starter kit include input and output modules, a power supply, a switching module and the accessories needed to start programming immediately with Linux®.

Additional information on Linux® is available at:
wago.com/linux

Item Description	Item No.
Starter Kit; Linux®	**807-099/750-8212**
The Linux® advanced Starter Kit includes:	
Controller PFC200; 2nd generation; 2 x ETHERNET, RS-232/-485	750-8212
2-Channel Digital Input; 24 VDC; 3 ms	750-400
2-Channel Digital Output; 24 VDC; 0.5 A	750-501
End Module	750-600
Power Supply “Classic”; 24 VDC output voltage; 1 A	787-1602
Switching Module; 2-way DI simulator	288-863
Operating Tool; Type 1; (3.5 x 0.5) mm blade	210-720
Operating Tool; Type 1; (2.5 x 0.4) mm blade	210-719
Patch Cable; 1.0 m	

Starter Kit; ETHERNET 880
with Controller ETHERNET; 3rd Generation; SD card slot



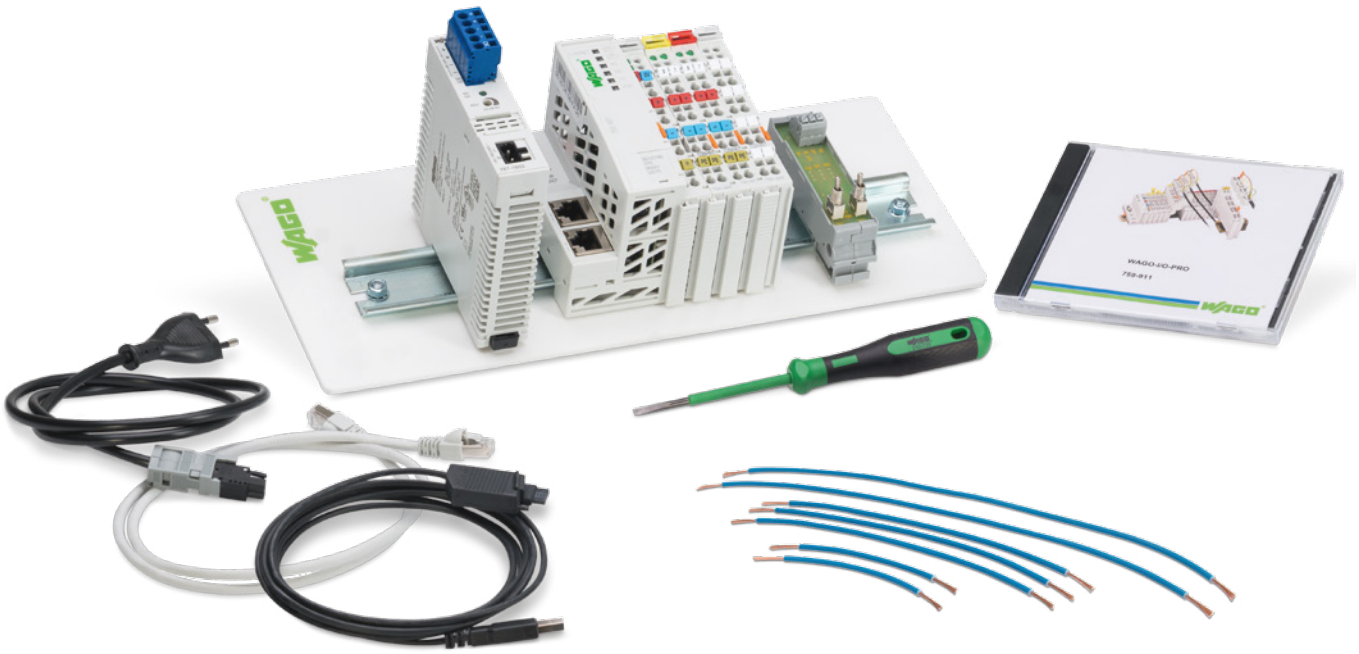
This ETHERNET Starter Kit includes: 750-880 Controller, 2-channel input module and 2-channel output module. A power supply and the required programming software are also included in the scope of delivery. An application program designed for the starter kit and written in IEC 61131 demonstrates both hardware and software possibilities.

4.5

Item Description	Item No.
Starter Kit; ETHERNET 880	**8003-001/K999-9999/000-1700**

The ETHERNET Starter Kit includes:	
Controller ETHERNET; 3rd generation; SD card slot	750-880
2-Channel Digital Input; 24 VDC; 3 ms	750-400
2-Channel Digital Output; 24 VDC; 0.5 A	750-501
End Module	750-600
Power Supply "Classic"; 24 VDC output voltage; 1 A	787-1602
Switching Module; 2-way DI simulator	288-863
Development Environment, incl. USB Communication Cable; WAGO-I/O-*PRO*; USB Kit	759-333/000-923
SD Memory Card; 1 GB	758-879/000-001
Patch Cable; 1 m	110-8006
Operating Tool; Type 1; (3.5 x 0.5) mm blade	210-720

Starter Kit; ETHERNET 881 with Controller ETHERNET; 3rd Generation

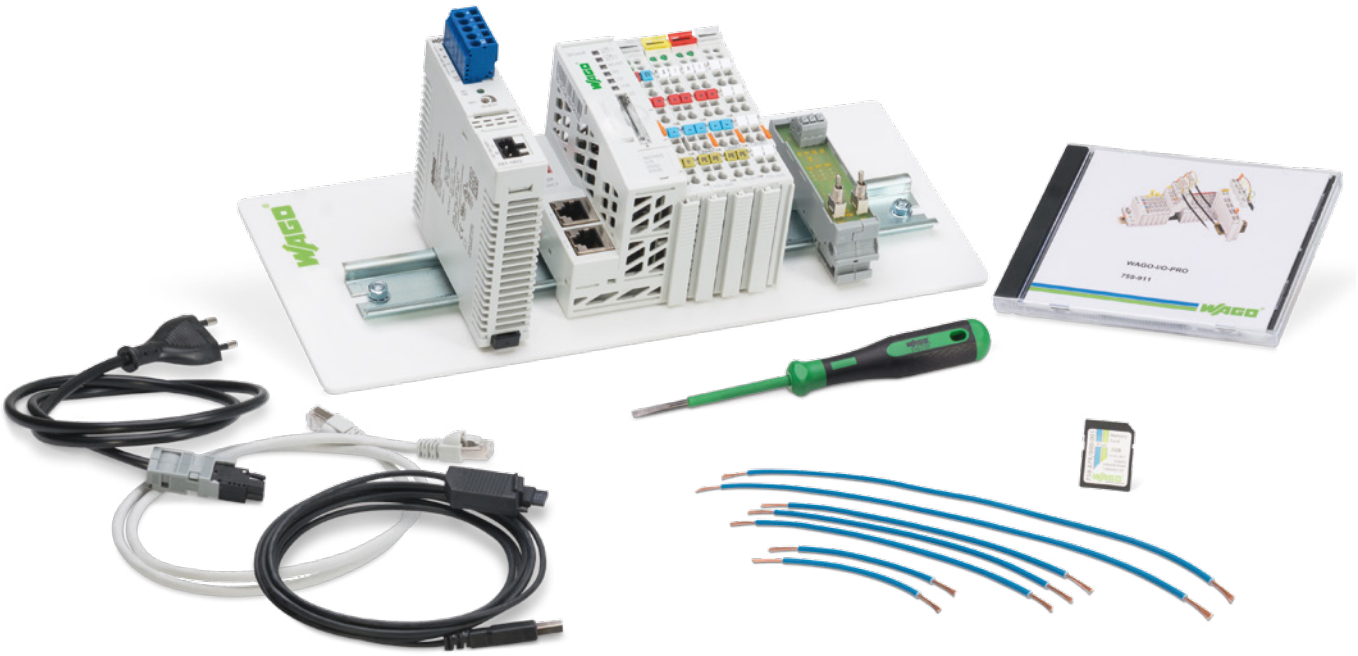


This ETHERNET Starter Kit includes: 750-881 Controller, 2-channel input module and 2-channel output module. A power supply and the required programming software are also included in the scope of delivery. An application program designed for the starter kit and written in IEC 61131 demonstrates both hardware and software possibilities.

Item Description	Item No.
Starter Kit; ETHERNET 881	**8003-001/K999-9999/000-1600**

The ETHERNET Starter Kit includes:	
Controller ETHERNET; 3rd generation	750-881
2-Channel Digital Input; 24 VDC; 3 ms	750-400
2-Channel Digital Output; 24 VDC; 0.5 A	750-501
End Module	750-600
Power Supply “Classic”; 24 VDC output voltage; 1 A	787-1602
Switching Module; 2-way DI simulator	288-863
Development Environment, incl. USB Communication Cable; WAGO-I/O-*PRO*; USB Kit	759-333/000-923
SD Memory Card; 1 GB	758-879/000-001
Patch Cable; 1 m	110-8006
Operating Tool; Type 1; (3.5 x 0.5) mm blade	210-720

Starter Kit; BACnet/IP with Controller BACnet/IP; Eco



The BACnet/IP Starter Kit is perfect for anyone seeking flexibility. Whether for rooms, lighting control systems or HVAC systems, the high-performance BACnet/IP Eco Controller is always the right choice for building automation applications.

Advantages of the BACnet/IP Eco Controller:

- This controller supports the device profile of a BACnet Building Controller (B-BC) with all major BACnet objects and interoperability building blocks (BIBBs).
- With 256 BACnet objects, the BACnet/IP Eco Controller is an economical alternative for building automation applications requiring a small number of BACnet objects.
- This permits smaller building automation control tasks to be implemented much more cost-effectively.

4.5

Item Description	Item No.
Starter Kit; BACnet/IP	**8003-099/750-831**

The BACnet/IP Starter Kit includes:	
Controller BACnet/IP; Eco	**750-831/000-002**
2-Channel Digital Input; 24 VDC; 3 ms	**750-400**
2-Channel Digital Output; 24 VDC; 0.5 A	**750-501**
End Module	**750-600**
Power Supply "Classic"; 24 VDC output voltage; 1 A	**787-1602**
Switching Module; 2-way DI simulator	**288-863**
Development Environment, incl. USB Communication Cable; WAGO-I/O-*PRO*; USB Kit	**759-333/000-923**
Operating Tool; Type 1; (3.5 x 0.5) mm blade	**210-720**
Patch Cable; 1.0 m	

Starter Kit; KNX IP with Controller KNX IP

The WAGO Starter Kit KNX IP is available for those new to KNX IP. This starter kit is particularly well-suited to users seeking to:

- Expand existing KNX/EIB networks with the KNX/EIB/TP1 interface to include the functionality of the modular WAGO-I/O-SYSTEM and program applications themselves (IEC 61131-3)
- Have remote access to their KNX/EIB/TP1 network with the router
- Exploit the advantages of an ETHERNET network with KNX/EIB projects via the IP controller

4.5

Item Description	Item No.
Starter Kit; KNX IP	**8003-001/K999-9999/000-901**
The KNX IP Starter Kit includes:	
Controller KNX IP	750-889
4-Channel Digital Input; 24 VDC; 3 ms	750-402
4-Channel Digital Output; 24 VDC; 0.5 A	750-504
End Module	750-600
KNX/EIB/TP1 Interface	753-646
Switched-Mode Power Supply; 24 VDC output voltage; 1.3 A	787-602
Development Environment, incl. USB Communication Cable; WAGO-I/O-*PRO*; USB Kit	759-333/000-923
Patch Cable; Cross-Over	