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WAGO-I/O-SYSTEM Hardware

- ▷ Power supply
- ▷ Handling
- ▷ Communication
- ▷ Hardware configuration
- ▷ Diagnostic
- ▷ Web-based Management



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WAGO-I/O-SYSTEM 750, 753, 758 for scalable automation solutions

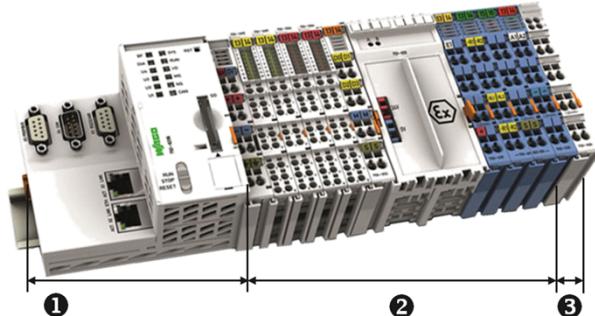
Fine modularity and fieldbus-independence are hallmarks of the WAGO-I/O-SYSTEM, which boasts worldwide approvals for a diverse range of applications. During development, great care was taken to ensure the system could account for all the requirements placed on decentralized fieldbus systems.

Designed to Meet Practical Requirements

- I/O modules with pluggable connectors (753 Series)
- Fine granularity: I/O module accommodates 1, 2, 4, 8 or 16 channels
- Fieldbus-independent: Fieldbus couplers and controllers for the most common fieldbus protocols and industrial ETHERNET standards
- A sound investment: Fieldbus-independent node design easily accommodates new bus standards while retaining the I/O modules
- Clear Identification: Color-coded group marker carriers and WAGO WSB markers for clamping units
- Scalable performance: With economy and standard couplers as well as programmable controllers on through to comprehensive IPCs
- High-performance: Controllers for distributed control networks according to IEC 61131-3

Fielbus nodes

The configuration



- ① Controller
- ② I/O modules (max. 64)
- ③ End module

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Total extension

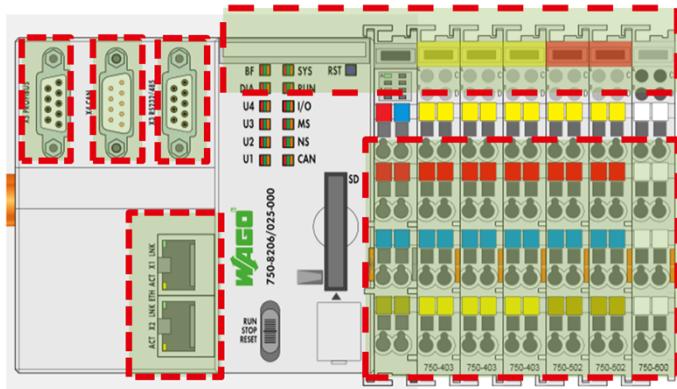
The length of the module assembly that can be connected to the controller is 780 mm. The width of the end module is 12 mm. When assembled, the I/O modules have a maximum length of 768 mm.

Examples:

64 I/O modules of 12 mm width can be connected to a controller.
32 I/O modules of 24 mm width can be connected to a controller.

Power Supply

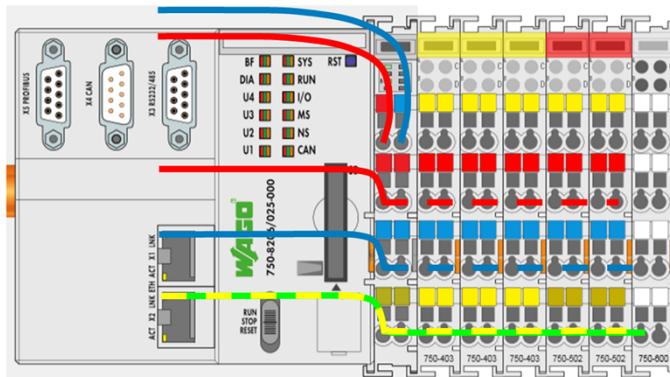
The potential levels



- Fieldbus, external interfaces
- Module electronics
- External peripheries

Power Supply

Supply with electrical isolation



Bus coupler and Bus modules electronics:

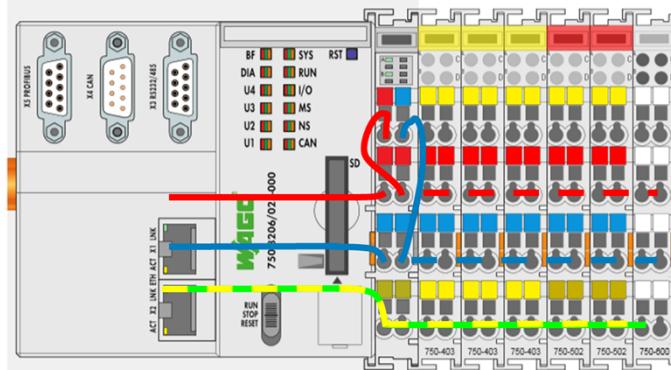
- external: 24 VDC, max. 500 mA
- internal: 5 VDC, 2000 mA

External peripheries:

- 24 VDC, max. 10 A

Power Supply

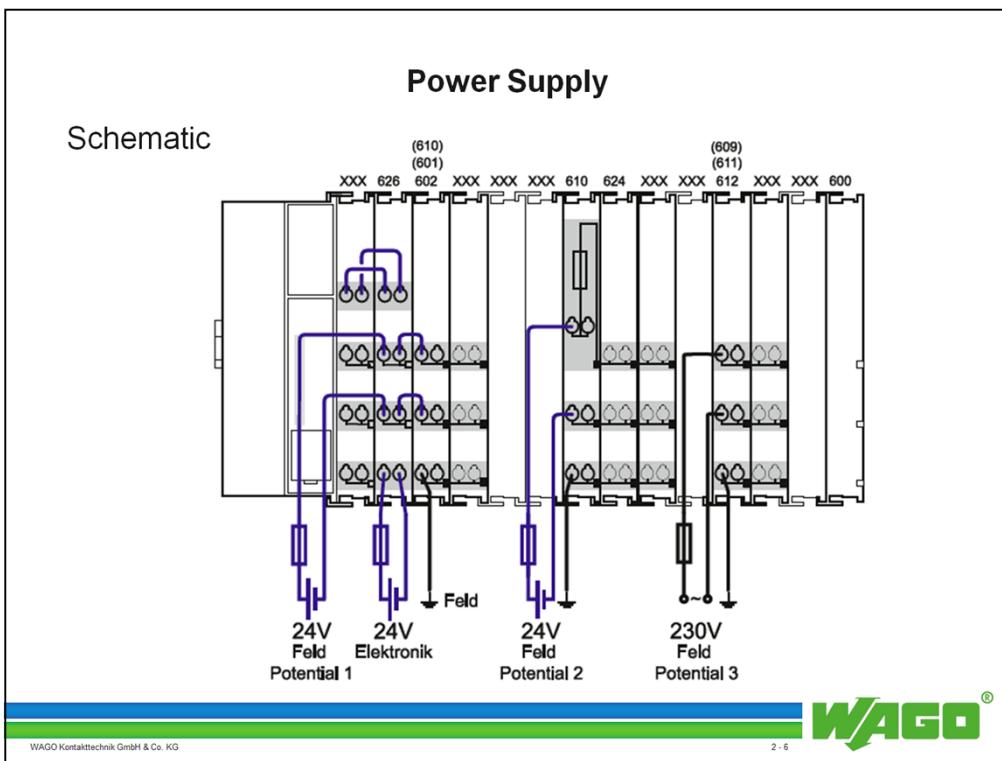
Supply without electrical isolation



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3.6.5 Supply example



System and field supply must be isolated!

The system supply and field supply must be isolated to ensure bus operation in the event of short circuits on the actuator side.



Additional information for designing a ring feeding

In order to increase system safety, a ring feeding of the ground potential is recommended. Thus, the ground potential is maintained, in the event that a bus terminal is pulled from the potential group.

In ring feeding, the grounding conductor is connected to the beginning and end of a potential group.

Please see the additional information for designing a ring feeding in chapter "Grounding" > "protective earth" ring feeding.

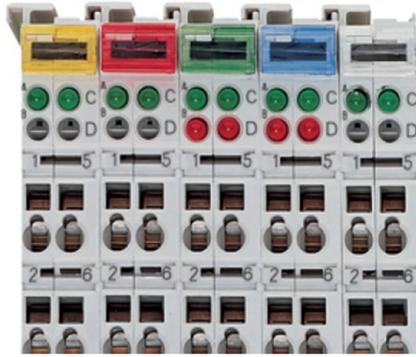
Color-coding

yellow	Digital inputs
red	Digital outputs
green	Analog inputs
blue	Analog outputs
<input type="checkbox"/>	Specialty functions

750 – 4xx inputs

750 – 5xx outputs

750 – 6xx Special and system modules

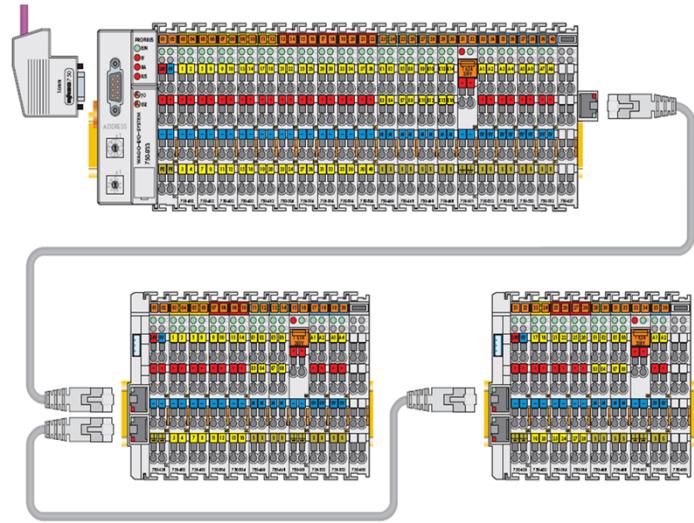


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Internal Data Bus Extension



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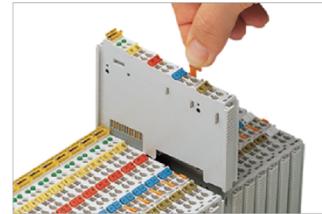
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Handling the I/O modules

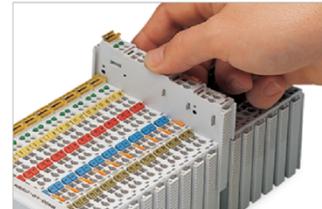
Assembly/Removal

- Assembly: Insert until the module engages noticeably
- Removal: Pull on the orange actuating element
- Mount terminals if free of voltage



Practical tips

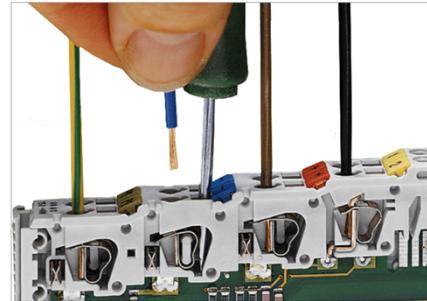
- Be careful with the blade contacts when removing the terminal (risk of injury)
- Keep gold contacts clean and do not touch with fingers
- Deposit terminal with the printed side up



Wiring the I/O modules

CAGE CLAMP® Connection

- A universal system
- Suitable for all copper wires from 28 to 2 AWG (0.08 mm² to 2.5 mm²)
- One conductor per clamping unit
- Clamping of the wire without damage through unique design
- Gastight contact area between conductor and current bar
- Vibration and shock resistant
- Simple, easy-to-use design
Fast and maintenance-free



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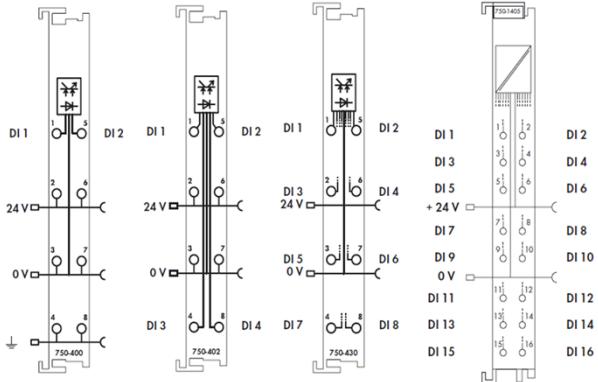
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c UL us		c UL us	E175199, UL 508
	ABS (American Bureau of Shipping)	03-HG374860/2-PDA; 05-ES578983-X	
	BV (Bureau Veritas)	13453/B0 BV	
	DNV (Det Norske Veritas)	A-12260; Cl. B	
	GL (Germanischer Lloyd)	11 631-10 HH; 26 624-05 HH; 26 898-05 HH; 59 627-08 HH; 60 241-09 HH; Cat. A, B, C, D (EMC 1)	
	KR (Korean Register of Shipping)	HMB05880-EL004 ff	
	LR (Lloyd's Register)	02/20026 (E2); Env. 1, 2, 3, 4	
	NKK (Nippon Kaiji Kyokai)	TA06190M	
	Polski Rejestr Statków	TE/1720/880590/08	
	RINA (Registro Italiano Navale)	ELE153207CS 001	
c UL us		E198726, ANSI/ISA 12.12.01	
	DEMKO, PTB	08ATEX142851 X; IECEx PTB 07.0064 X	
Brazilian Ex		MC,AEX-7538-X (OCP 0004)	
TÜV		07ATEX554086 X; IECEx TUN 09.0001 X	
		Bestellnr.	Artikelbezeichnung
			Ex
	750-400	2 DI 24 V DC, 3,0 ms	x x*
	750-401	2 DI 24 V DC, 0,2 ms	x x*
	750-402	4 DI 24 V DC, 3,0 ms	x x*
	750-403	4 DI 24 V DC, 0,2 ms	x x*
	750-405	2 DI 230 V AC	x x*
	750-406	2 DI 120 V AC	x x*
	750-408	4 DI 24 V DC, 3,0 ms, negativschaltend	x x*
			Schiffszulassungen
			UL

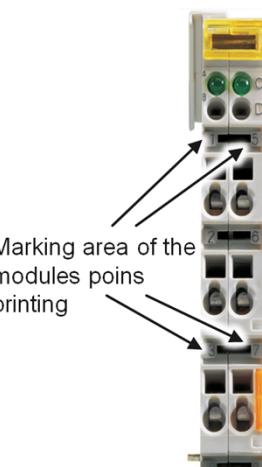
Connect the peripherals

Special features of the digital modules

2 channel 4 channel 8 channel 16 channel

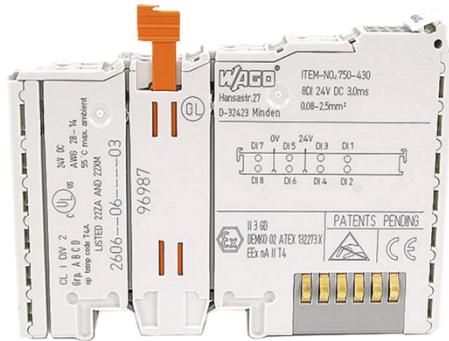
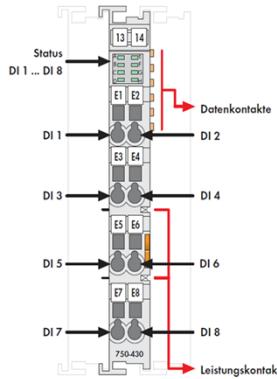


The marking area of the modules points printing
1-8 **fits usually not to** the channel occupancy



Connect the peripherals

Wiring information from the data sheet



Online or catalog or on the board

Configuration of the Controller



- TCP IP settings
- Runtime system
- Switch/ LED
- Further settings
- Technical data

Communication

Connection between **e!COCKPIT** PC and Controller



- Network cable
 - Configuration
 - Program download
- USB service cable
 - Configuration

The communication between PC and controller takes place using standard network interface cards via Ethernet.

Serial communication interface

For IP configuration only



USB service cable
750-923 (2.5 m)
750-923/000-001 (5 m)



Bluetooth® funkadapter
750-921



Serial service cable
750-920

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(From the WAGO-I/O-CHECKmanual)

5.1 Configuring the communication connection

The following work steps are required to set up the communication connection:

- Switch off the power supply of the fieldbus controller.
- Open the configuration interface of the fieldbus controller.

Warning!

Do NOT touch the interface contacts of the fieldbus controller with your fingers or any conductive objects!

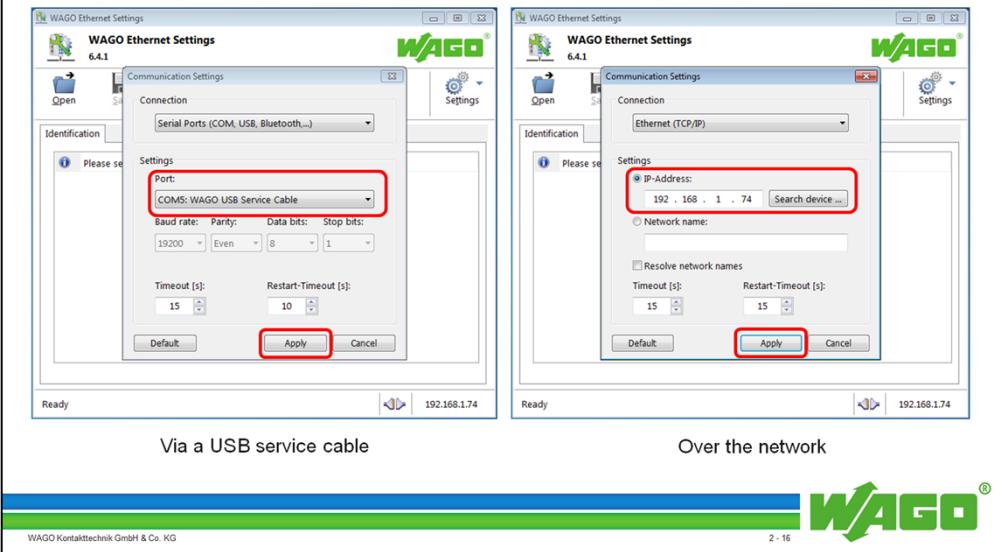
- Connect the configuration interface to the appropriate socket of the communication cable 750-920.
- Connect the Sub-D socket of the communication cable with a free serial interface of the computer.

WAGO-I/O-CHECK is now able to communicate with the node.

Hardware configuration – IP address

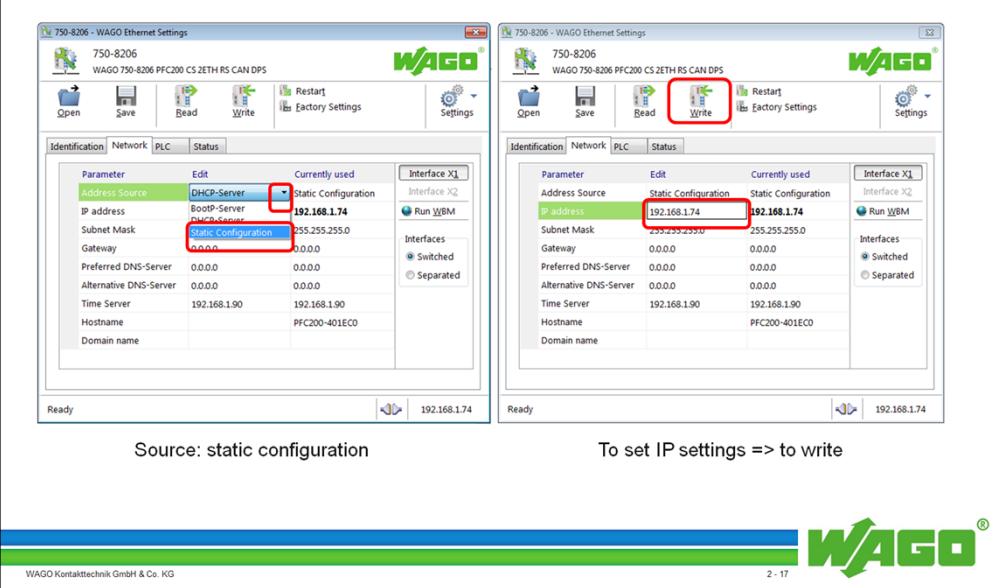
WAGO ETHERNET Settings

Two connection options



Hardware configuration – IP address

WAGO ETHERNET Settings

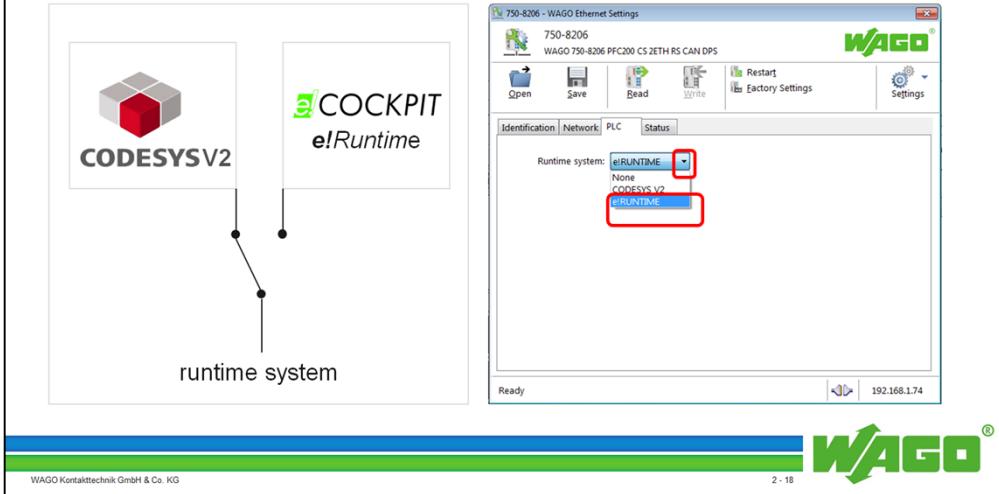


Hardware configuration – runtime system

WAGO ETHERNET Settings



Don't forget
Switch the runtime system – from CODESYS V2 to e!Runtime



Operating mode switch



Position	Activation	Function
RUN	Switch RUN	Application Start
STOP	Switch STOP	Application Stop
RESET	Switch RESET > 2s Switch RESET > 7s	Reset warm Reset cold

! If the operating mode switch is in STOP position, the Controller can not be started from **e!COCKPIT**.

Diagnostic

Diagnostic LEDs of PFC 200

BF	■ ■ ■	SYS
DIA	■ ■ ■	RUN
U4	■ ■ ■	I/O
U3	■ ■ ■	MS
U2	■ ■ ■	NS
U1	■ ■ ■	CAN

BF/DIA	Bus diagnostic PROFIBUS
CAN	Bus diagnostic CANopen
MS/NS	Bus diagnostic Ethernet
I/O	Diagnostic K-Bus
U1...U4	User diagnostic



LNK ACT Active network connection

Web-based Management

Navigation

- Information
- PLC Runtime
- Networking
- Firewall
- Clock
- Administration
- Package Server
- Mass Storage
- Software Uploads
- Ports and Services
- SNMP
- Diagnostic
- PROFIBUS DP

Authentication

Login

Username: (highlighted with red box)

Password: (highlighted with red box)

Local Time 14:49
Local Date 22.07.2015
PLC Switch STOP
LEDs B8 (●) SYS
D1A (●) RUN
U4 (●) IO
U3 (○) MS
U2 (○) NS
U1 (○) CAN

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Web-based Management

The screenshot shows the WAGO Web-based Management interface for the WAGO 750-8206 PFC200 CS 2ETH RS CAN DPS. The navigation menu on the left includes options like Information, PLC Runtime, and General Configuration. The main content area displays the "General PLC Runtime Configuration" page. It shows two radio button options for PLC runtime version: "None" and "eIRUNTIME" (which is selected). Below that, it shows two radio button options for Bootproject location: "Memory Card" (selected) and "Internal Flash". A "Submit" button is located at the bottom right of the configuration form. To the right of the configuration form is a "Status" panel displaying system information such as Local Time (14:57), Local Date (22.07.2015), PLC Switch (STOP), and LED status (BF: SYS, DIA: RUN, U4: IO, U3: MS, U2: NS, U1: CAN). The WAGO logo is visible at the bottom right of the page.

Web-based Management – additional settings

Webserver enabled: for the using e!COCKPIT web visualization port authentication switches e!COCKPIT password on/ off (Default: admin/ wago)

The screenshot shows the 'Configuration of PLC Runtime Services' page. On the left, a navigation tree includes 'Information', 'PLC Runtime', 'Networking', 'Firewall', 'Clock', 'Administration', 'Package Server', 'Mass Storage', 'Software Uploads', 'Ports and Services' (with 'Network Services' and 'NTP Client' listed), and 'PLC Runtime Services' (with 'SSH', 'TFTP', 'DHCP', 'DNS', 'MODBUS', 'SNMP', and 'Diagnostic'). The 'PLC Runtime Services' section is selected. In the center, under 'e!RUNTIME', the 'e!RUNTIME State' is set to 'enabled' (checked). The 'Webscraper enabled' checkbox is checked and highlighted with a red box. Other options include 'Communication enabled' (checked), 'Communication Port Number' (set to 2455), and 'Port Authentication enabled' (unchecked). On the right, a 'Status' panel displays 'WBM' (Local Time: 16:50, Local Date: 23.07.2015, PLC Switch: STOP), 'LEDs' (BF (green), SYS (green), DIA (red), RUN (red), U4 (green), IO (green), U3 (green), OMS (green), U2 (green), NS (green), U1 (green), CAN (red)), and the WAGO logo at the bottom.

Technical data – 8202 ... 8206



ETHERNET type:	100 Mbit/s
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CPU:	32 bit
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Program memory:	16 Mbyte
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Data memory:	64 Mbyte
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Retain memory:	128 kbyte
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Filesystem:	256 Mbyte
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Data protocols: Modbus TCP/IP, Netzwerkvariable, CANopen, ProfibusDP

Service protocols : HTTP, BootP, DHCP, DNS, SNTP, FTP, SNMP