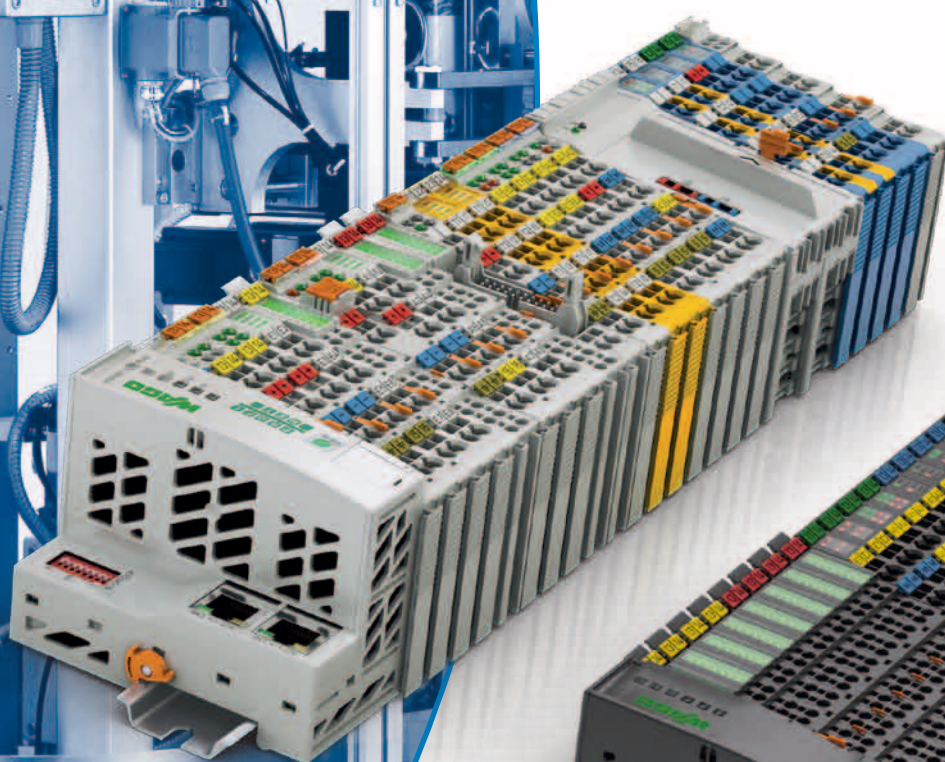
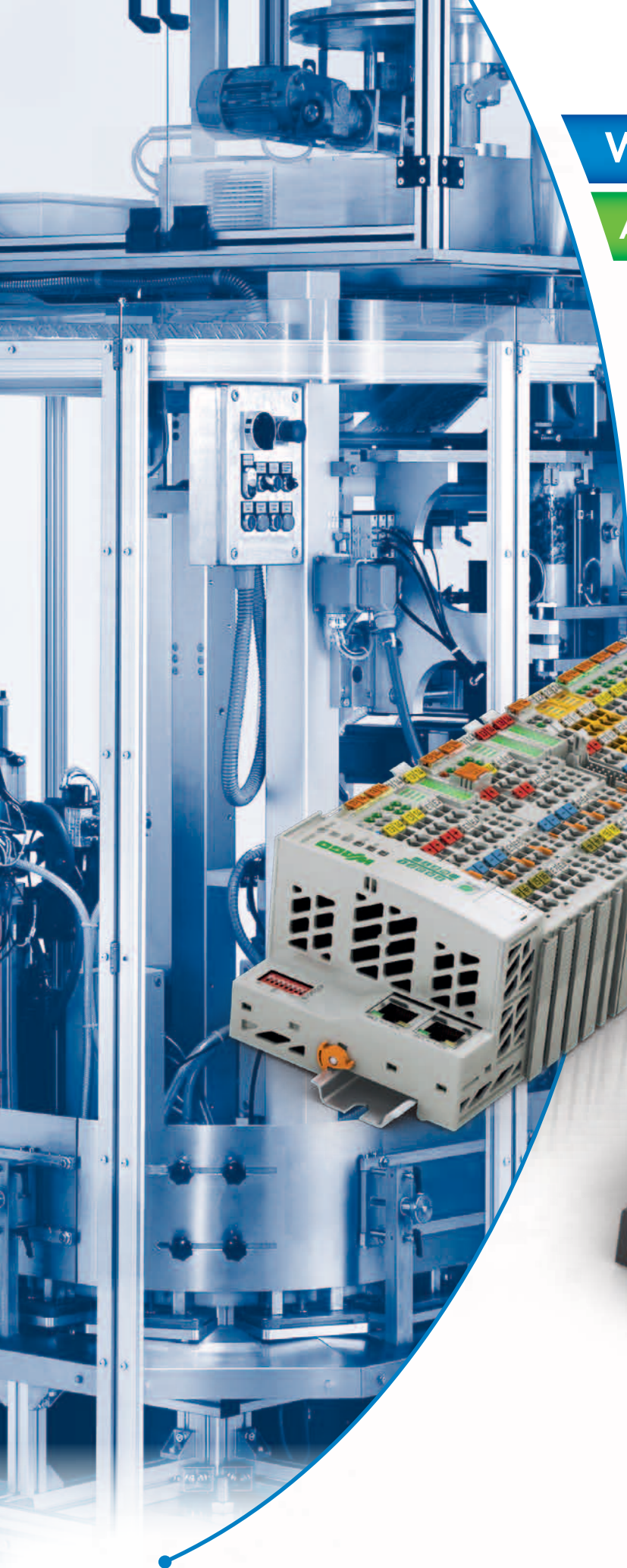


WAGO-I/O-SYSTEM 750

A System for All Applications



WAGO®

Decentralized Automation

Company Profile



As the leader in screwless interconnect and electronic interface technologies, WAGO developed the first finely modular, fieldbus-independent system in 1995 and has continued to lead the industry in quality and innovation ever since. To this day, our steadfast commitment to innovation and versatility enables us to continue setting new standards in usability, performance and reliability. A compact design combined with the highest quality standards has made the WAGO-I/O-SYSTEM one of the world's most successful fieldbus systems.

Benefits of Decentralized Fieldbus Systems

The introduction of industrial fieldbus systems has significantly impacted automation. Modern, decentralized topologies with distributed "intelligence" have replaced traditional, centralized automation structures, allowing users to maxi-

mize cost-savings and streamline system processes.

The introduction of Industrial Ethernet has satisfied industry demands for both increased performance and the availability of open-system architectures,

while the worldwide establishment of fieldbus standards ensures compatibility. The interoperability of these open systems epitomizes the capability of modern automation systems.

Quality and Reliability

- Quality assurance is integrated into the production process
- 100% tested for proper function
- Worldwide approvals



Scalable Control Technology: The Right Controller for Every Application!

- Fieldbus-independent – compatible with all standard fieldbus protocols & ETHERNET standards
- Scalable performance – modular controllers and control panels
- Flexible platform adapts to diverse applications and environments
- Compact design
- Programmable to IEC 61131-3

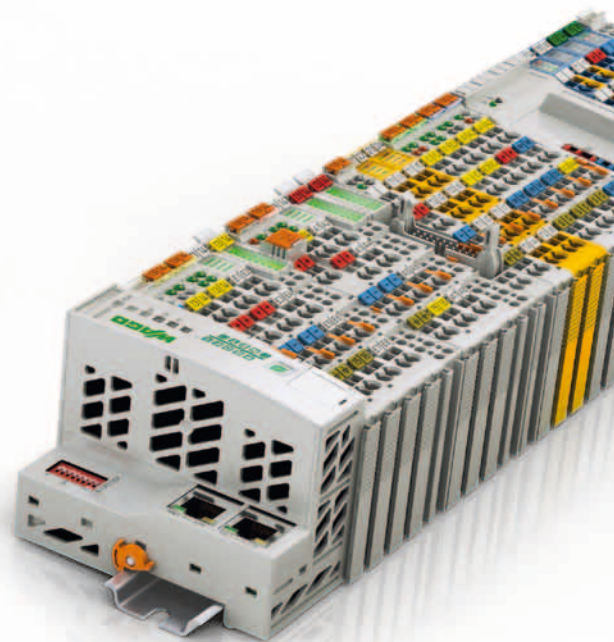
The Ideal Fieldbus System

Optimized for process-oriented communication, the WAGO-I/O-SYSTEM offers scalable performance and high integration density with an unbeatable price/performance ratio.

With a fieldbus-independent design that features finely granular and modular components, the WAGO-I/O-SYSTEM readily meets all the requirements placed on distributed fieldbus systems.

It is also certified by prominent certification agencies for worldwide use in extremely diverse applications.

- Virtually unlimited application possibilities
- Minimal hardware and system costs
- Simple operation, maximum efficiency



● Maximum Return on Investment

- Open, fieldbus-independent design optimizes investments

● Minimal Life-Cycle Costs

- Simple operation minimizes planning, commissioning and maintenance costs
- Streamlined design significantly reduces handling errors
- Easy-to-install components eliminate unnecessary (and often costly) accessories and manufacturer-specific configuration tools

● Best Price/Performance Ratio

- Fine-granular I/O modules enable customization of nodes
- Space-saving design permits high packing density and direct connection

● Maximum Reliability

- Industry-leading quality and reliability for a wide variety of applications – all WAGO components adhere to the highest standards for environmental exposure (e.g., climate, vibration and shock loading, EMC and emitted interference).

Universal, Compact and Economical – The Ideal Fieldbus Node

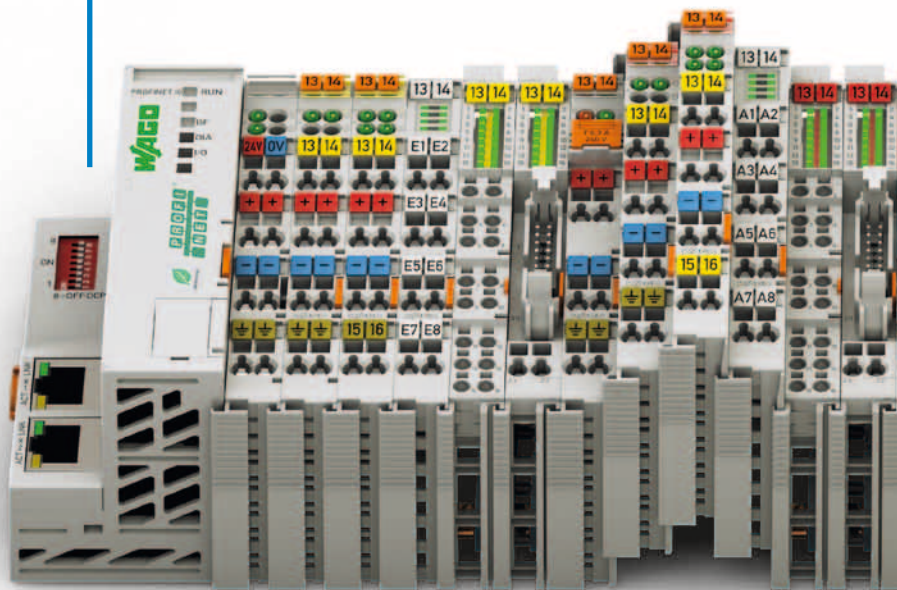


Fieldbus-Independent

The system's modularity is also reflected in its support of numerous fieldbus systems. The modularity of the system allows existing WAGO-I/O-SYSTEM nodes to be converted to a different network by simply changing the bus coupler/controller.

Automatic Connection

I/O modules offer built-in power contacts for potential distribution and data contacts for internal data transmission – no chassis or jumpers required.



Scalable Control Solutions

Interfaces are available for any size and type of automation task – from distributed I/O nodes or stand-alone control to global networks.

- Fieldbus couplers – standard for high I/O counts and economy for highly distributed applications
- Programmable fieldbus controllers – for stand-alone, distributed, or master control.
- Configuration, programming and visualization are performed via WAGO-I/O-PRO, WAGO's IEC 61131-3-compliant (CODESYS) software package.



CODESYS

Clear Identification

Module functionality is identified via integrated and pluggable marker carriers. Connector assignment and technical data are located on the side of the module.

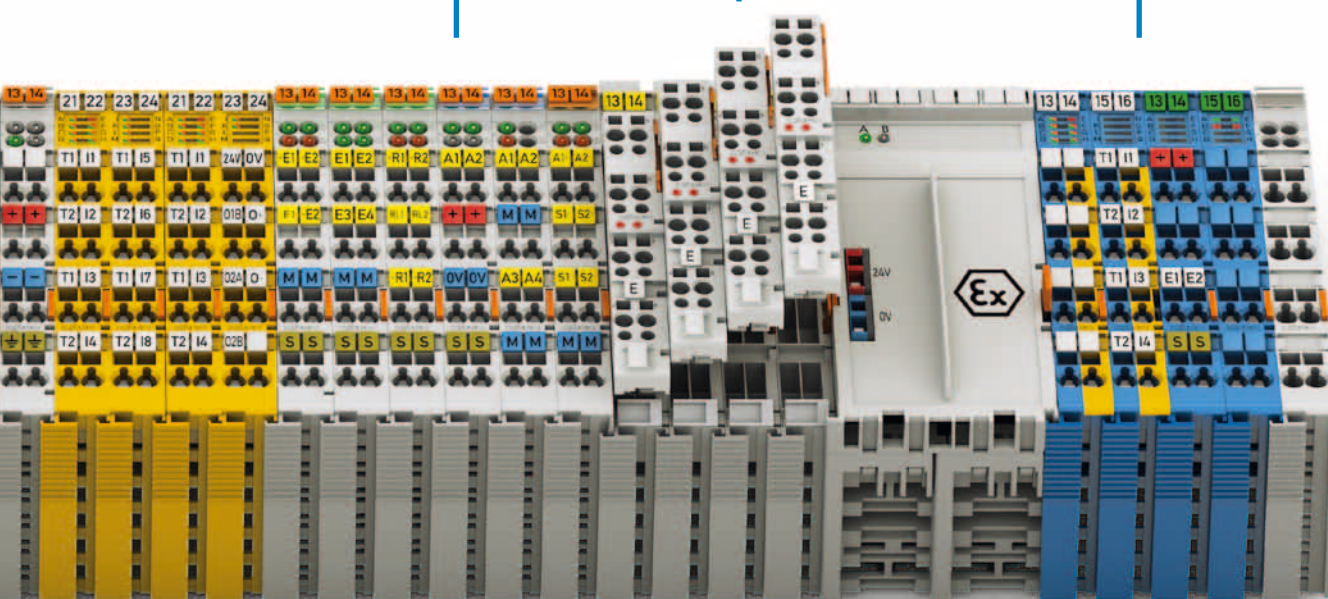
The WAGO WSB marker system also allows for module- and channel-related identification.

Pluggable Connections

For convenient, in-the-field wiring, the 753 Series pluggable connectors are 100% compatible with 750 Series modules. Pre-harness I/O connections permit plug-and-play wiring. This virtually eliminates handling errors and saves time – if needed, this can be executed via place holder modules.

Secure and Reliable Connections

WAGO Spring Pressure Connection Technology guarantees continuous operation, even under extreme environmental conditions, such as thermal cycling, shock, vibration, and electrostatic discharge (ESD).



Compact Size

Our patented mechanical design allows for extremely compact I/O nodes. I/O modules can accommodate up to 16 channels in a 12 mm (1/2") wide housing.

Maximum Flexibility

Each node in the WAGO I/O-SYSTEM can be configured to meet each channel's requirements, and various potentials and signal forms are available (granularity of 1 to 8 channels). Digital and analog I/O modules, as well as specialty modules can be freely mixed in the same node. Supply modules allow different voltages (e.g., 24 V, 120 V, 230 V) in the same I/O node.

Simple Handling

The modular, DIN-rail mount design allows for easy installation, expansion, and modification of the I/O node. Other mechanical features prevent potential distribution to the wrong module and allow tool-free removal of a single module from the I/O node. 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, the field peripherals can be wired directly using 1-, 2-, 3- or 4-wire technology.



MODBUS/TCP



CANopen

sercos
the automation bus

MODBUS



IEC 60870-5-101/-103/-104

IEC 61850

IEC 61400-25



LONWORKS



Digital Input Modules

2-Channel Digital Input Modules

- 24, 48, 60, 110, 220 VDC
- 120, 230 VAC
- NPN/PNP, 0.2 ms/3.0 ms filter, diagnostics

2-Channel Digital Specialty Modules

- NAMUR
- Pulse extension
- Intruder detection
- Up/down counter, 500 Hz, 100 kHz

4-Channel Digital Input Modules

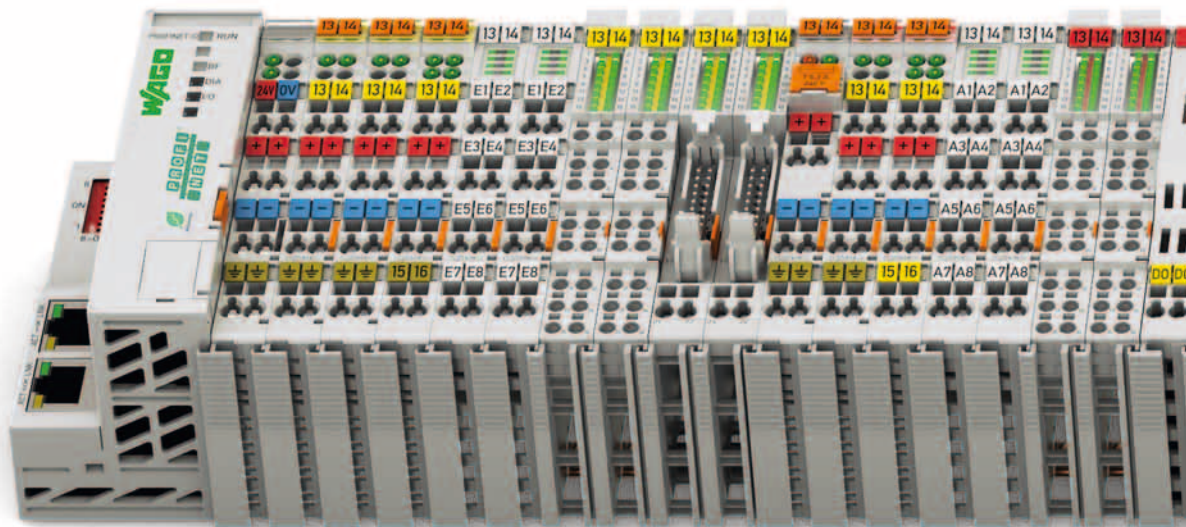
- 5, 24, 42 VDC
- 24, 42 VAC, 110-230 VAC

8-Channel Digital Input Modules

- 24 VDC, 5-14 VDC
- NPN/PNP, 0.2/3.0 ms filter

16-Channel Digital Input Modules

- CAGE CLAMP® S, 24 VDC, NPN/PNP
- Ribbon cable, 24 VDC, NPN/PNP



Digital Output Modules

16-Channel Digital Output Module

- 440 VAC, 16 A
- Manual operation, bistable, isolated output

2-Channel Digital Output Modules

- 24 VDC, 0.5 A/2 A, diagnostics (broken wire/short circuit)
- 230 VAC, SSR, 3.0 A, diagnostics

4-Channel Digital Output Modules

- 5 VDC, 24 V, 0.5 A
- 120-230 VAC, 0.25 A
- NPN/PNP, diagnostics

8-Channel Digital Output Modules

- 5-14 VDC, 1 A
- 24 VDC, 0.5 A
- NPN/PNP, diagnostics

16-Channel Digital Output Modules

- CAGE CLAMP® S, 24 VDC, 0.5 A, NPN/PNP
- Ribbon cable, 24 VDC, 0.5 A, NPN/PNP

2-Channel Relay Output Modules

- 0-230 V AC/DC
- 2 make contacts/2 changeover contacts, isolated outputs/non-floating

400+ Individual Function Modules Are Available in 1-, 2-,

Analog Input Modules

1-Channel Analog Input Modules

- Resistor bridge (strain gauge)

2-Channel Analog Input Modules

- Differential/single-ended input
- Measurement input (electrical isolation)
- 12-/14-/16-bit resolution
- 0(4)-20 mA, 0-1(5) A AC/DC
- 0-10 V, ± 10 V, 0-30 V DC
- Diagnostics

4-Channel Analog Input Modules

- Single-ended input
- 0(4)-20 mA
- 0-10 V, ± 10 V

Analog Specialty Functions

- HART modules
- RTD measurement module (adjustable)
- Thermocouple measurement module, diagnostics
- 3-phase power measurement modules: 480/690 V, 1 A/5 A/Rogowski coil

Function and Technology Modules

Counters

- Up/down counters
- Frequency counter
- Peak-time counter

Distance and Angle Measurement

- SSI transmitter interface
- Incremental encoder interface
- Digital impulse interface

Positioning

- Stepper controller, RS-422
- Stepper controller, 24 V/1.5 A
- Stepper controller, 70 V/7.5 A, 6IN/2OUT
- Servo stepper controller, 70 V/7.5 A, 6IN/2OUT
- DC drive controller, 24 V/5 A

Pulse Width Output Module

Proportional Valve Module

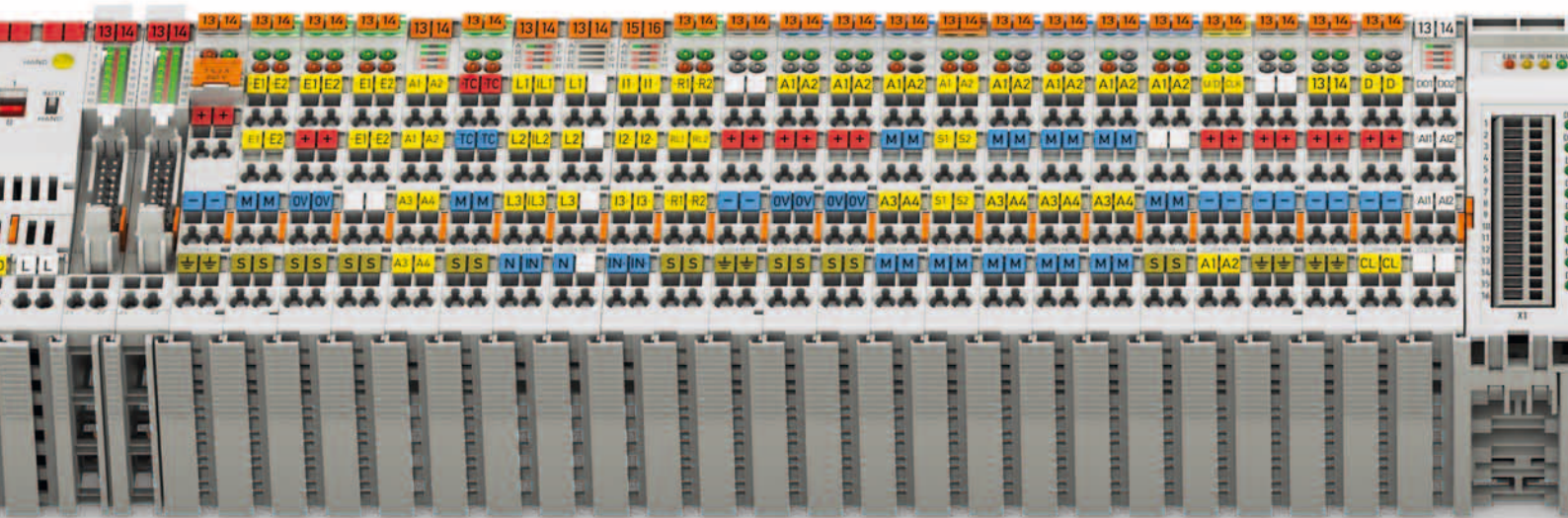
- Control of hydraulic or pneumatic valves

Vibration Monitoring

- Vibration velocity/bearing condition monitoring

RTC Module

- DCF77 radio receiver



Analog Output Modules

2-Channel Analog Output Modules

- 0-10 V/ ± 10 V
- 0(4)-20 mA

4-Channel Analog Output Modules

- 0-10 V/ ± 10 V
- 0(4)-20 mA

Analog Specialty Functions

- 6-18 V
- 0-10 V, 10 mA, diagnostics

Communication Modules

Building Automation

- DALI/DSI master
- DALI multi-master
- EnOcean radio receiver
- MP-Bus
- KNX/EIB/TP1 module
- LON[®]
- SMI
- M-Bus

Serial Interfaces

- RS-232/RS-485 interfaces (configurable)
- TTY interface, 20 mA, current loop
- Data exchange module

4-Channel I/O-Link Master

AS-Interface Master

- Per (M4) V 3.0 specification
- Up to 62 slaves

CAN Gateway

Radio Interface

- Bluetooth[®]/RF transceiver

4-, 8- and 16-Channel Configurations. •

Functional Safety

Digital Input/Output Modules (PROFIsafe)

- 4FDI, 24 VDC
- 4FDI/2FDO, 24 VDC, 10 A
- 4FDI/4FDO, 24 VDC, 2 A
- 8FDI, 24 VDC
- Ple/Cat. 4 to EN ISO 13849 or SIL 3 EN IEC 62061

Intrinsically Safe Module

- 4 F Ex i DI, 24 VDC, Zones 0+1

Supply and Segment Modules

Internal Data Bus Extension

- End module
- Coupler module

Supply Modules

- 0-230 V AC/DC
- Fuse/diagnostics (optional)
- 24 VDC / 5-15 VDC (adjustable)

Filter Modules

- System and field supply
- 24 VDC power supply filter with overvoltage (surge) protection

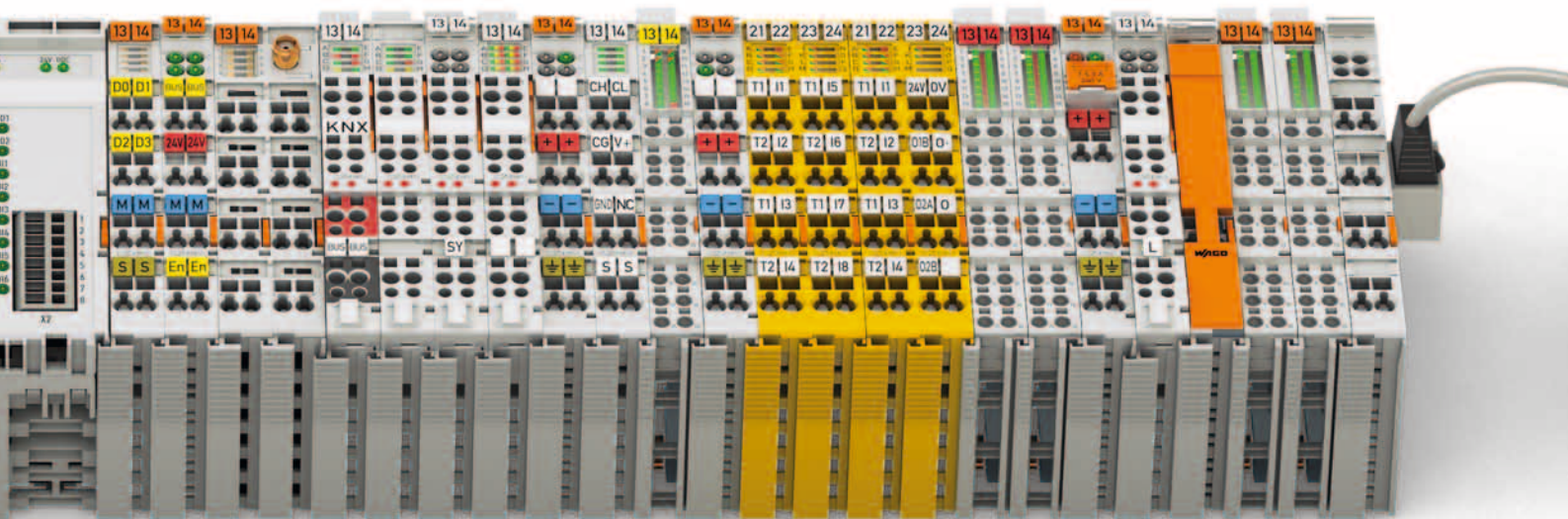
Field-Side Connection Modules

- 24 VDC
- 0 VDC

Separation Modules

- 24 VDC / 230 VAC

End module



Ex i Intrinsically Safe Modules

1-Channel Digital Input Module

- NAMUR, Zones 0+1

2-Channel Digital Input Module

- NAMUR, Zones 0+1

4-Channel Digital Input Module

- PROFI-safe, Zones 0+1

8-Channel Digital Input Module

- NAMUR, Zones 0+1

2-Channel Digital Output Module

- 20 mA, Zone 1

2-Channel Relay Output Module

- Changeover contact, Zones 0+1

2-Channel Analog Input Module

- 4-20 mA, Zone 1
- 4-20 mA, HART, Zones 0+1
- RTD, Zones 0+1
- Thermocouple, Zones 0+1

2-Channel Analog Output Module

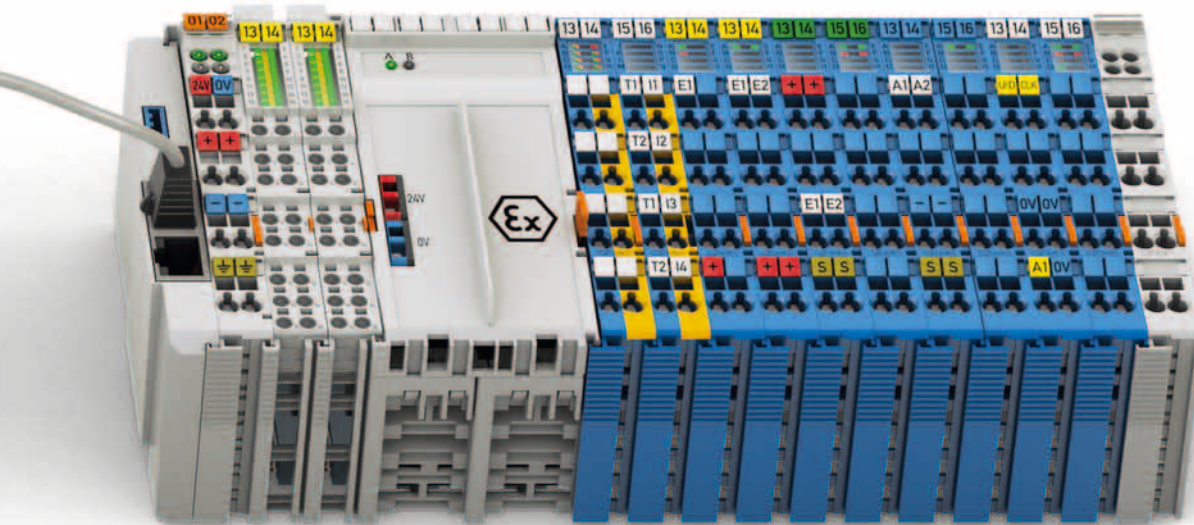
- 0-20 mA, Zones 0+1

Up/Down Counters

- NAMUR, Zones 0+1

Supply Modules

- 24 VDC, 1 A, Ex i



Versatile and flexible

Controllers and Fieldbus Couplers

Fieldbus Couplers

- Fieldbus couplers connect the WAGO-I/O-SYSTEM 750 to the higher-level control system
- Fieldbus-independent – compatible with all standard fieldbus protocols & ETHERNET standards
- Space-saving design



**PROFI[®]
BUS**

sercos
the automation bus

MODBUS/TCP

MODBUS



CC-Link

**IEC 60870-5-101/-103/-104
IEC 61850
IEC 61400-25**



LONWORKS[®]



Programmable Fieldbus Controllers

- Controllers for all standard fieldbus systems and ETHERNET standards
- Quick start-up
- Programmable with CODESYS per IEC 61131-3
- Direct connection to a wide range of I/O modules from the WAGO-I/O-SYSTEM 750
- Flexible platform adapts to diverse applications and environments

PROFI
NET

EtherNet/IP

EtherCAT

DeviceNet

CANopen

MEMBER OF
ASHRAE BACnet
INTEREST GROUP EUROPE

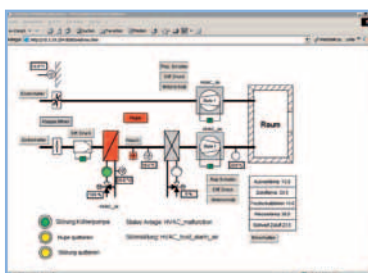


PFC200 Controllers

- Controllers for all standard fieldbus systems and ETHERNET standards
- High processing speed
- Multiple communication interfaces can be used in parallel
- Scalable power
- Programmable with CODESYS per IEC 61131-3
- Can be combined with high-level languages
- Linux® 3.6 real-time operating system
- Robust and maintenance-free
- SSH and SSL provide high security level

WAGO-I/O-PRO Software

- Programming and visualization tool based on CODESYS according to IEC 61131-3
- Supports the following standard programming languages: IL, SFC, LD, FBD and ST
- Open interfaces (OPC, DDE) enable data exchange with other programs
- Highly efficient translation between programming languages
- Automatic declaration of variables
- Library management
- Online status indication in the program code
- Offline simulation and integrated process visualization
- Recording and graphical display of project variables



CODESYS

WAGO-I/O-SYSTEM 750 XTR

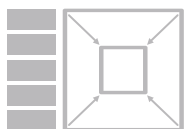
For eXTReMe environmental conditions



The WAGO-I/O-SYSTEM 750 XTR is easily recognizable by its dark-gray modules. Benefit from the unique added value provided by this system in extreme environment applications.

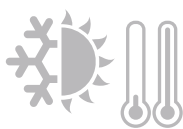
XTR Based on **750 Series**

DIN EN 60068-2-6



- Fine modularity with large variety of components
- Compact modules (up to 16 channels in a 12 mm/1/2" wide housing)
- Field-side connection via Spring Pressure Termination Technology

eXTReMe **temperature** from -40 °C to +70 °C



- No air conditioning required
- Reduced space requirements
- Lower energy and maintenance costs

eXTReMe **insulation** **withstand voltage** up to 5 kV

DIN EN 60870-2-1



- Can be used in unshielded areas
- Suitable for standard telecontrol equipment
- Increased system availability

eXTReMe **vibration** up to 5g acceleration

DIN EN 60068-2-6



- No air conditioning required
- Increased system availability
- Investment security

Programmable Fieldbus Controllers and Fieldbus Couplers



Digital Input Modules

2-Channel Digital Input Modules

- 220 VDC, 3.0 ms filter

8-Channel Digital Input Modules

- 24 VDC, 3.0 ms filter

16-Channel Digital Input Modules

- 24 VDC, 3.0 ms filter

Digital Output Modules

2-Channel Digital Output Modules

- 24 VDC, 2 A, diagnostics
- 230 VAC, 1 A, relay with 2 make contacts

8-Channel Digital Output Modules

- 24 VDC, 0.5 A



Analog Input Modules

4-Channel Analog Input Modules

- Single-ended input
- 0-20 mA / 4-20 mA
- 0-10 V / ± 10 V

Analog Specialty Functions

- Thermocouple measurement module
- RTD measurement module (adjustable)

Analog Output Modules

2-Channel Analog Output Modules

- 0/4-20 mA

4-Channel Analog Output Modules

- 0-10 V / ± 10 V

Communication, Supply and Segment Modules

Filter Modules

- System and field supply

Field-Side Connection Modules

- 24 VDC power supply filter/field-side power supply filter

Supply Modules

- 24 VDC / 0-230 V AC/DC

Serial Interface

- RS-232/RS-485

WAGO-I/O-SYSTEM 750

A System for All Applications

Industry and Engineering

- Fieldbus-independent solutions with scalable performance for the main fieldbus systems and Industrial Ethernet standards
- Cost and space optimization with 1, 2, 4, 8 and 16 channels per I/O module
- Versatile and flexible – more than 400 different functionalities
- Functional safety according to Ple/Cat 4 per EN ISO 13849 or SIL 3 EN IEC 62061
- Application-specific specialty functions: positioning, condition monitoring, etc.
- Wide range of interfaces: CAN, IO-Link, AS-Interface, etc.
- Current and energy measurement technology for energy consumption calculation
- Simple, easy-to-use design – no need for expensive accessories and software

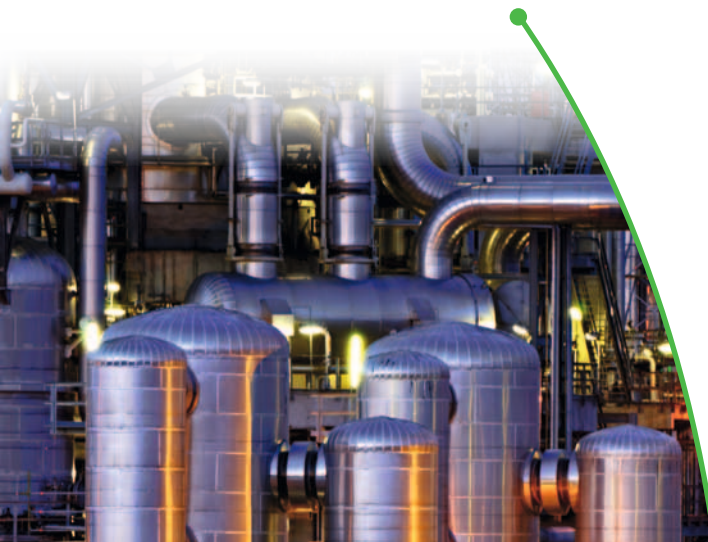
Building Automation

- Fully integrated building automation with BACnet/IP, BACnet MS/TP, KNX IP and MODBUS/TCP
- Fast and efficient solutions for all building systems due to freely programmable controllers and application-specific function modules
- Continuous networking and remote access; e.g., using Web-based technologies
- Wide range of interfaces for building automation applications (KNX, LON®, DALI, EnOcean, SMI, MP-Bus, etc.)

Energy

- Scalable telecontrol technology
- Integrated communication acc. to IEC 60870-5-101/-103/-104, 61850, 61400-25
- 750 XTR benefits:
 - Temperature resistance: -40 °C ... +70 °C
 - Insulation withstand voltages up to 5 kV (DIN EN 60870-2-1)
 - Vibration resistance up to 5g acceleration (DIN EN 60068-2-6)
- Comprehensive network analysis
- Wide variety of interfaces





Process

- Standard applications in Zone 2 hazardous areas
- Intrinsically safe analog and digital I/O modules for connection to Zones 0+1 (20+21)
- All in one module: functional safety and explosion protection
- Numerous specialty functions, analog functions (RTD, TC, AC/DC), NAMUR and extensive diagnostics (e.g., short circuits, wire breakage and out-of-measurement range)
- Different potentials can be supplied within one node
- HART protocol support
- Certified to ATEX, IECEx, UL ANSI/ISA 12.12.01, UL508, GOST-R, etc.

Shipbuilding and On-/Offshore

- Media redundancy controller
 - Media redundancy provides high operational reliability
 - Operation in two separate networks
- 750 XTR benefits:
 - Temperature resistance: -40 °C ... +70 °C
 - Insulation withstand voltages up to 5 kV (DIN EN 60870-2-1)
 - Vibration resistance up to 5g acceleration (DIN EN 60068-2-6)
- International approvals: GL, LR, DNV, BV, RINA, KR, NK, ABS, PRS
- Environmental category D (GL), direct operation on combustion engines and compressors
- Certified operation on the bridge, "Compass" certificate (BSH)
- Gateway functions: NMEA, J1939, MODBUS RTU, RK512, etc.

Transportation

- EMC resistance according to DIN EN 50121-3-2
- 750 XTR benefits:
 - Temperature resistance: -40 °C ... +70 °C
 - Insulation withstand voltages up to 5 kV (DIN EN 60870-2-1)
 - Vibration resistance up to 5g acceleration (DIN EN 60068-2-6)

WAGO Kontakttechnik GmbH & Co. KG
Postfach 2880 · 32385 Minden
Hansastraße 27 · 32423 Minden

Phone:
Headquarters +49 571/887 - 0
Sales +49 571/887 - 222
Order Service +49 571/887 - 333
Technical Support +49 571/887 - 555
Fax: +49 571/887 - 169

Email: info@wago.com
Online: www.wago.com

