Data Center Industry
Applications and Solutions

Table of Contents

Overview & Benefits 3

Operational Technology 4

Applications 6

Product Highlights. 10

Overview & Benefits

Minimize downtime, reduce supply chain risk, and ensure long-term scalability with WAGO products

- Redundant Control Strategies: Prevents downtime in critical systems through automatic failover
- Vendor-Independent Development: CODESYS-based solutions provide a single development environment for hardware from multiple vendors, simplifying project management and reducing procurement risks
- Worldwide Availability: Products stocked and supported across all major regions for consistent supply and rapid delivery
- Single-Platform, Multi-Application Approach: Unifies HVAC, energy monitoring, and power distribution to reduce complexity

---

99.99% Uptime

Redundant control strategies prevent downtime in HVAC, monitoring, and power applications

Scalable Automation Framework

A single platform simplifies infrastructure management and reduces integration complexity

-40 °C…+70 °C / -40 °F…+158 °F Environmental Tolerance

XTR I/O withstands hot aisles and outdoor power infrastructure

Supports Critical Power Systems

Compatible with IEC 61850, IEEE 2030.5 (CSIP), DNP3, and IEC 60870 for power monitoring and energy management

---

OPC UA CANopen EtherNet/IP Modbus EtherCAT PROFIBUS PROFINET dnp IEC 61850 BACnet MQTT

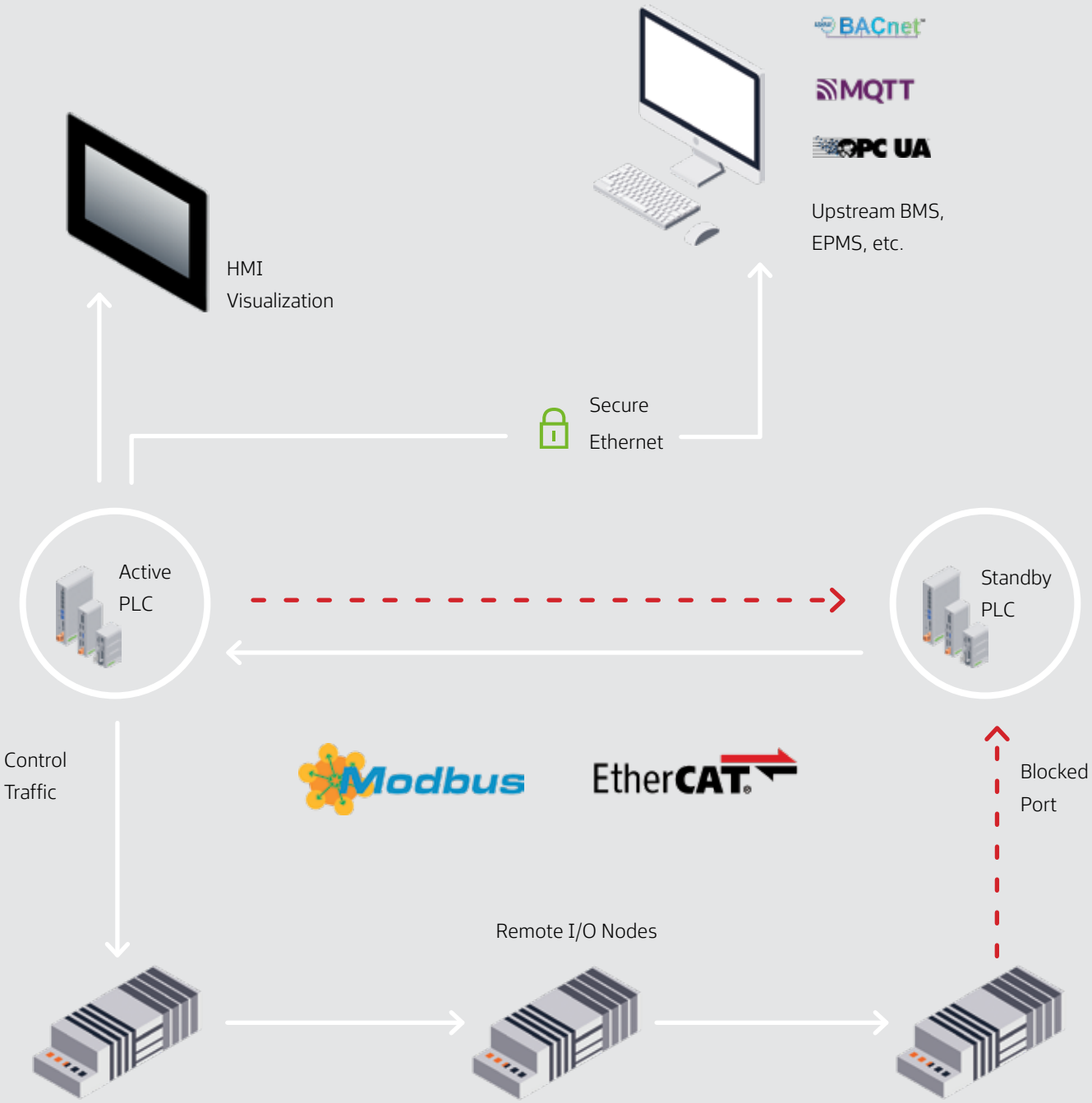
Operational Technology

Scale Operations: Multi-Vendor Strategy with a Vendor-Independent PLC Runtime on Industrial Computers

Streamline code management and reduce engineering complexity with the CODESYS control platform.
This platform allows you to manage a single PLC project across multiple hardware vendors for data centers deploying thousands of units. You can reduce supply chain risks and simplify hardware integration by enabling your operators to select from various industrial computers and I/O options. This enables long-term scalability and adaptability to evolving technology.

Consolidated Control Architecture: Multi-Application, Single Platform

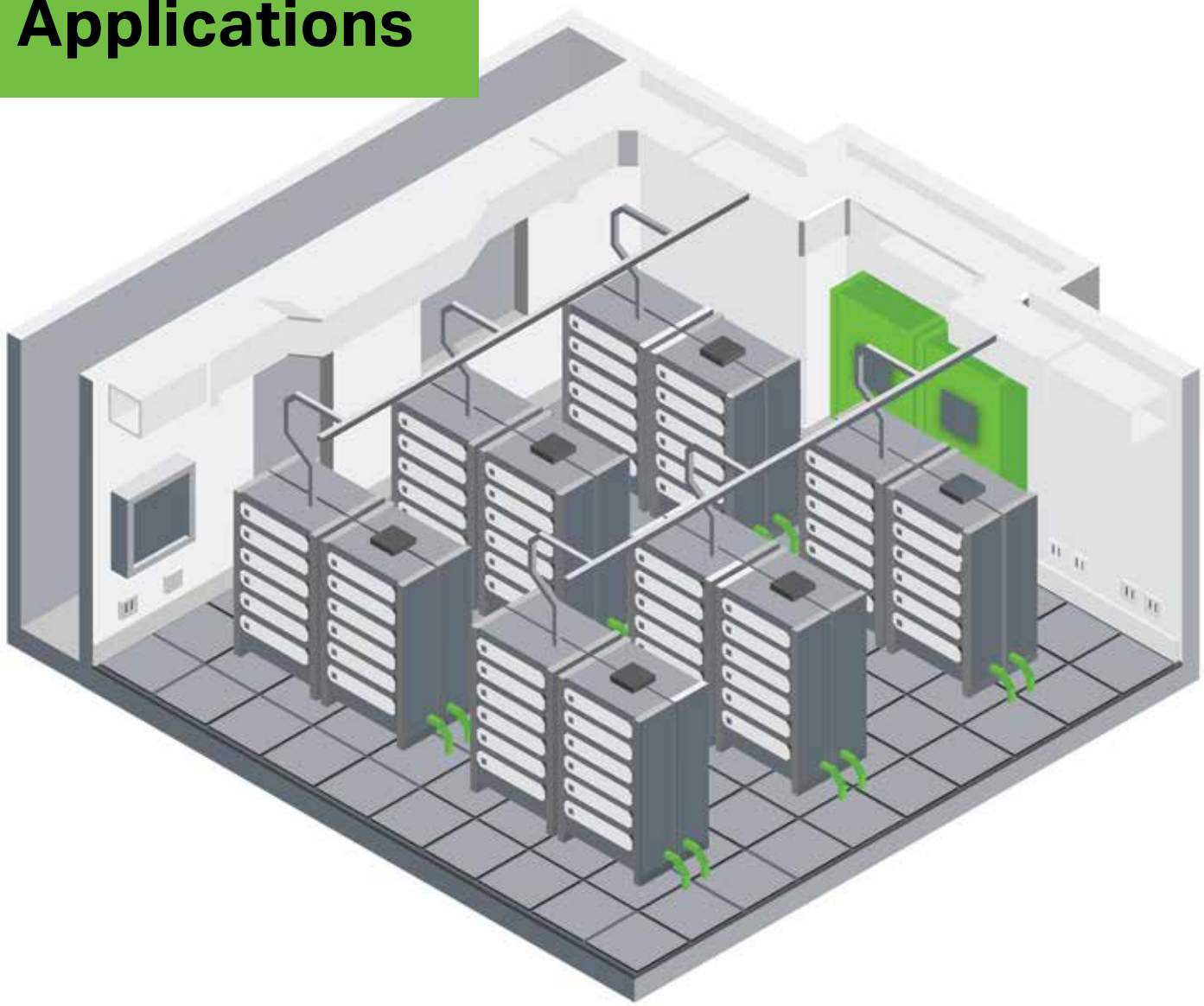
Reduce hardware complexity, integration challenges, and maintenance costs while enabling scalability, reliability, and long-term flexibility with WAGO's industrial automation platform. Our open, unified approach provides a single, scalable hardware solution for multiple data center applications, including HVAC control, energy monitoring as well as hot aisle environmental tracking and power distribution. By utilizing a CODESYS-based industrial computer as the master controller, your operators can tailor functionality with protocol-specific libraries like IEC 61850 for power applications or select wide-temperature remote I/O for extreme environments.



Mission-Critical Uptime: Multiple Redundancy Strategies Using Industrial Protocols

WAGO provides high reliability for fundamental applications such as HVAC and Cooling Distribution Units (CDUs) with the WAGO 750 I/O modules and CODESYS-based redundancy options. Investing in industrial-grade redundancy can minimize downtime by automatically switching to backup controllers or alternative network paths. This helps ensure continuous operation in data centers where even brief failures can lead to significant financial and operational consequences. Additionally, WAGO's XTR I/O modules are able to withstand extreme environments (-40 °C...+70 °C / 104 °F...+158 °F), making them ideal for hot aisle monitoring and outdoor power infrastructure.

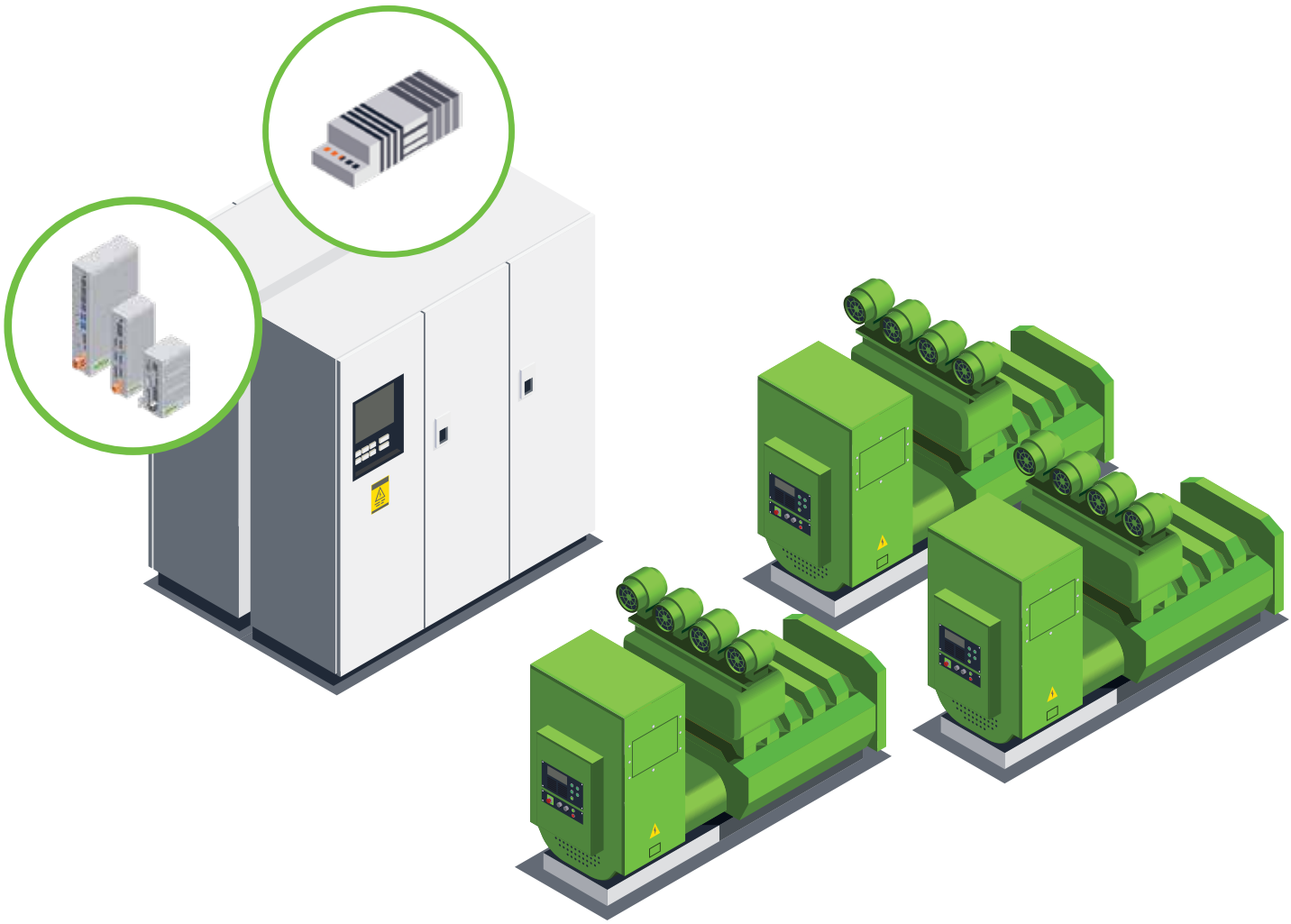
Applications



CDU Monitoring for Liquid Cooled Servers

Why WAGO?

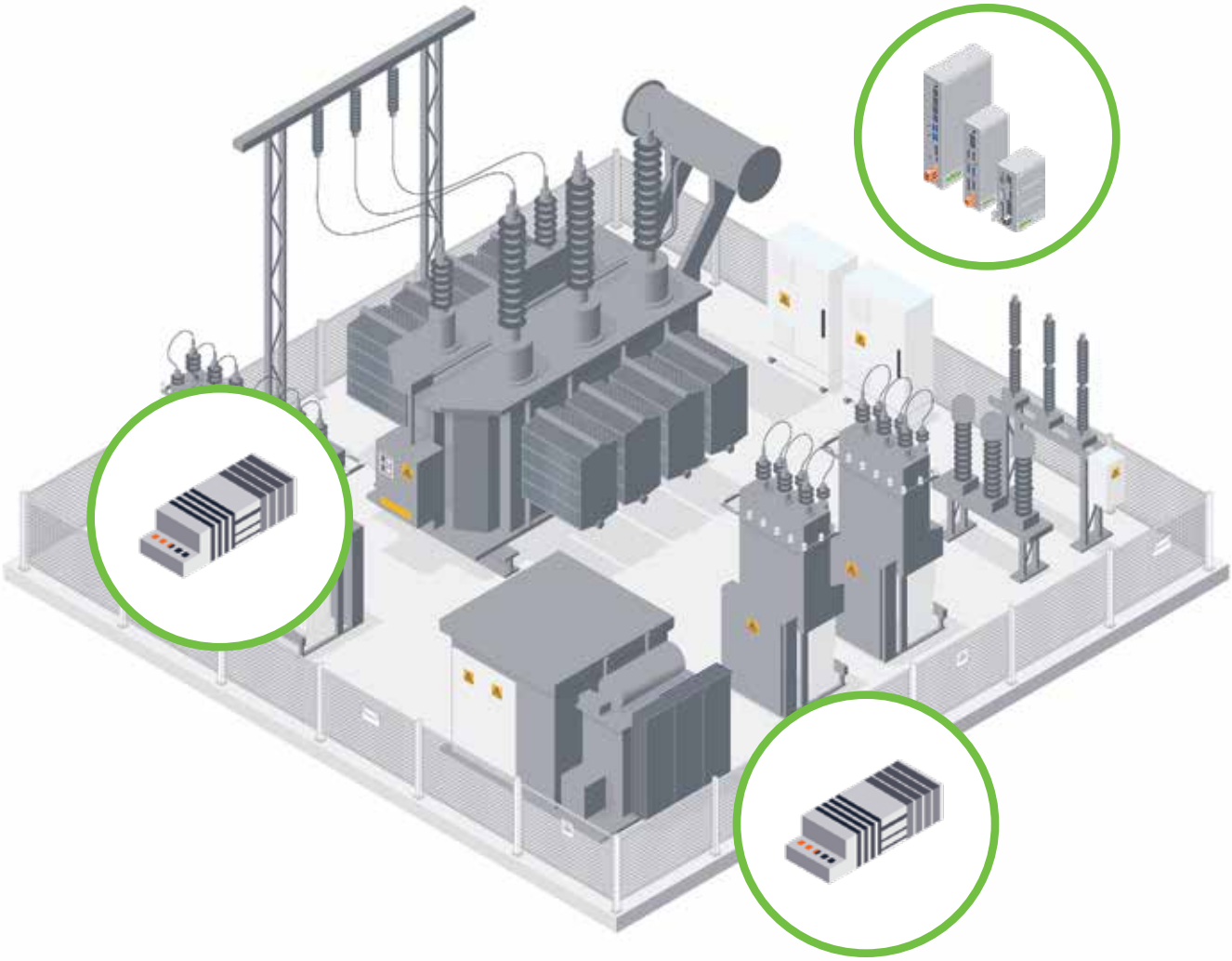
- **Extreme Temperature:** Operates dependably in hot aisle environments with 750 XTR I/O rated to +70 °C / 158 °F, ensuring stable CDU monitoring even under harsh thermal loads
- **Scalability:** Modular hardware and production capacity enable seamless expansion from single-system installations to enterprise-wide deployments
- **Global Deployment & Support:** Backed by WAGO's worldwide network for rapid rollout, on-site expertise, and minimized downtime
- **Extensive Fieldbus Support:** Supports all major industrial and building protocols for effortless connection to existing data center management and control systems



Transfer Switch and Backup Power Systems

Why WAGO?

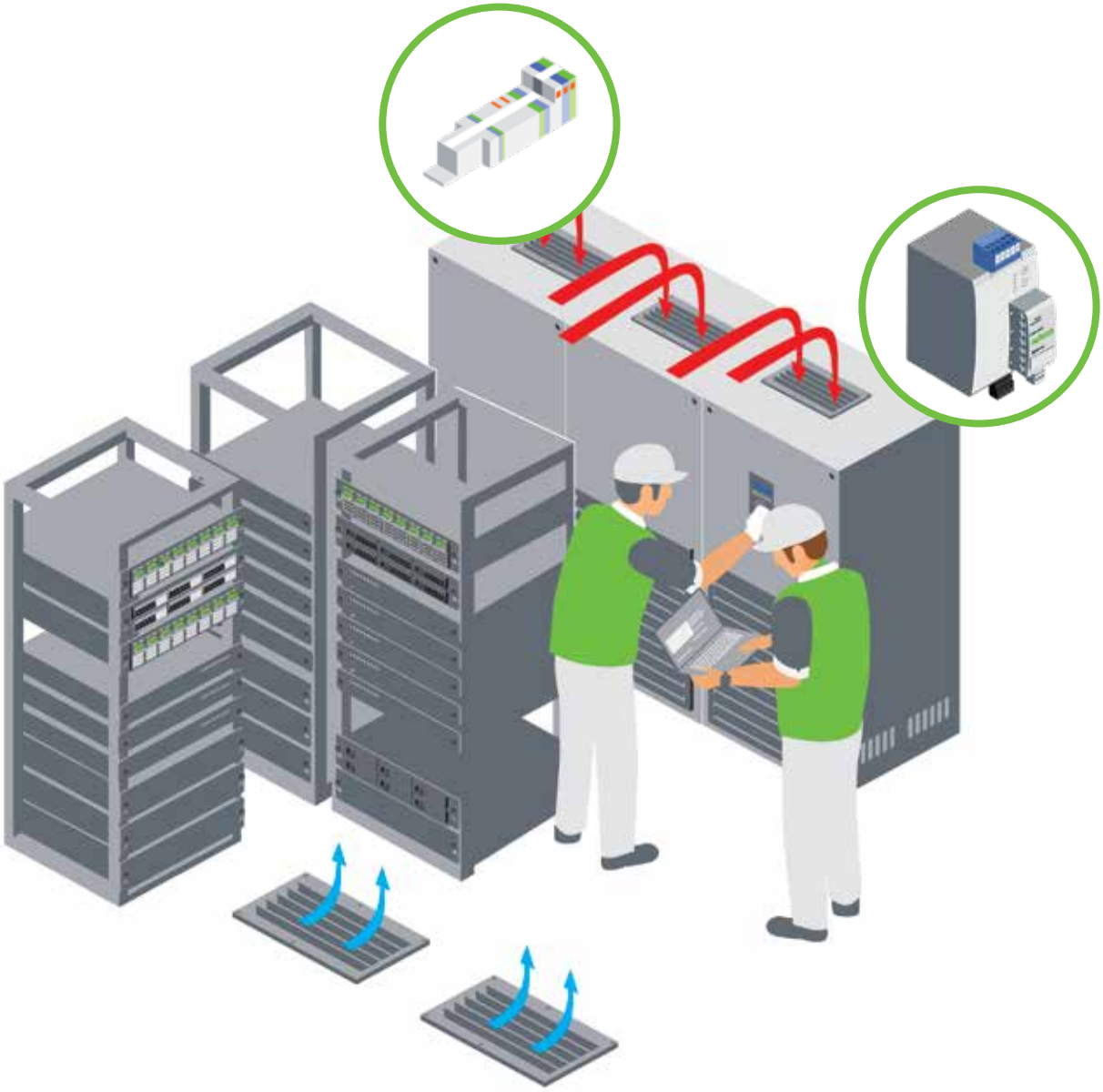
- **Reliability:** WAGO Industrial Computers and Remote I/O deliver real-time control with built-in redundancy, ensuring uninterrupted operation during power transitions
- **Integration:** Supports a wide range of protocols for direct connection with power meters, breakers, and monitoring systems for precise control and communication
- **Serviceability:** Systems are designed to allow maintenance without power interruption, reducing downtime, and supporting operational continuity
- **Scalability:** The modular design of WAGO's Remote I/O allows for system expansion and maintenance without disrupting operations



Remote Terminal Unit (RTU) Applications for Data Center Substations

Why WAGO?

- **Software Scalability:** WAGO's Telecontrol Library turns any WAGO Controller into a scalable RTU
- **Avoid Vendor Lock-In:** The library runs on CODESYS which is compatible across multiple hardware vendors and uses standard IEC 61131-3 programming
- **Extreme Environments:** WAGO's 750 XTR I/O provides superior EMC interference resistance and operates effectively from -40 °C...+70 °C / -40 °F...+158 °F
- **Improved Networking:** Library runs on WAGO's Controllers, featuring multi-core processing for improved network capabilities and faster operational speeds
- **Global Protocol Support:** Supports concurrent connections to 100 devices and 10,000 objects; functions as both IEC 61850 server/client and GOOSE publisher/subscriber and includes IEC 60870 and DNP3 master/slave

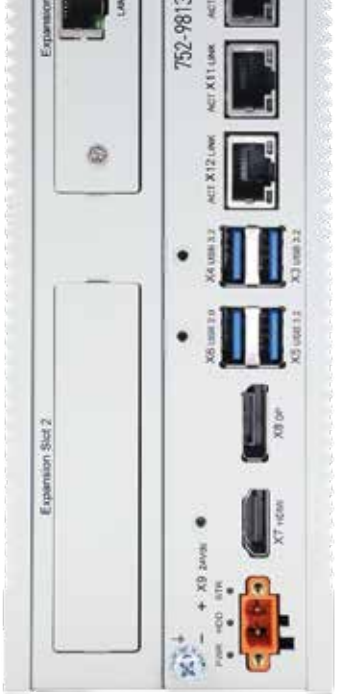


Computer Room Air Conditioner and Air Handling Unit

Why WAGO?

- **Up to 50% Faster Wiring:** CAGE CLAMP® connection significantly reduces assembly time and labor costs
- **Customizable Power Distribution Blocks:** Customizable setups with the 285 POWER CAGE CLAMP® help meet power layouts
- **Modular UPS System:** Separate charger/controller and power supply units allow modularity in the event of a failure
- **Consistent Quality:** Manufacturing in Germany meets global standards
- **Proven in Multiple Data Centers:** WAGO solutions have demonstrated reliability in critical data management environments

Product Highlights



Edge Computers for High Performance

TPM 2.0 and Secure Boot

- Hardware-based security features, safeguarding sensitive data against external threats

Docker Ready

- Enables containerization of applications, allowing for scalable and efficient management of virtualized workloads

PLC Capabilities

- Bare-metal and virtualized PLC runtime capabilities possible with add-on CODESYS license

Communications Scalability

- Features modular design allowing for expansion with additional connectivity options as data center needs grow

Scan here to configure your Edge Computer

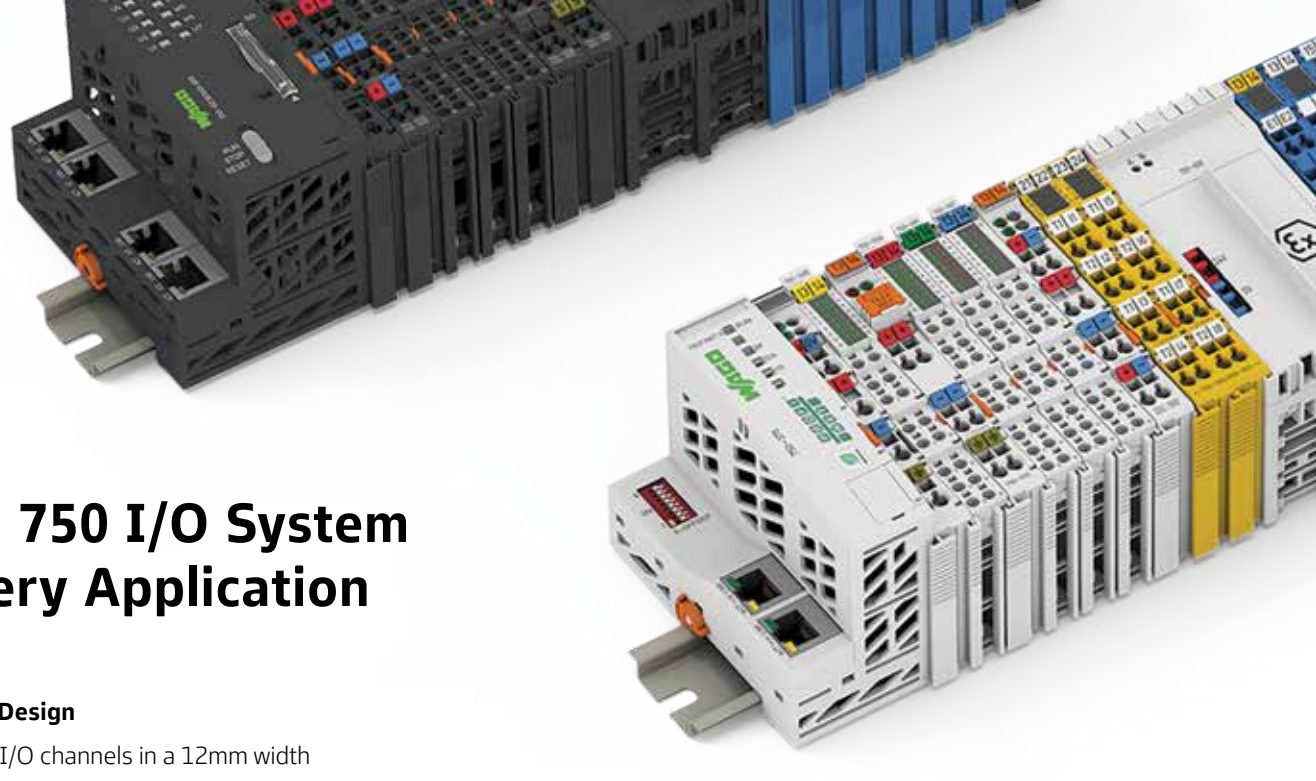
Multi-Core Processing

- Provides performance for simultaneous processing of multiple tasks

Operating System (OS)

- Debian Linux

Series	752-9400	752-9401	752-9800	752-9412	752-9813
Intel® Processor	Atom® E3845 (3rd Gen); Quad-Core 4x 1.91 GHz	Atom® E3845 (3rd Gen); Quad-Core 4x 1.91 GHz	Core® i7-7600U (7th Gen); Dual-Core 2x 2.8 GHz	Atom® x6413E (Gen 6); Quad-Core 4x 1.5 GHz	Core™ i7-1185G7E (Gen 11); Quad-Core 4x 1.8 GHz
Memory	4 GB DDR3 RAM	8 GB DDR3 RAM	16 GB DDR4 RAM	16 GB DDR4 RAM	32 GB DDR4 RAM
Flash	64 GB; mSATA SSD	64 GB; mSATA SSD	256 GB; mSATA SSD	128 GB m.2 SATA SSD	256 GB m.2 SSD NVME
Expansion	1x mPCIe Slot and 1x SATA 2.5" SSD	1x mPCIe Slot and 1x SATA 2.5" SSD	1x mPCIe Slot and 1x SATA 2.5" SSD	1x mPCIe Slot, 1x M.2 B and SATA 2.5" SSD	1x mPCIe Slot, 1x M.2 B and SATA 2.5" SSD
Ethernet	2x 10/100 /1000 Mb/s	2x 10/100 /1000 Mb/s	4x 10/100 /1000 Mb/s	2x 10/100 /1000 Mb/s	3x 10/100 /2500 Mb/s; 1x 10/100 /1000 Mb/s
USB	3x USB 2.0 & 1x USB 3.0	3 USB 2.0	-	3x USB 3.2 & 1x USB 2.0	3x USB 3.2 & 1x USB 2.0



WAGO 750 I/O System for Every Application

Compact Design

- Up to 16 I/O channels in a 12mm width
- Ribbon cable options available to simplify wiring

Switchgear and Substation

- Enhanced electromagnetic immunity for substations and MV switchgear
- 220 VDC I/O provides common voltage options for control and monitoring in switchgear applications

Protocol Freedom

- Connects with 16 different industrial communication protocols for integration with legacy equipment

Specialty Modules

- Includes 3-phase power measurement, PWM, proportional valve, and more

Ease of Use

- Quick, secure, and maintenance-free wiring
- 753 series offers removable faceplates

Global Certifications

- Complies with global standards for wide application suitability

Series	750/753	750 Extended Temp. (025-000 Suffix)	750 XTR (040-000 Suffix)
Operating Temperature	0 °C...+55 °C 32 °F...+131 °F	-20 °C...+60 °C -4 °F...+140 °F	-40 °C...+70 °C -40 °F...+158 °F
Vibration	Acceleration to 4g per IEC 60068-2-6	Acceleration to 4g per IEC 60068-2-6	Acceleration to 5g per IEC 60068-2-6
Shock	15g per IEC 60068-2-27	15g per IEC 60068-2-27	25g per IEC 60068-2-27
Isolation Voltage	Up to 1 kV	Up to 1 kV	Up to 5 kV
Fieldbus Protocols	All	Limited	Limited
I/O Module Count	500+	30	55

Pro 2 Power Supplies for Peak Demand

Built-In Redundancy

Select power supplies offer integrated 1+1 and n+1 capability in the Pro 2. No external redundancy module required.

- MOSFET Technology: Ensures seamless operation and fault isolation
- Flexible Configurations: Support for 1+1 or multi-unit n+1 setups
- Continuous Power Delivery: Maintain load supply even if one unit fails
- Space & Cost Savings: Reduce components while increasing system reliability

MTBF >1,000,000 hours

Plug-and-Play Communication Interfaces

The Pro 2 series supports direct integration into existing networks via attachable modules.

- Modbus RTU
- Modbus TCP
- IO-Link
- EtherNet/IP with MQTT

Reliability

With a MTBF > 1,000,000 hours and a long service life of the components, costs are lower compared to other power supplies.

- Reliable operation of more than 114 years
- Reduce maintenance and replacement costs

Challenging Environments

Pro 2 Power Supplies can be used in extreme temperatures ranging from -40 °C … +70 °C / -40 °F...+158 °F with minimal derating starting at +60 °C / +140 °F. Expect reliable operation in high-vibration and shock-prone areas, as well as altitudes up to 5000 m.

- Wide temperature range offers application flexibility
- Tested according to applicable shock, vibration, and altitude standards
- Overvoltage Category III provides greater operational reliability

Power Solutions for Enhanced Uptime

Control Power, Backup, and Redundancy Options

External Redundancy Module

For other power supplies without built-in redundancy, WAGO's modules have the ability to decouple two parallel-connected.

- Ideal for applications where an electrical load must be reliably supplied – even in the event of a power supply failure, reliably increasing power supply availability
- Integrated power diodes with overload capability: suitable for TopBoost or PowerBoost
- Potential-free contact (option) for input voltage monitoring

UPS and Capacitive Buffers

Consisting of a 24 VDC UPS charger and controller with one or more connected batteries or capacitive buffer modules, WAGO's Uninterruptible Power Supply reliably powers an application for several hours.

- Integrated display and RS-232 interface (option) simplify visualization and configuration
- Battery control technology for improved charging and early battery end of life indications
- Trouble-free machine or system operation guaranteed – even in the event of brief power supply failures

CODESYS for Both PLC and HMI Development

Create Web-Based HMI and SCADA Visualizations on CODESYS

HTML5-Based Visualizations

Create web-based HMI and SCADA visualizations accessible from any device with a web browser

Comprehensive IEC 61131-3 Support

Fully compatible with all five 61131-3 PLC programming languages

Global Use and Manufacturer Adoption

Trusted by thousands of engineers and over 400 device manufacturers worldwide

Code Portability

Code can be repurposed across multiple vendors' hardware, reducing supply chain risks and helping to avoid “vendor lock-in”

WAGO Corporation
N120 W19129 Freistadt Road
Germantown, Wisconsin 53022
Telephone: 800 / DIN-Rail (346-7245)
Fax: 262 / 255-3232
info.us@wago.com
www.wago.us

WAGO Canada Inc.
1550 Yorkton Court, Unit 1
Burlington, ON
L7P 5B7
Telephone: 888 / WAGO 221 (924-6221)
info.ca@wago.com
www.wago.ca

WAGO SA DE CV
Carretera estatal 431 Km. 2+200. Lote 99 6
Parque Industrial Tecnologico Innovacion Queretaro
El Marques, Qro. 76246
Lada sin Costo: 01 800 288 WAGO (288-9246)
Telefono: 422 / 221-5946
info.mx@wago.com
www.wago.mx

WAGO is registered trademark of WAGO Verwaltungsgesellschaft mbH.
"Copyright - WAGO Kontakttechnik GmbH-Co. KG - all rights reserved. The content and structure of the WAGO Websites, catalogs, videos, and other WAGO media are subject to copyright. The dissemination or changing of the content of these pages and videos is not permitted. Furthermore, the content may neither be copied nor made available to third parties for commercial purposes. Also subject to copyright are the images and videos that were made available to WAGO Kontakttechnik GmbH-Co. KG by third parties."

60608903 0888-0832/0000-0523 - March 2026 - Printed in the United States