WAGO

NEW PRODUCTS
ISSUE 2023/2

OPENNESS TO NEW SOLUTIONS

Dear Readers,

The automation industry is entering an exciting new era in which openness and innovation will play key roles. For years, companies around the world have relied on our proven 750 Series with its Linux®-based operating system to optimize and automate their manufacturing processes. We have continued to develop this series, and for the first time we are now offering the WAGO Solution Platform for quick, easy, secure distribution of ready-made solutions. We are also introducing the ctrlX OS operating system to meet the needs of a new generation of developers.

CtrlX OS represents a revolution in automation technology – it not only enables real-time-capable control, but also opens the door to a comprehensive ecosystem of applications and services. Similar to an app store on your smartphone, the ctrlX Store offers a wealth of applications that allow seamless integration into your automation systems. This promises to drastically reduce engineering complexity and commissioning time.

The security of your automation systems is of paramount importance, and ctrlX OS was designed with security in mind from the ground up. We understand the growing challenges cybersecurity poses and provide the tools you need to protect your systems from threats.

In this issue, you'll discover exciting innovations from the energy industry, interface electronics and interconnection technology, in addition to automation technology solutions. Examples include new electronic circuit breakers, our 2773 Series PUSH WIRE® Inline Splicing Connector and, of course, WAGO's Green Range Splicing Connector with Levers. With the Green Range, we are putting a junction box connector with up to 77 % bio-circular plastic on the market and offering CO_2-savings of up to 87 %.

We hope you enjoy this informative read!

**Best regards,
Franco Polo
Head of Business Development for Industry**

28

EXPANDING THE ELECTRONIC CIRCUIT BREAKER PORTFOLIO

WAGO is expanding its selection of electronic circuit breakers, with multi-channel ECBs now available for 24 VDC with 4 and 8 channels. The new single-channel ECBs (electronic circuit breakers) boast an especially narrow design.

04
OPEN AUTOMATION

As the first system and technology partner of Bosch Rexroth, WAGO is putting the Linux®-based, real-time-capable operating system crtlX OS on its devices. This OS is available for the WAGO Edge Computer and the WAGO Edge Controller 400.
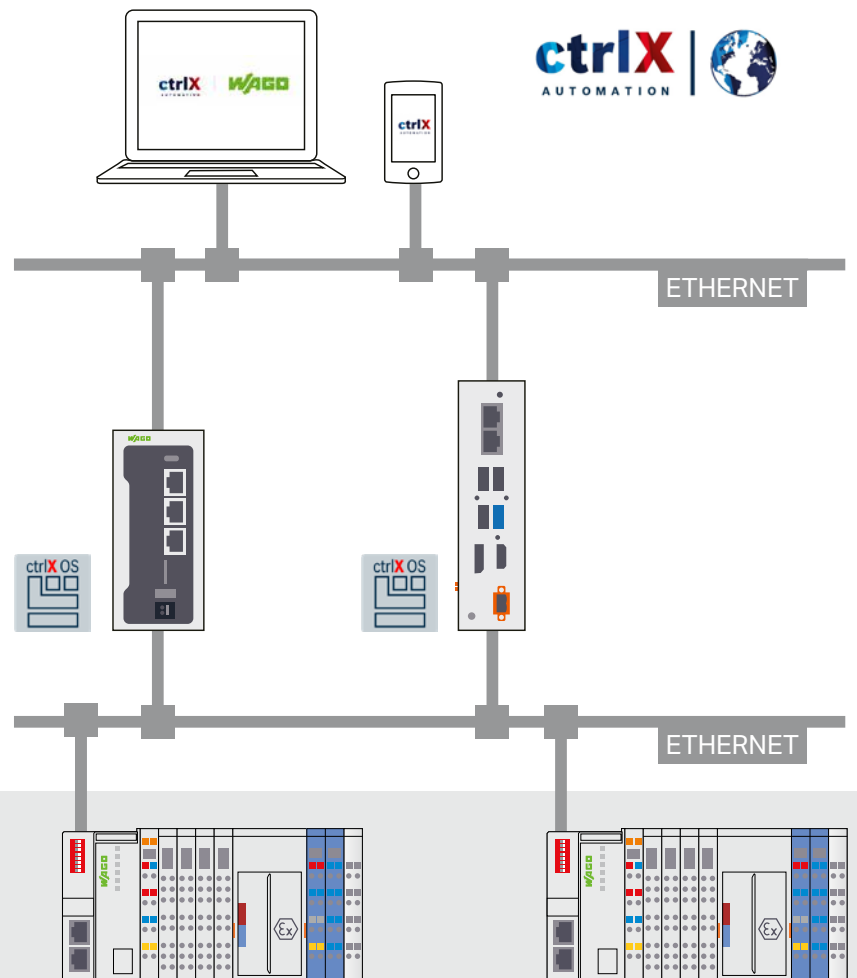
ctrl**X** OS

CONTENTS

A New Level of Cooperation between WAGO and Bosch Rexroth

WAGO Is the First System and Technology Partner to Put CtrlX OS on Its Devices

WAGO and Bosch Rexroth firmly believe that openness and strong partnerships provide the foundation necessary for making the most of the opportunities that the digital transformation offers. WAGO is the first system and technology partner to put the Linux®-based, real-time-capable operating system ctrlX OS on its devices, helping strengthen the idea of an open automation platform.

The open ctrlX ecosystem, consisting of the operating system for device manufacturers and the ctrlX Store, significantly reduces integration effort; that in turn dramatically cuts the time required for software engineering. At the same time, it offers users new degrees of freedom, because ctrlX OS allows not only easy connection of all standard bus and network protocols, but also a free choice of programming environment. In future, this will give users even more freedom for developing their control applications in power engineering, building automation and mechanical engineering according to their needs and capabilities.

Another advantage: Users can take advantage of apps and help from the growing ctrlX World Partners community; over 70 apps are already available currently. Besides CODE-SYS, many other suitable tools are available: logi.CAD, NodeRED, Blockly, high-level languages like Python and additional engineering tools are compatible with ctrlX OS.

Engineering Complex Automation – Made Easy

CtrlX OS For Use on WAGO Edge Devices

The Linux®-based, real-time-capable operating system ctrlX OS is deployed on WAGO's medium- and high-performance class Edge Computers. Developers and programmers can freely choose between the WAGO Edge Controller 400, which is tailored to crtlX OS, and the powerful WAGO Edge Computer, which offers a choice between ctrlX OS and standard Linux®.

The operating system also offers a tremendous amount of freedom: Users enjoy not only free choice among programming languages, but also independence in connecting apps and hardware. Selected apps provided via ctrlX World can now also be used on WAGO devices, greatly expanding

the scope of solutions for users. Users also benefit from the external expertise of ctrlX World, which currently has more than 70 apps available.

The benefits for you:

- Engineering of complex automation tasks
- Free choice among programming languages
- External expertise of ctrlX World partners

Item Numbers:
Edge Computer:
752-9800
752-9401
752-9400

Edge Controller 400:
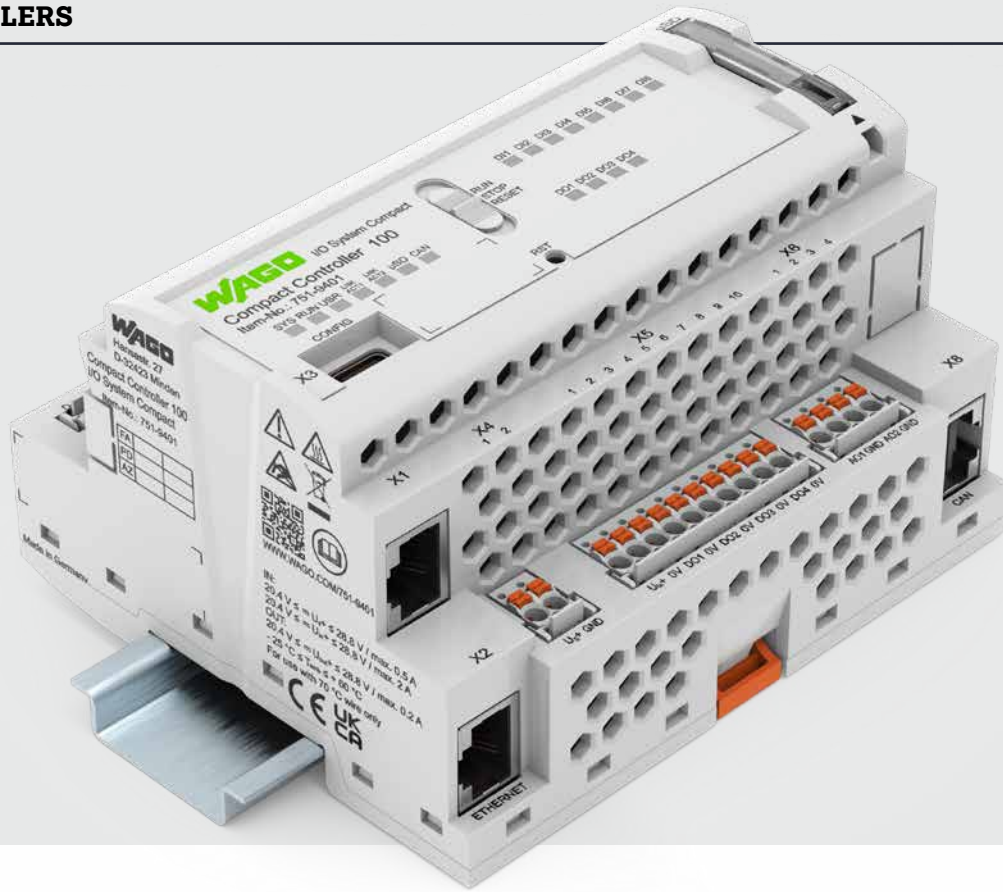752-8400

Available:
Q4/2023

More Options Thanks to New CAN Interface

The WAGO Compact Controller 100 Now Communicates via a CAN Interface Too

Many devices, components and systems in industrial environments have a CAN interface. To communicate with them, the WAGO Compact Controller 100 (CC100) is now also available with a CAN interface. The controller has the same technical characteristics as the familiar CC100; an interface for communication via CAN (CAN Layer2 or CANopen®) is also included. This allows users to exchange data from devices via other CAN protocols.

The controller is primarily used in applications with a small number of I/O signals and requiring CAN communication.

In addition, the controller has a powerful microprocessor (CPU), so it can also support applications that require extensive computing power. In general, the WAGO Compact Controller 100 can be used as an economical CAN master for connecting subordinate slaves or a compact CAN slave under powerful CAN master controllers.

Item Number:
751-9401

This OS is available

The benefits for you:

- CAN interface for data exchange (CAN Layer2 or CANopen®)
- Dual-core microprocessor for higher IIoT performance
- Cost-effective entry point into the WAGO automation environment

A Fast, Cost-Effective Entry Point into the World of WAGO Controllers

The WAGO Compact Controller 100 Starter Kit Makes It Easy to Get Familiar with the Controller

To get to know and test the WAGO Compact Controller 100, WAGO now offers the WAGO Compact Controller 100 Starter Kit. This starter kit offers a quick, easy, cost-effective entry point into the world of WAGO controllers using the Compact Controller 100, CODESYS and the industrial IoT world (open automation). Another advantage:
The starter kit is ready to use – users can begin wiring immediately. Therefore, the starter kit is ideal for getting started with WAGO controllers and smaller automation solutions – regardless of the user's level of expertise.

The benefits for you:

- A quick and easy way to get started using the WAGO Compact Controller 100, CODESYS and the Industrial IoT
- Ready to work: just connect and get started
- The first in a series of starter kits for WAGO Compact Controllers

Item Number:
2849-1199/
0751-9301

Available:
Q4/2023

Revamped with CODESYS and Double the Flash Memory

A New Version of the WAGO PFC100 Compact Controller Is Now Available

As part of the switchover to the CODESYS engineering platform, WAGO has equipped the new version of its PFC100 Compact Controller with larger memory modules. The flash memory size has been increased to 4 GB and the RAM has been doubled, equipping the PFC100 optimally for CODESYS and allowing it store larger projects. This new version enables integrated engineering of all WAGO controllers using CODESYS, ensuring project standardization. Users can more easily scale their projects and use a different controller as needed without changing the engineering system.

The new version of the PFC100 not only offers the option of using CODESYS for engineering, but also makes the controller DRM-capable (Digital Rights Management).

With DRM capability, all licensed extensions, such as BACnet® and solutions from WAGO, can now be used. In addition, the PFC100 allows modular expansion and is ideal for industrial applications and building automation.

The benefits for you:

- **Engineering with CODESYS now for the PFC100 too**
- **Consistency and interoperability in automation projects**
- **Double the flash memory allows additional DRM functionality**
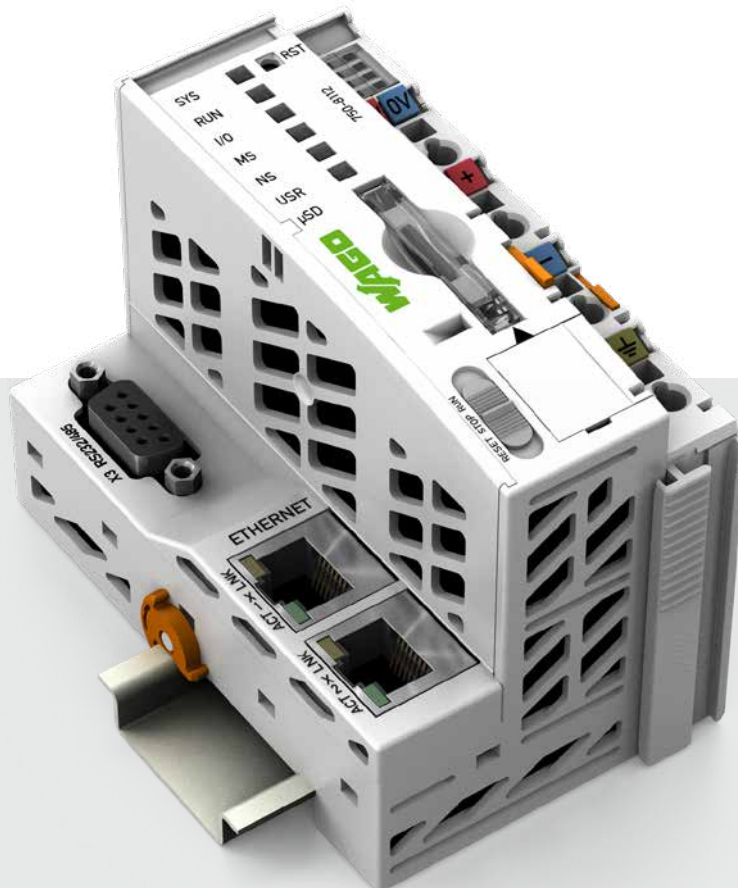
Item Numbers:
750-8110;
750-8111;
750-8112;
750-8112/025-000

Available:
Q1/2024

Better Protection for Building Communication

WAGO Now Supports the Secure BACnet® Extension BACnet/SC

Cybersecurity is an important topic for buildings, making secure, encrypted communication indispensable. With the extension of the BACnet® Secure Connect (BACnet/SC) standard, one of the most commonly used communication protocols in building automation now offers an additional network layer for a secure data communication protocol.

The extension includes encryption and authentication to ensure data transmission security and prevent unauthorized access to the communication data. And WAGO Solution Builder 2.0 makes commissioning easy.

The benefits for you:

- BACnet/SC increases communication security in building automation.
- WAGO products now support encrypted communication via BACnet/SC.
- BACnet® offers the highest degree of interoperability in building automation and guarantees manufacturer independence.

Software

This OS is available

WAGO Edge Controller Receives DNV Marine Approval

Powerful Control and Data Processing with Cloud Functionalities in Maritime Environments

Shipbuilding relies on solutions and products with special requirements and approvals. This is where the WAGO Edge Controller comes in, offering support for collection and evaluation of all the data that arises in marine environments, such as oil consumption or lighting control.

The WAGO Edge Controller now has DNV marine approval – a globally recognized, accredited certification at the highest level. With the WAGO Edge Controller and the new DNV marine approval, WAGO offers maritime users an edge device with high-performance control and data processing with cloud functionalities. Additional advantages: The Edge Controller can be programmed via CODESYS, supports container technologies like Docker® and has various interfaces to the control environment.

The benefits for you:

- DNV marine approval
- Powerful control and data processing with cloud functionalities
- Programmable via CODESYS

Item Number:
752-8303/
8000-0002

This OS is available

Easy Integration of External Devices into the WAGO I/O System

RS-232/485 Serial Interface Module for Standardized Connection

The new RS-232/-485 serial interface module provides simple, standardized connection between external devices with an RS-485, RS-422 or RS-232 interface and the WAGO I/O System. It also allows gateways to be implemented between the fieldbuses supported by the WAGO I/O System 750/753 and a serial interface. A switchable terminating resistor and a two-stage switchable bias network are already integrated, replacing additional external components and the associated wiring that might otherwise be necessary.

In addition, the module can be configured freely and adapted to the specific application. It is open to all devices thanks to its versatile, freely selectable baud rates.Thanks to versatile, freely selectable baud rates, it is open for all devices. Via the large receive and send buffer (8192-byte input/2048-byte output), data can be exchanged quickly and easily with various external devices such as printers, scanners and various gateways (e.g., EnOcean®).
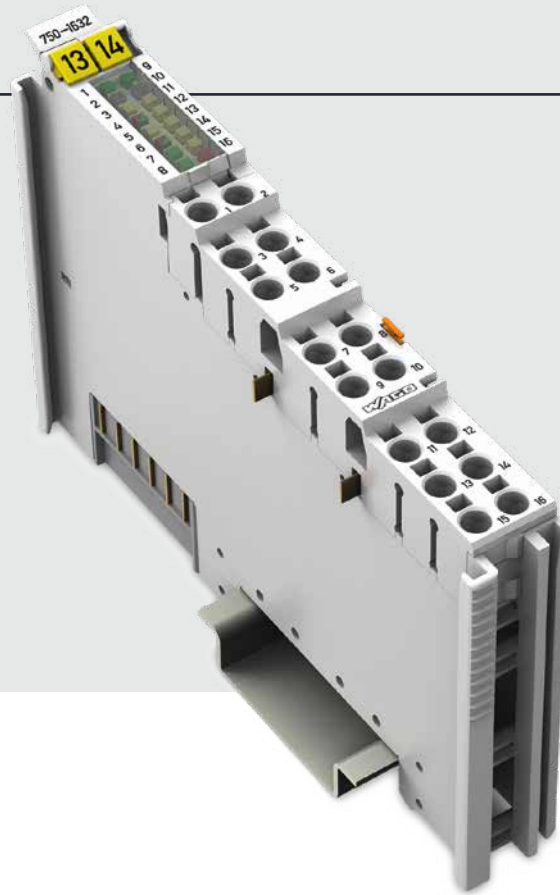
The benefits for you:

- Easy integration of external devices with an RS-232/RS-485 interface into the WAGO I/O System
- Versatile configuration options
- No additional external components (terminating resistor, bias network) necessary

Item Number:
750-1652

This OS is available

Greater Performance, Precision and Speed

Control Systems with the New Proportional Valve Module (Item Number 750-1632/000-100)

WAGO's new proportional valve module (item no. 750-1632/000-100) has a 2-, 3- and 4-wire control system and gives users convenient control over their systems' hydraulics and pneumatics with a single module. In addition, adaptive valve adjustment ensures that the electrical valve properties are automatically detected and the control parameters adjusted accordingly.

The new module boasts greater precision, shorter response times and more in-depth diagnostics and is intended to supersede the earlier proportional valve module (item no. 750-632/000-100) in the long term. It allows users to implement even more demanding applications – and to control movements of the hydraulic axis even more precisely, for example. In addition, the probability of error between the setpoints and actual values is reduced. The module is integrated directly in the I/O node, and no separate module from a specialty vendor is required, making it more cost-effective.

The benefits for you:

▪ **Higher precision**
▪ **Shorter response time**
▪ **Better diagnostics**

Item Number:
750-1632/000-100

This OS is available

Larger Process Image, More Flexible Application Options

The New 4-Port IO-Link Master for System Automation

The new 4-Port IO-Link Master for the WAGO I/O System 750 allows simultaneous operation of up to four different IO-Link devices or standard digital sensors/actuators, independent of the fieldbus. The module offers increased performance and other innovations, such as a larger process image.

Thus, each port can now transfer up to 32 bytes of process data in each transmission direction without resorting to de-fragmentation/fragmentation of the process data via a control program. This makes the 4-Port IO-Link Master more flexible for WAGO IO-Link Devices. Together with the WAGO IO-Link Configurator, configuring and parameterizing WAGO IO-Link devices is easy.

The 4-Port IO-Link Master is used to automate systems in the manufacturing industry, for example.

The benefits for you:

- Higher performance thanks to more powerful hardware
- Data transmission up to 32 bytes per port/128 bytes per module
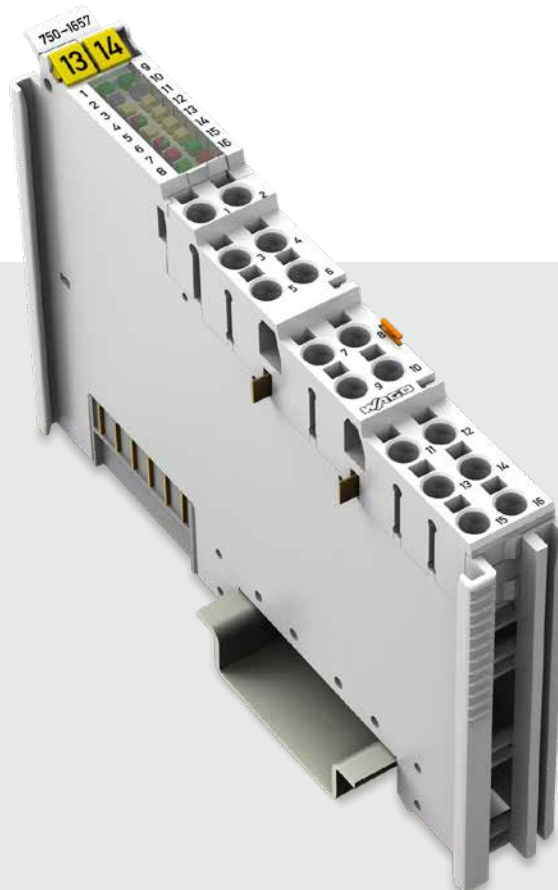- Overload protection of the sensor supplies

Item Number:
750-1657

This OS is available

Record and Read Analog Signals Easily

The Analog IO-Link Converter for the WAGO I/O System Field with Integrated Display

The Analog IO-Link Converter for the WAGO I/O System Field allows signals from analog sensors and actuators to be recorded and output in the field using an IO-Link system. Examples include current and voltage signals in mechanical engineering, robotics and the manufacturing and automotive industries. The Analog IO-Link Converter makes it easy to integrate data into the automation. The new Analog IO-Link Converter can process input signals ranging from 4 to 20 mA.

The converter can be operated in IO-Link mode or stand-alone mode and parameterized directly on the product or with an IO-Link tool. Users can read measurement signals in the field via a display.

Item Number:
765-2701/200-000

This OS is available

The benefits for you:

- Conversion of analog signals with IO-Link
- Integrated measured value display near the sensor via display
- A wide variety of parameterization options

IO-Link Device Parameterization Made Easy

A New Firmware Upgrade for the WAGO I/O System Field Introduces New Functions

Easier integration of IO-Link devices into the control environment reduces costs, decreases commissioning time and increases productivity. IO-Link devices can now be parameterized with device description parameters (a GSD file), making integration into the overall system easier.

Additionally, all fieldbus modules support the MQTT communication protocol, the standard for straightforward TCP/IP-based communication between different systems. This includes cloud communication for both system analysis and production/quality optimization.

Additional functions use detailed current, voltage and temperature load monitoring to optimize load management. Any deviation from anticipated values is recorded and reported, enabling predictive maintenance.

The high current carrying capacity of WAGO I/O System Field's I/O ports allows connection of high-performance sensors and actuators.

To prevent 24 V power supplies from being overloaded by inrush currents during machine startup/switch-on, the I/O ports can be connected sequentially with time control before the controller has completed startup. The WAGO I/O System Field update package also includes approvals for additional countries and markets, such as Canada, USA and South Korea.

Item Number:
765 Series

This OS is available

The benefits for you:

- GSD configuration makes IO-Link device integration easier
- Simple, standardized cloud connection through MQTT
- Detailed monitoring and management of connected sensors and actuators

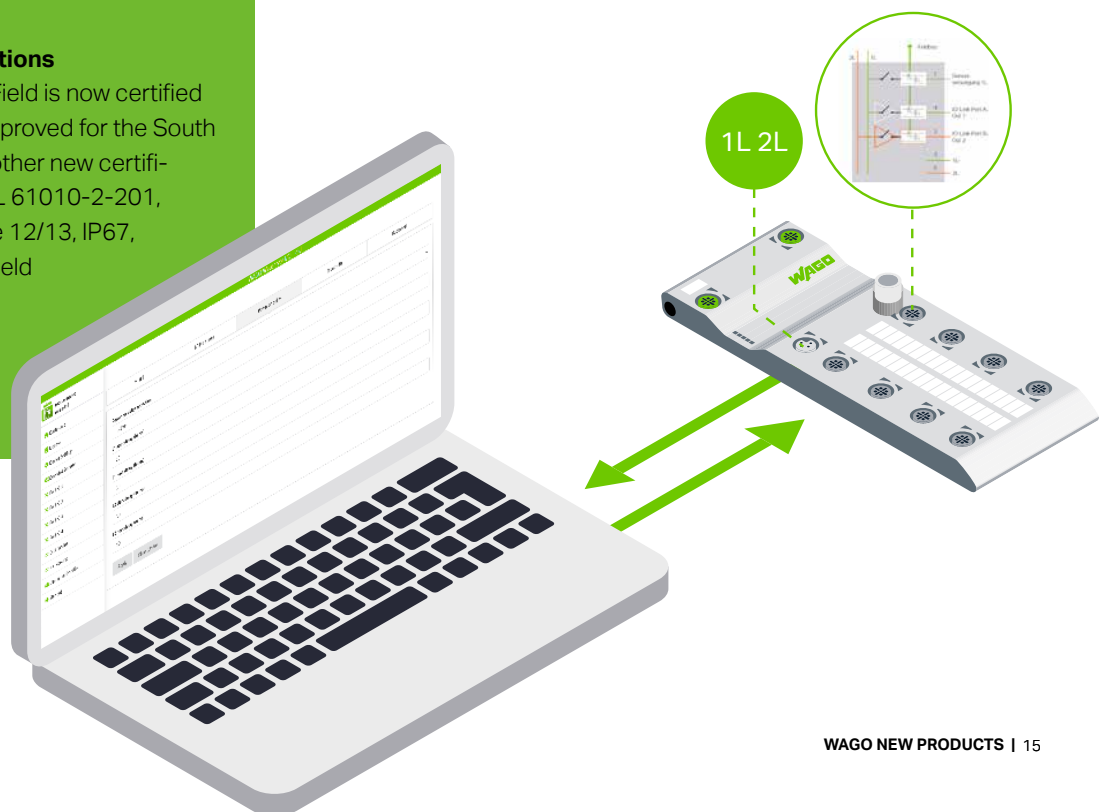### New Country Certifications

The WAGO I/O System Field is now certified per KC/KCC and thus approved for the South Korean market. With another new certification per UL OrdLoc UL 61010-2-201, including enclosure type 12/13, IP67, the WAGO I/O System Field is suitable for use in North America.

1L 2L

Flexible Wiring of Sensors and Actuators

M8 and M12 Interconnecting Cables Now Available in Many Cable Lengths

WAGO is expanding its portfolio of sensor and actuator cables for I/O systems. M8 and M12 interconnecting cables are now available in pre-assembled form in many lengths between 0.3 and 20 meters. Custom cable lengths are also available upon request. The M8 and M12 cables are A-coded and available with pole numbers of 3, 4 and 5, so the right cable of the required length is now available for any I/O system for wiring sensors/actuators.

The black sensor/actuator cables with protection class IP67 are each available with a straight or angled connector. Halogen-free and oil-resistant M8 and M12 cables are used for I/O systems in industrial environments, such as mechanical engineering, injection molding and milling machines and robotic applications.

The benefits for you:

- M8 and M12 cables available in over 30 lengths
- Halogen-free cables meet fire protection requirements
- Suitable for I/O systems from all manufacturers

Item Numbers:

756-61xx/00x0-0xxx

756-62xx/00x0-0xxx

756-63xx/00x0-0xxx

756-64xx/00x0-0xxx

756-65xx/00x0-0xxx

This OS is available

The Control Center for All WAGO Engineering Apps

## WAGO Navigator with a Central Interface

Up-to-date information and a complete overview – with WAGO Navigator, users can find everything of significance related to WAGO's engineering apps in one place. Thanks to an update, the WAGO Navigator's new appearance now features a user interface that serves as the starting point for use of all installed WAGO software programs. Information about new versions and updates (firmware, CODESYS, documentation, tutorials and program add-ons) is provided automatically through a central notification service and can be downloaded directly via a link to the WAGO Download Center. WAGO Navigator is fully integrated into Windows messaging. With WAGO Navigator, users have a quick and easy way to keep their software up to date – including both engineering tools and hardware-related software (firmware),

which ensures that devices are always armed with the best possible protection against cyberattacks. Special notifications for security-related versions draw attention to particularly important updates, helping keep security features up to date.

The benefits for you:

- Central interface for WAGO tools, including additional download options
- Notifications on current updates, new versions etc.
- Special notifications for security-related versions

Software

This OS is available
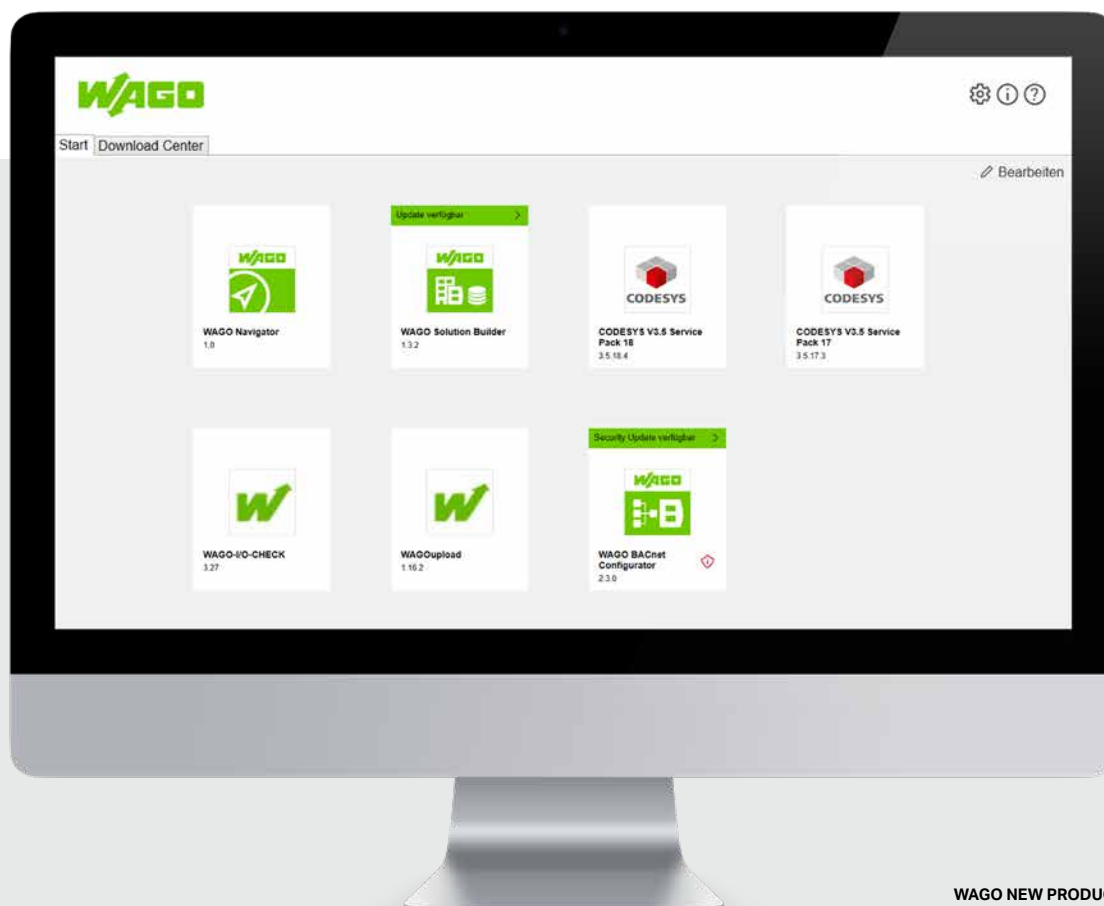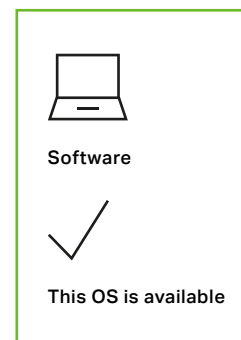
One Platform for All Solutions

## The WAGO Solution Platform with Cross-Device Applications for Easy Project Planning and Commissioning

Project planners in the energy, building and industrial sectors are not the only ones whose day-today workflows benefit from the simple solutions offered by the WAGO Solution Platform. This platform also makes electrical installers' work easier right from the start – beginning with commissioning.

It offers a growing number of applications for monitoring, visualization and controlling many systems. It all starts with the WAGO Application Grid Monitoring and WAGO Application Lighting Management. Each individual application is 100 % user-friendly and intuitive to use.

For instance, the Grid Monitoring app can be used to monitor substations and the downstream low-voltage grid. Installers can commission WAGO controllers easily via QR code. Examples such as project planned with multiple distributed controllers are where the WAGO Solution Platform really shines.

With the WAGO mobile app, a controller can be commissioned quickly by simply scanning the device code and QR code via tablet or smartphone.

WAGO Solution Platform
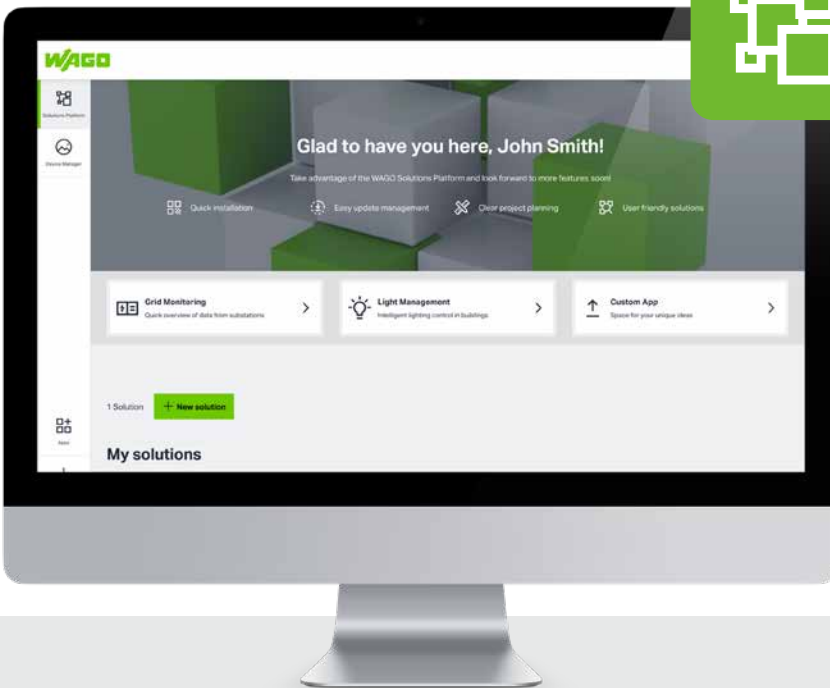
WAGO Application Grid Monitoring

The software interface is clearly organized, modern and intuitive to use. Use and operation require no special training. Users can import their own applications according to their specific requirements, thus expanding the range of possible applications.

Depending on what's needed, the WAGO Solution Platform can be used either in the cloud or on premises.
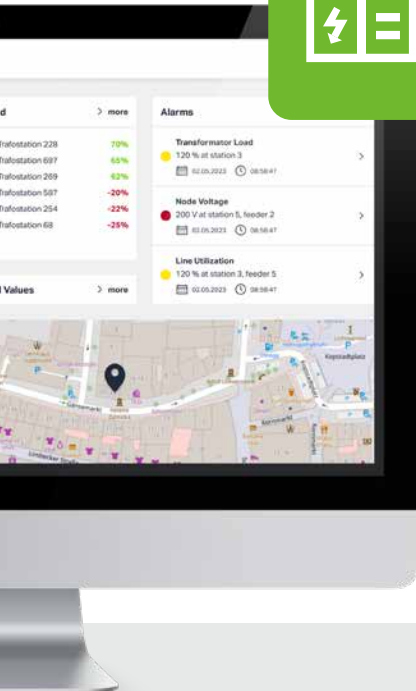
The benefits for you:

- Easy commissioning of controller applications via QR code scan
- Fast, clearly organized project planning and software management
- Intuitive, user-friendly software requires no special training

Software

This OS is available

WAGO Application Lighting Management

Analytics Connection Directly from the PLC Program

Identify Optimization Potential with the WAGO Application Analytics

This new software solution for WAGO controllers allows you to analyze, evaluate and optimize processes without having to abandon the familiar PLC programming environment. You can use the WAGO Application Analytics without direct involvement with IT and Linux®; numerous function modules support data acquisition, analysis and evaluation. The analysis, evaluation and optimization functions run in the background on powerful WAGO Edge Devices, for which an executable installation package is available. All the data stays within the local network, so no Internet connection to additional systems is necessary.

Additional data sources can be connected easily, e.g., via Node-RED. Tools like Grafana can be used for visualization, allowing you to view data quickly and easily on dashboards. Anomalies and malfunctions can be detected automatically with ready-made algorithms.

The benefits for you:

- An easy way to get started with process data analysis
- Support throughout all phases of an analytics project
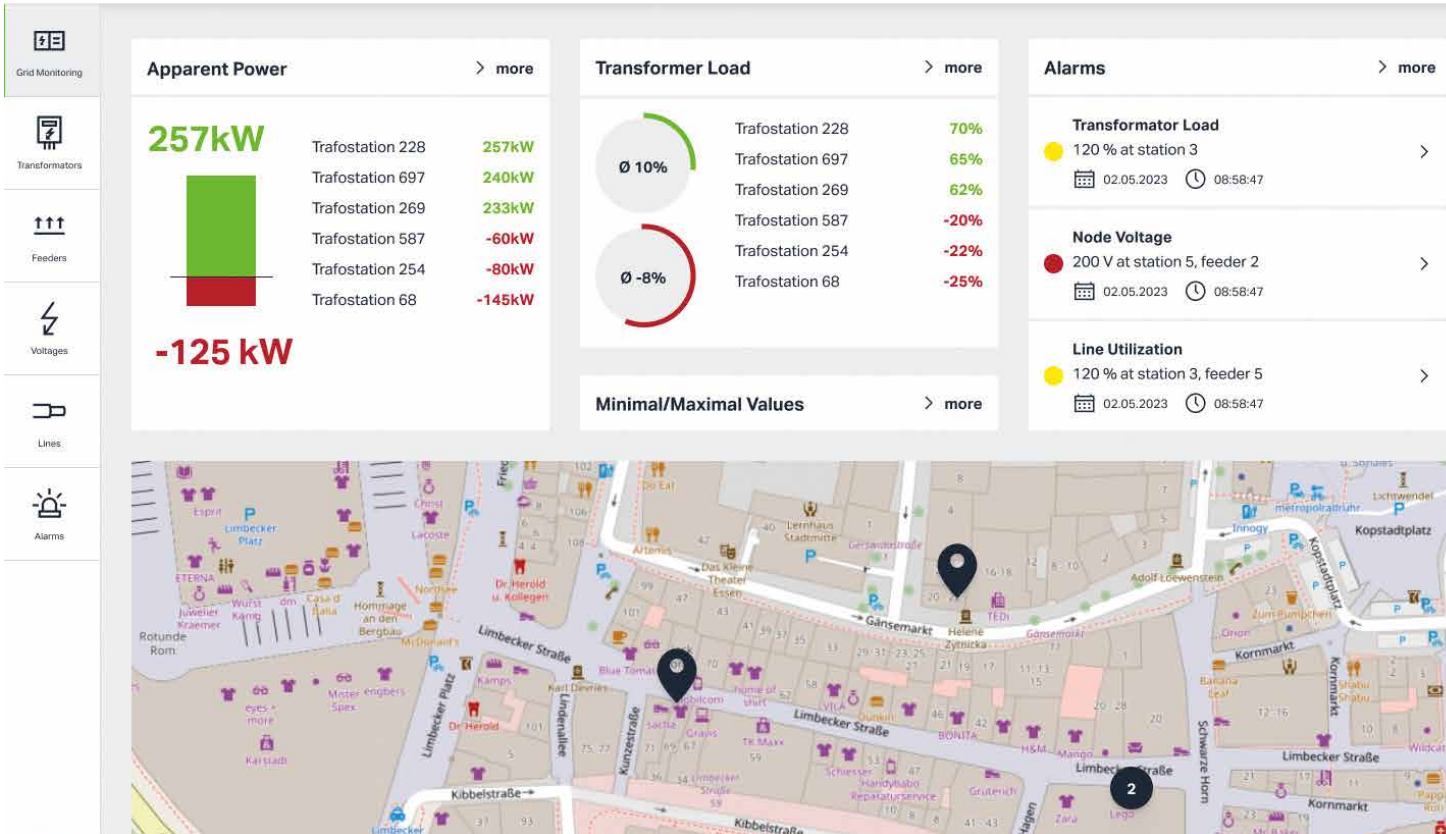- Quick and easy data visualization

Item Number:
2759-2320/
0211-1000

This OS is available

Visualization and Monitoring of the Low-Voltage Grid

The WAGO Grid Monitoring App: Relevant Grid Parameters and Expansion Strategy Optimization, All at a Glance

As the number of distributed loads and generators begins to multiply, stabilizing the grid becomes a challenge. Transparency and control are becoming more and more important for low-voltage grids and require essential monitoring. A part of the WAGO Solution Platform, the WAGO Grid Monitoring app analyzes existing or newly constructed substations. No programming is required – only simple parameter setting.

Operation in a closed network can be customized, guaranteeing a high level of application security. The intuitive visualization provides detailed overviews, including precise time information, of the currents, transformer load and output data. For even greater transparency, optional load flow analysis is also available for purchase for calculating voltages and currents throughout the entire distribution grid.

The benefits for you:

- Intuitive visualization with live overviews of relevant grid parameters
- Easy commissioning, integration and management thanks to provisioning via QR code
- Operation both as a cloud application and on premises is possible

Software

Available
through the WAGO
Solution Platform

Transparency for Grid Stabilization

New Version 2.4 of the WAGO Application Grid Gateway: Expandable with Power Quality, Medium-Voltage Calculation and Voltage Regulating Distribution Transformer

Version V2.4 of the WAGO Application Grid Gateway provides full 360-degree transparency for substations, helping stabilize the low-voltage grid. The open Modbus® and tele-control interfaces make the WAGO Application Grid Gateway V2.4 easy to parameterize. The software offers maximum interoperability, independent of the specific manufacturer, since any Modbus® device can be connected. The medium voltage calculation add-on uses a high-precision algorithm in the controller with a maximum deviation of 1.8 %. Medium voltage calculation pays off in two ways, eliminating the need for both cost-intensive resistive voltage transformers and a separate measuring device. At the same time, the low-voltage measurements can be taken as a basis for adjusting the voltage levels using voltage regulating distribution transformers (VRDT). This is particularly helpful wherever a lot of renewable energy is fed into the grid or many large loads, like heat pumps or e-charging infrastructure, are found. The integration of Modbus®-capable power quality measurement devices per EN 50160 offers additional added value for measuring, recording and transmitting grid quality information on the medium and/or low voltage in the substation. The WAGO Application Grid Gateway is a plug-and-play solution and offers additional benefit with a-eberle devices and direct WinPQ database connection via an encrypted protocol. Its uses include direct transfer of important limiting value violations to the SCADA system for operational management.
Like the client, the Modbus TCP server provides access to all the station technology. The IEC 60870-5-104 servers and IEC 60870-5-101 clients are available in two versions. As the interface between the field level and control center, V2.4 of the WAGO Application Grid Gateway forward faults directly – both individually and in the form of a group message.

Software

This OS is available
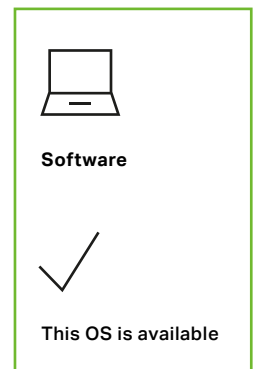
The benefits for you:

- Full 360-degree transparency for substations
- Freely configurable from the field level all the way to the control center
- Power quality measurements per EN 50160
- New add-on applications: medium voltage calculation and voltage regulating distribution transformer (VRDT)

Energy Management of Charging Parks – Even with Mixed Operation

The WAGO Application Load Management and WAGO Load Management Controller: Openness for Different Brands and Interfaces

The WAGO Application Load Management, together with a Linux®-based controller from WAGO, helps manage charging parks. Over X charging stations from different manufacturers have already been implemented, so commissioning requires no programming knowledge. In addition, a wide variety of generators and loads can be integrated generically via energy meters to achieve maximum efficiency. Various modes, including solar surplus charging, price-driven charging and prioritized charging, make charging park operation significantly more economical. The new native MQTT interface enables connection to cloud systems like the WAGO Solution Platform (see pages 20–21) and also offers the option of customizing the WAGO Application Load Management. This can be done with the help of a PLC program or multiple Docker® applications, such as NodeRed, which can be operated in parallel.

In addition, the charging capacity can be limited or specified externally via the controller inputs/ outputs.

The benefits for you:

- Optimal utilization of charging infrastructure
- Manufacturer-independent integration of charging stations, wallboxes and meters
- Intuitive parameterization allows commissioning without programming knowledge
- Extended interface and brand openness

Item Numbers:
8101-2000/0000-0025
8101-2000/0000-0021
8101-2000/0000-0022
8101-2000/0000-0023
8101-2000/0000-0024
8103-2000/0000-0002

This OS is available

DYNAMIC LOAD MANAGEMENT

Lighting Control Base on Sunrise

WAGO Lighting Management with Extended Scope and New S-License for WAGO Application Lighting Management
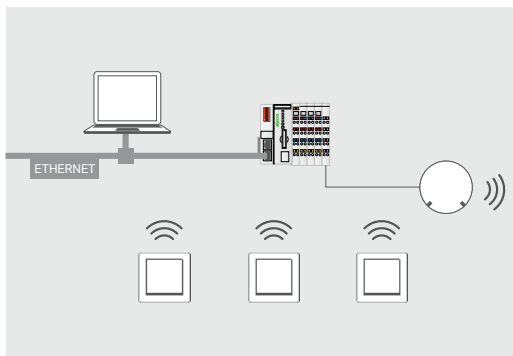
Lighting tailored to the needs of the environment – WAGO Lighting Management makes it possible. In the process, it takes into account the different conditions that prevail in warehouses, production halls, schools, gyms, train stations or shopping centers. And WAGO Lighting Management now offers new options for even more intelligent lighting control. The so-called Astroclock now controls the lighting automatically, based on sunrise and sunset at the specific location, to make lighting management even more economical and conserve resources.

In addition to the full version for up to 10 DALI lines, a WAGO Application Lighting Management S-license is now available that supports at most two DALI lines and already contains a visualization for operating the lighting control system. For smaller projects with fewer lights, such as bakeries or gas stations, the S-license can be used for especially economical implementation of WAGO Application Lighting Management without foregoing functionality of the full version.

Item Numbers:
WAGO PFC200 Controller,
2nd generation:
750-8212

WAGO Application
Lighting Management:
2759-0204/0261-1000

WAGO Application
Lighting Management S:
S 2759-0205/0261-1000

This OS is available

The benefits for you:

- Flexible, scalable lighting control applications
- Lighting control based on sunrise and sunset
- S-license for the WAGO Application Lighting Management for cost-sensitive entry-level projects

S-license

Full version

Fast, Reliable Communication

A New Communication Module for Direct ETHERNET Connection

The new Modbus TCP module allows direct connection of our MID energy meters without additional wiring effort, providing the perfect extension to the standard Modbus RTU interface. The Modbus TCP module has the same profile as WAGO's energy meters, which power them during directly connected operation.

An external supply voltage is required for operation as a remote gateway, which can be provided with the DC/DC converters (item no. 787-2801), for example. This allows up to 32 Modbus RTU devices to be connected to the module via RS-485 connections. All modules use push-in connection technology with levers, making connection very easy and saving time.

The module's flexibility also saves time when retrofitting it into existing systems. In combination with our MID energy meters, it supports transfer of values such as active and reactive energy and, mains frequency, as well as current, voltage and power for the individual phases.

The benefits for you:

- Easy integration of up to 32 Modbus RTU devices into ETHERNET TCP networks
- Tool-free installation and flexible retrofitting into existing systems
- Any number of additional Modbus® slaves can be integrated via connection points
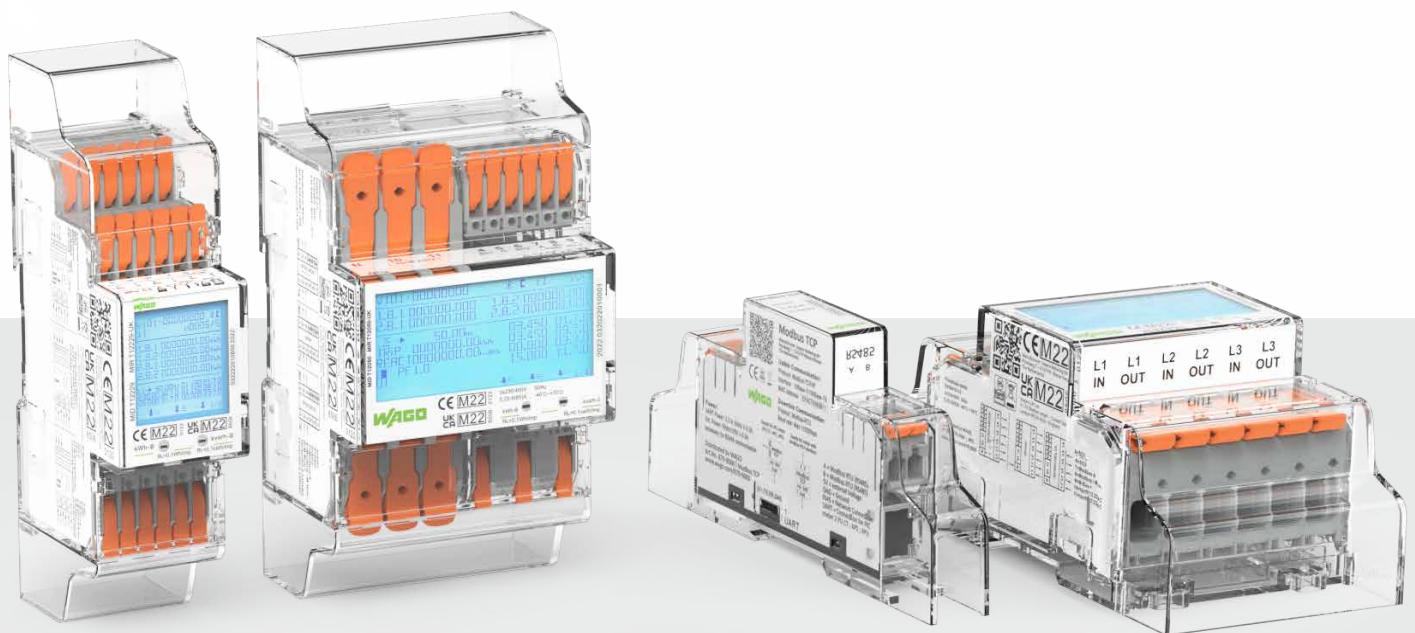
Item Numbers:
Modbus TCP Module:
879-9000

Energy Meters:
879-3000
879-3020
879-3040

Available:
Q4/2023

787-3664

787-3668

The Slimmest Multi-Channel Module on the Market for Higher Wiring Density

The Multichannel WAGO ECB for 24 VDC with 4 and 8 Channels

For protecting loads at the 24 V level, the trend is shifting more and more from conventional circuit breakers to electronic circuit breakers.

The new electronic circuit breakers (ECBs) for 24 VDC, with four (item no. 787-3664) or eight channels (item no. 787-3668), are used in all industries with sensors and actuators and other electrical loads in the 24 VDC range. These include the process and manufacturing industries, automobile production and power engineering.

With a width of 32 mm, the compact multi-channel modules are the narrowest ECBs available on the market. Our eight-channel circuit breaker takes up 50 % less space than eight single-channel circuit breaker modules. Our four-channel circuit breaker is available with the same width: just 32 mm. For expansions, four-channel modules can also be replaced with eight-channel ones.

An LED-illuminated on/off/reset button and a potential-free signal contact can be used for easy, reliable operation of each ECB channel and for setting the corresponding trip current. The plug-in connectors are protected against mismating, allowing pre-wiring and significantly reducing installation time.

The benefits for you:

- Reliable disconnection of the affected circuit in the event of an overload or short circuit
- Narrow channel width of just 32 mm for 4 or 8 channels saves space
- Fuse that can be operated manually on site or centrally by a PLC

Item Numbers:
787-3664
787-3668

Available:
Q4/2023

Greater Safety and More Space in the Control Cabinet

WAGO Expands Its Selection of Single-Channel ECBs

Our single-channel ECBs give users maximum flexibility, both in the number of required channels and in the selection of individual functional properties of the ECB. Eight different single-channel ECBs are available for selection. The channel width of just 6 mm also minimizes the space required.

Besides the familiar technical benefits of WAGO's electronic fuses, the single-channel modules also offer an excellent price–performance ratio. In addition, operation of the configurable variant (item no. 0787-3861/0004-0020) has also been optimized. On this new product, an intuitive rotary knob can be used for setting the trip current, even when disconnected from the power source, making handling much easier.

The benefits for you:

- Reliable tripping even with low overload currents and short circuit
- The 6 mm wide housing allows commoning on any connection point
- Fuse that can be operated manually by the operator or centrally by a PLC

Item Numbers:

787-3861/0200-0000
787-3861/0100-0000
787-3861/0050-0000
787-3861/0004-0020
787-3861/0400-0000
+ 787-3861/0108-0020
+ 787-3861/0600-0000
+ 787-3861/0800-0000

Available:

Q4/2023
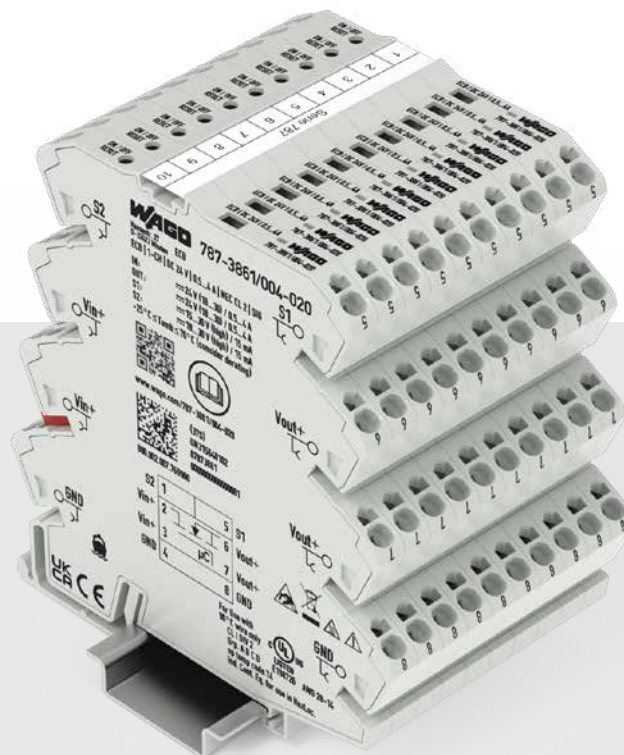
Redundancy Feature Ensures Higher System Availability

Integrated MOSFET Functionality for Easy Setup of a Redundant Power Supply System

Whether in mechanical engineering, the automotive industry, process engineering, building technology or power engineering – the WAGO Power Supply Pro 2 Redundancy is ideal where high system availability is essential. Additional power supplies are installed as a reserve. If one of the devices fails, the remaining power supplies maintain system operation. If a power supply output is short-circuited, integrated decoupling MOSFET prevents feedback within it. It also eliminates the need for a separate redundancy module, allowing compact, cost-optimized installation.

With 1+1 redundancy, a single device can handle the total load, so the device is never overloaded. With n+1 redundancy, the utilization of the individual devices can be increased, which leads to greater overall efficiency. At the same time, if one device fails, n devices take over the additional load this causes.

This fail-safe power supply system can be easily monitored using pluggable communication modules. Modbus TCP, Modbus RTU, IO-Link and EtherNet/IP™ interfaces to higher-level control systems are also available.

The redundant 1- or 3-phase power supplies with integrated decoupling MOSFET offer essentially the same technical advantages as the entire Pro 2 family. In particular, they still offer TopBoost and PowerBoost, as well as up to 96 % efficiency.

Item Numbers:
2787-3347/000-030
2787-3348/000-030
2787-3147/0000-0030
2787-3448/0000-0030

Available:
Q4/2023

The benefits for you:

- Fail safety, meaning higher machine availability
- 1+1 redundancy without redundancy module
- N+1 redundancy increases utilization of the individual devices
- Power supply system monitoring with communication modules

High-Performance, Economical Power Supply

## WAGO Power Supplies Eco 2 Available in 1- and 3-Phase Versions

WAGO's Eco 2 family of power supplies is the ideal solution for applications where robust, economical, high-performance power supplies are required but basic functionality suffices. With up to 95 % efficiency, this series is among the most efficient on the market. Its low power loss reduces energy consumption and extends service life, while the compact design saves space and money. The proven lever connection technology allows tool-free installation in a very short time.

For power upwards of 120 W, the devices are equipped with a robust metal housing that allows installation in harsh industrial environments. All Eco 2 Power Supplies are essentially compatible with our ECBs and redundancy modules, making them ideal for setting up power supply systems.

The benefits for you:

- Very efficient, economical power supply
- Compact design and high efficiency <=95 %
- Reduced power loss for lower energy consumption
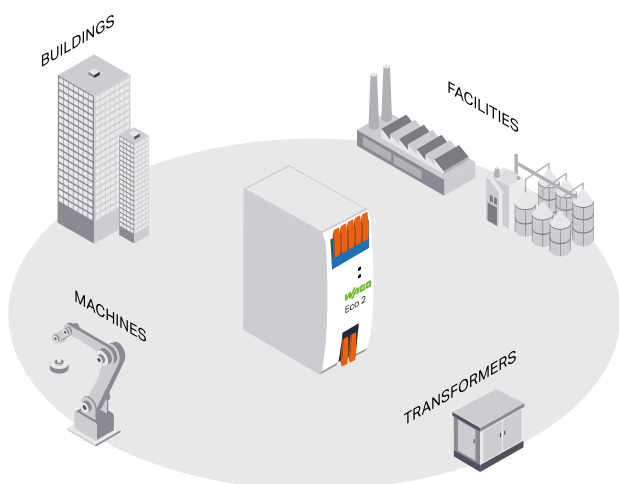
Item numbers and availability:

1-ph. / 24 VDC / 2.5 A:
2687-2143
Q4/2023

1-ph. / 24 VDC / 20 A:
2687-2147
Q1/2024

1-ph. / 24 VDC / 40 A:
2687-2148
Q4/2023

3-ph. / 24 VDC / 5 A:
2687-2344
Q1/2024

3-ph. / 24 VDC / 10 A:
2687-2346
Q4/2023

BUILDINGS

FACILITIES

MACHINES

TRANSFORMERS

MORE SUSTAINABLE WIRING WITH THE 221 SERIES GREEN RANGE

WAGO's First Connector with Plastic Components Made from Recycled and Bio-Based Industrial and Household Waste

Easier, faster, safer:

Three familiar adjectives describing the 221 Series Splicing Connector – and now there are two more: bio-circular and recycled! The WAGO Splicing Connector with Levers Green Range has the same advantages and features as its sister with orange levers. However, it consists partly of origin-certified, bio-circular plastics (made from bio-based industrial and household waste) and recycled plastics (post-consumer recycled material). WAGO's Green Range Splicing Connector with levers conserves fossil resources and helps keep plastics in circulation.

The details: The lever (PBT) is made at least 27 % from reused PET bottles. Up to 77% of the housing is made from bio-based industrial and household waste like tall oil, waste fats and waste from cooking oil production. These are processed into high-quality polycarbonate using sophisticated technical processes to reduce the use of fossil resources.

This process demonstrates how waste products can be turned back into a valuable resource. Thus this connector is a more sustainable alternative that still boasts the same quality and certifications as the standard 221 Series Splicing Connector.

WAGO's Green Range Splicing Connector with levers is the splicing connector for anyone working towards more sustainable manufacturing or construction – whether electrical installers, building technicians or device manufacturers.
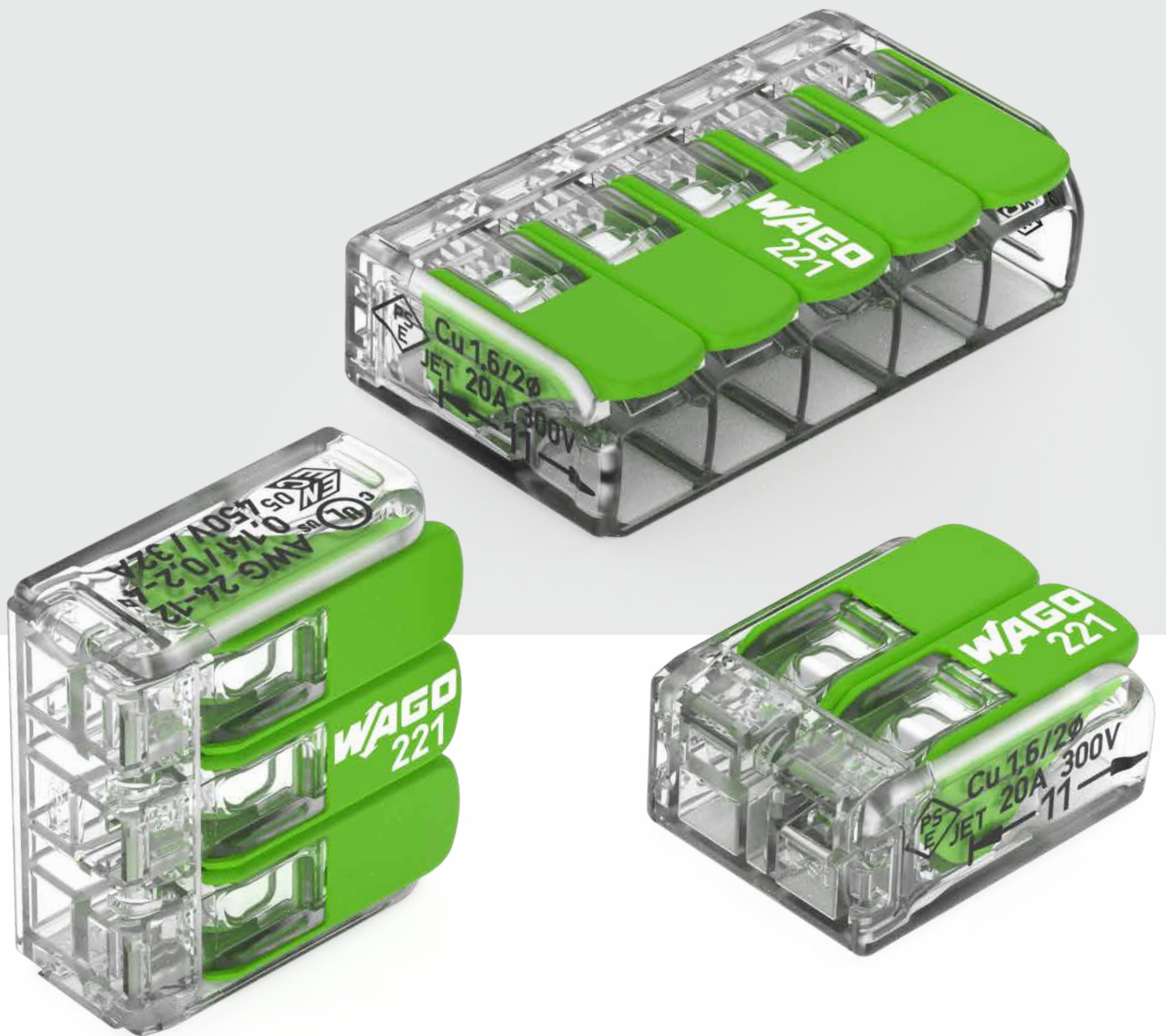
Item Numbers:

221-422
221-423
221-425

This OS is available

The benefits for you:

- Plastics made in part from post-consumer recycled material (e.g., recycled PET bottles) and bio-based industrial and household waste (bio-circular)
- Reduced consumption of fossil resources
- Same certifications as the standard 221 Series Splicing Connector

Packed in Grass Paper

The connector itself is greener, but its packaging is too, consisting of grass paper with up to 30 % grass fiber content and about 70 % recycled paper content. Its production generates about 5.6 % less CO_2e and consumes about 11 % less water than pure recycled paper production.

Easy Cable Extension and Repair

WAGO PUSH WIRE® Inline Splicing Connector for Easy Conductor Extension or Repair

WAGO's PUSH WIRE® Inline Splicing Connector is ideal for connecting solid and stranded wires in very tight spaces. Simply strip the conductor and push it into the unit without tools, and the clamping point is connected quickly and securely. At just 29 mm long, this inline splicing connector is especially compact. It is suitable for conductors up to 32 A and for a cross-section range up to 4 mm².

The recessed grip ensures optimal handling during installation. Thanks to the clear transparent housing, installers can immediately see whether the conductor is inserted into the connector correctly. The gauge printed on the housing helps verify the correct strip length quickly and easily. The PUSH WIRE® Inline Splicing Connector can be used to extend a short wire in a flush-mounted junction box, extend entire lines or repair damaged cables, for example. This makes the PUSH WIRE® Inline Splicing Connector ideal for building renovations and refurbishments. In the event of repair, this splicing connector can also be used
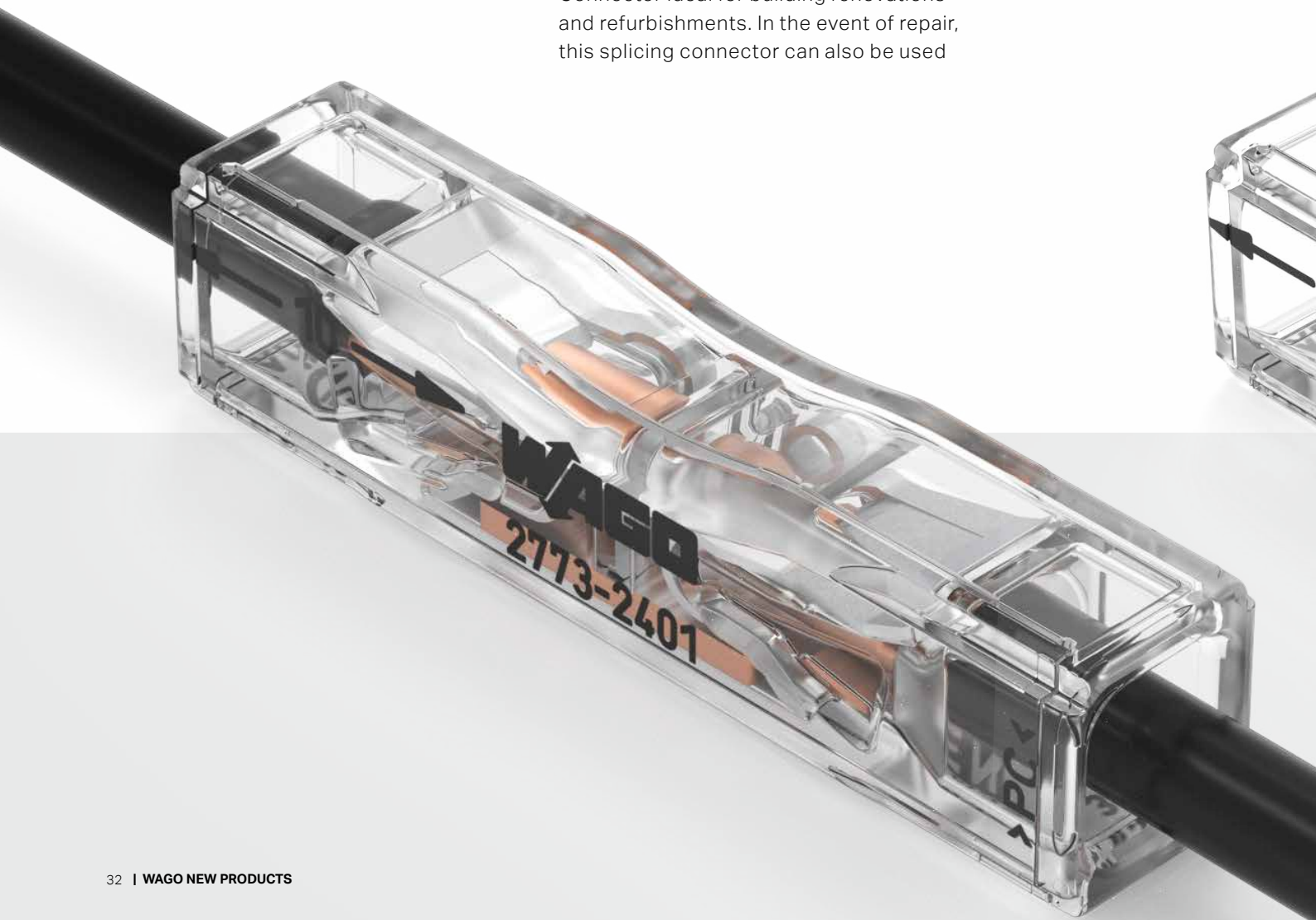
with a suitable shrink tube in flush-mounted applications thanks to its maintenance-free spring pressure connection technology. The corresponding repair kit is available from WAGO with item no. 207-5485/316-00. The PUSH WIRE® Inline Splicing Connector allows repairs to be performed without prying a large section of the wall open. That makes it a real problem solver and an indispensable helper in electrical installations.

The benefits for you:

- **Quick and easy repair of damaged conductors**
- **Tool-free insertion of solid and stranded conductors**
- **Especially compact design for conductor connection with very limited spaces**

Item Numbers:
WAGO PUSH WIRE®
Inline Splicing Connector:
2773-2401

WAGO Cable Repair Kit:
207-5485/316-00

This OS is available
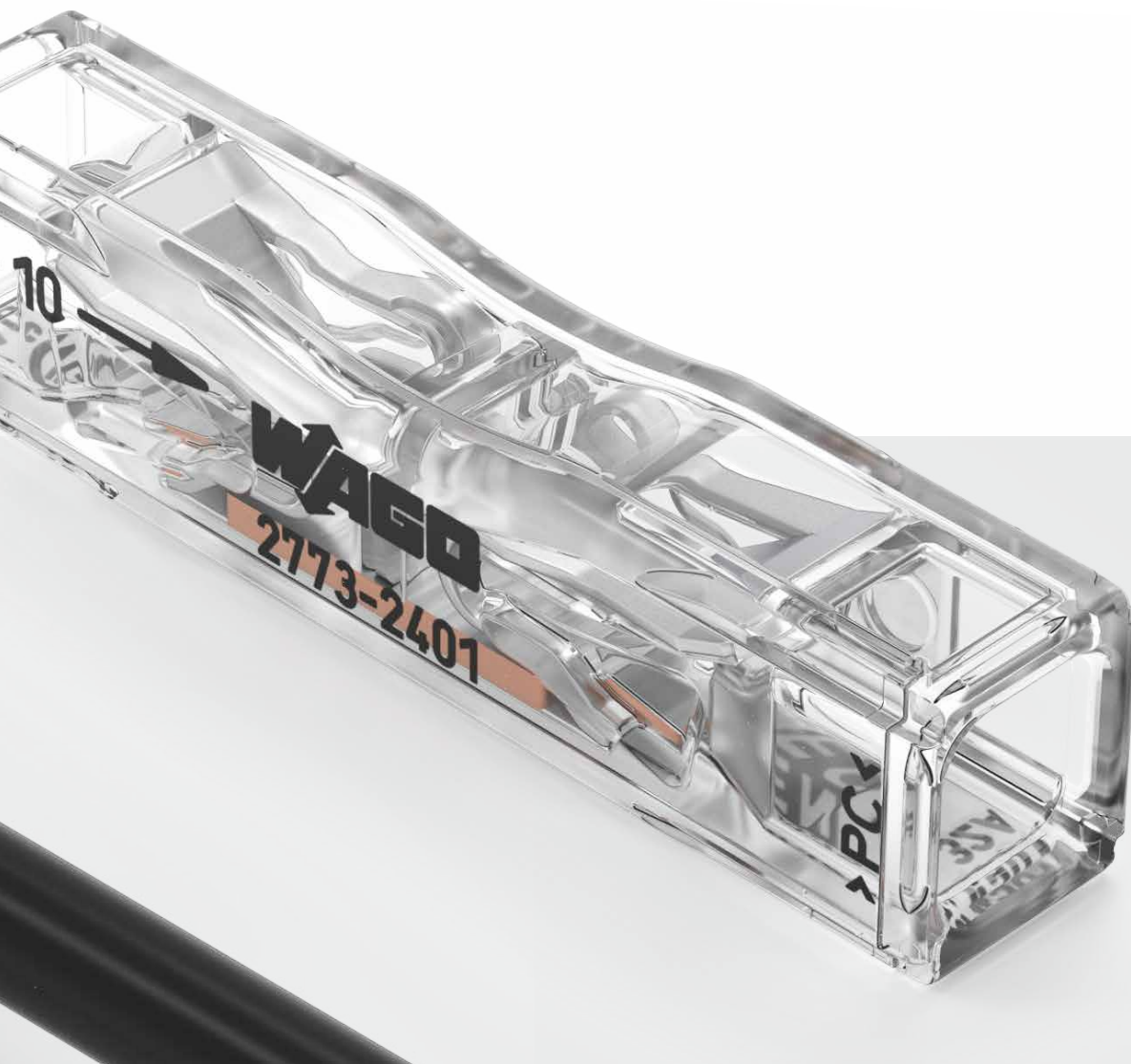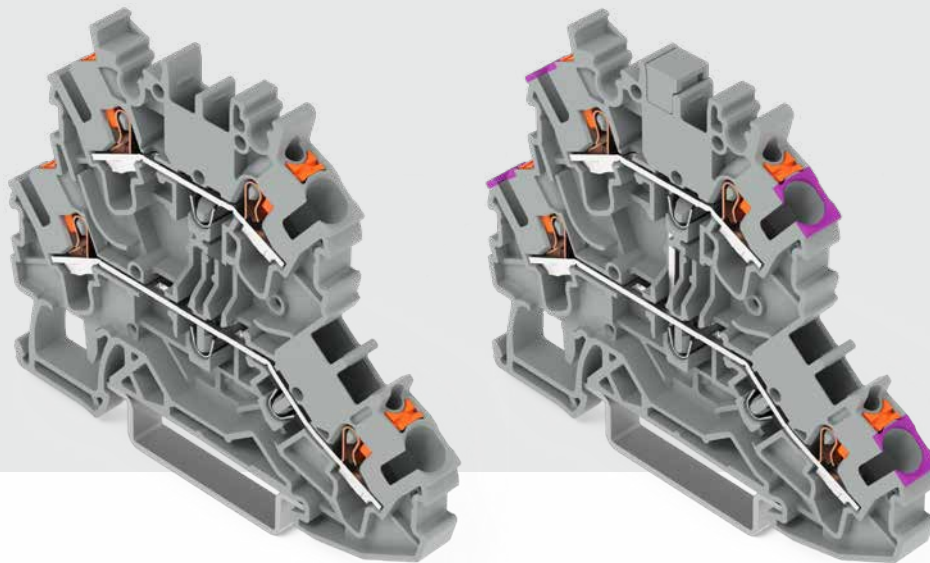
Space Savings on the DIN-Rail in the Control Cabinet

New Double-Deck Terminal Blocks Join WAGO's Range of Rail-Mount Terminal Blocks with Push-Buttons

WAGO's TOPJOB® S Series of rail-mount terminal blocks now features new double-deck terminal blocks with push-buttons. These boast a shorter design than the existing WAGO TOPJOB® S double-deck terminal blocks with push-buttons: At less than 70 mm long, they don't take up much space in the control cabinet. They also feature a slightly angled conductor entry and are suitable for nominal cross-sections from 2.5 mm² to max. 4 mm².

The new double-deck terminal blocks fit seamlessly into the existing TOPJOB® S range, which now includes single-deck, double-deck and triple-deck terminal blocks. Another practical benefit: Since their design is identical to that of the 2002 Series, control cabinet manufacturers can use the same end plates and accessories. The double-deck terminal blocks are primarily used in industry for control cabinet manufacturing and other applications where saving space on the DIN-rail is important.

The benefits for you:

- Shorter design saves space on DIN-rail
- For nominal cross-sections from 2.5 to 4 mm²
- Compatible with 2002 Series end plates and accessories

Item Number:
2202-22xx

This OS is available

Marking Made Easy
All WAGO TOPJOB® S Rail-Mount Terminal Blocks can be labeled quickly and easily with the WAGO Thermal Transfer Smart Printer and WAGO's free Smart Script marking software. Up to three lines can be printed on a marking strip. In addition, all the data is available for CAE/CAD planning.

Compact Design Saves Space

Compact Triple-Deck Terminal Blocks
for Small Nominal Cross-Sections up to 1.5 mm²

The new triple-deck terminal blocks offer a smaller addition to the WAGO TOPJOB® S range of push-button rail-mount terminal blocks with nominal cross-sections from 1 mm² to max. of 1.5 mm². They are available with or without push-buttons and offer a slim, compact design. Instead of horizontal construction, a vertical design is used to save spaces.

As an extension, the triple-deck terminal block fits seamlessly into the existing TOPJOB® S portfolio, since it is compatible with all other products in the series, such as jumpers or marking accessories.

Suitable vertical jumpers are also available to allow the upper two decks to be connected with the double-deck vertical jumper, or all three decks with the triple-deck vertical jumper. Simply insert the vertical jumper into one of the jumper slots at the top in the center of the terminal block. Of course, the terminal block also has a test slot on each deck.

The benefits for you:

- Compact design saves space
- Extends the range of rail-mount terminal blocks with push-buttons (nominal cross-section: 1 to max. 1.5 mm²)
- Also available: new triple-deck vertical jumper

Item Numbers:
Operating slot:
2000-32xx

Push-button:
2200-32xx

This OS is available

Improved Usability and Increased Process Efficiency

Three New Functions in the WAGO Configurator Smart Designer

With its latest update, the WAGO Configurator Smart Designer has released new features to improve usability and increase process efficiency. These improvements include introducing color selection, expanding price calculation for WAGO's miniature rail-mount terminal blocks, shifting selection of accessories to the sidebar and adding new functions for project management.

With color selection for miniature rail-mount terminal blocks, the update provides an implement configuration option that had been lacking previously. In addition, the expanded price calculation for the miniature rail-mount terminal blocks makes the request process especially fast and easy for users, since they now receive a price for their configuration automatically.

Moving accessory selection to the sidebar – similar to its placement in the marking wizard – also makes configuration more convenient. This way, users can vary the selection of items during accessory configuration and place the accessories at different points.

The new project management functions, such as sorting and the "Recently used" and "Pinned" categories, give users the same convenience they are familiar with from the Microsoft environment.
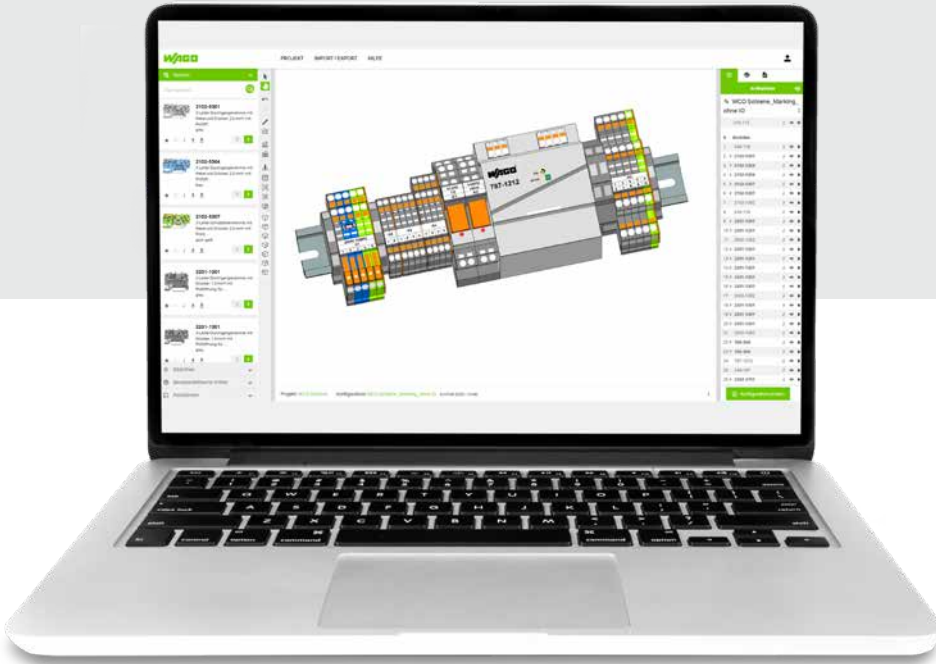
The benefits for you:

- Color selection option for rail-mount terminal blocks
- Greater convenience through optimized accessory selection
- Increased process efficiency

Software

✓
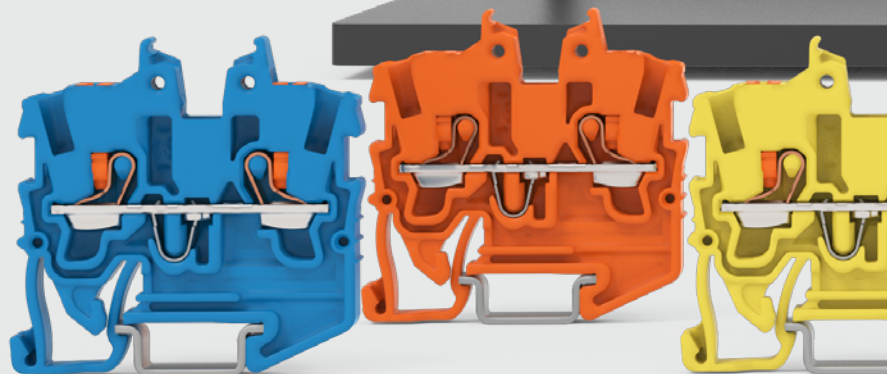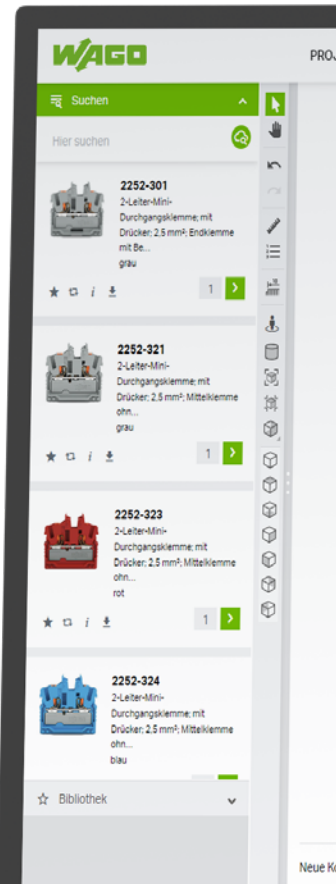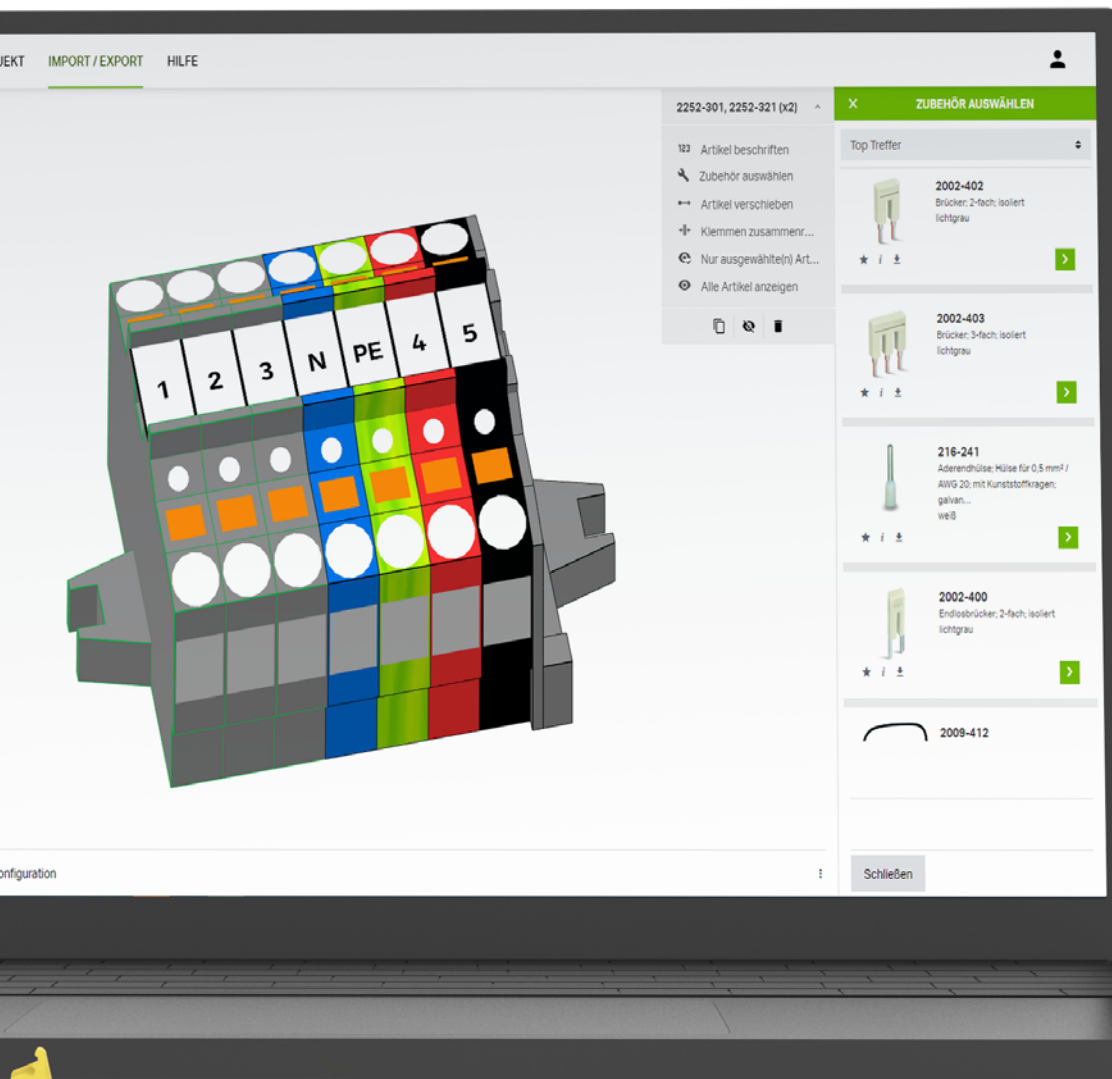
This OS is available

The benefits for you:

- Direct export from
  SEE Electrical to Smart Designer
- Easy to add accessories
  and markings
- Quote requests directly
  via Smart Designer

New Interface for
Control Cabinet Manufacturing

ElektroCAD's SEE Electrical Tool Is Now Compatible with WAGO's Smart Designer Configurator

The WAGO Configurator Smart Designer now offers an interface for SEE Electrical, a CAD planning tool for electrical systems. The interface allows designers to easily finalize planning and add product-specific accessory components, such as jumpers and end plates, or check the design for plausibility.

The interface also makes it possible to directly label control cabinet components planned in SEE Electrical with the marking wizard in Smart Designer. The components can be labeled with up to three lines. The designer can order the planned setup directly with one click: fully assembled and labeled, or pre-commissioned for in-house assembly.

Software

This OS is available

All in One Click
Download product data collected with WAGO Compact Data Download.

The benefits for you:
- Download data sheets and CAD and CAE data easily with one click.
- All the important information is complete and can be seen at a glance in the shopping cart.
- Time savings: Just one click to download all the information.
- Available: Q4/2023

Fast, Secure Mounting of Detectors and Sensors on Mineral Fiberboard

A Mounting Plate for Detectors and Sensors Expands WAGO's *WINSTA*® Pluggable Connection System

WAGO's *WINSTA*® Pluggable Connection System is primarily used in buildings with suspended ceilings or cavity walls. WAGO now offers a suitable mounting plate to mount detectors and sensors securely and integrate them into the system quickly and efficiently.

This plate comes factory-equipped with a suitable interface for 2-pole *WINSTA*® MIDI Series Connectors. The plugs and sockets can be easily secured with a snap-in frame. The mounting plate's large hole contour allows easy mounting of the device base plate. At the same time, the mounting plate also increases strength and stability.

Item Number:
897-2100

This OS is available
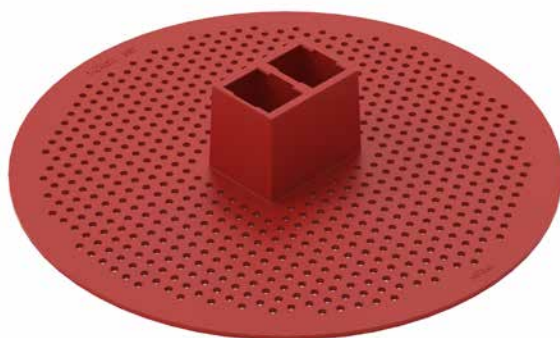
The benefits for you:

- Mounting plate allows stable attachment of a detector or sensor to a suspended ceiling.
- It offers a fixed *WINSTA*® interface for fast, secure connection.
- Fast, convenient pre-assembly on floors is possible.

Mounting plate

Ceiling opening

Suspended ceiling

Motion detector base plate
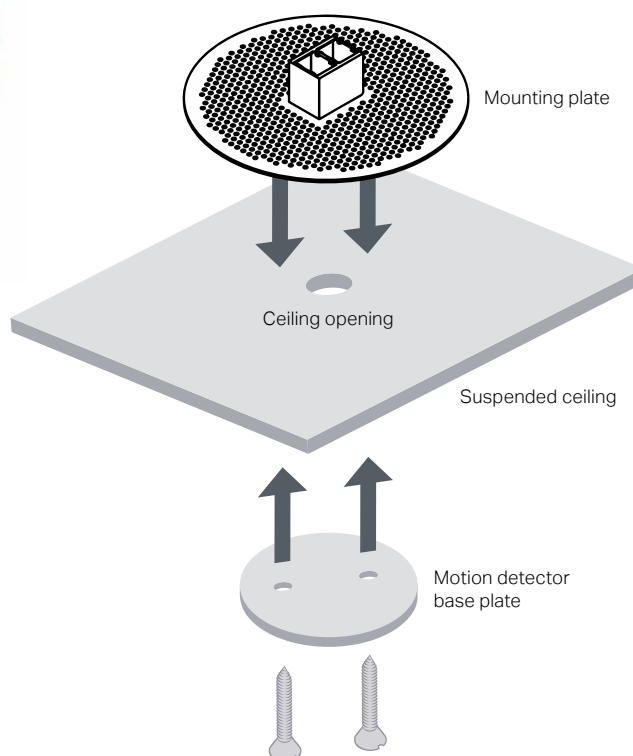
WINSTA® Now with UL-1059 Approval Too

The *WINSTA*® Pluggable Connection System now also features UL 1059 certification (Field Wiring), so it can now be used for wiring in the field within the scope of UL standard 1059. In this domain, *WINSTA*® components can now be wired directly on site rather than just checked. This extends the applications in the US market.

Greater Safety and Flexibility on the PCB

MCS MINI Pluggable PCB Connector with Lever Offers a Wide Variety of Accessories

The *MCS* MINI pluggable connection system with levers is ideal for tool-free field connection of pluggable I/O connectors to devices. The compact female connector for cross-sections from 0.14 to 1.5 mm² now offers new accessories that are also suitable for field assembly. Strain relief plates and two locking options provide additional safety and flexibility – depending on the available installation space, they can be mounted on the side or center of the female connector. Coding elements and a 2-way jumper complete the product range.

Extra Safety

Locking systems prevent accidental disconnection of female connectors and male headers. That is helpful where cables face significant tension due to influences like shock, vibration or impact, and also for installation with movable cables. The locking systems for the *MCS* MINI are available either centered on the connector or in a side variant, so you can always pick the right locking mechanism for the specific application.

The strain relief plate for the *MCS* MINI protects the connection point by isolating it from strong cable tension. It also keeps individual conductors from being pulled out. The strain relief plate not only provides more safety, it also simplifies handling, since it is more convenient to handle the plug with the individual conductors through the plate.

Coding tabs for the *MCS* MINI guarantee 100 % protection against mismating. They can be used when multiple connectors with the same polarity are positioned next to each other, for example. Thanks to the coding, a specific female connector only fits on one male header, preventing mismating.
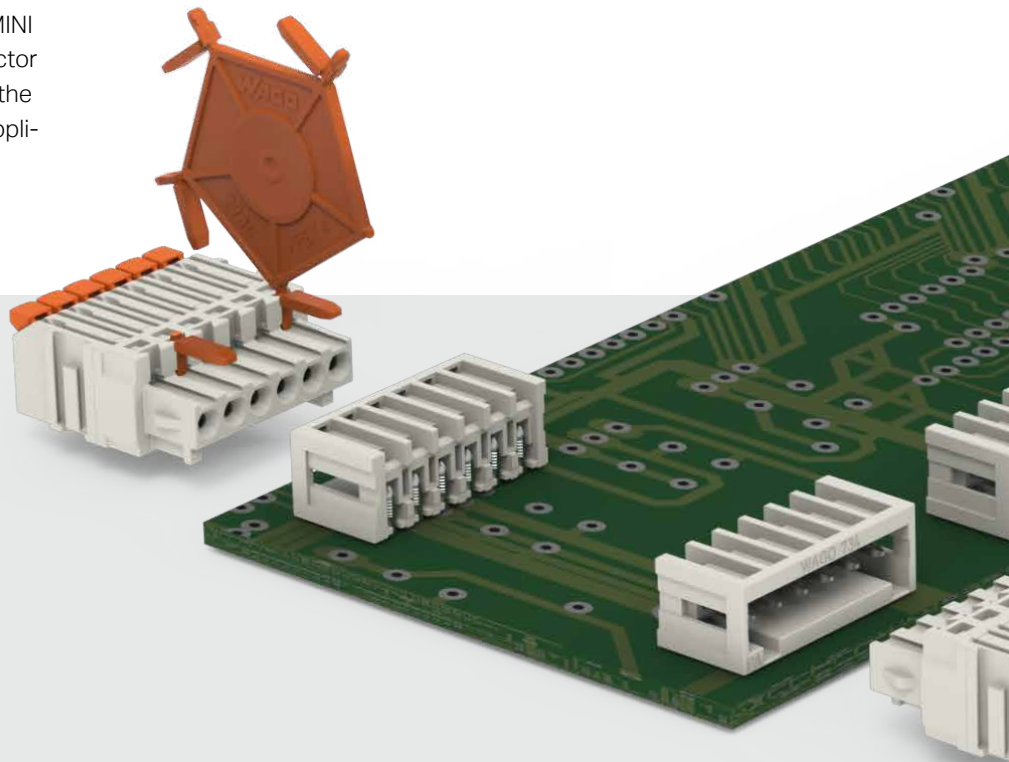
Convenient Wiring with Jumpers

Jumpers guarantee more convenient wiring. They make it easy to bridge cables, such as for wiring safety circuits in control systems. These cables are especially easy to wire using pluggable PCB connectors with levers such as the *MCS* MINI. The installer can raise several levers simultaneously without tools, remove the jumpers, then route the cables to the corresponding connection point and lower the lever.

All the accessory solutions are available pre-assembled with the *MCS* MINI or can also be ordered separately as needed and assembled in the field without tools.

The benefits for you:

- **Double-row version of the** ***MCS* MINI with 16 poles for more signal inputs/outputs**
- **Locking mechanism, strain relief, and coding guarantee reliable wiring**
- **Jumpers make wiring more convenient**
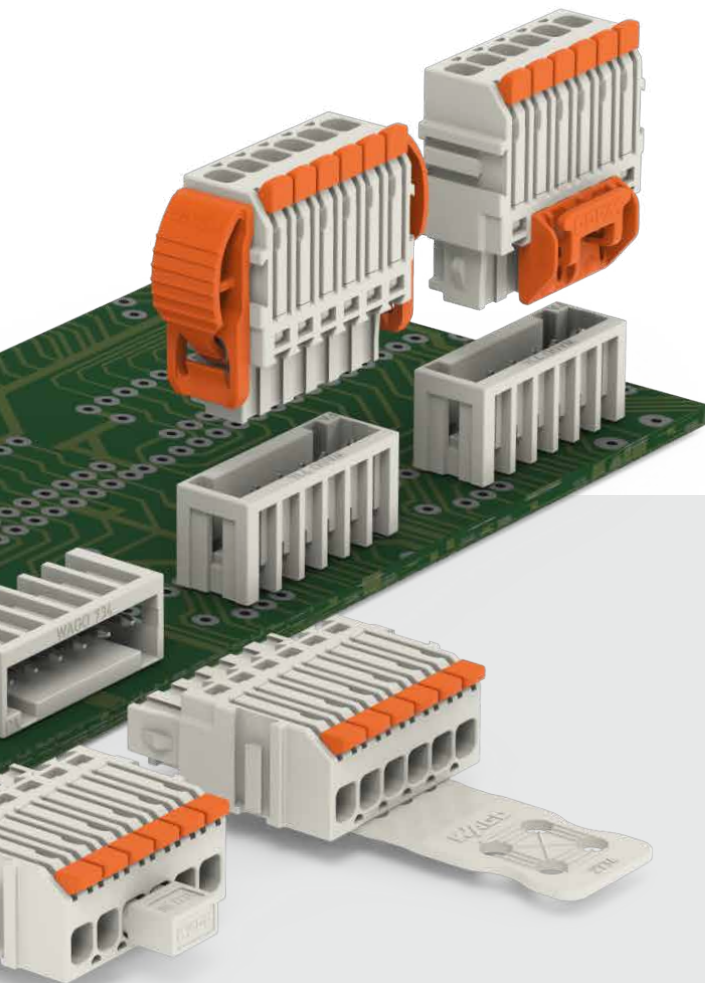
Item Numbers:
Side locking:
2734-0510

Center locking:
2734-0516

Strain relief plates
6 mm: 2734-0532
9.5 mm: 2734-0533
13 mm: 2734-0534
27 mm: 2734-0535
41 mm: 2734-0536

Coding pin carrier:
2734-0505

Jumper:
2734-0402

This OS is available
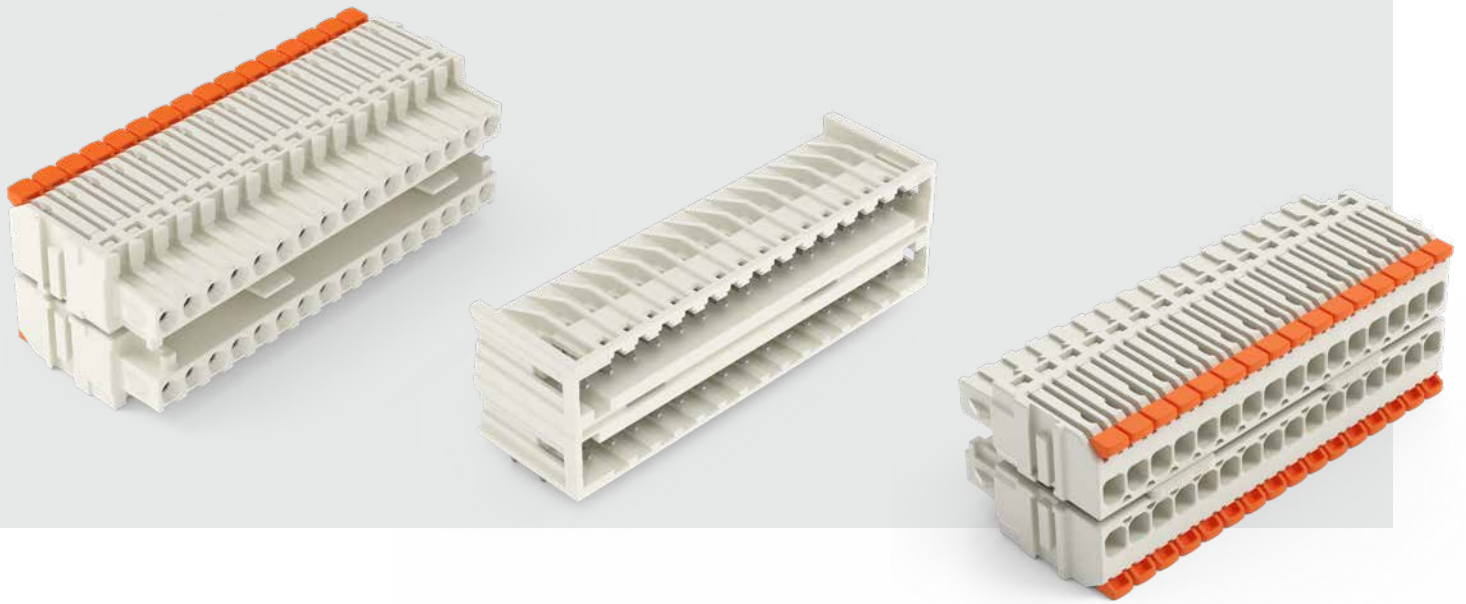
Dual 16 Poles
for Broader Signal Processing

Compact Double-Deck Male Header Available for *MCS* MINI with Levers

The new version of a 32-pole double-deck male header for the *MCS* MINI with levers allows I/O signals to be integrated into the fronts of devices with a compact design. A specially pre-assembled female connector with an integrated grip plate (item no. 2734-1516/0310-0000) is available as an option. The matching two-row female connector is protected against mismating and can only be inserted in the intended orientation. This even allows "blind" insertion in difficult mounting positions and use in installations with poor visibility.

The lever makes it easy to manually wire the female connectors without tools in the unmated state. The levers are also simple to operate in the mated stated on the front of the device. Thanks to the integrated push-in connection, users can terminate fine-stranded conductors with ferrules and solid conductors directly.

The benefits for you:

- Double-deck male header for 32 poles
- 100 % protection against mismating, since insertion only possible in one direction
- Direct termination via push-in connection technology

Item Numbers:
734-1446
2734-1516/0310-0000

Available:
Q3/2023

Tool-Free Device Connection for High Voltages

MCS MIDI HV PCB Connectors, 7.5 mm Pin Spacing, UL-Approved, for up to 600 V

The new *MCS* MIDI HV Pluggable PCB Connection System, with 7.5 mm pin spacing, for pole numbers from 2 to 8 poles, has a distinct interface. In it, the pins are separated by partitions housed in separate pin chambers.

The new 1-wire female connector with lever achieves the required clearances and creepage distances for component approval per UL 1059, in Use Group C, up to 600 V, field wiring. With this addition, the WAGO MULTI CONNECTION SYSTEM now boasts a pluggable portfolio for tool-free field connection of devices for international use in applications up to 600 V, per UL 1059, from 5 A to 66 A, with uniform connection technology.

Male headers with solder pins are available for wave (THT) and reflow soldering (THR), with straight or angled pins. Optional locking levers increase the reliability of the pluggable connection. Center and side locking levers are available for the female connector. Optional solder anchors for the THT(R) male headers also allow these components to be secured to the PCB, increasing the pluggable connection system's resistance to cable tension. The *MCS* MIDI HV Pluggable PCB Connectors with levers allow tool-free wiring. They can directly terminate solid and fine-stranded conductors with ferrules thanks to the Push-in CAGE CLAMP®. With the *MCS* MIDI HV, with 7.5 mm pin spacing for 600 V UL, a compact pluggable system for currents up to 20 A is available for device manufacturers, allowing them to select a price- and performance-optimized system for different device classes.
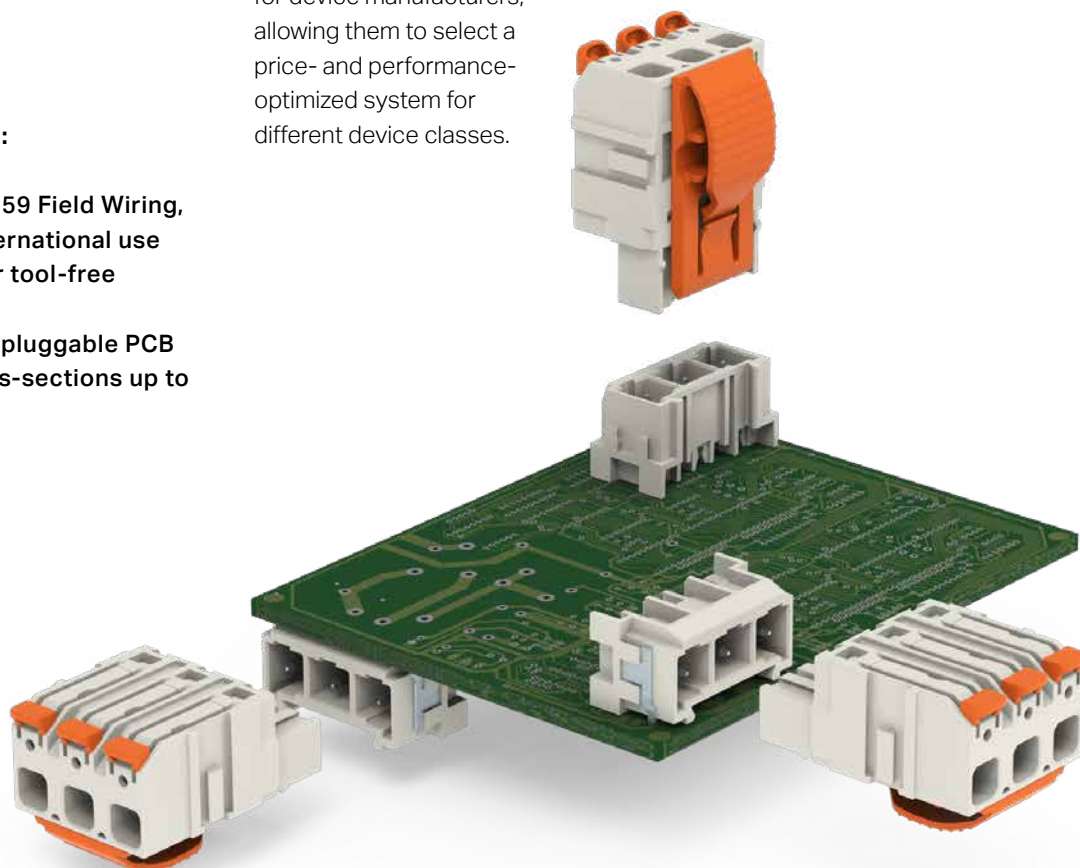
Item Number:
2724-11xx

Available:
Q3/2024

The benefits for you:

- Certified per UL 1059 Field Wiring, up to 600 V, for international use
- Lever operation for tool-free manual wiring
- High-performance pluggable PCB connector for cross-sections up to 2.5 mm²

Easy Connection, Large Cable Cross-Section

Wire-to-Wire Connections with the *MCS* MAXI 16 Now Available in a 1-Pole Variant

The *MCS* MAXI 16 Pluggable PCB Connector (832 Series) is now available in a wire-to-wire variant for single-pole applications. With it, users can wire a machine's individual cables in the field post-delivery without tools, for example. Solar aSolar and battery cables are also easy to connect.nd battery cables are also easy to connect. Thanks to spring pressure connection technology and the lever, the process is easy and intuitive for cross-sections up to 25 mm².

For example, the 1-pole *MCS* MAXI 16 Wire-to-Wire Connector replaces crimped connections in large cross-section ranges and guarantees error-free wiring. Inserting the male headers and female connectors into each other and using lever technology also save time. The Push-in CAGE CLAMP® connection is suitable for all conductor types and allows direct termination of solid conductors and fine-stranded conductors with ferrules.

Item Numbers:
832-1201/0011-0000
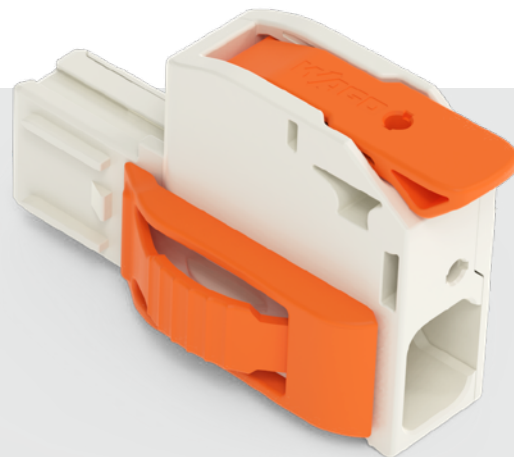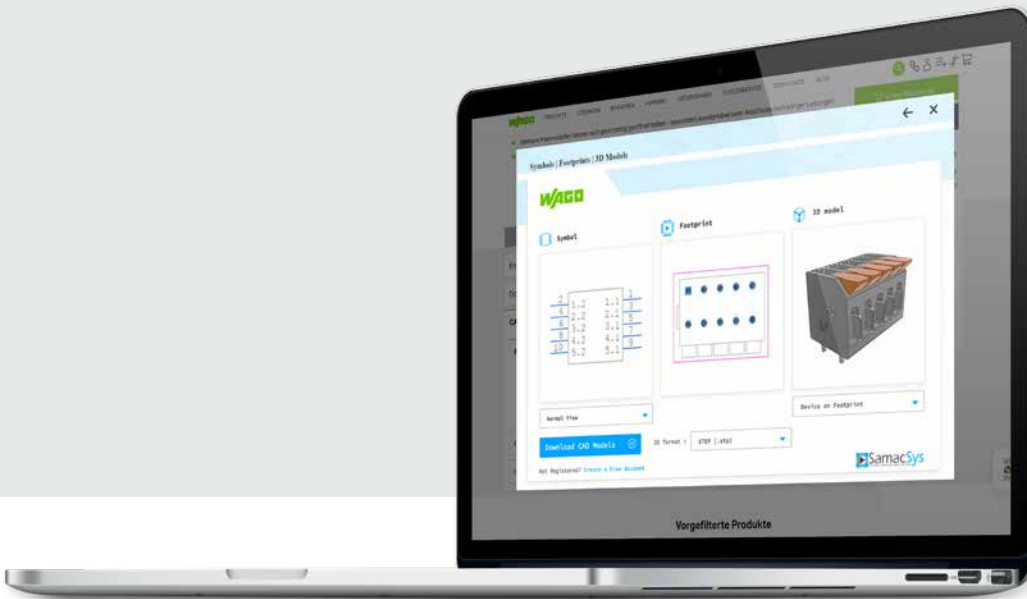832-1101/0011-0000

This OS is available

The benefits for you:

- Easy field wiring via spring pressure connection technology
- Tool-free connection of cross-sections up to 25 mm² via lever
- Suitable for voltages up to 1,000 V and currents up to 76 A

Now available in
1-POLE
version too

PCB Data Implementation with Supplyframe

Easy Design-In of WAGO PCB Terminal Blocks and Connectors

WAGO's PCB products can now also be designed into PCBs via the Supplyframe Design-to-Source (DSI) Network and connected platforms such as componentsearchengine.com, findchips.com, bom2buy and many more. In addition to the Ultra Librarian platform, WAGO offers another option for implementing PCB data in ECAD systems, such as schematic representation, footprints and 3D models of the PCB terminal blocks and connectors.

The PCB data can be obtained via Supplyframe directly from the corresponding product detail page, one of over 70 connected data portals or participating distributors. Downloading and importing the data is also incredibly easy with the associated library loader and compatible with over 35 ECAD systems. The data for the PCB terminal block or pluggable PCB connector can be inserted via either the download area of the corresponding product page on www.wago.com or the library loader, which is compatible with more than 35 ECAD systems.

Software

This OS is available
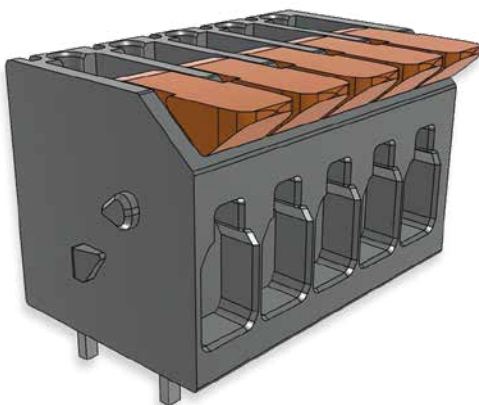
The benefits for you:

- High-quality PCB data directly from the manufacturer
- Fast and easy data implementation in ECAD systems
- Compatible with more than 35 ECAD systems

Digital Think Tank
for WAGO Accesory Ideas

WAGO Creators offers a community platform for custom prototypes for WAGO products.

Every problem has a solution – you just have to find it. Or can you create it yourself? The WAGO Creators platform was developed specifically to devise custom accessories for WAGO products. It is a community that, as a digital participatory platform, provides a mixture of inspiration, think tank-style research and idea generation. Users can share their ideas and download models for their own 3D printer or order them directly as prototypes. WAGO Creators is available in English and other languages.

3D printing offers modern technology to create customized accessory prototypes easily and quickly. Users only print what they really need. To provide feedback to other community members about their ideas, users can write comments under the designs or upload photos of the printed accessory solutions as "Makes." This allows them to demonstrate potential for improvement, for example.

If WAGO particularly likes an accessory solution, it's highlighted with a small green label to emphasize the design idea. Accessory solutions can be uploaded in .stl, .3mf, .FCStd, .obj and .stp file formats. WAGO Creators regularly posts news on the blog. Becoming a WAGO Creator is easy: Register and get started.

Your Benefits:

- Share your own accessory solutions for WAGO products with the community as a prototype.
- Download third-party ideas and print them on your own 3D printer or order them as a prototype.
- Discuss and jointly develop ideas for WAGO accessory solutions, and only print what is really needed.

Software

Available

FSC
www.fsc.org
MIX
Papier aus verantwortungsvollen Quellen
FSC® C010764