



flexROOM[®]

Efficient. Individual. Easy.



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INTEGRATED BUILDING AUTOMATION

Optimum Energy Efficiency

Energy Efficiency

Planning, commissioning and building operation must demonstrate maximum efficiency and a high degree of adaptability. For this reason, WAGO *flexROOM*® was specifically developed for projects with a large number of identical rooms such as office and administrative buildings, as well as schools.

Energy efficiency hinges on the savvy planning of a building's technical infrastructure. Constructing or retrofitting buildings is an operational challenge in terms of energy savings. Investors must see a high level of energy efficiency being incorporated into their buildings.

With *flexROOM*®, you can quickly and easily meet this challenge by implementing energy-efficient, standard-compliant building automation.

Lighting

The ideal lighting control system not only creates an atmosphere that promotes a sense of well-being, but also economizes room and building lighting.

WAGO *flexROOM*® skillfully sets up lighting scenes – from simple switching and dimming to daylight-dependent and completely customized lighting controls.

In rooms with incident daylight that do not always need full lighting: *flexROOM*® intelligently uses constant artificial lighting to bridge the gap between required brightness levels and current daylight. Thanks to a light sensor, lighting levels remain constant; when it gets darker outside, the lighting control system automatically increases the artificial light and vice versa.



© fotolia.com, IR Stone

Sun Protection

Modern architecture in new buildings increasingly relies on glass surfaces. On one hand, the glass lets plenty of daylight into the interior spaces while improving occupant well-being and reducing interference such as reflections. On the other hand, high light penetration leads to overheated rooms – particularly in the summer. The high temperatures and direct sunlight not only affect occupants, but plants and furniture as well.

flexROOM® reduces energy costs for heating, cooling and artificial lighting. And, the system also proactively conserves resources – for instance, the automated sun protection system with seasonal shading minimizes the use of fossil fuels.

Heating and Cooling

WAGO **flexROOM**® includes every vital function from set point adjustment to heating/cooling valve control. The set point can be changed by a room's occupant.

A room's temperature is lowered when leaving the room or opening a window. The energy consumption of unoccupied rooms is minimized.

Occupant-selected operating modes (standby, comfort, etc.) provide set point adjustment during the day, while the "energy level selection with/without start option" application function allows the desired room temperature to be reached at occupancy start time.

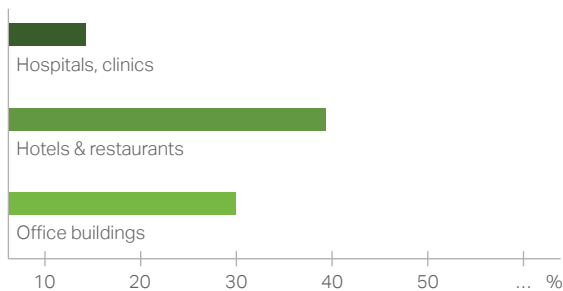
IMPROVING ECONOMIC VALUE

Reducing Energy Consumption

The building sector accounts for approximately 40 % of all energy consumption and a third of CO₂ emissions in Germany. As part of an energy revolution, Germany's federal government aims for nation full of virtually carbon-neutral buildings by 2050. Automation technology will play an important role in achieving that goal.

By applying **DIN EN 15232** "Energy performance of buildings - Impact of Building Automation, Controls and Building Management", substantial savings can be achieved in heating energy consumption. Without changing a building's exterior, savings of up to 30 % in office buildings, 39 % in hotels and restaurants and 14 % in hospitals can be attained.

Heating Energy Requirement Savings



Energy management systems and "intuitive" automation technology can help reduce energy consumption.

Cost-Reducing, Commercial Building Automation

In halls and stairwells, lighting control is achieved via motion and presence detectors depending on daylight and user requirements.

In rooms, artificial light control depends on light intensity. Lights are switched on or off depending on the presence of people in a room. Usage-dependent lighting control yields potential energy savings between 40–50 %.

In offices, single-room control provides the following settings: heating reduction, stand-by and operating times (acc. to usage and presence profiles), as well as automatic heating/cooling output shutdown when a window is opened.



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Building Automation Pays Off

Investing in building and room automation pays off. Depending on the investment made, a pay-back period of just a few years is quite realistic.

From a life cycle cost perspective, a cost analysis should also consider operating costs (energy, maintenance and service costs), which greatly exceed upfront investment costs.

Reducing Costs

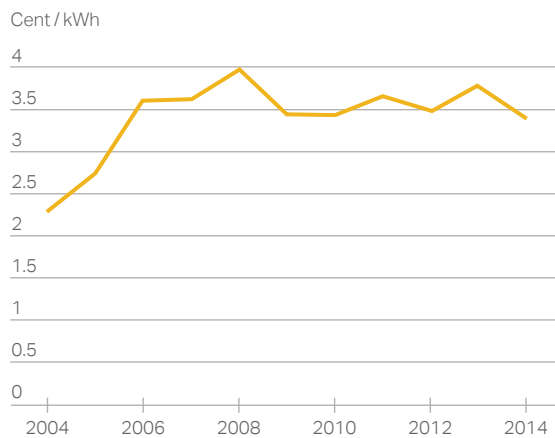
Heating, ventilation and lighting normally consume the most energy. However, research shows that user behavior has a major impact on energy consumption in buildings.

At the University of Applied Sciences in Biberach, Germany, measurements were collected on behalf of ZVEI (German Electrical and Electronic Manufacturers' Association) in three classrooms over two heating seasons, using different automation levels (based on **EN 15323**). Within two years, energy consumption could be reduced by 29 % at average automation class and even 41 % at high automation class.

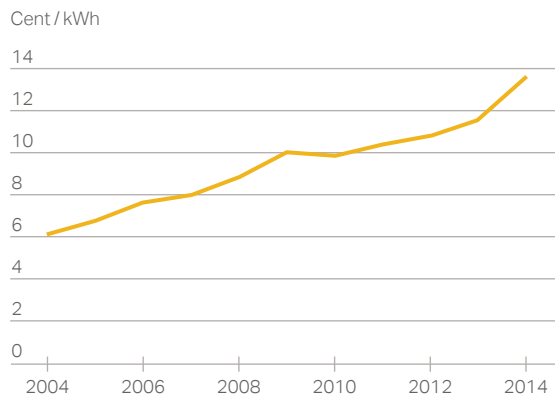
As recent years have shown, energy prices will only continue to rise!

Gas prices have nearly doubled over the past ten years, while electricity prices have increased by 220 %.

Gas Price Increase (Industry)



Electricity Price Increase (Industry)



Energy savings also translate into lower overall costs and an investment in the future.

CERTIFICATES for Quality Assurance

Certifications

The increasing interest in energy-efficient construction by investors is underscored by the success of various certification systems. The methods utilize a points system to evaluate criteria for sustainable construction such as ecological or functional aspects, as well as the quality of the construction process.

The certificate from the "German Sustainable Building Council" (DGNB) also rates the efficiency of a building; beyond sustainability, this rating helps meet the needs of investors. The DGNB issues platinum, gold, silver or bronze ratings based on the scores achieved and the degree to which requirements are met.



Gesamterfüllungsgrad	Mindestersfüllungsgrad	Auszeichnung	
ab 35 %	— %	Bronze*	
ab 50 %	35 %	Silber	
ab 65 %	50 %	Gold	
ab 80 %	65 %	Platin	

*Diese Auszeichnung gilt nur für Bestandsgebäude

Source: www.dgnb.de

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Topic	Criteria Group	Criteria Number	Criterion	Points	
				Max. Possible	Impact Factor
Environmental Quality	Resource consumption and waste generation	10	Non-renewable primary energy consumption	10	3
	Resource consumption and waste generation	11	Renewable primary energy consumption	10	3
Economic Quality	Building life cycle costs	16	Building-related life cycle costs	9	3
	Building value stability	17	Flexibility and convertibility	10	2
Sociofunctional and Functional Quality	Health, comfort and user-friendliness	18	Thermal comfort (winter)	10	2
	Health, comfort and user-friendliness	19	Thermal comfort (summer)	10	2
Technical Quality	Design quality of the technology	36	Customizable technical systems	10	2
	Design quality of the technology	42	Deconstruction, recyclability and ease of dismantling	10	2
Process Quality	Planning quality	44	Integrated building planning	10	3

This table contains excerpts from DGNB's evaluation criteria; these points illustrate how **flexROOM®** can help building designs earn significantly better evaluations.

In the field of building automation, international certification organizations such as LEED (USA), Minergie (CH), BREEAM (UK), HQE (FR), GREEN STAR (AUS) and Green Mark (Singapore) are becoming increasingly important.

By perfectly coordinating lighting, sun protection and individual room control, **flexROOM®** significantly improves energy efficiency in your building. This precision gives your building the edge in evaluations made by numerous certification systems.

LEED	Points
	Max. Possible
Sustainable Sites	26
Water Efficiency	14
Energy & Atmosphere	35
Material & Resources	10
Indoor Environmental Quality	15
Innovation & Design	6
Regional Priority	4
Maximum Number of Points	110

This table contains excerpts from the LEED evaluation criteria. In the areas marked in green, significantly higher evaluation results can be obtained with **flexROOM®**.

Energy-Efficient Building Automation with WAGO **flexROOM®**

- Compliance with current regulations and European standards
- Easy project planning and budgeting based on a segmented room concept
- Cost-saving installation and fast commissioning
- Building operator can change parameters during conversions

flexROOM®

The Solution for Efficient Room Automation

The efficiency of room automation solutions is demonstrated by achieving high levels of energy efficiency and efficiency during the installation, commissioning and ongoing operations of a building. Depending on the investment made, a payback period of just a few years in building projects is realistic. A cost analysis should also include operating costs (energy, maintenance and service costs), which greatly exceed initial building automation investment costs.

Pre-configured programs and pre-defined hardware significantly streamline project planning and commissioning. Flexible building operation (e.g., conversions and room remodeling) via special maintenance programs eliminates external service costs. Install, commission and configure according to project specifications: WAGO flexROOM® combines these strengths into a standard module.



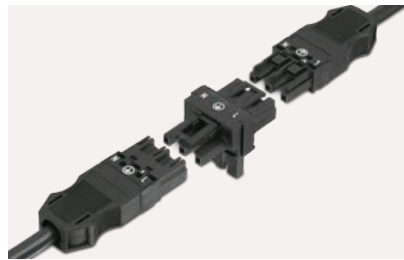
The WAGO flexROOM® concept:
A segment is the smallest common denominator of a room.

The WAGO *flexROOM*® concept is based on room segments. The core idea: A segment is the smallest common denominator of a room. Using this principle, the *flexROOM*® solution can be flexibly applied to practically any office or administrative building. Each segment contains functions for sun protection, lighting, heating and cooling control.

flexROOM® can be wired into a building automation network via ETHERNET, allowing the automation of a building area, floor or entire office unit.

If electrical distribution boxes are present, *flexROOM*® components can also be installed or retrofitted during facility renovation.

flexROOM® significantly reduces overall costs of new installations and conversions. WAGO *flexROOM*® provides the perfect combination of high-quality hardware and intuitive custom software!



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The distribution solution is delivered ready to operate with pre-assembled and fully wired control elements and can be installed directly in a suspended ceiling or false floor.

The industry-tested *WINSTA*® Plug-gable Connection System provides fast and error-free connection of sensors and actuators.

A standard Web browser is used to configure the room segments.

flexROOM® significantly reduces the overall costs of new installations and conversions.

EFFICIENT. INDIVIDUAL. EASY.

Perfectly Combining Hardware and Software

By using the PFC200 Controller in combination with the DALI Multi-Master Module, *flexROOM*® offers high-performance and future-proof hardware with WAGO's renowned quality and reliability. Applications run on a controller on an integrated Web server, allowing visualization in HTML5 format. The DALI Multi-Master Module for lighting supports up to 64 sensor addresses, eliminating the need for installing additional bus systems (e.g., for brightness measurement or presence detection).

Configure Instead of Program!

Each *flexROOM*® has a Web interface for configuration. Both the commissioning technician and end-user can configure the controls for each room via Web browser, regardless of the user's location and the distribution box in use. Entire floor plans (setting and deleting walls) and room parameter settings, such as lighting and shading groups, can be changed from the parameter interface. No additional software is required.

For each room, parameters can be individually stored for lighting, shading and room control. All parameters are cyclically saved either directly in the distribution box or in a separate computer via network connection. A higher-level management station accesses *flexROOM*® parameters via the open MODBUS TCP/IP protocol. This ensures that all modifications can be implemented on site or via the management station. BACnet- or KNX IP-equipped systems can also be connected via Modbus TCP/IP.





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Display on Different Devices

- **flexROOM**® uses advanced Web visualization based on HTML5, allowing the use of tablets and smartphones.
- Secure configuration via HTTPS
- Secure transmission of configuration data via SFTP

Additional Functions

In addition to room segments, special areas (e.g., stairways, corridors or sanitary facilities) may be automated using specially designed **flexROOM**® versions. Support for special areas is already included in **flexROOM**® Office Distribution Boxes.

If a management level is available or planned in the project, it will enable **flexROOM**®-ready devices to work. Switching operations can be performed, parameters changed and actual values read.





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EFFICIENT

Perfectly Synchronized

With *flexROOM*®, automated buildings make workspaces more accommodating by ensuring pleasant room temperatures and glare-free work spaces for greater levels of comfort. If parameter adjustments to a work space are required, individual settings can be made at any time.



Lighting Control

- Constant light control at the workplace
- Free lighting scene definition
- Temporary stairway light switching
- Automatic light for presence-dependent room lighting switching



Sun Protection

- Control of internal and external sun protection including thermal control
- Exterior slats track the sun position or seasonal shade control
- Automatic dimmer moves slats up at dusk
- Safety functions for a wind alarm and frost protection
- Weather station using a *flexROOM*® Distribution Box



Single-Room Control

- Presence-dependent room temperature control
- Manual set point adjustment
- Window monitoring, heating/cooling output shutdown when windows are open
- Startup optimization enables the desired temperature to be reached at occupancy start time



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INDIVIDUAL Variety of Technologies

DALI

Digital Addressable Lighting Interface (DALI) is a building standard for controlling lighting control facilities, such as electronic control gears (ECGs). DALI features digital communication and streamlined installation.

It meets lighting requirements, such as switching, dimming, light grouping or status information feedback.

EnOcean Radio Technology

Battery-free EnOcean technology transmits short telegrams and requires very little energy to send radio signals. Transmitters use electrodynamic/thermoelectric (energy converters) or photovoltaic (solar cells) energy-harvesting technologies.

Characteristic features: long range (up to 30 m indoors and 300 m outdoors), high transmission reliability (short telegrams) and multiple telegram transmission.

SMI*

The Standard Motor Interface is a consistent interface for electrical drives.

SMI was developed to connect drives with integrated electronic circuits for applications in roller shutters and sun protection systems.

Products from different manufacturers can be combined.

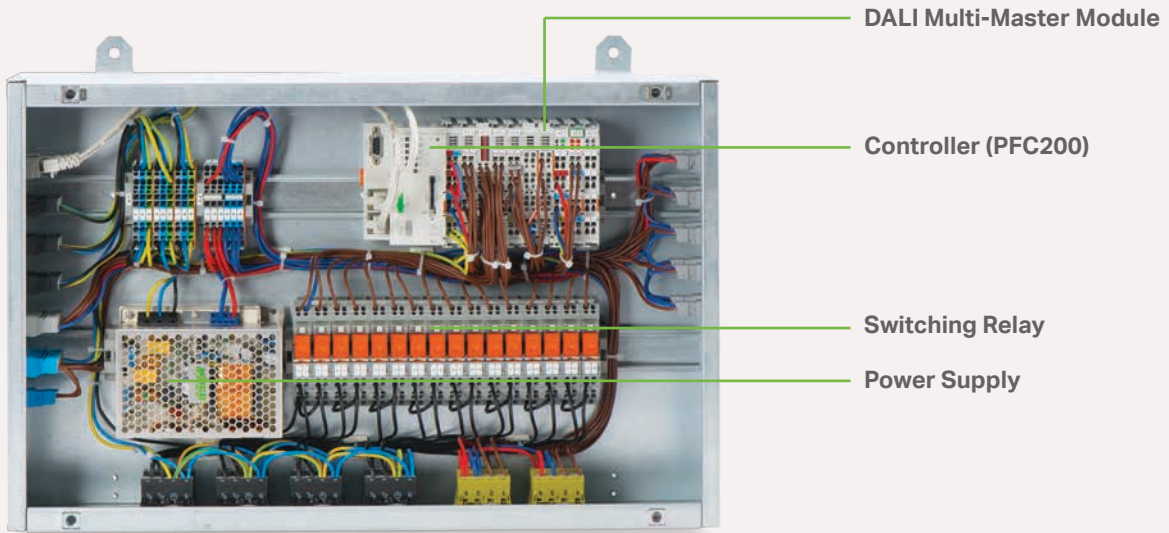
KNX*

KNX is a uniform, manufacturer-independent communication protocol for intelligently networking various building automation functions.

KNX is used to plan and implement energy-efficient solutions, while incorporating greater functionality and convenience into buildings.

*Customized SMI and KNX versions are available upon request.





EASY

From Planning to Commissioning

flexROOM® distribution solutions contain all of the required electronic components, such as a controller, switching devices and power supply unit. WAGO provides a complete solution, including all electronic components, conveniently pre-assembled in a distribution box. Of course, individual components can also be installed in the control cabinet.

Easy Installation

The WAGO *flexROOM*® Distribution Box can be installed in any position.

Installation can be performed in:

- Suspended ceilings
- False floors
- Electricity distribution

Pre-Assembled

The components are completely pre-assembled and can be used immediately.

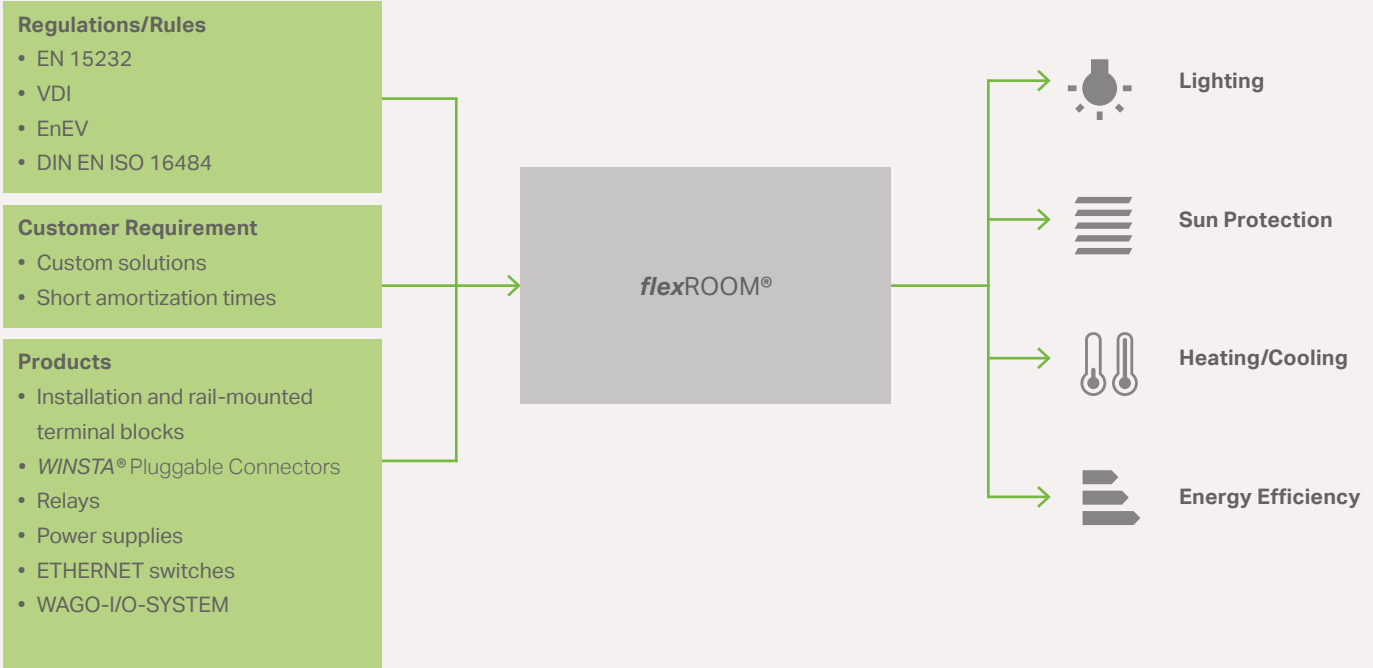
Standardized

Standardized, plug-and-play distribution boxes minimize system downtime.

Customized

Custom and project-specific solutions are possible.





Easy Installation

Quick and flexible installation is achieved using pluggable WINSTA® Connection Technology.

Your Advantages

- Cable pre-assembly
- Fast and easy connection
- Safe and maintenance-free connection technology
- Minimized installation time
- Waste-free installation
- Complete connector set for self-assembly also available

Easy Commissioning

Rooms are configured on a PC using a Web browser in a schematic room overview. Walls can be inserted or removed with the click of a mouse.

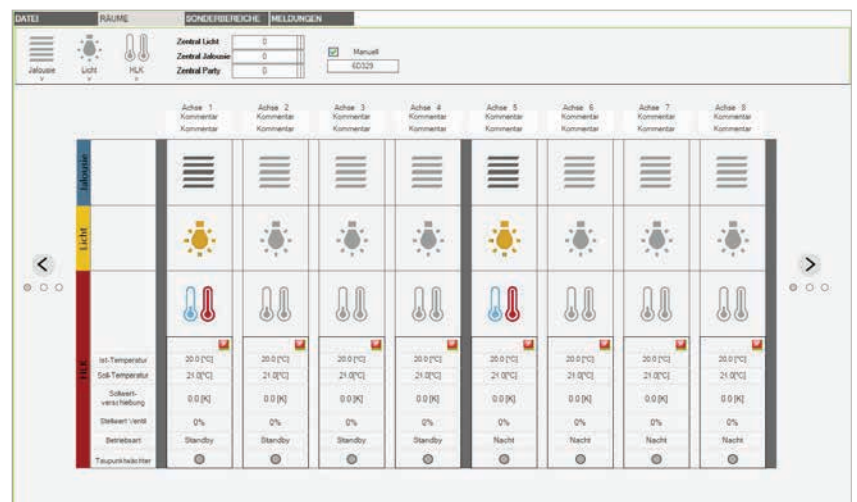
- Configuration with standard PC
- No additional application programs required

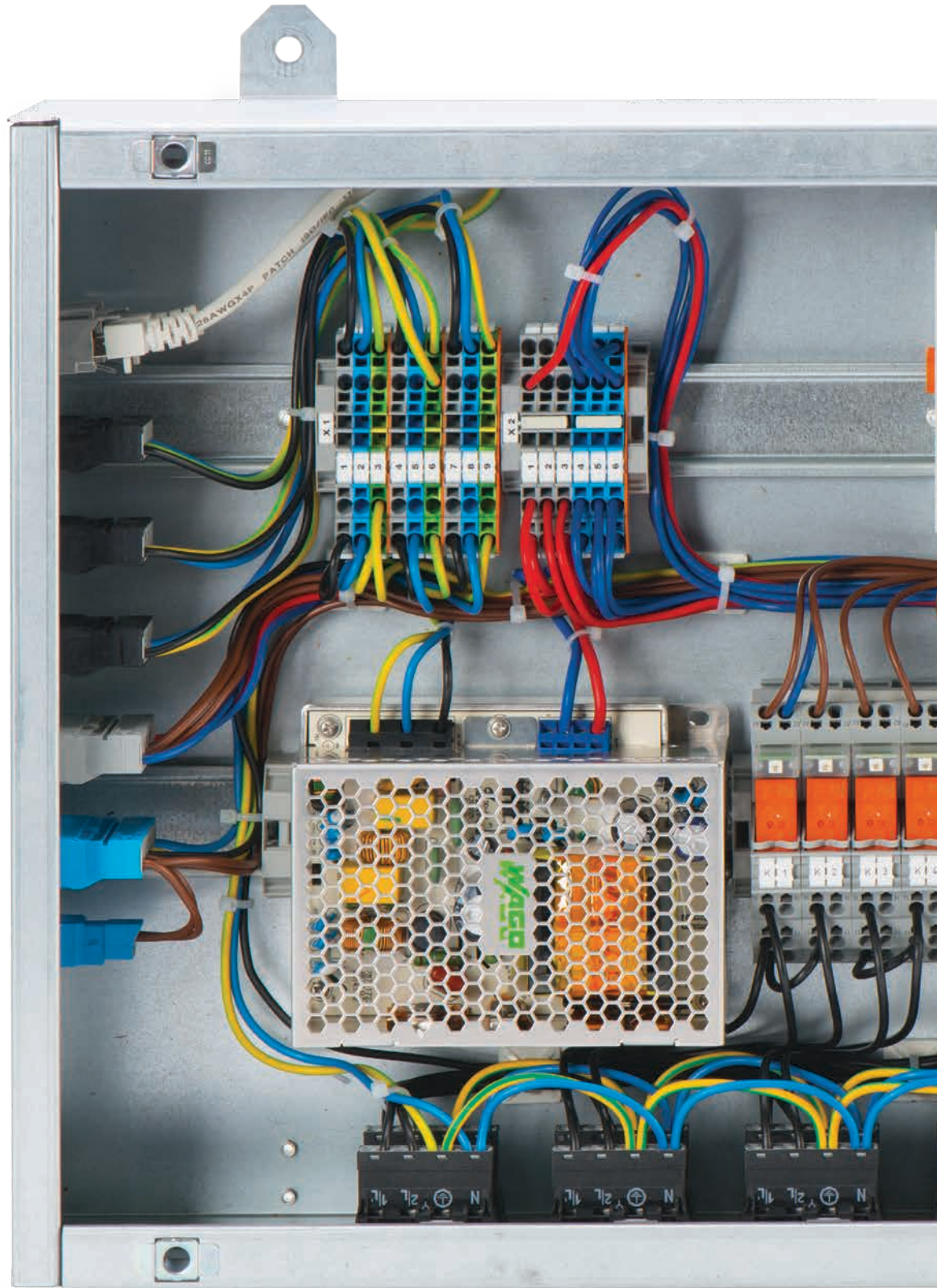
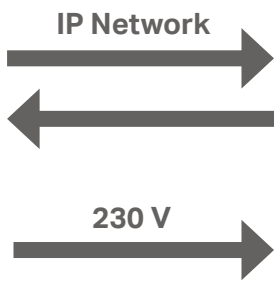
User-friendly operation,
a clearly arranged
configuration screen and
integrated workflows

Clear Input Screen

For basic parameters, screen forms with default settings are pre-populated and operating states are displayed.

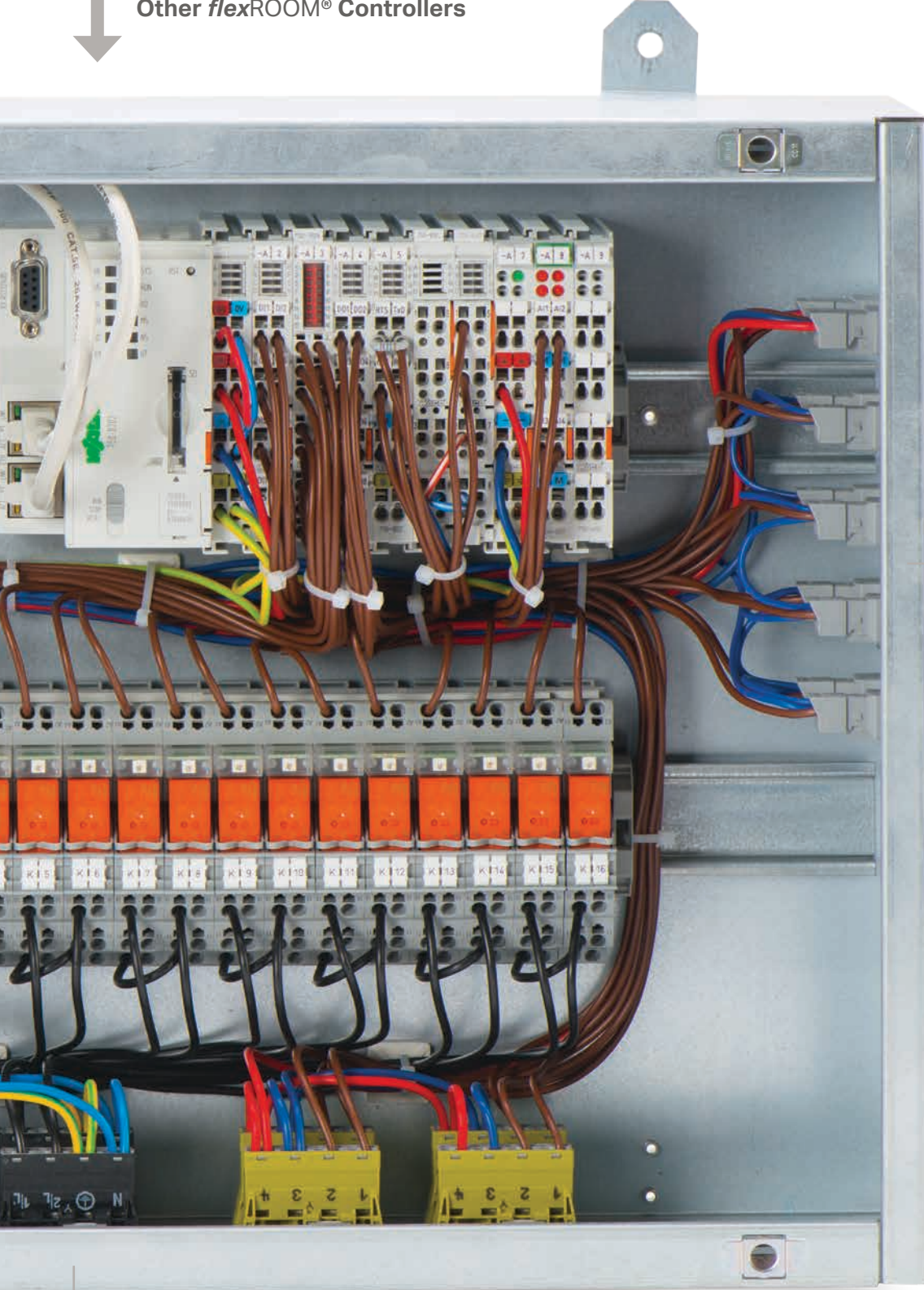
- Name of the distribution box for unique identification in the network
- Setpoint value specification
- Maximum and minimum control limits
- Actuator and sensor configuration
- Operating status indication







Building Management System
Management and Control Unit
Weather Station
Other flexROOM® Controllers



Lighting



Sun Protection



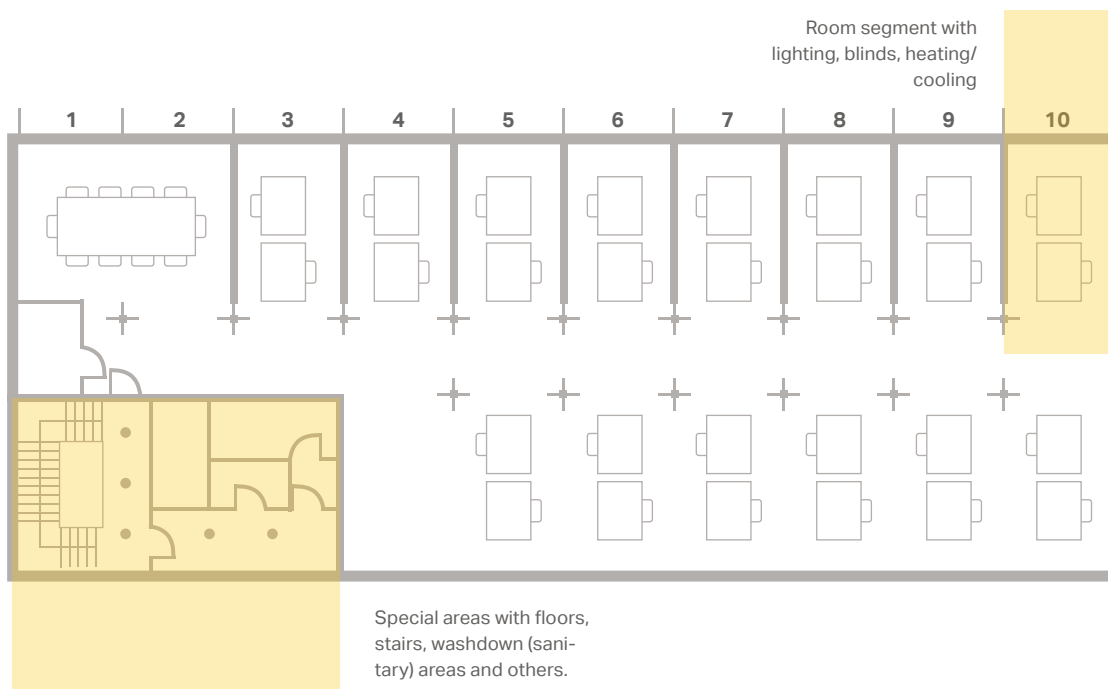
Heating/Cooling

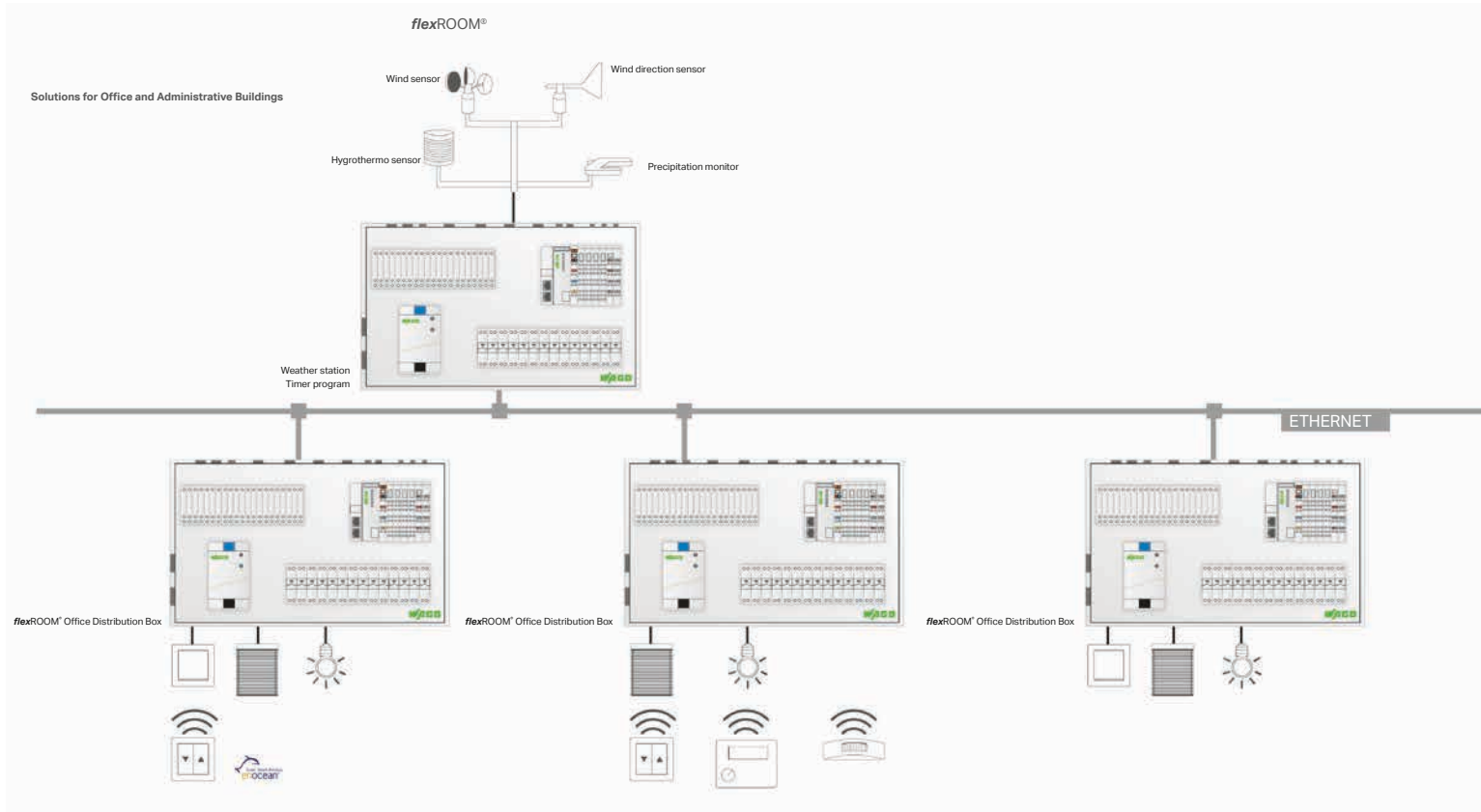
AT A GLANCE

flexROOM® is ideal for automating industrial and functional buildings (office buildings). The solution automates the lighting and sun protection, as well as implements single-room control (heating/cooling) for up to 24 room segments. A room segment is the smallest common denominator. The solution contains all of the required components for lighting, sun protection and individual room control.

Each WAGO **flexROOM**® Controller has a Web interface. Both the commissioning technician and end-user can configure the controls for each room via Web browser, regardless of their location or distribution box. Complete floor plans (i.e., setting and deleting walls) and room parameter settings, such as lighting and shading groups, can be changed from the parameter interface. No additional software is required.

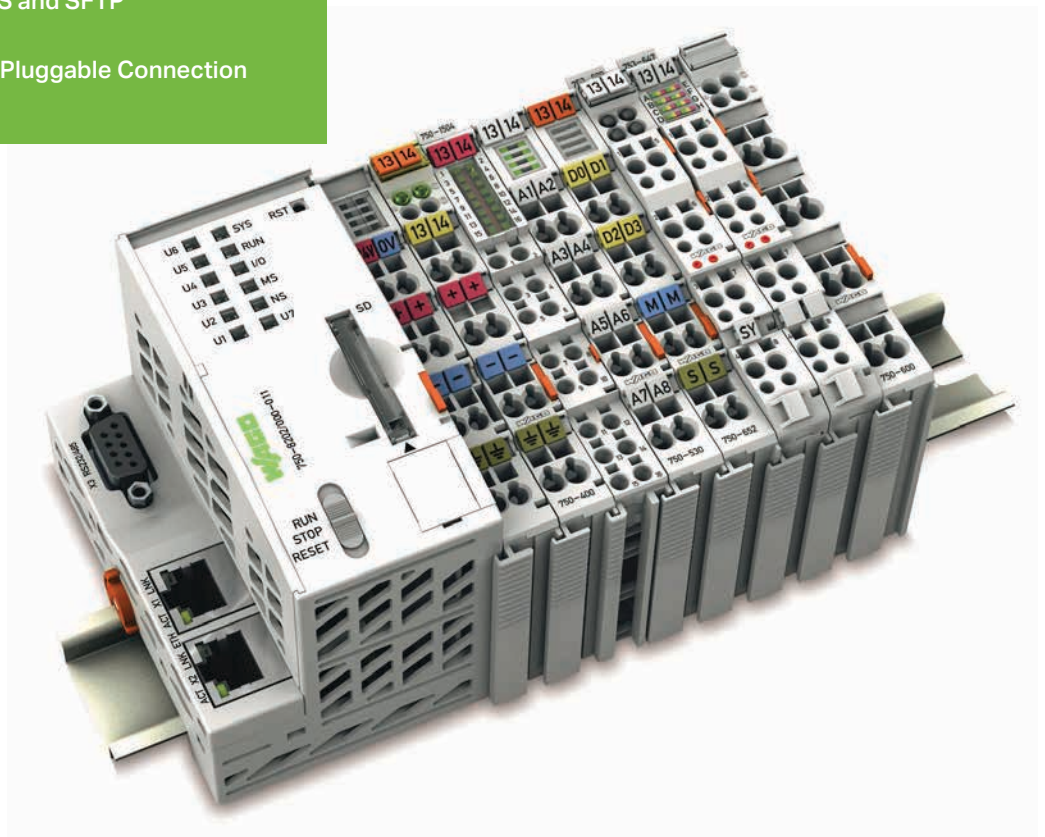
In addition to the room segments, special areas (e.g., stairways, corridors, sanitary facilities) may be automated via specialty **flexROOM**® Distribution Boxes. Several **flexROOM**® Distribution Boxes can be combined into a network via ETHERNET. You can use any standard Web browser to conveniently set up communication between the distribution boxes.





Your Advantages with *flexROOM*®:

- Simple configuration – not programming
- Advanced Web visualization based on HTML5
- Secure configuration via HTTPS and SFTP
- High energy efficiency
- Distribution solution: *WINSTA*® Pluggable Connection Technology



ORDER OVERVIEW

No. of Room Segments	Subsystems*		Office Areas						Special Areas					
			Inputs			Outputs			Inputs			Outputs		
			DALI	EnOcean	Dew point detector	Multi-sensors (conventional)	DALI sensors	Heating/Cooling	Lighting (DALI)	Sunblind drive	Sunblind button	Light button	Presence detectors	Heating/Cooling
8 Segments	x	x	2	4	x	8	16	8	-	-	-	-	-	-
8 Segments with Special Areas	x	x	2	4	x	8	16	8	4	4	4	2	4	4
16 Segments	x	x	2	8	x	16	32	16	-	-	-	-	-	-
16 Segments with Special Areas	x	x	2	8	x	16	32	16	4	4	4	2	4	4
24 Segments	x	x	2	12	x	24	48	24	-	-	-	-	-	-
24 Segments with Special Areas	x	x	2	12	x	24	48	24	4	4	4	2	4	4

Note: The table displays only a portion of the different flexROOM® Distribution Box versions that are available.

More information is available at www.flexROOM.com or via the contact at the end of this brochure.

*Support for other subsystems on request

WINSTA® Accessories	
Connector Set	Predefined connector sets
Couplers/Distribution Connectors	h-Distribution Connectors Distribution Boxes Distribution Connectors with Phase Selection
Connecting Cables	Pre-assembled with various connectors Various cable types/cross-sections
Tools	Actuation tool Wiring tool

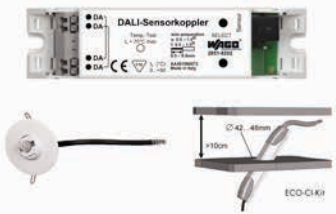


WINSTA® MINI/MINI SPECIAL

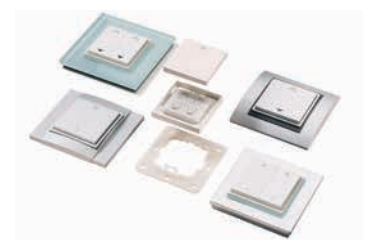


WINSTA® MIDI/MIDI SPECIAL

DALI Accessories	
DALI Sensors	WAGO DALI Multi-Sensor Kit <ul style="list-style-type: none"> DALI Sensor Coupler ECO-CI Kit MULTI-3-CL Sensor DALI Sensor Coupler WAGO DALI MSensor-02 5DPI 41rc (ceiling installation) WAGO DALI MSensor-02 5DPI 41w (box installation) WAGO DALI MSensor-02 5DPI 41rs (surface mounting)



EnOcean Accessories	
EnOcean Radio Transmitter	EnOcean easyfit PTM 250 <ul style="list-style-type: none"> 2-channel lighting control 2-channel blind control 4-channel lighting control 4-channel blind control



CONTACT

Technical Support

WAGO technical support employees are available to help customers: from guidance on product selection via telephone support to commissioning and up to on-site troubleshooting. Customers benefit immediately from the knowledge of WAGO experts and complete their projects much more quickly.

WAGO Provides Advice and Support with:

- Product selection
- Product commissioning
- Troubleshooting
- All technical questions about WAGO products and solutions

As a WAGO Customer, You Benefit from First-Class Support:

- Qualified fieldbus specialists
- Troubleshooting
- Spare parts service
- Contact by phone, online or using the form

Project Support

WAGO's technical support offers consultation and project planning services to help devise the best possible solutions for your custom building automation and installation projects. Our experienced team of professionals will gladly help you implement your projects with WAGO products.

Planning and Project Design:

- Conceptual design
- Network planning
- Application design
- Component selection
- Quote generation

WAGO Helps Customers with:

- Advice during the construction project's planning phase from experts with years of project experience
- Creation of customized solutions for large-scale projects that ensure technical and financial success
- Technical support while implementing building projects

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