spega e.control

# Room Automation

## Product Catalogue 2023

safesquare

# Competence in Room Automation

## Into the future

Room automation is of decisive importance for the energy efficiency, usability and ergonomics of commercial buildings. These requirements gave rise to our room automation system e.control, which is now one of the most comprehensive and functional systems of its kind.

In 2019, safesquare acquired the spega e.control room automation system. This means that in the future we will be committed to the development and sales guidelines to which the e.control system owes its current position:

– Clear orientation towards customer benefits
– Maximum functionality with simple commissioning
– Consistent use of open technologies
– Active participation in shaping normative and technical standards
– Clear market positioning and fair partnership

## Customer benefits

For our product management, customer benefit comes first. Our products must improve the sustainability of buildings, ecologically, economically and functionally. Although e.control provides a multitude of complex automation functions in the devices for this purpose, commissioning and operation should be as simple as possible. That is why many man-years of development have gone into the modular hardware and software concept and into powerful commissioning tools.

## Open solutions

In order to protect our customers' investments, we deliberately rely only on open standards from the building automation and IT environment. The result: e.control seamlessly and uniquely combines the best-in-class technologies BACnet, LON, DALI, SMI, MP-Bus and EnOcean into one system.

## Partnership

Our market positioning is as consistent as our development. Our sales team, consisting of experts with many years of experience in electrical engineering and building automation, together with technical support, looks after our system partner network. In addition, we would like to inform building owners and investors about the sustainability and cost advantages of room automation and be a competent contact for specialist planners. We see the key to a successful future in this cooperation with our direct and indirect customers, which is based on a long-term approach and fairness.

## The advantages

- High customer benefit
- Wide range of functions
- Best-in-Class Concept
- Simple commissioning
- Open technologies
- Fair partnership

# Symbols

## Interfaces, Protocols, Software, Documentation

- Power supply 230V AC (mains voltage)
- Power supply 24V DC
- Power supply 24V AC/DC
- Ethernet
- Free topology (2 wire medium)
- IP protocols (LON IP, BACnet IP, ...)
- BACnet IP
- LON
- EnOcean
- DALI (lighting control)
- SMI (sunblind control)
- Extension module
- Demo software available*
- Plug-in available*
- Software application available*
- Technical data sheet available*

## Inputs and Outputs, Subsystems

- Analogue input 0-10V, 4-20mA
- Digital input for floating contacts
- Digital input for 230VAC
- NTC input
- PT input
- Output switched (e.g. lighting)
- Output dimmed (1-10V)
- DALI (lighting control)
- Output for motorised drives 230V AC
- Output for motorised drives 24V DC
- SMI (sunblind control)
- Outputs for fan coil units
- Valve output 230V AC
- Valve output 24V AC/DC
- Valve output 0-10V, 4-20mA
- Valve output with 2-point control or quasi-continuous control via pulse duration modulation
- Valve output with 3-point control
- MP-Bus (valve control)
- Output for fire damper 230V AC
- Output for fire damper 24V AC/DC

* online at www.spega.com

# Content

# Content

# dialog Web – New Perspectives in Operation



## The workstation as cockpit

With the e.control dialog Web server, everyday work tools such as the PC or phone can be turned into a virtual control device. That opens up new perspectives, particularly wherever conventional control devices are difficult to install, whether from an aesthetic viewpoint or for reasons of flexibility of use. Using web technologies like HTML and XML, every user can use a web browser or an IP-capable phone to access all control functions, like adjusting the temperature setting, the fan level, lighting, the sunblind or individual windows.

## Suitable for rental units

dialog Web is ideal for buildings with multiple rented units, since integration into the tenant's LAN is provided through an Ethernet connection separated from the building automation backbone, which also provides the Web-based administrative access for the tentant to manage their own users, rooms and access privileges, and adapt layouts to their corporate design.

## Simple system integration

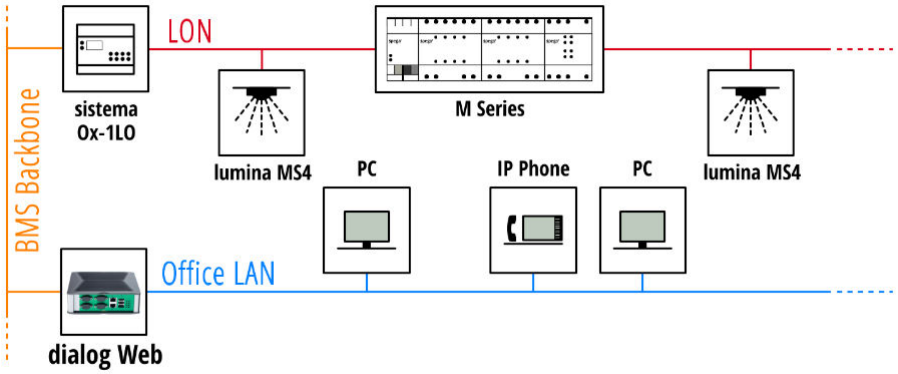
From the point of view of the system integrator, dialog Web is a device with up to 150 virtual room control devices, which due to its static network interface can be managed just as easily as any other e.control room control device – either in combination with the e.control Designer or even fully automatically. On the LON side, the server has its own Ethernet connection that is used to integrate it into the building automation backbone. As usual with spega, the parameterisation of all functionality is done using production plug-ins, which also permit working offline.

## IP phones welcome

In addition to access via web browser, dialog Web also provides additional licenses to permit the integration of IP-capable phones with XML support (such as Siemens OpenStage or Cisco Unified IP phones). This permits a web layout to be prepared, then adapted to the display capabilities of the telephone with no additional configuration effort.

## It loves big buildings

The possibility of operating multiple web servers in a server cluster also means that the number of virtual room control devices and users is effectively unlimited. The installation of over 20 servers for more than 2,000 workstations in one German company demonstrates the robustness and performance of the dialog Web server cluster. Since administration is handled through the master, it is absolutely no different from management of a single unit.




## The advantages

- Ideally well-suited for flexible (open-plan) office environments
- Supports web browsers and XML-capable IP phones
- Meets the strictest requirements of DGNB and LEED
- Also suitable for buildings with multiple rented units
- Full administrability by users/tenants
- Low investment costs

# dialog Web

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**dialog WEB-S**
**Internet web server for room automation**

- Server for controlling all room automation functions via standard web browsers or IP phones (optional)
- Static interface for a maximum of 150 rooms, multiple servers can be clustered for unlimited numbers of rooms with shared configuration
- Separated building management IP network and user IP network via 2 Ethernet ports
- User administration and access rights management via web interface
- User-independent licensing per room, configurable via LNS plug-in

LON

24V DC | IP protocols | LAN | Plug-in | data sheet

| | | |
|---|---|---|
| **WEB-S-M** | Server for switchboard mounting | **443 150** |
| **WEB-S-T** | Server as tabletop | **443 151** |

**Network:**
Port 1: 10/100 Base-T (LON/IP)
Port 2: 10/100 Base T (TCP/IP LAN)

**Licenses:**
15 licenses for virtual web control panels included, max. 150 licenses per device

**Power supply:**
Switchb.: 12 or 24V DC, max. 15 W
Tabletop 230V AC 50/60Hz

**Metrics/Mounting:**
(HxBxT) 49 x 168 x 140mm


**dialog WEB-B**
**Virtual web control panel**

- Licenses an additional virtual webbased room control panel on the internet web server dialog WEB-S
- Each room requires one license
- Number of users per virtual room panel is unlimited

| | | |
|---|---|---|
| **WEB-B** | Web license (per room) | **093 101** |

**Activation:**
Via license file upload from the administration webpage. Licenses can be upgraded at any time.

**dialog WEB-P**
**Virtual IP phone operation panel**

- Activates the XML interface for IP phones for a licensed virtual room panel on the internet web server dialog WEB-S
- Supports the following XML-enabled IP phones:

- Siemens Open Stage 40, 60, 80

- Cisco Unified IP-Phone 7900

- Each virtual room panel with IP phone interface requires a license
- Number of phones per virtual room panel is unlimited

| | | |
|---|---|---|
| **WEB-P** | Add-on license (per room) | **093 141** |

**Activation:**
Via license file upload from the administration webpage. Licenses can be upgraded at any time.

# Universal Room Control Panels – Function and Design Combined


## Integration for the user

The e.control universal room control panels represent the ideal interface between the room user and the automation system. The uniform control philosophy for all systems replaces conventional "isolated solutions" like thermostats, light switches and blinds controls. The lighted displays allow e.control room control devices to show the user all significant status items, graphically and clearly.

## Operate as you like

e.control doesn't require any particular philosophy of operation. Instead, the user can select from one of three concepts:

– Operation using buttons: nova LCD, nova TSx, lumina T8
– Operation with rotary/push button: nova Click
– Operation via touch screen: tactio M, nova Touch

Each of these concepts is consistently and appropriately implemented, so the user always has a clear overview. And because the functionality is identical on all devices despite the different operating concepts, the user can decide on a preferred design freely and without restrictions

## Full functionality on board

All universal room control devices include the full e.control functional scope for controlling the room climate, lighting and sun protection, as well as presence detection and room climate control (see table). That means that the devices can be used either as control units for external room controllers as well as fully capable heating, cooling and air quality controllers in combination with positioning drive actuators in the R or M series.

| Built-in LonMark objects | Function |
|---|---|
| SCC Command Module | Operating unit with built-in temperature sensor for the display of heating/cooling functions and setting of presence, temperature settings and fan level |
| Dew Point Sensor | Internal humidity sensor (optional for tactio, nova Touch, nova Click) |
| Occupancy Controller | Detects presence using a presence button and (external) presence sensors |
| Space Comfort Controller | Room climate controller for all static heating/cooling systems, fan convectors, VVR system with air quality regulation, night-time cooling and self-learning start optimisation |
| Dew Point Calculator | Determining the dew point temperature using a humidity sensor |
| Thermal Controller | Automation to integrate a sunshade into room climate control |
| Scene Panel | Calling up and saving of scenes |
| Switch | For operating lighting circuits, sunshade and window motors |

## The advantages

- Uniform display and operating concept for all systems
- Meets the requirements of DGNB and LEED
- 3 operating concepts with same functionality
- Suitable as a complete room controller or as an operating unit for external controllers
- Modern high quality designs in different colours

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|


2x NO / NC · 1x NTC 10k · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**nova Click**
**LON room control panel**
**black**

- Room control unit with temperature sensor and optional combination of humidity, CO2 or VOC sensor as well as 3.5" TFT graphic display for intuitive operation of room climate functions
- 4 freely parameterisable capacitive buttons for operating lights, blinds, windows or scenes
- configurable menu with scene management
- 2 digital inputs for floating contacts 1 analogue input for external NTC temperature sensor
- Application incl. room climate controller according to LonMark and VDI 3813-2 fulfills GA efficiency class A according to DIN EN ISO 52120-1

**black, black**

| | |
|---|---|
| with temperature sensor | **341 611 BB** |
| with humidity sensor | **341 612 BB** |
| with humidity and CO2 sensor | **341 613 BB** |
| with humidity and air qual. sens. | **341 614 BB** |
| with hum., CO2 and air qual. sens. | **341 615 BB** |

**Network/Power supply:**
Network type: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 104mA

**Equipment:**
- TFT display 320x480 pixels
- 4 capacitive buttons
- Operation via rotary/push button

**Metrics/Mounting:**
(HxWxD) 163 x 106 x 48mm
Installation depth: min. 35mm
in cavity wall or flush mounting sockets


2x NO / NC · 1x NTC 10k · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**nova Click**
**LON room control panel**
**aluminium**

- Room control unit with temperature sensor and optional combination of humidity, CO2 or VOC sensor as well as 3.5" TFT graphic display for intuitive operation of room climate functions
- 4 freely parameterisable capacitive buttons for operating lights, blinds, windows or scenes
- configurable menu with scene management
- 2 digital inputs for floating contacts 1 analogue input for external NTC temperature sensor
- Application incl. room climate controller according to LonMark and VDI 3813-2 fulfills GA efficiency class A according to DIN EN ISO 52120-1

**aluminium, black**

| | |
|---|---|
| with temperature sensor | **341 611 AB** |
| with humidity sensor | **341 612 AB** |
| with humidity and CO2 sensor | **341 613 AB** |
| with humidity and air qual. sens. | **341 614 AB** |
| with hum., CO2 and air qual. sens. | **341 615 AB** |

**Network/Power supply:**
Network type: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 104mA

**Equipment:**
- TFT display 320x480 pixels
- 4 capacitive buttons
- Operation via rotary/push button

**Metrics/Mounting:**
(HxWxD) 163 x 106 x 48mm
Installation depth: min. 35mm
in cavity wall or flush mounting sockets


2x NO / NC · 1x NTC 10k · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**nova Click**
**LON room control panel**
**white**

- Room control unit with temperature sensor and optional combination of humidity, CO2 or VOC sensor as well as 3.5" TFT graphic display for intuitive operation of room climate functions
- 4 freely parameterisable capacitive buttons for operating lights, blinds, windows or scenes
- configurable menu with scene management
- 2 digital inputs for floating contacts 1 analogue input for external NTC temperature sensor
- Application incl. room climate controller according to LonMark and VDI 3813-2 fulfills GA efficiency class A according to DIN EN ISO 52120-1

**white, white**

| | |
|---|---|
| with temperature sensor | **341 611 WW** |
| with humidity sensor | **341 612 WW** |
| with humidity and CO2 sensor | **341 613 WW** |
| with humidity and air qual. sens. | **341 614 WW** |
| with hum., CO2 and air qual. sens. | **341 615 WW** |

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 104mA

**Equipment:**
- TFT display 320x480 pixels
- 4 capacitive buttons
- Operation via rotary/push button

**Metrics/Mounting:**
(HxWxD) 163 x 106 x 48mm
Installation depth: min. 35mm
in cavity wall or flush mounting sockets


data sheet

**sistema LPFT-UP**
**Voltage transformer Link Power to 24VDC**

**200 012**

- supplies FT devices that require a 24V DC supply via a link power network
- no separate cable pull of 24V DC required at the FT-device
- The converter fits with its small dimensions, it also fits into a flush-mounted box and is ideally suited for room control units and pushbutton interfaces
- Ideal for maintenance and conversions with existing Link Power supplies
- Connected power 2 W

**Network/Power supply:**
Network primary: LPT-10 (Link Power)
Network secondary: TP/FT-10 (FTT10)
power supply secondary: 24V DC, 2 W

**Metrics/Mounting:**
(HxWxD) 45 x 30 x 15mm

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|


2x NO / NC · 1x NTC 10k · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**nova Touch**
**LON Touch-room control panel**
**black**

- Room control unit with temperature sensor and optional combination of humidity, CO2 or VOC sensor as well as capacitive 4.8" TFT graphic display with high-quality glass surface for intuitive operation of room climate functions
- 4 freely parameterisable light, scene groups or complete submenu can be placed as favorite button on home screen
- Navigation bar with all available menus for climate, light, blind etc.
- 2 digital inputs for floating contacts 1 analogue input for external NTC temperature sensor
- Application incl. room climate controller according to LonMark and VDI 3813-2 fulfills GA efficiency class A according to DIN EN ISO 52120-1

| | | |
|---|---|---|
| **black, black** | with temperature sensor | **341 621 BB** |
| | with humidity sensor | **341 622 BB** |
| | with humidity and CO2 sensor | **341 623 BB** |
| | with humidity and air qual. sens. | **341 624 BB** |
| | with hum., CO2 and air qual. sens. | **341 625 BB** |

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 104mA

**Equipment:**
- capacitive TFT display 1.120x480 pixels with glass surface

**Metrics/Mounting:**
(HxWxD) 163 x 106 x 45mm
Installation depth: min. 35mm
in cavity wall or flush mounting sockets


2x NO / NC · 1x NTC 10k · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**nova Touch**
**LON Touch-room control panel**
**aluminium**

- Room control unit with temperature sensor and optional combination of humidity, CO2 or VOC sensor as well as capacitive 4.8" TFT graphic display with high-quality glass surface for intuitive operation of room climate functions
- 4 freely parameterisable light, scene groups or complete submenu can be placed as favorite button on home screen
- Navigation bar with all available menus for climate, light, blind etc.
- 2 digital inputs for floating contacts 1 analogue input for external NTC temperature sensor
- Application incl. room climate controller according to LonMark and VDI 3813-2 fulfills GA efficiency class A according to DIN EN ISO 52120-1

| | | |
|---|---|---|
| **aluminium, black** | with temperature sensor | **341 621 AB** |
| | with humidity sensor | **341 622 AB** |
| | with humidity and CO2 sensor | **341 623 AB** |
| | with humidity and air qual. sens. | **341 624 AB** |
| | with hum., CO2 and air qual. sens. | **341 625 AB** |

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 104mA

**Equipment:**
- capacitive TFT display 1.120x480 pixels with glass surface

**Metrics/Mounting:**
(HxWxD) 163 x 106 x 45mm
Installation depth: min. 35mm
in cavity wall or flush mounting sockets


2x NO / NC · 1x NTC 10k · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**nova Touch**
**LON Touch-room control panel**
**white**

- Room control unit with temperature sensor and optional combination of humidity, CO2 or VOC sensor as well as capacitive 4.8" TFT graphic display with high-quality glass surface for intuitive operation of room climate functions
- 4 freely parameterisable light, scene groups or complete submenu can be placed as favorite button on home screen
- Navigation bar with all available menus for climate, light, blind etc.
- 2 digital inputs for floating contacts 1 analogue input for external NTC temperature sensor
- Application incl. room climate controller according to LonMark and VDI 3813-2 fulfills GA efficiency class A according to DIN EN ISO 52120-1

| | | |
|---|---|---|
| **white, white** | with temperature sensor | **341 621 WW** |
| | with humidity sensor | **341 622 WW** |
| | with humidity and CO2 sensor | **341 623 WW** |
| | with humidity and air qual. sens. | **341 624 WW** |
| | with hum., CO2 and air qual. sens. | **341 625 WW** |

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 104mA

**Equipment:**
- capacitive TFT display 1.120x480 pixels with glass surface

**Metrics/Mounting:**
(HxWxD) 163 x 106 x 45mm
Installation depth: min. 35mm
in cavity wall or flush mounting sockets

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|


2x NO / NC
1x NTC 10k
LON
24V DC
Free Topology
application
Plug-in
data sheet

**tactio M**
**LON Touch-room control panel**
**black**

- Room control unit with temperature sensor and optional combination of humidity, CO2 or VOC sensor as well as capacitive 4.8" TFT graphic display with high-quality glass surface for intuitive operation of room climate functions
- 4 freely parameterisable light, scene groups or complete submenu can be placed as favorite button on home screen
- Navigation bar with all available menus for climate, light, blind etc.
- 2 digital inputs for floating contacts 1 analogue input for external NTC temperature sensor
- Application incl. room climate controller according to LonMark and VDI 3813-2 fulfills GA efficiency class A according to DIN EN ISO 52120-1

**black**

| | | |
|---|---|---|
| with temperature sensor | **341 711 B** |
| with humidity sensor | **341 712 B** |
| with humidity and CO2 sensor | **341 713 B** |
| with humidity and air qual. sens. | **341 714 B** |
| with hum., CO2 and air qual. sens. | **341 715 B** |

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 104mA

**Equipment:**
- capacitive TFT display 1.120x480 pixels with glass surface

**Metrics/Mounting:**
(HxWxD) 146 x 90 x 40mm
Installation depth: min. 35mm
in cavity wall or flush mounting sockets


2x NO / NC
1x NTC 10k
LON
24V DC
Free Topology
application
Plug-in
data sheet

**tactio M**
**LON Touch-room control panel**
**white**

- Room control unit with temperature sensor and optional combination of humidity, CO2 or VOC sensor as well as capacitive 4.8" TFT graphic display with high-quality glass surface for intuitive operation of room climate functions
- 4 freely parameterisable light, scene groups or complete submenu can be placed as favorite button on home screen
- Navigation bar with all available menus for climate, light, blind etc.
- 2 digital inputs for floating contacts 1 analogue input for external NTC temperature sensor
- Application incl. room climate controller according to LonMark and VDI 3813-2 fulfills GA efficiency class A according to DIN EN ISO 52120-1

**weiß**

| | |
|---|---|
| with temperature sensor | **341 711 W** |
| with humidity sensor | **341 712 W** |
| with humidity and CO2 sensor | **341 713 W** |
| with humidity and air qual. sens. | **341 714 W** |
| with hum., CO2 and air qual. sens. | **341 715 W** |

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 104mA

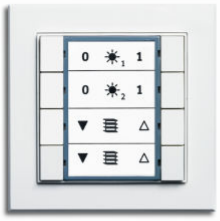
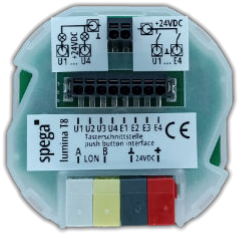
**Equipment:**
- capacitive TFT display 1.120x480 pixels with glass surface

**Metrics/Mounting:**
(HxWxD) 146 x 90 x 40mm
Installation depth: min. 35mm
in cavity wall or flush mounting sockets

# nova LCD Room Controllers

| Figure | Specification | Technical Data | | Order No. |
|---|---|---|---|---|
|  | **nova LCD**<br>**LON LCD room temperature control panel**<br>■ Room control panel with temperature sensor, LC display and 8 push buttons for setpoint adjustment, presence, fan stages, lighting, blinds or scenes<br>■ Backlit display for temperatures and different controller states<br>■ Combinable with up to 8 nova TSx-e for additional push buttons, frame not included<br>■ Application with integrated room climate ctrl according to LonMark and VDI 3813-2 complies with BAC Efficiency Class A (DIN EN ISO 52120-1)<br>■ can be ideally combined with Gira E2 und Merten M-Plan<br>LON<br>24V DC · Free Topology · application · Plug-in · data sheet | **nova LCD** | 8 buttons, pure white glossy | **231 618 GW** |
| | | **Network/Power Supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 45mA<br>**Metrics/Mounting:**<br>(HxWxD) 70 x 70 x 49mm<br>in cavity wall or flush mounting sockets<br>**Suitable frames:**<br>nova Rx, 1-3 fold | | |
|  | **nova LCD**<br>**LON LCD room temperature control panel**<br>■ Room control panel with temperature sensor, LC display and 8 push buttons for setpoint adjustment, presence, fan stages, lighting, blinds or scenes<br>■ Backlit display for temperatures and different controller states<br>■ Combinable with up to 8 nova TSx-e for additional push buttons, frame not included<br>■ Application with integrated room climate ctrl according to LonMark and VDI 3813-2 complies with BAC Efficiency Class A (DIN EN ISO 52120-1)<br>■ can be ideally combined with Gira E2 und Merten M-Plan<br>LON<br>24V DC · Free Topology · application · Plug-in · data sheet | **nova LCD** | 8 buttons, aluminium | **231 618 A** |
| | | **Network/Power Supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 45mA<br>**Metrics/Mounting:**<br>(HxWxD) 70 x 70 x 49mm<br>in cavity wall or flush mounting sockets<br>**Suitable frames:**<br>nova Rx, 1-3 fold | | |
|  | **nova Rx**<br>**Frames for nova LCD and nova TS**<br>■ Combination frame suitable for vertical and horizontal installation<br>■ Available in 2 colours and 3 sizes for nova LCD room control panels and nova push button sensors | **R1, single**<br>**R2, double**<br>**R3, 3-fold** | pure white glossy<br>pure white glossy<br>pure white glossy | **920 601 GW**<br>**920 602 GW**<br>**920 603 GW** |
|  | **nova Rx**<br>**Frames for nova LCD and nova TS**<br>■ Combination frame suitable for vertical and horizontal installation<br>■ Available in 2 colours and 3 sizes for nova LCD room control panels and nova push button sensors | **R1, single**<br>**R2, double**<br>**R3, 3-fold** | aluminium<br>aluminium<br>aluminium | **920 601 A**<br>**920 602 A**<br>**920 603 A** |

# nova Push Button Sensors / Push Button Interface

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **nova TS2**<br>**Push button sensor 2-gang**<br>■ Sensor with 2 push buttons for lighting, blind or scene control, each button with status LED for status indication<br>■ Version TS2 with LON interface and connection port for up to 7 additional TSx-e, application with switch profiles according to LonMark and VDI 3813-2<br>■ Version TS2-e as extension module for nova TS or nova LCD, connection via 4-wire cable<br>■ can be ideally combined with Gira E2 und Merten M-Plan | **TS2 with LON interface** pure white glossy aluminium<br>**TS2-e Extension module** pure white glossy aluminium<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 35mA (TS-e: 15mA)<br>**Metrics/Mounting:**<br>(HxWxD) 70 x 70 x 49mm<br>in cavity wall or flush mounting sockets<br>**Suitable frames:**<br>nova Rx, 1-3 fold | 211 602 GW<br>211 602 A<br>210 602 GW<br>210 602 A |
| 24V DC · Free Topology · application · Plug-in · data sheet · LON | | | |
|  | **nova TS4**<br>**Push button sensor 4-gang**<br>■ Sensor with 4 push buttons for lighting, blind or scene control, each button with status LED for status indication<br>■ Version TS2 with LON interface and connection port for up to 7 additional TSx-e, application with switch profiles according to LonMark and VDI 3813-2<br>■ Version TS4-e as extension module for nova TS or nova LCD, connection via 4-wire cable<br>■ can be ideally combined with Gira E2 und Merten M-Plan | **TS4 with LON interface** pure white glossy aluminium<br>**TS4-e Extension module** pure white glossy aluminium<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 35mA (TS-e: 15mA)<br>**Metrics/Mounting:**<br>(HxWxD) 70 x 70 x 49mm<br>in cavity wall or flush mounting sockets<br>**Suitable frames:**<br>nova Rx, 1-3 fold | 211 604 GW<br>211 604 A<br>210 604 GW<br>210 604 A |
| 24V DC · Free Topology · application · Plug-in · data sheet · LON | | | |
|  | **nova TS8**<br>**Push button sensor 8-gang**<br>■ Sensor with 8 push buttons for lighting, blind or scene control, each button with status LED for status indication<br>■ Version TS8 with LON interface and connection port for up to 7 additional TSx-e, application with switch profiles according to LonMark and VDI 3813-2<br>■ Version TS8-e as extension module for nova TS or nova LCD, connection via 4-wire cable<br>■ can be ideally combined with Gira E2 und Merten M-Plan | **TS8 with LON interface** pure white glossy aluminium<br>**TS8-e Extension module** pure white glossy aluminium<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 35mA (TS-e: 15mA)<br>**Metrics/Mounting:**<br>(HxWxD) 70 x 70 x 49mm<br>in cavity wall or flush mounting sockets<br>**Suitable frames:**<br>nova Rx, 1-3 fold | 211 608 GW<br>211 608 A<br>210 608 GW<br>210 608 A |
| 24V DC · Free Topology · application · Plug-in · data sheet · LON | | | |
|  | **lumina T8**<br>**LON push-button interface 8-fold**<br>■ Flush-mounted modules with 4 inputs for floating contacts to accommodate presence detectors, etc.<br>■ Additionally 4 switchable inputs/outputs. These can be used as inputs for potential-free contacts or as outputs for 24V loads (max. 100mA, e.g. for indicator lamps, relays, etc.).<br>■ Suitable for all installation push buttons<br>■ Fits in cavity wall or deep flush mounting sockets | **T8**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 44mA<br>**Metrics/Mounting:**<br>(HxWxD) 50 x 50 x 20mm<br>in cavity wall or flush mounting sockets | 211 008 |
| 8x NO / NC · 8x · 24V DC · Free Topology · application · Plug-in · data sheet · LON | | | |

# Standard 55 Room Control Panels

## Design freedom

e.control 55 room control devices can be combined with all 55 switch product ranges of the well-known manufacturers. This permits operation to be integrated seamlessly into the room design.

## Full functionality on board

All 55 series room control devices include the full e.control functional scope for controlling the room climate, lighting and sun protection, as well as presence detection and room climate control (see table). That means that the devices can be used either as control units for external room controllers as well as fully capable heating, cooling and air quality controllers in combination with positioning drive actuators in the R or M series. The lighting and sunblinds are operated using switches or pushbuttons from the desired switch range that can be connected directly to the digital inputs of the room control device.

## Compatibility

Compatible switch range for 55 room control devices include:

– Berker:
S1, B1, B3, B7 glass
– Gira:
Standard 55, E2, Event, Esprit, Profile 55
– Jung:
AS 500, A 500, A plus, A creation,
A creation glass
– Merten:
1-M, M-Smart, M-Plan, M-Arc, M-Star,
M-Plan real glass

| Built-in LonMark objects | Function |
|---|---|
| SCC Command Module | Operating unit with built-in temperature sensor for the display of heating/cooling functions and setting of presence, temperature settings and fan level |
| Dew Point Sensor | Internal humidity sensor (for rH models) |
| Occupancy Controller | Detects presence using a presence button and (external) presence sensors |
| Space Comfort Controller | Room climate controller for all static heating/cooling systems, fan convectors, VVR system with air quality regulation, night-time cooling and self-learning start optimisation |
| Dew Point Calculator | Determining the dew point temperature using a humidity sensor |
| Thermal Controller | Automation to integrate a sunshade into room climate control |
| Scene Panel | Calling up and saving of scenes |
| Switch | For operating lighting circuits, sunshade and window motors |

## The advantages

- User-friendly display and control concept
- Meets the requirements of DGNB and LEED
- Switches and pushbuttons directly connectable
- Suitable as a complete room controller or as an operating unit for external controllers
- Compatible with switch ranges from well-known manufacturers

# Standard 55 Room Controllers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

4x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RCM**
**LON Room controller with 4 digital inputs**

- Room controller with temperature sensor and setpoint adjuster
- 4 inputs for floating contacts, e.g. light or sunblind switches, window contacts or presence detectors
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application with room climate controller according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**w/o buttons** pure white, pure white glossy, aluminium

**other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA

**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

**231 302 W**
**231 302 GW**
**231 302 A**

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4x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RCM P-T**
**LON Room controller with presence button and 4 digital inputs**

- Room controller with temperature sensor, setpoint adjuster and presence button incl. LEDs for presence and controller operation display
- 4 inputs for floating contacts, e.g. light or sunblind switches, window contacts or presence detectors
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application with room climate controller according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**Presence button** pure white, pure white glossy, aluminium

**other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA

**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

**231 303 W**
**231 303 GW**
**231 303 A**

---

4x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RCM L-T**
**LON Room controller with fan speed control and 4 digital inputs**

- Room controller with temperature sensor, setpoint adjuster and function key for fan operation incl. LEDs for fan speed display
- 4 inputs for floating contacts, e.g. light or sunblind switches, window contacts or presence detectors
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application with room climate controller according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**Fan speed** pure white, pure white glossy, aluminium

**other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA

**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

**231 304 W**
**231 304 GW**
**231 304 A**

---

4x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RCM P/L-T**
**LON Room controller with presence button, fan speed control and 4 digital inputs**

- Room controller with temperature sensor, setpoint adjuster and 2 function keys for presence and fan speed operation incl. LEDs for presence, controller operation and fan speed display
- 4 inputs for floating contacts, e.g. light or sunblind switches, window contacts or presence detectors
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application with room climate controller according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**P. + F.-button** pure white, pure white glossy, aluminium

**other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA

**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

**231 305 W**
**231 305 GW**
**231 305 A**

# Standard 55 Room Controllers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **clima RCM-rH**<br>**LON Room controller with humidity sensor and 4 digital inputs**<br>■ Room controller with temperature and humidity sensor and setpoint adjuster<br>■ 4 inputs for floating contacts, e.g. light or sunblind switches, window contacts or presence detectors<br>■ Available in 3 colours, suitable for<br>– Berker S1, B1, B3, B7 glass<br>– Gira System 55 (E2, Event, Esprit)<br>– Jung Series A 500, AS500<br>– Merten System M (1-M, M-xxx)<br>■ Application with room climate controller according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1) | **without buttons** pure white<br>pure white glossy<br>aluminium<br>**other colours available on request**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 60mA<br>**Metrics/Mounting:**<br>(HxWxD) 70 x 70 x 49mm<br>in cavity wall or flush mounting sockets | **231 312 W**<br>**231 312 GW**<br>**231 312 A** |
|  | **clima RCM-rH P-T**<br>**LON Room controller with humidity sensor, presence button and 4 digital inputs**<br>■ Room controller with temperature and humidity sensor, setpoint adjuster and presence button incl. LEDs for presence and controller operation display<br>■ 4 inputs for floating contacts, e.g. light or sunblind switches, window contacts or presence detectors<br>■ Available in 3 colours, suitable for<br>– Berker S1, B1, B3, B7 glass<br>– Gira System 55 (E2, Event, Esprit)<br>– Jung Series A 500, AS500<br>– Merten System M (1-M, M-xxx)<br>■ Application with room climate controller according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1) | **presence button** pure white<br>pure white glossy<br>aluminium<br>**other colours available on request**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 60mA<br>**Metrics/Mounting:**<br>(HxWxD) 70 x 70 x 49mm<br>in cavity wall or flush mounting sockets | **231 313 W**<br>**231 313 GW**<br>**231 313 A** |
|  | **clima RCM-rH L-T**<br>**LON Room controller with humidity sensor, fan speed control and 4 digital inputs**<br>■ Room control unit with temperature and humidity sensor, setpoint adjuster and function key for fan operation incl. LEDs for fan speed display<br>■ 4 inputs for floating contacts, e.g. light or sunblind switches, window contacts or presence detectors<br>■ Available in 3 colours, suitable for<br>– Berker S1, B1, B3, B7 glass<br>– Gira System 55 (E2, Event, Esprit)<br>– Jung Series A 500, AS500<br>– Merten System M (1-M, M-xxx)<br>■ Application with room climate controller according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1) | **fan button** pure white<br>pure white glossy<br>aluminium<br>**other colours available on request**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 60mA<br>**Metrics/Mounting:**<br>(HxWxD) 70 x 70 x 49mm<br>in cavity wall or flush mounting sockets | **231 314 W**<br>**231 314 GW**<br>**231 314 A** |
|  | **clima RCM-rH P/L-T**<br>**LON Room controller with humidity sensor, presence button, fan speed control and 4 digital inputs**<br>■ Room controller with temperature and humidity sensor, setpoint adjuster and 2 function keys for presence and fan speed operation incl. LEDs for presence, controller operation and fan speed display<br>■ 4 inputs for floating contacts, e.g. light or sunblind switches, window contacts or presence detectors<br>■ Available in 3 colours, suitable for<br>– Berker S1, B1, B3, B7 glass<br>– Gira System 55 (E2, Event, Esprit)<br>– Jung Series A 500, AS500<br>– Merten System M (1-M, M-xxx)<br>■ Application with room climate controller according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1) | **P. + F.-button** pure white<br>pure white glossy<br>aluminium<br>**other colours available on request**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 60mA<br>**Metrics/Mounting:**<br>(HxWxD) 70 x 70 x 49mm<br>in cavity wall or flush mounting sockets | **231 315 W**<br>**231 315 GW**<br>**231 315 A** |

# Standard 55 Room Controllers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

4x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima LCD**
**LON LCD Room controller with 4 digital inputs**

- Room controller with temperature sensor, LCD and 4 buttons for setpoint or fan speed adjustment and presence
- 4 inputs for floating contacts, e.g. light or sunblind switches, window contacts or presence detectors
- Available in 2 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application with room climate controller according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**LCD** pure white — **231 505 W**
aluminium — **231 505 A**

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 65mA
**Metrics/Mounting:**
(HxWxD) 71 x 71 x 49mm
in cavity wall or flush mounting sockets

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4x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RO**
**LON Temperature controller with 4 digital inputs**

- Continuous-action controller with temperature sensor and 2 LEDs for energy level and activity
- 4 inputs for floating contacts, e.g. light or sunblind switches, window contacts or presence detectors
- Available in 2 colours, suitable for all TAE cover plates
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**Model:** pure white — **231 301 W**
aluminium — **231 301 A**

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA
**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

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4x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RO-rH**
**LON Temperature controller with humidity sensor and 4 DI**

- Continuous-action controller with temperature and rel. humidity sensor as well as 2 LEDs for energy level and activity
- 4 inputs for floating contacts, e.g. light or sunblind switches, window contacts or presence detectors
- Available in 2 colours, suitable for all TAE cover plates
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

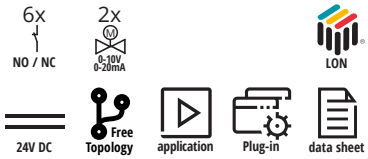
**Model:** pure white — **231 311 W**
aluminium — **231 311 A**

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA
**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

# Standard 55 Room Controllers for Static Heating/Cooling

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|




**clima RCM-CC**
**LON Temperature controller with 6 DI / 2 AO 0-10V**

- Flush-mounted room controller with temperature sensor and setpoint adjuster
- 2 analogue outputs 0-10V for control of actuators
- 6 binary inputs for window contacts, presence detectors or buttons
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**w/o buttons** pure white
pure white glossy
aluminium

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA
**Outputs:**
0-10V, max. 5mA per channel
**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

231 342 W
231 342 GW
231 342 A

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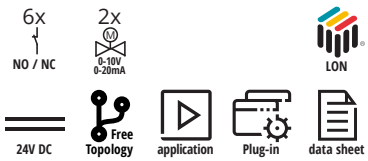


**clima RCM-CC P-T**
**LON Temperature controller with presence button and 6 DI / 2 AO 0-10V**

- Flush-mounted room controller with temperature sensor, setpoint adjuster and presence button incl. LEDs for presence and controller operation display
- 2 analogue outputs 0-10V for control of actuators
- 6 binary inputs for window contacts, presence detectors or buttons
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**Presence button** pure white
pure white glossy
aluminium

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA
**Outputs:**
0-10V, max. 5mA per channel
**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

231 343 W
231 343 GW
231 343 A

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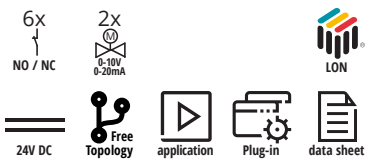


**clima RCM-CC-rH**
**LON room controller with humidity sensor, and 6 DI / 2 AO 0-10V**

- Flush-mounted room controller with temperature and humidity sensor and setpoint adjuster
- 2 analogue outputs 0-10V for control of actuators
- 6 binary inputs for window contacts, presence detectors or buttons
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**w/o buttons** pure white
pure white glossy
aluminium

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA
**Outputs:**
0-10V, max. 5mA per channel
**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

231 352 W
231 352 GW
231 352 A

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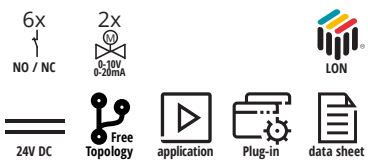



**clima RCM-CC-rH P-T**
**LON room controller with humidity sensor, presence button and 6 DI / 2 AO 0-10V**

- Flush-mounted room controller with temperature and humidity sensor and setpoint adjuster
- 2 analogue outputs 0-10V for control of actuators
- 6 Binäreingänge für Fensterkontakte, Präsenzmelder oder Taster
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**presence button** pure white
pure white glossy
aluminium

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA
**Outputs:**
0-10V, max. 5mA per channel
**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

231 353 W
231 353 GW
231 353 A

# Standard 55 Room Controllers for Static Heating/Cooling

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

2x NO / NC · 2x 0-10V 0-20mA · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima LCD-CC**
**LON LCD Room climate controller with 2 DI / 2 AO 0-10V**

- Flush-mounting room controller with temperature sensor, LCD and 4 buttons for setpoint or fan speed adjustment and presence
- 2 analogue outputs for actuators and 2 inputs for window contacts or presence detectors
- Available in 2 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**Model:** pure white — **231 544 W**
aluminium — **231 544 A**

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA
**Outputs:**
0-10V, max. 5mA per channel
**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

6x NO / NC · 2x 0-10V 0-20mA · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RO-CC**
**LON Climate controller with 6 DI / 2 AO 0-10V**

- Flush-mounting room controller with temperature sensor
- 2 analogue outputs 0-10V for control of actuators
- 6 binary inputs for window contacts, presence detectors or pushbuttons
- Available in 2 colours, suitable for all TAE cover plates
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**Model:** pure white — **231 341 W**
aluminium — **231 341 A**

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA
**Outputs:**
0-10V, max. 5mA per channel
**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

6x NO / NC · 2x 0-10V 0-20mA · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RO-CC-rH**
**LON Climate controller with humidity sensor and 6 DI / 2 AO 0**

- Flush-mounting room controller with temperature and relative humidity sensor
- 2 analogue outputs 0-10V for control of actuators
- 6 binary inputs for window contacts, presence detectors or pushbuttons
- Available in 2 colours, suitable for all TAE cover plates
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**Model:** pure white — **231 351 W**
aluminium — **231 351 A**

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA
**Outputs:**
0-10V, max. 5mA per channel
**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

# Standard 55 Fan Coil Controllers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

6x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RCM-FC L-T**
**LON Fan coil controller with fan button, 6 DI and FANCOIL-BOX connector**

- Flush-mounted room controller with temperature sensor, setpoint adjuster and function key for fan operation incl. LEDs for fan speed display
- Connection of max. 2 fan coil boxes (see below) via 3-wire cable
- 6 binary inputs for window contacts, presence detectors or pushbuttons
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**fan speed** pure white / pure white glossy / aluminium

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA

**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

**231 334 W**
**231 334 GW**
**231 334 A**

6x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RCM-FC P/L-T**
**LON Fan coil controller with fan and presence button, 6 DI + FANCOIL-BOX connector**

- Flush-mounted room controller with temperature sensor, setpoint control and 2 function keys for presence and fan speed control incl. LEDs for presence, controller and fan speed control
- Connection of max. 2 fan coil boxes (see below) via 3-wire cable
- 6 binary inputs for window contacts, presence detectors or pushbuttons
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**P. + F.-button** pure white / pure white glossy / aluminium

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA

**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

**231 335 W**
**231 335 GW**
**231 335 A**

6x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RCM-FC-rH L-T**
**LON Fan coil controller with fan button, 6 DI + FANCOIL-BOX connector**

- Flush-mounted room controller with temperature and humidity sensor, setpoint adjuster and function key for fan operation incl. LEDs for fan speed display
- Connection of max. 2 fan coil boxes (see below) via 3-wire cable
- 6 binary inputs for window contacts, presence detectors or pushbuttons
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**fan speed** pure white / pure white glossy / aluminium

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA

**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

**231 344 W**
**231 344 GW**
**231 344 A**

6x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RCM-FC-rH P/L-T**
**LON Fan coil controller with fan and presence button, 6 DI + FANCOIL-BOX connector**

- Flush-mounted room controller with temperature and humidity sensor, setpoint control and 2 function keys for presence and fan speed control incl. LEDs for presence, controller and fan speed control
- Connection of max. 2 fan coil boxes (see below) via 3-wire cable
- 6 binary inputs for window contacts, presence detectors or pushbuttons
- Available in 3 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**P. + F.-button** pure white / pure white glossy / aluminium

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA

**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

**231 345 W**
**231 345 GW**
**231 345 A**

# Standard 55 Fan Coil Controllers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

6x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RO-FC**
**LON Fan coil controller with 6 DI + FANCOIL-BOX connector**

- Flush-mounted room controller with temperature sensor
- Connection of max. 2 fan coil boxes (see below) via 3-wire cable
- 6 binary inputs for window contacts, presence detectors or pushbuttons
- Available in 2 colours, suitable for all TAE cover plates
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**Model:** pure white — **231 331 W**
aluminium — **231 331 A**

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA

**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

6x NO / NC · LON · 24V DC · Free Topology · application · Plug-in · data sheet

**clima RO-FC-rH**
**LON Fan coil controller with humidity sensor, 6 DI + FANCOIL-BOX connector**

- Flush-mounting fan coil controller with temperature and relative humidity sensor
- Connection of max. 2 fan coils with clima FCB boxes via 3-wire cable
- 6 binary inputs for window contacts, presence detectors or pushbuttons
- Available in 2 colours, suitable for all TAE cover plates
- Application according to LonMark and VDI 3813-2, complies with BAC Efficiency Class A (DIN EN ISO 52120-1)

**Model:** pure white — **231 361 W**
aluminium — **231 361 A**

**Other colours available on request**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 60mA

**Metrics/Mounting:**
(HxWxD) 70 x 70 x 49mm
in cavity wall or flush mounting sockets

2x Fan Coil · data sheet

**clima FCB**
**Fan coil box for controlling a fan coil unit**

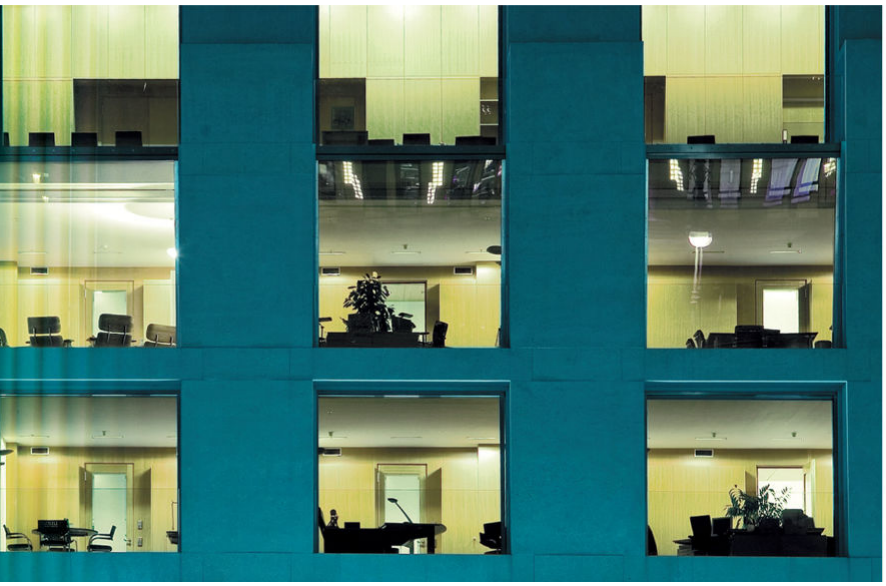
- Connection box for 3-stage fan and 2 thermoelectric (230V AC or 24V AC/DC) or continuous actuators (0-10V)
- 2 inputs for floating contacts
- Connectable to clima RCM-FC or clima RO-FC via 3-wire cable. Max. 2 fan coil boxes can be operated in parallel

| | | |
|---|---|---|
| **FCB-24** | 2 x 24 AC/DC + 3-stage | **410 302** |
| **FCB-230** | 2 x 230V Triac +3-stage | **410 322** |
| **FCB-10V** | 2 x 0-10V + 3-stage | **410 342** |

**Power supply:**
24V AC/DC: via 3-wire bus
230V AC: separate feed line

**Metrics/Mounting:**
(HxWxD) 85 x 130 x 38mm
Mounting on convector, protection class IP 54

# lumina MS4 – Multisensors Consistently Imagined



## Energy efficiency demands MS4

The lumina MS4 multisensor is the most important "sense organ" of an energy-efficient building. Via its sensors, it records the current room parameters, which form the basis of a demand-oriented control system. Since the quality of automation ultimately depends on the quality of the multisensor, spega has consistently thought ahead in the development of the new lumina MS4.

## Adaptive presence detection

The large lens with computer-optimised segmetation, in conjunction with the highly sensitive PIR sensor and digital signal processing, ensures that even the smallest movements of sitting people are reliably detected. Automatic ramp-down time adaptation further increases energy efficiency, as shorter occupancy times lead to a faster return to stand-by mode. For large rooms, the detection area can also be extended by connecting additional lumina PM presence detectors.

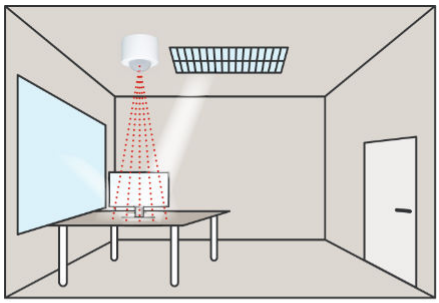
## Variable brightness measurement

To meet a wide variety of requirements, the lumina MS4 multisensor has two sensors for brightness measurement. The spot measurement at a 30° angle is ideally suited for the correct illumination of a workstation. The second sensor measures integral room brightness as the total of all light coming into the lens, making it the right choice for the even lighting of traffic areas or other rooms. Since the result from both sensors can be mixed by software, even in the form of a continuous fader, the multisensor is ready for any room situation.

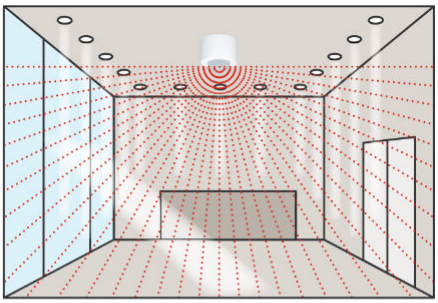
Artificial light correction learned by software assistant even corrects for the frequent problem of measurement results falsified by the lights themselves. For example, it can correct for indirect light from suspended light fixtures.

## Room temperature measurement

Since the lumina MS4 multisensor has a connection for a room temperature sensor (for example built into the ceiling or as a suspended sensor), it can use its integrated controller to handle room temperature regulation for any heating or cooling system.



**Spot measurement for workstations**



**Integral measurement for common rooms**

## The advantages

- High-resolution presence detection with ramp-up time adaptation
- Extension of the detection range by connecting presence detectors
- Perfect constant light regulation through two brightness sensors and artificial light correction
- Complete room climate regulation through temperature sensor connection and built-in regulator
- Matching infrared remote control with LCD display

# Multisensors

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**lumina MS4-EB**
**LON Multisensor for suspended ceilings**

- Combination of presence detector, two light sensors and IR receiver
- Input for passive temperature sensors (Pt1000, Ni1000) or other lumina PM for range extension
- Application supports occpuancy evaluation, constant light control, thermal control and room climate control functions according to VDI 3813-2 and BAC Efficiency class A (DIN EN ISO 52120-1)

**MS4-EB** pure white

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 65mA

**Detection range (at 3m height)**
sitting Ø 6,0m walking Ø 12,0m

**Metrics:**
(Ø x D) 83 x 65mm,
Installation dimension (Ø x T) 68 x 45mm

**911 113 W**

1x NO / NC · 1x PT-1000 · LON · 24V AC/DC · Free Topology · application · Plug-in · data sheet

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**lumina MS4-AP**
**LON Multisensor for surface mounting**

- Same as above but with surface mounted housing
- Ceiling mounting via screw holes or by means of device screws of a ceiling outlet box
- Cable entries rearward or sideward with cable duct 20 x 20mm

**MS4-AP** pure white

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 80mA

**Detection range (at 3m height)**
sitting Ø 6,0m walking Ø 12,0m

**Metrics:**
(Ø x D) 89 x 80mm

**911 114 W**

1x NO / NC · 1x PT-1000 · LON · 24V AC/DC · Free Topology · application · Plug-in · data sheet

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**dialog DRC-10**
**Remote control for multisensors**

- IR remote control for multisensors lumina MS4, MS4/RC and clima DMS-20 for control of:
  – 4 groups of lights
  – 4 groups of blinds
  – setpoint offset
  – fanspeed
  – presence
- Backlit LC display
- Matching wall holder available
- Batteries included

**DRC-10**

**Power supply:**
2 x 1,5V LR03 Alkaline

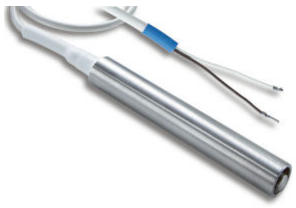
**Life of battery:**
approx. 2 Jahre

**Metrics:**
(HxWxD) 145 x 61 x 20mm

**910 112**

data sheet

# Accessories for Multisensors

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **clima T-EB**<br>**Temperature sensor**<br>■ Sensor for measuring room temperature in ceiling area<br>■ For connection to multisensors lumina MS4 and MS4/RC | **T-EB**<br>**Cable:**<br>0.25mm2 diameter<br>1 m length (others on request)<br>**Sensor/ range:**<br>Ni1000<br>0 ... 70°C<br>**Metrics:**<br>(Ø x D) 30 x 37mm<br>Fitting: 26 x 30mm (Ø x D) | **910 210** |
|  | **clima T-PS**<br>**Pendulum temperature sensor**<br>■ Sensor for measuring sectional room temperature in large rooms<br>■ For connection to multisensors lumina MS4 and MS4/RC | **T-PS**<br>**Cable:**<br>0,25mm² diameter<br>4 m length (others on request)<br>**Sensor/ range:**<br>Ni1000 in stainless steel case<br>0 ... 70°C<br>**Metrics:**<br>(L x Ø) 100 x 15mm | **910 211** |
|  | **clima T-PK**<br>**Radiation temperature sensor**<br>■ Sensor for measuring operative temperature (average of air and radiation temperature) in large rooms<br>■ For connection to multisensors lumina MS4 and MS4/RC | **T-PK**<br>**Cable:**<br>0,25mm² diameter<br>4 m length (others on request)<br>**Sensor/ range:**<br>Ni1000 in plastic case<br>0 ... 70°C<br>**Metrics (ball):**<br>(Ø) 40mm | **910 212** |

data sheet

data sheet

data sheet

# Presence Detectors

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**lumina PM-EB**
**Presence detector for suspended ceilings**

- presence detector with high sensivity for suspended ceilings
- Slave output for direct connection to lumina MS4(/RC) for detection range extension
- Floating contact for connection to binary input modules such as lumina B(E)x , lumina T8, tactio M, nova Touch, nova Click, clima RCM, etc.
- Changing of the configuration via IR remote control (not included)

**PM-EB** pure white

**910 121 W**

**Other colours available on request**

**Power supply/ Terminals:**
24V AC/DC, max. 40mA

Presence: float. cont., 24V, <10mA
Slave-In: connecting to other lumina PM

**Detection range (at 3m height)**
sitting Ø 6,0m walking Ø 12,0m

**Metrics:**
(Ø x D) 83 x 65mm,
Fitting dimensions (Ø x T) 68 x 45mm

24V AC/DC data sheet

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**lumina PM-AP**
**Presence detector for surface mounting**

- Same as above but with surface mounted housing
- Ceiling mounting via screw holes or by means of device screws of a ceiling outlet box
- Cable entries rearward or sideward with cable duct 20 x 20mm

**PM-AP** pure white

**910 122 W**

**Other colours available on request**

**Power supply/ Terminals:**
24V AC/DC, max. 40mA

Presence: float. cont., 24V, <10mA
Slave-In: connecting to other lumina PM

**Detection range (at 3m height)**
sitting Ø 6,0m walking Ø 12,0m

**Metrics:**
(Ø x D) 89 x 80mm

24V AC/DC data sheet

# RC Series – Wireless Freedom without Batteries

## Flexibility with EnOcean

Modern office environments rely on flexible adaptability in room design. That means that walls are no longer fixed in place, but rather adapt to workplace organisation. This variability is supported perfectly by battery-free sensors in the e.control room automation system. Room temperature and humidity sensors, with or without settings options and buttons for operating the lighting or sunblind, can be mounted on any smooth surface – either with adhesive or screwed in place. No installation socket is required. Window handles with radio transmitters can simply be mounted in place of the existing handles. By using the innovative EnOcean technology, the radio sensors require neither batteries nor an external supply connection.

## Design freedom

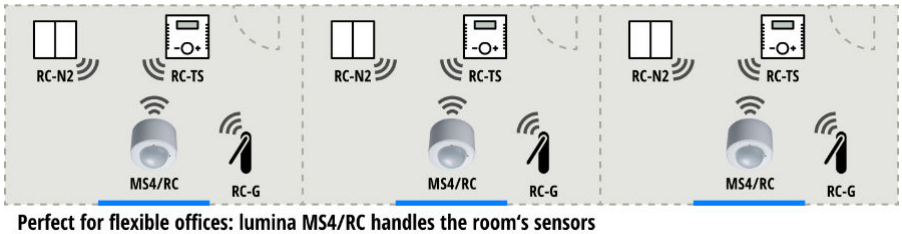
The standard 55 dimensions of the wireless control devices of the RC series allow the combination with the latest switch designs from Berker, Gira, Jung or Merten. This permits operation to be integrated seamlessly into the room design.

## dialog RC-E receiver

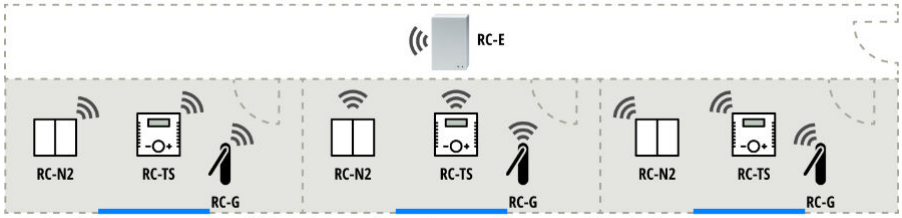
dialog RC-E is a receiver for a maximum of 32 radio sensors, which converts the radio signals into LON telegrams and thus makes them available in the network. Its movable antenna gives it a great deal of mounting freedom, and even installation outside the optimum reception area, e.g. in suspended ceilings, is no problem thanks to the magnetic base antenna.

## lumina MS4/RC multisensor

lumina MS4/RC represents a whole new way of integrating wireless sensors. Mounted on the ceiling, it not only receives radio telegrams but also has the same innovative presence and brightness measurement system as its little brother, the lumina MS4. Since it thus has all the sensor data for a room at its disposal, the multisensor is a complete room controller that, in addition to controlling the room temperature, also provides support from the sunblind and constant light control. In addition to the additional constant light controller, the Multisensor has all the LonMark function objects that are also used in the universal room control units and thus meets all the requirements of BAC Efficiency Class A (DIN EN ISO 52120-1) in one device.




**Perfect for flexible offices: lumina MS4/RC handles the room's sensors**




**Perfect for common areas: dialog RC-E receives telegrams from up to 32 wireless sensors**

## The advantages

- Battery-free EnOcean technology creates flexibility
- Control devices and sensors to match all switch designs
- Radio receiver with optional magnetic base antenna for difficult installation conditions
- Multisensor with integrated radio receiver as complete room controller for HVAC, lighting, and sun protection

# EnOcean Multisensors and Radio Receivers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**lumina MS4/RC-EB**
**LON Multisensor with radio receiver for suspended ceilings**

- Combination of presence detector, two light sensors, IR receiver and radio receiver
- Input for passive temperature sensors (Pt1000, Ni1000) or other lumina PM for range extension
- Application supports occpuancy evaluation, constant light control, thermal control and room climate control functions according to VDI 3813-2 and BAC Efficiency class A (DIN EN ISO 52120-1)

**MS4/RC-EB** pure white

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 80mA

**Radio frequency/technology:**
868,3 MHz (EnOcean)

**Metrics:**
(ØxD) 83 x 65mm
Fitting dimensions (ØxD): 68 x 45mm

**Further specifications:**
as lumina MS4

**911 313 W**

1x NO / NC · 1x PT-1000 · EnOcean · 24V AC/DC · Free Topology · application · Plug-in · data sheet

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**lumina MS4/RC-AP**
**LON Multisensor with radio receiver for surface mounting**

- Same as above but with surface-mounted housing
- Ceiling mounting via screw holes or by means of device screws of a ceiling outlet box
- Cable entries rearward or sideward with cable duct 20 x 20mm

**MS4/RC-AP** pure white

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 80mA

**Radio frequency/technology:**
868,3 MHz (EnOcean)

**Metrics:**
(Ø x D) 89 x 80mm

**Further specifications:**
as lumina MS4

**911 314 W**

1x NO / NC · 1x PT-1000 · EnOcean · 24V AC/DC · Free Topology · application · Plug-in · data sheet

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**dialog RC-E**
**LON Radio receiver**

- Radio receiver for converting EnOcean tele-grams to LON messages via LonMark objects
- 32 wireless push buttons or sensors assignable
- Application supports the functions temperature measurement, window monitoring, presence detection, light setting, sun protection setting, scene calling, setpoint setting according to VDI 3813-2

**RC-E**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 80mA

**Radio frequency/technology/Antenna:**
868,3 MHz (EnOcean)
rotatable / tiltable joint base antenna

**Metrics/Mounting:**
(HxWxD) 122 x 54 x 26mm
in cavity wall or flush mounting sockets

**441 301**

EnOcean · 24V DC · Free Topology · application · Plug-in · data sheet

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**dialog RC-A**
**Magnetic base antenna**

- Magnetic base antenna for dialog RC-E when installed in lowered ceilings etc.
- Replaces the standard omni-directional antenna

**RC-A**

**Cable length:**
2,5 m

**Radio frequency:**
868,3 MHz

**Metrics of antenna:**
(Ø x H) 29 x 88mm

**412 906**

data sheet

# Standard 55 Radio Sensors

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**dialog RC-LCD**
**Wireless LCD room control device**

- Display and periodic transmission of room temperature (0...40°C), setpoint offset and fan speed (optional)
- Bi-directional operation with dialog RC-E and lumina MS4/RC
- Suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)

| | | |
|---|---|---|
| **Setpoint** | pure white glossy | **442 513 GW** |
| **Setpoint/fan** | pure white glossy | **442 514 GW** |
| **Setp./fan/pres.** | pure white glossy | **442 515 GW** |
| **Setp./presence** | pure white glossy | **442 516 GW** |

**Other colours available on request**

**Radio frequency/technology/range:**
868.3 MHz (EnOcean), battery-free, photovoltaic (>200lx@3h), max. 30m inside

**Metrics/Mounting:**
(HxWxD) 71 x 71 x 20mm
adhere or screw on all plane surfaces

data sheet EnOcean

**dialog RC-LCD-rH**
**Wireless LCD room control device with humidity sensor**

- as dialog RC-LCD but with sensors for room temperature (0...40°C) and relative humidity (0...100%)
- Suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)

| | | |
|---|---|---|
| **Setpoint** | pure white glossy | **442 523 GW** |
| **Setpoint/fan** | pure white glossy | **442 524 GW** |
| **Setp./fan/pres.** | pure white glossy | **442 525 GW** |
| **Setp./presence** | pure white glossy | **442 526 GW** |

**Other colours available on request**

**Radio frequency/technology/range:**
868.3 MHz (EnOcean), battery-free, photovoltaic (>200lx@3h), max. 30m inside

**Metrics/Mounting:**
(HxWxD) 71 x 71 x 20mm
adhere or screw on all plane surfaces

data sheet EnOcean

**dialog RC-TS**
**Wireless room temperature sensor with setpoint adjuster**

- Sensor for periodic transmission of room temperature (0...40°C) and setpoint offset
- Compatible with radio receivers dialog RC-E and lumina MS4/RC
- Suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)

| | | |
|---|---|---|
| **Setpoint** | pure white glossy | **442 511 GW** |
| **Setp./presence** | pure white glossy | **442 512 GW** |

**Other colours available on request**

**Power supply:**
battery-free, photovoltaic (>200lx@3h)

**Radio frequency/technology/range:**
868.3 MHz (EnOcean), max. 30m inside

**Metrics/Mounting:**
(HxWxD) 71 x 71 x 20mm
adhere or screw on all plane surfaces

data sheet EnOcean

**dialog RC-TS-rH**
**Wireless room temperature and humidity sensor w/ setpoint adjuster**

- Sensor for periodic transmission of room temperature(0...40°C), relative humidity (10...95%) and setpoint offset
- Compatible with radio receivers dialog RC-E and lumina MS4/RC
- Suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)

| | | |
|---|---|---|
| **Setpoint** | pure white glossy | **442 521 GW** |
| **Setp./presence** | pure white glossy | **442 522 GW** |

**Other colours available on request**

**Power supply:**
battery-free, photovoltaic (>200lx@3h)

**Radio frequency/technology/range:**
868.3 MHz (EnOcean), max. 30m inside

**Metrics/Mounting:**
(HxWxD) 71 x 71 x 20mm
adhere or screw on all plane surfaces

data sheet EnOcean

# Standard 55 Radio Sensors and Push Buttons

| Figure | Specification | Technical Data | | Order No. |
|---|---|---|---|---|
|  | **dialog RC-T**<br>**Wireless room temperature sensor**<br>■ Sensor for periodic transmission of room temperature (0...40°C)<br>■ Compatible with radio receivers dialog RC-E and lumina MS4/RC<br>■ Adhesive or screw mounting on plane surfaces<br>■ Suitable for<br>– Berker S1, B1, B3, B7 glass<br>– Gira System 55 (E2, Event, Esprit)<br>– Jung Series A 500, AS500<br>– Merten System M (1-M, M-xxx) | **RC-T**<br>**Other colours available on request**<br>**Power supply:**<br>battery-free, photovoltaic (>200lx@3h)<br>**Radio frequency/technology/range:**<br>868.3 MHz (EnOcean), max. 30m inside<br>**Metrics/Mounting:**<br>(HxWxD) 71 x 71 x 20mm<br>adhere or screw on all plane surfaces | pure white glossy | **442 510 GW** |
| data sheet EnOcean | | | | |
|  | **dialog RC-T-rH**<br>**Wireless room temperature and rel. humidity sensor**<br>■ as dialog RC-T but with sensors for room temperature (0...40°C) and relative humidity (10...95%)<br>■ Compatible with radio receivers dialog RC-E and lumina MS4/RC<br>■ Adhesive or screw mounting on plane surfaces<br>■ Suitable for<br>– Berker S1, B1, B3, B7 glass<br>– Gira System 55 (E2, Event, Esprit)<br>– Jung Series A 500, AS500<br>– Merten System M (1-M, M-xxx) | **RC-T-rH**<br>**Other colours available on request**<br>**Power supply:**<br>battery-free, photovoltaic (>200lx@3h)<br>**Radio frequency/technology/range:**<br>868.3 MHz (EnOcean), max. 30m inside<br>**Metrics/Mounting:**<br>(HxWxD) 71 x 71 x 20mm<br>adhere or screw on all plane surfaces | pure white glossy | **442 520 GW** |
| data sheet EnOcean | | | | |
|  | **dialog RC-L1**<br>**Wireless push rocker 1-gang**<br>■ Sensor transmits push events for one group of lights<br>■ Compatible with radio receivers dialog RC-E and lumina MS4/RC<br>■ Adhesive or screw mounting on plane surfaces<br>■ Available in 2 colours, suitable for<br>– Berker S1, B1, B3, B7 glass<br>– Gira System 55 (E2, Event, Esprit)<br>– Jung Series A 500, AS500<br>– Merten System M (1-M, M-xxx) | **RC-L1**<br>**Other colours available on request**<br>**Radio frequency/technology/range:**<br>868.3 MHz (EnOcean), battery-free, electrodynamic, max. 30m inside<br>**Metrics/Mounting:**<br>(HxWxD) 71 x 71 x 15mm | pure white<br>pure white glossy | **442 501 W**<br>**442 501 GW** |
| data sheet EnOcean | | | | |
|  | **dialog RC-L2**<br>**Wireless push rocker 2-gang**<br>■ Sensor transmits push events for two groups of lights<br>■ Compatible with radio receivers dialog RC-E and lumina MS4/RC<br>■ Adhesive or screw mounting on plane surfaces<br>■ Available in 2 colours, suitable for<br>– Berker S1, B1, B3, B7 glass<br>– Gira System 55 (E2, Event, Esprit)<br>– Jung Series A 500, AS500<br>– Merten System M (1-M, M-xxx) | **RC-L2**<br>**Other colours available on request**<br>**Radio frequency/technology/range:**<br>868.3 MHz (EnOcean), battery-free, electrodynamic, max. 30m inside<br>**Metrics/Mounting:**<br>(HxWxD) 71 x 71 x 15mm | pure white<br>pure white glossy | **442 502 W**<br>**442 502 GW** |
| data sheet EnOcean | | | | |

# Standard 55 Radio Push Buttons

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**dialog RC-J1**
**Wireless push rocker 1-gang**

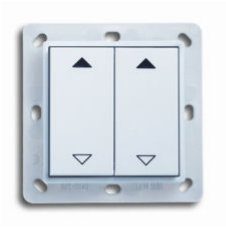
- Sensor transmits push events for one group of sunblinds
- Compatible with radio receivers dialog RC-E and lumina MS4/RC
- Adhesive or screw mounting on plane surfaces
- Available in 2 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)

**RC-J1** pure white **442 505 W**
pure white glossy **442 505 GW**

**Other colours available on request**

**Radio frequency/technology/range:**
868.3 MHz (EnOcean), battery-free, electrodynamic, max. 30m inside
**Metrics/Mounting:**
(HxWxD) 71 x 71 x 15mm

data sheet EnOcean



**dialog RC-J2**
**Wireless push rocker 2-gang**

- Sensor transmits push events for two groups of sunblinds
- Compatible with radio receivers dialog RC-E and lumina MS4/RC
- Adhesive or screw mounting on plane surfaces
- Available in 2 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)

**RC-J2** pure white **442 506 W**
pure white glossy **442 506 GW**

**Other colours available on request**

**Radio frequency/technology/range:**
868.3 MHz (EnOcean), battery-free, electrodynamic, max. 30m inside
**Metrics/Mounting:**
(HxWxD) 71 x 71 x 15mm

data sheet EnOcean

**dialog RC-N1**
**Wireless push rocker 1-gang**

- Sensor transmits push events for one group of lights or sunblinds
- Compatible with radio receivers dialog RC-E and lumina MS4/RC
- Adhesive or screw mounting on plane surfaces
- Available in 2 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)

**RC-N1** pure white **442 503 W**
pure white glossy **442 503 GW**

**Other colours available on request**

**Radio frequency/technology/range:**
868.3 MHz (EnOcean), battery-free, electrodynamic, max. 30m inside
**Metrics/Mounting:**
(HxWxD) 71 x 71 x 15mm

data sheet EnOcean

**dialog RC-N2**
**Wireless push rocker 2-gang**

- Sensor transmits push events for two groups of lights or sunblinds
- Compatible with radio receivers dialog RC-E and lumina MS4/RC
- Adhesive or screw mounting on plane surfaces
- Available in 2 colours, suitable for
  – Berker S1, B1, B3, B7 glass
  – Gira System 55 (E2, Event, Esprit)
  – Jung Series A 500, AS500
  – Merten System M (1-M, M-xxx)

**RC-N2** pure white **442 507 W**
pure white glossy **442 507 GW**

**Other colours available on request**

**Radio frequency/technology/range:**
868.3 MHz (EnOcean), battery-free, electrodynamic, max. 30m inside
**Metrics/Mounting:**
(HxWxD) 71 x 71 x 15mm

data sheet EnOcean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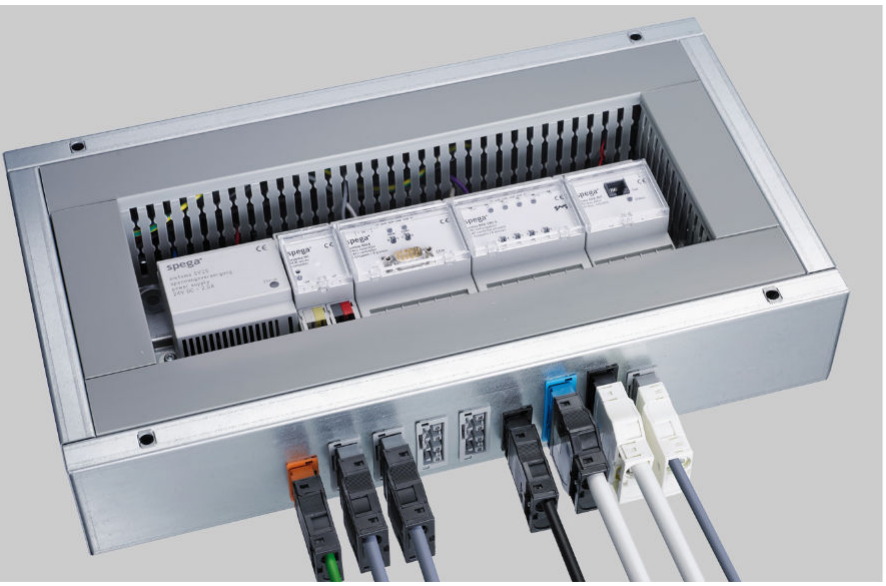
# M Series – the Modular DIN Rail System



## Everything works together

The M series is the modular I/O system with the widest possible variety. Up to 8 different modules with up to 32 channels can be operated from a universal controller – all, thanks to application-oriented dimensioning of outputs, without any need for an additional amplifier component or coupling relays. In addition conventional binary and analogue inputs and outputs, all intelligent field devices with DALI, SMI or MP-Bus interfaces are also supported. That makes the M series unbeatably compact and enormously reduces the cost and effort of wiring.

## Ideal for decentralised installation

In room automation, installation concepts with decentralised installation or system distribution boxes are increasingly popular, thanks to prefabrication and lower fire risk. Since no construction plan is identical to any other, and since the variety of field devices to be connected is always changing, the e.control M series is the perfect solution here.

To address concerns in terms of prefabrication and functional reliability, spega can also deliver ready-to-use and functionally tested sheet steel system distribution boxes in two variants:

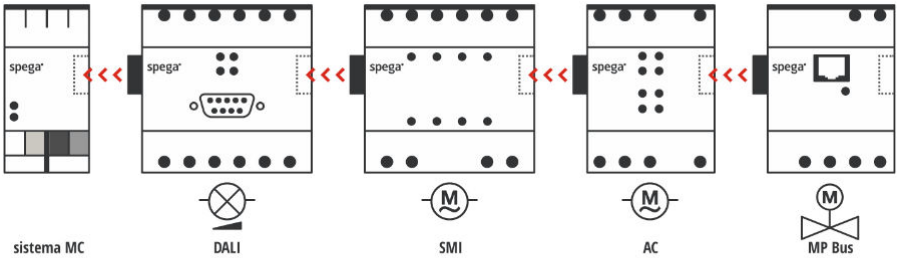
## e.control distribution box S

S system distributors are manufactured on a project-specific basis and stand out due to short and error-free assembly and connection times on the construction site. The use of plug-in connectors also results in a clearly defined warranty limit. The size of the distributors, the distribution and position of the connectors, the power of the power supply unit as well as additional devices, such as overvoltage protection, transformers, etc., can be defined on a project-specific basis.

## e.control distribution box R

R series system distribution boxes are also manufactured on a project-specific basis, but require less coordination on the construction site, since they are connected using terminal blocks. They are therefore perfect for smaller construction jobs. A broad cable insertion opening with tension relief and foam seals makes the connection of wires convenient and comfortable. R series system distribution boxes are available in multiple sizes and offer space for additional devices.

**Various combinations: up to 8 modules with 32 channels can be connected to one controller**




## The advantages

- Connection of up to 32 field devices from any systems with any control
- Supports all intelligent field devices with DALI, SMI and MP-Bus interface
- Ideal for decentralised distributors due to compact and cost-effective design
- Plug-and-play system distributor with function guarantee

# M Series – Distribution Boxes

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **System distribution box S**<br>■ Sheet steel cabinet with quick release fastener, accepts all e.control devices for DIN rail mounting<br>■ Applicable for installation in suspended ceilings or false floors<br>■ Quick and accurate mounting without opening due to plug- connectors<br>■ Project-specific shipment, ready-to-use and pre-tested | **Material/protection:**<br>Sheet steel 1mm zinc plated, IP40<br>**Plug system:**<br>Project-specific<br>**Power supply:**<br>-24V DC via external supply unit or<br>-230V AC with optional switching power supply 10/30/60/100VA<br>**Metrics:**<br>Project-specific, minimum height 70mm | **SYS-S** |
|  | **System distribution box R**<br>■ Sheet steel cabinet mit quick release fastener and cable port with strain relief, accepts all e.control devices for DIN rail mounting<br>■ Quick and accurate connection of preassembled cables due to terminal blocks<br>■ Project-specific shipment, ready-to-use and pre-tested | **Material/protection:**<br>Sheet steel 1mm zinc plated, IP40<br>**Terminal block system:**<br>Project-specific<br>**Power supply:**<br>-24V DC via external supply unit or<br>-230V AC with optional switching power supply 10/30/60/100VA<br>**Metrics:**<br>Project-specific, minimum height 70mm | **SYS-R** |

# M Series – Universal Controller and Switch Actuators

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **sistema MC**<br>**LON Universal Controller for M-Series modules**<br>■ Compact LON controller for reading in and controlling a wide range of M-Series expansion modules<br>■ different application for optimal scaling of the respective module combination<br>■ Mapping of the functions of VDI3813-2 as LonMark profiles | **MC**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 40mA<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 35 x 60mm (2TE)<br>DIN rail mounting | 121 000 |
| | 24V DC · Free Topology · application · Plug-in · data sheet · LON | | |
|  | **lumina BE8**<br>**Digital input 8 ports**<br>**M Series Module**<br>■ Module with 8 inputs for floating contacts to accommodate pushbuttons, signal or window contacts, presence detectors, etc.<br>■ Software for switching or dimming lights, moving or turning blinds, calling up or saving scenes | **BE8**<br>**Power supply:**<br>Voltage: 24V DC, max. 60mA<br>via universal controller sistema MC<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 70 x 60mm (4HP)<br>DIN rail mounting | 110 008 |
| | 8x NO / NC · extension · Plug-in · data sheet | | |
|  | **lumina SA4**<br>**LON Switch actuator 4 ports, 16A**<br>**M Series Modul**<br>■ Relay module for independent switching of 4 electric loads with separate feed-in for each output<br>■ High-current relay contacts (120A) for capacitive lamp loads for:<br>– incandiscent lamps: 3000W<br>– halogen lamps: 2500W<br>– fluorescent lamps: 1500W comp.<br>■ Stairwell lighting, switch-on/off delay and scene memory with 10 scenes per channel | **SA4** w/o hand operation<br>**SA4-b** with hand operation<br>**Power supply:**<br>Voltage: 24V DC, max. 110mA<br>via universal controller sistema MC<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 88 x 60mm (3TE)<br>DIN rail mounting | 120 104<br>120 105 |
| | 4x · extension · Plug-in · data sheet | | |
|  | **lumina SA8**<br>**Switch actuator 8 ports, 16A**<br>**M-Series Modul**<br>■ Relay module for independent switching of 8 electric loads with separate feed-in for each output<br>■ High-current relay contacts (120A) for capacitive lamp loads for:<br>– incandiscent lamps: 2000W<br>– halogen lamps: 1700W<br>– fluorescent lamps: 1000W comp.<br>■ Stairwell lighting, switch-on/off delay and scene memory with 10 scenes per channel | **SA8** w/o hand operation<br>**SA8-b** with hand operation<br>**Power supply:**<br>Voltage: 24V DC, max. 200mA<br>via universal controller sistema MC<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 70 x 60mm (4HP)<br>DIN rail mounting | 120 108<br>120 109 |
| | 8x · extension · Plug-in · data sheet | | |

# M Series – Switch Actuators and DALI Controllers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **lumina ST4**<br>**Control output 1-10V 4 ports**<br>**M-Series Modul**<br>■ Module for independent switching and dimming of 4 groups of electronic ballasts with 1-10V interface<br>■ High current relay contacts (120A) for fluorescent lamps with max. 1000W (comp.) per channel<br>■ Stairwell lighting, switch-on/off delay, variable dimming ramp and scene memory with 10 scenes per channel | **ST4** w/o hand operation<br>**ST4-b** with hand operation<br>**Power supply:**<br>Voltage: 24V DC, max. 160mA<br>via universal controller sistema MC<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 70 x 60mm<br>(4HP)<br>DIN rail mounting | 120 144<br>120 145 |
| 8x 1-10V<br>extension Plug-in data sheet | | | |
|  | **lumina DAL4**<br>**DALI Controller 4 ports**<br>**M-Series Modul**<br>■ Module for supplying and independent controlling of up to 64 DALI devices devided in up to 4 groups<br>■ Monitoring of lamp status<br>■ Manual control for switching on<br>■ Commissioning via LNS plug-in or directly with notebook<br>■ Stairwell lighting, switch-on/off delay, variable dimming ramp and scene memory for 10 scenes | **DAL4**<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 200mA<br>via universal controller sistema MC<br>**Total load:**<br>Supply of max. 64 DALI devices<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 105 x 60mm<br>DIN rail mounting | 120 164 |
| 4x DALI<br>extension Plug-in data sheet | | | |
|  | **lumina DAL8**<br>**DALI Controller 8 ports**<br>**M-Series Modul**<br>■ Module for supplying and independent controlling of up to 64 DALI devices devided in up to 8 groups<br>■ Monitoring of lamp status<br>■ Manual control for switching on<br>■ Commissioning via LNS plug-in or directly with notebook<br>■ Stairwell lighting, switch-on/off delay, variable dimming ramp and scene memory | **DAL8**<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 200mA<br>via universal controller sistema MC<br>**Total load:**<br>Supply of max. 64 DALI devices<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 70 x 60mm (4HP)<br>DIN rail mounting | 120 168 |
| 8x DALI<br>extension Plug-in data sheet | | | |
|  | **lumina DAL16**<br>**DALI Controller 16 ports**<br>**M-Series Modul**<br>■ Module for supplying and independent controlling of up to 64 DALI devices devided in up to 16 groups<br>■ Monitoring of lamp status<br>■ Manual control for switching on<br>■ Commissioning via LNS plug-in or directly with notebook<br>■ Stairwell lighting, switch-on/off delay, variable dimming ramp and scene memory | **DAL16**<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 200mA<br>via universal controller sistema MC<br>**Total load:**<br>Supply of max. 64 DALI devices<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 70 x 60mm (4HP)<br>DIN rail mounting | 120 166 |
| 16x DALI<br>extension Plug-in data sheet | | | |

# M Series – Sunblind Actuators 230V AC

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **ombra BA2**<br>**Sunblind actuator 2 ports for AC motors**<br>■ Relay module for switching 2 AC motors for blinds, shutters, awnings or windows<br>■ Max. motor power 250W, inter-locked contacts and separate feed-in for each port<br>■ Appropriate to slat tracking and shadow correction control<br>■ Parameterisable power-on and protection behaviour as well as scene memory for each channel | **BA2** w/o hand operation<br>**BA2-b** with hand operation<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 40mA<br>via universal controller sistema MC<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 53 x 60mm (3HP)<br>DIN rail mounting | 120 202<br>120 203 |
| 2x<br>extension Plug-in data sheet | | | |
|  | **ombra BA4**<br>**Sunblind actuator 4 ports for AC motors**<br>■ Relay module for switching 4 AC motors for blinds, shutters, awnings or windows<br>■ Max. motor power 250W, inter- locked contacts and separate feed-in for each port<br>■ Appropriate to slat tracking and shadow correction control<br>■ Parameterisable power-on and protection behaviour as well as scene memory for each channel | **BA4** w/o hand operation<br>**BA4-b** with hand operation<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 60mA<br>via universal controller sistema MC<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 70 x 60mm (4HP)<br>DIN rail mounting | 120 204<br>120 205 |
| 4x<br>extension Plug-in data sheet | | | |
|  | **ombra BA2-3E**<br>**Sunblind actuator 2 ports for AC motors with 3 limit switches**<br>■ Relay module for 2 sunblind motors with 3 limit switches<br>■ Max. motor power 250W, inter-locked contacts and separate feed-in for each port<br>■ Appropriate to slat tracking and shadow correction control<br>■ Parameterisable power-on and protection behaviour as well as scene memory for each channel | **BA2-3E** w/o hand operation<br>**BA2-3E-b** with hand operation<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 40mA<br>via universal controller sistema MC<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 53 x 60mm (3HP)<br>DIN rail mounting | 120 232<br>120 233 |
| 2x<br>extension Plug-in data sheet | | | |
|  | **ombra BA2-i**<br>**Sunblind actuator 2 ports for AC motors with incremental encoder**<br>■ Relay module for 2 AC motors with incremental encoder<br>■ Max. motor power 250W, inter-locked contacts and separate feed-in for each port<br>■ Appropriate to slat tracking and shadow correction control<br>■ Parameterisable power-on and protection behaviour as well as scene memory for each channel | **BA2-i** w/o hand operation<br>**BA2-i-b** with hand operation<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 45mA<br>via universal controller sistema MC<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 70 x 60mm (4HP)<br>DIN rail mounting | 120 222<br>120 223 |
| 2x<br>extension Plug-in data sheet | | | |

# M Series – Sunblind Actuators 24V DC and SMI

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**ombra BA4-DC**
**Sunblind actuator 4 ports for 24V DC motors**

- Module for switching DC motors (pole reversal) for blinds, awnings or windows
- Current consumption up to 1.0A per channel
- Does not require an additional control unit to operate the engine
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**BA4-DC** w/o hand operation **120 214**
**BA4-DC-b** with hand operation **120 215**

**Network/Power supply:**
Voltage: 24V DC, max. 110mA
via universal controller sistema MC

**Metrics/Mounting:**
(HxWxD) 85(45) x 70 x 60mm (4HP)
DIN rail mounting

4x M

extension Plug-in data sheet

**ombra BA2-DC-i**
**Sunblind actuator 2 ports for 24V DC motors with incremental encoder**

- Module for controlling DC motors with incremental encoder (pole reversal and PWM) for blinds, awnings or windows
- Motor speed adjustable for travel and angle adjustment
- Current consumption up to 2.0A per channel
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**BA2-DC-i** w/o hand operation **120 242**
**BA2-DC-i-b** with hand operation **120 243**

**Network/Power supply:**
Voltage: 24V DC, max. 25mA
via universal controller sistema MC

**Metrics/Mounting:**
(HxWxD) 85(45) x 70 x 60mm (4HP)
DIN rail mounting

2x M

extension Plug-in data sheet

**ombra BA4-SMI**
**SMI Sunblind actuator 4 groups for AC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (230V) in 4 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**BA4-SMI** w/o hand operation **120 254**
**BA4-SMI-b** with hand operation **120 255**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Mains: 230V AC, max. 1.5W

**Ports:**
4 SMI (addressed), max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x70 x 60mm (4HP)
DIN rail mounting

16x M SMI

extension Plug-in data sheet

**ombra BA4-SMI LoVo**
**SMI Sunblind actuator 4 groups for DC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (24V) in 4 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**BA4-SMI LoVo** w/o hand operation **120 264**
**BA4-SMI LoVo-b** with hand operation **120 265**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 50mA

**Ports:**
SMI (addressed) max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x70 x 60mm (4HP)
DIN rail mounting

16x M SMI LoVo

extension Plug-in data sheet

# M Series – Sunblind Actuators SMI

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**ombra BA8-SMI**
**SMI Sunblind actuator 8 groups for AC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (230V AC) in 8 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**BA8-SMI** w/o hand operation **120 258**
**BA8-SMI-b** with hand operation **120 259**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Mains: 230V AC, max. 1.5W

**Ports:**
SMI (addressed) max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x 70 x 60mm (4HP)
DIN rail mounting

16x SMI

extension Plug-in data sheet

**ombra BA8-SMI LoVo**
**SMI Sunblind actuator 8 groups for DC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (24V DC) in 8 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**BA8-SMI LoVo** w/o hand operation **120 268**
**BA8-SMI LoVo-b** with hand operation **120 269**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 50mA

**Ports:**
SMI (addressed) max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x 70 x 60mm (4HP)
DIN rail mounting

16x SMI LoVo

extension Plug-in data sheet

**ombra BA16-SMI**
**SMI Sunblind actuator 16 groups for AC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (230V AC) in 16 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**BA16-SMI** w/o hand operation **120 256**
**BA16-SMI-b** with hand operation **120 257**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Mains: 230V AC, max. 1.5W

**Ports:**
SMI (addressed) max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x 70 x 60mm (4HP)
DIN rail mounting

16x SMI

extension Plug-in data sheet

**ombra BA16-SMI LoVo**
**SMI Sunblind actuator 16 groups for DC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (24V DC) in 16 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**BA16-SMI LoVo** w/o hand operation **120 266**
**BA16-SMI LoVo-b** with hand operation **120 267**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 50mA

**Ports:**
SMI (addressed) max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x 70 x 60mm (4HP)
DIN rail mounting

16x SMI LoVo

extension Plug-in data sheet

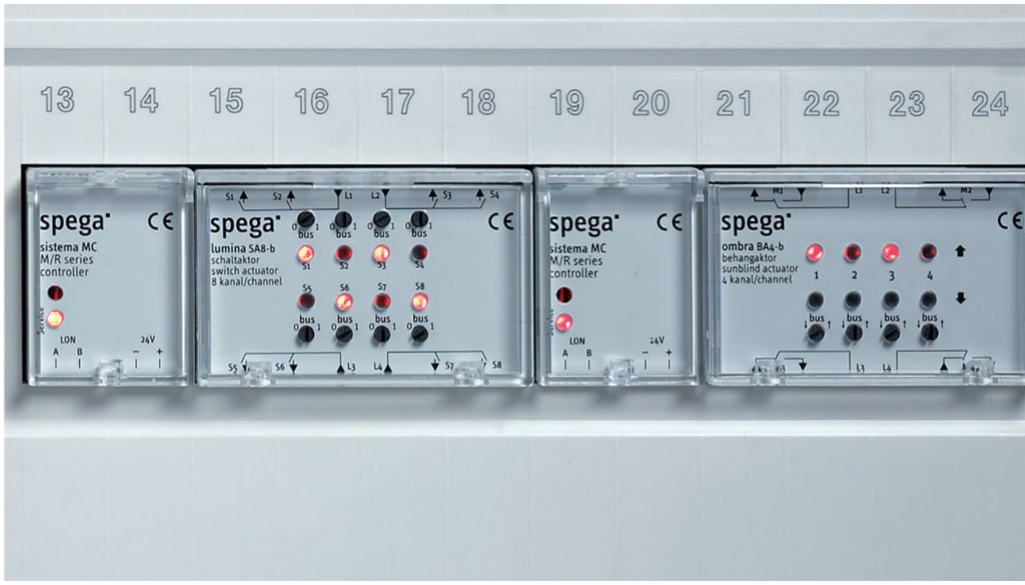
# M Series – Analogue and Digital I/O Modules

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **clima AA4-10V**<br>**Analogue I/O module 4 ports**<br>**M-Series module**<br>■ Module for positioning continuous actuators or reading in active sensors<br>■ I/O function and control or input signal adjustable by software per channel: 10V, 2-10V, 0-20mA, 4-20mA<br>■ Parameterisable output limitation and valve maintenance function during non-use periods, changeable network variables for input signal mapping | **AA4-10V**<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 140mA<br>via universal controller sistema MC<br>**Output:**<br>max. 20mA per channel<br>**Input:**<br>10 bit resolution, resistance: 100kΩ<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 53 x 60mm (3HP)<br>DIN rail mounting | 120 344 |
| 4x 0-10V 0-20mA 4x 0-10V 0-20mA<br>extension Plug-in data sheet | | | |
|  | **clima AA8-10V**<br>**Analogue I/O module 8 ports**<br>**M-Series module**<br>■ Module for positioning continuous actuators or reading in active sensors<br>■ I/O function and control or input signal adjustable by software per channel: 10V, 2-10V, 0-20mA, 4-20mA<br>■ Parameterisable output limitation and valve maintenance function during non-use periods, changeable network variables for input signal mapping | **AA8-10V**<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 240mA<br>via universal controller sistema MC<br>**Output:**<br>max. 20mA per channel<br>**Input:**<br>10 bit resolution, resistance: 100kΩ<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 70 x 60mm (4HP)<br>DIN rail mounting | 120 348 |
| 8x 0-10V 0-20mA 8x 0-10V 0-20mA<br>extension Plug-in data sheet | | | |
|  | **clima AA4**<br>**Digital output 4 x TRIAC**<br>**M-Series module**<br>■ Module for controlling 4 thermo-electric or 2 motorized actuators with 24-230V AC<br>■ 2-point, 3-point and quasi-continuous control via pulse duration modulation selectable via software<br>■ Pulse duration, motor running time and control value limits can be parameterized<br>■ automatic valve opening to prevent settling during prolonged periods of non-use | **AA4**<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 40mA<br>via universal controller sistema MC<br>**Output current:**<br>per channel 24-230V AC, max. 750mA<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 53 x 60mm (3HP)<br>DIN rail mounting | 120 324 |
| 4x 2-P/PDM 2x 3-P<br>extension Plug-in data sheet | | | |
|  | **clima AA8**<br>**Digital output 8 x TRIAC**<br>**M-Series module**<br>■ Module for controlling 8 thermo-electric or 4 motorized actuators with 24-230V AC<br>■ 2-point, 3-point and quasi-continuous control via pulse duration modulation selectable via software<br>■ Pulse duration, motor running time and control value limits can be parameterized<br>■ automatic valve opening to prevent settling during prolonged periods of non-use | **AA8**<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 70mA<br>via universal controller sistema MC<br>**Output current:**<br>per channel 24-230V AC, max. 500mA<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 70 x 60mm (4HP)<br>DIN rail mounting | 120 328 |
| 8x 2-P/PDM 4x 3-P<br>extension Plug-in data sheet | | | |

# M Series – Multi-stage Actuator and MP-Bus Controllers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **clima LA2-3**<br>**Multi-stage switch 3 stages**<br>**M-Series module**<br>■ Relay module for the control of 2 fans in up to 3 stages<br>■ max. motor power 250W, separate supply lines for each channel<br>■ Priority control, sequence control and actuating value limitation parameterisable | **LA2-3**<br>**Power supply:**<br>Voltage: 24V DC, max. 40mA<br>via universal controller sistema MC<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 53 x 60mm (3HP)<br>DIN rail mounting | 120 332 |
| 2x<br>I – II - III<br>extension Plug-in data sheet | | | |
|  | **clima AA4-MP**<br>**MP-Bus Controller 4 port**<br>**M-Series module**<br>■ Module for controlling up to 4 MP-bus capable damper, valve or VAV actuators<br>■ Status monitoring of the drives<br>■ Evaluation of sensors connected to the drives (active 0-10V, passive or switching contact)<br>■ Control value limitation and automatic Venril opening against sticking, switchable network variables for sensor signal adaptation | **AA4-MP**<br>**Network/Power supply:**<br>Voltage: 24V DC, max. 45mA<br>via universal controller sistema MC<br>**Bus connection:**<br>Drives:<br>4<br>Sensors:<br>4 (via drives)<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 53 x 60mm (3HP)<br>DIN rail mounting | 120 354 |
| 4x<br>MP-Bus<br>extension Plug-in data sheet | | | |
|  | **clima AA8-MP**<br>**MP-Bus Controller 8 port**<br>**M-Series module**<br>■ Module for controlling up to 8 MP-bus capable damper, valve or VAV actuators<br>■ Status monitoring of the drives<br>■ Evaluation of sensors connected to the drives (active 0-10V, passive or switching contact)<br>■ Control value limitation and automatic Venril opening against sticking, switchable network variables for sensor signal adaptation | **AA8-MP**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 45mA<br>**Bus connection:**<br>Drives:<br>8<br>Sensors:<br>8 (via drives)<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 53 x 60mm (3HP)<br>DIN rail mounting | 120 358 |
| 8x<br>MP-Bus<br>extension Plug-in data sheet | | | |
|  | **clima AA16-MPL**<br>**MP-Bus Controller 16 port**<br>**for MPL actuators**<br>■ Module for controlling up to 16 MP-bus capable damper or valve actuators of the MPL series<br>■ Status monitoring of the drives<br>■ Control value limitation and automatic Venril opening against sticking | **AA16-MPL**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 45mA<br>**Bus connection:**<br>Drives:<br>16<br>Sensors:<br>-<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 53 x 60mm (3HP)<br>DIN rail mounting | 120 351 |
| 16x<br>MPL-Bus<br>extension Plug-in data sheet | | | |

# R Series – LON Actuators for Distribution Boards




## Modules for all systems

In the R series, e.control offers an extensive line of LON actuators for distribution boards. They include both binary and analogue inputs and outputs, as well as actuators for intelligent field devices for all functions in room automation, with up to 32 channels.

## Lighting actuators

The R series offers suitable actuators for all lighting technologies, whether switched with high-voltage relays, with 1-10V interfaces, dimmed with universal dimmers or controlled via DALI. And all that with 4, 8, 12 or 16 channels. DALI actuators can even operate up to 128 lights in up to 32 groups. Bidirectional communication between the DALI controllers and the actuator even permits the detection of lamp failures and other conditions. All actuators have parameterisable lights-on and lights-off delays, stairway automation and integrated scene administration.

## Sunblind actuators

The R series also offers a comprehensive actuator program for sun protection technology, with 230V blind drives with 2 or 3 limit switches, 24V direct-current motors, and SMI or SMI LoVo drives. For conventional motors, actuators are available with 4, 8 or 12 outputs, while the SMI actuators can even control up to 32 SMI drives. Status responses from motors are available to the building control system, just as for DALI. All actuators manage perfect positioning of the sunblind in any intermediate position and at any slat angle, and in combination with the ombra BST slat tracking controller are suitable for slat tracking control and shadow correction. They can also handle the priority-dependent management of movement commands for weather protection and even complete automation functions.

## HVAC actuators

Field devices in HVAC systems can be connected to the extensive analogue and digital I/O actuator line of the R series. This includes both inputs for 0-10V or 4-20mA signals as well as outputs for all types of positioning drives with 4 to 16 channels. Every output has functions for position limitation, calibration and valve service to prevent freezing. The MP-Bus actuator permits up to 16 bus-capable positioning drives to be positioned, their response and status values evaluated and also values to be read out from measurement sensors connected to the positioning drives.

## The advantages

- Widest selection of actuators with 4 to 32 channels for all systems
- Supports all intelligent field devices with DALI, SMI and MP-Bus interface
- Manual operation optional
- Ideal for installation in local networks

# R Series – Switch Actuators

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**lumia RSA4/16A**
**LON Switch actuator 4 ports, 16A**

- Relay module for independent switching of 4 electric loads with separate feed-in for each output
- High-current relay contacts (120A) for capacitive lamp loads for:
  – incandiscent lamps: 3000W
  – halogen lamps: 2500W
  – fluorescent lamps: 1500W comp.
- Stairwell lighting, switch-on/off delay and scene memory with 10 scenes per channel

**RSA4/16A** w/o hand operation **121 104**
**RSA4/16A-b** with hand operation **121 105**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 150mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 88 x 60mm (5HP)
DIN rail mounting

4x LON 24V DC Free Topology application Plug-in data sheet

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**lumia RSA8/16A**
**LON Schaltaktor 8-fach, 16A**

- Relay module for independent switching of 8 electric loads with separate feed-in for each output
- High-current relay contacts (120A) for capacitive lamp loads for:
  – incandiscent lamps: 3000W
  – halogen lamps: 2500W
  – fluorescent lamps: 1500W comp.
- Stairwell lighting, switch-on/off delay and scene memory with 10 scenes per channel

**RSA8/16A** ohne Handbedienung **121 110**
**RSA8/16A-b** mit Handbedienung **121 111**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Spannung: 24V DC, max. 260mA

**Metrics/Mounting:**
(HxBxT) 85(45) x 140 x 60mm (8TE)
Montage auf DIN-Hutschiene

8x LON 24V DC Free Topology application Plug-in data sheet

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**lumia RSA12/16A**
**LON Switch actuator 12 ports, 16A**

- Relay module for independent switching of 12 electric loads with separate feed-in for each output
- High-current relay contacts (120A) for capacitive lamp loads for:
  – incandiscent lamps: 3000W
  – halogen lamps: 2500W
  – fluorescent lamps: 1500W comp.
- Stairwell lighting, switch-on/off delay and scene memory with 10 scenes per channel

**RSA12** w/o hand operation **121 112**
**RSA12-b** with hand operation **121 113**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 370mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 192 x 60mm (11HP)
DIN rail mounting

12x LON 24V DC Free Topology application Plug-in data sheet

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**lumia RSA16/16A**
**LON Switch actuator 12 ports, 16A**

- Relay module for independent switching of 16 electric loads with separate feed-in for each output
- High-current relay contacts (120A) for capacitive lamp loads for:
  – incandiscent lamps: 3000W
  – halogen lamps: 2500W
  – fluorescent lamps: 1500W comp.
- Stairwell lighting, switch-on/off delay and scene memory with 10 scenes per channel

**RSA16/16A** w/o hand operation **121 118**
**RSA16/16A-b** with hand operation **121 119**

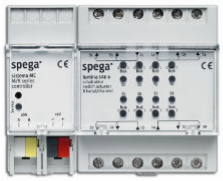
**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 480mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 244 x 60mm (14HP)
DIN rail mounting

16x LON 24V DC Free Topology application Plug-in data sheet

# R Series – Switch Actuators

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|



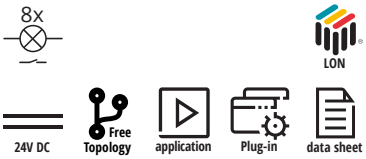
**lumina RSA8**
**LON Switch actuator 8 ports, 10A**

- Relay module for independent switching of 8 electric loads with separate feed-in for 2 outputs
- High-current relay contacts (120A) for capacitive lamp loads for:
  – incandiscent lamps: 2000W
  – halogen lamps: 1700W
  – fluorescent lamps: 1000W comp.
- Stairwell lighting, switch-on/off delay and scene memory with 10 scenes per channel

**RSA8** w/o hand operation **121 108**
**RSA8-b** with hand operation **121 109**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 240mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 105 x 60mm (6HP)
DIN rail mounting

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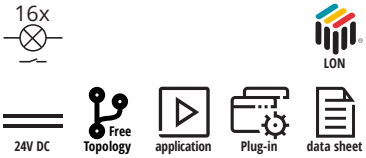
**lumina RSA16**
**LON Schaltaktor 16-fach, 10A**

- Relay module for independent switching of 16 electric loads with separate feed-in for 2 outputs
- High-current relay contacts (120A) for capacitive lamp loads for:
  – incandiscent lamps: 2000W
  – halogen lamps: 1700W
  – fluorescent lamps: 1000W comp.
- Stairwell lighting, switch-on/off delay and scene memory with 10 scenes per channel

**RSA16** w/o hand operation **121 116**
**RSA16-b** with hand operation **121 117**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 440mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 175 x 60mm (10HP)
DIN rail mounting

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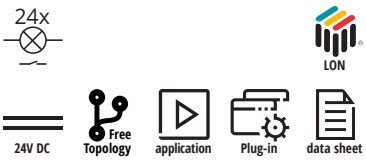
**lumina RSA24**
**LON Schaltaktor 24-fach, 10A**

- Relay module for independent switching of 24 electric loads with separate feed-in for 2 outputs
- High-current relay contacts (120A) for capacitive lamp loads for:
  – incandiscent lamps: 2000W
  – halogen lamps: 1700W
  – fluorescent lamps: 1000W comp.
- Stairwell lighting, switch-on/off delay and scene memory with 10 scenes per channel

**RSA24** w/o hand operation **121 124**
**RSA24-b** with hand operation **121 125**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 640mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 245 x 60mm (14HP)
DIN rail mounting

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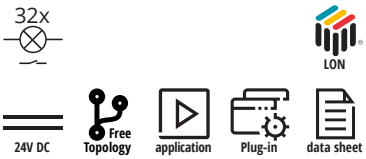
**lumina RSA32**
**LON Schaltaktor 32-fach, 10A**

- Relay module for independent switching of 32 electric loads with separate feed-in for 2 outputs
- High-current relay contacts (120A) for capacitive lamp loads for:
  – incandiscent lamps: 2000W
  – halogen lamps: 1700W
  – fluorescent lamps: 1000W comp.
- Stairwell lighting, switch-on/off delay and scene memory with 10 scenes per channel

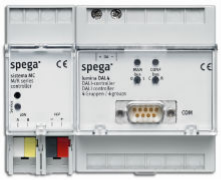
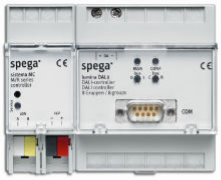
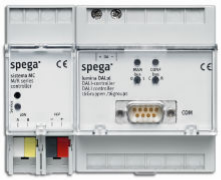
**RSA32** w/o hand operation **121 132**
**RSA32-b** with hand operation **121 133**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 840mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 315 x 60mm (18HP)
DIN rail mounting

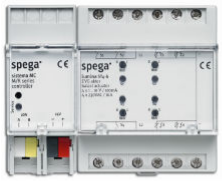


# R Series – DALI Lighting Controllers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **lumina RDAL4**<br>**LON DALI Controller 4 groups**<br>■ Module for supplying and independent controlling of up to 64 DALI devices devided in up to 4 groups<br>■ Monitoring of lamp status<br>■ Manual control for switching on<br>■ Commissioning via LNS plug-in or directly with notebook<br>■ Stairwell lighting, switch-on/off delay, variable dimming ramp and scene memory | **RDAL4**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 240mA<br>**Load:**<br>Supply of max. 64 DALI devices<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 105 x 60mm (6HP)<br>DIN rail mounting | 121 164 |
| 4x DALI · LON · 24V DC · Free Topology · application · Plug-in · data sheet | | | |
|  | **lumina RDAL8**<br>**LON DALI Controller 8 groups**<br>■ Module for supplying and independent controlling of up to 64 DALI devices devided in up to 8 groups<br>■ Monitoring of lamp status<br>■ Manual control for switching on<br>■ Commissioning via LNS plug-in or directly with notebook<br>■ Stairwell lighting, switch-on/off delay, variable dimming ramp and scene memory | **RDAL8**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 240mA<br>**Load:**<br>Supply of max. 64 DALI devices<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 105 x 60mm (6HP)<br>DIN rail mounting | 121 168 |
| 8x DALI · LON · 24V DC · Free Topology · application · Plug-in · data sheet | | | |
|  | **lumina RDAL16**<br>**LON DALI Controller 16 groups**<br>■ Module for supplying and independent controlling of up to 64 DALI devices devided in up to 16 groups<br>■ Monitoring of lamp status<br>■ Manual control for switching on<br>■ Commissioning via LNS plug-in or directly with notebook<br>■ Stairwell lighting, switch-on/off delay, variable dimming ramp and scene memory | **RDAL16**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 240mA<br>**Load:**<br>Supply of max. 64 DALI devices<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 105 x 60mm (6HP)<br>DIN rail mounting | 121 166 |
| 16x DALI · LON · 24V DC · Free Topology · application · Plug-in · data sheet | | | |
|  | **lumina RDAL32**<br>**LON DALI Controller 32 groups**<br>■ Module for supplying and independent controlling of up to 64 DALI devices devided in up to 32 groups<br>■ Monitoring of lamp status<br>■ Manual control for switching on<br>■ Commissioning via LNS plug-in or directly with notebook<br>■ Stairwell lighting, switch-on/off delay, variable dimming ramp and scene memory | **RDAL32**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 240mA<br>**Load:**<br>Supply of 2 lines per max. 64 DALI devices<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 175 x 60mm (10HP)<br>DIN rail mounting | 121 162 |
| 32x DALI · LON · 24V DC · Free Topology · application · Plug-in · data sheet | | | |

# R Series – 1-10V Lighting Controllers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|



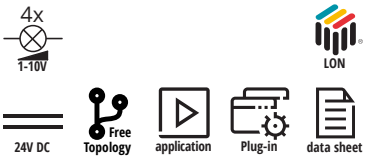
**lumina RST4**
**LON Control output 1-10V, 4 ports**

- Module for independent switching and dimming of 4 groups of electronic ballasts with 1-10V interface
- High current relay contacts (120A) for fluorescent lamps with max. 1000W (comp.) per channel
- Stairwell lighting, switch-on/off delay, variable dimming ramp and scene memory with 10 scenes per channel

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 200mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 105 x 60mm (6HP)
DIN rail mounting

| | | |
|---|---|---|
| **RST4** | w/o hand operation | **121 144** |
| **RST4-b** | with hand operation | **121 145** |



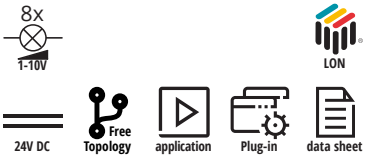

**lumina RST8**
**LON Control output 1-10V, 8 ports**

- Module for independent switching and dimming of 8 groups of electronic ballasts with 1-10V interface
- High current relay contacts (120A) for fluorescent lamps with max. 1000W (comp.) per channel
- Stairwell lighting, switch-on/off delay, variable dimming ramp and scene memory with 10 scenes per channel

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 360mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 175 x 60mm (10HP)
DIN rail mounting

| | | |
|---|---|---|
| **RST8** | w/o hand operation | **121 148** |
| **RST8-b** | with hand operation | **121 149** |



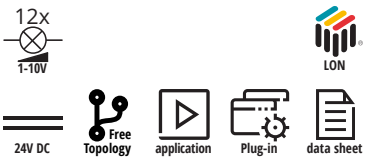

**lumina RST12**
**LON Control output 1-10V, 12 ports**

- Module for independent switching and dimming of 12 groups of electronic ballasts with 1-10V interface
- High current relay contacts (120A) for fluorescent lamps with max. 1000W (comp.) per channel
- Stairwell lighting, switch-on/off delay, variable dimming ramp and scene memory with 10 scenes per channel

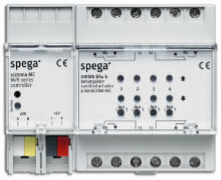
**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 520mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 245 x 60mm (14HP)
DIN rail mounting

| | | |
|---|---|---|
| **RST12** | w/o hand operation | **121 142** |
| **RST12-b** | with hand operation | **121 143** |



# R Series – Sunblind Actuators (AC)

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **ombra RBA2**<br>**LON Sunblind actuator 2 ports for AC motors**<br>■ Relay module for 2 AC motors for sunblinds, shutters or windows<br>■ Max. motor power 250W, interlocked contacts and separate feed-in for each port<br>■ Appropriate to slat tracking and shadow correction control<br>■ Parameterisable power-on and protection behaviour as well as scene memory for each channel | **RBA2** w/o hand operation<br>**RBA2-b** with hand operation<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 80mA<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 88 x 60mm<br>DIN rail mounting | **121 202**<br>**121 203** |
| 2x, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **ombra RBA4**<br>**LON Sunblind actuator 4 ports for AC motors**<br>■ Relay module for 4 AC motors for sunblinds, shutters or windows<br>■ Max. motor power 250W, interlocked contacts and separate feed-in for each port<br>■ Appropriate to slat tracking and shadow correction control<br>■ Parameterisable power-on and protection behaviour as well as scene memory for each channel | **RBA4** w/o hand operation<br>**RBA4-b** with hand operation<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 100mA<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 105 x 60mm<br>DIN rail mounting | **121 204**<br>**121 205** |
| 4x, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **ombra RBA6**<br>**LON Sunblind actuator 6 ports for AC motors**<br>■ Relay module for 6 AC motors for sunblinds, shutters or windows<br>■ Max. motor power 250W, interlocked contacts and separate feed-in for each port<br>■ Appropriate to slat tracking and shadow correction control<br>■ Parameterisable power-on and protection behaviour as well as scene memory for each channel | **RBA6** w/o hand operation<br>**RBA6-b** with hand operation<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 140mA<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 158 x 60mm<br>DIN rail mounting | **121 206**<br>**121 207** |
| 6x, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **ombra RBA8**<br>**LON Sunblind actuator 8 ports for AC motors**<br>■ Relay module for 8 AC motors for sunblinds, shutters or windows<br>■ Max. motor power 250W, interlocked contacts and separate feed-in for each port<br>■ Appropriate to slat tracking and shadow correction control<br>■ Parameterisable power-on and protection behaviour as well as scene memory for each channel | **RBA8** w/o hand operation<br>**RBA8-b** with hand operation<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 160mA<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 175 x 60mm<br>DIN rail mounting | **121 208**<br>**121 209** |
| 8x, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |

# R Series – Sunblind Actuators (AC with 3 Limit Switches)

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**ombra RBA2-3E**
**LON Sunblind actuator 2 ports for AC motors with 3 limit switches**

- Relay module for 2 sunblind motors with 3 limit switches
- Max. motor power 250W, interlocked contacts and separate feed-in for each port
- Appropriate to slat tracking and shadow correction control
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA2-3E** w/o hand operation **121 232**
**RBA2-3E-b** with hand operation **121 233**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 80mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 88 x 60mm
DIN rail mounting

2x M · LON · 24V DC · Free Topology · application · Plug-in · data sheet

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**ombra RBA4-3E**
**LON Sunblind actuator 4 ports for AC motors with 3 limit switches**

- Relay module for 4 sunblind motors with 3 limit switches
- Max. motor power 250W, interlocked contacts and separate feed-in for each port
- Appropriate to slat tracking and shadow correction control
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA4-3E** w/o hand operation **121 234**
**RBA4-3E-b** with hand operation **121 235**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 120mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 140 x 60mm
DIN rail mounting

4x M · LON · 24V DC · Free Topology · application · Plug-in · data sheet

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**ombra RBA6-3E**
**LON Sunblind actuator 6 ports for AC motors with 3 limit switches**

- Relay module for 6 sunblind motors with 3 limit switches
- Max. motor power 250W, interlocked contacts and separate feed-in for each port
- Appropriate to slat tracking and shadow correction control
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA6-3E** w/o hand operation **121 236**
**RBA6-3E-b** with hand operation **121 237**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 160mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 192 x 60mm (11HP)
DIN rail mounting

6x M · LON · 24V DC · Free Topology · application · Plug-in · data sheet

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**ombra RBA8-3E**
**LON Sunblind actuator 8 ports for AC motors with 3 limit switches**

- Relay module for 8 sunblind motors with 3 limit switches
- Max. motor power 250W, interlocked contacts and separate feed-in for each port
- Appropriate to slat tracking and shadow correction control
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA8-3E** w/o hand operation **121 238**
**RBA8-3E-b** with hand operation **121 239**

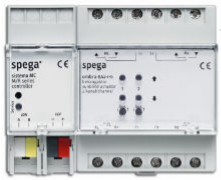
**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 200mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 244 x 60mm (14HP)
DIN rail mounting

8x M · LON · 24V DC · Free Topology · application · Plug-in · data sheet

# R Series – Sunblind Actuators (AC with Incr. Encoder Inputs)

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|



**ombra RBA2-i**
**LON Sunblind actuator 2 ports for motors with incremental encoder**

- Relay module for 2 AC motors with incremental encoder
- Max. motor power 250W, interlocked contacts and separate feed-in for each port
- Appropriate to slat tracking and shadow correction control
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA2-i** w/o hand operation **121 222**
**RBA2-i-b** with hand operation **121 223**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 85mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 105 x 60mm
DIN rail mounting

2x M | LON | 24V DC | Free Topology | application | Plug-in | data sheet

**ombra RBA4-i**
**LON Sunblind actuator 4 ports for motors with incremental encoder**

- Relay module for 4 AC motors with incremental encoder
- Max. motor power 250W, interlocked contacts and separate feed-in for each port
- Appropriate to slat tracking and shadow correction control
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA4-i** w/o hand operation **121 224**
**RBA4-i-b** with hand operation **121 225**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 130mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 175 x 60mm (10HP)
DIN rail mounting

4x M | LON | 24V DC | Free Topology | application | Plug-in | data sheet

**ombra RBA6-i**
**LON Sunblind actuator 6 ports for motors with incremental encoder**

- Relay module for 6 AC motors with incremental encoder
- Max. motor power 250W, interlocked contacts and separate feed-in for each port
- Appropriate to slat tracking and shadow correction control
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA6-i** w/o hand operation **121 226**
**RBA6-i-b** with hand operation **121 227**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 175mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 245 x 60mm (14HP)
DIN rail mounting

6x M | LON | 24V DC | Free Topology | application | Plug-in | data sheet

**ombra RBA8-i**
**LON Sunblind actuator 8 ports for motors with incremental encoder**

- Relay module for 8 AC motors with incremental encoder
- Max. motor power 250W, interlocked contacts and separate feed-in for each port
- Appropriate to slat tracking and shadow correction control
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA8-i** w/o hand operation **121 228**
**RBA8-i-b** with hand operation **121 229**

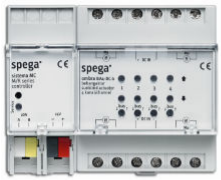
**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 220mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 315 x 60mm (18HP)
DIN rail mounting

8x M | LON | 24V DC | Free Topology | application | Plug-in | data sheet

# R Series – Sunblind Actuators (DC and Incr. Encoder Inputs)

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|



**ombra RBA4-DC**
**LON Sunblind actuator 4 ports for 24V DC motors**

- Relay module for 24V DC motors for sunblinds, shutters or windows
- Current consumption up to 1.0A per channel
- Does not require an additional control unit to operate the engine
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA4-DC** w/o hand operation **121 214**
**RBA4-DC-b** with hand operation **121 215**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 150mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 105 x 60mm (6HP)
DIN rail mounting

4x M — LON — 24V DC — Free Topology — application — Plug-in — data sheet

**ombra RBA8-DC**
**LON Sunblind actuator 8 ports for 24V DC motors**

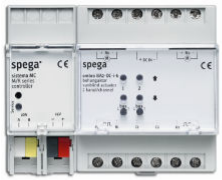
- Module for switching DC motors (pole reversal) for blinds, awnings or windows
- Current consumption up to 1.0A per channel
- Does not require an additional control unit to operate the engine
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA8-DC** w/o hand operation **121 218**
**RBA8-DC-b** with hand operation **121 219**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 260mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 175 x 60mm (10HP)
DIN rail mounting

8x M — LON — 24V DC — Free Topology — application — Plug-in — data sheet



**ombra RBA2-DC-i**
**LON Sunblind actuator 2 ports for motors with incremental encoder**

- Module for 24V DC motors with incremental encoder for sunblinds, shutters or windows
- Motor speed adjustable for travel and angle adjustment
- Current consumption up to 2.0A per channel
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA2-DC-i** w/o hand operation **121 242**
**RBA2-DC-i-b** with hand operation **121 243**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 65mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 105 x 60mm (6HP)
DIN rail mounting

2x M — LON — 24V DC — Free Topology — application — Plug-in — data sheet

**ombra RBA4-DC-i**
**LON Sunblind actuator 4 ports for motors with incremental encoder**

- Module for controlling DC motors with incremental encoder (pole reversal and PWM) for blinds, awnings or windows
- Motor speed adjustable for travel and angle adjustment
- Current consumption up to 2.0A per channel
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA4-DC-i** w/o hand operation **121 244**
**RBA4-DC-i-b** with hand operation **121 245**

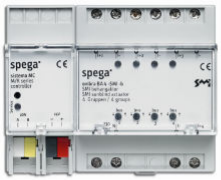
**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 90mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 175 x 60mm (10HP)
DIN rail mounting

4x M — LON — 24V DC — Free Topology — application — Plug-in — data sheet

# R Series – SMI Sunblind Actuators

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|



**ombra RBA4-SMI**
**LON SMI Sunblind actuator 4 ports for AC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (230V AC) in 4 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA4-SMI** w/o hand operation **121 254**
**RBA4-SMI-b** with hand operation **121 255**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Mains: 230V AC, max. 1,5W

**Ports:**
SMI (addressed), max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x 105 x 60mm (6HP)
DIN rail mounting

4x SMI LON
24V DC | Free Topology | application | Plug-in | data sheet

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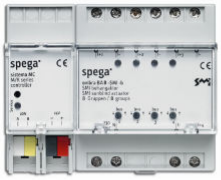

**ombra RBA8-SMI**
**LON SMI Sunblind actuator 8 ports for AC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (230V AC) in 8 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA8-SMI** w/o hand operation **121 258**
**RBA8-SMI-b** with hand operation **121 259**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Mains: 230V AC, max. 1,5W

**Ports:**
SMI (addressed), max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x 105 x 60mm (6HP)
DIN rail mounting

8x SMI LON
24V DC | Free Topology | application | Plug-in | data sheet

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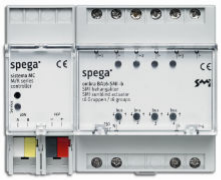

**ombra RBA16-SMI**
**LON SMI Sunblind actuator 16 ports for AC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (230V AC) in 16 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA16-SMI** w/o hand operation **121 256**
**RBA16-SMI-b** with hand operation **121 257**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Mains: 230V AC, max. 1,5W

**Ports:**
SMI (addressed), max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x 105 x 60mm (6HP)
DIN rail mounting

16x SMI LON
24V DC | Free Topology | application | Plug-in | data sheet

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**ombra RBA32-SMI**
**LON SMI Sunblind actuator 32 ports for AC motors**

- Module for accurate positioning of max. 32 SMI sunblind motors (230V AC) in 32 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA32-SMI** w/o hand operation **121 252**
**RBA32-SMI-b** with hand operation **121 253**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Mains: 230V AC, max. 3W

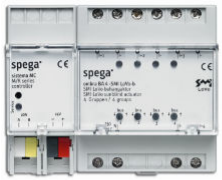
**Ports:**
2 x SMI (addressed), max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x 175 x 60mm (10HP)
DIN rail mounting

32x SMI LON
24V DC | Free Topology | application | Plug-in | data sheet

# R Series – SMI LoVo Sunblind Actuators

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|



**ombra RBA4-SMI LoVo**
**LON SMI Sunblind actuator 4 ports for 24V DC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (24V DC) in 4 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA4-SMI LoVo** w/o hand operation **121 264**
**RBA4-SMI LoVo-b** with hand operation **121 265**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 50mA

**Ports:**
SMI (addressed), max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x 105 x 60mm (6HP)
DIN rail mounting

4x M · LoVo · LON · 24V DC · Free Topology · application · Plug-in · data sheet

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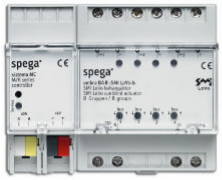

**ombra RBA8-SMI LoVo**
**LON SMI Sunblind actuator 8 ports for 24V DC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (24V DC) in 8 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA8-SMI LoVo** w/o hand operation **121 268**
**RBA8-SMI LoVo-b** with hand operation **121 269**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 50mA

**Ports:**
SMI (addressed), max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x 105 x 60mm (6HP)
DIN rail mounting

8x M · LoVo · LON · 24V DC · Free Topology · application · Plug-in · data sheet

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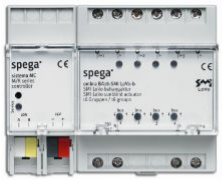

**ombra RBA16-SMI LoVo**
**LON SMI Sunblind actuator 16 ports for 24V DC motors**

- Module for accurate positioning of max. 16 SMI sunblind motors (24V DC) in 16 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA16-SMI LoVo** w/o hand operation **121 266**
**RBA16-SMI LoVo-b** with hand operation **121 267**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 50mA

**Ports:**
SMI (addressed), max. 16 motors

**Metrics/Mounting:**
(HxWxD) 85(45) x 105 x 60mm (6HP)
DIN rail mounting

16x M · LoVo · LON · 24V DC · Free Topology · application · Plug-in · data sheet

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**ombra RBA32-SMI LoVo**
**LON SMI Sunblind actuator 32 ports for 24V DC motors**

- Module for accurate positioning of max. 32 SMI sunblind motors (24V DC) in 32 user-defined groups
- Monitoring of motor status
- Appropriate to slat tracking and shadow correction control due to accurate positioning control (<2°)
- Parameterisable power-on and protection behaviour as well as scene memory for each channel

**RBA32-SMI LoVo** w/o hand operation **121 262**
**RBA32-SMI LoVo-b** with hand operation **121 263**

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 100mA

**Ports:**
2 x SMI (addressed), max. 32 motors

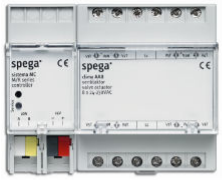
**Metrics/Mounting:**
(HxWxD) 85(45) x 175 x 60mm (10HP)
DIN rail mounting

32x M · LoVo · LON · 24V DC · Free Topology · application · Plug-in · data sheet

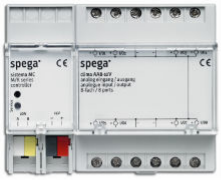
# R Series – Digital Inputs

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **lumina B8**<br>**LON Digital input 8 ports**<br>■ 8 inputs for installation push buttons or other devices with floating contacts (e.g. window contacts, dew point sensors or presence detectors)<br>■ Powerful application for switching and dimming lamps, controlling sunblinds and recalling or storing scenes | **B8**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 60mA<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 70 x 60mm<br>DIN rail mounting | 111 008 |
| 8x NO / NC, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **lumina B16**<br>**LON Digital input 16 ports**<br>■ 16 inputs for installation push buttons or other devices with floating contacts (e.g. window contacts, dew point sensors or presence detectors)<br>■ Powerful application for switching and dimming lamps, controlling sunblinds and recalling or storing scenes | **B16**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 160mA<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 175 x 60mm<br>DIN rail mounting | 111 016 |
| 16x NO / NC, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **lumina B24**<br>**LON Digital input 24 ports**<br>■ 24 inputs for installation push buttons or other devices with floating contacts (e.g. window contacts, dew point sensors or presence detectors)<br>■ Powerful application for switching and dimming lamps, controlling sunblinds and recalling or storing scenes | **B24**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 220mA<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 245 x 60mm<br>DIN rail mounting | 111 024 |
| 24x NO / NC, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **lumina BK8**<br>**LON binary input 8-fold**<br>■ 8 inputs for push buttons or other devices with floating contacts (e.g. window contacts, dew point sensors or occupancy sensors)<br>■ Plastic case, cable entry points with strain relief, protection class IP54 (IP65 on request)<br>■ Powerful application for switching and dimming lamps, controlling sunblinds and recalling or storing scenes | **BK8**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 65mA<br>**Metrics/Mounting:**<br>(HxWxD) 63 x 254 x 180mm | 411 008 |
| 8x NO / NC, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |

# R Series – Digital Outputs

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **clima RAA4**<br>**LON Digital output 4 x TRIAC**<br>■ Triac outputs for 4 thermoelectric or 2 motor-driven actuators with 24 - 230V AC operating voltage<br>■ 2-point, 3-point and quasi-continuous control via pulse duration modulation selectable via software<br>■ Parameterisable pulse-duration, output limits and motor runtime<br>■ Automatic valve maintenance function during non-use periods | **RAA4**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 80mA<br>**Load:**<br>24-230V AC, max. 750mA per output<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 88 x 60mm<br>DIN rail mounting | 121 324 |
| 4x 2-P/PDM, 2x 3-P, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **clima RAA8**<br>**LON Digital output 8 x TRIAC**<br>■ Triac outputs for 8 thermoelectric or 4 motor-driven actuators with 24 - 230V AC operating voltage<br>■ 2-point, 3-point and quasi-continuous control via pulse duration modulation selectable via software<br>■ Parameterisable pulse-duration, output limits and motor runtime<br>■ Automatic valve maintenance function during non-use periods | **RAA8**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 110mA<br>**Load:**<br>24-230V AC, max. 500mA per output<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 105 x 60mm<br>DIN rail mounting | 121 328 |
| 8x 2-P/PDM, 4x 3-P, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **clima RAA12**<br>**LON Digital output 12 x TRIAC**<br>■ Triac outputs for 12 thermoelectric or 6 motor-driven actuators with 24 - 230V AC operating voltage<br>■ 2-point, 3-point and quasi-continuous control via pulse duration modulation selectable via software<br>■ Parameterisable pulse-duration, output limits and motor runtime<br>■ Automatic valve maintenance function during non-use periods | **RAA12**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 150mA<br>**Load:**<br>24-230V AC, max. 500mA per output<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 158 x 60mm<br>DIN rail mounting | 121 322 |
| 12x 2-P/PDM, 6x 3-P, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **clima RAA16**<br>**LON Digital output 16 x TRIAC**<br>■ Triac outputs for 16 thermoelectric or 8 motor-driven actuators with 24 - 230V AC operating voltage<br>■ 2-point, 3-point and quasi-continuous control via pulse duration modulation selectable via software<br>■ Parameterisable pulse-duration, output limits and motor runtime<br>■ Automatic valve maintenance function during non-use periods | **RAA16**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 180mA<br>**Load:**<br>24-230V AC, max. 500mA per output<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 175 x 60mm<br>DIN rail mounting | 121 326 |
| 16x 2-P/PDM, 8x 3-P, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |

# R Series – Analogue Inputs/Outputs

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **clima RAA4-10V**<br>**LON Analogue I/O module 4 ports**<br>■ Module for positioning continuous actuators or reading in active sensors<br>■ Input or output signal adjustable per channel via software: 0-10V, 2-10V, 0-20mA or 4-20mA<br>■ Parameterisable output limitation and valve maintenance function during non-use periods, changeable network variables for input signal mapping | **RAA4-10V**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 180mA<br>**Output:**<br>max. 20mA each channel<br>**Input:**<br>10 bit resolution, resistance 100kΩ<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 88 x 60mm (5HP)<br>DIN rail mounting | 121 344 |
| 4x 0-10V 0-20mA, 4x 0-10V 0-20mA, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **clima RAA8-10V**<br>**LON Analogue I/O module 8 ports**<br>■ Module for positioning continuous actuators or reading in active sensors<br>■ Input or output signal adjustable per channel via software: 0-10V, 2-10V, 0-20mA or 4-20mA<br>■ Parameterisable output limitation and valve maintenance function during non-use periods, changeable network variables for input signal mapping | **RAA8-10V**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 280mA<br>**Output:**<br>max. 20mA each channel<br>**Input:**<br>10 bit resolution, resistance 100kΩ<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 105 x 60mm (6HP)<br>DIN rail mounting | 121 348 |
| 8x 0-10V 0-20mA, 8x 0-10V 0-20mA, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **clima RAA12-10V**<br>**LON Analogue I/O module 12 ports**<br>■ Module for positioning continuous actuators or reading in active sensors<br>■ Input or output signal adjustable per channel via software: 0-10V, 2-10V, 0-20mA or 4-20mA<br>■ Parameterisable output limitation and valve maintenance function during non-use periods, changeable network variables for input signal mapping | **RAA12**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 420mA<br>**Output:**<br>max. 20mA each channel<br>**Input:**<br>10 bit resolution, resistance 100kΩ<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 158 x 60mm (9HP)<br>DIN rail mounting | 121 342 |
| 12x 0-10V 0-20mA, 12x 0-10V 0-20mA, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |
|  | **clima RAA16-10V**<br>**LON Analogue I/O module 16 ports**<br>■ Module for positioning continuous actuators or reading in active sensors<br>■ Input or output signal adjustable per channel via software: 0-10V, 2-10V, 0-20mA or 4-20mA<br>■ Parameterisable output limitation and valve maintenance function during non-use periods, changeable network variables for input signal mapping | **RAA16**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 500mA<br>**Output:**<br>max. 20mA each channel<br>**Input:**<br>10 bit resolution, resistance 100kΩ<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 175 x 60mm (10HP)<br>DIN rail mounting | 121 346 |
| 16x 0-10V 0-20mA, 16x 0-10V 0-20mA, LON, 24V DC, Free Topology, application, Plug-in, data sheet | | | |

# R Series – MP-Bus Controllers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **clima RAA8-MP**<br>**LON MP-Bus Controller 8 ports**<br>■ Controller module for 8 damper, flap, valve or VAV actuators with MP-Bus interface<br>■ Monitoring of actuator status<br>■ Utilisation of sensors connected to MP-Bus actuators (0-10V, resistive or floating contact)<br>■ Parameterisable output limitation and valve maintenance function, changeable network variables for input signal mapping | **RAA8-MP**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 85mA<br>**Bus connection:**<br>Actuators: 8<br>Sensors: 8 (via actuators)<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 88 x 60mm (5HP)<br>DIN rail mounting | 121 358 |
| 8x MP-Bus · LON · 24V DC · Free Topology · application · Plug-in · data sheet | | | |
|  | **clima RAA16-MP**<br>**LON MP-Bus Controller 16 ports**<br>■ Controller module for 16 damper, flap, valve or VAV actuators with MP-Bus interface<br>■ Monitoring of actuator status<br>■ Utilisation of sensors connected to MP-Bus actuators (0-10V, resistive or floating contact)<br>■ Parameterisable output limitation and valve maintenance function, changeable network variables for input signal mapping | **RAA16-MP**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 130mA<br>**Bus connection:**<br>Actuators: 16<br>Sensors: 16 (via actuators)<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 140 x 60mm (8HP)<br>DIN rail mounting | 121 356 |
| 16x MP-Bus · LON · 24V DC · Free Topology · application · Plug-in · data sheet | | | |
|  | **clima RAA16-MPL**<br>**LON MP-Bus Controller 16 ports for MPL-type actuators**<br>■ Controller module for 16 damper, flap or valve actuators (MPL-type) with MP-Bus interface<br>■ Monitoring of actuator status<br>■ Parameterisable output limitation and valve maintenance function | **RAA16-MPL**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 85mA<br>**Bus connection:**<br>Actuators: 16<br>Sensors: -<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 88 x 60mm<br>DIN rail mounting | 121 351 |
| 16x MPL-Bus · LON · 24V DC · Free Topology · application · Plug-in · data sheet | | | |
|  | **clima RAA32-MPL**<br>**LON MP-Bus Controller 32 ports for MPL-type actuators**<br>■ Controller module for 32 damper, flap or valve actuators (MPL-type) with MP-Bus interface<br>■ Monitoring of actuator status<br>■ Parameterisable output limitation and valve maintenance function | **RAA32-MPL**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 130mA<br>**Bus connection:**<br>Actuators: 32<br>Sensors: -<br>**Metrics/Mounting:**<br>(HxWxD) 85(45) x 140 x 60mm<br>DIN rail mounting | 121 352 |
| 32x MPL-Bus · LON · 24V DC · Free Topology · application · Plug-in · data sheet | | | |

# Monitoring and Control of Fire Dampers

## Simplified monitoring

The clima BSK modules are perfect for the monitoring of thermal and control of motorised fire dampers. All modules include the standardised LonMark “Fire and Smoke Damper Actuator” functional profile, which significantly simplifies the integration of dampers in the control and maintenance of ventilation systems.

## Build-in service function

The BSK modules for motorised fire dampers include a test function that is activated centrally, and checks for unhindered function during closing and opening. This test function meets the requirements for monthly functional testing of maintenance-free fire dampers.

## Added value with room controls

The integration of motorised fire dampers into e.control room automation is significantly simplified by clima BSK, since both speak the same protocol language and can therefore be integrated into an overall system. For example, the specific closing of dampers whose fire section is not occupied can be very useful. This reduces the air volume to be carried by the ventilation system, leading to significant energy savings.

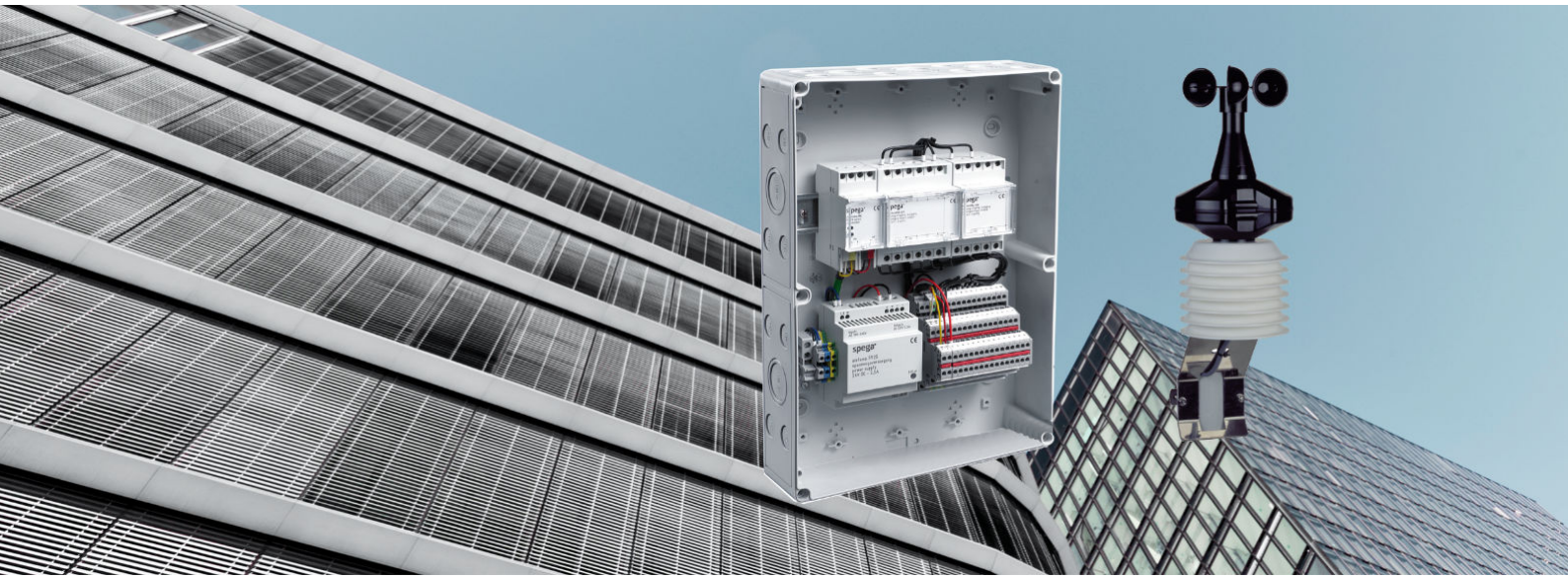
## The advantages

- 4 modules for thermal and motorised fire dampers are available in 24V and 230V variants
- Uniform software allows the combination of all modules in a single system
- Built-in functional testing for maintenance-free fire dampers
- Integration into room automation for more energy efficiency

# Fire Damper Modules

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **clima BSK8-E**<br>**LON Fire damper position indicator 8-fold for 24 V DC**<br>■ Module with 8 inputs for position indicator switches of up to 8 fire dampers<br>■ Plastic case, cable entry points with strain relief, protection class IP54 (IP65 on request)<br>■ Applications according to LonMark to initiate and forward fire alams or to monitor states of binary contacts | **Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 65mA<br>**Metrics/Mounting:**<br>(HxWxD) 63 x 254 x 180mm<br>**Application:**<br>SC411408EC 8 fire & smoke damper actuators | 411 408 |
| 8x NO / NC · LON · 24V AC/DC · Free Topology · application · Plug-in · data sheet | | | |
|  | **clima BSK8-E230**<br>**LON Fire damper position indicator 8-fold for 230V AC**<br>■ Module with 8 inputs for position indicator switches of up to 8 fire dampers<br>■ Plastic case, cable entry points with strain relief, protection class IP54 (IP65 on request)<br>■ Applications according to LonMark to initiate and forward fire alams or to monitor states of binary contacts | **Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 230V AC, max. 2W<br>**Metrics/Mounting:**<br>(HxWxD) 63 x 254 x 180mm<br>**Application:**<br>SC411408EC 8 fire & smoke damper actuators | 411 409 |
| 8x NO / NC · LON · 230V AC · Free Topology · application · Plug-in · data sheet | | | |
|  | **clima BSK4-F**<br>**LON Fire damper actuator 4 ports for 24 V DC**<br>■ Module to control 4 fire or smoke dampers with 24V AC/DC spring return drive<br>■ 8 inputs for floating contacts to indicate open-end and closed-end position<br>■ Plastic case, cable entry points with strain relief, protection class IP54 (IP65 on request) | **Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V AC/DC, max. 120mA<br>**Max. load:**<br>per motor 24V AC/DC, max. 1A<br>**Metrics/Mounting:**<br>(HxWxD) 63 x 254 x 180mm<br>**Application:**<br>SC421404EC 4 fire & smoke damper actuators | 421 404 |
| 8x NO / NC · 4x 24V AC/DC · LON · 24V AC/DC · Free Topology · application · Plug-in · data sheet | | | |
|  | **clima BSK4-F230**<br>**LON Fire damper actuator 4 ports for 230V AC**<br>■ Module to control 4 fire or smoke dampers with 230V AC spring return drive<br>■ 8 inputs for floating contacts to indicate open-end and closed-end position<br>■ Plastic case, cable entry points with strain relief, protection class IP54 (IP65 on request) | **Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 230V AC, max. 4W<br>**Max. load:**<br>per motor 230V AC, max. 250W<br>**Metrics/Mounting:**<br>(HxWxD) 63 x 254 x 180mm<br>**Application:**<br>SC421404EC 4 fire & smoke damper actuators | 421 405 |
| 8x NO / NC · 4x 230V AC · LON · 230V AC · Free Topology · application · Plug-in · data sheet | | | |

# Weather Sensors and Automation



## Optimised sun protection

ombra BST combines the many requirements for sun protection in the perfect manner. The slat tracking controller ensures glarefree work while simultaneously taking maximum advantage of the daylight. Since it can calculate the exact position of the sun and can also use exterior brightness sensors to detect its intensity, it can cyclically and precisely adapt the position of blinds to the current situation. This ensures that every room receives the maximum possible amount of daylight – of course, while maintaining the glare protection needed.

## Shadow correction

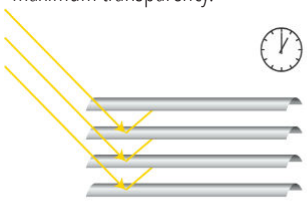
In combination with the ombra BST slat tracking controller, all e.control sunblind actuators are ready to take shadows from surrounding buildings into account. Only those blinds are moved with the sun that are actually in the sunshine according to the shadows cast on the facade, while the blinds in windows in the shade can be positioned for maximum transparency.

## High-precision sensors

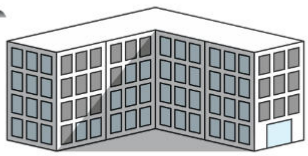
All necessary weather data is provided by e.control weather sensors. In addition to the ombra WSx central weather station with the capacity to connect up to 12 sensors, e.control also offers the ombra W2, a decentralised weather sensor that is mounted directly onto the facade.

## Simple system integration

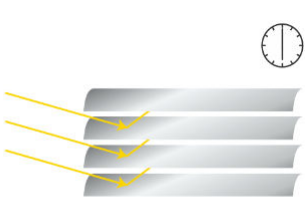
It may seem highly complex, but it's easy to put it to work: The plug-ins for the parameterisation of all the automation and safety functions, including slat tracking control and shadow correction, require no special expertise and can even be adapted during operation by Facility Management staff.



**Flat slat angles at noon ensure unobstructed view without the sun's rays directly entering the room.**



**Surrounding shadow-producing buildings are dealt with by the built-in shadow correction, i.e. shaded slats are temporarily moved up to ensure maximum daylight provision.**



**The low sun in the morning and evening calls for steeper slat angles to protect against glare.**

## The advantages

- Optimised daylight supply
- Reliable protection from glare
- Reduced thermal heating loads in rooms
- Reliable protection from weather-related damage
- Slat tracking control and shadow correction depending on the position of the sun, without external computers

# Slat Tracking Controller

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **ombra BST**<br>**LON Slat tracking controller**<br>■ Automatic sun position-dependent slat tracking for up to 15 facades, building zones or blind types with unlimited number of blinds<br>■ Supports e.control shadow correction in combination with all e.control sunblind actuators<br>■ integrated evaluation of brightness values from the ombra WS8/12 weather station. positioning commands can also be executed manually in groups or facade by facade. Integrated time switch for time-dependent positioning commands<br>■ Glare control and daylight control strategy for conventional and light control blinds<br>■ Integrated password protection and with extensive plug-in for step-by-step commissioning | **Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 80mA<br>**Equipment:**<br>- Display 4x16 characters, backlit<br>- Real-time clock, battery backed<br>- 3 LEDs (red, yellow, green)<br>**Metrics/Mounting:**<br>(HxWxD) 125 x 125 x 40mm<br>Includes box for cavity wall or flush-mounting or mounting in switchboard front door | 341 298 |

# Weather Stations

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**ombra WS8 / WS12**
**LON weather station for 8 or 12 sensors**

- Sensor unit including power supply and terminals for connecting 8 or 12 analogue weather sensors
- Compatible with weather sensor ombra W7-C, wind direction sensor ombra W1-D and 3 additional analogue sensors (WS12 only)
- Integrated weather protection and sunblind automatic controllers for 4 facades

| | | |
|---|---|---|
| **WS8** | for 8 sensors | **411 298** |
| **WS12** | for 12 sensors | **411 292** |

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 230V AC 50/60Hz

**Input:**
8 or 12 analogue inputs 0-10V

**Material/safety class:**
Polycarbonate, weatherproof, IP65

**Metrics/Mounting:**
(HxWxD) 360 x 254 x 90mm

LON

230V AC | Free Topology | application | Plug-in | data sheet

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**ombra W7-C**
**Combined weather sensor**

- combines 8 sensors in one device for measurement of:
  – wind speed
  – rain
  – outdoor brightness (3 x)
  – twilight
  – outdoor temperature
  – relative humidity
- with integrated condensation protection at temperatures below 5°C
- Safety class IP65, weatherproof

**W7-C** **410 207**

**Power supply:**
24V AC/DC, max. 650mA

**Metering range/accuarcy:**
wind: 1...40m/s / 0,5m/s
rain: yes/no
brightness: 0...150kLx / 3%
twilight: 0...250Lx / 5%
temperature -20...60°C / 0,5°C
humidity: 0...100% (rel.) / 3%

**Metrics/Mounting:**
(HxØ) 430 x 130 mm
Pole- or wall-mounting

24V AC/DC | data sheet

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**ombra W1-D**
**Wind direction sensor**

- Sensor for indicating wind direction
- Integrated automatic heating for ice free usage up to -30°C
- Safety class IP65, weatherproof

**W1-D** **410 204**

**Power supply:**
24V AC/DC, max. 830mA

**Metering range/accuarcy:**
direction: 0...360° / 5°

**Metrics/Mounting:**
(HxØ) 220 x 50 mm
Length of vane 165 mm
Pole- or wall-mounting

24V AC/DC | data sheet

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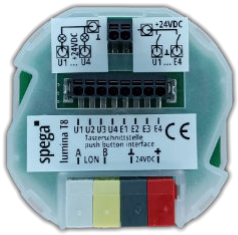
**Traverses**

- for mounting one or both sensors ombra W7-C and ombra W1-D to on-site pole
- Short crosshead suitable for holding one sensor
- Long crosshead suitable for holding two sensors

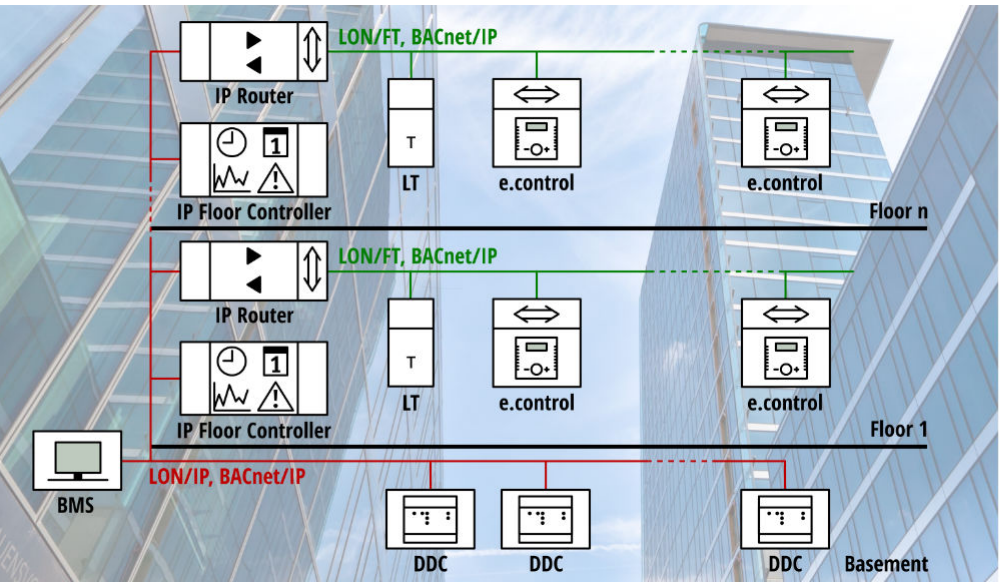
| | | |
|---|---|---|
| **Traverse short** | for pole Ø 48-102 mm | **950 208** |
| **Traverse short** | for pole Ø 116-200 mm | **950 209** |
| **Traverse long** | for pole Ø 48-102 mm | **950 206** |
| **Traverse long** | for pole Ø 116-200 mm | **950 207** |

**Length of the boom:**
0,4 m (short)
0,8 m (long)

# Compact Weather Sensors

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **ombra W-UP**<br>**LON UP weather sensor**<br>■ compact device for wind and precipitation detection<br>■ Fits in flush-mounted or cavity wall box<br>■ Connection possibility for wind sensor ombra W1-h or rain sensor ombra W1-R | **W-UP**<br>**Network/Power supply:**<br>Network: TP/FT-10 (FTT10)<br>Voltage: 24V DC, max. 43,68mA<br>**Metrics/Mounting:**<br>(HxWxD) 50 x 50 x 20mm<br>Installation in HW/UP switch box | 211 008 |
| 24V DC · Free Topology · application · Plug-in · data sheet · LON | | | |
|  | **ombra W1-Wh**<br>**Wind speed sensor for ombra W-UP**<br>■ Compact sensor for vectorial wind speed measurement<br>■ Connectable to compact weather sensor ombra W-UP<br>■ Integrated automatic heating for ice free usage up to -30°C<br>■ Safety class IP54, weatherproof, mounting angle enclosed | **W1-h**<br>**Power supply:**<br>24V DC, max. 1 A<br>**Measurement signal:**<br>Pulse, reed contact<br>**Measurement range:**<br>0,5...40 m/s<br>**Metrics/Mounting:**<br>(HxØ) 160 x 134mm<br>Pole- or wall-mounting | 410 203 |
| 24V DC · data sheet | | | |
|  | **ombra W1-R**<br>**Rain sensor for ombra W-UP**<br>■ Compact sensor for rain and snow detection<br>■ Connectable to compact weather sensor ombra W-UP or to any binary input (e.g. lumina T8/B8)<br>■ Integrated automatic heating for ice free usage up to -30°C<br>■ Safety class IP66, weatherproof, mounting angle enclosed | **W1-R**<br>**Power supply:**<br>24V DC, max. 750 mA<br>**Measurement signal:**<br>Binary, floating contact<br>**Metrics/Mounting:**<br>(HxWxD) 49 x 77 x 25mm<br>Pole- or wall-mounting | 410 202 |
| 24V DC · data sheet | | | |

# Network Topology




## Networks of any size

LON networks can be of nearly any size. An IP network is used as the backbone and to connect to external systems. The transition to the installation level is provided on each floor, using IP routers. These routers forward LON packets to room automation units through one or more twisted-pair lines in any topology. This permits networks to be built with 256 floors or areas and over 32,000 devices, with no problems at all (see diagram above).

## Universal IP backbone

The central backbone of the e.control room automation system is an IP network with the LON/IP protocol for communication between room automation devices (for example, a packet from the weather station to all the sunblind actuators) and BACnet/IP for communication with external systems, for example, to talk to building management software or the DDC automation stations. Thanks to the option of sharing use of an IP network with all the subsystems of building automation, a clear, high-performance system structure results.

## BACnet integration included

e.control floor controllers handle all important automation functions for the rooms on a single floor, such as provision of all data points, processing of timer programs, recording data trends and generating messages. To do that, they use the BACnet protocol, ensuring that integration into building management systems takes place problem-free, quickly and clearly. The floor controllers guarantee that by automatically sorting all objects by room, even when the e.control room automation system is organised by segment in flexible buildings.

And because the floor controller is managed in the graphical e.control Designer software, even updates to all BACnet objects are automatic whenever rooms are changed. Room automation integration simply can't be easier than that.

### Overview of maximum cable lengths

| Media | Transceiver | Data rate | Cable type | Topology | max. number of devices | max. device distance | max. cable length |
|---|---|---|---|---|---|---|---|
| TP/FT (LON FT) (BACnet/IP FT) | FTT10 | 78kbit/s | J-Y(St)Y 2x2x0,8 | free<br>line | 64<br>64 | 320 m<br>900 m | 500 m<br>900 m |
| | | | Categorie 5 | free<br>line | 64<br>64 | 250 m<br>900 m | 450 m<br>900 m |
| | | | Belden 8471/85102 | free<br>line | 64<br>64 | 400 m<br>2.700 m | 500 m<br>2.700 m |
| IP-852 (LON/IP) | 10BaseT | >10Mbit/s | various | star | 256* | unlimited | unlimited |
| IP-70 (LON/IP) (BACnet/IP) | | | | | unlimited | | |

*) max. number of LON/IP devices per logical IP channel when using IP-852 routers

## The advantages

- High-performance room automation network with up to 256 floors/areas and 32,000 devices
- Use of a shared IP network backbone with building automation
- Automatic room-by-room BACnet integration using e.control floor controllers
- Integration of touch panels into the IP backbone fully supported

# Floor and Application Controllers

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|


**sistema LGATE950**
**BACnet Floor controller**

**133 950**

- Server for automation floor functions like data point presentation, time scheduling, trend logging and event notification as BACnet server objects
- fulfills all BACnet functions of the AMEV profile AS-A
- Operation via LON/IP or TP/FT-10 can also be used as RNI interface
- static network interface has a separate function block per room, therefore an automatic adjustment in case of room changes via e.control Designer is possible
- Supplied with preconfigured program for up to 60 rooms and LNS plug-in for free adaptation

**Network:**
Port 1: 10/100 Base-T (BACnet/IP, LON/IP)
Port 2: 10/100 Base-T (BACnet/IP, LON/IP)
Port 3: TP/FT-10 (FTT10)

**Resources:**
BACnet objects 1000
BACnet trend logs 512
BACnet not. class obj. 32
LON network var. 2000
Schedulers 100

**Power supply:**
9-35V DC, 12-24V AC 50/60Hz
max. 200mA@24V

**Metrics/Mounting:**
(HxWxD) 90(45) x 157 x 60mm
DIN rail mounting
EN50022

BACnet IP · LON · 24V AC/DC · IP protocols · Free Topology · Plug-in · data sheet


**sistema RC2**
**LON Application controller**

**131 020**

- Compact device for different control applications or logic processings
- various standard applications available (e.g. logic function, timer, room temperature controller, partition wall control, etc.)
- Applications according to LonMark profiles

**Network/Power supply:**
Network: TP/FT-10 (FTT10)
Voltage: 24V DC, max. 40mA

**Metrics/Mounting:**
(HxWxD) 85(45) x 35 x 60mm
DIN rail mounting

**Available applications (selection):**
131020FH: Floor hub for segmentation of central functions
131020PW: Partition wall controller
131020LG: Logic controller
131020SC: 4 temperature controllers with thermal control

LON · 24V DC · Free Topology · application · data sheet

# IP Routers, FT Repeaters, Terminators and Power Supplies

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|

**sistema OX-LO**
**LON/IP router**

- System device for routing packets between up to four TP/FT-10 and one IP network. (Depending on the version)
- Ideally suited as a router for connection to LON/IP backbones
- built-in web server for configuration via browser
- integrated Configuration Server

| | | |
|---|---|---|
| **OX-1LO** | 1-Port Router | **101 101** |
| **OX-2LO** | 2-Port Router | **101 201** |
| **OX-3LO** | 3-Port Router | **101 301** |
| **OX-4LO** | 4-Port Router | **101 401** |

**Network:**
Port 1: 10/100 Base-T (Ethernet)
Port 2-5: Up to four TP/FT-10 (FTT10) (Depending on version)

**Power supply:**
8-35V DC, 6-24V AC 50/60Hz
3W@24V DC, 5VA@24V AC

**Termination:**
external

**Metrics/Mounting:**
(HxWxD) 161 x 88,5 x 56mm (9HP)
DIN rail mounting
EN50022

LON · 24V AC/DC · IP protocols · Free Topology · Plug-in · data sheet

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**sistema OX-TF10**
**LON terminator 2-fold**

- Bus termination for TP/FT-10 segments (free topology or line)
- Contains 2 termination elements

| | | |
|---|---|---|
| **OX-TF10** | for 2 x TP/FT-10 free or line topology | **100 102** |

**Metrics/Mounting:**
(HxWxD) 25 x 88 x 55mm (1,5TE)
DIN rail mounting
EN50022

LON · data sheet

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**RT-33**
**LON Repeater**

- Signal amplifier connecting two TP/FT-10 segments
- Separate clamps for power supply and for electromagnetic shielding
- Connection via coloured bus clamps

**RT-33**

**Network:**
Port 1-2: 2 x TP/FT-10

**Power supply:**
24V, max. 20mA

**Termination:**
external

**Metrics/Mounting:**
(HxWxD) 85(45) x 53 x 60mm
DIN rail mounting
EN50022

LON · 24V DC · Free Topology · data sheet

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**sistema LPFT-UP**
**Voltage transformer Link Power to 24VDC**

- supplies FT devices that require a 24V DC supply via a link power network
- no separate cable pull of 24V DC required at the FT-device
- The converter fits with its small dimensions, it also fits into a flush-mounted box and is ideally suited for room control units and pushbutton interfaces
- Ideal for maintenance and conversions with existing Link Power supplies
- Connected power 2 W

**200 012**

**Network/Power supply:**
Network primary: LPT-10 (Link Power)
Network secondary: TP/FT-10 (FTT10)
power supply secondary: 24V DC, 2 W

**Metrics/Mounting:**
(HxWxD) 45 x 30 x 15mm

data sheet

# Power Supplies

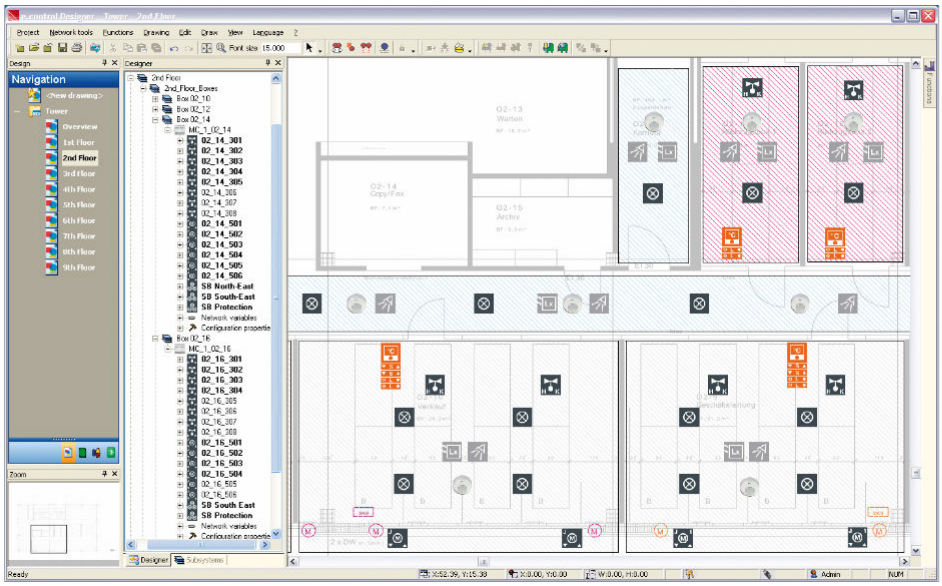
| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **sistema SV15**<br>**Power supply 24 V DC**<br>■ Regulated and stabilised power supply for LON devices with 24V DC operating voltage<br>■ Rated output current: 1,3A<br>■ Short-circuit and overload proof<br>■ High efficiency<br>■ Connectable in parallel | **Voltage:**<br>primary 120-230V AC, 50/60Hz<br>secondary 24V DC<br>**Power:**<br>30 W (1,3A secondary)<br>**Metrics/Mounting:**<br>(HxWxD) 90 x 54 x 55mm (3TE)<br>DIN rail mounting<br>EN50022 | 100 150 |
| 230V AC data sheet | | | |
|  | **sistema SV25**<br>**Power supply 24 V DC**<br>■ Regulated and stabilised power supply for LON devices with 24V DC operating voltage<br>■ Rated output current: 2,5A<br>■ Short-circuit and overload proof<br>■ High efficiency<br>■ Connectable in parallel | **Voltage:**<br>primary 120-230V AC, 50/60Hz<br>secondary 24V DC<br>**Power:**<br>60 W (2,5A secondary)<br>**Metrics/Mounting:**<br>(HxWxD) 90 x 72 x 55mm (4TE)<br>DIN rail mounting<br>EN50022 | 100 250 |
| 230V AC data sheet | | | |
|  | **sistema PS45**<br>**Power supply 24 V DC**<br>■ Regulated and stabilised power supply for LON devices with 24V DC operating voltage<br>■ Rated output current: 2 A<br>■ Short-circuit and overload proof<br>■ High efficiency | **Voltage:**<br>primary 110-230V AC, 50/60Hz<br>secondary 24V DC<br>**Power:**<br>45 W (2A secondary)<br>**Metrics/Mounting:**<br>(HxwxD) 126 x 34,5 x 102,5mm (2TE)<br>DIN rail mounting | 100 405 |
| 230V AC data sheet | | | |
|  | **sistema PS75**<br>**Power supply 24 V DC**<br>■ Regulated and stabilised power supply for LON devices with 24V DC operating voltage<br>■ Rated output current: 3,13 A<br>■ Short-circuit and overload proof<br>■ High efficiency | **Voltage:**<br>primary 110-230V AC, 50/60Hz<br>secondary 24V DC<br>**Power:**<br>75 W (3,13A secondary)<br>**Metrics/Mounting:**<br>(HxWxD) 126 x 34,5 x 102,5mm (2TE)<br>DIN rail mounting | 100 408 |
| 230V AC data sheet | | | |

# Power Supplies

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|
|  | **sistema PSL10**<br>**Power supply 24 V DC**<br>■ Regulated and stabilised power supply for LON devices with 24V DC operating voltage<br>■ Rated output current: 0,42 A<br>■ Short-circuit and overload proof<br>■ High efficiency | **Voltage:**<br>primary 100-240V AC, 50/60Hz<br>secondary 24V DC<br>**Power:**<br>10 W (0.42A secondary)<br>**Metrics/Mounting:**<br>(HxWxD) 91 x 18 x 55,6mm (1TE)<br>DIN rail mounting | 100 451 |
| 230V AC data sheet | | | |
|  | **sistema PSL30**<br>**Power supply 24 V DC**<br>■ Regulated and stabilised power supply for LON devices with 24V DC operating voltage<br>■ Rated output current: 1,25 A<br>■ Short-circuit and overload proof<br>■ High efficiency | **Voltage:**<br>primary 100-240V AC, 50/60Hz<br>secondary 24V DC<br>**Power:**<br>30 W (1.25A secondary)<br>**Metrics/Mounting:**<br>(HxWxD) 91 x 53 x 55,6mm (3TE)<br>DIN rail mounting | 100 453 |
| 230V AC data sheet | | | |
|  | **sistema PSL60**<br>**Power supply 24 V DC**<br>■ Regulated and stabilised power supply for LON devices with 24V DC operating voltage<br>■ Rated output current: 2,5 A<br>■ Short-circuit and overload proof<br>■ High efficiency | **Voltage:**<br>primary 100-240V AC, 50/60Hz<br>secondary 24V DC<br>**Power:**<br>60 W (2,5A secondary)<br>**Metrics/Mounting:**<br>(HxWxD) 91 x 71 x 55,6mm (4TE)<br>DIN rail mounting | 100 456 |
| 230V AC data sheet | | | |
|  | **sistema PSL100**<br>**Power supply 24 V DC**<br>■ Regulated and stabilised power supply for LON devices with 24V DC operating voltage<br>■ Rated output current: 3,8 A<br>■ Short-circuit and overload proof<br>■ High efficiency | **Voltage:**<br>primary 100-240V AC, 50/60Hz<br>secondary 24V DC<br>**Power:**<br>100 W (3,8A secondary)<br>**Metrics/Mounting:**<br>(HxWxD) 91 x 89,9 x 55,6mm (5TE)<br>DIN rail mounting | 100 460 |
| 230V AC data sheet | | | |


M t W t F S s
PARTY
Bank Holiday

# e.control Designer – Room Management by Mouse



**e.control Designer makes changes in area usage child's play. Its graphical and floor plan-oriented user interface makes it easy to create, modify or move rooms only by mouse click.**

## Simpler than ever

The e.control Designer makes changes in area usage child's play. Its graphical user interface makes the generation, modification, and moving of floor plans easy. Corresponding changes to automation systems are handled automatically by the software afterwards. Since both the flexible adaptation of room layout as well as service to field devices takes place using the floor plan-oriented user interface, with e.control Designer, Facility Management has a powerful tool available.

## Access to the field level

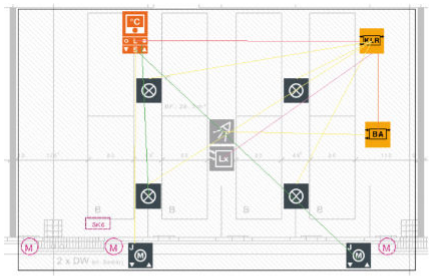
All communications devices at the field level, regardless of whether they use DALI, SMI, MP-Bus or EnOcean interfaces, are just a mouse click away from the user interface. They can be parameterised, tested or replaced directly from e.control Designer. Even faults like burnt-out lights can be identified on the user interface. Since the work steps are the same regardless of the protocol in use, access is transparent and uniform for the operator and does not require any special knowledge of the technologies.

## Extensive function library

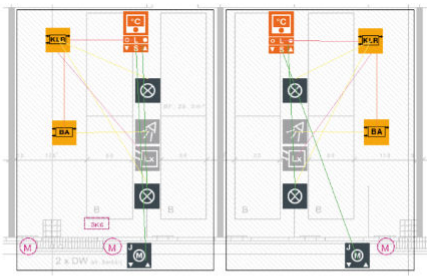
The e.control Designer has an extensive function library of all VDI 3813 room automation functions, supporting the creation of a function macro for any room type. Even the most demanding of buildings with top energy efficiency can be graphically modelled and easily operated.

## BACnet entirely automatically

e.control Designer even takes data transfer at the management level into consideration. To do this, the tool manages all e.control floor controllers and automatically ensures the room-by-room grouping of all data points as BACnet objects. This permits adaptations to the management software to be avoided when rooms are changed, or at least reduced to the creation of new rooms and the deletion of obsolete rooms.



**The creation of one hatched area automatically defines a room over 2 segments**



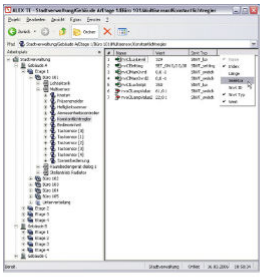
**Modification of the hatched areas re-defines the room setup to two individual rooms**

## The advantages

- Extensive function library, compliant with VDI 3813
- Room changes are carried out graphically on building floor plan
- Graphical user interface permits access to all communication-capable field devices
- Device status and faults are displayed on the user interface
- Automatic room-by-room assignment of BACnet objects to e.control floor controllers

# Commissioning / Management Software, OPC Server, LPA

| Figure | Specification | Technical Data | Order No. |
|---|---|---|---|



demo data sheet

**ALEX 4**
**Commissioning software**

- Professional software for system design and commissioning of LON networks
- Runs as local LNS client or as lightweight or full-weight client for remote network access, thus multiple ALEX can access the same LON network concurrently
- Integrated browser for monitoring and modifying network variables and configuration properties
- with device manager for fast acquisition, loading and management of multiple LON devices and integrated product database for managing LON devices and their application software
- Auto-Backup, i.e. database backup in the background incl. IzoT Net Server, Languages: German, English

**Consisting of:** Alex 4, IzoT Net Server — **090 042**

**System requirements:**
- Windows 11, 10, 8, 7 + Server
- LON network interface for LON TP/FT-10 segment
- LAN port (10/100 Base-T) for LON/IP or remote access to LNS server

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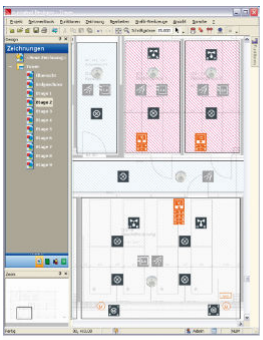

demo data sheet

**e.control Designer**
**Graphical room management software**

- Graphical software tool for network design and commissioning of e.control room automation systems
- Automatic binding and parameterization for all room automation functions through integrated function library
- Changes to the room layout or functionalities can be graphically implemented during operation
- Possibility of device management directly from the graphical environment: test, reset, online, offline, download, etc.
- incl. IzoT Net Server, Languages: German, English

| | | |
|---|---|---|
| **License for:** | 250 LON devices | **092 025** |
| | 500 LON devices | **092 050** |
| | 1000 LON devices | **092 100** |
| | 1500 LON devices | **092 150** |
| | 2500 LON devices | **092 250** |

**larger license available on request**

**Consisting of:**
e.control Designer
IzoT Net Server

**System requirements:**
- Windows 11, 10, 8, 7 + Server
- LON network interface for LON TP/FT-10 segment
- LAN port (10/100 Base-T) for LON/IP or remote access to LNS server

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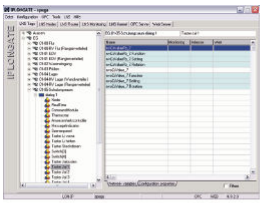

demo data sheet

**IPLONGATE**
**OPC Data server**

- High performance data server for connecting LON networks to supervisory control and data acquisition or building management systems
- executable as local LNS application, as client via LAN (lightweight) or as client via LON network (fullweight)
- OPC® server (Compliance Tested), integrated web server, up to 20 LNS databases, 3,000 LON devices and 11,900 network variables per IPLONGATE open
- Event-driven update of data points by LNS monitoring sets to reduce bus load
- without IzoT Net Server license*, Languages: German, English

| | | |
|---|---|---|
| **IPLONGATE open** | | **094 032** |
| **IPLONGATE 150**** | | **094 042** |
| **IPLONGATE 600**** | | **094 052** |

**System requirements:**
- Windows 11, 10, 8, 7 + Server
- LNS Server
- USB port for license dongle
- LON network interface for access via LON TP/FT- 10
- LAN port (10/100 Base-T) for access via LON/IP or
- Remote access to LNS server

* also available with IzoT LNS license on request
** as IPLONGATE open, but limited to 150 or 600 LON n
(expandable via upgrade)

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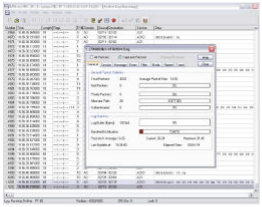

demo data sheet

**LPA**
**Protocol analyser**

- Logging of all network telegrams in LON TP/XF1250 and TP/FT-10 respectively in LON/IP networks
- Works together with all NIC network interfaces, even concurrently to ALEX or IPLONGATE
- Allows longtime logging
- Network adresses and variables will be interpreted automatically according to LNS database names

| | | |
|---|---|---|
| **LPA-SW** | for TP/XF u. TP/FT | **LPA-SW** |
| **LPA-IP** | for LON/IP | **LPA-IP** |

**System requirements:**
- Windows 11, 10, 8, 7
- LPA-SW: NIC interface
- LPA-IP: LAN port (10/100 Base-T)

# General Terms and Conditions

## § 1 General

1. the following terms and conditions of sale and delivery of safesquare GmbH (hereinafter referred to as: safesquare) shall apply to all current - and vis-à-vis merchants, regardless of a separate reference in individual cases, also to all future - legal transactions, unless safesquare has expressly acknowledged deviations in writing. Additional agreements and subsequent changes are only binding for safesquare after written confirmation by safesquare. The employees of safesquare are not authorized to make verbal agreements that deviate from these terms and conditions.
2. any conditions of purchase of the orderer are only binding after explicit and written consent of safesquare.

## § 2 Offers and scope of delivery

1. safesquare's offers are always subject to change and non-binding. The contract shall only be concluded through the written order confirmation by safesquare. safesquare is entitled to accept an offer of the orderer within a period of three weeks.
2. the documents belonging to the offers of safesquare, such as illustrations, drawings, weight and dimension specifications, only characterize the subject matter of the contract and do not represent a guarantee of characteristics. They contain only approximate information within the scope of customary tolerances.
3. ownership and copyright of drawings and other documents remain with safesquare. These drawings and documents may not be made accessible to third parties and are to be returned to safesquare immediately postage paid upon request of safesquare or in case the order is not placed.
4. safesquare's written order confirmation shall be decisive for the scope of delivery. Protective devices shall be included in the delivery if and insofar as this has been agreed in writing.
5. safesquare reserves the right to modify the delivery item, as far as the usability of the items for the agreed purpose is not impaired and the agreed relationship between price and performance is not modified to the disadvantage of the customer. Technical improvements are always permissible.

## § 3 Prices and payments

1. all prices are net prices. Cash discount is not granted in the absence of a deviating agreement. The prices are valid "ex works" (the point of sale of safesquare) and excluding packaging and insurance. Bank, discount and collection charges shall not be borne by safesquare.
The prices are calculated on the basis of the material prices and wages valid at the time of the conclusion of the contract. Should these increase until delivery, safesquare shall be entitled to invoice correspondingly higher prices in an appropriate ratio. Down payments and advance payments by the orderer do not change this.
3. payment shall be made in cash without any deduction free safesquare's payment office, in the absence of any agreement to the contrary, at the time of invoicing, irrespective of the time of delivery of the goods ("cash against invoice").
4. safesquare shall be entitled in case of late payment to charge
a) to demand annual interest in the amount of 5% above the base interest rate according to §1 of the Discount Transition Act of 9.6.1998 (BGBl.I S1242),
b) to assert all claims arising from this or other transactions, even if individual installments are not yet due, against the customer immediately,
c) to withhold deliveries or other services from this or other transactions until all claims to which safesquare is entitled from this or other orders have been completely fulfilled by the orderer,
d) to demand appropriate security. safesquare reserves the right to assert claims for damages in excess thereof.
5. safesquare's claims shall not be subject to the assertion of rights of retention or offsets as well as the defense of non-performance or defective performance of the contract, unless the counterclaims are legally established, undisputed or recognized by safesquare.
6. in case of cancellation of orders, the agreed price is due and payable immediately. However, the costs safesquare has saved for the partial work still to be carried out up to the complete completion of the ordered parts are to be deducted. The compensation shall amount to an amount of 30% of the order volume, unless the contracting partner proves a lower damage. safesquare reserves the right to prove a higher damage.

## § 4 Delivery time and delay in acceptance

1. safesquare shall endeavor to comply with the stated delivery periods and deadlines; however, in the absence of an express assurance, the delivery dates stated by safesquare can only represent indications, whereby the delivery, subject to timely delivery by safesquare, shall take place at the latest within 3 weeks of the designated date.
(2) Delivery periods shall commence with the dispatch of the order confirmation, but not prior to the provision of the final documents to be procured by the Purchaser, approvals, the clarification of all technical questions and the receipt of an agreed down payment. Delivery deadlines shall be deemed to have been met if the delivery item has left safesquare's shipping point or readiness for shipment has been communicated by the time of their expiration.
3. delivery and execution periods shall be extended appropriately in case of measures within the scope of labor disputes, in particular in case of strike and lockout as well as in case of the occurrence of unforeseen obstacles, if these lead to delays in performance at safesquare or its suppliers or subcontractors through no fault of safesquare.
If safesquare is in default, its liability for damages shall be limited to the foreseeable damage in case of slight negligence. Further claims for damages shall only exist if the delay is due to intent or gross negligence.
5. if the orderer is in default with the acceptance of the service, safesquare is entitled, without prejudice to further legal claims, to charge for the costs of storage ½% of the invoice value per month, however, a maximum of 5%, unless the orderer proves a lower damage. The assertion of a higher damage remains reserved to safesquare.

## § 5 Transfer of risk

The risk shall pass to the orderer when the delivery leaves the shipping point at safesquare or is made available to the orderer by notification of readiness for shipment. The shipment shall be carried out for the account and at the risk of the orderer.

## § 6 Partial deliveries

safesquare shall be entitled to partial deliveries and - according to prior information - also to early deliveries.

## § 7 Retention of title

1. the items delivered by safesquare shall remain the property of safesquare until full payment of the purchase price including all ancillary claims. safesquare shall furthermore retain ownership of these items until full payment of all existing and future claims arising from the business relationship already existing or initiated by the contract.
2. processing or transformation of the delivered goods shall always be carried out for safesquare. If the item is processed with other items not belonging to safesquare, with the consequence that the item loses its legal independence, safesquare acquires co-ownership of the new item in the ratio of the value of the goods delivered by safesquare to the other processed items at the time of processing.
3. if the item is mixed with other items not belonging to safesquare, safesquare shall acquire co-ownership of the new item in the ratio of the value of the item delivered by safesquare to the other mixed item at the time of mixing. If the item of the orderer is to be regarded as the main item, the orderer shall transfer ownership to safesquare on a pro rata basis.
In case of seizure or other interventions by third parties, the orderer shall immediately inform safesquare in writing. Intervention and replacement costs shall be borne by the orderer in any case.
5. in the event of culpable breach of contract by the orderer as well as in the event of justified doubts about his creditworthiness, in the event of default in payment, cessation of payment or filing of an insolvency petition
safesquare is entitled to demand the return of the purchased goods or to take them back. This as well as the seizure of the reserved goods does not constitute a withdrawal from the contract, unless safesquare has expressly declared this. Items taken back can be freely utilized by safesquare. The proceeds of the sale shall be credited against the remuneration. The orderer shall be liable for the deficiency claim.
6. the delivered goods shall be handled with care by the orderer and shall be fully insured against fire, water, explosion and other damages by the orderer at his own expense. safesquare is to be informed immediately of any damage that occurs.
7. the orderer is authorized to resell the goods in the ordinary course of business. However, if the orderer sells the item subject to retention of title, he shall be obligated to also retain ownership vis-à-vis the third party purchaser. For the duration of the retention of title, the orderer already now assigns to safesquare the claims against his customers arising from the sale, including all ancillary rights, until the complete repayment of all claims of safesquare, regardless of whether the object of sale has been resold without or after processing. The orderer is entitled to collect the assigned claim himself, but must immediately forward it to safesquare. safesquare may notify the third party purchaser of the assignment at any time. safesquare is entitled to revoke the resale and collection authorization with immediate effect, if the orderer does not meet his performance obligations to safesquare.
8. if the value of the security rights granted to safesquare by the retention of title exceeds the delivery claims of safesquare including ancillary claims by more than 20%, safesquare is obligated to release the securities in the corresponding amount at the request of the orderer.

## § 8 Copyrights, software licenses, industrial property rights

The copyrights to the software remain with safesquare. After full payment, the orderer is granted the non-exclusive right to use the delivered software. The separate license conditions for the respective software apply.

## § 9 Warranty for defects; claims for damages and reimbursement of expenses

1. If the customer is an entrepreneur, he shall duly comply with his obligations to inspect and give notice of defects pursuant to § 377 of the German Commercial Code (HGB). Defects shall be notified in writing within 8 working days after receipt of the delivery item at the place of destination or, if these were not recognizable during a proper inspection, within 8 working days after their discovery. If the customer is a consumer, obvious defects must be notified within 2 weeks after handover of the goods, non-obvious defects within 2 months after discovery.
2. if the performance of safesquare has a defect, the cause of which already existed at the time of the transfer of risk, the customer is entitled to subsequent performance by - depending on safesquare's choice - rectification of the defect or subsequent delivery. The expenses necessary for this shall be borne by safesquare only insofar as they are not increased by the fact that a delivery item was subsequently taken to a location other than the registered office of safesquare, unless this transfer corresponds to the intended use. Replaced goods shall become the property of safesquare and shall be returned to safesquare.
3.If the supplementary performance fails, the customer shall be entitled at his discretion - without prejudice to any claims for damages and reimbursement of expenses according to these terms and conditions - to reduce the remuneration or - if the breach of duty by safesquare is substantial - to withdraw from the contract.
Defects in a part of the delivered goods do not entitle the customer to complain about the entire delivery, unless the partial delivery is of no interest to the customer.
5. claims for defects become time-barred in 12 months, in business transactions with a consumer in the sense of § 13 BGB in 24 months. This does not apply insofar as these are based on intentional conduct attributable to safesquare or as soon as longer periods are mandatory according to legal regulations. safesquare shall be liable for replacement parts or rectification of defects until the expiry of the limitation period applicable to the original delivery item.
6. In the case of notices of defects, payments by the customer may only be withheld to an extent that is in reasonable proportion to the defects that have occurred, if the claims of the customer are undisputed or have been legally established. If the notice of defects is unjustified, safesquare shall be entitled to demand compensation from the customer for the expenses incurred.
7. safesquare shall be liable in accordance with the statutory provisions, insofar as the customer asserts claims for damages or reimbursement of expenses (hereinafter: claims for damages), which are based on intent or gross negligence. Furthermore, safesquare shall be liable according to the statutory provisions if safesquare has culpably violated an essential contractual obligation, as well as in cases of injury to life, body or health and insofar as guarantees have been assumed.
8. damages for the violation of an essential contractual obligation are limited to the foreseeable, typically occurring damage, as far as there is no intent or gross negligence and as far as there is no liability for injury to life, body or health or from assumed guarantees. In this respect, these claims for damages shall become statute-barred after 12 months, in business transactions with a consumer after 24 months.
9. liability for damages - regardless of the legal nature of the asserted claim - is excluded. In this respect safesquare is in particular not liable for damages that have not occurred to the delivery item itself, such as loss of profit and other financial losses of the customer or his customer.
10.The mandatory provisions of the Product Liability Act shall remain unaffected.
11. claims for reimbursement of expenses of the customer are limited to the amount of the interest which the customer has in the fulfillment of the contract.
12. as far as the liability of safesquare is excluded or limited, this also applies to the personal liability of the employees, representatives and vicarious agents.

## § 10 Impossibility

If the performance incumbent upon safesquare becomes impossible for a reason for which safesquare is responsible, the orderer shall be entitled to withdraw from the contract. Claims for damages do not exist, unless the impossibility is based on intent or gross negligence of safesquare, its representatives or vicarious agents. In the case of slight negligence, liability is limited to the typical foreseeable damage, excluding indirect damage. The compensation for damages amounts to 10% of the value of the goods, the performance of which is impossible, whereby the orderer reserves the right to prove a higher damage and safesquare the right to prove a lower damage.

## § 11 Industrial property rights and copyrights

1. if a third party raises justified claims against the orderer due to the infringement of an industrial property right or copyright (hereinafter: property rights) by products delivered by safesquare and used in accordance with the contract, safesquare shall be liable to the orderer as follows:
a) safesquare shall, at its option and at its expense, either obtain a right of use for the product, modify the product in such a way that the property right is not infringed, or replace the product. If this is not possible for safesquare under reasonable conditions, it shall take back the product against reimbursement of the purchase price.
b) The aforementioned obligations of safesquare shall only exist if the orderer immediately notifies safesquare in writing of the claims asserted by the third party, does not acknowledge an infringement and safesquare reserves the right to all defense measures and settlement negotiations. If the orderer discontinues the use of the product for reasons of mitigation of damages or other important reasons, he shall be obligated to point out to the third party that the discontinuation of use does not constitute an acknowledgement of the infringement of property rights.
2. Claims of the Purchaser shall be excluded insofar as the Purchaser is responsible for the infringement of the IPR.
3. claims of the orderer are also excluded, as far as the infringement of the property right is caused by special specifications of the orderer, by an application not foreseeable by safesquare or by the fact that the product is changed by the orderer or is used together with products not delivered by safesquare.
4. further claims against safesquare are excluded. However, § 12 remains unaffected as well as the right of the orderer to withdraw from the contract.

## § 12 Liability

1. safesquare is liable in all cases of breach of contractual or pre-contractual as well as statutory breaches of duty only in case of intent or gross negligence. A product liability occurs insofar as this is provided for by mandatory legal regulations. The liability for personal injury remains unaffected.
2. if safesquare negligently violates a main obligation or an obligation essential to the contract, safesquare's obligation to pay compensation is limited to the foreseeable damage typical for the contract.

## § 13 Final provisions

1. place of performance is Radevormwald; exclusive place of jurisdiction for all legal disputes arising from this legal relationship is Radevormwald. safesquare is, however, entitled to sue the contractual partner at his general place of jurisdiction.
2. the contractual relationship including the terms of delivery shall be exclusively judged according to German law - with the exception of the Uniform UN Convention on Contracts for the International Sale of Goods, CISG - even if the ordering party has its registered office abroad or if it is an export transaction.
3. should individual parts of the above conditions be invalid, all other delivery conditions shall remain unaffected in their validity. The contracting parties are obliged to replace an invalid provision with a valid version that corresponds to its economic purpose, if possible.

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