Lighting Control Catalogue

LON-based Lighting Control System

Issue: September 2011

Make the most of your energy℠
More than just Lighting Control

Lighting Control Solutions, delivered as part of an integrated building management system from Schneider Electric, are a key tool in controlling energy use inside your buildings.

A lighting control system allows for flexibility in the utilisation of internal space. Regular and rapid changes in the use of buildings, and increasing expectations regarding comfort and performance, mean that lighting installations must be able to evolve to meet the requirements of an expanding business, or be easily adapted to suit new tenants. Lighting Solutions from Schneider Electric and its partners meet the needs of building users and owners by: reducing installation and operating costs, providing greater flexibility in the use of building space, helping building owners meet legal and building performance regulations.

Global Leader in Building IT
As a global specialist in energy management with operations in more than 100 countries, Schneider Electric offers integrated solutions across multiple market segments, including leadership positions in energy and infrastructure, industrial processes, building automation, and data centres/networks, as well as a broad presence in residential applications. Focused on making energy safe, reliable, and efficient, the company’s 114,000 employees achieved sales of more than 18.3 billion euros in 2008, through an active commitment to help individuals and organisations “Make the most of their energySM”.

www.schneider-electric.com/buildings
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Legend of pictograms

FTT LPT  Type of transceiver used
230V  Supply voltage 230V
24VDC  Supply voltage 24VDC
NEW  New article
OLD  Discontinued line
UPI  Universal plug-in available
SPI  Device specific plug-in available
IP  Ethernet/LON over IP
DALI  Digital Addressable Lighting Interface
BCU  Unit needs a bus coupling unit
Buildings evolve and are transformed over decades. They need flexible systems that are designed to adapt to changing technologies and user demands. That is why the choice of a communications bus system such as LON is of such long-term importance. LON-based building management systems provide tremendous advantages to everyone involved:

**Architects:**
- The technical demands on building systems can be satisfied in a simpler, more flexible and cost-effective way.
- Control and display devices with bus capability combine all the functions of the different installation systems and at the same time provide a visually appealing design.

**Builders and Operators:**
- A cost-effective installation
- A high degree of flexibility, and financial savings, when the installation needs to be retrofitted or modified
- Reduction of operating costs by intelligent facility management
- “Transparency” of buildings by centralised annunciation, control and monitoring
- Standardised and easily comprehensible operation of the facilities
- Reduction of maintenance and service costs

**Planners and Installers:**
- Prevention of installation and planning mistakes thanks to an easy and comprehensible installation procedure
- Lower installation costs, in comparison to isolated solutions
- Facilitates compliance with regulations by reducing the risk of fire
- Reduced production costs due to the multiple use of sensors and the elimination of expensive gateway solutions for data exchange between individual systems
- Reduced training costs
Lighting Control Solutions

Applications

The use of an intelligent building system is particularly recommended for buildings which require an optimised installation in terms of maximum flexibility and comfort, combined with minimum additional cabling, e.g. in banks and building complexes, office and administration buildings, hospitals, hotels, department stores, industrial warehouses, schools etc.

Light and sunblind control is an important part of the system as it represents a major part of the potential energy savings.

Light Control

Lighting units may be controlled both centrally and locally. The light can be dimmed or switched at predetermined times. Lighting can be dimmed or switched at pre-determined times or made dependent on indoor or outdoor brightness levels, or occupancy as part of an overall building management strategy to reduce energy and operating costs.

Scene control is a strategy that includes the ability to store brightness levels and retrieve the settings via push buttons or an IR remote control as often as required, making it possible to operate any lighting scene within seconds.

Sunblind Control

Sunblinds can similarly be controlled both centrally and locally. Wind, rainfall and temperature sensors detect the weather conditions, and drive the outdoor venetian blinds automatically into a safe position if required. Via scene control, the sunblinds can adopt a preset position with one key press. The automatic panel adjustment function calculates the sun position depending on date, time and location of the building, and adjusts the panels to optimize transparency and glare protection.

Sunblind control can be combined with HVAC control taking into account incident solar radiation and room temperature to avoid overheating.
Automating energy efficiency

There are many buildings automation options that offer high energy saving potential. Building automation, and especially room automation, offers high energy saving potential.

Functions for Lowering Lighting Costs
Minimizing the use of artificial light in a room based on occupancy and needed brightness are key to saving the amount of energy used on lighting.

Constant Light Control
Multi-function sensors determine the brightness of the room and whether it is occupied. They transmit their data to dimmer actuators. If the room is not being used, the lighting stays off. If the room is being used, the dimmer actuators adjust the lighting to a precisely defined level of brightness. The energy savings are especially high if the room is well supplied with daylight, or if its use requires a high level of lighting. The savings potential is between 35 and 50 percent.

Brightness Dependent Lighting Control
This function basically corresponds to constant light control. Since switchable light actuators are used instead of dimmer actuators, the lighting level cannot be exactly set to the minimum level. For that reason, the energy savings potential is about 10 percent less than for constant light control, and is no higher than 45 percent.

Presence-Dependent Lighting Control
Presence/motion detectors can achieve energy savings by turning on lighting only when a room is occupied. The potential savings depends primarily on how much the room is occupied.

Sunblind Controlled by the Position of the Sun (Sun Automatic System)
Controlling the sunblind according to the position of the sun (also known as the sun automatic system) ensures that the sunblind automatically moves to a defined shield position when strong solar radiation is present. As soon as the intensity of the sunshine lessens, it is moved back. The savings are attributable particularly to the fact that automatic control is more effective than manual control. This reduces the need for artificial light. The savings potential is between 5 and 8 percent.

Slat Tracking
The “slat tracking” function ensures that the sunblind slats automatically adjust to the position of the sun. In this way they diffuse daylight that shines through the blinds for use in the room. Slat tracking can also reduce the proportion of artificial light. “Slat tracking” offers an energy lighting savings of 10 to 13 percent.
Interaction Between Slat Tracking and Constant Lighting Control
An integrated system permits functions such as slat tracking and constant light control to be used together and in coordination. This combination is especially advisable in rooms with a good supply of daylight. The savings here can be up to 30 percent.

Integrated Room Automation System
A precondition for the optimal effectiveness of all functions is an integrated room automation system, in which the different systems such as heating, cooling or glare shield work in unison. In an integrated room automation system, the sensors provide the information for all the systems while actuators and the lighting, heating, and cooling systems, provide simultaneous support.

Planning and Configuration of an Energy Saving Room Automation System
The planning and configuration of an energy saving room automation system is simplified by the fact that the room automation system functions conform to the LonMark profiles used around the world. With this system, room automation functions can be described clearly and comprehensively.

Once the desired room automation functions have been selected, the savings potential of the particular room automation solution devices can be configured.

Functions for Saving Lighting Energy

<table>
<thead>
<tr>
<th>Room Automation Functions</th>
<th>Savings</th>
<th>Positive factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant light control (presence-dependent, dimmed)</td>
<td>35 - 50%</td>
<td>- Good daylight supply</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- High lighting levels (&gt;300lux)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Particularly efficient with slat control</td>
</tr>
<tr>
<td>Presence and brightness-dependent lighting control (switched)</td>
<td>25 - 45%</td>
<td>- Good daylight supply</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- High lighting levels</td>
</tr>
<tr>
<td>Automatic sun protection system</td>
<td>5 - 8%</td>
<td>- Good daylight supply</td>
</tr>
<tr>
<td>Slat adjustment</td>
<td>10 - 13%</td>
<td>- Good daylight supply</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- particularly efficient with constant light control</td>
</tr>
<tr>
<td>Automatic lighting or staircase lighting</td>
<td>No information</td>
<td>- Low presence levels (e.g. corridors)</td>
</tr>
</tbody>
</table>
Design Programme

Open building control systems provide synergy between individual systems. The functions of various individual installation systems are combined in one device. Light switches, thermostats and sunblind controls of different sizes, designs and colours are replaced with a single control and display device.

LON-interfaced Control Panels combine the performance capability of LON an unobtrusive design. Clearly arranged keys, lettering areas and displays allow the user to control the lighting, venetian blinds, heating, ventilation and other devices in the room effortlessly.

Schneider Electric offers a range of aesthetically appealing products including System-M.

System-M comprises ten modules – from a 1-gang push button to occupancy detector. Each is available in five colours. These modules can be combined with 27 different frames.

The ARTEC Program is timeless in design, with a clean, flush-fitting profile. It satisfies the demands of modern architecture, and is suitable for many different locations. Its premium stainless steel design provides the ideal surface for subtle but highly visible lettering.

The standard ARTEC inserts and frames stocked are in polar white glossy color and the SYSTEM-M inserts and frames are in polar white matt colour.

A selection of push button inserts and frames are available as non stock items sold separately. For further details, see APPENDIX A.

Note: The frames are not included in the delivery of the modules and have to be ordered separately.
Room Control Unit

Room Control Units RCU-61 and RCU-101 are a combination of a temperature controller and a multi-function push button with display. The RCU-61 includes six, and the RCU-101 ten, large push buttons; either can be adapted to different individual functions.

Two push buttons each are reserved for temperature control.

The Room Control Units can control any operating resource installed in a room, either individually or in scenes, by a single device:
- Lighting and sunblinds
- Heating, air conditioning and ventilation

In addition, Room Control Unit RCU-101 can be activated by a remote control device which is available separately.

All design modules consist of application modules, frame and LON BUS Coupling Unit. (Unit “LON-BCU®”).

Schneider Electric’s third generation LON Bus Coupling Units feature a wide variety of application modules with low power consumption. Utilizing link power technology the LON-BCUs take power from the LON network, thus eliminating the need for an additional power supply.

The LON-BCU is configured with an LNS plug-in. All applications comply with the relevant LonMark standards.
Lighting Control Solutions cover a wide range of functions, including:

- Digital Inputs for 24 V and 230 V input voltage, and for floating contacts
- Analog inputs and outputs
- Switching actuators with 24 V semiconductor outputs
- Switching actuators with relay outputs
- Phase controlled dimmers 1-10 V control devices for dimmable electronic ballasts
- LON DALI-Controllers for control of electronic DALI components

Most of the devices are suitable for DIN rail mounting. These devices are sub-classified into the three product lines M, N and S.

Cables can be attached to the inputs and outputs of most devices in the M, N, and S product range by using pluggable screw-type terminals that are easy to replace when necessary. This provides protection against polarity reversal should the device be replaced as well as accidental contact at any time.

Clamp-type terminals allow up to four bus cables to be connected to the device, so that the line is not interrupted if a device is disconnected from the network.

Power lines and bus cables may be installed without spacing. Single insulated wires or power lines and bus cables either have to be installed with a spacing of 4 mm or they need an appropriate insulation (DIN VDE 01 10-1). A protective cap is included with the REG-M and REG-N modules, to ensure a clear separation between the power line and bus cable.

The “DR-N” product line is the latest generation of I/O modules with the following features:

- Bus connection via 2-pin bus terminal with protective cap
- Pluggable screw-type terminals for inputs and outputs
- Status LED for every input and output
- Manual operation
- Free-Topology-Transceiver (FTT)
- DC 18...30 V supply voltage
- Configurable reaction of the outputs to power-down and power-up/reset

The “DR-M” product line consists of about 20 I/O modules with the following distinctive features:

- Bus connection via 2-pin bus terminal with protective cap
- Pluggable screw-type terminals for inputs and outputs
- Link Power Transceiver (LPT)
Link-Power-technology enables both data and the supply voltage for the control electronics can be transmitted via the LON network. For example, if the I/O modules are applied peripherally the complexity of cabling is minimised. LPT devices can be operated in combination with FTT devices in one subnet, but then they require an extra LON Power Supply.

The "DR-S" product line includes, the DALI Controllers, four I/O modules (available later, for the moment under re.design) with the following characteristics:

- Four resp. eight outputs and the same number of inputs for consumer loads and drives
- Status LED for every input and output
- Manual operation
- Pluggable screw-type terminals
- Free Topology Transceiver (FTT)
- 230 V supply voltage
- Configurable reaction of the outputs to power-down and power-up/reset

Conventional push buttons are normally connected to the digital inputs to operate the consumer loads at the outputs. The digital inputs can also be used for floating contacts, e.g. of motion detectors, photo-electric lighting controllers, or thermostats, independently of the outputs. The contact current is approximately 10 mA. The contact voltage of about 24 V is generated by the device itself, so that no external power supply unit is required. Every input status, as well as the output states, is indicated by a status LED. Every output can be operated manually, using the push buttons on top of the casing.

All cables can be connected to the device using pluggable screw-type terminals. The REG-S modules are some of the few LON actuators that provide the opportunity to configure the outputs’ reaction to power-down as well as to power-up/reset.
In many applications, dimmable lighting systems are becoming more and more important. The previous gap in communication existing between the LON network and the lamps is closed by DALI. This Digital Addressable Lighting Interface is a standardised interface for electronic ballasts developed by the leading European manufacturers.

By means of ballast addresses, lamps of up to 64 DALI ballasts can be switched and dimmed individually via a common data line without the usual brightness gradient due to the resistance of the control line.

The DALI ballasts can be divided into 16 groups. Every ballast provides 16 scene memory units for light levels so individual atmospheres can be recalled directly.

LON DALI Controllers DR-S 4DIM, 8DIM and 16DIM allow independent control of four, eight or 16 lighting groups respectively, according to the LonMark profiles. In addition, they provide scene control of the DALI devices. Different characteristic curves of dimmable electronic ballasts from various manufacturers are conformed to automatically.

The LON DALI Controllers are DALI system devices. They control all DALI ballasts and connected DALI multisensors*, and provide an interface between LON and the DALI bus. By use of the familiar LNS plug-in, the controllers can be configured and the DALI devices can be integrated completely in the LON bus system. Neither special accessory devices, nor software, are required.

The electronic DALI ballasts communicate bidirectionally, i.e. they can propagate their current state to other DALI devices. In combination with the appropriate equipment, lamps can announce failures to the LON DALI Controller. The latter transmits the message via the LON network to a building management centre or via a LON TCP/IP gateway to any other place in the world.

* Only DR-S 8DIM can control Dali multisensors LA 11
Up to 256 devices, divided into 64 DALI groups can be connected to the LON DALI Gateway REG 4x16 DIM with four DALI control lines.

In addition to the DALI connections, the gateway also has a LON Twisted-Pair interface with Free Topology Transceiver, as well as an Ethernet interface.

The TP/FT interface is intended for connection of up to 64 LON control units via an Ethernet interface. The LON DALI Gateway usually communicates with a superior light management or building automation system by means of LON over IP, via an Ethernet interface. Other DALI Gateways are also being addressed in this way.

By means of the integrated Ethernet interface, a hierarchically very even but powerful interface, network structure emerges without IP-gateways.

Normally initiation is also carried out via an Ethernet interface. The setting of all internal parameters and configurations can be carried out by an LNS-independent configuration tool.

For constant light control and scene control, all relevant LonMark objects, such as "Lamp Actuator", "Constant Light Controller", "Occupancy Controller" and "Scene Controller" can be custom configured in virtually unlimited quantities. The common restrictions with LON devices, for example the limitation of 15 address table entries, no longer exist. The LON DALI Gateway can also be connected to the DALI LA-11 Multisensor.

The DALI Multisensor is a combination occupancy and light sensor.

For the first time, a cost-effective solution for creating an intelligent lighting control, as well as its integration into building automation, is offered by LON DALI Controllers, respectively by a LON DALI Gateway, in combination with the DALI Multi-sensor.
Multisensors

A demand-responsive single room control helps save up to 70 percent of energy on lighting, heating and ventilation. One of several things that must be done is to detect brightness and presence in the room.

Based on passive infrared technology, the LA-21 and ILA-22 LON multi-sensors are designed for presence-dependent lighting control.

Installed at a height of 2.5 m, these multi-sensors detect movement in a circular range of 14 m.

The integrated light sensor is designed for daylight-dependent lighting control. Combined with the constant light controller objects of the dimmers, the 1-10 V control outputs or the DALI controllers, a cost-effective solution can be achieved.

The ILA-22 multi-sensor possesses an additional IR receiver. Combined with the remote control, it is possible to control scenes and sunblinds in addition to dimming and switching the lighting. The multi-sensors feature a LON interface with a link-power transceiver, and can therefore be connected directly to a LON network. A further auxiliary supply is not required.

The multi-sensors are particularly suitable for installation in single and open-plan offices, foyers, stairways, as well as class, conference and meeting rooms.
Temperature Control

It is quite common to configure single room temperature control with a central control unit in a star topography. However, this approach has many disadvantages:

- Extensive cabling between the devices
- Inflexibility due to fixed wiring
- Additional space is required for the control unit and cables
- The design of the control unit does not match the other switches and sockets.

Alternatively, the following approach can be adopted: the temperature sensor and the operating and control unit are integrated in one bus device (“Temperature Controller”). The controller transmits the manipulated variable via the LON network to an actuator (e.g. art. no. MTN887391) mounted on a cooling or heating battery, which converts the command into a corresponding valve movement. Floating contacts, e.g. of architrave-type switches at the windows, or dew point sensors can be connected directly to the digital inputs of the valve actuator.

Decentralised room control has the following advantages:

- Simple and cost-effective cabling
- High flexibility in case of alterations or extensions
- The controller is available in all versions and designs.

Besides the LON network, only a temperature controller with LON Bus Coupling Unit, and at least one LON valve actuator (or other actuator) is required. This combination can be retrofitted by an occupancy sensor or a system clock. Via the LON network, the decentral single room control can be linked to other installation systems, such as lighting, sunblind or access control.
# Lighting Control Products

## System Components

### Power Supply LPS 133

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Additional Information</th>
</tr>
</thead>
</table>
| ![Image](image1.png) | MTN884019 | • Power supply for devices with Link Power Transceivers  
• Rated output current:  
  • 1 A (short-circuit- and overload-proof) if supply voltage 85 V .. 195 V  
  • 1.3 A (short-circuit- and overload-proof) if supply voltage > 195 V  
  • Max. continuous output current: 1.3 A if supply voltage > 195 V  
  • Bus power monitoring via relay output  
  • Adjustable bus terminator for free or line topology or without termination  
• Supply voltage: AC 120/230 V (AC 85 .. 264 V)  
• DIN rail mounting according to EN 50 022  
• Width of device: approx. 180 mm (10 pitch) |

### Power Supply ABL8MEM24012

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Additional Information</th>
</tr>
</thead>
</table>
| ![Image](image2.png) | ABL8MEM24012 | • Power supply 24Vdc  
• Nominal output current: 1.2 A)  
• Supply voltage: 100Vac to 240Vac  
• DIN rail mounting  
• Width of device: approx. 72 mm (4 pitch) |

### Bus Coupling Unit UP

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Additional Information</th>
</tr>
</thead>
</table>
| ![Image](image3.png) | MTN880451 | • Base module for flush-mounted LON devices  
• Screw fixing in flush-mounted boxes  
• Software applications according to LonMark profile “Switch (3200)” and “Scene Panel (3250)” to translate the signals of the  
• Connected application modules (push buttons, motion detectors, temperature controllers, etc.) into messages for light, sunblind, occupancy and single room temperature control |
### LON ARTEC Push button 1-gang

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image1.png) | MTN880701 | polar white glossy | • Application module in Merten ARTEC design  
• Two push buttons for individually assigned functions  
• One status LED  
• Software application according to LonMark profile “Switch (3200)”, “Scene Panel (3250)” and “Occupancy Sensor (1060)” for light, sunblind or scene and occupancy control  
To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour.  
Note: Picture includes frame |
| ![Image](image2.png) | MTN880711 | stainless steel   |                                                                                                                                                                                                            |

### LON ARTEC Push button 2-gang

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image3.png) | MTN880721 | polar white glossy | • Application module in Merten ARTEC design  
• Four push buttons for individually assigned functions  
• Two status LEDs  
• Other features as per LON ARTEC Push button 1-gang (art. no. MTN880701)  
• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour.  
Note: Picture includes frame |
| ![Image](image4.png) | MTN880731 | stainless steel   |                                                                                                                                                                                                            |

### LON ARTEC Push button 4-gang

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image5.png) | MTN880741 | polar white glossy | • Application module in Merten ARTEC design  
• Eight push buttons for individually assigned functions  
• Four status LEDs  
• Other features as per LON ARTEC Push button 1-gang (art. no. MTN880701)  
• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour.  
Note: Picture includes frame |
| ![Image](image6.png) | MTN880751 | stainless steel   |                                                                                                                                                                                                            |
## LON ARTEC Room Control Unit RCU-61

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image1) | MTN880901   | polar white glossy | - Application module with display in Merten ARTEC design  
- Eight push buttons for individually assigned functions with a status LED for each push button  
- Two push buttons for setpoint adjustment and configuration of the display functions  
- Continuous action controller for heating and cooling incl. integrated temperature sensor  
- Calculates manipulated variables from setpoint and actual temperature values according to the particular operation mode  
- Can control valves or switching actuators in combination with an electro-thermal control valve  
- Two different setpoints for heating and cooling  
- Display to indicate room temperature and operation modes as per comfort, standby, night  
- Degree of protection: IP 20  
- Software application according to LonMark profile “Switch (3200)”, “Scene Panel (3250)” and “Thermostat (8060)” for light, sunblind or scene and room temperature control  
- To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour. Note: Picture includes frame |

| ![Image](image2) | MTN880911   | stainless steel  | Other features as per LON ARTEC Room Control Unit RCU-61 (art. no. MTN880901)  
To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour. Note: Picture includes frame |

## LON ARTEC Room Control Unit RCU-101

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image3) | MTN880921   | polar white glossy | - Application module in Merten ARTEC design  
- Eight push buttons for individually assigned functions with a status LED for each push button  
- IR receiver for control of the button functions via IR Remote Control (art. no. MTN880991)  
- Piezo buzzer to indicate warnings or alarms  
- Other features as per LON ARTEC Room Control Unit RCU-61 (art. no. MTN880901)  
To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour. Note: Picture includes frame |

| ![Image](image4) | MTN880931   | stainless steel  | Other features as per LON ARTEC Room Control Unit RCU-61 (art. no. MTN880901)  
To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour. Note: Picture includes frame |

## Frame ARTEC 1-gang

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image5) | MTN481119   | polar white glossy | - Frame 1-gang in Merten ARTEC design  
- Frames for multiple push button modules are available on request. |

| ![Image](image6) | MTN481146   | stainless steel  | Other features as per LON ARTEC Room Control Unit RCU-61 (art. no. MTN880901)  
To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour. Note: Picture includes frame |
## Frame ARTEC for RCU-101

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MTN481919</td>
<td>polar white glossy</td>
<td>• Frame for RCU-101 in Merten ARTEC design</td>
</tr>
<tr>
<td></td>
<td>MTN481946</td>
<td>stainless steel</td>
<td></td>
</tr>
</tbody>
</table>

## LON System-M Push button 1-gang

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MTN881401</td>
<td>polar white matte</td>
<td>• Application module in Merten System-M design</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Two push buttons for individually assigned functions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Two status LEDs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Software application according to LonMark profile</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;Switch (3200)&quot;, &quot;Scene Panel (3250)&quot; and</td>
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<td></td>
<td></td>
<td>&quot;Occupancy Sensor (1060)&quot; for light, sunblind or scene and occupancy control</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured design. Note: Picture includes frame</td>
</tr>
</tbody>
</table>

## LON System-M Push button 2-gang

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MTN881451</td>
<td>polar white matte</td>
<td>• Application module in Merten System-M design</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Four push buttons for individually assigned functions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Two status LEDs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Other features as per LON System-M Push button 1-gang</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(art. no. MTN881401)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured design. Note: Picture includes frame</td>
</tr>
</tbody>
</table>

## LON System-M Push button 4-gang

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MTN881501</td>
<td>polar white matte</td>
<td>• Application module in Merten System-M design</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Eight push buttons for individually assigned functions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Four status LEDs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Other features as per LON System-M Push button 1-gang</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(art. no. MTN881401)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured design. Note: Picture includes frame</td>
</tr>
</tbody>
</table>
### LON System-M Push button MF 4-gang

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image1.png) | MTN881601 polar white matte | • Application module in Merten System-M design  
• Eight push buttons for individually assigned functions  
• Eight status LEDs  
• Other features as per LON System-M Push button 1-gang (art. no. MTN881401) To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured design. Note: Picture includes frame | UPI  
BCU |

### LON System-M Push button MF-IR 4-gang

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image2.png) | MTN881651 polar white matte | • Application module in Merten System-M design  
• Eight push buttons for individually assigned functions  
• IR receiver for control of the button functions via IR Remote Control (art. no. MTN880991)  
• Eight status LEDs  
• Other features as per LON System-M Push button 1-gang (art. no. MTN881401)  
• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured design. Note: Picture includes frame | UPI  
BCU |

### LON System-M Room Control Unit RCU-61

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image3.png) | MTN880601 polar white matte | Application module with display in Merten System-M design  
• Backlit LC display  
• Four push buttons for individually assigned functions with a status LED for each push button  
• Two push buttons for setpoint adjustment and configuration of the display functions  
• Continuous-action controller for heating and cooling incl. integrated temperature sensor  
• Calculates manipulated variables from setpoint and actual temperature values according to the particular operation mode  
• Can control valves or switching actuators in combination with an electro-thermal control valve  
• Two different setpoints for heating and cooling  
• Display to indicate room temperature and operation modes as per comfort, standby, night  
• Degree of protection: IP 20  
• Software application according to LonMark profile “Switch (3200)”, “Scene Panel (3250)” and “Thermostat (8060)” for light, sunblind or scene and room temperature control  
• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured design. Note: Picture includes frame | UPI  
BCU |
# LON System-M Room Control Unit RCU-101

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](MTN880621) | MTN880621 | polar white matte | • Application module with display in Merten System-M design  
• Eight push buttons for individually assigned functions with a status LED for each push button  
• IR receiver for control of the button functions via IR Remote Control (art. no. MTN880991)  
• Piezo buzzer to indicate warnings or alarms  
• Other features as per LON System-M Room Control Unit RCU-61 (art. MTN880601) To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured design. Note: Picture includes frame. |

## Frame M-PLAN 1-gang

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](MTN486119) | MTN486119 | polar white matte | • Frame 1-gang in Merten M-PLAN design  
• Frames for other colors are available on request, see appendix A for item selection  
• Frames for multiple push button modules are available on request. |

## Frame M-PLAN for RCU-101

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](MTN587319) | MTN587319 | polar white matte | • Frame for RCU-101 in Merten M-PLAN design  
• Frames for other colors are available on request, see appendix A for item selection |

## Frame M-PLAN Glass 1-gang

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](MTN489178) | MTN489178 | glass sapphire | • Frame 1-gang in Merten M-PLAN Glass design  
• Frames for multiple push button modules are available on request, see appendix A for item selection |
## Digital output

### LON I/O Module DR-N 4S-16A

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image 1](image1.jpg) | MTN881831 | • Independent switching of four load groups  
• Four relay outputs (N.O. contacts, 16 A)  
• Manual operation per output  
• Status signaling via manual switch  
• Power-down detection  
• Supply voltage: DC 24 V  
• Screw-type terminals  
• Width of device: approx. 72 mm (4 pitch)  
• Software application for control of four independent consumer loads according to LonMark profile “Lamp Actuator (3040)” including timers, logic operation, prioritised control and configurable reaction of the outputs to power-up/bus reset.  
• In addition, four “Scene Controllers (3251)” are available |

### LON I/O Module DR-N 8S 10A

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image 2](image2.jpg) | MTN881801 | • Independent switching of eight load groups  
• Eight relay outputs (N.O. contacts, 10 A)  
• Manual operation and status indication per output  
• Power-down detection  
• Supply voltage: DC 24 V  
• Pluggable screw-type terminals  
• Width of device: approx. 72 mm (4 pitch)  
• Software application for control of eight independent consumer loads according to LonMark profile “Lamp Actuator (3040)” including timers, logic operation, prioritised control and configurable reaction of the outputs to power-up/bus reset.  
• Two “Scene Controllers (3251)” are available |

### LON I/O Module DR-M 8S 10A

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image 3](image3.jpg) | MTN880581 | • Independent switching of eight load groups  
• Eight relay outputs (N.O. contacts, 10 A)  
• Manual operation and status LED per output  
• Pluggable screw-type terminals  
• DIN rail mounting according to EN 50 022  
• Width of device: approx. 72 mm (4 pitch)  
• Software application for control of eight independent consumer loads according to LonMark profile “Lamp Actuator (3040)” without timers, logic operation or other controllers |
### LON I/O Module DR-M 8S 16A

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](mtn880651.png) | MTN880651 | - Independent switching of eight load groups  
- Eight relay outputs (N.O. contacts, 16 A)  
- Manual operation per output  
- Status signaling via manual switch  
- Width of device: approx. 144 mm (8 pitch)  
- Other features as per LON I/O Module DR-N 4S (art. no. MTN881831), but with eight “Lamp Actuator (3040)”, two “Scene Controller (3251)” and one “Global Control” object |

To be replaced by MTN880581 or MTN881831 / MTN881801 (requires 24VDC power supply like ABL8MEM24012)

**LPT**

**UPI**

**OLD**

### Sunblind

**I/O MODULE DR-N MSCU4-AC**

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](mtn881811.png) | MTN881811 | - Control of four customary sunblinds by use of interference-suppressed standard motors  
- Eight relay outputs (N.O. contacts, 10 A)  
- Manual operation and status indication per output  
- Power down detection  
- Supply voltage: DC 24 V  
- Pluggable screw-type terminals  
- Width of device: approx. 72 mm (4 pitch)  
- Software application for control of four independent sunblind drives. Opportunity of prioritised control, analysis of meteorological data for sunblind protection, scene and group control |

**FTT**

**24VDC**

**UPI**

### LON I/O Module DR-M 12S 16A

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](mtn880661.png) | MTN880661 | - Independent switching of twelve load groups  
- Twelve relay outputs (N.O. contacts, 16 A)  
- Manual operation per output  
- Status signaling via manual switch  
- Width of device: approx. 216 mm (12 pitch)  
- Other features as per LON I/O Module DR-N 4S (art. no. MTN881831), but with twelve “Lamp Actuator (3040)”, two “Scene Controller (3251)” and one “Global Control” object |

**LPT**

**UPI**

**OLD**

### LON I/O Module DR-M 8S 16A

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](mtn880651.png) | MTN880651 | - Control of four customary sunblinds by use of interference-suppressed standard motors  
- Eight relay outputs (N.O. contacts, 6 A)  
- Manual operation and status LED per output  
- DIN rail mounting according to EN 50 022  
- Width of device: approx. 72 mm (4 pitch)  
- Software application for control of four independent sunblind drives. Opportunity for prioritised control, analysis of meteorological data for sunblind protection, scene and group control |

**LPT**

**UPI**

**OLD**

To be replaced by MTN880581 or MTN881831 / MTN881801 (requires 24VDC power supply like ABL8MEM24012)
### LON SMI-Controller DR 4x16 24V

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image_url) | MTN887281 | - Four LoVo SMI outputs to control up to 16 LoVo SMI slaves (motors) each  
- EIA-232-Interface  
- TP/FT-10 Interface  
- Software tool for addressing SMI-Slaves via Ethernet or EIA-232  
- Status monitoring of all connected SMI-Slaves  
- Status-LED for diagnostic and status indication  
- Manual operation for direct control of SMI-Slaves  
- Pluggable screw-type terminals  
- Supply voltage 24 VDC  
- Width of device: approx. 157 mm (9 pitch)  
- Sw application for control of SMI-Slaves including timers, prioritised control etc. |

### DALI Controller

#### LON DALI-Controller DR-S 4DIM

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image_url) | MTN887241 | - Control and supply of up to 64 DALI devices, divided into four groups  
- Addressing of the DALI devices with LNS plug-in  
- Provides DALI supply voltage, 16 V  
- Status monitoring of all connected DALI devices  
- Monitoring of all lamps (if DALI compatible)  
- Status-LEDs for diagnostics and status indication  
- Manual operation for direct control of DALI devices  
- DALI device replacement with manual operation  
- Pluggable screw-type terminals  
- Supply voltage: AC 230 V  
- DIN rail mounting according to EN 50 022  
- Width of device: approx. 105 mm (6 pitch)  
- Software application for control of up to 64 DALI devices, divided into four groups including timers, prioritised control and configurable reaction to power-down/power-up/bus reset. Further more, the application provides constant light and scene control according to LonMark profile “Lamp Actuator (3040)”, “Constant Light Controller (3050)” and scene control in the DALI devices |

#### LON DALI-Controller DR-S 8DIM

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image_url) | MTN887251 | - Control and supply of up to 64 DALI devices, divided into four or eight groups  
- There are two software files available (i) for multisensor and ballasts in four groups or (ii) ballast only in eight groups  
- Addressing of the DALI devices with LNS plug-in  
- Provides DALI supply voltage, 16 V  
- Status monitoring of all connected DALI devices  
- Monitoring of all lamps (if DALI compatible)  
- Status LEDs for diagnostics and status indication  
- Manual operation for direct control of DALI devices  
- DALI device replacement with manual operation  
- Pluggable screw-type terminals  
- Supply voltage: AC 230 V  
- DIN rail mounting according to EN 50 02. width of device: approx. 105 mm (6 pitch)  
- The two software applications files available are for control of up to 64 DALI devices, and divided into four or eight groups including timers, prioritised control and configurable reaction to power down/power up/bus reset. Further more, the application provides constant light and scene control according to LonMark profile “Lamp Actuator (3040)” “Constant Light Control (3050)” and scene control in DALI devices.
## Lighting Control Catalogue

### LON DALI-Controller DR-S 16DIM

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>MTN887261</td>
<td>• Features as per LON DALI-Controller DR-S 4DIM (art. no. MTN887241), but this controller can control up to 16 DALI groups</td>
</tr>
</tbody>
</table>

### LON DALI Gateway DR 4x16 DIM

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image2.png) | MTN887271 | • Four DALI outputs to control up to 64 DALI devices for each output, divided into sixteen groups  
• EIA-232 interface for device configuration  
• TP/FT-10 transceiver and Ethernet socket  
• Addressing of the DALI devices with LNS plug-in  
• Status monitoring of all connected DALI devices  
• Monitoring of all lamps (if DALI compatible)  
• Status LEDs for diagnostics and status indication  
• Manual operation for direct control of DALI devices  
• Pluggable screw-type terminals  
• Supply voltage: DC 24 VDC  
• DIN rail mounting according to EN 50 022  
• Width of device: approx. 157 mm (7 pitch)  
• Software application for control of the DALI devices, including timers, prioritised control and configurable reaction to power-down/power-up/bus reset. In addition, the application provides constant light and scene control according to LonMark profile “Lamp Actuator (3040)”, “Constant Light Controller (3050)” and scene control in the DALI devices  
• A power supply for the DALI gateway and the DALI devices (art. no. MTN887131) has to be ordered separately if required. |

### DALI power Supply DR-N 140

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image3.png) | MTN887131 | • Power supply for the LON DALI-Gateway REG 4x16 DIM  
• One output DC 24 V (max. 7 W)  
• Outputs for the supply of four DALI lines (DC 16 V, 116 mA per output)  
• LED per output for status and failure indication  
• Supply voltage: AC 230 V  
• Temperature range: 5°C .. 40°C  
• Pluggable screw-type terminals  
• DIN rail mounting according to EN 50 022  
• Width of device: approx. 72 mm (4 pitch) |

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DALI Multi-Sensors

**DALI Multi-Sensor LA-11**

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image1.png) | MTN880641 | • Combination of occupancy sensor and brightness sensor with DALI interface  
• Suitable for LON DALI Controller DR-S 8DIM and DALI Gateway REG 4x16 DIM art. no. 36236-332 or DR 4X16 DIM MTN887271  
• Flush-mounting (surface-mounting in combination with Surface Mounting Box, art. no.MTN550619)  
• Circular sensor range with a diameter of approx. 14 m at 2.5 m mounting height  
• Detection range: 360 degrees  
• Five detection levels with 284 control segments in 71 zones  
• Brightness sensor for daylight-dependent light control, sensor range: 10 .. 1,000 Lux  
• Dimensions of surface-mounted sensor: 105 x 42.6 mm (D x H)  
• Potential free contact (delayed detection)  
• Power consumption 16 mA |

OccupyMotion Detectors

**LON ARTEC Motion Detector**

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image2.png) | MTN880971 | polar white matt | • Indoor motion detector in Merten ARTEC design  
• Detection of movements within a horizontal angle of 180 degrees  
• Motion-dependent control of room functions  
• Integrated and individually adjustable threshold value switch for brightness-dependent light control  
• Software application to translate the detected movements according to LonMark profile “Occupancy Sensor (1060)” into LON messages for occupancy-dependent light control and “Occupancy Controller (3071)”  
• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour. |
| ![Image](image3.png) | MTN880981 | stainless steel | • Indoor motion detector in Merten System-M design  
• Detection of movements within a horizontal angle of 180 degrees  
• Motion-dependent control of room functions  
• Integrated and individually adjustable threshold value switch for brightness-dependent light control  
• Software application to translate the detected movements according to LonMark profile “Occupancy Sensor (1060)” and “Occupancy Controller (3071)” into LON messages for occupancy-dependent light control  
• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured design. |
## LON System-M Motion Detector 2.2m

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![MTN881251](image1.png) | MTN881251 | polar white matt | • Indoor motion detector in Merten System-M design  
• Detection of movements for motion-dependent control of room functions  
• Integrated and individually adjustable threshold value switch for brightness-dependent light control  
• Area of detection: 180°  
• Range: 8 m left/right, 12 m at the front  
• Mounting height: 2.2 m or 1.1 m with half the range  
• Software application to translate the detected movements according to LonMatk profile “Occupancy Sensor (1060)” and “Occupancy Controller (3071)” into LON messages for occupancy-dependent light control  
• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured design. |

## Multi-Sensor LA-21

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![MTN880541](image2.png) | MTN880541 | • Combination of occupancy sensor and brightness sensor  
• Flush-mounting (surface-mounting in combination with Surface Mounting Box, art. no. 42020-106)  
• Circular sensor range with a diameter of approx. 14 m at 2.5 m mounting height  
• Detection range: 360 degrees  
• Several detection levels with over all 544 control segments in 136 zones  
• Brightness sensor for daylight-dependent light control, sensor range: 10 .. 1,000 Lux  
• Dimensions of surface-mounted sensor: 105 x 42.6 mm (D x H)  
• Software application to translate the detected movements (according to LonMatk profile “Occupancy Sensor (1060)”, “Occupancy Controller (3071)”), resp. the detected brightness (LonMark profile “Light Sensor (1010)”), into LON messages for occupancy-dependent light or sunblind control  
• The Surface Mounting Box (art no. MTN550619) has to be ordered separately if required. |

## Multi-Sensor ILA-22

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![MTN880551](image3.png) | MTN880551 | • Combination of occupancy sensor, brightness sensor and IR receiver  
• IR receiver for control of various room functions (in combination with IR Remote Control, art. no. MTN880991)  
• Software application to translate the detected movements (according to LonMark profile “Occupancy Sensor (1060)” and “Occupancy Controller (3071)”), resp. the detected brightness (LonMark profile “Light Sensor (1010)” into LON messages for occupancy-dependent light or sunblind control as well as for control of room functions (LonMark profile “Switch (3200)” and “Scene Panel (3250)” by use of the received IR signals  
• Other features as per LON Multi-Sensor LA-21 (art. no. MTN880541)  
• The IR Remote Control (art. no. MTN880991) and the Surface Mounting Box (art no. MTN550619) have to be ordered separately if required. |
## Surface Mounting Box for Multi-Sensor LA-21/ILA-22

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| [Image](#) | MTN550619 | • For surface-mounting of the LON Multi-Sensor LA-21 (art. no. MTN880541) and ILA-22 (art. no. MTN880551)  
• Colour: polar white (similar to RAL 9010) |

## IR Remote Control

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| [Image](#) | MTN880991 | • For recalling up to ten different room functions for lighting, sunblinds, etc.  
• Suitable for the articles LON Room Control Unit RCU-101 (System-M and ARTEC), LON Push button MF-IR, and LON Multi-Sensor ILA-22  
• The required batteries, 2 pieces AAA (micro), are not included. |

## Temperature Controllers

### LON ARTEC Temperature Controller RTR-51

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| [Image](#) | MTN880951 | polar white glossy | • Continuous-action controller for heating and cooling  
• Calculates manipulated variables from setpoint and actual temperature values according to the particular operation mode  
• Can control a valve or switching actuator in combination with an electro-thermal control valve  
• Two different setpoints for heating and cooling  
• Status LEDs indicate operation modes like comfort, standby, night, frost/heat protection and controller inhibit  
• Presence button, to change over from standby to comfort mode  
• Rotary switch for setpoint adjustment  
• Degree of protection: IP 20  
• Software application according to LonMark profile “Thermostat (8060)” and “Space Comfort Control Command Module (8090)”  
• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour. |

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| [Image](#) | MTN880961 | stainless steel | • Continuous-action controller for heating and cooling  
• Calculates manipulated variables from setpoint and actual temperature values according to the particular operation mode  
• Can control a valve or switching actuator in combination with an electro-thermal control valve  
• Two different setpoints for heating and cooling  
• Status LEDs indicate operation modes like comfort, standby, night, frost/heat protection and controller inhibit  
• Presence button, to change over from standby to comfort mode  
• Rotary switch for setpoint adjustment  
• Degree of protection: IP 20  
• Software application according to LonMark profile “Thermostat (8060)” and “Space Comfort Control Command Module (8090)”  
• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour. |

### LON System-M Temperature Controller RTR-51

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Appearance</th>
<th>Features</th>
</tr>
</thead>
</table>
| [Image](#) | MTN881301 | polar white matte | • Continuous-action controller for heating and cooling incl. integrated temperature sensor in Merten System-M design  
• Other features like LON Artec temperature controller RTR-51  
• To be completed with a LON Bus Coupling Unit UP (MTN880451) and a frame in the favoured colour. |
### Dimmer Output

**I/O Module DR-N DIM 500-UNI**

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Dimmer Module](image) | MTN881011 | - Universal dimmer for switching and dimming of incandescent, HV-halogen and LV halogen  
- Lamps with dimmable wound or electronic transformers  
- Connected load: max. 500 VA  
- Automatic load detection  
- Combinations of ohmic and inductive or ohmic and capacitive  
- Loads are possible,  
- Combinations of inductive and capacitive loads are not allowed  
- Electronic short-circuit and overload proof  
- Power down detection  
- Status LED and manual switch for ON/OFF  
- Supply voltage: DC 24 V  
- Pluggable screw-type terminals  
- DIN rail mounting according to EN 50 022  
- Width of device: approx. 72 mm (4 pitch)  
- Software application for dimming the light including timers, prioritised control and configurable reaction to power-up/bus reset. Furthermore, the application provides constant light, scene and occupancy control according to LonMark profile “Lamp Actuator (3040)”, “Constant Light Controller (3050)”, “Scene Controller (3251)” and “Occupancy Controller (3071)” |

### I/O Module DR-N 3DIM 1-10V

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Dimmer Module](image) | MTN881001 | - Control of devices with 1-10 V interface (controllable electronic ballasts, electronic transformers etc.)  
- Three analog outputs (1-10 V) for dimming and three relay outputs (N.O. contact, 16 A) for switching  
- Current load (analog output): max. 100 mA  
- Power down detection  
- Pluggable screw-type terminals  
- Supply voltage: 24 VDC  
- Switch for manual control of the relay contact  
- Screw-type terminals  
- DIN rail mounting according to EN 50 022  
- Width of device: approx. 75 mm (4 pitch)  
- Software application for dimming the light including timers, prioritised control and configurable reaction to power-up/bus reset. In addition, the application provides constant light and scene control according to LonMark profile “Lamp Actuator (3040)”, “Constant Light Controller (3050)”, “Scene Controller (3251)” |

### Digital Inputs

**LON I/O Module DR-M 4DI**

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Digital Inputs Module](image) | MTN880501 | - Connection of devices with floating contacts  
- Four inputs  
- Status LED per input  
- Pluggable screw-type terminals  
- DIN rail mounting according to EN 50 022  
- Width of device: approx. 45 mm (2.5 pitch)  
- Software application according to LonMark profile “Switch (3200)”, “Scene Panel (3250)” and “Occupancy Sensor (1060)” for light or sunblind control including configurable pulse-edge evaluation; additionally an application with “Partition Wall Controller” is available |

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### LON I/O Module DR-M 4DI AC/DC

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image1.png) | MTN880491 | • Connection of conventional devices with 24 V output  
• Four inputs (AC/DC 12..30 V)  
• Status LED per input  
• Pluggable screw-type terminals  
• DIN rail mounting according to EN 50 022  
• Width of device: approx. 45 mm (2.5 pitch)  
• Software application according to LonMark profile “Switch (3200)”, “Scene Panel (3250)” and “Occupancy Sensor (1060)” for light or sunblind control including configurable pulse-edge evaluation |

### LON I/O Module DR-M 4DI 230V

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image2.png) | MTN880481 | • Connection of conventional devices with 24 V output  
• Four inputs 230V  
• Connections to different phase conductors  
• Status LED per input  
• Pluggable screw-type terminals  
• DIN rail mounting according to EN 50 022  
• Width of device: approx. 45 mm (2.5 pitch)  
• Software application according to LonMark profile “Switch (3200)”, “Scene Panel (3250)” and “Occupancy Sensor (1060)” for light or sunblind control including configurable pulse-edge evaluation |

### LON I/O Module DR-M 8DI AC/DC

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image3.png) | MTN880521 | • Connection of conventional devices with 24 V output  
• Eight inputs (AC/DC 12..30 V)  
• Width of device: approx. 72 mm (4 pitch)  
• Other features as per LON I/O Module REG-M 4DI AC/DC (art. no. MTN880491) |

### LON I/O Module DR-M 8DI DC-P

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image4.png) | MTN880531 | • Connection of devices with floating contacts  
• Eight inputs  
• Status LED per input  
• Pluggable screw-type terminals  
• DIN rail mounting according to EN 50 022  
• Width of device: approx. 72 mm (4 pitch)  
• Software application according to LonMark profile “Switch (3200)”, “Scene Panel (3250)” and “Occupancy Sensor (1060)” for light or sunblind control including configurable pulse-edge evaluation |

### LON I/O Module DR-M 8DI 230V

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image5.png) | MTN880511 | • Connection of conventional devices with 230 V output  
• Eight inputs (AC 230 V)  
• Status LED per input  
• Pluggable screw-type terminals  
• DIN rail mounting according to EN 50 022  
• Width of device: approx. 72 mm (4 pitch)  
• Software application according to LonMark profile “Switch (3200)”, “Scene Panel (3250)” and “Occupancy Sensor (1060)” for light or sunblind control including configurable pulse-edge evaluation |
Combined In-/Outputs

**LON I/O Module DR-N 8DI 8DO AC**

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image1.png) | MTN881821 | • Independent switching of eight load groups  
• For control of electro-thermal control valves  
• Eight inputs for connection of devices with floating contacts  
• Eight outputs: semiconductors AC 24 V (external supply required)  
• Manual operation and status indication per output and input  
• Supply voltage: DC 24 V  
• Pluggable screw-type terminals  
• Width of device: approx. 72 mm (4 pitch)  
• Software application for control of eight independent consumer loads according to LonMark profile “Valve Positioner (8131)” or “Lamp Actuator (3040)” (two different applications). The slopes at the digital inputs are translated according to LonMark profile “Switch (3200)” |

**Physical Sensors**

**LON Multi-Sensor LT-23 AP**

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image2.png) | MTN887341 | • For daylight- and outdoor temperature-dependent controls  
• Integrated light and temperature sensor  
• Range of the light sensor: 1 .. 65,000 Lux  
• Range of the temperature sensor: -20 .. +50 °C  
• Pole- or wall-mounting  
• Degree of protection: IP 54  
• Dimensions: 93 x 72 x 57 mm (H x W x D)  
• Application for transmission of the measured values to the LON network (LonMark profile “Light Sensor (1010)” and “Temperature Sensor (1040)”) and with threshold value switches for analysis of the detected values |

**LON Indoor Temperature Sensor AP RTS-10**

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image3.png) | MTN887401 | • For indoor temperature-dependent controls  
• Integrated temperature sensor  
• Measuring range of temperature sensor: -5 .. +50 °C  
• Wall-mounting  
• Degree of protection: IP 20  
• Dimensions: 73 x 73 x 24 mm (H x W x D)  
• Application for transmission of the measured values to the LON network according to LonMark profile “Temperature Sensor (1040)” and with threshold value switch for analysis of the detected values |

**LON Valve Actuator SA-22**

<table>
<thead>
<tr>
<th>Image</th>
<th>Part Number</th>
<th>Features</th>
</tr>
</thead>
</table>
| ![Image](image4.png) | MTN887391 | • Heating and cooling applications  
• Two inputs for floating contacts (e. g. for window control, occupancy sensors or dew point detectors etc.)  
• Regular automatic valve adjustment and valve lift detection  
• Service pin and service LED  
• Status LEDs to indicate the valve lift  
• Connection via pre-assembled, fixed cable (approx. 1 m)  
• Very low-noise operation  
• Mounting on thermostatic valve connection thread M30x1.5  
• Dimensions: 82 x 50 x 65 mm (H x W x D)  
• Software application for drive control and analysis of the digital input values according to the applicable LonMark profiles |
## Special color selection

### Wall Unit inserts

These items are not available on stock, has to be ordered on request

<table>
<thead>
<tr>
<th>Art. Description</th>
<th>Art. Number Insert</th>
<th>Color</th>
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</thead>
<tbody>
<tr>
<td>LON PB.1g</td>
<td>MTNS881401-04</td>
<td>active white glossy</td>
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<tr>
<td>LON PB.1g</td>
<td>MTNS881401-03</td>
<td>polar white glossy</td>
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<tr>
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<td>matte anthracite</td>
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<tr>
<td>LON PB.1g</td>
<td>MTNS881401-02</td>
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<td>LON PB.2g</td>
<td>MTNS881451-04</td>
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<td>LON Motion Detector</td>
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<td>LON Motion Detector 2.2m</td>
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</table>
### Special color selection

**System M frames**

<table>
<thead>
<tr>
<th>Art. Description</th>
<th>Art. Number Frame</th>
<th>Color</th>
</tr>
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<tr>
<td>Frame M-SMART 1-gang</td>
<td>MTN478125</td>
<td>active white glossy</td>
</tr>
<tr>
<td>Frame M-SMART 1-gang</td>
<td>MTN478119</td>
<td>polar white glossy</td>
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<tr>
<td>Frame M-ARC 1-gang</td>
<td>MTN485170</td>
<td>polar sand matte</td>
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<td>Frame M-ARC 1-gang</td>
<td>MTN485178</td>
<td>midnight blue matte</td>
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<tr>
<td>Frame M-ARC 1-gang</td>
<td>MTN485114</td>
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<td>Frame M-ARC 1-gang</td>
<td>MTN485160</td>
<td>aluminium matte</td>
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<tr>
<td>Frame M-STAR 1-gang</td>
<td>MTN467114</td>
<td>satin silver/anthracite</td>
</tr>
<tr>
<td>Frame M-STAR 1-gang</td>
<td>MTN477114</td>
<td>chrome/anthracite</td>
</tr>
<tr>
<td>Frame M-STAR 1-gang</td>
<td>MTN487114</td>
<td>polished brass/anthracite</td>
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<td>Frame M-PLAN 1-gang</td>
<td>MTN486114</td>
<td>matte anthracite</td>
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<td>Frame M-PLAN 1-gang</td>
<td>MTN486160</td>
<td>aluminium matte</td>
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<td>Frame M-PLAN for RCU-101</td>
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<td>Frame M-PLAN for RCU-101</td>
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<td>Frame M-PLAN Glass 1-gang</td>
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<td>glass ruby red</td>
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<td>Frame M-PLAN Glass 1-gang</td>
<td>MTN489115</td>
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<td>Frame M-PLAN II 1-gang</td>
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<td>Frame M-PLAN II 1-gang</td>
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</tr>
<tr>
<td>Flush Mounting Adapter for M-PLAN II Frames</td>
<td>MTN512403</td>
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</tbody>
</table>
Appendix B

Special color selection

System M frames

M-Plan

MTN486114  MTN486160  MTN489115
MTN489160  MTN489106

M-Arc

MTN485170  MTN485178  MTN485114
MTN485160

M-Star

MTN477114  MTN487114  MTN467114

M-Plan II

MTN488119  MTN488114  MTN488160
MTN512403

M-Smart

MTN478125  MTN478119
## Lighting Control Catalogue  
### Appendix C

### Object matrix

<table>
<thead>
<tr>
<th>Article Name</th>
<th>Article number</th>
<th>Switch</th>
<th>Lamp Actuator</th>
<th>Light Sensor</th>
<th>Occupancy Sensor</th>
<th>Occupancy Controller</th>
<th>Constant Light Controller</th>
<th>Scene Controller</th>
<th>Scene Panel</th>
<th>Sunblind Controller</th>
<th>Sunblind Actuator</th>
</tr>
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<tbody>
<tr>
<td><strong>Bus Coupling Unit</strong></td>
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<td>LON I/O-Module DR-M 4DI xxx</td>
<td>MTN880xxx</td>
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<td><strong>Digital Outputs</strong></td>
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<tr>
<td><strong>Combined In-/Outputs</strong></td>
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<td>LON I/O-Module REG-N 8DI 8DO AC</td>
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<tr>
<td><strong>Sunblind</strong></td>
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Short Object Description

Lamp actuator 3040
The lamp actuator is used with switch and controller devices such as the constant light controller and scene controller. The switch object output nvoSwitch is connected to the input nviLampValue of the lamp actuator. Controller objects can be used between switch type sensors and lamp actuators. In cases of multiple sensors the feedback connection can be used to synchronize a group of switches.

Occupancy controller 3071
Typically the occupancy controller input is connected to the occupancy sensor and the output to a lamp actuator. A switch can be used to turn the occupancy controller into ON and OFF mode. An additional switch can override the controller and directly control the lamp.

Switch 3200
When the switch object is used directly the switch object output is connected to a lamp actuator object input. When several switches are connected to the same group of lamps, a feedback connection can be used to synchronize the group of switches. The lamp output is connected to switches (feedback A) or switches can be connected to other switches (feedback B). When lamps are controlled by a controller, such as a constant light controller or scene controller, the optional setting output is used to change the mode and/or the setpoint of the controller.

Scene panel 3250
The scene panel object output is connected to the scene controller object input. Each lamp or group of lamps have their own controller. When several scene panels are connected to the same controller or group of controllers, an optional feedback connection can be used to synchronize panels. An optional control output is used for "manual" scene adjustment (master fade). Local control of a lamp can be done with a switch. When lamps are adjusted manually, a new scene can be stored using "learn current" configuration property. Configuration properties are not shown in this example.

Constant light controller 3050
Typically the constant light controller input is connected to a light sensor and the output to a lamp actuator. A switch can be used to turn the constant light controller object into AUTO and OFF mode. Also the illumination level setpoint can temporarily be adjusted upwards and downwards.

An additional switch can override the controller. When manual override input is written to, the constant light controller object is turned into MANUAL mode and the data is directly passed to the lamp.

Scene controller 3251
The scene panel output is connected to the scene controller input. Each lamp or group of lamps have their own controller. An optional control input is used for "manual" scene adjustment (master fade). Local control of a lamp can be done with a switch. When lamps are adjusted manually, a new scene can be stored using "learn current" configuration property. Configuration properties are not shown in this example.

Light sensor 1010
The light sensor is used with controller objects such as the constant light controller. Typically the light sensor output is connected to the constant light controller input.

Occupancy controller 3071
The occupancy sensor object can be used to detect occupancy in a room or an area. The output of the occupancy sensor object is connected to a controller, which is controlling lights. The occupancy controller takes care of the proper action and calculates application delay or hold times as appropriate. The number and type of input variables of the controller may vary.

Sunblind actuator 6110
Typically, the Sunblind Actuator functional block receives input from a Switch functional block (32.00), from a building-management system (BMS), or from a Sunblind Controller functional block. The outputs from the Sunblind Actuator functional block are used to report the present state of the sunblind.

Sunblind controller 6111
The Sunblind Controller Functional Block may interact with one or more of the following LonMark Functional Block:
- Switch Functional Block #3200
- Scene Panel Functional Block #3250
- Scheduler Functional Block #3301
- BMS and monitoring node
- Space Comfort Controller #8500
- Various sensor functional blocks.

Typically the Sunblind Controller output is connected to the input of a set of Sunblind Actuators. A sunblind switch may be used to have manual access to the Sunblind Controller. A BMS (Building Management System) may influence the controller and the resulting decision is directly transmitted via SNVT_setting to a sunblind actuator functional blocks.