Product Manual

**Preprinted version**

# ABB i-bus® EIB / KNX

**Dim Actuator Modules for the Room Controller**
**SD/M 2.6.1**
**LR/M 1.6.1**
**UD/M 1.300.1**

Intelligent Installation Systems

## Contents

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This manual describes the function of the Switch/Dim Actuator Module SD/M 2.6.1, the Light Controller Module LR/M 1.6.1 and the Universal Dim Actuator Module UD/M 1.300.1 for operation in the Room Controller Basis Device.
Subject to changes and errors excepted.

**Exclusion of liability:**
Despite checking that the contents of this document match the hardware and software, deviations cannot be completely excluded. We therefore cannot accept any liability for this. Any necessary corrections will be inserted in new versions of the manual.
Please inform us of any suggested improvements.

# 1 General

The Switch/Dim Actuator Module SD/M 2.6.1, the Light Controller Module LR/M 1.6.1 and the Universal Dim Actuator Module UD/M 2.230.1 are snapped into a module slot of the Room Controller Basis Device RC/A 8.1. They are used to control dimmable lighting.

The Room Controller Basis Device establishes the connection to the ABB i-bus® EIB / KNX installation bus.

The SD/M 2.6.1 dims electronic ballasts with a 1...10 V interface. It has two independent outputs for dimming and switching two groups of luminaires.

The LR/M 1.6.1 dims one group of luminaires with electronic ballasts with a 1...10 V interface. There is an additional input for connecting a light sensor LF/U 1.1 in order to implement constant lighting control.

The UD/M 1.300.1 dims a group of luminaires with max. 300 W (VA) output capacity. It is designed for operation with different types of luminaires (load types):

- Incandescent lamps (resistive load)
- 230 V halogen lamps (resistive load)
- Low voltage halogen lamps on wound (inductive load) or electronic (capacitive load) transformers.

The devices are automatically connected to the incoming supply when they are snapped into the Room Controller Basis Device. On the output side, the devices have screw terminals with plug-in connection.

The comprehensive functionality is defined by programming the Room Controller Basis Device with the EIB Tool Software (ETS). It is very similar for all three devices.

# 2 Device technology

## 2.1 SD/M 2.6.1 Switch/Dim Actuator Module, 2-fold, 6 A

The Switch/Dim Actuator Module is operated in a module slot of the Room Controller Basis Device. It dims electronic ballasts with a 1…10 V interface. The device has two independent outputs for dimming two groups of luminaires. One relay contact per channel is used to switch the lighting circuit on/off.

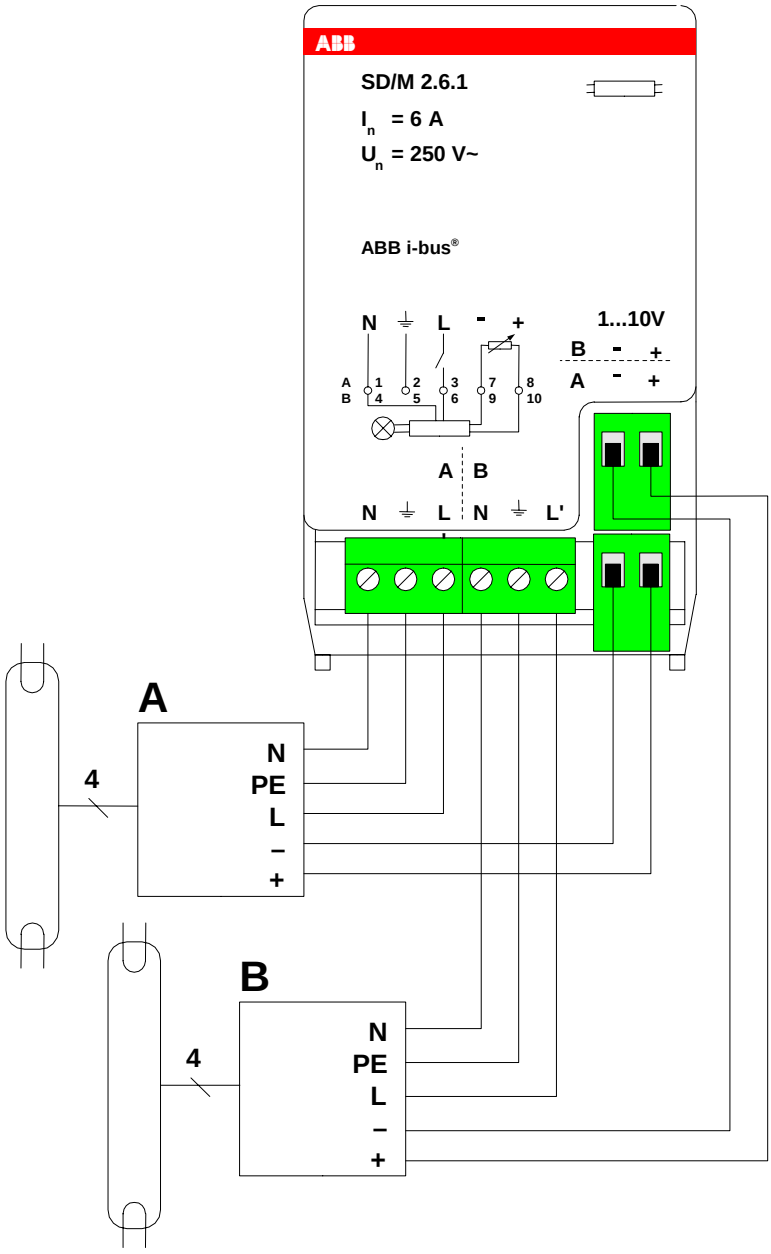
The device operates passively i.e. its 1...10 V output behaves like a controlled resistor. The connected electronic ballast supplies the control voltage.

Both the incoming supply and the internal voltage are supplied via the Room Controller Basis Device. Contact is automatically established when the modules are snapped in place.

### 2.1.1 Technical data

| | | |
|---|---|---|
| **Power supply / incoming supply** | – Operating voltage | made available via the Room Controller Basis Device, contact made via contact system on base of module |
| | – Incoming supply | 0 ... 264 V, contact established via contact surfaces at the front |
| **Outputs** | – 2 load circuits | Relay outputs<br>Switching current: 10 A / AC1<br>Continuous current: 6 A<br>Max. capacity: 35 µF |
| | – 2 control outputs | 1...10 V DC (passive)<br>Control current: < 30 mA |
| **Connections** | – Load circuits | 2 x 3-pole, plug-in screw terminals |
| | – Control outputs | 2 x 2-pole, plug-in screw terminals |
| | – Wire ranges | 0.2…2.5 $mm^2$ finely stranded<br>0.2…4.0 $mm^2$ single-core |
| **Ambient temperature range** | – Storage | -25 °C ... 55 °C |
| | – Transport | -25 °C ... 70 °C |
| **Design** | – Type of installation | For snapping into the Room Controller Basis Device |
| | – Housing, colour | Plastic housing, anthracite, halogen-free |
| | – Housing dimensions (WxHxD) | 49 x 42 x 93 mm |
| | – Weight | 0.1 kg |
| **CE norm** | – in accordance with the EMC guideline and the low voltage guideline | |

### 2.1.2 Circuit diagram




### 2.1.3 Description of the outputs

The device has two outputs A and B. Each output has a switch output (3-pole, plug-in terminal) and a control output (2-pole plug-in terminal) which are both connected to the electronic ballast.
The PE conductor is brought out from the device to connect the protective conductor.

### 2.1.4 Assembly and installation

The device is solely intended for operation in the Room Controller Basis Device. It can be snapped into any module slot. The mounting position can be selected as required.

## 2.2 LR/M 1.6.1 Light Controller Module, 2-fold, 6 A

The Light Controller Module is operated in a module slot of the Room Controller Basis Device. It dims electronic ballasts with a 1...10 V interface and enables constant lighting control e.g. in offices.

The device has an output for dimming a group of luminaires. A relay contact is used for switching the lighting circuit on/off. For constant lighting control, the device measures the current brightness (luminance) via a light sensor input.

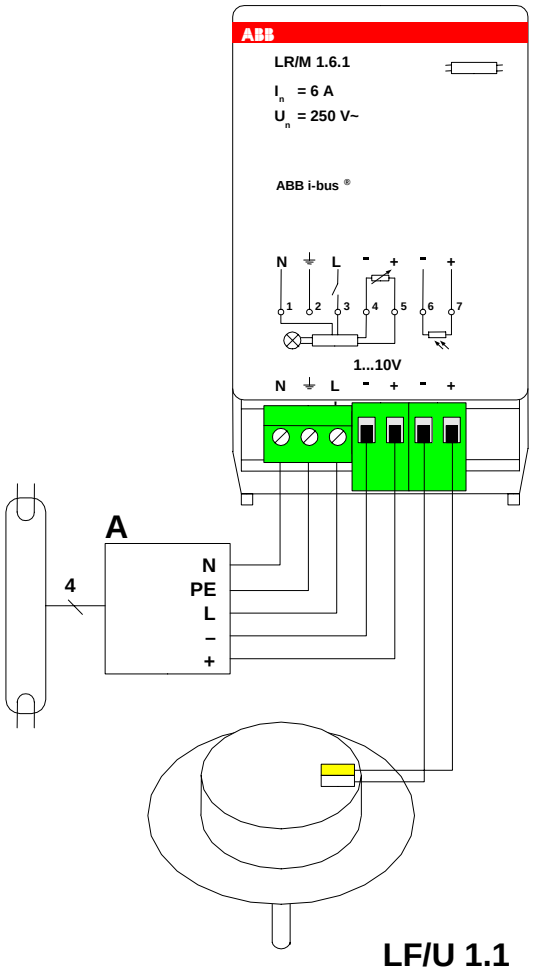
The device operates passively i.e. its 1...10 V output behaves like a controlled resistor. The connected electronic ballast supplies the control voltage.

Both the incoming supply and the internal voltage are supplied via the Room Controller Basis Device. Contact is automatically established when the modules are snapped in place.

### 2.2.1 Technical data

| | | |
|---|---|---|
| **Power supply / incoming supply** | – Operating voltage | made available via the Room Controller Basis Device, contact made via contact system on base of module |
| | – Incoming supply | 0 ... 264 V AC, contact established via contact surfaces at the front |
| **Outputs** | – 1 load circuit | Relay outputs<br>Switching current: 10 A/AC1<br>Continuous current: 6 A<br>Max. capacity: 35 µF |
| | – 1 control output | 1...10 V DC (passive)<br>Control current: < 30 mA |
| **Inputs** | – 1 light sensor input | For light sensor LF/U 1.1<br>Lighting control in range 200...1200 lx (typ.) |
| **Connections** | – Load circuits | 3-pole, plug-in screw terminal |
| | – Control outputs | 2-pole, plug-in screw terminal<br>Max. cable length: 100 m |
| | – Light sensor input | 2-pole, plug-in screw terminal<br>Max. cable length: 100 m |
| | – Wire ranges | 0.2…2.5 $mm^2$ finely stranded<br>0.2…4.0 $mm^2$ single-core |
| **Ambient temperature range** | – Operation | - 5 °C ... 45 °C |
| | – Storage | -25 °C ... 55 °C |
| | – Transport | -25 °C ... 70 °C |
| **Design** | – Type of installation | For snapping into the Room Controller Basis Device |
| | – Housing, colour | Plastic housing, anthracite, halogen-free |
| | – Housing dimensions (WxHxD) | 49 x 42 x 93 mm |
| | – Weight | 0.08 kg |
| **CE norm** | – in accordance with the EMC guideline and the low voltage guideline | |

### 2.2.2 Circuit diagram




**LF/U 1.1**

### 2.2.3 Description of the inputs and outputs

Output A has a switch output (3-pole plug-in terminal) and a control output (2-pole plug-in terminal) which are both connected to the electronic ballast. The light sensor LF/U 1.1 is connected to a further 2-pole plug-in terminal.

The PE conductor is brought out from the device to connect the protective conductor.

### 2.2.4 Assembly and installation

The device is solely intended for operation in the Room Controller Basis Device. It can be snapped into any module slot. The mounting position can be selected as required.

## 2.3 UD/M 1.300.1 Universal Dim Actuator Module, 1-fold, 300 VA

The Universal Dim Actuator Module is operated in a module slot of the Room Controller Basis Device. It is used to dim a group of luminaires.

Various types of loads such as incandescent lamps, high voltage halogen lamps or low voltage halogen lamps on electronic or conventional transformers can be operated on the dimmable output. When connecting low voltage halogen lamps, ABB transformers are recommended.

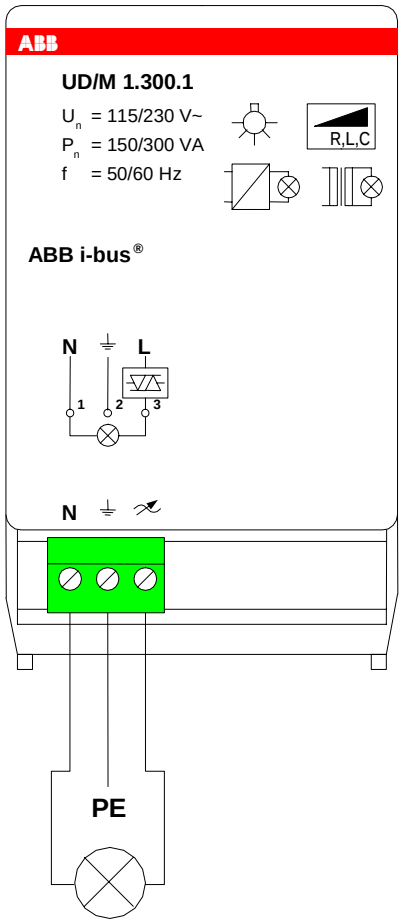
When the incoming supply is restarted (after disconnection from supply for more than approx. 10 seconds), the device conducts a load test and adapts the operating mode accordingly. When the load type is changed, the device must be de-energised.

Both the incoming supply and the internal voltage are supplied via the Room Controller Basis Device. Contact is automatically established when the modules are snapped in place.

### 2.3.1 Technical data

| | | |
|---|---|---|
| **Power supply / incoming supply** | – Operating voltage | made available via the Room Controller Basis Device, contact made via contact system on base of module |
| | – Incoming supply | 90 ... 253 V AC, contact established via contact surfaces at the front |
| **Outputs** | – 1 dimming output | Semiconductor output, dimmed via phase control or phase alignment |
| | – Maximum output capacity | 300 VA at 230 V AC<br>150 VA at 127 V AC |
| | – Minimum output capacity | 2 VA |
| **Connections** | – Dimming output | 3-pole, plug-in screw terminal |
| | – Wire ranges | 0.2…2.5 $mm^2$ finely stranded<br>0.2…4.0 $mm^2$ single-core |
| **Ambient temperature range** | – Storage | -25 °C ... 55 °C |
| | – Transport | -25 °C ... 70 °C |
| **Design** | – Type of installation | For snapping into the Room Controller Basis Device |
| | – Housing, colour | Plastic housing, anthracite, halogen-free |
| | – Housing dimensions (WxHxD) | 49 x 42 x 93 mm |
| | – Weight | 0.12 kg |
| **CE norm** | – in accordance with the EMC guideline and the low voltage guideline | |

### 2.3.2 Circuit diagram




### 2.3.3 Description of the outputs

The device has a dimmed output for the connection of a dimmable load. The PE conductor is brought out from the device to connect the protective conductor.

### 2.3.4 Assembly and installation

The device is solely intended for operation in the Room Controller Basis Device. It can be snapped into any module slot. The mounting position can be selected as required.

# 3 Planning and application

In this section, you will find tips and examples for the practical application of the devices SD/M 2.6.1, LR/M 1.6.1 and UD/M 1.300.1.

## 3.1 Constant lighting control

Constant lighting control is possible with the Light Controller Module LR/M 1.6.1.

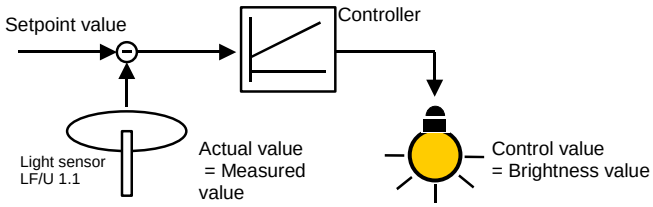



**Fig. 1: Schematic diagram of a constant lighting control**

### Placing of the light sensor

The light sensor measures the brightness (more precisely: luminance) of an area in the room which is suitable for a reference measurement. The following criteria should be taken into account:

1. Observe the walls and ceilings in a darkened room with the lights switched on. Note the shadows formed by the lights on the ceilings and walls. Those areas which are not directly illuminated by the lights are suitable for a reference measurement.
2. Observe the walls and ceilings in an undarkened room with the lights switched off. Note the shadows formed by the light falling directly on ceilings and walls. Those areas which are not directly illuminated by daylight are suitable for a reference measurement.

### Slave mode

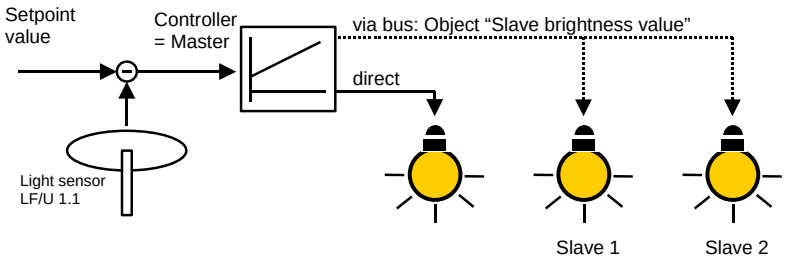



**Fig. 2: Slave mode in a constant lighting control**

Further lamps can be integrated in constant lighting control which cannot for example be connected directly to the Light Controller Module. They are then controlled directly as so-called “slaves” by the controller (=master). The slaves have the same brightness value as the master.

Tip: You may wish the lamps in the vicinity of the window to always be slightly darker than the lamps inside the room. This can be implemented by slaves whose brightness is adapted by the correction of the characteristic curve.

### Adapting the setpoint value

If required, the setpoint of the lighting control can be modified at any time during operation. The brightness can for example be adapted to the needs of the user.

Example: A rocker button sends two values. When the upper button is pressed, a higher setpoint value is sent than when the lower button is pressed. The lighting will be brighter at a higher setpoint value.

### Activation and deactivation of the control

The user can be permitted to intervene in constant lighting control. For example, he can deactivate and activate the constant lighting control.

### Overshoot time for inactive control

This function is primarily used in connection with a presence detector. Normally, the lighting is switched on when someone enters the room and the control is activated.

If the user has deactivated the control, this function can be disruptive. It can therefore be defined via this overshoot time after which period of absence the control is reactivated if the user re-enters the room.

## 3.2 Presets

A parameterisable brightness value can be retrieved with the help of the preset function. Lightscenes for example can therefore be implemented.

### Retrieve preset

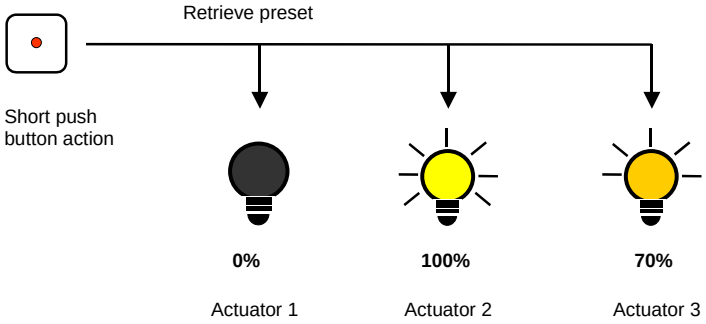



**Fig. 3: Controlling light scenes using presets**

Brightness values (“preset values”) can be retrieved via the object “Call preset …”. A maximum of 4 preset values are available for each output:

| | |
|---|---|
| Retrieve preset1 | Object “Call preset 1/2” = 0 |
| Retrieve preset2 | Object “Call preset 1/2” = 1 |
| Retrieve preset3 | Object “Call preset 3/4” = 0 |
| Retrieve preset4 | Object “Call preset 3/4” = 1 |

### Retrieve with delay

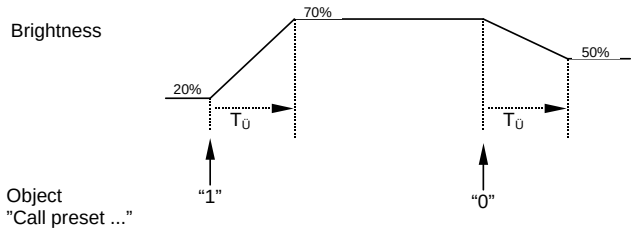



**Fig. 4: Retrieve a preset with delay**

It can be set whether the preset value is set immediately (“jump to”) or whether the device is slowly dimmed to the value. The above example shows the progression of the brightness after the retrieval of two presets. The transition time $T_Ü$ defines the period in which the lighting changes from the old to the new brightness value.

### Store preset

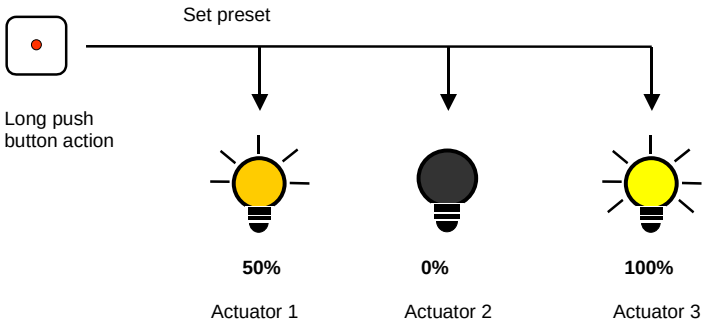



**Fig. 5: Storing the current brightness value as the new preset value**

The current brightness value is stored as a new preset value via the object “Set preset …”. The user can thus adapt a lightscene for example. The presets are stored via the following values:

| | |
|---|---|
| Store preset1 | Object “Set preset 1/2” = 0 |
| Store preset2 | Object “Set preset 1/2” = 1 |
| Store preset3 | Object “Set preset 3/4” = 0 |
| Store preset4 | Object “Set preset 3/4” = 1 |

**Special function: Restore state**

A useful special function can also be assigned to preset1 and preset3, which is used to recreate the brightness level which was present before retrieving preset2 or preset4. The following diagram clarifies this:

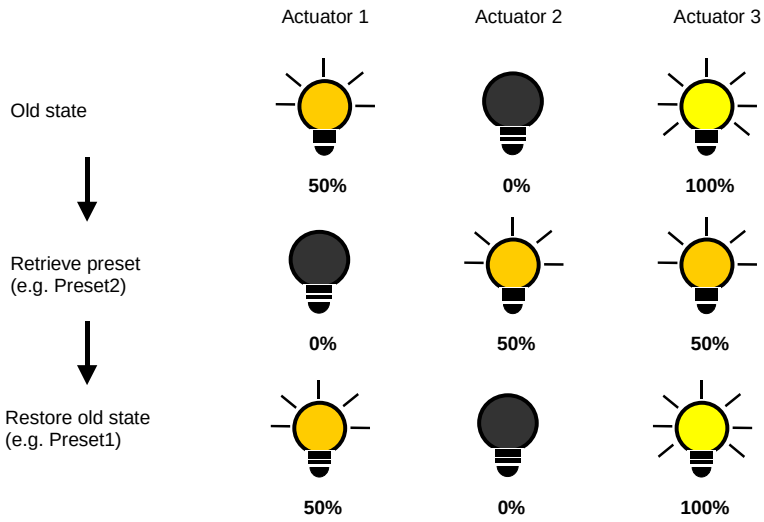



**Fig. 6: Restoring the old brightness state**

This function can be used for example after a presentation to restore the lighting to the state it was in beforehand.

## 3.3 8-bit lightscene

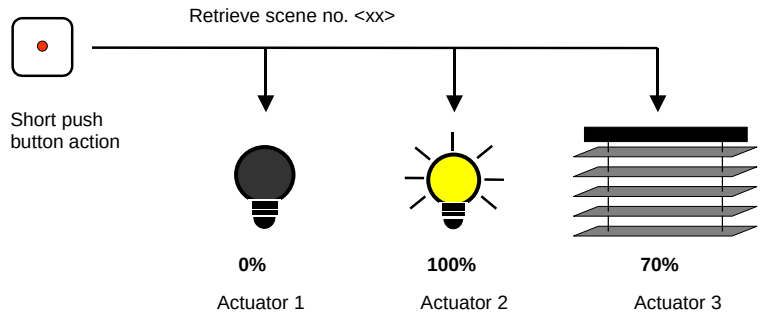



**Fig. 7: Retrieve scene, 8-bit scene**

In the 8-bit scene, the push button gives the actuator the instruction to retrieve a scene. The scene is not stored in the push button but in the actuator. All the actuators are addressed via the same group address. A single telegram is sufficient to retrieve the scene.

A scene number is sent in the telegram value which must match the scene number in the parameters of the actuator.

Up to 64 different scenes are managed via a single group address. An 8-bit scene telegram contains the following information:
- Number of the scene (1...64)
- Retrieve scene / store scene

After a long push button action, the actuators receive a save command which causes them to store the current value issued by the actuator as a new scene value.

### 3.4 Staircase lighting function

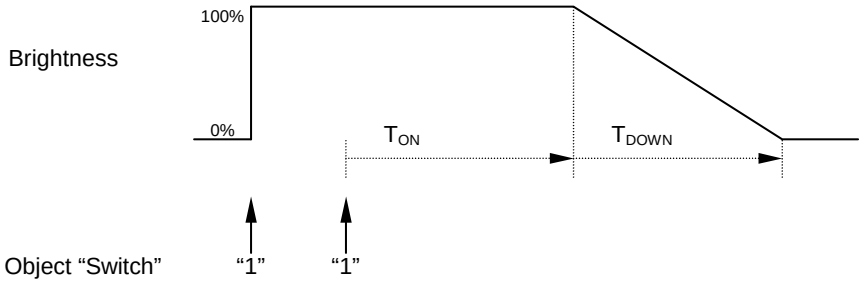



**Fig. 8: Brightness when using the staircase lighting function**

Once the staircase lighting time $T_{ON}$ has elapsed, the output slowly dims down over the period $T_{DOWN}$ and then switches off. The user is thus warned and has sufficient time to restart the staircase lighting time by pressing the push button again.

A **warning function** moreover sets the value of the object “Warning stairc. lighting” to “1” during the dimming down period. The user can thus be warned in good time by another signal (e.g. rapid flashing of the push button LEDs).

With **pumping**, the user can adapt the staircase lighting time to the current requirements by pressing the push button several times in succession. The maximum duration of the staircase lighting time can be set in the parameters.

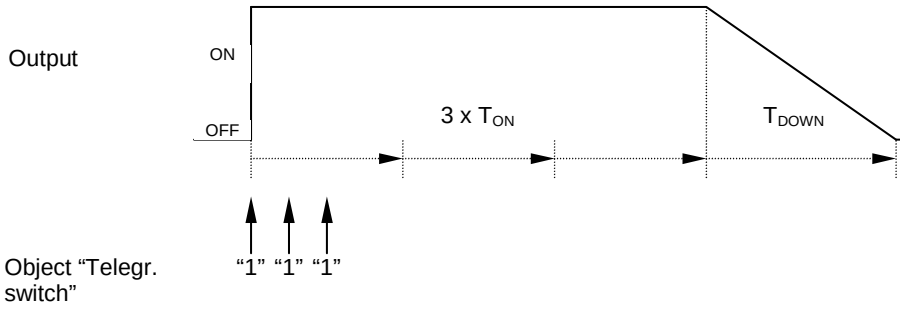



**Fig. 9: Using the pumping function**

If the device receives a further ON command when the staircase lighting is switched on, the staircase lighting time is added to the remaining period.

## 3.5 Correction of characteristic curve

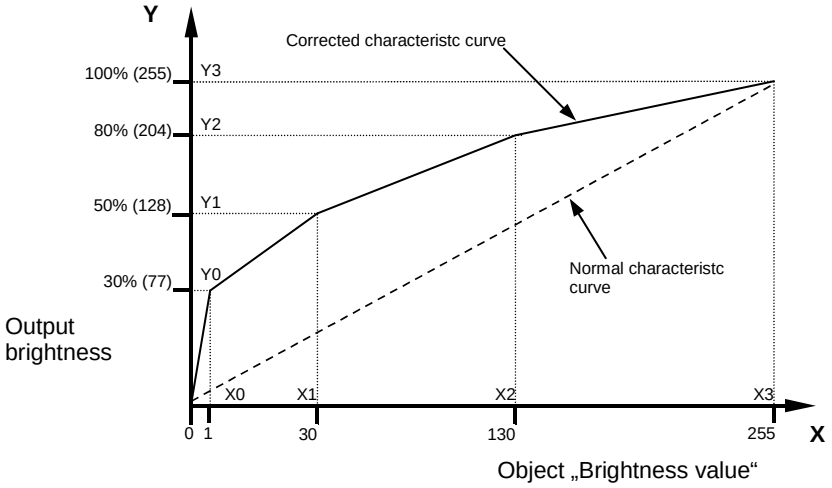



**Fig. 10: Example of a characteristic curve**

Sometimes it is necessary to adapt the dimming characteristic of a lamp to the sensitivity of the human eye. This can be carried out with the correction of the characteristic curve.

Normally, the proportional brightness value 0%...100% is assigned to the object value 0...255 (see “Normal characteristic curve”). This characteristic can be converted into a curve by up to 4 value pairs.

If the lamp should be brighter in the lower range, the brightness can be increased from the object value “1”. In the example above (see diagram above), the brightness for value “1” has therefore been defined at 30% in the first value pair.

The remaining value pairs in the example were defined so that a curve is produced which is flatter in the upper range. A flatter dimming ramp for example can therefore be achieved for relative dimming.

Note: The possibility of limiting the brightness range via dimming limits also exists when the correction of the characteristic curve is active. The dimming limits refer to the object value.

## 3.6 Priority between functions

The functions of the dimming actuator modules have the following priority (in descending order):

1. Forced operation

2. Reaction on bus voltage failure and recovery

3. Blocking function

Example: Disabled outputs are set to the parameterised set on bus voltage failure.

## 3.7 Reaction on voltage failure and recovery

**Reaction on bus voltage failure**

It is possible to parameterise the behaviour of the outputs on failure of the bus voltage. The function of the Room Controller is retained provided that the supply voltage (115 / 230 V AC or 12 V DC auxiliary voltage) is available.

If it has been set in the parameters, the Room Controller can continue to function normally on failure of the bus voltage and the functions in the room are maintained.

Example: Conventional push buttons are connected to a Room Controller via binary input modules. The Room Controller controls the lighting in the room. On bus voltage failure, the lighting can still be operated because the Room Controller is not supplied by the bus.

On bus voltage failure, the constant lighting control of the *Light Controller Module LR/M 1.6.1* is deactivated. The current setpoint value of the constant lighting control will remain unchanged.

**Reaction on bus voltage recovery**

Any output brightness can be set in the parameters. The setting “unchanged” is likewise possible. Further information and parameter settings you will find in in the description of parameter window “general”.

**Reaction on supply voltage failure**

The supply voltage has failed if both the 115/230 V AC supply and the 12 V DC auxiliary supply of the Room Controller have failed. The Room Controller has no function in this case.

The *Light Controller Module LR/M 1.6.1 and the Switch/Dim Actuator Module SD/M 2.6.1* switch the control output to 100% (high resistance). The state of the relay output remains unchanged.

The *Universal Dim Actuator Module UD/M 1.300.1* switches off the output.

Note: Some stored preset and scene values are lost on failure of the supply voltage. They are overwritten by the parameterised default values.

**Reaction on supply voltage recovery**

The behaviour of the outputs is identical to the behaviour on recovery of the bus voltage. It can be parameterised for each output. It is possible to restore the brightness value prior to the supply voltage failure.

The constant lighting control of the *Light Controller Module LR/M 1.6.1* is activated if this function is enabled.

## 3.8 Reaction after programming

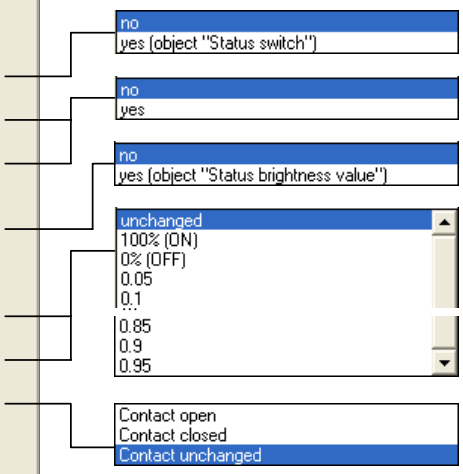
After programming, the device behaves in the same way as after bus voltage recovery (see above).

The current setpoint value of the constant lighting control (*Light Controller Module LR/M 1.6.1*) will remain unchanged.

## d programming

s a single application program “Room Controller
used to set the device function. The programming
oftware ETS2 **V1.3a** or higher. When using the ETS3
nported.

| ts | Max. number of group addresses | Max. number of associations |
|---|---|---|
| | 254 | 255 |




**Status response of switching state**

This parameter sets whether the current switching state is represented on the bus.

The status feedback is carried out via the object “Status switch”. It is sent in the event of a change.

It is set here whether a status response (1 bit) is sent when the output is switched on or off. A further status response object is enabled via which the status feedback takes place.

**Status response inverted**

The status feedback of the switching state can be inverted with this parameter.

The parameter is visible if the value “yes” has been selected in the parameter *“Status response of switching state”*. If the status response is inverted (parameter value “yes”), the object “Status switch” has the following values:

“0” Lighting is switched on
”1” Lighting is switched off

**Sending after bus voltage recovery**

It can be set with this parameter whether the object “Status switch” is sent after bus voltage recovery.

This parameter is visible if a “*Status response of switching state”* is carried out. It defines whether the status feedback “Status switch” is updated on the bus after bus voltage recovery. The object is then only sent if the status of the relay is unambiguous. This cannot be ensured e.g. after a failure of the supply voltage. The update is carried out in connection with the send delay.

**Status response of brightness value**

This parameter enables the object “Status brightness value”, which represents the current brightness value on the bus. The object value is sent after a change in the brightness value.

**Sending after bus voltage recovery**

It can be set with this parameter whether the object “Status brightness value” is sent after bus voltage recovery.

**Reaction on bus voltage failure**

In the event of a bus voltage failure, the output can be set to a defined state with this parameter. A fixed brightness value (0...100%) can be specified.

In the setting “unchanged, internal function is retained”, the brightness value remains unchanged. In this case, the output can continue to be operated, provided that the operation is not carried out via the bus (e.g. via binary input modules).

**Reaction on bus voltage recovery**

When the bus voltage or communication is restored, the output can be set to a defined state with this parameter.

On bus voltage recovery, the brightness value is set once the initialisation period has elapsed. In the setting “unchanged”, the current brightness value is retained.

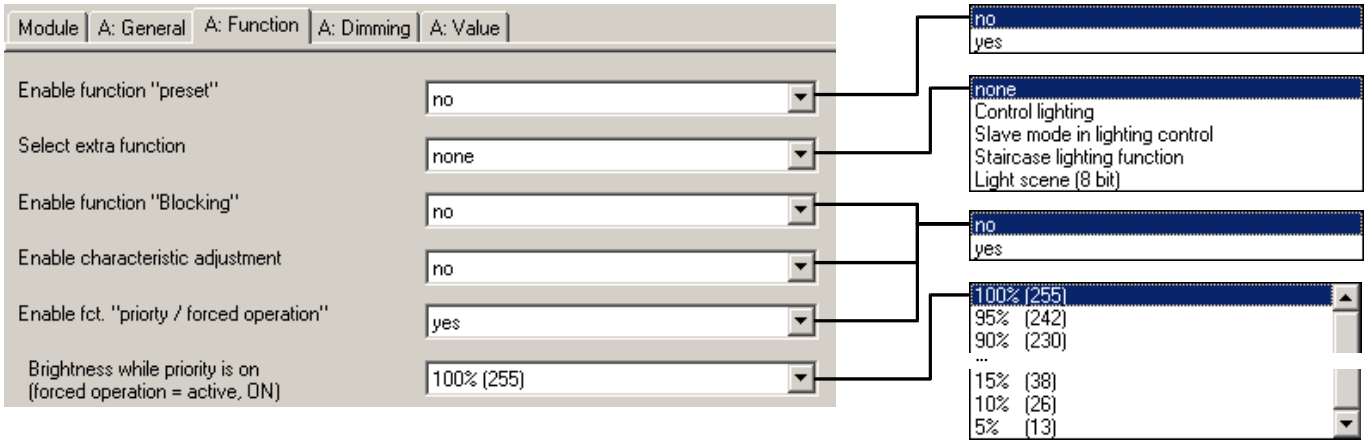
**State of relay output on supply voltage failure**

The relay position which is triggered by the module when the supply voltage has failed can be set here.

The supply voltage has failed if both the 115/230 V AC supply and the 12 V DC auxiliary voltage have failed. In this case, the Room Controller has no function.

### 4.2.2 Parameter window: “Function”

Additional functions of the output can be enabled in this parameter window.




**Parameter: “Enable function ‘preset’”**

The “Presets” function can be enabled via this parameter. The function is used for retrieving or storing brightness values via 1-bit objects.

See under the “Presets” parameter window for further information.

**Parameter: “Select extra function”**

An additional parameter window can be enabled via this parameter, in which one of several additional functions can be set.

The possible additional functions are dependent on the type of the module:

| | SD/M 2.6.1 | LR/M 1.6.1 | UD/M 1.300.1 |
|---|---|---|---|
| Control lighting | | X | |
| Slave mode in lighting control | X | X | X |
| Staircase lighting function | X | X | X |
| Lightscene (8-bit) | X | X | X |

**Parameter: “Enable function ‘blocking’”**

This parameter is only visible if an additional function has not been selected. The “Disable” object is enabled here. The function of the output can be disabled via this object so that it cannot be modified via the EIB.

**Parameter: “Enable characteristic adjustment”**

If “yes” is entered in this parameter, the parameter window “Characteristic adjustment” is enabled. The dimming characteristic curve (lighting dependent on the brightness value) can be modified via this parameter. Further information about this function can be obtained in section 3.5.

**Parameter: “Enable fct. ‘priority / forced operation’”**

The object “Priority / forced operation” can be enabled via this parameter.

**Parameter: “Brightness while priority is on (forced operation = active, ON)”**

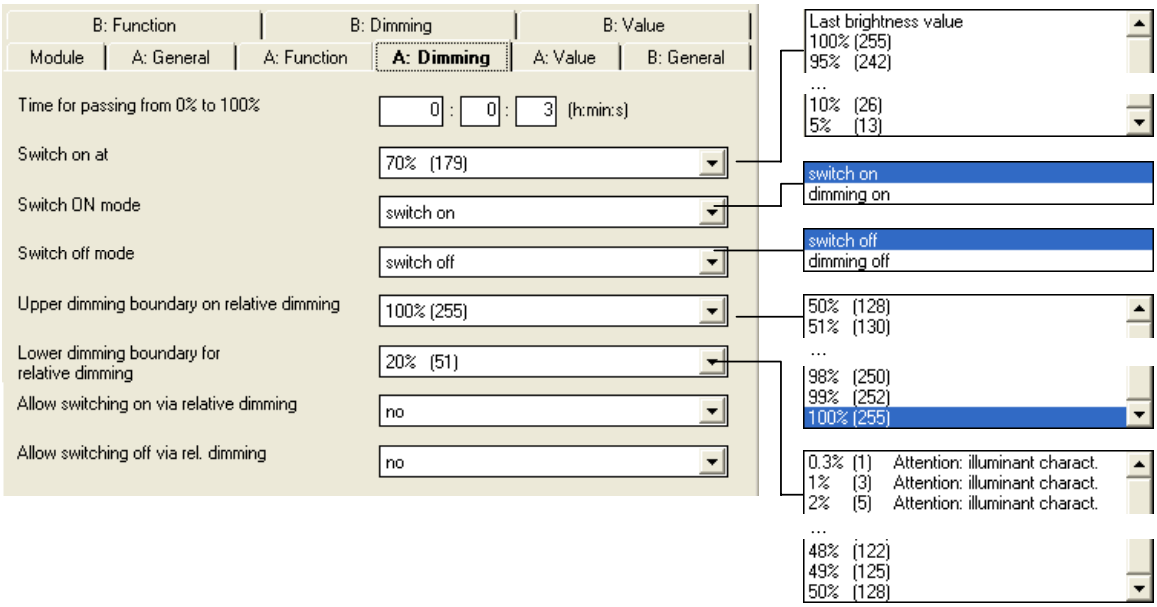
This parameter is visible if the additional function “Enable fct. ‘priority / forced operation’” has been activated. The brightness value is set here which is adopted when the object “Priority / forced operation” has the value “3” ( = “ON, activate forced operation”).

When the forced operation is cancelled, the normal state of the output is restored. During the forced operation, the brightness value is continually calculated; only “Relative dimming” telegrams are ignored.

## 4.3 Function: “Relative dimming”

Relative dimming enables the lighting to be dimmed brighter or darker via the object “Relative dimming”. A detailed description of the communication objects can be obtained in section 4.11.

### 4.3.1 Parameter window “A: Dimming”




**Parameter: “Time for passing from 0% to 100%”**

The dimming ramp which the dimmer uses to dim to a new brightness value can be defined here. The time for dimming from 0% to 100% brightness is set.

**Parameter: “Switch on at”**

This parameter determines which brightness value is selected when the object “Telegr. switch” receives the telegram value “1”.

In the setting “Last brightness value”, the brightness level that was selected before the device was last switched off is restored. At the very least however, the brightness value of the lower dimming limit is set.

**Parameter: “Switch ON mode”**

It can be set how the lighting is switched on. The following table provides an overview:

| | |
|---|---|
| switch on | Switching on as quickly as possible |
| dimming on | Switching on with the dimming ramp |

**Parameter: “Switch OFF mode”**

It can be set how the lighting is switched off. The following table provides an overview:

| | |
|---|---|
| switch off | Switching off as quickly as possible |
| dimming off | Switching off with the dimming ramp |

**Parameter: “Upper dimming boundary for relative dimming”**

The upper brightness value for controlling the dimmer via relative dimming is defined here. The service life of the lamp for example can be increased in this way.

If a larger value is entered as an initial brightness value, this value is still decisive.

If the brightness value is above the upper dimming limit (e.g. through the retrieval of a preset or a scene), it is only possible to dim darker.

**Parameter: “Lower dimming boundary for relative dimming”**

The smallest brightness value for controlling the dimmer via relative dimming is defined here. It is thus possible to prevent the triggering of brightness ranges in which the lamp is already switched off.

The smallest lower dimming limit has the value “1”.

**Parameter: “Allow switching on via relative dimming”**

It can be set here whether the lighting can be switched on by a dimming “BRIGHTER” telegram once it has been switched off.

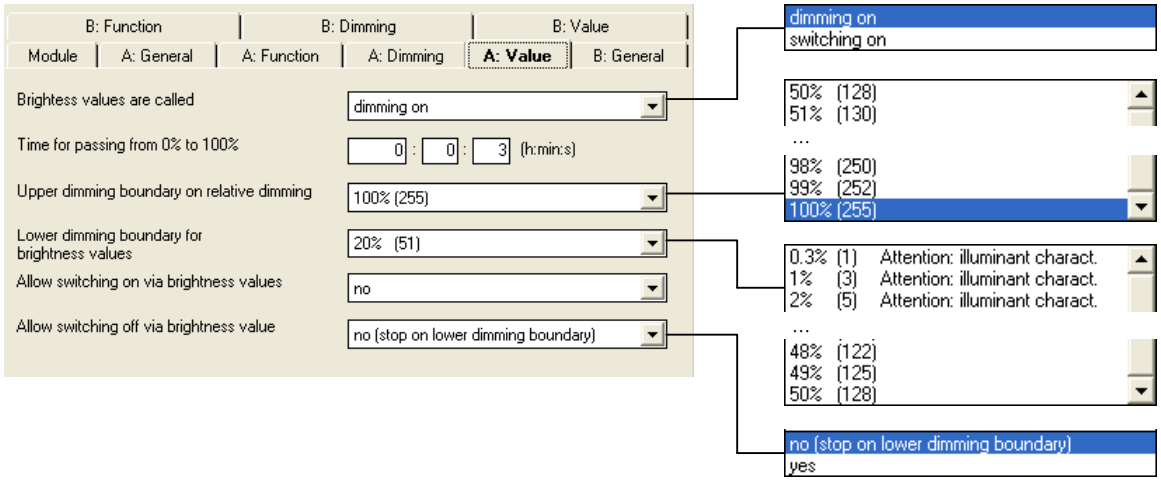
**Parameter: “Allow switching off via relative dimming”**

It can be set here whether the lighting can be switched off by a dimming “DARKER” telegram once it has been switched on. If the parameter value “no” is selected, the brightness value remains at the lower dimming limit.

## 4.4 Function: “Brightness values”

This function enables a brightness level to be specified via an 8-bit brightness value. A detailed description of the communication objects can be obtained in section 4.11.

### 4.4.1 Parameter window: “A: Value”




**Parameter: “Brightness values are called”**

This parameter sets whether the dimmer jumps to the new dimming value as quickly as possible on receipt of a brightness value (1 byte) or whether the dimmer dims slowly to the brightness value.

**Parameter: “Time for passing from 0% to 100%”**

This parameter is visible if the dimmer dims to the new brightness value. The speed at which the dimmer dims to a new brightness value can be defined here. The time for dimming from 0...100% brightness is set here.

**Parameter: “Upper dimming boundary for brightness values”**

The upper brightness value for controlling the dimmer via a brightness value telegram is defined here.

If a brightness value is received which is greater than the upper dimming limit, the output sets the upper dimming limit. This value is also reported back on the bus.

**Parameter: “Lower dimming boundary for brightness values”**

The brightness value for controlling the dimmer via a brightness value telegram is defined here. If the dimmer receives a brightness value which is smaller than the lower dimming limit (not zero), the lower dimming limit is triggered.

**Parameter: “Allow switching on via brightness values”**

It can be set here whether the lighting can be switched on by a brightness value telegram greater than “0” when it has been switched off.

**Parameter: “Allow switching off via brightness values”**

If a brightness value is received that is equal to zero, it can be set here whether the lighting is switched off (“yes”) or remains at the lower dimming limit.

### 4.4.2 More detailed functional description

The upper and lower dimming limit set here also apply when retrieving presets and 8-bit scenes as well as in the staircase lighting function and slave mode. If a brightness value is retrieved which exceeds the upper dimming limit, the upper dimming limit is set.

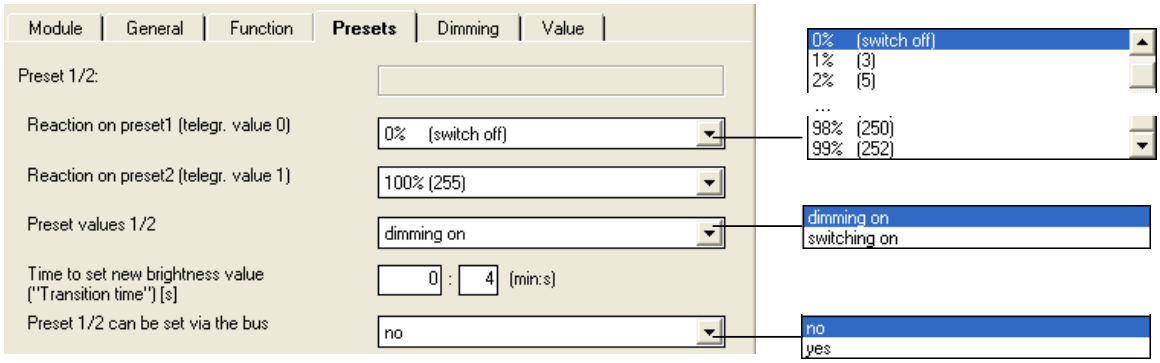
If a brightness value is received during a dimming process, the process is first stopped and then the new brightness value is triggered.

## 4.5 Function: “Presets”

The presets are used to retrieve preselected brightness values via 1-bit telegrams. Further information about the function can be obtained in section 3.2.

After a failure in the supply voltage and after programming the device, the parameterised preset values are restored.

### 4.5.1 Parameter window: ”A: Presets”




The parameters are identical for preset 1/2 and preset 3/4.

**Parameter: “Reaction on preset1 (telegr. value 0)”**

This parameter defines how the output behaves when retrieving preset1, i.e. when object “Call preset 1/2” receives the telegram value “0”. A fixed brightness value can be retrieved. One of the following functions can be selected as a further option:

*“restore old value”* recreates the brightness before the last retrieval of preset2. If the lighting control function or slave mode were active, they are also reactivated.

*“reset to parameterised value”* resets preset2 to the parameterised value. This can be advisable if the preset can be stored via the bus (see below).

**Parameter: “Reaction on preset2 (telegr. value 1)”**

This parameter defines which brightness value is set on retrieval of preset2 (= object “Call preset 1/2” receives telegram value “1”).

**Parameter: “Preset values 1/2”**

This parameter sets whether the dimmer jumps to the preset value as quickly as possible or whether the dimmer dims to the preset value using the transition time.

**Parameter:**
**”Time to set new brightness value (“Transition time”)”**

The speed with which a new preset value is set can be defined here.

This parameter is visible if the value “dimming on” has been set in the parameter *“Preset values 1/2”*. The period until the new brightness value is reached can be set.

**Parameter: “Preset 1/2 can be set via the bus”**

The object “Set preset 1/2” is enabled via this parameter. It is used to store the brightness value that is currently selected as the new preset value. Telegram value “0” stores preset1 while telegram value “1” stores preset2.

The function of preset 3/4 is identical to preset 1/2.

## 4.6 Function: “Lighting control”

This function enables constant lighting control. It is only available for the Light Controller Module LR/M 1.6.1. Further explanations about the function can be found in section 3.1.

### 4.6.1 Function

An ON telegram at the object “Telegr. switch” always activates the control function. The active control dims the lighting so that the difference between the actual value and the setpoint value of the light sensor is as small as possible.

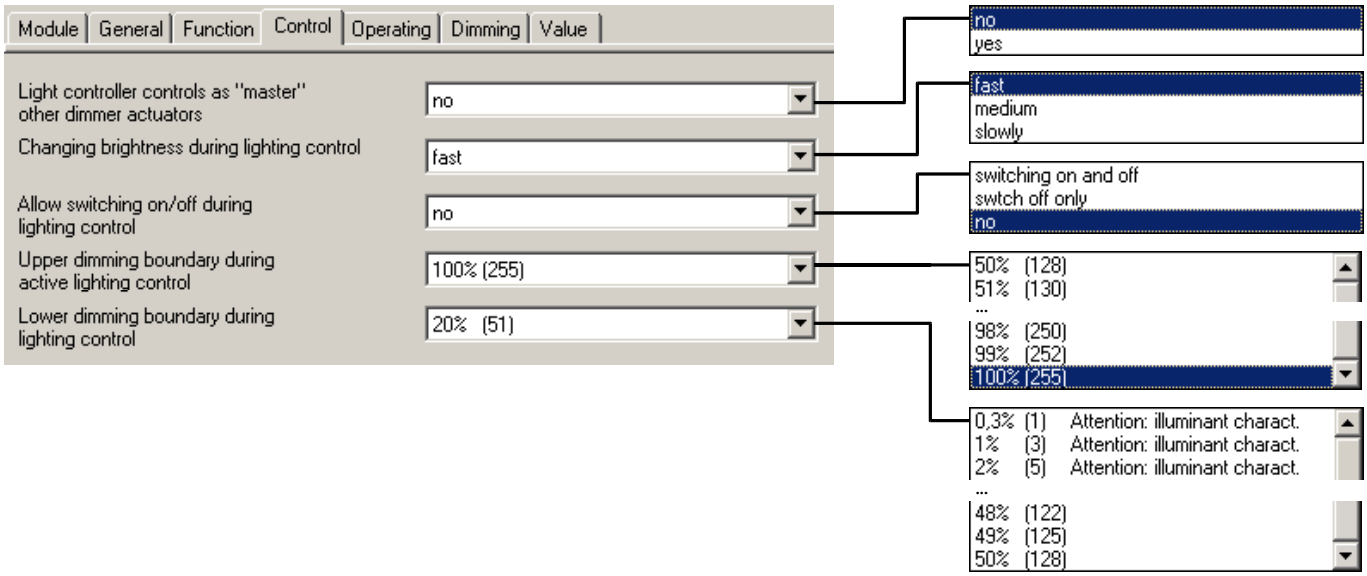
Behaviour of the function “Lighting control” during and after voltage failures:

| | |
|---|---|
| Bus voltage failure | Behaviour of the output as defined in the “General” parameter window. The control function is inactive. |
| Bus voltage recovery | Status of the lighting control as before bus voltage failure; setpoint value is restored |
| Supply voltage failure | No function |
| Supply voltage recovery | Status of the lighting control can be parameterised; setpoint is adopted from the parameters |

### 4.6.2 Terms

| | |
|---|---|
| **Measured value of light sensor** | This is the brightness value measured directly by a light sensor. |
| **Actual value of light sensor** | This is the currently measured brightness value of the light sensor. |
| **Setpoint value** | This is the definitive brightness setpoint for the lighting control. The lighting control tries to align the actual value of the light sensor with the setpoint. |
| **Master/slave mode** | It is possible for the light controller to integrate other dimming actuators in the control function. In this case, the light controller (so-called “master”) controls the other dimming actuators (so-called “slaves”) directly via the object “Slave brightness value”. |
| **Control active/inactive** | The lighting control can be deactivated by the user so that it can be manually operated. When the control is inactive, the light controller behaves like a normal dimming actuator except that the value “1” at the object “Telegr. switch” always activates the control function again. |

### 4.6.3 Parameter window: “Control”




**Parameter: “Light controller operates as ‘master’ of other dimmer actuators”**

It is set here whether the light controller controls further dimming actuators (“slaves”) via a 1-byte brightness value.

**Parameter: “Changing brightness during lighting control”**

This parameter defines how quickly the lighting changes if the lighting control is active. For reasons of comfort, the change in the brightness level should not be noticeable.

Normally, it is possible to choose between “fast”, “medium” and “slow”. In master mode, only the options “medium” and “slow” are possible in order to limit the bus load.

**Parameter: “Allow switching on/off during lighting control”**

It can be set here whether the lighting may be switched on and off while the lighting control function is active (“switching on and off”), may not be switched on again (“switch off only”) or remains at least at the lower dimming limit (“no”).

**Parameter: “Upper dimming boundary during active control”**

The largest brightness value which the dimmer can trigger during lighting control is set here.

**Parameter: “Lower dimming boundary during lighting control”**

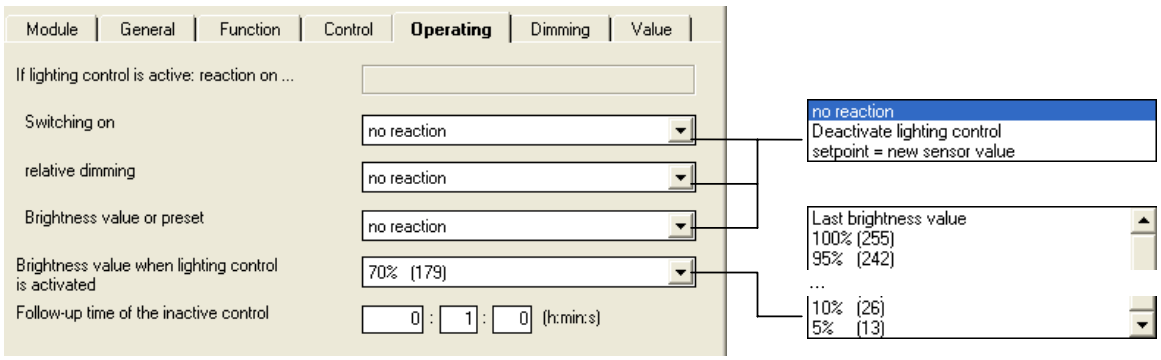
The smallest brightness value which the dimmer can trigger during lighting control is set here.

**Parameter: “State of light control after mains voltage recovery”**

It can be set in this parameter whether the control is “active” or “inactive” once the supply voltage of the device has recovered. In the setting “inactive”, the brightness value follows the setting in the “General” parameter window.

### 4.6.4 Parameter window: “Operating”

It is defined how the user can operate the lighting during constant lighting control.




**Parameter: “If lighting control is active: reaction on ...”**

It can be set via these three parameters how an output reacts during active lighting control if the following telegrams are received:

| | |
|---|---|
| **Switching on** | Receipt of the telegram value “1” at the object “Telegr. switch” |
| **Relative dimming** | Receipt of a telegram at the object “Relative dimming” |
| **Brightness value or preset** | Receipt of a telegram at the object “Brightness value” or “Call preset …” |

It can be set which effect the receipt of the telegram has on the active control function:

In the setting *“no reaction”*, the receipt is ignored.

In the setting *“Deactivate lighting control”*, the lighting control is deactivated. The control can be reactivated by an ON telegram.

In the setting *“Setpoint = new sensor value”* (only possible with “Relative dimming”), the new sensor value is adopted as a temporary setpoint value. The lighting control remains active. The old setpoint value is restored the next time the control function is activated.

**Parameter: “Brightness value when lighting control is activated”**

The brightness value which is set immediately on activation of the lighting control can be defined via this parameter. The lighting is gradually readjusted starting with this value.

**Parameter: “Follow-up time of the inactive control”**

If constant lighting control has been deactivated, the overshoot time starts when the lighting has been switched off. If the lighting is switched on again *within* the overshoot period, the old brightness value is restored and the lighting control remains switched off.

This function should enable the user who has only temporarily left the room to restore the same lighting environment. It is particularly advisable if the control function is activated by a presence/movement detector.

## 4.7 Function: “Slave mode in lighting control”

With this function, the dimming actuator follows the brightness value which it has been assigned by a light controller. It can thereby be integrated in a constant lighting control function.

### 4.7.1 Function

An ON telegram to the object “Telegr. switch” always activates the slave function. The dimming actuator then continually follows the brightness value which it is assigned by the object “Slave brightness value”.

The dimming limits from the parameter window “A: Value” are adopted. The object “Status brightness value” does not send a status response when the slave function is active.

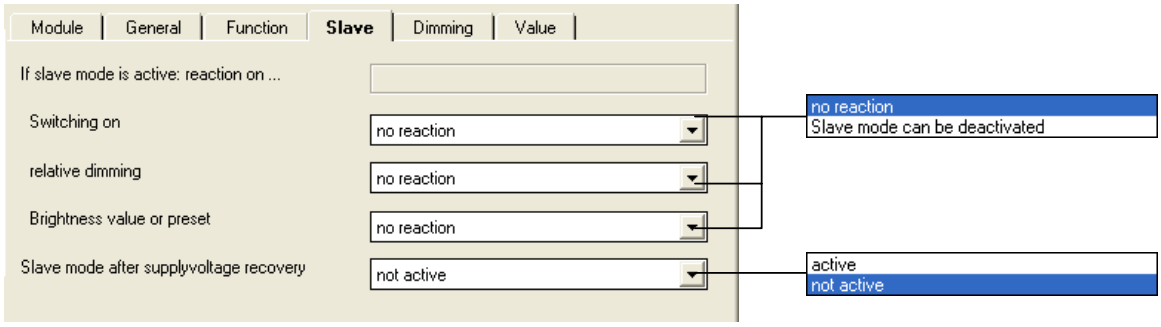
If the slave function **and** the lighting should be switched on/off with a rocker, the switch object of the rocker should be linked with the objects “Telegr. switch” and “Slave active / inactive” of the actuator.

On receipt of an OFF telegram, the slave function is deactivated and the lighting is switched off.

Behaviour of the function “Slave mode” during and after voltage failures:

| | |
|---|---|
| Bus voltage failure | Behaviour of the output as defined in the “General” parameter window. Slave mode is deactivated. |
| Bus voltage recovery | Status of slave mode as before bus voltage failure; brightness remains unchanged until the receipt of the first brightness value. |
| Supply voltage failure | No function |
| Supply voltage recovery | Status of slave mode can be parameterised |

### 4.7.2 Parameter window: “Slave”




**Parameter: “If slave mode is active: reaction on …”**

It can be set via these three parameters how an output reacts during active lighting control if the following telegrams are received:

| | |
|---|---|
| **Switching on** | Receipt of the telegram value “1” at the object “Telegr. switch” |
| **Relative dimming** | Receipt of a telegram at the object “Relative dimming” |
| **Brightness value or preset** | Receipt of a telegram at the object “Brightness value” or “Call preset …” |

It can be set which effect the receipt of the telegram has on the active slave mode:

In the setting *“no reaction”*, the receipt is ignored.

In the setting “*Slave mode can be deactivated*”, the slave mode is deactivated. It can be reactivated by an ON telegram.

**Parameter: “Slave mode after supply voltage recovery”**

It can be set in this parameter whether slave mode is “active” or “not active” after bus voltage recovery. If the slave function is “active”, the brightness value is polled after bus voltage recovery.

## 4.8 Function: “Staircase lighting”

### 4.8.1 Function

This function is visible if the parameter *“Select extra function”* in the “General” parameter window has the value “Staircase lighting function”.

On receipt of the telegram value “1” at the object “Telegr. switch”, the lighting is switched on. Once the staircase lighting time $t_{ON}$ has elapsed, the lighting is dimmed down to the lower dimming limit during an adjustable dimming down period $t_D$ and then switches off. The lower dimming limit from the parameter window “A: Dimming” is adopted.

Behaviour of the “Staircase lighting function” during and after voltage failures:

| | |
|---|---|
| Bus voltage failure | Behaviour of the output as defined in the “General” parameter window.<br>The staircase lighting function is deactivated. |
| Bus voltage recovery | Status of the staircase lighting function is restored. If the staircase lighting was switched on or is in the dimming down period, the staircase lighting time is restarted (normal staircase lighting time). ‘Pumping’ is not taken into account. |
| Supply voltage failure | No function |
| Supply voltage recovery | As for bus voltage recovery |

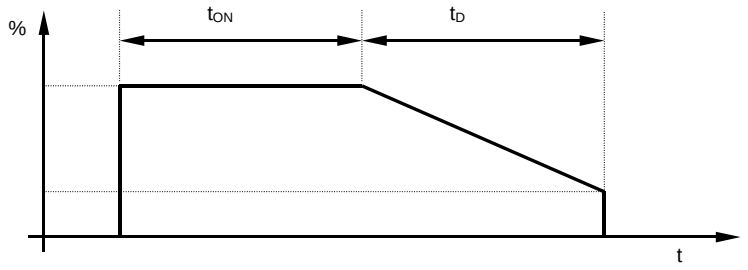
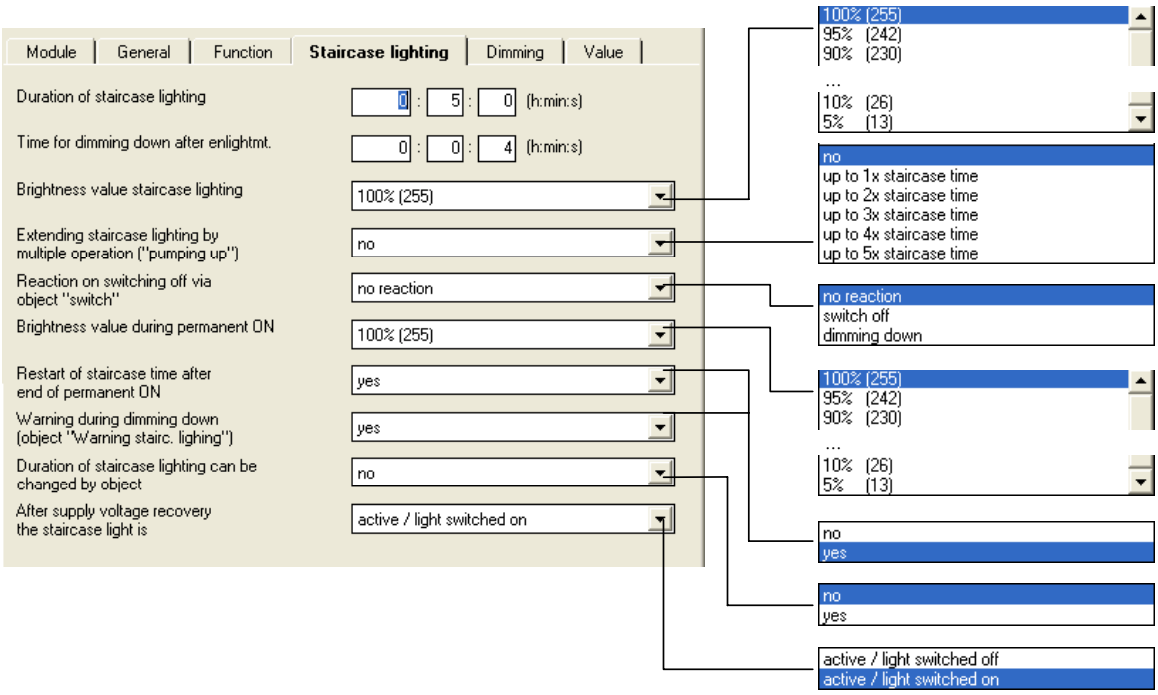



**Fig. 3: Progression of the brightness level during staircase lighting**

### 4.8.2 Parameter window: “Staircase lighting”




**Parameter: “Duration of staircase lighting”**

The period during which the staircase lighting is switched on is set here (“Staircase lighting time $t_{ON}$”).

**Parameter: “Time for dimming down after enlightmt.”**

The speed for dimming down once the staircase lighting time has elapsed is set here (“Dimming down time $t_D$”).

**Parameter: “Brightness value for staircase lighting”**

The brightness of the lighting during the staircase lighting time can be set here (0..100%). If the brightness value is less than the lower dimming limit, the lower dimming limit is set.

**Parameter: “Extending staircase lighting by multiple operation (‘pumping up’)”**

If a further ON telegram is received during the staircase lighting time, the remaining staircase lighting time can be extended by a further staircase lighting period. The maximum time can be set in this parameter.

In the setting “no”, the staircase lighting time restarts on receipt of an ON telegram (“retrigger function”).

**Parameter: “Reaction on switching off via object ‘Switch’”**

In the setting “*no reaction*”, ON telegrams are ignored.

In the setting *“switch off”*, the lighting is switched off (not for permanent ON).

In the setting *“dimming down”*, the dimming down time is started when the lighting is switched on (not for permanent ON).

**Parameter: “Brightness value during permanent ON”**

The brightness of the lighting can be set here (0...100%), while the object “Permanent ON” has the value “1”.

**Parameter: “Restart of staircase time after end of permanent ON”**

In the setting “no”, the lighting is switched off if the maintained lighting has ended. In the setting “yes”, the lighting remains switched on and the staircase lighting is restarted.

**Parameter: “Warning during dimming down (object ‘Warning stairc. lighting’)”**

The user can be also be warned during the dimming down period, whereby the object “Warning stairc. lighting” is set to “1”.

**Parameter: “Duration of staircase lighting can be changed by object”**

The object “Duration of staircase lighting” is enabled via this parameter. It enables the modification of the staircase lighting time via the bus.

**Parameter: “After staircase lighting the staircase light is”**

It can be set here whether the staircase lighting is switched on or off after recovery of the supply voltage (mains voltage).

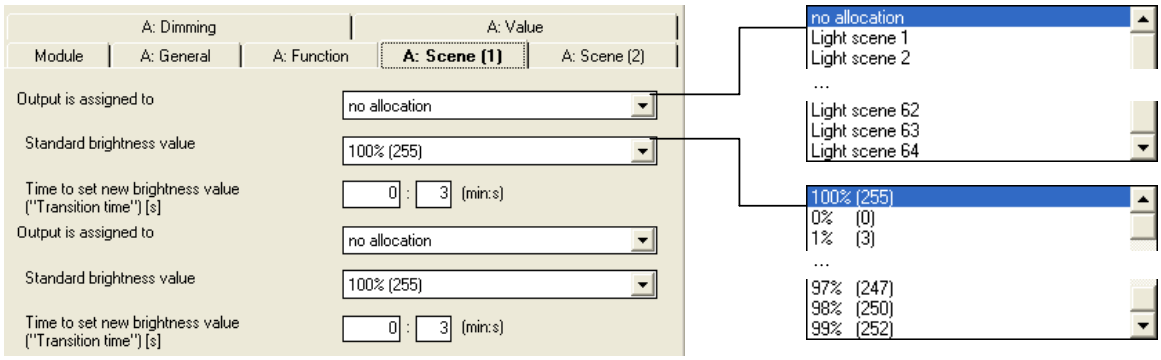
| | |
|---|---|
| switched on | The lighting is switched on and the staircase lighting time is started. |
| switched off | The lighting is switched off. |

The output also follows this parameter on recovery of the bus voltage and after supply voltage recovery.

## 4.9 Function “Lightscene (8-bit)”

This function enables the assignment of the output to up to 6 scene numbers. If the object “8-bit scene” is received with one of the assigned scene numbers, the stored scene value (brightness value) is retrieved or the current brightness value is stored.

### 4.9.1 Parameter window: “Scene (1)” and “Scene (2)”




**Parameter: “Output is assigned to”**

A maximum of 64 different lightscenes (1...64) can be addressed via a group address. The output can be assigned to a maximum of 6 scenes.

**Parameter: “Standard brightness value”**

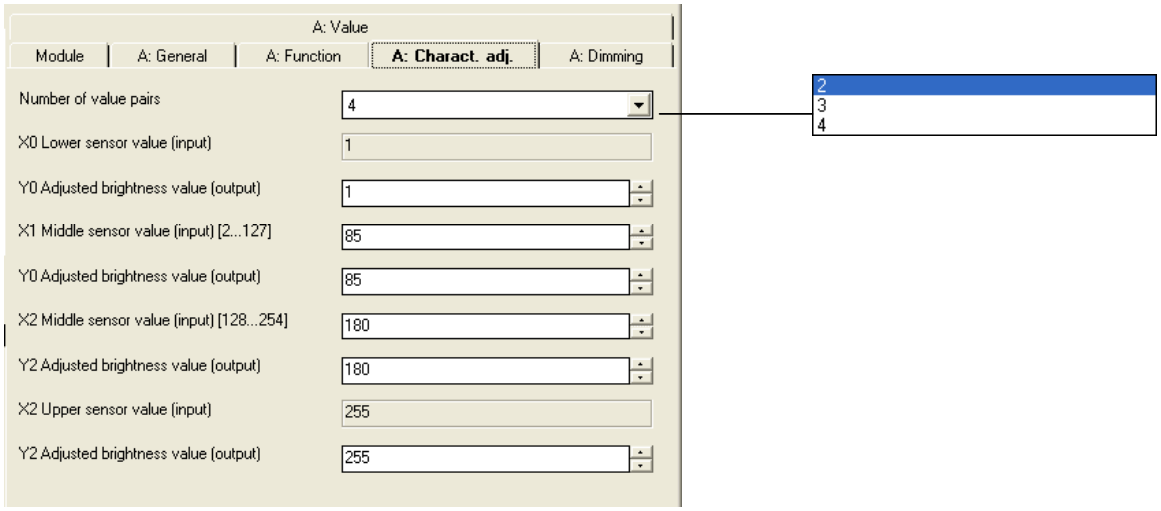
The brightness value which is assigned to the lightscene after programming is set here.

**Parameter: “Time to set new brightness value (“Transition time”)”**

The transition time which is used to set the new lightscene is defined here.

## 4.10 Function: “Characteristic adjustment”

The characteristic adjustment enables e.g. the adaptation of the dimming characteristic curve of the lamp to the sensitivity of the human eye. Further information about the function can be found under section 3.5.



**Parameter: “Number of value pairs”**

This parameter determines the number of value pairs which the characteristic curve is composed of.

***Remaining parameters:***

The X and a Y value can be defined here according to the number of value pairs. The X value (input value) designates the object value. The Y value denotes the brightness value which is issued at this object value.

The first X value is also defined with “1” while the last X value is always given the value “255”.

## 4.11 Communication objects

### 4.11.1 Overview

**General objects**

| No | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **0/15** | **Switch** | **Output A** | **1 Bit (EIS1)** | **CW** |
| Switches the output on or off. | | | | |
| **1/16** | **Status switch** | **Output A** | **1 Bit (EIS1)** | **CRT** |
| Used to report the current switching state. It can be inverted if required. | | | | |
| **2/17** | **Relative dimming** | **Output A** | **4 Bit (EIS2)** | **CW** |
| Dimming commands (BRIGHTER, DARKER, STOP) are received via this object. | | | | |
| **3/18** | **Brightness value** | **Output A** | **1 Byte (EIS6)** | **CW** |
| Assigns a brightness value to the output. It is possible to dim or jump to the brightness value. | | | | |
| **4/19** | **Status brightness value** | **Output A** | **1 Byte (EIS6)** | **CRT** |
| Used to report the current brightness value that has been issued. The object value updates itself in connection with a switching or dimming process. | | | | |
| **5/20** | **Priority / forced operation** | **Output A** | **2 Bit (EIS8)** | **CW** |
| This object is used to preassign a parameterisable brightness value with subsequent blocking of the operation. | | | | |
| **6** | **Error report** | **Output A** | **1 Bit (EIS1)** | **CRT** |
| (only Universal Dim Actuator Module UD/M 1.300.1)<br>This object reports a general error. | | | | |
| **7** | **Error code** | **Output A** | 1 Byte (EIS14) | **CRT** |
| (only Universal Dim Actuator Module UD/M 1.300.1)<br>Gives detailed information about the cause of an error which has occurred. The object value is sent in the event of a change. | | | | |
| **18** | **Light sensor value** | **Input light sensor** | **1 Byte (EIS6)** | **CRT** |
| (only Light Controller Module LR/M 1.6.1)<br>This object sends the brightness value which has been measured by the light sensor. | | | | |

**Objects for the “Preset” function**

| No | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **8/23**<br>**10/25** | **Call preset 1/2 *and*<br>Call preset 3/4** | **Output A** | **1 Bit (EIS1)** | **CW** |
| Retrieves a parameterisable brightness value.<br>“0” retrieves preset1 or preset3<br>”1” retrieves preset2 or preset4 | | | | |
| **9/24**<br>**11/26** | **Set preset 1/2 *and*<br>Set preset 3/4** | **Output A** | **1 Bit (EIS1)** | **CW** |
| Stores the current brightness value as a new preset value.<br>“0” stores preset1 or preset3<br>”1” stores preset2 or preset4 | | | | |

**Objects for the “Lighting control” function**

| No | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **12** | **Set setpoint value** | **Light control** | **1 Bit (EIS1)** | **CW** |
| If the device receives the value “1” via this object, the current light sensor value (actual value) is adopted as the new setpoint value of the control function. | | | | |

| No | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **13** | **Setpoint** | **Light control** | **1 Byte (EIS6)** | **CRWT** |
| The setpoint value of the control function can be read out and assigned directly via this object. | | | | |
| **16** | **Slave brightness value** | **Light control** | **1 Byte (EIS6)** | **CRT** |
| The light controller (master) sends the brightness value to further dimming actuators (slaves) via this object. | | | | |
| **17** | **Control active/inactive** | **Light control** | **1 Bit (EIS1)** | **CRW** |
| Used to activate/deactivate the lighting control. By reading out the object value, it is possible to indicate whether the control is currently active (“1”) or inactive (“0”). | | | | |

**Objects for the function “Slave mode in lighting control”**

| No | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **12/27** | **Slave active/inactive** | **Output A** | **1 Bit (EIS1)** | **CWT** |
| Used to activate/deactivate the slave mode. On activation/deactivation of the slave mode (e.g. by OFF command), the device reports the new switching state. | | | | |
| **13/28** | **Slave brightness value** | **Output A** | **1 Byte (EIS6)** | **CRW** |
| The dimmer receives the brightness value of a higher-order lighting control (master) via this object. | | | | |

**Objects for the “Staircase lighting” function**

| No | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **12/27** | **Permanent ON** | **Output A** | **1 Bit (EIS1)** | **CW** |
| Used to keep the lighting switched on continuously when the staircase lighting function is active (also called “Cleaning light”). | | | | |
| **13/28** | **Duration of staircase lighting** | **Output A** | 2 Byte (EIS10) | **CRW** |
| Modifies the duration of the staircase lighting (in seconds). | | | | |
| **14/29** | **Warning stairc. lighting** | **Output A** | **1 Bit (EIS1)** | **CT** |
| Used as a warning before the staircase lighting time elapses. The object has the value “1” during the warning period. | | | | |

**Objects for the function “Lightscene (8-bit)”**

| No | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **12/27** | **8-bit scene** | **Output A** | 1 Byte (non EIS) | **CW** |
| Integrates the actuator into a scene. The object value contains a scene number as well as the instruction as to whether a scene should be retrieved or the current output state should be saved as a new scene value. | | | | |

**Objects for the “Blocking” function**

| No | Function | Object name | Data type | Flags |
|---|---|---|---|---|
| **12/27** | **Disable** | **Output A** | **1 Bit (EIS1)** | **CW** |
| Used to disable the output to prevent unwanted operation. | | | | |

### 4.11.2 Detailed description of the communication objects

**Object: “Telegr. switch”: 1 Bit (EIS1)**

This object switches the output on or off.

Telegram value “0” switches the lighting off while the value “1” switches the lighting on. The initial brightness value can be parameterised.

For constant lighting control (Light Controller LR/M 1.6.1), the receipt of the value “1” activates the control function in addition to the lighting. The slave function is activated when there are slaves in constant lighting control.

**Object: “Status switch”: 1 Bit (EIS1)**

This object is used to report the current switching state. It can be inverted when required. It normally has the following object values:

“0” Lighting is switched off
”1” Lighting is switched on

When the status response is inverted, the object has the following values:

“0” Lighting is switched on
”1” Lighting is switched off

The object is visible if the parameter “*Status response of switching state”* has the value “yes”.

**Object: “Relative dimming”: 4 Bit (EIS2)**

Dimming commands (BRIGHTER, DARKER, STOP) are received via this object.

**Object: “Brightness value”: 1 Byte (EIS6)**

This object is used to assign a specific brightness value.

It can be parameterised whether the dimmer immediately jumps to the received brightness value (0...255 corresponds to 0...100%) or slowly dims to it.

**Object: “Status brightness value”: 1 Byte (EIS6)**

This object is used to report the current output brightness value. The object value is updated in connection with a switching or dimming process.

This object is visible if the parameter *“Status response of brightness value”* has the value “yes”.

**Object: “Priority / forced operation”: 2 Bit (EIS8)**

This object is used for the forced assignment of a parameterisable brightness value e.g. by a higher-order controller. The output state is unchanged during the forced operation. There are three different states:

“0” or “1” The output is not operated with priority control.
”2” The output is switched off with priority control.
”3” The output is switched on with priority control (brightness value can be parameterised).

At the end of the forced operation, the state that would have applied without a forced operation is always restored. Put another way, the device continues to operate normally in the background during the forced operation but any change in the brightness value cannot be detected.

This object is visible if the parameter *“Enable fct. ‘priority / forced operation’”* is set to “yes”.

**Object: “Error report”: 1 Bit (EIS1)**

(only Universal Dim Actuator Module UD/M 1.300.1)
This object reports a general error.

In the event of an error, the dimming actuator offers the possibility of providing detailed information on the bus about the cause of the error.
Object values:

“0” Device operates without any errors
”1” Malfunction

**Object: “Error code”: 1 Byte (EIS14)**

(only Universal Dim Actuator Module UD/M 1.300.1)
This object provides more detailed information about the cause of an error. The object value is sent in the event of a change.

Bit0: Error during load detection
Bit1: (not used)
Bit2: (not used)
Bit3: No-load operation or low load
Bit4: Short circuit or overload
Bit5: Overvoltage in load circuit (overvoltage pulse)
Bit6: Excess temperature in device
Bit7: Critical temperature rise in device

**Object: “Light sensor value”: 1 Byte (EIS6)**

(only Light Controller Module LR/M 1.6.1)
This object sends the brightness value that is measured by the light sensor.

**Objects: “Call preset 1/2” *and* “Call preset 3/4”: 1 Bit (EIS1)**

Retrieves a stored brightness value. The object values “0” or “1” retrieve the brightness values “Brightness 1” or “Brightness 2” and “Brightness 3” or “Brightness 4”.

For “Brightness 1” or “Brightness 3”, it is also possible to specify that the state is restored before retrieving “Brightness 2” or “Brightness 4” or the stored brightness value is reset to the parameterised value (advisable, if brightness 2 or brightness 4 can be stored).

**Objects: “Set preset 1/2” *and* “Set preset 3/4”: 1 Bit (EIS1)**

Stores the brightness value that is currently issued as a new preset value. The object values “0” or “1” store preset1 or preset2 (and preset3 or preset4).

**Object: “Set setpoint value”: 1 Bit (EIS1)**

If the device receives the value “1” via this object, the current actual value of the light sensor is transferred to the object value “Setpoint value” and sent on the bus. The control function thus sets the current brightness value as a new setpoint value.

**Object: “Setpoint value”: 1 Byte (EIS6)**

The setpoint value of the lighting control can be read out via this object and directly assigned.

**Object: “Slave brightness value”: 1 Byte (EIS6)**

This object is visible if the parameter “*Light controller operates as ‘master’ of other dimmers”* = “yes”. It sends the current brightness value of the controller on the bus so that further devices (“Slaves”) can be set to the same value.

**Object: “Control active/inactive”: 1 Bit (EIS1)**

After an activation/deactivation of the lighting control, this objects sends its new status on the bus (“1” = control active, “0” = control inactive).

By writing to this object, the lighting control can be deactivated (“1”) and activated (“0”). When the control is deactivated, the brightness value initially remains unchanged.

**Object: “Slave active/inactive”: 1 Bit (EIS1)**

The slave mode can be activated (“1”) and deactivated (“0”) via this object. On activation/deactivation of the slave mode (e.g. by an OFF command), the device reports the new switching state.

**Object: “Slave brightness value”: 1 Byte (EIS6)**

The dimmer receives a brightness value from a higher-order lighting control function via this object.

**Object: “Permanent ON”: 1 Bit (EIS1)**

If this object receives the value “1”, the lighting is permanently switched on at the parameterised brightness value. On receipt of the telegram value “0”, the staircase lighting remains switching on and the dimming down time is started.

Note: A permanent ON function can also be carried out via the 2-bit object “Priority / forced operation”. The difference is that the lighting is switched off under certain conditions when the priority is deactivated.

**Object: “Duration of staircase lighting”: 2 Byte (EIS10)**

This object is visible if “yes” has been selected in the parameter “*Duration of staircase lighting can be changed by object*”.

The staircase lighting time $t_{ON}$ can be set via this object. The time is given in seconds. After bus voltage recovery, the object value is overwritten by the parameterised value.

**Object: “Warning stairc. lighting”: 1 Bit (EIS1)**

If the “Staircase lighting function” has been set in the parameters, this object can be enabled via a parameter. The object receives the value “1” during the warning period before the end of the staircase lighting time. The user can thus be warned e.g. by triggering a push button LED.

**Object: “8-bit scene”: 1 Bit (EIS1)**

The device receives a scene number (1...64) via this object as well as the information about whether a scene should be retrieved or the current brightness should be stored in the scene.

Bitwise telegram code: MxSSSSSS
(MSB) (LSB)

M: 0 – Scene is retrieved
1 – Scene is stored
x: Not used
S: Number of the scene (1...64)

| **Object value** | | **Meaning** |
|---|---|---|
| **decimal** | **hexadecimal** | |
| 00 *or* 64<br>01 *or* 65<br>02 *or* 66<br>...<br>63 *or* 127 | 00h *or* 40h<br>01h *or* 41h<br>02h *or* 42h<br>...<br>3Fh *or* 7Fh | Retrieve scene 1<br>Retrieve scene 2<br>Retrieve scene 3<br>...<br>Retrieve scene 64 |
| 128 *or* 192<br>129 *or* 193<br>130 *or* 194<br>...<br>191 *or* 255 | 80h *or* B0h<br>81h *or* B1h<br>82h *or* B2h<br>...<br>AFh *or* FFh | Set scene 1<br>Set scene 2<br>Set scene 3<br>...<br>Set scene 64 |

**Object: “Disable”: 1 Bit (EIS1)**

This object is used to disable the output in order to prevent unwanted operation.

It is visible if the parameter “*Enable function ‘blocking’”* = “yes”.

If this object receives the value “1”, telegrams to the objects “Telegr. switch” and “Relative dimming” are ignored. If the object value is “0”, these objects behave normally. On receipt of an object value, the output remains unchanged.

# 5 Appendix

## 5.1 Value table for object “Error code”

| Error code value | | Critical temperature rise | Excess temperature | Overvoltage in load circuit | Short circuit or overload | No-load operation or low load | Not used | Not used | Error during load detection |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 00 | | | | | | | | |
| 1 | 01 | | | | | | | | ■ |
| 2 | 02 | | | | | | | ■ | |
| 3 | 03 | | | | | | | ■ | ■ |
| 4 | 04 | | | | | | ■ | | |
| 5 | 05 | | | | | | ■ | | ■ |
| 6 | 06 | | | | | | ■ | ■ | |
| 7 | 07 | | | | | | ■ | ■ | ■ |
| 8 | 08 | | | | | ■ | | | |
| 9 | 09 | | | | | ■ | | | ■ |
| 10 | 0A | | | | | ■ | | ■ | |
| 11 | 0B | | | | | ■ | | ■ | ■ |
| 12 | 0C | | | | | ■ | ■ | | |
| 13 | 0D | | | | | ■ | ■ | | ■ |
| 14 | 0E | | | | | ■ | ■ | ■ | |
| 15 | 0F | | | | | ■ | ■ | ■ | ■ |
| 16 | 10 | | | | ■ | | | | |
| 17 | 11 | | | | ■ | | | | ■ |
| 18 | 12 | | | | ■ | | | ■ | |
| 19 | 13 | | | | ■ | | | ■ | ■ |
| 20 | 14 | | | | ■ | | ■ | | |
| 21 | 15 | | | | ■ | | ■ | | ■ |
| 22 | 16 | | | | ■ | | ■ | ■ | |
| 23 | 17 | | | | ■ | | ■ | ■ | ■ |
| 24 | 18 | | | | ■ | ■ | | | |
| 25 | 19 | | | | ■ | ■ | | | ■ |
| 26 | 1A | | | | ■ | ■ | | ■ | |
| 27 | 1B | | | | ■ | ■ | | ■ | ■ |
| 28 | 1C | | | | ■ | ■ | ■ | | |
| 29 | 1D | | | | ■ | ■ | ■ | | ■ |
| 30 | 1E | | | | ■ | ■ | ■ | ■ | |
| 31 | 1F | | | | ■ | ■ | ■ | ■ | ■ |
| 32 | 20 | | | ■ | | | | | |
| 33 | 21 | | | ■ | | | | | ■ |
| 34 | 22 | | | ■ | | | | ■ | |
| 35 | 23 | | | ■ | | | | ■ | ■ |
| 36 | 24 | | | ■ | | | ■ | | |
| 37 | 25 | | | ■ | | | ■ | | ■ |
| 38 | 26 | | | ■ | | | ■ | ■ | |
| 39 | 27 | | | ■ | | | ■ | ■ | ■ |
| 40 | 28 | | | ■ | | ■ | | | |
| 41 | 29 | | | ■ | | ■ | | | ■ |
| 42 | 2A | | | ■ | | ■ | | ■ | |
| 43 | 2B | | | ■ | | ■ | | ■ | ■ |
| 44 | 2C | | | ■ | | ■ | ■ | | |
| 45 | 2D | | | ■ | | ■ | ■ | | ■ |
| 46 | 2E | | | ■ | | ■ | ■ | ■ | |
| 47 | 2F | | | ■ | | ■ | ■ | ■ | ■ |
| 48 | 30 | | | ■ | ■ | | | | |
| 49 | 31 | | | ■ | ■ | | | | ■ |
| 50 | 32 | | | ■ | ■ | | | ■ | |
| 51 | 33 | | | ■ | ■ | | | ■ | ■ |
| 52 | 34 | | | ■ | ■ | | ■ | | |
| 53 | 35 | | | ■ | ■ | | ■ | | ■ |
| 54 | 36 | | | ■ | ■ | | ■ | ■ | |
| 55 | 37 | | | ■ | ■ | | ■ | ■ | ■ |
| 56 | 38 | | | ■ | ■ | ■ | | | |
| 57 | 39 | | | ■ | ■ | ■ | | | ■ |
| 58 | 3A | | | ■ | ■ | ■ | | ■ | |
| 59 | 3B | | | ■ | ■ | ■ | | ■ | ■ |
| 60 | 3C | | | ■ | ■ | ■ | ■ | | |
| 61 | 3D | | | ■ | ■ | ■ | ■ | | ■ |
| 62 | 3E | | | ■ | ■ | ■ | ■ | ■ | |
| 63 | 3F | | | ■ | ■ | ■ | ■ | ■ | ■ |
| 64 | 40 | | ■ | | | | | | |
| 65 | 41 | | ■ | | | | | | ■ |
| 66 | 42 | | ■ | | | | | ■ | |
| 67 | 43 | | ■ | | | | | ■ | ■ |
| 68 | 44 | | ■ | | | | ■ | | |
| 69 | 45 | | ■ | | | | ■ | | ■ |
| 70 | 46 | | ■ | | | | ■ | ■ | |
| 71 | 47 | | ■ | | | | ■ | ■ | ■ |
| 72 | 48 | | ■ | | | ■ | | | |
| 73 | 49 | | ■ | | | ■ | | | ■ |
| 74 | 4A | | ■ | | | ■ | | ■ | |
| 75 | 4B | | ■ | | | ■ | | ■ | ■ |
| 76 | 4C | | ■ | | | ■ | ■ | | |
| 77 | 4D | | ■ | | | ■ | ■ | | ■ |
| 78 | 4E | | ■ | | | ■ | ■ | ■ | |
| 79 | 4F | | ■ | | | ■ | ■ | ■ | ■ |
| 80 | 50 | | ■ | | ■ | | | | |
| 81 | 51 | | ■ | | ■ | | | | ■ |
| 82 | 52 | | ■ | | ■ | | | ■ | |
| 83 | 53 | | ■ | | ■ | | | ■ | ■ |
| 84 | 54 | | ■ | | ■ | | ■ | | |
| 85 | 55 | | ■ | | ■ | | ■ | | ■ |
| 86 | 56 | | ■ | | ■ | | ■ | ■ | |
| 87 | 57 | | ■ | | ■ | | ■ | ■ | ■ |
| 88 | 58 | | ■ | | ■ | ■ | | | |
| 89 | 59 | | ■ | | ■ | ■ | | | ■ |
| 90 | 5A | | ■ | | ■ | ■ | | ■ | |
| 91 | 5B | | ■ | | ■ | ■ | | ■ | ■ |
| 92 | 5C | | ■ | | ■ | ■ | ■ | | |
| 93 | 5D | | ■ | | ■ | ■ | ■ | | ■ |
| 94 | 5E | | ■ | | ■ | ■ | ■ | ■ | |
| 95 | 5F | | ■ | | ■ | ■ | ■ | ■ | ■ |
| 96 | 60 | | ■ | ■ | | | | | |
| 97 | 61 | | ■ | ■ | | | | | ■ |
| 98 | 62 | | ■ | ■ | | | | ■ | |
| 99 | 63 | | ■ | ■ | | | | ■ | ■ |
| 100 | 64 | | ■ | ■ | | | ■ | | |
| 101 | 65 | | ■ | ■ | | | ■ | | ■ |
| 102 | 66 | | ■ | ■ | | | ■ | ■ | |
| 103 | 67 | | ■ | ■ | | | ■ | ■ | ■ |
| 104 | 68 | | ■ | ■ | | ■ | | | |
| 105 | 69 | | ■ | ■ | | ■ | | | ■ |
| 106 | 6A | | ■ | ■ | | ■ | | ■ | |
| 107 | 6B | | ■ | ■ | | ■ | | ■ | ■ |
| 108 | 6C | | ■ | ■ | | ■ | ■ | | |
| 109 | 6D | | ■ | ■ | | ■ | ■ | | ■ |
| 110 | 6E | | ■ | ■ | | ■ | ■ | ■ | |
| 111 | 6F | | ■ | ■ | | ■ | ■ | ■ | ■ |
| 112 | 70 | | ■ | ■ | ■ | | | | |
| 113 | 71 | | ■ | ■ | ■ | | | | ■ |
| 114 | 72 | | ■ | ■ | ■ | | | ■ | |
| 115 | 73 | | ■ | ■ | ■ | | | ■ | ■ |
| 116 | 74 | | ■ | ■ | ■ | | ■ | | |
| 117 | 75 | | ■ | ■ | ■ | | ■ | | ■ |
| 118 | 76 | | ■ | ■ | ■ | | ■ | ■ | |
| 119 | 77 | | ■ | ■ | ■ | | ■ | ■ | ■ |
| 120 | 78 | | ■ | ■ | ■ | ■ | | | |
| 121 | 79 | | ■ | ■ | ■ | ■ | | | ■ |
| 122 | 7A | | ■ | ■ | ■ | ■ | | ■ | |
| 123 | 7B | | ■ | ■ | ■ | ■ | | ■ | ■ |
| 124 | 7C | | ■ | ■ | ■ | ■ | ■ | | |
| 125 | 7D | | ■ | ■ | ■ | ■ | ■ | | ■ |
| 126 | 7E | | ■ | ■ | ■ | ■ | ■ | ■ | |
| 127 | 7F | | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| 128 | 80 | ■ | | | | | | | |
| 129 | 81 | ■ | | | | | | | ■ |
| 130 | 82 | ■ | | | | | | ■ | |
| 131 | 83 | ■ | | | | | | ■ | ■ |
| 132 | 84 | ■ | | | | | ■ | | |
| 133 | 85 | ■ | | | | | ■ | | ■ |
| 134 | 86 | ■ | | | | | ■ | ■ | |
| 135 | 87 | ■ | | | | | ■ | ■ | ■ |
| 136 | 88 | ■ | | | | ■ | | | |
| 137 | 89 | ■ | | | | ■ | | | ■ |
| 138 | 8A | ■ | | | | ■ | | ■ | |
| 139 | 8B | ■ | | | | ■ | | ■ | ■ |
| 140 | 8C | ■ | | | | ■ | ■ | | |
| 141 | 8D | ■ | | | | ■ | ■ | | ■ |
| 142 | 8E | ■ | | | | ■ | ■ | ■ | |
| 143 | 8F | ■ | | | | ■ | ■ | ■ | ■ |
| 144 | 90 | ■ | | | ■ | | | | |
| 145 | 91 | ■ | | | ■ | | | | ■ |
| 146 | 92 | ■ | | | ■ | | | ■ | |
| 147 | 93 | ■ | | | ■ | | | ■ | ■ |
| 148 | 94 | ■ | | | ■ | | ■ | | |
| 149 | 95 | ■ | | | ■ | | ■ | | ■ |
| 150 | 96 | ■ | | | ■ | | ■ | ■ | |
| 151 | 97 | ■ | | | ■ | | ■ | ■ | ■ |
| 152 | 98 | ■ | | | ■ | ■ | | | |
| 153 | 99 | ■ | | | ■ | ■ | | | ■ |
| 154 | 9A | ■ | | | ■ | ■ | | ■ | |
| 155 | 9B | ■ | | | ■ | ■ | | ■ | ■ |
| 156 | 9C | ■ | | | ■ | ■ | ■ | | |
| 157 | 9D | ■ | | | ■ | ■ | ■ | | ■ |
| 158 | 9E | ■ | | | ■ | ■ | ■ | ■ | |
| 159 | 9F | ■ | | | ■ | ■ | ■ | ■ | ■ |
| 160 | A0 | ■ | | ■ | | | | | |
| 161 | A1 | ■ | | ■ | | | | | ■ |
| 162 | A2 | ■ | | ■ | | | | ■ | |
| 163 | A3 | ■ | | ■ | | | | ■ | ■ |
| 164 | A4 | ■ | | ■ | | | ■ | | |
| 165 | A5 | ■ | | ■ | | | ■ | | ■ |
| 166 | A6 | ■ | | ■ | | | ■ | ■ | |
| 167 | A7 | ■ | | ■ | | | ■ | ■ | ■ |
| 168 | A8 | ■ | | ■ | | ■ | | | |
| 169 | A9 | ■ | | ■ | | ■ | | | ■ |
| 170 | AA | ■ | | ■ | | ■ | | ■ | |
| 171 | AB | ■ | | ■ | | ■ | | ■ | ■ |
| 172 | AC | ■ | | ■ | | ■ | ■ | | |
| 173 | AD | ■ | | ■ | | ■ | ■ | | ■ |
| 174 | AE | ■ | | ■ | | ■ | ■ | ■ | |
| 175 | AF | ■ | | ■ | | ■ | ■ | ■ | ■ |
| 176 | B0 | ■ | | ■ | ■ | | | | |
| 177 | B1 | ■ | | ■ | ■ | | | | ■ |
| 178 | B2 | ■ | | ■ | ■ | | | ■ | |
| 179 | B3 | ■ | | ■ | ■ | | | ■ | ■ |
| 180 | B4 | ■ | | ■ | ■ | | ■ | | |
| 181 | B5 | ■ | | ■ | ■ | | ■ | | ■ |
| 182 | B6 | ■ | | ■ | ■ | | ■ | ■ | |
| 183 | B7 | ■ | | ■ | ■ | | ■ | ■ | ■ |
| 184 | B8 | ■ | | ■ | ■ | ■ | | | |
| 185 | B9 | ■ | | ■ | ■ | ■ | | | ■ |
| 186 | BA | ■ | | ■ | ■ | ■ | | ■ | |
| 187 | BB | ■ | | ■ | ■ | ■ | | ■ | ■ |
| 188 | BC | ■ | | ■ | ■ | ■ | ■ | | |
| 189 | BD | ■ | | ■ | ■ | ■ | ■ | | ■ |
| 190 | BE | ■ | | ■ | ■ | ■ | ■ | ■ | |
| 191 | BF | ■ | | ■ | ■ | ■ | ■ | ■ | ■ |
| 192 | C0 | ■ | ■ | | | | | | |
| 193 | C1 | ■ | ■ | | | | | | ■ |
| 194 | C2 | ■ | ■ | | | | | ■ | |
| 195 | C3 | ■ | ■ | | | | | ■ | ■ |
| 196 | C4 | ■ | ■ | | | | ■ | | |
| 197 | C5 | ■ | ■ | | | | ■ | | ■ |
| 198 | C6 | ■ | ■ | | | | ■ | ■ | |
| 199 | C7 | ■ | ■ | | | | ■ | ■ | ■ |
| 200 | C8 | ■ | ■ | | | ■ | | | |
| 201 | C9 | ■ | ■ | | | ■ | | | ■ |
| 202 | CA | ■ | ■ | | | ■ | | ■ | |
| 203 | CB | ■ | ■ | | | ■ | | ■ | ■ |
| 204 | CC | ■ | ■ | | | ■ | ■ | | |
| 205 | CD | ■ | ■ | | | ■ | ■ | | ■ |
| 206 | CE | ■ | ■ | | | ■ | ■ | ■ | |
| 207 | CF | ■ | ■ | | | ■ | ■ | ■ | ■ |
| 208 | D0 | ■ | ■ | | ■ | | | | |
| 209 | D1 | ■ | ■ | | ■ | | | | ■ |
| 210 | D2 | ■ | ■ | | ■ | | | ■ | |
| 211 | D3 | ■ | ■ | | ■ | | | ■ | ■ |
| 212 | D4 | ■ | ■ | | ■ | | ■ | | |
| 213 | D5 | ■ | ■ | | ■ | | ■ | | ■ |
| 214 | D6 | ■ | ■ | | ■ | | ■ | ■ | |
| 215 | D7 | ■ | ■ | | ■ | | ■ | ■ | ■ |
| 216 | D8 | ■ | ■ | | ■ | ■ | | | |
| 217 | D9 | ■ | ■ | | ■ | ■ | | | ■ |
| 218 | DA | ■ | ■ | | ■ | ■ | | ■ | |
| 219 | DB | ■ | ■ | | ■ | ■ | | ■ | ■ |
| 220 | DC | ■ | ■ | | ■ | ■ | ■ | | |
| 221 | DD | ■ | ■ | | ■ | ■ | ■ | | ■ |
| 222 | DE | ■ | ■ | | ■ | ■ | ■ | ■ | |
| 223 | DF | ■ | ■ | | ■ | ■ | ■ | ■ | ■ |
| 224 | E0 | ■ | ■ | ■ | | | | | |
| 225 | E1 | ■ | ■ | ■ | | | | | ■ |
| 226 | E2 | ■ | ■ | ■ | | | | ■ | |
| 227 | E3 | ■ | ■ | ■ | | | | ■ | ■ |
| 228 | E4 | ■ | ■ | ■ | | | ■ | | |
| 229 | E5 | ■ | ■ | ■ | | | ■ | | ■ |
| 230 | E6 | ■ | ■ | ■ | | | ■ | ■ | |
| 231 | E7 | ■ | ■ | ■ | | | ■ | ■ | ■ |
| 232 | E8 | ■ | ■ | ■ | | ■ | | | |
| 233 | E9 | ■ | ■ | ■ | | ■ | | | ■ |
| 234 | EA | ■ | ■ | ■ | | ■ | | ■ | |
| 235 | EB | ■ | ■ | ■ | | ■ | | ■ | ■ |
| 236 | EC | ■ | ■ | ■ | | ■ | ■ | | |
| 237 | ED | ■ | ■ | ■ | | ■ | ■ | | ■ |
| 238 | EE | ■ | ■ | ■ | | ■ | ■ | ■ | |
| 239 | EF | ■ | ■ | ■ | | ■ | ■ | ■ | ■ |
| 240 | F0 | ■ | ■ | ■ | ■ | | | | |
| 241 | F1 | ■ | ■ | ■ | ■ | | | | ■ |
| 242 | F2 | ■ | ■ | ■ | ■ | | | ■ | |
| 243 | F3 | ■ | ■ | ■ | ■ | | | ■ | ■ |
| 244 | F4 | ■ | ■ | ■ | ■ | | ■ | | |
| 245 | F5 | ■ | ■ | ■ | ■ | | ■ | | ■ |
| 246 | F6 | ■ | ■ | ■ | ■ | | ■ | ■ | |
| 247 | F7 | ■ | ■ | ■ | ■ | | ■ | ■ | ■ |
| 248 | F8 | ■ | ■ | ■ | ■ | ■ | | | |
| 249 | F9 | ■ | ■ | ■ | ■ | ■ | | | ■ |
| 250 | FA | ■ | ■ | ■ | ■ | ■ | | ■ | |
| 251 | FB | ■ | ■ | ■ | ■ | ■ | | ■ | ■ |
| 252 | FC | ■ | ■ | ■ | ■ | ■ | ■ | | |
| 253 | FD | ■ | ■ | ■ | ■ | ■ | ■ | | ■ |
| 254 | FE | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| 255 | FF | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

## 5.2 Ordering information

| Description | Type | Order no. | bbn 40 16779 EAN | Unit price [EURO] | Price group | Unit weight [kg] | Pack unit [pc.] |
|---|---|---|---|---|---|---|---|
| Switch/Dim Actuator Module, 2-fold, 6 A | SD/M 2.6.1 | 2CDG 110 010 R0011 | 583565 | | 26 | | 1 |
| Light Controller Module, 1-fold, 6 A | LR/M 1.6.1 | 2CDG 110 011 R0011 | 583572 | | 26 | | 1 |
| Universal Dim Actuator Module, 1-fold, 300 VA | UD/M 1.300.1 | 2CDG 110 012 R0011 | 583602 | | 26 | | 1 |

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