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1 Technical features

The 350 W dimmer with circuit breaker is a flash-mounted device for the ABB’s Mylos Building Automation system. On the rear side it has terminals for the connection of dimmable light loads. The dimming command can derive from the device itself or other control devices of the KNX system or from conventional control devices (buttons, switches, relays) duly associated with input devices through programming. On the front side, the device has a rocker switch with programmable indicator that allows you to operate only the load connected to the dimmer.

### 1.1 Technical data

#### Connections:

- **Power supply:** via ABB i-bus® EIB
- **ABB i-bus® EIB:** Bus connecting terminal (supplied)
- **Load circuits:** 1 screw terminal
- **Phase connection:**
  - 1 terminal for connecting the phase and neutral conductor
  - 1 terminal for looping through
- **Cable cross section:** 0.2 – 2.5 mm²

#### Outputs:

- **Number of dimming outputs:** 1
- **Output voltage:** 230 V AC, dimmed via phase control or phase alignment
- **Maximum output power (up to 45 °C ambient temperature¹):** 350 W (VA)
- **Minimum output power:** 40 W (VA) per output

#### Operating and display elements:

- **LED and push button:** For entering the physical address
- **Type of protection:** IP 20, DIN EN 60 529
- **Operating temperature range:** -5°C up to +45°C
- **Max. leakage loss:** 5 W
- **Dimensions (H x B x T):** 44 x 44 x 43 mm

¹ Above an ambient temperature of 45°C, the maximum output power is reduced linearly by approx. 4% per 1 Kelvin. This temperature range is however outside the specification of the internal EIB bus coupler

<table>
<thead>
<tr>
<th>Application program</th>
<th>Maximum number of communication objects</th>
<th>Maximum number of group addresses</th>
<th>Maximum number of associations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimming 1c/1.0</td>
<td>6</td>
<td>250</td>
<td>250</td>
</tr>
</tbody>
</table>
Supplied state
The device is supplied with the physical address 1.0.1. The application program is preloaded. It is therefore only necessary to load group addresses and parameters during commissioning. However, the complete application program can be reloaded if required. A longer downtime may result if the application program is changed or after a discharge.

Assignment of the physical address
The assignment and programming of the physical address is carried out in the ETS. The device features a Programming button for assignment of the physical device address. The red Programming LED lights up, after the button has been pushed. It switches off, as soon as the ETS has assigned the physical address or the Programming button is pressed again.

Cleaning
If devices become dirty, they can be cleaned using a dry cloth or a cloth dampened with a soapy solution. Corrosive agents or solutions should never be used.

Download behaviour
Depending on the PC, which is used, the progress bar for the download may take up to one and a half minutes, before it appears, due to the complexity of the device.

Maintenance
The device is maintenance-free. No repairs should be carried out by unauthorised personnel if damage occurs, e.g. during transport and/or storage.

1.2 Connection diagram
1.3 350w Dimmer

The dimmer 2CSYK205x can be universally implemented in lighting technology and combines many functions and possibilities in a small space.

The device can dim one independent groups of luminaries via the ABB i-bus® EIB, each with a maximum output power of 350 W. Various types of luminaries can be connected to both outputs.

The comprehensive functionality of the device enables intelligent and userfriendly lighting control. It is suitable for use both in the residential sector and in commercial applications.

1.4 Load types

The dimmer is designed for operations with various types of luminaries (load types).

Apart from resistive loads, there are also inductive or capacitive loads. The following table indicates which load type generally applies to transformers or luminaries:

<table>
<thead>
<tr>
<th>Transformer or luminary</th>
<th>Load type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incandescent</td>
<td>resistive</td>
</tr>
<tr>
<td>230V halogen lamps</td>
<td>resistive</td>
</tr>
<tr>
<td>Conventional low voltage transformer</td>
<td>inductive</td>
</tr>
<tr>
<td>Electronic low voltage transformer</td>
<td>capacitive</td>
</tr>
</tbody>
</table>

Inductive loads are dimmed via phase control while capacitive loads are dimmed via phase invertal control. The automatic load detection of the dimmer specifies the connected load type and adapts the operating mode accordingly. Resistive loads can generally be dimmed using both operating modes.

1.5 Output power

The maximum output power of the device is made available over the total operating temperature range of –5°C to +45°C.

1.6 Behaviour on initialisation and in event of an error

Behaviour during bus voltage failure

The outputs are switched off during a bus voltage failure.

Behaviour after a reset or bus voltage recovery

After a reset e.g. via the ETS program or after bus voltage recovery, an initialisation phase (approx. 3 seconds) follows with detection of the connected loads.

Behaviour on overtemperature

If the internal temperature of the device rises above the maximum value, the output brightness of device is automatically dimmed to approx. 30%. The upper brightness threshold is 50%. If the value falls below the maximum temperature again, the previous brightness value is restored.

If the internal temperature rises above the critical value of the device, the output switched off. When the device cools down, the outputs remain disconnected. The reset if required once the device has been switched on again.

Behaviour in the event of voltage peaks

If voltage peaks occur in load circuit (overvoltage impulses). In order to avoid damage to the device, output switched off. Voltage peaks can for example be caused by the transformer.

Load detection is carried out after the disconnection. The outputs remain switched off until they are switched on again.
Installation and commissioning

2 Installation and commissioning

The device has a pair of terminals for connecting the phase and neutral conductor of the supply voltage and two pairs of terminals for connecting the loads. A further terminal pair can be used for looping through the supply to further devices.

2.1 Load detection

Load detection is carried out after a reset, after bus voltage recovery and once the mains voltage has been reconnected (after a voltage failure that lasts longer than 10 seconds).

Note: Before replacing luminaries, the device should be disconnected from the supply. Defective lamps should be replaced immediately.

Remark: Electronic transformers generally require a minimum voltage level for operation. The lamps are switched off if the value lies below this level. A lower dimming threshold (field value: approx. 20%) should therefore be set for these loads. This value is preselected.
ETS project design

The display of the communication objects and parameters in the ETS is dependent on the parameter settings.

DPT standard
The EIB Interworking Standard (DPT) defines three different types of communication objects for the dimming function: switching, relative dimming and absolute dimming.

- With a „Switch“ command (1 bit), an output is switched ON or OFF.
- The „Dimming“ command (4 bit) is used to dim relative to the set brightness level. It is possible to dim UP or DOWN.
- The „Value“ command (8 bit) is used to set an absolute brightness value. The value 255 means maximum brightness while at value 0 the output switches the lights off.

3.1 Communication objects

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Object Function</th>
<th>Description</th>
<th>Leng...</th>
<th>Group Addresses</th>
<th>C</th>
<th>R</th>
<th>W</th>
<th>T</th>
<th>U</th>
<th>Data Type</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Output</td>
<td>Switching</td>
<td></td>
<td>1 bit</td>
<td>-</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>-</td>
<td>-</td>
<td>1 bit DPT_Switch</td>
<td>Low</td>
</tr>
<tr>
<td>1</td>
<td>Output</td>
<td>Relative dimming</td>
<td></td>
<td>4 bit</td>
<td>-</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>-</td>
<td>-</td>
<td>3 bit controlled D...</td>
<td>Low</td>
</tr>
<tr>
<td>2</td>
<td>Output</td>
<td>Brightness value</td>
<td></td>
<td>1 Byte</td>
<td>-</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>-</td>
<td>-</td>
<td>8 bit unsigned value</td>
<td>Low</td>
</tr>
<tr>
<td>3</td>
<td>Output</td>
<td>Scene</td>
<td></td>
<td>1 Byte</td>
<td>-</td>
<td>C</td>
<td>-</td>
<td>W</td>
<td>-</td>
<td>-</td>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Output</td>
<td>Communication status telegram</td>
<td></td>
<td>1 bit</td>
<td>C</td>
<td>R</td>
<td>T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 bit DPT_Switch</td>
<td>Low</td>
</tr>
<tr>
<td>5</td>
<td>Output</td>
<td>Brightness value status telegram</td>
<td></td>
<td>1 Byte</td>
<td>C</td>
<td>R</td>
<td>T</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>8 bit unsigned value</td>
<td>Low</td>
</tr>
</tbody>
</table>

Switching object: „Switch“ (1 bit)
On receipt of a telegram, the received value is interpreted as a switching command.

Dimming object: „Relative dimming“ (4 bit)
Dimming commands can be sent to the actuator via the communication object „Relative dimming“.

Value object: „Brightness value“ (8 bit)
On receipt of a telegram, this value is interpreted as a new brightness value.

“Communication status telegram“ object
The communication object supplies the output communication status.

"Brightness value status telegram“ object
The communication object supplies the output brightness value.
3.2 Parameter window: General

The general settings of the output are carried out in the „General“ parameter window.

**Status report for switching**

L’oggetto "Telegramma stato commutazione" (1 bit) gives information about whether the output is switched on (current brightness value is greater than 0) or switched off (current brightness value is equal to 0). It can be activated ("its new status") or deactivated ("nothing").

It can further be set whether the object is only sent after a change or on request.

**Status report for value**

The value status object "Telegramma stato valore luminosità" (8 bit) gives information about the current brightness value which the output controls. If it is activated ("the current brightness value"), the status object is sent after each change in the brightness value.

**Sending and switching delay after bus restoration in [2..255] s**

Allows you to set the time after which the device sends its switching status.

**Limitation to the number of telegrams**

It allows you to choose whether to limit the sending of status telegrams on the bus.

**Output value after bus restoration**

Sets the switching status and the brightness value after bus restoration.

**Load type**

Set the load type connected to the device.
3.3 Functions

These parameters allow you to set the device 8 bit scenes. It is possible to set up to 5 independent scenes, selecting a brightness value for each one of them.

Scene no. 1
You select the brightness percentage the device must reach if the corresponding scene is recalled.
3.4 Switching

Switching on with
It allows you to set the brightness percentage the device must automatically reach when it carries out a switching on command.
3.5 Dimming

This parameter window allows you to set some general operating parameters of the dimmer relating to dimming.

**Relative dimming speed/brightness value**

This parameter sets the dimming or brightness adjustment speed, in seconds, from value 0% to 100%.

**Relative dimming maximum level**
It sets the maximum brightness value the device should assume when dimmed.

**Relative dimming minimum level**
It sets the minimum brightness value the device should assume when dimmed.

**Immediate switching off during relative dimming**
This parameter allows you to set the dimmer reaction to the switching off command. If the parameter is set to yes, when receiving the command the dimmer switches off immediately. Otherwise it will switch off at the previously set speed.

**Immediate switching on during relative dimming**
This parameter allows you to set the dimmer reaction to the switching on command. If the parameter is set to yes, when receiving the command the dimmer switches on immediately. Otherwise it will switch on at the previously set speed.
3.6 Brightness value

This parameter window allows you to set the parameters relating to the brightness value reception.

**Maximum brightness value level**
It sets the maximum brightness value the dimmer can reach after receiving a brightness value.

**Minimum brightness value level**
It sets the minimum brightness value the dimmer can reach after receiving a brightness value.

**Switching on via a brightness value**
It sets the possibility to switch the dimmer load on by setting a brightness value different from 0.

**Switching off via a brightness value**
It sets the possibility to switch the dimmer load off by setting 0 as the brightness value.
3.7 Inputs
These parameters set the behaviour of the frontal command.

**Long pressure**
The parameter determines the recognition time for the long pressure of the frontal control.

**Inverted response after pressing a button**
The parameter sets the reaction to button pressure direction of the frontal control.
3.8 LED

These parameters set the behaviour of the LEDs on the device front side.

Location LED
The parameter determines the switching on of the location LED.

Operating mode LED
The parameter determines the operation of the signalling LED: always on, always off, switching on depending on the output switching status.
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