

UP 255/11 Brightness controller (for flush mounting)	5WG1 255-4AB11
AP 255/12 Brightness controller (for surface mounting)	5WG1 255-4AB12
GE 255/13 Brightness controller (for mounting in luminaires)	5WG1 255 4AB13

Produkt- und Funktionsbeschreibung



The brightness controllers UP 255/11, AP 255/12 and GE 255/13 are used for measurement and control of workplace and room lighting. At the user's discretion, the control can be selected as an On/Off brightness control for switchable luminaires or as a continuous constant light level control for dimmable respectively switchable and dimmable luminaires. The UP 255/11 controller is intended for flush mounting, AP 255/12 controller for surface mounting and the GE 255/13 controller is intended for mounting in luminaires. All of the devices have an integrated bus coupling unit with bus connection via a bus terminal. Both controllers have an integrated bus coupling unit with bus connection via a bus terminal block. And both are powered from the bus voltage.

The controllers are delivered with two white-painted optical fibre rods (1 × optical fibre rod with a plane light-sensitive surface and 1 × optical fibre rod with an oblique (30°) light-sensitive surface). One of these is plugged in by the user. Normally, the optical fibre rod with the plane light-sensitive surface is to be used. If necessary, the direction of the light-collection cone can be shifted by using the optical fibre rod with the oblique (30°) light-sensitive surface (see figures 5 and 6).

The brightness sensor, the IR receiver and the red blinking commissioning LED are under the optical fibre rod. The IR receiver enables a calibration of the brightness measurement via a hand-held remote IR control and without use of the ETS (ETS = Engineering Tool Software).

Application Program

The brightness controllers UP 255/11, AP 255/12 and GE 255/13 require the application program „25 S1 Brightness controller 909601“ which can be loaded with the ETS2 V1.3 or a higher version. It can be set with the ETS:

- required type of control (On/Off or constant light level),
- with the constant light level control: the number of additional groups of luminaires which can be dimmed to different values,
- if the measured brightness value shall be transmitted exclusively after a change of value or additionally cyclically,
- if the switching and dimming commands shall be transmitted additionally cyclically,
- if the setpoint value for brightness control shall be set via a parameter or a communication object,
- behavior of the controller after bus voltage recovery.

The calibration of the setpoint value to the currently measured brightness value can be triggered via a special communication object.

It is differed between automatic mode and manual mode with the brightness control. This enables the deactivation of the control if needed (e.g. for dimming the illumination permanently brighter or darker).

Installation Instructions

- The device may be used for permanent installation in dry interior locations.



GEFAHR

- No lines carrying 230V AC are to be fed into the flush- or surface-mounting socket for the brightness controller.
- The device must be mounted and commissioned by an authorised electrician.
- The device must not be opened.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.

Technical Specifications

Measuring range

- 0 to 2000 lux (with a reflection degree from the working surface of about 30%)

Power supply

- Bus voltage: via bus line
- Bus current: max. 15 mA

Operating elements

- 1 commissioning button (see figure 1): for switching over between normal mode / addressing mode

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Display elements

- 1 red LED (below the optical fibre rod): for display of normal mode / addressing mode (off / on) and for acknowledgement of a calibration via IR remote control

Connections

- Bus connection: screw-less bus terminal block, single-wire 0.6...0.8 mm Ø, insulation strip length 5 mm.

Mechanical data

Brightness controller UP 255/11

- Housing: plastic, with cover (polystyrol, white, flame-retardant) for installation in a wall socket or flush mounting socket conform to DIN 49073-GB-T-M1E1 (02/90), Ø 60mm, depth 40 mm
- Dimensions (without cover): 50 mm x 35 mm x 14 mm (L x W x H)
- Weight: approx. 30 g
- Fire load: approx. 400 kJ

Brightness controller AP 255/12

- Housing: Plastic housing for surface mounting (polystyrol, white, flame-retardant, cable feed through holes in base of housing, with bayonet cap)
- Dimensions: Ø 75 mm, height 26 mm
- Weight: approx. 50 g
- Fire load: approx. 1000 kJ

Brightness controller GE 255/13

- Housing: Plastic housing for surface mounting (polystyrol, white, flame-retardant, cable feed through holes in base of housing, with bayonet cap)
- Dimensions: 50 mm x 35 mm x 20 mm (lxbxh)
- Weight: approx. 50 g
- Fire load: approx. 1000 kJ

Electric safety

- Degree of pollution (according to IEC 60664-1): 2
- Type of protection (according to EN 60529): IP 20
- Overvoltage category (according to IEC 60664-1): III
- Bus: safety extra-low voltage SELV DC 24 V
- Device complies with: EN 50090-2-2

EMC requirements

- complies with EN 50090-2-2

Environmental conditions

- Climatic withstand capability: EN 50090-2-2
- Ambient temperature during operation: - 5 ... + 45 °C
- Storage temperature: - 25 ... + 70 °C
- rel. humidity (not condensing): 5 ... 93 %

Markings

- KNX EIB

CE mark

- complies with the EMC regulations (residential and functional buildings), and low voltage regulations

Location and Function of the Display and Operating Element

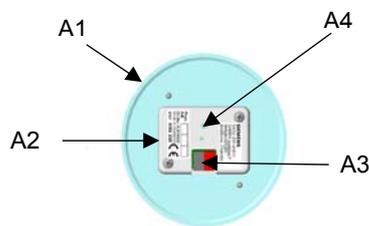


Figure 1: Position of display and operating elements

- A1 Underside of the cover for the flush-mounting socket
- A2 Plastic housing of the brightness sensor
- A3 Bus terminal block
- A4 Commissioning button for toggling between normal mode and addressing mode for transferring the physical address.

Note: The red LED for display of normal mode (LED On) or addressing mode (LED Off) is placed on the upper side of the controller below the optical fibre rod.

Mounting and wiring

Mounting and dismantling the UP 255/11: (see figure 2)

- B1 Cover with fixing holes
 - B2 Optical fibre rod
 - B3 Housing for the UP 255/11 brightness controller
 - B4 Screws for fixing the cover
 - B5 Bus terminal block for connecting the bus cable
- The system is intended for installation in a cavity wall socket or flush mounting socket conform to DIN 49073-GB-T-M1E1 (02/90), Ø 60 mm, depth 40 mm.
 - The flush mounting brightness controller UP 255/11 is mounted into sockets by means of the screw fixings (without claws) supplied (see figure 2).
 - The bus cable is connected via the 2-pin bus terminal block (screwless plug-in terminals for solid leads) on the rear of the system.

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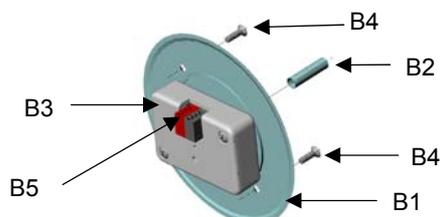


Figure 2: Mounting the UP 255/11

Mounting and dismantling the AP 255/12: (see figure 3)

- C1 Optical fibre rod
- C2 Base part of the housing for surface-mounting
- C3 Plastic housing of the AP255/11 brightness controller
- C4 Cover with bayonet connection
- C5 Bus terminal block for connecting the bus cable

- The system is supplied with a surface-mounting housing \varnothing 75 mm, height 27 mm, cover with bayonet connection (see figure 3).
- The base part of the surface mounting brightness controller AP255/12 is to be fixed to the ceiling above the outlet for the bus cable.
- The bus cable is connected via a 2-pin bus terminal block (screwless plug-in terminals for single-wire leads) on the rear of the system (C3).

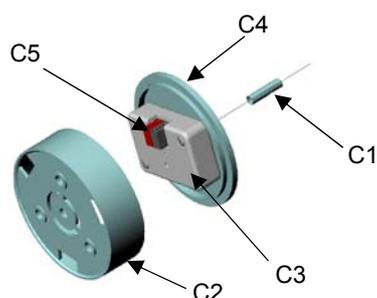


Figure 3: Mounting the AP 255/12

Mounting and dismantling the GE 255/13: (see figure 4/5)

- D1 Plastic housing
- D2 Fastener for optical fibre rod (\varnothing 10mm $^{+0.2}$)
- D3 Bus terminal for connecting the bus cable (see fig.6)
- D4 double-faced adhesive tape (2 stripes)
- D5 Optical fibre rod (see mounting instructions page2, fig.7+8)

- E1 Optical fibre rod (see mounting instructions page2, fig.7+8)
- E2 Fastener for optical fibre rod (\varnothing 10mm $^{+0.1}$)
- E3 Bus terminal for connecting the bus cable (see fig.6)
- E4 Plastic housing
- E5 lamp housing

- E6 double-faced adhesive tape (2 stripes)
- Make a hole (\varnothing 10mm $^{+0.2}$) in the lamp housing. Take the GE 255/13 in the hole and fix it with the double-faced adhesive tape in the housing.

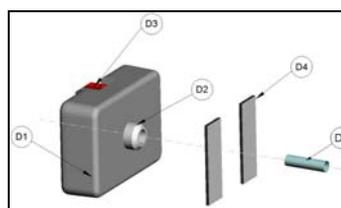


Figure 4:

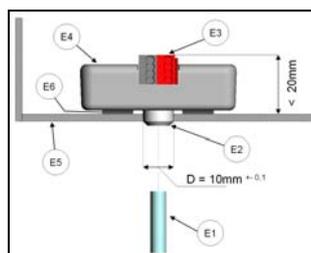


Figure 5:

Connecting and disconnecting the bus cable (figure 6)Connecting the bus cable:

- The bus terminal (D2) is suitable for single-wire conductors with 0.6... 0.8 mm \varnothing .
- Strip approx. 5 mm of insulation from the conductor (D2.4) and plug it in the terminal (D2) (pay attention to the polarity: red = +, black = -).

Disconnecting the bus cable:

- Remove the bus terminal (D2) and the conductors (D2.4) of the bus cable by rotating it backwards and forwards.

Removing the bus terminal block:

- Carefully insert the screwdriver underneath the bus terminal block and pull it upwards out of the housing.

Attention: Care should be taken as there is a risk of shorting the pins !

Connecting the bus terminal block:

- Place the bus terminal block (D2) on the contact pins and press it downwards until it reaches the stop.

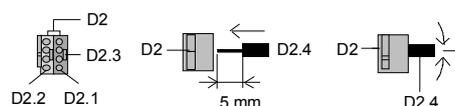


Figure 6: Connecting the bus cable

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Mounting instructions

- The brightness controller is to be installed above the working surface (= metering surface), e.g. on the ceiling. The optical fibre rod needed for local lighting conditions is to be pushed into the system for approx. 15 mm until it meets the stop. The controller must be aligned vertically with the longitudinal axis of the optical fibre rod pointing downwards.
- You must ensure that the brightness controller is measuring reflected light. Solar radiation or light rays falling directly in or on the optical fibre rod will lead to incorrect measurements which will impair the control.
- Calibration is not essential for the controller's operation. It is calibrated in the factory using the optical fibre rod with the plane light-sensitive surface, installed at a height of 2.50 m over a workplace in 0.75 m height with a working surface with a reflection degree of approx. 30%. However, depending on the mounting height, reflection degree of the surfaces of the appointments in the room and the lighting situation, greater differences can occur when measuring brightness. If, as far as possible, precise constant light level control or brightness measurement is required, then the controller is to be calibrated after installation. The brightness measurement can be calibrated either without use of the ETS via an infrared remote control (order no. 5WG1 255-7AB01) or by means of the ETS via the bus. Calibration should be executed with the artificial lighting switched-on and a minimum of daylight. The brightness measured at the workplace is then to be communicated to the brightness controller via the infrared remote control or via the bus.
- The collection cone shown in figure 7 results when using the white-painted optical fibre rod with a plane light-sensitive surface (standard optical fibre rod).

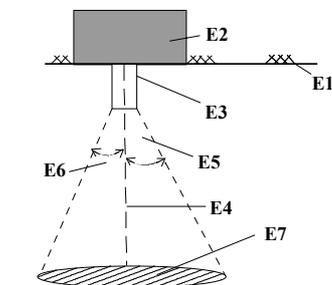


Figure 7: Collection cone when using the fibre rod with a plane surface

- E1 Ceiling
- E2 Housing of the controller
- E3 Optical fibre rod

- E4 Longitudinal axis of the optical fibre rod
- E5 Angle approx. 15°
- E6 Angle approx. 15°
- E7 Measuring surface (working surface)

- The white-painted optical fibre rod with an oblique light-sensitive surface and the collection cone shown in figure 8 should then be used only if the sensor cannot be mounted directly above, but can only be mounted offset to the side of the surface whose brightness it is to measure. If the optical fibre rod with the oblique light-sensitive surface is used, the controller is to be calibrated after installation.

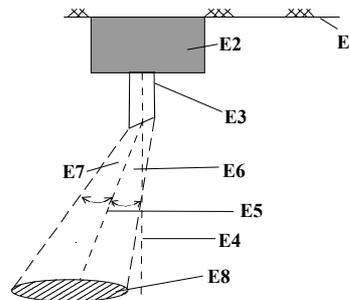


Figure 8: Collection cone when using the fibre rod with an oblique surface

- E1 Ceiling
- E2 Brightness controller housing
- E3 Optical fibre rod
- E4 Longitudinal axis of the optical fibre rod
- E5 Measurement axis (offset by approx. 18° relative to the longitudinal axis)
- E6 Angle approx. 15° (relative to the measurement axis)
- E7 Angle approx. 15° (relative to the measurement axis)
- E8 Measuring surface (work surface)

- When aligning the optical fibre rod with an oblique light-sensitive surface, you must take care that, when it is used, the measurement area which the light sensor "sees", is offset by 18° relative to the longer side of the optical fibre rod.

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General notes

- The device must be mounted and commissioned by an authorised electrician.
- The device may be mounted in switch and socket combinations if VDE-certified devices are used exclusively.
- The prevailing safety rules must be heeded.

For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered

☎ +49 (0911) 895 - 7223

☎ +49 (0911) 895 - 7222

E-Mail: support.automation@siemens.com

✉ www.siemens.de/automation/support-request

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