

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.



DANGER

- During installation, ensure adequate insulation between mains voltage and bus! A minimum spacing should be maintained between bus cable cores (also the area round Bus Terminal) and mains voltage cable cores of at least 4mm.
- The device may only be installed and commissioned by a licensed electrician.
- The device must not be opened.

When planning and installing electrical installations, the relevant national directives, rules and regulations of the country in question are to be obeyed.

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

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

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Connections

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

Mechanical dataBrightness 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

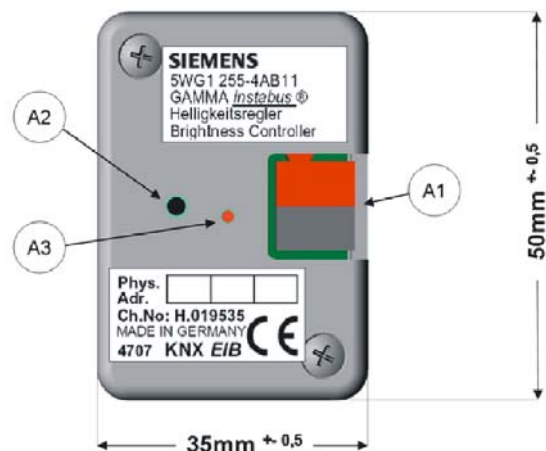
Location and Function of the Display and Operating Element

Figure 1: Position of display and operating elements

- A1 Bus terminal
- A2 commissioning push button
→ can also triggered by the IR remote calibration S255 (5WG1 255-7AB01)
- A3 commissioning LED (LED viewable by the fibre rod)

Mounting and Wiring

All device alternatives may be used for permanent installation in dry interior locations.

UP 255/11: (See figure 2)

- B1 Cover
- B2 Optical fibre rod (see mounting instructions page2, fig.7+8)
- B3 Plastic housing

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- B4 Screws for fixing the cover
 B5 Bus terminal for connecting the bus cable (see fig.6)
 B6 fastener for optical fibre rod
 - 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 58mm (Standard), depth 40 mm.
 - The flush mounting brightness controller UP 255/11 is mounted into sockets by means of the screw fixings (without claws) supplied.

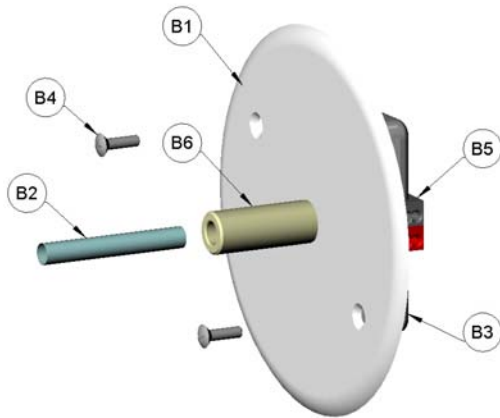


Figure 2: Mounting the UP 255/11

AP 255/12: (See figure 3)

- C1 Optical fibre rod (see mounting instructions page2, fig.7+8)
 C2 Bottom part of the housing for surface-mounting
 C3 Plastic housing
 C4 Cover with bayonet connection
 C5 Bus terminal for connecting the bus cable (see fig.6)
 C6 Fastener for optical fibre rod
 - The bottom part (Ø 75 mm, height 26 mm) of the surface mounting brightness controller AP255/12 is to be fixed to the ceiling via the outlet for the bus cable.
 - Mounting / Demounting of the cover via a bayonet coupling.

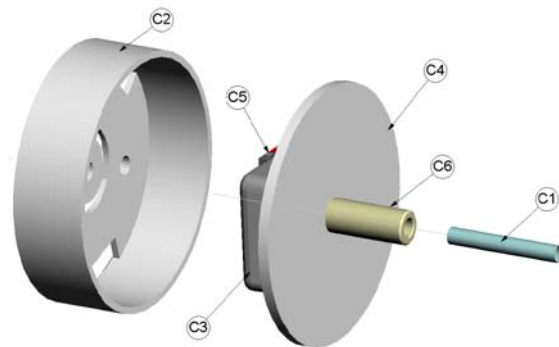


Figure 3: Mounting the AP 255/12

GE 255/13: (See figure 4+5)

- D1 Plastic housing
 D2 Fastener for optical fibre rod (Ø 10mm ^{+0,1})
 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 (Ø 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 (Ø 10mm ^{±0,1}) in the lamp housing.
 Take the GE 255/13 in the hole and fix it with the double-faced adhesive tape in the housing.

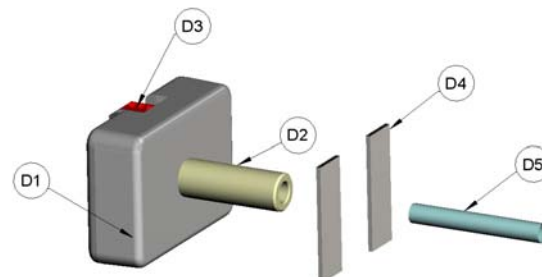


Figure 4:

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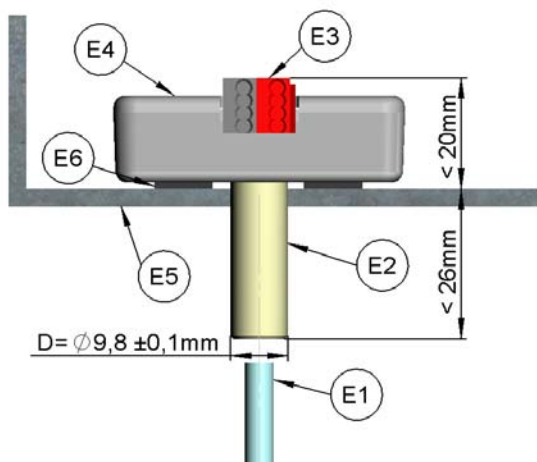


Figure 5:

Connecting and disconnecting the bus line: (See figure 6)

Connecting the cable:

→ The bus terminal (D2) is suitable for solid leads with a diameter of 0.6 ... 0.8 mm.

→ Strip the insulation from the bus leads (D2.4) to a distance of approx. 5 mm and plug them into the terminal (D2).

Ensure the polarity is correct!

Disconnecting the cable:

→ Pull off the bus terminal (D2) and pull out the leads (D2.4) by turning a lead alternately backwards and forwards.

Pulling out the plug-in terminals:

→ Insert a screwdriver carefully under the centre of the bus terminal and pull the bus terminal out of the housing.

CAUTION: When removing the bus terminal, be careful not to short-circuit the pins with the screwdriver.

Plugging in the plug-in terminals:

→ Push the plug-in terminal (D2) on to the pins and press until it stops in the housing.

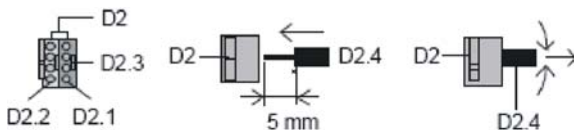


Figure 6: Connecting the bus cable

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 50% artificial lighting switched-on and 50% 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).

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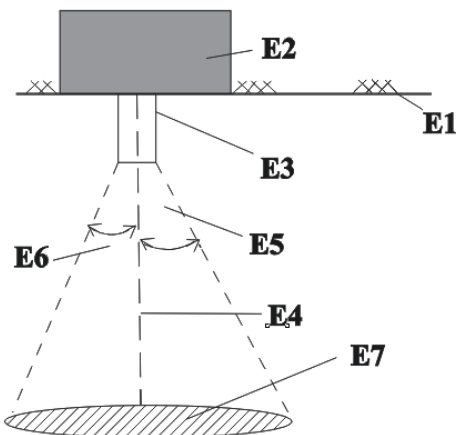


Figure 7: Collection cone when using the fibre rod with a plane surface

- 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.

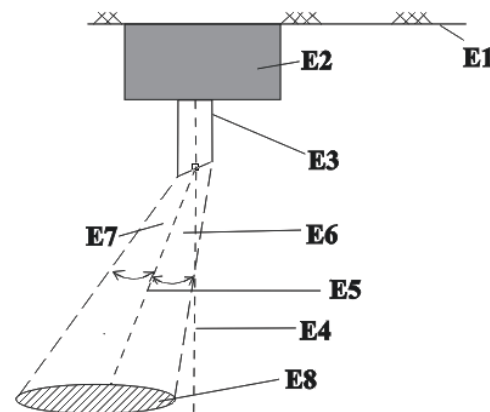


Figure 8: Collection cone when using the fibre rod with an oblique surface

- 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.

Technical Product Information

May 2012

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General Notes

- The operating instructions must be handed over to the client.
- Any faulty device is to be sent together with a return delivery note of the local Siemens office.
- For any technical questions, please consult:

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E-Mail: support.automation@siemens.com
Website: www.siemens.de/automation/support-request

Space for notices