

Universal Dimmer with mounting frame UP 525/03
AC 230V, 1 x 250 VA

5WG1 525-2AB03

Product and functional description



The UP 525/03 Universal Dimmer with mounting frame is a KNX device with one dimmer output and a Bus Transceiver Interface (BTI). The device is installed in a flush-mount wall box (60 mmØ, depth 60 mm). The bus is connected via a bus terminal block. The actuator electronics are supplied via the bus voltage.

The UP 525/03 can switch and dim resistive loads (e.g. incandescent lamps, high voltage halogen lamps), capacitive loads (e.g. low voltage halogen lamps with intermediate electronic transformers), or inductive loads (e.g. low voltage halogen lamps with intermediate conventional transformers).

DELTA bus wall switches or other application units (bus device) with BTI interface are plugged onto the BTI interface of the actuator. Any bus device, which can be slipped onto a bus coupling unit (BTM) UP 117, may be slipped onto this actuator.

Protection against over-load / short-circuit

After about 5 seconds in an over-load condition the universal dimmer turns itself off permanently. At the earliest 2 minutes after an over-load or short-circuit tripping the dimmer may be turned on again. First send an "off" or a "dimming value =0" command to turn the device off and then turn it on again by sending an "on" or a "dimming value > 0" command.

In a short-circuit condition the dimmer turns the load off for 3 seconds and automatically tries to switch the output on to the currently set dimming value once within 1 minute. If the short-circuit condition still persists the output is turned off permanently.

Turn the output on again by following the instructions for a permanently turned off output in an over-load condition.

Protection against over-temperature

In case the maximum permissible temperature is exceeded the dimmer dims down to the minimal dimming value. If after 2 minutes the dimmer has cooled down sufficiently, it automatically dims back to the currently set dimming value. If after 2 minutes the maximum per-

missible over-temperature is still exceeded, the output is turned off permanently.

Turn the output on again by following the instructions for a permanently turned off output in an over-load condition.

Immunity to ripple control signals and electrical grid frequency fluctuations

In the ex-factory settings the influence of ripple control signals is compensated to reduce flickering of the lamp. This measure increases the influence of electrical grid frequency fluctuations on the brightness of the lamp.

A mostly undisturbed operation for an electrical system without a synchronous connection to the electrical grid can be achieved when the ripple control compensation is disabled via the associated parameter. The dimmer becomes less sensible to frequency fluctuations in the electrical system. Yet, ripple control signals will lead to an increased flickering of the load.

Behavior at bus voltage failure / recovery

On bus voltage failure the current switching status and dimming values are saved for restoration on bus voltage recovery.

On bus voltage recovery the configured actions are executed and, if applicable, new status values are reported.

Building site function

The building site function provided ex-factory enables switching the building site lighting on and off via bus wall switches and actuators, even if these devices have not yet been commissioned with ETS.

Behavior on unloading the application program

When the application program is unloaded with ETS the device does not function.

Resetting the device to ex-factory settings

When the programming button is pressed for more than 20 seconds the device is reset to the ex-factory settings. All configuration settings are lost. The building site function is re-activated.

The device is configured and commissioned with the ETS (Engineering Tool Software) version ETS3 v3.0f or later.

Application Program

The UP 525/03 Universal dimmer with mounting frame needs the application program "07B0 A1 Universal dimmer 982C01".

Example of operation

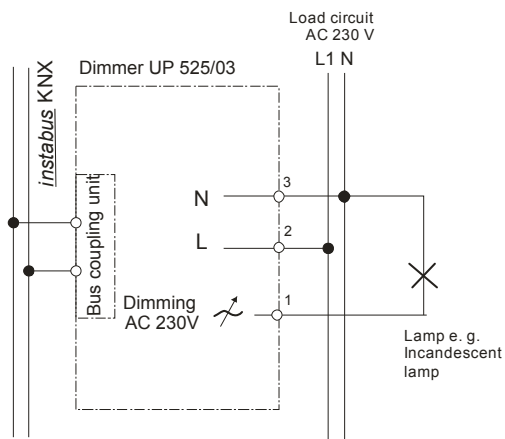


figure 1: Example of operation

Installation notes

- The device may be used for permanent interior installations in dry locations within flush-mount boxes.



DANGER

- The device must be mounted and commissioned by an authorized electrician.
- A safety disconnection of the device must be possible.
- There mustn't be any switching actions at the load output.
- The device may be mounted to switch and socket combination box mounts provided VDE-certified devices are used exclusively.
- The device must not be opened.
- Use only transformers that allows dimming operations.
- Conventional transformers may be used, if they are VDE-certified and if they have a thermic fuse.
- Running magnetic transformers at no load is prohibited both on start-up and in operation, because this may lead to damage to the device (even when the dimmer has cut off). This is to be ensured by connecting at least two lamps or transformers in parallel to an output. Failed lamps are to be replaced immediately.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.
- When looping through the L-conductor, take care that the maximum permissible terminal load current of 16A is not exceeded!
- **Connecting inductive and capacitive or resistive loads at the same time to the same dimmer output is not permitted and leads to damage or destruction of the universal dimmer!**

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Technical Specifications

Power supply

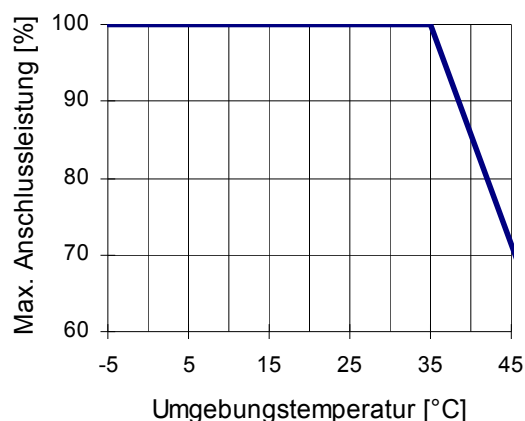
- via the bus line and the mains connection (AC 230V)
- KNX bus voltage: DC 24V (DC 21...30V) via KNX/EIB bus line
- KNX bus current: < 10 mA

Output voltage and current via BTI

- DC 5V, 10mA
- DC 20V, 25mA

Load output

- rated voltage: AC 230 V, 50/60 Hz
- rated current: 1,1A
- rated power consumption at 35°C ambient temperature:
 - 10...250 VA (inductive)
 - 10...210 VA (capacitive)
 - 5 ... 210 W (resistive)
- maximum power consumption of devices connected in relation to the ambient temperature:



Control Elements

- 1 learning button: for switching between normal operating mode and addressing mode

Display Elements

- 1 red LED: for monitoring bus voltage and displaying / addressing mode

Connections

- Bus line : screwless bus connection block (red-black) 0.6...0.8 mm Ø single core, strip insulation 5mm
- 10-pin socket (BTI): for connection of DELTA switches and wall box mounted control devices with BTI plug
- Load circuit: screwless terminals 0.5 ... 2.5mm² single-core, stranded or multi-core, untreated, strip insulation 9 ... 10mm

Physical specifications

- housing: plastic
- dimensions (L x W x D): 71 x 71 x 41,5mm
- weight: approx 80 g (with mounting frame)
- fire load: approx. 1100 kJ
- Montage: Einbau in Gerätedosen Ø 60mm, 60mm tief

Electrical 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 50428

Electromagnetic compatibility

complies with EN 50428

Environmental conditions

- Climatic conditions: EN 50090-2-2
- Ambient operating temperature: - 5 ... + 45 °C
- Storage temperature: - 25 ... + 70 °C
- Relative humidity (not condensing): 5 % to 93 %

Reliability

- Failure rate: 476 fit at 40°C

Markings

KNX EIB

CE mark

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

Location / Function of the Display and Operating Elements

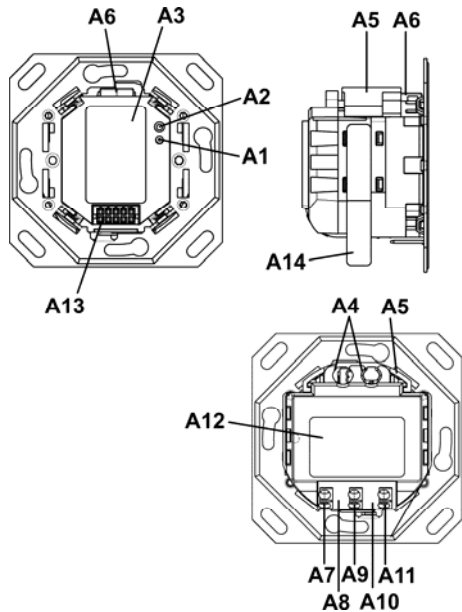


figure 2: Location / Function of the Display and Operating Elements

- A1 LED for indicating normal operating mode (LED off) or addressing mode (LED on); returns to normal operating mode automatically after receiving the physical address
- A2 Learning button for switching between normal operating mode and addressing mode and for receiving the physical address
- A3 Type label (with space for physical address of the actuator)
- A4 clamping slots for anchoring the bus lines
- A5 Snap-on cover for bus line and single bus wires
- A6 Bus connection block for single core conductors with 0,6...0,8 mm Ø
- A7 Terminal Channel A
- A8 Distance plate
- A9 Terminal L
- A10 Distance plate
- A11 Terminal N
- A12 Label with terminal descriptions
- A13 Bus Transceiver Interface (BTI) socket for connecting an application unit with BTI plug
- A14 Identification number of the device

Mounting and Wiring

General description

The connection to the bus line is established via bus connection block 193 (screwless plug-in terminals for single core conductors). The application unit is slipped onto the actuator via guide and mounting clamps and, depending on the device type, fastened with screws.

Note

The actuator must be mounted with the Bus Transceiver Interface (BTI) situated at the bottom (see Figure 3). Thus, the application unit will be oriented properly when slid onto the BTI. Use bus devices with mounting screws only to achieve a permanently stable contact at the BTI.

Mounting

- B1 wall box (60 mm Ø, according to DIN 49073)
- B2 mounting slots
- B3 Bus Transceiver Interface (BTI)
- B4 Actuator
- B5 mounting screws of the in-wall box

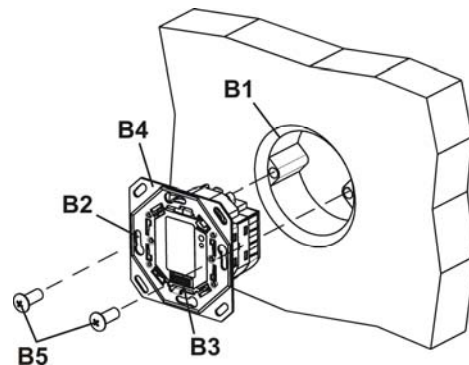


figure 3: mounting

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Slipping off/on bus connection blocks

The bus connection block (C2) is situated on the back of the actuator (C3).

It consists of two components (C2.1 and C2.2) with four terminal contacts each. Take care not to damage the two test sockets (C2.3) by accidentally connecting them to the bus cable or with the screw driver (e.g. when attempting to unplug the bus connection block).

Slipping off bus connection blocks

- Put the screw-driver between the cover (C1) and the actuator (C3) from the side and lever out the cover.
- Carefully put the screw driver to the wire insertion slit of the bus connection block's grey component (C2.2) and
- pull the bus connection block (C2) from the actuator (C3).

Note

Don't try to remove the bus connection block from the bottom side. There is a risk of shorting-out the device!

Slipping on bus connection blocks

- Slip the bus connection block (C2) onto the guide slot of the actuator (C3) and
- press the bus connection block (C2) down to the stop.
- press the sheathing of the cut-off insulation bus line projecting >3mm into the open clamping slot (C4). If a further bus line shall be connected break out the closed clamping slot with a screw-driver and press it into the clamping slot as described above. Press the single bus wires into the recess below the bus connection block and snap on the cover (C1)

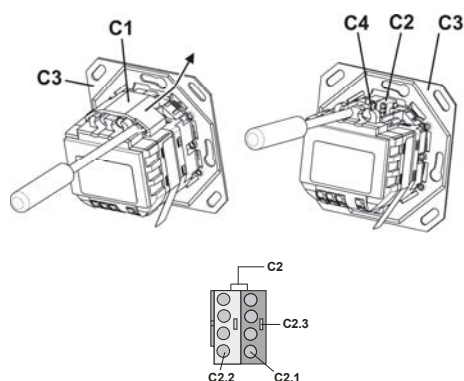


figure 4: Slipping off/on bus connection blocks

Connecting bus cables

- The bus connection block (D1) can be used with single core conductors $\varnothing 0.6...0.8$ mm.
- Remove approx. 5 mm of insulation from the conductor (D2) and plug it into the bus connection block (D1) (red = +, grey = -)

Disconnecting bus cables

- Unplug the bus connection block (D1) and remove the bus cable conductor (D2) while simultaneously wiggling it.

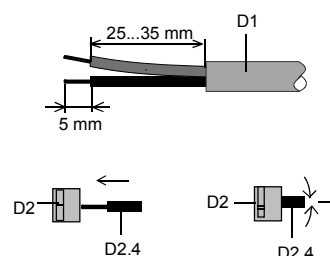


figure 5: Connecting / Disconnecting bus cables

Connecting/disconnecting mains and load circuit:

Connect wires

- The load circuits are connected via screwless plug-in terminals (E1).
- Remove approx. 9...10 mm of insulation from the wire (E 1.1) and plug it into the terminal (E1).
- The terminals are designed for connection of two wires allowing to loop through the terminal block.

Note:

The maximum permissible terminal load current is 16A.

Remove wires

- Press the terminal interlocking of the terminal (F1) with a screw-driver and remove the wire (F2) from the terminal (F1).

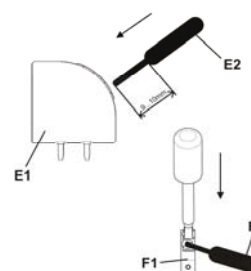
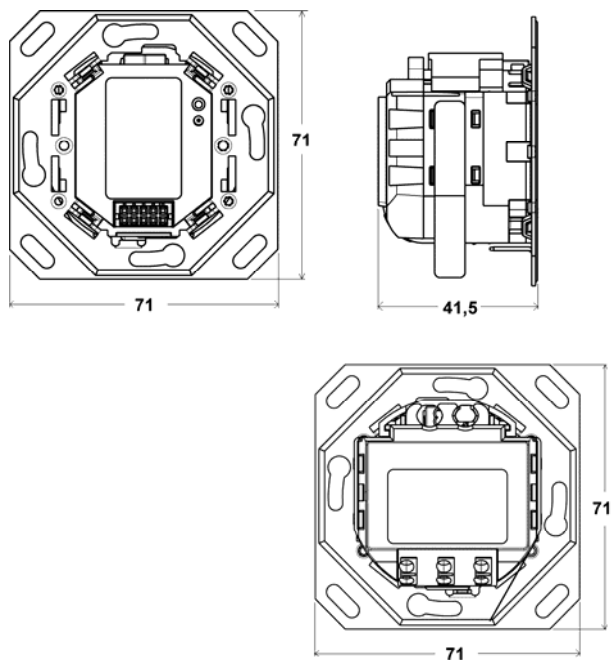


figure 6: Connecting/disconnecting mains and load circuit

Dimension drawing

Dimensions in mm



Space for notes:

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:
 - ☎ +49 (911) 895-7222
 - ☎ +49 (911) 895-7223
 - ✉ support.automation@siemens.com
 - www.siemens.com/automation/support-request