

Switch/dimming actuator N 525E, 8x DALI

5WG1 525-1EB01

## Product and functional description



The switch/dimming actuator N 525E is a KNX *EIB* device with 8 DALI outputs (= channels). A group of up to 8 DALI devices can be connected per channel.

DALI (Digital Addressable Lighting Interface) is a bidirectional communications interface in accordance with IEC 60929, whose specification has been defined by manufacturers of electronic ballasts. It not only enables the receipt of e.g. switching and dimming commands but also the sending of status information such as the failure of a lamp or the report of a detected error in the electronic ballast. According to IEC 60929 up to 64 DALI devices can be connected to a DALI bus line and can each be assigned an individual device address. The *EIB*/DALI-Gateway GE 141 can be used for example to control up to 64 DALI devices individually.

If individual communication with each individual DALI device is not required and you wish for example to simply connect a group of dimmable fluorescent lamps in parallel and control them in the same way as you would previously have connected and controlled dimmable electronic control gear (ECG) with a 1...10 V interface, this is also possible with the switch/dimming actuator N 525E. Status and error signals are also detected by the N 525E and transmitted, whereby these signals are assigned to the respective group and not to an individual DALI device.

### Application program

The switch/dimming actuator N 525E requires the application program 25 A8 Dali switch/dimming actuator 980801. There is a distinction between bus mode and direct mode. The following functions and objects can be used per channel in bus mode:

- normal operation, night mode, 1-level or 2-level time switch mode (e.g. for controlling colour lighting),
- switching, dimming, dimming value,

- warning before switching off the lighting,
- switching status, dimming value status, lamp failure,
- DALI status (lamp failure, short circuit, failure of the power supply),
- identical configuration for all 8 channels or individual configuration per channel,
- 8-bit scene control with up to 16 scenes per channel,
- behaviour on failure and recovery of the *EIB* bus voltage or mains voltage.

The dimming times, dimming limits and the switch behaviour when dimming brighter/darker and setting dimming values can be set. The application program can be loaded from ETS2 V1.3 onwards.

### Bus mode / direct mode

The N 525E has an integrated power supply unit for AC 230 V to supply the actuator electronics and to generate the DALI bus voltage per channel, as in the DALI system (in a similar way to *EIB*) the electronics of the DALI devices is supplied via the DALI bus cable.

The power supply unit integrated in the N 525E enables the actuator and the lamps connected to its channels to be operated even if the N 525E has not yet been commissioned with the ETS (Engineering Tool Software) or if the communication via the *EIB* has been interrupted. For this purpose, the N 525E has a push button located bottom left on its front plate for switching on "Direct mode" as well as for selecting a group of 4 channels. When the button is pressed for the first time, the LED lights up permanently to indicate direct mode. Channels A to D can then be operated directly. If the direct mode button is pressed for the second time, the LED flashes to display direct mode. Channels E to H can then be operated directly. If the direct mode button is pressed for a third time, the LED to indicate direct mode is extinguished and the N 525E is switched to "Bus mode".

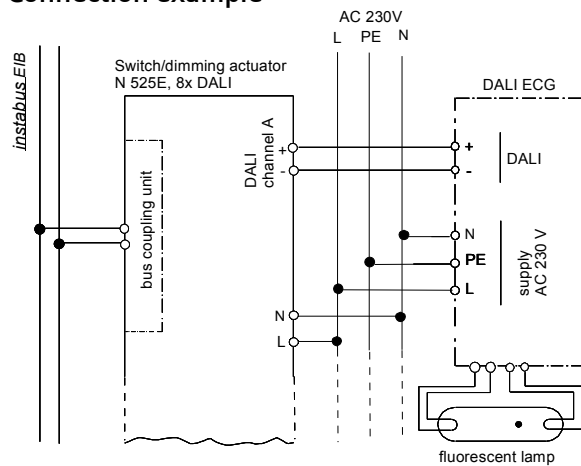
In "Direct mode", a channel can be operated via the relevant push buttons on the front plate of the actuator as via bus push buttons: pressing the upper push button briefly switches the channel on while a long push button action is used for dimming brighter; pressing the lower push button briefly switches the channel off while a long push button action is used for dimming darker. The state of channels A-D whether the output is switched on or off as well as by 1 Hz flashing if an error (e.g. a lamp failure) is present is indicated by LEDs integrated in the lower push buttons while the state of channels E-H is indicated via LEDs integrated in the upper push buttons.

It can be set via a parameter whether direct mode is switched on permanently or for a limited time period. The factory setting for the operating time of direct mode is 15 minutes. Each push button action in direct mode leads to the restart of the timer for the operating time in

direct mode for the set time period. Once the operating time has elapsed without any further push button actions, direct mode is switched off automatically and bus mode is reactivated (provided that communication is possible via the EIB). In bus mode, pressing the push buttons on the front plate of the actuator to switch a channel on or off has no effect.

When direct mode is switched on, any switching, value and scene retrieval commands are stored temporarily and carried out automatically once the device is switched back to bus mode.

### Connection example



Channels B to H must be connected accordingly.

### Installation notes

- The device can be used for permanent installation in dry, interior rooms and for insertion in distribution boards or miniature housings.



### WARNING

- The device must be mounted and commissioned by an authorised electrician.
- Unoccupied sections of DIN rail with data rail inserted must be protected with the cover 5WG1 192-8AA01.
- When connecting the device, it should be ensured that the device can be isolated.
- The device may not be opened.
- When planning and installing electrical installations, the relevant guidelines, regulations and specifications of the respective country must be observed.

### Technical data

#### Power supply

- EIB bus voltage: via the bus line
- Actuator electronics:
  - via AC 230V + 10 % / - 15 % , 50 Hz

- power consumption: max. 6 W

#### Inputs/outputs

- Mains connection: 2-pole (N, L)
- 8 DALI outputs (see IEC 60929):
  - max. 8 DALI devices per DALI output with  $\geq 8$  kOhm input impedance per device can be connected
  - DALI bus voltage: approx. DC 16 V, floating, short-circuit-proof

#### Operating elements

- 1 learning push button:
  - for toggling between normal mode / addressing mode
- 1 push button:
  - for toggling between bus mode / direct mode
- 4 x 2 push buttons:
  - for direct operation (switching and dimming) of 4 actuator outputs, independent of the EIB

#### Display elements

- 1 red LED:
  - for checking the bus voltage and for displaying normal mode / addressing mode
- 1 green LED:
  - for displaying the 230 V operating voltage
- 1 yellow LED:
  - for displaying direct mode / bus mode
- 1 red LED per push button for direct operation:
  - for displaying whether the output is switched on or off as well as by 1 Hz flashing if an error is present (e.g. a lamp failure)

#### Connections

- Mains and output circuits:
  - Plug-in terminals for mains voltage and DALI outputs, insulation strip length 9 ... 10 mm
- The following conductor cross-sections are permitted:
  - 0.5 ... 2.5 mm<sup>2</sup> single-core or
  - 0.5 ... 1.5 mm<sup>2</sup> finely stranded with connector sleeve
- The supply cable to the N 525E must be fused with a circuit-breaker of characteristic B or C for a max. nominal current of 6 A!
- EIB bus line:
  - Pressure contacts on data rails,
  - Screwless bus terminal, 0.6 ... 0.8 mm single-core, insulation strip length 5 mm

#### Mechanical data

- Housing: plastic
- Dimensions: DIN rail mounted device in N dimensions, width 4 module units (1 module unit = 18 mm)
- Weight: approx. 250 g
- Fire load: approx. 3850 kJ  $\pm$  10 %

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- Installation: Snap-on mounting on DIN rail  
EN 60715-TH35-7.50

**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 50090-2-2 and EN 60669-2-1

**EMC requirements**

- Complies with EN 50090-2-2

**Environmental conditions**

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

**Markings**

- KNX EIB

**CE mark**

- In accordance with the EMC guideline (residential and functional buildings), low voltage guideline

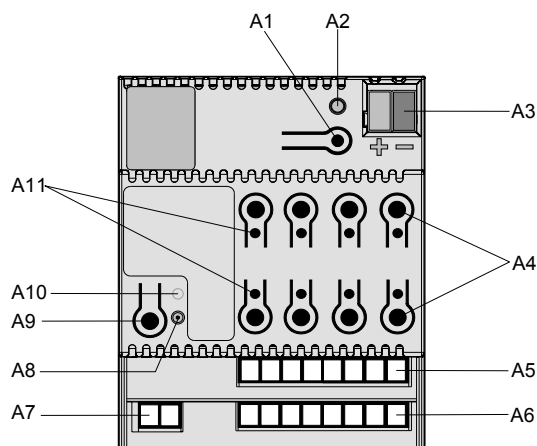
**Location and function of the display and operating elements**

Figure 1: Location of the display and operating elements

- A1 Button for toggling between normal / addressing mode for transferring the physical address
- A2 LED for displaying normal mode (LED off) or addressing mode (LED on); it is automatically extinguished once the physical address has been transferred
- A3 Plug for bus connecting terminal
- A4 Keypad for local operation

- A5 Connections for channels E-H
- A6 Connections for channels A-D
- A7 Connections for phase and neutral conductor
- A8 LED for displaying when direct mode is switched on (constant light: Channels A-D can be operated; flashing light: Channels E-H can be operated)
- A9 Button for toggling between bus / direct mode as well as for toggling the operability of channel group A-D to channel group E-H
- A10 LED for displaying the operating voltage
- A11 LEDs for displaying whether the channel is switched on or off as well as by 1 Hz flashing if an error is present at this channel (e.g. a lamp failure)

**Installation and wiring**General description

The DIN rail mounted device in N system dimensions (width 4 module units) can be inserted in N distribution boards, surface- or flush-mounted and wherever DIN rails EN 50022-35 x 7.5 are available. The connection with the bus line is either carried out via a bus terminal or via the contact system to the data rail.

Installing the DIN rail mounted device (Figure 2)

- Suspend the DIN rail mounted device (B1) on the DIN rail (B2) and
- rotate the DIN rail mounted device backwards until the slide switch audibly clicks into position.

Dismantling the DIN rail mounted device (Diagram 2)

- Remove all the connected cables,
- press the slide switch (C3) downwards with a screwdriver and
- remove the DIN rail mounted device (C1) from the DIN rail (C2) with a swivel action.

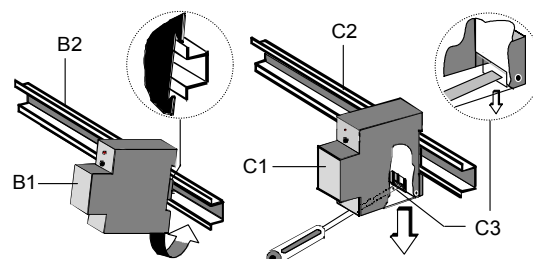


Figure 2: Installing / dismantling the DIN rail mounted device

Removing the bus terminal (Figure 3)

- The bus terminal is located on the top of the N 525E (D1)
- The bus terminal (D2) consists of two sections (D2.1, D2.2), each with four terminal contacts. Care should be taken not to damage the two test sockets (D2.3), either by accidentally connecting them to the bus

conductor or with the screwdriver (when trying to remove the bus terminal).

- Carefully insert the screwdriver in the wire entry slot underneath the bus terminal (D2) and pull the bus terminal forwards out of the N 525E (D1).

**Note:** Care should be taken as there is a risk of shorting the device !

Connecting the bus terminal (Figure 3)

- Place the bus terminal in the guide slot and press the bus terminal (D2) backwards until it reaches the stop.

Connecting the bus cable (Figure 3)

- The bus terminal (D2) is suitable for single-core conductors with 0.6... 0.8 mm Ø.
- Strip approx. 5 mm of insulation from the conductor (D2.4) and plug in the terminal (D2) (red=+, black=-).

Disconnecting the bus cable (Figure 3)

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

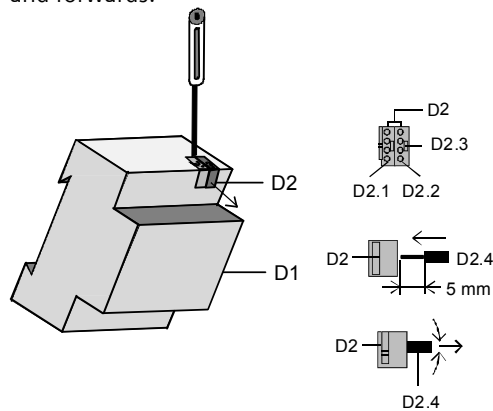


Figure 3: Connecting and disconnecting the cable

Connecting mains voltage and DALI bus cables

- The connections are designed with plug-in technology.
- Strip approx. 9-10 mm of insulation from the conductors and slide in the respective terminal.

Cross-sections:

- The following conductor cross-sections are permitted:
  - 0.5... 2.5 mm<sup>2</sup> single-core or 0.5... 1.5 mm<sup>2</sup> finely stranded with connector sleeve
- The mains connection must be fused with a circuit-breaker of characteristic B or C with a max. nominal current of 6 A!

Mounting the insulating cap

- If the device should be mounted on a DIN rail without a data rail, the contact system must be covered with the supplied insulating cap.

Removing the locating clamp (Figure 4)

- The locating clamp (E3) encloses the contact system (E2) on the rear of the DIN rail mounted device (E1).
- Insert the screwdriver between the DIN rail mounted device (E1) and the locating clamp (E3) and remove the clamp.

Clipping on the insulating cap: (Figure 4)

- Place the insulating cap (E4) on the contact system and press so that it snaps in place.

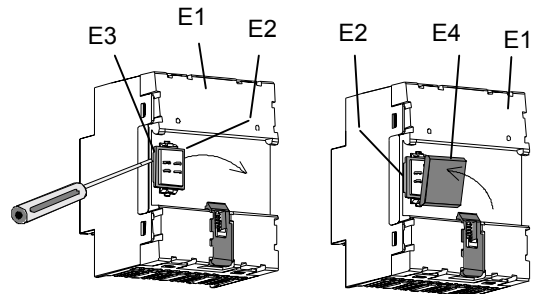
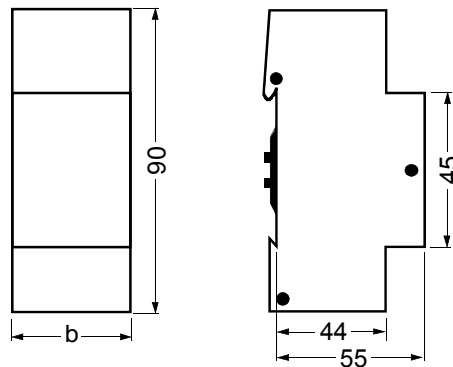


Figure 4: Covering the contact system

**Dimension drawing**

Dimensions in mm



b = 4 module units (1 module unit = 18 mm)

**General notes**

- Any faulty devices should be returned to the local Siemens office.
- If you have further questions about the product, please contact our Technical Support:

+49 (0) 180 50 50-222

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[www.siemens.com/automation/support-request](http://www.siemens.com/automation/support-request)