

Universal dimmer UP 525/31
5WG1 525-2AB31

Product and Function Description



Photo

The universal dimming actuator receives telegrams for switching or dimming purposes. It can work with the principle of trailing or leading edge control. That means either low voltage halogen lamps with TRONIC transformer or conventional (inductive) transformer can be controlled.

Short-circuit protection:

In the event of short-circuits, the output is shut off permanently. After removal of the short circuit, the dimming actuator must at first be switched off (or disconnected from the mains) before it can be switched on again.

Over-temperature protection:

The output shuts off when the ambient temperature is too high. After cooling, the dimming actuator repeats the automatic detection of the load and adopts the brightness level set by the KNX/EIB.

In addition, the device has two extension inputs that depending on parameter settings, can act directly on the output (local operation, see "state of delivery") or alternatively also as binary inputs on the Instabus. The connected potential-free switch or push button contacts are read in via a common reference potential on the actuator. As binary input, telegrams can be transmitted for switching or dimming, for Venetian blind control, value setting or scene recall / save.

State of delivery:

- When delivered, the dimming actuator is off (no electrical separation!).
- On application of the bus voltage, the output switches off.

- With the bus voltage applied, the extension inputs control the dimming output as follows:

Input ¹⁾	Contact	Operation ²⁾	behaviour
A	Close (rising edge)	short	Switching ON 100%
		long	Dimming brighter
	Open (falling edge)	short	No reaction
		long	Stop Dimming ³⁾
B	Close (rising edge)	short	Switching OFF
		long	Dimming darker
	Open (falling edge)	short	No reaction
		long	Stop Dimming ³⁾

¹⁾ Simultaneous operation of A and B is not possible

²⁾ The time for long operation is fixed at 520ms .

³⁾ Time of operation > 520ms: Open contact → Stop Dimming
Time of operation < 520ms: Open contact → no reaction

Application program

12 A1S2 Dimming, 2x Inputs 301901

- 2 binary inputs
 - ON / OFF / TOGGLE switching
 - Value setting
 - Dimming
 - Blind / Shutter – control
 - Scene control
 - Inputs blocking function
 - Behavior on bus power restoration
- 1 Dimming Output with additional functions
 - Output blocking function
 - Scene control (8-bit)
 - Fault report
 - Short circuit + over-temperature protection
 - Load failure report
 - Status report (Dimming and Switching)
 - Timer function
 - Adjustable behaviour on bus power failure
 - Adjustable behaviour on bus power restore

Technical specifications

Power supply

- Carried out via the bus line
- Power consumption: typically 150 mW

Outputs

- Number: 1 output, semiconductor
- Rating voltage: AC 230V, 50/60 Hz
- Total dissipated power: max. 2W
- Power rating: 50...210 VA
- Dimmable loads:

- 230V incandescent lamps:	<i>phase cut off</i>
- HV halogen lamps:	<i>phase cut off</i>
- LV-halogen lamps:	tronic trafo: <i>phase cut off</i>
	conv. trafo: <i>phase cut on</i>

Contacts

- Output:
Contact the load on H07V-K 1,5mm² with the attached clamps.
- Inputs, bus:
- Line YY 6x 0.6 mm - Approx. 33cm pre-assembled, can be laid to max. 5m

Mechanical specifications

- Casing: plastic
- Dimensions: d =53mm, height = 28 mm
- Weight: approx. 83g
- Mounting: in box mounts, Ø 60mm, depth: 40mm

Electrical safety

- Degree of pollution (to IEC 60664-1): 2
- Protection class (to EN 60529): IP 20
- Protection class (to IEC 61140): III
- Overvoltage category class (to IEC 60664-1): III
- Bus: safety extra low voltage SELV DC 24V
- Device complies with EN 50090-2-2 and IEC 60664-1

Reliability

Failure rate: 170 fit at 40°C

EMC criteria

- Complies with EN 61000-6-2, EN 61000-6-3 and EN 50090-2-2

Environmental specifications

- Climatic conditions: EN 50090-2-2
- Ambient temperature in operation: - 5 ... + 45 °C
- Storage temperature: - 25 ... + 70 °C
(Storage above + 45°C reduces the service life)
- Relative humidity (non-condensing): 5% to 93%

Markings

- KNX *EIB*

CE mark

- to EMC directive (residential and functional building)

Location and functioning of the display and operating elements

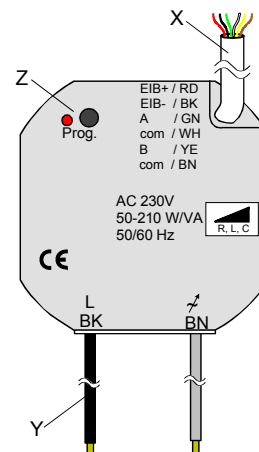


Figure 1: Location of the indicating and operating elements

- X Connector cables low voltages
Red: Bus (+)
Black: Bus (-)
Green: input A
White: Reference potential (com)
Yellow: Input B
Brown: Reference potential (com)
- Y Connector cables load
black: L // brown: dimming output
- Z Program button / -LED (red)

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Mounting and wiring

→ General

It is recommended that the actuator is installed in two flush sockets connected to one another (cf. fig. 2). One socket (A) can accommodate, e.g., a series switch (C) as well as the bus and extension connection. The other socket (B) accommodates the actuator and the 230 V terminals. The 6-pole connection lead (D) is guided through the socket connection.

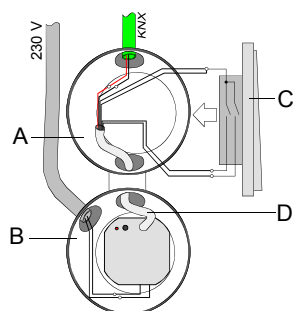


Figure 2

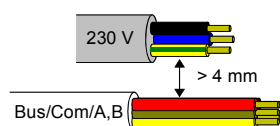


Figure 3



Danger

- The device must be mounted and commissioned by an authorised electrician.
- When connecting the device, it should be ensured that the device can be isolated.
- 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.
- During installation, ensure adequate insulation between mains voltage and bus or extensions! A minimum spacing should be maintained between bus / extension cable cores and mains voltage cable cores of at least 4 mm. (cf. figure 3)
- Not suitable for safe disconnection of the mains. Switching off the dimming actuator does not isolate the load electrically from the mains.
- When conventional transformers are used, each of these transformers must be fuse-protected on the primary side in accordance with the manufacturer's instructions. Use only safety transformers as per EN 61558-2-6.
- Risk of irreparable damage: Do not connect capacitive loads (electronic transformers) together with inductive loads (e.g. conventional transformers) to the dimmer output.

Note

- After the installation and after switching on of the mains supply, the universal dimming actuator automatically detects the load and selects the appropriate dimming mode (phase cut-on or phase cut-off principle). The load detection process may be accompanied by short flickering of the lamps and lasts between 1-10 s, depending on mains conditions. Control commands received during load detection will be executed after the procedure.
- Mains failures of more than 0.7 seconds will cause the dimming actuator to shut off. After return of the mains supply, the dimming actuator repeats the load detection procedure.

→ Inputs:

Two extension inputs can be used for the connection of potential-free contacts for local control or as binary inputs. (cf. figure 4)

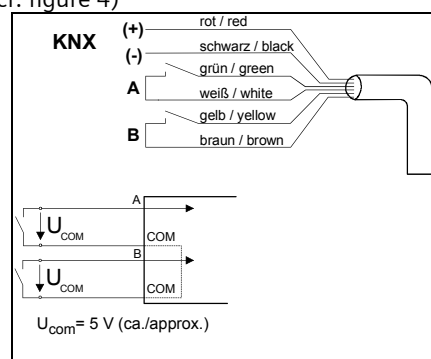


Figure 4

Caution

- To avoid disruptive EMI irradiation, the lines of the inputs should not be laid parallel to lines conducting mains voltage.
- Input A (green), input B (yellow) and reference potential (com) (white and brown) must not connect to inputs or reference potential (com) of other devices.



Danger

- On no account should you connect mains voltage (230 V) or other external voltages to the extension inputs! Connection to an external voltage would endanger the electrical safety of the entire KNX/EIB system (SELV / no galvanic isolation)! People can be at risk, equipment and devices can be destroyed!
- Unused cable cores of the 6-pole connection lead are to be insulated from one another and from external voltages.

→ **Outputs:**

A semiconductor output switch or dimm electrical loads, depend on the kind of the load with phase cut-off or phase cut-on.

(cf. figure 5)

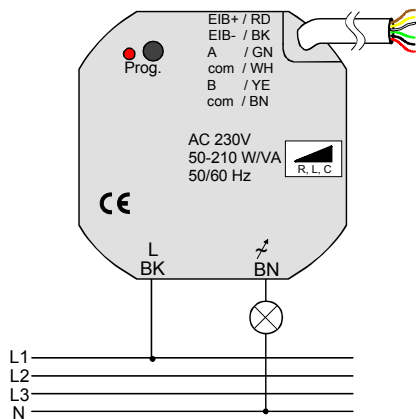


Figure 5

Dimensioned picture

Dimensions in mm

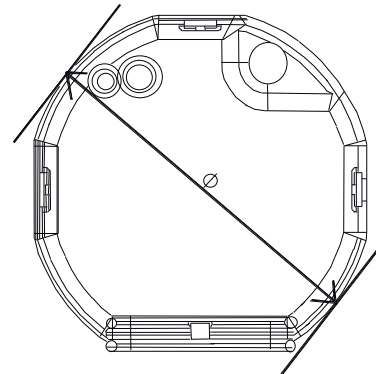


Figure 6

Ø = 53 mm

Höhe = 28 mm

General notes

- Any faulty device is to be returned to the local Siemens office.
- If you have further questions concerning the product, please contact our Technical Support:
 ☎ +49 (0) 180 50 50-222 (0,14 €/min. from the German landline network, deviating mobile communications prices are possible)
 ☎ +49 (0) 180 50 50-223
 E-Mail: support.automation@siemens.com
 Internet: www.siemens.com/automation/service&support



Danger

- The soldered end of lines have to connect by using the attached clamps.
- **Attention:** Do not connect capacitive loads (e.g. electronic transformers) together with inductive loads (e.g. conventional transformers) to the dimming output.
- If mixed loads are used with conventional transformers, the share of resistive loads must not exceed 50%.
- The connected load including transformer losses must not exceed the total admissible load.
- At least 85 % of the total load connected to conventional transformers must consist of lamps.