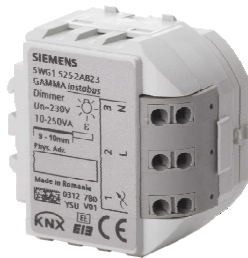


Universal dimmer (RS module) RS 525/23
AC 230V, 1 x 250 W

5WG1 525-2AB23

Product and functional description



The RS 525/23 Universal Dimmer is a KNX device with one dimmer output. The device is installed in an AP 118 Control Module Box or an AP 641 Room Control Box. The bus is connected via a bus terminal block. The actuator electronics are supplied via the bus voltage.

The RS 525/23 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).

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 permissible 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 RS 525/03 Universal dimmer needs the application program "07B0 A1 Universal dimmer 982C01".

Example of operation

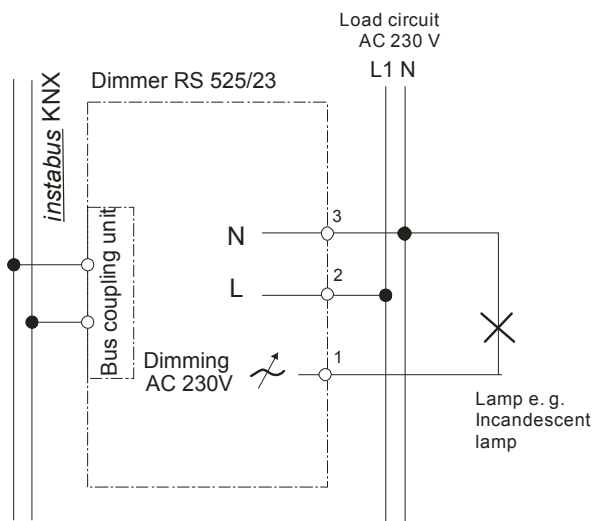


figure 1. Example of operation

Installation notes

- The device is intended for installation in an AP 118 Control Module Box or an AP 641 Room Control Box.



DANGER

- The device must be mounted and commissioned by an authorized electrician.
- A safety disconnection of the device must be possible.
- 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!**

Universal dimmer (RS module) RS 525/23
AC 230V, 1 x 250 W

5WG1 525-2AB23

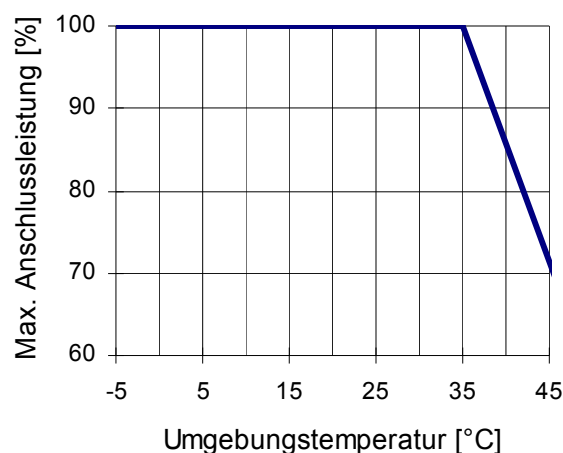
Technical Specifications

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

Outputs

- 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 when mounted in AP 118 Control Module Box:



When mounted in AP 641 Room Control Box the maximum permissible power consumption of devices connected depends on the total thermal dissipation loss of all modules in the AP 641 Room Control Box. See TPI of AP 641 Room Control Box for more information.

Control elements

1 learning button:
for switching between normal operating mode and addressing mode
(situated on bus connection module shipped with device)

Display elements

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

(situated on bus connection module shipped with device)

Connections

- Bus line : screwless bus connection block (red-black) 0.6...0.8 mm Ø single core, strip insulation 5mm
- 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): 50 x 50 x 35,5 mm
- weight: approx 45 g
- fire load: approx. 800 kJ
- Installation: Mounting location for RS / RL module in AP 118 Control Module Box (5WG1 118-4AB01) or AP 641 Room Control Box (5WG1 641-3AB01)
- Thermal dissipation loss:
 - Device: 0,15 W (= min. total thermal dissipation loss)
 - per output (inductive): 0,014 / 250 * Load [W]
 - per output (capacitive, resistive): 0,014 / 210 * Load [W]
 - min. total thermal dissipation loss: 0,6 W (load: 0%)
 - max. total thermal dissipation loss: 2,0 W (load:100%)

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 % ... 93 %

Reliability

- Failure rate: 408 fit at 40°C

Markings

KNX, EIB

CE norm

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

Location / Function of the Display and Operating Elements

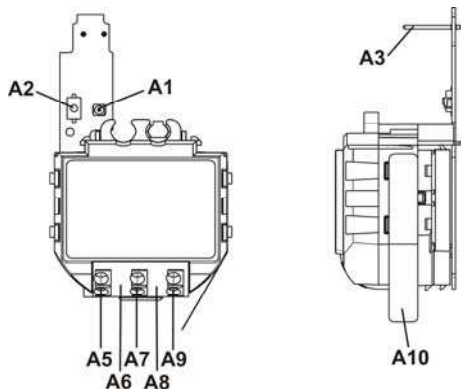


figure 2: Location / Function of the Display and Operating Elements

- 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 Bus connection pins to connect the bus connection block for single core conductors with 0,6...0,8 mm Ø
- A4 Type label (with space for physical address of the actuator)
- A5 Terminal Channel A
- A6 Distance plate
- A7 Terminal L
- A8 Distance Plate
- A9 Terminal N
- A10 Identification number of the device

Installation and wiring

- B1 RS module
- B3 Type label
- B4 Mounting location for RS / RL module in AP 118 Control Module Box or AP 641 Room Control Box
- B5 Bus connection module
- B6 Insertion point for bus connection module
- B7 Snap-in point for bus connection module
- B8 Learning button
- B9 LED for indicating normal operating or addressing mode
- B10 Bus connection pins of the connection module for respective bus terminal block of the internal bus wire
- B11 Insertion point for bus terminal
- B12 Bus connection block
- B14 Terminals

Universal dimmer (RS module) RS 525/23
AC 230V, 1 x 250 W

5WG1 525-2AB23

- Mounting of a RS module:
 - Remove the lid of the AP 118 Control Module Box respectively of the AP 641 Room Control Box.
 - AP 641: Remove the SELV (Class 2) cover
 - Insert the bus connection module (B5) in such a way into the insertion point (B6) for the bus connection module that the bus connection pins (B10) point to the insertion point for the bus terminal (B11). The type label (B3) is on top.
 - Press the bus connection module (B5) down until it snaps into the locking position (B7).
 - Insert the RS module (B1) from the top with the terminals (B14) pointing away from the bus terminal insertion point (B11).
 - Insert the bus terminal (B12) of the mounting location (B4) onto the bus connection pins (B10) of the bus connection module (B5).
 - For assignment of the Physical Address press the learning button (B8) for a maximum of 2 seconds. The addressing mode is indicated when the LED is on (B9). It returns to normal operating mode (LED Off) automatically after receiving the physical address.
 - AP641: Insert the SELV (Class 2) cover again.
 - Mount the lid again.

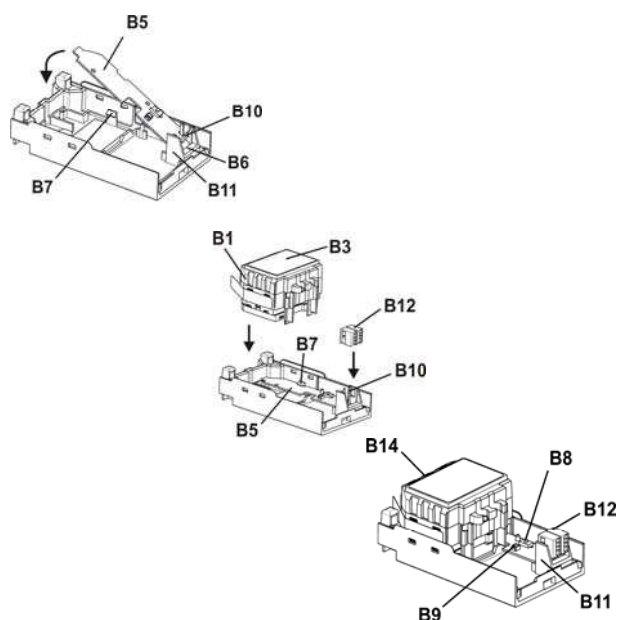


figure 3: Mounting of a RS module

- Dismounting an RS module:
 - Remove the lid of the AP 118 Control Module Box respectively of the AP 641 Room Control Box.
 - AP 641: Remove the SELV (Class 2) cover
 - Remove the wiring from the terminals (B14).
 - To remove the RS module (B1), insert a screw driver between the module and the mounting location siding and push it up to release it from the snap-in hooks. Do this on both sides.
 - Pull the RS module (B1) from the mounting location (B4).
 - If an RL module (B2) shall be inserted into the mounting location, remove the bus terminal (B12). Detach the bus connection module (B5) from the snap-in point (B7), swivel it up and pull it out of the insertion point (B6).
 - AP641: Insert the SELV (Class 2) cover again.
 - Mount the lid again.

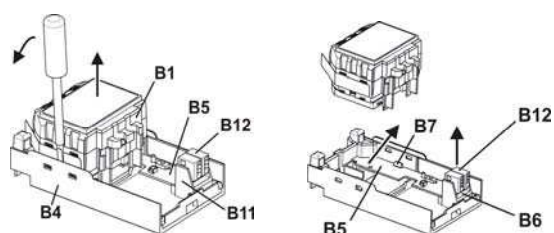


figure 4: Dismounting a RS module

Connecting

Slipping off/on bus connection blocks

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

- 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 module.

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 module and
- press the bus connection block (C2) down to the stop.

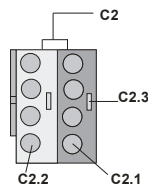


figure 5: Slipping off/on bus connection blocks

Connecting bus cables

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

Disconnecting bus cables

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

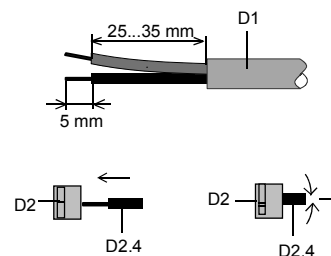


figure 6: Connecting / Disconnecting bus cables

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).

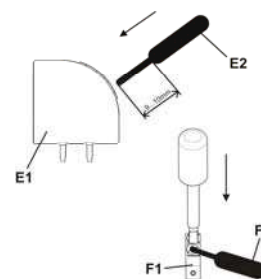


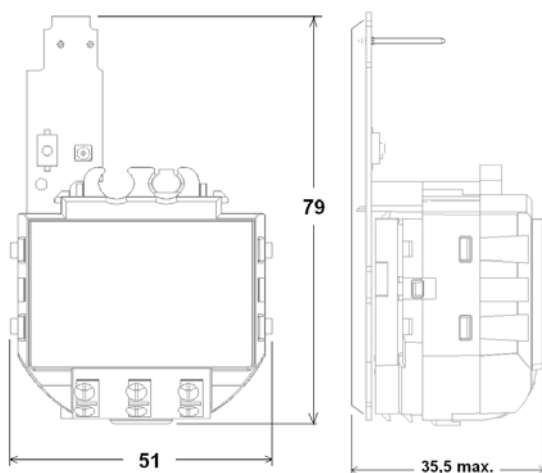
figure 7: Connecting/disconnecting mains and load circuit

Universal dimmer (RS module) RS 525/23
AC 230V, 1 x 250 W

5WG1 525-2AB23

Dimension drawing

Dimensions in mm



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

Space for notes