Eltako ELECTRONICS

RS485 bus actuator

Dimmer switch controller FSG14
for electronic ballast 1-10V

CE

Only skilled electricians may install this electrical equipment otherwise there is the risk of fire or electric shock!

Temperature at mounting location:
-20°C up to +50°C.
Storage temperature: -25°C up to +70°C.
Relative humidity:
annual average value <75%.

valid for devices from production week 07/14 (see bottom side of housing)

Dimmer switch controller for electronic ballast 1-10V, 1 NO contact not potential free 600VA and 1-10V control output 40mA. Bidirectional. Only 0.9 watt standby loss. With adjustable minimum brightness and dimming speed. With light scene control and constant light regulation.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 modul = 18mm wide, 58mm deep.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control.

Zero passage switching to protect contacts.

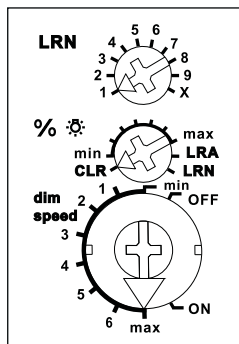The power consumption of the 12V DC power supply is only 0.1W.

Also adapted for LED driver with 1-10V passive interface, without voltage source up to 0.6mA, above this value an additional voltage source is necessary.

The brightness level is stored on switch-off (memory).

In case of a power failure the switch position and the brightness stage are stored and may be switched on when the power supply is restored.

Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

Function rotary switches

The minimum brightness (fully dimmed) is adjustable **with the %☼ rotary switch.**
The dimming speed is adjustable using the **dimming speed rotary switch**.

The load is switched on and off by a bistable relay at output EVG. Switching capacity for fluorescent lamps or LV halogen lamps with EGV 600VA.

By using a bistable relay coil power loss and heating is avoided even in the on mode.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

The pushbuttons can be taught-in either as direction switches or universal switches:

As a direction switch, press up is brighter and press down is darker respectively above short pressing means switch ON and below short pressing switch OFF. A double click above activates automatic updimming until full brightness with dim speed. A double click below activates snooze function. The children's room function will be realized with the upper switch.

As a universal switch, change the direction by briefly releasing the pushbutton. With switching operation for children's rooms and snooze function.

Switching for light alarm clocks: A wireless signal of a time clock which was taught-in accordingly starts the wake up function by switching on the light at the lowest brightness level and dims up slowly until the maximum level is reached. Dependent on the set dim speed the wake up time is between 30 and 60 minutes. The dimming process is stopped by tapping briefly (e.g. on a hand-held transmitter).

Switching operation for children's rooms:
If the light is switched on by holding down the pushbutton (universal switch or direction switch above), it starts at the lowest brightness level after approx. 1 second and dims up slowly as long as the pushbutton is held down. The last saved brightness level is not modified.

Snooze function:
(universal switch or direction switch below): With a double impulse the lighting is dimmed down from the current dimming position to the minimum brightness level and switched off. The current dimming position as well as the adjustable minimum brightness level determine the dimming time (30 minutes) which can be reduced as required. It can be switched off at any time by short-time control commands during the lighting is dimmed down.

Light scenes on the PC are set and retrieved using the Wireless Building Visualisation and Control Software GFVS. One or several FSG14 devices must be taught in on the PC as dimming switches with percentage brightness values.

Staircase light switch:
The staircase light switch switches on a memory value and starts an RV time at the end of which the device switches off. Press the switch again to restart.

Clock:
Set the upper rotary switch to X.
The clock is started by the universal button, direction button (switch-on side) and the 'Central ON' button.

FTK as NO contact:
When the window is opened, the light is switched on. When the window is closed, the light is switched.

FTK as NC contact:
When the window is opened, the light is switched off. When the window is closed, the light is switched on.

FBH as Master: (automatic brightness control off) When a wireless motion-brightness sensor FBH is taught-in, the switching threshold is defined by the lower rotary switch during teach-in. The switching threshold switches on the lighting with memory value depending on the brightness (in addition to motion) (from approx. 30 lux in OFF position to approx. 300 lux in ON position). If the FBH in taught-in in the ON position, it is only evaluated as a motion detector. A time delay of 1 minute is a fixed setting in the FBH.

FBH as Slave:
The FBH is only evaluated as motion detector.

FAH as Master: (automatic brightness control off)
When a wireless brightness sensor FAH is taught-in, the switching threshold is defined by the lower rotary button during teach-in. The switching threshold switches the lighting off depending on the brightness. Switch-on is only possible by pressing the button.

FAH as twilight switch: (automatic brightness control off)
When a wireless brightness sensor FAH is taught-in, define the switching threshold by the lower rotary switch during teach-in. The switching threshold switches the lighting on or off depending on the brightness (from approx. 0 lux in OFF position to approx. 50 lux in ON position). If the brightness threshold is undershot, switch-on uses the memory value. Switch-off takes place at a brightness of > 200 lux.

FAH as twilight dimmer: (automatic brightness control off)
When a wireless brightness sensor FAH is taught-in, the minimum dimming value is defined in % by the lower rotary switch. The switching threshold is the value to which the lighting is dimmed down in darkness (OFF = minimum dimming value to ON = maximum dimming value). If the brightness undershoots a fixed limit, switch-on takes place at maximum dimming value. If the brightness drops, the dimming value is also reduced. When the brightness rises again, the dimming value also increases. If the brightness exceeds the fixed limit, the lighting is switched off.

Constant light control with FBH or FAH: (the automatic brightness control must be switched on with PCT14).
If the minimum brightness is exceeded, the lighting is switched on.
If the minimum brightness is undershot, the lighting is switched off.
If the residual brightness is greater than the minimum brightness, the lighting is slowly dimmed down to this value if no motion is detected, and is dimmed up if motion is detected.

Residual brightness:
0 = the lighting is switched off if no motion is detected;

The automatic control by FAH or FBH will be disabled by a manual brightness change or switch-off with the pushbutton. Central pushbutton, scene pusbhbutton and 'dimming value' by PC also lead to deactivation. With a short press of the switch-on side of the direction pushbutton, the automatic control is activated again.

Constant light control with FIH65B: (The automatic brightness control automatically switches on when teaching-in of the FIH65B) The required brightness is adjusted by a pushbutton, then the first received brightness value of the FIH65B is the target brightness, it is maintained constant automatically by the FSG14 by incoming brightness values of the FIH65B. After each change in brightness (dimming) with pushbutton, the subsequently received brightness value of FIH65B will be the new target brightness. If the target brightness is adjusted with PCT14, or stored with a 'direction pushbutton for target brightness', this is fixed, a change in brightness with the pushbutton is then overruled by the fixed target brightness.

If additionally a FBH is taught-in as a slave, it is switched on when motion and target brightness are fallen short and switched off when not in motion or target brightness is exceeded. By switching off with pushbutton, the automatic control by FBH or FIH is disabled. Central pushbutton, scene pusbhbutton and 'dimming value' by PC also lead to deactivation. The automatic control is reactivead by a short press on the switch-on side of the direction button.

Storing of target brightness:
Press 'direction pushbutton for target brightness' above. The current brightness that has been sent from the FIH65B is stored.
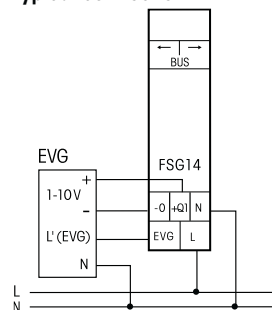
Deletion of target brightness:
Press 'direction pushbutton for target brighntess' below.

The LED below the upper function rotary

switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.
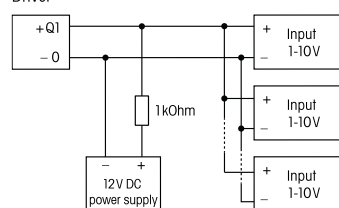
Typical connection

For the control from several LED drivers with 1-10V passive interface, an additional voltage source is necessary, this can be the power supply unit SNT12-230V/12V DC-0.5A or SNT61-230V/12V DC-0.5A, in both cases a 1kOhm resistor is necessary.

Example of connecting with an additional voltage source

Teaching-in wireless sensors in wireless actuators
All sensors must be taught-in in the actuators so that they can detect and execute commands.

Teaching-in actuator FSG14/1-10V
The teach-in memory is clear on delivery from the factory. To ensure that a device was not previously taught-in, **clear the complete memory:**
Turn the middle rotary switch to CLR. The LED flashes at a high rate. Within 10 seconds, turn the top rotary switch

three times to right stop (turn clockwise) and back again. The LED stops flashing and goes out after 2 seconds. All taught-in sensors are cleared.

Clear individual taught-in sensors in the same way as in the teach-in procedure, except that you set the middle rotary switch to CLR instead of LRN, and operate the sensor. The LED previously flashing at a high rate goes out.

Teaching-in sensors
A total of 120 memory locations are available.
1. Set the top rotary switch to the required teach-in function:
   1 = timer as wake-up light; teach in FIH65B, FAH or FBH as Master;
   2 = teach-in 'central off'; teach in second FBH as Slave;
   3 = universal switch on/off and dim; teach in third FBH as Slave;
   4 = teach-in 'central on'; teach in fourth FBH as Slave;
   5 = Teach in direction button; direction buttons are taught-in fully automatically when pressed. Depending on where the button is pressed, the functions for switch-on and dim-up are defined on one side and switch-off and dim-down on the other side. Teach in FTK and Hoppe window handle as NO contact;
   6 = Teach in sequential light scene button, a button or half of a double button is assigned automatically; Teach in FTK and Hoppe window handle as NC contact;
   7 = Teach in four-way light scene button, a complete button with double rocker is assigned automatically;
   8 = Teach in individual light scene pushbuttons, simultaneously the brightness, set with an universal pushbutton or direction pushbutton, and the dimming speed, set with the lower rotary switch, will be saved; FAH as twilight switches;
   9 = Teach in staircase light switch; Teach in FAH as twilight dimmer;

X = Teach in PC with GFVS Software; teach-in dimming values of FFD; Teach-in 'direction pushbutton for target brightness';
2. Set the middle rotary switch to LRN. The LED flashes at a low rate.
3. Operate the sensor to be taught-in. The LED goes out. As universal switch, teach-in either the top and bottom pushbutton or as direction switch, operate only top or bottom.

To teach-in further sensors, turn the middle rotary switch briefly away from position LRN. Continue the procedure from pos 1.

After teaching-in set the minimum brightness with the middle rotary switch.
Set the dimming speed with the lower rotary switch.

Saving light scenes
Up to four brightness values can be saved using a direct light scene pushbutton.
1. Set the required brightness value using a previously taught-in universal switch or direction switch.
2. Within 60 seconds, the brightness value is saved by pressing a button on one of the four rocker ends of the taught-in direct light scene buttons for longer than 3 seconds but shorter than 10 seconds.
3. To save other light scenes, repeat from point 1.

Retrieving light scenes
Up to four brightness values are retrievable using a **direct light scene pushbutton** (pushbutton with double rocker, top left = light scene 1, top right = light scene 2, bottom left = light scene 3 and bottom right = light scene 4) and/ or using a **sequential light scene pushbutton** (pushbutton or one half of a double pushbutton, press top = next light scene, press bottom = previous light scene).

Issue device address for the FSG14:
Turn the rotary switch on the FAM14 to Pos. 1 and its lower LED lights up red. Turn the middle rotary switch on the FSG14 to LRN and the LED flashes at a low rate. After the address of the FAM14 is issued, its lower LED lights up green for 5 seconds and the LED of the FSG14 goes out.

Clear device configuration:
Set the middle rotary switch to CLR. The LED flashes at a high rate. Within the next 10 seconds, turn the upper rotary switch three times to left stop (turn anticlockwise) and away again. The LED stops flashing and goes out after 5 seconds. The factory settings are restored.

Clear device configuration and device address:
Set the middle rotary switch to CLR. The LED flashes at a high rate. Within the next 10 seconds, turn the upper rotary switch six times to left stop (turn anticlockwise) and away again. The LED stops flashing and goes out after 5 seconds. The factory settings are restored and the device address is cleared.

Configure FSG14:
The following points can be configured using the PC tool PCT14:
- Teach in buttons with single or double click.
- Behaviour after power failure
- Minimum and maximum brightness
- Memory
- Dimming speeds
- Switch-on/off speed
- Acknowledgement telegrams
- Parameters for operating with FIH65B, FAH and FBH
- Parameters for operating as clock
- Parameters for operating as staircase time switch
- Add or change sensors

Caution: Do not forget the 'Disconnect link to FAM' in the PC Tool. No wireless commands are executed while there is a link between the PC Tool and the FAM14.

Teach in acknowledgement telegram of another BUS actuator into the FSG14:
Similar to teaching-in sensors, except the middle rotary switch is set to LRA instead of LRN.
'Switch-on' is taught-in as 'Central ON'.
'Switch-off' is taught-in as 'Central OFF'.

⚠️ When an actuator is ready for teach-in (the LED flashes at a low rate), the very next incoming signal is taught-in. Therefore, make absolutely sure that you do not activate any other sensors during the teach-in phase.