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Eltako

RS485 bus actuator

Dimmer switch controller FSG14 for electronic ballast 1-10V

**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
27/22** (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 0.5 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 = 18 mm wide, 58 mm deep.
The delivery includes a spacer DS14, 1 short
jumper 1 pitch width and 1 long jumper 1.5
pitch width (from 2 devices with DS14 on the
right side).

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

Zero passage switching to protect contacts.

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

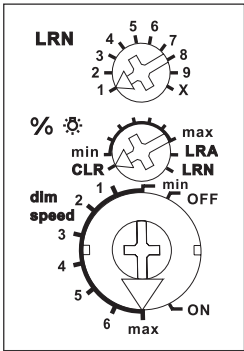
Also adapted for LED driver with 1-10V passive
interface, without voltage source up to
0.6mA, above this value an additional voltage
source is necessary.

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



If the upper rotary switch is set to X, special
functions are active, which must be settled
with the PC Tool PCT14.

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 dou-
ble 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 wire-
less 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. De-
pendent 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 direc-
tion 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 po-
sition to the minimum brightness level and
switched off. The current dimming position
as well as the adjustable minimum bright-
ness level determine the dimming time
(30 minutes) which can be reduced as re-
quired. 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 dim-
ming switches with percentage bright ness
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.

Either a FBH or a FAH can be taught-in as master :

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. 30lux in OFF position to approx. 300lux 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.

Semi-automatic motion detection with taught-in FB65B wireless motion sensor (factory setting): After switching on via pushbutton, the 5 minutes delay time starts, within this time the delay will restart after each detected motion. 5 minutes after the last detected motion it will switch off. If a motion is detected 5 minutes after switching off, it will automatically switch on again. After this time only a pushbutton can switch on. The pushbutton is allowed to switch off at any time, then the motions are no more evaluated.

Fully automatic motion detection with FB65B taught-in wireless motion sensor: If the actuator should switch on automatically when motion is detected, e.g. in rooms without daylight, replug the jumper to 'active' on the FB65B device. When motion is no longer detected, the device switches off automatically after the 5 minutes release delay time expires. Press the pushbutton at any time to switch the device on or off. When motion is detected, the device switches on again automatically.

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. 0lux in OFF position to approx. 50lux in ON position). If the brightness threshold is undershot, switch-on uses the memory value. Switch-off takes place at a brightness of > 200lux.

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 pushbutton 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.

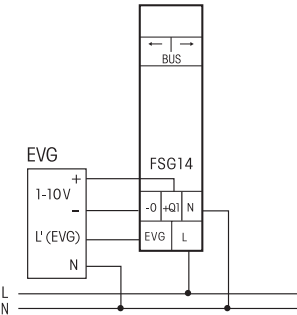
If additionally a FBH is taught-in as a slave, it is switched on when motion and target brightness are fallen short and switched off when not in motion or target brightness is exceeded. By switching off with pushbutton, the automatic control by FBH or FIH is disabled. Central pushbutton, scene pushbutton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

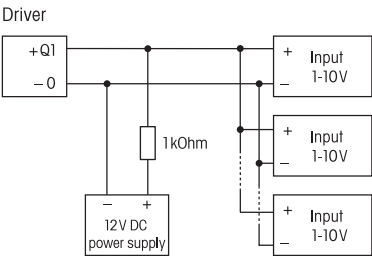
Typical connection



At more than 2 devices side by side, an half pitch must stay free for ventilation. Place the DS14 spacer on the right side and use the 1.5 pitch width jumper.

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, FB65B as Slave;
3 = universal switch on/off and dim; teach in third FBH, FB65B as Slave;
4 = teach-in 'central on'; teach in fourth FBH, FB65B 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 rotary switch and GFVS: during teaching-in, a confirmation telegrams is automatically sent if the actuator has a device address and the upper rotary switch of the FAM14 is on pos. 2. 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 anti-clockwise) 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.

Manuals and documents in further languages



http://eltako.com/redirect/FSG14*1-10V



Must be kept for later use!

We recommend the housing for operating instructions GBA14.

Eltako GmbH

D-70736 Fellbach

Technical Support English:

+49 711 94350025

technical-support@eltako.de
eltako.com