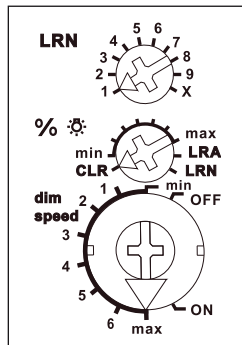


RS485 bus actuator

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  
51/16** (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.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 elec-  
tronic 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 addi-  
tional 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 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.Dependent on the set dim speed the wake  
up time is between 30 and 60 minutes.  
The dimming process is stopped by tap-  
ping briefly (e.g. on a hand-held trans-  
mitter).**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 be-  
low): With a double impulse the lighting  
is dimmed down from the current dim-  
ming position to the minimum bright-  
ness level and switched off. The current  
dimming position as well as the ad-  
justable minimum brightness level deter-  
mine 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.**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 is 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 reactivead by a short press on the switch-on side of the direction button.

#### **Storing of target brightness:**

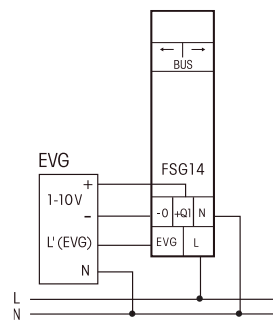
Press 'direction pushbutton for target brightness' above. The current brightness that has been sent from the FIH65B is stored.

#### **Deletion of target brightness:**

Press 'direction pushbutton for target 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.

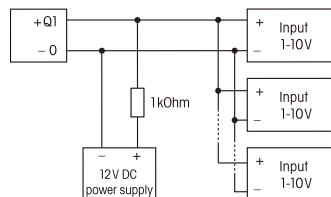
#### **Typical connection**



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

Driver



### 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.**

- Set the top rotary switch to the required teach-in function:
  - 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.

- Set the required brightness value using a previously taught-in universal switch or direction switch.
- 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.
- 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.

#### **Must be kept for later use!**

We recommend the housing for operating instructions GBA14.

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