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Eltako

Wireless actuator

PWM dimmer switch for LED
FRGBW14

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%.

PWM dimmer switch with 4 channels for LED 12-24 V DC, each up to 4 A. Adjustable minimum brightness and dimming speed. With snooze function and light alarm circuit. Additionally with light scene control via PC or with wireless pushbuttons. Standby loss only 0.1 watt.

Modular device for DIN-EN 60715 TH35 rail mounting. 2 modules = 36 mm wide, 58 mm deep.

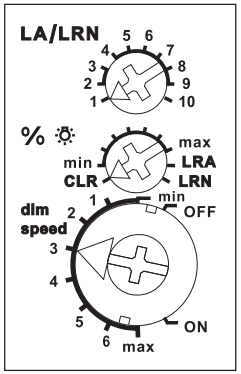
Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.

The set brightness level remains stored when switched off (memory).

In case of a power failure, the switch position and brightness level are saved and switched on when the power supply is restored.

Automatic electronic overload protection and overtemperature shutdown.

Function rotary switches



The upper rotary switch is only required for teach-in.

Use the middle % ☼ rotary switch to set the minimum brightness (fully dimmed).

Use the lower dimming speed rotary switch to set the dimming speed.

The pushbuttons can either be taught in as direction pushbuttons or universal pushbuttons: as direction pushbutton, one side is 'switch on and dim up'; the other side is 'switch off and dim down'. A double-click on the switch-on side triggers the automatic dimming up to full brightness at dim-speed. Doubleclick on the switch-off side to trigger the snooze function.

As universal pushbutton, change the direction by briefly releasing the pushbutton.

FBH wireless motion/brightness sensors can be taught in as master or slave.

FAH wireless brightness sensors can be taught in for switch-off dependent on brightness or as a twilight switch.

Pushbutton 'central off' for 1 channel: switches off.

Pushbutton 'central ON' for channel 1: switches on with the memory value.

Pushbutton 'central off' for all 4 channels: saves the current lighting scene and switches off.

Pushbutton 'central ON' for all 4 channels: switches on with the light scene where central was switched off most recently. After a power failure, the memory values are switched on.

Rotary switch: Press the middle of the rotary knob to switch on with the memory value and to switch off and save the current dimming value. Turn to the right (clockwise) to dim up. The turning speed determines the dim-up speed. If the dimming actuator was turned to the right when it was switched off, the dimmer will switch on at minimum brightness and then continue to dim up. If the rotary knob is turned jerkily – and the actuator was previously switched on or off – dimup is rapid to full brightness.

Turn to the left (anticlockwise) to dim-down to the minimum brightness which is adjusted on the dimming actuator.

The turning speed determines the dim-down speed. If the rotary knob is turned to the left jerkily, dim-down is rapid to the minimum brightness which is adjusted on the dimming actuator.

A rotary switch acting as **intensity control** must be taught-in in all channels: Press or turn to switch on. To dim up, turn to the right and to dim down, turn to the left. Press to switch off.

A rotary switch acting as **colour control** must be taught-in in all channels: Turn to the right or left to switch on and change the colour. Press to switch to white and press again to change back to colour mode.

Colour and intensity double-rocker pushbuttons must be taught-in in all channels: Press top part of right rocker to switch on and dim up; press bottom part of right rocker to switch off and dim down. Press top or bottom part of left rocker to change the colour; press twice to switch to white; press long to switch back to colour mode.

Switching for light alarm clocks: An appropriately taught-in timer wireless signal starts the wake-up function by switching on the lighting at lowest brightness and slowly dimming up to maximum brightness over a period of 30 minutes (or light scene 5). The dimming process is stopped by tapping briefly, e.g. on the hand-held transmitter.

Snooze function (Univeral or direction pushbuttons must be taught-in in all channels): 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 (max. = 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 Visualisation and Control Software GFVS. One or several FRGBW14 devices must be taught in on the PC as dimming switches with percentage brightness values or high-definition brightness values.

FBH as Master: When an FBH wireless motion detector and brightness sensor is taught in, the switching threshold at which the lighting is switched on at the brightness values of light scene 6 is defined during teach-in using the lower rotary switch. The switching threshold is dependent on the brightness in addition to motion (from approx. 30 lux in position OFF to approx. 300 lux in max position.

When 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.

By switching-off or dimming with pushbutton, the FBH is deactivated.

Central pushbutton, scene pusbhbutton and 'dimming value' by PC also lead to deactivation. A short press on the switchon side of the direction pushbutton, the FBH is reactivated.

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

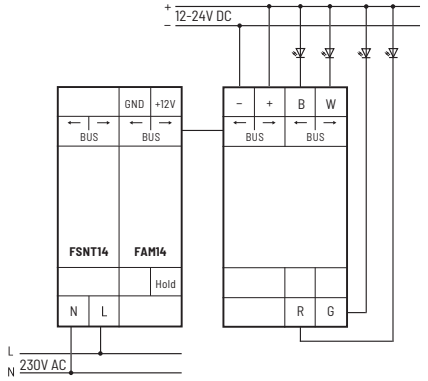
FAH as Master: When a wireless brightness sensor FAH is taught-in, the switching threshold is defined by the lower rotary switch during teach-in. The switching threshold switches the lighting off depending on the brightness. Switch-on is only possible by pressing the pushbutton.

FAH as twilight switch: When an FAH wireless brightness sensor is taught in, the switching threshold at which the lighting is switched on at the brightness values of light scene 6 is defined during teach-in using the lower rotary switch. The switching threshold is dependent on the brightness (from approx. 0 lux in position OFF to approx. 50 lux in max position.

Switch-off takes place at a brightness of > 200 Lux.

The red LED accompanies the teach-in process and indicates control commands in operation by flashing briefly.

Typical connection



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 FRGBW14

The teach-in memory is empty on delivery from the factory. To make sure that nothing has already been taught-in, clear **the memory content completely:**

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 the right stop (turn clockwise) and then turn back away from the stop. 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 116 memory locations are available.

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

1= timer as wake-up light;
Teach-in FAH or FBH as Master

2 = 'central off';
Teach-in second FBH as slave

3 = universal switch;
Teach-in third FBH as slave;

4 = 'central on';
Teach-in fourth FBH as slave

5 = Teach in direction pushbutton;
Direction pushbutton are automatically taught-in fully when pressed. Depending on where the button is pressed, the functions for switch-on and dim-up are defined on one side and switchoff and dim-down on the other side.

6 = teach in sequential light scene pushbutton, a pushbutton or half of a double pushbutton is assigned automatically.

7 = Teach in 4-way direct light scene pushbuttons (a complete pushbutton with double rocker is assigned automatically). Turn the lower rotary switch to the following position:

1= light scene pushbutton for scenes 1-4
5 = light scene pushbutton for scenes 5-8
8 = Teach in FAH as twilight switch; teach-in operating mode pushbutton; teach in intensity rotary wheel
9 = Teach in GFVS and FFD with high resolution dimming values; teach in colour rotary wheel
10 = Teach in rotary switch and GFVS; during teach-in the actuator automatically sends a confirmation telegram. Teach in dimming values of FFD; teach in colour and intensity double rocker pushbutton;

Turn the lower rotary switch to the required channel for universal pushbuttons, direction pushbuttons and central control pushbuttons.

min = all 4 channels
1 = channel 1 (red),
2 = channel 2 (green),
3 = channel 3 (blue),
4 = channel 4 (white)
5 = multicolour pushbutton, a complete pushbutton with double rocker is programmed automatically;
as universal pushbutton: top left = channel 1 red, top right = channel 2 green, bottom left = channel 3 blue, bottom right = channel 4 white;
as direction pushbutton left = channel 1 red, right = channel 2 green.
6 = multicolour pushbutton, a complete pushbutton with double rocker is programmed automatically;
as direction pushbutton left = channel 3 blue, right = channel 4 white.

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

To prevent unintentional teach-in, turn the rotary switch back to LRN for every teachin process. The LED flashes at a slow rate.

Saving light scenes
Up to four brightness values retrievable with a direct light scene pushbutton can be saved.

1. Adjust the required brightness level with a previously taught-in universal or direction switch (separate for each channel if necessary).
2. Within 60 seconds, press one of the four rocker ends of the previously taught-in direct light scene pushbutton for longer than 3 seconds but less than 10 seconds to save the brightness value.
3. Repeat from point 1 to save further light scenes.

Retrieving light scenes
Up to 8 light scenes can be retrieved:
Direct light scene pushbutton 1-4 (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).
Direct light scene pushbutton 5-8 (pushbutton with double rocker, top left = light scene 5, top right = light scene 6, bottom left = light scene 7 and bottom right = light scene 8) and/or with a sequential light scene pushbutton (pushbutton or half a double pushbutton, press top = next light scene, press bottom = previous light scene).

Special modes:
The PCT14 can be used to change the dimmer switch operating mode.
When special mode is activated (e.g. light scene switch-through), the dimmer switch is only switched on with Central ON, Central OFF, FBH or FAH.

Operating modes:
- 'Rotary switch' (factory setting)
- 'Simple light scene switch-through': Light scenes are activated (dimmed) in the set sequence and time period. 8 light scenes can be defined here.
  Various effects can be generated using the dimming speed and time setting. LS1-LS2-LS3-LS4-LS5-LS6-LS7-LS8-LS1...
- 'Light scene switch-through with switch-off': Light scenes and OFF are activated (dimmed) alternately in the set time period. LS1-AUS-LS2-AUS-LS3-AUS-LS4-AUS-LS5-AUS-LS6-AUS-LS7-AUS-LS8-AUS-LS1...
- 'Light scenes in random sequence': Light scenes are selected and activated in random sequence in the set time period.
- 'Random light scenes': Random events are triggered in the set sequence. An event may be a dim-up or dim-down operation or a light scene.

Function of the operating mode pushbutton:
Press up: normal mode ('rotary switch')
Press down: special operating mode active

Assign device address for the FRGBW14:
The rotary switch on the FAM14 is set to position 1, its lower LED ashes red.
The middle rotary switch of the FRGBW14 is set to LRN, the LED ashes smothly. After the address of the FAM14 was assigned, its lower LED ashes green for 5 seconds and the LED of the FRGBW14 goes out.
The FRGBW14 needs 6 device addresses.
4 device addresses for the feedback of the % dimming values for channels 1-4.
Then the 2 device addresses follow for the feedback for the button telegram (on/off) and the high-resolution dimming value telegram (both can be activated with PCT14).

Delete device con guration:
Set the middle rotary switch to CLR.
The LED ashes nervously.
Then turn the upper rotary switch within 10 seconds 3 times to the leftmost stop (anticlockwise) and turn it back again.
The LED stops ashing and goes out after 5 seconds. The factory settings are restored.

Delete device con guration and device address:
Set the middle rotary switch to CLR.
The LED ashes nervously.
Then turn the upper rotary switch within 10 seconds 6 times to the leftmost stop (anticlockwise) and turn it back again.
The LED stops ashing and goes out after 5 seconds. The factory settings are restored and the device address deleted.

Configure FRGBW14:
The following points can be configured using the PC PCT14 tool:
- Teach in pushbuttons with single or double click.
- Behaviour after power failure
- Minimum brightness
- Brightness for light scenes
- Preselect colour of light scenes
- Operating mode
- Time for special operating mode
- Send dimming value in % : **ON** or OFF
- Send pushbutton telegram ON (0x70) and OFF (0x50): **OFF** or ON
- Confirmation telegrams
- Confirmation flickering when scenes are saved
- PWM frequency (250 Hz, **500 Hz,** 1kHz, 2 kHz, 4 kHz)
- Dimming speeds
- Dim-down delay for motion detector
- Light alarm time period
- Snooze function time period
- Add or change sensors

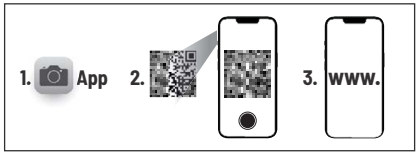
Technical data

Supply voltage for LED	12-24V DC
Max current at PWM frequency 250Hz and 500Hz	4x 4A
1kHz	4x 3,2A
2kHz	4x 2,4A
4kHz	4x 1,6A

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/FRGBW14



Must be kept for later use!
We recommend the housing for operating instructions GBA14.

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