Eltako
ELECTRONICS

RS485 bus dimming actuator Light scene controller FLS12UD-12V DC with universal dimmer switch

CE

Universal dimming actuator 1 channel, Power MOSFET up to 500W, ESL up to 100W and LED up to 100W. Only 0.3 watt standby loss. Stores up to 40 light scenes for a group of dimmable energy saving lamps ESL, incandescent lamps and halogen lamps. Also with light scene control by PC or wireless pushbuttons.

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

Universal dimmer switch for R, L and C loads up to 500 watts, depending on ventilation conditions. Automatic detection of load R+L or R+C. ESL and LED is manually settable. Dimmable energy saving lamps ESL up to 100 watts and dimmable 230V LED lamps up to 100 watts.

Zero passage switching with soft ON and soft OFF to protect lamps.

The 12V DC supply voltage of the complete RS485 bus is mainly powered at 6W, 12W or 24W by a switch mode power supply unit SNT12-12V DC that is only 1 or 2 pitch units wide. The power consumption of the 12V DC power supply is only 0.05W.

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. Automatic electronic overload protection and overtemperature switch-off.

Connection to the Eltako RS485 Bus, terminals RSA and RSB. Up to a total of 128 actuators can be added in this way.

Function of FLS12UD-12V DC

All FLS12 in a room can be switched in series to obtain light scenes. The brightness of each lamp group is manually adjustable and the entire light scene can then be taught-in. Up to 40 light scenes are programmable. Up to 10 light scenes are retrievable sequentially with only one pushbutton. Up to 30 additional light scenes are directly retrievable with single assigned pushbuttons.

Each FLS12 or FLS12 groups can also be switched and dimmed individually with direction switches. There are a total of 35 light scene and individual pushbuttons on each FLS12. Retrieving a light scene overrides an individual setting.

A wireless transmitter module FSM12 or FSM61 appropriately taught-in via a wireless antenna module FAM12-12V DC has the same function as a light scene switch. Specific light scenes can then be retrieved with event-dependent or time-dependent control.

Position R,L,C is the setting for all load types except for ESL and LED. In particular for 230V glow and halogen lamps. The load type, inductive or capacitive, is detected automatically.

The setting ESL considers the special conditions regarding dimmable energy saving lamps: The starting operation is optimized and adapted to the dimming curve. In this setting no wound (inductive) transformer must be dimmed.

The position LEDs take account of special conditions with dimmable 230V LED lamps: A number of different dimming curves are available. An updated list with dimming curve assignment for commercially available dimmable 230V LED lamps is ready for downloading at **www.eltako.com/dimming_curve/LED_gb.pdf.** In these settings no wound (inductive) transformer must be dimmed.
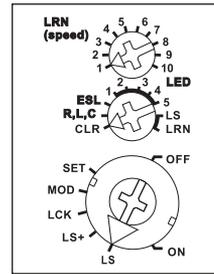
Light scenes on the PC are set and retrieved using the Wireless Visualisation and Control Software FVS. One or several FLS12UD devices must be taught in on the PC as dimming switches with percentage brightness values.

Lights scenes with wireless pushbuttons are taught in on the FLS12UD device. Either four sequentially retrievable brightness values (press up = next light scene, press down = previous light scene) and/or up to four brightness values taught in a light scene pushbutton with double rocker.
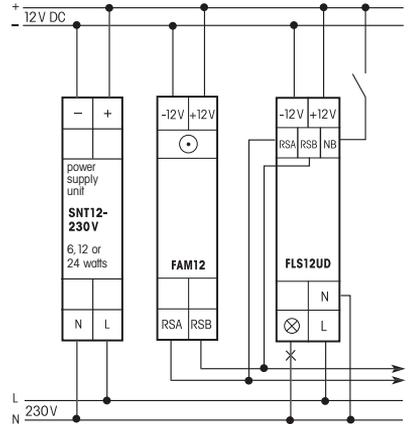
Motion detection with taught-in wireless motion detector FBH. The light switches off automatically after 15 minutes provided no more motion is detected.

The LED below the upper function rotary switch performs during the teach-in process according to the operation manual. It shows control commands by short flickering during operation.

Function rotary switches

Typical connection various wireless actuators

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 FLS12UD

⚠ Also the mains connection N/L is required for teach-in.

The teach-in memory is empty on delivery from the factory. If you are unsure whether the teach-in memory contains something or not, you must first **clear the memory contents 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.

Light scene teach-in is carried out after completion of the electrical installation. Set the bottom rotary switch of all FLS12 to 'ON' or 'OFF' for function tests.

1. First a shared **direction switch is taught-in** for all FLS12's required to control the light scenes in a room. This is a FT4 wireless pushbutton rocker or a wireless FHS8 or FHS12 hand-held transmitter.

1a. **Teaching-in the "learn pushbutton"**
    Here set the top learn ('LRN') rotary switch to position 5 and the middle rotary switch to 'LRN'. The LED on the FLS12 flashes at a low rate. Then briefly press the rocker at the top or bottom and the LED on the FLS goes out. From then on the required brightness stages can be adjusted for the light scenes using this "learn pushbutton".

1b. **Teaching-in the sequential light scene pushbutton**
    Here set the top learn ('LRN') rotary switch to position 3 and the middle rotary switch to 'LRN'. The LED on the FLS12 flashes at a low rate.Then briefly press the rocker at the top or bottom and the LED on the FLS goes out.
    Using this just taught-in sequential light scene pushbutton the sequential light scene can be retrieved later. A double-click at the top will switch all the lamp groups to full brightness. The light scenes can then be called up again in ascending order (top switch) or descending order (bottom switch). Additional direct light scene retrieval functions cannot be assigned to the sequential light scene pushbutton.

1c. No teach-in position need be carried out for FBH and PC.

2. Then set the bottom rotary switch to LOCK ('LCK') on all FLS12's.

3. **Teaching-in the sequential retrievable light scenes**

3a. Turn the middle rotary switch to the required load type R,L,C, ESL or LED.

3b. Set the bottom rotary switch to 'MOD'.

3c. Set the top rotary switch to the required light scene position (1 to 10).

3d. Adjust the required brightness, using the "learn pushbutton" taught-in at the beginning.

Even if the lamp group in a light scene needs to be switched off, it must be taught-in now by switching off the "learn pushbutton" at the bottom.

3e. Turn the bottom rotary switch to 'SET', the LED on the FLS lights up and goes out after 2 seconds.
    To store further light scenes continue with step 3b.

4. **Teaching-in the directly retrievable light scenes**

4a. Set the bottom rotary switch to 'LS+'.

4b. Use the upper rotary switch to set the required dim speed.
    1 = very slow to 10 = very fast.
    We advise you to select position 5 unless you have your own experiences.

4c. Turn the middle rotary switch to the required load type R,L,C, ESL or LED.

4d. Adjust the required brightness, using the "learn pushbutton" taught-in at the beginning.
    Even if the lamp group in a light scene needs to be switched off, it must be taught-in now by switching off the "learn pushbutton" at the bottom.

4e. Set the middle rotary switch to 'LS', the LED flashes at a low rate.

4f. Operate the required light scene pushbutton and the LED on the FLS goes out.
    To store further light scenes continue with step 4b.

Before returning to normal mode, set the middle rotary switch to the appropriate load type R,L,C, ESL or LED on all FLS12UDs in the light scene. Then set the top rotary switch to the same number of taught-in sequential light scenes on all FLS12UDs.

The bottom rotary switch can be used to control the settings in automatic mode for each lamp group.

ON = light on with full brightness.

LS = light scenes are only retrievable and can not be changed.

LS+ = light scenes are retrievable and can only be changed temporarily using the "learn pushbutton".

OFF = light off.

If individual lamp groups can be influenced temporarily and manually, only an additional direction switch in each case need to be taught-in for one or more FLS12's as described in '1a'. In total up to 4 pushbuttons can be taught-in for each FLS12 without reducing the 40 storage places of the light scenes. Accordingly if fewer light scenes are taught-in, more pushbuttons are available.

Teach-in **central control functions** in the same way as light scenes. When teaching-in 'Central OFF' all lamp groups must be in position 'switched off'. 'Central ON' needs to be taught-in at a required brightness level.

Brightness for emergency lighting: As long as the control input NB is connected to +12 V DC, it is dimmed to the maximum brightness. All wireless signals are ignored then.

⚠ 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.

Important Note!

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