Eltako
ELECTRONICS

Wireless actuator

Universal dimmer switch

FUD70-230V

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 24/12 (see bottom side of housing)

Universal dimmer switch, power MOSFET up to 400W. Automatic lamp detection. With adjustable minimum brightness or maximum brightness and dimming speed. With switching operation for light alarm clocks, children's rooms and snooze function. Also with light scene control by PC or wireless pushbuttons. Bidirectional wireless and with repeater function. Only 0.6 watt standby loss.

Mounting in the 230V power supply cord, e.g. in false ceilings. 100mm long, 50mm wide and 31mm deep.

Starting in production week 24/2012 with **bidirectional wireless;** in addition, a **repeater** function can be switched in. Every change in state and incoming central command telegrams are confirmed by a wireless telegram. This wireless telegram can be taught-in in other actuators, in the FVS software and in FUA55 universal displays.

Universal dimmer switch for lamps up to 400W, depending on ventilation conditions. Dimmable energy saving lamps ESL and dimmable 230V LED lamps, additionally depending on the lamps electronics.

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

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.

Function rotary switches
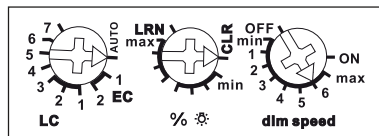
The left rotary switch determines the operation, whether automatic lamp detection or special comfort positions should work:

AUTO allows the dimming of all lamp types.

EC1 is a comfort position for energy saving lamps, which which by design must be turned on with an increased voltage so that they switch on again in cold state when dimmed down.

EC2 is a comfort position for energy saving lamps, which by design won't switch on again when dimmed down. Therefore Memory is switched off in this position.

LC1 is a comfort position for LED lamps, which by design won't be dimmed down enough in the AUTO position (trailing phase angle) and therefore has to be forced to leading phase angle.

LC2 and **LC3** are comfort positions for LED lamps like LC1 but with different dimming curves.

In positions EC1, EC2, LC1, LC2 and LC3 inductive (wound) transformers may not be used. In addition, the maximum number of dimmable LED lamps may be lower by design than in the AUTO position.

The minimum brightness (fully dimmed down) or maximum brightness (fully dimmed up) is adjustable with the middle %☼ rotary switch. In the setting LRN up to 30 pushbuttons can be assigned, of which one or more central pushbuttons.

The dimming speed is adjustable **using the right dimming speed rotary switch on the side.** At the same time, the soft ON and soft OFF periods are changed.

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

When installed as a direction switch, one side is then 'switch on and dim up' and the other side is 'switch off and dim down'. A double-click on the switch-on side activates automatic dim-up to full brightness at dim speed. A double click on the switch-off side activates the snooze function. The children's room function is implemented on the switch-on side.

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 the hand-held transmitter. At setting ESL the switching for light alarm clocks is not possible.

Switching operation for children's rooms (universal switch or direction switch on the switch-on side): If the light is switched on by holding down the pushbutton, 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 on the switch-off side): 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. = 60 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 FVS. A description of the FVS is at "eltako-wireless.com". One or several FUD70 devices must be taught in on the PC as dimming switches with percentage brightness values.

Lights scenes with wireless switches are taught-in on the FUD. 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).

Either a FBH or FAH can be taught-in.

If a **wireless motion-brightness sensor FBH** is taught-in, the switching threshold will be set with the right rotary switch while teaching-in, in which, depending on the brightness (in addition to the movement), the lighting turns on with memory voltage (approximately 30 lux in the OFF position and up to 300 lux in the max position). If the FBH is taught-in in the ON position, it will only be evaluated as a motion detector. A delay of 1 minute is fixed in the FBH.

If a **wireless brightness sensor FAH** is taught-in, the switching threshold will be set with the right rotary switch while teaching-in, in which, depending on the brightness, the lighting turns on or off (approximately 0 lux in the OFF position and up to 50 lux in the ON position). When falling below the brightness threshold, it will be turned on with memory value. It will be turned off at a brightness > 200lux.

The LED on the side behind the left rotary switch performs during the teach-in process according to the operation manual. It shows wireless control commands by short flickering during operation.

Tecnical data

Incandescent and halogen lamps[1] 230V (R)	up to 400W
Inductive transformers (L)	up to 400W [2] [3]
Electronic transformers (C)	up to 400W [2] [3]
Dimmable energy saving lamps ESL	up to 400W [5]
Dimmable LEDs	up to 400W [5]
Max./min. temperature at mounting location	+50°C/-20°C [4]
Standby loss (activ power)	0.6W

[1] For lamps with a maximum of 150W.

[2] Per dimmer it is only allowed to use max. 2 inductive (wound) transformers of the same type, furthermore no-load operation on the secondary part is not permitted. Possibly the dimmer switch will be destroyed! No load-switching-off on the secondary part is allowed. The parallel operation of inductive (wound) and capacitive (electronic) transformers is not allowed!

[3] **When calculating the load 20% loss has to be considered for inductive (wound) transformers and 5% loss in addition to the lamp load.**

[4] Affects the maximum switching power.

[5] Usually applies for dimmable energy saving lamps and dimmable 230V LEDs. Due to differences in the lamps electronics, there may be limited dimming range, switch on and off problems dependent on the manufacturer and a restriction on the maximum number of lamps; especially if the connected load is very low (for 5W-LEDs). The comfort positions EC1, EC2, LC1, LC2 and LC3 optimize the dimming range, which, however, only gives a maximum power up to 100W. No inductive (wound) transformers may be dimmed in these comfort positions.

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 FUD70-230V

⚠ Before starting the teach-in process, connect the device and plug in the power supply unit.

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 left 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

1. Setting of the left rotary switch to the desired teaching-in function:

AUTO = timer as wake-up light;

EC1 = teach-in 'central off';

EC2 = universal switch on/off and dim;
Universal switches must be taught-in identically at top and bottom if the switch is to have the same function at top and bottom.

LC1 = teach-in 'central on';

LC2 = direction switch top means 'switch on and dim up', direction switch bottom means 'switch off and dim down';
Direction switches are automatically taught-in completely by pressing top or down.

LC3 = teach in sequential light scene pushbutton, a pushbutton or half of a double pushbutton is assigned automatically;

LC4 = teach in direct light scene pushbutton, a complete pushbutton with double rocker is assigned automatically;

LC5 = teach in a PC using the Wireless Visualisation and Control Software FVS. The percentage brightness can be set there between 0 and 100 per cent and saved. Several dimmer switches can be linked to form a light scene.

LC6 = direction switch bottom means 'switch on and dim up', direction switch top means 'switch off and dim down';

Direction switches are automatically taught-in completely by pressing top or bottom.

2. Set the middle rotary switch to LRN. The LED flashes at a low rate.

3. Operate the sensor which should be taught-in. The LED goes out.

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

After teaching-in with the left rotary switch set the type of load. Either set the minimum or maximung brightness with the middle rotary switch. Set the dimming speed with the right rotary switch.

Saving light scenes

Up to four brightness values can be saved using a direct light scene pushbutton.

1. Set the left rotary switch to the required operating mode AUTO or EC or LC.

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

3. Within 60 seconds, this brightness value will be stored by pressing one of the four rocker ends of a previously taught-in light scene pushbutton for 3-5 seconds.

4. To save other light scenes, repeat from point 2.

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).

Switching on/off repeater:

Set the middle rotary switch to LRN. Switch on supply voltage. The repeater is switched on or off. When the power supply is switched on, the LED lights up for 2 seconds = repeater off (as-delivered state) or 5 seconds = repeater on to indicate the state.

Teaching-in feedback of this actuator in other actuators or FVS software:
For turning on and off and simultaneously transmitting of feedback the right rotary switch has to be applied.

Teaching-in feedback of other actuators in this actuator:
'Switch on' will be taught-in in position 'central ON'. 'Switch off' will be taught-in in position 'central OFF'.
After teach-in the function and desired minimum brightness or maximum brightness will be set.

⚠ 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!

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