GB
30 100 835 - **10**

Eltako ELECTRONICS

Wireless actuator

Universal dimmer switch
FUD61NPN-230V

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 46/17 (see bottom side of housing)

Universal dimmer switch, 300W power MOSFET. Automatic lamp detection. Only 0.7 watt standby loss. With adjustable minimum brightness or dimming speed. With switching operation for light alarm clocks, children's rooms and snooze function. Additionally with light scene control. Encrypted wireless, bidirectional wireless and repeater function are switchable.

For installation.
45mm long, 45mm wide, 33mm deep.

Universal dimmer switch for lamps up to 300W, dependent on ventilation conditions. Dimmable energy saving lamps ESL and dimmable 230V-LED lamps, additionally dependent on the lamps electronics.

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

Supply voltage, switching voltage and control voltage local 230V. No minimum load.

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.

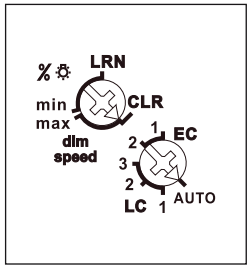
Automatic electronic overload protection and overtemperature switch-off.

You can teach in encrypted sensors.

You can switch on **bidirectional wireless** and/or a **repeater** function.

Every change in state and incoming central command telegrams are then confirmed by a wireless telegram.
This wireless telegram can be taught-in into other actuators, FUA55 universal displays and the GFVS-Software. The current dimming value is also displayed in % in the GFVS-Software.

Function rotary switches



The minimum brightness (fully dimmed) or the dimming speed is adjustable **with the upper %☼/dimming speed rotary switch.**

The lower rotary switch determines the operation, whether the automatic lamp detection or special comfort positions should act:

AUTO allows the dimming of all light species.

EC1 is a comfort position for energy saving lamps which must be switched on with increased power dependent on the construction, so they will also switch on again safely in cold condition when dimmed down.

EC2 is a comfort position for energy saving lamps which will not be switched on again when dimmed down dependent on the construction. Memory is switched off in this position.

LC1 is a comfort position for LED lamps which are not being dimmed down enough when set to AUTO (trailing phase angle) dependent on the construction and must therefore 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 no inductive (wound) transformers should be used. In addition, the maximum number of dimmable LED lamps can be lower than in the AUTO position dependent on the construction.

In addition to the wireless control input via an internal antenna, this universal dimmer switch can also be controlled locally by a conventional 230V control switch if fitted previously. Either separate local control inputs for dim brighter and dim darker as a direction switch, or these two inputs can be bridged and controlled with a single switch as a universal switch. The dimming direction can then be changed by interrupting the control. Short control commands switch on/off.

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

As direction button 'switch on and dim up' is on one side and 'switch off and dim down' on the other side. A double-click on the switch on side triggers the automatic dimming up to full brightness with dim speed time. A double-click on the switch off side triggers the snooze function. The children's room function is triggered on the switch on side. **As a universal pushbutton** the direction change is made by briefly releasing the push-button.

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 is no switching for light alarm clocks 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 without modifying the last stored brightness level.

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 GFVS.
One or several FUD71 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 FUD61NPN device. Up to four brightness values which can be taught-in in light scene pushbuttons with double rocker.

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.

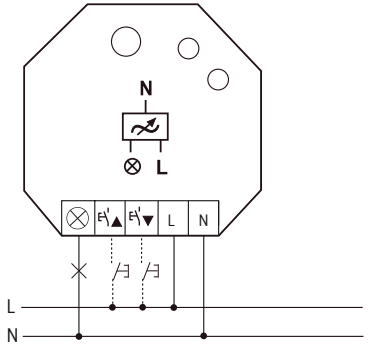
Either an FBH (Master) or an FAH can be taught in.

If a **wireless motion-brightness sensor FBH (Master)** is taught in, the switching threshold at which the lighting with memory value switches on (from approx. 30 lux in the position AUTO to approx. 300 lux in the position EC2) depending on the brightness (in addition to the motion) is determined with the lower rotary switch during teach-in. If the FBH is taught in in position EC1, it is only evaluated as a motion sensor (Slave). A dropout delay of 1 minute is fixed in the FBH.

If a **wireless brightness sensor FAH** is taught in, the threshold at which the lighting switches on or off (from approx. 0 lux in the position AUTO to approx. 50lux in the position EC1) depending on the brightness is determined with the lower rotary switch. In the "%brightness" mode, switching on takes place with the memory value on dropping below the brightness threshold. Switching off takes place at a brightness of > 200lux. In the "dim speed" mode the taught brightness threshold is not evaluated. The lighting is switched on and the dimmer turned up to maximum brightness when it is dark. The lighting is dimmed continuously as the surroundings become brighter. The lighting is switched off at a brightness of > 200lux.

The LED performs during the teach-in process accord ing to the operation manual. It shows wireless control commands by short flickering during operation.

Typical connection



Technical data

Incandescent and halogen[1] lamps 230 V (R)	up to 300 W
Inductive transformers (L)	up to 300 W[2)3)]
Electronic transformers (C)	up to 300 W[2)3)]
Dimmable energy saving lamps ESL[5)]	up to 300 W
Dimmable 230 V LEDs[5)]	up to 300 W
Max./min. temperature at mounting location	+50°C/-20°C[4)]
Standby loss (activ power)	0.7 W

1) For lamps with 150 W max.

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. The dimmer might be destroyed. Therefore do not permit load breaking on the secondary part. Operation in parallel of inductive (wound) and capacative (electronic) transformers is not permitted!

3) **When calculating the load a loss of 20 % for inductive (wound) transformers and a loss of 5 % for capacitive (electronic) transformers must be considered in addition to the lamp load.**

4) Affects the max. switching capacity.

5) Usually applies for dimmable energy saving lamps and dimmable 230 V LED lamps. 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 5 W-LEDs). The comfort positions EC1, EC2, LC1, LC2 and LC3 optimize the dimming range, which, however, only gives a maximum power up to 100 W. 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 FUD61NPN-230V

The teach-in memory is empty on delivery from the factory. To ensure that a device was not previously taught-in, **clear the memory completely:**

Turn the upper rotary switch to CLR. The LED flashes at a high rate. Within 10 seconds, turn the lower 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; the repeater and the confirmation telegrams are switched off.

Clear single taught-in sensors:

Turn the upper rotary switch to CLR. The LED flashes at a high rate. Operate the sensor. The LED goes out.

If all the functions of an encrypted sensor are cleared, teach-in must be repeated as described under *Teach-in encrypted sensors.*

Teaching-in sensors:

1. **Setting of the lower rotary switch** to the desired teaching-in function:
   The flashing of the LED as soon as a new setting range has been reached when turning the rotary switch helps to find the desired position reliably.
   EC2- = timer as wake-up light;
   LC1 = teach-in 'central off';
   LC2 = 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.
   LC3 = teach-in 'central on';
   EC1 = Direction switches;
   Direction switches are fully taught-in automatically when pressed. Where you press defines the switch-on and dim-up functions; the opposite side is then for switch-off and dim-down.
   AUTO = teach in light scene push-button, a complete pushbutton with double rocker is assigned automatically;
   The FB65B can be taught-in in any position.
   Rotary switches and GFVS can be taught-in in any position, confirmation telegrams are automatically activated and sent. The percentage brightness can be set in the GFVS between 0 and 100 per cent and saved. Several dimmer switches can be linked to form a light scene.
2. **Set the upper 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 upper rotary switch briefly away from position LRN. Continue the procedure from pos 1.

After teach-in, set the rotary switches of the actuators to the required function.

in pushbuttons by 'double-clicking' (pressing rapidly twice in succession).

Within 2 seconds, turn the upper rotary switch three times to right stop LRN (turn clockwise). The LED flashes 'double'.

'Double-click' the pushbutton you want to teach in. The LED goes out.

To change back to teach-in with a 'single click', turn the upper rotary switch 3 times to right stop LRN (clockwise) within 2 seconds. The LED flashes at a low rate.

After a power supply failure, the device reverts automatically to teach-in with a 'single click'.

You can teach in unencrypted and encrypted sensors.

Teach in encrypted sensors:

1. Turn the upper rotary switch to LRN.
2. Turn the lower rotary switch three times to left stop (anticlockwise).
   The LED flashes very rapidly.
3. Within 120 seconds, enable sensor encryption. The LED goes out.
   Caution: Do not switch off the power supply.
4. Then teach in the encrypted sensor as described in *Teach in sensors.*

To teach in other encrypted sensors, turn the upper rotary switch briefly away from position LRN and then turn it to 1.

With encrypted sensors, use the 'rolling code', i.e. the code changes in each telegram, both in the transmitter and in the receiver.

If a sensor sends more than 50 telegrams when the actuator is not enabled, the sensor is no longer recognised by the enabled actuator and you must repeat teach-in as 'encrypted sensor'. It is not necessary to repeat the function teach-in.

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 push button or with the GFVS.
2. Within 60 seconds, this brightness value will be stored by pressing a button 3-5 seconds on one of the four ends of the rocker of the previously taught-in direct light scene pushbutton.
3. Repeat from point 1 to save further directly retrievable light scenes.

Recalling light scenes:

Press one rocker of the scene pushbutton briefly to recall the scene you require.

Switching the repeater on and off:

The repeater is switched on or off if the control voltage is applied to the local ▼ control input when connecting the supply voltage. The LED lights up for 2 seconds as a status signal when applying the supply voltage = repeater off (as-delivered state) or 5 seconds = repeater on.

Switch-on confirmation telegrams:

For deliveries ex-works the confirmation telegrams are switched-off. Set the upper rotary switch to CLR. The LED flashes nervously. Now within 10 seconds turn the bottom rotary switch 3 times to the left (anticlockwise) and then back away. The LED stops flashing and goes out after 2 seconds. The confirmation telegrams are switched-on.

Switch-off confirmation telegrams:

Set the upper rotary switch to CLR. The LED flashes nervously. Now within 10 seconds turn the bottom rotary switch 3 times to the left (anticlockwise) and then back away. The LED goes out immediately. The confirmation telegrams are switched-off.

Teaching-in feedback of this actuator in other actuators or GFSV software

For switching ON and OFF and simultaneously transmitting of feedback the local control input 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 the desired minimum brightness or dimming speed 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.

EnOcean wireless

Frequency	868.3 MHz
Transmit power	max. 10 mW

Hereby, Eltako GmbH declares that the radio equipment type FUD61NPN-230V is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: eltako.com

Must be kept for later use!

Eltako GmbH

D-70736 Fellbach

Technical Support English:

☎ Michael Thünte +49 176 13582514

✉ thuente@eltako.de

☎ Marc Peter +49 173 3180368

✉ marc.peter@eltako.de

eltako.com

46/2017 Subject to change without notice.