

Wireless actuator



Constant light controller
with universal dimmer switch
FKR70UD-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%.

Power MOSFET up to 400W. Automatic lamp detection. Only 0.6 watt standby loss. Motion-dependent and brightness-dependent light control of dimmable energy saving lamps ESL and 230V LED lamps, incandescent and halogen lamps with the wireless motion/brightness sensor FBH or wireless outdoor brightness sensor FAH.

Mounting in the 230V power supply cord, e.g. in false ceilings. 100mm long, 50mm wide and 25mm deep.

Universal dimmer switch for lamps up to 400W, 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.

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.

The wireless constant light controller receives its information from one or several wireless sensors FAH or FBH and then controls the output or switches the light on or off. Since incandescent lamps and halogen lamps have a large infrared per-

centage like daylight, these lamps can only be controlled by measuring the brightness outside the building by a wireless outdoor brightness sensor FAH acting as master. Motion detection takes place inside the room by a FBH acting as slave. Dimmable energy saving lamps and LED require only a FBH inside the room for brightness control and motion detection.

The operation modes 4 and 5 with automatic lamp detection allow the dimming of all lamp types.

The operation modes 1, 2 and 3 are comfort operation modes for energy saving lamps (ESL) 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.

The operation modes 0, 10, 20 and 30 are comfort operation modes for 230V LED lamps which are not being dimmed down enough when set to BA 4 and 5 (trailing phase angle) dependent on the construction and must therefore be forced to leading phase angle.

In the comfort operation modes no inductive (wound) transformers should be used. In addition, the maximum number of dimmable LED lamps can be lower than in the operation modes 4 and 5 dependent on the construction.

With one wireless pushbutton or wireless hand-held transmitter the automatic system can be overloaded to a preset value in order to dim the light for a beamer presentation, for example.

Several FBHs can be taught-in in a constant light controller. As long as one of the motion detection sensors detects activity, the necessary lighting remains on and only after all FBHs report no activity for 1 minute does the adjustable time delay RV commence.

Only a FBH in operation mode BA 1, 2 or 3, otherwise a FAH provides constant light control.

The FBHs and FAHs can also be taught-in in several constant light controllers. This not only allows an increase in the total switching capacity but also the set-up of zones with different brightness settings

by setting different basic brightness values GH. Several independent constant light controller systems can be installed simultaneously.

To teach-in wireless pushbuttons and wireless hand-held transmitters, one rocker is taught-in as direction switches.

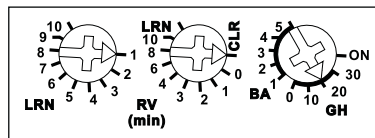
Tap the bottom part to switch the light off. Press the top or bottom to dim up or down. This shifts the control automatic towards brighter or darker. A double tap on the bottom part dims down to the taught-in value 'Beamer Presentation'. When the light is switched off and the top part is held down, the light is dimmed up from the lowest brightness level until the rocker is released.

Resetting to automatic control is effected either by automatic light switch-off or by double-tapping the top direction switch.

The beamer brightness can additionally be taught-in in a further universal switch.

In addition to the beamer brightness the minimum brightness can be set and stored.

Function rotary switches on the side



The left rotary switch LRN is required for teach-in and for setting the base brightness.

The middle rotary switch RV is set after teach-in to the required delay time from 0 to 10 minutes, provided a FBH is available. There is also an additional 1 minute of FBH.

The base brightness **GH** dependent on use of the room is set **with the right rotary switch plus the upper rotary switch** adding the adjusted values. The smallest settable value is 1 (0+1), the largest value is 40 (30+10). The normal setting is approx. at 21.

The LED on the side below the left rotary switch accompanies the teach-in process as described in the operation manual. It indicates control commands by short flickering during operation.

Technical data

Incandescent and halogen ¹⁾ lamps 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 ⁵⁾	up to 400W
Dimmable 230V LEDs ⁵⁾	up to 400W
Max./min. temperature at mounting location	+50°C/-20°C ⁴⁾
Standby loss (activ power)	0.6W

¹⁾ For lamps with 150W 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 capacitive (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 230V 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 5W-LEDs). The comfort positions ESL and LED 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 FKR70UD-230V

 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 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 or sensors of a channel 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, operation modes and brightness values

In the constant light controller not only sensors are taught-in, but also operation modes and brightness values. Therefore, please keep to the order A to C.

A: Teaching-in sensors

1. Set the left rotary switch to the required teach-in function:
 - 1 = teach-in universal switch to call the brightness for a beamer presentation if required
 - 2 = teach-in 'central OFF', if required
 - 4 = teach-in 'central ON', if required
 - 5 = teach-in direction switch.
 - Top 'switch on and dim up' and bottom 'switch off and dim down'
 - 6 = teach-in master FBH or FAH
 - 7 = teach-in slave FBHs
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. Operate the direction switch only above or below.

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

B: Storage of the operation mode

1. Set the left rotary switch to 9.
2. Set the right rotary switch to the required function:
 - 4 = fully automatic with automatic lamp detection**
(for brightness-dependent and motion-dependent switch-on and switch-off of ESL),

5 = semiautomatic with automatic lamp detection

(only for brightness-dependent and motion-dependent switch-off of ESL),

- 1 = fully automatic ESL**
(for brightness-dependent and motion-dependent switch-on and switch-off of ESL),

2 = semiautomatic ESL

(only for brightness-dependent and motion-dependent switch-off of ESL),

3 = switch-off of ESL is brightness-dependent

(only for brightness-dependent switch-off of ESL, the motion sensor inside the FBH is then inactive),

0 = fully automatic 230 V LED lamps (dimming curve 1)

10 = semiautomatic 230 V LED lamps (dimming curve 1)

20 = fully automatic 230 V LED lamps (dimming curve 2)

30 = semiautomatic 230 V LED lamps (dimming curve 2)

3. Turn the middle rotary switch to LRN. The LED flashes 1 second, then it goes out.

C: Storage of the definitely adjustable brightness values

1. Set LRN to 10.
2. Turn the middle rotary switch away from position LRN and set the right rotary switch to 1 or 2:
 - 1 = **Brightness for the beamer presentation**
 - 2 = **Minimum brightness.**
The lamps are dimmed down depending on the brightness to the adjusted minimum brightness. Below is completely switched off.
3. Press and hold down the upper part of the direction switch that is already taught-in for some time to switch on and adjust the required brightness.
4. Turn the middle rotary switch to LRN. The LED flashes 1 second, then it goes out.
To store further brightness values, turn the middle rotary switch away from position LRN.

Continue the procedure from pos 2.

After teach-in A, B and C, set the middle rotary switch to the required off delay RV. Adjust the required basic brightness GH with the other rotary switches. Both settings can be changed at any time.



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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