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Eltako ELECTRONICS

Wireless actuator CE

Heating/cooling relay FHK61/8-24 V UC

1 NO contact potential free 10 A/250 V AC.
Only 0.3-0.8 watt standby loss.

For installation.
45 mm long, 55 mm wide, 33 mm deep.

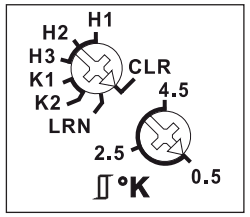
Supply voltage 8 to 24 V UC.

This wireless actuator features state-of-the-art hybrid technology that we developed: we combined the wear-free receiver and evaluation electronics with a bistable relay.

By using a bistable relay coil power loss and heating is avoided even in the on mode. After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

This heating/cooling relay evaluates the information from wireless temperature controllers or sensors. Possibly supplemented by window/door contacts, motion detector, Hoppe window handles and wireless pushbuttons.

Function rotary switches



Left rotary switch for operating modes:

H1: Heating operation with PWM control at T = 4 minutes. (suitable for valves with thermoelectric valve drive)

H2: Heating operation with PWM control at T = 15 minutes. (suitable for valves with motor-driven valve drive)

H3: Heating operation with 2-point control.

K1: Cooling operation with PWM control at T = 15 minutes.

K2: Cooling mode with 2-point control.

Switchover is visualised by LEDs flashing.

Right rotary switch for adjustable hysteresis and PWM influence:
Left stop: lowest hysteresis 0.5°.
Middle position: hysteresis 2.5°.
Right stop: largest hysteresis 4.5°.

Inbetween, divisions in steps of 0.5° visualised by LEDs flashing.

Two-point control mode:
The hysteresis rotary switch sets the required difference between the switch-on and switch-off temperatures.
When the 'actual temperature >= reference temperature', the device is switched off.
When the 'actual temperature <= (reference temperature - hysteresis)', the device is switched on.
The signs are the opposite in cooling mode.

PWM control mode:
The hysteresis rotary switch set the required temperature difference at which the device is switched on at 100%. When the 'actual temperature >= reference temperature', the device is switched off.
When the 'actual temperature <= (reference temperature - hysteresis)', the device is switched on at 100%.
If the 'actual temperature' lies between the 'reference temperature - hysteresis' and the 'reference temperature', the device is switched on and off with a PWM in steps of 10% depending on the temperature difference. The lower the temperature difference, the shorter the switch-on time. As a result of the settability of the 100% value, the PWM can be adapted to the heater size and inertia. The signs are the opposite in cooling mode.

In heating mode, the **frost protection function** is always enabled. As soon as the actual temperature drops below 8°C, the temperature is controlled in the selected operating mode to 8°C.

If one or several windows are open, the output remains off **provided the window/door contacts FTK or Hoppe handles** are taught-in. In heating mode, however, the frost protection remains enabled.

As long as all taught-in **motion detectors FBH** detect no motion, the device is switched to setback mode. In heating mode, the reference temperature is set back by 2°; in cooling mode, it is raised by 2°. As soon as a motion detector signals movement again, the device is switched to normal mode.

When a **wireless pushbutton FT4** is taught-in, the assignment of the 4 keys is assigned with the following fixed functions: Top right: Normal mode (can also be enabled by timer). Bottom right: Night setback mode by 4°; in cooling mode, raised by 4° (can also be enabled by timer). Top left: Setback mode by 2°, in cooling mode, raised by 2°. Bottom left: Off (in heating mode, frost protection enabled; in cooling mode permanent off). If the motion detector and wireless pushbutton are taught-in at the same time, the last telegram received is always the one that is valid. A motion detector therefore switches off a setback mode selected by wireless pushbutton when a movement is detected.

Teaching in the reference temperature of the temperature controller and temperature sensor:

On the temperature controller FTR, it does not matter what the position of the hysteresis rotary switch is since the reference temperature is adjustable.

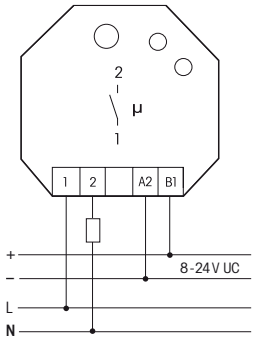
Temperature sensors FTF:
The position of the hysteresis rotary switch defines the reference temperature during the teach-in process. In middle position (2.5), the reference temperature is 21°C. It is adjustable in steps of 1° from 17°C for left stop (0.5) to 25°C for right stop (4.5). In operation, the rotary switch then determines hysteresis again.

Only one temperature sensor can be taught-in at one time. During teach-in, a sensor that is already taught-in is automatically erased.

Malfunction mode:
If no wireless telegram is received from a temperature sensor for more than 1 hour, the LED blinks at a slow rate and the device is switched to malfunction mode. In heating mode the device is switched on for 2 minutes with AUTO1 and then switched off for 2 minutes. With AUTO2, the duration is 7.5 minutes. The device is switched off in cooling mode. When a wireless telegram is again received, the LED goes out and the device switches back to normal mode.

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

Typical connection



Technical data

Rated switching capacity	10 A/250 V AC
Standby loss (active power)	0.3 - 0.8 W

Teaching-in wireless sensors in wireless actuators

All sensors must be taught-in in actuators so that they can detect and executetheir commands.

Teaching-in actuator FHK61/8-24 V UC

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 top rotary switch to CLR. The LED flashes at a high rate. Within the next 10 seconds, turn the bottom 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 top 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. Set the bottom rotary switch to the required teach-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.
   Set FTR, FT4, FBH, FTK or HOPPE window handles to right stop (4.5).
   On FTF, the position of the rotary switch defines the reference temperature during the teach-in process. In middle position (2.5) the reference temperature is 21°C. It can be set in steps of 1° from 17°C at left stop (0.5) to 25°C at right stop (4.5).
2. Set the top rotary switch to LRN.
   The LED flashes at a low rate.
3. Operate the sensor to be taught-in.
   The LED goes out.
   The base plate of the wireless window/door contact FTK must be removed in order to conduct a teach-in. Press the red button to initiate a teach-in.

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

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

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.

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