



Wireless actuator
Heating/cooling relay
FHK61-230V

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 11/14 (see bottom side of housing)

1 NO contact potential free 10A/250V AC.
Only 0.8 watt standby loss.
Encrypted wireless, bidirectional wireless and repeater function switchable.

For installation.
45 mm long, 55 mm wide, 33 mm deep.
Supply voltage 230V.

If a power failure occurs, the switching state is retained. If a power failure occurs repeatedly, the device is switched off in a defined sequence.

After installation, wait for short automatic synchronisation before the switched consumer is connected to the mains.

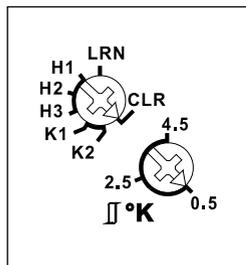
This heating/cooling relay evaluates the information from wireless temperature controllers or sensors. Possibly supplemented by window/door contacts, motion detector, Hoppe window handles and wireless pushbuttons.

Valves are controlled by the potential-free working contact.

Starting in production week 11/14, you can teach in encrypted sensors. You can switch on **bidirectional wireless** and/or a **repeater function**.

Each function change (normal mode, decrease mode, off) is confirmed by a wireless telegram. This wireless telegram can be taught-in into the GFVS-software.

Function rotary switches



Top 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.

Bottom 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 \geq reference temperature', the device is switched off. When the 'actual temperature \leq (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 \geq reference temperature', the device is switched off. When the 'actual temperature \leq (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 settable 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** 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.

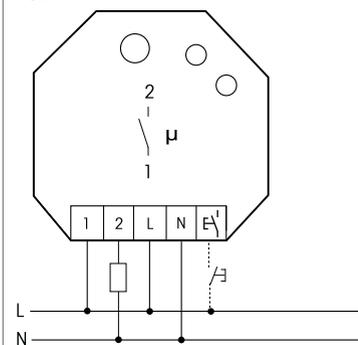
Malfunction mode:

If a temperature sensor fails to receive a wireless telegram for longer than 1 hour, the LED lights up and the device switches to fault mode. In heating mode, the device remains switched on for 1.2 minutes at H1 and switched off for 2.8 minutes. When set to H2 and H3 the 'ON'

time is 4.5 minutes and 'OFF' time is 10.5 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	10A/250V AC
Standby loss (active power)	0.8W

Teaching-in wireless sensors in wireless actuators

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

Teaching-in actuator FHK61-230V

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. 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, wireless pushbutton, 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.

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

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

To prevent unintentional teach-in, teach 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.

Switching on/off repeater:

If the supply voltage is also applied to the right-hand terminal when the power supply is connected, the repeater is switched on/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.

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.



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.

ELTAKO GmbH hereby declares that the products that relates to this operating manual, are in compliance with the essential requirements and other relevant provisions of directive 1999/5/EC. A copy of the EU declaration of conformity can be requested at the address below.

Must be kept for later use!

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