

Wireless actuator



Heating/cooling relay FHK70-230V

**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 &lt;75%.

1+1 NO contact not potential free  
10A/250V AC, 2 channels.

Only 0.9 watt standby loss.

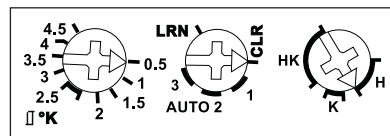
Mounting in the 230V power supply  
cord, e.g. in false ceilings. 100 mm  
long, 50 mm wide and 25 mm deep.

**This wireless actuator features state-of-the-art hybrid technology that we developed: we combined the wear-free receiver and evaluation electronics and two bistable relays with zero passage switching.**

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 assesses information about wireless temperature controllers or sensors. Possibly supplemented by window/door contacts FTK, motion detectors FBH and Hoppe window handles.

Function rotary switches on the side



**Left rotary switch for adjustable hysteresis:**

**Left stop:** lowest hysteresis 0.5°.**Right stop:** largest hysteresis 4.5°.

Inbetween, divisions in steps of 0.5°.

**Middle rotary switch for regulation types:**

**AUTO 1:** With PWM control at T = 4 minutes. (PWM = pulse width modulation). (suitable for valves with thermoelectric valve drive)

**AUTO 2:** With PWM control at T = 15 minutes. (suitable for valves with motor-driven valve drive)

**AUTO 3:** With 2-point control.

**Right rotary switch for operating modes:**

**H:** heating mode (Contacts L-1 and L-2)**K:** cooling mode (Contacts L-1 and L-2)**HK:** heating mode (Contact L-2) and cooling mode (Contact L-1)

**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 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.

**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 AUTO 1 and then switched off for 2 minutes. With AUTO 2 and AUTO 3, 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** on the side behind the left rotary switch performs during the teach-in process according to the operation manual. It shows control commands by short flickering during operation.

### Technical data

Rated switching capacity 10A/250V AC each contact

Standby loss (active power) 0.9W

<sup>b)</sup> Applies to lamps of max. 150W.

### 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 FHK70-230V

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. Set the left rotary switch to the required teach-in function:

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 0.5° from 17°C at left stop (0.5) to 25°C at right stop (4.5).

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.

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, set the rotary switches 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.

**Must be kept for later use!**

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