

Wireless actuator

Heating/cooling relay with  
solid state relay FHK61SSR

**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%.

Noiseless single room control, 400W.  
Solid state relay not potential free.  
Only 0.7 watt standby loss.  
Bidirectional wireless and repeater  
function are switchable.

For installation.

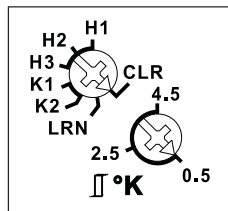
45 mm long, 55 mm wide, 33 mm deep.  
Local switching and control voltage 230V.

**This wireless actuator features state-of-the-art hybrid technology that we developed: We have combined the wear-free receive and evaluation electronics with a solid state relay which switches in the zero crossing.**

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

**Bidirectional wireless** and **repeater** function can be switched on. Every change of function using a wireless pushbutton is confirmed by a wireless telegram. This wireless telegram can be taught-in in 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 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** 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. When bidirectional wireless is switched on, the FHK61 sends a confirmation telegram containing its own ID and current operating mode to the Eltako wireless network.

#### PWM setpoint function:

When a PWM data telegram is taught-in, the control function selected at the rotary switch is switched off. Only PWM commands are executed. When bidirectional wireless is switched on, the FHK61 sends a received PWM data telegram as confirmation telegram containing its own ID to the Eltako wireless network.

The 230V control input acts as a dew signalling input. When a voltage of 230V is applied, the solid state relay is switched off. Every change in state of the control input is immediately sent as a button telegram cyclically every 15 minutes.

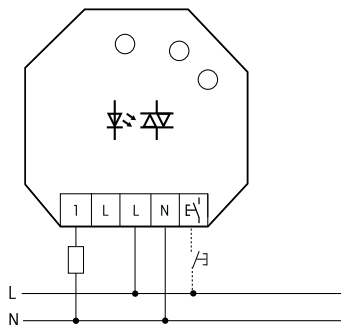
#### Malfunction mode:

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 H1 1 and then switched off for 2 minutes. With H2 and H3, 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	400 W
Standby loss (active power)	0.7 W

#### 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 FHK61SSR-230 V

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 are cleared, the repeater and the confirmation telegram are switched-off.

**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.

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.

#### 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.

**Must be kept for later use!**

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05/2013 Subject to change without notice.