

RS485 bus actuator

4-channel heating/cooling relay

F4HK14



**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%.

**valid for devices from production week 40/17** (see bottom side of housing)

Heating/cooling relay with 4 channels, 1 NO contact per channel 4A/250V AC, potential free from the power supply, with DX technology. Bidirectional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 modul = 18mm wide, 58mm deep.

**Connection to the Eltako-RS485 bus. Bus cross wiring and power supply with jumper.**

**Patented Eltako Duplex technology allows you to switch normally potential free contacts in zero passage switching when 230V A/C voltage 50 Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N) and L to K(L). This results in an additional standby consumption of only 0.1 watt.**

When all 4 relays are switched on, a power of 0.7 watts is required. If a power failure occurs, the device is switched off in a defined sequence.

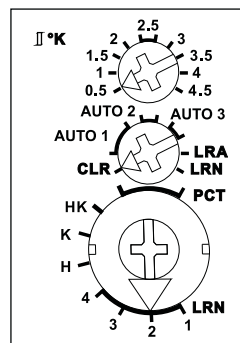
This heating/cooling relay assesses information about wireless temperature controllers or sensors. Possibly supplemented by window/door contacts, motion detectors, Hoppe window handles and wireless pushbuttons.

As an alternative to a wireless temperature

controller, the temperature information on the set and actual values can be obtained from the GFVS software.

It is also possible to specify the set temperature via GFVS software and thus limiting the setting range of the wireless temperature controller.

#### Function rotary switches



#### Top rotary switch for adjustable hysteresis:

**Left stop:** lowest hysteresis 0.5°.

**Middle position:** hysteresis 2.5°.

**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.

#### Bottom rotary switch for operating modes:

**H:** heating mode (Contacts 1 to 4);

**K:** cooling mode (Contacts 1 to 4);

**HK:** heating mode (Contact 3 and 4) and cooling mode (Contact 1 and 2);

**PCT:** For each contact the operating mode is selectable with the PC tool PCT14.

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.

**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:

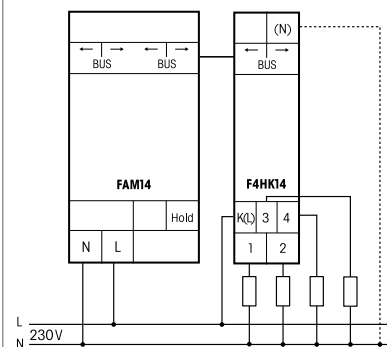
If no wireless telegram will be received from a temperature sensor for more than 1 hour, the LED lights up and it will be switched to fault mode: in heating mode it will be switched on for 1.2 minutes and switched off for 2.8 minutes at

AUTO 1. At AUTO 2 and AUTO 3 the times are 4,5 minutes 'on' and 10.5 minutes 'off'.

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** below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

#### Typical connection



#### Teaching-in wireless sensors in wireless actuators

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

#### Teaching-in actuator F4HK14

The teach-in memory is clear on delivery from the factory. To ensure that a device was not previously taught-in, **clear the complete memory:**

Turn the lower rotary switch to 1 and the middle rotary switch to CLR. The LED flashes at a high rate. Within the next 10 seconds, turn the upper 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 (a total of 120 memory locations are available):

1. Set the top rotary switch to the required teach-in function.

Teach in at right stop (4.5):

FTR, FUTH, 4 way wireless push-button, FBH, FB65B, FTK and Hoppe window handle.

On FTF, FAFT and FIFT, 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 lower rotary to positions 1, 2, 3 or 4.

3. Set the middle rotary switch to LRN. The LED flashes at a low rate.

4. Operate the sensor to be taught-in. The LED goes out.

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

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

#### Assign device address for F4HK14:

Set the rotary switch on the FAM14 to position 1, its lower LED flashes red. Set the lower rotary switch of the F4HK14 to

1. Set the middle rotary switch of the F4HK14 to LRN, the LED flashes steadily. Once the address has been assigned by the FAM14, its lower LED flashes green for 5 seconds and the LED of the F4HK14 goes out.

#### Delete device configuration:

Set the lower rotary switch to 1 and the middle rotary switch to CLR. The LED flashes nervously. Now turn the upper rotary switch within 10 seconds 3 times to the leftmost stop (anticlockwise) and turn it back again. The LED stops flashing and goes out after 5 seconds. The factory settings are restored.

#### Clear device configuration and device address:

Set the lower rotary switch to 1 and the middle rotary switch to CLR.

The LED flashes at a high rate. Within the next 10 seconds, turn the upper rotary switch six times to left stop (turn anticlockwise) and away again.

The LED stops flashing and goes out after 5 seconds. The factory settings are restored and the device address is cleared.

#### Configure F4HK14:

The following points can be configured with the PC tool PCT14:

- teaching-in of pushbuttons and Hoppe's wireless window handle with single and double click. (individual ex works)
- actuator per channel: NC or NO (NC ex works)
- feedback per channel: operating or switching state (operating state ex works)
- dew point evaluation per channel: inactive or active (inactive ex works)
- dew point per channel (15°C ex works)
- setpoint adjustment per channel (OK ex works)
- set temperature for FAFT, FIFT, FTF and FUTH per channel (21°C ex works)
- add or change sensors

Lower rotary switch for operating modes is set to PCT14

- operating mode per channel: heating or cooling mode (heating mode ex works)
- regulation mode per channel: 2-point or PWM (2-point regulation ex works)
- hysteresis per channel (0,5° ex works)

**Caution: Do not forget the 'Disconnect link to FAM' in the PC Tool. No wireless commands are executed while there is a link between the PC Tool PCT14 and the FAM14.**



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!

We recommend the housing for operating instructions GBA14.

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