

## RS485 bus switching actuator Heating relay F4H12-12V DC

4-channel switching actuator, 1 NO contact per channel 4A/250V AC, potential free from the power supply, with DX technology. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting. 1 module = 18mm wide, 58mm deep.

State-of-the-art hybrid technology combines advantages of nonwearing electronic control with high capacity of special relays.

**Connection to the Eltako RS485 bus, terminals RSA and RSB. Up to a total of 128 actuators can be added in this way.**

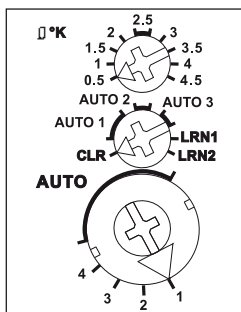
**Patented Eltako Duplex technology allows you to switch normally potential free contacts in zero passage switching when 230 V A/C voltage 50 Hz is switched. This drastically reduces wear. To achieve this, simply connect the N conductor to the terminal (N) and L to K(L). This results in an additional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

The 12V DC supply voltage of the complete RS485 bus is mainly powered at 12 W or 24 W by a switch mode power supply unit FSNT12-12V that is only 1 or 2 pitch units wide. When all 4 relays of the F4H12 are switched on, 1 watt is required.

This heating relay evaluates the information of each wireless temperature controller via a wireless antenna module FAM12-12V DC for each channel. If required, this information may be supplemented by a window/door contact or a Hoppe window handle.

As an alternative to a wireless temperature controller, the temperature information on the set and actual values can be obtained from the FVS software.

### Function rotary switches



### Top 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 thermo-electric 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.

### The bottom rotary switch LRN is required for teach-in and is set to AUTO in operating mode.

#### 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.

#### 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 stability of the 100% value, the PWM can be adapted to the heater size and inertia.

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 a window/door contact FTK or a Hoppe window handle was taught-in to a channel, the channel is switched off as long as the window is open. However, the frost protection remains enabled.

**Wireless switches FT4 can be taught-in for each channel or for many channels in a group.**

The assignment of the 4 keys is assigned with the following fixed functions:

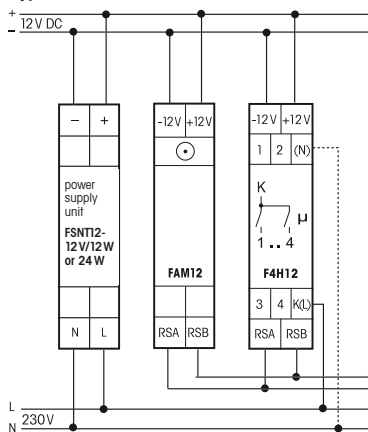
Top right: Normal mode, can also be enabled by timer. Bottom right: Night setback mode by 4°. Top left: Setback mode by 2°. Bottom left: Off (frost protection stays enabled).

### 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, the duration is 7.5 minutes. 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 control commands by short flickering during operation.

### Typical connection



### Technical data

Rated switching capacity 4A/250V AC each contact

Standby loss (active power) 0.1 W

### Teaching-in wireless sensors in wireless actuators

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

### Teaching-in actuator F4H12-12V DC

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 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

1. Select the required Channel 1 to 4 using the lower rotary switch. Only one FTR55D can be taught-in per channel at one time. During teach-in, a sensor that is already taught-in is automatically erased. Only one channel can be assigned to each FTR55D.

2. Set the middle rotary switch to LRN 1 or LRN 2. The LED flashes at a low rate.

LRN 1 = Hysteresis is identical for all channels. They are set in operation using the upper rotary switch.

LRN 2 = Set the hysteresis using the upper rotary switch during teach-in for each channel.

Teaching-in FTK and Hoppe window handle: Select Channel 1 to 4 using the lower rotary switch. Only one FTK or Hoppe window handle can be taught-in per channel.

Teach-in FT4 (double pushbutton): Select Channel 1 to 4 using the lower rotary switch. An FT4 (double pushbutton) can also be taught-in in several channels. A double pushbutton is always taught-in completely, no matter which pushbutton is pressed.

3. 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.



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.**