



Wireless actuator for shading elements and roller shutters

FSB71-2x-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 40/17** (see bottom side of housing)

Switch actuator for shading elements and roller shutters with 2 channels for two 230V motors. 2+2 NO contact 4A/250V AC, not potential free. Encrypted wireless, bidirectional wireless and repeater function are switchable. Only 0.8 watt standby loss.

Mounting in the 230V power supply cord, e.g. in false ceilings. 166mm long, 46mm wide and 31mm high.

**Zero passage switching** to protect contacts and motors.

A motor is connected to 1, 2 and N; a second motor may be connected to 3, 4 and N.

If supply voltage fails, the device is switched off in defined mode.

**The pushbuttons can be taught-in either as direction pushbuttons or universal pushbuttons:**

**Local control with universal pushbutton:** Each scanning pulse changes the switch position in the sequence 'Up, Stop, Down, Stop'.

**Local control with direction pushbutton:** Each scanning pulse up activates the switch position 'Up'. A scanning pulse down, on the contrary, activates the switch position 'Down'. The next scanning pulse in the same direction interrupts the sequence immediately. However, a scan-

ning pulse in the opposite direction stops and then switches over to the opposite direction after a pause of 500ms.

**Central control dynamic without priority:**

A control signal from a pushbutton which was taught-in as a central control pushbutton without priority directly activates the switch position 'Up' with a scanning pulse up and the switch position 'Down' with a scanning pulse down. Without priority because this function can be overridden by other control signals.

**Central control dynamic with priority:**

A control signal of min. 2 seconds from a pushbutton which was taught-in as a central control pushbutton with priority directly activates the switch position 'Up' (press top) and the switch position 'Down' (press bottom). With priority because these control signals cannot be overridden by other (local) control signals **until** the central control signal is cancelled by pressing again the central control pushbutton 'Up' or 'Down'.

The switch position 'up' or 'down' and the priority are specifically activated with a control signal, e.g. from a FSM61 taught-in with priority as a central pushbutton. With priority because these control signals cannot be overridden by other control signals **until** the central command is cancelled by the termination of the control signal.

**Shading scene control:** Up to 4 already stored 'Down' runtimes can be called using the control signal of a pushbutton with double rocker taught-in as a scene pushbutton or automatically using an additional taught-in FAH60 wireless exterior brightness sensor.

If this was not the last function of the two channels anyway, the shutter is moved until the end of the RV delay time for 'Up' set in the top rotary switch to ensure a safe starting position. The device then switches over automatically to 'Down' and stops on expiry of the saved time. If a turning time is set for blinds, this is used to turn the blinds.

A move command is only started for the first time for scenes with RV time (fully 'Up' or 'Down').

If a **wireless outdoor brightness sensor**

**FAH60** is also taught-in in addition to a scene pushbutton, the taught-in scenes 1, 2 and 4 are executed automatically depending on the outdoor brightness: Scene 1 in direct sunlight (>25 KLux), Scene 2 in daylight (300Lux to 25 KLux) and Scene 4 in darkness (<50Lux). During the first teach-in, therefore, a scene pushbutton is assigned automatically to Scenes 1 = no function, 2 = raise fully and 4 = lower fully. Scene 1 must be taught-in separately if the FAH60 is to trigger a shading system when direct sunlight is detected. A taught-in Scene 3 is only retrievable by means of a scene pushbutton.

Scenes 2 and 4 can be changed separately at any time. However, this is not advisable if the right rocker is programmed to be used as a normal up/down shutter pushbutton or an FAH60 was taught-in.

FAH60 wireless telegrams for Scenes 1 = direct sunlight are executed immediately and 4 = darkness. Three telegrams are required for Scene 2 = daylight in order to mask out interference lights. To prevent 'nervous' opening and closing of a shading element when there is rapid fluctuation between darkness and brightness, changing FAH60 wireless telegrams are only executed every 2 minutes. The automatic systems can be cancelled or overridden at any time by confirming any one of the taught-in pushbuttons.

Central pushbuttons always have priority **When controlled via the GFVS software,** Up and Down move commands can be started at the precise move time specified. Since the actuator reports back the precise time moved after each action, even when the movement is triggered by pushbutton, the position of the sunshading is always correctly displayed in the GFVS software. When the top or bottom end position is reached, the position is automatically synchronised.

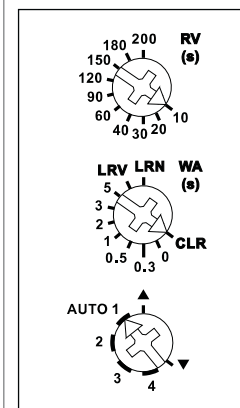
**Encrypted sensors** can be taught in.

You can switch on **bidirectional wireless** and/or a **repeater function**.

Every change in state and incoming central command telegrams are confirmed by a wireless telegram. This wire-

less telegram can be taught-in in other actuators, in universal displays FUA55 and in the GFVS software.

### Function rotary switches



### Function rotary switch below

**AUTO 1** = In this position, the local advanced automatic reversing system for Venetian blinds is activated. When a universal pushbutton or a direction pushbutton are used for control a double impulse activates a slow rotation in the opposite direction, which can be stopped with a further impulse. **AUTO 2** = In this position, the local advanced automatic reversing system for Venetian blinds is completely switched off. **AUTO 3** = In this position, the local pushbuttons act static at first, thus, allow **reversal of Venetian blinds** by operating pushbuttons. They only switch to dynamic after 0.7 seconds continuous operation. **AUTO 4** = In this position, the local pushbuttons act only static (ER function). The time delay RV (wiping time) of the upper rotary switch is active. Central control is not possible.

▲▼= ▲ (UP) and ▼ (DOWN) of the lower rotary switch are the positions for **manual control**. Manual control has priority over all other control commands.

**WA = Automatic reversal** for Venetian blinds and awnings is controlled by the middle rotary switch. 0 = OFF, otherwise from 0.3 to 5 seconds ON with the selected reversal time. In this case, it is only for DOWN that the direction is reversed on time-out of the time lag selected by the top rotary switch, e.g. to

extend awnings or set Venetian blinds to a defined position. A LED is located behind the RV-rotary switch to show the reversal time.

**RV** = The **time delay** (delay time RV) is set by the top rotary switch. If the FSB is in the UP or DOWN position the selected delay time runs (elapses); at time-out the device changes automatically to STOP.

Therefore, the time delay must be chosen at least as long as the shading element or roller shutter will need to move from one limit position to the other. The LED indication for the delay time RV is located behind the rotary switch RV.

**When one or several wireless window/door contacts FTK or Hoppe window handles are taught-in**, a lock-out protection is set up while the door is open which prevents Central down and Scene down.

The **red LED** accompanies the teach-in process and indicates control commands in operation by flashing briefly.

The **green LED** flashes briefly when a confirmation telegram is sent.

#### Technical data

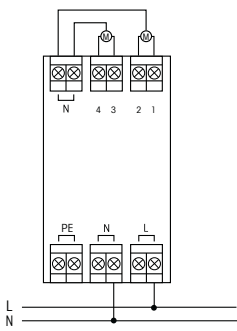
Rated switching capacity 4 A/250V AC each contact

Inductive load 650W<sup>1)</sup>  
 $\cos \varphi = 0.6/230V AC$   
 inrush current  $\leq 35A$

Standby loss (active power) 0.8W

<sup>1)</sup> Sum of both contacts 1000W max.

#### Typical connection



#### 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 FSB71-2x-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 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.

#### Clear device configuration:

Set the middle rotary switch to CLR. The red LED flashes at a high rate. Within the next 10 seconds, turn the upper rotary switch six times to the left stop (turn anticlockwise) and away again. The red LED stops flashing and goes out after 5 seconds. The factory settings are restored.

#### Teaching-in sensors:

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

**10** = Teach in direction pushbutton Motor 1.

**20** = Teach in universal pushbutton, FTK and window handle for Motor 1.

**30** = Teach in direction pushbutton Motor 2.

**40** = Teach in universal pushbutton, FTK and window handle for Motor 2.

**60** = Teach in central control push-buttons Motors 1 and 2 without priority.

**90** = Teach in central control push-buttons Motors 1 and 2 with priority.

The first press of the pushbutton switches on the priority and the second press switches it off.

**120** = Teach in central command pushbutton with priority.

The priority remains switched on as long as the switch remains closed.

**150** = Teach in FAH60 Motors 1 and 2.

**180** = Teach in scene pushbutton and GFVS Motor 1.

**200** = Teach in scene pushbutton and GFVS Motor 2.

If the GFVS is taught-in, confirmation telegrams are automatically activated and sent.

Direction pushbuttons and Central control pushbuttons will be automatically taught-in completely: 'UP' is at the top (O) and 'DOWN' is at the bottom (I).

Scene pushbuttons (double rocker) are taught-in in fully automatic mode. It can be taught-in for Channel 1 (Motor 1) or Channel 2 (Motor 2) or identically for both channels. Before operation, the scenes are saved there, if required individually, as described below.

If necessary teach- in the upper or lower button for other pushbuttons.

Either a FAH60 or FWS61 can be taught-in.

After teaching-in, set the wiping time RV, an eventual automatic reverse time (if not: 0) and AUTO 1, 2, 3 or 4.

On FWS61 no teach-in function need be carried out.

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.

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

You can teach in unencrypted and encrypted sensors.

#### Teach in encrypted sensors:

1. Set the middle rotary switch to LRV. The red LED flashes at a high rate.

2. Within 120 seconds, enable sensor encryption. The red LED goes out.

Caution: Do not switch off the power supply.

3. Then teach in the encrypted sensor as described in 'Teaching-in sensors'.

To teach in other encrypted sensors, turn the middle rotary switch briefly away from position LRV 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.

#### Teaching-in shading scenes:

The following scenes are saved in scene pushbuttons that are taught-in in fully automatic mode, as described above.

1 = No function; 2 = Raise fully; 3 = No function, and 4 = Lower fully.

Scenes 1 and 3 may have to be taught-in separately. Scenes 2 and 4 may also be changed separately. However, this is not advisable if the right-hand rocker is programmed to be used as a normal up/down shutter pushbutton or an FAH60 was taught-in.

#### Individual teaching-in for both channels:

Start 'Down' from the top end position with an already taught-in universal or direction switch.

The point of time of repressing the pushbutton then determines the function which can **then** be taught-in in the scene pushbutton:

- Press the pushbutton immediately to cancel another function that is saved.
- Press the pushbutton after approx. 1 s to trigger the standard function 'Up'.
- Press the pushbutton after more than 2 s, but shorter than the RV time setting to trigger the function 'Stop after this time' for shading purposes.
- Do not press pushbutton any more and wait until the RV time has expired. This triggers the standard function 'Down'.

#### Then teach in the scene pushbutton:

Press the required double rocker end for approx. 3 s but not longer than 5 s.

Then open the shading element fully by pressing the universal or direction push-button and continue as described above for other scenes.

#### **Wireless weather data transmitter module FWS61:**

When an FWS61 is taught-in, data from the Multisensor MS are converted by the FSB71 into switch commands (roller shutters move to a specific position) via FWS61.

Wind: the roller shutters move up;  
Frost: the roller shutters move down;  
Rain: the roller shutters move up;  
Sun: the selected shading scene is called up;  
Twilight: the selected shading scene is called up;

#### **Switch on repeater:**

The repeater is switched off in the factory setting. In deenergised state, turn the middle rotary switch to CLR and the lower rotary switch to left stop (turn anticlockwise). Switch on the power supply. The red LED lights up to two seconds. The repeater is switched on.

#### **Switch off repeater:**

In deenergised state, turn the middle rotary switch to CLR and the lower rotary switch to right stop (turn clockwise). Switch on the power supply. The red LED lights up to 0.5 seconds. The repeater is switched off.

#### **Switch-on confirmation telegrams:**

For deliveries ex-works the confirmation telegrams are switched-off. Set the middle rotary switch to CLR. The red LED flashes nervously. Now within 10 seconds turn the upper rotary switch 3 times to the left (anticlockwise) and then back away. The red LED goes out and the green LED lights up for 2 seconds. The confirmation telegrams are switched-on.

#### **Switch-off confirmation telegrams:**

Set the middle rotary switch to CLR. The LED flashes nervously. Now within 10 seconds turn the upper rotary switch 3 times to the left (anticlockwise) and then back away. The red LED goes out immediately. The confirmation telegrams are switched-off.

Use the data transformer DAT71 to create a link to a PC running the PCT14 software.

#### **Configure FSB71:**

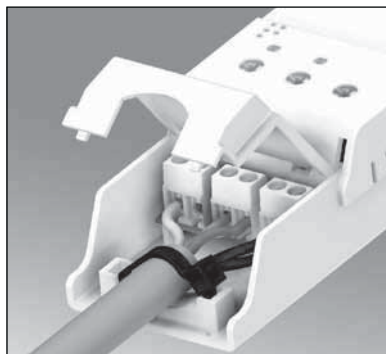
The following points can be configured using the PC PCT14 tool:

- Teach in buttons and wireless Hoppe window handles with single or double click.
- Behaviour with central commands
- Lock-out protection
- Runtimes for shading scenes
- Parameters for operating with FAH60
- Parameters for operation of FWS61
- Add or change sensors



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.

#### **Cable fixation**



The cable must be fastened with standard cable ties (width <3,6mm).

#### **EnOcean wireless**

Frequency	868,3 MHz
Transmit power	max. 10mW

**Hereby, Eltako GmbH declares that the radio equipment type FSB71-2x-230 V is in compliance with Directive 2014/53/EU.**

**The full text of the EU declaration of conformity is available at the following internet address: [eltako.com](http://eltako.com).**

#### **Must be kept for later use!**

#### **Eltako GmbH**

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20/2018 Subject to change without notice.