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RS485 bus actuator

for shading elements and roller shutters FSB14

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 23/24 (see bottom side of housing)

Switch actuator for shading elements and roller shutters with 2 channels for two 230 V motors. 2+2 NO contact 4 A/250V AC, potential free from power supply 12 V. Bidirectional. Only 0.1 watt standby loss.

Modular device for DIN-EN 60715 TH35 rail mounting.

1 module = 18 mm wide, 58 mm deep.

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

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 both relays of the FSB14 are switched on, a power of 0.4 watts is required.

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

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

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

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 saved 'Down' running times are retrievable using the control signal of a pushbutton and double rocker taught-in as a **scene pushbutton** or taught-in by a PC loaded with the GFVS software. 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 (>25KLux), Scene 2 in daylight (300Lux to 25KLux) 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.

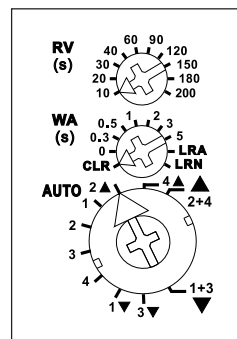
Scenes 2 and 4 can be changed separately at any time. However, this is not advisable if the right rocker is programmed to be used as a normal up/down shutter pushbutton or an FAH60 was taught-in.

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.

With control via GFVS software movement commands for up and down can be started with the exact movement time indication. Since the actuator exactly reports the elapsed time after each activity, even when triggered by pushbutton, the position of the shading in the GFVS software is always displayed correctly. When the end position up and down is reached, the position is automatically synchronised.

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.

Positions for the manual control

- ▲₂₊₄ (Up, contacts 2 and 4),
- 4 ▲ (Up, contact 4),
- 2 ▲ (Up, contact 2),
- ▼₁₊₃ (Down, contacts 1 and 3),
- 3 ▼ (Down, contact 3),
- 1 ▼ (Down, contact 1).

The 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 FSB14 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.

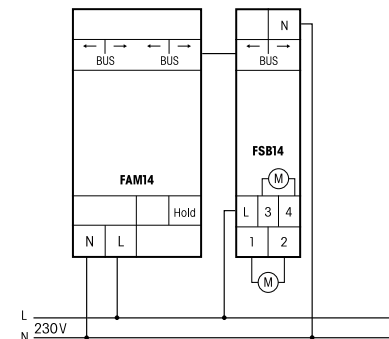
The LED below the upper function rotary switch performs during the teach-in process according to the operating instructions. It shows control commands by short flickering during operation.

Technical data

Rated switching capacity each contact	4 A/250 V AC
Inductive load cos φ = 0,6/230V AC	650 W ¹⁾
inrush current ≤ 35A	
Standby loss (active power)	0,1W

¹⁾ sum of both contacts 1000 W max.

Technical data



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 FSB14

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 middle rotary switch to CLR. The LED flashes at a high rate. Within 10 seconds, turn the top rotary switch three times to right stop (turn clockwise) and back again. 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 top rotary switch to the required teach-in function:

- 10 = direction switch motor 1;
- 20 = Teach in universal switch, window/door contact FTK and window handle for motor 1;
- 30 = direction switch motor 2;
- 40 = Teach in universal switch, window/door contact FTK and window handle for motor 2;
- 60 = central control pushbutton motors 1 and 2 without priority;
- 90 = central control pushbutton motors 1 and 2 with priority; the first short-time control command switches on the priority, the second one switches it off.
- 120 = central control switch motors 1 and 2 with priority, the priority remains switched on as long as the switch is closed.
- 150 = FAH60 motor 1 and motor 2;
- 180 = scene pushbutton and GFVS motor 1;
- 200 = scene pushbutton and GFVS motor 2;

At GFVS teaching-in, a confirmation telegram is automatically sent if the actuator has a device address and the upper rotary switch of the FAM14 is on pos. 2.

Direction pushbuttons and Central control pushbuttons will be automatically taught-in completely: 'UP' is at the top (0) and 'DOWN' is at the bottom (I). Scene pushbuttons (double rocker) are taught-in in fully automatic mode. 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.

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.

After teaching-in, set the off delay RV, the reversal time WA (possibly 0) and AUTO 1, 2, 3 or 4.

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:

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

The teach-in the scene pushbutton:

Press the required double rocker end for approx. 3s but not longer than 5s. Then open the shading element fully by pressing the universal or direction switch 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 FSB14 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;

Issue device address for the FSB14:

Turn the rotary switch on the FAM14 to Pos. 1 and its lower LED lights up red. Turn the middle rotary switch on the FSB14 to LRN and the LED flashes at a low rate. After the address of the FAM14 is issued, its lower LED lights up green for 5 seconds and the LED of the FSB14 goes out.

Clear device configuration:

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 left stop (turn anticlockwise) and away again. The LED stops flashing and goes out after 5 seconds. The factory settings are restored.

Clear device configuration and device address:

Set 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 FSB14:

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

- Teach in buttons and wireless Hoppe window handles with single or double click
- Behaviour with central commands
- Lock-out protection per shading scene
- Runtimes for shading scenes
- Parameters for operating with FAH60
- Add or change sensors
- Parameters for operation of FWS61
 - behavior at termination of weather alarm
 - run central and driving commands from GFVS to weather alarm
 - set priorities for wind, frost and rain
 - lock-out protection at wind, frost and rain

- lock pushbutton at wind, frost and rain
- automatic reversal
- lamellas opening

If the automatic reversal was activated on the device, it can be deactivated or activated by a wireless pushbutton or a timer.

The ID of the pushbutton or the FSU must be manually entered into the ID table 'functional group 2'. Select the function 80 'release for automatic reversal' and transfer data to the device.

Functional pushbutton (right half of a dual pushbutton):

Press downwards or timer command OFF (0x50) = automatic reversal off;

Press upwards or timer command ON (0x70) = automatic reversal on;

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.

Teach in acknowledgement telegram of another BUS actuator into the FSB14:

Similar to teaching-in sensors, except the middle rotary switch is set to LRA instead of LRN. 'Switch-on' and 'Move-up' are taught-in as 'Central control button ON'. 'Switch-off' and 'Move-down' are taught-in as 'Central control button OFF'.

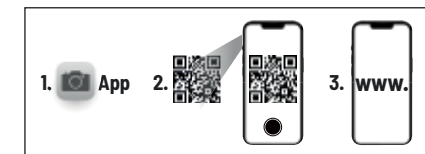


When an actuator is ready for teach-in (the LED flashes at a low rate), the very next incoming signal is taught-in. Therefore, make absolutely sure that you do not activate any other sensors during the teach-in phase.

Manuals and documents in further languages:



<https://eltako.com/redirect/FSB14>



Must be kept for later use!

We recommend the housing for operating instructions GBA14.

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