



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
01/17** (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, potential free from power supply 12V.
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 pushbuttons:
Each impulse causes the FSB14 to change
its position in the UP-Stop-DOWN-Stop
sequence.

Local control with direction pushbutton:
A top impulse by pushbutton directly
activates the 'UP' switch position. A bottom
impulse by pushbutton directly activates

the 'DOWN' switch position. A further
impulse from one of the two pushbuttons
stops the sequence immediately.

Central control dynamic without priority:
A control signal from a pushbutton which
was taught-in as a central control push-
button 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 push-
button '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 can-
not 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 automati-
cally 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

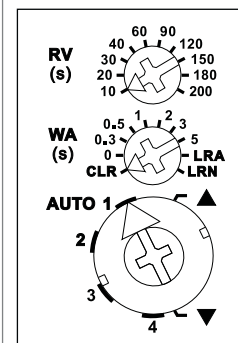
depending on the outdoor brightness:
Scene 1 in direct sunlight (>25 KLux),
Scene 2 in daylight (300Lux to 25 KLux)
and Scene 4 in darkness (<50Lux).
During the first teach-in, therefore, a
scene pushbutton is assigned automati-
cally to Scenes 1 = no function, 2 = raise
fully and 4 = lower fully. Scene 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 sepa-
rately 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 shad-
ing element when there is rapid fluctua-
tion 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 move-
ment commands for up and down can
be started with the exact movement time
indication. Since the actuator exactly re-
ports the elapsed time after each activity,
even when triggered by pushbutton, the
position of the shading in the GFVS soft-
ware 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 push-
button 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 push-
buttons 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 push-
buttons 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 pri-
ority 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 protec-
tion 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 4A/250V AC
each contact

Inductive load cos 650W¹⁾

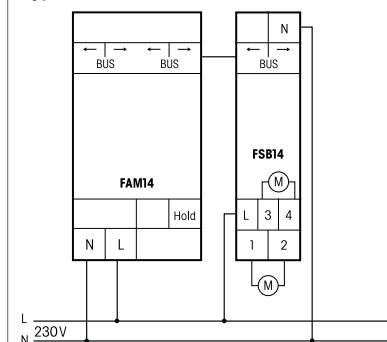
$\phi = 0.6/230V AC$

inrush current $\leq 35A$

Standby loss (active power) 0.1W

¹⁾ sum of both contacts 1000W max.

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 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 = universal switch and window/door contact FTK motor 1;
- 30 = direction switch motor 2;
- 40 = universal switch and window/door contact FTK 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 will be automatically taught-in completely: the side where to push is defined as 'UP', the other side as 'DOWN'.

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.

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 anti-clockwise) 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

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.

Must be kept for later use!

We recommend the housing for operating instructions GBA14.

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