

RS485 bus multifunction  
sensor relay



FMSR14

**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  
08/17** (see bottom side of housing)

Multifunction sensor relay with display and 5 channels (brightness, twilight, wind, rain and frost) for the Eltako RS485 bus. 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.**

This multifunction sensor relay evaluates the wireless telegrams of the wireless weather data transmitter module FWS61 and, dependent on the setting, issues switching commands directly to the RS485 bus and also to the wireless network in the display by means of the MODE and SET buttons. This also allows control over wireless actuators installed at decentralised positions. If only centrally installed actuators need to be addressed to control shading elements from the FWS61, it is sufficient to teach-in the FSBI4s in these actuators using the PC Tool PCT14. An FMSR14 is then not required.

**For a correct operation, the sensor relay FMSR14 must get an device address from the antenna module FAM14.**

From production week 08/17, an activation temperature can be activated for the function LS (channel 2) and DSR (channel 3). By this way, it's possible e.g. to heat your sunroom in the winter by de-

activation of the shading elements.

As soon as the supply voltage is applied, the FMSR14 can be set. As long as no telegram is received from the FWS61, a running bar first appears in **Field 1**. After teaching-in the FWS61, 'LS' or 'DSR' is displayed in **Field 1** and any active channels 2, 3, 4, 5 and 6 in **Field 3**. 'LS' indicates that the FMSR14 is set as light sensor relay (factory setting) and 'DSR' indicates that it is set as twilight relay. **Field 2** indicates alternating events: s = brightness value exceeded (sun), m = brightness value undershot (moon). If a time delay runs, the affected channel flashes in **Field 3**. Select the function for which values require changes by pressing the buttons **MODE and SET**. Press MODE and select the flashing function by pressing MODE. Alternatively browse through the available functions by pressing SET and then select the required function by pressing MODE.

#### Functions

**LS = light sensor, WS = wind sensor, RS = rain sensor, DSR = twilight relay, FRT = frost sensor, OSW = cardinal points, LRN = Learn (teach-in), CFG = configuration, OFF = switch all functions on or off and GA = device address.**

When the required function flashes, confirm it by pressing MODE. Then the first of the adjustable subfunctions flashes.

#### Subfunctions at LS = light sensor

**LSM** indicates the current light sensor measured value in Klux in Field 3.

No input possible.

**LSS** indicates the brightness in Klux. If this value is exceeded, Channel 2 is activated for 2 seconds after a delay time of 20 seconds. Press SET to adjust the value between 3 and 99 Klux and confirm by pressing MODE.

Hysteresis then decrements automatically by 2 steps lower.

**LSD** indicates the brightness in Klux. If this value is undershot, Channel 3 is activated for 2 seconds after a settable delay time. Press SET to adjust the value between 1 and 70 Klux and confirm by pressing MODE.

**RV** indicates the delay time. Press SET to adjust the value between 0 and 60 minutes and confirm by pressing MODE.

**TMP** shows the activation temperature in °C, when the temperature goes over or under this value, the function LS is active. At - - is this function deactivated and LS always active. The button SET sets this value between 0 and 30°C and MODE saves the value. Afterwards you can choose with SET between ON< (value is under) or ON> (value exceeds) and save your choice with MODE.

#### Subfunctions at WS = wind sensor

**WSM** indicates the current wind sensor measured value in m/s in Field 2.

No input possible.

**WSS** indicates the wind speed in m/s. If exceeded, Channel 5 is activated. Press SET to adjust the value between 4 and 16 m/s and confirm by pressing MODE.

If the wind speed again drops below the set value, Channel 5 becomes inactive after the set delay time. If the sun signal is applied at this moment, Channel 2 is automatically activated for 2 seconds.

**RV** indicates the delay time. Press SET to adjust the value between 0 and 60 minutes and confirm by pressing MODE.

#### Subfunctions at RS = rain sensor

If rain is detected, Channel 4 becomes active. After the sensor surface is dried with the help of the heater, Channel 4 becomes inactive after the set delay time.

If the sun signal is applied at this moment, Channel 2 automatically becomes active for 2 seconds.

**RV** indicates the delay time. Press SET to adjust the value between 0 and 60 minutes and confirm by pressing MODE.

#### Subfunctions at DSR = twilight sensor relay

**DSD** indicates the brightness in Klux. If undershot, Channel 3 becomes active. Press SET to adjust the value between 20 lux (0.020 Klux) and 800 lux (0.800 Klux) and confirm by pressing MODE. Hysteresis then increments automatically by 2 steps higher.

**DSS** indicates the brightness in Klux. If the value is exceeded, Channel 3 becomes inactive after the set delay time. Press SET to adjust the value between 160 lux (0.160 Klux) and 2000 lux (2.000 Klux) and confirm by pressing MODE. Hysteresis then decrements automatically by 2 steps lower.

**RV** indicates the delay time. Press SET

to adjust the value between 0 and 60 minutes and confirm by pressing MODE.

**TMP** shows the activation temperature in °C, when the temperature goes over or under this value, the function DSR is active. At - - is this function deactivated and DSR always active. The button SET sets this value between 0 and 30°C and MODE saves the value. Afterwards you can choose with SET between ON< (value is under) or ON> (value exceeds) and save your choice with MODE.

#### Subfunction at FRT = frost sensor

**TPM** indicates the current temperature in °C in Field 3. No input possible.

**TP** indicates the temperature in °C. If the value is undershot, Channel 6 becomes inactive. If the value is exceeded, Channel 3 becomes inactive after the set delay time. Press SET to adjust the value between 0 and 10°C and confirm by pressing MODE.

**RV** indicates the delay time. Press SET to adjust the value between 0 and 60 minutes and confirm by pressing MODE.

#### Switch commands (telegrams):

If sun, twilight or frost is active, the telegram is sent once. In wind and rain, the command is sent three times in succession. If a channel becomes inactive, the command is sent once. Every 10 minutes, a status message is sent to all channels.

#### CFG: Configure the channels

Press MODE and SET to search for CFG and press MODE to select. Channel 2 appears. Then press SET to select between DOWN and UP and confirm by pressing MODE. The same applies to other channels.

Factory setting:

Sun (Channel 2) -> the roller shutters move down.

Twilight (Channel 3) -> the roller shutters move up.

Rain -> (Channel 4) the roller shutters move up.

Wind -> (Channel 5) the roller shutters move up.

Frost -> (Channel 6) the roller shutters move up.

**OSW =** The weighting for light and twilight of the Multisensor MS oriented to the south can be moved to the east or west. If the MS is mounted in a different direction, it can be adjusted to the required cardinal point. Press SET to adjust the value from

0 to 9 (9 is equivalent to a high weighting) and press MODE to confirm.

In the **OFF** function, the FMSR14 can be switched on or off. After you confirm the flashing OFF by pressing MODE, OFF is indicated and all functions are switched off. Switch on by pressing MODE and SET and confirm a flashing ON by pressing MODE.

#### **Partially or completely deactivate control:**

Pushbuttons can be connected to the terminals T1/T2 and T3/T2 for control.

Pushbutton on T1/T2 is closed:

The LS function is inactive which means that the channels 2 and 3 are inactive. In field 1 of the display an arrow is pointing to the left.

If the pushbutton on T1/T2 is open again, the LS function is active again, according to the weather data received channel 2 or 3 will be active for 2 seconds.

Pushbutton on T3/T2 is closed:

The FMSR14 is inactive, OFF appears in the display. If the pushbutton on T3/T2 is opened again, the FMSR14 is active again, the display OFF goes out and the channels are active according to the weather data received.

**Light change compensation:** If there was a continuous change from sun to rain clouds, the result would be a nervous opening and closing of the shading elements. This is prevented by using light change compensation.

**Lock the settings** to prevent any unintentional resetting by pressing MODE and SET briefly and simultaneously. When you confirm the flashing display LCK by pressing SET, the buttons are locked and this is indicated by an arrow in Field 1 pointing in the direction of the pressed lock icon.

**Unlock** by pressing MODE and SET simultaneously for 2 seconds. Confirm the flashing display UNL by pressing SET to unlock. A changed setting only takes effect when the display in Field 1 no longer flashes after you press MODE (if necessary several times). 20 seconds after you last press a key, the display returns to the starting display and any unconfirmed change is lost.

#### **Teach in wireless weather data transmitter module FWS61 in FMSR14:**

Press MODE and SET to search for **LRN**, then press MODE to select. If you confirm the flashing FWS by pressing MODE, LRN+ flashes. After the supply voltage of the FWS61 is switched in, the device is taught-in into the FMSR14 and the normal display appears.

#### **Telegram monitoring:**

The FWS61 sends a status telegram at least every 10 minutes. If the telegram is missing twice, an alarm is triggered. Channel 5 becomes active for 2 seconds. The impulse is repeated every hour. FOO appears in the display. When a telegram is again received, the alarm stops automatically.

#### **Issue device address for FMSR14:**

Turn the rotary switch on the FAM14 to Pos. 1 and its lower LED lights up red. On the FMSR14 press MODE and SET to search for **LRN**. When you confirm by pressing MODE, FWS flashes. After the address to FAM14 is issued, its lower LED lights up green for 5 seconds and the display of the FMSR14 returns to normal display.

#### **Clear device address of FMSR14:**

On the FMSR press MODE and SET to search for GA. After you confirm by pressing MODE; the device address is displayed in Field 3. Press SET to select between device address and 000. If you confirm 000 by pressing MODE, the normal display appears and the device address is cleared.

#### **Teach in switch commands of individual channels in wireless actuators:**

Turn the rotary switch on the FAM14 to Pos. 9. On the FMSR14 press MODE and SET to search for LRN. When you confirm by pressing MODE, FWS flashes. After pressing SET briefly, LRN flashes and select Channels 2 to 6 by pressing SET and confirm by pressing MODE. LRN+ then flashes in the display. Set the wireless actuator to LRN. Press SET to send and teach in the wireless actuator which is ready to learn. After pressing MODE briefly, LRN flashes again and press SET to select further channels. You can only exit the teach-in mode by pressing the MODE button for longer than 2s. Then the normal display reappears.

#### **Teach in switch commands of individual channels in bus actuators:**

Turn the rotary switch on the FAM14 to Pos. 10. On the FMSR14 press MODE and SET to search for **LRN**. When you confirm by pressing MODE, FWS flashes. After pressing SET briefly, LRN flashes and select Channels 2 to 6 by pressing SET and confirm by pressing MODE. LRN+ then flashes in the display. Set the bus actuator to LRA. Press SET to send and teach in the wireless actuator which is ready to learn. After pressing MODE briefly, LRN flashes again and press SET to select further channels. You can only exit the teach-in mode by pressing the MODE button for longer than 2s. Then the normal display reappears.

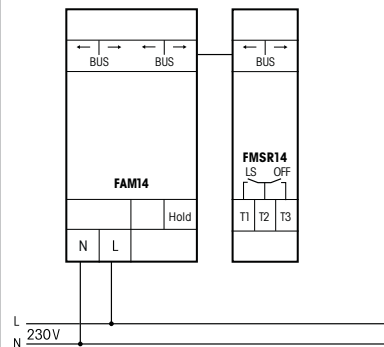
#### **Configure FMSR14:**

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

- Operating modes
- Lock or do not lock operation on the device
- Channel up or down
- Time delay per channel
- Parameters for FWS61
- Threshold values for sensors

**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 and the FAM14.**

#### **Typical connection**



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

We recommend the housing for operating instructions GBA14.

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