eNet radio brightness detector, solar-powered
Art. No. : FMFS1S

Operating instructions

1 Safety instructions

Electrical devices may only be mounted and connected by electrically skilled persons.

These instructions are an integral part of the product, and must remain with the end customer.
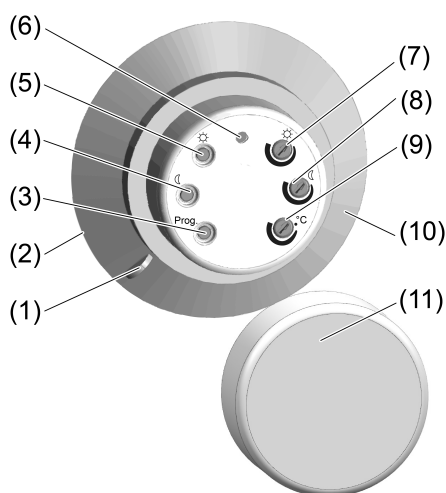
2 Device components

Figure 1: Operating side sun sensor

(1)   Removal handling for dismantling
(2)   Solar cell on the rear
(3)   Button **Prog**
(4)   Twilight button ☾
(5)   Sun protection button ☼
(6)   Status LED
(7)   Sun protection adjuster ☼
(8)   Twilight adjuster ☾
(9)   Temperature adjuster **°C**
       Position • = Off (no temperature evaluation)
(10) Suction pad for fastening to window panes
(11) Cover

3 Function

Intended use

- Sensor for brightness-dependent control of eNet actuators
- Mounting on window panes in indoor areas

Product characteristics

- Triggers scenes when the set sun protection and twilight value is exceeded or undershot

- Temperature-dependent sun protection possible
- Scene buttons for sun protection and twilight
- Brightness measurement via brightness sensor
- Sends brightness values to the eNet server if brightness changes more than 50 %
- Test operation for adjusting protection and temperature threshold
- Solar-powered device
- Integrated battery as energy store

Can be set with eNet server:
- Operation locks
- Behaviour of actuators when a scene is removed

Supplementary functions with eNet Server
- Fully encrypted radio transmission (AES-CCM) from eNet Server software version 2.0
- Update of the device software
- Reading of error memory

Sun protection

The sun protection function allows automatic lowering of a blind/shutter in strong sunlight. If a set sun protection value is exceeded for more than 2 minutes, the sun protection sensor transmits the "Sun protection" scene and the blinds move to their previously-saved sun protection position.
If the brightness falls below the set sun protection value for longer than 15 minutes, then the blind/shutter will move upwards again.

| i | The active sun protection function can be disabled by manually moving the blind/shutter. The blind/shutter is then no longer moved automatically when the sun protection value is undershot.

| i | It is only possible to integrate switching and dimming actuators into the sun protection with the eNet server.

Sun protection, temperature-dependent

Temperature-dependent sun protection cab primarily be used in the colder months of the year. The shading of the interior is triggered when the set temperature value is exceeded, in addition to the sun protection value. After triggering the sun protection, the temperature evaluation is deactivated.

Twilight

When darkness begins, the twilight function allows automatic lowering of a blind/shutter or lighting switching. If the set twilight value is undershot for more than 4 minutes, the "Twilight" scene is opened.
If the set twilight threshold is exceeded for approx. 15 minutes, the blind/shutter moves upwards or the lighting switches.
To allow the blind/shutter to move upwards automatically, also at dawn, position the sun sensor so that it is not in the shadow of the blind/shutter.

4 Operation

| i | Before each operation, remove the cover and then attach it again afterwards.

| i | When operating with the eNet Server, operation and signalling could vary from what is described here.

Triggering a sun protection scene

■ Press the ☼ (5) button.

  The sun protection scene is opened, irrespective of the current brightness.

| i | The sun protection is only lifted automatically when the sun protection value has been exceeded for more than two minutes and then undershot.

Triggering a twilight scene

■ Press the ☾ (4) button.

  The twilight scene is opened, irrespective of the current brightness.

Setting the values for sun protection, twilight and temperature

Default setting:
Sun protection ☼ approx. 20,000 Lux (7)
Twilight ☾ approx. 40 Lux (8)
Temperature **°C** = Off (9)

- Using a small screwdriver, adjust the values for sun protection ☼ (7), twilight ☾ (8) and if necessary, the temperature **°C** (9), too.

In test operation, set the current brightness as sun protection threshold

The test operation makes it possible to adjust the sun protection and temperature threshold to the currently prevailing conditions.

- Press button **Prog** (3) briefly.

  The sun sensor is in test operation for approx. 1 minute.

- Turn adjuster **°C** (9) to left stop = Off.

  LED lit up = Sun protection threshold undershot
  LED flashing = Sun protection threshold exceeded

- Turn adjuster ☼ (7) slowly until the LED switches from illuminating to flashing.

The current temperature can also be applied now for temperature-dependent sun protection if necessary.

- ⓘ The temperature threshold can only be set if the sun protection is not active.

- Turn adjuster **°C** (8) slowly to the right until the LED switches from illuminating to flashing.

- ⓘ Pressing the button **Prog** (3) again exits test operation.

5 Information for electrically skilled persons

5.1 Fitting and electrical connection

Mounting of the sun sensor

To ensure good transmission quality, keep a sufficient distance from any possible sources of interference, e.g. metallic surfaces, microwave ovens, hi-fi and TV systems, ballasts or transformers.

Select the mounting location on the window pane in such a way that the sunlight can hit the sensor without impediment even when sun protection is active. Shadows produce incorrect measured values or prevent charging of the battery.

The contact surfaces of the sun sensor and the window pane must be clean and free of grease.

- Moisten the suction pad slightly.
- Place the sun sensor on the window pane and push it tight.
- ⓘ Metallised window panes can restrict the radio range greatly.

Dismantling the sun sensor

In order to avoid damage to the sun sensor, dismantling may only take place using the handle (1).

- Pull the handle (1) lightly to release the sensor from the window pane.

5.2 Commissioning

⚠ **DANGER!**
Electrical shock when live parts are touched.
Electrical shocks can be fatal.
During commissioning, cover the parts carrying voltage on radio transmitters and actuators and in their surrounding area.

ⓘ The energy store in the sun sensor is charged in the as-delivered state. Thus, commissioning can take place even without putting the sun sensor in a light place beforehand.

ⓘ The sun sensor can also be commissioned with the eNet server as an alternative to the commissioning described here. When commissioning with the eNet server, the sun sensor should be attached in a light place in order to prevent it from switching off due to low voltage during programming over a longer period of time.

The sun sensor is commissioned in two steps. In the first step, the required actuators are connected with the Sun protection or Twilight scenes (see Connection scenes to radio actuators). In the second step, switching or dimming positions or blind positions are assigned in the actuators (see Saving scene values in the actuator).

Connecting scenes with radio actuators

■ Switch all the actuators to be connected with the scene to programming mode (see actuator instructions).

■ Press the **Prog** button for approx. 4 seconds.

   The sun sensor is in programming mode for approx. 1 minute. The Status LED flashes.

■ Briefly press the scene button Sun protection ☼ (5) or Twilight ☾ (4).

   The scene is connected to the actuators. The Status LEDs of the transmitter and actuators light up for a few seconds. The sun sensor and actuators exit the programming mode automatically.

ⓘ Up to 10 actuators can be connected to a radio transmitter in a single step.

ⓘ When the status LED switches to triple flashing for about 5 seconds, the operation was not successful and must be repeated.

Saving scene values in the actuator

When actuators have been connected to the scenes, switching or dimming values or, in the case of blinds/shutters, positions, must be allocated to each actuator.
The presetting for blinds/shutters is the bottom end position.

Actuators are connected to the scene.

ⓘ With shutter actuators, the actual shutter movement time must be saved (see shutter actuator instructions), otherwise scenes will not be opened.

■ Set the lighting or blind/shutter positions.

■ Press the ☾ button (4) or the ☼ button (5) for longer than 4 seconds.

   The set values are saved to the actuators.

Disconnecting connections to radio actuators

■ Carry out the same steps as when connecting (see Connecting scenes to radio actuators).

   The connection to the radio actuators is disconnected. The LED on the sensor lights up for a few seconds and the LED of the actuator flashes quickly for approx. 5 seconds.

   The sun sensor and actuators exit the programming mode automatically.

ⓘ When the status LED switches to triple flashing for about 5 seconds, the operation was not successful and must be repeated.

Resetting scene to the default setting

All the connections of the scene to actuators are disconnected.

ⓘ The connections in the actuators are preserved and must be deleted separately.

■ Press the **Prog** (3) button for at least 20 seconds.

   The status LED flashes after 4 seconds. After 20 seconds the status LED flashes faster.

■ Briefly press the ☾ or ☼ button within 10 seconds.

   The Status LED flashes briefly. The scene is reset to default setting.

Resetting the device to the factory setting

All the connections to actuators are disconnected.

ⓘ The connections in the actuators are preserved and must be deleted separately.

■ Press the **Prog** (3) button for at least 20 seconds.

   The status LED flashes after 4 seconds. After 20 seconds the status LED flashes faster.

- Release the **Prog** (3) button and press briefly once again within 10 seconds.
  The Status LED flashes briefly. The device is reset to default setting.

6 Appendix

This device includes an integrated battery. At the end of its useful life, dispose of the device together with the battery in accordance with the environmental regulations. Do not throw device into household waste. Consult your local authorities about environmentally friendly disposal. According to statutory provisions, the end consumer is obligated to return the device.

6.1 Technical data

Ambient temperature	-5 ... +45 °C
Brightness setting	4000 ... 80000 lx
Twilight setting	5 ... 250 lx
Temperature setting	15 ... 40 °C
Dimensions Ø×H	75×27 mm
Radio frequency	868.0 ... 868.6 MHz
Transmission capacity	max. 20 mW
Transmitting range in free field	typ. 100 m
Receiver category	2

6.2 Parameter list

The device parameters can be changed with the eNet server:

Device and channels

Parameter name	Setting options, Basic setting	Explanations
Function	Other modes, Unused Basic setting: Other modes	Other modes The channel works as a scene channel Unused The channel is not displayed in the **eNet SMART HOME app** and is disabled for use in the commissioning interface.

Advanced device settings

Parameter name	Setting options, Basic setting	Explanations
Manual commissioning	On, Off Basic setting: On	Disables manual commissioning for all device channels. In the "Off" setting, the device cannot be reset to the factory setting.

Extended channel settings

Parameter name	Setting options, Basic setting	Explanations
Manual commissioning	On, Off Basic setting: On	Blocks manual commissioning for the device channel. In the "Off" setting, the device cannot be reset to the factory setting.

Local Operation	On, Off Basic setting: On	Blocks the device channel for local operation.

Information window

The most recently transmitted brightness is displayed in the Information window.

6.3 Troubleshooting

Blind/shutter does not move up automatically in the morning after the Twilight function.

Cause 1: The set Twilight value was not yet exceeded.

> Reduce the Twilight value on the sun sensor.

> Mount the sun sensor in a brighter position.

Cause 2: The energy saved in the sun sensor is insufficient to supply the sun sensor overnight.

> Mount the sun sensor in a brighter position.

> ⓘ Each time either the ☾ button (4) or the ☼ button (5) is pressed, a check is carried out whether the current brightness is sufficient for continuous operation. If there is sufficient brightness, the Status LED will be lit for approx. 1 second.

The sun sensor does not trigger sun protection or twilight anymore. After pressing the Prog button, the status LED does not light up.

Cause 1: The energy store is flat because the device was too long in the dark.

Cause 2: The energy store is flat because the device was not in a light place during a long programming procedure with the eNet server.

> Put sun sensor in a very bright place for several hours. As soon as the energy store is sufficiently charged, the device is operational again after pressing the **Prog** button.

> ⓘ Temperatures of over 70°C can damage the sun sensor. Maintain a sufficient distance from hot light sources.

Test operation or programming mode cannot be opened. Status LED only flashes briefly.

Sun sensor is in Low-Batt mode. Scene request is possible, test operation and programming are not.

> Charge sun sensor in a very bright place for several hours.

> Mount the sun sensor in a brighter position.

6.4 Conformity

Albrecht Jung GmbH & Co. KG hereby declares that the radio system type
 Art. No. FMFS1S
corresponds to the directive 2014/53/EU. You can find the full article number on the device. The complete text of the EU Declaration of Conformity is available under the Internet address: www.jung.de/ce

6.5 Warranty

The warranty follows about the specialty store in between the legal framework as provided for by law.