Solar controller EMSol 19

User's Manual

July 2020

1   GENERAL DESCRIPTION

The solar controller is generally intended for charging of a connected battery from solar panel. It also protects attached equipment (load) against overvoltage and in case of low voltage it disconnects them from powering in order to prevent deep battery discharge.
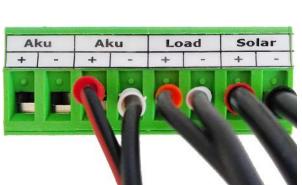
2   SPECIFICATIONS

Nominal voltage	12 V
Maximum output voltage (controlled)	13.8 V
Maximum input voltage (solar panel)	30 V
Maximum charging current	2.5 A
Quiescent current consumption from battery	0.09 mA (input voltage < 10 V) to 0.18 mA
Quiescent current consumption from panel	1.8 mA
Fuse	2.5 A
Load disconnect voltage	10 V
Load reconnect voltage	11.75 V
Maximum size of solar panel	50 W
Size	73 x 69 x 27 mm

3   CONNECTION

Connect wires to the terminal. Then connect the terminal to the EMSol 19.

Never have the solar panel connected without the battery already connected!

4 OPERATION INDICATORS

Operating indicators are located on the front panel. There are six LED diodes. The upper LED, indicating general error status; it flickers in green or red color all the time when the unit is connected to battery and/or to solar panel. The other five LEDs are visible after pushing "Push for info" button.

Explanation of LED indicators:

"STATUS" LED indicates status of powering of load.

Green flashing shows normal status – load is powered, and battery is at least partially charged.

Red flashing primarily indicates disconnected load. The next information is shown after pressing *"Push for info"* button):

Flashing of LOAD, PANEL and AKU LEDs all together signalize unspecified error – probably hardware failure. Please contact manufacturer.

"STATUS"

Flashing in red color indicates problems with output – mostly blown fuse. It is necessary to replace the fuse: push and turn the fuse cover counterclockwise.

"LOAD"

Lighting of green LED indicates powered load.

"PANEL"

Green light indicates actual charging – voltage from solar panel is higher than battery voltage.

Red light is caused by wrong polarity of solar panel.

"AKU"

Three green lights show the battery charging status:

Full (>12.5 V)

Half (<12.5 V, >11.5 V)

Empty (<11.5 V, >10 V)

Green flashing of "*Empty*" LED indicates critical battery voltage - lower than 10 V.

Red light indicates wrong polarity of battery.

When the load is connected first time to the battery not fully charged, the controller waits until the voltage reaches the "load reconnect voltage" 11.75 V. However, there is a possibility to turn on the load manually after pushing "Push for info" button for more than 15 seconds. In this case the load turns on without waiting for reaching of reconnect voltage - of course, only if the battery voltage does not drop down to 10 Volts.