

**DETAS SpA Divisione D-Power** - Via Treponti, 29 - 25086 Rezzato (BS) ITALY www.d-power.com - info@d-power.com - tel. +39 030 2594120 - fax +39 030 2792864

## **USE AND MAINTENANCE INSTRUCTIONS**

# Photovoltaic power kit

To use the photovoltaic kit correctly, follow the instructions below:

#### Installation guide

Place the photovoltaic panel on the pole facing south. Make sure there are no obstacles to sunlight (trees, buildings, etc.) from 10 a.m. to 4 p.m., especially during Winter. Place the box nearby the photovoltaic panel. Generally, the box is installed on the same pole as the photovoltaic panel. In the case of a compact photovoltaic kit, the panel and the box are integrated in a single solution.

Access the box and connect the devices to the charge regulator respecting the safety standards in force, as indicated below:

- 1. Positive and negative load
- 2. Positive and negative battery
- 3. Positive and negative photovoltaic panel

BE CAREFUL:

- 1. Connect a sufficiently charged battery (>12.8V)
- 2. Respect the polarity indicated on the terminal blocks
- 3. Verify the presence of the fuse in the battery as shown in Fig. 1.
- 4. With a battery voltage <11.3V, the load is turned off and it will be turned on once the battery is charged and reaches a voltages of 12.7V.

#### Functioning

Verify the correct functioning making sure that:

- a) The battery LED is on and steady (battery ok)
- b) The load LED is on and steady (load ok)
- c) With the photovoltaic panel being exposed to the sunlight, the photovoltaic panel LED is on and flashes slowly, meaning the system is charging the battery. In case the system does not work correctly, reset it by disconnecting the + of the panel and the fuse F of the battery. Check the following table which sums up the functioning of the regulator to verify the possible causes of the malfunction.







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### Charge regulator functioning table

LED	STATUS	DESCRIPTION	SOLUTION
PHOTOVOLTAIC PANEL LED	Double flashing	Battery charge completed	Correct functioning
	Slow flashing	Battery on charge	Correct functioning
•••• @	Off	Night or disconnected panel	Correct functioning
	Steady on	Insufficient amount of direct light to charge the battery	Check sun exposure
	Fast flashing	The panel does not charge correctly	Check wiring, voltage and temperature on the panel
BATTERY LED	Steady on	The battery works correctly (11,3V ÷ 14,3V)	Correct functioning
	Off	Disconnected battery or inverted polarity	Check battery wiring and voltage
	Fast flashing	Dead battery (voltage < 11,3V), the load is off	Check sun exposure and battery voltage
LOAD LED	Steady on	The load is on	Correct functioning
	Off	The load is off	Check sun exposure and battery voltage
	Fast flashing	Short-circuit of the load	Check load wiring

Warning:

When you put in function the device for the first time, the battery has not to be disconnected from the charge regulator (fuse F has not to be removed).

In this case to reactivate the load, make sure that the battery voltage is greater than 12,8V.

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FEATURES OF THE PHOTOVOLTAIC CHARGE REGULATOR					
Regulator code		82021	82022		
Charge regulator with MPPT model		SR-MPL1210	SR-MPL2415		
Photovoltaic panel maximum current		10 A	15 A		
Maximum load current		10 A	15 A		
Maximum photovoltaic panel power		130 W	200 W		
Maximum photovoltaic panel voltage		50 Vdc	60 Vdc		
Battery type		Pb AGM 12 Vdc			
Self-consumption current		8 mA			
Charging voltage - AGM battery		14,3 Vdc with temperature compensation (-3.0mV/°C/2V)			
Protection Block download	Disconnected load	<11,3 Vdc			
	Reconnected load	>12,6 Vdc			
Operating temperature		-35 ÷ +65 °C			
IP protection		IP 67			
Electric protections		Photovoltaic panel polarity inversion, excessive charging current Battery polarity inversion, load short-circuit			

\* MPPT technology allows to maximize the charge efficiency (+20% compared to PWM technology).

#### Maintenance

Check periodically:

- 1. The charge level of the battery, especially during Winter
- 2. The cleanliness of the panel to guarantee the efficiency during the charge (e.g., snow, leaves etc.)
- 3. The condition of the electric connections. Replace in case of deterioration of the insulation material
- 4. The tightening of the bolts

For further information, please contact

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