MpicoSys

Low power Solar Charger

developed for EPIS

helps batteries through the winter

optimized for winter – low light conditions

Classification: Public

Document Revision: A

Figure 1.1: MpicoSys Solar Charger

Product package contains: Solar Charger

1 Description

The MpicoSys developed low power EPIS Solar Charger is a device designed to overcome problems with standard solar chargers which have a low efficiency in low light conditions and constant high self-consumption current around 6-10mA. Solar Charger, next to Maximum Power Point Tracking mode witch is good for higher currents, also includes low power mode which works very well below 50mA charging current. Self-consumption current of the Charger is below 1.5mA. Solar charger has specific versions depending on battery type used by the system. MpicoSys advises Sealed Lead Acid (SLA) but LiPol and LiFePO are possible as well. The Charger enables availability of all telemetry (PV, Charger and Battery) via API.

2 Technical specification

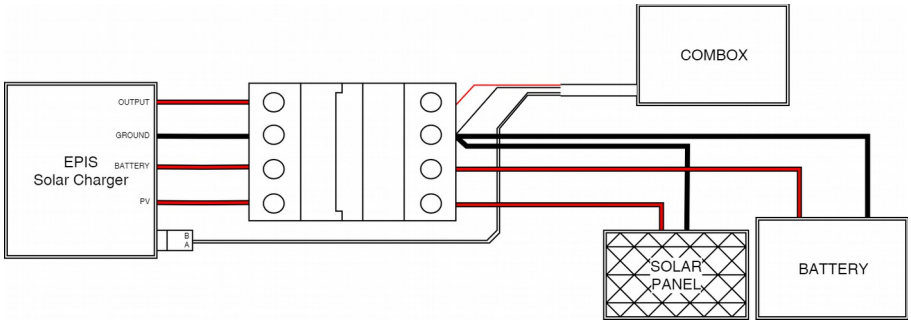
- Nominal Battery Voltage
- Rated charge current 3.2A
- Rated discharge currents 5A
- Battery input voltage 8-17
- Solar open circuit voltage 35V
- Guarding Common Negative
- Cable length 80mm
- Cable cross section 0.5mm2
- Enclosure IP55
- Dimension without cables(mm) 67x54x24
- Net weight 0.08 kg
- Power consumption 1.5 mA

- Available for SLA batteries as well as Lithium

3 Features

- Multi chemistry and multi cell options.
- High efficiency in low light conditions.
- Maximum Power Point Tracking (MPPT)
- Battery Temperature compensation.
- RS485 for monitoring and control.

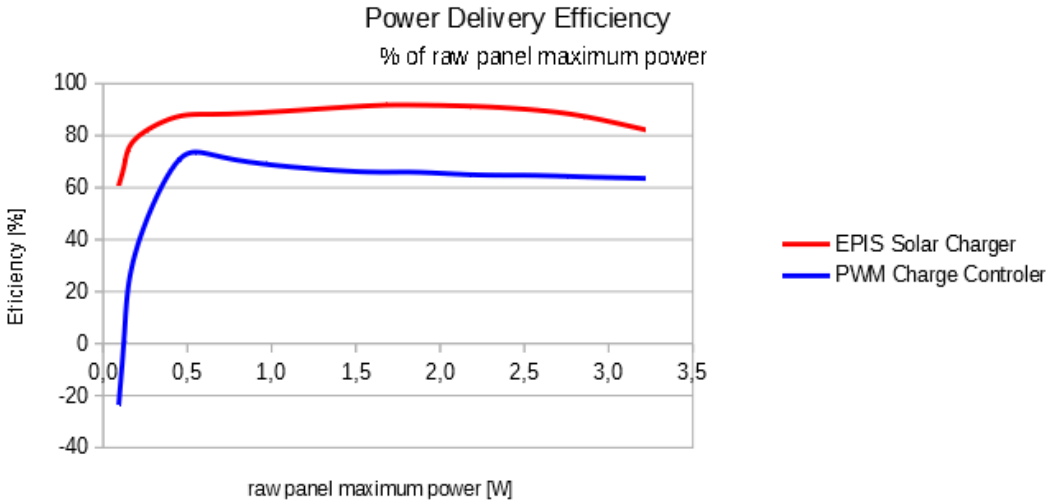
4 Typical application

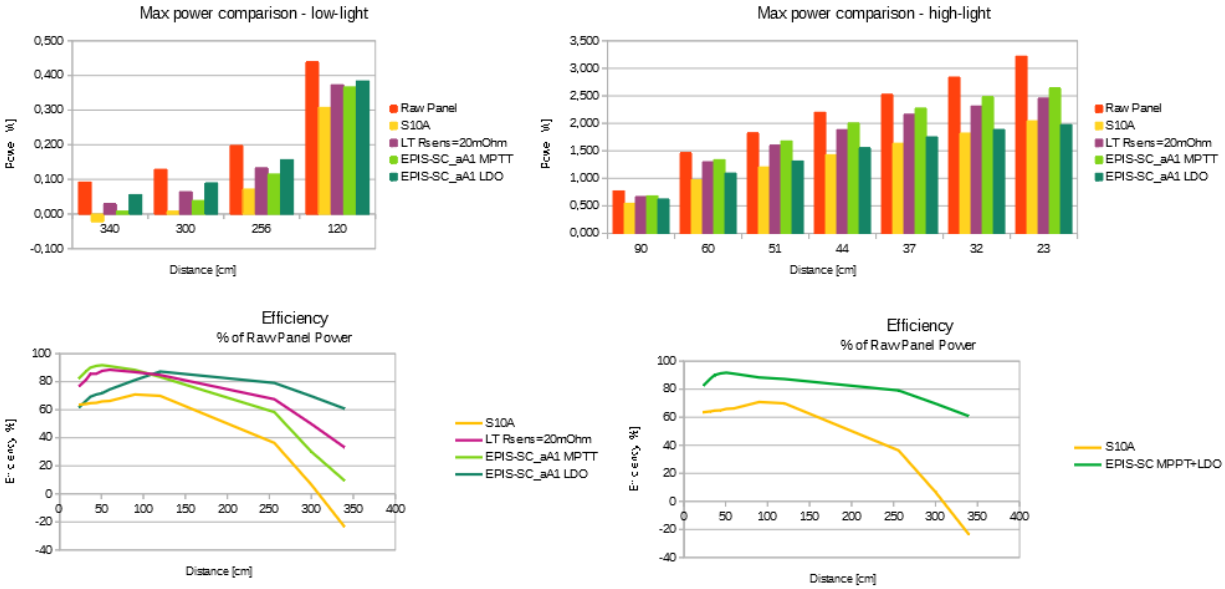


5 Efficiency Characteristics

Currently there are two types of solar charge controllers on the market. PWM and MPPT. PWM is very simple and therefore very cheap. But it has very low efficiency in low light condition and lose around 40% energy from solar panel during highest power pick. MPPT is much more efficient in high light conditions but still low efficiency in low light condition because its self-consumption current.

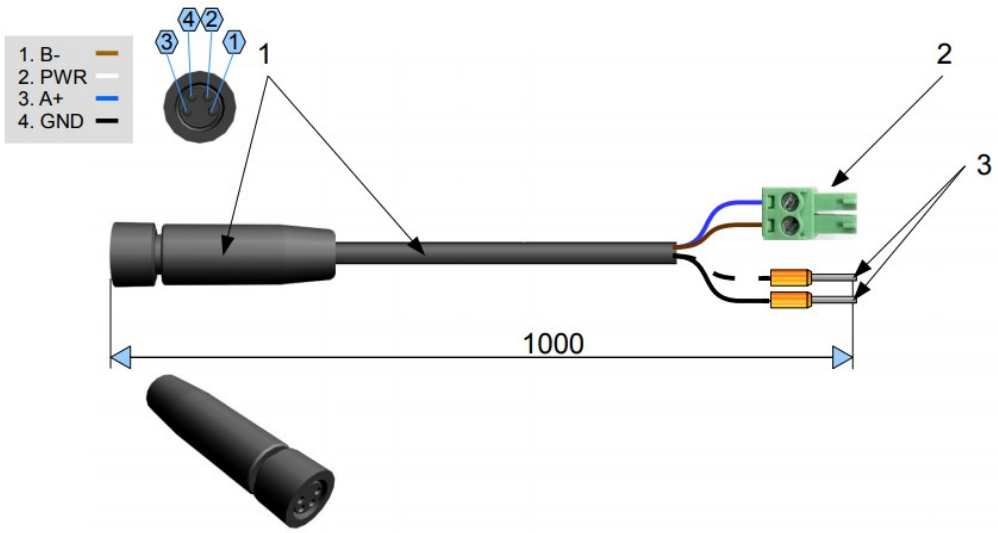
EPIS solar charger is focused to work very well in low light conditions like built-up areas. It combines both types of operations and has very low stand by current.





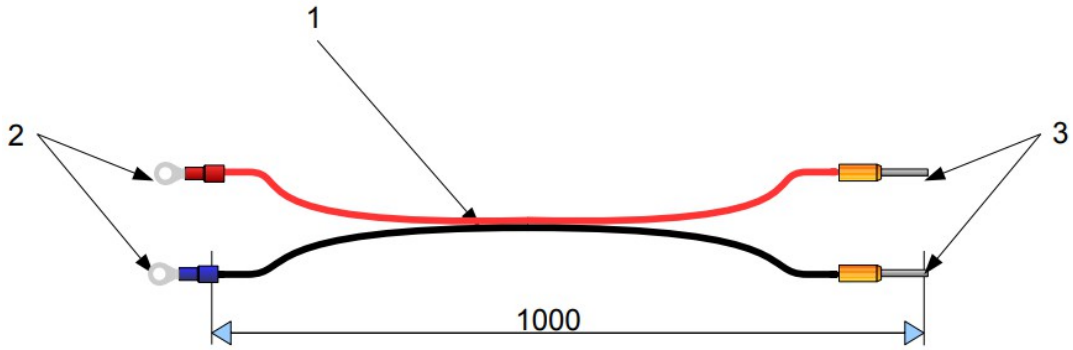
6 Cable connections

Solar charger to Communication Unit cable:



ID	Description	Dimensions	MPN	Qty.	Comment
1	4 wire cable with female M8 connector	1000mm	PXPPVC08FBF04AC010	1	-
2	Terminal Block Plug 3.5mm	-	15EDGK-3.5-02P-14-00AH	1	-
3	Cable end-sleeves 0.5sqmm	-	9019010000 H0,5/14D	2	-

Solar Charger to Battery cable:



ID	Description	Dimensions	MPN	Qty.	Comment
1	TLYP-2X1.00RB	1000mm	TECHNOKABEL 0246 009 88	1	-
2	Insulated Ring Terminal, M5 Stud Size, 1mm	-	RS PRO: 613-9261, 613-9312	1	RED and BLUE
3	Cable end-sleeves 1.0sqmm	-	9019080000 H1.0/14D	2	-

7 Revision History

Document Revision	Release Date	Document Status	Supersedes
A	2019-11-06	Draft	A

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