

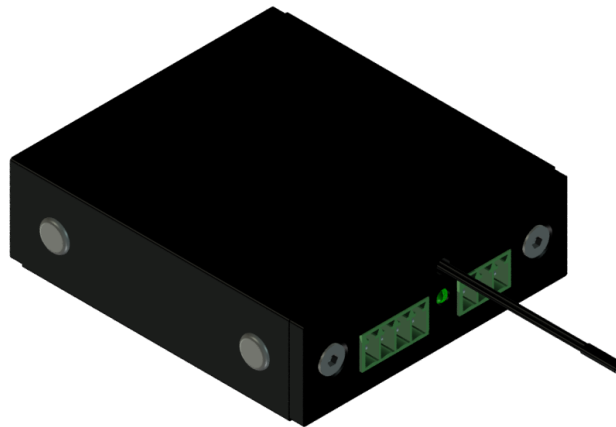
EPIS-SC-SLA

Low power Solar Charger for EPIS system

Outline

The EPIS-SC is a highly efficient, low power solar charger, designed for integration with MpicoSys EPIS- realtime low-power E-paper Passenger Information System. It suits a 12V Sealed Lead Acid (SLA) battery. Note that for three cell Li-Polymer batteries a separate product is available: EPIS-SC-LIP. The EPIS-SC typically has a high efficiency over the full range of charge current and is especially designed for high efficiency at low light conditions, like in winter. Due to its very low self-power consumption of around 1 mA the Solar Charger is ideal for enabling the EPIS System to receive sufficient power all year round!

The EPIS-SC offers full telemetry, registering all voltages and current of Solar cell, battery and attached System. Telemetry data is communicated through RS485 connection to the EPIS-CU, that enables data to be communicated with the backend system.



Module Parameters

Parameter	Specifications	Unit
Battery Type	12V Sealed Lead Acid battery ¹	
Rated charge current	3.2	Ampere
Rated discharge current	5	Ampere
Battery input Voltage	6-18	Volt
Solar open circuit voltage	4.5 to 35	Volt

¹ Also available 11.1V Li-Polymer 3 cell

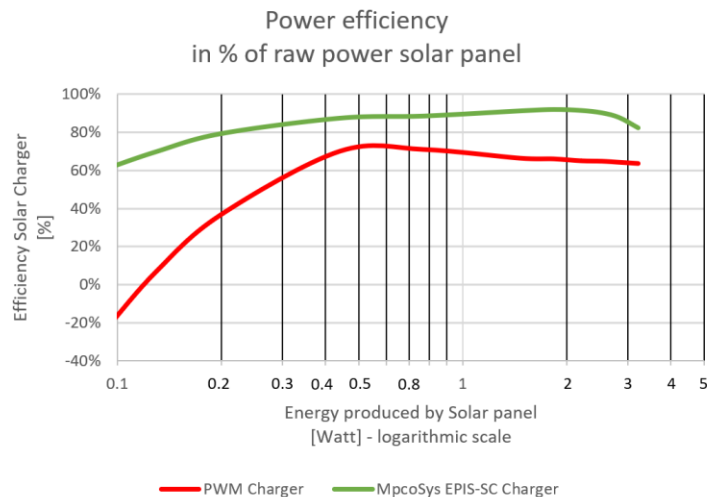
Quiescent Current (no charging)	0.6	mA
Dimensions	62 × 65 × 21	mm ³
Classification	IP 44 ² , ROHS	
Interface	RS485	
Front light – max light	12	Lumen
Operating voltage	3.0 to 3.6	Volt

Efficiency

Some background: in the industry there are two types of solar chargers available: PWM and MPPT type of chargers.

- The MPPT chargers are optimizing the efficiency of solar cells at high light conditions, but do fail to do so at low light, where they behave rather poorly.
- The PWM charger has a better efficiency at low light conditions but loses out at high light.

The EPIS -SC-SLA combines aspects of both types, obtaining MPPT charging efficiencies at high light and even better performance than PWM chargers at low light due to the optimized design.



Please note that in winter solar cells often do not provide more than 100-300 mW. The effect in efficiency of the EPIS SC-SLA solar charger is over 80% !

² IP65 housing expected to be available from Q3 2021

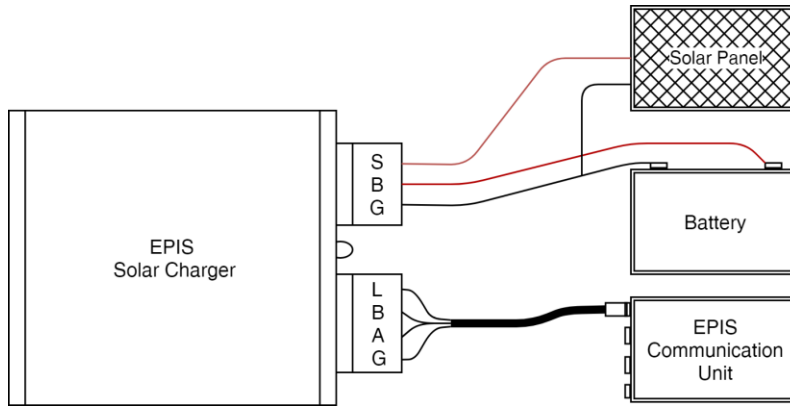
Supplied with EPIS DU133

- Cable to EPIS CU

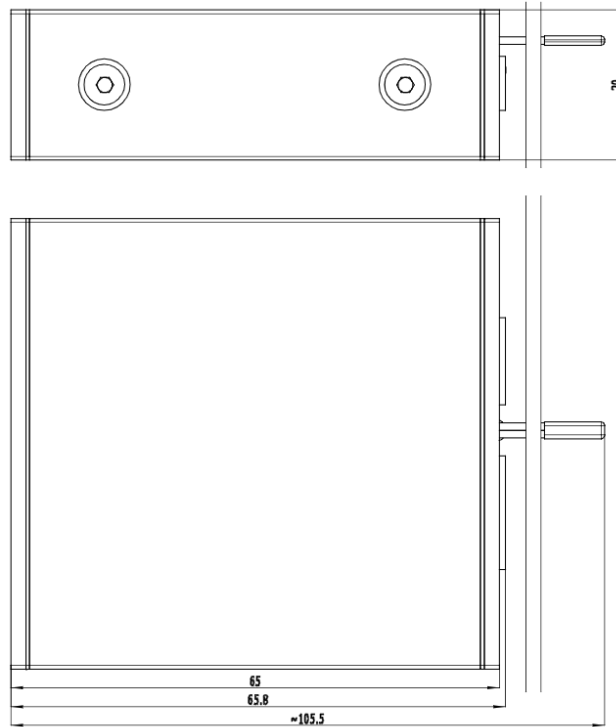
Connections

Number	Connection to	Connector Type
1	EPIS CU	4 pin – Power and RS485
1	Solar Cell and battery	3 pin – shared ground

Connection diagram



Mechanical Drawing



MpicoSys Epis Module family

MpicoSys offers the following modules for the EPIS System

Type Number	Description	Connects to EPIS-CU over
EPIS -CU	Communication/System Unit – up to 2 displays	
EPIS -CU6	Communication/System Unit – up to 6 displays	
EPIS-DU97	Display Module 9.7”	Display connector
EPIS-DU133	Display Module 13.3”	Display connector
EPIS-DU312	Display Module 31.2”	Display connector
EPIS-DU42	Display Module 42” (expected Q4 2021)	Display connector
EPIS-SC-SLA	Solar charger Module for SLA battery	Power-RS485
EPIS-SC-LIP	Solar charger Module for Li-Po battery	Power-RS485
EPIS-TTS	Text to Speech Module – server based	Display connector
EPIS-TTS	Text to Speech Module – Local TTS conversion	Power-RS485
EPIS-BUT	Button module with 1-4 pushbuttons	Button connector

The following power options can be provided for the real-time EPIS System

- Solar /battery operation. Solar cells and battery size will be tuned for each location
- Night time mains (Street lighting) operation. Battery will be selected at customer requirements
- Mains operation
- Solar and nighttime mains operation
- Battery Only operation – Primary, non-rechargeable battery will be selected at customer requirements