

OPERATION MANUAL
CURRENT MEASUREMENT SHUNT SHL



The current measurement shunt SHL 312 records the charging and discharging current and adds up the energy flow. It is thus able to record the current flows from energy sources such as alternators, solar cells,... or consumers and display them on the system monitor PSM on the DC energy side. Furthermore, the energy yield or consumption can be queried.

The connection to the philippi PBUS is made via an M12 T-connector.

The document is available for download in colour on our website www.philippi-online.de

1 General Information

1.1 Purpose

The current measurement shunts SHL can only be operated in conjunction with the P-BUS at low voltage DC 8-60V. They are designed for use on yachts or in motor homes and may only be operated in enclosed spaces protected from rain, moisture, dust and condensation. Never use the current measurement shunts SHC in places where there is a risk of explosion through gas or dust. The SHL current measurement shunts are not suitable for outdoor installation.

1.2 Content

- Current Measurement Shunt SHL
- Pluggable terminal 4pole
- Fuse holder ASH1 incl. FSS 1A fuse
- This instruction manual (The document is available for download in colour on our website www.philippi-online.de).

1.3 Warranty

philippi elektrische systeme gmbh grants a two year limited and non-transferable warranty for the delivered devices. Defects resulting from material or manufacturing defects will be repaired free of charge if:

- the device is sent to the manufacturer free of charge
- the proof of purchase is enclosed
- the device has been handled and used in accordance with its intended use
- No external parts have been installed or any interventions have been carried out

The warranty does not cover damage caused by:

- overvoltages at the inputs, respectively wrong polarity of the connection
- liquids which have been spilled into the device or oxidation by condensation
- lightning strike



The warranty does not cover consequential costs and natural wear and tear. A detailed description of the defect is essential when asserting claims under warranty. Detailed notes facilitate and speed up the processing. Please understand that we cannot accept shipments which are not sent to us free of charge.

1.4 Exclusion of liability

Both the observance of the operating instructions as well as the conditions and methods for the installation, operation, use and maintenance of the shunt SHL cannot be monitored by *philippi elektrische systeme gmbh*. Therefore, we assume no responsibility and liability for losses, damages or costs resulting from faulty installation and improper operation.

1.5 Quality Management

During production and assembly, the devices undergo several checks and tests. Manufacturing, controls and tests are carried out according to established protocols. Each SHL shunt has its own serial number. Do not remove the label. The assembly and testing of all SHL shunts are carried out completely at our company in Remseck am Neckar.

2. Safety References

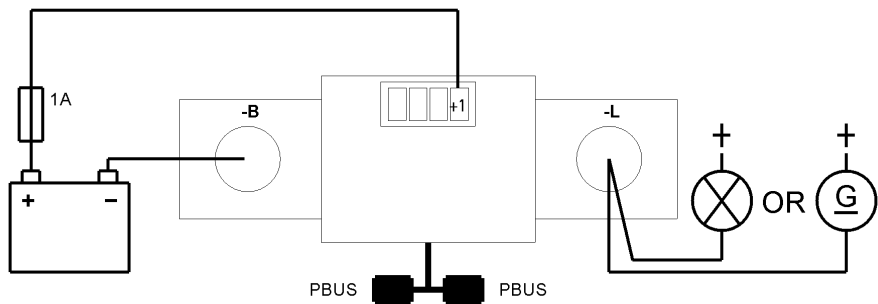
- unauthorized changes to the equipment will invalidate the CE sign
- the installation of the SHC may be made only by electrical specialists.
- before connection of the SHC the battery terminals must be clamped.
- Important! Pay attention to the correct polarity of the batteries!



The assembly and operating instruction is a component of the SHC package. It must be kept (for reference). Importantly: - for later maintenance work - and for the use of subsequent owners of the equipment.

3. Mounting and Installation

Mount the Shunt SHL in a protected, dry place as close as possible to the battery. The shunt must be connected to the **NEGATIVE (!)** line of the battery.



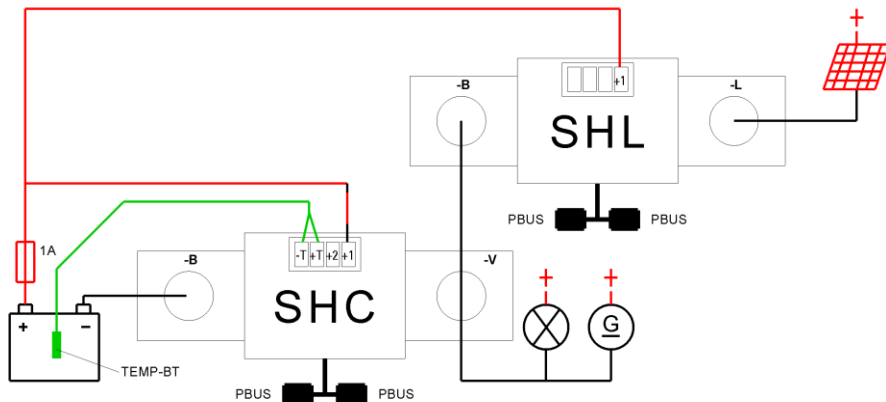
At the shunt SHL the 4 pin. connector is connected as follows:



(+1): Power supply for the Shunt SHL
This line is absolutely necessary for the shunt function.

Current Measurement Shunt SHL

For example, if a SHL for measuring the solar current and a SHC are installed, they are connected as follows:



4 Setup of the PSM

In order to identify the shunt on the DC power side, only the name must be set.



4.1 Designation

This name is displayed in the energy symbol of the display and serves to assign the shunt to the measured current. Power sources such as solar, wind, hydrogen generator, fuel cell... are shown in the upper part of the display. Current sink (consumer) in the lower part. If the label "Not active" is selected, this shunt will not be displayed in the energy monitor.

4.2 Identification

The hardware type (Shunt SHL312), its software version (V029) and the serial number of the device are displayed.

4.3 Reset Capacity Counter

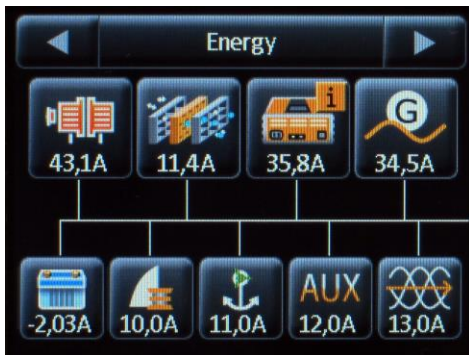
Reset the counter of the loaded or discharged Ah. To do this, press the respective key and after PIN entry (PIN Default 1234) the counter is reset.

5. Operation

The PSM shows the DC energy balance of the on-board system on the DC energy side.

The charging sources are shown in the upper part, the sinks (consumers) and the battery system in the lower part.

In this view all batteries are grouped together as one battery to make it easier to understand.



By touching the source symbols, the current display can be switched to show the ampere-hours supplied or consumed since the last counter reset. The display changes back to the current display automatically after 1 minute.

6 Technical Data

Supply voltage	DC 8-60 V
Current consumption	5 mA @ 12 V, 3 mA @ 24 V
Shunt	0,1 mΩ max. 300 A continuous load capacity
Measuring range I	-300 - +300A, resolution 10mV, accuracy 0.5%