

empty or full capacity to start the monitoring process.

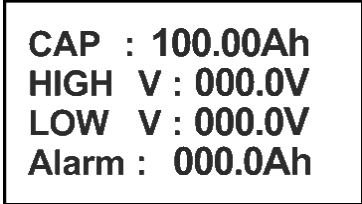
Quark-elec recommend starting at full (after the battery has been fully charged) unless you are unsure of the capacity of the battery. In this case the capacity (CAP) and High voltage (HIGH V) need to be setup. The capacity can be found on the specifications of the battery, this should normally be listed on the battery. The high voltage can be read from the screen after fully charged.

If you are unsure of the battery capacity, then you can start with the battery fully depleted (empty). Check the voltage shown on the screen and set this as the low voltage (LOW V). Then set the monitor to its highest capacity (e.g. 999Ah). Afterwards please charge the battery fully and record the capacity when charging is complete. Enter the Ah reading for capacity (CAP).

You can also setup the alarm level to receive audible alerts. When the state-of-charge capacity has fallen below the set value, the percentage and battery symbol will flash, and the buzzer will begin beeping every 10 seconds.

Setup process

1. Press and hold the OK key on the faceplate until the set-up screen appears. This will show the four parameters needed to be entered.
2. Press the up(▲) or down(▼) keys to move the cursor to the setting you would like to change.
3. Press the OK key to select the parameters for setting.
4. Press the up or down arrow keys again to select the proper value applied.
5. Press the OK key to save your settings and then press left(◀) key to exit the current settings.
6. Press the left(◀) key again, the display will exit the set-up screen and back to the normal working screen.



* Setup HIGH V or LOW V only, don't set both values unless you clearly know the voltage characteristics of the battery.

NMEA 0183 OUTPUT

The A016 outputs the real time voltage, current, and capacity (in percent) via the NMEA 0183 output. This raw data can be monitored using any serial port monitor software or apps on mobile devices. Alternatively, apps such as OceanCross can be used to view the end user information. The output sentence format is shown below:

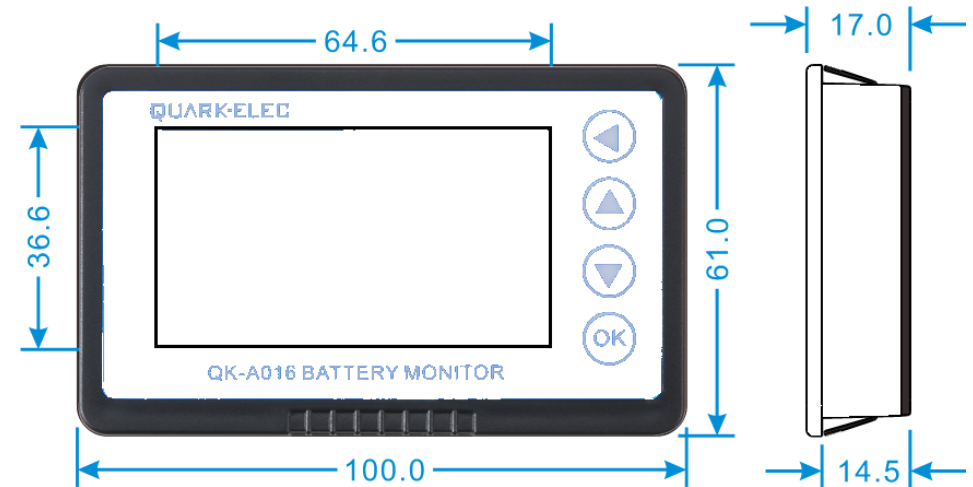
Example:

- \$IIXDR,U,12.10,V,A016,*CS ----the current voltage is 12.1V
- \$IIXDR,I,2.1,A,A016,*CS ----the present current is 2.1Amp
- \$IIXDR,G,64.0,%,A016,*CS ----the current capacity(remaining) is 64.0%

Disclaimer: This product is designed to aid navigation and should be used to augment normal navigational procedures and practices. It is the user's responsibility to use this product prudently. Neither Quark-elec, nor their distributors or dealers accept responsibility or liability either to the product user or their estate for any accident, loss, injury or damage whatsoever arising out of the use or of liability to use this product.

QK-A016 BATTERY MONITOR

**MEASURE STATE OF CHARGE
WITH NMEA 0183 OUTPUT**



All products are CE, RoHS certified
www.quark-elec.com

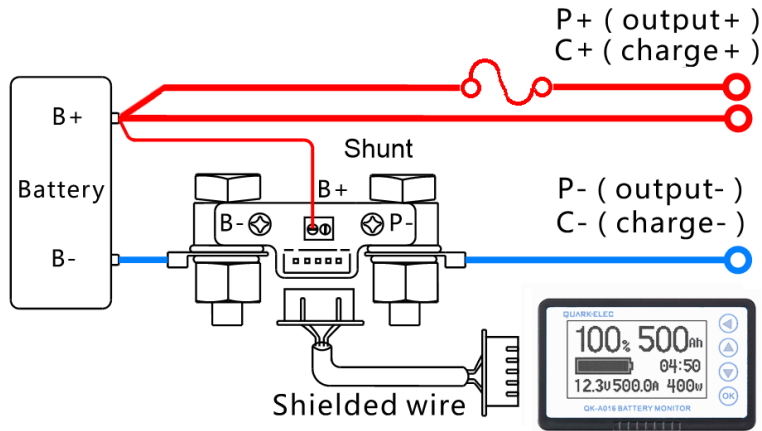
Please recycle your packaging

BEFORE STARTING INSTALLATION:

Ensure that no metal tool can cause a short circuit. Removing all jewellery such as rings or necklaces prior to any electrical work is considered best practice. If you believe you may not be sufficiently skilled to undertake this installation safely, please seek the assistance of an installer/ electrician who is aware of regulations for working with batteries.



- Please strictly follow the order of connections given below.
- Use a fuse of the correct value as shown in the following diagram.

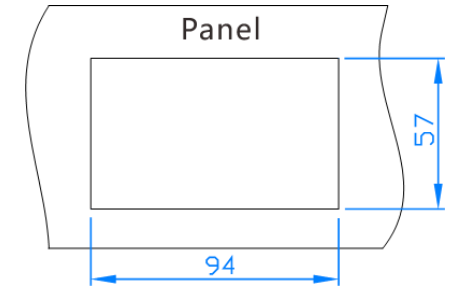


INSTALLATION

1. Determine a mounting location and mount the shunt. The shunt should be installed in a dry and clean place.
2. Remove all loads and charging sources from the battery before any other steps are taken. This is often accomplished by turning off a battery switch. If there are loads or chargers directly attached to the battery, they should be disconnected as well.
3. Serial connect the shunt and the negative terminal of the battery (the blue wires shown on the wiring drawing).
4. Connect B+ of the shunt to the positive terminal of the battery with a AGW22/18 wire (0.3 to 0.8mm²).
5. Connect the positive load to the positive terminal of the battery (using a fuse is highly recommended).
6. Connect the positive charger terminal to the positive terminal of the battery.
7. Connect the display to the shunt with the shielded wire.
8. Double check all the connections with the above diagram before turning on the battery switch.

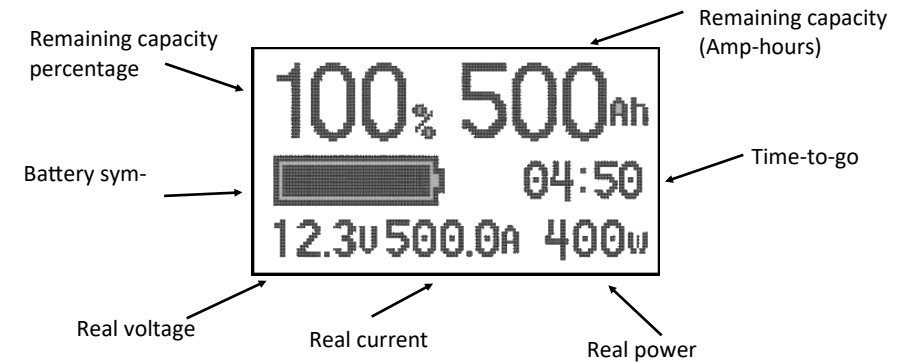
At this point the display will power up, and be operational in a few seconds.

The A016's display comes with a buckled enclosure. A 57*94mm's rectangular slot needs to be cut for fitting.



DISPLAY AND CONTROL PANEL

The display shows the state-of-charge on the screen. The following image provides what the displayed values indicate:



Remaining capacity percentage: This shows the percentage of the actual full-charge capacity of the battery. 0% indicates empty while 100% means full.

Remaining capacity in Amp-hours: The remaining capacity of the battery.

Real voltage: Displays of the real voltage level of the battery.

Real current: The current display informs of the current load or charge of the battery. The display shows the instantaneously measured current rate flowing out of the battery. If the current flows into the battery, it is negative, and the value will be shown with a preceding negative symbol (i.e -4.0).

Real power: The power rate being consumed whilst discharging or supplied whilst charging.

Time-to-go: Shows an estimate of how long the battery will sustain a load. Indicates the time remaining until battery is completely discharged when the battery is discharging. The remaining time will be calculated from the residual capacity and the real current.

Battery symbol: When the battery is being charged it will cycle to show it is filling. When the battery is full the symbol will be shaded.

SETUP

Setup battery monitor parameters

The first time you use your A016, you will need to set the battery to its starting point at either