

# Precision Battery Monitoring

www.victronenergy.com



**BMV 600**

### Precision monitoring

The essential function of a battery monitor is to calculate ampere-hours consumed and the state of charge of a battery. Ampere-hours consumed is calculated by integrating the current flowing in or out of the battery. In case of a constant current, this integration is equivalent to current multiplied by time. A discharge current of 10A during 2 hours, for example, amounts to 20Ah consumed. All our battery monitors are based on a powerful microprocessor, programmed with the algorithms needed for precision monitoring.

### Standard information and alarms

- Battery voltage (V).
- Battery charge/discharge current (A).
- Ampere-hours consumed (Ah).
- State of charge (%).
- Time to go at the current rate of discharge.
- Visual and audible alarm: over- and under voltage, and/or battery discharged.
- Programmable alarm or generator start relay.



**BMV bezel square**

### BMV 600S: low cost ultra high resolution monitor

- Highest resolution: 10mA (0,01A) with 500A shunt.
- Can be used with 50, 60 or 100mV shunts, current rating from 100A to 1000A
- Lowest current consumption: 4mA @12V and 3mA @ 24V.
- Easiest to wire: the BMV 600S comes with shunt, 10 meter RJ 12 UTP cable and 2 meter battery cable with fuse; no other components needed.
- Easiest to install: separate front bezel for square or round appearance; ring for rear mounting and screws for front mounting.
- Broadest voltage range: 9.5 – 95 VDC without prescaler needed.
- Communication port (Isolated RS232 interface is needed to connect to a computer)



**BMV shunt 500A/50mV**  
With quick connect pcb

### BMV 602S: two batteries

In addition to all the features of the BMV600S, the BMV602S can measure the voltage of a second battery. A version with a black front bezel (BMV 602S Black) is also available.

### BMV 600HS: 70 to 350VDC voltage range

No prescaler needed. Note: suitable for systems with grounded minus only (battery monitor is not isolated from shunt).

### Optional Isolated RS232 communication interface and software

(for all BMV models) Displays all information on a computer and loads charge/discharge data in an Excel file for graphical display.

### VE.Net Battery Controller: any number of batteries

- One VE.Net panel or Blue Power panel will connect to any number of battery controllers.
- Comes with 500A/50mV shunt and can be programmed for 50, 60 or 100mV shunts, current rating from 100A to 10.000A.
- With use, abuse and data memory.
- Temperature sensor and connection kit included.

### High voltage VE.Net Battery Controller: 70 to 350VDC

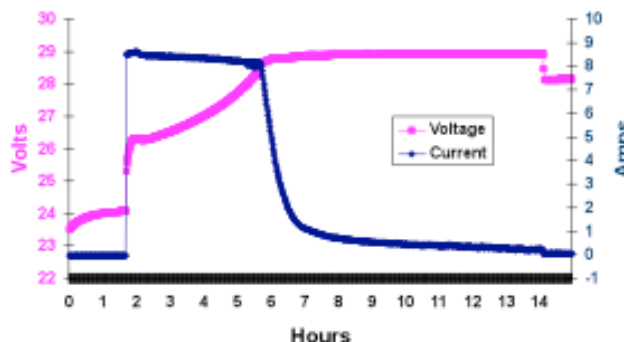
No prescaler needed. Note: RJ45 connectors are galvanically isolated from Controller and shunt.



**BMV 602S Black**



**VE.Net Battery Controller**



Example of a battery charge curve recorded with a BMV 602 and VEBat software

| Battery monitor   | BMV 600S   | BMV 602S & BMV 602S BLACK | BMV 600HS      | VE. Net Battery Controller  | VE. Net High Voltage Battery Controller |
|---|--|---------------------------|----------------|-----------------------------|---|
| Power supply voltage range  | 9.5 - 90 VDC   | 9.5 - 90 VDC              | 70 – 350 VDC   | 7 - 75 VDC                  | 70 - 350 VDC <sup>1</sup>               |
| Current draw, back light off  | < 4 mA   | < 4 mA                    | < 4 mA         | < 5 mA                      | < 4 mA                                  |
| Input voltage range (VDC)   | 9.5 - 95 VDC   | 9.5 - 95 VDC              | 70 – 350 VDC   | 0 - 75 VDC                  | 0 – 350 VDC                             |
| Battery capacity (Ah)   | 20 – 9,999 Ah  |                           | 20 - 60.000 Ah |                             |   |
| Operating temperature range   | -20 +50°C (0 - 120°F)  |                           |                |                             |   |
| Measures voltage of second battery  | No   | Yes                       | Yes            | Yes                         |   |
| Communication port  | Yes  | Yes                       | Yes            | Yes (VE.Net)                |   |
| Potential free contacts   | 60V/1A (N/O)   |                           |                |                             |   |
| <b>RESOLUTION (with a 500 A shunt)</b>  |  |                           |                |                             |   |
| Current   | ± 0,01 A   |                           |                | ± 0,1 A                     |   |
| Voltage   |  |                           |                | ± 0,01 V                    |   |
| Amp hours   |  |                           |                | ± 0,1 Ah                    |   |
| State of charge (0 – 100 %)   |  |                           |                | ± 0,1 %                     |   |
| Time to go  |  |                           |                | ± 1 min                     |   |
| Temperature (0 - 50°C or 30 - 120°F)  | n. a.  |                           |                | ± 1°C (± 1°F)               |   |
| Accuracy of current measurement   |  |                           |                | ± 0,3 %                     |   |
| Accuracy of voltage measurement   |  |                           |                | ± 0,4 %                     |   |
| <b>INSTALLATION &amp; DIMENSIONS</b>  |  |                           |                |                             |   |
| Installation  | Flush mount  |                           |                | DIN rail                    |   |
| Front   | 63 mm diameter   |                           |                | 22 X 75 mm (0.9 x 2.9 inch) |   |
| Front bezel   | 69 x 69 mm (2.7 x 2.7 inch)  |                           |                | n. a.                       |   |
| Body diameter   | 52mm (2.0 inch)  |                           |                | n. a.                       |   |
| Body depth  | 31mm (1.2 inch)  |                           |                | 105 mm (4,1 inch)           |   |
| <b>ACCESSORIES</b>  |  |                           |                |                             |   |
| Shunt (included)  | 500 A / 50 mV <sup>2</sup>   |                           |                | 500 A / 50 mV <sup>3</sup>  |   |
| Cables (included)   | 10 meter 6 core UTP with RJ12 connectors, and cable with fuse for '+' connection |                           |                | Supplied with 1 m cables    |   |
| Temperature sensor  | n. a.  |                           |                | Supplied with 3 m cable     |   |
| Computer interface  | optional   |                           |                | n.a.                        |   |
| 1) 7 – 75 VDC needed for VE.Net network power supply<br>2) HV version with shunt in plastic enclosure<br>3) HV version with shunt + Controller in plastic enclosure |  |                           |                |                             |   |



### Victron Global Remote

The Global Remote is a modem which sends alarms, warnings and system status reports to cellular phones via text messages (SMS). It can also log data from Victron Battery Monitors, MultiPlus units, Quattro's and Inverters to a website through a GPRS connection. Access to this website is free of charge.



### Victron Global Remote to BMV 60xS Connection Kit

Cable kit required to connect the BMV and the Victron Global Remote. BMV Data Link included.



### Blue Power panel

The VE.Net Blue Power Panel is the panel that connects to the VE.Net Battery Controller. The panel can show the information of multiple batteries on one display for simple and efficient monitoring of your battery systems. For our other VE.Net products please refer to our VE.Net datasheet.



### 1000A/50mV shunt

For ease of use with BMV series: quick connect pcb of standard 500A/50mV shunt can be mounted on this shunt.



### 2000A/50mV shunt

For ease of use with BMV series: quick connect pcb of standard 500A/50mV shunt can be mounted on this shunt.