

BMV-712 Setup

The BMV-712 acts as a fuel gauge for your batteries, but it's only as smart as the settings and will give inaccurate readings if not properly configured. Fortunately we're here to help!

Installation

1. Connect the BMV's shunt according to our diagram. Please note that the BMV shunt is directional – it matters which way you connect it. If you look closely on the side with circuit board on it, you will see that one side is marked “Battery Only” and the other is marked “Load and Charger”. Make sure your batteries connect to the battery side, and the inverter and distribution block to the Load side. If you install it backwards, it won't damage it, but it also won't work properly.
2. There should be two small red wires and one long grey wire in the BMV's box. You will need the grey wire to connect to the included display, and ONE of the red wires for the next step.
3. Take one of the red wires and cut off the o-ring, then strip the insulation back about ½ inch. Connect this end to an open terminal on the POSITIVE distribution block, piggybacking on another wire if needed. This gives the BMV a positive voltage reference. Take the other end and insert it into the “B1” port on the BMV's shunt, the one closest to the screen port, using the small orange lever to release and secure it.
4. (Optional) Connect the grey cable to the corresponding port on the shunt to the display. You can get the same information and settings (and more) through the VictronConnect app, but many people enjoy being able to glance at the display for easy battery readings.

Programming

1. Ensure that the batteries are connected but all power sources and loads are disabled or disconnected. Disconnect or disable your charge controller, DC-DC charger, and turn off your inverter. You want the BMV to have access to power from the batteries, but have no power moving around the system. If anything is moving current at this time it will affect the zero point and give you inaccurate current readings.
2. Download the VictronConnect app from your phone's app marketplace and install any updates.
3. Once you're done updating and viewing the Device List menu, you should see “SmartBMV” followed by a serial number. You may also see other Victron components listed if they are currently powered. Tap on the SmartBMV.
4. You should now be in the BMV's menu on the Status tab. This tab essentially shows the snapshot of what's happening right now. The History tab has very useful information for tracking your usage over time, and the Trends tab provides a graph of recent usage.
5. Tap the gear-shaped icon on the top right and go to the Battery menu, then change the following settings:
 - Battery Capacity – Set to the total capacity of your battery bank in Amp-hours (Ah). If you have 2 x 200Ah batteries, put in 400Ah. If you have 2 x 105Ah batteries, put in 210Ah.
 - Charged Voltage – Set to 13.9v
 - Discharge Floor – Set to 20%
 - Tail Current – Set to 2.00%
 - Peukert Exponent – Set to 1.05
 - Charge Efficiency Factor – Set to 99%
 - Battery Starts Synchronized – Disable
6. Fully charge your batteries via solar, inverter charging, or alternator charging. This will take some time, the easiest and quickest method is to charge via the inverter/charger and leaving it

running overnight after initial setup and testing. This step does not need to be done before you use your system, but capacity readings may not be accurate until Step 7 is complete.

7. Once the batteries are fully charged, and the charger is on “float”, disconnect the charger and allow 20-30 minutes of resting so the batteries settle to their fully-charged resting voltage. Open the app and navigate back to the battery settings menu, then click the “Synchronize” button. This tells the BMV that this is what your batteries look like when they are fully charged, and will help ensure accurate capacity readings.
8. Switch off or disconnect all loads and chargers, pretty much everything except the batteries. This should ensure no current is moving but the BMV is on. Open the app and go back to the battery settings menu, then click the “Calibrate” button on the “Zero Current Calibration” line.
9. And you’re done! The BMV now knows what zero current looks like, and what fully charged voltage looks like. Over a few charge-discharge cycles, the capacity readings will become increasingly accurate.