Initial Setting for BMV-712, Lynx Shunt, Smart Shunt

Note: The BMV-712 comes with a Smart Shunt 500A connected by RJ-12. The Smart Shunt 1000A has a VE.Direct for a Cerbo GX.

1. Download “Victron Connect” from the App Store
2. Make sure Bluetooth and WiFi is enabled on your device
3. Open Victron Connect and find the BMV, Lynx, Smart Shunt device
4. Enter the PIN. Default PIN is 000000.
5. Update firmware immediately
    a. It might have to be updated a couple of times
6. A window will pop up and warn you that your PIN is the default and you should probably change. At Vanlife Collective we always change the PIN from the default setting.
7. Once connected, you will see the main screen
8. Tap on the gear in the top right of the screen
9. Tap on Battery and change the settings to match the information below...
    - Capacity
        - 12v -> 400Ah = 4x100Ah
        - 24v -> 400Ah = 8x100Ah
    - Charged voltage (check back in 5 minutes for this setting)
        - 12V -> LiFePO4 - 13.9v | AGM - 14.1v
        - 24V -> LiFePO4 - 27.8v | AGM - 28.2v
    - Discharge Floor - 0%
        - AKA Time-to-go discharge floor
    - Tail Current - 2%
    - Charged detection time - 3min
    - Peukert exponent
        - LiFePO4 - 1.05
        - AGM - 1.25
    - Charge efficiency factor
        - LiFePO4 - 99%
        - AGM - 90%
    - Current threshold
        - Lynx Shunt - 0.01A

    - Other BMS - 0.1A
  - Time-to-go averaging period - 10min

10. Tap the back button and go into Display
  - Turn OFF - Starter voltage display
  - Turn OFF - Mid-voltage display

11. Verify Battery settings have been saved and then you're all done. No reboot required.

More Information

- In most installations, entering the battery capacity is sufficient. The BMV will automatically detect the system voltage and adapt its settings accordingly. But in some installations, for example with solar chargers, or lithium batteries, it is necessary to make some changes.
- For a reliable readout, the state of charge as displayed by the battery monitor has to be synchronised regularly with the true state of charge of the battery. This is accomplished by fully charging the battery. The BMV will detect this full charge, and automatically reset the state of charge to 100%.
- There are three parameters that define this full charge detection. Setting these parameters too wide causes the BMV to jump to 100% SOC too soon, which causes the BMV to exaggerate the remaining capacity at any given time. Conversely, setting these parameters too narrow causes the BMV to no longer detect a full charge, which is an even worse situation. Without regular synchronisation therefore, the SOC reading would drift and become unreliable.
- How does the BMV know when the battery is fully charged?
- The BMV resets to "fully charged" when the voltage reading exceeds the Charged voltage parameter and, simultaneously, the charge current is below the Tail current parameter, for a particular time. This time is called the Charged detection time.
- We will use the Bluetooth dongle to configure the BMV.
- Insert the dongle into the BMV.
- Switch on Bluetooth on your phone.
- Open VictronConnect and select the BMV.
- On your smartphone, go to settings by clicking the gear wheel at the right top of the screen. We've already configured the battery capacity.
- Now let's walk through the sync settings.
- We recommend setting the Charged voltage 0.3V below the end of charge voltage of the charger. Typically the float voltage.
- The battery used in this example requires a float voltage of 13.8 Volt. Therefore we set the charged voltage to 13.5 Volt.
- Installing a solar system? In solar systems or other applications with fluctuating charge currents, the 'charged' voltage should be set only slightly below the absorption charge voltage (for example: 14.1V in case of 14.4V absorption voltage). This will prevent the BMV from switching prematurely to 100% state of charge.
- The Tail current is expressed as a percentage of the battery capacity. When the charge current has dropped below this setting, the battery is considered as fully charged. The default setting is 4%, which is fine for most systems, including ours.
- The charged detection time is the time during which the previous two parameters must be met in order to consider the battery is fully charged.
- The default setting is 3 minutes, which is also fine for most systems.

- We recommend keeping this value at 1.25 for lead acid batteries. And set it to 1.05 for Li-ion batteries. A value of 1.00 disables the Peukert compensation.
- The Charge Efficiency Factor compensates for the Ah losses during charging. 100% means no loss. We recommend leaving this setting at its default, 95%, for lead batteries. And set it to 99% for lithium batteries.
- Make sure your battery is fully charged at least twice a month, which ensures the BMV can synchronise and show the correct state of charge.