

Understanding the Travato Pure3/Volta Bluetooth Monitor

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The goal of this document is to give people a better understanding of the functioning of the Bluetooth Monitor Module and App for iOS and Android. Initially the Bluetooth module was only available as an aftermarket product from Volta but it starting being standard equipment with the 3rd Generation Travato in 2020.

The link to purchase the module as well as a short video showing installation can be found here:

<https://voltapowersystems.com/shop/accessories/myvolta-bluetooth-hardware/>

Installation (see note on app install) is quick and easy and only requires a screwdriver. The module connects to the cable that provides data to the SoC (State of Charge) gauge. It is a low voltage module with a range of only a few yards so this is not going to give you a reading while you are off having lunch. The data it provides is limited to the data that is going to the SoC which is outlined below. Please note you can only have one device (phone, pad) connected to the Bluetooth module at a time.

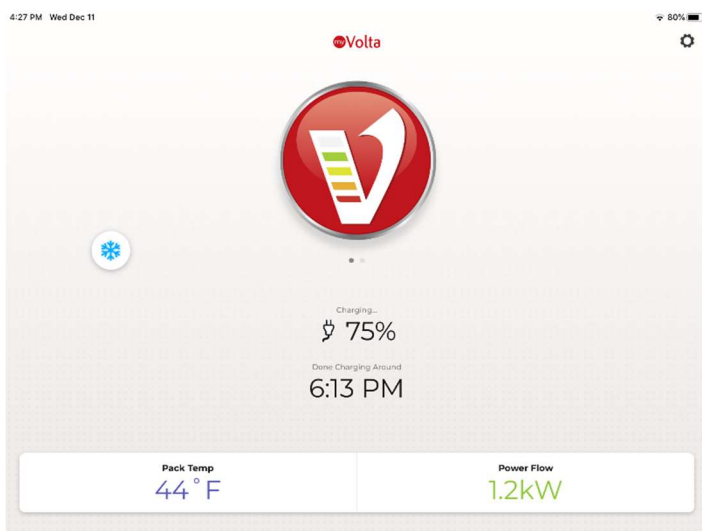


Figure 1

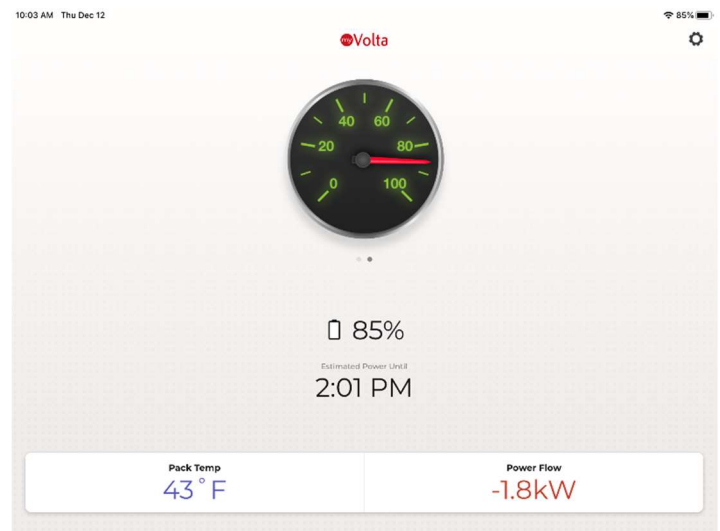


Figure 2

Percent Charge

There are two screens to choose from. Figure 1 shows the default screen with the Volta logo and Figure 2 shows the SoC screen. Swipe the screen to switch between the two. The SoC dial in Fig 2 seems to remain green even if the temp drops low enough to stop charging.

The percent charge is displayed as a number and the icon to the left indicates if you are:

- Connected to shore power (Fig 1)
- Discharging (Fig 2)
- Charging (Fig 3)

Below the percent charge number is an estimate of the time remaining:

- If you have a positive Power Flow, the time until you are fully charged (Fig 1)
- If you have a negative Power Flow, the time until you will be out of power (Fig 2)

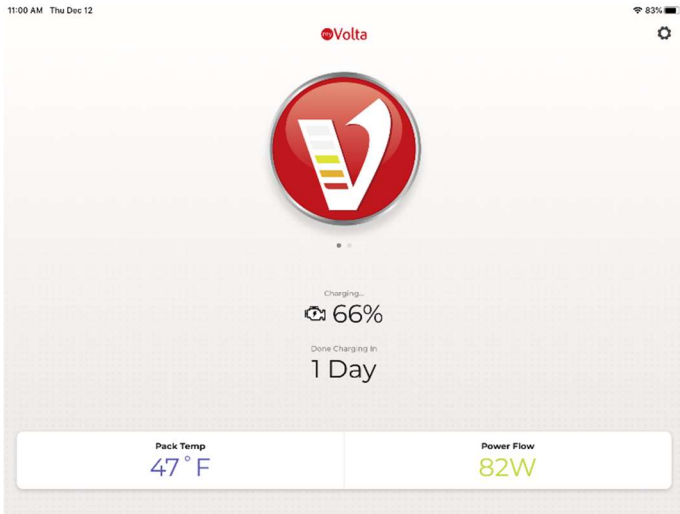


Figure 3

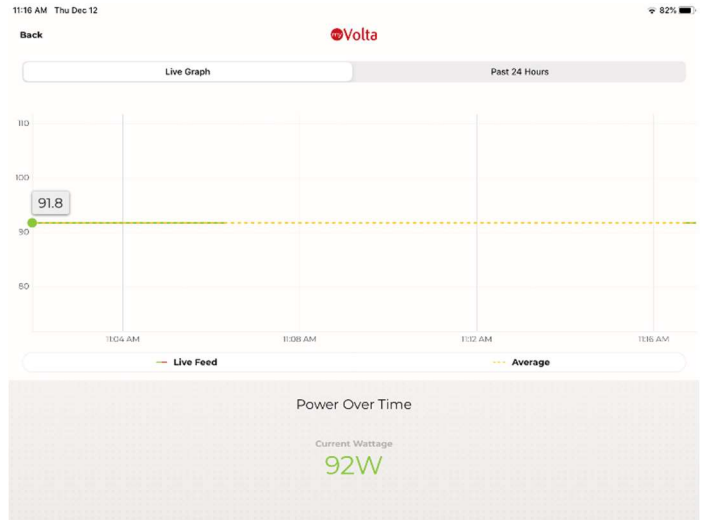


Figure 4

Power Flow

The Power Flow represents the net wattage going In To and Out Of the power pack. In other words, if you take the total wattage going in and subtract the total wattage going out, you have the net wattage. A good example of these can be seen on the previous page. Fig 1 shows shore power current charging the battery which gives you a net positive Power Flow; while in Fig 2 the coach is disconnected and the Truma is on EL2 producing a net negative Power Flow. In Fig 3, shore power is disconnected and the Truma is turned off so there is a net positive Power Flow from the solar panels.

Clicking on the Power Flow number takes you to a screen with a graph and two tabs. The left-hand tab shows a live display of the last 15 min. The right-hand tab shows the last 24hr. You should be aware that these graphs can only collect data while the app is active and connected to the Bluetooth device. If there are times where you are out of range then there will be gaps in the graphs. This could create a bit of a dilemma since you will probably have the app on your phone and have the phone with you while you are out and about. So, while you are away, you will not have any data collected.

At first glance, the Power Flow number may not appear to be very informative. However, if you want to take some time to do some testing, there are several things you can find out from it.

- While driving, the Power Flow can give you an idea what the output of your 2nd Alternator is and the same is true of Auto-Start High-Idle charging.

- Comparing night vs day values can indicate how well your solar is doing

- While connected to shore power and charged, the Power Level can tell you what your background and DC power use is

- While boondocking, you can find out what your average power usage is during the day or overnight

Of course, it will take a bit of work on your part to do this since you will have to use a process that isolates things so that you are only measuring one thing at a time. So, this is likely something that will be of more interest to some than others.

Pack Temperature

For some people, this measurement may be important in winter since it will tell them if their battery is warm enough to charge. There is not a single "Too Cold/Not Too Cold" temperature; rather there is a range that involves something called hysteresis which is a fancy term for a delay or lag before something happens. If there were just a single temperature which dictated the "Too Cold/Not Too Cold" switch, you could end up constantly jumping back and forth between the two states when the temperature shifted a single degree. Thermostats have a couple degree lag for this reason.

If the pack temperature gets down to 37°F (3°C) then the pack will stop charging. It will remain in that state until the temperature gets up to 43°F (6°C). Once it is at that point, charging will resume and continue until the pack once again gets down to 37°F (3°C).

There is also an upper temperature point where the battery will no longer charge. If the pack temperature reaches 117°F (47°C) then the pack will stop charging. It will remain in that state until the temperature gets back down to 109°F (43°C). Once it is at that point, charging will resume.

One issue in this is that each battery module has 3 sensors so a regular 3 module power pack has 9 total and the 4 module pack has 12. The pack temperature is an average of all of these. However, the determination of the Too Cold/Too Hot state is based on any one of the sensors being out of range. The practical result of this is that the temperature displayed in the app, while accurate, may not actually tell you when the pack charging status will change.

Too Cold to Charge

If you have had your Travato shut off for any length of time in the winter, the internal battery temperature may drop below the point where it will charge 37°F (3°C). As previously stated, it will have to warm to a point where it will start charging but as also noted all sensors have to get above that point. Since the app is giving you an average temperature, the practical result is that it may appear in the app that the battery is warm enough to charge but remain in the Too Cold state. In tests I have done with the ambient temperature in the low to mid 30's, the Bluetooth app temperature reading needed to get up to 50°F (10°C) before it started charging.

Too Cold/Hot to Operate (Discharge)

There is a bottom temperature point -20°F (-4°C) at which the power pack will no longer discharge. If you reach this point you will have to raise the temperature to 36°F (2°C) before it will start to operate again. Similarly, if you reach 135°F (57°C) the pack will stop discharging and you will have to get back down to 125°F (52°C) to resume discharging. Hopefully no one will ever see either of these conditions.

Settings

--Information about the module itself including it's ID, Serial#, Hardware Ver, Firmware Ver, and Module Capacity (your guess is as good as mine to that last one).

--Button to Disconnect which you will need if you want to switch to a different device or if you want to "reset" the app if it seems to stop reacting.

--Button to change between °F and °C.

--Button to update module Firmware (when available)

--Log Out : DO NOT PRESS THIS BUTTON!!! If you do, you will have to go through the setup again.

--FAQ : 5 questions and answers

Notes:

--You can only have one device connected at a time. If you are using two devices (like a phone and a tablet) be sure to go to settings and click Disconnect (not Log out) on one device before connecting the other. If you don't do this then the two can end up interfering with each other.

--The app requires iOS 12.2 or Android 8/9 to work.

--If the Android app does not "see" the module, you may have to change a system setting. Menus vary with device but look in Settings for Location then look for Advanced/Scanning. Make sure Bluetooth Scanning is Enabled. This setting is included in the initial Android setup but can easily be bypassed as it only appears to relate to Location. But in reality it allows apps to scan for Bluetooth devices.