



Guardian – IoT Gateway Installation and Operation Manual

PRODUCT SPECIFICATIONS

All specifications and descriptions contained in this document are verified to be accurate at the time of printing. However, because continuous improvement is a goal at Fortress Power, we reserve the right to make product modifications at any time. The images provided in this document are for demonstration purposes only. Depending on product version and market region, details may appear slightly different.

ERRORS OR OMISSIONS

To communicate any inaccuracies or omissions in this manual, please send an email to: manualfeedback@fortresspower.com.

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Firmware Revision

The initial firmware version of the Guardian is **1.0.**

Please check <https://fortresspower.com/firmware> for release information.

The Guardian is new hardware, so be prepared to update Guardian firmware at each site visit until ~2024.

Overview

Introduction

The Guardian hub is a monitoring and controls device for your Fortress eFlex and eVault MAX battery products. It uploads your Fortress batteries' data to the cloud over Wi-Fi so that you can view key information on your battery system in the Guardian companion app such as charged percentage, time till full charge, voltage, current, and more. The companion app allows for a smoother tech support experience by featuring a chat widget where you can contact support directly. Additionally, the app automatically tracks your Fortress battery warranties once they are connected to the Guardian hub.

Commented [JC1]: What is the initial firmware version release?

Commented [LO2R1]: At this rate we don't even have a fully working beta release, so I would just put 1.0 for now and we can revise

Physical Features

- [IP23 Rated](#)
- Two power supply sources, one an AC/DC adapter wall socket, the other a DC input from your battery system.
- Connects to internet over home WI-FI connection or an ethernet cable
- CAN bus communication port for your Fortress battery products
- SD card input
- Reset Button
- Status Lights (details in physical specifications)

Installation

Materials and Tools Required

Please be prepared to cut and strip RJ485 ethernet cable.

Flathead screw driver for wall mount.

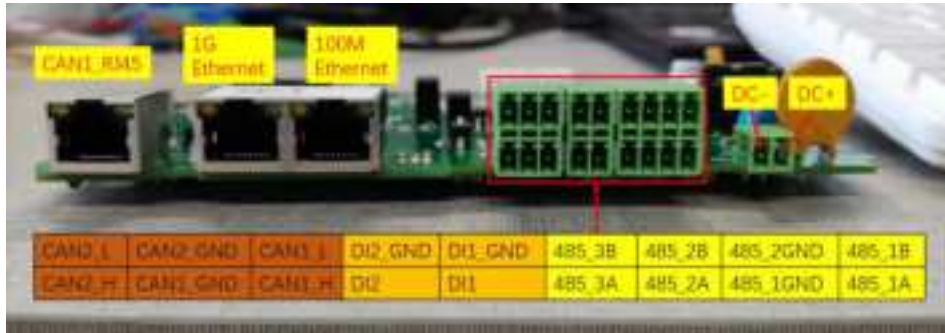
Mounting the Guardian

It is din rail or wall mountable using the four screws in the red box.



Connecting the Guardian to the Battery CAN Network

Figure 1: Guardian Hub Connections



EFlex battery Access:

Look for the CAN port on your eFlex battery.

eFlex can choose J1 or J2 interface to connect with the CAN interface of the gateway.

CAN 1 of eFlex is connected to CAN 1 of gateway seen in figure 1 as CAN1_L, CAN1_GND and CAN1_H.

CAN 2 of eFlex docks to CAN 2 of gateway seen as CAN2_L, CAN2_GND and CAN2_H.



Commented [JC3]: @Liam O'Brien will the guardian communicate to fortress batteries over Can1 or Can2?

Getting Started

Connecting the Guardian to the Internet

The guardian connects via customer Wi-Fi or hardwired ethernet during commissioning. A cell phone app is used (with Bluetooth) to set up Wifi. Please visit the Google Play store or Apple App store and search for the **Fortress Guardian App**.

Detailed instructions on how to connect the guardian to the internet through the app are available below.

Power Cycling

The Guardian has a reset button that can be pressed for 5 seconds to reset the Guardian. Use this function if directed by technical support. **IMAGE OF RESET BUTTON HERE**

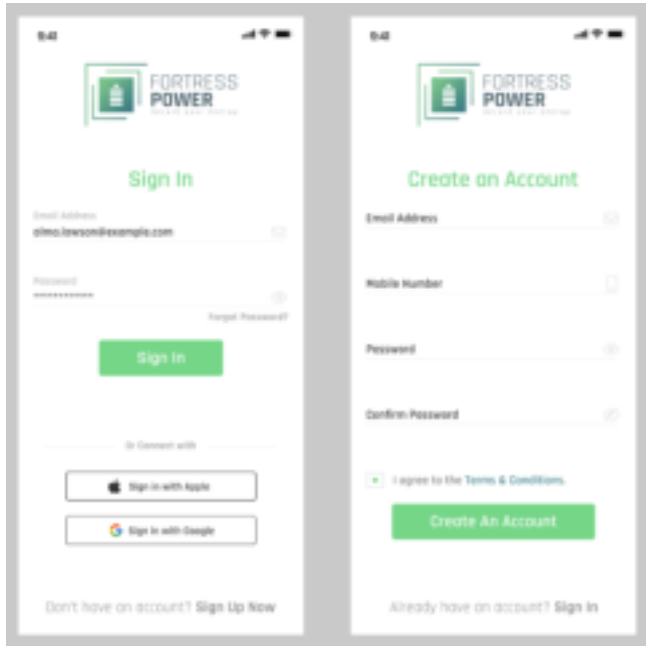
Commented [JC4]: [@Drew Garraway](#) Do we have a name for the non-fleet management app?

Commented [DG5R4]: [@John Cromer](#) , we have FLEET MANAGEMENT PORTAL (aka FMP) which is the desktop interface to battery health for engineers. GUARDIAN is the companion app that pairs the gateway and battery. Mostly for residential (eFlex to start). If you are asking about GUARDIAN and the official name, that is a great question! I will lean on [@Brian Jones](#) on the brand name here. I believe the Guardian app would be it (as Guardian Companion app is a bit long winded)

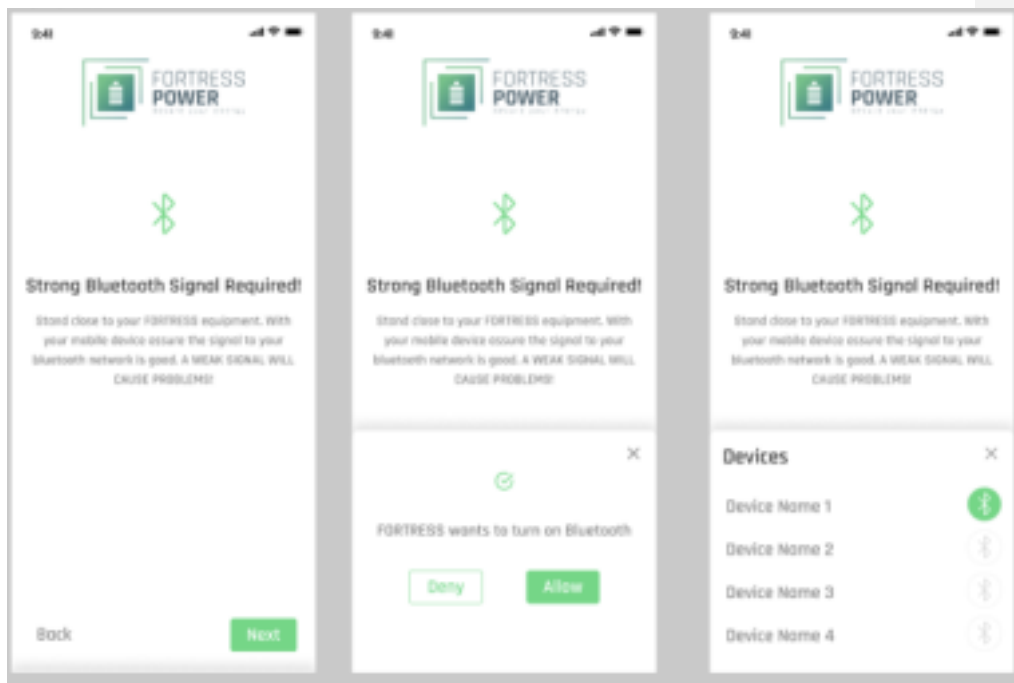
Commented [JC6]: [@Maxim Mounier](#) Can you take a picture of the Guardian hub we have in the office and show the reset button?

Configuring the Guardian

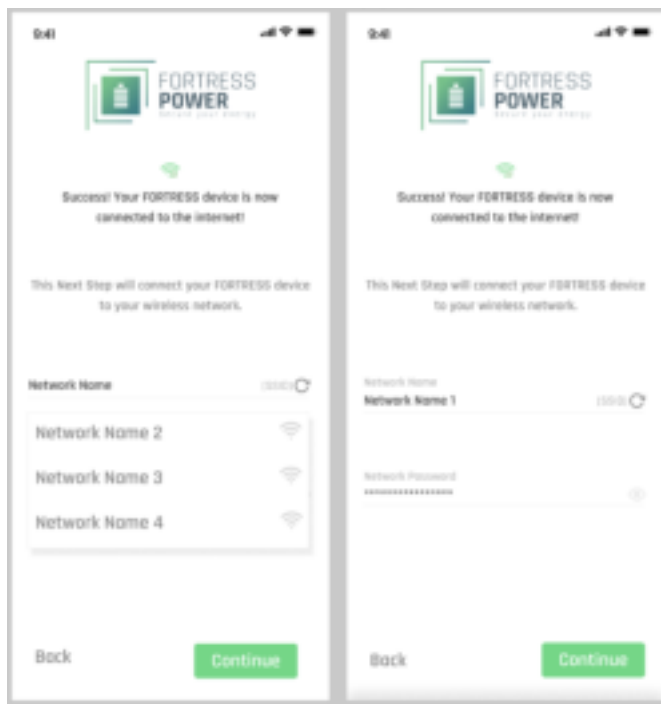
- Login or Signup for the Guardian App by entering new account credentials or authenticating with a provider such as google or apple, and accept terms and conditions:



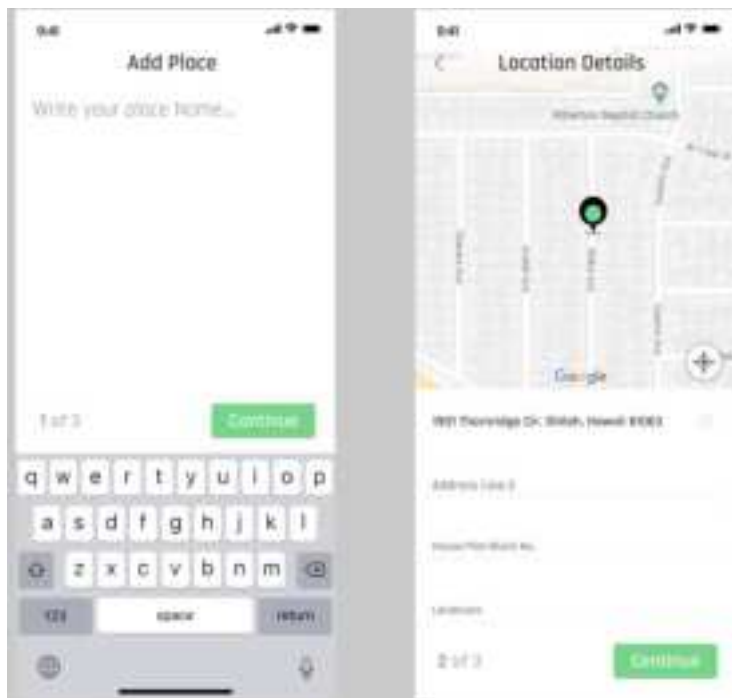
- Connect your phone to the Guardian hub over Bluetooth connection:



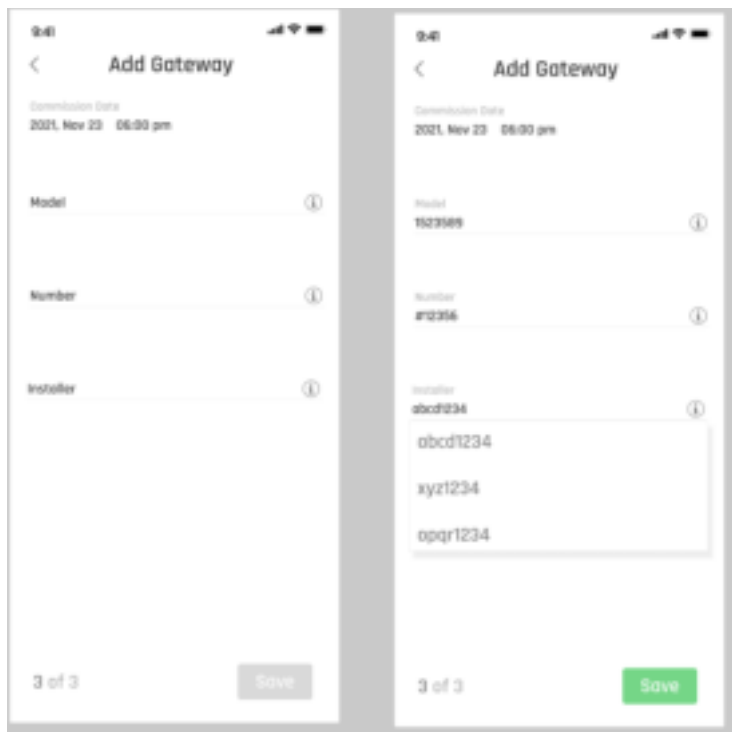
- Connect your Guardian hub to the internet over your home WI-FI:



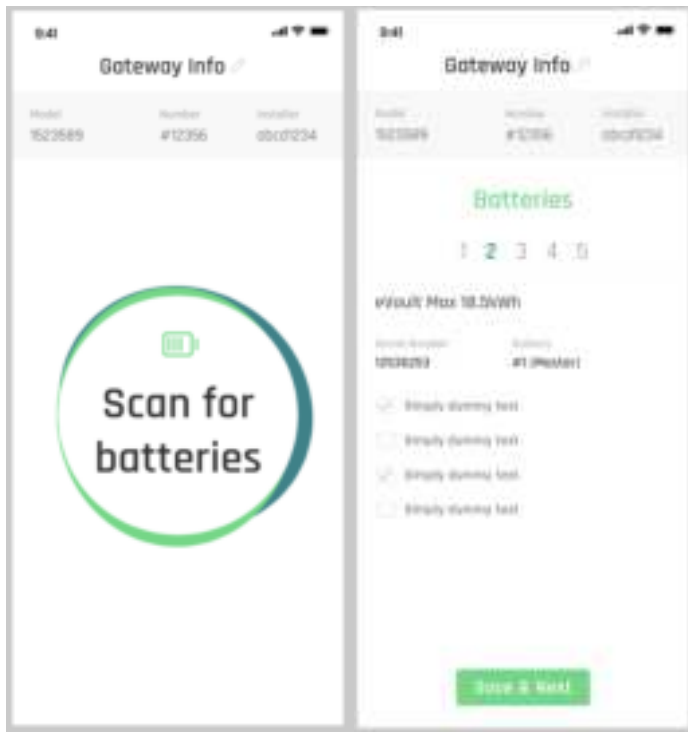
- Name your Fortress Battery system and optionally provide your address



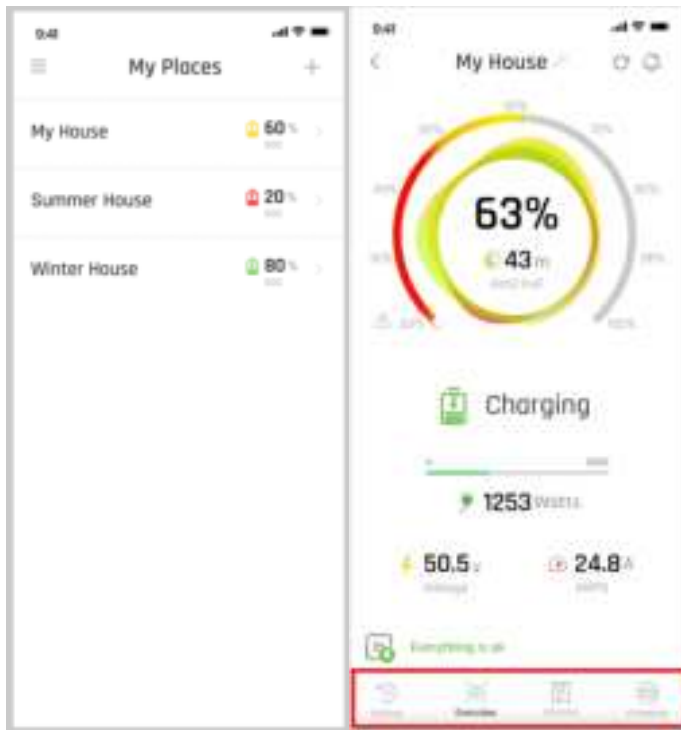
- Configure your Guardian Hub's information in the app. It should populate automatically:



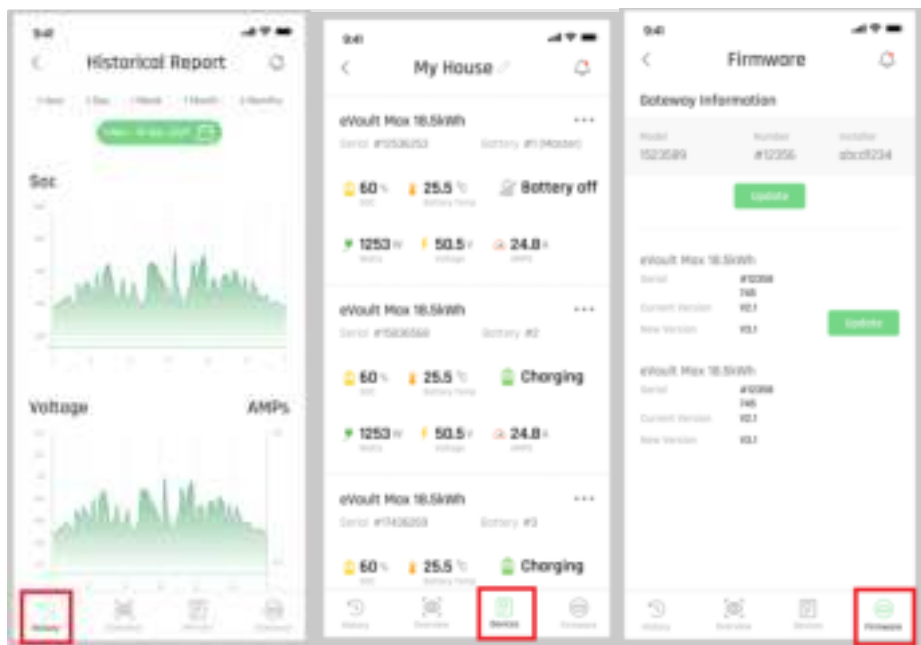
- Scan for batteries allowing the app to view information on your Fortress battery system's health from the Guardian hub:



- After submitting your battery information, you should now be able to see your newly created place. If you press on it, you will see a general overview of your battery system

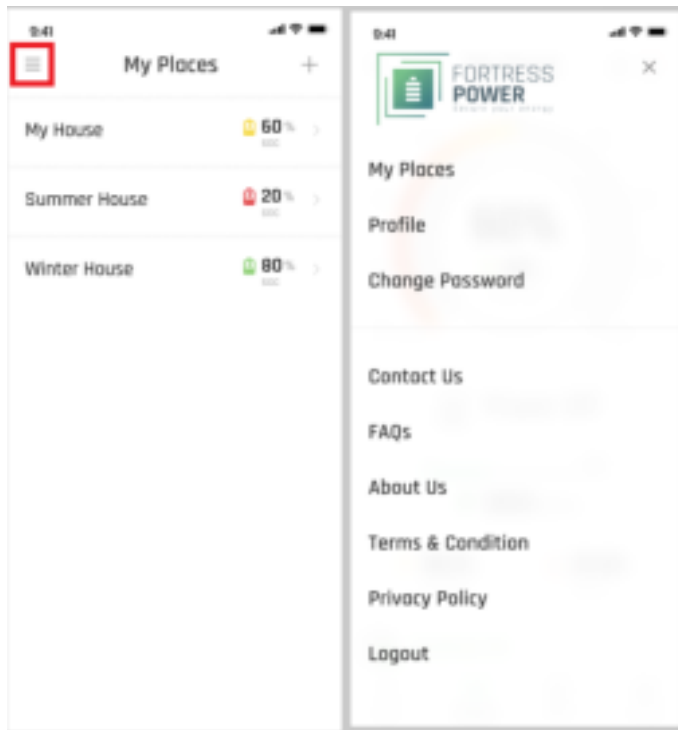


- Press any of the tabs highlighted in red above to get more information on your Fortress battery system:

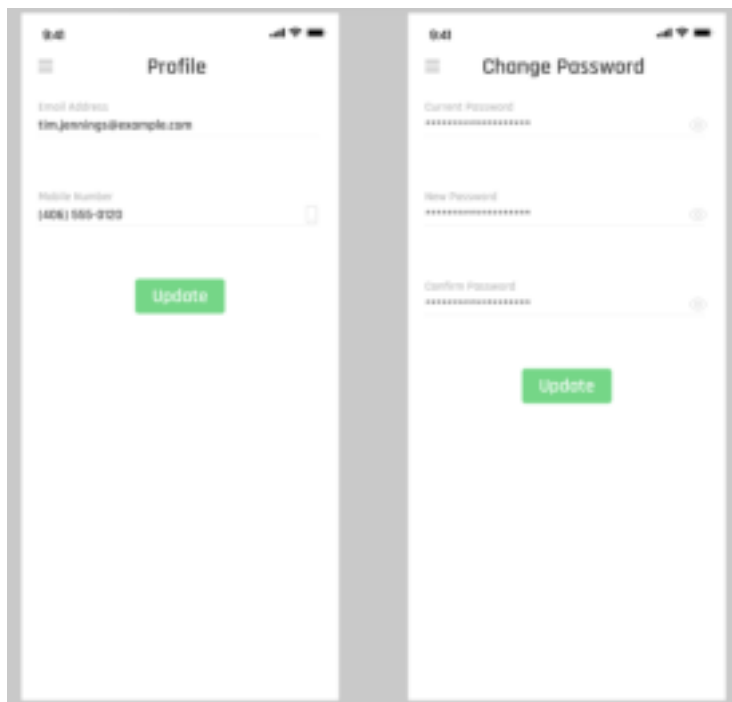


Changing Guardian Settings

- In the My Place section click on the dashboard icon in the top left to view the companion app dashboard:

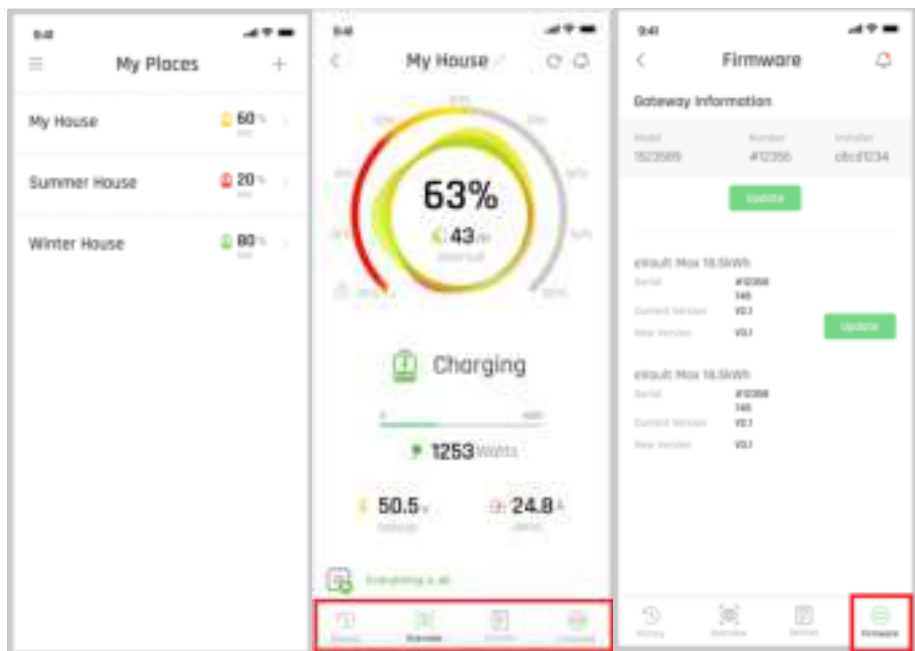


- Press on profile to update email and phone number information and on change password to update account password:



Upgrading Firmware

- Select the place where you want to update firmware then select firmware option from the icons below:



- Update the firmware of the Guardian hub by pressing the above update button or of the batteries that need it by pressing the update buttons below:



Monitoring

Fleet Management Portal (aka FMP) is an internal tool that lets us see how batteries are operating in the field. It lets our customer support team know deep details on batteries so they can help diagnose and troubleshoot with our installers.

Troubleshooting

To troubleshoot Guardian issues, please fill out a support ticket at <https://support.fortresspower.com>

Error Codes and Events

| | |
|--------------|---|
| DISCONNECTED | 1 |
| INITIALIZING | 2 |
| CONNECTED | 3 |
| STANDBY | 4 |

| | |
|----------------|----|
| SOC PROTECTION | 5 |
| SUSPENDING | 6 |
| FAULT | 99 |

- ChaSt (charge state)

| | |
|-------------|---|
| OFF | 1 |
| EMPTY | 2 |
| DISCHARGING | 3 |
| CHARGING | 4 |
| FULL | 5 |
| HOLDING | 6 |
| TESTING | 7 |

- Evt1 (faults)

| | |
|------------------------------------|---|
| COMMUNICATION_ERROR | 0 |
| OVER_TEMP_ALARM | 1 |
| OVER_TEMP_WARNING | 2 |
| UNDER_TEMP_ALARM | 3 |
| UNDER_TEMP_WARNING | 4 |
| OVER_CHARGE_CURRENT_ALARM | 5 |
| OVER_CHARGE_CURRENT_WARNIN G | 6 |
| OVER_DISCHARGE_CURRENT_ALAR M | 7 |
| OVER_DISCHARGE_CURRENT_WAR NING | 8 |

| | |
|-------------------------------|----|
| OVER_VOLT_ALARM | 9 |
| OVER_VOLT_WARNING | 10 |
| UNDER_VOLT_ALARM | 11 |
| UNDER_VOLT_WARNING | 12 |
| UNDER_SOC_MIN_ALARM | 13 |
| UNDER_SOC_MIN_WARNING | 14 |
| OVER_SOC_MAX_ALARM | 15 |
| OVER_SOC_MAX_WARNING | 16 |
| VOLTAGE_IMBALANCE_WARNING | 17 |
| TEMPERATURE_IMBALANCE_ALARM | 18 |
| TEMPERATURE_IMBALANCE_WARNING | 19 |
| CONTACTOR_ERROR | 20 |
| FAN_ERROR | 21 |
| GROUND_FAULT | 22 |
| OPEN_DOOR_ERROR | 23 |
| CURRENT_IMBALANCE_WARNING | 24 |
| OTHER_ALARM | 25 |

| | |
|-----------------------|--------|
| OTHER_WARNING | 2 6 |
| RESERVED_1 | 2 7 |
| CONFIGURATION_ALARM | 2 8 |
| CONFIGURATION_WARNING | 2 9 |

Specifications

Electrical Specifications

| | |
|-------------------------------|---|
| Power Consumption | 5W – 24V@1A power supply. |
| AC/DC Adapter | 120V / 5A 24V DC 5.5mm |
| Supported Communication Types | 1x MODBUS/TCP, 2x MODBUS/RTU, 2xCAN 2.0 |
| Operation Frequency | 2.4Ghz |

Physical Specifications

| | |
|--------------------------------------|---|
| Weight (device only) | 0.8 lbs. – 0.4kg |
| Dimensions (device only) (W x H x D) | 7.25 " x 6 " x 1.25 " |
| Shipping package dimensions | Not known at this time |
| Shipping package weight | Not known at this time |
| Housing/ | IP23 / |
| Mounting system | Din Rail Mount |
| Status Display LEDs | From top to bottom: power, cloud connection, Bluetooth or Wi-Fi connection, serial communication with battery, error signal |
| Temperature | In network files |
| Humidity | In network files |

Regulatory

| | |
|----------------------------|---|
| Safety | FCC and ETL |
| EMC Emissions | EN61000-6-3 EN 55032 EN 62311 EN 300 328 EN 301 489-1, -17 FCC part 15B ICES-003 |
| EMC Immunity | EN61000-6-1 EN 55035 EN 301 489-1, -17 |
| Substances / environmental | RoHS |