verizon

ThingSpace

Global Asset Tracker

Device Guide

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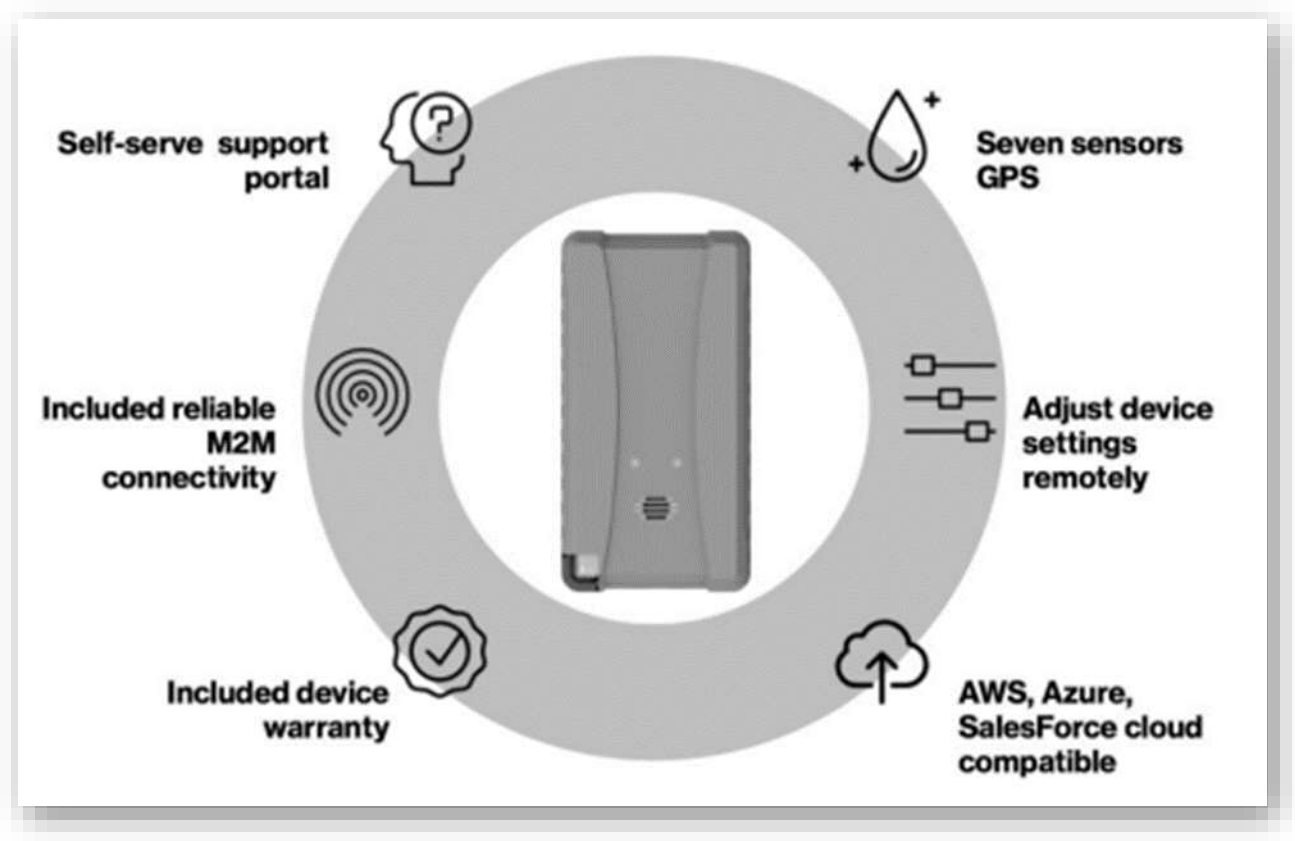
Welcome

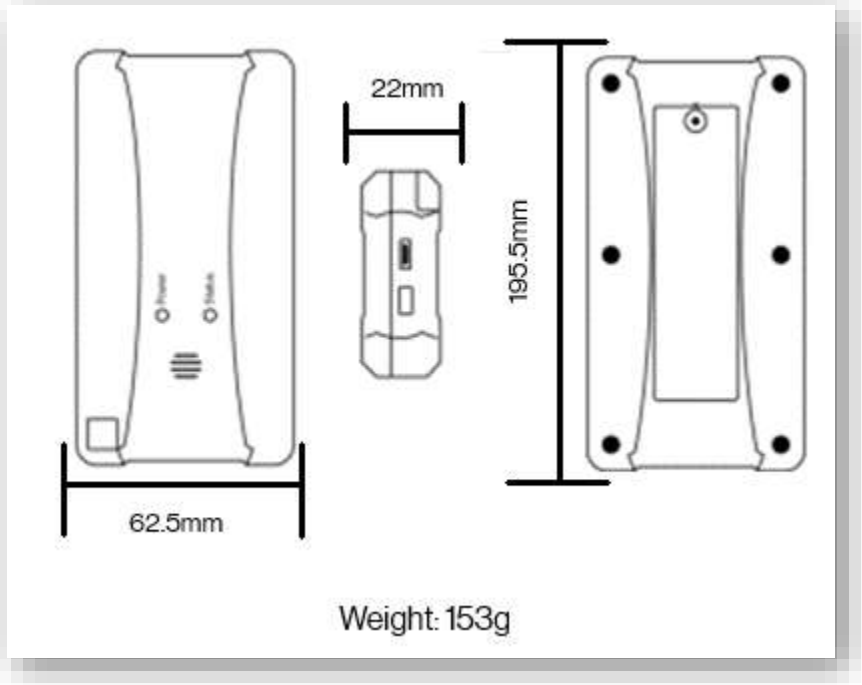
The Verizon Global Asset Tracker is an IoT plug and play solution for quick deployment across multiple IoT use cases. It packages a device, ThingSpace Services and a Verizon data connectivity plan. It includes the following sensors: GPS, temperature, humidity, 3 axis accelerometer (shock and vibration), gyroscope (tilt), pressure, humidity, and light. It comes bundled with ThingSpace, a suite of services, and the ability to plug into a customer's platform of choice including Verizon's Critical Asset Tracking solution.



The Global Asset Tracker allows you to capture the data you need so you can turn it into meaningful business solutions including:

- IP 67 Rating for harsh industrial environments.
- Configurable on-device alarms, reporting and sensor read frequency.
- Integrated with Verizon Critical Asset Tracking or compatible with third-party cloud platforms using API's or Cloud Connectors.
- Optimized for low power IoT cellular networks.
- Connectivity, device management and warranty are included.

Device overview



Capability	Description
Network	CAT-M1 Bands: 1, 2, 3, 4, 5, 8, 12, 13, 18, 19, 20, 26, 28 GPRS Bands: GSM850, EGSM900, DCS1800, and PCS1900
Battery	Capacity: 4000 mAh Operating Voltage: >3.8 V Chemistry: Li-ion (rechargeable) Runtime: Up to 1-year battery life on a single charge Charging: Micro USB 2.0 (type B receptacle) Max Charge Rate: 1.2 A The color of the power LED is set according to the percentage battery level remaining as follows: • Green: Battery level remaining is greater than or equal to 40%. • Yellow: Battery level remaining is less than 40% and greater than or equal to 20%. • Red: Battery level remaining is less than 20%. The power LED stays on when the radio is on and blinks when the radio is off.

Status Button	**Short press of Status button :** Pressing the button for 2 seconds toggles radio power. Allow several seconds after button is recognized for the radio to complete its power cycle. **Long press of STATUS button** Pressing the button for 10 seconds performs a system reset, after which the radio powers on and performs sensor reporting as necessary.

LED Display Summary

Below are tables showing what the “Power” and “Status” LEDs will display in the 3 modes of operation.

Off (Mode 0)

NOTE: There is no way to shut the device off. Mode 0 is when the battery has become fully discharged.

Operational state	Power LED	Status LED
Charging	Any color (Red, Green or Yellow), slow blink until charged. Solid on when fully charged	Any color (Red, Green or Yellow), any speed blinking

NOTE: In Mode 0, the LEDs will only show charging. If the battery becomes fully discharged there will be no LED indication regardless of the Mode the device is set to.

Power Save Mode or PSM (Mode 1)

NOTE: The only difference between LED displays for "On" and "PSM" is that status in PSM will only be displayed for 60 seconds after a short press of the status button

Operational state	Power LED	Status LED
Standby	Any color (Red, Green or Yellow), any speed blinking	Off
Ready (Normal) – PSM active	Any color (Red, Green or Yellow), any speed blinking	Any color (Red, Green or Yellow), any speed blinking
Ready (Normal) – PSM sleep	Any color (Red, Green or Yellow), any speed blinking	Yellow or Green, very slow blink or solid on Green
Charging	Any color (Red, Green or Yellow), slow blink until charged. Solid on when fully charged	Any color (Red, Green or Yellow), any speed blinking
Firmware Over-The-Air (FOTA) update	Any color (Red, Green or Yellow), fast blinking	Green, fast blinking
Critical device error	Red, fast blinking	Red, fast blinking
Device not transmitting due to low battery	Red, very slow blink	Off
Reset	Cycles though all colors (Red, Green, Yellow) for 2 seconds	Cycles though all colors (Red, Green, Yellow) for 2 seconds
Status Button Press pattern	Any color (Red, Green, Yellow), solid on	Off

On (Mode 2)

Operational state	Power LED	Status LED
Standby	Any color (Red, Green or Yellow), any speed blinking	Off
Ready (Normal) – PSM active	Any color (Red, Green or Yellow), any speed blinking	Any color (Red, Green or Yellow), any speed blinking
Ready (Normal) – PSM sleep	Any color (Red, Green or Yellow), any speed blinking	Yellow or Green, very slow blink or solid on Green
Charging	Any color (Red, Green or Yellow), slow blink until charged. Solid on when fully charged	Any color (Red, Green or Yellow), any speed blinking
Firmware Over-The-Air (FOTA) update	Any color (Red, Green or Yellow), fast blinking	Green, fast blinking
Critical device error	Red, fast blinking	Red, fast blinking
Device not transmitting due to low battery	Red, very slow blink	Off
Reset	Cycles though all colors (Red, Green, Yellow) for 2 seconds	Cycles though all colors (Red, Green, Yellow) for 2 seconds
Status Button Press pattern	Any color (Red, Green, Yellow), solid on	Off

NOTE: The power LED Will be Green for 40% to 100% battery State of Charge (SoC), Yellow for 20% to 39% SoC and Red for 19% SoC and below.

Sensor information

- Temperature Sensor temperature range: (-20C to 65C +/- 0.5C),-20 to 75 degrees Celsius.
- Pressure: (300 – 1100 hPA)
- Humidity (0% to 95% RH)
- Light: 0k - 64k lux
- Accelerometer: 3-axis: scalable up to +/- 16g
- Shock, Tilt, and Vibration
    - Shock is measured along 3 axis (X, Y, Z)
    - Shock range: up to 8g, values above are truncated
    - Tilt is measured relatively to horizon for the x (pitch) and y (roll) axis.
    - Tilt range: 0... 35960 degrees
    - Vibration is measured as two single taps in a short well-defined period of time.
- Location Technology:
    - GPS: GPS 1575.42 MHz (L1) GNSS 1602 MHz
    - WiFi: Receive only, location as a service
    - CellID: Network location as a service
- Bluetooth: Supports external BLE sensor scanning and reporting
- Out-of-cellular coverage operation: Environmental sensor data (temperature, light, humidity, pressure, shock, tilt, vibration) is collected and stored while out-of-cellular coverage. Once the device reconnects to the cellular network the stored data is forwarded.

Unpacking your device

The package contains:

Global Asset Tracker (Note, the battery is inside the unit) Dimensions: 119.5 x 62.5 x 22 mm Weight: 153g	
USB Cable	
USB Power Plug	

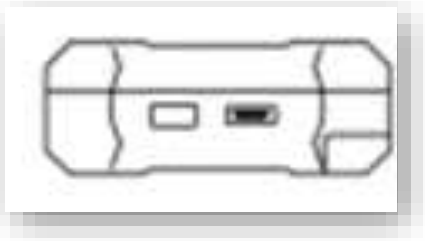
Setting Up

For best results follow the set-up order below.

Charging the device

1. Connect the AC adapter and USB cable.
2. Connect the micro USB cable to the charger.

Device: Attach the micro USB end to the charging port on the end of the device:



3. Plug the AC adapter into an outlet.

NOTE: It can take up to 5 hours to fully charge for the first time.

Charging batteries

All batteries should be charged for 5 hours before use. Fully charge the device when you receive it and prior to the first shipment.

Turning ON device

The device will automatically turn on once charged.

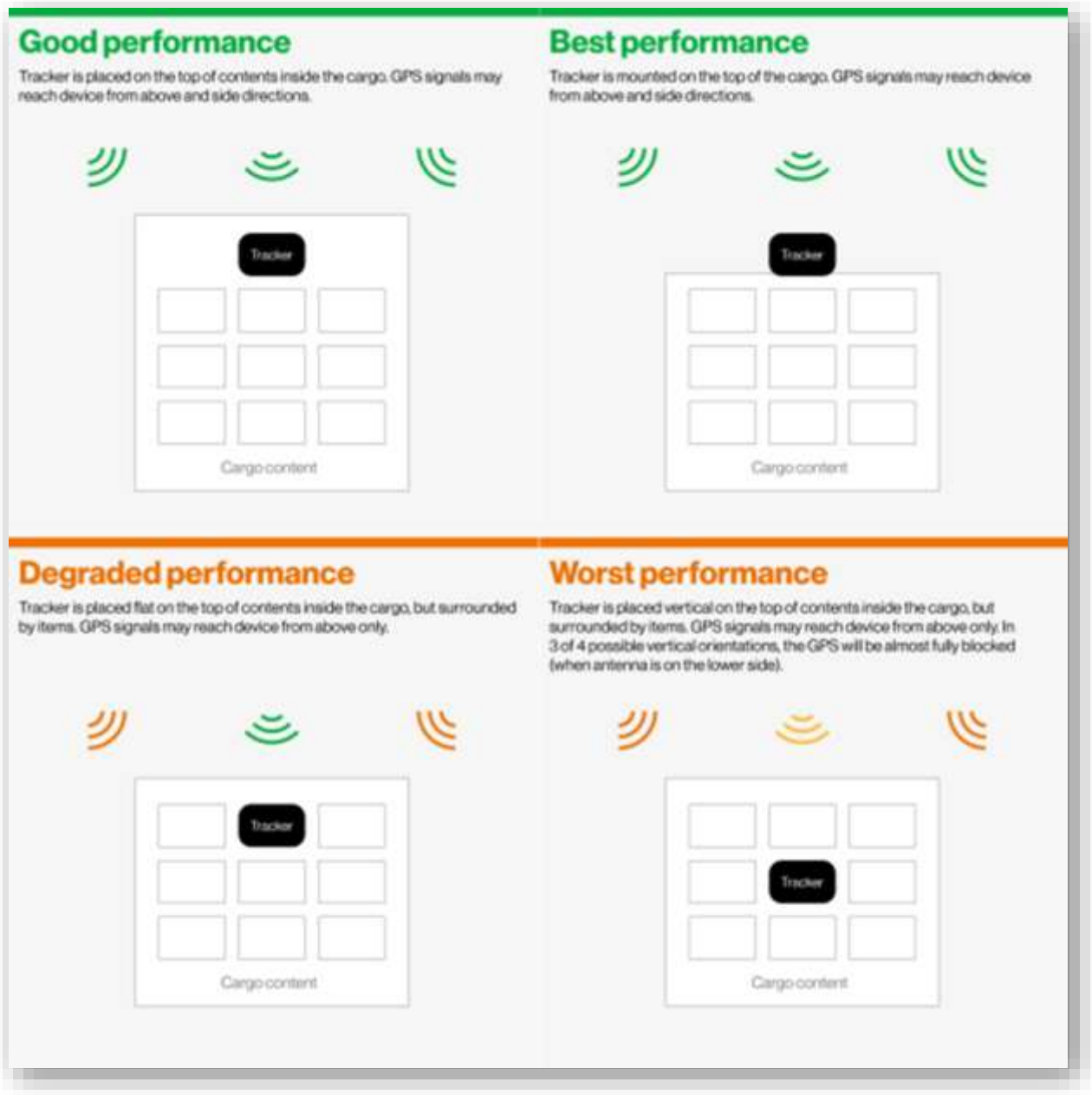
Turning OFF device

The device cannot be turned off physically.

Device placement

Considerations for the best GPS performance:

- The device has an Omni-directional antenna for GPS and receives GPS signals from all 6 sides.
- Connection to a satellite receiving longitude and latitude coordinates is required to receive GPS location data.
- The best GPS performance is achieved when the device is placed flat above cargo, avoiding obstructions from surrounding items.



Location: Tracking GPS location of a pallet shipment on a truck or ground based transportation

- For best reception, place device closest to the end of the truck/transport, near the door.
- Do not enclose in a metal based package or material, as this can interfere with cellular and GPS signals.
- If using shipping pallets, secure the device to the top or side of the preferred pallet using stretch plastic pallet wrap. Pack this pallet last on the truck, if possible, for better reception.
- Alterative placement is to secure the device to the side of the truck wall, closet to the door, and as close to the celling as possible.
- Placement of the return device envelope: insert tracking device in padded envelope with return address then secure to pallet, truck or box. Consider including a short instructional note to the receiver asking them to remove the return addressed envelope and drop it in the mail.

Location: Tracking GPS location of a box for shipping (overnight, next day, etc.):

- Place device inside and at the top / center of the box before sealing it (see best performance chart above).
- Placement of the return device envelope for location (see below for temperature): Insert tracking device in a padded envelope with return address then place inside the box before sealing it.
- Do not enclose device in a metal based package or material, as this can interfere with cellular and GPS signals.
- Temperature: Tracking temperature of the ambient environment around the device.
    - The device needs to be associated with the specific truck, pallet, case, or box to track its ambient temperature.
    - For a specific box or case, place the device inside, at the top, before sealing the box.
    - Placement of the return device envelope: Include a padded envelope with a return address but do not insert the tracking device. Inserting the device in the padded envelope could impact the temp accuracy above 1-2 degrees Celsius.

NOTE: Your data frequency settings can impact the heat generated inside the device. This may impact the reading of the device temperature