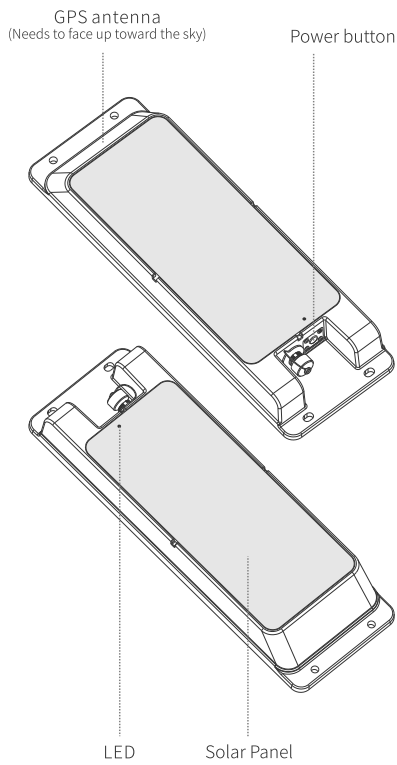


## Solar Powered Trailer and Asset Tracker



## About Your New Tracker

The device you are about to install powers itself from the sun. It is designed to be mounted on the outside of trailers, containers and other movable assets. It is highly efficient and can operate for several months with limited to no light. For maximum battery life, mount the device vertically so that sun hits the solar panel in the mornings and evenings and avoid mounting it horizontally especially in hot, sunny climates such as the US Southwest and Australia. Extended exposure to high heat will shorten the device life. The device contains a GPS receiver which scans for positioning signals from satellites. The GPS antenna should be oriented toward the sky. The device also contains an LTE cellular modem to communicate its location when it moves.

## Active Tracking

Once installed and turned on, the device automatically adjusts its location collection and reporting frequency depending on whether it is moving or stopped. By default, it will collect GPS locations every 1 minute and report them every 10 minutes while moving. While stopped, the device reports its location once per day. If sunlight conditions are poor for an extended period of time and the battery level gets low, the device will reduce its collection and reporting frequency dynamically.

## Multi-function Button & LED

The device has a multi-function button and LED. It can be used to power on and off the device, force a manual sync with the device management server and to check for any error conditions. The multi-function button has the following behaviors:

Button Press Duration	Action
2-4 seconds	Power on (when off) Check for errors (when on)
5-10 seconds	Sync settings with the cloud device management portal
>15 seconds	Power down (if unlocked)

The LED indicates device activity at start-up and in response to button presses. To save power, the LEDs do not illuminate during device operation when unattended.

	Green	Blue	Red
<b>Off</b>	Modem Off	GPS Off	Device off or sleeping
<b>On</b>	Connected to cellular network	GPS has location fix	System is awake
<b>Rapid Flash</b>	Transferring cellular data	Receiving GPS location	Telematics transferring data (if equipped)
<b>Medium Flash</b>	Searching for cellular network	Searching for satellites	Device unlocked

## Powering on the Device

1. Press and hold the multi-function button for 2s.
2. A red LED will illuminate when the system starts and the device will initiate a set of start up activities (see start-up sequence LED behavior below).

## Manually Syncing Settings with the Cloud

1. Press and hold the multi-function button for ~5s until the green LED comes on.
2. The device will now connect to and sync with the cloud; a flashing green LED should be seen while the device is syncing (if no flashing green LED is seen, the device may be out of coverage; check the error codes below).
3. The LED will turn off when the sync is complete.

## Unlocking the Device (for shutdown and configuration)

The device will automatically lock itself after 30 minutes of continuous run time in order to prevent unauthorized personnel from tampering with or powering down the device. While unlocked, the unlock timer is reset every time the device is powered up. Once locked, the device can only be unlocked from the cloud device management portal. The LED will flash red 4 times when it is unlocked and will resume flashing other colors indicating other device activity. To unlock the device, execute the following steps:

- » Unlock the device in the cloud device management portal.
- » Press and hold the multi-function button for 5-10s; release when the green LED illuminates.
- » The device will now connect to and sync with the cloud; a flashing green LED should be seen.
- » If the device was able to connect to the network and successfully received its unlock command, the LED will

now medium flash red 4 times. Once unlocked, the user can:

- Power down the device
- Connect to Bluetooth (if the device is capable)
- Connect over serial port to configure the device (if available)

» The device will stay in the unlocked state for 30 minutes after which it will lock itself again.

## Shutting Down the Device

For security reasons, the device must be unlocked before it can be shutdown. To shutdown the device, execute the following procedure:

1. Follow the "Unlocking the Device" procedures.
2. Press and hold the multi-function button for more than 15s; release when the red LED illuminates.
3. The device will finish any pending activity.
4. Once done, the white LED will illuminate and turn off confirming shut down.

## Error Codes and Troubleshooting

When the device is running, you can check the system status via the multi-function button and LED. The following steps explain how:

1. Press and hold the multi-function button for 2-4s; release when the blue LED illuminates
2. If there are any errors, the red, green or blue LED will flash a certain number of times, followed by a 3s pause. It will then flash the next error (if any). Look up the error in the LED table below.
3. Repeat the process from step 1 to see the errors again.

## Error Codes

LED Color	Flash Count	Error
Green	1	SIM Error
	2	No Network
	3	Unable to register with network
	5	Service activation error
	6	Service sync failure
	Blue	3
Red	4	Battery too low to transmit
	5	Error reading telematics data
	10	Other system error

## Troubleshooting

Symptom	Action
LEDs do not illuminate when power button is pressed	Charge device by either placing it in direct sunlight for 24 hours or by connecting a 12V supply to the external connector (if available)
LEDs do not illuminate when power button is pressed after 24 hours of charging	Replace the device
LED slow flashes a repeated pattern of LED flashes after pressing the power button	The device is in error state; check the error codes below for corresponding actions

## General Installation Guidelines

Where weather and safety conditions allow, outdoor installation with an unobstructed view of the sky is preferred. For maximum battery life, mount the device vertically so that sun hits the solar panel in the mornings and evenings and avoid mounting it horizontally especially in hot, sunny climates. Extended exposure to high heat will shorten the device life. On start-up the device, will attempt to determine its location by monitoring signals from global positioning

satellites (GPS). In addition, the device requires cellular service. If it is not possible to install the device in an area with good cellular coverage, consider a drive test after installation into known good coverage areas in order to validate the device is fully operational.

## Safety

Installers must follow OSHA requirements for working on or around the equipment the device will be installed on. Proper OSHA compliant scaffolding and safety harnesses and equipment must be used when working at elevated heights. Care must be taken to perform the installation on flat, stable ground and away from high-traffic areas. Ensure the equipment is chocked and locked out prior to performing the installation.

## Record Device Information

Record the following information for activation and for your records:

- » Device Model Number (see image of label below)
- » Device Serial Number (see image of label below)
- » Device IMEI (see image of label below)
- » Device ICCID (if available)
- » Asset ID of equipment the tracking device will be attached to (VIN, License Plate as available)



(On the left side of the device)



(On the bottom of the device)

## Pre-installation Test

Just prior to installation, take the device outside in an area with unobstructed view of the sky and with good cellular coverage. Turn on the device by pressing the power button until the LED illuminates (~15s). You should see the device progress through a series of start-up steps, indicated by different LED colors as below. This process typically takes 2 minutes but can take up to 20 minutes on first power-up if GPS or cellular signal is poor:

1. Red – Power on.
2. Blue or Blue rapid flashing – Device GPS Receiver is on and attempting to get the device location.
3. Red LED on (~30s).
4. Blue or Blue rapid flashing – Device GPS Receiver is on and attempting to get the device location.
5. Red LED on (~10s).
6. GREEN or GREEN Rapid Flashing – Device is connected to a cellular network.
7. LED off (device has finished start-up sequence and is operational).

After this sequence has completed, press the power button and you should see a solid Red LED stay on as long as the button is pressed. The device is on and functional.

If you do not see the LED illuminate after holding the power-button or do not see this sequence of LEDs, follow the steps in the troubleshooting guide and verify the device is functional before installing.

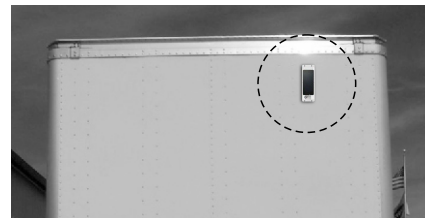
## Dry Van Trailer Installation (Nose Mount; without gap fairings)

### \*Required Supplies

- » drill bit and drill
- » Weatherproof Silicone such as GE Silicone II (clear) or Loctite 207 (clear) with at least -40°C to 85°C (-40°F to 185°F) temperature range
- » Isopropyl (also known as rubbing) alcohol
- » Clean rag
- » An awl for marking drill locations
- » 7mm Socket or wrench
- » 4 sheet metal screws

### \*Installation

The recommended installation location is high on the nose of the trailer, away from the corner, and just below the top rail. If the device will be connected to trailer power, it is desirable to locate it above the 7-way.



The device is solar powered and needs to be positioned so that sun-light can reach the solar panel for at least 1 hour per day on average. A location near the top of the nose is suitable and stays generally cleaner than other locations. The center of the nose is

recommended simply as the corners of the trailer are more frequently impacted. The device can function in other locations.

1. Identify the location where the device will be mounted.
2. Clean the mounting location with a clean rag and isopropyl alcohol.
3. Orient the device with the power switch down.
4. Use an awl to carefully mark where each of the four mounting holes should be drilled being careful not to move the device in between marking each mounting hole.
5. Drill each of the 4 holes using the drill bit.
6. Place weatherproof caulk around each of the four mounting holes.
7. Screw the device to the trailer using the machine screws starting with the top mounting holes.
8. IMPORTANT: Remove the device and do not complete installation if it cannot be securely mounted to the trailer for any reason.
9. Clean up any excess caulk with a clean rag.

## Installation on other equipment

When installing the tracking device on other equipment, follow these general guidelines:

- » Ensure the solar panel will receive direct sunlight on a typical day.
- » Orient the GPS antenna so it is facing up.
- » Securely attach the device using the 4 bolts; do not install the device if it cannot be securely mounted.
- » Place the device in the most secure and protected location available.
- » When drilling holes to mount the device, be careful not to puncture electrical, air lines or hydraulic lines.

## FCC Warning statements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

**Caution:** The user is cautioned that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## FCC RF Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

## ISED Warning statements

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause interference; and (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

Pour se conformer aux exigences de conformité CNR 102 RF exposition, une distance de séparation d'au moins 20 cm doit être maintenue entre l'antenne de cet appareil et toutes les personnes.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

BT POWER : 6.5±1dBm  
GSM850/900/1800/1900 GSM Quad band  
CATM1 B2/4/5/12/13/26  
NB1 B1/B2/B3/B5/B8/12/13/20/26/28

## Getting Started Guide