SVR Tracking

SVR502 USER GUIDE

Overview

An innovative, self-powered GPS solution for long lasting tracking and recovery.

The SVR502 was created to be the longest lasting wireless GPS device on the market. Designed with a specific functionality to extend battery life and provide location data when needed. This document will outline the following topics for the SVR502 solution:

- Smart Power^{SM} Technology
- Device Activation & Verification
- Reporting
- Zone Alerts
- Recovery
- Battery Life
- Installation
- Warranty
- Heartbeat Source
- Magnet Overview
- Battery-Powered vs. Hard-Wired Device Comparison
- SVR500 vs. SVR502 Device Comparison

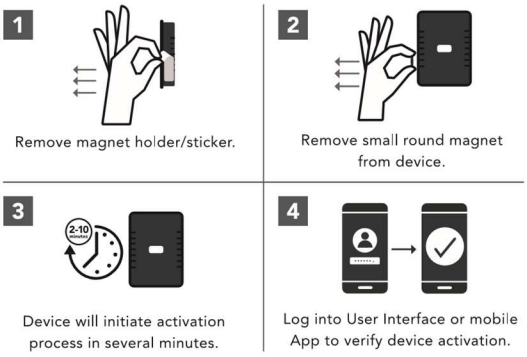
Patent Pending Smart Power^{SM} Technology

The SVR502 was designed with unique Smart Power^{SM} technology delivering high-performance battery power, greater energy density and operating temperature ranges in less space. What does this mean to our customers?

- Battery longevity, 2 - 3 years under normal use depending on the device version
- Sustained power in extreme atmospheric conditions such as heat/cold
- Power management in poor cellular network conditions

Device Activation

- Remove the tape wrapped around the device
- Remove the small round magnet from the slot on the side of the device
- Once the magnet is removed, the activation process will begin
- The device will connect with a GPS/Wireless signal and show activated in the customer portal (~2-10 min.)



NOTE:

Save the round magnet for future use. If magnet is reapplied, device will return to Sleep mode (ultra-low power consumption) to preserve the battery life.

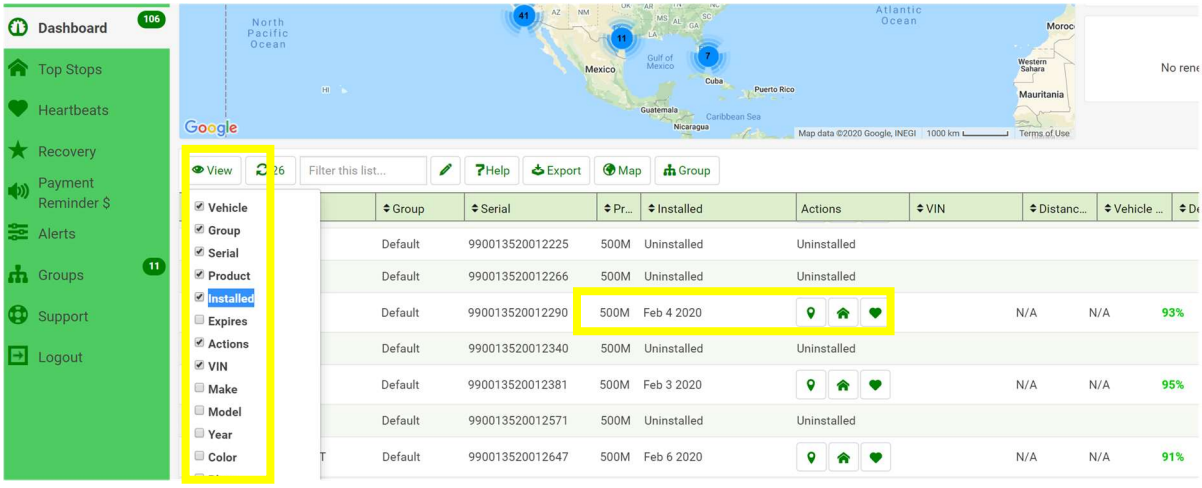
Device Activation Verification

Step 1: Log into Application Dashboard

Step 2: Select View – make sure Installed box is checked

Step 3: Check “Installed” column for install date & “Actions” column for location icons

If device is not activated, it will show UNINSTALLED in the Actions column



Device Activation Continued -

If the device remains in Uninstalled status after the magnet is removed for over 10 minutes. Please follow these steps:

If device does not show activated after magnet is removed:

1. Reattach magnet to the device (in the magnet slot on side of device)
2. Make sure you are in a place with adequate wireless signal (outside or near a window)
3. Leave magnet on the device for ~10 seconds then remove again
4. Allow a few minutes then refresh online browser and check application

Reporting

Two different devices are available. The modes and use cases are below:

Device Type	Use Case	Modes				
		Sleep	Discovery	Active	Pulse	Recovery
SVR502-MD	BHPH	x	x	x		x
SVR502-MP	Asset Tracking	x			x	x

There are four different modes available based on the device type:

Sleep	Discovery	Active	Pulse	Recovery
Ultra-low power consumption while device is stored or shipped. Device does not check in during this time.	Reports the first **144** events for STIP verification. Captures location data every **5** hours.	Daily check-in reporting location every **12.5** hours.	Provides twice daily pulse (every **11.5** hours) report of vehicle/asset location.	Initiated by user to identify exact location of asset or vehicle. **5**-minute heartbeat when moving.

Mode	Heartbeat Cycles	Tracking Frequency	Locate Source
Sleep	Ultra-low power mode to minimize battery draw		
Discovery	**144** events	**5**-hours	GPS & Cell Towers[1]
Active	**1-2**x /daily	**12.5** hours	Cell Towers only
Pulse	**2**x / daily	**11.5** hours	GPS & Cell Towers[1]
Recovery	Wakes upon movement	Every **5** minutes when moving, starts and stops	GPS & Cell Towers[1]

[1] Device will check first for a GPS locate and, if unable to obtain a signal within 120 seconds, it will transition to a Cell Tower locate as a backup

Zone Alerts

Zone Alerts are challenging with the SVR502. One of the key limitations is Zone Alerts are not sent at the point when a vehicle enters or exits a geofence, but instead at the point of the next heartbeat. This heartbeat may be anywhere from several hours to up to 12.5 hours later than the vehicle's entrance or departure from this zone. In addition, if the SVR502 is in Active mode then cell tower only locates will likely create false Zone Alerts if the nearest cell tower is outside of the geofence area. In this case, the only effective way to eliminate the false alerts is to create a geofence which is large enough to include the nearest cell tower location.

Recovery

Recovery mode provides the vehicle location every five minutes while moving. Once a Recovery is initiated, the SVR502 will transition to Recovery tracking on the next heartbeat cycle. If the vehicle is outside of adequate wireless network coverage, the recovery may be delayed until the device can connect to the network again. Below is the email or text notification the Recovery agent will receive when a Recovery is generated for the SVR502:

> *You've received a Recovery request for a vehicle with a SVR502 Smart Power℠ device. The current vehicle address and available Top Stops will take up to 12.5 hours before being visible on the map. If you need immediate access to this data, please contact the Dealer to provide the vehicle's location history, including the last available address.*

Recovery tracking will automatically last for 3 days. If the vehicle or asset is recovered in less than 3 days, it is recommended to stop the 5-minute Recovery tracking by selecting and deleting the vehicle or asset from the Recovery page or updating the recovery status from "In progress" to "Recovered" from the recovery edit icon. After three (3) days in Recovery Mode, the Recovery action will time out and default back to the prior active tracking mode. If the vehicle is not recovered, the user can delete the recovery and re-create a new one.

Battery Life

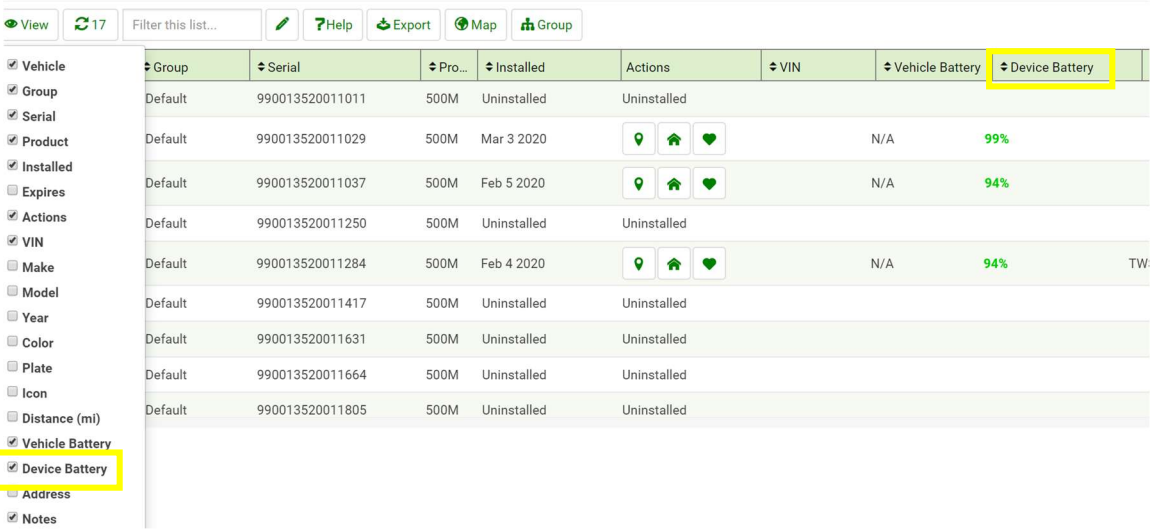
The SVR502 was designed to be a long-term tracking device. For maximum battery life, it is recommended that the device is stored with the magnet attached. This will set the device into Sleep mode which is an ultra-low power consumption mode. Once the magnet is removed and the device is installed in a vehicle or asset, the amount of hours/days in Recovery will deplete the battery along with the environmental and wireless network conditions. The SVR502 will automatically adjust reporting in poor conditions to preserve the battery life.

Device Type	Estimated Battery Life	Limited Warranty
SVR502-MD	Up to 3 years	3 years
SVR502-MP	Up to 2 years	2 years

The battery life can be affected by extreme use and environmental factors:

- Total time spent in Discovery and Recovery mode tracking
- Poor wireless network coverage
- Extreme environmental conditions (extreme heat/cold)

The **Device Battery** will help monitor the battery life of the SVR502 once the magnet is removed and the device is activated within a vehicle or on an asset.



Installation

After the magnet has been removed and the device shows location data in the mobile application or computer/laptop, it is ready for activation. Best places for optimal in-vehicle placement are below. A stable location is important to avoid movement. Utilize zip ties or Velcro to secure.

- Dashboard
- Center console
- Glovebox compartment

Refer to the SVR502 Installation Guide for additional details.

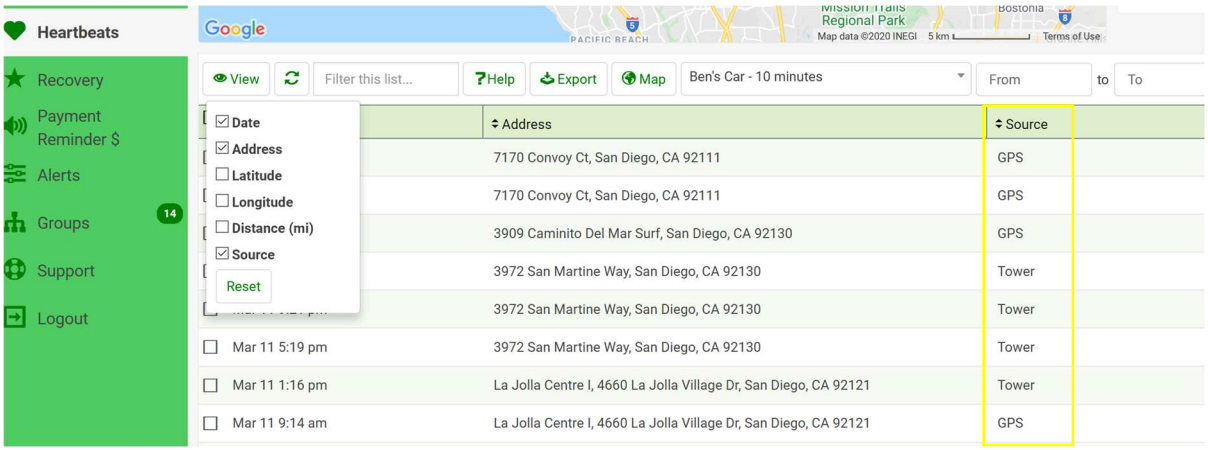
Warranty

The SVR502-MD has three-year limited warranties for standard use, while the SVR502-MP has a two-year limited warranty. Standard use for the SVR500-MD covers tracking in its designed modes of operation with 1 Discovery mode cycle and a maximum of 6 days or 144 hours in Recovery mode over the warranty period. The SVR502-MP is also limited by a standard use specification. Standard use for the SVR500-MP covers tracking in its designed mode of operation in Pulse mode with 2 daily locates and a maximum of 6 days or 144 hours in Recovery mode over the warranty period

Use of these modes beyond this standard use specification will accelerate battery depletion and will void the warranty.

Heartbeat Source

A source field was added to identify the location source. The GPS source will provide an accurate view of the vehicle exact location. The tower only heartbeat was designed for battery preservation.



Magnet Overview

It is important to save the magnets after activation in the event you need to reset devices or want to return devices to Sleep mode to preserve the remaining battery life. To reset the device, leave the magnet on for 5 – 10 seconds before removing. Note: If the device is in Recovery mode, make sure to delete Recovery on the application.

When magnet is added, the device goes to Sleep mode within seconds. If device keeps sending location data even if the magnet is in place, the reason could be:

- Magnet is placed back in the slot on the side of the device
- Magnet is not strong enough (is not the one included with the device)
- Reed switch is faulty

Please note the magnet will not stick to the device, since there is nothing metallic inside of the plastic case, so the magnet will need to be placed in the slot to put the device back into Sleep mode.

Battery-Powered vs. Hard-Wired Device Comparison

The SVR502 provides accurate vehicle and asset tracking data when needed but does report differently than the hard-wired units due to the longer heartbeat cycles. Examples of the feature differences between the battery-powered and hard-wired devices are outlined below:

Feature Comparison	SVR502	SVR1000
Distance / Mileage	n/a	√
Top Stops	Mix of GPS & Tower locates	GPS
Vehicle Battery	n/a	√
Device Battery	Device Battery %	Backup Battery %
Recovery Mode	Every 5 minutes	Every 2 minutes
Discovery Mode	1st 144 events[1]	n/a

[1] After completing Discovery mode, the SVR502-MD will transition to Active mode with every 12.5-hour heartbeats with cell tower only locates

SVR500 vs. SVR502 Device Comparison

	SVR500	SVR502
# of Batteries	1	2
Battery Capacity	2100 mAh	4200 mAh
Super Capacitor[1]	n/a	√
Dimensions	3.54" x 2.60" x 0.79"	3.51” x 3.28” x 0.83”
Plastic Casing: Magnet Slot	n/a	√

[1] Super capacitor was added to the SVR502 to prevent voltage surges from impacting battery life