



## *ST-600 GPS Tracking Device*

Ideal use-case for this device: Trailer-tracking or non-powered assets



The ST-600 is part of a complete end-to-end asset tracking solution but can also be integrated via API in third-party software. Utilizing the latest in LTE-M/ NB Cellular technology the ST-600 has very low power consumption and long battery life so you can track, monitor and manage a wide variety of durable and perishable assets like never before.

This device is designed as a full stack solution and comes network and application ready. Increase your productivity, ROI, and visibility.

### Key Features

- Off-the-shelf deployment
- Real-time tracking
- Configurable alerting
- Motion tracking, triggering updates
- Geo-Location
- GNSS: GPS / QZSS, GLONASS, Galileo enabled
- IP67 Rugged and dust / water-proof enclosure
- Ultra-low power platform
- Available on the following Radio Access Technologies: B2-MIOT-MR (M1 / NB1/ NB2 / 2G)

## COMMUNICATIONS

<b>Communication</b>	LTE CAT M1 / CAT NB1/NB2 / 2G
<b>Location Technology</b>	High accuracy Gen9 with concurrent GNSS (SPG, GLONASS, BeiDou, Galileo and QZSS)
<b>Solar Powered</b>	Rechargeable Lithium-Ion battery 3.7 V nominal; 4.20±0.02V charge capacity, 2700 mAh capacity. Operating Voltage 3.5 – 4.2 V; 500 cycles, the cycle life is the cycle times when the discharge capacity is about 70% of the rated capacity.

## PHYSICAL

<b>Dimensions</b>	3.7 X 2.2 X 1.3 inches 100.6 X 56.6 X 33.7 mm
<b>Weight</b>	0.4lb

## ENVIRONMENTAL

<b>Temperature</b>	-20°C to +60°C (batteries, enclosure); -40, +85; Absolute Accuracy +/- %RH
<b>Humidity</b>	95%R.H. @ 50°C non-condensing Absolute Accuracy +/- 0.5°C
<b>Pressure</b>	300...1100 hPa, Absolute accuracy +/-1 hPa

## GPS

<b>Receiver</b>	Gen9 VT of Qualcomm (GPS, GLONASS, BeiDou, Galileo and QZSS)
<b>Sensitivity</b>	Tracking & Navigation: -157 dBm Cold Start: -146 dBm Hot Start: -157dBm
<b>Accuracy</b>	Position Accuracy <3 m CEP-50

## CELLULAR

<b>Data</b>	<b>LTE CAT M1</b> Packet Data (CoAP/UDP)/ <b>CAT NB1/NB2</b> Packet Data CoAP/ LWM2M/UDP
<b>Operating Bands and Carriers</b>	Multi Region CAT M1/NB1/NB2/2G M1: LTE-FDD: B1/B2/B3/B4/B5/B8/B12/ B13/B14/B18/B19/B20/B25/B26*/B27/ B28/B66/B85 NB2: LTE-FDD: B1/B2/B3/B4/B5/B8/ B12/B13/B18/B19/B20/B25/B26*/B28/ B66/B71/B85 EGPRS(2G): 850/900/1800/1900MHz (Bands 2, 3, 4, 5, 8, 12, 13, 20, 26 ,28), (AT&T, Bell, T-Mobile USA, Telus, Verizon, Telstra, Orange, KPN, Telia, DT, Cosmote, TIM Brazil)
<b>SIM</b>	4FF (nano SIM)

## RECHARGEABLE BATTERY

This appendix describes the product specifications of the rechargeable Li-polymer battery used with the ST-600.

### Rechargeable Battery Characteristics

Item	Spec	Remark
Nominal Capacity	2700mAh@ 0.2 C5A Discharge	Nominal capacity refers to the capacity of 0.2C5A discharge with 3.0V cut-off voltage, application cut-off voltage at 3.5V.
Cycle Life	~500 Times	One cycle refer to one charge period and then one discharge period.
Standard Charge	0.2C5A	0.2C5A CC (constant current) charge to Max Charge voltage 4.2V, then CV (constant voltage 4.2V) charge current decline to $\leq 0.01C$ .
Standard Discharge	0.2C5A	0.2C5A CC (constant current) discharge to discharge cut-off
Operating Temperature	Charge*: 0°C~ +45°C Discharge**: -20°C~ + 60°C	
Over Charge/Discharge Protection		The battery pack has protective circuit module to prevent over-charge/discharge for safety purposes.

### Notes

\* Recharging circuit has charge-protection above 45°C for safety compliance and recharge current declines when below freezing point.

\*\* Based on bench test /field test data and device has performed outside specifications up to -35°C without reducing operating performance.

### Rechargeable Battery Performance

Item	Spec	Remark
Number of Messages	1500	From Max charge 4.2V to 3.5V app cut-off voltage
Charge Time	60hrs	Uninterrupted bright sunlight from fully drained to be fully charged 4.2V

### Field Results

The following graphs illustrate sample data for a 30 day period (Jan-Feb 2020), comparing temperature vs battery performance.

