ST-610 GPS Tracking Device

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

Utilizing the latest in LTE-M/NB Cellular technology, the ST-610 has a large rechargeable battery offering long battery life with a large, fast-charging solar panel so you can track, monitor and manage a wide variety of durable and perishable assets like never before.

Additionally, the ST-610 offers an IP68/IP69K rating and the ability to connect to Wi-Fi (when GPS satellite signal is unavailable) for indoor tracking purposes.

Key Features

- Networks: LTE-M1/NB-IoT NB1/NB2 and 2G
- GNSS: GPS/QZSS, GLONASS, Galileo enabled
- Indoor Location: Wi-Fi
- IP68/IP69K Rating
- Real-time tracking 5-15 minutes when in motion
- Configurable reporting and alerting

Benefits

- Low device cost
- Ultra-low power platform
- Rechargeable long battery life (5+ years)
- Lower deployment cost
- Low maintenance
- Track activity in/out of landmarks
- Full coverage (available on 4G & 5G networks)

ST-610 Specifications

General

Communication	LTE CAT M1 / CAT NB1/NB2 / 2G
Location Technology	High accuracy Gen9 w/ concurrent GNSS (GPS, GLONASS, BeiDou, Galileo and QZSS)
Solar Powered	Rechargeable Lithium-Ion battery 3.8V nominal; 4.20+/-0.02V charge capacity, 7000 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.

GPS

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

Cellular

Data	LTE CAT M1 Packet Data (CoAP/UDP) / CAT NB1/NB2 Packet Data CoAP/ LWM2M/UDP
Operating Bands/Carriers	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

Cellular Cont.

	EGPRS(2G): 850/900/1800/1900MHz (Bands 2, 3, 4, 5, 8, 12, 13, 20, 26, 28), (AT&T, Bell, T-Mobile USA)
SIM	4FF (nano SIM)

Sensor Operation Range (full accuracy)

Environmental	Temp. [-40, +85; Absolute accuracy +/- 0.5 °C Humidity [Absolute accuracy +/-3 %RH] Pressure [300...1100 hPa, Absolute accuracy +/-1 hPa]
3-Axis Accelerometer	Motion (*shock and tilt triggers use case specific)

Certifications

Certifications	CTIA (PTCRB/OTA), FCC/IC
Targets	Bell, AT&T, T-Mobile USA
Vibration and Shock*	MIL-STD-810G
Ingress Protection*	IP68/IP69K

Physical

Dimensions	(152x64x40) mm
Weight	0.8lb

Environmental Operating Range

Temp	-20 to +60C (batteries, enclosure)
Humidity	95% R.H. @ 50C non-condensing

ST-610 Specifications

Rechargeable Battery Characteristics

Item	Spec	Remark
Nominal Capacity	7000mAh@ 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 ≤0.01C.
Standard Discharge	0.2C5A	0.2C5A CC (constant current discharge to discharge cut-off)
Operating Temperature	Charge*: 0 ℃~ +45℃ Discharge**: -20℃~ +60℃	
Over Charge/Discharge Protection		The battery pack has a protective circuit module to prevent over-charge/discharge for safety.

Notes:
* Recharging circuit has charge-protection above 45℃ 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 ℃ without reducing operating performance

Rechargeable Battery Performance

Item	Spec	Remark
Number of messages	3500*	From Max charge 4.2V to 3.5V app cut-off voltage *within 12 months including self-discharge
Charge time	~8hrs x 8 days	In ideal exposure, uninterrupted sunlight from fully drained to fully charged 4.2V.