DQ51
IoT Asset Tracker

DQ51 is a rugged, low-profile IP67-rated device designed for long-term non-powered asset tracking. In addition to trip-based tracking using its internal GPS antenna & accelerometer, DQ51 also features Bluetooth BLE v5 compatibility, allowing wireless tags to be monitored in the vicinity of the base unit.

Bluetooth®

- Hourly reporting for up to 5 years
- Rugged water and dust proof housing
- Operates on 2G or 4G Cat-M1/NB IoT networks
- Magnetic tamper detection
- Unauthorised movement alerts
- Integrated accelerometer with High-G incident detection

APPLICATIONS

Non-powered asset tracking

Run hour monitoring

Trailers and mobile assets

Shipping containers and freight

Anchoring and security of assets

Low-value asset tracking

DQ51 IoT Asset Tracker

Technical Specification

MECHANICAL SPECIFICATIONS	
Low-profile IP67 rugged housing	The IP67 rated housing is made of sturdy ABS/Polycarbonate plastic to survive bumps, knocks and years of exposure to the sun and weather.
Dimensions	L 224 X W 91 x H 41 mm
Operating Temperature	-20°C to +60°C[1] 1 Temp spec is for the board and housing. Be sure to check the temperature tolerance of your batteries.
POWER	
Input Voltage	Max input voltage 16V, no reverse input protection
LTC Batteries	Batteries are user replaceable. The DQ51 requires Lithium Thionyl Chloride (LTC) 'Spiral Type' batteries. These offer high capacity, extended temperature tolerance and an extremely low self-discharge rate for the optimal performance in tracking applications. 2 x D Cell LTC Spiral Type batteries for the DQ51D
CONNECTIVITY	
SIM Size	Nano (4FF) Size Cellular SIM Card
2G or 4G M1/NB1	The device is supplied with either a 2G or 4G Cat-M1/Nb-IoT modem for operation on various global networks.
2G Modem	2G: SARA-G350-02S-01 850/900/1800/1900 MHz
4G Modem	uBlox SARA-R410M Modem operates on all major global LTE-Cat-M1 and NB-IoT bands. These new low-power networks are specifically designed for IoT applications, providing great battery life Supported LTE bands: 1-5, 6, 8, 12, 13, 17, 19, 20, 25, 26, 28

GPS TRACKING	
GPS and Cellular Antenna	Internal GPS and cellular antennas tuned by RF laboratories for optimal performance.
GPS/GLONASS tracking	uBlox EVA-M8 Concurrent GPS and GLONASS tracking 72 channel high sensitivity receiver -167dBM industry leading tracking performance
AssistNow Offline	AssistNow Offline aiding data for extremely fast time-to-first-fix and performance in urban canyon environments
Low Noise GPS Amplifier (LNA)	GPS signals are boosted by a special low-noise amplifier (LNA). This allows operation where normal units will fail to receive GPS signal – for example in a container stack.
FIRMWARE SMARTS	
OTA Configuration	The DQ51 can be remotely configured and updated OTA (over the air) from Duotraq's asset monitoring platform
Recovery Mode	The DQ51 can be remotely switched into Recovery Mode which switches the device to live tracking and reporting – which means that assets can be recovered.
G-Force Events	The DQ51 can detect High G-Force events (like assets being dropped or involved in accidents) and report these to the server.
Geo-Fences	The DQ51 has the capacity to hold hundreds of geo-fences that can be downloaded from the server and updated Over-The-Air.
Adaptive Tracking	Adaptive-Tracking uses the accelerometer and GPS data intelligently to send frequent updates when the device is moving and reduce to once per day when stationary to preserve battery life.
Performance Monitoring	Track how the DQ51 is using its power with intelligent performance counters. Monitor wakeups, GPS fixes, uploads and more to understand exactly what the device is doing.

OTHER	
Bluetooth v5	The DQ51 is equipped with a Bluetooth v5 module, enabling it to communicate with Bluetooth tags. Such tags can be placed on low-value assets to provide their position when in range of the DQ51.
Internal Memory	Enough memory to store over 50,000 records. Normally data is sent to the server immediately but if the device is out of range there is space to ensure no data is lost.
3-axis accelerometer	The 3-axis accelerometer allows the DQ51 to 'sleep' in an ultra-low power state yet still wakeup when movement occurs. The accelerometer can also be used to detect extreme G-Force events such as an accident or abuse of the asset, for example dropping a container
Magnetic Tamper Detect	Optional magnetic wireless tamper switch detects when the device has been removed from the asset.
Battery Meter	A coulomb counter acts as a battery meter, tracking energy consumption of the device. This allows accurate battery levels to be reported and battery life predictions
AES-256 Security	The DQ51 uses bank-level AES-256 device authentication and data encryption to ensure that your data is kept private and secure
Text Message Set Up	APN and server details can be set by SMS