

PQ - DART

2G/4G Cat-M1/NB-IOT

Feature rich, affordable GPS tracking device



PQ-DART is a compact and economical, yet feature rich GPS/GLONASS tracking device available in 2G or 4G Cat-M1/NB-IoT.

High Sensitivity GPS with LNA

3D Accelerometer

Internal backup battery

1 x Ignition Input

2 x Digital Inputs

1 x Digital Output

Easy to Install and Conceal

Wired or Emulated Ignition Detection

Geo-fencing and Alerts

Plug-in 12 Wire Harness

Driver ID Support: RFID, i-Button or Wiegand



Vehicle and Fleet tracking



Powered Asset Tracking



Run Hour Monitoring



Anchoring and Security of assets



TAX and FBT Reporting



Scheduled main-Tenance reporting

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MECHANICAL SPECIFICATIONS

Compact Housing	The ABS plastic housing clips together to make provisioning devices simple and efficient
Dimensions	L 95 x W 55 x H 17mm
Operating Temperature	-20°C to +60°C On external power Below 0°C and above +40°C the internal backup battery will not be charged as a safety precaution due to the dangers associated with charging batteries at extreme temperatures.
Harness	12 Pin Wiring Harness (included) OBDII Harness (optional) Cigarette Lighter Harness (optional)

POWER

Input Voltage	8V to 36V DC (max)
Operating Current	25-50mA average (when tracking) 145mA average (battery charging) Sleep current < 1mA
Back-up Battery	200mAh LiPo internal backup battery pack
Self-resetting fuse	PQ - DART passes stringent automotive power “load dump” tests to ensure that it will continue to operate in the harshest electrical systems. A built-in self-resetting fuse makes installation easy and safe.

OTHER

Internal Memory	Sufficient 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 – for many weeks of driving!
3-axis accelerometer	Allows the PQ-DART to detect harsh driving events, and to go to ‘sleep’ when not moving, resulting in extremely low standby current

CONNECTIVITY

SIM Size	Micro (3FF) size cellular SIM card
2G or 4G	PQ-DART can be manufactured for specific markets around the world with cellular modem modules approved by all the major 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*, 2, 3, 4, 5, 8, 12, 13, 18, 19, 20, 25, 26*, 28 (* roaming bands)

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GPS TRACKING

GPS and Cellular Antenna	Internal GPS and cellular antennas tuned by RF laboratories for optimal performance. Having the antennas inside the housing makes for very simple and quick installation.
GPS/GLONASS tracking	Concurrent GPS and GLONASS tracking 72 channel high sensitivity receiver -169dBm industry leading tracking performance
AssistNow Offline	AssistNow Offline aiding data or 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

INPUTS AND OUTPUTS

Ignition	Ignition digital input 0-48V DC 5V on/off threshold
2 x Digital Inputs	2 x digital inputs with configurable pull-up/down 0-48V DC input range On/Off thresholds: Pull-up enabled: low at 0.8V, high at 1.0V Pull-down enabled: low at 2.0V, high at 2.4V
1 x Digital Output	1 x Switched Ground digital output, easily wired up to switch external lights, relays, buzzers etc. Can be used to immobilize a vehicle

Switched Power Out

PQ-DART can provide power to external sensors and devices via this power line, allowing for easy installation and doing away with the need for additional external power supplies.

Voltage: 3.5V to 4.5V
Maximum current: 200mA

Driver Identification

Driver ID via RFID reader, i-Button or Wiegand Interface

PQ-DART can be update from the server with lists of Drivers that are allowed to drive the vehicle. PQ-DART can be installed to immobilise a vehicle and only allow authorised drivers/operators to drive it.

TTL/Wiegand/ i-Button

Multiple interfaces to support a variety of driver ID options or other devices.

FIRMWARE SMARTS

Auto-APN

Auto-APN allows the device to analyse the SIM card and select the correct APN details from a list that is pre-loaded in the device's firmware.

Text Message Setup

PQ-DART can be sent text messages to set the APN, server and other details

Flexible Logging Parameters

PQ-DART trip logging is flexible and can be configured to log based on a variety of parameters Including:

Elapsed time, Distance travelled, Change in heading, Change in speed, On Stationary, Accelerometer events (harsh driving)

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Harsh Driving

PQ-DART automatically calibrates its built-in 3 axis accelerometer and uses this to detect harsh driving Events:

- Excessive acceleration
- Harsh braking
- Cornering at speed

These events are logged in PQ-DART along with additional event statistics that allow back-end server platforms to perform sophisticated driver profiling and scoring.

Accident and Rollover Detection

PQ-DART uses the built-in accelerometer to detect high G impacts such as accidents and rollovers and reports these events to the server for emergency alerting.

Accident Data

PQ-DART keeps a second-by-second “black box” recording of valuable GPS and accelerometer data for a two hour window. This data can be automatically uploaded to the server when an accident is detected, or it can be requested manually.

Geo-Fences

PQ-DART has the capacity to hold hundreds of geo-fences. A future firmware update will enable the device to download geo-fences from the server. PQ-DART could use this geo-fence information to:

- Implement arrival and departure alerts
- Implement speeding zones with audible warning alerts
- Implement “No-go” and “Keep-out” areas
- Automatically control outputs, e.g. to switch on warning lights when inside a special area.

Ignition Detection

PQ-DART can determine a trip has started based Upon:

- Wired Ignition input (voltage on/off)
- Emulated Ignition (GPS movement)
- Run Detect (Voltage Increases)

