

# G120

Feature packed, multiple I/O tracker with Bluetooth® and Iridium Option



The G120 is a highly capable GPS/GLONASS cellular tracker with a variety of inputs and outputs.

Operating on 2G or 4G Cat-M1/Nb-IoT networks, the G120 is fitted with a Bluetooth module, meaning it can operate as a Bluetooth Gateway and relay sensor or tag data to the server.

## FEATURES

- 24/7 Vehicle location
- Ignition + 6 Inputs and 2 Outputs
- 1 x Analogue Input, 0-30V
- Driver ID: RFID, iButton, Wiegand
- 3D Accelerometer
- Bluetooth Low Energy (BLE) 5.0
- RS232 – can be used for Iridium data (to connect an Iridium Edge Module)

## APPLICATIONS



Vehicle and Fleet Tracking



Lone and Remote Workers



Out of cellular coverage locations



Cold Chain Management



Agricultural Vehicles and Sites



Mining, Oil and Gas Rigs

## MECHANICAL SPECIFICATIONS

<b>Snap-clip ABS Plastic Housing</b>	The ABS plastic housing clips together to make provisioning devices simple and efficient
<b>Operating Temperature</b>	-20°C to +60°C <sup>1</sup> 1) 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.
<b>Dimensions</b>	L 125 x W 65 x H 30mm
<b>Harness</b>	24 Pin connector A basic harness is supplied as standard. See the harness definition for details

## POWER

<b>Input Voltage</b>	8V to 45V DC (max)
<b>Operating Current</b>	Up to 200mA peak (excludes switched power outputs).
<b>Sleep Current</b>	< 1mA
<b>Back-up Battery</b>	1100mAh LiPo internal backup battery pack
<b>Self-resetting fuse</b>	The G120 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

<b>Flash Memory</b>	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!
<b>3-axis accelerometer</b>	Allows the device to detect harsh driving events, and to go to ‘sleep’ when not moving, resulting in extremely low standby current
<b>Bluetooth v5</b>	The G120 is equipped with a Bluetooth v5 module, enabling it to communicate with Bluetooth tags and sensors. Such tags can be placed on low-value assets to provide their position when in range of the G120.  Sensors e.g. temperature/tyre pressure can relay information to the G120, which will upload the data to the server. Contact DM for sensor support

## CONNECTIVITY

<b>SIM Size</b>	Micro (3FF) size cellular SIM card
<b>2G or 4G</b>	The G120 can be manufactured for specific markets around the world.
<b>2G Modem</b>	2G: SARA-G350-02S-01 850/900/1800/1900 MHz
<b>4G Modem</b>	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

<b>GPS and Cellular Antenna</b>	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.
<b>GPS/GLONASS tracking</b>	Concurrent GPS and GLONASS tracking 72 channel high sensitivity receiver -169dBm industry leading tracking performance
<b>AssistNow Offline</b>	AssistNow Offline aiding data or extremely fast time-to-first-fix and performance in urban canyon environments
<b>Low Noise GPS Amplifier (LNA)</b>	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

<b>Ignition</b>	1 x Ignition digital input 0-48V DC 5V on/off threshold
<b>4 x Digital Inputs</b>	6 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
<b>2 x Digital Outputs</b>	2 x switched ground digital outputs, easily wired up to switch external lights, relays, buzzers etc. Can be used to immobilize a vehicle. 500mA max
<b>1 x Analogue Input</b>	1 x 0-30V analogue input, with auto-ranging

<b>Internal Buzzer</b>	Audible alert without requiring the installation of an external buzzer. Can be used for speeding alerts, harsh driving alerts, reminders to swipe RFID tags, error conditions, input feedback and other events
<b>2 x Switched Power Out</b>	The G120 can provide power to external peripherals allowing for easy installation and doing away with the need for additional external power supplies.  Outputs are either 5V (external power connected) or $V_{batt}$ (no external power) Maximum current: 400mA
<b>Driver Identification</b>	Driver ID via RFID reader or iButton The G120 can be update from the server with lists of Drivers that are allowed to drive the vehicle. The G120 can be installed to immobilise a vehicle and only allow authorised drivers/operators to drive it.  Supported Driver ID interfaces: RS232, Wiegand, TTL, iButton  3 <sup>rd</sup> Party readers which output one of the above formats can be integrated into the G120 FW to enable current site cards/passes to be used.
<b>RS232</b>	Can be used to connect an <a href="#">Iridium Edge Module</a> for out of cellular coverage. Allows for support of other Driver ID card readers (requires integration work)
<b>Diagnostic LED</b>	The diagnostic LED makes it easy to see if the device is operating correctly.

## IRIDIUM OPTION

- Iridium Satellite** The RS232 connection can be used to connect an [Iridium Edge Module](#), allowing the device to work as an Iridium Hybrid unit
- The 'Iridium Hybrid' G120 will send data over cellular networks when in coverage, and auto switch to Iridium to send important data when out of coverage.

## FIRMWARE SMARTS

- Flexible Logging Parameters** The G120 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)
- Accident and Rollover Detection** The G120 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.
- Harsh Driving** The G120 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 the G120 along with additional event statistics that allow back-end server platforms to perform sophisticated driver profiling and scoring.

- Accident Data** The G120 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** The G120 has the capacity to hold hundreds of geo-fences that can be downloaded to it from the server. The G120 can 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** The G120 can determine a trip has started based upon:
- Wired Ignition input (voltage on/off)
  - Emulated Ignition (GPS movement)
  - Run Detect (Voltage Increases)

- Bluetooth Firmware** The G120 continuously scans for Bluetooth devices. DM products include the Guppy Bluetooth and SensorNode Bluetooth.
- The G120 intelligently maintains a list of devices in range and reports the list to the server on the following conditions:
- Tag found (comes into range)
  - Tag lost (goes out of range)
  - Periodic list update