

## BeechTrack® - GNSS Spatial recording device

Updated 23/09/2019

### Description:

Custom built GNSS receiving device with programmable recording for GPS co-ordinates, altitude, direction and speed to record marine vessel movements independent of the vessel systems. Unit will record up to 7000 hours of data per write to encrypted SD card for secure extraction by TrackMe NZ or DOC staff. Device to be powered from USB ports in vessel or via NIMH rechargeable packs fitted independently. Integrated GPS receiver will be situated within the enclosure. External Aerial installation for best recordings advised.

### Specifications:

Recording rate:	10 seconds
Recording data:	Altitude – recorded by Satellite and displayed as meters above mean sea level. (not applicable to MarineSat application) Latitude and Longitude- recorded RMS corrected Velocity – recorded by Satellite fix in Km/hr Direction – recorded true course by satellite fix 3 Axis Gyro - recording changes in state every 10 seconds
Accuracy <sup>1</sup> :	GPS co-ordinates +/- 1m RMS (long term while corrected from geostationary satellite) **
Data Storage <sup>2</sup> :	Encrypted data to SD Card written on board – extraction via Bluetooth™ link by secure connection only. TrackMe NZL Staff only trained in retrieval. Data then sent to DOC securely for extraction by scientific staff only. Key Identification data can be added or removed for display.
Current draw:	50ma @ 3.7V or augmented by regulated 12v USB external supply
Battery Pack <sup>5</sup> :	Not supplied - NiMH recommended device runs off 5/12v USB DC supply
GNSS Antenna <sup>3</sup> :	External module fitted to marine applications. PCTel, model 3977D
Switch Mode <sup>4</sup> :	Motion activated - Motion sensors (MMA8452Q), powered on by vessel systems.

### Dimensions of units:

Main Install Units:	Enclosure unit to be internally mounted and include feed to USB power supply. Matt Black surface 3D printed poly case installation, with Alloy mounting bracket. Finished size 130mm (L) x 70mm (W) x 23mm (H)
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- 1) PDOP (dilution of vertical and horizontal precision) has been mitigated with the MarineSat install of an external Antenna fitted solutions in Marine Conservation Monitoring environment.
- 2) The SD card is not accessible. A Bluetooth™ APP module for data decryption is provided for data extraction, this can be handled separately by TrackMe NZ or terminal program can be provided for DOC staff to extract. Third Party decrypting by TrackMe NZ ensures security of information until provided to DOC.
- 3) The Ublox GNSS MarineSat unit has an integrated antenna using a cable connection to the external Aerial.
- 4) Motion sensors (MMA8452Q) 3 axis MEMS accelerometers fitted to the devices and written to engage the MEMS device within the operating system program.
- 5) No battery pack is being supplied, but the availability of a 5v 6000mAh inline battery pack has been allowed for to meet Marine independent solutions like Kayak based operators.

\*\* The PDOP uncertainty. Modern GNSS will be much less influenced by this phenomenon due to the number of satellites in view now, and the high rate of receiver calculations compared to early devices.

#### Pricing:

MarineSat units supplied with, power cable, instructions, mounting cradle (Alloy), and one External Aerial mount with PCTel 3977D external Aerial.

\$1,490 + GST (NZD) – cost of aerial cable and installation extra

#### Warranty:

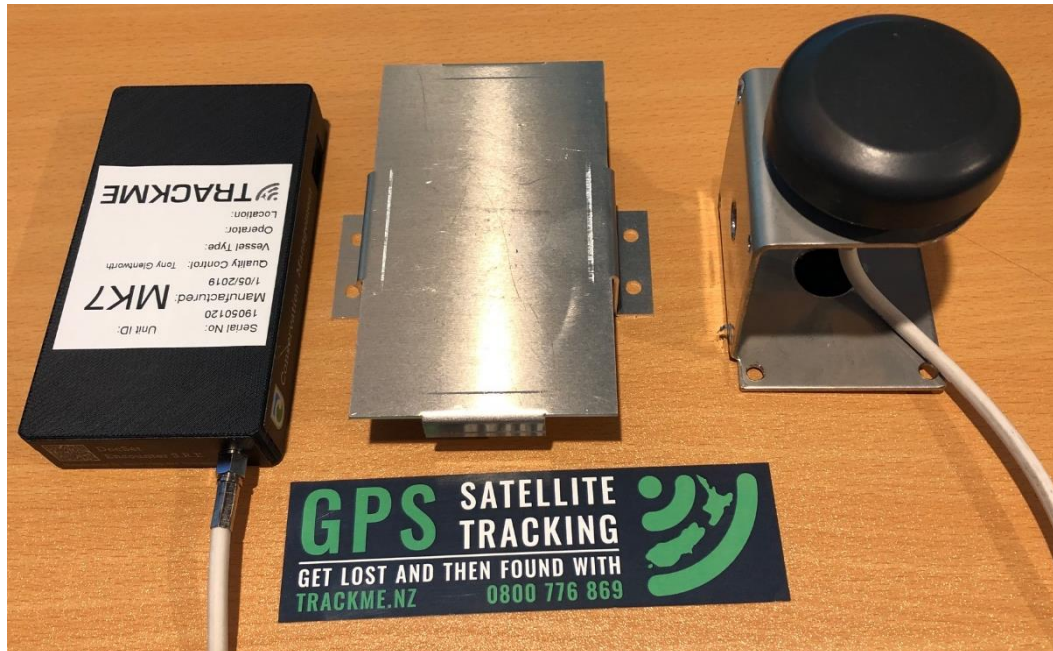
1. TrackMe NZL Limited, 12 months on parts and labour freight having been paid to our service facility.
2. TrackMe NZL reserves the right to repair or replace items under warranty.
3. Warranty is void if security seals are broken, fixtures or attachments have been tampered with by uncertified people, and or if equipment has been found to have been operated outside the terms of the specification provided. (this includes uncertified or faulty power supplies and working environments beyond human endurance.)
4. A returned item will qualify for warranty status only after it has been examined in a TrackMe NZL Limited appointed service department.

Department of Conservation New Zealand are the only licensed users of the developed Software DocSat & MarineSat which is installed on the units supplied by TrackMe NZ Limited and Beech Communications Limited.

Tony Glentworth  
DIRECTOR  
Project Partners & TrackMe NZL



See pictures below:



Device with cable attached to External Aerial and alongside Alloy casing for protection and mounting.



Device shown in isolation



Close up of aerial mount "C" closed 3 side mounts.

Also available in flat and "L" shaped mount and "Z" mount integrated with alloy protection case for window view mounting.

Shown below side on view.

All external mounts constructed out of Stainless steel, laser cut, predrilled and folded.







Side entry power cable shown allows for secure connection and no loss of data from unsecured connections. Right angle power connection supplied.

