

Multi Function Personal Locator Beacons PLUS Embedded GPS Series 500-27



Techtest
Limited

Advanced
test and
measuring
equipment



Multi Function Personal Locator Beacons PLUS Embedded GPS

Series 500-27

Features

- Simultaneous Transmissions.
- Beacon and Speech Modes and COSPAS/SARSAT coverage.
- Continuous transmission of GPS lat/long data on COSPAS/SARSAT data burst.
- Unique remotely programmable country code function for 406.025 MHz.
- Manual or automatic operation.
- Meets NATO STANAG 7007, latest issue. ED-62 CAA CAP 208 Chapter 10.
- Waterproof to 10 metres.
- Reprogrammable on aircraft.

The Series 500-27 Personal Locator Beacons are simple, compact lightweight units which can be used either manually or automatically via ejection seat harness. A fully embedded 12 channel GPS with data burst transmission on 406.025 MHz. Fully compatible with the majority of search and rescue equipment including the COSPAS/SARSAT satellite based survivor location equipment.

The PLB is a one piece unit with the transmission housed in a yellow pigmented or NATO green moulded thermoplastic case, which is designed such that the replaceable battery pack can be mounted within the overall package to form a smooth but non-slip hand portable unit. The design is such that easy replacement of the battery module (15 seconds) is possible during beacon operation. Full speech capability on 121.5 and 243 MHz together with an audible tone indicating live beacon transmissions with GPS lat/long position. The unit is designed to survive for up to ten years with the only maintenance being battery replacement every five years. The antenna (supplied) is capable of being attached directly to the PLB or remote through a cable assembly for operation in a dinghy.

Specification

Transmitter Signal

Frequency

The PLB transmits modulated homing signals on both 121.5 MHz (Civil), and 243.0 MHz (Military) distress frequencies, with characteristics in accordance with STANAG 7007. Together with 406.025 MHz in accordance with COSPAS/SARSAT.

Channel

Transmissions and reception on both frequencies are compatible with 25KHz channel spacing.

Modulation (121.5 and 243 MHz)

Continuous Swept Tone of at least 700Hz within the Sweep Range.

Sweep Range 1.6 KHz to 300Hz (i.e. downwards).

Sweep Rate 2-3 Hz

Amplitude Modulated with Rectangular Wave.

Modulation Depth – 67% minimum (80% typical).

Modulation (406.025 MHz)

0.5 Secs 5W pulse every 50 secs.

Phase modulation of $\pm \pi/3$ rad (peak)

Digital modulation to include (see C/S G.005 Iss. Rev 1, Section 3)

Bit Synchronisation

Frame Synchronisation

Protected Field

Emergency-Code/National Use Field

Long Message (optional)

GPS Receiver (Embedded)

Snap Start (advanced hot start) 2 sec

Hot Start (avg) < 8 sec

Warm Start (avg) < 40 sec

Cold Start (avg) < 50 sec

Satellite Signal Reacquisition Time 100 ms

No of Channels 12

Correlation Points 960

Min Signal Level Tracked -172 dBw

Power Consumption 110 mA

Receiver L1 C/A Code

Protocols NMEA V2.2, SiRF

GPS Antenna

Centre Frequency 1575.42 MHz

Bandwidth 2 MHz min (at -10dB point)

Gain 1 dBi min (elevation 90°)

VSWR (at fo) 2.0 : 1 max

Impedance (at fo) 50 ohm

Polarisation RHCP

Power Output (121.5 and 243 MHz)

48 hours min., 100mW (+20dBm) at -20°C.

Power Output (406.025 MHz)

24 hours min., 5W (+37dBm +/- 2dBm) at -20°C.

Activation Manual or Automatic

Dimensions 150 x 87.5 x 37.5 mm

Weight 650gm nominal

Colour NATO green or yellow

Compliance

The PLB is compliant with the following specifications.

Civil

BS 3G 100 Series for general requirements for use in aircraft.

CAP 208 Aircraft Radio Equipment Issue 2 January 1991, Volume 1 Part 10 – Survival (ELTS). EUROCAE ED62 / RTCA DO-204 / RTCA DO-183 EUROCAE ED14C / RTCA DO-160C COSPAS/SARSAT.

Military

NATO – STANAG 7007 latest issue Personal Locator Beacon

Approvals

TSO C91a and C126, JTSO-2C91a and 2C126.