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



Techtest  
Limited

Emergency  
Location  
and Rescue  
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 406.025MHz
- Manual or automatic operation
- Meets NATO STANAG 7007, latest issue, Eurocae ED-62
- Waterproof to 10 metres
- Reprogrammable on aircraft
- P/N 500-27 EB for -40°C (Class 1) operation

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 replacement 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 remotely through a cable assembly for operation in a dinghy.

## Technical Specification

### Transmitter Signal

Frequency	The PLB transmits modulated homing signals on both 121.5MHz (Civil) and 243.0 (Military) distress frequencies, with characteristics in accordance with STANAG 7007. Together with 406.025 MHz in accordance with COSPAS/SARSAT.
Channel Spacing	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 300 Hz (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. Rev1, 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	100ms
No of Channels	12
Correlation Points	960
Min Signal Level Tracked	-172dBw
Power Consumption	110 mA
Receiver	L1 C/A Code
Protocols	NMEA V2.2, S1RF

### GPS Antenna

Centre Frequency	1575.42 MHz
Bandwidth	2 MHz min (at -10dB point)
Gain	1dBi min (elevation 90°)
VSWR (at fo)	2.0 : 1 max
Impedance (at fo)	50 ohm
Polarisation	RHCP

### Power Output

121.5 & 243 MHz	48 hours min., 100mW (+20dBm) on both frequencies at -20°C
406.025 MHz	24 hours min., 5W (+37dBm $\pm$ 2dBm) at -20°C

### Activation

Manual or Automatic

### Physical attributes

Dimensions	150mm x 87.5mm x 37.5mm
Weight	650gm nominal
Colour	Reflective yellow or NATO green

### Compliance

The PLB is compliant with the following specifications:

Civil	BS 3G 100 Series for general requirements for use in aircraft 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 COSPAS/SARSAT Approval 111



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