

# Multi Function Personal Locator Beacon Plus Embedded GPS 500-27



TECHTEST LTD  
LECMINSTER  
ENGLAND

BEACON ID No.: SPACE  
SERIAL No.: MODEL

**EMERGENCY LOCATOR TRANSMITTER (TYPE S)  
PERSONAL LOCATOR BEACON, TYPE 500-27  
WARNING! FOR EMERGENCY USE ONLY**

121.5 / 243 / 406.026 MHz  
WITH SPEECH ON UHF AND VHF

CLASS 2 (-20°C IN + 55°C)  
J790-00914 & J790-00158  
T90-0214 & T90-0128

**OPERATING INSTRUCTIONS**  
PULL LANYARD / SLIDE SWITCH  
DOWN TO ACTIVATE BEACON  
SLIDE SWITCH UPWARDS TO  
ACTIVATE BUILT IN TEST (B.I.T.)  
UNLESS SET TO 30-SECOND  
PULSE PRESS TO TALK ONLY WHEN  
RESCUE CRAFT IS SIGHT OR HEARD

BUILT IN TEST (B.I.T.) STATUS  
CONT. ON / P.B. OPERATIONAL  
FAST FLASH - BATTERY FAILURE  
SLOW FLASH - INTERNAL TEST  
FLASH WITH PULSE

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## Features

- Simultaneous Transmission
- 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
- 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 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.

## Specification

### 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

Modulation Depth 67% minimum (80% typical)

Amplitude Modulated with Rectangular Wave

### 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, SiRF |

### 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   |

### Vendor Code

U2615 (Techtest Ltd) / ODLY8 (Specmat Technologies Inc)