

Multi Function Personal Locator Beacon 500-12



Multi Function Personal Locator Beacon PLUS Embedded GPS 500-27



Multi Function Personal Locator Beacon PLUS Embedded GPS

500-27

- 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
- User reprogrammable mission modes: Covert CSAR, SAR Beacon & Training
- 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. CSAR Covert, Overt and Training mission mode selections allow users maximum flexibility of beacon operation.

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

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.
CSAR Frequency User selectable encrypted frequencies.
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 NATO green, colour options available upon request

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)

Multi Function Personal Locator Beacon PLUS Embedded GPS 500-27-07



Multi Function Personal Locator Beacon PLUS Embedded GPS

500-27-07

- 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
- User reprogrammable mission modes: Covert CSAR, SAR Beacon & Training
- P/N 500-27 EB for -40°C (Class 1) operation

The Series 500-27-07 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. CSAR Covert, Overt and Training mission mode selections allow users maximum flexibility of beacon operation.

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

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.

CSAR Frequency User selectable encrypted frequencies.
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 NATO green, colour options available upon request

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)

Multi Function Personal Locator Beacon

500-30 Series PLB

- Directly interchangeable replacement for URT 33 PLB
- Interconnect for ACES II ACLS 33 plunger cable assembly as used by URT 33
- BA-22 backstyle Parachute activation lanyard compatibility
- Increased functionality
- 48 hours transmission on 121.5 MHz and 24 hours on 406MHz at -20°C
- Fully re-programmable 406MHz protocol
- Fully compatible with COSPAS SARSAT system
- Meets NATO STANAG 7007 and Eurocae ED-62A
- Robust, super compact and light-weight
- Simple self-test function
- 5 year battery life

The 500-30 is a direct upgrade replacement for the URT33 beacon providing aircrew with a 406MHz embedded GPS beacon as a plug and play replacement. Providing interface compatibility with pre-existing automatic activation mechanisms such as the ACES II ejection seat ACLS 33 Plunger connector and BA-22 back style parachute lanyard.

Once on the ground the pilot can utilise the integrated antennas including GPS to provide portable functionality. With visual indicators and audible sounder the beacon provides aircrew with certainty of transmission. Manual control provides the option to suppress transmissions where circumstance requires.

The inclusion of GPS lat/long co-ordinates will provide rescue teams with location accuracy within 100m. In addition, the ability to home onto the established 121.5MHz SAR frequency.

The 500-30 provides end users with the ability to re-programme the 406MHz protocol to suit installation.

Specification

Transmitter Signal

The PLB transmits modulated signals on 121.5MHz distress frequency with characteristics in accordance with STANAG 7007, plus 406MHz in accordance with COSPAS/SARSAT.

Modulation (121.5MHz)

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

Sweep Range 1.6KHz to 300Hz

Sweep Rate 2-3Hz

Amplitude Modulated with Rectangular Wave

Modulation Depth 80% minimum

Modulation (406MHz)

0.5 Secs 5W pulse every 50 secs.

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

Digital modulation (see C/S G.005 Iss. 2 Rev 1, Section 3) to include:

- Bit Synchronisation
- Frame Synchronisation
- Protected Field
- Emergency-Code/National Use Field
- Long Message

GPS Receiver (Embedded)

Hot Start (avg)	<1 sec	Sat. Signal Reacquisition Time	100ms
Warm Start (avg)	<35 sec	Number of Channels	22
Cold Start (avg)	<39 sec	Min Signal Level Tracked	-165dBw
Receiver Protocols	L1 C/A Code NMEA	Power Consumption	45mW

Power Output

406MHz	24 hours min 5W (+37dBm \pm 2dBm) at -20°C
121.5MHz	48 hours min >50mW (+17dBm) at -20°C

Mechanical

Activation	Lanyard Manual ARM/OFF SWITCH Automatic BA22 Interface A01856 Remote Activation Cable Assembly
Dimensions	126.5mm x 70mm x 33mm nominal
Weight	<430g nominal
Colour	NATO green

The unit is designed to survive for up to 20 years with the only maintenance being battery replacement every five years.

Compliance

The PLB is compliant with the following specifications:

Civil	EUROCAE ED62A / RTCA DO-204A / EUROCAE ED14F RTCA DO-160F / COSPAS-SARSAT
Military	NATO - STANAG 7007 / MIL STD 810F

Part Number


500-30	121.5, 406 & GPS	NSN: 5820-99-153-6353
500-30A	121.5, 406 & GPS	NSN: 5820-99-553-8899

500-32 Series 406MHz Multi Function Personal Locator Beacon



PLB 500-32 CLASS 2
121.5MHz + 406MHz + GPS
INSTRUCTIONS

Test: Press TEST
Test GPS: Press TEST
Press GPS within 5 secs.
Activate: Remove Red Safety Tag
Press ON
De-activate: Press OFF

 Techtest Limited

PLB 500-32 SERIES
OPERATING
INSTRUCTIONS

 Techtest Ltd, Loominster, England.

Multi Function PLB 500-32 Series 406MHz

- Simultaneous transmission
- COSPAS / SARSAT coverage
- Available with continuous transmission of GPS data on lat/long COSPAS / SARSAT data burst
- Beacon and Speech modes
- Meets NATO STANAG 7007, Eurocae ED-62
- Waterproof to 10 meters
- Reprogrammable on aircraft
- Low weight and small size
- Simple self-test function

The 500-32 Series Personal Locator Beacons are simple, compact lightweight units which can be used manually. The PLBs are compatible with the majority of search and rescue equipment including the COSPAS/SARSAT satellite-based survivor location equipment. Versions are available featuring embedded 12 channel GPS with data burst transmission on 406MHz, further improving location accuracy and detection time.

The PLB is a one piece unit with the transmitter housed in a moulded thermoplastic non-slip compact case, incorporating replaceable batteries mounted within the overall package. The design allows for easy replacement of the batteries during operation. Full speech capability on 121.5 and/or 243MHz together with an audible tone and visual indication of first beacon transmissions with GPS lat/long position. An operator may reprogram the PLB using an optional reprogramming adaptor.

Specification

Transmitter Signal

The PLB transmits modulated signals on 121.5MHz and 243MHz distress frequencies with characteristics in accordance with STANAG 7007, plus 406MHz in accordance with COSPAS / SARSAT.

Modulation (121.5MHz and 243MHz)

Continuous Swept Tone at least 700Hz within Sweep Range.

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

Sweep Rate 2-3Hz

Amplitude Modulated with Rectangular Wave

Modulation Depth - 67% minimum (80% typical)

Modulation (406MHz)

0.5 Secs 5W pulse every 50 secs

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

Digital modulation (see C/G G.005 Iss. 2 Rev 1, Section 3) to include:

- Bit Synchronisation
- Protected Field
- Long Message
- Frame Synchronisation
- Emergency-Code/National Use Field

GPS Receiver (Embedded)

- Hot Start (avg) <9 sec
- Warm Start (avg) <35 sec
- Cold Start (avg) <39 sec
- Receiver L1 C/A Code
- Protocols NMEA
- Sat. Signal Reacquisition Time 100ms
- Number of Channels 12
- Min Signal Level Tracked -172dBw
- Power Consumption 82mW

Power Output

406MHz 24 hours min. 5W (+37dBm \pm 2dBm) at -20°C

121.5 / 243MHz 48 hours min. 100mW (+20dBm) at -20°C

Mechanical

Activation Manual or the PLB is capable of being reliably activated automatically upon ejection from a suitably-equipped aircraft.

Dimensions 132mm x 72mm x 34mm nominal

Weight <370g nominal

Colour Yellow, NATO green or custom

The unit is designed to survive for up to ten years with the only maintenance being battery replacement every five years.

Compliance

The PLB is compliant with the following specifications:

Civil BS 3G 100 Series for general requirement for use in aircraft. EUROCAE ED62 / RTCA DO-204
RTCA DO-183 / EUROCAE ED14C
RTCA DO-160C / COSPAS/SARSAT.

Military NATO - STANAG 7007 Personal Locator Beacon

Approvals

Cospas/Sarsat approval 111

12-503-5 Programming Test Set



Specification

A portable test set designed to analyse and reprogram the COSPAS/SARSAT message embedded in the 406MHz distress signal.

The Test Set comprises a programming unit, a keyboard and a programming cable set. All are contained in a sturdy moulded, weatherproof case.

The unit can be used to program the following Techtest products:

- 500 Series Personal Locator Beacon
- 503 Series Emergency Locator Transmitter
- 15-503-134 Series Crash Position Indicator

Operating Temperature range: 0°C to +50°C

Storage Temperature range: -20°C to +70°C

Variable contrast control

Mains (240V) or internal re-chargeable battery operation

Dimension (case) 361mm x 290mm x 165mm



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