

Multi Function Personal Rescue Beacon 500-37

 Techtest
Limited



HR Smith Group of Companies
www.hr-smith.com

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Overview

The Techtest 500-37 Personal Rescue Beacon satisfies joint forces requirements to provide their personnel with the greatest chance of safe recovery in an emergency situation, during peacetime and combat missions.

On a SAR mission the Techtest 500-37 provides peacetime distress alerting using the Cospas Sarsat satellite system and long established civilian and military VHF distress alerting and direction finding frequencies.

On a CSAR mission the Techtest 500-37 is a programmable, secure, two way communicator, using data, text and voice.

Minimising the search aspect of any rescue mission is crucial. This is further intensified in a combat situation by the exposure of the recovery force to high levels of adversary threat.

The Techtest 500-37 is able to maximise the possibility of first pass recovery for survivor/evaders by coordinating detailed situational awareness information, including precise geopositioning, between survivor/evader and recovery force.

During a mission the Techtest 500-37 can be activated either manually by a survivor/evader or automatically by lanyard, water switch or G-switch.

The Techtest 500-37 has an external antenna connector allowing the unit to be configured for a particular role, prior to or during a mission. Antenna options include ejection seat, life jacket and parachute installations.

The Techtest 500-37 is designed to work in conjunction with the 15-406-110 Airborne Locator System (ALS) comprising:



Mission programming of both the Techtest 500-37 and the HR Smith 15-406-110 is achieved using the Techtest 12-503-30 Programming Unit (PU)



CSAR Mission

On activation during a combat mission the Techtest 500-37 maintains Low Probability of Detection (LPD) by inhibiting transmissions, listening instead for the presence of the rescue force.

- **Low Probability of Intercept (LPI)**
 - Transmission frequencies drawn from mission programmed key
 - Transmission length short
 - Transmission timing irregular
- **Low Probability of Exploitation (LPE)**
 - Layered Encryption System (LES)
 - Mission specific information

On detecting the rescue force the Techtest 500-37 participates in an encryption synchronisation during which situational information is exchanged between the survivor/evader and the recovery force. On successful synchronisation and information exchange the Techtest 500-37 reverts to a power conserving, low duty cycle mode. Exchange of situational information is automatically maintained during low duty cycle. The Techtest 500-37 effects secure two way communication between the survivor/evader and the recovery force using encrypted data, text and voice.

The Techtest 500-37 provides geopositioning and navigational guidance using the built in GNSS receiver and compass. Navigational guidance is provided to either mission programmed waypoints or to a waypoint transferred from the ALS by the recovery force, during the mission.

The Techtest 500-37 has a ZEROIZE function which erases all mission programming and returns the unit to SAR mode.



CSAR Key Benefits

- User friendly operation
- Automated system
 - Low training overhead
 - Rapid learning curve
- Location integrity is not compromised
- Minimal recovery risk
- Navigational guidance to recovery area
- Jamming resistant CSAR communications
- Multiple ALS collaboration
- User mission programming for PRB and ALS
- User programming of G switch in PRB and ELT
- Secure data, text and voice communications between PRBs and ALS

SAR Mission

On activation during a non-combat mission the Techtest 500-37 transmits a 406MHz signal containing the survivor location to a Mission Control Centre (MCC) via the Cospas-Sarsat satellite system. The Techtest 500-37 also transmits a distress signal on 121.5MHz and 243MHz. These frequencies are also used for terminal area direction finding and two way voice communication between the survivor and recovery force.

PEACETIME MISSIONS

COMBAT MISSIONS

MISSION PROGRAMMABLE

LOW PROBABILITY OF DETECTION

NAVIGATIONAL GUIDANCE

SECURE DATA TEXT & VOICE

COSPAS SARSAT COMPATIBLE

MULTI FUNCTION DISPLAY

Specification

SAR

Three frequency SAR transmitter COSPAS SARSAT | Civilian | Military

■ COSPAS SARSAT	406MHz	C/S T.001 Class 2 C/S T.007
■ CIVILIAN	121.5MHz	Eurocae ED62 RTCA DO-204
■ MILITARY	243.0MHz	STANAG 7007
■ NAVIGATION	GNSS and COMPASS	
■ ENDURANCE	121.5/243 and 406 for 24hrs minimum	

CSAR

Mission programmable secure transceiver for data, text and voice.

Works in conjunction with Techtest 15-406-110 Airborne Locator System

■ MISSION PROGRAMMABLE	Short burst randomised transmissions 1000 frequencies 20 mission programmable messages 20 mission programmable waypoints 5 data keys per mission
■ RANGE	Min 50km for data, text and voice (ALS at 3000m AGL line of sight)
■ NAVIGATION	GNSS and COMPASS
■ ENDURANCE	Dependant on combat scenario Typical mixed scenario of data, text, voice and navigation >48hrs Typical voice scenario 50% transmit, 50% receive >2hrs

GENERAL

■ BATTERY	User replaceable primary cell pack, LiMnO ₂ , with battery life monitor. Replacement at 5 year intervals if not activated.
■ DISPLAY	Multi functional LCD graphics display Icon indication of operation Text Messages Navigation
■ G-SWITCH	3 axis, programmable 5g - 20g
■ ANTENNA	Wideband, articulated tape antenna External antenna port for role configuration
■ ANTENNA OPTIONS	10-274-18 Parachute and Ejector Seat antenna 10-274-20 Life Jacket Antenna
■ ACTIVATION	Manual by switch Automatic by lanyard, G-Switch and Water Switch
■ SELF TEST	Manually activated by switch
■ PHYSICAL	185mm x 88mm x 47mm 750g NATO GREEN
■ ENVIRONMENTAL	MIL STD 810
■ EMC	MIL STD 461