MicroPLB™ - 406MHz



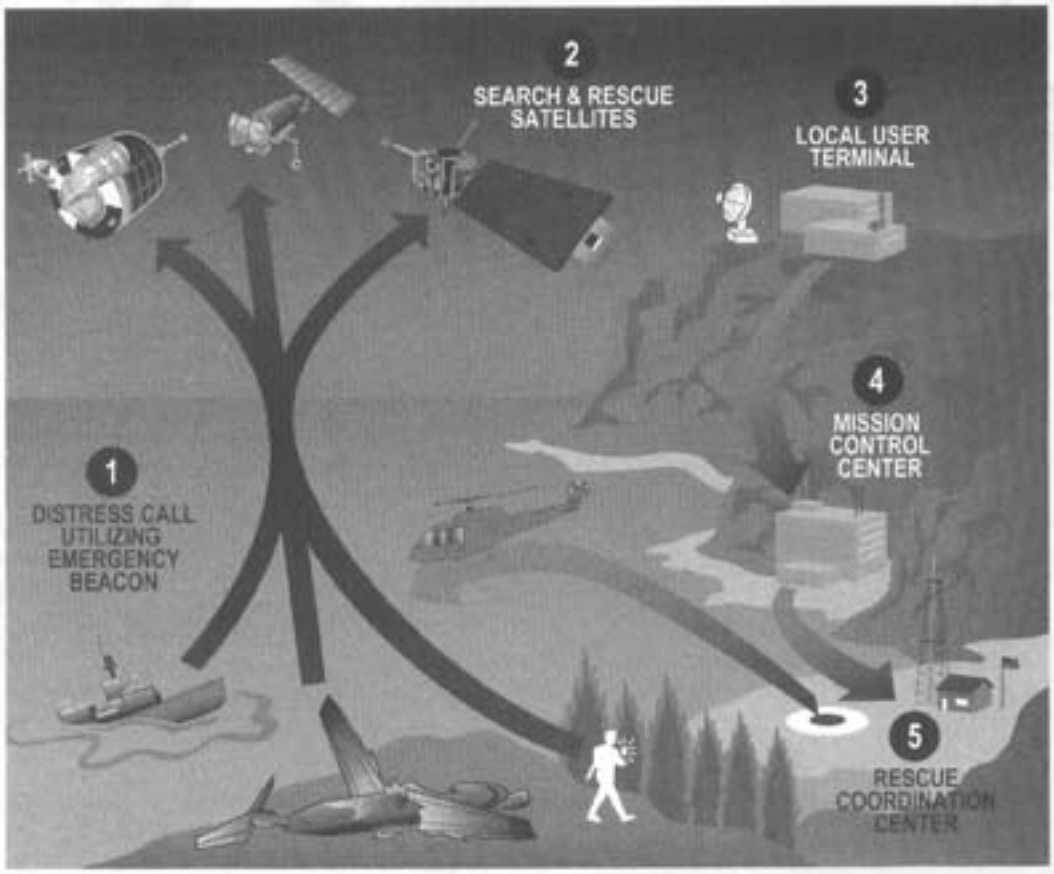
The worldwide COSPAS/SARSAT* emergency notification system has saved thousands of lives after boating and aircraft accidents over the past two decades. In emergency situations, the battery powered EPIRBs (ship based - Emergency Position Indicating Radio Beacon) or ELTs (aircraft based - Emergency Locator Transmitter) are activated and transmit a distress signal, which includes a unique user identification code, to geostationary satellites (GEOs) which continously monitor most of the earth's surface, and Low Earth Orbiting satellites (LEOs) within the horizon then determine location, typically accurate to within 2-3 miles. The LEOs also provide initial distress notification in the polar regions which are not well covered by the GEOs located over the equator. Personal Locator Beacons (PLBs), operating through the same satellite system, are now becoming available worldwide to provide similar protection for individuals engaged in outdoor activities such as hiking, hunting, mountain climbing, boating, flying, cross country skiing, etc., which could lead to unexpected life threatening emergencies.

The MicroPLB™

The MicroPLB™ is the smallest, lightest weight, COSPAS/SARSAT 406 MHz PLB. This pocket sized unit, based on an advanced ultra stable oscillator and NASA supported high efficiency power amplifier electronics, sets a new standard in performance with the miniaturized packaging necessary for truly personal/portable use. It is the ONLY PLB to use a safe lithium battery approved by the US DOT (Departmental of Transportation) for carriage via all commercial transportation, including commercial passenger aircraft. The MicroPLB™ is thus safe, easy to carry, and can go with you wherever you go. In the unfortunate event that emergency rescue help is needed, it is easily activated and could save your life. Simply remove the cover, which automatically deploys the antenna, and pull out the activator plug. These actions can even be performed by injured individuals, wearing gloves, and in total darkness. Search and rescue personnel are then dispatched as described in the figure.

The advanced technology MicroPLB™ (optionally) accepts inputs from an attached GPS receiver. In this configuration, position information (typically accurate to within 10's of meters) is immediately forwarded through the GEOs for real time notification, identification, and location, and is also routed via the low earth orbit satellites as they pass by. Rescue personnel are thus guided directly to the emergency location by the specified GPS coordinates and by a separate (optional) 121.5 MHz homing signal transmitted by the beacon. This homing signal can typically be received by a suitably equipped helicopter up to 10 miles from the distress location.

The proven, fully operational, all weather COSPAS/SARSAT system operates worldwide 24 hours a day. It is operated by an international consortium, and the ground stations and notification network are all Government funded and operated without the assessmant of user fees (i.e. no monthly charge).



The COSPAS/SARSAT System**

The beginning of SARSAT date back to 1970 when a plane carrying two U.S. Congressman crashed in a remote region of Alaska. A massive search and rescue effort was mounted, but to this day, no trace of them or their aircraft has ever been found. In reaction to this tragedy, Congress mandated that all aircraft in the United States carry an Emergency Locator Transmitter (ELT), which opertated at 121.5 MHz, the international aircraft distress frequency. This system worked, but had many limitations. There was no easy way to accurately determine the location of the transmitter. The frequency was cluttered, there was no way to verify who the signal was originating from, and most importantly, another aircraft had to be within range to receive the signal. A satellite based system was thus conceived, which operated on an internationally reserved frequency for emergency beacons (406 MHz), transmitted a digital signal that uniquely identified each beacon, and provided global coverage. The resulting SARSAT system was developed in a joint effort by the United States, Canada, and France. A similar system, COSPAS, was developed by the Soviet Union. The four nations banded together in 1979 to form COSPAS/SARSAT. In 1982, the first satellite was launched, and by 1984 the system was declared fully operational. The Cospas-Sarsat organization continued to grow, and as of March 2001, there were 35 participants operating a total of 38 LEOLUTs (Local User Terminals) and 7 GEO LUTs.



Today, new technology continues to evolve and the member nations are actively incorporating that technology into the COSPAS/SARSAT system of tomorrow. The miniaturized GPS capable MicroPLB™ represents the forefront of this advanced satellite based technology.



*SARSAT:
Search and Rescue
Satellite-Aided Tracking,
COSPAS: Russian acronym

** Parts abstracted from the NOAA SARSAT home page (http://www.sarsat.noaa.gov) with thanks.
Additional information may also be found at:
http://www.micro-mono.com,
http://poes.gsfc.nasa.gov/sar/sar.htm, and http://www.cospas-sarsat.org.

USA • CANADA • FRANCE • RUSSIA
COSPAS SARSAT

MINIATURE COSPAS/SARSAT 406 MHz PERSONAL LOCATOR BEACON (PLB)

MicroPLB™, Type GXL,* MODEL No. MBT-040600, GXL *Specifications

SIZE	1.1" X 2.3" X 4.75"
WEIGHT	~8 Oz. (~230 grams)
BATTERY PACK	Lithium (Li/MnO_2) Battery, U.S. DOT Approved For All Common Carriers
OPERATING LIFE (C/S CERTIFIED)	48 Hrs. Minimum
OPERATING TEMPERATURE	Certified, Class 2 (-20^oC to $+55^oC$) (100% tested, -30^oC to $+60^oC$)
SHELF LIFE (with battery)	5 years @ -40^oC to $+35^oC$, for 48 Hr. Min. (5 years @ $+60^oC$ (cont.), for 24 Hr. Min.)
STORAGE (w/o battery)	-40^oC to $+90^oC$
WATER RESISTANT	No Leakage at 1 Meter Depth For 1 Hr. (100% leak tested to 25' equivalent)
GPS RECEIVER (INTERNAL)	Test &/or Update w/o Transmission
HOMING SIGNAL	121.5 MHz, 50 mW Peak
FREQUENCY	406.025 MHz
POWER	5 Watts $\pm$ 2dB
SHORT TERM STABILITY	2 x 10-9
MEDIUM TERM STABILITY	1 x 10-9
MODULATION	Phase Modulation: $\pm$ 1.1 Radians
PROTOCOL	National Location Protocol
ID CODE	Unique ID code for Every Beacon (Free Registration Required)
ANTENNA	Protected by Case, Deployable by One Hand. Antenna Vertical or Parallel with Largest Face of Case
OPERATING MODES	Off, Transmit, and Test/GPS Update
ACTIVATION	Two Simple Conscious Actions Required
INDICATORS	Flashing LEDs
OPERATING ALTITUDE	Sea level to 100,000 feet
DUSTPROOF	Sealed Against Dust Penetration
CASE	High Impact Resistant Plastic
COSPAS/SARSAT APPROVAL	Certificate No: 110
GPS UPDATE RATE	C/S T.007
FCC ID	RG6-MBT-040600
RELIABILITY, ENHANCED	100% Burned-in, Temperature Cycled, Tested, & Conformal Coated

This document contains information on a new product. Specifications and information herein are subject to change without notice.

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