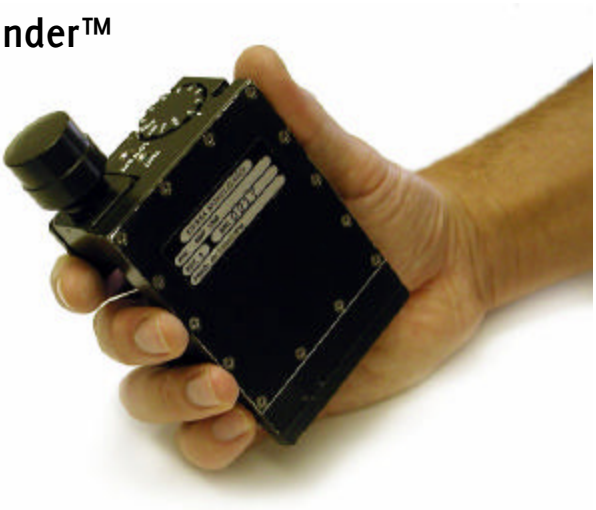
SIERRA MONOLITHICS

SMP1000

Smallest and lightest radar transponder beacon

Small, rugged, and lightweight, the I-band Microponder™ produces a field proven, reliable beacon signal when illuminated by I-band radar



The **SMP1000** is the smallest and lightest radar transponder beacon available on the market today. Its minimal power consumption and 'off-the-shelf' battery ensure continuous operation for more than 24 hours (in receive mode). The **SMP1000** provides a very cost-effective solution for any customer in need of a small, rugged, and long-lasting beacon that permits greater mobility and increased effectiveness. Its simple and passive operation significantly enhances the security and survivability of the unit under adverse operating conditions.

Features and Benefits

- Small; it fits into your shirt's pockets
- Lightweight; easy to carry
- Rugged design to ensure it can be used over a wide temperature range, under varying environmental conditions
- Horizontally polarized, tri-dipole antenna provides an exceptional 360˚ field of coverage
- Strong, pulsed signal with corresponding long transmission range at very lower power consumption
- Outstanding receiver sensitivity ensures proper reception of radar signals from more than 10 miles out

Applications

The **SMP1000** is ideally suited for tough environments. It provides the same excellent performance under scorching sun as it does in drenching rain or freezing conditions. When the Microponder™ receives an I-band radar signal, it creates a reply pulse train coded for the radar to identify and locate the transponder. The code is operator selectable. In typical operation, the radar is equipped with a special transponder receiver. It receives the beacon signal, recognizes the pulse code, and places the Microponder's ™ location as a symbol on the radar screen. Azimuth and distance is determined by the direction of the radar and the time delay of the response pulse. The codes can be customized for a variety of applications to meet specific customer requirements. The transmitter can be easily modified and delivered with or without a frequency offset from the radar frequency. Thus, it could be used without a special transponder receiver if desired.

The **SMP1000** is used extensively as a locator beacon for personnel in distress during search and rescue missions, and also as a point designator to provide accurate delivery of ordnance by aircraft for immediate or preplanned targets. It may be used for enroute navigation or pathfinder functions to guide aircraft during periods of poor visibility. It could also help to outline a drop zone so that supplies, personnel, or heavy equipment drops can be made at precise ground points.

Innovative Design

The exemplary advantage of the **SMP1000** is the simplicity of its design. A standard 9V DC alkaline battery, available virtually anywhere on the globe, supplies power to this radar transponder beacon. The transmitter and receiver sections are well isolated and the receiver is protected from overload.

It is very easy to operate and simple to maintain and repair since it uses widely available 'off-the-shelf' components. An optional pocket size in-field test unit (**SMP1000T**) provides simulated radar signals, receives the beacon's reply pulses, determines signal delay, and finally the correctness of the codes. It ensures the Microponder™ is fully operational prior to the mission.

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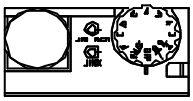
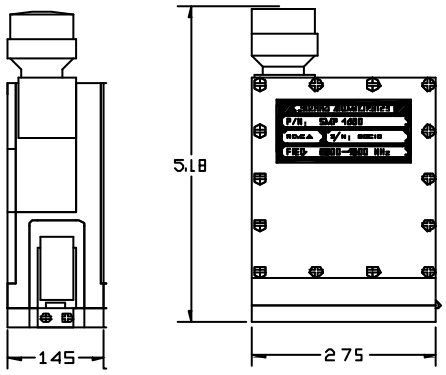


Physical Characteristics

weight *(w/battery)*	460 g *(1 lb)*
size *(LxWxH)*	102 x 70 x 37 mm *(4.00 x 2.75 x 1.45 in.)*
antenna deployed	132 x 70 x 37 mm *(5.18 x 2.75 x 1.45 in.)*

Ordering Information

part no.	SMP-1000
test unit	SMP-1000T



SMP-1000/041502-1

Technical Specifications

power source	9 volt alkaline battery *(lithium battery for < 0 ˚C operation)*
battery life*	24 hours of continuous operation w/new battery
antenna mechanical	stowed and deployable
polarization	horizontal
beam pattern	omni-directional beam toward the horizon w/2 dB nominal gain
green LED indicator	flashing when transmitting
red LED indicator	flashing when battery is low *(< 7 volts)*

Performance Specifications

RX/TX** frequency	I-band
RX sensitivity	-55 dBm
RX max input signal	+20 dBm
RX pulse width	0.3 µsec minimum
TX peak output power	7 Watts *(nominal)*
TX reply pulse codes	AN/PPN-19 codes A - G; SST-181X codes 1 - 5; strobe *(test mode)*
transponder delay	1.0 µsec *(+/- 0.2 µsec)*

Environmental Specifications

operating temp	-40 to 60 °C *(-40 to 140 °F)*
storage temp	-55 to 85 °C *(-67 to 175 °F)*
vibration	designed to MIL-STD-810C
operating humidity	100%
altitude	-1000 to 40,000 ft

*receive only; nominal conditions **Receiver (RX), Tranceiver (TX)

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