Technical Bulletin

Model AT1000

Miniature C-Band Radar Transponder

Airborne Telemetry Products

FEATURES

- Peak Power Output is Optional
- Long Life Triode Cavity Transmitter
- Tunable over 5.4 to 5.9 GHz
- Single or Double Pulse Interrogations
- Single Antenna Connector
- Open and Short Circuit Protection
- Reverse Polarity Protection
- Adjustable Code and Delay Selection
- Light Weight Less than 14 ounces



The AT1000 Series Radar Transponder is a miniature precision Radar augmentation device used to enhance the tracking capabilities of C-Band Radars. Utilized primarily for Range Safety functions, the AT1000 is suitable for use in manned and unmanned vehicles. The Transponder is suitable for use in aircraft, missiles and target drones, both air- and sea- borne.

The design of the AT1000 series utilizes the latest in modern devices and circuitry. It is all solid state, except for the triode oscillator, to provide a reliable product with consistent high quality.

QUALITY CONTROL AND PRODUCT ASSURANCE

The L-3 Communications Telemetry-East AT1000 Transponder is manu-factured under the strict Quality Control procedures in accordance with the requirements of ISO 9001 and MIL-Q-9858A. Each assembled unit is fully tested to a comprehensive acceptance test procedure which includes full performance testing at thermal extremes.



MECHANICAL SPECIFICATIONS

Size: 3.760 x 2.25 x 1.50 inches

(9.5504 x 5.715 x 3.81 cm)

Volume: 12.7 cubic inches nominal

Disp.

(.000208 cubic meter)

Weight: 14 ounces maximum

(.3969 kg)

Duplexer: Built-in circulator, 4 port ferrite

Antenna Connector: SMA female

Power Connector: MS27478Y08D35P

Mates with

MS27484E08D35S

ENVIRONMENTAL SPECIFICATIONS

Operating

Temperature: -40° to +80°C

Non Operating

Temperature: -65°C to +95°C

Vibration: 20g Sine, 17g Random
Shock: 125g, 11 µsec in any axis
Acceleration: 125g along any axis (3 min)
Altitude: Sea level to 230,000 feet

Humidity: Any, up to 100%

including condensation

RFI/EMI: MIL-STD-461



Model AT1000

ELECTRICAL SPECIFICATIONS

Frequency Separation: 50 MHz preferred

(narrower available)

Input/Output

Impedance: 50 Ohm Nominal

Open/Short Circuit: Antenna input protected

within unit

Recovery Time: 20 µsec. maximum
Blanking: During Transmit Pulse
Reverse Polarity: Internal Series Diode
Voltage Transient: Internal Power Zener

Input Voltage: 24 to 32 Vdc

Input Current: 0.8 Amps Max @ 3000 pps Power Consumption: 0.4 Amps @ 28Vdc,1000 pps

Power Dissipation: 10 Watts typical

TRANSMITTER

Frequency Range: 5.4 to 5.9 GHz (*) (†)

Frequency Selection: Continuous Mechanical Screw

Modulation Type: AM Pulse

Output Power: Factory Set (100-500 Watts)
Output Device: Triode Cavity Oscillator

Frequency Stability: ± 3.0 MHz ±50kHz/°C - at any

single repetition rate

Pulse Width: $0.5 \pm 0.1 \, \mu sec.$ Pulse Width Jitter: $0.01 \, \mu sec.$ Pulse Rise Time: $0.1 \, \mu sec.$ Pulse Fall Time: $0.2 \, \mu sec.$

Power Spectrum: < 3 MHz/0.5 µsec at ¼ dB points

PRF: Up to 2600 pps or pgps Reply Delay: 1.0 to 6.0 µsec. (*)

Delay Variation: ± 0.1 µsec. max from

-65 dBm to +20 dbm

Delay Jitter: ± 0.03 µsec. max from

-65 dBm to +20 dbm

RECEIVER

Design: TRF

Frequency Range: 5.4 to 5.9 GHz (*) (†)
Frequency Selection: Screw Adjustable Poles
Sensitivity: -65 dBm minimum

Dynamic Range: -65 dBm to 20 dBm @ 99% reply

Frequency Stability: ± 5.0 MHz

Bandwidth: 11 \pm 3MHz, 3 db level Pulse Decoder: Single or Double Pulse Width (Single): 0.25 to 5.0 μ sec. (*) Pulse Width (Double): 0.25 to 5.0 μ sec. (*)

Double Pulse Spacing: Adjustable 3.0 to 12.0 µsec.

(*)(†)

Random Triggering: 10 pps Max

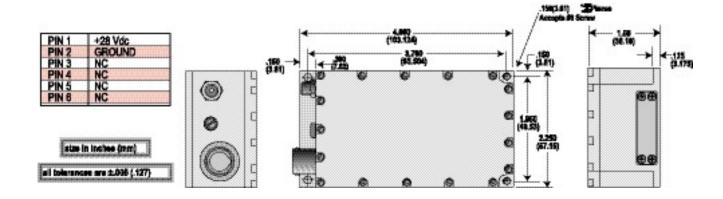
ORDERING INFORMATION

Contact your nearest L-3 Communications Telemetry-East Sales Representative or the L-3 Communications Telemetry-East Sales Office in Newtown, PA. Specify Model AT1000 Transponder.

Part No. 27345000-501

Field Adjustable (†) Factory Set (*)

Model AT1000 Outline Drawing





L-3 Communications Telemetry-East

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