

IFF Transponder Model MD500L

35 Hill Ave Fort Walton Beach FL 32548 | PH: 1-888-325-9422 | Fax: 1-850-243-1378 | www.gomicrosystems.com



Features

- Operates in 1, 2, 3/A, or C Modes
- 500 Watt Peak Power Output (typ.)
- 100% Solid State for High Reliability
- IFF/TACAN Blanking & Suppression
- Interrogation side lobe suppression for use in busy air corridors
- Front panel and remote reply code selection
- Weighs less than 4 pounds
- Built-in duplexer for single antenna operation

Applications

- Radar Identification
- Vehicle Tracking

Description

The Model MD500L IFF Transponder is an L-Band augmentation device ideally suited for use in aerial target drones, unmanned vehicles, and cruise missiles as a radar enhancement device to provide automatic radar identification in response to interrogations from L-Band IFF and Air Traffic Control (ATC) radars. It also supports Mode C (altitude reporting) operation.

It features a modern compact design with less than 90 cubic inches (1475 cubic centimeters) volume and weighs 4.25 pounds (1.9 kilograms) which is 35% smaller than previous versions. The transponder incorporates the latest in solid state electronics design and features a 500 watts nominal peak power output. It also features IFF/TACAN blanking and suppression, reverse polarity power lead protection, and has a built in duplexer for single antenna operation. Also, the transponder was designed with both front panel and remote reply code selection for greater convenience and ease of use. The L-Band IFF meets the requirements of MIL-STD-810 and is designed to operate over the temperature range of -54° C to +71° C.

Technical Specifications

AS9100C and ISO 9001:2008 Certified

Electrical

- **Frequency:** 1030 / 1090 MHz
- **Impedance, Input/Output:** 50 ohms nominal
- **Protection:** Built-in series diode protection against from DC input power reversal
- **Input Voltage:** 24 to 32 VDC, common GND
- **Quiescent Current:** 0.4 Amp nominal
- **Input Current:** 1.1 Amp typical @ 2500 prf
- **Input Power:** 40 Watts max, all conditions
- **Suppression Modes:**
 - (1) Decoding suppression during transmission
 - (2) Interrogation Side Lobe Suppression (ISLS)
 - (3) Over-interrogation reply limiting
 - (4) Suppression from an external IFF or TACAN system
 - (5) Provides suppression pulse to an IFF or TACAN system

Environmental

- **Temp, Operating:** -66 °F (-54 °C) to 160 °F (+71 °C)
- **Temp, Storage:** -80 °F (-62 °C) to 185 °F (+85 °C)
- **Altitude:** Sea Level to 100,000 feet
- **Humidity:** Any, up to 100% including condensation due to temperature change (all boards are conformal coated)
- **Leakage:** Water immersion to a depth of 1m for 2 hrs
- **Vibration:** Random, 9.3 G_{rms} max from 10 to 2000 Hz
- **Acceleration:** 20 G in each of 6 direction for 1 min per axis while operating
- **Shock:** 20 G (11 ms), 3 shocks each axis
- **EMI/RFI:** MIL-STD-461, tested per MIL-STD-462

Physical

- **Size:** 5.00" W x 2.52" T x 5.13" D
(12.7 cm x 6.40 cm x 13.03 cm)
- **Weight:** 4 pounds
- **Antenna Connector:** TNC Female
- **Pwr/Remote Connector:** MS27474E14B35P
- **IFF/TACAN Connector:** BNC female
- **Installation:** Flange Mount Base Plate

Contact us for custom modifications

For additional information contact:

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Receiver

- **Type:** Direct RF detection & Logarithmic Amplification
- **Frequency (3dB):** 1027.5 MHz to 1032.5 MHz (or specify)
- **Sensitivity:** -69 dBm to -77 dBm, internally adjustable
- **Dynamic Range:** 50 dB min
- **Pulse Decoding:** Modes externally or remotely selected
 - Mode 1 pulse spacing: 3.0 +/- 0.1 µsecs
 - Mode 2 pulse spacing: 5.0 +/- 0.2 µsecs
 - Mode 3A pulse spacing: 8.0 +/- 0.2 µsecs
 - Mode 3C pulse spacing: 21.0 +/- 0.2 µsecs
- **Pulse Width (all modes):** 0.8 +/- 0.1 µsecs
- **Sidelobe Suppression**
 - Pulse:** Positioned 2.0 +/- 0.15 µsecs from first pulse. Suppression occurs when this pulse > in amplitude to first pulse.

Transmitter

- **Type:** Solid-state, silicon bipolar transistors
- **Frequency (3dB):** 1090 +/- 3 MHz
- **Power Output:** 5 Bit encoded signal between 2 framing pulses spaced 20.3 +/- 0.1 µsecs
- **Pulse Width:** 0.45 +/- 0.1 µsecs
- **Reply Code**
 - Select:** Front panel switches or remote
- **Receive to Transmit**
 - Delay:** 3.5 µsecs nominal (jitter 0.1 µsecs max)
- **Random Triggering:** 5 pulse trains per second max

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