**Target Control Transponder (TCT)**

The Target Control Transponder provides command and control capability, position data and telemetry data for Unmanned Aerial Vehicles (UAV’s) and Targets when used with the HVS Model 6157-1 Portable Radar Tracking and Control System (PRTCS) or 6104 Transportable Tracking and Control System (TTCS).

Two modes of operation (Command and Track) are available. In the Command mode, Pulse-Position-Code (PPC) interrogations are transmitted by the Ground System. This 5-pulse group is received and decoded by the transponder set and commands are output to the vehicle. The transponder set can simultaneously respond to command mode and track mode interrogations and output both 4-pulse and 2-pulse coded PPC.

The design employs the latest in devices, circuitry, and modern production processes to provide a reliable product with high quality consistency. This unit is intended for programs and applications with stringent environmental, EMI, and reliability requirements.

**Features**

- Dual mode (command and track)
- 2 proportional and 24 discrete uplink commands
- 12 proportional and 12 discrete downlink telemetry
- Command error probability less than $0.82 \times 10^{-8}$
- Failure alarm circuitry
- Automatic antenna selector switch for two-antenna operation
- 100 dB receiver dynamic range
- Automatic gain control
- Pulse width discrimination
- Pulse amplitude discrimination

**Applications**

- Command and Control
- Command and Telemetry

Export Sales of this product are subject to U.S. Government approval. Sales will not be approved to countries prohibited by the International Trade in Arms Regulations (ITAR)
Technical Specifications

Electrical
- **Primary Power:** 22 to 29 Volts DC
- **Power Consumption:** 4.0 amp, maximum @ 28 Volts DC
- **Reference Voltage:** 5.0 ±0.03 VDC at 50 ma
- **Frequency Separation (Receiver/Transmitter):** 50 MHz, minimum
- **Transponder Delay:** 4.0 ±0.1 microsecond
- **Command Functions:** 2 Proportional, 8-bit, standard TTL output drive; 24 Discrete, active-on, standard TTL output drive
- **Antenna Connector:** N female (MIL-C-39012)
- **Antenna Switch:** Automatic selection of antenna by TCT
- **Power Connector:** Mates with MS3116F12-10S
- **Telemetry Connector:** Mates with MS3116F18-32S
- **Command Connector:** Mates with MS3116F22-55S

Receiver
- **Type:** Solid State Superheterodyne
- **Sensitivity (99% Reply):** -80 dBm minimum
- **Frequency Range:** 5.4 to 5.9 GHz (tunable)
- **Frequency Stability:** ±5 MHz
- **Dynamic Range:** ±20 to -80 dBm
- **Bandwidth:** 13 ±5 MHz
- **Interrogation Code:** Command, 5-pulse (PPC); Track, 2-pulse
- **AGC Dynamic Range:** 40 dB, minimum
- **Pulse Width Discriminator:** 0.20 to 0.60 ±0.05 microsecond for signal levels 0 to -67 ±3 dBm
- **Pulse Amplitude Discriminator:** Varies inversely with AGC level

Transmitter
- **Type:** Pulsed Magnetron
- **Frequency Range:** 5.4 to 5.9 GHz (tunable)
- **Frequency Stability:** ±6 MHz
- **Peak Power Output:** 600 Watts, minimum
- **Pulse Width:** 0.3 ±0.1 microsecond
- **Pulse Rise Time:** 0.1 microsecond, maximum, (10 to 90%)
- **Pulse Fall Time:** 0.2 microsecond, maximum, (90 to 10%)
- **Leading Edge Jitter:** ±0.1 microsecond pulse-to-pulse
- **Reply Code:** Telemetry 4-pulse (PPC); Track, 2-pulse

Options

Physical
- **Size:** 4.06 x 10.65 x 8.69 inches, with protrusions
- **Weight:** 13 pounds, maximum
- **Antenna Connector:** N female (MIL-C-39012)
- **Antenna Switch:** Automatic selection of antenna by TCT
- **Power Connector:** Mates with MS3116F12-10S
- **Telemetry Connector:** Mates with MS3116F18-32S
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Environmental
- **Vibration:** IAW MIL-STD-810C, Method 514.2, Category (e), Procedure V as follows: Part 1: Sinusoidal-Curve P (5.0g maximum); Part 2: Random-Curve AF (7.6g)
- **Temperature, Operating:** -40°C to +55°C (+71°C intermittent)
- **Temperature, Non-Operating:** -57°C to +85°C
- **Shock:** 15g for 11 millisecond, IAW MIL-STD-810C, Method 516.2, Figure 516.2-2, Procedure I
- **Altitude:** 50,000 feet and continuous sea-level operation over -40°C to +55°C
- **Humidity:** 95 +5, -3% at 65°C, IAW MIL-STD-810C, Method 507.1, Procedure I, Non-Operating
- **Immersion:** Will withstand immersion in water at a 36-inch depth IAW MIL-STD-810C, Method 512.1, Procedure I
- **Salt Atmosphere:** Will withstand exposure to salt fog IAW MIL-STD-810C, Method 509.1, Procedure I

Contact us for custom modifications

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