

Target Control Transponder (TCT)

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Part Number: AY07461



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 0.82×10^{-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

Description

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.

Technical Specifications

AS9100C and ISO 9001:2008 Certified

Electrical

Primary Power: 22 to 29 Volts DC
Power Consumption: 4.0 amp, maximum @ 28 Volts DC
Reference Voltage: 5.0 \pm 0.03 VDC at 50 ma
Frequency Separation (Receiver/Transmitter): 50 MHz, minimum
Transponder Delay: 4.0 \pm 0.1 microsecond
Command Functions: 2 Proportional, 8-bit, standard TTL output drive;
24 Discrete, active-on, standard TTL output drive
Telemetry Functions: 12 Proportional, 0 to +5 Vdc input with 10-bit
resolution, 500 K input impedance; 2 Discrete, TTL-compatible inputs
with ON/OFF resolution, 20 K input impedance
Pulse Repetition Rate: 1280 pps minimum, 4160 pps maximum
VSWR of Load: Operate into VSWR of 1.5:1 at all phase angles

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
Command Connector: Mates with MS3116F22-55S

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

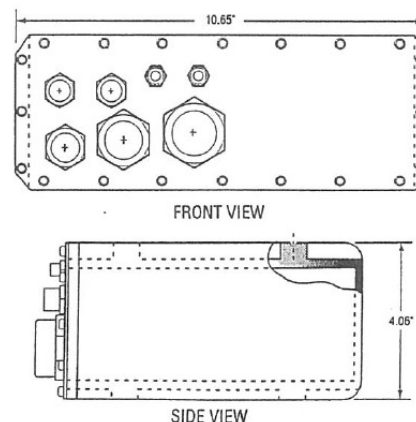
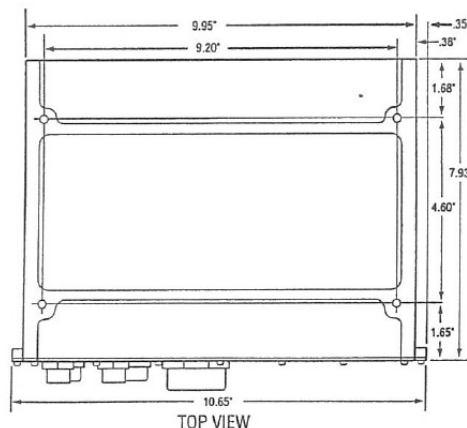
Receiver

Type: Solid State Superheterodyne
Sensitivity (99% Reply): -80 dBm minimum
Frequency Range: 5.4 to 5.9 GHz (tunable)
Frequency Stability: \pm 5 MHz
Dynamic Range: +20 to -80 dBm
Bandwidth: 13 \pm 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 \pm 0.05 microsecond for
signal levels 0 to -67 \pm 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: \pm 6 MHz
Peak Power Output: 600 Watts, minimum
Pulse Width: 0.3 \pm 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: \pm 0.1 microsecond pulse-to-pulse
Reply Code: Telemetry 4-pulse (PPC); Track, 2-pulse

Options



Contact us for custom modifications

For additional information contact:
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