

GRDCS/DFCS RF Transponder

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Features

- Operates with single power supply
- Designed for extended temperature range
- Power consumption > 70 Watts
- Bi-phase modulated 915 MHz Transmit/Receive
- Direct Sequence Spread Spectrum (DSSS)
- Peak output power of 200 Watts
- Communication to IFC via RS-485 Channel

Applications

- Vehicle Tracking
- Distance Measurement Equipment

Description

The Gulf Range Drone Control System (GRDCS) / Drone Formation Control System (DFCS) RF Transponder is an L-Band transmitter/receiver designed to function as a Distance Measuring Equipment (DME) to support GRDCS/DFCS navigation requirements.

The use of Time-Of-Arrival (TOA) measurements to compute distances requires the transponder to reply to uplinked command messages from ground control stations with precisely timed downlink telemetry messages. The update rate for the datalink messages is nominally 10 messages/second. The GRDCS/DFCS RF Transponder is capable of interrogation rates from 20 Hz (50 milliseconds) to 2 Hz (500 milliseconds).

The GRDCS/DFCS RF Transponder supports datalink message communication by decoding and transferring uplink command data to the Integrated Flight Controller (IFC) system, and by encoding downlink telemetry data representing aircraft flight control mode status and sensor readings from the IFC. The GRDCS/DFCS RF Transponder communicates with the IFC via EIA RS-485

Technical Specifications

AS9100C and ISO 9001:2008 Certified

Characteristics

- **Input Voltage:** +24 +/- 0.5 VDC to +32 +/- 0.2 VDC (+28VDC Nominal)
- **Power Consumption:** 70 Watts maximum
- **Data Message Format:** GRDCS message format
- **GRDCS Address:** 9 Bits
- **Drone Delay:** (1 to 31) X (0.5 ms)
- **Modulation:** Bi-phase modulation, Direct Sequence Spread Spectrum (DSSS)
- **Transmit Frequency:** 915 MHz (L-Band)
- **Transmit Frequency Stability:** +10 ppm over operating temperature range
- **Duty Cycle:** 2.0 % indefinitely
- **Receive Center Frequency:** 915 MHz (L-Band)
- **Receive Center Frequency Stability:** +10 ppm over operating temperature range
- **Deceive Dynamic Range:** 91 dB minimum
- **Receive Image Rejection:** 60 dB minimum
- **RF Input:** Maximum +53 dBm at a maximum of 2.0 percent
- **IFC Interface:** EIA RS-485

Environmental

- **Random Vibration:** Operating: 0.015g²/Hz 20 to 100 Hz
0.04g²/Hz 100 to 2000 Hz for 5 minutes in each orthogonal direction (8.8 Grms)
- **Temperature:** Operating: -40°C to +71°C Storage: -54°C to +125°C
- **Cooling:** Passive Conductive (no moving parts)
- **Shock:** Half Sine, 20 G's peak, 11 ms, 3 axes
- **Altitude:** Sea level up to 50,000 feet
- **Humidity:** To 95% at any temperature forming frost or condensation

Physical

- **Size:** 9.75" W x 7.42" T x 4.00" D
- **Weight:** less than 13 pounds (excluding the mounting brackets)
- **Connectors:** J1 = TNC; J2 = MS27474Y12B35P

Contact us for custom modifications

For additional information contact:

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