

# Airborne Telemetry



- Telemetry and Video Applications
- VHF, UHF, L-Band, C-Band or S-Band Operation
- Up to 100 Watt RF Output
- 54 cu. in. / 65 oz.
- Fixed Frequency or Frequency Agile in ¼, ½ or 1 MHz Steps
- Flat or CCIR-405 Video Pre-Emphasis
- Low Power Consumption 12 or 28 Vdc
- Dual Output Power Option



**communications**

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## Telemetry Transmitter Video Transmitter

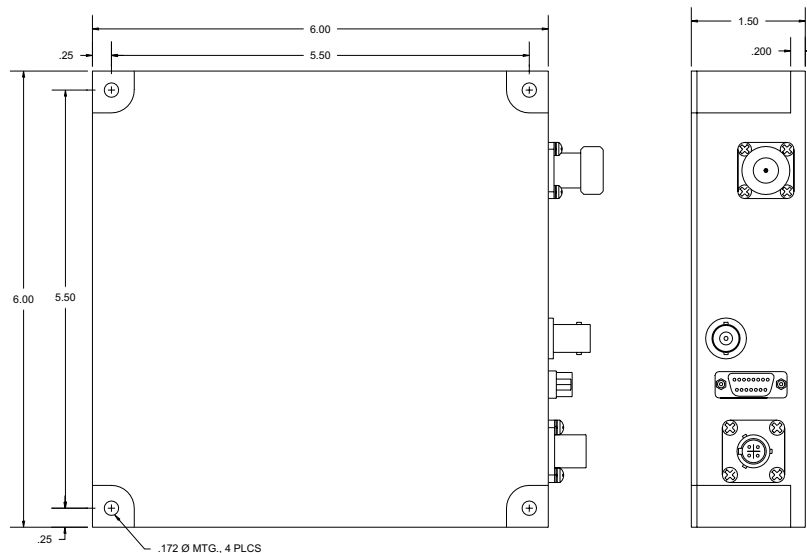
**TTX54/ VTX54**



The TTX54/VTX54 Series of rugged 54 Cubic Inch Transmitters are available for Telemetry (TTX) or Video (VTX) applications. True FM modulation is used for digital data and digital or analog video in airborne, mobile, and ground installations. In wide use in Aircraft, Target Drone, UAV, RPV, Helicopter, and Telemetry and Data Link applications, these units are available for VHF, UHF, full L- and S- Band through 18 GHz fixed frequency or frequency agile operation. Many optional features are available to meet most system requirements including output power up to 100 watts (depending on frequency band) and data rate capability beyond 20 Mbps. Units meet the EMI requirements of MIL-STD-461 and IRIG 106-96 Telemetry Standards.

The transmitters are designed using surface mount technology with phase-locked loop and microstrip techniques to keep the physical package size to a minimum and efficiency - reliability maximized. An internal isolator is used above 1 GHz to allow continuous operation into an infinite VSWR without permanent degradation. Operation over a temperature range of -20°C to +71°C baseplate is standard, extended ranges available.

The TTX54/VTX54 Series can be ordered with optional data rate response, pre-mod filter, one or two audio or data subcarriers, RS232 or 422 input subcarriers, CCIR-405 pre-emphasis for NTSC, PAL, or SECAM video modulation, remote standby, dual output power, optional connector types, 12 or 28 Vdc power, DC coupling, remote frequency selection, extended temperature range, and 19-inch rack-mounting chassis.



## TTX54 / VTX54 Specifications

### Output Characteristics (-20C to +71C)

|                       |                                                 |
|-----------------------|-------------------------------------------------|
| Frequency Range       | .30 MHz to 18 GHz                               |
| Center Frequency      | ±0.003%                                         |
| Power Output          | up to 100 watts                                 |
| Output Impedance      | .50Ω nominal.                                   |
| VSWR                  | 1.5:1                                           |
| RFI                   | .IRIG 106-96                                    |
| Open/Short Protection | Yes; protected by internal isolator above 1 GHz |

### Modulation Characteristics

|                        |                                                                                  |
|------------------------|----------------------------------------------------------------------------------|
| Type                   | True FM                                                                          |
| Modulation Sense       | Positive voltage increases frequency                                             |
| Coupling               | .AC                                                                              |
| Input Impedance        | TM: 1kΩ to 100kΩ resistive, shunted by 30pF maximum<br>Video: 75Ω                |
| Frequency Response     | TM: 10 Hz to 20 MHz ±1 dB<br>Video: 6 Hz to 6 MHz ±1 dB (pre-emphasis available) |
| Maximum Deviation      | TM: ±10 MHz<br>Video: ±6 MHz                                                     |
| Modulation Sensitivity | TM: Adjustable to ±10 MHz/Vp-p<br>Video: Adjustable to ±6 MHz/Vp-p               |
| Modulation Linearity   | .2% maximum                                                                      |
| Modulation Distortion  | .2% maximum                                                                      |
| Incidental FM          | .10 kHz p-p maximum                                                              |
| Incidental AM          | .5% maximum                                                                      |

### Power Requirements

|                             |                                     |
|-----------------------------|-------------------------------------|
| Supply Voltage              | +28 ±4 Vdc                          |
| Supply Current              | .0.5 to 15.0 amps                   |
| Isolation                   | .Power return common to chassis     |
| Reverse Polarity Protection | Yes; up to 80 Vdc indefinite period |

### Environmental

|                       |                                       |
|-----------------------|---------------------------------------|
| Operating Temperature | -.20°C to +71°C, baseplate            |
| Storage Temperature   | -.54°C to +95°C                       |
| Sinusoidal Vibration  | .20g peak, 5 to 2000 Hz, 0.4" DA max. |
| Shock                 | .100g peak, 11 ms, ½ sine, 3 axes     |
| Acceleration          | .100g, 3 axes                         |
| Humidity              | .Up to 95%                            |
| Altitude              | .Unlimited                            |

### Mechanical

|        |                                                  |
|--------|--------------------------------------------------|
| Volume | .54.0 cubic inches nominal                       |
| Size   | .6 x 6 x 1.5 inches<br>(15.24 x 15.24 x 3.81 cm) |
| Weight | .65 ounces (1.84 kg) maximum                     |

### Connectors

|                              |                             |
|------------------------------|-----------------------------|
| RF                           | .N, TNC or SMA Female       |
| Power / TM Modulation Input  | .PT02H-8-4P (mate supplied) |
| Video Input                  | .TNC, BNC or SMA Female     |
| Optional Frequency Selection | .MDM15S (mate supplied)     |

### Options

- Frequency Agility : Output frequencies selectable in 0.25, 0.5 and 1.0 MHz steps via BCD TTL code
- 12 volt operation
- Up to two subcarriers
- ±0.002% Frequency Stability
- DC Coupling
- Dual RF Output Power
- Pre-Modulation Filter
- Remote Standby
- Extended Temperature Range

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