

# Transmit Unit (RF to Optical Converter)

## PRODUCT DESCRIPTION

WDM Transmitter Module (Wavelength Division Multiplexing RF to Optical Converter) is to convert four RF signals and one RS422 signal to optical signal with five different wavelengths and multiplex all these five optical signals into a single optical signal. This is achieved using CWDM (Coarse Wavelength Division Multiplexing) technique. The five different optical wavelengths are 1530nm, 1550nm, 1570nm, 1590 and 1610nm for four RF signals and one RS422 signal. RF1 signal will be in 3GHz to 4GHz; RF2 signal will be in 2GHz to 3GHz, RF3 and RF4 are RF signals less than 1GHz. Ethernet connection is provided for health monitoring and status information.

## KEY FEATURES

- Custom form factor, conduction cooled
- 4 RF to optical converter with  $\pm 2.5$  dB gain flatness across frequency range
- Less than  $\pm 1$  dB gain flatness for 400Mhz
- Maximum variation in gain across temperature is less than  $\pm 1.5$  dB
- One digital board to generate Sync signal and Ethernet interface for outside connectivity
- 8-channel Optical MUX
- Operates on single 28V power supply
- Maximum power consumption is less than 20W
- MIL grade 38999 connectors used for outside interface
- Single mode fiber used for optical output
- SMA connector are available for RF input signals



## SPECIFICATIONS

### Hardware Architecture

The hardware consists of conduction cooled chassis which houses the following sub-modules:

- Optical Processing Block
- Controller Card for monitoring and processing of health information and for system control purposes.
- Power Supply card to generate required supply voltages
- Signal conditioning module to generate/provide required power for RF to optical module

**Interfaces**

- 4 different RF signals and RS422 pulse from exciter.
- Optical CWDM output signal comprising of 4 RF signals and
- RS422 signal information.
- Ethernet interface to get health information.
- RS422 interface to obtain health information in debug mode.

**Software / IP**

- Test Software and diagnostic RTL for validation of Module

**MECHANICAL**

- Conduction cooled chassis with custom form factor
- Enclosure dimensions of Transmit Unit Module:
- 400 mm X 350 mm x 100 mm

**POWER CONSUMPTION**

- Input voltage of 28V from external power supply.
- Maximum power consumption of the module is 20W.

**ENVIRONMENTAL**

- Qualification : MIL-STD-810E
- MIL-STD-461E
- Temperature range : -40°C to +55°C (Storage)  
-20°C to +55°C (Operational)

**PART NUMBER(S)**



RFGTESA-4	Wave length Division Multiplexing Transmitter Module (WDM TX)
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