

W band Module x8 Transmitter

W-x8TX-9296 Previously named TU-WTX-200 94GHz Transmit Module

Overview

The W-x8TX-9296 transmitter is a fully integrated stand-alone millimeter-wave module designed for radar and communication systems.

The inputs are either a variable IF signal between 2 and 6 GHz with a fixed LO or a fixed IF with a variable LO between 10.80 GHz and 11.40 GHz. The power saturation is 15 dBm and has typically 20 dB of Image rejection. This module has substantial advantages over ~70/80 GHz systems, taking advantage of the low atmospheric attenuation 'window'.

The module contains Arralis monolithic millimeter-wave P-HEMT integrated circuits and patented technology allowing very large-scale integration.

Applications

- High resolution radar suitable for use in poor atmospheric conditions
- Highly accurate muzzle velocity testing and missile guidance systems
- Commonly used in radar on UAVs, aircraft, marine ships and rotorcraft
- Foreign object debris detection on runways
- Use in security check systems, high penetration of materials such as clothing
- Satellite communications systems that offer high data rate throughput



Features

Each module has a separate power board, providing additional ESD protection. Advantages include low frequency inputs, WR10 connections, single rail power supplies and integration simplicity.

- Integrated self contained module
- 92-96GHz frequency range
- High output power
- Wideband operation
- Lightweight construction
- More detailed information of the target with a higher spatial resolution
- High penetration to certain materials such as paper, clothes, fog, smoke, clouds, etc

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Specification Overview

| Circuit ID | Min. | Typ. | Max. | Units |
|---------------------------|-------|------|-------|-------|
| RF Output Frequency | 92 | 94 | 96 | GHz |
| IF Input Frequency* | 2 | 5.4 | 6 | GHz |
| LO Frequency* | 10.80 | | 11.40 | GHz |
| LO Power | | 15 | | dBm |
| Gain | 10 | 13 | | dB |
| Psat | | 15 | | dBm |
| Input Power for Psat | | 5 | | dBm |
| Image Rejection | | 20 | | dB |
| Voltage | | 5 | | V |
| Current | 700 | | 900 | mA |
| Maximum Operating Voltage | | 6 | | V |
| Specification Temperature | | +25° | | °C |
| Operating Temperature | -20° | | +70° | °C |

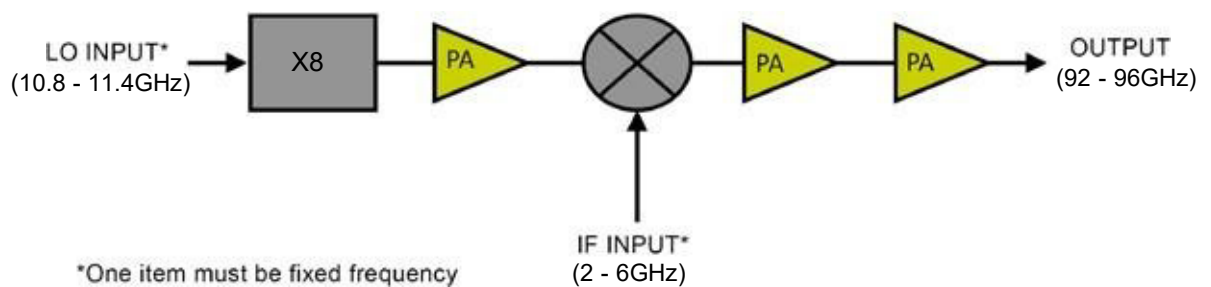
Notes

- *One item must be a fixed frequency
- **Heatsink required



ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features proprietary protection circuitry, damage may occur on devices subjected to ESD. Proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

Simplified Schematic Diagram



Performance Data

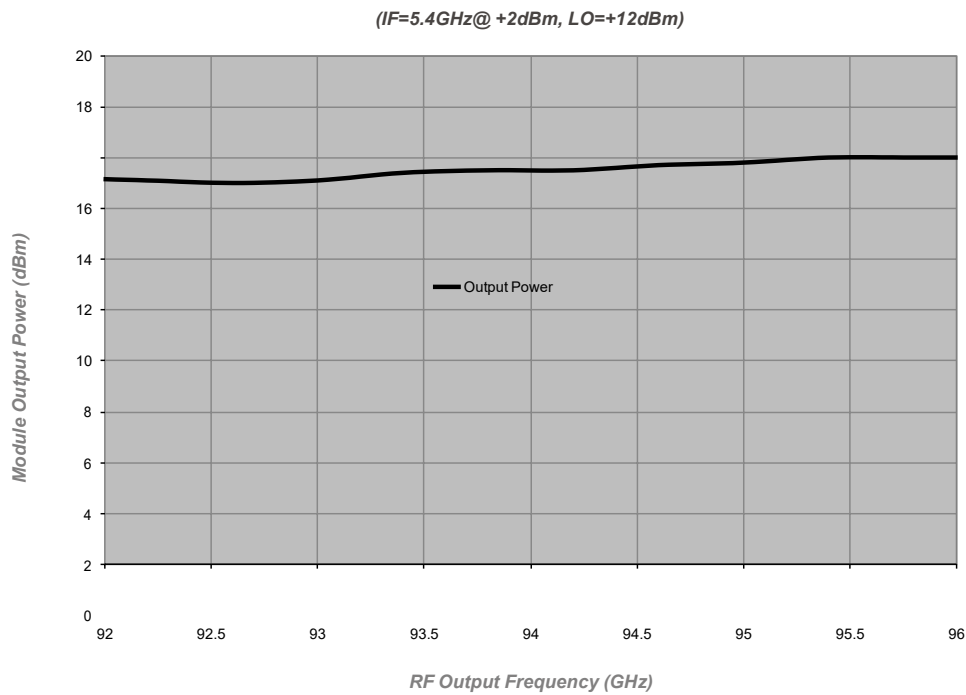
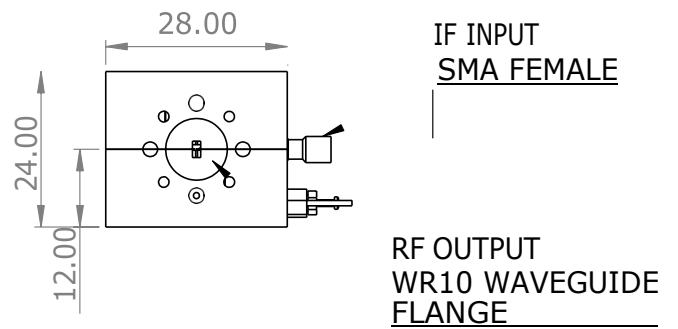
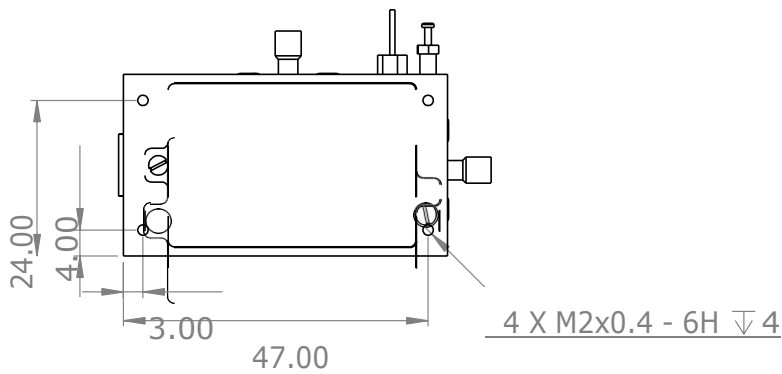
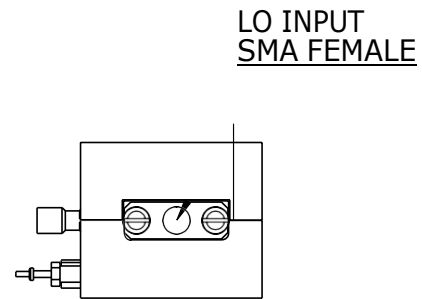
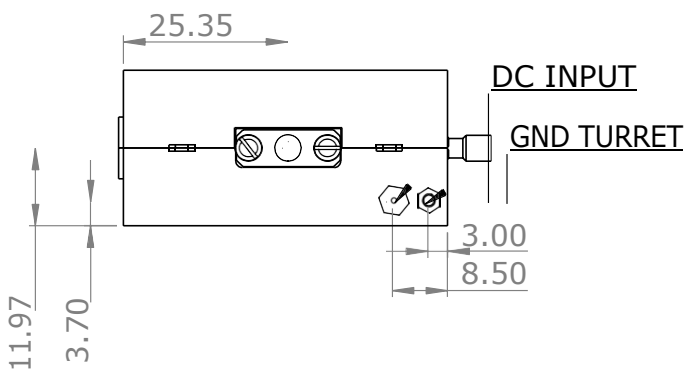
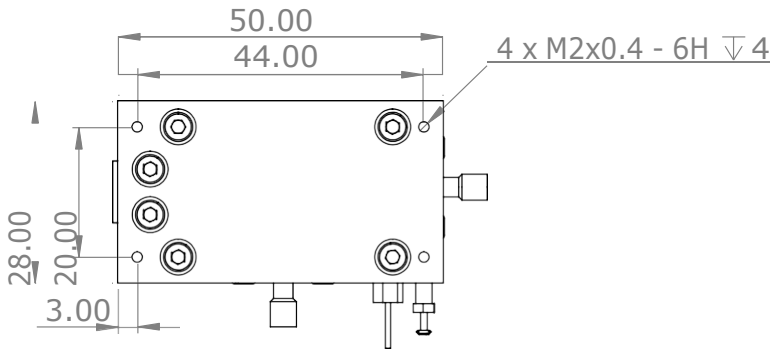


Figure 1
 TX Output Power

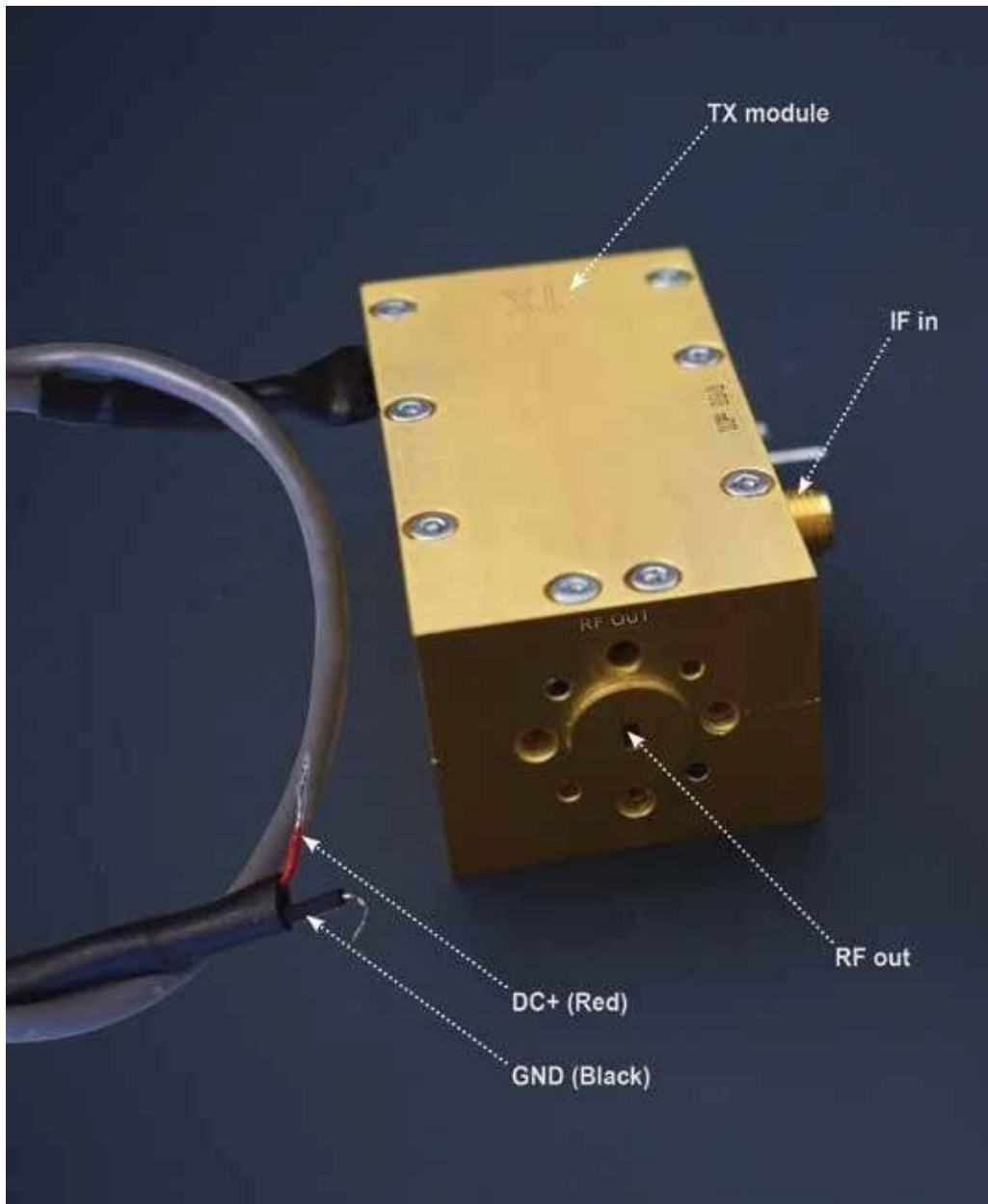
Mechanical Specification

| Item | Specification |
|---------|--------------------------------|
| RF Port | WR-10 Waveguide |
| IF Port | SMA(F) |
| LO Port | SMA(F) |
| Bias | Solder Pin |
| Housing | Aluminium - Gold Plated |
| Size | 28mm (W) x 50mm (L) x 24mm (H) |
| Weight | 90gram |

Module Dimension Data



TX Module Set-up with DC cables



Disclaimer

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