

W band Module x4 Transmitter

W-x4TX-9296 Previously named TU-WTX-100 94GHz Transmit Module

Overview

The W-x4TX-9496 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 6GHz with a fixed LO or a fixed IF with a variable LO between 21.65GHz and 22.65GHz. The standard output power is 16dBm and has typically 20dB of image rejection. This module has substantial advantages over ~70/80GHz 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

	W band Datasheet	W-x4TX-9296	Issue date: 30 April 2021	DOC REV 9	Page 1 of 6
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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*	21.65		22.65	GHz
LO Power		15		dBm
Gain		13		dB
Output Power (P1dB)		15		dBm
Psat		17		dBm
Input Power for Psat		5		dBm
Image Rejection		20		dB
Voltage		5		V
Current		750		mA
Maximum Operating Voltage		6		V
Specification Temperature		+25°		°C
Operating Temperature	-20°		+70°	°C

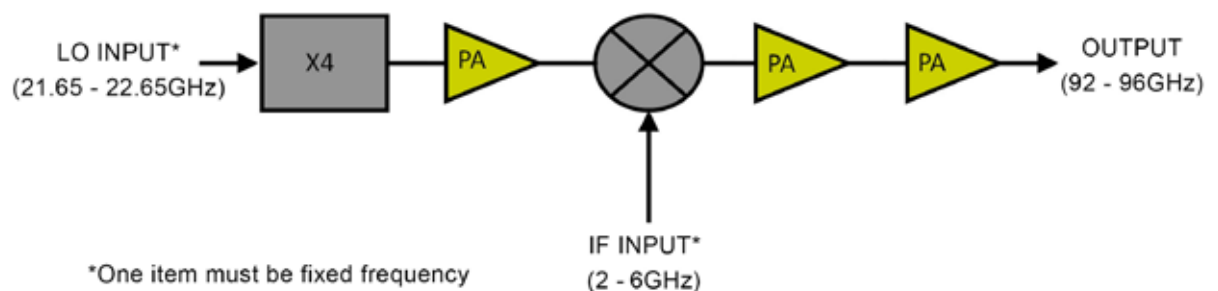
Notes

*One item must be a fixed frequency



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

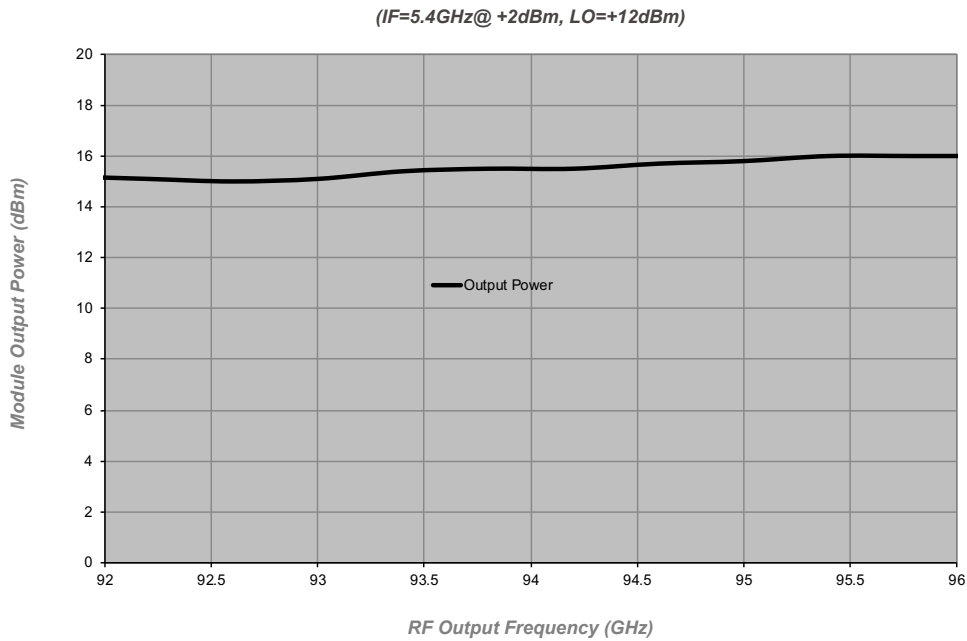
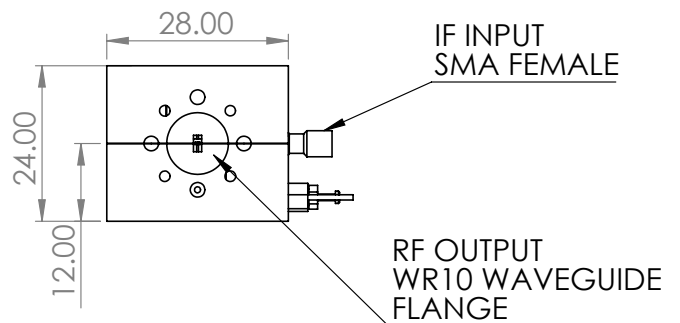
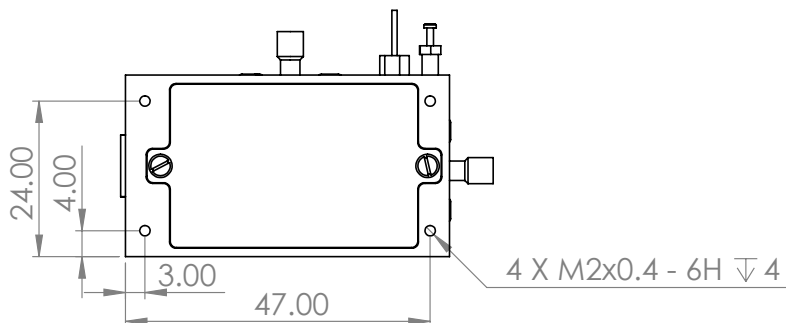
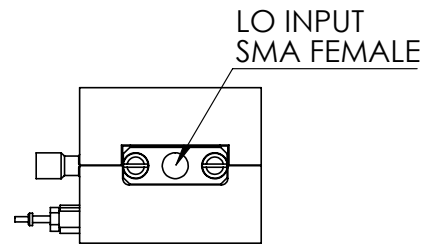
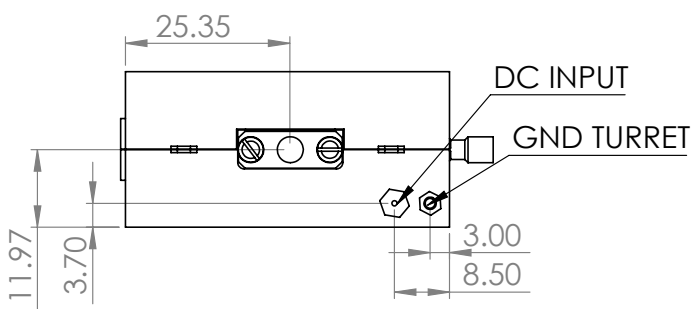
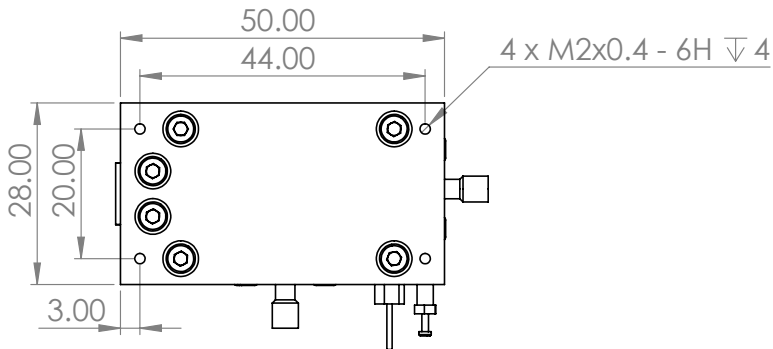


Figure 1
TX Output Power

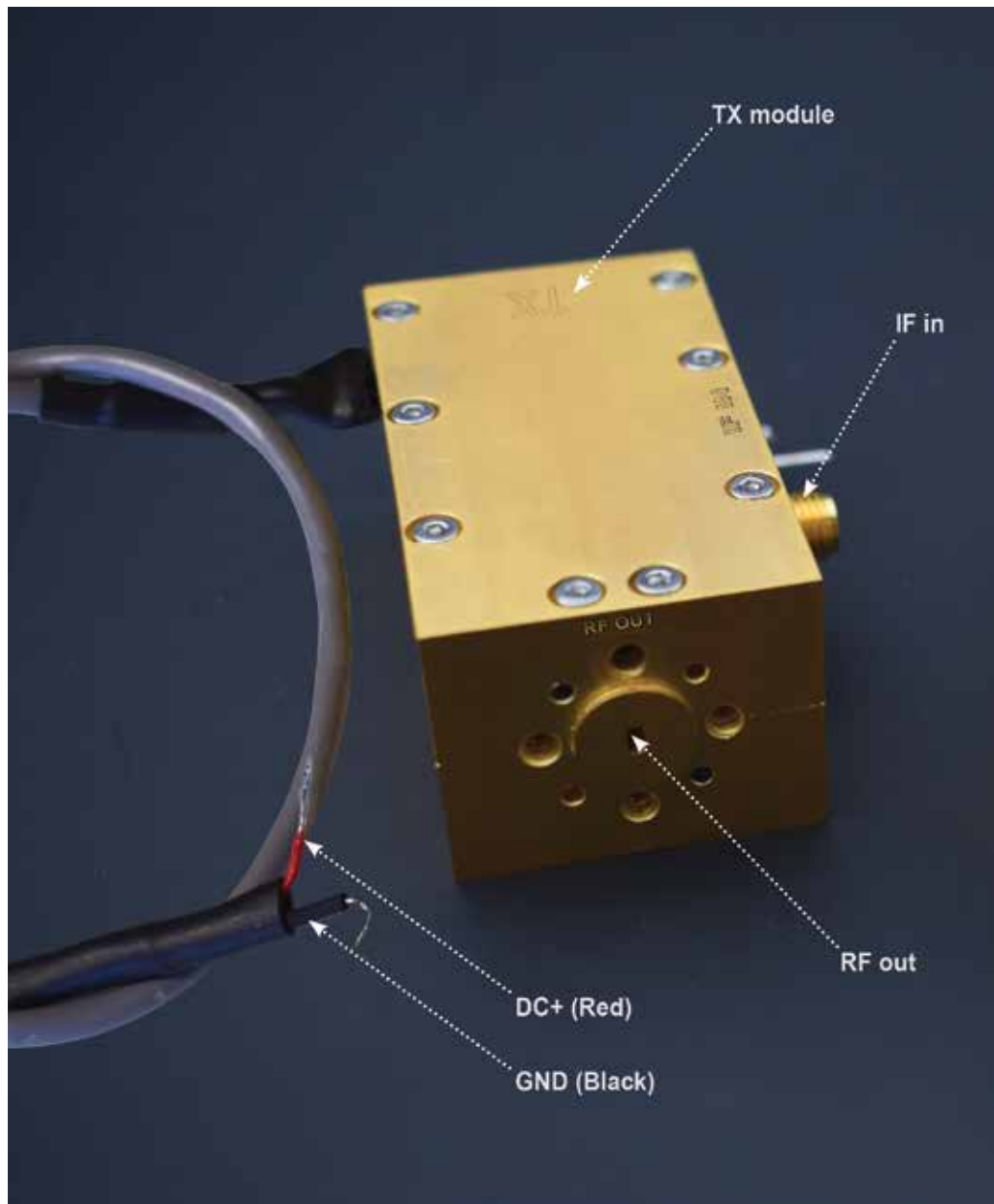
Mechanical Specification

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



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	W band Datasheet	W-x4TX-9296	Issue date: 30 April 2021	DOC REV 9	Page 6 of 6
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