

# W band Module x4 Receiver

## W-x4RX-9296 Previously named TU-WRX-100 94GHz Receive Module

### Overview

The W-x4RX-9296 receiver is a fully integrated standalone millimeter-wave module designed for radar and communication systems.

The output is a variable wideband IF signal between 2 and 6 GHz with a fixed LO of 22.50 GHz. The standard noise figure is 3.2 dB and has typically 20 dB of image rejection. The receiver has typically 15 dB of gain down to an RF input of -130 dBm. 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

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## Specification Overview

Circuit ID	Min.	Typ.	Max.	Units
RF Frequency	92	94	96	GHz
RF Input Power	-130		+10	dBm
IF Frequency*	2		6	GHz
LO Frequency*	21.65		22.65	GHz
LO Power		15		dBm
Image Rejection		20		dB
Conversion Gain	10	15		dB
Noise Figure		3.2		dB
Voltage		5		V
Current	500	600	800	mA
Maximum Operating Voltage		6		V
Specification Temperature		+25°		°C
Operating Temperature	-20°		+70°	°C

### Notes

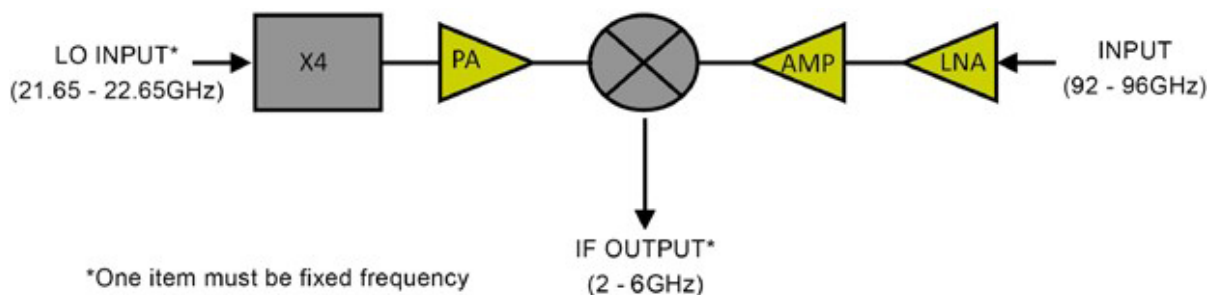
Heatsink Required

\*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



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## Performance Data

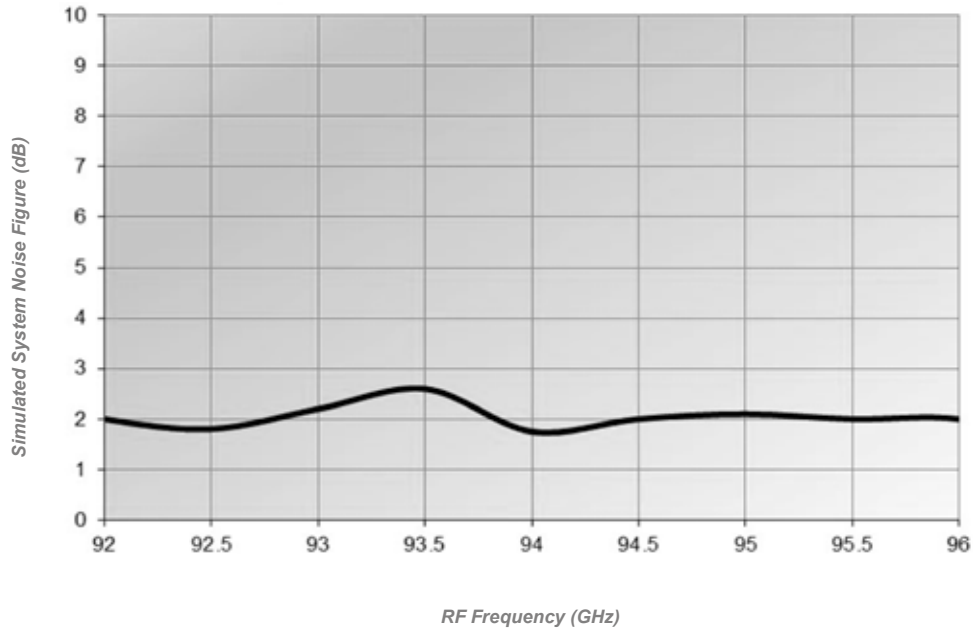
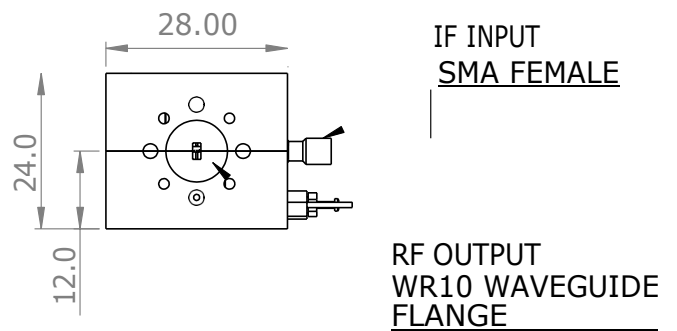
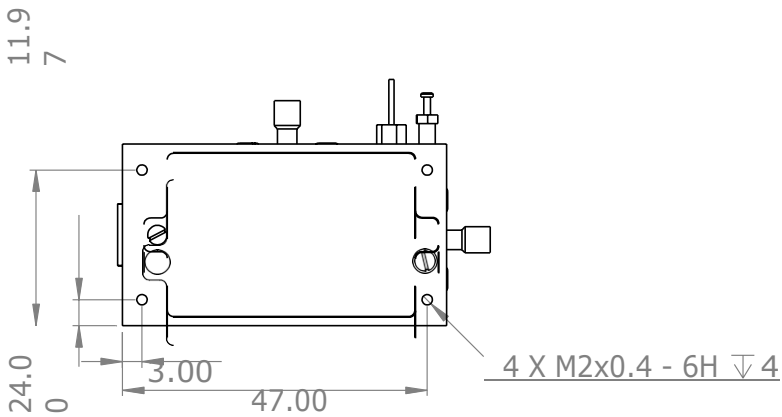
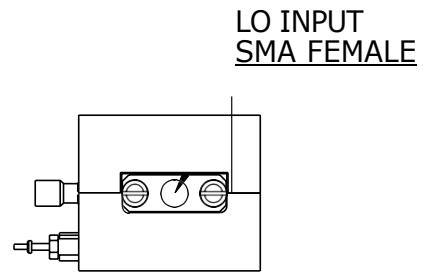
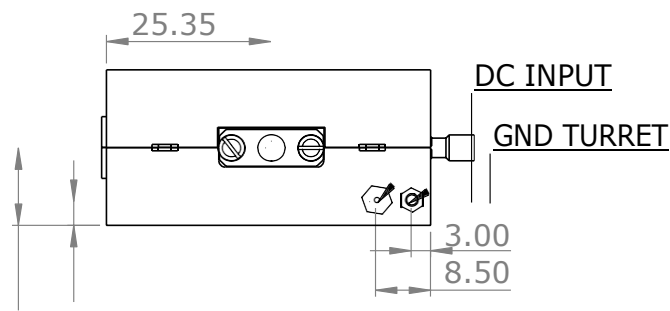
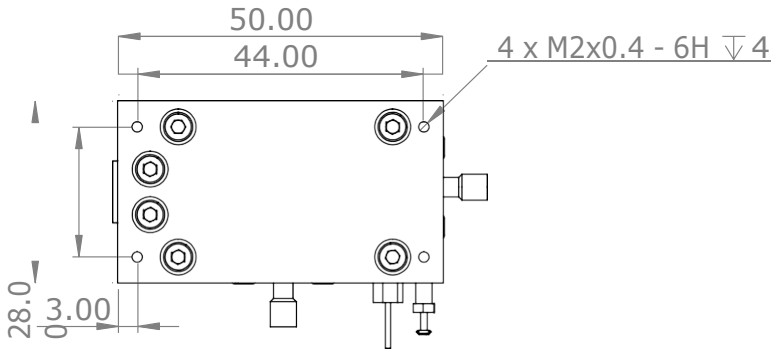


Figure 1  
 System Noise Figure

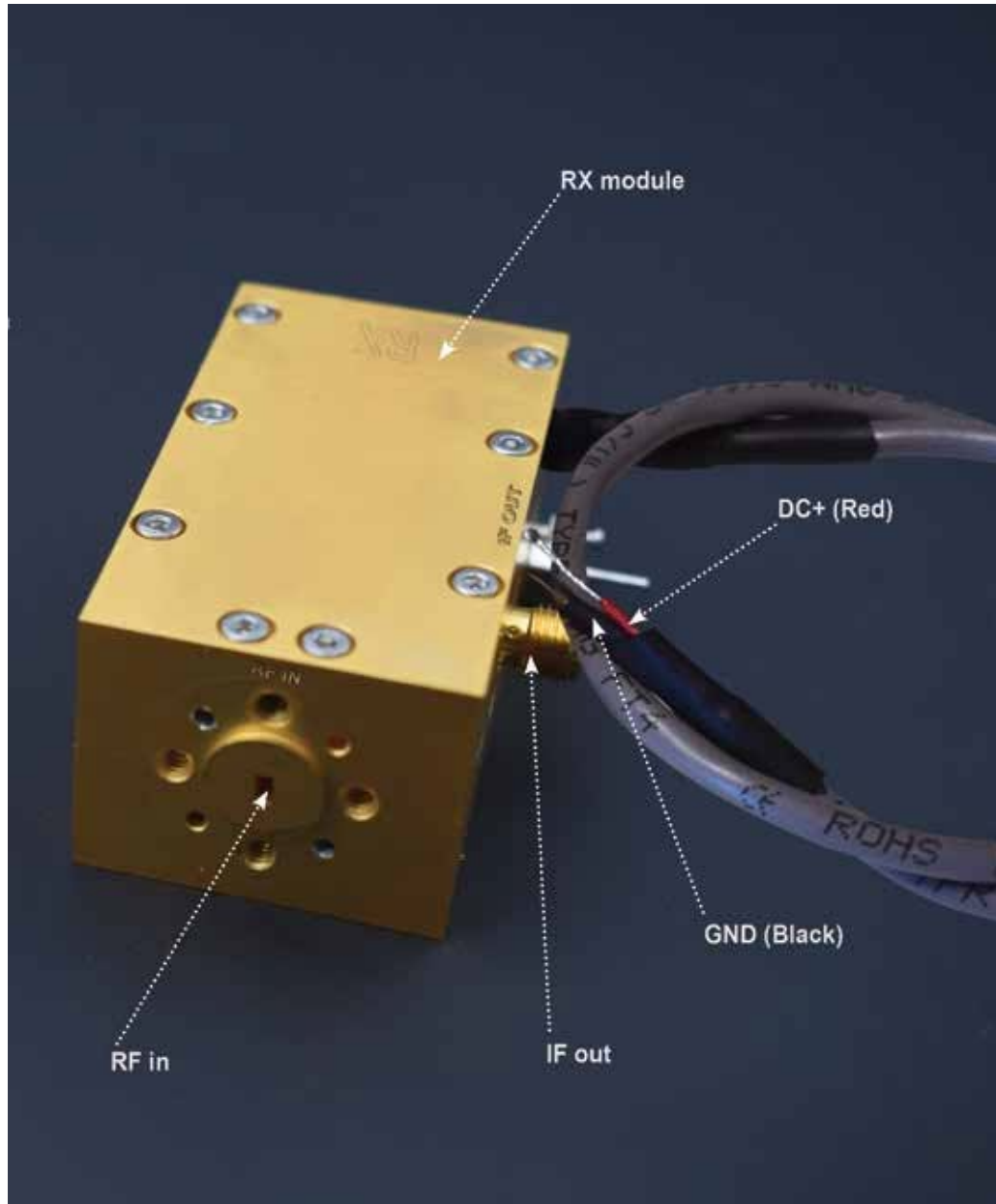
## Mechanical Specification

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**



## RX Module Set-up with DC cables



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