

# W band Module x8 Receiver 35mm

**W-x8RX-SM-9296** Previously named TU-WRX-235  
**94GHz Receive Module**



## Overview

The W-x8RX-SM-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 6GHz with a fixed LO or a fixed IF with a variable LO between 10.80GHz and 11.40GHz. The standard noise figure is 3dB and has typically 20dB of image rejection. The receiver has typically 25dB of Gain down to an RF input of -125dBm. 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.

- Small size 35x20x20mm.
- 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 Frequency              | 92    | 94   | 96    | GHz   |
| RF Input Power            | -125  |      | +10   | dBm   |
| IF Frequency*             | 2     |      | 6     | GHz   |
| LO Frequency*             | 10.80 |      | 11.40 | GHz   |
| LO Power                  | 5     | 10   |       | dBm   |
| Image Rejection           |       | 20   |       | dB    |
| Conversion Gain           |       | 25   |       | dB    |
| Noise Figure              |       | 3    |       | dB    |
| Voltage                   |       | 5    |       | V     |
| Current                   |       | 600  |       | mA    |
| Maximum Operating Voltage |       | 6    |       | V     |
| Specification Temperature |       | +25° |       | °C    |
| Operating Temperature     | 0°    |      | +50°  | °C    |

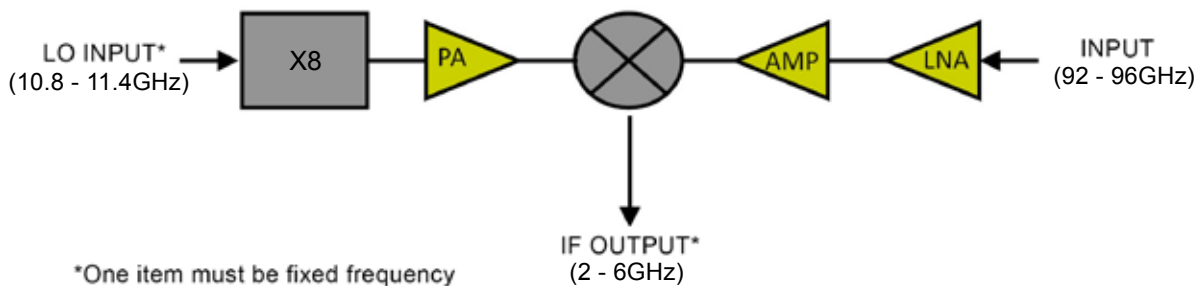
### Notes

\*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

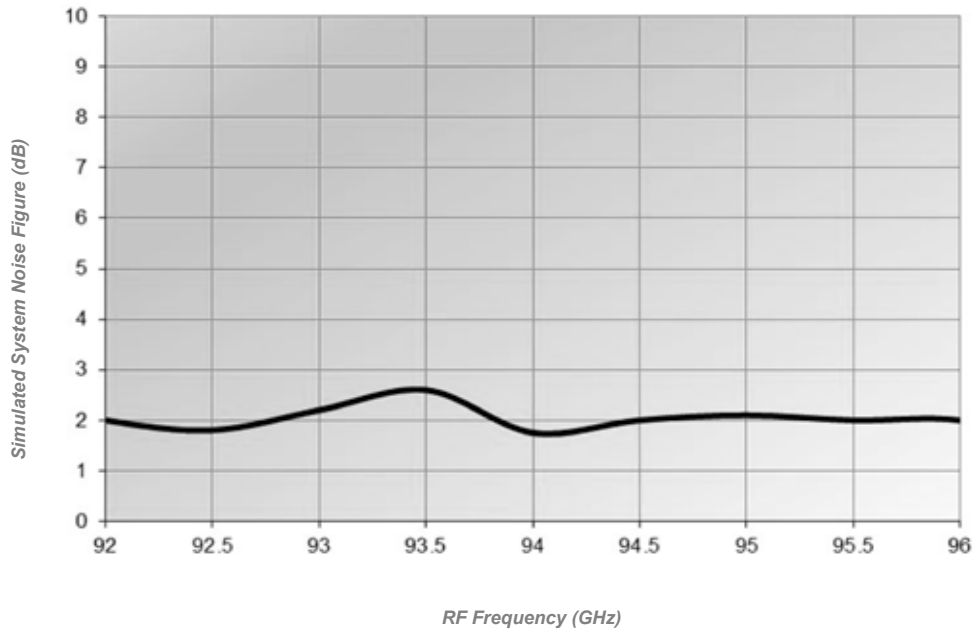
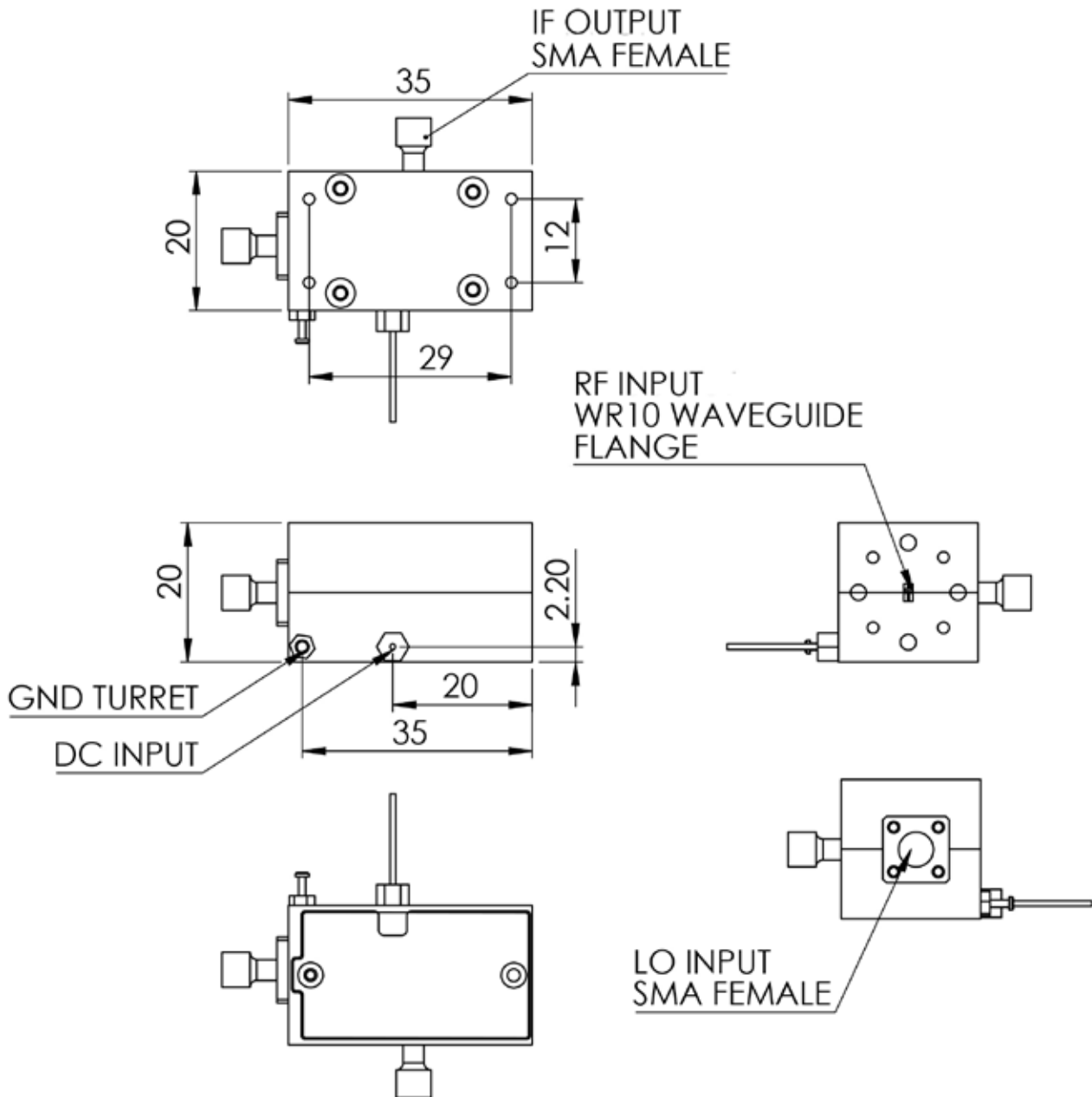


Figure 1  
System Noise Figure

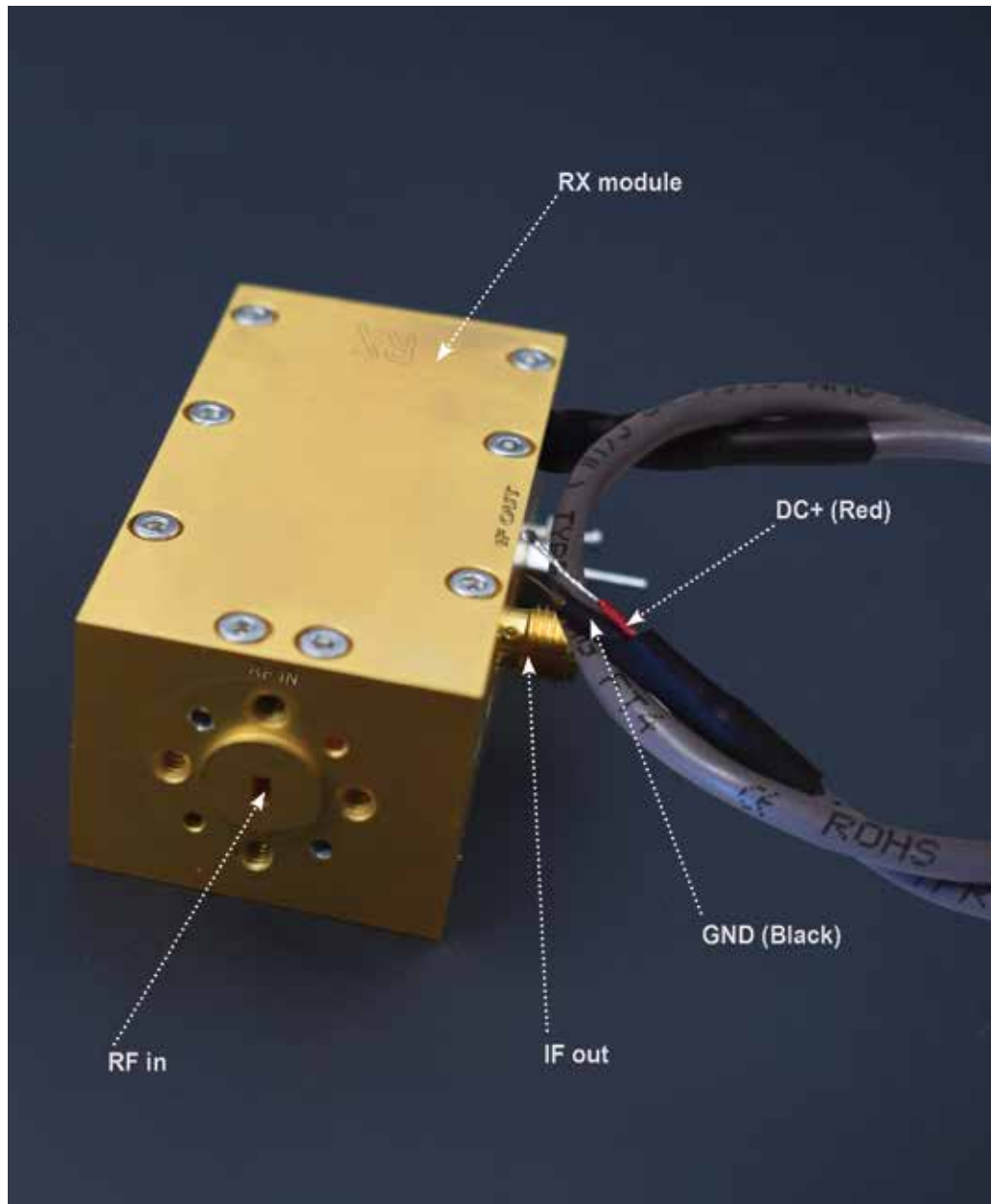
## Mechanical Specification

| Item    | Specification                  |
|---------|--------------------------------|
| RF Port | WR-10 Waveguide                |
| IF Port | SMA(F)                         |
| LO Port | SMA(F)                         |
| Bias    | Solder Pin                     |
| Housing | Aluminium - Gold Plated        |
| Size    | 20mm (W) x 35mm (L) x 20mm (H) |
| Weight  | 90gram                         |

### Module Dimension Data



## RX Module Set-up with DC cables



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