

W band Module x4 Receiver 35mm

W-x4RX-SM-9296 Previously named TU-WRX-135 94GHz Receive Module



Overview

The W-x4RX-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 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.

- 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.

	W band Datasheet	W-x4RX-SM-9296	Issue date: 24 January 22	DOC REV 6	Page 1 of 6
-------------------------------------------------------------------------------------	------------------	----------------	---------------------------	-----------	-------------

Specification Overview

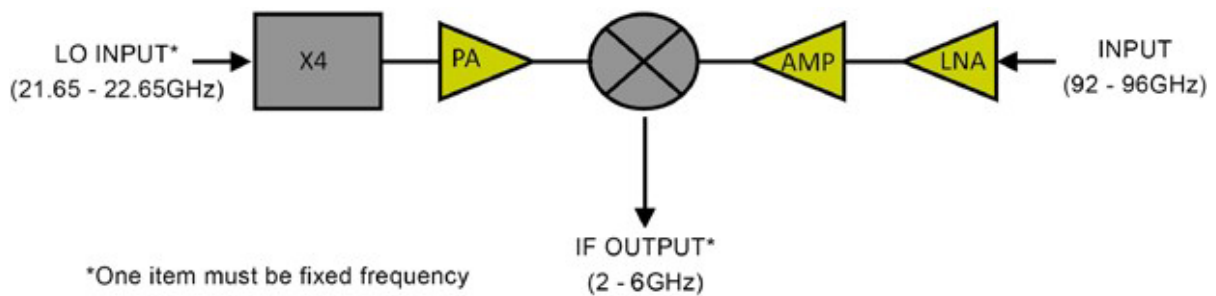
Circuit ID	Min.	Typ.	Max.	Units
RF Frequency	92	94	96	GHz
RF Input Power	-130		+10	dBm
IF Frequency*	2		6	GHz
LO Frequency*	21.65		22.65	GHz
LO Power		15		dBm
Image Rejection		20		dB
Conversion Gain	10	15		dB
Noise Figure		3.2		dB
Voltage		5		V
Current	500	600	800	mA
Maximum Operating Voltage		6		V
Specification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



 Arralis	W band Datasheet	W-x4RX-SM-9296	Issue date: 24 January 22	DOC REV 6	Page 2 of 6
---------------------------------------------------------------------------------------------	------------------	----------------	---------------------------	-----------	-------------

Performance Data

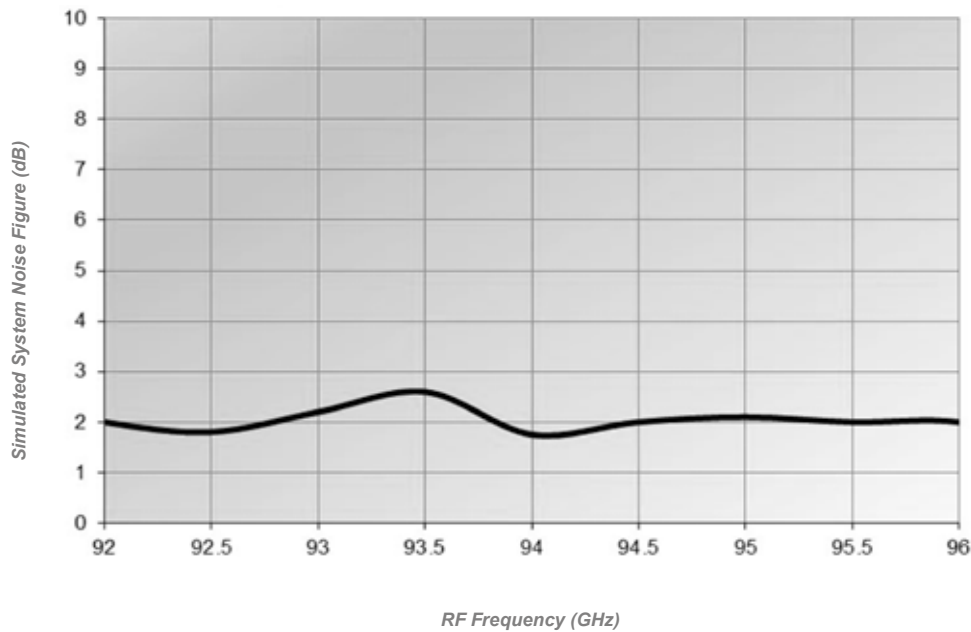
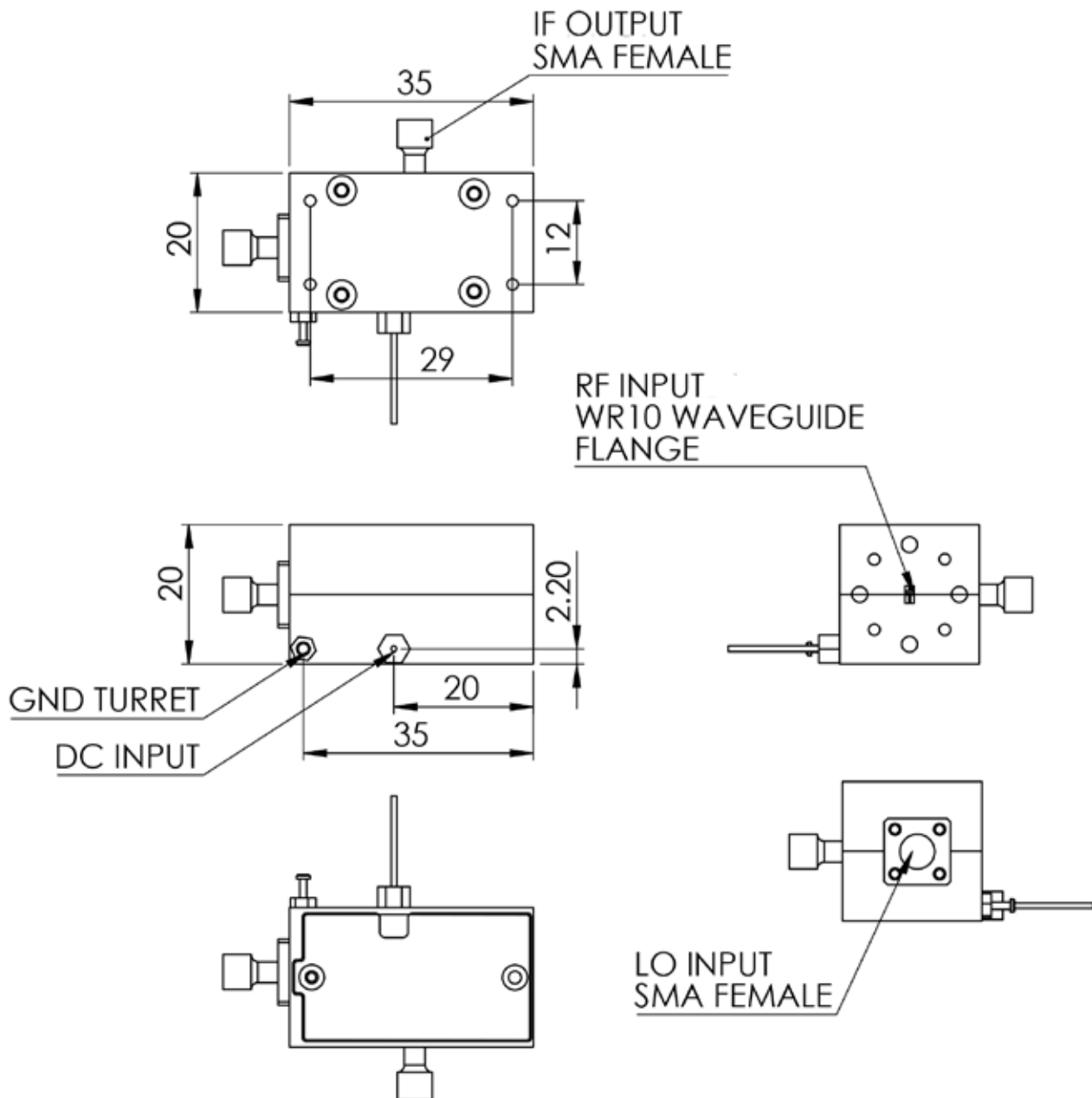


Figure 1
System Noise Figure

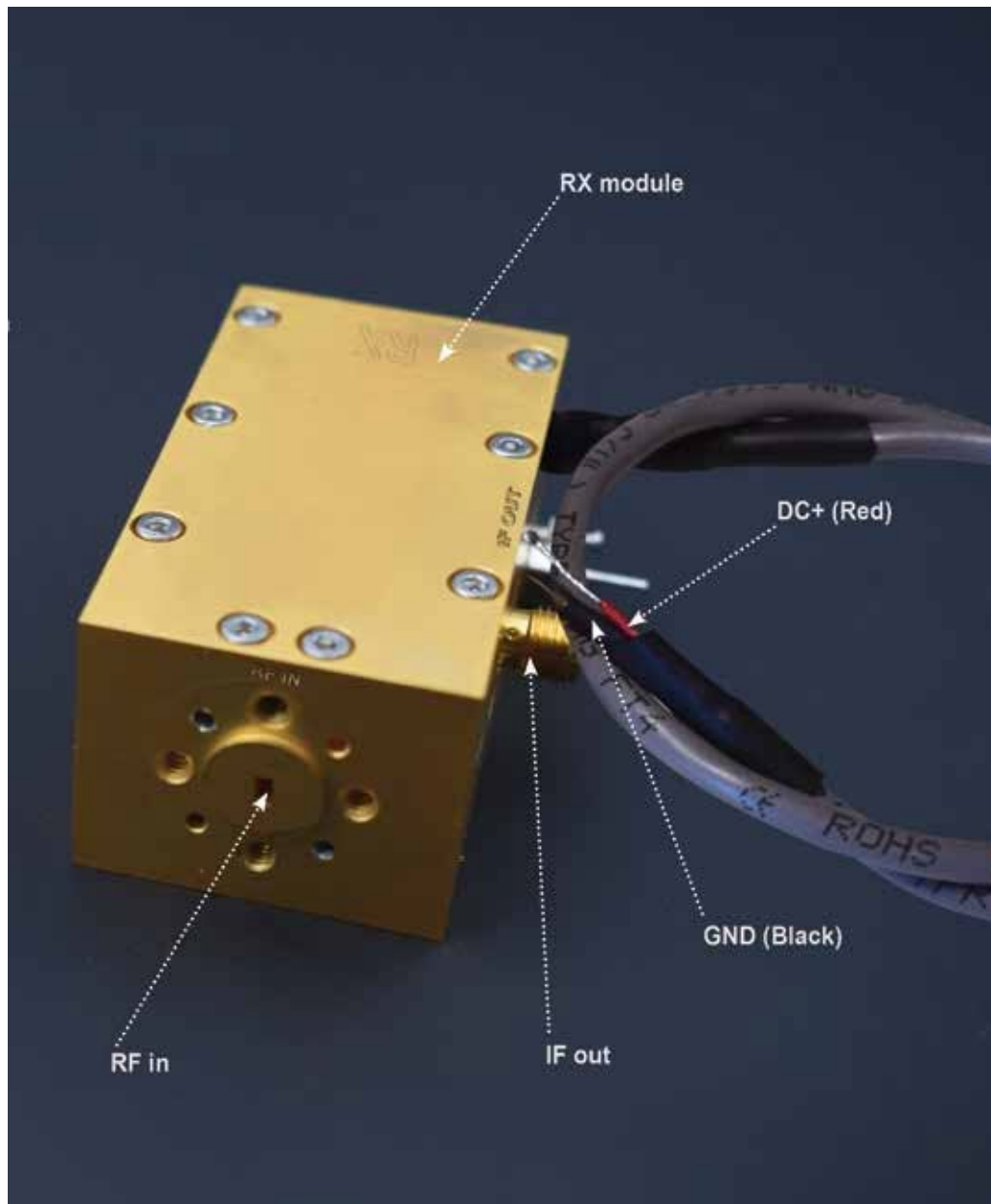
Mechanical Specification

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



	W band Datasheet	W-x4RX-SM-9296	Issue date: 24 January 22	DOC REV 6	Page 5 of 6
-------------------------------------------------------------------------------------	------------------	----------------	---------------------------	-----------	-------------

Disclaimer

The information contained herein is believed to be reliable; however, Arralis makes no warranties regarding the information and assumes no responsibility or liability whatsoever for the use of the information contained herein. All information is subject to change without notice, therefore customers should obtain the latest relevant information before placing orders for Arralis products. The information contained herein does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights.

This information does not constitute a warranty with respect to the product described, and Arralis disclaims any and all warranties either expressed or implied, relating to sale and/or use of Arralis products including liability or warranties relating to fitness for a particular purpose, consequential or incidental damages, merchantability, or infringement of any patent, copyright or other intellectual property right.

Without limiting the generality of the foregoing, Arralis products are not warranted or authorized for use as critical components in medical, life-saving, or life-sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.

Copyright 2022© Arralis

©2022 Arralis Ltd. All rights reserved. Trademarks and registered trademarks are the property of their respective owners.

Arralis European Offices

t: +(44) 1793 239670 (UK)

e: sales@arralis.com

Arralis USA Office

+(1) 386 301 3249 (USA)

e: emilie.wren@arralis.com

arralis.com

	W band Datasheet	W-x4RX-SM-9296	Issue date: 24 January 22	DOC REV 6	Page 6 of 6
-------------------------------------------------------------------------------------	-------------------------	-----------------------	---------------------------	------------------	-------------