
USRP-2955

Specifications

2024-11-25



Contents

USRP-2955 Specifications..... 3

USRP-2955 Specifications

This document lists specifications for the USRP-2955 Software Defined Radio Reconfigurable Device.

The USRP-2955 contains a GPS-disciplined oscillator (GPSDO), which enables you to lock the internal clocks to a GPS reference signal, synchronize using GPS timing information, and query GPS location information.



Caution Do not operate the USRP-2955 in a manner not specified in this document. Product misuse can result in a hazard. You can compromise the safety protection built into the product if the product is damaged in any way. If the product is damaged, return it to National Instruments for repair.

Definitions

Warranted specifications describe the performance of a model under stated operating conditions and are covered by the model warranty.

Characteristics describe values that are relevant to the use of the model under stated operating conditions but are not covered by the model warranty.

- **Typical** specifications describe the performance met by a majority of models.
- **Nominal** specifications describe an attribute that is based on design, conformance testing, or supplemental testing.

Specifications are **Characteristics** unless otherwise noted.

Conditions

Specifications are valid at 25 °C unless otherwise noted.

Receiver

Number of channels	4
Frequency range	10 MHz to 6 GHz
Frequency step	<1 kHz
Gain range ¹	0 dB to 95 dB
Gain step	1 dB
Maximum input power (P_{in})	+10 dBm
Frequency accuracy ²	2.5 ppm
Maximum instantaneous real-time bandwidth ³	80 MHz
Maximum I/Q sample rate	100 MS/s
Analog-to-digital converter (ADC) resolution	14 bit

Table 1. Noise Figure

Frequency	Noise Figure ⁴ (dB)
10 MHz to 3 GHz	<5
3 GHz to 5 GHz	<4
5 GHz to 6 GHz	<8

LO Input/Export Connectors

Table 2. LO OUT 1

IF2	
Minimum RF power level	0 dBm

1. The received signal amplitude resulting from the gain setting varies over the frequency band and among devices.
2. **Frequency accuracy** is based on temperature-compensated crystal oscillator (TCXO) vendor specifications and is not measured. Alternatively, you can incorporate an external reference source to provide a more precise frequency Reference Clock and to achieve better frequency accuracy.
3. Each USRP-2955 receiver path has 80 MHz of bandwidth throughout the full frequency range of the device.
4. Noise figure values are based on 0 dB RF attenuation and maximum gain settings.

Nominal RF power level	+3 dBm
IF1	
Minimum RF power level	-12 dBm
Nominal RF power level	+5 dBm

Table 3. LO IN 0

IF2	
Minimum RF power level	0 dBm
Nominal RF power level	+2 dBm
Maximum RF power level	+20 dBm
IF1	
Minimum RF power level	-10 dBm
Nominal RF power level	-5 dBm
Maximum RF power level	+10 dBm

Table 4. LO IN 1

IF2	
Minimum RF power level	0 dBm
Nominal RF power level	+2 dBm
Maximum RF power level	+20 dBm
IF1	
Minimum RF power level	-10 dBm
Nominal RF power level	-5 dBm
Maximum RF power level	+10 dBm

GPS Disciplined Oscillator (GPSDO)

Table 6. Frequency Accuracy

OCXO (not locked to GPS)	25 ppb
--------------------------	--------

OCXO (locked to GPS)	5 ppb
----------------------	-------



Note *Frequency accuracy* is based on oven-controlled crystal oscillator (OCXO) vendor specifications and is not measured. Alternatively, you can incorporate an external reference source to provide a more precise frequency Reference Clock and to achieve better frequency accuracy.

Table 6. Active Antenna

Voltage	5 V
Power	0.7 W



Note NI recommends periodically locking the GPS for at least 1 hour to recalibrate the GPSDO module accuracy.

Power Requirements

Input voltage	9 V to 16 V, DC
Input current	7.5 A, maximum
Typical power consumption	38 W to 44 W, varies by application



Caution You must use an LPS or Class 2 power supply with the device. The power supply must also meet any safety and compliance requirements for the country of use.



Attention Vous devez utiliser avec l'appareil une alimentation LPS ou de classe 2. L'alimentation doit également satisfaire aux exigences de sécurité et de conformité en vigueur dans le pays d'utilisation.

Onboard DRAM

Memory size	1,024 MB
-------------	----------

Physical Characteristics

Table 7. Physical Dimensions

(L × W × H)	26.67 cm × 4.06 cm × 21.84 cm (10.5 in. × 1.6 in. × 8.6 in.)
Weight	1.588 kg (3.50 lb)

Environment

Maximum altitude	2,000 m (800 mbar) (at 25 °C ambient temperature)
Pollution Degree	2

Indoor use only.

Operating Environment

Operating temperature	23 °C ± 5 °C, room temperature
Relative humidity range	10% to 90%, noncondensing (tested in accordance with IEC 60068-2-56)