



Version
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R&S® ZVA-Z110 Converter WR10

Data sheet



ROHDE & SCHWARZ

Specifications apply under the following conditions: 60 minutes warm-up time at ambient temperature, specified environmental conditions met, calibration cycle adhered to, and all internal automatic adjustments performed. Data without tolerances: typical values only. Data designated "nominal" applies to design parameters and is not tested.

Rohde & Schwarz equipment is designed for reliable operation up to an altitude of 3000 m above sea level, and for transport up to an altitude of 4500 m above sea level.

General information

The R&S®ZVA-Z110 Converter WR10 is an optional external supplement for the R&S®ZVA24 and R&S®ZVA40 four-port vector network analyzers, making available measurements in the frequency range from 75 GHz to 110 GHz. It consists of a reflectometer module containing a directional coupler, a frequency multiplier for upconversion, two harmonic mixers as downconverters, and a variable attenuator that allows the output power to be varied by more than 25 dB.

As a basic test setup, an R&S®ZVA24 or R&S®ZVA40 four-port vector network analyzer including the R&S®ZVA-K8 and the R&S®ZVA24-B16 or R&S®ZVA40-B16 option is recommended. The R&S®ZVA-Z110 Converter WR10 comes with a

- DC power adapter for the input voltage range from 100 V to 240 V (AC) with tolerance $\pm 10\%$,
- a hex ball driver,
- two coaxial cables with SMA connectors for the reference and measurement output signals, and
- two waveguide-to-waveguide adapters for test port saving, one with a precision waveguide flange with 1.565 mm pins, the other compatible to 1.565 mm pins and 1.605 mm pins (Agilent's flange dimensions).

Electrical data

Test port

Waveguide designator	Electronic Industries Association EIA	WR10
Connector type	anti-cocking flange	precision waveguide flange compatible to UG387/U-M
Frequency range		75 GHz to 110 GHz
Output power	at +7dBm input power from R&S®ZVA	+2 dBm
Output power accuracy	at 0 dB attenuator setting	<4 dB
Output power attenuation	manually adjustable by variable attenuator	0 dB to 25 dB
Damage level		+6 dBm

Source input

Connector type		3.5 mm, female
Frequency range		12.5 GHz to 18.333334 GHz
Input power range		+4 dBm to +10 dBm

Local oscillator input

Connector type		3.5 mm, female
Frequency range		9.3375 GHz to 13.74875 GHz
Input power range		+5 dBm to +10 dBm

Measurement output

Connector type		SMA, female
Frequency range		10 MHz to 300 MHz

Reference output

Connector type		SMA, female
Frequency range		10 MHz to 300 MHz

System characteristics

Trace stability		typ. <0.2 dB and typ. <2°
Source match	without system error correction	>17 dB, typ. >30 dB
Directivity	without system error correction	>21 dB, typ. >30 dB
Effective source match	with system error correction	typ. >35 dB
Effective directivity	with system error correction	typ. >35 dB
Dynamic range		>95 dB, typ. >110 dB

The dynamic range is defined as the difference between the data trace of the transmission magnitude with maximum test port output power and both test ports through connected and the rms value of the data trace of the transmission magnitude produced by noise and crosstalk with test ports short-circuited. The specification is valid without system error correction and at 10 Hz measurement bandwidth. The dynamic range can be increased by using a measurement bandwidth of 1 Hz.

Diagram: Test port output power versus frequency

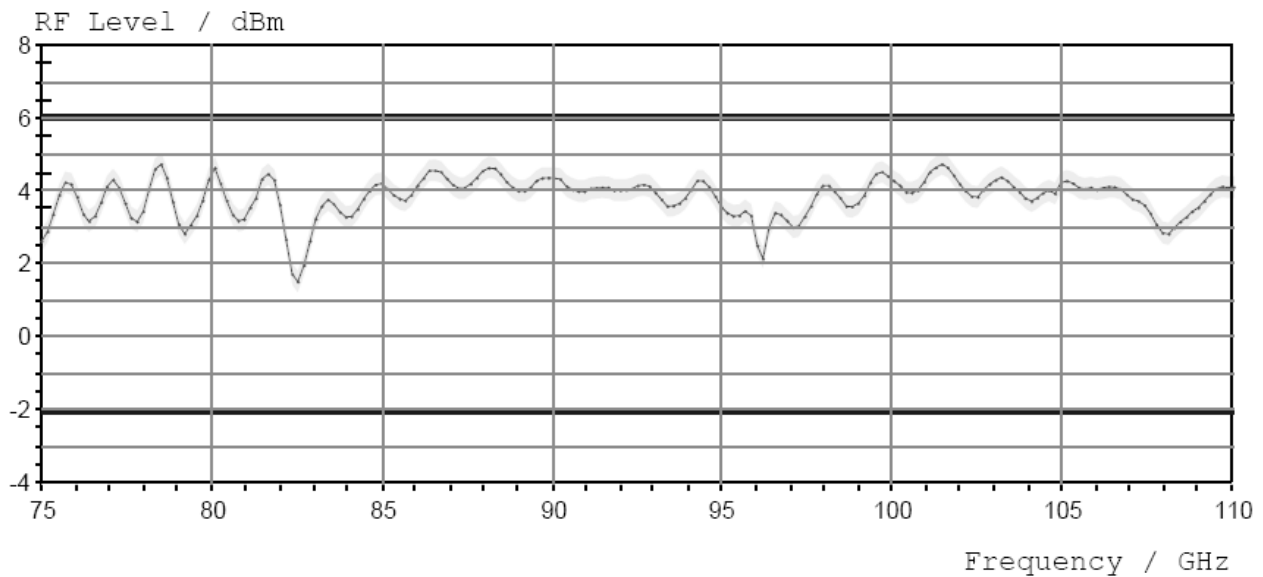
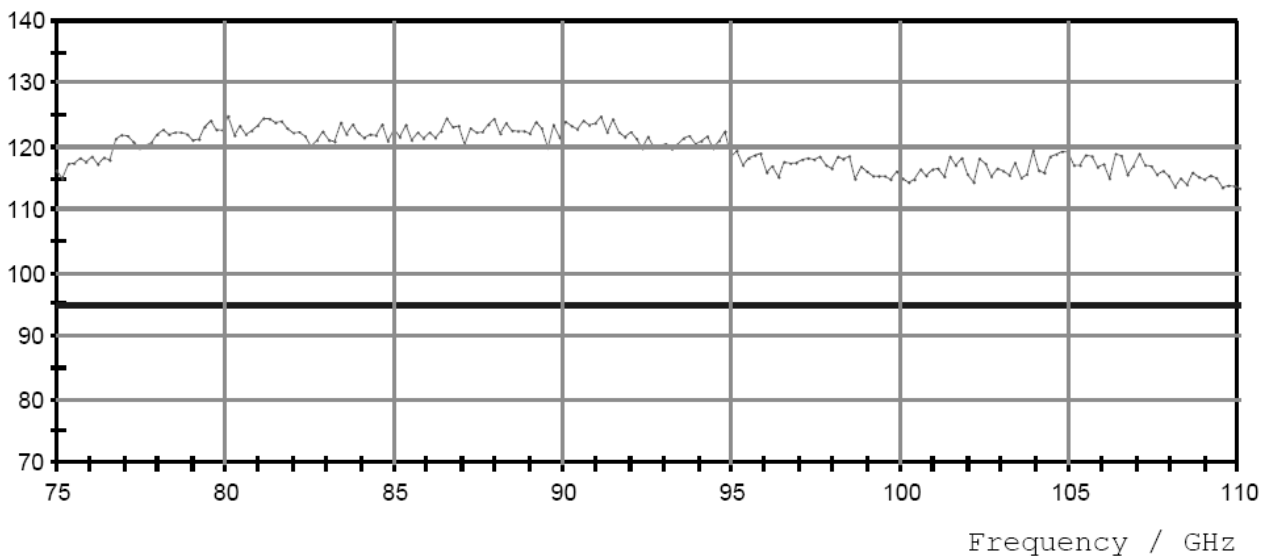


Diagram: Dynamic range versus frequency

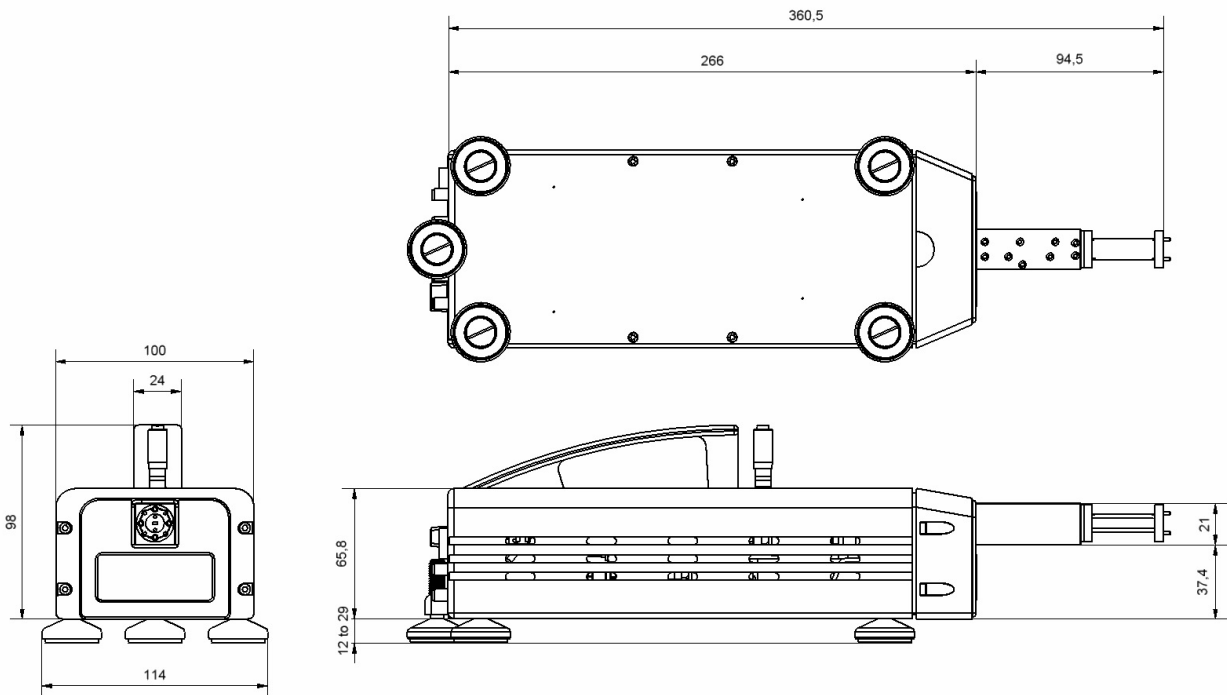


Power supply input

Connector type		DIN 45323 power connector
Voltage range		+9 V \pm 540 mV
Current		<800 mA

General specifications

Temperature loading	operating temperature range	+18 °C to +28 °C
	permissible temperature range	5 °C to +40 °C
	storage temperature range	-40 °C to +70 °C
Damp heat		in line with IEC 60068-2-1 and IEC 60068-2-2
		+40 °C at 80 % rel. humidity, in line with IEC 60068-2-30
Mechanical resistance	vibration, sinusoidal	5 Hz to 150 Hz, in line with IEC 60068-2-6
	vibration, random	10 Hz to 300 Hz, in line with IEC 60068-2-64
	shock	40 g shock spectrum, in line with IEC 60068-2-27, MIL-STD-810
Dimensions (W x H x D)	with feet height adjusted to 12.1 mm	342 mm \times 110 mm \times 114 mm (13.5 in \times 4.3 in \times 4.5 in)
Number of feet	alternatively	3 or 4
Feet height	user-adjustable	12.1 mm to 29.1 mm (0.5 in to 1.1 in)
Weight	of the R&S® ZVA-Z110 Converter WR10	3 kg (7 lb)
Shipping weight		5 kg (11 lb)



Ordering information

Designation	Type	Order No.
Converter WR10	R&S®ZVA-Z110	1307.7000.02
Test Port Cable 3.5 mm female to 3.5 mm male, length 965 mm (two cables per converter are required)	R&S®ZV-Z193	1306.4520.36
Waveguide Calibration Kit WR10 (without sliding matches)	R&S®ZV-WR10	1307.7100.10
Waveguide Calibration Kit WR10 (sliding match included)	R&S®ZV-WR10	1307.7100.11
Option Converter Control (recommended for Vector Network Analyzer)	R&S®ZVA-K8	1307.7022.02



See also www.rohde-schwarz.com
(search term: ZVA-Z110)



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