

ROHDE & SCHWARZ

ZVA50

The Rohde & Schwarz ZVA50 is a high-performance vector network analyzer designed for demanding microwave and millimeter-wave measurements up to 50 GHz. Available in two-port and four-port configurations with up to two independent, phase-coherent internal sources, it excels in multi-port, balanced, pulsed, and differential measurements for aerospace, defense, and high-speed digital applications.

SPECIFICATIONS

General

Interfaces	GPIB, LAN, USB
Display	10.4-inch color LCD (1024 x 768 pixels)
Warm-Up Time	30 minutes

Physical

Power Supply	100 V to 240 V AC ($\pm 10\%$), 50 Hz to 60 Hz
Operating Temperature	+5 °C to +40 °C °C
Dimensions (W×H×D)	435 mm × 271 mm × 532 mm mm
Weight	27.5 kg kg

Frequency & Stimulus Specifications

Frequency Range	10 MHz to 50 GHz
Frequency Resolution	1 Hz
Number of Test Ports	2 or 4 (configuration dependent)
Test Port Impedance	50 Ω
Number of Integrated Sources	2 (on 4-port model)
Phase Coherence	Yes (integrated coherent sources for differential stimulus)

Receiver & Dynamic Range Specifications

Measurement IF Bandwidth	1 Hz to 15 MHz
Pulse Profile Time Resolution	12.5 ns

Measurement Speed & Settings

Measurement Time per Point	3.5 μ s
Maximum Sweep Points	60,000
Maximum Number of Traces	100

Measurement Capabilities & Calibration

Measured Parameters	S-parameters, balanced S-parameters, mixed-mode S-parameters
Display Formats	Log Mag, Phase, Group Delay, Smith Chart, Polar, SWR, Lin Mag, Real, Imaginary
Supported Calibration Types	TOSM (SOLT), TRL, LRL, TOM, TRM, TNA, UOSM
Embedding / De-embedding	Supported using virtual networks for impedance matching
Pulsed Measurements	Supported (via pulsed profile measurement option)
True Differential Measurements	Supported (via option)

Hardware Interfaces & Connections

Test Port Connector Type	2.4 mm (ruggedized, male)
External Reference Input Frequency	1 MHz to 20 MHz
External Reference Output Frequency	10 MHz
External Trigger Input / Output	BNC female

System, Controller & Storage

Internal Operating System	Windows
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Physical, Environmental & Power

Storage Temperature Range	-40 °C to +70 °C
Weight (4-Port Model)	32.5 kg

Receiver & Port Characteristics

Damage Level	+27 dBm RF, 30 V DC
Power Level Resolution	0.01 dB
Number of Receivers	4 (2-port model), 8 (4-port model)

Accuracy & Stability

Reference Frequency Temperature Stability	$\pm 1 \times 10^{-6}$ (standard), $\pm 1 \times 10^{-9}$ (with Option ZVAB-B4 Precision Frequency Reference)
Reference Frequency Aging	$\pm 1 \times 10^{-6}$ per year (standard), $\pm 1 \times 10^{-7}$ per year (with Option ZVAB-B4 Precision Frequency Reference)

Integrated Bias Tees

Bias Tees Maximum Voltage	30 V
Bias Tees Maximum Current	200 mA

Performance

Trace Noise Magnitude	< 0.005 dB RMS (at 10 kHz IF bandwidth)
Trace Noise Phase	< 0.05° RMS (at 10 kHz IF bandwidth)

Source Characteristics

Harmonics	<-20 dBc (at max output power, typical)
Source Attenuator Range	0 dB to 70 dB in 10 dB steps (with Option R&S ZVA-B21/-B22/-B23/-B24)

Receiver Characteristics

Receiver Attenuator Range	0 dB to 35 dB in 5 dB steps (with Option R&S ZVA-B31/-B32/-B33/-B34)
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Compliance & Safety

EMC Compliance	IEC/EN 61326 Class A, CISPR 11/EN 55011 Class A
Safety Compliance	IEC/EN 61010-1

Interfaces

USB Ports Count	6 ports (4 front, 2 rear) USB 2.0
LAN Interface Speed	10/100/1000 Base-T (RJ-45)
External Monitor Interface	DVI-D and VGA

TECHNOLOGY

Vector Network Analysis

APPLICATIONS

RF and Microwave Component Testing, Balanced and Pulsed Measurements

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.