

ROHDE & SCHWARZ

NAS

The Rohde & Schwarz NAS is a high-precision directional power meter designed for measuring transmitter power, reflected power, and Standing Wave Ratio (SWR) of transmitter systems. Equipped with special insertion units, it is highly suited for testing analog and digital mobile radio equipment, including GSM networks, and supports peak envelope power (PEP) and average power (AVG) measurements.

SPECIFICATIONS

General

Interfaces	RS-232-C (optional via NAS-B1 interface option)
Display	Two-line LC display with digital readouts (3.5-digit and 3-digit) and dual analog bar graphs

Physical

Power Supply	6 × 1.5 V AA dry cells, rechargeable NiCd battery pack, or external AC mains adapter
Operating Temperature	0 to +50 °C °C
Dimensions (W×H×D)	156 mm × 86 mm × 205 mm mm
Weight	1.2 kg kg

Measurement Capabilities

Frequency Range	1 MHz to 2000 MHz (insertion unit dependent)
Power Measurement Range	10 mW to 1200 W
SWR Measurement Range	1.00 to 99.9
Return Loss Measurement Range	0 to 40 dB
Measurement Parameters	Forward power, reflected power, standing wave ratio (SWR), reflection coefficient, return loss
Impedance	50 Ω (determined by connected insertion unit)

User Interface and Display

Display Resolution (Return Loss)	0.1 dB
Display Measurement Units	W, dBm, dB, SWR

Measurement Accuracy and Calibration

Selftest	Integrated automatic self-test routine during power-on
Autoranging	Automatic measurement range selection

System Connectivity and Interfaces

Optional Interface Option	RS-232-C Interface (Option NAS-B1)
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Physical and Power Specifications

Battery Operating Time (Alkaline)	Approx. 70 hours
Battery Operating Time (NiCd)	Approx. 18 hours
Power Saving Function	Automatic switch-off function to conserve battery power

Sensor Compatibility and Connection

Compatible Insertion Unit NAS-Z1 Frequency Range	1 MHz to 30 MHz
Compatible Insertion Unit NAS-Z1 Power Range	Up to 1200 W
Compatible Insertion Unit NAS-Z2 Frequency Range	30 MHz to 120 MHz
Compatible Insertion Unit NAS-Z2 Power Range	Up to 120 W
Compatible Insertion Unit NAS-Z3 Frequency Range	70 MHz to 1000 MHz
Compatible Insertion Unit NAS-Z3 Power Range	Up to 120 W
Compatible Insertion Unit NAS-Z5 Frequency Range	70 MHz to 1000 MHz
Compatible Insertion Unit NAS-Z5 Power Range	Up to 1200 W
Compatible Insertion Unit NAS-Z7 Frequency Range	800 MHz to 2000 MHz
Compatible Insertion Unit NAS-Z7 Power Range	Up to 100 W
Compatible Insertion Unit NAS-Z21 Standard	GSM 900 applications
Compatible Insertion Unit NAS-Z22 Standard	GSM 1800 (DCS 1800) and GSM 1900 (PCS 1900) applications

Environmental

Storage Temperature Range	-40 °C to +70 °C
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Power & Battery

Battery Type	6 x 1.5 V AA (LR6) dry cells or 6 x 1.2 V NiCd accumulators
Auto-Off Delay	2.5 min / 10 min / continuous (selectable)
Current Consumption (without backlighting)	approx. 40 mA
Current Consumption (with backlighting)	approx. 120 mA
External Power Supply Input	7 V to 15 V DC
NiCd Battery Charger	Integrated, active when external power supply is connected

Options

IEC/IEEE-488 Bus Interface Option	NAS-B2
RS-232 Interface Option	NAS-B4

Compatible Insertion Units

Compatible Insertion Unit NAS-Z12 Frequency Range	100 MHz to 2000 MHz
Compatible Insertion Unit NAS-Z12 Power Range	0.1 W to 120 W
Insertion Unit NAS-Z1 Insertion Loss	< 0.05 dB
Insertion Unit NAS-Z1 SWR	< 1.05
Insertion Unit NAS-Z1 Directivity	≥ 35 dB
Insertion Unit NAS-Z2 Insertion Loss	< 0.1 dB
Insertion Unit NAS-Z2 SWR	< 1.06 (up to 500 MHz), < 1.12 (500 to 1000 MHz)
Insertion Unit NAS-Z2 Directivity	≥ 30 dB (30 to 500 MHz), ≥ 26 dB (500 to 1000 MHz)

Display

Digital Display Refresh Rate	3 measurements/s
Analog Display Bargraph	31-segment scale

Measurement Performance

Meter Intrinsic Error	±0.5% of reading ± 1 digit
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TECHNOLOGY

RF Power Measurement

APPLICATIONS

RF Transmitter Testing and Mobile Radio SWR/Power Diagnostics

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