

ROHDE & SCHWARZ

FSP40

The Rohde & Schwarz FSP40 is a high-performance, general-purpose spectrum analyzer covering a frequency range from 20 Hz to 40 GHz. Designed for both development and production environments, the FSP40 offers exceptional level measurement certainty, outstanding RF characteristics, and quick measurement speeds up to 80 measurements per second. With integrated measurement routines for TOI, ACP, and OBW, as well as an electronic attenuator and diverse application firmware options, the FSP40 is a versatile and reliable solution for complex microwave analysis.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE 488.2), LAN (10/100 Base-T), USB, RS-232-C, VGA (external monitor), PS/2, LPT (parallel printer)
Display	21 cm (8.4-inch) TFT color LCD, 640 x 480 pixels (VGA)
Command Emulation Languages	HP 859x, HP 8566
Display Type	Color TFT LCD
Display Size	8.4 inches (21 cm) diagonal
Display Resolution	640 × 480 pixels (VGA)
Number of Traces	3

Physical

Power Supply	100 V to 240 V AC, 50 Hz to 400 Hz, automatic selection
Operating Temperature	0 °C to +50 °C (operating), +5 °C to +40 °C (specified accuracy) °C
Dimensions (W×H×D)	435 mm × 192 mm × 460 mm mm
Weight	15.3 kg kg

Frequency & Amplitude Performance

Frequency Range	9 kHz to 40 GHz
Frequency Resolution	0.01 Hz
Displayed Average Noise Level (DANL)	-155 dBm (1 Hz, typical at 1 GHz)
Phase Noise (10 kHz offset)	-113 dBc/Hz (typical at 500 MHz CF)
Phase Noise (10 MHz offset)	-145 dBc/Hz (typical at 500 MHz CF)
Total Level Uncertainty	0.5 dB
Attenuator Range	0 dB to 75 dB
Attenuator Step Size	5 dB
Electronic Attenuator Range	0 dB to 30 dB (in 5 dB steps)
Maximum Safe RF Input Level	+30 dBm (1 W)
Maximum DC Input Voltage	0 V (DC coupled)

Bandwidth & Sweep

Resolution Bandwidth (RBW) Range	1 Hz to 10 MHz
RBW Step Sequence	1, 3, 10
FFT Filter Bandwidth Range	1 Hz to 30 kHz
Channel Filter Bandwidth Range	100 Hz to 5 MHz
Video Bandwidth (VBW) Range	1 Hz to 10 MHz
Sweep Time Range (Span > 0 Hz)	2.5 ms to 16000 s
Sweep Time Range (Zero Span)	1 μ s to 16000 s
EMI Bandwidths	200 Hz, 9 kHz, 120 kHz, 1 MHz

Measurement Capabilities

Standard Measurement Functions	TOI, ACP(R), OBW, CCDF, APD
Measurement Speed	Up to 80 measurements/s via GPIB
Detectors	Max Peak, Min Peak, Auto Peak, Sample, RMS, Average, Quasi-Peak
Supported Application Firmware	GSM/EDGE, Bluetooth, WCDMA/HSDPA/TD-SCDMA, CDMA2000/1xEV-DV/1xEV-DO, WLAN

Inputs & Outputs

RF Input Connector	2.92 mm (K) male
RF Input Impedance	50 Ω
Reference Input Frequency	10 MHz
Reference Output Frequency	10 MHz
IF Output Frequency	21.4 MHz
External Trigger Input Level	TTL (BNC female)
Keyboard/Mouse Interface	PS/2 (front panel)
Reference Input Connector	BNC female
Reference Output Connector	BNC female
External Trigger Input Connector	BNC female
Noise Source Drive Output Connector	BNC female (28 V)
External Monitor Connector	15-pin D-Sub (VGA)
AF Output Connector	3.5 mm jack

System Architecture

Internal Operating System	Windows XP Embedded
Storage Type	Hard Disk Drive (HDD)

Power & Electrical

Power Consumption (Typical)	120 W (without options)
Power Consumption (Maximum)	250 W

Physical & Environmental

Operating Altitude Limit	Up to 4600 m
Humidity Range	95% at +40 °C (non-condensing)
Warm-up Time	20 minutes

Standards & Compliance

Safety Standards	EN 61010-1, UL 3111-1, CAN/CSA-C22.2 No. 1010.1
EMC Standards	EN 55011 Class B, EN 50082-2
Recommended Calibration Cycle	1 Year

Frequency

Frequency Reference Aging (Standard)	1 x 10 ⁻⁶ per year
Frequency Reference Aging (with Option FSP-B4)	1 x 10 ⁻⁷ per year
Frequency Temperature Stability (Standard)	1 x 10 ⁻⁶ (0 °C to 50 °C)
Frequency Temperature Stability (with Option FSP-B4)	1 x 10 ⁻⁸ (0 °C to 50 °C)
Frequency Span Range	0 Hz, 10 Hz to 40 GHz
Span Uncertainty	< 1%

Performance

Sweep Points	125 to 8001
1 dB Compression Point	+10 dBm (nominal, at 0 dB RF attenuation)
Third-Order Intercept (TOI)	> 16 dBm (typ. 20 dBm, f < 3 GHz)
Amplitude Measurement Range	DANL to +30 dBm
Audio Demodulation	AM and FM (via internal speaker or headphone jack)
RF Input VSWR	< 1.5 (9 kHz to 3.6 GHz), < 2.0 (3.6 GHz to 20 GHz), < 2.5 (20 GHz to 40 GHz) with ≥ 10 dB RF attenuation

Interfaces

Keyboard Connector	PS/2
Mouse Connector	PS/2
GPIO Interface Standard	IEEE 488.2
Parallel Interface Connector	25-pin D-sub (LPT)
Serial Interface Connector	9-pin D-sub (RS-232-C)

Environmental

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

AC Power Frequency Range	50 Hz to 400 Hz
DC Power Option Input Voltage	12 V to 28 V DC (via Option FSP-B30)

TECHNOLOGY

Spectrum Analysis

APPLICATIONS

RF and Microwave Testing, Wireless Communication Development, Production Testing

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