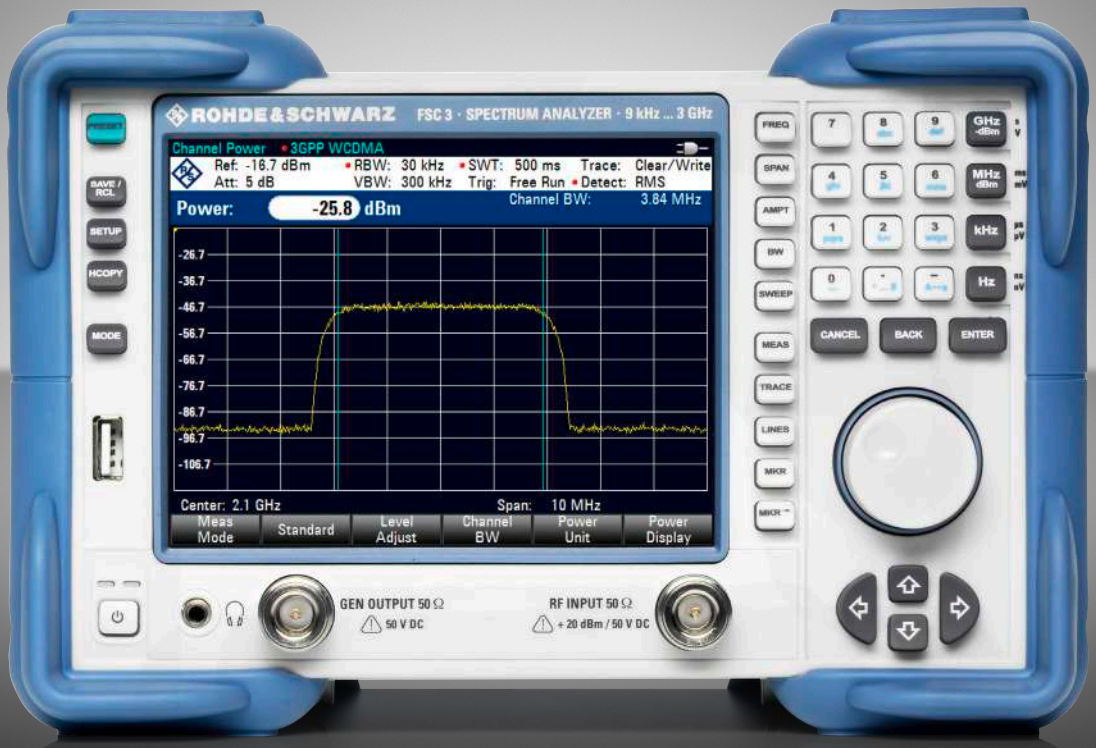
R&S®ESSENTIALS

R&S®FSC SPECTRUM ANALYZER

Professional spectrum analysis – compact and cost-efficient



Product Brochure
Version 05.00

ROHDE&SCHWARZ
Make ideas real

AT A GLANCE

The R&S®FSC is a compact, cost-efficient solution that offers all essential features of a professional spectrum analyzer with Rohde&Schwarz quality. The R&S®FSC covers a wide range of applications from simple development tasks to production and can be used to train RF professionals. It is also ideal for service or maintenance applications. The R&S®FSC has many functions for simplifying and speeding up the RF product development and testing. The good RF characteristics and high measurement accuracy ensure reliable and reproducible measurement results.

Four different R&S®FSC models are available in frequency ranges from 9 kHz to 3 GHz or 6 GHz. Several models have a tracking generator available for each frequency range. An optional preamplifier is available for all models and increases sensitivity when measuring weak signals. The R&S®FSC is compact and takes up minimal space on lab benches. When installed in a rack, two R&S®FSC next to each other can fit into the 19" space.

Key facts

- Frequency range 9 kHz to 3 GHz or 6 GHz
- Resolution bandwidths 10 Hz to 3 MHz
- High sensitivity (< –141 dBm (1 Hz), with optional preamplifier < –161 dBm (1 Hz))
- High third order intercept (> 10 dBm, typ. 15 dBm)
- Low measurement uncertainty (< 1 dB)
- Internal tracking generator (model .13/.16)
- Storage of measurement results on USB stick
- LAN and USB interface for remote control and transfer of measurement data
- R&S®InstrumentView for analyzing measurement data on your computer
- R&S®FSCView software for simple documentation of measurement results
- Compact dimensions
- Low power consumption (12 W)

Measurement functions

- Noise marker for noise power referenced to 1 Hz measurement bandwidth
- Frequency counter with 0.1 Hz resolution
- Limit line monitoring (pass/fail function) to determine DUT compliance with defined limits
- Modulation depth of AM-modulated signals
- Harmonics and total harmonic distortion
- AM/FM audio demodulator (audio via built-in loudspeaker or via headphones)
- Scalar transmission for fast and simple determination of DUT transmission characteristics, such as cables, filters or amplifiers (available for the R&S®FSC models .13 and .16 with tracking generator)
- Locating EMC problems on printed circuit boards with the R&S®HZ-15 near-field probe set for 30 MHz to 3 GHz emissions
- Field-strength taking into account specific antenna factors for a connected antenna, field strength displayed directly in dBµV/m
- Power of pulsed signals in the time domain with predefined settings for GSM and EDGE mobile radio standards
- Channel power measurement in a definable transmission channel with predefined settings for 3GPP WCDMA, cdmaOne, CDMA2000® and LTE mobile communications standards
- Measurement of occupied bandwidth (OBW)
- Adjacent channel power, absolute or referenced to the TX carrier for up to 12 channels and 12 adjacent channels
- Gated sweep for displaying the modulation spectrum of burst signals such as GSM or WLAN
- Measurement of spurious emissions

Easy operation

The R&S®FSC is operated via with a keyboard and knob with integrated enter function. All important settings such as frequency, bandwidth, span or marker can be directly accessed with hardkey buttons. Clearly arranged softkeys at the lower edge of the touch screen have additional menu selections. The user interface is available in English, Korean, Japanese, Chinese, Russian, Italian, Spanish, Portuguese, French, Hungarian and German.

BENEFITS

- Data transfer between the R&S®FSC and a PC via USB/LAN
- Easy measurement result postprocessing with data exports in ASCII or Excel formats
- Graphics data stored in standard formats
- Printout of measurement results, including the instrument settings
- Simple comparison of measurement results
- Subsequent analysis of measurement results with markers
- Display of limit lines
- Editor for limit lines and antenna factors
- Compatibility with Windows 10

MEASUREMENT DATA ANALYSIS AND REMOTE CONTROL

R&S®InstrumentView for analyzing measurement data on your computer

R&S®InstrumentView software lets you remotely analyze measurement data acquired with an R&S®FSC spectrum analyzer. The software lets you easily connect a computer to a spectrum analyzer to download and analyze waveforms. You can save results and reload your saved set to continue working later. The software displays up to 8 waveforms and you can add individual notes. Cursors and automatic measurements support straightforward signal analysis.

R&S®FSCView software for recording measurement results

The R&S®FSCView software in the spectrum analyzer is an easy-to-use tool to manage, evaluate and document measurement results.

R&S®InstrumentView analysis software

Remote control operation

All R&S®FSC functions can be controlled via the USB and LAN interface with SCPI compatible remote control commands. LabWindows/CVI, LabView, VXIplug&play and Linux drivers are available.

R&S®FSC rear panel

SPECIFICATIONS IN BRIEF

Specifications in brief		
Frequency range	model .03/.13	9 kHz to 3 GHz
	model .06/.16	9 kHz to 6 GHz
Resolution bandwidth		10 Hz to 3 MHz
Displayed average noise level	without preamplifier, RBW = 1 Hz	
	9 kHz to 100 kHz	< –108 dBm, typ. –118 dBm
	100 kHz to 1 MHz	< –115 dBm, typ. –125 dBm
	1 MHz to 10 MHz	< –136 dBm, typ. –144 dBm
	10 MHz to 2 GHz	< –141 dBm, typ. –146 dBm
	2 GHz to 3.6 GHz	< –138 dBm, typ. –143 dBm
	3.6 GHz to 5 GHz	< –142 dBm, typ. –146 dBm
	5 GHz to 6 GHz	< –140 dBm, typ. –144 dBm
	with R&S®FSC-B22 preamplifier option, RBW = 1 Hz	
	100 kHz to 1 MHz	< –133 dBm, typ. –143 dBm
	1 MHz to 10 MHz	< –157 dBm, typ. –161 dBm
	10 MHz to 1 GHz	< –161 dBm, typ. –165 dBm
	1 GHz to 2 GHz	< –159 dBm, typ. –163 dBm
	2 GHz to 5 GHz	< –155 dBm, typ. –159 dBm
	5 GHz to 6 GHz	< –151 dBm, typ. –155 dBm
Third order intercept (TOI)	frequency: 1 GHz	typ. 15 dBm
Phase noise	frequency: 500 MHz	
	30 kHz carrier offset	< –95 dBc (1 Hz)
	100 kHz carrier offset	< –100 dBc (1 Hz)
	1 MHz carrier offset	< –120 dBc (1 Hz)
Detectors		sample, max. peak/min. peak, auto peak, RMS
Total measurement uncertainty	RF attenuation: auto	
	10 MHz < f ≤ 3.6 GHz	±1 dB, typ. ±0.5 dB
	3.6 GHz < f ≤ 6 GHz	±1.5 dB, typ. ±1 dB
Tracking generator (models .13/.16)		
Frequency range	model .13	100 kHz to 3 GHz
	model .16	100 kHz to 6 GHz
Output power		0 dBm (nom.)
Dynamic range (transmission)	100 kHz ≤ f < 300 kHz	> 60 dB, typ. 80 dB
	300 kHz ≤ f < 3 GHz	> 70 dB, typ. 90 dB
	3 GHz ≤ f < 6 GHz	> 70 dB, typ. 90 dB
Display		5.7" (145 mm) color LCD with VGA resolution
Dimensions	(W × H × D)	233 mm × 158 mm × 350 mm (9.2 in × 6.2 in × 13.8 in)
Weight		4.5 kg (9.9 lb)

ORDERING INFORMATION

Designation	Type	Order No.
Spectrum analyzer, 9 kHz to 3 GHz	R&S®FSC3	1314.3006.03
Spectrum analyzer, 9 kHz to 3 GHz, with tracking generator	R&S®FSC3	1314.3006.13
Spectrum analyzer, 9 kHz to 6 GHz	R&S®FSC6	1314.3006.06
Spectrum analyzer, 9 kHz to 6 GHz, with tracking generator	R&S®FSC6	1314.3006.16
Accessories supplied		
Power cable, USB cable for connection to PC, quick start guide and CD-ROM with R&S®FSCView software and documentation		
Option		
Preamplifier, 100 kHz to 3 GHz/6 GHz, for R&S®FSC3/R&S®FSC6	R&S®FSC-B22	1314.3535.02
Recommended extras		
Ethernet cable	R&S®HA-Z210	1309.6152.00
Headphones	R&S®FSH-Z36	1145.5838.02
19" rack adapter, for installing two R&S®FSC	R&S®ZZA-T33	1109.4458.00
19" rack adapter, for installing one R&S®FSC	R&S®ZZA-T34	1109.4464.00
Matching pad, 50 Ω/75 Ω, bidirectional, 0 Hz to 2.7 GHz, N female/N male, 2 W power-handling capacity	R&S®RAM	0358.5414.02
Matching pad, 50 Ω/75 Ω, unidirectional, 0 Hz to 2.7 GHz, N female/N male, 2 W power-handling capacity	R&S®RAZ	0358.5714.02
Matching pad, 50 Ω/75 Ω, bidirectional, 0 Hz to 1 GHz, BNC female/N male, 1 W power-handling capacity	R&S®FSH-Z38	1300.7740.02
Near field probe set	R&S®HZ-15	1147.2736.02
Preamplifier, for R&S®HZ-15	R&S®HZ-16	1147.2720.02

Warranty		
Base unit		3 years
All other items [1]		1 year
Service options		
Extended warranty, one year	R&S®WE1	Contact your local Rohde&Schwarz sales office for more information..
Extended warranty, two years	R&S®WE2	
Extended warranty with calibration coverage, one year	R&S®CW1	
Extended warranty with calibration coverage, two years	R&S®CW2	
Extended warranty with accredited calibration coverage, one year	R&S®AW1	
Extended warranty with accredited calibration coverage, two years	R&S®AW2	

[1] For options installed, the remaining base unit warranty applies if longer than 1 year. Exception: all batteries have a 1 year warranty.

Service at Rohde&Schwarz
You're in great hands

- Worldwide
- Local and personalized
- Customized and flexible
- Uncompromising quality
- Long-term dependability

Rohde&Schwarz

The Rohde&Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test&measurement, technology systems and networks&cybersecurity. Founded more than 85 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

www.rohde-schwarz.com

Sustainable product design

- Environmental compatibility and eco-footprint
- Energy efficiency and low emissions
- Longevity and optimized total cost of ownership

Certified Quality Management
ISO 9001

Certified Environmental Management
ISO 14001

Rohde&Schwarz training

www.training.rohde-schwarz.com

Rohde&Schwarz customer support

www.rohde-schwarz.com/support

PD 5214.3830.12 | Version 05.00 | June 2023 (jr)
R&S®FSC Spectrum Analyzer
Data without tolerance limits is not binding | Subject to change

5214383012
5214.3830.12 05.00 PDP/PDW 1 en