R&S®FPC1000
Spectrum Analyzer
Unexpected performance
in entry class

3 year warranty

ROHDE&SCHWARZ

R&S®FPC1000
Spectrum Analyzer
At a glance

Outstanding quality and innovation does not have to come with a high price tag. The R&S®FPC1000 spectrum analyzer delivers unexpected performance at a budget-friendly price. Engineered in Germany and designed to the same quality standards as high-end instruments. Measure with solid RF performance and benefit from a future-ready, software-upgradeable feature set. The R&S®FPC1000 has the best display in its class. The R&S®FPC1000 can be controlled via smart wireless remote control software. Excel with these features when using spectrum analysis in education, production, service or basic research.

Investment protection, high resolution and easy virtual control. These characteristics make the R&S®FPC1000 spectrum analyzer the perfect tool for university laboratories, basic research as well as production and service facilities. Investment protection through software upgrade capability. The R&S®FPC1000 base instrument has a frequency range of 5 kHz to 1 GHz.

Keycode options unlock higher frequency ranges up to 3 GHz or enable other features when required.

Class-leading RF performance engineered in Germany. Extraordinarily low noise floor and high max. input power combine to provide for the best dynamic range in its class. Resolution bandwidth settings to 1 Hz resolve finer spectral details than any other spectrum analyzer in this class.

See more details with high resolution. The R&S®FPC1000 features the largest and most detailed display in its class at 10.1", WXGA (1366 × 768 pixel) resolution. The display is 26 % larger and has a 160 % higher resolution than other instruments.

Virtual control enables remote control and measurement. The R&S®FPC1000 supports wired Ethernet and wireless Wi-Fi connectivity. R&S®InstrumentView for Windows as well as the iOS/Android app-based R&S®MobileView platforms enable remote control and measurement anytime, anywhere.

Key facts
▎ RF performance engineered in Germany
▎ 10.1" WXGA (1366 × 768 pixel) display
▎ Frequency range from 5 kHz to 1 GHz, upgradable to 2 Ghz or 3 GHz with keycode
▎ Resolution bandwidth settings down to 1 Hz
▎ Wi-Fi-enabled, supported by included remote control and measurement software
▎ Three-year standard warranty
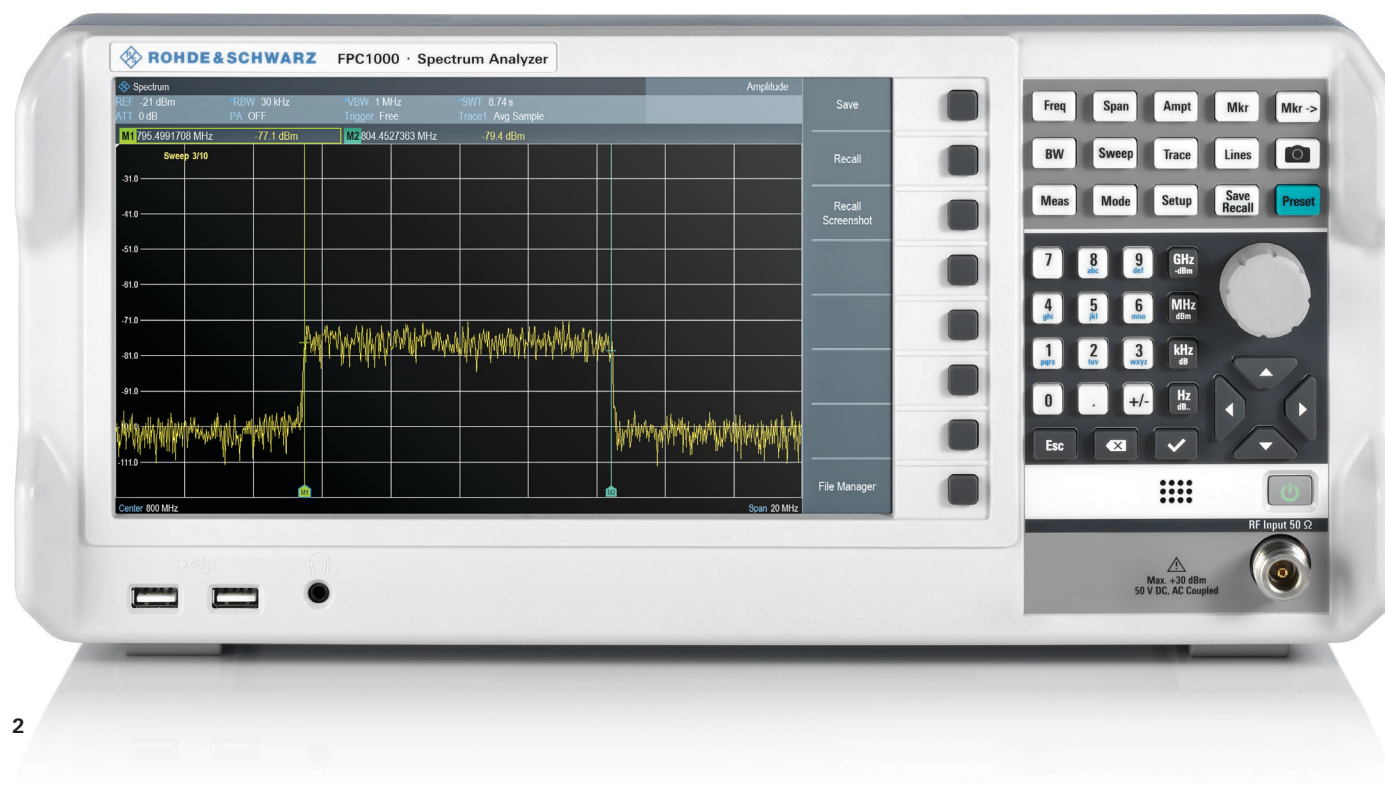
R&S®FPC1000 Spectrum Analyzer
Benefits and key features

Investment protection
▮ Fully frequency-upgradeable
▮ 100 % software-upgradeable
▮ No downtime – instant option availability

Unexpected RF performance
▮ Low noise floor
▮ High max. input power

High resolution
▮ 160 % higher display resolution
▮ 26 % larger display
▮ 1 Hz resolution bandwidth

Easy virtual control
▮ First Wi-Fi-enabled spectrum analyzer in its class
▮ Innovative control – fast and easy with iOS/Android/PC software
▮ Lab feature in R&S®InstrumentView – set up a wireless remote lab in minutes
▮ Virtual classroom concept – flexible deployment of classrooms anywhere, anytime

Software applications and features
▮ Receiver mode
▮ Modulation analysis
▮ Advanced measurements

10.1" high-resolution display

10.1" high-resolution display
∎ 1366 × 768 pixel resolution

6 markers
∎ Shown vividly in different colors

Two USB 2.0 ports
∎ For storage media
∎ For connecting accessories

Headphone jack

Soft menu selection
∎ Quick access to key tools

Measurement setup buttons

Documentation of results
∎ Documentation as a screenshot or of instrument settings

Control knob

Power key: approx. 15 sec. boot time

Audio speaker

RF input

Amplitude

Save

Recall

Recall
Screenshot

File Manager

Span 20 MHz

Freq | Span | Ampt | Mkr | Mkr ->
BW | Sweep | Trace | Lines |
Meas | Mode | Setup | Save Recall | Preset

7 | 8 abc | 9 def | GHz -dBm
4 ghi | 5 jkl | 6 mno | MHz dBm
1 pqrs | 2 tuv | 3 wxyz | kHz dB
0 | . | +/- | Hz dB..

Esc

RF Input 50 Ω

Max. +30 dBm
50 V DC, AC Coupled

Investment protection

- Frequency-upgradeable
- 100% software-upgradeable
- No downtime – instant option availability

Fully frequency-upgradeable

Buy only what is needed. The R&S®FPC1000 is future-viable thanks to the unique Rohde & Schwarz upgrade path. The base unit covers a frequency range from 5 kHz to 1 GHz, with keycode-activated upgrades available. Effortlessly step up to higher frequency applications with upgrades to 2 GHz or even 3 GHz without additional calibration.

100% software-upgradeable

Buy as needed. Shipping instruments for feature upgrade is inconvenient for rack-integrated measurement setups. The R&S®FPC1000 can be upgraded by simply entering a software keycode. All options are in place and can be enabled by the user. Upgrade effortlessly and conveniently.

No downtime – instant option availability

Buy when needed. The unique Rohde & Schwarz upgrade path eliminates the need for additional upgrade calibration. Avoid delays and downtime and instantly access additionally required functionality.

Buy only what is needed – invest when needed – upgrade as needed.

Unexpected RF performance

- Low noise floor
- High max. input power

Low noise floor

High sensitivity is critical in many applications, e.g. when measuring extremely weak signals. The R&S®FPC1000 provides an extraordinarily low noise floor of –150 dBm (typ.). Add the optional R&S®FPC1000-B22 preamplifier to increase sensitivity even further down to –165 dBm (typ.).

High max. input power

Measure 10 times more power with the R&S®FPC1000. Most entry level spectrum analyzers can measure up to +20 dBm (100 mW). The R&S®FPC1000 is capable of measuring high power signals of up to +30 dBm (1 W).

The combination of low noise floor and high max. input power provides exceptionally wide measurement dynamic range in the R&S®FPC1000.

High resolution

- **160% more display resolution (> 2.6 times)**
- **26% larger display**
- **1 Hz resolution bandwidth**

160% higher display resolution
Higher resolution. The WXGA panel (1366 × 768 pixel) exceeds the VGA resolution (640 × 480 pixel) that had been standard among entry level spectrum analyzers by 160%. Inspect measured signals in unprecedented clarity and razor-sharp detail.

26% larger display
See more. The R&S®FPC1000 has the largest display of any entry level spectrum analyzer. The new 26 cm (10.1") panel is 26% larger than the display of other entry class spectrum analyzers (20 cm or 8"). The combination of high display resolution and a large display creates extraordinary user experience. Examine more measured signal on the instrument screen.

1 Hz resolution bandwidth
More details. The quality of RF measurements strongly depends on suitable resolution bandwidth settings. Finer resolution bandwidth means more spectral details. The R&S®FPC1000 is the only entry level spectrum analyzer with resolution bandwidth settings down to 1 Hz. Identify RF signal details with class-unprecedented measurement frequency resolution.

Innovate with a large, high-resolution display and fine resolution bandwidth. Experience unexpected performance in the entry class.

The high dynamic range of the R&S®FPC1000 fully utilizes the 10.1" WXGA display.

Easy virtual control

- First Wi-Fi-enabled spectrum analyzer in its class
- Innovative remote control – fast and easy with iOS/ Android/PC software
- Lab feature in R&S®InstrumentView software – set up a wireless remote lab in minutes
- Virtual classroom concept – flexible deployment of classrooms anywhere, anytime

First Wi-Fi-enabled spectrum analyzer in its class
Eliminate network cables with integrated wireless technology. The R&S®FPC1000 is Wi-Fi enabled[1] and wirelessly connects to Wi-Fi access points. This renders Ethernet cables, plugs, hubs and installation superfluous.

Innovative control – fast and easy with iOS/ Android/PC software
User in focus. Simple and intuitive controls are game-changing trends in industry. The R&S®FPC1000 connects to R&S®InstrumentView as well as to R&S®MobileView remote control platforms via USB[2], Ethernet or Wi-Fi.

R&S®InstrumentView (PC software) and R&S®MobileView (iOS/Android app) are powerful all-in-one remote control applications that come bundled with the R&S®FPC1000[3].

Take control, read measurements, save and transfer measurement settings – quickly and easily via a PC, laptop, mobile phone or tablet from any network location.

[1] Wi-Fi feature not available in some countries due to local certification requirements.
[2] R&S®InstrumentView only.
[3] Incorporates R&S®FPH, R&S®ZPH, R&S®FSH and R&S®ZVH interfaces.

R&S®InstrumentView remote control software.

Lab feature in R&S®InstrumentView – set up a wireless remote lab in minutes

R&S®InstrumentView supports a specific feature called Lab that can help instructors use the R&S®FPC1000 Wi-Fi capabilities to set up a wireless student lab in minutes. They can then use the R&S®InstrumentView Lab feature to simultaneously control, synchronize and view multiple instruments.

Professors can conveniently manage, assist and monitor student measurements from a central or remote location using the R&S®InstrumentView Lab feature. This feature is also beneficial in any scenario where remote monitoring of multiple instruments is required.

Virtual classroom concept – flexible deployment of classrooms anywhere, anytime

Student benefit. In a globalized world, education breaks geographic barriers. The R&S®FPC1000 with its wireless connectivity combined with the R&S®InstrumentView Lab feature is a unique tool for virtual classroom concepts and location-independent teaching.

Students can easily connect to a common network domain from anywhere in the world to participate in lab classes or online lab assessments. Experience teaching anywhere, anytime.

R&S®InstrumentView and R&S®MobileView features		
	R&S®InstrumentView	R&S®MobileView
Easy and fast exchange of screenshots and configurations between the instrument and a PC	●	–
Remote control of the instrument from any network location	●	●
Easy creation of test reports in PDF, HTML and RTF formats	●	–
Easy processing of measurement results	●	–
Editing of measuring results by displaying/hiding/shifting markers and limit lines, etc	●	–
PC (MS Windows) compatible	●	–
iOS/Android compatible	–	●
Bundled with R&S®FPC1000 at no extra charge	●	●

Virtual classroom with the R&S®FPC1000 spectrum analyzer and other measurement devices from Rohde & Schwarz.

Software applications and features

Receiver mode

The R&S®FPC1000 offers the optional R&S®FPC-K43 receiver mode for EMI debugging on circuit boards, integrated circuits, cable shielding and more. The R&S®FPC-B22 preamplifier compensates for coupling loss of probes and increases sensitivity to detect small interfering signals.

Use the R&S®FPC1000 as a cost-effective yet powerful tool to analyze and locate disturbance sources during development.

R&S®FPC1000 spectrum analyzer with the R&S®HZ-15 probe set and DUT.

Modulation analysis

The R&S®FPC-K7 converts the R&S®FPC1000 into a modulation analyzer for measuring the modulation quality of amplitude or frequency-modulated signals.

The analog demodulation display shows the waveform as well as a summary of measurement parameters such as carrier power, carrier offset, modulation index (depth) for AM signals, frequency deviation for FM signals, SINAD, THD, etc. The modulation summary display provides user-definable limits for each measurement. Demodulated audio is supported via the built-in speaker or the headphone jack.

Basic digital modulation formats are used with many applications, e.g. near-field communications. The R&S®FPC1000 supports both ASK and FSK analysis. The digital modulation displays include trace, eye diagram, modulation error and symbol analysis. [1]

Easily verify the quality of the basic modulated signals with the R&S®FPC-K7 software option.

Advanced measurements

Step up measurements. The R&S®FPC-K55 adds functions for measuring channel power, occupied bandwidth, adjacent channel leakage ratio (ACLR), spectral emission mask (SEM), spurious emissions and third order intercept (TOI). It even provides a spectrogram display to provide easy insight into spectrum occupancy and time-varying signals. [2]

Experience advanced measurements on an entry level instrument.

[1] Analog modulation analysis available at product launch.
Digital modulation analysis will follow via firmware update at a later stage.

[2] Channel power, occupied bandwidth and spectrogram available at product launch. ACLR, SEM, spurious emissions and TOI will follow via firmware update at a later stage.
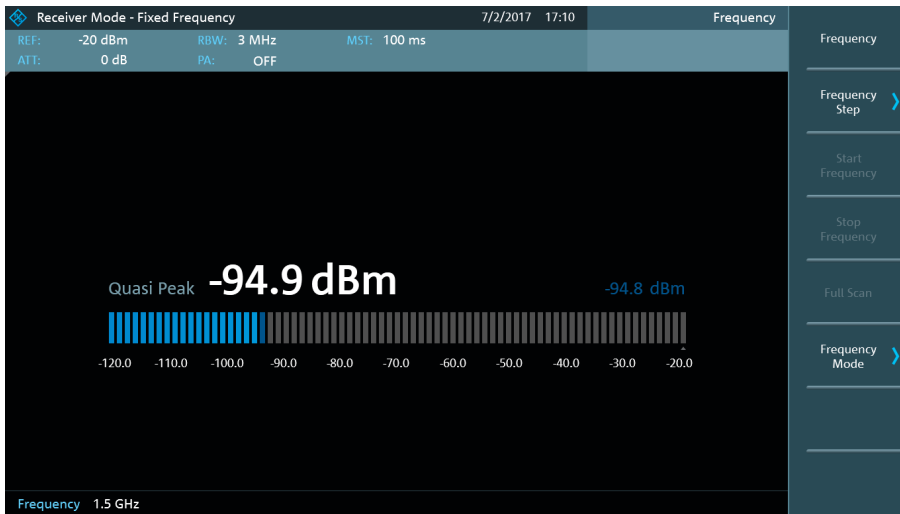

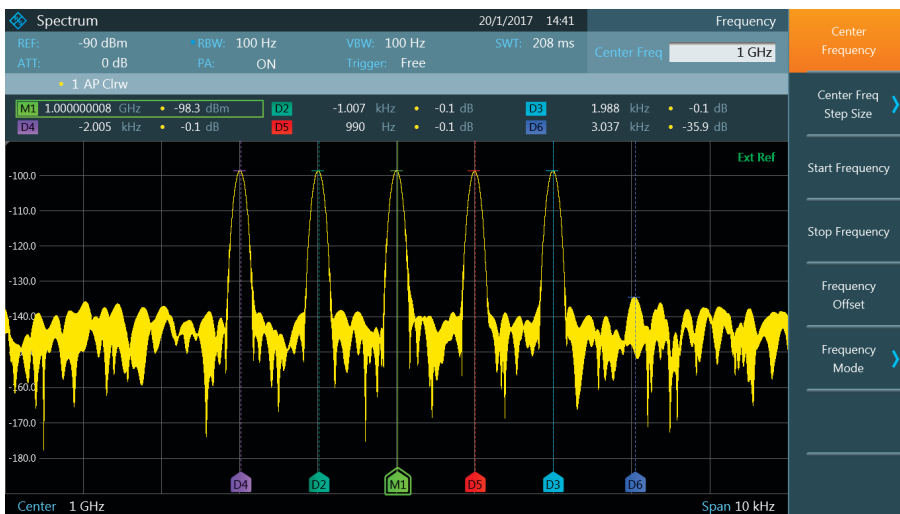R&S®FPC-B22: high sensitivity with 1 Hz resolution bandwidth.

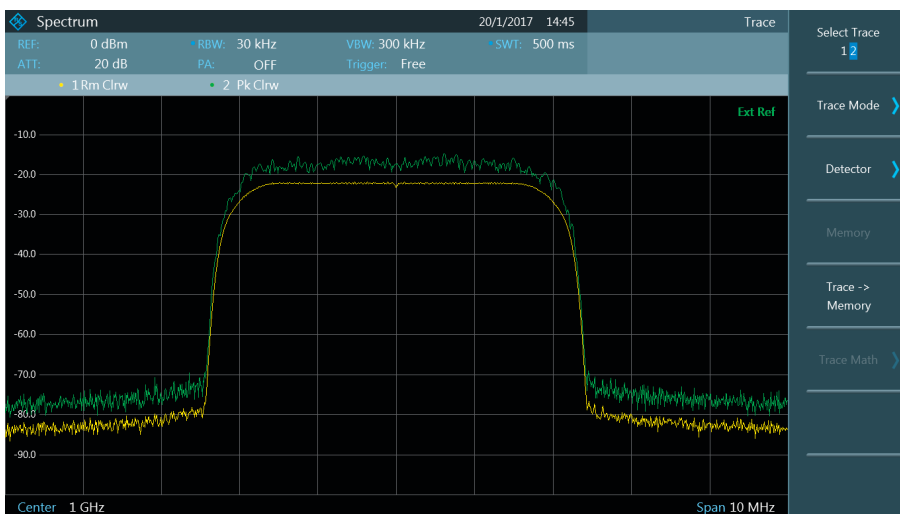R&S®FPC-K7: FM trace.

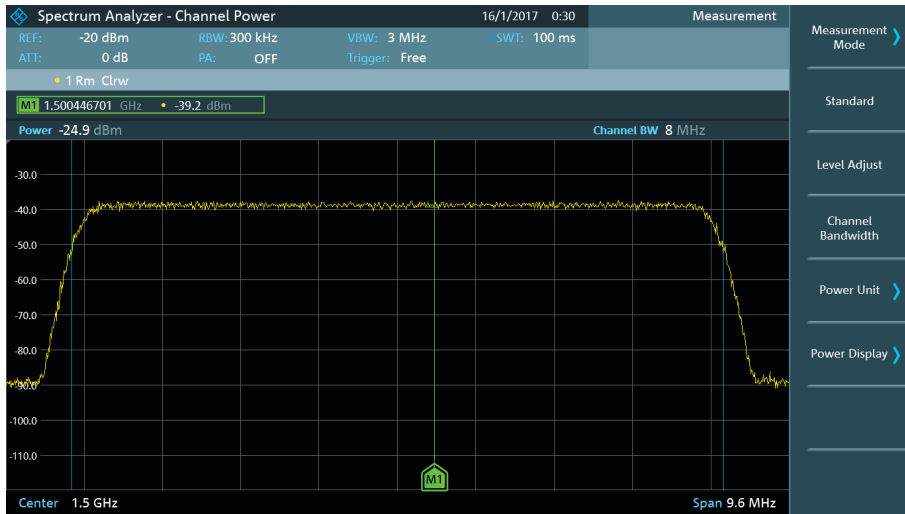# Software applications and features

R&S®FPC-K43: receiver mode.

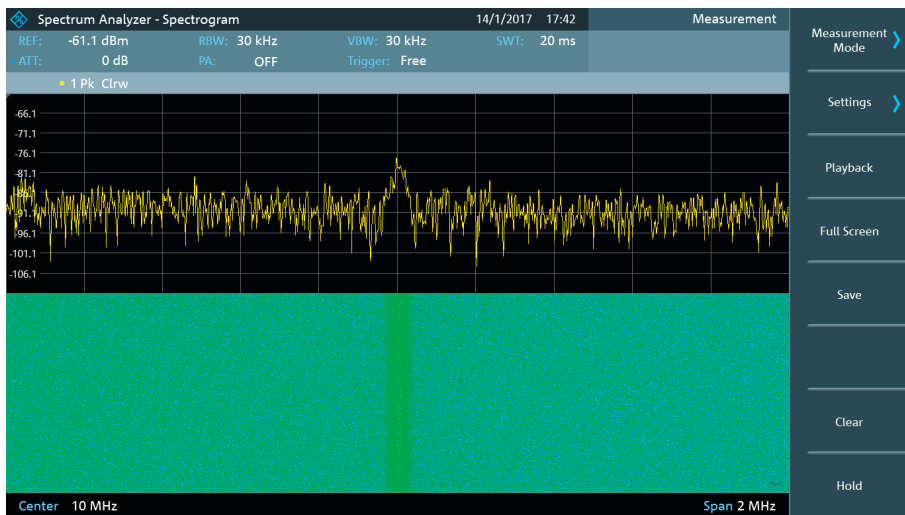Standard feature: up to six markers.

Standard feature: two traces available.

R&S®FPC-K55: channel power.

R&S®FPC-K55: occupied bandwidth.

R&S®FPC-K55: spectrogram.

Specifications in brief

Specifications in brief		
Frequency range	R&S®FPC1000	5 kHz to 1 GHz
	with R&S®FPC-B2 option	5 kHz to 2 GHz
	with R&S®FPC-B3 option	5 kHz to 3 GHz
Frequency resolution		1 Hz
Resolution bandwidth		1 Hz to 3 MHz in 1/3 sequence
Displayed average noise level	0 dB RF attenuation, 50 Ω termination, RBW = 100 Hz, VBW = 10 Hz, sample detector, log scaling, normalized to 1 Hz	± 1.5% of full scale
	frequency	R&S®FPC1000 preamplifier = off
	1 MHz to 10 MHz	< –130 dBm, –138 dBm (typ.)
	10 MHz to 1 GHz	< –142 dBm, –146 dBm (typ.)
	1 GHz to 3 GHz	< –140 dBm, –144 dBm (typ.)
	frequency	R&S®FPC1000 preamplifier = on
	1 MHz to 10 MHz	< –150 dBm, –160 dBm (typ.)
	10 MHz to 3 GHz	< –158 dBm, –163 dBm (typ.)
Third-order intercept (IP3)	intermodulation-free dynamic range, signal level of 2 × –20 dBm, RF attenuation = 0 dB, RF preamplifier = off	+7 dBm (meas.)
Level measurement uncertainty		
Absolute frequency uncertainty at 100 MHz	+20 °C to +30 °C	< 0.3 dB
Frequency response (+20 °C to +30 °C)	100 kHz ≤ f < 10 MHz	< 1.5 dB (nom.)
	10 MHz ≤ f ≤ 3 GHz	< 1 dB

For data sheet, see PD 5214.7112.22 and www.rohde-schwarz.com

Ordering information

Designation	Type	Order No.
R&S®FPC1000 Spectrum Analyzer, 5 kHz to 1 GHz	R&S®FPC1000	1328.6660.02
Spectrum Analyzer Frequency Upgrade, 1 GHz to 2 GHz	R&S®FPC-B2	1328.6677.02
Spectrum Analyzer Frequency Upgrade, 2 GHz to 3 GHz	R&S®FPC-B3	1328.6683.02
Spectrum Analyzer Preamplifier	R&S®FPC-B22	1328.6690.02
Wi-Fi Connection Support	R&S®FPC-B200	1328.6990.02
Modulation Analysis	R&S®FPC-K7	1328.6748.02
Receiver Mode	R&S®FPC-K43	1328.6754.02
Advanced Measurements	R&S®FPC-K55	1328.6760.02
Accessories		
19" Rackmount Kit	R&S®ZZA-FPC1	1328.7080.02
Near-Field Probe Set, 30 MHz to 3 GHz	R&S®HZ-15	1147.2736.02
Amplifier, 100 kHz to 3 GHz	R&S®HZ-16	1147.2720.02
Carrying Case	R&S®RTB-Z3	1333.1734.02

Warranty		
Base unit		3 years
All other items		1 year
Options		
Extended Warranty, one year	R&S®WE1	Please contact your local Rohde & Schwarz sales office.
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	

Service that adds value

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

Rohde & Schwarz

The Rohde & Schwarz electronics group offers innovative solutions in the following business fields: test and measurement, broadcast and media, secure communications, cybersecurity, monitoring and network testing. Founded more than 80 years ago, the independent company which is headquartered in Munich, Germany, has an extensive sales and service network with locations in more than 70 countries.

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

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