

Specifications

RF data		
Frequency range		9 kHz to 7.5 GHz
RF input		
Input level		typ. 0 dBm
Impedance		50 Ω
VSWR	9 kHz to 3.5 GHz	$\leq 2:1$
	3.5 GHz to 7.5 GHz	$\leq 3:1$
Input attenuation		typ. 10 dB, effectively 25 dB (can be switched manually)
Preselection	9 kHz to 30 MHz	30 MHz lowpass filter
	20 MHz to 3.5 GHz	tuned bandpass filters
	3.5 GHz to 7.5 GHz	highpass/lowpass filter combination
Noise figure	9 kHz to 200 kHz	typ. 20 dB
	200 kHz to 20 MHz	typ. 14 dB
	20 MHz to 1.5 GHz (attenuator off)	typ. 10 dB
	1.5 GHz to 3.5 GHz (attenuator off)	typ. 10 dB
	3.5 GHz to 7.5 GHz	typ. 18 dB
Third-order intercept (TOI) (input)	At ≥ 1 MHz test signal offset	
	20 MHz to 650 MHz (attenuator on)	typ. 17 dBm
	650 MHz to 3.5 GHz (attenuator on)	typ. 21 dBm
	3.5 GHz to 7.5 GHz	typ. -2 dBm
Phase noise	$\Delta f = 10$ kHz, $f_c = 500$ MHz	typ. -94 dBc/Hz
	$\Delta f = 100$ kHz, $f_c = 500$ MHz	typ. -104 dBc/Hz

IF data		
IF spectrum display range		10 kHz to 10 MHz
Display mode		NORMAL (CLEAR/WRITE), AVERAGE, MAX/MIN HOLD
IF demodulation bandwidths	15 filters (specified values indicate 3 dB bandwidth)	150/300/600 Hz 1.5/2.4/6/9/15/30/50/120/150/200/300/500 kHz
Demodulation modes	AM	USB (demodulation bandwidths ≤ 9 kHz)
	FM	LSB (demodulation bandwidths ≤ 9 kHz)
	PULSE	ISB (demodulation bandwidths ≤ 15 kHz)
	I/Q	CW (demodulation bandwidths ≤ 9 kHz)

Control		
Squelch	in 1 dB steps	-30 dB μ V to +110 dB μ V
Gain control	AGC	-30 dB μ V to +110 dB μ V
	MGC	-30 dB μ V to +110 dB μ V
Frequency control	AFC	$\pm \frac{1}{2}$ IF bandwidth (150 Hz to 500 kHz)

Signal processing		
FFT (Fast Fourier Transform)		2048 points
		Blackman window
		max. 20 data sets/s on the display
		max. 200 data sets/s via LAN

Scan modes		
Frequency scan	start/stop frequency, step width	user-selectable
Memory scan	memory locations	1024, user-programmable
Panorama scan	start/stop frequency	user-selectable
	resolution bandwidths (bin widths)	125/250/500/625 Hz 1.25/2.5/3.125/6.25/12.5/25/50/100 kHz

Measurement accuracy and display modes		
Frequency resolution		1 Hz
Frequency accuracy	across specified operating temperature range	±1 ppm
	aging	±1 ppm/year
Signal level	0.1 dB resolution	−30 dBμV to +107 dBμV, −137 dBm to 0 dBm
Display error		max. ±3 dB/typ. ±1.5 dB
Level display modes		AVERAGE, RMS, MAX PEAK, SAMPLE
A/D converter		14 bit

Interfaces		
Antenna input	9 kHz to 7.5 GHz	N socket, 50 Ω
Max. level	non-destructive	+20 dBm, 0 V DC
Reference input	10 MHz	BNC socket, typ. 500 Ω
Max. level	non-destructive	0.1 V (V_{pp}) to 3 V (V_{pp}), max. 5 V DC
IF output	for signals from 20 MHz to 7.5 GHz, uncontrolled	21.4 MHz, BNC socket, 50 Ω
I/Q output	bandwidth ≤500 kHz	LAN
Audio output, digital	bandwidth ≤12.5 kHz	LAN
Audio output, analog	dependent on IF filter and modulation type	10 Hz/300 Hz to 12.5 kHz
Data and control interfaces	remote control and data transfer	LAN (Ethernet 10/100BaseT)
	read and write to SD card	USB 1.1
Screenshots	file format	PNG

Standards		
EMC	electrical safety	EN61010
	EMI, EMS	R&TTE EN301489.1/22 EN55022, Class B (valid for LAN cable lengths <3 m)
Mechanical stress	vibration (sine), vibration (random), shock	MIL-PRF 28800 F
Environmental stress	operating altitude, humidity, etc.	MIL-PRF 28800 F

General data		
Operating temperature range	with battery	0°C to +50°C
	with external power supply unit	0°C to +40°C
Permissible temperature range	with battery	−10°C to +50°C (without condensation)
Power supply	AC, with external power supply unit	100 V AC to 240 V AC, 50 Hz/60 Hz, 700 mA
	DC	15 V DC ±10%, 2 A
Battery (lithium-ion, 6 cells)	operating time	approx. 4 hours
	charging time	approx. 4 hours
Dimensions	height × width × depth	approx. 320 mm × 192 mm × 62 mm
Weight	including battery	approx. 3.5 kg

Ordering information

Base unit

Designation	Type, description	Order No.
Portable Receiver	R&S®PR100	4071.9006.02
Equipment and functions included	IF spectrum (max. 10 MHz), spectrogram (waterfall display), 6-cell lithium-ion battery, plug-in power supply, SD card for storing user settings, shoulder strap	
Documentation of Calibration-Values	R&S®PR100-DCV	4071.9906.02
		available as of 10/2008

Software options

Designation	Type, description	Order No.
Panorama Scan	R&S®PR100-PS	4071.9306.02
Equipment and functions included	RF scan, high-speed FFT scan across user-selectable scan range, selectable spectral resolution (bin width)	available as of 07/2008
Internal Recording	R&S®PR100-IR	4071.9358.02
Equipment and functions included	recording of measured data in the receiver (64 MB RAM) or on SD card, 4 GB SD card, recording of audio data in WAV format (replay by means of Windows Media Player, for example), recording of I/Q data, spectra and spectrogram (waterfall) data, RxView software for viewing measured data on customer PC, data transfer from SD card to PC via USB interface	available as of 04/2009
Remote Control	R&S®PR100-RC	4071.9406.02
Equipment and functions included	remote control of receiver via LAN interface (SCPI protocol), RxView and RxControl software; the RxControl software does not include the complete remote-control functionality; this has to be created by customer by means of SCPI commands; transfer of measured data via LAN interface; transfer of demodulated I/Q data (up to 500 kHz bandwidth) via LAN interface	available as of 12/2008
Externally Triggered Measurements	R&S®PR100-ETM	4071.9458.02
Equipment and functions included	an external sensor (not supplied with the receiver) triggers a measurement in the R&S®PR100; the sensor is connected via the AUX interface	available as of 06/2009
Field Strength Measurement	R&S®PR100-FS	4071.9506.02
Equipment and functions included	the field strength is calculated using antenna factors stored in the receiver; the receiver displays the field strength directly in dBµV/m	available as of 07/2008
SHF Frequency Processing for downconverter antennas	R&S®PR100-FP	4071.9558.02
Equipment and functions included	the downconverter unit of the R&S® HF907DC antenna is connected to the receiver via a control cable; the receiver recalculates the downconverted signals to display them with their original frequencies up to 18 GHz and with the sidebands in their original positions, thus relieving the user from having to convert signals subsequently	available as of 06/2009

Accessories

Designation	Type, description	Order No.
Battery Pack	R&S®PR100-BP	4071.9206.02
Equipment included	6-cell lithium ion battery, charging cradle, plug-in power supply	
Suitcase Kit	R&S®PR100-SC	4071.9258.02
Equipment included	hard-shell transit case with headphones and telescopic antenna and extra space for accessories	
Carrying Holster	including chest strap and rainproof cover	1309.6198.00
Soft Carrying Bag		1309.6175.00
Active Directional Antenna	R&S®HE300	4067.5900.02
Equipment included	three antenna modules covering the range from 20 MHz to 7.5 GHz, grip piece housing switchable preamplifier, hard-shell transit case with extra space for R&S®PR100	
HF Option for R&S®HE300	R&S®HE300-HF	4067.6806.02
Equipment included	loop antenna from 9 kHz to 20 MHz for R&S®HE300 active directional antenna	