

R&S® FSV40-N

Signal and Spectrum Analyzer

Specifications



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Specifications

Specifications apply under the following conditions: 30 minutes warm-up time at ambient temperature, specified environmental conditions met, calibration cycle adhered to, and all internal automatic adjustments performed. Data without tolerances: typical values only. Data designated "nominal" applies to design parameters and is not tested.

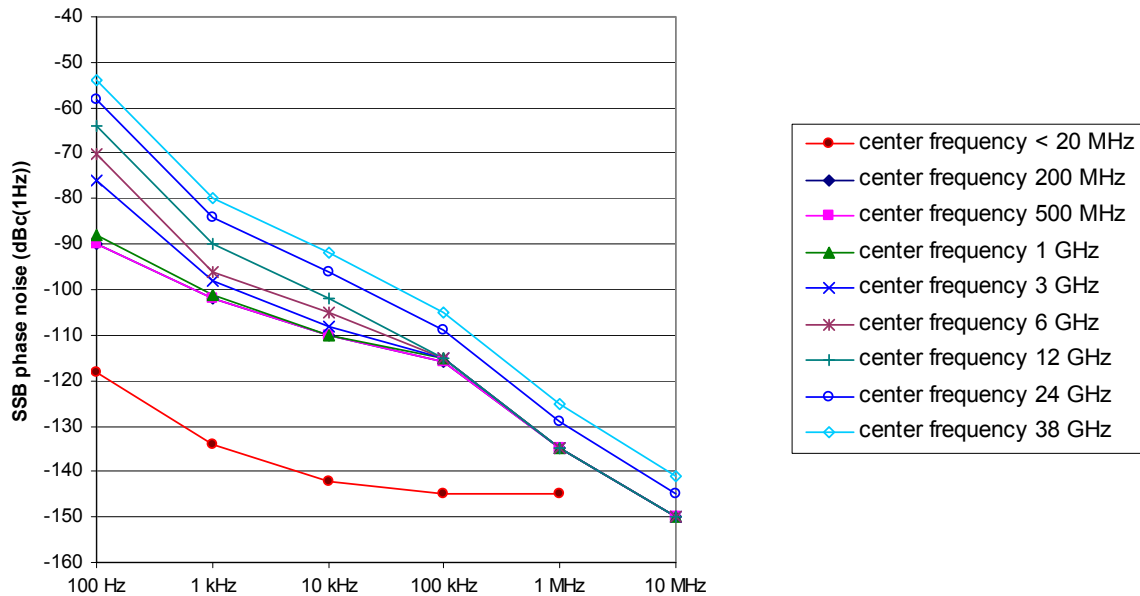
Frequency

Frequency range	R&S®FSV40-N	
	DC-coupled	9 kHz to 40 GHz
	AC-coupled	10 MHz to 40 GHz
	with R&S®FSV-B29 option, DC-coupled	10 Hz to 40 GHz
Frequency resolution		0.01 Hz

Reference frequency, internal		
Accuracy		(time since last adjustment × aging rate) + temperature drift + calibration accuracy
Aging per year		1×10^{-7}
Temperature drift (+5 °C to +45 °C)		1×10^{-7}

Frequency readout		
Marker resolution		1 Hz
Uncertainty		$\pm(\text{marker frequency} \times \text{reference uncertainty} + 10 \% \times \text{resolution bandwidth} + \frac{1}{2} (\text{span}/(\text{sweep points} - 1)) + 1 \text{ Hz})$
Number of sweep (trace) points	default value	691
	range	101 to 32001
Marker tuning frequency step size	marker step size = sweep points	$\text{span}/(\text{sweep points} - 1)$
	marker step size = standard	$\text{span}/(\text{default sweep size} - 1)$
Frequency counter resolution		0.001 Hz
Count accuracy		$\pm(\text{frequency} \times \text{reference uncertainty} + \frac{1}{2} (\text{last digit}))$
Display range for frequency axis		0 Hz, 10 Hz to max. frequency
Resolution		0.1 Hz
Max. span deviation		0.1 %

Spectral purity		
SSB phase noise	frequency = 500 MHz, carrier offset	
	100 Hz	< -84 dBc (1 Hz)
	1 kHz	< -101 dBc (1 Hz)
	10 kHz	< -106 dBc (1 Hz)
	100 kHz	< -115 dBc (1 Hz)
	1 MHz	< -134 dBc (1 Hz)
	10 MHz	typ. -150 dBc (1 Hz)
Residual FM	frequency = 500 MHz, RBW = 1 kHz, sweep time = 100 ms	< 3 Hz, nominal



Typical phase noise at different center frequencies

Sweep time

Range	span = 0 Hz	1 μ s to 16000 s
	span \geq 10 Hz, swept	1 ms to 16000 s ¹
	span \geq 10 Hz, FFT	7 μ s to 16000 s ²
Sweep time accuracy	span = 0 Hz	0.1 %, nominal
	span \geq 10 Hz, swept	3 %, nominal

Resolution bandwidths

Sweep filters and FFT filters		
Resolution bandwidths (-3 dB)	span \geq 10 Hz, sweep filters	1 Hz to 10 MHz in 1/2/3/5 sequence
	span \geq 10 Hz, FFT filters	1 Hz to 300 kHz in 1/2/3/5 sequence
	span = 0 Hz	20 MHz, 28 MHz additionally
Bandwidth uncertainty		< 3 %, nominal
Shape factor 60 dB:3 dB		< 5, nominal
Video bandwidths		1 Hz to 10 MHz in 1/2/3/5 sequence, 20 MHz, 28 MHz
Signal analysis bandwidth	f \leq 7 GHz	28 MHz, nominal

¹ Net sweep time without additional hardware settling time.

² Time for data acquisition for FFT calculation.

Level

Display range	displayed noise floor up to +30 dBm
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Max. input level		
DC voltage	AC-coupled	50 V
	DC-coupled	0 V
CW RF power	RF attenuation 0 dB	
	RF preamplifier = OFF	20 dBm (= 0.1 W)
	with R&S®FSV-B22 option, RF preamplifier = ON	13 dBm (= 0.02 W)
	RF attenuation ≥ 10 dB	
	RF preamplifier = OFF	30 dBm (= 1 W)
	with R&S®FSV-B22 option, RF preamplifier = ON	23 dBm (= 0.2 W)
Pulse spectral density	RF attenuation 0 dB, RF preamplifier = OFF	97 dB μ V/MHz
Max. pulse voltage	RF attenuation ≥ 10 dB	150 V
Max. pulse energy	RF attenuation ≥ 10 dB, 10 μ s	1 mWs

Intermodulation		
1 dB compression of input mixer	RF attenuation 0 dB, RF preamplifier = OFF	
	$f \leq 7$ GHz	+3 dBm, nominal
	$f > 7$ GHz	+5 dBm, nominal
	with R&S®FSV-B22 option, RF preamplifier = ON, RF attenuation 0 dB	
	$f \leq 7$ GHz	-12 dBm, nominal
Third-order intercept point (TOI)	RF attenuation 0 dB, level 2×-15 dBm, $\Delta f > 5 \times$ RBW or 10 kHz, whichever is larger, RF preamplifier = OFF	
	$10 \text{ MHz} \leq f_{in} < 100 \text{ MHz}$	> 12 dBm, typ. 15 dBm
	$100 \text{ MHz} \leq f_{in} < 3.6 \text{ GHz}$	> 13 dBm, typ. 16 dBm
	$3.6 \text{ GHz} \leq f_{in} \leq 40 \text{ GHz}$	> 15 dBm, typ. 18 dBm
	with R&S®FSV-B22 option, RF preamplifier = ON, RF attenuation 0 dB, level 2×-45 dBm, $\Delta f > 5 \times$ RBW or 10 kHz, whichever is larger	
	$10 \text{ MHz} \leq f_{in} < 100 \text{ MHz}$	-3 dBm, nominal
	$100 \text{ MHz} \leq f_{in} < 3.6 \text{ GHz}$	-2 dBm, nominal
	$3.6 \text{ GHz} \leq f_{in} \leq 7 \text{ GHz}$	0 dBm, nominal

Displayed average noise level without preamplifier option		
0 dB RF attenuation, termination 50 Ω , log. scaling, normalized to 1 Hz RBW, RBW = 1 kHz, VBW = 3 kHz, zero span, sweep time 50 ms, sample detector, trace average, sweep count = 20, mean marker		
$9 \text{ kHz} \leq f < 100 \text{ kHz}$	< -130 dBm	
$100 \text{ kHz} \leq f < 1 \text{ MHz}$	< -145 dBm	
$1 \text{ MHz} \leq f < 1 \text{ GHz}$	< -151 dBm	
$1 \text{ GHz} \leq f < 3.6 \text{ GHz}$	< -149 dBm	
$3.6 \text{ GHz} \leq f < 6 \text{ GHz}$	< -146 dBm	
$6 \text{ GHz} \leq f < 7.4 \text{ GHz}$	< -144 dBm	
$7.4 \text{ GHz} \leq f < 15 \text{ GHz}$	< -145 dBm	
$15 \text{ GHz} \leq f < 34 \text{ GHz}$	< -142 dBm	
$34 \text{ GHz} \leq f \leq 40 \text{ GHz}$	< -136 dBm	
with R&S®FSV-B29 option		
0 dB RF attenuation, termination 50 Ω , log. scaling, normalized to 1 Hz RBW, RBW = 5 Hz, VBW = 5 Hz, zero span, sweep time 500 ms, sample detector, trace average, sweep count = 20, mean marker		
10 Hz	< -90 dBm, nominal	
20 Hz	< -100 dBm	
100 Hz	< -110 dBm	
1 kHz	< -120 dBm	

Displayed average noise level with R&S®FSV-B22 preamplifier option		
	0 dB RF attenuation, termination 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 1 kHz, VBW = 3 kHz, zero span, sweep time 50 ms, sample detector, trace average, sweep count = 20, mean marker, RF preamplifier = OFF	
	9 kHz ≤ f < 100 kHz	< -130 dBm
	100 kHz ≤ f < 1 MHz	< -145 dBm
	1 MHz ≤ f < 1 GHz	< -151 dBm
	1 GHz ≤ f < 3.6 GHz	< -149 dBm
	3.6 GHz ≤ f < 6 GHz	< -146 dBm
	6 GHz ≤ f < 7.4 GHz	< -144 dBm
	7.4 GHz ≤ f < 15 GHz	< -145 dBm
	15 GHz ≤ f < 34 GHz	< -142 dBm
	34 GHz ≤ f ≤ 40 GHz	< -136 dBm
	0 dB RF attenuation, termination 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 1 kHz, VBW = 3 kHz, zero span, sweep time 50 ms, sample detector, trace average, sweep count = 20, mean marker, RF preamplifier = ON	
	100 kHz ≤ f < 1 MHz	< -145 dBm
	1 MHz ≤ f < 20 MHz	< -155 dBm
	20 MHz ≤ f < 1 GHz	< -159 dBm
	1 GHz ≤ f < 3.6 GHz	< -157 dBm
	3.6 GHz ≤ f < 6 GHz	< -154 dBm
	6 GHz ≤ f ≤ 7 GHz	< -152 dBm
	with R&S®FSV-B29 option, RF preamplifier = OFF	
	0 dB RF attenuation, termination 50 Ω, log. scaling, normalized to 1 Hz RBW, RBW = 5 Hz, VBW = 5 Hz, zero span, sweep time 500 ms, sample detector, trace average, sweep count = 20, mean marker	
	10 Hz	< -90 dBm, nominal
	20 Hz	< -100 dBm
	100 Hz	< -110 dBm
	1 kHz	< -120 dBm

Spurious responses		
Image response	20 MHz ≤ f ≤ 7 GHz	
	$f_{in} - 2 \times 8409.9 \text{ MHz}$ (1st IF)	typ. < -80 dBc
	$f_{in} - 2 \times 729.9 \text{ MHz}$ (2nd IF)	< -80 dBc
	$f_{in} - 2 \times 89.9 \text{ MHz}$ (3rd IF)	< -80 dBc
	7 GHz < f < 30 GHz	
	$f_{in} \pm 2 \times 729.9 \text{ MHz}$ (1st IF)	< -80 dBc
	$f_{in} - 2 \times 89.9 \text{ MHz}$ (2nd IF)	< -80 dBc
	30 GHz < f ≤ 40 GHz	
	$f_{in} \pm 2 \times 729.9 \text{ MHz}$ (1st IF)	< -70 dBc
	$f_{in} - 2 \times 89.9 \text{ MHz}$ (2nd IF)	< -80 dBc
Intermediate frequency response	20 MHz ≤ f ≤ 7 GHz	
	1st IF (8409.9 MHz)	typ. < -70 dBc
	2nd IF (729.9 MHz)	< -80 dBc
	3rd IF (89.9 MHz)	< -80 dBc
	7 GHz < f ≤ 40 GHz	
	1st IF (729.9 MHz)	< -80 dBc
2nd IF (89.9 MHz)		< -80 dBc
Residual spurious response	0 dB RF attenuation	
	f ≤ 1 MHz	< -90 dBm
	f > 1 MHz	< -103 dBm
Local oscillator related spurious	f < 15 GHz	
	1 kHz ≤ offset from carrier ≤ 10 MHz	< -70 dBc
	offset from carrier > 10 MHz	< -80 dBc
	15 GHz ≤ f < 30 GHz	
	1 kHz ≤ offset from carrier ≤ 10 MHz	< -64 dBc
	offset from carrier > 10 MHz	< -74 dBc
	30 GHz ≤ f ≤ 40 GHz	
	1 kHz ≤ offset from carrier ≤ 10 MHz	< -58 dBc
offset from carrier > 10 MHz	< -68 dBc	
Other interfering signals		
Subharmonic of 1st LO	20 MHz ≤ f < 7 GHz, spurious at 8410 MHz - 2 × f _{in}	< -70 dBc
Harmonic of 1st LO	mixer level < -25 dBm, spurious at f _{in} - 4205 MHz	< -70 dBc

Level display		
Logarithmic level axis		1 dB to 200 dB, in steps of 1/2/5
Linear level axis		10 % of reference level per level division, 10 divisions or logarithmic scaling
Number of traces		6
Trace detector		Max Peak, Min Peak, Auto Peak (Normal), Sample, RMS, Average
	EMI detectors	Quasi Peak
Trace functions		Clear/Write, Max Hold, Min Hold, Average, View
Setting range of reference level		-130 dBm to (-10 dBm + RF attenuation - RF preamplifier gain), in steps of 0.01 dB
Units of level axis	logarithmic level display	dBm, dB μ V, dBmV, dB μ A, dBpW
	linear level display	μ V, mV, μ A, mA, pW, nW

Level measurement uncertainty		
Absolute level uncertainty at 64 MHz	RBW = 10 kHz, level -10 dBm, reference level -10 dBm, RF attenuation 10 dB	
	+20 °C to +30 °C	< 0.2 dB (σ = 0.07 dB)
	0 °C to +50 °C	< 0.35 dB (σ = 0.12 dB)
Frequency response referenced to 64 MHz	DC coupling, RF attenuation 10 dB, 20 dB, 30 dB, 40 dB, RF preamplifier = OFF, +20 °C to +30 °C	
	9 kHz \leq f < 10 MHz	< 0.5 dB (σ = 0.17 dB)
	10 MHz \leq f < 3.6 GHz	< 0.3 dB (σ = 0.1 dB)
	3.6 GHz \leq f < 7 GHz	< 0.5 dB (σ = 0.17 dB)
	7 GHz \leq f < 13.6 GHz, span < 1 GHz	< 1.5 dB (σ = 0.5 dB)
	13.6 GHz \leq f < 30 GHz, span < 1 GHz	< 2 dB (σ = 0.66 dB)
	30 GHz \leq f \leq 40 GHz, span < 1 GHz	< 2.5 dB (σ = 0.83 dB)
	any setting of RF attenuation, RF preamplifier = OFF, 0 °C to +50 °C	
	9 kHz \leq f < 3.6 GHz	< 1 dB (σ = 0.33 dB)
	3.6 GHz \leq f < 7 GHz	< 1.5 dB (σ = 0.5 dB)
	7 GHz \leq f < 13.6 GHz	< 2.5 dB (σ = 0.83 dB)
	13.6 GHz \leq f < 30 GHz	< 3 dB (σ = 1 dB)
	30 GHz \leq f \leq 40 GHz	< 3.5 dB (σ = 1.33 dB)
	any setting of RF attenuation, RF preamplifier = ON, 0 °C to +50 °C	
	9 kHz \leq f < 3.6 GHz	< 1 dB (σ = 0.33 dB)
	3.6 GHz \leq f < 7 GHz	< 1.5 dB (σ = 0.5 dB)
with R&S®FSV-B29 option, DC coupling, RF preamplifier = OFF, 0 °C to +50 °C		
10 Hz \leq f < 20 Hz	< 1.5 dB, nominal	
20 Hz \leq f < 9 kHz	< 1 dB (σ = 0.33 dB)	
Attenuator switching uncertainty	f = 64 MHz, 0 dB to 70 dB, referenced to 10 dB attenuation	< 0.2 dB (σ = 0.07 dB)
Uncertainty of reference level setting		0 dB ³
Bandwidth switching uncertainty	referenced to RBW = 10 kHz	
	sweep filters	< 0.1 dB (σ = 0.04 dB)
	FFT filters	< 0.2 dB (σ = 0.07 dB)

Display nonlinearity		
Logarithmic level display	S/N > 16 dB, 0 dB to -70 dB	< 0.1 dB (σ = 0.04 dB)
Linear level display	S/N > 16 dB, 0 dB to -70 dB	5 % of reference level

Total measurement uncertainty		
	signal level 0 dB to -70 dB below reference level, S/N > 20 dB, sweep time = AUTO, sweep type = sweep, RF attenuation 10 dB, 20 dB, 30 dB, 40 dB, RF preamplifier = OFF, span/RBW < 100, 95 % confidence level, +20 °C to +30 °C	
	9 kHz \leq f < 10 MHz	0.39 dB
	10 MHz \leq f < 3.6 GHz	0.28 dB
	3.6 GHz \leq f < 7 GHz	0.39 dB
	7 GHz \leq f < 13.6 GHz	1 dB
	13.6 GHz \leq f < 30 GHz	1.32 dB
	30 GHz \leq f \leq 40 GHz	1.65 dB

³ The setting of the reference level affects only the graphical representation of the measurement result on the display, not the measurement itself. Therefore, the reference level setting causes no additional uncertainty in measurement results.

Trigger functions

Trigger		
Trigger source		free run, video, external, IF power
Trigger offset	span \geq 10 Hz	31.25 ns to 30 s, min. resolution 31.25 ns (or 1 % of offset)
	span = 0 Hz	(–sweep time) to 30 s, min. resolution 31.25 ns (or 1 % of offset)
Max. deviation of trigger offset		$\pm(7.8125 \text{ ns} + (0.1 \% \times \text{trigger offset}))$
IF power trigger		
Sensitivity	min. signal power	–60 dBm + RF attenuation – RF pre-amplifier gain
	max. signal power	–10 dBm + RF attenuation – RF pre-amplifier gain
IF power trigger bandwidth	RBW > 500 kHz, swept	40 MHz, nominal
	RBW > 20 kHz, FFT	
	RBW \leq 500 kHz, swept	6 MHz, nominal
	RBW \leq 20 kHz, FFT	
Gated sweep		
Gate source		video, external, IF power
Gate delay		31.25 ns to 30 s, min. resolution 31.25 ns (or 1 % of delay)
Gate length		31.25 ns to 30 s, min. resolution 31.25 ns (or 1 % of gate length)
Max. deviation of gate length		$\pm(7.8125 \text{ ns} + (0.1 \% \times \text{gate length}))$

Inputs and outputs

RF input		
Impedance		50 Ω
Connector		test port adapter 2.92 mm (K)/N female
VSWR	RF attenuation ≥ 10 dB	
	10 MHz $\leq f < 3.6$ GHz	< 1.5, typ. 1.3
	3.6 GHz $\leq f < 20$ GHz	< 2, typ. 1.8
	20 GHz $\leq f < 27$ GHz	< 2.2, typ. 2
	27 GHz $\leq f < 30$ GHz	
	DC-coupled	< 2.2, typ. 2
	AC-coupled	typ. 2.5
	30 GHz $\leq f \leq 40$ GHz	
	DC-coupled	< 2.5, typ. 2.2
	AC-coupled	typ. 3
	RF attenuation < 10 dB, DC-coupled	
10 MHz $\leq f < 7$ GHz	typ. 2	
7 GHz $\leq f < 30$ GHz	typ. 2.5	
30 GHz $\leq f \leq 40$ GHz	typ. 3	
Setting range of attenuator	standard	0 dB to 75 dB, in 5 dB steps
	with R&S [®] FSV-B25 option	0 dB to 75 dB, in 1 dB steps
Setting range of electronic attenuator	with R&S [®] FSV-B25 option, $f \leq 7$ GHz	0 dB to 25 dB, in 1 dB steps
	with R&S [®] FSV-B25 option, $f > 7$ GHz	0 dB to 9 dB, in 1 dB steps
RF preamplifier gain	with R&S [®] FSV-B22 option, $f \leq 7$ GHz	20 dB, nominal
Probe power supply		
Supply voltages		+15 V DC, -12.6 V DC and ground, max. 150 mA, nominal
Noise source drive		
Connector		BNC female
Output voltage		0 V/28 V, max. 100 mA, switchable, nominal
Power sensor		
Connector		6-pin LEMOSA female for supported R&S [®] NRP-Zxx power sensors
USB interface		
		2 ports, type A plug, version 2.0
Reference output		
Connector		BNC female
Impedance		50 Ω
Output frequency	internal reference	10 MHz
	external reference	same as reference input signal
Level		> 0 dBm, nominal
Reference input		
Connector		BNC female
Impedance		50 Ω
Input frequency range		1 MHz $\leq f_{in} \leq 20$ MHz, in 100 kHz steps
Required level		> 0 dBm into 50 Ω
External trigger/gate input		
Connector		BNC female
Trigger voltage		0.5 V to 3.5 V
Input impedance		10 k Ω

IEC/IEEE bus control		interface in line with IEC 625-2 (IEEE 488.2)
Command set		SCPI 1997.0
Connector		24-pin Amphenol female
Interface functions		SH1, AH1, T6, L4, SR1, RL1, PP1, DC1, DT1, C0
LAN interface		
Connector		10/100/1000BaseT RJ-45
External monitor		
Connector		VGA-compatible, 15-pin, mini D-Sub

General data

Display		21 cm LC TFT color display (8.4")
Resolution		800 × 600 pixel (SVGA resolution)
Pixel failure rate		$< 1 \times 10^{-5}$
Data storage		
Internal		solid state disk ≥ 8 Gbyte
External		supports USB-2.0-compatible memory devices
Temperature		
Operating temperature range		0 °C to +50 °C
Permissible temperature range		0 °C to +50 °C
Storage temperature range		-40 °C to +70 °C
Climatic loading		+40 °C at 90 % rel. humidity, in line with EN 60068-2-30
Mechanical resistance		
Vibration	sinusoidal	5 Hz to 150 Hz, max. 2 g at 55 Hz; 0.5 g from 55 Hz to 150 Hz; in line with EN 60068-2-6
	random	10 Hz to 300 Hz, acceleration 1.2 g (RMS), in line with EN 60068-2-64
Shock		40 g shock spectrum, in line with MIL-PRF-28800F, class 3
EMC		in line with EMC Directive 2004/108/EC including: IEC/EN 61326-1 ^{4, 5} IEC/EN 61326-2-1 CISPR 11/EN 55011 ⁵ IEC/EN 61000-3-2 IEC/EN 61000-3-3
Recommended calibration interval		1 year
Power supply		
AC supply		100 V to 240 V, 3 A to 1.25 A; 50 Hz to 400 Hz, class of protection I in line with VDE 411
Power consumption		typ. 115 W, max. 180 W with all options
Safety		in line with EN 61010-1, IEC 61010-1, UL 61010-1, CAN/CSA-C22.2 No. 61010-1-4
Test mark		VDE, GS, CSA, CSA-NRTL
Weight and dimensions		
Dimensions	W × H × D	412 mm × 197 mm × 417 mm 16.22 in × 7.76 in × 16.42 in
Net weight without options, nominal		11.1 kg 24.46 lb

⁴ Emission limits for class A equipment.

⁵ Immunity test requirement for industrial environment (EN 61326 table 2).

Options

R&S® FSV-B3 audio demodulator

Demodulation		
AF demodulation types		AM and FM
Audio output		loudspeaker and phone jack
Marker stop time in spectrum mode		100 ms to 60 s

AF output		
Connector		3.5 mm mini jack
Output impedance		10 Ω
Open-circuit voltage		up to 1.5 V, adjustable

R&S® FSV-B5 additional interfaces

User port		
Connector		9-pin D-Sub male
Output		TTL-compatible, 0 V/5 V, max. 15 mA
Input		TTL-compatible, max. 5 V

IF/video/demod out		
Connector		BNC female, 50 Ω
IF out		
Bandwidth		equal to RBW setting
IF frequency		32 MHz
Output level (gain versus RF input)	RF attenuation 0 dB, RF preamplifier OFF, span 0 Hz	0 dB, nominal
Video out		
Bandwidth		equal to VBW setting
Output scaling	log. display scale	logarithmic
	lin. display scale	linear
Output level	center frequency > 10 MHz, span 0 Hz, signal at reference level and center frequency	1 V, open circuit, nominal

Trigger out		
Connector		BNC female
Output		TTL-compatible, 0 V/5 V

USB interface		2 ports, type A plug, version 2.0
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R&S® FSV-B9 tracking generator

Frequency		
Frequency range		100 kHz to 7 GHz
Frequency offset		
Setting range		±1 GHz
Setting resolution		1 Hz
Spectral purity		
SSB phase noise	frequency = 1000 MHz, carrier offset = 100 kHz	typ. -90 dBc (1 Hz)
Level		
Setting range	normal mode	-60 dBm to 0 dBm, in 0.1 dB steps
	with AM, I/Q	-60 dBm to -10 dBm, in 0.1 dB steps
Max. deviation of output level	frequency = 64 MHz, +20 °C to +30 °C, output level = -10 dBm, frequency offset = 0 Hz, modulation OFF	< 1 dB
Frequency response	output level = -10 dBm, referenced to level at 64 MHz, 100 kHz ≤ f ≤ 7 GHz, frequency offset = 0 Hz, modulation OFF	< 3 dB
Dynamic range		
	RBW = 1 kHz, f > 10 MHz	110 dB
Harmonics, non-harmonic spurious		
	output level = -10 dBm	-30 dBc
Modulation		
Modulation format	external	I/Q, AM, FM
AM	f > 10 MHz	
Modulation depth		0 % to 100 %
Modulation frequency range		0 Hz to 1 MHz
FM	f > 10 MHz	
Frequency deviation		0 Hz to 10 MHz
Modulation frequency range		0 Hz to 10 kHz
RF output		
Connector		N female, 50 Ω
VSWR		1.3, nominal
TG I/AM IN		
Connector		BNC female, 50 Ω
Input voltage		1 V (pp)
TG Q/FM IN		
Connector		BNC female, 50 Ω
Input voltage		1 V (pp)

R&S® FSV-B10 external generator control

Interface		
IEC/IEEE bus control		24-pin Amphenol female
Aux control		9-pin D-Sub female
Supported signal generators		
		R&S®SMA100A, R&S®SMB100A, R&S®SMBV100A, R&S®SMC100A, R&S®SME, R&S®SMF100A, R&S®SMG, R&S®SMGL, R&S®SMGU, R&S®SMH, R&S®SMHU, R&S®SMIQ, R&S®SMJ100A, R&S®SML, R&S®SMP, R&S®SMR, R&S®SMT, R&S®SMU200A, R&S®SMV03, R&S®SMX, R&S®SMY

Ordering information

Designation	Type	Order No.
Signal and Spectrum Analyzer	R&S®FSV40-N	1307.9002.38
Accessories supplied		
Power cable, quick start guide and CD-ROM (with operating manual and service manual), test port adapter with 2.92 mm (K) female (1036.4790.00) and N female (1036.4777.00) connectors		

Options

Designation	Type	Order No.	Retrofittable	Remarks
Audio Demodulator	R&S®FSV-B3	1310.9516.02	yes	retrofit in service center
Additional Interfaces	R&S®FSV-B5	1310.9539.02	yes	IF out, video out, AUX port, trigger out, 2 × USB
Tracking Generator (100 kHz to 7 GHz)	R&S®FSV-B9	1310.9545.02	yes	retrofit in service center
External Generator Control	R&S®FSV-B10	1310.9551.02	yes	retrofit in service center
Solid State Drive (removable hard drive)	R&S®FSV-B18	1310.9697.03	yes	included in R&S®FSV40-N
RF Preampifier (9 kHz to 7 GHz)	R&S®FSV-B22	1310.9600.02	yes	user-retrofittable
Electronic Attenuator, 1 dB steps	R&S®FSV-B25	1310.9622.02	yes	user-retrofittable
Frequency Range Extension 10 Hz	R&S®FSV-B29	1310.9639.02	yes	user-retrofittable
Firmware/software				
Analog Modulation Analysis for AM, FM, φM	R&S®FSV-K7	1310.8103.02		
Power Sensor Measurement with R&S®NRP Power Sensors	R&S®FSV-K9	1310.8203.02		supports R&S®NRP-Zxx power sensors
Spectrogram Measurements	R&S®FSV-K14	1310.8255.02		
Noise Figure and Gain Measurements	R&S®FSV-K30	1310.8355.02		
Phase Noise Measurement Application	R&S®FSV-K40	1310.8403.02		
Vector Signal Analysis	R&S®FSV-K70	1310.8455.02		

Recommended extras

Designation	Type	Order No.
Headphones		0708.9010.00
IEC/IEEE Bus Cable, 1 m	R&S®PCK	0292.2013.10
IEC/IEEE Bus Cable, 2 m	R&S®PCK	0292.2013.20
19" Rack Adapter (not for R&S®FSV-B1)	R&S®ZZA-478	1096.3248.00
Soft Carrying Case (gray)	R&S®ZZT-473	1109.5048.00
Matching pads, 50/75 Ω		
L Section, matching at both ends	R&S®RAM	0358.5414.02
Series Resistor, 25 Ω, matching at one end (taken into account in instrument function RF INPUT 75 Ω)	R&S®RAZ	0358.5714.02
SWR bridges, 50 Ω		
SWR Bridge, 5 MHz to 3 GHz	R&S®ZRB2	0373.9017.5X
SWR Bridge, 40 kHz to 4 GHz	R&S®ZRC	1039.9492.5X
High-power attenuators		
100 W, 3/6/10/20/30 dB, 1 GHz	R&S®RBU100	1073.8495.XX (XX = 03/06/10/20/30)
50 W, 3/6/10/20/30 dB, 2 GHz	R&S®RBU50	1073.8695.XX (XX = 03/06/10/20/30)
50 W, 20 dB, 6 GHz	R&S®RDL50	1035.1700.52
Connectors and cables		
Probe Power Connector, 3-pin		1065.9480.00
LVDS Cable for connecting digital baseband interfaces	R&S®SMU-Z6	1415.0201.02
DC blocks		
DC Block, 10 kHz to 18 GHz (type N)	R&S®FSE-Z4	1084.7443.02
Adapters		
Test Port Adapter N male		1036.4783.00
Test Port Adapter K male		1036.4802.00
Test Port Adapter 2.4 mm female	R&S®FSE-Z5	1088.1627.02

Power sensors supported by the R&S®FSV-K9 option ⁶

Designation	Type	Order No.
Universal Power Sensor 10 MHz to 8 GHz, 200 mW	R&S®NRP-Z11	1138.3004.02
Universal Power Sensor 10 MHz to 18 GHz, 200 mW	R&S®NRP-Z21	1137.6000.02
Universal Power Sensor 10 MHz to 18 GHz, 2 W	R&S®NRP-Z22	1137.7506.02
Universal Power Sensor 10 MHz to 18 GHz, 15 W	R&S®NRP-Z23	1137.8002.02
Universal Power Sensor 10 MHz to 18 GHz, 30 W	R&S®NRP-Z24	1137.8502.02
Power Sensor Module with Power Splitter DC to 18 GHz, 500 mW	R&S®NRP-Z27	1169.4102.02
Power Sensor Module with Power Splitter DC to 26.5 GHz, 500 mW	R&S®NRP-Z37	1169.3206.02
Thermal Power Sensor 0 Hz to 18 GHz, 100 mW	R&S®NRP-Z51	1138.0005.02
Thermal Power Sensor 0 Hz to 40 GHz, 100 mW	R&S®NRP-Z55	1138.2008.02
Thermal Power Sensor 0 Hz to 50 GHz, 100 mW	R&S®NRP-Z56	1171.8201.02
Thermal Power Sensor 0 Hz to 67 GHz, 100 mW	R&S®NRP-Z57	1171.8401.02
Wideband Power Sensor 50 MHz to 18 GHz, 100 mW	R&S®NRP-Z81	1137.9009.02
Average Power Sensor 9 kHz to 6 GHz, 200 mW	R&S®NRP-Z91	1168.8004.02
Average Power Sensor 9 kHz to 6 GHz, 2 W	R&S®NRP-Z92	1171.7005.02

For product brochure, see PD 5214.0499.12 and www.rohde-schwarz.com

⁶ For average power measurement only.

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Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established more than 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

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