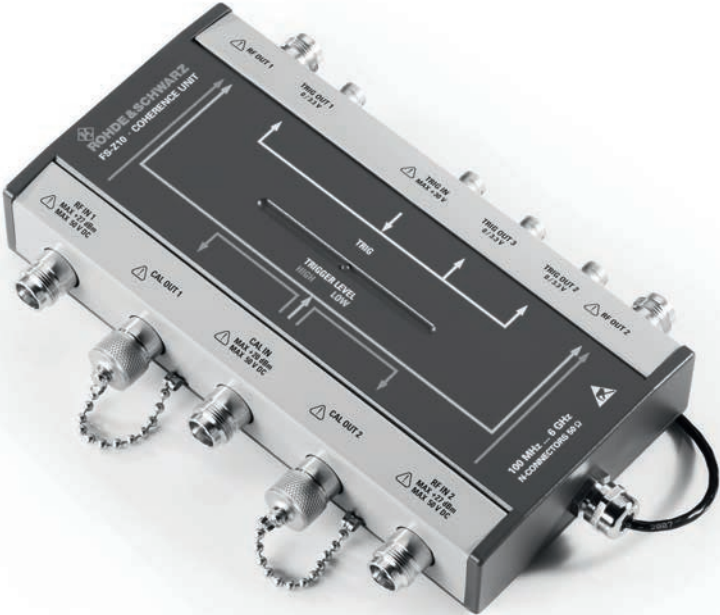


R&S®FS-Z10 Coherence Unit Specifications



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The specifications of the R&S®FS-Z10 are based on the data sheet specifications of the R&S®FSQ, R&S®FSG, R&S®FSV and R&S®FSW signal and spectrum analyzers. They have not been checked separately and are not verified during instrument calibration. Measurement uncertainties are given as 95 % confidence intervals. The specified level measurement errors do not take into account systematic errors due to reduced signal to noise ratio (S/N). 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.

"Typical values" are designated with the abbreviation "typ." These values are verified during the final test but are not assured by Rohde & Schwarz.

"Nominal values" are design parameters that are not assured by Rohde & Schwarz. These values are verified during product development but are not specifically tested during production. Data without tolerance limits is not binding.

Specifications

RF data

Frequency range		100 MHz to 6 GHz
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VSWR		
RF IN 1, RF IN 2	100 MHz to 5.8 GHz, Trigger Level High	< 1.8
	5.8 GHz to 6 GHz, Trigger Level High	< 2.2
RF OUT 1, RF OUT 2	100 MHz to 5.8 GHz	< 2.0
	5.8 GHz to 6 GHz	< 2.4
CAL IN		< 1.8
CAL OUT 1, CAL OUT 2	Trigger Level High	< 1.8

Insertion loss		
RF IN 1→RF OUT 1 path, RF IN 2→RF OUT 2 path	100 MHz to 5.8 GHz, Trigger Level High	< 3 dB
	5.8 GHz to 6 GHz, Trigger Level High	< 4 dB
CAL IN→CAL OUT 1 path, CAL IN→CAL OUT 2 path	Trigger Level High	< 11 dB
	Trigger Level Low	< 15 dB

Cross talk		
CAL IN→RF OUT 1, CAL IN→RF OUT 2	Trigger Level High	< -70 dB
RF IN 1→RF OUT 2, RF IN 2→RF OUT 1	100 MHz to 250 MHz, Trigger Level High	< -70 dB
	250 MHz to 6 GHz, Trigger Level High	< -80 dB

Magnitude difference (nominal)		
between CAL IN→RF OUT 1 path and CAL IN→RF OUT 2 path	no calibration data applied	< 0.5 dB
	high accuracy mode	< 0.3 dB
between CAL IN→CAL OUT 1 path and CAL IN→CAL OUT 2 path	no calibration data applied	< 0.5 dB
	high accuracy mode	< 0.3 dB

Phase difference (nominal)		
between CAL IN→RF OUT 1 path and CAL IN→RF OUT 2 path	no calibration data applied	< 11°
	high accuracy mode	< 3°
between CAL IN→CAL OUT 1 path and CAL IN→CAL OUT 2 path	no calibration data applied	< 7°
	high accuracy mode	< 3°

Inputs and outputs

RF and CAL ports		
Connector		N female
Impedance		50 Ω
Coupling		AC
Input level	RF IN 1, RF IN 2	max. 27 dBm, max. 50 V DC
	CAL IN	max. 20 dBm, max. 50 V DC
Output level	RF OUT 1, RF OUT 2 Trigger Level High	$< L_{RF\ IN\ x} - 1\ dB$
	RF OUT 1, RF OUT 2 Trigger Level Low	$< L_{CAL\ IN} - 8\ dB$
	CAL OUT 1, CAL OUT 2 Trigger Level High	$< L_{CAL\ IN} - 6\ dB$

Trigger ports		
Connector		BNC female
Impedance	TRIG IN	$< 1\ k\Omega$, nominal
Coupling		DC
Voltage levels	TRIG IN	LOW: $< 0.8\ V$, HIGH: $> 2.5\ V$ 0 V to 30 V
	TRIG OUT 1, TRIG OUT 2, TRIG OUT 3	0 V and 3.3 V, 24 mA, nominal

Power supply		
Connector		external 3-pin female connector (for probe power connector of Rohde & Schwarz spectrum analyzers)
Supply voltages		+15 V DC, -12.6 V DC, GND, max. 80 mA, nominal

General data

Dimensions	W x H x D	245 mm x 42 mm x 152 mm (9.65 in x 1.65 in x 5.98 in)
Weight		1.5 kg (3.31 lb)
Temperature	operating temperature range	+5 °C to +40 °C
	permissible temperature range	0 °C to +50 °C
	storage temperature range	-40 °C to +70 °C

Coherence unit PC software specifications

The specifications of the R&S®FS-Z10 are based on the data sheet specifications of the R&S®FSQ, R&S®FSG, R&S®FSV and R&S®FSW signal and spectrum analyzers. They have not been checked separately and are not verified during instrument calibration. Measurement uncertainties are given as 95 % confidence intervals. The specified level measurement errors do not take into account systematic errors due to reduced signal to noise ratio (S/N). 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.

"Typical values" are designated with the abbreviation "typ." These values are verified during the final test but are not assured by Rohde & Schwarz.

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Minimum system requirements

Operating system		Windows XP Professional with Service Pack 2, Windows7
Free hard disk space		100 Mbyte
Free RAM		1 Gbyte
Graphics resolution		800 × 600 pixel
Measuring instrument connection		IEC/IEEE bus or LAN connection, VISA driver installed

Signal acquisition

Instrument connection		LAN, IEC/IEEE bus
Input path		RF
Record length (The usable record length depends on the PC memory available for the application.)		up to 1 MSample

Instruments supported by the remote interface

Spectrum analyzers	master analyzer	R&S®FSQ, R&S®FSG, R&S®FSV, R&S®FSW
	slave analyzer	R&S®FSQ, R&S®FSG, R&S®FSV, R&S®FSL, R&S®FSW
Signal generators		R&S®SMU, R&S®SMIQ, R&S®SMATE, R&S®SMJ, R&S®SMBV

Result display

List view	calibration	phase difference
		timing difference
		gain difference
		difference vector magnitude
	measurement	phase difference
		timing difference
Graph view		gain difference
		difference vector magnitude
		capture buffer of analyzer A
		compensated capture buffer of analyzer B

Measurement parameters

Compensation	compensate phase	ON/OFF
	compensate timing	ON/OFF
	compensate gain	ON/OFF

Overall result accuracy (nominal)

The following values apply to measurements performed with the coherence unit using the coherence unit PC software and contain the hardware variance in combination with the software algorithm variance.

The environmental conditions must be time-invariant during measurement. The values specified below are valid for a maximum capture time of 60 seconds and a maximum external attenuation of 20 dB. The minimal attenuation (external plus analyzer internal) between the R&S®FS-Z10 and the analyzers must not be less than 5 dB.

Gain difference measurement uncertainty	no calibration data applied	±0.5 dB
	high accuracy mode	±0.3 dB
Phase difference measurement uncertainty	no calibration data applied	±7°
	high accuracy mode	±3°

Ordering information

Designation	Type	Order No.
Coherence Unit, for phase correlated measurements on multi antenna arrays for R&S [®] FSQ and R&S [®] FSG (includes R&S [®] FS-Z10 control software)	R&S [®] FS-Z10	1171.6509.02

Service options

Service options		
Extended Warranty, one year	R&S [®] WE1FS-Z10	Please contact your local Rohde & Schwarz sales office.
Extended Warranty, two years	R&S [®] WE2FS-Z10	
Extended Warranty, three years	R&S [®] WE3FS-Z10	
Extended Warranty, four years	R&S [®] WE4FS-Z10	
Extended Warranty with Calibration Coverage, one year	R&S [®] CW1FS-Z10	
Extended Warranty with Calibration Coverage, two years	R&S [®] CW2FS-Z10	
Extended Warranty with Calibration Coverage, three years	R&S [®] CW3FS-Z10	
Extended Warranty with Calibration Coverage, four years	R&S [®] CW4FS-Z10	

Extended warranty with a term of one to four years (WE1 to WE4)

Repairs carried out during the contract term are free of charge ¹. Necessary calibration and adjustments carried out during repairs are also covered. Simply contact the forwarding agent we name; your product will be picked up free of charge and returned to you in top condition a couple of days later.

Extended warranty with calibration (CW1 to CW4)

Enhance your extended warranty by adding calibration coverage at a package price. This package ensures that your Rohde & Schwarz product is regularly calibrated, inspected and maintained during the term of the contract. It includes all repairs ¹ and calibration at the recommended intervals as well as any calibration carried out during repairs or option upgrades.

¹ Excluding defects caused by incorrect operation or handling and force majeure. Wear-and-tear parts are not included.

Service you can rely on

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

About Rohde & Schwarz

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.

Environmental commitment

- ▮ Energy-efficient products
- ▮ Continuous improvement in environmental sustainability
- ▮ ISO 14001-certified environmental management system

Certified Quality System
ISO 9001

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PD 5214.2285.22 | Version 04.00 | May 2012 | R&S®FS-Z10

Subject to change

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