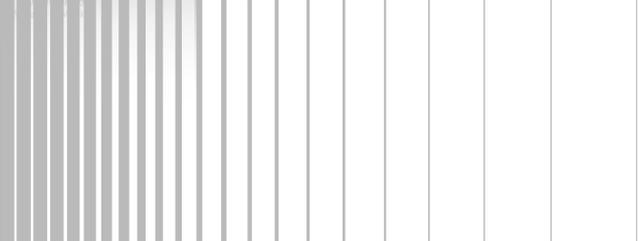


R&S® ZN-Z151/-Z152/-Z153 Calibration Unit Specifications



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Definitions

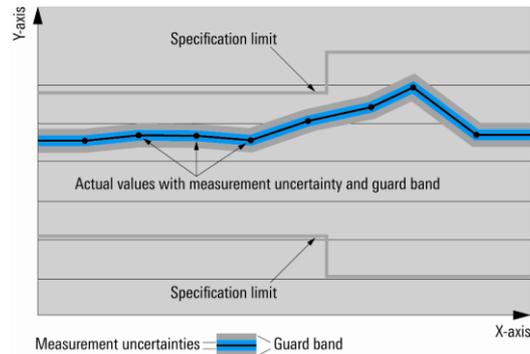
General

Product data applies under the following conditions:

- Three hours storage at ambient temperature followed by 30 minutes warm-up operation
- Specified environmental conditions met
- Recommended calibration interval adhered to
- All internal automatic adjustments performed, if applicable

Specifications with limits

Represent warranted product performance by means of a range of values for the specified parameter. These specifications are marked with limiting symbols such as $<$, \leq , $>$, \geq , \pm , or descriptions such as maximum, limit of, minimum. Compliance is ensured by testing or is derived from the design. Test limits are narrowed by guard bands to take into account measurement uncertainties, drift and aging, if applicable.



Specifications without limits

Represent warranted product performance for the specified parameter. These specifications are not specially marked and represent values with no or negligible deviations from the given value (e.g. dimensions or resolution of a setting parameter). Compliance is ensured by design.

Typical data (typ.)

Characterizes product performance by means of representative information for the given parameter. When marked with <, > or as a range, it represents the performance met by approximately 80 % of the instruments at production time. Otherwise, it represents the mean value.

Nominal values (nom.)

Characterize product performance by means of a representative value for the given parameter (e.g. nominal impedance). In contrast to typical data, a statistical evaluation does not take place and the parameter is not tested during production.

Measured values (meas.)

Characterize expected product performance by means of measurement results gained from individual samples.

Uncertainties

Represent limits of measurement uncertainty for a given measurand. Uncertainty is defined with a coverage factor of 2 and has been calculated in line with the rules of the Guide to the Expression of Uncertainty in Measurement (GUM), taking into account environmental conditions, aging, wear and tear.

Device settings and GUI parameters are indicated as follows: "parameter: value".

Typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

Measurement range

Impedance		50 Ω
Frequency range		100 kHz to 8.5 GHz
Nominal input level range		-45 dBm to +10 dBm
Damage level		+23 dBm
Damage DC voltage		12 V

Calibration ports

	R&S®ZN-Z151 model 32	R&S®ZN-Z151 model 72	R&S®ZN-Z152	R&S®ZN-Z153
Number of ports	2	2	6	4
Connector type	SMA (f)	type N (f)	SMA (f)	SMA (f)

Effective system data

This data is valid at an ambient temperature between +18 °C and +28 °C, at a measurement bandwidth of 10 Hz and a nominal power of -10 dBm at the calibration ports.

Directivity	100 kHz to 10 MHz	> 38 dB
	10 MHz to 4 GHz	> 40 dB
	4 GHz to 8.5 GHz	> 38 dB
Source match	100 kHz to 10 MHz	> 32 dB
	10 MHz to 4 GHz	> 36 dB
	4 GHz to 8.5 GHz	> 32 dB
Reflection tracking	100 kHz to 10 MHz	< 0.2 dB
	10 MHz to 4 GHz	< 0.1 dB
	4 GHz to 8.5 GHz	< 0.2 dB
Load match	100 kHz to 10 MHz	> 32 dB
	10 MHz to 4 GHz	> 36 dB
	4 GHz to 8.5 GHz	> 32 dB
Transmission tracking	100 kHz to 10 MHz	< 0.2 dB
	10 MHz to 4 GHz	< 0.1 dB
	4 GHz to 8.5 GHz	< 0.2 dB

General data

Temperature loading	operating temperature range	+5 °C to +40 °C
	permissible temperature range	0 °C to +50 °C
	storage temperature range	-40 °C to +70 °C, in line with IEC 60068-2-1 and IEC 60068-2-2
Damp heat		+40 °C at 85 % rel. humidity
Mechanical resistance	vibration test, sinusoidal	5 Hz to 150 Hz, in line with IEC 60068-2-6
	vibration test, random	10 Hz to 300 Hz, in line with IEC 60068-2-64
	shock test	40 g shock spectrum, in line with IEC 60068-2-27, MIL-STD-810
Calibration interval		1 year
EMC	RF emission	in line with CISPR 11/EN 55011 group 1 class A (for a shielded test setup); the instrument complies with the emission requirements stipulated by EN 55011 and EN 61326-1 class A, making the instrument suitable for use in industrial environments
EMC	immunity	in line with EMC Directive 2004/108/EC, including IEC/EN 61326-1 (immunity test requirement for industrial environment, EN 61326 table 2)
Safety		in line with IEC 31010-1, EN 61010-1 and UL 61010B-1, CSA C22.2 No. 61010.1
Power supply		5 V, 450 mA via universal serial bus (USB)
Power consumption		2.3 W

Dimensions and Weight

R&S®ZN-Z151 model 32

Dimensions	(W x H x D)	124 mm x 37 mm x 112 mm (4.8 in x 1.5 in x 4.4 in)
Weight		740 g (1.63 lb)
Shipping weight		1.9 kg (4.19 lb)



R&S®ZN-Z151 model 32

R&S®ZN-Z151 model 72

Dimensions	(W x H x D)	124 mm x 34 mm x 142 mm (4.8 in x 1.3 in x 5.5 in)
Weight		900 g (1.984 lb)
Shipping weight		2 kg (4.41 lb)



R&S®ZN-Z151 model 72

R&S® ZN-Z152

Dimensions	(W × H × D)	175 mm × 38 mm × 167 mm (6.9 in × 1.5 in × 6.6 in)
Weight		1.4 kg (3.09 lb)
Shipping weight		2.5 kg (5.5 lb)



R&S® ZN-Z152

R&S® ZN-Z153

Dimensions	(W x H x D)	124 mm x 38 mm x 125 mm (4.9 in x 1.5 in x 4.9 in)
Weight		790 g (1.74 lb)
Shipping weight		2 kg (4.4 lb)



R&S® ZN-Z153

Ordering information

Designation	Type	Order No.
Calibration Unit, 100 kHz to 8.5 GHz, 2 ports, SMA (f)	R&S®ZN-Z151	1317.9134.32
Calibration Unit, 100 kHz to 8.5 GHz, 2 ports, N (f)	R&S®ZN-Z151	1317.9134.72
Calibration Unit, 100 kHz to 8.5 GHz, 6 ports, SMA (f)	R&S®ZN-Z152	1319.6003.36
Calibration Unit, 100 kHz to 8.5 GHz, 4 ports, SMA (f)	R&S®ZN-Z153	1319.6178.34

Service 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, three years	R&S®WE3	
Extended Warranty, four years	R&S®WE4	
Extended Warranty with Calibration Coverage, one year	R&S®CW1	
Extended Warranty with Calibration Coverage, two years	R&S®CW2	
Extended Warranty with Calibration Coverage, three years	R&S®CW3	
Extended Warranty with Calibration Coverage, four years	R&S®CW4	

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 that adds value

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

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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R&S®ZN-Z151/-Z152/-Z153 Calibration Unit

Data without tolerance limits is not binding | Subject to change

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