R&S®ZNH FULL TWO-PORT HANDHELD VECTOR NETWORK ANALYZER



Specifications



Data Sheet Version 02.00

ROHDE&SCHWARZ

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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 $\langle, \leq, \rangle, \geq, \pm$, 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.



Non-traceable specifications with limits (n. trc.)

Represent product performance that is specified and tested as described under "Specifications with limits" above. However, product performance in this case cannot be warranted due to the lack of measuring equipment traceable to national metrology standards. In this case, measurements are referenced to standards used in the Rohde & Schwarz laboratories.

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 designated with the format "parameter: value".

Non-traceable specifications with limits, typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

In line with the 3GPP/3GPP2 standard, chip rates are specified in million chips per second (Mcps), whereas bit rates and symbol rates are specified in billion bits per second (Gbps), million bits per second (Mbps), thousand bits per second (kbps), million symbols per second (Msps) or thousand symbols per second (ksps), and sample rates are specified in million samples per second (Msample/s). Gbps, Mcps, Mbps, Msps, ksps and Msample/s are not SI units.

Specifications

Frequency

Impedance		50 Ω
Test port connector	R&S [®] ZNH4	type N, female
	R&S [®] ZNH8	type N, female
	R&S [®] ZNH18	type N, female
	R&S [®] ZNH26	3.5 mm, male
Number of test ports		2
Frequency range ¹	R&S [®] ZNH4	30 kHz to 4 GHz
	R&S [®] ZNH8	30 kHz to 8 GHz
	R&S [®] ZNH18	30 kHz to 18 GHz
	R&S [®] ZNH26	30 kHz to 26.5 GHz

Reference frequency, internal		
Total reference accuracy		±(time since last adjustment · aging rate) +
		temperature drift + calibration accuracy
Aging per year		±1 · 10 ⁻⁶
Temperature drift	0 °C to +50 °C	±1 · 10 ⁻⁶
Achievable initial calibration accuracy		±5 · 10 ⁻⁷

Frequency resolution		1 Hz
Number of measurement points	per trace	3 to 16001
Measurement bandwidth	1/3/10 steps	10 Hz to 100 kHz
Measurement speed	preset mode, TransNorm P1/P2, number	761 µs per point
	of points: 201, IF bandwidth 100 kHz	

¹ Specified and typical data given in this data sheet apply to the R&S[®]ZNH4/8/18/26; please note their respective frequency ranges.

Measurements

Individual measurements	 reflection (S₁₁, S₂₂) transmission (S₂₁, S₁₂) one-port cable loss distance-to-fault
Measurement wizard	

Guides the user through a sequence of individual measurements. Uses the R&S®InstrumentView PC software to configure the measurement sequence including hints displayed on the screen. R&S®InstrumentView is also used to combine the measurement results into user-configurable reports.

Test port output		
Maximum port output power	30 kHz ≤ f ≤ 300 kHz	–10 dBm (meas.)
	300 kHz ≤ f ≤ 24 GHz	0 dBm (meas.)
	24 GHz ≤ f ≤ 26.5 GHz	–5 dBm (meas.)
Leveled port output power ²	30 kHz ≤ f ≤ 300 kHz	-10 dBm to -25 dBm (nom.), in 1 dB steps
	300 kHz ≤ f ≤ 26.5 GHz	-5 dBm to -25 dBm (nom.), in 1 dB steps
Leveled port power accuracy	source power –10 dBm	
	10 MHz ≤ f < 13 GHz	1.0 dB (typ.)
	13 GHz ≤ f < 26.5 GHz	2.0 dB (typ.)
Leveled port power linearity	ed port power linearity source power –10 dBm	
	10 MHz ≤ f < 8 GHz	0.3 dB (meas.)
	8 GHz ≤ f < 26.5 GHz	0.7 dB (meas.)

Test port input		
Measurement receiver linearity	referenced to -10 dBm, +10 dB	
	10 MHz ≤ f < 26.5 GHz	0.05 dB (meas.)
Measurement receiver power	at –10 dBm, RF attenuation 0 dB	
Measurement accuracy	10 MHz ≤ f < 18 GHz	0.5 dB (meas.)
Measurement receiver noise level	10 MHz ≤ f < 8 GHz	–125 dBm/Hz (meas.)
	8 GHz ≤ f < 24 GHz	–118 dBm/Hz (meas.)
	24 GHz ≤ f < 26.5 GHz	–115 dBm/Hz (meas.)
Measurement receiver RF attenuation		0 dB to 15 dB, in 5 dB steps
Measurement receiver maximum linear	RF attenuation 0 dB	+10 dBm (nom.)
input level		

Dynamic range ³		
	30 kHz ≤ f < 10 MHz	> 73 dB, 87 dB (typ.)
	10 MHz ≤ f < 8 GHz	> 90 dB, 100 dB (typ.)
	8 GHz ≤ f < 18 GHz	> 80 dB, 88 dB (typ.)
	18 GHz ≤ f < 20 GHz	> 75 dB, 90 dB (typ.)
	20 GHz ≤ f < 26 GHz	> 70 dB, 81 dB (typ.)
	26 GHz ≤ f < 26.5 GHz	> 68 dB, 83 dB (typ.)

 $^{^{2}}$ $\,$ For S-parameter measurements leveled port power range is recommended.

³ The dynamic range is defined as the difference between maximum source power and the RMS value of the data trace of the transmission magnitude, which is produced by noise and crosstalk with the test ports short-circuited. The specification applies at 300 Hz IF bandwidth, without system error correction.

Trace stability		
Trace noise magnitude (RMS)	maximum port output power, IF bandwidth = 1 kHz, 0 dB reflection, port terminated with SHORT standard	
	30 kHz ≤ f < 8 GHz	< 0.003 dB, 0.0015 dB (typ.)
	8 GHz ≤ f < 15 GHz	< 0.004 dB, 0.0020 dB (typ.)
	15 GHz ≤ f < 26.5 GHz	< 0.006 dB, 0.0040 dB (typ.)
Trace noise phase (RMS)	maximum port output power, IF bandwidth = 1 kHz, 0 dB reflection,	
	port terminated with SHORT standard	
	30 kHz ≤ f < 8 GHz	< 0.05°, 0.015° (typ.)
	8 GHz ≤ f < 26.5 GHz	< 0.06°, 0.025° (typ.)
Temperature dependence	at 0 dB reflection	
	30 kHz ≤ f < 26.5 GHz	
	magnitude	0.04 dB/K (meas.)
	phase	0.2°/K (meas.)

Trace modesclear/write, average, interference suppressionResult formatdB magnitude, phase, unwrapped phase, Smith, linear magnitude, phase, unwrapped phase, Smith, linear magnitude, real, imaginary, SWR, polar, group delayMeasurement range-120 dB to +30 dBdb magnitude-120 dB to +30 dBdb magnitude0.01 dBLinear magnitude0.01 dBLinear magnitude0.01 dBSWR0.01Rangeselectable0 to 0.2, 0.5, 1, 2, 5, 10, 20, 50, 100, 200Resolution0.01SWR0.01SWR1 to 1.1, 1.5, 2, 3, 6, 11, 21 or 71Resolution0.01Phase90/180/360/1000° to 100000° in 1/2/5 stepsRangeselectable90/180/360/1000° to 100000° in 1/2/5 stepsRangeselectable1Rangeselectable0.01°Smith, polar0.01°Range1Resolution0.01	Reflection and transmission measurements		
Result formatsuppressionResult formatdB magnitude, phase, unwrapped phase, Smith, linear magnitude, real, imaginary, SWR, polar, group delayMeasurement range-120 dB to +30 dBdb magnitude-120 dB to +30 dBdb magnitude0.01 dBRangeselectable1/2/3/5/10/20/30/50/100/120/130/150 dBRangeselectable0.01 dBLinear magnitude0.01Rangeselectable0 to 0.2, 0.5, 1, 2, 5, 10, 20, 50, 100, 200Resolution0.01SWR	Trace modes		clear/write, average, interference
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Resolution 0.01° Smith, polar 1 Range 1 Resolution 0.01			steps
Smith, polar Range 1 Resolution 0.01	Resolution		0.01°
Range1Resolution0.01	Smith, polar		
Resolution 0.01	Range		1
	Resolution		0.01

One-port cable loss measurement		
Result format		magnitude
Range	selectable	1/2/5/10/20/50/100 dB
Resolution		0.01 dB

Distance-to-fault analysis		
Result formats		return loss, SWR, split screen DTF and
		SWR, split screen DTF and return loss
Return loss		
Range		1/2/3/5/10/20/30/50/100/120/130/150 dB
Resolution		0.01 dB
VSWR		
Range	selectable	1 to 1.1, 1.5, 2, 3, 6, 11, 21 or 71
Fault resolution		(1.5 m · 10 ⁸ · velocity factor / span)
Maximum cable length	depending on cable loss	1500 m (nom.)

Trigger		
Trigger source		free run, external
Input port		BNC
External trigger level threshold	low \rightarrow high transition	2.4 V
	high \rightarrow low transition	0.7 V
	maximum	3.0 V

Measurement accuracy of the R&S[®]ZNH4/8/18

This data is valid between +18 °C and +28 °C, provided the temperature has not varied by more than 1 °C since calibration. Validity of the data is conditional on the use of an R&S[®]ZN-Z170 calibration kit and TOSM/SOLT calibration. This calibration kit is used to achieve the effective system data specified below. Frequency points, measurement bandwidth and sweep time have to be identical for measurement and calibration (no interpolation allowed).



Transmission uncertainty, measurement bandwidth of 100 Hz, nominal source power of -10 dBm and a coverage factor of k = 1 (67 % confidence interval)



Reflection uncertainty, measurement bandwidth of 10 Hz, nominal source power of -10 dBm and a coverage factor of k = 1 (67 % confidence interval)

Effective system data of the R&S[®]ZNH4/8/18

This data is valid between +18 °C and +28 °C, provided the temperature has not varied by more than 1 °C since calibration. Validity of the data is conditional on the use of an R&S[®]ZN-Z170 calibration kit and TOSM/SOLT calibration. This calibration kit is used to achieve the effective system data specified below. Frequency points, measurement bandwidth and sweep time have to be identical for measurement and calibration (no interpolation allowed).

Effective system data in dB using R&S [®] ZN-Z170	to 6 GHz	to 9 GHz	to 18 GHz
Directivity	48	45	41
Source match	38	35	32
Reflection tracking	0.1	0.15	0.2
Load match	47	41	38
Transmission tracking	0.02	0.02	0.04

Measurement accuracy of the R&S[®]ZNH26

This data is valid between +18 °C and +28 °C, provided the temperature has not varied by more than 1 °C since calibration. Validity of the data is conditional on the use of an R&S[®]ZN-Z135 calibration kit and TOSM/SOLT calibration. This calibration kit is used to achieve the effective system data specified below. Frequency points, measurement bandwidth and sweep time have to be identical for measurement and calibration (no interpolation allowed).



Transmission uncertainty, measurement bandwidth of 100 Hz, nominal source power of -10 dBm and a coverage factor of k = 1 (67 % confidence interval)



Reflection uncertainty, measurement bandwidth of 10 Hz, nominal source power of -10 dBm and a coverage factor of k = 1 (67 % confidence interval)

Effective system data of the R&S[®]ZNH26

This data is valid between +18 °C and +28 °C, provided the temperature has not varied by more than 1 °C since calibration. Validity of the data is conditional on the use of an R&S[®]ZN-Z135 calibration kit and TOSM/SOLT calibration. This calibration kit is used to achieve the effective system data specified below. Frequency points, measurement bandwidth and sweep time have to be identical for measurement and calibration (no interpolation allowed).

Effective system data (dB) using R&S [®] ZN-Z135	to 4 GHz	to 8 GHz	to 26.5 GHz
Directivity	48	44	41
Source match	42	36	66
Reflection tracking	0.05	0.11	0.16
Load match	48	42	38
Transmission tracking	0.01	0.015	0.035

Maximum rated input levels

DC voltage		50 V
CW RF power	port 1	23 dBm (= 0.2 W)
	port 2	23 dBm (= 0.2 W)

General data

Languages Chinese Tatitons (Taglish, Fredh). Remote control Command set All interface LAN interface USB interface Audio speaker Command set LAN interface USB interface SecPi 1997.0 LAN interface USB interface Case and set Languages (SecPi 1997.0 USB interface Case and set Case and set Languages (SecPi 1997.0 USB interface Case and set Case and	Manual operation		
Remote control German, Italian, Hungarian, Jaganese, Russian, Sparish Remote control	Languages		Chinese, Chinese Traditional, English, French,
Remote control Korean, Paruguese, Russien, Spanish Command set SCP11997.0 LAN interface SCP11997.0 LAN interface Interface USB mini B plug, version 2.0 USB interface 2.X type A plug, version 2.0 Audio speaker USB interface 2.X type A plug, version 2.0 USB interface 2.X type A plug, version 2.0 Data storage internal on USB flash drive or microSD card, 2 1 G0yte, USB version 1.1 or 2.0 Temperature operating temperature range operating temperature range -10 °C to +55 °C version in line with EN 60069-2.6 MuL-PRF-2890PC Class 2 in line with EN 60069-2.6 Vortaion sinusoidal in line with EN 60069-2.6 MuL-PRF-2890PC Class 2 in line with EN 60069-2.6 Power supply randorn in line with EN 60069-2.6 Restret A 2301 AC power supply portaing temp			German, Italian, Hungarian, Japanese,
Remote control SCPI 1997.0 LAN interface 10/1008ASE-T, RJ-45 USB mini B plug, version 2.0 Display resolution WVGA, 800 x 480 pixel Audio speaker internal, external headphone supported USB instructed 2 x type A plug, version 2.0 USB instructed 2 x type A plug, version 2.0 Data storage internal on USB flash drive or microSD card, > 1 Gbyte > 1000 instrument settings and traces Temperature operating temperature range -40 °C to +55 °C > 1000 instrument settings and traces Temperature operating temperature range -40 °C to +55 °C > 1000 instrument settings and traces Vibration protection class IPS1 > 1000 for Co +40 °C Mechanical resistance in line with N 60068-2-80 in line with N 60068-2-80 Vibration sinusodd in line with N 60068-2-66, ML-PRF-28800F Class 2 Rock in line with N 80068-2-80 in line with N 80068-2-80, ML-PRF-28800F Class 2 Power supply rendom in line with N 80068-2-80, ML-PRF-28800F Class 2 Rock in line with N 800068-2-80, ML-PRF-28800F Class 2			Korean, Portuguese, Russian, Spanish
Command set LAN interface LAN interface LUSB LAN interface LUSB LAN interface LUSB interface LUSB interface Speaker Sublish Audio Speaker LUSB interface LUSB interface LUSB interface LUSB interface LUSB interface LUSB interface Data storage internal on USB flash drive or microSD card, so to House Storage on USB flash drive or microSD card, so to House Storage Data storage on USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage Data storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, so to House Storage On USB flash drive or microSD card, min House With ENDOG68-2-64, MIL-PRF-28000F Class 2 Shock Shock Dever supply Finany Finan	Remote control		
LAN interface using the second	Command set		SCPI 1997.0
USB mini B plug, version 2.0 Display resolution Audio speaker USB internal, extornal headphone supported 2x type A plug, version 2.0 USB finatrace 2x type A plug, version 2.0 USB finatrace 2x type A plug, version 2.0 Data storage internal internal cstorage internal or USB fish drive or microSD card, or 10 °C to 455 °C storage temperature range -40 °C to 70 °C battery charging mode 0 °C to 140 °C comparing temperature range -40 °C to 70 °C battery charging mode 0 °C to 440 °C comparing temperature range -40 °C to 70 °C protection class in line with EN 60068-24.0 Mechanical resistance in line with EN 60068-24.0 Witration sinusoidal in line with EN 60068-24.0 MuL-PRF-28800F Class 2 40 g shock spectrum, in line with EN 60068-24.0 MuL-PRF-28800F Class 2 40 g shock spectrum, in line with EN 60068-24.0 Witration secondary 10 V to 240 V AC, 50 Hz/60 Hz, 10.0 secondary 10 V to 240 V AC, 50 Hz/60 Hz, 10.0 10 V to 240 V AC, 50 Hz/60 Hz, 10.0 secondary 10 V to 240 V AC, 50 Hz/60 Hz, 10.0 10 V to 240 V AC, 50 Hz/60 Hz, 10.0 secondary 10 V to 240 V AC, 50 Hz/6	LAN interface		10/100BASE-T, RJ-45
Display resolution WVGA, 800 x 480 pikel Audio speaker internal.external headphone supported USB interface 2 x type A plug, version 2.0 Mass memory USB flash drive/microSD card (not supplied) Site 3 23 Gbyte, USB version 1.1 or 2.0 Data storage internal > 160 instrument settings and traces or USB flash drive or microSD card, > 1 Gbyte Temperature coperating temperature range storage temperature range -40 °C to +55 °C or 1000 instrument settings and traces or 0 °C to +40 °C Climatic loading relative humidity in line with EN 60068-2-30 in line with EN 60068-2-64, MiL_PRF-28000F Class 2 Mechanical resistance sinusoidal in line with EN 60068-2-64, MiL_PRF-28000F Class 2 Vibration sinusoidal in line with EN 60068-2-64, MiL_PRF-28000F Class 2 Shock andom in line with EN 60068-2-64, MiL_PRF-28000F Class 2 Power supply prometure range -40 °C to +40 °C RaS*HA-2301 AC power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 10.0 to 5.A Stock secondary 10 V to 240 V AC, 50 Hz/60 Hz, 10.0 to 5.A Stock parating temperature range -40 °C to +80 °C	USB		mini B plug, version 2.0
Audio speaker internal, external headphone supported USB interface 2 x type A play, version 2.0 Mass memory USB flash dive/microSD card (not supplied) > bat a storage internal or USB flash drive or microSD card, > 160 mistrument settings and traces > 160 instrument settings and traces > 160 instrument settings and traces > 160 instrument settings and traces > 100 instrument settings and traces > 100 instrument settings and traces > 100 instrument settings and traces > 100 instrument settings and traces > 10000 instrument settings and traces > 100 instrument settings and traces > 100 instrument settings and traces > 100 instrument settings and traces > 10000 instrument settings and traces intime with EN 00086-26.3 in line with EN 00086-26.4 Mit_PRF-28800F Class 2 in line with Mit_STD-8100G, method 516.6, procedure 1, Mit_PRF-28800F Shock 40 g shock spectrum, in line with Mit_STD-8100G, method 516.6, procedure 1, Mit_PRF-28800F<	Display	resolution	WVGA, 800 × 480 pixel
USB interface 2 x type A plug, version 2.0 Mass memory Internal USB flash drive/microSD card (not supplied) out SB flash drive or microSD card, explicitly temperature range > 10000 instrument settings and traces out SB flash drive or microSD card, explicitly temperature range -10 °C to +55 °C storage temperature range -40 °C to +70 °C Detainer or drive drive drive drive or microSD card, explicitly temperature range -10 °C to +55 °C Storage temperature range -10 °C to +55 °C Machanical resistance in line with EN 60068-2-30 Vibration sinusoidal in line with EN 60068-2-30 Machanical resistance in line with EN 60068-2-64, milline with MIL-STD-2010G, method 516.6, procedure, I, MIL-PRF-28800F Class 2 Power supply random 100 V to 240 V AC, 50 Hz/60 Hz, 100 Milline with MIL-STD-2010G, method 516.6, procedure, I, MIL-PRF-28800F Class 2 Power supply perating temperature range -30 °C to +60 °C RaS*THA-2301 AC power supply perating temperature range -30 °C to +60 °C Storage temperature range -30 °C to +60 °C -40 °C to 45 °C External DC voltage minstrument switched off for charge with RaS*THA-2306 version E 72 Wh RaS*THA-	Audio	speaker	internal, external headphone supported
Mass memory USB flash drive or microSD card (not supplied) size ≤ 32 Gbyte, USB version 1.1 or 2.0 Data storage internal on USB flash drive or microSD card, 2 i Gbyte > 10000 instrument settings and traces Temperature operating temperature range -0 °C to +55 °C Iterative frage temperature range -0 °C to +70 °C Data storage temperature range -0 °C to +70 °C Iterative frage temperature range -0 °C to +70 °C Data storage temperature range -0 °C to +70 °C Data storage temperature range -0 °C to +70 °C Data storage temperature range -0 °C to +70 °C Data storage temperature range -0 °C to +70 °C Matter stature random in line with EN 60068-26, MLP.PK-28000F Class 2 Mitter stature in line with EN 60068-26, MLP.PK-28000F Class 2 Shock in line with EN 60068-26, MLP.PK-28000F Class 2 Power supply primary 100 V to 240 V AC, 50 Hz/E0 Hz, 10 A to 6.5 A Secondary 10 × to 6.0 X, 10 × 0.5 A secondary Shock primary 100 V to 240 V AC, 50 Hz/E0 Hz, 10 × 0.5 A Secondary 15 V, 267 A, max, 40 W operating temperature range -40 °C to +85 °C Storage temperature range -40 °C to +85 °C External DC voltage RAS*HA-2306 version F 1125 V (non.) <td>USB interface</td> <td></td> <td>2 x type A plug, version 2.0</td>	USB interface		2 x type A plug, version 2.0
supplied) supplied) size S 2 Gbyte, USB version 1.1 or 2.0 Data storage internal > 160 instrument settings and traces Temperature operating temperature range -40 °C to +45 °C Data storage temperature range -40 °C to +45 °C Operating temperature range -40 °C to +40 °C Climatic loading reture humidity +25 °C/+55 °C at 95 % relative humidity, in line with EN 60068-2-30 Mechanical resistance in line with EN 60068-2-40, MIL-PRF-28800°C class 2 Vibration sinusoidal in line with EN 60068-2-40, MIL-PRF-28800°C class 2 Shock andom in line with EN 60068-2-64, MIL-PRF-28800°C class 2 Shock andom in line with SN 60068-2-64, MIL-PRF-28800°C class 2 Shock andom in line with SN 60068-2-64, MIL-PRF-28800°C class 2 Shock andom in line with SN 60068-2-64, MIL-PRF-28800°C class 2 Shock andom in line with SN 60068-2-64, MIL-PRF-2800°C class 2 Shock andom in line with SN 60068-2-64, MIL-PRF-2800°C class 2 Power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 10. A to 55 A Store suparting temperature range -40 °C t	Mass memory		USB flash drive/microSD card (not
Data storage internal > 160 1028 transmit settings and traces Data storage internal > 10000 instrument settings and traces Temperature operating temperature range -10°C to +55°C Storage temperature range -40°C to +40°C Climatic loading relative humidity +25°C/+55°C at 95% relative humidity, in line with EN 60068-264, Mechanical resistance Without in the with EN 60068-264, manage temperature range -40°C to +40°C Without in the with EN 60068-264, manage temperature range -40°C to +40°C Wethanical resistance relative humidity +25°C/+55°C at 95% relative humidity, in line with EN 60068-264, MitL-PRF-28800F Class 2 Works andom in line with EN 60068-264, MitL-PRF-28800F Class 2 Shock mine with EN 60068-264, MitL-PRF-28800F Class 2 Power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A RaS*HA-2301 AC power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A Storage temperature range -30°C to 480°C -30°C to 480°C Storage temperature range -30°C to 480°C -30°C to 480°C Storage temperature range -30°C to 480°C -30°C to 480°C			supplied)
Data storage internal > 160 instrument settings and traces or USB flash drive or microSD card, > 1 Gbyte > 10000 instrument settings and traces Temperature 21 Gbyte > 10000 instrument settings and traces Storage temperature range -40 °C to +70 °C > 10000 instrument settings and traces Climatic loading Pretection class 0 °C to +70 °C Protection class PF51 Mechanical resistance in line with EN 60068-2-30. Vibration sinusoidal in line with EN 60068-2-64. MIL-PRF-28000 Class 2 in line with EN 60068-2-64. Mill_PRF-28000 Class 2 in line with EN 60068-2-64. Shock 40 g shock spectrum, in line with ML-STD-810G, method 516.6, procedure I, MIL-PRF-28000 F Power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 10.4 to 0.5 A V Shock secondary 15V, 267 A, max. 40 W operating temperature range -30 °C to +60 °C storage temperature range -40 °C to +85 °C secondary 15V, 267 A, max. 40 W operating temperature range -40 °C to +85 °C storage temperature range -40 °C to +85 °C			size ≤ 32 Gbyte, USB version 1.1 or 2.0
on USB flash drive or microSD card, stronge temperature range -10 °C to 455 °C Temperature operating temperature range -10 °C to 470 °C battery charging mode 0 °C to 440 °C Climatic loading relative humidity in line with EN 60068-2-30 protection class IPS1 Mechanical resistance in line with EN 60068-2-60, Mill.PRF-28800F Class 2 Yotation sinusoidal in line with EN 60068-2-64, Mill.PRF-28800F Class 2 Shock in line with EN 60068-2-64, Mill.PRF-28800F Class 2 Shock in line with EN 60068-2-64, Mill.PRF-28800F Class 2 Shock in line with Null.STD-810G, method 516, 6, procedure 1, Mill.PRF-28800F Power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A Secondary 15 V, 2.67 A, max. 40 W operating temperature range -30 °C to 480 °C Storage temperature range <td< td=""><td>Data storage</td><td>internal</td><td>> 160 instrument settings and traces</td></td<>	Data storage	internal	> 160 instrument settings and traces
21 Gbyte -10 °C to +55 °C Temperature 50rage temperature range -40 °C to +70 °C Datary charging mode 0 °C to +40 °C Climatic loading relative humidity 425 °C/+55 °C at 95 % relative humidity, in line with EN 60068-2-30 Mechanical resistance protection class IP61 Mechanical resistance in line with EN 60068-2-6, ML-PRF-2800F Class 2 ML-PRF-2800F Class 2 Yibration sinusoidal in line with EN 60068-2-6, ML-PRF-2800F Class 2 Shock random in line with EN 60068-2-6, ML-PRF-2800F Class 2 Power supply random in line with SUS 0068-2-6, ML-PRF-2800F Class 2 Power supply primary 100 V to 240 VAC, 50 Hz/60 Hz, 100 V to 240 V		on USB flash drive or microSD card,	> 10000 instrument settings and traces
Temperature ange -10 °C to +55 °C Strage temperature range -40 °C to +70 °C battery charging mode 0 °C to +40 °C Climatic loading relative humidity +25 °C +55 °C mine with EN 0068-2-30 protection class PE51 Mechanical resistance in line with EN 60068-2-64, in line with EN 60068-2-64, MiL-PRF-28800F Class 2 Yibration sinusoidal in line with EN 60068-2-64, MiL-PRF-28800F Class 2 Shock and g shock spectrum, in line with EN 60068-2-64, MiL-PRF-28800F Class 2 Shock 40 g shock spectrum, in line with NLSTD-8106, method 516.6, procedure 1, MiL-PRF-2800F Power supply econdary 100 V to 240 V AC, 50 Hz/60 Hz, 10.0 to 0.5 A Power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 10.0 to 0.5 A External DC voltage secondary 62 U, U, PSE, TUV External DC voltage R&S*HA-2306 version E 72 Wh Storage temperature range -30 °C to +60 °C 10.4 S V 10.4 S V Capacity R&S*HA-2306 version F 72 Wh Capacity R&S*HA-2306 version E 72 Wh Voltage R&S*HA-2306 version F 11.25 V (nom.)		≥ 1 Gbyte	
storage temperature range -40 °C to 70 °C Climatic loading 0 °C to 40 °C relative humidity +25 °C to 55 °C at 95 % relative humidity, in line with EN 60068-2-30 mechanical resistance in line with EN 60068-2-6, ML-PRF-2800C Class 2 Yibration sinusoidal in line with EN 60068-2-6, ML-PRF-2800C Class 2 random in line with EN 60068-2-6, ML-PRF-2800C Class 2 sock 40 °C to 40 °C Shock 40 °C to 40 °C Power supply random in line with EN 60068-2-6, ML-PRF-2800C Class 2 Power supply file with ML-STD-810G, method 516.6, procedure 1, ML-PRF-2800F Power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 100 V to 240 V AC, 50 Hz/60 Hz,	Temperature	operating temperature range	–10 °C to +55 °C
Climatic loading battery charging mode 0 °C to 40 °C Climatic loading relative humidity 42 °C/455 °C at 95 %, relative humidity, in line with EN 60068-2-30 Mechanical resistance in line with EN 60068-2-66, MIL-PRF-28800F Class 2 Vibration sinusoidal MIL-PRF-28800F Class 2 Shock 40 g shock spectrum, in line with EN 60068-2-64, MIL-PRF-28800F Class 2 Power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A Secondary 15 V.2.67 A, max. 40 W operating temperature range -30 °C to 460 °C storage temperature range -40 °C to 48 °C storage temperature range -40 °C to 48 °C storage temperature range -40 °C to 48 °C gacority R45°HA-2306 version E 72 VM Capacity R45°HA-2306 version E 11.25 V (nom.) R45°HA-2306 version F and above 74.5 Wh 74.5 Wh Voltage instrument switched off for charge with R45°HA-2306 version F and above 10.8 V (nom.) R45°HA-2306 version F 10.8 V (nom.) 3 h Capacity R45°HA-2306 version F 10.8 V (nom.) R45°HA-2306 version	-	storage temperature range	–40 °C to +70 °C
Climatic loading relative humidity +25 °C/+55 °C at 95 %, relative humidity, in line with EN 60068-2-80, ML -PRF-28800F Class 2 Mechanical resistance in line with EN 60068-2-64, ML -PRF-28800F Class 2 Yibration in line with EN 60068-2-64, ML -PRF-28800F Class 2 Shock in line with EN 60068-2-64, ML -PRF-28800F Class 2 Shock in line with ML STD-810G, method 516.6, procedure I, ML -PRF-28800F Power supply readom range R&S*HA-Z301 AC power supply primary Storage temperature range -30 °C to +85 °C Storage temperature range -30 °C to +85 °C Storage temperature range -30 °C to +85 °C Storage temperature range -40 °C to +85 °C Storage temperature range -30 °C to +85 °C External DC voltage R&S*HA-Z306 version F Battery lithium-ion battery Capacity R&S*HA-Z306 version F and above Voltage R&S*HA-Z306 version F and above R&S*HA-Z306 version F and above 10.8 V (nom.) Operating time with new, fully charged battery 11.8 S V (nom.) Charging time charging cycles 3 h Safety		battery charging mode	0 °C to +40 °C
Image: Stance protection class in line with EN 60068-2-30 Mechanical resistance in line with EN 60068-2-6, minute with EN 60068-2-6, minute with EN 60068-2-6, Mill-PRF-28800F Class 2 Shock in line with EN 60068-2-6, Mill-PRF-28800F Class 2 Shock 40 g shock spectrum, in line with EN 60068-2-64, Mill-PRF-28800F Class 2 Power supply primary R&S [®] HA-Z301 AC power supply primary Power supply primary Storage temperature range -30 °C to +60 °C scondary 15 V.2.67 A, max. 40 W operating temperature range -40 °C to +85 °C External DC voltage Est mark CE, UL, PSE, TUV External DC voltage R&S [®] HA-Z306 version E 72 Wh R&S [®] HA-Z306 version F and above 74.5 Wh Voltage R&S [®] HA-Z306 version F and above 10.8 V (nom.) Qperating time with new, fully charged battery instrument switched off for charge with R&S [®] HA-Z306 battery charger 3 h Charging time R&S [®] HA-Z306 battery charger 5 h Safety instrument switched off for charge with RS [®] HA-Z306 battery charger 3 h Charging time find sobard charge cycles </td <td>Climatic loading</td> <td>relative humidity</td> <td>+25 °C/+55 °C at 95 % relative humidity,</td>	Climatic loading	relative humidity	+25 °C/+55 °C at 95 % relative humidity,
protection class IP51 Mechanical resistance sinusoidal in line with EN 60068-2-6, MIL-PRF-28800F Class 2 random in line with EN 60068-2-64, MIL-PRF-28800F Class 2 Shock 40 g shock spectrum, in line with EN 60068-2-64, MIL-PRF-28800F Class 2 Power supply 40 g shock spectrum, in line with MIL-STD-810G, method 516.6, procedure I, MIL-PRF-28800F Power supply primary 100 V to 240 V AC, 50 H2/60 Hz, 10 A to 0.5 A Secondary 15 V, 2.67 A, max. 40 W operating temperature range operating temperature range -30 °C to 485 °C operating temperature range Capacity R&S [®] HA-Z306 version E 72 Wh Ras [®] HA-Z306 version E 72 Wh MIL-PRF-28800F Voltage R&S [®] HA-Z306 version F and above 10.8 V (nom.), R&S [®] HA-Z306 version F and above 10.8 V (nom.), R&S [®] HA-Z306 version F and above 10.8 V (nom.), R&S [®] HA-Z306 version F and above 10.8 V (nom.), R&S [®] HA-Z306 version F and above 10.8 V (nom.), R&S [®] HA-Z306 version F and above 10.8 V (nom.), R&S [®] HA-Z306 version F and above 10.8 V (nom.), R&S [®] HA-Z306 version F and above 10.8 V (nom.), R&S [®] HA-Z306 version F and above 10.8 V (nom.), R&S [®] HA-Z306 version F and above 10.8 V (nom.), R&S [®] HA-Z306 version F and above 10.8 V (nom.), R&S [®] HA-Z	-		in line with EN 60068-2-30
Mechanical resistance in line with EN 60068-2-64, MIL-PRF-28800F Class 2 Yibration in line with EN 60068-2-64, MIL-PRF-28800F Class 2 Shock 40 g shock spectrum, in line with MIL-STD-810G, method 516.6, procedure 1, MIL-PRF-28800F Power supply 7 R&S*HA-Z301 AC power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 10 A to 5 A secondary 15 V, 267 A, max. 40 W operating temperature range -30 °C to +85 °C escondary 15 V, 267 A, max. 40 W operating temperature range -40 °C to +85 °C External DC voltage Est mark Battery lithium-ion battery Capacity R&S*HA-Z306 version E R&S*HA-Z306 version E 11.25 V (nom.) R&S*HA-Z306 version F and above 74.5 Vm Voltage R&S*HA-Z306 version F and above 74.5 Vm Charging time instrument switched off for charge with R&S*HA-Z305 battery charger 3 h Charging time instrument switched on 5 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption In line with EMC Directive 2014/30/EU including IEC 61010-1, EN 61010-1		protection class	IP51
Vibration sinusoidal in line with EN 60068-2-6, MIL-PRF-28800F Class 2 random in line with EN 60068-2-64, MIL-PRF-28800F Class 2 Shock 40 g shock spectrum, in line with MIL-STD-810G, method 516.6, procedure 1, MIL-PRF-28800F Power supply read R&S®HA-Z301 AC power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 100 V to 240 V AC, 50 Hz/60 Hz, secondary 15 V, 2.67 A, max. 40 W operating temperature range -30 °C to +80 °C storage temperature range -40 °C to +80 °C storage temperature range -40 °C to +80 °C Battery 14.65 V to 15.45 V Battery R&S®HA-2306 version E 72 Wh Capacity R&S®HA-2306 version E 74.5 Wh Voltage R&S®HA-2306 version E 11.25 V (nom.) Qperating time with new, fully charged battery R&S®HA-2306 version F and above 10.8 V (nom.) Charging time R&S®HA-2306 version F and above 5 h Life time charging cycles 3 h R&S®HA-2308 battery charger 16.8 V (meas.) 182 W Life time charging cycles 5 h 10.8 V (nom.) Safety in line with EMC Directive 2014/30/EU <td>Mechanical resistance</td> <td></td> <td></td>	Mechanical resistance		
madom MIL-PRF-28800F Class 2 random in line with EN 60068-2-64, MIL-PRF-28800F Class 2 Shock 40 g shock spectrum, in line with ENS-DP-10G, method 516.6, procedure I, MIL-PRF-28800F Power supply mine with MIL-STD-810G, method 516.6, procedure I, MIL-PRF-28800F R&S*HA-Z301 AC power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A secondary 15 V, 267 A, max. 40 W operating temperature range -30 °C to +60 °C storage temperature range -40 °C to 485 °C test mark CE, UL, PSE, TUV External DC voltage R&S*HA-Z306 version E Battery Ithium-ion battery Capacity R&S*HA-Z306 version E Voltage R&S*HA-Z306 version E R&S*HA-Z306 version E 11.25 V (nom.) R&S*HA-Z306 version F and above 10.8 V (nom.) Graping time instrument switched off for charge with restrument switched on 5 h Charging time charging cycles 3 h Safety instrument switched on 5 h Life time charging cycles 75 % or more of its initial capacity after 300 charge/discharge cycles	Vibration	sinusoidal	in line with EN 60068-2-6,
random in line with EN €0068-2-64, MiL-PRF-28800F Class 2 Shock 40 g shock spectrum, in line with MIL-STD-810G, method 516.6, procedure 1, MIL-PRF-28800F Power supply 700 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A Secondary 15 V, 2.67 A, max. 40 W operating temperature range -30 °C to +60 °C storage temperature range -40 °C to +85 °C test mark CE, UL, PSE, TUV External DC voltage 14.65 V to 15.45 V Battery Ithium-ion battery Capacity R&S®HA-2306 version E R&S®HA-2306 version F 74.5 Wh Voltage R&S®HA-2306 version F and above Operating time with new, fully charged battery R&S®HA-2306 version F and above Charging time instrument switched off for charge with R&S®HA-2306 version F and above Voltage instrument switched off for charge with R&S®HA-2306 battery charger Itfe time charging cycles Power consumption 5 h Safety IEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-112 Voltage in line with EMC Directive 2014/30/EU including III en with EMC Directive 2014/30/EU including EN 61326-1 EXEMA in line with EMC Directive 2014/30/EU III en with EMC Directive 2014/30/EU EN 61326-1 III en with EM			MIL-PRF-28800F Class 2
Shock MIL-PRF-28800F Class 2 Shock 40 g shock spectrum, in line with ML-STD-810G, method 516.6, procedure I, MIL-PRF-28800F Power supply 100 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A Secondary 105 V, 267 A, max. 40 W operating temperature range -30 °C to +60 °C storage temperature range -30 °C to +60 °C storage temperature range -40 °C to +85 °C External DC voltage 14.65 V to 15.45 V Battery 1110000000000000000000000000000000000		random	in line with EN 60068-2-64.
Shock 40 g shock spectrum, in line with MIL-STD-810G, method 516.6, procedure I, MIL-PRF-28800F Power supply rmmary 100 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A secondary 15 V, 2.67 A, max. 40 W operating temperature range -30 °C to +60 °C storage temperature range -40 °C to +85 °C test mark CE, UL, PSE, TUV External DC voltage Ithium-ion battery R&S®HA-2306 version E 72 Wh R&S®HA-2306 version F and above 74.5 Wh Voltage R&S®HA-2306 version F and above Operating time with new, fully charged battery Instrument switched off for charge with R&S®HA-2306 abattery charger Operating time instrument switched off for charge with R&S®HA-2306 battery charger 3 h Life time charging cycles 5 h Power consumption 5 h >75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption In line with EMC Directive 2014/30/EU including IEC 61010-1, EN 61010-1, UL 61010-1 (Unit edition), CANCSA-C22.2 No. 61010-1-12 Test mark in line with EMC Directive 2014/30/EU including EN 61326-1 table 2 ((mmunity, industria)) CBase B (emission) W H × D 202 mm x 294 mm x 76 mm (8.0 in x 11.6 in x 3 in) Weight 3 ln x H × D 3 ln x H × D <td></td> <td></td> <td>MIL-PRF-28800F Class 2</td>			MIL-PRF-28800F Class 2
Power supply in line with MiL-STD-810G, method 516.6, procedure 1, MiL-PRF-28800F R&S®HA-Z301 AC power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A secondary 15 V, 2.67 A, max. 40 W operating temperature range -30 °C to +85 °C test mark CE, UL, PSE, TUV External DC voltage 10 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A Battery -30 °C to +85 °C test mark CE, UL, PSE, TUV Capacity R&S®HA-2306 version E 72 Wh Capacity R&S®HA-2306 version F and above 74.5 Wh Voltage R&S®HA-2306 version F and above 74.5 Wh Operating time with new, fully charged battery R&S®HA-2306 version F and above 74.5 Wh Charging time instrument switched off for charge with R&®HA-2306 version F 3 h R&S®HA-2305 battery charger 3 h Safety Life time charging cycles >75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) 12.5 V (mon.), CAN/CSA-C22.2 No. 61010-1, UL tel detion), CAN/CSA-C22.2 No. 61010-1,	Shock		40 g shock spectrum,
Power supply procedure I, MIL-PRF-28800F R&S®HA-Z301 AC power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A secondary 15 V, 2.67 A, max. 40 W operating temperature range -30 °C to +60 °C storage temperature range -40 °C to +85 °C test mark CE, UL, PSE, TUV External DC voltage lithium-ion battery Capacity R&S®HA-Z306 version E 72 Wh Capacity R&S®HA-Z306 version F and above 74.5 Wh Voltage R&S®HA-Z306 version F and above 74.5 Wh Voltage R&S®HA-Z306 version F and above 10.8 V (nom.) R&S®HA-Z306 version F and above 10.8 V (nom.) R&S®HA-Z306 version F and above Operating time with new, fully charged battery instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Life time charging cycles > 5 fs Safety in line with EMC Directive 2014/30/EU in EG 61010-1, EU 61010-1, UL 61010			in line with MIL-STD-810G, method 516.6.
Power supply nimary 100 V to 240 V AC, 50 Hz/60 Hz, 100 V to 240 V AC, 50 Hz/60 Hz, 100 V to 0.5 A secondary 15 V, 2.67 A, max. 40 W operating temperature range -30 °C to +66 °C storage temperature range -30 °C to +65 °C test mark CE, UL, PSE, TUV External DC voltage Ithium-ion battery Ithium-ion battery Capacity R&S®HA-Z306 version E 72 Wh Capacity R&S®HA-Z306 version F and above 74.5 Wh Voltage R&S®HA-Z306 version F and above 10.8 V (nom.) Operating time with new, fully charged battery Instrument switched off for charge with R&S®HA-Z306 4 h Life time instrument switched off for charge with R&S®HA-Z300 battery charger 3 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) 18.5 W (meas.) Safety IEC G1010-1, EN 61010-1, UL 61010-1,			procedure I, MIL-PRF-28800F
R&S®HA-Z301 AC power supply primary 100 V to 240 V AC, 50 Hz/60 Hz, 1.0 A to 0.5 A secondary 15 V, 267 A, max. 40 W operating temperature range -30 °C to +60 °C storage temperature range -40 °C to +85 °C test mark CE, UL, PSE, TUV External DC voltage 14.65 V to 15.45 V Battery Iithium-ion battery Capacity R&S®HA-Z306 version E Voltage R&S®HA-Z306 version F and above 74.5 Wh R&S®HA-Z306 version F and above Voltage R&S®HA-Z306 version F and above Operating time with new, fully charged battery 10.8 V (nom.) Charging time instrument switched off for charge with R&S®HA-Z305 battery charger If terme charging cycles Power consumption 5 h Safety Life time Safety in line with EMC Directive 2014/30/EU including In line with EMC Directive 2014/30/EU including • EN 61326-1 • EN 61326-1 • EN 61326-	Power supply		
1.0 A to 0.5 A 15 V, 2.67 A, max. 40 W operating temperature range -40 °C to +85 °C External DC voltage 14.65 V to 15.45 V Battery Itihium-ion battery Capacity R&S®HA-Z306 version E 72 Wh R&S®HA-Z306 version E 74.5 Wh R&S®HA-Z306 version F Voltage R&S®HA-Z306 version F 0perating time with new, R&S®HA-Z306 version F and above 10.8 V (nom.) R Power dottery Instrument switched off for charge with A h Sh Life time charging cycles Power consumption 5 h Safety IEC 61010-1, EN 61010-1, UL 61010-1, UL 61010-1, UL 61010-1, EN 6	R&S [®] HA-Z301 AC power supply	primary	100 V to 240 V AC, 50 Hz/60 Hz,
secondary 15 V, 2.67 A, max. 40 W operating temperature range -30 °C to +60 °C storage temperature range -40 °C to +85 °C test mark CE, UL, PSE, TUV External DC voltage 14.65 V to 15.45 V Battery Ilthium-ion battery Capacity R&S®HA-Z306 version E 72 Wh Voltage R&S®HA-Z306 version F and above 74.5 Wh Voltage R&S®HA-Z306 version F and above 10.8 V (nom.) Operating time with new, fully charged battery R&S®HA-Z306 version F and above 10.8 V (nom.) Charging time R&S®HA-Z306 version F and above 10.8 V (nom.) Charging time R&S®HA-Z303 battery charger 3 h fully charged battery Sh 5 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) 18.5 W (meas.) Safety IEC 61010-1, EN 61010-1, UL 61010-1, UL 61010-1, UL 61010-1, UL 61010-1, UL 61010-1, CAN/CSA-C22.2 No. 61010-1-122 Test mark In line with EMC Directive 2014/30/EU • EN 61326-1 EMC In line with EMC D	,		1.0 A to 0.5 A
operating temperature range -30 °C to +60 °C storage temperature range -40 °C to +85 °C test mark CE, UL, PSE, TUV External DC voltage 14.65 V to 15.45 V Battery lithium-ion battery Capacity R&S®HA-Z306 version E 72 Wh R&S®HA-Z306 version E 71.5 Wh 11.25 V (nom.) Voltage R&S®HA-Z306 version F and above 10.8 V (nom.) Operating time with new, fully charged battery Instrument switched off for charge with R&S®HA-Z306 version F and above 3 h Charging time instrument switched off for charge with R&S®HA-Z306 version F and above 5 h Life time charging cycles 3 h Safety Safety 18.5 W (meas.) Safety IEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1:12 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 1able 2 (immunity, industrial) Oligent in line with EMC Directive 2014/30/EU including • EN 61326-1 1able 2 (immunity, industrial) OBimensions W × H × D 202 mm x 294 mm x 76 mm (8.0 in x 11.6 in x 3 in)		secondary	15 V. 2.67 A. max. 40 W
storage temperature range -40 °C to +85 °C test mark CE, UL, PSE, TUV External DC voltage 14.65 V to 15.45 V Battery lithium-ion battery Capacity R&S®HA-Z306 version E 72 Wh R&S®HA-Z306 version F and above 74.5 Wh Voltage R&S®HA-Z306 version F and above 10.8 V (nom.) Operating time with new, fully charged battery instrument switched off for charge with R&S®HA-Z306 bersion F and above 3 h Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) IEC 61010-1, EN 61010-1, UL 61010-1, EN 61026-1 including EN 61326-1 table 2 (immunity, industrial) Safety in line with EMC Directive 2014/30/EU including • EN 61326-1 table 2 (immunity, industrial) OLIGEN in line with EMC Directive 2014/30/EU including • EN 61326-1 table 2 (immunity, industrial) Olicas B (emission) 202 mm x 76 mm (8.0 in x 11.6 in x 3 in) 202 mm x 76 mm (8.0 in x 11.6 in x		operating temperature range	-30 °C to +60 °C
test mark CE, UL, PSE, TUV External DC voltage 14.65 V to 15.45 V Battery lithium-ion battery Capacity R&S®HA-Z306 version E Voltage R&S®HA-Z306 version F and above 74.5 Wh R&S®HA-Z306 version E Voltage R&S®HA-Z306 version F and above 74.5 Wh R&S®HA-Z306 version F and above Operating time with new, fully charged battery R&S®HA-Z306 version F and above Charging time instrument switched off for charge with R&S®HA-Z303 battery charger Instrument switched on 5 h Life time charging cycles Power consumption 5 h Safety IEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAAN/CSA-C22.2 No. 61010-1.12 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including Dimensions W × H × D Dimensions W × H × D Weight 8.0 in x 11.6 in x 3 in) Weight 3.1 kg (6.8 lb)		storage temperature range	–40 °C to +85 °C
External DC voltage 14.65 V to 15.45 V Battery Ithium-ion battery Capacity R&S®HA-Z306 version E 72 Wh R&S®HA-Z306 version F and above 74.5 Wh Voltage R&S®HA-Z306 version E 11.25 V (nom.) Operating time with new, fully charged battery R&S®HA-Z306 version F and above 10.8 V (nom.) Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) IEC 61010-1, EN 61010-1, UL 61010-1 (Hird edition), CAN/CSA-C22.2 No. 61010-1.12 Safety in line with EMC Directive 2014/30/EU including • EN 61326-1 EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in x 11.6 in x 3 in) Weight 3.1 kg (6.8 lb) 3.1 kg (6.8 lb)		test mark	CE, UL, PSE, TUV
Battery lithium-ion battery Capacity R&S®HA-Z306 version E 72 Wh R&S®HA-Z306 version F and above 74.5 Wh Voltage R&S®HA-Z306 version F and above 74.5 Wh Voltage R&S®HA-Z306 version F and above 10.8 V (nom.) Operating time with new, fully charged battery R&S®HA-Z306 version F and above 10.8 V (nom.) Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) IEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12 Safety in line with EMC Directive 2014/30/EU including • EN 61326-1 Including • EN 61326-1 • EN 61326-1 New Stort • Class B (emission) • Class B (emission) Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) 1 year	External DC voltage		14.65 V to 15.45 V
Capacity R&S®HA-Z306 version E 72 Wh R&S®HA-Z306 version F and above 74.5 Wh Voltage R&S®HA-Z306 version F and above 74.5 Wh Operating time with new, fully charged battery R&S®HA-Z306 version F and above 10.8 V (nom.) Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) 18.5 W (meas.) Safety IEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12 Test mark in line with EMC Directive 2014/30/EU including • EN 61326-1 EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 8 3.1 kg (6.8 lb)	Battery		lithium-ion battery
R&S®HA-Z306 version F and above 74.5 Wh Voltage R&S®HA-Z306 version E 11.25 V (nom.) R&S®HA-Z306 version F and above 10.8 V (nom.) Operating time with new, fully charged battery R&S®HA-Z306 4 h Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) 18.5 W (meas.) Safety IEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-122 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 including • CISPR 11/EN 55011/Group 1 Class B (emission) Class B (emission) Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 84 b.) 3.1 kg (6.8 lb)	Capacity	R&S [®] HA-Z306 version E	72 Wh
Voltage R&S®HA-Z306 version E 11.25 V (nom.) Operating time with new, fully charged battery R&S®HA-Z306 4 h Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) 18.5 W (meas.) Safety IEC 61010-1, EN 61010-1, UL 61010-1, UL 61010-1, UL 61010-1, UL 61010-1, UL 61010-1, CAN/CSA-C22.2 No. 61010-1-12 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) 3.1 kg (6.8 lb)		R&S [®] HA-Z306 version F and above	74.5 Wh
R&S®HA-Z306 version F and above 10.8 V (nom.) Operating time with new, fully charged battery R&S®HA-Z306 4 h Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Charging time instrument switched on 5 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) Safety IEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including Dimensions W × H × D Wieght 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb)	Voltage	R&S [®] HA-Z306 version E	11.25 V (nom.)
Operating time with new, fully charged battery R&S®HA-Z306 4 h Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Life time instrument switched on 5 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) 18.5 W (meas.) Safety IEC 61010-1, EN 61010-1, UL 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including Dimensions W × H × D Weight 3.1 kg (6.8 lb) Recommended calibration interval 1 vear		R&S [®] HA-Z306 version F and above	10.8 V (nom.)
fully charged battery instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Life time instrument switched on 5 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) Safety IEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1.12 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) 3.1 kg (6.8 lb)	Operating time with new.	R&S [®] HA-Z306	4 h
Charging time instrument switched off for charge with R&S®HA-Z303 battery charger 3 h Life time charging cycles 5 h Power consumption 5 k > 75 % or more of its initial capacity after 300 charge/discharge cycles Safety IEC 61010-1, EN 61010-1, UL 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including in line with EMC Directive 2014/30/EU including • EN 61326-1 Dimensions W × H × D Weight 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb)	fully charged battery		
R&S®HA-Z303 battery charger instrument switched on 5 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) Safety IEC 61010-1, EN 61010-1, UL 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 including • CISPR 11/EN 55011/Group 1 Class B (emission) Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) 3.1 kg (6.8 lb)	Charging time	instrument switched off for charge with	3 h
instrument switched on 5 h Life time charging cycles > 75 % or more of its initial capacity after 300 charge/discharge cycles Power consumption 18.5 W (meas.) Safety IEC 61010-1, EN 61010-1, UL 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight Substructure of the sub		R&S [®] HA-Z303 battery charger	
Life timecharging cycles> 75 % or more of its initial capacity after 300 charge/discharge cyclesPower consumption18.5 W (meas.)SafetyIEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12Test markVDE, cCSAus, KCEMCin line with EMC Directive 2014/30/EU including• EN 61326-1 (immunity, industrial) • CISPR 11/EN 55011/Group 1 Class B (emission)DimensionsW × H × D202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in)Weight3.1 kg (6.8 lb)Recommended calibration interval1 year		instrument switched on	5 h
And Sing System300 charge/discharge cyclesPower consumption18.5 W (meas.)SafetyIEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12Test markVDE, cCSAus, KCEMCin line with EMC Directive 2014/30/EU including• EN 61326-1 • EN 61326-1 table 2 (immunity, industrial) • CISPR 11/EN 55011/Group 1 Class B (emission)DimensionsW × H × D202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) 3.1 kg (6.8 lb)Weight3.1 kg (6.8 lb)	Life time	charging cycles	> 75 % or more of its initial capacity after
Power consumption18.5 W (meas.)SafetyIEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12Test markVDE, cCSAus, KCEMCin line with EMC Directive 2014/30/EU including• EN 61326-1 (immunity, industrial) • CISPR 11/EN 55011/Group 1 Class B (emission)DimensionsW × H × D202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in)Weight3.1 kg (6.8 lb)Recommended calibration interval1 year			300 charge/discharge cycles
Safety IEC 61010-1, EN 61010-1, UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 including • CISPR 11/EN 55011/Group 1 Class B (emission) Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) Recommended calibration interval 1 year	Power consumption		18.5 W (meas.)
Test mark UL 61010-1 (third edition), CAN/CSA-C22.2 No. 61010-1-12 Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 including • CISPR 11/EN 55011/Group 1 Class B (emission) Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) Recommended calibration interval 1 year	Safety		IEC 61010-1, EN 61010-1,
Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 including • EN 61326-1 table 2 (immunity, industrial) • CISPR 11/EN 55011/Group 1 Class B (emission) Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) 1 year	·····		UL 61010-1 (third edition).
Test mark VDE, cCSAus, KC EMC in line with EMC Directive 2014/30/EU including • EN 61326-1 including • EN 61326-1 table 2 (immunity, industrial) • CISPR 11/EN 55011/Group 1 Class B (emission) Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) 1 year			CAN/CSA-C22.2 No. 61010-1-12
EMC in line with EMC Directive 2014/30/EU • EN 61326-1 including • EN 61326-1 table 2 including • EN 61326-1 table 2 (immunity, industrial) • CISPR 11/EN 55011/Group 1 Class B (emission) 202 mm × 294 mm × 76 mm Beight 3.1 kg (6.8 lb) Recommended calibration interval 1 year	Test mark		VDE. cCSAus. KC
including • EN 61326-1 table 2 (immunity, industrial) • EN 61326-1 table 2 (immunity, industrial) • CISPR 11/EN 55011/Group 1 Class B (emission) Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) Recommended calibration interval 1 year	EMC	in line with EMC Directive 2014/30/FU	• EN 61326-1
Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) Recommended calibration interval 1 year	_	including	 EN 61326-1 table 2
Weight W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb)		including	(immunity industrial)
Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) Recommended calibration interval 1 year			CISPR 11/EN 55011/Group 1
Dimensions W × H × D 202 mm × 294 mm × 76 mm (8.0 in × 11.6 in × 3 in) Weight 3.1 kg (6.8 lb) Recommended calibration interval 1 year			Class B (emission)
Weight 3.1 kg (6.8 lb) Recommended calibration interval 1 year	Dimensions	W×H×D	202 mm x 294 mm x 76 mm
Weight 3.1 kg (6.8 lb) Recommended calibration interval 1 year			$(8.0 \text{ in } \times 11.6 \text{ in } \times 3 \text{ in})$
Recommended calibration interval	Weight		3.1 kg (6.8 lb)
	Recommended calibration interval		1 vear

Options

R&S[®]ZNH-K10 DC bias option

DC bias				
Output port		BNC		
Output voltage	mode: internal +2 V to +32 V in 0.1 V steps (nom.)			
Accuracy	< +3 V	< 1 V (nom.)		
	≥ +3 V	< 0.5 V (nom.)		
Maximum output power	mode: internal operated with battery 7 W			
	operated with AC mains	7 W		
Maximum continuous output current	mode: internal	650 mA		

R&S[®]ZNH-K29 pulse measurements with power sensor

In combination with one of the power sensors R&S[®]NRP-Z81, R&S[®]NRP-Z85 or R&S[®]NRP-Z86, the R&S[®]ZNH4/ZNH8/ZNH18/ZNH26 supports measurements on pulsed signals ⁴. The achievable RF performance is documented in the data sheet specifications of the R&S[®]NRP-Z81/-Z85/-Z86 power sensors. The list below shows which measurements are supported by the R&S[®]ZNH-K29.

Measurements	R&S [®] ZNH-K29
Pulse power parameters	•
Peak power	•
Pulse top power	•
Average power	•
Base power	•
Minimum power	•
Positive overshoot	•
Negative overshoot	•
Pulse timing parameters	•
Pulse duration	•
Pulse period	•
Pulse start/stop time	•
Rise/fall time	
Duty cycle	•

R&S[®]ZNH-K45 vector voltmeter option

Reflection measurement				
Result formats	mode: vector voltmeter	magnitude + phase		
Display range		approx. 1 dB to 150 dB		
Transmission measurement				
Result formats	mode: vector voltmeter	magnitude + phase		
Display range		approx. 1 dB to 150 dB		

R&S[®]ZNH-K66 wave ratios and wave quantities option

Wave quantity measurements	selectable	 transmitted wave measurement at port 1 (a₁) received wave measurement at port1 (b₁) transmitted wave measurement at port 2 (a₂) received wave measurement at port 2 (b₂)
Wave ratio measurements	selectable	 complex ratio of any transmitted or received wave quantities any ratio combination possible
Source port	selectable	 port 1 port 2 source off

⁴ The R&S[®]NRP-Z8x power sensors are supported by instruments with serial number ≥ 105000. For instruments with serial number < 121000, the R&S[®]FSH-Z129 adapter cable is required in addition.

Ordering information

Designation	Туре	Frequency range	Order-No.		
Base kit					
Handheld vector network analyzer, two ports, 4 GHz, type N	R&S [®] ZNH4		1321.1611.04		
Handheld vector network analyzer, two ports, 8 GHz, type N	R&S [®] ZNH8		1321.1611.08		
Handheld vector network analyzer, two ports, 18 GHz, type N	R&S [®] ZNH18		1321.1611.18		
Handheld vector network analyzer, two ports, 26 GHz, PC 3.5mm	R&S [®] ZNH26		1321.1611.26		
Accessories supplied					
Lithium-ion battery pack, USB cable, AC power supply with country s	specific adapters for EU	I, GB, US, AUS, CH, g	etting started		
manual, side strap					
Software options					
Power sensor support	R&S [®] ZNH-K9		1334.6800.02		
DC bias variable voltage source	R&S [®] ZNH-K10		1334.6846.02		
Pulse measurements with power sensor	R&S [®] ZNH-K29		1334.6823.02		
Vector voltmeter	R&S [®] ZNH-K45		1334.6852.02		
Wave ratios and wave quantities	R&S [®] ZNH-K66		1334.6869.02		
Calibration and verification					
Calibration kit, 50 Ω	R&S®ZCAN	0 Hz to 3 GHz	0800.8515.52		
Calibration kit, 75 Ω	R&S®ZCAN	0 Hz to 3 GHz	0800.8515.72		
Calibration kit, 50 Ω (combined open/short)	R&S [®] FSH-Z28	0 Hz to 8 GHz	1300.7810.03		
Calibration kit, 50 Ω (combined open/short)	R&S®FSH-Z29	0 Hz to 3.6 GHz	1300.7510.03		
Calibration kit, 3.5 mm	R&S®ZN-Z235	0 Hz to 26.5 GHz	1336.8500.02		
(open/short/match/through male and female each)			4004 4000 00		
	R&S [®] ZN-Z103	2 MHz to 4 GHz	1321.1828.02		
	R&S [®] ZN-Z103	1 MHz to 6 GHz	1321.1828.12		
Calibration kit, 3.5 mm (m)	R&S [®] ZN-Z135	0 Hz to 26.5 GHz	1328.8157.02		
incl. DCV data on CD	R&S [®] ZN-Z135	0 Hz to 26.5 GHz	1328.8157.12		
Incl. accredited calibration	R&S [®] ZN-Z135	0 HZ to 26.5 GHZ	1328.8157.22		
Calibration Kit, 3.5 mm (f)	R&S [®] ZN-Z135	0 HZ to 26.5 GHZ	1328.8157.03		
Incl. DCV data on CD	R&S [®] ZN-Z135	0 HZ to 26.5 GHZ	1328.8157.13		
	R&S°ZN-Z135	0 HZ to 26.5 GHZ	1328.8157.23		
Calibration kit, type N (m)	R&S°ZN-Z170	0 Hz to 18 GHz	1328.8163.02		
incl. DCV data on CD	R&S°ZN-Z170	0 Hz to 18 GHz	1328.8163.12		
	R&3"ZIN-Z170		1320.0103.22		
incl. DCV data on CD	R&3"ZIN-Z170		1320.0103.03		
incl. DCV data off CD	R&S*ZN-Z170	0 Hz to 18 GHz	1328.8163.73		
Test port cable 3.5 mm (f) to 3.5 mm (m) length: 635 mm	R&S [®] 7\/_703	0 Hz to 26 5 GHz	1301 7505 25		
Test port cable, 3.5 mm (f) to 3.5 mm (m), length: 055 mm	R&S®7\/_793	0 Hz to 26.5 GHz	1301.7595.25		
Test port cable, v.s min (r) to v.s min (m), length: 500 min	R&S®7\/-7191	0 Hz to 18 GHz	1306 4507 24		
Test port cable, type N (m) to type N (m), length: 914 mm	R&S®7V-7191	0 Hz to 18 GHz	1306 4507 36		
Test port cable, type N (m) to 3.5 mm (m), length: 610 mm	R&S®7V-7192	0 Hz to 18 GHz	1306.4513.24		
Test port cable, type N (m) to 3.5 mm (m), length: 914 mm	R&S®7V-7192	0 Hz to 18 GHz	1306.4513.36		
Test port cable, 3.5 mm (f) to 3.5 mm (m), length: 610 mm	R&S [®] ZV-Z193	0 Hz to 26.5 GHz	1306.4520.24		
Test port cable, 3.5 mm (f) to 3.5 mm (m), length: 914 mm	R&S [®] ZV-Z193	0 Hz to 26.5 GHz	1306.4520.36		
Test port cable, 3.5 mm (f) to 3.5 mm (m), length: 1524 mm	R&S®ZV-Z193	0 Hz to 26.5 GHz	1306.4520.60		
Test port cable, 2.92 mm (f) to 2.92 mm (m), length: 635 mm	R&S [®] ZV-Z95	0 Hz to 40 GHz	1301.7608.25		
Test port cable, 2.92 mm (f) to 2.92 mm (m), length: 965 mm	R&S [®] ZV-Z95	0 Hz to 40 GHz	1301.7608.38		
Test port cable, 2.92 mm (f) to 2.92 mm (m), length: 610 mm	R&S [®] ZV-Z195	0 Hz to 40 GHz	1306.4536.24		
Test port cable, 2.92 mm (f) to 2.92 mm (m), length: 914 mm	R&S [®] ZV-Z195	0 Hz to 40 GHz	1306.4536.36		
Power sensors supported by R&S [®] ZNH-K9 (for average power measurement) and wideband power sensors supported by					
R&S [®] ZNH-K29 (for pulse measurement)					
Directional power sensor,	R&S [®] FSH-Z14	25 MHz to 1 GHz	1120.6001.02		
Directional power sensor,	R&S [®] FSH-Z44	200 MHz to 4 GHz	1165.2305.02		
Universal power sensor, 100 mW, two-path	R&S [®] NRP-Z211	10 MHz to 8 GHz	1417.0409.02		
Universal power sensor, 100 mW, two-path	R&S [®] NRP-Z221	10 MHz to 18 GHz	1417.0309.02		
Wideband power sensor, 100 mW	R&S [®] NRP-Z81	50 MHz to 18 GHz	1137.9009.02		
Wideband power sensor, 100 mW (2.92 mm)	R&S [®] NRP-Z85	50 MHz to 40 GHz	1411.7501.02		
Wideband power sensor, 100 mW (2.40 mm)	R&S [®] NRP-Z86	50 MHz to 40 GHz	1417.0109.40		
Wideband power sensor, 100 mW (2.40 mm)	R&S [®] NRP-Z86	50 MHz to 44 GHz	1417.0109.44		
Three-path diode power sensors, 100 pW to 200 mW	R&S [®] NRP8S	10 MHz to 8 GHz	1419.0006.02		
Three-path diode power sensors, 100 pW to 200 mW	R&S®NRP18S	10 MHz to 18 GHz	1419.0029.02		
Three-path diode power sensors, 100 pW to 200 mW	R&S [®] NRP33S	10 MHz to 33 GHz	1419.0064.02		
Three-path diode power sensors, 100 pW to 200 mW	R&S [®] NRP40S	50 MHz to 40 GHz	1419.0041.02		
Three-path diode power sensors, 100 pW to 200 mW	R&S [®] NRP50S	50 MHz to 50 GHz	1419.0087.02		

Thermal power sensor, 300 nW to 100 mW	R&S [®] NRP18T	0 Hz to 18 GHz	1424.6115.02
Thermal power sensor, 300 nW to 100 mW	R&S [®] NRP33T	0 Hz to 33 GHz	1424.6138.02
Thermal power sensor, 300 nW to 100 mW	R&S [®] NRP40T	0 Hz to 40 GHz	1424.6150.02
Thermal power sensor, 300 nW to 100 mW	R&S [®] NRP50T	0 Hz to 50 GHz	1424.6173.02
Thermal power sensor, 300 nW to 100 mW	R&S®NRP67T	0 Hz to 67 GHz	1424.6196.02
Thermal power sensor, 300 nW to 100 mW	R&S®NRP90T	0 Hz to 90 GHz	1424.6473.02
Thermal power sensor, 300 nW to 100 mW	R&S®NRP110T	0 Hz to 110 GHz	1424 6215 02
Average power sensors 100 pW to 200 mW	R&S®NRP64	8 kHz to 6 GHz	1424 6796 02
Average power sensors, 100 pW to 200 mW		8 kHz to 18 GHz	1424.6815.02
P&S[®]FSH-7XX power sensors require the following adapter cab	le for operation on the		1424.0010.02
LISB adapter cable to connect R&S [®] FSH-714/R&S [®] FSH-744 to the			11/5 5000 02
$P8 \subseteq \mathbb{R}^{87}$ NIL longth: 1.8 m	Rao 1011-2144		1145.5909.02
Ras Zivil, lengui. 1.6 m PS C®NDD 7xx power concerc require the following edeptor aph	le for energian on the		
LISP adapter cable (passive) to connect DS S®NPD Zwy to the		RAJ ZNH	11/6 9001 02
DSD audpier cable (passive), to connect Rashire-2xx to the	Rad INRF-24		1140.0001.02
Rad ZINH, leligiti. Ziti	n amanatian an tha DQ	C®7111	
Kas NRP power sensors require the following adapter caple for			4 4 4 0 0 0 5 0 0 0
USB Interface cable, to connect R&S°NRP to the R&S°ZNH,	K&S°NRP-ZKU		1419.0658.03
Optical power sensors and accessories			4000 0000 00
RF cable, armored, type N (m) and type N (f) connectors,	R&S [®] FSH-Z320	0 Hz to 8 GHz	1309.6600.00
length: 1 m			
RF cable, armored, type N (m) and type N (f) connectors,	R&S [®] FSH-Z321	0 Hz to 8 GHz	1309.6617.00
length: 3 m			
Attenuator, 50 W, 20 dB, 50 Ω, type N (f) to type N (m)	R&S®RDL50	0 Hz to 6 GHz	1035.1700.52
Attenuator, 100 W, 20 dB, 50 Ω, type N (f) to type N (m)	R&S [®] RBU100	0 Hz to 2 GHz	1073.8495.20
Attenuator, 100 W, 30 dB, 50 Ω, type N (f) to type N (m)	R&S®RBU100	0 Hz to 2 GHz	1073.8495.30
OEM USB optical power meter (Germanium)	R&S®HA-Z360		1334.5162.00
OEM USB optical power meter (filtered InGaAs)	R&S [®] HA-Z361		1334.5179.00
SC adapter for optical power meter	R&S®HA-Z362		1334.5185.00
LC adapter for optical power meter	R&S®HA-Z363		1334.5191.00
2.5 mm universal adapter for optical power meter	R&S [®] HA-Z364		1334.5204.00
1.25 mm universal adapter for optical power meter	R&S [®] HA-Z365		1334.5210.00
Patch cord SC-LC SM, SX, length: 1 m	R&S [®] HA-Z366		1334.5227.00
Patch cord SC-SC SM, SX, length: 1 m	R&S®HA-Z367		1334.5233.00
Recommended extras			
Battery charger for R&S [®] HA-Z306 ⁵	R&S®HA-Z303		1321.1328.02
Lithium-ion battery pack, 6.4 Ah	R&S [®] HA-Z306		1321.1334.02
Spare power supply, incl. mains plug for EU, GB, US, AUS, CH	R&S [®] HA-Z301		1321.1386.02
Car adapter	R&S®HA-Z302		1321.1340.02
Carrying holster	R&S [®] HA-Z322		1321.1370.02
Rainproof carrying holster	R&S [®] HA-Z322		1321.1370.03
Soft carrying bag	R&S [®] HA-Z220		1309.6175.00
Hardcase	R&S®HA-Z321		1321.1357.02
Hard shell protective carrying case	R&S [®] RTH-Z4		1326.2774.02
Spare USB cable	R&S [®] HA-7211		1309.6169.00
Spare Ethernet cable	R&S [®] HA-7210		1309 6152 00
GPS receiver	R&S®HA-7340		1321 1392 02
Matching pad 50/75 0 L section	R&S®RAM		0358 5414 02
Matching pad, 50/75 0, series resistor 25 0	R&S®RA7		0358 5714 02
Matching pad, 50/75 0 L section type N to RNC	R&S®FSH-738		1300 7740 02
Adapter type N (m) to BNC (f)			0118 2812 00
Adaptor type N (III) to DNO (I)			0002 6591 00
Adapter type N (III) to type N (III)			4012 5927 00
Adoptor type N (III) to SIVIA (I)			
Adapter type N (III) to 7/10 (I)			3530.0040.00
			3530.0030.00
			4048.9790.00
Adapter BNC (m) to banana (t)	1		0017.6742.00

⁵ The battery charger is dedicated for charging an additional battery outside the instrument. The battery can be charged via the instrument as well.

Warranty		
Base unit		3 years
All other items ⁶		1 year
Options		
Extended warranty, one year	R&S [®] WE1	Please contact your local
Extended warranty, two years	R&S [®] WE2	Rohde & Schwarz sales
Extended warranty with calibration coverage, one year	R&S [®] CW1	office.
Extended warranty with calibration coverage, two years	R&S [®] CW2	
Extended warranty with accredited calibration coverage, one year	R&S [®] AW1	
Extended warranty with accredited calibration coverage, two years	R&S [®] AW2	

Extended warranty with a term of one and two years (WE1 and WE2)

Repairs carried out during the contract term are free of charge ⁷. Necessary calibration and adjustments carried out during repairs are also covered.

Extended warranty with calibration coverage (CW1 and CW2)

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 ⁷ and calibration at the recommended intervals as well as any calibration carried out during repairs or option upgrades.

Extended warranty with accredited calibration (AW1 and AW2)

Enhance your extended warranty by adding accredited calibration coverage at a package price. This package ensures that your Rohde & Schwarz product is regularly calibrated under accreditation, inspected and maintained during the term of the contract. It includes all repairs ⁷ and accredited calibration at the recommended intervals as well as any accredited calibration carried out during repairs or option upgrades.

⁶ For options that are installed, the remaining base unit warranty applies if longer than 1 year. Exception: all batteries have a 1 year warranty.

⁷ Excluding defects caused by incorrect operation or handling and force majeure. Wear-and-tear parts are not included.

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- ► Worldwide

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

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