R&S®RT-ZVCxx Multi-Channel Power Probe Specifications





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Definitions

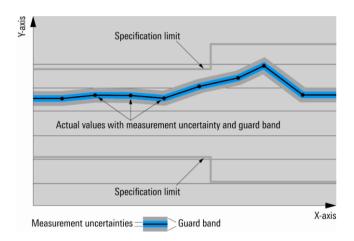
General

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

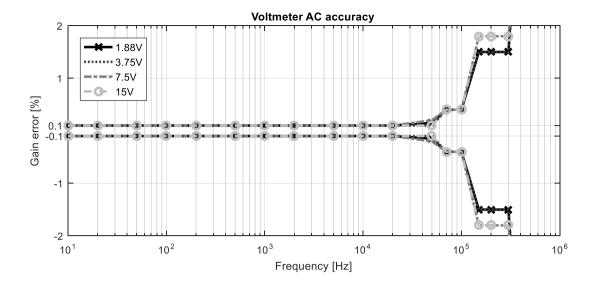
Device settings and GUI parameters are indicated as follows: "parameter: value".

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

Probe characteristics

Voltmeter of the R&S®RT-ZVC02/02A/04/04A

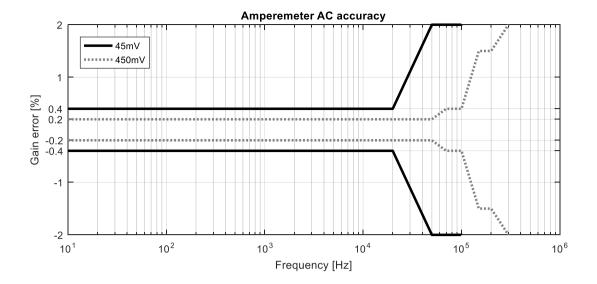
Number of signals		2/4
DC characteristics		
Voltage ranges		1.88 V, 3.75 V, 7.5 V, 15 V
DC accuracy	system	± (0.1 % of reading + 0.01 % of range)
Specified accuracy temperature range	rated accuracy applies after 30 min stabilization	+23 °C ± 5 °C
Temperature coefficient	from 0 °C to +18 °C or +28 °C to +50 °C	0.15 x specified accuracy/°C
Dynamic range		
Overall range	referred to LSB	102 dB (nom.)
Differential input	single socket	±7.5 V
Single-ended input	single socket	±15 V
Maximum rated input voltage		
Continuous voltage		±18 V (CAT I)
ESD tolerance	human body model	8 kV
Input impedance	· ·	
DC input resistance	between signal sockets	10 MΩ (nom.)
Input capacitance		48 pF (meas.)
Sensitivity		
Noise	AC RMS value computed with 5 Msample/	/s
	1.88 V	< 50 μV (meas.)
	3.75 V	< 100 µV (meas.)
	7.5 V	< 200 μV (meas.)
	15 V	< 400 µV (meas.)
Frequency response		()
Bandwidth	system, -1 dB (10.9 % error), starting at D	OC .
	1.88 V/3.75 V	1 MHz
	7.5 V	800 kHz
	15 V	700 kHz
AC accuracy	1.88 V	7001112
no decordey	10 Hz to 20 kHz	± (0.1 % of reading + 0.01 % of range)
	20 kHz to 50 kHz	± (0.15 % of reading + 0.01 % of range)
	50 kHz to 100 kHz	± (0.4 % of reading + 0.01 % of range)
	100 kHz to 300 kHz	± (1.5 % of reading + 0.01 % of range)
	300 kHz to 400 kHz	± (5 % of reading + 0.01 % of range)
	400 kHz to 1 MHz	± (10.9 % of reading + 0.01 % of range)
	3.75 V	± (10.9 % of reading + 0.01 % of range)
	10 Hz to 50 kHz	. (0.1.9) of roading . 0.01.9) of range)
	50 kHz to 100 kHz	± (0.1 % of reading + 0.01 % of range)
	100 kHz to 300 kHz	± (0.4 % of reading + 0.01 % of range)
		± (1.5 % of reading + 0.01 % of range)
	300 kHz to 600 kHz	± (5 % of reading + 0.01 % of range)
	600 kHz to 1 MHz	± (10.9 % of reading + 0.01 % of range)
	7.5 V	. (0.4.0) of reading 1. 0.04.0) of reads)
	10 Hz to 20 kHz	± (0.1 % of reading + 0.01 % of range)
	20 kHz to 50 kHz	± (0.2 % of reading + 0.01 % of range)
	50 kHz to 100 kHz	± (0.4 % of reading + 0.01 % of range)
	100 kHz to 300 kHz	± (1.8 % of reading + 0.01 % of range)
	300 kHz to 500 kHz	± (5 % of reading + 0.01 % of range)
	500 kHz to 800 kHz	± (10.9 % of reading + 0.01 % of range)
	15 V	(0.4.0) (
	10 Hz to 50 kHz	± (0.1 % of reading + 0.01 % of range)
	50 kHz to 100 kHz	± (0.4 % of reading + 0.01 % of range)
	100 kHz to 300 kHz	± (1.8 % of reading + 0.01 % of range)
	300 kHz to 400 kHz	± (5 % of reading + 0.01 % of range)
	400 kHz to 700 kHz	± (10.9 % of reading + 0.01 % of range)
Specified accuracy temperature range	rated accuracy applies after 30 min stabilization	+23 °C ± 5 °C
Temperature coefficient	from 0 °C to +18 °C or +28 °C to +50 °C	0.15 x specified accuracy/°C



Amperemeter of the R&S®RT-ZVC02/-ZVC04

Number of signals		2/4
DC characteristics		
Current ranges	limited by internal overload protection and 15 A fuse, limits for continuous current given in brackets	
		4.5 µA
		45 μA
		4.5 mA
		45 mA
		4.5 A
		10 A (5 A)
	external shunt on DUT, recommended for	45 mV
	currents > 3 A	450 mV
Shunt resistors	4.5 μΑ, 45 μΑ	10 kΩ ± 0.1 %
	4.5 mA, 45 mA	10 Ω ± 0.1 %
	4.5 A, 10 A	$10 \text{ m}\Omega \pm 0.1 \%$
Voltage burden	including total (round trip) input resistance	
_	10 kΩ shunt (4.5 μA, 45 μA)	10 mV/μA, max. 500 mV
	10 Ω shunt (4.5 mA, 45 mA)	10.7 mV/mA, max. 535 mV
	10 mΩ shunt (4.5 A, 10 A)	128 mV/A, max. 1.28 V
DC accuracy	system, all ranges except 4.5 A and 10 A	± (0.2 % of reading + 0.02 % of range)
·	system, 4.5 A range	± (0.3 % of reading + 0.02 % of range)
	system, 10 A range	± (0.2 % of reading + 0.09 % of range)
Specified accuracy temperature range	rated accuracy applies after 30 min stabilization	+23 °C ± 5 °C
Temperature coefficient	from 0 °C to +18 °C or +28 °C to +50 °C	0.15 x specified accuracy/°C
Dynamic range		
Overall range	including range switching	228 dB
Differential input	single socket	±250 mV
Single-ended input	single socket	±500 mV
Common mode range	single socket	±15 V
Maximum rated input voltage		
Continuous voltage	external shunt	±18 V (CAT I)
ESD tolerance	human body model	8 kV

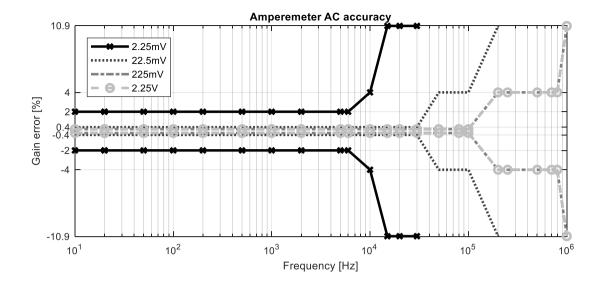
Input impedance			
DC input resistance	resistance between signal sockets		
	external shunt	1 MΩ (nom.)	
	10 kΩ shunt (4.5 μA, 45 μA)	1 M Ω 10 k Ω = 9.89 k Ω (nom.)	
	10 Ω shunt (4.5 mA, 45 mA)	10.6 Ω (nom.)	
	10 mΩ shunt (4.5 A, 10 A)	21.2 mΩ (nom.)	
	additional resistance caused by cabling and	connectors	
	AWG24 cable (standard shipping)	$2*(41 + 0.77/cm) m\Omega (nom.)$	
	AWG20 cable (used in accessory sets)	$2*(41 + 0.33/cm) m\Omega (nom.)$	
	total (round trip) resistance including conne		
	causes total voltage burden seen at the lea	3 \ 3 /	
	10 kΩ shunt (4.5 μA, 45 μA)	9.89 kΩ (nom.)	
	10 Ω shunt (4.5 mA, 45 mA)	10.7 Ω (nom.)	
	10 mΩ shunt (4.5 A, 10 A)	128 mΩ (nom.)	
nput capacitance	between signal sockets	120 11122 (110111.)	
при сараскансе	external shunt	< 2.3 nF (meas.)	
Sensitivity	external shunt	< 2.5 III (IIIeas.)	
Noise	AC RMS value computed with 5 Msample/s	<u> </u>	
voise		< 2 nA (meas.)	
	4.5 µA	, ,	
	45 µA	< 6 nA (meas.)	
	4.5 mA	< 2 µA (meas.)	
	45 mA	< 6 μA (meas.)	
	4.5 A	< 2 mA (meas.)	
	10 A	< 6 mA (meas.)	
	45 mV	< 30 μV (meas.)	
	450 mV	< 60 μV (meas.)	
Frequency response	system, –1 dB (10.9 % error), starting at DO		
	given in brackets) 45 mV (4.5 μA, 4.5 mA, 4.5 A)	300 kHz	
	450 mV (45 μA, 45 mA, 10 A)	1 MHz	
AC accuracy	45 mV (4.5 μA, 4.5 mA, 4.5 A)	1 1411 12	
no accuracy	10 Hz to 40 kHz	± (0.4 % of reading + 0.02 % of range)	
	40 kHz to 100 kHz	± (2 % of reading + 0.02 % of range)	
	100 kHz to 270 kHz	± (10.9 % of reading + 0.02 % of range)	
		± (10.9 % of reading + 0.02 % of range)	
	450 mV (45 μA, 45 mA, 10 A) 10 Hz to 50 kHz	. (0.2.0/ of reading . 0.02.0/ of reage)	
		± (0.2 % of reading + 0.02 % of range)	
	50 kHz to 100 kHz	± (0.4 % of reading + 0.02 % of range)	
	100 kHz to 200 kHz	± (1.5 % of reading + 0.02 % of range)	
	200 kHz to 300 kHz	± (2 % of reading + 0.02 % of range)	
	300 kHz to 800 kHz	± (5 % of reading + 0.02 % of range)	
	800 kHz to 1 MHz	± (10.9 % of reading + 0.02 % of range)	
Specified accuracy temperature range	rated accuracy applies after 30 min stabilization	+23 °C ± 5 °C	
Temperature coefficient	from 0 °C to +18 °C or +28 °C to +50 °C	0.15 x specified accuracy/°C	
/x-to-Ix channel isolation	input frequency < analog bandwidth, from v		
	channel number (not relevant between voltmeter and amperemeter of different channel		
	numbers)		
	4.5 μA	> 67 dB (meas.)	
	•	> 54 dB (meas.)	
	45 μA	2 34 UD (IIIEas.)	
	45 μA 4.5 mA	,	
	4.5 mA	> 65 dB (meas.)	
	4.5 mA 45 mA	> 65 dB (meas.) > 54 dB (meas.)	
	4.5 mA 45 mA 4.5 A	> 65 dB (meas.) > 54 dB (meas.) > 87 dB (meas.)	
	4.5 mA 45 mA 4.5 A 10 A	> 65 dB (meas.) > 54 dB (meas.) > 87 dB (meas.) > 114 dB (meas.)	
	4.5 mA 45 mA 4.5 A	> 65 dB (meas.) > 54 dB (meas.) > 87 dB (meas.)	



Amperemeter of the R&S®RT-ZVC02A/-ZVC04A

Number of signals		2/4	
DC characteristics			
Current ranges	limited by internal overload protection and 15 A fuse, limits for continuous current given		
	in brackets	in brackets	
		2.25 mA	
		11.25 mA	
		22.5 mA	
		45 mA	
		112.5 mA	
		225 mA	
		450 mA	
		900 mA	
		1.125 A	
		3 A (1.5 A)	
		4.5 A	
		6 A (3 A)	
	external shunt on DUT, recommended for	2.25 mV	
	currents > 3 A	22.5 mV	
	ourionité y o 71	225 mV	
		2.25 V	
Shunt resistors	2.25/22.5/225/900 mA	1 Ω ± 0.1 %	
Charle registers	11.25 mA, 112.5 mA, 1.125 A, 3 A	$200 \text{ m}\Omega \pm 0.1 \%$	
	45 mA, 450 mA, 4.5 A, 6 A	$50 \text{ m}\Omega \pm 0.1 \%$	
Voltage burden	including total (round trip) input resistance	30 1112 ± 0.1 70	
voltage burden	50 mΩ shunt	128 mV/A, max. 300 mV	
	200 mΩ shunt	0.2 mV/mA, max. 600 mV	
	1 Ω shunt	1 µV/µA, max. 900 mV	
DC coouragy (cyatam)	2.25/11.25/45 mA	± (0.2 % of reading + 0.16 % of range)	
DC accuracy (system)	2.25 mV	± (0.2 % of reading + 0.16 % of range) ± (0.2 % of reading + 0.25 % of range)	
	22.5 mV, 22.5/112.5/450 mA	± (0.2 % of reading + 0.03 % of range)	
	225 mA, 1.125 A, 4.5A, 225 mV, 2.25 V	± (0.2 % of reading + 0.02 % of range)	
		(0.0.0) af a a al'a a a 0.05.0(af a a a a)	
	900 mA	± (0.2 % of reading + 0.05 % of range)	
	3 A	± (0.2 % of reading + 0.08 % of range)	
LAC TO THE TOTAL T	6 A	± (0.2 % of reading + 0.15 % of range)	
Minimum current with best accuracy	2 % accuracy		
	50 mΩ shunt	4 mA	
	200 mΩ shunt	1 mA	
	1 Ω shunt	200 μΑ	
	5 % accuracy		
	50 mΩ shunt	1.6 mA	
	200 mΩ shunt	400 μA	
	1 Ω shunt	80 μΑ	

Specified accuracy temperature range	rated accuracy applies after 30 min stabilization and typical device operation	+23 °C ± 3 °C
Temperature coefficient	from 0 °C to +20 °C or +26 °C to +50 °C	
Temperature coemicient	2.25/11.25/45 mA, 2.25 mV	0.7 × specified accuracy/°C
	22.5/112.5/450 mA, 22.5 mV	0.35 x specified accuracy/°C
	all other ranges	0.15 x specified accuracy/°C
Dynamic range		
Overall range	gain switching only	up to 161 dB
	including shunt switching	170 dB
Differential input	single socket	±125 mV
Single-ended input	single socket	±250 mV
Common mode range	single socket	±15 V
Autoranging	olingio oconor	210 (
Application	only available for	all amperemeter ranges with internal and
Друпсацоп	R&S®RT-ZVC02A/-ZVC04A, for operation with R&S®CMWrun	external shunts
Mode		gain switching only (fixed shunt), range by range
Settling time	to ranges 2.25/2.25/11.25/45 mA	≤ 10 µs
- -	all other transitions	≤ 2.5 µs
Seamless measurement rate	voltage, current, and power	50 ksample/s
Maximum rated input voltage	,g-,, sam ponoi	
Continuous voltage	external shunt	±18 V (CAT I)
ESD tolerance	human body model	8 kV
	numan body model	O KV
Input impedance	and the second state of the second se	
DC input resistance	resistance between signal sockets	1,110,
	external shunt	1 MΩ (nom.)
	50 mΩ shunt (45 mA, 450 mA, 4.5 A, 6 A)	150 mΩ (nom.)
	200 mΩ shunt (11.25 mA, 112.5 mA, 1.125 A, 3 A)	300 mΩ (nom.)
	1 Ω shunt (2.25/22.5// 225/900 mA)	1.1 Ω (nom.)
	additional resistance caused by cabling and	d connectors
	AWG24 cable (standard shipping)	$2*(41 + 0.77/cm) m\Omega (nom.)$
	AWG20 cable (used in accessory sets)	2*(41 + 0.33/cm) mΩ (nom.)
	total (round trip) resistance including conne	
	causes total voltage burden seen at the lea	
	50 mΩ shunt (45 mA, 450 mA, 4.5 A, 6 A)	257 mΩ (nom.)
	200 mΩ shunt (11.25 mA, 112.5 mA, 1.125 A, 3 A)	407 mΩ (nom.)
	1 Ω shunt (2.25/22.5/225/900 mA)	1.2 Ω (nom.)
Input capacitance	between signal sockets	0.0 (5.4)
	external shunt	< 2.2 nF (meas.)
Sensitivity	140 040	
Noise	AC RMS value computed with 5 Msample/s	
	2.25 mA	< 5 μA (meas.)
	11.25 mA	< 26 μA (meas.)
	22.5 mA	< 20 µA (meas.)
	45 mA	< 105 μA (meas.)
	112.5 mA	< 90 µA (meas.)
	225 mA	< 60 μA (meas.)
	450 mA	
		< 380 μA (meas.)
	900 mA	< 260 μA (meas.)
	1.125 A	< 300 μA (meas.)
	3 A	< 1.5 mA (meas.)
	4.5 A	< 1.2 mA (meas.)
	6 A	< 5.5 mA (meas.)
	2.25 mV	< 8 µV (meas.)
	22.5 mV	< 20 μV (meas.)
	225 mV	< 65 μV (meas.)
	2.25 V	< 270 µV (meas.)



AC RMS value computed with 50 ksample/	's
2.25 mA	< 2.3 µA (meas.)
11.25 mA	< 11.2 µA (meas.)
22.5 mA	< 2.7 µA (meas.)
45 mA	< 46.1 µA (meas.)
112.5 mA	< 13.4 µA (meas.)
225 mA	< 6.4 µA (meas.)
450 mA	< 54 µA (meas.)
900 mA	< 38 µA (meas.)
1.125 A	< 32 µA (meas.)
3 A	< 199 μA (meas.)
4.5 A	< 131 µA (meas.)
6 A	< 787 μA (meas.)
2.25 mV	< 3.2 µV (meas.)
22.5 mV	< 3.6 µV (meas.)
225 mV	< 7.1 µV (meas.)
2.25 V	< 40 μV (meas.)

Frequency response		
Bandwidth	system, -1 dB (10.9 % error), starting at DC,	
	only characterized in external shunt mode	(worst case condition in terms of input
	capacitance, comparable specification for o	current ranges using internal shunts are
	given in brackets)	
	2.25 mV (2.25/11.25/45 mA)	30 kHz
	22.5 mV (22.5/112.5/450 mA)	230 kHz
	225 mV (225 mA, 1.125 A, 4.5 A)	1 MHz
	2.25 V (900 mA, 3 A, 6 A)	1 MHz
AC accuracy	2.25 mV (2.25/11.25/45 mA)	
	10 Hz to 4 kHz	± (2 % of reading + 0.25 % of range)
	4 kHz to 10 kHz	± (4 % of reading + 0.25 % of range)
	10 kHz to 30 kHz	± (10.9 % of reading + 0.25 % of range)
	22.5 mV (22.5/112.5/450 mA)	
	10 Hz to 40 kHz	± (0.4 % of reading + 0.03 % of range)
	40 kHz to 100 kHz	± (4 % of reading + 0.03 % of range)
	100 kHz to 230 kHz	± (10.9 % of reading + 0.03 % of range)
	225 mV (225 mA, 1.125 A, 4.5 A), 2.25 V (900 mA, 3 A, 6 A)
	10 Hz to 100 kHz	± (0.2 % of reading + 0.02 % of range)
	100 kHz to 800 kHz	± (4 % of reading + 0.02 % of range)
	800 kHz to 1 MHz	± (10.9 % of reading + 0.02 % of range)
Specified accuracy temperature range	rated accuracy applies after 30 min	+23 °C ± 3 °C
•	stabilization and typical device operation	
Temperature coefficient	from 0 °C to +20 °C or +26 °C to +50 °C	
	2.25/11.25/45 mA, 2.25 mV	0.7 x specified accuracy/°C

	all other ranges	0.15 x specified accuracy/°C
Vx-to-Ix channel isolation	input frequency < analog bandw	ridth, from voltmeter to amperemeter channel of same
	channel number (not relevant be	etween voltmeter and amperemeter of different channel
	numbers)	
	2.25 mA	> 81 dB (meas.)
	11.25 mA	> 82 dB (meas.)
	22.5 mA	> 63 dB (meas.)
	45 mA	> 81 dB (meas.)
	112.5 mA	> 64 dB (meas.)
	225 mA	> 53 dB (meas.)
	450 mA	> 63 dB (meas.)
	900 mA	> 50 dB (meas.)
	1.125 A	> 53 dB (meas.)
	3 A	> 50 dB (meas.)
	4.5 A	> 53 dB (meas.)
	6 A	> 49 dB (meas.)
	2.25 mV	> 61 dB (meas.)
	22.5 mV	> 57 dB (meas.)
	225 mV	> 55 dB (meas.)
	2.25 V	> 52 dB (meas.)

Digital backend of the R&S®RT-ZVC02/02A/04/04A

A/D conversion		1/2	
Number of channels	1 per input signal	4/8	
Readings per second (speed)		5 Msample/s	
Resolution		18 bit	
Resolution voltmeter (LSB)	1.88 V	14 µV	
	3.75 V	28 μV	
	7.5 V	57 μV	
	15 V	114 µV	
Resolution amperemeter (LSB)	R&S®RT-ZVC02/-ZVC04	R&S®RT-ZVC02/-ZVC04	
	4.5 µA	0.038 nA	
	45 µA	0.38 nA	
	4.5 mA	38 nA	
	45 mA	381 nA	
	4.5 A	38 µA	
	10 A	381 µA	
	45 mV	381 nV	
	450 mV	3.81 µV	
	R&S®RT-ZVC02A/-ZVC04A		
	2.25 mA	19 nA	
	11.25 mA	95 nA	
	22.5 mA	191 nA	
	45 mA	381 nA	
	112.5 mA	954 nA	
	225 mA	1.91 µA	
	450 mA	3.81 µA	
	900 mA	19 μΑ	
	1.125 A	9.54 μΑ	
	3 A	95.4 μA	
	4.5 A	38.1 µA	
	6 A	381 µA	
	2.25 mV	19 nV	
	2.25 mV	191 nV	
	225 mV 2.25 V	1.91 μV 19 μV	
Ossillasaana interfesa	2.25 V	19 μν	
Oscilloscope interface	D 0 C R D T 7 1 1 C O O 1 7 1 C O 0 4	Decembra	
Use with	R&S®RT-ZVC02/-ZVC04	R&S®RTO2000, R&S®RTE	
Connector	as shipped with article 1326.0259.02/04	HDMR-29	
HOD interfere	or accessory 1333.1770.02		
USB interface		LIOD O O M.	
Connector		USB 3.0 Micro B	
Max. cable length	as shipped with article	1.5 m	
	1326.0259.22/24/32/34		

R&S®CMWrun interface

Use with	R&S®CMW-KT051 software option plus dedicated signaling extension for control and evaluation of power consumption monitoring and battery life measurements	R&S®CMW500, R&S®CMW290
PC prerequisites	monitoring and battery life measurements	
Operating system		Windows PC, Windows version ≥ 7
CPU	minimum	Intel™ Core i3 or similar processor performance
RAM		≥ 8 Gbyte
HDD		high performance HDD or SDD for storing sample data
Peripherals		USB 3.0 interface
Graphical user interface for results		
Number of supported power measurement groups in parallel	Each power measurement group consists of a voltmeter and amperemeter with internal multiplier for instantaneous power calculation.	
- '	R&S®RT-ZVC02/-ZVC02A	up to 2
	R&S®RT-ZVC04/-ZVC04A	up to 4
Displayed measurements in the R&S®CMWrun report/power consumption monitor		parallel monitoring of voltage and current samples with calculation and display of the instantaneous power in R&S®CMWrun software
Sample rate displayed in the	available sample rate per measured	10/50/100/500/1000/5000/10000/
R&S®CMWrun report/power consumption monitor	channel (voltage, current and instantaneous power)	50000 sample/s
Decimation methods	, ,	peak or average
Output formats		PDF, XML, CSV, TXT
Trigger events		signaling events in red lines
		IP analysis triggers in blue lines

R&S®RTO2000, R&S®RTE interface (R&S®RT-ZVC02/-ZVC04 only)

Vertical system

Input channels	depending on number (up to 2) and type of voltage/current channel version)	depending on number (up to 2) and type of connected probes (2 × 2 or 2 × 4 voltage/current channel version)	
	1 x R&S [®] RT-ZVC02	2 voltage, 2 current channels	
	2 × R&S [®] RT-ZVC02	4 voltage, 4 current channels	
	1 x R&S [®] RT-ZVC04	4 voltage, 4 current channels	
	1 x R&S®RT-ZVC02,	6 voltage, 6 current channels	
	1 x R&S®RT-ZVC04		
	2 × R&S [®] RT-ZVC04	8 voltage, 8 current channels	
Arrangement of input channels	arranged in two probes Z1 and Z2 with up	Z1V1 to Z1V4, Z1I1 to Z1I4	
	to 4 voltage/current channels each,	Z2V1 to Z2V4, Z2I1 to Z2I4	
	assignment of the power probe to the port		
	at the back of the oscilloscope is indicated		
	on the probe (probe Z1, probe Z2)		

Horizontal system

Channel deskew	for each channel		
	min.	–6 μs	
	max.	+6 µs	
	step	200 ns	
Oscilloscope to R&S®RT-ZVC channel	R&S®RT-ZVC bandwidth set to 1 MHz, oscilloscope channels not filtered		
skew (CH1 to CH4 to V1 to V4, I1 to I4)	amperemeter channels: 45 μA, 45 mA, 10 A, 450 mV; voltmeter channels: 1.88 V, 3.75 V, 7.5 V, 15 V	≤ ±200 ns (meas.)	
	amperemeter channels: 4.5 μA, 4.5 mA, 4.5 A, 45 mV	≤ +400 ns (meas.)	

Acquisition system

Acquisition mode		realtime and interpolated time	
Acquisition history	supported		
Sampling rate	max.	5 Msample/s	
Realtime waveform acquisition rate	max.	500 waveforms/s	
Memory depth	1 active power probe (R&S®RT-ZVC02/-ZVC04)	16 Msample for every channel	
	2 active power probes (R&S®RT-ZVC02/-ZVC04)	8 Msample for every channel	
	acquisition and postprocessing settings can reduce the memory depth		
Decimation	modes	sample, peak, highres	
	min. sample rate	25 ksample/s	
Bandwidth	reduction performed by first order digital lowpass filtering		
	min.	5 kHz	
	max.	1 MHz	
	step	5 kHz	

Trigger system

Edge trigger on R&S®RT-ZVC channels	triggers on specified slope (positive, negative or either) in the source signal	
	sources	any channel from V1 to V4, I1 to I4
Other trigger features		all trigger features of the base unit on
	oscilloscope channels	

Prerequisites

Hardware option	R&S®RTO2000	R&S®RTO-B1 mixed signal option (latest version with included R&S®RTO-B1E) or R&S®RTO-B1E digital extension port
	R&S [®] RTE	R&S®RTE-B1 mixed signal option (latest version with included R&S®RTE-B1E) or R&S®RTE-B1E digital extension port
	for details, see ordering information in the R&S®RTO2000 and R&S®RTE data sheets	
R&S®RTx software version	R&S®RT-ZVC02/-ZVC04 support	with 3.60.1.0 onwards

Features

General features	waveform measurements, mask testing, waveform math, search and mark function, display characteristics	all features of base unit as well as R&S®RTO-K18 and R&S®RTO-K19 options are supported
	sources	all channels from V1 to V4, I1 to I4
Mixed operation	R&S®RT-ZL04 logic probe and	simultaneous connection, but no parallel
mines operation	R&S®RT-ZVC02/04 power probe	operation on screen
	R&S®RT-ZL04 logic probe or	supported, running on same horizontal
	R&S®RT-ZVC02/04 power probe together	scale
	with analog input channels	

General data of the R&S®RT-ZVC02/02A/04/04A

Environmental conditions		
Temperature	operating temperature range, for probe and for operation via USB and power adapter	0 °C to +50 °C
	operating temperature range, with oscilloscope	0 °C to +45 °C
	storage temperature range	-10 °C to +60 °C
Damp heat		+25 °C/+40 °C, 95 % rel. humidity, cyclic, in line with EN 60068-2-30
Altitude	operating	up to 2000 m
	transport	up to 4500 m

Mechanical resistance			
Vibration	sinusoidal	5 Hz to 55 Hz, 0.15 mm amplitude const., 55 Hz to 150 Hz, 0.5 g const., 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-STD-810E, method 516.4, procedure I	
Power rating	<u> </u>		
Probe	all channels enabled, all sampling	6 V DC, 2 A	
Power adapter	input	100 V to 240 V at 47 Hz to 63 Hz, 0.4 A	
·	output	+5.9 V DC, 1.5 A	
Product conformity			
Electromagnetic compatibility	EU: in line with EMC Directive 2014/30/EU	 applied harmonized standards: EN 61326-1 (industrial environment) EN 61326-2-1 EN 55011 (class A) EN 61000-3-2 EN 61000-3-3 	
Electrical safety	EU: in line with Low Voltage Directive 2014/35/EU USA Canada	applied harmonized standard: EN 61010-1 UL 61010-1 CAN/CSA-C22.2 No. 61010-1	
Certifications		VDE-GS, cCSA _{US} , KC	
Calibration interval	recommended for highest accuracy for general test and measurement applications	1 year 2 years	
Dimensions	probe head (L × W × H)	approx. 150 mm \times 103 mm \times 40 mm (5.9 in \times 4.1 in \times 1.6 in)	
	cable lengths of shipped test leads	approx. 16 cm (6.3 in)	
	current cable size	AWG24	
	voltage cable size	AWG28	
Weight	probe only	approx. 500 g (1.1 lb)	

Ordering information

Designation	Туре	Order No.
Multi-Channel Power Probe, 2 x 4 voltage/current channels, for R&S®RTO2000/R&S®RTE	R&S®RT-ZVC04	1326.0259.04
Multi-Channel Power Probe, 2 × 4 voltage/current channels, for R&S®CMWrun	R&S®RT-ZVC04	1326.0259.24
Multi-Channel Power Probe, 2 × 2 voltage/current channels, for R&S®RTO2000/R&S®RTE	R&S®RT-ZVC02	1326.0259.02
Multi-Channel Power Probe, 2 x 2 voltage/current channels, for R&S®CMWrun	R&S®RT-ZVC02	1326.0259.22
Multi-Channel Power Probe with Autoranging, 2 x 4 voltage/current channels, for R&S®CMWrun	R&S®RT-ZVC04A	1326.0259.34
Multi-Channel Power Probe with Autoranging, 2 x 2 voltage/current channels, for R&S®CMWrun	R&S®RT-ZVC02A	1326.0259.32
Accessories		
Extended Cable Set for R&S®RT-ZVC, PCB probing, 1 current and voltage lead, length: 32 cm	R&S®RT-ZA30	1333.1686.02
Extended Cable Set for R&S®RT-ZVC, 4 mm probing, 1 current and voltage lead, length: 32 cm	R&S®RT-ZA31	1333.1692.02
Power Adapter for R&S®RT-ZVC02/04 (only for operation with R&S®CMWrun)	R&S®RT-ZA32	1333.1705.02
Oscilloscope Interface Cable for R&S®RT-ZVC (included in R&S®RT-ZVC02/-ZVC04, 1326.0259.02/.04)	R&S®RT-ZA33	1333.1770.02
Extended Cable Set for R&S®RT-ZVC, 4 mm probing, 1 current and voltage lead, length: 1 m	R&S®RT-ZA34	1333.1892.02
Extended Cable Set for R&S®RT-ZVC, PCB probing, 1 current and voltage lead, length: 1 m	R&S®RT-ZA35	1333.1905.02
Solder-in Cable Set for R&S®RT-ZVC, 4 current and voltage solder-in cables, solder-in pins	R&S®RT-ZA36	1333.1911.02
Extended Cable Set for R&S®RT-ZVC, BNC connector, 1 current and voltage lead, length: 16 cm	R&S®RT-ZA37	1337.9130.02
Graphical user interface based on R&S®CMWrun (USB con	nection to the PC with R&	S®CMWrun environment)
R&S®CMWrun General-Purpose (adds battery life, GUI and features such as audio and E2E applications)	R&S®CMW-KT051	1203.4157.02

Service options		
Extended Warranty, one year	R&S®WE1	Please contact your local
Extended Warranty, two years	R&S®WE2	Rohde & Schwarz sales
Extended Warranty, three years	R&S®WE3	office.
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 Accredited Calibration Coverage, one year	R&S®AW1	
Extended Warranty with Accredited Calibration Coverage, two years	R&S®AW2	
Extended Warranty with Accredited Calibration Coverage, three years	R&S®AW3	
Extended Warranty with Accredited Calibration Coverage, four years	R&S®AW4	

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.

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.

Extended warranty with accredited calibration (AW1 to AW4)

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 ¹ and accredited calibration at the recommended intervals as well as any accredited 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

- Uncompromising qualityLong-term dependability

Rohde & Schwarz

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