ROHDE&SCHWARZ
Make ideas real

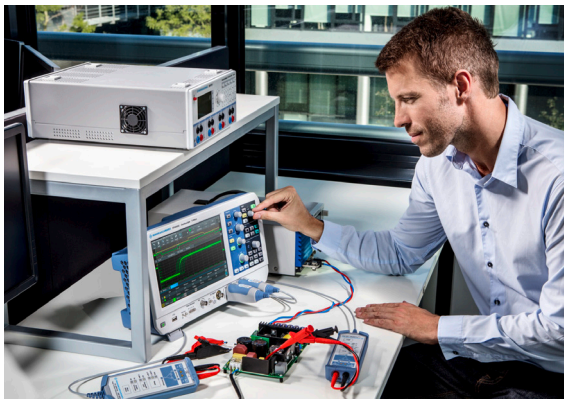
OSCILLOSCOPE INNOVATION. MEASUREMENT CONFIDENCE.

www.rohde-schwarz.com/oscilloscopes

200 MHz bandwidth combined with excellent common mode rejection ratio

To achieve maxium power efficiency and power density in switched-mode power supplies, switching loss has to be minimized. This requires the use of modern, fast-switching semiconductors.

With up to 200 MHz bandwidth and an excellent common mode rejection ratio (CMRR) over a wide frequency range, R&S®RT-ZHD high voltage differential probes are ideal for measurements on fast-switching semiconductors. Extraordinarily low added noise results in high-quality measurements.

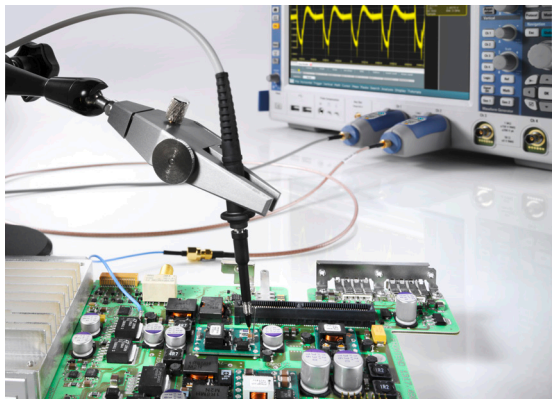


The R&S®RT-ZHD probes safely measure peak voltages up to 6000 V thanks to an industry-leading 2000 V probe offset range and integrated DC voltmeter.

Power rail probe with up to 4 GHz bandwidth and very low added noise

High bandwidth, high sensitivity, very low noise and extra-large offset compensation make R&S®RT-ZPR power rail probes ideal characterizing power rails. An integrated high-accuracy DC voltmeter provides instantaneous DC voltage readouts.

Low voltages with tight tolerances make testing power rails challenging. Modern power rails are susceptible to coupling from high speed signals and RF sources and require more precise low voltage measurements.



With a bandwidth up to 4.0 GHz, excellent sensitivity thanks to the 1:1 attenuation ratio and low noise, R&S®RT-ZPR probes excel at precise ripple measurements.

GET IN TOUCH WITH THE POWER OF TEN.

Signal integrity debugging and analysis

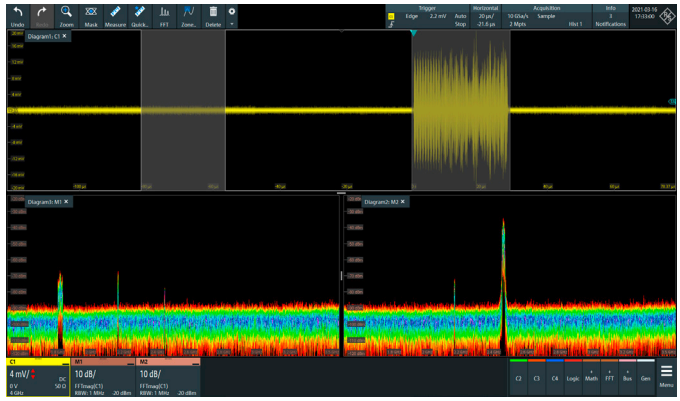
The R&S®RTO6 oscilloscopes offer comprehensive debugging and analysis tools for signal integrity tests on high speed interfaces and designs:

- Jitter and noise decomposition to gain deep system insights
- High speed serial pattern trigger with clock data recovery (CDR)
- Deembedding for signal path correction
- Compliance test solutions for USB, Ethernet, PCIe, MIPI, DDR
- Trigger and decode solutions for various standards
- First TDR/TDT solution in a real-time oscilloscope

Powerful spectrum analysis for EMI debugging

R&S®RTO6 oscilloscopes support powerful multichannel spectrum analysis. Their high dynamic range and input sensitivity of 1 mV/div at full measurement bandwidth make it possible to detect even weak emissions. The powerful FFT implementation is ideal for analysis in the frequency domain thanks to easy operation, high acquisition rates and functions such as spectrograms, peak lists and logarithmic scaling. The R&S®RTO6 simplifies detecting and isolating sporadic emissions and correlating them with time-domain signals thanks to sophisticated functions, such as gated FFT and zone triggers in the frequency domain.

Jitter and noise analysis: displays step response, individual jitter and noise components in histograms, spectrum, synthetic eye diagram and BER bathtub curves.



The gated FFT function of the R&S®RTO6 oscilloscope applies FFT analysis only to user-defined regions of the acquired time domain signal.

ANALYSIS

We continually enhance our oscilloscope portfolio, adding new models, applications and accessories for high-quality analysis.

R&S®	RTH1000	RTC1000	RTB2000	RTM3000	RTA4000	RTE1000	RTO6	RTP
Measure	cursor, parameter	cursor, parameter	cursor, parameter incl. statistics	cursor, parameter incl. statistics	cursor, parameter incl. statistics	cursor, parameter incl. statistics	cursor, parameter incl. statistics	cursor, parameter incl. statistics
Mathematics	elementary	elementary	basic (math on math)	basic (math on math)	basic (math on math)	advanced (formula editor)	advanced (formula editor)	advanced (formula editor)
Mask test	elementary (tolerance mask around signal)	elementary (tolerance mask around signal)	elementary (tolerance mask around signal)	elementary (tolerance mask around signal)	elementary (tolerance mask around signal)	advanced (user-configurable, hardware based)	advanced (user-configurable, hardware based)	advanced (user-configurable, hardware based)
Serial protocols triggering and decoding [1]	I²C, SPI, UART/ RS-232/RS-422/ RS-485, CAN, LIN, CAN-FD, SENT	I²C, SPI, UART/ RS-232/RS-422/ RS-485, CAN, LIN	I²C, SPI, UART/ RS-232/RS-422/ RS-485, CAN, LIN	I²C, SPI, UART/ RS-232/RS-422/ RS-485, CAN, LIN, I²S, MIL-STD-1553, ARINC 429	I²C, SPI, UART/ RS-232/RS-422/ RS-485, CAN, LIN, I²S, MIL-STD-1553, ARINC 429	I²C, SPI, UART/ RS-232/RS-422/ RS-485, CAN, LIN, I²S, MIL-STD-1553, ARINC 429, FlexRay™, CAN-FD, USB 2.0/ HSIC, Ethernet, Manchester, NRZ, SENT, SpaceWire, CXPI, USB Power Delivery, automotive Ethernet 100BASE-T1	I²C, SPI, UART/ RS-232/RS-422/ RS-485, CAN, LIN, I²S, MIL-STD-1553, ARINC 429, FlexRay™, CAN-FD, MIPI RFFE, USB 2.0/ HSIC, MDIO, 8b10b, Ethernet, Manchester, NRZ, SENT, MIPI D-PHY, SpaceWire, MIPI M-PHY/UniPro, CXPI, USB 3.1 Gen1, USB-SSIC, PCIe 1.1/2.0, USB Power Delivery, automotive Ethernet 100BASE-T1/ 1000BASE-T1	I²C, SPI, UART/ RS-232/RS-422/ RS-485, CAN, LIN, MIL-STD-1553, ARINC 429, CAN-FD, MIPI RFFE, USB 2.0/ HSIC, MDIO, 8b10b, Ethernet, Manchester, NRZ, MIPI D-PHY, SpaceWire, MIPI M-PHY/UniPro, USB 3.1 Gen1/ Gen2, USB-SSIC, PCIe 1.1/2.0/3.0, USB Power Delivery, automotive Ethernet 100BASE-T1/ 1000BASE-T1
Display functions	data logger	–	–	–	–	histogram, trend, track [2]	histogram, trend, track [2]	histogram, trend, track [2]
Applications [1]	high-resolution frequency counter, advanced spectrum analysis, harmonics analysis, user scripting	digital voltmeter (DVM), component tester, fast Fourier transform (FFT)	digital voltmeter (DVM), fast Fourier transform (FFT), frequency response analysis	power, digital voltmeter (DVM), spectrum analysis and spectrogram, frequency response analysis	power, digital voltmeter (DVM), spectrum analysis and spectrogram, frequency response analysis	power, 16 bit high definition mode (standard), advanced spectrum analysis and spectrogram	power, 16 bit high definition mode (standard), advanced spectrum analysis and spectrogram, jitter and noise decomposition, clock data recovery, I/Q data, RF analysis, deembedding, TDR/TDT analysis	16 bit high definition mode, advanced spectrum analysis and spectrogram, jitter and noise decomposition, RF analysis, real-time deembedding, TDR/TDT analysis, I/Q data, HS serial pattern trigger with 8/16 Gbps CDR
Generator [1]	–	1-channel function, 4 bit pattern [1, 2]	1-channel function, 1-channel arbitrary, 4 bit pattern [1, 2]	1-channel function, 1-channel arbitrary, 4 bit pattern [1, 2]	1-channel function, 1-channel arbitrary, 4 bit pattern [1, 2]	2-channel function, 2-channel arbitrary, 8 bit pattern [1, 2]	2-channel function, 2-channel arbitrary, 8 bit pattern [1, 2], 16 GHz differential pulse source	2-channel function, 2-channel arbitrary, 8 bit pattern [1, 2], 16 GHz differential pulse source
Compliance testing [1]	–	–	–	–	–	–	various options available (see PD 5216.1640.22)	various options available (see PD 5215.4152.22)

[1] Upgradeable. [2] Requires an option.

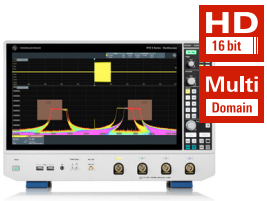
OSCILLOSCOPE PORTFOLIO

R&S®	RTH1000	RTC1000	RTB2000	RTM3000
Vertical				
Bandwidth	60/100/200/350/500 MHz [1]	50/70/100/200/300 MHz [1]	70/100//200/300 MHz [1]	100/200/350/500 MHz/1 GHz [1]
Number of channels	2 plus DMM/4	2	2/4	2/4
Resolution	10 bit	8 bit	10 bit	10 bit
V/div 1 MΩ	2 mV to 100 V	1 mV to 10 V	1 mV to 5 V	500 µV to 10 V
V/div 50 Ω	–			500 µV to 1 V
Horizontal				
Sampling rate per channel (in Gsample/s)	1.25 (4-channel model); 2.5 (2-channel model); 5 (all channels interleaved)	1; 2 (2 channels interleaved)	1.25; 2.5 (2 channels interleaved)	2.5; 5 (2 channels interleaved)
Maximum memory (per channel/1 channel active)	125 ksample (4-channel model); 250 ksample (2-channel model); 500 ksample (50 Msample in segmented memory mode [2])	1 Msample; 2 Msample	10 Msample; 20 Msample (160 Msample in segmented memory mode [2])	40 Msample; 80 Msample (400 Msample in segmented memory mode [2])
Segmented memory	option	–	option	option
Acquisition rate (in waveforms/s)	50 000	10 000	50 000 (300 000 in fast segmented memory mode [2])	64 000 (2 000 000 in fast segmented memory mode [2])
Trigger				
Options	advanced, digital trigger (14 trigger types) [2]	elementary (5 trigger types)	comprehensive (7 trigger types)	comprehensive (10 trigger types)
Mixed signal option				
No. of digital channels [1]	8	8	16	16
Sampling rate of digital channels (in Gsample/s)	1.25	1	1.25	two logic probes: 2.5 on each channel; one logic probe: 5 on each channel
Memory of digital channels	125 ksample	1 Msample	10 Msample	two logic probes: 40 Msample per channel; one logic probe: 80 Msample per channel
Display and operation				
Size and resolution	7", color, 800 × 480 pixel	6.5", color, 640 × 480 pixel	10.1", color, 1280 × 800 pixel	10.1", color, 1280 × 800 pixel
Operation	optimized for touchscreen operation, parallel button operation	optimized for fast button operation	optimized for touchscreen operation, parallel button operation	
General data				
Dimensions in mm (W × H × D)	201 × 293 × 74	285 × 175 × 140	390 × 220 × 152	390 × 220 × 152
Weight in kg	2.4	1.7	2.5	3.3
Battery	lithium-ion, > 4 h	–	–	–

[1] Upgradeable. [2] Requires an option.

Excellent signal fidelity, high acquisition rates, an innovative trigger system and a smart user interface – this is what you get with a Rohde&Schwarz oscilloscope.

Choose from a wide range of oscilloscopes, from high-volume oscilloscopes for service, maintenance and education to top-class instruments for R&D and EMI debugging in the 600 MHz to 16 GHz range. Benefit from the high product quality and the in-depth development and production expertise at Rohde&Schwarz.



	RTA4000	RTE1000	RTO6	RTP
	200/350/500 MHz/1 GHz [1]	200/350/500 MHz/1/1.5/2 GHz [1]	600 MHz/1/2/3/4/6 GHz [1]	4/6/8/13/16 GHz [1]
	4	2/4	4	4
	10 bit	8 bit (up to 16 bit with HD mode)	8 bit (up to 16 bit with HD mode)	8 bit (up to 16 bit with HD mode)
	500 µV to 10 V	500 µV to 10 V	1 mV to 10 V (500 µV to 10 V)	2 mV to 10 V (with R&S®RT-Z1M adapter)
	500 µV to 1 V	500 µV to 1 V	1 mV to 1 V (500 µV to 1 V)	2 mV to 1 V
	2.5; 5 (2 channels interleaved)	5	10; 20 (2 channels interleaved in 4 GHz and 6 GHz model)	20; 40 (2 channels interleaved)
	100 Msample; 200 Msample (1 Gsample in segmented memory mode)	50 Msample/200 Msample	standard: 200 Msample/800 Msample; max. upgrade: 1 Gsample/2 Gsample	standard: 50 Msample/200 Msample; max. upgrade: 1 Gsample/2 Gsample
	standard	standard	standard	standard
	64 000 (2 000 000 in fast segmented memory mode)	1 000 000 (1 600 000 in ultra-segmented memory mode)	1 000 000 (2 500 000 in ultra-segmented memory mode)	> 750 000 (3 200 000 in ultra-segmented memory mode)
	comprehensive (10 trigger types)	advanced, digital trigger (13 trigger types)	advanced (includes zone trigger), digital trigger (14 trigger types)	advanced, digital trigger (14 trigger types) with real-time deembedding [2], high speed serial pattern trigger with 8/16 Gbps CDR [2], zone trigger [2]
	16	16	16	16
	two logic probes: 2.5 on each channel; one logic probe: 5 on each channel	5	5	5
	two logic probes: 100 Msample per channel; one logic probe: 200 Msample per channel	100 Msample	200 Msample	200 Msample
	10.1", color, 1280 × 800 pixel	10.4", color, 1024 × 768 pixel	15.6", color, 1920 × 1080 pixel	12.1", color, 1280 × 800 pixel
	optimized for touchscreen operation, parallel button operation			
	390 × 220 × 152	427 × 249 × 204	450 × 315 × 204	441 × 285 × 316
	3.3	8.6	10.7	18
	–	–	–	–

PROBE PORTFOLIO

Probe type

- Passive
- Active single-ended
- Active differential
- Modular
- Power rail
- Multi-channel
- High voltage
- Current
- Near-field

Type	Description	Bandwidth	Dynamic range
R&S®RT-ZP10	passive, single-ended, 10:1	500 MHz	400 V (RMS)
R&S®RT-ZI10	passive, single-ended, 10:1, isolated	500 MHz	600 V CAT IV, 1000 V CAT III
R&S®RT-ZZ80	passive, single-ended, 10:1, broadband	8 GHz	20 V (RMS)
R&S®RT-ZP1X	passive, single-ended, 1:1	38 MHz	55 V (RMS)
R&S®RT-ZS10L	active, single-ended, 10:1	1 GHz	±8 V
R&S®RT-ZS10E	active, single-ended, 10:1 [1]	1 GHz	±8 V
R&S®RT-ZS10/20/30/60	active, single-ended, 10:1 [1, 2]	1/1.5/3/6/13/16 GHz	±8 V
R&S®RT-ZD01	active, differential, 100:1/1000:1	100 MHz	±140 V (100:1), ±1400 V (1000:1)
R&S®RT-ZD02	active, differential, 10:1	200 MHz	±20 V
R&S®RT-ZD08	active, differential, 10:1	800 MHz	±15 V
R&S®RT-ZD10/20/30	active, differential, 10:1 [1, 2]	1/1.5/3 GHz	±5 V, with R&S®RT-ZA15: ±70 V DC, ±46 V AC (peak)
R&S®RT-ZD40	active, differential, 10:1 [1, 2]	4.5 GHz	±5 V
R&S®RT-ZM15/30/60/90/130/160	active, multimode amplifier module, 10:1/2:1 [1, 2]	1.5/3/6/9/13/16 GHz	depends on tip module used
R&S®RT-ZMA10	solder-in [3]	[4]	±2.5 V (10:1), ±0.5 V (1:1)
R&S®RT-ZMA12	square-pin [3]	[4], max. 6 GHz	±2.5 V (10:1), ±0.5 V (1:1)
R&S®RT-ZMA14	flex solder-in [3]	[4]	±2.5 V (10:1), ±0.5 V (1:1)
R&S®RT-ZMA15	quick-connect [3]	[4]	±2.5 V (10:1), ±0.5 V (1:1)
R&S®RT-ZMA30	browser [3]	[4]	±2.5 V (10:1), ±0.5 V (1:1)
R&S®RT-ZMA40	SMA [3]	[4], max. 6 GHz	±2.5 V (10:1), ±0.5 V (1:1)
R&S®RT-ZMA50	extreme temperature solder-in [3]	[4], max. 2.5 GHz	±2.5 V (10:1), ±0.5 V (1:1)
R&S®RT-ZPR20/40	active, single-ended, 1:1 [1]	2 GHz/4 GHz	±850 mV
R&S®RT-ZVC02/04	multi-channel power probe	1 MHz	±1.8 V to ±15 V, ±4.5 µA to ±10 A
R&S®RT-ZH10	passive, single-ended, 100:1	400 MHz	1 kV (RMS)
R&S®RT-ZH11	passive, single-ended, 1000:1	400 MHz	1 kV (RMS)
R&S®RZ-ZI10C	passive, single-ended, 10:1, isolated, compact	500 MHz	300 V CAT III
R&S®RT-ZI11	passive, single-ended, 100:1, isolated	500 MHz	600 V CAT IV, 1000 V CAT III, 3540 V CAT 0
R&S®RT-ZD002	active, differential, 10:1/100:1	25 MHz	±700 V
R&S®RT-ZD003	active, differential, 20:1/200:1	25 MHz	±1400 V
R&S®RT-ZHD07	active, differential, 25:1/250:1 [1, 2]	200 MHz	±750 V (peak)
R&S®RT-ZHD15/16	active, differential, 50:1/500:1 [1, 2]	100 MHz/200 MHz	±1500 V (peak)
R&S®RT-ZHD60	active, differential, 100:1/1000:1 [1, 2]	100 MHz	±6000 V (peak)
R&S®RT-ZC02	AC/DC two range current probe	20 kHz	100 A (RMS), 1000 A (RMS), 0.01 V/A, 0.001 V/A switchable
R&S®RT-ZC03	AC/DC current probe	100 kHz	20 A (RMS), ±30 A (peak), 0.1 V/A
R&S®RT-ZC05B	AC/DC current probe [1]	2 MHz	500 A (RMS), ±700 A (peak), 0.01 V/A
R&S®RT-ZC10/B	AC/DC current probe [1]	10 MHz	150 A (RMS), ±300 A (peak), 0.01 V/A
R&S®RT-ZC15B	AC/DC current probe [1]	50 MHz	30 A (RMS), ±50 A (peak), 0.1 V/A
R&S®RT-ZC20/B	AC/DC current probe [1]	100 MHz	30 A (RMS), ±50 A (peak), 0.1 V/A
R&S®RT-ZC30	AC/DC high-sensitivity current probe	120 MHz	5 A (RMS), ±7.5 A (peak), 1 V/A
R&S®RT-ZC31	AC/DC three range current probe	120 MHz	30 A (RMS), ±50 A (peak), 0.1 V/A, 1 V/A, 10 V/A switchable
R&S®HZ-14	active E and H near-field probe set [5]	9 kHz to 1 GHz	N/A
R&S®HZ-15	passive E and H near-field probe set	30 MHz to 3 GHz	N/A
R&S®HZ-17	compact H near-field probe set	30 MHz to 3 GHz	N/A

[1] Includes Rohde&Schwarz probe interface.
[2] Includes R&S®ProbeMeter and micro button for instrument control.
[3] Tip module for R&S®RT-ZMxx probes.
[4] Depends on amplifier module.
[5] Requires R&S®HZ-9 external power supply.

Service that adds value

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

Rohde & Schwarz

The Rohde & Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test and measurement, technology systems, and networks and cybersecurity. Founded more than 85 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

www.rohde-schwarz.com

Rohde & Schwarz training

www.training.rohde-schwarz.com

Rohde & Schwarz customer support

www.rohde-schwarz.com/support

PD 3607.0946.32 | Version 12.01 | July 2021 (sk)
Oscilloscope innovation. Measurement confidence.

3607094632
3607.0946.32 12.01 PDP/PDW 1 en