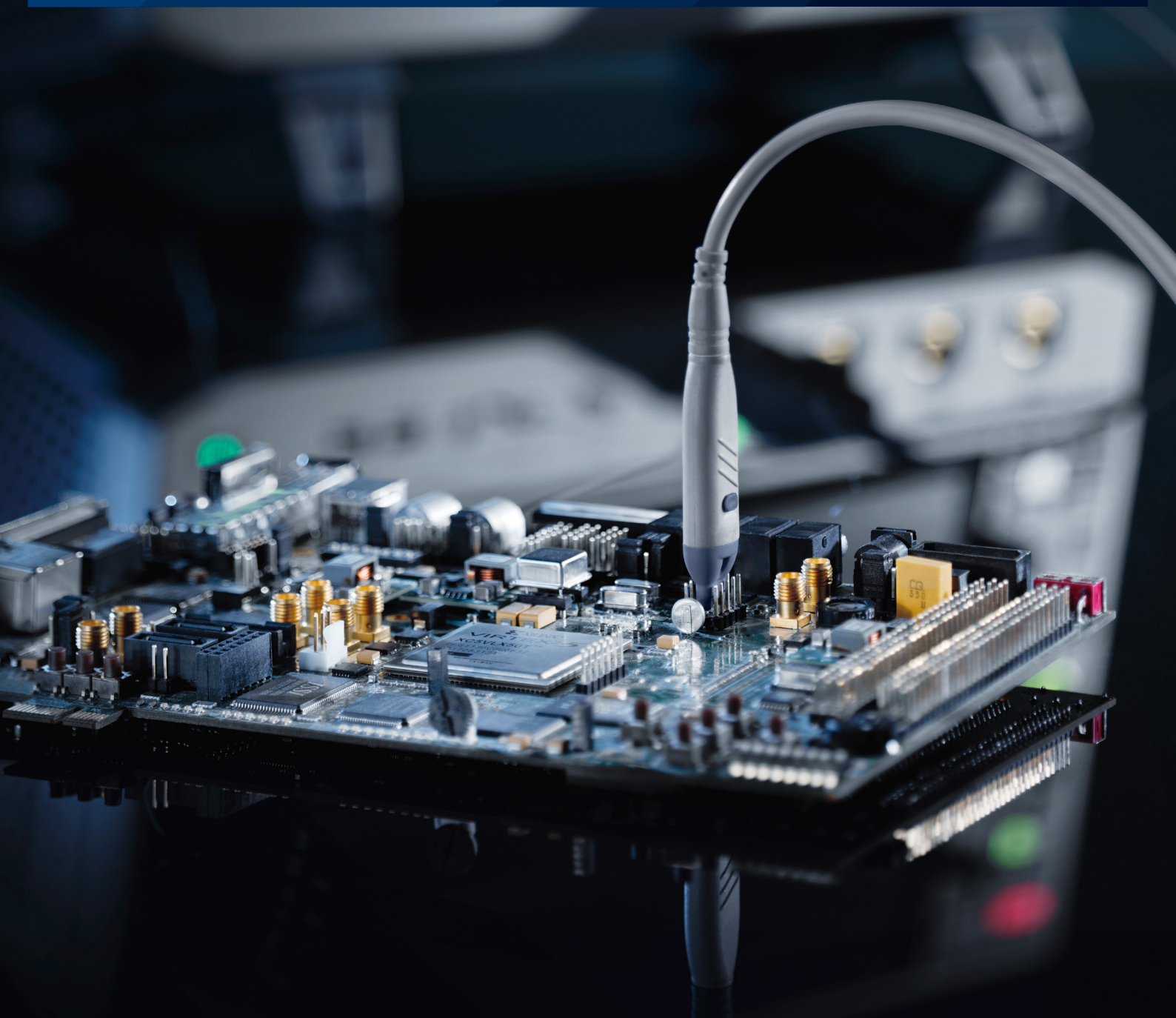
ROHDE&SCHWARZ
Make ideas real

PROBES AND ACCESSORIES

For Rohde&Schwarz oscilloscopes

Product Brochure | Version 21.00



AT A GLANCE

Oscilloscope test applications include debugging complex electronic circuits, measuring high-speed-bus signal integrity and characterizing power electronics with hazardous voltage levels. Measurement accuracy and operator safety depend on these probes and accessories.

Rohde&Schwarz passive probes are ideal for general-purpose measurements of low-frequency signals. The precision-engineered, spring-loaded tips ensure reliable and accurate contact with signal lines. The MXO 4, MXO 5 and MXO 5C series oscilloscopes come standard with 700 MHz passive probes.

Rohde&Schwarz active broadband probes deliver exceptional performance when minimal parasitic loading on the device under test (DUT) is crucial especially when measuring high-frequency signal components. The probes have an ultra-low load and a wide dynamic range for accurate measurements. The integrated, high-precision DC voltmeter quickly and easily tests DC levels on signal lines, independent of the oscilloscope settings. The unique micro button on the probe tips is configurable. Controlling RUN/STOP and saving screenshots give users flexibility and make setting up measurements easy.

Safety is vital when measuring power electronics. Rohde&Schwarz high voltage and current probes ensure safe and reliable CAT III testing. The R&S®RT-ZISO isolated probing system has high common-mode rejection of 60 kV even at high bandwidths of 1 GHz and is ideal for wide bandgap power technology testing.

Our EMC near-field probes also open up new possibilities for oscilloscope applications. When combined, the MXO series and R&S®RTO6 oscilloscopes provide exceptional spectrum analysis capabilities for EMC troubleshooting.

We have a comprehensive range of probe accessories for optimal signal contacting and measurement flexibility. Our accessories are designed to meet your specific measurement application needs with fine, spring-loaded tips, high-voltage probes and current probes. You know you have the right tools for the job with Rohde&Schwarz.

KEY FACTS

- Probes for every application: differential or single-ended voltage measurements, current measurements, EMC near-field measurements
- Active probes with very low loads thanks to high input impedance of up to 1 MΩ || 0.3 pF and a wide dynamic range of ±8 V
- Modular broadband probes with low capacitive loading and flexible and configurable connectivity
- R&S®ProbeMeter: integrated voltmeter with 0.1 % measurement uncertainty for precise DC measurements
- Simple operation using the configurable micro button
- Comprehensive accessories for maximum flexibility during contacting
- Passive probes included with every Rohde&Schwarz oscilloscope
- **NEW:** Isolated probing system for high voltage and fast switching environment up to 1 GHz bandwidth, > 90 dB CMRR with ±60 kV common mode range

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SELECTING THE RIGHT PROBE

The first step in selecting the right probe is analyzing the measurement task. Is a single-ended or differential measurement needed? Which maximum frequency components need to be transferred? What is the maximum input voltage?

Differential or single-ended measurements

Differential probes enable voltage readings between two points without a common ground reference, which is very valuable when analyzing floating circuits or characterizing switching power supplies. While primarily designed for differential signals, the probes can also perform single-ended measurements. However, traditional single-ended probes often have higher input impedance, lower input capacitance and a wider dynamic range. The key characteristics in a differential probe suppress common mode signals, making them better in noisy environments.

Bandwidth and rise time

Bandwidth is one of the most important probe selection parameters. It defines the cutoff frequency, after which a signals appear 3 dB or 30 % weaker than they actually are. Accurate signal representation requires a cutoff frequency for the measurement system (oscilloscope and probe) that is greater than the highest frequency component displayed. When measuring digital signals, the measurement bandwidth should be three to five times greater than the clock rate. When debugging a digital design, the bandwidth should be three times greater. The bandwidth must be five times greater than the clock rate for conformance tests on digital interfaces.

When measuring fast slopes (to characterize switching power supplies) the rise time for the measurement system (oscilloscope and probe) is critical.

Dynamic range

The dynamic range for a probe is the maximum measurable input voltage. It is specified for DC voltage and often decreases when frequency increases. Differential probes also have distinct dynamic ranges when in common or differential modes. The common mode dynamic range determines the valid input voltage range for a single differential input measured with a ground reference. The differential mode dynamic range defines the maximum measurable input differential voltage.

To accurately measure steep, large-amplitude slopes, a sufficiently wide dynamic range is needed at high frequencies. When measuring residual ripple in DC switching power supplies, very small signals with large DC components also need to be measured. Modern probes can feed in a DC offset for full A/D converter resolution.

Operator safety is vital with high voltage probes. High voltage probes have special insulation, protection against accidental contact and other protective mechanisms. The probes are characterized by maximum voltage to ground and measurement category. The measurement category defines the measurement environment where operators remain protected. A probe may only be used in its defined measurement categories.

Load on device under test (DUT)

A measurement system must not overload the circuit under test to prevent signal degradation and ensure that the DUT functions properly. The key is probes with high input impedance and low input capacitance. The resulting input impedance depends mainly on the frequency and is typically less than 500 Ω at the probe's cutoff frequency.

Passive probes typically have an input impedance of 10 MΩ at an input capacitance of > 10 pF. Active probes typically have an input capacitance of < 1 pF at an input impedance of 1 MΩ and are especially suited for measurements on circuits with high-speed signals > 100 MHz. Measurements demand proper probe accessories for contact with the DUT. Long pins and leads increase capacitance and inductance. Lowering the maximum measurement bandwidth leads to excessive overshoot and ringing artifacts on the pulse slopes.

Expanded functions and probe accessories

In addition to performance parameters, supplemental functions can also simplify daily tasks. Examples include an integrated digital voltmeter or the micro button. The micro button can be configured to allow direct control of an oscilloscope from the probe.

Diverse accessories provide flexibility during test point contacting, make day-to-day work easier and help prevent measurement errors. Available accessories include rigid and spring-loaded tips, browsers, adapters, probe positioners and extension leads. Rohde&Schwarz offers a comprehensive set of accessories for every probe.

Probe (R&S®)	Probe interface	Recommended oscilloscope family	Usable oscilloscope family [1]
Passive probes			
RT-ZP1X	BNC	R&S®RTC1000, R&S®RTB 2, R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6, R&S®RTP [2]	R&S®RTH1000 (R&S®Scope Rider RTH)
RT-ZI10/-ZI10C/-ZI11	BNC	R&S®RTH1000 (R&S®Scope Rider RTH)	
RT-ZP03S	BNC	R&S®RTC1000, R&S®RTB 2	R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4
RT-ZP05S	BNC	R&S®RTM3000	R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C
RT-ZP05M	BNC	MXO 3	R&S®RTM3000, R&S®RTA4000, MXO 4, MXO 5, MXO 5C
RTM-ZP10	BNC	only for discontinued R&S®RTM2000	
RT-ZP10	BNC	R&S®RTA4000, R&S®RTO6	R&S®RTM3000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTP [2]
RT-ZP11	BNC	MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6	R&S®RTM3000, R&S®RTA4000, R&S®RTP [2]
RT-ZPMMCX	BNC	MXO 3, MXO 4, MXO 5, MXO 5C	R&S®RTM3000, R&S®RTA4000, R&S®RTO6, R&S®RTP [2]
Passive broadband probes			
RT-ZZ80	SMA/BNC	R&S®RTO6, R&S®RTP	R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C
Active broadband probes			
RT-ZS10E/-ZS10/-ZS20/ -ZS30/-ZS60	Rohde&Schwarz probe interface	R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6, R&S®RTP	
RT-ZD10/-ZD20/-ZD30/-ZD40	Rohde&Schwarz probe interface	R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6, R&S®RTP	
Modular broadband probes			
RT-ZM15/-ZM30/-ZM60/ -ZM90/-ZM130/-ZM160	Rohde&Schwarz probe interface	MXO 5, MXO 5C, R&S®RTO6, R&S®RTP	R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4
Power rail probe			
RT-ZPR20/-ZPR40	Rohde&Schwarz probe interface	R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6, R&S®RTP	
Multichannel power probe			
RT-ZVC02/-ZVC04	MSO interface	R&S®RTO6, R&S®RTP	
High voltage probes			
RT-ZH03/-ZH10/-ZH11	BNC	R&S®RTC1000, R&S®RTB 2, R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6	R&S®RTP [2]
RT-ZHD07/-ZHD15/ -ZHD16/-ZHD60	Rohde&Schwarz probe interface	R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6, R&S®RTP [2]	
Current probes			
RT-ZC02/-ZC03	BNC	R&S®RTH1000 (R&S®Scope Rider RTH), R&S®RTC1000, R&S®RTB 2	R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6, R&S®RTP [2]
RT-ZC10/-ZC20/-ZC30/-ZC31	BNC	R&S®RTC1000, R&S®RTB 2, R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6, R&S®RTP [2]	R&S®RTH1000 (R&S®Scope Rider RTH)
RT-ZC05B/-ZC10B/ -ZC15B/-ZC20B	Rohde&Schwarz probe interface	R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6, R&S®RTP [2]	
PEMUK Rogowski wideband current probes			
CWT15/30, CWTMN1, CMN50HF3/15/30/06/015, CWTUM1/06/15	BNC	R&S®RTH1000 (R&S®Scope Rider RTH); R&S®RTC1000, R&S®RTB 2, R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6, R&S®RTP [2]	
EMC near-field probes			
HZ-15/HZ-17	BNC	R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6, R&S®RTP	
Isolated probing system			
RT-ZISO	Rohde&Schwarz probe interface	MXO 3, MXO 4, MXO 5, MXO 5C, R&S®RTO6, R&S®RTP	

[1] Limited functions possible.
[2] Requires R&S®RT-Z1M 1 MΩ adapter.

NEW: MXO 3 Series OSCILLOSCOPE AND R&S®RT-ZISO ISOLATED PROBING SYSTEM

PASSIVE PROBES

Passive probes are standard Rohde&Schwarz oscilloscope accessories. They are low-cost, general purpose probing solutions for a broad range of applications.

Universal application

Rohde&Schwarz passive probes are all-rounders. They are low-cost, general purpose solutions for a broad range of applications. The BNC connector lets them be used with almost any oscilloscope. Passive probes with readout pins let Rohde&Schwarz oscilloscopes automatically detect attenuation factors. A spring-loaded tip ensures good contact with the DUT.

Passive probes: all-rounders for every oscilloscope

R&S®RT-ZA4 mini clips and R&S®RT-ZA5 micro clips for reliable contacting, especially when using multiple probes

R&S®RT-ZPMMCX passive probe useful with R&S®RT-ZISO

Extensive R&S®RT-ZA1 accessory set for optimal contacting

R&S®RT-ZA40 accessory set for R&S®RT-ZP03S/05S and R&S®RT-ZH03

Individual adjustment for precise measurement

Optimum measurement accuracy demands that passive probes with a bandwidth greater than 350 MHz be adjusted to the oscilloscope input impedance. The R&S®RT-ZP10 500 MHz passive probe comes preadjusted for R&S®RTA4000, R&S®RTP and R&S®RTO6 oscilloscopes. The R&S®RT-ZP11 700 MHz passive probe comes preadjusted for the MXO 3, MXO 4 and MXO 5 oscilloscopes.

The R&S®RT-ZPMMCX probe is also a perfect addition for many test applications.

Extensive accessories

Rohde&Schwarz offers the R&S®RT-ZA1 passive probe accessory set for optimal contacting. The set includes spare spring-loaded tips, rigid tips, ground contact springs, ground leads and color-coded rings.

For more details, see our website:

Model	Bandwidth	Attenuation factor	Input impedance	Dynamic range	Comment	Order No.
Probes						
R&S®RT-ZP1X	38 MHz	1:1	1 MΩ || 39 pF	55 V (RMS) CAT II	2.5 mm probe tip, spring-loaded	1333.1370.02
R&S®RT-ZP03S	300 MHz	10:1	10 MΩ || 12 pF	400 V (RMS)/55 V (RMS)	robust 5 mm probe tip, no readout, for R&S®RTB 2	1803.1001.02
R&S®RT-ZP05S	500 MHz	10:1	10 MΩ || 10 pF	300 V (RMS)	5 mm probe tip, spring-loaded, for R&S®RTM3000	1333.2401.02
R&S®RT-ZP05M	500 MHz	10:1	10 MΩ || 10 pF	300 V (RMS)	5 mm probe tip, spring-loaded, for MXO 3	1335.3505.02
R&S®RT-ZP10	500 MHz	10:1	10 MΩ || 9.5 pF	400 V (RMS), 300 V (RMS) CAT II	2.5 mm probe tip, spring-loaded, preadjusted, for R&S®RTO6/RTA4000	1409.7550.00
R&S®RT-ZP11	700 MHz	10:1	10 MΩ || 9.5 pF	400 V (RMS), 300 V (RMS) CAT II	0.5 mm spring tip gold plated preadjusted, for MXO 4/MXO 5	1803.0005.02
R&S®RT-ZPMMCX	700 MHz	25:1	14.9 MΩ || < 4 pF	±42 V (peak), 30 V (RMS), ±60 V DC	probe input: MMCX (male)	1803.1599.02
R&S®RT-ZI10	500 MHz	10:1	10 MΩ || 12 pF	600 V (RMS) CAT IV, 1000 V (RMS) CAT III	for R&S®Scope Rider RTH	1326.1761.02
R&S®RT-ZI10C	500 MHz	10:1	10 MΩ || 11 pF	300 V (RMS) CAT III	compact laboratory probe, for R&S®Scope Rider RTH	1326.3106.02
R&S®RT-ZI10C-2	500 MHz	10:1	10 MΩ || 11 pF	300 V (RMS) CAT III	dual-pack of R&S®RT-ZI10C	1333.1811.02
R&S®RT-ZI10C-4	500 MHz	10:1	10 MΩ || 11 pF	300 V (RMS) CAT III	quad-pack of R&S®RT-ZI10C	1333.1328.02
Accessories						
R&S®RT-ZA1					accessory set, for R&S®RTM-ZP10/RT-ZP10/ RT-ZP1X	1409.7566.02
R&S®RT-ZA4					mini clips	1416.0428.02
R&S®RT-ZA5					micro clips	1416.0434.02
R&S®RT-ZA6					lead set	1416.0440.02
R&S®RT-ZA21					extension set, for R&S®RT-ZI10/RT-ZI11	1326.1984.02
R&S®RT-ZA40					probe tip accessory set, for R&S®RT-ZP03S/-ZP05S/-ZH03, includes rigid and flexible probe tips	1338.0742.02
R&S®RT-ZA42					ground clips, for R&S®RT-ZP10/R&S®RT-ZP11	1801.8873.00

PASSIVE BROADBAND PROBES

Low noise, high linearity and passive implementation make passive broadband probes an economical solution to measuring controlled impedance lines. The compact design facilitates measurements on densely packed printed circuit boards.

Economical alternative for measurements on controlled impedance lines

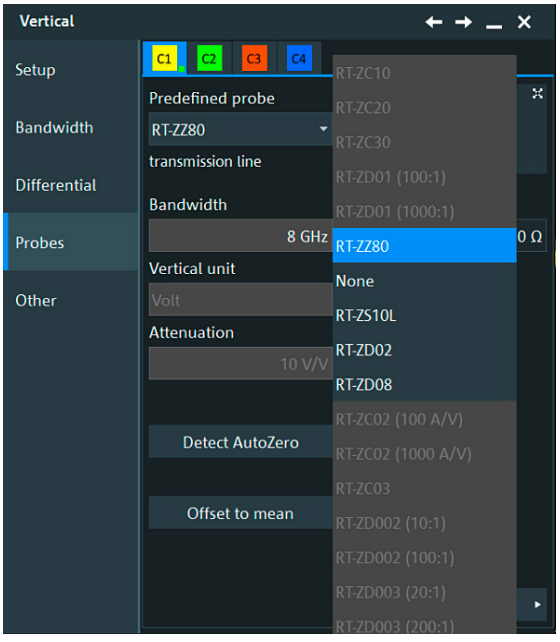
Passive broadband probes are economical, powerful alternatives to active probes for measuring high-speed signals on low impedance lines. In contrast to active probes, their input impedance is low but remains practically constant over the entire frequency range. They feature an extremely low input capacitance and low noise. Their passive implementation renders them highly linear and ideal for spectrum analysis applications.

The R&S®RT-ZZ80 8 GHz probe has an attenuation factor of 10:1 at an input impedance of 500 Ω || 0.3 pF. The SMA plug is connected to the oscilloscope via the SMA-BNC adapter. The probe can be easily selected as a predefined probe from the R&S®RTO6 or R&S®RTP oscilloscope menu. Correctly configure an instrument in a few simple steps.

Passive broadband probes: powerful alternative for measurements on controlled impedance lines

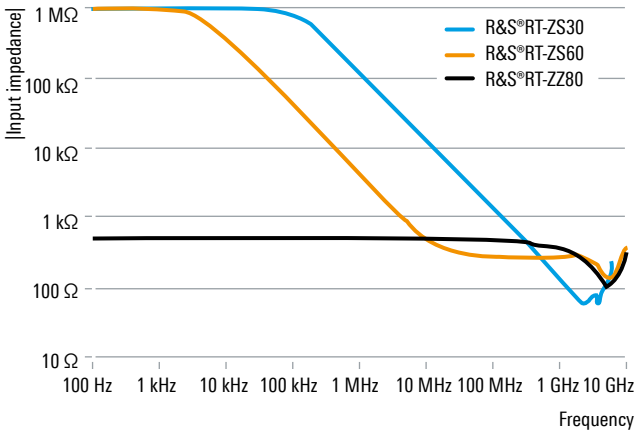
Maximum bandwidth through customized accessories

The maximum probe bandwidth is defined by its accessories. Rohde&Schwarz supplies accessories tailored to both the probe and the application to provide the maximum bandwidth for several contacting methods. The extensive standard accessories for the R&S®RT-ZZ80 include solder-in pins, rigid tips, solder-in ground pins, spring-loaded ground tips and pin connector adapters. Since all probe tips have the same design, R&S®RT-ZZ80 accessories are compatible with both single-ended and differential active probes (R&S®RT-ZS60 and R&S®RT-ZD40).



Selecting predefined probes with SMA or BNC connector on the R&S®RTO6

Input impedance versus frequency



Model	Bandwidth	Attenuation factor	Input impedance	Dynamic range	Comment	Order No.
Probe						
R&S®RT-ZZ80	8 GHz	10:1	500 Ω || 0.3 pF	20 V (RMS) max. input voltage	SMA-BNC adapter included	1409.7608.02

ACTIVE BROADBAND PROBES

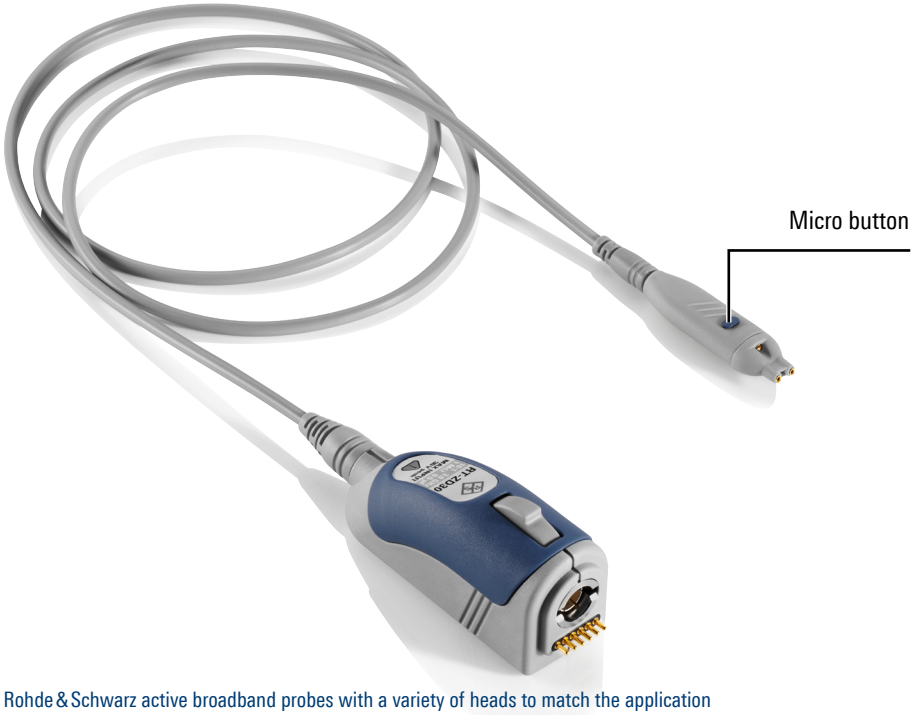
Rohde&Schwarz has an extensive range of active broadband probes with high input impedance of 1 MΩ, low input capacitance of < 1 pF and a wide dynamic range. Useful functions, such as offset compensation, a high-precision integrated voltmeter and a micro button for convenient oscilloscope control set the probes apart.

Designed for high bandwidths

High-bandwidth probes are only possible with application-specific integrated circuits (ASIC). Rohde&Schwarz ASICs focus on performance. The result is low noise, high DC accuracy and minimal drift versus temperature and time. Individual laser trimming of the probes in production results in very high accuracy and a very flat frequency response. The contact accessory designs also permit a high measurement bandwidth for various contacting methods, including manual contacting, solder-in and plug-in connections. The compact probe head allows measurements even on densely populated printed circuit boards, and the low weight keeps the load at the contact point to a minimum.

Minimal influence on the measurement signal

When measuring high-speed signals in modern electronic designs, the probe load must be low. Rohde&Schwarz active probes have 1 MΩ input impedance at an input capacitance of < 1 pF to minimize the influence on the circuit during measurements. The optimized probe tip design and accessories ensure accurate rise times and minimize overshoot and ringing.




R&S®RT-ZS10/20/30


R&S®RT-ZS60


R&S®RT-ZD10/20/30


R&S®RT-ZD40

Rohde&Schwarz active broadband probes with a variety of heads to match the application (e.g. R&S®RT-ZS60/-ZD40: special head design for particularly low input capacitance)

Wide dynamic range and high linearity: ideal for spectrum analysis

All Rohde&Schwarz active broadband probes have a wide dynamic range that is also available at high frequencies. Even very fast signals and steep, high-amplitude pulse slopes can be measured. The R&S®RT-ZS60 single-ended probe has high linearity (THD of –70 dB at 16 V peak-to-peak at 1 GHz) and is ideal for measurements with very stringent linearity requirements (such as widespan FFT analyses with oscilloscopes). The optional R&S®RT-ZA9 N(m) adapter lets Rohde&Schwarz broadband probes be used with spectrum and signal analyzers.

Integrated micro button for convenient instrument control

Measuring with multiple probes often requires a third hand to operate the oscilloscope. The integrated micro button on the probe tip solves this problem. The button can be configured on Rohde&Schwarz oscilloscopes to perform a variety of functions, such as run/stop, auto set or save waveform.

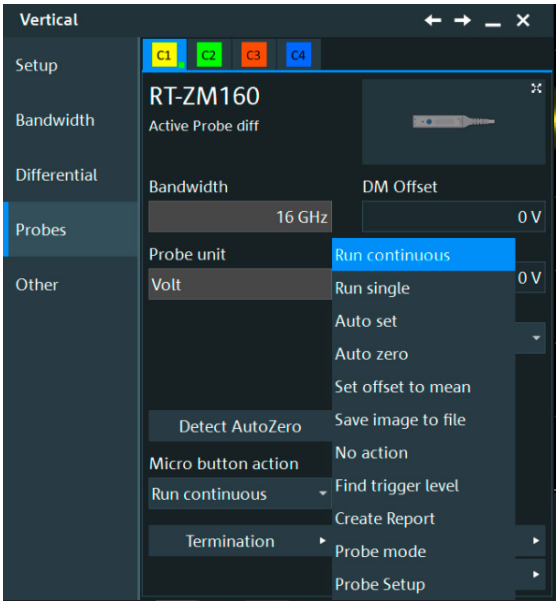
R&S®ProbeMeter: integrated, high-precision voltmeter

Rohde&Schwarz active probes have an integrated voltmeter that operates independently of the oscilloscope and can measure the DC component of a signal with 0.1% accuracy. The full dynamic range of the R&S®ProbeMeter is always available, regardless of the oscilloscope settings. Supply voltage and operating points can be quickly and precisely measured and DC components can be automatically compensated in AC measurements – with optimal dynamic range. In differential probes, the DC components of the input signal differential and common mode components can be measured simultaneously.

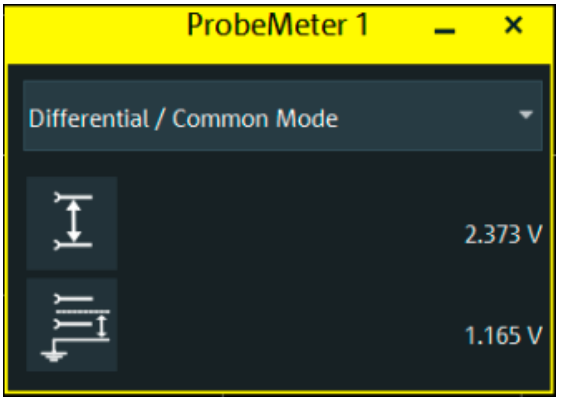
Integrated memory and future-ready probe interface

The data memory in Rohde&Schwarz active broadband probes is loaded with probe-specific calibration data for maximum accuracy and automatic probe detection. Active probes have an interface with a precision BNC-compatible connector that can transmit signals up to 18 GHz. The probes will also be compatible with future Rohde&Schwarz broadband oscilloscopes.

R&S®RT-ZA9 N(m) adapter for active broadband probes for use with signal and spectrum analyzers



Flexible configuration of the micro button function on the oscilloscope



R&S®ProbeMeter: high DC measurement accuracy, independent of the instrument settings and in parallel with the measurement channel

SINGLE-ENDED BROADBAND PROBES

A wide dynamic range, exceptionally low offset and gain errors and the right accessories make these probes ideal for Rohde&Schwarz oscilloscopes.

High signal fidelity with active probes

Single-ended active probes accurately measure ground-referenced signals. They precisely measure both high-speed and low-frequency signals. The probe impedance must place a minimal load on the test point. Rohde&Schwarz has a variety of models with a maximum bandwidth of up to 6 GHz. Rohde&Schwarz single-ended active probes feature high input impedance of 1 MΩ, low input capacitance of 0.3 pF and noise of 2 mV (RMS) referenced to the input.

Practical design: micro button for convenient instrument control

Diverse probe tips and ground cables are included as standard.

Wide dynamic range with additional offset compensation

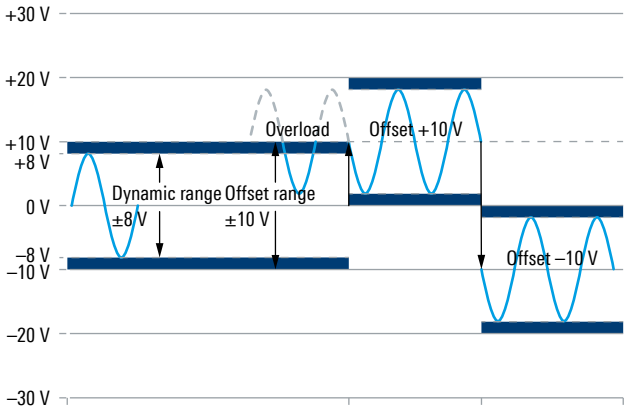
In addition to the wide dynamic range, Rohde&Schwarz single-ended active probes also have offset compensation. The DC component of the measured signal can be compensated so that the signal components of interest are displayed on the oscilloscope at maximum resolution.

A low voltage, single-ended probe typically measures high-speed, ground-referenced signals up to 12 V. The maximum input voltage of 30 V ensures that the probe is not overloaded.

Exceptionally low offset and gain errors, minimal temperature drift

Rohde&Schwarz single-ended active probes have impressively low offset and gain errors. The minimal gain drift coupled with the offset compensation permits precise measurements – even over extended periods of time and at varying temperatures. Frequent compensation during the measurement is no longer necessary, simplifying everyday measurements.

Wide dynamic range: ±8 V, expandable with additional offset compensation of ±12 V (±10 V for R&S®RT-ZS60)



max. ±30 V nondestructive input voltage

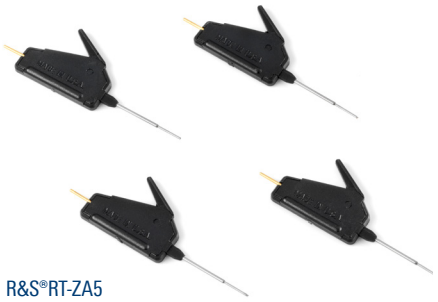
Rohde&Schwarz probe interface extension set

When R&S®RT-ZA50 and R&S®RT-ZA51 adapters are combined, they serve as an extension set for the Rohde&Schwarz probe interface. Rohde&Schwarz probes can be operated up to 3 m away from oscilloscopes in production testing and ATE systems.

R&S®RT-ZA2

R&S®RT-ZA3

R&S®RT-ZA4



R&S®RT-ZA5

R&S®RT-ZA6

R&S®RT-ZA9

R&S®RT-ZA50

R&S®RT-ZA51

Model	Bandwidth	Attenuation factor	Input impedance	Dynamic range	Comment	Order No.
Probes						
R&S®RT-ZS10E	1.0 GHz	10:1	1 MΩ || 0.8 pF	±8 V	Rohde&Schwarz probe interface	1418.7007.02
R&S®RT-ZS10	1.0 GHz	10:1	1 MΩ || 0.8 pF	±8 V (±12 V offset compensation)	R&S®ProbeMeter and micro button for instrument control, Rohde&Schwarz probe interface	1410.4080.02
R&S®RT-ZS20	1.5 GHz	10:1	1 MΩ || 0.8 pF			1410.3502.02
R&S®RT-ZS30	3.0 GHz	10:1	1 MΩ || 0.8 pF			1410.4309.02
R&S®RT-ZS60	6.0 GHz	10:1	1 MΩ || 0.3 pF	±8 V (±10 V offset compensation)		1418.7307.02
Accessories						
R&S®RT-ZA2					accessory set, for R&S®RT-ZS10/20E/20/30	1416.0405.02
R&S®RT-ZA3					pin set, for R&S®RT-ZS10/10E/20/30	1416.0411.02
R&S®RT-ZA4					mini clips	1416.0428.02
R&S®RT-ZA5					micro clips	1416.0434.02
R&S®RT-ZA6					lead set	1416.0440.02
R&S®RT-ZA9					N(m) adapter, for R&S®RT-Zxx oscilloscope probes	1417.0909.02
R&S®RT-ZA50					adapter, Rohde&Schwarz probe interface to 2.92 mm/3.5 mm/SMA including DC power cable, USB 3.1 cable C/C and SMA cable adapter, 2.92 mm/3.5 mm/SMA to Rohde&Schwarz probe interface	1803.5265.02
R&S®RT-ZA51						1803.5365.02

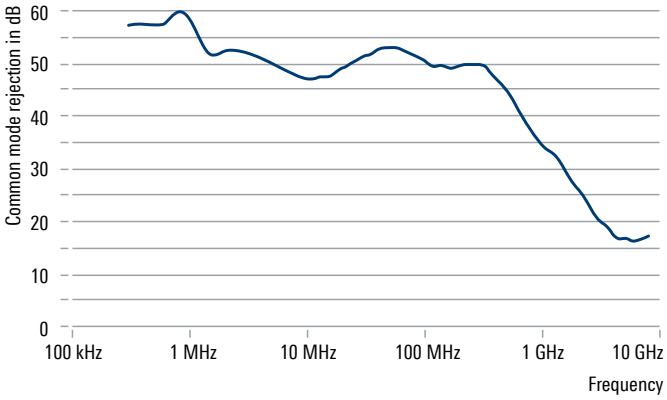
DIFFERENTIAL BROADBAND PROBES

Flat frequency response and high input impedance with low input capacitance permit precise measurements on differential signals while minimizing the DUT load. The high common mode rejection over the entire probe bandwidth ensures high immunity to interference. Special browser adapters allow flexible contacting with high signal fidelity.

High common mode rejection

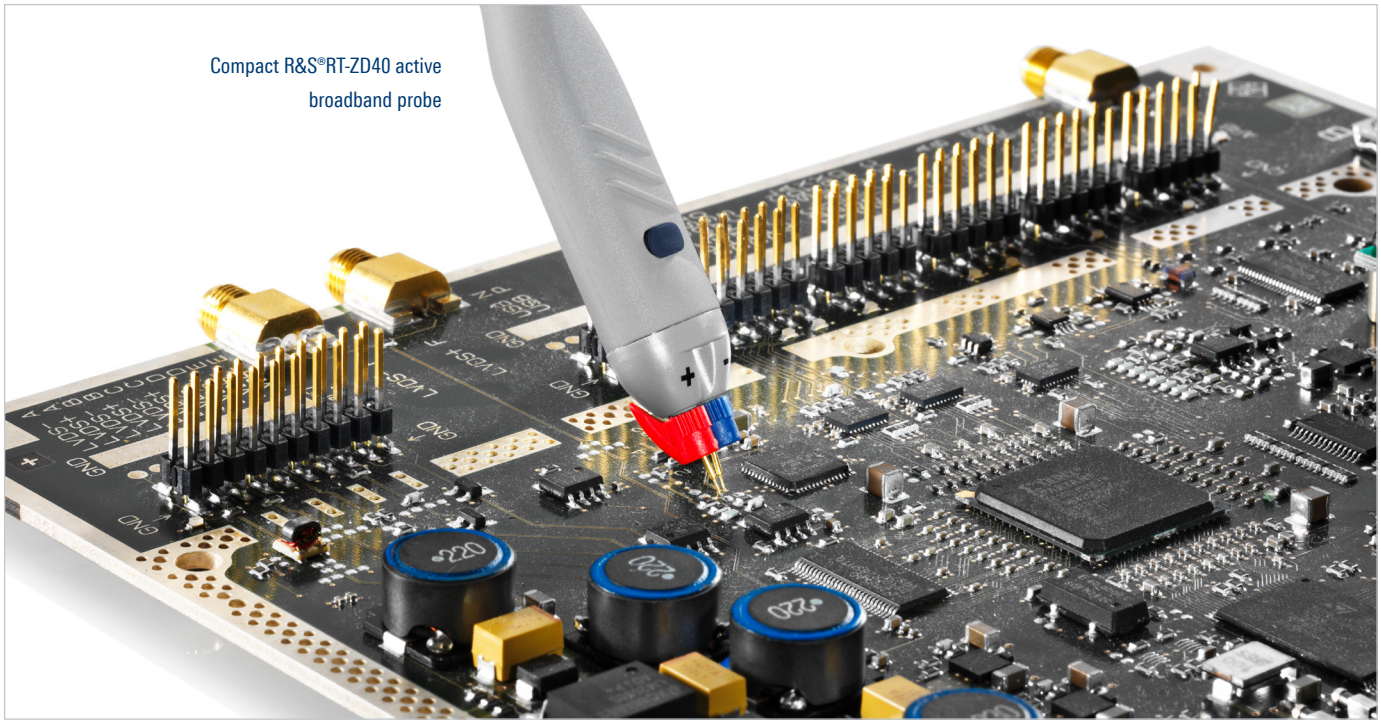
Differential signals are used at high clock rates to effectively suppress common mode interference and transmit error-free broadband signals. The signals can only be measured accurately with differential probes. Common mode rejection is an important quality parameter. Rohde&Schwarz differential probes suppress common mode interference over the entire probe bandwidth.

High common mode rejection over the entire probe bandwidth (example: R&S®RT-ZD40)



Low loading at DC and high frequencies

DC voltage needs to differentiate between input impedance for differential and common mode signals, which is particularly important when measuring low voltage differential signaling (LVDS) lines. Although the differential input impedance of LVDS receivers is typically 100 Ω, the operating point is often set to a high impedance level. Excessive loading on the signal line can shift the operating point outside of the receiver input voltage range and impair the functioning of the circuit. Almost all Rohde&Schwarz differential probes have a very high differential input impedance of 1 MΩ and a common mode impedance of 250 kΩ to keep the load low.



Compact R&S®RT-ZD40 active broadband probe

Wide dynamic range expands the range of applications

The R&S®RT-ZD10/-ZD20/-ZD30/-ZD40 differential broadband probes have a wide dynamic range of ±5 V with additional offset compensation of ±5 V (differential mode) and ±22 V [1] (common mode), making them universal measurement tools. High-speed, single-ended signals at DDR storage ports can be measured just as easily as symmetrically fed RF signals or voltage without reference to ground in switching power supplies.

The R&S®RT-ZD10 active differential probe, together with the R&S®RT-ZA15 external attenuator (included in delivery) can measure voltage up to ±60 V DC/±42.4 V AC (peak) at a bandwidth of 1 GHz.

[1] This option is available for the R&S®RT-ZD20/-ZD30/-ZD40 starting with serial number 200000.

Focus on usability

Rohde&Schwarz focuses probe accessory design on usability. The positive and negative inputs are clearly identified. An extensive array of probe tips, easy and precisely adjustable pin offsets and spring-loaded tips for the browser adapters are just some of the special features.

R&S®RT-ZD40: browser adapters to easily vary the pin offset

R&S®RT-ZA15 external attenuator for R&S®RT-ZD20/-ZD30

Model	Bandwidth	Attenuation factor	Input impedance	Dynamic range	Comment	Order No.
Probes						
R&S®RT-ZD10	1 GHz	10:1/ 100:1 [1]	1 MΩ || 0.6 pF/ 1 MΩ || 1.3 pF [1]	±5 V, with R&S®RT-ZA15: ±60 V DC ±42.4 V AC (peak); offset compensation: ±5 V (differential mode), ±22 V [1] (common mode)	R&S®ProbeMeter and micro button for instrument control; R&S®RT-ZA15 included with R&S®RT-ZD10; Rohde&Schwarz probe interface	1410.4715.02
R&S®RT-ZD20	1.5 GHz	10:1	1 MΩ || 0.6 pF			1410.4409.02
R&S®RT-ZD30	3.0 GHz	10:1	1 MΩ || 0.6 pF			1410.4609.02
R&S®RT-ZD40	4.5 GHz		1 MΩ || 0.4 pF	±5 V		1410.5205.02
Accessories						
R&S®RT-ZA4					mini clips	1416.0428.02
R&S®RT-ZA5					micro clips	1416.0434.02
R&S®RT-ZA6					lead set	1416.0440.02
R&S®RT-ZA7					pin set, for R&S®RT-ZD10/20/30	1417.0609.02
R&S®RT-ZA8					pin set, for R&S®RT-ZD40	1417.0867.02
R&S®RT-ZA15	2 GHz	10:1	1 MΩ || 1.3 pF	±60 V DC/ ±42.4 V AC (peak)	external attenuator, for R&S®RT-ZD20/30; included with R&S®RT-ZD10	1410.4744.02

[1] With R&S®RT-ZA15.

MODULAR BROADBAND PROBES

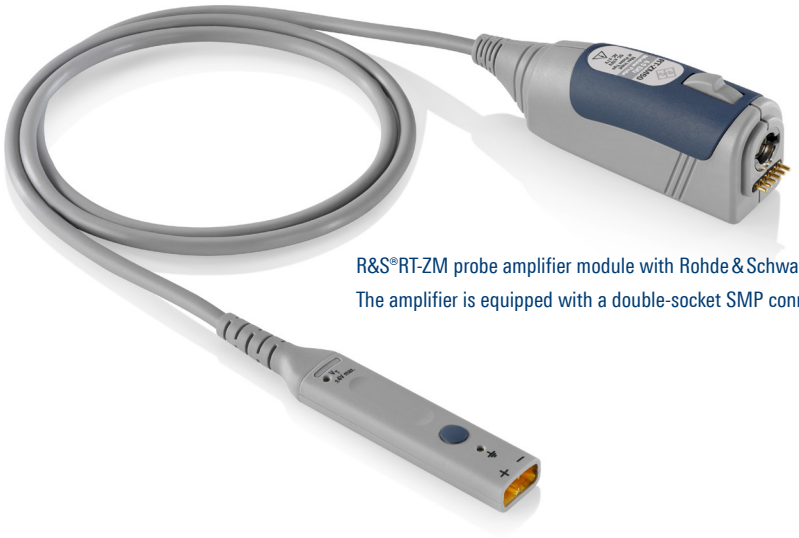
High-speed probing challenges

The R&S®RT-ZM modular probe system is a technically sophisticated and easy-to-handle solution for current probing requirements. The systems include a high probing bandwidth and dynamic range together with a low capacitive load. The probe system is available with amplifier module bandwidths from 1.5 GHz to 16 GHz. The modules come with a Rohde&Schwarz probe interface for automatic probe detection and configuration with Rohde&Schwarz oscilloscopes.

The system includes probe tip modules for various measurements and conditions, including semi-permanent solder-in probe tips for small areas or solutions for environmental tests in climatic chambers at temperatures from –55°C to +125°C. The integrated R&S®ProbeMeter function lets multiple high-precision DC voltage measurements be performed at the same time.

Multimode function

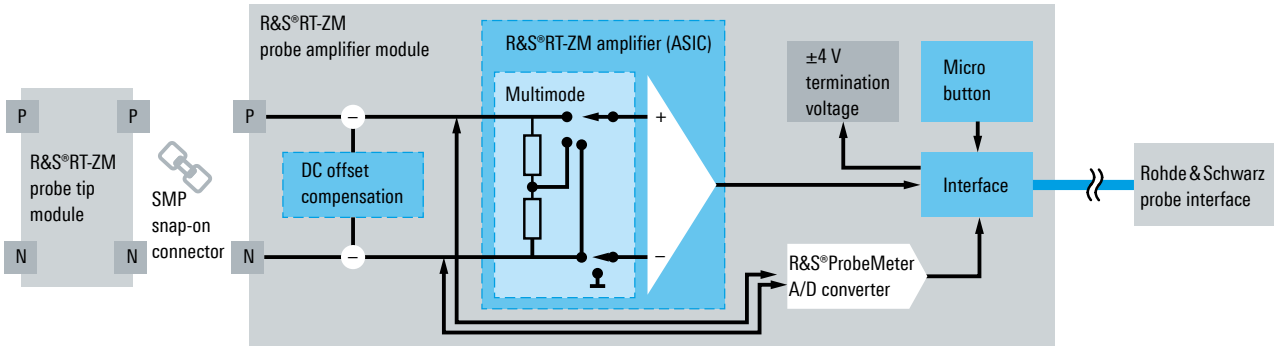
The modular probe system has a unique multimode function that lets users switch between differential, common and single-ended modes. The probe is highly flexible and can be set up for various measurements. You can toggle between the differential and common modes to compare noise and determine the crosstalk noise couples from nearby sources. Being able to shift to single-ended mode lets you access several probe points with one probe tip and is especially useful in DDR setups.



R&S®RT-ZM probe amplifier module with Rohde&Schwarz probe interface
The amplifier is equipped with a double-socket SMP connector.

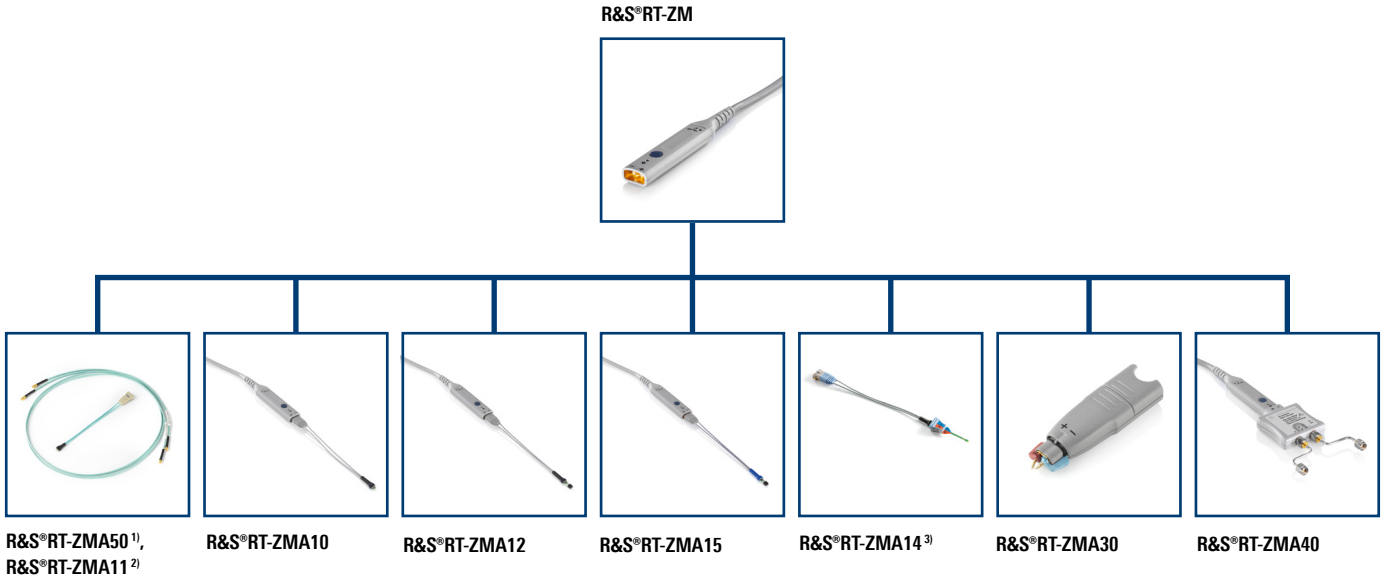
R&S®RT-ZM modular probe system with exchangeable R&S®RT-ZM probe tip module

(connected via a high-performance double-socket SMP snap-on interface to an R&S®RT-ZM probe amplifier module with Rohde&Schwarz probe interface)



Probe tip modules for the R&S®RT-ZM modular probe system

► For detailed information, see R&S®RT-ZM flyer PD 3607.5690.32



1) Contains the R&S®RT-ZMA11 and a pair of matched extension cables (length: 1 m).
2) For the R&S®RT-ZMA50.
3) Contains 10 solder-in flex tips.

Model	System bandwidth	Rise time (10 % to 90 %)	Multimode 1)	Comment	Order No.
Probe amplifier modules					
R&S®RT-ZM15	> 1.5 GHz	< 230 ps			1800.4700.02
R&S®RT-ZM30	> 3 GHz	< 100 ps			1419.3005.02
R&S®RT-ZM60	> 6 GHz	< 75 ps			1419.3105.02
R&S®RT-ZM90	> 9 GHz	< 50 ps			1419.3205.02
R&S®RT-ZM130	> 13 GHz	< 35 ps			1800.4500.02
R&S®RT-ZM160	16 GHz	< 28 ps			1800.4600.02
Probe tip modules					
R&S®RT-ZMA10	16 GHz (meas.)	28 ps	P/N/DM/CM	length: 15 cm (5.9 in), suitable for R&S®RT-ZMA50	1419.4301.02
R&S®RT-ZMA10-6				set of 6 R&S®RT-ZMA10 solder-in probe tip modules	1801.4349.02
R&S®RT-ZMA11	16 GHz (meas.)	28 ps	P/N/DM/CM	length: 15 cm	1419.4318.02
R&S®RT-ZMA12	6 GHz (meas.)	75 ps	P/N/DM/CM	length: 15 cm	1419.4324.02
R&S®RT-ZMA14	16 GHz (meas.)	28 ps	P/N/DM/CM	length: 15 cm, incl. 10 solder-in flex tips	1338.1010.02
R&S®RT-ZMA15	12 GHz (meas.)	37 ps	P/N/DM/CM	length: 15 cm	1419.4224.02
R&S®RT-ZMA30	16 GHz (meas.)	28 ps	DM		1419.4353.02
R&S®RT-ZMA40	16 GHz (meas.)	28 ps	P/N/DM/CM	50 Ω/100 Ω, suitable for SMA, 3.5 mm and 2.92 mm systems, termination voltage ±4 V, supplied from R&S®RT-ZM probe amplifier module	1419.4201.02
R&S®RT-ZMA50	12 GHz (meas.)	37 ps	P/N/DM/CM	cable length: 1 m; consists of R&S®RT-ZMA11 and a pair of matched extension cables, temperature range: –55 °C to +125 °C	1419.4218.02
Accessories					
R&S®RT-ZMA1				for up to 6 R&S®RT-ZMAxx probe tip modules	1419.3928.02
R&S®RT-ZAP				3D probe positioner	1326.3641.02
R&S®RT-ZF30				test fixture for probe characterization with R&S®RTP-B7	1333.2099.02

1) Multimode:
DM: differential measurement, CM: common mode measurement, P: single-ended measurement on positive pin, N: single-ended measurement on negative pin.

POWER RAIL PROBE

High bandwidth, high sensitivity, very low noise and extra-large offset compensation make the R&S®RT-ZPR power rail probes ideal for characterizing power rails. An integrated high-precision DC voltmeter provides an instant DC voltage readout.

Up to 4.0 GHz bandwidth and very low added noise

Low voltage combined with tight tolerance makes testing power rails difficult. Not only do newer power rails require more precise low-voltage measurements, they are susceptible to coupling with high-speed clocks and RF sources.

The R&S®RT-ZPR power rail probes can provide precise ripple measurements with up to 4.0 GHz of bandwidth, excellent sensitivity thanks to the 1:1 attenuation ratio and low noise. The solution also helps isolate periodic and random disturbances (PARD) when combined with the MXO 3 [1],MXO 4 [1], MXO 5 [1], R&S®RTO6 and R&S®RTP, which offer the best spectrum analysis in the industry.

[1] Only with R&S®RT-ZPR20.

Measuring slight voltage on large DC offsets

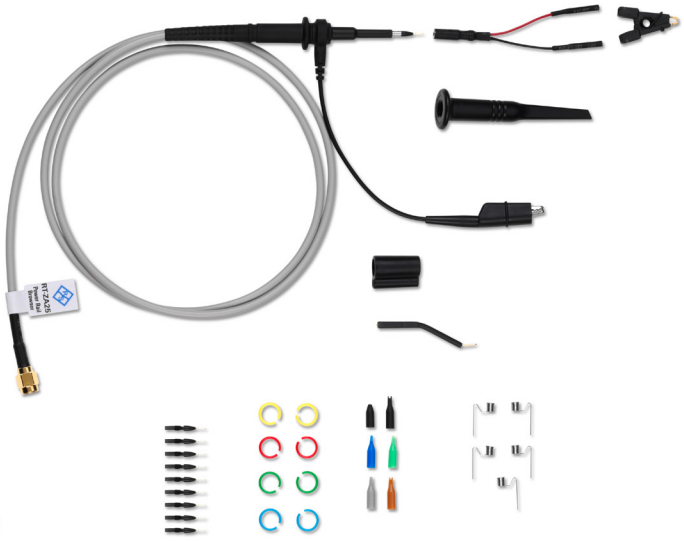
The built-in offset is typically not enough to zoom in and accurately measure peak-to-peak voltage on DC power rails, making accurate ripple measurements impossible. The ±60 V offset compensation range in R&S®RT-ZPR power rail probes lets users zoom in on DC voltage with high offset levels. Whether zooming in on a 1 V power rail or something much higher, the probe has the necessary offset.

R&S®ProbeMeter: integrated high-accuracy DC voltmeter

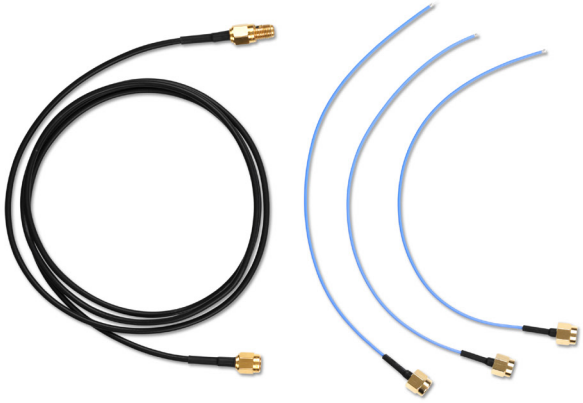
While other oscilloscopes only have a waveform view of power rails under test, the R&S®RT-ZPR power rail probes has a high-precision DC voltmeter to quickly reveal rail values. The integrated DC voltmeter with an input voltage range of ±60 V accurately monitors long-term DC level drift. Combined with the ripple voltage readings from the oscilloscope, you can see at any time whether the power supply ripple leaves the permitted operating voltage window for the DUT.

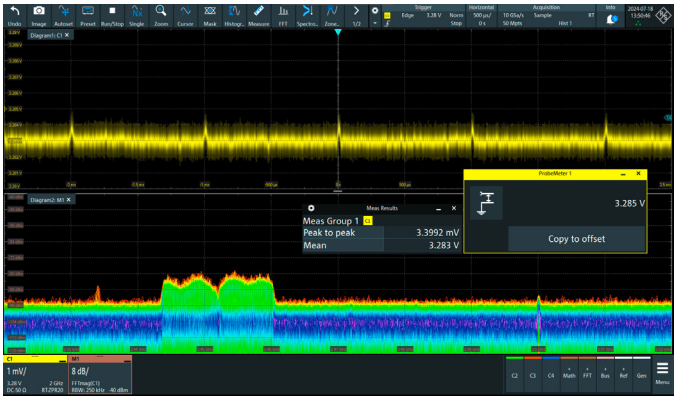
Comprehensive accessories included

The R&S®RT-ZPR power rail probes come with solder-in cables for broadband probing and a 350 MHz browser kit to easily measure at different places on a PCB or to verify the DC power supply with the R&S®ProbeMeter.



The R&S®RT-ZPR power rail probes come with a rich set of standard accessories for probing in all scenarios.





The high bandwidth of the R&S®RT-ZPR power rail probes allow you to capture even high-frequency noise components that can be easily analyzed with the R&S®RTO6 spectrum analysis function.

Accurately verify DC level and power supply load response during initialization of a DDR3 memory with the R&S®ProbeMeter and the R&S®RTO6 oscilloscope's flexible math functions.

Model	Bandwidth	Attenuation factor	Input impedance	Dynamic range	Comment	Order No.
Probes						
R&S®RT-ZPR20	2.0 GHz	1:1	50 kΩ	±0.85 V (±60 V offset compensation), optional AC coupling	R&S®ProbeMeter	1800.5006.02
R&S®RT-ZPR40	4.0 GHz	1:1	50 kΩ		R&S®ProbeMeter	1800.5406.02
Accessories						
R&S®RT-ZA25	–	–	–	–	power rail browser kit, included with R&S®RT-ZPR20/40	1800.5329.00
R&S®RT-ZA26	–	–	–	–	pigtail cable, 15 cm, solder-in, SMA for R&S®RT-ZPR20/40 power rail probe, included with R&S®RT-ZPR20/40	1800.5258.00

MULTICHANNEL POWER PROBE

Power consumption is a major concern with the internet of things (IoT) and consumer electronics devices. The R&S®RT-ZVC multichannel power probe has up to four voltage and four current channels with 18-bit resolution for current and voltage measurements with a high dynamic range. When two R&S®RT-ZVC probes are attached to an R&S®RTO6 or R&S®RTP oscilloscope, eight high dynamic range voltage signals and current signals can be analyzed in parallel using signals captured by the oscilloscope.

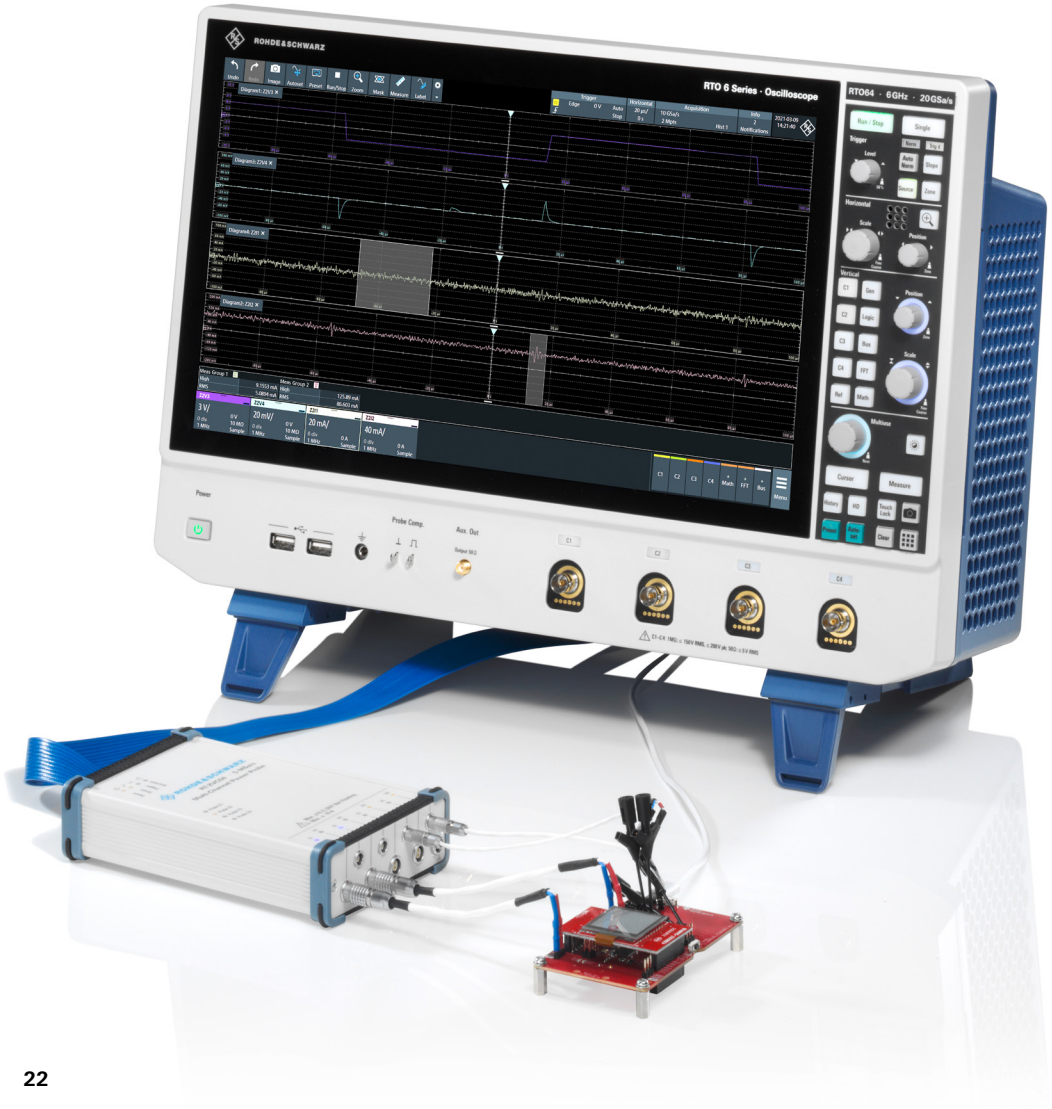
To optimize the battery life for embedded devices, active, sleep, hibernate and current consumption should be balanced. While active current consumption can be up to tens or hundreds of mA, sleep current is often only a few µA, which can still significantly influence battery life since devices remain mostly in sleep mode.

Very high dynamic range with 18-bit ADC resolution

With up to four current and four voltage input channels with 18-bit ADC resolution each, the R&S®RT-ZVC02/ -ZVC04 multichannel power probe has the dynamic range needed to analyze current consumption in all mobile device activity phases.

Internal and external shunt current measurement with switchable sensitivity

Three built-in shunts and an external shunt mode in combination with switchable gain factors help optimize the input current range. Differential inputs for floating measurements are within an input voltage operating window of ±15 V. Settings are fully controlled from the oscilloscope user interface.



High bandwidth with flexible filtering for noise reduction

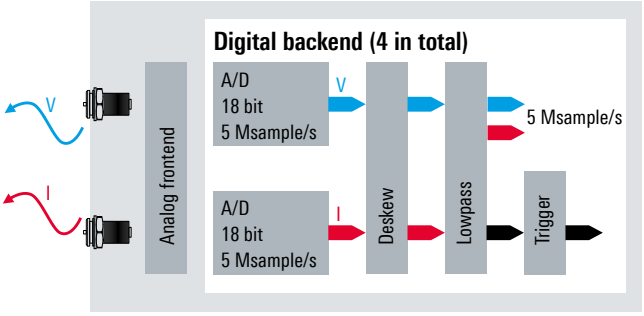
A bandwidth of 1 MHz and a sampling rate of 5 Msample/s can capture fast current pulses. To analyze overall power consumption for battery powered devices, the very low sleep mode current levels have to be captured simultaneously. The integrated lowpass filter reduces the bandwidth to 5 kHz and minimizes overall system noise for very high dynamic range measurements.

Precisely measure up to eight power rails simultaneously

One R&S®RTO6 or R&S®RTP oscilloscope supports up to two R&S®RT-ZVC probes and eight power domains can be observed in parallel with a DC accuracy of 0.1 % for voltage measurements and 0.2 % for current measurements. Ramp-up processes and power rail tolerances can easily be tested with the probe. The SCPI remote control in the oscilloscope enables automatic testing.

Digital acquisition system

The R&S®RT-ZVC probe digital acquisition system has 18-bit resolution, a 5 Msample/s sampling rate and 1 MHz bandwidth. Each voltage and current input pair forms a high dynamic range power measurement system.



Current ranges
Low-gain mode, shunt
±4.5 µA; ±45 µA, 10 kΩ
±4.5 mA; ±45 mA, 10 Ω
±4.5 A; ±10 A, 10 mΩ
±45 mV [1]; ±450 mV [1], external

Voltage ranges
±1.88 V
±3.75 V
±7.5 V
±15 V

[1] Current range depends on shunt value.

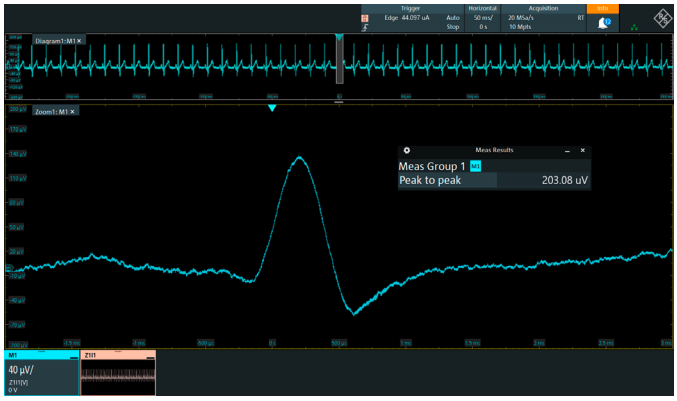
The R&S®RT-ZVC probe provides an extraordinarily high dynamic range for measuring both active state currents and sleep currents, in this example 12 mA and 30 µA. Automated measurements make it possible to calculate the total energy consumption.

Very low-noise frontend for measuring sensor signals

The extraordinarily high dynamic range and low-noise of the R&S®RT-ZVC probe enables clear measurement of faint sensor signals. Maximum sensitivity is possible with the current inputs in external shunt mode for 18-bit resolution at 45 mV full-scale differential input voltage. A cardiac voltage pulse with a signal level of only 200 µV (peak-to-peak) can easily be captured and analyzed.

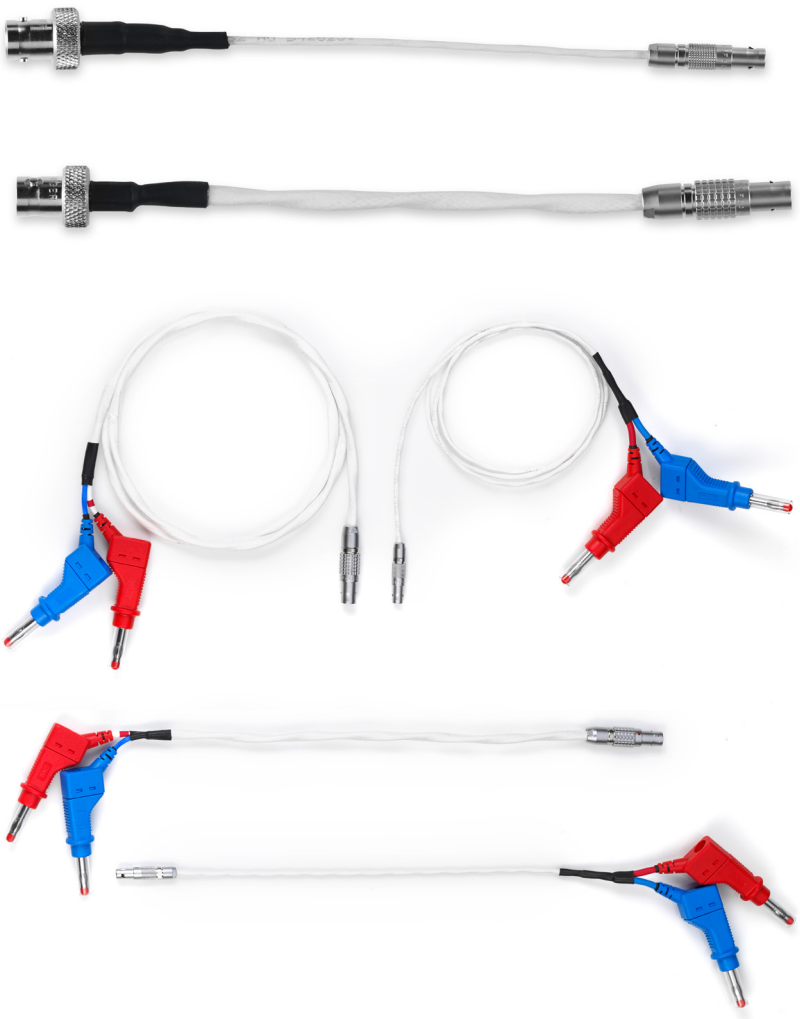
Flexible connectivity options for every application

The R&S®RT-ZVC multichannel power probe comes with a set of high-quality pin connector cables and solder-in leads to connect the probe in typical embedded electronics measurement scenarios. 4 mm connector cables of varying lengths are also available as are BNC-type connector cables for standard oscilloscope voltage and current probes to extend the voltage and current measurement range.



Small signals such as a 200 µV cardiac pulse can easily be measured.

Standard accessories include PCB connector cables for each channel and solder-in leads.



4 mm cables with different lengths and BNC connector cables are optionally available.

Model	Input channels	Bandwidth/ sampling rate	Resolution	Input impedance	Full-scale input range	Common mode input voltage range	Order No.
R&S®RT-ZVC02	2 current, 2 voltage	1 MHz/ 5 Msample/s	18 bit	▶ voltage channels: 10 MΩ || 48 pF ▶ current channels: 1 MΩ || shunt resistor	▶ voltage ±1.88/±3.75/±7.5/±15 V ▶ current – internal shunt 10 kΩ: ±4.5 µA, ±45 µA, 10 Ω: ±4.5 m, ±45 mA, 10 mΩ: ±4.5 A, ±10 A – external shunt (voltage range) ±45 mV, ±450 mV (all channels)	±15 V	1326.0259.02
R&S®RT-ZVC04	4 current, 4 voltage	1 MHz/ 5 Msample/s	18 bit			±15 V	1326.0259.04

Accessories	Comment	Order No.
R&S®RT-ZA30	extended cable set, for R&S®RT-ZVC, PCB probing, 1 current and 1 voltage lead, length: 32 cm	1333.1686.02
R&S®RT-ZA31	extended cable set, for R&S®RT-ZVC, 4 mm probing, 1 current and 1 voltage lead, length: 32 cm	1333.1692.02
R&S®RT-ZA33	oscilloscope interface cable, for R&S®RT-ZVC (included with R&S®RT-ZVC02/-ZVC04, 1326.0259.02/.04)	1333.1770.02
R&S®RT-ZA34	extended cable set, for R&S®RT-ZVC, 4 mm probing, 1 current and 1 voltage lead, length: 1 m	1333.1892.02
R&S®RT-ZA35	extended cable set, for R&S®RT-ZVC, PCB probing, 1 current and 1 voltage lead, length: 1 m	1333.1905.02
R&S®RT-ZA36	solder-in cable set, for R&S®RT-ZVC, 4 current and voltage solder-in cables, solder-in pins	1333.1911.02
R&S®RT-ZA37	extended cable set, for R&S®RT-ZVC, BNC connector, 1 current and 1 voltage lead, length: 16 cm	1337.9130.02
R&S®RTP-B1E	digital extension port, for R&S®RT-ZVC, usage with the R&S®RTP oscilloscope (included with R&S®RTP-B1)	1337.9581.02
R&S®RTO6-B1E	digital extension port, for R&S®RT-ZVC, usage with the R&S®RTO6 oscilloscope (included with R&S®RTO6-B1)	1801.6735.02

HIGH VOLTAGE PROBES

The Rohde&Schwarz high voltage probe portfolio includes passive single-ended and active differential probes for up to 6000 V (peak). Different models can be used for measurements in CAT IV environments. Differential probes have an exceptional common mode rejection ratio over a broad frequency range.

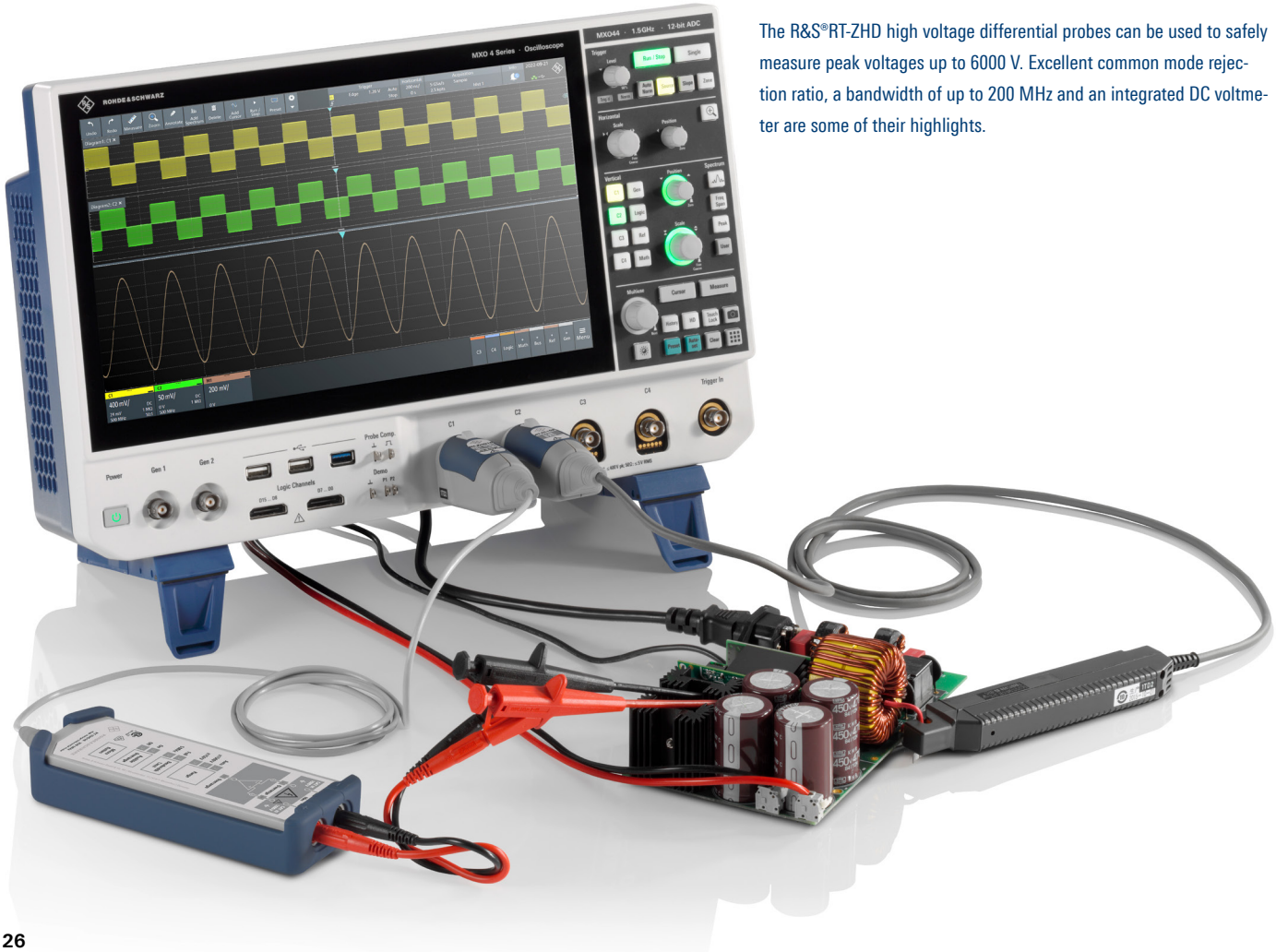
200 MHz bandwidth combined with excellent CMRR

Switching loss has to be minimized for optimal power efficiency and density in switched-mode power supplies. This requires modern, fast-switching semiconductors.

R&S®RT-ZHD high voltage differential probes are ideal for measurements on fast-switching semiconductors with up to 200 MHz bandwidth and an excellent common mode rejection ratio (CMRR) over a broad frequency range.

Highest precision measurements

R&S®RT-ZHD probes provide the best available precision in their class with 0.5% ensured gain accuracy in the signal path and a DC voltmeter (R&S®ProbeMeter) with 0.1% accuracy integrated into the probe head. Very low drift makes regular calibration during measurements unnecessary and very low added noise results in high-quality measurements.



The R&S®RT-ZHD high voltage differential probes can be used to safely measure peak voltages up to 6000 V. Excellent common mode rejection ratio, a bandwidth of up to 200 MHz and an integrated DC voltmeter are some of their highlights.

Up to 2000 V offset capability at highest vertical sensitivity

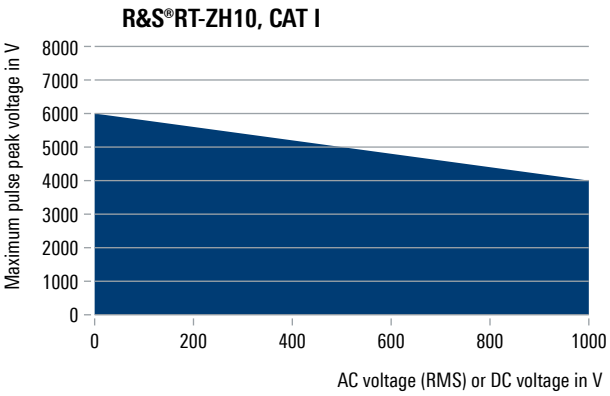
To measure ripple voltage on the DC link, high offset voltage with high vertical sensitivity is needed. The integrated offset circuitry give R&S®RT-ZHD probes an offset voltage range that is independent of the vertical oscilloscope settings and probe attenuation factor. Now you can measure the slightest ripple voltage for high DC link voltage levels without compromising sensitivity.

Easy-to-use and fully integrated into Rohde&Schwarz oscilloscopes

A built-in 5 MHz analog filter, automatic range switching and the audible common mode voltage overrange indicator make the probe easy to use. The integrated micro button on the probe box allows you to control the oscilloscope for run/stop acquisitions, autoset and when saving screenshots. The probe can be detected and ready for remote control and automation without an external power supply when used with the Rohde&Schwarz probe interface.

Rich set of standard accessories for the R&S®RT-ZHD high voltage differential probes

Maximum pulse peak voltage as a function of RMS voltage



Single-ended passive probes for up to 1000 V (RMS) and 6000 V (peak)

If differential measurements are not required, single-ended passive probes are a powerful, cost-effective solution. R&S®RT-ZH10 and R&S®RT-ZH11 passive high voltage probes have up to 400 MHz of bandwidth and attenuation factors of 100:1 and 1000:1.

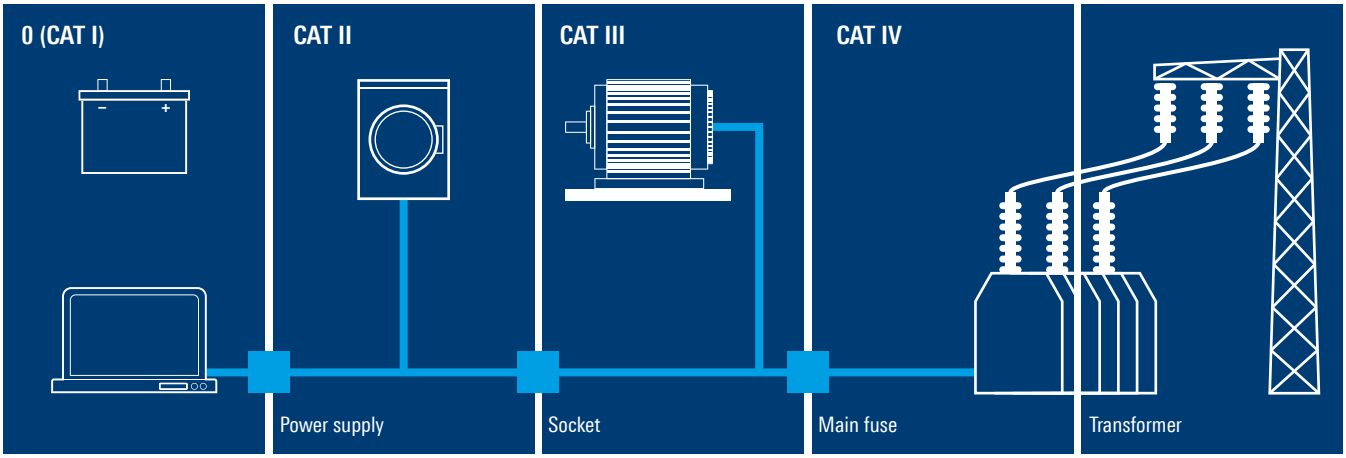
Both probes are designed for RMS voltage levels up to 1000 V (CAT II) and – when used exclusively for pulse measurements – for peak voltage levels up to 6000 V (CAT I). Accessories include safety alligator clips, rigid and spring-loaded tips and protection caps.

The R&S®RT-ZH03 passive high voltage probe has a robust 5 mm probe tip and is the perfect choice if 250 MHz bandwidth is sufficient.

The R&S®RT-ZH10 and R&S®RT-ZH11 passive high voltage probes provide 400 MHz bandwidth and a spring-loaded 5 mm tip.

Overview of measurement categories CAT I through CAT IV

The probe design determines its area of application and the maximum rated voltage against protective ground.

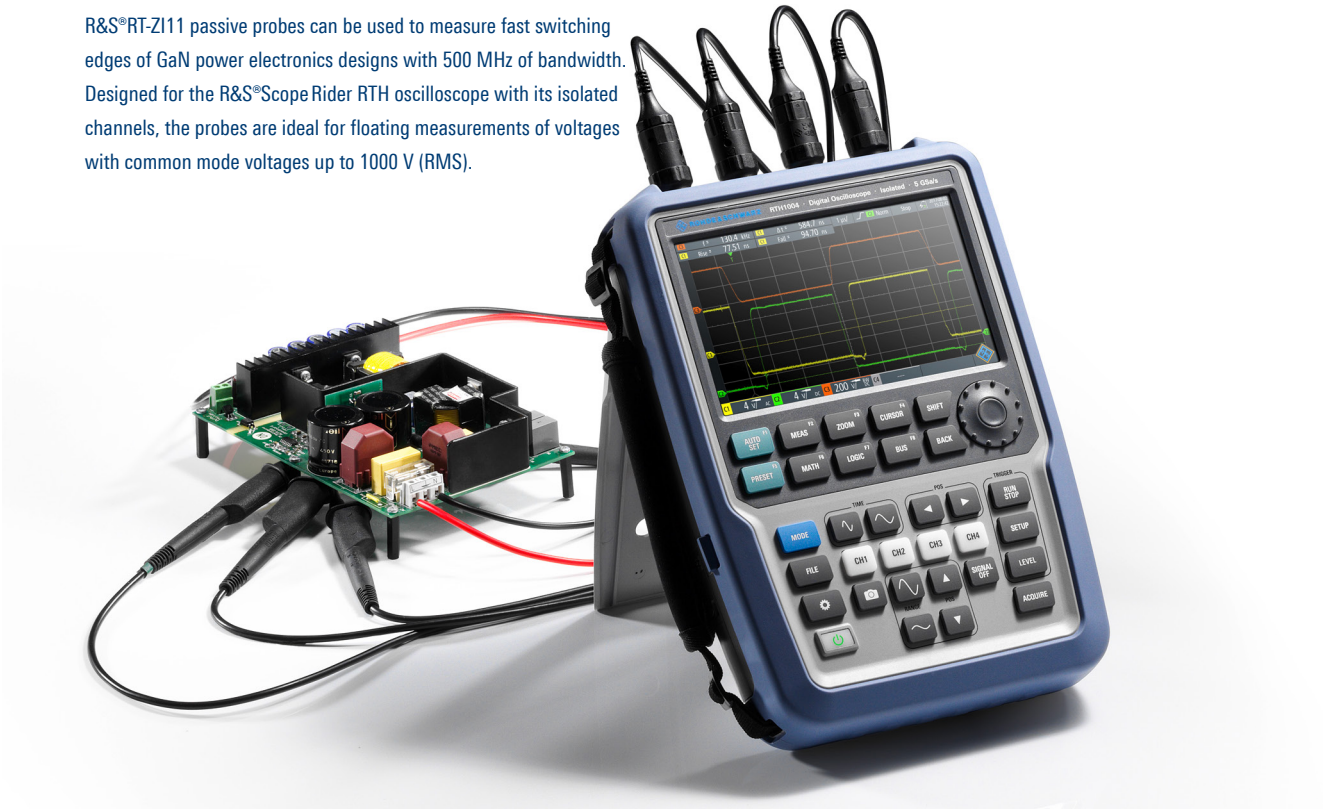


Measuring voltages up to 1000 V (RMS) with 500 MHz bandwidth

Measuring in high voltage environments requires special safety precautions in line with the European Low Voltage Directive that depend on the actual measurement environment.

The R&S®Scope Rider RTH lets you safely measure voltages up to 1000 V in CAT III environments or 600 V in CAT IV environments. Bandwidth of 500 MHz is possible when combined with the R&S®RT-ZI11 100:1 passive high voltage probe. This makes the solution interesting for measurements on GaN based power electronics components.

R&S®RT-ZI11 passive probes can be used to measure fast switching edges of GaN power electronics designs with 500 MHz of bandwidth. Designed for the R&S®Scope Rider RTH oscilloscope with its isolated channels, the probes are ideal for floating measurements of voltages with common mode voltages up to 1000 V (RMS).



Model	Bandwidth	Attenuation factor	Input impedance	Dynamic range	Comment	Order No.
Passive probes						
R&S®RT-ZH03	250 MHz	100:1	100 MΩ || 6.5 pF	850 V (RMS)	robust 5 mm probe tip	1333.0873.02
R&S®RT-ZH10	400 MHz	100:1	50 MΩ || 7.5 pF	1000 V (RMS), 6000 V (peak)	1000 V (RMS) CAT II, 5 mm probe tip, spring-loaded	1409.7720.02
R&S®RT-ZH11	400 MHz	1000:1	50 MΩ || 7.5 pF	1000 V (RMS), 6000 V (peak)	1000 V (RMS) CAT II, 5 mm probe tip, spring-loaded	1409.7737.02
R&S®RT-ZI11	500 MHz	100:1	100 MΩ || 4.6 pF	1000 V (RMS)	600 V (RMS) CAT IV, 1000 V (RMS) CAT III, 3540 V (RMS) CAT 0, for R&S®Scope Rider RTH only	1326.1810.02
Active, differential probes						
R&S®RT-ZHD07	200 MHz	25:1/250:1	5 MΩ || 2.5 pF	±750 V	300 V (RMS) CAT III	1800.2307.02
R&S®RT-ZHD15	100 MHz	50:1/500:1	10 MΩ || 2 pF	±1500 V	1000 V (RMS) CAT III	1800.2107.02
R&S®RT-ZHD16	200 MHz	50:1/500:1	10 MΩ || 2 pF	±1500 V	1000 V (RMS) CAT III	1800.2207.02
R&S®RT-ZHD60	100 MHz	100:1/1000:1	40 MΩ || 2 pF	±6000 V	1000 V (RMS) CAT III	1800.2007.02
Choose your cable length						
R&S®ZHD-B15					1.5 m cable, for all R&S®RT-ZHD models	1800.2142.02
R&S®ZHD-B30					3.0 m cable, for R&S®RT-ZHD15 and R&S®RT-ZHD60	1800.2159.02
R&S®ZHD-B45					4.5 m cable, for R&S®RT-ZHD15 and R&S®RT-ZHD60	1800.2165.02
Accessory						
R&S®RT-ZA24					replacement kit, for R&S®RT-ZHD probes	1800.2707.00

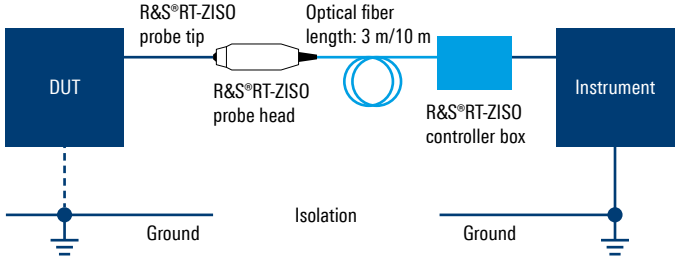
OPTICALLY ISOLATED PROBES

Rohde&Schwarz has expanded its portfolio for high and fast CM signals with the R&S®RT-ZISO isolated probing system for WBG and faster IGBT switch node testing applications. Many different models allow measurements up to 3000 V in CAT III environments. R&S®RT-ZISO probes have a large common mode rejection ratio (CMRR) over a wide frequency range.

The R&S®RT-ZISO isolated probing system addresses several measurement challenges faced by engineers who work on high power and fast switching systems, particularly those that use wide bandgap technology. Gallium nitride (GaN) and silicon carbide (SiC) power devices are gaining market share and replacing older silicon MOSFET and IGBT devices for higher power efficiency and density.

Isolating ground connections is important for reducing common noise loops. The R&S®RT-ZISO isolated probing system uses lasers to communicate between the probe head and receiver to eliminate potential electrical return paths for common mode signals. The probe tip and head are floating and measurement signals that are optically transmitted to the probe receiver. Even when the instrument and DUT can be connected on the same ground plane, the lack of an electrical path completely isolates common mode loops.

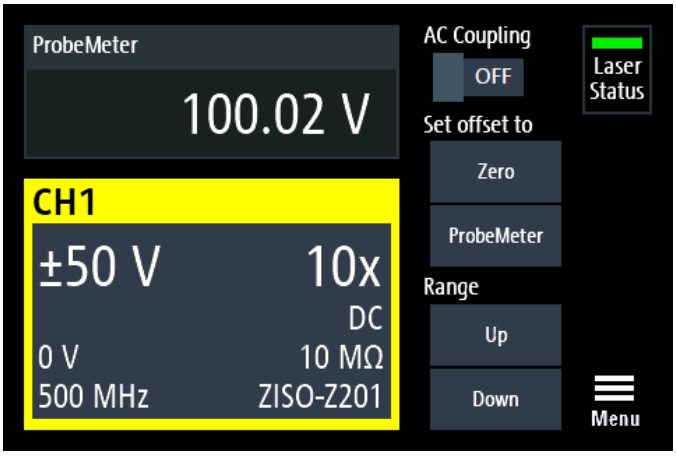
Isolation with optical fiber



CMRR performance (meas.)	
DC	145 dB
1 MHz	145 dB
100 MHz	110 dB
200 MHz	100 dB
500 MHz	100 dB
1 GHz	90 dB

Operating an R&S®RT-ZISO with the Rohde&Schwarz probe interface offers seamless control over the probe system. The oscilloscope automatically reads out the tip data and processes it to set up the correct system attenuation and skew. Offset and range control can be easily configured on the oscilloscope. The Rohde&Schwarz probe interface also delivers power to the probe system directly. Setting up the R&S®RT-ZISO with a Rohde&Schwarz oscilloscope ensures the correct settings for your measurement. Users also get the highest acquisition rate, finer details with 18-bit vertical resolution and access to features such as zone trigger and fast spectrum for deep waveform insights.

The R&S®RT-ZISO isolated probing system also lets you connect to any oscilloscope with a BNC or SMA interface. The probe receiver comes with a touchscreen display for controlling and viewing the probe system settings. Controlling the input range and offset settings are made easy while also showing the connected probe tip.



For more details, see our website:

Model	Bandwidth	Attenuation factor	Input impedance	Dynamic range	Comment	Order No.
Probe configuration, base model						
R&S®RT-ZISO	up to 1 GHz	defined by probe tip		defined by probe tip	different probe tips MMCX, square pin TIP, wide square pin TIP, handheld browser TIP	1804.5000.02
Choose your cable length						
R&S®ZISO-B403					3 m optical fiber cable	1804.5017.02
R&S®ZISO-B410					10 m optical fiber cable	1804.5023.02
Choose your system bandwidth						
R&S®ZISO-B901					100 MHz option	1804.5030.02
R&S®ZISO-B902					200 MHz option	1804.5046.02
R&S®ZISO-B903					350 MHz option	1804.5052.02
R&S®ZISO-B905					500 MHz option	1804.5069.02
R&S®ZISO-B910					1 GHz option	1804.5075.02
Choose your probe tips						
R&S®ZISO-Z101	1 GHz	1.5:1	50 Ω	8 V (RMS), ±45 V (peak)	MMCX tip module, 1 kV (RMS) CAT III	1803.4100.02
R&S®ZISO-Z201	1 GHz	10:1	10 MΩ || 3.7 pF	±300 V (peak)	MMCX tip module, 1 kV (RMS) CAT III	1803.4200.02
R&S®ZISO-Z202	1 GHz	25:1	10 MΩ || 3.5 pF	±300 V (peak)	SQPIN tip module, 1 kV (RMS) CAT III	1803.4300.02
R&S®ZISO-Z203	1 GHz	100:1	40 MΩ || 3.2 pF	±3 kV (peak)	WSQPIN tip module, 1 kV (RMS) CAT III	1803.4400.02
R&S®ZISO-Z301	500 MHz	10:1	10 MΩ || 11 pF	±300 V (peak)	browser tip module, 300 V (RMS) CAT III	1803.4500.02
R&S®ZISO-Z302	500 MHz	100:1	100 MΩ || 4.6 pF	±3 kV (peak)	browser, 1 kV (RMS) CAT III	1803.4600.02
Accessories						
R&S®RT-ZAMXHTS					MMCX socket to solder-in cable HT, temperature range –40 °C to +155 °C	1803.1660.02
R&S®RT-ZAMXUFL					MMCX socket to UF.L adapter, temperature range –40 °C to +125 °C	1803.1676.02
R&S®RT-ZAMXSQ					MMCX socket to dual square pin, temperature range –40 °C to +125 °C	1803.1660.02

CURRENT PROBES

Rohde&Schwarz current probes enable accurate, non-intrusive measurement of DC and AC current levels. Different models can measure current in the 1 mA to 2000 A range with up to 120 MHz of bandwidth.

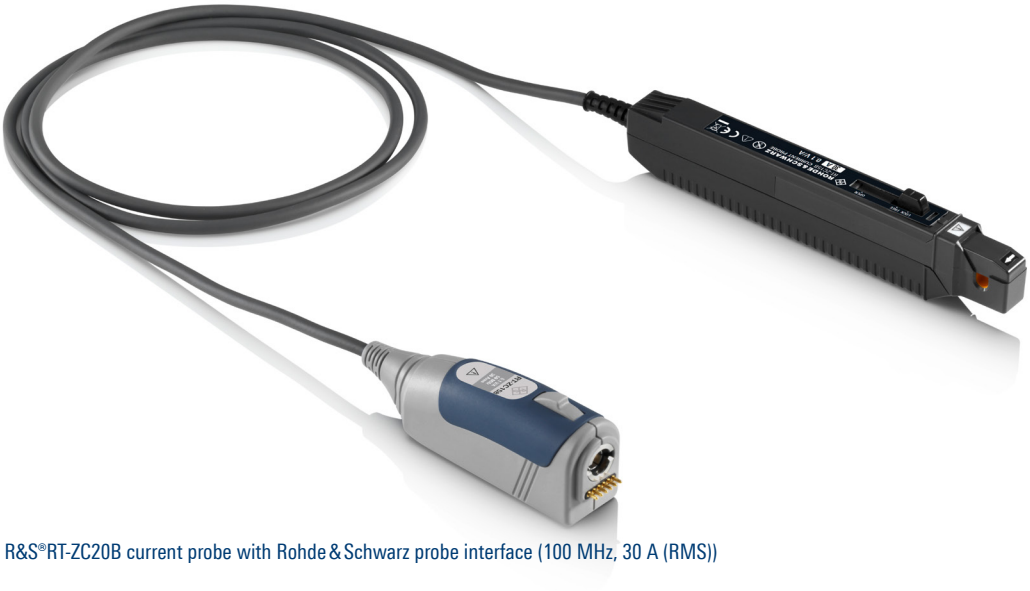
DC and AC measurements without circuit interruption

The R&S®RT-ZC current probes precisely measure direct and alternating current levels without interrupting the power circuit during measurement. The extra-large opening on the R&S®RT-ZC10 can accommodate conductors with a diameter of up to 20 mm. The R&S®RT-ZC10 can measure peak currents up to 300 A (500 A for a single pulse). The more compact R&S®RT-ZC20 with a measurement bandwidth of 100 MHz is ideal when measuring low-amplitude, high-frequency currents.

The R&S®RT-ZC31 can switch between three different sensitivity ranges to cover a very broad dynamic range with high bandwidth.

Robust design and easy operation

Rohde&Schwarz current probes have a robust design and are easy to operate. The degauss and offset correction can be done directly at the probe connector. The compact R&S®RT-ZA13 probe power supply supplies up to four current probes. The current probes can be selected as predefined probes on R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5 and R&S®RTO6 oscilloscopes.



R&S®RT-ZC20B current probe with Rohde&Schwarz probe interface (100 MHz, 30 A (RMS))

External power supply for up to four current probes

Easy deskewing for simultaneous current and voltage measurements

Meaningful measurements on power electronics must have no time delay (skew) between the current and voltage measurements. The R&S®RT-ZF20 power deskew and calibration test fixture has a variety of test signals to easily compensate for skew between Rohde&Schwarz current and voltage probes. The oscilloscope USB port supplies power to the power deskew and calibration test fixture.

R&S®RT-ZF20 power deskew and calibration test fixture: Easy deskewing for measurements on power electronics.

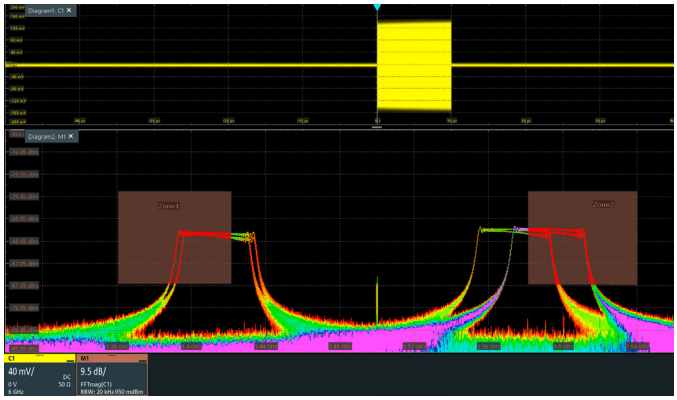
Model	Bandwidth	Sensitivity	Dynamic range	Rise time	Comment	Order No.
Probes						
R&S®RT-ZC02	20 kHz	0.01 V/A, 0.001 V/A	±200 A, ±2000 A	5 µs	battery powered	1333.0850.02
R&S®RT-ZC03	100 kHz	0.1 V/A	20 A (RMS), ±30 A (peak)	1 µs	battery powered	1333.0844.02
R&S®RT-ZC05B	2 MHz	0.01 V/A	500 A (RMS), 700 A (peak)	175 ns	power supply via Rohde&Schwarz probe interface	1409.8204.02
R&S®RT-ZC10	10 MHz	0.01 V/A	150 A (RMS), ±300 A (peak), ±500 A (peak) (single pulse)	35 ns	power supply via R&S®RT-ZA13	1409.7750K02
R&S®RT-ZC10B	10 MHz	0.01 V/A		35 ns	power supply via Rohde&Schwarz probe interface	1409.8210.02
R&S®RT-ZC15B	50 MHz	0.1 V/A	30 A (RMS), ±50 A (peak)	7 ns	power supply via Rohde&Schwarz probe interface	1409.8227.02
R&S®RT-ZC20	100 MHz	0.1 V/A		3.5 ns	power supply via R&S®RT-ZA13	1409.7766K02
R&S®RT-ZC20B	100 MHz	0.1 V/A		3.5 ns	power supply via Rohde&Schwarz probe interface	1409.8233.02
R&S®RT-ZC30	120 MHz	1 V/A	5 A (RMS), 7.5 A (peak)	2.9 ns	power supply via R&S®RT-ZA13	1409.7772K02
R&S®RT-ZC31	120 MHz	0.1 V/A, 1 V/A, 10 V/A	30 A (RMS), 5 A (RMS), 0.5 A (RMS)	2.9 ns	power supply via R&S®RT-ZA13	1801.4932K02
Accessories						
R&S®RT-ZF20					power deskew and calibration test fixture	1800.0004.02
R&S®RT-ZA13					external power supply for up to four Rohde&Schwarz current probes	1409.7789.02

EMC NEAR-FIELD PROBES

Powerful E and H near-field probes for the 30 MHz to 3 GHz frequency range with optional preamplifier expand the R&S®RTM3000, R&S®RTA4000, MXO 3, MXO 4, MXO 5, R&S®RTO6 and R&S®RTP oscilloscope application range to include EMI debugging.

Powerful FFT analysis function in Rohde&Schwarz oscilloscopes

Developers now have a cost-effective solution for EMI debugging right on their lab bench. Unwanted EMI can be displayed simultaneously in both the time and frequency domains to speed up debugging.



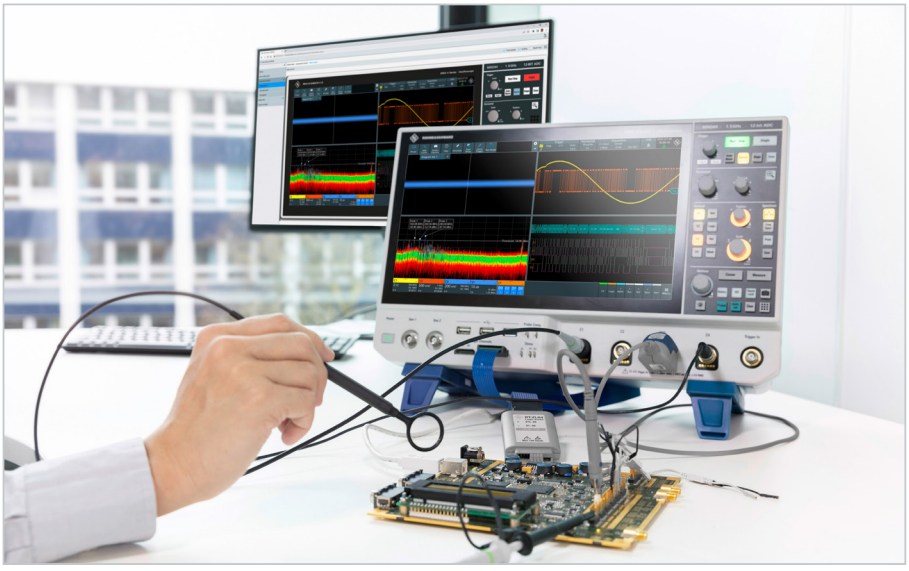
Direct acquisition and analysis of sporadically occurring EMI thanks to the R&S®RTO6 oscilloscope's powerful spectrum analysis function

Versatile near-field probe sets

Near-field probes can analyze EMC problems in electronic circuits and identify their causes. Rohde&Schwarz has several near-field probe sets that include E-field and H-field probes for use with oscilloscopes, signal and spectrum analyzers and EMI test receivers.

The R&S®HZ-15 E and H near-field probe set consists of several passive near-field probes that are ideal for diagnosing EMC problems on printed circuit boards. The compact design help find sources of EMI, even in individual conductors. The optional R&S®HZ-16 preamplifier has 20 dB gain for greater sensitivity in the 100 kHz to 3 GHz frequency range.

The R&S®HZ-17 H-field probe set is an economical near-field set for EMI debugging when E field measurements are not required.



EMI debugging and power measurement with the MXO 4

Model	Frequency range	Comment	Order No.
Near-field probe			
R&S®HZ-15	30 MHz to 3 GHz	compact E and H near-field probe set	1147.2736.02
R&S®HZ-17	30 MHz to 3 GHz	compact H near-field probe set	1339.4141.02
Accessory			
R&S®HZ-16	100 kHz to 3 GHz	3 GHz, 20 dB, preamplifier 100 V to 230 V power adapter	1147.2720.02

ACCESSORIES

Probe interface adapter

The R&S®RT-Z2T probe interface adapter lets certain Tektronix TekProbe interface with level II probes used with Rohde&Schwarz oscilloscopes. Tektronix active probes can be used with the TekProbe-BNC interfaces on Rohde&Schwarz oscilloscopes, for convenient and straightforward access to a broad range of active, current, differential, high voltage and electro-optical probes.

Support of the following Tektronix probes

Type	Model
Single-ended active probes (without offset control)	▶ P6205: 750 MHz, 10:1 ▶ P6243: 1 GHz, 10:1 ▶ P6245: 1.5 GHz, 10:1 ▶ P6241: 4 GHz, 10:1 ▶ P6249: 4 GHz, 5:1
Current probes	TCP202: 50 MHz AC/DC current probe
Differential active probes (without offset control)	▶ P6246: 400 MHz, 10:1/1:1 ▶ P6247: 1 GHz, 10:1/1:1 ▶ P6248: 1.5 GHz, 10:1/1:1 ▶ P6250: 500 MHz, 50:1/5:1 ▶ P6251: 1 GHz, 50:1/5:1
High voltage differential probes	▶ P5205: 100 MHz, 50:1/500:1 ▶ P5210: 50 MHz, 100:1/1000:1
Electro-optical probes	▶ P6701B: 1 GHz ▶ P6703B: 1.2 GHz ▶ P6711: 250 MHz ▶ P6713: 300 MHz

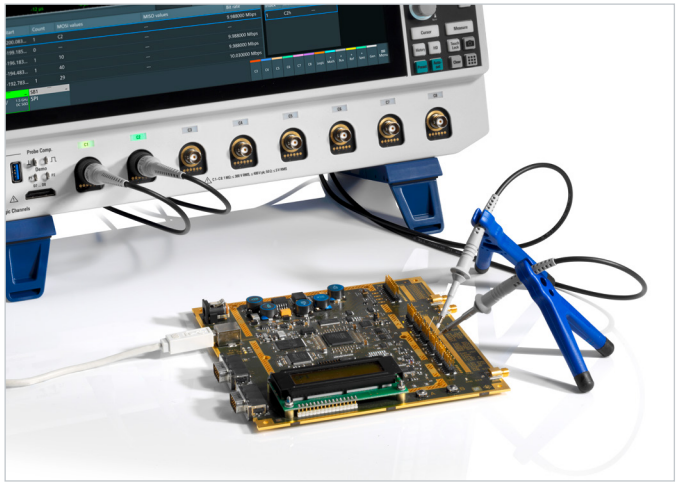
The R&S®RT-Z2T probe interface adapter allows you to connect TekProbe-BNC level II probes to the following Rohde&Schwarz oscilloscopes:

- ▶ R&S®RTM3000
- ▶ R&S®RTA4000
- ▶ R&S®RTO6
- ▶ MXO 3
- ▶ MXO 4
- ▶ MXO 5

Probe positioners

The two-leg R&S®RT-ZA29 probe positioner lets three different probe diameters be used and the probe tip can be precisely placed at a contact spot as needed. The R&S®RT-ZAP 3D probe positioner offers precise and flexible probe positioning for advanced electronic testing. Engineers can accurately and flexibly place probes at different angles and orientations and have easy access to desired probe points on complex circuits and components. The high-precision mechanics help the R&S®RT-ZAP streamline measurement workflows, reduce setup times and improve measurement reliability. The positioner is vital asset for any modern electronics laboratory.

R&S®RT-Z2T probe interface adapter



R&S®RT-ZA29 probe positioner with two legs

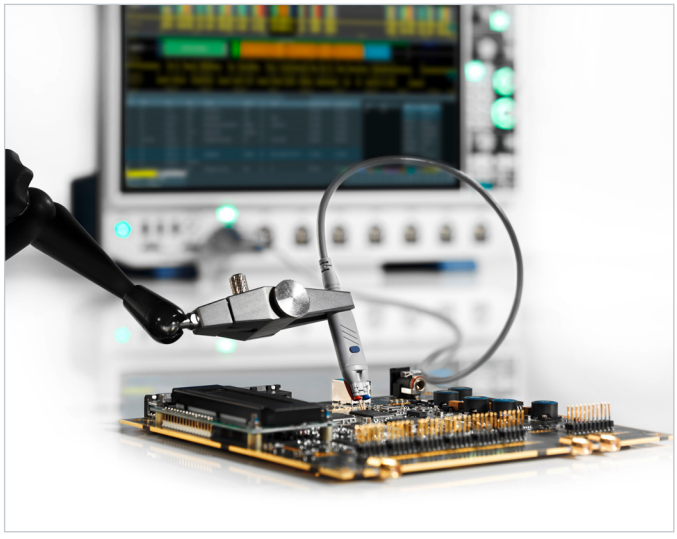
Model	Comment	Order No.
R&S®RT-Z2T	probe interface adapter, for selected Tektronix probes with TekProbe-BNC level II interface	1338.0007.02
R&S®RT-ZA29	probe positioner, 2 legs	1801.4803.02
R&S®RT-ZAP	3D probe positioner	1326.3641.02

External frontends

The different R&S®FExx external frontend models are a convenient way to extend the usable frequency of R&S®RTP oscilloscopes up to 170 GHz. The frontends come fully calibrated with built-in high performance local oscillators for top signal quality. It is an easy-to-use, complete and compact solution.

An R&S®RTP oscilloscope controls the external frontends via LAN interface. With the R&S®RTP-K553 external frontend control option, setup and control is completely integrated in the oscilloscope user interface. The R&S®RTP also corrects the frequency and phase response of the external frontends, based on the individual characteristics stored in the EEPROM external frontends.

Recommended products	
External frontends	▶ R&S®FE44S, 24 GHz to 44 GHz ▶ R&S®FE50DTR, 36 GHz to 50 GHz ▶ R&S®FE110SR, 70 GHz to 110 GHz ▶ R&S®FE170SR, 110 GHz to 170 GHz
Oscilloscope and options	▶ R&S®RTP164B high-performance oscilloscope, 16 GHz ▶ R&S®RTP-K11 I/Q software interface ▶ R&S®RTP-K121 deembedding base ▶ R&S®RTP-K553 external frontend control
R&S®VSE options, e.g.:	R&S®VSE-KT144 3GPP 5G-NR DL/UL measurements (SL)



R&S®RT-ZAP 3D probe positioner in use with the R&S®RT-ZD30

R&S®RTP oscilloscope with two external frontends for multichannel analysis

Model	Comment	Order No.
R&S®FE44S	external frontend, 24 GHz to 44 GHz	1338.7001.02
R&S®FE50DTR	external frontend, 36 GHz to 50 GHz	1347.4099.02
R&S®FE110SR	external frontend, 70 GHz to 110 GHz	1348.4840.02
R&S®FE170SR	external frontend, 110 GHz to 170 GHz	1347.9090.02
R&S®RTP164B	high-performance oscilloscope, 16 GHz	1803.7000.16
R&S®RTP-K11	I/Q software interface option	1800.6683.02
R&S®RTP-K121	deembedding base option	1326.3064.02
R&S®RTP-K553	external frontend control option	1803.6890.02
R&S®VSE-KT144	3GPP 5G-NR DL/UL measurements (SL) option	1345.1740.02

THIRD PARTY SOLUTIONS

TESTED AND RECOMMENDED BY ROHDE&SCHWARZ

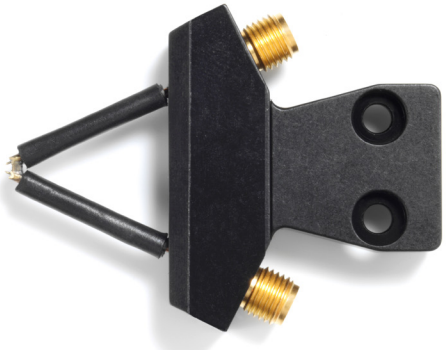
Rohde&Schwarz constantly seeks innovative solutions to help achieve your goals. We have identified solutions that complement our portfolio and offer a comprehensive range of options.

PacketMicro, Inc - Home

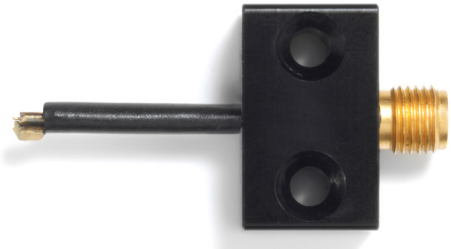
- Single-ended S-Probes:
  Designed for RF, power integrity and signal integrity testing with up to 20 GHz. The strong beryllium copper (BeCu) tips are good for direct probing of uneven surfaces, such as solder pads and circuit components.

- Differential D-Probes:
  The 20 GHz bandwidth is ideal for signal integrity testing. The two signal pins let D-Probes perform accurate measurements without any ground pads nearby. The probes are great for the R&S®RTP 16 GHz oscilloscope TDR/TDT option as well as impedance measurements of power delivery networks (PDN) and PCB time-domain measurements with Rohde&Schwarz vector network analyzers. They are branded as PacketMicro, Inc. OEM products.

More information at www.packetmicro.com.



DPSS2015xx differential probe, 20 GHz



SPGRxxxxxx single-ended probe, up to 20 GHz

Ordering information

Designation	Type	Order No.
Differential probe, 20 GHz, 0.3 mm	DPSS201503	1801.4649.02
Differential probe, 20 GHz, 0.4 mm	DPSS201504	1801.4655.02
Differential probe, 20 GHz, 0.5 mm	DPSS201505	1801.4661.02
Differential probe, 20 GHz, 0.8 mm	DPSS201508	1801.4678.02
Differential probe, 20 GHz, 1.0 mm	DPSS201510	1801.4684.02
Differential probe 20 GHz, 1.2 mm	DPSS201512	1801.4690.02
Single-ended probe, 16 GHz, 1.2 mm	SPGR161512	1801.4755.02
Single-ended probe, 16 GHz, 1.4 mm	SPGR161514	1801.4761.02
Single-ended probe, 16 GHz, 1.6 mm	SPGR161516	1801.4778.02
Single-ended probe, 18 GHz, 0.8 mm	SPGR181508	1801.4732.02
Single-ended probe, 18 GHz, 1.0 mm	SPGR181510	1801.4749.02
Single-ended probe, 20 GHz, 0.2 mm	SPGR201502	1801.4703.02
Single-ended probe, 20 GHz, 0.4 mm	SPGR201504	1801.4710.02
Single-ended probe, 20 GHz, 0.5 mm	SPGR201505	1801.4726.02
D-Probe handle	DP-HAND01	1801.4826.02

PEM UK

Wideband Rogowski coils support the development of applications for power semiconductors along with development and production of electric vehicles, motor drives or renewable energy. The coils have solutions to meet evolving technological requirements and help increase efficiency, security and performance. The brilliant solution is now available in the Rohde&Schwarz product list.

The PEM UK website has a wide range of applications examples: double pulse testing, EMC applications or large AC currents.

More information at www.pemuk.com

CMN50HF (CWTMini50HF) wideband AC current probe for measurements of power devices and converters

CWTUM (CWT Ultra-mini) wideband AC current probe for measurements of power devices and converters where a thin coil is required

Ordering information

Designation	Type	Order No.
CWT/15/(B)/2.5/300 wide-bandwidth AC current probe	CWT15	1801.8209.02
CWT/30/(B)/2.5/300 wide-bandwidth AC current probe	CWT30	1801.8215.02
CWTMini/1/(B)/2.5/100/5 wide-bandwidth AC current probe	CWTMN1	1801.8221.02
CWT Mini50HF/3/(B)/2.5/100/5 wide-bandwidth AC current probe	CMN50HF3	1801.8238.02
CWTMini50HF/15/(B)/2.5/100/5 wide-bandwidth AC current probe	CMN50HF15	1801.8244.02
CWTMini50HF/30/(B)/2.5/100/5 wide-bandwidth AC current probe	CMN50HF30	1801.8250.02
CWTMini50HF/015/(B)/1/100/2 wide-bandwidth AC current probe	CMN50HF015	1801.8267.02
CWTMini50HF/06/(B)/1/100/2 wide-bandwidth AC current probe	CMN50HF06	1801.8273.02
CWTUM/015/(B)/1/80 wide-bandwidth AC current probe	CWTUM015	1801.8280.02
CWTUM/06(B)/1/80 wide-bandwidth AC current probe	CWTUM06	1801.8296.02
CWTUM/1/(B)/1/80 wide-bandwidth AC current probe	CWTUM1	1801.8309.02
All above listed models with accredited calibration have the same order numbers with last two numers changed to: xxxx.xxxx.22.		
13S power adapter, for use with CWT Ultra-mini, CWTUM-S, CWTUM-F + CWTUM-HF, CWTMini50HF, CWTHF + CWTLF and CMC	UNI13S	1801.8538.02
21S power adapter, for use with CWT (original) and LFR	UNI21S	1801.8573.02

ORDERING INFORMATION

Designation	Type	Order No.
Probes		
Passive probes		
38 MHz, 1:1, 1 MΩ, 39 pF, 55 V (RMS) CAT II	R&S®RT-ZP1X	1333.1370.02
300 MHz, 10:1, 10 MΩ, 5 mm tip, no probe detection	R&S®RT-ZP03S	1803.1001.02
500 MHz, 10:1, 10 MΩ, 5 mm tip	R&S®RT-ZP05S	1333.2401.02
500 MHz, 10:1, 10 MΩ, 5 mm tip	R&S®RT-ZP05M	1335.3505.02
500 MHz, 10:1, 10 MΩ, 400 V (RMS)	R&S®RT-ZP10	1409.7550.00
700 MHz, 10:1, 10 MΩ, 400 V (RMS)	R&S®RT-ZP11	1803.0005.02
Set of 4 × R&S®RT-ZP11 probes	R&S®RT-ZP11-4	1801.8167.02
500 MHz, 10:1, 10 MΩ, 400 V (RMS)	R&S®RTM-ZP10	1409.7708.02
700 MHz, 25:1, 1 MΩ, 30 V (RMS)	R&S®RT-ZPMMCX	1803.1599.02
500 MHz, 10:1, 10 MΩ, 12 pF	R&S®RT-ZI10	1326.1761.02
500 MHz, 10:1, 10 MΩ, 11 pF	R&S®RT-ZI10C	1326.3106.02
500 MHz, 10:1, 10 MΩ, 11 pF, dual-pack of R&S®RT-ZI10C	R&S®RT-ZI10C-2	1333.1811.02
500 MHz, 10:1, 10 MΩ, 11 pF, quad-pack of R&S®RT-ZI10C	R&S®RT-ZI10C-4	1333.1328.02
Passive broadband probes		
8.0 GHz, 10:1, 500 Ω, 20 V (RMS)	R&S®RT-ZZ80	1409.7608.02
Active broadband probes: single-ended		
1.0 GHz, 1 MΩ, Rohde&Schwarz probe interface	R&S®RT-ZS10E	1418.7007.02
1.0 GHz, 1 MΩ, R&S®ProbeMeter, micro button, Rohde&Schwarz probe interface	R&S®RT-ZS10	1410.4080.02
1.5 GHz, 1 MΩ, R&S®ProbeMeter, micro button, Rohde&Schwarz probe interface	R&S®RT-ZS20	1410.3502.02
3.0 GHz, 1 MΩ, R&S®ProbeMeter, micro button, Rohde&Schwarz probe interface	R&S®RT-ZS30	1410.4309.02
6.0 GHz, 1 MΩ, R&S®ProbeMeter, micro button, Rohde&Schwarz probe interface	R&S®RT-ZS60	1418.7307.02
Active broadband probes: differential		
1.0 GHz, 1 MΩ, R&S®ProbeMeter, micro button, including 10:1 external attenuator, 1 MΩ, 70 V DC, 46 V AC (peak), Rohde&Schwarz probe interface	R&S®RT-ZD10	1410.4715.02
1.5 GHz, 1 MΩ, R&S®ProbeMeter, micro button, Rohde&Schwarz probe interface	R&S®RT-ZD20	1410.4409.02
3.0 GHz, 1 MΩ, R&S®ProbeMeter, micro button, Rohde&Schwarz probe interface	R&S®RT-ZD30	1410.4609.02
4.5 GHz, 1 MΩ, R&S®ProbeMeter, micro button, Rohde&Schwarz probe interface	R&S®RT-ZD40	1410.5205.02
Modular broadband probes		
Probe amplifier module, 1.5 GHz, 10:1 or 2:1, 400 kΩ (differential mode), 200 kΩ (single-ended mode)	R&S®RT-ZM15	1800.4700.02
Probe amplifier module, 3 GHz, 10:1 or 2:1, 400 kΩ (differential mode), 200 kΩ (single-ended mode)	R&S®RT-ZM30	1419.3005.02
Probe amplifier module, 6 GHz, 10:1 or 2:1, 400 kΩ (differential mode), 200 kΩ (single-ended mode)	R&S®RT-ZM60	1419.3105.02
Probe amplifier module, 9 GHz, 10:1 or 2:1, 400 kΩ (differential mode), 200 kΩ (single-ended mode)	R&S®RT-ZM90	1419.3205.02
Probe amplifier module, 13 GHz, 10:1 or 2:1, 400 kΩ (differential mode), 200 kΩ (single-ended mode)	R&S®RT-ZM130	1800.4500.02
Probe amplifier module, 16 GHz, 10:1 or 2:1, 400 kΩ (differential mode), 200 kΩ (single-ended mode)	R&S®RT-ZM160	1800.4600.02
Power rail probe		
2.0 GHz, 1:1, 50 kΩ, ±0.85 V, ±60 V offset, R&S®ProbeMeter	R&S®RT-ZPR20	1800.5006.02
4.0 GHz, 1:1, 50 kΩ, ±0.85 V, ±60 V offset, R&S®ProbeMeter	R&S®RT-ZPR40	1800.5406.02
Multichannel power probe		
1 MHz, 5 Msample/s, 2 × voltage, 2 × current	R&S®RT-ZVC02	1326.0259.02
1 MHz, 5 Msample/s, 4 × voltage, 4 × current	R&S®RT-ZVC04	1326.0259.04
High voltage probes: passive		
250 MHz, 100:1, 100 MΩ, 850 V (RMS)	R&S®RT-ZH03	1333.0873.02
400 MHz, 100:1, 50 MΩ, 1000 V (RMS) CAT II	R&S®RT-ZH10	1409.7720.02
400 MHz, 1000:1, 50 MΩ, 1000 V (RMS) CAT II	R&S®RT-ZH11	1409.7737.02
500 MHz, 11:1, 100 MΩ, 600 V (RMS) CAT IV, 1000 V (RMS) CAT III, 3540 V (RMS) CAT 0, for R&S®Scope Rider RTH only	R&S®RT-ZI11	1326.1810.02

Designation	Type	Order No.
High voltage probes: differential		
200 MHz, 25:1/250:1, 5 MΩ, ±750 V, 300 V (RMS) CAT III, 1.5 m cable length	R&S®RT-ZHD0715	1800.2307P02
100 MHz, 50:1/500:1, 10 MΩ, ±1500 V, 1000 V (RMS) CAT III, 1.5 m cable length	R&S®RT-ZHD1515	1800.2107P02
200 MHz, 50:1/500:1, 10 MΩ, ±1500 V, 1000 V (RMS) CAT III, 1.5 m cable length	R&S®RT-ZHD1615	1800.2207P02
100 MHz, 100:1/1000:1, 40 MΩ, ±6000 V, 1000 V (RMS) CAT III, 1.5 m cable length	R&S®RT-ZHD6015	1800.2007P02
100 MHz, 50:1/500:1, 10 MΩ, ±1500 V, 1000 V (RMS) CAT III, 3.0 m cable length	R&S®RT-ZHD1530	1800.2107P30
100 MHz, 50:1/500:1, 10 MΩ, ±1500 V, 1000 V (RMS) CAT III, 4.5 m cable length	R&S®RT-ZHD1545	1800.2107P45
100 MHz, 100:1/1000:1, 40 MΩ, ±6000 V, 1000 V (RMS) CAT III, 3.0 m cable length	R&S®RT-ZHD6030	1800.2007P30
100 MHz, 100:1/1000:1, 40 MΩ, ±6000 V, 1000 V (RMS) CAT III, 4.5 m cable length	R&S®RT-ZHD6045	1800.2007P45
Isolated probing system		
Isolated probing system, ±30 V, 1 kV (RMS) CAT III (depending on tip module), Rohde&Schwarz probe interface and BNC Incl. carrying case; operating manual	R&S®RT-ZISO	1804.5000.02
100 MHz isolated probe package with 3 m length, includes R&S®ZISO-Z301 probe tip	R&S®RT-ZISO01	1804.5000P11
100 MHz isolated probe package with 10 m length, includes R&S®ZISO-Z301 probe tip	R&S®RT-ZISO01L	1804.5000P21
200 MHz isolated probe package with 3 m length, includes R&S®ZISO-Z301 probe tip	R&S®RT-ZISO02	1804.5000P12
200 MHz isolated probe package with 10 m length, includes R&S®ZISO-Z301 probe tip	R&S®RT-ZISO02L	1804.5000P22
350 MHz isolated probe package with 3 m length, includes R&S®ZISO-Z301 probe tip	R&S®RT-ZISO03	1804.5000P13
350 MHz isolated probe package with 10 m length, includes R&S®ZISO-Z301 probe tip	R&S®RT-ZISO03L	1804.5000P23
500 MHz isolated probe package with 3 m length, includes R&S®ZISO-Z301 probe tip	R&S®RT-ZISO05	1804.5000P14
500 MHz isolated probe package with 10 m length, includes R&S®ZISO-Z301 probe tip	R&S®RT-ZISO05L	1804.5000P24
1 GHz isolated probe package with 3 m length, includes R&S®ZISO-Z201 and R&S®ZISO-Z301 probe tips	R&S®RT-ZISO10	1804.5000P15
1 GHz isolated probe package with 10 m length, includes R&S®ZISO-Z201 and R&S®ZISO-Z301 probe tips	R&S®RT-ZISO10L	1804.5000P25
Current probes		
20 kHz, AC/DC, 0.01 V/A and 0.001 V/A, ±200 A and ±2000 A	R&S®RT-ZC02	1333.0850.02
100 kHz, AC/DC, 0.1 V/A, 20 A (RMS), ±30 A (peak)	R&S®RT-ZC03	1333.0844.02
2 MHz, AC/DC, 0.01 V/A, 500 A (RMS), Rohde&Schwarz probe interface	R&S®RT-ZC05B	1409.8204.02
10 MHz, AC/DC, 0.01 V/A, 150 A (RMS)	R&S®RT-ZC10	1409.7750K02
100 MHz, AC/DC, 0.1 V/A, 30 A (RMS)	R&S®RT-ZC20	1409.7766K02
120 MHz, AC/DC, 1 V/A, 5 A (RMS)	R&S®RT-ZC30	1409.7772K02
120 MHz, AC/DC, 0.1 V/A / 1 V/A / 10 V/A, 30 A, 5 A, 0.5 A (RMS)	R&S®RT-ZC31	1801.4932K02
10 MHz, AC/DC, 0.01 V/A, 150 A (RMS), Rohde&Schwarz probe interface	R&S®RT-ZC10B	1409.8210.02
50 MHz, AC/DC, 0.1 V/A, 30 A (RMS), Rohde&Schwarz probe interface	R&S®RT-ZC15B	1409.8227.02
100 MHz, AC/DC, 0.1 V/A, 30 A (RMS), Rohde&Schwarz probe interface	R&S®RT-ZC20B	1409.8233.02
EMC near-field probes		
Compact probe set, for E and H near-field measurements, 30 MHz to 3 GHz	R&S®HZ-15	1147.2736.02
Compact H near-field probe set, 30 MHz to 3 GHz	R&S®HZ-17	1339.4141.02
Logic probes (included with R&S®RTx-B1 or R&S®MXOx-B1 mixed signal oscilloscope options)		
300 MHz logic probe, 8 channels	R&S®RT-ZL03	1333.0715.02
300 MHz logic probe, 8 channels	R&S®RT-ZL03X	1335.3005.02
400 MHz logic probe, 8 channels	R&S®RT-ZL04	1333.0721.02

Designation	Type	Order No.
Third party solutions		
PacketMicro, Inc - Home probes		
Differential probe, 20 GHz, 0.3 mm	DPSS201503	1801.4649.02
Differential probe, 20 GHz, 0.4 mm	DPSS201504	1801.4655.02
Differential probe, 20 GHz, 0.5 mm	DPSS201505	1801.4661.02
Differential probe, 20 GHz, 0.8 mm	DPSS201508	1801.4678.02
Differential probe, 20 GHz, 1.0 mm	DPSS201510	1801.4684.02
Differential probe 20 GHz, 1.2 mm	DPSS201512	1801.4690.02
Single-ended probe, 16 GHz, 1.2 mm	SPGR161512	1801.4755.02
Single-ended probe, 16 GHz, 1.4 mm	SPGR161514	1801.4761.02
Single-ended probe, 16 GHz, 1.6 mm	SPGR161516	1801.4778.02
Single-ended probe, 18 GHz, 0.8 mm	SPGR181508	1801.4732.02
Single-ended probe, 18 GHz, 1.0 mm	SPGR181510	1801.4749.02
Single-ended probe, 20 GHz, 0.2 mm	SPGR201502	1801.4703.02
Single-ended probe, 20 GHz, 0.4 mm	SPGR201504	1801.4710.02
Single-ended probe, 20 GHz, 0.5 mm	SPGR201505	1801.4726.02
D-Probe handle	DP-HAND01	1801.4826.02
PEM UK probes		
CWT/15/(B)/2.5/300 wide-bandwidth AC current probe	CWT15	1801.8209.02
CWT/30/(B)/2.5/300 wide-bandwidth AC current probe	CWT30	1801.8215.02
CWTMini/1/(B)/2.5/100/5 wide-bandwidth AC current probe	CWTMN1	1801.8221.02
CWT Mini50HF/3/(B)/2.5/100/5 wide-bandwidth AC current probe	CMN50HF3	1801.8238.02
CWTMini50HF/15/(B)/2.5/100/5 wide-bandwidth AC current probe	CMN50HF15	1801.8244.02
CWTMini50HF/30/(B)/2.5/100/5 wide-bandwidth AC current probe	CMN50HF30	1801.8250.02
CWTMini50HF/015/(B)/1/100/2 wide-bandwidth AC current probe	CMN50HF015	1801.8267.02
CWTMini50HF/06/(B)/1/100/2 wide-bandwidth AC current probe	CMN50HF06	1801.8273.02
CWTUM/015/(B)/1/80 wide-bandwidth AC current probe	CWTUM015	1801.8280.02
CWTUM/06(B)/1/80 wide-bandwidth AC current probe	CWTUM06	1801.8296.02
CWTUM/1/(B)/1/80 wide-bandwidth AC current probe	CWTUM1	1801.8309.02
All above listed models with accredited calibration have the same order numbers with last two numers changed to: xxxx.xxxx.22.		
13S power adapter, for use with CWT Ultra-mini, CWTUM-S, CWTUM-F + CWTUM-HF, CWTMini50HF, CWTHF + CWTLF and CMC	UNI13S	1801.8538.02
21S power adapter, for use with CWT (original) and LFR	UNI21S	1801.8573.02
Probe accessories		
Accessory set, for R&S®RT-ZP10 and R&S®RT-ZP1X passive probes (2.5 mm probe tip)	R&S®RT-ZA1	1409.7566.00
Spare accessory set, for R&S®RT-ZS10/10E/20/30	R&S®RT-ZA2	1416.0405.02
Pin set, for R&S®RT-ZS10/10E/20/30	R&S®RT-ZA3	1416.0411.02
Mini clips	R&S®RT-ZA4	1416.0428.02
Micro clips	R&S®RT-ZA5	1416.0434.02
Lead set	R&S®RT-ZA6	1416.0440.02
Pin set, for R&S®RT-ZD10/20/30	R&S®RT-ZA7	1417.0609.02
Pin set, for R&S®RT-ZD40	R&S®RT-ZA8	1417.0867.02
N(m) adapter, for R&S®RT-Zxx oscilloscope probes	R&S®RT-ZA9	1417.0909.02
SMA adapter	R&S®RT-ZA10	1416.0457.02
BNC/banana adapter	R&S®RT-ZA11	1333.0796.02
PT100 temperature probe, –50 °C to +400 °C, 2-wire	R&S®RT-ZA12	1333.0809.02
Power supply, for probes	R&S®RT-ZA13	1409.7789.02
Spare power supply, for R&S®ScopeRider RTH, incl. power plugs for EU, GB, US	R&S®RT-ZA14	1326.2874.02
External attenuator 10:1, 2.0 GHz, 1.3 pF, 60 V DC, 42.4 V AC (peak), for R&S®RT-ZD20/30 probes	R&S®RT-ZA15	1410.4744.02
16 GHz PBNC to SMA adapter	R&S®RT-ZA16	1320.7074.02
Matched pair TDR cable	R&S®RT-ZA17	1337.8991.02
Accessory case, for R&S®RTx oscilloscopes	R&S®RT-ZA19	1335.7875.02
Accessory set, for R&S®RT-ZI10/11	R&S®RT-ZA20	1326.1978.02

Designation	Type	Order No.
Extension set, for R&S®RT-ZI10/11	R&S®RT-ZA21	1326.1984.02
Test leads, 600 V CAT IV	R&S®RT-ZA22	1326.0988.02
Replacement kit, for R&S®RT-ZHD probes	R&S®RT-ZA24	1800.2707.00
Power rail browser kit, included with R&S®RT-ZPR20/40	R&S®RT-ZA25	1800.5329.00
Pigtail cable, 15 cm, solder-in, SMA, for R&S®RT-ZPR20/40	R&S®RT-ZA26	1800.5258.00
PCB adapter, 2.5 mm	R&S®RT-ZA27	1801.4784.02
PCB adapter, 2.5 mm angle	R&S®RT-ZA28	1801.4790.02
Probe positioner, 2 legs	R&S®RT-ZA29	1801.4803.02
Extended cable set, for R&S®RT-ZVC, PCB probing, 1 current and 1 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 1 voltage lead, length: 32 cm	R&S®RT-ZA31	1333.1692.02
Power adapter	R&S®RT-ZA32	1333.1705.02
Oscilloscope interface cable, for R&S®RT-ZVC (included with R&S®RT-ZVC02/04)	R&S®RT-ZA33	1333.1770.02
Extended cable set, for R&S®RT-ZVC, 4 mm probing, 1 current and 1 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 1 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 1 voltage lead, length: 16 cm	R&S®RT-ZA37	1337.9130.02
Probe tip accessory set, for R&S®RT-ZP03S, R&S®RT-ZP05S, R&S®HZO10 and R&S®RT-ZH03	R&S®RT-ZA40	1338.0742.02
Ground clips, for R&S®RT-ZP10/R&S®RT-ZP11	R&S®RT-ZA42	1801.8873.00
Adapter, Rohde&Schwarz probe interface to 2.92 mm/3.5 mm/SMA, incl. USB-C port	R&S®RT-ZA50	1803.5265.02
Adapter, 2.92 mm/3.5 mm/SMA to Rohde&Schwarz probe interface, incl. USB-C port	R&S®RT-ZA51	1803.5365.02
MMCX solder-in cable	R&S®RT-ZAMXHTS	1803.1660.02
MMCX to dual square pin	R&S®RT-ZAMXSQ	1803.1647.02
MMCX to U.FL adapter	R&S®RT-ZAMXUFL	1803.1676.02
Power deskew and calibration test fixture	R&S®RT-ZF20	1800.0004.02
3 GHz, 20 dB preamplifier, 100 V to 230 V power adapter, for R&S®HZ-15	R&S®HZ-16	1147.2720.02
For R&S®RT-ZM probe amplifier module		
3D positioner with central tensioning knob for easy clamping and positioning of probes (span width: 200 mm, clamping range: 15 mm)	R&S®RT-ZAP	1326.3641.02
Probe tip module case, for up to 6 R&S®RT-ZMAxx probe tip modules	R&S®RT-ZMA1	1419.3928.02
Solder-in probe tip module, up to 16 GHz	R&S®RT-ZMA10	1419.4301.02
Set of 6 R&S®RT-ZMA10 solder-in probe tip modules	R&S®RT-ZMA10-6	1801.4349.02
Solder-in probe tip module for extended temperature range from –55 °C to +125 °C, up to 16 GHz	R&S®RT-ZMA11	1419.4318.02
Square-pin probe tip module, up to 6 GHz	R&S®RT-ZMA12	1419.4324.02
Flex connect solder-in probe tip module up to 16 GHz for R&S®RT-ZM probe amplifier module, length: 15 cm, multimode P/N/DM/CM	R&S®RT-ZMA14	1338.1010.02
Quick-connect probe tip module, up to 12 GHz	R&S®RT-ZMA15	1419.4224.02
Browser module, up to 16 GHz	R&S®RT-ZMA30	1419.4353.02
SMA module, up to 16 GHz	R&S®RT-ZMA40	1419.4201.02
Extreme temperature kit, up to 12 GHz	R&S®RT-ZMA50	1419.4218.02
Deskew fixture, for power measurements	R&S®RT-ZF20	1800.0004.02
Test fixture, for probe characterization with R&S®RTP-B7	R&S®RT-ZF30	1333.2099.02
Accessories		
1 MΩ adapter, for R&S®RTP oscilloscope	R&S®RT-Z1M	1337.9200.02
Probe pouch, for R&S®RTO6 oscilloscopes	R&S®RTO-Z5	1317.7031.02
Digital extension port, for R&S®RT-ZVC, usage with the R&S®RTO6 oscilloscope (included with R&S®RTO6-B1)	R&S®RTO6-B1E	1801.6735.02
Digital extension port, for R&S®RT-ZVC, usage with the R&S®RTP oscilloscope (included with R&S®RTP-B1)	R&S®RTP-B1E	1337.9581.02
Probe interface adapter, for selected Tektronix probes with TekProbe-BNC level II interface	R&S®RT-Z2T	1338.0007.02

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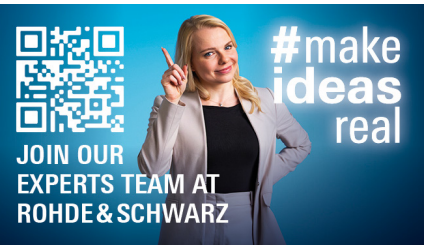

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