R&S®ESSENTIALS

R&S®SCOPE RIDER RTH HANDHELD OSCILLOSCOPE

Lab performance in a rugged and portable design

- ▶ 60 MHz to 500 MHz
- ▶ Isolated, CAT IV

Product Brochure
Version 14.00

ROHDE&SCHWARZ
Make ideas real

EXPERIENCE OUR HANDHELD OSCILLOSCOPE FOR 2 MINUTES AND YOU WILL NEVER LOOK BACK

Lab performance in a rugged and portable design – the perfect multipurpose tool for the lab or in the field.

7", 800 × 480 pixel capacitive touch display

> 4 h battery life

Switch between all instrument modes

One-touch documentation: easily save screenshots and measurements

one touch

Superior performance

- 60 MHz to 500 MHz with 5 Gsample/s sampling rate
- 50 000 waveforms per second
- 10-bit A/D converter
- 2 mV/div to 100 V/div
- Up to 200 V offset range
- 37 automatic measurement functions

8 instruments in one handheld package

- Lab performance oscilloscope
- Logic analyzer
- Protocol analyzer
  I^2C/SPI, UART, CAN/LIN, CAN-FD, SENT
- Data logger
- Digital multimeter [1)]
- Spectrum analyzer
- Harmonics analyzer
- Frequency counter

[1)] Additional multimeter channel in two-channel model.

Wireless remote control

CAT IV 600 V/CAT III 1000 V: galvanic-insulated floating channels

Rugged, dust and water resistant housing

Multifunction wheel

Unmatched connectivity: USB, Ethernet and wireless LAN

Large buttons, can be used with gloves

Capacitive touch and keypad operation

- Full operation via touch panel or keypad
- See more with a 7" color display
- Easy parameter adjustment with multifunction wheel
- Large buttons for use with gloves

Outstanding protection

- Maximum safety in all environments: CAT IV 600 V/CAT III 1000 V
- IP51 housing that meets military environmental requirements
- Nonslip and impact resistant rubberized surface

Excellent connectivity and much more

- Wireless LAN and Ethernet for web-based remote control and quick data access
- Finish faster with one-touch documentation
- MicroSD card and USB device/host support
- More than 4 hours of battery power

SUPERIOR PERFORMANCE: A LAB OSCILLOSCOPE IN A HANDHELD PACKAGE

- ▶ 60 MHz to 500 MHz at up to 5 Gsample/s
- ▶ High speed acquisition system with history mode
- ▶ 10 bit A/D converter
- ▶ Excellent sensitivity: 2 mV/div to 100 V/div
- ▶ Up to 200 V offset compensation range
- ▶ 37 automatic measurement functions
- ▶ Deep zoom with 500 ksample acquisition memory

Lab oscilloscope performance

When debugging embedded devices in the lab or analyzing complex problems in the field, the R&S®Scope Rider offers the performance and capabilities of a lab oscilloscope as well as the form factor and ruggedness of a battery-operated handheld device.

Small sensor signals can be analyzed with an excellent vertical sensitivity of 2 mV/div. Triggering on protocol events and decoding protocol data enables convenient debugging of digital control signals. A digital trigger system provides the best trigger sensitivity available in a handheld oscilloscope, and 14 trigger types give the flexibility required to capture exactly the right signal. With 37 automatic measurement functions, the R&S®Scope Rider delivers the capabilities of a lab oscilloscope when analyzing signal parameters.

Safe measurements on power electronics

Analyzing modern electric drive systems requires measuring motor voltages and currents while analyzing digital control signals. Safety is a key consideration for such measurements.

The R&S®Scope Rider offers up to four isolated input channels with CAT IV 600 V rating that allow measurements on high voltage electronics without compromising safety. Digital control signals can be analyzed with the 8-bit logic interface that is isolated from the analog input channels. The protocol trigger and decode capability of the R&S®Scope Rider is unprecedented in handheld oscilloscopes and provides direct display of decoded messages.

High speed acquisition system with deep history: never miss rare faults again

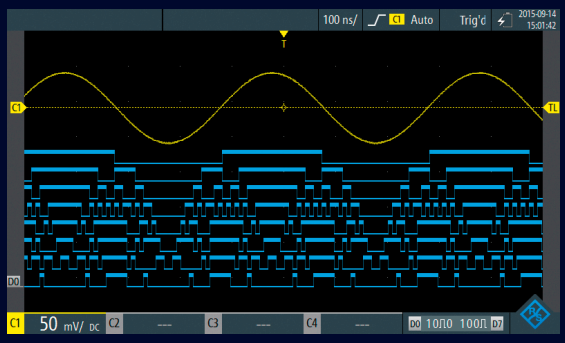
Capturing and analyzing rare anomalies in electric signals is a typical use case when debugging electronic systems. With an acquisition rate of up to 50 000 waveforms per second – more than 1000 times faster than conventional handheld oscilloscopes – the R&S®Scope Rider sees signals other oscilloscopes miss. Rare faults in signals can be reliably captured and analyzed.

In history mode, the instrument automatically stores up to 5000 waveforms in a separate history buffer. At any point in time, acquisition can be stopped and any waveform in the history buffer can be analyzed using the full oscilloscope functionality. One-time anomalies that would have been missed by a conventional handheld oscilloscope can now be analyzed in detail.

The high speed acquisition system of the R&S®Scope Rider captures up to 50 000 waveforms/s and uncovers rare and unexpected signal anomalies.

DEBUGGING POWER IN YOUR HAND: EIGHT INSTRUMENTS IN ONE PORTABLE DESIGN

Oscilloscope, logic and protocol analyzer, data logger, digital multimeter, spectrum analyzer, harmonics analyzer and frequency counter: With the power of eight instruments and dedicated operation modes (XY display, roll mode and mask testing), the R&S®Scope Rider provides the capabilities and the flexibility needed for debugging all kinds of electronic systems.

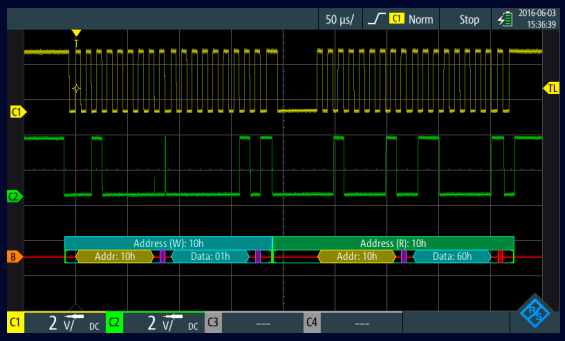


Logic analyzer

Motor drive measurements often require up to four analog measurement channels with no channel free for monitoring digital control interfaces. The digital logic probe (MSO) of the R&S®Scope Rider features eight additional digital inputs for analyzing control signals, time-correlated to the analog channel signals. With 250 MHz bandwidth, 1.25 Gsample/s sampling rate and configurable thresholds, it adapts to almost any digital interface.

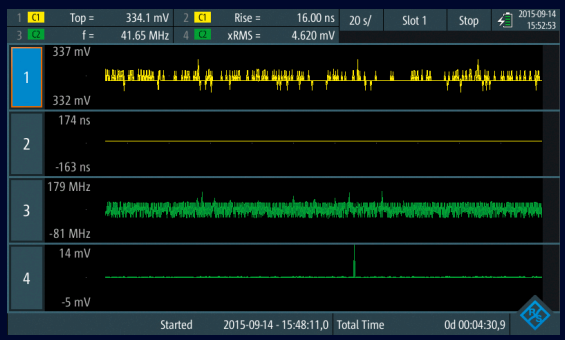
Digital multimeter

The two-channel R&S®RTH1002 model features a dedicated, isolated digital multimeter with 10000 count resolution. Measurement functions include V DC, V AC, V AC + V DC, resistance, continuity and capacitance as well as current or temperature if suitable shunts are used. The four-channel R&S®RTH1004 model features a digital voltmeter on each input channel. Statistics information shows minimum, average and maximum values with corresponding time stamps.



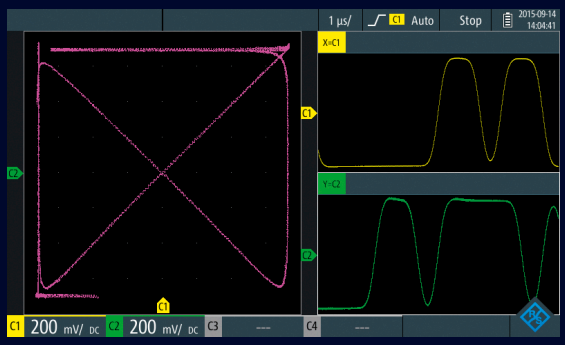
Protocol analyzer

Serial protocols are often used to transmit control signals. The R&S®Scope Rider is the first galvanically isolated, handheld oscilloscope that features protocol triggering and decoding capability for in-depth troubleshooting. Targeted triggering on protocol events and protocol data enables users to selectively acquire relevant events, data and signals. Since the R&S®Scope Rider supports serial protocols (I2C/SPI, UART, CAN/LIN, CAN-FD, SENT), it can be used in conventional lab and mobile applications as well as in the automotive segment.



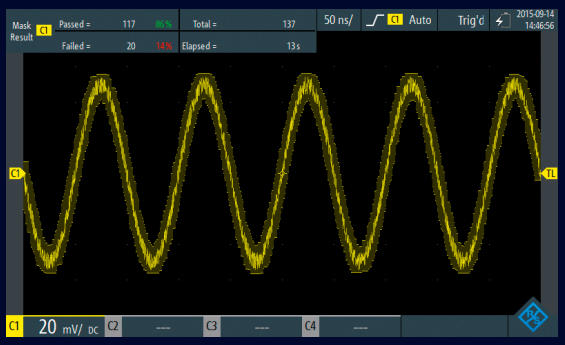
Data logger

Sporadic sensor signal faults or rare glitches in a power supply can cause complex system failures without any obvious indication of the root cause. The long-term data logger of the R&S®Scope Rider makes it possible to monitor up to four key measurements at a speed of 1, 2 or 5 measurements per second to uncover such rare failures. The large memory of 2 Msample per channel allows more than 23 days of log duration. The statistics display provides information about minimum and maximum values with exact time.



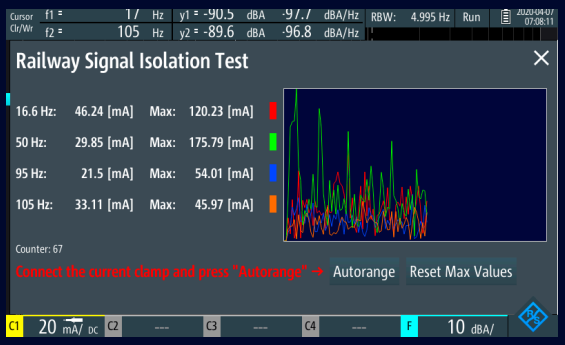
XY operation mode

Relative phases between two signals can be easily measured with the dedicated XY mode that also shows the individual time signals.



Mask test mode

The mask test mode shows pass and fail statistics and makes it easy to set up masks based on test signals.



User scripting

The user scripting option enables customized scripts to be run directly on the oscilloscope for individual, non-standard measurements. The script uses SCPI commands to control the instrument and communicates with the operator via an intuitive user interface.

Select the instrument you need at the push of a button.

SIMPLY BETTER – IN THE LAB AND IN THE FIELD

CAPACITIVE TOUCH AND KEYPAD OPERATION: INTUITIVE TO USE

- ▶ Full instrument control via touch panel or keypad
- ▶ Excellent readability and crystal clear signals: 7", 800 × 480 pixel capacitive touch display
- ▶ Multifunction wheel for easy parameter adjustment
- ▶ Large keys for use with safety gloves

Wireless LAN or Ethernet: easy remote control within a web browser

An integrated wireless LAN module or the Ethernet port allow the R&S®Scope Rider to be remotely controlled directly from the web browser. The touch interface of the R&S®Scope Rider is accessible in the web browser. All settings can be adjusted on the PC. Image compression ensures that the screen image is rapidly updated.

User interface designed to customer needs

Making use of the latest display technology, the R&S®Scope Rider provides a crystal clear signal display with a high-resolution capacitive touch color display. Oscilloscope settings can easily be adjusted on the screen while dedicated keys provide quick access to important oscilloscope functions. A central multifunction wheel allows quick adjustment of settings such as the trigger level or the vertical position of each channel. Fully controllable via the keypad, the oscilloscope can also be used with gloves if safety or weather require them. Easy-to-understand diagrams explain important settings such as the trigger mode, the automatic measurement functions or the channel settings.

Easy documentation of measurement results

Simplify your measurement documentation with documentation project directories on the microSD card or USB flash drive. Screenshots, measurement results and settings files are saved with a single button press in the selected project directory. Data can be easily accessed and downloaded using the web browser interface.

Up to 32 Gbyte of data storage capability

The R&S®Scope Rider supports microSD cards with up to 32 Gbyte storage capability, making it possible to save virtually an unlimited amount of data, screenshots or settings files on the instrument.

WIRELESS LAN OR ETHERNET: EASY REMOTE CONTROL FOR SAFETY CRITICAL MEASUREMENTS

An integrated wireless LAN module and web server allows easy remote control of the R&S®Scope Rider. The waveform display and user interface
of the R&S®Scope Rider are directly available in the web browser; all settings can be changed on the screen.

With no software installation required, the R&S®Scope Rider can be controlled from almost every portable device such as a laptop, a tablet or even a mobile phone.

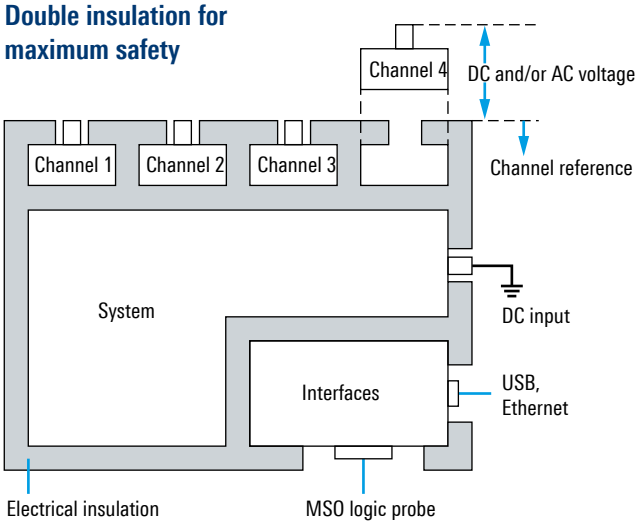
BUILT FOR YOUR WORK ENVIRONMENT: OUTSTANDING PROTECTION AND RUGGEDNESS

- ▶ Isolation of all analog input channels
- ▶ Rated for measurements in CAT III 1000 V/CAT IV 600 V environments
- ▶ IP51 housing for harsh environments
- ▶ Nonslip and impact resistant rubberized surface

Maximum safety in all environments

Troubleshooting in industrial environments presents many challenges. Debugging electronic systems at a modern production site can require analyzing low-voltage digital signals, as well as verifying the power quality of a 380 V supply, or testing the power efficiency of electrical drives. The R&S®Scope Rider CAT IV 600 V rating provides this level of flexibility in a single device.

Double insulation for maximum safety



Highest sensitivity and safe high voltage measurements at the same time

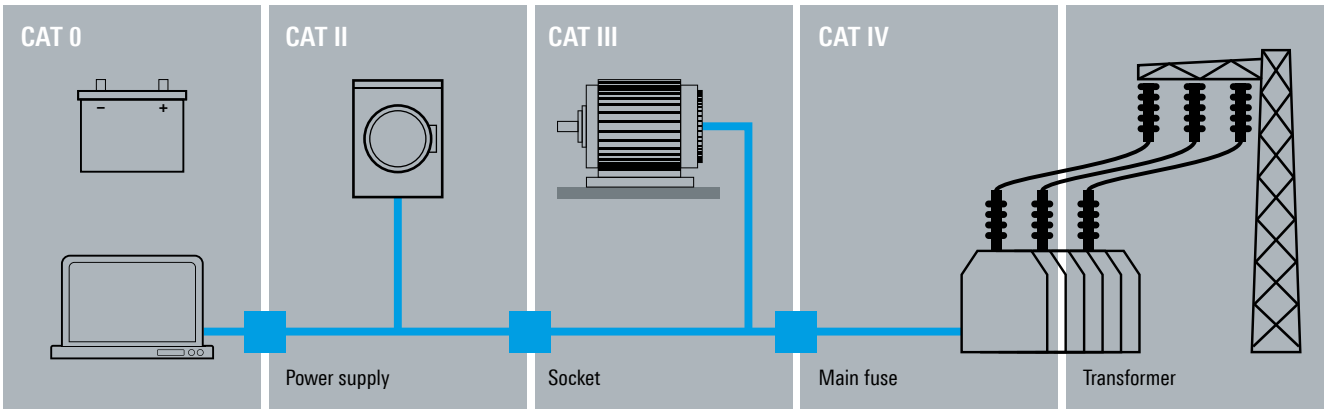
Double isolation of all input channels, the multimeter channel [1] and the digital interfaces, including the logic channel (MSO), make it possible to measure in mixed circuits with different ground levels. This reduces the risk of accidental short circuits and enables safe measurements in high voltage electric installations. Sensitive analog or digital control circuits can be measured without compromising safety.

IP51 housing – tested in line with military environmental standards

Thanks to the passive cooling concept, the handheld oscilloscope feature a sealed IP51, dust and drip-proof housing. Tested in line with military environmental standards, the R&S®Scope Rider provides the ruggedness that is needed for harsh environments. A rubberized surface with large keys makes it easy to use in difficult environments.

[1] Separate multimeter channel only in two-channel models.

Overview of measurement categories CAT 0 to CAT IV



WIDE RANGE OF PROBES AND ACCESSORIES

The R&S®Scope Rider comes with all essential accessories as standard:

- 500 MHz, 10:1, 600 V CAT IV voltage probe for each input channel
- Power supply with plugs for EU, GB and US
- Battery pack
- Soft handle

In addition, a wide range of accessories is available:

- 500 MHz, 100:1, voltage probes
- Replacement accessory set for voltage probes
- Extended accessory set for voltage probes
- Current probes
- 12 V/24 V car adapter
- Soft carrying bag
- Hard shell protective carrying bag
- Battery charger

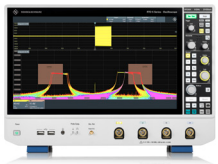
R&S®Scope Rider accessories.

OSCILLOSCOPE PORTFOLIO




	R&S®RTH1000	R&S®RTC1000	R&S®RTB 2	MXO 3
Vertical system				
Bandwidth [1]	60/100/200/350/500 MHz	50/70/100/200/300 MHz	70/100/200/300 MHz	100/200/350/500 MHz/1 GHz
Number of channels	2 plus DMM/4	2	2/4	4/8
Vertical resolution; system architecture	10 bit; 16 bit	8 bit; 16 bit	10 bit; 16 bit	12 bit; 18 bit
V/div, 1 MΩ	2 mV to 100 V	1 mV to 10 V	1 mV to 5 V	1 mV to 10 V
V/div, 50 Ω	–			1 mV to 1 V
Digital channels	8	8	16	16
Horizontal system				
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 kpoints (4-channel model); 250 kpoints (2-channel model); 500 kpoints	1 Mpoints; 2 Mpoints	10 Mpoints; 20 Mpoints	standard: 125 Mpoints; max. upgrade: 500 Mpoints [2]
Segmented memory	standard, 50 Mpoints	–	standard, 160 Mpoints	standard: 10 000 segments; option: 1 000 000 segments
Acquisition rate (in waveforms/s)	50 000	10 000	50 000 (300 000 in fast segmented memory mode)	> 4 500 000
Trigger				
Types	digital	analog	analog	advanced (includes zone trigger), digital trigger (15 trigger types)
Sensitivity	–	–	at 1 mV/div: > 2 div	0.0001 div, across full bandwidth, user controllable
Analysis				
Mask test	tolerance mask	tolerance mask	tolerance mask	user configurable, hardware based
Mathematics	elementary	elementary	basic (math on math)	advanced (formula editor)
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, CAN FD, CAN XL, LIN, ARINC 429, MIL-STD-1553, SPMI, 10BASE-T1S, QUAD-SPI, SENT, RFFE I³C, NRZ, Manchester, SpaceWire, USB 1.1/2.0
Applications [1, 2]	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), frequency response analysis, basic jitter analysis, 3-phase analysis
Compliance testing [1, 2]	–	–	–	–
Display and operation				
Size and resolution	7" touchscreen, 800 × 480 pixel	6.5", 640 × 480 pixel	10.1" touchscreen, 1280 × 800 pixel	11.6" touchscreen, 1920 × 1080 pixel (Full HD)
General data				
Dimensions in mm (W × H × D)	201 × 293 × 74	285 × 175 × 140	390 × 220 × 152	375 × 233 × 163
Weight in kg	2.4	1.7	2.5	4
Battery	lithium-ion, > 4 h	–	–	–

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



MXO 4	MXO 5/MXO 5C	R&S®RTO6	R&S®RTP
200/350/500 MHz/1/1.5 GHz	100/200/350/500 MHz/1/2 GHz	600 MHz/1/2/3/4/6 GHz	4/6/8/13/16 GHz
4	4/8	4	4
12 bit; 18 bit	12 bit; 18 bit	8 bit; 16 bit	8 bit; 16 bit
500 µV to 10 V	500 µV to 10 V	1 mV to 10 V (HD mode: 500 µV to 10 V)	
500 µV to 1 V	500 µV to 1 V	1 mV to 1 V (HD mode: 500 µV to 1 V)	2 mV to 1 V (HD mode: 1 mV to 1 V)
16	16	16	16
2.5; 5 (2 channels interleaved)	5 on 4 channels; 2.5 on 8 channels (2 channels interleaved)	10; 20 (2 channels interleaved in 4 GHz and 6 GHz model)	20; 40 (2 channels interleaved)
standard: 400 Mpoints; max. upgrade: 800 Mpoints [2)]	standard: 500 Mpoints max. upgrade: 1 Gpoints [2)]	standard: 200 Mpoints/800 Mpoints; max. upgrade: 1 Gpoints/2 Gpoints	standard: 100 Mpoints/400 Mpoints; max. upgrade: 3 Gpoints
standard: 10000 segments; option: 1000000 segments	standard: 10000 segments; option: 1000000 segments	standard	standard
> 4500000	> 4500000	1000000 (2500000 in ultra-segmented memory mode)	750000 (> 3000000 in ultra-segmented memory mode)
advanced (includes zone trigger), digital trigger (15 trigger types)	advanced (includes zone trigger), digital trigger (15 trigger types)	advanced (includes zone trigger), digital trigger (15 trigger types), high speed serial pattern trigger including 5 Gbit/s clock data recovery (CDR) [2)]	advanced (includes zone trigger), digital trigger (14 trigger types) with real-time deembedding [2)], high speed serial pattern trigger including 8/16 Gbit/s clock data recovery (CDR) [2)]
0.0001 div, across full bandwidth, user controllable	0.0001 div, across full bandwidth, user controllable	0.0001 div, across full bandwidth, user controllable	0.0001 div, across full bandwidth, user controllable
user configurable, hardware based	user configurable, hardware based	user configurable, hardware based	user configurable, hardware based
advanced (formula editor)	advanced (formula editor)	advanced (formula editor, Python interface)	advanced (formula editor, Python interface)
I²C, SPI, UART/RS-232/RS-422/RS-485, CAN, CAN FD, CAN XL, LIN, ARINC 429, MIL-STD-1553, SPMI, 10BASE-T1S, QUAD-SPI, SENT, RFFE, I³C, NRZ, Manchester, SpaceWire, USB 1.1/2.0	I²C, SPI, UART/RS-232/RS-422/RS-485, CAN, CAN FD, CAN XL, LIN, ARINC 429, MIL-STD-1553, SPMI, 10BASE-T1S, 100/1000BASE-T1, QUAD-SPI, SENT, RFFE, I³C, NRZ, Manchester, SpaceWire, USB 1.1/2.0	I²C, SPI, UART/RS-232/RS-422/RS-485, CAN, LIN, I²S, MIL-STD-1553, ARINC 429, FlexRay, CAN FD, CAN XL, MIPI RFFE, USB 2.0/HSIC, MDIO, 8b10b, Ethernet, Manchester, NRZ, SENT, MIPI D-PHY, SpaceWire, MIPI M-PHY/UniPro, CXPI, USB 3.1 Gen 1, USB-SSIC, PCIe 1.1/2.0, USB Power Delivery, Automotive Ethernet 10BASE-T1S, 100/1000BASE-T1, I³C	I²C, SPI, UART/RS-232/RS-422/RS-485, SENT, CAN, LIN, CAN FD, CAN XL, MIL-STD-1553, ARINC 429, SpaceWire, USB 2.0/HSIC/PD, USB 3.1 Gen 1/Gen 2/SSIC, PCIe 1.1/2.0/3.0, 8b10b, MIPI RFFE, MIPI D/M-PHY/UniPro, Automotive Ethernet 10BASE-T1S, 100/1000BASE-T1, Ethernet 10/100BASE-TX, MDIO, Manchester, NRZ, I³C
power, digital voltmeter (DVM), frequency response analysis, basic jitter analysis, 3-phase analysis	power, digital voltmeter (DVM), frequency response analysis, basic jitter analysis, eye analysis, 3-phase analysis	power, advanced spectrum analysis and spectrogram, jitter and noise decomposition, clock data recovery (CDR), I/Q data and RF analysis (R&S®VSE), deembedding, embedding, equalization, PAM-N, TDR/TDT analysis, advanced eye diagram, EMC/ESD test	advanced spectrum analysis and spectrogram, jitter and noise decomposition, real-time deembedding, embedding, equalization, PAM-N, TDR/TDT analysis, I/Q data and RF analysis (R&S®VSE), advanced eye diagram, EMC/ESD test
–	see specifications (PD 3683.8196.22, PD 3684.1472.22)	see specifications (PD 5216.1640.22)	see specifications (PD 3683.5616.22)
13.3" touchscreen, 1920 × 1080 pixel (Full HD)	for MXO 5 only: 15.6" touchscreen, 1920 × 1080 pixel (Full HD)	15.6" touchscreen, 1920 × 1080 pixel (Full HD)	13.3" touchscreen, 1920 × 1080 pixel (Full HD)
414 × 279 × 162	MXO 5: 445 × 314 × 154 MXO 5C: 445 × 105 × 405	450 × 315 × 204	441 × 285 × 316
6	MXO 5: 9 MXO 5C: 8.7	10.7	18
–	–	–	–

SPECIFICATIONS IN BRIEF

Specifications in brief		
Vertical system		
Input channels	2-channel models	2 oscilloscope channels, 1 digital multimeter
	4-channel models	4 oscilloscope channels
Maximum input voltage	BNC inputs	CAT IV 300 V (RMS), 424 V (V_p)
	with probe R&S®RT-ZI10 or R&S®RT-ZI11	CAT IV 600 V, CAT III 1000 V
Input sensitivity		2 mV/div to 100 V/div
Vertical resolution of overall system		9 bit
Acquisition and horizontal system		
Maximum real-time sampling rate	1/2/4 channels active	5/2.5/1.25 Gsample/s
Acquisition memory	1/2/4 channels active	500/250/125 ksample/channel
Real-time waveform acquisition rate	max.	50 000 waveforms/s
Timebase range		1 ns/div to 500 s/div
Logic analyzer (MSO) functionality (optional: R&S®RTH-B1)		
Input channels/memory depth		8 logic channels/125 ksample
Bandwidth/sampling rate		250 MHz/1.25 Gsample/s
Digital trigger system		
Trigger modes		auto, normal, single
Trigger types	advanced trigger types optional (R&S®RTH-K19)	14 trigger types
Automatic oscilloscope measurements		
Automatic measurements		37 measurement functions
Mask testing		
Mask definition		tolerance tube
Actions on violation		none, beep, stop
History and segmented memory (R&S®RTH-K15)		
Number of segments		up to 5000
Protocol triggering and decoding		
Supported protocols	optional: R&S®RTH-K1, R&S®RTH-K2, R&S®RTH-K3, R&S®RTH-K9, R&S®RTH-K3, R&S®RTH-K10	I^2C, SPI, UART/RS-232/RS-422/RS-485, CAN, LIN, CAN-FD, SENT
Data logger		
Number of simult. logging channels		4
Measurement speed		1/2/5 measurements/s
Memory depth		2 Msample per logging channel
Digital voltmeter/digital multimeter		
Resolution	2-channel version (digital multimeter)	10 000 counts
	4-channel version (digital voltmeter)	999 counts
Voltage and current	current with optional current probe or shunt	DC, AC, AC + DC
Temperature		with PT100 temperature probe
Resistance, continuity, diode test, capacity, frequency		only 2-channel version
General data		
IP rating		IP51, in line with IEC 60529
Screen		7.0" LC TFT 800 × 480 pixel color display
Interfaces		USB host, USB device, LAN, wireless LAN (optional)
Dimensions	W × H × D	201 mm × 293 mm × 74 mm (7.91 in × 11.54 in × 2.91 in)
Weight	with battery	2.4 kg (5.3 lb) (nom.)

ORDERING INFORMATION

Designation	Type	Order No.
Choose your R&S®Scope Rider base models		
Handheld oscilloscope, 60 MHz, 2 channels, CAT IV, DMM	R&S®RTH1002	1317.5000k02
Handheld oscilloscope, 60 MHz, 4 channels, CAT IV	R&S®RTH1004	1317.5000k04
Choose your bandwidth upgrade		
Upgrade of R&S®RTH1002 oscilloscopes to 100 MHz bandwidth	R&S®RTH-B221	1325.9717.02
Upgrade of R&S®RTH1002 oscilloscopes to 200 MHz bandwidth	R&S®RTH-B222	1325.9723.02
Upgrade of R&S®RTH1002 oscilloscopes to 350 MHz bandwidth	R&S®RTH-B223	1325.9730.02
Upgrade of R&S®RTH1002 oscilloscopes to 500 MHz bandwidth	R&S®RTH-B224	1326.0571.02
Upgrade of R&S®RTH1004 oscilloscopes to 100 MHz bandwidth	R&S®RTH-B241	1326.0588.02
Upgrade of R&S®RTH1004 oscilloscopes to 200 MHz bandwidth	R&S®RTH-B242	1326.0594.02
Upgrade of R&S®RTH1004 oscilloscopes to 350 MHz bandwidth	R&S®RTH-B243	1326.0607.02
Upgrade of R&S®RTH1004 oscilloscopes to 500 MHz bandwidth	R&S®RTH-B244	1326.0613.02
Choose your options		
Mixed signal upgrade for non-MSO models, 250 MHz	R&S®RTH-B1	1325.9981.02
I²C/SPI serial triggering and decoding	R&S®RTH-K1	1325.9969.02
UART/RS-232/RS-422/RS-485 serial triggering and decoding	R&S®RTH-K2	1325.9975.02
CAN/LIN serial triggering and decoding	R&S®RTH-K3	1333.0550.02
CAN-FD serial triggering and decoding	R&S®RTH-K9	1326.3829.02
SENT serial triggering and decoding	R&S®RTH-K10	1326.3835.02
History and segmented memory	R&S®RTH-K15	1326.1803.02
Spectrum analysis	R&S®RTH-K18	1333.0680.02
Advanced triggering	R&S®RTH-K19	1326.0642.02
Frequency counter	R&S®RTH-K33	1333.0696.02
Harmonics analysis	R&S®RTH-K34	1333.0673.02
User scripting	R&S®RTH-K38	1801.4632.02
Wireless LAN, all countries except EU, US and Canada	R&S®RTH-K200	1326.0620.02
Wireless LAN, for US and Canada only	R&S®RTH-K200US	1332.9890.02
Web interface remote control	R&S®RTH-K201	1326.0636.02
Choose your probes		
Passive probe, 500 MHz, isolated, 10:1, 10 MΩ,12 pF, 600 V CAT IV, 1000 V CAT III	R&S®RT-ZI10	1326.1761.02
Passive probe, 500 MHz, isolated, 100:1, 100 MΩ, 4.6 pF, 600 V CAT IV, 1000 V CAT III (3540 V CAT I)	R&S®RT-ZI11	1326.1810.02
Passive probe (laboratory model), 500 MHz, isolated, 10:1, 10 MΩ, 11 pF, 300 V CAT III	R&S®RT-ZI10C	1326.3106.02
Set 2 × R&S®RT-ZI10C passive probe	R&S®RT-ZI10C-2	1333.1811.02
Set 4 × R&S®RT-ZI10C passive probe	R&S®RT-ZI10C-4	1333.1328.02
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, 30 A	R&S®RT-ZC03	1333.0844.02
Accessory replacement set for R&S®RT-ZI10/R&S®RT-ZI11	R&S®RT-ZA20	1326.1978.02
Accessory extension set for R&S®RT-ZI10/R&S®RT-ZI11	R&S®RT-ZA21	1326.1984.02
Safety test leads, red and black, silicone, 600 V CAT IV	R&S®RT-ZA22	1326.0988.02
PT100 temperature probe	R&S®RT-ZA12	1333.0809.02
Choose your accessories		
Soft carrying bag	R&S®HA-Z220	1309.6175.00
Ethernet cable, length: 2 m, crossover	R&S®HA-Z210	1309.6152.00
USB cable, length: 1.8 m, standard/mini USB connector	R&S®HA-Z211	1309.6169.00
Hard shell protective carrying case	R&S®RTH-Z4	1326.2774.02
Car adapter	R&S®HA-Z302	1321.1340.02
Battery charger, for lithium-ion battery R&S®HA-Z306 [1) 2)]	R&S®HA-Z303	1321.1328.02
Battery charger, for lithium-ion battery R&S®HA-Z306 [2)]	R&S®HA-Z403	1321.1486.02
Replacement battery	R&S®HA-Z306	1321.1334.02
Spare power supply, for R&S®RTH incl. power plugs for EU, GB, US	R&S®RT-ZA14	1326.2874.02

1) Product to be discontinued and replaced by R&S®HA-Z403.
2) The battery charger is dedicated for charging an additional battery outside the instrument. The battery can be charged via the instrument as well.

Application packages

Designation	Consists of	Type	Order No.
Application bundle	R&S®RTH-K1, R&S®RTH-K2, R&S®RTH-K3, R&S®RTH-K9, R&S®RTH-K10, R&S®RTH-K15, R&S®RTH-K18, R&S®RTH-K19, R&S®RTH-K33, R&S®RTH-K34, R&S®RTH-K38, R&S®RTH-K201	R&S®RTH-PK1	1801.3242.02
Power electronics package	R&S®RTH-K15 history mode R&S®RTH-K19 advanced trigger R&S®RTH-K34 harmonic analysis function	R&S®RTH-PKPWR	1338.0413.02
Automotive package	R&S®RTH-K3 serial triggering and decoding for CAN/LIN R&S®RTH-K9 CAN-FD R&S®RTH-K10 SENT	R&S®RTH-PKAUTO	1338.0420.02
Industrial package	R&S®RTH-Z4 carrying case R&S®HA-Z303 battery charger R&S®HA-Z306 lithium-ion battery pack 6.4 Ah	R&S®RTH-ZELEC	1338.0436P02

Preconfigered two-channel R&S®Scope Rider packages

Name	Specifications	Order No.	Package consists of
Two-channel base models			
R&S®RTH1002	60 MHz, 2 channels, CAT IV, DMM	1317.5000P02	R&S®RTH1002
R&S®RTH1012	100 MHz, 2 channels, CAT IV, DMM	1317.5000P12	R&S®RTH1002 R&S®RTH-B221
R&S®RTH1022	200 MHz, 2 channels, CAT IV, DMM	1317.5000P22	R&S®RTH1002 R&S®RTH-B222
R&S®RTH1032	350 MHz, 2 channels, CAT IV, DMM	1317.5000P32	R&S®RTH1002 R&S®RTH-B223
R&S®RTH1052	500 MHz, 2 channels, CAT IV, DMM	1317.5000P52	R&S®RTH1002 R&S®RTH-B224
Two-channel mixed signal models			
R&S®RTH1002MSO	60 MHz, 2 channels, CAT IV, DMM, MSO	1317.5000P03	R&S®RTH1002 R&S®RTH-B1
R&S®RTH1012MSO	100 MHz, 2 channels, CAT IV, DMM, MSO	1317.5000P13	R&S®RTH1002 R&S®RTH-B221 R&S®RTH-B1
R&S®RTH1022MSO	200 MHz, 2 channels, CAT IV, DMM, MSO	1317.5000P23	R&S®RTH1002 R&S®RTH-B222 R&S®RTH-B1
R&S®RTH1032MSO	350 MHz, 2 channels, CAT IV, DMM, MSO	1317.5000P33	R&S®RTH1002 R&S®RTH-B223 R&S®RTH-B1
R&S®RTH1052MSO	500 MHz, 2 channels, CAT IV, DMM, MSO	1317.5000P53	R&S®RTH1002 R&S®RTH-B224 R&S®RTH-B1

Warranty

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

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

		Order No.
	60 MHz, 2 channels base model	1317.5000k02
	60 MHz, 2 channels base model	1317.5000k02
	100 MHz bandwidth upgrade for R&S®RTH1002	1325.9717.02
	60 MHz, 2 channels base model	1317.5000k02
	200 MHz bandwidth upgrade for R&S®RTH1002	1325.9723.02
	60 MHz, 2 channels base model	1317.5000k02
	350 MHz bandwidth upgrade for R&S®RTH1002	1325.9730.02
	60 MHz, 2 channels base model	1317.5000k02
	500 MHz bandwidth upgrade for R&S®RTH1002	1326.0571.02
	60 MHz, 2 channels base model	1317.5000k02
	mixed signal (logic analyzer) option	1325.9981.02
	60 MHz, 2 channels base model	1317.5000k02
	100 MHz bandwidth upgrade for R&S®RTH1002	1325.9717.02
	mixed signal (logic analyzer) option	1325.9981.02
	60 MHz, 2 channels base model	1317.5000k02
	200 MHz bandwidth upgrade for R&S®RTH1002	1325.9723.02
	mixed signal (logic analyzer) option	1325.9981.02
	60 MHz, 2 channels base model	1317.5000k02
	350 MHz bandwidth upgrade for R&S®RTH1002	1325.9730.02
	mixed signal (logic analyzer) option	1325.9981.02
	60 MHz, 2 channels base model	1317.5000k02
	500 MHz bandwidth upgrade for R&S®RTH1002	1326.0571.02
	mixed signal (logic analyzer) option	1325.9981.02

Preconfigered four-channel R&S®Scope Rider packages

Name	Specifications	Order No.	Package consists of
Four-channel base models			
R&S®RTH1004	60 MHz, 4 channels, CAT IV	1317.5000P04	R&S®RTH1004
R&S®RTH1014	100 MHz, 4 channels, CAT IV	1317.5000P14	R&S®RTH1004 R&S®RTH-B241
R&S®RTH1024	200 MHz, 4 channels, CAT IV	1317.5000P24	R&S®RTH1004 R&S®RTH-B242
R&S®RTH1034	350 MHz, 4 channels, CAT IV	1317.5000P34	R&S®RTH1004 R&S®RTH-B243
R&S®RTH1054	500 MHz, 4 channels, CAT IV	1317.5000P54	R&S®RTH1004 R&S®RTH-B244
Four-channel mixed signal models			
R&S®RTH1004MSO	60 MHz, 4 channels, CAT IV, MSO	1317.5000P05	R&S®RTH1004 R&S®RTH-B1
R&S®RTH1014MSO	100 MHz, 4 channels, CAT IV, MSO	1317.5000P15	R&S®RTH1004 R&S®RTH-B241 R&S®RTH-B1
R&S®RTH1024MSO	200 MHz, 4 channels, CAT IV, MSO	1317.5000P25	R&S®RTH1004 R&S®RTH-B242 R&S®RTH-B1
R&S®RTH1034MSO	350 MHz, 4 channels, CAT IV, MSO	1317.5000P35	R&S®RTH1004 R&S®RTH-B243 R&S®RTH-B1
R&S®RTH1054MSO	500 MHz, 4 channels, CAT IV, MSO	1317.5000P55	R&S®RTH1004 R&S®RTH-B244 R&S®RTH-B1

		Order No.
	60 MHz, 4 channels base model	1317.5000k04
	60 MHz, 4 channels base model	1317.5000k04
	100 MHz bandwidth upgrade for R&S®RTH1004	1326.0588.02
	60 MHz, 4 channels base model	1317.5000k04
	200 MHz bandwidth upgrade for R&S®RTH1004	1326.0594.02
	60 MHz, 4 channels base model	1317.5000k04
	350 MHz bandwidth upgrade for R&S®RTH1004	1326.0607.02
	60 MHz, 4 channels base model	1317.5000k04
	500 MHz bandwidth upgrade for R&S®RTH1004	1326.0613.02
	60 MHz, 4 channels base model	1317.5000k04
	mixed signal (logic analyzer) option	1325.9981.02
	60 MHz, 4 channels base model	1317.5000k04
	100 MHz bandwidth upgrade for R&S®RTH1004	1326.0588.02
	mixed signal (logic analyzer) option	1325.9981.02
	60 MHz, 4 channels base model	1317.5000k04
	200 MHz bandwidth upgrade for R&S®RTH1004	1326.0594.02
	mixed signal (logic analyzer) option	1325.9981.02
	60 MHz, 4 channels base model	1317.5000k04
	350 MHz bandwidth upgrade for R&S®RTH1004	1326.0607.02
	mixed signal (logic analyzer) option	1325.9981.02
	60 MHz, 4 channels base model	1317.5000k04
	500 MHz bandwidth upgrade for R&S®RTH1004	1326.0613.02
	mixed signal (logic analyzer) option	1325.9981.02

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