R&S®RTB2000 Digital Oscilloscope

Power of ten

- 70 MHz to 300 MHz
- 10-bit ADC
- 10 Msample standard memory
- 10.1" capacitive touchscreen

3 year warranty

ROHDE&SCHWARZ

Product Brochure | Version 04.02

R&S®RTB2000 Digital Oscilloscope

At a glance

Power of ten (10-bit ADC, 10 Msample memory and 10.1" touchscreen) combined with smart operating concepts make the R&S®RTB2000 digital oscilloscope the perfect tool for university laboratories, for troubleshooting embedded designs during development and for production and service departments.

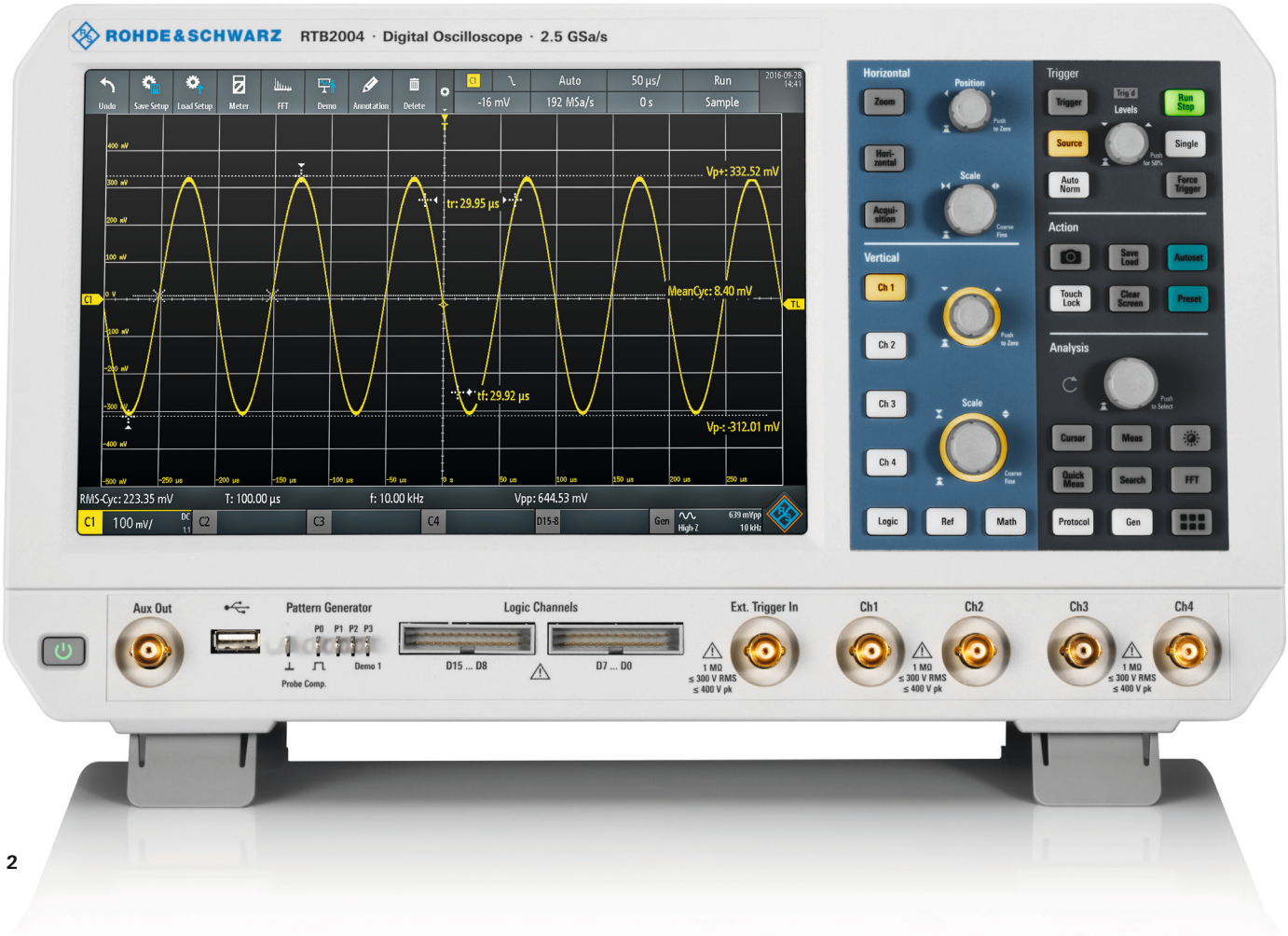
Rohde & Schwarz stands for quality, precision and innovation in all fields of wireless communications. As an independent, family-owned company, Rohde & Schwarz finances its growth from its own funds. The company is not bound by short-term, quarterly results. It plans for the long term, which greatly benefits customers. Purchasing Rohde & Schwarz products is a safe investment for the future.

The largest display (10.1") with the highest resolution of 1280 × 800 pixel in its class, a capacitive touchscreen to quickly navigate in pop-up menus and a touch function to easily adjust scaling, to zoom in or to move a waveform – works just like your smartphone.

The 10-bit A/D converter yields up to a four-fold improvement compared to conventional 8-bit A/D converters. You get sharper waveforms with more signal details.

10 Msample memory depth is available on each channel if all channels are active. When interleaved, 20 Msample are available. That is 10 times more than comparable oscilloscopes offer. This captures longer signal sequences for more analysis results.

The R&S®RTB2000 gives users more than just an oscilloscope. It also includes a logic analyzer, protocol analyzer, waveform and pattern generator and digital voltmeter. Dedicated operating modes for frequency analysis, mask tests and long data acquisitions are also integrated. Debugging all kinds of electronic systems is easy and efficient – and satisfies the all-important rule of investment protection at a very attractive price.



R&S®RTB2000 Digital Oscilloscope

Benefits and key features

See small signal details in the presence of large signals

- 10-bit vertical resolution
- 1 mV/div: full measurement bandwidth and low noise

▷ page 4

Capture more time at full bandwidth

- 10 Msample standard and 20 Msample interleaved
- Segmented memory: 160 Msample with history function
- Maintain fast sampling rates at all times

▷ page 5

10.1" high-resolution capacitive touchscreen with gesture support

- 10.1" high-resolution capacitive touch display
- Gesture support as on your smartphone
- Fast access to important tools

▷ page 6

The best choice for education

- Ready for the teaching lab
- X-in-1 integration saves space and costs

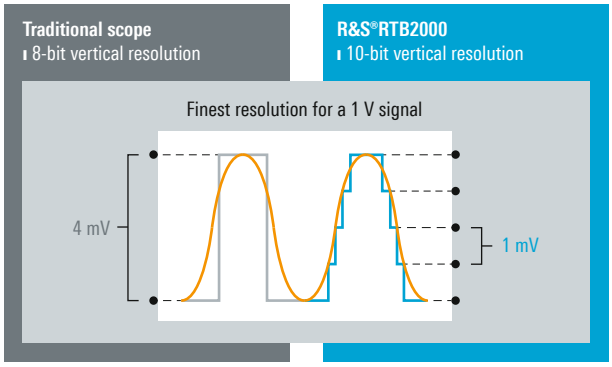
▷ page 10

	R&S®HMO1002/1202	R&S®RTB2000
Number of scope channels	2	2/4
Bandwidth in MHz	50, 70, 100, 200, 300	70, 100, 200, 300
Max. sample rate in Gsample/s	1/channel, 2 interleaved	1.25/channel, 2.5 interleaved
Max. memory depth in Msample	1/channel, 2 interleaved	10/channel, 20 interleaved
Vertical bits (ADC)	8	10
Minimal input sensitivity	1 mV/div	1 mV/div
Display	6,5", 640 × 480 pixel	10.1" capacitive touchscreen, 1280 × 800 pixel
Update rate	10 000 waveforms/s	50 000 waveforms/s
MSO	8 channels, 1 Gsample/s	16 channels, 1.25 Gsample/s
Protocol (optional)	I²C, SPI, UART/RS-232/RS-422/RS-485, CAN, LIN	I²C, SPI, UART/RS-232/RS-422/RS-485, CAN, LIN
Generator(s)	1 ARB, 4-bit pattern generator	1 ARB, 4-bit pattern generator
Math	+, –, *, /, FFT (128k point)	+, –, *, /, FFT (128k point)

See small signal details in the presence of large signals

- 10-bit A/D converter resolution
- 1 mV/div true vertical resolution

10-bit A/D converter: uncovers even small signal details



10-bit vertical resolution

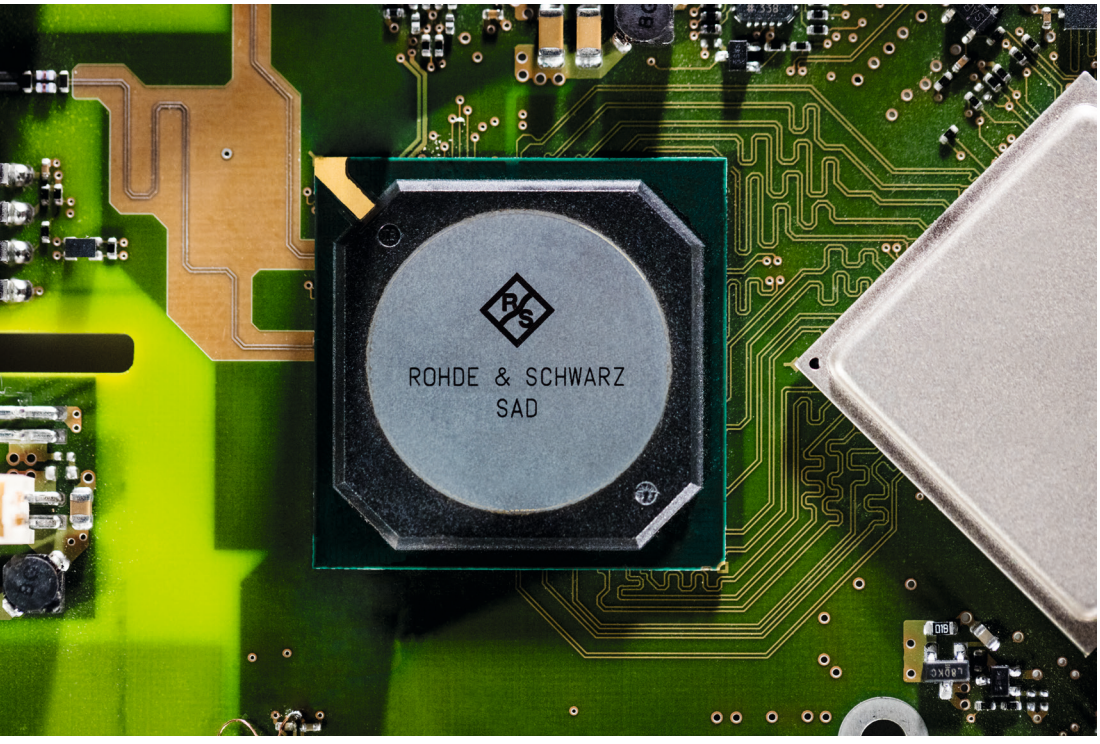
The R&S®RTB2000 features a customized Rohde & Schwarz engineered 10-bit A/D converter that delivers a four-fold improvement compared to conventional 8-bit A/D converters.

The increased resolution results in sharper waveforms with more signal details that would otherwise be missed. One example is the characterization of switched-mode power supplies. The voltages across the switching device must be determined during the on/off times within the same acquisition. For precise measurements of small voltage components, a high resolution of more than 8-bit is essential.

1 mV/div: full measurement bandwidth and low noise

The R&S®RTB2000 oscilloscope offers an outstanding sensitivity down to 1 mV/div. Traditional oscilloscopes reach this level of input sensitivity only by employing software-based magnification or by limiting the bandwidth. The R&S®RTB2000 oscilloscope shows the signal's real sampling points over the full measurement bandwidth – even at 1 mV/div. This ensures high measurement accuracy.

The accuracy of a signal displayed on the screen depends on the oscilloscope's inherent noise. The R&S®RTB2000 oscilloscope precisely measures even at the smallest vertical resolution by using low-noise frontends and state-of-the-art A/D converters.



The Rohde & Schwarz designed 10-bit A/D converter ensures highest signal fidelity at highest resolution.

Capture more time at full bandwidth

- 10 Msample standard, 20 Msample interleaved
- 160 Msample segmented memory with more than 13 000 recordings
- History mode: analysis of past acquisitions
- 1.25 Gsample/s, 2.5 Gsample/s interleaved

10 Msample standard and 20 Msample interleaved

The R&S®RTB2000 offers a class-leading memory depth: 10 Msample per channel are available, even 20 Msample in interleaved mode. This is 10 times more than similar oscilloscopes in the same instrument class. The user captures longer acquisition sequences even at high sampling rates, e.g. when analyzing transients of switched-mode power supplies, and thus benefits from more detailed analysis results.

Segmented memory: 160 Msample with history function

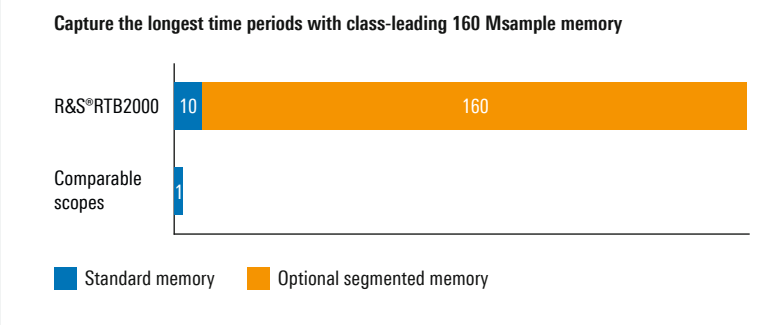
The R&S®RTB-K15 option with deep, segmented memory analyzes signal sequences over a long observation period. For example, protocol-based signals with communications gaps such as I^2C or SPI can be captured over several seconds or minutes. Thanks to the variable segment size from 10 ksample to 10 Msample, the 160 Msample memory is optimally utilized; more than 13 000 cohesive individual recordings are possible.

In history mode, previous acquisitions to the maximum segmented memory depth of 160 Msample are available for further analysis. Mask tests, QuickMeas function and FFT, for example, can be used for further analysis.

Maintain fast sampling rates at all times

Signal faults and important events are detected better with an oscilloscope that offers a high sampling rate. Many applications require long acquisition cycles, for instance when analyzing serial protocols. With a sampling rate of up to 2.5 Gsample/s and a memory depth of up to 20 Msample, the R&S®RTB2000 oscilloscopes really excel here. They display signals accurately, right down to the details and even for long sequences.

10 to 100 times more memory depth compared to traditional oscilloscopes in the same instrument class



10.1" high-resolution capacitive touchscreen

Quick access to important tools

- Drag & drop use of analysis tools
- Toolbar for access to functions
- Sidebar for intuitive configuration of functions

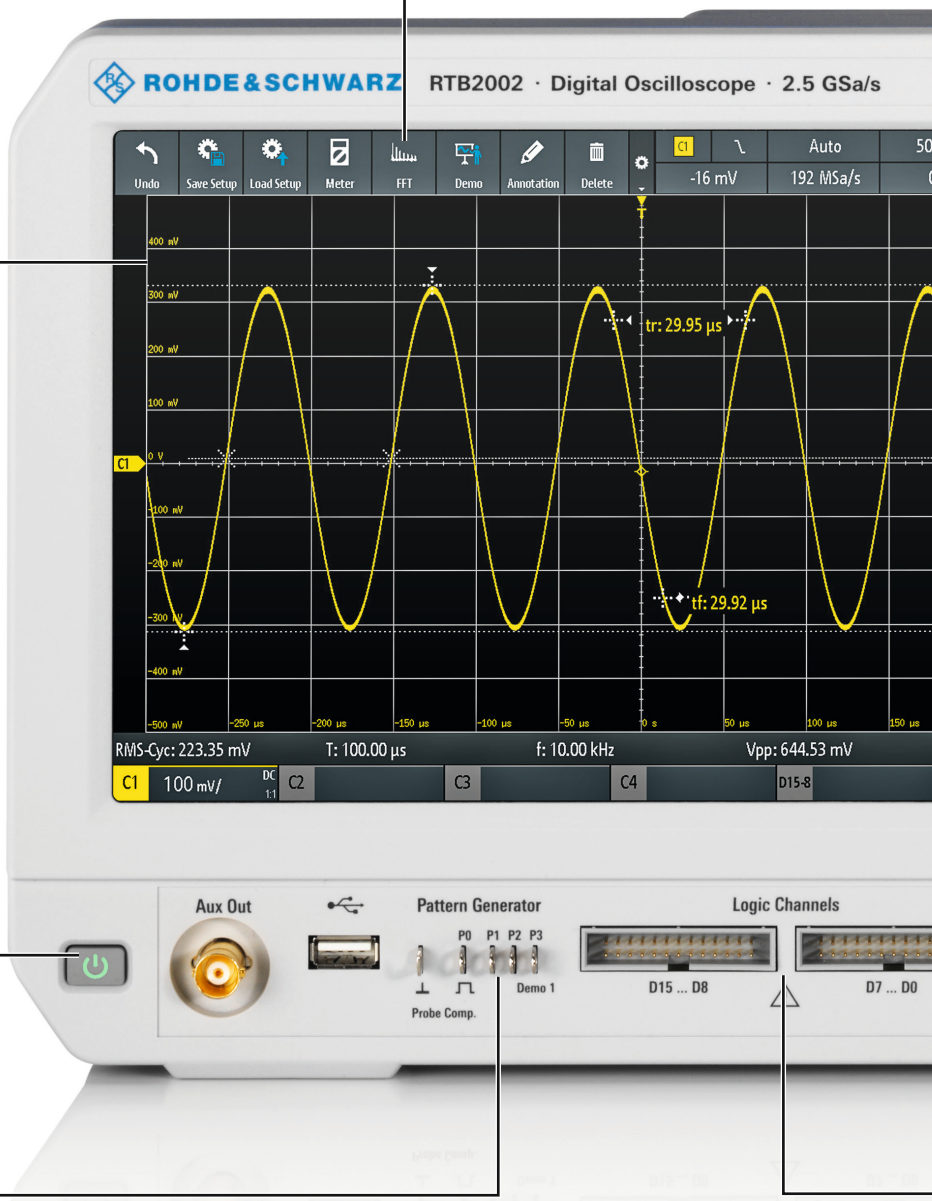
Easily customizable waveform display with R&S®SmartGrid technology

- Configurable display
- Resizable waveform areas
- Scales labeled on all axes

10-second boot-up time

Integrated waveform and pattern generator up to 50 Mbit/s

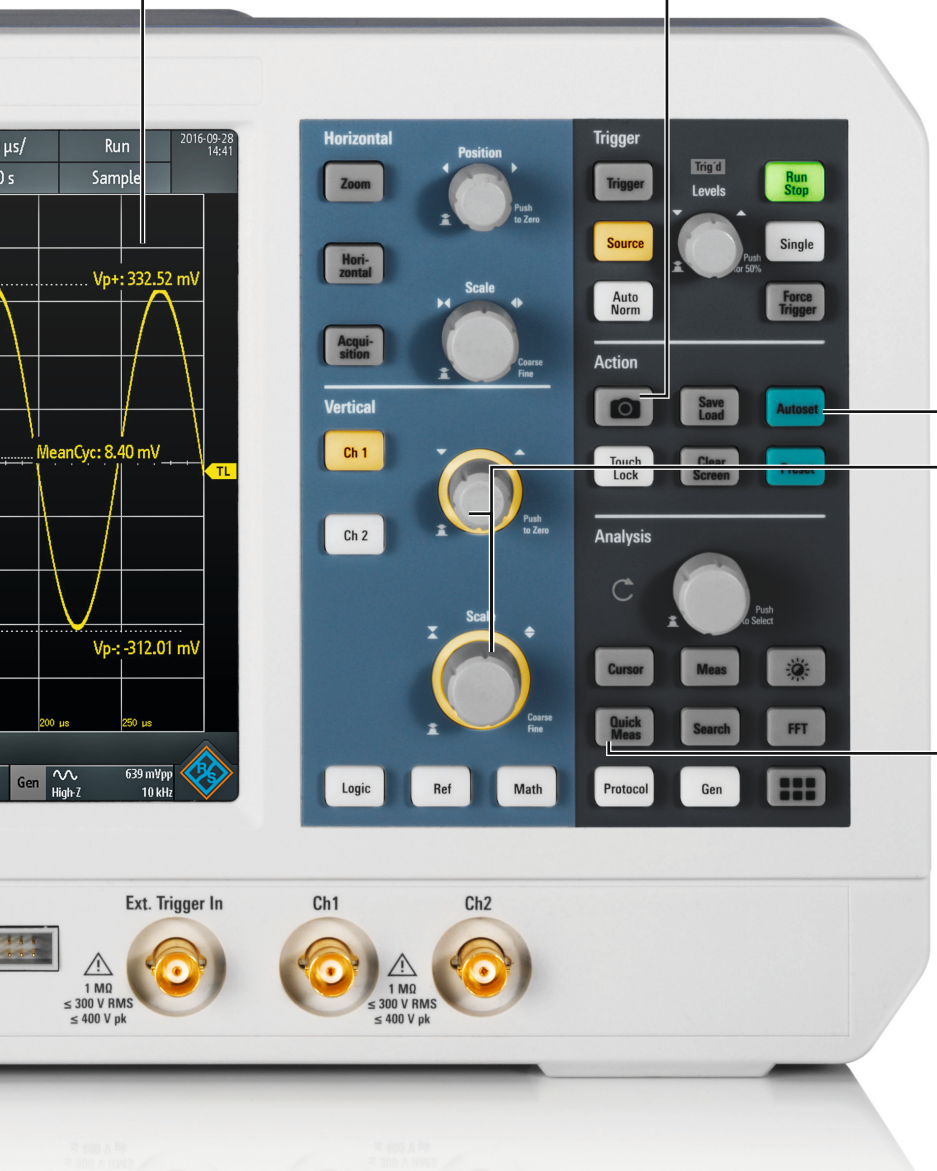
- Output of sine, square/pulse, ramp and noise waveforms
- Output of arbitrary waveform files and 4-bit signal patterns



with gesture support

10.1" high-resolution capacitive touchscreen with gesture support

- Gesture support for scaling and zooming
- More than twice the display area compared to comparable oscilloscopes
- Nine times the pixels of similiar oscilloscopes: 1280 × 800 pixel resolution
- 12 horizontal grid lines for more signal details



Documentation of results at the push of a button

- Documentation as a screenshot or of instrument settings

Autoset function

- Automatic selection of vertical, horizontal and trigger settings for optimal viewing of active signals
- Setting of FFT parameters

Color-coded controls indicate the selected channel

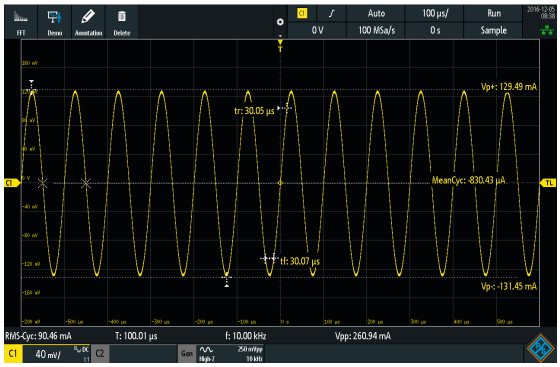
QuickMeas: results at the push of a button

- Graphical display of key measurement results for the active signal

Integrated logic analyzer (MSO)

- 16 additional digital channels
- Synchronous and time-correlated analysis of analog and digital components of embedded designs
- Fully retrofittable

X-in-1 oscilloscope

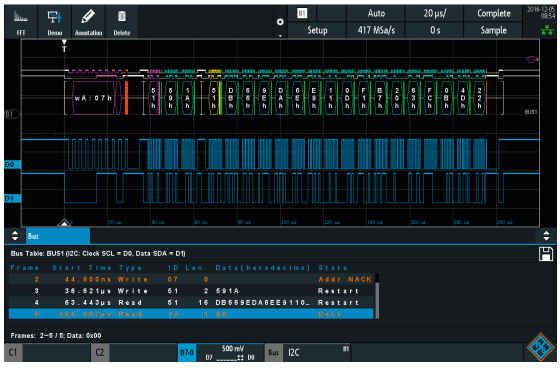


Oscilloscope

With a sampling rate of up to 2.5 Gsample/s and a memory depth of up to 20 Msample, the R&S®RTB2000 oscilloscope excels in its class. A waveform update rate of more than 50 000 waveforms/s ensures a responsive instrument that reliably catches signal faults. Included standard tools provide quick results, e.g. QuickMeas, mask tests, FFT, math, cursors and automatic measurements, including statistics.

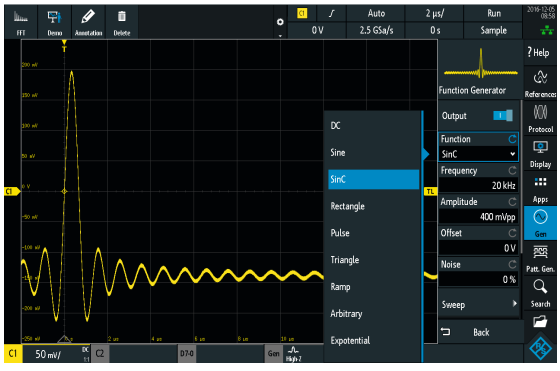
Logic analyzer

The R&S®RTB-B1 option turns every R&S®RTB2000 into an intuitive-to-use MSO with 16 additional digital channels. The oscilloscope captures and analyzes signals from analog and digital components of an embedded design – synchronously and time-correlated to each other. For example, the delay between input and output of an A/D converter can conveniently be determined using the cursor measurements.



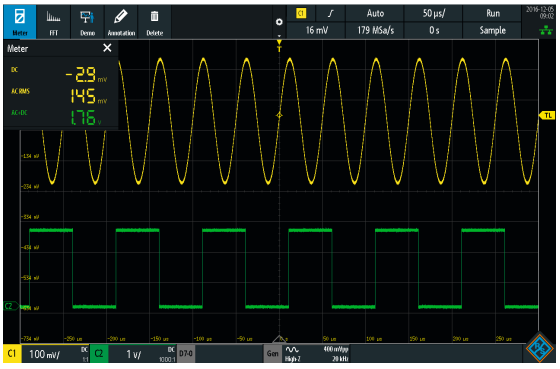
Protocol analyzer

Protocols such as I²C, SPI and CAN/LIN frequently transfer control messages between integrated circuits. The R&S®RTB2000 has versatile options for protocol-specific triggering and decoding of serial interfaces. Selective acquisition and analysis of relevant events and data is possible. With the hardware-based implementation, smooth operation and a high update rate is ensured even for long acquisitions. This is advantageous, for example, to capture multiple packetized serial bus signals.



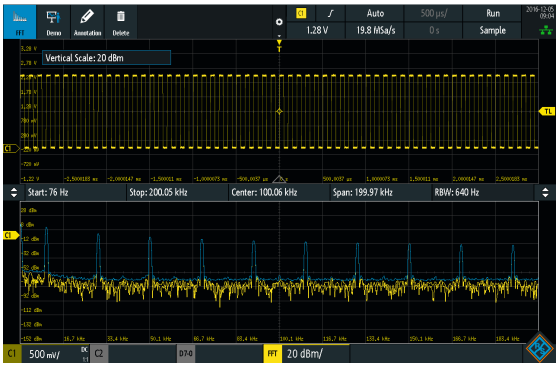
Waveform and pattern generator

The integrated R&S®RTB-B6 waveform and pattern generator up to 50 Mbit/s is useful for educational purposes and for implementing prototype hardware. Apart from the common sine, square/pulse, ramp and noise waveforms, it outputs arbitrary waveforms and 4-bit signal patterns. Waveforms and patterns can be imported as CSV files or copied from oscilloscope waveforms. Before playing signals back, the user can preview them to quickly check signal correctness. Predefined patterns for e.g. I²C, SPI, UART and CAN/LIN can be used.



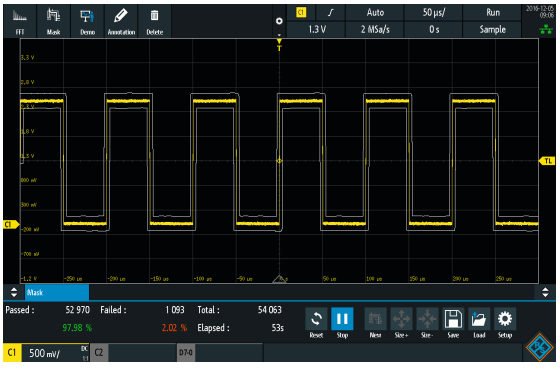
Digital voltmeter

The R&S®RTB2000 features a three-digit voltmeter (DVM) and six-digit frequency counter on each channel for simultaneous measurements. Measurement functions include DC, AC+DC_{RMS} and AC_{RMS} – included in scope of delivery.



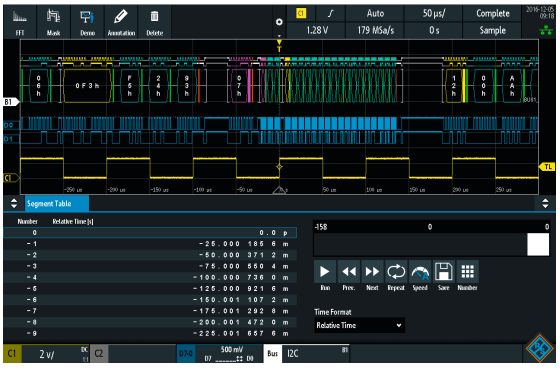
Frequency analysis mode

Difficult-to-find faults often result from the interaction between time and frequency signals. The FFT function of the R&S®RTB2000 is activated with the push on a button and by just entering center frequency and span. Due to the high-performance FFT functionality of the R&S®RTB2000 oscilloscopes, signals can be analyzed with up to 128k point. Other practical tools include cursor measurements and autoset in frequency domain.



Mask test mode

Mask tests quickly reveal whether a specific signal lies within defined tolerance limits. By using statistical pass/fail evaluation, they assess quality and stability of a DUT. Signal anomalies and unexpected results are quickly identified. When the mask is violated, the measurement stops. Each violation can generate a pulse output at the AUX-OUT connector on the R&S®RTB2000. This pulse output can be used to trigger actions in the measurement setup.



History and segmented memory mode

The R&S®RTB-K15 history function option increases the memory from 10 Msample to 160 Msample. Users scroll through past acquisitions and analyze the data using all of the oscilloscope tools, e.g. protocol decode and logic channels. Serial protocol and pulse sequences are recorded practically without interruptions.

The best choice for education

- Education mode to disable automatic functions
- X-in-1 integration

Ready for the teaching lab

In the teaching lab, the R&S®RTB2000 oscilloscope is the perfect choice to teach students how to measure with an oscilloscope. This Rohde & Schwarz oscilloscope has an easy-to-use concept combined with state-of-the-art technology – at an affordable price. Students appreciate the intuitive and quick access to frequently used functions via dedicated buttons and capacitive touchscreen operation. And they solve their lab tutorial without worrying about oscilloscope functionality.

The large 10.1" high-resolution screen shows every signal detail, and one instrument can be shared among several students. Reports can be efficiently created with the handy and flexible screen annotation tool.

Professors especially like the password-protected education mode that disables automatic functions such as Autoset. This helps students understand the concepts. The built-in web server functionality enables professors to display their oscilloscope screen content to the classroom and over a network.

Updating and monitoring hundreds of units? The remote interfaces make these tasks as easy as switching on a light bulb.

X-in-1 integration saves space and costs

With the R&S®RTB2000, students and professors in a university lab get an oscilloscope plus logic and protocol analyzer, waveform and pattern generator and digital voltmeter. Dedicated operation modes for frequency analysis, mask tests and long data acquisitions are also integrated. Debugging all kinds of electronic systems is easy and efficient – and satisfies the all-important rule of investment protection at a very attractive price. The compact design and small footprint save precious bench space in the lab.

Perfect instruments for everyday use at universities and colleges thanks to diverse functionality, rugged design and small footprint.

And there is so much more ...

- Efficient reporting capabilities
- Localized GUI and online help
- Fully upgradable via software licenses
- Web server functionality for instrument access
- Extensive range of probes and accessories

Grows with your needs

The R&S®RTB2000 oscilloscopes flexibly adapt to needed project updates by installing software licenses. This applies to e.g. triggering and decoding of serial protocols and the history and segmented memory mode. The waveform and pattern generator and the MSO capabilities [1] are built-in and just need to be activated. Via keycode, the bandwidth can be upgraded up to 300 MHz. All this makes retrofitting really easy.

Multilingual support: choose among thirteen languages

The R&S®RTB2000 oscilloscope's user interface and online help support thirteen languages (English, German, French, Spanish, Italian, Portuguese, Czech, Polish, Russian, simplified and traditional Chinese, Korean and Japanese). Users can change the language in just a few seconds while the instrument is running.

[1] The R&S®RTB-B1 MSO option additionally contains two logic probes with 16 digital channels.

Protection of data

The secure erase function protects sensitive data. This function removes all user data and settings, including device setups and reference waveforms.

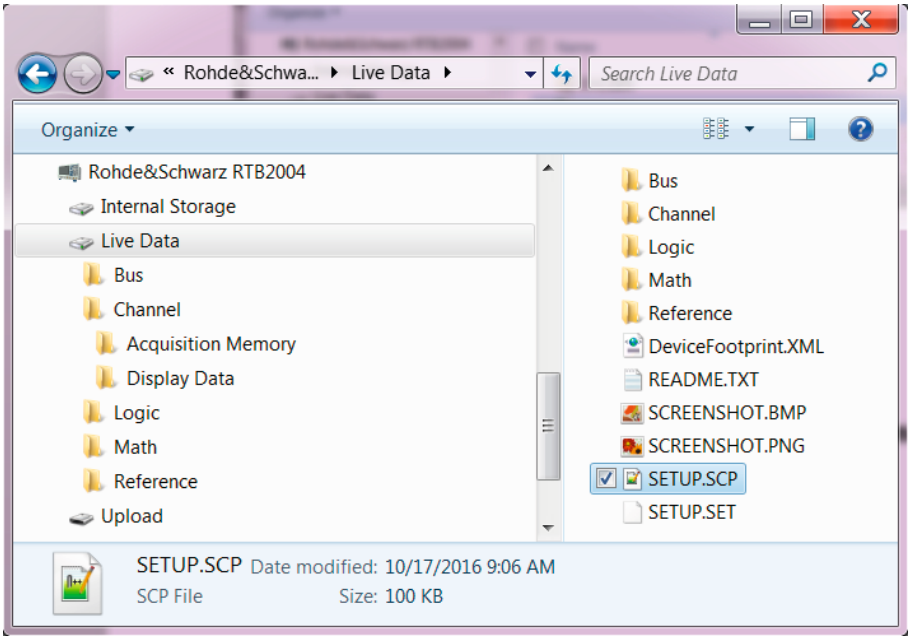
Connectivity

The R&S®RTB2000 can be directly connected to a PC via the built-in USB host and USB device ports. The USB host transfers screenshots or instrument settings to a USB stick. Media transfer protocol (MTP) implementation ensures seamless integration. The USB device port and the LAN interface also enable remote control. The built-in web server functionality allows users to control the oscilloscope and display their screen content to an audience. Data and programming interfaces are included, e.g. for seamless MATLAB® integration.

Probes to measure accurately

A comprehensive probe portfolio for accurate measurements rounds out the R&S®RTB2000 oscilloscope offering. Each R&S®RTB2000 is delivered with passive voltage probes. Single-ended high-voltage probes, differential probes and current probes are also available and can be ordered additionally.

▷ For more information, see the product brochure: Probes and accessories, Rohde & Schwarz digital oscilloscopes (PD 3606.8866.12).



With the USB MTP implementation, easy access to live channel data and screenshots and integration into customers computing environment is possible.

Specifications in brief

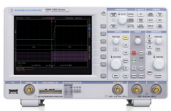
Specifications in brief		
Vertical system		
Number of channels	R&S®RTB2002; R&S®RTB2004	2; 4
Bandwidth (–3 dB)	R&S®RTB2002/2004 (with R&S®RTB-B2x1, R&S®RTB-B2x2 and R&S®RTB-B2x3 options)	70 MHz, 100 MHz, 200 MHz, 300 MHz
Rise time (calculated)	R&S®RTB2002/2004 (with R&S®RTB-B2x1, R&S®RTB-B2x2 and R&S®RTB-B2x3 options)	5 ns, 3.5 ns, 1.75 ns, 1.15 ns
Input impedance		1 MΩ ± 2% with 19 pF ± 2 pF (meas.)
input sensitivity	max. bandwidth in all ranges	1 mV/div to 5 V/div
DC gain accuracy	offset and position = 0, maximum operating temperature change of ±5°C after self-alignment	
	input sensitivity > 5 mV/div	± 1.5% of full scale
	input sensitivity ≤ 5 mV/div	± 2% of full scale
ADC resolution		10-bit, up to 16-bit with high resolution decimation
Acquisition system		
Maximum realtime sampling rate		1.25 Gsample/s; 2.5 Gsample/s, interleaved
Acquisition memory	standard; with R&S®RTB-K15 option	10 Msample; 20 Msample, interleaved; 160 Msample segmented memory
Horizontal system		
Timebase range		selectable between 1 ns/div and 500 s/div
Trigger system		
Trigger types	standard	edge, width, video (PAL, NTSC, SECAM, PAL-M, SDTV 576i, HDTV 720p, HDTV 1080i, HDTV 1080p), pattern, line, serial bus
	option	I^2C, SPI, UART/RS-232/RS-422/RS-485, CAN/LIN
Analysis and measurement functions		
QuickMeas	at the push of a button, measurement values are continuously written onto the waveform	peak-to-peak voltage, pos. peak, neg. peak, rise time, fall time, mean value, RMS value, time, period, frequency
Waveform mathematics		addition, subtraction, multiplication, division, FFT
MSO option		
Digital channels		16 (2 logic probes)
Sampling rate		1.25 Gsample/s
Acquisition memory		10 Msample
Waveform generator		
Resolution, sample rate		14-bit, 250 Msample/s
Amplitude	high-Z; 50 Ω	20 mV to 5 V (V_{pp}); 10 mV to 2.5 V (V_{pp})
DC offset	high-Z; 50 Ω	±2.5 V; ±1.25 V
Signal forms frequency ranges	sine	0.1 Hz to 25 MHz
	pulse/rectangle	0.1 Hz to 10 MHz
	ramp/triangle	0.1 Hz to 1 MHz
	noise	max. 25 MHz
Arbitrary	sampling rate; memory depth	max. 10 Msample/s; 16k point
General data		
Screen		10.1" WXGA TFT color display (1280 × 800 pixel)
Interfaces		USB host with MTP, USB device, LAN, powerful web server for remote display and operation
Audible noise	maximum sound pressure level at a distance of 1.0 m	28.3 dB(A)
Dimensions	W × H × D	390 mm × 220 mm × 152 mm (15.4 in × 8.66 in × 5.98 in)
Weight		2.5 kg (5.5 lb)

Ordering information

Designation	Type	Order No.
Choose your R&S®RTB2000 base model		
Digital Oscilloscope, 70 MHz, 2 channels	R&S®RTB2002	1333.1005.02
Digital Oscilloscope, 70 MHz, 4 channels	R&S®RTB2004	1333.1005.04
Base unit (including standard accessories: R&S®RT-ZP03 passive probe per channel, power cord)		
Choose your bandwidth upgrade		
Upgrade of R&S®RTB2002 oscilloscopes to 100 MHz bandwidth	R&S®RTB-B221	1333.1163.02
Upgrade of R&S®RTB2002 oscilloscopes to 200 MHz bandwidth	R&S®RTB-B222	1333.1170.02
Upgrade of R&S®RTB2002 oscilloscopes to 300 MHz bandwidth	R&S®RTB-B223	1333.1186.02
Upgrade of R&S®RTB2004 oscilloscopes to 100 MHz bandwidth	R&S®RTB-B241	1333.1257.02
Upgrade of R&S®RTB2004 oscilloscopes to 200 MHz bandwidth	R&S®RTB-B242	1333.1263.02
Upgrade of R&S®RTB2004 oscilloscopes to 300 MHz bandwidth	R&S®RTB-B243	1333.1270.02
Choose your options		
Mixed Signal Upgrade for non-MSO models, 250 MHz, incl. 2 × R&S®RT-ZL03	R&S®RTB-B1	1333.1105.02
Arbitrary Waveform Generator	R&S®RTB-B6	1333.1111.02
I²C/SPI Serial Triggering and Decoding	R&S®RTB-K1	1333.1011.02
UART/RS-232/RS-422/RS-485 Serial Triggering and Decoding	R&S®RTB-K2	1333.1028.02
CAN/LIN Serial Triggering and Decoding	R&S®RTB-K3	1333.1034.02
History and Segmented Memory	R&S®RTB-K15	1333.1040.02
Application Package (-K1, -K2, -K3, -K15, -B6)	R&S®RTB-PK1	1333.1092.02
Choose your additional probes		
Single-ended passive probes		
300 MHz, 10 MHz, 10:1/1:1, 10 MΩ/1 MΩ, 400 V, 12 pF/82 pF	R&S®RT-ZP03	3622.2817.02
500 MHz, 500 MHz, 10:1, 300 V (RMS), 10 pF	R&S®RT-ZP05	3623.2927.02
500 MHz, 10 MΩ, 10:1, 400 V, 9.5 pF	R&S®RTM-ZP10	1409.7708.02
38 MHz, 1 MΩ, 1:1, 55 V, 39 pF	R&S®RT-ZP1X	1333.1370.02
High-voltage single-ended passive probes		
250 MHz, 100:1, 100 MΩ, 850 V, 6.5 pF	R&S®RT-ZH03	1333.0873.02
400 MHz, 100:1, 50 MΩ, 1000 V, 7.5 pF	R&S®RT-ZH10	1409.7720.02
400 MHz, 1000:1, 50 MΩ, 1000 V, 7.5 pF	R&S®RT-ZH11	1409.7737.02
Current probes		
20 kHz, AC/DC, 10 A/1000 A	R&S®RT-ZC02	1333.0850.02
100 kHz, AC/DC, 30 A	R&S®RT-ZC03	1333.0844.02
10 MHz, AC/DC, 150 A	R&S®RT-ZC10	1409.7750.02
100 MHz, AC/DC, 30 A	R&S®RT-ZC20	1409.7766.02
120 MHz, AC/DC, 5 A	R&S®RT-ZC30	1409.7772.02
Power Supply for current probes	R&S®RT-ZA13	1409.7789.02
Active differential probes		
100 MHz, 1000:1/100:1, 8 MΩ, 1000 V (RMS), 3.5 pF	R&S®RT-ZD01	1422.0703.02
200 MHz, 10:1, 1 MΩ, 20 V diff., 3.5 pF	R&S®RT-ZD02	1333.0821.02
Logic probes		
Active 8 Channel Logic Probe	R&S®RT-ZL03	1333.0715.02
Probe accessories		
Feedthrough Termination 50 Ω	R&S®HZ22	3594.4015.02
Choose your accessories		
Front Cover	R&S®RTB-Z1	1333.1728.02
Soft Bag	R&S®RTB-Z3	1333.1734.02
Rackmount Kit	R&S®ZZA-RTB2K	1333.1711.02

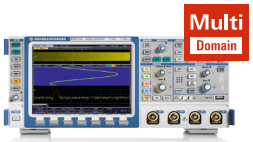
Oscilloscope portfolio

Multi Domain



R&S® family	RTH1000	HMO1002	HMO1202	RTB2000	HMO3000
Vertical					
Bandwidth	60/100/200/350/500 MHz [1]	50/70/100 MHz [1]	100/200/300 MHz [1]	70/100//200/300 MHz [1]	300/400/500 MHz [1]
Number of channels	2 plus DMM/4	2		2/4	2/4
V/div 1 MΩ	2 mV to 100 V	1 mV to 10 V		1 mV to 5 V	1 mV to 5 V
V/div 50 Ω	–	–	1 mV to 10 V	–	1 mV to 5 V
Horizontal					
Sampling rate	1.25 Gsample/s per channel (4-channel model); 2.5 Gsample/s per channel (2-channel model); 5 Gsample/s (all channels interleaved)	500 Msample/s per channel 1 Gsample/s (2 channels interleaved)	1 Gsample/s per channel 2 Gsample/s (2 channels interleaved)	1.25 Gsample/s per channel; 2.5 Gsample/s (2 channels interleaved)	2 Gsample/s per channel; 4 Gsample/s (2 channels interleaved)
Max. memory (per channel/1 channel active)	125 ksample (4-channel model); 250 ksample (2-channel model); 500 ksample	500 ksample; 1 Msample	1 Msample; 2 Msample	10 Msample; 20 Msample (160 Msample in segmented memory mode [2])	4 Msample; 8 Msample
Segmented memory	option	–		option	option
Acquisition rate	50 000 waveforms/s	10 000 waveforms/s		50 000 waveforms/s	5000 waveforms/s (200 000 waveforms/s in segmented memory mode [2])
Trigger					
Options	advanced, digital trigger (14 trigger types) [2]	elementary (5 trigger types)		basic (6 trigger types)	basic (9 trigger types)
Mixed signal option					
No. of digital channels [1]	8			16	16
Sampling rate of digital channels	1.25 Gsample/s	500 Msample/s	1 Gsample/s	1.25 Gsample/s	1 Gsample/s
Max. memory of digital channels	125 ksample	500 ksample	1 Msample	10 Msample	2 Msample
Analysis					
Cursor meas. types	3	11		13	12
Stand. meas. functions	33	31			
Mask test	elementary (tolerance mask around the signal)				
Mathematics	elementary		basic (math on math)	elementary	
Serial protocols triggering and decoding [1]	I²C, SPI, UART/RS-232/RS-422/RS-485, CAN/LIN				
Display functions	data logger	–		–	–
Applications [1]	high resolution frequency counter, advanced spectrum analysis, harmonics analysis	–		–	–
Compliance testing [1]	–	–		–	–
Display and operation					
Size and resolution	7", color, 800 × 480 pixel	6.5", color, 640 × 480 pixel		10.1", color, 1280 × 800 pixel	6.5", color, 640 × 480 pixel
Operation	optimized for touchscreen operation, parallel button operation	optimized for fast button operation		optimized for touchscreen operation, parallel button operation	optimized for fast button operation
General data					
Size in mm (W × H × D)	201 × 293 × 74	285 × 175 × 140		390 × 220 × 152	285 × 175 × 220
Weight in kg	2.4	2.5		2.5	3.6
Battery	lithium-ion, > 4 h	–		–	–

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



RTM2000	RTE1000	RTO2000
200/350/500 MHz/1 GHz [1]	200/350/500 MHz/1/1.5/2 GHz [1]	600 MHz/1/2/3/4/6 GHz [1]
2/4	2/4	2/4 (only 4 channels in 4 GHz and 6 GHz model)
1 mV to 10 V	500 µV to 10 V	1 mV to 10 V (500 µV to 10 V) [2]
1 mV to 2 V	500 µV to 5 V	1 mV to 1 V (500 µV to 1 V) [2]
2.5 Gsample/s per channel; 5 Gsample/s (2 channels interleaved)	5 Gsample/s per channel	10 Gsample/s per channel; 20 Gsample/s (2 channels interleaved in 4 GHz and 6 GHz model)
10 Msample; 20 Msample (460 Msample in segmented memory mode [2])	standard: 10 Msample/40 Msample; max. upgrade: 50 Msample/200 Msample	standard: 50 Msample/200 Msample; max. upgrade: 1 Gsample/2 Gsample
option	standard	standard
12 500 waveforms/s (200 000 waveforms/s in segmented memory mode [2])	1 000 000 waveforms/s (2 000 000 waveforms/s in ultra-segmented memory mode)	1 000 000 waveforms/s (3 000 000 waveforms/s in ultra-segmented memory mode)
basic (7 trigger types)	advanced, digital trigger (13 trigger types)	advanced, digital trigger (14 trigger types), zone trigger [2]
16	16	16
2.5 Gsample/s	5 Gsample/s	5 Gsample/s
10 Msample; 20 Msample	100 Msample	200 Msample
14	3	3
31	47	47
elementary (tolerance mask around the signal)	advanced (freely configurable, hardware-based)	
basic (math on math)	advanced (formula editor)	advanced (formula editor)
I²C, SPI, UART/RS-232/RS-422/RS-485, CAN/LIN, I²S, MIL-STD-1553, ARINC 429	I²C, SPI, UART/RS-232/RS-422/RS-485, CAN/LIN, I²S, MIL-STD-1553, ARINC 429, FlexRay™, CAN FD, USB 2.0/HSIC, Ethernet, Manchester, NRZ, SENT, SpaceWire, CXPI, Broad-R Reach®	I²C, SPI, UART/RS-232/RS-422/RS-485, CAN/LIN, I²S, MIL-STD-1553, ARINC 429, FlexRay™, CAN FD, USB 2.0/HSIC, Ethernet, Manchester, NRZ, SENT, SpaceWire, CXPI, Broad-R Reach®, MIPI RFFE, MDIO, 8b 10b, MIPI D-PHY, MIPI M-PHY, MIPI M-PHY/UniPro, serial pattern trigger
track [2]	histogram, trend, track [2]	
power, digital voltmeter (DVM), spectrum analysis and spectrogram	R&S®RTM applications + 16-bit high definition, advanced spectrum analysis and spectrogram	R&S®RTE applications + jitter, clock data recovery, I/Q data, RF analysis
–	–	various options available, for details see data sheet (PD 3607.2684.22)
8.4", color, 1024 × 768 pixel	10.4", color, 1024 × 768 pixel	12.1", color, 1280 × 800 pixel
optimized for fast button operation	optimized for touchscreen operation, parallel button operation	
403 × 189 × 142	427 × 249 × 204	427 × 249 × 204
4.9	8.6	9.6
–	–	–

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