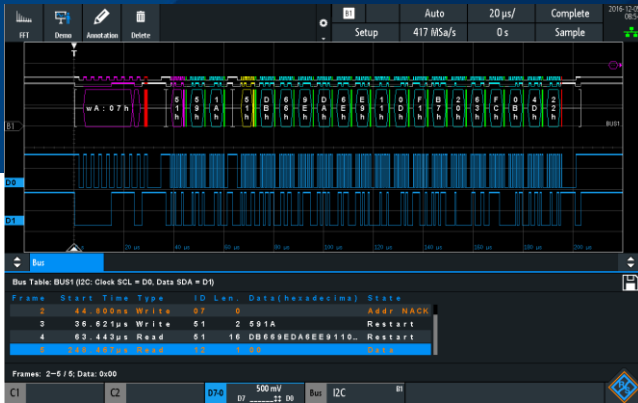


# R&S®RTx-B1: MIXED SIGNAL ANALYSIS

For R&S®RTB2000, R&S®RTM3000 and R&S®RTA4000 oscilloscopes



## Customize your oscilloscope with mixed signal analysis

The integrated R&S®RTx-B1 MSO options turn Rohde & Schwarz oscilloscopes into fast, precise and easy-to-use mixed signal oscilloscopes (MSO). MSOs are hybrid test instruments that combine the measurement capabilities of digital oscilloscopes with the analysis capabilities of logic analyzers.

### More signal details

With a sample rate of up to 5 Gsample/s, the R&S®RTx-B1 option provides a maximum time resolution of 200 ps for the digital channels. This sample rate is available over the entire memory depth. As a result, the MSO option is even capable of detecting critical events such as narrow, widely separated glitches.

Key specifications	R&S®RTB2000	R&S®RTM3000 / R&S®RTA4000
Digital channels	16 (2 logic probes)	16 (2 logic probes)
Arrangement of input channels	Arranged in two logic probes with eight channels each, assignment of the logic probes to separate logic inputs – no consumption of analog channels	
Max. input frequency	300 MHz	400 MHz
Sampling rate (two logic probes)	1.25 Gsample/s	2.5 Gsample/s
Sampling rate (one logic probe)	1.25 Gsample/s	5 Gsample/s
Memory depth (two logic probes)	10 Msample	40 Msample / 100 Msample
Memory depth (one logic probe)	10 Msample	80 Msample / 200 Msample

Your benefit	Features
Use in embedded design	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 be conveniently determined using the cursor measurements
Analysis of serial protocols with digital channels	The protocols of serial interfaces such as I <sup>2</sup> C, SPI, UART/RS-232, CAN and LIN can also be triggered and decoded using the R&S®RTx-B1 digital channels and the appropriate serial protocol options

### Precise triggering on signal events

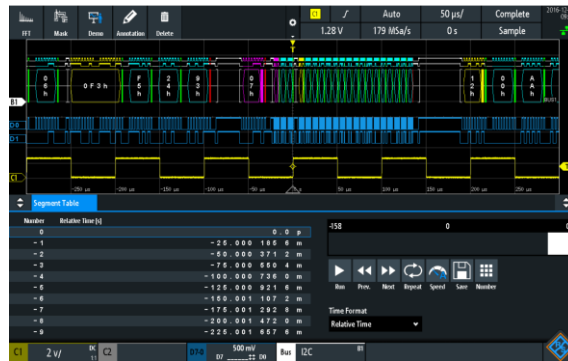
The digital channel resolution of up to 200 ps makes these channels a precise trigger source. The R&S®RTx-B1 option offers numerous trigger types for debugging and analysis, such as edge, width and pattern. These triggers can be combined with holdoff conditions.

## Straightforward display of digital signals



The R&S®RTx-B1 option supports 16 digital channels and simultaneous decoding of up to four parallel buses. Each bus is represented by a line on the edge of the screen.

## Analyze protocols with digital channels



Use the digital channels to decode parallel buses. These are displayed in a digital bus format or as an analog waveform. For clocked parallel buses, the decoded contents can also be displayed in a table. In addition, you can use the digital channels of the R&S®RTx-B1 option to decode serial interface protocols such as SPI and I²C.

## No consumption of analog channels



**R&S®RTB2000 / RTM3000 / RTA4000**  
(4 analog channels)

**+ 1 MSO option**  
(16 digital channels)

The typical MSO configuration consists of 4 analog and 16 digital channels. 16 digital channels can be retrofitted to the four-channel R&S®RTB2000, R&S®RTM3000 and R&S®RTA4000 base units via the MSO interface at a very attractive price and do not consume any analog channels.

## Low test point loading



The digital inputs are grouped into logic probes with eight channels. High input impedance combined with low input capacitance of 100 kΩ || 4 pF ensures high signal fidelity and low loading of the test points.

## Model configuration information

Base model	Order No.
R&S®RTB2002 oscilloscope, 70 MHz, 2 channels	1333.1005.02
R&S®RTB2004 oscilloscope, 70 MHz, 4 channels	1333.1005.04
R&S®RTM3002 oscilloscope, 100 MHz, 2 channels	1335.8794.02
R&S®RTM3004 oscilloscope, 100 MHz, 4 channels	1335.8794.04
R&S®RTA4004 oscilloscope, 200 MHz, 4 channels	1335.7700.04
Software option	Order No.
R&S®RTB-B1 mixed signal upgrade for non-MSO models, 300 MHz including SW license and probe	1333.1105.02
R&S®RTM-B1 mixed signal upgrade for non-MSO models, 400 MHz including SW license and probe	1335.8988.02
R&S®RTA-B1 mixed signal upgrade for non-MSO models, 400 MHz including SW license and probe	1335.7823.02
Application bundle	Order No.
R&S®RTB-PK1 consists of the following options: -K1, -K2, -K3, -K15, -K36, -B6	1333.1092.02
R&S®RTM-PK1 consists of the following options: -K1, -K2, -K3, -K5, -K6, -K7, -K15, -K18, -K31, -K36, -B6	1335.8942.02
R&S®RTM-PK1US consists of the following options: -K1, -K2, -K3, -K5, -K6, -K7, -K15, -K31, -K36, -B6	1335.9190.02
R&S®RTA-PK1 consists of the following options: -K1, -K2, -K3, -K5, -K6, -K7, -K18, -K31, -K36, -B6	1335.7775.02
R&S®RTA-PK1US consists of the following options: -K1, -K2, -K3, -K5, -K6, -K7, -K31, -K36, -B6	1335.7998.02