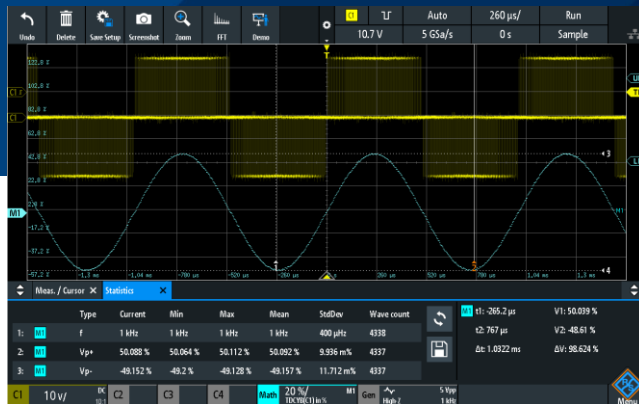




# R&S®RTx-K31: POWER ANALYSIS

## For R&S®RTM3000 and R&S®RTA4000 oscilloscopes

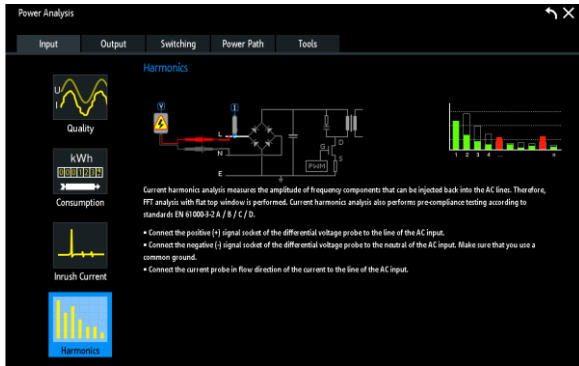


### Customize your oscilloscope with the power analysis option

- ▶ Provides essential measurement functions for analyzing power electronics, including inrush current, output spectrum and safe operating area
- ▶ Analyze the input, output and transfer function of switched-mode power supplies
- ▶ Analyze harmonic current in line with conventional EN, MIL and RTCA standards
- ▶ Measurement wizard guides the user through the test setup for fast results
- ▶ Simple and fast documentation

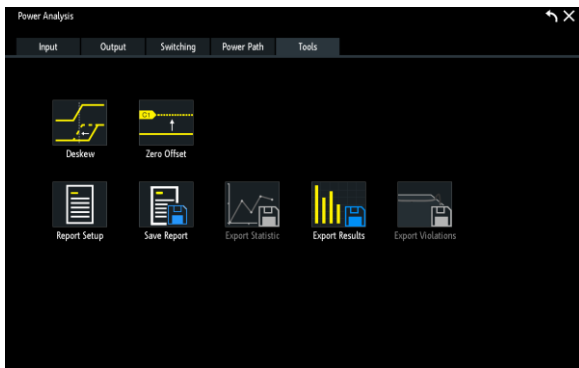
Key specifications	
Measurement	Measurement functions
Current harmonics	<ul style="list-style-type: none"> <li>▶ EN 61000-3-2 class A, B, C, D</li> <li>▶ MIL-STD-1399</li> <li>▶ RTCA DO-160</li> </ul>
Input	<ul style="list-style-type: none"> <li>▶ Inrush current</li> <li>▶ Power quality</li> <li>Real power, apparent power, reactive power, power factor, crest factor and phase angle</li> <li>▶ Power consumption</li> </ul>
Power converter control	<ul style="list-style-type: none"> <li>▶ Modulation analysis on period, frequency, pulse width and duty cycle</li> <li>▶ Slew rate</li> <li>▶ Dynamic on-resistance</li> <li>▶ Safe operating area (SOA mask editor)</li> </ul>
Power path	<ul style="list-style-type: none"> <li>▶ Turn on/off time</li> <li>▶ Switching loss</li> <li>▶ Power efficiency</li> </ul>
Output	<ul style="list-style-type: none"> <li>▶ Output ripple</li> <li>▶ Transient response</li> <li>▶ Output spectrum</li> </ul>
Your benefit	
See power signal details with 10 bit ADC resolution and up to 16 bit in high resolution	Even the smallest details of a high dynamic signal matter for power measurements. Verification of $R_{DS(on)}$ of a MOSFET is one example. Previously unseen signal details become visible and measurable. In the $R_{DS(on)}$ example, this makes it possible to measure the slope of the drain-to-source voltage while the switch is closed
Specialized measurement functions for characterizing power electronics	The R&S®RTx-K31 provides a quick and easy way of analyzing the reliability, efficiency and performance of your switching and linear power supplies
Easy, clear documentation of power analysis and results	Results can be added to the test report simply by pressing a button. This report documents the current setup and configuration. You can define the level of detail for the report and customize the layout, for example by adding a company logo

## Measurement wizard for fast results



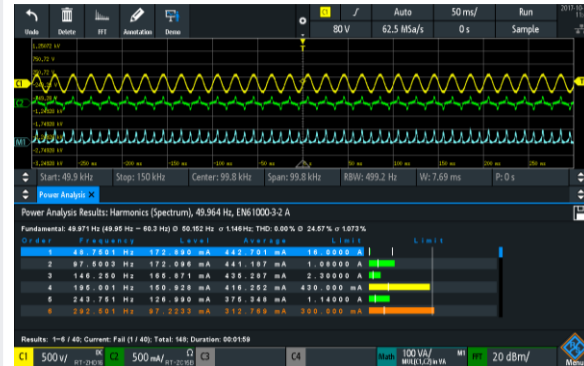
After you select a measurement function, the measurement wizard guides you through the test setup. Detailed illustrations help you make the correct connections. The oscilloscope then configures itself automatically and delivers quick results. You can modify the configuration or completely manually configure the oscilloscope in order to document specific signal details.

## Easy and clear documentation of measurement results



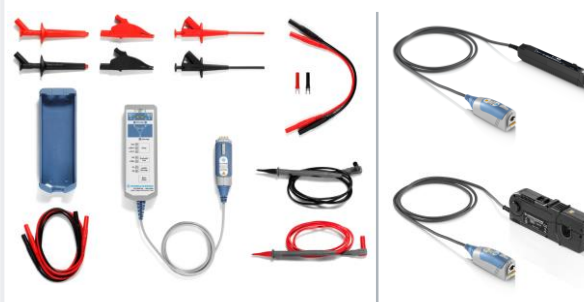
Add each result to the test report by simply pressing a button. The test report documents the setup and configuration. Define the level of detail in the report and customize the layout, for example by adding a company logo. The output format is PDF.

## Harmonic current analysis in line with EN, MIL and RTCA standards



Different standards for limiting the harmonic current must be met when developing switched-mode power supplies. The R&S®RTx-K31 power analysis option helps you test all common standards: EN 61000-3-2 classes A, B, C, D, MIL-STD-1399 and RTCA DO-160.

## Complete probe portfolio: high voltage probes and current probes



The Rohde & Schwarz portfolio of high voltage probes includes active differential probes for voltages up to 6000 V (peak). These probes provide an exceptional common mode rejection ratio over a broad frequency range. Rohde & Schwarz current probes enable accurate, non-intrusive measurement of DC and AC currents. Different models are available to measure currents in the range of 1 mA to 2000 A with a maximum bandwidth of up to 120 MHz.

## Model configuration information

Base model	Order No.
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®RTM-K31 power analysis	1335.8920.02
R&S®RTA-K31 power analysis	1335.9178.02
Application bundle	Order No.
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
High voltage probes: active, differential	Order No.
R&S®RT-ZD002, 25 MHz, ±700 V, BNC interface	1337.9700.02
R&S®RT-ZD003, 25 MHz, ±1400 V, BNC interface	1337.9800.02
R&S®RT-ZD01, 100 MHz, ±1400 V, BNC interface	1337.9800.02
R&S®RT-ZHD07, 200 MHz, ±750 V, Rohde & Schwarz interface	1800.2307.02
R&S®RT-ZHD15, 100 MHz, ±1500 V, Rohde & Schwarz interface	1800.2107.02
R&S®RT-ZHD16, 200 MHz, ±1500 V, Rohde & Schwarz interface	1800.2207.02
R&S®RT-ZHD60, 100 MHz, ±6000 V, Rohde & Schwarz interface	1800.2007.02
Current probes	Order No.
R&S®RT-ZC02, 20 kHz, 2000 A (RMS), battery powered	1333.0850.02
R&S®RT-ZC03, 100 kHz, 20 A (RMS), battery powered	1333.0844.02
R&S®RT-ZC05B, 2 MHz, 500 A (RMS), Rohde & Schwarz interface	1409.8204.02
R&S®RT-ZC10, 10 MHz, 150 A (RMS), R&S®RT-ZA13 interface	1409.7750K02
R&S®RT-ZC10B, 10 MHz, 150 A (RMS), Rohde & Schwarz interface	1409.8210.02
R&S®RT-ZC15B, 50 MHz, 30 A (RMS), Rohde & Schwarz interface	1409.8227.02
R&S®RT-ZC20, 100 MHz, 30 A (RMS), R&S®RT-ZA13 interface	1409.7766K02
R&S®RT-ZC20B, 100 MHz, 30 A (RMS), Rohde & Schwarz interface	1409.8233.02
R&S®RT-ZC30, 120 MHz, 5 A (RMS), R&S®RT-ZA13 interface	1409.7772K02
Accessories	Order No.
R&S®RT-ZF20 power deskew and calibration test fixture	1800.0004.02
R&S®RT-ZA13 external power supply for up to four current probes	1409.7789.02

All options can be retrofitted