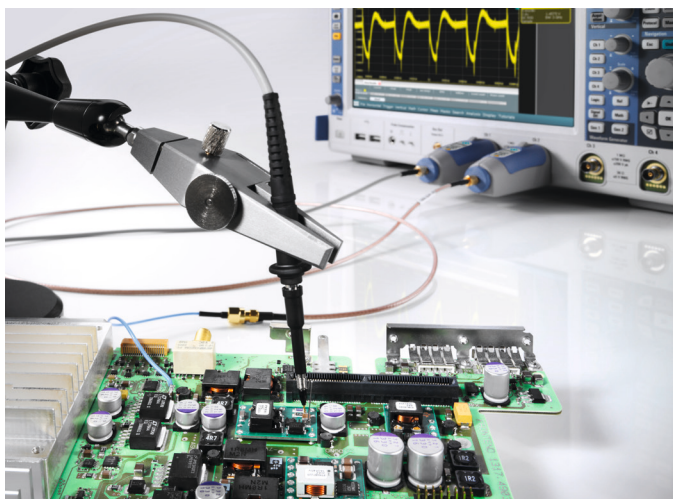


# Accurate and fast power integrity measurements

Increasing demands on power distribution networks have resulted in smaller DC rails, as well as a proliferation of rails that ensure clean power reaches the pins of integrated circuits.



## Your task

Measuring ripple, noise and transients on today's low-voltage DC power rails challenges most oscilloscopes. With smaller rail voltages and 1% to 2% tolerances, instrument and probing noise make it hard to accurately measure specified tolerances. Adequate bandwidth is required to see harmonics of fast edges and higher frequency sources that can be coupled on power rails.

## T&M solution

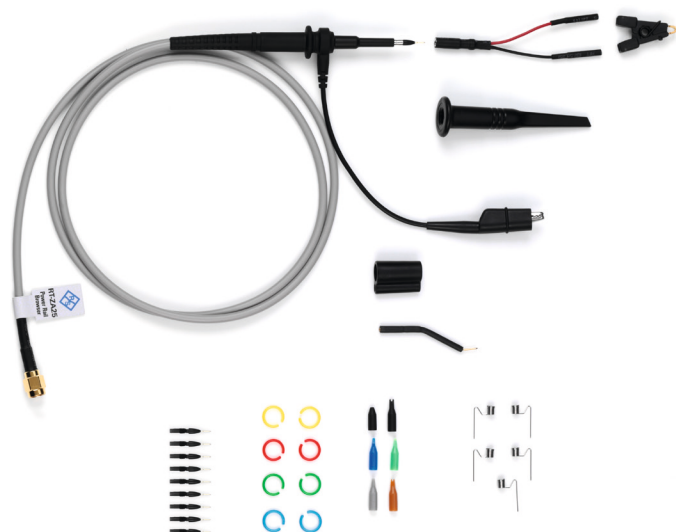
The active R&S®RT-ZPR20 power rail probe is specifically designed to measure small AC characteristics of DC rails:

- The probe's 1:1 attenuation adds only 10% to the noise of the oscilloscope – only about 120  $\mu$ V on an R&S®RTO with 1 GHz bandwidth at 1 mV/div
- With the industry's largest built-in offset of  $\pm 60$  V, you can use maximum oscilloscope vertical sensitivity for lower noise and more of the scope's ADC bits, resulting in a more accurate measurement. In addition, the offset eliminates the need to use AC coupling or DC blocking caps which impede the ability to see true DC values and drift
- The probe provides a specified bandwidth of 2 GHz with a slow rolloff to capture high-frequency transients and coupled signals up to 2.4 GHz
- A variety of probing options and 50 k $\Omega$  DC input impedance minimizes disturbance to measured rail signals
- An integrated 16-bit R&S®ProbeMeter provides a simultaneous digit readout of each power rail's DC value at typ. 0.05% DC accuracy

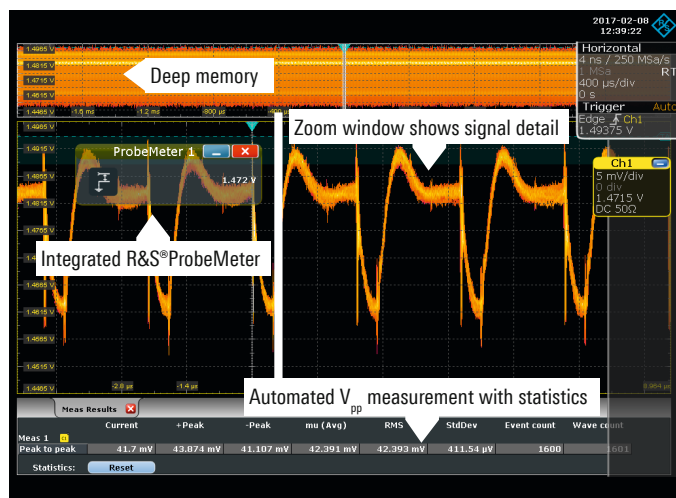
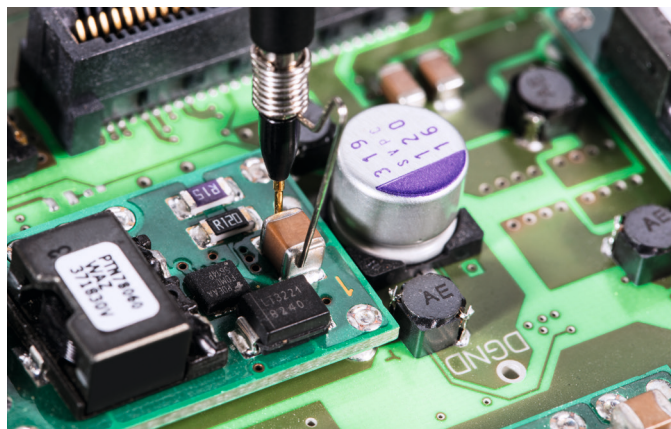
The active, low-noise R&S®RT-ZPR20 power rail probe connects at full bandwidth using a direct SMA or an SMA to coax pigtail connector soldered to a bypass capacitor or other available board connection.



The R&S®RT-ZPR20 comes standard 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 using the R&S®ProbeMeter.



The R&S®RT-ZPR20 power rail probe is compatible with the R&S®RTO and the R&S®RTE digital oscilloscopes. The R&S®RTE (frequency range from 200 MHz to 2 GHz) is an economical deep memory solution with advanced functionality. The R&S®RTO (frequency range from 600 MHz to 6 GHz) offers a solution with more headroom. Both oscilloscopes achieve fast update rates of up to 1 million waveforms/s, providing greater power rail characterization confidence faster.



Time domain views of power rails to measure ripple, noise and transient.



Frequency domain views of power rails to find coupled sources that are impossible to see in the time domain.

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