

Isolated Probing System For Precise Measurement Of Fast Switching Signals

[Rohde & Schwarz's](#) R&S RT-ZISO isolated probing system for its oscilloscope portfolio enables extremely accurate measurements of fast switching signals, especially in environments with high common-mode voltages and currents. Also new is the R&S RT-ZPMMCX passive probe with MMCX connector, which complements the isolated probe system for certain measurement tasks.

According to the vendor, the R&S RT-ZISO will set new standards in isolated probe technology, delivering unprecedented accuracy, sensitivity, dynamic range, and bandwidth for next generation wide-bandgap power designs with SiC and GaN (see the figure).

Its power-over-fiber architecture galvanically isolates the device under test (DUT) from the measurement setup, providing a much higher common-mode rejection ratio (CMRR) than conventional differential probes. Its key features include bandwidth options of 100 MHz to 1 GHz (upgradeable), a CMRR of > 90 dB (>30,000:1) at 1 GHz, an input and offset range of ± 3 kV, a common-mode range of ± 60 kV, and a sensitive input range of ± 10 mV.

With the instruments of the next-generation MXO series (MXO 4, MXO 5, MXO 5C), the probe enables measurements with the world's fastest acquisition in the time and spectrum domain, thanks to the oscilloscopes' hardware-based acceleration, says the vendor. In combination with the R&S RTO6, design engineers can use the probe for complex analysis tasks that take advantage of the oscilloscope's high performance and advanced measurement capabilities.

The R&S RT-ZISO is well suited for a wide range of applications, including switching analysis of power converters with WBG materials, double-pulse testing, floating measurements, shunt measurements, inverter design, and motor drive analysis. The isolated probing system comes with a range of probe tips for different measurement needs, including the micro-miniature coaxial (MMCX) connector, square pins, wide square pins and the isolated passive prober.

All connectors are rated for CAT III voltages up to 1000 V. According to Rohde & Schwarz, it is the first passive isolated prober on the market that allows users to quickly access the test point without designated connectors. In addition, the use of long bandable cables allows the tips to access the DUT at various angles with no additional mechanical stress.

Along with the R&S RT-ZISO, Rohde & Schwarz is also presenting a new type of passive probe with the MMCX connector. The R&S RT-ZPMMCX supports a bandwidth range of >700 MHz with input voltages of ± 60 V dc and 30 V (rms), making it complementary to the R&S RT-ZISO isolated probing system for low-side gate measurements. The MMCX probe has a very low capacitive load of <4 pF, which helps to maintain the best signal integrity for preserving the switching waveform shape and timing.

The R&S RT-ZISO isolated probing system and the R&S RT-ZPMMCX passive probe are both available from Rohde & Schwarz. For more information, see the isolated probing system for oscilloscopes [page](#).



Figure. The R&S RT-ZISO isolated probing system used together with an MXO 5 oscilloscope. The R&S RT-ZISO provides precise differential measurements of up to ± 3 kV on reference voltages of ± 60 kV with a rise time of <450 ps and suppresses fast common-mode signals that can distort and interfere with accurate measurements.