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Data Sheet

Pro Series

RadiSense® Ultra

Electric Field Probe

Models - RSS3018U

Accurate | High Speed | Robust

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RadiSense® Ultra

Models - RSS3018U

The Accurate & Rapid Speed Field Probe

Accurate **High Speed** **Robust**

Raditeq is the inventor of the world's first laser-powered E-field probe. Raditeq offers a comprehensive range of highly accurate and fast laser-powered probes, spanning from 9 kHz to 60 GHz. Drawing upon our extensive 25-year experience in laser power and field probe measurement technology, we have developed the RadiSense® probes, which are widely recognized as the most reliable and highest-quality laser-powered E-field probes available in the market. These probes offer unparalleled low measurement uncertainty and the highest measurement speed currently available, making them suitable for measurements of CW Fields, Pulsed Fields and almost any other application.

High speed | The RadiSense® RSS3018U is a field probe specifically designed for EMC/RF applications that require high-speed measurements. It is particularly useful for mode-stirred measurements and when measuring pulse-shaped fields, such as those encountered when measuring radar pulses.

Pulsed RF Field Measurement | This model provides direct measurement of pulsed RF fields on all axes simultaneously, meeting the requirements of defense, aerospace, and automotive standards. It is capable of measuring pulsed RF fields at a maximum measurement speed of 2 million complete readings per second, making it a perfect fit for high-speed applications.

Real time data | The RadiSense® probe provides real-time (non buffered) data, always returning an actual measurement value whenever a new field strength value is requested. This avoids the use of buffered measurement values that were previously measured before the field strength was requested. The use of buffered (out dated) data may result in incorrect measurements value which may destabilize automatic leveling routines of the control software. This ensures accurate and reliable measurements in real-time.

Wide Frequency Range and Dynamic Range | The RadiSense® RSS3000 series probes are designed to provide accurate and reliable isotropic E-field strength measurements for a wide range of applications. In addition to their broad frequency range, the RSS3000 series probes also offer a dynamic range from 2 to 1000 V/m. This dynamic range enables accurate E-field strength measurements for a variety of applications, from industrial testing to research applications.

Modular Test System | The RadiSense® 3000 series probes are specifically designed to be used with the RadiCentre® modular test system. The RadiCentre® system is available in various models, including the 1-slot (RadiCentre® Slim), 2-slot (RadiCentre®), 7-slot (RadiCentre® Pro), and high-speed RadiCentre® 8 models. The RadiCentre® system provides a flexible and customizable solution for EMC testing, and when paired with the RadiSense® probes, offers accurate and reliable measurement capabilities for a range of applications. The probe interfaces with the laser power plug-in card (model LPS3001A) using FC/FSMA dual fiber links. The plug-in card supplies the laser power source to the sensor and facilitates bi-directional communication with the probe. The fiber optic extension cable between the probe and plug-in card is available in three standard lengths (10, 20, or 30 m), with other lengths available on request up to a maximum of 100 m.

Factory and User Calibration Data | The RadiSense® RSS3000 series probes are designed to provide accurate and reliable measurements during production and testing. To ensure accuracy and reliability, the probes are factory calibrated, with adjustment data stored inside the probe for parameters such as linearity and temperature. In addition to the factory calibration, the probes allow the user to store frequency response calibration data for the X-Y and Z axes as "user correction data" inside the probe. This feature eliminates the need for frequency-dependent corrections for individual axes in the EMC control software, increasing accuracy and ease-of-use.

RadiSense® Probes and EMC Test Software | The RadiSense® RSS3000 series probes are compatible with a range of EMC test software packages, including RadiMation® and RadiMation® Pro from Raditeq. These automated software packages provide comprehensive EMC testing and measurement capabilities, making it easy for users to collect and analyze data. In addition to Raditeq's EMC software, the RadiSense® probes can also be controlled with other popular EMC test software packages. This ensures that users have the flexibility to choose the software that best suits their needs, while still benefiting from the accuracy and reliability of the RadiSense® probes.

RadiSense® Ultra Specifications

Model	RSS3018U
Field measurement range	2 to 1000 V/m
Damage Level (Max.)	1500 V/m
Frequency range	20 MHz - 18 GHz
Resolution	0.01 V/m
Measurement speed [1] (x, y, z and E_{tot})	6 000 000 Samples/sec 2 000 000 Measurements/sec
Accuracy [2,3]	
Frequency response	-4 dB to +1.5 dB
Anisotropy [4]	±0.5 dB (20 MHz - 1 GHz) ±2 dB (1 GHz - 18 GHz)
Linearity	±1 dB ±0.5 V/m
Calibration [5]	ISO/IEC 17025 calibration
Environmental conditions	
Temperature range (operating)	0 ˚C to 40 ˚C (32 ˚F to 104 ˚F)
Relative humidity (operating)	10 % to 90 % (non-condensing)
Dimensions	
Shape of housing	stalk probe
Electrical measuring volume	1 cm^3
Total length including body	30 cm (11.81 in)
Number of antennas	3 dipoles
Optical	
Optical laser power	Max. 0,5W at aperture
Optical Wavelength	808 nm
Laser fiber connectors	FC/PC
Data fiber connectors	FSMA
Extension fibers	Maximum 100 m
Interlock	Hardware interlock connector
Fiber disconnect detection and shutdown	Safe under all conditions
Safety	
Security key	Software PIN code
Warranty [6]	Three years

1) Speed achievable in combination with the RadiCentre® Ultra 8- slots
2) The overall measurement accuracy of a field probe is primarily determined by the measurement uncertainty of the calibration laboratory. This calibration uncertainty varies significantly between different calibration labs. Therefore, the specified accuracy for the probe does not include the measurement uncertainty of the calibration laboratory but refers solely to the accuracy and stability of the probe itself. To determine the overall measurement uncertainty, the RSS (Root Sum Square) of the specified accuracy of the probe and the stated measurement uncertainty of the calibration report must be calculated.
3) The specified accuracy is stated as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%.
4) Anisotropy is the maximum deviation from the geometric mean as defined by IEEE 1309-2013
5) Calibration data may be stored inside the probe as “user correction data”
6) Standard 1 year warranty. An additional two (2) years warranty will be added after product registration. Registration can be done at: https://www.raditeq.com/product-registration

- Specifications measured after 30 minutes warm-up time.

Specifications are subject to change without notice

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