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Data Sheet



RadiSense[®] 40

Electric Field Probe

Models - RSS2040S | RSS2040H

Accurate

High Speed

Robust



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RadiSense® 40

Models - RSS2040S - RSS2040H

The high frequency E-field probe

Accurate High Speed Robust

Raditeq, the inventor of the first laser powered E-field probe in the world provides a full range of accurate and fast laser powered probes from 9 kHz to 40 GHz. With their long experience and extensive knowledge on laser power technology and field probe measurement technology, the RadiSense® probes provide the most reliable, high quality range of laser powered E-field probes in the market, with unprecedented measurement uncertainty.

Wide range - The RadiSense® 40 has a wide frequency range from 10 MHz to 40 GHz allowing accurate isotropic E field strength measurements within a range from 1 V/m to 1000 V/m. This wide range makes the RadiSense® 40 ideal for EMC Automotive, Military/Aerospace and CE marking applications.

Two versions - The RadiSense® 40 is available in two versions: The RSS2040S version provides the most accurate frequency response and isotropy, with a maximum measurement speed of 100 measurements/second (individual X-Y-Z axis + isotropic value). The model RSS2040H has an increased measurement speed of 1000 measurements/second at the cost of a slightly higher uncertainty, intended for applications where speed is more important, like mode stir / reverberation chambers.

Modular - The RadiSense® 40 is intended to be used in combination with the RadiCentre modular test system, which is available as a 1-slot (RadiCentre Slim), 2-slot (RadiCentre) or 7-slot (RadiCentre Pro). The probe is connected to the laser power plug-in card (model LPS2001B) with FC/ST dual fiber links. The plug-in card provides the laser power source and bi-directional communication to the probe. The fiber optic extension cable between the RadiSense® 40 probe and the LPS2001B plug-in card is standard available at three different lengths (10, 20 or 30 m). Other lengths to a maximum of 100 m are available on request.

Internal calibration data - The linearity adjustment data, by default is stored inside the probe. In addition, the frequency response calibration data of the X-Y-Z axis can be stored as user correction data inside the probe. As a result, there is no need to apply frequency dependent corrections for individual axis' in software anymore. This feature results in a high accuracy and ease-of-use.

Software support -The RadiSense® probes are supported by RadiMation and RadiMation Pro, automated EMC test and measurement software packages. The RadiSense® probes can also be controlled with most other brands of commercial EMC test software packages, like ETS Lindgren TILE and R&S EMC32/Elektra.

RadiSense® 40 Specifications

Model	RSS2040S	RSS2040H
Field measurement range	1 to 1000 V/m	
Damage Level (Max.)	2000 V/m	
Frequency range	10 MHz to 40 GHz	
Resolution	0.001 V/m < 0 - 10 V/m 0.01 V/m < 10 - 100 V/m 0.1 V/m > 100 - 1000 V/m	
Measurement speed (x, y, z and E _{tot})	100 measurements/s	1000 measurements/s
Accuracy ^(1,2)		
Frequency response	-4.0 dB + 2 dB (10 MHz - 20 MHz) ± 1 dB (20 MHz - 40 GHz)	-7.5 dB + 2 dB (10 MHz- 20 MHz) -3.5 dB + 2 dB (20 MHz - 7 GHz) -3.5 dB + 5 dB (7 GHz - 40 GHz)
Anisotropy ⁽³⁾	± 0.5 dB (10 MHz - 1 GHz) ± 1 dB (1 GHz - 10 GHz) ± 2 dB (10 GHz - 37.5 GHz) ± 2.5 dB (37.5 GHz - 40 GHz)	
Linearity	± 0.5 dB ± 0.5 V/m	
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	
Environmental conditions		
Temperature range (operating)	0 °C to 40 °C (32 °F to 104 °F)	
Relative humidity (operating)	10 % to 90 % RH (non-condensing)	
Calibration & Power consumption		
Factory adjustment data	Internally stored, ISO/IEC 17025 calibration	
Accredited calibration ⁽⁴⁾	Traceable, accredited calibration with certificate (optional)	
Optical LASER power	Max. 0.5 Watt at aperture @ 808 nm	
Fibre connection		
Laser fibre optic connector	FC/PC fibre	
Data fibre optic connector	ST/PC fibre	
Extension fibre length	Standard lengths 10 m, 20 m or 30 m. Maximum 100 m	
Safety		
Interlock	External interlock & closed loop safety system	
Warranty ⁽⁵⁾	Three years	

1) 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.

2) 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%

3) Anisotropy is the maximum deviation from the geometric mean as defined by IEEE 1309-2013

4) This calibration can be stored inside the probe as user correction data

5) Standard warranty is 1 year. After you register your new Raditeq product two (2) years of warranty will be added for free.

Registration can be done at: www.raditeq.com

- Specifications measured after 30 minutes warm-up time.



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