SM400K

- M1, M2
- Complex Signal Analyzer DC–400kHz
- Broadband measurements to 40GHz
- Dynamic Range >100 dB

Features

The SM400K is a high performance handheld analyzer designed for measuring complex or pulsed electric and magnetic fields up to 400kHz, and broadband measurements up to 40GHz.

By selecting the appropriate sensor heads for the desired field types, frequency ranges, and power levels, a single meter with removable sensor heads can replace multiple fixed-head dedicated field measuring meters. Refer to the SH-series sensor head specification sheets for the available sensor heads.

The Real Time operating mode function provides a quick view of the main indexes and the trend of the field in the time and frequency domains through repeated acquisitions generating up to 65,536 samples. These acquisitions may be triggered manually or automatically.

The Monitoring operation mode function allows for the signals to be recorded to the non-volatile internal memory of the instrument from the sensor head. This allows the user to download the data to the PC and extract the relevant information such as signal amplitude/frequency and indexes acquired during the monitoring period. This feature, together with the instrument's battery autonomy allow it to perform monitoring tasks with a span of 1kHz bandwidth for over 24 hours.

Typical Applications

- Energy
- Telecommunications
- Medical
- Railway
- Automotive
- Military

The SM400K sensor heads conform to the following standards:

- Directive 2013/35/EU of the European Parliament and of the Council of 26 June 2013 (20th individual Directive within the meaning of article 16(1) of Directive 89/391/EEC) and repealing directive 2004/40/EC.
- CEI EN 50500
- CEI EN 62233
- CEI EN 62311

ARwavewARe Software

The ARwavewARe software application allows the user to analyze the recorded data in both time domain and frequency domain and provides real time processing and post processing capabilities.

During the real-time processing, the oscilloscope function captures the signal in automatic or manual mode using a special trigger. The signals displayed can then be controlled or managed by way of a pan/zoom control.

The measurements are more easily interpreted by the use of a marker function which simultaneously provides the value of the level and frequency/time.

The same concept applies in the frequency domain where the user can insert the various masks of the curves required by the safety standards for the purpose of comparison.

The ARwavewARe software allows the selection of four indexes: the weighted peak WP10, the index IB50, II98 and IRSS.

The readings always reported include: The average RMS, the RMS average normalized with respect to the frequency limit predominant (IRMS), the maximum and minimum value, the frequency with the highest spectral content. (Fmax).

A special command allows the user to filter spectral content in the frequency domain, eliminating those that have a value of less than 10%, which is indicated below the red threshold line. This function is specifically requested by CEI EN 50500.

All information displayed can be exported either as images or as tabulated data.

The ARwavewARe software application can be installed on systems running Microsoft Windows XP, Windows Vista, Windows 7 and Windows 8, both 32 and 64 bit.

AR RF/Microwave Instrumentation
160 School House Rd
Souderton, PA 18964
215-723-8181

For an applications engineer call:800.933.8181

www.arworld.us

Specifications

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Frequency Range: 0-400kHz Complex Signal Analyzer; 40GHz Broadband measurements (Sensor head dependent; see SH Series specification sheets)

SPAN/Frequency Resolution:
1 Hz–1 kHz/0.075 Hz
0 Hz–20 kHz/1.5 Hz
0 Hz–400 kHz/30 Hz

Measurement:
Units: V/m, Tesla
Type (Isotropic, RSS): Actual, Max, Min, RMS, IRMS, F_{Max}
Type (X-Y-Z): Simultaneous acquisition of the X, Y, Z axes
Selectable Indexes: II98, WP10, IB50, IRSS

Memory: 10 monitoring sequences of 24,576 samples, 1024 single shot samples

Dynamic Range: >100dB

Interfaces:
Optical: Serial, full duplex
Sensor head Input: Plug-and-play automatic recognition, LEMO™ connector

GPS: Embedded on board

Software: ARwavewARe - compatibility: Windows XP, Windows Vista, Windows 7, Windows 8, Windows 10 (32-bit and 64-bit)

Battery: Li-ion pack

Operation Time: >24 hours

Charging Time: 3 hours

Battery Level: on ARwavewARe application or display

Temperature Range:
Operative: –10°C to +50°C
Storage: –20°C to +70°C
Charging: 0°C to +40°C

Humidity: 5% to 95% non-condensing

Size (H x W x D) without sensor head:
165 x 104 x 46 mm, 6.5 x 4.1 x 1.8 in

Weight (without sensor head): 840g, 29.6 oz

Export Classification: EAR99

Included Items:
- Rigid Case
- Optical to USB converter, P/N #10037327
- Fiber optic cable (10 meter), P/N #10037331
- AC/DC battery charger, P/N #10037329
- Calibration certificate for sensor head(s)

MODEL CONFIGURATIONS

SM400K	Meter only
SM400KM1	Meter and SHMD20K sensor head
SM400KM2	Meter and SHMD400K sensor head

Available Sensor Heads		
Model	**Frequency Range**	**Measurement Range**
Electric Field		
SHE100K6z5G	100 kHz-6.5 GHz	0.2-350 V/m
SHE400K40M	400 kHz-40 MHz	2-800 V/m
SHE100K18G	100 kHz-18 GHz	0.8-340 V/m
SHE3M40G	3 MHz-40 GHz	0.5-350 V/m
SHE5H400K	5 Hz-400 kHz	20 V/m-20 kV/m
Magnetic Field		
SHH300K30M	300 kHz-30 MHz	0.016-16 A/m
SHB5H400K	5 Hz-400 kHz	0.1 μT-1 mT
SHBD1K	0-1000 Hz	1 mT-15 T
SHBD1KA	0-1000 Hz	200 μT-600 mT
SHB5H20K	5 Hz-20 kHz	300 nT-16 mT
SHB5H400KA	5 Hz-400 kHz	300 nT-16 mT
Multiple Field Types		
SHMD20K*	0-20 kHz	See spec sheet
SHMD400K*	0-400 kHz	See spec sheet

*Available only in conjunction with meter purchase.