

## Datasheet: MMS-2A-ROT

### SENIS® True 3-axis Magnetic Field Mapper for Rotational Scanning

#### DESCRIPTION:

**The MMS-2A-ROT Magnetic Field Mapping System** is a sophisticated tool specifically designed for accurate and efficient mapping of cylindrical permanent magnets such as rotors, disks, or ring magnets, magnetized along radial or axial directions. With a field-sensitive volume of only 150x150x10 micrometers, the 3-axis Hall probe provides precise measurements of magnetic field components at a single point. The system includes a multifunction Data Acquisition Card for motor control and a non-magnetic multi-jaws scroll chuck for holding magnets under test with utmost precision. The easily customizable software produces detailed displays and numerical values of all magnetic field components and the total field. The system's accurate and fast measurement capabilities make it not only valuable for production environments, but also for all engineers and scientists who require high-speed and high-precision measurements for development, qualification, and production purposes.



**Figure 1:** True 3-axis MMS-2A-ROT Magnetic Field Mapper for Rotational Scanning

#### KEY FEATURES:

- Full 3D (Bx, By, Bz) mapping of magnetic fields using a true 3-axis Hall probe with high spatial resolution (150x10x150µm)
- Comprehensive analysis of multipole magnets, including pole width, zero crossing, SPD, TPD and spatial frequency analysis
- Mapping of both DC and AC magnetic fields up to 30ks/S with high magnetic field resolution and exceptional accuracy
- Fast scanning with adjustable speeds up to 180°/s
- Visualization of magnetic field data in 1D, 2D, and 3D for detailed analysis and understanding
- User-friendly software for easy operation and data analysis

## SPECIFICATIONS:

### MECHANICAL SPECIFICATIONS

Parameter		Values	
Scanning volume		Z-axis, vertical: 155 mm X-axis radial: 55 mm R-axis rotational: 360°	
Dimensions		240 x 340 x 500 mm	
Minimal distance of FSV to magnet surface		0.5mm	
Maximal scanning speed		180deg/s	
Positioning	Angular	Resolution 0.022°	Reproducibility 0.1°
	Linear	0.01mm	0.02mm
Centre of rotation detection		0.3 mm	

### MAGNETIC FIELD MEASUREMENT SPECIFICATIONS

Available measurement ranges	Standard: $\pm 100$ mT Optional: $\pm 500$ mT, 2T
Resolution	Better than 0.05% of the measurement range
Accuracy	Better than 1% of the measurement range, 2T better than 2%.
Sampling rate	30 kSamples/s, for 3-channels acquisition
Frequency Bandwidth	DC to 25 kHz (-3dB point)

### SYSTEM REQUIREMENTS

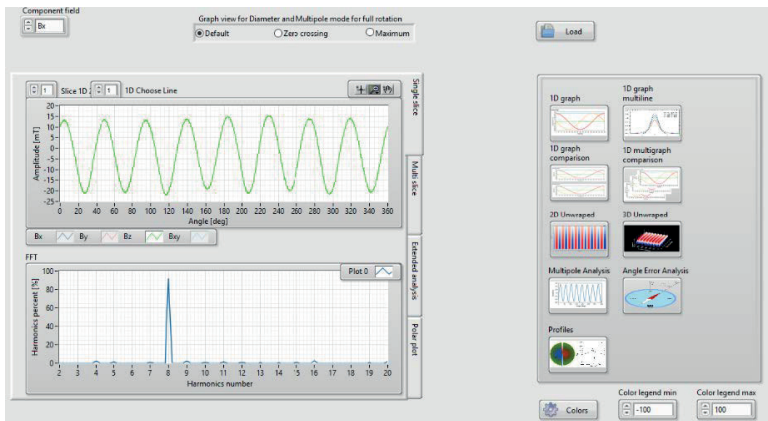
PC with Windows 7/10 and USB 2.0

## TYPICAL APPLICATIONS:

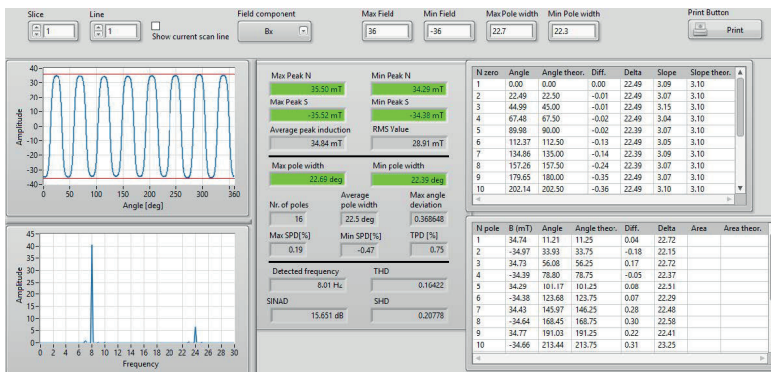
- Multipurpose for cylindrical shape magnets and magnet assemblies, especially permanent magnet rotors and multipole sensor magnets
- Quality assessment in for production, for assemblies such as single and multi-pole permanent magnets, rotors, encoders, etc.
- Development of magnet systems, design process improvement and verification
- Integration in semi-automatized production lines

## SOFTWARE:

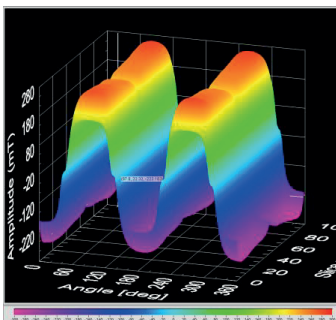
SENIS' mapper software provides real-time and off-line analysis and visualization of measured magnetic field data; it generates a 3D map of the magnetic field, counts number of poles, calculates pole width for multipole magnets and rotors. It detects zero crossings, measures magnetic angle, angle error and field homogeneity. It provides GOOD/BAD decisions, detects cracks in magnets and in non-magnetized blanks and much more.



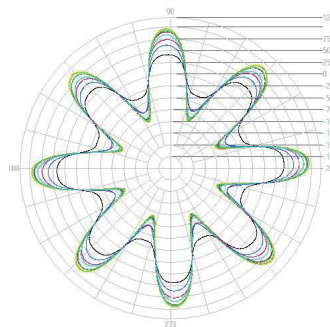
Measurement analysis



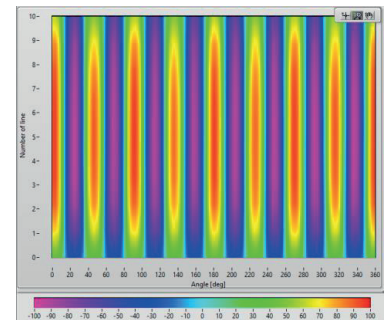
Manual control page



3D view



Polar plot view

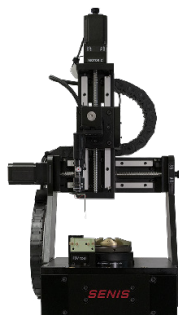


2D view

## Training and Support:

We provide installation and training by SENIS experts at your facility or on-line. Additional training can be arranged at your facility. We'll be happy to create a custom training plan to fit your needs.

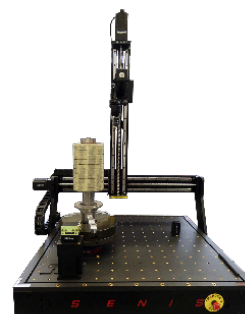
## Other Mapper Solutions available:



**MMS-1A-RS**



**M3D-2A-PORT**



**Customized**

- **MMS-1A-RS:** Standard Size Mapper designed to precisely measure the magnetic field generated by permanent or electro magnet devices.
- **M3D-2A-PORT:** Light and small portable mapper
- **Customized solutions**

## About SENIS AG:

**SENIS AG**, Switzerland is a leading company that provides smart and accurate sensors and instruments for magnetic field and electric current measurements. We engineer advanced solutions and ensure that our customers' systems are innovative, optimized and reliable. With our products we help control energy consumption, contribute to the optimization of green car platforms and systems, provide high accuracy for medical equipment and continuously contribute to the transition to a sustainable future. We collaborate with customers and universities, pushing innovation with cutting edge technologies.

