

**DESCRIPTION**

**M3D-2A-PORT**, the SENIS portable Magnetic Field Mapping System allows users to map the magnetic field of permanent magnets and electromagnets conveniently and accurately.

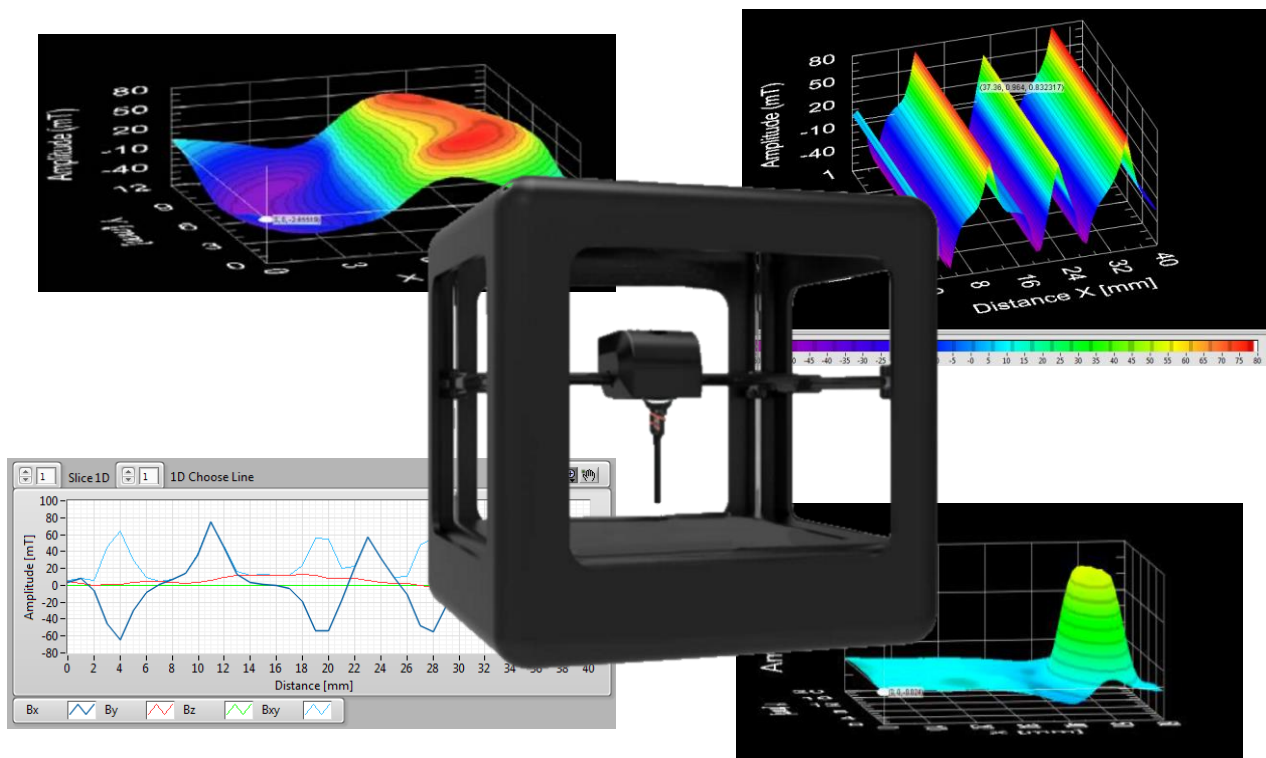
All three components of the magnetic field vector are simultaneously measured at virtually the same point within a volume of 150x150x10 μm. The unique integrated SENIS 3-axis Hall probe (single Si-chip) is embedded in a robust but flexible carbon fiber holder.

The system allows to switch between three different measurement ranges and is controlled by an easy-to-use Windows software. The visualization of the measured data can be fully customized. The map of the magnetic field can either be presented as color coded 1D, 2D or 3D display on a screen or saved as a table of numerical values of the magnetic field ( $B_x$ ,  $B_y$ ,  $B_z$ ,  $B_{xy}$ ,  $B_{tot}$ , etc.).

The SENIS M3D-2A-PORT system is ideal for customers that occasionally need to map magnetic fields and are looking for an accurate system at an attractive price.

**KEY FEATURES**

- 3D magnetic field mapping utilizing an integrated 3-axis Hall probe with very high spatial resolution (sensitive spot 150x150x10μm).
- Mapping of DC and AC magnetic fields (up to 5KHz)
- Measurement, analysis and visualization of all three components of the magnetic field,  $B_x$ ,  $B_y$  and  $B_z$  as well as  $B_{xy}$  (in-plane field distribution),  $B_{Total}$ ,  $B_{max}$ ,  $B_{min}$ ,  $B_{rms}$ , North-South pole.
- CSV output files with raw measurement data
- Measured data comparison feature.
- Visualization of the magnetic field homogeneity, i.e. the angle error.
- On-the-fly scanning (continuous mapping)
- Very high magnetic field resolution
- Very high measurement accuracy
- Selectable measurement range: 0.1T;0.5T;2T
- Mapper software running on Windows OS
- PC available as an option
- Attractive price level



**Figure 1: Magnetic Field Mapper M3D-2A-PORT and Measured Data Visualization**



**PRELIMINARY SYSTEM SPECIFICATION**

Parameter	Values
Dimensions (XxYxZ)	185 x 185 x 170 mm
Scanning Volume (XxYxZ)	0 ≤ Z ≤ 20 mm: 100 x 100 mm 20 ≤ Z ≤ 45 mm: 90 x 75 mm
Total system weight	Less than 2 kg
Minimal distance of Field Sensitive Volume to the magnet surface	0.5mm
Maximal scanning speed	~5 mm/s
Positioning resolution	0.1mm
Positioning repeatability	better than 0.3 mm
<b>Magnetic Field Measurement Specifications:</b>	
Magnetic field measurement range (selectable)	<ul style="list-style-type: none"> <li>• ± 100 mT</li> <li>• ± 500 mT</li> <li>• ± 2'000 mT</li> </ul>
Magnetic field resolution	better than 0.1% of the measurement range
Magnetic field accuracy	better than 1% of the measurement range
Interface	USB
Magnetic field Frequency Bandwidth	DC to 5 kHz (-3dB point)

**TYPICAL APPLICATIONS**

- Measurement of all three components of DC and AC magnetic field (Bx, By, Bz), magnetic angle measurement, inhomogeneity, peak and zero value detection of magnetic encoders, number of magnetic poles counting, pole width calculation
- Quality assessment tool in production, for assemblies such as single and multi-pole permanent magnets, etc.
- Development of magnet systems

