

# Senis Magnetic Field Transducer



## OVERVIEW

A Senis Magnetic Field Transducer can be used as part of Magnet Control of GMW Electromagnets. GMW uses the I1A series 1-axis Magnetic Field Transducers for this purpose.

Hall Probe A for I1A Magnetic Transducers is a very robust, single-chip fully integrated 1-axis Hall-Probe. It measures magnetic fields perpendicular to the probe plane ( $B_y$ ).

The Hall Probe A for I1A Magnetic Transducers contains a CMOS integrated circuit, three groups of mutually orthogonal Hall elements and a temperature sensor. The integrated Hall elements occupy very small area ( $150\mu\text{m} \times 150\mu\text{m}$ ), which provides very high spatial resolution of the probe.

The sensor chip is embedded in the probe package and connected to the CaH cable, which makes this probe both mechanically and electrically very robust. The chip is glued onto a reference ceramic plate suitable for an appropriate fixing of the probe.

The output of the Hall Probe are high-level analog voltages proportional to the measured transverse (Y) component of a magnetic flux density and a voltage proportional with the probe temperature.

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# Senis Magnetic Field Transducer General Specifications

## Electrical

Standard Measurement Ranges	$\pm 20\text{mT}$	$\pm 0.2\text{T}$	$\pm 2\text{T}$	$\pm 20\text{T}$
Total Measuring Accuracy	0.1%			
Nonlinearity	0.05%			
Temperature coefficient of sensitivity	$< \pm 100 \text{ ppm}/^\circ\text{C}$			
Long-term instability of sensitivity	$< 1\%$ over 10 years			
Frequency Bandwidth	0.5 kHz	1.0 kHz	2.5 kHz	

## Mechanical

Dimensions	X [mm]	Y [mm]	Z [mm]
Magnetic Field Sensitive Volume (MFSV)	0.15	0.01	0.15
Total Probe External Dimensions	5.0	2.3	16.5

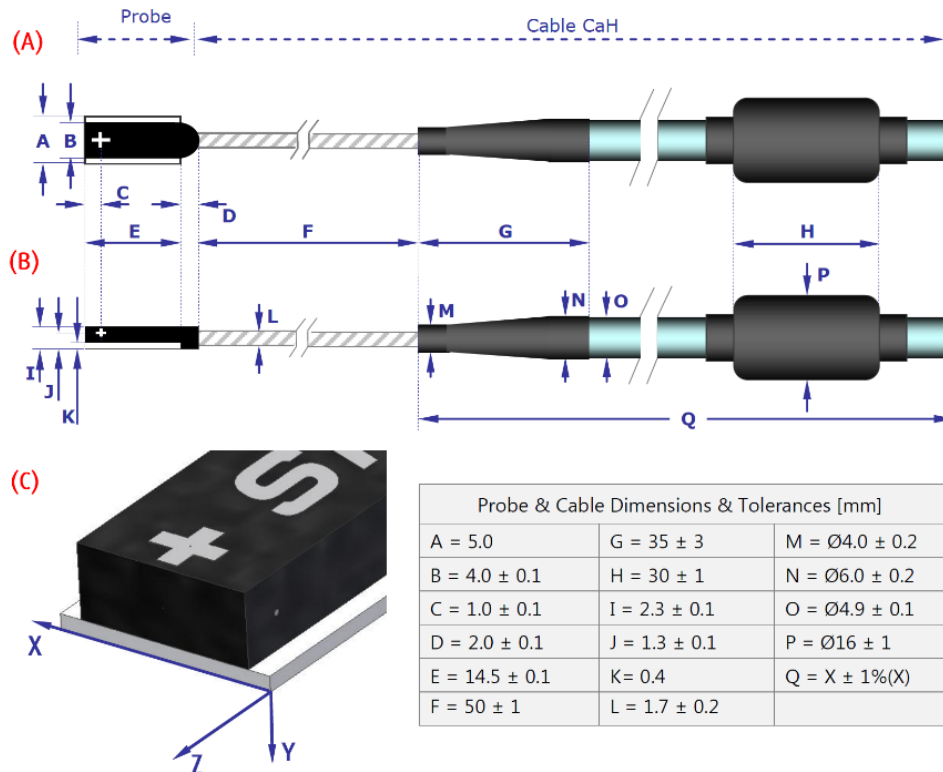


Figure 1. Dimensions of A Hall probe and cable: (A) Top view; (B) Side view; (C) Isometric view with reference Cartesian coordinate system of the probe head. Magnetic Field Sensitive Point (MFSP) is marked with the white cross.