

DESCRIPTION:

Hall Probe I for H3A Magnetic Transducers is a very robust hybrid 1-, 2-, or 3-axis Hall-Probe, with Hall sensors arranged along z-axis.

The chip is glued onto a reference ceramic plate suitable for an appropriate fixing of the probe.

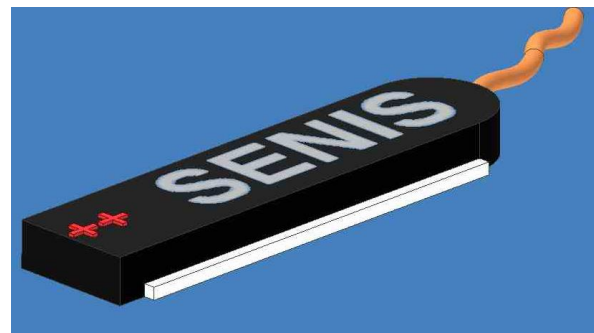
The Hall Probe I for H3A Magnetic Transducers integrates three high-resolution Hall sensors with a good angular accuracy (orthogonality error < 2°) of the three measurement axes of the probe; and a temperature sensor.

The probe chip is embedded in the probe package and connected to the CaH cable, which makes this probe both mechanically and electrically very robust.

The output of the Hall Probe are high-level analog voltages proportional with each of the measured components of a magnetic flux density and a voltage proportional with the probe temperature.

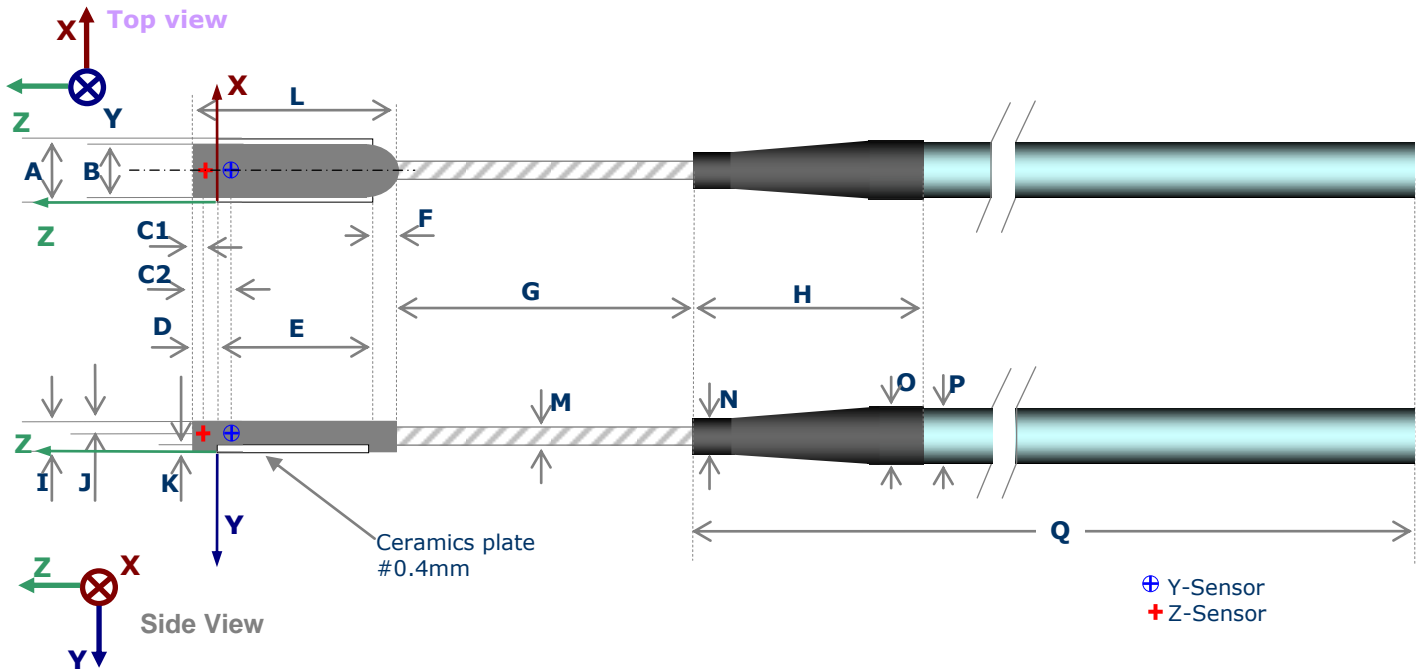
KEY FEATURES:

- **Very robust Hall Probe. The chip is glued onto a reference ceramic plate suitable for an appropriate fixing of the probe**
- **Hybrid 1-, 2-, 3-axis (Bx, By, Bz) Hall Probe, of which one, two, or three channels are used**
- **Ultra-low noise & offset fluctuation magnetic transducer, allowing very high resolution measurements**
- **The overall Magnetic Field Sensitive Volume MFSV depends on the Hall sensor arrangements on the Hall Probe (along x-, along z-axis, etc.)**
- **Very high linearity**
- **Very low planar Hall voltage**
- **A temperature sensor on the probe for temperature compensation**
- **The Hall Probe I for H3A Magnetic Transducers is consisting part (Module H) of the H3A Magnetic Field Transducer and Digital Teslameter**
- **Suitable for as 3-axis (03, XYZ), 2-axis (XY, XZ, YZ) and as 1-axis (0X, 0Y, 0Z) Hall Probe**



PROBE DIMENSIONS AND CHARACTERISTICS:

Depending on design, the probe itself can be as short as 15 mm and placed into a suitable probe holder 30 mm or longer. The sensor positions (mutual and with respect to the probe's head) remain the same in both configurations.



Probe & Cable Dimensions:

Probe Dimensions [mm]				Cable Dimensions [mm]	
A	5.0 ± 0.1	G	200	M	1.0 ± 0.2
B	4.0 ± 0.1	H	35 ± 3	N	4.0 ± 0.2
C1	0.55	I	1.5	O	6.0 ± 0.2
C2	1.75	J	0.75	P	5 ± 1
D	1.0	K	0.4	Q	10000 ± 1%
E	13.5	L	16.5		
F	2.0				

Figure 1: Dimensions of the I Hall probe (all measures are shown in mm). The red cross denotes Z-sensor and the blue circled-cross denotes the Y-sensor. The length of the reference ceramics can be extended to facilitate fixation and handling (shown by dotted ceramics part).

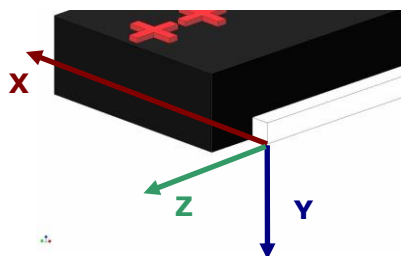


Figure 2: Reference Cartesian coordinate system of the I Hall probe.

Parameter	X(mm)	Y(mm)	Z(mm)
Dimensions			
▪ Magnetic field sensitive volume (MFSV)		150 x 150 x 1 μm	150 x 150 x 1 μm
▪ Position of the MFSV centre of Z-sensor	2.5	-0.75	0.45
▪ Position of the MFSV centre of Y-sensor	2.5	-0.75	-0.75
▪ Total probe external dimensions	5.0	1.5	16.5
Accuracy of positioning			
▪ Mutual angular accuracy of axes	Better than 2°(mutual orthogonality)		
▪ Angular accuracy of axes with respect to the reference surface	$\pm 2^\circ$, Determined during calibration		
General properties			
▪ Cable	Shielded, with a flexible thin part near the probe (see Fig.1)		

INSTALLATION MANUAL FOR I HALL PROBE

Although the I probe is very robust with respect to its size, it should be handled with special care. Considering that we deal with a high-precision device of very small dimensions, following precautions should help to avoid damage to the probe during installation and handling, and ensure that the device's accurate calibration remains preserved.

The mounting of the probe should be carried out by application of very low pressure to its head and thin wires. If the probe head is clamped, the user needs to make sure that the environment surface in contact with the reference plane of the probe is flat and covers as much of the probe reference surface as possible (see Fig. 3). Do not apply more force than required to hold the probe in its mounting.

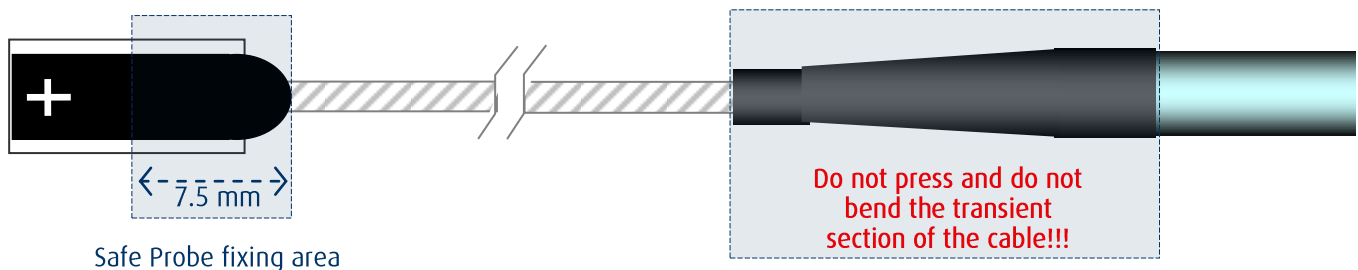


Figure 3. **Safe fixing area of the I Probe head**

In order to prevent rupture of the thin wires from the probe head, the user should fix and secure the probe cable in the proximity of the head. The thin wires of the flexible section of the probe need to be folded with care; repeated strong bending should be avoided.

The probe tip is fragile; it should not come into a hard mechanical contact with other objects! Take off the protective cap only if the MFSV (Magnetic Field Sensitive Volume) of the probe cannot be placed in the desired position.

Also, avoid any high pressure and bending of the transient section between the thin and the thick cables.