

LOW NOISE

3-Axis Hall Probe System

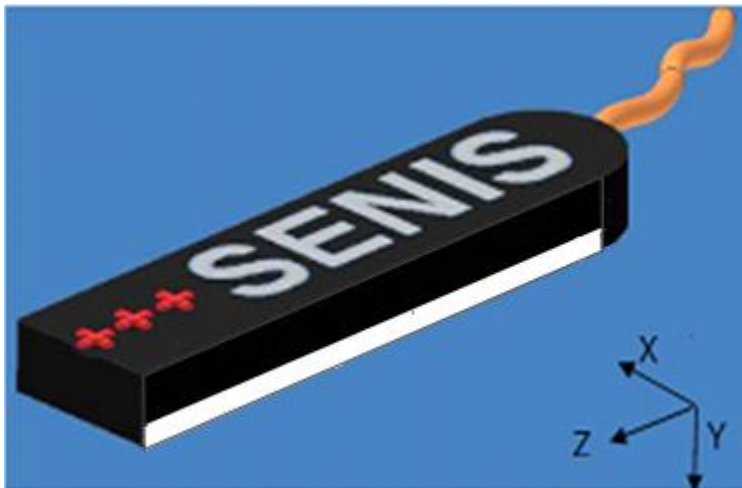


Figure 1. Hall Probe

Key Features	
▪ Probe's dimensions	2 x 3 x 16.5 mm ³
▪ Orthogonality of Axes	< ± 2° typ.

Description

SENIS's 03NxxC is a 3-Axis Hall-Probe System that gives an analogue voltage output for each of the three components of the measured magnetic flux density and for the probe temperature. The device contains three high-resolution Hall elements and a temperature sensor.

The sensors are embedded in the probe package and connected to the CaH. The probe is glued onto a reference ceramic plate, suitable for appropriate positioning and attaching the probe.

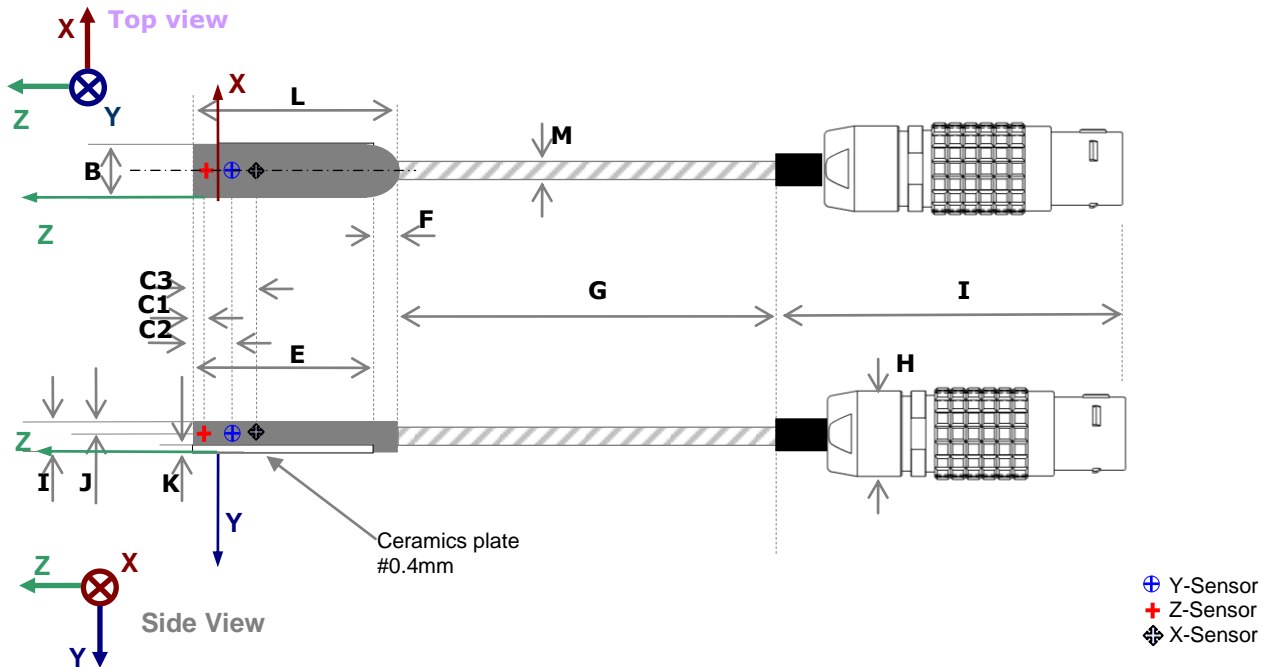
This system has a cable without shield to connect the probe to the electronics module.

03NxxC Probe system

- Low noise (allowing high-resolution measurements)
- Measurement of X, Y and Z magnetic field components with a high angular accuracy and high spatial resolution
- Virtually no planar Hall effect
- Negligible inductive loops
- The probe provides a temperature signal for an efficient compensation of temperature effects.
- CaH cable connection to the transducer's electronic module via connector.

Dimensional Drawing

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]	
B	3.0 ± 0.1	I	2
C1	0.5	J	1.15
C2	1.5	K	0.4
C3	3.5	L	16.5
E	15.0		
F	1.0		
		M	1.8
		G	8000
		H	14.0
		I	87

Figure 2. Dimensions of the SENIS 03NxxC Hall probe (all measures are displayed in mm). A red cross denotes Z-sensor, blue circled-cross denotes the Y-sensor, and grey beveled cross denotes X-sensor. The length of the reference ceramics can be extended to facilitate fixation and handling (shown by dotted ceramics part). Connector on right side is LEMO FGG.2B.314.CLAD92.

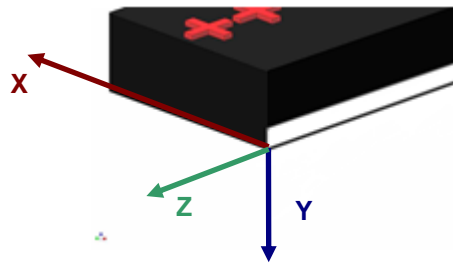


Figure 3. Reference Cartesian coordinate system of the SENIS 03NxxC Hall probe

Specifications

Parameter	X(mm)	Y(mm)	Z(mm)
Dimensions			
▪ Field sensitive volume (FSV) diameter	0.3	0.3	0.3
▪ Position of the FSV centre of Z-sensor	1.5	-1.15	-0.5
▪ Position of the FSV centre of Y-sensor	1.5	-1.15	-1.5
▪ Position of the FSV centre of X-sensor	1.5	-1.15	-3.5
▪ Total probe external dimensions	3.0	2	16.5
Positioning accuracy			
▪ Mutual angular accuracy of axes	Better than 2°(mutual orthogonality)		
▪ Angular accuracy of axes with respect to the reference surface	±2°, Determined during calibration		
General properties			
▪ Cable	Shielded, without outer PVC jacket		

Installation Manual for the 03NxxC probe

Although the 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, the following precautions should help to avoid damage of 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 applying very low pressure to its head and thin wires. If the probe’s 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’s reference surface as

possible. Do not apply more force than required to hold the probe while mounting. In order to prevent rupture of the thin wires from the probe’s 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; strong repeatable bending should be avoided.

Caution

The probe’s tip is fragile; avoid hard mechanical contacts with other objects! Take off the protective cap only if the FSV (Field Sensitive Volume) of the probe cannot be placed in the desired position.