The C-H3A-xx is a single-chip integrated 3-Axis Hall-Probe System. The core of the device represents a silicon sensor chip (based on CMOS technology), which contains Hall elements, biasing circuits, amplifiers, and a temperature sensor. The probe gives a high-level analogue voltage output for each of the three components of the measured magnetic flux density and for the chip temperature.

KEY FEATURES OF THE C-H3A-xx PROBE SYSTEM

The unique advantages of the probe include:

- Measurement of all three magnetic field components with a high angular accuracy and high spatial resolution;
- Virtually no planar Hall Effect;
- Negligible inductive loops, and
- The probe provides a temperature signal for an efficient compensation of temperature effects.

The sensor chip is embedded in the probe package and connected to the CaH cable, which makes the C-H3A-xx probe both mechanically and electrically robust (see Figure 1). The device is glued onto a reference ceramic plate suitable for an appropriate fixing of the probe.

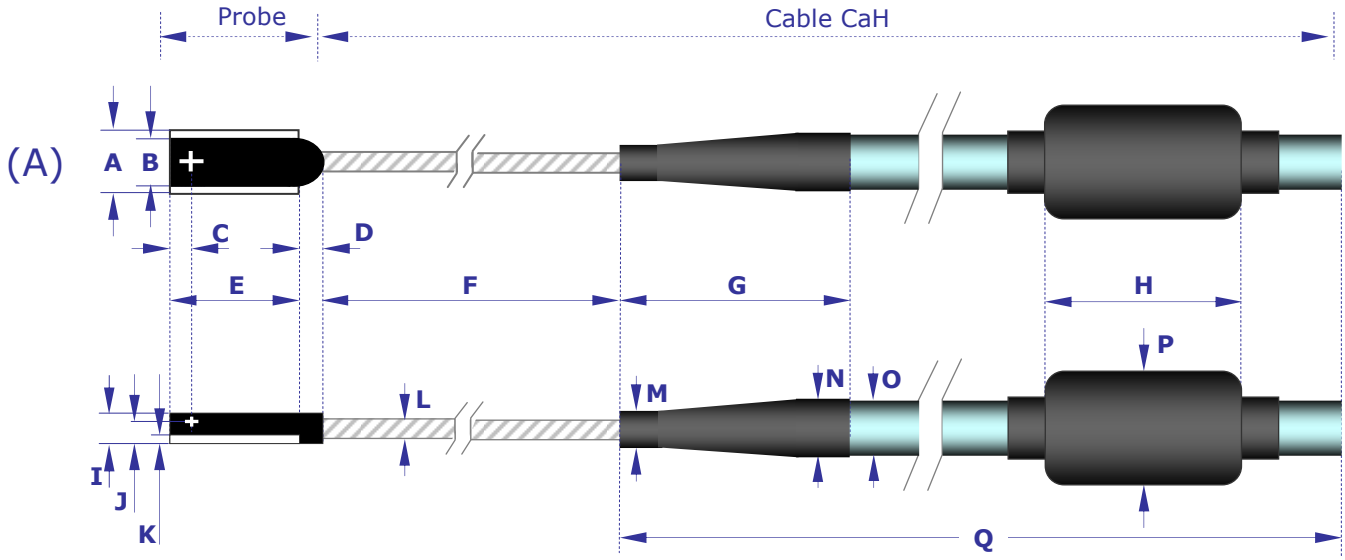
The C-H3A-xx Hall probe is available as a *Module H* of a SENIS Magnetic Field Transducer (see Transducer data-sheets on http://www.senis.ch/new-tranducer_data_sheets.html).

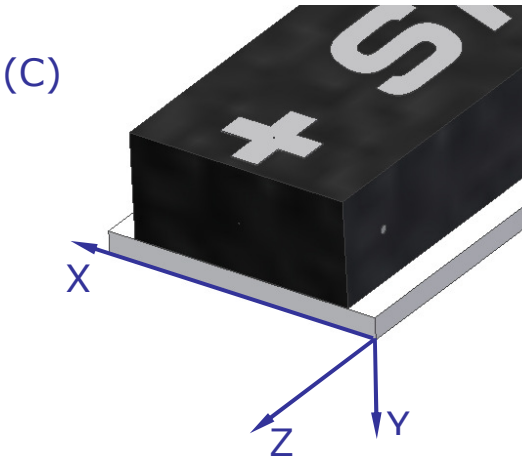
Two connection options are available:

- Detachable *CaH* cable connection to the transducer's electronic module (connector D-SUB25/F);
- Fixed (non-detachable) *CaH* cable connection to the transducer's electronic module.

The C-H3A-xx is also available as a separate unit for OEM customers.

PROBE DIMENSIONS & CHARACTERISTICS





Probe & Cable Dimensions & Tolerances [mm]		
A = 5.0	G = 35 ± 3	M = Ø4.0 ± 0.2
B = 4.0 ± 0.1	H = 30 ± 1	N = Ø6.0 ± 0.2
C = 1.0 ± 0.1	I = 2.3 ± 0.1	O = Ø4.9 ± 0.1
D = 2.0 ± 0.1	J = 1.3 ± 0.1	P = Ø16 ± 1
E = 14.5 ± 0.1	K= 0.4	Q = X ± 1%(X)[1)]
F = 50 ±1	L = 1.7 ± 0.2	

Figure 1: The dimensions of SENIS C-H3A-xx Hall probe and cable (Module H): (A) Top view; (B) Side view; (C) Isometric view with reference Cartesian coordinate system of the probe head. Field sensitive point (FSP) is marked with the white cross.

Dimension	X [mm]	Y [mm]	Z [mm]
Field sensitive volume (FSV)	0.15	0.01	0.15
Position of the center of FSV (corresponding to FSP, see Fig.1)	2.5 ± 0.1	-1.3 ± 0.1	-1.0 ± 0.1
Total Probe external dimensions	5.0 (ref. ceramics) 4.0 ± 0.1 (Probe head)	2.3 ± 0.1	16.5 ± 0.1
Angular accuracy of the axes	± 0.5° with respect to the reference surface		
CaH Cable	Shielded, with a flexible thin part near the probe and ferrite sleeve on the thicker part (see Fig. 1)		
[1)] Total length of the CaH cable:	• Standard: 2 m (Probe notation: C-H3A-2m) • Optional: xx m (C-H3A-XXm)) *Various lengths are available upon request.*		

INSTALLATION MANUAL FOR THE PROBE C-H3A-xx

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, 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. 2). Do not apply more force then required to hold the probe in its mounting.

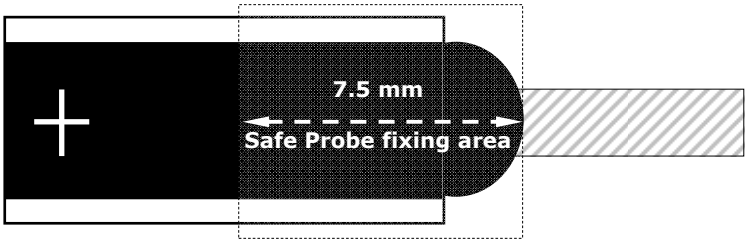


Figure 2: The safe fixing area of the C-H3A-xx Probe head

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.