

Magnetic Field Transducer Types - Comparison Chart

Attribute Type	Probe Technology	Number of Meas. Axes	Hall Probe Spatial Resolution	DC Field Resolution (over 0.01-10Hz, peak-to-peak value) @ Full Scale	New Hall Probes – maximum thickness	Accuracy	Digital Teslameter version	Frequency Bandwidth ANALOG MFT / DIGITAL Teslameter	Disturbance Immunity (inductive, el. static and Cable pickup) (NOTE 3)
F3A	Silicon, Fully Integrated 3D, Amplifier & Spinning-current on-chip	1, 2, 3	150 x 10 x 150 μm	100 μT @ 2T 700 μT @ 20T	<1.2mm – 0.25mm	0.10% (see below NOTE 1)	3MH3B	MFT: 25kHz DTM: 15kHz	● ● ● ● ●
F1A	Silicon, Fully Integrated 1D, Amplifier & Spinning-current on-chip	1	400 x 10 x 40 μm	60 μT @ 2T 500 μT @ 20T				MFT: 75kHz DTM: 15kHz	● ● ● ● ●
I1A	Silicon, Integrated 3D, where only Y axis is used; Hall & temp.	1	150 x 10 x 150 μm	< 10 μT @ 2T < 50 μT @ 20T				MFT: 5kHz DTM: 5kHz	● ● ●
I3C	Silicon, Integrated 3D, Hall & temp.; Spinning current in the electronics	1,2,3	100 x 10 x 100 μm	Y: 5-10 μT @ 2T X, Z: 20-30 μT @ 2T	1.5mm - 0.5mm	0.01% (see below NOTE 2)	3MH5B	4kHz	● ● ● ● ●
H3A	GaAs, Hybrid Hall & temp.; Spinning current in the electronics	1, 2, 3	150 x 1 x 150 μm	< 3 μT @ 2T				4kHz	● ● ● ● ●

NOTES:

1. The standard calibration cycle for the 3MH3B Teslameters providing 0.10% accuracy is 1 year.
2. For the 3MH5B Teslameters which will be used in the applications requiring 0.01% accuracy the recommendable recalibration period is 3 months.
3. Disturbance immunity quality: ●●●● EXCELLENT ●●●● VERY GOOD ●●● GOOD

Hall Probe Types - Comparison Chart

Attribute Sensor Type	Present Probe Package Type	New Probe Packages -under development	New Probe Materials	Thin Cable in Package	Flex Substrate in Package	Standard Temp. Range (+5°C, +50°C)	Extended Temp. Range (-40°C, +155°C)	Vacuum-optimized, hermetically closed
F3A	A, B, D, E, G, H, K	C (<1.2mm)	for C package: Alumina Ceramics (0.25mm) or: for U and M packages: Thin E-Strate (0.04mm)	R, L, G, H, K	C, U	R, L, G, H, K	C, U	
F1A								
I1A	A, G, H, K	U (0.25mm)		R, G, H, K		R, G, H, K		
I3C	Not available		Flex substrate (C, U and M)					In preparation within CTI project
H3A	I, J, N, P, S	M (0.50mm) only Y-axis is applied	a NASA- approved glue (C, U and M)	I, P, S	M	I P, S	M	

NEW HALL PROBES development:

- The standard probes will be manufactured with the thin cable in a shrink sleeve (ext. diam. of the cable <1mm). Exceptions: Ultra-thin U (0.25mm), thin M (0.50mm) and robust C (<1.2mm) probes, as well the probes for use on the high temperature range (up to +155°C) will apply flex substrate.
- New flex substrates (reduced thickness 0.05mm) to be designed and ordered.
- The present Probe packages B, E and N are already declared as obsolete. Also, the packages A, D and J will be declared as obsolete.
Package replacements: A → R, and E → L (the L will be modified probe G). The preliminary Spec's of the replacement probes to be defined soon.
- Glass tube probe (tube diameter <3mm), I3C, Z axis. Particularly will be aimed for NMR, but could be also used in a vacuum environments.
- Hermetically closed probes are in preparation within CTI project.