

Preliminary: Integrated B and Bdot Magnetic Field Sensor



Features

- Coincident Hall element and pickup loop integrated in probe.
- Cross-correlation of B and dB/dt measurements to give wide dynamic range for both
- B field direct measurement range +/- 0.25 T.
- Automatic temperature compensation and dynamic drift compensation.
- dB/dt direct measurement range +/- 200 Ts⁻¹.
- Interchangeable probes.
- Integrated digitization, fiber-optic data communications to host computer.

Applications

- Field measurement in DC and AC electromagnets.
- Feedback element for closed loop field control, for scanning and ramped magnet systems.

Specifications - H10 with MFP-2.5 probe

Hall probe	Sensitive area	0.508 mm square (0.258 mm ²)
	Full scale	+/-0.25 T (2500 Gauss) on x1 gain +/-0.025 T (250 Gauss) on x10 gain
	External accuracy	+/- 0.0002 T (2 Gauss)
	Linearity	0.1% maximum deviation over 0 to 80% of full scale
	Gain stability	< 0.2% maximum deviation over operating temperature range
	Zero stability	< 0.0002 T (2 Gauss) maximum deviation over Operating temperature range
	Noise	< 5e-5 T (0.5 Gauss) RMS on x1 gain < 5e-6 T (0.05 Gauss) RMS on x10 gain
	Bandwidth	DC to 6 kHz (-3dB)



Specifications - H10 with MFP-2.5 probe

Pickup loop	Sensitive area	150 mm ² approx on each of 5 turns
	Full scale	200 Ts ⁻¹ (2000 kGauss s ⁻¹) on x1 gain 20 Ts ⁻¹ (200 kGauss s ⁻¹) on x10 gain
	External accuracy	0.2% maximum deviation over full scale
	Linearity	0.1% maximum deviation over full scale
	Gain stability	< 0.2% maximum deviation over operating temperature range
	Noise	< 1e-5 Ts-1 (0.5 Gauss) RMS
	Bandwidth	DC to 50 kHz (-3dB)

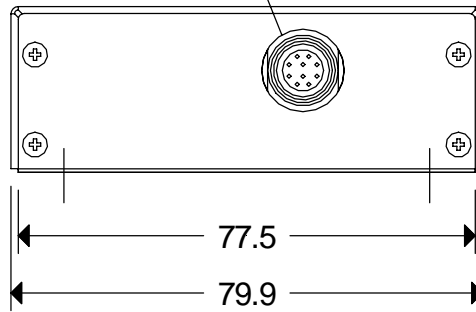
Digitization	Hall probe	16 bits over full span 50 kSa/s, with adjustable digital averaging
	Pickup loop	16 bits over full span 50 kSa/s, with adjustable digital averaging

Power input	+24V (+/- 2V) DC, 250mA maximum Probe is powered from the H10 control unit.
Controls	16 position rotary switch for address selection
Displays	Status LEDs (power, processor status, comms status)
Case Material	Stainless steel sheet (H10 control unit) Glass reinforced polycarbonate, polycarbonate, epoxy potting (probe)
Weight	0.25 kg (0.55 lb) (H10 control unit) 0.09 kg (0.20 lb) (MFP-2.5 probe)
Cable	Screened multi-way cable, 2.0 m long standard. Other lengths available on request.
Operating environment	15 to 35C, < 80% humidity, non-condensing, vibration < 0.2g all axes, 1 to 1000Hz Maximum magnetic field at probe +/- 5 T (not measured) Maximum magnetic field at H10 control unit +/- 2 T
Storage environment	0 to 50C, < 80% humidity, non-condensing, vibration < 2g all axes, 1 to 1000Hz

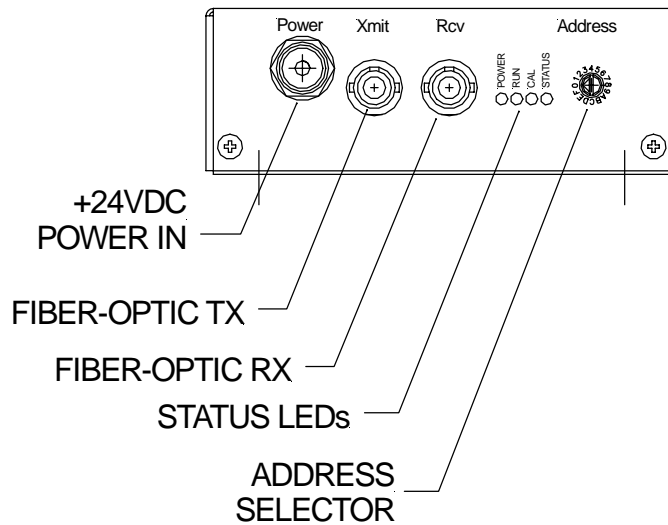


H10 control unit

HALL PROBE INPUT



Dims mm



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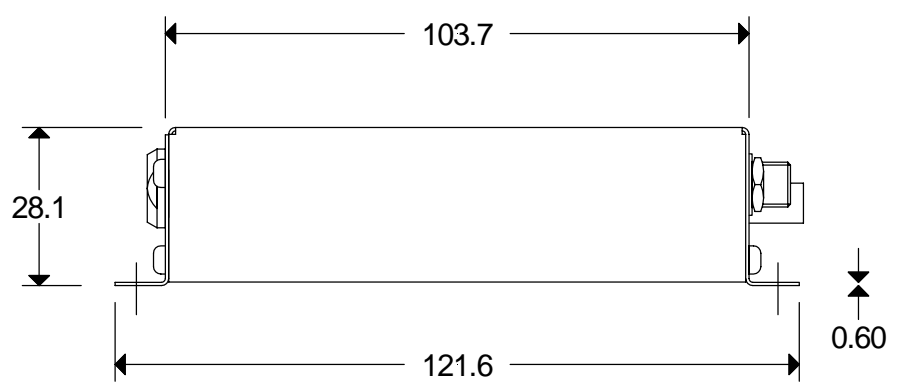
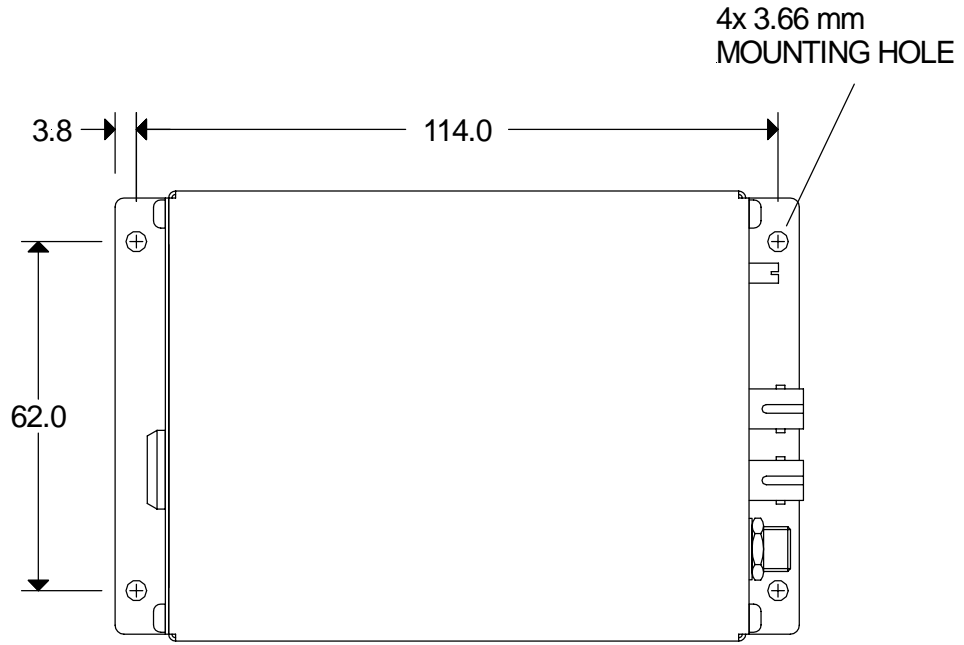
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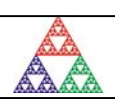
H10_DS_080721



H10 control unit



Dims mm



MFP-2.5 probe

