

The 3R100-2-2 is a three-axis, 1% accuracy magnetic field-to-voltage transducer with an analog output for each of the three components of the measured magnetic field. The transducer consists of two modules connected by a flexible cable (see Fig.1). The magnetic field sensitive module H contains a high quality 3-D Hall generator. The unique feature of this device is that it measures all three components of a magnetic field at a single point. To build up a complete measurement system, connect the module E with a simple power supply and three voltmeters.

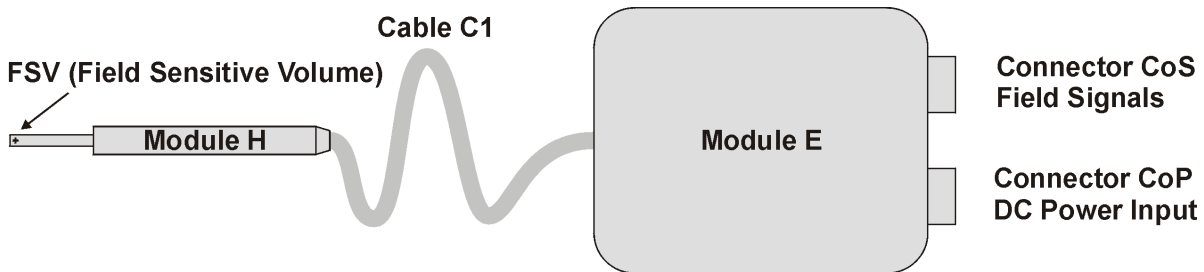


Figure 1: Structure of the Three-Axis Magnetic Hall Transducer 3R100-2-2

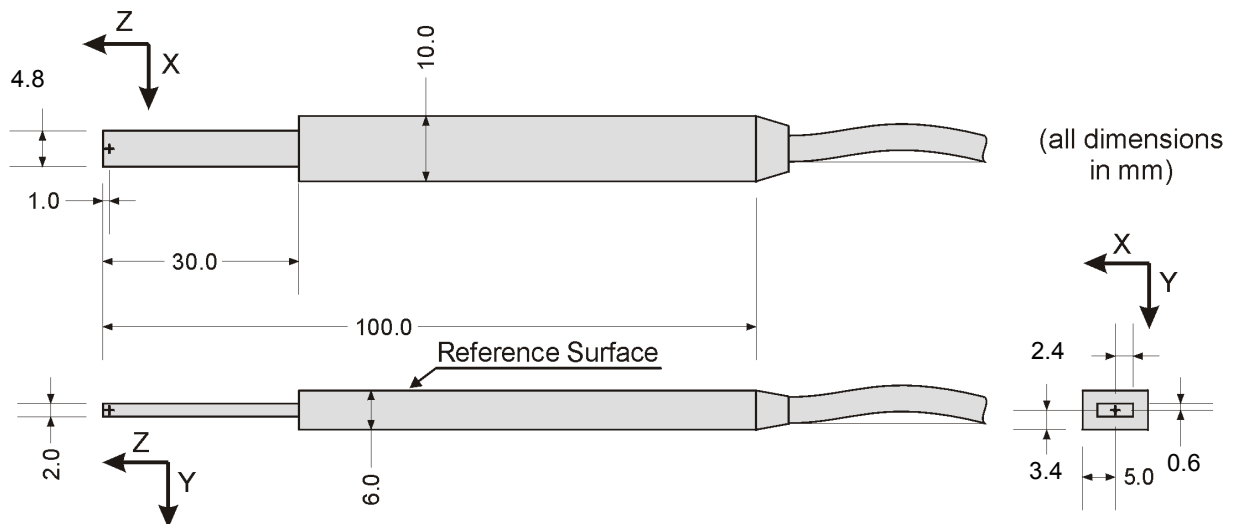


Figure 2: Probe dimensions of the Three-Axis Magnetic Hall Transducer 3R100-2-2 (Module H)

Specifications:

(Specifications are given at a nominal operating temperature and after a warm-up time of 10 minutes.)

Output signal for channels X, Y & Z

Maximum magnetic field	± 3 T
Linear magnetic field range	± 2 T (full scale)
Output voltage at full-scale (VB)	± 10.000 V, differential
Sensitivity to magnetic field	5 V/T (0.5mV/G)
Tolerances of sensitivity (B = 1T)	± 1 %
Non Linearity of output (B \leq 2T)	< 1 %
Long term instability	< 1 % over 10 years
Temp. coefficient of sensitivity (T= 23 \pm 10°C)	< 300 ppm /°C
Offset at B = 0T	< ± 3 mV
Temp. coefficient of offset	< 0.3 mV/°C
Output noise and ripple (peak) 0.01..100Hz	
for the x & z - axis:	< ± 50 μ V (0.1 Gauss)
for the y - axis:	< ± 150 μ V (0.3 Gauss)

Output resistance for all channels < 10 Ohm, short circuit proof

Frequency response

Typical Bandwidth for X-Axis (-3dB): 4.5kHz
Typical Bandwidth for Y-Axis (-3dB): 800Hz
Typical Bandwidth for Z-Axis (-3dB): 5kHz

Environmental

Temperature (operating) 10° to 50°C
(storage) -20° to 85°C
Electromagnetic
RF conducted disturbances IEC 801-6
Draft ENV50141
Radiated electromagnetic field ENV 50140
Pulse modulated electromagnetic field ENV 50140
Electrical fast transient burst IEC 1000-4-4, EN61000-4-4
Surge IEC 1000-4-5

Mechanical

Coordinates X, Y, Z
Field sensitive volume (FSV) 0.25 x 0.20 x 0.25 mm³
Sensitive point (the center of FSV) 2.75, 1.4, -1 mm
Angular accuracy of the axes ± 0.1° between axes
± 0.5° wrt the reference
± 1° wrt module H
Transducer Probe Holder 10 x 6 x 70 mm Phenolic fabric
Probe-to-Electronics cable permanently connected
2m standard length
Connector CoS DIN Kfv70, 7 pole, 60°. (Mating Plug, SV70)
field signal X+, X- Pins 6 and 5 respectively
field signal Y+, Y- Pins 4 and 3 respectively
field signal Z+, Z- Pins 2 and 1 respectively
signal common Pin 7
Connector CoP DIN SFV50, 5 pole. (Mating Plug, KV50)
power, +12V Pin 3
power, -12V Pin 1
power common Pin 2
Electronics module high mechanical strength, electrically shielded
aluminum case 95 W x 120 L x 37 H mm
with mounting provision.

Power

Voltage 12V, -12V nominal, ±10%.
Current ca. 50mA

Magnetic Induction Field (B) Units

1T = 10kG, 1μT = 10mG

Optional accessories:

Power supply S12-5 (±12 V) 110/220V
Zero gauss chamber ZG12