Bulk Indium BH-900 Series **Hall Sensors**

High Linearity

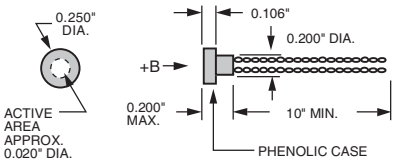
Description

F.W. Bell 900 Series Hall Sensors are high-performance units providing high linearity and broad field and temperatures ranges for a wide variety of magnetic field measurements. All units in the series are encapsulated in rugged, epoxy, sealed cases. A room temperature linearity error curve from -30 to +30 kG is supplied, indicating optimum operating conditions for each device. The models 900 and 921 are not calibrated above 30 kG.

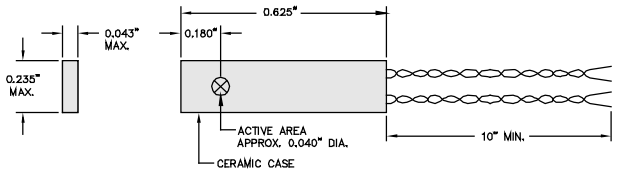
Mechanical Specifications

a. Leads
b. Material: AWG 34 Copper with Teflon Insulation (Model 921) or Polyurethane Insulation (Models 900 & 910).
c. Color Code
d. Control Current (I_c): Red ($+I_c$) Black ($-I_c$)
Hall Voltage (V_H): Blue ($+V_H$) Yellow ($-V_H$)
e. Polarity: With the magnetic field vector (+B) entering the top of the Hall plate and I_C entering the red lead, the positive Hall voltage will appear at the blue leads.

Axial Hall Sensors BHA-900, 910 & 921



Transverse Hall Sensors BHT-900, 910 & 921



Note: cross indicates tail of magnetic field vector

Models

a. BH-910 High Linearity
b. BH-921 Cryogenic Operation (1.5 to 350° k)
c. BH 921 & 900 Wide Dynamic Range

SPECIFICATIONS	UNITS	BHT-900	BHT-910	BHT-921	BHA-900	BHA-910	BHA-921
Input resistance, R_{in} (1) (4)	ohms	1.2 max.	1.2 max.	1.2 max.	1.5 max.	1.5 max.	1.5 max.
Output resistance, R_{out} (4)	ohms	1.2 max.	1.2 max. ohms	1.2 max.	1.5 max	1.5 max.	1.5 max.
Magnetic sensitivity, V_H (1) (4)	mV/kG	.55 to 1.1	.55 to 1.1	.55 to 1.1	.55 to 1.1	.55 to 1.1	.55 to 1.1
Max. resistive residual voltage, V_M @ B=0 (1)(4)	µV	75	75	75	75	75	75
Max. control current @ 25°C, static air	mA	300	300	300	300	300	300
Nominal control current, I_{cn}	mA	100	100	100	100	100	100
Max linearity error (-30 to +30 kG) (1)	±% of RDG	1	.1 (2)	1	1	.25	1
Max linearity error (-150 to +150 kG) (1)	±% of RDG	1.5	–	2	1.5	–	2
Typical linearity resistance R_{lin}	ohms	500	50 to 500	500	500	50 to 500	500
Mean temperature coefficient of V_H (-20°C to +80°C) (1)	PPM/ C	±50 max.	±50 max.	±100 max. (3)	±50 max.	±50 max.	±100 max.(3)
Mean temperature coefficient of resistance (-20°C to +80°C) (1)	+% /°C	0.15 max.	0.15 max.	0.6 max. (3)	0.15 max.	0.15 max.	0.6 max.(3)
Temperature dependence of resistive residual voltage (-20° C to +80° C) (1)	±µV/°C	0.1 max.	0.1 max.	0.1 max.(3)	0.1 max.	0.1 max.	0.1 max.(3)
Operating temperature range	°C	-40 to +100	-40 to +100	-269 to +100	-40 to +100	-40 to +100	-269 to +100

Notes: Due to continuous process improvement, specifications subject to change without notice.

(1) $I_C = I_{cn}$
(2) ±.1% linearity error (0-30 kG)
±.3% reversibility error
(3) Specification applies over operating temperature range (-269 to +100°C)
(4) T= 25°C

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F.W. BELL®

Rev. date 04/2003