

FW Bell Hall sensors

Bulk indium arsenide Hall sensors BH-200 Series

Nine models designed to meet the requirements of most magnetic field measurement applications



The BH-200 series of Hall effect magnetic field sensors consists of eight models designed to meet the requirements of most magnetic field measurement applications. Models in the BH-200 series are built in various configurations to measure axial, transverse, and tangential magnetic field components. Sensitivities range from 6 to 75 mV/kG with input and output resistance of several ohms.

Mechanical specifications

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 lead.	
Lead Material (as noted on page 3)	AWG 34 or AWG 36 copper with heavy polyurethane insulation.	
Color code control current (I_C)		
AWG 34	red (+ I_C)	black (- I_C)
AWG 36	neutral (+ I_C)	green (- I_C)
Hall voltage		
AWG 34	blue (+VH)	yellow (-VH)
AWG 36	red (+VH)	neutral (-VH)

Models

- BH-200 General purpose transverse
- BH-201 Ultra-thin, transverse
- BH-202 Small axial
- BH-203 General purpose, axial
- BH-204 Mini axial
- BH-205 Mini transverse
- BH-206 High sensitivity, low-cost transverse
- BH-209 Ultra-mini, transverse

OECD, LLC

Our product competencies and services:
Permanent Magnet Alternators | Permanent Magnet Generators | AC/DC Brushless Starter Generators | Aircraft Light Dimmers | Power Supplies | Magnetics | Sensors | Gaussmeters

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BH-200 Series

Electrical specifications*

Model	Units	BH-200	BH-201	BH-202	BH-203	BH-204	BH-205	BH-206	BH-209
Part number		177011	177012	177041	177042	177043	177013	177014	177016
Input resistance, R_{in}	Ω ms (max)	2.5	3	3	3	3	3	7	2.5
Output resistance, R_{out}	Ω ms (max)	2	3	3	3	3	3	5	3
Open circuit magnetic sensitivity, $V_{HOC}^{(1)}$	mV/kG ($\pm 2.5\%$)	15	12	10	10	11	12.5	60	6.75
Max resistive residual voltage, $V_M @ B=0^{(2)}$	$\pm \mu V$ (max)	100	250	100	100	200	100	500	100
Nominal control current, I_{CN}	mA	150	100	100	100	100	125	200	75
Max control current @25°C, static air	mA	250	150	150	250	150	200	250	150
Max Linearity error (0 to 10kG)	$\pm\%$ of ROG	1	1.5	1	1	1.5	1	2	1.5
Max Reversibility error of V_H (0 to 10kG)	$\pm\%$ of ROG	1	2.5	1	1	1	1	1.5	1
Mean temperature coefficient of V_{HOC} (-20°C to +80°C) ⁽²⁾	$\%/^{\circ}C$	-0.08	-0.08	-0.08	-0.08	-0.08	-0.08	-0.25	-0.05
Mean temperature coefficient of resistance (-20°C to +80°C) ⁽²⁾	$\%/^{\circ}C$.15	.15	.15	.15	.15	.15	.2	.15
Temperature dependence of resistive residual voltage D_T (-20°C to +80°C) ⁽²⁾	$\pm \mu V/^{\circ}C$ (max)	1	1	1	1	1	1	6	0.5
Inductive null constant, A^*	cm ²	.003	0.1	.002	.003	.002	.002	.006	.003
Operating temperature range (at rated I_{CN})	$^{\circ}C$	-40°C to +100°C	0°C to +50°C	-40°C to +100°C	-40°C to +100°C	-40°C to +100°C	-40°C to +100°C	-40°C to +100°C	-40°C to +100°C
Storage temperature range	$^{\circ}C$	-40°C to +105°C	-0°C to +75°C	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C

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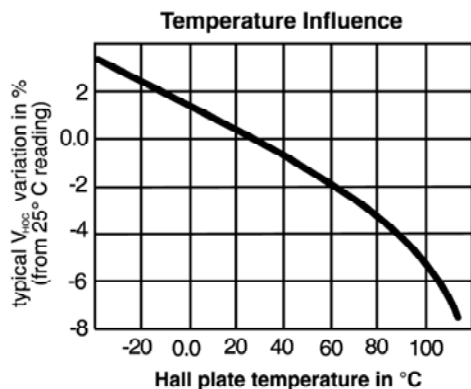
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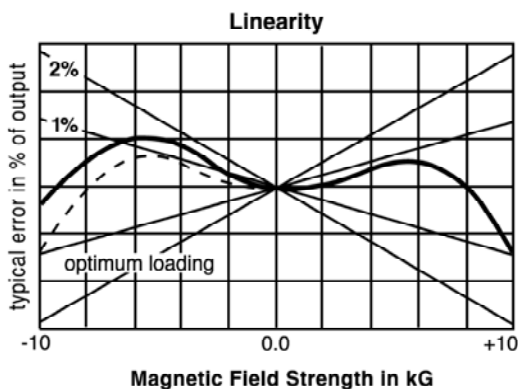
Bulk indium arsenide Hall Sensors BH-200 Series

Mechanical Dimensions

All dimensions are in inches (millimeters)

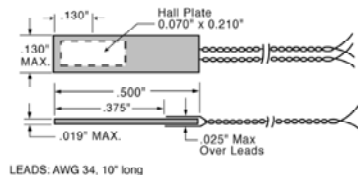


NOTE: For an unmounted Hall device supported by its leads, typical Hall plate temperature rise is 20° C for nominal control current.

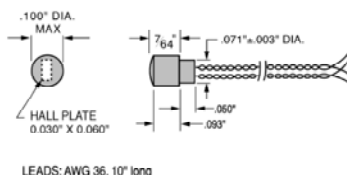


NOTE: The dotted line is a mirror image of the curve in the right hand plane and illustrates the reversibility error.

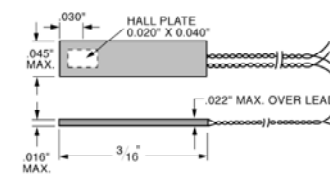
Model BH-200: General-Purpose Transverse



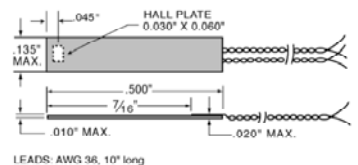
Model BH-204 Mini Axial



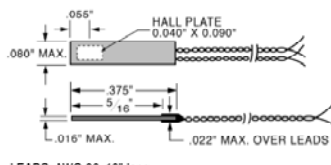
Model BH-209 Ultra-Mini Transverse



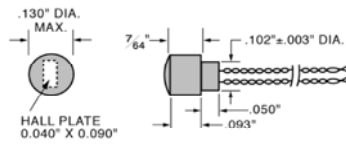
Model BH-201 Ultra-Thin Transverse



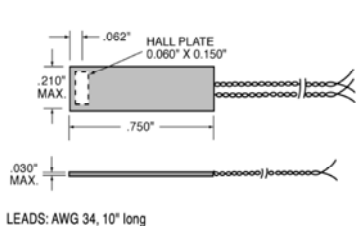
Model BH-205 Mini Transverse



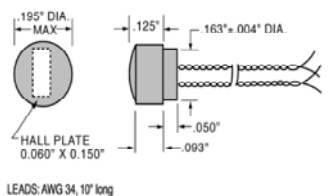
Model BH-202 Small Axial



Model BH-206 High Sensitivity Low Cost Transverse



Model BH-203 General-Purpose Axial



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