

Solid State Sensors
Magnets

MG Series

GENERAL INFORMATION

Several bar and ring magnets for actuating Hall effect sensors are available from MICRO SWITCH. Bar magnets, in various sizes and strengths, are ideal for sensors with unipolar magnetic characteristics. The ring magnets, with alternate South and North poles on the outside diameter, are especially useful for sensors with bipolar magnetic characteristics. (For more information on magnets and methods of magnet actuation, see Application Data.)



FEATURES

- Wide variety of sizes and shapes
- Wide variety of magnetic materials
- Threaded bushings available on some listings for easy installation

MOUNTING DIMENSIONS (for reference only)

101MG3 	101MG2L1 	101MG7 	
102MG11 	102MG15 	103MG5 	103MG6
103MG8 	105MG5R2 	106MG10 	107MG1

Analog

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Magnets

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MG ORDER GUIDE — BAR MAGNETS

Catalog Listings	101MG3	101MG7*	101MG2L1*	102MG11*	102MG15*	103MG5**	103MG6***	103MG8	106MG10*	107MG1
Outside Diameter	6,3 0.25	6,3 0.25	3,2 0.125	7,9 0.31	7,9 0.31	2,0 .078	2,0 .080	5,6 .220	10,2 0.40	15/32-32 UNS21
Length	31,7 1.25	6,3 0.25	9,5 0.375	17,0 0.67	12,2 .48	2,0 .078	3,1 .120	5,6 .220	23,6 0.93	25,4 1.00

* Bulk packaging in 100 unit lots. Add **-BP** to catalog listing.

** 125 pieces per tube. Poles not marked.

*** 75 pieces per tube. Poles not marked.

MG ORDER GUIDE — RING MAGNETS

Catalog Listings	105MG5R2	105MG5R4
Outside Diameter	15,9 0.625	15,9 0.625
# Pole Pairs	2	4

MAGNET SELECTION GUIDE

This guide is designed to aid in determining the best magnet for use with a Hall effect sensor. There are several factors to consider when choosing a magnet. The most important is gap distances. There must be adequate magnetic gauss to operate the sensor at the correct distance. By using the maximum operate magnetic gauss characteristics (see sensor order guides), you can determine which magnet(s) will operate the sensor. Other important factors include temperature range and the physical environment of the application.

Material and Process	Physical Strength	Temperature Range*	Magnetic Shock Resistance	Resistance To Demagnetization	Gap Distance** & Gauss Level @ 25°C†						Catalog Listing
					0,25 .010	0,76 .030	1,27 .050	2,54 .100	3,81 .150	5,08 .200	
Alnico V Cast	Good	–40 to 300°C	Poor	Fair	1460	1320	1170	810	575	420	101MG3
Alnico VIII Sintered	Good	–40 to 250°C –40 to 140°C –40 to 140°C	Good	Excellent	1050	900	755	470	295	195	101MG7 102MG11 102MG15 107MG1***
					7800	7800	7800	750	550	375	
Alnico VI Sintered	Good	–40 to 250°C	Good	Good	730	550	410	205	115	75	101MG2L1
Indox 1 Pressed	Good	0 to 100°C	Good	Excellent	700	520	375	175	85	45	105MG5R2 105MG5R4
Rare Earth Pressed	Poor	–40 to 250°C	Good	Excellent	1110	630	365	120	55	25	103MG5
					2900	1400	850	260	130	70	103MG6
					2620	2100	1600	940	550	350	103MG8
					2620	2100	1600	940	550	350	106MG10

* Magnet will not be damaged over temperature range.

** Gap distance from sensing surface.

*** Measurement device saturated @ 800 gauss.

†milliTesla = Gauss × 10⁻¹