P1800
ZERO SPEED SENSOR, MAGNET ACTUATED
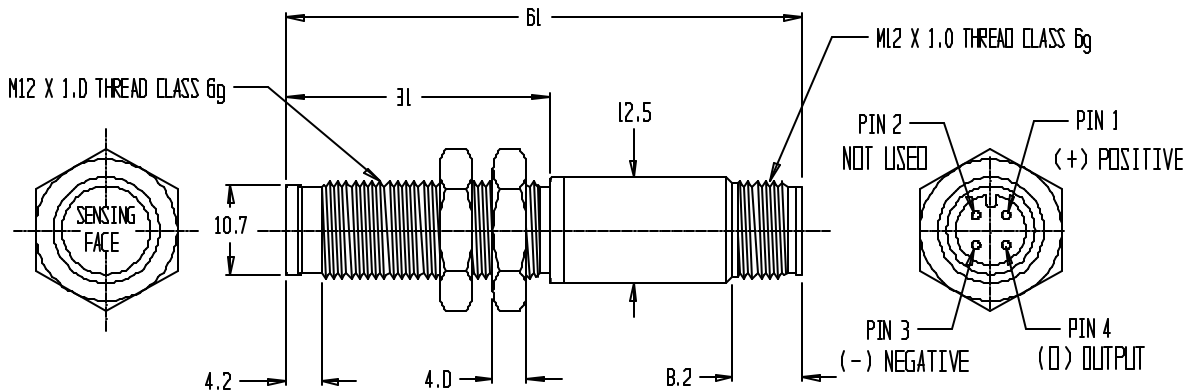
Sensor Description:

The P1000 Series sensor is a non-contact, solid state device that is magnetically actuated for a variety of speed applications. The P1800 Series sensor is produced to a tight magnetic tolerance around the zero Gauss level to provide a 50% duty cycle over the operating full frequency range. With the additional advantage of low hysteresis, this device is ideal for operation with high-density multi-pole magnet target wheels and large air gap applications, along with providing the position repeatability needs for motor commutation applications. It is capable of reading speeds from zero to 100 kHz.

Features:

- Digital Output Signal
- 4-24 VDC Operation Range
- Current Sinking Output
- 20ma Continuous Operation

- Reverse Polarity Protection
- 0 to 100 kHz Operation
- Temperature Compensated
- Operation from –40°C to 125°C
- Nickel plated, Brass housing

PART NUMBER   SENSOR DESCRIPTION
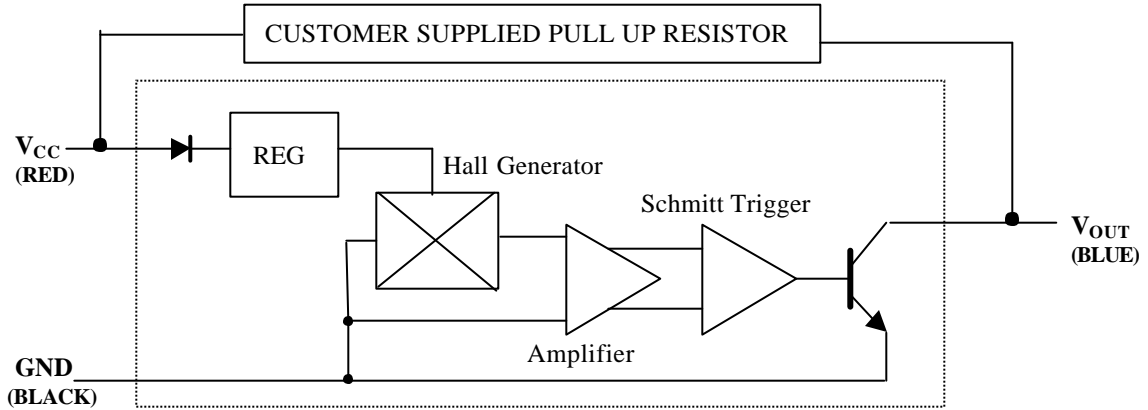
P1800   Integral DC Mini Change Connector

(Contact the factory for other options)

Functional Block Diagram

NOTE: A pull-up resistor is required on the open collector output to establish a quiescent voltage level. The pull-up resistor also provides faster rise times and improves noise immunity. Contact the factory for application assistance.

Magnetic Characteristics: (V_{CC} = 4.5 to 24 VDC @ 25°C)

Characteristics	Symbol	Limits			Units
		Min.	Typ.	Max.	
Operating Point	B_{OP}	15	50	75	Gauss
Release Point	B_{RP}	-75	-50	-15	Gauss
Hysteresis	B_{HYS}	30	100	150	Gauss
Maximum Field Exposure	B_{MAX}	-800		800	Gauss
Active Element Depth	D_P			0.058	Inch

Electrical Characteristics: (T = -40 to 125 °C)

Characteristics	Symbol	Test Condition	Limits			Units
			Min.	Typ.	Max.	
Supply Voltage	V_{CC}	Operating	4.5		24	VDC
Supply Current	I_S	V_{CC} = 4.5V; Output Open		4.7	8.0	mA
Output Current	I_{OUT}	V_{CC} = 4.5V; Output Open			20	mA
Output Saturation Voltage	$V_{OUT(SAT)}$	B > B_{OP}; I_{OUT} = 20ma		150	400	mV
Output Leakage Current	I_{OFF}	B < B_{RP}; V_{OUT} = 24V		4.7	8.0	uA
Rise/Fall Time	t_r / t_f	R_L = 1.2k; C_L <33pF			1	us

P H : 1 - 8 8 8 - 8 0 1 - 1 4 2 2 or (2 6 0) 4 3 2 – 9 6 6 4 • F A X 2 6 0 - 4 3 2 – 9 9 6 7 • w w w . p h o e n i x a m e r i c a . c o m

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