

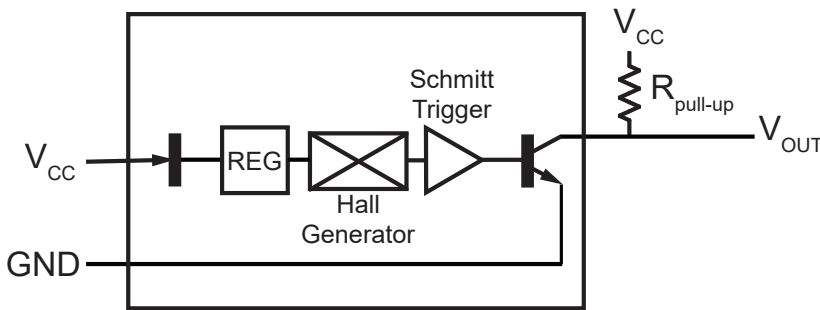
Features and Benefits

- Magnet actuated for a variety of proximity sensing applications
- Non-contact, solid state device.
- Reads speeds 0 to 100 kHz.
- Digital output signal
- 4 to 24 VDC operation range
- Current sinking output
- 20ma continuous operation
- Reverse polarity protection
- Temperature compensated
- Operates from -40°C to 125°C
- Nickel-plated brass housing



Sensor

Electrical Circuit



Output channels require customer supplied pull-up resistors unless internal pull-up option is selected. See Table 1.1 for recommended resistor values.

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.

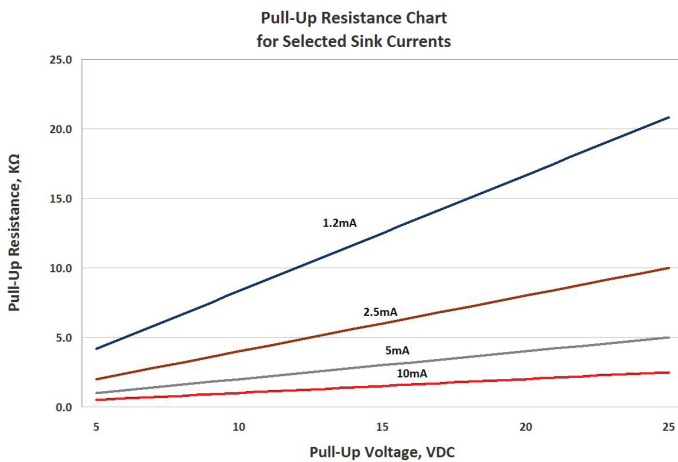


Table 1.1

Recommended Pull-Up Resistor Values			
Current, I _{sink}	Supply Voltage		
	5	12	24
1.2 mA	4.3K	10.0K	20.0K
2.5 mA	2.0K	4.7K	10.0K
5 mA	1.0K	2.4K	4.7K
10 mA	510Ω	1.2K	2.4K

I_{sink} is application dependent. It is recommended to use the lowest possible sink current when selecting a pull-up resistor.

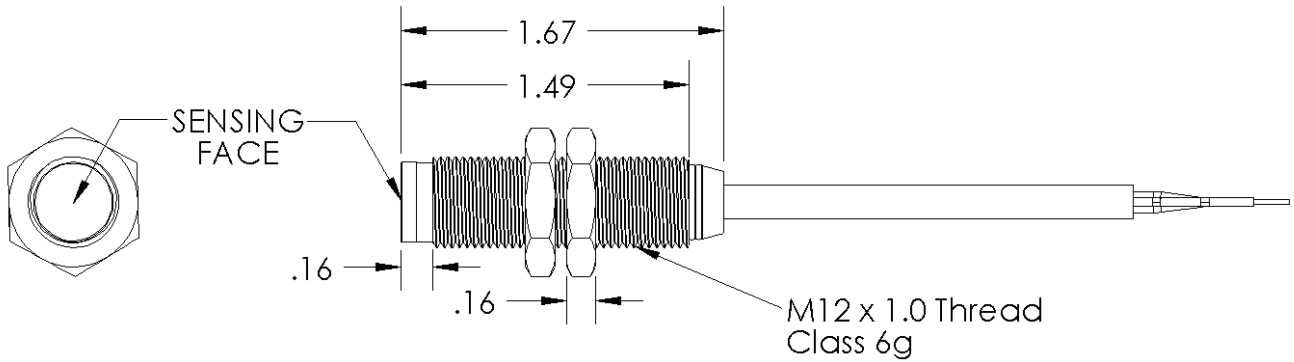
Theoretical Pull-Up Resistor Calculation: $R_{pullup} = \frac{V_{supply}}{I_{sink}}$

Resistance values based on closest standard 5% resistor values

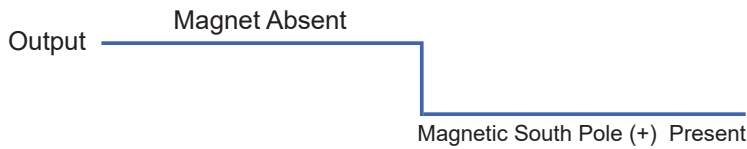
Absolute Maximum I_{sink} = 20mA

4.7 K pull-up is available as a standard option. If an alternative pull-up value is preferred, contact sales@phoenixamerica.com.

Physical Outline



Output Waveforms



Magnetic Characteristics ($V_{CC} = 4.5$ to 24 VDC @ $25^{\circ}C$)

Table 2.1

Characteristic	Symbol	Limits			
		Min.	Typ.	Max.	Units
Operating Point	B_{OP}	140	150	160	Gauss
Release Point	B_{RP}	40	50	110	Gauss
Hysteresis	B_{HYS}	30	100	120	Gauss
Maximum Field Exposure	B_{MAX}	-800		800	Gauss
Active Element Depth	D_p			0.058	Inch

Electrical Characteristics ($T = -40$ to $125^{\circ}C$)

Table 2.2

Characteristic	Symbol	Test Condition	Limits			
			Min.	Typ.	Max.	Units
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	μA
Rise/Fall Time	t_r / t_f	$R_L = 1.2k$; $C_L < 33pF$			1	μs

Wiring

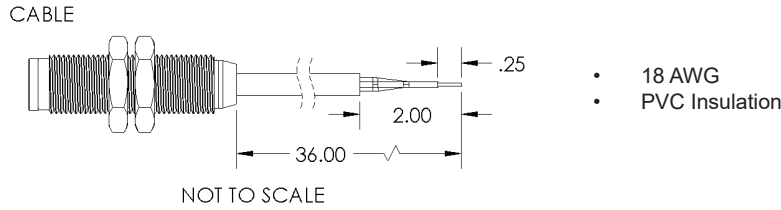


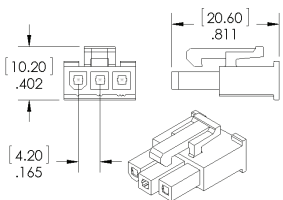
Table 3.1

Standard Wiring Color Code	
	Cable
Vcc	Brown
Gnd	Blue
Output	Black

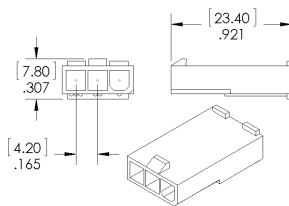
Flying Leads Not Available

Connector Options

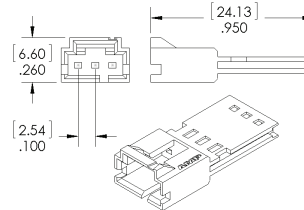
Molex Mini-Fit Jr. (Male)



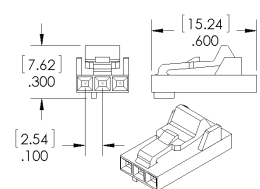
Molex Mini-Fit Jr. (Female)



TE AmpModu MTE (Male)



TE AmpModu MTE (Female)



Need a different connector? Contact sales@phoenixamerica.com.

Part Number Description

Series	Output Type	Wiring	Length (Meters)	Connector
P9	C Open Collector (default) P Open Collector with Internal Pull-Up (4.7K)	C Cable (default)	A .5 (19.685 in) B 0.914 (36 in) (default) C 1 (39.370 in) D 2 (78.740 in)	X None (default) A1 TE AmpModu MTE (Male) A2 TE AmpModu MTE (Female) M1 Molex Mini-Fit Jr. (Male) M2 Molex Mini-Fit Jr. (Female)

Example: P9-C-C-B-X