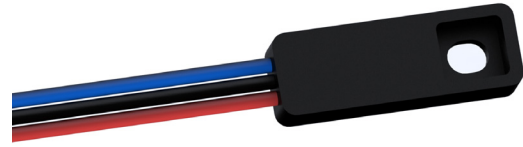


Features and Benefits

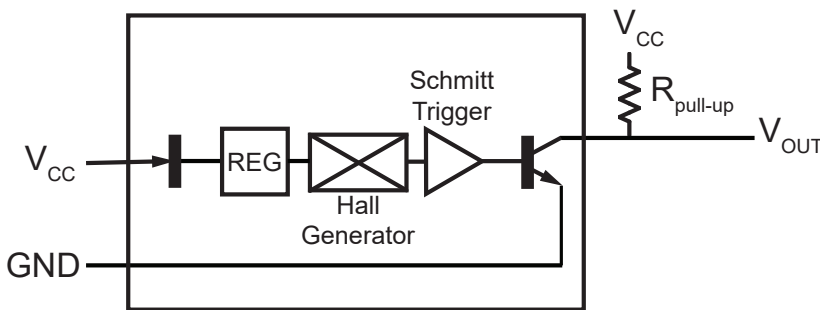
- Non-contact, solid state device.
- Tight magnetic tolerance around zero Gauss level provides 50% duty cycle.
- Reads speeds 0 to 100 kHz.
- Digital output signal
- 4 to 24 VDC operation range
- Current sinking output
- 20ma continuous operation
- Reverse polarity protection
- Temperature compensated
- Operates from -40°C to 125°C
- Rugged thermoplastic housing



Sensor

Wire color order varies with part configuration

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.

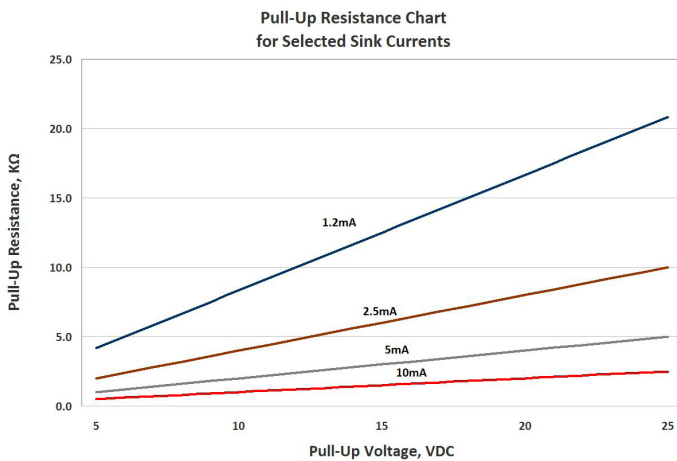


Table 1.1

| 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.

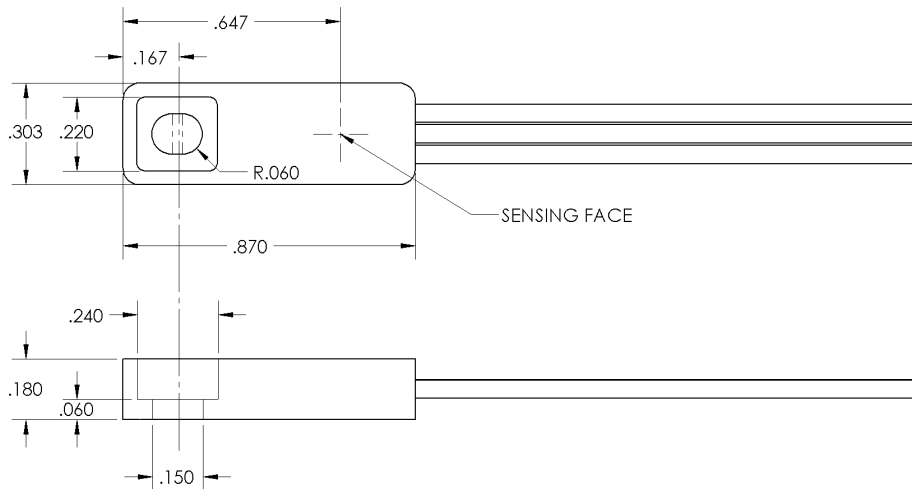
Theoretical Pull-Up Resistor Calculation: $R_{pullup} = \frac{V_{supply}}{I_{sink}}$

Resistance values based on closest standard 5% resistor values

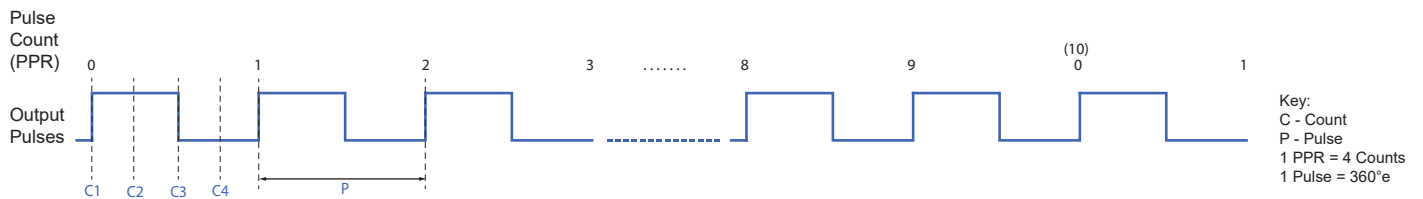
Absolute Maximum I_{sink} = 20mA

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

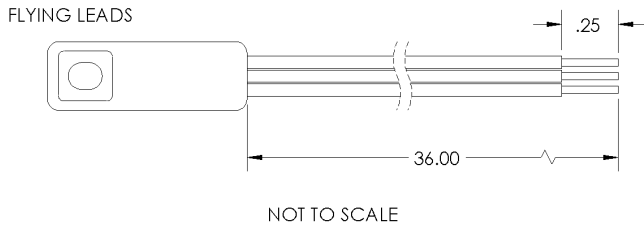
| Characteristic | Symbol | Limits | | | Units |
|------------------------|-----------|--------|------|-------|-------|
| | | Min. | Typ. | Max. | |
| Operating Point | B_{OP} | 15 | 50 | 75 | Gauss |
| Release Point | B_{RP} | -75 | -50 | -15 | Gauss |
| Hysteresis | B_{HYS} | 30 | 100 | 150 | Gauss |
| Maximum Field Exposure | B_{MAX} | -800 | | 800 | Gauss |
| Active Element Depth | D_p | | | 0.060 | 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



- 26 AWG
- PVC Insulation

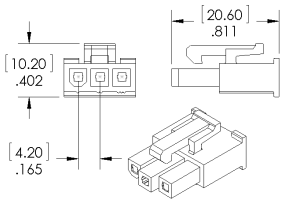
Table 3.1

| Standard Wiring Color Code | |
|----------------------------|--------------|
| | Flying Leads |
| Vcc | Red |
| Gnd | Black |
| Output | Blue |

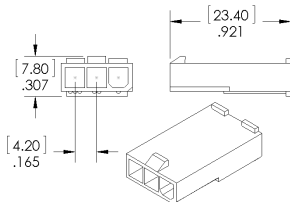
No Cable Available

Connector Options

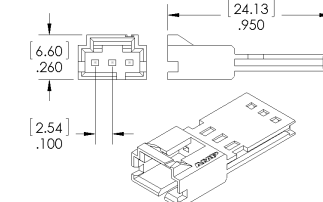
Molex Mini-Fit Jr. (Male)



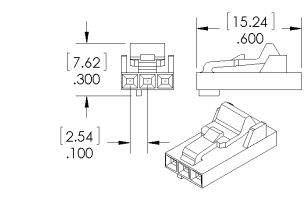
Molex Mini-Fit Jr. (Female)



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 |
|--------|---|---------------------------------|---|---|
| S3 | C Open Collector (default) P Open Collector with Internal Pull-Up (4.7K) | F Flying Leads (default) | A .5 (19.685") B 0.914 (36") (default) C 1 (39.370") D 2 (78.740") | 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: S3-C-F-B-X