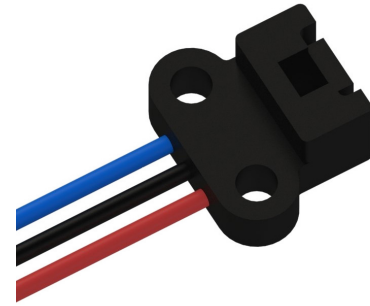


**Features and Benefits**

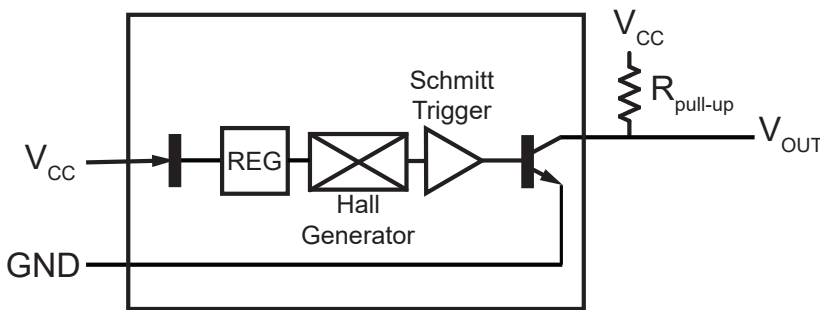
- Non-contact, solid state device.
- Tight magnetic tolerance around zero Gauss level provides 50% duty cycle.
- Reads speeds 0 to 100 kHz.
- Digital output signal
- 4.5 to 24 VDC operation range
- Current sinking output
- 20ma continuous operation
- Reverse polarity protection
- Temperature compensated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



Sensor

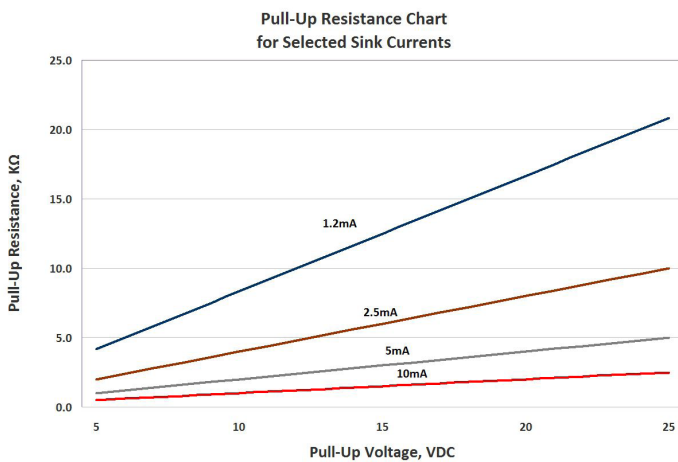
Wire color order varies with part configuration

**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 <sub>sink</sub>	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<sub>sink</sub> is application dependent. It is recommended to use the lowest possible sink current when selecting a pull-up resistor.

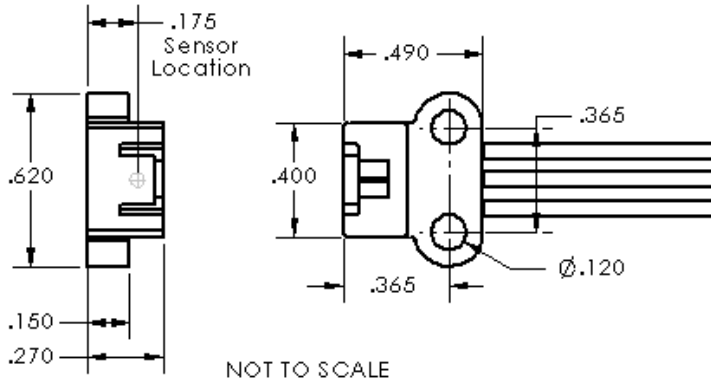
Theoretical Pull-Up Resistor Calculation:  $R_{pullup} = \frac{V_{supply}}{I_{sink}}$

Resistance values based on closest standard 5% resistor values

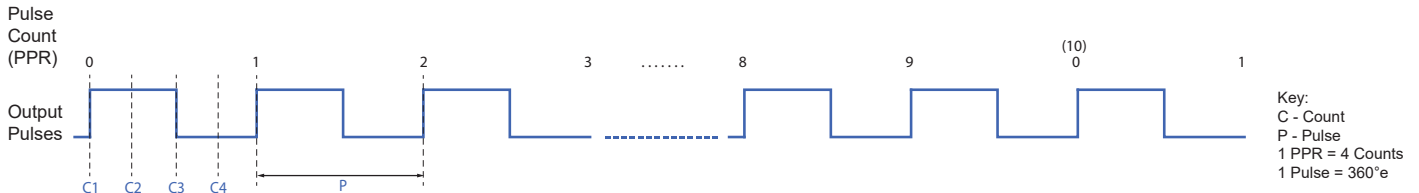
Absolute Maximum I<sub>sink</sub> = 20mA

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	$B_{OP}$	-	32	95	Gauss
Release Point	$B_{RP}$	-95	-20	-	Gauss
Hysteresis	$B_{HYS}$	30	52	-	Gauss
Maximum Field Exposure	$B_{MAX}$	-	-	-	Gauss
Active Element Depth	$D_p$			0.02	Inch

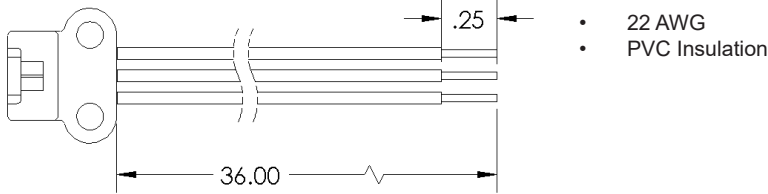
**Electrical Characteristics ( $T = -40$  to  $125^{\circ}C$ )**

**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	10.0	$\mu A$
Rise/Fall Time	$t_r / t_f$	$R_L = 1.2k$ ; $C_L < 33pF$			2	$\mu s$

**Wiring**

FLYING LEADS



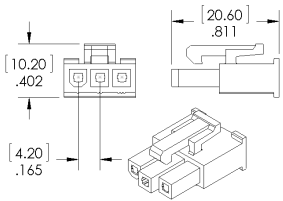
No Cable Available

Table 3.1

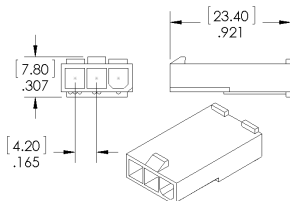
Standard Wiring Color Code	
Flying Leads	
<b>Vcc</b>	Red
<b>Gnd</b>	Black
<b>Output</b>	Blue

**Connector Options**

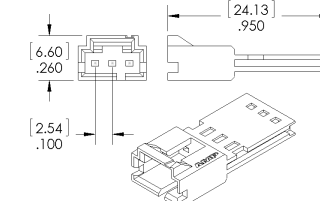
Molex Mini-Fit Jr. (Male)



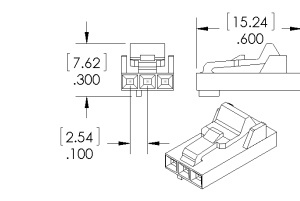
Molex Mini-Fit Jr. (Female)



TE AmpModu MTE (Male)



TE AmpModu MTE (Female)



Need a different connector? Contact [sales@phoenixamerica.com](mailto:sales@phoenixamerica.com).

**Part Number Description**

<b>S7</b>	<b>-C-</b>	<b>-F-</b>	<b>-B-</b>	<b>-X</b>
<b>Series</b>	<b>Output Type</b>	<b>Wiring</b>	<b>Length (Meters)</b>	<b>Connector</b>
S7	C Open Collector <i>(default)</i>	F Flying Leads <i>(default)</i>	A .5 (19.685") B 0.914 (36") <i>(default)</i> C 1 (39.370") D 2 (78.740")	X None <i>(default)</i> A1 TE AmpModu MTE (Male) A2 TE AmpModu MTE (Female) M1 Molex Mini-Fit Jr. (Male) M2 Molex Mini-Fit Jr. (Female)

Example: S7-C-F-B-X