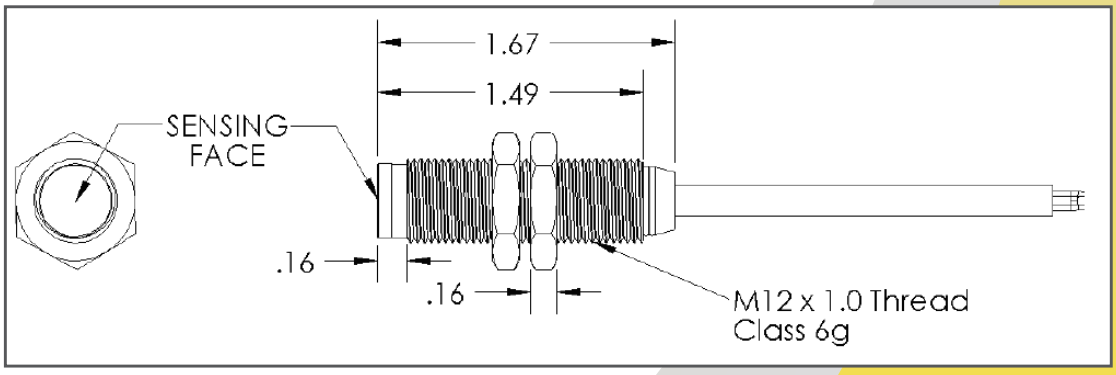
K9 Series Geartooth Sensor

Auto Compensating Geartooth Sensor

- Digital output signal
- Gear Tooth sensing capability
- No rotary orientation concerns
- Working temperature from -40° C to +125° C
- Environmental temperature up to 105° C
- Short circuit protection
- Zero speed operation
- High speed (15 kHz) operation
- 6.3-24 VDC operation
- Nickel-plated brass housing
- PVC jacketed cable

This K Series sensor is a non-contact, solid state ferrous detecting device with a switched output. Its unique design provides a low cost solution for a wide range of speed sensing applications, especially those requiring true zero speed performance. This device utilizes a Hall Effect sensor that is internally biased with a permanent magnet and detects the interaction from an external ferrous target. Unlike earlier Hall based products, this device automatically detects changes in target position or symmetry and "self adjusts" to compensate for these changes. This specialized feature eliminates the need to externally calibrate or mechanically adjust each sensor for optimum performance. In addition, electronic hysteresis built into the device eliminates false triggering due to mechanical backlash and vibration. Installation of this sensor is also easier than "dual element" versions as this device operates correctly regardless of its rotational position or alignment relative to the motion of the target.

Dimensions in inch



PITCH TECHNOLOGIES

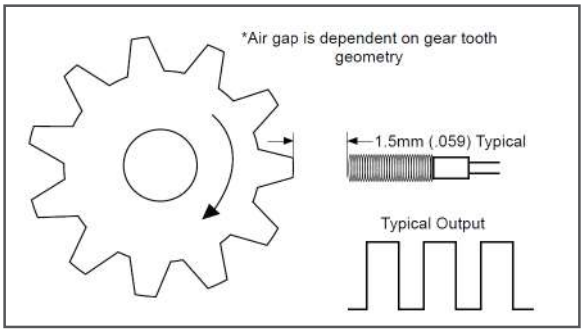
Votre contact en France
PHOENIX America

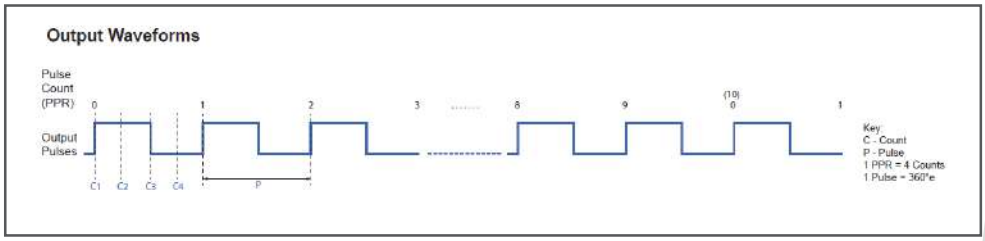
01 34 85 54 68

https://pitch-technologies.fr
info@pitch-technologies.fr

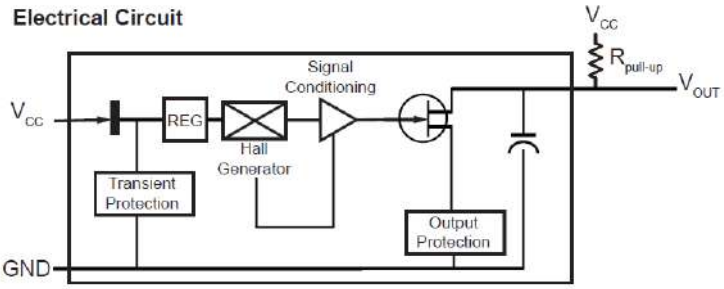
K9 Series Geartooth Sensor

Application Example





Electrical Characteristics



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.

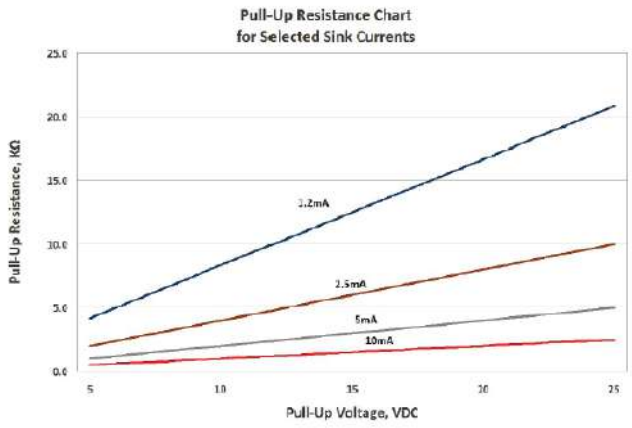


Table 1.1

Recommended Pull-Up Resistor Values			
	Supply Voltage		
Current, I_{sink}	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.

K9 Series Geartooth Sensor

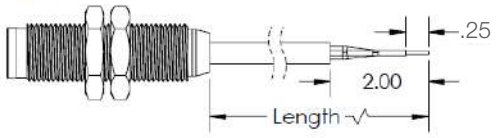
Electrical Characteristics (T= -40 to +125° C)

Characteristic	Symbol	Test Condition	Limits			
			Min.	Typ.	Max.	Units
Supply Voltage	V_{cc}	Operating	6.3		24	VDC
Supply Current	I_s	Over V_{cc} and Temp. Range	1		6	mA
Reverse Supply Protection	V_{rev}	Operating			-24	VDC
Output Pull-up Voltage	V_{out}	Over V_{cc} and Temp. Range			24	VDC
Output Current	I_{out}	Operating			25	mA
Output Capacitance	C_{out}	Operating		2.2		nf
Bandwidth	BW	Operating			15	kHz
Magnetic Hysteresis	B_{hys}	Over V_{cc} and Temp. Range	40	55	100	G

Wiring (measurements in inch)

Wiring

CABLE



NOT TO SCALE

- 22 AWG
- PVC Insulation

Standard Wiring Color Code	
	Cable
Vcc	Brown
Gnd	Blue
Output	Black

Flying Leads Not Available

PITCH TECHNOLOGIES

Votre contact en France
PHOENIX America

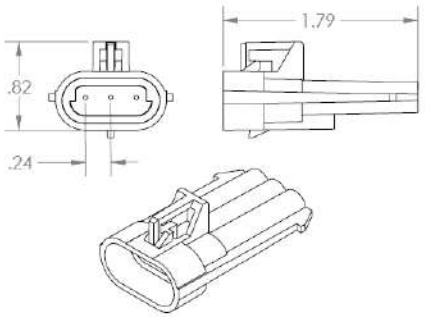
01 34 85 54 68

https://pitch-technologies.fr
info@pitch-technologies.fr

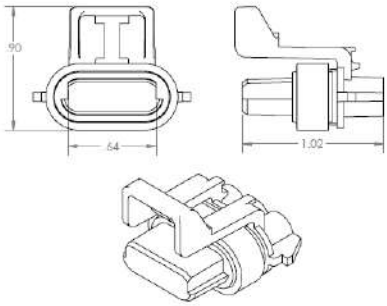
R2 Series - Absolute Rotary Position Sensor

Connector Options (measurements in inch)

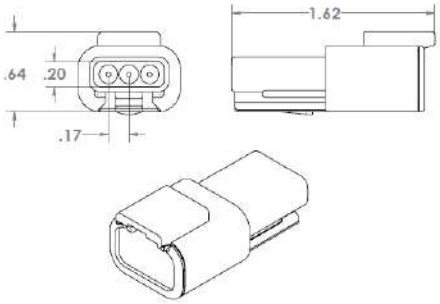
Aptiv (Delphi-Packard) Metri-Pack 150
(Male Terminals)



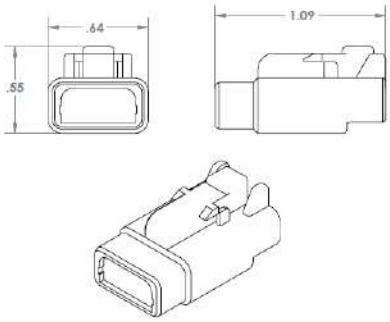
Aptiv (Delphi-Packard) Metri-Pack 150
(Female Terminals)



Deutsch DTM04-3P
(Male Terminals)



Deutsch DTM06-3S
(Female Terminals)



Standard Pin Out and Color Code			
	Cable	Metri-Pack	Deutsch
+VDC	Brown	A	1
Output	Black	B	2
Ground	Blue	C	3

Cable Definition

- 3 Conductor 18 AWG 41/34 tinned copper with PVC insulation
- 0.032“ thick Black PVC Jacket AWM Style 2464 0.240“ O.D.

Contact us for alternative wire and cable options

PITCH TECHNOLOGIES

Votre contact en France
PHOENIX America

01 34 85 54 68

https://pitch-technologies.fr
info@pitch-technologies.fr

Ordering information

(Please use the characters in the chart below to construct your product code)

Ordering Code: K9 - C - C - B - X

Series	Output Type	Wiring	Length (meters)	Connector
K9	**C** = Open Collector (default) **P** = Open Collector with Internal Pull-up (4.7K)	**C** = Cable (default)	**A** .5 m = (19.685“) **B** .914 m = (36“) (default) **C** 1 m = (39.37“) **D** 2 m = (78.74“)	X = None (default) P1 = Aptiv / Packard Metri-Pack 150 (Male) P2 = Aptiv / Packard Metri-Pack 150 (Female) D1= Deutsch DTM04-3P (Male) D2 = Deutsch DTM06-3S (Female)