

R2 Series - Absolute Rotary Position Sensor

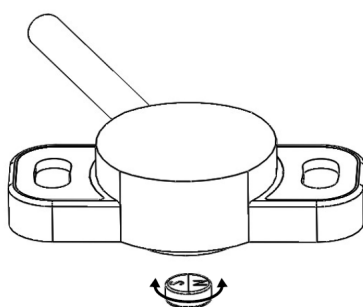
- 0° to 360° Absolute Angular Position Sensing
- Analog or PWM Output
- Robust Non-Contacting Design
- Various Angular Ranges up to 360°
- Reverse Polarity Protection
- 12 Bit Angular Resolution
- Operation from -40°C to 125°C



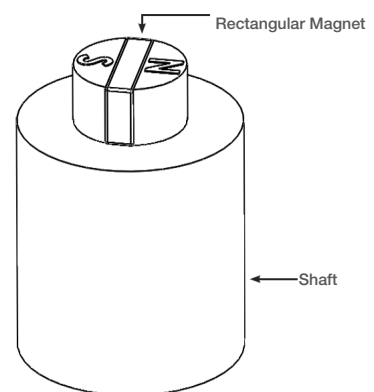
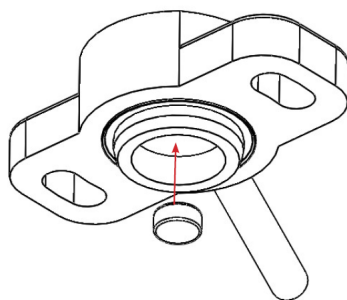
The R2 Series absolute rotary position sensors are cost-effective devices to accurately determine absolute positions of rotating shafts. They can be configured for analog or PWM output. The analog output mode provides a rail-to-rail ratiometric output with a push-pull output stage that allows the use of pull-up or pull-down resistors. The analog transfer characteristic is programmable for sensing any range of angles between 0° and 360°. In addition to numerous standard configurations, custom output slopes and functions are available. Being a non-contact device, the absolute rotary position sensor is very well suited to industrial environments. With sensing technology housed in a rugged, reinforced nylon housing, these sensors provide a low cost solution for demanding applications. Standard electrical protection includes reverse polarity, transient suppression and output short circuit.

Central to the R2 absolute rotary position sensors are magnetic hall effect sensors that are sensitive to the magnetic flux density applied coplanar to the sensor surface. When utilized with the correct diametrically magnetized target magnet, R2 Series sensors are able to decode the absolute angular position of the magnet from 0 to 360 degrees.

Application Example



Magnet shown in 0° position



Simplified orientation with rectangular magnet

* North and south poles shown for illustration purposes only

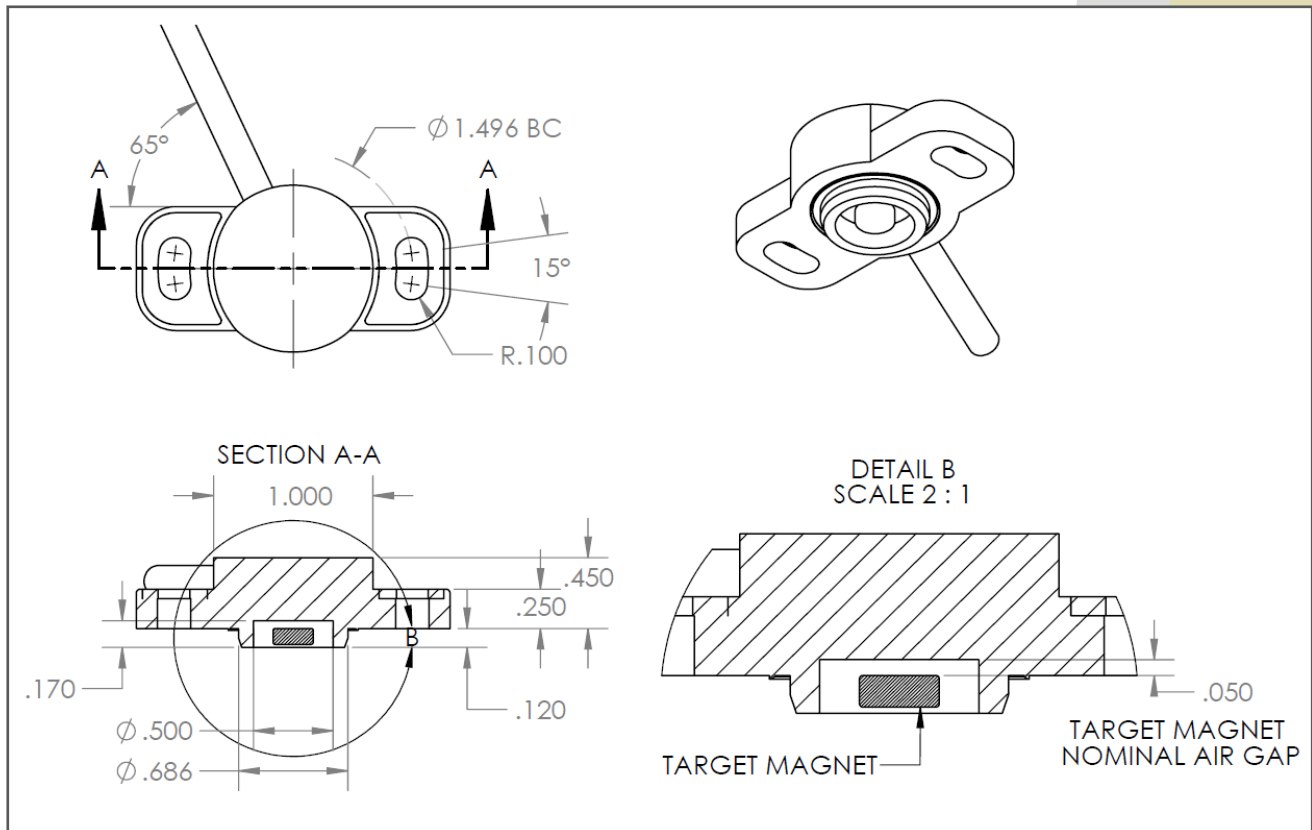
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Electrical Characteristics

T = 40 to 125° C

Characteristics	Symbols	Test Condition	Limits			
			Min.	Typ.	Max.	Units
Supply Voltage	V_{CC}	Operating	4.5	5	5.5	VDC
Supply Current	I_S	Power Saving Mode		8.5	10	mA
		Normal Mode		13.5	16	mA
Output Current	I_{OUT}	Analog Output Mode	-8		8	mA
		PWM Output Mode	-20		20	mA
Output Load	R_L	Pull-down to Ground	4	10		k Ω
		Pull-up to 5V	4	5.6		k Ω
Clamped Output Level	Clamp_lo	Programmable	0	-	100	%VCC
	Clamp_hi	Programmable	0	-	100	%VCC

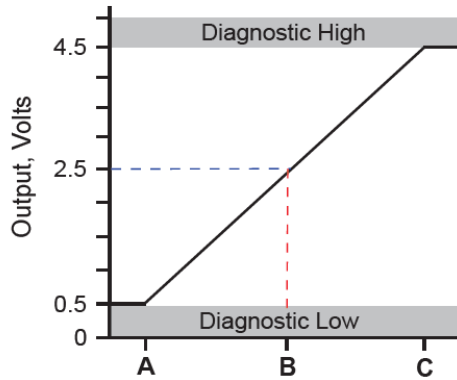
Dimensions (in inch)



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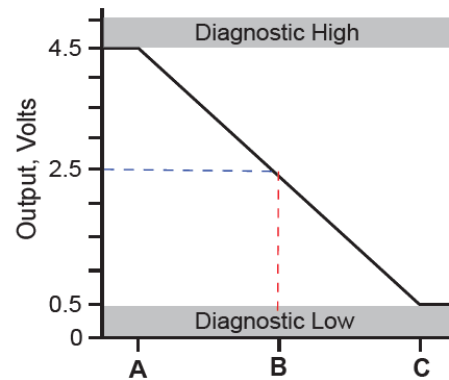
Output curves

Standard Output Curves

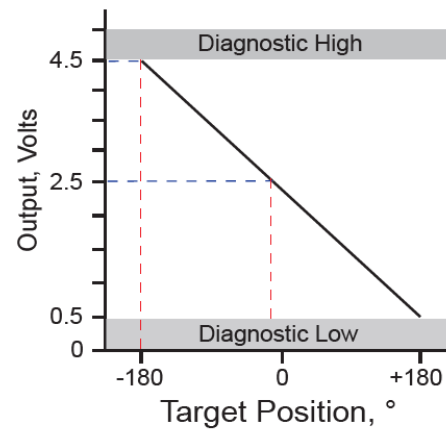
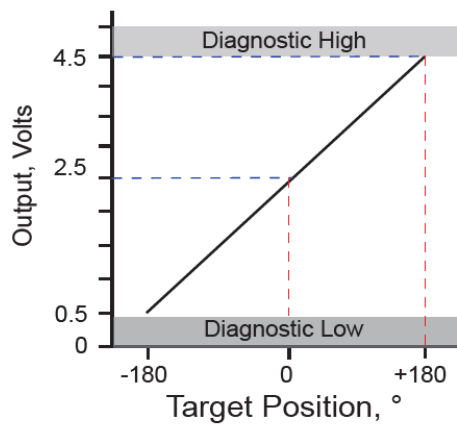


60° (±30°)	-30	0	+30
90° (±45°)	-45	0	+45
120° (±60°)	-60	0	+60
180° (±90°)	-90	0	+90
270° (±135°)	-135	0	+135
360° (±180°)	-180	0	+180

Inverted Output Curves

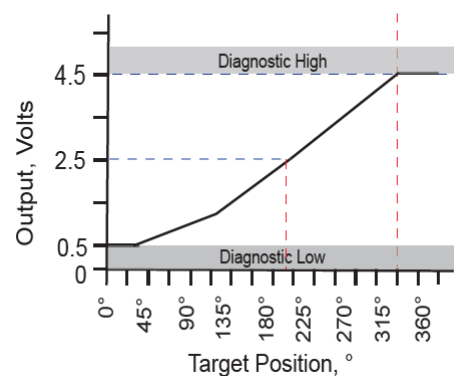
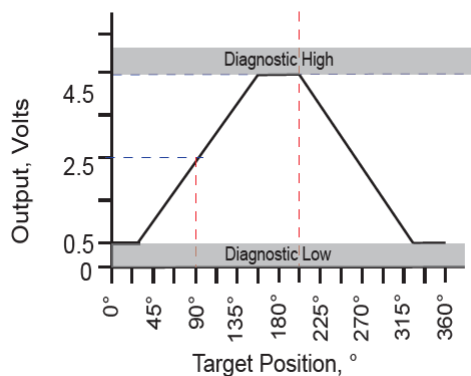


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180° (±90°)	-90	0	+90
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360° (±180°)	-180	0	+180



Custom Output Curves

* Custom and multi-slope outputs available, contact sales@phoenixamerica.com

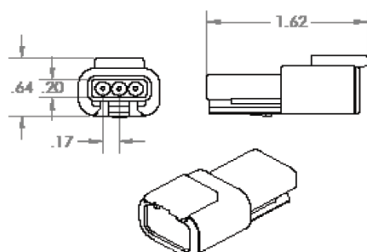


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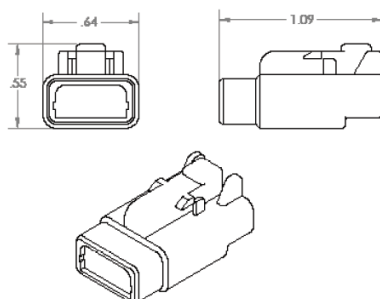
Connector Options (measurements in inch)

Connector Options

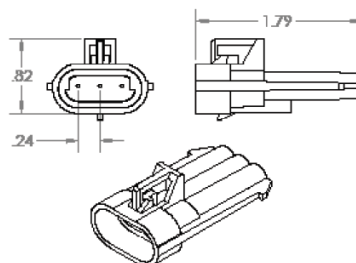
Deutsch DTM04-3P
(Male Terminals)



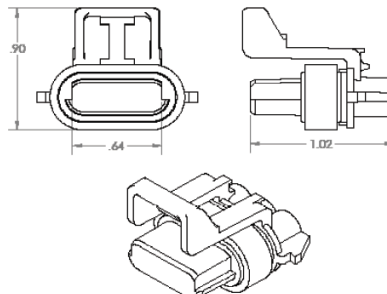
Deutsch DTM06-3S
(Female Terminals)



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



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



* Contact sales@phoenixamerica.com for custom connector and wire cable configurations

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

Ordering information

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

Sample Code: R2 - 060 - 05 - C - D2 - A1

Series	Sensing Angle	Supply Voltage	Wiring	Length (meters)	Connector
R2	060 +/-30°	05 = 5V (default)	C = Cable	A .5 = (19.685") (default) B .914 = (36") C 1 = (39.37") D 2 = (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)
	090 +/-45°				
	120 +/-60°				
	180 +/-90°				
	270 +/-135°				
	360 +/-180° (default)				