

APS Series

Angle Position Sensors

- Programmed 90-, 180-, 270- or 360-degree angular position sensor
- Hall Effect Technology with a microprocessor delivers high accuracy & repeatability
- Offers resolution up to 0.36 Degrees
- Non-contact design ensures long-term durability



CUSTOMER FOCUSED ENGINEERING + MODULAR DESIGN

Part Description: **M12-APS360-5KSA5**

Housing	Series	Sensing Angle Range	Electrical Option	Connection Type
See page 2-3	APS	90, 180, 270, 360	See page 4	See page 5

Modify, update, or enhance any sensor with our modular features and functionality.

HOUSING - Aluminum, stainless steel, plastic, threaded, flange mount, customer specific

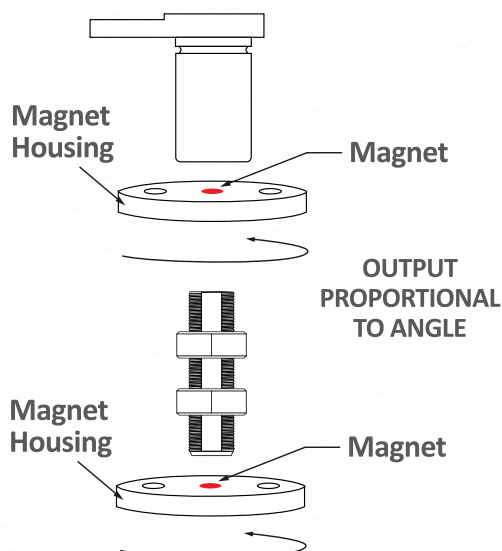
ELECTRICAL - Every sensor function available in various electrical options (NPN, PNP, TTL, etc.)

CONNECTION - Deutsch, Amphenol, many other brands, free end wires, pigtails, any length

Need a Custom Sensor Solution?... Send us your application specific requirements

'Angular Position Sensors'

Sensor and Target Sold Separately



FEATURES

- Non-contact
- Easy to install
- Temperature stable
- Shock and vibration resistant
- Solid-state (no wearing parts)

APPLICATIONS

- Shaft and gear rotation in agricultural equipment
- Gear rotation in conveyor systems
- Tracking of pedals and lever positions
- Position resolution in automation

MARKETS

- Aerospace & Defense
- Medical Devices
- Agricultural Machinery
- Marine & Transportation

- Linear Voltage Output
- Output over 90, 180, and 360°
- 5V or Regulated Versions
- Detect non-standard steel targets
- Harsh environment durability
- Large detection gap (custom air gap ranges available)

- equipment
- Angular feedback of production and testing components
- Orientation of industrial and agricultural attachments
- Angular feedback for robotic arms

- Automotive & Heavy Equipment
- Power Generation Systems
- Consumer Electronics
- Manufacturing & Industrial Automation

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HOUSING TYPES AND CUSTOMIZATION OPTIONS

The APS Series offers a wide range of housing styles, mounting types, and material options to cover a variety of application environments. If the housing style you need is not shown, Standex can work with you on your custom housing needs to fulfill your application requirements.

HOUSING MATERIALS

- Aluminum
- Plastic (Glass Filled Nylon)
- Stainless Steel

MOUNTING TYPE

- Threaded Barrel
- Flange Mount
- High Pressure

THREAD PITCH

- 5/8-18
- 7/16-20
- M12x1
- M18x1

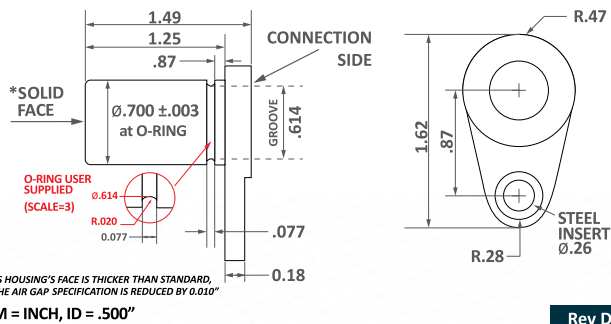
Plastic Glass Fill Nylon (150°C)

PART NUMBER
EXAMPLE

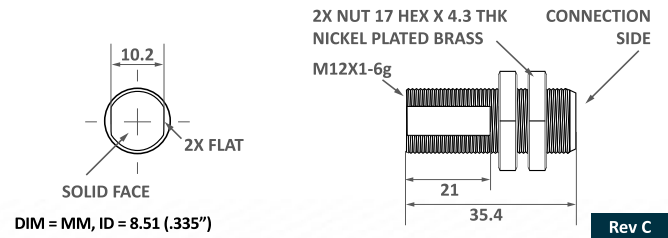
M 1 2 - **A P S 3 6 0** - **5 K S A 5** - CONNECTION

HOUSING ELECTRICAL

MFM7 Flange Mount

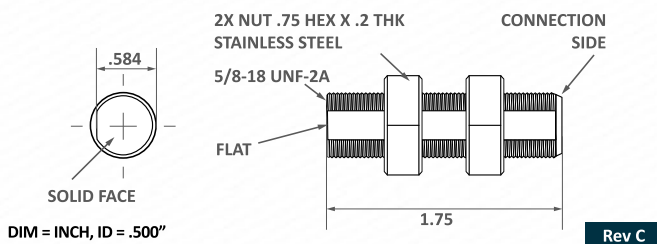


M12 Thread Mount M12x1mm, 35mm



Aluminum Black Anodized

A63 Thread Mount 5/8



APS Series

Angle Position Sensors

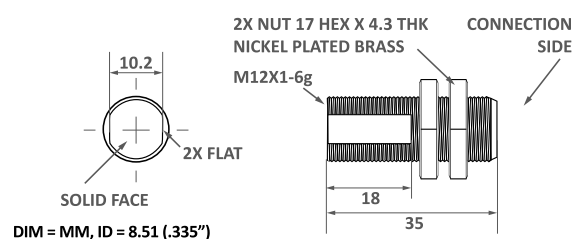
303 Stainless Steel

PART NUMBER
EXAMPLE

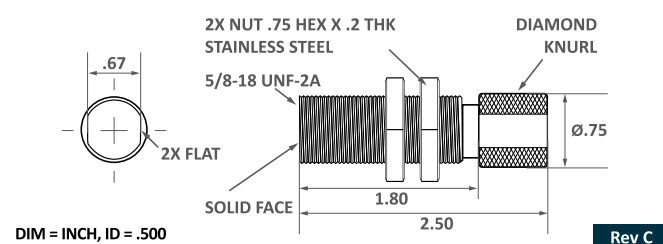
M 1 2 - **A P S 3 6 0** - **5 K S A 5** - CONNECTION

HOUSING ELECTRICAL

S12 Thread Mount M12x1mm, 35mm



S63B Thread Mount MS Opt 5/8-18, 2.5in

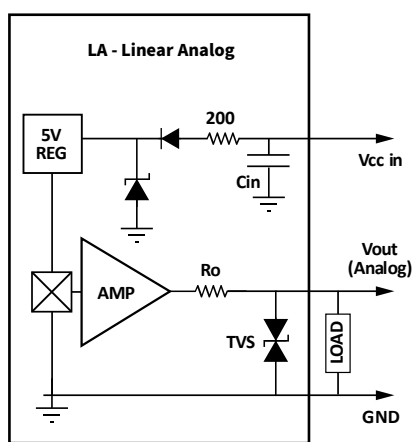


APS Series Angle Position Sensors

Electrical Output Logic Options

PART NUMBER EXAMPLE
M 1 2 - A P S 3 6 0 - 5 K S A 5 — CONNECTION
HOUSING ELECTRICAL

LA



Electrical Specifications	Conditions	Min	Typ	Max	Unit
Temperature Range*	Operating	-40	-	+110*	°C
Supply Voltage, Vcc	For specified accuracy	+8	-	+32	VDC
Supply Current	Into Vcc, RI > 10k	+8	+10	+16	mA
Recommended Load-Gnd	Allows max output swing	-	> 100k	Inf.	Ohms
Analog Sat. Voltage Low	RI > 100k, Vcc = 24V,	-	.010	.050	Volts
Analog Sat. Voltage High	RI > 100k, Vcc = 24V,	4.900	4.960	-	Volts
Power Up Time	Any Angle	-	12	15	mS
Sampling Rate, Slow Mode	Factory Standard	-	600	-	µS
Sampling Rate, Fast Mode	High Speed Option	-	200	-	µS
Step Response Time, Slow	Factory Standard	-	-	4.0	mS
Step Response Time, Fast	High Speed Option	-	400	600	µS
ANALOG Vout SPECS AT Vcc = 24V, See graph below.					
Vout @45°C, Final Test Fixture	100% test, room temp .35" gap	2.400	2.500	2.600	Volts
Slope in Linear Range	From 4 to 356 Degrees	13.8	13.89	14.0	mV/Deg
Linearity Error	4-356 Deg, Accurate Gap Range	-1	.2	+1	%
Overall Error to +5V out **	4-356 Deg, Accurate Gap Range	-5	±2	+5	Deg
Overall Error to +5V out **	4-356 Deg, Ext. Gap Range	-7	±4	+7	Deg
Discontinuity Point	Programmed at Factory	-	360	-	Deg
* 125°C max available with "L" version & HIGH TEMP upgrade, contact factory. ** Ratio metric to 5V output, contact factory.					Rev A

APS Series Angle Position Sensors

CONNECTION TYPES AND CUSTOMIZATION OPTIONS

The APS Series offers a wide range of connection configurations to meet diverse installation and environmental requirements. Whether you need rugged connectors for industrial environments or flexible wiring for compact assemblies, Standex provides tailored solutions:



CONNECTOR OPTIONS

- Deutsch & Amphenol: Industry-standard sealed connectors for harsh environments
- Other Brands Available: Custom connector integration upon request
- Integral Connectors: Built directly into the sensor housing for streamlined installation
- Pigtail Connectors: Short lead wires with pre-installed connectors for plug-and-play use

FREE-END WIRE OPTIONS

- Free-End Jacketed: Durable, protective outer layer for added mechanical strength
- Free-End Ribbon Cable: Flat, flexible cable ideal for tight spaces
- Free-End Shielded: EMI-resistant for electrically noisy environments
- Free-End Wires: Standard stripped leads for direct wiring
- Wire Specifications
- Wire Gauges: 20 AWG and 22 AWG standard
- Lengths: Available in 0–6", 1–4', 5–9', or custom lengths to suit your application

INSULATION MATERIALS

- PVC: Economical and flexible
- Teflon: High-temperature and chemical-resistant
- XLPE: Cross-linked polyethylene for enhanced thermal and abrasion resistance
- High-Temp Options: For extreme operating conditions

Cable Harness & Connector Options

PART NUMBER	M 1 2 - A P S 3 6 0 - 5 K S A 5	CONNECTION
EXAMPLE	HOUSING	ELECTRICAL

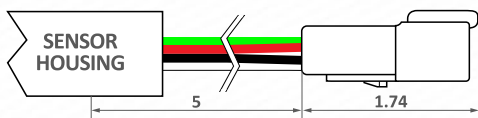
CD4, 4 Pin Deutsch DT04 TXL 20 AWG Wires

Connections

Pin 1 (Red) = Vcc Pin 2 (Black) = Ground Pin 3 (White) = +5V Ref. Pin 4 (Green) = Analog Vout

CONNECTOR: AMPHENOL AT04-4P-RD01 BODY OR DEUTSCH DT04-4P-C015 BODY
CONTACTS: 4 DEUTSCH PINS, PN 1060-16-0622
WIRE: 20AWG, 19/32, XLPE TXL, 125°C

PIN 1 = RED
PIN 2 = BLACK
PIN 3 = WHITE
PIN 4 = GREEN



DIM = INCH

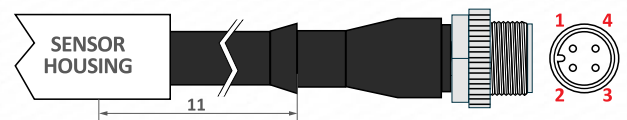
Rev B

CB1E, 4 Pin Male 12mm Micro Connector w/11" Pur Cable

Connections

Pin 1 = Vcc Pin 2 = Analog Vout Pin 3 = Ground Pin 4 = +5V Ref.

CONNECTOR: 4 PIN MALE M12 STRAIGHT OVERMOLD
CABLE: 22AWG, STRANDED, PUR JACKET & INSULATION



DIM = INCH

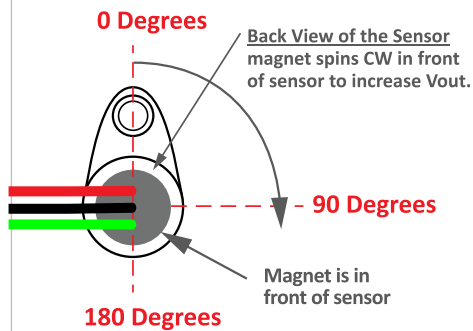
Rev A

APS Series

Angle Position Sensors

Environmental & Performance Specifications

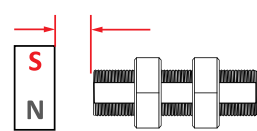
Sensor Function



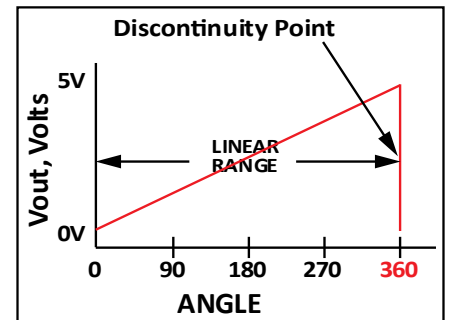
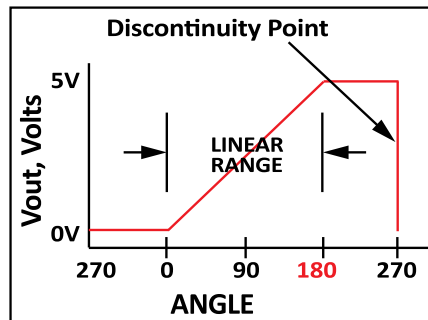
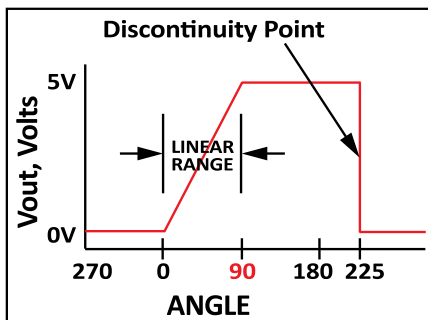
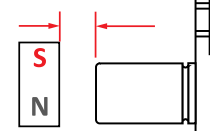
MAGNET ANGLE DEFINED
(magnet rotates, housing is fixed)



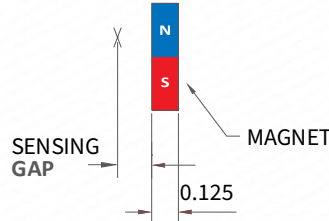
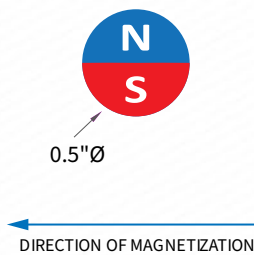
Air Gap



Air Gap

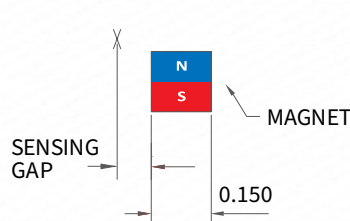
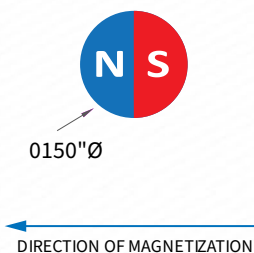


MATERIAL: NEO DYMIUM

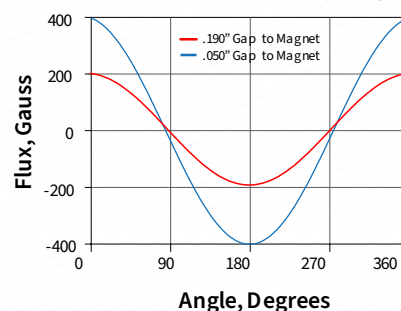


Magnetic Characteristics	Min	Typ	Max
Outputs will respond outside of the denied ranges, but with reduced accuracy			
Air Gap Range: Raw NEO Magnet Part # 300-01-071	.050"	.225"	.375"
Air Gap Range: Raw SmCo Magnet Part # 300-04-021	.050"	.100"	.150"
Air Gap Range: Raw SmCo Magnet Part # 300-04-022	.100"	.150"	.200"

MATERIAL: SmCo



300-01-021 Flux Gauss vs. Angle



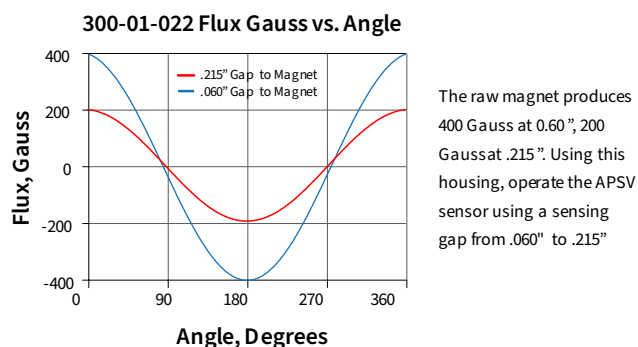
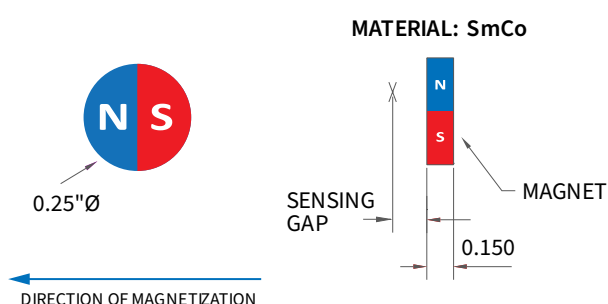
The raw magnet produces 400 Gauss at 0.50", 200 Gauss at .190". Using this housing, operate the APSV sensor using a sensing gap from .065" to .110"

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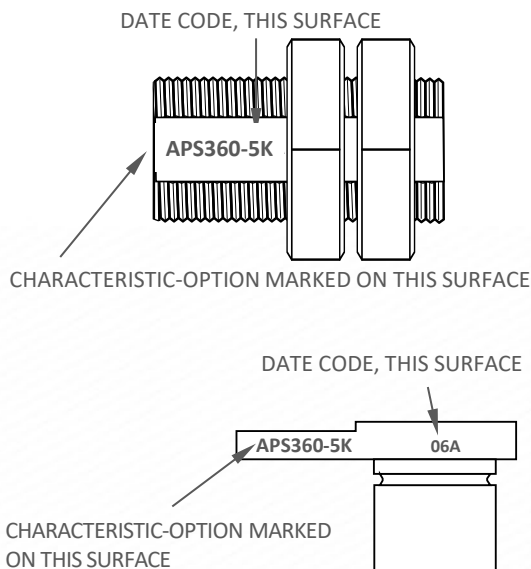
Angle Position Sensors

Environmental & Performance Specifications

Sensor Function



Marking



Environmental Specifications

Corrosion Resistance	500 hours salt spray ASTM B-117
Installation Torque	13 Foot-Pounds Maximum
Enclosure	Nema 1,3,4,6,13 & IEC IP67
Vibration	10 G's 2 to 2000 Hz Continuous
Mechanical Shock	100 G's, 11 ms

Please note: All technical specifications on this series datasheet refer to the standard product range. Modifications in the sense of technical progress are reserved. For general information only. For more specific information, please consult the product datasheet, available upon request.

This series datasheet could contain technical inaccuracies or typographical errors. Changes are periodically made to the information herein. These change will be incorporated in future revisions.

For deviating values, most current specifications and products please contact your nearest sales office.