

## PRODUCT DESCRIPTION

SPECTEC's Proximity/Zero Speed position sensor are designed to switch in the presence of a low magnetic field. Bi-polar (north and south polar activation) is standard. Uni-polar and omni-polar activation is also available for higher pulse resolution. Various output options are available and provided to suit all interface requirements.

A robust universal sink/source NPN/PNP low independence rail-to-rail output protection is also available. The sensor is reverse polarity protected.

For intrinsically safe versions refer to bulletins: IS160 & IS161

## SPECIFICATIONS

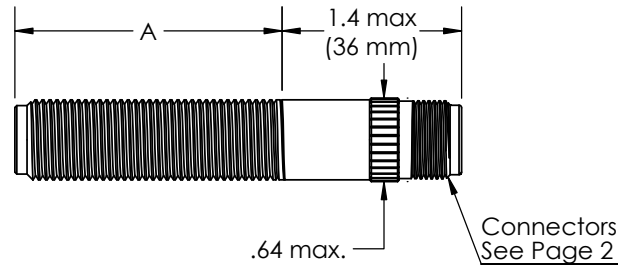
|  |  |
|--|--|
| <b>Orientation:</b>                      | Single: No orientation required.<br>Dual: For directional applications, the alignment mark must be in line with the rotation of the target. For synchronous output, the alignment mark should be at a right angle to the rotation of the target. |
| <b>Vs, Supply Voltage:</b>               | 4.5 to 30 Vdc @ ≤ 18 mA<br>Reverse Polarity Protected<br>10-36 Vdc for Universal sink/source output  |
| <b>Vo, Signal Out:</b>                   | Output signal is typically 'Normally High', except for PNP output which is "Normally Low"<br>See note on Page 2 for more information   |
| <b>Operating Freq.:</b>                  | Standard: 0 to 20 kHz<br>(for precision position applications)<br>High Speed: 0 to 100 kHz<br>(for high speeds only)   |
| <b>Air Gap:</b>                          | ≤ .160" typical<br>≤ 1" using extra strong 5 kG magnets  |
| <b>Rise/Fall Time:</b>                   | 0.10 μs to 2 μs<br>*Dependent of configuration   |
| <b>Temperature Range:</b>                | 2TE: -40° to 221°F (-40° to 105°C)<br>*may be reduced based on configuration<br>3TE: -40° to 302°F (-40° to 150°C)<br>*may be reduced based on configuration   |
| <b>Construction:</b>                     | 300 series stainless steel housing<br>Solid epoxy encapsulation  |
| <b>Connectors &amp; Pin Assignments:</b> | See Page 2<br>All have gold plated contacts  |
| <b>Lead Wire Assignments:</b>            | Red: Supply (+)<br>Black: Common (-)<br>White: Signal A<br>Green: Signal B (dual sensor only)<br>Bare: Shield: not connector to sensor shell, ground at termination.   |

**CE-Compliance:** EN55011, EN50082-2

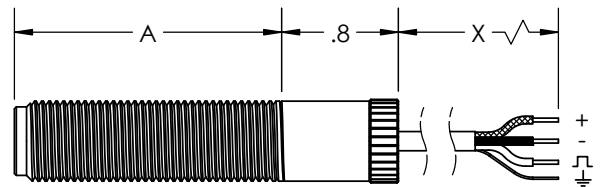
## OPTIONS

Custom configurations, thread sizes, special materials of construction, temperature probe (NTC10, RTD100, or others). For directional sensing, a dual sensor can be used with P/N 4033.

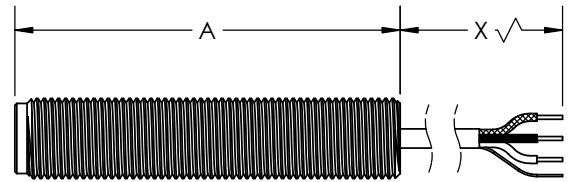
**0161** 5/8-18 UNF  
**0161M** M16x1.5  
**0161M1** M16x1.0



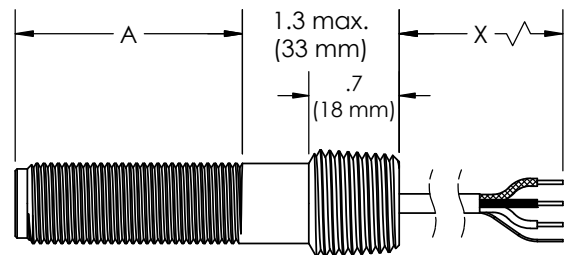
**0160** 5/8-18 UNF  
**0160M** M16x1.5  
**0160M1** M16x1.0



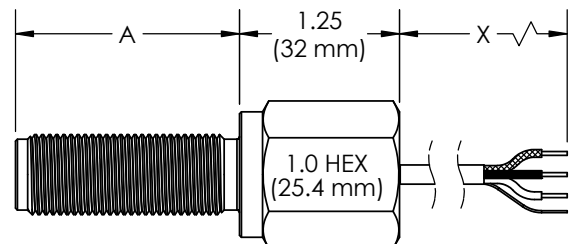
**0160A** 5/8-18 UNF  
**0160AM** M16x1.5  
**0160AM1** M16x1.0



**0160X** 5/8-18 UNF w/ 1/2-14 NPT Male



**0160Y** 5/8-18 UNF w/ 1/2-14 NPT Female



# ORDER INFORMATION

**STYLE:**            **OPTIONS:**            **THREADS/DIA.:**

**0161**    -            **5/8-18 UNF with CONNECTOR**

**0161M**   -            **M16x1.5**

**0161M1** -            **M16x1.0**

**Thread Length(A):**

|                  |                  |
|------------------|------------------|
| 1 - 1.1" (28mm)  | 4 - 3.0" (76mm)  |
| 2 - 1.25" (32mm) | 5 - 4.0" (102mm) |
| 3 - 1.75" (43mm) | 6 - 5.0" (127mm) |
| A - 2.5" (64mm)  | 7 - 6.0" (152mm) |

**Temp. Range:**

1 - 2TE: -40° to 221°F (-40° to +105°C)

6 - 3TE: -40° to 300°F (-40° to +150°C)

**Vo, Signal Out:**

1 - 0 - Vs, NPN w/internal 3 k Ohm pull-up [Normally High]

2 - 0 - Vs, NPN, OC(Open Collector) [Normally High]

3 - 0 - Vs, PNP, OC [Normally Low]

4 - 0 - Vs, NPN, with LED [Normally High]

5 - 0 - 5V, NPN [TTL] [Normally High]

6 - 0 - Vs, Universal sink/source lighting protected (85°C max.)

7 - 0 - 5V, Universal sink/source lighting protected (85°C max.)

9 - 4 - 20mA, Digital current loop (Two Wire)

**Senor Type:**

1 - Hs, Uni-polar type (South pole activated)

2 - H, Bi-polar type

4 - Ho, Omni-polar type

5 - HHo, Dual Omni-polar type

7 - Hcs, Uni-polar high speed type (South pole activated)

8 - Hc, Bi-polar latch high speed type

9 - Hco, Omni-polar high speed type

**Connector:**

0 - MS: 2 Pin MS3102-10SL-4P (For two wire current loop. See Bulletin 3000)

1 - MS3: 3 Pin MS3106-10SL-3P (See Bulletin 3000)

2 - MC3: 3 Pin Micro-C (See Bulletin 3004)

3 - MS3B: 3 Pin MS3102-10SL-3P (See Bulletin 3000)

4 - B4: 4 Pin Bayonet, MS3113-H8A4P (See Bulletin 3001)

6 - MD4: 4 Pin Micro DIN (See Bulletin 3005)

**0160**    -            **5/8-18 UNF with CABLE**

**0160M**   -            **M16x1.5**

**0160M1** -            **M16x1.0**

**0160A**   -            **5/8-18 UNF**

**0160AM** -            **M16x1.5**

**0160AM1** -         **M16x1.0**

**Thread Length(A):**

| <u>0160, M, M1</u> | <u>0160A, AM, AM1</u> |
|--------------------|-----------------------|
| 1 - 1.1" (28mm)    | 1.0" (25mm)           |
| 2 - 1.25" (32mm)   | ---                   |
| 3 - 1.75" (43mm)   | 2.0" (51mm)           |
| 4 - 3.0" (76mm)    | 3.0" (76mm)           |
| 5 - 4.0" (102mm)   | 4.0" (102mm)          |
| 6 - 5.0" (127mm)   | 5.0" (127mm)          |
| 7 - 6.0" (152mm)   | 6.0" (152mm)          |

**SAME AS ABOVE**

**Shielded Cable\*(X):**    7 - 3' (1m)    \*for shorter lengths, single leads are also available.

                                  8 - 6' (2m)

                                  9 - 10' (3m)

**0160X**    -            **5/8-18 UNF, NPT Male CONDUIT**

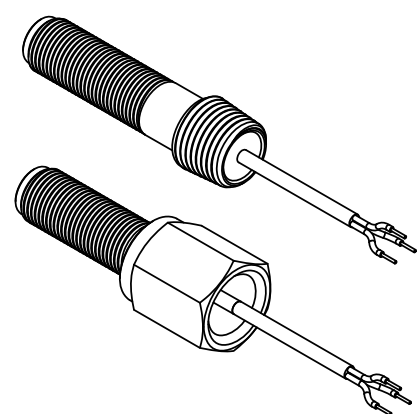
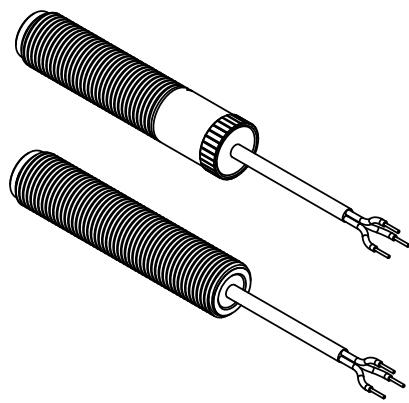
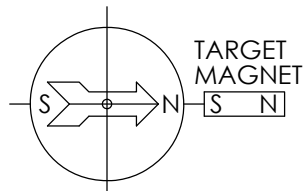
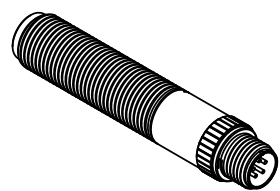
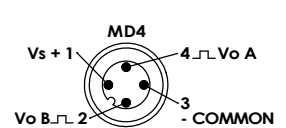
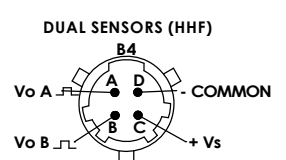
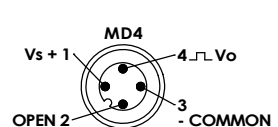
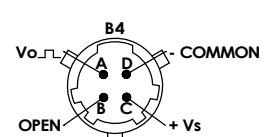
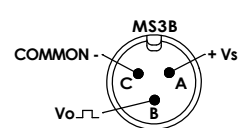
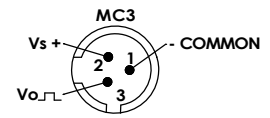
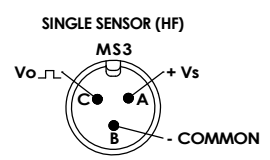
**0160Y**    -            **5/8-18 UNF, NPT Female CONDUIT**

**Thread Length(A):**

| <u>0160X</u>    | <u>0160Y</u> |
|-----------------|--------------|
| 1 - 0.7" (18mm) | ---          |
| 2 - 1.3" (33mm) | 2.0" (51mm)  |
| 3 - ---         | 3.0" (76mm)  |
| 4 - ---         | 4.0" (102mm) |

**SAME AS ABOVE**

## CONNECTOR PINOUTS



**Note:** A Normally Low output signal is available for the NPN output signal option (TTL, Supply Tracking and Open Collector) by adding '-NL' to the end of the Part Number.

Similarly, a Normally High output signal is available for the PNP output signal option by adding '-NH' to the end of the part number.