

## PRODUCT DESCRIPTION

SPECTEC's Proximity/Zero Speed position sensor are designed to switch in the presence ferrous targets such as gear teeth and blade tips, ect. Gear teeth as small as module 0.5 or 48 DP can be sensed. Standard output is provided from a 3k Ohm internal pull-down resistor to a collector, which can sink 25mA. Open collector or source output can be provided. A robust universal sink/source NPN/PNP low independence rail-to-rail output with 60V automotive load dump and short circuit/reverse voltage protection is available. The sensor is reverse polarity protected.

For intrinsically safe versions refer to bulletins: IS170 & IS171.

## SPECIFICATIONS

**Orientation:** Single: No orientation required.  
 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.  
 Differential: The alignment mark must be in line with the rotation of the gear.

**Vs, Supply Voltage:** 4.0 to 30 Vdc @ ≤ 18 mA  
 4.0 to 27 Vdc @ ≤ 30 mA  
 4.0 to 24 Vdc @ ≤ 18 mA (Differential)  
 10-36 Vdc for Universal sink/source output  
 Reverse Polarity Protected

**Vo, Signal Out:** Output signal is typically 'Normally High', Except for PNP output which is 'Normally Low'

**Operating Freq.:** 0 to ~20 kHz (Standard & Dual)  
 ~15 Hz to ~30kHz (Differential)

**Air Gap:** 24 DP / Module 1: .060" (1.3mm)  
 12 DP / Module 2: .080" (1.8mm)  
 5 DP / Module 5: .160" (3.6mm)

**Magnetization:** Standard: ~1500 Gauss  
 Low Mag: ~500 Gauss

**Rise/Fall Time:** 0.10 μs to 2 μs  
 \*Dependent on configuration

**Temperature Range:** 2TE: -40° to 221°F (-40° to 105°C)  
 \*May be reduced to 85°C based on options selected  
 3TE: -40° to 302°F (-40° to 150°C)  
 \*May be reduced to 125°C based on options selected

**Construction:** 300 Series Stainless Steel Housing  
 Solid Encapsulation

**Connectors & Pin Assignments:** See Page 2 for Configurations  
 All have Gold Plated Contacts

**Lead Wire & Assignments:** See Page 2 for Wire & Cable Options

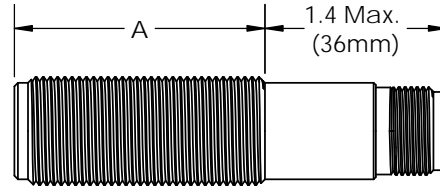
2TE: PVC 22-24 AWG (105°C)  
 3TE: TFE 22 AWG (150°C)  
 Red: Supply (+)  
 Black: Common (-)  
 White: Signal A  
 Green: Signal B (dual sensor only)  
 Bare: Shield

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

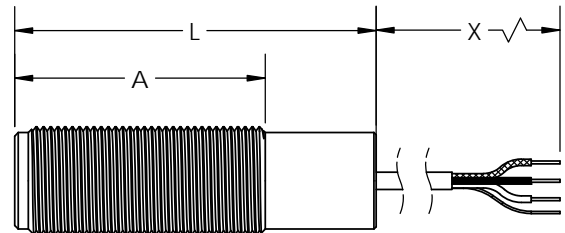
## OPTIONS

Custom configurations, special materials of construction, thread sizes, special output circuits (including short circuit protection), temperature probe (NTC10, RTD100, or others). Please contact sales.

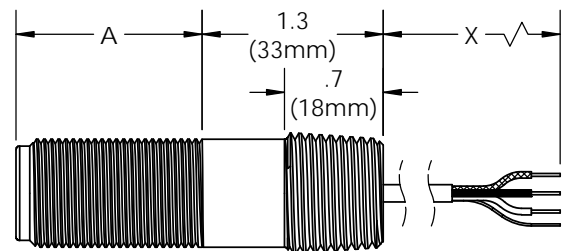
0171 3/4-16 UNF  
 0171B 3/4-20 UNEF  
 0171M M18x1.5  
 0171M1 M18x1.0



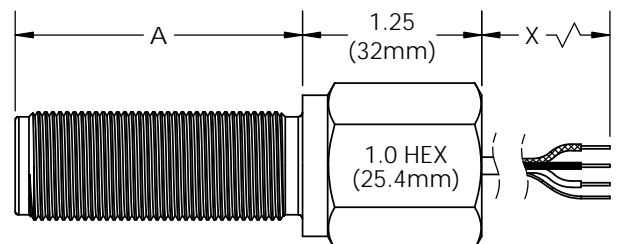
0172 3/4-16 UNF  
 0172B 3/4-20 UNEF  
 0172M M18x1.5  
 0172M1 M18x1.0



0172X 3/4-16 UNF w/ 1/2-14 NPT Male  
 0172XB 3/4-20 UNEF w/ 1/2-14 NPT Male



0172Y 3/4-16 UNF w/ 1/2-14 NPT Female  
 0172YB 3/4-20 UNEF w/ 1/2-14 NPT Female



# ORDER INFORMATION

| STYLE: | OPFTIONS:             | THREADS/DIA.: |
|--------|-----------------------|---------------|
| 0171   | - [ ] [ ] [ ] [ ] [ ] | 3/4-16 UNF    |
| 0171B  | - [ ] [ ] [ ] [ ] [ ] | 3/4-20 UNEF   |
| 0171M  | - [ ] [ ] [ ] [ ] [ ] | M18 x 1.5     |
| 0171M1 | - [ ] [ ] [ ] [ ] [ ] | M18 x 1.0     |

| Thread     | 1 - 0.9" (25mm) | 4 - 2.5" (64mm)  |
|------------|-----------------|------------------|
| Length(A): | 2 - 1.5" (38mm) | 5 - 3.5" (89mm)  |
|            | 3 - 2.0" (51mm) | 6 - 5.0" (127mm) |

| Temperature Range: | 1 - 2TE: -40° to +221°F (-40° to 105°C) | 6 - 3TE: -40° to +302°F (-40° to 150°C) |
|--------------------|---|---|
|--------------------|---|---|

| Vo, Signal Out: | 1 - 0 - Vs, NPN w/internal 3.1 k Ohms 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 with Short Circuit Protection (85°C Max.) (2TE) |
|                 | 7 - 0 - 5V, Universal Sink/Source with Short Circuit Protection (85°C Max.) (2TE) |
|                 | 8 - 0 - Vs, Sink/Source (125°C Max.) (3TE)  |
|                 | 9 - 0 - 5V, Sink/Source (125°C Max.) (3TE)  |

| Sensor Type: | 2 - Dual Sensor (HHF)                |
|--------------|--------------------------------------|
|              | 3 - Standard Type Single Sensor (HF) |
|              | 4 - Differential type (HFd)          |

| Connector: | 1 - MS3: 3 Pin MS3102-10SL-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 MS3113-H8A4P BAYONET (See Bulletin 3001) |
|            | 6 - MD4: 4 Pin MICRO DIN (See Bulletin 3005)           |

| Thread (A) & Housing (L) Length: | A                | L              |
|----------------------------------|------------------|----------------|
|                                  | 1 - 0.9" (23mm)  | 1.75" (44mm)   |
|                                  | 2 - 2.0" (51mm)  | Fully Threaded |
|                                  | 3 - 2.0" (51mm)  | 2.5" (64mm)    |
|                                  | 4 - 2.5" (64mm)  | 3.0" (76mm)    |
|                                  | 5 - 3.5" (89mm)  | 4.0" (102mm)   |
|                                  | 6 - 4.0" (102mm) | Fully Threaded |
|                                  | 7 - 6.0" (152mm) | Fully Threaded |
|                                  | 8 - 8.0" (203mm) | Fully Threaded |

SAME AS ABOVE

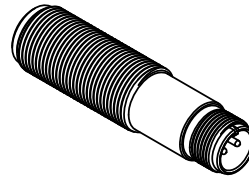
| Lead Wire(X): | 2 - 2' (.6m) Single Leads   | Note: Cable Shielding is not connected to sensor, and is intended to be connected the instrument |
|---------------|-----------------------------|--|
|               | 7 - 3' (1m) Shielded Cable  |  |
|               | 9 - 10' (3m) Shielded Cable |  |

| 0172X  | 3/4-16 UNF with 1/2-14 NPT Male    |
|--------|------------------------------------|
| 0172XB | 3/4-20 UNEF with 1/2-14 NPT Male   |
| 0172Y  | 3/4-16 UNF with 1/2-14 NPT Female  |
| 0172YB | 3/4-20 UNEF with 1/2-14 NPT Female |

| Thread     | 0172X           | 0172Y        |
|------------|-----------------|--------------|
| Length(A): | 0 - 0.9" (23mm) | ---          |
|            | 1 - 1.3" (33mm) | 1.5" (38mm)  |
|            | 2 - ---         | 2.0" (51mm)  |
|            | 3 - ---         | 2.8" (71mm)  |
|            | 4 - ---         | 4.0" (102mm) |
|            | 6 - ---         | 6.0" (152mm) |
|            | 8 - ---         | 8.0" (203mm) |

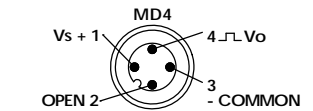
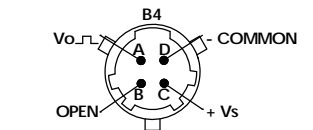
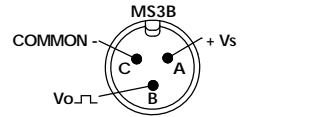
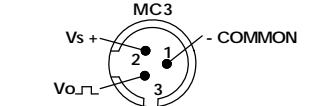
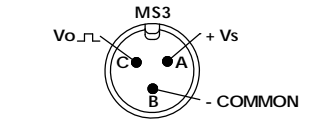
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- Notes:**
- OPTIONAL 5/8" HEX WRENCH FLATS ARE DESIGNATED BY ADDING AN "H" DIRECTLY AFTER THE FOUR DIGIT BASE NUMBER. I.E.: 0172HB-XXXX
  - THE MAGNETIZATION LEVEL FOR SPECIAL OR LOW MAG. SENSORS, IS DESIGNATED AS A SUFFIX TO THE P/N I.E.: 0172-XXXX-500G, DESIGNATING A GAUSS LEVEL OF 500(±50). (STANDARD MAG. LEVEL WILL NOT HAVE A SUFFIX.)
  - 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



5/8" Hex Wrench Flat  
Option Available  
For All Sensors w/ a Smooth Barrel End. See Note #1.

## SINGLE SENSOR (HF) PINOUT



## DUAL SENSOR (HHF) PINOUT

