

## PRODUCT DESCRIPTION

SPECTEC's Zero Speed sensors are designed to switch in the presence of ferrous targets such as gear teeth, blade tips, ect. Gear teeth as small as module 0.5 or 48 DP can be sensed. Standard output is NPN supply tracking 0-Vs, provided from a 3k-Ohm internal pull-up resistor to a collector, which can sink 25mA.

For intrinsically safe versions refer to bulletin: 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 24 Vdc @ ≤ 24 mA (Differential)  
 Reverse Polarity Protected

**Vo, Signal Out:** See Page 2

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

**Air Gap:** 24 DP / Module 1: .050" (1.3mm)  
 12 DP / Module 2: .070" (1.8mm)  
 5 DP / Module 5: .140" (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 based on configuration  
 3TE: -40° to 302°F (-40° to 150°C)  
 \*May be reduced based on configuration

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

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

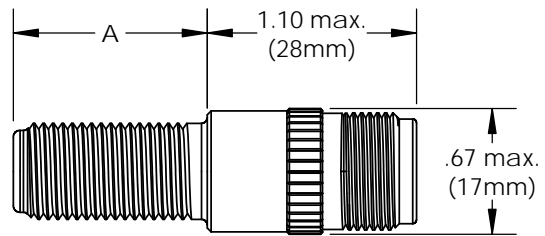
**Lead Wire & Assignments:** See Page 2 for Wire & Cable Options  
 2TE: PVC 22-24 AWG (105°C)  
 3TE: TFE 22 AWG (150°C)  
 Red: Supply (+)  
 Black: Common (-)  
 White: Signal A  
 Green: Signal B (dual sensor only)  
 Bare: Shield

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

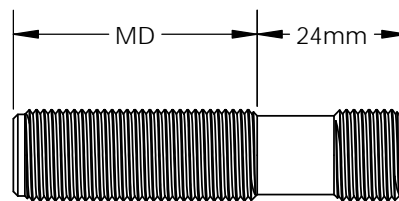
## OPTIONS

Custom configurations, thread sizes including metric, special, materials of construction, special output circuits including short circuit protection, and temperature probe (NT10, RTD100, or others). Please contact sales.

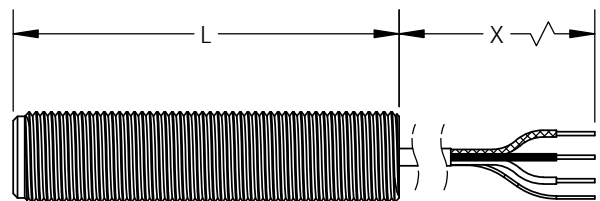
**0168** 1/2-20 UNF  
**0168MK** M12x1



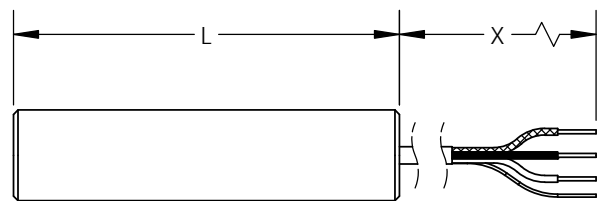
**0168MD** M12x1 w/ MD4 Connector Only



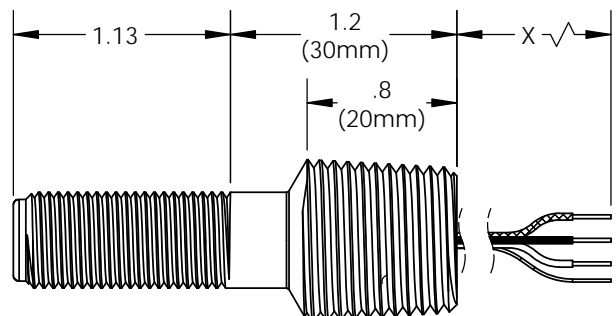
**0168A** 1/2-20 UNF  
**0168B** 1/2-32 UN  
**0168M** M12x1



**0168S** Ø1/2" (12.7mm) Smooth Shell



**0168X** 1/2-20 UNF w/ 1/2-14 NPT



# ORDER INFORMATION

STYLE:            OPTIONS:            THREADS/DIA.:

0168            -            1/2-20 UNF

0168MK        -            M12 x 1.0

0168MD        -            M12 x 1.0 (MD4 Connector Only)

	<u>0168 &amp; 168M</u>	<u>0168MD</u>
Thread	1 - 1.0" (25mm)	16mm
Length	2 - 2.0" (51mm)	28mm
(A,MD):	3 - 3.0" (76mm)	40mm
	4 - 4.0" (101mm)	79mm
	6 - 6.0" (152mm)	130mm

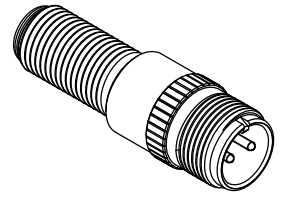
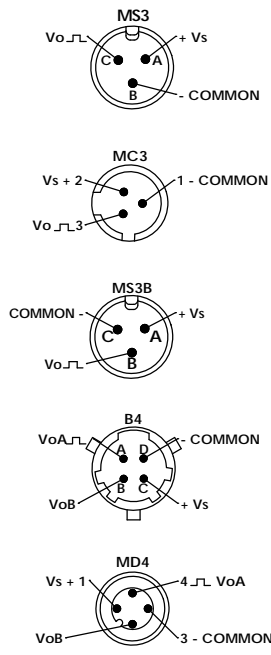
Temperature Range:            1 - 2TE: -40° to +221°F (-40° to +105°C)  
     6 - 3TE: -40° to +302°F (-40° to +150°C)

Vo, Signal Out:            1 - 0 - Vs, NPN w/3.1 k Ohm pull-up [Normally High]  
     2 - 0 - Vs, NPN, OC (Open Collector) [Normally High]  
     3 - 0 - Vs, PNP, OC [Normally Low]  
     5 - 0 - 5V, NPN [TTL] [Normally High]

Sensor Type:            2 - Dual Sensor (HHF)  
     3 - Standard Type Single Sensor (HF)  
     4 - Differential Type (HFD)

Connector:            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)

### Connector Pinout



0168A            -            1/2-20 UNF

0168B            -            1/2-32 UN

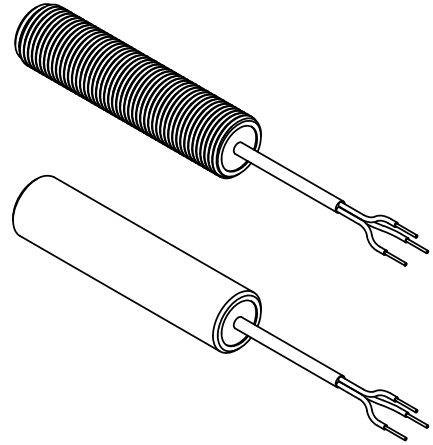
0168M            -            M12 x 1.0

0168S            -            Ø1/2" (12.7mm) Smooth Shell

Housing Length(L):            2 - 1.0" (25mm)  
     3 - 1.25" (32mm)  
     4 - 1.50" (38mm)  
     5 - 2.00" (51mm) [1.80" (46mm) for 0168S ONLY]  
     6 - 2.50" (64mm)  
     7 - 4.00" (101mm)  
     8 - 6.00" (152mm)

SAME AS ABOVE

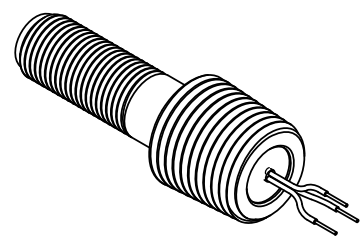
Lead Wire(X):            2 - 2' (.6m) Single Leads  
     7 - 3' (1m) Shielded Cable    Note: For Shielded Cable, shield is not connected to sensor shell, and is intended to be connected to the instrument panel ground.  
     9 - 10' (3m) Shielded Cable



0168X            -            1/2-20 UNF with 1/2-14 NPT Male Conduit

Thread Length(A):            1 - 1.3" (33mm)  
     2 - 2.50" (64mm)

SAME AS ABOVE



**NOTE:** The magnetization level for special or low mag. Sensors is designated as a suffix to the P/N. i.e.: 0168-11111-300G designating a gauss level of 300(±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.