

# SPECTEC

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0169Q • 0170Q  
 DIRECTIONAL HHFQ ZERO SPEED SENSOR  
 FERROUS TARGET/GEAR ACTUATED  
 5/8, M16

## PRODUCT DESCRIPTION

The 0169Q & 0170Q Directional Zero Speed Sensor provides a square wave quadrature signal at Frequency A and Frequency B outputs and contains internal decoding logic to determine Clockwise/Counterclockwise direction. The direction information is available as a logic level at the direction output. Operation is consistent down to zero speed.

The standard output is NPN Supply Tracking 0-Vs, provided from a 3.1k Ohm internal pull-up resistor to a collector, which can sink up to 25 mA. The output is normally high with no target present. Other output signal options are available such as 5V TTL compatible and Open Collector. Please see Page 2 for details.

For intrinsically safe versions refer to bulletin: IS170 & IS171  
 For Non-Incendive versions refer to bulletin: N170 & N171

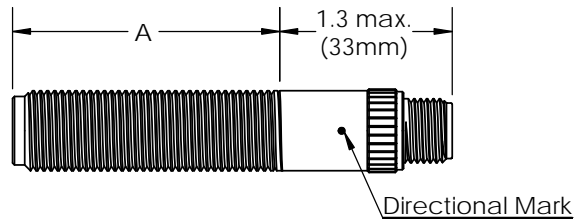
## SPECIFICATIONS

<b>Vs, Supply Voltage:</b>	5 to 30 Vdc @ ≤ 15 mA
<b>Vo, Output/Logic:</b>	See Page 2
<b>Operating Freq.:</b>	0 to ~20 kHz (Depending on target size & distance)
<b>Air Gap:</b>	5DP: = .160" (4mm) 48DP: = .025" (.6mm) (Low Mag ~50% less)
<b>Rise/Fall Time:</b>	Standard: 0.04 μs / 0.18 μs (Nom.)
<b>Direction:</b>	Logic 1: High (5V or Vs), Forward (Target rotates toward alignment mark) Logic 0: Low (0V), Reverse
<b>Magnetization:</b>	Standard: ~1500 Gauss Low Mag: ~500 Gauss
<b>Temperature Range:</b>	-40° to 255°F (-40° to 125°C) Sensor -40° to 221°F (-40° to 105°C) Cable
<b>Construction:</b>	300 Series stainless steel housing Solid epoxy encapsulation IP65 Rated (0169Q Connector Styles) IP63 Rated (0170Q Cable Styles)
<b>Connectors &amp; Pin Assignments:</b>	See Page 2 All have gold plated contacts
<b>Lead Wire &amp; Assignments:</b>	22 AWG, Shielded Cable Red: Supply (+) Black: Common (-) White: Signal, A Yellow or Orange: Signal, B Green: Signal, Direction Bare: Shield
<b>CE-Compliance:</b>	EN55011, EN50022-2

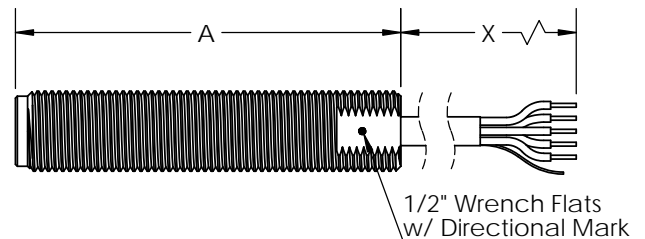
## OPTIONS

Custom configurations, special materials of construction, temperature probe (NTC10, RTD100, or others).

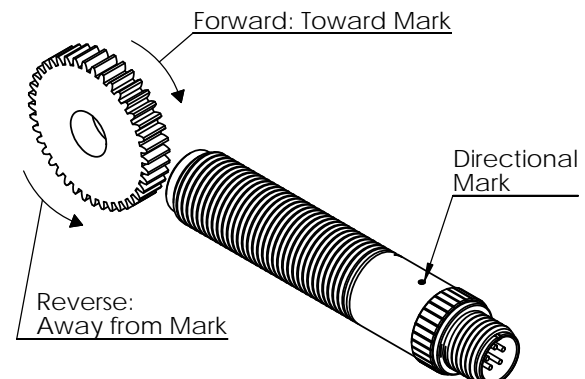
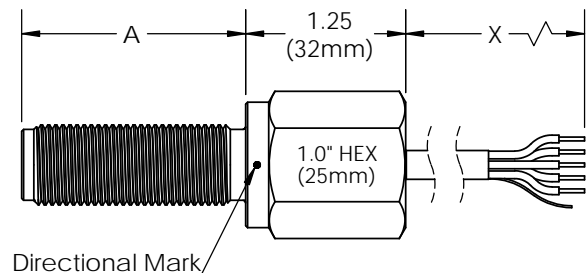
0169Q 5/8-18 UNF  
 0169QM M16x1.5  
 0169QM1 M16x1.0



0170Q 5/8-18 UNF  
 0170QM M16x1.5  
 0170QM1 M16x1.0



0170QY 5/8-18 UNF w/ 1/2-14 NPT Female



Note: The Directional Mark is for reference only. The alignment of the mark may need adjusted based on the target spacing (DP, pitch, module).

# ORDER INFORMATION

- 0169Q -    DIGISPEC HHFQ SENSOR, 5/8-18 UNF
- 0169QM -    DIGISPEC HHFQ SENSOR, M16x1.5
- 0169QM1 -    DIGISPEC HHFQ SENSOR, M16x1.0

Thread Length(A):

- 3 - 2.5" (63mm)
- 4 - 3.0" (76mm)
- 5 - 4.0" (102mm)
- 6 - 5.0" (127mm)
- 7 - 6.0" (152mm)
- 8 - 8.0" (203mm)

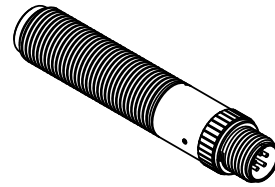
Vo, Signal Out:

- 1 - 0 - Vs, NPN w/ internal 3.1k Ohms pull-up [Normally High]
- 2 - 0 - Vs, NPN, OC (Open Collector) [Normally High]
- 5 - 0 - 5V, NPN (TTL) [Normally High]

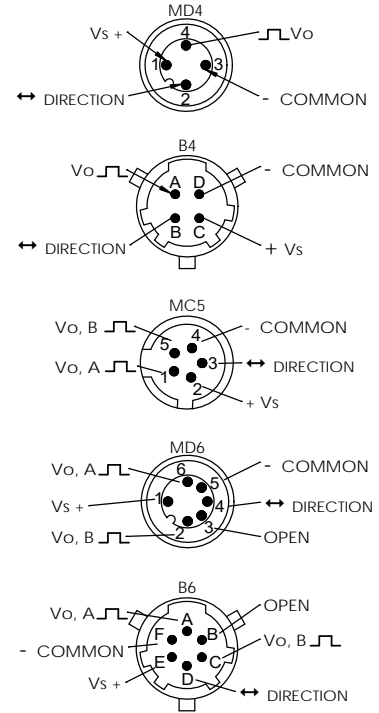
Connector:

- 4 - B4: 4 Pin Bayonet, MS3113H8-4P (See Bulletin 3001)\*
- 6 - MD4: 4 Pin Micro DIN (See Bulletin 3005)\*
- 7 - MC5: 5 Pin Micro-C (See Bulletin 3004)
- 8 - MD6: 6 Pin Micro DIN (See Bulletin 3005)
- 9 - B6: 6 Pin Bayonet, MS3113H10-6P (See Bulletin 3001)

\*Does NOT have dual frequency output



Connector Pin Out

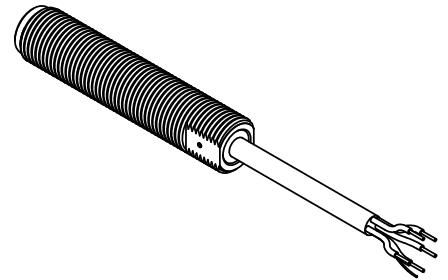


- 0170Q -    HHFQ SENSOR, 5/8-18 UNF
- 0170QM -    HHFQ SENSOR, M16x1.5
- 0170QM1 -    HHFQ SENSOR, M16x1.0

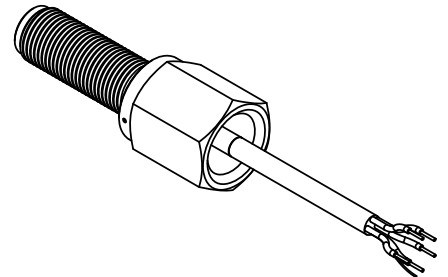
SAME AS ABOVE

Lead Wire(X):

- 7 - 3' (1m) (For shielded cable, shield is not connected)
- 9 - 10' (3m) (connected to ground of instrument panel)



- 0170QY -    HHFQ SENSOR, 5/8-18 UNF, NPT FEMALE
- SAME AS ABOVE



Note: The magnetization level for special or low mag sensors is designated as a suffix to the P/N. i.e.: 0169-xxxx-500G designating a Gauss level of 500. (450-550) (Standard mag. level will not have a suffix.)