

PRODUCT DESCRIPTION

SPECTEC's Non-Incendive / Increased Safety zero speed sensors are designed for installation in CL 1, Div 2 or Zone 2 hazardous locations and do not require a safety barrier. They are offered in a wide variety of configurations as outlined on page 2. These sensors are actuated by gear teeth and other ferrous targets. Variations with dual sensors or directional output are also available. Custom sensors can also be created to meet specific needs.

INSTALLATION

CAUTION: This sensor MUST be installed following the details specified in the Installation Instruction Document #85047N.

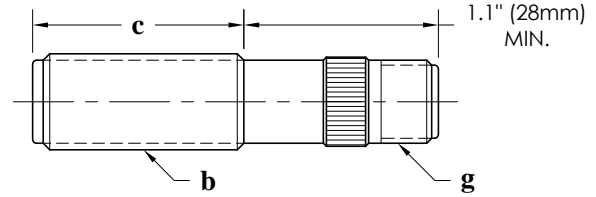
SPECIFICATIONS

- Supply Voltage:** 5 to 30 Vdc @ ≤15 mA
- Output Voltage:** See page 2
(25 mA maximum current sinking)
- Frequency Range:** 0 Hz to ~20 kHz
- Rise/Fall Time:** .04 / .18 μs Nominal
- Air Gap:** 5DP: ≤ .160"
48DP: ≤ .025"
- Magnetization:** 700 -1600 Gauss
- Direction signal: (as applicable)** Forward Logic 1 (5V max)
(target rotating toward alignment mark)
Reverse Logic 0 (0.06V max)
(target rotating away from alignment mark)
- Connection:** Connector or lead wires, See page 2
- Construction:** 300 Series Stainless Steel
Solid Epoxy Encapsulation

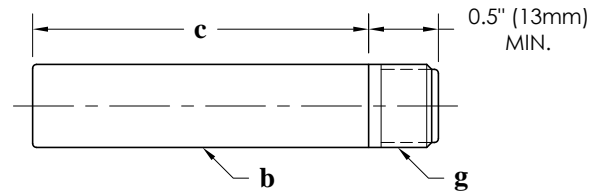
CERTIFICATIONS for N170 & N171

- ATEX:** II 3 G Ex ec IIC T6...T3 Gc
FM08ATEX0067X
- IECEX:** Ex ec IIC T6...T3 Gc
IECEX FMG 16.0003X
T3 @ -40°C ≤ T_{amb} ≤ +135°C
T4 @ -40°C ≤ T_{amb} ≤ +120°C
T5 @ -40°C ≤ T_{amb} ≤ +85°C
T6 @ -40°C ≤ T_{amb} ≤ +65°C
- USA:** N170: Class I, Division 2
GROUP ABCD T6...T5
Class I, Zone 2, AEx nC IIC T6...T5
N171: Class I, II, III, Division 2
GROUP ABCDEFG T6...T5
Class I, Zone 2, AEx nC IIC T6...T5
- Canada:** Class I, Division 2
GROUP ABCD T6...T5
Class I, Zone 2, Ex nL IIC T6...T5
T5 @ -40°C ≤ T_{amb} ≤ +85°C
T6 @ -40°C ≤ T_{amb} ≤ +65°C
- CE:** Compliance with
EN55011, EN50082-2

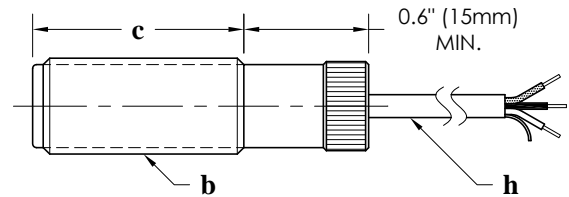
- N170** K shell type, knurled (shown below)
A shell type, all-thread (knurl removed)
H shell type, hex (knurl replaced by hex)



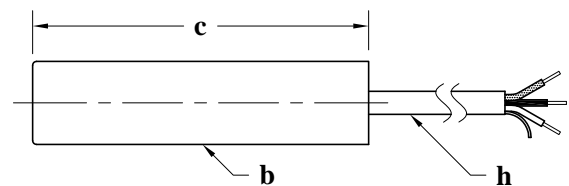
- N170** S shell type, smooth (custom units available)



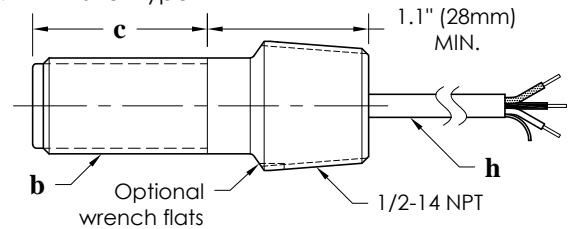
- N171** K shell type, knurled (shown below)
A shell type, all-thread (knurl removed)
H shell type, hex (knurl replaced by hex)



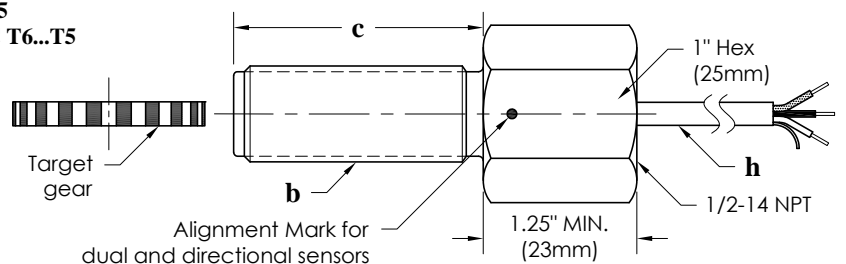
- N171** S shell type, smooth (custom units available)



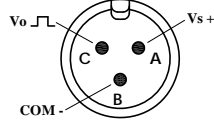
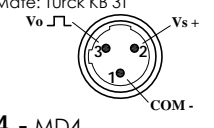
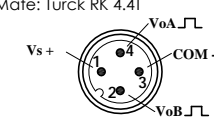
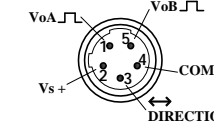
- N171** X shell type



- N171** Y shell type



FEATURE SELECTION for N170-abcgj and N171-abchj

SPECTEC P/N	a Shell Type	b Thread / Diameter	c Thread Length	Connection Type		j Output Signal	
				g Connector (N170 Only)	h Lead Wires (N171 Only)		
N170- (Connector Version) or N171- (Lead Wire Version)	K A H	0 - 3/8-24 UNF 1 - 1/2-20 UNF 2 - 5/8-18 UNF 3 - 11/16-24 UNEF 4 - 3/4-16 UNF 5 - 3/4-20 UNEF 6 - M12x1 7 - M16x1.5 8 - M18x1 9 - M18x1.5	0 - 0.75" (19mm) 1 - 1.0" to 1.3" (25-33mm) 2 - 1.5" to 1.8" (38-45mm) 3 - 2.0" (51mm) 4 - 2.5" (64mm) 5 - 3.0" to 3.5" (76-89mm) 6 - 4.0" (101mm) 7 - 6.0" (152mm) 8 - 8.0" (203mm) 9 - 10.0" (254mm)	1 - MO3 Mate: Amphenol MS3106A10SL-3S 	1 - 12" (.3m) 2 - 36" (1m) 3 - 120" (3m) 4 - 198" (5m) 5 - 396" (10m) Lengths of 36" (1m) and longer use shielded cable 18 to 24 AWG (depending on shell size) PVC or TFE insulation Red - Supply Black - Common White - Output A Yellow - Output B Green - Direction Shield - Floating (Not connected to shell, please ground to instrumentation) NOTE: Other lead wire lengths are available.	Standard Hall Sensor (HF, HHF, HHFQ) 1 - 0-5V, NPN(TTL) 2 - 0-10V, NPN 3 - 0-Vs, NPN 4 - 0-Vs, NPN OC 5 - 0-Vs, PNP OC 6 - 0-Vs, NPN/PNP Differential Hall Sensor (HFd, HHFd, HHFdQ) A - 0-5V, NPN(TTL) B - 0-10V, NPN C - 0-Vs, NPN D - 0-Vs, NPN OC E - 0-Vs, PNP OC F - 0-Vs, NPN/PNP	
		S 0 - ø3/8" (9.5mm) 1 - ø1/2" (12.7mm) 2 - ø5/8" (15.9mm)	Same as above	3 - MC3 Mate: Turck KB 3T 	NOTE: Other lead wire lengths are available.		
		X (N171 only)	1 - 1/2-20 UNF 2 - 5/8-18 UNF 3 - 11/16-24 UNEF 4 - 3/4-16 UNF 5 - 3/4-20 UNEF	0 - 0.7" (18mm) 1 - 1.3" (33mm) 4 - 2.5" (64mm) 7 - 6.0" (152mm) 8 - 8.0" (203mm)			4 - MD4 Mate: Turck RK 4.4T 
		Y (N171 only)	2 - 5/8-18 UNF 5 - 3/4-20 UNEF 7 - M16x1.5 8 - M18x1 9 - M18x1.5	1 - 1.1" (28mm) 3 - 2.0" (51mm) 5 - 3.0" (76mm) 6 - 4.0" (101mm) 7 - 6.0" (152mm) 8 - 8.0" (203mm) 9 - 10.0" (254mm)			5 - MC5 Mate: Turck KB 5T 

Variants:
N170-abcgjD Dual Sensor (HHF) - with quadrature output for manual sensing of direction
N170-abcgjQ Directional Sensor (HHFQ) - with quadrature and directional output when properly aligned

P/N Examples:
N170-K3412 K shell type, 11/16-24 x 2.5" thread, MO3 connector, 0-10V output
N171-Y2321 Y shell type, 5/8-18 x 2.0" thread, 36" leads, 0-5V output

Please Note: Some combinations of options are not possible, please contact sales with any questions.
 For Dual Sensor (HHF), thread size must be 1/2-20 or M12x1 or larger
 For Directional Sensor (HHFQ), thread size must be 5/8-18 or M16x1.5 or larger, thread length must be 2.0" or longer
 Some output options are only available with thread lengths of 1.5" or longer (2.0" or longer for 'S' shell type)

Old P/N to New P/N correlations:

N170-01 → N170-K2213	N171-01 → N171-A2333	N171-18 → N171-Y5333	N175-04 → N171-Y5334D
N170-02 → N170-K2214	N171-02 → N171-K2541	N171-80 → N171-K1243	N190-03 → N170-S2471Q
N170-03 → N170-K0615	N171-03 → N171-Y2634	N174-03 → N170-K2523D	
N170-90 → N170-S1434	N171-17 → N171-Y2334	N175-03 → N171-A5333D	

SPECIALTY MODELS:

N171-90 (was N191-90)	S	Customer specific shell	-	Lead Wires 120" (3m)	0-Vs, NPN w/ 5k pull-up & directional output
---------------------------------	----------	-------------------------	---	----------------------	--

SPECTEC Thunderbird International Corporation
 Ph. 406-333-4967 · Fax 406-333-4259 www.spectecsensors.com