

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 a magnet. Activation options include omnipolar (either pole) or unipolar (only one pole). A latching bipolar option is also available (requires alternating poles). 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

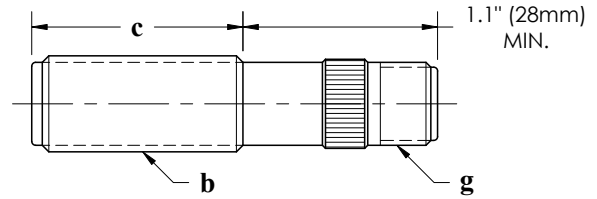
Supply Voltage:	5 to 30 Vdc @ ≤15 mA
Output Voltage:	See page 2 (25 mA maximum current sinking)
Frequency Range:	Standard 0 Hz to ~20 kHz for precision position applications High Speed 0 to 100 kHz for high speed only
Rise/Fall Time:	.04 / .18 μs Nominal
Air Gap:	5DP: ≤ .160" 48DP: ≤ .025"
Direction 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 N160 & N161

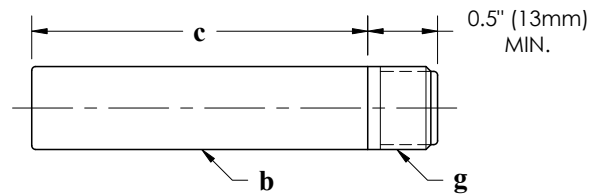
USA:	N160: Class I, Division 2 GROUP ABCD T6...T5	
	N161: Class I, II, III, Division 2 GROUP ABCDEFG T6...T5 Class I, Zone 2, AEx nC IIC T6...T5	
Canada:	Class I, Division 2 GROUP ABCD T6...T5 Class I, Zone 2, Ex nL IIC T6...T5	
	T5 @ -40°C ≤ T_{amb} ≤ +85°C T6 @ -40°C ≤ T_{amb} ≤ +65°C	

ATEX & UKEX:	II 3 G Ex ec IIC T6...T3 Gc FM08ATEX0067X FM22UKEX0109X
CE:	Compliance with EN55011, EN50082-2
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

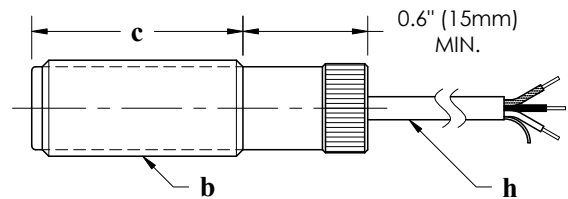
N160 K shell type, knurled (shown below)
 A shell type, all-thread (knurl removed)
 H shell type, hex (knurl replaced by hex)



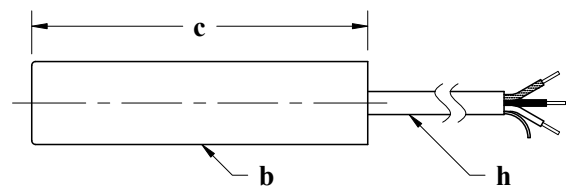
N160 S shell type, smooth (custom units available)



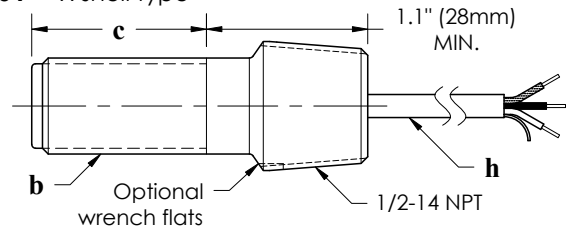
N161 K shell type, knurled (shown below)
 A shell type, all-thread (knurl removed)
 H shell type, hex (knurl replaced by hex)



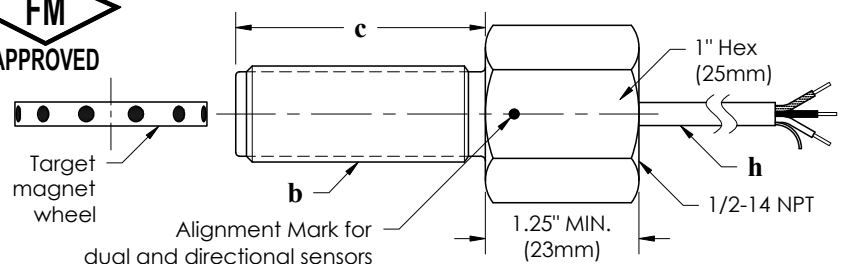
N161 S shell type, smooth (custom units available)



N161 X shell type



N161 Y shell type



FEATURE SELECTION for N160-abcgjm and N161-abchjm

SPECTEC P/N	a Shell Type	b Thread / Diameter	c Thread Length	Connection Type		j Output Signal	m Polar Activation
				g Connector (N160 Only)	h Lead Wires (N161 Only)		
N160- (Connector Version) or N161- (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)	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	Omnipolar Sensor (detects either pole) 1 - Ho (standard) 2 - HCo (high speed) Unipolar South Sensor (detects south pole only) 3 - Hs (standard) 4 - HCs (high speed) Unipolar North Sensor (detects north pole only) 5 - Hn (standard) 6 - Hcn (high speed) Bipolar Latch Sensor (detects alternating poles) 7 - H (standard) 8 - HC (high speed)
	S	0 - ϕ 3/8" (9.5mm) 1 - ϕ 1/2" (12.7mm) 2 - ϕ 5/8" (15.9mm)	Same as above	2 - B4 Mate: Amphenol MS3116F8-4S 	Lengths of 36" (1m) and longer use shielded cable		
	X (N161 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)	3 - MC3 Mate: Turck KB 3T 	18 to 24 AWG (depending on shell size) PVC or TFE insulation		
	Y (N161 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)	4 - MD4 Mate: Turck RK 4.4T 	Red - Supply Black - Common White - Output A Yellow - Output B Green - Direction Shield - Floating (Not connected to shell, please ground to instrumentation)		
			5 - MC5 Mate: Turck KB 5T 	6 - MD6 Mate: Turck RK 6T 	7 - B6 Mate: Amphenol MS3116F10-6S 		

Variants:

- N160-abcgjmd** Dual Sensor (HH) - with quadrature output for manual sensing of direction
- N160-abcgjmQ** Directional Sensor (HHQ) - with quadrature and directional output when properly aligned

P/N Examples:

- N160-K34127** K shell type, 11/16-24 x 2.5" thread, MO3 connector, 0-10V output, Bipolar Latch sensor
- N161-Y23213** Y shell type, 5/8-18 x 2.0" thread, 36" leads, 0-5V output, Unipolar South sensor

Please Note: Some combinations of options are not possible, please contact sales with any questions.
 For Dual Sensor (HH), thread size must be 1/2-20 or M12x1 or larger
 For Directional Sensor (HHQ), 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:

N160-01 → N160-K22337	N160-11 → N160-K32337	N161-01 → N161-K21331	N165-03 → N161-Y53357D
N160-02 → N160-K22347	N160-20 → N160-K61451	N161-02 → N161-K22337	
N160-03 → N160-K22357	N160-21 → N160-K60451	N161-16 → N161-Y23337	
N160-04 → N160-K21431		N161-80 → N161-K12437	

SPECIALTY MODELS:

N161-90	MF	Customer specific shell	Lead Wires 24" (0.6m)	0-Vs, NPN	Ho (Omnipolar)
----------------	-----------	-------------------------	-----------------------	-----------	----------------