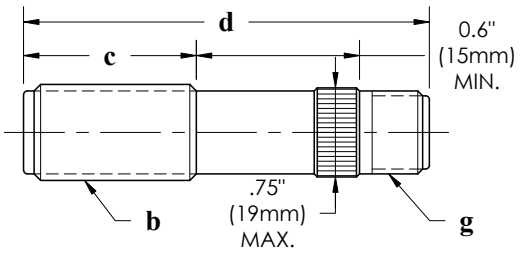
SPECTEC
THUNDERBIRD INTERNATIONAL CORPORATION
P.O. BOX 360, EMIGRANT, MT 59027, USA
(406) 333-4967 FAX: (406) 333-4259
www.spectecsensors.com

N220 Bulletin
Digispec Linear Position Sensor
Non-Incendive / Increased Safety
1/2, 5/8, 11/16, 3/4, M16 & M18

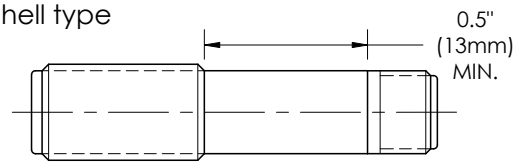
PRODUCT DESCRIPTION

SPECTEC's Non-Incendive / Increased Safety digital output linear and angular position sensors are designed for installation in hazardous locations. They are offered in a wide variety of configurations as outlined on page 2. Custom sensors can also be created to meet specific needs.
For leadwire version refer to N221 Bulletin.
These sensors are designed to sense continuous variations in magnetic field and convert field strength to a proportional voltage. The output voltage produced for zero magnetic field is nominally 2.5V, with a standard transfer function of ±5mV/Gauss. Magnetic sensitivity is in one axis only. Several units can be combined to measure (X, Y, Z) magnetic field vectors.

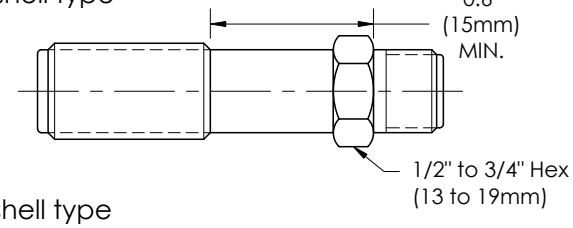
K shell type



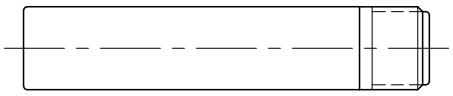
A shell type



H shell type



S shell type



INSTALLATION

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

SPECIFICATIONS

Supply Voltage:	8 to 30 Vdc @ ≤8 mA
Output Range:	Voltage <0.5V to >4.5V (0.06 - 4.95V typical) Current -1.0mA (source) Max. 10.0mA (sink) Max.
Quiescent Output Voltage:	2.500V ± 0.075V at Zero field equivalent to ± 15 Gauss (Standard) (R Load ≥ 1MΩ for stated accuracy and output)
Output Resistance:	300 Ω typical
Frequency Range:	DC to ~30 kHz
Sensitivity:	See Page 2
Sensing Orientation:	No Magnet stabilizes at 2.5V North Pole shifts towards 0V South Pole shifts towards 5V
Sensing Distance:	0 to > 1.0" @ 3000 Gauss typical
Connection:	Connector, See page 2
Construction:	300 Series Stainless Steel Solid Epoxy Encapsulation

For mating connector/cable assemblies refer to respective bulletins: 3000 for MO, 3001 for B, 3004 for MC, and 3005 for MD.

CERTIFICATIONS for N220

USA: **Class I, Division 2**
GROUP ABCD 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

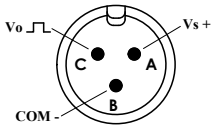
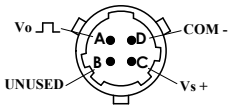
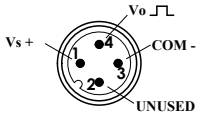
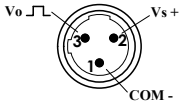
ATEX & UKEX: **II 3 G Ex ec IIC T6...T3 Gc**
FM08ATEX0067X
FM22UKEX0109X

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

11/21/2022 Rev: 3 Approved Feb 17th, 2023

FEATURE SELECTION for N220-xx

SPECTEC P/N	a Shell Type	b Thread / Diameter	c Thread Length	d Overall Length	g Connector	k Sensitivity
N220-xx	**K** **A** **H**	1/2-20 UNF 5/8-18 UNF 11/16-24 UNEF 3/4-16 UNF 3/4-20 UNEF M16x1.5 M18x1.5	0.75" (19mm) Minimum 13.0" (330mm) Maximum	1.75" (44mm) Minimum 14.0" (356mm) Maximum	MO3 Mate: Amphenol MS3106A10SL-3S 	Standard: 5 mV/Gauss Medium: 3.125 mV/Gauss High: 2.5 mV/Gauss
	S	5/8" (15.9mm)	N/A	1.75" (44mm) Minimum 14.0" (356mm) Maximum	B4 Mate: Amphenol MS3116F8-4S 	
			MD4 Mate: Turck RK 4.4T 	MC3 Mate: Turck KB 3T 		

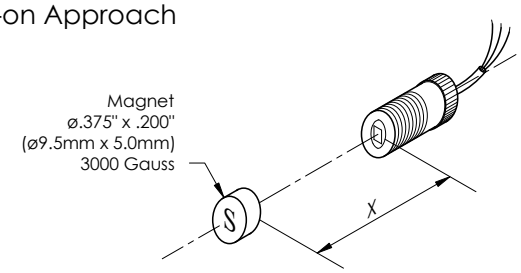
The above features give the range of products available under the certifications.
Please specify your specific needs when contacting sales.

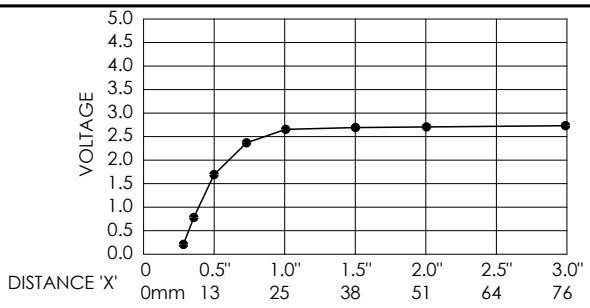
SPECIFIC MODELS

N220-01	**K**	5/8-18 UNF	1.8" (45mm)	3.0" (76mm)	MO3	5 mV/Gauss

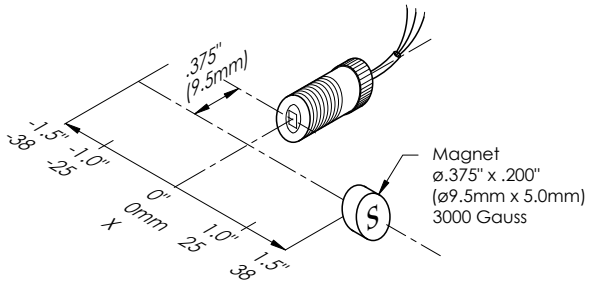
TYPICAL PERFORMANCE DATA

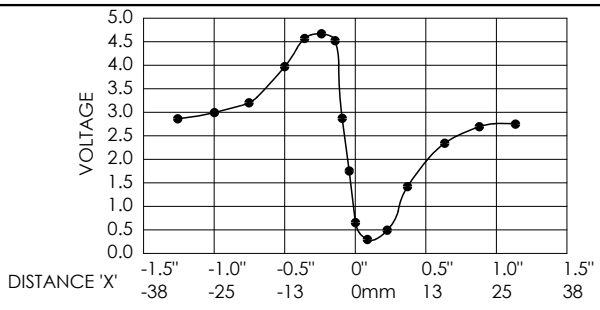
Head-on Approach





Fly By





Shaft Rotation