



### 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.

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  $\pm 5\text{mV/Gauss}$ . Magnetic sensitivity is in one axis only. Several units can be combined to measure (X, Y, Z) magnetic field vectors.

### INSTALLATION

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

### SPECIFICATIONS

**Supply Voltage:** 8 to 30 Vdc @  $\leq 8\text{ mA}$

**Output Range:** Voltage  
 $< 0.5\text{V}$  to  $> 4.5\text{V}$   
 (0.06 - 4.95V typical)

Current  
 $-1.0\text{mA}$  (source) Max.  
 $10.0\text{mA}$  (sink) Max.

**Quiescent Output Voltage:**  $\pm 0.075\text{V}$   
 (2.425 to 2.575V at zero field)  
 $\pm 30\text{ Gauss}$  equivalent  
 (R Load  $\geq 1\text{m}\Omega$  for stated accuracy and output)

**Output Resistance:**  $100\ \Omega$  typical

**Frequency Range:** DC to  $\sim 30\text{ kHz}$

**Sensitivity:** See Page 2

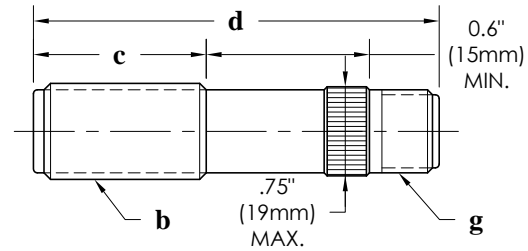
**Sensing Distance:** 0 to  $> 1.0''$   
 @  $3000\text{ Gauss}$  typical

**Connection:** Connector, See page 2

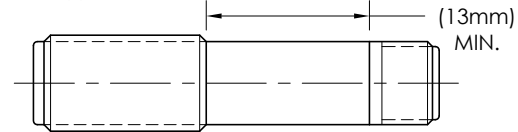
**Construction:** 300 Series Stainless Steel  
 Solid Epoxy Encapsulation

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

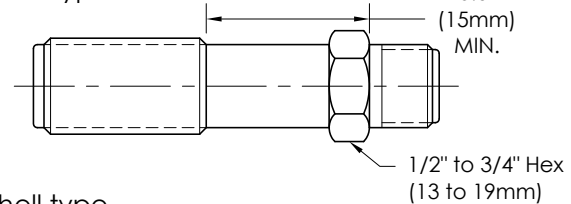
#### K shell type



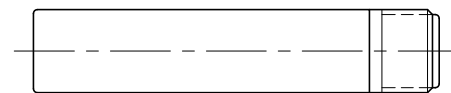
#### A shell type



#### H shell type



#### S shell type



### CERTIFICATIONS for N220

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

**IECEX:** Ex ec IIC T6...T3 Gc  
**IECEX FMG 16.0003X**  
**T3 @  $-40^\circ\text{C} \leq T_{\text{amb}} \leq +135^\circ\text{C}$**   
**T4 @  $-40^\circ\text{C} \leq T_{\text{amb}} \leq +120^\circ\text{C}$**   
**T5 @  $-40^\circ\text{C} \leq T_{\text{amb}} \leq +85^\circ\text{C}$**   
**T6 @  $-40^\circ\text{C} \leq T_{\text{amb}} \leq +65^\circ\text{C}$**

**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 @  $-40^\circ\text{C} \leq T_{\text{amb}} \leq +85^\circ\text{C}$**   
**T6 @  $-40^\circ\text{C} \leq T_{\text{amb}} \leq +65^\circ\text{C}$**

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

# 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	0.75" (19mm) Minimum	1.75" (44mm) Minimum	 	Standard: 5 mV/Gauss  Medium: 3.125 mV/Gauss  High: 2.5 mV/Gauss
		5/8-18 UNF	13.0" (330mm) Maximum	14.0" (356mm) Maximum		
	S	5/8" (15.9mm)	N/A	1.75" (44mm) Minimum 14.0" (356mm) Maximum		

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
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## TYPICAL PERFORMANCE DATA

