

### PRODUCT DESCRIPTION

SPECTEC's Non-Incendive / Increased Safety variable reluctance (VRS) and inductive magnetic 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. 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 #85045N.**

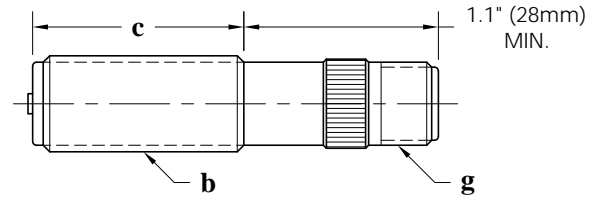
### SPECIFICATIONS

<b>Coil Resistance:</b>	See page 2 Output Voltage is limited by internal diode network to approximately 1 Vpp
<b>Frequency Range:</b>	~5 Hz to 100 kHz
<b>Air Gap:</b>	5DP: ~ .070" Max. 48DP: ~ .015" Max depending on surface velocity
<b>Magnetization:</b>	Standard: 700 - 1200 Gauss Low: Specify (300 Gauss typ.)
<b>Pole Piece:</b>	Flush or extended, See page 2
<b>Connection:</b>	Connector or lead wires, See page 2
<b>Construction:</b>	300 Series Stainless Steel Solid Epoxy Encapsulation

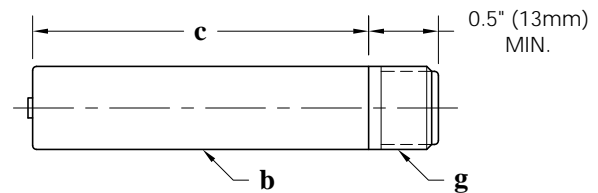
### CERTIFICATIONS for N40 & N41

<b>ATEX:</b>	<b>II 3 G Ex ec IIC T6...T3 Gc FM08ATEX0067X</b>
<b>IECEX:</b>	<b>Ex ec IIC T6...T3 Gc IECEX FMG 16.0003X</b>
	<b>T3 @ -40°C ≤ T<sub>amb</sub> ≤ +135°C</b>
	<b>T4 @ -40°C ≤ T<sub>amb</sub> ≤ +120°C</b>
	<b>T5 @ -40°C ≤ T<sub>amb</sub> ≤ +85°C</b>
	<b>T6 @ -40°C ≤ T<sub>amb</sub> ≤ +65°C</b>
<b>USA:</b>	<b>N40: Class I, Division 2 GROUP ABCD T6...T5 Class I, Zone 2, AEx nC IIC T6...T5</b>
	<b>N41: Class I, II, III, Division 2 GROUP ABCDEFG T6...T5 Class I, Zone 2, AEx nC IIC T6...T5</b>
<b>Canada:</b>	<b>Class I, Division 2 GROUP ABCD T6...T5 Class I, Zone 2, Ex nL IIC T6...T5</b>
	<b>T5 @ -40°C ≤ T<sub>amb</sub> ≤ +85°C</b>
	<b>T6 @ -40°C ≤ T<sub>amb</sub> ≤ +65°C</b>
<b>CE:</b>	<b>Compliance with EN50081-1, EN50082-1</b>

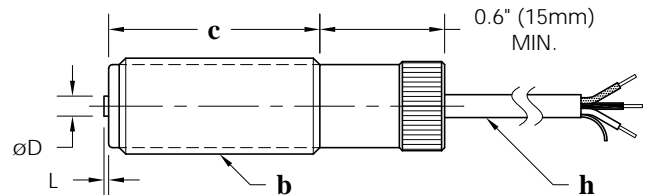
- N40** K shell type, knurled (shown below)  
 A shell type, all-thread (knurl removed)  
 H shell type, hex (knurl replaced by hex)



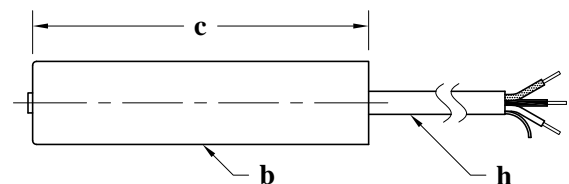
- N40** S shell type, smooth (custom units available)



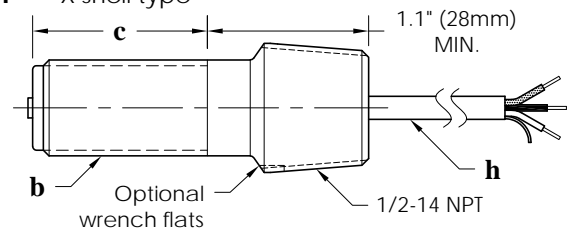
- N41** K shell type, knurled (shown below)  
 A shell type, all-thread (knurl removed)  
 H shell type, hex (knurl replaced by hex)



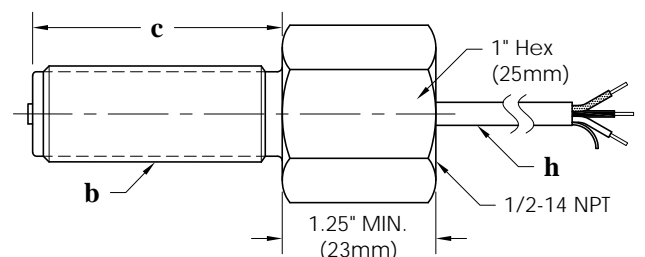
- N41** S shell type, smooth (custom units available)



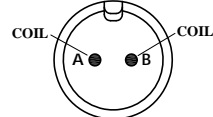
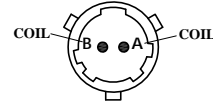
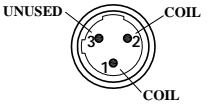
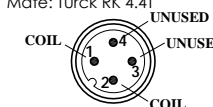
- N41** X shell type



- N41** Y shell type



# FEATURE SELECTION for N40-abcefg and N41-abcefh

SPECTEC P/N	a Shell Type	b Thread / Diameter	c Thread Length	e Coil Resistance (Nominal)	f Pole Piece	Connection Type	
						g Connector (N40 Only)	h Lead Wires (N41 Only)
<b>N40-</b> (Connector Version)  <b>or</b>  <b>N41-</b> (Lead Wire Version)	<b>K</b> <b>A</b> <b>H</b>  <b>S</b>  <b>X</b> (N41 only)  <b>Y</b> (N41 only)	<b>1</b> - 1/2-20 UNF <b>2</b> - 5/8-18 UNF <b>3</b> - 11/16-24 UNEF <b>4</b> - 3/4-16 UNF <b>5</b> - 3/4-20 UNEF <b>6</b> - M12x1 <b>7</b> - M16x1.5 <b>8</b> - M18x1 <b>9</b> - M18x1.5	<b>0</b> - 0.75" (19mm) <b>1</b> - 1.0" to 1.3" (25-33mm) <b>2</b> - 1.5" to 1.8" (38-45mm) <b>3</b> - 2.0" (51mm) <b>4</b> - 2.5" (64mm) <b>5</b> - 3.0" to 3.5" (76-89mm) <b>6</b> - 4.0" (101mm) <b>7</b> - 6.0" (152mm) <b>8</b> - 8.0" (203mm) <b>9</b> - 10.0" (254mm)	<b>1</b> - 50 Ω <b>2</b> - 150 Ω <b>3</b> - 250 Ω <b>4</b> - 650 Ω <b>5</b> - 1100 Ω <b>6</b> - 1500 Ω <b>7</b> - 2000 Ω <b>8</b> - 3000 Ω <b>9</b> - 5000 Ω  NOTE: Coil resistance is selected based on the sensitivity requirements for the specific application.	<b>1</b> - FP <b>2</b> - EP62 <b>3</b> - EP93 <b>4</b> - EP106 <b>5</b> - EP125 <b>6</b> - EP188 <b>7</b> - EP250 <b>8</b> - CP10 <b>9</b> - CP45 <b>A</b> - FPS <b>B</b> - EPS106 <b>C</b> - EPS125  For details see below.	<b>1</b> - MO Mate: Amphenol MS3106A10SL-4S  <b>2</b> - B Mate: Amphenol MS3116F8-2S  <b>3</b> - MC3 Mate: Turck KB 3T  <b>4</b> - MD4 Mate: Turck RK 4.4T 	<b>1</b> - 12" (.3m) <b>2</b> - 36" (1m) <b>3</b> - 120" (3m) <b>4</b> - 198" (5m) <b>5</b> - 396" (10m)  Lengths of 36" (1m) and longer use shielded cable  18 to 24 AWG (depending on shell size)  PVC or TFE insulation  Shield is not connected to shell, please ground to instrumentation  NOTE: Other lead wire lengths are available.
		<b>1</b> - 1/2-20 UNF <b>2</b> - 5/8-18 UNF <b>3</b> - 11/16-24 UNEF <b>4</b> - 3/4-16 UNF <b>5</b> - 3/4-20 UNEF	<b>0</b> - 0.7" (18mm) <b>1</b> - 1.3" (33mm) <b>4</b> - 2.5" (64mm) <b>7</b> - 6.0" (152mm) <b>8</b> - 8.0" (203mm)				
		<b>2</b> - 5/8-18 UNF <b>5</b> - 3/4-20 UNEF <b>7</b> - M16x1.5 <b>8</b> - M18x1 <b>9</b> - M18x1.5	<b>1</b> - 1.1" (28mm) <b>3</b> - 2.0" (51mm) <b>5</b> - 3.0" (76mm) <b>6</b> - 4.0" (101mm) <b>7</b> - 6.0" (152mm) <b>8</b> - 8.0" (203mm) <b>9</b> - 10.0" (254mm)				
		<b>1</b> - 1/2-20 UNF <b>2</b> - 5/8-18 UNF <b>3</b> - 11/16-24 UNEF <b>4</b> - 3/4-16 UNF <b>5</b> - 3/4-20 UNEF	<b>0</b> - 0.75" (19mm) <b>1</b> - 1.0" to 1.3" (25-33mm) <b>2</b> - 1.5" to 1.8" (38-45mm) <b>3</b> - 2.0" (51mm) <b>4</b> - 2.5" (64mm) <b>5</b> - 3.0" to 3.5" (76-89mm) <b>6</b> - 4.0" (101mm) <b>7</b> - 6.0" (152mm) <b>8</b> - 8.0" (203mm) <b>9</b> - 10.0" (254mm)				

**Pole Piece details:**

FP - Flush pole ø.130  
 EP106 - Extended pole ø.106 x .03 long, number after 'EP' describes diameter (all Extended pole options are .030" long except EP125 is .070" long)  
 CP45 - Chisel pole, .045" chisel edge x .03 long  
 Pole types FPS, EPS106, & EPS125 have a stainless steel face on the sensing end.

**Variants:**

**N40-abcefg-300G** The magnetization level for low magnetic drag sensors is designated as a suffix to the part number. This example designates a gauss level of 300. The standard magnetic level does not require a suffix.

**P/N Examples:**

- N40-K34651** K shell type, 11/16-24 x 2.5" thread, 1500 Ω coil, EP125 pole piece, MO connector
- N41-Y23213** Y shell type, 5/8-18 x 2.0" thread, 150 Ω coil, FP pole piece, 120" leads

**Please Note:** Some combinations of options are not possible, please contact sales with any questions.

**Old P/N to New P/N correlations:**

N40-01 → N40-K309C1	N40-06 → N40-K307C1	N40-21 → N40-K217B1	N40-26 → N40-K218B1	N41-08 → N41-K24612
N40-03 → N40-K317C1	N40-07 → N40-K308C1	N40-24 → N40-K21611	N41-06 → N41-X17412	N41-09 → N41-X18412
N40-05 → N40-K307A1	N40-20 → N40-K217C1	N40-25 → N40-K24641	N41-07 → N41-K216A2	N41-11 → N41-Y56512

**SPECIALTY MODELS:**

N41-01	Y	5/8-18 UNF	3.5" (89mm)	250 Ω	FPS	Cable 120" (3m)
N41-04	K	11/16-24 UNEF	1.3" (33mm)	2000 Ω	EP106	Lead Wires 16" (0.4m)
N41-05	Y	5/8-18 UNF	Customer Specific	1100 Ω	FP	Lead Wires 24" (0.6m)
N41-10	Y	5/8-18 UNF	Customer Specific	1100 Ω	FP	Lead Wires 24" (0.6m)
N41-12	H	5/8-18 UNF	Customer Specific	1100 Ω	FPS	Lead Wires 12" (0.3m)
N41-99	S	ø 3/8" (9.5mm)	1.5" (38mm)	250 Ω	FP	Lead Wires 13" (0.33m)