

PRODUCT DESCRIPTION

SPECTEC's Intrinsically Safe variable reluctance (VRS) and inductive magnetic sensors are designed for installation in hazardous locations. 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. Versions with ATEX & IECEx certification are available under part numbers IS40A & IS41A. Custom sensors can also be created to meet specific needs.

INSTALLATION

CAUTION: This sensor MUST be installed with an FM approved barrier and following the details specified in the Installation Instruction Document #85045.

SPECIFICATIONS

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

CERTIFICATIONS for IS40 & IS41

USA: Intrinsically Safe
 Class I, II, III, Division 1
 GROUP ABCDEFG T6...T5
 Class I, Zone 0, AEx ia IIC T6...T5

Canada: Intrinsically Safe
 Class I, Division 1
 GROUP ABCD T6...T5
 Class I, Zone 0, Ex ia IIC T6...T5
 T5 @ $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$
 T6 @ $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +65^{\circ}\text{C}$

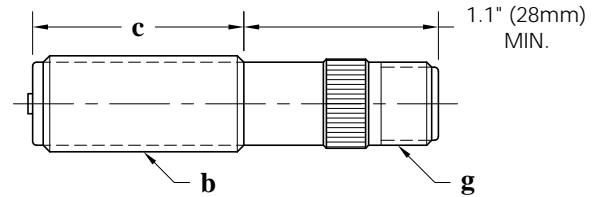
CERTIFICATIONS for IS40A & IS41A

ATEX: II 1 G Ex ia IIC T6...T4 Ga
 FM08ATEX0066X

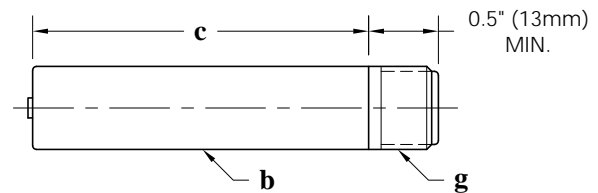
IECEx: Ex ia IIC T6...T4 Ga
 IECEx FMG 16.0003X
 T4 @ $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +100^{\circ}\text{C}$
 T5 @ $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$
 T6 @ $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +65^{\circ}\text{C}$

CE: Compliance with
 EN50081-1, EN50082-1

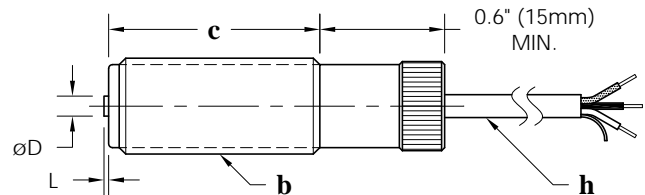
IS40 K shell type, knurled (shown below)
 A shell type, all-thread (knurl removed)
 H shell type, hex (knurl replaced by hex)



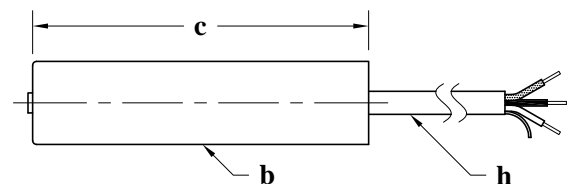
IS40 S shell type, smooth (custom units available)



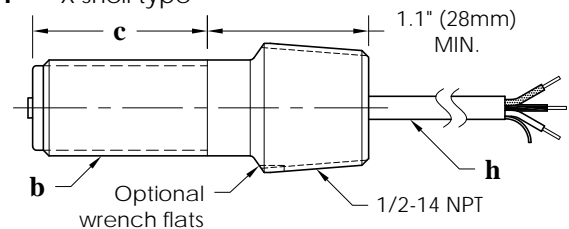
IS41 K shell type, knurled (shown below)
 A shell type, all-thread (knurl removed)
 H shell type, hex (knurl replaced by hex)



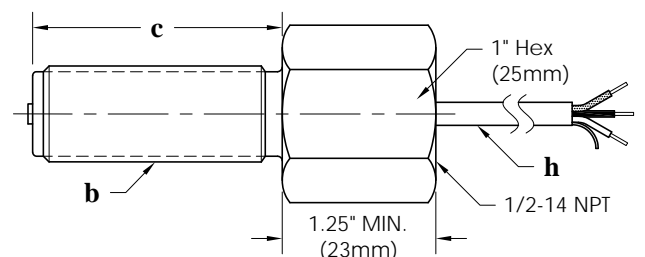
IS41 S shell type, smooth (custom units available)



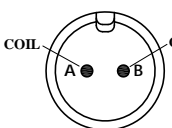
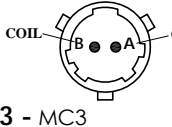
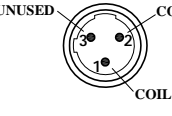
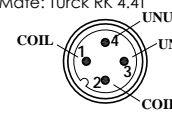
IS41 X shell type



IS41 Y shell type



FEATURE SELECTION for IS40-abcefg and IS41-abcefh

SPECTEC P/N	a Shell Type	b Thread / Diameter	c Thread Length	e Coil Resistance (Nominal)	f Pole Piece	Connection Type			
						g Connector (IS40 Only)	h Lead Wires (IS41 Only)		
IS40- (Connector Version) OR IS41- (Lead Wire Version)	K A H	1 - 1/2-20 UNF	0 - 0.75" (19mm)	1 - 50 Ω	1 - FP	1 - MO Mate: Amphenol MS3106A10SL-4S  2 - B Mate: Amphenol MS3116F8-2S  3 - MC3 Mate: Turck KB 3T  4 - MD4 Mate: Turck RK 4.4T 	1 - 12" (.3m)	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.	
		2 - 5/8-18 UNF	1 - 1.0" to 1.3" (25-33mm)	2 - 150 Ω	2 - EP62		2 - EP93		2 - 36" (1m)
		3 - 11/16-24 UNEF	2 - 1.5" to 1.8" (38-45mm)	3 - 250 Ω	3 - EP93		3 - EP106		3 - 120" (3m)
		4 - 3/4-16 UNF	3 - 2.0" (51mm)	4 - 650 Ω	4 - EP106		4 - EP125		4 - 198" (5m)
	5 - 3/4-20 UNEF	4 - 2.5" (64mm)	5 - 1100 Ω	5 - EP125	5 - EP188		4 - 198" (5m)		
		6 - M12x1	3 - 2.0" (51mm)	6 - 1500 Ω	6 - EP188	5 - 396" (10m)			
		7 - M16x1.5	4 - 2.5" (64mm)	7 - 2000 Ω	7 - EP250				
		8 - M18x1	5 - 3.0" to 3.5" (76-89mm)	8 - 3000 Ω	8 - CP10				
		9 - M18x1.5	6 - 4.0" (101mm)	9 - 5000 Ω	9 - CP45				
			7 - 6.0" (152mm)		A - FPS				
			8 - 8.0" (203mm)		B - EPS106				
			9 - 10.0" (254mm)		C - EPS125				
	S	1 - ø1/2" (12.7mm)	Same as above						
		2 - ø5/8" (15.9mm)							
	X (IS41 Only)	1 - 1/2-20 UNF	0 - 0.7" (18mm)		For details see below.				
		2 - 5/8-18 UNF	1 - 1.3" (33mm)						
		3 - 11/16-24 UNEF	4 - 2.5" (64mm)						
		4 - 3/4-16 UNF	7 - 6.0" (152mm)						
		5 - 3/4-20 UNEF	8 - 8.0" (203mm)						
	Y (IS41 Only)	2 - 5/8-18 UNF	1 - 1.1" (28mm)						
		5 - 3/4-20 UNEF	3 - 2.0" (51mm)						
		7 - M16x1.5	5 - 3.0" (76mm)						
		8 - M18x1	6 - 4.0" (101mm)						
		9 - M18x1.5	7 - 6.0" (152mm)						
			8 - 8.0" (203mm)						
			9 - 10.0" (254mm)						

NOTE:
Coil resistance is selected based on the sensitivity requirements for the specific application.

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, EPS, EP106, & EP125 have a stainless steel face on the sensing end.

Variants:

IS40A-abcefg ATEX & IECEx Certification
IS40-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:

IS40-K34651 K shell type, 11/16-24 x 2.5" thread, 1500 Ω coil, EP125 pole piece, MO connector
IS41A-Y23213 ATEX certification, 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:

IS40-01 → IS40-K309C1	IS40-06 → IS40-K307C1	IS40-21 → IS40-K217B1	IS40-26 → IS40-K218B1	IS41-08 → IS41-K24612
IS40-03 → IS40-K317C1	IS40-07 → IS40-K308C1	IS40-24 → IS40-K21611	IS41-06 → IS41-X17412	IS41-09 → IS41-X18412
IS40-05 → IS40-K307A1	IS40-20 → IS40-K217C1	IS40-25 → IS40-K24641	IS41-07 → IS41-K216A2	IS41-11 → IS41-Y56512

SPECIALTY MODELS: (also available with ATEX & IECEx certification under the part number IS40A-xx or IS41A-xx)

P/N	Shell Type	Thread / Diameter	Thread Length	Coil Resistance	Pole Piece	Lead Wires
IS41-01	Y	5/8-18 UNF	3.5" (89mm)	250 Ω	FPS	Cable 120" (3m)
IS41-04	K	11/16-24 UNEF	1.3" (33mm)	2000 Ω	EP106	Lead Wires 16" (0.4m)
IS41-05	Y	5/8-18 UNF	Customer Specific	1100 Ω	FP	Lead Wires 24" (0.6m)
IS41-10	Y	5/8-18 UNF	Customer Specific	1100 Ω	FP	Lead Wires 24" (0.6m)
IS41-12	H	5/8-18 UNF	Customer Specific	1100 Ω	FPS	Lead Wires 12" (0.3m)
IS41-99	S	ø 3/8" (9.5mm)	1.5" (38mm)	250 Ω	FP	Lead Wires 13" (0.33m)

SPECTEC Thunderbird International Corporation
 Ph. 406-333-4967 · Fax 406-333-4259 www.spectecsensors.com PAGE 2 OF 2