

Digispec Magnetic Speed Sensor

IS90 & IS91 Bulletin

PRODUCT DESCRIPTION

Intrinsically Safe digital output 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, UKEX, & IECEx certification are available under part numbers IS90A & IS91A. 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 #85047.

SPECIFICATIONS

Supply Voltage:	8 to 30 Vdc @ ≤ 1.5 mA
Output Voltage:	See page 2 (25 mA maximum current sinking)
Frequency Range:	Standard: ~5 Hz to 25 kHz Noise Canceling: ~5 Hz to 5 kHz
Sensitivity:	See page 2
Rise/Fall Time:	.04 / .18 μ s Nominal
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 IS90 & IS91

USA:	Intrinsically Safe Class I, II, III, Division 1 GROUP ABCDEFG T6...T5 Class I, Zone 0, AEx ia IIC T6...T5
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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 @ $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +65^{\circ}\text{C}$
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CERTIFICATIONS for IS90A & IS91A

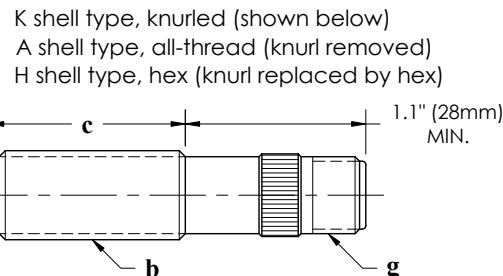
ATEX & UKEX:	II 1 G Ex ia IIC T6...T4 Ga FM08ATEX0066X FM22UKEX0108X
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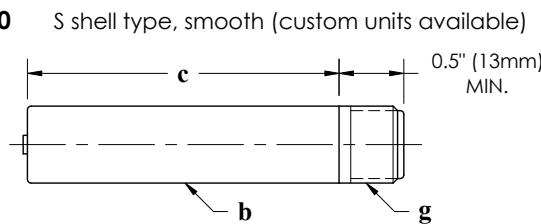
CE:	CE
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IECEx:	Ex ia IIC T6...T4 Ga IECEx FMG 16.0003X T4 @ $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +100^{\circ}\text{C}$ T5 @ $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +85^{\circ}\text{C}$ T6 @ $-40^{\circ}\text{C} \leq T_{\text{amb}} \leq +65^{\circ}\text{C}$
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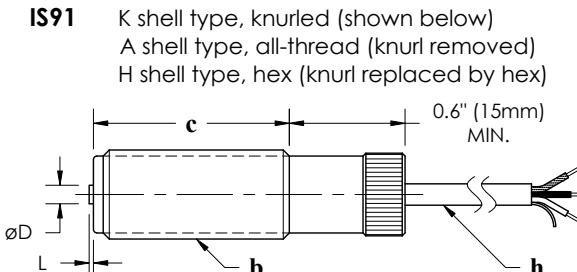
IS90



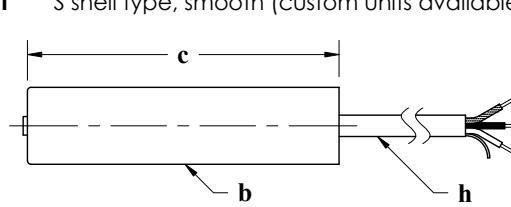
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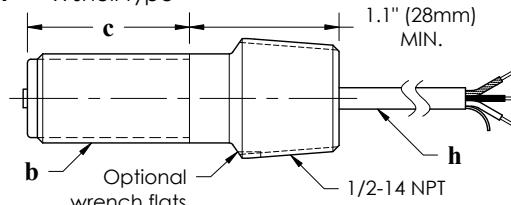
IS91



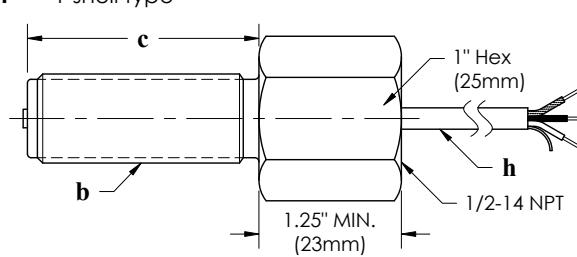
IS91



IS91



IS91



FEATURE SELECTION for IS90-**abcfgjk** and IS91-**abcfhjk**

P/N	a Shell Type	b Thread / Diameter	c Thread Length	f Pole Piece	Connection Type		j Output Signal	k Sensitivity
					g Connector (IS90 Only)	h Lead Wires (IS91 Only)		
IS90- (Connector Version) or IS91- (Lead Wire Version)	K	1 - 1/2-20 UNF	0 - 0.75" (19mm)	1 - FP	1 - MO3 Mate: Amphenol MS3106A10SL-3S	1 - 12" (.3m)	1 - 0-5V, NPN(TTL)	1 - 12 mV
		2 - 5/8-18 UNF	1 - 1.0" to 1.3" (25-33mm)	2 - EP62	2 - 36" (1m)	2 - 36" (1m)	2 - 0-10V, NPN	2 - 30 mV
	A H	3 - 11/16-24 UNEF	2 - 1.5" to 1.8" (38-45mm)	3 - EP93	3 - 120" (3m)	3 - 120" (3m)	3 - 0-Vs, NPN	
		4 - 3/4-16 UNF	4 - EP106	4 - EP125	4 - 198" (5m)	4 - 198" (5m)	4 - 0-Vs, NPN OC	
		5 - 3/4-20 UNEF	5 - EP125	6 - EP188	5 - 396" (10m)	Lengths of 36" (1m) and longer use shielded cable		
		6 - M12x1	6 - EP188	7 - EP250	18 to 24 AWG (depending on shell size)			
		7 - M16x1.5	7 - EP250	8 - CP10	3 - MC3 Mate: Turck KB 3T	PVC or TFE insulation		
		8 - M18x1	8 - CP45	9 - CP45	2 - B4 Mate: Amphenol MS3116F8-4S	Red - Supply Black - Common White - Output Shield - Floating		
		9 - M18x1.5	9 - EPS125	10 - EPS125	4 - MD4 Mate: Turck RK 4.4T	(Not connected to shell, please ground to instrumentation)		
	S	2 - ø5/8"(15.9mm)	Same as above	For details see below.		NOTE: Other lead wire lengths are available.		
	X (IS91 only)	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)					
	Y (IS91 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)					

Pole Piece details:

FP - Flush pole ø.130"

EP106 - Extended pole ø.106" x .030" 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:

IS90A-**abcfgjk** ATEX, UKEX, & IECEEx Certification - can be used in conjunction with other variantsIS90-**abcfjk-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:

IS90-K345132 K shell type, 11/16-24 x 2.5" thread, EP125 pole piece, MO3 connector, 0-Vs NPN output, 30mV sensitivity

IS91A-Y231312 ATEX certification, Y shell type, 5/8-18 x 2.0" thread, FP pole piece, 120" leads, 0-5V output, 30 mV sensitivity

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

Noise Canceling output options are only available with thread lengths of 2.0" or longer (2.5" or longer for 'S' shell type)

Old P/N to New P/N correlations:

IS90-01 → IS90-K221132	IS90-04 → IS90-K224132	IS90-07 → IS90-K221211
IS90-02 → IS90-K221142	IS90-05 → IS90-K221112	IS90-41 → IS90-K315111
IS90-03 → IS90-K224122	IS90-06 → IS90-K25A122	IS91-01 → IS91-K224412