



PRODUCT DESCRIPTION

SPECTEC's Intrinsically Safe zero speed 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. Variations with dual sensors or directional output are also available. Versions with ATEX certification are available under part numbers IS170A & IS171A. 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:	5 to 30 Vdc @ ≤15 mA
Output Voltage:	See page 2 (25 mA maximum current sinking)
Frequency Range:	0 Hz to ~20 kHz
Rise/Fall Time:	.04 / .18 μs Nominal
Air Gap:	5DP: ≤ .160" 48DP: ≤ .025"
Magnetization:	700 -1600 Gauss
Direction signal: (as applicable)	Forward Logic 1 (5V max) (target rotating toward alignment mark) Reverse Logic 0 (0.06V max) (target rotating away from alignment mark)
Connection:	Connector or lead wires, See page 2
Temperature	T5 Ta= -40° to 85°C
Class & Range:	T6 Ta= -40° to 65°C
Storage Temp.:	-55° to 85°C
Construction:	300 Series Stainless Steel Solid Epoxy Encapsulation

CERTIFICATIONS for IS170 & IS171

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

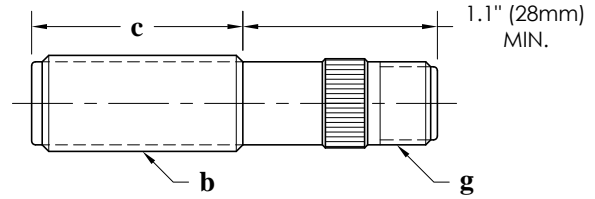
Canada: Intrinsically Safe
 Class I, Division 1
 GROUP ABCD
 Class I, Zone 0, Ex ia IIC

CERTIFICATIONS for IS170A & IS171A

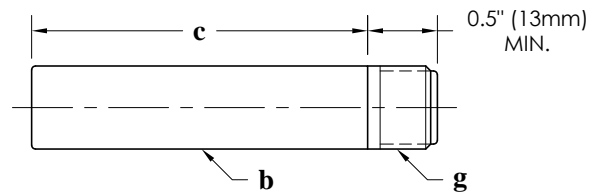
ATEX: II 1 G Ex ia IIC
 FM08ATEX0066X

CE: Compliance with
 EN55011, EN50022-2

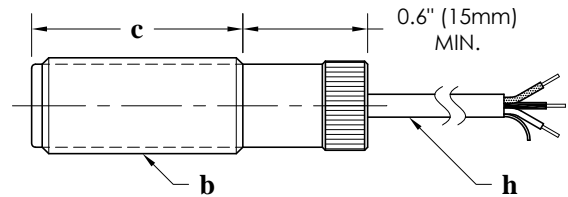
IS170 K shell type, knurled (shown below)
 A shell type, all-thread (knurl removed)
 H shell type, hex (knurl replaced by hex)



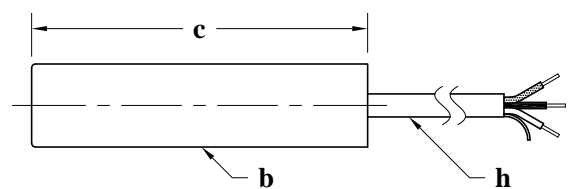
IS170 S shell type, smooth (custom units available)



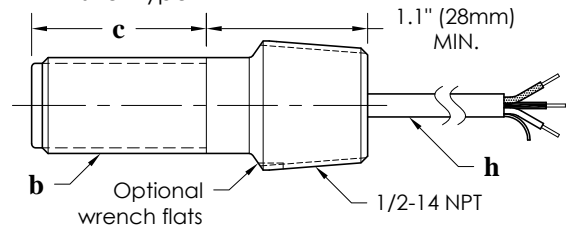
IS171 K shell type, knurled (shown below)
 A shell type, all-thread (knurl removed)
 H shell type, hex (knurl replaced by hex)



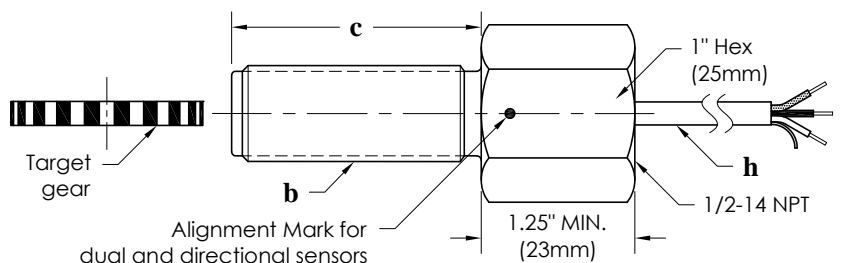
IS171 S shell type, smooth (custom units available)



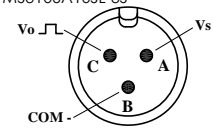
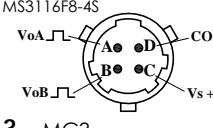
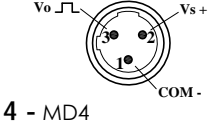
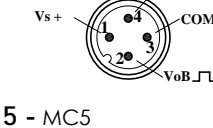
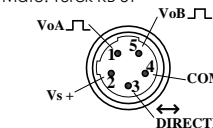
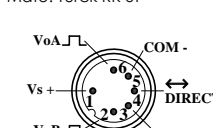
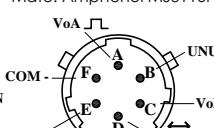
IS171 X shell type



IS171 Y shell type



FEATURE SELECTION for IS170-abcgj and IS171-abchj

SPECTEC P/N	a Shell Type	b Thread / Diameter	c Thread Length	Connection Type		j Output Signal		
				g Connector (IS170 Only)	h Lead Wires (IS171 Only)			
IS170- (Connector Version) or IS171- (Lead Wire Version)	K A H	0 - 3/8-24 UNF 1 - 1/2-20 UNF 2 - 5/8-18 UNF 3 - 11/16-24 UNEF 4 - 3/4-16 UNF 5 - 3/4-20 UNEF 6 - M12x1 7 - M16x1.5 8 - M18x1 9 - M18x1.5	0 - 0.75" (19mm) 1 - 1.0" to 1.3" (25-33mm) 2 - 1.5" to 1.8" (38-45mm) 3 - 2.0" (51mm) 4 - 2.5" (64mm) 5 - 3.0" to 3.5" (76-89mm) 6 - 4.0" (101mm) 7 - 6.0" (152mm) 8 - 8.0" (203mm) 9 - 10.0" (254mm)	1 - MO3 Mate: Amphenol MS3106A10SL-3S  2 - B4 Mate: Amphenol MS3116F8-4S  3 - MC3 Mate: Turck KB 3T  4 - MD4 Mate: Turck RK 4.4T 	1 - 12" (.3m) 2 - 36" (1m) 3 - 120" (3m) 4 - 198" (5m) Lengths of 36" (1m) and longer use shielded cable 18 to 24 AWG (depending on shell size) PVC or TFE insulation Red - Supply Black - Common White - Output A Yellow - Output B Green - Direction Shield - Floating (Not connected to shell, please ground to instrumentation) NOTE: Other lead wire lengths are available.	Standard Hall Sensor (HF, HHF, HHFQ) 1 - 0-5V, NPN (TTL) 2 - 0-10V, NPN 3 - 0-Vs, NPN 4 - 0-Vs, NPN OC 5 - 0-Vs, PNP OC 6 - 0-Vs, NPN/PNP Differential Hall Sensor (HFd, HHFd, HHFdQ) A - 0-5V, NPN (TTL) B - 0-10V, NPN C - 0-Vs, NPN D - 0-Vs, NPN OC E - 0-Vs, PNP OC F - 0-Vs, NPN/PNP		
		S 0 - ø3/8" (9.5mm) 1 - ø1/2" (12.7mm) 2 - ø5/8" (15.9mm)	Same as above					
		X (Lead Wire only)	1 - 1/2-20 UNF 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)	5 - MC5 Mate: Turck KB 5T 		6 - MD6 Mate: Turck RK 6T 	7 - B6 Mate: Amphenol MS3116F10-6S 
		Y (Lead Wire 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)				

Variants:
IS170-abcgjD Dual Sensor (HHF) - with quadrature output for manual sensing of direction
IS170-abcgjQ Directional Sensor (HHFQ) - with quadrature and directional output when properly aligned
IS170A-abcgj ATEX Certification - can be used in conjunction with variants above

P/N Examples:
IS170-K3412 K shell type, 11/16-24 x 2.5" thread, MO3 connector, 0-10V output
IS171A-Y2321 ATEX certification, Y shell type, 5/8-18 x 2.0" thread, 36" leads, 0-5V output

Please Note: Some combinations of options are not possible, please contact sales with any questions.
 For Dual Sensor (HHF), thread size must be 1/2-20 or M12x1 or larger
 For Directional Sensor (HHFQ), thread size must be 5/8-18 or M16x1.5 or larger, thread length must be 2.0" or longer
 Some output options are only available with thread lengths of 1.5" or longer (2.0" or longer for 'S' shell type)

Old P/N to New P/N correlations:

IS170-01 → IS170-K2213	IS171-01 → IS171-A2333	IS171-80 → IS171-K1243
IS170-02 → IS170-K2214	IS171-03 → IS171-Y2634	IS174-03 → IS170-K2523D
IS170-03 → IS170-K0615	IS171-17 → IS171-Y2334	IS175-03 → IS171-A5333D
IS170-90 → IS170-S1434	IS171-18 → IS171-Y5333	IS190-03 → IS170-S2471Q

SPECIALTY MODELS: (also available with ATEX certification under the part number IS170A-xx or IS171A-xx)

IS171-90 (was IS191-90)	S	Customer specific shell	-	Lead Wires 120" (3m)	0-Vs, NPN w/ 5k pull-up & directional output
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02/10/2014 Rev: 1