



### PRODUCT DESCRIPTION

SPECTEC's Explosion Proof / Flame Proof 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.

### INSTALLATION

**CAUTION!!! This sensor MUST be installed following the details specified in the Instruction Manual Document #85047X.**

### GENERAL SPECIFICATIONS

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

**Lead Wires or Cable:** 22 to 24 AWG  
 TFE or FEP insulated Single Leads or Shielded Cable, See Page 2

**Output Voltage:** See Page 2 (25 mA maximum current sinking)

### DIGISPEC HALL SENSORS, H Magnet & HF Gear actuated

**Supply Voltage(Vs):** 5 to 27 Vdc @ ≤15 mA (Single output)  
 5 to 27 Vdc @ ≤30 mA (Dual output)  
 5 to 27 Vdc @ ≤45 mA (Directional output)  
 (approx. 15mA per output channel)

**Frequency Range:** 0 Hz to ~20 kHz

**Air Gap:** **H:** ~.50" (12mm) max when triggered by  
 ø10mm, 3000 Gauss magnet  
**HF:** ~.16" (4mm) max for 5dp gear  
 ~.015" (0.4mm) max for 48dp gear  
 (with max magnetization of ~1500 Gauss)

**Directional K or Q Sensor type:** **5V** (or 10V, Vs depending on Output Signal)  
 (Target moving toward alignment mark)  
**0V** (0.06V max)  
 (target moving away from alignment mark)

### DIGISPEC MAGNETIC VRS SENSORS, Gear actuated

**Supply Voltage(Vs):** 8 to 30 Vdc @ ≤15 mA

**Frequency Range:** ~5 Hz to 40 kHz

**Air Gap:** ~0.10" (2.5mm) max for 5dp gear  
 ~0.015" (0.4mm) max for 48dp gear  
 (based on magnetization of >1300 Gauss)

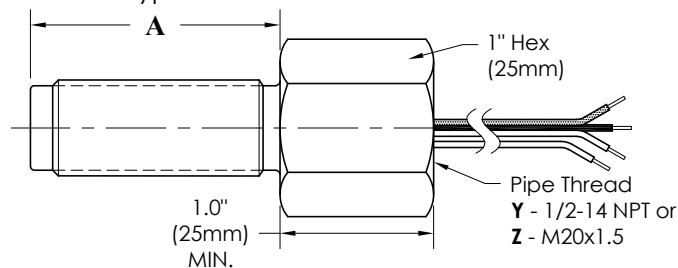
### DIGISPEC RF SENSORS, Ferrous or Aluminum target actuated

**Supply Voltage(Vs):** 11 to 30 Vdc @ ≤20 mA

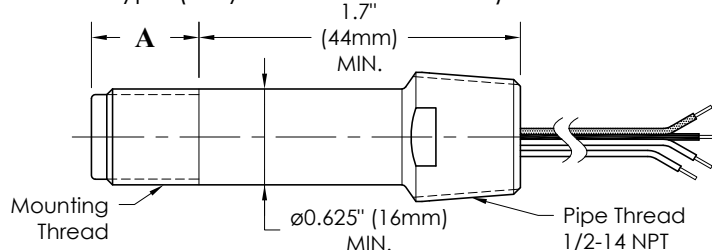
**Frequency Range:** 0.1 Hz to 5 kHz Depending on target mass

**Air Gap:** ~0.20" (5mm) max Depending on target mass

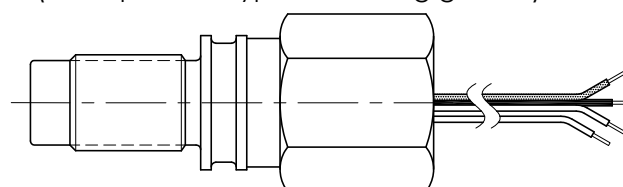
### Y and Z shell type



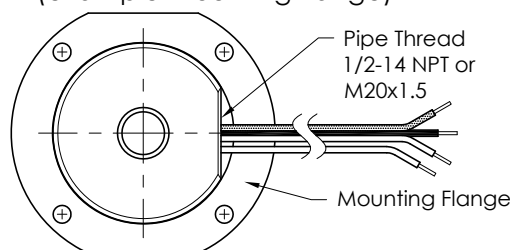
### X shell type (only for USA installations)



### CUSTOM shell type per customer requirements (example shell type with o-ring groove)



### (example mounting flange)



### CERTIFICATIONS for XP2

**USA & Canada:** Class I, Division 1  
 GROUP ABCD T6...T3  
 Class I, Zone 1, AEx/Ex db IIC T6...T3 Gb  
 FM16US0288X & FM16CA0147X

T3 @ -50°C ≤ T<sub>amb</sub> ≤ +140°C  
 T4 @ -50°C ≤ T<sub>amb</sub> ≤ +112°C  
 T5 @ -50°C ≤ T<sub>amb</sub> ≤ +77°C  
 T6 @ -50°C ≤ T<sub>amb</sub> ≤ +62°C

**ATEX & IECEx:** II 2 G Ex db IIC T6...T3 Gb  
 FM16ATEX0086X & IECEx FMG 16.0035X

T3 @ -55°C ≤ T<sub>amb</sub> ≤ +140°C  
 T4 @ -55°C ≤ T<sub>amb</sub> ≤ +112°C  
 T5 @ -55°C ≤ T<sub>amb</sub> ≤ +77°C  
 T6 @ -55°C ≤ T<sub>amb</sub> ≤ +62°C

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

# FEATURE SELECTION for XP2-abdefg

SPECTEC P/N	a Sensor Type	b Shell Type (See Page 1)	d Mounting Thread	e Mounting Thread Length	f Output Signal	g Lead Wires
<b>XP2-</b> Active Sensor, Conduit Style	<b>M</b> - <i>Digispec</i> Magnetic VRS (30mV Sensitivity is standard)  <b>R</b> - <i>Digispec</i> RF  <i>Digispec</i> Hall Sensor <b>H</b> Style (Magnet Actuated) (Omnipolar activation [either pole] is standard)  <b>H</b> - Single output <b>J</b> - Dual output <b>K</b> - Directional output  <i>Digispec</i> Hall Sensor <b>HF</b> Style (Gear Actuated) <b>F</b> - Single output <b>D</b> - Dual output <b>Q</b> - Directional output	<b>Y</b> - 1/2-14 NPT <b>Z</b> - M20x1.5	<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>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) NOTE: Thread lengths of 3.0" and longer are made as a welded assembly. (Internally called Y-ASY and Z-ASY)	<b>1</b> - 0-5V, NPN(TTL) <b>2</b> - 0-10V, NPN <b>3</b> - 0-Vs, NPN <b>4</b> - 0-Vs, NPN OC <b>5</b> - 0-Vs, PNP OC <b>6</b> - 0-Vs, NPN/PNP * <b>7</b> - 0-5V, NPN/PNP *  * Use at temperatures over 120°C shortens expected lifetime  NOTES: Option 5 is not available for Sensor Type M or R  Options 5, 6 & 7 are not available for Sensor Type K or Q  Options 5, 6 & 7 are not available in some small mounting threads and/or short thread lengths  Please contact sales with any questions	<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  22 to 24 AWG (depending on shell size and sensor type)  Extruded TFE or FEP insulation  Red - Supply Black - Common White - Output A Yellow - Output B Blue - Direction Green or Green/Yellow - Shell Ground  Shield - Floating (Not connected to shell, please ground to instrumentation)  NOTE: Other lead wire lengths are available.
		<b>X</b> - 1/2-14 NPT (This shell type only has USA certifications so is only for use in USA installations)	<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>6</b> - 4.0" (101mm) <b>7</b> - 6.0" (152mm) <b>8</b> - 8.0" (203mm) NOTE: Thread lengths of 2.5" and longer are made as a welded assembly. (Internally called X-ASY)	Options 5, 6 & 7 are not available in some small mounting threads and/or short thread lengths  Please contact sales with any questions	

**Variants:** (Contact sales for additional details)

**XP2-abdefg-300G** The magnetization level (in Gauss) for low magnetic drag sensors is designated as a suffix to the part number. The standard magnetic level does not require a suffix. (Only for *Digispec* Magnetic VRS sensor and Hall Sensor HF Style [Gear])

**XP2-Fbdefg-HFd** A differential style Hall sensor option for use in high vibration environments is designated by suffix to the part number. Frequency Range is 15 Hz to ~30kHz. Dual and Direction output options are also available. (Only for *Digispec* Hall Sensor HF Style [Gear])

**XP2-Hbdefg-S** or **-N** or **-L** Alternatives to the polar activation type for Magnet Actuated Hall Effect Sensor is designated as a suffix to the part number. (S = South pole, N = North pole, L = Latch [requires North-South alternating]) (Only for *Digispec* Hall Sensor H Style [Magnet])

## P/N Examples:

**XP2-MY2313** Digispec Magnetic VRS Sensor, Y shell type w/1/2 NPT Pipe, 5/8-18 x 2.0" thread, 0-5V NPN, 120" cable

**XP2-DZ8645** Dual HF Hall Sensor, Y shell type w/M20x1.5 Pipe, M18x1 - 101mm thread, 0-Vs NPN OC, 10m cable

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

**Canadian Installations:** Only female NPT or metric entries are permissible per CSA C22.2 No 0.5 & No. 30. See 'Y' or 'Z' Shell Type.

**Customizations:** Some minor customizations to the above Shell Types are possible (e.g. O-ring groove, long thread relief, etc.). Customer specific housing designs and mounting flanges are also possible. However, these customizations are still required to conform to all appropriate standards and meet the requirements of the design approval. Contact sales for suitability. Details on custom models are listed below.

## SPECIALTY & CUSTOM MODELS:

XP2-MF-1	H - Single Output	CUSTOM	Customer specific	0-Vs NPN, OC	24" (0.6m) Individual leads
XP2-MF-2	H - Single Output	CUSTOM	Customer specific	0-Vs NPN, OC	
XP2-TITAN	H - Single Output	CUSTOM	Customer specific	0-Vs NPN	
XP2-TITAN2	J - Dual Output				

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PAGE 2 OF 2