

### Explosion/Flame Proof Speed Sensor

Passive Sensor, Conduit Style

1/2, 5/8, 11/16, 3/4, M12, M16 & M18

#### 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 #85045X.**

#### GENERAL SPECIFICATIONS

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

**Lead Wires or Cable:** 20 to 24 AWG  
 TFE or FEP insulated Single Leads or Shielded Cable, See Page 2

**Coil Resistance and Inductance:** See Page 2

#### MAGNETIC VRS SENSORS, Gear Actuated

**Output Voltage:** Varies depending on target size, velocity, coil resistance, and air gap.  
**NOTE: Not to exceed 32 VAC RMS (89Vp-p). See warning note in Instruction Manual.**

**Frequency Range:** ~5 Hz to 100 kHz

**Air Gap:** ~.080" (2mm) max for 5dp gear  
 ~.015" (0.4mm) max for 48dp gear  
 (based on magnetization of >1200 Gauss)

#### INDUCTIVE SENSORS, Magnet/magnetic field actuated

**Output Voltage:** Varies depending on target size, velocity, coil resistance, and air gap.  
**NOTE: Not to exceed 32 VAC RMS (89Vp-p). See warning note in Instruction Manual.**

**Frequency Range:** ~5 Hz to 100 kHz

**Air Gap:** ~.50" (12mm) max for 5k coil  
 ~.30" (7mm) max for 3k coil  
 (based on ø10mm, 3000 Gauss magnet)

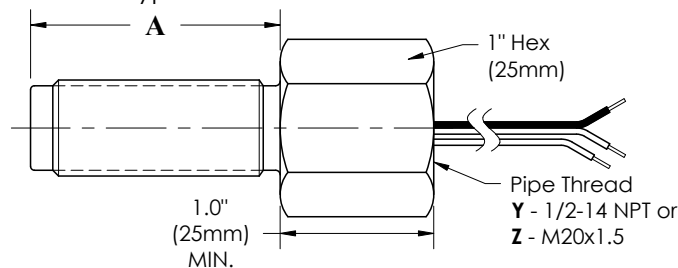
#### RF SENSORS, Ferrous or Aluminum target actuated

**Must be used with 4013 type signal conditioner**

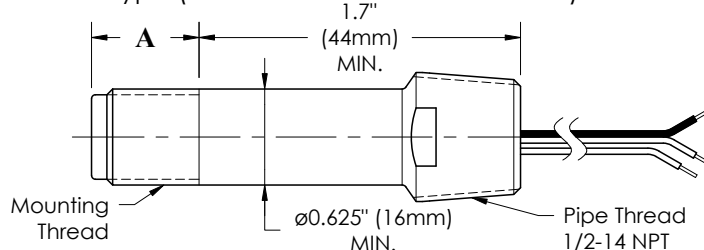
**Frequency Range:** ~0.5 Hz to 5 kHz

**Air Gap:** ~.160" (4mm) max depending on target mass

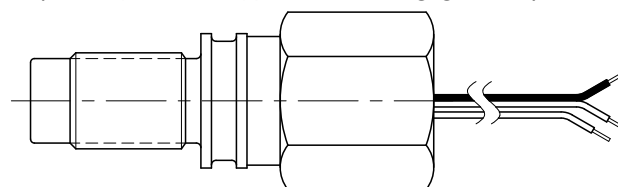
#### Y and Z shell type



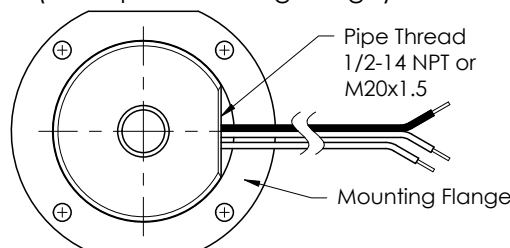
#### X shell type (Not for Canadian installations)



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



#### (example mounting flange)



#### CERTIFICATIONS for XP1

##### USA & Canada:

Class I, Division 1  
 GROUP ABCD T6...T2  
 Class I, Zone 1, AEx/Ex db IIC T6...T2 Gb  
 FM16US0288X & FM16CA0147X

T2 @ -50°C ≤ T<sub>amb</sub> ≤ +200°C  
 T3 @ -50°C ≤ T<sub>amb</sub> ≤ +190°C  
 T4 @ -50°C ≤ T<sub>amb</sub> ≤ +125°C  
 T5 @ -50°C ≤ T<sub>amb</sub> ≤ +90°C  
 T6 @ -50°C ≤ T<sub>amb</sub> ≤ +75°C



##### ATEX, UKEX, & IECEx:



II 2 G Ex db IIC T6...T2 Gb  
 FM16ATEX0086X & FM22UKEX0112X  
 IECEx FMG 16.0035X

T2 @ -55°C ≤ T<sub>amb</sub> ≤ +200°C  
 T3 @ -55°C ≤ T<sub>amb</sub> ≤ +190°C  
 T4 @ -55°C ≤ T<sub>amb</sub> ≤ +125°C  
 T5 @ -55°C ≤ T<sub>amb</sub> ≤ +90°C  
 T6 @ -55°C ≤ T<sub>amb</sub> ≤ +75°C



##### CE:



Compliance with  
 EN50081-1, EN50082-1

# FEATURE SELECTION for XP1-abdefg

SPECTEC P/N	a Sensor Type	b Shell Type (See Page 1)	d Mounting Thread	e Mounting Thread Length	f Coil Resistance (Nominal)	g Lead Wires
<b>XP1-</b> Passive Sensor, Conduit Style	<b>M</b> - Magnetic VRS (Ferrous Target)  <b>I</b> - Inductive (Magnet Actuated)  <b>R</b> - RF Sensor	<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> - 50 Ω, 25mH <b>2</b> - 150 Ω, 85mH <b>3</b> - 250 Ω, 120mH <b>4</b> - 650 Ω, 160mH <b>5</b> - 1100 Ω, 0.5H <b>6</b> - 1500 Ω, 0.8H <b>7</b> - 2000 Ω, 1.1H <b>8</b> - 3000 Ω, 1.5H <b>9</b> - 5000 Ω, 2.5H  RF Coil Options (R Sensor Type Only) <b>A</b> - 4 Ω, 0.4mH <b>B</b> - 10 Ω, 1.0mH  Dual Coil Options (M & I Sensor Type only) <b>D</b> - 210 & 260 Ω <b>E</b> - 600 & 900 Ω  NOTE: Coil resistance and inductance is selected based on the sensitivity requirements for the specific application.  Inductance values shown are for Magnetic VRS Sensors. Inductance values for Inductive Sensors values are roughly twice the nominal value above.	<b>1</b> - 12" / 1' (0.3m) <b>2</b> - 36" / 3' (1m) <b>3</b> - 120" / 10' (3m) <b>4</b> - 198" / 16.5' (5m) <b>5</b> - 396" / 33' (10m) <b>6</b> - 600" / 50' (15m) <b>7</b> - 792" / 66' (20m)  Length of 12"/ 1' (0.3m) is individual wires. All longer options are shielded cable.  20 to 24 AWG (depending on shell size and sensor type)  Extruded TFE or FEP insulation  Black and/or White - Signal leads  Green or Green/Yellow - Shell Ground  Shield is not connected to shell, please ground to instrumentation.
		<b>X</b> - 1/2-14 NPT (This shell type is NOT for use in Canadian 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>6</b> - M12x1 <b>7</b> - M16x1.5 <b>8</b> - M18x1 <b>9</b> - M18x1.5	<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)		

## Variants:

**XP1-abdefg-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. (Only for Magnetic VRS Sensor Type)

## P/N Examples:

**XP1-MY2353** Magnetic VRS, Y shell type w/1/2 NPT Pipe, 5/8-18 x 2.0" thread, 1100 Ω, 120" cable

**XP1-RZ61A2** RF Sensor, Z shell type w/M20x1.5 Pipe, M12x1 - 28mm thread, 4 Ω, 1m 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:

<b>XP1-01C</b>	<b>M</b> - Magnetic VRS	<b>CUSTOM</b>	5/8-18 UNF	0.8" (20mm)	1500 Ω	48" (1.2m) Individual Wires
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