# VPD Series

## Digital Ferrous Metal Proximity Sensors

- **Hall Effect Technology sensor for ferrous target detection**
- **Detection of ferrous metals (detects thru aluminum)**
- **Digital output**
- **Large detection gap (custom air gap ranges available for larger sensing distances)**

## CUSTOMER FOCUSED ENGINEERING + MODULAR DESIGN

Part Description: M12-275VPD-5KSA5

| Housing | Series | Electrical Option | Connection Type |
|---|---|---|---|
| See page 2-3 | 275VPD | See page 4 | See page 5-6 |

*Modify, update, or enhance any sensor with our modular features and functionality.*

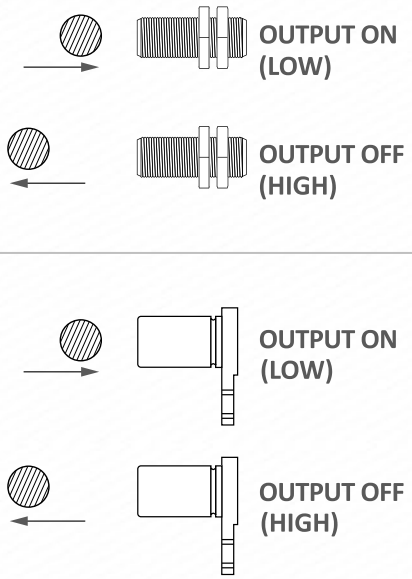
***HOUSING*** *- Aluminum, stainless steel, plastic, threaded, flange mount, customer specific*

***ELECTRICAL*** *- Every sensor function available in various electrical options (NPN, PNP, TTL, etc.)*

***CONNECTION*** *- Deutsch, Amphenol, many other brands, free end wires, pigtails, any length*

**Need a Custom Sensor Solution?... Send us your application specific requirements**

### 'Digital Output switches on when Ferrous Metal is present'




### FEATURES

- Digital ON/OFF output for ferrous metal detection
- High durability in harsh industrial and mobile environments
- Wide temp. range stable
- Flexible mounting options
- Internal hysteresis for bounce-free switching
- Custom programming for repeatable, application-specific detection
- Versatile connectivity including Deutsch, Amphenol, pigtails, and free-end wires

### APPLICATIONS

- Inspect for steel components below aluminum extrusions
- Proximity feedback of components in automation
- Steel components position in engines and transmissions
- Alignment between assemblies
- moving parallel to each other
- Component alignment in agricultural and heavy equipment
- Measuring steel shaft runout
- Counting steel components on conveyor systems
- Robotic systems position
- Ferrous metal verification
- Impact detection

### MARKETS

- Aerospace & Defense
- Medical Devices
- Agricultural Machinery
- Marine & Transportation
- Automotive & Heavy Equipment
- Power Generation Systems
- Consumer Electronics
- Manufacturing & Industrial Automation

# VPD Series
## Digital Ferrous Metal Proximity Sensors

### HOUSING TYPES AND CUSTOMIZATION OPTIONS

The VPD Series offers a wide range of housing styles, mounting types, and material options to cover a variety of application environments. If the housing style you need is not shown, Standex can work with you on your custom housing needs to fulfill your application requirements.

**HOUSING MATERIALS**
- Aluminum
- Plastic (Glass Filled Nylon)
- Stainless Steel

**MOUNTING TYPE**
- Threaded Barrel
- High Pressure

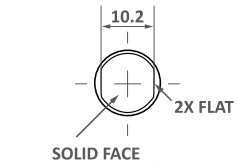
**THREAD PITCH**
- 1/2-20
- 15/32-32
- 3/4-20
- 5/8-18
- 7/16-20
- M12x1
- M18x1

## Plastic Glass Fill Nylon (150°C)

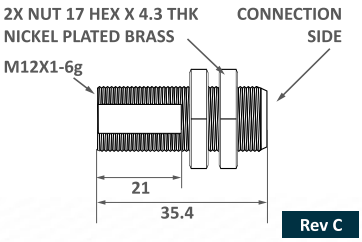
**PART NUMBER EXAMPLE**

M12 - 275VPD - 5KSA5 — CONNECTION
HOUSING | ELECTRICAL

### M12 Thread Mount M12x1mm, 35mm

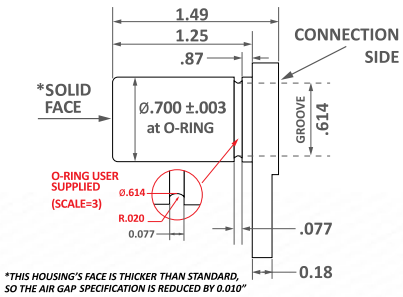


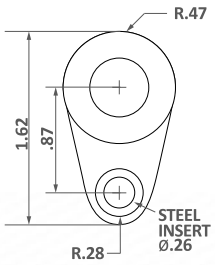

DIM = MM, ID = 8.51 (.335")




Rev C

### MFM7 Flange Mount



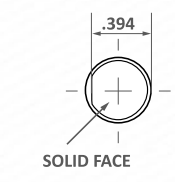




DIM = INCH, ID = .500"

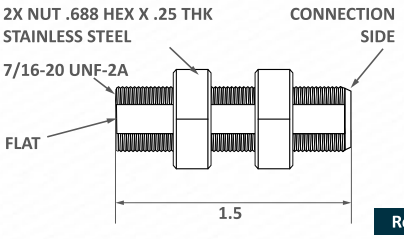
Rev D

## Aluminum Black Anodized

### A44 Thread Mount 7/16, 1.5in




DIM = INCH, ID = .335"



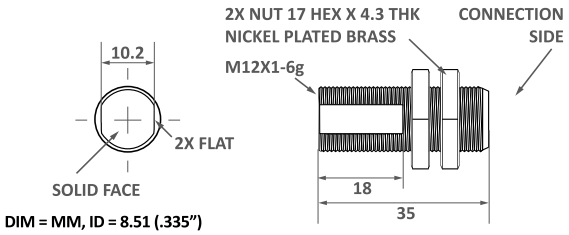

Rev A

# VPD Series
## Digital Ferrous Metal Proximity Sensors

### 303 Stainless Steel

**PART NUMBER EXAMPLE** M12-275VPD-5KSA5 — CONNECTION
HOUSING | ELECTRICAL

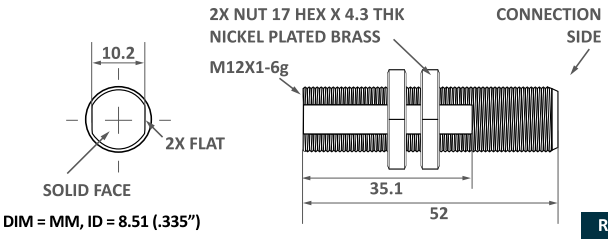
### S12 Thread Mount M12x1mm, 35mm




DIM = MM, ID = 8.51 (.335")

Rev C

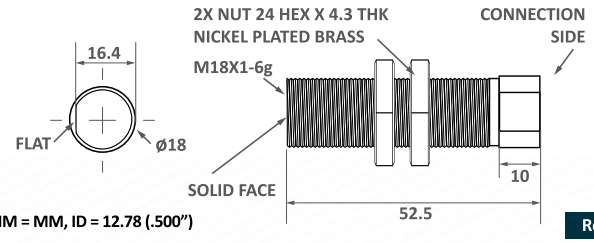
### S12H Thread Mount M12x1mm, 52mm




DIM = MM, ID = 8.51 (.335")

Rev B

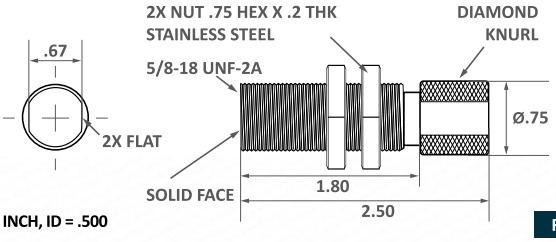
### S18 Thread Mount M18x1mm, 53mm




DIM = MM, ID = 12.78 (.500")

Rev E

### S63B Thread Mount MS Opt 5/8-18, 2.5in




DIM = INCH, ID = .500

Rev C


+1 970.879.9900 | sensorsales@standexelectronics.com

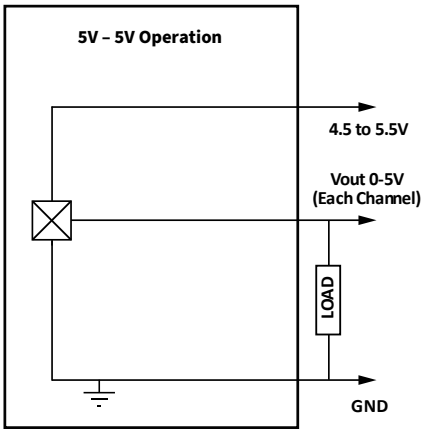
# VPD Series
## Digital Ferrous Metal Proximity Sensors

## Electrical Output Logic Options

**PART NUMBER EXAMPLE** M12-275VPD-5KSA5 — CONNECTION

M12 — HOUSING; 275VPD-5K — ELECTRICAL

### 5V

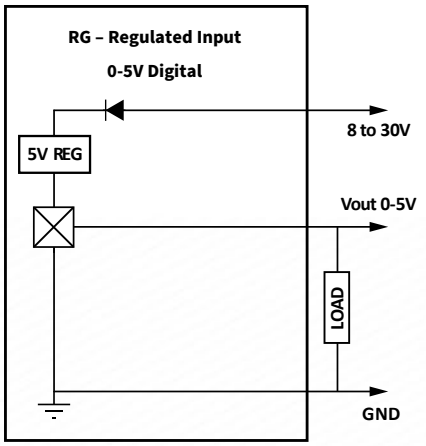



| Electrical Specifications | Conditions | Min | Max | Unit |
|---|---|---|---|---|
| Temperature Range* | Operating | -40 | +110* | Deg C |
| Supply Voltage, Vcc | Over temperature | +4.5 | +5.5 | Volts DC |
| Supply Current | Into Vcc | (typ 7) | +10 | mA |
| Output Current | Continuous | -1 | +1 | mA |
| Load Capacitance | Cable and Load | n/a | +1.0 | µF |
| Frequency Range ** | Std Programmable | 0 | 500 | Hz |
| Frequency Range ** | Max Programmable | 0 | 2000 | Hz |
| Digital Voltage Low Vol | I sink < 1.0 mA | 0 | (typ 0.2) | Volts |
| Digital Voltage High Voh | I source < 1.0 mA | (typ 4.8) | Vcc | Volts |
| Output Rise Time 10-90% | Ro=10k, C<100 pF | - | 5 | µS |
| Output Fall Time 90-10% | Ro=10k, C<100 pF | - | 5 | µS |

* T max = 150°C is available, contact factory.

** Frequency, Detection and Hysteresis are Factory Programmable. Rev D

### RG

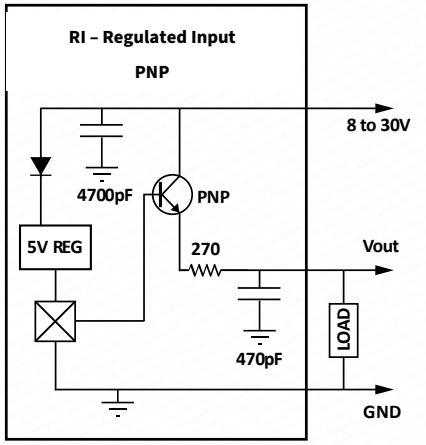



| Electrical Specifications | Conditions | Min | Max | Unit |
|---|---|---|---|---|
| Temperature Range* | Operating | -40 | +110* | Deg C |
| Supply Voltage, Vcc | Over temperature | +8.0 | +30 | Volts DC |
| Supply Current, Output Off | Into Vcc | (typ 8) | +12 | mA |
| Output Current | Continuous | -1 | +1 | mA |
| Load Capacitance | Cable and Load | n/a | +1.0 | µF |
| Frequency Range ** | Std Programmable | 0 | 500 | Hz |
| Frequency Range ** | Max Programmable | 0 | 2000 | Hz |
| Digital Voltage Low Vol | I sink < 1.0 mA | 0 | (typ 0.2) | Volts |
| Digital Voltage High Voh | I source < 1.0 mA | 4.60 | 5.5 | Volts |
| Output Rise Time 10-90% | Ro=10k, C<100 pF | - | 5 | µS |
| Output Fall Time 90-10% | Ro=10k, C<100 pF | - | 5 | µS |

* T max = 150°C is available, contact factory.

** Frequency, Detection and Hysteresis are Factory Programmable. Rev D

### RI




| Electrical Specifications | Conditions | Min | Max | Unit |
|---|---|---|---|---|
| Temperature Range* | Operating | -20 | +85 | Deg C |
| Supply Voltage, Vcc | Operating | +8.0 | +30 | Volts DC |
| Supply Current | Into Vcc, Vout Low | (typ 8) | +16 | mA |
| Output Resistance | Inside Sensor, Vo-Vout | 256 | 285 | mA |
| Frequency Range ** | | 0 | 500*** | Hz |
| Digital Voltage Low Vol | Rload = 1k | 0 | 0.6 | Volts |
| Digital Voltage High Voh | Vcc = 24, Rload =1k | 18 | 20 | Volts |
| Output Rise Time 10-90% | Rload=1k, C<100 pF | - | 1 | µS |
| Output Fall Time 90-10% | Rload=1k, C<100 pF | - | 10 | µS |
| Output Capacitance, Vout-Gnd | Inside Sensor | - | 540 | pF |
| Input Capacitance, Vcc-Gnd | Inside Sensor | - | 5400 | pF |

*** Can be programmed for operation up to 2000 Hz, contact factory. Rev B

# VPD Series
## Digital Ferrous Metal Proximity Sensors

### CONNECTION TYPES AND CUSTOMIZATION OPTIONS

The VPD Series offers a wide range of connection configurations to meet diverse installation and environmental requirements. Whether you need rugged connectors for industrial environments or flexible wiring for compact assemblies, Standex provides tailored solutions:

### CONNECTOR OPTIONS

- Deutsch & Amphenol: Industry-standard sealed connectors for harsh environments
- Other Brands Available: Custom connector integration upon request
- Integral Connectors: Built directly into the sensor housing for streamlined installation
- Pigtail Connectors: Short lead wires with pre-installed connectors for plug-and-play use

### FREE-END WIRE OPTIONS

- Free-End Jacketed: Durable, protective outer layer for added mechanical strength
- Free-End Ribbon Cable: Flat, flexible cable ideal for tight spaces
- Free-End Shielded: EMI-resistant for electrically noisy environments
- Free-End Wires: Standard stripped leads for direct wiring
- Wire Specifications
- Wire Gauges: 20 AWG and 22 AWG standard
- Lengths: Available in 0–6", 1–4', 5–9', or custom lengths to suit your application

### INSULATION MATERIALS

- PVC: Economical and flexible
- Teflon: High-temperature and chemical-resistant
- XLPE: Cross-linked polyethylene for enhanced thermal and abrasion resistance
- High-Temp Options: For extreme operating conditions

## Cable Harness & Connector Options

**PART NUMBER EXAMPLE** M12-**275VPD**-5KSA5 — CONNECTION

M12 — HOUSING

**275VPD** — ELECTRICAL

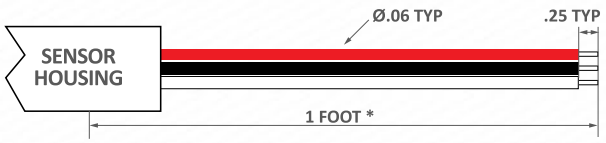
### P21, Free End PVC 22 AWG Wires

**Connections**

Red = Vcc White = Vout Black = Ground

FREE END WIRE LEADS
22 AWG, 7/30, PVC 80°C
3 WIRES SHOWN. THE NUMBER OF WIRES AND COLORS WILL VARY PER SENSOR MODEL

OTHER STANDARD LENGTHS:
3", 6", 2', 5', 10', AND 20'




DIM = INCH

Rev A

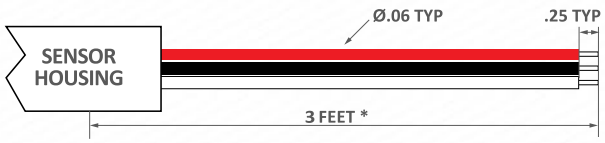
### P23, Free End PVC 22 AWG Wires

**Connections**

Red = Vcc White = Vout Black = Ground

FREE END WIRE LEADS
22 AWG, 7/30, PVC 80°C
3 WIRES SHOWN. THE NUMBER OF WIRES AND COLORS WILL VARY PER SENSOR MODEL

OTHER STANDARD LENGTHS:
3", 6", 2', 5', 10', AND 20'




DIM = INCH

Rev A

# VPD Series
## Digital Ferrous Metal Proximity Sensors

## Cable Harness & Connector Options

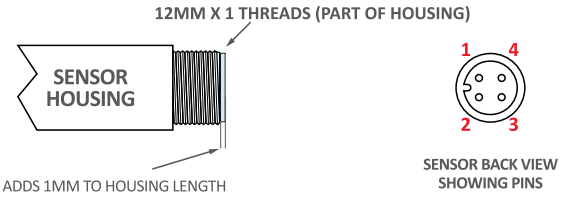
**PART NUMBER EXAMPLE** M12-275VPD-5KSA5 — CONNECTION
HOUSING | ELECTRICAL

### CB2, Integral 4 Pin Male 12mm Micro Connector

Compatible with Housings – S12, S12H, M12 Only

**Connections**

Pin 1 = Vcc | Pin 2 =Vout | Pin 3 = Ground | Pin 4 = Program, Leave Open




Rev A

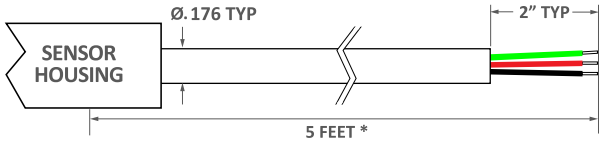
### JA5, Jacketed 3 Wire PVC 22 AWG Wires

**Connections**

Red = Vcc | Green = Vout | Black = Ground

FREE END JACKETED 3 WIRE PVC, 22 AWG 7/30, RED, BLK, GRN, 80°C

*OTHER STANDARD LENGTHS: 1', 2', 10', AND 20'




DIM = INCH

Rev C

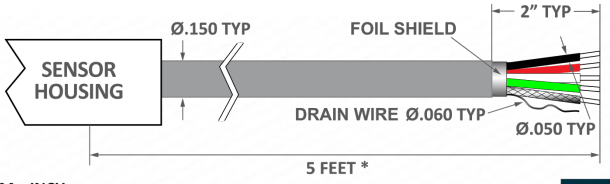
### SA5, Shielded 4 Wire PVC 22 AWG Wires

**Connections**

Red = Vcc | Green = Program, Leave Open | White = Vout | Black = Ground

SHIELDED 4 WIRE PVC 22 AWG, 7/30, PVC 80°C RBGW

*OTHER STANDARD LENGTHS: 1', 2', 10', AND 20'




DIM = INCH

Rev D

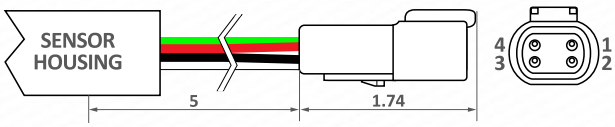
### CD4, 4 Pin Deutsch DT04 TXL 20 AWG Wires

**Connections**

Pin 1 (Red) = Vcc | Pin 2 (Black) = Ground | Pin 3 (White) = Vout | Pin 4 (Green) = Program, Leave Open

**CONNECTOR:** AMPHENOL AT04-4P-RD01 BODY OR DEUTSCH DT04-4P-C015 BODY
**CONTACTS:** 4 DEUTSCH PINS, PN 1060-16-0622
**WIRE:** 20AWG, 19/32, XLPE TXL, 125°C

**PIN 1** = RED
**PIN 2** = BLACK
**PIN 3** = WHITE
**PIN 4** = GREEN




DIM = INCH

Rev B

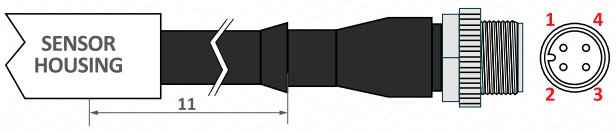
### CB1E, 4 Pin Male 12mm Micro Connector w/11" Pur Cable

Compatible with Housings – S18 Only

**Connections**

Pin 1 = Vcc | Pin 2 = Vout | Pin 3 = Ground | Pin 4 = Program, Leave Open

**CONNECTOR:** 4 PIN MALE M12 STRAIGHT OVERMOLD
**CABLE:** 22AWG, STRANDED, PUR JACKET & INSULATION



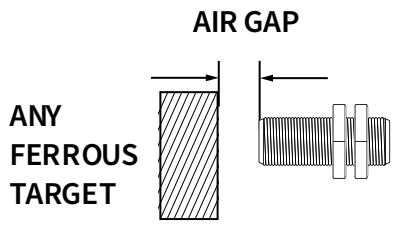

DIM = INCH

Rev A

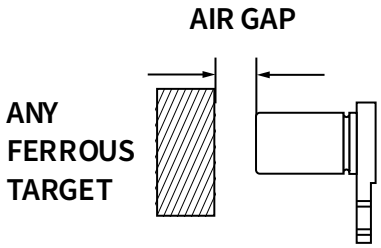
# VPD Series
## Digital Ferrous Metal Proximity Sensors

## Environmental & Performance Specifications

### Sensor Function




NO ORIENTATION REQUIRED



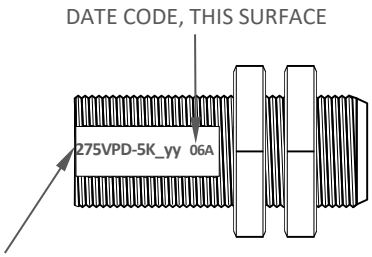

NO ORIENTATION REQUIRED

| Functional Characteristics @25°C | Min | Typ | Max |
|---|---|---|---|
| *Sensor Programming + target ferrous content, shape, & size will affect gaps* | | | |
| Output State, No Target Present: | | Low (~0V) | |
| Detect Large Steel Target T=25C** | 0.350" | 0.375" | 0.400" |
| Hysteresis, Large Steel Target T=25C** | .020" | .050" | .080" |
| Detect 0.5" ø Steel Target | - | .360" | - |
| Detect 0.1" ø Steel Target | - | .215" | - |
| ** Frequency, Detection and Hysteresis are Factory Programmable and can be decreased upon request. | | | |

### Environmental Specifications

| | |
|---|---|
| Corrosion Resistance | 500 hours salt spray ASTM B-117 |
| Installation Torque | 13 Foot-Pounds Maximum |
| Enclosure | Nema 1,3,4,6,13 & IEC IP67 |
| Vibration | 10 G's 2 to 2000 Hz Continuous |
| Mechanical Shock | 100 G's, 11 mS |

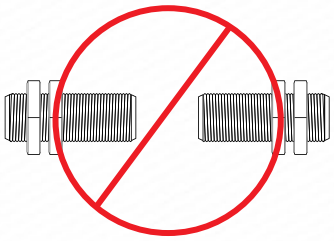
### Marking




CHARACTERISTIC-OPTION_PROGRAMMING MARKED ON THIS SURFACE yy = PROGRAM #

### Handling Instructions

**DO NOT CONTACT FACE TO FACE**

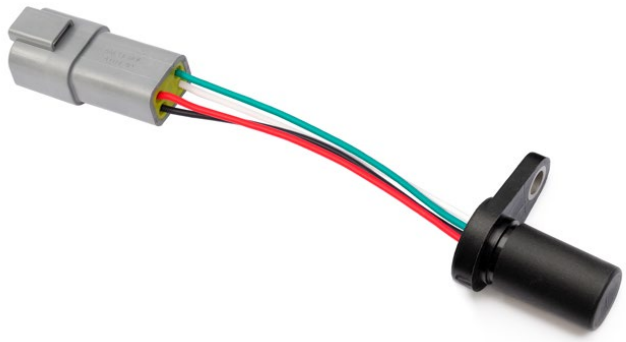


**CONTACT WITH OTHER MAGNETS MAY REDUCE THE MAXIMUM OPERATING GAP**

# MFM7-275VPD-RGCD4

## Digital Ferrous Metal Detection Sensor

- **Ferrous Metal Hall Proximity Sensor**
- **.375" detection gap**
- **Regulated input, 0-5V output**
- **Plastic .7" flange mount 1.5" long housing**
- **Deutsch DT04 4 pin with 5" 20 AWG XLPE**



## CUSTOMER FOCUSED ENGINEERING + MODULAR DESIGN

Part Description: MFM7-275VPD-RGCD3

| Housing | Sensor Type & Function | Electrical Option | Connection Type |
|---|---|---|---|
| Glass Filled Nylon<br>Flange Mount Ø.7" x 1.5" | Digital Ferrous Metal<br>Proximity Sensor | Regulated Input<br>0-5V Digital Output | Deutsch DT 4 pin<br>w/5" 20AWG XLPE |

*Modify, update, or enhance any sensor with our modular features and functionality.*

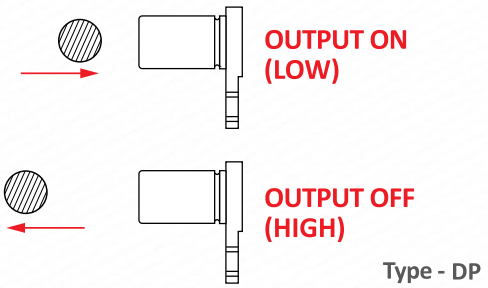
***HOUSING*** *- Aluminum, stainless steel, plastic, threaded, flange mount, customer specific*

***ELECTRICAL*** *- Every sensor function available in various electrical options (NPN, PNP, TTL, etc.)*

***CONNECTION*** *- Deutsch, Amphenol, many other brands, free end wires, pigtails, any length*

**Need a Custom Sensor Solution?... Send us your application specific requirements at *sensorso.com***

### 'Digital Output switches on when Ferrous Metal is present'




**Type - DP**

### DESCRIPTION

- Digital output turns on when ferrous metal is detected
- Programmed to detect a large steel target at 0.375"
- Target detection gap is dependent on shape/size/ferrous content.
- Custom programming available for precision repeatable detection of targets, contact Sensor Solutions.
- Flange mount installation sets fixed gap from target.

### FEATURES

- True Zero Speed
- Large Detection Gap
- Internal Hysteresis
- Detects Through Aluminum

Sensor Solutions
A STANDEX ELECTRONICS COMPANY



+1 970.879.9900 | sensorsales@standexelectronics.com

# MFM7-275VPD-RGCD4

## Digital Ferrous Metal Detection Sensor

Note: Check our website or contact us for details on all our ferrous metal detection options.

| Electrical Specifications | Conditions | Min | Max | Unit |
|---|---|---|---|---|
| Temperature Range* | Operating | -40 | +110* | Deg C |
| Supply Voltage, Vcc | Over temperature | +8.0 | +30 | Volts DC |
| Supply Current, Output Off | Into Vcc | (typ 8) | +12 | mA |
| Output Current | Continuous | -1 | +1 | mA |
| Load Capacitance | Cable and Load | n/a | +1.0 | µF |
| Frequency Range ** | Std Programmable | 0 | 500 | Hz |
| Frequency Range ** | Max Programmable | 0 | 2000 | Hz |
| Digital Voltage Low Vol | I sink < 1.0 mA | 0 | (typ 0.2) | Volts |
| Digital Voltage High Voh | I source < 1.0 mA | 4.60 | 5.5 | Volts |
| Output Rise Time 10-90% | Ro=10k, C<100 pF | - | 5 | µS |
| Output Fall Time 90-10% | Ro=10k, C<100 pF | - | 5 | µS |

* T max = 150°C is available, contact factory.

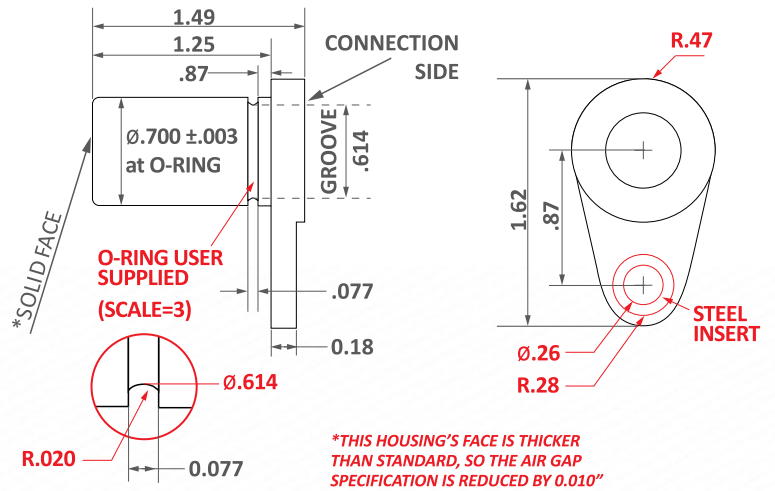
** Frequency, Detection and Hysteresis are Factory Programmable.

Rev D

| Absolute Max Limits | Min | Max | Unit |
|---|---|---|---|
| Supply Voltage, Vcc | -24 | +30 | Volts DC |
| Voltage at Output | -5 | +8.5 | Volts |
| Reverse Supply Current | - | 5.0 | mA |
| Peak Output Current | -10 | +10 | mA |
| Vout Short Circuit Duration | - | 10 | Minutes |

| Environmental Specifications | |
|---|---|
| Corrosion Resistance | 500 hours salt spray ASTM B-117 |
| Installation Torque | 15 Foot-Pounds Maximum |
| Enclosure | Nema 1,3,4,6,13 & IEC IP67 |
| Vibration | 10 G's 10 to 2000 Hz Sinusodal |
| Mechanical Shock | 50 G's, 11 mS Half-Sine |

### MFM7, Glass Filled Nylon (150°C) Flanged Housing




DIM = INCH, ID = .500"

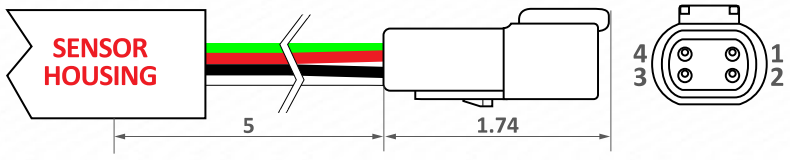
Rev D

| Functional Characteristics @25°C | Min | Typ | Max |
|---|---|---|---|
| *Sensor Programming + target ferrous content, shape, & size will affect gaps* | | | |
| Output State, No Target Present: | | | Low (~0V) |
| Detect Large Steel Target T=25C** | 0.350" | 0.375" | 0.400" |
| Hysteresis, Large Steel Target T=25C** | .020" | .050" | .080" |
| Detect 0.5" ø Steel Target | - | .360" | - |
| Detect 0.1" ø Steel Target | - | .215" | - |
| ** Frequency, Detection and Hysteresis are Factory Programmable and can be decreased upon request. | | | |

### CD4, 4 Pin Deutsch DT04 w/5" 20 AWG TXL

**CONNECTOR:** AMPHENOL AT04-4P-RD01 BODY OR DEUTSCH DT04-4P-C015 BODY
**CONTACTS:** 4 DEUTSCH PINS, PN 1060-16-0622
**WIRE:** 20AWG, 19/32, XLPE TXL, 125°C

**PIN 1** = RED
**PIN 2** = BLACK
**PIN 3** = WHITE
**PIN 4** = GREEN




DIM = INCH

Rev B

| Connections Chart | |
|---|---|
| Pin 1 (Red) Vcc | Pin 3 (White) Digital Vout |
| Pin 2 (Black) Ground | Pin 4 (Green) Program, No Connect |
| CD4-275VPD | |

**Caution:** *A short from the Pin 4 (Green) Program wire to either Pin 1 (Red) Vcc or Pin 2 (Black) Ground wire will cause component failure.*



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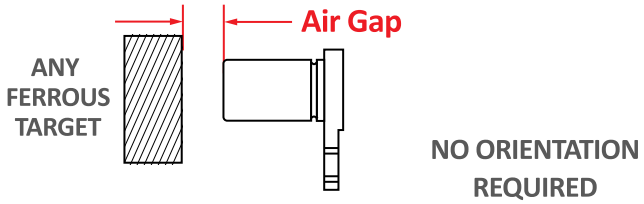
# MFM7-275VPD-RGCD4

## Digital Ferrous Metal Detection Sensor

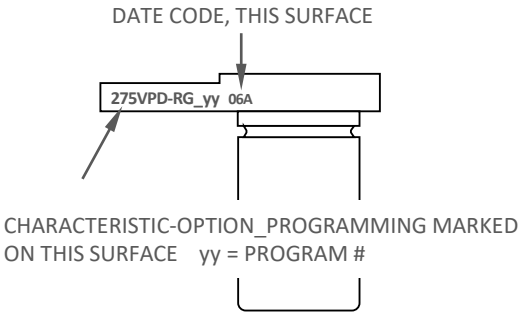
### Sensor Function



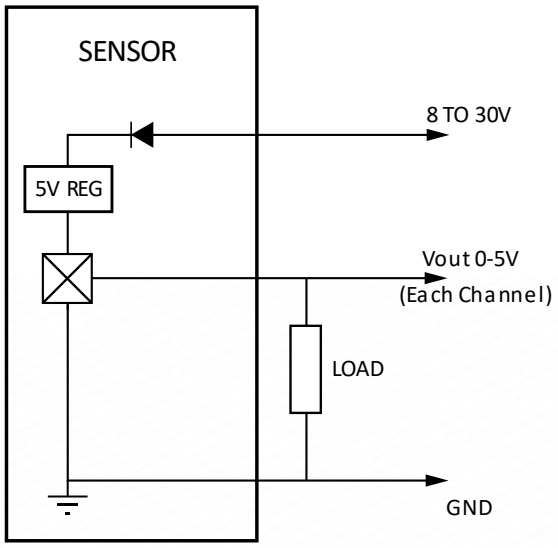

MFM7-275VPD

| Date Code 'YYM' YY = YEAR, M = MONTH | | | |
|---|---|---|---|
| A JAN | D APR | H JUL | L OCT |
| B FEB | E MAY | J AUG | M NOV |
| C MAR | G JUN | K SEP | N DEC |

### Marking

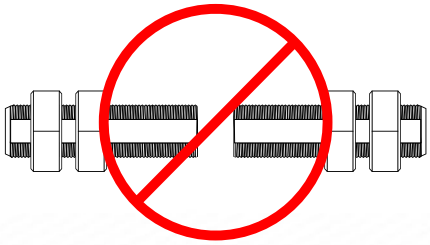



### RG, Linear Regulator




### Handling Instructions

**DO NOT CONTACT**
**FACE TO FACE**



**CONTACT WITH OTHER MAGNETS *MAY***
**REDUCE THE MAXIMUM OPERATING GAP**





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# S12-275VPD-5VCB2

## Digital Ferrous Metal Detection Sensor

- **Ferrous Metal Hall Proximity Sensor**
- **.375" detection gap**
- **5V input voltage**
- **Stainless 12x1mm x 35mm housing**
- **Integral 4 pin male 12mm micro connector**

## CUSTOMER FOCUSED ENGINEERING + MODULAR DESIGN

Part Description: S12-275VPD-5VCB2

| Housing | Sensor Type & Function | Electrical Option | Connection Type |
|---|---|---|---|
| S = Stainless Steel, Thread Pitch M12x1, 35mm Long | Digital Ferrous Metal Proximity Sensor | 5V Operation | CB2 = Integral 4 Pin Male 12mm Micro Connector |

*Modify, update, or enhance any sensor with our modular features and functionality.*

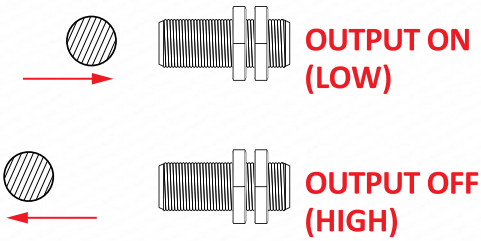
***HOUSING*** *- Aluminum, stainless steel, plastic, threaded, flange mount, customer specific*

***ELECTRICAL*** *- Every sensor function available in various electrical options (NPN, PNP, TTL, etc.)*

***CONNECTION*** *- Deutsch, Amphenol, many other brands, free end wires, pigtails, any length*

Need a Custom Sensor Solution?... Send us your application specific requirements at *sensorso.com*

**'Digital Output switches on when Ferrous Metal is present'**




**Type - DP**

### DESCRIPTION

- Digital output turns on when ferrous metal is detected
- Programmed to detect a large steel target at 0.375"
- Target detection gap is dependent on shape/size/ferrous content.
- Custom programming available for precision repeatable detection of targets, contact Sensor Solutions.
- Provided lock nuts used to set air gap from target.

### FEATURES

- True Zero Speed
- Large Detection Gap
- Internal Hysteresis
- Detects Through Aluminum

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# S12-275VPD-5VCB2

## Digital Ferrous Metal Detection Sensor

Note: Check our website or contact us for details on all our ferrous metal detection options.

| Electrical Specifications | Conditions | Min | Max | Unit |
|---|---|---|---|---|
| Temperature Range* | Operating | -40 | +110* | Deg C |
| Supply Voltage, Vcc | Over temperature | +4.5 | +5.5 | Volts DC |
| Supply Current | Into Vcc | (typ 7) | +10 | mA |
| Output Current | Continuous | -1 | +1 | mA |
| Load Capacitance | Cable and Load | n/a | +1.0 | µF |
| Frequency Range ** | Std Programmable | 0 | 500 | Hz |
| Frequency Range ** | Max Programmable | 0 | 2000 | Hz |
| Digital Voltage Low Vol | I sink < 1.0 mA | 0 | (typ 0.2) | Volts |
| Digital Voltage High Voh | I source < 1.0 mA | (typ 4.8) | Vcc | Volts |
| Output Rise Time 10-90% | Ro=10k, C<100 pF | - | 5 | µS |
| Output Fall Time 90-10% | Ro=10k, C<100 pF | - | 5 | µS |

* T max = 150°C is available, contact factory.

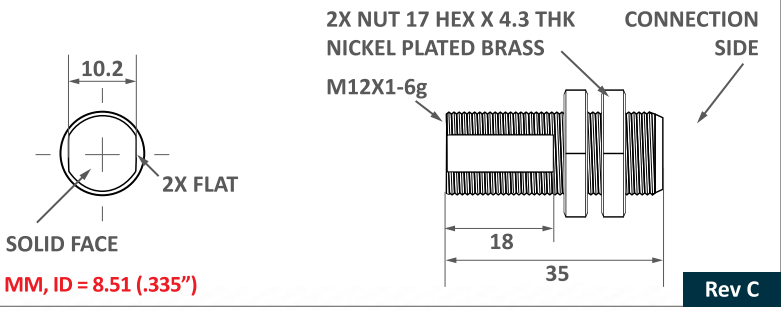
** Frequency, Detection and Hysteresis are Factory Programmable.

Rev D

| Absolute Max Limits | Min | Max | Unit |
|---|---|---|---|
| Supply Voltage, Vcc | -24 | +30 | Volts DC |
| Voltage at Output | -5 | +8.5 | Volts |
| Reverse Supply Current | - | 5.0 | mA |
| Peak Output Current | -10 | +10 | mA |
| Vout Short Circuit Duration | - | 10 | Minutes |

| Environmental Specifications | |
|---|---|
| Corrosion Resistance | 500 hours salt spray ASTM B-117 |
| Installation Torque | 23 Foot-Pounds Maximum |
| Enclosure | Nema 1,3,4,6,13 & IEC IP67 |
| Vibration | 10 G's 2 to 2000 Hz Sinusodal |
| Mechanical Shock | 100 G's, 11 mS Half-Sine |

### S12 Housing, 303 Stainless Steel, M12X1, 35mm Long



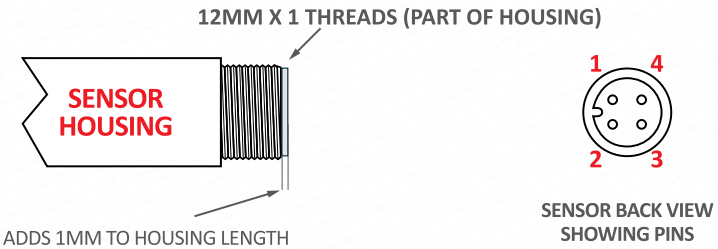

DIM = MM, ID = 8.51 (.335")

Rev C

| Functional Characteristics @25°C | Min | Typ | Max |
|---|---|---|---|
| *Sensor Programming + target ferrous content, shape, & size will affect gaps* | | | |
| Output State, No Target Present: | | | Low (~0V) |
| Detect Large Steel Target T=25C** | 0.350" | 0.375" | 0.400" |
| Hysteresis, Large Steel Target T=25C** | .020" | .050" | .080" |
| Detect 0.5" ø Steel Target | - | .360" | - |
| Detect 0.1" ø Steel Target | - | .215" | - |

** Frequency, Detection and Hysteresis are Factory Programmable and can be decreased upon request.

### CB2, Integral 4 Pin Male 12mm Micro Connector




Rev A

| Connections Chart | | | |
|---|---|---|---|
| Pin 1 | Vcc | Pin 3 | Ground |
| Pin 2 | Program/LEAVE OPEN | Pin 4 | Digital Vout |
| CB2-275VPD | | | |

**Caution:** *A short from the Pin 2 Program wire to either Pin 1 Vcc or Pin 3 Ground wire will cause component failure.*

OTHER MATING CONNECTORS AND CABLES AVAILABLE



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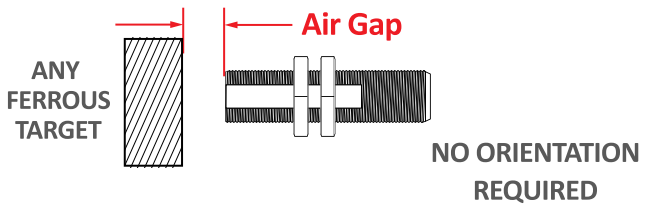
# S12-275VPD-5VCB2

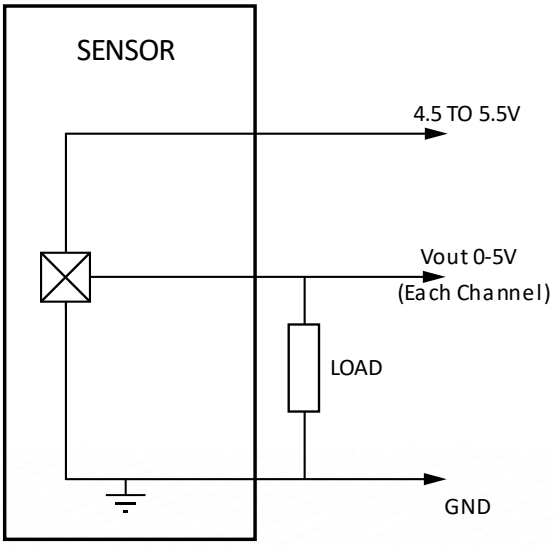
## Digital Ferrous Metal Detection Sensor

### Sensor Function




S12-275VPD

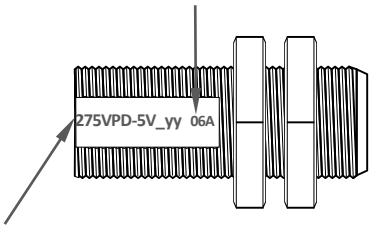
### 5V, 5V Operation




| Date Code 'YYM' YY = YEAR, M = MONTH | | | |
|---|---|---|---|
| A JAN | D APR | H JUL | L OCT |
| B FEB | E MAY | J AUG | M NOV |
| C MAR | G JUN | K SEP | N DEC |

### Marking

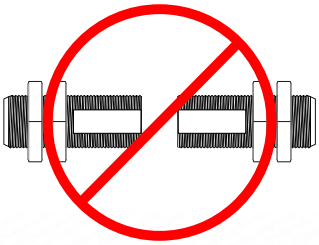
DATE CODE, THIS SURFACE




CHARACTERISTIC-OPTION_PROGRAMMING MARKED ON THIS SURFACE yy = PROGRAM #

### Handling Instructions

**DO NOT CONTACT FACE TO FACE**



**CONTACT WITH OTHER MAGNETS *MAY* REDUCE THE MAXIMUM OPERATING GAP**





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# S12-275VPD-RGP21

## Digital Ferrous Metal Detection Sensor

- **Ferrous Metal Hall Proximity Sensor**
- **.375" detection gap**
- **Regulated input, 0-5V output**
- **Stainless 12x1mm x 35mm housing**
- **Free end PVC 22 AWG wires 1 foot**

## CUSTOMER FOCUSED ENGINEERING + MODULAR DESIGN

Part Description: S12-275VPD-RGP21

| Housing | Sensor Type & Function | Electrical Option | Connection Type |
|---|---|---|---|
| S = Stainless Steel, Thread Pitch M12x1, 35mm Long | Digital Ferrous Metal Proximity Sensor | Regulated Input 0-5V Digital Output | P21 = Free End PVC 22AWG Wires |

*Modify, update, or enhance any sensor with our modular features and functionality.*

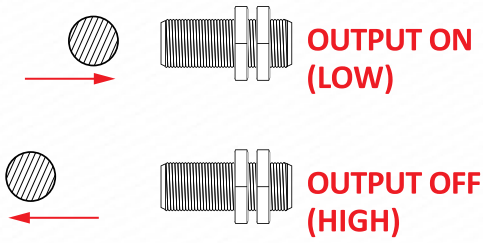
***HOUSING*** *- Aluminum, stainless steel, plastic, threaded, flange mount, customer specific*

***ELECTRICAL*** *- Every sensor function available in various electrical options (NPN, PNP, TTL, etc.)*

***CONNECTION*** *- Deutsch, Amphenol, many other brands, free end wires, pigtails, any length*

Need a Custom Sensor Solution?... Send us your application specific requirements at *sensorso.com*

**'Digital Output switches on when Ferrous Metal is present'**




**Type - DP**

### DESCRIPTION

- Digital output turns on when ferrous metal is detected
- Programmed to detect a large steel target at 0.375"
- Target detection gap is dependent on shape/size/ferrous content.
- Custom programming available for precision repeatable detection of targets, contact Sensor Solutions.
- Provided lock nuts used to set air gap from target.

### FEATURES

- True Zero Speed
- Large Detection Gap
- Internal Hysteresis
- Detects Through Aluminum

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# S12-275VPD-RGP21

## Digital Ferrous Metal Detection Sensor

Note: Check our website or contact us for details on all our ferrous metal detection options.

| Electrical Specifications | Conditions | Min | Max | Unit |
|---|---|---|---|---|
| Temperature Range* | Operating | -40 | +110* | Deg C |
| Supply Voltage, Vcc | Over temperature | +8.0 | +30 | Volts DC |
| Supply Current, Output Off | Into Vcc | (typ 8) | +12 | mA |
| Output Current | Continuous | -1 | +1 | mA |
| Load Capacitance | Cable and Load | n/a | +1.0 | µF |
| Frequency Range ** | Std Programmable | 0 | 500 | Hz |
| Frequency Range ** | Max Programmable | 0 | 2000 | Hz |
| Digital Voltage Low Vol | I sink < 1.0 mA | 0 | (typ 0.2) | Volts |
| Digital Voltage High Voh | I source < 1.0 mA | 4.60 | 5.5 | Volts |
| Output Rise Time 10-90% | Ro=10k, C<100 pF | - | 5 | µS |
| Output Fall Time 90-10% | Ro=10k, C<100 pF | - | 5 | µS |

* T max = 150°C is available, contact factory.

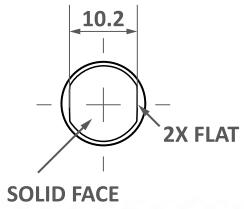
** Frequency, Detection and Hysteresis are Factory Programmable.

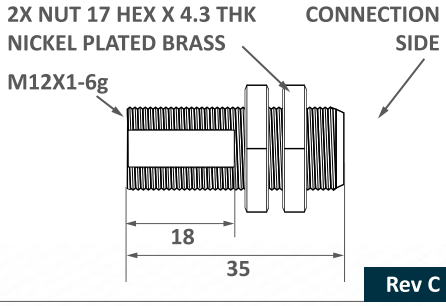
Rev D

| Absolute Max Limits | Min | Max | Unit |
|---|---|---|---|
| Supply Voltage, Vcc | -24 | +30 | Volts DC |
| Voltage at Output | -5 | +8.5 | Volts |
| Reverse Supply Current | - | 5.0 | mA |
| Peak Output Current | -10 | +10 | mA |
| Vout Short Circuit Duration | - | 10 | Minutes |

| Environmental Specifications | |
|---|---|
| Corrosion Resistance | 500 hours salt spray ASTM B-117 |
| Installation Torque | 23 Foot-Pounds Maximum |
| Enclosure | Nema 1,3,4,6,13 & IEC IP67 |
| Vibration | 10 G's 2 to 2000 Hz Sinusodal |
| Mechanical Shock | 100 G's, 11 mS Half-Sine |

### S12 Housing, 303 Stainless Steel, M12X1, 35mm Long




DIM = MM, ID = 8.51 (.335")

Rev C

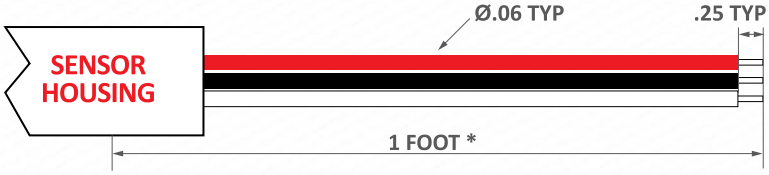
| Functional Characteristics @25°C | Min | Typ | Max |
|---|---|---|---|
| *Sensor Programming + target ferrous content, shape, & size will affect gaps* | | | |
| Output State, No Target Present: | | | Low (~0V) |
| Detect Large Steel Target T=25C** | 0.350" | 0.375" | 0.400" |
| Hysteresis, Large Steel Target T=25C** | .020" | .050" | .080" |
| Detect 0.5" ø Steel Target | - | .360" | - |
| Detect 0.1" ø Steel Target | - | .215" | - |

** Frequency, Detection and Hysteresis are Factory Programmable and can be decreased upon request.

### P21, Free End PVC 22 AWG Wires

FREE END WIRE LEADS
22 AWG, 7/30, PVC 80°C
3 WIRES SHOWN. THE NUMBER OF WIRES AND COLORS WILL VARY PER SENSOR MODEL

OTHER STANDARD LENGTHS:
3", 6", 2', 5', 10', AND 20'




DIM = INCH

Rev A

| Connections Chart | | | |
|---|---|---|---|
| Red | Vcc | White | Digital Vout |
| Black | Ground | | |
| P21-275VPD | | | |



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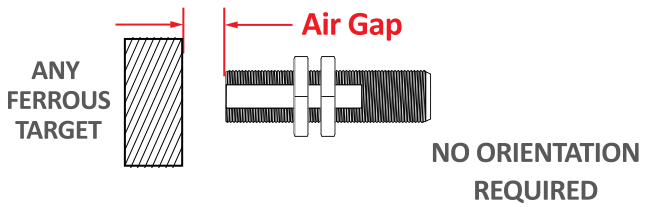
# S12-275VPD-RGP21

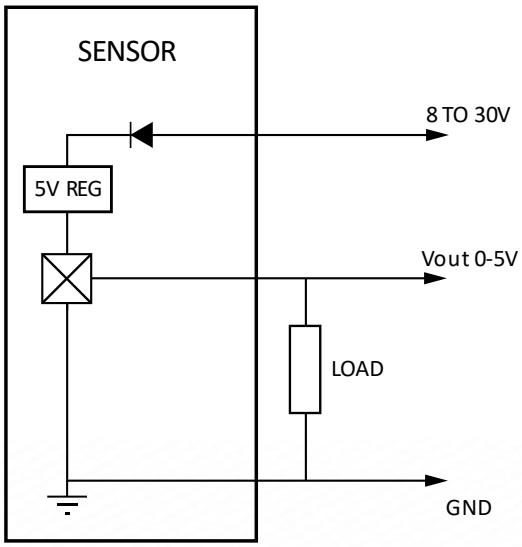
## Digital Ferrous Metal Detection Sensor

### Sensor Function




S12-275VPD

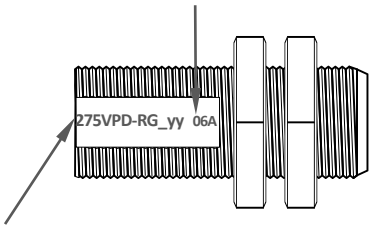
### RG, Linear Regulator




| Date Code 'YYM' YY = YEAR, M = MONTH | | | |
|---|---|---|---|
| A JAN | D APR | H JUL | L OCT |
| B FEB | E MAY | J AUG | M NOV |
| C MAR | G JUN | K SEP | N DEC |

### Marking

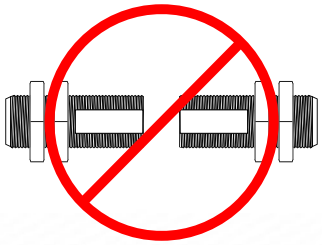
DATE CODE, THIS SURFACE




CHARACTERISTIC-OPTION_PROGRAMMING MARKED ON THIS SURFACE yy = PROGRAM #

### Handling Instructions

**DO NOT CONTACT FACE TO FACE**



**CONTACT WITH OTHER MAGNETS *MAY* REDUCE THE MAXIMUM OPERATING GAP**





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# S18-275VPD-RICB1E

## Digital Ferrous Metal Detection Sensor

- **Ferrous Metal Hall Proximity Sensor**
- **.375" detection gap**
- **PNP output**
- **Stainless 18x1mm x 53mm housing**
- **4 pin male micro connector on 11" jacketed pur cable**

## CUSTOMER FOCUSED ENGINEERING + MODULAR DESIGN

Part Description: S18-275VPD-RICB1E

| Housing | Sensor Type & Function | Electrical Option | Connection Type |
|---|---|---|---|
| S = Stainless Steel, Thread Pitch M18x1, 53mm Long | Digital Ferrous Metal Proximity Sensor | RI Regulated In, PNP | 4 Pin Male Micro Conn. on 11" Jacketed Pur Cable |

*Modify, update, or enhance any sensor with our modular features and functionality.*

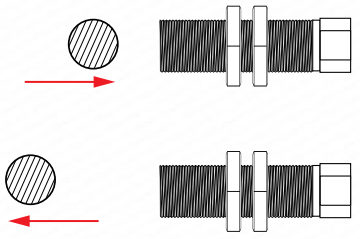
***HOUSING*** *- Aluminum, stainless steel, plastic, threaded, flange mount, customer specific*

***ELECTRICAL*** *- Every sensor function available in various electrical options (NPN, PNP, TTL, etc.)*

***CONNECTION*** *- Deutsch, Amphenol, many other brands, free end wires, pigtails, any length*

Need a Custom Sensor Solution?... Send us your application specific requirements at *sensorso.com*

### 'Digital Output switches on when Ferrous Metal is present'




**Type - DP**

### DESCRIPTION

- Digital output turns on when ferrous metal is detected
- Programmed to detect a large steel target at 0.375"
- Target detection gap is dependent on shape/size/ferrous content.
- Custom programming available for precision repeatable detection of targets, contact Sensor Solutions.
- Provided lock nuts used to set air gap from target.

### FEATURES

- True Zero Speed
- Large Detection Gap
- Internal Hysteresis
- Detects Through Aluminum

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# S18-275VPD-RICB1E

## Digital Ferrous Metal Detection Sensor

Note: Check our website or contact us for details on all our ferrous metal detection options.

| Electrical Specifications | Conditions | Min | Max | Unit |
|---|---|---|---|---|
| Temperature Range* | Operating | -20 | +85 | Deg C |
| Supply Voltage, Vcc | Operating | +8.0 | +30 | Volts DC |
| Supply Current | Into Vcc, Vout Low | (typ 8) | +16 | mA |
| Output Resistance | Inside Sensor, Vo-Vout | 256 | 285 | mA |
| Frequency Range ** | | 0 | 500*** | Hz |
| Digital Voltage Low Vol | Rload = 1k | 0 | 0.6 | Volts |
| Digital Voltage High Voh | Vcc = 24, Rload =1k | 18 | 20 | Volts |
| Output Rise Time 10-90% | Rload=1k, C<100 pF | - | 1 | µS |
| Output Fall Time 90-10% | Rload=1k, C<100 pF | - | 10 | µS |
| Output Capacitance, Vout-Gnd | Inside Sensor | - | 540 | pF |
| Input Capacitance, Vcc-Gnd | Inside Sensor | - | 5400 | pF |

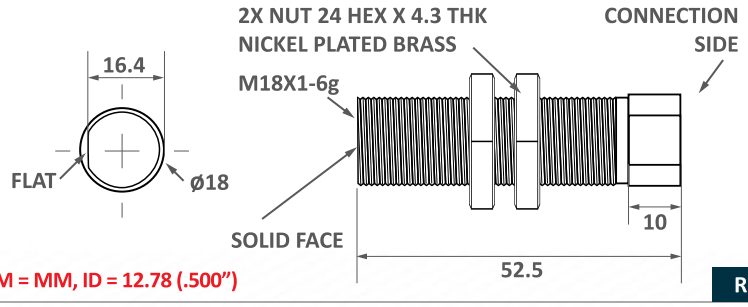
*** Can be programmed for operation up to 2000 Hz, contact factory.

Rev B

| Absolute Max Limits | Min | Max | Unit |
|---|---|---|---|
| Supply Voltage, Vcc | -24 | +30 | Volts DC |
| Voltage at Output | -5 | +30 | Volts |
| Reverse Supply Current | - | 5.0 | mA |
| Peak Output Current | -10 | +10 | mA |
| Vout Short Circuit Duration | - | 10 | Minutes |

| Environmental Specifications | |
|---|---|
| Corrosion Resistance | 500 hours salt spray ASTM B-117 |
| Installation Torque | 60 Foot-Pounds Maximum |
| Enclosure | Nema 1,3,4,6,13 & IEC IP67 |
| Vibration | 10 G's 2 to 2000 Hz Sinusodal |
| Mechanical Shock | 100 G's, 11 mS Half-Sine |

### S18 Housing, 303 Stainless Steel, M18X1, 53mm Long




DIM = MM, ID = 12.78 (.500")

Rev E

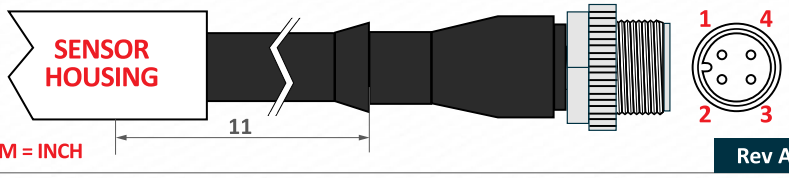
| Functional Characteristics @25°C | Min | Typ | Max |
|---|---|---|---|
| *Sensor Programming + target ferrous content, shape, & size will affect gaps* | | | |
| Output State, No Target Present: | | | Low (~0V) |
| Detect Large Steel Target T=25C** | 0.350" | 0.375" | 0.400" |
| Hysteresis, Large Steel Target T=25C** | .020" | .050" | .080" |
| Detect 0.5" ø Steel Target | - | .360" | - |
| Detect 0.1" ø Steel Target | - | .215" | - |

** Frequency, Detection and Hysteresis are Factory Programmable and can be decreased upon request.

### CB1E, 4 Pin Male 12mm Micro Connector w/11" Pur Cable

**CONNECTOR:** 4 PIN MALE M12 STRAIGHT OVERMOLD
**CABLE:** 22AWG, STRANDED, PUR JACKET & INSULATION

**PIN 1** = RED
**PIN 2** = BLACK
**PIN 3** = WHITE
**PIN 4** = GREEN




DIM = INCH

Rev A

| Connections Chart | |
|---|---|
| Pin 1 Vcc | Pin 3 Ground |
| Pin 2 Digital Vout | Pin 4 Program, Leave Open |
| CB1E-275VPD | |

**Caution:** *A short from the Pin 4 (Green) Program wire to either Pin 1 (Red) Vcc or Pin 2 (Black) Ground wire will cause component failure.*

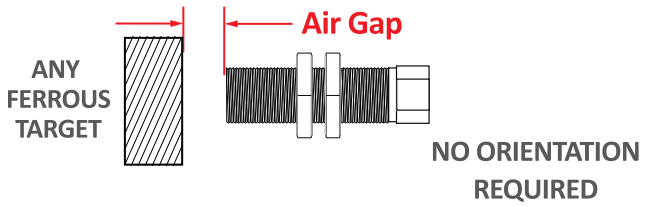


+1 970.879.9900 | sensorsales@standexelectronics.com

# S18-275VPD-RICB1E

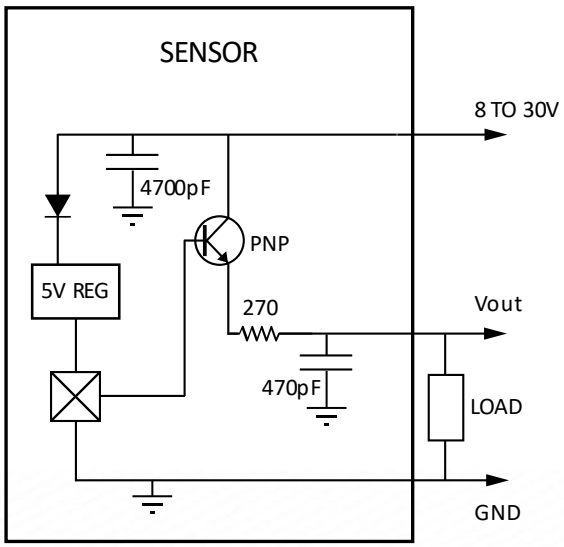
## Digital Ferrous Metal Detection Sensor

### Sensor Function




S18-275VPD

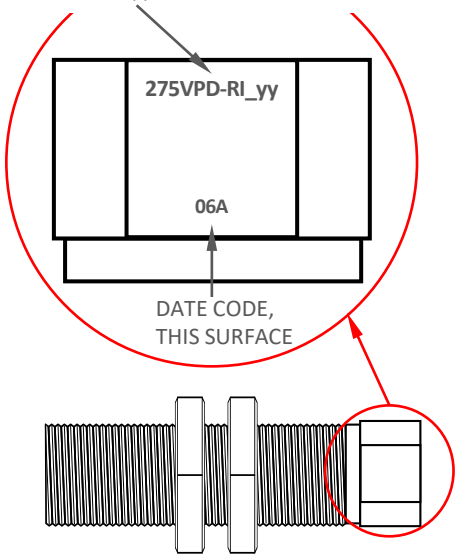
### RI, Regulated in, PNP




| Date Code 'YYM' YY = YEAR, M = MONTH | | | |
|---|---|---|---|
| A JAN | D APR | H JUL | L OCT |
| B FEB | E MAY | J AUG | M NOV |
| C MAR | G JUN | K SEP | N DEC |

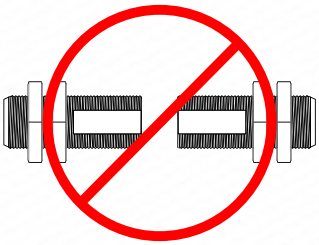
### Marking

CHARACTERISTIC-OPTION_PROGRAMMING MARKED ON THIS SURFACE yy = PROGRAM #




### Handling Instructions

**DO NOT CONTACT FACE TO FACE**



**CONTACT WITH OTHER MAGNETS *MAY* REDUCE THE MAXIMUM OPERATING GAP**





+1 970.879.9900 | sensorsales@standexelectronics.com