Standex Electronics

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Datasheet

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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.

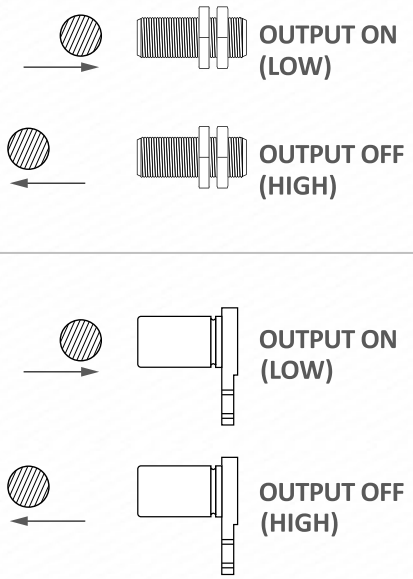
HOUSING *- Aluminum, stainless steel, plastic, threaded, flange mount, customer specific*

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

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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

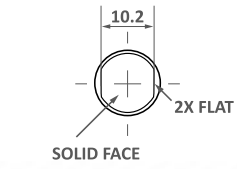
MOUNTING TYPE
- Threaded Barrel
- High Pressure

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

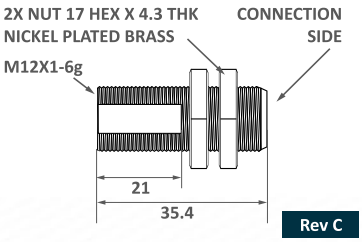
Plastic Glass Fill Nylon (150°C)

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

M12 Thread Mount M12x1mm, 35mm

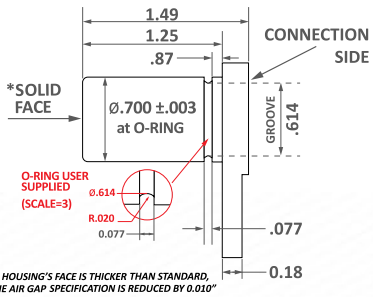


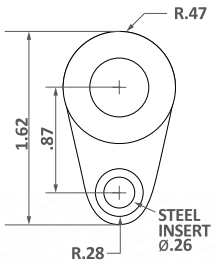
DIM = MM, ID = 8.51 (.335")



Rev C

MFM7 Flange Mount





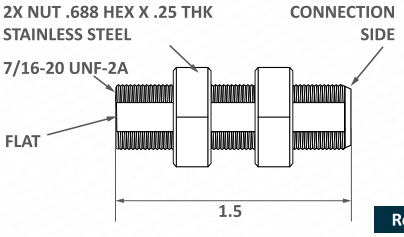
DIM = INCH, ID = .500"

Rev D

Aluminum Black Anodized

A44 Thread Mount 7/16, 1.5in

DIM = INCH, ID = .335"



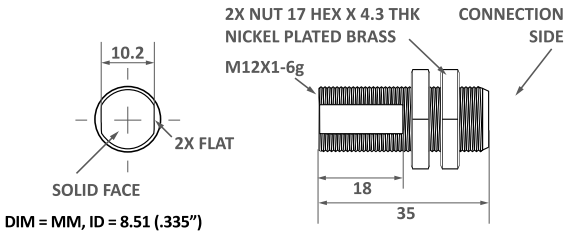
Rev A

VPD Series
Digital Ferrous Metal Proximity Sensors

303 Stainless Steel

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

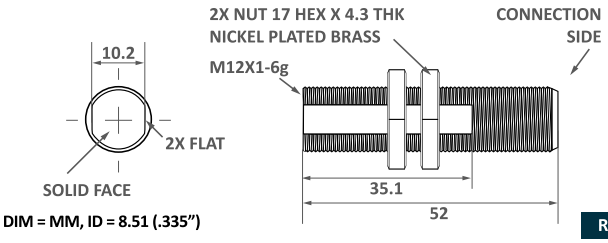
S12 Thread Mount M12x1mm, 35mm



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

Rev C

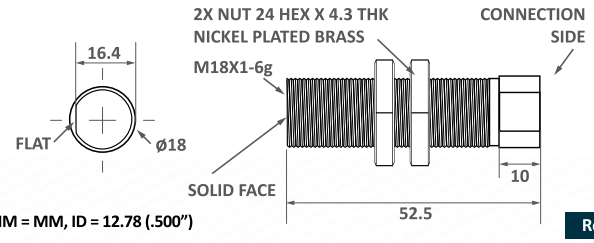
S12H Thread Mount M12x1mm, 52mm



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

Rev B

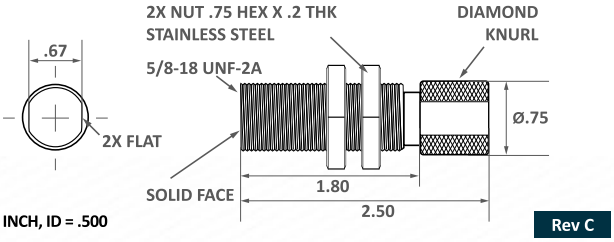
S18 Thread Mount M18x1mm, 53mm



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

Rev E

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



DIM = INCH, ID = .500

Rev C

VPD Series

Digital Ferrous Metal Proximity Sensors

Electrical Output Logic Options

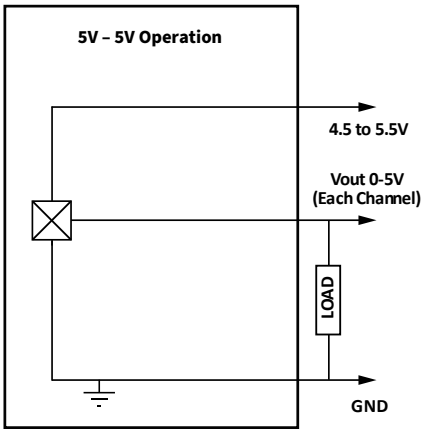
PART NUMBER EXAMPLE

M12 - 275VPD - 5K SA5 — CONNECTION

M12 — HOUSING

5K — ELECTRICAL

5V

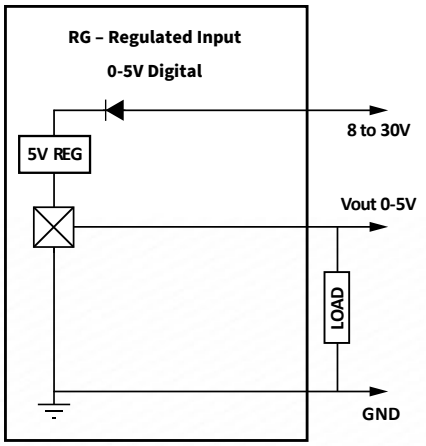


Electrical Specifications	Conditions	Min	Max	Unit
Temperature Range*	Operating	-40	+110*	Deg C
Supply Voltage, Vcc	Over temperature	+4.5	+5.5	Volts DC
Supply Current	Into Vcc	(typ 7)	+10	mA
Output Current	Continuous	-1	+1	mA
Load Capacitance	Cable and Load	n/a	+1.0	µF
Frequency Range **	Std Programmable	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

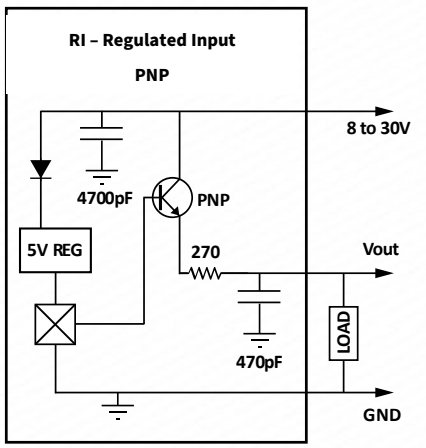


Electrical Specifications	Conditions	Min	Max	Unit
Temperature Range*	Operating	-40	+110*	Deg C
Supply Voltage, Vcc	Over temperature	+8.0	+30	Volts DC
Supply Current, Output Off	Into Vcc	(typ 8)	+12	mA
Output Current	Continuous	-1	+1	mA
Load Capacitance	Cable and Load	n/a	+1.0	µF
Frequency Range **	Std 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

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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

5KSA5 — ELECTRICAL

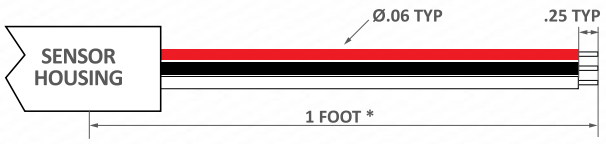
P21, Free End PVC 22 AWG Wires

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

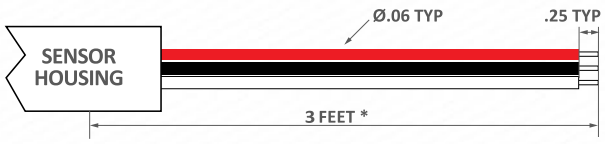
P23, Free End PVC 22 AWG Wires

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

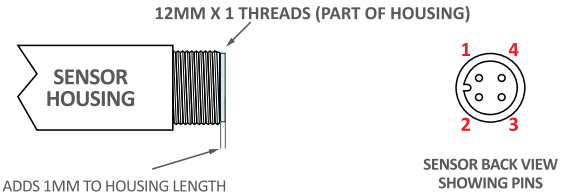
PART NUMBER EXAMPLE M12-275VPD-5KSA5 — CONNECTION
HOUSING | ELECTRICAL

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

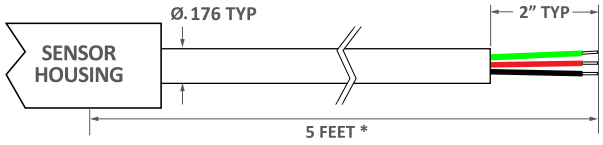
JA5, Jacketed 3 Wire PVC 22 AWG Wires

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

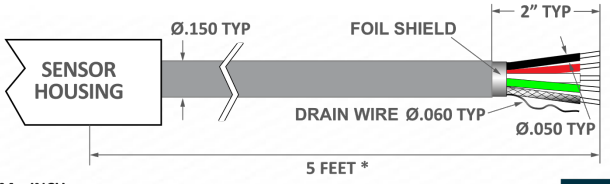
SA5, Shielded 4 Wire PVC 22 AWG Wires

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

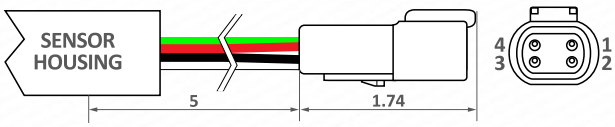
CD4, 4 Pin Deutsch DT04 TXL 20 AWG Wires

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

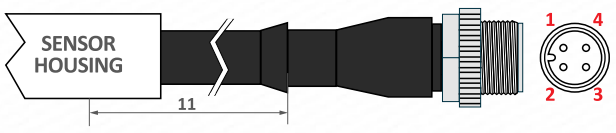
CB1E, 4 Pin Male 12mm Micro Connector w/11" Pur Cable

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



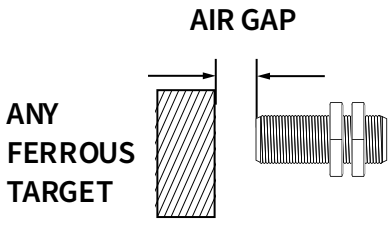
DIM = INCH

Rev A

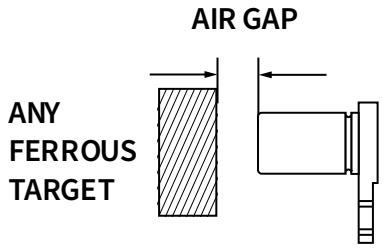
VPD Series
Digital Ferrous Metal Proximity Sensors

Environmental & Performance Specifications

Sensor Function



NO ORIENTATION REQUIRED



NO ORIENTATION REQUIRED

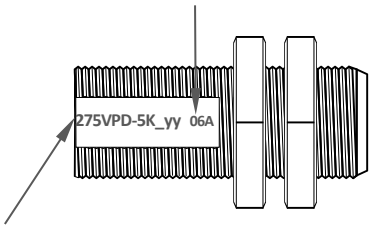
Functional Characteristics @25°C	Min	Typ	Max
Sensor Programming + target ferrous content, shape, & size will affect gaps			
Output State, No Target Present:		Low (~0V)	
Detect Large Steel Target T=25C**	0.350”	0.375”	0.400”
Hysteresis, Large Steel Target T=25C**	.020”	.050”	.080”
Detect 0.5” ø Steel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

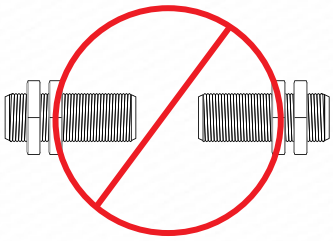
DATE CODE, THIS SURFACE



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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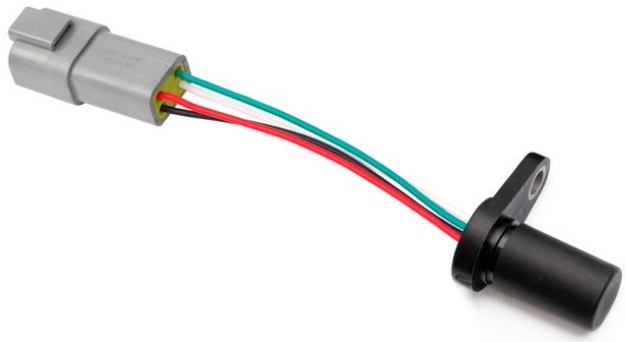
MFM7-275VPD-RGCD4

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 Flange Mount Ø.7" x 1.5"	Digital Ferrous Metal Proximity Sensor	Regulated Input 0-5V Digital Output	Deutsch DT 4 pin w/5" 20AWG XLPE

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

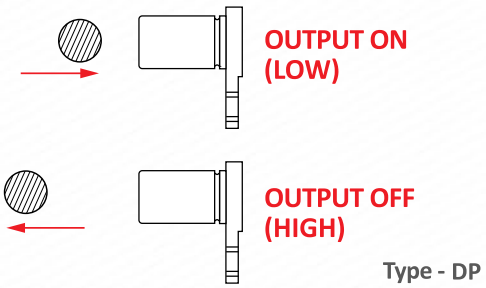
HOUSING *- Aluminum, stainless steel, plastic, threaded, flange mount, customer specific*

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

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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.

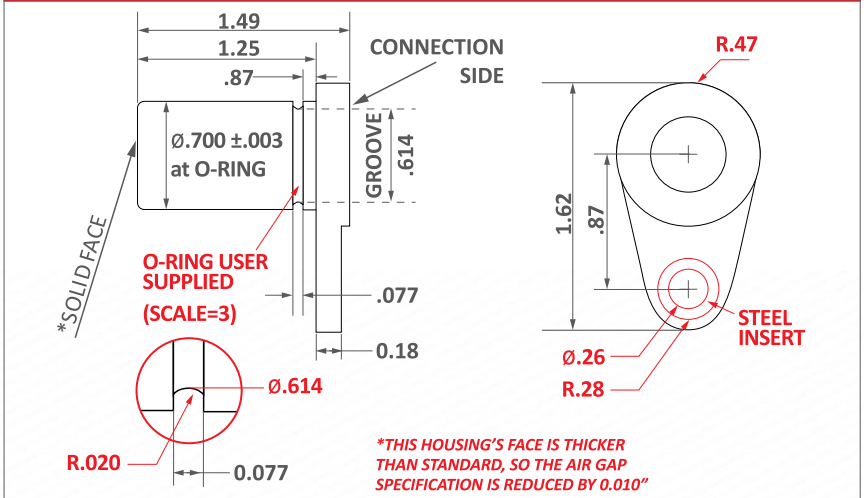
** Frequency, Detection and Hysteresis are Factory Programmable.

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"

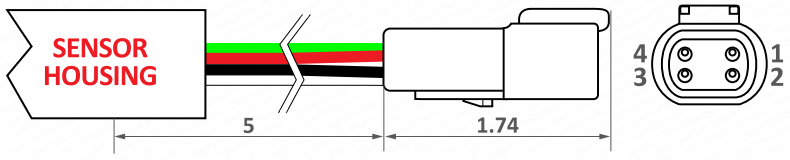
Rev D

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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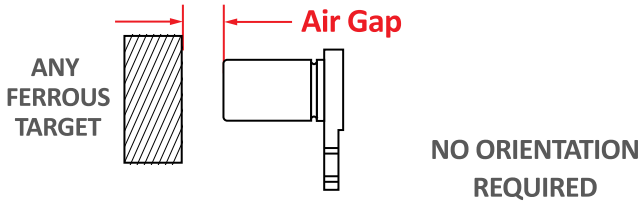
MFM7-275VPD-RGCD4

Digital Ferrous Metal Detection Sensor

Sensor Function

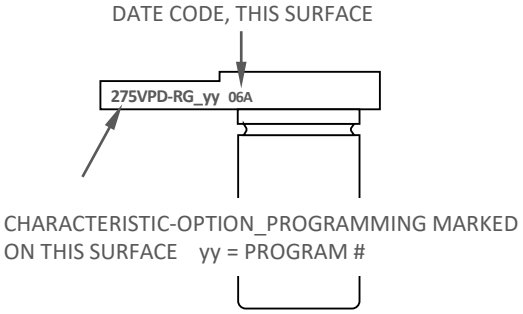


MFM7-275VPD

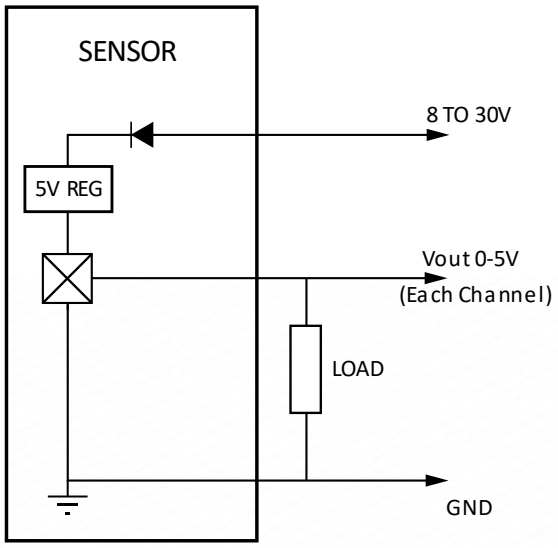
Date Code 'YYM' YY = YEAR, M = MONTH

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

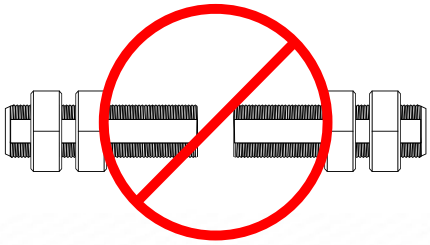


RG, Linear Regulator



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.

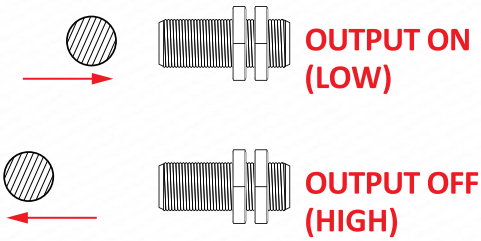
HOUSING *- Aluminum, stainless steel, plastic, threaded, flange mount, customer specific*

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.

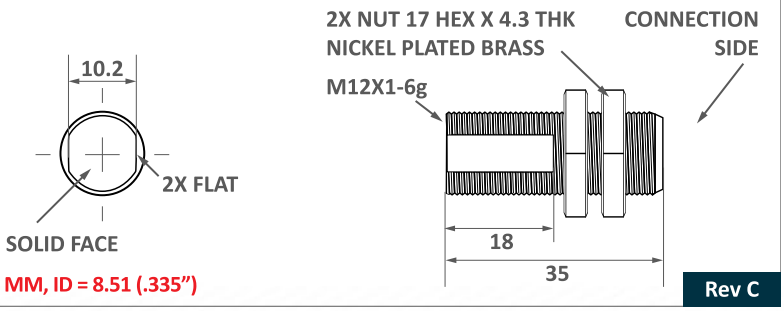
** Frequency, Detection and Hysteresis are Factory Programmable.

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



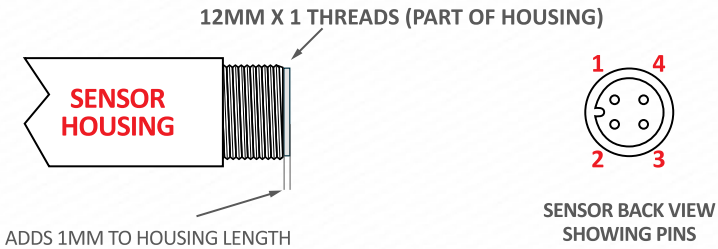
DIM = MM, ID = 8.51 (.335")

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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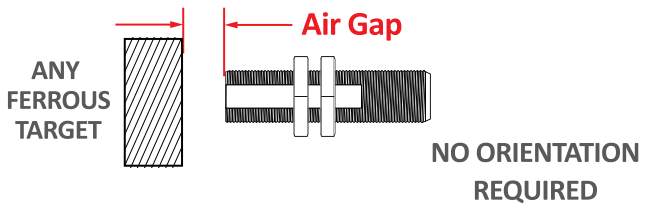
S12-275VPD-5VCB2

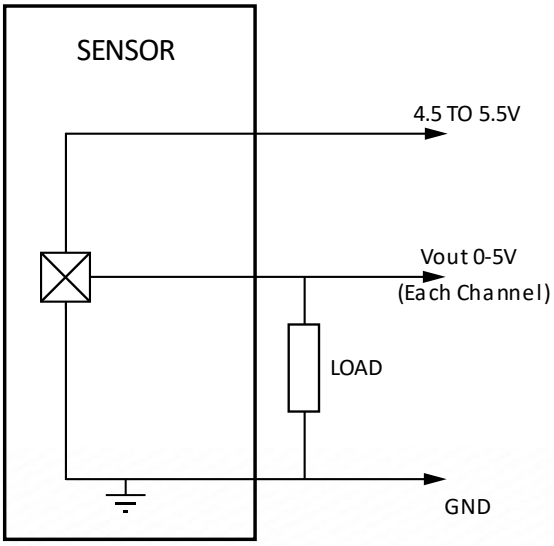
Digital Ferrous Metal Detection Sensor

Sensor Function



S12-275VPD

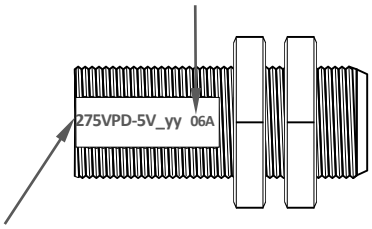
5V, 5V Operation



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

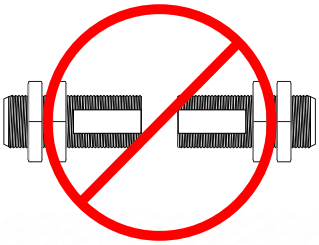
DATE CODE, THIS SURFACE



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.

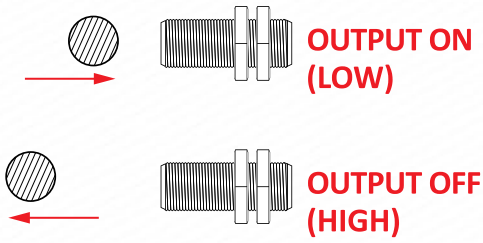
HOUSING *- Aluminum, stainless steel, plastic, threaded, flange mount, customer specific*

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.

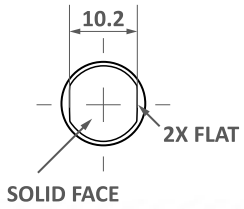
** Frequency, Detection and Hysteresis are Factory Programmable.

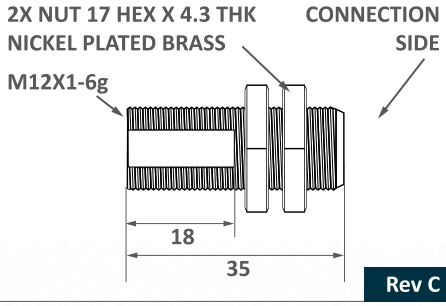
Rev D

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

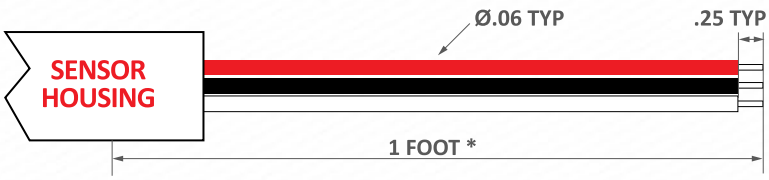
Functional Characteristics @25°C	Min	Typ	Max
Sensor Programming + target ferrous content, shape, & size will affect gaps			
Output State, No Target Present:			Low (~0V)
Detect Large Steel Target T=25C**	0.350"	0.375"	0.400"
Hysteresis, Large Steel Target T=25C**	.020"	.050"	.080"
Detect 0.5" ø Steel 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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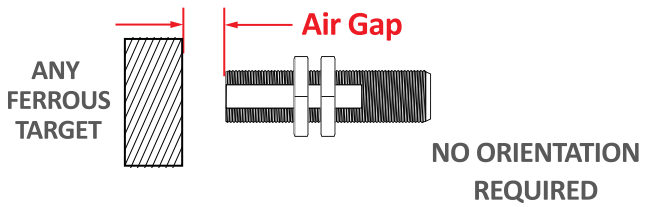
S12-275VPD-RGP21

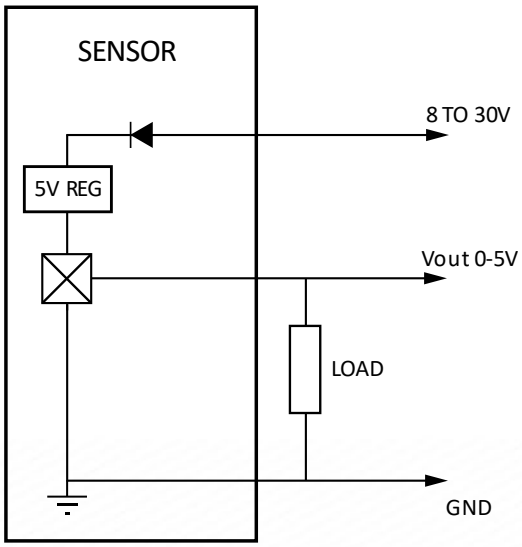
Digital Ferrous Metal Detection Sensor

Sensor Function



S12-275VPD

RG, Linear Regulator

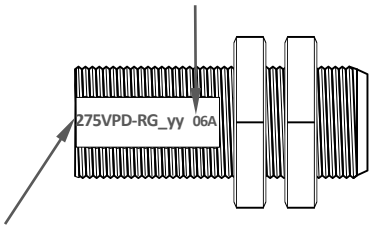


Date Code 'YYM' YY = YEAR, M = MONTH

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

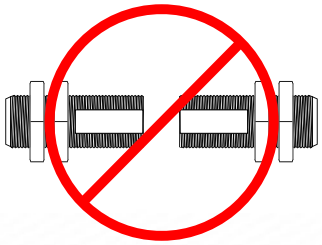
DATE CODE, THIS SURFACE



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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PARTNER | SOLVE | DELIVER

Datasheet

standexelectronics.com

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.

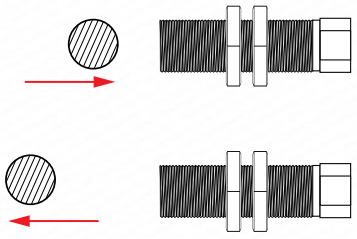
HOUSING *- Aluminum, stainless steel, plastic, threaded, flange mount, customer specific*

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'



OUTPUT ON (HIGH)

OUTPUT OFF (LOW)

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

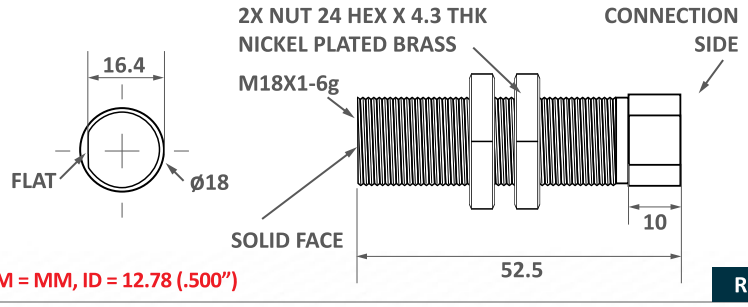
*** Can be programmed for operation up to 2000 Hz, contact factory.

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

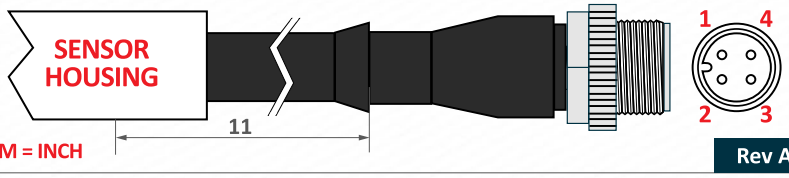
Functional Characteristics @25°C	Min	Typ	Max
Sensor Programming + target ferrous content, shape, & size will affect gaps			
Output State, No Target Present:			Low (~0V)
Detect Large Steel Target T=25C**	0.350"	0.375"	0.400"
Hysteresis, Large Steel Target T=25C**	.020"	.050"	.080"
Detect 0.5" ø Steel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

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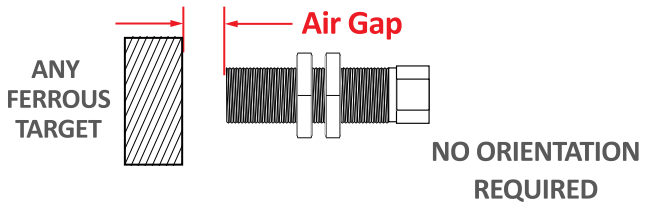
S18-275VPD-RICB1E

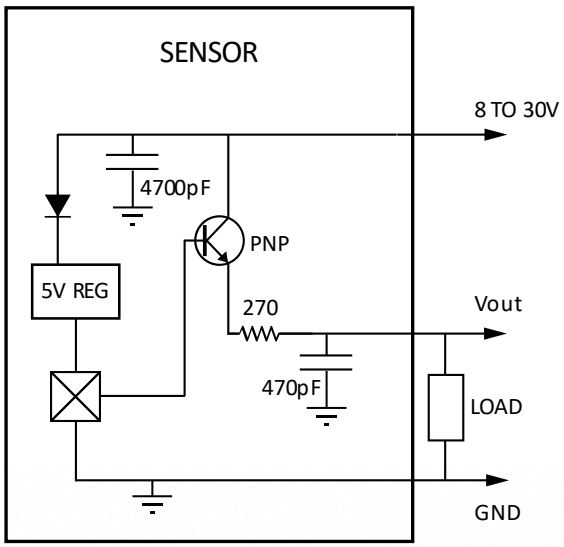
Digital Ferrous Metal Detection Sensor

Sensor Function



S18-275VPD

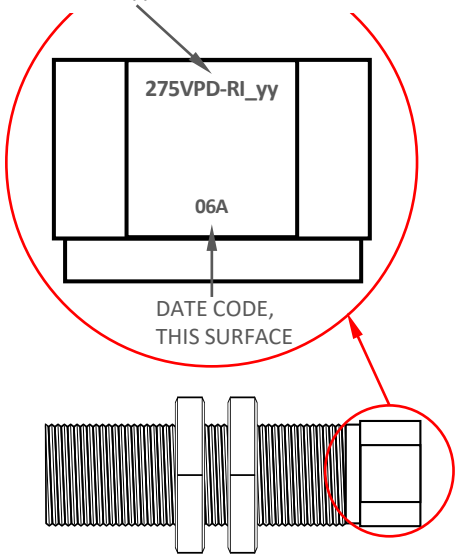
RI, Regulated in, PNP



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

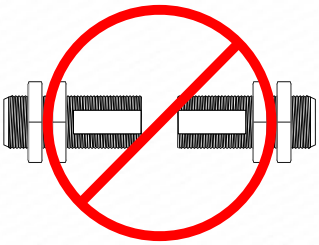
Marking

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

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