



OPERATING & INSTALLATION INSTRUCTIONS

**NON ARCING / NON SPARKING
(Gas Groups A, B, C & D)
3XCA SERIES**



PLEASE READ CAREFULLY BEFORE INSTALLING

Installation Bulletin P/N: 255648

Issue: A

INTRODUCTION

The 3XCA series product is a pressure transducer which provides linear electrical output proportional to applied pressure and is intended for use for pressure measurement. The 3XCA series is CSA certified Non Arcing / Non Sparking for use in: **Class I, Division 2, Groups A, B, C and D.**

Non Arcing / Non Sparking transducers with 2 or 3 pin outputs are available with pressure output only. See Pin out table CONNECTION INFORMATION section for details.



**Control DWG: 255646
CSA 2018 70173617**

**NON ARCING / NON SPARKING
3XCAXXXXXXXXXXXXXX
XXXXXXXXTPU 174-16-0001
Range: 0...40 BAR
Output: 1 - 5V d.c.
Supply: 8 - 30V d.c.**



**C US
T4 @ -40 to +80°C**



Class I, Division 2, Groups A, B, C and D; Single Seal

MODEL SPECIFICATION

3XCAdaaaaabbcfce

Where:

aaaaa = Pressure Range Code

CODE	PRESSURE RANGE (Bar)
0004G	4 bar Gauge
0006G	6 bar Gauge
0007G	7 bar Gauge
0010G	10 bar Gauge
0016G	16 bar Gauge
0025G	25 bar Gauge
0040G	40 bar Gauge
0060G	60 bar Gauge
0100S	100 bar Sealed
0160S	160 bar Sealed
0250S	250 bar Sealed
0400S	400 bar Sealed
0600S	600 bar Sealed
1000S	1000 bar Sealed

CODE	PRESSURE RANGE (psi)
075PG	75 psi Gauge
100PG	100 psi Gauge
150PG	150 psi Gauge
200PG	200 psi Gauge
300PG	300 psi Gauge
500PG	500 psi Gauge
600PG	600 psi Gauge
750PG	750 psi Gauge
10CPG	1000 psi Gauge
15CPG	1500 psi Gauge
50CPG	5000 psi Gauge
75CPG	7500 psi Gauge
10KPG	10000 psi Gauge
060PS	60 psi Sealed
100PS	100 psi Sealed
200PS	200 psi Sealed
300PS	300 psi Sealed
500PS	500 psi Sealed
10CPS	1000 psi Sealed
15CPS	1500 psi Sealed
20CPS	2000 psi Sealed
25CPS	2500 psi Sealed
30CPS	3000 psi Sealed
35CPS	3500 psi Sealed
40CPS	4000 psi Sealed
50CPS	5000 psi Sealed
60CPS	6000 psi Sealed
75CPS	7500 psi Sealed
80CPS	8000 psi Sealed
10KPS	10000 psi Sealed

bb = Pressure Port

CODE	DESCRIPTION (Union Type)
0H	1/2" NPT
02	1/4" - 18 NPT
0E	1/4" - 18 NPT Female
4C	1/4" - 18 NPTF Dryseal
0A	1/4" - 19 PT (JIS) or 1/4" - 19 BSPT
4B	1/4" Female (7/16" UNF with Schraeder Deflator)
08	1/8" - 27 NPT
4D	1/8" - 27 NPTF Dryseal
4N	3/8" - 24 UNF Union
04	7/16" - 20 (37° FLARE.SAE J514 SIZE 4)
1J	7/16" - 20 UNF 2A SAE J1926/2 O'RING
1P	9/16" - 18 UNF 2A SAE J1926/2 O'RING
4P	G1/2" A 27A/F
05	G1/4" A Integral Face Seal
01	G1/4" A Stud (BS 5380 Port)
0S	G1/8" A Stud (BS 5380 Port)
2T	M12x1.5 (6g) High Pressure (Washer Seal)
0K	M14x1.5P (6g) O'Ring to ISO 6149-2
0L	M12x1.5P (6g) O'Ring to ISO 6149-2
1G	Schraeder 7-16" - 20 UNF 2B Female
6B	F250C AutoClave
ZZ	Place Holder in Compliance with Schedule Drawing 1051-302-0SD

c = Connector Code

CODE	DESCRIPTION (Electrical Connection)
3	½" NPT CONDUIT
6	AMP SUPERSEAL 1.5 SERIES
8	DEUTSCH DT04-4P
9	METRIPACK T (150 SERIES)
E	M12
G	EN175301-803 (DIN 43650 A)
R	INDUSTRY STANDARD FORM C
Z	Place Holder in Compliance with Schedule Drawing 1051-302-0SD

d = Output Code

CODE	DESCRIPTION (Output)	OUTPUT TYPE
B	4-20mA	Current
C	1-6V	Absolute
D	1-11V	Absolute
E	0.25-5V	Absolute
F	0.1-5.1V	Absolute
G	0.2-10.2V	Absolute
H	1-5V	Absolute
N	0.5-4.5V Non Ratio-metric	Absolute
P	1-10V	Absolute
R	0-5V	Absolute
S	0-10V	Absolute
T	0.5-4.5V Ratio-metric	Ratio-Metric
V	0.5-4V	Absolute
Z	Place Holder in Compliance with Schedule Drawing 1051-302-0SD	

f = Pressure Restrictor Option

CODE	DESCRIPTION
0	None
R	Restrictor Fitted

ee = Cable Length

CODE	DESCRIPTION (Cable Length)
00	NOT FITTED
01	1 METRE
02	2 METRE
03	3 METRE
05	5 METRE
10	10 METRE
ZZ	Place Holder in Compliance with Schedule Drawing 1051-302-0SD

HAZARDOUS PRODUCTS

Products which are supplied per this bulletin may be classified as Electrical, Electro-Mechanical and Electronic equipment.

These products are tested and supplied in accordance with our published specifications or individual special requirements that are agreed in writing at time of order. They are constructed so as not to affect adversely the safety of persons and property installed, maintained and used by qualified personnel, in the application for which they were designed and manufactured.

GENERAL

The equipment is designed and manufactured to:

- Avoid physical injury or other harm which may be caused by direct or indirect contact.
- Ensure that excess surface temperature of accessible parts or radiation which would cause a danger are not produced.
- Eliminate non-electrical dangers which are revealed by experience.
- Ensure that foreseeable conditions of overload will not give rise to dangerous situations.

Provided that:

- Pressure range must be compatible with the maximum pressure being measured.
- Pressure media must be compatible with the transducer/transmitter wetted parts listed in these instructions.
- Liquid must not be allowed to freeze in the pressure port.
- The gasket must be fitted under the electrical connector where applicable.

CONDITIONS OF ACCEPTABILITY

- To be supplied by a certified Class 2 power supply that meets the requirements of CEC (for Canada) and NEC (for USA) with a maximum voltage of 30 Vdc.
- This product is certified as component for connection in the final assembly using end user supplied mating part connector. The suitability of the final assembly is subject to acceptance of local authority having jurisdiction.
- The final installation of the device shall meet the requirements of CEC (for Canada) and NEC (for USA) for field wiring method in Division 2 and is subjected to acceptance of local authority having jurisdiction.
- End-user shall ensure proper earthing of the device / manifold upon installation.
- For all models with polymeric plugs, the final installation shall ensure there is no risk of mechanical impact to the device.

INSTALLATION & START UP



WARNING – EXPLOSION HAZARD. DO NOT CONNECT OR DISCONNECT WHEN ENERGIZED.

AVERTISSEMENT — RISQUE D'EXPLOSION. NE PAS BRANCHER OU DÉBRANCHER LORSQUE LE CIRCUIT EST SOUS TENSION.

Install and start up the transducer ONLY if it is in a faultless condition. Only screw or unscrew the transducer using the hexagon flats ONLY and observing the prescribed torque, do NOT use the electrical connector case for screwing or unscrewing!

Tools required for Installation:

Transducer Mounting: Wrench 22mm or 27mm depending on product
Industry Standard Form C Connector and DIN43650 A: Screwdriver

Mating Harnesses: Ensure cable selected is suitable to fit the electrical connector and meets the relevant National Electrical Codes or Canadian Electrical Codes. Ensure all wire seals are correctly fitted and any empty wire holes are fitted with suitable blanking plugs and that cable positioning does not impair ingress protection of seals.

Integrated Cables: For transducers supplied with integrated cable, minimum bend radius is 75mm.

‘O’ Rings: Transducers are not shipped with soft seals. Process connections which require a soft seal (‘O’ ring) are the responsibility of the installer. They must be suitable for both application temperature and relevant media.

Outdoor Use: M12 Electrical Connectors are supplied with a Protective Cap and it **must** be fitted to the transducer whenever a mating connector is not fitted, this is to maintain the NEMA 4x rating.

ELECTRICAL INSTALLATION

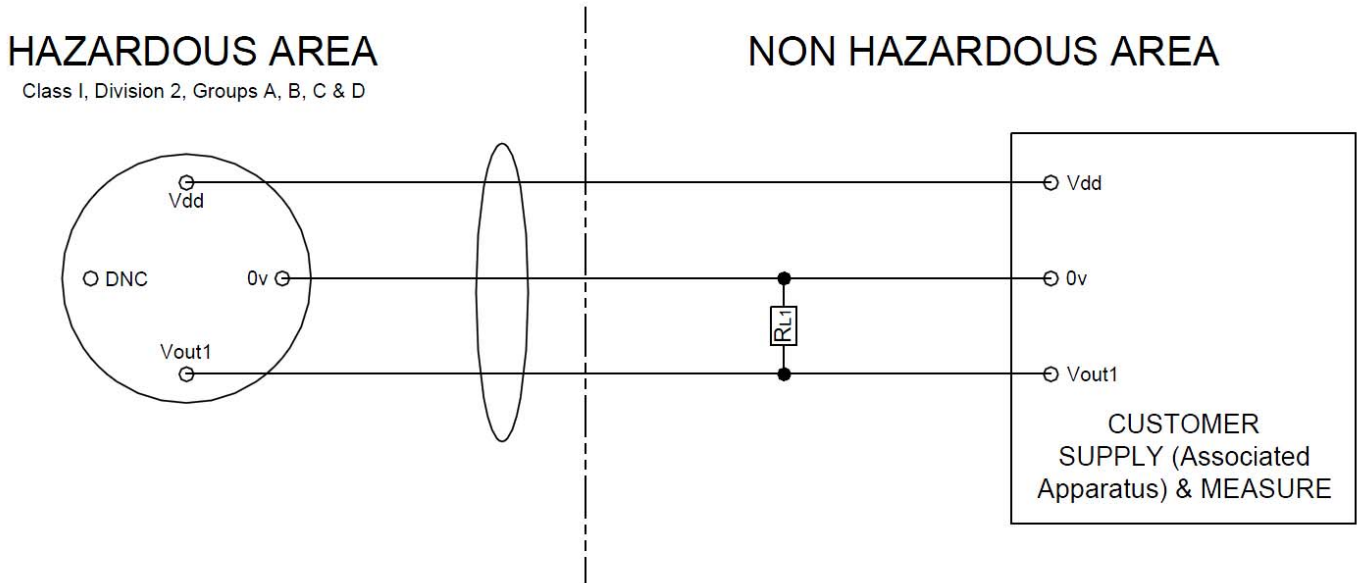
Installation of this type must be carried out in accordance with the Approved Installation condition for Electrical Devices for use in Class I Division 2 as per the National Electrical Code (NEC) or Canadian Electrical Code (CEC). The end user is to ensure appropriate earthing upon installation.

Voltage Applications:

The following schematic is applicable for any voltage output – only pull-down configuration shown. External load (R_{L1}) is optional and can be connected between Vout1 and EITHER supply rail.

With “0V offsets”, pull-up resistors cannot be used.

Application Schematic (Example):



Absolute Output Mode: (Typical output ranges are 0-10V, 0-5V, 1-6V and 1-5V)

Parameter	Min	Typ	Max	Units	Comments
Supply Voltage (Vdd)	8		30	V	Measured at the input to the transducer terminals. For higher operating voltages consult factory
Supply Head-Room to Vout1 Output	1			V	Example: 0-10V doable from 11V supply. This is only valid with no external leads

Supply voltage to product must be limited by an appropriate Class 2 Power Supply.

Ratiometric Output Mode: (Typical output ranges are 0.5-4.5V(r) and 0.25-4.75V(r))

Various Optional failure diagnostics exist – consult factory:

Parameter	Min	Typ	Max	Units	Comments
Supply Voltage (Vdd)	4.5	5	5.5	V	

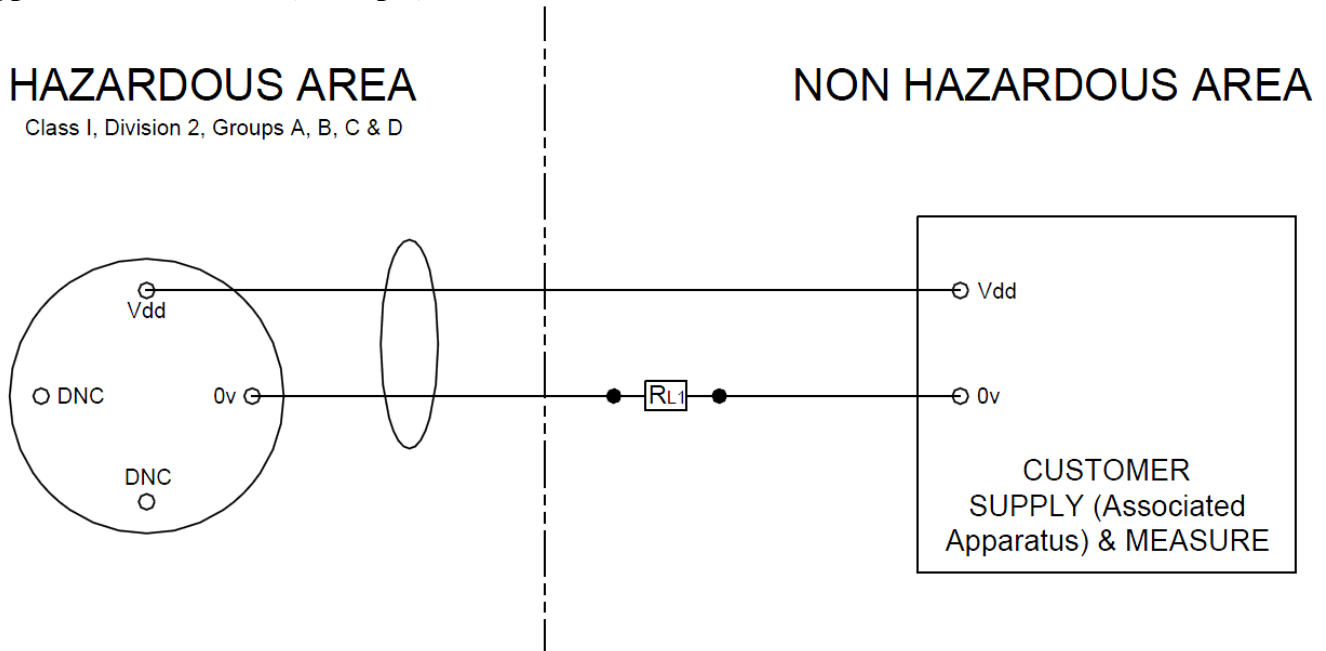
General Voltage Output Modes: (Additional Voltage Mode Specification)

Parameter	Min	Typ	Max	Units	Comments
Operating Current Draw		3.5	5.5	mA	With no external loads
Output Impedance	-10%	80	+10%	Ω	
External Load (sink/source current)			2	mA	Any external output load must not sink or source more than 2mA. Consult factory for further limitations

CURRENT APPLICATIONS

The external loop load (R_L) is optional within limits specified below and includes all connection/harness resistances. Load can be placed in either supply line.

Application Schematic (Example):



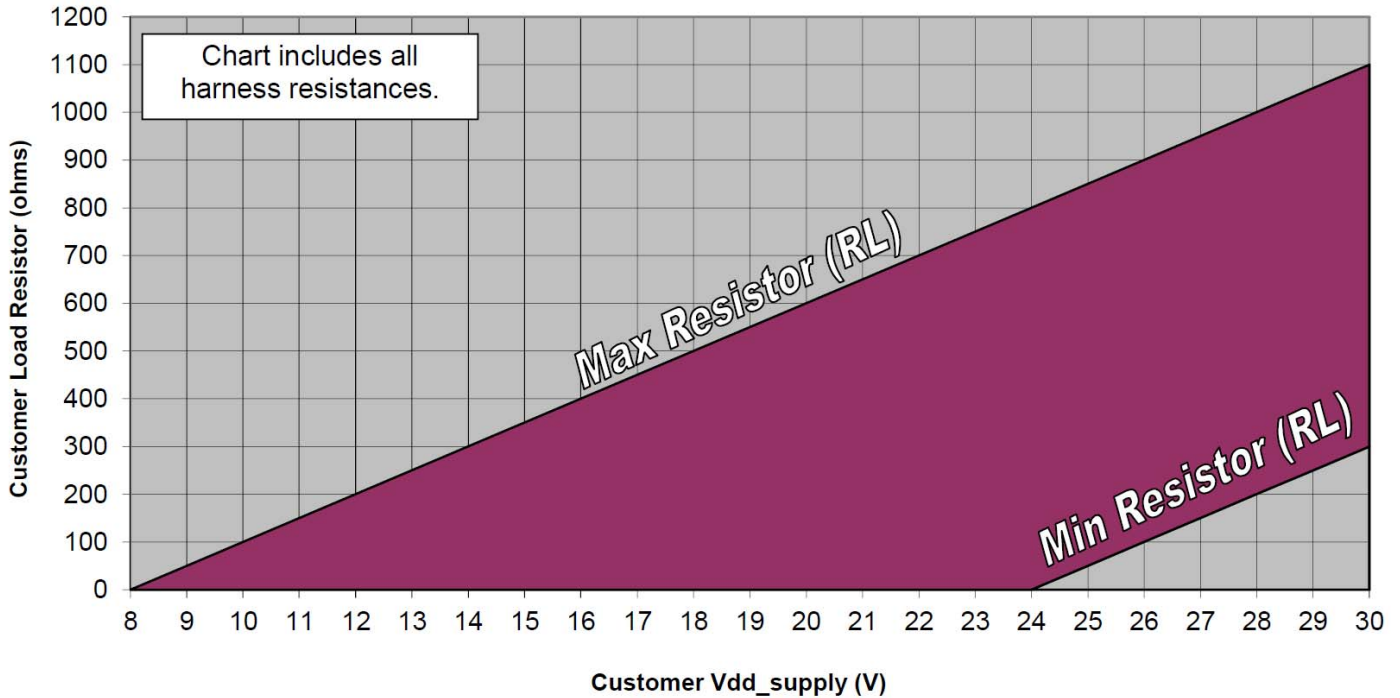
Current Output Mode: (Typical output is 4-20mA)

Parameter	Min	Typ	Max	Units	Comments
Supply Voltage (Vdd)	8		30	V	Measured at the input to the transducer terminals. Customer supply can be greater depending on load used – see graph and summary below.
Pressure Output Current	4		20	mA	Current loop will limit between 25-28mA for protection on overpressure, supply dependent.

Supply voltage to product must be limited by an appropriate Class 2 Power Supply.

R_L Load Limitations for Current Output Mode:

Current Output (Load Resistor Range)



Min Resistor (RL) = 50 * (Vdd - 24) : for Vdd >24V

Max Resistor (RL) = 50 * (Vdd - 8) : for Vdd >8V

SERVICING

The transducer is not to be repaired by the user and must be replaced by an equivalent certified unit. Repairs should only be carried out by the manufacturer or an approved repairer.

RETURN TO FACTORY

PLEASE NOTE: To comply with Health and Safety requirements, the instrument must be clean and safe to handle and accompanied by a formal statement to that effect duly signed by an authorized officer of the Company.

Any instrument returned without certification will be quarantined and no action will occur until cleared. It may ultimately be returned to you and subject to a transportation charge.

MAINTENANCE

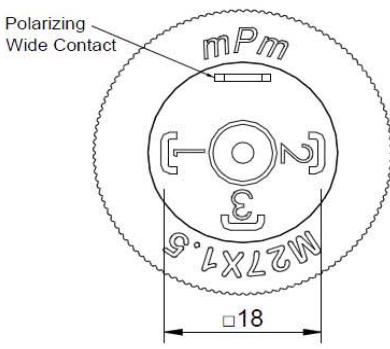
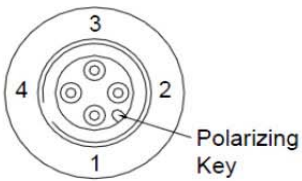
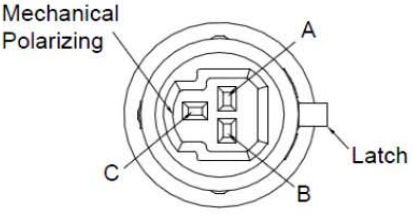
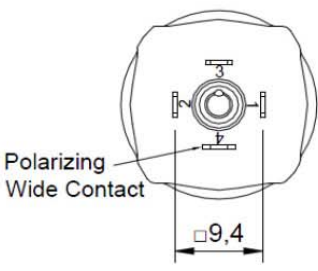
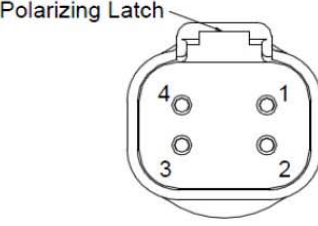
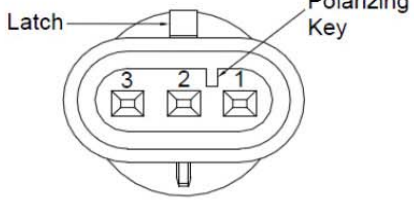
Routine Inspection: Not required except for periodic inspection of the cable and connector to ensure that these are neither damaged nor softened by incompatible liquid

STORAGE & DISPOSAL

When storing or disposing of transducer, take precautions with remaining media – it may be hazardous or toxic. Refit thread protection cap during storage periods.

Dispose of transducer and packaging materials in accordance with local waste treatment disposal regulations of the country or region to which the instrument is supplied.

CONNECTION INFORMATION (Please see the available Connector & Pin Assignments below:

<p>EN175301-803 (DIN 43650 Form A)</p>  <table border="1" style="width:100%; margin-top: 10px;"> <thead> <tr><th>Pin</th><th>Voltage</th><th>Current</th></tr> </thead> <tbody> <tr><td>1</td><td>+IN</td><td>+IN</td></tr> <tr><td>2</td><td>0V</td><td>0V</td></tr> <tr><td>3</td><td>+OP</td><td>DNC</td></tr> <tr><td>4</td><td>NC</td><td>NC</td></tr> </tbody> </table> <p>Recommended Mating Connector: Any Form A Female Connector to DIN 43650 or EN 175301-803</p>	Pin	Voltage	Current	1	+IN	+IN	2	0V	0V	3	+OP	DNC	4	NC	NC	<p>EN 61076-2-101 (M12 Electrical)</p>  <table border="1" style="width:100%; margin-top: 10px;"> <thead> <tr><th>Pin</th><th>Voltage</th><th>Current</th></tr> </thead> <tbody> <tr><td>1</td><td>+IN</td><td>+IN</td></tr> <tr><td>2</td><td>+OP</td><td>DNC</td></tr> <tr><td>3</td><td>0V</td><td>0V</td></tr> <tr><td>4</td><td>NC</td><td>NC</td></tr> </tbody> </table> <p><i>This connector is rated Nema 4x and is suitable for Outdoor Use when mated with a suitable connector or blanking cap..</i></p> <p>Recommended Mating Connector: Any 4 Pin 'A' Coded Female Connector to IEC 61076-2-101</p>	Pin	Voltage	Current	1	+IN	+IN	2	+OP	DNC	3	0V	0V	4	NC	NC	<p>Packard Metripack (150 Series)</p>  <table border="1" style="width:100%; margin-top: 10px;"> <thead> <tr><th>Pin</th><th>Voltage</th><th>Current</th></tr> </thead> <tbody> <tr><td>A</td><td>0V</td><td>0V</td></tr> <tr><td>B</td><td>+IN</td><td>+IN</td></tr> <tr><td>C</td><td>+OP</td><td>DNC</td></tr> </tbody> </table> <p>Recommended Mating Connector: Any 3 Pin Metripack 150 'T' Plug</p>	Pin	Voltage	Current	A	0V	0V	B	+IN	+IN	C	+OP	DNC
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<p>Industrial Standard Form C</p>  <table border="1" style="width:100%; margin-top: 10px;"> <thead> <tr><th>Pin</th><th>Voltage</th><th>Current</th></tr> </thead> <tbody> <tr><td>1</td><td>+IN</td><td>+IN</td></tr> <tr><td>2</td><td>0V</td><td>0V</td></tr> <tr><td>3</td><td>+OP</td><td>DNC</td></tr> <tr><td>4</td><td>NC</td><td>NC</td></tr> </tbody> </table> <p>Recommended Mating Connector: Hirschmann GDS307 or equivalent</p>	Pin	Voltage	Current	1	+IN	+IN	2	0V	0V	3	+OP	DNC	4	NC	NC	<p>Deutsch DT04-4P</p>  <table border="1" style="width:100%; margin-top: 10px;"> <thead> <tr><th>Pin</th><th>Voltage</th><th>Current</th></tr> </thead> <tbody> <tr><td>1</td><td>0V</td><td>0V</td></tr> <tr><td>2</td><td>+IN</td><td>+IN</td></tr> <tr><td>3</td><td>NC</td><td>NC</td></tr> <tr><td>4</td><td>+OP</td><td>DNC</td></tr> </tbody> </table> <p>Recommended Mating Connector: Any Deutsch DT06-4S Plug</p>	Pin	Voltage	Current	1	0V	0V	2	+IN	+IN	3	NC	NC	4	+OP	DNC	<p>AMP Superseal 1,5 Series</p>  <table border="1" style="width:100%; margin-top: 10px;"> <thead> <tr><th>Pin</th><th>Voltage</th><th>Current</th></tr> </thead> <tbody> <tr><td>1</td><td>+OP</td><td>DNC</td></tr> <tr><td>2</td><td>0V</td><td>0V</td></tr> <tr><td>3</td><td>+IN</td><td>+IN</td></tr> </tbody> </table> <p>Recommended Mating Connector: 3 Pin Female Connector as per Tyco Electronics specification</p>	Pin	Voltage	Current	1	+OP	DNC	2	0V	0V	3	+IN	+IN
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<p>NOTES</p> <p>DNC: Do NOT Connect (Leave Floating) NC: Not Connected Internally</p> <p style="text-align: center;">The Integral Cable (Conduit) is shielded, it is not connected internally.</p> <p style="text-align: center;">For Compliance with EN61000-4-5, shielded cable should be used on all transducers</p>																																												

WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR NON INCENDIVE USE
AVERTISSEMENT: LE REMPLACEMENT DES COMPOSANTS PEUT CAUSER LA NON-CONFORMITÉ POUR L'UTILISATION NON INCENDIAIRE