

OPERATING & INSTALLATION INSTRUCTIONS

INTRINSICALLY SAFE

SP **3XCS SERIES** C

PLEASE READ CAREFULLY BEFORE INSTALLING

Installation Bulletin P/N: 239461 Rev A

INTRODUCTION

The 3XCS series product is a pressure transducer which provides linear electrical output proportional to applied pressure and is intended for use for pressure measurement. The 3XCS series is CSA certified Intrinsically Safe for use in: Class I, Division 1, Groups C and D Class I, Zone 0 Exia IIB T4 Ga; Class I, Zone 0 AExia IIB T4 Ga

Intrinsically-safe transducers with 2 or 3 pin outputs or a 3-wire screened cable 'conduit' version are available with pressure output only. See Pin out table CONNECTION INFORMATION section for details.

MODEL SPECIFICATION

3XCSdaaaaabbcee

Where.

| CODE | PRESSURE RANGE (Bar) | CODE | PRESSURE RANGE (psi |
|-------|----------------------|-------|---------------------|
| 0004G | 4 bar Gauge | 075PG | 75 psi Gauge |
| 0006G | 6 bar Gauge | 100PG | 100 psi Gauge |
| 0010G | 10 bar Gauge | 150PG | 150 psi Gauge |
| 0016G | 16 bar Gauge | 200PG | 200 psi Gauge |
| 0025G | 25 bar Gauge | 300PG | 300 psi Gauge |
| 0040G | 40 bar Gauge | 500PG | 500 psi Gauge |
| 0060G | 60 bar Gauge | 10CPG | 1000 psi Gauge |
| 0100G | 100 bar Sealed | 15CPS | 1500 psi Sealed |
| 0160G | 160 bar Sealed | 20CPS | 2000 psi Sealed |
| 0250G | 250 bar Sealed | 35CPS | 3500 psi Sealed |
| 0400G | 400 bar Sealed | 50CPS | 5000 psi Sealed |
| 0600G | 600 bar Sealed | 10KPS | 10000 psi Sealed |
| 1000S | 1000 bar Sealed | 15KPS | 15000 psi Sealed |
| 1600S | 1600 bar Sealed | 20KPS | 20000 psi Sealed |
| 2200S | 2200 bar Sealed | 25KPS | 25000 psi Sealed |
| | | 30KPS | 30000 psi Sealed |
| | | 32KPS | 32000 psi Sealed |

| 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 (7/16UN with Schraeder Deflator) |
| 08 | 1/8" - 27 NPT |
| 4D | 1/8" - 27 NPTF Dryseal |
| 4N | 3/8" - 24 UNF Union |
| 04 | 7/16" - 20 (37FLARE.SAE J514 SIZE 4) |
| 1J | 7/16" - 20 UNF 2A SA1926/2 O'RING |
| 1P | 9/16" - 18UNF 22 A/F |
| 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) |
| 0L | M12x1.5P (6g) O'Ring to ISO 6149-2 |
| 1G | Schraeder 7-16" - 20 UN 2B Female |
| ZZ | Place Holder in Compliance with Schedule Drawing 1051-100-0SD |

c = Connector Code

| CODE | DESCRIPTION (Electrical Connection) |
|------|---|
| 3 | 1/2" NPT MALE 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 |
| F | INTEGRATED CABLE |
| Z | Place Holder in Compliance with Schedule Drawing 1051-100-0SD |

d = Output Code

| CODE | DESCRIPTION (Output) | OUTPUT TYPE | | |
|------|------------------------------------|-----------------------------|--|--|
| В | 4-20mA | Current | | |
| C | 1-6V | Absolute | | |
| F | 0.1-5.1V | Absolute | | |
| G | 0.2-10.2V | Absolute | | |
| Н | 1-5V | Absolute | | |
| N | 0.5-4.5V Non Ratio-metric | Absolute | | |
| Р | 1-10V | Absolute | | |
| R | 0-5V | Absolute | | |
| S | 0-10V | Absolute | | |
| Т | 0.5-4.5V Ratio-metric | Ratio-Metric | | |
| V | 0.5-4V | Absolute | | |
| Z | Place Holder in Compliance with Sc | hedule Drawing 1051-100-0SD | | |

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 1051-100-0SD |

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.

ZENER BARRIER & ENTITY PARAMETERS

Zener Barrier Parameters: Ui = 30V d.c.Li = 100mAVoltage: Current: Pi = 0.7WPower:

Entity Parameters Signal Current: Effective Internal Capacitance: In = 4-20 mACi = 323nFEffective Internal Inductance: $Li = 9\mu H$

Values to be added when supplied with Integrated Cable: Cable Capacitance: Ci = 300pF / m (maximum)Wire to Wire or Wire to Shield Cable Inductance: $Li = 2 \mu H / m$ (maximum) Wire to Wire

GENERAL

The equipment is designed and manufactured to:

a) Avoid physical injury or other harm which may be caused by direct or indirect contact

b) Ensure that excess surface temperature of accessible parts or radiation which would cause a danger

c) Eliminate non-electrical dangers which are revealed by experience.

d) 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 instruction

· Liquid must not be allowed to freeze in the pressure port.

. The gasket must be fitted under the electrical connector where applicable.

Tools required for Installation Transducer Mounting:

Industry Standard form C Connector and DIN43650 A: Screwdriver

ELECTRICAL INSTALLATION Installation of this type must be carried out in accordance with the Approved Installation condition for Intrinsically Safe Pressure Transmitters. 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.

PPROVED ZENNER

Application Schematic (Example) HAZARDOUS AREA Class I, DMston 1, Groups C & D Class I, Zone D, Group IB

| Văd | |
|--|---|
| O DNC OV O | |
| Vouet | |
| |) |
| Pressure Transducer Entity Parameters: | 0 |
| Voltage (Vmax / UI) : 30 Vd.c. | |
| Current (Imax / II) : 100 mA | |
| Power (Pmax / Pi) : 0.7 W | |
| Entity Parameters: | |
| Internal Capacitance (CI): 323nF | |
| Internal Inductance (Li): 9 uH | |

Absolute Output Mode: (Typica Parameter Min Ty Supply Voltage (Vdd)

1

Supply Head-Room

to Vout1 Output

. barrier as a requirement under I.S.

protection on overpressure, supply dependent. Current loop will limit between 25-28mA for

| Comments |
|----------------------------|
| input to the transducer |
| omer supply can be greater |
| ad used – see graph and |
| |

When storing or disposing of transducer, take precautions with remaining media - it may be hazardous

STORAGE & DISPOSAL

Routine Inspection: Not required except for periodic inspection of the cable and connector to ensure

MAINTENANCE

rument returned without certification will be quarantined and no action will occur until

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

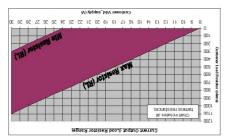
Repairs should only be carried out by the manufacturer or an approved repairer.

SERVICING

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CUSTOMER CUSTOMER

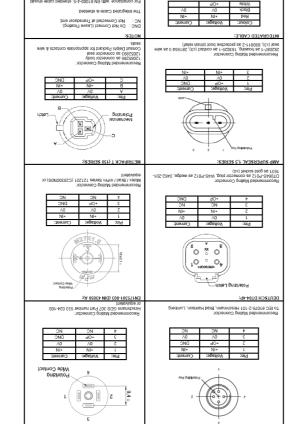
| General Voltage Output Modes: (Additional Voltage Mode Specification) | | | | | | |
|---|-------------|------|-----|------|--|--|
| comments. | vits | xeM | qųT | niM | Parameter | |
| With no external loads | Чш | ç.č | ç.£ | | Draw Draw | |
| | σ | %01+ | 08 | %0I- | Output Impedance | |
| Any external output load must not sink or source more than 2mA. Consult factory for further limitations | Чш | 7 | | | External Load (sink/source current) | |



RL Load Limitations for Current Output Mode:

SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR **WARNING** ed on all transducers.

YTERAS SIRVISTOR



US

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

or toxic. Refit thread protection cap during storage periods.

that these are neither damaged nor softened by incompatible liquid

cleared. It may ultimately be returned to you and subject to a transportation charge. ATTA THE officer of the Company.

RETURN TO FACTORY

The transducer is not to be repaired by the user and must be replaced by an equivalent certified unit

Max Resistor (RL) = 50 * (V dd - 8) : for Vdd >8V Min Resistor (RL) = 50 * (Vdd - 24) : for Vdd > 24V

| Comments | viin U | xeM | qųT | niM | Parameter |
|--|---------------|------|------|------|---------------------------|
| With no external loads | Ψш | ٤.٢ | \$°£ | | Operating Current Draw |
| | σ | %0I+ | 08 | %01- | output Impedance |
| Any external output load must not sink or source more than 2mA. Consult factory | Αm | 7 | | | External Load |

| Comments |
|----------|

Various Optional failure diagnostics exist - consult factory: Ratiometric Output Mode: (Typical output ranges are 0.5-4.5V(r) and 0.25-4.7SV(r)). When the transmission of tran

| viin U | xeM | qyT | niM | Parameter |
|---------------|-----|-----|-------|----------------------|
| Λ | ٤.٢ | ç | 2.4.5 | (bbV) sgatloV vlqqu8 |

| V 2.2 2 2.4 (bbV) system V V | stinU | xeM | qvT | niM | Parameter |
|------------------------------|-------|-----|-----|------|----------------------------------|
| | Λ | ç.č | Ş | \$°t | $(bbV) \ {\tt sgattoV} \ vlqquS$ |

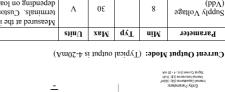
optional within limits specified below and includes

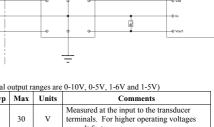
connection/natness resistances. Load can be placed in etimer supply line. The external loop load (R_L)

CURRENT APPLICATIONS

Apprearion Senematic (Exa

Am 001 : (il \ xeml) themu W T.0 : (il9 \ xem9) tevo APPROVED ZENNER ABIRARIER Class I, Zone 0, Group IB AAAA SUOGAAAAH A39A SUOD9A2AH NON





| al output ranges are 0-10V, 0-5V, 1-6V and 1-5V) | | | | | | |
|--|-----|-------|--|--|--|--|
| ур | Max | Units | Comments | | | |
| | 30 | v | Measured at the input to the transducer terminals. For higher operating voltages consult factory | | | |
| | | v | Example: 0-10V doable from 11V supply. This is only valid with no external leads | | | |

Supply voltage to product must be limited by appropriate zener barrier as a requirement under I.S.

| al output ranges are 0-10V, 0-5V, 1-6V and 1-5V) | | | | | | | |
|--|-----|-------|--|--|--|--|--|
| р | Max | Units | Comments | | | | |
| | 30 | v | Measured at the input to the transducer terminals. For higher operating voltages consult factory | | | | |

| al c | al output ranges are 0-10V, 0-5V, 1-6V and 1-5V) | | | | | | |
|------|--|---|--|--|--|--|--|
| p | Max Units Con | | Comments | | | | |
| | 30 | v | Measured at the input to the transducer terminals. For higher operating voltages consult factory | | | | |
| | | V | Example: 0-10V doable from 11V supply. | | | | |

| | | waaniwamant unday I | |
|--|--|---------------------|--|
| | | | |

Am 02 Pressure Output тату регом sol no gnibnəqəb (pp_{Λ}) Supply Voltage

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|---------------|-----------|---------|---------|----------|-------------------|
| | | | | | |
| protection | | | | | Current |

Cables: Where applicable, ensure cable selected is suitable to fit the electrical connector cable gland. On installation of cables and cable glands, ensure all seals are correctly fitted and that cable positioning does not impair ingress protection of seals. 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.

NON HAZARDOUS AREA

CUSTOMER SUPPLY & MEASURE

INSTALLATION & START UP Install and start up the transducer ONLY if it is in a faultless condition. 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!

Wrench 22mm or 27mm depending on product