

OPERATING INSTRUCTIONS

Intrinsically Safe Pressure Transmitters for use with Liquids and Gases

AST4400 • AST4401 • AST44LP • AST4500 • AST4510 • AST4520 • AST4530

End of model # features “-SS” or “-Z”

ENVIRONMENT:

- AST4400, AST4401, AST44LP: **IP66**
- AST4500, AST4510, AST4520, AST4530: **IP68**



- US, Canada: CSA08CA2018368
- ATEX: Sira 14ATEX2110X
- IECEx: IECEx CSA 14.0037X
- UKCA: CSAE 21UKEX2189X
- AST4400, AST4401, AST44LP, AST4500, AST4510, AST4520: Ambient Temp: -40° to +80°C, Process Temp: -40° to 125°C
- AST4530: Ambient/Process Temp: 0° to +60°C

APPLICABLE REQUIREMENTS:

- ANSI/ISA-60079-0 (12.00.01)-2009 (R2013)
 - ANSI/ISA-60079-11 (12.02.01)-2014
 - ANSI/ISA 12.27.01-2003
 - ANSI/UL 508-2013 Seventeenth Edition
 - CSA C22.2 No. 142-M1987 (Reaffirmed 2009)
 - EN IEC 60079-0:2018
 - EN 60079-11:2012
 - CAN/CSA-C22.2 No. 60079-0:11 (December 2011)
 - IEC 60079-0:2017 Edition:7.0
 - IEC 60079-11:2011 Edition:6.0
- Install per Drawing A08949

LOCATIONS AND PROTECTION METHODS:

AST4400, AST44LP, AST4500, AST4510, AST4520, AST4530:

- Class I, Div. 1, Groups C, D T4
- Ex ia IIB T4 Ga
- Class I, Zone 0, AEx ia IIB T4 Ga

AST4401 only:

- Class I, Div. 1, Groups A, B, C, D T4
- Ex ia IIC T4 Ga
- Class I, Zone 0, AEx ia IIC T4 Ga

Blank option at the end of model

ENVIRONMENT:

- AST4400, AST4401, AST44LP: **IP66**
- AST4500, AST4510, AST4520: **IP68**



File Number E210825

- Ambient Temperature -40 to +80 °C

APPLICABLE REQUIREMENTS:

- UL 913, 8th Ed.
 - UL 60079-0 6th Edition
 - UL 60079-11 6th Edition
 - UL 61010-1 3rd Edition
 - CAN/CSA C22.2 No. 157-92, Rev 2003-06 Reaffirmed 2012
 - CAN/CSA C22.2 No. 60079-0:11
 - CSA C22.2 No. 60079-11:14
 - CSA C22.2 No. 61010-1-12
- Install per Drawing A01657

LOCATIONS AND PROTECTION METHODS:

AST4400, AST44LP, AST4500, AST4510, AST4520:

- Class I, Div. 1, Groups C and D
- Class I, Zone 0, AEx ia IIB
- Class I, Zone 0, Ex ia IIB

AST4401 only:

- Class I, Div. 1, Groups A, B, C and D
- Class I, Zone 0, AEx ia IIC
- Class I, Zone 0, Ex ia IIC



WARNING & IMPORTANT SAFETY INSTRUCTIONS

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



ELECTRICAL INSTALLATION (Raccordement électrique)

⚠ WARNING EXPLOSION HAZARD

(AVERTISSEMENT) Risque d'explosion

⚠ WARNING The enclosure is manufactured from light metal. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation, particularly if the equipment is installed in a zone 0 location.

(AVERTISSEMENT) Le boîtier est fabriqué en métal léger. Dans de rares cas, des sources d'inflammation due à des étincelles d'impact et de friction pourraient survenir. Ceci doit être considéré lors de l'installation, en particulier si le matériel est installé dans un emplacement 0 de la zone.

⚠ WARNING Potential Electrostatic Discharge Hazard - clean the surface with a damp cloth

(AVERTISSEMENT) Décharge potentiel électrostatique hazard - nettoyer la surface avec un chiffon humide

⚠ WARNING To prevent ignition of flammable or combustible atmospheres, disconnect power before servicing.

(AVERTISSEMENT) Pour éviter l'inflammation d'atmosphères inflammables ou combustibles, débrancher l'alimentation avant l'entretien.

OPERATING INSTRUCTIONS

Intrinsically Safe

Specific conditions of use

1. Since Pressure Transducers models AST4401, AST4400, AST44LP, AST4500, AST4510, AST4520 and AST4530 are not earthed and a charge-generating mechanism may be present when in contact with non-metallic charge generating materials, the device shall be grounded before use.
2. Under certain extreme circumstances, exposed plastic and unearthed metal parts of the enclosure may store an ignition-capable level of electrostatic charge. Therefore, the user/installer shall implement precautions to prevent the build-up of electrostatic charge, e.g. locate the equipment where a charge generating mechanism (such as wind-blown dust) is unlikely to be present and they shall be cleaned with a damp cloth.
3. The enclosure is manufactured from light metal. In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation, particularly if the equipment is installed in a zone 0 location.

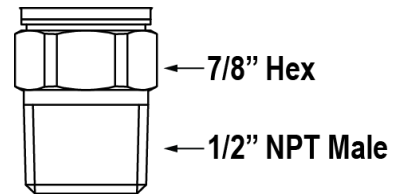
Process Connection Installation

For threaded installations, use the 7/8" hex above the thread of the process connection to install the process. Do not use the body / housing for installation.

The pressure sensor should be installed in a clean and compatible thread, with enough room to allow the use of an open-end wrench/spanner size 7/8" (22.22mm approximately) or 3/4" (19.05mm) for AST4530.

Inspect for leaks.

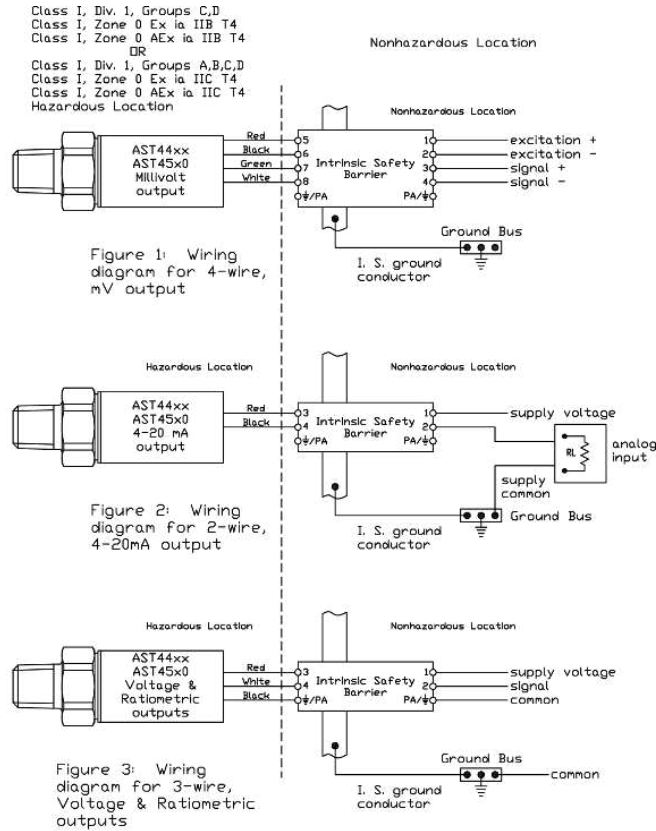
Maximum working pressure for the lowest pressure sensors 0.34MPa (50 psi) and maximum working pressure for the highest pressure sensors 137.9MPa (20,000 PSI) -- SINGLE SEAL.



OPERATING INSTRUCTIONS

Intrinsically Safe

A01657 Barrier Installation, UL Approved



The transducers listed below are designed for installation in EITHER Class I, Division 1, Groups C,D; Class I, Zone 0 Group IIB OR Class I, Division 1, Groups A,B,C,D; Class I, Zone 0 Group IIC hazardous locations when connected to Associated Apparatus as described in note 1.

Entity Parameters

Models AST4400, AST44LP, AST4500, AST4510, AST4520

Class I, Div. 1, Groups C,D; Class I, Zone 0 Ex Ia IIB T4; Class I, Zone 0 AEx ia IIB T4
Vmax = 28V

Model AST4401

Class I, Div. 1, Groups A,B,C,D; Class I, Zone 0 Ex Ia IIC T4; Class I, Zone 0 AEx ia IIC T4
Vmax = 14.5V

4-20mA with integral connector	4-20mA with upto 1000ft of integral cable	All EXCEPT 4-20mA with integral connector	All EXCEPT 4-20mA with upto 150ft of integral cable
Pmax = 651 mW Imax = 93 mA Ci = 0.391 uF Li = 0 uH	Pmax = 651 mW Imax = 93 mA Ci = 0.434 uF Li = 0 uH	Pmax = 651 mW Imax = 93 mA Ci = 0.643 uF Li = 0 uH	Pmax = 651 mW Imax = 93 mA Ci = 0.649 uF Li = 0 uH

Isc or Io is the total current available from the Associated Apparatus under any condition.

1. The following conditions must be satisfied:

$$V_{oc} \text{ or } U_o \leq V_{max} \quad C_a \text{ or } C_o \geq C_i + C_{cable}$$

$$I_{sc} \text{ or } I_o \leq I_{max} \quad L_a \text{ or } L_o \geq L_i + L_{cable}$$

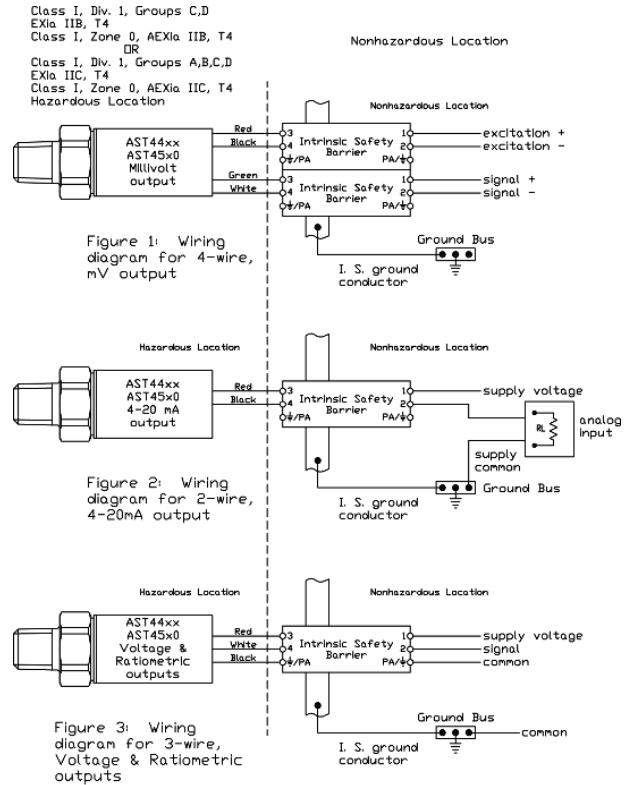
$$P_o \leq P_i \text{ (if applicable)}$$

Total customer cable length for 4-20mA transmitters not to exceed 4000ft.
Total customer cable length for all other transmitters not to exceed 150ft.
Where the cable capacitance and inductance per foot are not known, the following values shall be used: Ccable = 60pF/ft, Lcable = 0.2uH/ft

2. Control Room apparatus shall not generate in excess of 250V (Umax).

3. Canadian installations should be in accordance with Canadian Electrical Code, Part I. U.S. installations should be in accordance with Article 504 in the National Electrical Code, ANSI/NFPA 70.

A08949 Barrier Installation, CSA Approved



Entity Parameters

Models AST4400, AST44LP, AST4500, AST4510, AST4520, AST4530
Class I, Div. 1, Groups C,D; EXIa IIB, T4; Class I, Zone 0, AEXIa IIB, T4
Vmax = 28Vdc

Model AST4401

Class I, Div. 1, Groups A,B,C,D; EXIa IIC, T4; Class I, Zone 0, AEXIa IIC, T4
Vmax = 14.5Vdc

4-20mA with integral connector	4-20mA with upto 1000ft of integral cable	All EXCEPT 4-20mA with integral connector	All EXCEPT 4-20mA with upto 150ft of integral cable
Pmax = 625 mW Imax = 93 mA Ci = 0.391 uF Li = 0	Pmax = 625 mW Imax = 93 mA Ci = 0.434 uF Li = 155 uH	Pmax = 625 mW Imax = 93 mA Ci = 0.643 uF Li = 0	Pmax = 625 mW Imax = 93 mA Ci = 0.649 uF Li = 233 uH

1. For installation in accordance with Fig 2, barrier must be a CSA Certified, Single Channel grounded Shunt-Diode Zener Barrier or a Single Channel Isolating Barrier.

2. For installations in accordance with Figs. 1 and 3, one dual-channel or two single-channel barriers may be used, where in either case, both channels have been Certified for use together with combined entity parameters.

3. The following conditions must be satisfied:

$$V_{oc} \text{ or } U_o \leq V_{max} \quad C_a \text{ or } C_o \geq C_i + C_{cable}$$

$$I_{sc} \text{ or } I_o \leq I_{max} \quad L_a \text{ or } L_o \geq L_i + L_{cable}$$

$$P_o \leq P_i \text{ (if applicable)}$$

4. Maximum non-hazardous area voltage must not exceed 250 V.

5. Canadian installations should be in accordance with Canadian Electrical Code, Part I. U.S. installations should be in accordance with Article 504 in the National Electrical Code, ANSI/NFPA 70.

6. A grounding method is not provided by the manufacturer as part of the integral design of the Transducer. For units which are connected through a grounded shunt diode safety barrier, ensure that the transducer is mounted to a surface which is at the same potential as the barrier ground.

7. See user manual for installation conditions.

WARNING Float unused wires in cable. Ensure that these wires are electrically isolated from other conductors

(AVERTISSEMENT) Faites flotter les fils inutilisés dans le câble. Assurez-vous que ces fils sont isolés électriquement des autres conducteurs

OPERATING INSTRUCTIONS

Intrinsically Safe

MANUFACTURING PLANT

TE Sensores S de RL de CV, a TE Connectivity Company
Av. Obrero Mundial #9, Parque Industrial Dynatech
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te.com/sensors

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