

Chapter 4: Hazardous Location Installation and Certification

- CSA Certificate of Compliance



Certificate of Compliance

Certificate: 1984045	Master Contract: 237484 (237484)	
Project: 70159942	Date Issued: 2018-03-29	
Issued to: Automation Products Group Inc 1025 West 1700 North Logan, Utah 84321 USA Attention: Joseph James		

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Issued by: *Albert Jansen*
Albert Jansen

PRODUCTS
CLASS 2258 03 - Process Control Equipment - Intrinsically Safe and Non Incendive systems - For Hazardous Locations
CLASS 2258 83 - Process Control Equipment - Intrinsically Safe and Non Incendive systems - For Hazardous Locations - Certified to US Standards

Class I, Div. 2, Groups C and D
Class I, Zone 2, Group IIB
Ex nL IIB T4; -40°C ≤ Ta ≤ +85°C
AEx nC IIB T4; -40°C ≤ Ta ≤ +85°C

- Model PT-400-L1xxxx Pressure Transmitter. Rated 9-28VDC, 4-20mA; Maximum Ambient 85° C; Temperature Code T4; Maximum Working Pressure 10,000 PSI. Enclosure type: IP65. Installed as per Drawing 9002794. Single Seal. Non-Incendive with the following Entity Parameters:

Vmax, Ui = 28V
Imax, Ii = 110mA
Pmax, Pi = 0.77W
Ci = 0.055µF
Li = 7.95µH

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- Model PT-400-L3/L10xxxx Pressure Transmitter. Rated 9-28VDC, 0-5V, 20mA or 0-10V, 20mA; Maximum Ambient 85° C; Temperature Code T4; Maximum Working Pressure 10,000 PSI. Installed as per Drawing 9002794. Single Seal. Non-Incendive with the following Entity Parameters:

$V_{max}, U_i = 28V$
 $I_{max}, I_i = 110mA$
 $P_{max}, P_i = 0.77W$
 $C_i = 0\mu F$
 $L_i = 0\mu H$

- Model PT-500-xxxx Pressure Transmitter, Rated 10-28VDC, 4-20mA; Maximum Ambient 85° C; Temperature Code T4; Maximum Working Pressure 10,000 PSI; Single Seal. Non-Incendive with the following Entity Parameters:

$V_{max}, U_i = 28V$
 $I_{max}, I_i = 110mA$
 $P_{max}, P_i = 0.77W$
 $C_i = 0\mu F$
 $L_i = 0\mu H$

Conditions of Acceptability: PT-400, PT-500

1. The "x" in the Model designations may be any alpha-numeric character, to denote minor mechanical options, not affecting safety.
2. These devices must be connected to a suitably certified and approved apparatus that provides non-incendive outputs either equal to or less than those as indicated by the applicable control drawings. This certified apparatus must be located in a safe area.
3. The equipment must be connected to a certified class 2 power supply



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CLASS 2258 04 - Process Control Equipment - Intrinsically Safe, Entity - For Hazardous Locations
CLASS 2258 84 - Process Control Equipment - Intrinsically Safe, Entity - For Hazardous Locations - Certified to US Standards

Class I, Div. 1, Groups C, D

Class I, Zone 0, Group IIB

Ex ia IIB T4; $-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$,

AEx ia IIB T4; $-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$,

- Model PT-400-L1xxxx Pressure Transmitter. Rated 9-28VDC, 4-20mA. Maximum Working Pressure: 10,000 PSI. Installed as per Drawing 9002794. Ambient Range: -40°C to $+85^{\circ}\text{C}$. Enclosure type: IP65. Single Seal. Intrinsically safe with the following entity parameters:

$V_{\text{max}}, U_i = 28\text{V}$
 $I_{\text{max}}, I_i = 110\text{mA}$
 $P_{\text{max}}, P_i = 0.77\text{W}$
 $C_i = 0.055\mu\text{F}$
 $L_i = 7.95\mu\text{H}$

- Model PT-500-xxxx Pressure Transmitter; Maximum Ambient 85°C ; Temperature Code T4; Maximum Working Pressure 10,000 PSI; Single Seal. Entity parameters as follows:

$V_{\text{max}}, U_i = 28\text{V}$
 $I_{\text{max}}, I_i = 110\text{mA}$
 $P_{\text{max}}, P_i = 0.77\text{W}$
 $C_i = 0.042\mu\text{F}$
 $L_i = 0.320\mu\text{H}$

Conditions of Acceptability: PT-400, PT-500

1. The "x" in the Model designations may be any alpha-numeric character, to denote minor mechanical options, not affecting safety.
2. These devices must be connected to a NRTL approved safety barrier (located in a safe area).
3. The equipment must be connected to a certified class 2 power supply



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CLASS 2258 02 - Process Control Equipment - For Hazardous Locations
CLASS 2258 82 - Process Control Equipment - For Hazardous Locations - Certified to US Standards

Class I Div. 1 Groups C and D

Model PT-405-xxxxxxx Pressure Transmitter. Rated 9-28V_{DC}, 4-20mA. Maximum working pressure (MEMS): 1,000 psi). Maximum working pressure (Foil): 30,000psi. Ambient Range: -40°C to +85°C. Single Seal.

Conditions of Acceptability

1. The equipment must be connected to a certified class 2 power supply
2. The conduit connected to the equipment must be sealed within 18 inches of the equipment enclosure.
3. The "x" in the model designation may be any alpha-numeric character, to denote minor mechanical or electrical options, not affecting safety.



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APPLICABLE REQUIREMENTS

C22.2 No 0 - M1991	General Requirements - Canadian Electrical Code Part II.
C22.2 No 0.4 - M2004	Bonding and Grounding of Electrical Equipment (Protective Grounding).
C22.2 No. 30 – M1986	Explosion-proof enclosures for use in Class I hazardous locations
C22.2 No 157 - M1992	Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations.
C22.2 No 213 - M1987	Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations.
CAN/CSA-C22.2 No. 60079-0:11	Explosive Atmospheres - Part 0: Equipment - General requirements
CAN/CSA-C22.2 No. 60079-11:11	Explosive Atmospheres – Part 11: Equipment protection by intrinsic safety "i"
CAN/CSA-C22.2 No. 60079-15:12	Electrical apparatus for explosive gas atmospheres - Part 15: Construction, test and marking of type of protection "n" electrical apparatus
CAN/CSA-C22.2 No. 60529:05	Degrees of protection provided by enclosures (IP Code)
CAN/CSA-C22.2 No. 61010-1-12	Safety requirements for electrical equipment for measurement, control, and laboratory use — Part 1: General requirements
UL 508, 17 th Edition	Industrial Control Equipment.
UL 913, 7 th Edition	Intrinsically Safe Apparatus and Associated Apparatus for use in Class I, II, III, Division 1, Hazardous (Classified) Locations.
UL 1203, 5 th Edition	Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
UL 61010-1	Electrical Equipment For Measurement, Control, and Laboratory Use; Part 1: General Requirements
ANSI/ISA-12.12.01-2007	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations
ANSI/ISA-12.27-01-2003	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids
ANSI/UL 60079-0:09	Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General Requirements
ANSI/UL 60079-11:09	Electrical apparatus for Explosive Gas Atmospheres - Part 11: Intrinsic Safety "i"
ANSI/UL 60079-15:09	Electrical apparatus for Explosive Gas Atmospheres - Part 15: Type of Protection "n"
ANSI/IEC 60529:2004	Degrees of Protection Provided by Enclosures (IP Code)



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MARKINGS

The manufacturer is required to apply the following markings:

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

The products listed are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US (indicating that products have been manufactured to the requirements of both Canadian and U.S. Standards) or with adjacent indicator 'US' for US only or without either indicator for Canada only.

The following markings must appear on the **PT-400-xxxx** and **PT-500-xxxx** as applicable.

- 1) Submitter's name, trademark, or the CSA file number (adjacent to the CSA Mark).
- 2) Catalogue / Model designation.
- 3) Complete electrical rating (Entity parameters).
- 4) Date code / Serial number traceable to month and year of manufacture.
- 5) Hazardous Location designations.

Class I, Division 2, Groups C and D	Class I, Division 1, Groups C,D
Class I, Zone 2, Group IIB	Class I, Zone 0, Group IIB
Ex nL IIB T4; $-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$	Ex ia IIB T4; $-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$
AEx nC IIB T4; $-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$	AEx ia IIB T4; $-40^{\circ}\text{C} \leq \text{Ta} \leq +85^{\circ}\text{C}$
- 6) The symbol "Ex ia".
- 7) The words "INTRINSICALLY SAFE / SECURITE INTRINSEQUE".
- 8) Temperature code T4
- 9) Maximum ambient 85°C
- 10) The CSA Mark with the "c" and "us" qualifiers.
- 11) Reference to the installation drawings
- 12) The marking "Single Seal"
- 13) The following bilingual cautions: (May be located on the installation drawing)
WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY: and,
AVERTISSEMENT: LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SECURITE INTRINSEQUE".
- 14) The warning: "Must be connected to a Class 2 power supply"

The following markings must appear on the **PT-405-xxxxxxxx** as applicable.

- 1) Submitter's name, trademark, or the CSA file number (adjacent to the CSA Mark).
 - 2) Catalogue / Model designation.
 - 3) Complete electrical rating
 - 4) Date code / Serial number traceable to month and year of manufacture.
 - 5) Hazardous Location designations.

Class I, Division 1, Groups C and D

 - 6) Temperature code T4
 - 7) Minimum ambient -40, ,maximum ambient 85°C
 - 8) The CSA Mark with the "c" and "us" qualifiers.
 - 9) Reference to the installation drawings
- The marking "Single Seal"



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10) The warnings

1. EXPLOSION HAZARD – ENSURE SET SCREWS ARE FULLY TIGHTENED, AND DO NOT DISCONNECT OR CALIBRATE EQUIPMENT, UNLESS POWER HAS BEEN SWITCHED OFF OR AREA IS KNOWN TO BE NON-HAZARDOUS.
2. SEAL WITHIN 18"
3. Must be connected to a Class 2 power supply



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Supplement to Certificate of Compliance

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The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
70159942	2018-03-29	Update CSA 142 to 61010 3rd Ed. 2. Add new explosionproof model PT-405 for Class I, Division 1, Groups C&D. Add "Single Seal" marking to PT-400, PT-405, and PT-500.
2587208	2012-12-17	Update to include revised documentation.
2517306	2012-08-22	Update to include revised schematics for the PT400-L1xxxx pressure sensor.
1984045	2008-03-04	PT-400 and PT-500 Pressure Transducers for use in Hazardous Locations as Intrinsically Safe and Non-Incendive