



# Certificate of Compliance

**Certificate:** 2018368

**Master Contract:** 212120

**Project:** 2676482

**Date Issued:** December 18, 2013

**Issued to:** American Sensor Technologies, Inc.

450 Clark Dr  
Mount Olive, NJ 07828  
USA  
Attention: Ken Trumper

*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.*



*Sorin Tat*

**Issued by:** Sorin Tat

## **PRODUCTS**

**CLASS 2258 84** - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - - For Hazardous Locations - Certified to US Standards

**CLASS 2258 04** - PROCESS CONTROL EQUIPMENT - Intrinsically Safe, Entity - For Hazardous Locations

Class I, Div. 1, Groups A, B, C and D;

Ex ia IIC, T4

Class I Zone 0, AEx ia IIC, T4

Model AST4401 Pressure Transducer

A)with output rated 4-20mA (suffix "4" in 15th position of model code) , input rated 10-32 Vdc max;

with integral connector (suffix "E", "F", "I", "K", "R", "S", "Y", "Z" and "4" in the 16th position of the model code),



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intrinsically safe with entity parameters of:

$V_{max} = 14.5V$ ,  $I_{max} = 93mA$ ,  $P_{max} = 625mW$ ,  $C_i = 0.391\mu F$ ,  $L_i = 0 \mu H$

with up to 1000ft of integral cable (suffix "A", "B", "C", "D", "J", "L", "M", "N" and "P" in the 16th position of the model code), intrinsically safe with entity parameters of:

$V_{max} = 14.5V$ ,  $I_{max} = 93mA$ ,  $P_{max} = 625mW$ ,  $C_i = 0.434\mu F$ ,  $L_i = 155\mu H$

when installed per installation Dwg A08949;

B)Other outputs:

B.1)with Ratiometric output rated 0.5-4.5V and 0.25-4.75V (suffix "1" and "M" in the 15th position of the model code); input rated 5.5 Vdc max;

B.2) with mV output rated 5, 10 and 20 mV/V (suffix "A", "B" and "F" in the 15th position of the model code); input rated 15 Vdc max;

B.3)with voltage output rated 1-5V, 1-6V, 0.5-5.5V, 0.25-5V, 1-10V, 0.1-5.1V, 0.5-4.5V(suffix "3", "6", "8", "9", "J", and "P" in the 15th position of the model code); input rated 8-32 Vdc max;

with integral connector (suffix "E", "F", "I", "K", "R", "S", "Y" and "Z" in the 16th position of the model code),

intrinsically safe with entity parameters of:

$V_{max} = 14.5V$ ,  $I_{max} = 93mA$ ,  $P_{max} = 625mW$ ,  $C_i = 0.643\mu F$ ,  $L_i = 0 \mu H$



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with up to 150ft of integral cable (suffix "A", "B", "C", "D", "J", "L", "M", "N" and "P" in the 16th position of the model code) intrinsically safe with entity parameters of:

$V_{max} = 14.5V$ ,  $I_{max} = 93mA$ ,  $P_{max} = 625mW$ ,  $C_i = 0.649\mu F$ ,  $L_i = 23.3\mu H$

when installed per installation Dwg A08949 ;

Maximum Working pressure for the lowest pressure sensors: 0.34MPa (50 psi) and Maximum Working Pressure for highest pressure sensors: 137.9 MPa (20000 psi); Single Seal; -40 Deg. C < Tamb. < +80Deg.C; Temperature Code: T4.

Class I, Div. 1, Groups C and D;

Ex ia IIB, T4

Class I Zone 0, AEx ia IIB, T4

Models AST4400, AST44LP, AST4500, AST4510, AST4520, AST4530 Pressure Transducers

A) 4-20mA output (suffix "4" in 15th position of model code); input rated 10-32 Vdc max;

with integral connector (suffix "E", "F", "I", "K", "R", "S", "Y", "Z" and "4" in the 16th position of the model code), intrinsically safe with entity parameters of:

$V_{max} = 28V$ ,  $I_{max} = 93mA$ ,  $P_{max} = 625mW$ ,  $C_i = 0.391\mu F$ ,  $L_i = 0\mu H$

with up to 1000ft of integral cable (suffix "A", "B", "C", "D", "J", "L", "M", "N" and "P" in the 16th position of the model code) intrinsically safe with entity parameters of:

$V_{max} = 28V$ ,  $I_{max} = 93mA$ ,  $P_{max} = 625mW$ ,  $C_i = 0.434\mu F$ ,  $L_i = 155\mu H$ ;

when installed per installation Dwg A08949;



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B)Other outputs:

B.1)with Ratiometric output rated 0.5-4.5V and 0.25-4.75V (suffix "1" and "M" in the 15th position of the model code); input rated 5.5 Vdc max;

B.2) with mV output rated 5, 10 and 20 mV/V (suffix "A", "B" and "F" in the 15th position of the model code); input rated 15 Vdc max;

B.3) with voltage output rated 1-5V, 1-6V, 0.5-5.5V, 0.25-5V, 1-10V, 0.1-5.1V, 0.5-4.5V(suffix "3", "6", "8", "9", "G", "J", and "P" in the 15th position of the model code); input rated 8-32 Vdc max;

with integral connector (suffix "E", "F", "I", "K", "R", "S", "Y" and "Z" in the 16th position of the model code),

intrinsically safe with entity parameters of:

$V_{max} = 28V$ ,  $I_{max} = 93mA$ ,  $P_{max} = 625mW$ ,  $C_i = 0.643\mu F$ ,  $L_i = 0 \mu H$

with up to 150ft of integral cable (suffix "A", "B", "C", "D", "J", "L", "M", "N" and "P" in the 16th position of the model code), intrinsically safe with entity parameters of:

$V_{max} = 28V$ ,  $I_{max} = 93mA$ ,  $P_{max} = 625mW$ ,  $C_i = 0.649\mu F$ ,  $L_i = 23.3\mu H$ ;

when installed per installation Dwg A08949;

Maximum Working pressure for the lowest pressure sensors: 0.34MPa (50 psi) and Maximum Working Pressure for highest pressure sensors: 137.9 MPa (20000 psi); Single Seal; -40 Deg. C < Tamb. < +80 Deg.C; Temperature Code: T4.



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**CLASS2258 02** - PROCESS CONTROL EQUIPMENT - For Hazardous Locations

**CLASS 2258 82** - PROCESS CONTROL EQUIPMENT – For Hazardous Locations - CERTIFIED TO U.S. STANDARDS

Class I, Div. 2, Groups A, B, C, D;

Models AST4300 and AST43LP Pressure Transducers with DIN43650A and Turck Mini-Fast connectors (suffix "I" and "4" in 16th position of model code) with different output configurations:

- a) rated 4-20mA (suffix "4" in 15th position of model code); input rated 32 Vdc max;
- b) ratiometric 0.5-4.5V and 0.25-4.75V (suffix "1" and "M" in the 15th position of the model code); input rated 5.5 Vdc max;
- c) 5, 10 and 20 mV/V (suffix "A", "B" and "F" in the 15th position of the model code); input rated 15 Vdc max;
- d) 0-5V, 1-5V, 0-10V, 1-6V, 0.5-5.5V, 0.25-5V, 1-10V, 0.1-5.1V, 0.5-4.5V(suffix "2", "3", "5", "6", "8", "9", "G", "J", and "P" in the 15th position of the model code); input rated 32 Vdc max;

Maximum Working pressure for the lowest pressure sensors: 0.34MPa (50 psi) and Maximum Working Pressure for highest pressure sensors: 137.9 MPa (20000 psi); Single Seal; -40 Deg.C < Tamb. < +80 Deg.C; Temperature Code: T4.

Class I, Div. 2, Groups A, B, C, D;

Ex nA IIC, T4

Class I Zone 2, AEx nA IIC, T4



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Models AST4300 and AST43LP Pressure Transducers with metal conduit connector (suffix "L", "M", "N" and "P" in 16th position of model code) with different output configurations:

a) 4-20mA (suffix "4" in 15th position of model code); input rated 32 Vdc max;

b) ratiometric 0.5-4.5V and 0.25-4.75V (suffix "1" and "M" in the 15th position of the model code); input rated 5.5 Vdc max;

c) 5, 10 and 20 mV/V (suffix "A", "B" and "F" in the 15th position of the model code); input rated 15 Vdc max;

d) 0-5V, 1-5V, 0-10V, 1-6V, 0.5-5.5V, 0.25-5V, 1-10V, 0.1-5.1V, 0.5-4.5V (suffix "2", "3", "5", "6", "8", "9", "G", "J", and "P" in the 15th position of the model code); input rated 32 Vdc max;

Maximum Working pressure for the lowest pressure sensors: 0.34MPa (50 psi) and Maximum Working Pressure for highest pressure sensors: 137.9 MPa (20000 psi); Single Seal; -40 Deg. C < Tamb. < +80 Deg.C ;Temperature Code: T4.

Notes:

1. For Canadian Installations, sensor case must be bonded to ground according to Section 18 of the CEC, Part 1.
2. For US Installations, sensor case must be bonded to ground according to Articles 501 and 505 of the NEC.
3. The model numbers include suffix letters and numbers, which denote variations in pressure connection, pressure range, pressure units, electrical output, electrical interface, cable material/length wetted material and other minor options of the transducers.

#### **APPLICABLE REQUIREMENTS**

CAN/CSA-C22.2 No. 0-M91 - General Requirements – Canadian Electrical Code, Part II

CAN/CSA-C22.2 No. 94-M91 - Special Purpose Enclosures

C22.2 No. 142-M1987 - Process Control Equipment



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CAN/CSA-C22.2 No. 157-92 - Intrinsically Safe and Non-Incendive Equipment for Use  
in Hazardous Locations

UL 50 (11th Ed.) - Enclosures for Electrical Equipment

UL 508 (17th Ed.) - Industrial Control Equipment

UL 913 (6th Ed.) - Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II  
and III, Division 1, Hazardous Locations

ANSI/ISA 12.27.01-2003 - Requirements for Process Sealing Between Electrical  
Systems and Flammable or Combustible Process Fluids

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"

ANSI/ISA 60079-0:09 - Electrical Apparatus for Explosive Gas Atmospheres - Part 0: General  
Requirements

ANSI/ISA 60079-11:13 - Electrical apparatus for Explosive Gas Atmospheres -  
Part 11: Intrinsic Safety "i"

C22.2 No. 213-M1987 - Non-Incendive Electrical Equipment for Use in Class I,  
Division 2 Hazardous Locations

UL 1604 (3rd Ed.) - Electrical Equipment for Use in Class I and II, Division 2;  
Class III Hazardous (Classified) Locations

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 60079-15:12 - Electrical apparatus for Explosive Gas Atmospheres -  
Part 15: Equipment protection by type of protection "n"



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