



Certificate of Compliance

Certificate: 2231502

Master Contract: 156011

Project: 80039241

Date Issued: 2020-04-08

Issued To: GEMS Sensors Inc
One Cowles Rd
Plainville, Connecticut, 06062-1198
United States

Attention: Alec Surprenant

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: Semyon Baum
Semyon Baum



PRODUCTS

CLASS - C225804 - PROCESS CONTROL EQUIPMENT Intrinsically Safe, Entity - For Hazardous Locations

CLASS - C225884 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations - Certified to US Standards

Class I; Division 1; Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III

Pressure Transducers – Models Series 12CSabcccddeCfAhhh, 16CSabcccddeCfAhhh, 22CSabcccddeCfghhh, or 26CSabcccddeCfghhh. Rated 28 Vdc max, 150 mA max; T4 at $T_{amb} \leq 75^{\circ}\text{C}$. Intrinsically safe when installed per drawing 227519. Entity Parameters: $V_{max} = 28 \text{ Vdc}$; $I_{max} = 150 \text{ mA}$; $C_i = 40.4 \text{ nF}$; $L_i = 858 \mu\text{H}$



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Where:

- a = Output Code: B, C, D, F, G, H, J, R, S (F and G are only options for 22CS and 26CS models)
- b = Pressure Datum Code: A or G (A has maximum range of 25 bar, 300 psi)
- ccc = Pressure Range Code: A10, A16, A25, A40, A60, B10, B16, B25, B40, B60, C10, C16, C25, C40, VAC, 1A0, 1A6, 2A5, 4A0, 6A0, 1B0, 1B6, 2B5, 4B0, F07, F15, F30, F60, G10, G15, G20, G30, G50, G60, H10, H15, H20, H30, H40, H50, H60, 1F5, 3F0, 6F0, 1G0, 1G5, 2G0, or 3G0

Where:

Code	MWP (bar)	Code	Range (bar)	Code	MWP (psi)	Code	Range (psi)
A10	1	VAC	-1	F07	7.5	VAC	-15
A16	1.6	1A0	VAC-0	F15	15	1F5	VAC-0
A25	2.5	1A6	VAC-0.6	F30	30	3F0	VAC-15
A40	4	2A5	VAC-1.5	F60	60	6F0	VAC-45
A60	6	4A0	VAC-3	G10	100	1G0	VAC-85
B10	10	6A0	VAC-5	G15	150	1G5	VAC-135
B16	16	1B0	VAC-9	G20	200	2G0	VAC-185
B25	25	1B6	VAC-15	G30	300	3G0	VAC-285
B40	40	2B5	VAC-24	G50	500		
B60	60	4B0	VAC-39	G60	600		
C10	100			H10	1000		
C16	160			H15	1500		
C25	250			H20	2000		
C40	400			H30	3000		
				H40	4000		
				H50	5000		
				H60	6000		

dd = Pressure Port: 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 18, 19 (16CS, 26CS only), 29 (16CS, 26CS only), 39 (16CS, 26CS only), 0A, 0B, 0C, 0D, 0E, 0F, 0G, 0H, 0J, 0K, 0L, 0S, 0T, 0U, 0V, 0W, 1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1J, 1K, 1L, 1M, 1N, 1P, 1R, 1S, 1T, 1U, 1V, 1W, 2A, 2B, 2C, 2D, 2E, 2G, 2H, 2J, 2K, 2L, 2M, 2N, 2P, 2R, 2S, 2T, 2U, 3A, 3B, 3C, 3D, 3E, 3G, 3M, 3N, 3P, 3R, 3S, 3T, 3U, 4A, 4E, 4F, 4J, 4L, 4M, 4T, 4W, 5A, 5B, 5E, 5F

e = Connector Code: A, B, F, D, or 2 for 12CS models

C, G, 1, or 3 for 16CS models

C, F, G, M, 1, or 3 for 26CS models

A, B, F, D, or 2 for 22CS models

f = Cable Length (Max length of 150 m): D, E, F, G, H, J, K, L, M, N, P, Q, R, S, or U

g = Performance Code: A or B

hhh = Option codes: Any combination of alpha/numeric characters representing options not affecting certification in order to obtain custom values for Pressure (option code: ccc) and/or Cable Length (option code: f).

*Note: Custom Pressure Range and Cable Lengths must be selected no greater than the maximum ranges allowed. (pressures: 400 bar, 6000 psi, cable length: 150 meters).



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Class I; Division 1; Group D

Pressure Transducers – Model Series 12FAabcccddeCfAhhh, 16FAabcccddeCfAhhh, 22FAabcccddeCfghhh, or 26FAabcccddeCfghhh. Rated 28 Vdc max, 150 mA max; T₄ at T_{amb} ≤ 75°C. Intrinsically safe when installed per drawing 238190. Entity Parameters: V_{max} = 28 Vdc; I_{max} = 150 mA; C_i = 893.7 nF; L_i = 330 μH

Where:

- a = Output Code: B, C, D, F, G, H, J, R, S (F and G are only options for 22FA and 26FA models)
b = Pressure Datum Code: A or G (A has maximum range of 25 bar, 300 psi)
ccc = Pressure Range Code: A10, A16, A25, A40, A60, B10, B16, B25, B40, B60, C10, C16, C25, C40, VAC, 1A0, 1A6, 2A5, 4A0, 6A0, 1B0, 1B6, 2B5, 4B0, F07, F15, F30, F60, G10, G15, G20, G30, G50, G60, H10, H15, H20, H30, H40, H50, H60, 1F5, 3F0, 6F0, 1G0, 1G5, 2G0, or 3G0
dd = Pressure Port: 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 18, 19 (16FA, 26FA only), 29 (16FA, 26FA only), 39 (16FA, 26FA only), 0A, 0B, 0C, 0D, 0E, 0F, 0G, 0H, 0J, 0K, 0L, 0S, 0T, 0U, 0V, 0W, 1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1J, 1K, 1L, 1M, 1N, 1P, 1R, 1S, 1T, 1U, 1V, 1W, 2A, 2B, 2C, 2D, 2E, 2G, 2H, 2J, 2K, 2L, 2M, 2N, 2P, 2R, 2S, 2T, 2U, 3A, 3B, 3C, 3D, 3E, 3G, 3M, 3N, 3P, 3R, 3S, 3T, 3U, 4A, 4E, 4F, 4J, 4L, 4M, 4T, 4W, 5A, 5B, 5E, 5F
e = Connector Code: A, B, F, D, or 2 for 12FA models
C, G, 1, or 3 for 16FA models
C, F, G, M, 1, or 3 for 26FA models
A, B, F, D, or 2 for 22FA models
f = Cable Length (Max length of 150 m): D, E, F, G, H, J, K, L, M, N, P, Q, R, S, or U
g = Performance Code: A or B
hhh = Option codes: Any combination of alpha/numeric characters representing options not affecting certification in order to obtain custom values for Pressure (option code: ccc) and/or Cable Length (option code: f).
*Note: Custom Pressure Range and Cable Lengths must be selected no greater than the maximum ranges allowed. (pressures: 400 bar, 6000 psi, cable length: 150 meters)

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 0-M91
CSA C22.2 No. 142-M1987
CSA C22.2 No. 157-92
ANSI/UL Standard 508
(*Seventeenth Edition*)
ANSI/UL Standard 913
(*Seventh Edition*)

General Requirements - Canadian Electrical Code, Part II
Process Control Equipment
Intrinsically Safe and Non-Incendive Equipment
Industrial Control Equipment

Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations

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.



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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.

Nameplate adhesive label material approval information:

The following markings appear on an adhesive nameplate UL recognized for the US (PGJ12) and Canada (PGJ18), manufactured by TPL Labels LTD, designated “TPC540S” using thermal transfer ink designated “AXR7”, suitable for indoor and outdoor use on bare stainless steel rated for a temperature up to 100 C.

- Manufacturer’s name “Gems Sensor”, or CSA Master Contract number “156011” adjacent the CSA Mark, in lieu of manufacturer’s name.
- Model designation, as specified in the PRODUCTS section, above.
- Complete electrical rating, as specified in the PRODUCTS section, above.
- Maximum ambient temperature rating, as specified in the PRODUCTS section, above.
- Maximum Working Pressure, as specified in the PRODUCTS section, above.
- Date code / Serial number traceable to month and year of manufacture.
- The CSA mark, as shown on the Certificate of Compliance.
- Hazardous Location designation, as specified in the PRODUCTS section, above.
- Temperature code, as specified in the PRODUCTS section, above. Optional for products rated T6.
- The words “INTRINSICALLY SAFE”.
- The designation: “Exia”.
- Entity parameters, as specified in the PRODUCTS section, above (optional marking).
- The words: “WARNING – SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR INTRINSIC SAFETY”.
- Reference to installation drawings 227519 or 238190



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
80039241	2020-04-08	Update report 2231502 to update drawing 561180PBF for two revision to include non-critical changes according to FIR Follow-Up, Gems Sensors, FC# 253851, FIR Date July 23, 2018.
000070050643	2016-06-22	Evaluation to update Report 2231502 to include 20+ Drawings.
0002671185	2013-11-14	Update to report 2231502 to include model code connector options “F” and “M” for the 26CS/FA models and option “D” for the 12CS/FA and 22CS/FA models.
0002464277	2012-02-07	Update to report 2231502 to include new model series 12FA, 16FA, 22FA and 26FA for Class I; Division 1; Group D.
0002448631	2011-09-23	Update to report 2231502 to add a pressure transducer for 6000 psi, add factory location and update the pressure port call outs.
0002231502	2010-05-18	Original Certification of Pressure Transducers – Models Series 12CS, 16CS, 22CS, and 26CS.