Certificate of Compliance

Certificate: 70183767
Project: 80030820
Issued To: **Micro Motion Incorporated**
7070 Winchester Cir
Boulder, Colorado, 80301
United States
Attention: James Warren

Master Contract: 152450
Date Issued: 2020-10-14

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: *Khushboo Patel*
Khushboo Patel

C US

PRODUCTS

CLASS 2258 02 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations
CLASS 2258 82 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations - To US Requirements

Class I, Division 2, Groups A, B, C and D; Class II, Division 1, Groups E, F and G:

Mass Flow Sensors- Models: F025, F050, F100, F150, F200, F300, F400, F025 (A, B), F050 (A, B), F100 (A, B), F150 (A, B), F100 (P, J)
Temperature code T6;
Rated 10.5VDC, 75 mA. Dual Seal. Enclosure Type 4X.
T_{amb} = -40°C to +65°C
MWP ratings are based on 5th position of sensor "c" which is flow tube material per model nomenclature as below:

Model	MWP (PSI)	Model	MWP (PSI)
F025H, F025B, F050H,B, F100H,B, F150B, F200H	2160	F100S, F100A, F150S, F150A F200S, F300S, F400S	1450
F025P, F025S, F025A	2320	F300H	2220
F050S, F050A	1500	F100P (With Rupture Disc)	6250
F050P	5000	F100P	6000
		F100J	5180

Model Nomenclature for F series: Fbbb c ddd e f g 2 i j k l m nn

Where
bbb - 3 numbers for Sensor Size (025, 050, 100, 150, 200, 300, or 400)
c - Flow Tube Material
A = Stainless Steel tube, High Temp. (350°C)
B = Nickel Alloy C22 Tube, High Temp. (350°C)
P/J = Stainless Steel Tube, High Pressure
H = Nickel Alloy C22 Tube
S/F/G = Stainless Steel Tube (marketing differentiation only)
ddd – Any alphanumeric digit, indicating Process Connections (does not affect safety of device)
e – Any alphanumeric digit, indicating Case Option (does not affect safety of device)
f - Electronic Interface
0 = integral 2400
1 = integral 2400 with extender
2 = aluminum enhanced core processor
3 = stainless enhanced core processor
4 = aluminum enhanced core processor with extender
5 = stainless enhanced core processor with extender
6 = aluminum enhanced core processor (for OEMs)
7 = stainless enhanced core processor (for OEMs)
8 = aluminum enhanced core processor with extender (for OEMs)
9 = stainless enhanced core processor with extender (for OEMs)
A = local core processor
B = local core processor with extender
C = integral 1700/2700
D = local core processor (for OEMs)
E = local core processor with extender (for OEMs)
F = integral 5700
H = 9 wire junction box with extender
J = integral 2200S
K = Integral mount improved surface finish FMT transmitter
L = Integral mount standard finish FMT transmitter
Q = aluminum core processor
R = 9-wire junction box
S = 9-wire stainless junction box
T = 9-wire Stainless junction box with extender
U = integral 2200S with extender
V = aluminum core processor with extender
W = aluminum core processor (for OEMs)
Y = aluminum core processor with extender (for OEMs)
Z = Requires Additional Selection from Other Electronic Interface
g – Letter, indicating Conduit Connections
i – Letter, indicating Language (does not affect safety of device)
j - Reserved for Future Option 1 (blank, or 0)
k - Alphanumeric digit indicating Calibration Option (does not affect safety of device)
l – Letter, indicating Measurement Application Software (does not affect safety of device)
m – Letter, indicating Factory Options (does not affect safety of device)

nn – Alphanumeric digit, indicating Other Electronic Interface (use only when Electronic Interface = Z)
UA = 4200 Integral Mount Transmitter

Conditions of Acceptability:
This equipment may only be powered by a power supply unit with a limited energy electric circuit in accordance with CAN/CSA C22.2 No. 61010-1-12 and ANSI/UL 61010-1, or Class 2 as defined in the Canadian Electrical Code C22.1, Section 16-200 and/or National Electrical Code (NFPA 70), article 725.121.

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 - To US Requirements

Class I, II, Division 1, Groups C, D, E, F and G; T3A
Class I, Division 2, Groups A, B, C and D; T6

Mass Flow Sensors- Models: F025, F050, F100, F150, F200, F300, F400, F025 (A, B), F050 (A, B), F100 (A, B), F150 (A, B), F100 (P, J)
Intrinsically Safe when connected per installation instructions drawing EB-20075559. Dual Seal. Enclosure Type 4X.
T_{amb} = -40°C to +65°C MWP ratings are based on 5th position of sensor "c" which is flow tube material per model nomenclature as below:

Model	MWP (PSI)	Model	MWP (PSI)
F025H, F025B, F050H,B, F100H,B, F150B, F200H	2160	F100S, F100A, F150S, F150A F200S, F300S, F400S	1450
F025P, F025S, F025A	2320	F300H	2220
F050S, F050A	1500	F100P (With Rupture Disc)	6250
F050P	5000	F100P	6000
		F100J	5180

Model Nomenclature for F series: Fbbb c ddd e f g h i j k l m nn
Where
bbb - 3 numbers for Sensor Size (025, 050, 100, 150, 200, 300, or 400)
c - Flow Tube Material
A = Stainless Steel tube, High Temp. (350°C)
B = Nickel Alloy C22 Tube, High Temp. (350°C)
P/J = Stainless Steel Tube, High Pressure
H = Nickel Alloy C22 Tube
S/F/G = Stainless Steel Tube (marketing differentiation only)
ddd – Any alphanumeric digit, indicating Process Connections (does not affect safety of device)
e – Any alphanumeric digit, indicating Case Option (does not affect safety of device)
f - Electronic Interface
2 = aluminum enhanced core processor
3 = stainless enhanced core processor
4 = aluminum enhanced core processor with extender
5 = stainless enhanced core processor with extender

6 = aluminum enhanced core processor (for OEMs)
7 = stainless enhanced core processor (for OEMs)
8 = aluminum enhanced core processor with extender (for OEMs)
9 = stainless enhanced core processor with extender (for OEMs)
A = local core processor
B = local core processor with extender
C = integral 1700/2700
D = local core processor (for OEMs)
E = local core processor with extender (for OEMs)
F = integral 5700
H = 9 wire junction box with extender
J = integral 2200S
Q = aluminum core processor
R = 9-wire junction box
S = 9-wire stainless junction box
T = 9-wire Stainless junction box with extender
U = integral 2200S with extender
V = aluminum core processor with extender
W = aluminum core processor (for OEMs)
Y = aluminum core processor with extender (for OEMs)
Z = Requires Additional Selection from Other Electronic Interface

g – Letter, indicating Conduit Connections
h - Approvals
C = CSA Class I, Div 1, Div 2 (CANADA ONLY)
A = CSAc-us Class I, Div 1, Div 2 (US & CANADA)
i – Letter, indicating Language (does not affect safety of device)
j - Reserved for Future Option 1 (blank, or 0)
k - Alphanumeric digit indicating Calibration Option (does not affect safety of device)
l – Letter, indicating Measurement Application Software (does not affect safety of device)
m – Letter, indicating Factory Options (does not affect safety of device)
nn – Alphanumeric digit, indicating Other Electronic Interface (use only when Electronic Interface = Z)
UA = 4200 Integral Mount Transmitter

APPLICABLE REQUIREMENTS

CAN/CSA-C22.2 No. 0-10 *(R2015)*	General requirements — Canadian Electrical Code, Part II
CAN/CSA-C22.2 No. 94.1-15, Second Edition	Enclosures for Electrical Equipment, Non-Environmental Considerations
CAN/CSA-C22.2 No. 94.2- 15	Enclosures for Electrical Equipment, Environmental Considerations
ANSI/UL 50-15 *Thirteenth Edition*	Enclosures for Electrical Equipment, Non-Environmental Considerations
ANSI/UL 50E-15 *Second Edition*	Enclosures for Electrical Equipment, Environmental Considerations
CAN/CSA C22.2 No. 61010-1-12, UPD1: 2015, UPD2: 2016, AMD1: 2018	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1: General Requirements
ANSI/UL 61010-1-2018 *Third Edition*	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use — Part 1: General Requirements
CSA C22.2 No. 25-1966 (R2009)	Enclosures for Use in Class II Groups E, F, and G Hazardous Locations

CAN/CSA C22.2 No. 157-92	Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations.
CAN/CSA C22.2 No. 213-17 *+ UPD 1 (2018) + UPD 2 (2019)*	Non-incendive Electrical Equipment for Use in Class I and II, Division 2, and Class III Hazardous (Classified) Locations
ANSI/UL 121201-2017 *(R2019) Ninth Edition*	Non-incendive Electrical Equipment for Use in Class I and II, Division 2, and Class III Hazardous (Classified) Locations
ANSI/UL 1203-2009 *Fourth Edition*	Explosion-Proof and Dust-Ignition-Proof Electrical Equipment for Use in Hazardous (Classified) Locations
ANSI/UL 913-2015 *Seventh Edition*	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, III, Division 1, Hazardous (Classified) Locations
ANSI/ISA 12.27.01-2003 *Superseded*	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids

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 shall appear on the nameplates:

- Submittor's name "Micro Motion", or CSA Master Contract number “152450”, adjacent to the CSA Mark in lieu of manufacturer’s name.
- Catalogue / Model designation, as specified in the PRODUCTS section above.
- Electrical ratings, as specified in the PRODUCTS section, above.
- ISO 60417, Symbol 5031 ⎓ adjacent to the DC input rating.
- Ambient temperature rating: As specified in the PRODUCTS section, above.
- Date code / Serial number traceable to month and year of manufacture.
- Hazardous Location designations, as shown in the PRODUCTS section above. The word “Class” may be abbreviated “CL”, the word “Division” may be abbreviated “DIV”, and the word “Groups” may be abbreviated “GRP” or “GP”.
- Temperature Code, as specified in the PRODUCTS section, above.
- Enclosure rating: Type 4X. (Optional)
- The words "Dual Seal".
- Maximum process pressure rating, as specified in the PRODUCTS section, above.
- Process temperature range.
- The CSA Mark with or without the “C” and “US” indicators, as shown on the Certificate of Conformity.
- The manufacturing location is identified if the equipment can be produced in more than one facility.

For products specified in Class 2258 03/83 in the PRODUCTS section:

- The words "INTRINSICALLY SAFE" and "SECURITE INTRINSEQUE", and the symbol "Exia"
- The words "Install per Installation Instructions drawing EB-20075559" or equivalent.

For products specified in Class 2258 02/82 in the PRODUCTS section:

- The following optional additional markings may be used for USA only: "Class I, Zone 2, Group IIC T6" and "Zone 22, Group IIIB, T85°C"

Nameplate adhesive label material approval information:

The Marking is accomplished by one of four acceptable methods:

1. The Marking shall be permanent, such as a 0.50-mm (.020), thick Stainless steel nameplate secured by drive pins or screws in bottomed holes, to the outside of the sensor enclosure.
2. Epoxy for use with Stainless steel nameplate on Painted Sensor Case
   Manufacturer: Loctite
   Type: Hysol E-05MR-EN
   Acceptance: Tested according to CSA C22.2 No. 30 Clause 6.12, and UL 969 Clause 7.3.2 as part of CSA Project 2668081

3. Pressure Sensitive Adhesive Tape for use with Stainless steel nameplate on Bare Stainless Steel or Painted Sensor Case
   Manufacturer: 3M
   Type: 4655
   Acceptance: Tested according to CSA C22.2 No. 30 Clause 6.12, and UL 969 Clause 7.3.2 as part of CSA Project 70016243

4. Pressure Sensitive Adhesive Label for use on Painted Sensor Case or Plastic (Group V)
   Manufacturer: DRG Technologies
   Type: S-333
   Acceptance: Tested according to CSA C22.2 No. 30 Clause 6.12, and UL 969 Clause 7.3.2 as part of CSA Project 70016243

5. Adhesive Label
   Manufacturer: Zebra Technologies
   Model: Z-Ultimate 3000T Silver (Z-Ultimate 3000 Silver)
   Description:* Pressure-sensitive "3000"** IMPRINTABLE GLOSS SILVER POLYESTER, 3 mil with thermal transfer printing -Ribbons Zebra 4200, 5095 and 5100 on all Zebra Printers

Acceptance: Tested according to CSA C22.2 No. 30 Clause 6.12, and CSA C22.2 No. 157 Clause 6.12 as part of CSA Project 70072606.

Supplement to Certificate of Compliance

Certificate: 70183767 **Master Contract:** 152450

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
80030820	2020-10-14	Update to Report 1173493 is to add new model F150 and F400 Sensor, remove RF interface plate design.
70186727	2018-10-03	Update CSA Report 1173493 to add models F300x (D, E, F, and P).
70087456	2016-07-21	Update to CSA Report 1173493 to include Accepted Adhesive Label tested under CSA Project 70072606 and change Enclosure Type 3R to Type 4X. Also Added Ambient Temperature Range when used with the integral 5700 transmitter (-40C to +65C) in the marking section.
70077136	2016-06-21	Update to CSA Report 1173493 to include new Drive Coil Parameters and a Dual Seal rating pressure for Models F100P & F100J based off of acceptance of Witness Testing Results under CSA Project 70077135.
70044893	2015-12-14	Possible Update to CSA Report 1173493 to add Dual Seal Testing on Sensors F100 P/J based off the testing of the F100P. Price includes the cost associated with performing Burst Pressure Testing in accordance with ANSI/ISA 12.27.01-2011 and updating the CSA Report and associated Certificates. Should Testing fail, the Project Scope will be re-evaluated and additional funding will be requested.
70041487	2015-09-02	Update to Report 1173493 to include the addition of the Models F100P and F100J Flow Sensors as NI: Cl1 Dv2 Gps ABCDEFG and IS: Cl1 Dv1 Gps CDEFG.
2689422	2014-06-24	Update to Report 1173493 to include alternate adhesive epxoy for affixing SS metal labels onto the F Sensors painted enclosure s urface; based on testing conducted under project 152450-2668081.
2566737	2012-11-07	Update report 1173493 to include a revision of the T-Code from T3A to T6 for the Div 2 versions of the F Series Sensors.
2401567	2011-04-18	Update of Report 1173493 to include alternate construction of heat extension.
2223396	2009-10-14	Update report 1173493 for F Series to include Dual Seal Marking; Evaluation and Testing as per Witness testing performed under project 152450-2207573.
1934634	2007-07-27	Update report 1173493 to include new sensor Model PSC015.
1899115	2007-04-16	Update report 1173493 to include alternate drive and pickoff coils for the F025 (A, B, C or E), F050 (A, B, C or E), F100 (A, B, C or E) sensors.
1791875	2006-05-25	Update to report 1173493 to include new sensors and option codes.
1742202	2006-01-11	Update to report 1173493 to include revised drive and pick off coil drawings.
1668028	2005-06-13	Addition of Model F300A to Certificate 1173493