

420-0004-499		Sht. of 1	APP'D BY SGA
ISSUE	EDO NO.	APP'D	DATE
1	4-15-102	THP	4-8-15
2	4-15-114	Sik	6-14-16



CERTIFICATE OF CONFORMITY

- HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS
- Certificate No: **FM16CA0071X**
- Equipment:
(Type Reference and Name) **Model 408 Level Transmitter**
- Name of Listing Company: **Ametek Drexelbrook**
- Address of Listing Company: **205 Keith Valley Road
Horsham PA 19044-1499
USA**
- The examination and test results are recorded in confidential report number:

0003041653 dated April 5, 2013
- FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

**CAN/CSA C22.2 No.157: 1992, CAN/CSA C22.2 No.213: 1987, CAN/CSA-C22.2 No. 61010-1:2004
CAN/CSA-C22.2 No. 94-M91: 2006**
- If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to specific conditions of use specified in the schedule to this certificate.
- This certificate relates to the design, examination and testing of the products specified herein. The FM Approvals surveillance audit program has further determined that the manufacturing processes and quality control procedures in place are satisfactory to manufacture the product as examined, tested and Approved.

Certificate issued by:

J. E. Marquedant

J. E. Marquedant
Manager, Electrical Systems

25 May 2016

Date

To verify the availability of the Approved product, please refer to www.approvalguide.com

THIS CERTIFICATE MAY ONLY BE REPRODUCED IN ITS ENTIRETY AND WITHOUT CHANGE

FM Approvals LLC, 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
T: +1 (1) 781 762 4300 F: +1 (1) 781 762 9375 E-mail: information@fmaprovals.com www.fmaprovals.com

SCHEDULE



Canadian Certificate Of Conformity No: FM16CA0071X

10. Equipment Ratings:

Intrinsically Safe for use in Class I, II and III, Division 1, Groups A, B, C, D, E, F and G when installed in accordance with Entity requirements and control drawing 420-0001-833; Suitable for use in Class I, Division 2, Group A, B, C and D, Hazardous Locations when installed in accordance with Entity requirements and control drawing 420-0001-833

Intrinsically Safe with an Dust-ignitionproof housing for Class II, Division 2, Groups F, and G; Hazardous Locations, indoors and outdoors.

11. The marking of the equipment shall include:

INTRINSICALLY SAFE SÉCURITÉ INTRINSÈQUE Ex ia
CLASS I, DIVISION 1, GROUPS A, B, C & D; T4, Ta -40 °C TO +60 °C
INSTALL per: 420-0001-833
Vmax = 40 V, Imax = 140 mA, Pi = 1 W, Ci = 0.0022 µF, Li = 0

WARNING: SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY
AVERTISSEMENT: LA SUBSTITUTION DE COMPOSANTS PEUT COMPROMETTRE LA SÉCURITÉ
INTRINSÈQUE
WARNING: POTENTIAL SHOCK LEVEL AT THE INPUT TERMINAL FOR VOLTAGES OVER 35 VOLTS IN
A WET ENVIRONMENT

12. Description of Equipment:

General - The model series 408-8200 Level Transmitter is a two-wire capacitance to current transmitter which provides a 4 to 20 mA current output signal proportional to a change in capacitance at the probe terminals. It is designed to be used in conjunction with the Drexelbrook Series 700 Capacitance Probes. These probes have been previously Approved by FM as intrinsically safe for use in Class I, II and III, Division I, Groups A, B, C, D, E, F and G hazardous (classified) locations when connected to Series 408-2200 and 408-0220 Two-Wire Transmitters under project 2V5A9.AX.

Construction - The transmitter circuitry is contained on three printed circuit boards and housed within a fabricated sheet metal housing. The housing is tool secured thereby prohibiting access of the circuitry to the operator. The terminals external to the tool secured housing supplied are accessible to the operator, and appropriately marked, for power connections connection to the sensing probes. These external terminals are accessible to the operator and could pose a potential shock level when supplied from external source voltage of over 35 volts in a wet environment. Step zero and step span, fine zero, time delay and fine span adjustments may be accomplished without accessing the electronic circuitry. Housing model code options 1, 4, 6, 8, 9, C or D selects Type 1, 4, 4X, 12 and 13 enclosure configurations.

Installation within or connection to a Division 1 Hazardous Location requires an intrinsic safety barrier interface. The 408-8200 Series Transmitter utilizing the optional Drexelbrook Series 285-1-200 Series Housing, an enclosure Approved by FMRC as explosionproof for use in Class I, Division 1, Groups A, B, C and D and Dust-Ignitionproof for Class II/III, Division 1, Groups E, F and G Hazardous Locations, outdoor (NEMA 1, 4, 4X, 12 and 13) under Approval Report J.I. OV3A4.AE, requires connection to an intrinsic safety barrier interface. Connection of the 700 Series Probes to the explosionproof housing must be accomplished by using an explosionproof seal between the housing and the probe connection.

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Ratings - The transmitter electronics operate on a supply of 11.5 to 50 Vdc with an output range of 4 to 20 mA with an operational temperature range of the transmitters is -40°C to 60°C.

The standard atmospheric conditions (relating to the explosion characteristics of the atmosphere) under which it may be assumed that electrical equipment can be operated are:

- temperature -20 °C to +60 °C;
- pressure 80 kPa (0.8 bar) to 110 kPa (1.1 bar); and
- air with normal oxygen content, typically 21 % v/v.

The transmitter probes are rated for use in a process temperature range of -40°C to +121°C.

Model 408-82ab-Fcd. Level Transmitter.

- a = Phasing option 0 or 3.
- b = Time delay option 0 or 2.
- c = Operating frequency 0 or 1.
- d = Housing 1, 4, 6, 8, 9, C or D.

13. Specific Conditions of Use:

1. Loops must be connected according to the barrier manufacturer's instructions
2. Barrier parameters must meet the following requirements: V_{oc} or $V_t < V_{max}$, I_{sc} or $I_t < I_{max}$
3. The C_a and L_a parameters must be greater than the sum of the connecting cable parameters and C_i and L_i of the IS. apparatus
4. Electrical equipment connected to associated apparatus should not use or generate more than 250 volts.
5. The installation shall comply with the relevant requirements of the latest edition of the Canadian Electrical Code (C22, 1).
6. Warning: Substitution of components may impair intrinsic safety
7. Tampering and replacement with nonfactory components may adversely affect the safe use of the system

14. Test and Assessment Procedure and Conditions:

This Certificate has been issued in accordance with FM Approvals Canadian Certification Scheme.

15. Schedule Drawings

A copy of the technical documentation has been kept by FM Approvals.

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
April 5, 2013	Original Issue.

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*Member of the FM Global Group*

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February 3, 2016	<u>Supplement 1:</u> Report Reference: --RR201584 dated February 3, 2016 Description of the Change: Design changes and other minor updates to Project 3W3A1AX. Change FM Approval Listing to 408-82ab-Fcd from 408-82ab-0cd to reflect F for FM.
25 th May 2016	<u>Supplement 2:</u> Report Reference: -- RR205117 dated 25 th May 2016 Description of the Change: Added XP/DIP enclosures back on to the certificate as IS-XP-AIS and IS-DIP-AIS.

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