420-0004-498		Sht. 1 of 4	APP'D BY SGA
ISSUE	EDO NO.	APP'D	DATE
1	4-15-102	THP	4-8-15
2	4-15-114	SGA	6-17-16

CERTIFICATE OF CONFORMITY

1. HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS
2. **Certificate No:** **FM16US0127X**
3. **Equipment:** **Model 408 Level Transmitter**
   (Type Reference and Name)
4. **Name of Listing Company:** **Ametek Drexelbrook**
5. **Address of Listing Company:** **205 Keith Valley Road**
   Horsham PA 19044-1499
   USA
6. The examination and test results are recorded in confidential report number:

   3W3A1.AX dated April 7th 1994

7. FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

   FM Class 3600:2011, FM Class 3610:2010, FM Class Class 3611:2004, FM Class 3615:2006, FM Class 3810:2005,

8. 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.
9. 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
Manager, Electrical Systems

25 May 2016
Date

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

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SCHEDULE

US Certificate Of Conformity No: FM16US0127X

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 (Classified) Locations when installed in accordance with Entity requirements and control drawing 420-0001-833

Intrinsically Safe with an Explosionproof housing for Class I, Division 1, Groups A, B, C and D; Intrinsically Safe with an Dust-ignitionproof housing for Class II, Division 1, Groups E, F, and G, Class III, Division 1; Hazardous (Classified) 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 TERMNAL 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 rnA 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 accessable to the operator, and appropriately marked, for power connections connection to the sensing probes These external terminals are accessable 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 (Classified) 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 (Classified) 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.

SCHEDULE

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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: Voc or Vt < Vmax, Isc or It < Imax
3. The Ca and La parameters must be greater than the sum of the connecting cable parameters and Ci and Li 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 National Electrical Code® (ANSI/NFPA 70).
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 US Certification Requirements.

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 7, 1994	Original Issue.

SCHEDULE

US Certificate Of Conformity No: FM16US0127X

April 5, 2013	Supplement 1: Report Reference: – 3041653 dated April 5, 2013 Description of the Change: Re-exam to 3610:2010
February 3, 2016	Supplement 2: 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.
25th May 2016	Supplement 3: Report Reference: – RR205117 dated 25th 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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