

1 EC-TYPE EXAMINATION CERTIFICATE



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|--------------|--------------|----------|-----------|-------------|
| 420-0004-432 | Sht. of APPD | 1 | 5 | APPD BY SGA |
| | ISSUE | 2 | 3 | DATE |
| | EDO NO. | 9-12-103 | 11-12-106 | 9/25/11 |

2 Equipment or Protective systems intended for use in Potentially Explosive Atmospheres - Directive 94/9/EC

3 EC-Type Examination Certificate No: FM12ATEX0018X

4 Equipment or protective system: *U**103***0-*.*, U**104***0-*.*, and 700-** Universal IV Level Transmitter with Integral and Remote Sensor

5 Name of Applicant: AMETEK Drexelbrook

6 Address of Applicant: 205 Keith Valley Road, Horsham, PA 19044 USA

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and documents therein referred to.

8 FM Approvals Ltd, notified body number 1725 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report number:
3043661EC dated 11 May, 2012

9 Compliance with the Essential Health and Safety Requirements, with the exception of those identified in item 15 of the schedule to this certificate, has been assessed by compliance with the following documents:

EN60079-0:2009, EN60079-1:2007, EN60079-11:2011, EN60079-31:2009, EN60529:1991 + A1:2000

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC-Type Examination certificate relates only to the design, examination and tests of the specified equipment or protective system in accordance to the directive 94/9/EC. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include:

Universal IV Level Transmitter – Integral



- II 1 G Ex ia IIC T4 Ga -40°C ≤ Tamb ≤ +75°C; IP66 (For models U**103**00-*.*)
- II 2 G Ex d ia IIB T4 Gb -40°C ≤ Tamb ≤ +75°C; IP66 (For models U**104**00-*.*)
- II 2 D Ex tb ia IIIC Db T90°C -40°C ≤ Tamb ≤ +75°C; IP66 (For models U**104**00-*.*)

Universal IV Level Transmitter – Remote (excluding models U10***00-*.*)**



- II 1 G Ex ia IIC T4 -40°C ≤ Tamb ≤ +75°C; IP66 (For models U**103***0-*.*)
- II 2 (1) G Ex d [ia] IIB T4 -40°C ≤ Tamb ≤ +75°C; IP66 (For models U**104***0-*.*)
- II 2 (1) D Ex tb [ia] IIIC T90°C -40°C ≤ Tamb ≤ +75°C; IP66 (For models U**10***0-*.*)

700-*, Universal IV Sensors



- II 1 G Ex ia IIC T2...T5 Ga -40°C ≤ Tamb ≤ +75°C
- II 1 D Ex ia IIIC T300°C...T90°C Da -40°C ≤ Tamb ≤ +75°C



Digitally signed by Mick Gower
DN: cn=Mick Gower, o=FM Approvals, ou=FM Approvals, email=mick.gower@fm-approvals.com, c=GB
Date: 2012.10.16 13:50:23 +0100

Mick Gower
Certification Manager, FM Approvals Ltd.
Issue date: 16th October 2012

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

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SCHEDULE

FM Approvals

to EC-Type Examination Certificate No. FM12ATEX0018X

13 Description of Equipment or Protective System:

The model series Universal IV Level Transmitter is a two-wire capacitance to current transmitter which provides a 4-20 mA current output signal proportional to a change in capacitance at the probe terminals. It is designed to be used in conjunction with the AMETEK-Drexelbrook Series 700 Capacitance Probes.

The transmitter circuitry is contained on five printed circuit boards and housed in an aluminium housing. Terminals are supplied, and appropriately marked, for power connections and also connection to the sensing probes. A majority of the board set is encapsulated in potting material.

The transmitter electronics operate on a supply of 13 to 30 Vdc with an output range of 4-20 mA. The ambient operating temperature range of the transmitter is -40°F to +167°F (-40°C to 75°C). The Energy Limitation Parameters for the intrinsically safe versions are as follows: $U_i = 30$ V, $I_i = 140$ mA, $P_i = 1$ W, $C_i = 0$, $L_i = 0$

The electronic circuitry is contained in a combination of 5 circuit boards. One of these boards, the Probe Board, is mounted in the main housing and serves as the interface for the probe to the potted electronic module. The remaining 4 circuit boards are assembled in a plastic housing which is potted. The potted assembly contains a Terminal, Display, Power, and Bridge board. There are 3 variations of this potted assembly to service 3 different applications. For these three assemblies, the only differences are different component inclusion/exclusions on the Bridge board.

Model Options:***Uab103de00-f.g. Universal IV – Integral***

a = Type P, L, or C.

b = Frequency and Phasing 0, 1, 2, or 3.

d = Entries 1 or 2

e = Surge/Noise suppression 0 or 1

f = Sensing element R00, R01, R02, R03, R04, R05, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 601, 603, 604, 605, 606, 607, 608, 609, 610, 611, 613, 703, 705, 706, 708, 709, 713, 714, 715, 722, or any other 7 digit numeric combination maintaining the limits of 420-0004-424-CD.

g = 24 character numbering system not affecting safety.

Uab104d00-e.f. Universal IV – Integral

a = Type P, L, or C.

b = Frequency and Phasing 0, 1, 2, or 3.

d = Entries 1 or 2

e = Sensing element 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, or 262.

f = 24 character numbering system not affecting safety.

Uab103cde0-f.h. Universal IV – Remote

a = Type P, L, or C.

b = Frequency and Phasing 0, 1, 2, or 3.

c = Entries 1 or 2

d = Surge/Noise suppression 0 or 1

e = Remote Configuration 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, J, K, L, M, N, O, P, Q, or Z.

f = Sensing element R09, 000, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 513, 601, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 701, 702, 703, 704, 705, 706, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, or any other 7 digit numeric combination maintaining the limits of 420-0004-424-CD.

h = 24 character numbering system not affecting safety.

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SCHEDULE

to EC-Type Examination Certificate No. FM12ATEX0018X

Uab104de0-f-h. Universal IV – Remote

a = Type P, L, or C.

b = Frequency and Phasing 0, 1, 2, or 3.

d = Entries 1 or 2

e = Surge/Noise suppression 0, 4 or D.

f = Remote Configuration 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, J, K, L, M, N, O, P, Q, or Z.

g = Sensing element R09, 000, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 513, 601, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 701, 702, 703, 704, 705, 706, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, or any other 7 digit numeric combination maintaining the limits of 420-0004-424-CD.

h = 24 character numbering system not affecting safety.

700-a, Sensor.

a = 1202-014, 1202-001, 1202-018, 1202-041, 0001-022, 0001-024, 0001-026, 0001-034, 0001-044, 0001-054, 0001-0634, 0001-344, 0002-023, 0002-024, 0002-027, 0002-028, 0002-033, 0002-054, 0002-321, 0002-360, 0005-054, 0201-005, 0201-025, 0201-026, 0201-028, 0201-036, 1202-031, 1202-033, 1202-061, 1202-081, 0001-016, 0001-324, 0003-009, 0005-035, 0005-048, 0005-348, 0202-036, 0202-043, 0001-040, 0001-074, 0002-037, 0002-040, 0002-044, 0002-057, 0002-064, 0002-224, 0002-321, 0201-027, 0201-051, 0201-052, 0201-058, 0201-059, 0202-002, 0202-053, 0001-018, 0001-045, 0002-027, 0002-029, 0002-036, 0002-046, 0002-059, 0002-227, 0002-363, 0004-031, 0004-050, 0005-009, 0005-018, 0005-019, 0005-028, 0005-029, 0005-036, 0005-045, 0005-085, 0005-095, 0005-096, 0005-354, 0009-002, 0009-024, 0009-057, 011-001, 011-003, 011-015, 0021-001, 0021-002, 0021-003, 0021-007, 0202-054, 0202-056, 0203-003, 0203-004, 0204-002, 0204-022, 0204-024, 0204-038, 0204-048, 0204-049, 0205-005, 0205-015, 0205-018, 0205-075, 0205-078, 0205-079, 0209-002, 0209-024, 1202-010, 9100-403, 1202-061, 9100-195, 1202-051, or any other 7 digit numeric combination maintaining the limits of 420-0004-424-CD.

14 Special Conditions for Safe Use:

1. Consult the manufacturer if dimensional information on the flameproof joints is necessary.
2. In locations requiring EPL Ga equipment, care must be taken when installing the aluminium enclosure that even in the event of rare incidents, an ignition source due to impact or friction between the enclosure and iron / steel is excluded.

15 Essential Health and Safety Requirements:

The relevant EHSRs that have not been addressed by the standards listed in this certificate have been identified and assessed in the confidential report identified in item 8.

16 Test and Assessment Procedure and Conditions:

This EC-Type Examination Certificate is the result of testing of a sample of the product submitted, in accordance with the provisions of the relevant specific standard(s), and assessment of supporting documentation. It does not imply an assessment of the whole production.

Whilst this certificate may be used in support of a manufacturer's claim for CE Marking, FM Approvals Ltd accepts no responsibility for the compliance of the equipment against all applicable Directives in all applications.

This Certificate has been issued in accordance with FM Approvals Ltd's ATEX Certification Scheme.

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SCHEDULE

to EC-Type Examination Certificate No. FM12ATEX0018X

17 Schedule Drawings

A list of the significant parts of the technical documentation is annexed to this certificate and a copy has been kept by the Notified Body.

18 Certificate History

Details of the supplements to this certificate are described below:

| Date | Description |
|--------------------------------|---|
| 29 th May 2012 | Original Issue. |
| 6 th September 2012 | <u>Supplement 1:</u> Report Reference: – 3043661REV120801 dated 24th August 2012 Description of the Change: Corrected minor errors in drawings and added notes. |
| 16 th October 2012 | <u>Supplement 2:</u> Report Reference: – 3043661REV120829 dated 26 th September 2012 Description of the Change: Replacing a potted capacitor. |

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Blueprint Report

AMETEK Drexelbrook (1000001466)

Class No 3610

AMETEK Drexelbrook (1000001466)

Class No 3610

Original Project I.D. 3043661

Certificate I.D. FM12ATEX0018X

| <u>Drawing No.</u> | <u>Revision Level</u> | <u>Drawing Title</u> | <u>Last Report</u> | <u>Electronic Drawing</u> |
|--------------------|-----------------------|---|--------------------|---------------------------|
| 220-0002-219 | 2 | Combi Screw | 3043661 | Yes (pdf) |
| 220-0002-246 | 3 | Combi Screw | 3043661 | Yes (pdf) |
| 242-0001-099 | 5 | Thread Adapter | 3043661 | Yes (pdf) |
| 250-0001-081 | 1 | O-ring | 3043661 | Yes (pdf) |
| 260-0002-558 | 3 | Lid Assembly, M105, Viewport | 3043661 | Yes (pdf) |
| 260-0002-559 | 4 | Lid with Viewport | 3043661 | Yes (pdf) |
| 260-0002-563 | 2 | Base, ¾ NPT | 8/1/12 | Yes (pdf) |
| 260-0002-564 | 2 | Base, M20 | 8/1/12 | Yes (pdf) |
| 268-0002-033 | 1 | Skirted Washer | 3043661 | Yes (pdf) |
| 270-0002-168 | 6 | Sensor label | 8/1/12 | Yes (pdf) |
| 270-0101-624 | 2 | Label, ¾ NPT Threads | 3043661 | Yes (pdf) |
| 270-0102-046 | 1 | Label, ia, Integral ATEX/IECEX | 3043661 | Yes (pdf) |
| 270-0102-047 | 2 | Label, d, Integral ATEX/IECEX | 3043661 | Yes (pdf) |
| 270-0102-059 | 1 | Label, ia, Remote ATEX/IECEX | 3043661 | Yes (pdf) |
| 270-0102-060 | 2 | Label, d, Remote ATEX/IECEX | 3043661 | Yes (pdf) |
| 270-0102-061 | 1 | Label, Sensor Element Housing | 3043661 | Yes (pdf) |
| 280-0001-058 | 1 | Grounding Stud | 3043661 | Yes (pdf) |
| 282-0002-053 | 1 | Flat Washer | 3043661 | Yes (pdf) |
| 282-0004-029 | 1 | Lock Washer | 3043661 | Yes (pdf) |
| 285-0001-062 | 3 | Condulet Assy | 3043661 | Yes (pdf) |
| 285-0001-063 | 3 | Condulet Assy | 3043661 | Yes (pdf) |
| 285-0001-064 | 3 | Condulet Assy | 3043661 | Yes (pdf) |
| 370-0005-048 | 4 | Lens | 3043661 | Yes (pdf) |
| 380-9000-132 | 1 | Cable Assy, Signal Filter | 3043661 | Yes (pdf) |
| 380-9000-133 | 1 | Cable Assy, Probe Filter | 3043661 | Yes (pdf) |
| 385-0028-010 | 2 | Assy, BOM & Schematics, Desalter Filter Adapter Board | 8/1/12 | Yes (pdf) |
| 385-0071-001 | 6 | Assy, BOM & Schematics, Display Board | 3043661 | Yes (pdf) |
| 385-0071-002 | 6 | Assy, BOM & Schematics, Terminal Board | 3043661 | Yes (pdf) |
| 385-0071-003 | 8 | Assy, BOM & Schematics, Power Board | 3043661 | Yes (pdf) |
| 385-0071-006 | 10 | Assy, BOM & Schematics, Bridge Board | 8/29/12 | Yes (pdf) |
| 385-0071-007 | 6 | Assy, BOM & Schematics, Bridge Board 15kHz | 3043661 | Yes (pdf) |
| 385-0071-008 | 6 | Assy, BOM & Schematics, Bridge Board Cut monitor | 8/29/12 | Yes (pdf) |
| 385-0071-010 | 2 | Assy, BOM & Schematics, Probe Board | 3043661 | Yes (pdf) |
| 385-0071-015 | 4 | Assy, BOM & Schematics, Probe Filter Board | 8/1/12 | Yes (pdf) |
| 385-0071-016 | 3 | Assy, BOM & Schematics, Signal Loop Filter Board | 8/1/12 | Yes (pdf) |
| 401-0016-028-CD | 1 | Signal Filter Assy, Customer Drawing | 3043661 | Yes (pdf) |
| 401-0016-028 | 2 | Signal Filter Assy | 3043661 | Yes (pdf) |
| 401-0016-029-CD | 1 | Probe Filter Assy, Customer Drawing | 3043661 | Yes (pdf) |
| 401-0016-029 | 2 | Probe Filter Assy | 3043661 | Yes (pdf) |
| 401-0016-031 | 1 | Electrostatic Filter Assy | 3043661 | Yes (pdf) |
| 420-0004-424-CD | 2 | ATEX / IECEX Control Drawing | 3043661 | Yes (pdf) |
| 440-1602-917 | 3 | Artwork, Display Board | 3043661 | Yes (pdf) |
| 440-1602-918 | 3 | Artwork, Terminal Board | 3043661 | Yes (pdf) |
| 440-1602-919 | 4 | Artwork, Power Board | 3043661 | Yes (pdf) |
| 440-1602-920 | 5 | Artwork, Bridge Board | 3043661 | Yes (pdf) |
| G320-0002-206 | 2 | Transformer (100KHz) | 8/1/12 | Yes (pdf) |
| UXXXXXXXXXX-XX 3 | | Universal IV Integral System | 3043661 | Yes (pdf) |
| UXXXXXXXXXX-XX 4 | | Universal IV Remote System | 3043661 | Yes (pdf) |