

CERTIFICATE OF CONFORMITY



- HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
- Certificate No:** FM16US0287X
- Equipment:** 543abcde, 5825-3abcde and 643abcde
(Type Reference and Name) Temperature Transmitters
- Name of Listing Company:** PR Electronics A/S
- Address of Listing Company:** Lerbakken 10
DK-8410 Rønne
Denmark
- The examination and test results are recorded in confidential report number:

3058417 dated 2nd February 2018
- FM Approvals LLC, certifies that the equipment described has been found to comply with the following Approval standards and other documents:

FM Class 3600:2018, FM Class 3610:2018, FM Class 3611:2004, FM Class 3810:2018,
ANSI/UL 60079-0:2013, ANSI/UL 60079-11:2014, ANSI/UL 60079-15:2013
- 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.
- Equipment Ratings:**

Intrinsically Safe for Class I, Division 1, Groups A, B, C and D, for Class I, Zone 0, AEx ia, Group IIC, and for Class I, Zone 1 (0), AEx ib [ia], Group IIC; Nonincendive for Class I, Division 2, Groups A, B, C and D and Non-Sparking for Class I, Zone 2, AEx nA, Group IIC hazardous (classified) locations.

Certificate issued by:



J. E. Marquedant
VP, Manager - Electrical Systems

15 October 2019

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@fmapprovals.com www.fmapprovals.com

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US Certificate Of Conformity No: FM16US0287X

11. The marking of the equipment shall include:

- Class I, Division 1, Groups A, B, C, D; T6...T4
- Class I, Zone 0, AEx ia IIC T6...T4 Ga
- Class I, Zone 0, AEx ib [ia Ga] IIC T6 ... T4 Gb
- Class I, Division 2, Groups A, B, C, D; T6...T4
- Class I, Zone 2, AEx nA IIC T6...T4 Gc

12. **Description of Equipment:**

General - The PRelectronics 5431, 5434, 5435, 5437 (Head Mounted) and 5825-31, 5825-34, 5825-35, 5825-37, 6431, and 6437 (Rail Mounted) products are 2-wire interface, 4-20mA current loop powered, programmable temperature transmitters with inputs for customer sensors of type RTD, TC, Ohm (KOhm), and mV sensing.

Construction – The enclosure is made of plastic. The enclosure for the Head Mount version has nine terminals (X1-X2) for connection of the 4-20mA loop and (X3-X9) for bringing in temperature sensor cables and input lines.

There is a Test connection which together with (X1) can be used to measure the 4-20mA loop signal without breaking the loop.

There is also an extension port connection hidden under a small lid. This is an 8 terminal pin header for connection to other PRelectronics (or partner) modules, primarily for display and communication modules. There is an LED indicator on top of the housing between the extension port connector and connection X9.

The enclosure for the DIN Rail mount versions have twelve terminals (X3-X4) for connection of the 4-20mA loop and (X5-X12) for bringing in temperature sensor cables and input lines.

Terminal (X1 and X2) are Test connections which can be used to measure the 4-20mA loop signal without breaking the loop. There is an LED status indicator in front of the housing.

There is also an extension port in the front of the 643x modules. This is an 8 terminal pin header and 4 pole connection pads for connection to other modules, primarily for display and communication modules.

Ratings - The Temperature Transmitters are rated for use in an ambient temperature range of -50°C to +85°C

543abcde, 5825-3abcde and 643abcde – Temperature Transmitters

- IS / I / 1 / ABCD / T* — 5437QF01, 5825QF01 and 6437QF01 Entity;
- AEx ia IIC T* Ga — 5437QF01, 5825QF01 and 6437QF01 Entity;
- AEx ib [ia Ga] IIC T* Gb — 5437QF01, 5825QF01 and 6437QF01 Entity;

Ui = 30 VDC, li = 120 mA, Pi = 900 mW, Ci = 1.0 nF, Li = 0	
* T-code	Ta range
T4	-50°C to 85°C
T5	-50°C to 70°C
T6	-50°C to 55°C

Ui = 30 VDC, li = 100 mA, Pi = 750 mW, Ci = 1.0 nF, Li = 0	
* T-code	Ta range
T4	-50°C to 85°C
T5	-50°C to 75°C
T6	-50°C to 60°C

NI / I / 2 / ABCD / T** — 5437QF01, 5825QF01 and 6437QF01 NIFW

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US Certificate Of Conformity No: FM16US0287X

AEx nA IIC T** Gc

Vmax	** T-code	Ta range
37VDC	T4	-50°C to 85°C
37VDC	T5	-50°C to 70°C
37VDC	T6	-50°C to 55°C
30VDC	T4	-50°C to 85°C
30VDC	T5	-50°C to 75°C
30VDC	T6	-50°C to 60°C

Entity and nonincendive field wiring parameters:

Vmax, Ui = 30 VDC, li = 120 mA, Pi = 900 mW, Ci = 1.0 nF, Li = 0uH or
Vmax, Ui = 30 VDC, li = 100 mA, Pi = 750 mW, Ci = 1.0 nF, Li = 0uH

All Sensor terminal output parameters:

Uo = 7.2 VDC, Io = 12.9 mA, Po = 23.1 mW, Co = 13.5 uF, Lo = 200mH

Head Mount: Terminal X3, X4, X5, X6 or Terminal X3, X7, X8, X9 or

DIN Rail Mount: Terminal 41, 42, 43, 44 or Terminal 51, 52, 53, 54

Uo = 7.2 VDC, Io = 7.3 mA, Po = 13.2 mW, Co = 13.5 uF, Lo = 667mH

a = 4 (2-wire TC), 1 (2-wire universal), 5 (2-wire HART® 5), 7 (2-wire HART® 5 and 7)

b = A (NI) or D (IS)

c = M (Marine) or Blank

d = 1 (single input – 4W) or 2 (dual input – 7W) or 3 (two single channels)

e = S (SIL) or Blank (No SIL)

13. Specific Conditions of Use:

1. The transmitter must be installed in an enclosure providing a degree of protection of at least IP54 according to IEC60529 that is suitable for the application and is correctly installed. Cable entry devices and blanking elements shall fulfill the same requirements.
2. If the enclosure is made of non-metallic materials or of painted metal, electrostatic charging shall be avoided.
3. Temperature classes and ambient temperature ranges are as identified in the certificate and manufacturer's installation instructions.

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.

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Member of the FM Global Group

US Certificate Of Conformity No: FM16US0287X

16. Certificate History

Details of the supplements to this certificate are described below:

Date	Description
2 nd February 2018	Original Issue.
6 th March 2018	<u>Supplement 1:</u> Report Reference: RR213101 dated 6 th March 2018. Description of the Change: Addition of rack-mount version 643abcde.
2 nd November 2018	<u>Supplement 2:</u> Report Reference: RR215676 dated 2 nd November 2018. Description of the Change: Update of motherboard. Addition of 2 channel motherboard. Correction of typographic error in Equipment ratings, "Nonincendive for Class II" changed to "Nonincendive for Class I". Update Standards: FM3600:2011 to 2018, FM3610:2015 to 2018 and FM3810:2005 to 2018.
15 th October 2019	<u>Supplement 3:</u> Report Reference: RR220775 dated 15 th October 2019. Description of the Change: 1) Main PCB updates. 2) Addition of programming connector for 5825 3) 6437 PCB update 4) Additional Ex sensor data output parameters added.

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CERTIFICATE OF CONFORMITY



- HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**
- Certificate No:** FM16CA0146X
- Equipment:** 543abcde, 5825-3abcde and 643abcde
(Type Reference and Name) Temperature Transmitters
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CSA-C22.2 No. 213-M1987:R2013,
CAN/CSA-C22.2 No. 61010-1:2012, CAN/CSA-C22.2 No. 60079-0:2015,
CAN/CSA-C22.2 No. 60079-11:2014, CAN/CSA-C22.2 No. 60079-15:2016
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Ex nA IIC T** Gc

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