

CERTIFICATE OF CONFORMITY

1. HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS

2. **Certificate No:** FM25US0051X

3. **Equipment:** 5450 Series Temperature Transmitters
(Type Reference and Name)

4. **Name of Listing Company:** PR electronics A/S

5. **Address of Listing Company:** Lerbakken 10, DK-8410 Ronde, Denmark

6. The examination and test results are recorded in confidential report number:

PR468549 dated 7 April 2025

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

FM 3600:2022, FM 3610:2021, FM 3611:2021, FM 3810:2021, ANSI/UL 60079-0:2020, ANSI/UL 60079-7:2021, ANSI/UL 60079-11:2018, ANSI/UL 61010-1:2019, ANSI/UL 121201:2021

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.

10. **Equipment Ratings:**

See Annex

11. The marking of the equipment shall include:

See Annex

12. **Description of Equipment:**

General - The 5450 series of transmitters are all temperature transmitters, but with a different number of sensor inputs. They are loop-powered two wire devices converting one or two temperature sensor or other types of signals to a Profibus® signal.

Certificate issued by:



J.E. Marquedant
VP, Manager - Electrical Systems

7 April 2025

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. One Technology Way, Norwood, MA 02062 USA

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SCHEDULE

US Certificate of Conformity No: FM25US0051X

The transmitters are galvanic isolated between sensor(input) and supply(output).

The dedicated extension port 'EXT' (8-pin-header hidden under a small plastic lid) provides Intrinsically Safe outputs to different types of auxiliary equipment, predefined by PR Electronics A/S.

Operation Temperature Ranges:

See Annex

Electrical data:

See Annex

13. Specific Conditions of Use:

See Annex

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
7 April 2025	Original Issue.

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SCHEDULE

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FM Approvals

ANNEX

5450Abcdef Temperature Transmitter

Equipment Ratings:

Nonincendive for Class I, Division 2, Groups ABCD, T6...T4

Increased Safety protection for Class I, Zone 2, AEx ec IIC T6...T4 Gc

Intrinsically Safe for Class I, Zone 2, AEx ic IIC T6...T4 Gc installed in accordance with Control Drawing 5450QF01

Markings:

Class I, Division 2, Groups ABCD, T6...T4

Class I, Zone 2, AEx ec IIC T6...T4 Gc

Class I, Zone 2, AEx ic IIC T6...T4 Gc

Description of Equipment:

Operation Temperature Ranges:

Class I, DIV 2, ABCD or AEx ec / Ex ec	AEx ic / Ex ic	FISCO Field Device
Temperature Range T4: -40 to +85°C T5: -40 to +80°C T6: -40 to +65°C	Temperature Range T4: -40 to +85°C T5: -40 to +85°C T6: -40 to +70°C	Temperature Range T4: -40 to +85°C T5: -40 to +85°C T6: -40 to +74°C

Electrical Parameters:

Loop input Terminal 1,2 parameter limits		
Terminal 1,2 Class I, DIV 2, ABCD or AEx ec / Ex ec	Terminal 1,2 AEx ic / Ex ic	Terminal 1,2 (FISCO Field Device)
V _{max} = 30 VDC I _n = 11 mA	U _i : 30 VDC I _i : 380mA L _i : 0 µH C _i : 1 nF P _i : Any	U _i : 17.5 VDC I _i : 380mA L _i : 0 µH C _i : 1 nF P _i : Any

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Terminal Ex ec	Terminal Ex ic	
3, 4, 5, 6, 7, 8, 9	3, 4, 5, 6 3, 7, 8, 9	3, 4, 5, 6, 7, 8, 9
Vmax = 7.2 VDC	Uo: 7.2 VDC Io: 7.3 mA Po: 13.2 mW Lo: 667 mH Co: 13.324 µF	Uo: 7.2 VDC Io: 12.9 mA Po: 23.3 mW Lo: 200 mH Co: 13.324 µF

Model Code:

b = 1: Single input (4-wire) or 2: dual input (7 wire)

c = P: Profibus PA

d = -: Reserved

e = -: Reserved

f = M: Marine or -: none

Specific Conditions of Use:

For Class I, Division 2 (Nonincendive)

1. The equipment shall be mounted within a tool-secured enclosure which is capable of accepting one or more of the Class I, Division 2 wiring methods specified in the National Electrical Code (ANSI/NFPA 70).

For Class I, Zone 2 (Intrinsic Safety 'ic')

1. The equipment shall be mounted in an enclosure that provides a degree of protection of at least IP20 according to ANSI/IEC 60529, and that is suitable for the application and correctly installed

For Class I, Zone 2 (Increased Safety 'ec')

1. The equipment shall be installed within an enclosure that provides a minimum ingress protection of IP54 in accordance with ANSI/UL 60079-0.
2. The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC 60664-1

5450Dbcdef Temperature Transmitter

Equipment Ratings:

Intrinsically Safe for Class I, Division 1, Groups ABCD, T6...T4 installed in accordance with Control Drawing 5450QF01
Intrinsically Safe for Class I, Zone 0, AEx ia IIC T6...T4 Ga installed in accordance with Control Drawing 5450QF01
Intrinsically Safe for Class I, Zone 1, with Intrinsically Safe output to Zone 0, AEx ib [ia Ga] IIC T6...T4 Gb installed in accordance with Control Drawing 5450QF01

Markings:

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IS Class I, Division 1, Groups ABCD, T6...T4

Class I, Zone 0, AEx ia IIC T6...T4 Ga

Class I, Zone 1, AEx ib [ia Ga] IIC T6...T4 Gb

Description of Equipment:

Operation Temperature Ranges:

DIV1, ABCD or AEx ia, AEx ib or Ex ia, Ex ib Field Device	FISCO Field Device
Temperature Range T4: -40 to +85°C T5: -40 to +73°C T6: -40 to +58°C	Temperature Range T4: -40 to +85°C T5: -40 to +82°C T6: -40 to +67°C

Electrical Parameters:

Loop input Terminal 1,2 parameter limits	
DIV1, ABCD or AEx ia, AEx ib or Ex ia, Ex ib Field Device	FISCO Field Device
Ui: 30 VDC Ii: 380 mA Li: 0 μ H Ci: 1 nF Pi: Any	Ui: 17.5 VDC Ii: 380 mA Li: 0 μ H Ci: 1 nF Pi: Any

	Sensor Terminal parameter limits		
	3, 4, 5, 6	3, 7, 8, 9	3, 4, 5, 6, 7, 8, 9
Uo	7.2 VDC	7.2 VDC	7.2 VDC
Io:	7.3 mA	7.3 mA	12.9 mA
Po:	13.2 mW	13.2 mW	23.3 mW
Lo:	667 mH	667 mH	200 mH
Co:	13.324 μ F	13.324 μ F	13.324 μ F

Model Code:

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b = 1: Single input (4-wire) or 2: dual input (7 wire)

c = P: Profibus PA

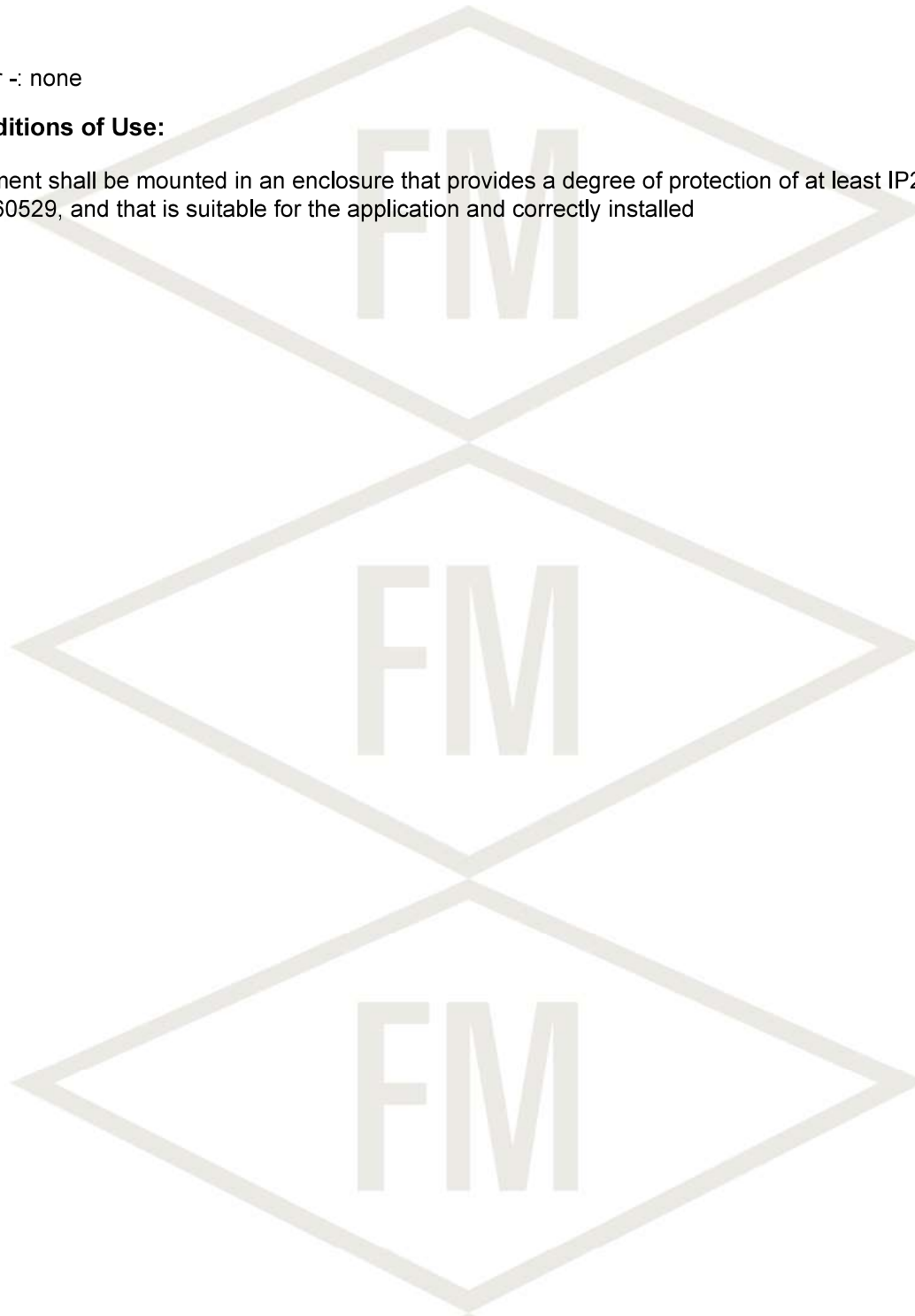
d = -: Reserved

e = -: Reserved

f = M: Marine or -: none

Specific Conditions of Use:

1. The equipment shall be mounted in an enclosure that provides a degree of protection of at least IP20 according to ANSI/IEC 60529, and that is suitable for the application and correctly installed



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CERTIFICATE OF CONFORMITY

1. HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS

2. **Certificate No:** FM25CA0022X
3. **Equipment:** 5450 Series Temperature Transmitters
(Type Reference and Name)
4. **Name of Listing Company:** PR electronics A/S
5. **Address of Listing Company:** Lerbakken 10, DK-8410 Ronde, Denmark

6. The examination and test results are recorded in confidential report number:

PR468549 dated 7 April 2025

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

CSA C22.2 No. 213:2021, CSA C22.2 No. 60079-0:2019, CSA C22.2 No. 60079-7:2018,
CSA C22.2 No. 60079-11:2014 (R2018), CSA C22.2 No. 61010-1:2019

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.

10. **Equipment Ratings:**

See Annex

11. The marking of the equipment shall include:

See Annex

12. **Description of Equipment:**

General - The 5450 series of transmitters are all temperature transmitters, but with a different number of sensor inputs. They are loop-powered two wire devices converting one or two temperature sensor or other types of signals to a Profibus® signal.

Certificate issued by:



J.E. Marquedant
VP, Manager - Electrical Systems

7 April 2025

Date

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The transmitters are galvanic isolated between sensor(input) and supply(output).

The dedicated extension port 'EXT' (8-pin-header hidden under a small plastic lid) provides Intrinsically Safe outputs to different types of auxiliary equipment, predefined by PR Electronics A/S.

Operation Temperature Ranges:

See Annex

Electrical data:

See Annex

13. Specific Conditions of Use:

See Annex

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
7 April 2025	Original Issue.

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ANNEX

5450Abcdef Temperature Transmitter

Equipment Ratings:

Nonincendive for Class I, Division 2, Groups ABCD, T6...T4

Increased Safety protection for Class I, Zone 2, Ex ec IIC T6...T4 Gc

Intrinsically Safe for Class I, Zone 2, Ex ic IIC T6...T4 Gc installed in accordance with Control Drawing 5450QF01

Markings:

Class I, Division 2, Groups ABCD, T6...T4

Ex ec IIC T6...T4 Gc

Ex ic IIC T6...T4 Gc

Description of Equipment:

Operation Temperature Ranges:

Class I, DIV 2, ABCD or AEx ec / Ex ec	AEx ic / Ex ic	FISCO Field Device
Temperature Range T4: -40 to +85°C T5: -40 to +80°C T6: -40 to +65°C	Temperature Range T4: -40 to +85°C T5: -40 to +85°C T6: -40 to +70°C	Temperature Range T4: -40 to +85°C T5: -40 to +85°C T6: -40 to +74°C

Electrical Parameters:

Loop input Terminal 1,2 parameter limits		
Terminal 1,2 Class I, DIV 2, ABCD or AEx ec / Ex ec	Terminal 1,2 AEx ic / Ex ic	Terminal 1,2 (FISCO Field Device)
V _{max} = 30 VDC I _n = 11 mA	U _i : 30 VDC I _i : 380mA L _i : 0 µH C _i : 1 nF P _i : Any	U _i : 17.5 VDC I _i : 380mA L _i : 0 µH C _i : 1 nF P _i : Any

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Terminal Ex ec	Terminal Ex ic	
3, 4, 5, 6, 7, 8, 9	3, 4, 5, 6 3, 7, 8, 9	3, 4, 5, 6, 7, 8, 9
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Model Code:

b = 1: Single input (4-wire) or 2: dual input (7 wire)

c = P: Profibus PA

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Specific Conditions of Use:

For Class I, Division 2 (Nonincendive)

1. The equipment shall be mounted within a tool-secured enclosure which is capable of accepting one or more of the Class I, Division 2 wiring methods specified in the Canadian Electrical Code (CSA C22.1).

For Class I, Zone 2 (Intrinsic Safety 'ic')

1. The equipment shall be mounted in an enclosure that provides a degree of protection of at least IP20 according to CSA C22.2 No. 60529, and that is suitable for the application and correctly installed

For Class I, Zone 2 (Increased Safety 'ec')

1. The equipment shall be installed within an enclosure that provides a minimum ingress protection of IP54 in accordance with CSA C22.2 No. 60079-0.
2. The equipment shall only be used in an area of at least pollution degree 2, as defined in IEC 60664-1

5450Dbcdef Temperature Transmitter

Equipment Ratings:

Intrinsically Safe for Class I, Division 1, Groups ABCD, T6...T4 installed in accordance with Control Drawing 5450QF01

Intrinsically Safe for Class I, Zone 0, Ex ia IIC T6...T4 Ga installed in accordance with Control Drawing 5450QF01

Intrinsically Safe for Class I, Zone 1, with Intrinsically Safe output to Zone 0, Ex ib [ia Ga] IIC T6...T4 Gb installed in accordance with Control Drawing 5450QF01

Markings:

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IS Class I, Division 1, Groups ABCD, T6...T4

Ex ia IIC T6...T4 Ga

Ex ib [ia Ga] IIC T6...T4 Gb

Description of Equipment:

Operation Temperature Ranges:

DIV1, ABCD or AEx ia, AEx ib or Ex ia, Ex ib Field Device	FISCO Field Device
Temperature Range T4: -40 to +85°C T5: -40 to +73°C T6: -40 to +58°C	Temperature Range T4: -40 to +85°C T5: -40 to +82°C T6: -40 to +67°C

Electrical Parameters:

Loop input Terminal 1,2 parameter limits	
DIV1, ABCD or AEx ia, AEx ib or Ex ia, Ex ib Field Device	FISCO Field Device
Ui: 30 VDC Ii: 380 mA Li: 0 μ H Ci: 1 nF Pi: Any	Ui: 17.5 VDC Ii: 380 mA Li: 0 μ H Ci: 1 nF Pi: Any

	Sensor Terminal parameter limits		
	3, 4, 5, 6	3, 7, 8, 9	3, 4, 5, 6, 7, 8, 9
Uo	7.2 VDC	7.2 VDC	7.2 VDC
Io:	7.3 mA	7.3 mA	12.9 mA
Po:	13.2 mW	13.2 mW	23.3 mW
Lo:	667 mH	667 mH	200 mH
Co:	13.324 μ F	13.324 μ F	13.324 μ F

Model Code:

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b = 1: Single input (4-wire) or 2: dual input (7 wire)

c = P: Profibus PA

d = -: Reserved

e = -: Reserved

f = M: Marine or -: none

Specific Conditions of Use:

1. The equipment shall be mounted in an enclosure that provides a degree of protection of at least IP20 according to CSA C22.2 No. 60529, and that is suitable for the application and correctly installed



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