CERTIFICATE OF CONFORMITY

FM Approvals

1. **HAZARDOUS (CLASSIFIED) LOCATION ELECTRICAL EQUIPMENT PER US REQUIREMENTS**
2. **Certificate No:** **FM24US0225X**
3. **Equipment:**
   (Type Reference and Name) **79, 83, and 84 RTD / Thermocouple Assemblies**
4. **Name of Listing Company:** **United Electric Controls Co**
5. **Address of Listing Company:** **180 Dexter Ave, Watertown, Massachusetts 02172, United States of America**
6. The examination and test results are recorded in confidential report number:

   PR466472 dated 23 September 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 3615:2022, FM 3616:2022, FM 3810:2021, ANSI/UL 50E:2015, ANSI/IEC 60529:2020, ANSI/UL 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:**

    The Style 79, 83, and 84 Series Temperature Sensor assemblies are industrial temperature sensors housed within an explosionproof enclosure (herein referred to as a Terminal head). The temperature sensors either use

Certificate issued by:

J.E. Marquedant
VP, Manager - Electrical Systems

23 September 2025
Date

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

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thermocouple measurement or resistance thermometer detection (RTD) measurement. The temperature sensor probes are 3/16 inch or ¼ inch diameter. The thermocouple sensor probes are filled with MI material and the RTD sensor probes are powder filled and all are capped with epoxy resin cement. The Style 79, 83, and 84 Series Temperature Sensors are available in a variety of sensor configurations. The sensor configurations include various length thermocouples or RTD's, including fixed type (remote flexible type or straight type) or spring type sensor probes (with optional integral union for ease of connection / disconnection) design / constructions. These sensors are housed within single compartment terminal head enclosure.

The terminal head enclosure houses the Style 79, 83, and 84 Series Temperature Sensors. The terminal head enclosures are available as a two-piece cast aluminum housing or two piece cast stainless steel housing. The terminal head housing contains a Style 79, 83, or 84 Series Temperature Sensor and terminal block for field wiring connection. The terminal head enclosure is provided with a single field wiring entry. The entry is sized: ½ inch NPT, or ¾ inch NPT depending on order. Completing the terminal head enclosure is the cover which is threaded onto the main housing and sealed with an O-ring. The effective free volume of the terminal head enclosure with Style 79, 83, and 84 Series Temperature Sensors is approximately 180cm ^{3}.

The Style 79, 83, and 84 Series Temperature Sensors process end (wet end) are constructed of the following connection and sheath materials. The Style 83 Series Temperature Sensors are designed / constructed to always be used / installed with a Thermowell. Styles 79 and 84 require the use of a thermowell for Maximum Working Pressure Rating (MWPR) higher than 7.25psi (50kPa). Thermowell is end user ordered or supplied.

Style / probe type	**Connection Material**	**Sensor Material**
79 RTD / Flexible Sensor Probe	300 Series Stainless Steel	300 Series Stainless Steel
83 Thermocouple / Spring Type Sensor Probe	300 Series Stainless Steel 303 Stainless Steel Carbon Steel	316 Stainless Steel Inconel 600
83 RTD / Spring Type Sensor Probe	300 Series Stainless Steel 303 Stainless Steel Carbon Steel	316 Stainless Steel
84 Thermocouple / Fixed Type Sensor Probe	300 Series Stainless Steel	316 Stainless Steel Inconel 600
84 RTD / Fixed Type Sensor Probe	300 Series Stainless Steel	316 Stainless Steel

Operation Temperature Ranges:
The ambient operating temperature range of the Style 79, 83, and 84 Series temperature assemblies is -40°C… +85°C

Electrical Data:

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The Style 79, 83, and 84 Series temperature sensor assemblies are extra low voltage. Power is less than 1 Watt.

Maximum Working Pressure Rating:
The Style 79, 84 Series Temperature Sensor assemblies, wet end, have a Maximum Working Pressure Rating (MWPR) of 7.25psi (50kPa). The Style 83 Series Temperature Sensor assemblies have no rating (N/A) as these always require the use of a thermowell.

Ingress Protection / Environmental Ratings:
IP66, IP68 (Rated 1 meter for 1 Hour) / Type 4X

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
23 September 2025	Original Issue.

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ANNEX

a-b79cde Remote RTD Sensors

Equipment Ratings:

Explosionproof for use in Class I, Division 1, Groups B, C & D; Dust Ignitionproof for use in Class II, III, Division 1, Groups E, F and G; hazardous (classified) locations, with IP66, IP68 ingress protection and rated indoors/outdoors (Type 4X); with ambient temperature range from -40°C to +85°C.

Markings:

Class I, Division 1, Groups B, C & D
Class II, III, Division 1, Groups E, F and G
Ta = -40°C to +85°C
IP66, IP68, Type 4X

Description of Equipment:

Model Code:
a-b79cde Remote RTD Sensors
a = Customer Specification Number (Optional): Any Four to Eight Digit Numeric Code beginning with "T…". If no Customer Specification Number selected, Part number would start with code (b) Sensor Type
b = Sensor Type (RTD, 100ohm @ 0°C): RTP1 (3 wire), RTP7 (4 wire)
c = Sheath Length (in feet): L# - up to 6 digit numeric value
d = HD82 (1/2 inch NPT Process Connection x ¾ inch NPT Conduit Connection enclosure), None (standard ½ inch NPT x ½ inch NPT connection enclosure)
e = Options Not Affecting Certifications: Any Four Digit Alpha Numeric Code

Specific Conditions of Use:

1. Appropriate cable, glands, and conduit seals need to be suitable for a temperature of 5°C greater than the maximum specified ambient temperature for location where installed.
2. The RTD sensor assemblies require the use of a suitably rated thermowell installed for the end use application if the process pressure rating is higher than 7.25psig.

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a-b83cdefghi RTD Sensors

Equipment Ratings:

Explosionproof for use in Class I, Division 1, Groups B, C & D; Dust Ignitionproof for use in Class II, III, Division 1, Groups E, F and G; hazardous (classified) locations, with IP66, IP68 ingress protection and rated indoors/outdoors (Type 4X); with ambient temperature range from -40°C to +85°C.

Markings:

Class I, Division 1, Groups B, C & D
Class II, III, Division 1, Groups E, F and G
Ta = -40°C to +85°C
IP66, IP68, Type 4X

Description of Equipment:

Model Code:
a-b83cdefghi RTD Sensors
a = Customer Specification Number (Optional): Any Four to Eight Digit Numeric Code beginning with "T…". If no Customer Specification Number selected, Part number would start with code (b) Sensor Type
b = Sensor Type (RTD, 100ohm @ 0°C): RTP1, RTP6, RTP7, RTP1A, RTP1AA, RTP7A, RTP7AA, DRTP1, DRTP6, DRTP7, DRTP1A, DRTP1AA, DRTP7A, DRTP7AA
c = Connection Type: N, NU, NUN, NUNS
d = Sheath Diameter (in inches): 6 (3/16 inch), 7 (1/4 inch)
e = Sheath Material: 3 (316 Stainless Steel)
f = Temperature Range – (Min./Max.): 2 (-45 °C to 482 °C (-50 °F to 900 °F), 3 (-45 °C to 788 °C (-50 °F to 1450 °F), 4 (-196 °C to 260 °C (-321 °F to 500 °F), 5 (-45 °C to 260 °C (-50 °F to 500 °F)
g = Sheath Length (in inches): L# - up to 6 digit numeric value
h = HD82 (1/2 inch NPT Process Connection x ¾ inch NPT Conduit Connection enclosure), None (standard ½ inch NPT x ½ inch NPT connection enclosure)
i = Options Not Affecting Certifications: Any Four Digit Alpha Numeric Code

Specific Conditions of Use:

1. Appropriate cable, glands, and conduit seals need to be suitable for a temperature of 5°C greater than the maximum specified ambient temperature for location where installed.
2. The RTD sensor assemblies require the use of a suitably rated thermowell installed for the end use application.

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a-b83cdefghij Mineral Insulated Thermocouples

Equipment Ratings:

Explosionproof for use in Class I, Division 1, Groups B, C & D; Dust Ignitionproof for use in Class II, III, Division 1, Groups E, F and G; hazardous (classified) locations, with IP66, IP68 ingress protection and rated indoors/outdoors (Type 4X); with ambient temperature range from -40°C to +85°C.

Markings:

Class I, Division 1, Groups B, C & D
Class II, III, Division 1, Groups E, F and G
Ta = -40°C to +85°C
IP66, IP68, Type 4X

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Description of Equipment:

Model Code:
a-b83cdefghij Mineral Insulated Thermocouples
a = Customer Specification Number (Optional): Any Four to Eight Digit Numeric Code beginning with "T…". If no Customer Specification Number selected, Part number would start with code (b) Sensor Type
b = Sensor Type: MI
c = Connection Type: N, NU, NUN, NUNS
d = Sheath Diameter (in inches): 6 (3/16 inch), 7 (1/4 inch)
e = Sheath Material: 3 (316 Stainless Steel), 5 (Inconel 600)
f = Calibration: J, K, T, E, JJ, KK, TT, EE
g = Hot Junction: G (Grounded), U (Ungrounded)
h = Sheath Length (in inches): L# - up to 6 digit numeric value
i = HD82 (1/2 inch NPT Process Connection x ¾ inch NPT Conduit Connection enclosure), None (standard ½ inch NPT x ½ inch NPT connection enclosure)
j = Options Not Affecting Certifications: Any Four Digit Alpha Numeric Code

Specific Conditions of Use:

1. Appropriate cable, glands, and conduit seals need to be suitable for a temperature of 5°C greater than the maximum specified ambient temperature for location where installed.
2. The thermocouple sensor assemblies require the use of a suitably rated thermowell installed for the end use application.

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a-b84cdefgh RTD Sensors

Equipment Ratings:

Explosionproof for use in Class I, Division 1, Groups B, C & D; Dust Ignitionproof for use in Class II, III, Division 1, Groups E, F and G; hazardous (classified) locations, with IP66, IP68 ingress protection and rated indoors/outdoors (Type 4X); with ambient temperature range from -40°C to +85°C.

Markings:

Class I, Division 1, Groups B, C & D
Class II, III, Division 1, Groups E, F and G
Ta = -40°C to +85°C
IP66, IP68, Type 4X

Description of Equipment:

Model Code:
a-b84cdefgh RTD Sensors
a = Customer Specification Number (Optional): Any Four to Eight Digit Numeric Code beginning with "T…". If no Customer Specification Number selected, Part number would start with code (b) Sensor Type

b = Sensor Type (RTD, 100ohm @ 0°C): RTP1, RTP6, RTP7, RTP1A, RTP1AA, RTP7A, RTP7AA, DRTP1, DRTP6, DRTP7, DRTP1A, DRTP1AA, DRTP7A, DRTP7AA
c = Sheath Diameter (in inches): 6 (3/16 inch), 7 (1/4 inch)
d = Sheath Material: 3 (316 Stainless Steel)
e = Temperature Range – (Min./Max.): 2 (-45 °C to 482 °C (-50 °F to 900 °F), 3 (-45 °C to 788 °C (-50 °F to 1450 °F), 4 (-196 °C to 260 °C (-321 °F to 500 °F), 5 (-45 °C to 260 °C (-50 °F to 500 °F)
f = Sheath Length (in inches): L# - up to 6 digit numeric value
g = HD82 (1/2 inch NPT Process Connection x ¾ inch NPT Conduit Connection enclosure), None (standard ½ inch NPT x ½ inch NPT connection enclosure)
h = Options Not Affecting Certifications: Any Four Digit Alpha Numeric Code

Specific Conditions of Use:

1. Appropriate cable, glands, and conduit seals need to be suitable for a temperature of 5°C greater than the maximum specified ambient temperature for location where installed.
2. The RTD sensor assemblies require the use of a suitably rated thermowell installed for the end use application if the process pressure rating is higher than 7.25psig.

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a-b84cdefghi Mineral Insulated Thermocouples

Equipment Ratings:

Explosionproof for use in Class I, Division 1, Groups B, C & D; Dust Ignitionproof for use in Class II, III, Division 1, Groups E, F and G; hazardous (classified) locations, with IP66, IP68 ingress protection and rated indoors/outdoors (Type 4X); with ambient temperature range from -40°C to +85°C.

Markings:

Class I, Division 1, Groups B, C & D
Class II, III, Division 1, Groups E, F and G
Ta = -40°C to +85°C
IP66, IP68, Type 4X

Description of Equipment:

Model Code:
a-b84cdefghi Mineral Insulated Thermocouples
a = Customer Specification Number (Optional): Any Four to Eight Digit Numeric Code beginning with "T…". If no Customer Specification Number selected, Part number would start with code (b) Sensor Type
b = Sensor Type: MI
c = Sheath Diameter (in inches): 6 (3/16 inch), 7 (1/4 inch)
d = Sheath Material: 3 (316 Stainless Steel), 5 (Inconel 600)
e = Calibration: J, K, T, E, JJ, KK, TT, EE
f = Hot Junction: G (Grounded), U (Ungrounded)
g = Sheath Length (in inches): L# - up to 6 digit numeric value

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h = HD82 (1/2 inch NPT Process Connection x ¾ inch NPT Conduit Connection enclosure), None (standard ½ inch NPT x ½ inch NPT connection enclosure)
i = Options Not Affecting Certifications: Any Four Digit Alpha Numeric Code

Specific Conditions of Use:

1. Appropriate cable, glands, and conduit seals need to be suitable for a temperature of 5°C greater than the maximum specified ambient temperature for location where installed.
2. The thermocouple sensor assemblies require the use of a suitably rated thermowell installed for the end use application if the process pressure rating is higher than 7.25psig.

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