



CERTIFICATE OF COMPLIANCE (ISO TYPE 3 CERTIFICATION SYSTEM)

Issued to	JMS Southeast Inc.
Address	105 Temperature Lane Statesville, NC 28677 USA
Project Number	LR1653-1
Product	TC, RTD Sensor Assembly Series 4E (with or without transmitter)
Model Number	4Eabcdeghijk Where: e ... grounding requirements for measuring junction ((options: U, G, I, or X); g ... maximum probe tip temperature (options: A – F); h ... fitting (options S & S__" US & Canadian options W and W__" US Only, No Canadian Certifications) i.....enclosure (options: P, I, J, 8, GA, GS, E are all NEMA 4X and IP66; option: SI: NEMA 4 & IP 66A; option A: no enclosure), j ... transmitter (options: Z, PA, PS, 8D, 8I, 8H, 8N, 3144P, 644, 248, 82, or 300) (Refer to Descriptive Report no. LR1653-1 for the full model nomenclature)
Electrical Ratings	Umax = 60 V dc; Imax = 30 mA SELV or PELV <i>Since the assemblies are divided into groups (Code groups), each group is listed with its electrical rating in the Marking section below.</i> <i>See IOM for process temperature and pressure limits!</i>
Markings	In general, the assemblies and their marking are divided into groups (Code groups) in relation to the applied protection and in principle reads as follows: Code A (i = I or J and j = Z): XP: Class I, Div 1 & 2, Groups BCD, T6/T5/T4; Tamb = -50°C to 70°C / 90°C / 125°C Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #17 S: Class II & III, Div 1 & 2, Groups EFG, T6/T5/T4; Tamb = -50°C to 70°C / 90°C / 125°C Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17 Type 4X, IP 66, Electrical rating: Umax = 60 V dc; Imax = 30 mA SELV or PELV Code B (i = P and j = Z): XP: Class I, Div 1 & 2, Groups BCD, T6/T5; Tamb = -50°C to 70°C / 80°C Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #17 S: Class II & III, Div 1 & 2, Groups EFG, T6/T5; Tamb = -50°C to 70°C / 80°C Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17 Type 4X, IP 66, Electrical rating: Umax = 60 V dc; Imax = 30 mA SELV or PELV



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Markings (cont)

Code C (i = SI and j = Z, 8N, 8H, 8I, 8D, 300, 82, 644, 248):

XP: Class I, Div 1 & 2, Groups BCD, T6; Tamb = -25°C to 40°C

Conditions of Certification: #1, #2, #3, #4, #5, #6, #8, #10, #17

S: Class II & III, Div 1 & 2, Groups EFG, T6; Tamb = -25°C to 40°C

Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

Type 4, IP 66,

Electrical rating by transmitter option:

j = Blank or Z: Umax = 60 V dc; Imax = 30 mA SELV or PELV

j = 8H or 8N: 8 to 36 VDC

j = 8I, 8D, 300: Ui≤30Vgc; li≤130mA; Pi≤0.8W; Ci=0.57nF; Li=160mH, Uo=6.5V;
 Io=17.8mA; Po=29mW; Co=1.65mF; Lo≤5.0mH

j = 82: Ui/Vmax=24V; li/Imax<250mA; Pi=1.2W; Ci=5nF; Li=10uH, Uo=7.2V,
 Io=25.9mA, Po=46.7mW, Grp AB resp IIC Co=13.5uF/Lo=59mH, Grp C
 resp IIB Co=240uF/Lo=238mH, Grp D resp IIA Co=1000uF/Lo=477mH

j = 248: Vmax = 30 VDC, Imax = 23mA

j = 644: When output option c (Output) = A (HART 4-20mA), Vmax= 42.4 Vdc,
 Imax=23mA, when output option c (Output) = F (Foundation Fieldbus) or W
 (Profibus), Vmax= 32Vdc, Imax= 23mA

Code D (i = I, P, or J and j = 8N or 8H):

XP: Class I, Div 1 & 2, Groups BCD, T6/T5/T4; Tamb = -40°C to 55°C / 70°C / 80°C

Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #17

S: Class II & III, Div 1 & 2, Groups EFG, T6/T5/T4; Tamb = -40°C to 55°C / 70°C / 80°C

Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

Type 4X, IP 66, Electrical rating: 8 to 36 VDC

Code E (i = I, J, GA, or GS and j = 8I, 8D, 300):

XP: Class 1, Div 1, Groups BCD, T6/T5/T4; Tamb = -40°C to 56°C / 71°C / 85°C

Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #17

S: Class II & III, Div 2, Groups EFG, T6/T5/T4; Tamb = -40°C to 56°C / 71°C / 85°C

Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

NI: Class I, Div 2, Groups ABCD, T6/T5/T4; Tamb = -40°C to 56°C / 71°C / 85°C

Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

Type 4X, IP 66, Electrical rating: Ui≤30Vgc; li≤130mA; Pi≤0.8W; Ci=0.57nF; Li=160mH,
 Uo=6.5V; Io=17.8mA; Po=29mW; Co=1.65mF; Lo≤5.0mH

Code F (i = P, and j = 8I, 8D, 300):

XP: Class 1, Div 1, Groups BCD, T6/T5/T4; Tamb = -40°C to 56°C / 71°C / 80°C

Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #17

S: Class II & III, Div 2, Groups EFG, T6/T5/T4; Tamb = -40°C to 56°C / 71°C / 80°C

Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

NI: Class I, Div 2, Groups ABCD, T6/T5/T4; Tamb = -40°C to 56°C / 71°C / 80°C

Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17



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Type 4X, IP 66, Electrical rating: $U_i \leq 30V_{gc}$; $I_i \leq 130mA$; $P_i \leq 0.8W$; $C_i = 0.57nF$; $L_i = 160mH$,
 $U_o = 6.5V$; $I_o = 17.8mA$; $P_o = 29mW$; $C_o = 1.65mF$; $L_o \leq 5.0mH$

Code G (i = 8, and j = PA or PS):

S: Class II & III, Div 1 & 2, Groups EFG, T5/T4; $T_{amb} = -20^\circ C$ to $60^\circ C$ / $85^\circ C$
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

NI: Class I, Div 1 & 2, Groups ABCD, T5/T4; $T_{amb} = -40^\circ C$ to $60^\circ C$ / $85^\circ C$
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

Type 4X, IP 66, Electrical rating: $U_i = 30V$, $I_i = 120mA$, $P_i = 0.84W$, $C_i = 2nF$, $L_i = 0$; $U_o = 9.6V$,
 $I_o = 28mA$, $P_o = 67mW$, $C_o = 3.5\mu F$, $L_o = 35mH$

Code H (i = I, P or J and j = 82):

XP: Class 1, Div 1, Groups BCD, T6/T5/T4; $T_{amb} = -50^\circ C$ to $58^\circ C$ / $75^\circ C$ / $80^\circ C$
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #17

S: Class II & III, Div 2, Groups EFG, T6/T5/T4; $T_{amb} = -50^\circ C$ to $58^\circ C$ / $75^\circ C$ / $80^\circ C$
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

NI: Class I, Div 2, Groups ABCD, T6/T5/T4; $T_{amb} = -50^\circ C$ to $58^\circ C$ / $75^\circ C$ / $80^\circ C$
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

Type 4X, IP 66, Electrical rating: $U_i/V_{max} = 24V$; $I_i/I_{max} < 250mA$; $P_i = 1.2W$; $C_i = 5nF$; $L_i = 10\mu H$,
 $U_o = 7.2V$, $I_o = 25.9mA$, $P_o = 46.7mW$, Grp AB resp IIC $C_o = 13.5\mu F/L_o = 59mH$, Grp C resp IIB
 $C_o = 240\mu F/L_o = 238mH$, Grp D resp IIA $C_o = 1000\mu F/L_o = 477mH$

Code I (i = E and j = 3144P):

XP: Class I, Div 1, Groups ABCD, T5; $T_{amb} = -50^\circ C$ to $85^\circ C$
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #14, #17

S: Class II & III, Div 2, Groups EFG, T5; $T_{amb} = -50^\circ C$ to $85^\circ C$
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #14, #17

NI: Class I, Div 2, Groups ABCD, T5; $T_{amb} = -50^\circ C$ to $85^\circ C$
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #14, #17

Type 4X, IP 66, Electrical rating: When output option b = A (HART 4-20mA), $V_{max} = 30 V$,
 $I_{max} = 300 mA$, $P_i = 1 W$, $C_i = 0.023 \mu F$, $L_i = 0$, When output option b = F (Foundation
 Fieldbus) or W (Profibus), $V_{max} = 30 V$, $I_{max} = 300 mA$, $P_i = 1.3 W$, $C_i = 2.1 nF$, $L_i = 0$

Code J (i = E, and j = 644):

XP: Class I, Div 1, Groups BCD, T5; $T_{amb} = -50^\circ C$ to $85^\circ C$
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #15, #17

S: Class II & III, Div 1, Groups EFG, T5; $T_{amb} = -50^\circ C$ to $85^\circ C$
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #15, #17

NI: Class I, Div 2, Groups BCD, T5; $T_{amb} = -50^\circ C$ to $85^\circ C$
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #15, #17

Type 4X, IP 66, Electrical rating: When output option c (Output) = A (HART 4-20mA), $V_{max} = 42.4 V_{dc}$,
 $I_{max} = 23mA$, When output option c (Output) = F (Foundation Fieldbus) or W (Profibus),
 $V_{max} = 32 V_{dc}$, $I_{max} = 23mA$





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Code K (i = GA or GS, and j = 82):

XP: Class 1, Div 1, Groups BCD, T6/T5/T4; Tamb = -40°C to 70°C / 80°C / 85°C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #17

S: Class II & III, Div 1, Groups EFG, T6/T5/T4; Tamb = -40°C to 55°C / 70°C / 55°C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

NI: Class I, Div 2, Groups BCD, T6/T5/T4; Tamb = -40°C to 55°C / 70°C / 85°C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

Type 4X, IP 66, Electrical rating: Ui/Vmax=30V; li/lmax=130mA; Pi=800mW; Ci=0uF;
 Li=0uH, Uo=7.6V, Io=13mA, Po=24.7mW, Grp AB resp IIC Co=10.4uF/Lo=236mH, Grp C
 resp IIB Co=160uF/Lo=946mH, Grp D resp IIA Co=1000uF/Lo=1.893H

Code L (i = I, P or J and j = 248):

XP: Class 1, Div 1, Groups BCD, T6/T5; Tamb = -50°C to 60°C / 80°C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #17

S: Class II & III, Div 2, Groups EFG, T6/T5; Tamb = -50°C to 60°C / 80°C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

NI: Class I, Div 2, Groups ABCD, T6/T5; Tamb = -50°C to 60°C / 80°C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #17

Type 4X, IP 66, Electrical ratings: Vmax= 30 Vdc, Imax= 23mA

Code M (i = E and j = 248):

XP: Class I, Div 1, Groups BCD, T5 Tamb= +85 °C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #16, #17

S: Class II & III, Div 2, Groups EFG, T5; Tamb = -50°C to 85°C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #16, #17

NI: Class I, Div 2, Groups ABCD, T5; Tamb = -50°C to 85°C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #16, #17

Type 4X, IP 66, Electrical ratings: Vmax= 30 Vdc, Imax= 23mA

Code N: (i = A and j = Z)

XP: Class I, Div 1, Groups ****#11, T**#12 Tamb= -**#12 to +**#12 °C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #7, #10, #11, #12, #17

S: Class II & III, Div 2, Groups ****#11, T5; Tamb= -**#12 to +**#12 °C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #11, #12, #17

NI: Class I, Div 2, Groups ****#11, T**#12; Tamb= -**#12 to +**#12 °C
 Conditions of Certification: #1, #2, #3, #4, #5, #6, #9, #10, #11, #12, #13, #17

Type **, IP **, Electrical ratings: **#13 V dc, **#13 mA SELV or PELV





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File
LR1653

Applicable Standards	<p>CSA C22.2 No. 30:20 CSA C22.2 No. 25-17 CSA C22.2 No. 213-17 UL 121201, 9th Edition FM 3600:2018 FM 3615:2018 FM 3616:2011 FM 3611:2018 FM 3810:2018</p>
Factory/Manufacturing Location	<p>JMS Southeast Inc. 105 Temperature Lane Statesville, NC, 28677 USA</p>
Conditions of Certification	<ol style="list-style-type: none"> 1. The TC, RTD Sensor Assembly Series 2E must be either connected to a SELV or PELV system, or directly connected to an apparatus compliant with IEC 60950 series, IEC 610101-1, or equivalent. Product rating is given on the marking plate of each individual assembly as well as in the User's Manual and shall be respected. 2. The assembly is designed for pressure and temperature limits as defined in the User Manual. These values shall not be exceeded. 3. Special attention shall be given to the source of heating the equipment is intended to be attached to, because it can contribute such to elevate the local ambient temperature for the cable. The end user shall read and follow the User's Manual where this concern is given them to attention. 4. The cable glands must be properly selected to suit the final application of the assembly and/or to maintain the protection method marked thereon. 5. A special consideration regarding additional guarding shall be taken for long probes when the equipment is installed such that is in reach of stuff or falling objects. Metal sheath containing thermocouple and/or RTD wires within its thermowell and in particular the connection head should be additionally protected in such a case against impact. 6. The final assembly is considered approved with earlier editions of the standard(s) if the enclosure or cable gland is certified with them. 7. The Sensor Assembly of Class I, Div 1 & 2 permits conduits entries to be added in the field and they must be installed with a seal within 18 inches (0.46 m) of the enclosure. 8. In Class 1, Div. 1, Group B atmospheres all conduit runs must have a sealing fitting (not supplied) within 2 inches (0.05 m) to the enclosure 9. In applications for Class I, Div. 2, and Class II, Div. 1, a certified cable gland, hazardous location rated for the intended application, shall be selected and installed as defined in CEC, Part I (C22.1:21, Section 18) and/or NEC (NFPA 70, Article 500). 10. All threaded joints shall be properly tightened in order to maintain the declared Type 4 or Type 4X ingress protection. 11. In the case when a generic enclosure model is used (different from the listed connection enclosure models), the equipment must be assembled with a certified Class I, Div. 1, or Class II, Div. 1 enclosure, approved to the edition(s) of standard(s) that are, at the time of placing the assembly on the market, currently in use. The enclosure shall be of simple geometry and with a volume < 580 cm³. The final marking of the entire assembly is still the responsibility of the manufacturer JMS Southeast Inc. The final marking of the assembly may differ in terms of the marking of the gas group, which is dictated by the marking of the connection head in use with the particular assembly. The distance of the seal from the cable entry in this housing is dictated by the certificate for this housing, but it must not be further than 18 inches.



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Conditions of Certification

12. The connection head / transmitter defines the ambient temperature range for the TC / RTD sensor assembly. The ambient temperature of the assembly is determined either by the range of ambient temperature assigned to the connection head, or by the service temperature range of non-metallic materials that actively participating in the overall protection assigned to the connection head and the built-in transmitter.
13. Electrical ratings are dependent on the installed transmitter, but not higher than: Umax = 60 V dc; Imax = 30 mA SELV or PELV.
14. Product certification option must include one of the following E5, K5, KB, I5, NA.
15. Enclosure option must include one of the following: J2, J4, J6, J8, R2, R4, D1, D2.
16. Enclosure option must include one of the following with ½" NPT conduit entries only: A, G, H, J, K or U.
17. It is the responsibility of the end user to ensure that the local ambient conditions at the maximum process parameters are in accordance with the ambient conditions given for the assembly model they intend to use.

Statement of Compliance: The product(s)/equipment identified in this Certificate and described in the Certification Report covered under the above referenced project number have been investigated and found to be in compliance with the relevant requirements of the above referenced standard(s). As such, they are eligible to bear the QPS Certification Mark shown below, in accordance with the provisions of QPS's Service Agreement.

IMPORTANT NOTE

In order to maintain integrity of the QPS Mark(s), this certification will be revoked if:

- (1) Compliance with the above-mentioned Standard(s) – including any, informed through QPS Standard Update Notice (QSD 55) issued in future – is not maintained, or
- (2) The product/equipment is modified after certification is granted, without prior written consent from QPS.



Issued By: Rob Kohuch, P. Eng.
 Applus+/QPS Evaluation Services/QPS Europe/3C Test Senior Engineer –
 Hazardous Locations [Ex Products]

Signature:

Date: March 20, 2023



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