

CERTIFICATE OF CONFORMITY



1. **HAZARDOUS LOCATION ELECTRICAL EQUIPMENT PER CANADIAN REQUIREMENTS**

2. **Certificate No:** FM16CA0009X
3. **Equipment:** Series 100, 200 and 300 Connection
(Type Reference and Name) Head and Assemblies

4. **Name of Listing Company:** Burns Engineering Inc.

5. **Address of Listing Company:** 10201 Bren Rd E
Minnetonka MN 55343
United States

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

3051889 dated 11th January 2017

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. 0.4: R2013, CSA-C22.2 No. 0.5: R2012, CAN/CSA-C22.2 No. 60079-0: 2015,
CAN/CSA-C22.2 No. 60079-1: 2011, CAN/CSA 60079-31: 2015
CAN/CSA-C22.2 No. 60529: 2010

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:

Flameproof for Class I, Zone 1, Ex db IIC 80°C...140°C Gb; Dust ignition protection by enclosure "t" for Zone 21, Ex tb IIIC T80°C...T140°C Db, Hazardous Locations, ingress protection IP66, with an ambient temperature rating (See Ambient Temperature and maximum surface temperature detailed in Specific Conditions of Use).

11. The marking of the equipment shall include:

Certificate issued by:

J.E. Marquedant
VP, Manager, Electrical Systems

27 September 2017

Date

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

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FM Approvals LLC, 1151 Boston-Providence Turnpike, Norwood, MA 02062 USA
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Class I, Zone 1, Ex db IIC 80°C...140°C Gb Ta*, IP66
Zone 21, Ex tb IIIC T80°C...T140°C Db Ta*, IP66

*Ambient Temperature ranges detailed in Specific Conditions of Use.

12. Description of Equipment:

Temperature Sensors - The temperature sensors used with the assemblies described are identified by Series 100, Series 200 or Series 300 and are shown schematically within Burns Drawing 18938. All direct immersion "A" or "B" type sensors have a threaded housing to interface with an enclosure / connection head, and is intended for direct immersion applications. All spring-loaded hex fitting "L" type sensors incorporate a threaded housing to interface with an enclosure, various thermowells and extension fittings. Spring-loaded "C", "E", and "K" type sensors incorporate a spring mechanism that enable the sensor to be removed through the enclosure without disconnecting (unthreading) the assembly components.

The Series 100 Temperature Sensors - are thermocouple Types: E, J, K, K3, T or N in single or dual element configurations.

The Series 200 Temperature Sensors - are wire wound three or four wire single element or three wire dual element Platinum RTDs.

The Series 300 Temperature Sensors - are thin-film three or four wire single element or three wire dual element Platinum RTDs.

Connection Heads - The Burns #5 Connection Head was tested and Approved as described in Approval Report 3052763 as flameproof Ex db IIC Gb, and for use in dust as Ex tb IIIC Db with Ingress Protection IP66. The Burns #5 Connection Head is available in aluminum (3A, 5A) or epoxy coated aluminum (3E, 5E). The "3" configuration is the #5 head supplied with a moisture proofing kit applied by the user internal to the head. The XD-I, XD-Iwin, and XD-ILwin (19A and 22A) are CSA approved per certificate # 1717515 as Explosionproof / Flameproof as well as IECEx certified and carry an IECEx Certificate of Conformity of IECEx FTZU 12.0017U as flameproof Ex db IIC Gb and for use in dust as Ex tb IIIC Db, IP68. The PR Electronics model 7501 (75A) Transmitter enclosure is CSA approved as Flameproof per certificate # 70024231.

Temperature Transmitters - Optional temperature transmitters provide a 4 to 20 ma loop output proportional to a temperature input from one of the temperature sensors described above.

Direct Immersion Assemblies - Direct immersion Type "A" and "B" assemblies consist of a temperature sensor described above, a connection head described above and, optionally, a temperature transmitter described above.

Spring Loaded Assemblies (in-Direct Immersion) - Spring loaded hex fitting Type "L" assemblies consist of a temperature sensor described above, a connection head described above, optionally, a temperature transmitter described above. Spring loaded Type "C", "E" and "K" assemblies consist of a temperature sensor described above, a connection head described above and, optionally, a temperature transmitter described above.

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a-b-cd-e-f/ A/-g/hj [k to l]m. Connection Head with Direct Immersion Assembly.

a = Series 100A, 110A, 120A, 200A, 300A, 100B, 110B, 120B, 200B or 300B.

b = Accuracy option 10, 05 or blank.

c = Element lead wire configuration or thermocouple type A, B, C, E, J, K, K3, N or T.

d = Thermocouple configuration D, E, F, G or blank.

e = Connection head 3A, 3E, 5A, 5E, 19A, 22A, 75A, or N

f = Sheath length Specify LLL (12.5 inches, shown as "125") for L<=99.9. Code LLLL for L>99.9 for L>99.9. (L=150" = 1500).

A = Approvals: FMC.

g = Lead wire 'L_', Lead wire length in inches 'Y_', Sheath 'S_', Sheath Diameter 'D_', Sheath Material 'M_' Sheath Finish 'F_' Sheath Certifications 'R_' Sheath Coating 'C_' Sheath Bending 'B_', Compression Fitting FC032, FC132, Lead wire Configuration C01, C10, C20, C22, C23, C24, C30, C54, C60, Lead Wire Termination 'T_' Strain Relief 'F_' and Lead Wire Material Options M01, M02, M03 and M05 not affecting hazardous ratings. Order of CODE use in part number is determined by the manufacturer.

h = Transmitter type: Txx, various head mounted transmitters not affecting the hazardous rating.

j = XMTR calibration blank or M.

k = Min temperature for 4mA output.

l = Max temperature for 20 Ma output.

m = Temperature scale C or F.

Note: Separator character "/" used prior to additional option code details. If no additional options "/" is omitted. Separator character "-" used prior to transmitter related option code details. If no transmitter options "/" is omitted.

ab-c-de-f-g-h-ijklm/A/n/W-o-p-q-r/uv [w to x]y. Connection Head (style C, E & K) with Spring Loaded and Spring Loaded Hex (style L) Thermowell Assembly.

a = Series 100, 200 or 300. (Filler character "-" is optional, ie: 100-K)

b = Sensor style C, E, K or L.

c = Accuracy option 10, 05 or blank.

d = Sensor type A, B, C, E, J, K, K3, N or T.

e = Thermocouple configuration D, E, F, G or blank.

f = Connection head 3A, 3E, 5A, 5E, 19A, 22A, 75A or "N". (19A, 22A, allowed only with L style sensors)

g = Standard Length Extension material type 1A, 2A, 3A, 1B, 2B, 3B, 1C, 2C, 3C, 1D, 2D, 3D (nA and nB allowed with C&K style sensors, nC and nD allowed with L style sensors) or 'N' for no extension.

h = Immersion length Specify LLL (12.5 inches, shown as "125"). Code LLLL for lengths >99.9", 150" = 1500.

i = Thermowell shape: Various codes not affecting Hazardous Ratings.

j = Thermowell type: Various codes not affecting Hazardous Ratings.

k = Thermowell size: Various codes not affecting Hazardous Ratings.

l = Flanged thermowell rating: Various codes not affecting Hazardous Ratings.

m = Thermowell material: Various codes not affecting Hazardous Ratings.

A = Approvals: FMC

n = Extension Option 'E', Length option if other than standard of 3.0 inches. 'EN__', Various Extension type and material options, (codes TA, TB, TC, TD, TE, TN, and/or M01, M02, M03, M05, M06, M09) not affecting hazardous ratings.

o = Lag extension length blank (0.0 in.), T30, T60 or TXX (X.X inches).

p = Various thermowell feature options, not affecting hazardous ratings

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- q = Calibration Options 'C', codes 'I', 'F', and/or 'R', blank if no calibration. Not affecting hazardous ratings
r = lead wire, sheath and Miscellaneous options not affecting hazardous ratings
u = Transmitter Type: Txx, various head mounted transmitters not affecting the hazardous rating. v = XMTR calibration blank or M.
w = Min temperature for 4mA output.
x = Max temperature for 20 mA output.
y = Temperature scale C or F.

Note: Separator character '/' used prior to additional related option code details. If no additional options '/' is omitted. /W is added when any of the thermowell options in this category are selected (codes T, F, E, C, R, Z, or Q), otherwise /W is omitted. These options do not affect hazardous ratings, otherwise blank. Separator character '/' used prior to transmitter related option code details. If no transmitter options '/' is omitted. The thermowell is optional, not required for Flameproof rating.

13. Specific Conditions of Use:

1. Consult the manufacturer if dimensional information on the flameproof joints is necessary.
2. Consult the manufacturer's instructions for the specific information regarding wiring entry number, sizes, position and thread type.
3. Potential electrostatic charging hazard – cleaning of enclosure surfaces should be done with damp cloth.
4. The ambient temperature class and maximum surface temperature for the assembled connection head /enclosure is based on the connection head incorporated into the assembly. See table for temperature ratings for connection head selection.

Connection Head #	Enclosure Description	"Ta" Range	Max. Surface Temp of Enclosure (Gas Atmosphere)	Max. Surface Temp of Enclosure (Zone 21 Dust Atmosphere)
3A	Aluminum enclosure with Waterproofing Kit	-40°C to 100°C	105°C	T105°C
3E	Aluminum enclosure with Waterproofing Kit	-40°C to 100°C	105°C	T105°C
5A	Aluminum enclosure	-40°C to 100°C	105°C	T105°C
5E	Aluminum enclosure	-40°C to 100°C	105°C	T105°C
19A	Aluminum enclosure with LED indicator	-20°C to 75°C	80°C	T80°C
22A	Aluminum enclosure with LCD indicator	-20°C to 75°C	80°C	T80°C
75A	Aluminum enclosure with T75 Transmitter and indicator	-40°C to 85°C	100°C	T100°C

5. Temperature class for probe portion of equipment may be equal to connected process temperature and service temperature limits of the probe used in the installation.
6. Equipment with Connection Head option "N" is to be connected to a suitably certified Ex d IIC / Ex tb IIC connection head.

14. Test and Assessment Procedure and Conditions:

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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
11 th January 2017	Original Issue.
2 nd March 2017	<u>Supplement 1:</u> Report Reference: – RR208304 dated 2 nd March 2017. Description of the Change: Minor updates to equipment listing and documentation updates.
27 th September 2017	<u>Supplement 2:</u> Report Reference: – RR210227 dated 27 th September 2017. Description of the Change: Minor updates to documentation, model code structure, temperature class and ambient temperature ratings, and "Specific Conditions of Use".

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