



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: IECEx FMG 15.0031X Issue No: 3 Certificate history:  
Status: **Current** Issue No. 3 (2017-09-27)  
Date of Issue: **2017-09-27** Page 1 of 6 Issue No. 2 (2017-04-17)  
Applicant: **Burns Engineering Inc.** Issue No. 1 (2017-03-02)  
10201 Bren Road East Issue No. 0 (2017-01-11)  
Minnetonka, MN 55343  
**United States of America**

Equipment: **Connection Head Assemblies**  
*Optional accessory:*

Type of Protection: **Flameproof "db", Protection by Enclosure "tb"**

Marking:  
Ex db IIC 80°C...140°C Gb Ta\*;IP66  
Ex tb IIIC T80°C...T140°C Db Ta\*; IP66

\*Ambient Temperature ranges detailed in Specific Conditions of Use

*Approved for issue on behalf of the IECEx  
Certification Body:*

J. E. Marquedant

*Position:*

VP, Manager, Electrical Systems

*Signature:  
(for printed version)*

*Date:*

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

**FM Approvals LLC**  
1151 Boston-Providence Turnpike  
Norwood, MA 02062  
United States of America





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Manufacturer: Burns Engineering Inc.  
10201 Bren Road East  
Minnetonka, MN 55343  
United States of America

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

## STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

**IEC 60079-0 : 2011** Explosive atmospheres - Part 0: General requirements  
Edition:6.0  
**IEC 60079-1 : 2014-06** Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"  
Edition:7.0  
**IEC 60079-31 : 2013** Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"  
Edition:2

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

## TEST & ASSESSMENT REPORTS:

*A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in*

### Test Report:

US/FMG/ExTR15.0035/00 US/FMG/ExTR15.0035/01 US/FMG/ExTR15.0035/02  
US/FMG/ExTR15.0035/03

### Quality Assessment Report:

GB/FME/QAR15.0004/00 GB/FME/QAR15.0004/01



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

#### ***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, 14S, 19A or 22A, 25A, 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: IEC

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 [x to y]z. Connection Head (style C, E & K) with Spring Loaded and Spring Loaded Hex (style L)***

Thermowell Assembly.

a = Series 100, 200 or 300.

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

c = Accuracy option 10, 05 or blank.



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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, 14S, 19A, 22A, 25A, 75A or "N". (19A, 22A, 25A, 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 A, B, C, D E, F or G. (applies to Thermowell Type 'F' only).

m = Thermowell material: Various codes not affecting Hazardous Ratings

A = Approvals: IEC

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, (codes T, F, E, C, R, Z01, Z02, Z03, Z05, Z08 or Q01, Q02, Q03, Q04, Q05) not affecting hazardous ratings

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..

w = XMTR calibration blank or M.

x = Min temperature for 4mA output.

y = Max temperature for 20 mA output.

z = 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 the Hazardous rating, IEC.

**SPECIFIC CONDITIONS OF USE: YES as shown below:**



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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
14S	Stainless Steel enclosure	-40°C to 80°C	100°C	T100°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
25A	Aluminum enclosure	-20°C to 70°C	140°C	T140°C
75A	Aluminum enclosure with T75 Transmitter and indicator	-40°C to 85°C	100°C	T100°C

5. Equipment with Connection Head option "N" is to be connected to a suitably certified Ex d IIC / Ex tb IIIC connection head.
6. 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.



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**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):**

Minor updates to documentation, model code structure, temperature class and ambient temperature ratings, and "Specific Conditions of Use".