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

Certificate No.: IECEx UL 15.0011U issue No.:1

Certificate history:
Issue No. 1 (2015-10-2)
Issue No. 0 (2015-5-28)

Status: **Current**

Date of Issue: **2015-10-02**

Applicant: **Littelfuse Phillipines, Inc.**
Lima Technology Centre, Special Economic Zone, Lipa City-Malvar, Batangas
Philippines

Electrical Apparatus: **Intrinsic Safety Fuses - 308 Series**
Optional accessory:

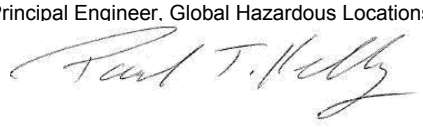
Type of Protection: **Intrinsic Safety "ia"**

Marking: Ex ia IIC

Approved for issue on behalf of the IECEx Certification Body: Paul T. Kelly

Position: Principal Engineer, Global Hazardous Locations

Signature: (for printed version)



Date: 2015-10-02

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.

Certificate issued by:

UL LLC
333 Pfingsten Road
Northbrook IL 60062-2096
United States of America

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Manufacturer: **Littelfuse Phillipines, Inc.**
Lima Technology Centre, Special Economic Zone, Lipa City-Malvar, Batangas
Philippines

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 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2006 Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga

*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/UL/ExTR15.0016/01

Quality Assessment Report:

GB/BAS/QAR10.0018/03

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Schedule

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

The 308 Series fuses are encapsulated fuse assemblies suitable for use in intrinsically safe apparatus and associated apparatus.

Please see Annex for additional details and Schedule of Limitations for Ex Components.

CONDITIONS OF CERTIFICATION: NO

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

Issue 1: Minor construction change to the fuse element used in Part No. 0308001. Updating certificate to include fuse resistance measured at -30°C.

Annex to IECEx UL 15.0011U

The model nomenclature is as follows:

0308	.250	U	R	P
I	II	III	IV	V

I – Series:

0308 or 308 = 308 Series

II – Current Rating (Letter Code)

.250 = 0.250 A rating (D)	01.5 = 1.500 A rating (K)
.375 = 0.375 A rating (E)	1.75 = 1.750 A rating (L)
.500 = 0.500 A rating (F)	002. = 2.000 A rating (N)
.750 = 0.750 A rating (G)	02.5 = 2.500 A rating (O)
001. = 1.000 A rating (H)	003. = 3.000 A rating (P)
1.25 = 1.250 A rating (J)	

III – Quantity Code:

Any alphanumeric character(s) representing number of pieces in packaging

IV – Packaging Code:

Any alphanumeric character(s) representing type of packaging

IV – Lead-Free Code (optional):

P = Lead-free solder

Temperature range(s):

The 308 Series Intrinsic Safety fuses are suitable for use in the following ambient temperature ranges:

Nominal Current Rating, *I*n	Ambient Temperature Range
0.250 A – 3.000 A	-40°C to +70°C

The ambient temperature range limit is based on the application of 1.7 times the nominal current rating, In, of the fuse and temperature rise characteristics of the fuse.

The following surface temperature rise values were measured on encapsulated samples of the components when carrying a current of 1.7 times the nominal current rating, In, of the fuse:

Model	Nominal Current Rating, *I*n	Maximum Surface Temperature Rise
308 Series	0.250A – 0.375 A	23°C
	0.500 A	35°C
	0.750 A	53°C
	1.000 A	38°C
	1.250 A – 1.500 A	96°C
	1.750 A – 2.000A	40°C
	2.500 A – 3.000 A	56°C

Electrical data

The 308 Series Intrinsic Safety Fuses are rated 24 V AC/30 V DC, 50 A AC/DC breaking capacity

These fuses were measured as having the following minimum resistance values at the following temperatures:

Model	Ampere Rating (A)	Resistance (Ω)		
		At -20°C	At -30°C	At -40°C
308 Series	0.250	1.856	1.747	1.821
	0.375	1.022	1.030	1.006
	0.500	0.712	0.682	0.676
	0.750	0.520	0.513	0.511
	1.000	0.226	0.246	0.216
	1.250	0.240	0.313	0.236
	1.500	0.182	0.198	0.144
	1.750	0.071	0.070	0.068
	2.000	0.045	0.067	0.038
	2.500	0.038	0.048	0.036
	3.000	0.032	0.032	0.020

Schedule of Limitations for Ex Components

- A temperature classification is not applied to Ex Components per Annex B, Note 2 of IEC 60079-0. The fuses have been evaluated for use in the following ambient temperature ranges:

Model	Nominal Current Rating, I_n	Ambient Temperature Range
308 Series	0.250 A - 3.000 A	-40°C to +70°C

- Use of the fuses outside of the ambient temperature ranges specified in the table is subject to additional investigation.
- These components have been judged on the basis of spacings in accordance with Table 5 of IEC 60079-11 and are considered suitable for use in circuits with peak voltages not exceeding 30 V.