



# 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 UL 13.0077U issue No.:1  
Status: **Current**  
Date of Issue: **2014-11-20** Page 1 of 4

Certificate history:  
Issue No. 1 (2014-11-20)  
Issue No. 0 (2013-11-25)

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

Electrical Apparatus: **Intrinsic Safety Fuses, 305 and 304 Series**  
*Optional accessory:*

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

Marking: Ex ia IIC

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

Erin LaRocco

*Position:*

Senior Project Engineer

*Signature:  
(for printed version)*

*Date:*

2014-11-20

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:

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





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Manufacturer: **Littelfuse Philippines, 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:

<b>IEC 60079-0 : 2011</b> Edition: 6.0	Explosive atmospheres - Part 0: General requirements
<b>IEC 60079-11 : 2011</b> Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
<b>IEC 60079-26 : 2006</b> 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/ExTR13.0084/00](#)

[US/UL/ExTR13.0084/01](#)

#### 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 304 and 305 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: Addition of 304 Series fuse.

## Annex for IECEx UL 13.0077U Issue 1

The 304 and 305 Series Intrinsic Safety fuses are encapsulated fuse assemblies suitable for use in intrinsically safe apparatus and associated apparatus.

The model nomenclature is as follows:

<u>0305</u>	<u>.050</u>	<u>M</u>	<u>R</u>	<u>P</u>
I	II	III	IV	V

I – Series:

0304 or 304 = 304 Series

0305 or 305 = 305 Series

II – Current Rating

.050 = 0.050 A rating    .200 = 0.200 A rating

.080 = 0.080 A rating    .250 = 0.250 A rating

.100 = 0.100 A rating    .500 = 0.500 A rating

.160 = 0.160 A rating    .750 = 0.750 A rating

III – Quantity Code:

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

IV – Packaging Code (304 Series only):

Any alphanumeric character(s) representing the type of package

V – Lead-Free Code (optional):

P = Lead-free solder

Temperature range(s):

The 304 and 305 Series Intrinsic Safety fuses are suitable for use in the following ambient temperature ranges. The limits are based on the application of 1.7 times the nominal current rating,  $I_n$ , of the fuse, temperature rise characteristics and the maximum operating temperature of the encapsulation:

<u>Cat. No.</u>	<u>Nominal Current Rating, <math>I_n</math></u>	<u>Ambient Temperature Range</u>
305 Series	$\leq 0.200$ A	-40°C to +50°C
	0.250 A	-40°C to +46°C
	0.500 A	-40°C to +74°C
	0.750 A	-40°C to +46°C
304 Series	$\leq 0.200$ A	-40°C to +60°C
	0.250 A	-40°C to +56°C
	0.500 A	-40°C to +84°C
	0.750 A	-40°C to +56°C

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,  $I_n$ , of the fuse:

Model	Nominal Current Rating	Maximum Surface Temperature Rise
305 Series	$\leq 0.200$ A	52°C
	0.250 A	58°C
	0.500 A	30°C
	0.750 A	41°C
304 Series	$\leq 0.200$ A	88°C
	0.250 A	52°C
	0.500 A	52°C
	0.750 A	45°C

### Electrical data

The 304 and 305 Series Fuses are rated 277 V AC/DC, 1500A AC/DC breaking capacity

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

Model	Ampere Rating (A)	Resistance ( $\Omega$ )	
		At -20°C	At -40°C
304 and 305 Series	0.050	9.202	9.010
	0.080	6.031	5.963
	0.100	2.709	2.668
	0.160	2.297	2.292
	0.200	1.935	1.839
	0.250	1.268	1.105
	0.500	0.392	0.368
	0.750	0.219	0.196

### **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:

Cat. No.	Nominal Current Rating, $I_n$	Ambient Temperature Range
305 Series	$\leq 0.200$ A	-40°C to +50°C
	0.250 A	-40°C to +46°C
	0.500 A	-40°C to +74°C
	0.750 A	-40°C to +46°C
304 Series	$\leq 0.200$ A	-40°C to +60°C
	0.250 A	-40°C to +56°C
	0.500 A	-40°C to +84°C
	0.750 A	-40°C to +56°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 375 V based on these separation distances alone.