



# 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 13.0028X issue No.:2  
Status: **Current**  
Date of Issue: **2014-05-14** Page 1 of 4

Certificate history:  
Issue No. 2 (2014-5-14)  
Issue No. 1 (2013-11-16)  
Issue No. 0 (2013-6-7)

Applicant: **Federal Signal Corporation**  
2645 Federal Signal Drive  
University Park, IL 60484  
**United States of America**

Electrical Apparatus: **E1 Series of Industrial intercom**  
*Optional accessory:*

Type of Protection: **Intrinsic Safety "ib"; Flameproof "d"**

Marking: Ex d ib IIB T4 Gb (All models except for E1-JS-EX)  
Ex d [ib] IIB T4 Gb (Model E1-JS-EX)

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

Paul T. Kelly

*Position:*

Principal Engineer, Global Hazardous Locations

*Signature:  
(for printed version)*

*Date:*

2014-05-14

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: **Federal Signal Corporation**  
2645 Federal Signal Drive  
University Park, IL 60484  
**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 : 2007-10** Explosive atmospheres - Part 0: Equipment - General requirements  
Edition: 5

**IEC 60079-1 : 2007-04** Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"  
Edition: 6

**IEC 60079-11 : 2011** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition: 6.0

*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/ExTR13.0026/00](#)

[US/UL/ExTR13.0026/01](#)

[US/UL/ExTR13.0026/02](#)

Quality Assessment Report:

[US/UL/QAR06.0012/06](#)



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## Schedule

### EQUIPMENT:

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

E1 Series of Industrial intercom. Available as microphone, handset or Jack Station model. All models have three M20 openings. Consists of an Ex certified flameproof 'd' enclosure that is provided with a metric threaded opening in the cover for an Ex certified flameproof 'd' line bushing that provides connection between intrinsically safe circuits and input/output power connections. Model E1-JS, Jack Station, must be installed in accordance with Control Drawing 850000218A.

Nomenclature for type:

E1-SM-EX Echo Industrial Intercom with Short Microphone  
E1-GM1-EX Echo Industrial Intercom with 150mm Gooseneck Microphone  
E1-GM2-EX Echo Industrial Intercom with 330mm Gooseneck Microphone  
E1-GM3-EX Echo Industrial Intercom with 480mm Gooseneck Microphone  
E1-HND-EX Echo Industrial Intercom with Handset  
E1-JS-EX Echo Industrial Intercom with Jack Station Connection

### CONDITIONS OF CERTIFICATION: YES as shown below:

- Flamepath joint differs from Table 2 of IEC 60079-1. The enclosure has joint width of 37 mm, maximum allowable gap of 0.038 mm. The distance 'l' of 22.6 mm is measured from the edge of the o-ring groove to the edge of the cover bolt per Figures 3 and 5 of IEC 60079-1.



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

Issue 1: Addition of models E1-HND and E1-JS. Modifications to barrier board layout. Please refer to Annex for additional details on entity parameters for Model E1-JS.

Issue 2: Revised models to have M20 entries, added -EX to model numbers and revision drawings.

## Annex to IECEx UL 13.0028X

Intrinsically safe entity parameters for model E1-JS-EX:

The following intrinsically safe circuit parameters are applicable when connected to an intrinsically safe device complying with the 500V dielectric.

Channel 10,11	$U_o$	6.6 V
	$I_o$	10.53 mA
	$C_o$	500 $\mu$ F
	$L_o$	2.88 mH
	$L_o/R_o$	8.18 mH/ $\Omega$
Channel 12,13	$U_o$	6.6 V
	$I_o$	10.53 mA
	$C_o$	500 $\mu$ F
	$L_o$	2.88 mH
	$L_o/R_o$	8.18 mH/ $\Omega$
Channel 10,11,12,13	$U_o$	6.6 V
	$I_o$	10.53 mA
	$C_o$	500 $\mu$ F
	$L_o$	2.88 mH
	$L_o/R_o$	8.18 mH/ $\Omega$

The following intrinsically safe circuit parameters are applicable when connected to an intrinsically safe device that does not comply with the 500V dielectric requirement.

Channel 10,11	$U_o$	6.6 V
	$I_o$	42.11 mA
	$C_o$	500 $\mu$ F
	$L_o$	0.18 mH
	$L_o/R_o$	2 mH/ $\Omega$
Channel 12,13	$U_o$	6.6 V
	$I_o$	97.8 mA
	$C_o$	500 $\mu$ F
	$L_o$	0.033 mH
	$L_o/R_o$	0.88 mH/ $\Omega$
Channel 10,11,12,13	$U_o$	6.6 V
	$I_o$	139.9 mA
	$C_o$	500 $\mu$ F
	$L_o$	0.016 mH
	$L_o/R_o$	0.616 mH/ $\Omega$