



# 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 BAS 18.0073X

Issue No: 0

Certificate history:

Issue No. 0 (2018-12-12)

Status: **Current**

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Date of Issue: **2018-12-12**

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

Equipment: **P-IS-BARRIER-G**

Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking:

**[Ex ib Gb] IIB**  
**(-20°C ≤ Ta ≤ +55°C)**

Approved for issue on behalf of the IECEx  
Certification Body:

R. S. Sinclair

Position:

Technical Manager

Signature:

(for printed version)

Date:

12-12-18

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:

**SGS Baseefa Limited**  
**Rockhead Business Park**  
**Staden Lane**  
**Buxton, Derbyshire, SK17 9RZ**  
**United Kingdom**





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Certificate No: IECEx BAS 18.0073X Issue No: 0

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Manufacturer: **Federal Signal Corporation**  
2645 Federal Signal Drive  
University Park  
Illinois 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 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 : 2017** Explosive atmospheres - Part 0: Equipment - General requirements

Edition:7.0

**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:

[GB/BAS/ExTR18.0321/00](#)

Quality Assessment Report:

[US/UL/QAR06.0012/09](#)



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## Schedule

### EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The P-IS-BARRIER-G is designed to restrict the transfer of energy from unspecified non-hazardous area equipment to intrinsically safe equipment, such as the Federal Signal Corp. Access Panel Type AP7/AP8, located in a hazardous area through the limitation of voltage and current.

The equipment comprises a number of electronic components, including fuses, resistors and zener diodes, all mounted on a single printed circuit board and housed within a plastic enclosure fitted with terminal blocks and RJ45 sockets. The connection facilities, in addition to be clearly identified, are asymmetrical: external connections for the hazardous area being via a pair of 8-way terminal blocks and connections of the non-hazardous area being via a pair of RJ45 connectors. 2-way terminal block TB1 allows an infallible connection to ground to be made with 1.5mm<sup>2</sup>/16AWG connections.

The segregation of the hazardous area circuits meets the requirements for 253V.

### Input / Output Parameters

#### Connectors J1 & J2

$$U_m = 253V$$

#### Terminal Block TB2 / TB3

Terminals 1, 2, 5, 6, 7, 8 wrt 3

$U_o$	=	8.6V	$C_i$	=	0
$I_o$	=	100mA	$L_i$	=	0
$P_o$	=	215mW			

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the hazardous area load connected to the hazardous area connections of the apparatus must not exceed the following values:

Terminals 1, 2, 5, 6, 7, 8 wrt 3

GROUP	CAPACITANCE ( $\mu$ F)	INDUCTANCE (mH)	OR	L/R RATIO ( $\mu$ H/ohm)
IIB	55	14.22		660
IIA	1000	28.44		1320

The above parameters apply when one of the two conditions below is given:

- the total  $L_i$  of the external circuit (excluding the cable) is < 1% of the  $L_o$  value or
- the total  $C_i$  of the external circuit (excluding the cable) is < 1% of the  $C_o$  value

The above parameters are reduced to 50% when both of the two conditions below are given:

- the total  $L_i$  of the external circuit (excluding the cable)  $\geq$  1% of the  $L_o$  value and
- the total  $C_i$  of the external circuit (excluding the cable)  $\geq$  1% of the  $C_o$  value.



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Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIA & IIB

### Terminal Block TB2 / TB3

Terminal 4 wrt 3

$U_o$	=	15.02V	$C_i$	=	0
$I_o$	=	309mA	$L_i$	=	0
$P_o$	=	1.16W			

The capacitance and either the inductance or inductance to resistance ratio (L/R) of the hazardous area load connected to the hazardous area connections of the apparatus must not exceed the following values:

Terminal 4 wrt 3

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIB	3.55	2.97		119
IIA	14.0	4.88		238

The above parameters apply when one of the two conditions below is given:

- the total  $L_i$  of the external circuit (excluding the cable) is < 1% of the  $L_o$  value or
- the total  $C_i$  of the external circuit (excluding the cable) is < 1% of the  $C_o$  value.

The above parameters are reduced to 50% when both of the two conditions below are given:

- the total  $L_i$  of the external circuit (excluding the cable)  $\geq$  1% of the  $L_o$  value and
- the total  $C_i$  of the external circuit (excluding the cable)  $\geq$  1% of the  $C_o$  value.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1µF for Groups IIA & IIB

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

1. The equipment must be installed in an enclosure which affords it a degree of protection of at least IP20.
2. The equipment must be infallibly connected to a suitable intrinsically safe earth via Terminal Block TB1 (1.5mm<sup>2</sup>/16AWG x2).