



# 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 08.0079

Issue No: 0

Certificate history:

Status: **Current**

Issue No. 4 (2015-04-28)

Issue No. 3 (2012-09-10)

Date of Issue: **2008-09-10**

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Issue No. 2 (2012-05-24)

Issue No. 1 (2010-01-20)

Issue No. 0 (2008-09-10)

Applicant: **Pepperl + Fuchs GmbH**  
68301 Mannheim  
**Germany**

Equipment: **Smart Fire Detector Isolator Type KFD0-CS-Ex\*.54**  
*Optional accessory:*

Type of Protection: **Intrinsic Safety**

Marking: [Zone 0] [Ex ia] IIC  
[Ex iaD]  
[Ex ia] I

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

R S Sinclair

*Position:*

Managing Director

*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:

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





# IECEX Certificate of Conformity

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Manufacturer: **Pepperl + Fuchs GmbH**  
68301 Mannheim  
Germany

Additional Manufacturing location(s):

**Pepperl + Fuchs (Manufacturing) PTE LTD**  
18 Ayer Rajah Crescent  
Singapore 139942  
Singapore

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 : 2004</b> Edition:4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
<b>IEC 60079-11 : 2006</b> Edition:5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
<b>IEC 60079-26 : 2004</b> Edition:1	Electrical apparatus for explosive gas atmospheres - Part 26: Construction, test and marking of Group II Zone 0 electrical apparatus
<b>IEC 61241-11 : 2005</b> Edition:1	Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'iD'

*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/ExTR08.0169/00](#)

Quality Assessment Report:

[DE/PTB/QAR06.0007/01](#)

[DE/PTB/QAR06.0008/01](#)



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## Schedule

### EQUIPMENT:

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

The Smart Fire Detector Isolator Type KFD0-CS-Ex\*.54 is designed to provide a single or dual channel galvanically isolated interface to enable the connection of apparatus located in a hazardous area with apparatus located in a non-hazardous area by providing galvanic isolation and limiting the voltage and current into the hazardous area to intrinsically safe levels.

The Smart Fire Detector Isolator Type KFD0-CS-Ex\*.54 comprises a number of electrical components, including two isolating transformers, fuses, resistors and zener diodes all mounted onto a single printed circuit board (PCB) and housed within a plastic enclosure.

#### **28V 93mA 0.653W variants**

Smart Fire Detector Isolator Type KFD0-CS-Ex1.54

Smart Fire Detector Isolator Type KFD0-CS-Ex2.54

Smart Fire Detector Isolator Type KFD0-CS-Ex1.54 with part number Y207411

Smart Fire Detector Isolator Type KFD0-CS-Ex2.54 with part number Y207412

#### **25.2V 43mA 271mW variants**

Smart Fire Detector Isolator Type KFD0-CS-Ex1.54-Y72221


Smart Fire Detector Isolator Type KFD0-CS-Ex2.54-Y72222

See Annex for electrical data.

**SPECIFIC CONDITIONS OF USE: NO**

### Annex:

[IECEX BAS 08.0079 ANNEX.pdf](#)

<b>Baseefa</b> Rockhead Business Park Staden lane, Buxton, Derbyshire SK17 9RZ United Kingdom		
ANNEX to IECEx BAS 08.0079	Issue No. 0	Date: 2008/09/10

**Apparatus supply and input/output parameters**

**KFD0-CS-Ex2.54 and KFD0-CS-Ex2.54 with part number Y207412 - Dual Channel**

Non-hazardous Area Terminals

(Terminals 11 & 12 and terminals 8, 9 & 10)

$$U_m = 253V$$

The apparatus is designed to operate from a d.c. supply of up to 40V on the above terminals.

Hazardous Area Terminals

(Terminals 1 w.r.t. 2 and 4 w.r.t. 5)

$$\begin{array}{ll}
 U_o = 28V & C_i = 5.64nF \\
 I_o = 93mA & L_i = 0 \\
 P_o = 653mW &
 \end{array}$$

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

Hazardous Area Terminals

(Terminals 1 w.r.t. 2 and 4 w.r.t. 5)

GROUP	CAPACITANCE ( $\mu F$ )	INDUCTANCE (mH)	OR	L/R RATIO ( $\mu H/ohm$ )
IIC	0.077	4.3		55
IIB	0.64	17		199
IIA	2.14	35		431
I	3.39	51		671

Note: The above load parameters apply where:

1. The external circuit contains no combined lumped inductance  $L_i$  and capacitance  $C_i$  greater than 1% of the above values
- or 2. The inductance and capacitance are distributed as in a cable.
- or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance or lumped capacitance, up to 50% of each of the L and C values is allowed.

**KFD0-CS-Ex1.54 and KFD0-CS-Ex1.54 with part number Y207411 - Single Channel**

Non-hazardous Area Terminals

(Terminals 11 & 12)

$$U_m = 253V$$

The apparatus is designed to operate from a d.c. supply of up to 40V on the above terminals.

Hazardous Area Terminals

(Terminals 1 w.r.t. 2)

$$\begin{array}{lcl} U_o & = & 28V \\ I_o & = & 93mA \\ P_o & = & 653mW \end{array} \quad \begin{array}{lcl} C_i & = & 5.64nF \\ L_i & = & 0 \end{array}$$

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

Hazardous Area Terminals

(Terminal 1 w.r.t. 2)

<b>GROUP</b>	<b>CAPACITANCE (<math>\mu</math>F)</b>	<b>INDUCTANCE (mH)</b>	<b>OR</b>	<b>L/R RATIO (<math>\mu</math>H/ohm)</b>
IIC	0.077	4.3		55
IIB	0.64	17		199
IIA	2.14	35		431
I	3.39	51		671

Note: The above load parameters apply where:

- 1 The external circuit contains no combined lumped inductance  $L_i$  and capacitance  $C_i$  greater than 1% of the above values
- or 2. The inductance and capacitance are distributed as in a cable.
- or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance or lumped capacitance, up to 50% of each of the L and C values is allowed.

## KFD0-CS-Ex2.54-Y72222 – Dual Channel

### Non-hazardous Area Terminals

(Terminals 11 & 12 and terminals 8, 9 & 10)

$$U_m = 253V$$

The apparatus is designed to operate from a d.c. supply of up to 40V on the above terminals.

### Hazardous Area Terminals

(Terminals 1 w.r.t. 2 and 4 w.r.t. 5)

$$\begin{array}{lcl} U_o & = & 25.2V \\ I_o & = & 43mA \\ P_o & = & 271mW \end{array} \quad \begin{array}{lcl} C_i & = & 5.64nF \\ L_i & = & 0 \end{array}$$

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

### Hazardous Area Terminals

(Terminals 1 w.r.t. 2 and 4 w.r.t. 5)

<b>GROUP</b>	<b>CAPACITANCE (<math>\mu</math>F)</b>	<b>INDUCTANCE (mH)</b>	<b>OR</b>	<b>L/R RATIO (<math>\mu</math>H/ohm)</b>
IIC	0.101	19.6		138
IIB	0.81	72		508
IIA	2.89	153		964
I	4.14	233		1452

Note: The above load parameters apply where:

- 1 The external circuit contains no combined lumped inductance  $L_i$  and capacitance  $C_i$  greater than 1% of the above values
- or 2. The inductance and capacitance are distributed as in a cable.
- or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance or lumped capacitance, up to 50% of each of the L and C values is allowed.

## KFD0-CS-Ex1.54-Y72221 – Single Channel

### Non-hazardous Area Terminals

(terminals 11 & 12)

$$U_m = 253V$$

The apparatus is designed to operate from a d.c. supply of up to 40V on the above terminals.

### Hazardous Area Terminals

(Terminal 1 w.r.t. 2)

$$\begin{array}{ll} U_o = 25.2V & C_i = 5.64nF \\ I_o = 43mA & L_i = 0 \\ P_o = 271mW \end{array}$$

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

### Hazardous Area Terminals

(Terminal 1 w.r.t. 2)

<b>GROUP</b>	<b>CAPACITANCE (<math>\mu</math>F)</b>	<b>INDUCTANCE (mH)</b>	<b>OR</b>	<b>L/R RATIO (<math>\mu</math>H/ohm)</b>
IIC	0.101	19.6		138
IIB	0.81	72		508
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I	4.14	233		1452

Note: The above load parameters apply where:

- 1 The external circuit contains no combined lumped inductance  $L_i$  and capacitance  $C_i$  greater than 1% of the above values
- or 2. The inductance and capacitance are distributed as in a cable.
- or 3. The external circuit contains either only lumped inductance or lumped capacitance in combination with a cable.

In all other situations e.g. the external circuit contains combined lumped inductance or lumped capacitance, up to 50% of each of the L and C values is allowed.