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 BAS 08.0079	Issue No: 4	Certificate history:
			Issue No. 4 (2015-04-28)
Status:	**Current**	Page 1 of 4	Issue No. 3 (2012-09-10)
			Issue No. 2 (2012-05-24)
Date of Issue:	**2015-04-28**		Issue No. 1 (2010-01-20)
			Issue No. 0 (2008-09-10)
Applicant:	**Pepperl + Fuchs GmbH** Lilienthalstrasse 200 68307 Mannheim **Germany**		
Electrical Apparatus:	**Smart Fire Detector Isolator Type KFD0-CS-Ex*.54**		
Optional accessory:			
Type of Protection:	**Intrinsic Safety**		
Marking:	**[Ex ia Ga] IIC** **[Ex ia Da] IIIC** **[Ex ia Ma] I**		

Approved for issue on behalf of the IECEx Certification Body: R S Sinclair

Position: General Manager

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.

Certificate issued by:

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

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Manufacturer: **Pepperl + Fuchs GmbH**
Lilienthalstrasse 200
68307 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:

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"

*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 GB/BAS/ExTR10.0010/00 GB/BAS/ExTR12.0138/01
GB/BAS/ExTR15.0020/00

Quality Assessment Report:

DE/PTB/QAR06.0007/03 DE/PTB/QAR06.0008/06

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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.

CONDITIONS OF CERTIFICATION: NO

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

Variation 4.1

To permit minor mechanical changes to the transformer.

Variation 4.2

To confirm that the equipment covered by this certificate has been reviewed against the requirements of IEC 60079-0: 2011 Ed 6 in respect of the differences from IEC 60079-0: 2007 Ed 5 and that none of these differences affect this equipment.

ExTR: **GB/BAS/ExTR15.0020/00** File Reference: **15/0066**

Annex:

IECEx BAS 08.0079 Annex Iss 2.pdf

Apparatus supply and input/output parameters

KFD0-CS-Ex2.54 and KFD0-CS-Ex2.54-Y1, -Y3 or -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)

U_o	=	28V	C_i	=	5.64nF
I_o	=	93mA	L_i	=	0
P_o	=	653mW			

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 (µF)	INDUCTANCE OR (mH)	L/R RATIO (µH/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-Y1, -Y3 or -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)

U_o	=	28V	C_i	=	5.64nF
I_o	=	93mA	L_i	=	0
P_o	=	653mW			

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)

GROUP	CAPACITANCE (µF)	INDUCTANCE OR (mH)	L/R RATIO (µH/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-Ex2.54-Y2 or -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)

U_o	=	25.2V	C_i	=	5.64nF
I_o	=	43mA	L_i	=	0
P_o	=	271mW			

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 (µF)	INDUCTANCE OR (mH)	L/R RATIO (µH/ohm)
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-Y2 or -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)

U_o	=	25.2V	C_i	=	5.64nF
I_o	=	43mA	L_i	=	0
P_o	=	271mW			

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)

GROUP	CAPACITANCE (µF)	INDUCTANCE OR (mH)	L/R RATIO (µH/ohm)
IIC	0.101	19.6	138
IIB	0.81	72	508
IIA	2.89	153	964
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Note: The above load parameters apply where:

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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.