



EC-TYPE EXAMINATION CERTIFICATE

**Equipment or Protective System Intended for use
in Potentially Explosive Atmospheres
Directive 94/9/EC**

EC-Type Examination Certificate Number : **BAS00ATEX7087**

Equipment or Protective System: **DUAL CHANNEL SMART FIRE DETECTOR ISOLATOR
TYPE K*D0-CS-Ex2.54**

Manufacturer: **PEPPERL + FUCHS GB LTD**

Address: **Oldham, Lancashire, OL1 4EL**

This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

The Electrical Equipment Certification Service, notified body number 600 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report N°

00(C)0160 dated 13 June 2000

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50014: 1997 + Amds 1 and 2

EN 50020: 1994

except in respect of those requirements listed at item 18 of the Schedule.

If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

The marking of the equipment or protective system shall include the following:-

Ex II (1) GD [EEEx ia] IIC (T_{amb} = -20°C to +60°C)

This certificate may only be reproduced in its entirety and without any change, schedule included.

File No: **EECS 0807/02/182**

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.



Electrical Equipment Certification Service
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**I M CLEARE
DIRECTOR
17 July 2000**



Schedule

EC-TYPE EXAMINATION CERTIFICATE N° BAS00ATEX7087

Description of Equipment or Protective System

The Dual Channel Smart Fire Detector Isolator Type K*D0-CS-Ex2.54 is designed to provide a 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 to intrinsically safe levels the voltage and current into the hazardous area.

The apparatus comprises a number of electrical components, including transformers, fuses, resistors and zener diodes, all mounted on a single printed circuit board (PCB) and housed within a plastic enclosure.

The use of '*' in the type designation K*D0-CS-Ex2.54 represents either H for screw terminal connections, or F to indicate the use of FIM type plug in connectors with an alternative enclosure to accommodate the plugs and sockets.

The apparatus is designed to operate from a d.c. supply of up to 40V on terminals 11 and 12 and on terminals 8, 9 and 10. The segregation of the hazardous area circuits meets the requirements for 250V.

Input/Output Parameters

$U_m = 250V$
(Terminals 11 and 12 and terminals 8,9, and 10)

$U_o = 28V$ $I_o = 93mA$ $P_o = 653mW$
(Terminals 1 and 2 and terminals 4 and 5)

The capacitance and either the inductance or the inductance to resistance ratio (L_o/R_o) of the load connected to the output terminals of each channel must not exceed the following values:

| GROUP | CAPACITANCE in μF | INDUCTANCE in mH | OR L/R RATIO in $\mu H/ohm$ |
|-------|---------------------------|---------------------|-----------------------------------|
| IIC | 0.077 | 4.3 | 55 |
| IIB | 0.64 | 17 | 199 |
| IIA | 2.14 | 35 | 431 |



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EC-TYPE EXAMINATION CERTIFICATE N° BAS00ATEX7087**VARIATION ONE**

To permit the deletion of channel two from the type K*D0-CS-Ex2.54 thus forming the Smart Fire Detector Isolator Type type K*D0-CS-Ex1.54.

Input/Output Parameters

$U_m = 250V$
(Terminals 11 and 12)

$U_o = 28V$ $I_o = 93mA$ $P_o = 653mW$
(Terminals 1 and 2)

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

| GROUP | CAPACITANCE in μF | INDUCTANCE in mH | OR | L/R RATIO in $\mu H/ohm$ |
|-------|---------------------------|---------------------|----|-----------------------------|
| IIC | 0.077 | 4.3 | | 55 |
| IIB | 0.64 | 17 | | 199 |
| IIA | 2.14 | 35 | | 431 |

VARIATION TWO

To permit an alternative circuit thus forming the The Dual Channel Smart Fire Detector Isolator Type KFD0-CS-Ex2.54-Y72222

Input/Output Parameters

$U_m = 250V$
(Terminals 11 and 12 and terminals 8,9, and 10)

$U_o = 25.2V$ $I_o = 43mA$ $P_o = 271mW$
(Terminals 1 and 2 and terminals 4 and 5)

The capacitance and either the inductance or the inductance to resistance ratio (L_o/R_o) of the load connected to the output terminals of each channel must not exceed the following values:

| GROUP | CAPACITANCE in μF | INDUCTANCE in mH | OR | L/R RATIO in $\mu H/ohm$ |
|-------|---------------------------|---------------------|----|-----------------------------|
| IIC | 0.101 | 19.6 | | 138 |
| IIB | 0.81 | 72 | | 508 |
| IIA | 2.89 | 153 | | 964 |



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EC-TYPE EXAMINATION CERTIFICATE N° BAS00ATEX7087**VARIATION THREE**

To permit the use of an alternative circuit and the deletion of channel two from the type KFD0-CS-Ex2.54 thus forming the Smart Fire Detector Isolator Type KFD0-CS-Ex1.54-Y72221.

Input/Output Parameters

$U_m = 250V$
(Terminals 11 and 12)

$U_o = 25.2V$ $I_o = 43mA$ $P_o = 271mW$
(Terminals 1 and 2)

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

| GROUP | CAPACITANCE in μF | INDUCTANCE in mH | OR | L/R RATIO in $\mu H/ohm$ |
|-------|---------------------------|---------------------|----|-----------------------------|
| IIC | 0.101 | 19.6 | | 138 |
| IIB | 0.81 | 72 | | 508 |
| IIA | 2.89 | 153 | | 964 |

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Report Nos.

00(C)0160

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Special Conditions For Safe Use

None.

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Essential Health and Safety Requirements

| ESSENTIAL HEALTH & SAFETY REQUIREMENTS not covered by Standards listed at (9) | | |
|---|--|------------------------------------|
| Clause | Subject | Compliance |
| 1.1.3 | Changes in characteristics of materials and combinations thereof | Report No 00(C)0160 Clause 5.1.1.3 |
| 1.2.2 | Components for incorporation or replacement | Report No 00(C)0160 Clause 5.1.2.2 |
| 1.2.5 | Additional means of protection | Report No 00(C)0160 Clause 5.1.1.5 |
| 1.2.7 | Protection against other hazards | Report No 00(C)0160 Clause 5.1.2.7 |
| 1.4.2 | Withstanding attack by aggressive substances | Report No 00(C)0160 Clause 5.1.4.2 |



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Schedule

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EC-TYPE EXAMINATION CERTIFICATE N° BAS00ATEX7087

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DRAWINGS

| Number | Issue | Date | Description |
|-------------------------|-------|----------|-------------------------------------|
| 251-0412B | B | 01.03.00 | Circuit Diagram |
| 252-1131F Sheets 1 to 5 | F | 13.03.00 | Parts List, Single Channel |
| 252-1070F Sheets 1 to 7 | F | 13.03.00 | Parts List, Two Channel |
| 255-1036F Sheets 1 to 3 | F | 31.01.00 | PCB Master |
| 257-0208A Sheets 1 & 2 | A | 03.02.00 | PCB Lacquer details, Two Channel |
| 257-0212A Sheets 1 & 2 | A | 08.05.00 | PCB Lacquer details, Single Channel |
| 253-0236A | A | 31.01.00 | Component Overlay |
| 252-1130B | B | 09.02.00 | Parts list, Transformer |
| 256-0120A | A | 11.02.00 | Winding Details |
| 255-0751C Sheets 1 & 2 | C | 14.01.99 | PCB Master, Transformer |
| 254-0263A | A | 16.06.98 | Plastic Moulding details |
| 255-0698B | B | 11.06.99 | Cutting/Drilling Details |
| 256-0065C | C | 11.02.00 | Transformer Connection Details |
| 254-0284B Sheets 1 & 2 | B | 15.02.00 | GA , FIM Housing |
| 254-0299A Sheets 1 & 2 | A | 15.02.00 | GA, Transformer Isolated Barriers |
| 260-1380B | B | 2.1.01 | Label, KHD0-CS-Ex1.54 |
| 260-1381B | B | 3.1.01 | Label, KFD0-CS-Ex1.54 |
| 260-1382B | B | 3.1.01 | Label, KHD0-CS-Ex2.54 |
| 260-1383B | B | 3.1.01 | Label, KFD0-CS-Ex2.54 |
| 260-1384B | B | 3.1.01 | Label, KFD0-CS-Ex1.54-Y72221 |
| 260-1385B | B | 3.1.01 | Label, KFD0-CS-Ex2.54-Y72222 |

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BASEEFA List Keywords
2ISOLBAR



1 **SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use**
in Potentially explosive atmospheres
Directive 94/9/EC

3 **Supplementary EC-Type Examination Certificate Number: BAS00ATEX7087/1**

4 **Equipment or Protective System: DUAL CHANNEL SMART FIRE DETECTOR ISOLATOR**
TYPE K*D0-CS-Ex2.54

5 **Manufacturer: PEPPERL + FUCHS GB LTD**

6 **Address: Oldham, Lancashire, OL1 4EL**

7 This supplementary certificate extends EC-Type Examination Certificate No. BAS00ATEX7087 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This Supplementary Certificate shall be held with the original Certificate.

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File No: EECS 0807/02/182

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I M CLEARE
DIRECTOR
22 March 2001



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Schedule

14 **SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS00ATEX7087/1**

Description of the Variation to the Equipment or Protective System

VARIATION 1.1

To permit an alternative printed circuit board coating pattern for the Types K*D0-CS-Ex1.54 and KFD0-CS-Ex1.54-Y72221.

Report No.

None

Special Conditions For Safe Use

None

Essential Health and Safety Requirements

See original certificate.

DRAWINGS

| Number | Sheet | Issue | Date | Description |
|-----------|-------|-------|----------|-------------------------------------|
| 257-0212B | 1 & 2 | B | 14.02.01 | PCB Lacquer Details, Single Channel |

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1 **SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use**
in Potentially explosive atmospheres
Directive 94/9/EC

3 Supplementary EC-Type Examination Certificate Number: **BAS00ATEX7087/2**

4 Equipment or Protective System: **DUAL CHANNEL SMART FIRE DETECTOR ISOLATOR**
TYPE K*D0-CS-Ex2.54

5 Manufacturer: **PEPPERL + FUCHS GB LTD**

6 Address: **Oldham, Lancashire, OL1 4EL**

7 This supplementary certificate extends EC-Type Examination Certificate No. BAS00ATEX7087 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said Certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This Supplementary Certificate shall be held with the original Certificate.

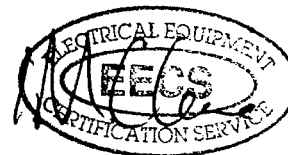
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File No: EECS 0807/02/182

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I M CLEARE
DIRECTOR
29 November 2001



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Schedule

14 SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS00ATEX7087/2

Description of the Variation to the Equipment or Protective System

VARIATION 2.1

To permit minor changes to component values in non-critical areas of the circuit. These changes do not affect compliance with the standards.

Report No.

None.

Special Conditions For Safe Use

None

Essential Health and Safety Requirements

See original certificate.

DRAWINGS

| Number | Sheet | Issue | Date | Description |
|-----------|--------|-------|----------|----------------------------|
| 251-0412C | | C | 14.11.01 | Circuit |
| 252-1131G | 1 to 5 | G | 14.11.01 | Parts List, Single Channel |
| 252-1070G | 1 to 7 | G | 14.11.01 | Parts List, Two Channel |

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1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: **BAS00ATEX7087/3**

4 Equipment or Protective System: **Dual Channel Smart Fire Detector Isolator Type K*D0-CS-Ex2.54**

5 Manufacturer: **Pepperl + Fuchs GB Limited**

6 Address: **Oldham, Lancashire, OL1 4EL**

7 This supplementary certificate extends EC – Type Examination Certificate No. BAS00ATEX7087 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

The original certificate was issued by The Electrical Equipment Certification Service, Notified Body Number 0600, which retains responsibility for its original documentation. Baseefa (2001) Ltd., Notified Body Number 1180, is responsible only for the additional work relating to this supplementary certificate and any other supplementary certificate it has issued.

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Baseefa Customer Reference No. 0807

Project File No. 04/0729

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Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.



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Schedule

14

Certificate Number BAS00ATEX7087/3

15 Description of the variation to the Equipment or Protective System

Variation 3.1

To permit minor changes to the parts lists; the original assessment is unaffected.

16 Report Number

None.

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

| Number | Sheet | Issue | Date | Description |
|-----------|--------|-------|----------|----------------------------|
| 252-1131H | 1 to 5 | H | 04.10.04 | Parts List, Single Channel |
| 252-1070H | 1 to 7 | H | 04.10.04 | Parts List, Dual Channel |



1 **SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: **BAS00ATEX7087/4**

4 Equipment or Protective System: **Dual Channel Smart Fire Detector Isolator Type K*D0-CS-Ex2.54**

5 Manufacturer: **Pepperl + Fuchs GmbH**
(Formerly Pepperl + Fuchs GB Limited)

6 Address: **68301 Mannheim, Germany**

7 This supplementary certificate extends EC - Type Examination Certificate No. BAS00ATEX7087 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

The original certificate was issued by The Electrical Equipment Certification Service, Notified Body Number 0600, which retains responsibility for its original documentation. Baseefa, Notified Body Number 1180, is responsible only for the additional work relating to this supplementary certificate and any other supplementary certificate it has issued.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0808**

Project File No. **08/0307**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

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R S SINCLAIR
DIRECTOR
On behalf of
Baseefa



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Schedule

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Certificate Number BAS00ATEX7087/4

15 Description of the variation to the Equipment or Protective System

Variation 4.1

- i) To permit minor drawing changes, minor PCB layout changes and the addition of the certification code [Ex iaD].
- ii) Addition of two new models:
KFD0-CS-Ex1.54 with part number Y207411
KFD0-CS-Ex2.54 with part number Y207412
- iii) To confirm that the current designs meet the requirements of EN 60079-0:2006, EN 60079-11:2007, EN 60079-26:2004 and EN 61241-11:2005

16 Report Number

GB/BAS/ExTR08.0169/00

17 Special Conditions for Safe Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

| Number | Sheet | Issue | Date | Description |
|------------|--------|-------|----------|--|
| *251-0412C | 1 of 1 | C | 14.11.01 | Circuit Diagram (ref) for Smart Fire Detector Isolator Type K*D0-CS-Ex1.54 & 2.54(-Y72221&2) |
| *252-1070H | 1 – 7 | H | 04.10.04 | Parts List for Smart Fire Detector Isolator Type KHD0-CS-Ex2.54 and KFD0-CS-Ex2.54(-Y72222) |
| *252-1130B | 1 of 1 | B | 09.02.00 | Parts List for T1/. Transformer Mounting Board for K*D0-CS-Ex1.54(-Y72221) and K*D0-CS-Ex2.54(Y-72222) |
| *252-1131H | 1 – 5 | H | 04.10.04 | Parts List for Smart Fire Detector Isolator Type KHD0-CS-Ex1.54 and KFD0-CS-Ex1.54(-Y72221) |
| *253-0236A | 1 of 1 | A | 31.01.00 | Component Overlay (ref) for Smart Fire Detector Isolator Type K*D0-CS-Ex1.54 & 2.54(-Y72221&2) |
| *254-0263A | 1 of 1 | A | 16.06.98 | Plastic Moulding Details for Toroidal Transformers for Galvanic Isolators |
| 254-0284G | 1 & 2 | G | 10.02.03 | G.A. for 20mm Non-Power Rail FIM Housing |
| *255-0698B | 1 of 1 | B | 11.06.99 | Cutting/Drilling Details for Barrier Zener Mounting Board |
| *255-0751C | 1 & 2 | C | 14.01.99 | P.C.B. Master for (Mk.5) Transformer Mounting Board [K... and E... System] |
| *255-1036F | 1 – 3 | F | 31.01.00 | P.C.B. Master for Smart Fire Detector Isolator K*D0-CS-Ex1.54 & 2.54(-Y72221&2) |



| Number | Sheet | Issue | Date | Description |
|---------------|--------|-------|----------|---|
| *256-0065C | 1 of 1 | C | 11.02.00 | Connection Details for Transformer T1/. For K*D0-CS-Ex1.54(-Y72221) and K*D0-CS-Ex2.54(-Y72222) |
| *256-0120A | 1 of 1 | A | 11.02.00 | Winding Details for Transformer. 50 Turns Bifilar P1 & P2. 50 Turns Bifilar S1 & S2. |
| *257-0208C | 1 & 2 | C | 21.03.06 | PCB Lacquering Details for Smart Fire Detector Isolator Type K*D0-CS-Ex2.54(-Y72222) |
| *257-0212D | 1 & 2 | D | 21.03.06 | PCB Lacquering Details for Smart Fire Detector Isolator Type K*D0-CS-Ex1.54(-Y72221) |
| 266-0041BS-10 | 1 & 2 | - | 29.04.08 | Type Label – ATEX. KFD0-CS-Exx.54... |

*These drawings are common to, and held with, IECEx BAS 08.0079.



1 SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

**2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres
Directive 94/9/EC**

- 3** Supplementary EC - Type Examination Certificate Number: **BAS00ATEX7087/5**
- 4** Equipment or Protective System: **Dual Channel Smart Fire Detector Isolator Type K*D0-CS-Ex2.54**
- 5** Manufacturer: **Pepperl + Fuchs GmbH**
- 6** Address: **Lilienthalstrasse 200, 68307 Mannheim, Germany**
- 7** This supplementary certificate extends EC – Type Examination Certificate No. BAS00ATEX7087 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

The original certificate was issued by The Electrical Equipment Certification Service, Notified Body Number 0600, which retains responsibility for its original documentation. Baseefa, Notified Body Number 1180, is responsible only for the additional work relating to this supplementary certificate and any other supplementary certificate it has issued.

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Baseefa Customer Reference No. **0808**

Project File No. **09/0397**

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Baseefa

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Registered in England No. 4305578. Registered address as above.


PP D BREARLEY

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

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Schedule

14

Certificate Number BAS00ATEX7087/5

15 Description of the variation to the Equipment or Protective System

Variation 5.1

To permit the use of an alternative printed circuit board.

Variation 5.2

To permit electrical changes to form the Smart Fire Detector Isolator Type KFD0-CS-Ex*.56.

The output parameters for the KFD0-CS-Ex*.56 are as follows:

KFD0-CS-Ex2.56 - Dual Channel

Hazardous Area Terminals

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

$$\begin{array}{llll} U_o & = & 21V & C_i & = & 5.64nF \\ I_o & = & 252mA & L_i & = & 0 \\ P_o & = & 1.323W & & & \end{array}$$

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 (μF) | INDUCTANCE (mH) | OR L/R RATIO ($\mu H/ohm$) |
|-------|----------------------------|--------------------|------------------------------------|
| IIC | 0.182 | 0.56 | 26.9 |
| IIB | 1.264 | 2.24 | 107.6 |
| IIA | 4.774 | 4.48 | 215.3 |
| I | 6.294 | 7.35 | 353.2 |

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 $1\mu F$ for Group IIB and $600nF$ for Group IIC.

KFD0-CS-Ex1.56 - Single Channel

Hazardous Area Terminals

(Terminals 1 w.r.t. 2)

$$\begin{array}{llll} U_o & = & 21V & C_i & = & 5.64nF \\ I_o & = & 252mA & L_i & = & 0 \\ P_o & = & 1.323W & & & \end{array}$$

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)

| GROUP | CAPACITANCE (μF) | INDUCTANCE (mH) | OR L/R RATIO ($\mu H/ohm$) |
|-------|----------------------------|--------------------|------------------------------------|
| IIC | 0.182 | 0.56 | 26.9 |
| IIB | 1.264 | 2.24 | 107.6 |
| IIA | 4.774 | 4.48 | 215.3 |
| I | 6.294 | 7.35 | 353.2 |

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 $1\mu F$ for Group IIB and $600nF$ for Group IIC.

16 Report Number

GB/BAS/ExTR10.0010/00

17 Special Conditions for Safe Use

None.

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

| Number | Sheet | Issue | Date | Description |
|---------------|--------|-------|-----------|---|
| 16-0691BS-E | 1 of 1 | E | 10-Dec-09 | Summary KFD0-CS-Ex*.56 |
| 16-0691BS-00E | 1 – 8 | E | 09-Oct-09 | Description Smart Fire Detector Power Supply KFD0-CS-Ex*.56 |
| 16-0691BS-01E | 1 of 1 | E | 21-Apr-09 | Schematic KFD0-CS-Ex*.54 & .56 |
| 16-0691BS-02E | 1 of 1 | E | 09-Oct-09 | I.S. Relevant Components KFD0-CS-Ex*.56 |
| 16-0691BS-03E | 1 of 1 | E | 21-Apr-09 | Component Layout KFD0-CS-Ex*.54 & .56 |
| 16-0691BS-04E | 1 – 10 | E | 20-Apr-09 | Mechanical Parts KFD0-CS-Ex*.54 & .56 |



| Number | Sheet | Issue | Date | Description |
|---------------|--------|-------|-----------|---|
| 16-0691BS-05E | 1 & 2 | E | 17-Apr-09 | PCB Layout KFD0-CS-Ex*.54 & .56 |
| 16-0691BS-06E | 1 & 2 | E | 20-Apr-09 | Transformers KFD0-CS-Ex*.54 & .56 |
| 16-0691BS-07E | 1 – 3 | E | 10-Dec-09 | Lacquering Details KFD0-CS-Ex*.54 & .56 |
| 16-0691BS-10E | 1 – 3 | E | 23-Apr-09 | Type Label KFD0-CS-Ex*.56 |
| 16-0692BS-E | 1 of 1 | E | 10-Dec-09 | Summary KFD0-CS-Ex*.54 |
| 16-0692BS-00E | 1 – 8 | E | 12-Mar-09 | Description Smart Fire Detector Power Supply KFD0-CS-Ex*.54 |
| 16-0692BS-02E | 1 of 1 | E | 12-Mar-09 | I.S. Relevant Components KFD0-CS-Ex*.54 |
| 16-0692BS-10E | 1 – 3 | E | 23-Apr-09 | Type Label KFD0-CS-Ex*.54 |

These drawings are common to, and held with, IECEx BAS 08.0079/1.



SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

Supplementary EC - Type
Examination Certificate Number: **BAS00ATEX7087/6**

Equipment or Protective System: **Dual Channel Smart Fire Detector Isolator Type K*D0-CS-Ex2.54**

Manufacturer: **Pepperl + Fuchs GmbH**

Address: **Lilienthalstrasse 200, 68307 Mannheim, Germany**




This supplementary certificate extends EC – Type Examination Certificate No. BAS00ATEX7087 to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

Item 9 of the original Certificate is replaced by "Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2009 EN 60079-11:2012

except in respect of those requirements listed at item 18 of the Schedule."

The marking of the equipment has changed from the original Certificate and shall include the following:

 **II (1)G [Ex ia Ga] IIC**
 **II (1)D [Ex ia Da] IIIC**
 **I (M1) [Ex ia Ma] I**

The original certificate was issued by The Electrical Equipment Certification Service, Notified Body Number 0600, which retains responsibility for its original documentation. Baseefa, Notified Body Number 1180, is responsible only for the additional work relating to this supplementary certificate and any other supplementary certificate it has issued.

This certificate shall be held with the original certificate and may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0808**

Project File No. **11/0986**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

Baseefa

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e-mail info@baseefa.com web site www.baseefa.com
Baseefa is a trading name of Baseefa Ltd
Registered in England No. 4305578. Registered address as above.


R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

Re-issued 10 September 2012 to replace original



13

Schedule

14

Certificate Number BAS00ATEX7087/6

15 Description of the variation to the Equipment or Protective System

Variation 6.1

To permit minor drawing changes that do not affect the original assessment.

Variation 6.2

To permit minor electrical changes, not affecting the original assessment, to form the following models:

KFD0-CS-Ex1.54-Y1 KFD0-CS-Ex2.54-Y1
KFD0-CS-Ex1.54-Y2 KFD0-CS-Ex2.54-Y2
KFD0-CS-Ex1.54-Y3 KFD0-CS-Ex2.54-Y3

The output parameters are as follows:

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)

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

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)

| GROUP | CAPACITANCE (μF) | 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-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)

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

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

(Terminal 1 w.r.t. 2)

| GROUP | CAPACITANCE (μF) | 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-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)

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

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

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

| GROUP | CAPACITANCE (μF) | INDUCTANCE (mH) | OR | L/R RATIO ($\mu H/ohm$) |
|-------|----------------------------|--------------------|----|------------------------------|
| 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)

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



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)

| GROUP | CAPACITANCE (μ F) | INDUCTANCE (mH) | OR | L/R RATIO (μ H/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.

Variation 6.3

To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-0:2009 and EN 60079-11:2012 in respect of the differences from EN 60079-0:2006 and EN 60079-11:2007 and that none of these differences, with the exception of marking, affect this equipment. The equipment is now marked:

Ex II (1)G [Ex ia Ga] IIC
Ex II (1)D [Ex ia Da] IIIC
Ex I (M1) [Ex ia Ma] I

16 Report Number

GB/BAS/ExTR12.0138/00

17 Specific Conditions of Use

None

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

| Number | Sheet | Issue | Date | Description |
|---------------|--------------|-------|-------------|---|
| 16-0691BS-F | 1 of 1 | F | 2011-Dec-05 | Summary KFD0-CS-Ex*.56 |
| 16-0691BS-04F | 1 – 4 of 10 | F | 2011-Nov-30 | Moulded Transformer Housing KFD0-CS-Ex*.54.. & .56.. |
| 16-0691BS-04F | 5 – 10 of 10 | F | 2011-Nov-30 | KF-Housing 12 Term. Symm KFD0-CS-Ex*.54.. & .56.. |
| 16-0691BS-06F | 1 & 2 | F | 2011-Nov-30 | Transformers KFD0-CS-Ex*.54.. & .56.. |
| 16-0691BS-10F | 1 – 3 | F | 2011-Dec-05 | Type Label KFD0-CS-Ex*.56 |
| 16-0692BS-F | 1 of 1 | F | 2011-Nov-30 | Summary KFD0-CS-Ex*.54 |
| 16-0692BS-00F | 1 – 8 | F | 2011-Nov-30 | Description SMART Fire Detector Power Supply KFD0-CS-Ex*.54 |

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| Number | Sheet | Issue | Date | Description |
|---------------|--------|-------|-------------|---|
| 16-0692BS-02F | 1 of 1 | F | 2011-Nov-30 | I.S. Relevant Components KFD0-CS-Ex*.54 |
| 16-0692BS-10F | 1 – 3 | F | 2011-Nov-30 | Type Label KFD0-CS-Ex*.54 |

These drawings are common to, and held with, IECEx BAS 08.0079/2