



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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Ex COMPONENT CERTIFICATE

Certificate No.: **IECEX SIR 07.0050U**

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Certificate history:

Status: **Current**

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Applicant: **IS Fusion Limited**
Unit 8
Mile Oak Industrial Estate
Maesbury Road
Oswestry SY10 8GA
United Kingdom

Ex Component: Ranges of Overmoulded Fuses

This component is NOT intended to be used alone and requires additional consideration when incorporated into other equipment or systems for use in explosive atmospheres (refer to IEC 60079-0).

Type of Protection: **Intrinsic Safety**

Marking: Ex ia IIC Ga
Ex ia I Ma
Ex [ia] (Ga)
Ex [ia] (Ma)
The marking depends on the product type, refer to the description of this component.

Approved for issue on behalf of the IECEx
Certification Body:

C Ellaby

Position:

Deputy Certification Manager

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
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Certificate issued by:


SIRA Certification Service
CSA Group
Unit 6, Hawarden Industrial Park
Hawarden, Deeside, CH5 3US
United Kingdom



Annexe to: IECEx SIR 07.0050U Issue 5
 Applicant: IS Fusion Limited
 Component: Ranges of Overmoulded Fuses



ISF001, ISF003, ISF004 and ISF005

ATEX Marking:	 II 1 G I M1
Certification code:	Ex ia IIC Ga Ex ia I Ma
Ambient range:	-50°C to +93°C (I _N = 2 A max) -50°C to +80°C (I _N = 3 A max)
Identifying marks:	These fuses either bear no marking or carry a colour code and/or alphanumeric coding that is defined in an associated datasheet.

The **ISF001** is a range of overmoulded 1206 or smaller surface mounted fuses nominally sized 5.6 mm (L) x 3.8 mm (W) x 3.2 mm (H) with at least 0.6 mm of solid insulation to the free surface intended for use within Intrinsically Safe Equipment. They are suitable for voltages up to 30 V uncoated or 60 V under coating.

The **ISF003** is a range of overmoulded 0603 or smaller surface mounted fuses nominally sized 5.6 mm (L) x 3.8 mm (W) x 3.2 mm (H) with at least 1 mm of overmoulded solid insulation to the free surface intended for use within Intrinsically Safe Equipment. They are suitable for voltages up to 30 V uncoated or 60 V under coating.

The **ISF004** is a range of overmoulded 0603 or smaller surface mounted fuses nominally sized 5.0 mm (L) x 3.0 mm (W) x 2.2 mm (H) with at least 1 mm of overmoulded solid insulation to the free surface intended for use within Intrinsically Safe Equipment. They are suitable for voltages up to 30 V uncoated or 60 V under coating.

The **ISF005** is a range of overmoulded 0603 or smaller surface mounted fuses nominally sized 4.2mm (L) x 2.4 mm (W) x 1.8 mm (H) with at least 0.6 mm of overmoulded solid insulation to the free surface intended for use within Intrinsically Safe Equipment. They are suitable for voltages up to 30 V uncoated or 60 V under coating.


The product part numbers are as follows:

ISF00*#/**/\$\$ - Where: * = Indicates permitted types, either ISF001, ISF003, ISF004 or ISF005
 # = A single character representing the type of PCB plating
 ** = A two character code representing the fuse manufacturer
 \$\$ = A variable length string of characters representing the fuse manufacturers part number

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 Applicant: IS Fusion Limited
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ISF011/***

ATEX Marking:	 II 1 G I M1 II (1) G I (M1)
Certification code:	Ex ia IIC Ga Ex ia I Ma Ex [ia] (Ga) Ex [ia] (Ma)
Ambient range:	-50°C to +93°C
Identifying marks:	These fuses bear either a colour code (see table below) and/or alphanumeric coding that is defined in an associated datasheet.

The **ISF011** is a range of overmoulded axial leaded fuses nominally sized 5.9 mm (D) x 12 mm (L) intended for use within either intrinsically safe apparatus or intrinsically safe associated apparatus. They have at least 1 mm of overmoulded solid insulation to the free surface in all directions. The fuses are based on the Littelfuse 242 series with a specified voltage rating of 250 V and breaking capacity of 4000 A. They are suitable for voltages up to 250 V uncoated.


The product part numbers and ratings are as follows:

ISF Part No.	Colour Code	Rated current
ISF011/040	Gold	0.040 A
ISF011/050	Red	0.050 A
ISF011/080	Green	0.080 A
ISF011/100	Blue	0.100 A
ISF011/125	Orange	0.125 A
ISF011/160	Violet	0.160 A
ISF011/200	Brown	0.200 A
ISF011/250	White	0.250 A

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ISF012/****

ATEX Marking:	 II 1 G I M1 II (1) G I (M1)
Certification code:	Ex ia IIC Ga Ex ia I Ma Ex [ia] (Ga) Ex [ia] (Ma)
Ambient range:	-50°C to +93°C (I _N = 5 A max) -50°C to +80°C (I _N = 7 A max) -50°C to +45°C (I _N = 10 A max)
Identifying marks:	These fuses bear either a colour code (see table below) and/or alphanumeric coding that is defined in an associated datasheet.

The **ISF012** is a range of overmoulded axial leaded fuses nominally sized 5.9 mm (D) x 12 mm (L) intended for use within either intrinsically safe apparatus or intrinsically safe associated apparatus. They have at least 1 mm of overmoulded solid insulation to the free surface in all directions. The fuses are based on the Littelfuse 251 series with a specified voltage rating of 125 V and breaking capacity of 300 A @rated voltage dc and 50A @ rated voltage ac. They are suitable for voltages up to 125 V uncoated.


The product part numbers and ratings are as follows:

ISF Part No..	Colour Coded Spot	Rated current
ISF012/062	Silver	0.062 A
ISF012/125	White	0.125 A
ISF012/200	Black	0.200 A
SF012/250	Red	0.250 A
ISF012/375	Yellow	0.375 A
ISF012/500	Orange	0.500 A
ISF012/630	Gold	0.630 A
ISF012/750	Green	0.750 A
ISF012/001.	Violet	1.000 A
ISF012/1.25	White/Silver	1.250 A
ISF012/01.5	Black/Silver	1.500 A
ISF012/002.	Red/Silver	2.000 A
ISF012/02.5	Yellow/Silver	2.500 A
ISF012/003.	Orange/Silver	3.000 A
SF012/03.5	Green/Silver	3.500 A
ISF012/004.	Violet/Silver	4.000 A
ISF012/005.	Silver/Silver	5.000 A
ISF012/007.	White/White	7.000 A
ISF012/010.	Black/Black	10.000 A

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 Component: Ranges of Overmoulded Fuses



ISF021/F and ISF021/T

ATEX Marking:	 II 1 G I M1 II (1) G I (M1)
Certification code:	Ex ia IIC Ga Ex ia I Ma Ex [ia] (Ga) Ex [ia] (Ma)
Ambient range:	-50°C to +93°C (I _N = 5 A max) -50°C to +80°C (I _N = 6.3 A max)
Identifying marks:	These fuses bear the certificate number and the full product part number.

The **ISF021/F** is a range of overmoulded radial leaded fuses nominally sized 11 mm (D) x 11 mm (L) intended for use within either intrinsically safe apparatus or intrinsically safe associated apparatus. They have at least 1 mm of overmoulded solid insulation to the free surface in all directions. The fuses are a quick-acting type with a specified voltage rating of 250 V ac/dc and a breaking capacity of 35 A @ rated voltage up to 3.15 A and 10I_n @ 4 A and above. The fuses are intended to be, either soldered directly on PCBs or plugged into a fuse holder for example the Schurter type FMS (250 V). The creepage and clearance distances are suitable for voltages up to 90 V uncoated and 250 V under coating.

The **ISF021/T** is a range of overmoulded radial leaded fuses nominally sized 11 mm (D) x 11 mm (L) intended for use within either intrinsically safe apparatus or intrinsically safe associated apparatus. They have at least 1 mm of overmoulded solid insulation to the free surface in all directions. The fuses are a time-lag type with breaking capacity of 35 A @ 250 V ac and 50 A @ 125 Vdc, up to 3.15 A and 10I_n @ 4 A and above. The fuses are intended to be, either soldered directly on PCBs or plugged into a fuse holder for example the Schurter type FMS (250 V). The creepage and clearance distances are suitable for voltages up to 90 V uncoated and 250 V under coating.


The product part numbers and ratings are as follows:

ISF021/F/***							
ISF Part No.	Rated current	ISF Part No.	Rated current	ISF Part No.	Rated current	ISF Part No.	Rated current
ISF021/F/040	0.040 A	ISF021/F/160	0.160 A	ISF021/F/630	0.630 A	ISF021/F/2.0	2.000 A
ISF021/F/050	0.050 A	ISF021/F/200	0.200 A	ISF021/F/800	0.800 A	ISF021/F/2.5	2.500 A
SF021/F/063	0.063 A	ISF021/F/250	0.250 A	ISF021/F/1.0	1.000 A	ISF021/F/3.15	3.150 A
ISF021/F/080	0.080 A	ISF021/F/315	0.315 A	ISF021/F/1.25	1.250 A	ISF021/F/4.0	4.000 A
ISF021/F/100	0.100 A	ISF021/F/400	0.400 A	ISF021/F/1.6	1.600 A	ISF021/F/5.0	5.000 A
ISF021/F/125	0.125 A	ISF021/F/500	0.500 A				
ISF021/T/***							
ISF Part No.	Rated current	ISF Part No.	Rated current	ISF Part No.	Rated current	ISF Part No.	Rated current
ISF021/T/050	0.050 A	ISF021/T/200	0.200 A	ISF021/T/800	0.800 A	ISF021/T/2.5	2.500 A
SF021/T/063	0.063 A	ISF021/T/250	0.250 A	ISF021/T/1.0	1.000 A	ISF021/T/3.15	3.150 A
ISF021/T/080	0.080 A	ISF021/T/315	0.315 A	ISF021/T/1.25	1.250 A	ISF021/T/4.0	4.000 A
ISF021/T/100	0.100 A	ISF021/T/400	0.400 A	ISF021/T/1.6	1.600 A	ISF021/T/5.0	5.000 A
ISF021/T/125	0.125 A	ISF021/T/500	0.500 A	ISF021/T/2.0	2.000 A	ISF021/T/6.3	6.300 A
ISF021/T/160	0.160 A	ISF021/T/630	0.630 A				

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ISF021U/T/***

ATEX Marking:	 II 1 G I M1
Certification code:	Ex ia IIC Ga Ex ia I Ma
Ambient range:	-50°C to +93°C (I _N = 2 A max) -50°C to +80°C (I _N = 3 A max)
Identifying marks:	These fuses bear the certificate number and the full product part number.

The ISF021U/T is a range of overmoulded radial leaded fuses nominally sized 11 mm (D) x 11 mm (L) intended for use within intrinsically safe apparatus. They have at least 1mm of overmoulded solid insulation to the free surface in all directions. The fuses have a breaking capacity of 35 A @ 250 V ac or 63 V dc. The fuses are intended to be, either soldered directly on PCBs or plugged into a fuse holder for example the Schurter type FMS (250 V). The creepage and clearance distances are suitable for voltages up 90 V uncoated.

The product part numbers and ratings are as follows:

ISF Part No.	Rated current
ISF021U/T/044	0.044 A
ISF021U/T/056	0.056 A
SF021U/T/070	0.070 A
ISF021U/T/0875	0.0875 A
ISF021U/T/112	0.112 A
ISF021U/T/140	0.14 A
ISF021U/T/175	0.175 A
ISF021U/T/220	0.220 A
ISF021U/T/280	0.280 A
ISF021U/T/350	0.350 A
ISF021U/T/441	0.441 A
ISF021U/T/560	0.560 A

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Schedule of Limitations

The User/Installer shall comply with the following:

- i. The mounting of the fuse shall be such that its creepage and clearance distances comply with table 5 of IEC 60079-11:2011
- ii. The maximum external surface temperature rises of the fuses are:
 - ISF001, ISF003, ISF004, ISF005 = 85K
 - ISF011 = 88.5K
 - ISF012, 10A = 149.1K
 - ISF012, up to 7A = 112.5K
 - ISF012 up to 5A = 88.5K
 - ISF021 = 85K
- iii. Due to size limitations, the marking shown on the actual fuses is limited and in some cases there may be no marking at all or it may take the form of a colour code and/or alphanumeric coding. For this reason, the full information is shown on the product packaging label and detailed in the manufacturer's data sheet, therefore, the user/installer shall refer to these items in order to determine the suitability of the particular fuse before use.
- iv. If the ISF011/*** and ISF012 fuses are used for associated apparatus applications, then the user/installer shall use the appropriate Littelfuse data sheets, see table below, to determine the let through current characteristics of the fuse.

ISF011/*** Part Nos.		ISF012/**** Part Nos.	
ISF	Littelfuse	ISF	Littelfuse
ISF011/040	0242.040	ISF012/062	0251.062
ISF011/050	0242.050	ISF012/125	0251.125
ISF011/080	0242.080	ISF012/200	0251.200
ISF011/100	0242.100	SF012/250	0251.250
ISF011/125	0242.125	ISF012/375	0251.375
ISF011/160	0242.160	ISF012/500	0251.500
ISF011/200	0242.200	ISF012/630	0251.630
ISF011/250	0242.250	ISF012/750	0251.750
		ISF012/001.	0251001.
		ISF012/1.25	02511.25
		ISF012/01.5	025101.5
		ISF012/002.	0251002.
		ISF012/02.5	025102.5
		ISF012/003.	0251003.
		SF012/03.5	025103.5
		ISF012/004.	0251004.
		ISF012/005.	0251005.
		ISF012/007.	0251007.
		ISF012/010.	0251010.

Note: The part number of the Littelfuse may include several suffix characters.

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Conditions Of Manufacture

The Manufacturer shall comply with the following:

- i. Each ISF001#/**/\$\$ will contain one, 1206 or smaller size fuse link.
- ii. Each ISF003, ISF004 and ISF005 will contain one 0603 size or smaller size fuse link.
- iii. Each delivery of overmoulded fuses shall be accompanied with sufficient data (e.g. a copy of the fuse manufacturer's data sheet) to enable the user to determine the suitability of the component.
- iv. The ISF001, ISF003, ISF004 ISF005, ISF011 and ISF012 may be marked with a short-form, specific reference; the format of this reference is at the manufacturer's discretion and may take the form of a colour code and/or alphanumeric coding, this reference shall appear on an associated datasheet as an identification aid to the user/installer.