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 09.0055 issue No.:2

Status: **Current**

Date of Issue: **2016-10-26** Page 1 of 4

Certificate history:
Issue No. 2 (2016-10-26)
Issue No. 1 (2010-8-18)
Issue No. 0 (2009-6-26)

Applicant:
Eaton Electric Limited
Great Marlings
Butterfield
Luton
Bedfordshire
LU2 8DL
United Kingdom

Equipment:
Optional accessory:
910* 4 Segment Redundant FISCO Power Supply

Type of Protection: **Intrinsic Safety & FISCO**

Marking:
[Ex ib Gb] IIC (-20°C ≤ Ta ≤ +60°C) - 910*-21-P* models
[Ex ib Gb] IIB (-20°C ≤ Ta ≤ +60°C) - 910*-22-P* models
[Ex ib Db] IIIC (-20°C ≤ Ta ≤ +60°C)

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

Position: Technical Manager

Signature:
(for printed version)

Date: 26/10/16

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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:

Eaton Electric Limited
Great Marlings
Butterfield
Luton
Bedfordshire
LU2 8DL
United Kingdom

Additional Manufacturing location(s):

MTL Instruments PVT Limited
No 3 Old Mahabalipuram Road
Sholinganallur
Chennai 600119
India

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/ExTR09.0078/00 GB/BAS/ExTR09.0079/00 GB/BAS/ExTR10.0027/00
GB/BAS/ExTR16.0306/00

Quality Assessment Report:

GB/BAS/QAR06.0022/06 GB/BAS/QAR07.0017/05

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Schedule

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

The 910* 4 Segment Redundant FISCO Power Supply Units provides up to four separate intrinsically safe FISCO power supplies with full redundancy to power equipment located in the hazardous area. The '*' in the model number can be replaced with a '1', '7', '8' or '9' which denotes the model specific carrier upon which the circuitry is mounted.

Each segment of the 910* 4 Segment Redundant FISCO Power Supply Unit comprises either two 9121-IS-CM FISCO Power Supply – IIC (910*-21-P* models) or 9122-IS-CM FISCO Power Supply –IIB (910*-22-P* models) and two 9129-IS FISCO Supply Arbitration Module mounted on a model specific carrier. Under normal operation one of the two FISCO Power Supply via the inter-connected 9129-IS supplies the segment's supply output. Upon failure of the power supply or its associated 9129-IS, the interconnected 9129-IS controls the switch over to the other FISCO Power Supply and the segment supply output is maintained.

When any of the four segments of the apparatus are not used, to enable correct functionality of the alarm output signal, a 9127-BLK FISCO Alarm Blanking Module is fitted in place of each 9129-IS in that segment. The 9127-BLK FISCO Alarm Blanking Module comprises circuitry to bypass the alarm circuitry and is housed in a plastic enclosure with the same type of connector fitted at the bottom of the enclosure as the 9129-IS.

In terms of intrinsic safety, the 9101, 9107, 9108 & 9109 variants of the equipment are identical with the only differences between then being the configuration of the non-hazardous area connection facilities on the model specific carrier.

See Annex for model details and electrical parameters.

CONDITIONS OF CERTIFICATION: NO

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

Variation 2.1

To permit the manufacturer's name to be changed on the certificate and equipment marking. No other changes are made to the equipment design.

Variation 2.2

To confirm the current designs of all variants of the 910* 4 Segment Redundant FISCO Power Supply Units have been reviewed against the requirements of IEC 60079-0: 2011 and IEC 60079-11: 2011 in respect of the differences from IEC 60079-0: 2007, IEC 60079-11: 2006, IEC 60079-27: 2005 and IEC 61241-11: 2005, and none of the differences affect the equipment.

The standards listed on page 2 of the certificate have been updated.

Variation 2.3

To permit the equipment title on page 1 of the certificate and equipment description on page 2 to be revised to clearly identify the certificate covers the 9101, 9107, 9108 & 9109 variants of the equipment.

ExTR: **GB/BAS/ExTR16.0306/00** File Reference: **16/0371**

Annex: IECEx BAS 09.0055 Annex Issue 1.pdf

Baseefa
Rockhead Business Park
Staden lane, Buxton, Derbyshire
SK17 9RZ
United Kingdom

9108 4 Segment Redundant FISCO Power Supply Unit

Model Range

The 9108 4 Segment Redundant FISCO Power Supply range comprises the following models: -

9108-21-PC 4 Segment Redundant FISCO Power Supply - IIC	[Ex ib Gb] IIC [Ex ib Db] IIIC (-20°C ≤ T_a ≤ +60°C)
9108-21-PS 4 Segment Redundant FISCO Power Supply - IIC	[Ex ib Gb] IIC [Ex ib Db] IIIC (-20°C ≤ T_a ≤ +60°C)
9108-22-PC 4 Segment Redundant FISCO Power Supply - IIB	[Ex ib Gb] IIB [Ex ib Db] IIIC (-20°C ≤ T_a ≤ +60°C)
9108-22-PS 4 Segment Redundant FISCO Power Supply - IIB	[Ex ib Gb] IIB [Ex ib Db] IIIC (-20°C ≤ T_a ≤ +60°C)

The 9121-IS-CM FISCO Power Supply – IIC fitted on the 9108-21-P* models and the 9122-IS-CM FISCO Power Supply – IIB fitted on the 9108-22-P* models of the apparatus are separately certified under IECEx Certificate No. IECEx BAS 04.0031.

The 9129-IS FISCO Supply Arbitration Module fitted on all models comprises electronic components mounted on a single printed circuit board in a plastic enclosure. The module is powered from the 9121-IS-CM / 9122-IS-CM FISCO Power Supply it is connected to and also has interconnections with the other 9129-IS fitted in the segment to enable the switch over of the supplies. The 9129-IS also connects to the alarm system via a galvanically isolated interface to provide indication of a fault on the segment. A push button is fitted to the 9129-IS to enable the user to manually force the switch over of the segment supply to the other power supply. All connections to and from the 9129-IS are via a polarised connector at the bottom of the enclosure that connects to the Carrier. LED indication is provided on top of the module to indicate whether the 9129-IS and the interconnected FISCO Power Supply are currently supplying the segment or is in standby mode.

The circuitry fitted in each segment is powered via the 9108-CA-P* Carrier. As well as providing the interconnections between the two 9129-IS modules and the two power supplies in each of the four segments, the carrier also provides connections to a Host Control System and has a alarm output for indication of a fault on any of the four segments. External connections to the carrier are made via polarised plug and socket connections. The power supply, alarm and each segment's fieldbus supply output are made via plug and socket connection with either screw terminals (9108-CA-PS Carrier) or clamp arrangements (9108-CA-PC Carrier) The last character of the model number (marked *) defines the connection type, 'S' for Screw terminals and 'C' for clamp terminals.

When any of the four segments of the apparatus are not used, to enable correct functionality of the alarm output signal, a 9127-BLK FISCO Alarm Blanking Module is fitted in place of each 9129-IS in that segment. The 9127-BLK FISCO Alarm Blanking Module comprises circuitry to bypass the alarm circuitry and is housed in a plastic enclosure with the same type of connector fitted at the bottom of the enclosure as the 9129-IS.

Input / Output Parameters

Input Power Supply Terminals: POWER A Pins '+' & '-' and POWER B Pins '+' & '-'

U_m = 253V

The circuits connected to the POWER A & POWER B terminals are designed to operate from a d.c. supply voltage of up to 30V.

Host Output Connector: HOST 1A Pins 1 to 20 and HOST 1B Pins 1 to 20

U_m = 253V

The circuit connected to the HOST 1A & HOST 1B connections are designed to operate from a d.c. supply voltage of up to 32V.

Alarm Output Terminals: ALARM Pins '+' & '-'

U_m = 253V

Fieldbus Supply Outputs: SEGMENT1, SEGMENT2, SEGMENT3 or SEGMENT4 Pins '+' w.r.t. '-' (9108-21-P* IIC models)

U_o = 14V C_o = 0.20µF
I_o = 180mA @ 14V L_o = 300µH
P_o = 2.52W

Fieldbus Supply Outputs: SEGMENT1, SEGMENT2, SEGMENT3 or SEGMENT4 Pins '+' w.r.t. '-' (9108-22-P* IIB models)

U_o = 14.8V C_o = 0.50µF
I_o = 359mA @ 14.8V L_o = 550µH
P_o = 5.31W

Each Fieldbus Supply Output must be considered as a separate intrinsically safe circuit.

9101 4 Segment Redundant FISCO Power Supply Unit

Model Range

The 9101 4 Segment Redundant FISCO Power Supply range comprises the following models: -

9101-21-PS 4 Segment Redundant FISCO Power Supply - IIC	[Ex ib Gb] IIC [Ex ib Db] IIIC (-20°C ≤ T_a ≤ +60°C)
9101-22-PS 4 Segment Redundant FISCO Power Supply - IIB	[Ex ib Gb] IIB [Ex ib Db] IIIC (-20°C ≤ T_a ≤ +60°C)

The 9101 4 Segment Redundant FISCO Power Supplies comprise of the same certified 9121-IS-CM (9101-21-PS model) or 9122-IS-CM (9101-22-PS model) Power Supplies, 9129-IS FISCO Supply Arbitration Module and, where required, 9127-BLK FISCO Alarm Blanking Module components as the 9108 variant but fitted on the 9101-CA-PS Carrier.

The 9101-CA-PS Carrier comprises a 9001-53 Generic Carrier with the four Fieldbus Supply Outputs external connections via plug and socket connections with screw terminals. The non-hazardous area external connections to the input supply, host output and alarm output are via screw terminals and a multi-way connector on a 9101 Adapter Board mounted on the carrier.

Input Power Supply Terminals: POWER A and POWER B

U_m = 253V

The circuits connected to the POWER A & POWER B terminals are designed to operate from a d.c. supply voltage of up to 30V.

Host Output Terminals: HOST H1 pins 1 to 25

U_m = 253V

The circuit connected to HOST H1 is designed to operate from a d.c. supply voltage of up to 32V.

Alarm Output Terminals: ALARM Pins '+' & '-'

U_m = 253V

Fieldbus Supply Outputs: SEGMENT1, SEGMENT2, SEGMENT3 or SEGMENT4 Pins '+' w.r.t. '-' (9101-21-PS IIC model only)

U_o = 14V C_o = 0.20µF
I_o = 180mA @ 14V L_o = 300µH
P_o = 2.52W

Fieldbus Supply Outputs: SEGMENT1, SEGMENT2, SEGMENT3 or SEGMENT4 Pins '+' w.r.t. '-' (9101-22-PS IIB model only)

U_o = 14.8V C_o = 0.50µF
I_o = 359mA @ 14.8V L_o = 550µH
P_o = 5.31W

Each Fieldbus Supply Output must be considered as a separate intrinsically safe circuit.

9107 4 Segment Redundant FISCO Power Supply Unit

Model Range

The 9107 4 Segment Redundant FISCO Power Supply range comprises the following models: -

9107-21-PS 4 Segment Redundant FISCO Power Supply - IIC	[Ex ib Gb] IIC [Ex ib Db] IIIC (-20°C ≤ T_a ≤ +60°C)
9107-22-PS 4 Segment Redundant FISCO Power Supply - IIB	[Ex ib Gb] IIB [Ex ib Db] IIIC (-20°C ≤ T_a ≤ +60°C)

The 9107 4 Segment Redundant FISCO Power Supplies comprise of the same 9121-IS-CM (9107-21-PS model) or 9122-IS-CM (9107-22-PS model) Power Supplies, 9129-IS FISCO Supply Arbitration Module and, where required, 9127-BLK FISCO Alarm Blanking Module components as the 9108 variant but fitted on the 9107-CA-PS Carrier.

The 9107-CA-PS Carrier comprises a 9001-53 Generic Carrier with the four Fieldbus Supply Outputs external connections via plug and socket connections with screw terminals. The non-hazardous area

external connections to the input supply, host output and alarm output are via screw terminals on a 9107 Adapter Board mounted on the carrier.

Input / Output Parameters

Input Power Supply Terminals: POWER A Pins '+' & '-' and POWER B Pins '+' & '-'

U_m = 253V

The circuits connected to the POWER A & POWER B terminals are designed to operate from a d.c. supply voltage of up to 30V.

Host Output Terminals: HOST 1A, HOST 1B, HOST 2A, HOST 2B, HOST 3A, HOST 3B, HOST 4A and HOST 4B

U_m = 253V

The circuit connected to the HOST 1A, HOST 1B, HOST 2A, HOST 2B, HOST 3A, HOST 3B, HOST 4A and HOST 4B terminals are designed to operate from a d.c. supply voltage of up to 32V.

Alarm Output Terminals: ALARM Pins '+' & '-'

U_m = 253V

Fieldbus Supply Outputs: SEGMENT1, SEGMENT2, SEGMENT3 or SEGMENT4 Pins '+' w.r.t. '-' (9107-21-PS IIC model only)

U_o = 14V C_o = 0.20µF
I_o = 180mA @ 14V L_o = 300µH
P_o = 2.52W

Fieldbus Supply Outputs: SEGMENT1, SEGMENT2, SEGMENT3 or SEGMENT4 Pins '+' w.r.t. '-' (9107-22-PS IIB model only)

U_o = 14.8V C_o = 0.50µF
I_o = 359mA @ 14.8V L_o = 550µH
P_o = 5.31W

Each Fieldbus Supply Output must be considered as a separate intrinsically safe circuit.

9109 4 Segment Redundant FISCO Power Supply Unit

Model Range

The 9109 4 Segment Redundant FISCO Power Supply range comprises the following models: -

9109-21-PS 4 Segment Redundant FISCO Power Supply - IIC	[Ex ib Gb] IIC [Ex ib Db] IIIC (-20°C ≤ T_a ≤ +60°C)
9109-22-PS 4 Segment Redundant FISCO Power Supply - IIB	[Ex ib Gb] IIB [Ex ib Db] IIIC (-20°C ≤ T_a ≤ +60°C)

The 9109 4 Segment Redundant FISCO Power Supplies comprise of the same 9121-IS-CM (9109-21-PS model) or 9122-IS-CM (9109-22-PS model) Power Supplies, 9129-IS FISCO Supply Arbitration Module and, where required, 9127-BLK FISCO Alarm Blanking Module components as the 9108 variant but fitted on the 9109-CA-PS Carrier. In addition to the above circuitry, two 9126-PU 4 Segment Host Power Supply Units are fitted each providing 4 separate supplies to the Host Control System on the non-hazardous area side of the circuitry. The 9126-PU units are powered from the same supply inputs as the other circuitry fitted on the carrier and all its other interconnections are via the 9109 carrier.

The 9109-CA-PS Carrier comprises a 9001-53 Generic Carrier with the four Fieldbus Supply Outputs external connections via plug and socket connections with screw terminals. The non-hazardous area external connections to the input supply, host output and alarm output are via screw terminals on a 9109 Adapter Board mounted on the carrier. The two 9126-PU 4 Segment Host Power Supplies are mounted on top of the 9109 adapter.

Input / Output Parameters

Input Power Supply Terminals: POWER A Pins '+' & '-' and POWER B Pins '+' & '-'

U_m = 253V

The circuits connected to the POWER A & POWER B terminals are designed to operate from a d.c. supply voltage of up to 30V.

Host Output Terminals: HOST 1A, HOST 1B, HOST 2A, HOST 2B, HOST 3A, HOST 3B, HOST 4A and HOST 4B

U_m = 253V

The circuit connected to the HOST 1A, HOST 1B, HOST 2A, HOST 2B, HOST 3A, HOST 3B, HOST 4A and HOST 4B terminals are designed to operate from a d.c. supply voltage of up to 32V.

Alarm Output Terminals: ALARM Pins '+' & '-'

U_m = 253V

Fieldbus Supply Outputs: SEGMENT1, SEGMENT2, SEGMENT3 or SEGMENT4 Pins '+' w.r.t. '-' (9109-21-PS IIC model only)

U_o	=	14V	C_o	=	0.20µF
I_o	=	180mA @ 14V	L_o	=	300µH
P_o	=	2.52W			

Fieldbus Supply Outputs: SEGMENT1, SEGMENT2, SEGMENT3 or SEGMENT4 Pins '+' w.r.t. '-' (9109-22-PS IIB model only)

U_o	=	14.8V	C_o	=	0.50µF
I_o	=	359mA @ 14.8V	L_o	=	550µH
P_o	=	5.31W			

Each Fieldbus Supply Output must be considered as a separate intrinsically safe circuit.