1 **TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 08ATEX4130X** Issue: **0**

4 Equipment: **9468-ET 10/100 Ethernet Isolator**

5 Applicant: **Controlled Systems Ltd**

6 Address: Ryder Close
Cadley Hill
Swadlincote
Derbyshire
DE11 9EU
UK

(**These products** may be manufactured at any facility listed on Quality Assurance Notification Sira 98 ATEX M 034 that has been audited for the manufacture of the type of protection listed)

7 This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

8 Sira Certification Service certifies that this equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 3 equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0:2006	EN 60079-11 :2007	EN 60079-15 :2005
IEC 60079-0 :2007	(for guidance on the Gc, nLc & nAc marking)	IEC 60079-26 :2006

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

11 This TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following:

II 3 G
Ex ic (ia) IIC T4 Gc (Ta = -40°C to +70°C)
Ex nLc nAc (ia) IIC T4 (Ta = -40°C to +70°C)

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C. Index 16

DR Stubbings BA MIET
Certification Manager

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13 **DESCRIPTION OF EQUIPMENT**

The electronic components of the 9468-ET 10/100 Ethernet Isolator Module are mounted on printed circuit boards within a plastic enclosure that is designed for mounting on a DIN rail. External electrical connections are made via screw type terminals and/or connectors mounted on the top of the enclosure. The module may optionally be encapsulated, but this is not a requirement for certification.

The connectors do not meet the ingress protection rating of IP20; therefore, the installer must ensure that the module is adequately protected for the intended place of installation.

The 'ic' certified 9468-ET 10/100 Ethernet Isolator Module has the following safety description.

Terminals T1, T2 wrt T3, T4 (coded Ex ic)
Certified intrinsically safe Ex ic power supply input (any Ex ic power supply connected shall not be supplied from a source of voltage exceeding 250V r.m.s. or 250V d.c.).

Ui = 30V d.c.

Terminal T14 wrt T15 coloured blue (optional PoEx) (Ex ia or Ex ib)
Certified intrinsically safe Ex ia (for zone 0 or 1 Ethernet Systems) or Ex ib (for zone 1 Ethernet Systems only) power supply input.

Ui = 15.4V
Ci = 0.075µF
Li = 0

RJ45 connector to/from zone 1/zone 0 Hazardous Area (10/100 Base T), coloured blue, marked 'HAZARDOUS AREA' 'LAN'
(Ex ia or Ex ib (the latter if Ex ib power supply connected to Terminal T14 wrt T15)).

For connection to RJ45 connector on other certified 9400 Series Ethernet Modules only,
all of which are powered from a single intrinsically safe supply. Connection to other Ethernet Systems requires special consideration and is outside the scope of this certificate.

No power supply connected to terminal T14 wrt T15
Uo = 0 Vd.c.
Io = 0 Ad.c.
Po = 0 Wd.c.
Ci = 0.075µF
Li = 0
Ui = 15.4V Maximum (PoEx)

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SCHEDULE

TYPE EXAMINATION CERTIFICATE **Sira 08ATEX4130X**
Issue 0

Intrinsically safe power supply connected to terminal T14 wrt T15
(Power supply provides intrinsically safe supply output via PoEx (pins 4, 5 wrt pins 7, 8) on RJ45)

Uo	=	Uo of intrinsically safe power supply connected to terminals T14 wrt T15
Io	=	Io of intrinsically safe power supply connected to terminals T14 wrt T15
Po	=	Po of intrinsically safe power supply connected to terminals T14 wrt T15
Co	=	Co of intrinsically safe power supply connected to terminals T14 wrt T15 (less 0.075µF and any cable capacitance at the terminals T14 and T15)
Lo	=	Lo of intrinsically safe power supply connected to terminals T14 wrt T15 (less any cable inductance at the terminals T14 and T15)
Ui	=	0

RJ45 connector to/from safe area/zone 2 Hazardous Area, marked 'SAFE AREA' 'LAN' (10/100 Base T), coloured grey (Ex ic)

(Certified Ex ic equipment input/output (any equipment connected shall not be supplied from a source of voltage exceeding 250V r.m.s. or 250V d.c.).

Uo	=	4V peak to peak max.	(IEEE802.3 10Base-T Ethernet signal)
Io	=	65mA peak to peak max.	(IEEE802.3 10Base-T Ethernet signal)
Ui	=	5V peak to peak max.	(IEEE802.3 10Base-T Ethernet signal)
Ii	=	70mA peak to peak max.	(IEEE802.3 10Base-T Ethernet signal)
Ci	=	0	
Li	=	700µH	

The 'nLc' 'nAc' certified 9468-ET 10/100 Ethernet Isolator Module has the following safety description:-

Terminals T1, T2 wrt T3, T4

Um	=	250V
Rated supply voltage	=	30V d.c. Maximum.

Terminal T14 wrt T15 coloured blue (optional PoEx) (coded Ex ia or Ex ib)
Certified intrinsically safe Ex ia (for zone 0 or 1 Ethernet Systems) or Ex ib (for zone 1 Ethernet Systems only) power supply input.

Ui	=	15.4V
Ci	=	0.075µF
Li	=	0

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RJ45 connector to/from zone 1/zone 0 Hazardous Area (10/100 Base T), coloured blue, marked 'HAZARDOUS AREA' 'LAN'

(Ex ia or Ex ib (the latter if Ex ib power supply connected to Terminal T14 wrt T15).

For connection to RJ45 connector on other certified 9400 Series Ethernet Modules only, all of which are powered from a single intrinsically safe supply. Connection to other Ethernet Systems requires special consideration and is outside the scope of this certificate.

No power supply connected to terminal T14 wrt T15

Uo	=	0 Vd.c.
Io	=	0 Ad.c.
Po	=	0 Wd.c.
Ci	=	0.075µF
Li	=	0
Ui	=	15.4V Maximum (PoEx)

Intrinsically safe power supply connected to terminal T14 wrt T15
(Power supply provides intrinsically safe supply output via PoEx (pins 4, 5 wrt pins 7, 8) on RJ45)

Uo	=	Uo of intrinsically safe power supply connected to terminals T14 wrt T15
Io	=	Io of intrinsically safe power supply connected to terminals T14 wrt T15
Po	=	Po of intrinsically safe power supply connected to terminals T14 wrt T15
Co	=	Co of intrinsically safe power supply connected to terminals T14 wrt T15 (less 0.075µF and any cable capacitance at the terminals T14 and T15)
Lo	=	Lo of intrinsically safe power supply connected to terminals T14 wrt T15 (less any cable inductance at the terminals T14 and T15)
Ui	=	0

RJ45 connector to/from safe area/zone 2 Hazardous Area, marked 'SAFE AREA' 'LAN' (10/100 Base T)

Um	=	250V	
Rated output voltage	=	4V peak to peak max.	(IEEE802.3 10Base-T Ethernet signal)
Rated output current	=	65mA peak to peak max.	(IEEE802.3 10Base-T Ethernet signal)
Rated input voltage	=	5V peak to peak max.	(IEEE802.3 10Base-T Ethernet signal)
Rated input current	=	70mA peak to peak max.	(IEEE802.3 10Base-T Ethernet signal)

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report No.	Comment
0	28 August 2008	R52A17748F	The release of the prime certificate.

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15 SPECIAL CONDITIONS FOR SAFE USE

15.1 The non-metallic enclosure of the 'ic' certified 9468-ET 10/100 Ethernet Isolator module does not satisfy Table 4 of EN 60079-0:2006 for equipment protection level Gc and could be a potential electrostatic charging hazard, this must be taken into consideration during the installation of the modules.

15.2 The 'nLc' 'nAc' certified 9468-ET 10/100 Ethernet Isolator module shall be installed in an ATEX Component Approved Ex 'e' enclosure that provides a level of protection appropriate for its intended environment of use. The minimum level of ingress protection provided shall be IP54.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed reports listed in Section 14.2.

17 CONDITIONS OF CERTIFICATION

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of Type Examination Certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

17.3 DB1 must be constructed from 2 zener diodes type 1N5337B connected in parallel.

17.4 The following routine tests shall be carried out on transformer T1 (TRF305).

A voltage of 1500 V rms shall be applied for 60 seconds as required by clause 11.2 of IEC 60079-11:2006 between:-

- the primary and secondary (1) windings
- the primary and secondary (2) windings
- the secondary (1) and secondary (2) windings

17.5 After assembly both sides of the printed circuit boards of the 'ic' certified 9468-ET 10/100 Ethernet Isolator module shall have a type 1 coating, as specified in IEC 60664-3:2003, applied.

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Certificate Annexe

Certificate Number: **Sira 08ATEX4130X**

Equipment: **9468-ET 10/100 Ethernet Isolator**

Applicant: **Controlled Systems Ltd**

Issue 0

Drawing No.	Sheet	Rev.	Date	Description
CSL-ZENER	1 of 1	3	28 Jan 03	Zener diode assembly
13003-PCB	1 of 1	Orig.	23 Aug 02	Zener PCB
9468-ET Ethernet Isolator Module				
9468-ASSY	1 of 1	1	26 Oct 07	General Assembly, Ethernet Isolator
9468-PSU	1 of 1	4	04 Apr 08	Circuit Diagram, Ethernet Isolator PSU Board
9468-BX	1 of 1	5	29 Mar 08	Circuit Diagram, Ethernet Isolator Main Board
9468-PSU PCB	1 of 1	4	04 Apr 08	Ethernet Isolator PSU Board Artworks
9468-BX PCB	1 of 1	5	29 Mar 08	Ethernet Isolator Main Board Artworks
TFR305	1 and 2	2	10 Dec 07	Transformer T5 (TRF305) details
9468-Label ATEX Zone 2	1 of 1	3	28 Jul 08	9468 Ethernet Isolator ATEX Zone 2 Cert Label

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