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 SIR 08.0032X issue No.:0	Certificate history:
Status:	**Current**	
Date of Issue:	**2008-08-28**	Page 1 of 4

Applicant: **Controlled Systems Limited**
Ryder Close
Cadley Hill
Swadlincote
Derbyshire
DE11 9EU
United Kingdom

Electrical Apparatus: **9468-ET 10/100 Ethernet Isolator**
Optional accessory:

Type of Protection: **Type n**

Marking: **Ex ic [ia] IIC T4 Gc (Ta = -40°C to +70°C)**
Ex nLc nAc [ia] IIC T4 (Ta = -40°C to +70°C)

Approved for issue on behalf of the IECEx Certification Body: D R Stubbings BA MIET

Position: Certification Manager

Signature:
(for printed version)

Date: 2008-08-28

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:

SIRA Certification Service
Rake Lane
Eccleston
Chester
CH4 9JN
United Kingdom

sira CERTIFICATION

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Manufacturer:

Controlled Systems Limited
Ryder Close
Cadley Hill
Swadlincote
Derbyshire
DE11 9EU
United Kingdom

Manufacturing location(s):

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 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-15 : 2005-03 Edition: Ed 3	Electrical apparatus for explosive gas atmospheres Part 15: Contruction, test and Marking of Type of Protection "n" electrical apparatus

*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/SIR/ExTR08.0105/00

Quality Assessment Report:
GB/SIR/QAR07.0023/00

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Schedule

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

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.

See Annexe for full Safety Description

CONDITIONS OF CERTIFICATION: YES as shown below:

1 The non-metallic enclosure of the 'ic' certified 9468-ET 10/100 Ethernet Isolator module does not satisfy Table 6 of IEC 60079-0:2007 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.

2 The 'nLc' 'nAc' certified 9468-ET 10/100 Ethernet Isolator module shall be installed in an IECEx 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

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EQUIPMENT(continued):

The Manufacturer shall note the following conditions of manufacture:

1. DB1 must be constructed from 2 zener diodes type 1N5337B connected in parallel.
2. 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.
3. 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.

Annexe: IECEx SIR 08.0032X_Iss0_Annexe.pdf

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)

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

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Web: www.siracertification.com

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

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

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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)

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