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 TRA 17.0005X

Issue No: 0

Certificate history:
Issue No. 0 (2017-07-03)

Status: **Current**

Date of Issue: **2017-07-03**

Applicant: **Controlled Systems Ltd**
Unit 1 Ryder Close
Swadlincote
Derbyshire DE11 9EU
United Kingdom

Equipment: **Ethernet devices 9400 Series**
Optional accessory:

Type of Protection: **Intrinsic Safety, op is**

Marking:

Ex ia op is I Ma -40°C ≤ T_{amb} ≤ +70°C for 9465-ET

Ex ia I Ma Ta -40°C ≤ T_{amb} ≤ +70°C for 9466-ET

Ex ia I Ma Ta -40°C ≤ T_{amb} ≤ +60°C for 9469-ETPLUS

Approved for issue on behalf of the IECEx Certification Body: James Bes

Position: Cerification Authority

Signature:
(for printed version)

Date: 2017-07-03

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:

TUV Rheinland Australia Pty. Ltd
1/30 Kennington Drive
Tomago NSW 2322
Australia

TÜVRheinland

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Manufacturer:	**Controlled Systems Ltd** Unit 1 Ryder Close Swadlincote Derbyshire DE11 9EU **United Kingdom**	

Additional 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 : 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"
IEC 60079-28 : 2006-08 Edition:1	Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation

*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:

AU/TRA/ExTR17.0013/00 GB/SIR/ExTR07.0071/00 GB/SIR/ExTR09.0170/00
GB/SIR/ExTR11.0192/00

Quality Assessment Report:

GB/SIR/QAR07.0023/10

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The 9400 Series Ethernet devices allow for an Ethernet network to be extended into a potentially explosive area.

The 9465-ET 10/100 Media Converter module may be located in the explosive area. It allows the copper media Ethernet to be extended into a Fibre connection for communication over extended lengths. The module receives power either from an intrinsically safe power supply or by power over the ethernet (POEx).

The 9466-ET 10/100 5 Port Switch may be located in the explosive area. It allows for connection between five Ethernet networks, using a low latency 'store and forward' mechanism to only transmit 'good' packets of data. Power is provided using a separate IS power supply.

The 9469-ETPLUS WLAN AP/Bridge module may be located in the explosive area. It provides an interface between an ethernet network and a wireless network. The wireless output is less than 500mW. The aerial may be either omnidirectional or unidirectional, depending upon the application. The module receives power either from an intrinsically safe power supply or by power over the ethernet (POEx).

See Annex for further details.

SPECIFIC CONDITIONS OF USE: YES as shown below:

See Annex for details

Annex:

IECEx TRA 17.0005X Certificate Annex Final.pdf

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Description (continued from the 'Equipment' section in the main body of the certificate):

9465-ET 10/100 Media Converter module:
The module contains four printed circuit boards (Main, Optic, Power Supply, Overvoltage) completely encapsulated inside a plastic enclosure suitable for mounting on a DIN rail, except for the connectors and the LEDs. External connections are made by terminals and sockets on the front panel with LED indicators to show the status.

The optic output is less than 5mW.

9466-ET 10/100 5 Port Switch module:
The module contains four printed circuit boards (Main, Power Supply, Overvoltage, LED), completely encapsulated inside a plastic enclosure suitable for mounting on a DIN rail, except for a flex pcb, the connectors and the LEDs. External connections are made by screw type terminals and/or connectors mounted on top of the enclosure.

9469-ETPLUS WLAN AP/Bridge module:
The module contains two printed circuit boards, completely encapsulated inside a plastic enclosure suitable for mounting on a DIN rail, except for the connectors, reset switch and the LEDs. External connections are made by terminals and sockets on the front panel with LED indicators to show the status, and a reset button.

This equipment was earlier certified under IECEx SIR 07.0042X-2 on the basis of the technical reports:

- GB/SIR/ExTR07.0071/00 (SIRA internal report R52L14824D): for compliance with IEC 60079-0:2004; IEC 60079-11:2006
- GB/SIR/ExTR09.0170/00: additionally for compliance with IEC 60079-28:2006
- GB/SIR/ExTR011.0192/00: additionally for replacement of TNC antenna connectors with the SMA connectors, and coupling capacitors etc in the 9469 products.

Report AU/TRA/ExTR17.0013/00 provides assessment compliance of further changes as follows:

- Re-assessment of all models to the later Standards IEC 60079-0:2011 and IEC 60079-11:2011
- For all models, revision to the marking plate to allow alternate certificate number IECEx TRA 17.0005X.
- For model 9465 and 9466, replacement of the Zener diode assembly block DB1 with a SCR assembly block OVP
- Minor corrections to the earlier reports

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Annexe

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Conditions of Manufacture pertaining to Issue 0 of this Certificate:

9465-ET 10/100 Media Converter module:

1. The value of resistors R1, R2, R6, R7 in the Over Voltage Protection board shall be selected to provide a maximum voltage of 5.88 V on TP1, TP2 before it gets tripped.

9466-ET 10/100 5 Port Switch module:

1. The value of resistors R1, R2, R6, R7 in the Over Voltage Protection board shall be selected to provide a maximum voltage of 5.88 V on TP1, TP2 before it gets tripped.

9469-ETPLUS WLAN AP/Bridge module:

1. The value of resistors RD, RE1-5 & RF, RG1-5 in the PSU board shall be selected to provide a maximum crowbar voltage of 5.88 V on LK1, LK2, LK3 before it gets tripped.

Conditions of Certification pertaining to Issue 0 of this Certificate:

9465-ET 10/100 Media Converter module:

1. The Module shall be mounted within an enclosure providing a degree of protection equal or better than IP54, in a manner that does not impair the existing segregation distances. The enclosure shall also comply with the requirements of Clauses 7 and 8 of IEC 60079-0:2011.

2. The following parameters shall be taken into account for interconnecting in a system:

Supply Input	Terminals T1, T2 wrt T3, T4 (Or the Power Over Ethernet - see below)
Ui	15.4 V
Ci	0 uF
Li	0 uH

Ethernet connection	RJ45 Connector (10/100 Base T)
Ui	15.4 V (Power Over Ethernet POEx)
Ci	0.075 uF
Li	0 uH
Uo	0 V dc
Io	0 A dc
Po	0 W dc

Fibre-optic output	Using fibre-optic device HFBR1312 or AFBR-5803AZ or AFCT-5179CZ
Pmax	5 mW Optical

9466-ET 10/100 5 Port Switch module:

1. The Module shall be mounted within an enclosure providing a degree of protection equal or better than IP54, in a manner that does not impair the existing segregation distances. The enclosure shall also comply with the requirements of Clauses 7 and 8 of IEC 60079-0:2011.

2. The following parameters shall be taken into account for interconnecting in a system:

Supply Input	Terminals T1, T2 wrt T3, T4
Ui	15.4 V
Ci	0 uF
Li	0 uH

POEx Supply Input	Terminals T6 wrt T7, T8 wrt T9, T10 wrt T11, T12 wrt T13, T14 wrt T15
Ui	15.4 V
Ci	0.075 uF
Li	0 uH

Ethernet connections Connector A	RJ45 Connector (10/100 Base T)
Ui	15.4 V (Power Over Ethernet POEx)
Ci	0.075 uF
Li	0 uH
Uo	If POEx not connected, these are not applicable If POEx is connected, refer to the certified parameters of the intrinsically safe power supply connected to T6 wrt T7 for the output parameters, after allowing for a Ci of 0.075 uF
Io	
Po	
Lo	
Lo/Ro	

Ethernet connections Connector B	RJ45 Connector (10/100 Base T)
Ui	15.4 V (Power Over Ethernet POEx)
Ci	0.075 uF
Li	0 uH
Uo	If POEx not connected, these are not applicable If POEx is connected, refer to the certified parameters of the intrinsically safe power supply connected to T8 wrt T9 for the output parameters, after allowing for a Ci of 0.075 uF
Io	
Po	
Lo	
Lo/Ro	

Ethernet connections Connector C	RJ45 Connector (10/100 Base T)
Ui	15.4 V (Power Over Ethernet POEx)
Ci	0.075 uF
Li	0 uH
Uo	If POEx not connected, these are not applicable If POEx is connected, refer to the certified parameters of the intrinsically safe power supply connected to T10 wrt T11 for the output parameters, after allowing for a Ci of 0.075 uF
Io	
Po	
Lo	
Lo/Ro	

Ethernet connections Connector D	RJ45 Connector (10/100 Base T)
Ui	15.4 V (Power Over Ethernet POEx)
Ci	0.075 uF
Li	0 uH
Uo	If POEx not connected, these are not applicable If POEx is connected, refer to the certified parameters of the intrinsically safe power supply connected to T12 wrt T13 for the output parameters, after allowing for a Ci of 0.075 uF
Io	
Po	
Lo	
Lo/Ro	

Ethernet connections Connector E	RJ45 Connector (10/100 Base T)
Ui	15.4 V (Power Over Ethernet POEx)
Ci	0.075 uF
Li	0 uH
Uo	If POEx not connected, these are not applicable If POEx is connected, refer to the certified parameters of the intrinsically safe power supply connected to T14 wrt T15 for the output parameters, after allowing for a Ci of 0.075 uF
Io	
Po	
Lo	
Lo/Ro	

Management Port Connector CON1 Mini DIN 8-way connector	Pin 5 wrt Pins 4, 8
Ui	12.5 V
Ci	0 uF
Li	0 uH
Uo	3.15 V
Io	3.4 mA
Po	2.7 mW
Co	50 uF
Lo	1 H
	Pins 1, 3, 7 wrt Pins 4, 8
Ui	0 V
Ci	0 uF
Li	0 uH
Uo	5.88 V
Io	48 mA
Po	72 mW
Co	20 uF
Lo	15 mH

9469-ETPLUS WLAN AP/Bridge module:

1. Module shall be mounted within an enclosure providing a degree of protection equal or better than IP54, in a manner that does not impair the existing segregation distances. The enclosure shall also comply with the requirements of Clauses 7 and 8 of IEC 60079-0:2011.

2. The following parameters shall be taken into account for interconnecting in a system:

Supply Input	Terminals T1, T2 wrt T3, T4 (Or the Power Over Ethernet - see below)
Ui	12.8 V
Ci	0 uF
Li	0 uH

Antenna “A”	SMA connector
Po	500 mW maximum RF

Antenna “B”	SMA connector
Po	500 mW maximum RF

Ethernet connection	RJ45 Connector (10/100 Base T)
Ui	12.8 V (Power Over Ethernet POEx)
Ci	0.075 uF
Li	0 uH
Uo	0 V dc
Io	0 A dc
Po	0 W dc

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Annexe

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Drawing list pertaining to Issue 0 of this Certificate:

Common drawing:

Manufacturer's Documents

Title:	Drawing No.:	Pages	Rev. Level:	Date:
9400 Ethernet (Haz) QLD IECEx Certification Label Drawing	9400Haz QLD IECEx Label	1	1	2017-04-27

9465-ET 10/100 Media Converter module:

Manufacturer's Documents

Title:	Drawing No.:	Pages	Rev. Level:	Date:
10/100Mb Media Converter 9465 Assembly	9465-ASSY	1	1	2007-03-14
10/100MB Media Converter PSU Board Circuit Diagram	9465-PSU	1	2A	2017-06-12
10/100MB Media Converter Main Board Circuit Diagram	9465-FO	1	3	2007-12-11
10/100MB Media Converter Optic Circuit Diagram	9465-OPTIC	1	1	2006-02-16
10/100MB Media Converter PSU Board Artworks	9465-PSU PCB	1	2A	2017-06-12
10/100MB Media Converter Main Board Artworks	9465-FO PCB	1	3	2007-08-08
10/100MB Media Converter Optic Board Artworks	9465-OPTIC PCB	1	1	2007-03-23
Over Voltage Protection Board Circuit Diagram	CSL-OVP	1	1	2017-06-15
CSL-OVP Artworks	CSL-OVP PCB	1	1	2017-06-15

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9466-ET 10/100 5 Port Switch module:

Manufacturer's Documents

Title:	Drawing No.:	Pages	Rev. Level:	Date:
10/100Mb Ethernet Switch 9466 Assembly	9466-ASSY	1	2	2007-12-10
10/100Mb Ethernet Switch – Flex Circuit Circuit Diagram	9466-FLEX	1	1	2007-10-24
10/100MB Ethernet Switch Flex Board Artworks	9466-FLEX PCB	1	1	2007-10-24
10/100MB Ethernet Switch - LED Board Circuit Diagram	9466-LED	1	3	2007-12-11
10/100MB Ethernet Switch LED Board Artworks	9466-LED PCB	1	3	2007-10-24
10/100MB Ethernet Switch PSU Board Circuit Diagram	9466-PSU	1	2A	2017-06-12
10/100MB Ethernet Switch PSU Board Artworks	9466-PSU PCB	1	2A	2017-06-12
10/100MB Ethernet Switch – Main Board Circuit Diagram	9466-SW	1	4	2007-12-11
10/100MB Ethernet Switch Main Board Artworks	9466-SW PCB	2	4	2007-10-04
Over Voltage Protection Board Circuit Diagram	CSL-OVP	1	1	2017-06-15
CSL-OVP Artworks	CSL-OVP PCB	1	1	2017-06-15

9469-ETPLUS WLAN AP/Bridge module:

Manufacturer's Documents

Title:	Drawing No.:	Pages	Rev. Level:	Date:
WLAN AP/Bridge 9469 Assembly	9469-Assy	1	1	2007-03-14
WLAN AP/Bridge PSU Board Circuit Diagram	9469-PSU	1	2	2007-12-11
WLAN AP/Bridge PSU Board Artworks	9469-PSU PCB	1	2	2007-03-23
WLAN AP/Bridge Main Board Circuit Diagram	9469-WL	1	4	2011-06-14
WLAN AP/Bridge Main Board Artworks	9469-WL PCB	1	4	2011-07-05