



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX ExTC 22.0002X** Page 1 of 4 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2022-04-28

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

Equipment: **9478-ET(G) and 9478-ETX(G) Ethernet Isolators**

Optional accessory:

Type of Protection: **Intrinsic safety 'i'**

Marking: [Ex ia Ma] I
-40°C ≤ Tamb ≤ +70°C

Approved for issue on behalf of the IECEx
Certification Body:

Justin Gavranich

Position:

Certification Authority

Signature:
(for printed version)

Date:
(for printed version)

2022-04-28

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 www.iecex.com or use of this QR Code.



Certificate issued by:

Ex Testing and Certification Pty Ltd
1/30 Kennington Drive
Tomago NSW 2322
Australia



TESTING & CERTIFICATION



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

Manufacturing locations: **Controlled Systems Limited**
Unit 1
Ryder Close
Swadlincote
Derbyshire
DE11 9EU UK
United Kingdom

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 equipment 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 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

This Certificate **does not** indicate compliance with 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/CML/ExTR21.0222/00](#)

Quality Assessment Report:

[GB/SIR/QAR07.0023/16](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The 9478-ET(G) and 9478-ETX(G) are isolating ethernet switches.

The 9478-ET(G) has a single PCB separating the components to a primary and secondary side, with a transformer, opto isolator and fibre optic connection joining the two sides. It contains two RJ45 Ethernet connections for the non-hazardous side, and one RJ45 Ethernet for the intrinsically safe hazardous area.

The 9478-ETX(G) is similar in design forming the isolation between primary and secondary side, but the PCB has been split into two, and these are then connected via internal wiring. It contains one RJ45 Ethernet connection for the non-hazardous side, and one RJ45 Ethernet for the intrinsically safe hazardous area. Additionally, the 9478-ETX may be configured for POEx connection by using suitable jumpers, and will then require connection to a suitable 12V IS supply.

SPECIFIC CONDITIONS OF USE: YES as shown below:

See Annex for details



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Additional information:

Job 21149

Annex:

[IECEX Certificate Annex 22.0002X-0 Final.pdf](#)

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Annexe



Annexe for Certificate No.:

IECEX ExTC 22.0002X

Issue No.:

0

Description:

As provided in the main body of the certificate.

Both models are available for BASE-T Ethernet with 10/100 or Gigabit Function.



9478-ET(G)
Intrinsically Safe Gigabit Ethernet
Galvanic Isolator

9478-ETX(G)
Intrinsically Safe Gigabit Ethernet
Galvanic Isolator

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Annexe



Annexe for Certificate No.:

IECEX ExTC 22.0002X

Issue No.:

0

Specific Conditions of Use pertaining to Issue 0 of this Certificate:

The following parameters shall be taken into account when connecting in an intrinsically safe system:

9478-ET(G): 10/100 or Gigabit Function		
Non-i.s. connection: CON1, LAN (RJ45) SK1, SK2		
Un (SELV between pins of the same connector)	30V	
Um (between non-i.s. and i.s. connections)	250V	
IS connection LAN (RJ45) SK3 (Blue colour)		
	10/100	Gigabit
Uo	5.88V	5.88V
Io	2.18A	4.36A
Po	0.83W	0.83W
Co	1000 μ F	1000 μ F
Lo, or Lo/Ro	98.2 μ H, or 146 μ H/ Ω	24.5 μ H, or 73 μ H/ Ω
Ci	0.48 μ F	0.48 μ F
Li	0	0

The values of Co and Lo given above apply when one of the two conditions below is given:

- The total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- The total Ci of the external circuit (excluding the cable) is < 1% of the Co value.

The above parameters are reduced to 50% when both of the two conditions below are given:

- The total Li of the external circuit (excluding the cable) > 1% of the Lo and
- The total Ci of the external circuit (excluding the cable) > 1% of the Co.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1 μ F for IIB and 600nF for IIC.

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Annexe



Annexe for Certificate No.:	IECEX ExTC 22.0002X	Issue No.:	0
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9478-ETX(G): 10/100 or Gigabit Function		
Non-i.s. connections: T1 to T4, LAN (RJ45) SK1		
Un (SELV between pins of the same connector)	30V	
Um (between non-i.s. and i.s. connections)	250V	
Connection to another Associated Intrinsically Safe supply for PoEx output: T14 wrt T15 - not available in Gigabit Function		
Ui	15.5V	
Ci	0.48 μ F	
Li	0	
IS connection LAN (RJ45) SK2 (Blue colour)		
	10/100	Gigabit
Uo	5.88V (or PoEx power supply Uo parameter when connected at T14, T15)	5.88V
Io	2.18A	4.36A
Po	0.83W	0.83W
Co	1000 μ F	1000 μ F
Lo, or Lo/Ro	98.2 μ H or 146 μ H/ Ω	24.5 μ H or 73 μ H/ Ω
Ci	0.48 μ F	0.48 μ F
Li	0	0

The values of Co and Lo given above apply when one of the two conditions below is given:

- The total Li of the external circuit (excluding the cable) is < 1% of the Lo value or
- The total Ci of the external circuit (excluding the cable) is < 1% of the Co value.

The above parameters are reduced to 50% when both of the two conditions below are given:

- The total Li of the external circuit (excluding the cable) > 1% of the Lo and
- The total Ci of the external circuit (excluding the cable) > 1% of the Co.

Note: the reduced capacitance of the external circuit (including cable) shall not be greater than 1 μ F for IIB and 600nF for IIC.

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Annexe



Annexe for Certificate No.:

IECEX ExTC 22.0002X

Issue No.:

0

Drawing list pertaining to Issue 0 of this Certificate:

Manufacturer's Documents				
Title:	Drawing No.:	Pages	Rev. Level:	Date:
9478 IECEX (QLD) Certification Label Drawing	9478 IECEX (QLD) Label	1	1	2022-02-25
9478-ET(G) Assembly Drawing	9478-ET(G) Assy	2	1	2022-02-28
9478-ISO Gigabit Ethernet Isolator Circuit Diagram	9478-ISO	3	2	2022-02-01
9478-ISO Artworks	9478-ISO PCB	3	2	2022-02-02
9478-ETX(G) Assembly Drawing	9478-ETX(G) Assy	2	1	2022-02-28
9478-PSU Gigabit Ethernet Isolator Power Supply Circuit Diagram	9478-PSU	1	1	2021-11-10
9478-ETX Gigabit Ethernet Isolator Circuit Diagram	9478-ETX	2	2	2022-02-01
9478-PSU Artworks	9478-PSU PCB	1	1	2022-02-28
9478-ETX Artworks	9478-ETX PCB	2	2	2022-02-28
Instruction Manual 9478-ET(G) Intrinsically Safe Gigabit Ethernet Galvanic Isolator	INM 9478-ET(G)	14	1	2022-03
Instruction Manual 9478-ETX(G) Intrinsically Safe Gigabit Ethernet Galvanic Isolator	INM 9478-ETX(G)	14	1	2022-03