



# 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](http://www.iecex.com)

Certificate No.: **IECEX CML 21.0121X** Page 1 of 4 Certificate history:  
Status: **Current** Issue No: 2 [Issue 1 \(2023-06-16\)](#)  
[Issue 0 \(2022-04-20\)](#)  
Date of Issue: 2023-10-18  
Applicant: **Controlled Systems Limited**  
Ryder Close  
Cadley Hill  
Swadlincote  
Derbyshire DE45 9EU  
**United Kingdom**  
Equipment: **9478 Range of Ethernet Isolators**  
Optional accessory:  
Type of Protection: **Intrinsic Safety Ex "i" and Increased Safety Ex "e"**  
Marking: (-ETG and -ETXG Versions) (-ET and -ETX Versions)  
  
[Ex ia Ma] I [Ex ia Ma] I  
[Ex ia Ga] IIB [Ex ia Ga] IIC  
[Ex ia Da] IIIC [Ex ia Da] IIIC  
Ex ec [Ex ia] IIB T4 Gc Ex ec [Ex ia] IIC T4 Gc  
[Ex ic Gc] IIB [Ex ic Gc] IIC

Approved for issue on behalf of the IECEx  
Certification Body:

**L A Brisk**

Position:

**Assistant Certification Manager**

Signature:  
(for printed version)

Date:  
(for printed version)

18 Oct 2023

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Certificate issued by:

**Eurofins E&E CML Limited**  
Unit 1, Newport Business Park  
New Port Road  
Ellesmere Port, CH65 4LZ  
**United Kingdom**





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Manufacturer: **Controlled Systems Limited**  
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Derbyshire DE11 9EU  
**United Kingdom**

Manufacturing locations: **Controlled Systems Limited**  
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**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

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  
Edition:5.1

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 Reports:

[GB/CML/ExTR21.0222/00](#)

[GB/CML/ExTR23.0156/00](#)

Quality Assessment Report:

[GB/CML/QAR22.0013/01](#)



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**EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The 9478 Gigabit Ethernet Isolator provides connections from the safe area to Zones 1 or 0 intrinsically safe ethernet networks with IS Cat 5 cable or interconnects intrinsically safe ethernet networks in Zone 2.

**See Annex for full description and Conditions of Manufacture.**

**SPECIFIC CONDITIONS OF USE: YES as shown below:**

**See Annex for Specific Conditions of Use.**



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## **DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

### **Issue 1**

This issue introduces the following change:

1. The removal of a condition of manufacture.

### **Issue 2**

This issue introduces the following change:

1. Update to QAR Reference

### **Annex:**

[IECEX CML 21.0121X Iss. 2 Annex.pdf](#)

**Annexe to:** IECEx CML 21.0121X Issue 2  
**Apparatus:** Controlled Systems Limited  
**Applicant:** 9478 Ethernet Isolator



## Description

The 9478 Gigabit Ethernet Isolator provides connections from the safe area to Zones 1 or 0 intrinsically safe ethernet networks with IS Cat 5 cable or interconnects intrinsically safe ethernet networks in Zone 2.

The modules consist of a single printed circuit board or the same configuration but split over two PCB's. There is a single output LAN port for connection to the intrinsically safe ethernet network that supports either Gigabit or 10/100 communications systems

The boards are conformally coated and when installed in Zone 2 need to be in an appropriately certified enclosure.

The Ethernet Isolator has the following safety parameters:

### **9478-ET(G) Non-IS Connections: Supply (CON1), LAN RJ45 (SK1, SK2)**

### **9478-ETX(G) Non-IS Connections: Supply (T1-T4), LAN RJ45 (SK1)**

$U_n = 30 \text{ V (SELV)}$

$U_m = 250 \text{ V}$

### **9478-ET(G)**

#### **IS Connection: LAN RJ45 (SK3)**

$U_o = 5.88 \text{ V}$   
 $I_o = 2.18\text{A (10/100) or } 4.36\text{A (Gigabit)}$   
 $P_o = 0.83 \text{ W}$   
 $C_i = 0.48 \mu\text{F}$   
 $L_i = 0$

### **9478-ETX(G)**

#### **IS Connections: PoEx (T14 wrt T15)**

$U_i = 15.5 \text{ V on LAN RJ45 (SK2)}$   
 $C_i = 0.48 \mu\text{F}$   
 $L_i = 0$

#### **IS Connection LAN RJ45 (SK2)**

$U_o = 5.88 \text{ V (or PoEx power supply } U_o \text{ parameter when connected)}$   
 $I_o = 2.18\text{A (10/100) or } 4.36\text{A (Gigabit)}$   
 $P_o = 0.83 \text{ W}$   
 $C_i = 0.48 \mu\text{F}$   
 $L_i = 0$



Certificate Annex IECEx  
Version: 10.0 Approval: Approved



**Eurofins E&E CML Limited**  
Newport Business Park, New Port Road  
Ellesmere Port, CH65 4LZ, UK



The capacitance and either the inductance or the inductance to resistance ratio (L/R) of the load connected to the output terminals must not exceed the following values:

#### 10/100 Ethernet Ports

Group	Capacitance (µF)	Inductance (µH)	or	L/R Ratio (µH/Ohm)
IIC	43	7.5		11
IIB/III	1000	29.9		44
IIA	1000	59.9		89
I	1000	98.2		146

#### Gigabit 10/100/1000 Ethernet Ports

Group	Capacitance (µF)	Inductance (µH)	or	L/R Ratio (µH/Ohm)
IIB/III	1000	7.5		22
IIA	1000	15.0		44
I	1000	24.5		73

### Conditions of Manufacture

The following conditions are required of the manufacturing process for compliance with the certification.

- i. Where the product incorporates certified parts or safety critical components, the manufacturer of the product defined on this certificate shall continually monitor these parts/components for any modifications introduced by the manufacturer(s) of these constituent parts. If the manufacturer of any constituent part introduces any changes which affect the compliance of the certified product that is the subject of this certificate, the manufacturer is required to have this certificate updated.

### Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

- i. When installed in a Zone 2 environment, the apparatus must be housed in an appropriately certified enclosure as defined in IEC 60079-0 & IEC 60079-7 with the minimum dimensions of 180 mm (H) x 45 mm (W) x 145 mm (D) and IP 54.
- ii. The external combinations of capacitance and inductance have not been assessed for spark Ignition. With reference to IEC 60079-11 CL 10.1.5.2, the following Special Condition of Safe Use has been added:

The values of Co and Lo 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 1µF for IIB and 600nF for IIC.



Certificate Annex IECEX  
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