



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 CML 21.0121X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2022-04-20

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: **Ex "i" Intrinsic Safety and Ex "e" Increased Safety**

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:

R C Marshall

Position:

Operations Manager

Signature:
(for printed version)

Date:
(for printed version)

2022-04-20

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:

Eurofins E&E CML Limited
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United Kingdom





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Cadley Hill
Swalincote
Derbyshire DE11 9EU
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Manufacturing locations: **Controlled Systems Limited**
Ryder Close
Cadley Hill
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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 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:

9478 range of Ethernet Isolators

SPECIFIC CONDITIONS OF USE: YES as shown below:

Refer to certificate annex

Annex:

[Certificate Annex IECEx 210121x.pdf](#)

Annexe to: IECEx CML 21.0121X Issue 0

Applicant: Controlled Systems Limited

Apparatus: 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 boards 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 it needs 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)

Un = 30 V (SELV)

Um = 250 V

9478-ET(G)

IS Connection: LAN RJ45 (SK3)

Uo	=	5.88 V
Io	=	2.18A (10/100) or 4.36A (Gigabit)
Po	=	0.83 W
Ci	=	0.48 µF
Li	=	0

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9478-ETX(G)

IS Connections: PoEx (T14 wrt T15)

U_i = 15.5 V on LAN RJ45 (SK2)
 C_i = 0.48 μ F
 L_i = 0

IS Connection LAN RJ45 (SK2)

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

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

- i. Where the product incorporates certified parts or safety critical components, the manufacturer shall ensure that any changes to those parts or components do not affect the compliance of the certified product that is the subject of this certificate.
- ii. When the Vishay Opto Isolator CNY65 is installed in the apparatus the IECEx number will be removed from the label

Specific Conditions of Use

- 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) in 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 1uF for IIB and 600nF for IIC.