EU Type Examination Certificate CML 19ATEX2414X Issue 1

1 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

2 Equipment **947x Series IS Ethernet Modules**

3 Manufacturer **Controlled Systems Limited**

4 Address Unit 1 Ryder Close,
Swadlincote, Derbyshire
DE11 9EU, UK

5 The equipment is specified in the description of this certificate and the documents to which it refers.

6 CML B.V., Koopvaardijweg 32, 4906CV Oosterhout, The Netherlands, Notified Body Number 2776, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 12.

7 If an 'X' suffix appears after the certificate number, it indicates that the equipment is subject to conditions of safe use (affecting correct installation or safe use). These are specified in Section 14.

8 This EU Type Examination certificate relates only to the design and construction of the specified equipment or component. Further requirements of Directive 2014/34/EU Article 13 apply to the manufacture of the equipment or component and are separately certified.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the confidential report, has been demonstrated through compliance with the following documents:

IEC EN 60079-0:2018 EN 60079-11:2012 EN 60079-28:2015

10 The equipment shall be marked with the following:

Ex II 1 G	Ex II 2(1) D	Ex I M1
<u>Models 9471-xxx, 9476-xxx, 9479-xxx:</u>		
Ex ia IIB T4 Ga (-ETG versions) Ex ia IIC T4 Ga (-ET versions)	Ex ia [ia Da] IIIC T135°C Db	Ex ia I Ma
<u>Model 9475-xxx:</u>		
Ex ia op is IIB T4 Ga (-ETG versions) Ex ia op is IIC T4 Ga (-ET versions)	Ex ia [ia op is Da] IIIC T135°C Db	Ex ia op is I Ma

Ta = -40°C to +70°C (All models and versions)

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11 Description

The 947x Series Intrinsically Safe (IS) Ethernet Modules provide communication between networked devices in the Hazardous Area using Gigabit Ethernet technology. There are several types of modules described below, all of which are suitable to be located in the hazardous area.

These are designated as:

Type	10/100/1000Mbps (Gigabit)	10/100Mbps
9471	9471-ETG Serial Gateway	9471-ET Serial Gateway
9475	9475-ETG Media Converter	9475-ET Media Converter
9476	9476-ETG Ethernet Switch	9476-ET Ethernet Switch
9479	9479-ETG WLAN AP/Bridge	9479-ET WLAN AP/Bridge

9471-ETG Serial Gateway and 9471-ET Serial Gateway

The 9471-ET(G) 4-Port Serial Gateway allows existing Intrinsically Safe equipment with an RS485/RS422 or RS232/TTL port to become Ethernet Enabled via a Cat5/6 cable connection into an IS Ethernet Network (LAN). The unit has 4 off serial ports, each one supporting either RS485/RS422 or RS232/TTL depending upon the configuration required. There are 2 off RJ45 (LAN) ports that support 10/100 or Gigabit 10/100/1000 (G option) IS Ethernet connections - these allow 'daisy-chaining' of Ethernet units together.

The module consists of a single printed circuit board (9471-COM) mounted inside an anti-static plastic DIN rail enclosure. Excluding the user connectors and LED's the unit is totally encapsulated. The module is suitable for mounting in the Hazardous Area within an enclosure having a minimum protection level equivalent to or exceeding IP54.

Electrical connections are via cage-clamp and/or screw type plug/socket terminals along with RJ45 type connectors for the Ethernet LAN ports.

Power (12V IS) is supplied to the module either locally or using Power over Ethernet (PoEx) from the LAN port - This requires the PoEx output to be wired to the Supply Input terminals by the user. Note that PoEx is not available on Gigabit LAN ports.

The equipment has the following safety description:

12Vdc POWER IN (CON1, Pin 1 wrt Pin 2 (0V))

Group	Ui	Ci	Li
IIC/IIIC	15.4Vdc	0	0
IIB/IIIB			
IIA/IIIA			
I			

PoEx OUT (CON1, Pin 3 wrt Pin 4 (0V) OR Pin 5 wrt Pin 6 (0V))

Group	Uo	Co	Lo
IIC/IIIC	Same as power supply connected to LAN1 or LAN2 PoEx connections	Same as power supply connected to LAN1 or LAN2 PoEx connections minus 0.48µF internal capacitance	Same as power supply connected to LAN1 or LAN2 PoEx connections
IIB/IIIB			
IIA/IIIA			
I			

Note: PoEx OUT (CON1 pins 3+4 OR pins 5+6) may be linked to 12Vdc POWER IN (CON1 pins 1+2) when power is via the LAN1 or LAN2 port.

RS485/RS422 COMMS (CON3, Pin1 to 4 and 9 to 12 wrt Pin 6,8,14,16 (0V) – Ports 1 and 2),
RS485/RS422 COMMS (CON4, Pin1 to 4 and 9 to 12 wrt Pin 6,8,14,16 (0V) – Ports 3 and 4)
(Values shown are for each pin)

Group	Ui	Uo	Io	Po	Ci	Li
IIC/IIIC	7.2V	5.88V	77mA	114mW	0	0
IIB/IIIB						
IIA/IIIA						
I						

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:

Group	Capacitance (µF)	Inductance (mH)	or	L/R Ratio (µH/Ohm)
IIC	43	6.0		314
IIB/III	1000	24.0		1256
IIA	1000	48.0		2513
I	1000	78.7		4123

The above figures are based on the output parameters only and may need to be recalculated based on the input parameters.

RS232/TTLCOMMS (CON3, Pin 5, 13 (TX) wrt Pin 6,8,14,16 (0V) – Ports 1 and 2)
RS232/TTL COMMS (CON4, Pin 5,13 (TX) wrt Pin 6,8,14,16 (0V) Ports 3 and 4)

Group	Ui	Uo	Io	Po	Ci	Li
IIC/IIIC	12.8V	5.88V	6mA	8mW	0	0
IIB/IIIB						
IIA/IIIA						
I						

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:

Group	Capacitance (µF)	Inductance (mH)	or	L/R Ratio (µH/Ohm)
IIC	43	987		4031
IIB/III	1000	3951		16125
IIA	1000	7901		32250
I	1000	12963		52910

RS232/TTLCOMMS (CON3, Pin 7, 15 (RX) wrt Pin 6,8,14,16 (0V)–Ports 1 and 2)
RS232/TTL COMMS (CON4, Pin 7, 15 (RX) wrt Pin 6,8,14,16 (0V) – Ports 3 and 4)

Group	Ui	Uo	Io	Po	Ci	Li
IIC/IIIC	12.8V	3.15V	6mA	8mW	0	0
IIB/IIIB						
IIA/IIIA						
I						

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:

Group	Capacitance (µF)	Inductance (mH)	or	L/R Ratio (µH/Ohm)
IIC	100	987		4031
IIB/III	1000	3951		16125
IIA	1000	7901		32250
I	1000	12963		52910

The above figures are based on the output parameters only and may need to be recalculated based on the input parameters.

EXTERNAL LEDS (CON1, Pin13 to 18 wrt Pin 11,12 (0V))
(Values shown are for each output)

Group	Ui	Uo	Io	Po	Ci	Li
IIC/IIIC	5.88V	5.88V	52mA	76mW	0	0
IIB/IIIB						
IIA/IIIA						
I						

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:

Group	Capacitance (µF)	Inductance (mH)	or	L/R Ratio (µH/Ohm)
I	1000	172		6105
IIA	1000	105		3721
IIB/III	1000	52		1861
IIC	43	13		465

LAN Port 1 or LAN Port 2 (10/100 and Gigabit 10/100/1000 Ethernet) (SK1/SK2 – RJ45)
(Values for all pins combined)

Group	Ui	Uo	Io	Ci	Li
IIC/IIIC	15.4V	5.88V	2.18A (10/100) or 4.36A (Gigabit)	0.48µF	0
IIB/IIIB					
IIA/IIIA					
I					

Note 1. Io = 2.18A is the total for the four Ethernet lines (each line 545mA), 4.36A is the total for the eight Ethernet lines (Gigabit 10/100/1000 Ethernet versions).

Note 2. Ci = 0.48uF is given as worse case (8 line) Gigabit 10/100/1000 Ethernet

Note 3. Gigabit 10/100/1000 Ethernet versions are not suitable for Gas Group IIC

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

If PoEx is used, then the parameters of the PoEx power supply must also be considered
(The above capacitance figures are based on 5.88V)

The 10/100 or 10/100/1000 (gigabit) Ethernet ports may be connected to any other equipment having appropriate Entity parameters.

9475-ETG Media Converter and 9475-ET Media Converter

The 9475-ET(G) Dual Media Converter provides fibre-optic connections to extend an IS Ethernet Network (LAN) over a greater distance. The use of 1300nm optics allows a longer fibre-optic link length, typically 5Km at 10Mbps, 2Km at 100Mbps and by using different optics 10Km at (Gigabit) 1000Mbps. There are 2 off RJ45 (LAN) ports that support 10/100 or 10/100/1000 Gigabit (G option) IS Ethernet connections – these can allow 'daisy-chaining' of Ethernet units together. The Media Converter incorporates an Ethernet switch that helps eliminate any compatibility issues and aids fault finding. The switch also allows the unit configuration as either two separate independent media converters or a fibre-optic repeater with two local LAN ports.

The module consists of a single printed circuit board (9475-FO) mounted inside an anti-static plastic DIN rail enclosure. Excluding the user connectors and LED's the unit is totally encapsulated. The module is suitable for mounting in the Hazardous Area within an enclosure having a minimum protection level equivalent to or exceeding IP54.

Electrical connections are via cage-clamp and/or screw type plug/socket terminals along with RJ45 type connectors for the Ethernet LAN ports.

Power (12V IS) is supplied to the module either locally or using Power over Ethernet (PoEx) from the LAN port - This requires the PoEx output to be wired to the Supply Input terminals by the user. Note that PoEx is not available on Gigabit LAN ports.

The equipment has the following safety description:

12Vdc POWER IN (CON1, Pin 1 wrt Pin 2 (0V))

Group	Ui	Ci	Li
IIC/IIIC	15.4Vdc	0	0
IIB/IIIB			
IIA/IIIA			
I			

PoEx OUT (CON1, Pin 3 wrt Pin 4 (0V) OR Pin 5 wrt Pin 6 (0V))

Group	Uo	Co	Lo
IIC/IIIC	Same as power supply connected to LAN1 or LAN2 PoEx connections	Same as power supply connected to LAN1 or LAN2 PoEx connections minus 0.48µF internal capacitance	Same as power supply connected to LAN1 or LAN2 PoEx connections
IIB/IIIB			
IIA/IIIA			
I			

Note: PoEx OUT (CON1 pins 3+4 OR pins 5+6) may be linked to 12Vdc POWER IN (CON1 pins 1+2) when power is via the LAN1 or LAN2 port.

EXTERNAL LEDS (CON1, Pin13 to 18 wrt Pin 11,12 (0V))
(Values shown are for each output)

Group	Ui	Uo	Io	Po	Ci	Li
IIC/IIIC	5.88V	5.88V	52mA	76mW	0	0
IIB/IIIB						
IIA/IIIA						
I						

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:

Group	Capacitance (µF)	Inductance (mH)	or	L/R Ratio (µH/Ohm)
IIC	43	13		465
IIB/III	1000	52		1861
IIA	1000	105		3721
I	1000	172		6105

FIBRE OPTIC PORTS (FO1 & FO2)

Group	Po (optical)
IIC/IIIC	15mW each
IIB/IIIB	
IIA/IIIA	
I	

LAN Port 1 or LAN Port 2 (10/100 and Gigabit 10/100/1000 Ethernet) (SK1/SK2 – RJ45)
(values for all pins combined)

Group	Ui	Uo	Io	Ci	Li
IIC/IIIC	15.4V	5.88V	2.18A (10/100) or 4.36A (Gigabit)	0.48µF	0
IIB/IIIB					
IIA/IIIA					
I					

Note 1. Io = 2.18A is the total for the 4 Ethernet lines (each line 545mA), 4.36A is the total for the 8 Ethernet lines (Gigabit 10/100/1000 versions).

Note 2. Ci = 0.48uF is given as worse case (8 line) Gigabit Ethernet

Note 3. Gigabit 10/100/1000 versions are not suitable for Gas Group IIC

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

If PoEx is used, then the parameters of the PoEx power supply must also be considered
(The above capacitance figures are based on 5.88V)

The 10/100 or Gigabit 10/100/1000 Ethernet ports may be connected to any other equipment having appropriate Entity parameters.

9476-ETG Ethernet Switch and 9476-ET Ethernet Switch

The 9476-ET(G) 6 Port Ethernet Switch provides six LAN ports for connection to other IS Ethernet devices. There are 6 off RJ45 (LAN) ports that support 10/100 or 10/100/1000 Gigabit (G option) IS Ethernet connections depending on the model type. The switch provides management to allow configuration of the ports and provide diagnostic information, however it may be also be utilised in an un-managed mode where all ports by default Auto-Negotiate with no user configuration required.

The module consists of a single printed circuit board (9476-SW) mounted inside an anti-static plastic DIN rail enclosure. Excluding the user connectors and LED's the unit is totally encapsulated. The module is suitable for mounting in the Hazardous Area within an enclosure having a minimum protection level equivalent to or exceeding IP54.

Electrical connections are via cage-clamp and/or screw type plug/socket terminals along with RJ45 type connectors for the Ethernet LAN ports.

Power (12V IS) is supplied to the module locally and Power over Ethernet (PoEx) can be used for the 10/100 LAN ports if required to power compatible connected devices. Note that PoEx is not available on Gigabit LAN ports.

The equipment has the following safety description:

12Vdc POWER IN (CON1, Pin 1 wrt Pin 2 (0V))

Group	Ui	Ci	Li
IIC/IIIC	15.4Vdc	0	0
IIB/IIIB			
IIA/IIIA			
I			

PoEx IN - PORT 3 (CON1, Pin 3 wrt Pin 4 (0V))
PoEx IN - PORT 4 (CON1, Pin 5 wrt Pin 6 (0V))
PoEx IN - PORT 5 (CON1, Pin 7 wrt Pin 8 (0V))
PoEx IN - PORT 6 (CON1, Pin 9 wrt Pin 10 (0V))

Group	Ui	Ci	Li
IIC/IIIC	15.4Vdc	0.48µF	0
IIB/IIIB			
IIA/IIIA			
I			

EXTERNAL LEDS (CON1, Pin13 to 18 wrt Pin 11,12 (0V))
(values shown are for each output)

Group	Ui	Uo	Io	Po	Ci	Li
IIC/IIIC	5.88V	5.88V	52mA	76mW	0	0
IIB/IIIB						
IIA/IIIA						
I						

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:

Group	Capacitance (µF)	Inductance (mH)	or	L/R Ratio (µH/Ohm)
IIC	43	13		465
IIB/III	1000	52		1861
IIA	1000	105		3721
I	1000	172		6105

LAN Port 1 to LAN Port 6 (10/100 and Gigabit 10/100/1000 Ethernet) (SK1-SK6 – RJ45)
(values for all pins combined)

Group	Ui	Uo	Io	Ci	Li
IIC/IIIC	15.4V	5.88V (or PoEx power supply Uo parameter when connected)	2.18A (10/100) or 4.36A (Gigabit)	0.48µF	0
IIB/IIIB					
IIA/IIIA					
I					

Note 1. Io = 2.18A is the total for the four 10/100 Ethernet lines (each line 545mA), 4.36A is the total for the 8 Ethernet lines (Gigabit 10/100/1000 versions).

Note 2. Ci = 0.48uF is given as worse case (8 line) Gigabit Ethernet

Note 3. Gigabit 10/100/1000 versions are not suitable for Gas Group IIC

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

If PoEx is used, then the parameters of the PoEx power supply must also be considered
(The above capacitance figures are based on 5.88V)

The 10/100 or Gigabit 10/100/1000 Ethernet ports may be connected to any other equipment having appropriate Entity parameters.

9479-ETG WLAN AP/Bridge and 9479-ET WLAN AP/Bridge

The 9479-ET(G) WLAN AP/Bridge provides a wireless (Wi-Fi) connection as well as the IS Ethernet Network (LAN) ports. The use of 2.4GHz and 5GHz allows connections to various wireless devices in the Hazardous Area. There are 2 off RJ45 (LAN) ports that support 10/100 or 10/100/1000 Gigabit (G option) IS Ethernet connections – these can allow 'daisy-chaining' of Ethernet units together.

The module consists of a single printed circuit board (9479-WL) mounted inside an anti-static plastic DIN rail enclosure. Excluding the user connectors and LED's the unit is totally encapsulated. The module is suitable for mounting in the Hazardous Area within an enclosure having a minimum protection level equivalent to or exceeding IP54.

Electrical connections are via cage-clamp and/or screw type plug/socket terminals along with RJ45 type connectors for the Ethernet LAN ports and two SMA type RF connectors for the antenna(s).

Power (12V IS) is supplied to the module either locally or using Power over Ethernet (PoEx) from the LAN port - This requires the PoEx output to be wired to the Supply Input terminals by the user. Note that PoEx is not available on Gigabit LAN ports.

The equipment has the following safety description:

12Vdc POWER IN (CON1, Pin 1 wrt Pin 2 (0V))

Group	Ui	Ci	Li
IIC/IIIC	15.4Vdc	0	0
IIB/IIIB			
IIA/IIIA			
I			

PoEx OUT (CON1, Pin 3 wrt Pin 4 (0V) OR Pin 5 wrt Pin 6 (0V))

Group	Uo	Co	Lo
IIC/IIIC	Same as power supply connected to LAN1 or LAN2 PoEx connections	Same as power supply connected to LAN1 or LAN2 PoEx connections minus 0.48µF internal capacitance	Same as power supply connected to LAN1 or LAN2 PoEx connections
IIB/IIIB			
IIA/IIIA			
I			

Note: PoEx OUT (CON1 pins 3+4 OR pins 5+6) may be linked to 12Vdc POWER IN (CON1 pins 1+2) when power is via the LAN1 or LAN2 port.

EXTERNAL LEDS (CON1, Pin13 to 18 wrt Pin 11,12 (0V))
(values shown are for each output)

Group	Ui	Uo	Io	Po	Ci	Li
IIC/IIIC	5.88V	5.88V	52mA	76mW	0	0
IIB/IIIB						
IIA/IIIA						
I						

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:

Group	Capacitance (µF)	Inductance (mH)	or	L/R Ratio (µH/Ohm)
IIC	43	13		465
IIB/III	1000	52		1861
IIA	1000	105		3721
I	1000	172		6105

Wi-Fi ANTENNA (X1/X2 - SMA)

Group	Po (RF)
IIC/IIIC	500mW each
IIB/IIIB	
IIA/IIIA	
I	

Note: The type and length of any antenna cable and the antenna itself are classified as simple apparatus and are not restricted by the output parameters

LAN Port 1 or LAN Port 2 (10/100 and Gigabit 10/100/1000 Ethernet) (SK1/SK2 – RJ45) (values for all pins combined)

Group	Ui	Uo	Io	Ci	Li
IIC/IIIC	15.4V	5.88V	2.18A (10/100) or 4.36A (Gigabit)	0.48µF	0
IIB/IIIB					
IIA/IIIA					
I					

Note 1. Io = 2.18A is the total for the 4 Ethernet lines (each line 545mA), 4.36A is the total for the 8 Ethernet lines (Gigabit 10/100/1000 versions).

Note 2. Ci = 0.48uF is given as worse case (8 line) Gigabit Ethernet

Note 3. Gigabit 10/100/1000 versions are not suitable for Gas Group IIC

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

10/100 and 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

If PoEx is used, then the parameters of the PoEx power supply must also be considered
(The above capacitance figures are based on 5.88V)

The 10/100 or Gigabit 10/100/1000 Ethernet ports may be connected to any other equipment having appropriate Entity parameters.

12 Certificate history and evaluation reports

Issue	Date	Associated report	Notes
0	04 Aug 2020	R12646A/00	Issue of prime certificate
1	21 Aug 2020	-	Update to format

Note: Drawings that describe the equipment or component are listed in the Annex.

13 Conditions of manufacture

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

13.1 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.

14 Specific Conditions of Use (Special Conditions)

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

14.1 For Group I, the modules shall each be mounted within an enclosure providing a degree of protection of at least IP54.

This shall be in accordance with EN 60529, and the modules installed in a manner that does not impair the existing creepage and clearance distances. The enclosure shall also comply with the appropriate requirements of Clauses 7.4.2 and 7.5, or 8.2 of EN 60079-0.

14.2 For Group II, the RJ45 connectors shall be fitted with either a plug or blanking plug. Alternatively, the module shall be mounted in an enclosure providing a degree of protection of at least IP20.

This shall be in accordance with EN 60529, and the modules installed in a manner that does not impair the existing creepage and clearance distances. The enclosure shall also comply with the appropriate requirements of Clauses 7.4.2 and 7.5, or 8.3 of EN 60079-0.

14.3 For Group III, the module shall be mounted inside a suitably certified enclosure which provides a minimum degree of protection of at least IP54. The module shall be installed in a manner that does not impair the existing creepage and clearance distances.

14.4 The supply to the modules must be derived from a suitably certified, intrinsically safe supply.

14.5 The values of Co and Lo shall 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 µF for Group I and IIB/III and 600 nF for IIC.

14.6 The equipment shall be mounted on an earthed metal bracket or housing.

Certificate Annex

Certificate Number	CML 19ATEX2414X
Equipment	947x Series IS Ethernet Module
Manufacturer	Controlled Systems Limited

The following documents describe the equipment or component defined in this certificate:

Issue 0

Drawing no.	Sheets	Rev	Approved date	Title
9471-ET(G), 9475-(ET(G), 9476-ET(G) & 9479-ET(G) – Common Drawings				
947x-ATEX-IECEx LABEL	1 of 1	1	28 Jul 2020	947X Label Drawing
947x-ASSY	1 of 1	2	28 Jul 2020	947X-ASSY Assembly Drawing
947x-ETG BLOCK	1 & 2	4	28 Jul 2020	947X-ETG Block Diagram
947x–LED (Common Drawings to 9475-ET(G), 9476-ET(G) and 9479-ET(G))				
947x-LED	1 of 1	1	28 Jul 2020	947x Series LED Board Circuit Diagram
947x-LED	1 of 1	2	28 Jul 2020	947x Series LED Board Circuit Diagram
947x-LED PCB	1 of 1	1	28 Jul 2020	947x-LED Artworks
947x-LED PCB	1 of 1	2	28 Jul 2020	947x-LED Artworks
Rev 1 of drawings 947x-LED & 947x-LED PCB may be used when the blue LED is not required				
9471-ETG and 9471-ET Serial Gateway				
9471-COM	1 to 3	2	28 Jul 2020	9471 Serial Gateway Board Circuit Diagram
9471-COM PCB	1 to 3	2	28 Jul 2020	9471-COM Artworks
9475-ETG and 9475-ET Media Converter				
9475-FO	1 & 2	2	28 Jul 2020	9475 Media Converter Board Circuit Diagram
9475-FO PCB	1 to 3	2	28 Jul 2020	9475-FO Artworks
9476-ETG and 9476-ET Ethernet Switch				
9476-SW	1 to 3	2	28 Jul 2020	9476 Ethernet Switch Board Circuit Diagram
9476-SW PCB	1 to 3	2	28 Jul 2020	9476-SW Artworks
9479-ETG and 9479-ET WLAN AP/Bridge				
9479-WL	1 & 2	2	28 Jul 2020	9479 WLAN AP/Bridge Circuit Diagram
9479-WL PCB	1 to 3	2	28 Jul 2020	9479-WL Artworks
LED4x2 (9471-ET(G))				
LED4x2	1 of 1	1	28 Jul 2020	LED4x2 LED Board Circuit Diagram
LED4x2 PCB	1 of 1	1	28 Jul 2020	LED4x2 Artworks

Issue 1

None