REV	DESCRIPTION	DATE
1	Original	17/05/2023

12VDC IS Power Supply

9476 6x Port Switch

PoEx Supply for Port 6 Device

Supply for 9476

Supply for 9475 (PoEx not used)

9475 Media Converter

Fibre-Optic Cable

Certified 'Ex op is' Media Converter

No PoEx

PoEx for 9475 via Port 6

9475 Media Converter

Fibre-Optic Cable

ZONE 0 Class I Div 1

12VDC IS Power Supplies

Supply for 9476

PoEx Supply for Port 3 Device

PoEx Supply for Port 4 Device

9476 6x Port Switch

No PoEx

Supply for 9479

9475 Media Converter

PoEx for 9475 via Port 3

9479 WLAN AP/Bridge

9479 WLAN AP/Bridge

Cat5e/Cat6/Cat7 I.S. Cable

Unspecified Zone 0 Div 1 Equipment Entity Parameters Matching 9471 - RS232/TTL. RS485/422 Port

12VDC IS Power Supply

Unspecified Safe Area or Zone 2 Equipment

24Vdc Um = 250V

PoEx Supply for Port 6 Device

PoEx Supply for Port 3 Device

Supply for 9476

PoEx for 9479 via Port 6

No PoEx

ZONE 1 Class I Div 1

PoEx for 9471 via Port 4

9471 Serial Gateway

9471 Serial Gateway

Cat5e/Cat6/Cat7 I.S. Cable

9476 6x Port Switch

Unspecified Zone 1 Div 1 Equipment Entity Parameters Matching 9471 - RS232/TTL. RS485/422 Port

No PoEx

Um = 250V

9478 Ethernet Isolator

No PoEx

PoEx for 9471 via Port 3

9478 Ethernet Isolator

24Vdc Um = 250V

Um = 250V

Unspecified Safe Area Equipment

SAFE AREA or ZONE 2

NOTES

1. For ease of identification -Use BLUE coloured Cat5e/6/7 cables in Zone 1 and 0 Hazardous Areas, any other colour for Zone 2 or Safe Area
2. 9475 Optical Radiation = 15mW each port
   9479 Radio Frequency Radiation <= 500mW
3. Fibre-Optic and BLUE I.S. Cat5e/6/7 cables may run in Zone 0, 1, 2 and Safe Area
4. 947x Series Modules may be mounted in Zones 1, 2 or Safe Area (9478 may only be mounted in Zone 2 or Safe Area)
5. 947x Series Modules must be installed in a suitable manner for the surrounding conditions, this may require an additional protective enclosure in some areas.
6. PoEx (Power over Ethernet for Hazardous Areas) A means of distributing IS power supplies to devices via the Cat5/6/7 Ethernet cable as an alternative to a separate power cable. Ensure only one power source is used (PoEx or separate power cable)
7. Refer to User Manual for Connections and Installation Instructions. See Certificate for Safety Description

Power Supply Connections

12Vdc IS Power Supply (psu)
Any suitably certified IS power supply unit for the intended gas/dust group and satisfying the following requirements
Uo = 15.4V maximum

9471, 9475, 9476, 9479 Modules (app)
Ui = 15.4V
Ci=Li=0

9478 Modules 12Vdc or 24Vdc Supply Input
Um = 250V, Un = 30V (SELV)

Supply Cable
Cc (cable) <= Co (psu) - Ci (app)
Lc (cable) <= Lo (psu) - Li (app)
L/R(cable) <= Lo/Ro (psu)

NOTE: Example only, some models shown may be part of another Approval

CSL

CONTROLLED SYSTEMS LTD.
SWADLINCOTE, DERBYSHIRE. ENGLAND

TITLE: 9478 MET Control Drawing

DRAWN : IAC	SIZE A3		DWG NO 9478-MET	REV 1
DATE: 17/05/2023	SCALE		SHEET 1 OF 3	

9478-ETG and 9478-ETXG : Gigabit Ethernet Isolator

9478-ET and 9478-ETX : 10/100 Ethernet Isolator

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

9478-ETX(G)

IS Connections: PoEx (T14 wrt T15)

Ui	=	15.5 V on LAN RJ45 (SK2)
Ci	=	0.48 µF
Li	=	0

IS Connection LAN RJ45 (SK2)

Uo	=	5.88 V (or PoEx power supply Uo parameter when connected)
Io	=	2.18A (10/100) or 4.36A (Gigabit)
Po	=	0.83 W
Ci	=	0.48 µF
Li	=	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

Equivalent Groups for Zones and Divisions:

IIC = Groups A, B, C, D
IIB = Groups C, D
IIA = Group D
IIIC = Groups E, F, G

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CONTROLLED SYSTEMS LTD.
SWADLINCOTE, DERBYSHIRE. ENGLAND

TITLE: 9478 MET Control Drawing

DRAWN : IAC
DATE: 17/05/2023
SIZE: A3
DWG NO: 9478-MET
REV: 1
SCALE:
SHEET: 2 OF 3

General

The installation must be in accordance with the National Electrical Code (NEC), ANSI/ NFPA 70, Articles 504 and 505, the Canadian Electric Code (CEC), Part 1, Appendix F and ANSI/ISA-RP12.6.

Tamb = -40°C to +70°C

9478-ETG and 9478-ETXG : Gigabit Ethernet Isolator

US / Canada (Zones)

Associated Apparatus for use in Unclassified Locations providing Intrinsically Safe outputs for Class I, Zone 0, Group IIB Hazardous Locations when installed in accordance with Control Drawing 9478-MET
- [AEx ia Ga] IIB / [Ex ia Ga] IIB

Associated Apparatus for use in Unclassified Locations providing Intrinsically Safe outputs for Class I, Zone 2, Group IIB Hazardous Locations when installed in accordance with Control Drawing 9478-MET
- [AEx ic Gc] IIB / [Ex ic Gc] IIB

Associated Apparatus for use in Unclassified Locations providing Intrinsically Safe outputs for Class II, Zone 20, Group IIIC Hazardous Locations when installed in accordance with Control Drawing 9478-MET
- [AEx ia Da] IIIC / [Ex ia Da] IIIC

For use in Class I, Zone 2, Group IIB Hazardous Locations when installed in accordance with Control Drawing 9478-MET
- AEx ec [AEx ia] IIB T4 Gc / Ex ec [Ex ia] IIB T4 Gc

US / Canada (Divisions)

Associated Aparatus for use in Unclassified Locations providing Intrinsically Safe outputs for Class I, Division 1 or Class I, Division 2, Groups C-D, Hazardous Locations when installed in accordance with Control Drawing 9478-MET

Associated Aparatus for use in Unclassified Locations providing Intrinsically Safe outputs for Class II, Division 1 or Class II, Division 2, Groups F-G, Hazardous Locations when installed in accordance with Control Drawing 9478-MET

For use in Class I, Division 2, Groups C-D, T4 Hazardous Locations when installed in accordance with Control Drawing 9478-MET

9478-ET and 9478-ETX : 10/100 Ethernet Isolator

US / Canada (Zones)

Associated Apparatus for use in Unclassified Locations providing Intrinsically Safe outputs for Class I, Zone 0, Group IIC Hazardous Locations when installed in accordance with Control Drawing 9478-MET
- [AEx ia Ga] IIC / [Ex ia Ga] IIC

Associated Apparatus for use in Unclassified Locations providing Intrinsically Safe outputs for Class I, Zone 2, Group IIC Hazardous Locations when installed in accordance with Control Drawing 9478-MET
- [AEx ic Gc] IIC / [Ex ic Gc] IIC

Associated Apparatus for use in Unclassified Locations providing Intrinsically Safe outputs for Class II, Zone 20, Group IIIC Hazardous Locations when installed in accordance with Control Drawing 9478-MET
- [AEx ia Da] IIIC / [Ex ia Da] IIIC

For use in Class I, Zone 2, Group IIC Hazardous Locations when installed in accordance with Control Drawing 9478-MET
- AEx ec [AEx ia] IIC T4 Gc / Ex ec [Ex ia] IIC T4 Gc

US / Canada (Divisions)

Associated Aparatus for use in Unclassified Locations providing Intrinsically Safe outputs for Class I, Division 1 or Class I, Division 2, Groups A-D, Hazardous Locations when installed in accordance with Control Drawing 9478-MET

Associated Aparatus for use in Unclassified Locations providing Intrinsically Safe outputs for Class II, Division 1 or Class II, Division 2, Groups E-G, Hazardous Locations when installed in accordance with Control Drawing 9478-MET

For use in Class I, Division 2, Groups A-D, T4 Hazardous Locations when installed in accordance with Control Drawing 9478-MET

CSL	CONTROLLED SYSTEMS LTD. SWADLINCOTE, DERBYSHIRE. ENGLAND		
	TITLE: 9478 MET Control Drawing		
DRAWN : IAC	SIZE: A3	DWG NO: 9478-MET	REV: 1
DATE: 17/05/2023	SCALE	SHEET: 3 OF 3	