## MTL 9461-ET

## Intrinsically Safe Serial to Ethernet Gateway

- Serial to Ethernet Gateway
- Zone 1, Division 1 mountable in suitable enclosure
- Four serial-port intrinsically safe inputs:
  2 x RS232/TTL
  2 x RS485/RS422
- 10/100Mbs Ethernet
- ATEX / IECEx certified
- FM / FMC approved
- Wide temp. range –40°C to +70°C
- High Performance 32-bit processor
- PoEx<sup>™</sup> Power over IS Ethernet option



The 9461-ET Ethernet Gateway gives existing intrinsically safe equipment "Ethernet connectivity" by allowing conventional serial communication port equipment to be connected to an Ethernet network.

Two 9-way D-type serial ports are provided which are RS232/TTL compatible. In addition, the module's front panel screw terminals (T6 - T15) provide two RS485/RS422, 2- or 4- wire ports, giving a total of four serial ports. All ports can operate at speeds up to 115K2baud.

Various protocols are available (e.g.: Serial Modbus, Modbus/TCP, Ethernet IP etc) in addition to Serial Tunnelling.

The 9461-ET is designed for hazardous-area mounting inside a suitable enclosure with intrinsically safe Zone 1, ATEX and IECEx certification and Division 1 FM USA and Canada approvals. The ATEX and IECEx approvals cover both surface industry and mining applications.

The design is based on a high performance ARM9 155MHz 32-bit RISC Processor (ARM926EJ-S).

The gateway may be powered by an intrinsically safe power supply or by Power over IS Ethernet (PoEx) providing intrinsically safe power and Ethernet communications over a single Cat5e cable. 10/100Mb Ethernet twisted pair (Cat5e) RJ45 connection (100metres length max..).

Status LEDs are provided on the front panel to indicate:

- 'Power On'
- · Network Link established
- Tx/Rx activity for all COM ports

Configuration is via a Microsoft® Windows™ interface which enables the IP address and the protocol conversion to be defined.

The Gateway can also act as the host processor for the 9466-ET Managed Ethernet Switch giving remote access to the switch's management features over the Ethernet network.

The module is supplied as a DIN-rail mounting device.



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## MTL 9461-ET

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## **SPECIFICATION**

See also System Specification

#### **POWER INPUT**

PoEx or separately powered Input voltage 12V DC (10-15.4V)

Input current

150mA

Input protection

Fuse + supply reversal diode

#### **ETHERNET**

Intrinsically Safe 10/100 base T

Connector

RJ45

**PoEx** 

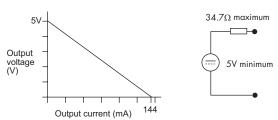
Powered Device

### IS SERIAL CONNECTIONS

|                 | RS232            | RS422/485       |
|-----------------|------------------|-----------------|
| No. of channels | 2                | 2               |
| Connector Type  | DB-9 male        | Screw terminals |
| Baudrate        | 300-115K2 baud   | 300-115K2 baud  |
| Parity          | Even/Odd/None    | Even/Odd/None   |
| Data Bits       | 8                | 8               |
| Stop Bits       | 1                | 1               |
| Flow Control    | RTS/CTS/XON/XOFF | XON/XOFF        |

RS232 Pin 9 power output

## **SAFETY**



## Location of module

Zone 1, IIC T4 hazardous area or Class 1, Div 1, Groups A, B, C, D T4 hazardous location

## Location of field wiring

Zone 0, IIC T4 hazardous area

or Class 1, Div 1, Groups A, B, C, D T4 hazardous location

## **Ethernet protection**

Intrinsically safe

## **Certification Code**

See approvals

#### Safety description

See certificate

## **MECHANICAL**

#### Mounting

DIN rail

## Dimensions (mm)

Length Width 100 Height (off rail) 116

## Weight

1200 g

# Powering Business Worldwide

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## **LED INDICATORS**

|                    | OFF                         | FLASH                       | ON   |
|--------------------|-----------------------------|-----------------------------|--|
| PWR<br>(green)     | Power fail                  | N/A                         | Power OK                                   |
| WDG<br>(red)       | Watchdog Fault              | Healthy (10Hz)              | Watchdog Fault                             |
| TX (x4)<br>(green) | Idle                        | Transmitting<br>Serial Data | N/A  |
| RX (x4)<br>(red)   | Idle                        | Receiving Serial<br>Data    | Fault – RX<br>data polarity is<br>inverted |
| STAT<br>(red)      | Status is Normal            | Not used at present         | Not used at present                        |
| ACT<br>(yellow)    | Ethernet link disconnected  | Ethernet link activity      | Ethernet link connected                    |
| 100<br>(green)     | Ethernet link set to 10Mbps | N/A                         | Ethernet link is 100Mbps                   |

### **ENVIRONMENTAL**

## Ambient temp

Operating -40°C to +70°C -40°C to +70°C Storage

## **Relative Humidity**

5 to 95% RH (non-condensing)

#### **Ingress Protection**

Select enclosure to suit application, see certificate for information

#### **DATA & POWER TERMINALS**

### COM 1 & 2 (DB-9 male) **RS232/TTL Ports**

#### LAN (RJ45) 10/100 BASE-T Ethernet

|     |                  | 107 |
|-----|------------------|-----|
| Pin | Function         | Pi  |
| 1   | DCD              | 1   |
| 2   | RxD              | 2   |
| 3   | TxD              | 3   |
| 4   | RS232/TTL *      |     |
| 5   | Signal Ground 0V | - 5 |
| 6   | N/C              | 6   |
| 7   | RTS              | 7   |
| 8   | N/C              | 8   |
| 9   | +5V o/p          |     |
|     |                  |     |

| _ | 10/100 BASE-1 Ethernet |                     |  |
|---|------------------------|---------------------|--|
|   | Pin                    | Function            |  |
|   | 1                      | Tx +                |  |
|   | 2                      | Tx -                |  |
|   | 3                      | Rx +                |  |
|   | 4                      | Supply 12V - PoEx † |  |
|   | 5                      | Supply 12V - PoEx † |  |
|   | 6                      | Rx –                |  |
|   | 7                      | Supply 0V - PoEx †  |  |
|   | 8                      | Supply 0V - PoEx †  |  |
|   |                        |                     |  |

<sup>\*</sup> Pin 4 - O/C for RS232, connect to pin 5 for TTL levels

## Screw Terminals t

| Screw Terminals T |     |            |
|-------------------|-----|------------|
|                   | PWR | Function   |
|                   | 1   | +12V DC in |
|                   | 2   | +12V DC in |
|                   | 3   | 0V         |
|                   | 4   | ΟV         |

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Terminals 1+2 and 3+4 are linked internally.

† When using PoEx, no supply is required on screw terminals 1 to 4

| сомз | COM4 | RS485            | RS422 |
|------|------|------------------|-------|
| 6    | 11   | + Tx/Rx          | Tx +  |
| 7    | 12   | – Tx/Rx          | Tx -  |
| 8    | 13   | -                | Rx +  |
| 9    | 14   | -                | Rx –  |
| 10   | 15   | Signal Ground 0V |       |

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