



# 9461-ET



- ◆ **Serial to Ethernet Gateway**
- ◆ **Zone 1 mountable in IP6x enclosure**
- ◆ **Four serial-port intrinsically safe inputs:  
2 x RS232/TTL  
2 x RS485/RS422**
- ◆ **10/100Mbps Ethernet**
- ◆ **ATEX / IECEx certified**
- ◆ **FM / CSA approvals (pending)**
- ◆ **Wide temp. range -20°C to +70°C**
- ◆ **High Performance 32-bit processor**
- ◆ **PoEx™ 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 (eg: Serial Modbus, Modbus/TCP, Ethernet IP etc) in addition to Serial Tunnelling.

The 9461-ET is designed for Zone 1 hazardous-area mounting inside a suitable IP6x enclosure and has intrinsically safe ATEX and IECEx approvals with FM and CSA approvals pending. The 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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Windows is a trademark of Microsoft Corporation  
PoEx is a trademark of Controlled Systems Limited.



## 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

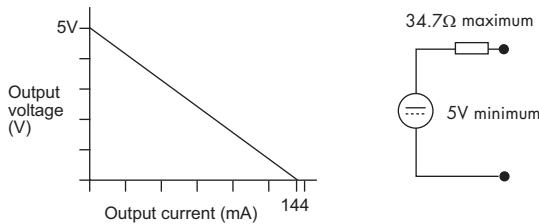
#### PoEx

Powered Device

### IS SERIAL CONNECTIONS

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

\* Certification pending

#### Ethernet protection

Intrinsically safe

#### Certification Code

See approvals

#### Safety description

See certificate

### MECHANICAL

#### Mounting

DIN rail

#### Dimensions (mm)

Length 75

Width 100

Height (off rail) 116

#### Weight

1200 g

### LED INDICATORS

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

### ENVIRONMENTAL

#### Ambient temp

Operating –20°C to +70°C

Storage –20°C to +70°C

#### Relative Humidity

5 to 95% RH (non-condensing)

#### Ingress Protection

IP20 to BS EN 60529

(Additional protection by means of enclosure)

### DATA & POWER TERMINALS

#### COM 1 & 2 (DB-9 male)

#### RS232/TTL Ports

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

#### LAN (RJ45)

#### 10/100 BASE-T 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 †

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

#### Screw Terminals †

PWR	Function
1	+12V DC in
2	+12V DC in
3	0V
4	0V

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

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

COM3	COM4	RS485	RS422
6	11	+ Tx/Rx	Tx +
7	12	- Tx/Rx	Tx –
8	13	-	Rx +
9	14	-	Rx –
10	15	Signal Ground 0V	



EUROPE (EMEA)  
AMERICAS  
ASIA PACIFIC  
E-mail: enquiry@mtl-inst.com

Tel: +44 (0)1582 723633  
Tel: +1 603 926 0090  
Tel: +65 6 487 7887

Fax: +44 (0)1582 422283  
Fax: +1 603 926 1899  
Fax: +65 6 487 7997

Web site: www.mtl-inst.com