Intrinsically Safe Serial to Ethernet Gateway

9461-ET

- **Serial to Ethernet Gateway**
- **Zone 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 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 enclosure and has intrinsically safe ATEX and IECEx approvals with Division 1 FM USA and Canada approvals pending. 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.

EUROPE (EMEA) Tel: +44 (0)1582 723633 Fax: +44 (0)1582 422283
AMERICAS Tel: +1 281 571 8065 Fax: +1 281 571 8069
ASIA PACIFIC Tel: +65 487 7887 Fax: +65 487 7997
E-mail: enquiry@mtl-inst.com **Web site: www.mtl-inst.com**

Dec 2009

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

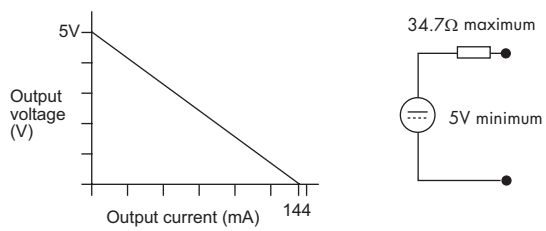
ETHERNET

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
* *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
PWR (green)	Power fail	N/A	Power OK
WDG (red)	Watchdog Fault	Healthy (10Hz)	Watchdog Fault
TX (x4) (green)	Idle	Transmitting Serial Data	N/A
RX (x4) (red)	Idle	Receiving Serial Data	Fault – RX data polarity is inverted
STAT (red)	Status is Normal	Not used at present	Not used at present
ACT (yellow)	Ethernet link disconnected	Ethernet link activity	Ethernet link connected
100 (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
Select enclosure to suit application, see certificate for information

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) Tel: +44 (0)1582 723633 Fax: +44 (0)1582 422283
AMERICAS Tel: +1 281 571 8065 Fax: +1 281 571 8069
ASIA PACIFIC Tel: +65 487 7887 Fax: +65 487 7997
E-mail: enquiry@mtl-inst.com **Web site: www.mtl-inst.com**