# MTL5051 SERIAL-DATA COMMS ISOLATOR

The MTL5051 provides bi-directional serial data communication from a computer system in safe area to instrumentation in a hazardous area. It is used to provide a fully floating dc supply for, and serial data communications to: MTL643, MTL644, MTL646 and MTL647 IS text displays, other IS instrumentation, keyboards or a mouse. It can also be used for data communications across a hazardous area.

### **SPECIFICATION**

### See also common specification

### Location of field equipment

Zone 0, IIC, T4-6 hazardous area Div 1, Group A hazardous location

#### Safe-area signal

RS232 or RS422

#### Hazardous-area signal

MTL640 Series mode:

To hazardous area: 3V signal superimposed on 12V

(nominal) supply

From hazardous area: 5mA signal superimposed on

quiescent current

### Across hazardous area communications mode:

To hazardous area: 10mA current source From hazardous area: 10mA current source

IS RS232/TTL devices mode:

To hazardous area: RS232-compatible signal levels

From hazardous area: TTL/RS232 signals

#### **LED Indicators**

Green: power indication

Max. power dissipation within unit 1.7W at 24V, 25mA load

### Maximum power consumption (25mA load)

At Vs=20V, 105mA At Vs=24V, 90mA At Vs=35V, 70mA

### Comms bandwidth

643/4 mode 1200 to 9600 baud Other modes up to 19.2 kbaud

### Safety description

Terminals 1,2,3,4 only 14V, 800mW, 192mA Terminals 1,3,4 only 14V, 350mW, 88mA Terminals 1,2,3 only 14V, 450mW, 108mA Terminals 1,5,6 only 15V, 70mW, 35mA Terminals 1,2,5,6 only 20V, 460mW, 139mA Terminals 1,2,3,4,5,6 only 20V, 810mW, 227mA

### Hazardous area supply terminal 2

+12V mode 12.0V ± 5% (load <23mA) +12V mode 8.0V min (load >23 to <50mA)

 $+5V 5.6V \pm 5\%$  (load >23 to <50mA)

### **Hazardous Interfacing**

See MTL640 Series for details of interfacing with MTL643, MTL644, MTL646 and MTL647 IS text displays.

# Across hazardous areas communications mode

The MTL5051 is used in pairs to transfer bi-directional fullduplex data across hazardous areas, as shown above. Current switching is used to minimise the bandwidth-limiting effects of long cables.

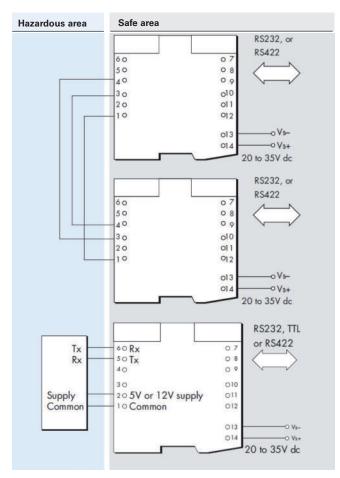
## Interfacing to an IS keyboard, mouse or other device

Communicating with RS232-level interfaces, such as an IS keyboard, mouse, etc. is achieved by using one or more MTL5051 units as required by the device. (TTL level interfaces are also accommodated by the TTL-compatibility feature of RS232 receivers.) The supply to the IS equipment may be selected to be either 5V or 12V by switch on top of unit.



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MTL5051 Terminals	MTI640 mode	Comms mode	Other IS devices
1	Common	Common	Common
2	V signal	-	5V/12V
3	I return	Rx	-
4	-	Tx	-
5	-	-	Tx
6	-	-	Rx
Switch			
1a	ON	OFF	OFF
1b	ON	ON	OFF/ON

Terminal	RS232 mode	TTL mode	RS422 mode
7	-	-	Rx-
8	-	-	Rx +
9	-	Tx	Tx +
10	Tx	-	Tx-
11	Common	Common	Common
12	Rx	Rx	-
13	Supply -ve	Supply-ve	Supply -ve
14	Supply +ve	Supply +ve	Supply +ve
Switch			
2a	OFF	ON	ON
2b	ON	OFF	OFF

Note: the normal RS232 limitations of bandwidth versus cable length are applicable. As a rule of thumb, speed(baud) x length(metres) < 150,000.

The given data is only intended as a product description and should not be regarded as a legal warranty of properties or guarantee. In the interest of further technical developments, we reserve the right to make design changes

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