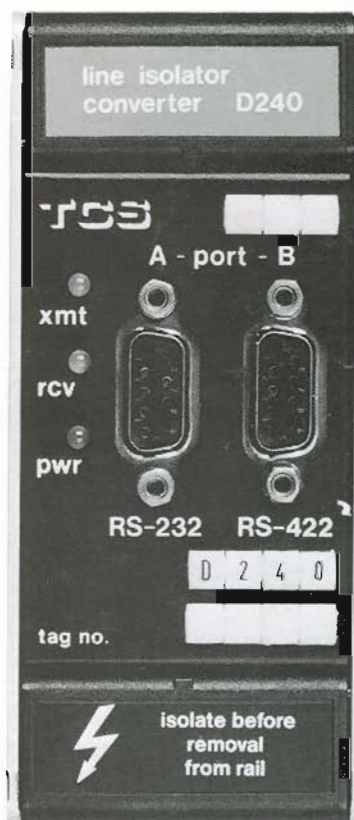
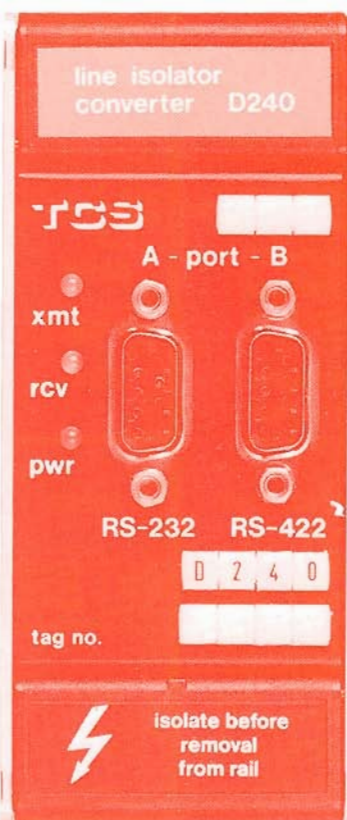
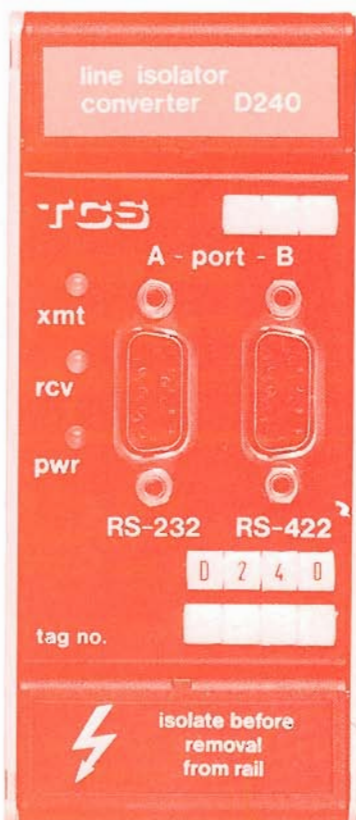




communications
isolator and
converter



system
6000
D240



product
specification

Star features

- Isolates and converts between RS-232 and RS-422 communication standards.
- Communications Watchdog with integral alarm relay.
- Three port isolation : input/power supply/output.
- Built-In 12V DC power supply to power remote peripherals, such as TCS Series 9200 Keyboards.
- Flexible AC mains power supply.
- Front access communications ports via two 9-way D-type sockets.
- Transmit/Receive line status LEDs.
- DIN-rail mounting for easy installation.
- RFI immunity.

Functional description

The function of this instrument is primarily three-fold:

- (a) Conversion and isolation between RS-232 and RS-422 data transmission line standards.
- (b) Communications Watchdog.
- (c) Power supply for remote peripherals, such as the TCS Series 9200 Keyboards.

The D240 can convert signals between the RS-232 and RS-422 communication standards and can act as an RS-422 or RS-232 line driver/buffer. "Input" and "output" ports are isolated from each other and both are isolated from the AC power supply. The unit is immune to RF interference. Connection of the communications signals is made via the front, fascia-mounted, 9-way D-type female connectors. The data lines from Port B are also connected to the

plug-in terminal block at the top of the unit. Two yellow LEDs are provided on the fascia to indicate the status of the Transmit and Receive data lines on Port A ("input" port).

The watchdog circuit continuously monitors the transmit data line of Port A and generates an alarm condition after a selectable, preset time has elapsed at the end of transmission. Preset time delays between one and ten seconds can be specified with the alarm condition controlling the state of a single pole changeover relay.

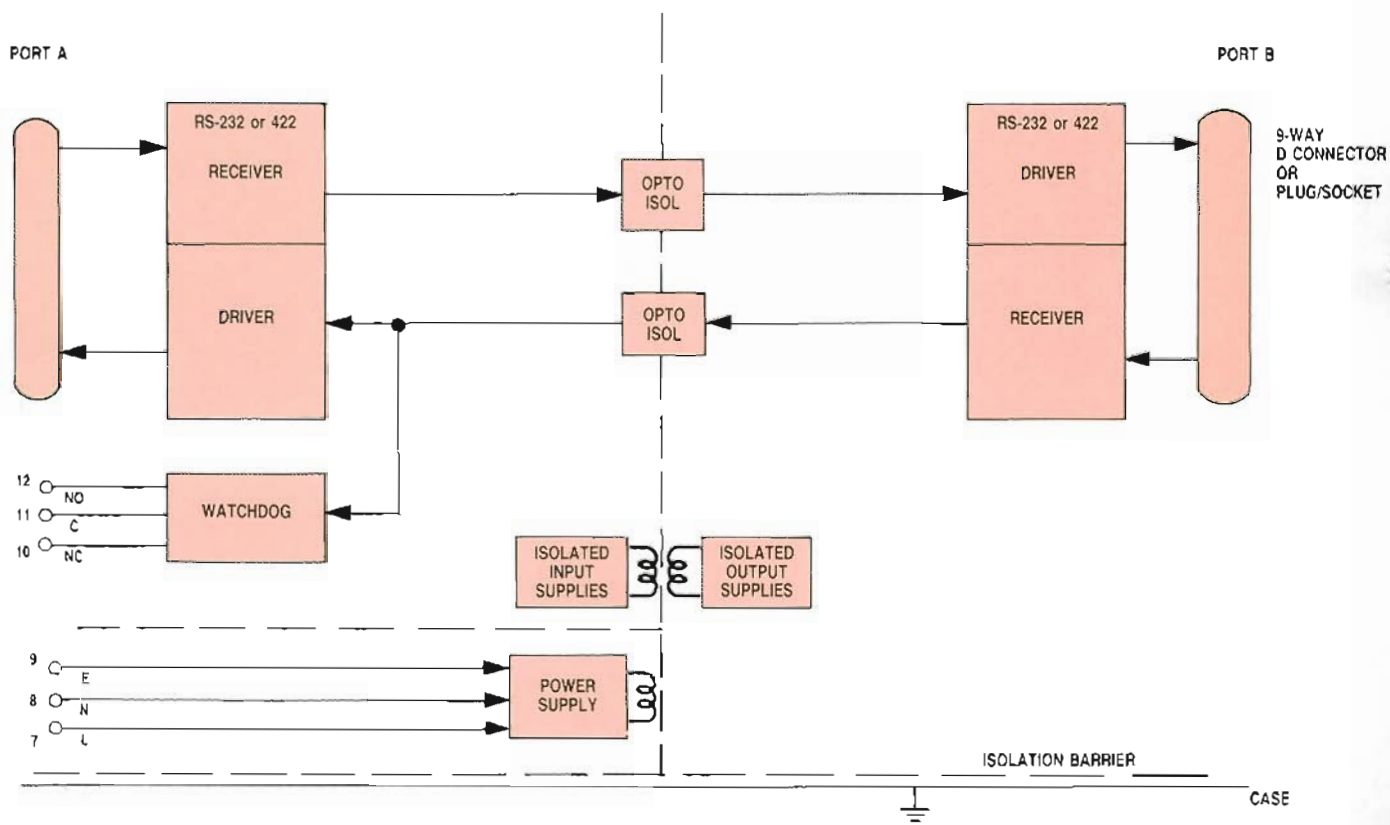
The D240 can also be used to power a TCS Series 9200 Keyboard, or similar peripheral, when it is situated remotely from the host. A 50mA, 12V nominal supply is provided from the RS-232 Port A connector to drive the peripheral with the D240 providing conversion from

RS-232 to RS422 for long distance transmission.

The power supply to the unit can be either 120V or 240V AC via an internal fuse. A green LED located on the front fascia provides power-on indication. Power is connected to the unit through a fixed terminal block located at the foot of the enclosure. This terminal block is also used to connect to the watchdog relay. The RS-232 and RS-422 ports conform to standard configurations as used on IBM-PC-AT* and TCS equipment respectively.

A range of connector and cable accessories is available to provide for conversion to 25-way D-type connectors if required (refer to Order Codes).

*Trade Mark of International Business Machines.



Connection

Pin numbering is 1 to 6, left to right, on the top, plug and socket connector and 7 to 12 on the bottom terminal block.

PIN	SIGNAL DIRECTION	FUNCTION	
		Port B	
		RS422	RS232
Upper Connector			
1	Input	RCV (+)	–
2	Input	RCV (–)	XMT
3	Output	XMT (+)	–
4	Output	XMT (–)	RCV
5	–	Signal Ground	Signal Ground
6	Output	DSR (+ 5V)	DSR (+ 9V)
Lower Connector			
7	–	Power Supply Line	
8	–	Power Supply Neutral	
9	–	Power Supply Earth	
10	–	Watchdog Relay N/C	
11	–	Watchdog Relay Com	
12	–	Watchdog Relay N/O	

Front fascia sockets

These sockets are the standard 9-way D-type and are used for both RS-232 and RS-422 connections. The following Tables show the connector pin/signal assignment.

PIN No.	SIGNAL DIRECTION	SIGNAL NAME	SIGNAL FUNCTION
1			
2	Output	RS-232 RCV DATA	Serial data from D240
3	Input	RS-232 XMT DATA	Serial data into D240
4	Input	DTR – DATA TERMINAL READY	
5	–	SIGNAL GROUND	0V connection
6	Output	DSR – DATA SET READY	D240 is powered on (+9V)
7	Input	RTS – REQUEST TO SEND	
8	Output	CTS – CLEAR TO SEND	D240 ready to transmit data
9			

TABLE 1 Port A and B RS-232 Connector Pin/Signal Assignments

PIN No.	SIGNAL DIRECTION	SIGNAL NAME	SIGNAL FUNCTION
1			
2			
3	–	SIGNAL GROUND	0V connection
4	Input	RS-422 RCV (+)	RS-422 Receive data inputs
5	Input	RS-422 RCV (–)	RS-422 Receive data inputs
6	Output	DSR – DATA SET READY	D240 is powered on (+5V)
7	Output	RS-422 XMT (+)	RS-422 Transmit data outputs
8	Output	RS-422 XMT (–)	RS-422 Transmit data outputs
9			

TABLE 2 Port A RS-422 Connector Pin/Signal Assignments

PIN No.	SIGNAL DIRECTION	SIGNAL NAME	SIGNAL FUNCTION
1			
2			
3	-	SIGNAL GROUND	0V connection
4	Output	RS-422 XMT (+)	RS-422 Transmit data outputs
5	Output	RS-422 XMT (-)	RS-422 Transmit data outputs
6	Output	DSR - DATA SET READY	D240 is powered on (+ 5V)
7	Input	RS-422 RCV (+)	RS-422 Receive data inputs
8	Input	RS-422 RCV (-)	RS-422 Receive data inputs
9			

TABLE 3 Port B RS-422 Connector Pin/Signal Assignments

S9200 series keyboard connections

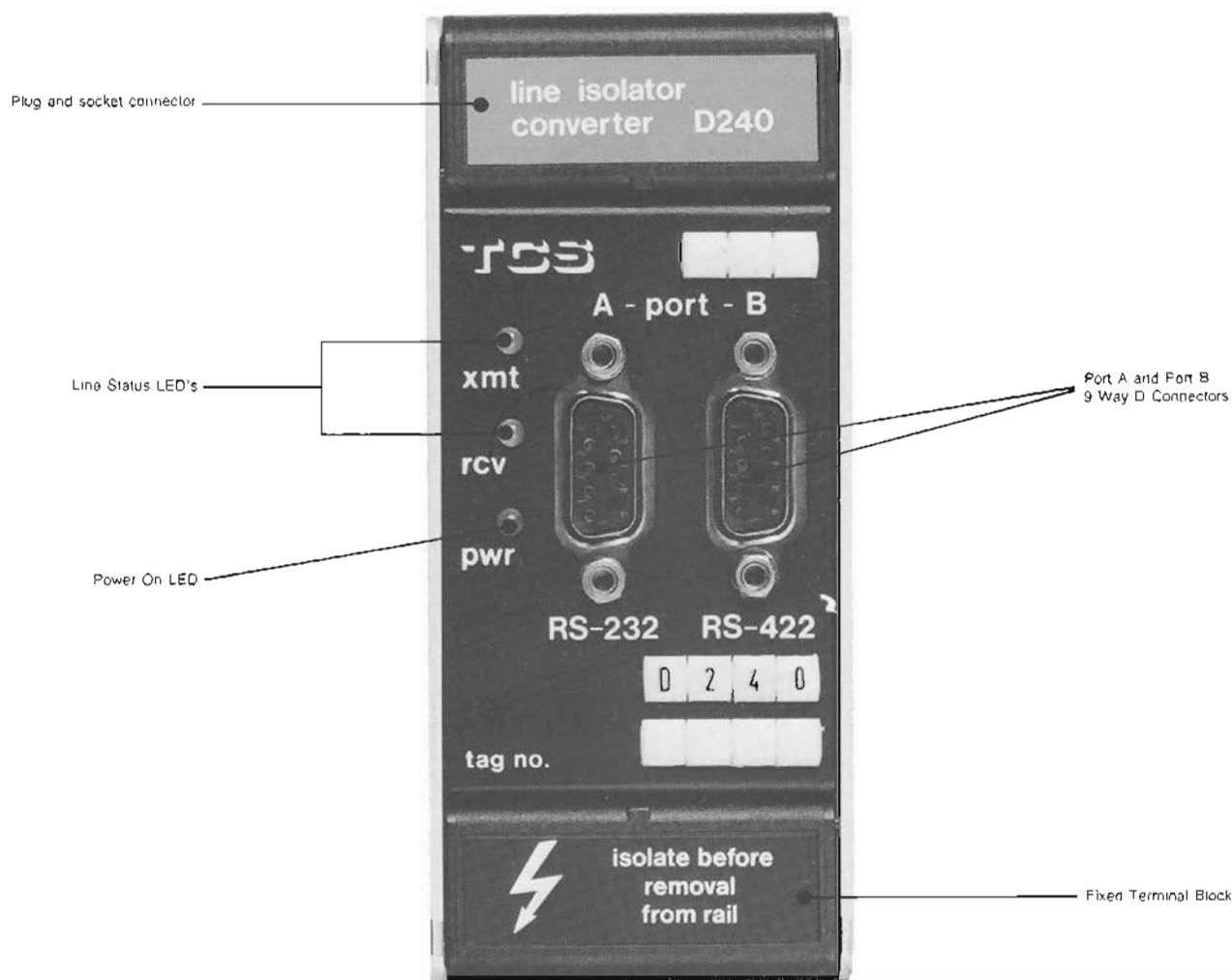
Pin 6 of the RS232 connector for Port A or B is connected to the 12V power supply and Pin 8 is connected to +9V.

Installation

The Unit is mounted on DIN-rail type T35. Installation is achieved by rolling the unit down until it clips into position. To remove, a screwdriver is used to release the spring catch.

The instrument case must be earthed and to facilitate this an earth spring is provided at the rear of the enclosure connecting directly onto the DIN-rail.

There are components available which are specifically designed to provide an earth for the rail.



Performance

Communications Inputs/Outputs

RS232C

Voltage Interface	: $\pm 9V$ Transmit Levels : $\pm 3V$ to $\pm 30V$ Receive Levels
Data Rate	: 19.2kB Max.
Control Signals	: RTS – Request to Send Input : CTS – Clear to Send Output : DTR – Data Terminal Ready Input : DSR – Data Set Ready Output

RS422

Type	: Balanced Differential Receive and Transmit Pairs
Voltage Levels	: 0 and +5V Antiphase
Data Rate	: 48kB
Control Signals	: DSR – Data Set Ready Output

Watchdog

Relay Type	: Single Pole Changeover
Rating	: 24V at 0.5A (Resistive)
Delay Time	: Selectable from 1 to 10 sec.

Power Supply

Voltage Range	: 104V-132V AC 50/60Hz : 207V-264V AC 50/60Hz
Supply Current	: 30mA at 240V AC : 60mA at 120V AC
Keyboard Power Supply	: 12V DC 50mA max.
Supply Fuse	: 100mA 20mm

Isolation

Port A to Port B	Working – 250V AC/DC Test – 1500V AC RMS
Port A to Relay Output	: Working – 60V AC/DC : Test – 500V AC RMS
Power Supply to Port A, or Port B, or Relay Output	Working – 250V AC/DC Test – 2000V AC RMS

All figures in accordance with IEC 348

RFI Susceptibility

Conforms to IEC 801-3 and CEGB DN5

Physical

Mounting	: DIN-Rail Type T35
Connectors	: Port A – 9-Way D-Type Female : Port B – 9-Way D-Type Female : 6-Way Plug-and-Socket
Weight	: 600 g
Dimensions (Maximum)	: Width – 48mm : Height – 110mm : Depth (Overall) – 99mm

Environmental

Operating Temperature	: 0 to +50°C
Storage	: –20 to +55°C

Cable accessories

Description	Order Code	Description	Order Code
RS-232 Converter Cable Converts from 9-way to 25-way D-type sockets	S9501-5	RS-422 Multi-Option Cable Assembly	S9502-6
Length of Cable Default	M250	Cable Type High Grade (Maximum length 1km) Medium Grade (Maximum length 50m)	HG MG
Length in Millimetres (mm)	Mxxx	Configuration Host to Peripheral Host to Host	HP HH
Length in Metres (25m maximum)	xxM	Terminations (i) Plug to Plug (ii) Socket to Socket (iii) Plug to Socket (iv) Plug to Ferrules (v) Socket to Ferrules	PL-PL SK-SK PL-SK PL-FL SK-FL
Length of Cable – Default	10M	Length in Metres MG maximum 50m HG maximum 999m	xxxM
Length in Metres (25m maximum)	xxM	Form Cable Fully Assembled Kit (Default Option AS)	AS

Examples: S9501-5/M250
S9501-4/10M

Example: S9502-6/HG/HP/SK FL/020M/AS

Ordering information

Description		Order Code
Communication Converter/Isolator		D240
Power Supply	240V AC Default 120V AC	240V 120V
Port A Type	RS232 RS422	232 422
Port A Connector Configuration		
RS232	Keyboard (S9200 Series)	KBD
	Data Terminal Equipment (VDU)	DTE
RS422		-
Port B Type	RS232 RS422	232 422
Port B Connector Configuration		
RS232	Handshaking not required	RDY
	Data Terminal Equipment (VDU)	DTE
RS422		-
Watchdog Delay Time DD		
DD can be 01, 02, 04, 06, 08, or 10 (Default Time 04)		04
Fascia Labelling	Blank Tags	- T

Examples: D240/240V/232/KBD/422/-/04/-
D240/120V/422/-/422/-/10/-



Interface Products

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Part No.: HA079185U001
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