

# SCIMAR Engineering Ltd

## OP232/D'x' RS-232-C IN-LINE OPTO ISOLATOR

The OP232 opto isolator provides complete electrical isolation between equipment connected together by RS-232-C (or RS-232-D, or CCITT V24) data interfaces. Equipment signals ground paths can be broken and equipment interfaces can be protected against external malfunction, spurious voltage surges, etc.

### FEATURES

◆ **Complete electrical isolation**

Optical path only - no transformers or capacitors.

◆ **Full duplex, 1 or 2 signal lines in each direction**

TXD/RXD - **OP232/D1** - 1 active line in each direction.

TXD/RXD/RTS/CTS - **OP232/D2** - 2 active lines in each direction.

◆ **Signal line or externally powered**

No power supply needed in most applications.

◆ **Up to 38,400 baud standard, 115,200 available**

◆ **Rugged, fully sealed plastic housing**

'PC' style 9-way D-type connectors, one male end, one female end.  
Interconnection leads available separately.

◆ **Just insert in the existing serial data line**

In many applications this device will make the universal RS-232 standard viable. The limit of usage of RS-232 is often that grounds are tied together, not with the signal standard itself.

◆ **RoHS Compliant**

All Part Numbers OP232/Dx are RoHS compliant

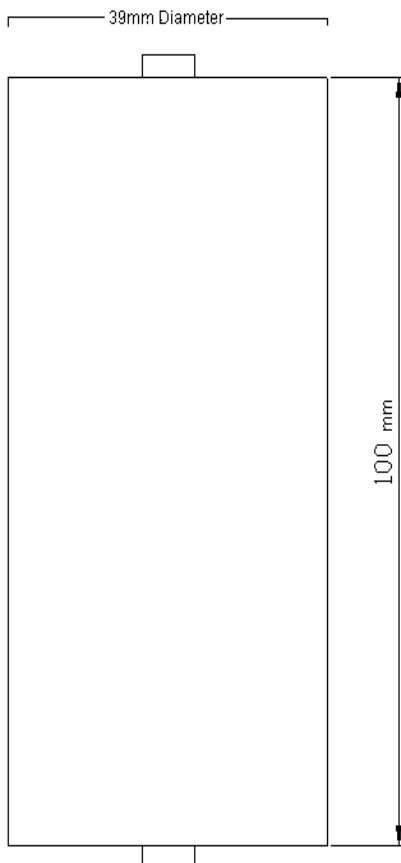
### TYPICAL APPLICATIONS

⇒ Connecting data gathering computers to external sensors: the sensor electrical grounds can be isolated and can be connected for lowest noise.

⇒ Interconnections between equipment in electrically noisy environments such as factories, vehicles and ships: breaking the ground path may make RS-232 viable.

⇒ As a protective device: to keep the computer completely isolated from any external problems.

⇒ To block computer generated noise from sensitive instruments: for instance in EMC testing (block spurious RF), laboratories, geophysics.



## CONNECTIONS

Devices are terminated with 9-way D-type connectors, one male and one female moulded into the body of the device. Connections are shown below.

OP232/Dx			
	Female - connect to DTE	Notes	Male - connect to DCE
Signal	pin	The arrows show the direction of data flow with the device body imagined here	pin
RXD	2 ←		← 2
TXD	3 →		→ 3
RTS	7 →	not used on D1 option	→ 7
CTS	8 ←	not used on D1 option	← 8
GND	5	signal and power common	5
POW	4 (DTR)	power input	(DSR) 6

Signal names follow strict RS-232 convention, i.e. named according to function at DTE (computer) end. Screening of each end is to the connector shell. Power pin(s) supply their own end only. The device is wired as a 'straight-through' extender; when connected pin to pin to either DTE or DCE equipment, the free end of the device retains the pin-out of the original.

## POWER

Normally no separate connection for power is necessary; the device runs off the signal lines themselves. This may load the signals slightly more than RS-232 specification, but normally well inside the limits of industry standard RS-232 drivers. If in doubt, a technical data sheet is available with more details. The POW connection is provided for cases where output voltages are low or it is not desired that the device should run off the signal lines; this can be connected to a supply of either polarity of between 8 and 18 volts (nominally 12 volts, but this must be higher than the peak voltage signal voltage). Often such supplies are available on device interface connectors. One or both ends of the device may be powered this way as required by the application. The power return is GND (pin 5).

## PHYSICAL

Housing in black plastic body (potted) with either end terminated in D-type connectors.

## OPTIONS AND ORDER CODES - GUARANTEE

Standard devices have order codes OP232/D1 and OP232/D2 for single and double duplex options respectively. This product is guaranteed for a period of six months against defects in manufacture or materials.

## SAFETY NOTE

This product is designed to provide electrical isolation where it is necessary to separate system grounds, where the electrical potentials of these grounds are not themselves hazardous. Additionally, the device will provide very high levels of protection from fault voltages between the connected equipment. Note that the D-type connectors are in contact with the system ground at either end, and are also exposed to contact, so neither system ground should ever be connected to a hazardous voltage. In case of any doubt about safe use of these devices, the installation should be designed or checked by a qualified electrical engineer, who takes full account of any potential hazards and takes full responsibility for the use of these devices and certifies the complete system as safe. SCIMAR Engineering Ltd will promptly supply any further technical information in support of use of these devices.

These devices are NOT authorised for use in life support systems, or any other situation where injury or death might result from the failure of, or in any aspect of the use of these devices. SCIMAR Engineering Ltd will NOT accept liability for any injury, loss or damage resulting from use of these devices however caused.

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## DESIGNED AND MANUFACTURED BY SCIMAR ENGINEERING LTD

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