

## ISOLATED RS232 / RS485 CONVERTER MODELO: ISO485-1

### INSTRUCTION MANUAL



## INTRODUCTION

Novus' ISO-485-1 converter allows the communication between a network of instruments in RS485 and the RS232 computer interface. The signals are electrically isolated and follow the specifications of the RS485 standard for baud rates up to 38,400 bps. There are two data flow control modes, user selectable through a strap on the converter's panel.

Figure 1 shows a drawing of the converter's panel, indicating the input of the external power supply, strap position for mode selection (RTS or AUTO) and the output terminals for the RS485 network.

## SPECIFICATIONS

- Reduced size: the whole circuit is inside a DB25 adaptor cover.
- Two operation modes, using PC's serial interface.

**AUTO:** data flow direction is switched automatically by the converter.

**RTS:** data flow direction commanded by the RTS signal.

- The transmission doesn't generate echo on the reception.
- 5 Vcc power supply.
- 1.5kV galvanic isolation between the RS232 and RS485 signals.
- Data line with resistive termination (270 ohms) and protection against voltage surges.
- Data flow indication through TX and RX LED'S
- Capable of driving 31 RS485 instruments in a network segment.
- Maximum distance between converter and terminals up to 1km (depends on the baud rate, on the number of instruments in the network and on the surrounding electric noise).

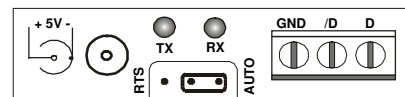


Fig. 1 – ISO485-1's configuration panel and connections

## INSTALLATION

Plug the converter's DB25 connector to the PC's serial port. If the converter needs to be connected to a serial port with a DB9 connector, use a DB25 to DB9 adaptor.

Then connect the RS485 signals (D and /D) to the RS485 instrument bus.

To assure noise immunity and protection to the equipments, it is recommended interconnecting converter's GND terminal to each RS485 equipment GND point. Alternatively, if the ground signal is available to all network points, simply connect this ground to the GND terminals of each RS485 equipment.

For larger networks, it is also necessary to apply a termination to the other bus end (the converter side is already terminated)

Finally, connect the external power supply to the converter.

## OPERATION

Communication with RS485 standard uses the same pair of wires for transmission and reception of data. Therefore, a procedure to control data flow direction is necessary, being either transmitted or received.

The usual method to control data flow is through the **RTS** (Request to Send) signal, commanded by the communication driver of the application's software. This method should be used whenever the application software is capable of delivering a reliable **RTS** signal. This way, when the **RTS** signal is inactive (+12V), the converter is set to transmission mode (the computer transmits data to the network); when inactive (-12V), the converter is set to reception mode.

The converter ISO485-1, however, presents a second mode for data flow direction control, named **AUTO** (Automatic), where the control is accomplished at the converter level regardless of the **RTS** being generated or not by the communication software.

The **AUTO** mode is very convenient for easy setup of the communication. It has limitations, however, with regard to maximum distance and baud rate.

The communication software shall keep the DTR signal in +12V throughout the communication. This is the usual state for this signal.

## WARRANTY

NOVUS Electronics provides the original purchaser of this instrument a one (1) year warranty against defects in material and workmanship under the following terms:

- The one year warranty begins on the day of shipment as stated on the sales bill.
- During the warranty period all costs of material and labor will be free of charge provided that the instrument does not show any evidence of misuse.
- For maintenance, return the instrument with a copy of the sales bill to our factory. All transportation and insurance costs should be covered by the owner of the equipment.
- Should any sign of electrical or mechanical shock, abuse, bad handling or misuse be evident the warranty voids and maintenance costs will be charged.

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