



## ISO485: RS232 / RS485 Isolating Interface

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### *Description*

The ISO485 is a RS485/RS232 physical protocol converter that additionally makes galvanical isolation of the RS232 communications port from the RS485 bus. Protects equipment from surges and spikes.

### *Operation overview*

The RS232 protocol is ground voltage referenced. In the connector is a ground pin on where voltages are compared (pin 7 in the DB25 connector). Any pin with a voltage between  $-5V$  and  $-12V$  is considered in the logic 1 state, and with  $5V$  to  $12V$  is logic 0 state. RS232 is full duplex, which means that can simultaneously transmit and receive because there are both different lines. (TX pin 2 and RX pin 3 on the DB25)

By the other side RS485 is a differential pair with no ground, there are 2 lines A and B, both carry voltages in the order of 3 to 5 volts referred to an internal ground.

The RS485 is considered to be in the logic 1 state if voltages on line A is greater than on line B ( $A > B$ ) and logic 0 if the opposite ( $A < B$ ).

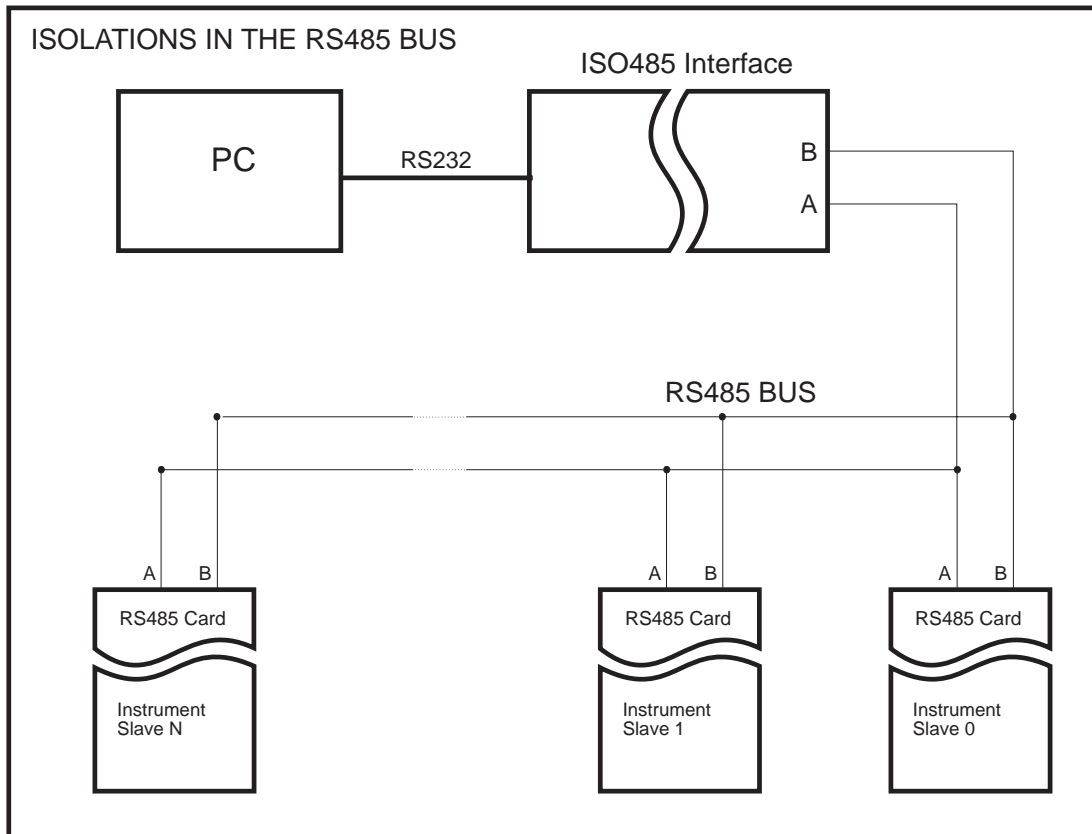
Since both lines are similar and have the same impedance any external interference will make both lines change the same way maintaining its differential voltage, making no change in its logic state. For this noise immunity is why RS485 is used for industrial environments.

RS485 is a half duplex (only one device can transmit at a time) multipoint protocol expected to be useful up to 4000 feet . There can be several instruments connected to the bus.

RS232 is only point-to-point and works only up to 45 feet.

The bus arbiter (PC) is the one who designates who will transmit. This is done by the RTS line (pin 4) of the RS232 port. When RTS is active indicates the ISO485 converter that the arbiter will transmit to some slave so it must load the RS485 bus with the data.

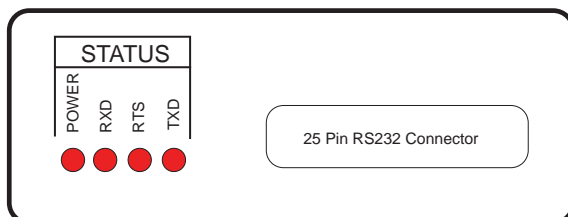
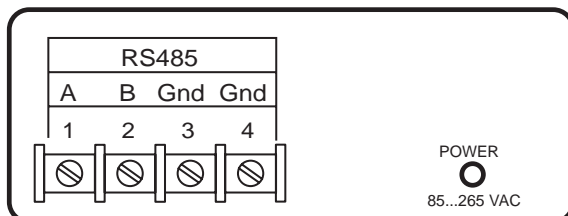
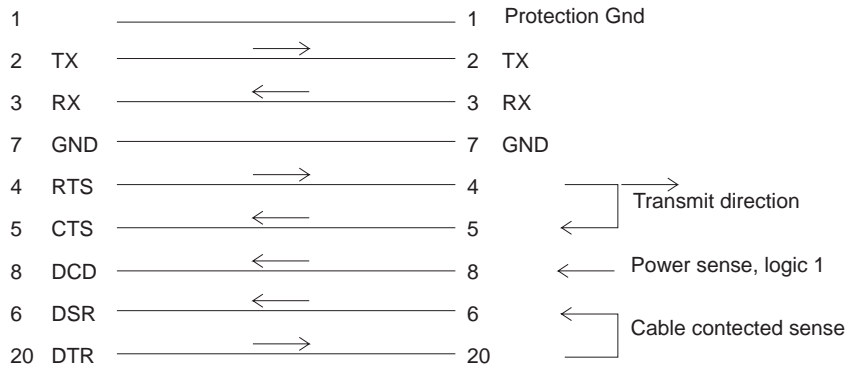
## ISOLATIONS IN THE RS485 BUS



## ISO485 Isolating Interface

PC computer  
RS232 connector

ISO485  
Rs232 connector



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## Technical specifications

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### Electrical:

Power supply, RS232 and RS485 Isolation (3 way).  
7500VAC (60Hz) min break down voltage for 1 second at 25C.

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### Construction:

Aluminum and Polycarbonate; IP65  
Total Dimension: DIN 1/8; 96 x 48 x 135 mm.  
Panel cut: 92 x 45 mm.  
Weight: 300 grams.  
Operation temperature: 0 ... 50 °C.

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## Part codes:

Part number must be done selecting the following alternatives.

ISO485

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- AC : 85...260 Vac, 6 W, power supply.
  - DC : 18...60 Vdc, 6 W power supply.
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## For more information:

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