

Figure 4. 4-Wire RS-485

- Used for 4-Wire master/slave circuits.
- Each device is polled, allowing faster response time.
- Addressed devices can receive while responding to a request.
- When used as a Master in a single-master system, Switch 1 may be set RS-422 since it is the only transmitter.
- When used as a Slave, the RS-232 device must provide addressability. Select RS-485 Mode in this situation.
- Biasing is provided by the end-of-line slave.
- Switch settings for this mode are : Switch 1: RS-485, Switch 2: Echo On, Switches 3 and 4: 4-wire.

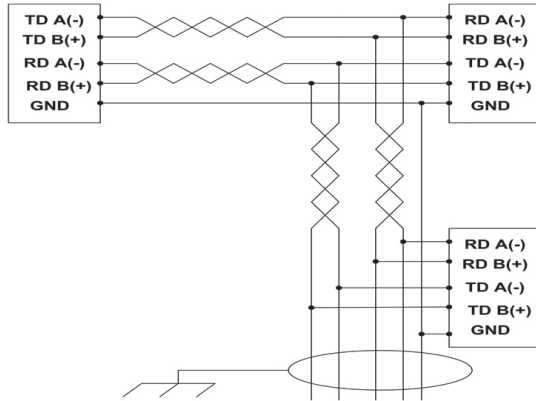
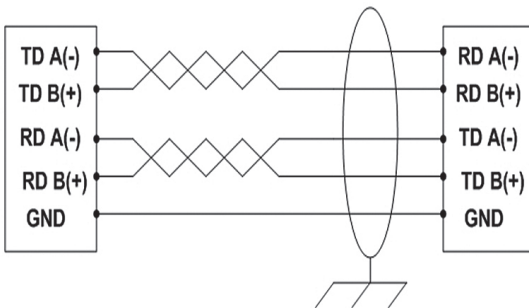


Figure 5. 4-Wire RS-422

- Used as the Master in a master/slave circuit with Receive Only slaves.
- Full-duplex communications.
- Requires a twisted pair for Transmit, a twisted pair for Receive, and a Ground reference wire.
- Switch settings are: Switch 1: RS-422, Switch 2: Echo On, Switches 3 and 4: 4-wire.



Recommended Accessories

12VDC, 6W Power Supply, Stripped/
Tinned, International AC Input
SMI6-12-V-ST



DB9 Male to DB9 Female Cable,
6 feet (1.8 m) length
9PAMF6



DB25 Male to DB25 Female Cable,
6 feet (1.8 m) length
232AMF5



5-position Replacement Terminal Block,
3.5mm
TBKT4

B+B SMARTWORX

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QUICK START GUIDE



4WSD90TB
4WSD250TB

Isolated Universal RS-232 to RS-485 Converter

Before you begin, be sure you have the following:

- + RS-232/485 Isolated Converter
- + DB9 to DB9 Adapter Cable (not included)
- + DB25 to DB25 Adapter Cable (not included)
- + 12VDC, 6W Power Supply (not included)

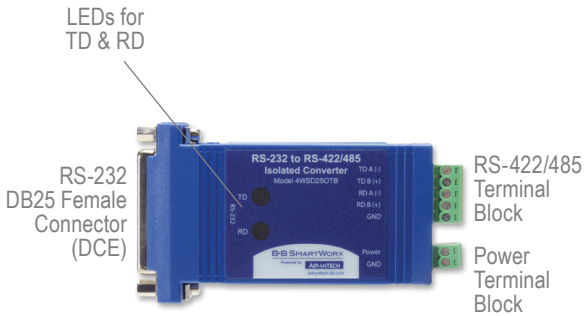
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Product Overview



Model 4WSD90TB



Model 4WSD250TB

SPECIFICATIONS

Isolation	2000 VAC
Current Draw	28 mA at 12 VDC
Data Rate	115.2 kbps maximum
Distance	Up to 4000 ft (1200 m)
Power	10-48 VDC
Temperature	0 to 70 °C (operating)

1 Getting Started

Models 4WSD90TB & 4WSD250TB isolate and convert RS-232 signals to RS-422/RS-485 and vice versa.

With automatic RS-485 driver control, external software is not required to control data flow.

RS-232 input is wired for DCE:

4WSD90TB - via female DB9 connector.

4WSD250TB - via female DB25 connector.

RS-422 or RS-485 signals are connected to a removable terminal block. External power is applied to a separate, removable terminal block. A 10-48 VDC power supply is required (sold separately).

2 Operating Modes

Configure desired operating mode (see Table 1).

In **Half-Duplex** operation, the receiver is enabled when not transmitting (Echo Off).

In **RS-422 Mode**, the driver is always enabled.

In **RS-485 Mode**, the RS-485 driver is automatically enabled during each space state by the presence of an RS-232 signal. When the RS-232 data is in a mark or idle state, the RS-485 driver is disabled and the RS-485 data lines are held in a mark state by the bias provided by a 4.7K Ω resistor. The value of this resistor may need to be changed depending on the termination used.

The **Loopback Test Mode** switch is used with HyperTerminal to verify the operation of the converter.

Table 1. OPERATING MODES SWITCH SETTINGS

Switches	Switch 1 (TX)	Switch 2 (RX)	Switch 3 (Bridge)	Switch 4 (Bridge)
RS-485 2-Wire Mode (half-duplex)	RS-485	Echo Off	2-Wire	2-Wire
RS-485 4-Wire Mode (full-duplex)	RS-485	Echo On	4-Wire	4-Wire
RS-422 4-Wire Mode (full-duplex)	RS-422	Echo On	4-Wire	4-Wire
Loopback Test Mode*	As Desired	Echo On	2-Wire	2-Wire

* Used with HyperTerminal or another terminal program to confirm operation of data through converter.



Refer to B+B SmartWorx' "RS-422/RS-485 Application Note" for more information concerning RS-422 and RS-485 networks. Available for download: www.advantech-bb.com

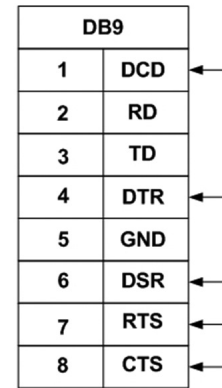


Loopback Test Mode - additional troubleshooting help is available at: [available at: www.advantech-bb.com](http://www.advantech-bb.com)

3 RS-232 Pinouts

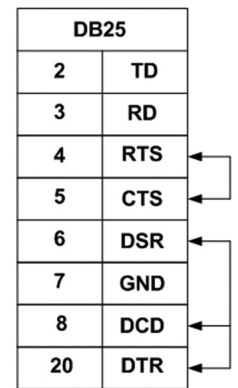
RS-232 connection requires RD, TD, and Signal Ground. The remaining signals are looped back within the converter (see Figures 1 & 2).

Figure 1. 4WSD90TB RS-232 Pinouts



Loop back jumpers are pre-wired within the converter

Figure 2. 4WSD250TB RS-232 Pinouts



Loop back jumpers are pre-wired within the converter

4 Mode Wiring Diagrams

Figure 3. 2-Wire RS-485

- Used to connect several RS-485 devices with minimal wire.
- Devices communicate one at a time.
- Units are normally in Receive Mode.
- When data is requested, the addressed device waits one delay time before responding.
- After transmitting, the device reverts to Receive.
- Switch settings: Switch 1: RS-485, Switch 2: Echo Off, Switches 3 and 4 to 2-Wire.

