

4 | Troubleshooting

Are my devices wired as DTE or DCE?

How to check:

1. **Use Rule of Thumb** - If the device plugs into the computer serial port and works normally, the device is wired as DCE (or the connection cable is a crossover type that makes it work as a DCE). If the device connects to the computer port using a “null modem” crossover cable, it is wired as DTE.
2. **Use RS-232 Line Tester** - A quick and easy way to determine the DTE/DCE port type is to use an RS-232 line tester such as B+B SmartWorx Model 9PMTT. The tester can show the signal state of any active RS-232 data lines using LEDs lighting Red or Green. Active data lines are output from a device. They may be either High or Low.

5 | UL Class1/Division 2 Warning Information

SUITABLE FOR USE IN CLASS I, DIVISION 2, GROUPS A, B, C AND D HAZARDOUS LOCATIONS, OR NONHAZARDOUS LOCATIONS ONLY.

CONVENANT À L'EMPLOI DANS LES SITES DANGEREUX DE CLASSE I, DIVISION 2, GROUPES A, B, C ET D, OU DANS LES SITES NON HASARDEUX SEULEMENT

WARNING - EXPLOSION HAZARD - SUBSTITUTION OF ANY COMPONENT MAY IMPAIR SUITABILITY FOR CLASS I, DIVISION 2.

ATTENTION - DANGER D'EXPLOSION - LA SUBSTITUTION DE COMPOSANTS PEUT ENTRAÎNER UNE ADÉQUATION À LA CLASSE I, DIVISION 2.

WARNING - EXPLOSION HAZARD - DO NOT DISCONNECT EQUIPMENT WHILE THE CIRCUIT IS LIVE OR UNLESS THE AREA IS KNOWN TO BE FREE OF IGNITABLE CONCENTRATIONS.

ATTENTION - DANGER D'EXPLOSION - LA SUBSTITUTION DE COMPOSANTS PEUT ENTRAÎNER UNE ADÉQUATION À LA CLASSE I, DIVISION 2.

FIELD WIRING CONNECTIONS MUST BE MADE USING 105 °C MINIMUM COPPER SUPPLY WIRES.

LES CONNEXIONS DE CÂBLAGE SUR SITE DOIVENT ÊTRE RÉALISÉES EN UTILISANT DES CÂBLES D'ALIMENTATION EN CUIVRE DE 105 °C MINIMUM.

Recommended Accessories

Industrial DIN Rail
Power Supply
Model# MDR-20-24



RS-232 3-Stage
Surge Protector
Model# 232HESP



B+B SMARTWORX

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+ QUICK START GUIDE



Model 232OPDRI-PH
RS-232 Repeater with 3-Way Isolation

Before you begin, be
sure you have the following:

- + 232OPDRI-PH Isolated Repeater
- + 10-48VDC Power Supply (optional)
- + Two RS-232 Cables (optional)
- + Ground Cable (optional)

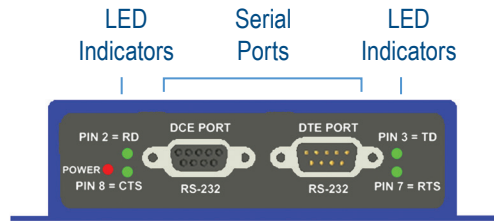
B+B SMARTWORX

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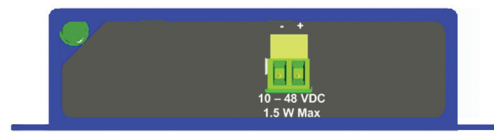
ADVANTECH

Product Overview

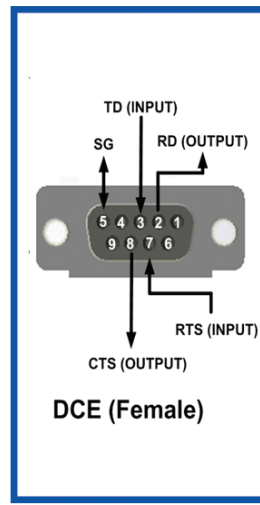
Front View



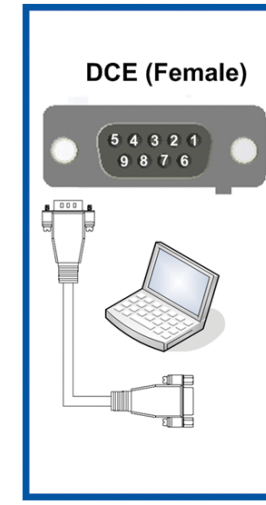
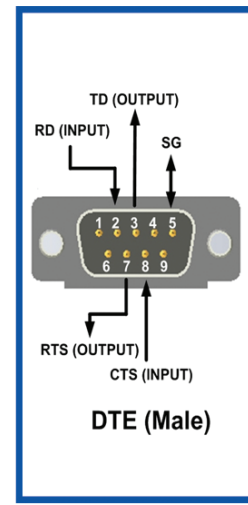
Back View



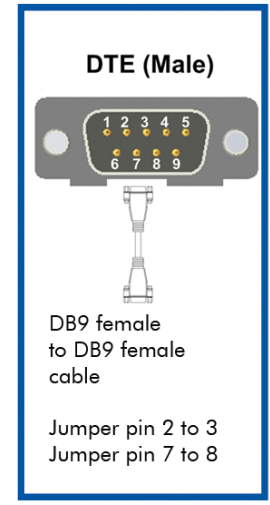
+ 10 to 48 VDC, 1.5 W maximum
Grounding the unit is recommended.



+ RS-232 Connections



+ Loopback Test



1 | Connect Your RS-232 Devices

A DTE device is "Data Terminal Equipment." This includes computers, PLCs, and most devices that are not used to extend communications.

(Think "COMPUTER" for DTE.)

A DCE device is "Data Communications Equipment." This includes modems and other devices that extend communications, like RS-422, RS-485, fiber optic converters or radio modems.

(Think "MODEM" for DCE.)

When connecting a DTE device to a DCE device, use a straight through connection. When connecting a DTE device to a DTE device, or a DCE device to a DCE device, use a crossover (null) connection.

2 | Loopback Test

- Use a DB9 female to DB9 male cable to connect a PC to the DCE port. (Recommended.)
- Connect a DB9 female to DB9 female cable to the DTE port. On the DTE port, jumper pin 2 to 3 and pin 7 to 8 on the female end of the cable. This loops TD to RD and CTS to RTS.
- Using HyperTerminal or similar program, connect to the appropriate COM port. (Remember to set the baud rate to 9600.)
- Turn off HyperTerminal local echo.
- Type some characters in HyperTerminal. The same characters should appear on your screen. The LED indicators will light up to show you that data is being transmitted.

3 | Connections / LEDs

| Port/LED | |
|-------------------|--|
| DB9 Female | DCE Port |
| DB9 Male | DTE Port |
| Pin 3 LED | Green - ON when a TD input (Pin 3) is raised on the DCE port |
| Pin 7 LED | Green - ON when an RTS input (Pin 7) is raised on the DCE port |
| Pin 2 LED | Green - ON when an RD input (Pin 2) is raised on the DTE port |
| Pin 8 LED | Green - ON when a CTS input (Pin 8) is raised on the DTE port |
| Power LED | Red - ON when power applied |
| Power TB2 | Position, Removable (10-48 VDC) |
| GND | Grounding Lug |