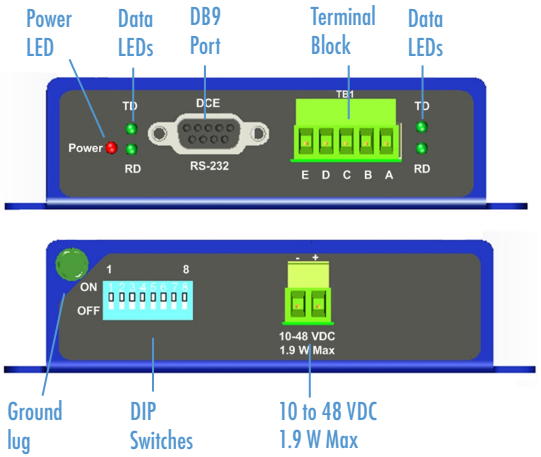
# Product Overview




Grounding the unit is recommended
Connect a grounding wire from the ground lug

## 1 Set DIP Switches

| Communications Mode | | | | |
|---|---|---|---|---|
| **Switch** | **1** | **2** | **3** | **4** |
| **RS-485 2-Wire Half Duplex** | ON | ON | ON | ON |
| **RS-485 4-Wire Full Duplex** | ON | OFF | OFF | OFF |
| **RS-422 Full Duplex** | OFF | OFF | OFF | OFF |

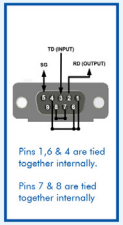
| Built-In Termination Resistor | Switch |
|---|---|
| | 5 |
| Use built-in 120Ω Termination | ON |
| Use External or No Termination | OFF |

| Built-In Transmit Bias Resistor | Switch |
|---|---|
| | 6 |
| Use External or No Bias Resistor | ON |
| Use built-in 1.2K Ω Transmit Bias Resistor | OFF |

| Built-In Receive Bias Resistor | **Switch** |
|---|---|
| | 7 |
| Use External or No Bias Resistor | ON |
| Use built-in 1.2K Ω Receive Bias Resistor | OFF |

SWITCH POSITION 8 IS NOT USED

For an explanation of RS-485 termination and biasing requirements, refer to B&B Electronics' RS-485 application note. This publication can be downloaded at: www.bb-elec.com




| PIN | SIGNAL | DIRECTION |
|---|---|---|
| 1 | DCD | *** |
| 2 | RD | OUTPUT |
| 3 | TD | INPUT |
| 4 | DTR | *** |
| 5 | GND | *** |
| 6 | DSR | *** |
| 7 | RTS | *** |
| 8 | CTS | *** |
| 9 | RI | *** |

DB9 Pinout

## 2 Wire the Converter

| Terminal | RS-485 2-Wire | RS-422/485 4-Wire |
|---|---|---|
| A | *** | TDA (-) |
| B | *** | TDB (+) |
| C | Data A (-) | RDA (-) |
| D | Data B (+) | RDB (+) |
| E | GND | GND |

| DIP Switch RS-422/485 4-Wire | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| On/Off | OFF | OFF | OFF | *** | *** | *** |
| **Position 1 = ON for RS-485, OFF for RS-422** Positions 5,6,7 are used for termination and biasing | | | | | | |

| DIP Switch RS-485 2-Wire | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| ON | ON | ON | ON | x | x | x |
| Positions 5,6,7 are used for termination and biasing | | | | | | |

## 3 Loopback Test

Configure for RS-485 Four wire. Jumper terminals A to C and B to D. Connect a PC to the RS-232 port (see Step 3). Using HyperTerminal or similar program, connect to the appropriate COM port. Turn off HyperTerminal local Echo. Transmit data. The same data should be returned. When data is sent and looped back, the TD and RD LED's will blink on both ports.

## 4 Check LEDs

| LEDs | |
|---|---|
| Power LED | Red. ON when power is applied |
| Data LEDs | Green, LEDs flash when data is present on the port |

# Troubleshooting

## Connecting a Signal Ground

(common, reference) on the RS-422/485 side. The specifications for most RS-422 and RS-485 devices indicate that the device can withstand a maximum VCM of -7 volts to +12 volts. The function of the GND connection is to tie the signal grounds of all nodes on a network to one common ground potential. This ensures that the common mode voltage cannot exceed the specified value.

A signal ground is required on the 485DRCI-PH because it is an optically isolated device. If you do not have a signal ground (common, reference) on your RS422/485 device, you can connect to the DC power ground of your RS422/485 device. Caution: Make sure that this is connected correctly.

Note: Do not use the shield drain wire as the signal ground between RS-422/485 devices.

## Information – UL Class 1 Div 2

1. Refer to the Nonincendive Field Wiring Apparatus Control Drawing for important information.
2. Power, Input / output (I/O) wiring for the end use enclosure must be in accordance with Class 1 Division 2 wiring methods (Article 501.10(B) of the National Electric Code, NFPA 70) and in accordance with the local authority having jurisdiction.
3. Maximum ambient air temperature 85°C.
4. Temperature rating of field installed conductors 105°C. Use Copper Wire Only.
5. These devices must be installed in end use enclosure suitable for the location.
6. WARNING – EXPLOSION HAZARD SUBSTITUTION OF COMPONENTS MAY IMPAIR SUITABILITY FOR CLASS 1, DIVISION 2.
7. WARNING – EXPLOSION HAZARD: DO NOT DISCONNECT EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR THE AREA IS KNOWN TO BE NON-HAZARDOUS.
8. WARNING – THIS APPARATUS IS SUITABLE FOR USE IN CLASS 1 DIVISION 2, GROUPS A, B, C, AND D OR NONHAZARDOUS LOCATIONS ONLY.

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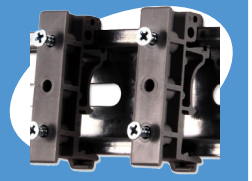
## Recommended Accessories

### MDR-20-24

Power Supply
http://www.bb-elec.com/Products/Power-Supplies-Accessories/DIN-Power-Supplies/Industrial-Slimline-Power-Supplies.aspx

### DRAD35

DIN Rail Adapter
http://www.bb-elec.com/Products/Power-Supplies-Accessories/Serial-Cables/Accessories.aspx



## Fast, Easy Answers...

- **Please double check Step 2.**
- **You can also use your smart phone to access complete documentation on our website. Simply scan code to the right.**

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B&B ELECTRONICS

# QUICK START GUIDE


# 485DRCI-PH

**Triple Isolated RS-232 to RS-422/485 Converter**

## First Things First...

Before you begin, be sure you have the following:

- ○ 485DRCI-PH
- ○ Additional Items Required but Not Included:
  - ☐ A 10 to 48 VDC Power Supply,. (Converter draws 1.9 W Max.)

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*Fast and easy on the web: www.bb-elec.com*