6 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 Model BB-485DRCI-PH because it is an optically isolated device. If you do not have a signal ground (common, reference) on your RS-422/485 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.

7 UL Class 1/Div. 2 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 KNOW TO BE FREE OF IGNITABLE CONCENTRATIONS.

Document Number: 20BB710-10773-00_r3_485DRCI-PH_1021qsg

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.

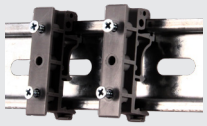
Les connexions de câblage sur site doivent être réalisées en utilisant des câbles d'alimentation en cuivre de 105 °C minimum.

To be installed in accordance with control drawing 8512r001.
Pour être installé conformément au dessin de contrôle 8512r001.

Recommended Accessories

Power Supply
Model# BB-MDR-20-24

DIN RAIL ADAPTER
Model# BB-DRAD35



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QUICK START GUIDE

Model BB-485DRCI-PH

3-Way Isolated RS-232 to RS-422/485 Converter

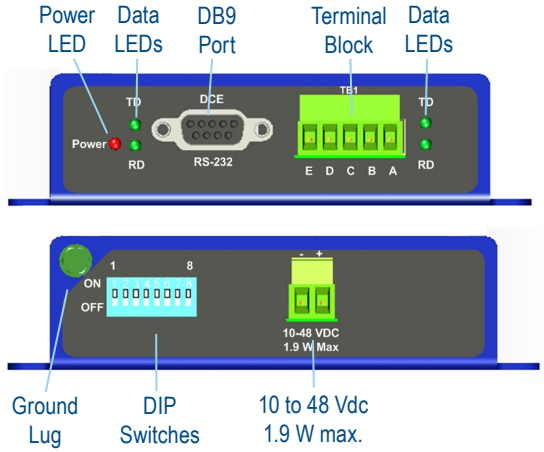
Before you begin, be sure you have the following:

+ BB-485DRCI-PH Converter
+ 10 to 48 Vdc Power Supply

ADVANTECH

Fast and easy on the web: www.advantech.com

1 Product Overview



✚ Grounding the unit is recommended. Connect a grounding wire from the ground lug to a good source of Earth Ground.

2 Set the 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

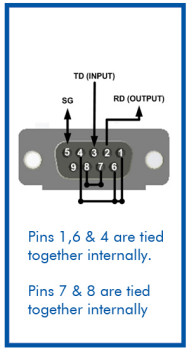
BUILT-IN TERMINATION RESISTOR	SWITCH
	5
Use Built-in 120Ω Termination	**ON**
Use External or No Termination	OFF

BUILT-IN TRANSMIT BIAS RESISTOR	SWITCH
	6
Use External or No Bias Resistor	**ON**
Use Built-in 1.2KΩ Transmit Bias Resistor	OFF

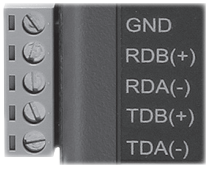
BUILT-IN RECEIVE BIAS RESISTOR	SWITCH
	7
Use External or No Bias Resistor	**ON**
Use Built-in 1.2KΩ Receive Bias Resistor	OFF

✚ **Switch position 8 is not used.**

For an explanation of RS-485 termination and biasing requirements, refer to Advantech's RS-422/485 Application Note. This publication can be downloaded at: ***www.advantech.com***

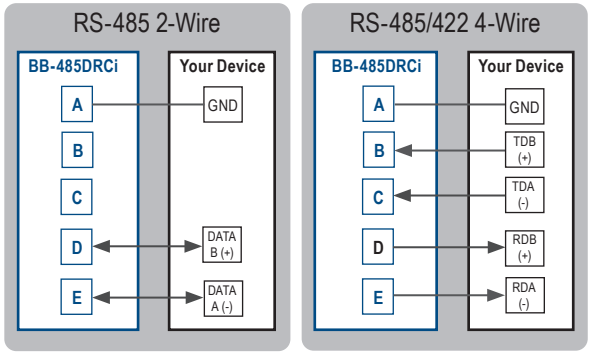


DB9 PINOUTS		
PIN	**SIGNAL**	**DIRECTION**
1	DCD	***
2	RD	Output
3	TD	Input
4	DTR	***
5	GND	***
6	DSR	**
7	RTS	***
8	CTS	***
9	RI	***



TERMINAL BLOCK	
POSITION	**SIGNAL**
A	Ground
B	RDB (+)
C	RDA (-)
D	TDB (+)
E	TDA (-)

3 Wiring Converter & Device



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.						

4 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 a 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 LEDs will blink on both ports.

5 Check LEDs

LEDs	
Power LED	Red = ON when power is applied.
Data LEDs	Green = LEDs flash when data is present on port.