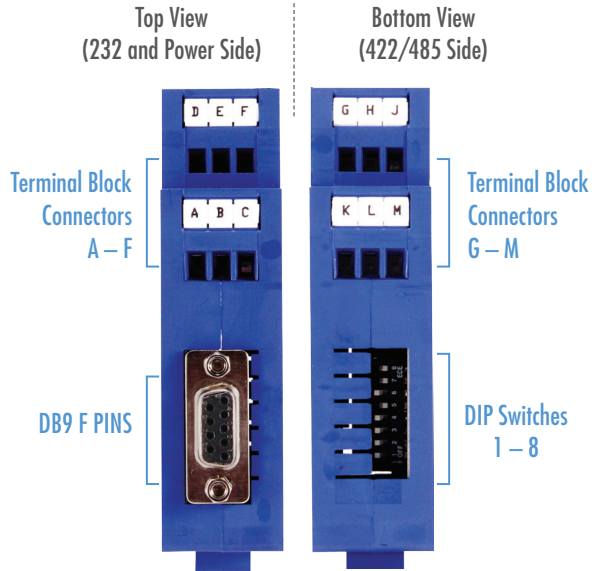
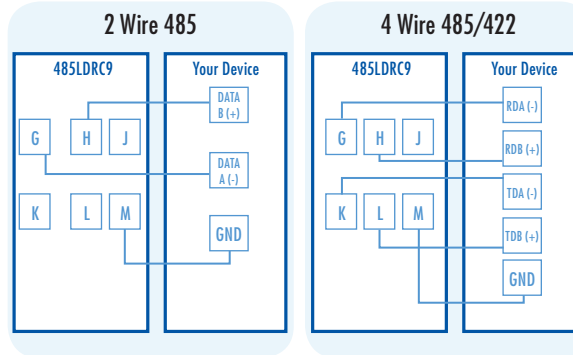


Product Overview



Please Note:
Terminal block and DIP switch settings located on product.

2 Set The 422/485 Side of Converter



	SW-1	SW-2	SW-3	SW-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

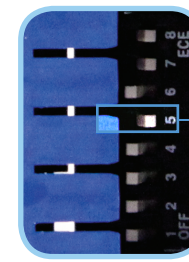
Additional tech notes on 422/485 are located at:
<http://www.bb-elec.com/485LDR9>

3 Set the Dipswitch Settings for Baud Rate

	SW-6	SW-7	SW-8	Timeout (MS)
2400	OFF	OFF	ON	4.16
4800	OFF	ON	OFF	2.08
9600	ON	OFF	OFF	1.04
19.2K	ON	ON	ON	0.580

For baud rates not listed above refer to:
<http://www.bb-elec.com/485LDR9>

4 Termination Switch: Set to OFF (Recommended)

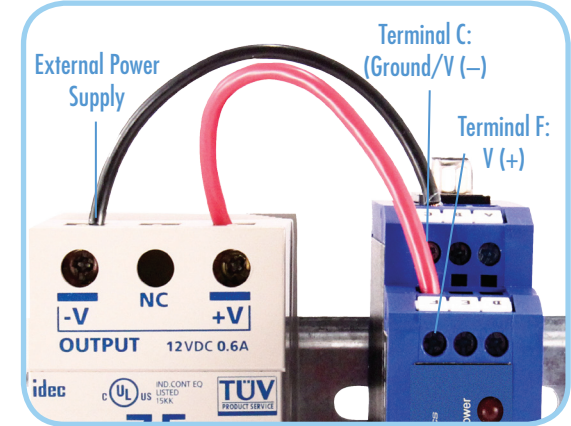


Use the 120Ω Built-in Termination	ON
Use External or No Termination	OFF

Switch 5

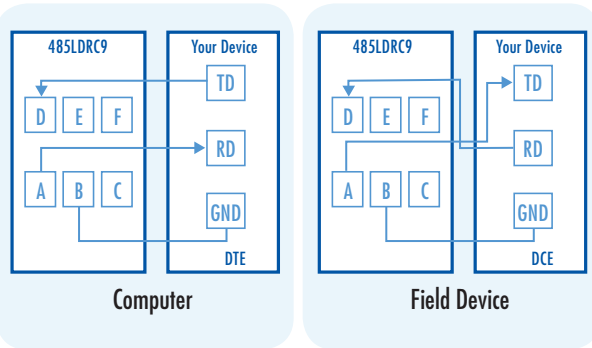
If you want to enable termination, refer to: <http://www.bb-elec.com/485LDR9>

5 Connect Your Power Supply



Converter uses 0.5 W

1 Connect Your RS232 Device (Terminal Block OR DB9 Port)



- Use a straight through DB9 to DB9 if you are connecting to a computer (DTE).
- Use a cross over (null modem) DB9 to DB9 if you are not connecting to a computer. (DCE)

Additional tech notes on RS232 DTE DCE connections are located at: <http://www.bb-elec.com/tech/DTE-DCE>

6 Loopback Test (Optional) To verify serial port and 485LDR9 functionality

- Configure for RS-485 four wire, 9600 baud.
- Jumper terminals H to L and G to K.
- Connect a PC to the RS-232 port (see Step 1).
- Using HyperTerminal or similar program, connect to the appropriate COM port (remember to set the baud rate at 9600). Turn off HyperTerminal local echo.
- Start typing. If you can see the data you are typing, you have a good loopback. If you cannot, contact tech support.
- LED Indicators: Power is ON when power is applied. TD flashes when RS-422/485 data is sent. RD flashes when RS-422/485 data is received.

Set DIP Switches to:

1	OFF	ON
2	OFF	
3	OFF	
4	OFF	
5	OFF	
6	ON	
7	OFF	
8	OFF	

RS-485 4-Wire

Troubleshooting

Timing Issues?

(Usually applies when using 2-wire 485)

The 485LDRC9 uses RC time constant. This means that when you are setting the DIP switches for the “baud rate” you are setting a turnaround time, not a “baud rate”.

Sometimes the turnaround time on a RS-485 2-wire device does not match the turnaround time that is set on the 485LDRC9, even though they are both set for the same baud rate. Refer to the chart in Step 3 to match the turnaround time of your RS-485 2-wire device. If you do not know the turnaround time of your device you can do the following:

- **Keep your device at its current baud rate, but change the “baud rate” on the 485LDRC9. Set it for one or two steps above or below the baud rate of your device until you get communication.**
- **Alternatively, you can use the 485DRCi-PH instead of the 485LDRC9. The 485DRCi-PH uses bitwise control so you do not have to worry about matching the timing of your device.**

Check Type of Cable Used

A 24 gauge twisted pair, shielded cable is preferred. Category 5 cable is available as shielded twisted pair (STP), as well as unshielded twisted pair (UTP) and generally exceeds the recommendations for RS-422, making it an excellent choice for RS-422 and RS-485 systems.

Are You Hooking 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 485LDRC9 because it is an optically isolated device. If you do not have a signal ground (common, reference) on your RS422/485 device, you can hook 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. RS-422/485 systems may communicate successfully without the signal ground when nodes are located close together and circuit grounds for all nodes are at the same potential—e.g., a controlled lab environment. However, this practice is not recommended. If a signal ground is not used when nodes are separated by distance, and there is the possibility of lightning and/or other electrical noise, the common mode voltage can rise to levels that could compromise communications, or even damage the transceivers in the system nodes.

Recommended Accessories and Power Supplies

Ready To Use Cables For Serial And USB

<http://www.bb-elec.com/485LDRC9/ACC>



9PAMF6

Industrial Power Supplies

<http://www.bb-elec.com/485LDRC9/ACC>



MDR-40-24

Fast, Easy Answers

- **First, check step 6.**
- **Then use your smart phone to access complete documentation on our web site. Simply scan the code to the right.**



<http://www.bb-elec.com/485LDRC9>



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485LDRC9

Optically Isolated

RS-232 to RS-422/485 Converter

✓ First Things First...

Before you begin, be sure you have the following:

- 485LDRC9 Serial Converter
- Additional items **required** but not included:
 - Power Supply
 - RS-232 Cable
 - RS-422/485 Cable



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



485LDRC9
Optically Isolated
RS-232 to RS-422/485 Converter

UL Installation Information

Underwriters Laboratories Conditions of Acceptability –
When installed in the end-use equipment, consideration
should be given to the following:

1. The wiring terminals are suitable for factory wiring only.
2. This device is to be mounted in a suitable enclosure in the end-product.
3. This device is suitable for operation at a maximum surrounding air temperature as described in the documentation.
4. These devices are intended for use in a pollution degree 2 environment.

- Input Voltage: 10 – 30 VDC
- Input Power: 0.5 Watts
- Wire Range: 12 – 24 AWG
- Tightening Torque: 4 kgf-cm
- Temperature rating of field installed conductors is 105° C minimum, sized for 60° C ampacity
- Use copper wire only
- Maximum surrounding ambient air temperature 80° C