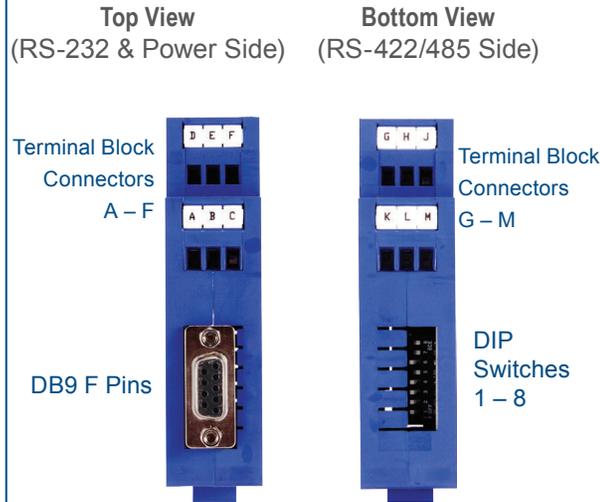
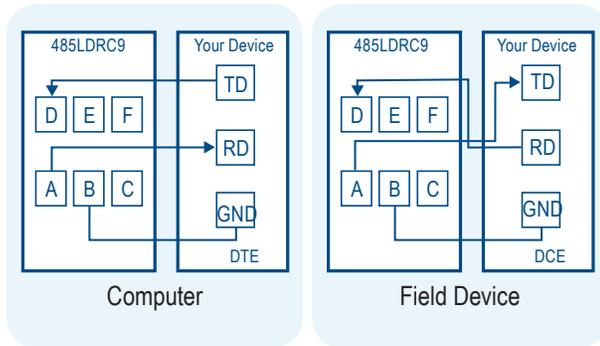


# Product Overview



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

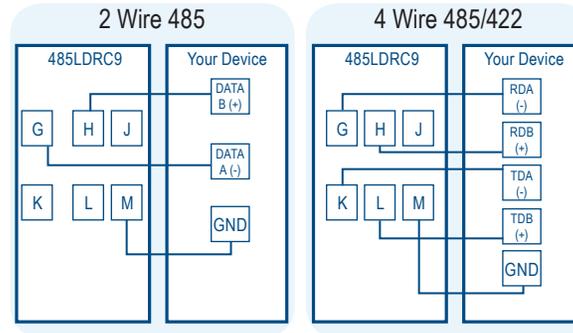
## 1 | Connect RS-232 Device



- 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 technical notes on RS-232 DTE DCE connections are available on the B+B SmartWorx website.

## 2 | Set RS-422/485 Converter Side



	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

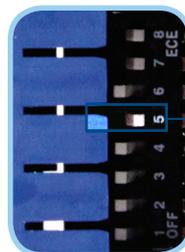
+ Additional RS-422/485 technical notes on are available on the B+B SmartWorx website.

## 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, see the B+B SmartWorx website.

## 4 | Termination Switch: Set to OFF (recommended)

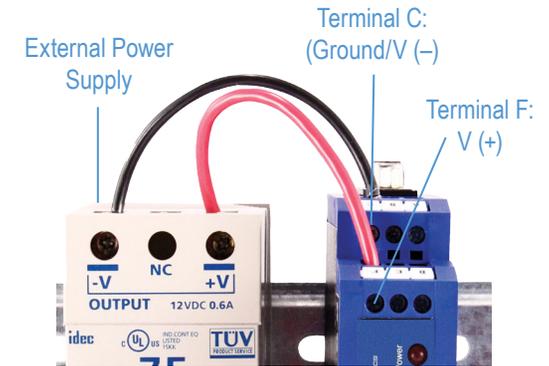


Switch 5

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

+ Termination technical notes on are available on the B+B SmartWorx website.

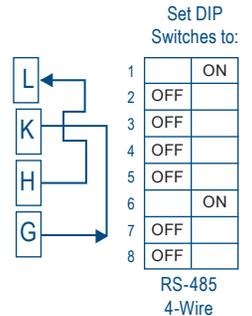
## 5 | Connect Your Power Supply



Converter uses 0.5 W

## 6 | Loopback Test

- Configure for RS-485 4-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 B+B SmartWorx technical 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.



## 7 | LED Indicators

Transmit Data (Red)	Flashing - RS-422/485 data is transmitted
Receive Data (Red)	Flashing - RS-422/485 data is received
Power (Red)	On - when power applied

+ With no devices attached, LEDs should be Off, Power On.

### TIPS:

If LEDs are On *before* devices are attached, it may indicate the Termination Resistor is On.

Using termination, with power ON, but no devices connected, may cause the Receive LED to turn ON solid. The loading from the termination may cause the Receiver Bias to go into an indeterminate state.

## 8 Troubleshooting

### Timing Issues?

(Usually applies when using RS-485 2-wire)

Model 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 an RS-485 2-wire device does not match the turnaround time that is set on the 485LDRC9 converter, 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.**

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.

## 9 UL Installation Information

### 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.

### Recommended Accessories

**Serial Cable**  
Model 9PAMF6



**Industrial Power Supply**  
Model MDR-40-24



## QUICK START GUIDE



### Model 485LDRC9

RS-232 to RS-422/485 Converter

Before you begin, be sure you have the following:

- + Model 485LDRC9 Serial Converter
- + Required, but not included:
  - Power Supply
  - RS-232 Cable
  - RS-422/485 Cable

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