

Quick Start Guide

SCP211 & SCP311

RS-232 to RS-422/485 Converter



1. Check for Required Hardware

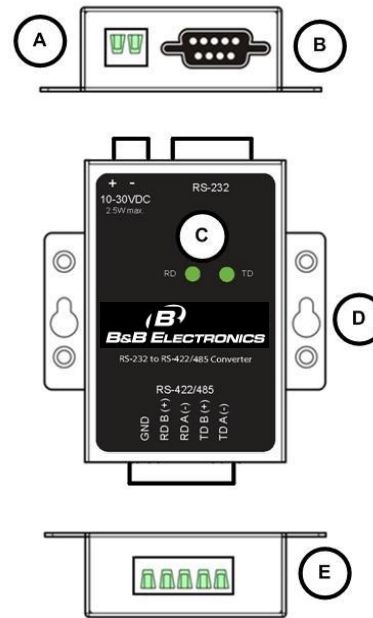
- ❑ RS-232 to RS-422/485 Converter
 - SCP211-DFTB3 (non-isolated, standard temp)
 - SCP211T-DFTB3 (non-isolated, wide temp)
 - SCP311T-DFTB3 (Isolated, wide temp)
 - SCP311 Provides 2 KV Isolation
- ❑ This Quick Start Guide
- ❑ Additional Items Required but not included
 - A 10 to 30 VDC Power Supply (Converter draws 2.5W Max)
 - Optional DIN Rail Adapter DRAD35

2. Information – Compliance

1. FCC Class B
2. Heavy Industrial
3. CE Declaration available for download
4. UL Installation Information
 - One Conductor Per Terminal
 - Use Copper Wire Only
 - Wire Size: 28 to 16 AWG
 - Tightening Torque: 5 KG-CM
 - Wire Temperature Rating: 105 C Minimum (Sized for 60 C Ampacity)
 - 80 C Maximum Surrounding Ambient Air Temperature

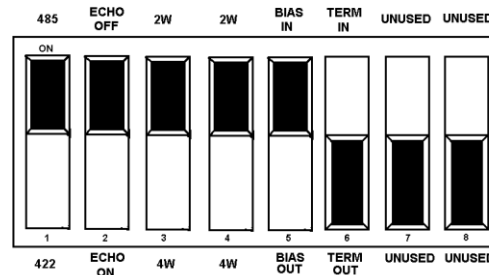


3. Controls & Indicators



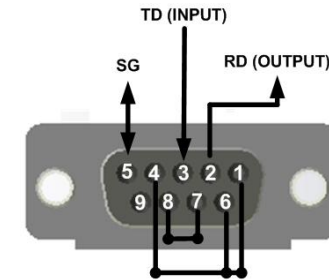
A	Power TB	Two Position, Removable
B	DB9 Female	RS-232 (Wired DCE)
C	Data LEDs	Green – ON when power is applied. Blink to indicate data flow
D	Mounting Ears	Used for Panel Mounting – Use DRAD35 for DIN Rail Mounting
E	RS- 422/485 TB	5 Position, Removable

8 Position DIP Switch Located on Back
 (Shown in default configuration)



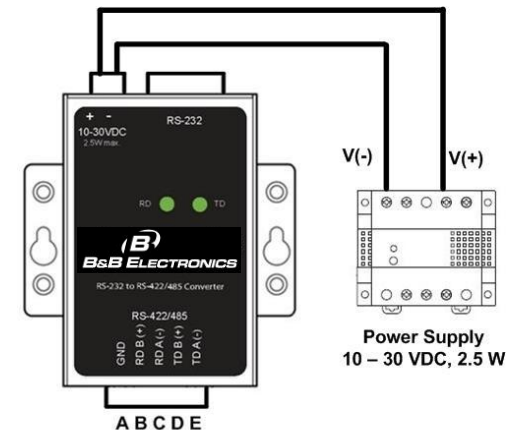
4. Pinouts & Terminal Identification

DB9 Female Connector



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

Pins 1, 6, & 4 are tied together internally.
 Pins 7 & 8 are tied together internally.



A	Ground	RS-422/485 4-Wire
B	RDB(+)	
C	RDA(-)	
D	TDB(+)	
E	TDA(-)	

A	Ground	RS-485 2-Wire
B	Data B(+)	
C	Data A(-)	
D	---	
E	---	

5. Power Connection

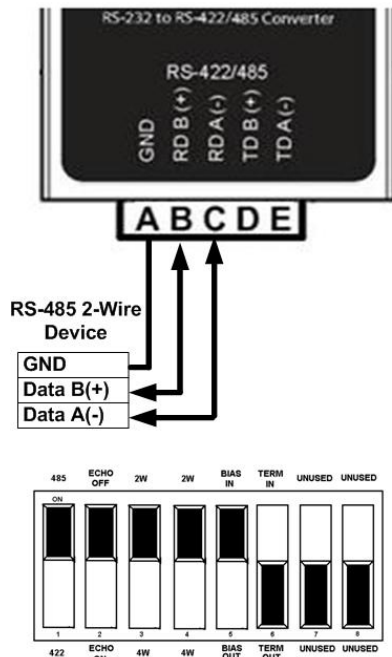
1. Connect your external power supply to the two position power terminal block (A). The polarity is indicated on the front label. The converter will accept 10 to 30 VDC, 2.5W Maximum.
2. The terminal block will accept 28 to 12 AWG Wire.

6. Wiring Examples RS-485 2-Wire

RS-485 2-Wire

1. In this example, the converter is set up to use internal bias and no termination.

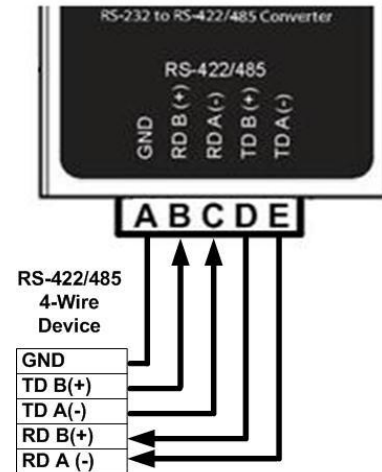
(NOTE: This is the default shipping configuration)



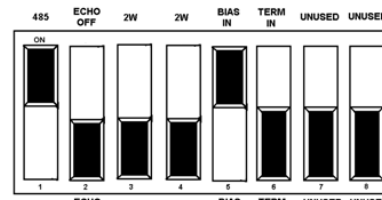
7. Wiring Examples RS-422/485 4-Wire

RS-422/485 4-Wire

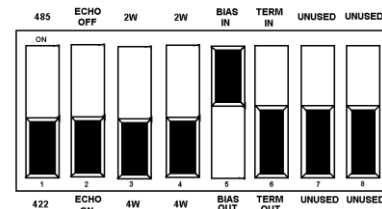
1. In this example, the converter is set up to use internal bias and no termination.



RS-485 4-Wire DIP Switch



RS-422 4-Wire DIP Switch



8. Bias & Termination

1. The circuit can be biased using the built in 1 kΩ pull-up and pull-down resistors. This is controlled with DIP switch position 5. The default setting is ON (bias resistors "in.")
 - a. When an RS-485 network is in an idle state, all nodes are in listen (receive) mode. Under this condition there are no active drivers on the network. All drivers are tri-stated. Without anything driving the network, the state of the line is unknown. If the voltage level at the receiver's A and B inputs is less than $\pm 200\text{mV}$ the logic level at the output of the receivers will be the value of the last bit received. In order to maintain the proper idle voltage state, bias resistors must be applied to force the data lines to the idle condition.
2. If Termination is necessary on the receive lines, a built in 120 Ω resistor can be switched in using DIP Switch Position 6. In most cases, termination is not required. The default setting is OFF (termination "out".)
 - a. Termination is used to match impedance of a node to the impedance of the transmission line being used. Termination increases load on the drivers, increases installation complexity, changes biasing requirements and makes system modification more difficult. Generally, termination should only be used for long distances. "If in doubt, leave it out."

9. Loop Back Test / Troubleshooting

- Configure for RS-485 Four wire
- Jumper terminals B to D and C to E
- Connect a PC to the RS-232 port
- TD and RD LED's are ON when power is applied.
- Using hyper terminal or similar program, connect to the appropriate COM port. Turn off hyper terminal local echo
- Transmit data. The same data should be returned. When data is sent and looped back, the TD and RD LED's blink on and off indicating data flow