Industrial RS485/RS422 Repeater / Converter
(Part Number: RPT-485_422-2)

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■ **INTRODUCTION**

The RPT-485_422-2 is a compact, rugged, industrial-grade RS-485/RS-422 repeater/converter, which can be used to extend the RS-485 or RS-422 distance to up to 4000 ft (1.2km), it can also can be used to convert a two-wire RS-485 signal into a four-wire RS-422 signal, and vice versa. The unit is powered from an external 5VDC power supply, it supports data direction auto-turnaround, and therefore, no software drivers or flow control is required.

■ **FEATURES**

- Industrial grade enclosed in a rugged, rustless ABS housing.
- Plug and play (hot-pluggable, data format auto-sensing and self-adjusting).
- Data direction auto-turnaround, no software drivers or flow control is required.
- Operating temperature: -40ºF to 185ºF (-40ºC to 85ºC).
- Built-in 600W surge protection, 15kV static protection and circuit protection.
- Built-in selectable 120Ω end-of-line terminator for reliability and easy installation.
- Surface Mount Technology manufactured to RoHS and ISO-9001 standards.
- Safety: Strictly certified by TUV (Cert No. SG-CE-090012).
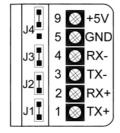- 5-year manufacturer's warranty.

■ **SPECIFICATIONS**

Compatibility:	EIA/TIA RS-485 and RS-422 standard
Power Source:	+5VDC (±5%) Regulated Power Supply (included)
Current Consumption:	Less than 30mA
Baud Rates:	300 to 115,200bps (auto-sensing and self-adjusting)
Distance:	Up to 4000ft (1.2km) at 19,200bps
Connector:	2x DB-9 Male Connectors; 2x Termination Boards: DB-9 Female and a 6-Way Terminal Block
End-of-Line Terminator:	120Ω (built-in, selectable)
Surge Protection:	600W
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	0.63 x 1.3 x 4.6 in (16 x 32 x 118 mm) (with termination boards)
Weight:	2.0 oz (57 g) (with termination boards)
Operating Temperature:	-40ºF to 185ºF (-40ºC to 85ºC)
Operating Humidity:	Up to 90% RH (no condensation)

■ **PIN ASSIGNMENT**

RS-485/RS-422 (DB-9 Male Connector / Termination Board):

DB-9 Pin:	1	2	3	4	5	6	7	8	4
Jumper:	J2 (default: ON)		J3 (default: ON)			J1 (default: ON)		J4 (default: OFF)	
RS-485:	A+ (J2 ON)		B- (J3 ON)		GND	(J1 ON)		Terminate/remove Jumper J4 to turn ON/OFF the 120Ω end-of-line terminator	
RS-422:	(J2 OFF)		(J3 OFF)		GND	(J1 OFF)			
	TX+	RX+	TX-	RX-					

Termination Board (two nos.):

- The numbers on the left indicate the pin assignment of the DB-9 male connectors.
- Connect external +5VDC power to the +5V and GND pins on one of the termination boards.
- The unit comes with a built-in 120Ω end-of-line terminator; connect it when the data rate is over 19.2kbps or the RS-485/RS-422's distance exceeds 660ft (200m).
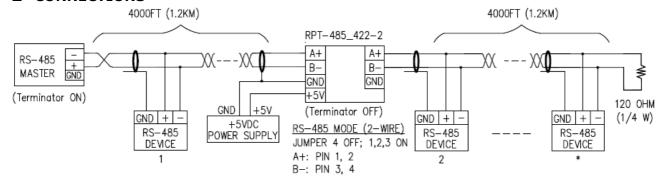
■ CONNECTIONS

FIGURE 1: TWO-WIRE RS-485 REPEATER

(Note: The maximum number of supported nodes depends on the RS-485 master)
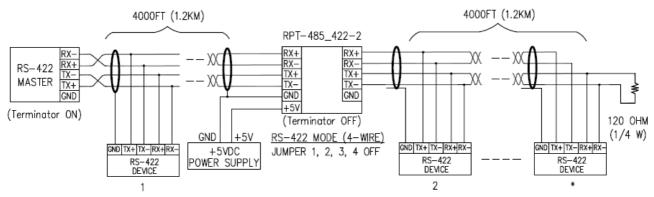

FIGURE 2: FOUR-WIRE RS-422 REPEATER

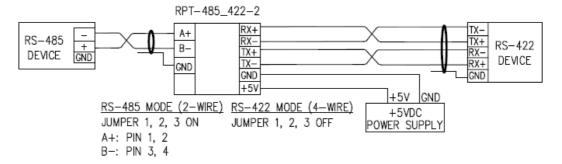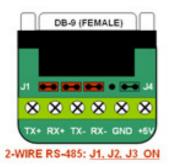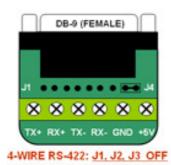(Note: The maximum number of supported nodes depends on the RS-422 master)
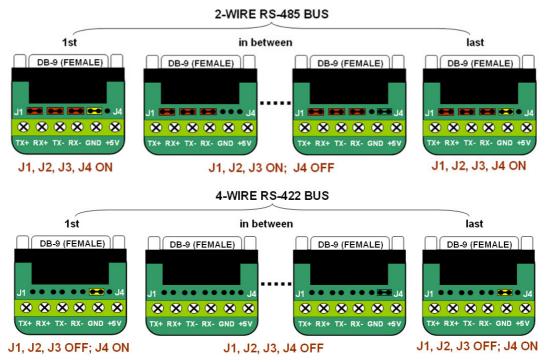

FIGURE 3: TWO-WIRE RS-485 ⇔ FOUR-WIRE RS-422

■ RS-485 / RS-422 MODE SETTING

2-WIRE RS-485: J1, J2, J3 ON
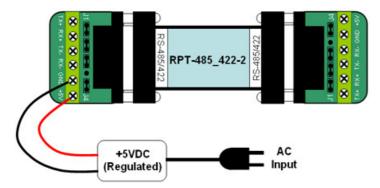
4-WIRE RS-422: J1, J2, J3 OFF

■ 120-OHM END-OF-LINE TERMINATION

Turn on the 120Ω end-of-line terminator on both ends of the RS-485/RS-422 bus when the data rate is over 19.2kbps or the RS-485/RS-422's distance exceeds 660ft (200m).

■ INSTALLATION NOTES

CAUTION: Be sure that the DC power applied to pin +5V and GND is within the range of +4.75V to +5.25V (5V ±5%). Excessive input voltage or incorrect polarity connection could damage the converter.

■ TROUBLESHOOTING

Perform a loopback test by using CommFront's 232Analyzer software: Remove Jumper 1 and terminate Jumper 2 and 3 on the loopback-side termination board, then send commands from the 232Analyzer software (Note: You will need a RS232 to RS422 converter if there is no RS422 port on your PC). You should receive an echo of the commands sent. By performing a simple loopback test like this, you can test both the transmitter and receiver of your repeater. This is very helpful when you are in doubt about the performance of your repeater.