

Industrial Port-Powered RS232 \Leftrightarrow RS422 Converter

(Part Number: CVT-422-1)



http://www.CommFront.com

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INTRODUCTION

The CVT-422-1 is a compact, rugged, industrial-grade, port-powered RS-232 to RS-422 converter, which can be used to convert any standard RS-232C port into a four-wire full-duplex RS422 port and vice versa. The unit is efficiently powered from the RS-232 data line; it also supports data direction auto-turnaround. Therefore, no external power, software drivers or flow control is required.

■ FEATURES

- Port-powered, no external power is required.
- Supports 128 nodes of RS-422 devices.
- Operates reliably from 300 to 115,200 baud.
- 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: -40°F to 185°F (-40°C to 85°C).
- Built-in 600W surge protection, 15kV static protection and circuit protection.
- ALL-IN-ONE rugged terminal block with optional 120Ω terminator and 5VDC input.
- 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.

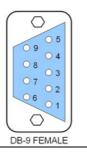
SPECIFICATIONS

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Compatibility:	EIA/TIA RS-232C standard and RS-422 standard				
Power Source:	er Source: Port power from RS-232 data line				
Current Consumption:	onsumption: Less than 10mA				
Baud Rates:	300 to 115,200bps (auto-sensing and self-adjusting)				
Distance: RS-232 side: 16ft (5m); RS-422 side: Depending on power fr RS-232 port, will transmit up to 4000ft (1.2km) at 19,200bps					
Connector:	RS-232 side: DB-9 Female; RS-422 side: DB-9 Male; Termination Board: DB-9 Female and a 6-Way Terminal Block				
Maximum number of drops:	128				
End-of-Line Terminator:	120Ω (built-in, selectable)				
Surge Protection:	600W				
Static Protection (ESD):	Up to 15KV				
Dimensions (H \times W \times D):	$0.63 \times 1.3 \times 3.5$ in (16 x 32 x 90 mm) (with termination board)				
Weight:	1.4 oz (40 g) (with termination board)				
Operating Temperature:	-40°F to 185°F (-40°C to 85°C)				
Operating Humidity:	Up to 90% RH (no condensation)				

■ PIN ASSIGNMENT

RS-232 Side (DB-9 Female Connector):

Pin:	1	4	6	7	8	2	3	5		
Signal:	DCD	DSR	DTR	CTS	RTS	TX	RX	GND		
Function:	tied together			tied to	gether	TX	RX	GND		



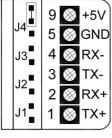
Note: Some software requires handshake line acknowledgements. To satisfy the requirements, the CVT-422-1's handshake lines (RS232 side) are tied together (DCD, DSR, and DTR tied together, CTS and RTS tied together). Therefore, you don't have to modify your existing software.

Revision: 3.0

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

DB-9 Pin:	1	2	3	4	5	9	8	4
Terminal Block/ Function:	TX+	RX+	TX-	RX-	GND	Optional +5V DC Input	Terminate/rer turn ON/OFF end-of-line te	the 120Ω

ALL-IN-ONE Rugged Terminal Block:

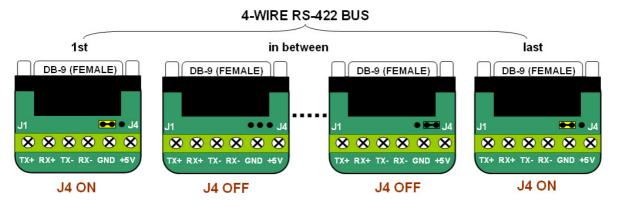


- The numbers on the left indicate the pin assignment of DB-9 male connector (RS-422 side).
- The unit will function correctly only when the voltage on +5V pin is around +5VDC (when RS232 port is connected). Otherwise, please check the connection. External 5VDC regulated power supply is accepted.
 - The unit comes with a built-in selectable 120Ω end-of-line terminator; connect it when the data rate is over 19.2kbps or the RS422's distance exceeds 660ft (200m).

CONNECTIONS

4000FT (1.2KM) CVT-422-1 RX TX [2 2 lRX⊣ ТΧ RX RX 3 3 TX-GND GND 5 5 TX-≶ GND - 1 (Terminator ON) 120 OHM (PC or DTE) (1/4 W)GND TX+ TX- RX+ RX-GND TX+ TX- RX+RX-GND TX+ TX- RX+RX-RS-422 DEVICE RS-422 DEVICE RS-422 DEVICE 2 UP TO 128 1 FIGURE 1: MASTER-SLAVE MULTI-DROP CONNECTIONS 4000FT (1.2KM) CVT-422-1 CVT-422-1 RX ТΧ RX D 2 RX-TX-2 2 ТΧ RX RX ТΧ TX+ 3 RX 3 3 3 RX-RX+ TX+ GND GND GNE GND 5 5 5 TX-TF GND GND (Terminator ON) (Terminator ON) (PC or DTE) (PC or DTE) FIGURE 2: EXTENDING FULL-DUPLEX RS-232 DISTANCE (DATA ONLY)

■ 120-OHM END-OF-LINE TERMINATION



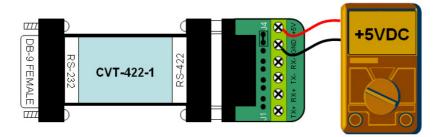
Turn on the 120Ω end-of-line terminator on both ends of the RS-422 bus when the data rate is over 19.2kbps or the RS-422's distance exceeds 660ft (200m).

INSTALLATION NOTES

- Connect PC's (or other DTE device's) COM port (or use a straight-through cable) to the RS-232 side of CVT-422-1, use a cross-over (Null-Modem) cable for DCE device.
- 120-Ohm terminator: If you are using the converter with the provided terminal block, terminate the Jumper "J4" to turn ON the terminator and remove it to turn the terminator OFF. If you are using the converter without the provided terminal block, short pin 4 & 8 on the DB-9 connector (RS-422 side) to turn ON the terminator.
- The 120Ω end-of-line terminator adds heavy DC loading to a system; connect it only when the data rate is over 19.2kbps or the RS-422's distance exceeds 660ft (200m).

■ TROUBLESHOOTING

 Measure pin +5V and GND with a voltmeter, and be sure that it is around +5VDC (when RS232 port is connected). Some COM ports, such as USB-RS232 ports, come with an insufficient port power that is less than +/-5VDC; connect a regulated 5VDC power supply to the +5V input in such a case.



 Perform a loopback test by using CommFront's 232Analyzer software: Connect TX+ to RX+ and TX- to RX-, then send commands from the 232Analyzer software. 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 the converter. This is very helpful when you are in doubt about the performance of your converter.

