Industrial 25-Pin Port-Powered RS232 ⇔ RS422/RS485 Isolated Converter

(Part Number: CVT-485_422-3(25))

CE

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■ INTRODUCTION

The CVT-485_422-3(25) is a 25-pin version, compact, rugged, industrial grade, optically-isolated, port-powered RS232 to RS485 / RS232 to RS422 converter, which can be used to convert any standard 25-pin RS-232C port into a two-wire RS-485 port or a four-wire RS-485/RS-422 port and vice versa. This product features opto-isolation circuitry, which effectively protect your RS-232 devices from ground loops, transient surges, remote lightning and spikes. The unit is powered from the RS-232 data line, no external power or flow control is required.

■ FEATURES

- Port-powered, no external power is required.
- Optical isolation protects your RS-232 devices from ground loops, surges, lightning and spikes.
- 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.
- 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

Compatibility:	EIA/TIA RS-232C standard and RS-485/RS-422 standard
Power Source:	Port power from RS-232 data line
Current Consumption:	Less than 10mA
Optical Isolation:	2500Vrms (AC, 1 min)
Baud Rates:	1,200 to 38,400bps (auto-sensing and self-adjusting)
Distance:	RS-232 side: 16ft (5m); RS-485/RS-422 side: Depending on power from RS-232 port, will transmit up to 4000ft (1.2km) at 19,200bps
Connector:	RS-232 side: DB-25 Female; RS-485/RS-422 side: DB-9 Male; Termination Board: DB-9 Female and a 6-Way Terminal Block
Maximum Number of Drops:	64
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 2.1 x 3.5 in (16 x 54 x 90 mm) (with termination board)
Weight:	1.6 oz (46 g) (with termination board)
Operating Temperature:	-40ºF to 185ºF (-40ºC to 85ºC)

■ PIN ASSIGNMENT

RS-232 Side (DB-25 Female Connector):

DB-25 Pin:	6 (DTR)	8 (DCD)	20 (DSR)	4 (CTS)	5 (RTS)	2	3	7
Internal Wiring:	tied together			tied together		RX	TX	GND

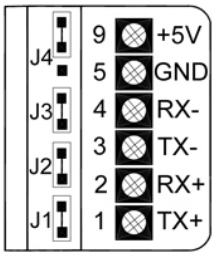
Note: Handshake lines are tied together to satisfy acknowledgement requirements.

RS-485/RS-422 Side (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	
RS-422:	(J2 OFF)		(J3 OFF)		GND	(J1 OFF)			

	TX+	RX+	TX-	RX-			

ALL-IN-ONE Rugged Terminal Block:



- The numbers on the left indicate the pin assignment of DB-9 male connector (RS-485/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 RS485/RS422's distance exceeds 660ft (200m).

■ CONNECTIONS

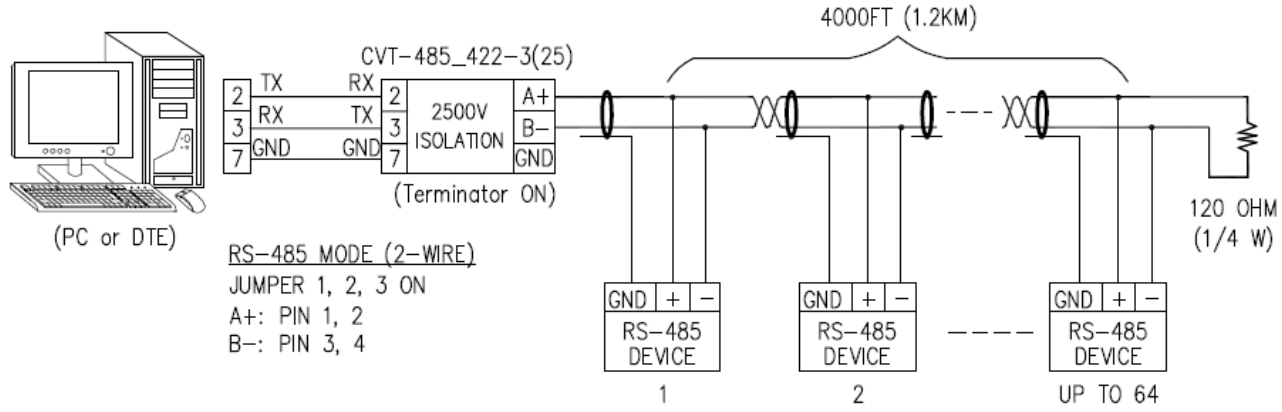


FIGURE 1: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-485)

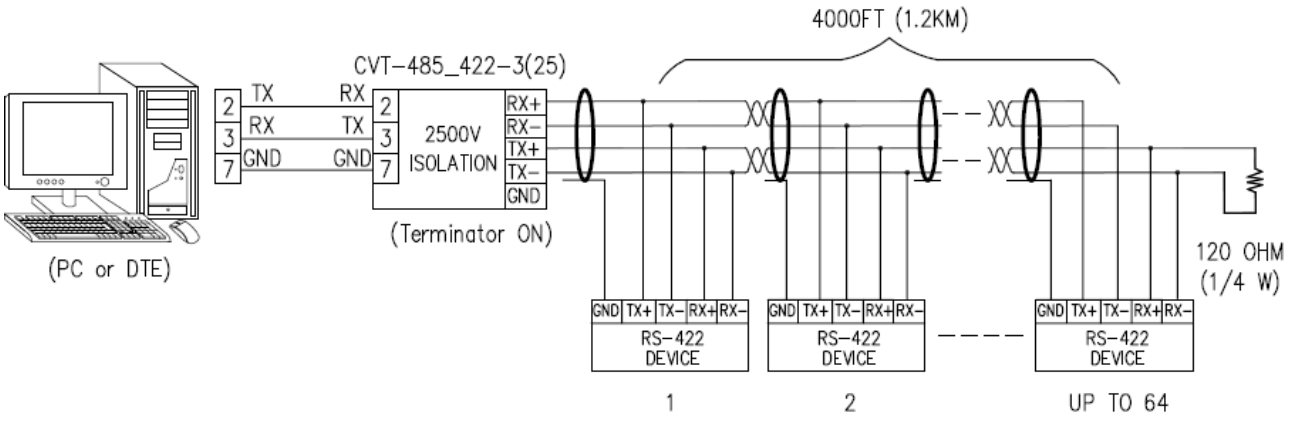


FIGURE 2: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-422)

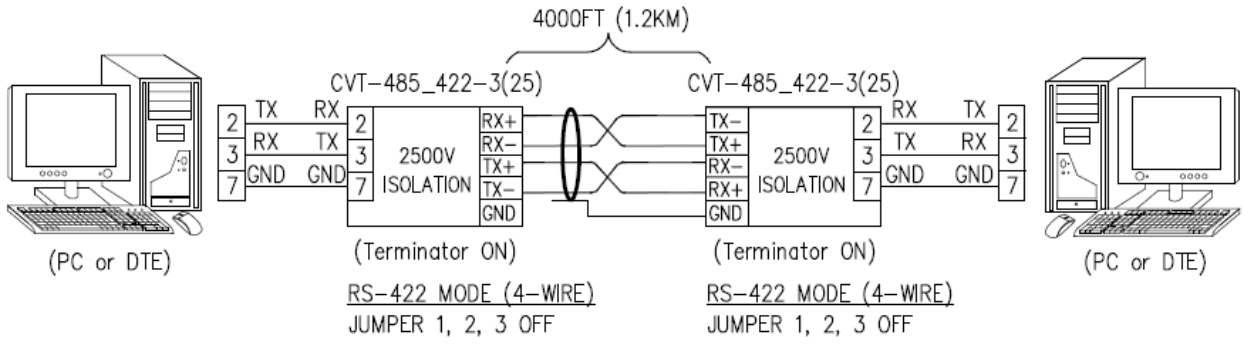
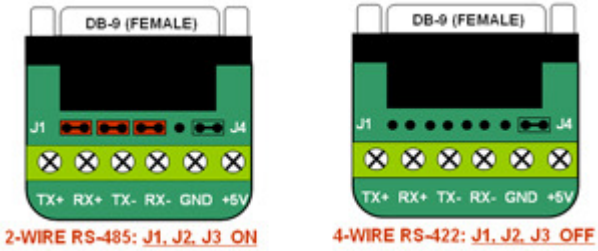
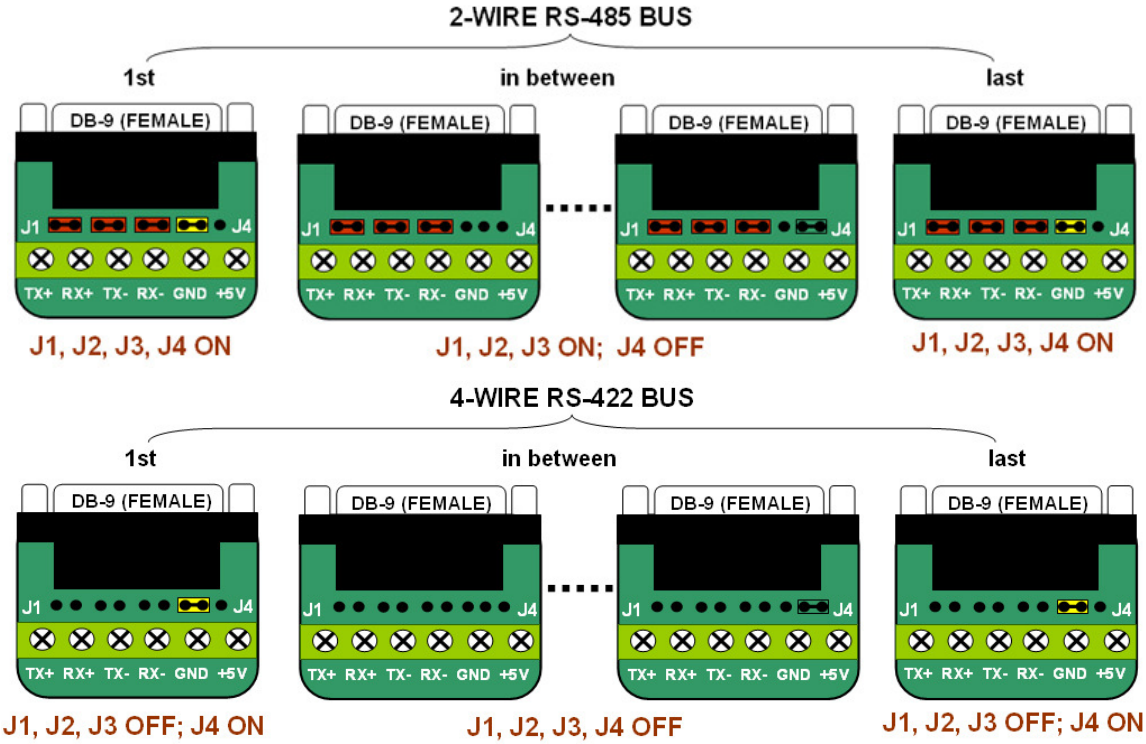


FIGURE 3: EXTENDING 25-PIN FULL-DUPLEX RS-232 DISTANCE WITH OPTO-ISOLATION (DATA ONLY)

■ RS-485 / RS-422 MODE SETTING



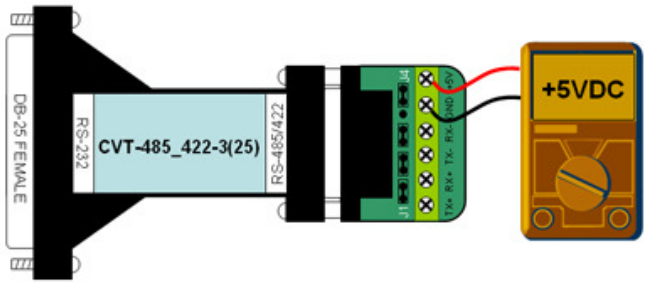
■ 120-OHM END-OF-LINE TERMINATION



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).

■ 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: Remove Jumper 1 and terminate Jumper 2 and 3 (or remove Jumper 1, 2, and 3 then 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.