Industrial RS-485/422 to TTL 5V Converter

Part Number: TTL-485_422-2 CE

CommFront® Communications made easy

INTRODUCTION

The TTL-485_422-2 is a compact, rugged, industrial-grade (-40ºF to 185ºF / -40ºC to 85ºC), port-powered, bi-directional RS-485/422 to 5VDC TTL/COMS converter, which can be used to convert RS-485 or RS-422 to 5VDC TTL/COMS compatible levels and vice versa. The unit is powered from an external 5VDC power supply. It supports data direction auto-turnaround, no flow control is required.

FEATURES

- Rugged industrial grade (-40ºF to 185ºF / -40ºC to 85ºC) with surge and static protection.
- Plug and play, data direction auto-turnaround, no flow control is required.
- Built-in 120Ω end-of-line terminator for reliability and easy installation.
- CE certified / 5-year manufacturer's warranty.

SPECIFICATIONS

Compatibility:	EIA/TIA RS-485/422 standard and TTL/COMS 5VDC level
Power Source:	+5VDC (±5%) Regulated Power Supply (not included)
Current Consumption:	Less than 30mA
Baud Rates:	300 to 115,200bps (auto-sensing and self-adjusting)
Distance:	TTL side: 10ft (3m); RS-485/422 side: Up to 4000ft (1.2km) at 19,200bps;
Connectors:	TTL side: DB-9 Male; RS-485/422 side: DB-9 Male; Termination Board (TTL): DB-9 Female and a 3-way Terminal Block; Termination Board (RS-485/422): DB-9 Female and a 6-Way Terminal Block
Maximum number of drops:	64
End-of-Line Terminator:	120Ω (Built-in)
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:	1.8 oz (51 g) (with termination boards)
Operating Temperature:	-40ºF to 185ºF (-40ºC to 85ºC)
Operating Humidity:	Up to 90% RH (no condensation)

PIN ASSIGNMENT

TTL Side (DB-9 Male Connector / Terminal Block):

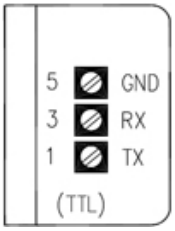
DB-9 Male Connector:	1	3	5
Terminal Block:	TX	RX	GND
Function:	TTL OUT	TTL IN	GND

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

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

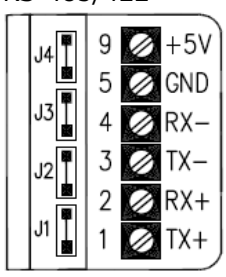
Termination Boards:

TTL



- Numbers on the left indicate the pin assignment of DB-9 Connectors (TTL side).
- TX is the TTL Output, RX is the TTL Input.

RS-485/422



- Numbers on the left indicate the pin assignment of DB-9 Connectors.
- Connect an external +5VDC regulated power supply to +5V and GND.
- Turn ON the 120Ω end-of-line terminator only when the RS-485/422's distance is over 660ft (200m).

TTL SIGNAL LEVELS

TTL Input	TTL Output
High (>2.0V)	High (>3.5V)
Low (<0.8V)	Low (<0.6V)

■ CONNECTIONS

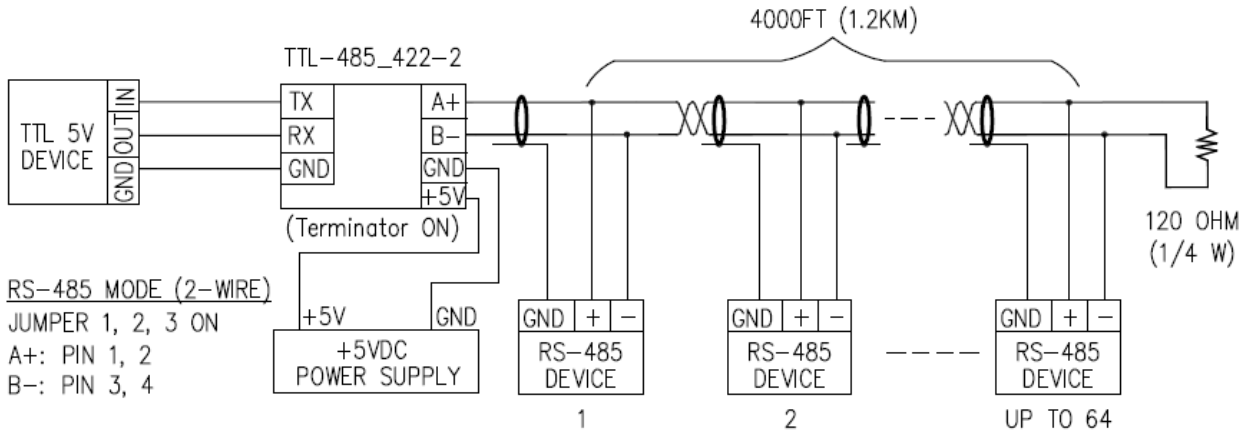


FIGURE 1: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-485)

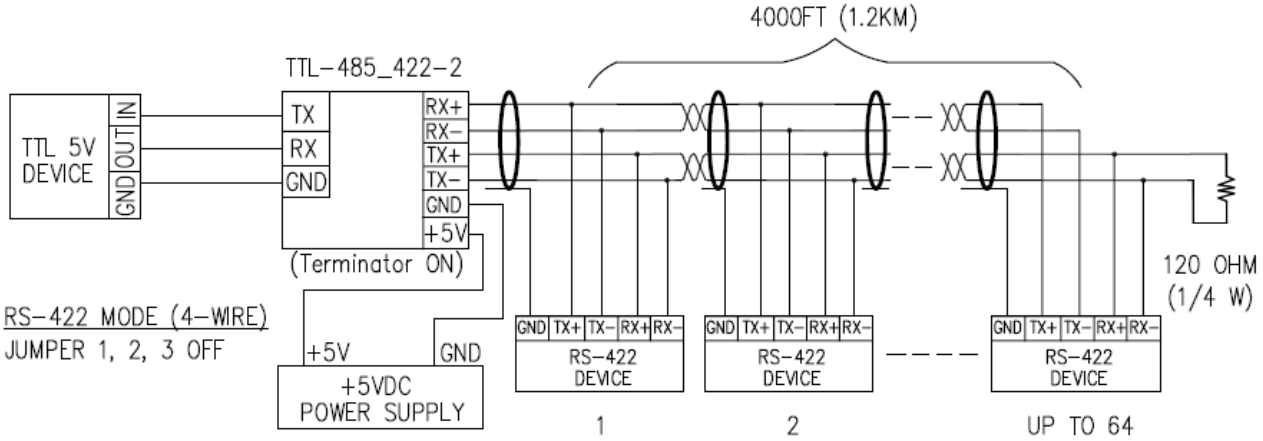


FIGURE 2: MASTER-SLAVE MULTI-DROP CONNECTIONS (RS-422)

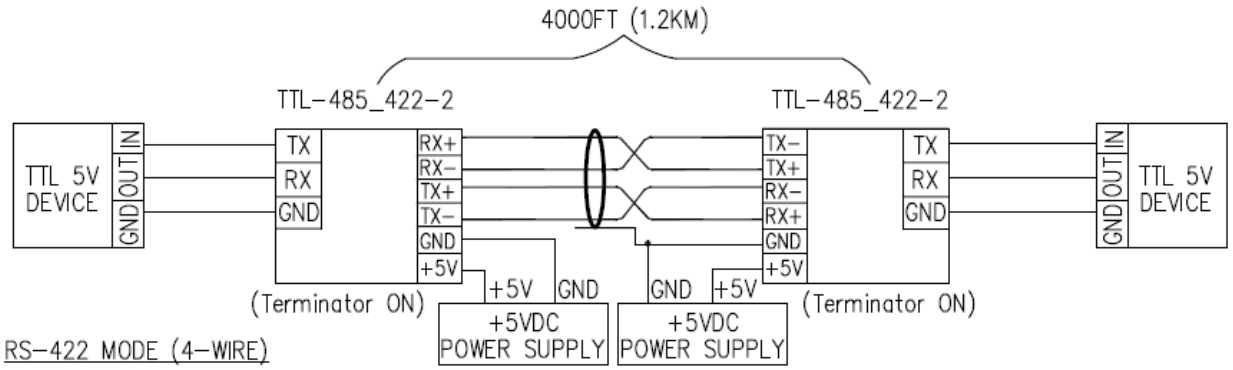


FIGURE 3: EXTENDING TTL DISTANCE (FULL-DUPLEX)

■ 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.**
- The 120Ω end-of-line terminator adds heavy DC loading to a system; connect it only when the RS-485/422's distance is over 660ft (200m).

■ TROUBLESHOOTING

- Perform a loopback test by using CommFront's 232Analyzer software: Short TX and RX on the TTL side, connect your PC's RS-485 or RS-422 port to the RS485/422 side, and 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 RS-485/422 to TTL converter. This is very helpful when you are in doubt about the performance of your converter.