

# Industrial RS-232/TTL 5V Converter



Part Number: **TTL-232-1**



Communications made easy

## ■ INTRODUCTION

The TTL-232-1 is an industrial grade (wide temperature range with surge & static protection) port-powered bi-directional RS-232 to 5VDC TTL/CMOS converter, which can be used to convert RS-232 to 5VDC TTL/CMOS compatible levels and vice versa. The unit is powered from the RS-232 data line, and therefore, no external power or RTS, DTR is required.

## ■ FEATURES

- Industrial grade with wide temperature range, surge and static protection.
- Port-powered, no external power or RTS, DTR required.
- Plug and play (hot-pluggable, data format auto-sensing and self-adjusting).
- Built-in surge protection, static protection and circuit protection.
- Surface Mount Technology manufactured to ISO-9001 standards.
- CE certified.
- 5-year manufacturer's warranty.

## ■ SPECIFICATIONS

Compatibility:	EIA/TIA RS-232C standard and TTL/CMOS 5VDC level
Power Source:	Port power from RS-232 data line
Current Consumption:	Less than 10mA
Baud Rates:	300 to 115,200bps (auto-sensing and self-adjusting)
Distance:	RS-232 side: 16ft (5m); TTL side: 10ft (3m)
Connectors:	RS-232 side: DB-9 Female; TTL side: DB-9 Male; Termination Board: DB-9 Female and a 4-Way Terminal Block
Surge Protection:	600W
Static Protection (ESD):	Up to 15KV
Dimensions (H x W x D):	0.63 x 1.3 x 3.5 in (16 x 32 x 88 mm) (with termination board)
Weight:	1.27 oz (36 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

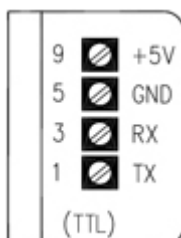
RS-232 Side (DB-9 Female Connector):

DB-9 Pin:	4	6	7	8	2	3	5
Function/Internal Wiring:	4	6	7	8	2	3	5

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

DB-9 Pin:	1	3	5	9
Terminal Block:	TX	RX	GND	+5V
Function:	TTL OUT	TTL IN	GND	+5V measurement

Termination Board:



- The numbers on the left indicate the pin assignment of DB-9 male connector (TTL side).
- TX is the TTL Output, RX is the TTL Input.
- DO NOT connect external power to +5V pin, it is for measurement only. The unit will function correctly only when the voltage on +5V pin is around +5V (when RS-232 port is connected). Otherwise, please check the connection (Figure 1).

## ■ CONNECTIONS

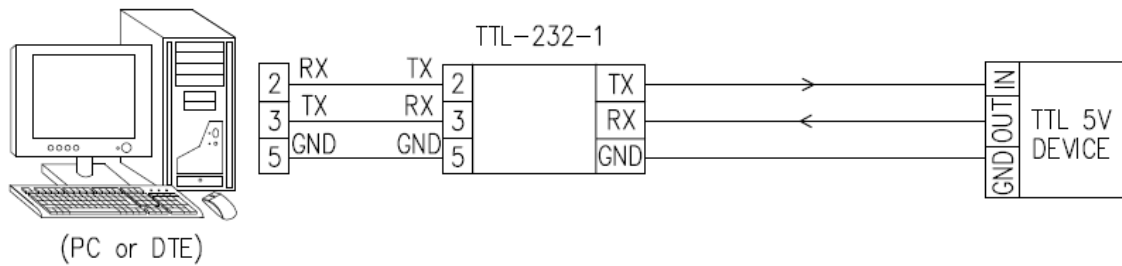


FIGURE 1: TTL-232-1 CONNECTION DIAGRAM

## ■ TTL SIGNAL LEVELS

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

## ■ TROUBLESHOOTING

- Measure pin +5V and GND with a voltmeter, and be sure that it is around +5VDC (when RS-232 port is connected). Otherwise, please check the connection.
- Perform a loopback test by using CommFront's 232Analyzer software: Connect TX (TTL Out) to RX (TTL In), 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-232/TTL converter. This is very helpful when you are in doubt about the performance of your converter.