

TTL-232-33IE
Industrial RS-232 To 3.3V TTL Converter With
Optional External 5V Power
Datasheet Revision 2.4



GENERAL FEATURES:

- Plug-and-Play (hot-pluggable)
- Port powered - no external power needed
- Optional 5V external power can be applied
- Rugged industrial grade design
- Data direction auto-turnaround - no flow control necessary
- Built-in surge and static protection
- 5 year manufacturer's warranty
- RoHS, CE, and FCC certified

DESCRIPTION:

The SerialComm TTL-232-33IE is an industrial grade bi-directional port powered or external powered RS-232 to 3.3V TTL converter which converts a full-duplex RS-232C port to a 3.3V TTL signal. A built-in data direction auto-turnaround feature automatically enables the TTL driver when data is present from the RS-232 port, eliminating the need for software drivers, and making the device fully plug-and-play. The TTL-232-33IE has a db-9 female connector on the RS-232 serial port, and db-9 male connector on the TTL port. A separate terminal block is included with the product. The terminal blocks plugs into the TTL port, providing screw-lug wire terminations for the port. The unit is enclosed in a rugged ABS housing, and is powered from the RS-232 data lines or optional 5V external power input.

CERTIFICATIONS:



TTL VOLTAGE LEVELS:

TTL INPUT	TTL OUTPUT
HIGH (> 2.0V)	HIGH (3.3V)
LOW (< 0.8V)	LOW (0.0V)

PORT POWERED WITH OPTIONAL EXTERNAL POWER:

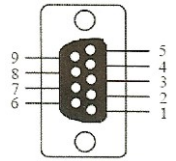
The SerialComm TTL-232-33IE has an optional 5V DC external power input. The TTL-232-33IE is normally port-powered from the RS-232 data lines while using a capacitor charge pump built into the converter to provide necessary power. There are rare instances where the RS-232 host device is not capable of port-powering the converter due to signal incompatibilities or low voltage levels. If this should occur, all that is necessary is adding a 5V DC external power to the terminal block or DB9 connector. Because the TTL-232-33IE is industrial grade and port-powered with an optional 5V power input it makes this converter one of the most versatile RS-232 to 3.3V TTL converters on the market.

PINOUT CONFIGURATION:

RS-232 SIDE – DB9 FEMALE

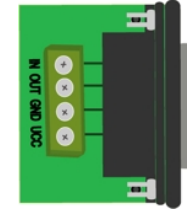
SIGNAL	TX	RX	GND
PIN #	2	3	5
FUNCTION	TX	RX	GND

FEM. DB9

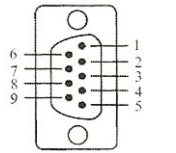


3.3V TTL SIDE – DB9 MALE OR TERMINAL BLOCK

SIGNAL	IN	OUT	GND	VCC
PIN #	1	2	5	6
FUNCTION	TTL IN	TTL OUT	GND	5V OPT.



MALE DB9



SPECIFICATIONS:

COMMUNICATION	
STANDARDS:	EIA/TIA RS-232C Standard
BAUD RATES:	From 300 bps to 115,200 bps
CONNECTOR TYPES:	RS-232 Side: DB9 Female and TTL Side: either DB9 Male or 4-way Terminal Block
DISTANCE:	RS-232 Side: 16 ft (5m) and TTL Side: up to 10 ft (3m)
ELECTRICAL	
POWER SOURCE:	Port Powered From RS-232 Data Lines - Optional 5V External Power
CURRENT CONSUMPTION:	Less Than 10 mA
STATIC PROTECTION:	15KV Electric Static Discharge (ESD) Protection
SURGE PROTECTION:	600W Surge Protection
MECHANICAL	
HOUSING:	Rugged ABS
WEIGHT:	With Terminal Block: 1.2oz (36 grams) Without Terminal Block: 0.8oz (24 grams)
DIMENSIONS:	With Terminal Block: 3.53" X 1.33" X 0.70" (89.6 mm X 33.8 mm X 17.8 mm) Without Terminal Block: 2.47" X 1.33" X 0.70" (62.8 mm X 33.8 mm X 17.8 mm)
ENVIRONMENTAL	
OPERATING TEMP:	-40° F to 185° F (-40°C to 85° C)
STORAGE TEMP:	-40° F to 185° F (-40°C to 85° C)
OPERATING HUMIDITY:	5% To 95% - No Condensation
QUALITY	
PRODUCT SAFETY:	CE, FCC and RoHS Conformance Certified
QUALITY MANAGEMENT	Manufactured and Distributed to ISO 9001:2008
RELIABILITY:	Low Failure Rate – 99+% Reliability Since Inception
WARRANTY:	5 Year Replacement Warranty

TROUBLESHOOTING INSTRUCTIONS:

Using one TTL-232-33IE unit:

1. Check that all connections comply with the connection diagrams.
2. Perform a loop back test on one unit:
 - a) Connect the IN to OUT on the TTL port.
 - b) Connect the RS-232C port to the PC RS-232 port.
 - c) Running a hyper terminal program on the PC, send ASCII characters to the TTL-232-33IE converter from one PC port, and check that the characters are received at the same PC port. This tests that the transmit and receive functions of the TTL-232-33IE unit is working properly.

Using two TTL-232-33IE units:

1. Check that all connections comply with the connection diagrams.
2. Perform a loop back test on two units:
 - a) Connect the two TTL ports. Connect IN to OUT and OUT to IN.
 - b) Connect the two RS-232 ports to two PC RS-232 ports.
 - c) Running hyper terminal programs on both PCs, send ASCII characters to the TTL-232-33IE converter from one PC port, and check that the characters are received at the 2nd PC port. Repeat the test in the opposite direction. This tests that the transmit and receive functions of both TTL-232-33IE units are working properly.

APPLICATIONS:

PORT POWER MODE:

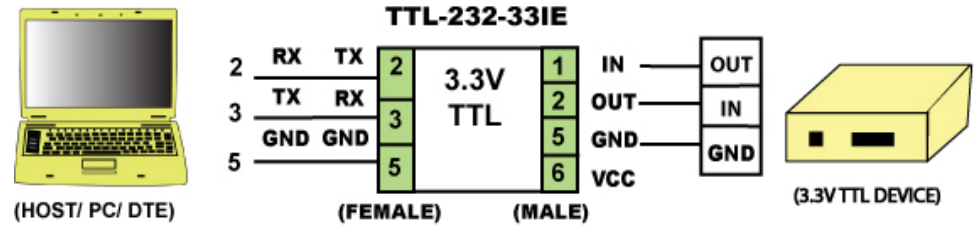


FIGURE 1: CONNECTING RS-232 TO A 3.3V TTL DEVICE - PORT POWER MODE

5V EXTERNAL POWER MODE:

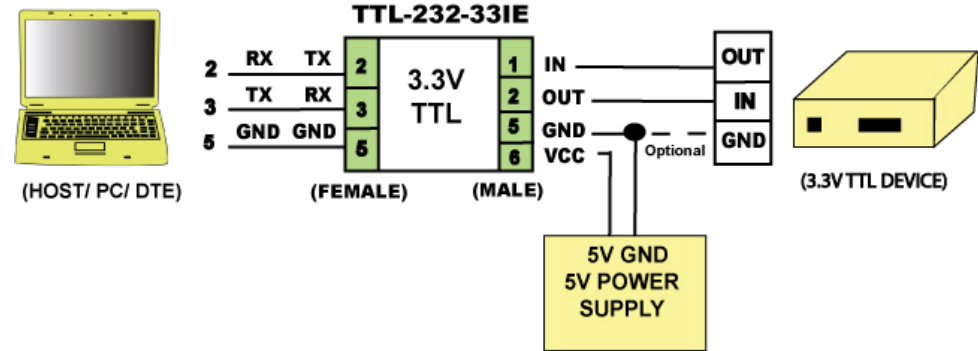


FIGURE 2: CONNECTING RS-232 TO A 3.3V TTL DEVICE - 5V POWER MODE