

**USB-TTL-33 PRODUCT  
IS A COMBINATION  
OF PRODUCTS USB-232-2  
AND TTL-232-33P  
BOTH DATASHEETS  
ARE INCLUDED  
IN THIS PDF FILE**

**USB-232-2**

**USB 2.0 To RS-232 Converter – DB9**  
Datasheet Revision 2.5



**GENERAL FEATURES:**

- Plug-and-Play (hot-pluggable)
- USB 1.1 and 2.0 compatible
- Port powered - no external power needed
- Supports 300 baud to 460,800 baud rates
- Supports all RS-232C signals: TX, RX, RTS, CTS, DTR, DSR, RI and GND
- 3 feet (1m) cable for convenience
- Transmit/Receive LED indicators
- Data direction auto-turnaround - no flow control necessary
- Internal 128/385 byte TX / RX buffers
- No IRQs, IO, DMA required. No IRQ conflicts
- Supports remote wakeup and power management
- Easy to install included drivers
- Built-in surge and static protection
- 5 Year manufacturer's warranty
- RoHS, CE, and FCC certified

**DESCRIPTION:**

The SerialComm USB-232-2 is a bi-directional USB-powered USB to RS-232 converter which makes a full-duplex RS-232C port available to a PC via the USB port. The USB-232-2 has a db-9 male connector on the RS-232C serial port, and a USB type A female on the USB port. The adapter is powered from the USB port; no external power is required.

The USB-232-2 uses the latest FTDI chipset and is fully compatible with Windows 10 32/64, Windows 8 32/64, Windows 7 32/64, Vista 32/64, Server 2003, Server 2008, Server 2008 R2, XP 32/64, 2000 98Se, CE, Mac 8/9/x, Linux.

**CERTIFICATIONS:**

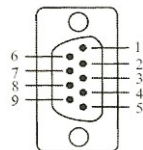


**PINOUT CONFIGURATION:**

**RS-232 SIDE – DB9 MALE**

SIGNAL	DCD	DTR	DSR	RTS	CTS	TX	RX	GND
PIN #	1	4	6	7	8	2	3	5

**MALE DB9**



**SPECIFICATIONS:**

COMMUNICATION	
<b>STANDARDS:</b>	USB 2.0 and 1.1 Standards - EIA/TIA RS-232C Standard
<b>OPERATING SYSTEM:</b>	Windows 10 (32/64), Windows 8.1 (32/64), Windows 8 (32/64), Windows 7 (32/64), Vista (32/64), Server 2012, Server 2008 R2, Server 2008, Server 2003, XP (32/64), 2000, 98Se, CE, Mac 8/9/X, Linux and Android
<b>BAUD RATES:</b>	From 300 bps to 460,800 bps
<b>CONNECTOR TYPES:</b>	USB Side: Type A Female and RS-232 Side: DB9 Male
<b>DISTANCE:</b>	USB Side: 10ft (3m) and RS-232 Side: 16 ft (5m)
<b>LED INDICATIONS:</b>	RS-232 TX (Red) and RX (Green)
<b>DRIVERS:</b>	FTDI drivers are included in package
ELECTRICAL	
<b>POWER SOURCE:</b>	Port Powered From USB Port
<b>CURRENT CONSUMPTION:</b>	Less Than 100 mA
<b>STATIC PROTECTION:</b>	15KV Electric Static Discharge (ESD) Protection
<b>SURGE PROTECTION:</b>	600W Surge Protection
<b>CONVERSION IC:</b>	FTDI FT232RL
MECHANICAL	
<b>WEIGHT:</b>	2.0oz (58 grams)
<b>DIMENSIONS:</b>	<b>RS-232 Housing:</b> 2.33" X 1.42" X 0.58" (59.3 mm X 36.1 mm X 14.7 mm) <b>Cable Length:</b> 3 ft (1m)
ENVIRONMENTAL	
<b>OPERATING TEMP.:</b>	14° F to 140° F (-10°C to 60° C)
<b>STORAGE TEM P:</b>	-40° F to 185° F (-40°C to 85° C)
<b>OPERATING HUMIDITY:</b>	5% To 95% - No Condensation
QUALITY	
<b>PRODUCT SAFETY:</b>	CE, FCC and RoHS Conformance Certified
<b>QUALITY MANAGEMENT:</b>	Manufactured and Distributed to ISO 9001:2008
<b>RELIABILITY:</b>	Low Failure Rate – 99+% Reliability Since Inception
<b>WARRANTY:</b>	5 Year Replacement Warranty

## TROUBLESHOOTING INSTRUCTIONS:

Using one USB-232-2 unit:

1. Perform a loop back test on one unit:
  - a) Connect the TX to RX on the RS232 port.
  - b) Connect the USB connector on the cable to the USB port of the computer.
  - c) Install the USB / RS232 FTDI driver on the computer per instructions provided.
  - d) Running a hyper terminal program on the PC, send ASCII characters to the USB-232-2 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 USB-232-2 unit is working properly.
  - e) When there is constant RX data you should see the GREEN light blink. When there is constant TX data you should see the RED light blink.

Using two USB-232-2 units:

1. Perform a loop back test on two units:
  - a) Connect the two TX to RX and RX to TX on two USB-232-2 RS-232 ports. Or connect TX to TX and RX to RX with a null modem.
  - b) Connect the USB connectors on the cables to two USB ports on the computer.
  - c) Install the USB / RS232 FTDI driver on the computer per instructions provided.
  - d) Running hyper terminal programs on both PCs, send ASCII characters to the USB-232-2 converter from one PC port, and check that the characters are received at the 2<sup>nd</sup> PC port. Repeat the test in the opposite direction. This tests that the transmit and receive functions of both USB-232-2 units are working properly.
  - e) The GREEN light should flash when there is RX data and RED when there is TX data.

**TTL-232-33P**  
RS-232 To 3.3V TTL Converter - DB9

Datasheet Revision 2.4



**GENERAL FEATURES:**

- Plug-and-Play (hot-pluggable)
- Port powered - no external power needed
- 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-232-33P is a bi-directional port powered RS-232C to 3.3V TTL converter which converts a full-duplex RS-232 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-232C port, eliminating the need for software drivers, and making the device fully plug-and-play. The TTL-232-33P 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; no external power is required.

**CERTIFICATIONS:**



**TTL VOLTAGE LEVELS:**

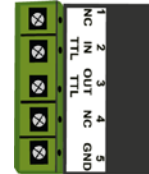
TTL INPUT	TTL OUTPUT
HIGH (> 2.0V)	HIGH (3.3V)
LOW (< 0.8V)	LOW (0.0V)

**PINOUT CONFIGURATION:**  
RS-232 SIDE – DB9 FEMALE

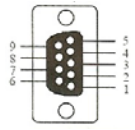
SIGNAL	DCD	DTR	DSR	RTS	CTS	T X	R X	GND
PIN #	1	4	6	7	8	2	3	5
FUNCT.	TIED			TIED		T X	R X	GND

**TTL SIDE – DB9 MALE OR TERMINAL BLOCK**

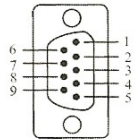
SIGNAL	NC	TTL I N	TTL O U T	NC	GND
PIN #	1	2	3	4	5
FUNCTION	NC	TTL I N	TTL O U T	NC	GND



FEM. DB9



MALE DB9



**SPECIFICATIONS:**

COMMUNICATION	
<b>STANDARDS:</b>	EIA/TIA RS-232C Standard
<b>BAUD RATES:</b>	From 300 bps to 115,200 bps
<b>CONNECTOR TYPES:</b>	RS-232 Side: DB9 Female and TTL Side: either DB9 Male or 5 Way Terminal Block
<b>DISTANCE:</b>	RS-232 Side: 16 ft (5m) and TTL Side: up to 10 ft (3m)
ELECTRICAL	
<b>POWER SOURCE:</b>	Port Powered From RS-232 Data Lines
<b>CURRENT CONSUMPTION:</b>	Less Than 10 mA
<b>STATIC PROTECTION:</b>	15KV Electric Static Discharge (ESD) Protection
<b>SURGE PROTECTION:</b>	600W Surge Protection
MECHANICAL	
<b>HOUSING:</b>	Rugged ABS
<b>WEIGHT:</b>	<b>With Terminal Block:</b> 1.2oz (36 grams) <b>Without Terminal Block:</b> 0.8oz (24 grams)
<b>DIMENSIONS:</b>	<b>With Terminal Block:</b> 3.16" X 1.32" X 0.73" (80.3 mm X 33.4 mm X 18.6 mm) <b>Without Terminal Block:</b> 2.47" X 1.33" X 0.70" (62.8 mm X 33.8 mm X 17.8 mm)
ENVIRONMENTAL	
<b>OPERATING TEMP:</b>	-4° F to 140° F (-20°C to 60° C)
<b>STORAGE TEMP:</b>	-40° F to 185° F (-40°C to 85° C)
<b>OPERATING HUMIDITY:</b>	5% To 95% - No Condensation
QUALITY	
<b>PRODUCT SAFETY:</b>	CE, FCC and RoHS Conformance Certified
<b>QUALITY MANAGEMENT:</b>	Manufactured and Distributed to ISO 9001:2008
<b>RELIABILITY:</b>	Low Failure Rate – 99+% Reliability Since Inception
<b>WARRANTY:</b>	5 Year Replacement Warranty

## TROUBLESHOOTING INSTRUCTIONS:

Using one TTL-232-33P unit:

1. Check that all connections comply with the connection diagrams.
2. Perform a loop back test on one unit:
  - a) Connect the TTL IN to TTL 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-232-33P 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-232-33P unit is working properly.

Using two TTL-232-33P 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 TTL IN to TTL OUT and TTL OUT to TTL 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-232-33P converter from one PC port, and check that the characters are received at the 2<sup>nd</sup> PC port. Repeat the test in the opposite direction. This tests that the transmit and receive functions of both TTL-232-33P units are working properly.

## APPLICATIONS:

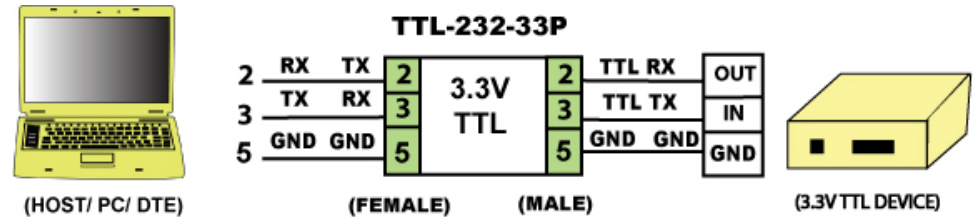


FIGURE 1: CONNECTING THE RS-232 PORT TO A 3.3V TTL DEVICE