



Overview

The [Serial UART Interface Connector](#) is an RS232 to low voltage UART (TTL or CMOS) level shifter. It uses the standard DB9 connector for RS232 and a 4-pin 0.1" female header for the low voltage connector. It can be used to directly connect a host computer with any low voltage (3.3V to 5V) systems such as a microcontroller.

Features

- TTL or CMOS level to RS232 level shifter
- 5V and 3.3V TTL tolerant
- Low power consumption
- Standard DB9 female connector for RS232 connection
- Standard 0.1" female header based that directly interfaces with BrainStem™ technology.
- 5.0V and 3.3V logic level tolerant

Physical Pinout

The CTS and RTS lines are connected on the DB9 and exposed, although not used, by the 4-pin header. These can be separately wired for use in your application.



Absolute Maximum Ratings

Stresses beyond those listed under ABSOLUTE MAXIMUM RATINGS cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated under RECOMMENDED OPERATING CONDITIONS is not implied. Exposure to absolute-maximum-rated conditions for extended periods affects device reliability.

Parameter	Conditions	Minimum	Typical	Maximum	Units
Input Voltage (VCC)		-0.3	-	6.0	V
Input Voltage (RS232 RX, RS232 RTS)		-25.0	-	25.0	V
Input Voltage (RX, CTS)		-0.3	-	6.0	V
Output Voltage (TX, RTS)		-0.3	-	VCC + 0.3	V
Output Voltage (RS232 TX, RS232 CTS)		-13.2	-	13.2	V
Operating Temperature		0.0	25.0	70.0	C



Electrical Characteristics

The values presented apply over the full operating temperature, otherwise specifications are at $T_A = 25\text{ }^{\circ}\text{C}$.

Parameter	Conditions	Minimum	Typical	Maximum	Units
Input Voltage (VCC)		3.0	-	5.0	V
Nominal Supply Current	VCC = 2.5V to 5.0V	2.5	-	17.0	mA
Logic Low Threshold (RX and CTS)	VCC = 2.5V to 5.0V	-	-	0.8	V
Logic High Threshold (RX and CTS)	VCC = 3.0V	2.0	-	-	V
	VCC = 5.0V	2.4	-	-	V
Logic Low Threshold (RS232 RX and RS232 RTS)	VCC = 3.3V	0.6	1.2	-	V
	VCC = 5.0V	0.8	1.5	-	V
Logic High Threshold (RS232 RX and RS232 RTS)	VCC = 3.3V	-	1.5	2.4	V
	VCC = 5.0V	-	1.8	2.4	V



Characteristics

The S13 RS232 level shifter is powered by the low voltage UART side. While specified to operate between 3.3V and 5.0V, our testing shows it to work down to 2.5V (though we don't guarantee this). An internal charge pump generates positive and negative rails for the RS232 side of the shifter. The table below shows the RS232 voltages and current consumption for a range of low voltage rail. All RS232 voltages are within the RS232 specification. Current consumption measurements are for reference only and may vary significantly from device to device. Average loads are for continuous 1/0 transmission at 50% duty-cycle.

VCC	RS232 Peak-to-Peak Voltage	RS232 Voltage	Min Current	Average Current	Max Current
2.5V	9.6V	+/- 4.8V	7.35mA	8.5mA	9.8mA
3.3V	12.1V	+/- 6.0V	2.5mA	7.0mA	9.9mA
5.0V	15.0V	+/- 7.5V	4.3mA	8.9mA	17.0mA



Pin Functionality

The following figure and table describes pin mappings for this product.

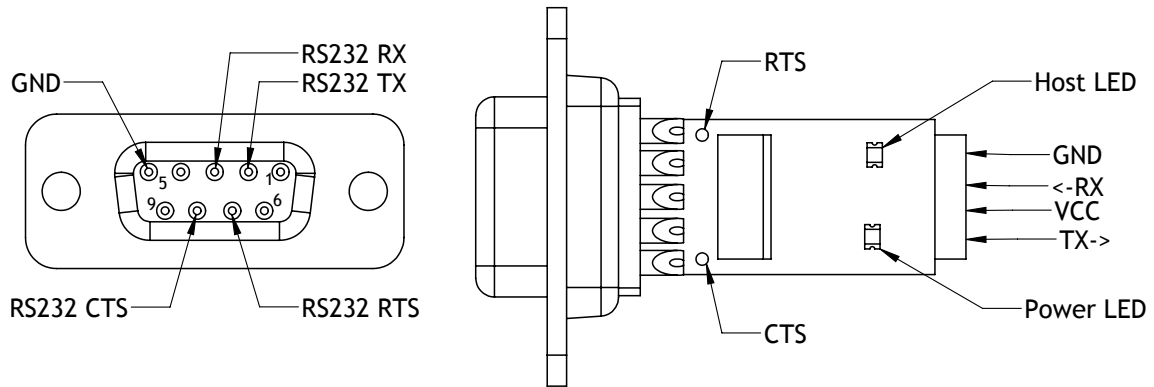


Figure 1: Serial UART Interface Connector pinout drawing.



Mechanical

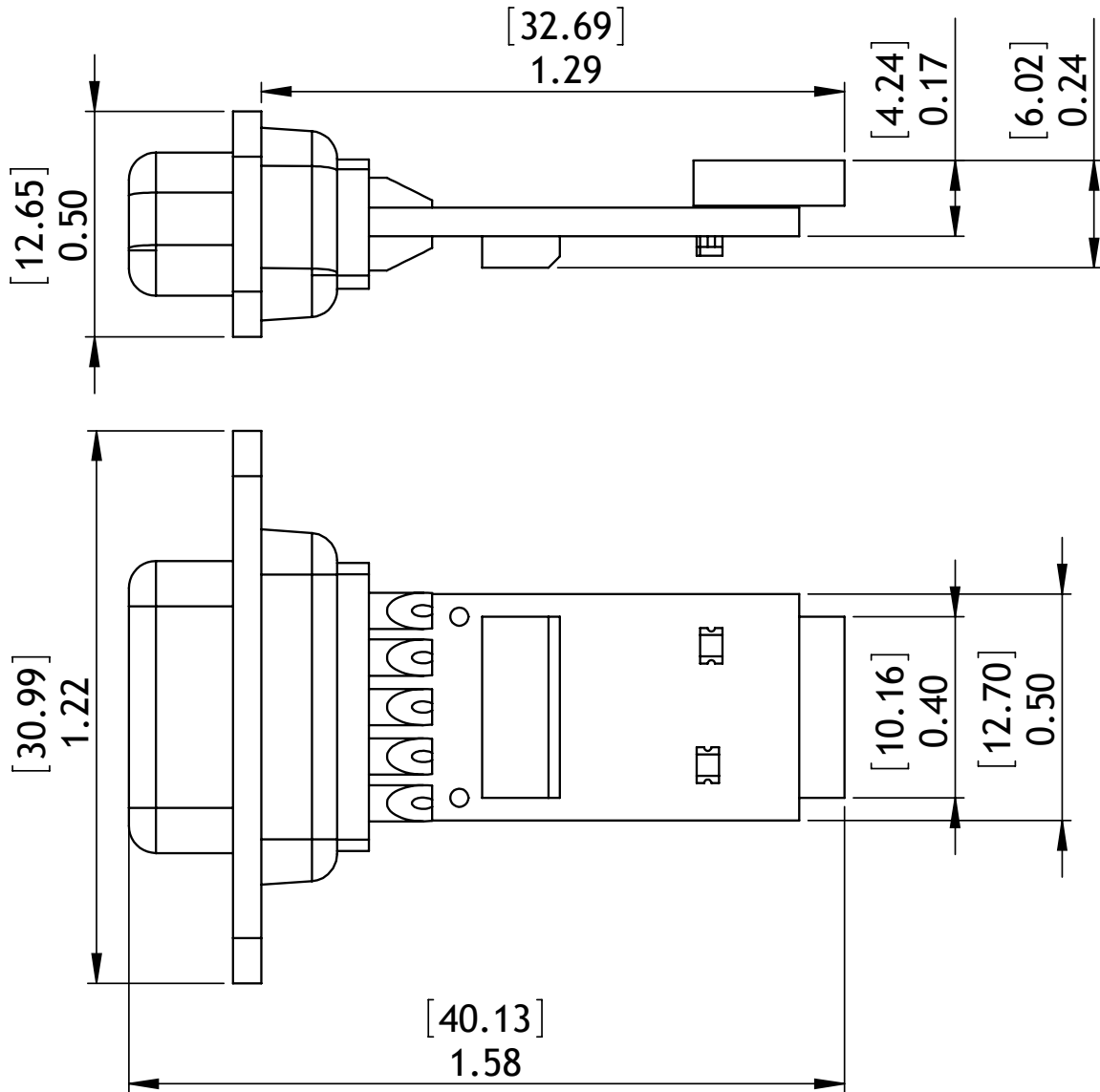


Figure 2: Serial UART Interface Connector mechanical dimensions shown in inches [mm].



Document Revision History

All major documentation changes will be marked with a dated revision code.

Revision	Date	Engineer	Description
1.0	July 30, 2014	ECM	Updated revision format