

## CC-USB232 USB to RS-232 Adapter

### Features

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- ✍ Self-contained 300 – 921.6K baud USB adapter
- ✍ USB 2.0 Slave to RS-232
- ✍ Replaces standard right angle DB9 connector
- ✍ USB powered, requires no power from the embedded system
- ✍ Drivers for all major operating systems
- ✍ Same form factor as standard DB9 connector
- ✍ Panel mount to RS-232 ribbon cable available
- ✍ All RS-232 signals available

### Applications

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- ✍ Global Embedded applications
- ✍ Point-of-sale terminals
- ✍ Set-top boxes
- ✍ Security Systems
- ✍ Remote monitoring & control
- ✍ Upgrade legacy RS-232 devices to USB

### Description

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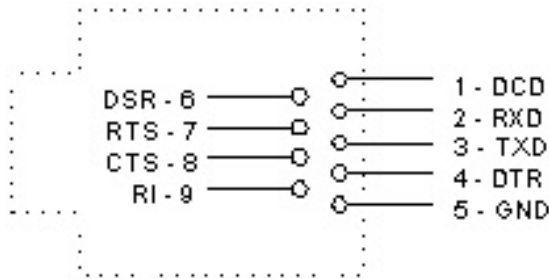
The CC-232 adapter is a simple USB 2.0 Slave to RS-232 adapter packaged in an industry standard DB9 (AMP 745131-1 or equivalent) form factor. This adapter adds a USB interface into existing products with no redesign required. The CC-USB232 is available in two versions, a right angle DB9 for mounting directly on a PCB and a panel mount version. The panel mount version is cable terminated (2x5 female IDC header) for devices with 2x5 headers remotely connected to the panel mounted jack.

## Detailed Specifications

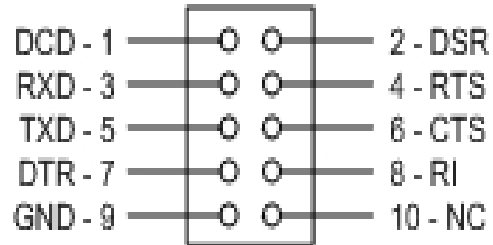
<b>Item</b>	<b>Specification</b>
<b>USB Interface</b>	
Standard	USB Specification 2.0 Compliant, Full Speed
Data Rate	12 Mbps
Jack	Mini USB – SAMTEC (MUSB-05-F-B-SM-A)
EEPROM Memory	512 byte for Vendor ID, Product ID, S/N etc
<b>Serial Interface</b>	
Standard	RS-232 - 8 bit asynchronous data @ 300-921.6k bps
Data Rate	300, 1200, 1800, 2400, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 56000, 57600, 115200, 128000, 230400, 460800, 921600
Data Format	8 bits
Stop Bits	1 bit
Parity	Odd / Even / No Parity
Flow Control	Hardware or Software
Software Flow Control	X-On & X-Off
Hardware Flow Control	RTS, CTS, DCD, DSR, DTR,RI
Receive Buffer	512 byte
Transmit Buffer	512 byte
<b>Mechanical</b>	
Mechanical	Conforms to AMP 745131-1
Material	Valox PBT - General Electric DR-48 BK (black)
<b>DB-9 Version</b>	
Pin Length	0.090"
<b>Panel Mount Version</b>	
Cable Length	10" standard
Socket Connector	AMP 499997-1 or equiv
<b>Power</b>	
Power Source	USB Powered 35 mA max No power required from user system
<b>Environmental</b>	
Temp Range	Industrial -20C to +85C

## Serial Interface

The pin out of the CC-USB232 follows.

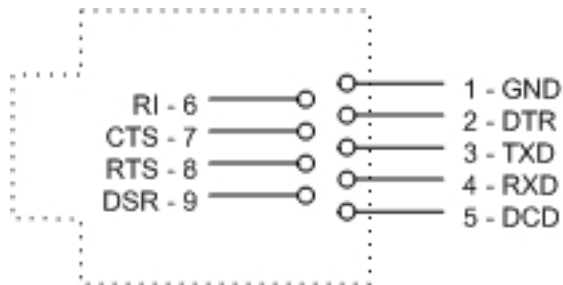


**DB-9 Pin Out**  
Top View

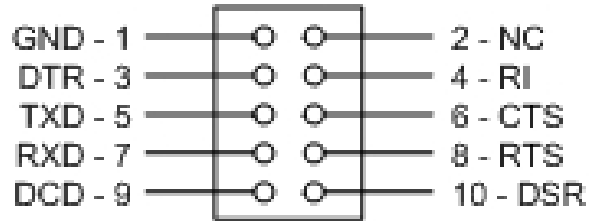


**10 Pin Header Pin Out**  
Top View

The pin out of the CC-USB232F follows.



**DB-9 Pin Out**  
Top View



**10 Pin Header Pin Out**  
Top View

**NOTE:** To properly connect, RX should connect to RX on your PCB and TX to your TX and so on.

## Serial Port Pin Out

The CC-USB232 UART interface consists of the TXD (transmit) and RX (receive) serial data signals as well as the RTS, CTS, DSR, DTR, DCD and RI control signals. The UART supports RTS/CTS, DSR/DTR and X-On/X-Off handshaking. The port is configured as RS-232C DTE (Data Terminal Equipment).

The UART is programmable to support a variety of data formats and baud rates. The data format and baud rate programmed into the UART is set during COM port configuration on the PC.

The UART interfaces to an RS-232 driver. The final outputs to the embedded board are RS-232. Connect RXD on the embedded board to RXD on the CC-232 and so on.

## Serial Port Pin Definitions

Name	DB-9 Pin #	Header Pin #	Type	Description
DCD	1	1	Input	Data Carrier Detect (active low)
RXD	2	3	Input	Receive Serial Data (active low)
TXD	3	5	Output	Transmit Serial Data (active low)
DTR	4	7	Output	Data Terminal Ready (active low)
GND	5	9		Signal Ground
DSR	6	2	Input	Data Set Ready (active low)
RTS	7	4	Output	Ready to Send (active low)
CTS	8	6	Input	Clear To Send (active low)
RI	9	8	Input	Ring Indicator (active low)
N/C		10	--	Not Used – No Connection

## Serial Interface (cont)

The Asynchronous Serial Interface is a complete UART consisting of Receive and Transmit signals as well as RTS, DSR, CTS, DCD and RI control signals.

The UART is programmable to support a number of baud rates and data formats. Supported data rates and formats are:

Data Bits: 8

Stop Bits: 1

Parity: odd, even, no parity

Baud Rates: 300, 1200, 1800, 2400, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 56000, 57600, 115200, 128000, 230400, 460800, 921600

### Flow Control

The CC-USB232 supports hardware and software flow control. The hardware flow control signals are:

RTS – Request to Send

CTS – Clear to Send

DSR – Data Set Ready

DTR – Data Terminal Ready

### Status

In addition to flow control, the modem provides two hardware status signals.

DCD – Carrier Detect

RI – Ring Indicator

## Serial Port Drivers

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The device drivers for the CC-USB232 allow the device to appear to the operating system as additional COM ports. Application software on the PC accesses the device as it would a physical COM port. Existing COM port applications may be used to transfer data via the USB without modifying the software.

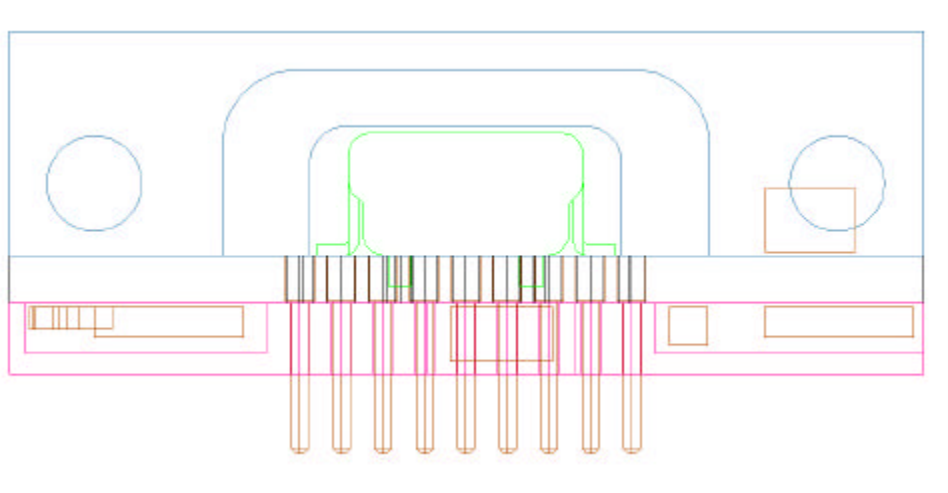
Device drivers are supplied by CCI and are available on the website at [www.copelandcommunications.com](http://www.copelandcommunications.com).

## Host USB Interface

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The CC-USB232-C uses a mini USB connector similar to those used in USB cameras and other small device. Because the CC-USB232C is completely integrated, only one cable is needed and no adapters are left hanging between the PC and target system.

## Mechanical Outline



(Scale drawing not available at time of print)

The CC-USB232 replaces an industry standard right angle PC mount DB9 connector. The adapter has the same mechanical specifications as the AMP 745131-1. The adapter is molded using General Electric DR-48 BK (black) material.

The CC-USB232 has the same mechanical specifications as the CC-USB232 PC mount version except the pins are replaced with a 10-conductor ribbon cable and terminated in a 10 pin (2 x 5) 0.100 lead-space right-angle IDC connector (AMP 499997-1). The CC-USB232 is supplied with a TBD length cable as standard. Other cable lengths and terminations are available on request.

## Ordering

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The CC-USB232 is available in two models: A DB-9 right angle connector replacement for PCB mount applications, and a cabled version, for remote connection panel-mount applications. The cabled version is terminated to a ribbon cable and connected to the application PCB via a 2 x 10 female header. See page 3 for model pinouts.

<b>Model</b>	<b>Description</b>
CC-USB232	Right angle PCB mount
CC-USB232-Cx	Cable terminated, x = cable length
CC-USB232-F	Right angle PCB mount
CC-USB232-FCx	Cable terminated, x = cable length

## **Revision Information**

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Revision 1.0



## Contact Information

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## Warranty

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All Copeland Communications products are warranted against defects in material and workmanship for a period of 90 days.

## Legal

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