coolgear

RS232 to TTL/CMOS Converter
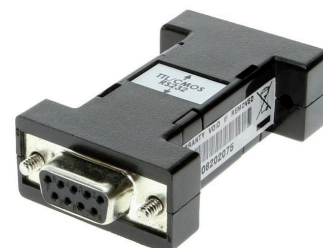
Model Number: *US-232TTL33CON*

Installation Guide

Coolgear, Inc.

Version: 1.0

Date: 04/10/2024

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Revision History

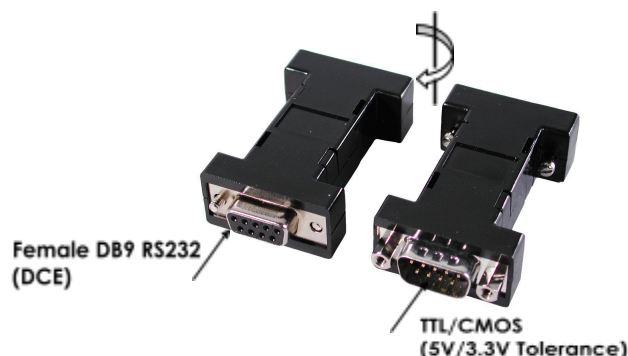| Revision	Date	Comments
1.0	04/10/2024	First Release

1. Introduction

Thank you for purchasing Coolgear's RS232 to TTL/CMOS Converter. It is designed for your PC, workstation, thin client, or server to provide an instant conversion solution for the device that needs RS232 interface in TTL or CMOS voltage level. It provides a DB9 female connector (DCE, with standard RS232 signals, TXD, RXD, RTS, CTS and GND) that can be connected directly to your PC's RS232 port. The product is powered by the RS232 signals so it does not need any DC power from an external AC Power Adapter.

Features:

- ✔ Provides one RS232 to TTL/CMOS Adaption
- ✔ Supports 4-Signal RS232 Conversion: (TXD, RXD, RTS, CTS, GND)
- ✔ Supports DB9 Female (DCE) to DB9 Male (TTL/COMS) Connector Conversion
- ✔ Supports 5V and 3.3V Tolerance Signals
- ✔ Signal Levels are Inverted by the Converter Similar to Standard RS232 but in TTL/CMOS Swing Level
- ✔ Supports Baud Rate up to 115.2 Kbps
- ✔ Port-powered, no External Power Required
- ✔ No Driver Required for All Operating Systems
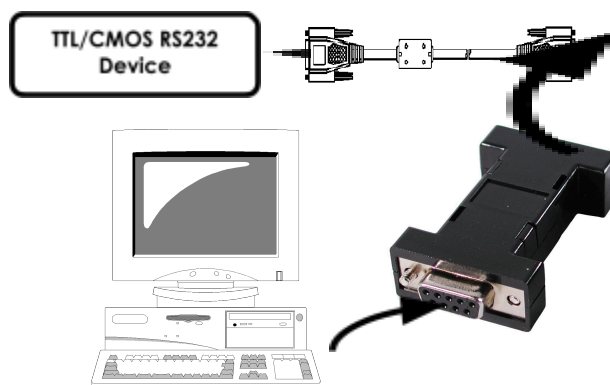
2. Layout: RS232 to TTL/CMOS Converter

Female DB9 RS232 (DCE)

TTL/CMOS (5V/3.3V Tolerance)

3. Installing the RS232 Adapter

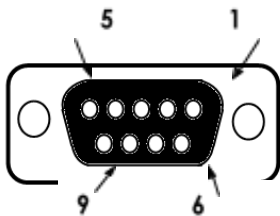1. **Use static electricity discharge precautions.**

   Remove possible static discharge potential from any objects that the converter may come in contact with before installation. This can be accomplished by touching a bare metal chassis rail after you have turned off the power.

2. **Locate an unused PC's RS232 port (with DB9 male connector, configured as DTE), connect it to this Converter's DB9 female connector, connect the TTL/CMOS RS232 Device to the Converter's DB9 male connector (with a cable)**
   .

4. RS232 Female DB9 Pin Assignments and Wiring

DB9-Female Pin Assignment:

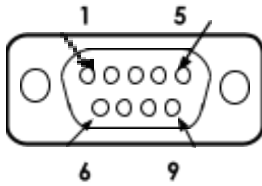| 9 Pins	Signal
1	NC
2	TXD
3	RXD
4	NC
5	GND
6	NC
7	CTS
8	RTS
9	NC

NC = No connection

DB9(Male, Host PC) to DB9(Female, on this product) Wiring:

```
DB9M(DTE,Host PC)        DB9F(DCE,
this product)
  1 DCD                    1 DCD
  2 RXD                    2 TXD
  3 TXD                    3 RXD
  4 NC                     4 NC
  5 GND                    5 GND
  6 NC                     6 NC
  7 RTS                    7 CTS
  8 CTS                    8 RTS
```

RS232 (DB9 female)	Signals	Signals	TTL/CMOS (DB9 male)
3 (Input)	RXD	TXD-	3 (Output)
2 (Output)	TXD	RXD-	2 (Input)
7 (Input)	CTS	RTS-	7 (Output)
8 (Output)	RTS	CTS-	8 (Input)
5 (Signal GND)	GND	GND	5 (Signal GND)

5. TTL/CMOS Male DB9 Pin Assignments and Wiring

DB9-Male Pin Assignment:


```
9 Pins    Signal
  1       NC
  2       RXD-
  3       TXD-
  4       NC
  5       GND
  6       NC
  7       RTS-
  8       CTS-
  9       NC
```

NC = No connection

DB9(Male, this product) to DB9(Female, RS232 Device) Wiring:

```
DB9M(DTE, this product)   DB9F(DCE, RS232 Device)
  1 DCD                     1 DCD
  2 RXD  <------------      2 TXD
  3 TXD  ------------>      3 RXD
  4 NC                      4 NC
  5 GND  ------------>      5 GND
  6 NC                      6 NC
  7 RTS  <------------      7 CTS
  8 CTS  ------------>      8 RTS
```

6. Specifications

Type	Specifications
Connectors	DB9 Female (DCE), DB9 Male (DTE, TTL/CMOS)
Number of Ports	1 RS232
RS232 Signals	TXD, RXD, RTS, CTS, GND
Baud Rate	Up to 921.6Kbps
Power Requirement	5V/5mA max.
Operating Temperature	0 to 60°C (32 to 140°F)
Operating Humidity	5 to 95% RH
Storage Temperature	-20 to 85°C (-4 to 185°F)

Electrical Characteristics

Parameters	Values
TTL/CMOS Input	
Low	< 0.8V
High	> 2.0V
TTL/CMOS Output	
Low	< 0.55V
High	> 2.4V
RS232 Input	
Low	< 0.2V
High	> 2.4V
RS232 Output	
Low	< -5V
High	> +5V

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Safety	• Read the entire Installation Guide before implementing this product for your application. This guide contains important information about electrical connections that must be followed for safe and proper operation. • Inspect the product closely for visual defects before putting it to use. • Keep away from areas where moisture builds, this product contains electrical components that can be damaged by moisture build up, this can adversely affect your equipment connected to it. • Do not disassemble the product. Handling the product's internal components can expose it to ESD (Electro-Static Discharge) hazards that can affect the function of the device. • If this product is not functioning properly, email our support team at support@coolgear.com.

USB CHARGING & CONNECTIVITY EXPERTS

Within Every Great Machine

For over 20 years our rugged, off-the-shelf USB hubs, chargers, and serial products are ready to go for your next project. Based in the US, Coolgear has successfully engineered and deployed millions of connectivity solutions into industrial, medical, automotive, commercial, and aerospace industries.

We understand the importance of reliability, build quality, & consider all our customers' applications as critical, wanting to ensure long-lasting event-free integrations.

Compliance Statement

View compliance within the product's respective Technical Data Sheet, found on the product's online listing.

Technical Support

When you reach out to Coolgear support, you'll find yourself in the hands of a solution-oriented and knowledgeable expert ready to answer whatever question you throw at them. If you ever need help with your product, visit coolgear.com/support for support tickets, downloads, and other support resources. For the latest drivers, please visit coolgear.com/download.

Product Standard Warranty

One (1) Year Warranty from Date of Purchase Invoice. Coolgear will repair or replace any Product determined to be defective and which has been returned, at your risk and expense, to Coolgear. Where Coolgear determines in its sole judgment that repair or replacement of such Product is not reasonable, Coolgear will keep the non-conforming Product and refund to you the amount you paid for such Product. Returned Products shall be subject to the balance of the Warranty Period otherwise applicable. Any reconditioned parts used by Coolgear shall be subject to all the same provisions as otherwise applicable to new parts. THE FOREGOING DESCRIBES COOLGEAR'S SOLE LIABILITY, AND YOUR SOLE REMEDY, FOR ANY BREACH OF WARRANTY. IF YOU DO NOT AGREE WITH THE TERMS OF THIS LIMITED WARRANTY, YOU MUST RETURN THE PRODUCTS UNUSED AND IN THEIR ORIGINAL CONTAINERS TO YOUR ORIGIN OF PURCHASE.

Limitation of Liability

This Limited Warranty does not cover: (i) defects or damages resulting from natural causes, casualty, accident, misuse or abuse, neglect, alterations, service or repair by other than Coolgear, including without limitation by you; (ii) improper installation or de-installation, operation or maintenance, improper connections with peripherals or other causes not arising out of defects in the materials or workmanship of Products; (iii) any Product for which the warranty sticker has been removed, modified or defaced; (iv) normal wear and tear; (v) damage to or loss of repaired or replaced Products during shipping by Coolgear except when such damage or loss is caused by poor or inadequate packaging by Coolgear; or (vi) Products purchased outside the United States. UNDER NO CIRCUMSTANCES WILL COOLGEAR BE LIABLE FOR ANY LOSS OF USE, INTERRUPTION OF BUSINESS OR ANY INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING LOST PROFITS) REGARDLESS OF THE FORM OF ACTION WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT PRODUCT LIABILITY OR OTHERWISE, EVEN IF COOLGEAR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO EVENT SHALL THE TOTAL LIABILITY OF COOLGEAR HEREUNDER EXCEED THE GREATER OF $50.00 OR THE AMOUNT YOU ACTUALLY PAID FOR THE PRODUCT GIVING RISE TO SUCH LIABILITY, REGARDLESS OF THE CAUSE OF ACTION, IN CONTRACT, TORT, STRICT LIABILITY OR OTHERWISE. NOT ALL JURISDICTIONS ALLOW SUCH LIMITATIONS OF DAMAGES SO THE FOREGOING LIMITATIONS MAY NOT APPLY TO YOU.