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› Robocraze FT232RL USB to TTL Serial Converter Adapter Module For boards compatible with Arduino User Manual

Robocraze RC-A-029

Robocraze FT232RL USB to TTL Serial Converter Adapter Module User Manual

Model: RC-A-029 | Brand: Robocraze

1. INTRODUCTION

The Robocraze FT232RL USB to TTL Serial Converter Adapter Module is designed to provide a reliable and efficient way to connect TTL-level serial devices to a computer via a USB port. Utilizing the FT232RL chip, this module offers stable communication and is widely compatible with various microcontrollers, including Arduino boards, and other USB-compatible devices. It is an essential tool for debugging, programming, and communicating with embedded systems.



This image shows the top view of the Robocraze FT232RL USB to TTL Serial Converter Module. It features the FT232RL chip, a mini-USB port, and header pins for serial communication.

2. KEY FEATURES

- **FT232RL Chip:** Integrated FTDI FT232RL USB to serial UART interface IC for robust and stable communication.
- **USB to TTL Conversion:** Converts USB signals to TTL (Transistor-Transistor Logic) serial signals, enabling communication with microcontrollers.
- **Wide Compatibility:** Compatible with Personal Computers, Laptops, Arduino boards, and other USB-compatible devices.
- **Voltage Output:** Supports 3.3V and 5V output, typically selectable via a jumper (check specific board for details).
- **Compact Design:** Small form factor for easy integration into projects.
- **Indicator LEDs:** Often includes TX/RX LEDs for visual indication of data transmission.
- **Color:** Red PCB.

3. SETUP AND INSTALLATION

3.1. Driver Installation

The FT232RL chip requires specific drivers to function correctly on your operating system (Windows, macOS, Linux). These drivers are typically provided by FTDI (Future Technology Devices International). It is recommended to download the latest drivers directly from the official FTDI website or use your operating system's built-in driver update feature.

- Download Drivers:** Visit the FTDI website (www.ftdichip.com/Drivers/VCP.htm) and download the appropriate VCP (Virtual COM Port) driver for your operating system.
- Install Drivers:** Follow the installation instructions provided by FTDI. For Windows, this usually involves running an executable. For Linux/macOS, drivers are often pre-installed or easily installed via package managers.
- Verify Installation:** After installation, connect the module to your computer. Open Device Manager (Windows) or check ``dmesg`` (Linux) / System Information (macOS) to confirm that the module is recognized as a USB Serial Port (COM port).

3.2. Hardware Connection

Connecting the FT232RL module to your target device requires careful attention to the pinout. Incorrect connections can damage the module or the target device.



An angled view of the Robocraze FT232RL module, highlighting the header pins for VCC, GND, TXD, RXD, DTR, RTS, and CTS, along with the mini-USB connector.

- **Connect USB:** Plug the mini-USB end of the module into your computer's USB port using a compatible USB cable.
- **Power Selection:** Ensure the voltage jumper (if present) on the module is set to the correct voltage (3.3V or 5V) required by your target device. Supplying incorrect voltage can damage your device.
- **Serial Connections:** Connect the module's serial pins to your target device as follows:

Module Pin	Description	Connect to Target Device Pin
VCC	Power Output (3.3V/5V)	Target Device VCC (if powering from module)
GND	Ground	Target Device GND
TXD	Transmit Data	Target Device RXD (Receive Data)
RXD	Receive Data	Target Device TXD (Transmit Data)
DTR	Data Terminal Ready	Target Device Reset (for Arduino auto-reset)

Note: Always double-check the pinout of your specific FT232RL module and target device before making connections. The TXD pin on the module should connect to the RXD pin on your target device, and vice-versa.



A detailed close-up of the mini-USB port on the Robocraze FT232RL module, which is used for connecting the module to a computer.

4. OPERATING INSTRUCTIONS

4.1. Serial Communication

Once the drivers are installed and the module is connected, you can use any serial terminal program (e.g., PuTTY, Tera Term, Arduino IDE Serial Monitor) to communicate with your target device.

1. **Identify COM Port:** In your computer's Device Manager (Windows) or equivalent, identify the COM port number assigned to the FT232RL module.
2. **Configure Serial Terminal:** Open your preferred serial terminal program and configure it with the correct COM port, baud rate, data bits, parity, and stop bits to match your target device's serial settings. Common baud rates include 9600, 19200, 57600, 115200.
3. **Start Communication:** Open the serial connection. You should now be able to send and receive data from your target device.

4.2. Programming Microcontrollers (e.g., Arduino)

The FT232RL module is commonly used for programming Arduino boards (like Pro Mini, ESP8266 modules) that lack a built-in USB-to-serial converter.

1. **Connect Pins:** Connect the FT232RL module's TXD, RXD, VCC, GND, and DTR pins to the corresponding pins on your Arduino board. The DTR pin is crucial for auto-reset during programming.
2. **Select Board and Port:** In the Arduino IDE, select the correct board type (e.g., Arduino Pro Mini) and the COM port assigned to your FT232RL module.
3. **Upload Sketch:** Compile and upload your sketch to the Arduino board. The FT232RL module will handle the serial communication for programming.

5. MAINTENANCE AND CARE

To ensure the longevity and proper functioning of your Robocraze FT232RL module, follow these care guidelines:

- **Handle with Care:** Avoid dropping the module or subjecting it to physical shock.
- **Static Electricity:** Always handle the module by its edges to prevent damage from electrostatic discharge (ESD).
- **Keep Dry:** Protect the module from moisture and liquids. Store it in a dry environment.
- **Cleanliness:** Keep the module free from dust and debris. Use a soft, dry brush or compressed air for cleaning if necessary.
- **Proper Storage:** When not in use, store the module in an anti-static bag or a protective container.
- **Avoid Overvoltage:** Ensure that the voltage supplied to the module and the voltage selected for the target device are within the specified limits.



This image displays the underside of the Robocraze FT232RL module, showing the solder points and circuit board traces.

6. TROUBLESHOOTING

If you encounter issues with your FT232RL module, consider the following common problems and solutions:

- **Module Not Recognized by Computer:**
Symptom: The module does not appear as a COM port in Device Manager.
Solution: Ensure FTDI drivers are correctly installed. Try a different USB port or USB cable. Restart your computer.
- **No Communication with Target Device:**
Symptom: Data is not being sent or received, or garbled characters appear.

Solution:

- a. Verify TXD and RXD connections are crossed (Module TXD to Device RXD, Module RXD to Device TXD).
- b. Check that the baud rate, data bits, parity, and stop bits in your serial terminal match the target device's settings.
- c. Ensure both the module and target device share a common ground (GND).
- d. Confirm the voltage selection (3.3V/5V) on the module matches the target device's operating voltage.

• **Module Gets Hot:**

Symptom: The module becomes excessively warm during operation.

Solution: Disconnect immediately. This often indicates a short circuit or incorrect voltage connection. Recheck all wiring.

• **Programming Fails (e.g., Arduino):**

Symptom: Uploading a sketch to an Arduino board fails.

Solution: Ensure the DTR pin is correctly connected to the Arduino's reset pin (often via a capacitor). Verify the correct board and COM port are selected in the Arduino IDE. Check the baud rate for programming.

7. TECHNICAL SPECIFICATIONS

Specification	Detail
Brand	Robocraze
Model Number	RC-A-029
Item Weight	20 g
Product Dimensions (LxWxH)	1.2 x 5.8 x 7.6 cm
Number of Ports/Connectors	1 (Mini-USB)
Connectivity Technology	USB
Hardware Interface Type	USB
Compatible Devices	Personal Computer, Laptop, Arduino Board, USB-compatible Devices

8. WARRANTY AND SUPPORT

Specific warranty information for the Robocraze FT232RL USB to TTL Serial Converter Adapter Module is not provided in the available product data. For details regarding warranty coverage, returns, or technical support, please contact Robocraze directly through their official website or the retailer from whom the product was purchased. Ensure you have your purchase receipt and product model number (RC-A-029) ready when contacting support.

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question