

J4210 Arduino Interfacing

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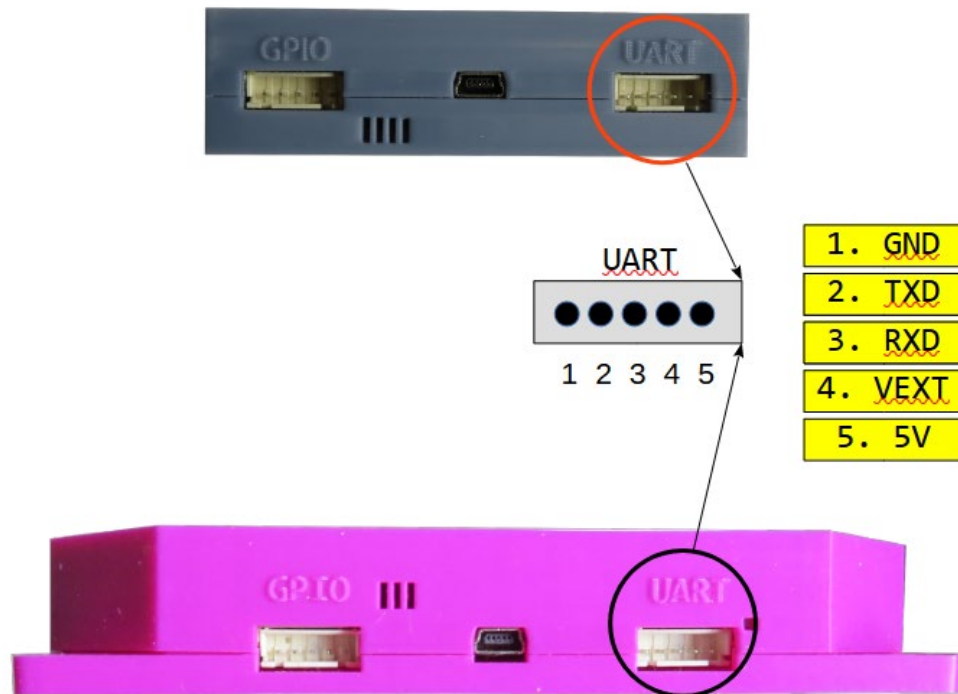
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Getting Started

This documentation is your comprehensive guide to understand and utilize the full potential of **Jence Uhf RFID Reader**. Whether you are a developer, system integrator, or end-user, we have tailored this guide to assist you in setting up, configuring, and integrating our UHF RFID reader into your specific applications.

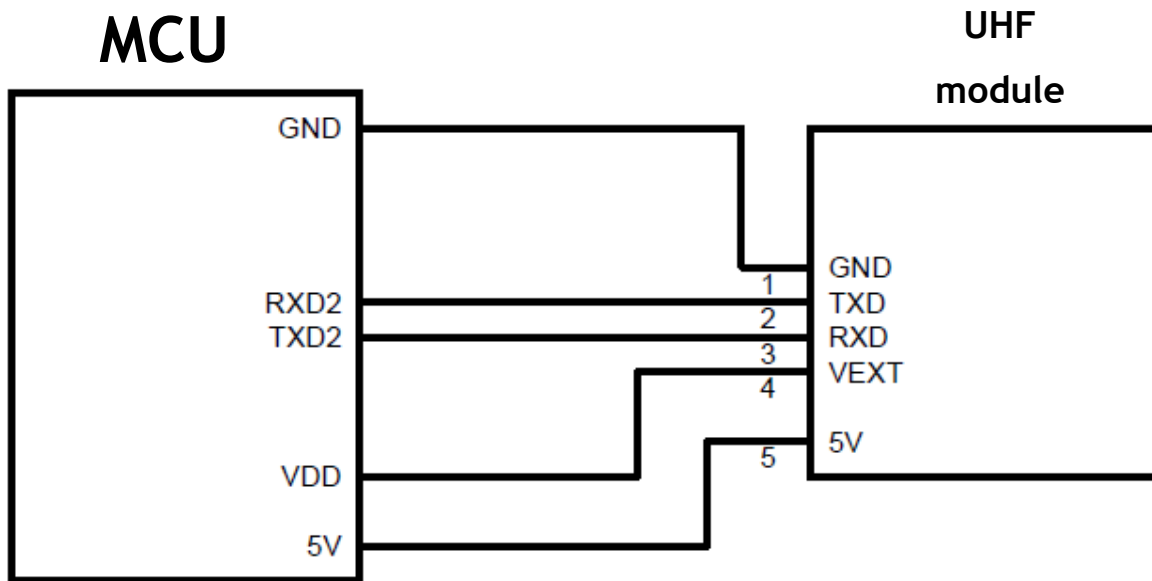
Hardware Description:

Aside from USB interface our reader provides UART communication interface via Rx and Tx pin. The configuration picture is given below



UART	RXD and TXD will be crossed with the MCU's TXD and RXD.
VEXT	This is the Logic High , V _{OH} voltage. In 3.3V logic, tie it to 3.3V, in 5V logic, tie it to 5V.
5V	This is supply voltage. Do not supply 3.3V here.

The basic idea is to connect the uhf reader module with an MCU like below configuration



Hardware Setup:

Connection basic

The key is MCU needs 2 sets of UART port. One is to connect with the PC through USB-Serial device to monitor the status of the MCU through Serial Monitor. Another set of UART is to communicate with the module to send command and retrieve information. In the example, we are using UART2 for the Module - MCU communication but it is configurable as the user wants. Only 1 set of UART pins can do the communication if Serial Monitor is not needed. Our example uses 2 sets of UART port.

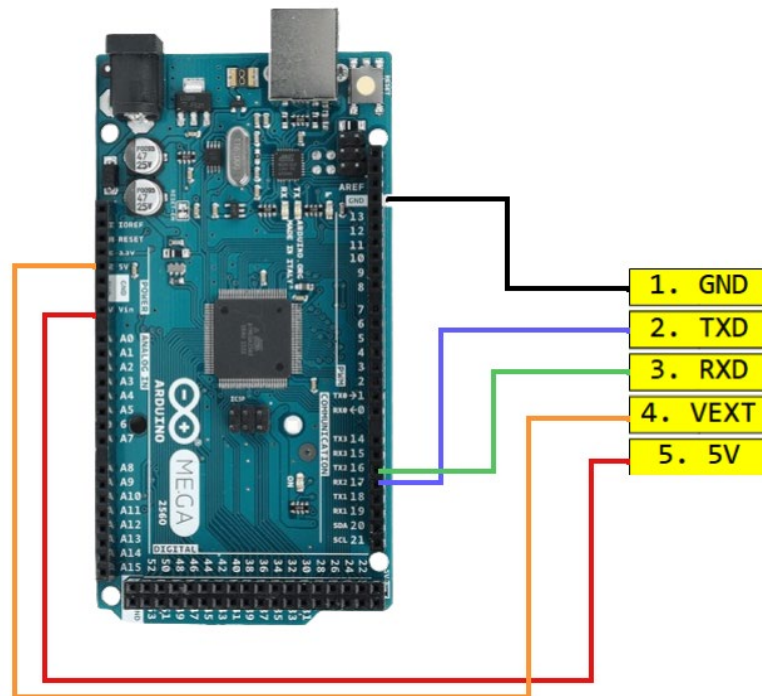
Power Requirements

UHF RFID Module requires **400mA, 5V** power while scanning. If the MCU is used as power source for the module it will take around 400mA of current while scanning. While scanning if the MCU can't provide that much current then scan will fail. So, if the MCU can't provide 400mA 5V then external power source is needed.

Connection Schemes for different Microcontrollers:

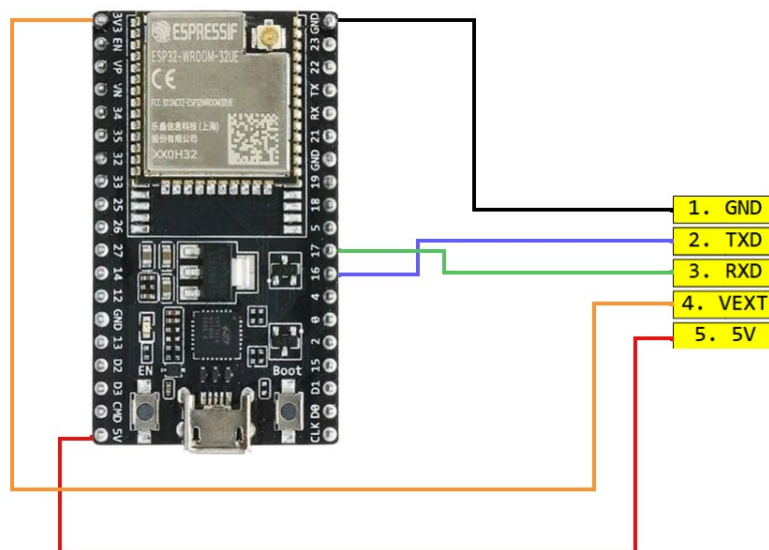
Connection configuration example for some common microcontroller that can be used with Arduino platform is provided below. Note that pin configuration is just an example and an expert user can configure their pins however they want reflecting their code.

For Arduino Mega:

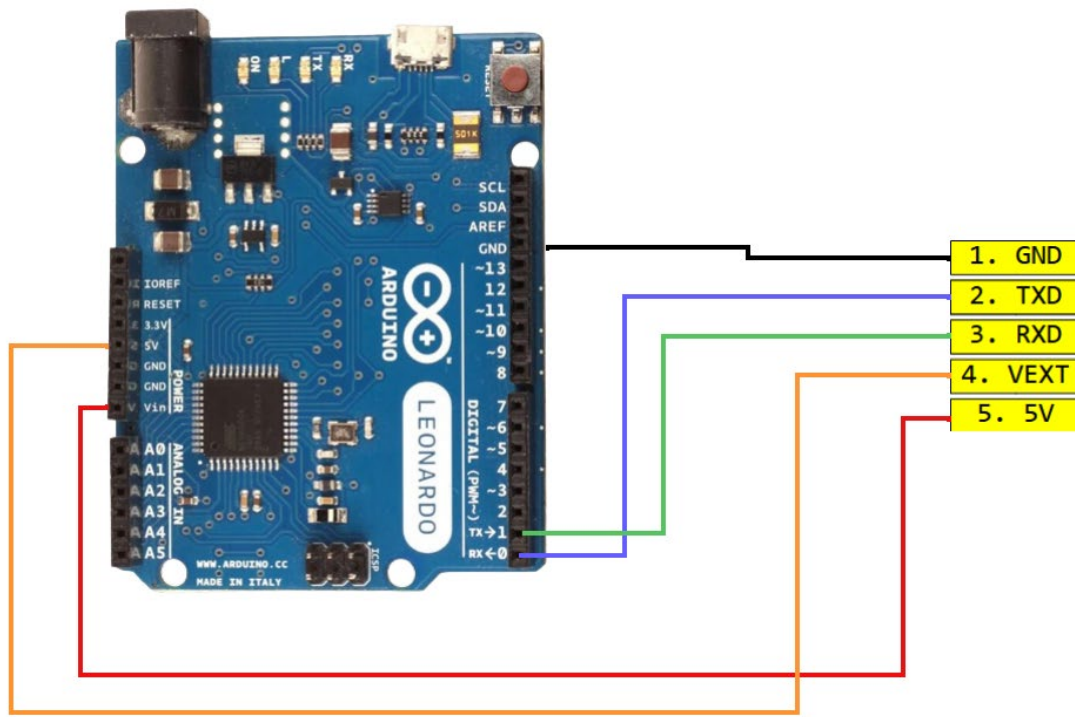


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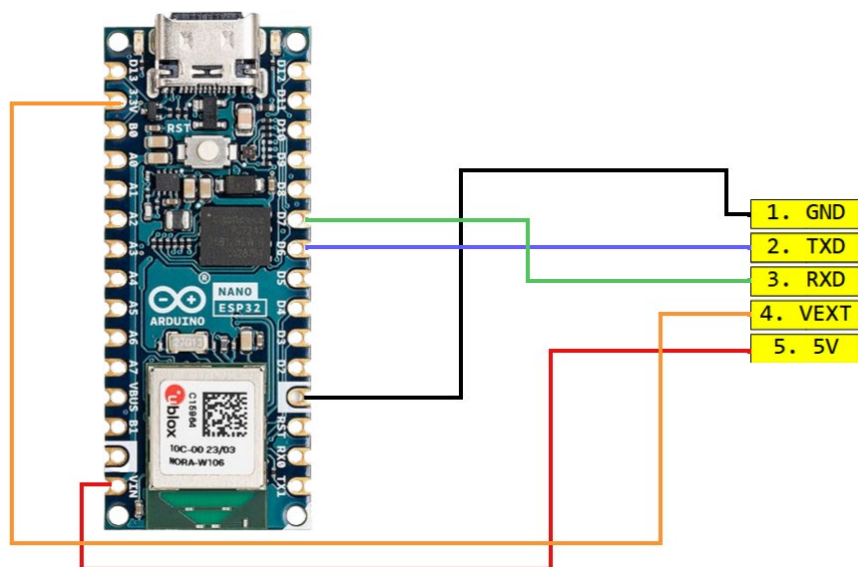
FOR ESP32 dev module (wroom):



For Arduino Leonardo



For Arduino Nano esp32



For TivaC Launchpad with TM4C1294NCPDT



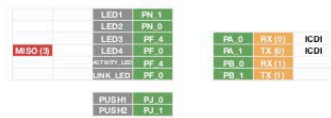
LaunchPad with TM4C1294NCPDT

Revision 1

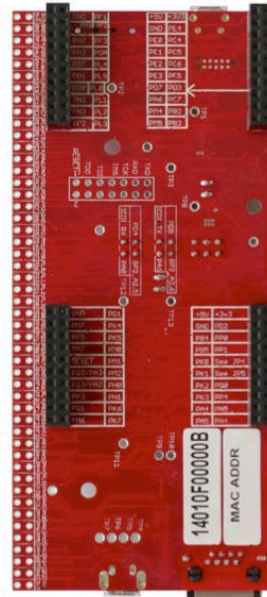


Flash 1024 KB
 SRAM 256 KB

Serial Hardware
 ADC 12 bits
 Use pins numbers only!



Reel V1.0, 2012-2017
 energiasoftware.com
 version 1.3 2015-07-20

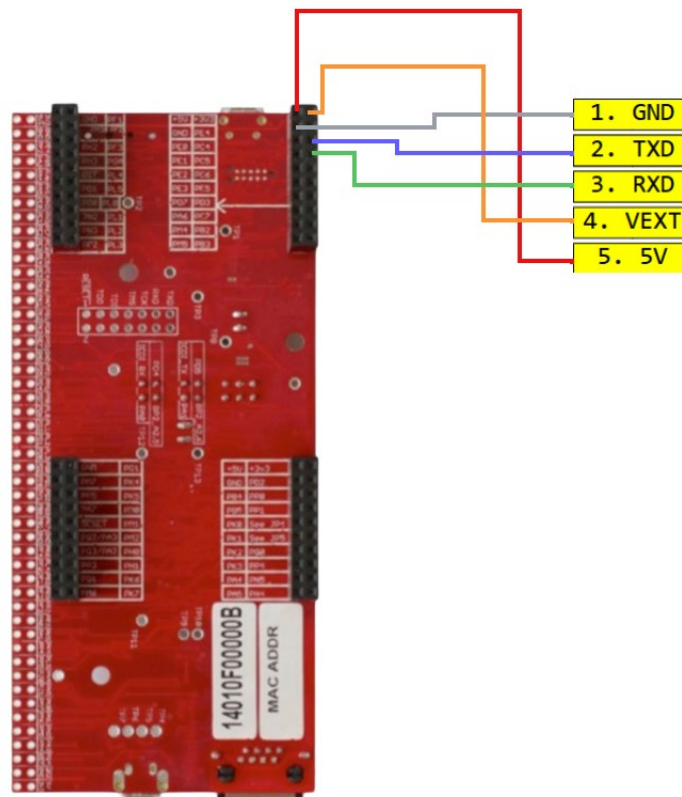


Hardware:
 Pin number
 Other pin number

PC
 Serial UART
 SPI
 analogRead()
 digitalWrite() and digitalWrite() and analogWrite()



PO 6 A5



5. The library should install in **Output Terminal** at the bottom
6. Restart the **Arduino IDE**
7. In the menu bar, go to File > Examples > j4210u Uhf RFID Reader Driver > choose one
8. You can find 3 examples from there choose one of 3 to **run** and **check** the example usage.
9. Uncomment `// #define NANO_ESP32` line from the example sketches if **Arduino Nano ESP32** is begin used.
10. Connect the wires accordingly based on the MCU
11. Configure Arduino IDE (Or Code Composer Studio for TivaC board) for right MCU board configuration from **TOOLS** tab
12. Build and upload the sketch.
13. Check in serial monitor for messages. The default Serial monitor baud of the examples are 9600
14. A successful integration will show example specific output in the **Serial monitor**. For **continuous scan example** the output will be the reader settings in the serial monitor and the reader will keep try to scan nearby cards after 3s. keep some uhf tag nearby and EPC and TID will be visible after each scan in the serial monitor.
15. After testing the examples, you can start using the library for Standard application such as **GetSettings**, **SetSettings**, **Inventory Scan**, **Read**, **Write**, **Filter GPIO**, **SetPassword**, **Lock**, **Kill**, **operation** etc. by using the public methods of **J4210U** class.

Common Troubleshooting:

1. Check the device if it behaves intendedly with platform specific [desktop software](#) before using it with MCU.
2. While connecting the wires sometimes Rx and Tx might get mixed up by mistake and that can cause failed communication. Check if the **Rx** and **Tx** is connected properly and try swapping the Rx and Tx.
3. **VEXT** is the logic voltage. If **VEXT** doesn't get matched input voltage as the **logic HIGH** level then the communication won't work. Check the voltage level of **VEXT**
4. Module is connected but scan can't find any tags. It might be due to the module is not getting enough power to scan. Connect an external power source with **5V** and **GND** pin.
5. Check the baud Rate from desktop software to be 100% sure. Default baud rate and Arduino example has also set to **57600bps**. If that baud rate fails then try changing it to **115200bps**.