

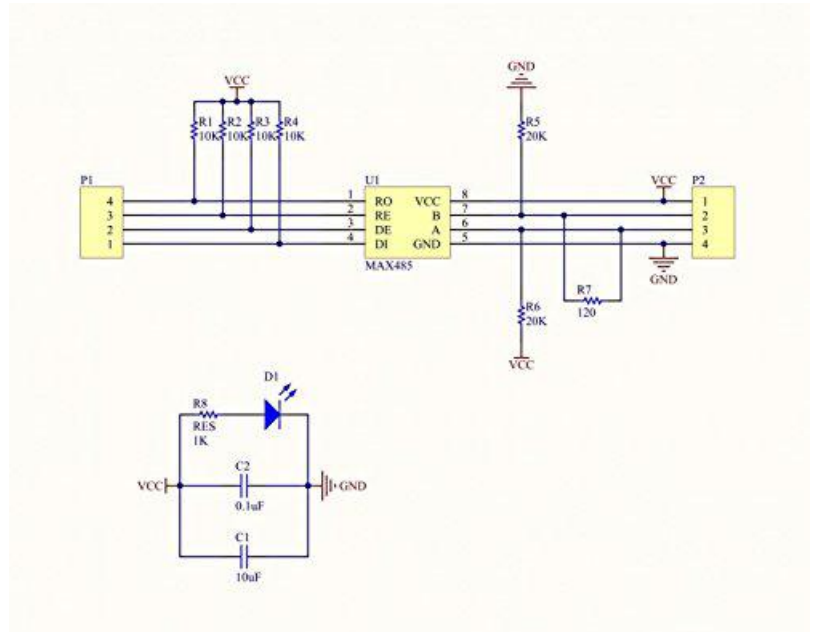
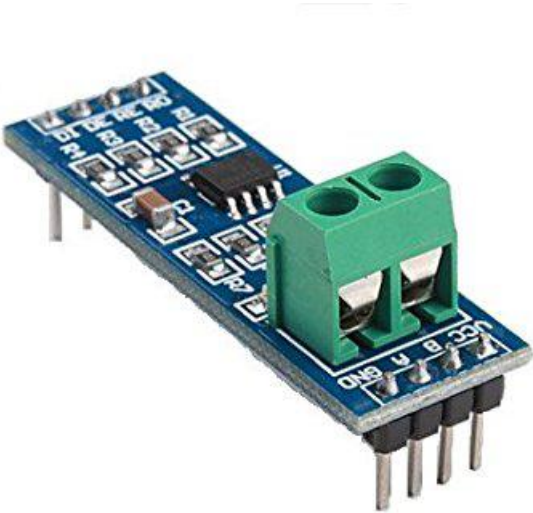


# ArduiBox Open

## Application Note How to integrate a RS485 interface

### 1 Introduction

RS-485 signals are used in a wide range of computer and automation systems. RS-485 is used as the physical layer underlying many standard and proprietary automation protocols used to implement Industrial Control Systems, including the most common versions of Modbus and Profibus. With a small RS485 extension module connected to the UART of the Arduino and placed to the breadboard area an integration in ArduiBox is easy doable.



### 2 Bill of Material

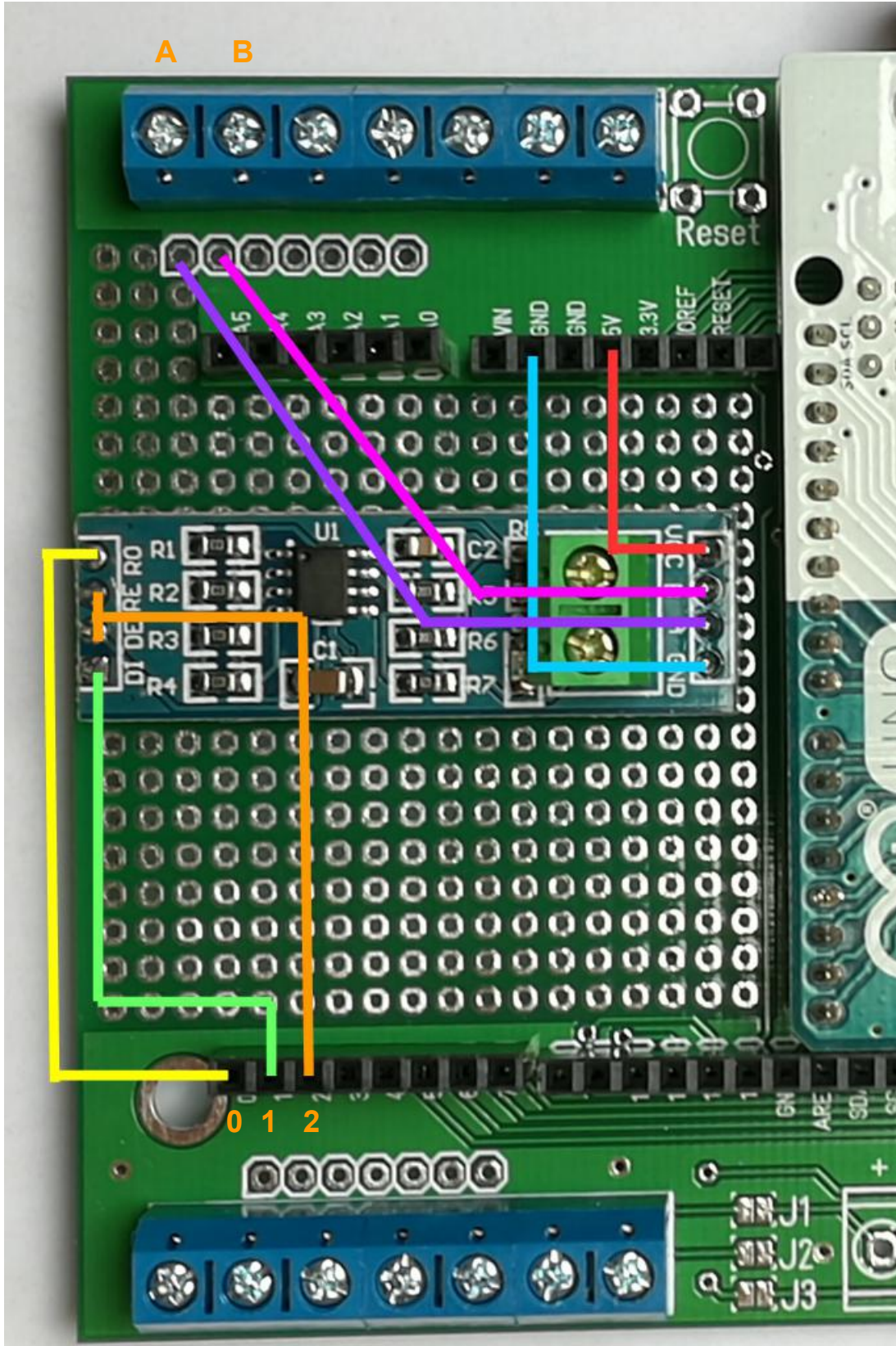
- RS485 integration module (available in our webstore)
- 1x 1.8k resistor; 1x 3.3k resistor
- ArduiBox Open enclosure set
- hook-up wire
- Arduino Uno, 101, and compatible



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### 3.1 Assembly of RS485 to the Breadboard (Hardware UART)

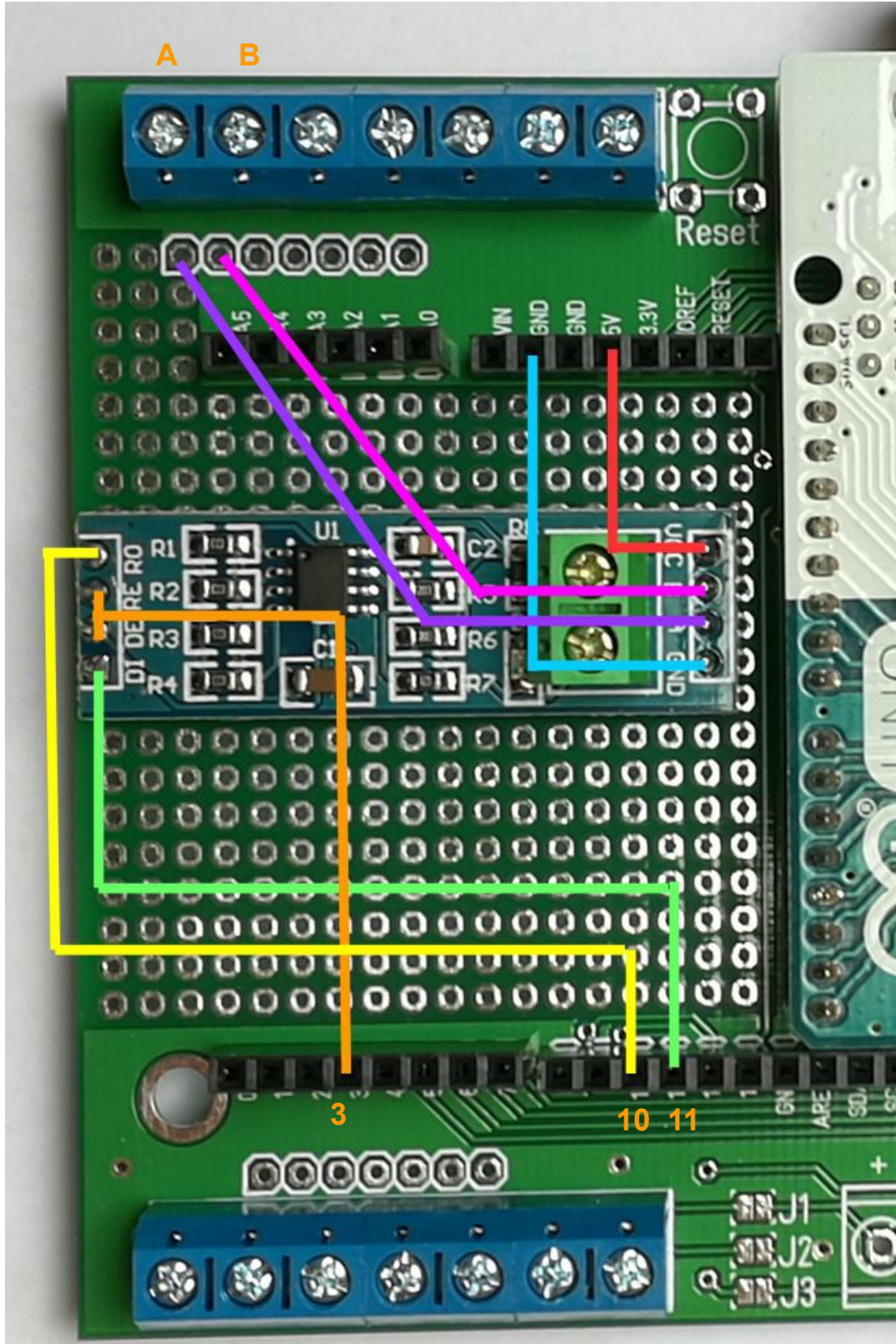




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### 3.2 Assembly of RS485 to the Breadboard (Software UART)





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### 3.3 Additional information

RS485 in this example we show is Half-Duplex. This means it can send or receive on the same wires, but in only one direction at a time. DE (data enable) and RE (receive enable) jumpered together and connected to an standard IO pin.

In the example for hardware UART (3.1) the internal UART of the Arduino is used. Its not possile to use the USB connection and the Hardware UART at the same time. The second example use the Software Serial library that is provided with the Arduino IDE. This allows use of almost any Arduino pins for Serial Data connections, and allows simultaneous use of the standard Arduino USB Serial communications.

## 4 Software

Please visit this link for a detailed RS485 library for **hardware** uart:  
<http://www.gammon.com.au/forum/?id=11428>

Please visit this link for a detailed RS485 library for **software** uart:  
<https://arduino-info.wikispaces.com/SoftwareSerialRS485Example>