



AN750

Micro64/128

Using the RS485/RS422/RS232A Serial Port

11/3/04

**Introduction:** This application note demonstrates how to use the RS485/RS422/RS232A serial port (USART1) for the Micro64/128 using the BASCOM AVR compiler.

**Background:** Micro64/128 can communicate with other serial devices at up to 230.4 kbps. Usart1 can be connected in one of three configurations: RS-232A, RS422, and RS-485. Please see the appendix of the Micro64/128 data sheet for further details.

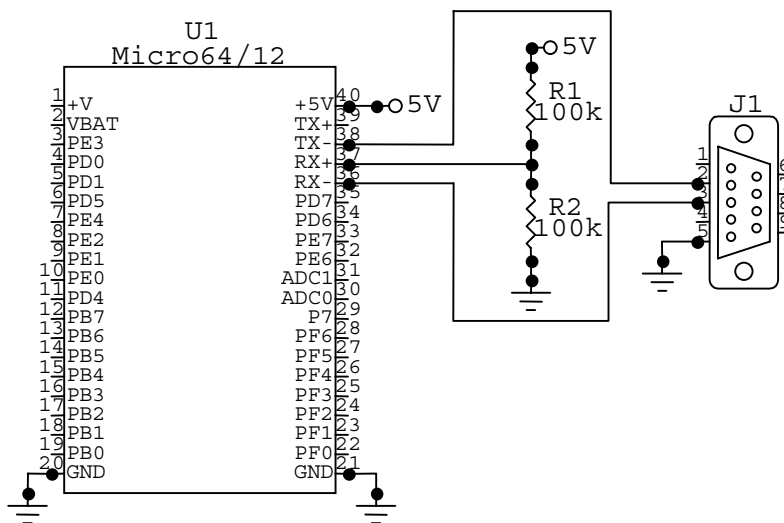


Figure 1: RS-232 Connection

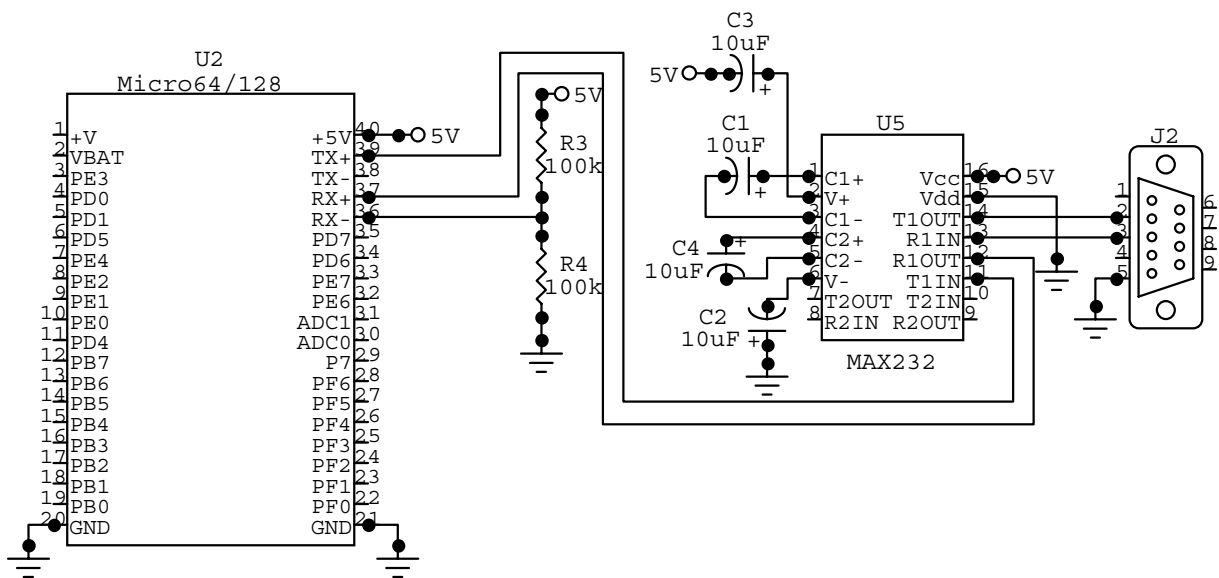


Figure 2: RS-232C Connection

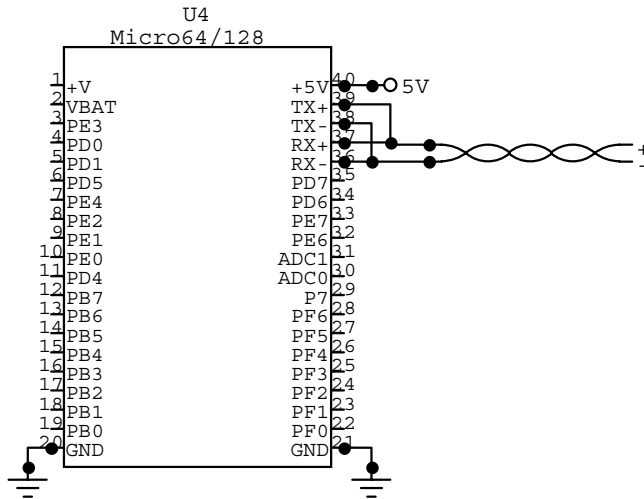


Figure 3: RS-485 Connection

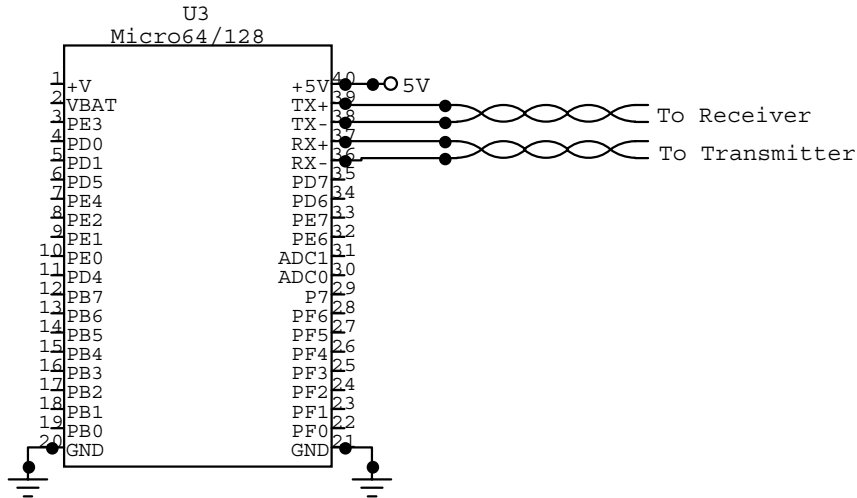


Figure 4: RS-422 Connection

**How it works:** In BASCOM-AVR USART1 needs to be configured before you can use it. The program listing demonstrates how to set-up USART1. If the user is going to use USART1 then they must also make PORTD.6 an output and make it high in order to enable the transmitter and low to disable the transmitter. If the Micro64/128 is not on an RS-485 network then the user might want to just leave the transmitter enabled. The program in the Program Listing section enables the transmitter before it transmits and then disables it after it is done transmitting.

**Program Listing:**

```

*****
'Project : Demo program on how to print Out of Micro64's Serial Port USART1
'Company : Micromint, Inc.
'
*****
$regfile = "m64def.dat"
'$regfile = "m128def.dat"
$baud1 = 9600

'Configure the serial port.
Config Com2 = Dummy , Synchron = 0 , Parity = None , Stopbits = 1 , Databits = 8 , Clockpol = 0
'Configure PORTD.6 as an output and the rest of the port as inputs.
Ddrd = 64

'Open the serial port
Open "com2:" For Random As #1

```

```
Dim B As Byte
Dim C As Byte
Dim D As Single
```

```
Do
```

```
Portd.6 = 1           'Enable the transmitter
Waitms 10            'Wait for the transmitter to settle.
```

```
Print #1, "Please enter a whole number from 1 to 255 and press enter!"
```

```
Print #1,
```

```
Portd.6 = 0           ' Disable the transmitter
```

```
Input #1, B
```

```
Portd.6 = 1           'Enable the transmitter
```

```
Waitms 10            'Wait for the transmitter to settle.
```

```
Print #1, "Please enter a whole number from 1 to 255 and press enter!"
```

```
Print #1,
```

```
Portd.6 = 0           ' Disable the transmitter
```

```
Input #1, C
```

```
D = B / C             'enable the transmitter
```

```
Portd.6 = 1
```

```
Waitms 20
```

```
Print #1, "Wait for the transmitter to settle."
```

```
Print #1, B ; "/" ; C ; "=" ; D
```

```
Print #1,
```

```
Portd.6 = 0           ' Disable the transmitter
```

```
Loop
```

```
Close #1
```

```
End
```