Serial UART Interface for 16x2 LCDs

Sunrom Part#
1425

Allows you to interface any 16x2 LCD by UART of microcontroller or USB-TTL adapter and send serial characters for display over LCD.

User's Manual

Doc Version: 1
10-May-16

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http://www.sunrom.com/m/1425

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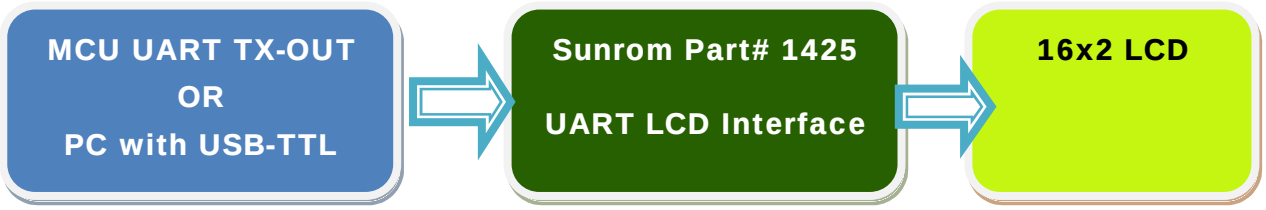
Introduction

The PCB gets connected to back of standard 16x2 LCD and provides a serial UART interface.

Typical Application



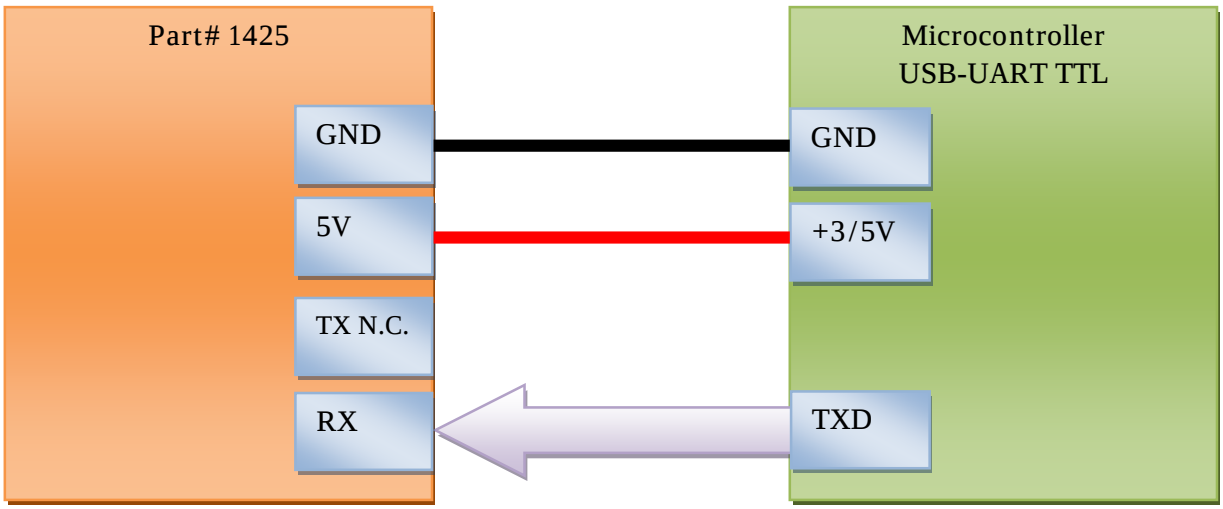
Features

- 5V Operating voltage
- Standard UART interface, TTL(3-5V) logic level.
- LEDs for data and power indication
- Stable, small size, easier mounting.
- On board jumper to select 9600 or 115200 baud rate
- LCD contrast adjust preset
- High speed microcontroller on board.

Interfacing with Microcontroller or USB-UART TTL

If you want to operate with microcontroller then it's very simple to connect just 3 pins of modules like below.

If you want to operate with a PC then use a typical USB-UART of TTL level(not RS232) with same connections like below.



Specifications

Parameter	Value
Working Voltage	5V DC regulated power supply
Current Consumption	100 mA
Serial Baud rate	9600 bps or 15200 bps depending on jumper setting
Baud rate format	8-N-1; 1 Start bit, 8 Data bits, 1 Stop Bits, No Parity
On Board controller	STM8S003F3

Module Pin Details

Pin	Details
GND	Common Ground
VCC	Regulated positive power input 5V DC
TX	This pin is not used in this application and can be left floating
RX	Receive Input - UART TTL level - Connects to TXD pin of microcontroller

Interfacing Packet Format

We have kept interfacing format as simple as possible.

LCD Line Identifier	Message	Terminator
'1' or '2' ASCII character	Up to 16 ASCII characters	10 or 13 decimal which is ASCII key code for Enter Key
Status LED comes on during the packet reception		

To display a text for example **Welcome** on 1st Line send serial data like **1Welcome<Enter>**

To display a text for example **Test** on 2nd Line send serial data like **2Test<Enter>.**

1<Your Message><Enter>
2<Your Message><Enter>

Enter key code can be 10 or 13 decimal which is ASCII standard characters.
In your microcontroller code it can typically look like
printf("1Welcome\n");
printf("2Test\n");

If you send message which is greater than 16 then the module trims and ignores it which displaying only the first 16 characters.

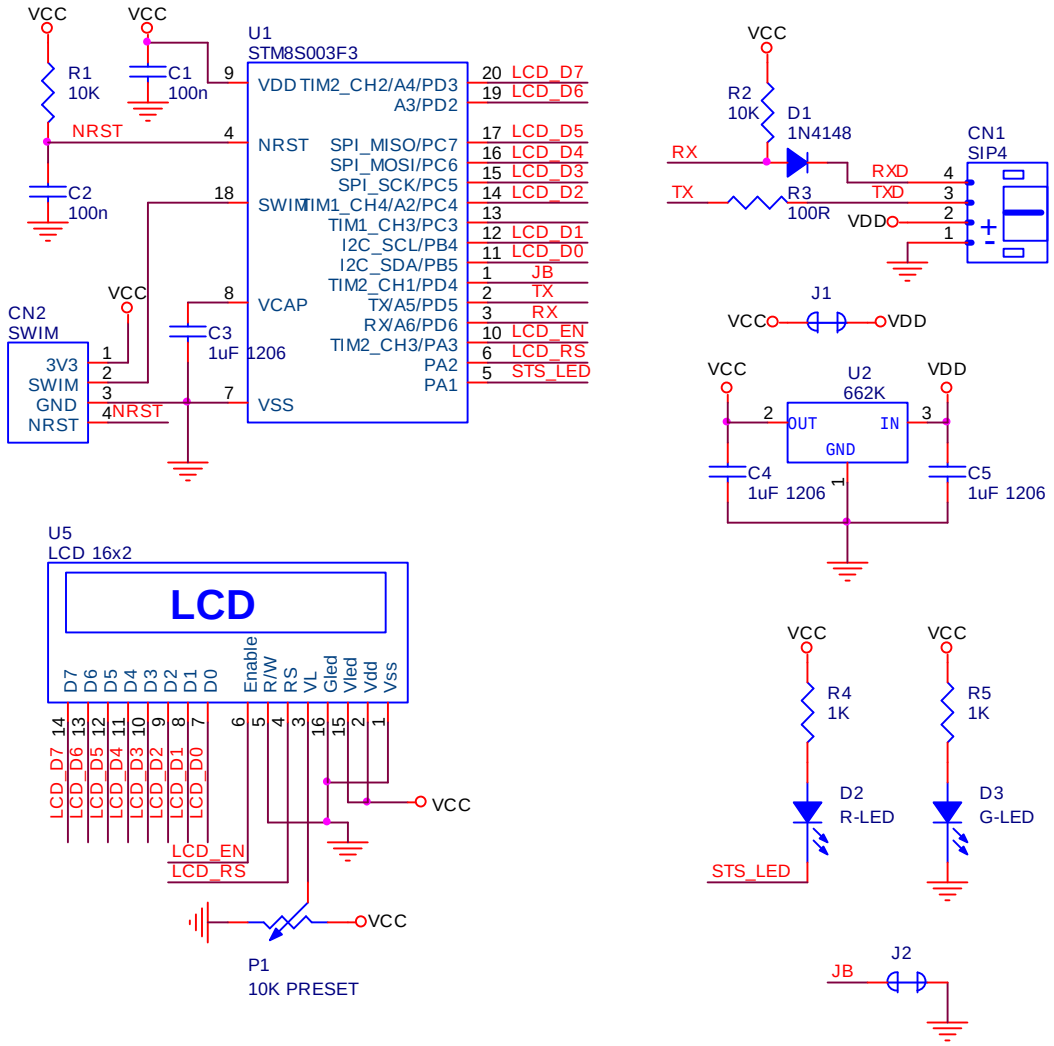
Status LED

There are two LEDs on board, one is power LED which is Green in color and comes on as soon as given power. The other LED is status LED which is Red in color which comes on when it gets valid serial data packet. Status LED comes on as soon as Line ID is received and goes off as soon as enter key code is received.

Board Schematic

J1 is mounted on the PCB that connect input VDD(5V) to board VCC that bypass the U2 which is a 3V regulator IC, which is not used in the application since most 16x2 LCDs are 5V operated.

We can also provide the U1 pre-programmed for your application integration.



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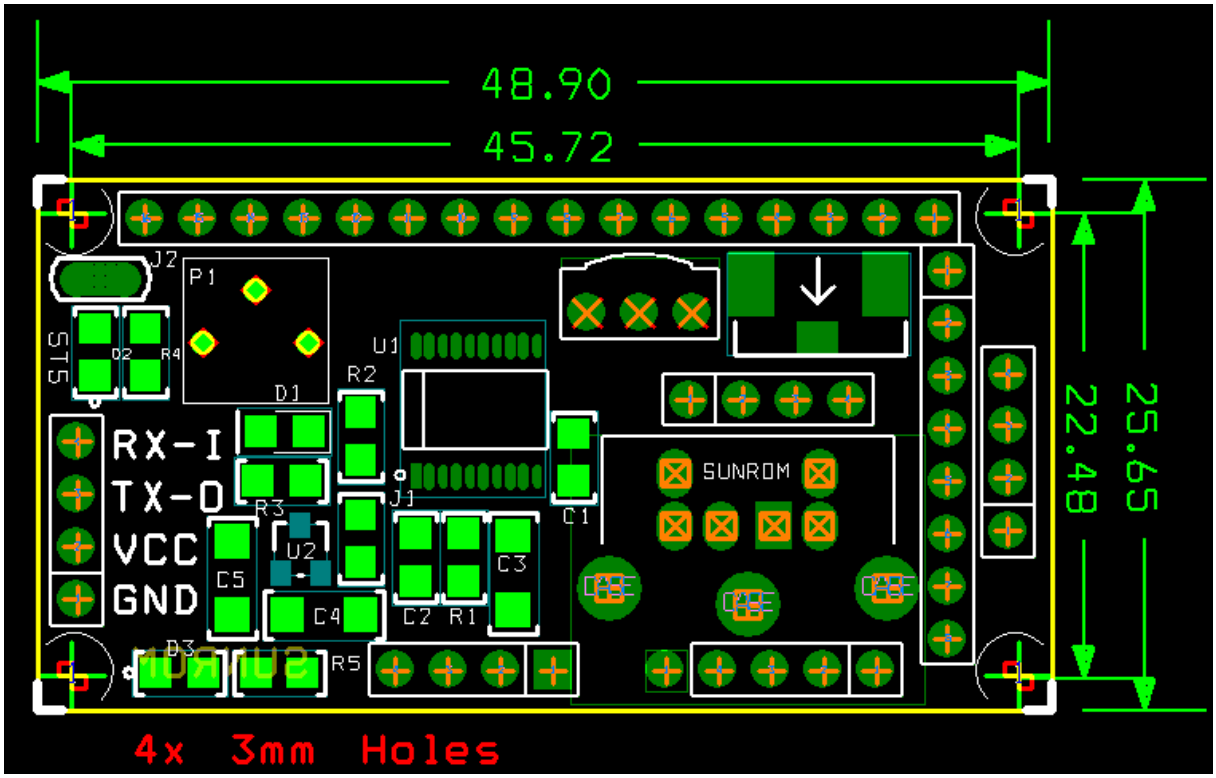
Title Serial LCD		
Code 1425		Rev 1
Date: Tuesday, May 10, 2016	Sheet 1 of 1	

Baud Rate Setting Jumper

There is a PCB jumper J2 on board on bottom side of PCB. We provided it open condition which means 9600 bps baud rate. You can short it with a soldering iron, if you want 115200 bps baud rate for module.

Product Dimensions

Board Dimensions in mm



Support

Sunrom Electronics offers **free technical support (www.sunrom.com/contact)** for customers, until the end of the product's lifetime, so if something goes wrong, we're ready and willing to help!

Technical Support is available by email only and scope is limited to problem faced during use of the use of product and does not cover end user programming and hardware troubleshooting.

Each product passes through strict quality checks before it reaches you. So if something is not working out right, the first thing to doubt is the connections or programming of your hardware.

Disclaimer

Sunrom Electronics assumes no responsibility or liability for any errors or inaccuracies that may appear in the present document. Specification and information contained in the present schematic are subject to change at any time without notice.