SILICON CRAFT

SC1602MBM is a Master Modbus LCD that is programmable to read and display data from any Modbus Slave device.

It reads up to 4 Bytes data from register 3xxxx or 4xxxx.

- RS485 or RS232 communication option
- Programmable baud rate and parity bit.
- Max. display value : 999,999
- Programmable data types : 16 bits Unsigned Integer, 16 bits Signed Integer, 4 Digits BCD, 6 Digits BCD or 32 bits Unsigned Integer.
- Programmable polling time 0.1 s to 25.5 s
- Response timeout : 50ms
- Programmable fixed decimal point (d.ddddd , dd.dddd, ddd.ddd, dddd.dd or ddddd.d)
- Programmable fixed display text
- Configuration method: MODBUSMasterLCD software.
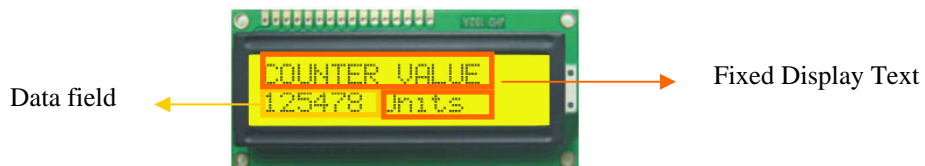
The Data Field and Text Display Area

The data field is the area on the LCD where the received data will be displayed. It can be configured to anywhere on the 16x2 LCD. The width of the data field is also programmable.

Fixed text area is the text that is permanently displayed after power up. It is programmable.
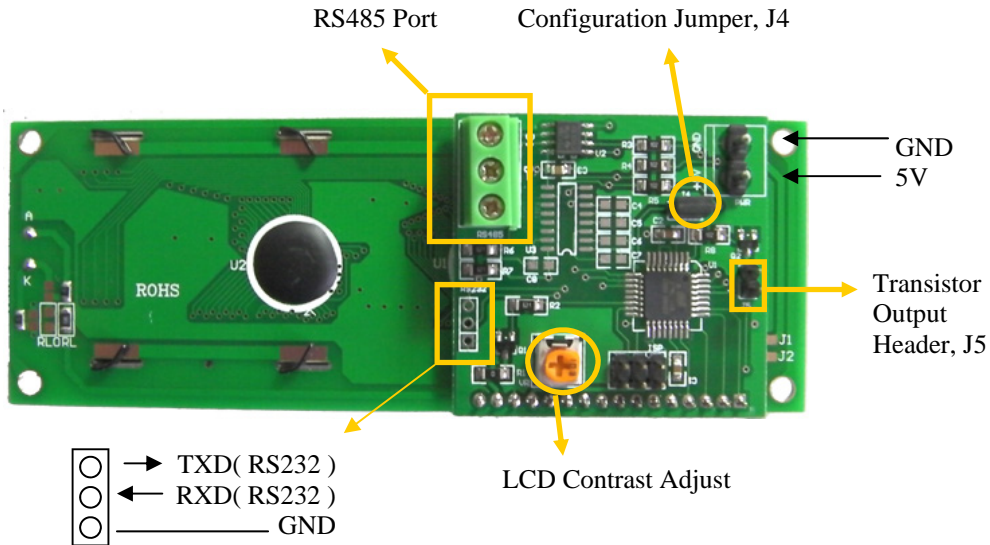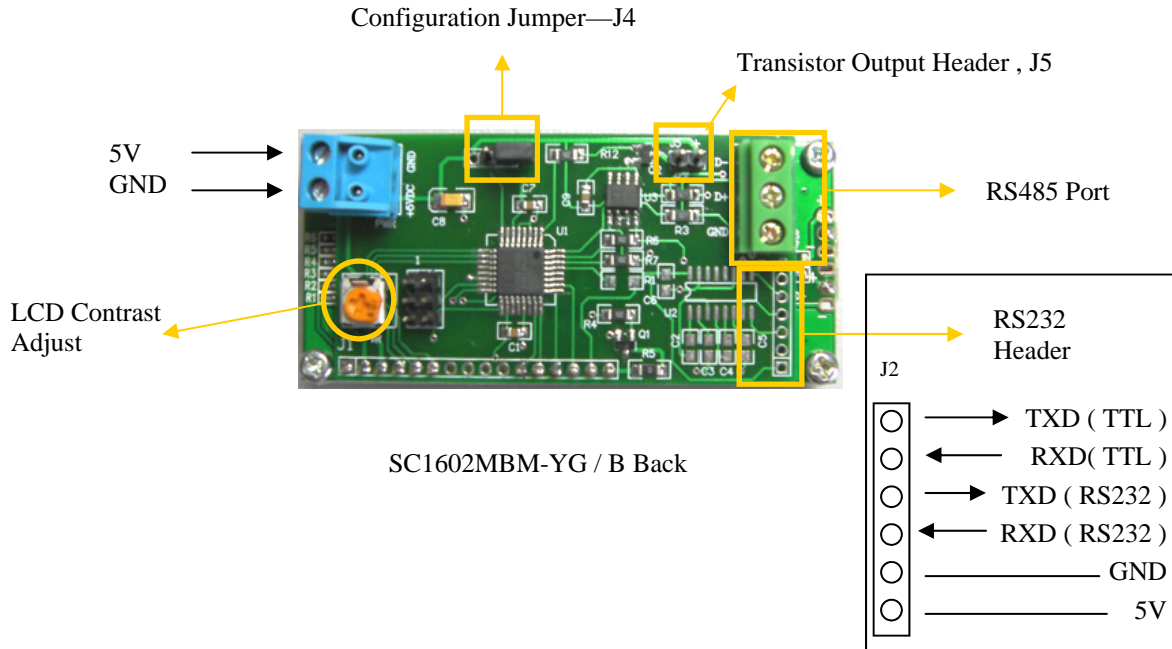
Display Option

SC1602MBM-YG   SC1602MBM-B   SC1602MBM-LC-YG
(Double Character Size)

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Connecting the LCD

Configuration Jumper—J4

Transistor Output Header , J5

5V
GND

RS485 Port

LCD Contrast
Adjust

SC1602MBM-YG / B Back

RS232
Header

J2

TXD (TTL)
RXD(TTL)
TXD (RS232)
RXD (RS232)
GND
5V

RS485 Port   Configuration Jumper, J4

GND
5V

ROHS

Transistor
Output
Header, J5

J1
J2

TXD(RS232)
RXD(RS232)
GND

LCD Contrast Adjust

SC1602MBM-LC-YG Back View

Configure the LCD

Download and install MODBUSMasterLCD software from our website at www.siliconcraft.net/download.htm

Select the correct COM port and module. (SC1602MBM)

Close J4 jumper and power on the LCD. It should displays "**SETTING MODE**" on the first line.
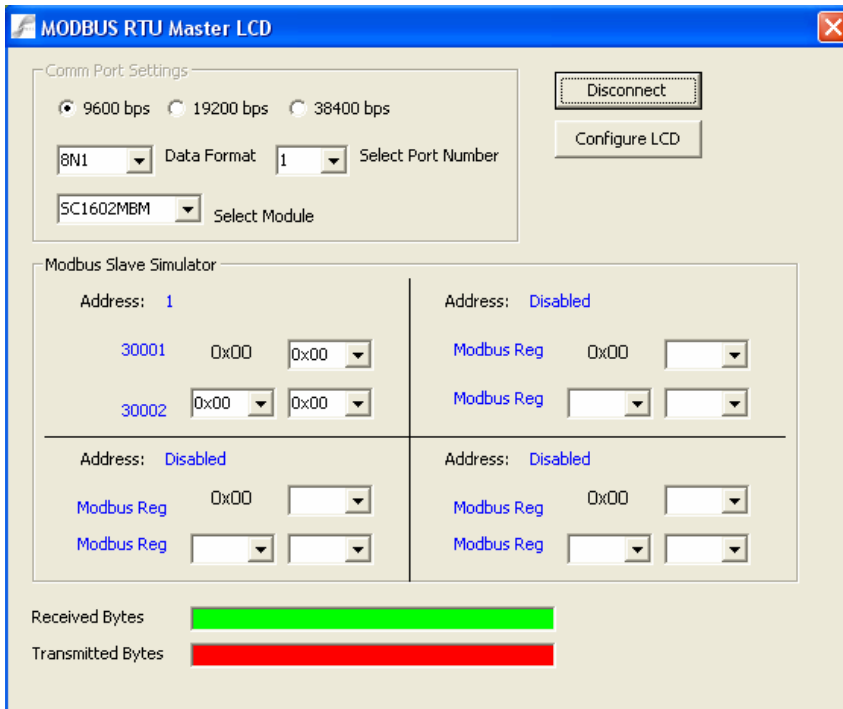
Click on the "Connect button" and then the "Configure LCD" button to bring up the configuration window.
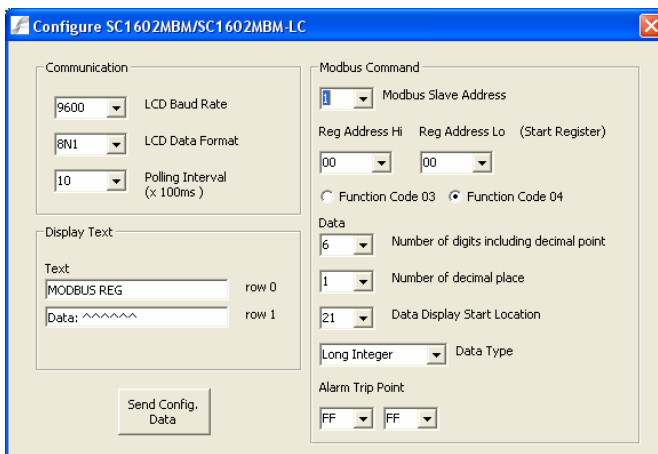
Configure the LCD to transmit the modbus command.

[Slave ID] [Function Code] [Start Register Address Hi] [Start Register Address Lo]
[No. of Points Hi] [No. of Point Lo] [CRC Hi] [CRC Lo]

Polling interval is the frequency of which the command will be transmitted by the LCD.

Data Display Start Location is location on the LCD screen where the most significant digit of the received data will be displayed.
0 is the top left corner
31 is the bottom right corner

At the text input area , key in the text to be displayed. ^^^^^^ is the data field area.
Example :
^^^^^^ will be 6 digits wide display area
^^^^.^ will be 5 digits wide with one decimal place

After you had keyed in all the parameters, click on "Send Config Data" .
If the data is received correctly by the LCD, it will display "**SETTING DONE**".
If there is error during transmission, it will displays "**SETTING ERROR**".
When the configuration is done properly, power down the LCD and remove jumper J4.

MODBUS Command

[Slave Address] [Function Code] [Start Address Hi] [Start Address Lo] [No of Points Hi] [No of Points Lo] [CRC Hi] [CRC Lo]

Above is the structure of the MODBUS command transmitted by the LCD every x X 100ms.

Supported function code is 03 and o4 only.

No of points is either 1 or 2 depending on how you want the LCD to interpret the received data.

Supported data types are:

Unsigned integer : 2 Bytes (No of Points = 1)   0 to 65535
Signed integer : 2 Bytes (No of Points = 1)   - 32768 to 32767
4 Digits BCD : 2 Bytes (No of Points = 1)   0 to 9999
6 Digits BCD : 4 Bytes (No of Points = 2)   0 to 999999
Long Integer : 4 Bytes (No of Points = 2)   0 to 999999

Note that maximum display value is 999999. If the data received is more than 999999 the LCD will display " —————- " on the data field.
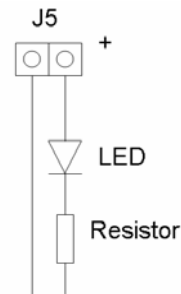
Alarm Trip Point

This value control the transistor output on J5 pin header. If the data received is greater than Alarm trip point value, the transistor will be turned on.
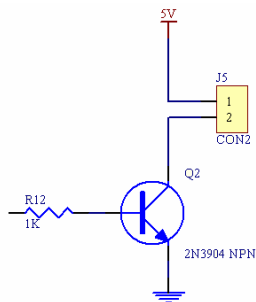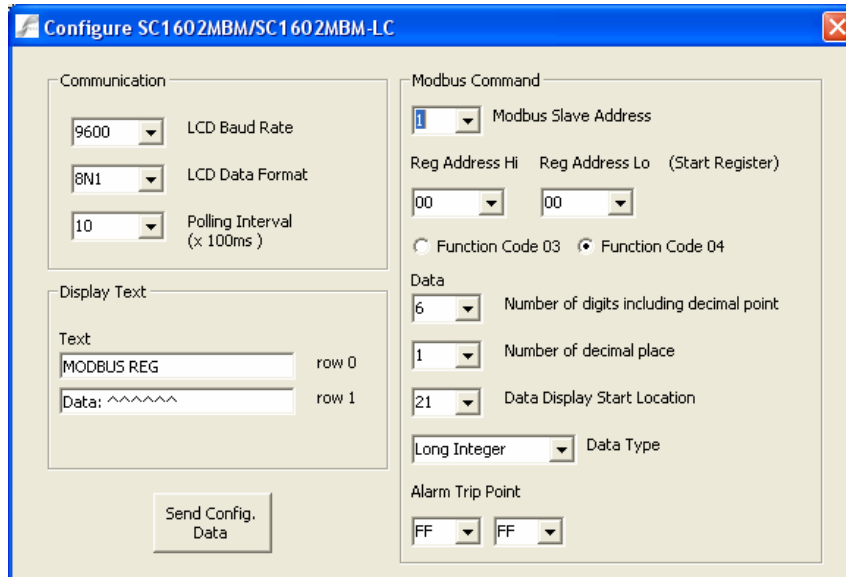

The transistor output schematic diagram and connection to a LED example.

Max sink current : 200mA

Configuration Example

LCD will transmit this MODBUS command every 1 second (10 x 100 ms) with 9600, 8N1 data

0x01 , 0x04 , 0x00, 0x00 , 0x00, 0x02 , [CRC Hi] [CRC Lo]
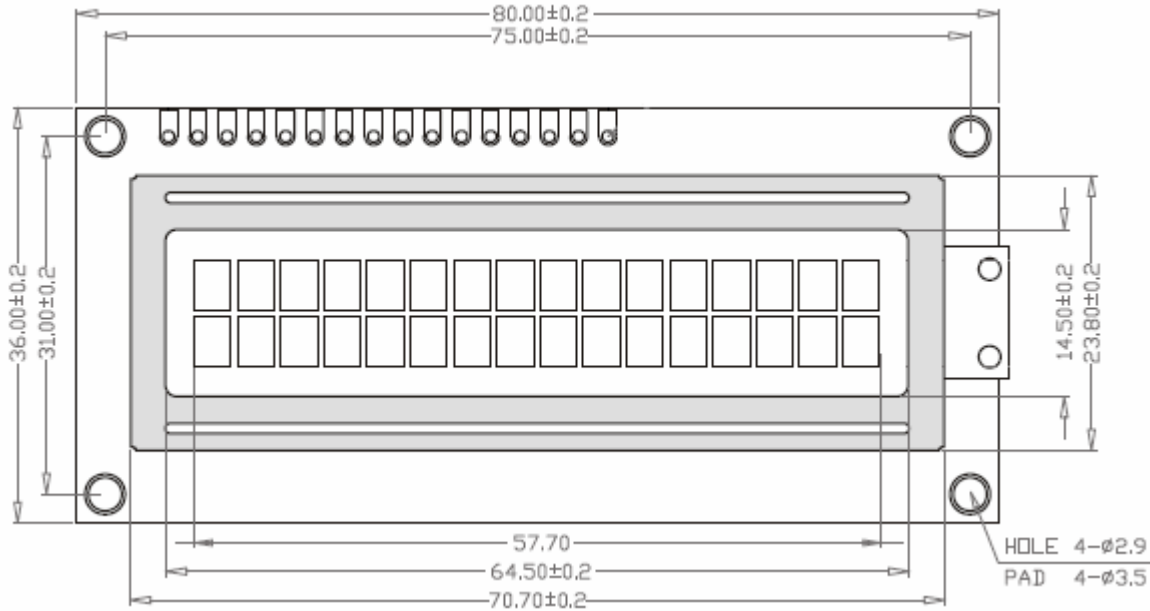
If the response from the Slave Device address 1 is

0x01, 0x04 , 0x04 , 0x00 , 0x01, 0x03, 0x23 , [CRC Hi] [CRC Lo]

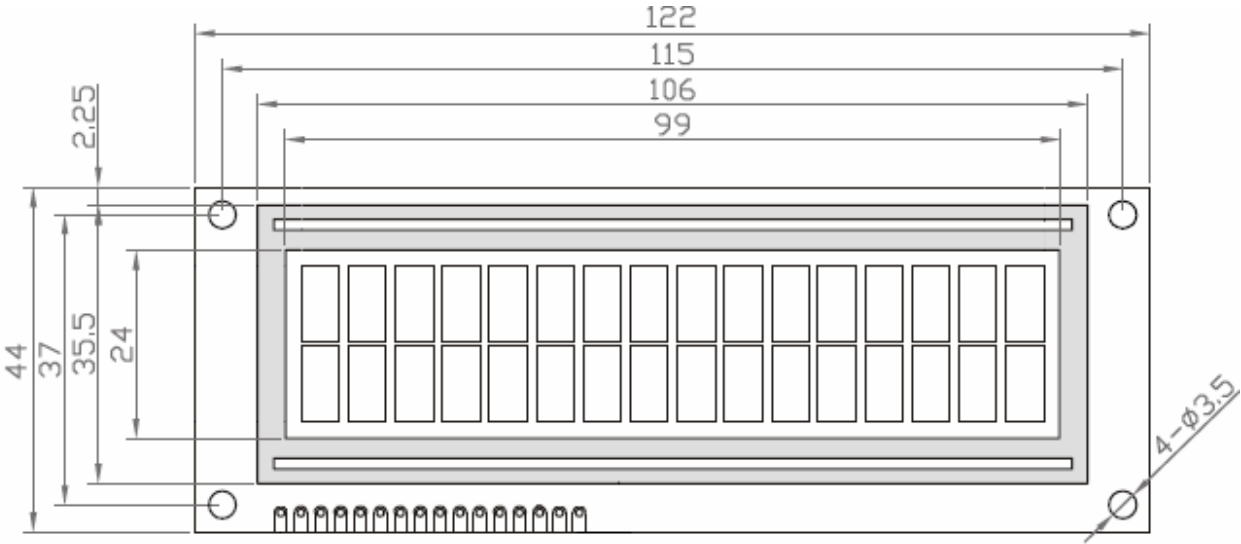The received data is 0x00010323 (Hex) or 66339 (Decimal)
The LCD display will be like :

Mechanical Dimension (millimeter)

Standard Size Version

Large Characters Version
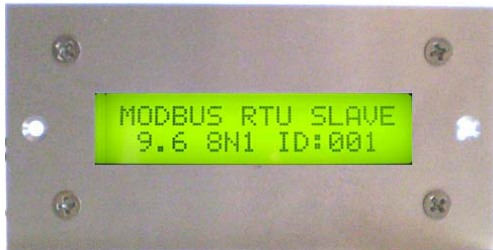
Specification

Power Supply: min 4.5VDC max 5.5VDC (5.0VDC nominal)
Current Consumption: 100mA typical (Standard Size Version)
                              250mA typical (Large Character Version)
Operating Temperature: 0°C to 50°C
Connection: Screw terminals accept 12 to 26 AWG
Non Volatile Memory Write Cycle: Min 100,000
Non Volatile Memory Data Retention: Min 100 years
Output Maximum sink current: 200mA

LCD
View Angle: 6 o'clock
Characters: 16 x 2
View Area: 64.5mm x 13.8mm (Standard Size Version)
              99 mm x 24 mm (Large Character Version)
Backlight: Yellow Green or Blue LED

Available Accessories (Sold Separately)

Aluminum Front Panel Mounting Plate   RS232 cable , DB9 Female to P1 Header