SC168MBM – 16x8 Characters MODBUS MASTER LCD

Product Description

SC168MBM is a programmable LCD that serve as MASTER RTU MODBUS device. It reads and display registers values from MODBUS Slave devices through its RS485 port.
The LCD can be configured as 1 page of 16 columns x 8 rows display or 2 pages of 16 columns x 4 rows displays.

16x4 configuration has a larger display characters. Pages are switch with a toggle button connected to the LCD.

Features:

- **RTU Master**
- **Support Function Code 03 and 04**
- **Programmable baudrate 9600,19200 or 38400 and parity 8N1 or 8E1**
- **8 Programmable variables display area (Datafield)**
- **16 or 32 bits data**
- **Support signed and unsigned integer**
- **Programmable decimal point insert**
- **Programmable fixed text display**
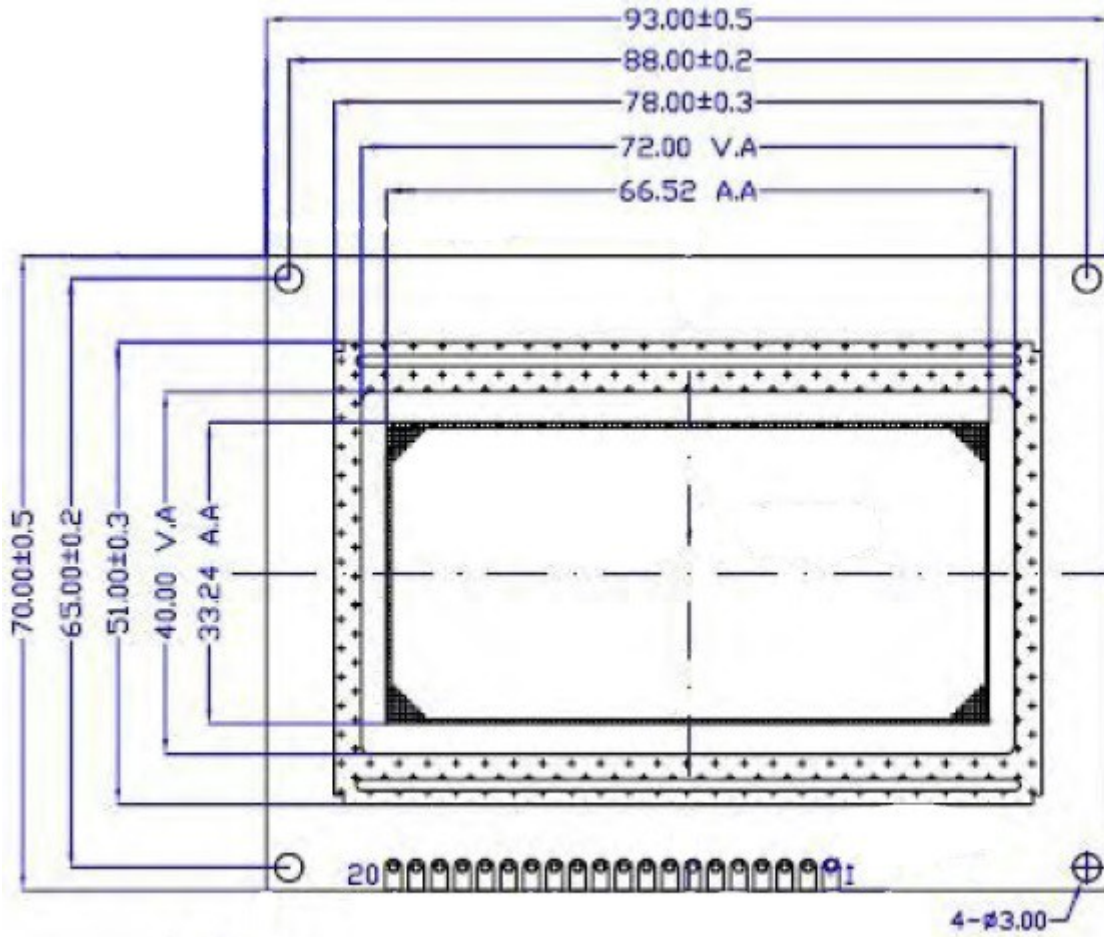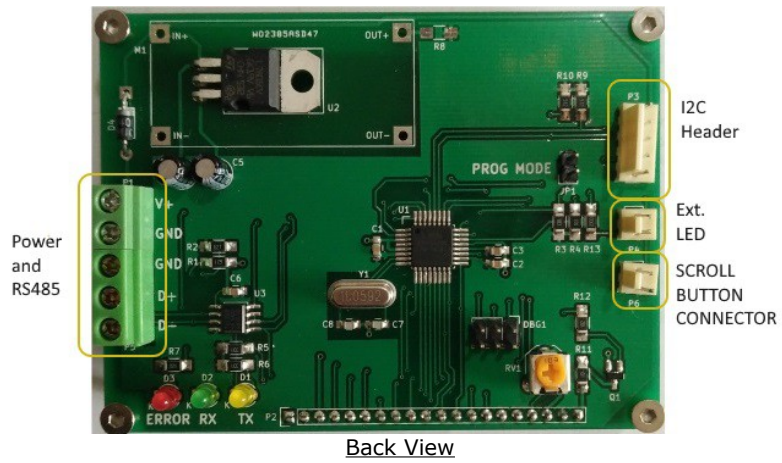- **Read up to two MODBUS Slave devices**
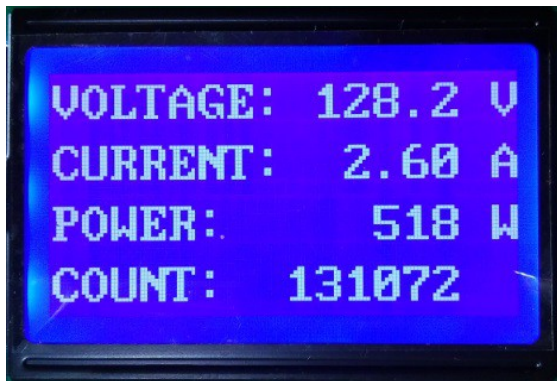
16x4 Configuration

16x8 Configuration

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I2C
Header

Ext.
LED

SCROLL
BUTTON
CONNECTOR

Power
and
RS485

Back View

LCD Dimension (mm) Active Area 66.52x33.24

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Setting Up The LCD

Configuration is done using SC168MBMApp software downloadable from www.siliconcraft.net/download.htm

Jumper JP1 need to be installed before power up in order to get the LCD into setting mode.
USB to RS485 converter is needed to connect computer to the LCD.

1. Setup MODBUS query command
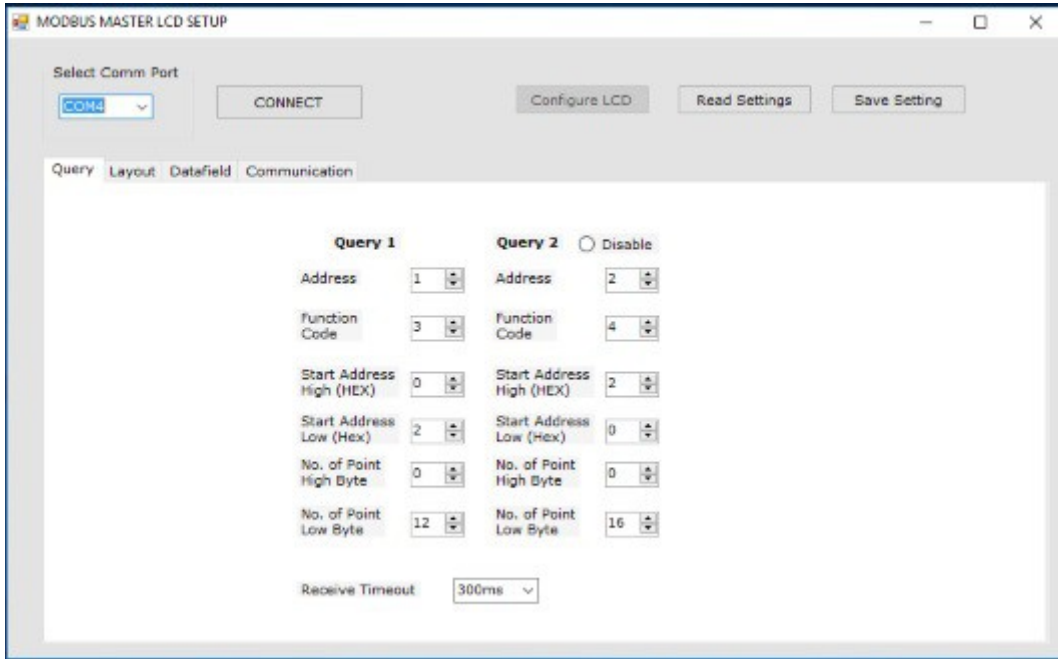
Up to two MODBUS queries are supported. Both can be for the same slave address or two differrent slave address.
If only one query is use, Query 2 should be disabled by clicking on the "Disable" button.

Maximum number of Point per query is 20. (20 continuous registers of 2 bytes each). If register range is more than 20 , then query 2 should be used with the same slave address.

Receiver timeout is the period in miliseconds than the LCD will wait for the slave to response to the query.

2. LCD layout design
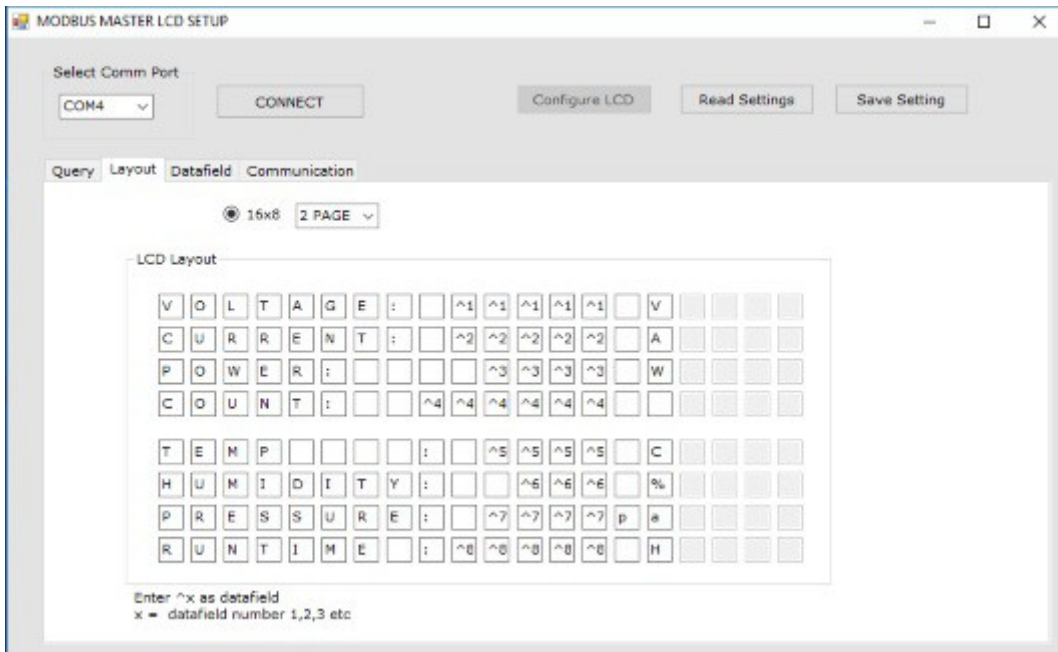
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Layout design defines how the LCD display area would look like. It consists of the text area and datafield area.
Choose "2 PAGES" for 16x4 configuration and "1 PAGE" for 16x8 configuration.
Suffix "^" denotes datafield area.

Example: ^1^1^1^1^1 defines datafield area number 1. This is the area where the read variable will be displayed.
Datafield 1 is defined as 5 digits wide.
Data type and register associated with it is defined in the next tab. (Datafield tab)

Take note that 5 digits display area incude the "-" sign and "." decimal point if any.

3. Define the datafield area
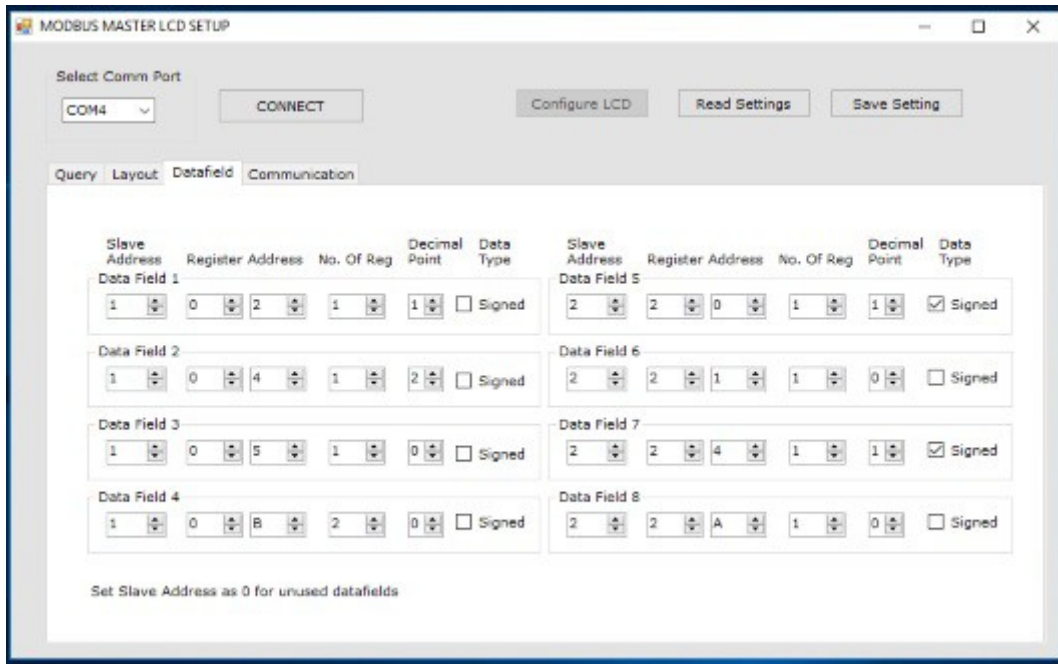
In this tab, datafield is defined. Unused datafield Slave Address should be set to 0 to disable it.
Register address should be set within the range defined in the query tab.

Example : Query 1 start address is 0002H and number of point is 12, so the registers range is 0002H to 000DH
All the Register Address for Slave Address 1 should be within this range.

No. of Reg. Defines whether the data is 16 bytes or 32 bytes.

Set the decimal point position if any. If no decimal point needed then set to "0"

Setting decimal point to "1" will insert decimal point 1 digit from the least significant digit (xxx.x)

If signed data type is ticked, "-" sign will be added if the received data is negative number.

4. Setting the communication parameters

Baudrate and parity is set here.

5. Send configuration to LCD.

When everything is set, you might want to save your Setting for later use. You can do so by clicking the Save Setting button.

Make sure the JP1 jumper is installed and correct COM Port is set. Connect the RS485 converter to the RS485 port. Power up the LCD. You should see

Setting Mode
Awaiting Inputs.

On the screen. Click "Connect" and then "Configure LCD"
If configuration file is successfully received, the LCD will display "Setting Done"

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Power down the LCD and remove jumper JP1.

<u>Operating Mode</u>

On next power up, "MODBUS Master" followed by the baud rate and parity is displayed for 2 seconds before the main page.

The LCD send query every second to the slave. TX LED blinks indicates the queries are send. If slave is connected, RX LED blinks when data is received.

Error LED lits up if no data or errorneous data is received after 10 tries.

Error LED status can also be extended external to the board via connector P4.

If 16x4 configuration is set, press Scroll Button connected to P6 to toggle between page 1 and 2.

Leading zero of received data will be blanked for display.

<u>**Electrical Specifications**</u>

Operating Voltage	Max	Nominal	Min
5V Version	5.5V	5.0V	4.5V
12V Version	15.0V	12.0V	9.0V
24V Version	30.0V	24.0V	7.0V

Operating Curent	typ. 55 mA
Operating Temperature:	0 to 50 C
Storage Temperature:	-10 C to 60 C
Operating Humidity:	90% RH