Modbus Slave Board

Low Cost & Industrial Grade Cabinets

Kamal & Co

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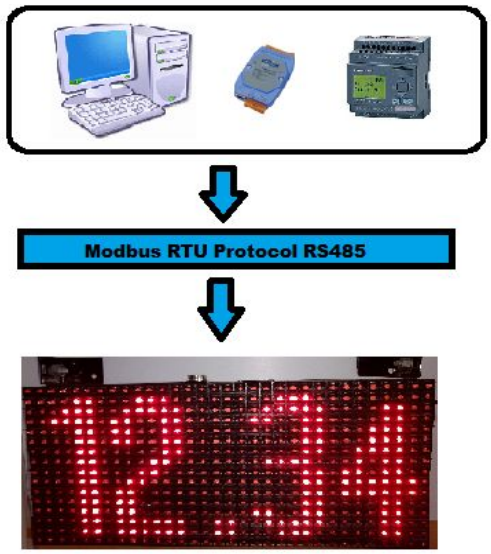
sales@factorydisplay.com

Description

Modbus Slave LED board allows PLCs and other automation equipment to display integer and floating point values over ModBus. The LED Board acts like a slave on the RS485 Bus. The baud rate and the slave ID can be set using provided ASCII protocol. Writing to the Integer register will display a Integer Value. Writing to the floating point register will display a floating point Value. This way you can display any type of data on the LED Board.

Please contact our sales for details about Modbus Master Boards(Modbus TCP uses Ethernet)..



Product Features

- Inputs – Modbus RS485 Interface .
- ModBus Slave Mode - PLC Writes to the Display.
- Two 16 Bit Registers , One for Integer Display One for Floating Point .
- Setup RS485 as per our ASCII protocol.
- Enables data written from a PC/PLCs to be displayed in real-time in a formatted message
- All units work off 230V AC mains (110V can be quoted for separately)

Notes and Options.

- All display are in Single colour.
- The Default supply is always in RED colour.
- Other colours on request at extra cost.
- RED colour Brightness is good for viewing both indoors and outdoors.
- For outdoor units – cost increases by 18% on base price.
- Titles and other fixed designs can be added to your specification.

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- Mounting provision
  - #1 – Top eye bolts – you can hang it from ceiling.
  - # 2 – Side clamps – you can bolt it to your supports.

Sizes and Models						
Model	Digit Height (mm)	No of Digits	Height (mm)	Width (mm)	Depth (mm)	Max Power (W)
ECON-IC-MODBUS-SLAVE-11	140	4	160	320	50	35
ECON-IC-MODBUS-SLAVE-12	140	8	160	640	50	65
ECON-IC-MODBUS-SLAVE-23	260	6	320	960	50	185
ECON-IC-MODBUS-SLAVE-24	260	8	320	1280	50	245

Technical Specifications	
VOLTAGE	230 VAC 1 PHASE MAIN POWER
OPERATING TEMP	5 TO 55'C
STORAGE TEMP	0 TO 65'C
RELATIVE HUMIDITY	UPTO 95% RH NON CONDENSING
DISPLAY	FULL MATRIX
LED COLOUR	RED
CHARACTERS TABLE	ASCII CHAR. (CODE 30H TO 5 FH)
PROTOCOL	MODBUS SLAVE PROTOCOL
INTERFACE BY	RS485 COMMUNICATION D+,D- ,GND
DATA TRANSFER RATE	9600 BAUD (8,n,1)
DEVICE LIMIT	MAX 32 DEVICES
OPERATING MODE	SLAVE MODE
DATA TYPE	INTEGER AND FLOAT

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ACCESSORIES	POWER CABLE 1 METER

Electrical Connections.

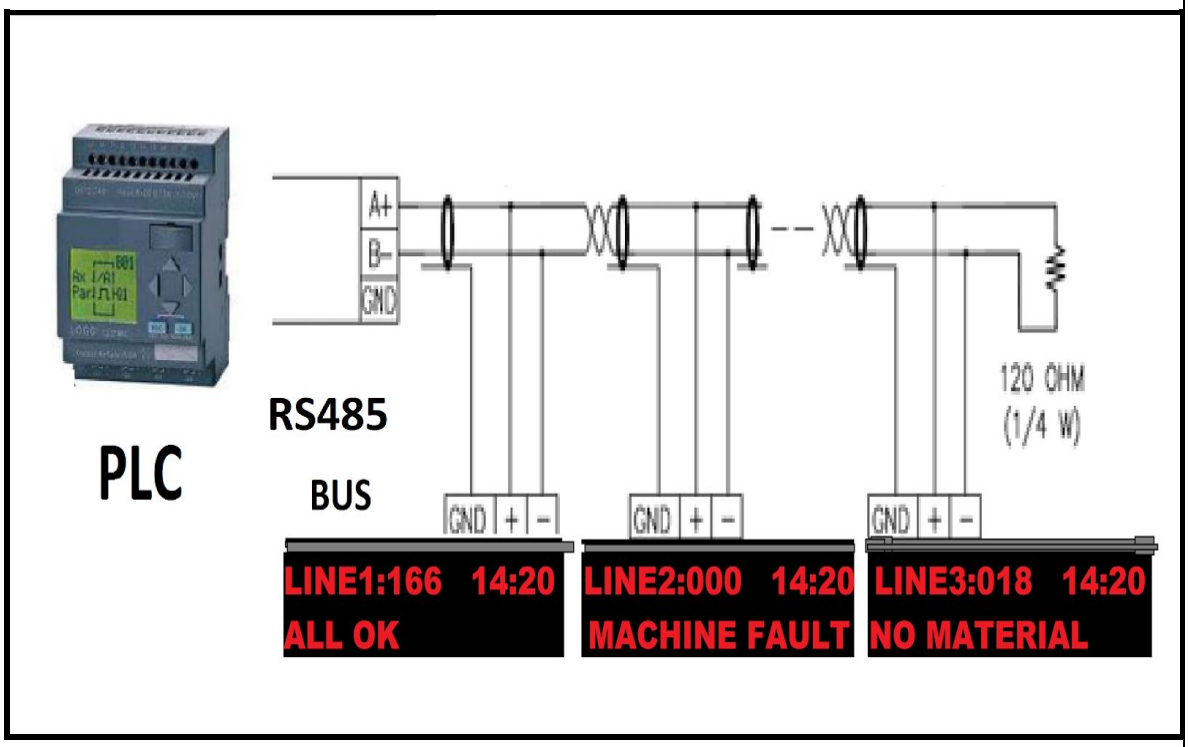
Hardware Installation for RS485 bus

1) Connect RS 485 Converter to PC

2) Connect 120 ohm Resistor at Converter Tx+ & Tx- pin and the end Clock D+ and D- pin. as shown in wiring diagram (Very Important)

3) Connect all units as slaves (looping) as per Diagram Tx+ to D+ and Tx- to D-

4) Use 2 core twisted pair cable with shield for better performance or Communication Cable CAT5 or CAT6 with shield and Ground one End of shield



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MODBUS Testing

The led board can also be used with modbus.

Use Function 03 -> Write Single register to write to Each Register.

Displaying 16 bit Integers - Register Length = 1 => Byte Length =2

Send number to addr 0 to display as unsigned
Send number to addr 1 to display as signed

1)	Address	40001	(0)	-> Unsigned 16 Bit Number
1)	Address	40002	(1)	-> Signed 16 Bit Number

Displaying 32 bit Integers - Register Length = 2 => Byte Length =4
Send number to addr 4 to display as long integer (32bits)

Displaying 32 bit floats - Register Length = 2 => Byte Length =4

Use Function 16 -> Write Multiple register
Address => 40001 Address (0) -> Register Length (2) -> Float

Displaying 64 bit double - Register Length = 4 => Byte Length = 8
Address => 40001 Address (0) -> Register Length (4) -> Double

The RS232 / RS485/LAN should be connected to the board and a terminal program like Hyperterminal,TeraTerm ,putty or RealTerm should be used.The Board uses 9600 8,n,1 Setting.

Packet Format

Start of Packet SOP => [
End Of Packet EOP =>]

[ID Command Data CRC]

ID (2 chars) is the ID of the board default is 01
Command (1 char) is the command character which defines the function.
Data (n chars) is the data associated with the command.
CRC (2 chars) is the CRC for the data packet. To ignore CRC provide XX.

Command	Description	Example

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Set Device ID	This command sets the device ID when multiple devices are connected. Default device will be 01.	**[ID ZD DD CRC]** DD-0123456789012345678 9 Ex: **[01ZD02XX]** **[01ZD10XX]**
Set Brightness	This command is used to set the brightness of the led display.Where Brightness can be from 0-9.	**[ID ZH N CRC]** Ex: To set minimum brightness **[01ZH1XX]**
Set Number of Decimal Points to display	This command is used to set the number of decimal points to the display in modbus data.	**[ID D D CRC]** D-0123456789 Ex: To set two decimal points **[01D2XX]**
Set Number of Digits to display	This command is used to set the number of digits to the display in modbus data.	**[ID F D CRC]** D-0123456789 Ex: To set four digits to display **[01F4XX]**
Set Display Leading zero	This command is used to set the leading zero in the display	**[ID E D CRC]** Ex **To set leading zero off** **[01E0XX]** **To set leading zero on** **[01E1XX]**
Set Display Type	This command is used to set the display type UNSIGNED INT16 - 1 SIGNED INT16 - 2 LONG32 - 3 FLOAT - 4 DOUBLE - 5	**[ID Y D CRC]** D-12345 Ex: **[01E1XX]**

Use the Modbus software to check the unit with following images
Set the connection details like Port,Baud rate,Word length,Parity,Start & Stop bit etc..
Set the Modbus protocol type.

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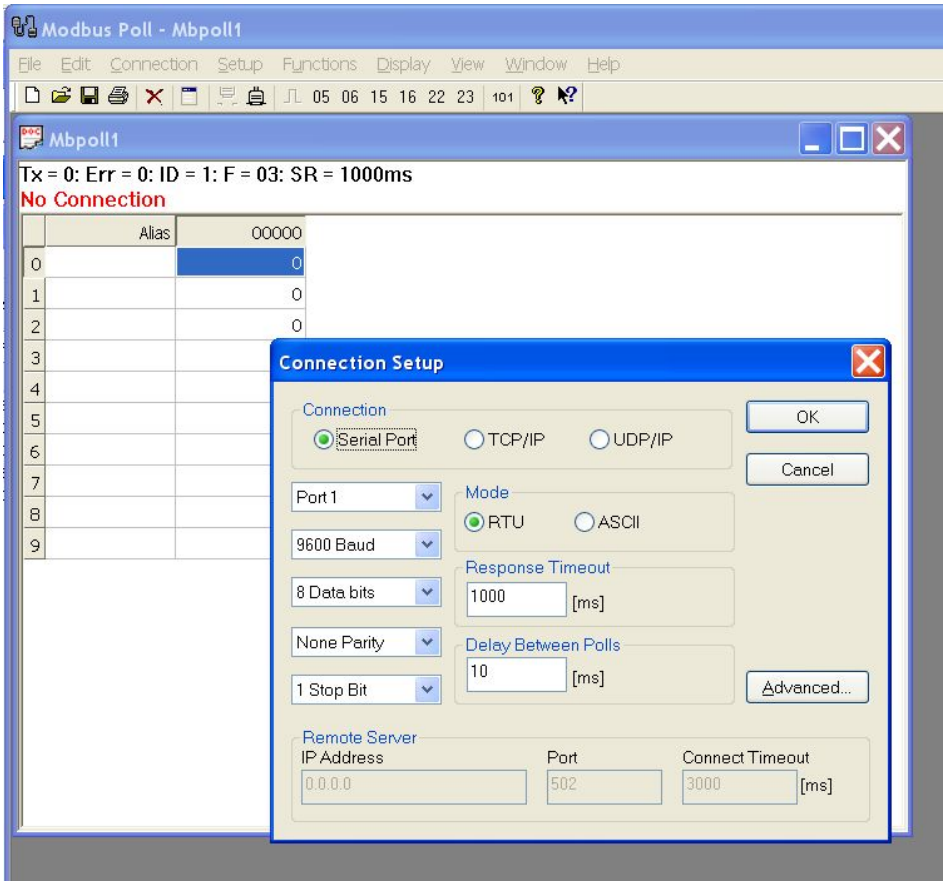

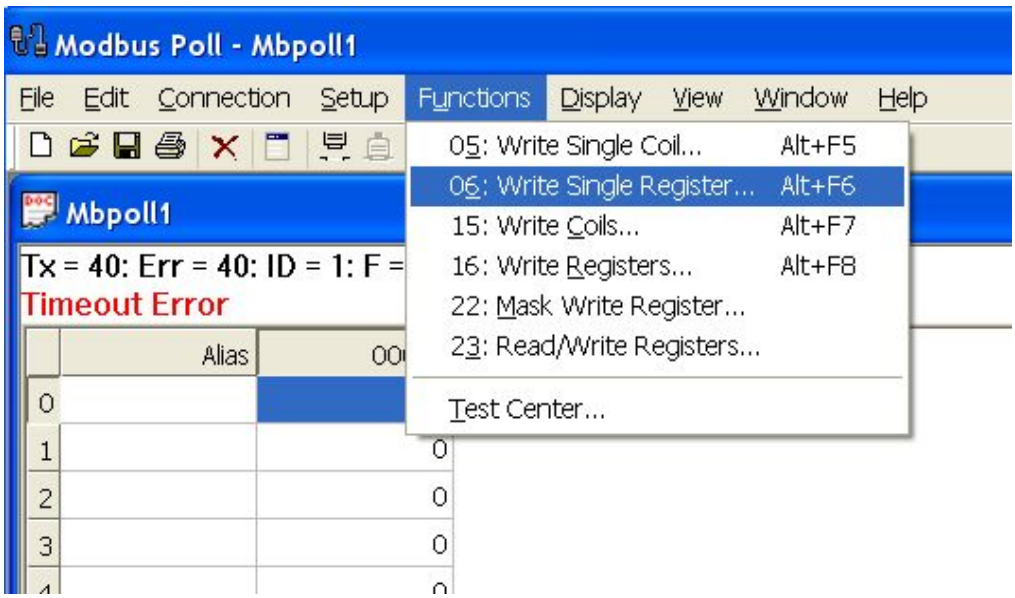

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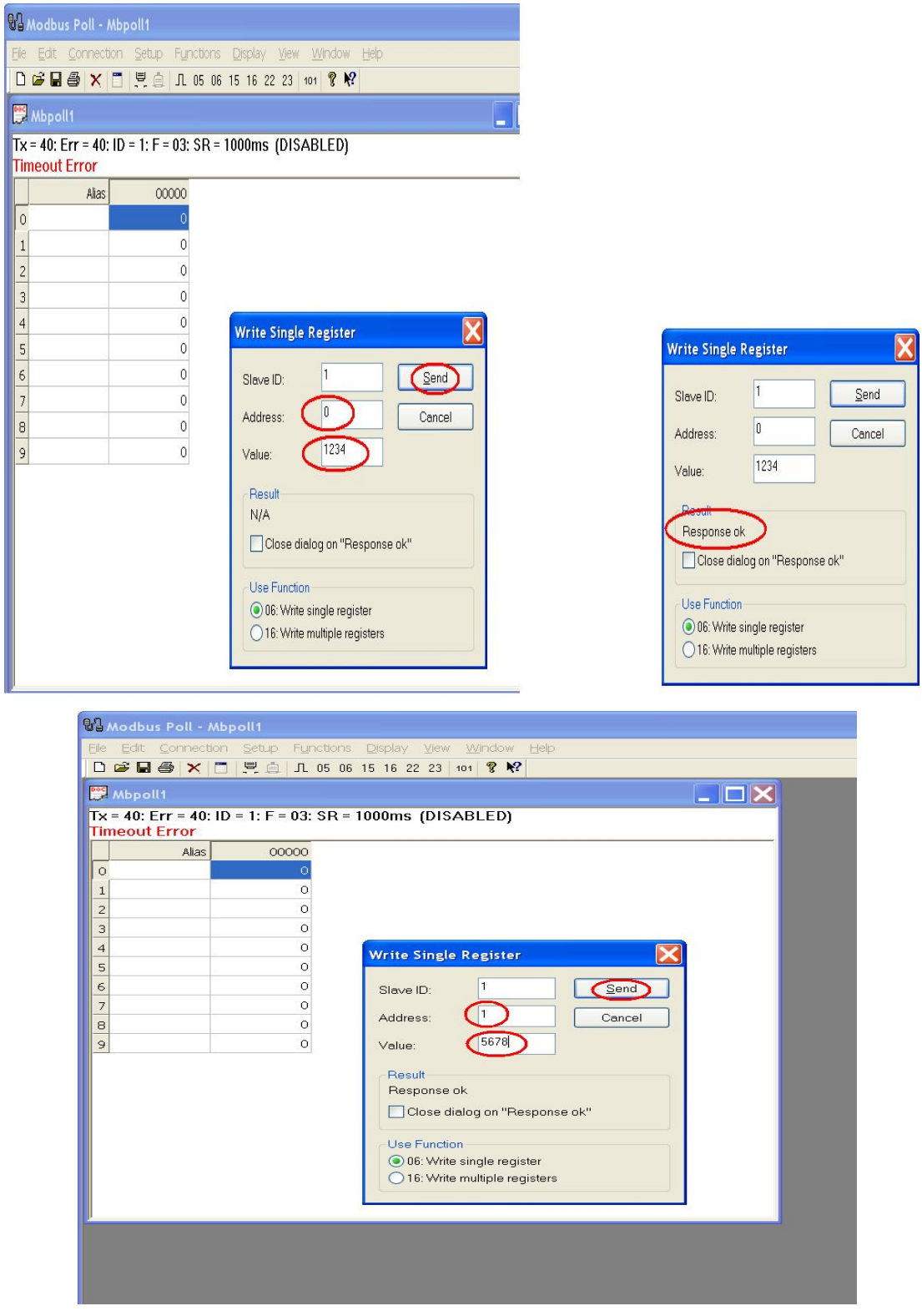

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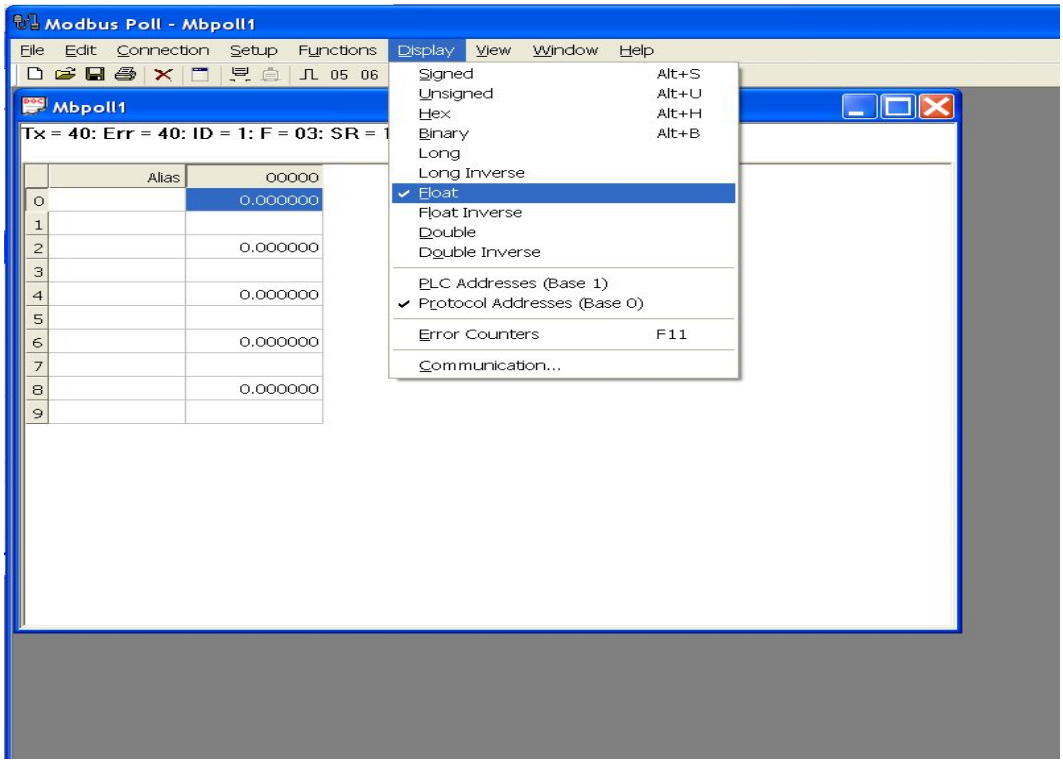

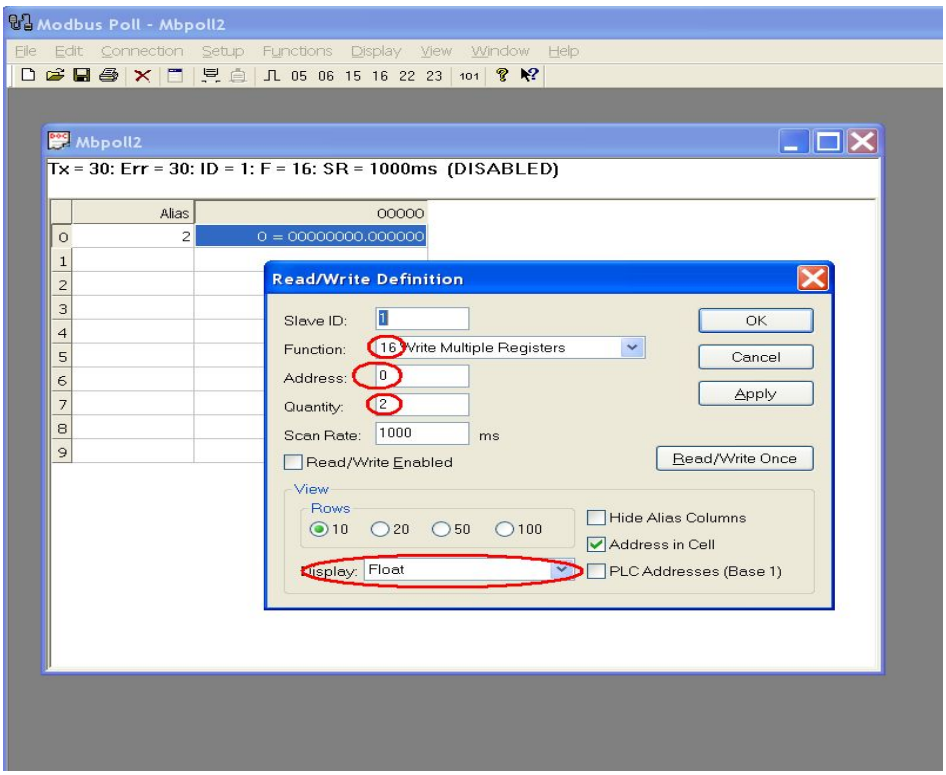

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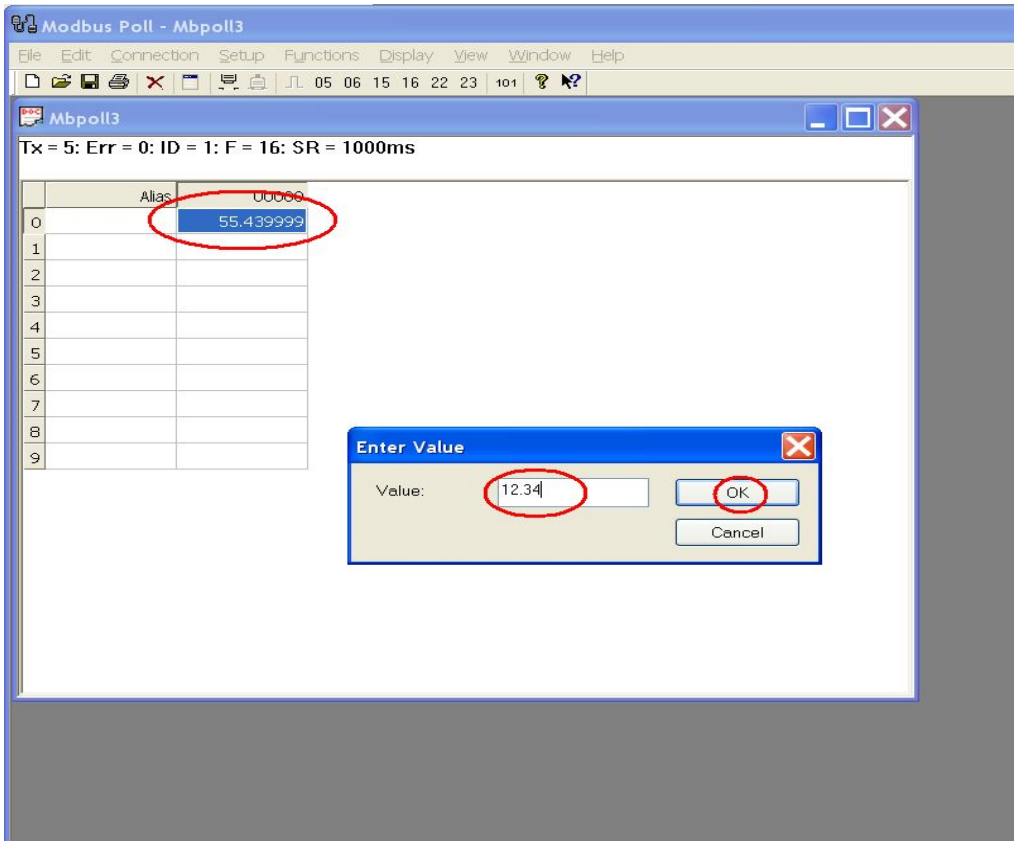

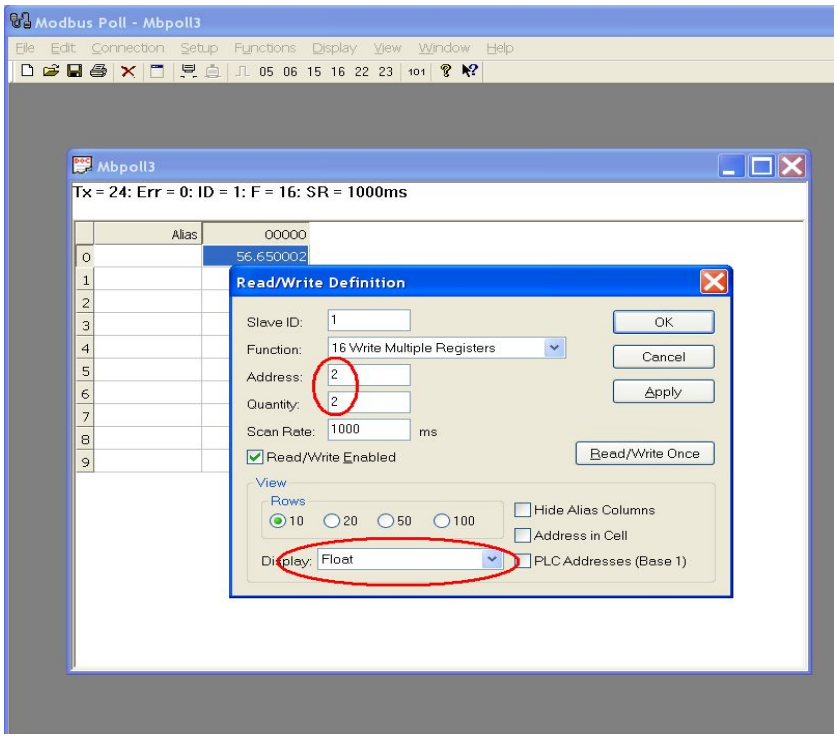

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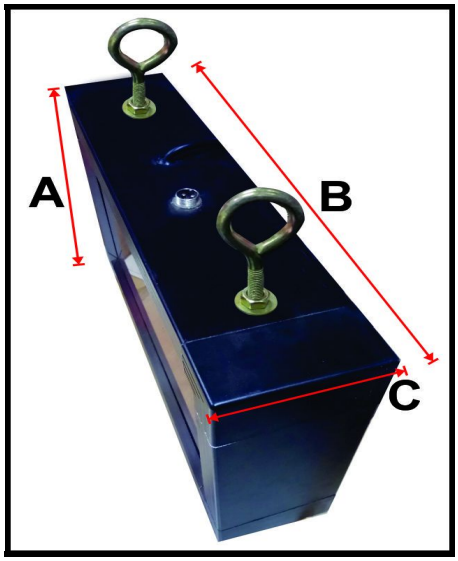
Dimensions



All Units in mm

Model No	A	B	C
ECON-IC-MODBUS-SLAVE-11	250	410	93
ECON-IC-MODBUS-SLAVE-12	250	730	93
ECON-IC-MODBUS-SLAVE-23	410	1050	93
ECON-IC-MODBUS-SLAVE-24	410	1370	93

Heavy Duty Cabinet

- ❏ The Heavy Duty Cabinets make the LED board more durable and robust.
- ❏ The cabinets are made from extruded aluminium profiles and moulded corners for better appearance.
- ❏ The front filter used is Perspex / LEXAN ® sheets for UV and robust.
- ❏ The hanging hooks are also heavy and suited for mounting from your support structure.

Contact Information

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Important Notice