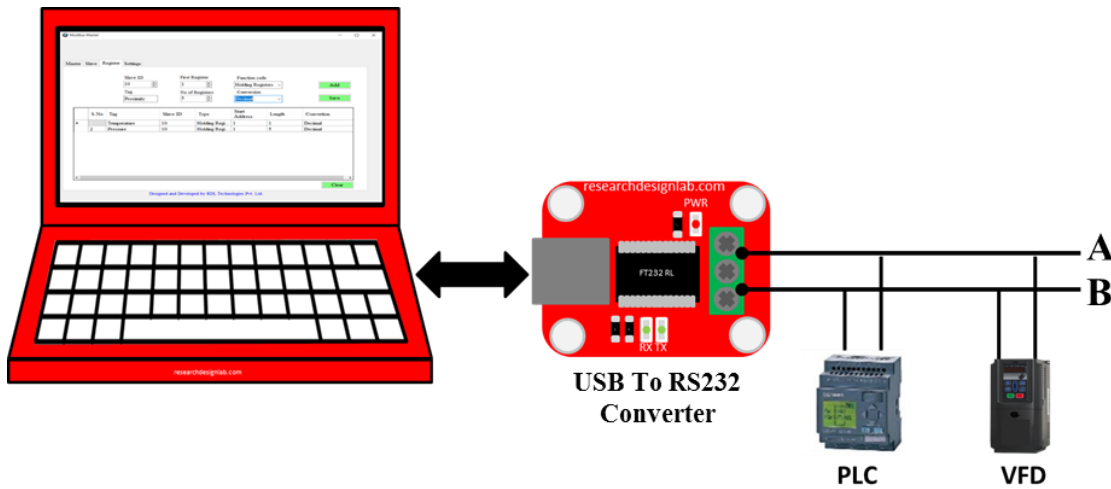


Modbus Master/Slave Testing Software

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1. About RDL Modbus testing Software:



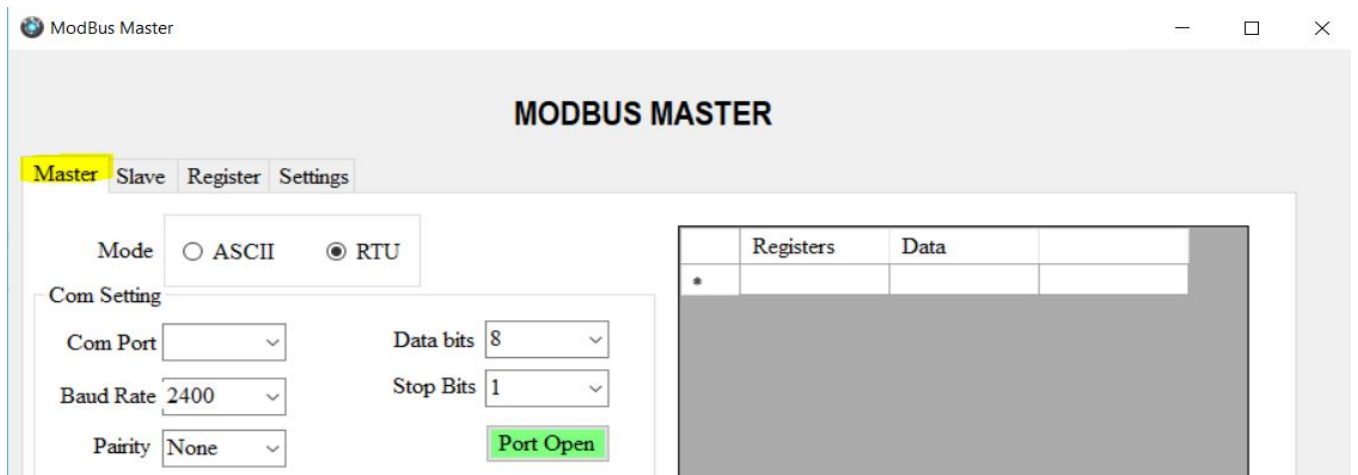
Modbus is a Industrial Standard Serial Communication Protocol and is inevitable in most industries since effective monitoring & operation of large number of devices operating is not effectively manageable by Human Operators. Some major application contexts for ModBus Protocol are to monitor multiple master-slave applications & program the devices, to communicate between intelligent devices, sensors, & instruments; to monitor field devices using PCs and HMIs. Though there are many variants of Modbus Testing Softwares available they are covering only a part of Modbus Protocol testing aspects like only master side or only slave side etc.

In this context, RDL Technologies has developed a simple software tool called Industrial ModBus Protocol Testing Software. The software is integrating Master and Slave aspects of monitoring & testing in a single simple piece of software. Major features of the software tool are ability to send & receive request/response, view the values by choosing the set of registers, save the values as offline log for future reference etc. Another important feature is Repeat facility for testing/monitoring in case of repeated Request/Response iterations with specified time constraints. The tool also provides the facility for automatic data conversion and display in different data formats and updating the data through UI. With all these capabilities, this software tool enables the operators in industries to easily conduct an effective & visual auditing of devices and sensors in industry.

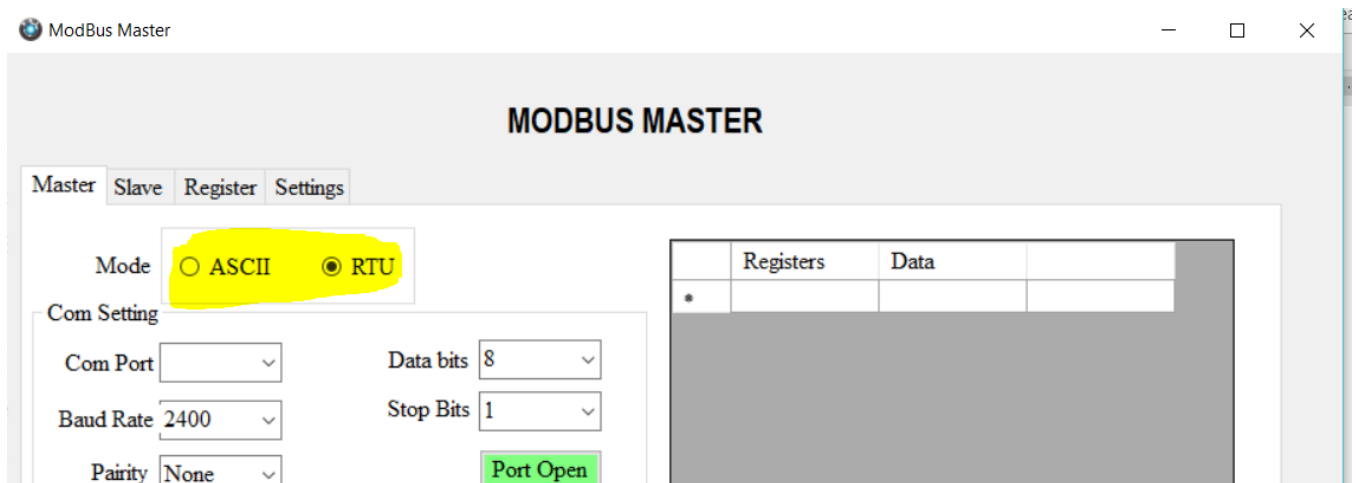
Modbus Master

2. Setting software as Modbus Master Polling Mode:

Step 1: Select the Master tab.



Step 2: Select the required communication mode (RTU or ASCII).



Step 3: Set the Com.Port setting as per the slave device.

Com Setting

Com Port Data bits

Baud Rate Stop Bits

Parity

Modbus

Slave ID Function code First Register No of Registers

Step 4: Open the port for communication.

Mode ☐ ASCII ☒ RTU

Com Setting

Com Port Data bits

Baud Rate Stop Bits

Parity

	Registers	Data
*		

Step 5: Select the slave Modbus register you wanted to poll.

Modbus

Slave ID Function code First Register No of Registers

☐ Repeat ☐ Register

Tag

Conversion Time Out

Step 6: Click on Send button to enable the polling.

Modbus

Slave ID Function code First Register No of Registers

☐ Repeat ☐ Register

Tag

Conversion Time Out

Port opened at 02-08-2019 17:40:51

Step 7: You can even set the response delay in the Time Out section.

Modbus

Slave ID: 10 Function code: 3 First Register: 1 No of Registers: 1

☐ Repeat ☐ Register

Tag:

Conversion: Decimal Time Out: 5

Port opened at 02-08-2019 17:40:51

Step 8: Monitor the response in the Grid View.

ModBus Master

MODBUS MASTER

Master Slave Register Settings

Mode: ☐ ASCII ☒ RTU

Com Setting

Com Port: COM51 Data bits: 8 Baud Rate: 9600 Stop Bits: 1 Parity: None

Modbus

Slave ID: 10 Function code: 3 First Register: 7 No of Registers: 127

☐ Repeat ☐ Register

Tag:

Conversion: Decimal Time Out: 5

Registers	Data	Decimal
124	0	0
125	0	0
126	500	500
127	0	0
128	0	0
129	0	0
130	0	0
131	0	0
132	0	0

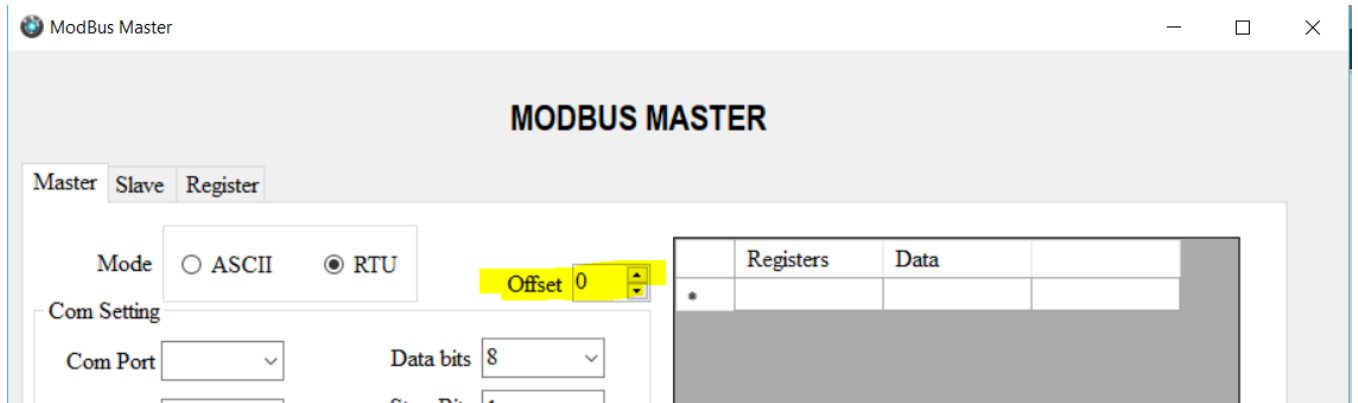
Recieved: 0A 03 FE 00 08 00 09 00 00 00 00 00 00 00 00 00 00

Request: 0A 03 00 07 00 7F B4 90

F4 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
00
00 28 71

Designed and Developed by RDL Technologies Pvt. Ltd.

Step 9: The offset can be set as required



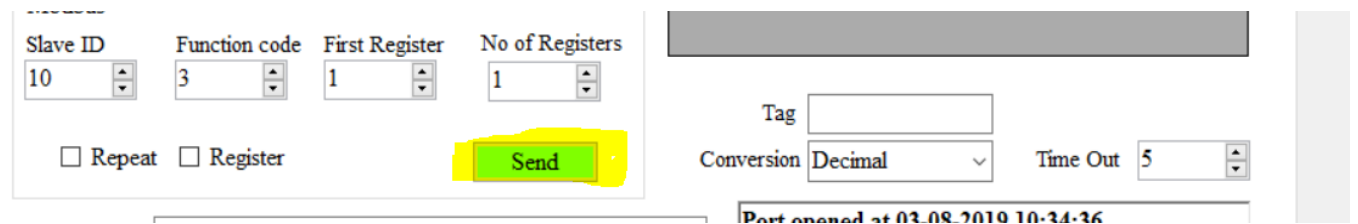
Master polling with Repeat:

Step 1: Continue till the step 3 from Modbus master polling

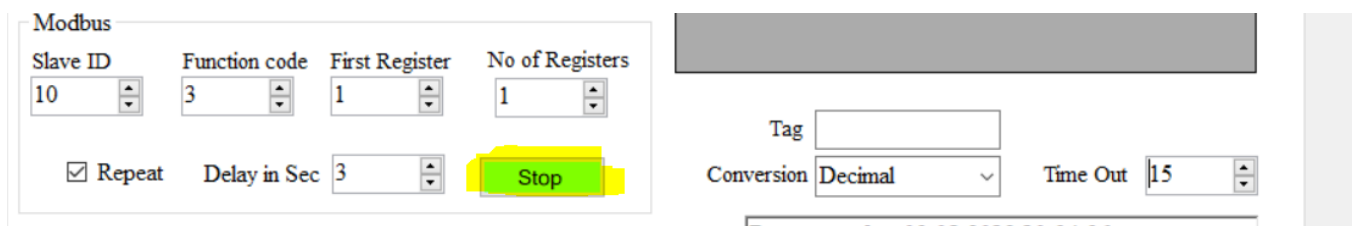
Step 2: Click on the Repeat Checkbox, Delay of input will appear.



Step 3: Input the value of delay in seconds, then press Send.



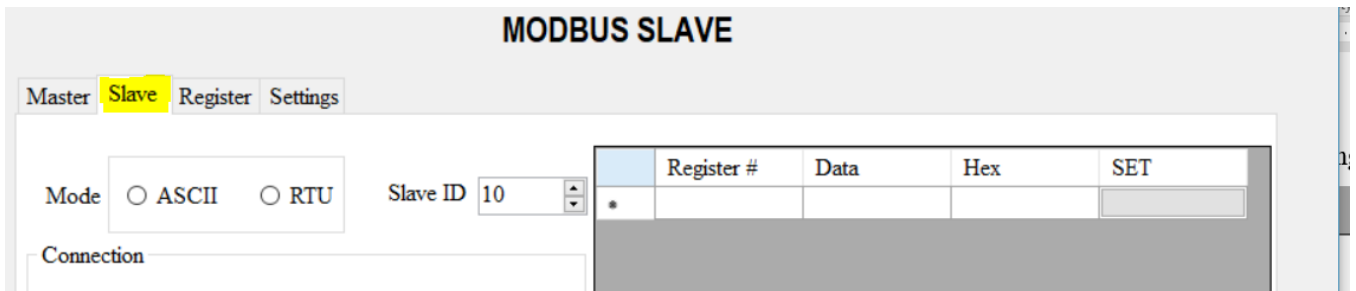
Step 4: Once the polling is started then the Stop button appears, to stop the polling process.



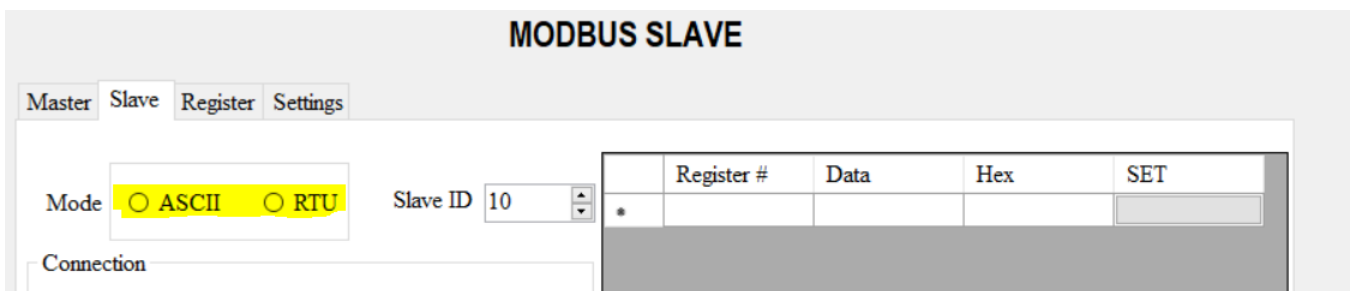
Modbus Slave

3. Setting software as Modbus Slave mode:

Step 1: Select the Slave tab.



Step 2: Select the required communication mode (RTU or ASCII).



Step 3: Set the Com.Port setting as per the slave device.



[illegible]

1 0 0 0 0 1 0 1

Registers

4. Setting multiple device Register polling mode:

Step 1: Select the Register tab.

Master Slave **Register** Settings

Slave ID: 10 First Register: 1 Function code: Conversion: Add Save

Tag: No of Registers: 1

S.No	Tag	Slave ID	Type	Start Address	Length	Conversion
------	-----	----------	------	---------------	--------	------------

Step 2: Choose the Modbus register you want to save as required for polling.

Master Slave Register Settings

Slave ID: 10 First Register: 3 Function code: Input Register Conversion: Hex Add Save

Tag: Pressure No of Registers: 7

Step 3: Then press Add button to keep on adding the Multiple slave register, which will be displayed below.

Master Slave Register Settings

Slave ID: 10 First Register: 5 Function code: Input Register Conversion: Binary Add Save

Tag: Temperature No of Registers: 100

S.No	Tag	Slave ID	Type	Start Address	Length	Conversion
1	Pressure	10	Input Registers	3	7	Hex
2	Temperature	10	Input Registers	5	100	Binary

Step 4: Click on Save button to save this custom register operation.

Slave ID: 12 First Register: 4 Function code: Holding Registers Tag: Coolant No of Registers: 95 Conversion: Float

Add Save

S.No	Tag	Slave ID	Type	Start Address	Length	Conversion
1	Pressure	10	Input Registers	3	7	Hex
2	Temperature	10	Input Registers	5	100	Binary
3	oil	10	Input Registers	6	97	Float
4	Coolant	12	Holding Regi...	4	95	Float

Step 5: Now select the Master tab for the custom polling

MODBUS MASTER

Master Slave Register Settings

Mode: ☐ ASCII ☒ RTU

Com Setting: Com Port: COM36 Data bits: 8 Baud Rate: 2400 Stop Bits: 1 Parity: None Port Open

Registers	Data
*	

Step 6: Open the port and select the Checkbox of Register. As tick mark appears you click on Send Button.

Modbus

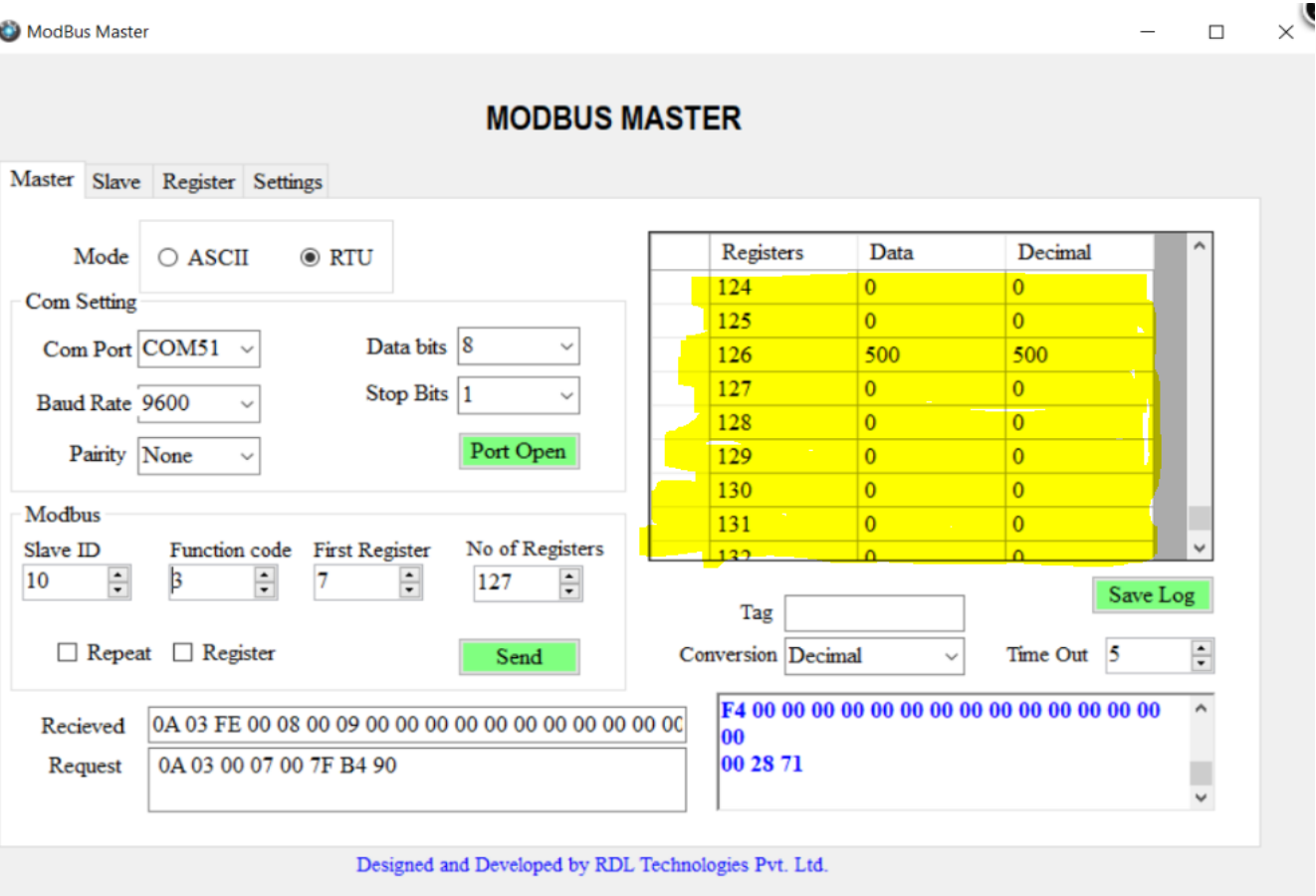
Slave ID: 10 Function code: 3 First Register: 1 No of Registers: 1

☐ Repeat ☒ Register Send

Tag: Conversion: Decimal Time Out: 5

Port opened at 03-08-2019 16:18:56

You can even select the repeat (Checkbox) function.



5. Example Modbus software communicating with VFD:

