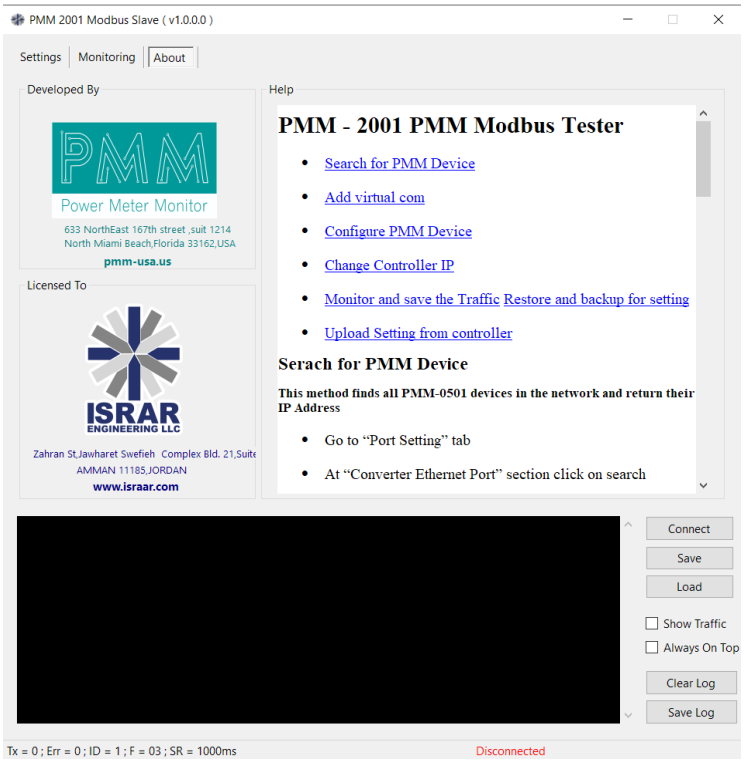
Power Meter Monitor

Business and Mission-

Critical Solutions Provider

Modbus Tester Software

User Manual



Model: PMM2001

Document: User Manual

Document version: 1.1

Date: August 2023

COPYRIGHT NOTICE

TRADEMARKS

DECLARATION OF CONFORMITY

This restriction is subject to protect the operational process of the system in the business environment, which will produce, use, and transmit radiofrequency energy. Harmful interference to radio communication could result if instructions to the correct installation and usage were not applied. The interference prevention cannot be guaranteed even with proper installation according to the manual. If the device causes a bad effect on the radio / TV signal. The user could preclude that by turning the device on/off.
When this device produces some harmful interference, the user can use the following measure to solve the interference problem:
1-Setting the receiving antenna's direction or location to increase the distance between this device and receiver.
2-Plug in the device's power connector into different circuits of the power outlet with the receiver.
3-If any technical support is needed, the dealer or experienced radio/TV technical personnel must be informed.

TECHNICAL SUPPORT AND SERVICE

Visit Pmm-usa.us to browse FAQs and get further details.
User should collect the following information before submitting technical support and service requests:
- Product name, model and serial number.
- Installed software (operating system, OS version, installed applications and so on).
- Full description of the problem
-Detailed information about every error.

SAFETY INSTRUCTIONS

- Only trained and qualified personnel can install, operate, or maintain the device.
- Before starting the installation, all safety precautions must be read, and warning labels affixed to the device must be observed. Doing so protects the device from damage and ensures your safety.
- Safety precautions provided in this document may not cover all safety aspects, note to always remain mindful of safety.
- PMM is not liable for any consequence that results from violation of regulations pertaining to safe operations or safety codes pertaining to design, production, and equipment usage.
- DO NOT use liquids or decontamination spray to clean the device surface and assure that it is totally disconnected while cleaning.
- Take all measures to prevent device drop before or during installation.
- Prior to connecting the device to power source, ensure the source and device voltage and power are 100% matched.
- Keep the cables in a suitable covered place.
- If the device is not used for a long time, shut off the power to avoid the damages by transient overvoltage.
- DO NOT allow any liquid flow into the device; to avoid fire or short circuit.
- The recommended storage temperature range should NOT be less than 30°C OR higher than 85°C.

Warning:

- Read the power source and device inlet carefully.
- Handle device with both hands.
- Clean and maintain the device using recommended, safe and suitable methods.

Caution:

If any unauthorized changes of settings or repairs are done without PMM approval; then user's rights of controlling this device will be canceled.

Contents

PAGE

1. Introduction

This Document is a fully descriptive operational manual for PMM's Modbus Tester. Providing the operator with the needed information in terms of instruction and screen layout of the monitors, allowing for easy use.

1.1 DESCRIPTION

PMM Modbus tester is a Modbus master/slave simulator that was created to assist Modbus device, developers and those who want to test and replicate the Modbus protocol. You can monitor many Modbus slaves/masters and/or data regions simultaneously using the multiple document interface. Simply provide the Modbus slave ID, function, address, size, and baud rate for each window. From any window, you may read and write registers and coils. Simply double-click the value of a single register to modify it. Alternatively, you can alter numerous registers/coils. There are several data types accessible, including float, double, and long, as well as word order shifting.

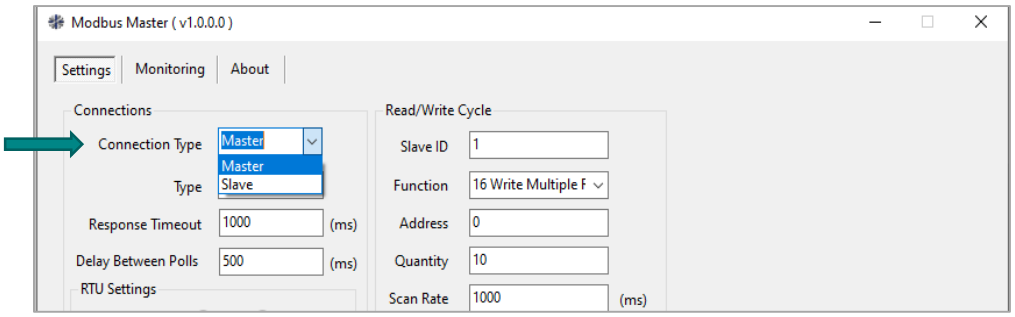
1.2 KEY FEATURES

- Read/Write data from devices using Modbus RTU/TCP on RS232 or RS485 networks
- Can be Used as a Master or a Slave Simulator
- Supports all Modbus Functions
- Log data to a text/Excel file
- Monitoring of data traffic
- Print and print preview
- Read/write of up to 125 Registers
- Read/write of up to 2000 Inputs/Coils

2. Get Started

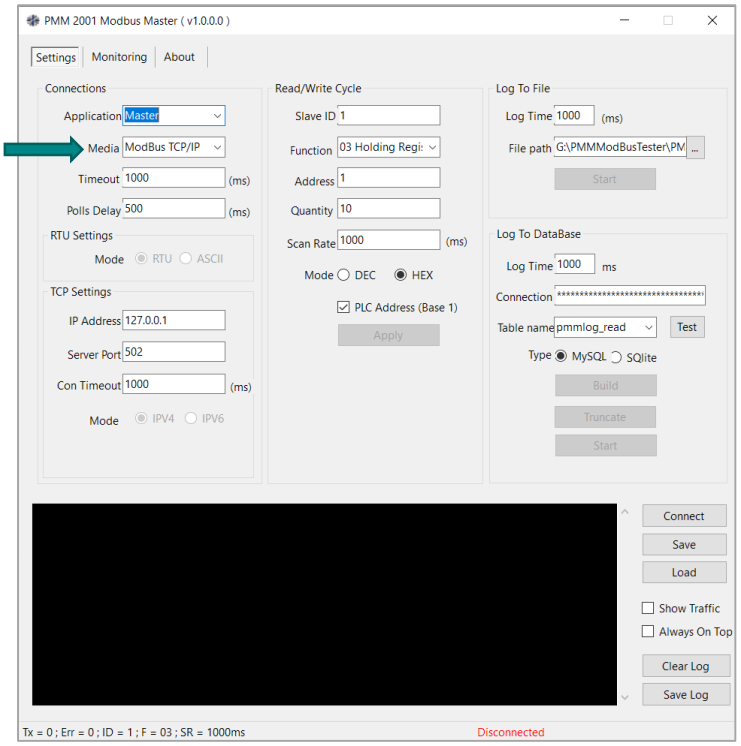
2.1 Choose the Connection type

This software can operate as a master or slave device, so, first of all, the connection type has to be chosen before any other action.



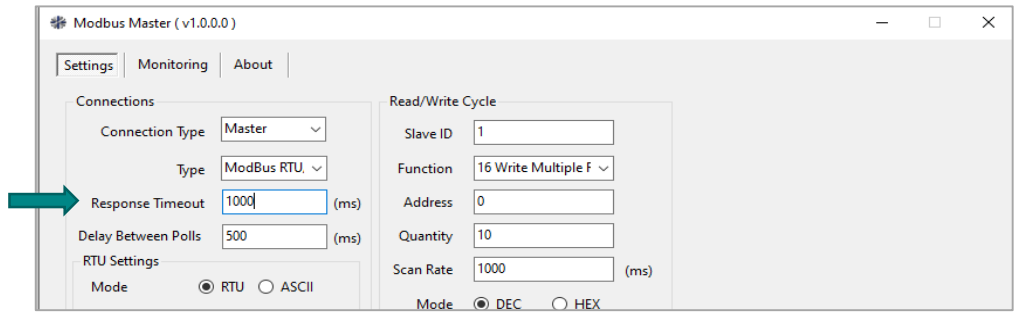
2.2 Choose the Protocol Type

Choose one of the four provided protocols TCP/IP, UDP/IP, RTU/ASCII Over TCP/IP and RTU/ASCII over UDP/IP



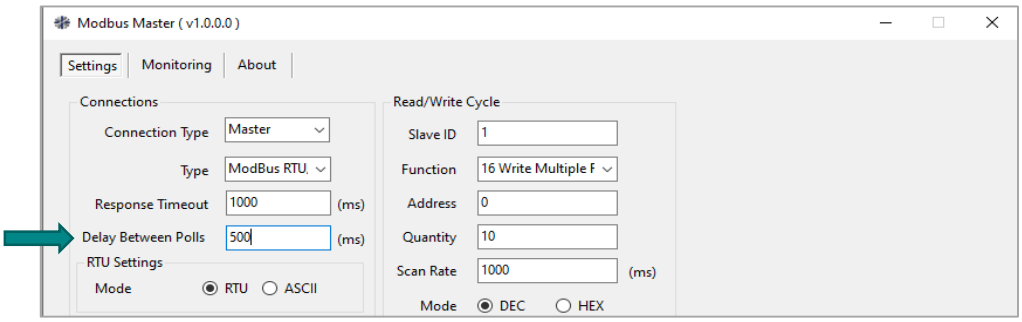
2.3 Choose the Response Timeout

Select the Response Timeout. When a byte timeout is set, if the elapsed time for the first byte of the response is longer than the given timeout, a TIMEDOUT error will be raised by the function waiting for a response.



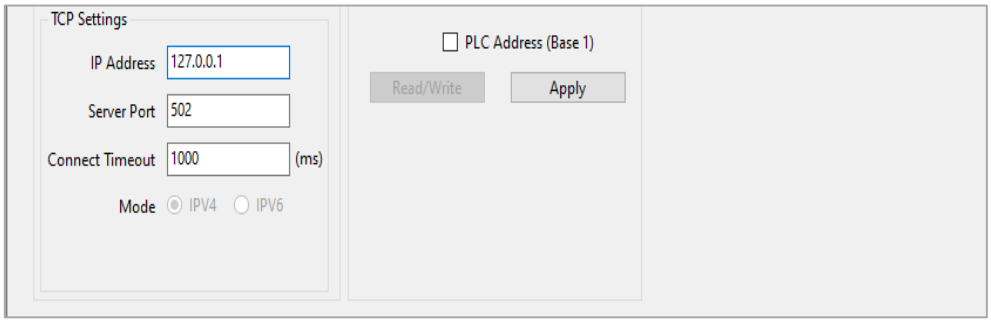
2.4 Choose the Delay Between Polls

The delay between polls has to be entered in which, reduces the burden of the server in case of many devices connected to it and reduces costs if you have a communication line between master and slave device which is cost dependent on the amount of data.



2.5 TCP Sittings

The IP Address, Server Port and connection time out have to be identified. The IP address, which is a unique address that identifies a device on the internet or a local network, has to be the same as the IP Address of the connected device. Port number, which identifies a particular application or service on a system, also has to be compatible with the application's port number.



2.6 Read/Write Cycle

First of all, the Slave ID has to be identified. Each slave in a network is assigned a unique unit address from 1 to 247. When the Master requests data, the first byte it sends is the Slave address. This way, each slave knows after the first byte whether or not to ignore the message.

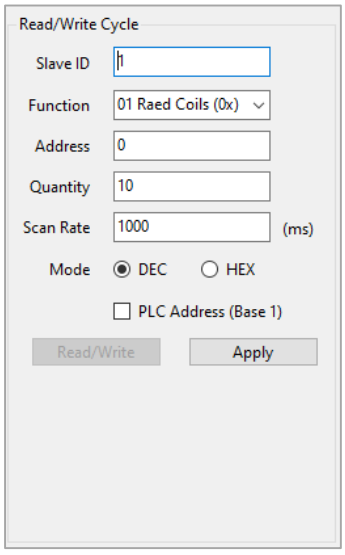
Second of all, one of the eight function codes available has to be selected. The supported Modbus functions are listed below:

- 01: Read coils
- 02: Read discrete inputs
- 03: Read holding registers
- 04: Read input registers

- 05: Write single coil
- 06: Write single register
- 15: Write multiple coils
- 16: Write multiple registers
- 17: Report slave ID
- 22: Mask write register
- 23: Read/Write registers

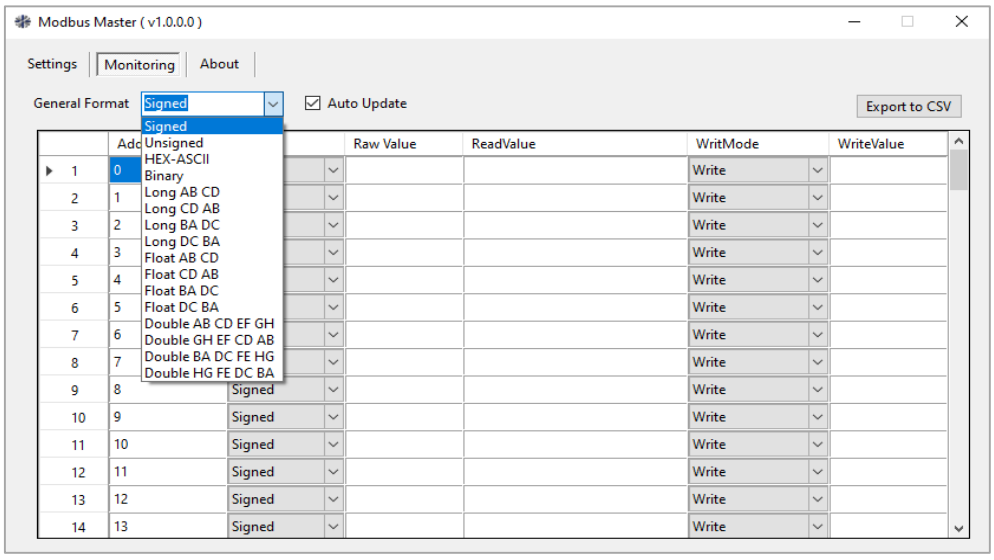
The address in which the Master starts to write or read has to be chosen, and then the quantity has to be identified. Let us say that the address is 10, and the quantity is 15, then the Master will start reading or write from address number 10 until address number 24 and so on.

The configuration of the Modbus-RTU networks involves several configuration parameters related to the "time": timeout, response timeout, scan range, etc. Understanding these timing and their relationship allows to configure more robust networks and to understand some of the effects that arise when a communication problem occurs.



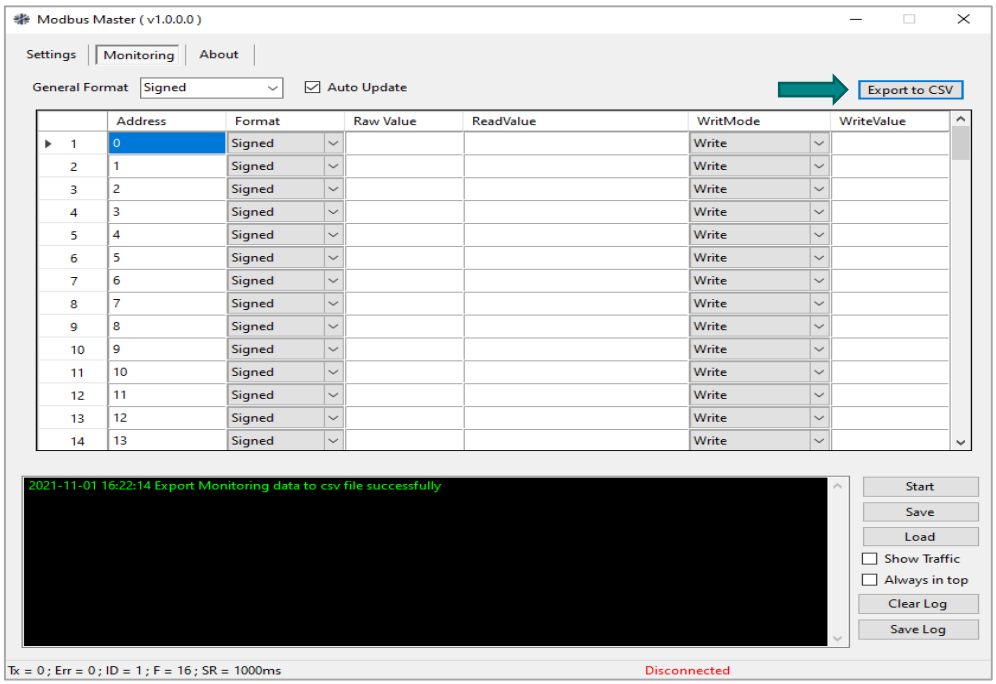
2.7 General format

The standard 16 general formats are supported, as shown in the figure.



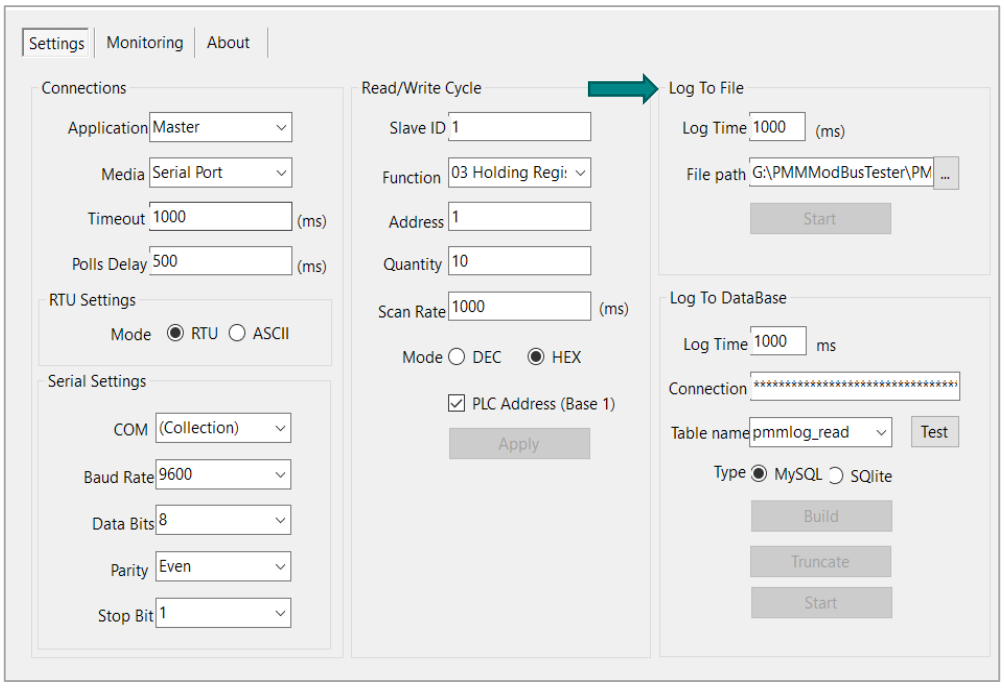
2.8 Exporting Data

The data can be exported directly as a CSV file by clicking the button as shown in the figure.



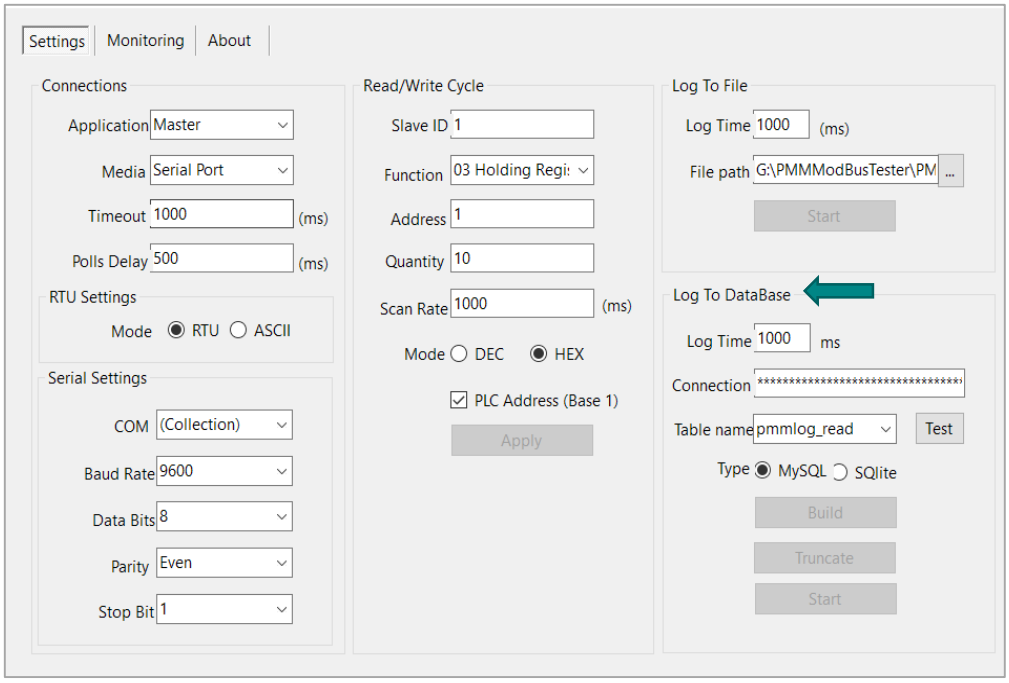
2.9 Log to File Feature

Using this feature, you can send the received or sent data to a local file in the same format that has been selected on the monitoring window. After clicking start, the data will be logged to the selected file every specific (Log time) period.



2.10 Log to Database Feature

The features can be logged also to the Database from the selected table. The data will be logged from the cells that have true logged values. The data will be logged aether it is from Raw value, read value or write value.



2.11 About page

A brief help for the way of using the application can be found at the About Page. A discussion of How to search for a device, add a virtual com, configure a PMM device or change the controller IP.