Power Meter Monitor

Business and Mission-

Critical Solutions Provider

Ethernet - Serial Media Converter

User Manual

Model: PMM0501
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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 4
1.1 Description 4
1.2 Key Features 4
2. HARDWARE 5
2.1 Enclosure Dimensions 5
2.2 LED Indicators 6
2.3 Technical Specifications 6
3. PIN Assignments 6
4. GET STARTED 7
4.1 Connecting Power 7
4.2 Connecting to a Host or the Network 7
5. TARGET APPLICATIONS 7
6. MAIN PAGE LAYOUTS 8
6.1 log In 8
6.2 About Page 8
6.3 ModBus Configuration 9
6.4 Network Configuration 9
6.5 Serial Configuration 10
6.6 Password Settings 11
7. PMM0501 VIRTUAL COM DRIVER 12
7.1 Authentication 12
7.2 Login 12
7.3 Logout 12
7.4 Change Password 13
7.5 Search for PMM Device 13
7.6 Add Virtual COM 14
7.6.1 Create Virtual COM 14
7.6.2 Delete Virtual COM 14
7.7 Configure PMM Device 15
7.7.1 Change the Settings of the Device 15
7.7.2 Change PMM and Device IP Address 16

1. INTRODUCTION

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

1.1 Description

PMM0501 hardware provides the flexibility needed to fulfill the various conditions that arise with field devices that use different communication protocols to connect any type of industrial solution network such as the SCADA system. This slave device is effortlessly incorporated into an existing Modbus TCP network from any Modbus RTU device.

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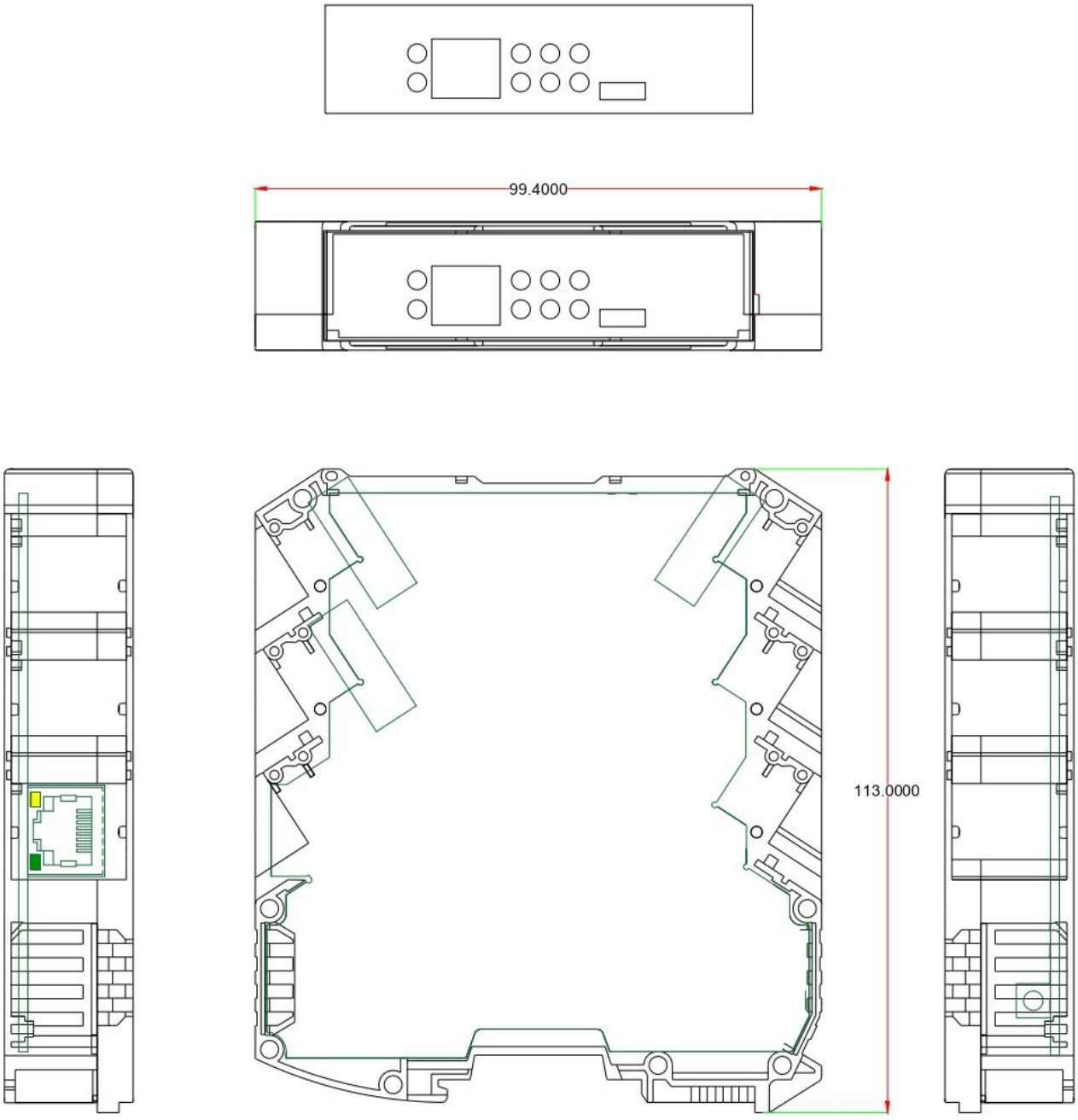
PMM0501 industrial grade media converter can function under harsh environmental conditions of any site. It is especially designed to meet all power substations and PV plants requirements. Furthermore, it covers all field standards of power, reliability, easy configuration and long- lasting life.

1.2 Key Features

- Converts smoothly Between Ethernet to serial (bridge)
- Up to 4 simultaneous Ethernet masters
- Can be used as Modbus converter through using PMM Vcom windows software
- Effortless configuration via web-based wizard
- 32-bit ARM core microcontroller, with 48 MHz clock
- Embedded traffic monitoring with diagnostic information for easy trouble shooting
- Baud rate: up to 1Mbps
- Operating temperature: -40 to 75oC (-40° to 167°F)
- EMI, EMS, EMC and shock protected
- 10-56VDC Supply voltage with Overvoltage and reverse polarity protection
- 2 or 4 Serial ports with power surge ±2.5kV isolation protection

2. HARDWARE

2.1 Enclosure Dimensions



2.2 LED Indicators

PMM0501 has 2x Green LED Indicators at the front view as following:

LED INDICATOR	
Rx	Blinking: Data is being transmitted or received through the port Off: No Data is being transmitted or received through the port
Tx	Blinking: Data is being transmitted or received through the port Off: No Data is being transmitted or received through the port

2.3 Technical Specifications

Interfaces

Serial	2 or 4 customized Serial ports of the following options: • Isolated RSR85 port • Isolated RS422 port • Isolated RS232 port
Ethernet	1x 10/100/1000Base-T RJ45
LED Indicators	2x LED for full duplex

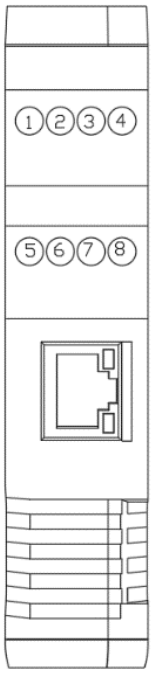
Power Parameters

Input Power Supply Options	10-48 VAC / 10-60 VDC

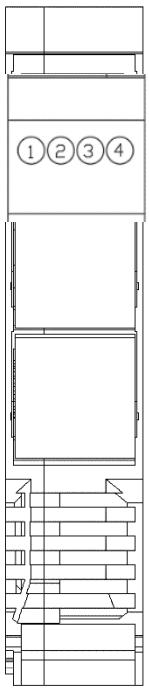
Physical Characteristics

Housing	Plastic
Dimensions	Dimensions 4.05 x 4.05 x 1.45 inch (103 x 103 x 36.83 mm)
Mounting Options	DIN Rail

3. PIN Assignments



1. D- (RS485)
2. D+ (RS485)
3. Earth
4. Earth
5. V DC+ (9-56)
6. V DC- (9-56)
7. Earth
8. Earth



1. D+ (RS485)
2. Earth
3. D- (RS485)
4. Earth

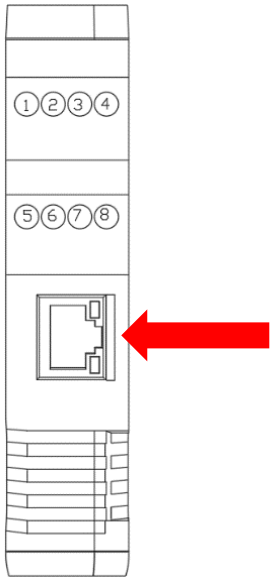
4. GET STARTED

4.1 Connecting Power

PMM0501 has customized power supply options including: 10-48V AC and 10-60V DC based on these options connect the power line to the terminal block (POWER) as shown in the figure below.
PMM0501 does not have on/off switch thus the device turns on automatically when receiving power.

4.2 Connecting to a Host or the Network

There is a 10/100 Ethernet port at the unit's front panel. This port is used to connect the unit with a host or Ethernet network.



5. TARGET APPLICATIONS

- **Link a serial master device with Ethernet slave devices**

  Many HMI (Human Machine Interface) systems use a serial interface to connect to DCS (Discrete Control System). However, many DCSs are now Ethernet-based and operate as a Modbus TCP slave device. PMM0501 can link serial HMI to distributed DCSs over an Ethernet network.

- **Let Modbus serial devices communicate over the Internet**

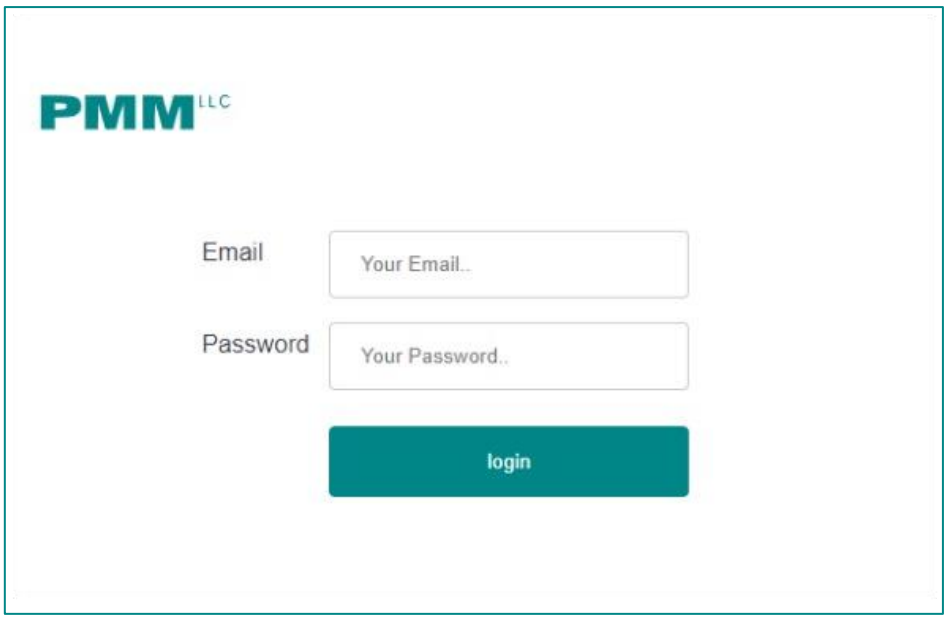
  Many Modbus devices communicate over RS-485, which limits the number of devices in a network to 32 and the transmission distance to 1.2 km. With PMM0501 Modbus gateway, you can link all Modbus devices over an Ethernet network. Up to 32 Modbus gateways can be installed in a single control network, so each device can now be accessed from anywhere the TCP/IP network can reach.

- **Serial Redirector**

  PMM0501 can be inserted to a serial system in which the slaves connected to one serial port and the masters to another serial port. PMM0501 allows Ethernet master devices to connect with serial slaves and simultaneously provides a serial redirector which allows the serial master to continue controlling the serial slaves.

6. MAIN PAGE LAYOUTS

6.1 log In



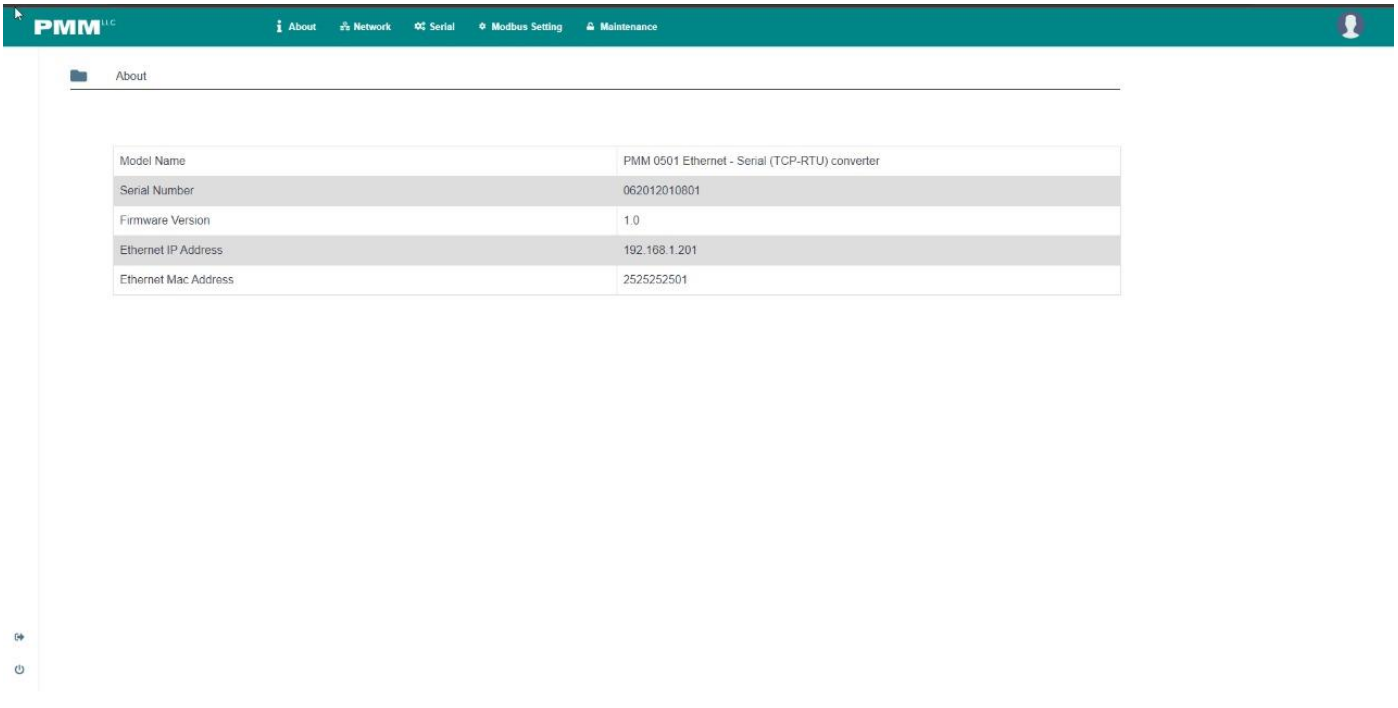
Login instructions:

- Type the default Email “Admin@Israr.com” and the default password “Admin”.

Note: to change the default password for more security, follow the instructions in changing password section.

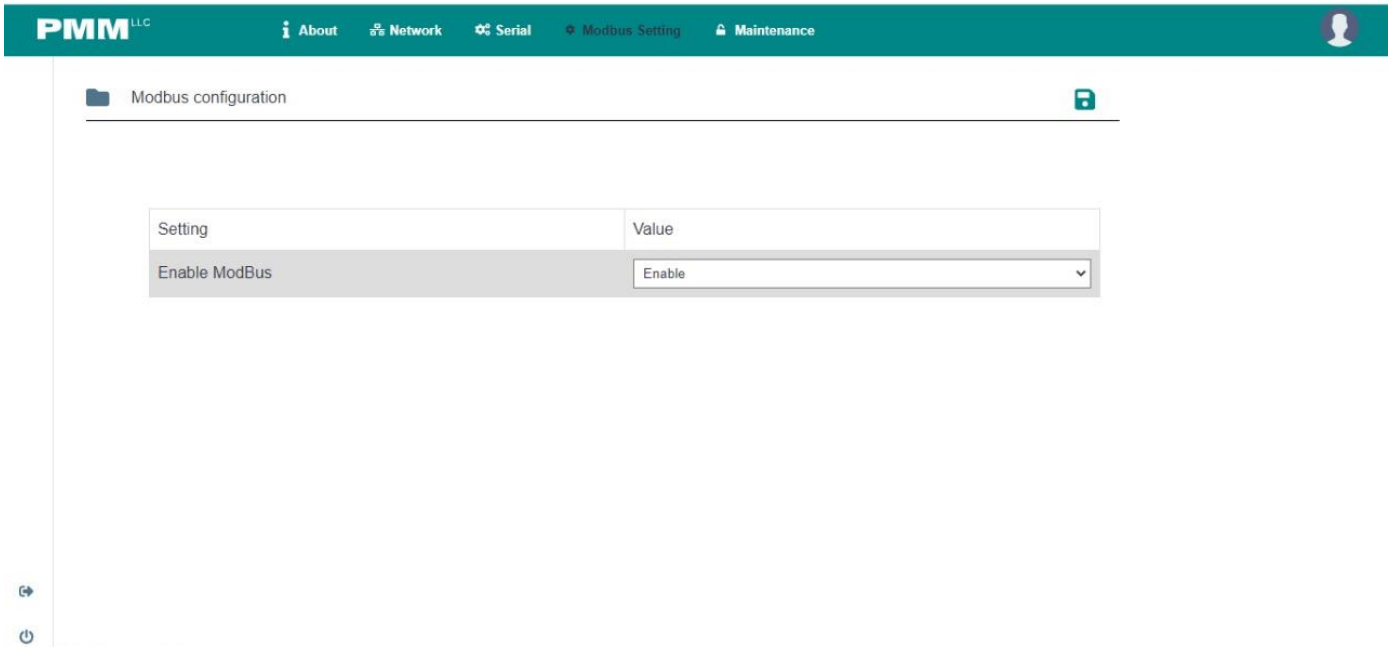
- Click on “login”.

6.2 About Page

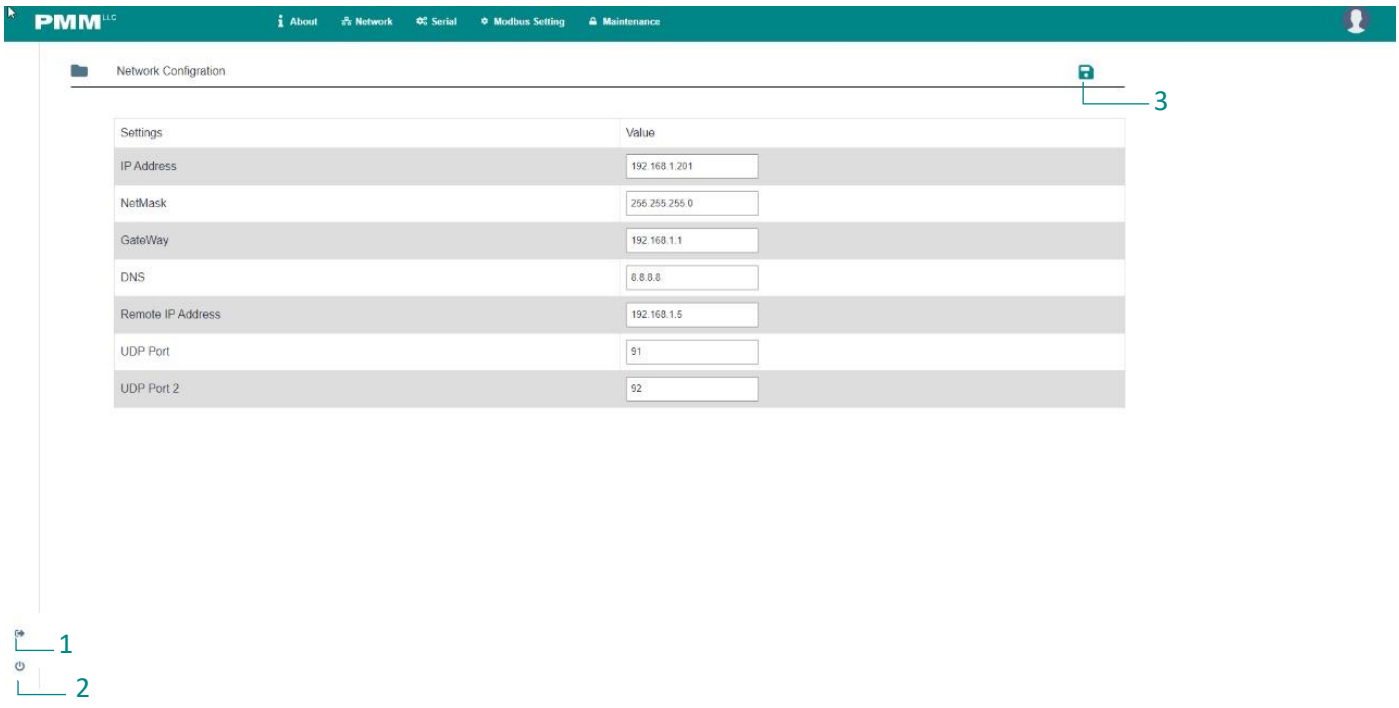


This page provides the user with the basic information about the Ethernet -Serial Media Converter such as Model Name, Serial Number, Firmware Version, Ethernet IP address and Ethernet Mac Address.

6.3 ModBus Configuration



6.4 Network Configuration



1. Log out

2. Reboot

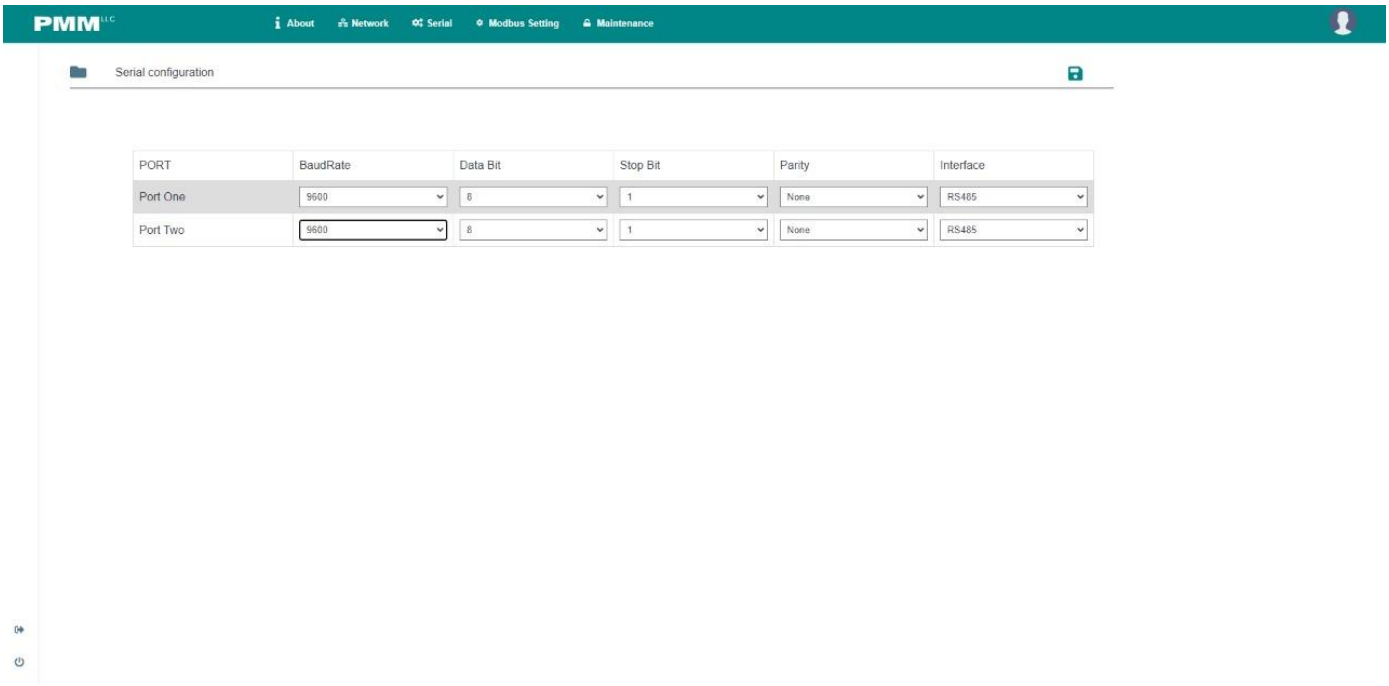
3. Save changes

Network Configuration Page: To connect the computer to the network, there must be a networking device installed. That network device must have networking components bound to it (protocols, services, and clients).

Network configuration instructions:

- Type each of the parameters which are required when configuring network connections each one in its specified space:
- IP address: it uniquely identifies each computer on the network and computers use it to communicate with each other, default IP address is set to 192.168.1.200.
- Net Mask: identifies an octet in the IP address which is part of the subnet address (network address). Using Net Mask, we know which part of IP address the network address and which part is the host address.
- Gateway: To allow a host to communicate with computers on different subnets we must define the Gateway address.
- DNS Server: to provide the IP address of a DNS server (DNS 1) so that we can use logical names on our network.
- Host Name: are logical names for devices on the network.
- Click on “Save Changes” to save the settings.

6.5 Serial Configuration



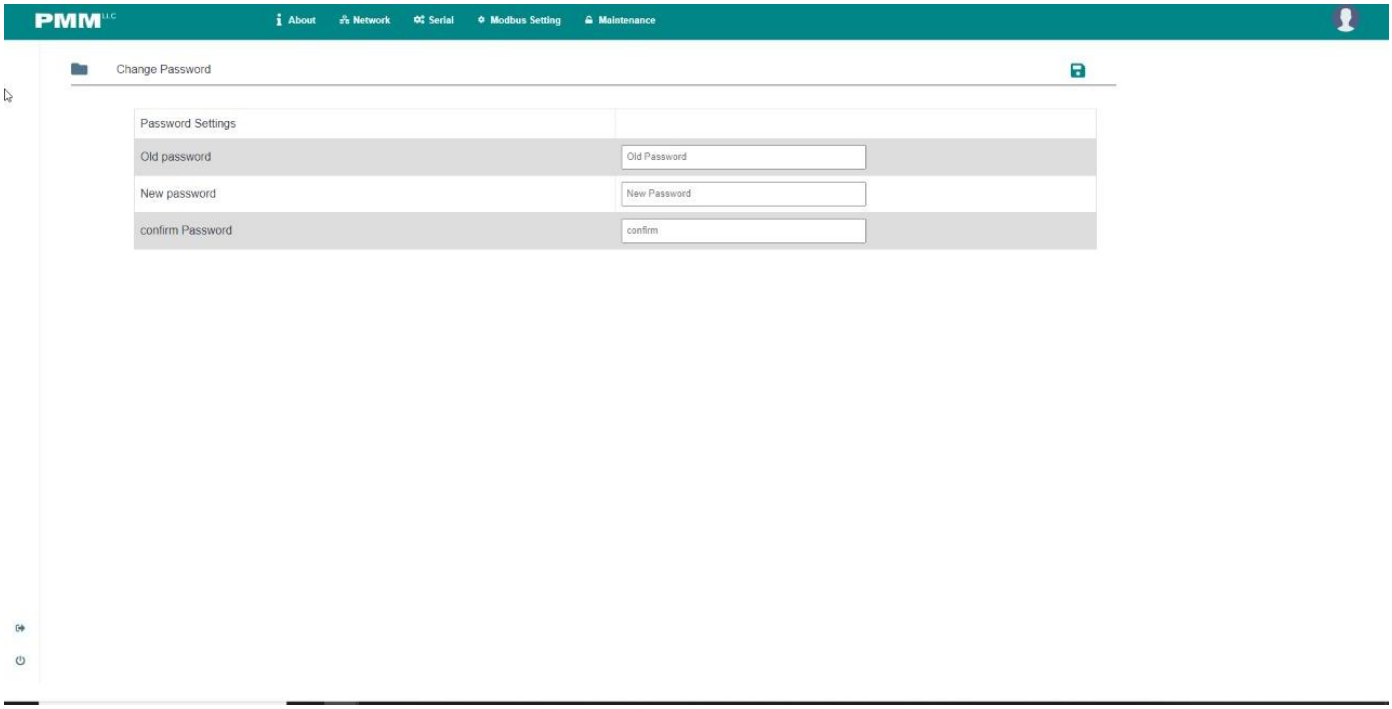
Serial Parameter Page: A serial port connection can be used for inter-processor communication within a system or for communication with different parts of a system. The serial port provides the physical connection between the equipment, but a communication protocol (RS485) must be used to ensure a reliable, error-free data path.

Serial configuration instructions:

- Type each of the Parameters (that can be configurated in this page) in their specified spaces including:

- Baud Rate: The baud rate is the communication speed, which is the number of times per second a serial communication signal changes states; a state being either a voltage level, a frequency, or a frequency phase angle.
- Data Bit: Number of bits to represent one character of data 8 (default).
- Stop Bit: The stop bits are used in asynchronous communication as a means of timing or synchronizing the data characters being transmitted.
- Parity: The parity bit is to determine if the data character being transmitted is correctly received by the remote device. Interface: Serial communication.
- Click on “Save changes”.

6.6 Password Settings



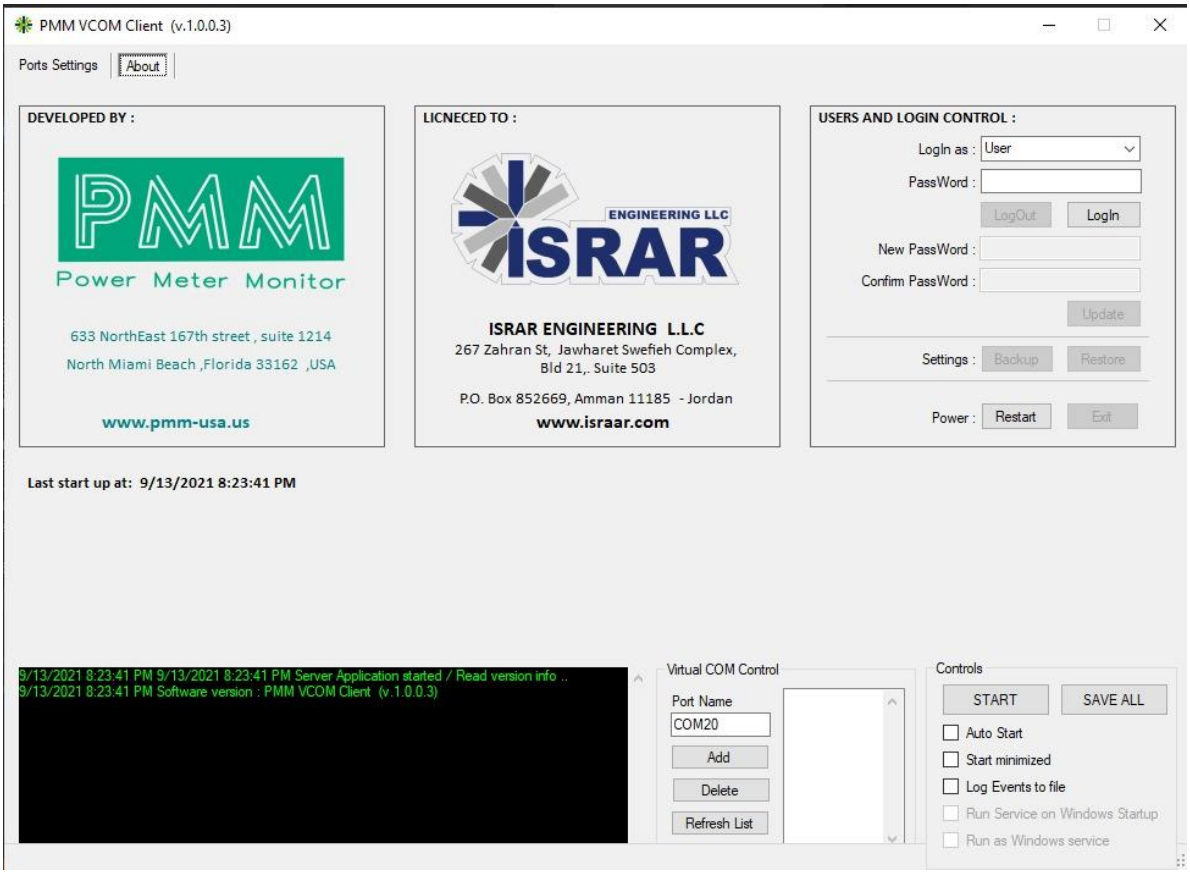
Change password instructions:

- Type your old password in the specified place. For the first time the default password is “Admin”.
- Type the new password in the specified place and retype the new password for confirmation
- Click on “Save Changes” icon to complete changing the password.

7. PMM0501 VIRTUAL COM DRIVER

- Authentication
- Search for PMM Device
- Add Virtual COM
- Configure PMM Device
- Change Controller IP
- Monitor and save the Traffic
- Restore and Backup for Setting
- Upload Setting from Controller

7.1 Authentication



7.2 Login

- Go to About tab
- Head to users and login control section
- Select username from the dropdown
- Create a strong password
- Click on “Login” button

7.3 Logout

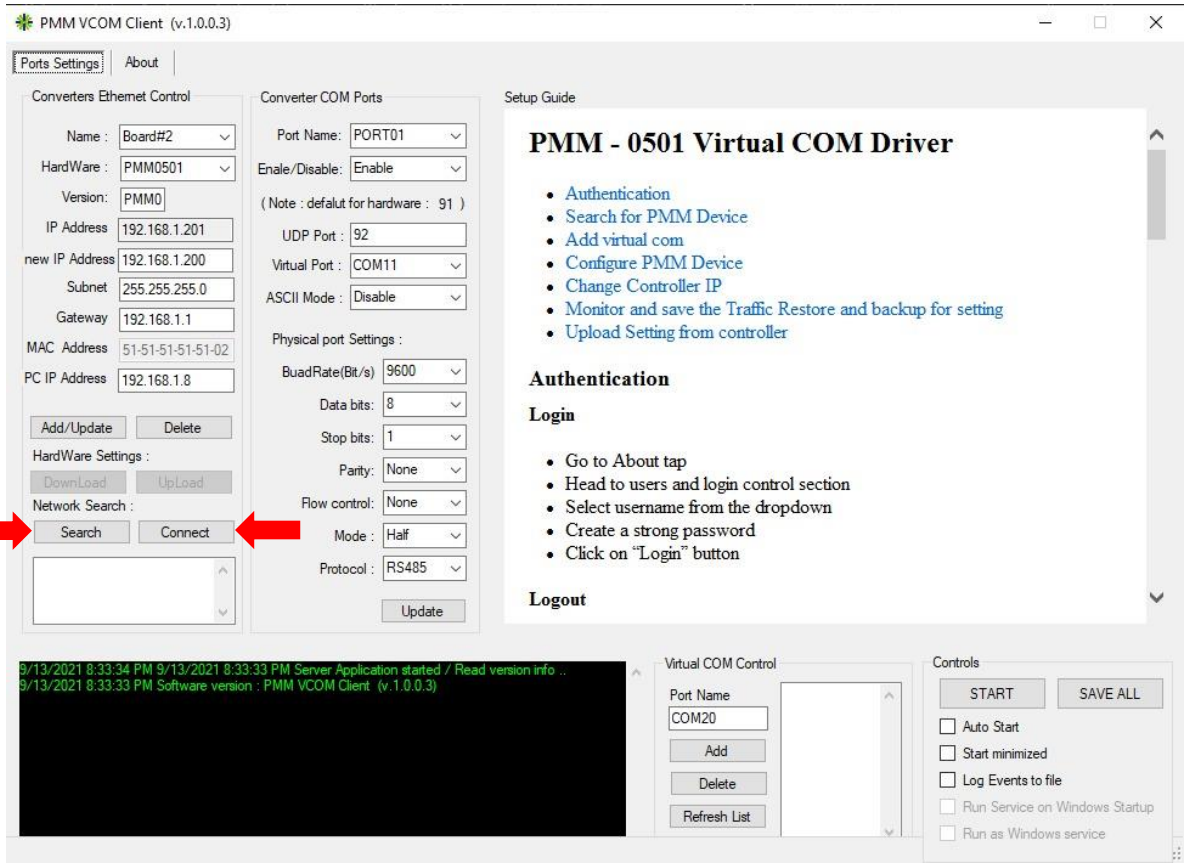
- Go to About tab
- Head to users and login control
- Click on “Logout” button

7.4 Change Password

- Go to About tab
- Head to users and login control section
- login as Administrator
- Enter the new password in “New Password” field
- Re-enter the password again in “Confirm Password” field
- Click on “Update” button

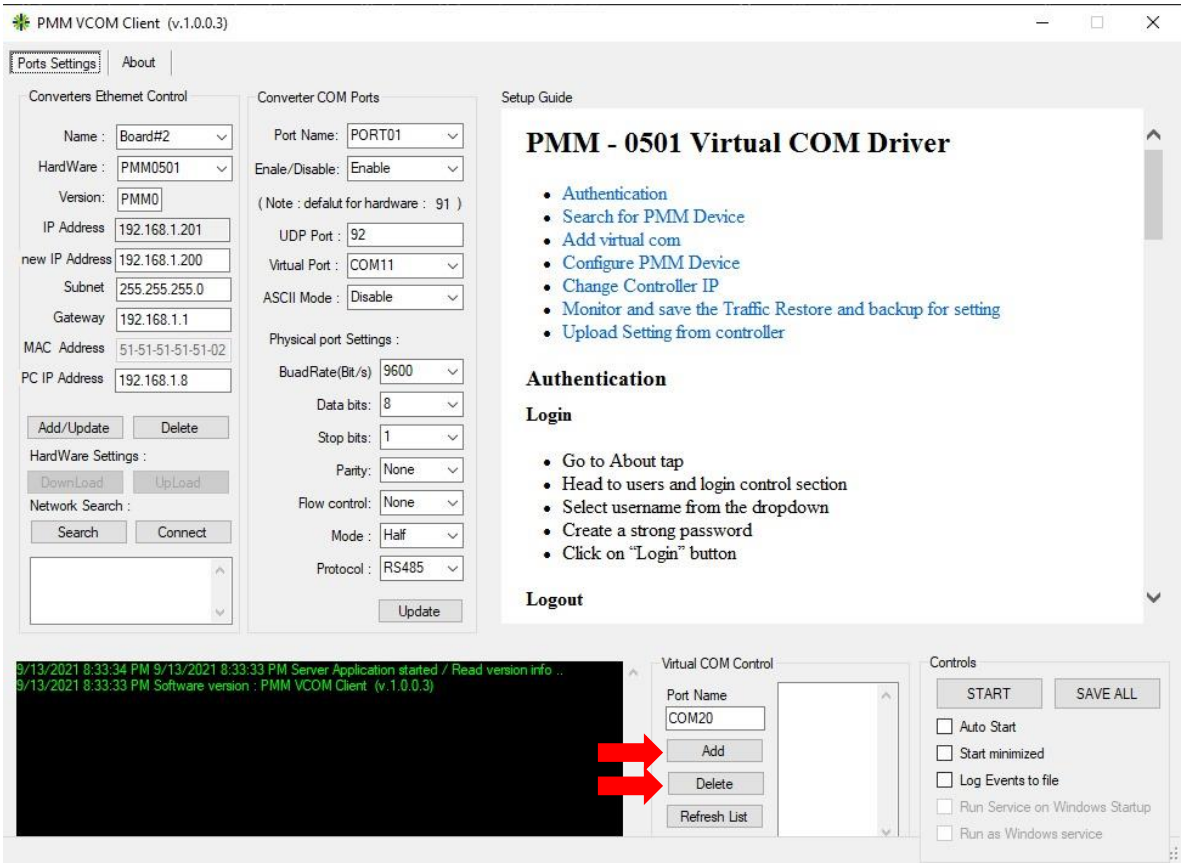
7.5 Search for PMM Device

This method finds all PMM-0501 devices on the network and return their IP Address



- Go to “Port Setting” tab
- At “Converter Ethernet Port” section click on search
- All available devices will be displayed in the white box
- Double click on the IP that is needed to get a connection
- Click on “Connect” button

7.6 Add Virtual COM



7.6.1 Create Virtual COM

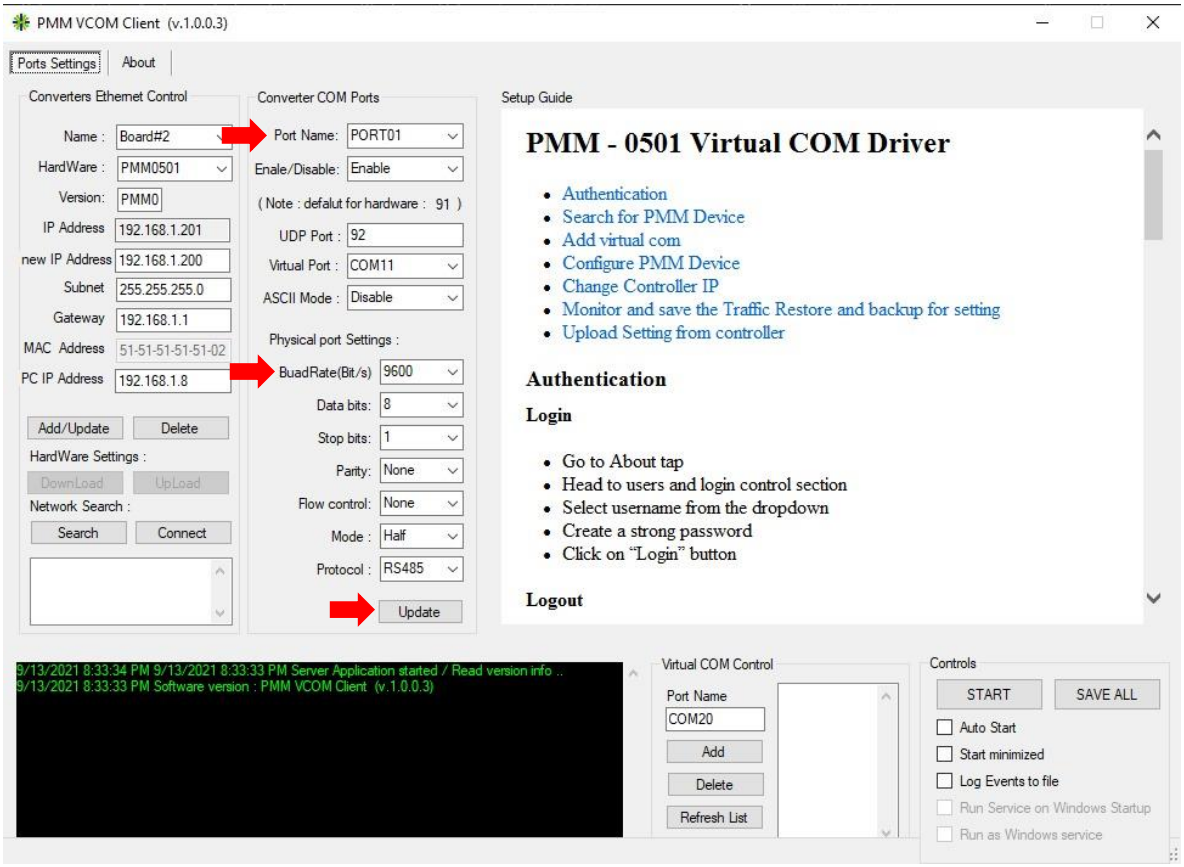
- Go to Ports Settings tab
- At "Virtual Com Control" section add the required name in the "Por Name" field
- Click on "Add" button

7.6.2 Delete Virtual COM

- Go to Ports Settings tab
- At "Virtual Com Control" section Click on "Refresh List" button to find all available virtual COM
- Select the port that you want to delete
- Click on "Delete" button

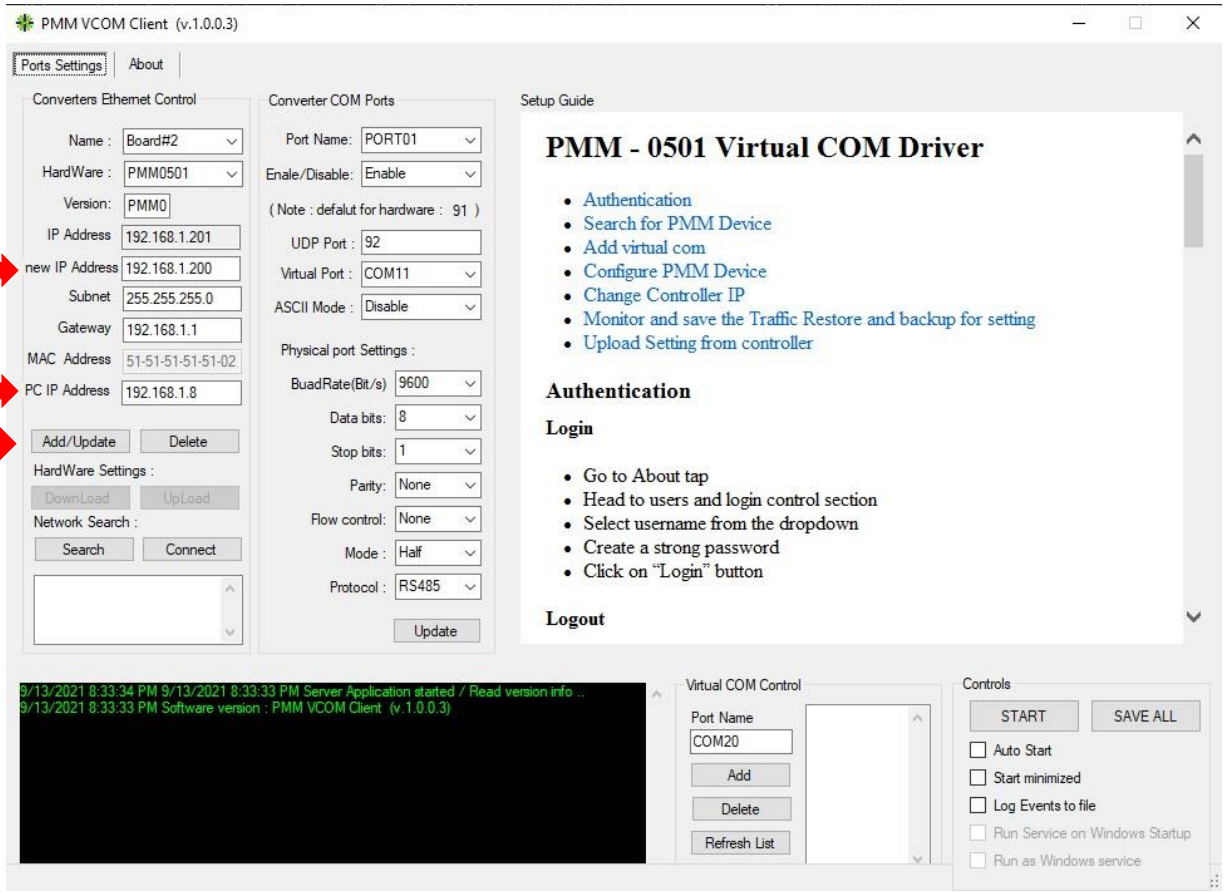
7.7 Configure PMM Device

7.7.1 Change the Settings of the Device



- Login as Administrator
- From drop-down bar, select the option that its settings needed to be changed
- Select the virtual port that will be connected with this port
- Change the Baud rate, data bit, parity.
- Click on "Save" button to save settings then click on "Save All" button
- Start the converter
- Click on "Update Button" to save changes in the controller

7.7.2 Change PMM and Device IP Address



- Login as Administrator
- Start the converter
- In port settings tap Converter Ethernet port
- Add the new PMM IP address on New IP Address field
- Add the new PC IP address on PC IP Address field
- Click on "Save" button to save settings
- Click on Download Button to save changes in the controller