



INTRODUCTION TO APM POWER METER CONFIGURATOR SOFTWARE

INITIAL APM POWER METER CONFIGURATION SCREEN

1. Connect your APM device into the computer via the recommended USB cable.
2. The APM model will show in the APM configurator screen. (Image #1)

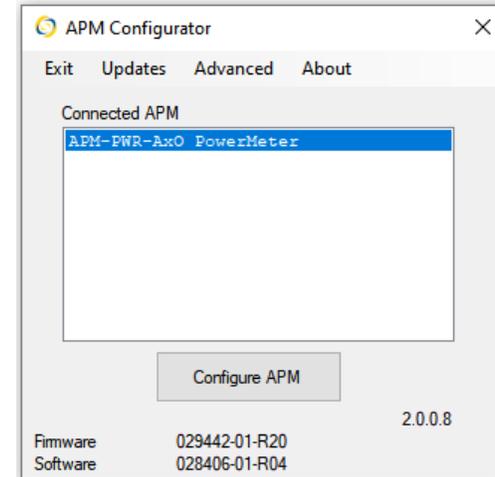


Image #1

3. Check for updates for your specific model. (Image #2)
 1. Click on **Updates**
 2. Check to see if the Install Updates for Selected Meter is highlighted
 - If highlighted, click on **Install Updates for Selected Meter**.
4. Let the updates complete and then click on **Configure APM**.

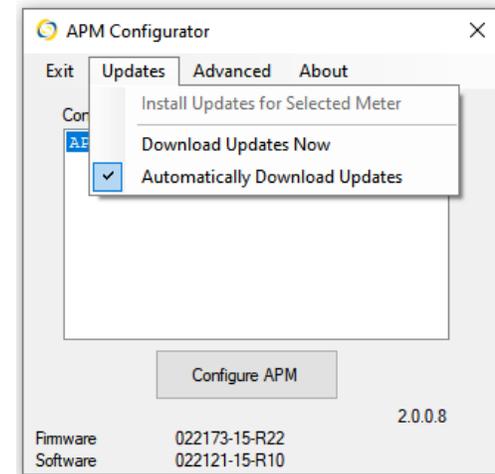
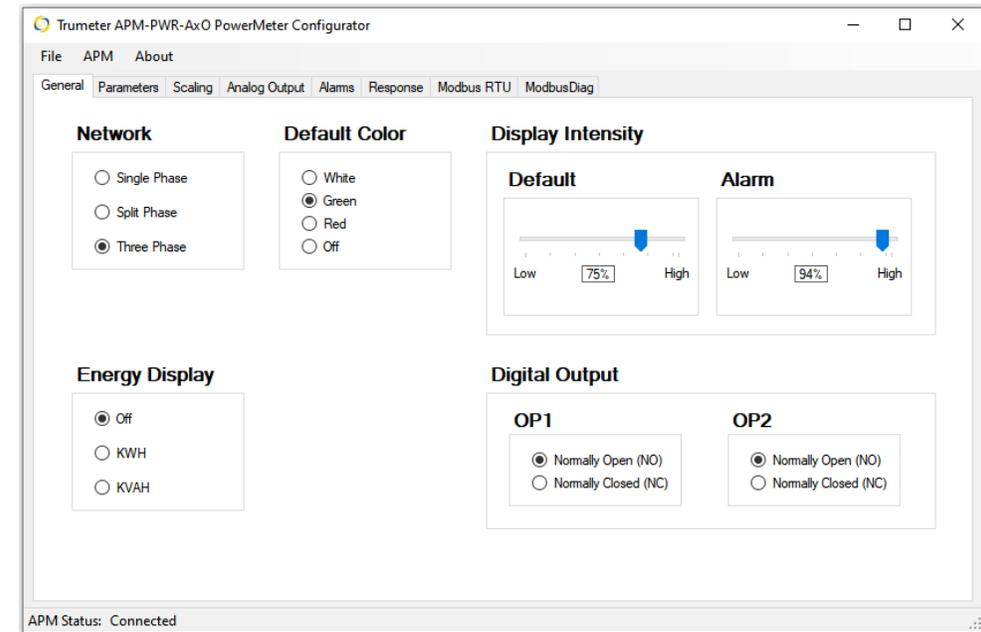


Image #2

APM POWER METER GENERAL SCREEN

1. **Network** - Select the network type you wish to measure
 - *Single, Split or Three Phase*
2. **Energy Display** - Turn on total KWH or KVAH to show on the bottom of the display.
 - Off, KWH or KVAH
3. **Default Color** – Set the default background color of the display
 - White, Green, Red or Off
4. **Display Intensity**
 - Set the brightness of the display when operating under normal conditions and the brightness of the display during a preset Alarm condition.
5. **Digital Output – OP1 and OP2**
 - Open Collector Transistor
 - The maximum current that the APM can sink is 500mA. The APM can therefore be connected to a load of up to 12W. Please note that the maximum voltage that can connected to the outputs is 24V.
 - Can be used to control a relay or buzzer.
 - You can set the digital outputs to be Normally Open (NO) or Normally Closed (NC).



APM POWER METER PARAMETERS SCREEN

1. Parameters available to configure and display

- Frequency, L-L Voltage, L-N Voltage, Current, Active Power, Reactive Power, Total Power, Voltage THD, Current THD, Percentage

2. Units of Measure

- Select the unit of measure for the specified parameter.

3. Decimal Places

- You can select up to 3 decimals for each parameter that you want to view.

4. Display Intensity

- Set the brightness of the display when operating under normal conditions and the brightness of the display during a preset Alarm condition.

5. Bargraph Scale (MAX)

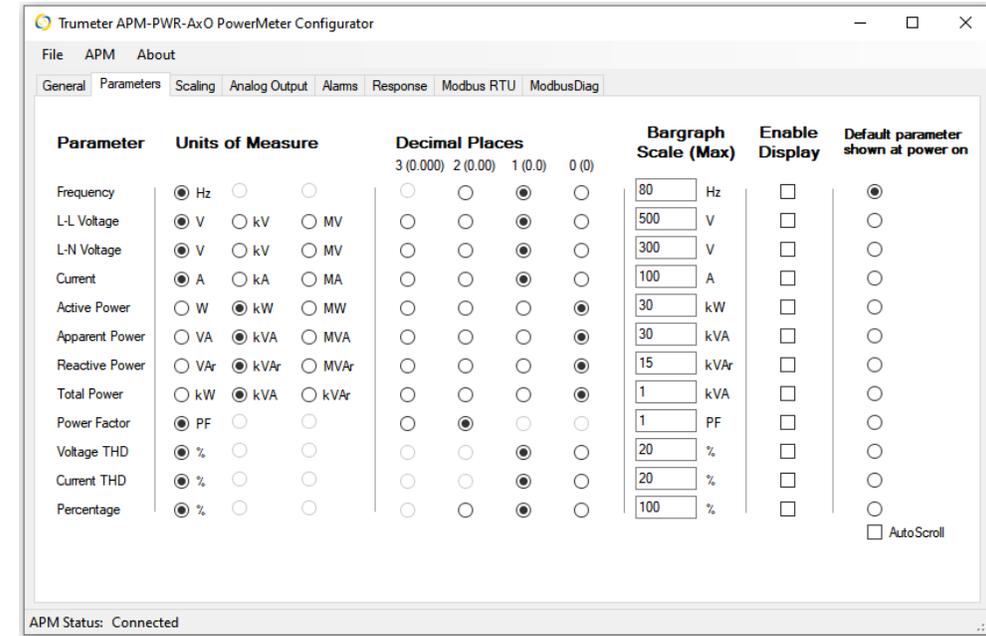
- Enter the maximum value that you want to display for the specific parameter.

6. Enable Display

- Check the box of the parameters that you wish to view on the display.

7. Default parameter shown at power on

- Check the circle to show the default parameter you wish to view when power is applied.
- Auto Scroll – if you check this box, the meter will scroll through the parameters selected in the Enable Display section every 5 seconds



APM POWER METER PARAMETER CALCULATIONS

L-L Voltage

1. Does not assume 3 phase are equal.
2. Uses two phase voltages and the angle between them to produce the corresponding delta voltage
 - $VB_O = Voltage_2 * SIN(180 - Angle)$
 - $VB_A = Voltage_2 * COS(180 - Angle)$
 - $VA_VB_A = Voltage_1 + VB_A$
 - $V\ L-L = SQRT((VA_VB_A)^2 + (VB_O)^2)$

Active Power

- $Watt = VA * PF$

Apparent Power

- $VA = V * I$

Reactive Power

- $VAr = VA * SIN(Angle)$

Total Power

- $KW_{TOT} = KW_{L1} + KW_{L2} + KW_{L3}$

Power Factor

- $PF = COS(Angle)$

Horsepower

- $HP = W/746$

Percentage

- $\% = Parameter / Max * 100$

APM POWER METER SCALING SCREEN

1. Current Transformer Scaling

- This is used to setup the current transformer ratio to let the APM know what conversion needs to be done. i.e., if you have a 100:5 Amp current transformer
 - Primary CT Current Rating is 100 Amps
 - Secondary CT Current Rating is 5 Amps

2. Potential Transformer Scaling (Voltage)

- If you are using a potential transformer to lower the voltage input, you can tell the meter what voltage you are applying. i.e., if you have 1000 Volts going into the potential transformer
 - Primary PT Voltage rating is 1000 Volts
 - Secondary PT Voltage rating is 300 Volts

3. Percentage Scale

- Select the parameter that you would like to see the percentage of using the Percentage parameter on the Parameters screen. (Image #2)

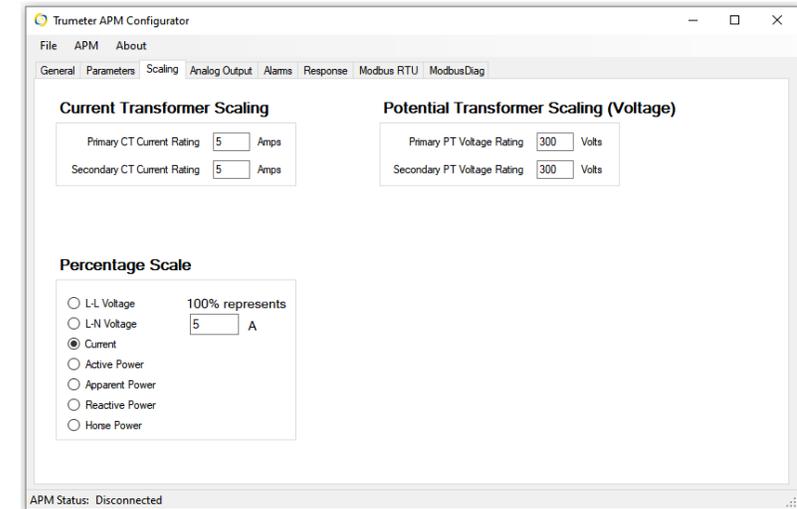


Image #1

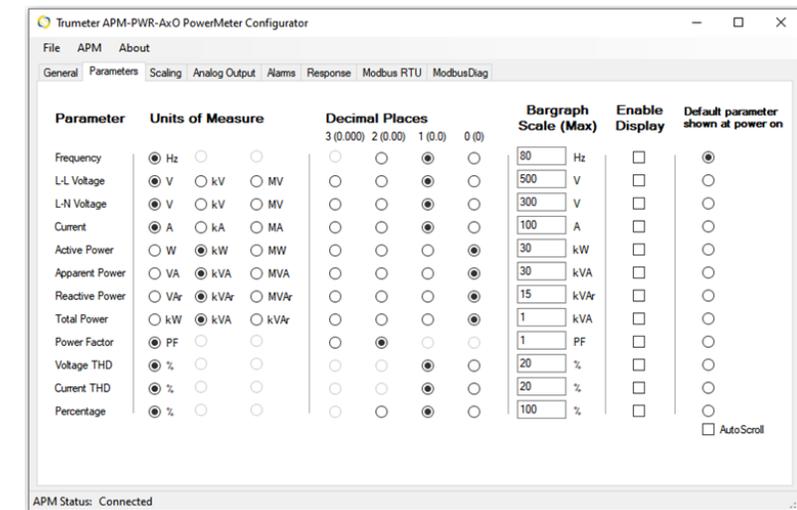


Image #2

APM POWER METER ANALOG OUTPUT SCREEN

1. Source

- Select the Source of the parameter that you would like to use for the 4-20mA output.

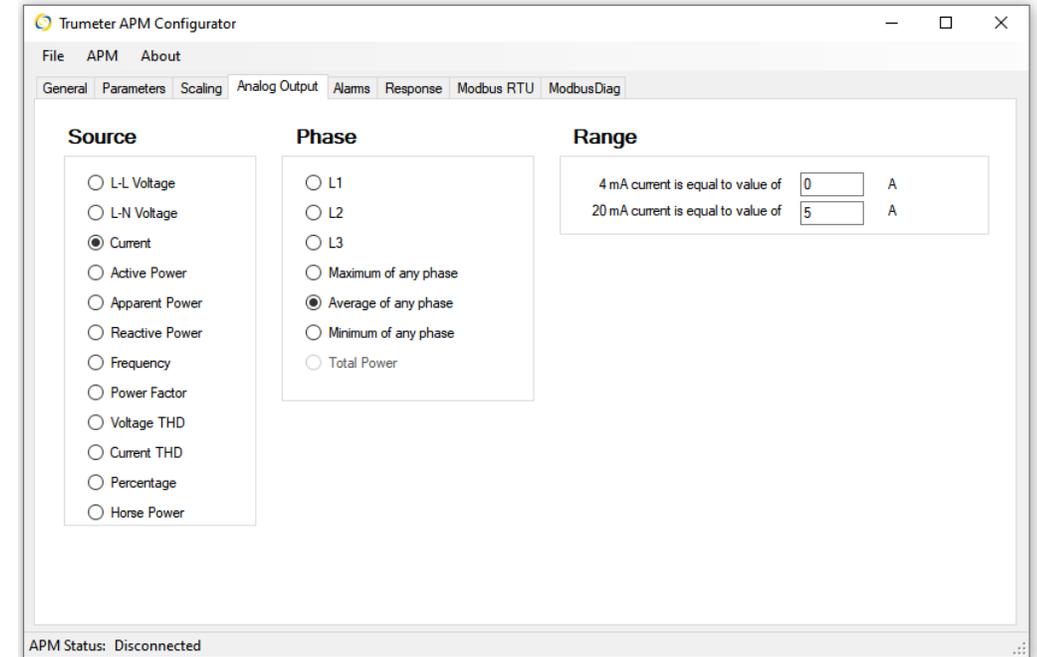
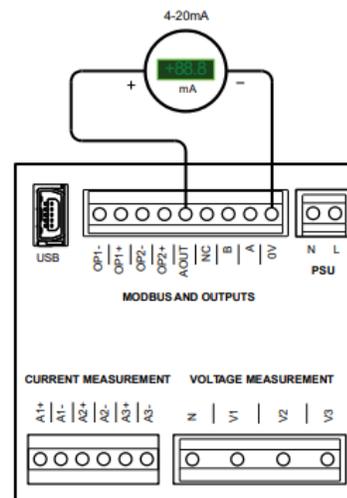
2. Phase

- Choose the phase of the output parameter selected for the Source.

3. Range

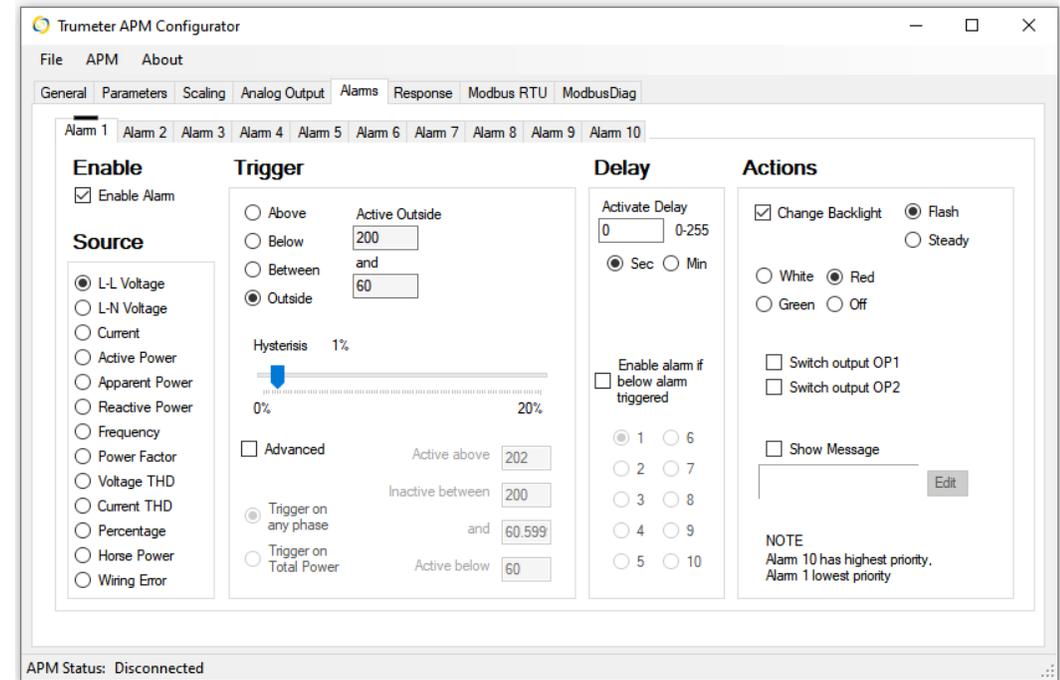
- Enter the value of the 4mA and 20mA range. i.e., if you select current and your amperage values are 0 – 25 Amps.
 - 4mA current is equal to value of 0 Amps
 - 20mA current is equal to value of 25 Amps

ANALOG OUTPUT CONNECTIONS



APM POWER METER ALARMS SCREEN

- 1. Enable**
 - Select the **Enable Alarm** box to setup the alarm.
- 2. Source**
 - Choose the Source that you will be using to activate the alarm.
- 3. Trigger**
 - Use this section to setup the measurement values to trigger the Alarm.
 - Above
 - Below
 - Between
 - Outside
- 4. Delay**
 - This can be used to delay the alarm in case you receive false readings such as a current rush on startup.
 - Sec (0 – 255 seconds)
 - Min (0 – 255 minutes)



Note: Alarm 10 has the highest priority and Alarm 1 has the lowest priority

APM POWER METER ALARMS SCREEN

5. Actions

- Change the backlight of the display on an Alarm
 1. **Flash or Steady**
 2. **Color**
 - White, Red, Green or Off
 3. **Control Digital Output #1 or Digital Output #2**
 - Switch from default setting (NO or NC).
 4. **Edit the Alarm Message (Image #2)**
 - This will be the message that shows on the display when the Alarm is active.

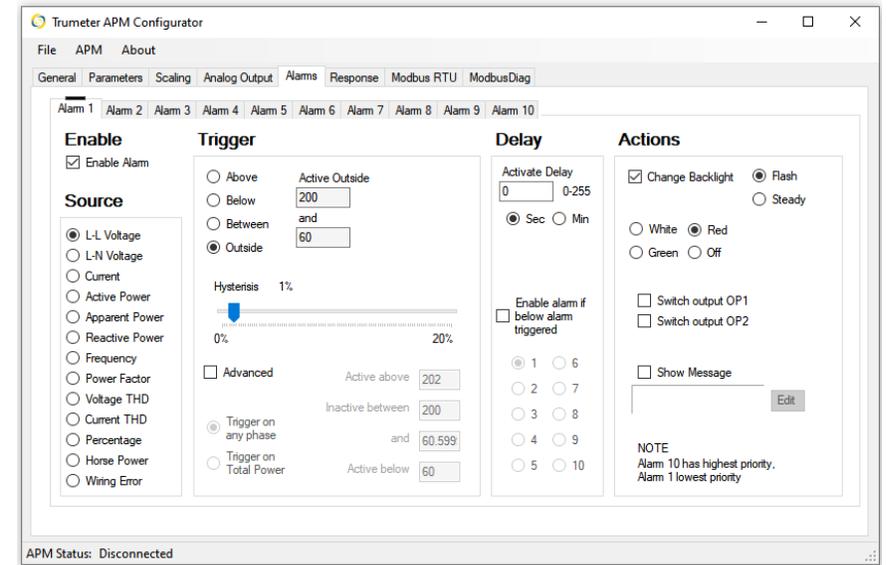


Image #1

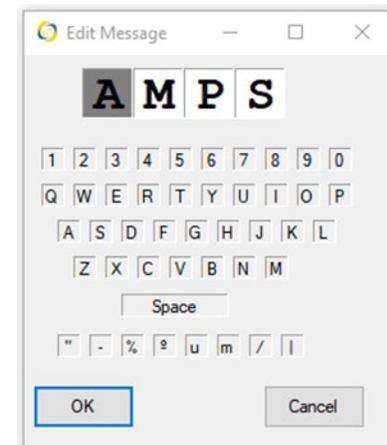


Image #2

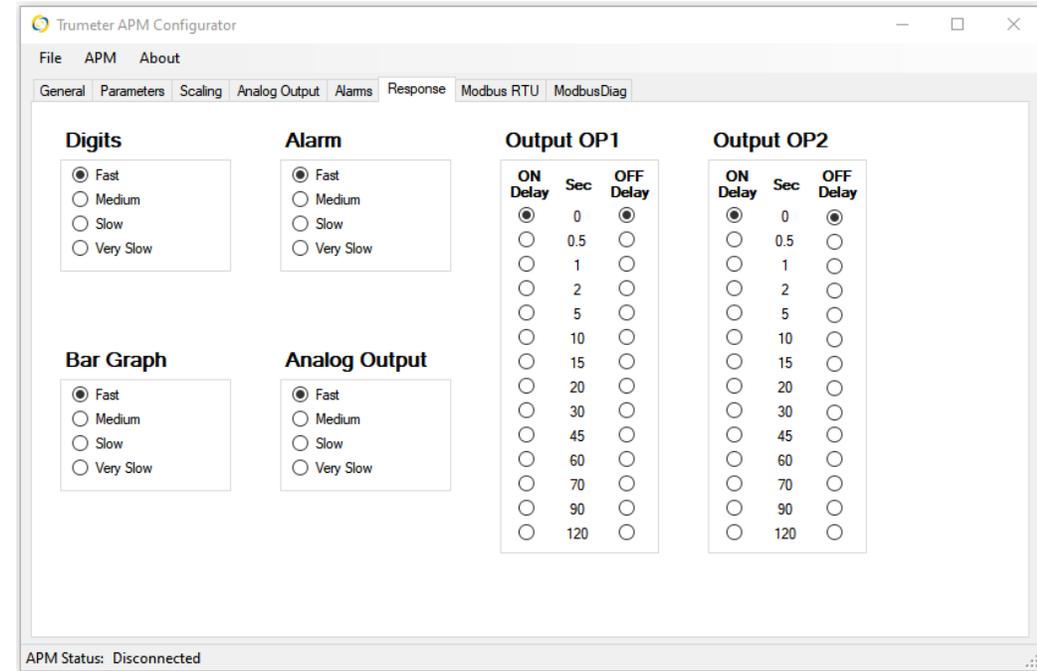
APM POWER METER RESPONSE SCREEN

1. Response

- **Digits**
 - This setting allows to slow down or speed up the refresh rate of the 4-digit readout on the display.
- **Bar Graph**
 - This setting allows to slow down or speed up the refresh rate of the bar graph on the display.
- **Alarm**
 - This setting allows to slow down or speed up the refresh rate of the displayed Alarm.
- **Analog Output**
 - This setting allows to slow down or speed up the refresh rate of the analog output. This feature is only active when the analog output is setup on the Analog Output screen.

2. Digital Output 1 & Digital Output 2

- These settings allow for you to control the on and off delay of a digital output. Only for use if you have the outputs set to digital on the Outputs screen. Also used within the Alarms screen.



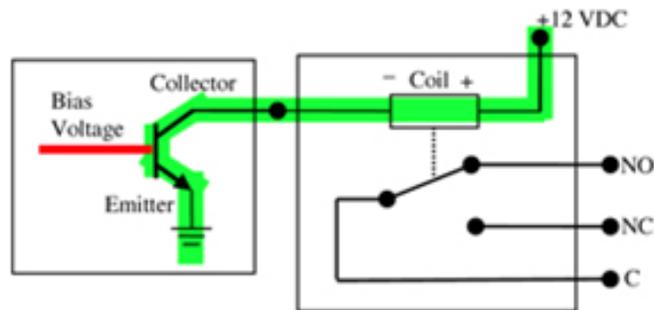
APM POWER METER DIGITAL OUTPUT WIRING

1. The APM OP1, and OP2 are NPN outputs.

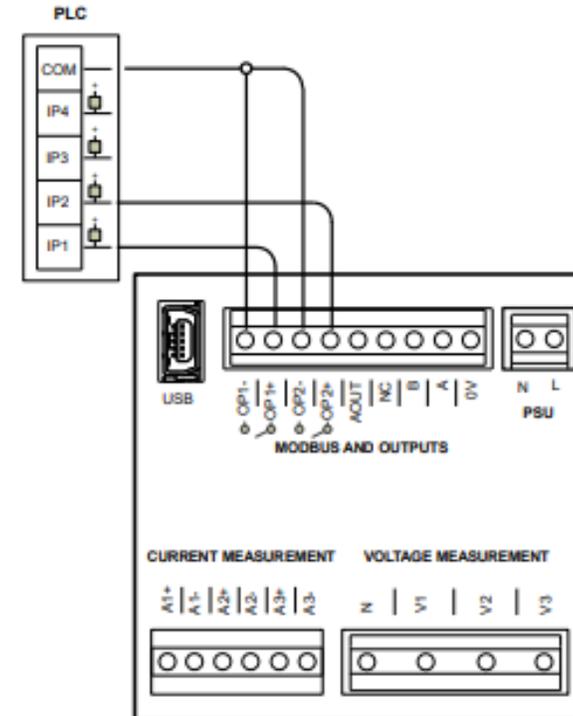
- Use a 12-24VDC external relay and wire the **plus** connection direct to the relay. The (-) of PSU (12-24VDC only) needs to go to the **common** terminal. This signal (ground) will come out on OP or OP2 to turn on the external relay.

2. Standard Open Collector Output

- The external relay or buzzer needs to be rated for 500mA current draw.



DIGITAL OUTPUT CONNECTIONS



APM POWER METER MODBUS RTU SCREEN

1. Slave ID

- This setting allows the user to setup the Modbus RS485 Slave ID number.

2. Baud Rate

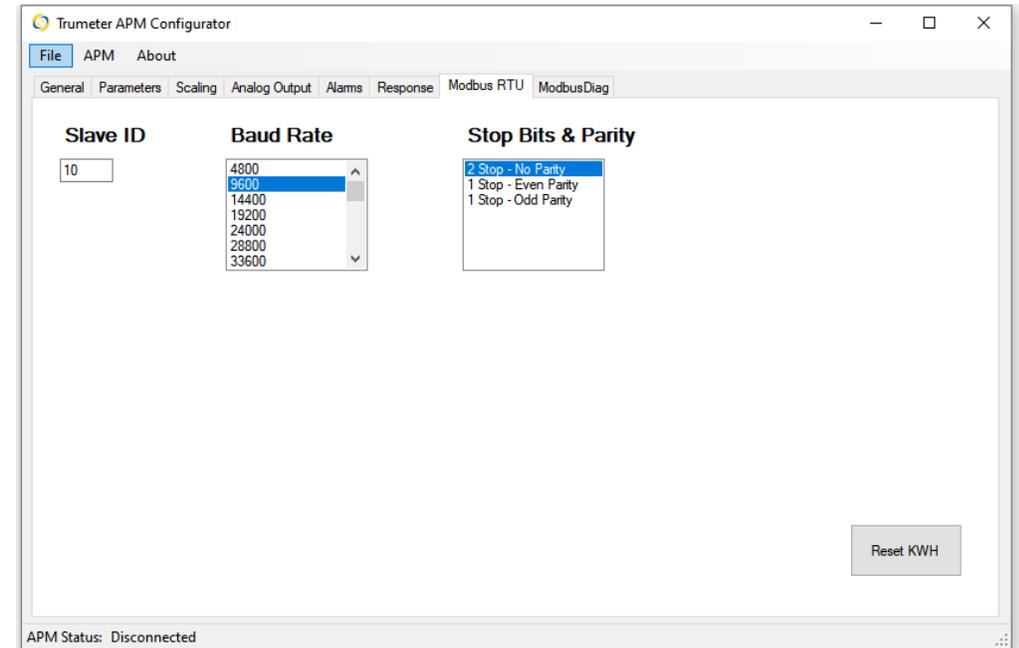
- This setting specifies the baud rate to be used when configuring the Modbus RS485.

3. Stop Bits & Parity

- This setting allows the user to setup the Stop Bits and Parity setting of the Modbus RS485.

4. Reset KWH or KVAH

- This button is used to reset the KWH or KVAH totalizer on the bottom of the Power meter's display.



More information on setting up the Modbus RS485 can be found at the following link.

1. <https://www.trumeter.com/wp-content/uploads/APM-PWR-Modbus-Communication.pdf>

Image #2

APM ALARMS SCREEN

1. Alarms - 10 Alarms available to set

1. State

- Enabled

2. Trigger

- The Trigger is used to control the Alarm settings.
 - Above, Below, Between or Outside the value in the Active box.
 - Advanced
 - Gives you better control of the Alarm by providing more specifications by providing inputs for when the Alarm is Active and Inactive.

3. Actions

- Change the backlight of the display on an Alarm
 - Flash or Steady
 - Color
 - White, Red, Green or Off
 - Control the Digital Output
 - Switch from default setting (NO or NC).
 - Edit the Alarm Message (Image #2)
 - This will be the message that shows on the display when the Alarm is active.

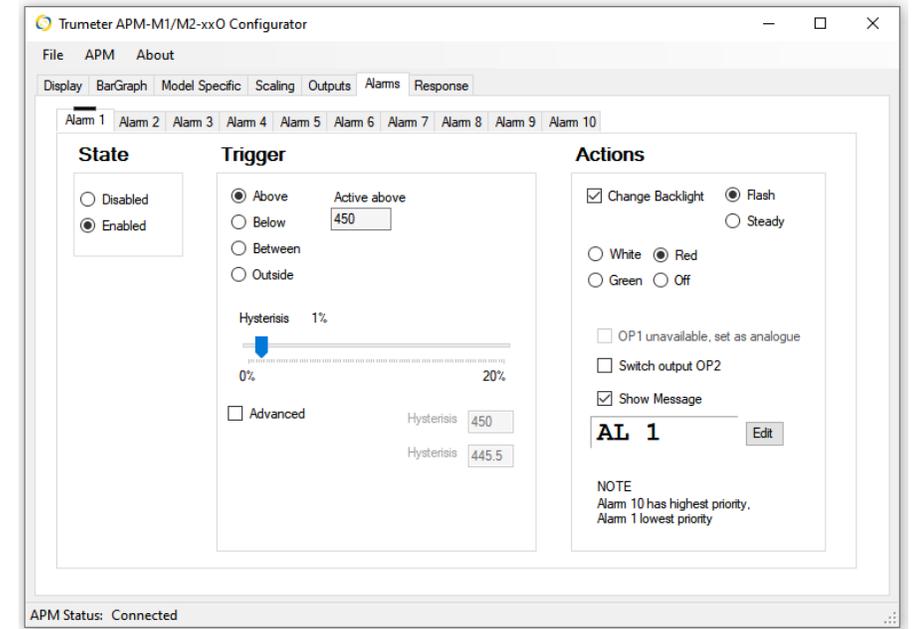


Image #1

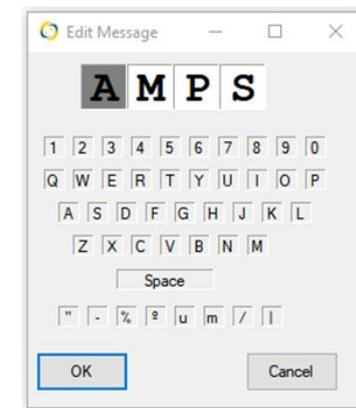


Image #2

WRITE, READ, SAVE AND LOAD FACTORY DEFAULTS

1. Write the Configuration to the APM (Image #1)

- Once you are finished with your configuration settings, you must write the program to the APM.
 - Select **APM** and then **Write Configuration to APM**.
 - You will receive a confirmation notice.
 - Select **OK**

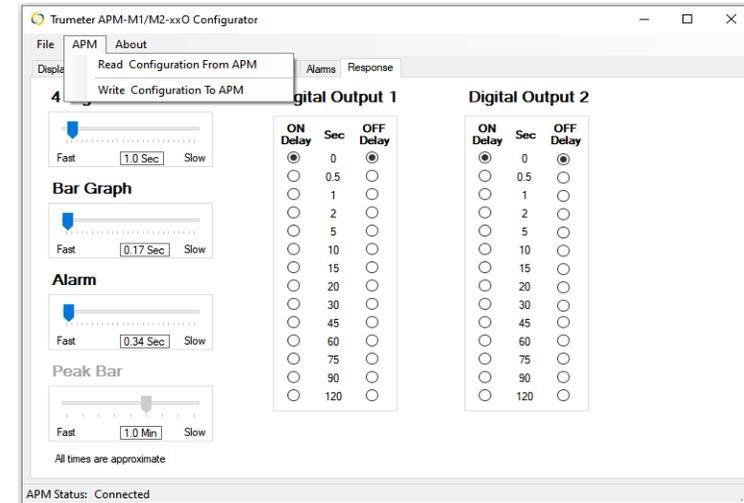
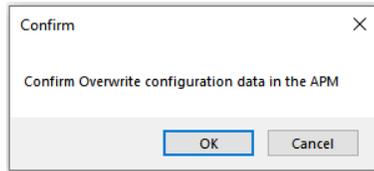


Image #1

2. Read the Configuration of an Already Programmed APM (Image #1)

- Useful when you purchase the same type of APM, and you want the load the same configuration as your current APM.
 - Connect the current APM.
 - Select **APM** and then **Read Configuration from APM**
 - This will read the configuration of the APM that you have plugged in.
 - Plug in the new meter and follow step 1 above.

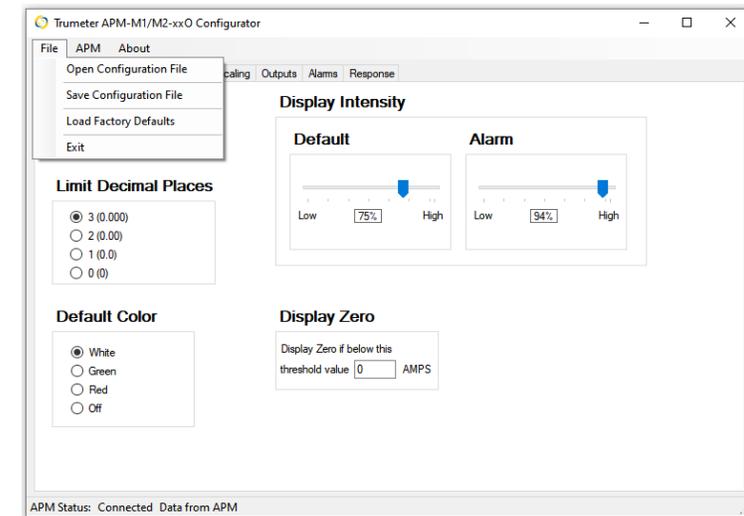


Image #2

3. Open, Save and Load Factory Defaults (Image #2)

- The APM configurator allows for the saving and opening of your custom configuration files.
- Load Factory Defaults



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