PC Software for Power Meter

For GPM-8310 & GPM-8213

Remote Viewer Guide

VERSION V.1.0

ISO-9001 CERTIFIED MANUFACTURER GW INSTEK

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INTRODUCTION

The PC Software Guide of GPM-8310/8213 is intended for showing how to use the remote PC software on Windows OS based computers (Windows 7 32bit or 64bit, Windows 8 32bit or 64bit, Windows 10 32bit or 64bit supported).

This manual consists of the following chapters.

- Setup: Installation, Uninstallation, Connecting Setting, Configuration
- Measurement: System Configuration, Measure Result and Graph viewing
- Test Report: Measure Result, Configuration and History Record

Software overview

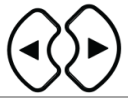
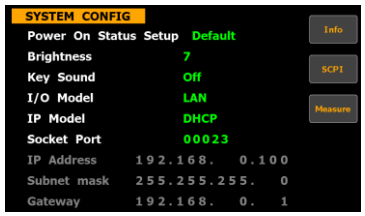
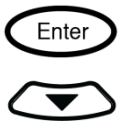
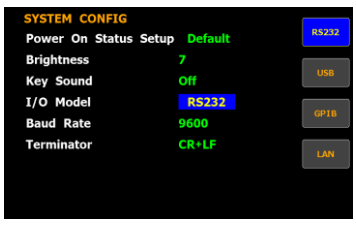
The software contains the following functions.

- Performing measurements including Integrator and Harmonic functions
- Displaying measurement results in real-time
- Storing and loading measurement log files
- Voltage/Current, Harmonics and Trend charts display
- Professional Test Report output

SETUP

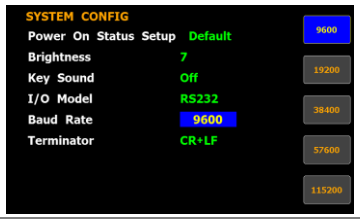
Wire Connection

Read the following instructions regarding how to set up remote interface on GPM-8310/8213 and method of cable connection when operating PC Software in conjunction with the GPM-8310/8213.

⚠Note	There are several interfaces (RS232, USB, LAN, GPIB) to connect GPM-8310/8213 and PC Software. The following procedure describes an example of RS232 connection with GPM-8310 for your reference.	
Configure to RS232 interface	1. Use left and right arrow keys on the front panel to select **System** function key.	
	2. Press **Enter** button to Enter SYSTEM INFORMATION screen.	
	3. Press **Config** soft key to Enter **SYSTEM CONFIG** setting screen. 	
	4. Press **Enter** button followed by pressing down arrow key to move cursor to **I/O Model** field.	
	5. Use soft keys to select and confirm the **RS232** option. 	

6. Press down arrow key to move cursor to **Baud Rate** field.

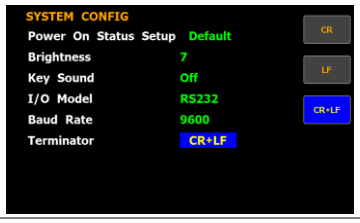
7. Use soft keys to select and confirm the **Baud Rate** option.



Option	**9600, 19200, 38400, 57600,115200**
Default value	**9600**

8. Press down arrow key to move cursor to **Terminator** field.

9. Use soft keys to select and confirm the **Terminator** option.

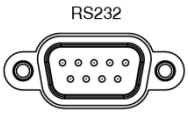


Option	**CR, LF, CR+LF**
Default value	**CR+LF**

Connect the RS232 cable

1. Connect the one end of RS232 cable (Female) to the corresponding port on the rear panel of GPM-8310 (Male) for connection.

RS232 Female port on the rear panel of GPM-8310



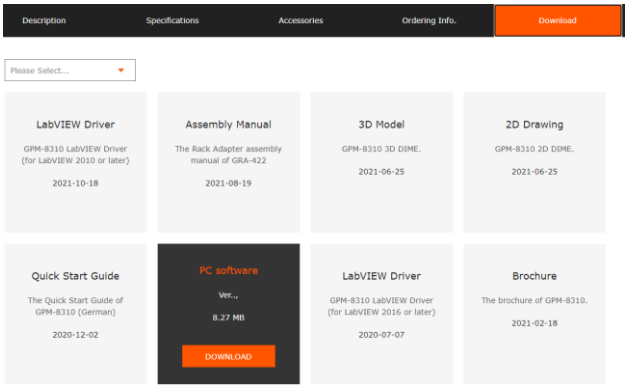
2. Connect the other end of the RS232 cable (USB Type A) to the corresponding port on the host PC.

Installation

Install PC Software

1. Go to the GPM-8310 product page from GWInstek website and enter the Downlaod section.

2. After entering the Download section, click on the PC software item to download the target file.



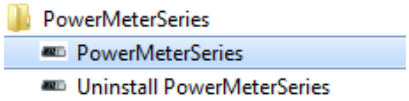
3. Go to the PowerMeterSeries directory from the downloaded target file.

4. Double click on the setup.exe.

5. The installation wizard will start up. Follow the directions of the installation wizard. When choosing an install location it is recommended that the default location is chosen.

   The default location of the software is C:\Program Files (x86)\PowerMeterSeries\PowerMeterSeries.exe

   A program icon should be available from the Start Menu.

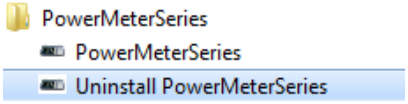


Uninstallation

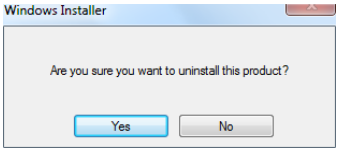
Follow the procedures described in this section when the PC software needs to be removed.

Uninstall the PC Software from Start Menu

1. Click on **Uninstall PowerMeterSeries** under the default folder of PowerMeterSeries from Start Menu.



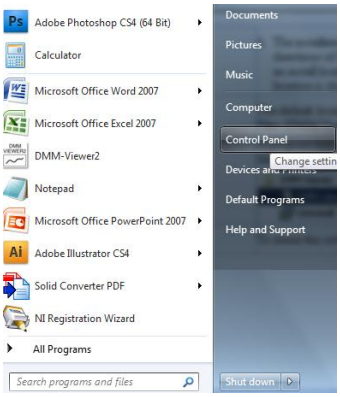
2. Click on **Yes** from the prompt message showing "Are you sure you want to uninstall this product?"



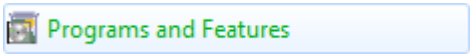
3. The uninstalling process will proceed automatically until complete finish.

Uninstall the PC Software from Control Panel

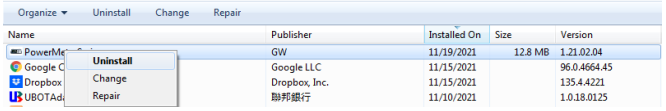
1. Press **Control Panel** from the Windows Start menu.



2. Click **Programs and Features** option.



3. Select **PowerMeterSeries** followed by pressing the **Uninstall** button.

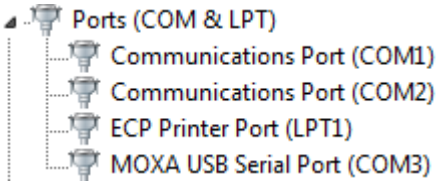


4. Follow the instructions step by step to complete the uninstalling process.

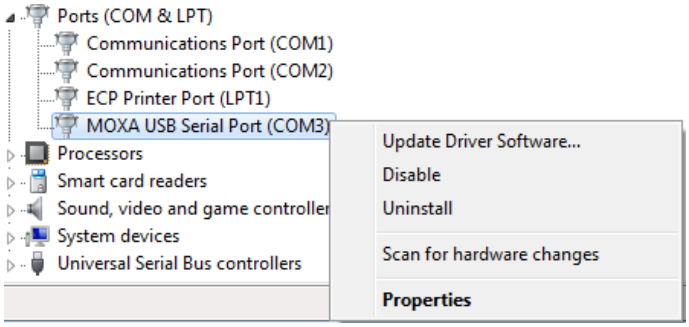
Configuration

Check the host PC

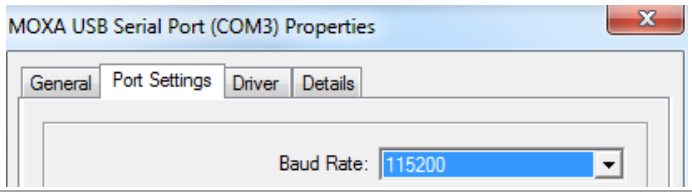
1. Before making sure the PC Software is recognized by the connected PC, open the **Device Manager (Start > Control Panel > (System) > Device Manager**.
2. Check which COM port the cable connection is assigned to. Here we take RS232 cable for example.



3. To see the baud rate of the RS232 connection, right click the corresponding port and select Properties.

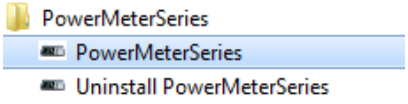


4. Click the **Port Settings** tab and check the baud rate of the connection.

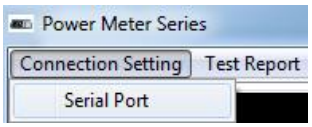


Configure the PC Software

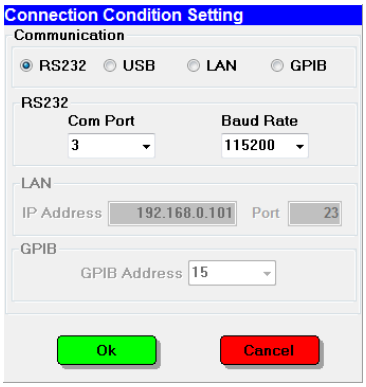
1. Activate the PC Software from the Start Menu.



2. Click on the **Connection Setting** tab from the top Tool Bar and open the **Serial Port** dialog.

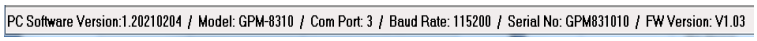


3. Select the target interface from the Connection Condition Setting box. We select RS232 communication, for example, followed by setting the corresponding Com Port to 3 and Baud Rate to 115200.



4. Further click OK in green message box to establish the connection.

5. After clicking OK, the successful message with relevant information will appear in the bottom line of the PC Software as shown below.



7. Move on to the next Measure chapter.

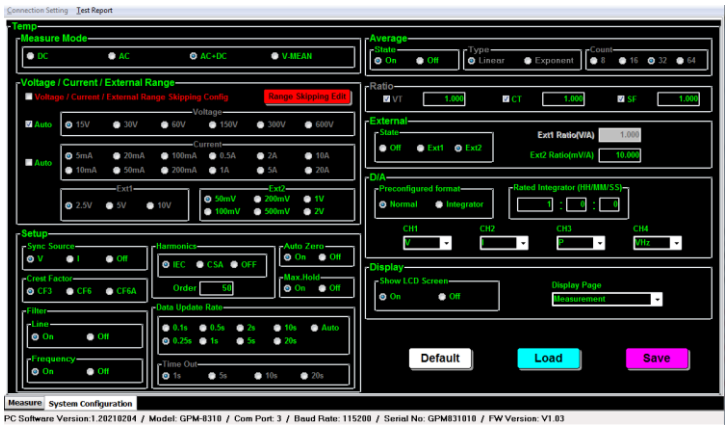
MEASUREMENT

System Configuration

⚠Note Prior to measurement, follow the procedures for wire connection and configuration from the page 5 to 9.

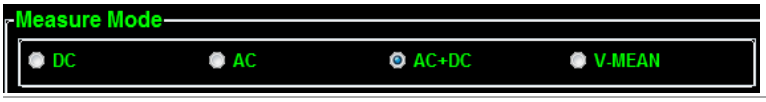
1. After eatablishing connection between PC software and GPM-8310, press the **System Configuration** tab in the lower-left corner to enter the page.

2. Configure each setting individually as follows.



Measure Mode

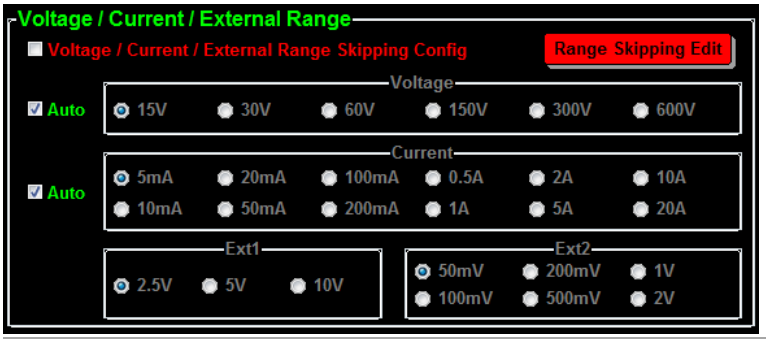
Select measurement mode. There are up to 4 measurement modes.



AC+DC	Display all the components of measurement signal.
DC	Display the DC part of the measurement signal.
AC	Display the AC part of the measurement signal.
V-MEAN	Displays the voltage rectified as a mean value that is calibrated to RMS value. The value is same with those obtained from RMS mode when sine waves are measured, but it is different when DC or distorted waves are measured.

Voltage / Current / External Range

Select an appropriate range for Voltage, Current, EXT1 and EXT corresponding to measurement.

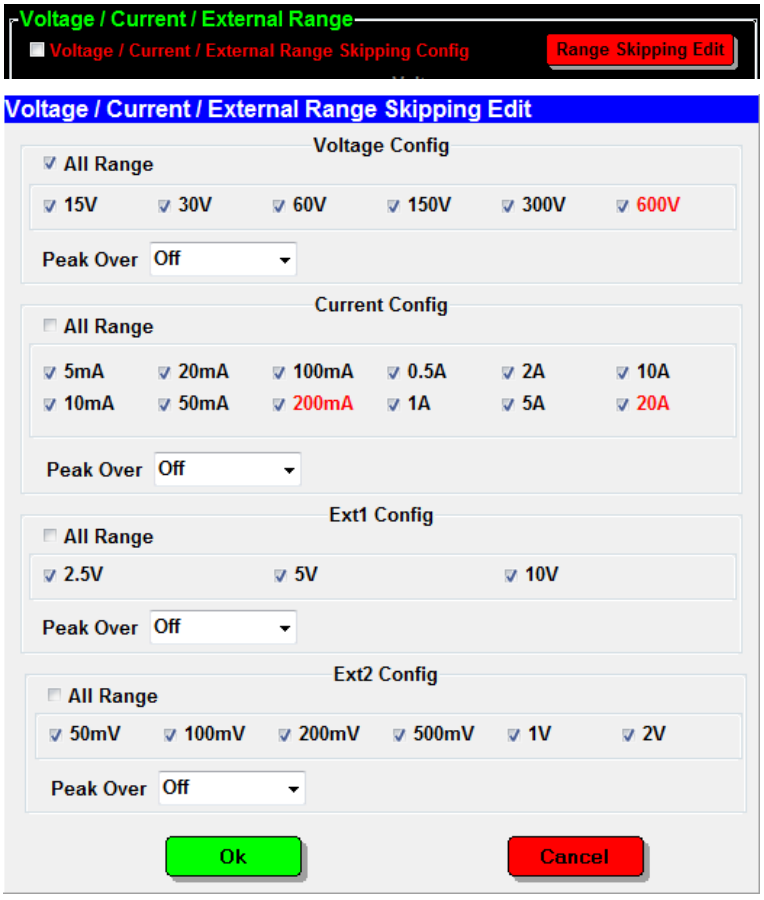


Voltage	When Crest Factor is 3, the available voltage range is AUTO, 15V, 30V, 60V, 150V, 300V, 600V. When Crest Factor is 6/6A, the available voltage range is AUTO, 7.5V, 15V, 30V, 75V, 150V, 300V.
Current	When Crest Factor is 3, the available current range is AUTO, 5mA, 10mA, 20mA, 50mA, 100mA, 200mA, 0.5A, 1A, 2A, 5A, 10A, 20A. When Crest Factor is 6/6A, the available current range is AUTO, 2.5mA, 5mA, 10mA, 25mA, 50mA, 100mA, 250mA, 0.5A, 1A, 2.5A, 5A, 10A.

EXT1	When Crest Factor is 3, the available EXT1 range is 2.5V, 5V, 10V. When Crest Factor is 6/6A, the available EXT1 range is 1.25V, 2.5V, 5V.
EXT2	When Crest Factor is 3, the available EXT2 range is 50mV, 100mV, 200mV, 500mV, 1V, 2V. When Crest Factor is 6/6A, the available EXT2 range is 25mV, 50mV, 100mV, 250mV, 0.5V, 1V.

Voltage / Current / External Skipping Range

Configure appropriate skipping range(s) for Voltage, Current, EXT1 and EXT corresponding to measurement.



Voltage Config	When Crest Factor is 3, the available skipping voltage range is 15V, 30V, 60V, 150V, 300V, 600V. When Crest Factor is 6/6A, the available skipping voltage range is 7.5V, 15V, 30V, 75V, 150V, 300V. In addition, the Peak Over function, which defines a measurement range to switch to when peak over-range happens in Auto range mode, provides the options corresponding to the selected options from the Voltage Config.
Current Config	When Crest Factor is 3, the available skipping current range is 5mA, 10mA, 20mA, 50mA, 100mA, 200mA, 0.5A, 1A, 2A, 5A, 10A, 20A. When Crest Factor is 6/6A, the available skipping current range is 2.5mA, 5mA, 10mA, 25mA, 50mA, 100mA, 250mA, 0.5A, 1A, 2A, 5A, 10A. In addition, the Peak Over function provides the options corresponding to the selected options from the Current Config.
EXT1 Config	When Crest Factor is 3, the available skipping EXT1 range is 2.5V, 5V, 10V. When Crest Factor is 6, 6A, the available EXT1 skipping voltage range is 1.25V, 2.5V, 5V. In addition, the Peak Over function provides the options corresponding to the selected options from the EXT1 Config.
EXT2 Config	When Crest Factor is 3, the available EXT2 skipping range is 50mV/100mV/200mV/500mV/1V/2V. When Crest Factor is 6/6A, the available EXT2 skipping voltage range is 25mV/50mV/100mV/250mV/0.5V/1V. In addition, the Peak Over function provides the options corresponding to the selected options from the EXT2 Config.

Sync Source

Select sync source from either Voltage or Current.

V	Select the voltage of signals as synchronization source.
I	Select the current of signals as synchronization source.
Off	Select the entire interval of data updating period as synchronization source.

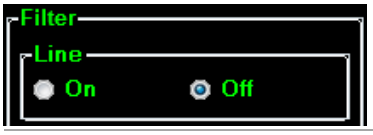
Crest Factor

Select a crest factor corresponding to measurement.

3	Crest Factor is 3.
6	Crest Factor is 6.
6A	Crest Factor is 6A where input range of measurement range will be extended and greater than 6. This is practical for restraining from frequent range changes while measuring, under auto range, a distorted waveform.

Line Filter

Turn on or off line filter corresponding to measurement.



On	Turn on the line filter function, which is inserted into voltage and current measurement input circuits and affects voltage, current as well as power measurements without high frequency components included within measured values.
Off	Turn off the line filter function. The cutoff frequency is 500Hz.

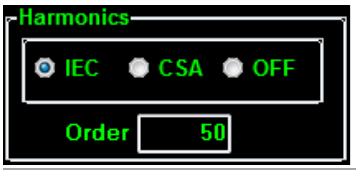
Frequency Filter

Turn on or off frequency filter corresponding to measurement.

On	Turn on the frequency filter function, which is inserted into frequency measurement input circuit and affects frequency measurements with high frequency components included within measured values.
Off	Turn off the frequency filter function. The cutoff frequency is 500Hz.

Harmonics

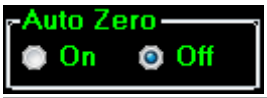
Select desired option for harmonics when necessary.



IEC	Calculate the ratio of harmonic quantity of the 2nd through the upper limit 50th harmonic to the 1st harmonic.
CSA	Calculate the ratio of harmonic quantity of the 2nd through the upper limit 50th harmonic to the 1st through the 50th harmonic.
Off	Turn off the harmonic calculation function.
Order	Set the upper limit of measured harmonic order within the range from 1 to 50.

Auto Zero

Turn on or off auto-zero function.



On	Auto-zero function is activated once per hour or when range is switched.
Off	Auto-zero function is only activated once when the range is switched. The auto-zero function is turned off when the integrator function is executed.

Max. Hold

Turn on or off max hold function.

On	When Max. Hold function is activated, the measured value on display is updated only when the current measured value is greater than the previous measured value. The maximum display value is retained on display.
Off	The measured value on display is kept being updated continiously regardless of scale of value.

Data Update Rate

Designate a data update rate for measurement.

0.1s/ 0.25s/ 0.5s/1s/2s/ 5s/10s/20s	Measured value is updated in accordance with the designated time interval. The Update 5s status icon, for example, on the display lights up in green when 5s option is selected.
Auto	Data is only updated when a set period (Time Out) of the input waveform is detected.
Time Out (1s/5s/ 10s/ 20s)	Time Out period acts like the time limit for detecting a period of the input waveform.

Average

Turn on or off line filter corresponding to measurement.

On	Turn Average function On for either Linear or Exponential averages of numeric data. It is particularly practical for large changes in load or power of low input signal frequency.

Off	Turn off Average function.
Type - Linear	With the designated linear count, it is used to compute linear averages.
Type - Exponent	With the specified attenuation count, numeric data will be averaged exponentially.
Count (8/16/ 32/64)	It includes 8, 16, 32 and 64 for exponentially attenuation count and linearly average count.

Ratio

Turn on or off VT, CT and SF ratio respectively.

VT	Turn on the VT (Voltage Transformer) ratio calculation function.
CT	Turn on the CT (Current Transformer) ratio calculation function.
SF	Turn on the power ratio calculation function.
Ratio	Designate ratio for VT, CT and SF individually and it ranges from 0000.001 to 9999.999.

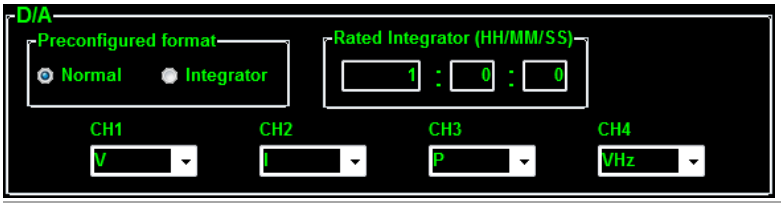
External

Turn on or off EXT1 and EXT2 sensor input terminal.

Ext1	Turn on the Ext1 terminal function that receives voltage up to 10V including shunts and clamps from external output current sensor for measurement.
Ext1 Ratio (V/A)	The setting range for Ext1 is from 0000.001 to 9999.999.
Ext2	Almost identical with the Ext1, the Ext2 terminal receives up to 2V voltage.
Ext2 Ratio (mV/A)	The setting range for Ext2 is from 0000.001 to 9999.999.

D/A

Select either Normal or Integrator mode for D/A output



Normal	The D/A output parameters for each channel will be changed to the default setting of Normal mode as follows.	
Default Value	CH1	V
	CH2	I
	CH3	P
	CH4	VHz

Integrator	The D/A output parameters for each channel will be changed to the default setting of Integrator mode as follows.	
Default Value	CH1	P
	CH2	WP
	CH3	q
	CH4	VHz

Rated Integrator	The setting range for time of rated integrator is from 0000:00:00 to 9999:59:59. When the time is set 0000:00:00, D/A output value will be 0V.

Display

Turn on or off LCD display on the connected GPM-8310/8213. Also, when turning on display, it is available to designate a specific display page.

On	The LCD screen display on the connected GPM-8310/8213 will be turned on.
Off	The LCD screen display on the connected GPM-8310/8213 will be turned off.
Display Page	Specify which page to be shown on GPM-8310/8213 LCD display. Refer to the available options below.

- Measurement
- Enlarge
- Integrator
- System_Info
- System_Config
- SCPI
- Setup
- Average
- V/A_Range_Config
- Extern_Range_Config
- Ratio
- External
- Save/Load
- D/A
- HARDCOPY
- MATH
- Graph
- Harmonics_Graph
- Harmonics_List_Graph

Default / Load / Save

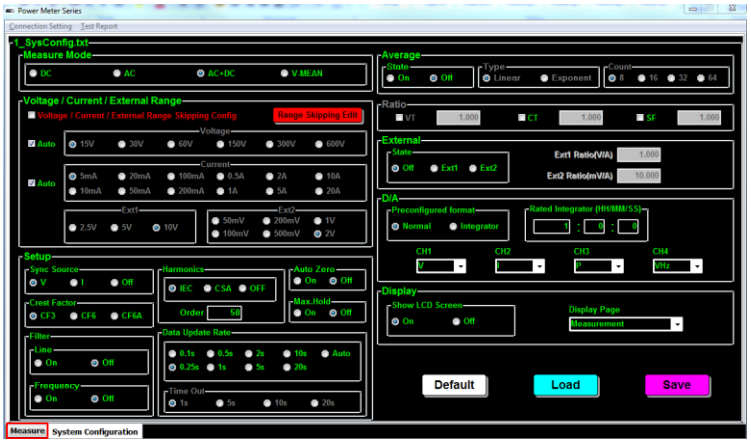
The settings of System Configuration can be saved into the specific directory and recalled in the late time when necessary for operator.

Default	Press the button to restore the settings back to the default settings.
Load	Press the button to recall the previously saved setting file from the directory of C:\PowerMeterSeries\SystemConfiguration.
Save	Press the button to save the setting file with an user-defined filename into the directory of C:\PowerMeterSeries\SystemConfiguration.

Measure

V/I Range and System Status

1. After setting up the System Configuration, press the **Measure** tab in the lower-left corner to enter the Measure page.



2. From the top-left section of Measure page, it clearly shows the currently applied measurement V and I range settings individually. The "Auto" indicates auto range is activated. Also, the icons for each setting from System Configuration are displayed within the System Status section. See the table below for details.

AC+DC	Current Measurement Mode (AC, DC, AC+DC, V-MEAN)
Update 0.25	Current Data Update Rate (0.1/0.25/0.5/1/2/5/10/20/Auto)
CF3	Current Crest Factor (3/6/6A)
VT	External voltage magnification (On-green /Off-gray)

CT	External current magnification (On-green /Off-gray)
SF	External power magnification (On-green /Off-gray)
LF	Voltage and Current line Filters (On-green /Off-gray)
FF	Frequency Filters (On-green /Off-gray)
MAX Hold	Retain and display the maximum measurement reading (On-red /Off-gray)
AVG-8	Current Average number of sampling (8/16/32/64) (On-green /Off-gray)
SYNC.I	Current Sync Source (V/I/Off) (On-green /Off-gray)
HRM.C	Current Harmonics calculation method (IEC/CSA/Off) (On-green /Off-no show)
Ext1	Current External signal input function (Ext1/Ext2/Off) (On-green /Off-no show)
Integrator	It indicates if the Integrator function is being executed (On-red /Off-gray)
P_V	The voltage exceeds the Peak Over measurement range (On-red /Off-gray)
P_I	The current exceeds the Peak Over measurement range (On-red /Off-gray)
	The indicator will be blinking between red and green when measurement is ongoing. It's soild red when no measurement is executed.

Start/Stop Measurement and Log Data

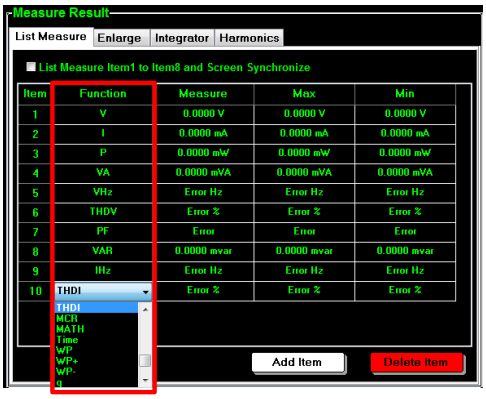
1. To initiate measurement, press the **Start** button in the top-right section. After pressing the Start button, a prompt message reading "Will the parameters be recorded?" pops up. Click **OK** to record measurement Log Data into host PC. Pressing the **Stop** button simply halts measurement.

Note The Log Data is saved into the specific directory C:\PowerMeterSeries\MeasResult.

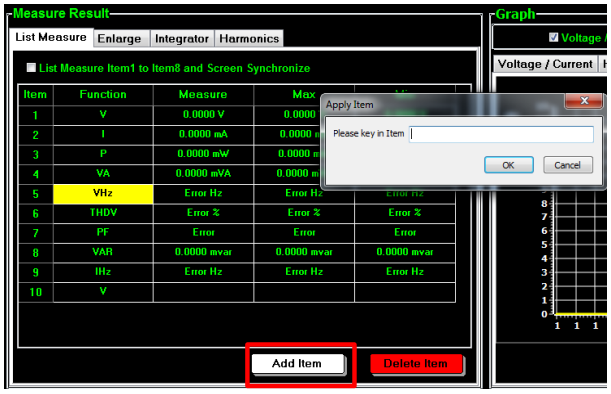
2. When activating log data recording, it is available to define a name for data. In addition, user can define interval of log recording by inputing value in second(s) in the Log Time (Sec) field.

Measure Result – List Measure

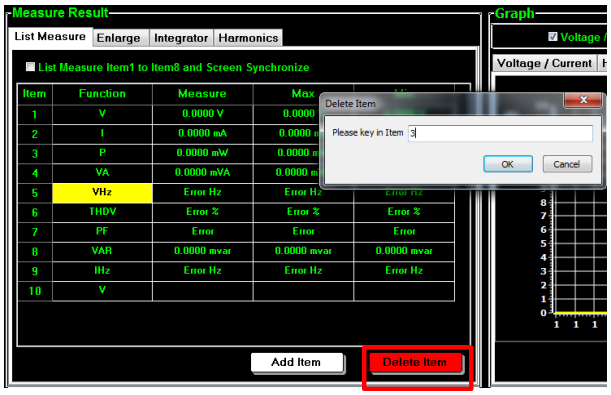
1. After starting measurement, the live-measured data including Measured value, Max value and Min value for varied measure functions are displayed within the table, respectively. Double click on any of itmes from the "Function" column to change measure function.



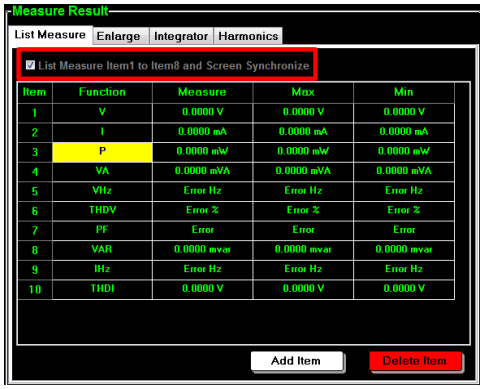
2. Press the **Add** Item button to add more measure functions into list. User can add as many functions as desired. And it is available to add from 1 ~ 10 functions per time.



3. Press the **Delete** Item button to remove function(s) from the list. At least one function should be remained in list. And it is available to delete from 1 ~ 10 functions per time.



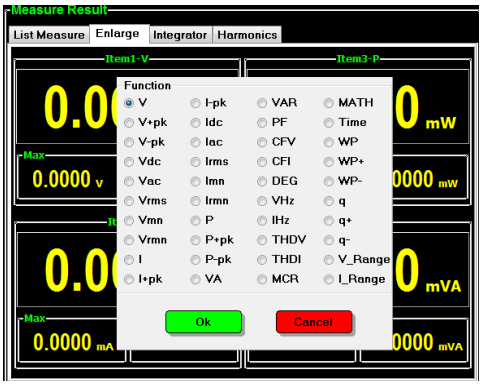
4. Check the box "**List Measure Item1 to Item8 and Screen Synchronize**" to sync the Item1 to Item8 functions with the 8 measurement parameters from GPM-8310/8213.



Measure Result – Enlarge

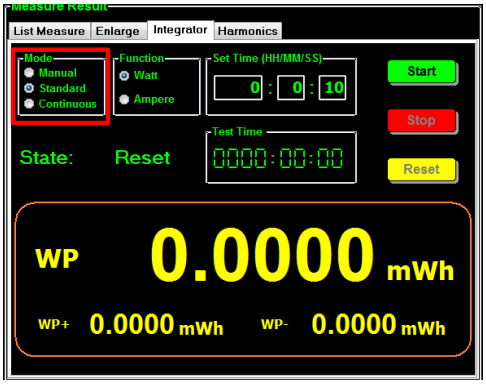
1. Press the **Enlarge** tab to enter the Enlarge section where up to 4 measurements along with Max and Min values, respectively, are displayed. Click on each Item (1-4) to change its measure function.

2. The function page is shown where several measure functions are available to select. Click **OK** to confirm your selection.



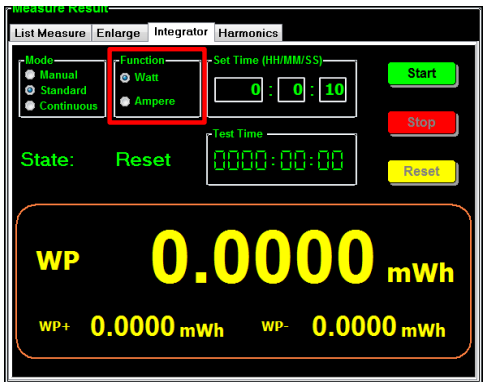
Measure Result – Integrator

1. Press the **Integrator** tab to enter the Integrator section where user can operate integration function by starting from selecting a Mode first.



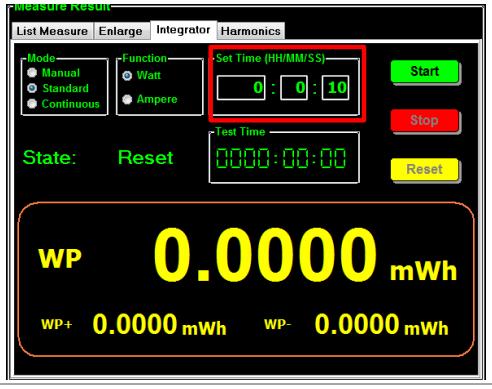
- **Standard**: It allows user to define a period of Set Time for integrator measurement, which ranges from 1 secs to 9999 hrs, 59 mins and 59 secs.
- **Manual**: User is not able to define a Set Time. The integrator measurement will be running constantly till Stop button is pressed by user.
- **Continuous**: Partly identical with the Standard mode, the integrator measurement runs for a cycle of the Set Time and repeats the cycle indefinitely until Stop button is pressed by user.

2. Select which Function to apply. The measured values will be shown in the lower section where function units vary in accord with selected Function.



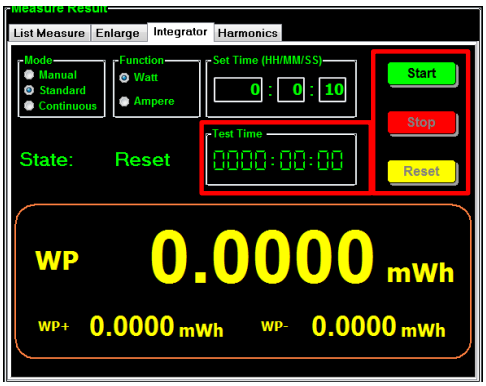
- **Watt**
  WP: Total power
  WP+: Positive total power
  WP-: Negative total power
- **Ampere**
  q: Total mAh
  q+: Positive total mAh
  q-: Negative total mAh

3. Define a Set Time period which indicates the time of integrator measurement to be set. It can be set from 1 second to 9999 hours, 59 minutes and 59 seconds.



Note Set Time is not applicable to Manual Mode. When the Set Time is zero, neither Standard nor Continuous Mode can be executed.

4. Press the **Start** button to initiate integrator function. The Test Time will elapse untill the Set Time is reached.



- **Start**: Press the button to initiate integrator function.
- **Stop**: Press the button to halt integrator function.
- **Reset**: Press the button to clear integrator data.

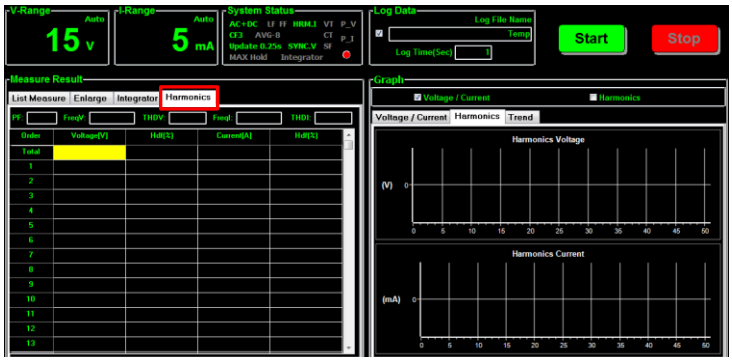
Note Only Standard mode will stop in accordance with the Set Time. Both Manual and Continuous modes require user to press the Stop button to halt integration function.

5. After initiating integrator by pressing **Start**, the State field indicates Running meaning operation is underway. See the following for descriptions of other States. The measured values of integrator will be displayed in the lower section accordingly.

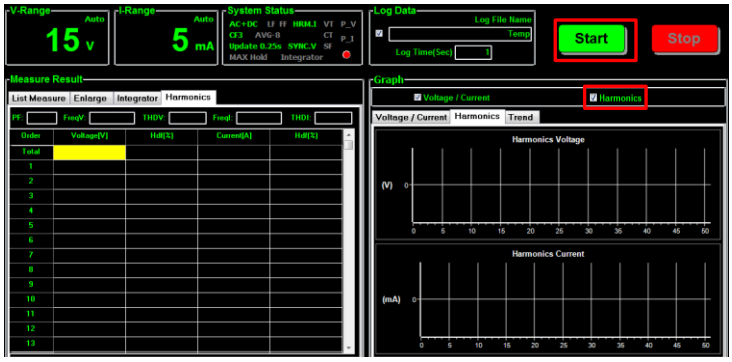
- **Running:** Integrator measurement is in progress.
- **Stop:** Integrator measurement is stopped manually.
- **Timeout:** The Set Time for running integrator measurement in Standard Mode is up.
- **Reset:** The integrator measurement status is cleared.

Measure Result – Harmonics

1. Press the **Harmonics** tab to enter the harmonics section where user can observe measured values of harmonic function in both list and chart views.



2. Before operating harmonics function, make sure the Harmonics setting is activated from the System Configuration (p.16). Check the Harmonics box from the Graph section in right side followed by clicking on **Start** button for measurement.



3. The lower-left table shows relevant values of each order of harmonic. Use the scroll bar to observe different orders of harmonic. See the list below for descriptions of each item within the list.

- **Order**: The harmonic order number
- **Voltage[V]**: RMS voltage value of the harmonic order
- **Hdf%**: Voltage harmonic distortion factor of the harmonic order
- **Current[A]**: RMS current value of the harmonic order
- **Hdf%**: Current harmonic distortion factor of the harmonic order

4. The lower-right chart shows both harmonic voltage and current values in bar graphs. The Y axis indicates voltage and current ranges units (V and mA), whereas the X axis stands for order numbers.

Graph – Voltage/Current

1. Press the **Voltage/Current** tab under the right-side Graph section to enter the graph page where user can observe measured values of voltage and current in a clear chart mode. The Y axis indicates voltage and current ranges units (V and mA), whereas the X axis stands for count numbers.

Graph – Harmonics

1. Press the **Harmonics** tab under the right-side Graph section to enter the graph page where user can observe measured values of harmonic voltage and current in a bar graph. The Y axis indicates harmonic voltage and current ranges units (V and mA), whereas the X axis stands for order numbers.

Graph – Trend

1. Press the **Trend** tab under the right-side Graph section to enter the chart page where user can observe the measured values of voltage, current and power in respective charts. The Y axis indicates ranges units (V-Voltage, A-Current, W-Power), whereas the X axis stands for count numbers.

2. Press the **Scales** button in the lower corner to open the Trend Edit box in which user can select among V, I and P for graph display type and the Scales, which indicates the Y axis for range unit, can be customized by selecting Manual with defining Upper and Lower limits individually. Also, user can simply select Auto, which allows software to define range automatically in accordance with measured values.

TEST REPORT

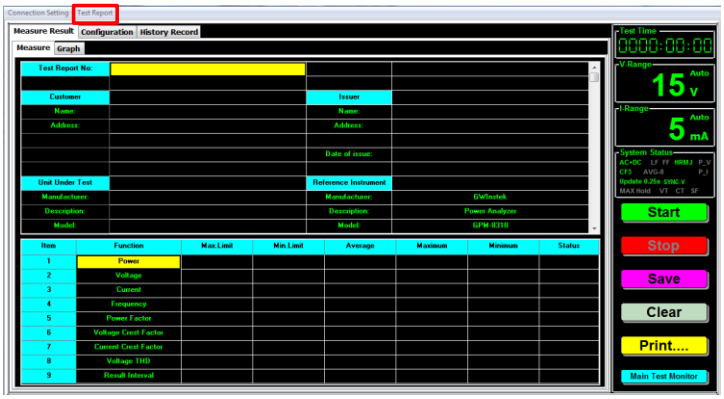
The PC Software provides test report function for user to obtain the measured results in a well-organized manner. The following chapters will further introduce the test report in details for better manipulation.

Configuration

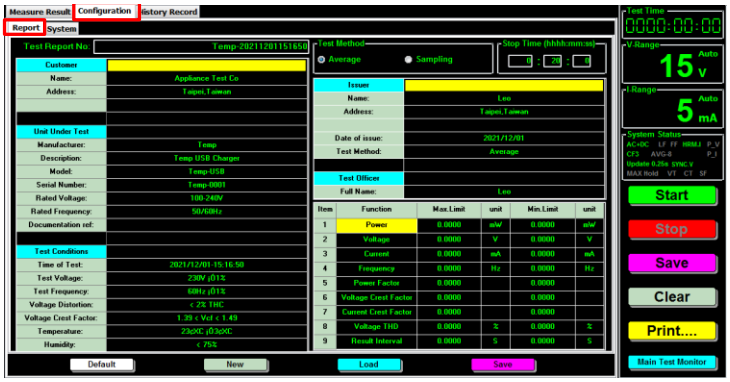
Report

Report

1. Click on the **Test Report** tab from the top Tool Bar to enter the Test Report section.



2. Click on the **Configuration** tab to enter the Report page where several settings for a complete test report can be edited by operator as following details.



Test Report No

Input a tittle name into this field for test report.

Test Report No:	Temp-20211201151650

Customer

- **Name**: Inputs name of customer
- **Address**: Inputs address of customer

Customer	
Name:	Appliance Test Co
Address:	Taipei,Taiwan

Unit Under Test

- **Manufacturer**: Inputs manufacturer name of test unit
- **Description**: Inputs description for test unit
- **Model**: Inputs model name of test unit
- **Serial Number**: Inputs serial number of test unit
- **Rated Voltage**: Inputs rated voltage of test unit
- **Rated Frequency**: Inputs rated frequency of test unit
- **Documentation ref**: Adds reference if necessary

Unit Under Test	
Manufacturer:	Temp
Description:	Temp USB Charger
Model:	Temp-USB
Serial Number:	Temp-0001
Rated Voltage:	100-240V
Rated Frequency:	50/60Hz
Documentation ref:	

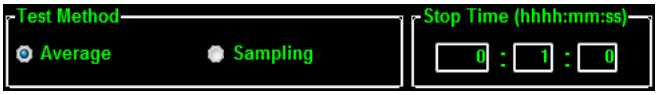
Test Conditions

- **Time of Test**: Designates test date and time
- **Test Voltage**: Inputs the set test voltage
- **Test Frequency**: Inputs the set test frequency
- **Voltage Distortion**: Inputs voltage distortion of test
- **Voltage Crest Factor**: Inputs voltage crest factor of test
- **Temperature**: Designates test temperature
- **Humidity**: Designates test humidity

Test Conditions	
Time of Test:	2021/12/01-15:16:50
Test Voltage:	230V ¡Ó1%
Test Frequency:	60Hz ¡Ó1%
Voltage Distortion:	< 2% THC
Voltage Crest Factor:	1.39 < Vcf < 1.49
Temperature:	23cXC ¡Ó3cXC
Humidity:	< 75%

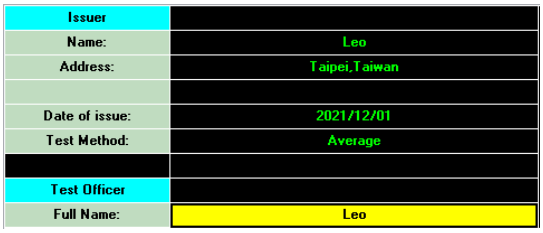
Test Method & Stop Time

- **Test Method**: 2 methods for test are available.
  - **Average**: This method takes a minimum of 20 minutes and calculates the average values from start to end of measurement. It is recommended to apply this method to test unit with fair stability.
  - **Sampling**: This method takes a minimum of 15 minites in which data of the first 5 minutes is discarded. It applies to broadly all test units and is specifically for test unit with fluctuating stability.
- **Stop Time**: Sets a period of duration for test.



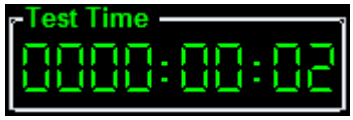
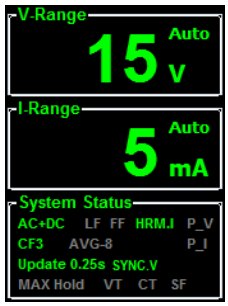
Issuer

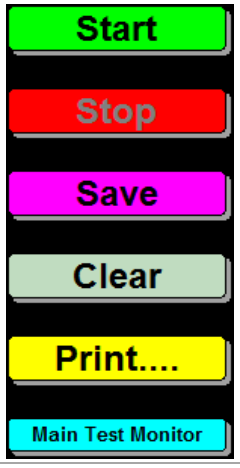
- **Name**: Sets name of issuer
- **Address**: Sets address of issuer
- **Date of issue**: Designates date of issue
- **Test Method**: It shows which test method is adopted
- **Test Officer Full Name**: Sets full name of test officer



Test Function & Parameters

- **Item**: The number of test functions which can Not be edited by user
- **Function**: The designated test functions which contain up to 9 modes and can not be edited
- **Max. Limit**: Sets upper limit for each test function
- **unit**: Sets unit of upper limit for each test function
- **Min. Limit**: Sets lower limit for each test function
- **unit**: Sets unit of lower limit for each test function

Profile Settings relevant buttons	▪ **Default**: Clicks the button to restore the full profile settings of test report back to the factory defaults ▪ **New**: Clicks the button to erase the full profile settings of test report in empty ▪ **Load**: Clicks the button to load the previously saved profile settings of test report ▪ **Save**: Clicks the button to save the current profile settings into a designated directory.  Note Profile setting is saved into the specific directory C:\PowerMeterSeries\TestReportConfiguration.
Test Time	▪ **Test Time**: In the upper-right corner, it indicates the elapsed test time. 
V/I Range and System Status	▪ This section is identical with that of the previous main measurement. Refer to the page 21 for details. 
General Function Buttons in Test Report	▪ **Start**: Clicks the button to initiate test report measurement ▪ **Stop**: Clicks the button to halt test report measurement ▪ **Save**: Clicks the button to save the measured result of test report format in the specific directory. It is available to define a file name by operator. ▪ **Clear** : Clicks the button to erase the measured result of test report ▪ **Print**: Clicks the button to output an A4 size test report file in PDF format. ▪ **Main Test Monitor**: Clicks the button to switch to the main measurement (not test report measurement)



Note Measured result of test report format is saved into the specific directory C:\PowerMeterSeries\TestReportMeasResult.

System

System

1. Click on the **System** tab in upper-left corner to enter the System configuration page for test report. This page is identical to the System Configuration of main measurement. Refer to the previous page 11 for details.

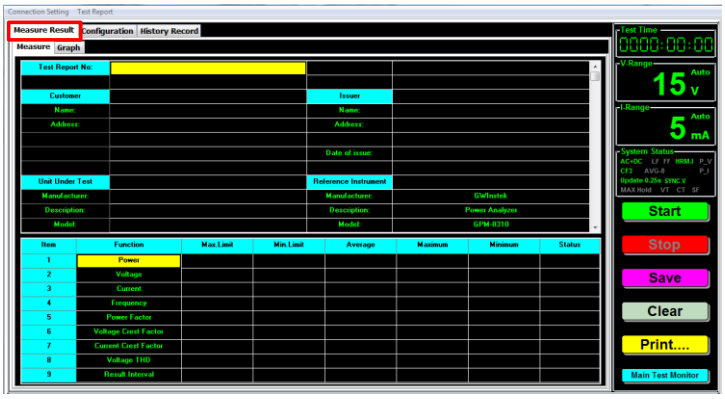
Note D/A output function is Not available in test report measurement and thus no D/A setting exists in System configuration page here.

Measure Result

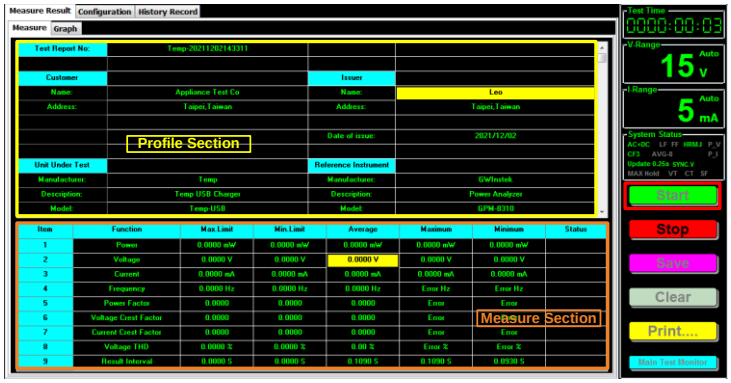
Measure

Measure

1. Click on the **Measure Result** tab from the upper-left corner to enter the test report measure section.



2. Click on the **Start** button to perform test report measurement. The Configuration settings of test report are imported into this page where the upper section shows profile settings, whilst the lower section illustrates measure function relevant values.



3. The lower measurement section illustrates not only the set Max. & Min. limit of each function, it also reads the measued Average, Maximum and Minimum values of each function. In addition, the Status column displays judgments of each function.

Item	Function	Max.Limit	Min.Limit	Average	Maximum	Minimum	Status
1	Power	27.000 W	25.000 W	25.895 W	25.941 W	25.741 W	Pass
2	Voltage	240.00 V	220.00 V	233.38 V	233.83 V	232.95 V	Pass
3	Current	220.00 mA	0.0000 mA	196.89 mA	208.55 mA	193.19 mA	Pass
4	Frequency	50.100 Hz	49.900 Hz	49.989 Hz	49.992 Hz	49.975 Hz	Pass
5	Power Factor	0.7000	0.5000	0.5636	0.5733	0.5312	Pass
6	Voltage Crest Factor	1.4140	1.4000	1.4053	1.4059	1.4032	Pass
7	Current Crest Factor	3.1000	2.9000	3.2494	3.2718	2.9848	Fail
8	Voltage THD	1.50 %	1.20 %	1.31 %	1.38 %	1.29 %	Pass
9	Result Interval	0.3000 S	0.1000 S	0.1870 S	0.2030 S	0.1400 S	Pass

Status Column:

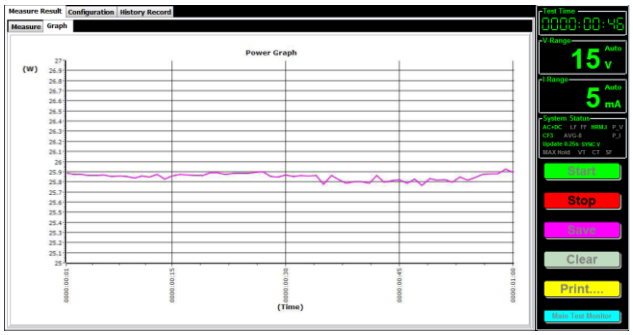
- **Pass**: When measured values are within the set Max and Min limits, "Pass" judgment will be shown.
- **Fail**: When measured values are beyond the set Max and Min limits, "Fail" judgment will be shown.
- **Stop**: When Stop button is pressed amid measurement, "Stop" will be shown in the Status column.

Graph

Graph

1. Click on the **Graph** tab from the upper-left corner to enter the test report graph section.

2. Click on the **Start** button to perform test report measurement. The measured power watt values with W in unit will be illustrated in a chart display in which X axis indicates Time domain whereas Y axis stands for range of measured power watt values.

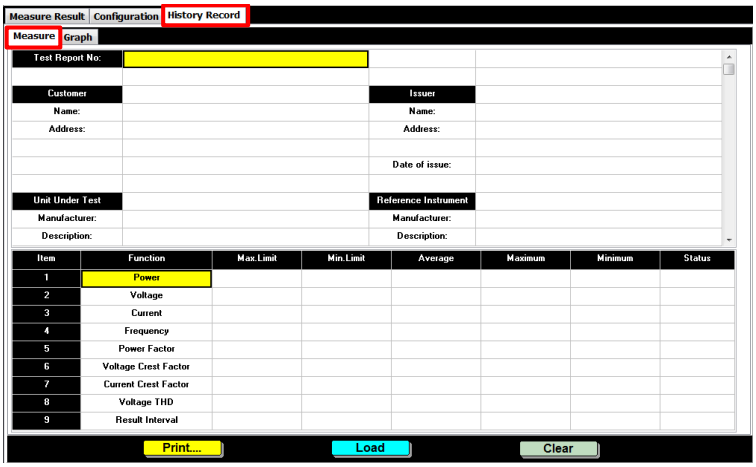


History Record

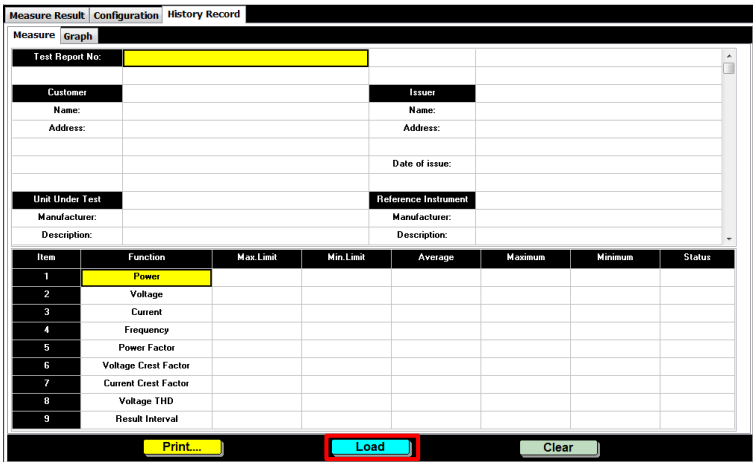
Measure

Measure

1. Click on the **History Record** tab from the upper-left corner to enter the Measure history section.



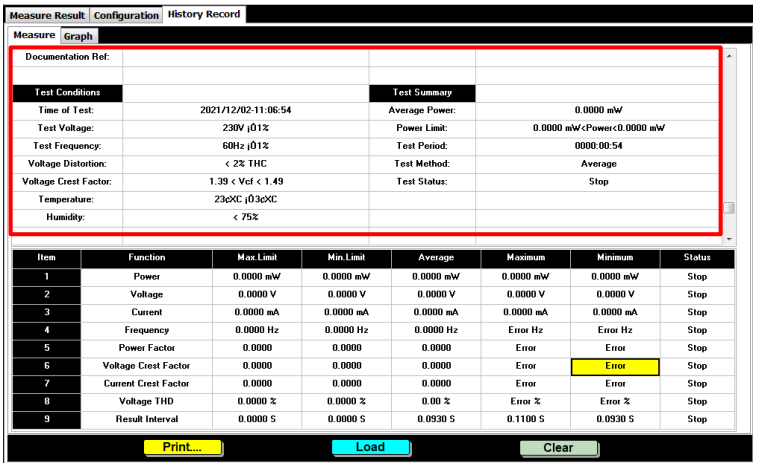
2. Press the **Load** button from the lower section to recall the previous measure result of test report.



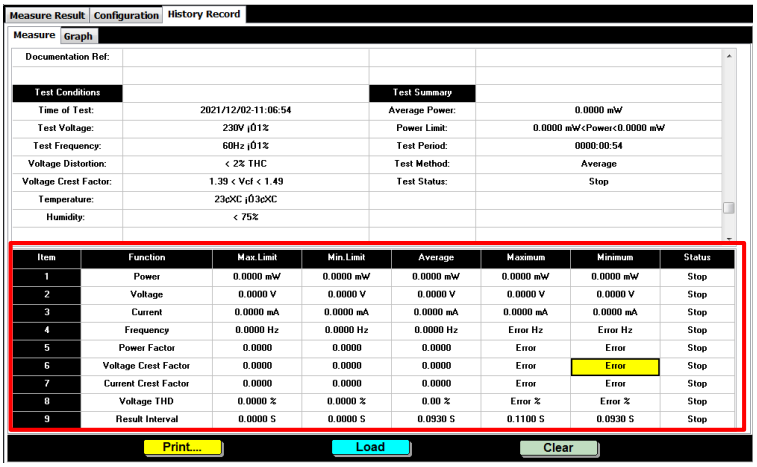
Note

Measure results of test report are located in the specific directory C:\PowerMeterSeries\TestReportMeasResult.

3. The loaded measure result will be displayed explicitly. The upper half part describes the profile settings of test report including Customer, Unit Under Test, Test Conditions and Issuer for which refer to page 32. The additional Reference Instrument explains the connected GPM-8310/8213 info, and the Test Summary illustrates a synopsis of test report.



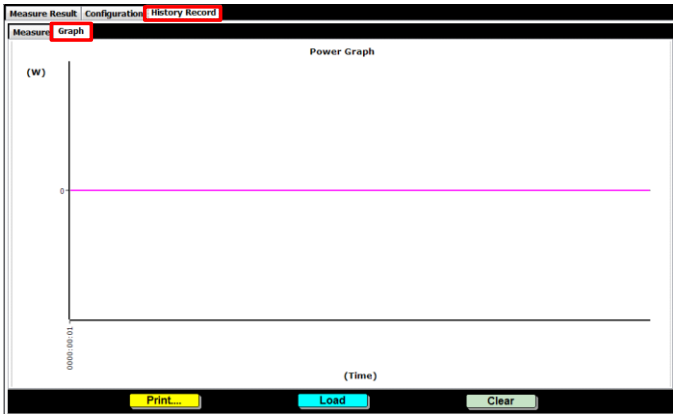
4. The lower half part shows a table where measure parameters, which contain test Function, Max. Limit and Min. Limit and measured values, which include Average, Maximum, Minimum and Status, are well revealed. Refer to page 37 for more details.



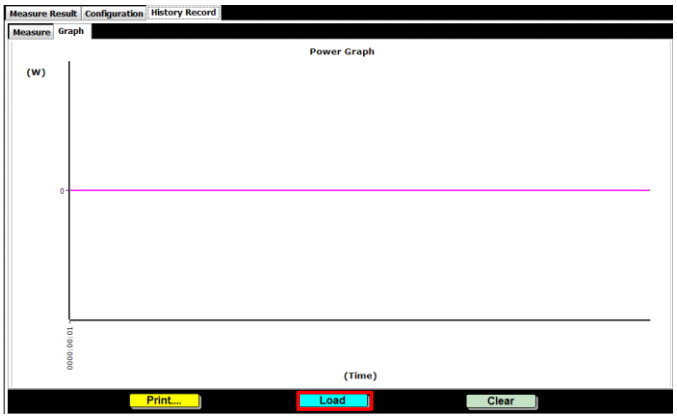
Graph

Graph

1. Click on the **History Record** tab from the upper-left corner followed by **Graph** tab to enter the Graph history section.



2. Press the **Load** button from the lower section to recall the previous measure result of test report.



Note: Measure results of test report are located in the specific directory C:\PowerMeterSeries\TestReportMeasResult.

3. The loaded measure result will be displayed accordingly. The measured power watt values with W in unit will be illustrated in a chart display in which X axis indicates Time domain whereas Y axis stands for range of measured power watt values.