



HET-55

HVAC Energy & Temperature Monitoring -55



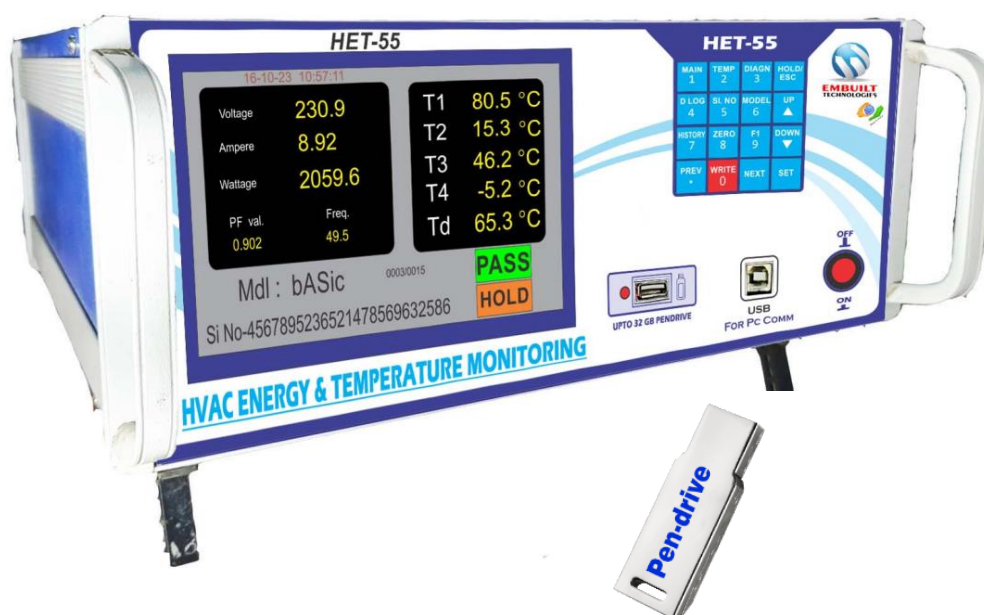
USER'S MANUAL







HET-55 HVAC Energy & Temperature Monitoring-55



Thank you for purchasing the **HVAC Energy & Temperature Monitoring (HET-55)**.

This user's manual contains useful information about the functions, operating Procedures and handling precautions of the instrument, to ensure correct use, please Read this manual thoroughly before beginning operation. After reading the manual, keep it in a convenient location for quick reference whenever a question arises during operation.





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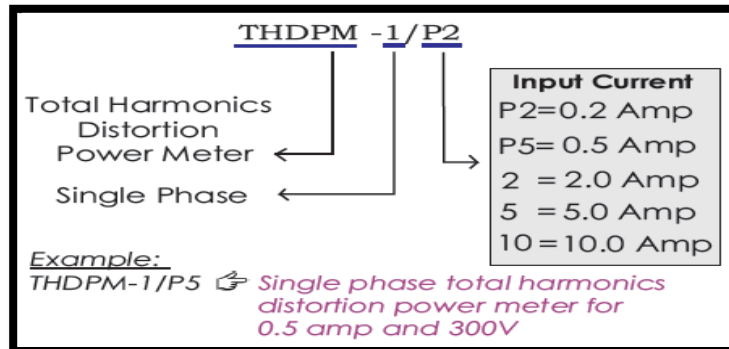
General Specification:

Model: HET-55 Analyzer

GENERAL	
Power Consumption	Less than 5VA
Auxiliary Supply	210-240 Volts (Phase to Neutral)
Accuracy	0.2 % (Basic Electrical Parameters)
Voltage Measurement Range	5-500 Volts (Phase to Neutral)
Current Measurement Range	200mA-40A (See Ordering Code)
Frequency	45-55 Hz (Universal range of 45-65 Hz also available)
Temperature Parameter	-40 C° To 125 C°
DISPLAY	
Type	7 Inch TFT Color Display
Pixels/Digit	800X480 Pixels (Full HD)
Display Update Time	User settable (0.5/1.0/1.5/2 Seconds)
Temperature channel	4 channel T1, T2, T3, T4
PRODUCTION TESTING	
Testing Models	1008 models in internal memory
Internal Memory	Storage capacity of 32000 tests
Pass/Fail Indications	Red/Green indication in the display
Data Logging	Data Logging in pen drive with Sr. No and Date Time.
COMMUNICATION INTERFACING	
USB Port	For HET-55 Software Interfacing
Pen drive Slot	For data logging in Pen drive
Safety	Optical Isolation for both RS-485 and USB Port (Up to 5KV)
OTHER	
Operating Temperature	0°C to 50°C
Dimension	265(L) X 213(W)X200(D)
Weight	Approx. 2.5 KG
Accessories	Load Cable X4, USB Cable X1, Power Cable X1, Software CD
SOFTWARE	
Data Acquisition	Real time values
Analysis	Tabular, Graphical, Real Time
Report	Production Report
Testing Models	Unlimited with alarm Limits (Only 1008 can be saved to HET-55 at a time)
Data Logging	As CSV format with selectable period



Ordering Information-



HET-55 also shows its information when Power ON.



Starting animation

More Current Ranges with minimum wattage are as below –

Current Input Max	Minimum Current	Min W (10V)	Max W (500V)
5A	25mA	250mW	2.5KW
10A	50mA	500mW	5KW
20A	100mA	1W	10KW
40A	200mA	2W	20KW



1. Features of HET-55

1.1.1. Measurement -

- 1 Voltage, current, Watt, PF, Frequency Measurement
- 2 Temperature of T1, T2, T3, T4

1.1.2. Bright Display -

- 3 TFT COLOR display for full view
- 4 TFT color Display for clear view of readings from far.
- 5 Logo and buzzer for pass/fail indication

1.1.3. Production-

- 6 Production Testing : Failed parameter indication with buzzer
- 7 Save settings of 1008 devices in meter
- 8 Saves Up to 32000 tests in internal memory

1.1.4. Others-

- 9 Software interfacing
- 10 Optically isolated (5KV) USB Port

1.1.5. Data Logging-

- 11 Data logging of all parameters with date and time in internal memory and pen drive

1.2. Software Features-

1.2.1. Basic

- 1 Shows Real time values by Data Acquisition System through USB.

1.2.2. Production Report -

2. Unlimited device storage with limits
3. Display value turn red when out of limit.
4. Production report generation with pass-fail facility
5. PDF report generation

1.2.3. Data Logging-

6. Data logging of all parameters with date and time



2 Safety Instructions:



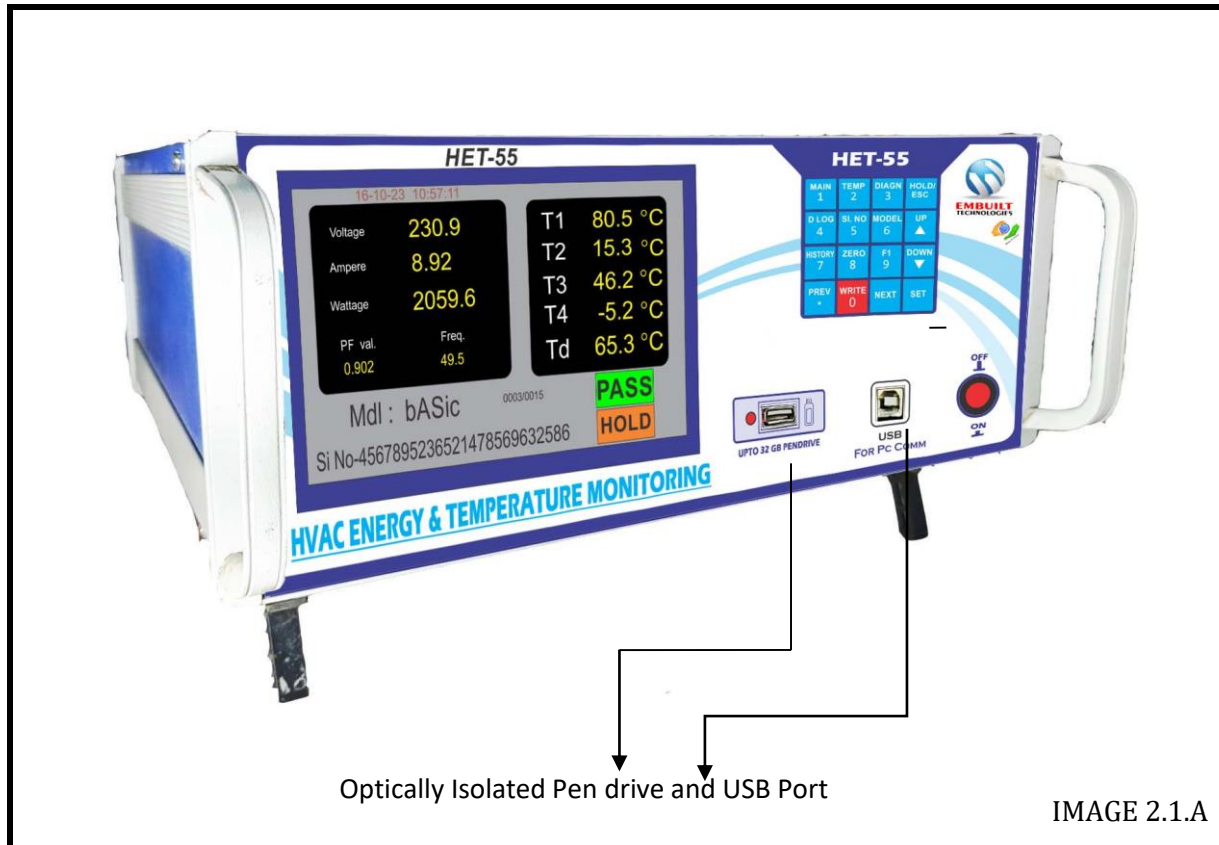
In order to operate HET-55, the following instructions must be followed.

1. 2 A fuse is provided at auxiliary supply side for meter safety. Always use the right and good quality fuse of 2A. Dimensions of fuse are generally 5mmX20mm. It is made of Silver or Copper which has low melting point.
2. Optically isolated USB Port is provided for communication with computer. It means that although the internal circuit is connected to live power, the computer and operator are safe.
Refer article 2.1 regarding Optical Isolation.
3. HET-55 is itself powered from 230V AC mains. Please check carefully that it is between 210V to 240V AC with frequency from 45 Hz to 55Hz.
4. Ensure that power cable must be in good condition and undamaged.
5. Do the Terminals connections carefully. Always connect the terminals first then connect to the power source.
6. Please check that connectors to the power terminals are not loose. Any sparking or too much flicker in the load/ values may be an indication for loose connection.
7. Do not operate this product in an explosive atmosphere.
8. The instrument has been designed to ensure maximum operator safety. Use in a fashion other than as specified in this manual may increase the risk of harm to the operator.
9. Do not use the instrument and/or any accessories if there is any damage visible.



2.1 Optical Isolation :

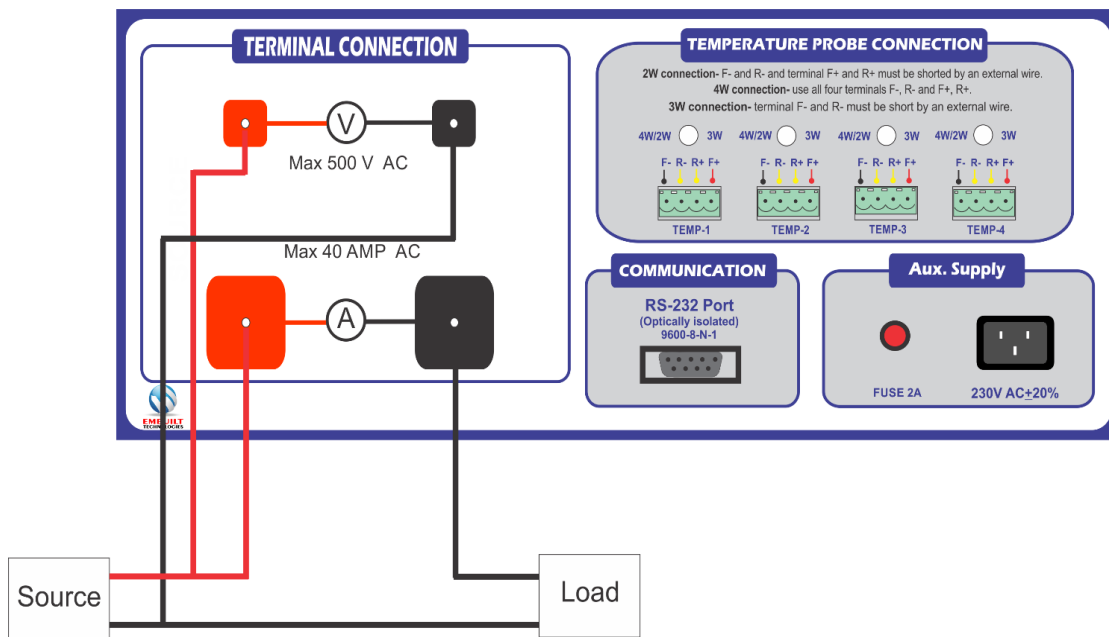
It is used to isolate two circuits with different power source or power levels. USB port and RS-485 take small voltage and current for communication and also they are user hardware, so we optically isolated them from the internal measurement circuit in HET-55. Isolation between internal source voltage and USB or RS-485 Source voltage is 5KV.





3 Connection Diagram:

HET-55 CONNECTION DIAGRAM



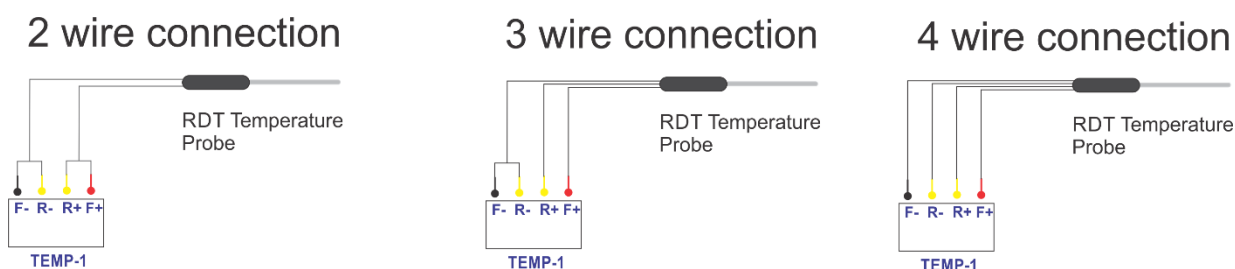
For testing of Single Phase AC devices, the connection of HET-55 is simple.

Give input voltage to the input terminal of voltage.

Load will be connected to series with the current terminal.

Provide Auxiliary Supply to meter through power cable.

Connection diagram for temperature probe



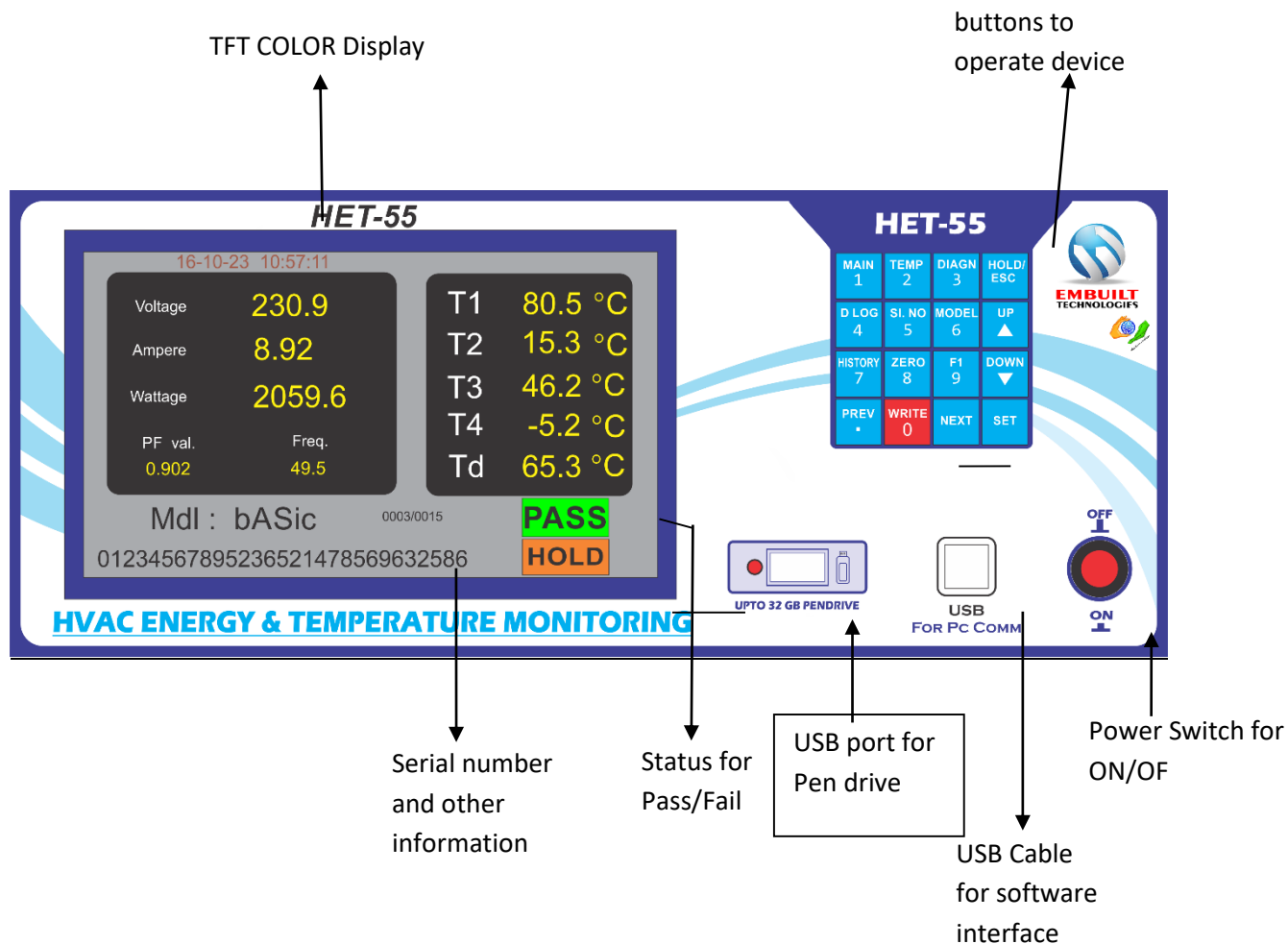
2W Connection : F- and R- and terminal F+ and R+ must be shorted by an external wire. Toggle switch back side on the meter should be switched in 4W/2W position.

3W Connection : Terminal F- and R- must be short by an external wire. Toggle switch back side on the meter should be switched in 3W position.

4W Connection : Terminal F-, R- and F+, R+ are used, Toggle switch back side on the meter should be switched in 4W/2W position.



4 User Interface:



4X4 Key Pad



4.1 Buttons Description-

Buttons	ICON	Description
MAIN		Pressing this button will change the page of TFT Display. It return to the main page.
SET		Pressing this button will open setting menu in TFT display.
UP/DOWN		Scroll between parameters option and values in display.
BACK/HOLD		Normal function as back and hold button.
TEMP		User can jump to the temperature page.
DIAGN		User can jump to the diagnostic page.
D LOG		This is data logging button. Pressing this button user can see and set the data logging time.
Serial Number		User can see and set the serial number.



MODEL

MODEL
6

User can see and set the Models.

HISTORY

HISTORY
7

User can recall the history.

ZERO

ZERO
8

It, for start a new test, create a new data logging file.

F1

F1
9

It's for future use.

WRITE

WRITE
0

Using this button user can write data to pen drive and its internal memory.

NEXT

NEXT

Using this button user can jump to the next page.

4.1.1 Button functions

1.

TEMP
2

Show Temperature

T1:--38.3---C Type:2W4W

T2:--48.2---C Type:2W4W

T3:--23.8---C Type:2W4W

T4:--84.5—C Type:2W4W

Delta T = T2 – T1



2. Diagnostic Page

DIAGN
3

Diagnostics Page

ASIC:OK Ext.Mem:OK

DateTime:OK T1:OK

T2:OK T3:OK T4:OK

3. Data Logging Page

D LOG
4

Data Logging Info

DLog Period(min):02

File: DSAVE000.csv

23 COMPLETED! R

01.00

4. How to change Serial number

SI. NO
5

VIEW INDOOR SERIAL

I - 1

To Edit press SET

To View Outdorr → si

- Press set for edit the serial number
- Press SI.NO to view the outdoor serial number



VIEW OUTDOOR SERIAL

O- 1

To Edit press SET

To View Outdorr → si

- Press SET to edit the serial number.

KEYPAD ACTIVE

Indoor Serial Edit

- Type the serial number and press set for save the serial number.

5. Model information

MODEL
6

MODEL INFORMATION

Index of Mode: xxxx

Name: < basic >

To Select Different

- User can see the selected model name, user cannot set the model in this page.



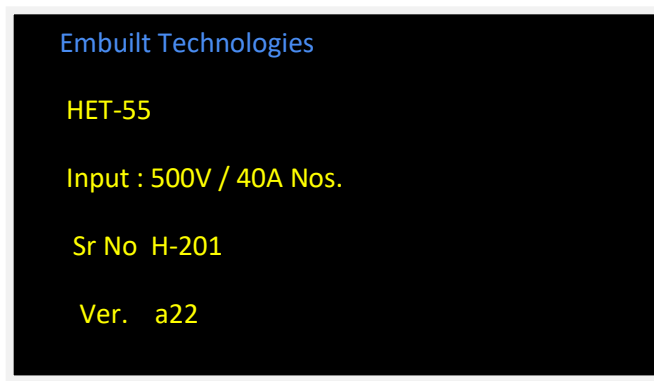
4.2. Welcome Page-

Starting animation logo

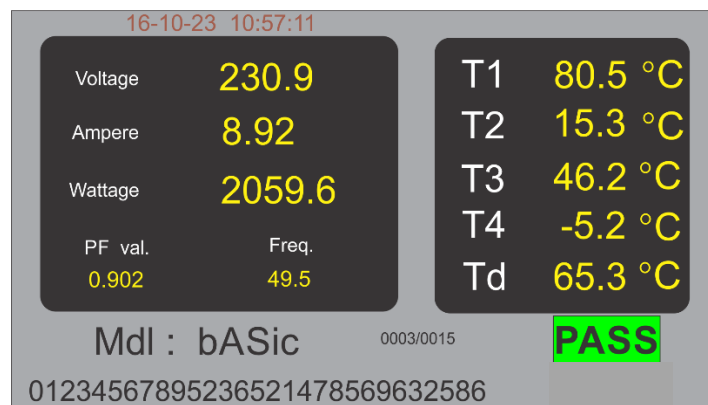


4.3. First page-

This page shows the information of current range, serial number and firmware versions.



4.4. Main Page

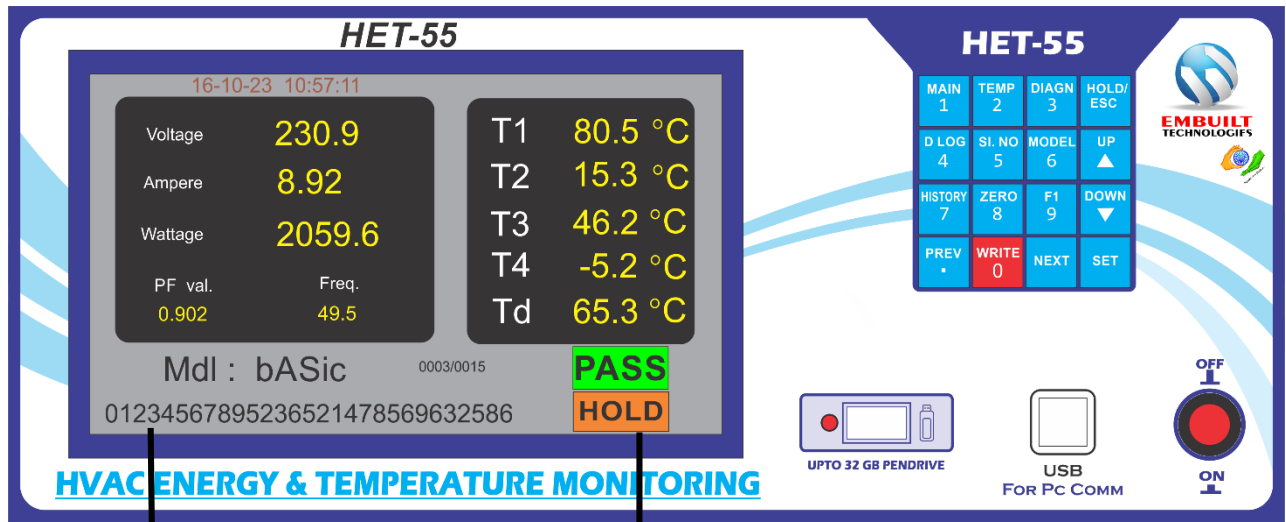


This page shows basic testing parameters. It shows Vrms, Arms, Watt, PF, Frequency.

T1, T2, T3, T4, and Td. Selected model shows at the screen.



First Page with Hold Condition-



Serial number and other details

HOLD

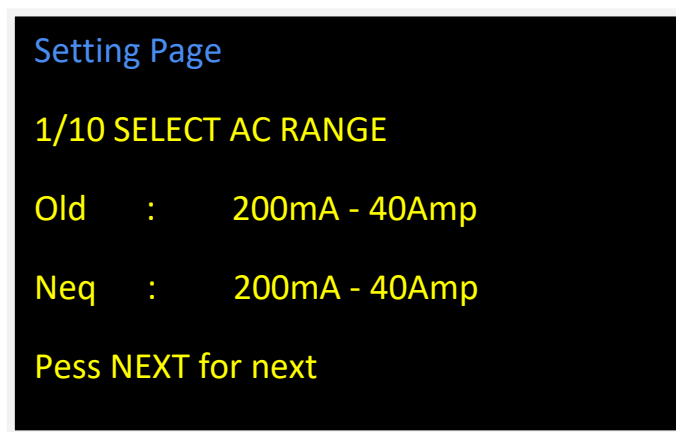
IMAGE 4.3.2

To hold the display press “HOLD” button. A “HOLD” icon will show on TFT display

4.5. Setting Mode

4.5.1 Setting page 1 (Select AC Range)

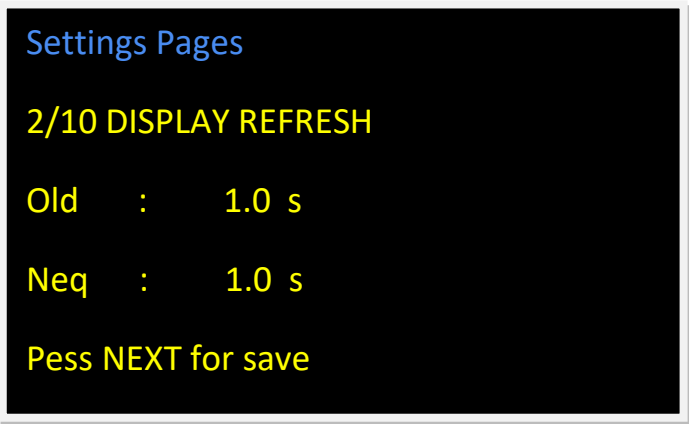
Press “SET” Button to go



User can change the current range using UP/DOWN button. Press NEXT for save



4.5.2 Display Refresh



Settings Pages

2/10 DISPLAY REFRESH

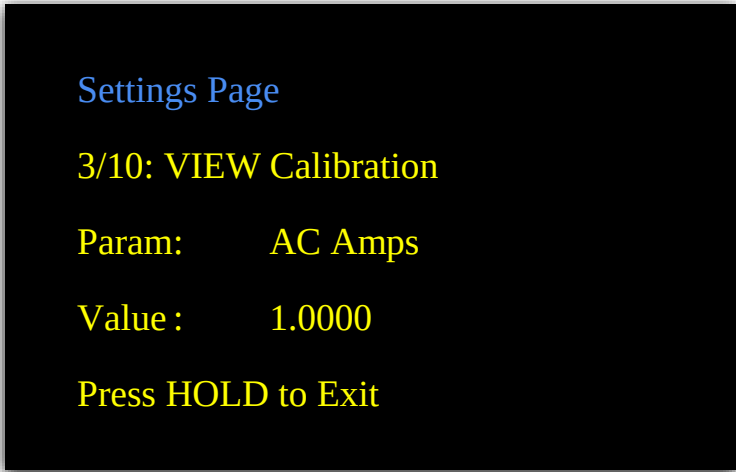
Old : 1.0 s

Neq : 1.0 s

Press NEXT for save

If Refresh rate is time after display refresh. You can choose from 0.5, 1.0, 1.5 and 2 seconds. Recommended value is 1.0 sec for most purpose. For Log On connect mode recommended refresh rate is 0.5 second. Press "NEXT" button to save and go to next setting. Press "BACK" for exit to main page.

4.5.3 VIEW Calibration



Settings Page

3/10: VIEW Calibration

Param: AC Amps

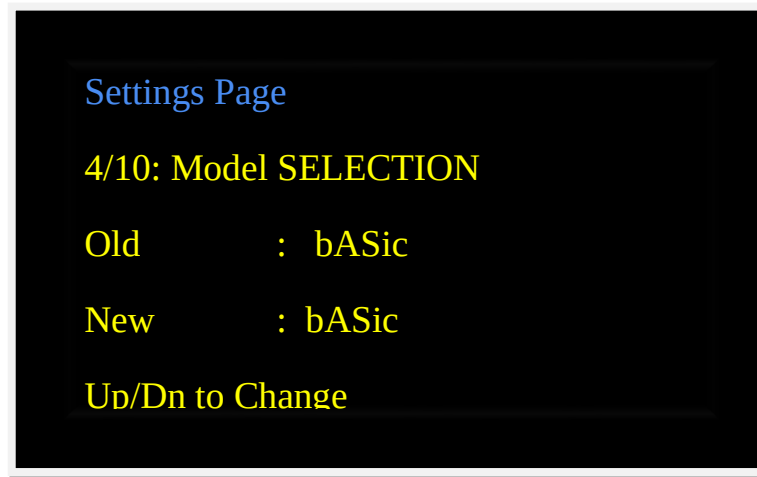
Value : 1.0000

Press HOLD to Exit

HET-55 is provided calibrated from factory but if user wants to do some calibration of basic parameters according to any other he can do small change in calibration values. Press "NEXT" button to save and go to next setting. Press "BACK" for exit to main page

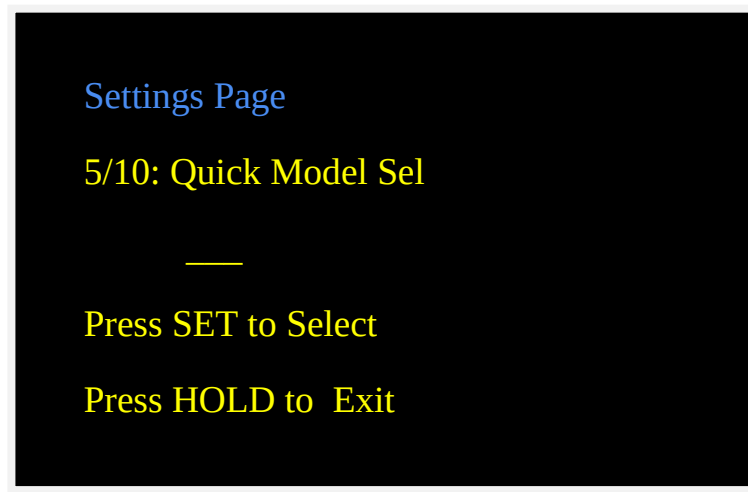


4.5.4 Model Selection



User can see and select the model using up down button, press NEXT button to saved.

4.5.5 Quick Model Selection



User can select the testing model by entering the serial number of model. Press “NEXT” button to save and go to next setting.



4.5.6 Model VIEW

Settings Page

6/10 : Model VIEW

Index : 0001 bASic

10 DT -NA-- -NA—

UP/DN or Edit

Here you can view the Upper and Lower limit of parameters for the model you have selected.

User can only view limits of the selected model. Parameter cannot be edited/change here.

Limit can be changed using HET-55 computer Software.

Press "NEXT" button to go to the next setting.

Press "ESC" for exit to the main page.

4.5.7 Buzzer Type

Settings Page

7/10: BUZZER TYPE

Old : BUZZER DISABLE

New : BUZZER DISABLE

Press HOLD to Exit

Here you can set the buzzer on pass fail condition.

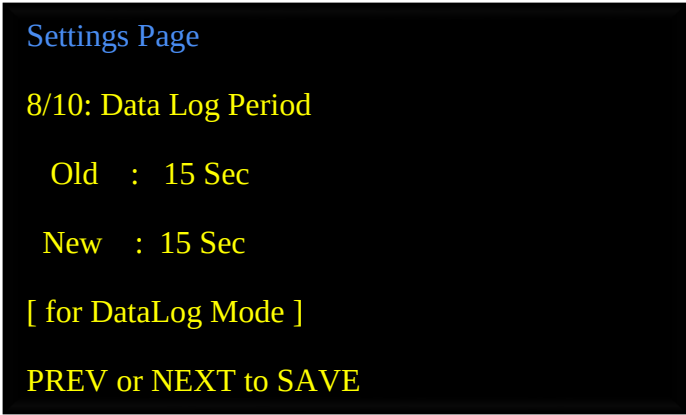
Use "UP"/ "DOWN" button to enable /disable buzzer.

Press "NEXT" button to save and go to next setting.

Press "MAIN" for exit to main page.



4.5.8 Data logging Period



Settings Page

8/10: Data Log Period

Old : 15 Sec

New : 15 Sec

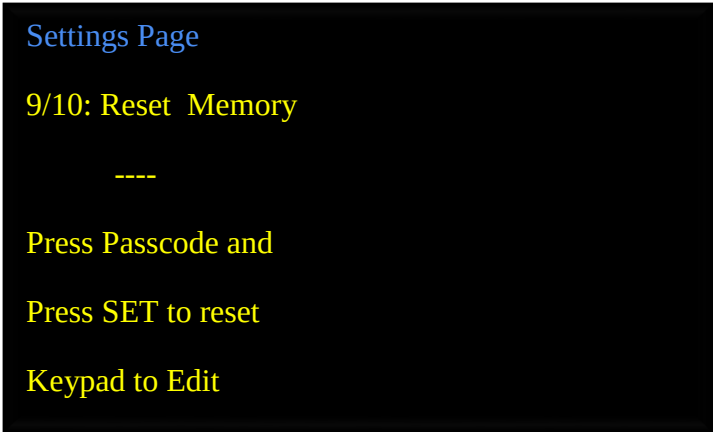
[for DataLog Mode]

PREV or NEXT to SAVE

User can set the data logging period for application data logging.
User can choose from 1Min and 90 Minutes time period.

Press "NEXT" button to save and go to next setting.
Press "BACK" for exit to main page.

4.5.9 Reset Memory



Settings Page

9/10: Reset Memory

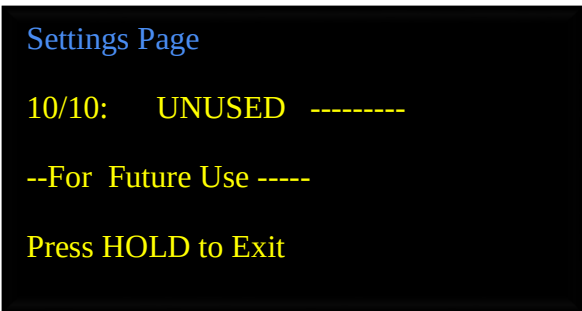
Press Passcode and

Press SET to reset

Keypad to Edit

User can reset all models stored in the internal memory using passcode 6656

4.5.10 Unused



Settings Page

10/10: UNUSED -----

--For Future Use ----

Press HOLD to Exit

-This page for future use.



5.0 SETTINGS:

5.1 ABOUT SETTINGS-

1/10	Select Range	Select current range as connected load for better accuracy.	For next page you press the NEXT button.
2/10	Display Refresh	You can slow or fast the display values.	This will affect the updating of parameter values.
3/10	Calibration View	AC - V, A, W, and Hz Can be calibrated by 5% of their values.	If change the calibration value, Related power parameter values will change.
4/10	Model selection	The Testing Person can select the model being tested from here.	This has no effect on calculations. PASS/FAIL Limits are affected.
5/10	Quick Model Selection	The models can select quickly using type the model number	PASS/FAIL Limits are affected.
6/10	Model View	The Values stored for each Model can be seen here.	Only for viewing.
7/10	Buzzer Type	If you want the buzzer sound on Pass/fail status.	A buzzer sound will start according to setting on Pass/Fail.
8/10	Data Log Period	User can choose from 15 Sec, 30 Sec, 1Min, 5Min and 15 Minutes time period.	<i>This will work in application Data Logging.</i>
9/10	Reset Memory	User can reset all values of each model	This will reset its internal memory
10/10	UNUSED	For future use	<i>For future use</i>



5.2. Calibration of HET-55-

HET-55 has accuracy class 0.2 for single phase power parameters. If you further want to calibrate the readings you can calibrate the below parameters by $\pm 5\%$.

Parameters which can be calibrated are given below-

1. AC Voltage
2. AC Current
3. AC Watt
4. Frequency
5. Temperature (4 Channels)

Calibration Setting

HET-55 has calibration value of 1.0000 by factory setting but if you want to change the calibration according to your value, you have to change the **calibration value** of that parameter.

To go to the calibration setting press "SET" Button. Scroll to page 6. The below page will show-

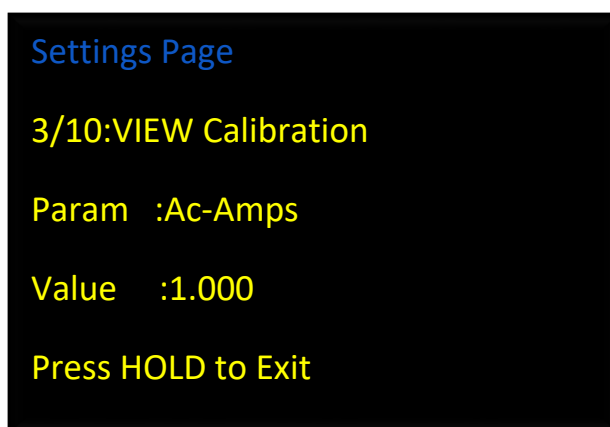


IMAGE 5.2

Calibration Value

To change the reading of any parameter press "SET" button.

To change calibration for another parameter press "NEXT" button.

You can change the reading by using "UP" or "DOWN" key by 5%.

Formula for changing the calibration value –

$$\text{New Calibration Value} = \text{Existing calibration Value} * (\text{your reading} / \text{HET-55 Reading})$$



Calibration Calculation-

EXAMPLE 1: Let HET-55 has reading of Watt is 220.42 W and other standard meter has Wattage 220.40W then you can calibrate HET-55 by below calculation-

New calibration value = Existing calibration Value * (Standard Meter Reading/HET-55 Reading)

$$\text{Value} = 1.0000 * (220.4 / 220.42)$$

$$\text{Value} = 0.9999$$

So you can change the value in calibration to 0.9999 by using pressing down key for one time.

Then press "PAGE" button to save the setting and back to main menu.

EXAMPLE 2: Let HET-55 has reading of 220.40 watt and standard meter has reading of 220.45 watt and most important thing that **if Calibration value is already set to a point for example at 0.9999** then then multiplication factor will be calculated as below –

New Calibration Value = Existing Calibration Value * (Standard Meter Reading/HET-55 Reading)

$$\text{Value} = 0.9999 * (220.45 / 220.4)$$

$$\text{Value} = 1.0001$$

Thus we have to set this value in calibration.

How to take History or back-up data from HET-55?

HET-55 saved data in internal memory and user can take history from HET-55 by **history** command

- ➔ Firstly format Pen-drive then insert into HET-55 pen drive port.
- ➔ When red LED glow then remove pen-drive and insert into computer/laptop.
- ➔ Open **USERFILE.txt** and write:- **HISTORY 50** (numeric value will be user dependent)
- ➔ Save it and insert into HET-55.
- ➔ Red LED starts blinking when data write in pen drive. After completing the process, Red LED glow continuously.
- ➔ Now remove pen drive from HET-55 and insert into Computer and view **SAVEDATA** file.

For set date and time, follow same process and command write in USERFILE.txt:-

date DD-MM-YYYY HH-MM-SS and save it.



5.3. Default model list with limits in meter

HET-55 has some default models for testing. You can change these Models and Limits

Software Interfacing:

Single Phase Multifunction Meter Software will be provided with HET-55 for analyzing and reporting the meter data. You can connect the HET-55 meter to software by connecting your system to meter through USB Cable.

Software Package

DOTNET Software (Optional)
CDM 2.04.16 WHQL Certified
HET-55 Software

System Requirement

Windows XP /Vista/ 7/ 8/10/11
At least 500MB RAM
One USB Port
Disk space used is less than 10MB

6.1. Installation of FTDI Driver

This will require for one time only.

Connect HET-1 to your PC or Laptop with USB Cable provided along with the instrument.

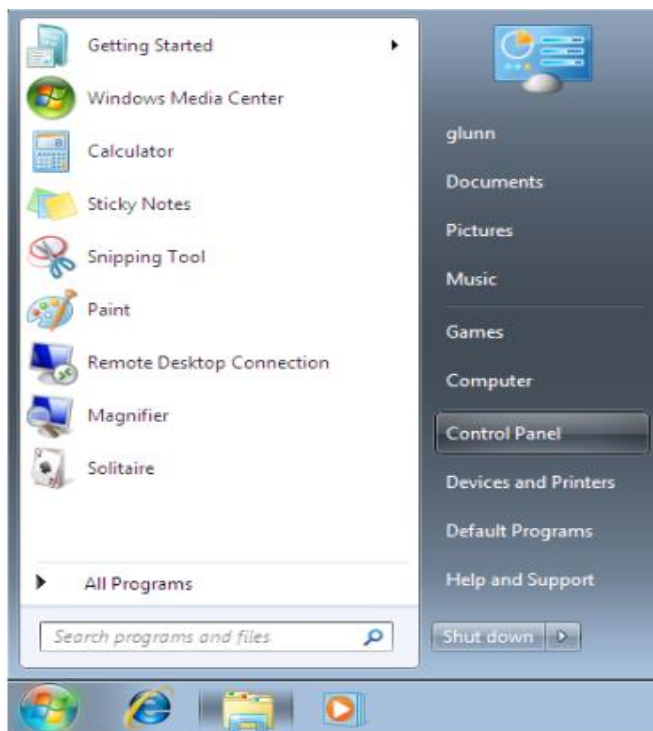
Important - The drivers available in the CD folder "CDMwhql". It requires driver installation two times from the same folder as in STEP 5 and STEP 11.

For windows 7, 8, 10, 11 users

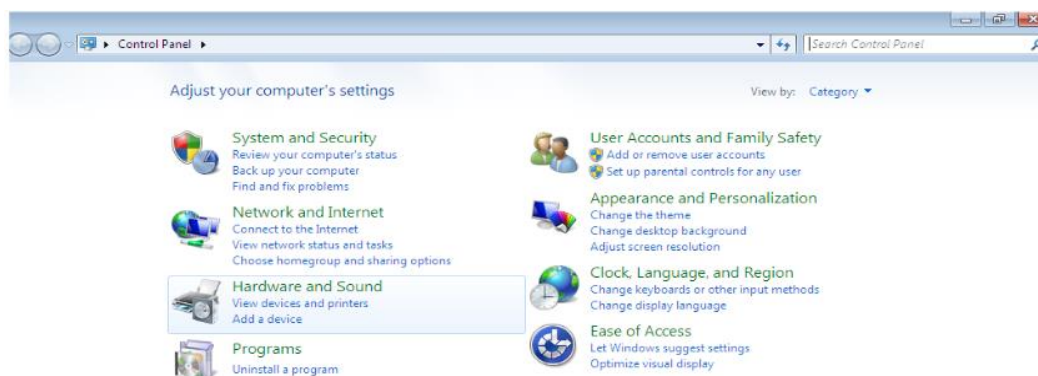


Connect the HET-55 to the computer using USB cable provided with the HET-55.
Then follow the below steps –

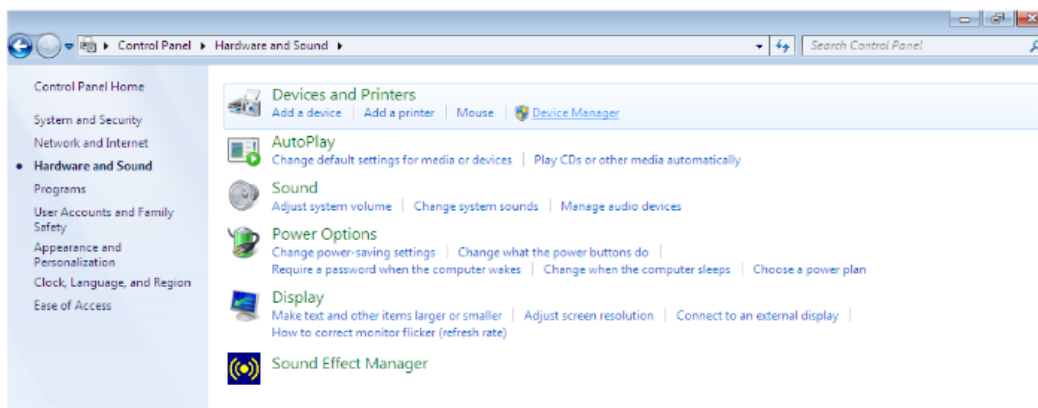
STEP1: Click on the START icon and then Control Panel.



STEP2: Click on “Hardware and Sound” option.

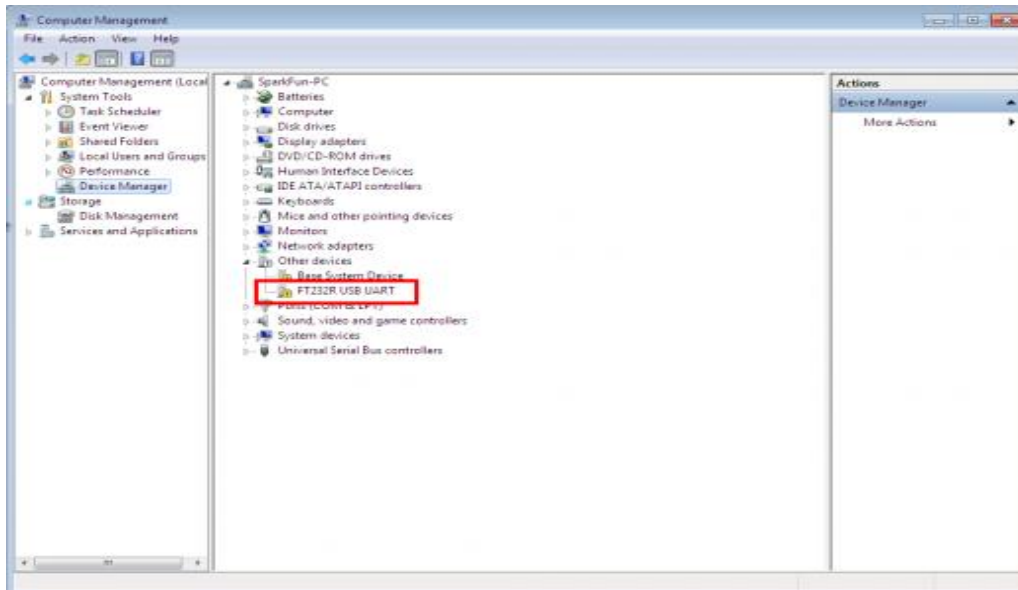


STEP3: Click on device manager.



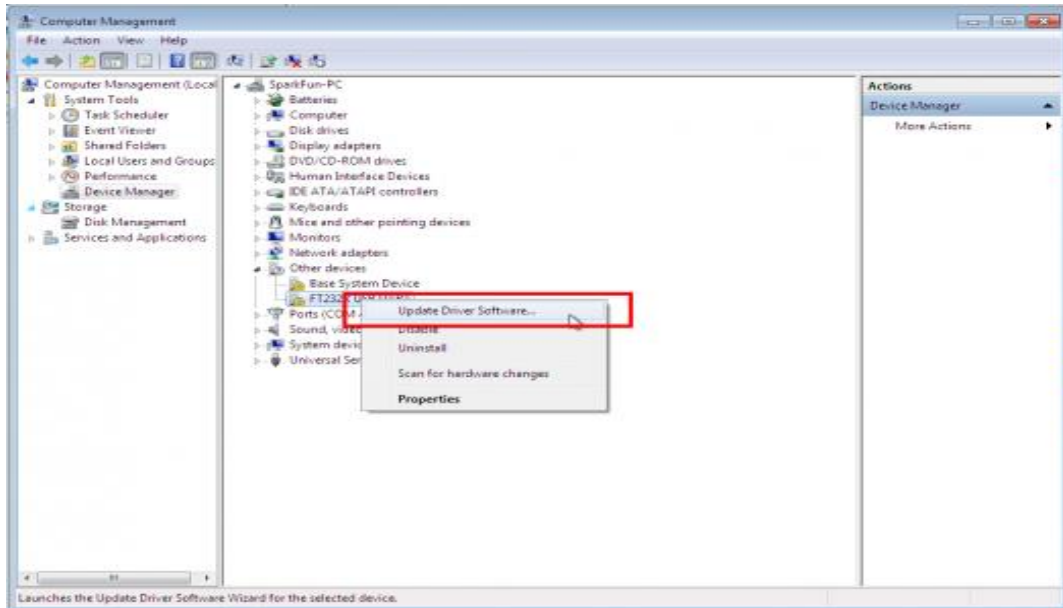


STEP4: Device manager window will open. You can find the “FT232UART” device as given below –

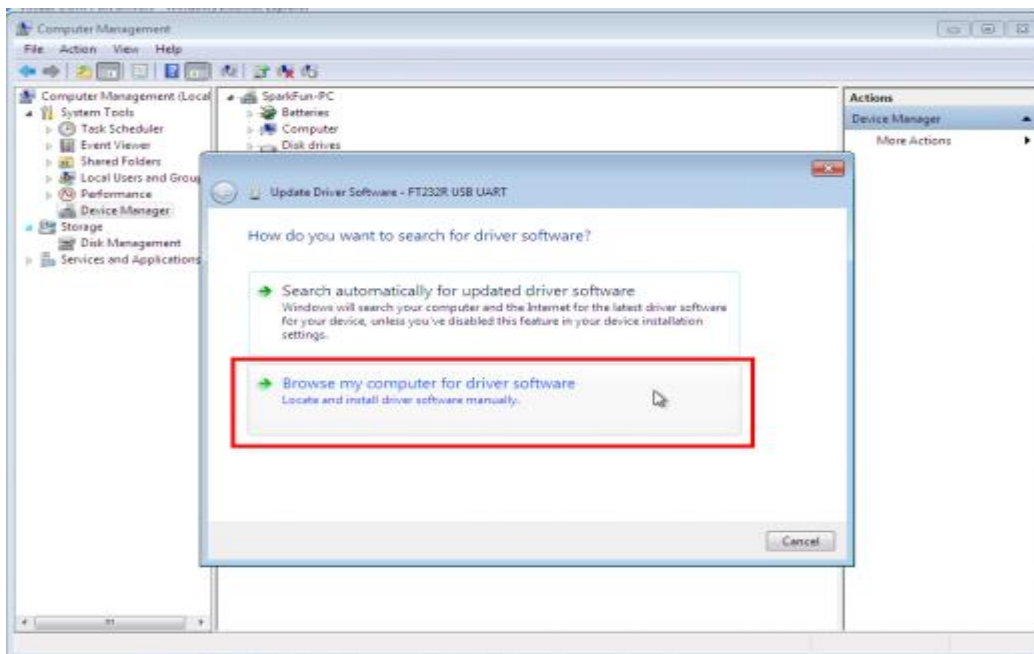




STEP5: Right click on the “FT232 USB UART”. There will be a option “UPDATE DRIVER SOFTWARE” as in given image. Click on the “Update Driver Software”.

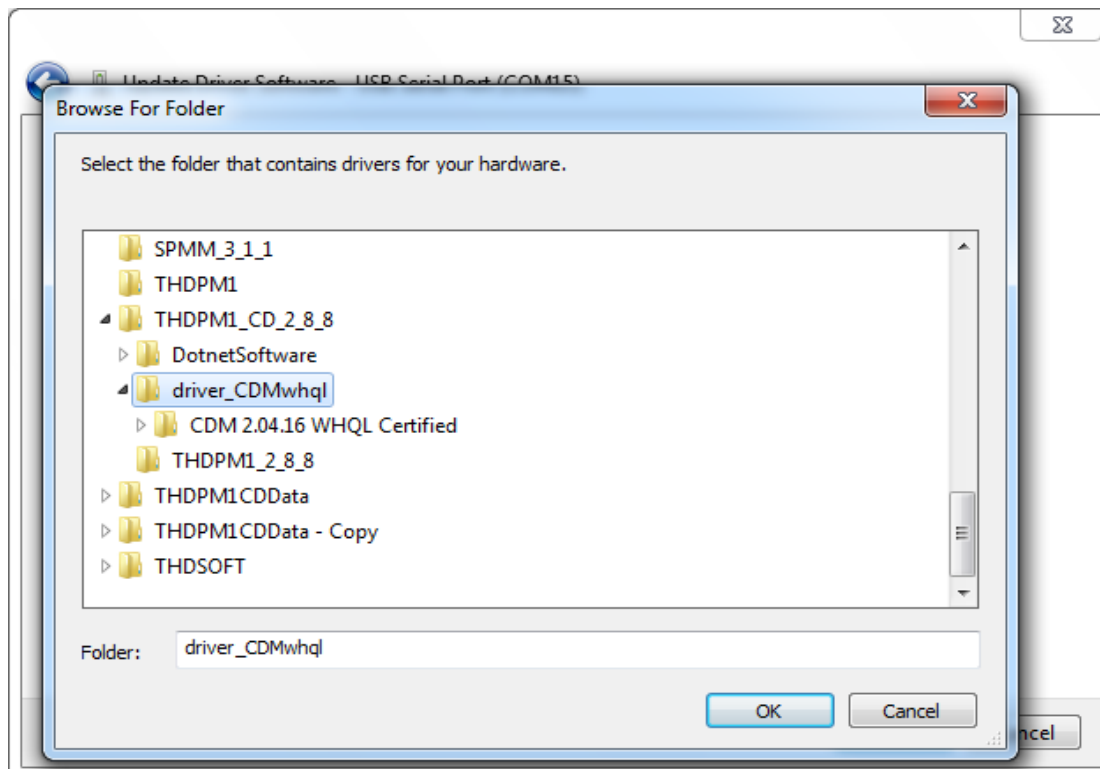


STEP6: Click on “Browse my computer for Driver Software”.





STEP7: If you have inserted the CD then provide the path to the CD drive or otherwise select the folder Named “Driver CDMwhql” and Click OK .Driver CDMwhql is provided in the CD with HET-55 software.

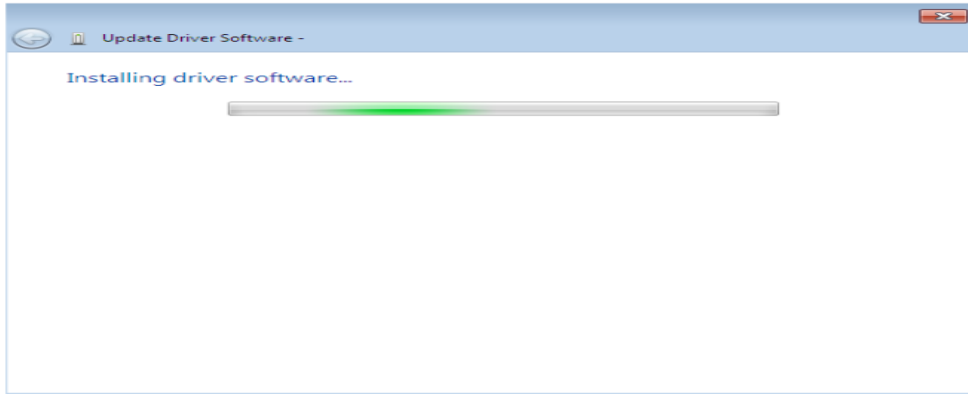


STEP8: You can also provide the path as given image. Then click next.

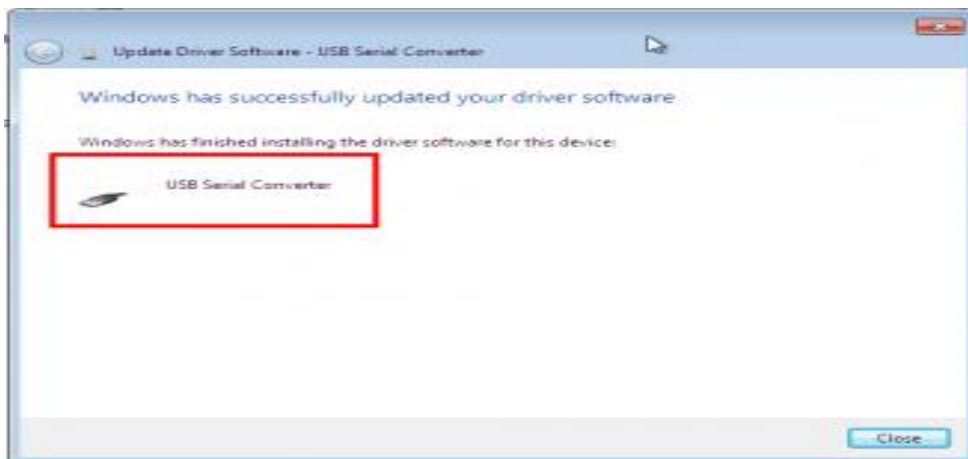




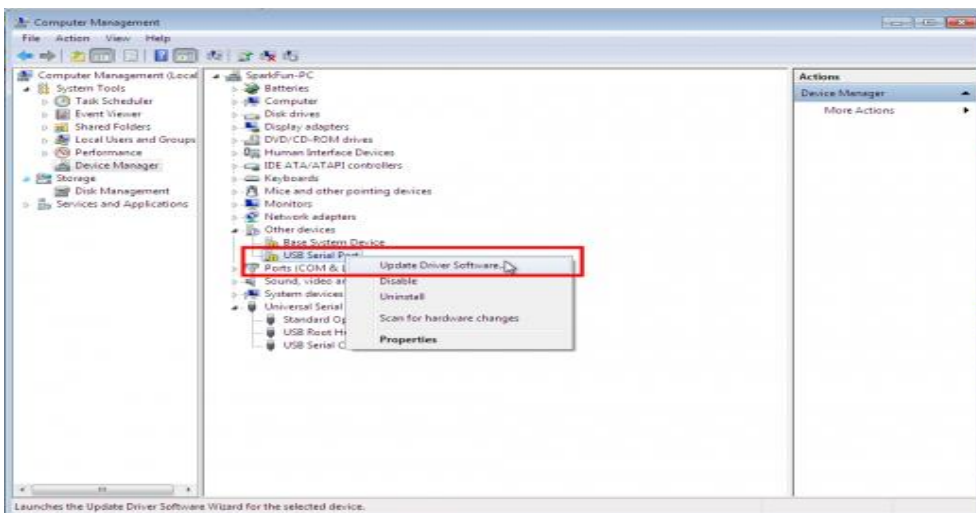
STEP9: A window as given below will show while installing the driver.



STEP10: After installation below image will show that **USB Serial Converter** has installed on your computer.



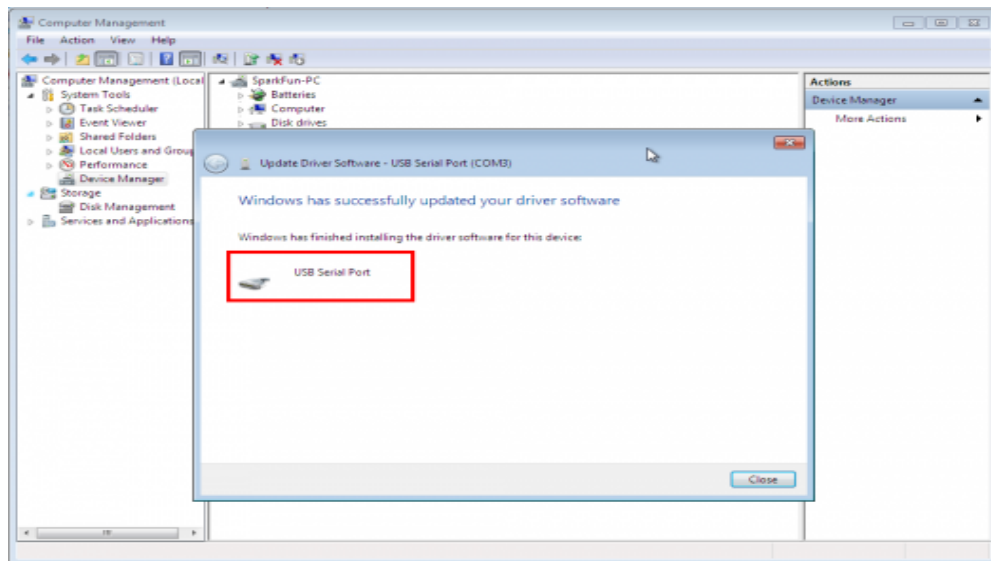
STEP11: Now we have to install driver for **USB Serial Port** as shown in below image –



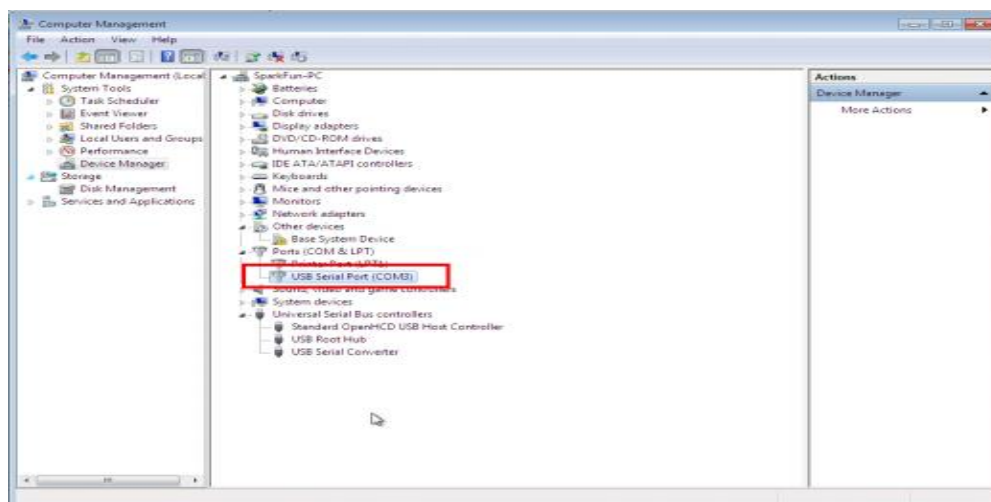
STEP-12: Again update driver as done by **STEP-6** to **STEP-9**.



STEP-13: After installation below image will show –



STEP-14: You can find the machine serial port as below –





For Windows XP Users



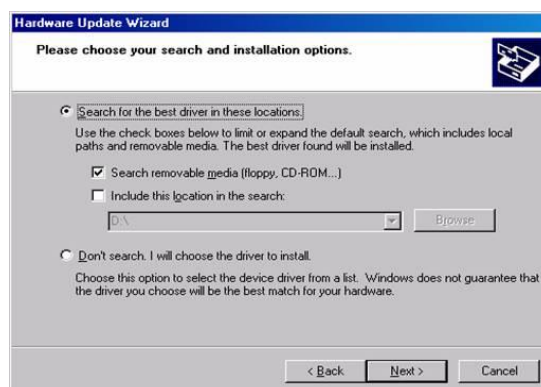
The window “Found the new Hardware Wizard” will appear automatically on your screen as shown below. (For Windows XP)

Select “Install from the list or specified location (Advanced)” and then click next.



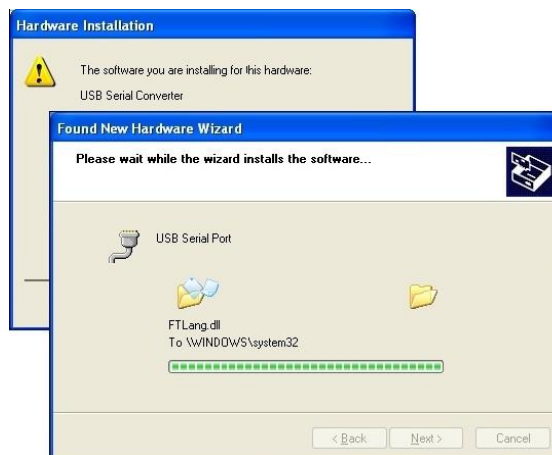
Select the “Search for the best driver in these locations” and check the “Search removable media” (You must check that CD provided with meter is connected to your PC.)

You can also check “Include this location in the search” and click browse. Select the folder “CDM 2.04.16 WHQL Certified” Present in your CD provide with HET-55. Then click “Next”



The above window will show.

After installation press next and driver will be installed.





6.2. HET-55 SOFTWARE-

HET-55 Software is useful for analyzing data from meter and generates various reports.

To use software first copy paste all data from the HET-55 CD to the Computer drive.

CD contains following folders –

- 1- Demo Videos – You can see the demo videos to use HET-55.
- 2- Other Products- It contains catalogs and documents for other Embuilt Products.
- 3- HET-55 Documents – It contains manual, catalog and other HET-55 details.
- 4- HET-55 Software – It contains software and Driver.

Open HET-55 Software folder. There are four folders-

- 1- Dot Net Software: It contains Microsoft framework software. It is needed to install it when using Windows XP.
- 2- Driver _CDMwhql: It contains drivers for communication to HET-55 through USB.
- 3- HET-55 Software: It contains software for HET-55.

Now open the HET-55 Software Folder. There is four .dll (Support files), one .bin file and HET-55.exe software.

Name	Date modified	Type	Size
FTD2XX_NET.dll	16-12-2009 11:15	Application extens...	74 KB
HET55_Ver4_1_3	20-10-2023 15:15	Application	1,210 KB
itextsharp.dll	16-12-2009 11:15	Application extens...	3,608 KB
thdgraph.dll	18-06-2016 15:06	Application extens...	968 KB
ZedGraph.dll	12-12-2008 16:01	Application extens...	300 KB

File description: ZedGraph
File version: 5.1.5.28844

It is recommended that make the shortcut of HET-55.exe on the desktop.

Double click on the HET-55.exe file.

It has following menus-

- 1- Setting Page
- 2- Display Page
- 3- Set Point/ Alarm Page
- 4- Data Logger Page
- 5- Help Page



How to set models in the hardware using software

Setting Page

Select the COM Port from the given otherwise check “Automatic Connect to USB port”.

It will automatic find the port and connect to software.

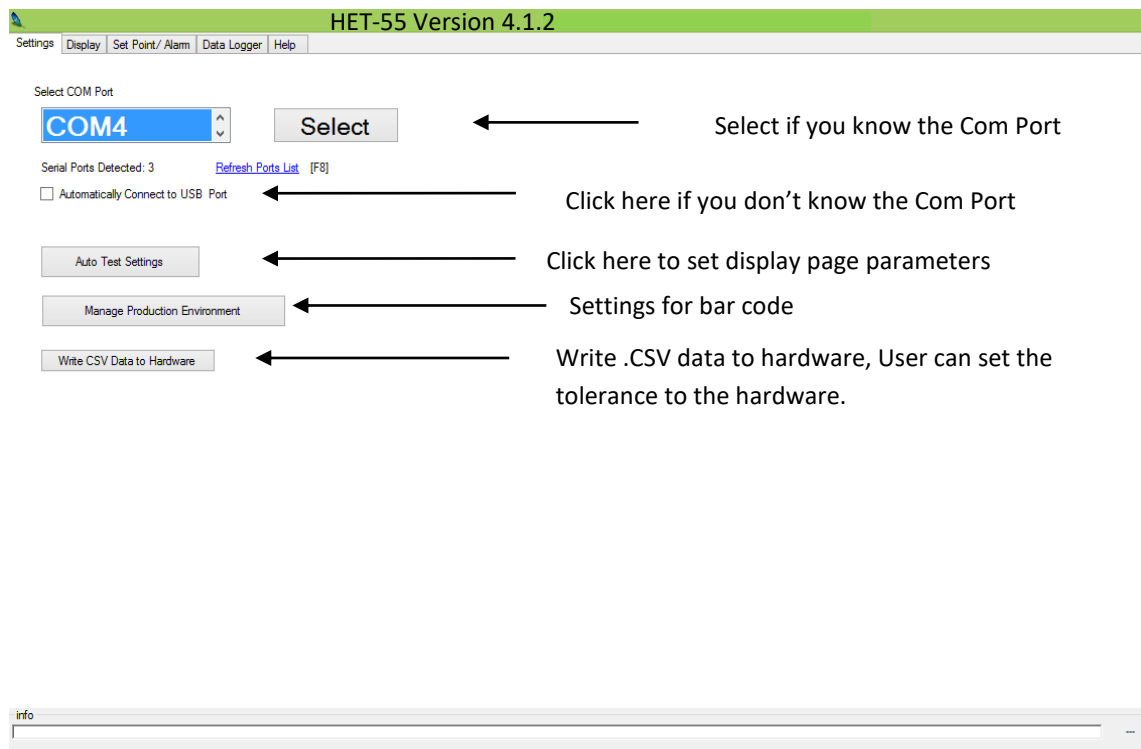
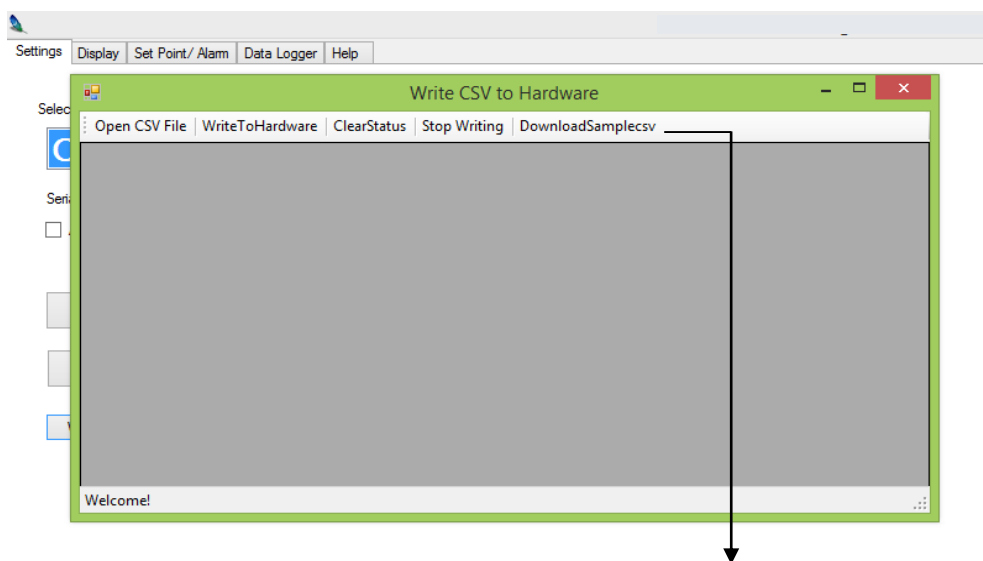


IMAGE 6.2.1

6.2.1.1 Write .CSV data to hardware:- After clicking the **write CSV Data to hardware** tab following page shows

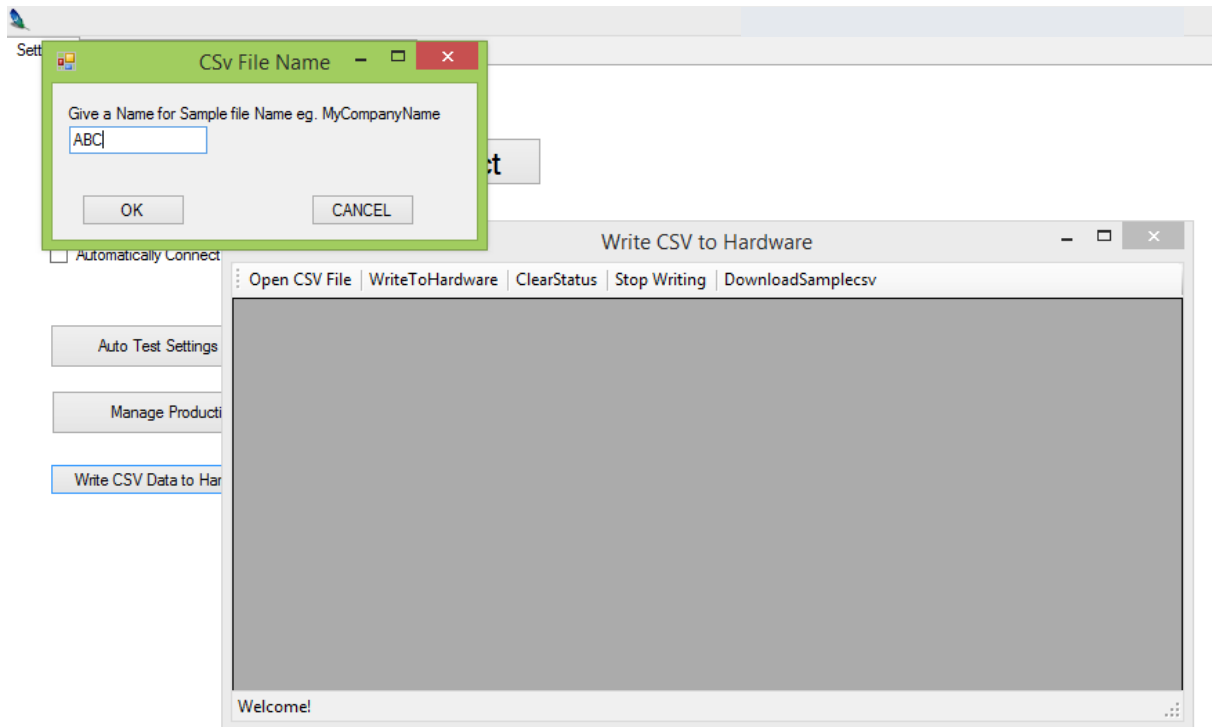


Download Sample CSV- Click in the download sample csv file.



-User can generate a sample .CSV file,

Give name to this CSV and save your desired location.



-After saving, user can open the CSV file in MS Excel.

The screenshot shows the Microsoft Excel application with the file 'abc.csv' open. The data is organized in a table with columns for hardware parameters and their values. The first row is a header, and the subsequent rows contain data for three different hardware models.

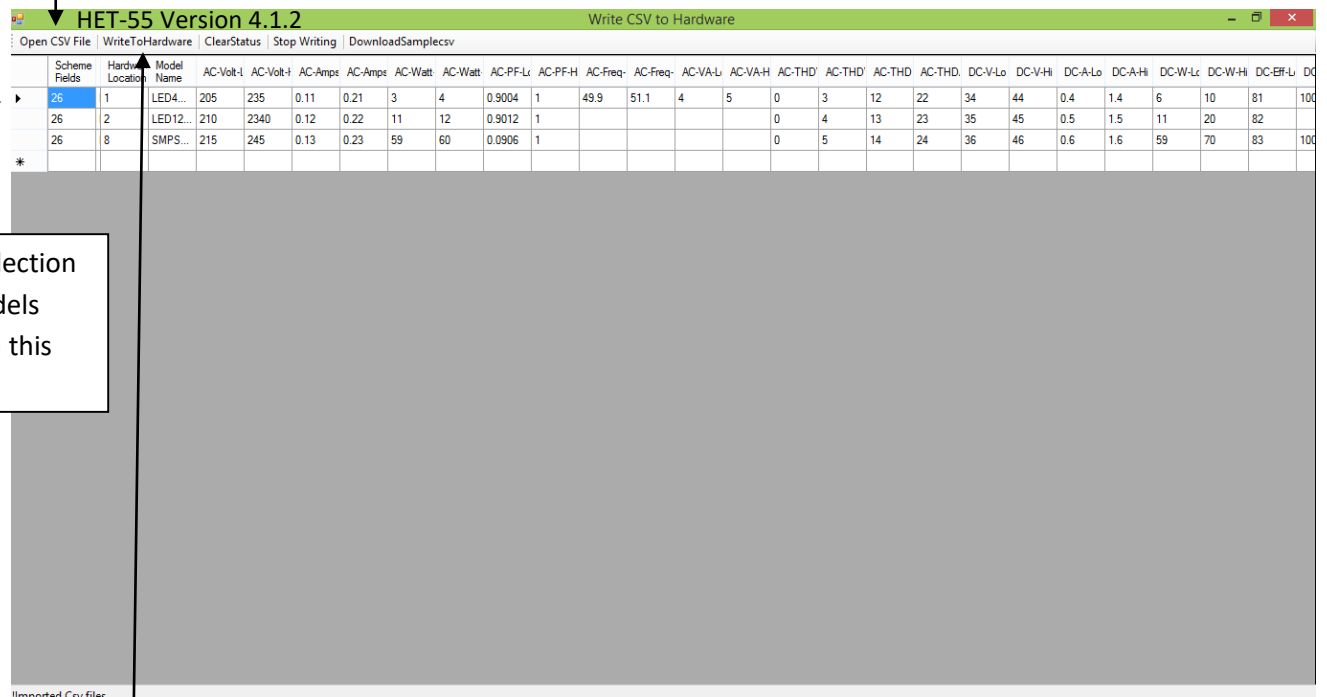
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Hardware	Model Na	AC-Volt-L	AC-Volt-H	AC-Amps-	AC-Amps-	AC-Watt-L	AC-Watt-H	AC-PF-Lo	AC-PF-Hi	AC-Freq-L	AC-Freq-H	AC-VA-Lo	AC-VA-Hi	AC-THDV-	AC-THDV-	AC-THDA-AC
2		1 LED4Watt	205	235	0.11	0.21	3	4	0.9004	1	49.9	51.1	4	5	0	3	12
3		2 LED12Wat	210	2340	0.12	0.22	11	12	0.9012	1					0	4	13
4		8 SMPS60W	215	245	0.13	0.23	59	60	0.0906	1					0	5	14
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	

-User can set the lower and higher limit of all parameters and also set the hardware location and device name, up to 1008 models.

-User can store 1008 different product data in the HET-55.

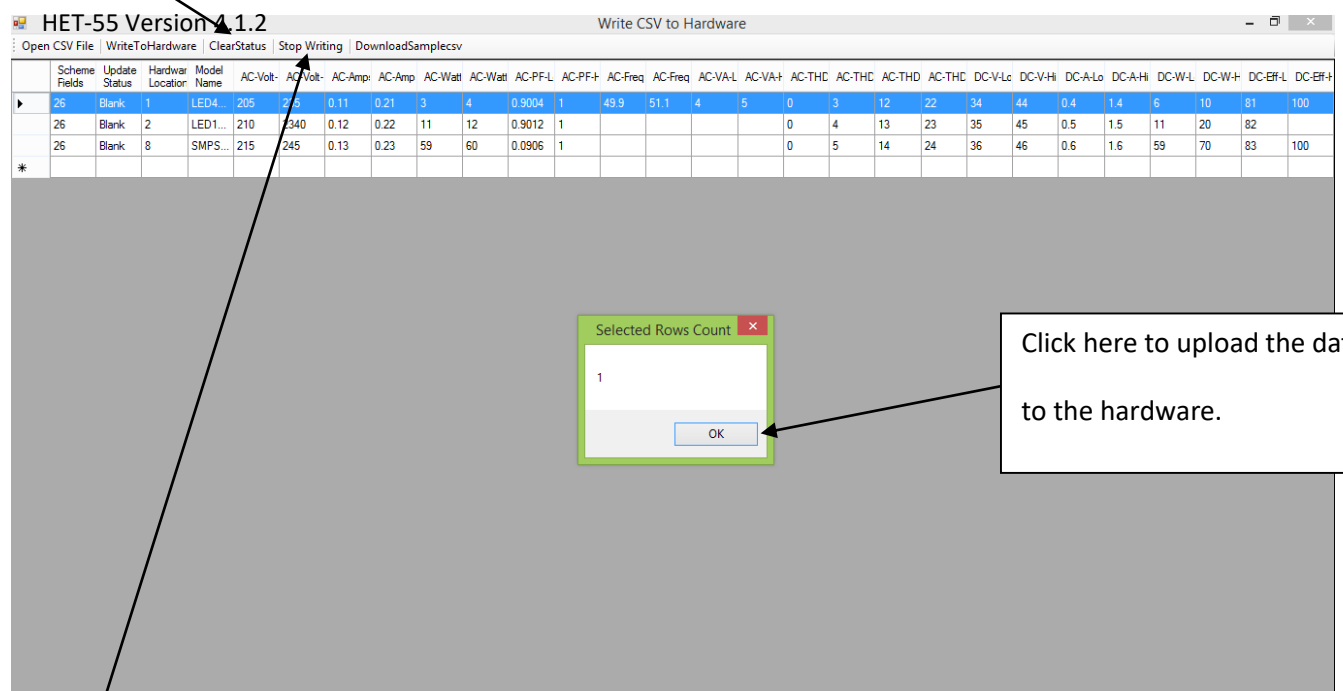


Open CSV File- After saving the .CSV file, open the CSV file in the software.



-Write to Hardware- User can select the required model and send data to hardware.

- Clear status -user can clear the status of confirmation.



-Stop writing- user can stop the writing models to the HET-55, during the uploading.



6.2.2 Auto Test Setting-

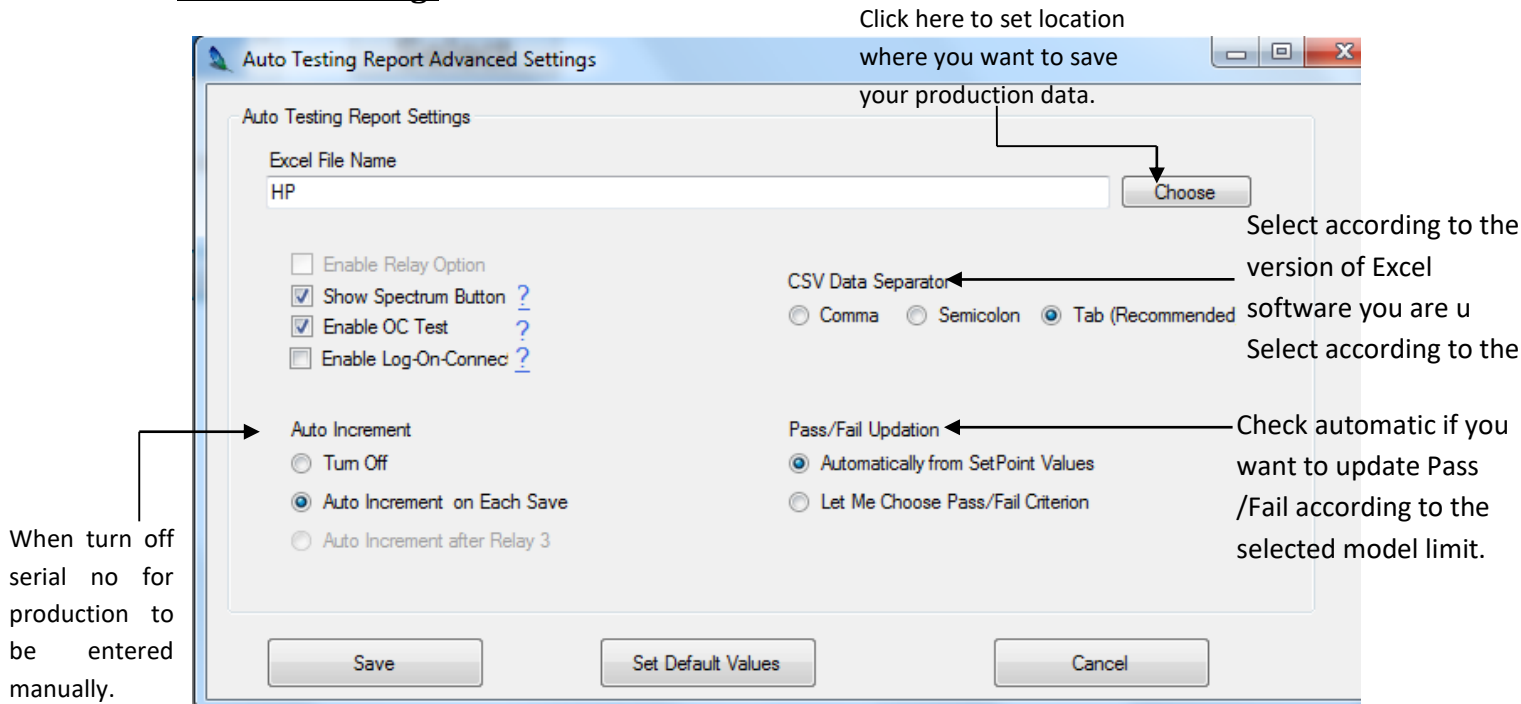


IMAGE6.2.2

- 1- Excel File Name: This is the location where your production data will save.
- 2- Auto increment: If “Auto Increment on Each Save” when you save data in production report, there is increment in serial no. You can ON/ OFF this facility from here as per your requirement.
- 3- Pass/ Fail update: When Automatic is selected, PASS/FAIL result will update according to the limits of selected model. This will not change in display menu.

If you want to select PASS/FAIL manually select “Let Me Choose Pass/Fail Criterion”.
- 4- CSV Data Separator: Production report is saving as .csv file. There is various parameters are included in file. When these parameters are saving in .csv file, they can be separated by any given separator. You can select according to the office software you are using to open the document. We recommend saving data by tab.



6.2.3 Display Page-

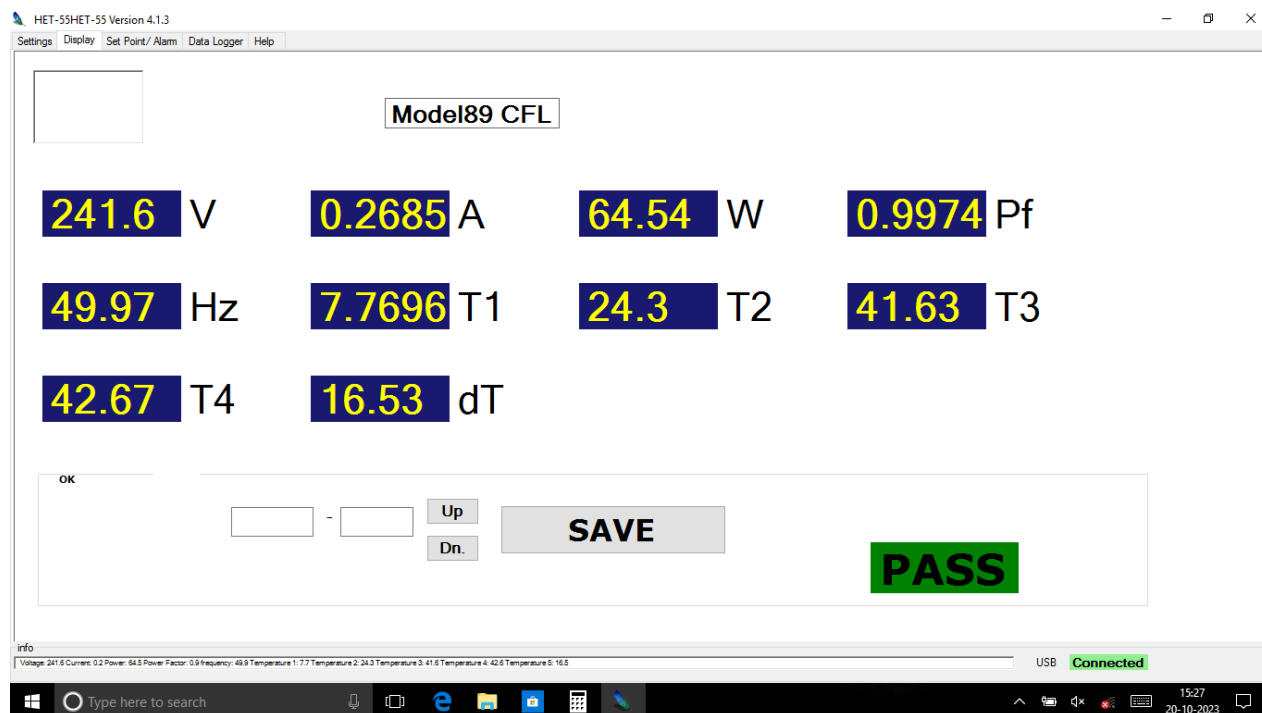


IMAGE 6.2.3

Using Display Menu User can view real time parameter values. Display values shows Red when any parameter value is beyond the limit set by user. At Right pane (Auto Testing) User can add data to production report file (.csv file).

Some parameters user can set are –

1. Device Name – This is the name of the selected model in “Set Point/ Alarm” menu.
2. Serial Number – User can set serial no for testing model. First block will remain unchanged untill user edit it and second block contain number which can be auto increase by one_or increase manually by key press.
3. Result – This will set according to set limit. Two modes are available – Auto /Manual
4. Comment – Here user can add extra comment for any testing piece.
5. Operator Name – Operator Name or testing person name can be enter here.
6. Save to CSV/Excel- By pressing this button all display data will save as csv file which is openable in excel.



6.2.4 Set Point/ Alarm Page-

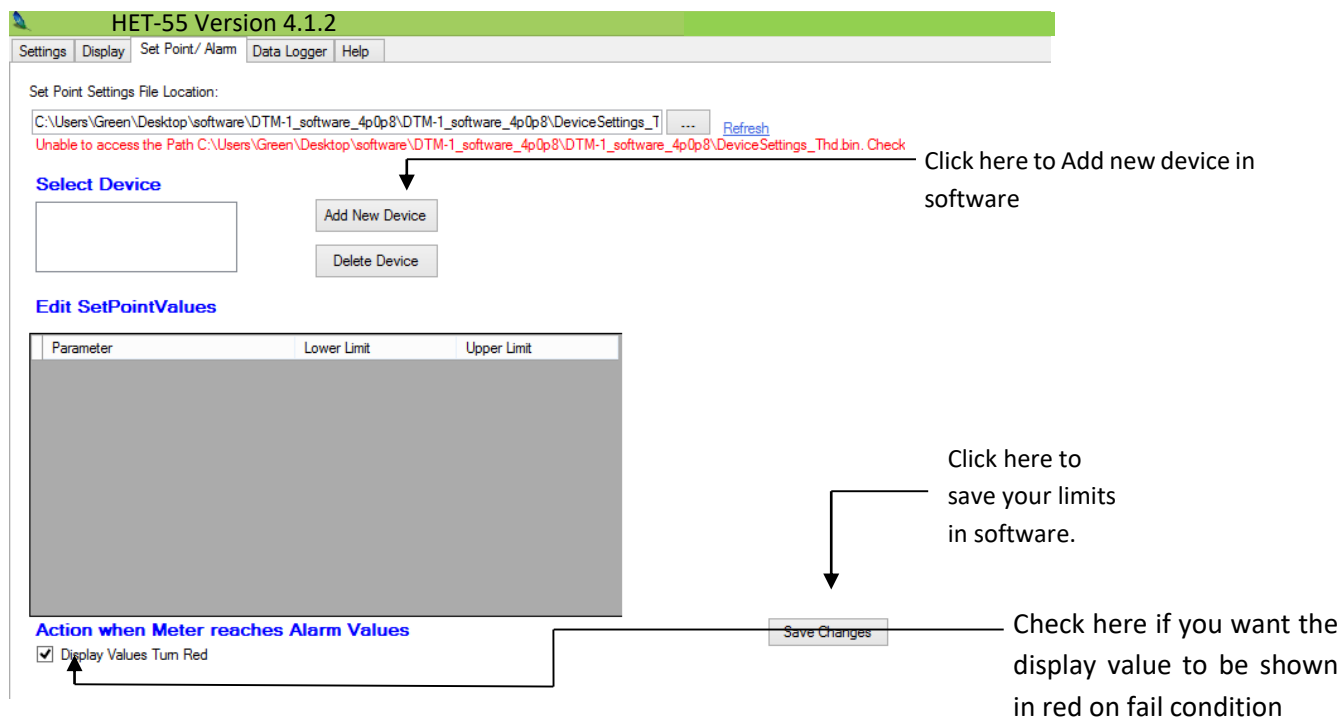


IMAGE 6.2.4

Using this menu user can add Testing Devices/Models with their alarm limits.

To add new device click on “Add New Device” then provide device Name.

After creating the device it will appear in left device box.

Select it and edit the Set Point Values.

6.2.5 Data Logger Page-

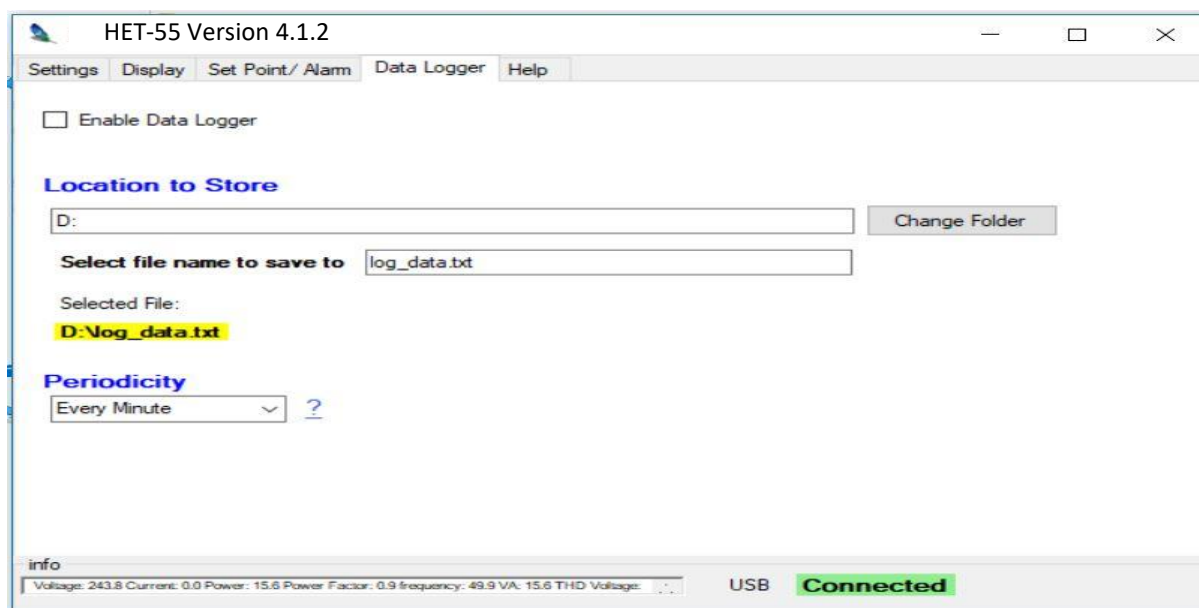


IMAGE 6.2.5



6.2.6 Help-



IMAGE 6.2.6



7. Add device/Models in software

Device is the name of your product models you want to test such as CFL10W, CFL5W and AC 2 Ton, AC Toshiba etc.

You can add unlimited devices in the computer software. HET-55 has memory for 1008 devices and you can set the same devices in the .CSV file and set the model in the software according to your model which is selected in the hardware.

Adding device-

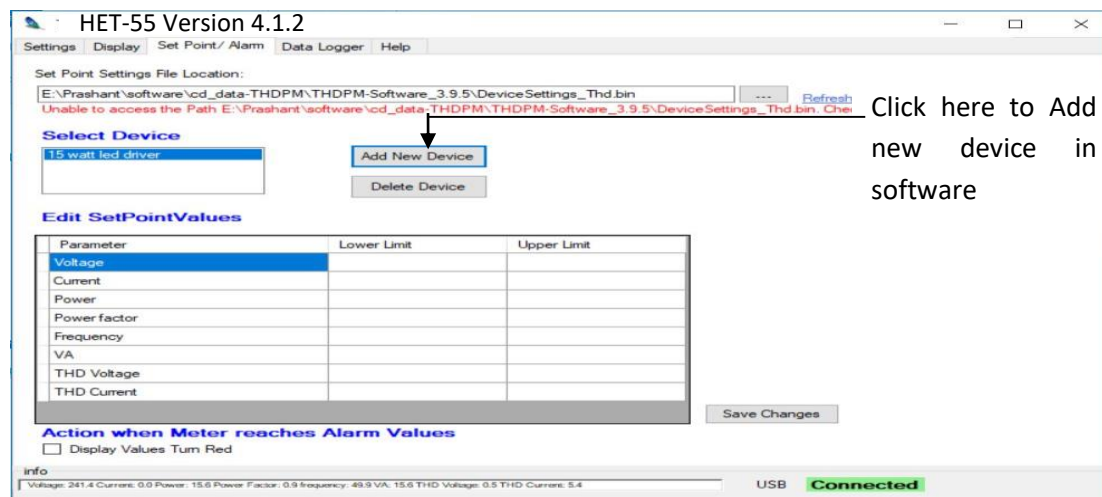


IMAGE 7.A

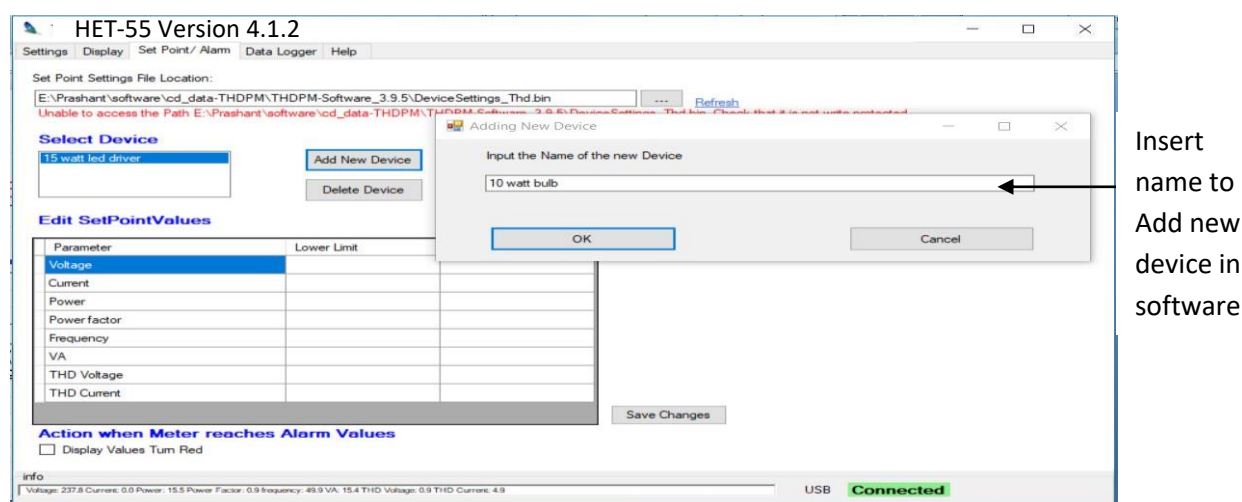


IMAGE 7..B

Enter the name of the testing device such as 10 watt bulb. This will be your model name. Click "OK".

Now change the upper and lower limit of values as required.



8. FAQS:

1. What is device and how many devices I can save?

Ans: Device is the name of your product models you want to test such as AC-1, AC -Toshiba and AC 2 Ton.

You can add unlimited devices in the computer software. HET-55 has memory for 1008 devices and you can change the settings from the computer software using USB Port.

2. How to add device in meter or software?

Ans: All your company models like AC-1, AC-Toshiba, LED 4W etc. have to be first set in the software. (You can keep unlimited numbers). After that, you connect the USB Cable and you can save them into meter. For more see article – “Add devices in Software and Meter” in manual.

3. I have to change the alarm parameter or limits for the existing device?

Ans: Open software and select in “SETTINGS”. Chose the write CSV file to hardware, open the csv file after change the tolerance select the line and click the write to hardware, For help visit article – “Add devices in Software and Meter”

4. How to change Device in meter?

Or

I have done testing for a device, now I want to change the device for testing in meter and software?

Ans: Refer Setting-> Display page 2.

You can easily select the device by using “UP” and “DOWN” Button.

Press “PAGE” button to go to another setting/Save setting or Press “BACK” for main page.

5. How to view limits for a device in meter?

Ans: First select the device (See FAQ4).Then press next page and limits for that device will show on meter (Refer Setting->Display page 3).

Here you can see the limits the device selected. Limits are shown in sliding format.

If you want to change the limit then change it to software than connect the meter with software through USB and click “Save to Hardware”.

6. Is it necessary to fill all limits for any device in software?

Ans: You can fill limits according to your requirement of testing for that device.

For example for any device you can fill only lower limits or only upper limits. You can also leave blank the used parameter limits.

For Example we have to test a 33watt device.

So we can set voltage limit as 210-240 V, Power Limit as 29.7-33.3W, Pf is greater than 0.7.



Edit SetPointValues

Parameter	Lower Limit	Upper Limit
Voltage	180	240
Current		
Power	29.8	33.2
Power factor	0.7	
Frequency		
VA		
THD Voltage		3
THD Current		10

7. How can we calibrate the meter?

Ans: HET-55 is well calibrated and tested. But if you want to further calibrate it then go to the Calibration article in manual.

You can calibrate HET-55 for $\pm 5\%$ of meter reading.

8. Software is not connecting with meter?

OR

Software is not opening.

Ans: This may cause due to several reasons –

1. If Software is open and shows FTDI error then install the driver.
2. If Software is not opening check that all support files are available in the software folder.

Support files are FTD2XX_NET.dll, itextsharp.dll, thdgraph.dll, DeviceSettings_Thd.bin and ZedGraph.dll.

9. An organization can have people with different levels of understanding about the testing system –

	Level 1	Connects /Disconnects the load Check for Pass/Fail Status Make entry in system	These are the basic requirements to work on a system	Testing Person
	Level 2	Change settings Selects different models		Testing Supervisor
	Level 3	Download and check different models of this data		Testing Manager

Level 1 Testing person normally requires seeing the pass/fail facility.

He can see the data on TFT Color Screen.

On Screen he can see the values, selected model and Pass/Fail status.

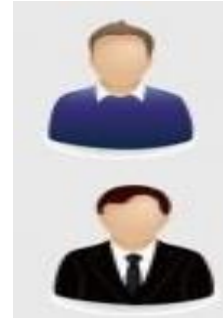
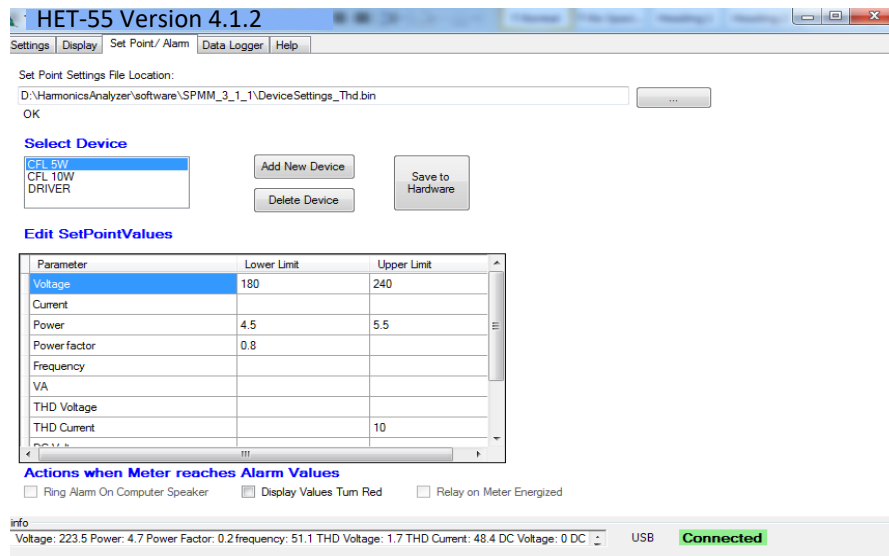
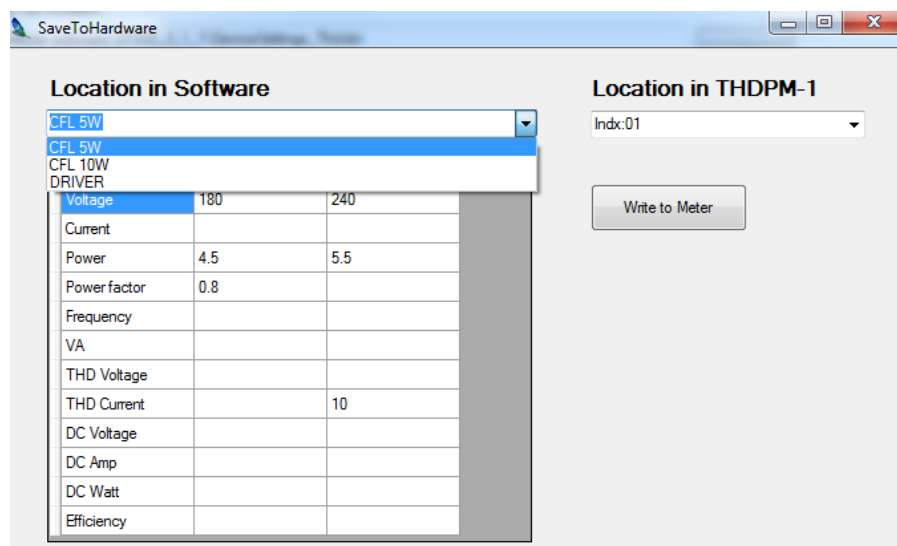
He can also see the Pass/Fail status on LED tab.





Level 2 testing person can select different models.
He can also view and change the setting

Level 3, person is an engineer or testing administrator.
He can add/change the models and limits using software and meter.





9. Process of Data Storage

There are three methods of saving data of tested loads or products in our meters and pen-drive. All three methods are process by **DMU (Data Management Unit)**.

DMU normally store 32000 data and write it in pen-drive by history request command.

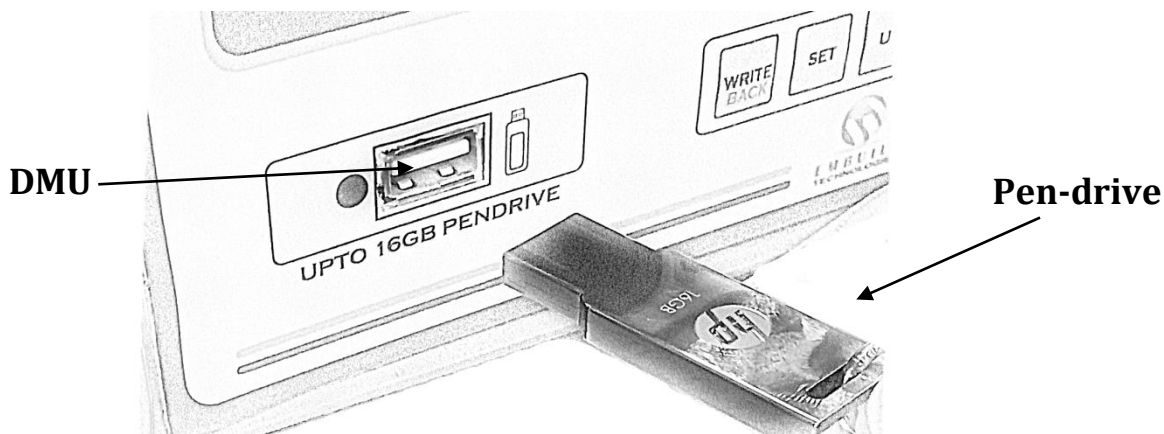


Image: DMU Pen-drive Interfacing

1. Manually (Press Write Button)
2. Data Logging

1. Manually:

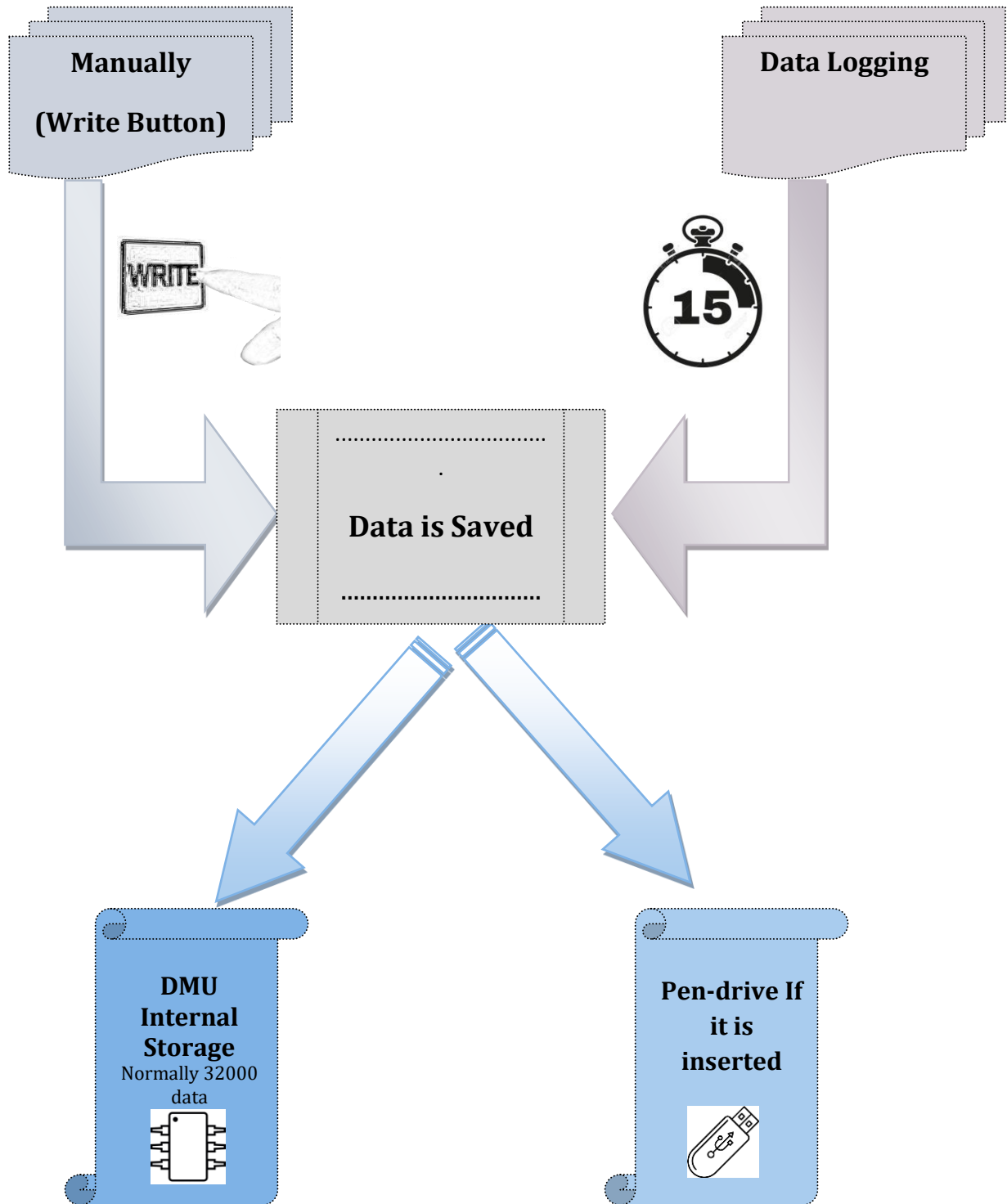
Operator can be save data in DMU by pressing WRITE button. When operator press WRITE button, real time measure parameters are saved in DMU and pen-drive (if inserted) with Red LED blink. Red LED blink indicates data saved in pen-drive.

2. Data Logging:

Operator can be set a time period of data logging. According to set time period data will be saved in DMU and pen-drive also (if inserted). Data logging method is used to analyse a particular load parameters variation with time. If pen-drive not inserted then all logging data will be stored in DMU.



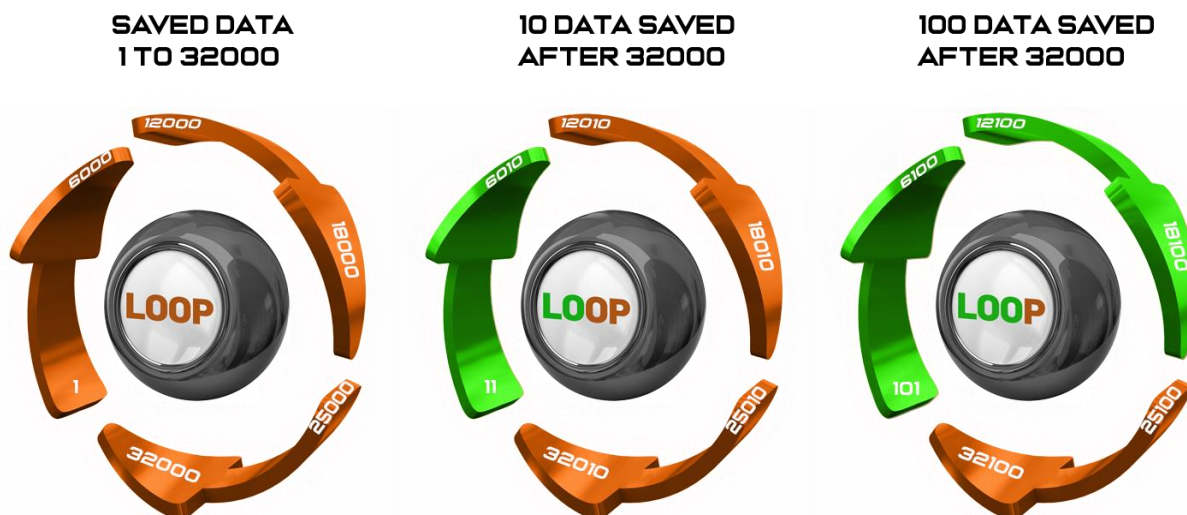
Flow chart of Data storage





What happen after 32000 data saved in DMU

- DMU is a smart storage unit which is store 32000 data of testing. It is programmed to work smartly of data handle. After storing 32000 data, it erases first data from storage unit to make space for new data and then saved next upcoming data (32001) and so on. It follows loop system.



How much time taken to write data in Pen-drive from DMU

Number of DATA	Time taken to write
10 data	1 second
100 data	10 seconds
1,000 data	1 min 40 sec.
5,000 data	8 min 20 sec.
10,000 data	16 min 40 sec.
20,000 data	33 min 20 sec.
32,000 data	53 min 20 sec.

What happen if pen-drive not inserted in DMU and data save

- Don't worry if pen-drive not inserted in DMU at data saving time. All data saved in DMU storage and operator gets these data by history command process. DMU create a duplicate copy of saved data and write in pen-drive according to history command.



Process of Data taken from DMU

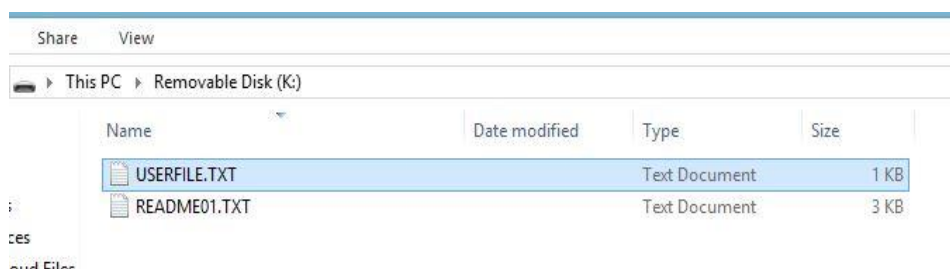
- First of all, insert Pen Drive in DMU and when Red LED glows, remove pen-drive from DMU and insert it in your computer.

Two files create by DMU in pen-drive

- USERFILE.TXT
- README01.TXT (contain useful information for operator)

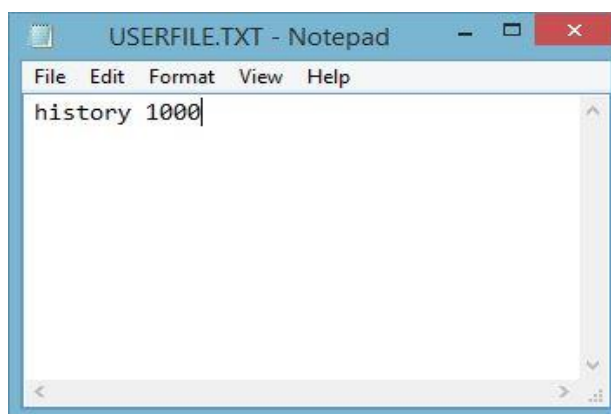
OR

- Insert Pen-drive in computer and create a text file in pen-drive. Rename it- "USERFILE.TXT"

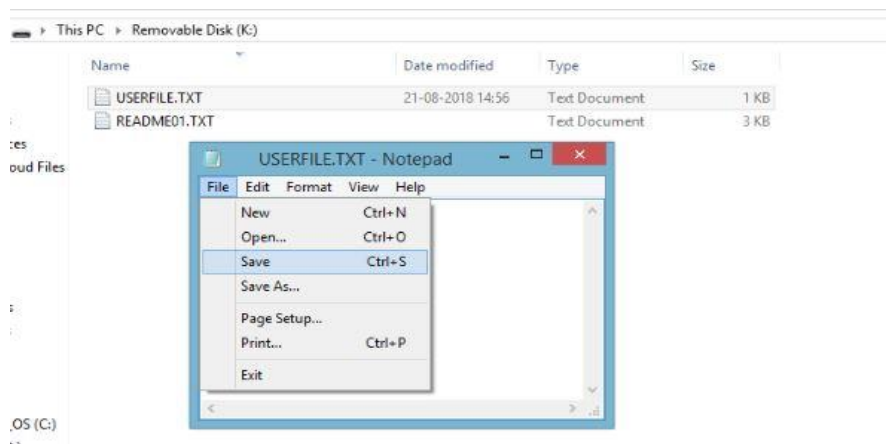


- Open USERFILE.TXT and type:- history 1000

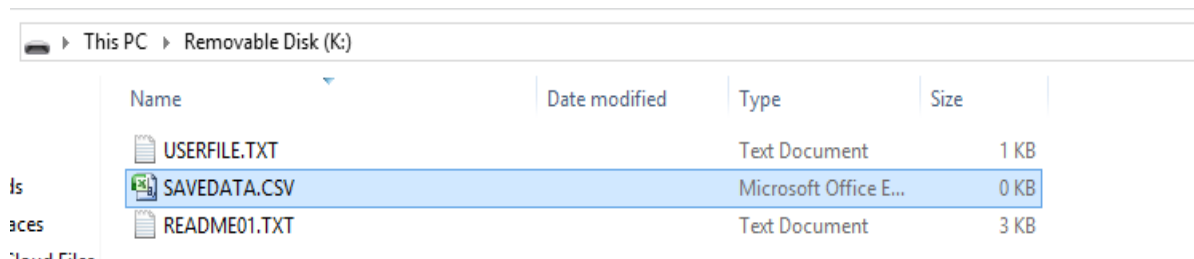
Note: here Numeric value 1000 is defined for data backup of last 1000 tests. It varies according to operator requirement. Minimum numeric value will be 1 and Maximum 32000.



- Save history command in USERFILE.TXT and remove pen-drive from computer and insert it in DMU.



- After inserting pen-drive in DMU, Red LED starts blinking. Blinking of Red LED indicates that data is writing in pen-drive from DMU. When the Red LED stop blinking and glow continuously that means data saved in pen-drive.
Now remove pen-drive from DMU and insert into computer.
A new file "SAVEDATA.CSV" generated by DMU in pen-drive for history file.



- Open SAVEDATA.CSV file and get history data backup as their requirement.

SAVEDATA.CSV - Microsoft Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M
	DATE	TIME	MODEL	Serial Number	RESULT	acVOLTAGE	acCURRENT	acPOWER	acPF	acFREQUENCY	acVA	vTHD	aTHD
1	13-08-2018	17:24:13	EMB	1232	PASS	240.1	0.066	15.88	0.992	50.03	15.846	0.319	5.354
2	13-08-2018	17:24:13	EMB	1233	PASS	240	0.066	15.86	0.992	50.03	15.846	0.39	4.878
3	13-08-2018	17:24:13	EMB	1234	PASS	240.1	0.066	15.86	0.992	50.02	15.84	1.319	4.878
4	13-08-2018	17:24:14	EMB	1235	PASS	241	0.066	15.81	0.992	50.03	15.846	0.9	5.713
5	13-08-2018	17:24:14	EMB	1236	PASS	240.1	0.066	15.88	0.992	50.03	15.846	0.519	5.354
6	13-08-2018	17:24:14	EMB	1237	PASS	240.1	0.066	15.86	0.992	50.02	15.846	0.319	4.878
7	13-08-2018	17:29:08	EMB	1238	PASS	240	0.066	15.86	0.992	50.03	15.846	0.39	4.878
8	14-08-2018	13:49:43	EMB	1239	PASS	242	0.066	15.81	0.992	50.03	15.84	1.319	5.713
9	14-08-2018	13:49:50	EMB	1240	PASS	240.1	0.066	15.86	0.992	50.02	15.846	0.9	4.878
10	14-08-2018	13:49:50	EMB	1241	PASS	240.1	0.066	15.86	0.992	50.03	15.846	0.519	4.878
11	14-08-2018	13:49:53	EMB	1242	PASS	240.1	0.066	15.81	0.992	50.02	15.84	0.319	5.713
12	14-08-2018	13:49:53	EMB	1242	PASS	240.1	0.066	15.81	0.992	50.02	15.84	0.319	5.713

What happen if history data taken from DMU at production testing time

- Operator can take history data back-up from DMU at any time. SAVEDATA.CSV file contain only requested data by history command.



When operator takes history from DMU at the time of production testing, then pen-drive contain 4 file.

- USERFILE.TXT
 - README01.TXT
 - SAVEDATA.CSV
 - DTM01.CSV (name of this file will be changed according to meters)
- SAVEDATA.CSV stores DMU back-up data only
- DSAVE00.CSV stores real time saved data only



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Our Products:



ASC-1
Automatic Switcher and Counter

THDPM-1
Total Harmonic Distortion Power Meter-1



TH-Log6
Temperature Humidity Data Logger

DTM-1
Driver Testing Machine-1



DPA-1i
Digital Power Analyser-1i

PT-AC
Production Tester- AC

