

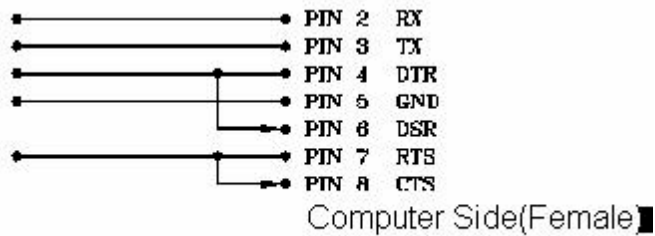
Datalogger and RS232 Interface

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RS232 Wiring Hardware

RS232 Wiring Diagram

Meter Side



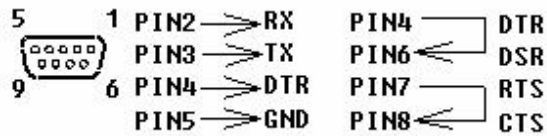
Computer Side(Female)

Figure-2

RS232 Connector Diagram

The RS-232 “DB-9” side of the PC Interface Cable connects to the PC’s COM port.

Refer to the diagram below for wiring information. Note that a SERIAL to USB Adapter may be used.



RS232 Settings

19200, N, 8, 1

RS-232 Protocol

Settings 19200,N,8,1

On Line Transfer (36 bytes data to PC)

Byte1	Byte2	Byte3	Byte4	Byte5	Byte6
Start 02	Status 1	Status 2	Status 3	Status 4	MR Value

Byte7	Byte8	Byte9	Byte10	Byte11	Byte12	Byte13
Cal value		Main value		Time value		Stop 03

Details:

(1) Starting byte 02 (Byte1)

(2) Status:
Status 1

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
1	BT	Down of :	Up of :	MMA	AVG	MIN	MAX	Hold

Status 2

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
1		Main x 0.1	Main x 0.01	Main x 0.001	R	M	Dot of Cal	CAL

Status 3

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
1	Btu	k	%	d	/h	m ²	h	W

Status 4

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
1	NO	YES	CLR	OL	d	/h	·h	(ft ²)

(3) LCD Displayed Data

MR Value (Byte6) : 00~99

CAL Value, Main Value, Time Value : C : X Cal Value : DDDD: FULL

(4) Stop Byte 03 (Byte13)

“A” command :

02 + AAh + Last Add (2 Bytes) + 03

Commands : (after “A” command)

“O”---Power off “T”---Time switch “H”---Hold “U”---Unit Switch

“P”---Percent(%) “B”---Manual Recording “R”---Read “X”---MAX/MIN/AVG

“E”---Escape from MMA “I”---Auto Recording “D”---Erase Memory “M”---Reply 1333

“C”+ DD + hh + mm + ss---Set up Time “G” + mm + ss---Set up Intv “F”---Read Auto Records

Auto Rec.s :

00 55 AA 00 + Intv + DDHHMMSS + Intv (2 Bytes)

+ Data1 + Data2 + Data3 + Data1 + Data2 + Data3

+ Data1 + Data2 + Data3 + Data1 + Data2 + Data3 + ...

00 55 AA 00 + Intv + DDHHMMSS + Intv (2 Bytes)

+ Data1 + Data2 + Data3 + Data1 + Data2 + Data3

+ Data1 + Data2 + Data3 + Data1 + Data2 + Data3 + ...

Data : $(\text{Data1} \times 65536 + \text{Data2} \times 256 + \text{Data3}) / 1000$

Hardware Requirements and Setup

PC HardWare Requirements :

HDD, CD Rom, 486 PC or above, with available
COM port EGA or higher monitor
4M bytes or more memory size

PC HardWare Setup :

- 1) Switch off all power related to the PC
- 2) Connect the DB9 (female) end of the supplied RS-232 cable to available COM port
- 3) Switch on all related power
- 4) Connect the PS/2 plug end of the RS232 cable to the meter

Software Requirements and Setup

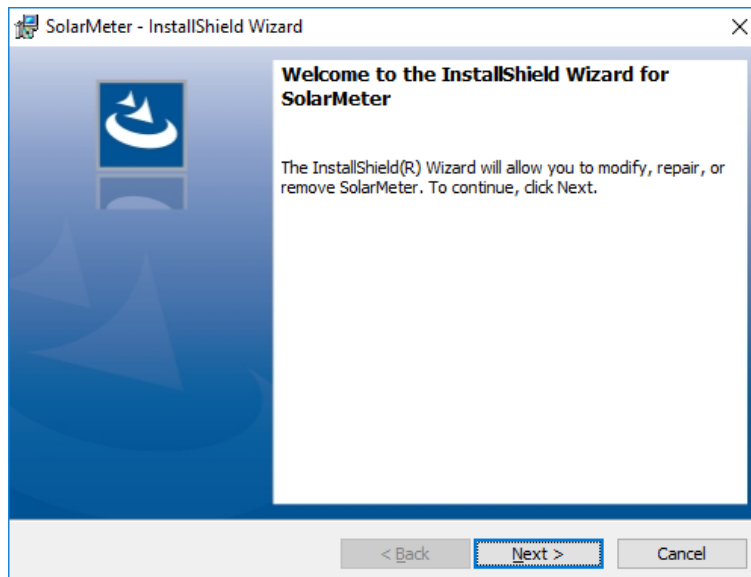
- 1) Start up windows 7 / 8 / 10 operating system
- 2) Close all other applications

1).



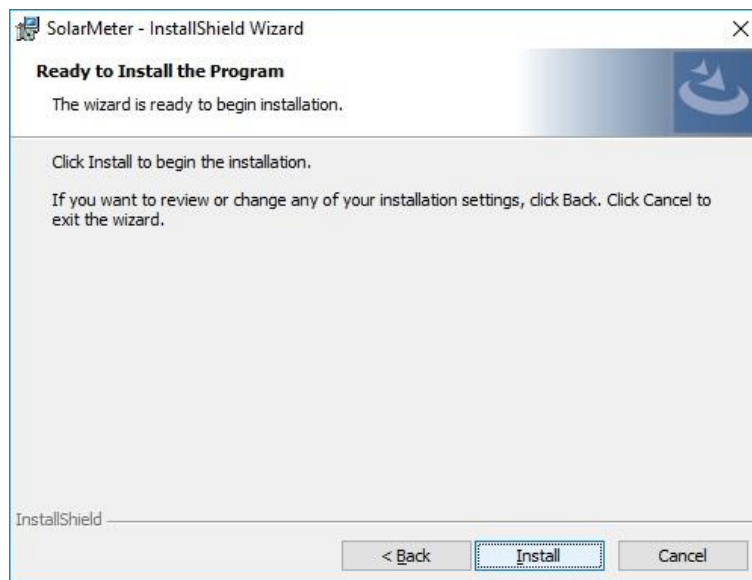
Setup program will run automatically.

2).



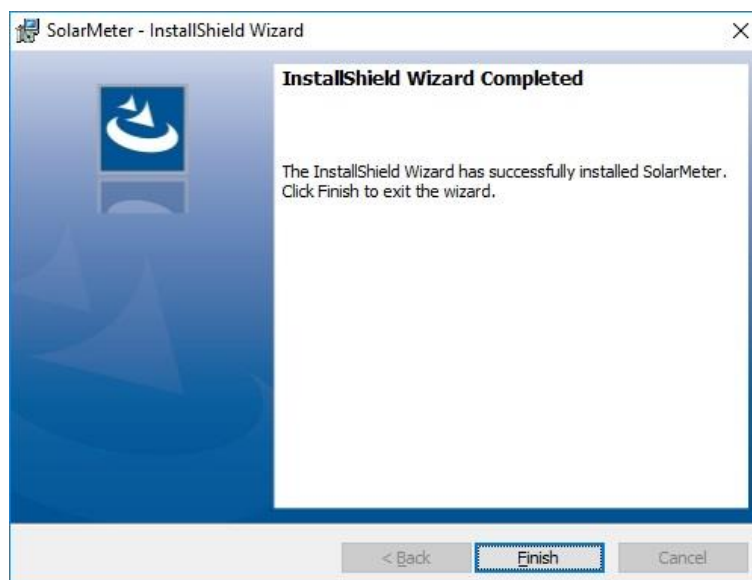
Click Next> button

3).



Click Install> button

4).

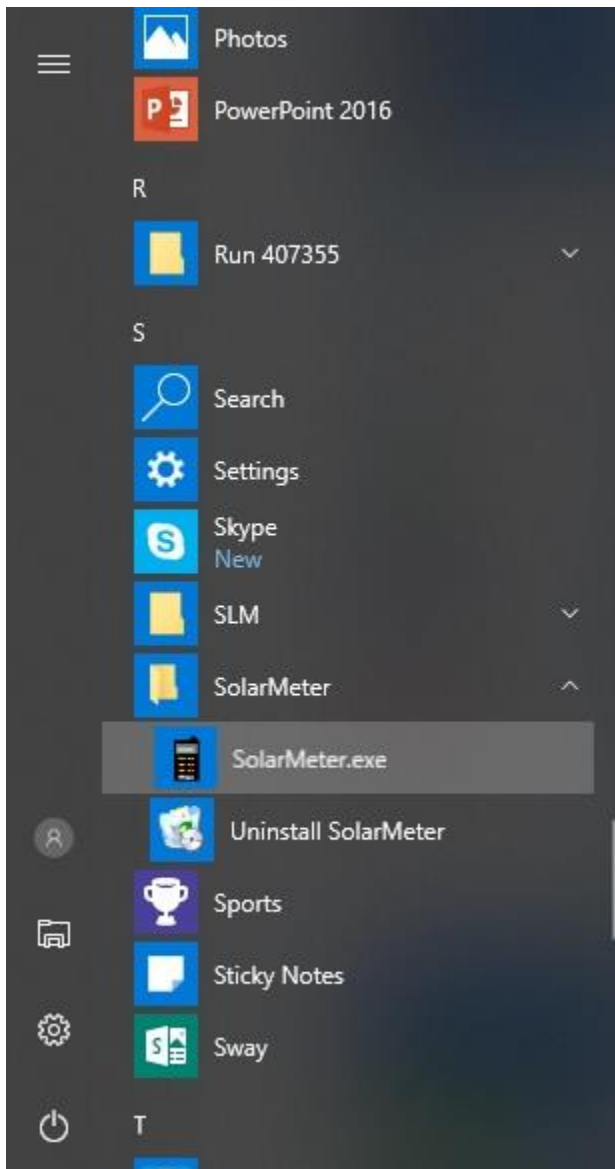


Setup is completed.

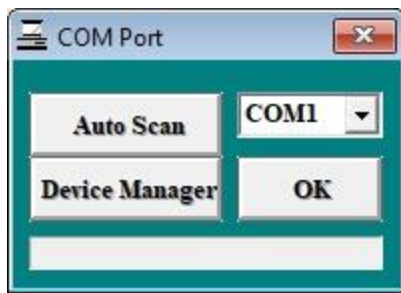
Communicating Operation

Run the software

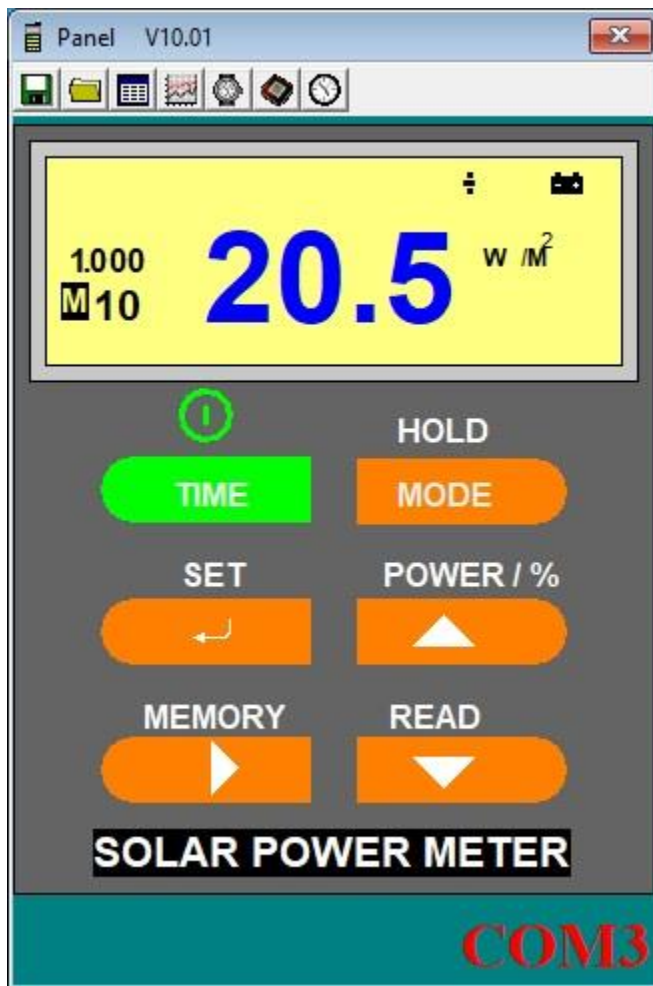
1. Click "Start" from Start menu then move to "All Programs" (or "Programs") then "SolarMeter" and then click the "SolarMeter" icon.



2. Click an available COM port




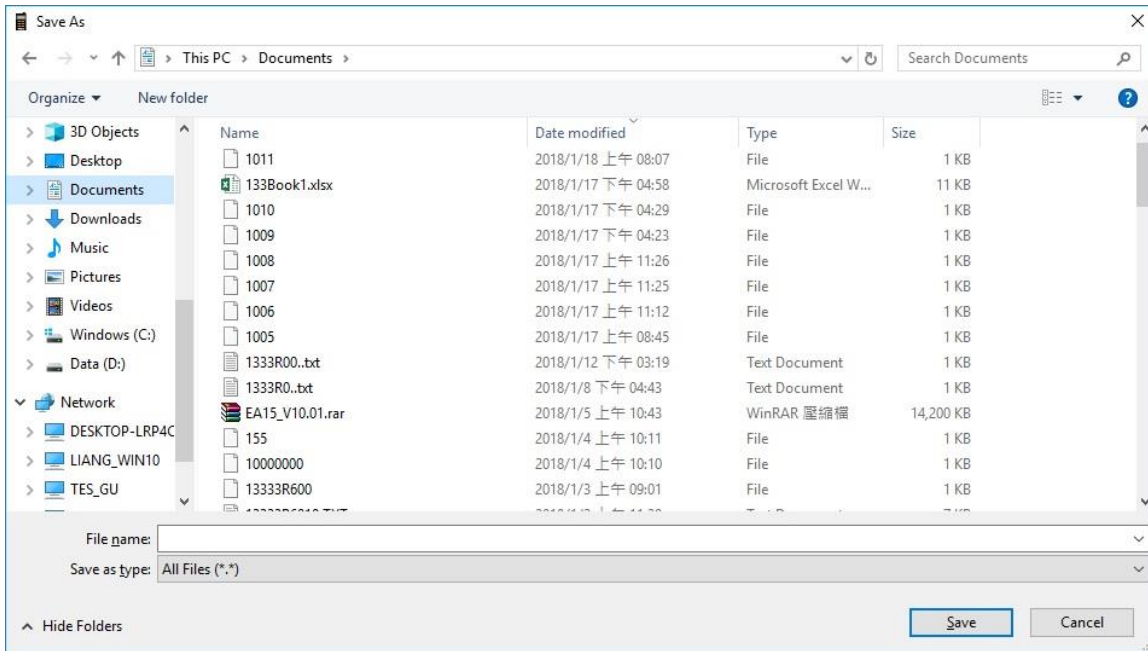
3. Main software screen



Record


Save to Hard Disk (PC)

Click  button. The dialog box shown below will appear.




Input a file name and then click "Save" to begin saving data to the file just named.




Click  button to stop recording.

Save to EEP Rom (Light Meter)

1. Automatically Record


Press the button  named MEMORY for about 3 seconds till “**M**” symbol starts flashing on the LCD. Press that button again (momentarily) to stop recording.

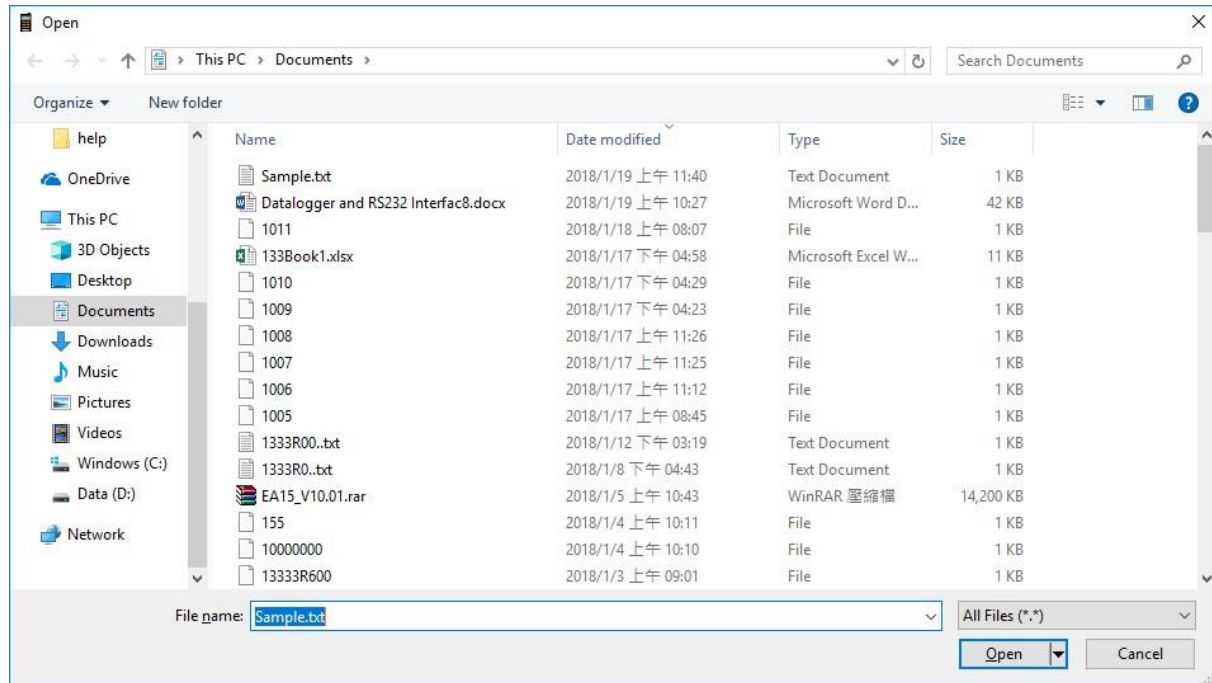
2. Manually Record

Press the button  named MEMORY momentarily to store one reading. The “**M**” symbol will flash once.

Open File

1. Download Data from Hard Disk

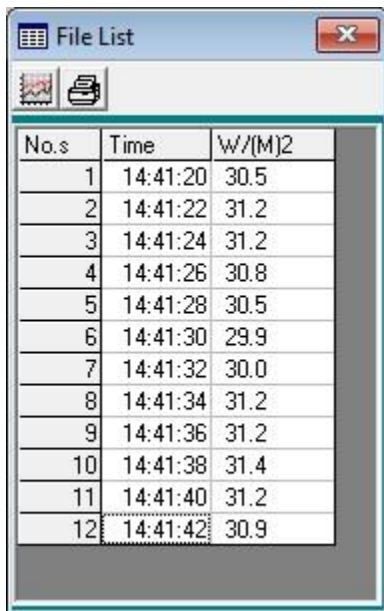
Click  button. The Open window, shown below, appears



Input the file that was selected earlier and then click the Open button.

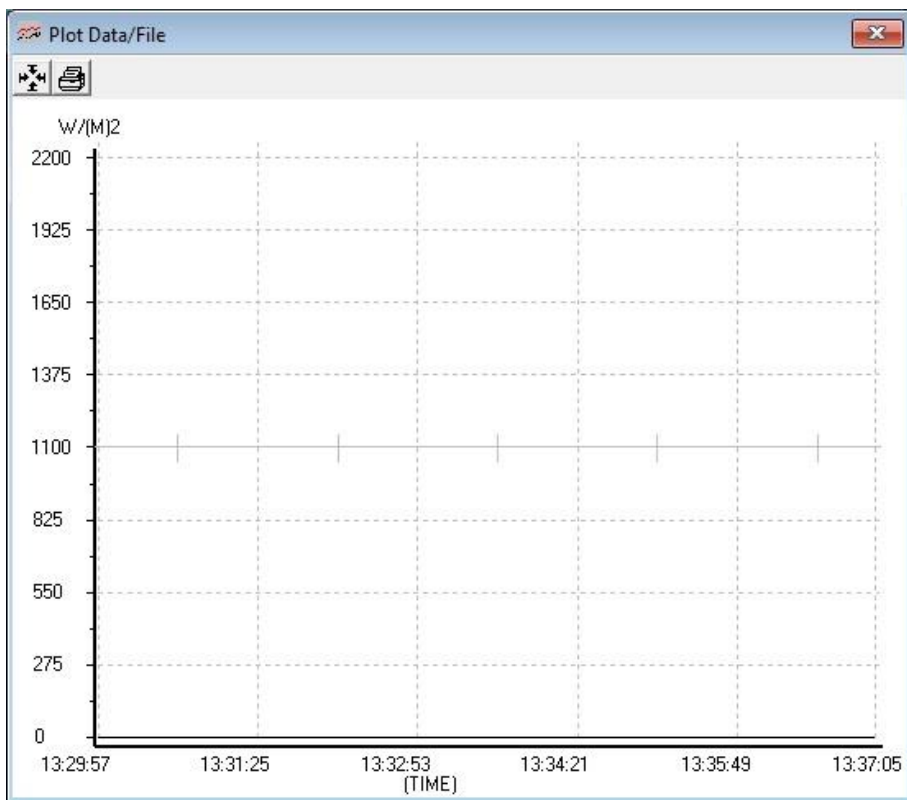
2. Apply for Graph

Open a saved data file in the software program and then click  .



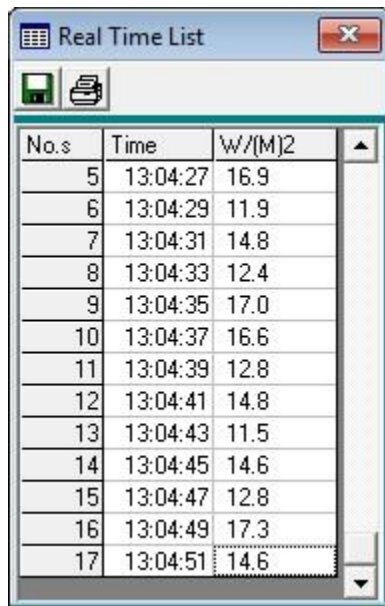
The 'File List' window displays a table with three columns: 'No.s', 'Time', and 'W/(M)2'. It contains 12 rows of data. The window has a title bar with a close button and a toolbar with a graph icon and a print icon.

No.s	Time	W/(M)2
1	14:41:20	30.5
2	14:41:22	31.2
3	14:41:24	31.2
4	14:41:26	30.8
5	14:41:28	30.5
6	14:41:30	29.9
7	14:41:32	30.0
8	14:41:34	31.2
9	14:41:36	31.2
10	14:41:38	31.4
11	14:41:40	31.2
12	14:41:42	30.9



Data display

Click on the Data List icon  to start viewing Real-Time data in a list.




The image shows a software window titled "Real Time List". It has a standard Windows-style title bar with a close button. Below the title bar, there are two icons: a floppy disk (Save) and a printer (Print). The main area of the window contains a table with three columns: "No.s", "Time", and "W/(M)2". The table lists 13 rows of data, with the last row (17) highlighted. The data is as follows:

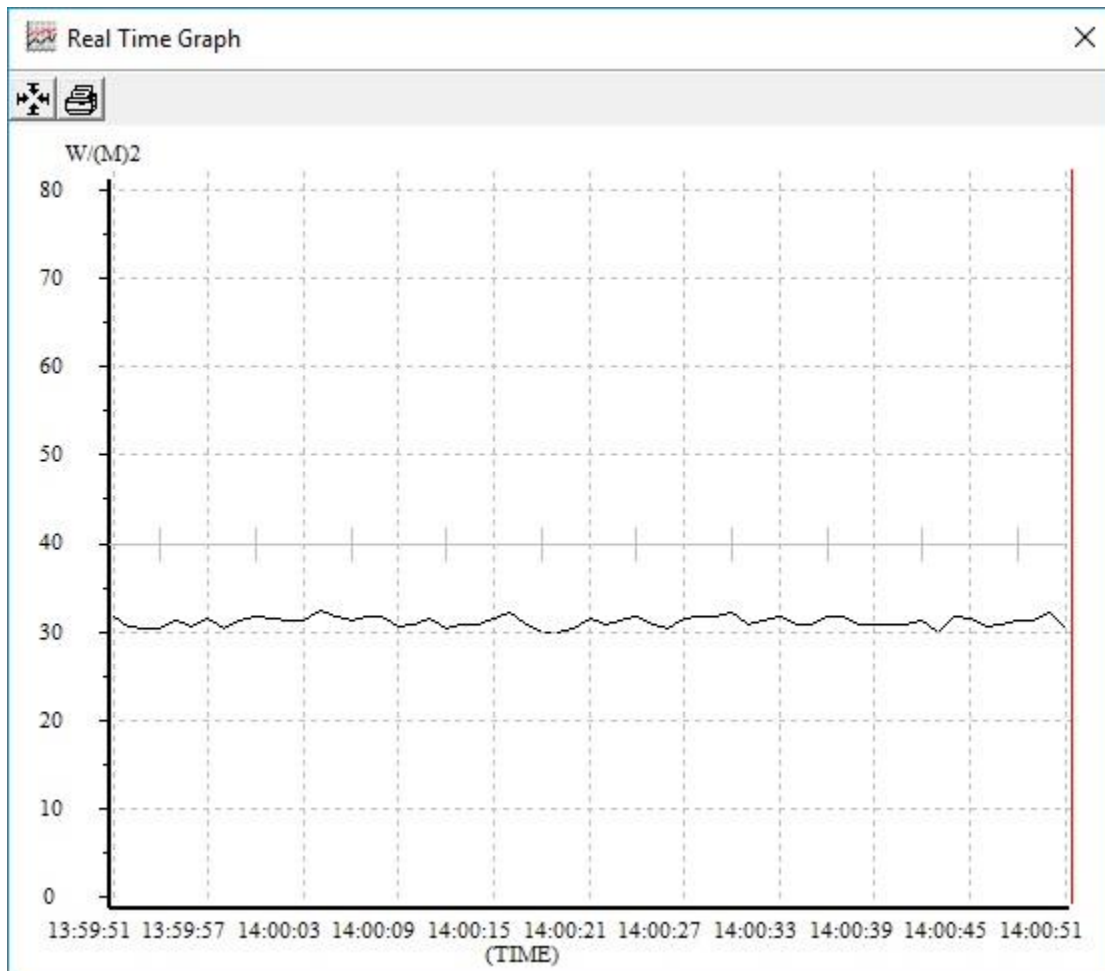
No.s	Time	W/(M)2
5	13:04:27	16.9
6	13:04:29	11.9
7	13:04:31	14.8
8	13:04:33	12.4
9	13:04:35	17.0
10	13:04:37	16.6
11	13:04:39	12.8
12	13:04:41	14.8
13	13:04:43	11.5
14	13:04:45	14.6
15	13:04:47	12.8
16	13:04:49	17.3
17	13:04:51	14.6

Click on the Save icon  to save the List to the PC.

Click on the Printer icon  to print the data List.

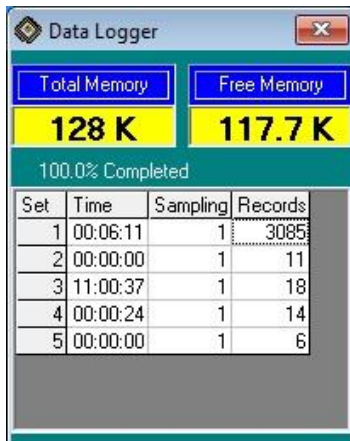
Graphic Display

Click on the Graph icon  to start viewing Real-Time data on a graph.

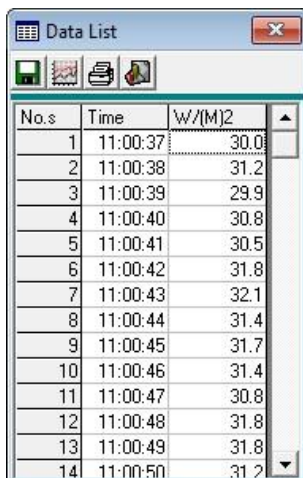


Download Data from EEP ROM

Click  button. The Data Logger window, shown below, will open.



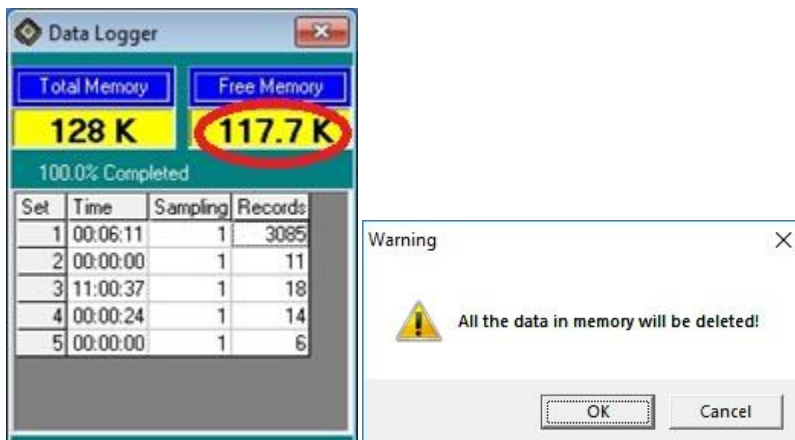
Click on a SET number to view the set's details. For example, in the window above, there are 5 sets from which to choose. The list below is an example of an opened set.



The Data List window shows a detailed view of a data set. The table lists 14 records with columns for No.s, Time, and W/(M)2.

No.s	Time	W/(M)2
1	11:00:37	30.0
2	11:00:38	31.2
3	11:00:39	29.9
4	11:00:40	30.8
5	11:00:41	30.5
6	11:00:42	31.8
7	11:00:43	32.1
8	11:00:44	31.4
9	11:00:45	31.7
10	11:00:46	31.4
11	11:00:47	30.8
12	11:00:48	31.8
13	11:00:49	31.8
14	11:00:50	31.2

To erase saved data in EEP ROM, click the Free Memory label (see below)

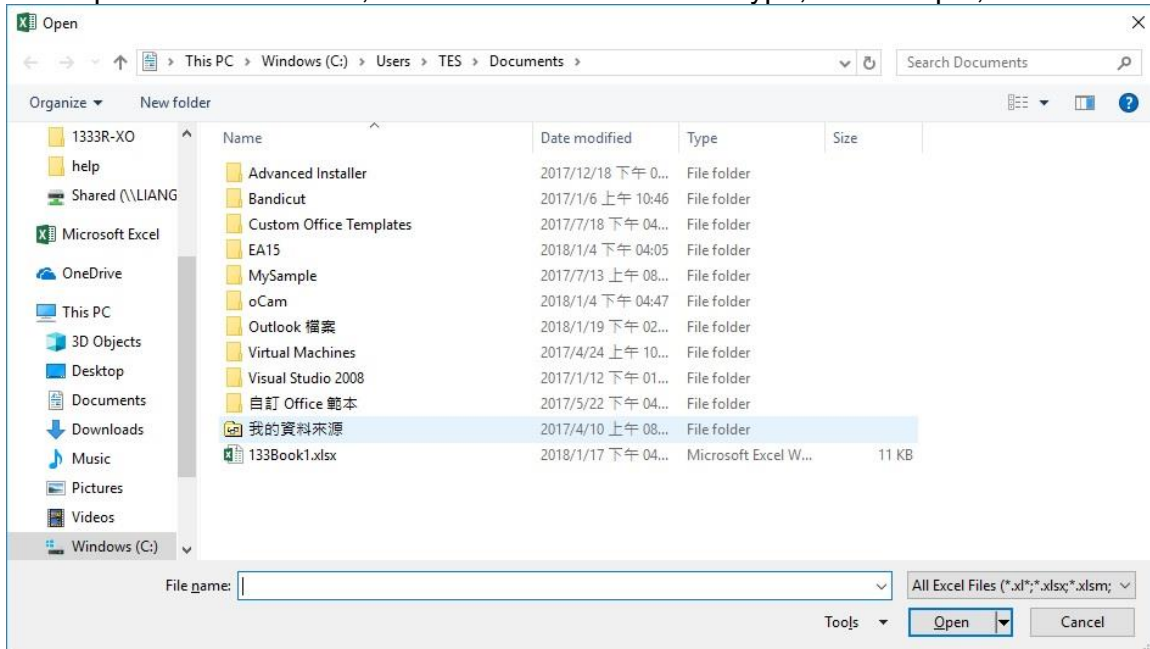


Press OK to confirm.

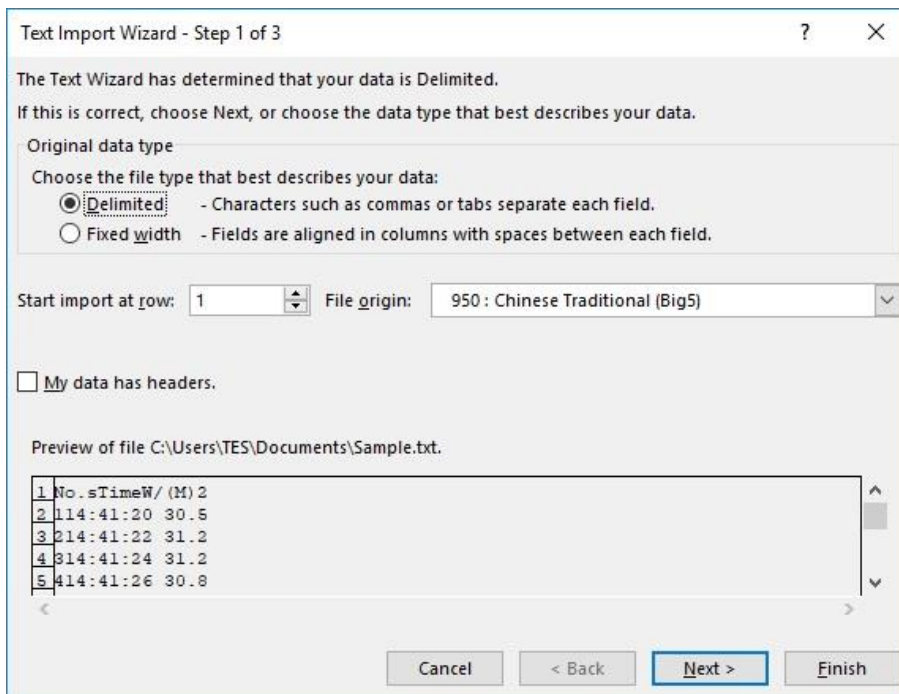
Data Convert

Apply for Excel

Open Microsoft Excel, find the file saved in Excel type, for example, test.xls.



or find any file already saved in HDD, for example, sample.dat. The "Text Import Wizard" then appears. Follow the steps 1 to 3 to complete.



Click **Next>** button

Text Import Wizard - Step 2 of 3

This screen lets you set the delimiters your data contains. You can see how your text is affected in the preview below.

Delimiters

☒ Tab
☐ Semicolon
☐ Comma
☐ Space
☐ Other:

☐ Treat consecutive delimiters as one

Text qualifier:

Data preview

No.s	Time	W/(M)2
1	14:41:20	30.5
2	14:41:22	31.2
3	14:41:24	31.2
4	14:41:26	30.8

Cancel < Back Next > Finish

Click **Next>** button

Text Import Wizard - Step 3 of 3

This screen lets you select each column and set the Data Format.

Column data format

☒ General
☐ Text
☐ Date: YMD
☐ Do not import column (skip)

'General' converts numeric values to numbers, date values to dates, and all remaining values to text.

Advanced...

Data preview

No.s	Time	W/(M)2
1	14:41:20	30.5
2	14:41:22	31.2
3	14:41:24	31.2
4	14:41:26	30.8

Cancel < Back Next > Finish


Click **Finish** button

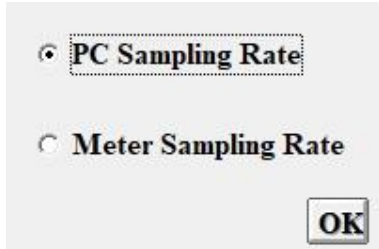
1	No.s	Time	W/(M)2
2	1	14:41:20	30.5
3	2	14:41:22	31.2
4	3	14:41:24	31.2
5	4	14:41:26	30.8
6	5	14:41:28	30.5
7	6	14:41:30	29.9
8	7	14:41:32	30

Sampling Time

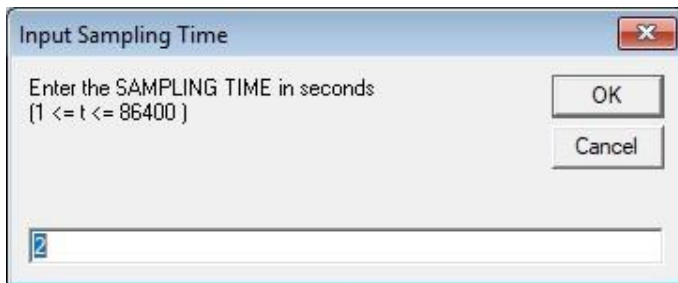
PC Sampling Rate:

(rate at which the PC collects readings while connected to the meter)

Click  on the **Menu Bar**.




Choose "PC Sampling Rate" and then click "OK" button.

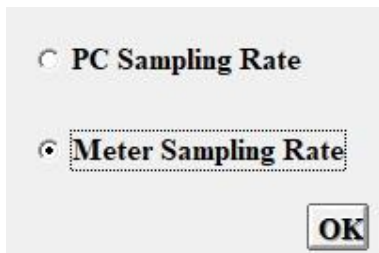


In the **Input Sampling Time** dialog box, input a sampling time and then click "OK" button to confirm.

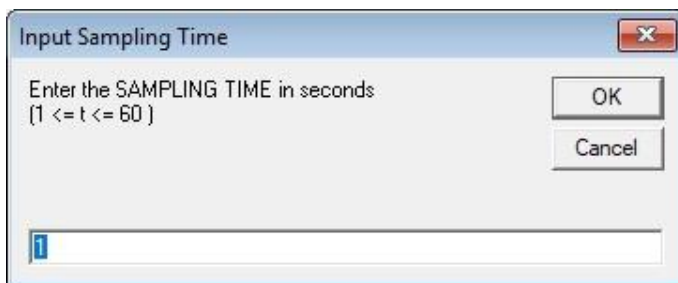
Meter Sampling Rate :

(rate at which meter stores readings)

Click  on the **Menu Bar**.




Choose "PC Sampling Rate" and then click "OK" button.



Input a sampling time and then click "OK" button to confirm.

RTC (Real Time Clock)

Click  on the **Menu Bar** to set the meter time to PC system time.