

# **ARTiPRO**

## **User Manual**

(Model 910 & 920)

[www.rtihub.com](http://www.rtihub.com)

# **ARTiPRO**

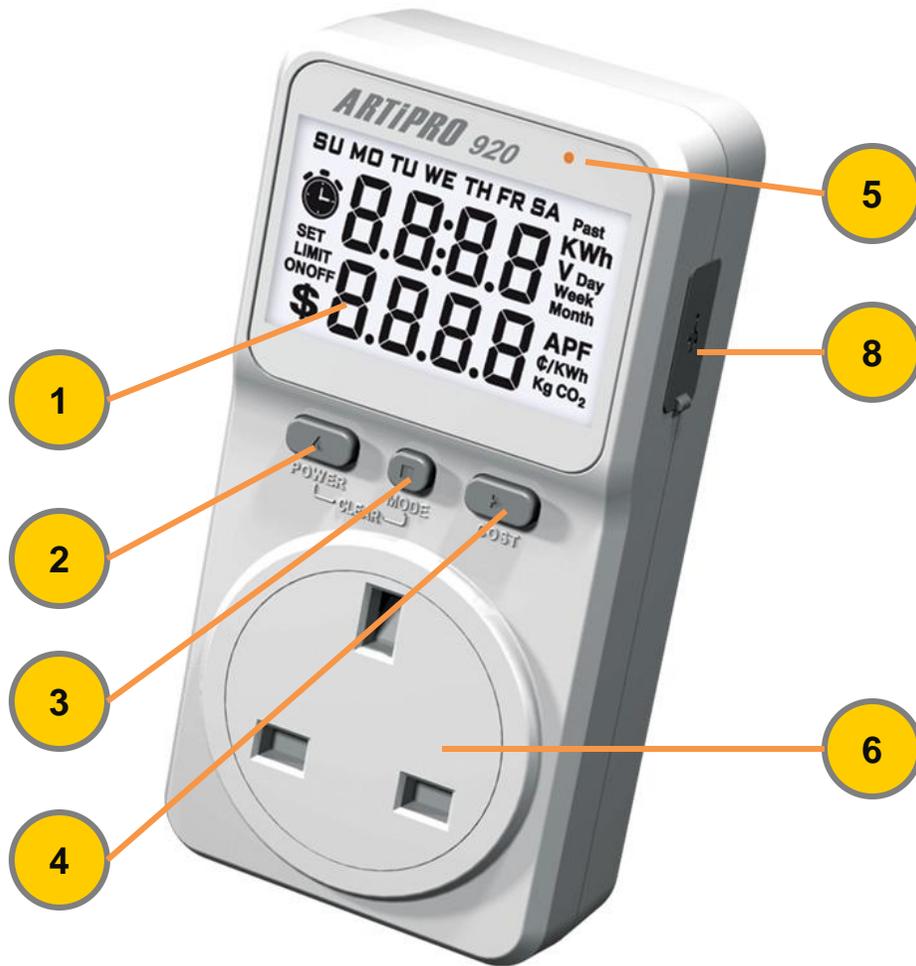
## **User Manual**

(Model 910 & 920)



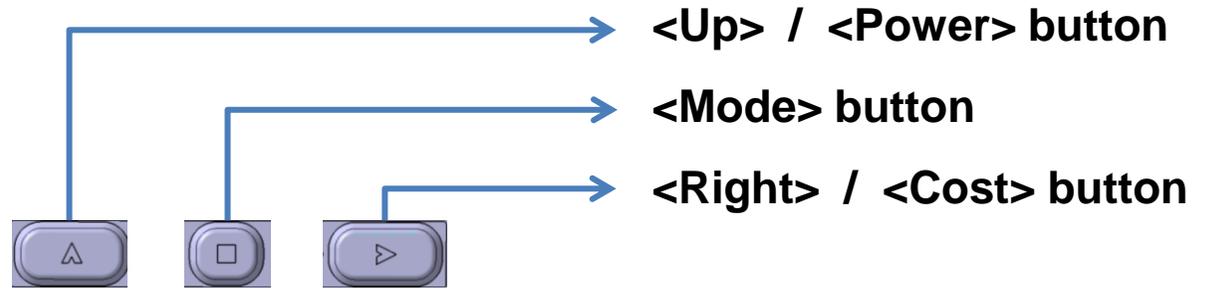
[www.rtihub.com](http://www.rtihub.com)

# Main Keys & Interfaces



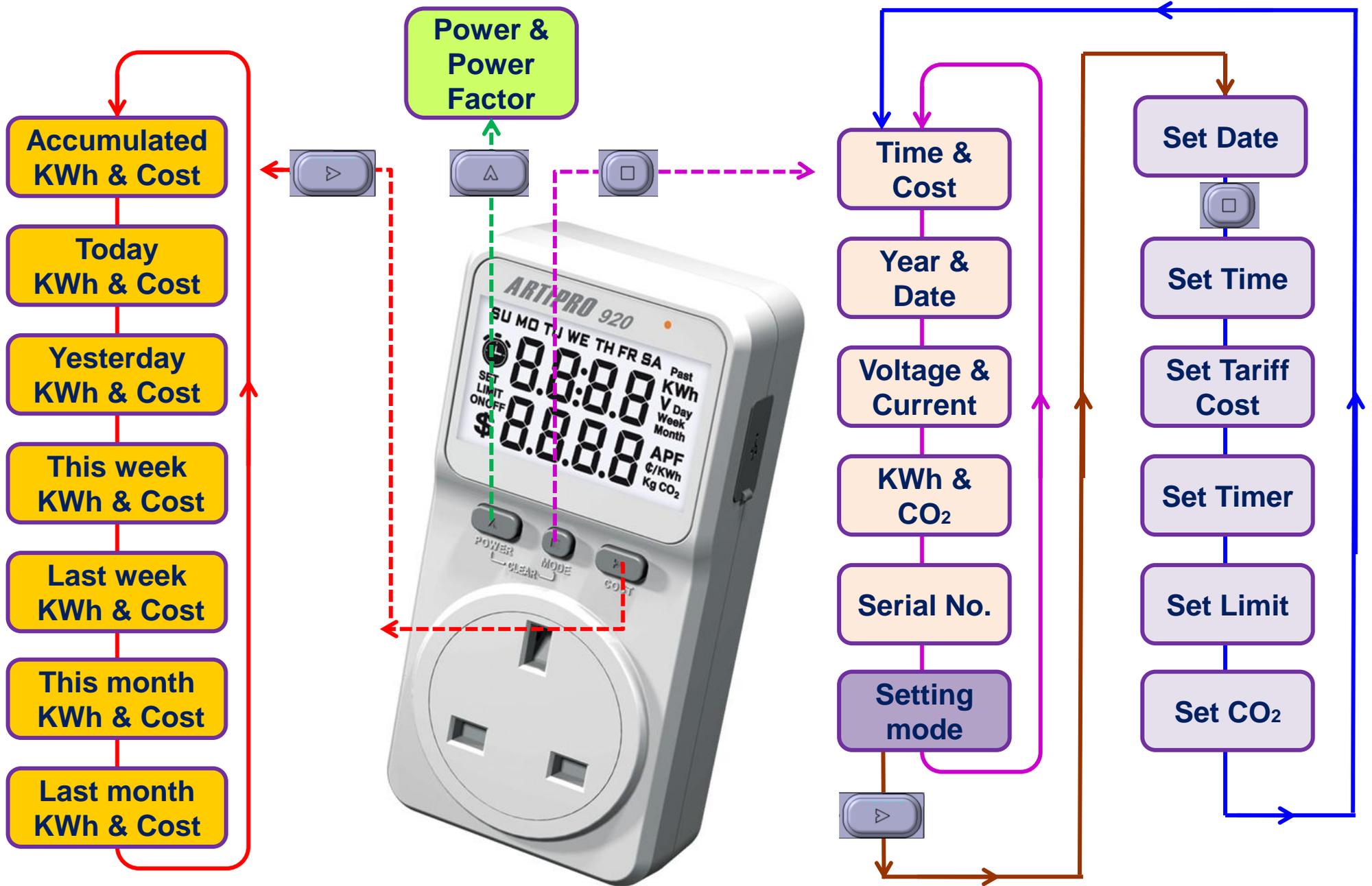
1. Main LCD display
2. <Up> / <Power> button
3. <Mode> button
4. <Right> / <Cost> button
5. Power & Alert LED
6. AC power socket
7. Audio alert buzzer (*built-in*)
8. USB Port (*Model 920 only*)
9. USB cable (*Model 920 only*)
10. ARTiPRO 920 CD (*Model 920 only*)

# Basic Operations



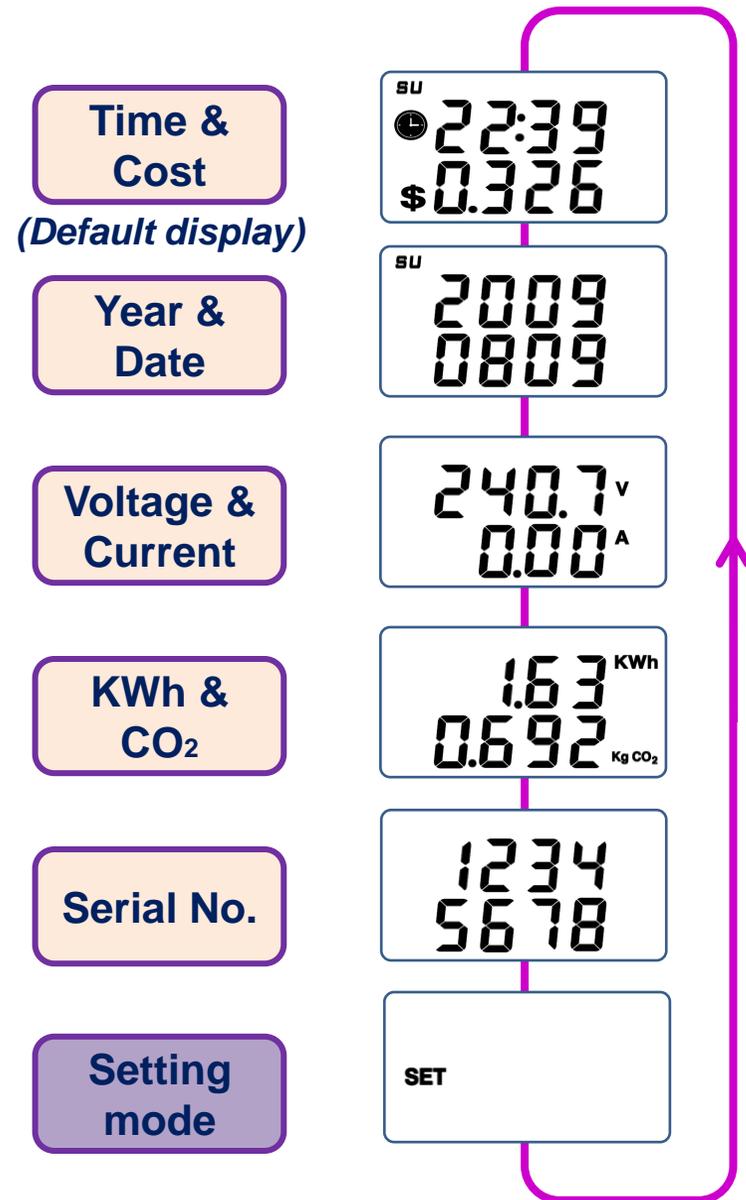
- Connect the power meter to AC power supply minimum 10 hours to fully charge the internal backup battery.
- When connected to power supply, LCD backlight remain light on for 5 minutes from last press of any button.
- When not connected to power supply, backlight is off & LCD turn off after 3 minutes from last press of any button to conserve battery energy.
- Plug the power meter to wall socket, then connect the electrical device, which you wish to monitor, to the power meter to check and test.
- Power ON-OFF - Press <Power> button and hold for 5 seconds to manually Turn-On / Turn-Off power supply. LED light up when AC power is supply to socket.
- CLEAR - Press <Up> & <Mode> buttons and hold for 3 seconds to CLEAR the stored memories.
- RESET - Press <Mode> & <Right> buttons and hold for 3 seconds to RESET all Timer settings.

# Meter operation functional flow



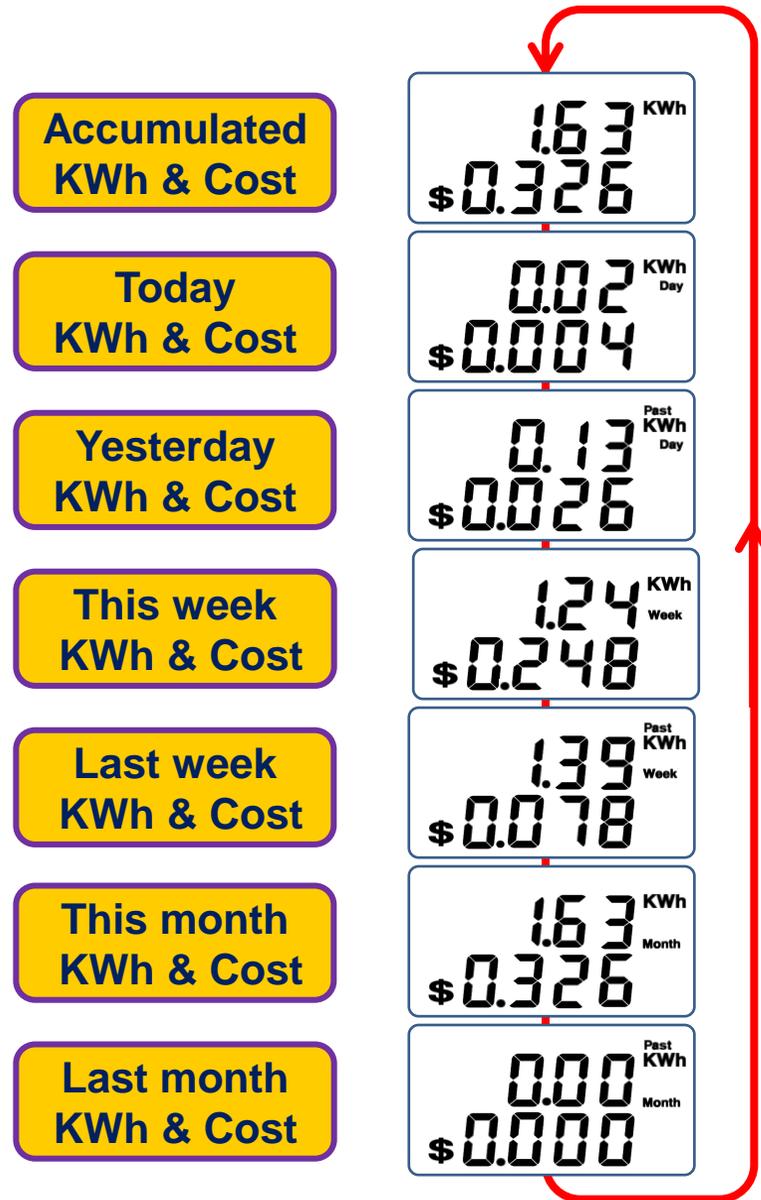
# Parameters Display

- Press <Mode> button  to scroll & read the parameter display screens



# Consumption & Cost Display

- Press <Cost> button  to scroll & read the Energy & Cost



# Power Display

- Press <Power> button  to read the Power & Power Factor (PF).

Power &  
Power  
Factor

0.0<sup>W</sup>  
0.00<sup>PF</sup>



# Setting Date

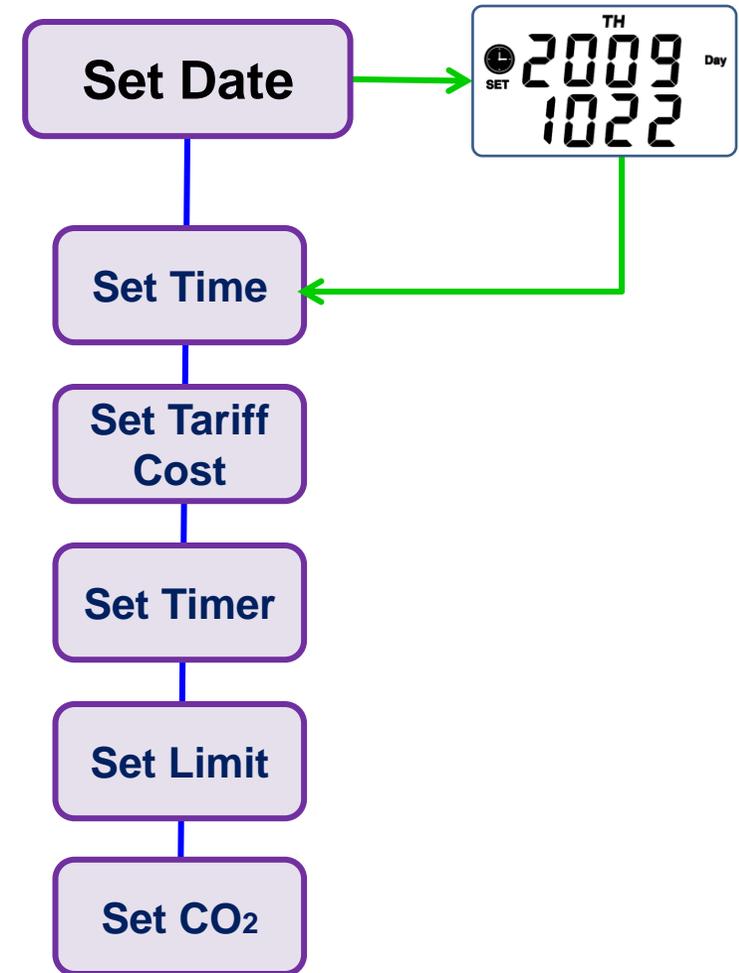
1. At [Set Date] , press <Up> button  to scroll the number setting & press <Right> button  to scroll and advance the position.

Screen display format as:-

YYYY  
MMDD

Where YYYY is year, MM is month & DD is day.

2. Press <Mode> button  to save & go to next screen [Set Time].



# Setting Time

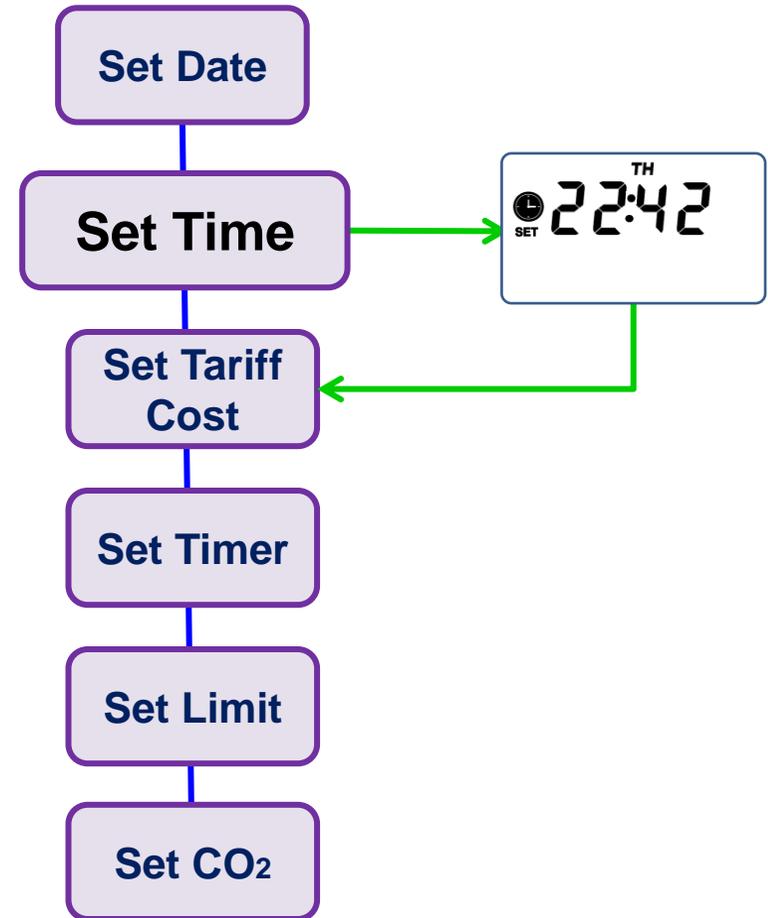
1. At [Set Time] , Press <Up> button  to scroll the number setting and press <Right> button  to scroll & advance the position.

Screen display format as:-

HH:MM

Where HH is hours in 24 hours format & MM is minutes.

2. Press <Mode> button  to save & go to next screen [Set Tariff Cost].



# Setting Tariff Cost

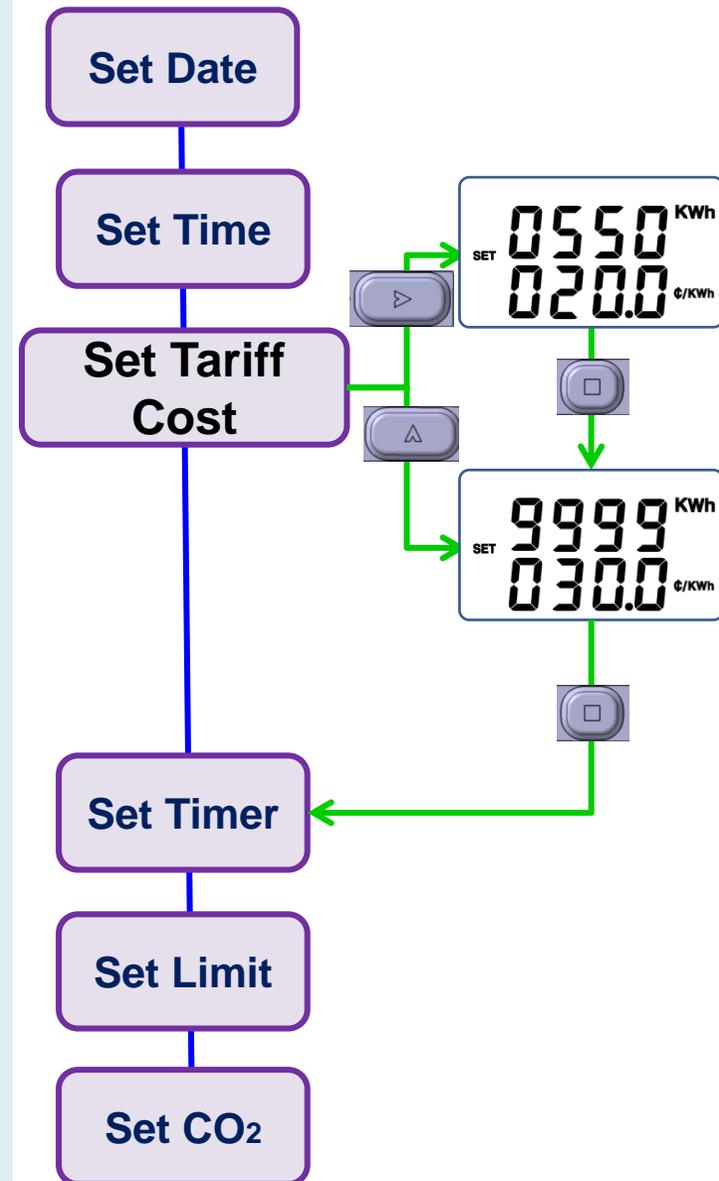
1. At [Set Tariff Cost] , Press <Right> button  to enter setting flow.
2. Press <Up> button  to scroll number setting & press <Right> button  to scroll & advance the position.

Screen display format as:-

xxxx (KWh)  
xxx.x (Cent / KWh)

Example shown Tariff Cost at 20 cents for first 550 KWh which is published at power service provider web-site.

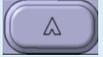
3. Press <Mode> button  to save & go to second level setting. Second level is default at 9999 KWh maximum.
4. Press <Right> button  to enter setting flow.
5. Press <Up> button  to scroll number setting & press <Right> button  to scroll & advance the position.
6. Press <Mode> button  to save & go to [Set Timer].
7. At [Set Tariff Cost] , Press <Up> button  to go to 2<sup>nd</sup> level setting directly.







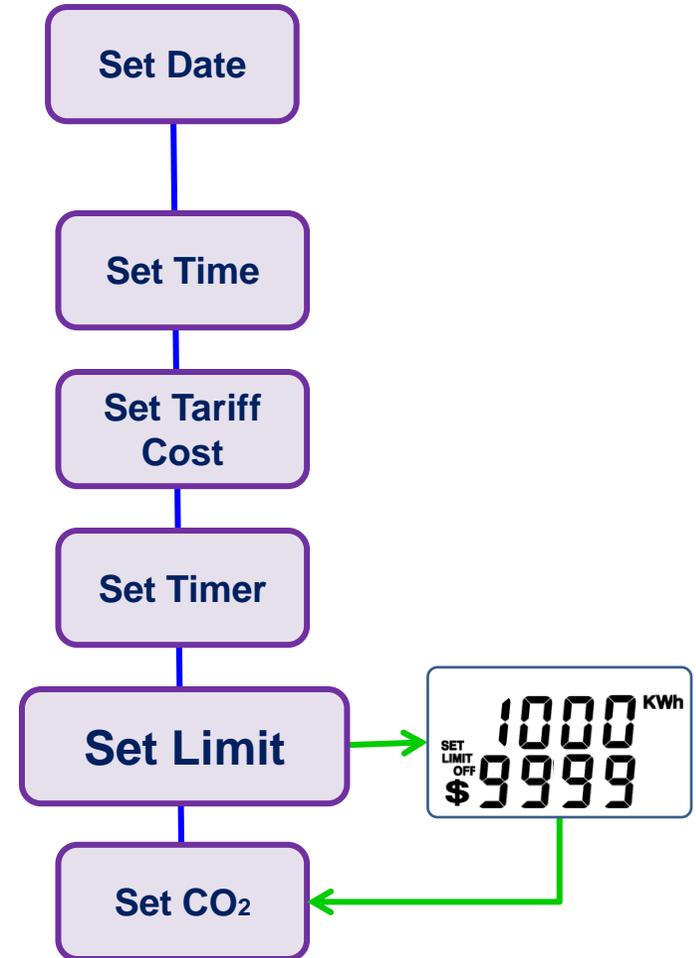
# Setting limit

1. At [Set Limit] , Press <Right> button  to enter setting flow.
2. Press <Up> button  to select REMAIN ON or TURN OFF when either KWH or \$ Limit is hit.
3. Press <Right> button  to scroll & advance the position and press <Up> button  to scroll the number setting.
4. Press <Mode> button  to go to next screen [Set CO<sub>2</sub>].
5. When either KWh or \$ Limit is hit, LED will flash and audio alarm is beep.

*Press any of the buttons to stop the audio alarm.*

*Use RESET (Press <Mode> & <Right> buttons and hold for 3 seconds) to RESET all Timer settings.*

6. Change the Limit value to higher number to stop the LED and audio alert.



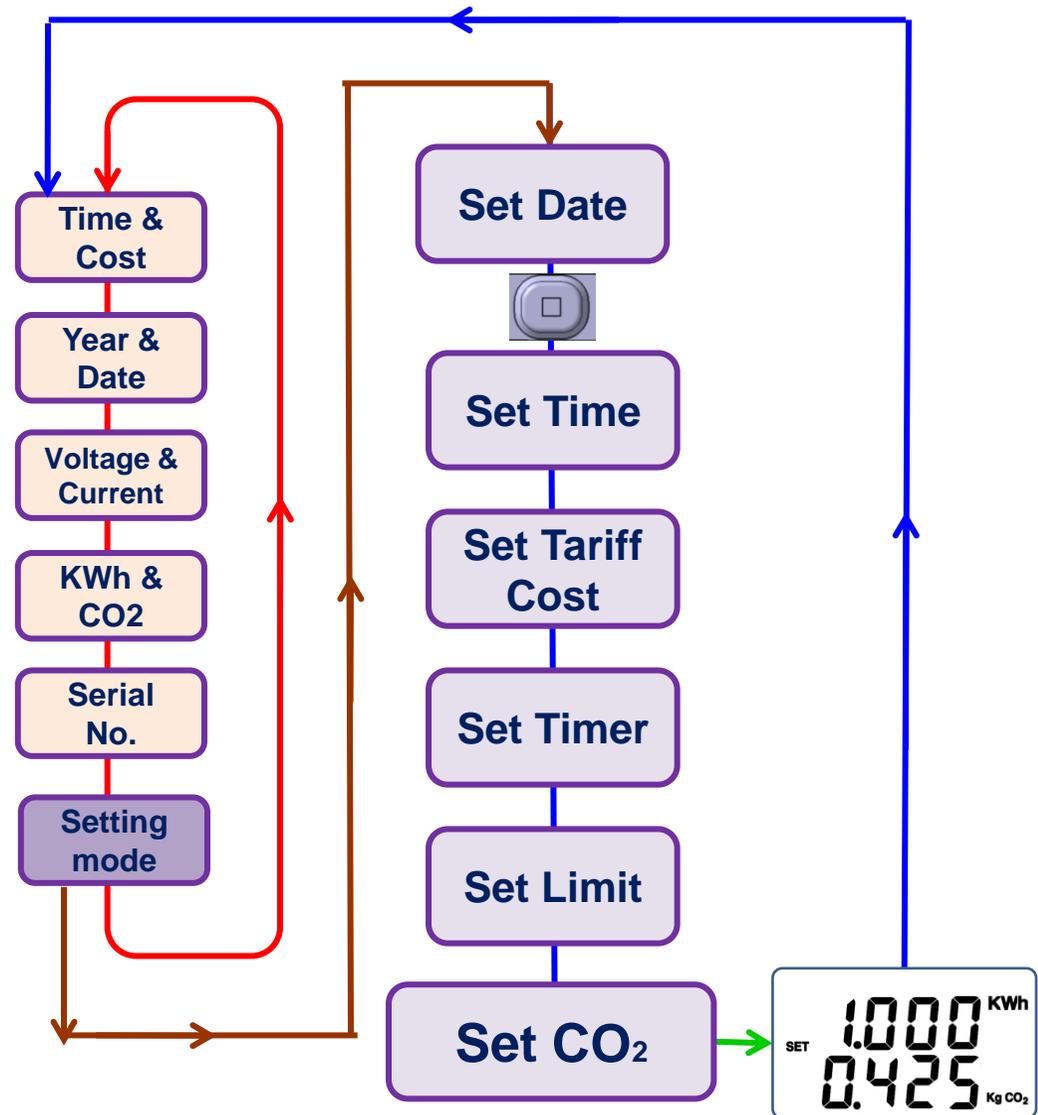
# Setting CO<sub>2</sub>

1. At [Set CO<sub>2</sub>], Press <Right> button  to enter setting flow.

2. Press <Up> button  to scroll the number setting and press <Right> button  to scroll & advance the position.

*Fuel oil generator emit 0.425 Kg CO<sub>2</sub> per KWh electricity.*

3. Press <Mode> button  to save, exit setting and go to next display screen [Time & Cost].

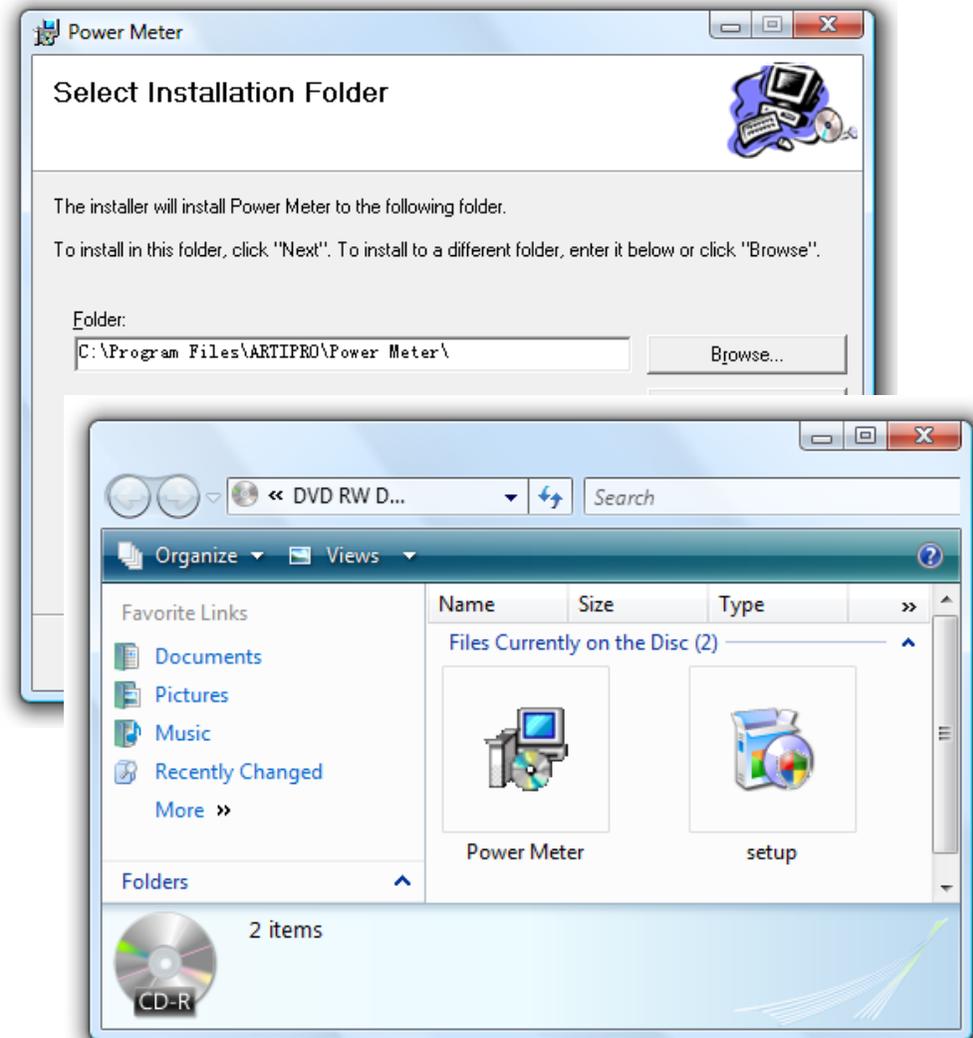


# **ARTiPRO 920 Digital Dashboard software**

# ARTiPRO 920 Digital Dashboard - Software Installation

1. Obtain ARTiPRO CD from the package or download ARTiPRO Digital Dashboard software from [www.rtihub.com](http://www.rtihub.com) .  
(Model 920 only)
2. Run <<setup>> to install the ARTiPRO Digital Dashboard software to computer.

*When first time connect to meter, select <<Install the software automatically (Recommended) >> to allow & load the driver.*



# ARTiPRO 920 Digital Dashboard - Initialization

## INITIALIZATION

1. Connect USB cable to ARTiPRO-920 Power Meter & computer's USB port
2. Double click on Power Meter icon or select <Power Meter> from <All Programs> to start the link.
3. On left top, there are 4 tabs for selection. : <Home> , <Timer> , <Setting > and <Exit>
4. For first time installation, please ensure following is carry out before start use of program. Select <Setting> tab. Point [File Path] and [BMP Path] to a data folder you preferred. Click <Save> icon to save setting.
5. Y-axis scale for respective tracking & historical charts are adjustable with setting. Click <Save> icon to save setting.

*Home screen*

The image displays two overlapping screenshots of the ARTiPRO 920 Digital Dashboard software. The top screenshot shows the 'Home screen' with a toolbar at the top containing four icons: a power meter (circled in blue), a clock, a gear (Settings), and a person with a warning sign (Exit). A yellow circle with the number '3' points to this toolbar. The main area shows system information like Date (2009/12/09), Time (23:41), and Week (Wednesday). It also displays 'Device' settings (COM4) and 'Tariff Cost Setting' (20.0 cents/kWh, 50.0 cents/kWh, 1 kWh, 100 kWh, 9999 kWh). The bottom screenshot shows the 'Setting' window. A yellow circle with the number '4' points to the 'File Path' and 'BMP Path' fields, which are both set to 'G:\PCpowermeter...'. Another yellow circle with the number '5' points to the 'Limit Setting' section, where 'Limit' is set to '\$9999' and 'Shut down device' is set to 'NO'. A yellow circle with the number '3' also points to the 'Save' icon (floppy disk) at the bottom right of the settings window. The 'resource technologies' logo is visible in the top right of both windows.

# Start link. Set Time. Device Readings. Save Tracking

## START LINK

6. Select Device COM Port number and click the globe to start connection between Power Meter and PC. Green globe means it is connected and Red globe means it is not connected. Power meter readings will displayed on the screen.

## SET TIME

7. To synchronize Power Meter clock with PC time, click on <Download> icon.

## DEVICE READINGS

8. Power Meter real time parameter readings.

## SAVE TRACKING

9. Click <Excel> icon to save real time active parameters – Voltage, Current, Power & Power Factor (PF) to Excel file.

The screenshot shows the ARTiPRO Digital Dashboard interface. Callout 6 points to the 'Device' dropdown menu set to 'COM4' and the green globe icon. Callout 7 points to the 'Date' field (2009/12/09), 'Time' field (23:41), and 'Week' dropdown (Wednesday), along with a green download icon. Callout 8 points to the 'Device Readings' section, which includes a table of real-time parameters. Callout 9 points to the Excel icon in the bottom right of the readings section.

Device Readings			
Voltage	244.2	V	
Energy	0.67	kWh	\$0.13
CO <sub>2</sub>	0.285	KgCO <sub>2</sub>	
Current	0.18	A	
Power	22.5	W	
Factor	-0.51		

Other interface elements include: 'Home screen' label, 'resource technologies' logo, 'Date', 'Time', 'Week', 'Device Readings' table, 'Tariff Cost Setting' (20.0 and 50.0 cents/kWh), 'History Data' table, and 'ARTiPRO Digital Dashboard' branding.



- <Read back> from meter



- <Download> to meter

# ARTiPRO 920 Digital Dashboard – Set Tariff Cost

## SET TARIFF COST

10. Click <Read back> icon to retrieve present settings from meter.
11. Set the number for first level kWh range.
12. Enter the cost per kWh for first and second level tariff cost.
13. Click <Download> to save setting.

resource technologies

Date: 2009/12/09  
Time: 23:41  
Week: Wednesday

Device: COM4

Device Readings:  
Voltage: 244.2 V  
Energy: 0.67 kWh \$0.13  
CO<sub>2</sub>: 0.285 KgCO<sub>2</sub>  
Current: 0.18 A  
Power: 22.5 W  
Factor: -0.51

Tariff Cost Setting:  
1 kWh = 20.0 cents/kWh  
100 kWh = 50.0 cents/kWh  
9999 kWh

1 kWh = 0.425 KgCO<sub>2</sub>

History Data:

	kWh	Cost
Day	12.9	0.34
Week	49	0.67
Month	12	0.67

ARTiPRO™  
Digital Dashboard

# Set Carbon footprint. View Historical Energy Data

## SET CARBON FOOTPRINT

14. Enter Kg CO<sub>2</sub> per kWh and click <Download> icon to save setting.

*Fuel oil generator emit 0.425 Kg CO<sub>2</sub> per kWh electricity.*

## VIEW HISTORICAL ENERGY DATA

15. Click <Read back> icon to retrieve historical energy data in KWh by month, by week and by day

Use the up down arrows to select the specific day, week, month.

The screenshot displays the ARTPRO Digital Dashboard interface. At the top right, the 'resource technologies' logo is visible. A yellow circle with the number '14' points to a 'Download' icon in the 'Tariff Cost Setting' section. The 'Tariff Cost Setting' section shows '1 kWh = 0.425 KgCO<sub>2</sub>' with a 'Download' icon. A pink box highlights this section. Below it, the 'History Data' table is shown, with a 'Read back' icon circled in pink. A yellow circle with the number '15' points to this icon. The 'History Data' table has columns for 'Day', 'kWh', and 'Cost'. The data is as follows:

Day	kWh	Cost
12.9	0.34	0.10
49	0.67	0.19
12	0.67	0.19

The dashboard also shows 'Device Readings' for Voltage (244.2 V), Energy (0.67 kWh), CO<sub>2</sub> (0.285 KgCO<sub>2</sub>), Current (0.18 A), Power (22.5 W), and Factor (-0.51). The 'Device' is set to 'COM4'. The 'Date' is 2009/12/09, 'Time' is 23:41, and 'Week' is Wednesday. The 'ARTPRO Digital Dashboard' logo is at the bottom.

# ARTiPRO 920 Digital Dashboard – Read & Set Timers

## READ & SET TIMERS

16. Click <Read back> to retrieve Timer settings from power meter.
17. Key in specific ON time, OFF time and select Weekdays combination.
18. Click and toggle the LED button to Green LED. Click <Download> icon to save the setting to power meter.
19. Select “Disabled”, Green LED & <Download> to clear the setting and disable the specific Timer.

*Timer screen*

	ON	OFF	DAY		ON	OFF	DAY
<input checked="" type="checkbox"/> Timer1	09:00	19:00	MON-FRI	<input checked="" type="checkbox"/>	--:--	--:--	Disabled
<input checked="" type="checkbox"/> Timer2	09:00	14:00	SAT	<input type="checkbox"/>	--:--	--:--	Disabled
<input checked="" type="checkbox"/> Timer3	09:00	12:00	SUN	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer4	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer5	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer6	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer7	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer8	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer9	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer10	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer11	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer12	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer13	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer14	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer15	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer16	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer17	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer18	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer19	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled
<input type="checkbox"/> Timer20	--:--	--:--	Disabled	<input type="checkbox"/>	--:--	--:--	Disabled

**ARTiPRO™**  
Digital Dashboard

resource technologies

# Digital Dashboard - Select Data Acquisition Rate

## SELECT DATA ACQUISITION RATE

20. Select data Acquisition rate range from 1 second to 60 seconds for differing needs in data analysis.
21. Set [Auto Save Data] to Yes to enable data saving. Choose No to disable data saving.
22. Click <Save> icon to save the setting.

Setting

resource technologies

ARTiPRO 920 Power Meter communication V1.2

This ARTiPRO Digital Dashboard allows simple & easy access to the ARTiPRO Power Meter's settings in a single view. It provides real-time display of the device's tracking & historical energy consumption parameters. This dashboard has the following features:

File Path G:\PCpowermeter ...

BMP Path G:\PCpowermeter ...

Acquisition 1S

Auto Save Data YES

Chart Scale Setting

MIN MAX

Current(A) 0.00 0.40

Historical Chart Scale

MIN MAX

Day 0.00 2.00

Limit Setting

Limit \$ 9999 OR 9999 kWh

Shut down device

YES NO

ARTiPRO™ Digital Dashboard

20

# ARTiPRO 920 Digital Dashboard - Set limit

## SET LIMIT

Setting

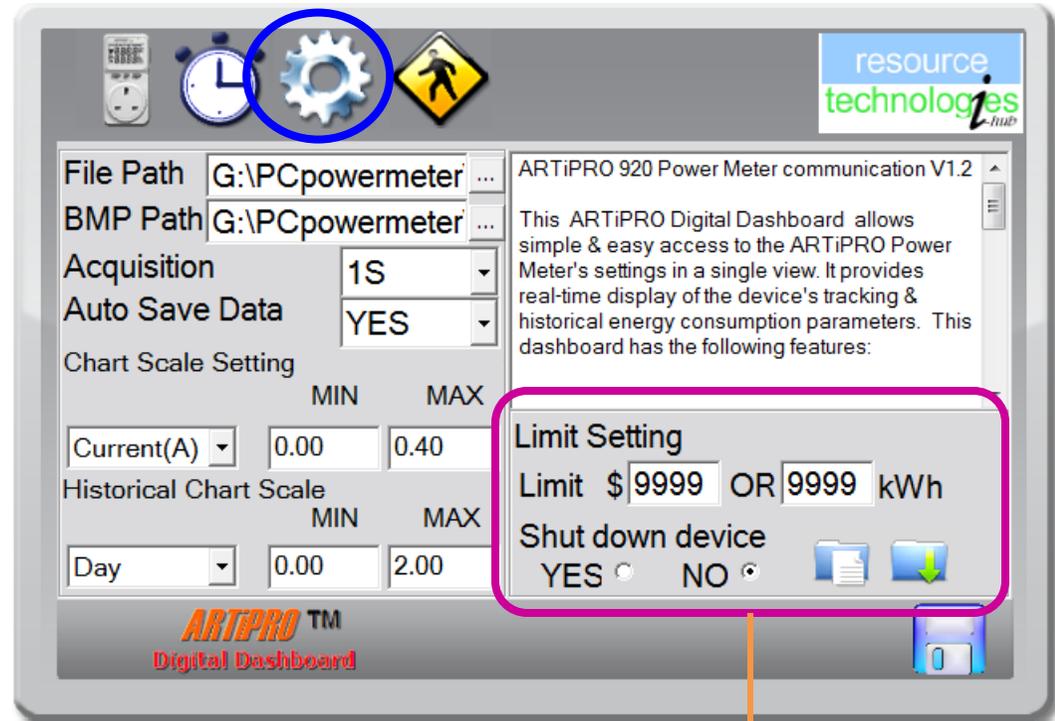
23. Click <Read back> to retrieve Limit settings from meter.

24. Enter Limit value in \$ or kWh. Select [Shut down device] setting to “Yes” or “No” accordingly and click <Download> icon to save setting.

*[Shut down device] “Yes” setting will TURN OFF power supply to AC socket. “No” setting will REMAIN ON when either kWh or \$ Limit is hit.*

*When either kWh or \$ Limit is hit, meter LED will flash and audio alarm is beep. Flashing Red icon will display at Home Screen of ARTiPRO Digital Dashboard.*

25. To stop the alert, simply change the value to higher number and <Download> or Press any of the buttons to stop the audio alarm. Press <Mode> & <Right> buttons on meter and hold for 3 seconds to RESET all Timer settings.

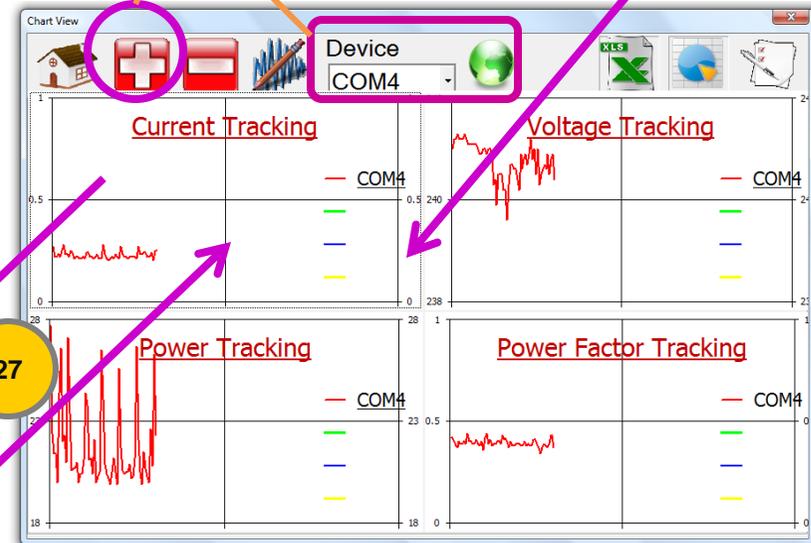
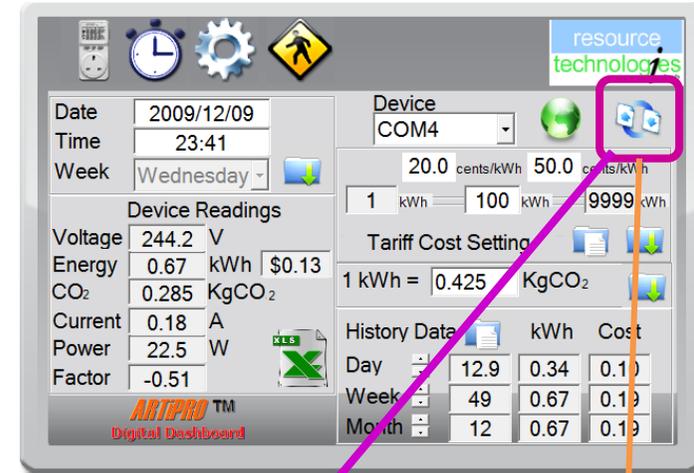


23

# ARTiPRO 920 Digital Dashboard - View Chart

## VIEW CHART

26. Click <Chart View> icon to view real time 4-ups trend charts for Current, Voltage, Power & Power Factor.
27. Click respective chart to zoom in to single chart. Click the single chart to return to 4-ups charts.
28. Instant monitor up to 4 devices in single view.
29. Click <BMP> icon to save the instant chart view to BMP format.
30. Click <Home> icon to exit and return to Home Screen



26

28

27

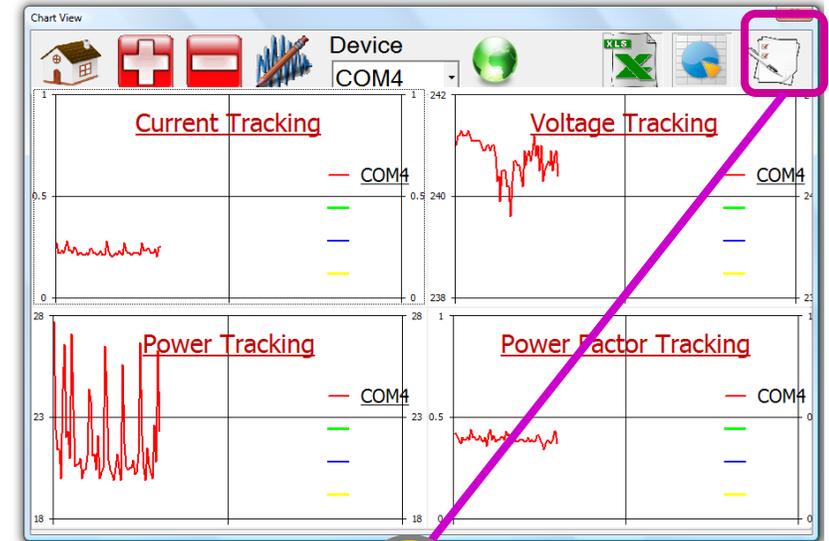
30

29

# ARTiPRO 920 Digital Dashboard - List Real Time Data

## LIST REAL TIME DATA

31. Click <Data Listing> icon to view real time data listing.



31

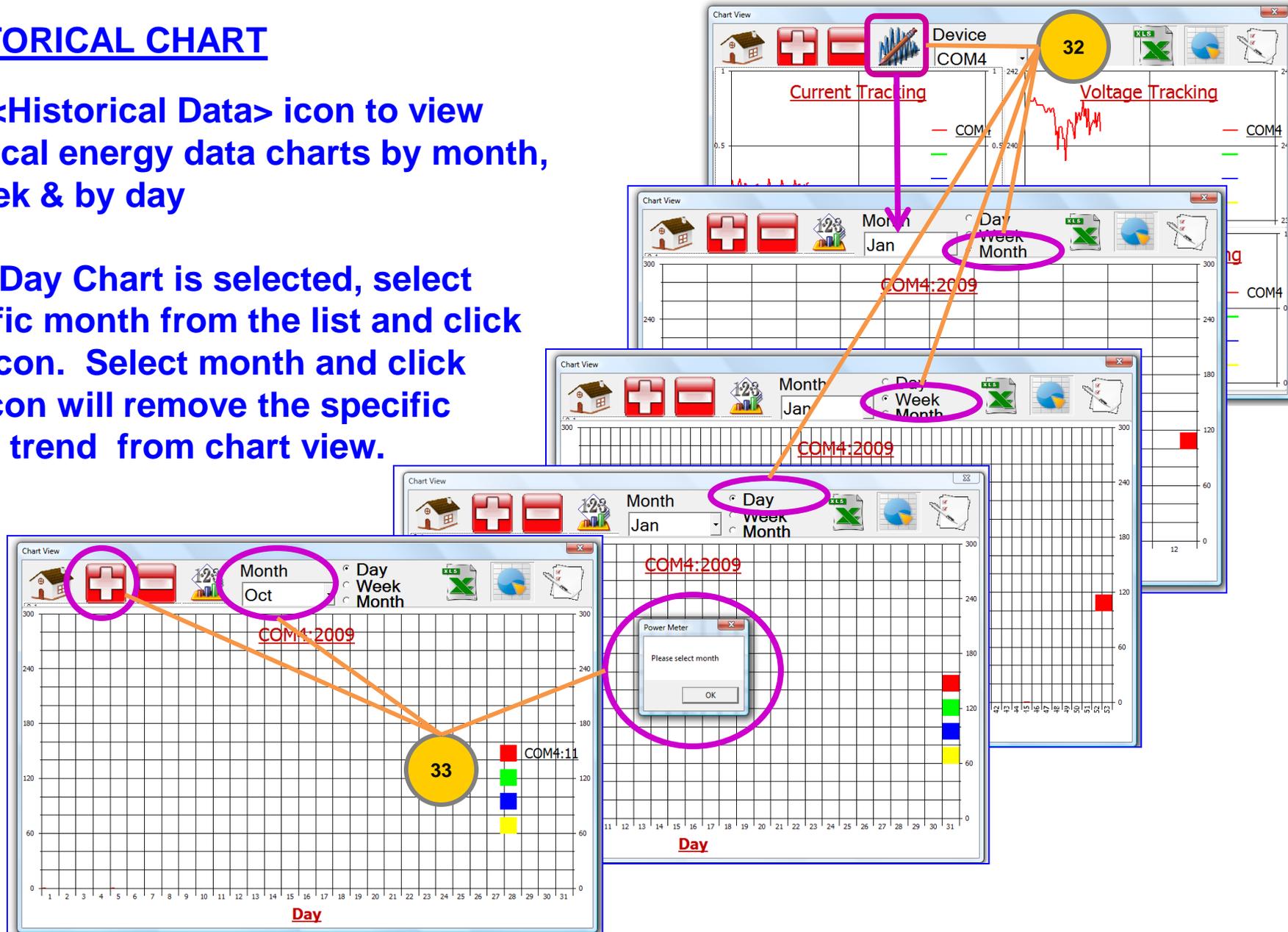
The screenshot shows a window titled 'Real Data' with a table of real-time data for device 'COM4'. The table has four columns: Device, Current, Voltage, and Power. The Factor column is also present but has no numerical values. The data is as follows:

Device	Current	Voltage	Power	Factor
Com4:	0.21	241.1	21.7	-0.42
Com4:	0.20	240.9	20.7	-0.42
Com4:	0.22	241.0	20.3	-0.38
Com4:	0.21	240.9	20.3	-0.40
Com4:	0.22	240.9	21.0	-0.39
Com4:	0.23	241.1	23.2	-0.41

# ARTiPRO 920 Digital Dashboard - View Historical Chart

## VIEW HISTORICAL CHART

32. Click <Historical Data> icon to view historical energy data charts by month, by week & by day
33. When Day Chart is selected, select specific month from the list and click < + > icon. Select month and click < - > icon will remove the specific month trend from chart view.



# ARTiPRO 920 Digital Dashboard - List Historical Data

## LIST HISTORICAL DATA

34. Click <Historical Data> & <Data Listing> icon to view historical energy data listing by month, by week & by day.
35. Click the <Excel> icon to download all historical data to Excel file.

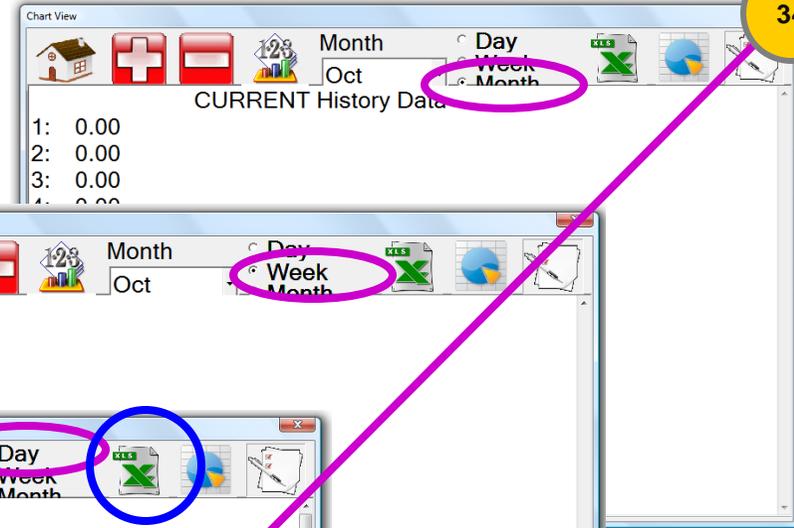
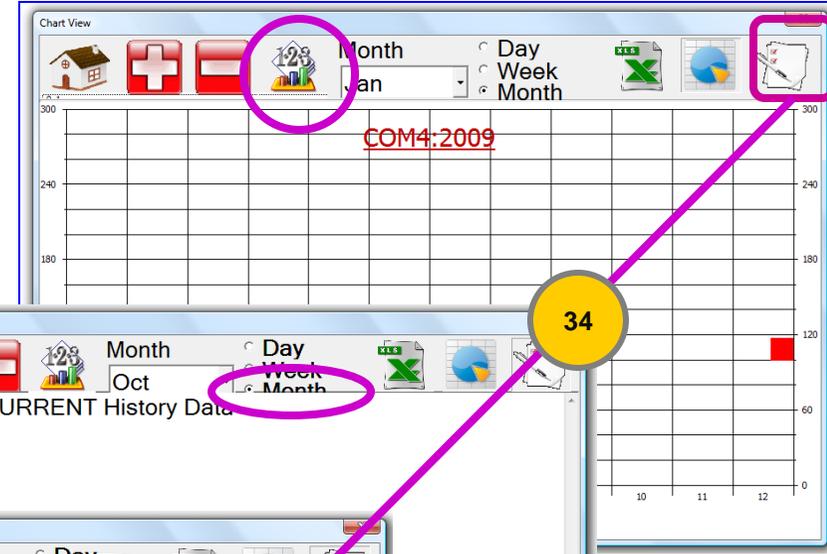


Chart View  
Month: Oct  
Day: Day  
Week: Week  
Month: Month  
CURRENT History Data

	11Month	0Month	0Month	0Month
01:	0.10	0.00	0.00	0.00
02:	0.00	0.00	0.00	0.00
03:	0.00	0.00	0.00	0.00
04:	0.00	0.00	0.00	0.00
05:	0.11	0.00	0.00	0.00
06:	0.00	0.00	0.00	0.00
07:	0.00	0.00	0.00	0.00
08:	0.00	0.00	0.00	0.00
09:	0.00	0.00	0.00	0.00
10:	0.00	0.00	0.00	0.00
11:	0.00	0.00	0.00	0.00
12:	0.00	0.00	0.00	0.00
13:	0.00	0.00	0.00	0.00
14:	0.00	0.00	0.00	0.00

# User Warranty Registration

This product come with one year limited warranty. Please register within 14 days from purchase date. For more Warranty terms & conditions, please visit [www.rtihub.com](http://www.rtihub.com)

Help us to save environment, please register on-line. On line registration : [www.rtihub.com](http://www.rtihub.com)

\* User name: \_\_\_\_\_

Email: \_\_\_\_\_

\* Address: \_\_\_\_\_

Mobile / Tel: \_\_\_\_\_

Age: \_\_\_\_\_

Post code \_\_\_\_\_

Gender :  Male  Female

\* Model:  ARTiPRO-920  ARTiPRO-910

\* Purchase date: \_\_\_\_\_

\* Product S/N: \_\_\_\_\_

\* Dealer name: \_\_\_\_\_

Primary use at :  Office  Home

Dealer location: \_\_\_\_\_

Factory  School

You know this product via: \_\_\_\_\_

Mail to: Resource Technologies Innovations Pte Ltd  
*Customer Service Dept*  
621 Aljunied Road, #03-10 Lipo Building,  
Singapore 389834

# Specification & Features

## **Specifications :-**

Voltage rating:	90-250V AC 50/60Hz
Current Measurement:	0-16A
Power Measurement:	0.1 – 3600W
Measured Consumption:	0.01 to 9999 KWh
Overload Protection	

## **Functions and Features :-**

- Measures voltage, current, power, cost and power factor
- Current day, week and month record
- Previous day, week and month record
- Multi level tariff settings
- CO<sub>2</sub> readout feature for environmental awareness
- 20 built-in programmable on/off timers
- Audible & visible Limit Alarms for KWh or Cost consumed; optional Shutdown feature
- RoHS compliance
- Designed to CE standards & EMC compliance
- Calibrated to traceable International Standards
- Built-in battery backup for data retention
- Backlight for better visibility
- Uniquely sized for compatibility with most single or multi-gang sockets

### *(For Model 920 only)*

- USB connectivity to PC allows Dashboard view, control and setting
- Real time data logging and charting
- Variable data acquisition rate for differing needs in data analysis
- Excel based historical data by day/week/month
- Trend graphs can be captured and downloaded
- Software upgradable

# Precautions on safety

## Precautions on safety

- The product should be operated only from the type of power source indicated on the product's electrical ratings label.
- Always plug the product into a grounded (earthed) 3-pin outlet. The grounding pin is an important safety feature.
- Turn off AC power supply when plug in or unplug the power meter from the electrical outlet, or connecting devices to power meter.
- This product is suitable to be used only indoors. Place product far away from water, fire, heat, poor ventilation, extended exposure of direct sunlight or magnetic field, and locations of excessive dust, moisture, rain, lighting, shock or electromagnetic radiation.
- Do not drop the product or subject it to external shock which may cause malfunction.
- Do not use any liquid substance to clean the casing of the product.
- Never push a foreign object through an opening in the product.
- Do not disassemble or attempt to repair the product. When this product is out of order, please send it to authorized repair center for repair.

### **SINGAPORE :**

***Resource Technologies Innovations Pte. Ltd.***

621 Aljunied Road, #03-10 Lipo Building

Singapore 389834

### **MALAYSIA :**

***Resource Technologies I-Hub Sdn. Bhd.***

23/23A, Jalan Enau 1, Taman Teratai,

Johor Bahru 81300

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