THREE PHASE POWER ANALYSER

1 phase / 2 phase / 3 phase, SD card memory, full statistic data logger, WiFi

JIW
POWER EXPERT

- VOLTAGE
- CURRENT
- VOLTAGE FORM
- CURRENT FORM
- ACTIVE POWER
- REACTIVE POWER
- APPARENT POWER
- POWER FACTOR
- FULL STATISTICS
- COST OF ENERGY
- FORWARD & REVERSE CURRENT DIRECTION
- ALTERNATIVE ENERGY POWER CONTROL
- DESIGNED AND MADE IN EU

THREE PHASE AC POWER ANALYZER Wi Fi

JIW
EXPERT

POWER

Table of Contents

Your purchase of this THREE PHASE POWER ANALYZER marks a step forward for you into the field of precision measurement. Although this POWER ANALYZER is a complex and delicate instrument, its durable structure will allow many years of use if proper operating techniques are developed. Please read the following instructions carefully and always keep this manual within easy reach.

Introduction
Read these pages carefully before beginning to install and use the Analyzer. The following paragraphs contain information, cautions and warnings which must be followed to ensure safe operation and to keep the Analyzer in a safe condition.

<div align="center">Warning</div>

Servicing described in this manual is to be done only by qualified service personnel. To avoid electrical shock, do not service the Analyzer unless you are qualified to do so.

Safety Precautions
For the correct and safe use of this Analyzer it is essential that both operating and service personnel follow generally accepted safety procedures in addition to the safety precautions specified in this manual. Specific warning and caution statements, where they apply, will be found throughout the manual. Where necessary, the warning and caution statements and/or symbols are marked on the Analyzer.

Caution and Warning Statements

<div align="center">Caution</div>

Used to indicate correct operating or maintenance procedures to prevent damage to or destruction of the equipment or other property.

<div align="center">Warning</div>

Calls attention to a potential danger that requires correct procedures or practices to prevent personal injury.

Impaired Safety
Whenever it is likely that safety has been impaired, the Analyzer must be turned off and disconnected from line power. The matter should then be referred to qualified technicians. Safety is likely to be impaired if, for example, the Analyzer fails to perform the intended measurements or shows visible damage.

General Safety Information

<div align="center">Warning</div>

Removing the Analyzer covers or removing parts, except those to which access can be gained by hand, is likely to expose live parts and accessible terminals which can be dangerous to life. The Analyzer shall be disconnected from all voltage sources before it is opened. Capacitors inside the Analyzer can hold their charge even if the Analyzer has been separated from all voltage sources. When servicing the Analyzer, use only specified replacement parts.

1. FATURES

● Analysis for 3 phase multi-power system, 1P/2W, 2P/3W, 3P/4W.

● Voltage & Current are the True RMS value.

● Active Power (KW) measurement.

● Apparent Power (KVA) measurement.

● Reactive Power (KVAR) measurement.

● Reverse Power measurement.

● Power Factor (PF).

● Cost of Power

● Watt-Hour (KWh, KVAh, KVARh, PFh).

● Voltage measurement range: 85 to 305 ACV

● Current measurement range: 0…30ACA, 0…50ACA, 0…100ACA, 0…160ACA (depending on the type of current transformer).

● Real time graphic for Voltage and Current

● Three phase voltage diagram

● ACV input impedance is 200 Kohms.

● Built-in clock and Calendar, real time data record with SD memory card. Full statistics for the day, month or year, you can see on the graphic display.

● Communications with other devices via WiFi.

● Real time information can be viewed using a web browser on a PC via WiFi.

● Clock synchronization via WiFi.

● Complete set with 3 PCs Clamp Probe (30A, 50A, 100A or 160A), 4G SD memory card,
1 meter AC cable 5x0.14 mm².

2.1 General Specifications:

Circuit	Custom one-chip of microprocessor STM32 circuit
Display	LCD Size : 3.2 inch. Dot Matrix Color LCD (320 X 240 pixels) with back light.
Measurement	ACV ACA AC WATT (True Power) AC WATT(Apparent Power) AC WATT(Reactive Power) Power factor Real time graphic for Voltage and Current
Wire connections	1P/2W, 2P/3W, 3P/4W
Voltage ranges	85 to 305 ACV
Current ranges	0…20ACA, 0…50ACA, 0…100ACA, 0…160ACA
ACV input impedance	200 Kohms
Spec. tested frequency	47…63Hz
Data Record	SD Card Record
Sampling Time	0.5 sec
Real time logger	Real time data logger, saved the data into SD memory card
Communications	Communications with other devices via WiFi
Operating Temperature	0 to 50 ℃ (32 to 122 ℉)
Operating Humidity	Less than 80% R.H..
Power Consumption	<1.25W
Clamp max. conductor Size	30A, 50A, 100A – 13 mm (0.5 inch) Dia. 160A – 27mm (1.1 inch) Dia.
Weight	Meter: 230g Clamp : 30A, 50A, 100A – 55g, 160A – 131g
Dimension	Meter: 210 x 200 x 48mm (8.27 x 7.87 x 1.89inch) Clamp: 30A, 50A, 100A – 57 x 32 x 22 mm (2.24 x 1.26 x 0.87 inch) 160A – 75.5 X 67.5 X 24 mm (2.95 x 2.64 x 0.94inch)
Accessories Included	Instruction manual.........1 pc Clamp probe..................3 pcs SD card (4 G)..............1 pc AC cable 5x0.14 mm²....1 pc User manual..................1 pc

2.2 Electrical Specifications:

ACV

Range (x3 phashe)	Resolution	Accuracy
85V to 305V Phase to neutral line	1V	± (0.5%+1V)

ACA

Range (x3 phashe)	Resolution	Accuracy
0…30A	0.01A	± (0.1%+0.01A)
0…50A	0.01A	± (0.1%+0.01A)
0…100A	0.01A	± (0.1%+0.01A)
0…160A	0.01A	± (0.1%+0.01A)

POWER FACTOR

Range (x3 phashe)	Resolution	Accuracy
0.00…1.00	0.01	± 0.02

ACTIVE POWER

Range (x3 phashe)	Resolution	Accuracy
0…9150W (30A)	1W	± (0.15%+1W)
0…15250W (50A)	1W	± (0.15%+1W)
0…30500W (100A)	1W	± (0.15%+1W)
0…48800W (160A)	1W	± (0.15%+1W)

APPARENT POWER

Range (x3 phashe)	Resolution	Accuracy
0…9150VA (30A)	1VA	± (0.15%+1VA)
0…15250VA (50A)	1VA	± (0.15%+1VA)
0…30500VA (100A)	1VA	± (0.15%+1VA)
0…48800VA (160A)	1VA	± (0.15%+1VA)

REACTIVE POWER

Range (x3 phashe)	Resolution	Accuracy
0…9150VAR (30A)	1VAR	± (0.15%+1VAR)
0…15250VAR (50A)	1VAR	± (0.15%+1VAR)
0…30500VAR (100A)	1VAR	± (0.15%+1VAR)
0…48800VAR (160A)	1VAR	± (0.15%+1VAR)

ACTIVE POWER HOUR		
Range (x3 phashe)	Resolution	Accuracy
0…9999999.9W	0.1W	± (1%+1W)

APPARENT POWER HOUR		
Range (x3 phashe)	Resolution	Accuracy
0…9999999.9VA	0.1VA	± (1%+1VA)

REACTIVE POWER HOUR		
Range (x3 phashe)	Resolution	Accuracy
0…9999999.9VAR	0.1VAR	± (1%+1VAR)

FREQUENCY		
Range	Resolution	Accuracy
47…63Hz	0.01Hz	0.01Hz

3. FRONT PANEL DESCRIPTION

Dimensions: 210 (width), 200 (height)

JIW

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COLOR TOCH SCREEN DISPLAY

THREE PHASE AC POWER ANALYZER

WIFI

PUSH TO OPEN

DIRECTION OF CURRENT

Dimensions: 20, 32, 13, 10, 13, 34, 23.5

CURRENT TRANSFORMER

Current transformers and voltage unputs terminals

GND	–	RED current transformer wire;
CT-3, CT-2, CT-1	–	WHITE current transformer wire;
N	–	neutral voltage wire;
L3, L2, L1	–	line voltage wire.

•VOLTAGE
•CURRENT
•VOLTAGE FORM
•CURRENT FORM
•ACTIVE POWER
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JIW

THREE PHASE AC POWER ANALYZER

Wi Fi

SCREW THE SCREWS FROM THE KIT
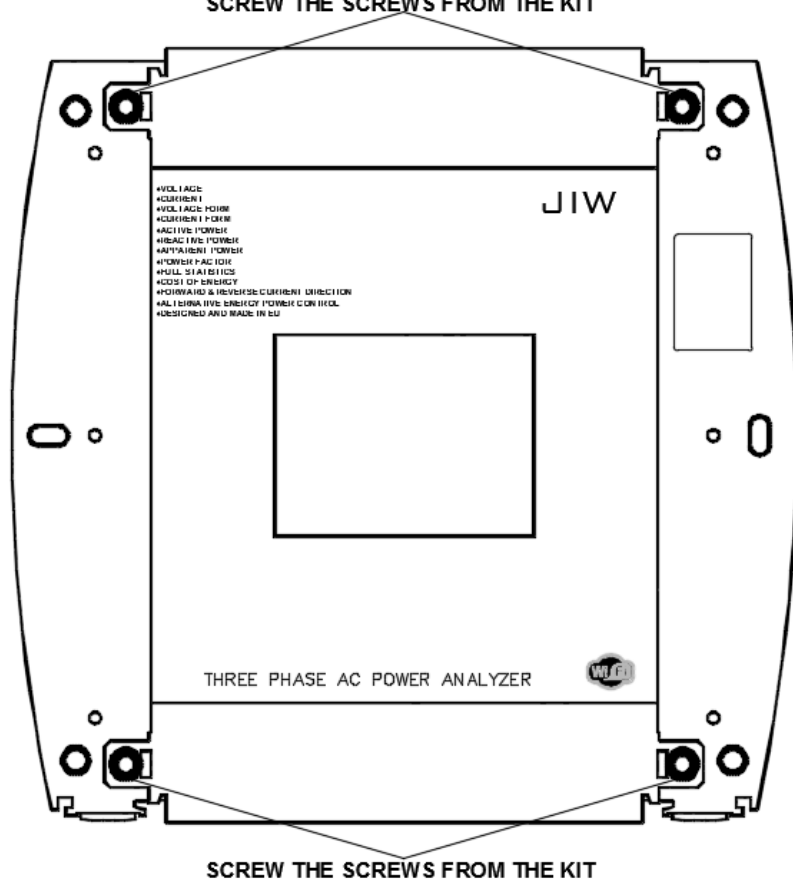
After installation and wiring, the display shows screen **ABOUT**

Then, the analyzer will go to screen ACTIVE POWER MEASUREMENT.
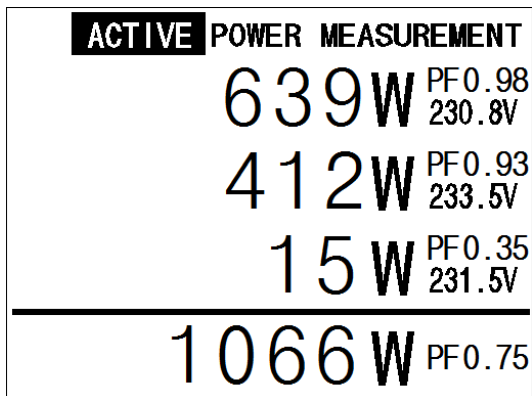
The first step is to choose the current transformer type you are using. To do this, tap the center of the display and on-screen menu.

ACTIVE POWER MEASUREMENT

639W PF 0.98 230.8V

412W PF 0.93 233.5V

15 W PF 0.35 5V

ACT   READ   APP

MAIN MENU PF 0.75
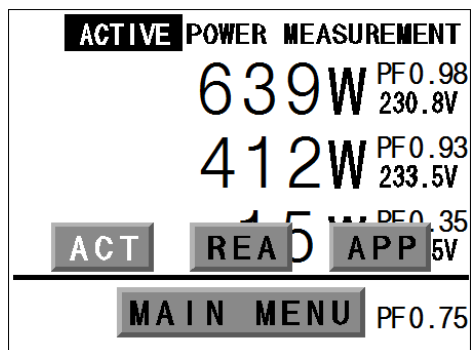
Tap **MAIN MENU** for what would have to go to the main menu.

ENERGY | POWER METER | COST

REAL TIME GRAPHICS | SETTINGS | STATISTIC

ABOUT | BACK | STATUS

Tap **SETTINGS**

Wi-Fi | DATE & TIME | CT TYPE

SOUND OFF | MEMORY CLEAR | CLOCK

CLEAN LCD | BACK | ENERGY PRICE

Then **CT TYPE**

Select current transformer type and click OK. Then press the **BACK** and **BACK** again.

5. SETTINGS

5.1 Section Wi-Fi (SETTINGS).

In the section **Wi-Fi**, there will be connections and to configure a Wi-Fi network::

Select a Wi-Fi network to which you want to connect using the **Up** and **Down** buttons. Then click **Next**.

SSID	Area_02
Encryption	WEP
RSSI	-67
Channel	02

IP	0.0.0.0
NETMASK	0.0.0.0
GATEWAY	0.0.0.0
KEY	*******

Cancel Connect

Tap the field to enter the **IP** address, if you want to enter it. What would For **Analyser** to obtain an IP address automatically, leave **0.0.0.0.** If you enter the **IP**, enter **NETMASK** and **GATEWAY**, touching the input field

Enter the IP

0.0.0.0

0	1	2	3
4	5	6	7
–	8	9	+
←	Enter	→

To enter Encryption **KEY**, tap the **KEY** input field.

Enter **Encryption KEY** and click **Enter**.

In the new window click **CONNECT**.

5.2 Section DATE & TIME (SETTINGS).

In the section **DATE & TIME**, it sets the current time, date, month, year and time zone.
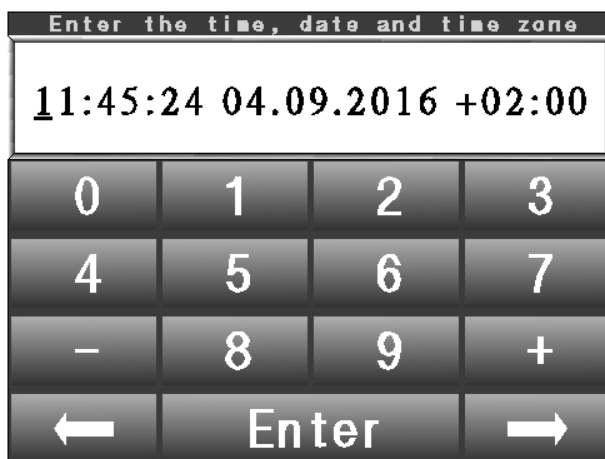
Enter the time, date, month, year and time zone. Then press **Enter**.

5.3 Section CF TYPE (SETTINGS).

In the section **CF TYPE**, select the type of current transformer.

30A	50A	100A
160A	reserve	reserve
Cancel		Ok

Select the type of current transformer and click **OK**.

5.4 Section SOUND OFF / SOUND ON (SETTINGS).

Button **SOUND OFF** - disables sound effects. Button **SOUND ON** enables sound effects.

5.5 Section MEMORY CLEAR (SETTINGS).

In the section **MEMORY CLEAR**, it clears the counter or statistics.

Count	Statistic
do you really want to delete statistic?	
Cancel	OK

Choose what you want to clear, **Counter** and (or) **Statistic** and click **OK**.

5.6 Section CLOCK (SETTINGS).

In this section, **CLOCK** is an analog clock.

Select the checkbox for the **Daylight-saving time**.

5.7 Section CLEAN LCD (SETTINGS).

To clean the display, press the **CLEAR LCD** and TOUCH SCREEN out of service for 15 seconds.
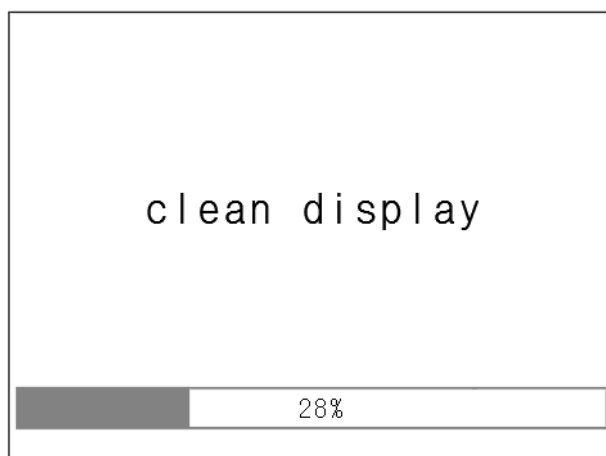
While moving the progress bar, you can clean the display.

5.8 Section ENERGY PRICE (SETTINGS).

In the section **ENERGY PRICE**, enter the cost of electricity, as well as the extra cost per month.

Touch the input field, for entering **EXTRA COST**. Navigate between the tariff zones using the buttons **Previous** and **Next**.

Touch input fields to enter a value of electric power and time interval.

6. Operate of THREE PHASE AC POWER ANALYZER:

6.1 Section ENERGY (MAIN MENU).

In the section **ENERGY**, it displays energy meter readings.

```
ACTIVE POWER     DOWN
0002227.2 kWh
0001376.3 kWh
0000934.5 kWh
0004538.0 kWh
```

Tap the center of the display and on-screen menu.

```
      ACTIVE POWER   DOWN
0002227.2 kWh
0001376.3 kWh
0  ACT  REA  APP  kWh
(DO) (MAIN MENU) (UP)
```
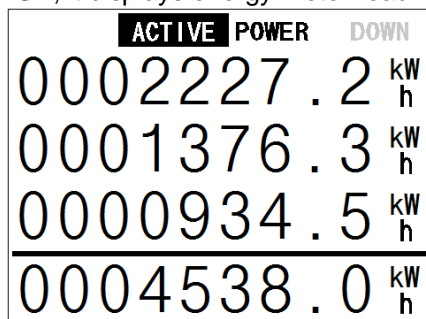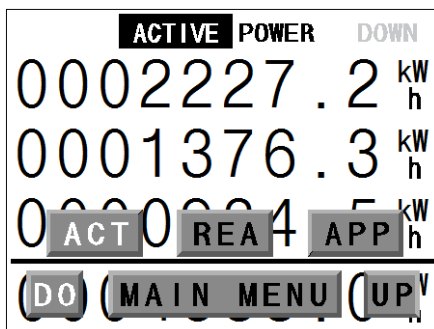
You can select the **DO** (**DOWN**) - the energy received by the house or **UP** - energy coming out of the house. Then select: **ACT** – active power; **REA** – reactive power; **APP** – apparent power;

Zero the meter reading can be in the section **MEMORY CLEAR.**

```
      REACTIVE POWER  DOWN
0000938.4 kVARh
0000635.3 kVARh
0000384.9 kVARh
0001958.6 kVARh
```
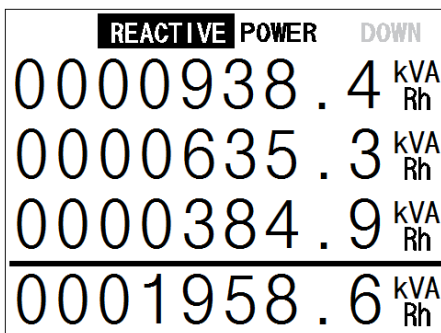
6.2 Section POWER METER (MAIN MENU).

In the section **POWER METER**, displays current readings of power consumption, voltage and power factor (PF).
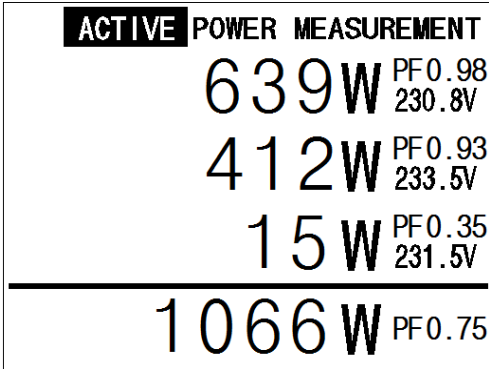
Tap the center of the display and on-screen menu.
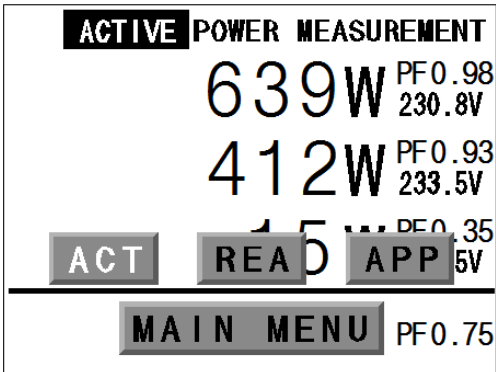
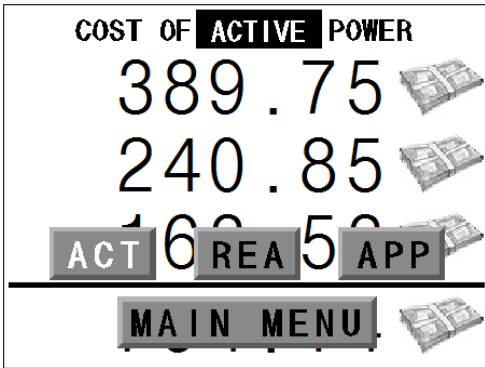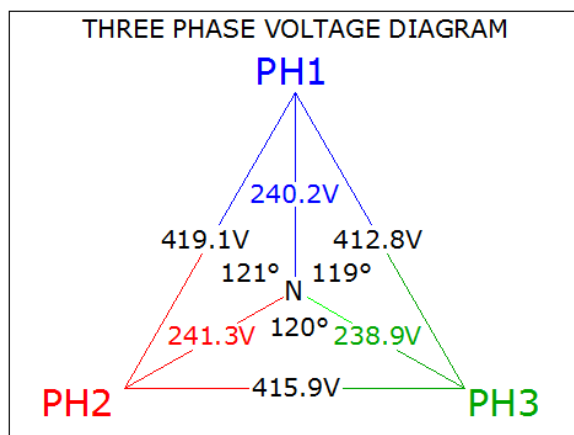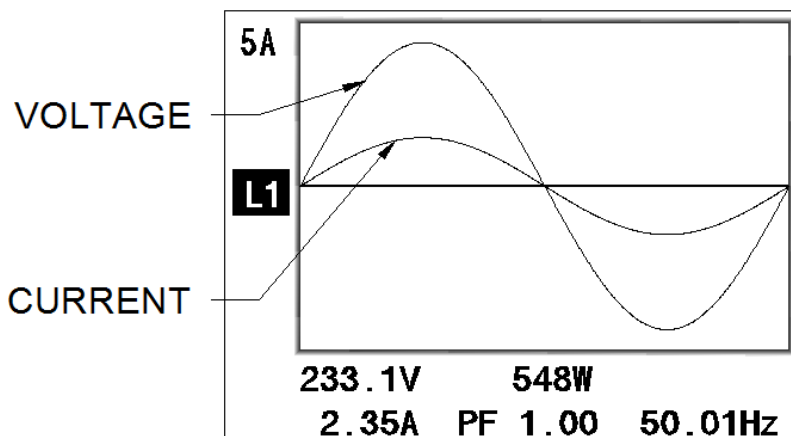You can select the **ACT** – active power; **REA** – reactive power; **APP** – apparent power;
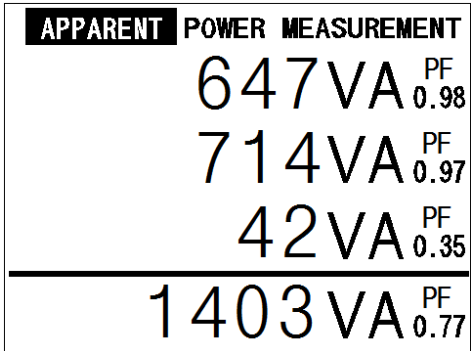
6.3 Section COST (MAIN MENU).

In the section **COST**, displays cost of energy consumed based on the entered user cost of energy. To enter the cost of energy, use the section **ENERGY PRICE**
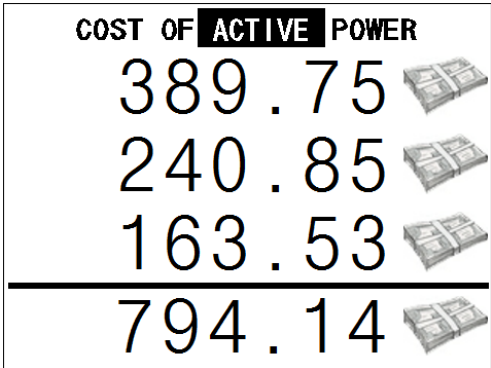
Tap the center of the display and on-screen menu.

You can select the **ACT** – active power; **REA** – reactive power; **APP** – apparent power;

6.4 Section REAL TIME GRAPHICS (MAIN MENU).

In the section **REAL TIME GRAPHICS**, displays a graphical representation of voltage and current in real-time, voltage, current, active power, power factor (**PF**), and frequency. As can be seen interphase voltage and phase angles.

VOLTAGE

CURRENT

5A

L1

233.1V   548W
2.35A   PF 1.00   50.01Hz

THREE PHASE VOLTAGE DIAGRAM

PH1

240.2V

419.1V   412.8V
121°   119°
N
241.3V   120° 238.9V
415.9V

PH2   PH3

Exit to the main menu by tapping the display in the middle.
Switching between viewports touch the right or left side of the display.
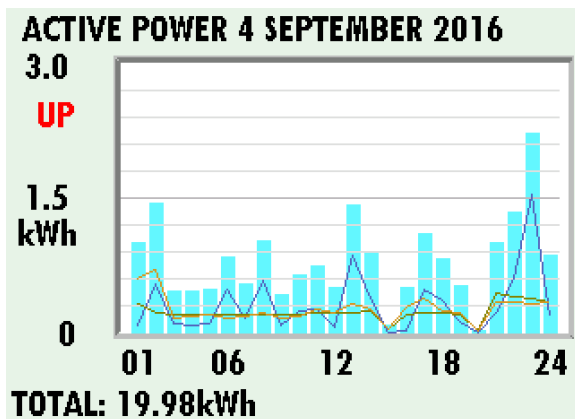
6.5 Section STATISTIC (MAIN MENU).
In the section **STATISTIC**, displays statistics consumed (**DOWN**) or given away (**UP**) of energy per day, month or year.
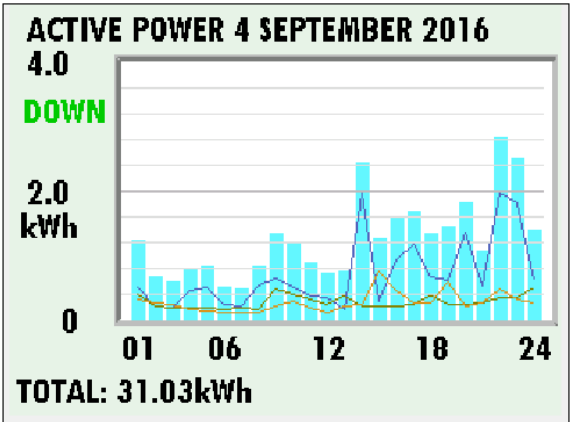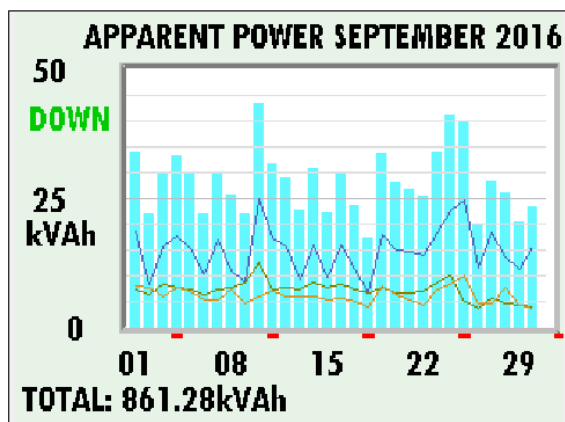

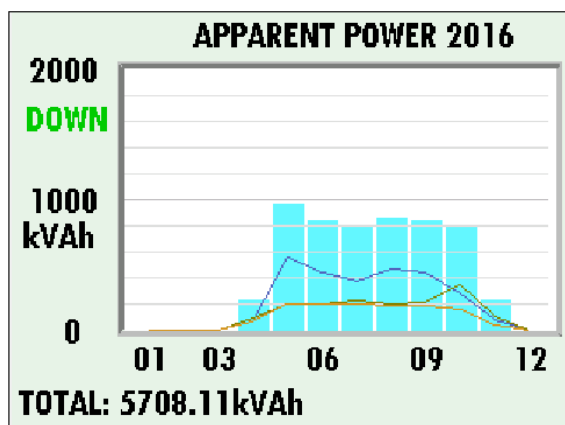Consumption statistics (DOWN) **ACTIVE POWER** per day
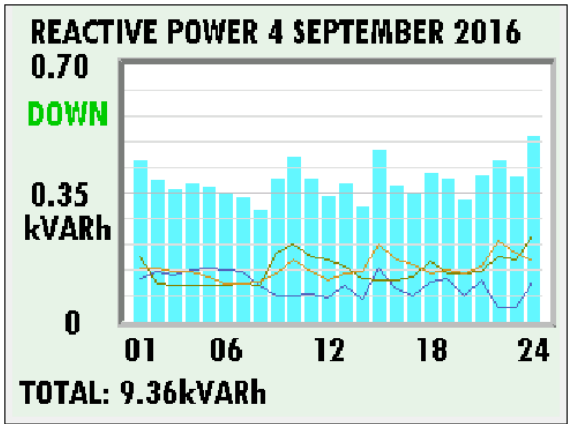
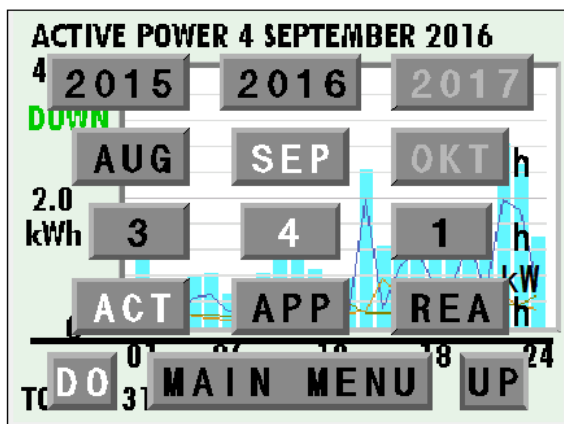Consumption statistics (DOWN) **REACTIVE POWER** per day

Statistics given away (UP) **ACTIVE POWER** per day

Consumption statistics (DOWN) **APPARENT POWER** per month

Consumption statistics (DOWN) **APPARENT POWER** per year

Tap the center of the display and on-screen menu.

6.6 Section STATUS (MAIN MENU).

In the section STATUS, displays current system status of:

CF type – mounted current transformer type;
SSID – the name of the Wi-Fi network, which is connected to the Analyzer;
RSSI – Wi-Fi radio signal level:
Channel – radio channel Wi-Fi:
IP – IP address:
GATEWAY – GATEWAY Wi-Fi network:
NETMASK - NETMASK Wi-Fi network:
MAC – MAC address Wi-Fi module;
Tariff zone 1...7 – tariff zones that are configured in the **ENERGY PRICE** section.