ECO-5 Power Monitor

Instruction Manual

Contents

Chapter 1 Feature

Knowing power states at once glance：

- Monitor 10 smart meters
- 7 inch colorful touch screen.
- Simple and clear icon.

Predict electricity demand

- 4 kinds of predicted demand.
- 2 kinds of load shedding mode.
- 6 remote control points.

Calculate electricity bill

- Basic charges: two-level / three-level Time-of-use (TOU) pricing and demand charge.
- Energy charges: on-peak, mid-peak, sat-mid-peak and off-peak

Trends chart

- Show Real power and predicted power. Easy to check the power consuming.

Electricity data record

- Recording 43200 pieces of data. (per smart meter)
- The data can be stored on flash drive from ECO-5 and export CSV format Excel supported.

Chapter 2 Hardware

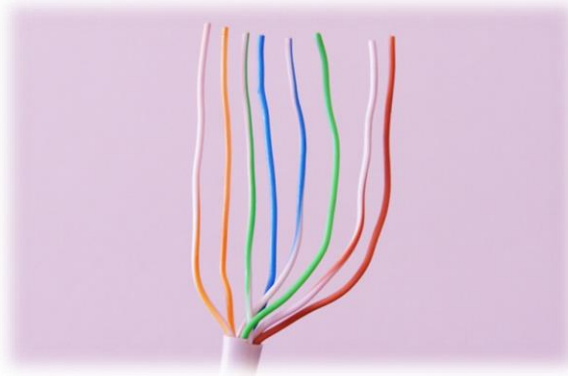1. ECO-5 Exterior : 200mm x 161.5mm x 150mm (W x L x H ± 1mm)

2. Back exterior: European style terminal blocks.

(1) Label: including ECO-5 type, origin and wiring methods
(2) LAN1, LAN2 and RS485
(3) 4 point remote control and RS-485 connect 4 digits display
(4) Power : 100～240VAC
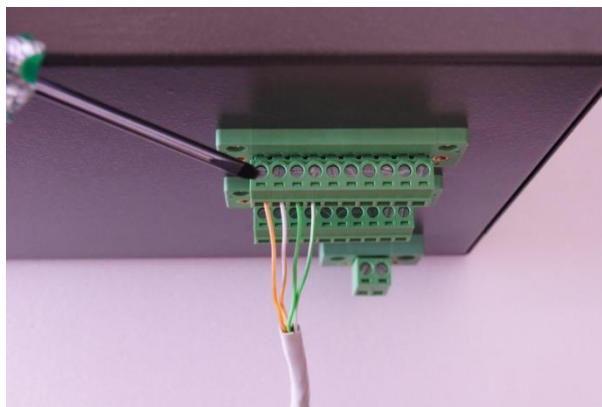
3. Wiring methods

(1) Network Cables included 8 colorful cables:
   1. Orange white 2. Orange 3. Green white 4. Blue 5. Blue white 6. Green
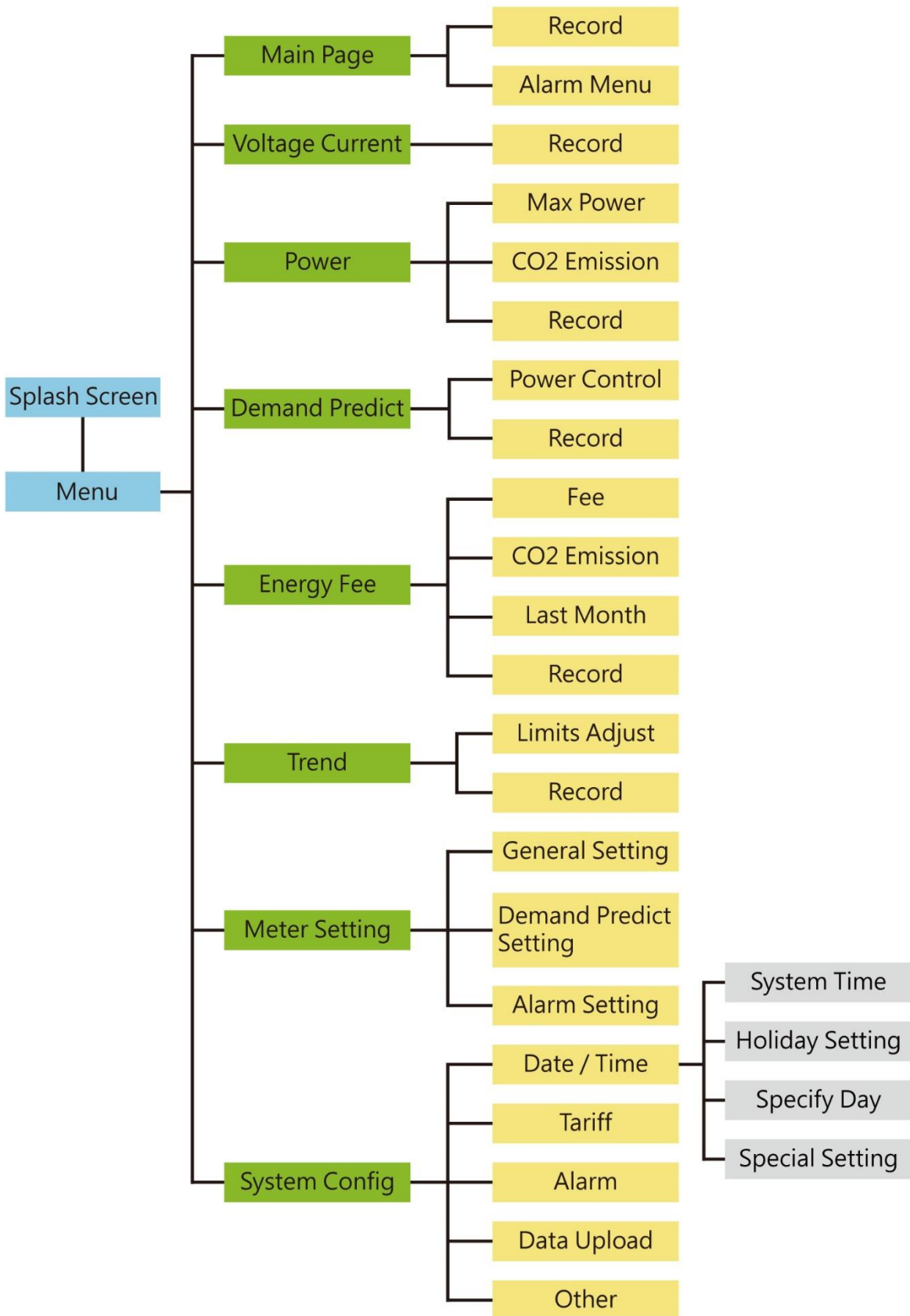   7. Red white (or Brown white) 8. Red (or Brown)

(2) According label, LAN1 is connected number 2, 1, 6 and 3 cables. Then, stripping the cables

(3) Follow a sequence sticking cables in style terminal blocks and screwing these pieces. LAN 2 wires in the same way.

Chapter 3 Process Flow Diagram

```
Splash Screen
     |
   Menu ──── Main Page ──── Record
     |                 └──── Alarm Menu
     ├──── Voltage Current ──── Record
     |
     ├──── Power ──── Max Power
     |           ├──── CO2 Emission
     |           └──── Record
     |
     ├──── Demand Predict ──── Power Control
     |                    └──── Record
     |
     ├──── Energy Fee ──── Fee
     |               ├──── CO2 Emission
     |               ├──── Last Month
     |               └──── Record
     |
     ├──── Trend ──── Limits Adjust
     |           └──── Record
     |
     ├──── Meter Setting ──── General Setting
     |                   ├──── Demand Predict Setting
     |                   └──── Alarm Setting
     |
     └──── System Config ──── Date / Time ──── System Time
                         |                ├──── Holiday Setting
                         |                ├──── Specify Day
                         |                └──── Special Setting
                         ├──── Tariff
                         ├──── Alarm
                         ├──── Data Upload
                         └──── Other
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Chapter 4 Operation and Setting

1. Splash Screen

When power was turned on, ECO-5 will run splash screen for 5 second and then enter screen.
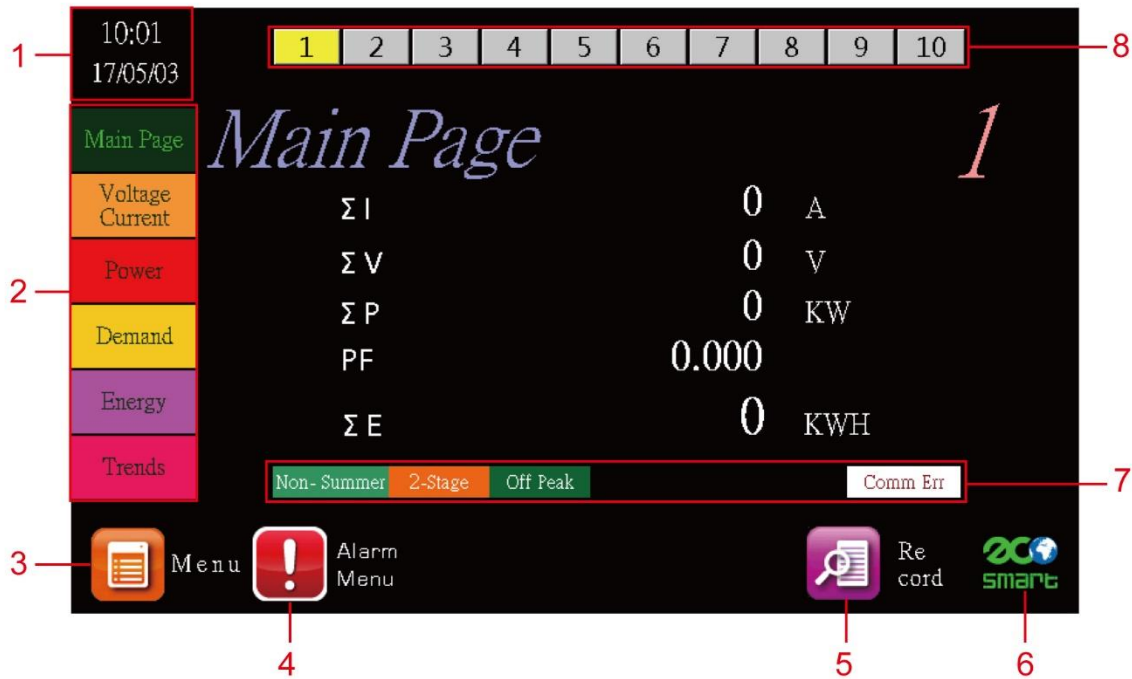
2. Menu
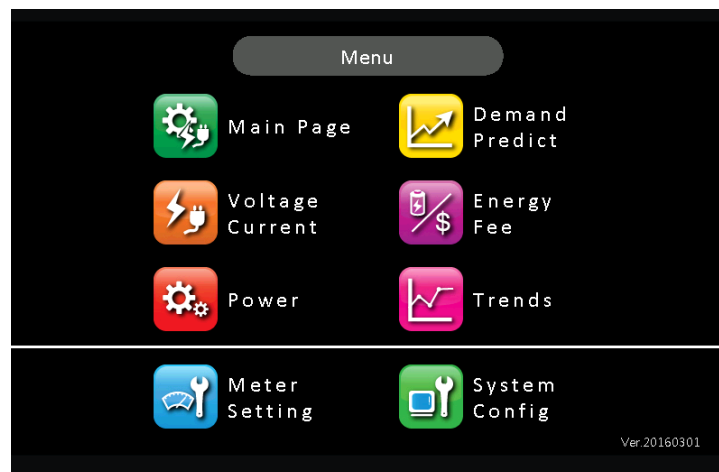

Press button, then enter others screen.

3. Main Page

Main Page shows current, voltage, power and power factor.

(1) Show current time and date.

(2) Press these buttons to toggle monitor screen.

(3) Menu button.

(4) Alarm menu button.

(5) Record button: browse or save data.

(6) Splash screen button.

(7) Show smart meter states: summer/non-summer, 2-stage/3-stage, off-peak/peak/partial-peak/Saturday partial-peak and comm err/on comm.

(8) Press number buttons to toggle smart meter states.

※Record:

ECO-5 records electricity data per minute and can record up to 43200 pieces of data. Data can be stored on flash drive.
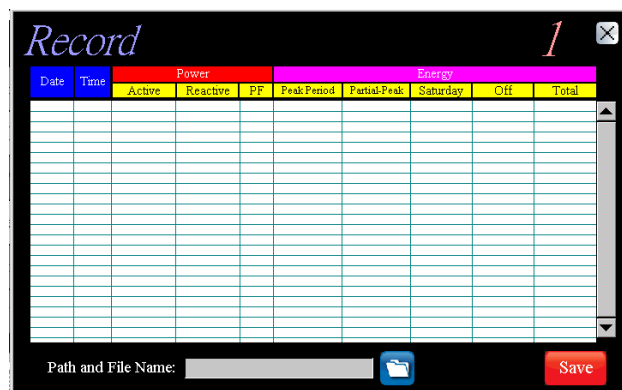
4. Voltage/Current

Show three-phase voltage/ current and average value.
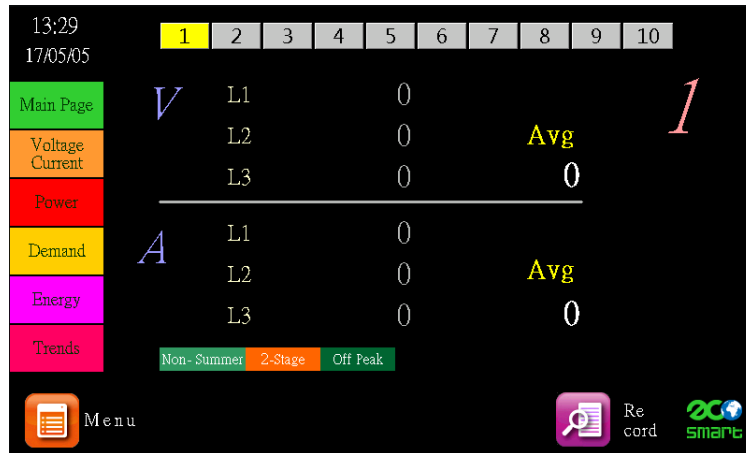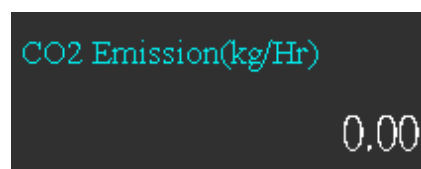

5. Power

Show real power, apparent power and reactive power.
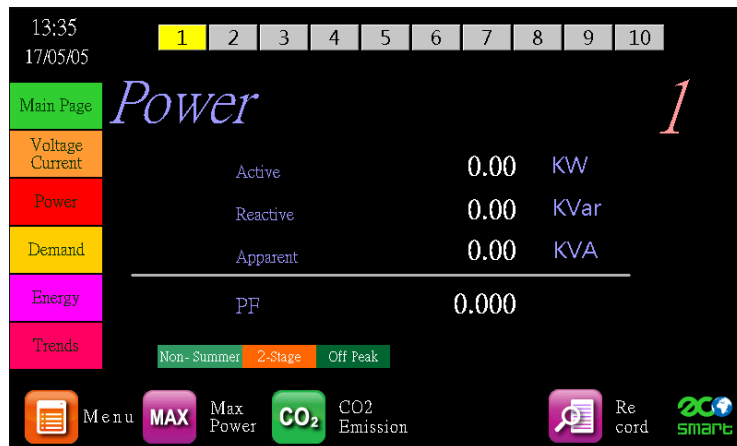
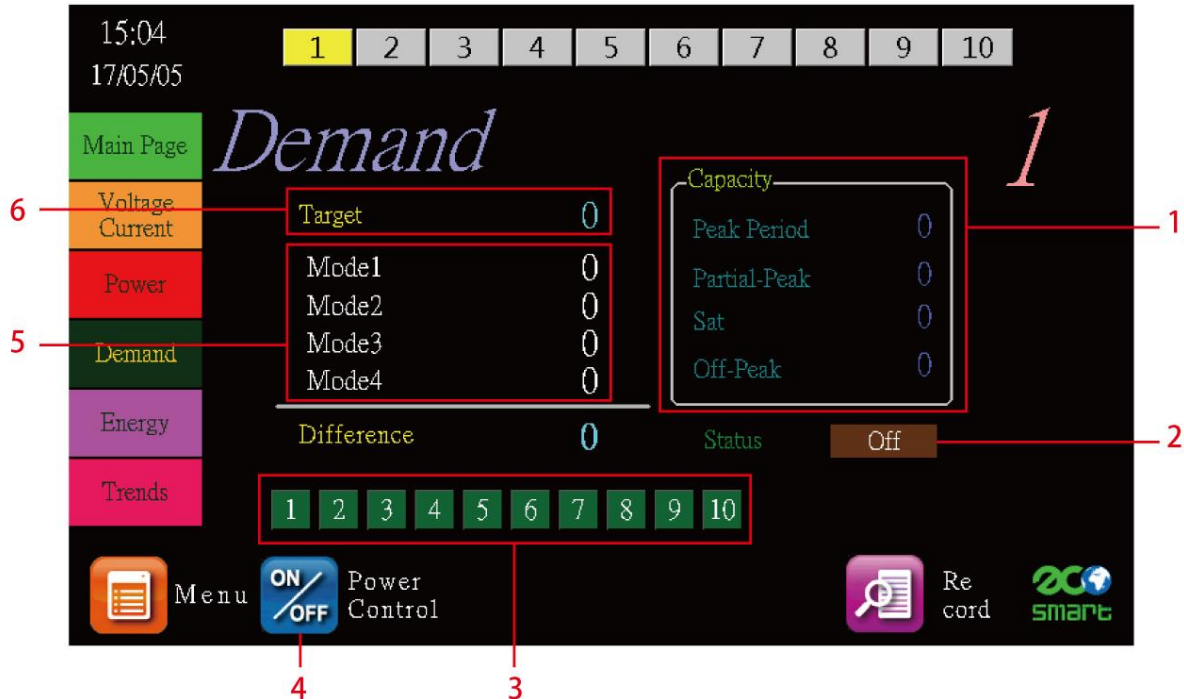(1) Show max Demand: including peak period, Saturday partial-peak, off-peak.
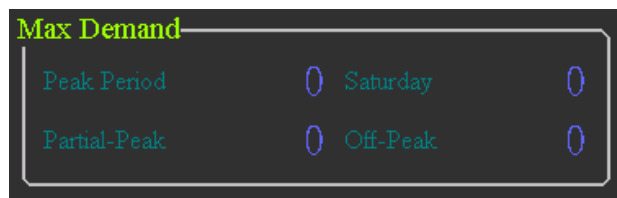

(2) Show CO2 emission(kg/hr).

6. Demand

4 kinds of predictive demand forecast electricity consumption. If demand will exceed contract capacity, ECO-5 will load shedding equipment.

(1) Show contract capacity values.
(2) Show demand status according to predicted mode and target values.
   Over: Predicted demand values will exceed target up limit.
   Low: Predicted demand values is lower than target low limit.
   Normal: Predicted demand values is between target up and low limit.
   Off: Demand predict setting isn't turned on.
(3) Show ten control point status: If equipment was loaded shedding, control point status will twinkle.
(4) User can manually load shedding equipment.
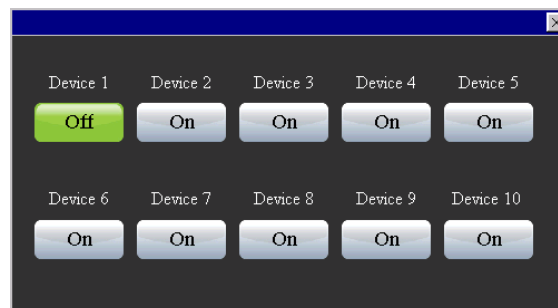
(5) 4 kinds of predictive demand: Mode1: Mix, Mode2: Rolls, Mode3:Fix, Mode4: Average.
(6) According to contract capacity and period ECO-5 calculates target values.

7. Energy

Show energy consumption, calculate electric bill and CO2 emission.

(1) Orange word is current period.
(2) Fee: Show detailed electric bill

(3) CO2 Emission
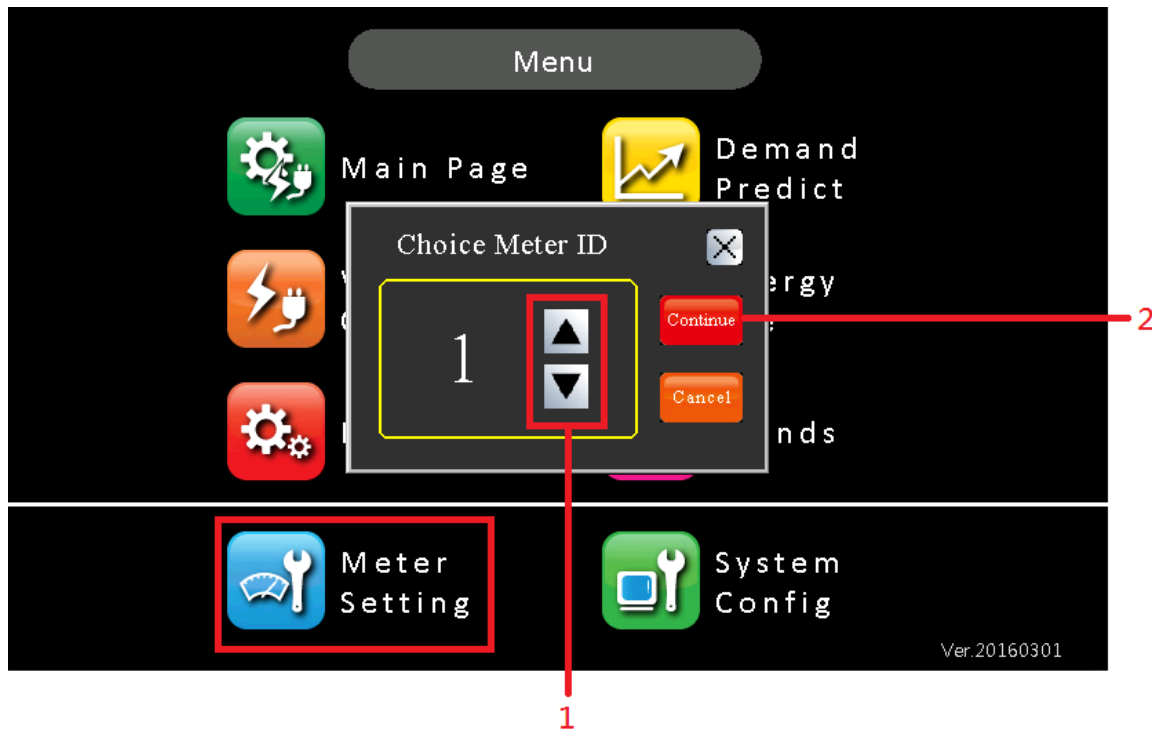

(4) Show energy charges last month.
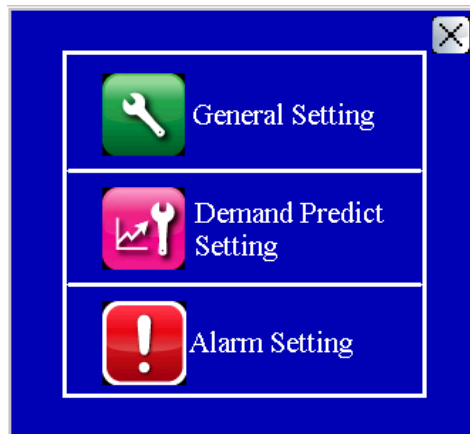
8. Trends

Show real power and predict power trends.
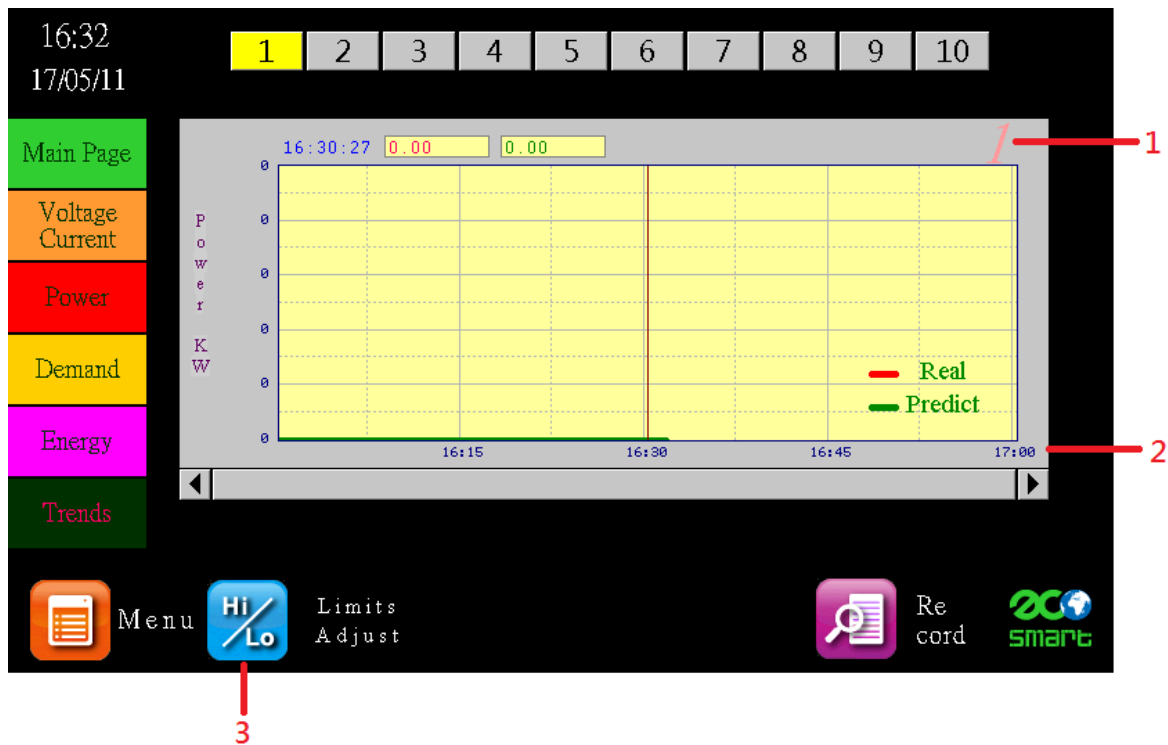
(1) Show smart meter ID.
(2) X-axis is time and y-axis is power (KW). Trends can record for the past 12 hours.
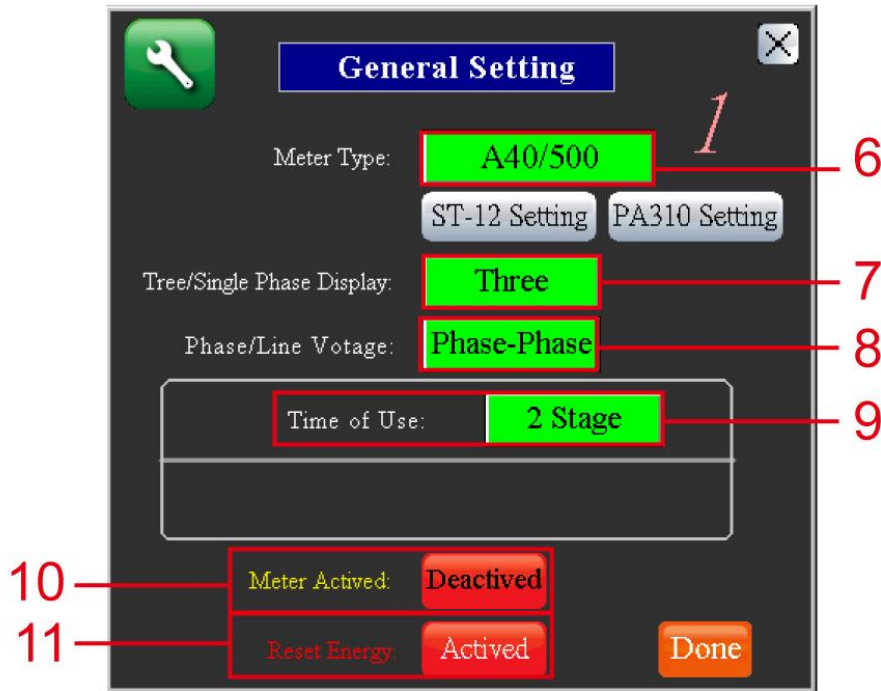(3) User can set y-axis upper and lower limit values. It also can set auto adjustment.

9. Meter setting

(1) Select meter ID by up and down arrow button.
(2) Press continue button.

(3) General Setting: Meter basic setting.
(4) Demand predict setting: Demand and contract capacity setting.
(5) Alarm setting.

(6) Select meter type: A40, DM2436, CT1700, CT2437, CT713P/2430,
SPM8/PA3000, PM710, PM800 series, S6-300/S7-330 and CPM-50.

(7) Select three/ single phase display.

(8) Select Phase/ line voltage.

(9) Time of use: 2/ 3 stage. 3 stage can select fix mode or specify mode.

(10) Turn on/ off meter.

(11) Rest energy: Energy records removal.
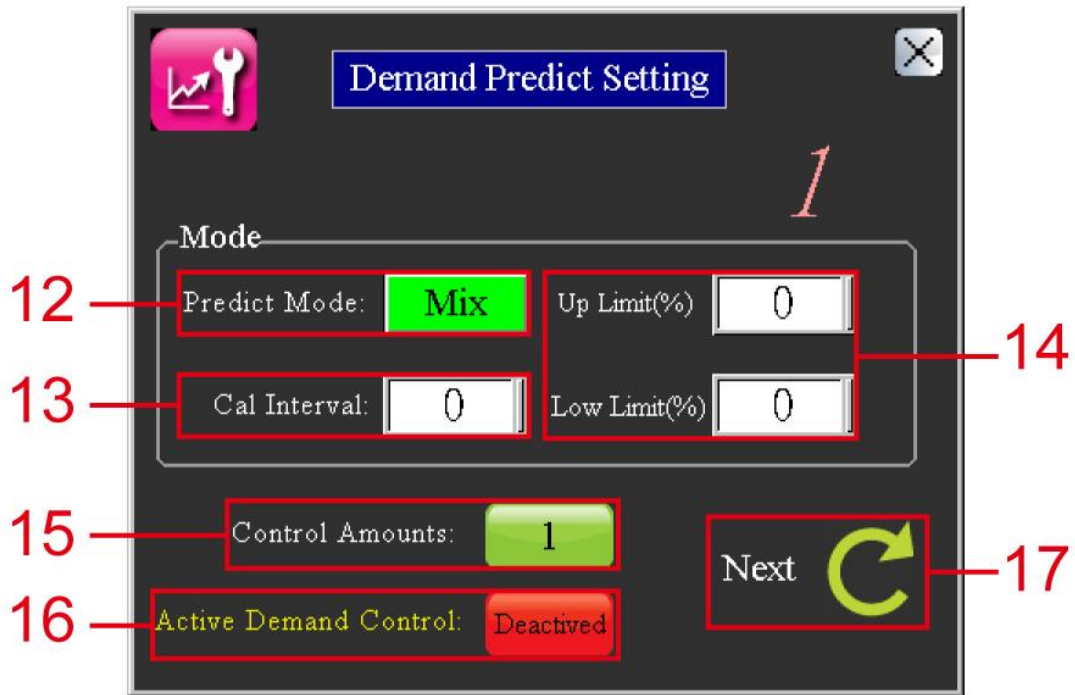
(12) Predict mode: 4 kinds of mode can be selected: Mix, Rolls, Fix and Average.
(13) Calculated interval: demand calculation cycle. Unit is seconds.
(14) Demand predict up and low limit values.
(15) Control amounts: remote control the amount of equipment.
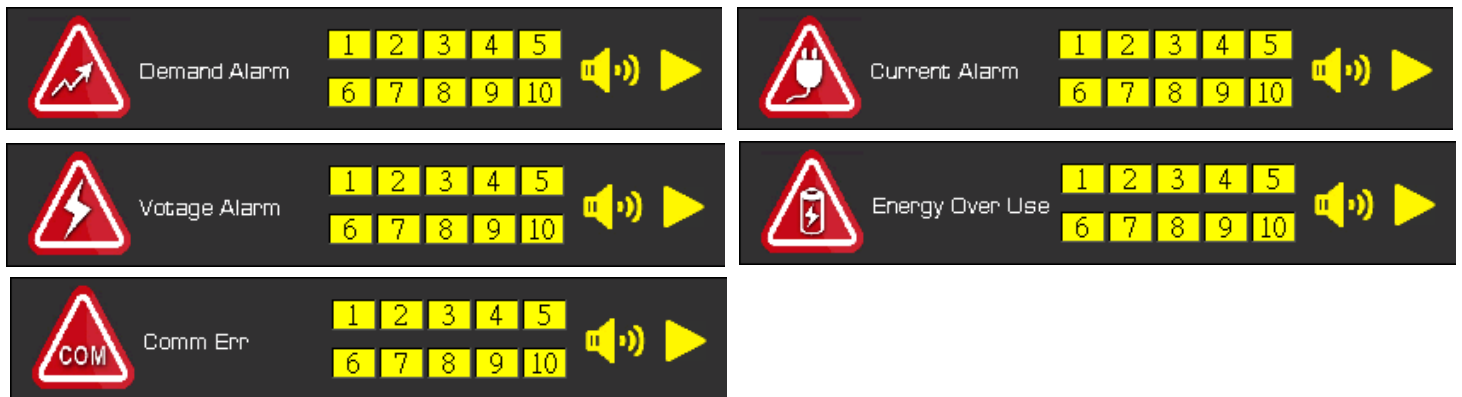(16) Turn on/ off demand predict.
(17) Next step
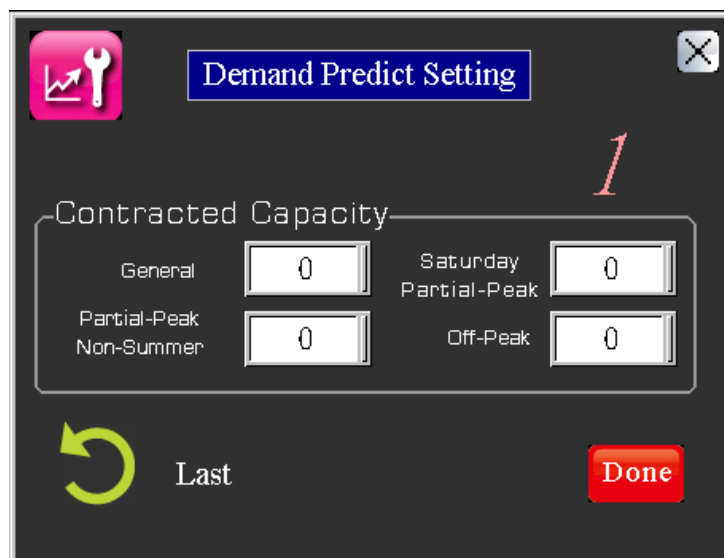
(18) Enter contract capacity values.
(19) Press done button.
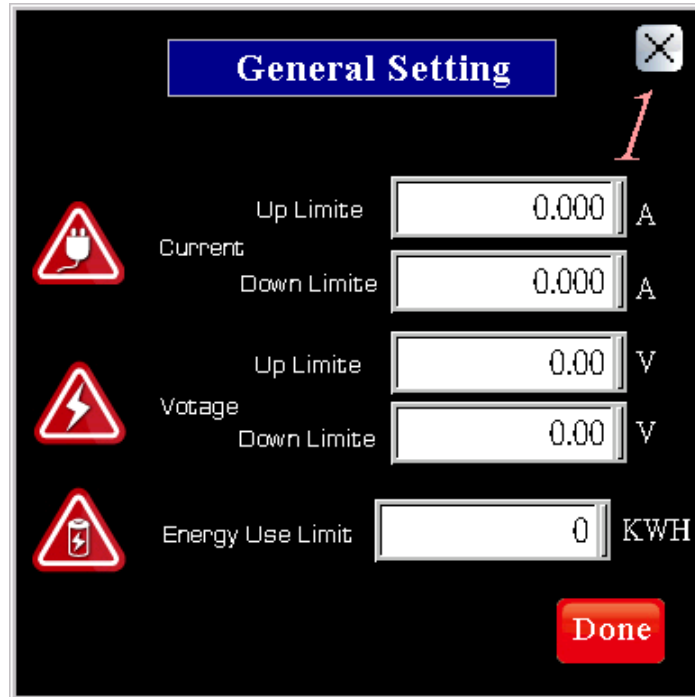
(20) Enter current, voltage and energy use limit values. If real values exceed setting values, ECO-5 will sound alarm and warn.

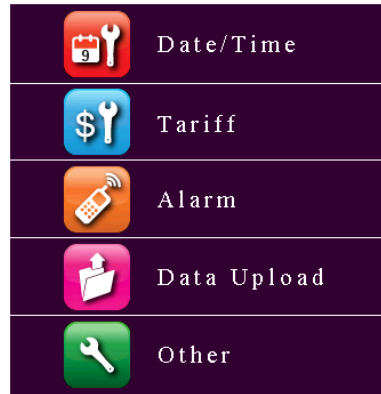If energy using has any problems, ECO-5 will show alarm on the screen and meter ID will twinkle.
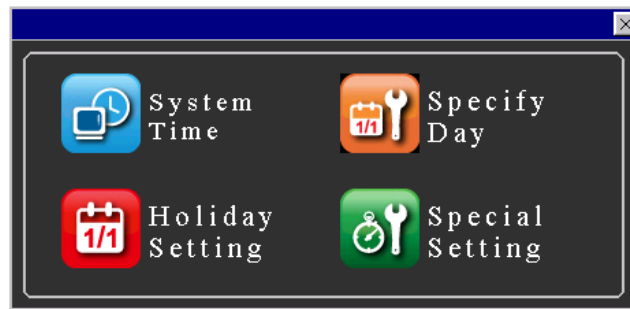

Press horn icon to be in mute.

Press arrow icon to stop alarm message. Message will show until energy using has any problems again.
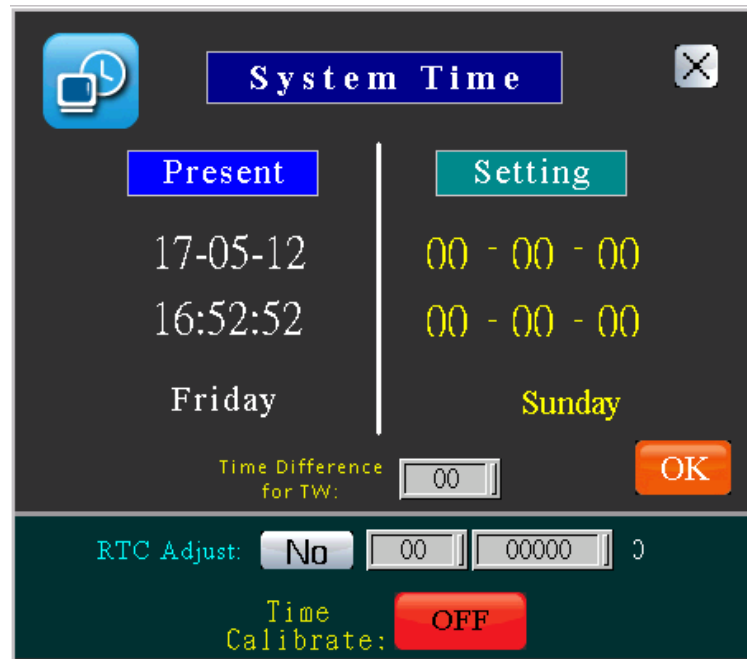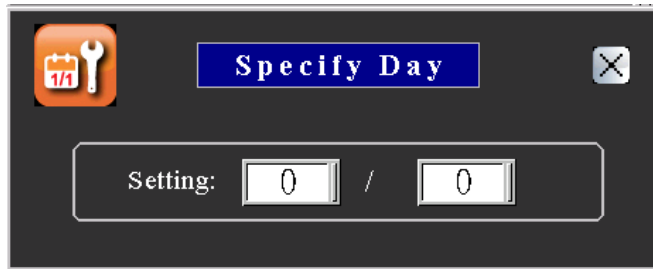
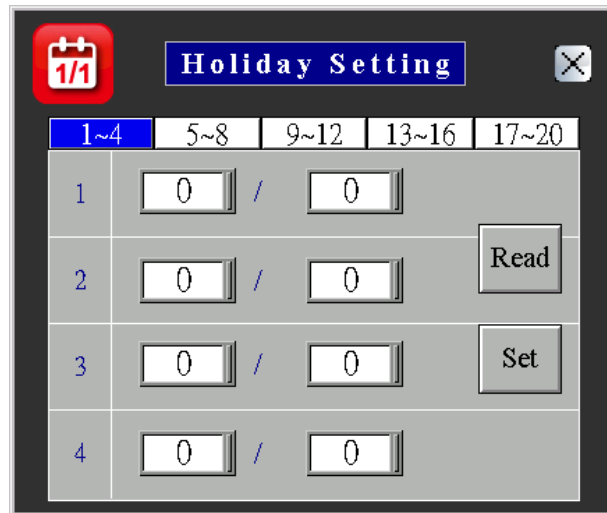## 10. System Config

(1) Date/ Time

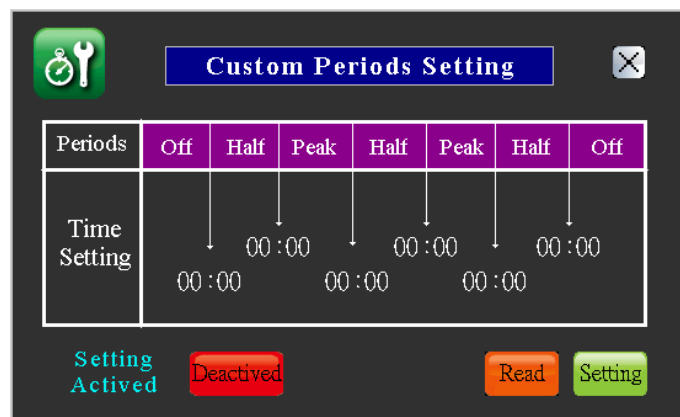a. System time: user can manually set time

b. Specify day: special energy bill calculation mode in specify day.

c. Holiday setting: User can set 20 holiday.

d. Special setting: custom periods setting.

(2) Tariff

    a. Energy charges: enter prices in each period.

	2 Stage		3 Stage	
	Summer	Non- Summer	Summer	Non- Summer
Peak Period	0.000	0.000	0.000	0.000
Parial-Peak	———	———	0.000	0.000
Saturday Partial-Peak	0.000	0.000	0.000	0.000
Off-Peak	0.000	0.000	0.000	0.000

Energy Charge (KWH) — Next

    b. Contract charges: enter contract capacity prices.

	2 Stage		3 Stage	
	Summer	Non-Summer	Summer	Non-Summer
Peak Period	0.000	0.000	0.000	0.000
Partial Peak	———	0.000	0.000	0.000
Off-Peak	0.000	0.000	0.000	0.000

Contracted Charge (KW) — Last — Done

(3) Alarm setting: user can set cell phone number to send alarm message.

(4) Data upload setting: ECO-5 can upload data to ECO-Cloud.

(5) Other setting

a. **Auto reset energy function turn off:** YES is turn off. No is turn on and ECO-5 will remove energy record every month.

b. **Demand control mode:** cycle stop and run/ first stop, last run.

c. **Record frequency:** there have 1, 2, 3, 5, 6, 10, 15, 20, 30, 60 and 90 min can be select.

d. **Language:** traditional Chinese, Simplified Chinese and English can be select.