

WON-G4

The WON-G4 series multifunctional power analyser measures and displays key electrical parameters such as voltage, current, power, frequency, power factor, harmonic distortion, and maximum demand in single-phase and three-phase power systems.

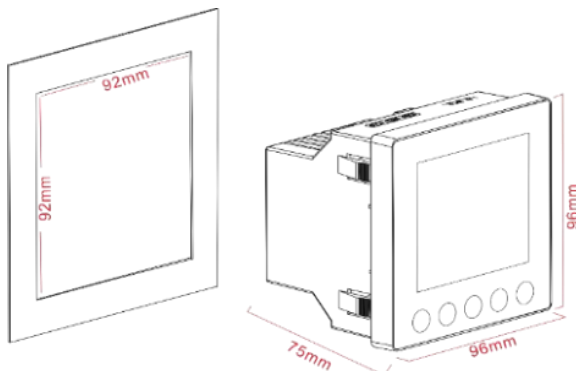
It supports external transformers for high-voltage and low-voltage grids, with current up to 9999A and voltage up to 500000V. The device includes an RS485 Modbus communication interface for remote monitoring and allows easy parameter setting through touch keys with password protection.



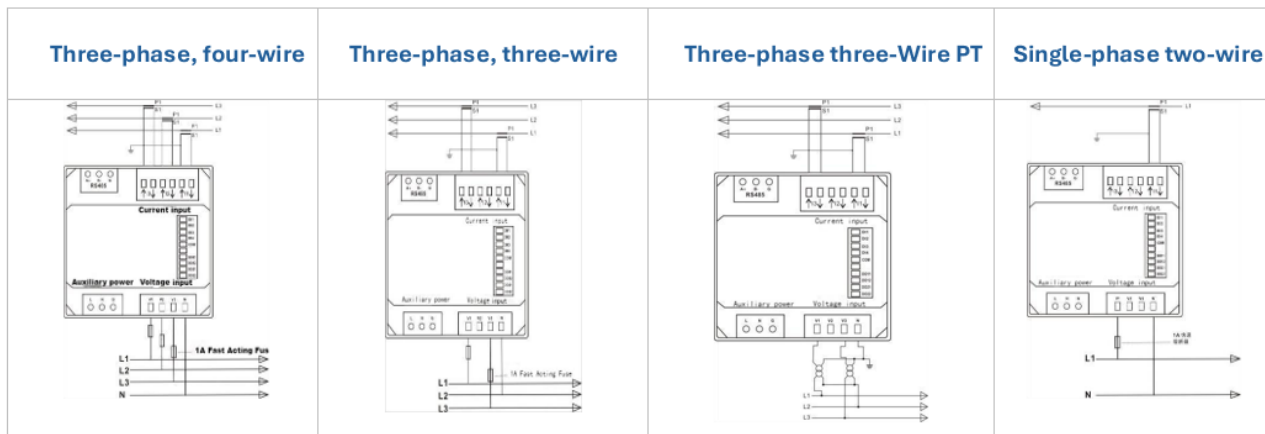
Product Features

- Suitable for 1P2W, 3P3W, 3P4W networks LV/MV/HV
- Measurement of Each phase and total power parameters
- Voltage & Current harmonic measurements up to 63rd order
- Modbus RS-485 communication and speed up to 38400bps
- Five touch button operation, friendly interface settings
- High-resolution large screen, gray background and black characters with a wide field of view.
- Phase-by-phase and total power and current demand statistics
- Demand calculation mode, update period, slip time can be set
- Real-time display of load specific gravity fan chart
- Power factor bar graph indication
- Bidirectional metering, Each phase active and reactive power metering Unbalanced (zero line) current and voltage
- Phase sequence and phase angle display
- Manual and automatic rotating display page turn, backlight delay can be set
- 8 time slot settings, 4 rate metering
- 1A/5A transformer type access, variable ratio field programmable
- Intelligent setting for Import and Export wiring
- DI input stabilization time can be set according to actual demand
- DO level and pulse output can be set according to the actual demand.
- DO output delay can be set according to actual demand
- SOE device full event logging
- Removable and easy-to-maintain equipment batteries
- Device housing, mounting size 92*92mm, extruded mounting, no need for additional side clamps fixing and Pull-in connection
- Peripheral wave sampling not less than 128 Hz, support for telecommunication, remote control, telemetry.

Dimensions



Wiring Diagram



LCD Segment Code English Correspondence

1	2	3	4	5	6	7	8	9	0	A	B
1	2	3	4	5	6	7	8	9	0	A	B
C	D	E	F	G	H	I	J	K	L	M	N
C	d	E	F	G	H	I	J	K	L	M	N
O	P	Q	R	S	T	U	V	W	X	Y	Z
O	P	Q	R	S	T	U	V	W	X	Y	Z

Technical Features

Parameter	Description
Instantaneous Value (RMS)	
Voltage	Phase Voltage, Line Voltage
Current	Three-phase current
Active Power	Total active power, Each phase active power
Reactive Power	Total reactive power, Each phase reactive power
Apparent Power	Total apparent power, Each phase apparent power
Frequency	45-65Hz
Power Factor	Total power factor, Each phase power factor
Total/Import/Export Active Power	Range: 0~999999.999 kWh
Harmonic Distortion (THD)	Voltage and current
V&I Harmonics	Up to 63rd Order
Requirement	Each phase and total power and current
Configurable Parameters	
Modbus Communications	Modbus Communication Address, Baud Rate, Parity Bit, Stop Bit
Measurements V&I	CT, PT ratio, and secondary value
System Protection	User password
Demand Class	Demand reset
Pulse Output Class Parameters	Pulse output setting
Time-Based Parameter	Automatic rotation time, backlight illumination time, system time, start time of the rate segment

Technical Specifications

Category	Parameter	Specification
Suitable Networks	Three-phase four-wire, Three-phase three-wire, Single two-wire, Three-phase three-wire PT	
Operating Power	Auxiliary Supply	AC/DC 85~265V
	Power	≤5W
Input	Voltage	
	Rating	AC 100V, 220V, 400V
	Overload	1.2x continuous, 2x (10s)
	Power Wattage	<0.4VA/ phase
	Impedance	≥200kΩ
	Current	
	Primary Current	1-9999A
	Secondary Input	1A or 5A
	Short-term Overcurrent	20x maximum current for 0.5 seconds
	Power Wattage	<0.2VA/ phase
	Electrical Impedance	≥0.1Ω
	Frequency	45Hz~65Hz
	Switching Input	Dry Contact Input, opt Isolated
Output	Switching Output	Relay output; any power alarm can be set, default remote control
	Pulse Output	1 electrical energy pulse
Accuracy	Voltage/Current	0.5%
	Frequency	0.2%
	Power/Power Factor	1%
	Active Energy	0.5S class
	Reactive Power	1.0 class
	Interface Type	RS485 TCP/IP Ethernet
Communication	RS485 Modbus RTU	
	Communication Protocols	Modbus RTU
	Baud Rate	2400/4800/9600/19200/38400bps
	Address Range	1-247
	Communication Distance	1000m
	Parity	EVEN/ODD/NONE (default)
	Data Bit	8
	Stop Bit	1
Power Quality	Voltage Harmonics -Individual	1-63 order& THD
	Current Harmonics -Individual	1-63 order& THD
Environmental	Operating Temperature	-25°C~55°C
	Storage Temperature	-40°C~70°C
	Operating Humidity	≤90%RH, Non-condensing, non-corrosive gas locations
	Storage Humidity	≤95%RH, Non-condensing, non-corrosive gas locations
	Height Above Sea Level	≤2000m
	Installation Category	CAT III
	Pressure Resistance	AC withstand voltage 4KV/1min, Pulse withstand voltage 6kV - 1.2μS waveform
Immunity Test	Rapid Transient Pulse Group Test	GB/T 17626.4-2008: Test level 2, current voltage 1kV, other 500V
	Surge (Shock) Immunity Test	GB/T 17626.5-2008: Test level 4, test voltage 4kV
	Conducted Nuisance	
	Immunity Test for RF Field Induction	GB/T 17626.6-2008: Test level 3, test field strength 10V/m
	Immunity Tests for Voltage Dips, Short-term Interruptions and Voltage Variations	GB/T 17626.11-2008: Current and voltage test error qualified
Standards-Compliant	GBT22264.1-2008	Mounted digital display electrical measuring instruments Part 1: Definitions and general requirements

	GBT22264.7-2008	Mounted digital display electrical measuring instruments Part 7: Special requirements for multifunction meters
	GBT22264.8-2009	Mounted digital display electrical measuring instruments Part 8: Recommended test methods

Operating Instructions

Description of panel key operation

After correct wiring, turn on the power to enter the normal measurement state, the screen displays as follows:

First screen	Power on full screen display
Second screen	Show software version
Third screen	Shows internal testing is complete

Key Definition

There are 5 buttons on the panel, from left to right they are “”, “”, “”, “”, “”.

Button operation is divided into two kinds of long press and short press:

Long press: press the button for more than 2 seconds.

Short press: Pressing the key and releasing it within 1 second is a short press.

Buttons	Click	Press 2S
	➤ Displays power, voltage, current and energy information of each phase ➤ Exit from the menu	➤ Automatic Scroll display ON / OFF
	➤ Display Voltage and current information of the selected system type. (3p4w, 3p3w and 1p2w) ➤ Phase sequence ➤ Left side move	➤ Individual Harmonic Distortion of Voltage up to 63rd
	➤ Display power factor, frequency, Max. Demand. ➤ Max. and Min. of current and voltage ➤ Up page or add value	➤ Individual Harmonic Distortion of Current up to 63rd
	➤ Display active power, reactive power and apparent power information of the selected system type. ➤ Down page or reduce value	➤ Running hour ➤ Full Screen checking ➤ Modbus / Ethernet setting information ➤ Tariff Information
	➤ Display total / import / export active or reactive energy information of the selected system type. ➤ Right side move	➤ Set-up mode entry ➤ Confirmation

Measurement Parameter View

Key Press	Three-Phase, Four-Wire (4-wire)		Three-Phase, Three-Wire		Single-Phase Two-Wire	
	Demonstrate	Parameters	Demonstrate	Parameters	Demonstrate	Parameters
	1	L1 Power (W) L1 Voltage (V) L1 Current(A) L1 Active Power(kWh)	1	L1 Power (W) L1 Voltage (V) L1 Current(A) L1 Active Power(kWh)	1	L1 Power (W) L1 Voltage(V) L1 Current (A) L1Active Power (kWh)
	2	L2 Power(W) L2 Voltage(V) L2 Current(A) L2 Active Power(kWh)	2	L2 Power(W) L2 Voltage(V) L2 Current(A) L2 Active Power (kWh)		
	3	L3 Power(W) L3 Voltage (V) L3 Current(A) L3 Active Power (kWh)	3	L3 Power(W) L3 Voltage(V) L3 Current(A) L3 Active Power(kWh)		
	4	L1 Power(W) L1 Voltage(V) L1 Current(A) L1 Reactive Power (kVArh)	4	L1 Power(W) L1 Voltage(V) L1 Current(A) L1 Reactive Power (kVArh)	2	L1 Power(W) L1 Voltage(V) L1 Current(A) L1 Reactive Power
	5	L2 Power(W) L2 Voltage(V) L2 Current(A) L2 Reactive Power(kVArh)	5	L2 Power(W) L2 Voltage (V) L2 Current(A) L2 Reactive Power(kVArh)		
	6	L3 Power(W) L3 Voltage(V) L3 Current(A) L3 Reactive Power (Kwh)	6	L3 Power(W) L3 Voltage(V) L3 Current(A) L3 Reactive Power(kVArh)		
	1	L1-N Voltage L2-N Voltage L3-N Voltage			1	L1-N Voltage
	2	VoltageL1-L2 VoltageL2-L3 VoltageL3-L1	1	VoltageL1-L2 VoltageL2-L3 VoltageL3-L1		
	3	L1 Current L2 Current L3 Current N Phase Current	2	L1 Current L2 Current L3 Current	2	L1 Current
	4	L1 Voltage Total Harmonics L2 Voltage Total Harmonics L3 Voltage Total Harmonics	3	L1-2 Voltage Total Harmonics L2-3 Voltage Total Harmonics L3-1 Voltage Total Harmonics	3	L1 Voltage Total Harmonics
	5	L1 Current Total Harmonics L2 Current Total Harmonics L3 Current Total Harmonics	4	L1 Current Total Harmonics L2 Current Total Harmonics L3 Current Total Harmonics	4	L1 Current Total Harmonics
	6	Phase Sequence	5	Phase Sequence		

	1	Total Power Factor Frequency	1	Total Power Factor Frequency	1	Total Power Factor Frequency
	2	L1 Power Factor L2 Power Factor L3 Power Factor	2	L1 Power Factor L2 Power Factor L3 Power Factor		
	3	L1 Current Maximum Demand L2 Current Maximum Demand L3 Current Maximum Demand	3	L1 Current Maximum Demand L2 Current Maximum Demand L3 Current Maximum Demand	2	L1 Current Maximum Requirement
	4	Maximum Total Power Requirement Maximum Reactive Power Requirement Maximum Apparent Power Requirement	4	Maximum Total Power Requirement Maximum Reactive Power Requirement Maximum Apparent Power Requirement	3	L1 Maximum Power Requirement L1 Maximum Reactive Power Requirement L1 Maximum Apparent Power Requirement
	1	L1 Active Power L2 Active Power L3 Active Power	1	L1 Active Power L2 Active Power L3 Active Power		
		L1 Reactive Power L2 Reactive Power L3 Reactive Power	2	L1 Reactive Power L2 Reactive Power L3 Reactive Power		
	3	L2 Apparent Power L3 Apparent power	3	L2 Apparent Power L3 Apparent Power		
	4	Total Active Power Total Reactive Power Total Apparent Power	4	Total Active Power Total Reactive Power Total Apparent Power	1	L1 Active Power L1 Reactive Power L1 Apparent Power

V&I Harmonic View

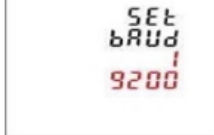
	1	Total Active Power	1	Total Active Power	1	Total Active Power
	2	Total Reactive Power	2	Total Reactive Power	2	Total Reactive Power
	3	Positive Active Power	3	Positive Active Power	3	Positive Active Power
	4	Reverse Active Power	4	Reverse Active Power	4	Reverse Active Power
	5	Positive Reactive Power	5	Positive Reactive Power	5	Positive Reactive Power
	6	Reverse Reactive Power	6	Reverse Reactive Power	6	Reverse Reactive Power

	Long press 'V/A' Button to view voltage subharmonics, the number of times contains 2 to 63.
	Long press  view the current subharmonics, the number of times contains 2 to 63.

Password Access

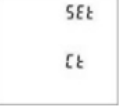
	The setup mode is password protected and you need to enter the correct password before entering the setup mode. Long press  the setup screen appears, the number on the far left of the screen blinks, and the default password is 1000. Press key   to enter the password. short press  acknowledging the numbers. Lastly, long press  confirm password. An incorrect password displays ERR.
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Communication Settings

	The RS485 communication port can be used for Modbus RTU protocol. The following parameters are optional: address, baud rate, parity bit, stop bit Long press  go to the Address Settings option
	Address range: 001~247 Default: 001. Long press  entering the Selection Setup mode, there are characters flashing. Through    make address settings and finally long press  confirm by pressing the button.
	Baud rate options: 2400/4800/9600/19200/38400(bps) Default: 9600bps Through  and  enter the baud rate setting interface. Long press   after the character blinks. Press  selects the baud rate.
	Example: Setting the baud rate to 19200 (bps) Finally long press  key to confirm.
	Check digit options: NONE, EVEN, ODD Default stop bit: NONE (Note: If the parity bit is set to ODD or EVEN, the stop bit can only be held at 1)

	Through   go to the check digit setting Interface. Long press  or  after character blinks, press  selects the checksum bit.
	Example: Set the checksum bit to: EVEN Finally long press  confirms the settings. Short press  go back to the main Settings page.
	Example: Set the checksum bit to: Odd Lastly, long press  confirms the settings. Short press  Go back to the main Settings page.
	Stop Bit Options: 1 or 2 Default Stop Bit: 1 (Note: If the parity bit is set to ODD or EVEN, the stop bit can only be held at 1) Through Enter  Or  the stop bit setting interface. Long press  when the character starts to flash, press  select.
	Example: The stop bit is set to: 2 Lastly, long press  confirm setting, press return to the main Settings screen 

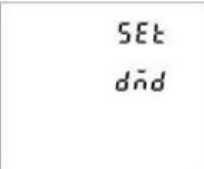
CT Settings

	From the main Settings screen. Through  and  key for CT selection settings.
	Setting the primary measurement current option of the meter: 1~9999 default CT15A Long press  and  enter the CT1 setup screen. Long Press  2 seconds,  CT1 starts blinking. Through and key to set CT1: 1 to 9999. Lastly, long press  confirms the settings.
	For example, set CT1 to 100A. Long press  after confirming the settings, press  go back to the main CT Settings screen

PT Setting

	From the main Settings screen. Through  and  key for PT selection settings.
	Set the secondary measurement voltage of the meter Range: 100V~480V Default: 230V, Long press  Confirm the settings.
	Setting the primary voltage of the meter Range: 100V~500000V Default: 230V Press  key to enter the PT2 set up interface. Long press  character starts blinking, through  and , to select PT2. Lastly, long press  confirm. The settings Press  key to return to the main pt setup screen.

Demand Cycle Setting

	From the main Settings screen. Through  and  make the selection of the demand time setting. The range of options is there: OFF, 5, 8, 10, 15, 30, 60 minute
	This screen displays the demand calculation mode: Slip mode Options: Interval mode and Slip mode Through  and  enter the demand calculation mode.
	Long press  key to enter the setting mode, character blinking appears.  key to find options. Long press  key to confirm the setting. Press  and  return to the Demand Setup menu.

Demand Update Cycle (DIT)Setting



This screen displays the current selected demand update cycle. The default is 60 minutes with a range of 1 to 60 minutes. Off meter is this feature turned off.

Long press  access to DIT settings.

Long press  key for two seconds before the characters start flashing.

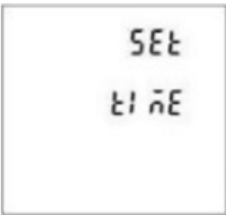
Through  and  to select options. Lastly, long press  key to confirm.

Slip Time



This screen displays the slip time setting for slip mode. The slip time setting should not be greater than the demand update period.

Time Setting



This screen sets the time when the backlight is always on as well as the rotation time. In the Setup menu

pass the  and  key to select the time option.

Backlight Time Setting



This meter allows you to set the backlight illumination time Options: ON/OFF/5/10/30/60/120 minutes. Default: 60 minutes

If 5 is set, the backlight will go out after 5 minutes.

Note: If set to ON, the backlight will be always on

Long press  key to enter the backlight constant light time setting. Long press  key, characters start blinking, through  and  key to select the option.

Lastly, long press  key to confirm.

Screen Rotation Time Setting

	This meter can set the rotation time, option: 1~255 second's default: 5 If set to 5, the display will switch every 5 seconds. Through  and  enter the settings for the rotating display time. Long press  key 2 sec, characters start blinking. Through  and  carry out. Lastly, long press  key to confirm. Press  go back to the Time Settings main menu.
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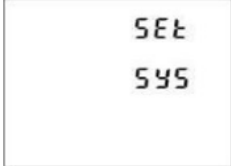
System Real-Time Clock Setting

	This screen sets the meter's real-time clock. By pressing  the key to enter the date and time settings.
	Set the meter real-time date. Left: 2017-October-1 Displayed as: YYYY-MM-DD
	Setting the meter real time The left image shows 16:20:58 displayed as HH-MM-SS

Rate Time Setting

	This screen sets the time period for different rates Through  key to access time and rate settings
	Setting up time periods and corresponding rates Displayed on the left: Time 01 - time number, range: 01 to 08 06:00 - start time of the time, form: HH-MM FEE1-Rate 1, range 1 to 4. Through  key, users can set time periods and rate information

Types Of Wiring System

	The default setting for this meter is 3-phase 4-wire, other grid system options can be selected through the settings: 3P4W,3P3W,1P2W From the Setup screen, pass the  and  key to select the grid system type.
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System Connection Settings

	This meter can correct the inversion of the transformer. (Reversed in/out transformers can be set by the meter without removing wires.) Through  and  to select the correction option.
	Options: Fwd. (forward wiring) and rev (reverse wiring) Default: FRD (forward wiring) Long press  key to enter the A-phase correction screen. Long press  key characters start blinking, Through  and  carry out a selection. Lastly, long press  key to confirm.
	Press  key to enter the B-phase correction screen. Long press key  characters start blinking. Through  and  select. Lastly long press  key to confirm.
	Press  key to access the C-phase correction screen. Long press  key, characters start blinking. Through  and  select. Lastly  long press key to confirm the setting. Press  key to return to the main Settings screen.

System Type

	This screen shows that the grid mode is now 3-phase 4-wire Long press  key to enter the grid system type selection. Long press key, character blinking occurs. Through  and  key to choose. Lastly, long press  key to confirm
	For example, the screen shows that the present mode is three-phase, three-wire.
	Example: The screen displays the offline mode as single-phase, two-wire.

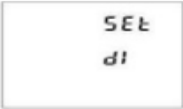
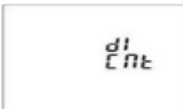
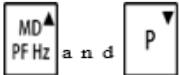
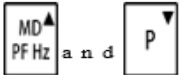
Modify A Password

	Default: 1000 Options:0000~99999 Through and to change your password
	Long press key, characters appear to flicker, through and key to select. Lastly, long press key to confirm.

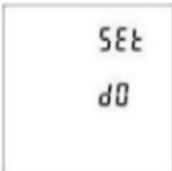
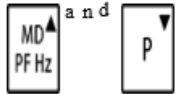
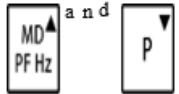
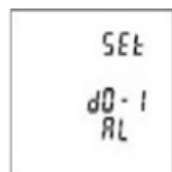
Auto Rotation Setting

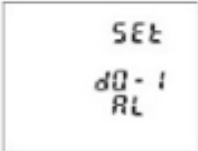
	This meter can be set up with automatic display rotation Options: on and off. There are two ways: Through and to make automatic rotating display function settings. Long presskey characters start blinking. Through and Select "On" or "Off". Lastly, long press confirm.
	Exit Setup button. Long press 2 seconds for example, the picture on the left now shows the autorotation function ON (on).
	Long press key, the screen displays the automatic rotation function OFF (off).

Digital Input (DI)

	 Press  key to access the submenu.
	Set the duration of DI filtering for the digital input signal. The left graph shows 100mS
	This screen is used to view the count of each digital input.  Press  key, user can see the count.
	The figure on the left shows digital input 1, count 8.  Through  press key, the user can see the counts of different digital inputs.

Digital Output (DO)

	This screen is used to set the digital output parameters and view the status.  Through press  key go to the submenu
	This screen selects the number of digital outputs to be viewed The figure on the left shows DO-1.  Through  key, user can set and view the parameters and status of the DO-1.  Through  user can select different digital outputs.
	This screen is used to set alarm messages related to DO-1
	This screen sets the digital output mode of the DO-1. Left display: LEVE LEVE=Level mode PULS=Pulse mode
	This screen is used to control the status of DO-1 The left figure shows the status as disconnected.

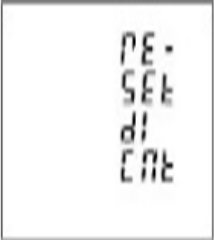
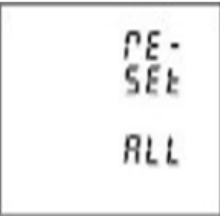
	This menu is for DO alarm setup options.
	The alarm function can be associated to the following parameters: U1,U2,U3,Unav(L-N), U12,U23,U31,Uuav(L-L), I1,I2,I3,Iav,I_n P1,P2,P3,P-total Q1,Q2,Q3,Q-total, S1,S2,S3,S-total, PF1,PF2,PF3,PF-total F(frequency), Null indicates that no parameters are associated.
	This option sets the DO action delay time in ms. The figure on the left shows 200ms.
	This option sets the high value for DO-1 closure. The figure on the left shows: HC 1000V, indicating that DO-1 will close when U1 reaches 1000V.
	This option sets the high value at which DO-1 disconnects. The graph on the left shows: HO 800V, indicating that DO-1 will disconnect when U1 drops to 800V.
	This option sets the low value at which DO-1 closes. The left graph shows LC 100V, indicating that DO-1 closes when U1 is as low as 100
	This option sets the low value at which DO-1 closes. The left graph shows LO 170V, indicating that DO-1 will break when U1 rises back to 170V.

SOE (Recorded Information on events)

This meter provides event logging function, which can record up to 30 events as follows:

1, power off 2, power on 3, CT2 change 4, CT1 change 5, PT2 change 6, PT1 change 7, power zero 8, demand zero 9, alarm occurrence

	This menu is used to view event logs up to 30 times. Through press  key to access the submenu.
	The left image shows the first event record Through press  and  key, user can view other event log information.
	Through press  key, user can view the date and event that the event occurred.
	Zeroing of power (including active power, reactive power, apparent power, forward and reverse power).
	Current demand, power demand clear.
	All parameters are cleared to zero.

	This screen provides various parameter clearing function Press  and  key to enter the sub menu. Through  key to select the clear option.
	SOE (event logging) cleared to zero
	DI count clear
	All parameters are cleared to zero

Battery Replacement

The meter has a compound rate as well as a real time clock function, and it has a 3V DC battery as a back-up power supply. When the battery voltage falls below 2.4V DC, the meter's LCD displays a warning symbol  users will need to replace the battery with a new one.



When replacing the battery, make sure that the voltage input of the meter is not connected.



Address

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