

Zhejiang Yongtailong Electronic Co., Ltd.
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DEM2A Series

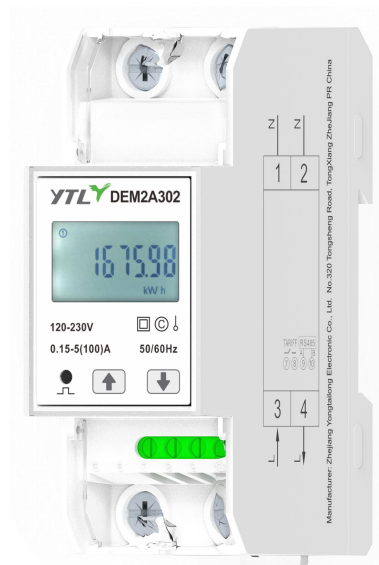
Single-phase Direct-connected Smart Rail Meter (MID Certified)

DEM2A302: RS485 communication, DLT/645 and MODBUS-RTU protocol compatible, RTC tariff and switch tariff, multiple metering modes

DEM2A202: RS485 communication, DLT/645 and MODBUS-RTU protocol compatible, RTC tariff and switch tariff, multiple metering modes

DEM2A001: With SO pulse signal output, multiple metering modes

More options to meet different needs!



Single-Phase Smart Din Rail Meter

DEM3A series electronic electricity meter with max load 100A

MID B+D certification from SGS UK

This product can be used for various secondary billing application scenario

1. Product Introduction

DEM2A302 is a single-phase direct-connected electricity meter using a high-speed processing chip solution, specially designed for high-speed metering scenarios such as photovoltaic systems, energy storage systems, and factory energy monitoring. Meanwhile, the wide operating temperature range of -40°C to +70°C meets the application requirements of charging piles exposed to direct sunlight outdoors. In addition, this series of electricity meters adopts rail mounting, featuring compact size and easy installation. The DEM2A302/DEM2A202 meters support RS485 communication, are compatible with Modbus and DL/T645-2007 protocols, and have a communication response speed of up to 75ms. The DEM2A001 supports SO pulse output. With excellent metering accuracy and rich functions, these meters meet MID certification requirements and are an ideal choice for high-precision, high-speed AC metering applications.

2. Main Functions

- Rich metering functions: Supports forward, reverse, absolute value, and other electric energy metering modes.
- Accuracy class 0.5
- 75ms high communication response speed
- Flexible communication: Supports RS485 communication, compatible with Modbus and DL/T645-2007 protocols.
- LCD backlight display: Displays voltage, current, energy, power and other information; automatic scrolling, default interval 5 seconds.
- Self-diagnosis, alarm and security protection functions
- MID certified
- Available options: DEM2A202 version without battery and without TOU tariff; DEM2A001 version supporting only SO pulse output.

Model	RS485	Battery	TOU tariff	Swith Tariff	SO output	Multiple measurement mode
DEM2A302	√	√	√	√		√
DEM2A202	√			√		√
DEM2A001					√	√

3. Parameter Specifications

3.1. Electrical parameters

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Voltage Connection	Direct Connection
Rated Voltage	120~230V
Voltage Tolerance	From 0.8 to 1.15 Un
Frequency	50/60Hz
Current Connection	Direct Connection
Basic Current (Ib)	5A
Minimum Current (Imin)	0.15A (MID) /0.25A (IEC)
Maximum Current (Imax)	100A
Pulse constant	1000imp/kWh

3.2. Measurement Accuracy

Voltage	±0.5%
Current	±0.5%
Frequency	±0.5%
Active power	±0.5%
Reactive power	±1%
Active energy	Class 0.5
Reactive energy	Class 1.0

3.3. Communication Parameters

Communication Mode	RS485 (For DEM2A302/DEM2A202)
Protocol	RS485 compatible with Modbus RTU, DLT/645-2007
Communication Type	Bidirectional
RS485 Configuration	Modbus Address (1 to 247) Baud Rate (9.6/19.2/38.4/57.6/76.8/115.2 kbps) Parity (None/Odd/Even)
Refresh time	≤75ms

Note: DEM2A001 is the SO pulse output version and does not have RS485 communication.

3.4. Function Parameters

Metering Function	Monitors energy consumption, main electrical variables (including active/reactive power, power factor) and calculates current/voltage harmonic content, apparent energy.
Metering Mode	1. Forward + Reverse (Absolute Value); 2. Forward - Reverse (Algebraic Sum); 3. Forward Metering; 4. Reverse Metering; 5. Calculate energy after Forward-Reverse offset.
Tariff	TOU Tariff (Default 4 tariffs, 8 time periods)*; Switch Tariff (Default 2 tariffs)
SO ouput	Support 1 SO output (only DEM2A001)
Self-Diagnosis	EEP Detection
Event Alarm	Monitored variable alarms (kW, A, V L-N, V L-L, PF, kvar, kVA), etc., settable activation

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	threshold and delay
Firmware Upgrade	Local Upgrade
Other Functions	Wiring Check Screen Saver Page Filter Operating Hour Metering

Note: DEM2A202 is the battery-free version, without RTC & TOU tariff, only switch tariff;
DEM2A001 is the SO pulse output version and has no tariff function.

3.5. General Parameters

LCD display	6+2 by default
LCD Refresh Time	500ms
LED	Red pulse LED
Button	Page turn, Settings
IP Rating*	IP30
OVC rating	III
Protection Class	Class II
Rated Impulse Voltage	6kV
Mounting Method	DIN Rail (2P)
Wiring Mode	direct connect ; 1P2W

*Note: This series of products needs to be installed in an enclosure with IP54 protection rating (outdoor), or an enclosure with IP51 protection rating (indoor).

3.6. Wiring parameters

Parameters	Terminals :N, 1, 2, 3, 4	Terminals:7, 8, 9, 10
Conductor Cross-sectional Diameter	25mm ²	1. 5mm ²
Stripping Length	12-14mm	5-6mm
Screwdriver Size	Phillips Φ 5/6mm	Phillips Φ 3mm
Torque	2.5N. m	0. 4N. m

3.7. Environmental Parameters

Operating Temperature	-40~+70°C
Storage/Transport Temp	-40~+70°C
Reference Temperature	25 $\pm$ 2°C
Relative Humidity	$\leq$ 95% non-condensing
Altitude	$\leq$ 2000m

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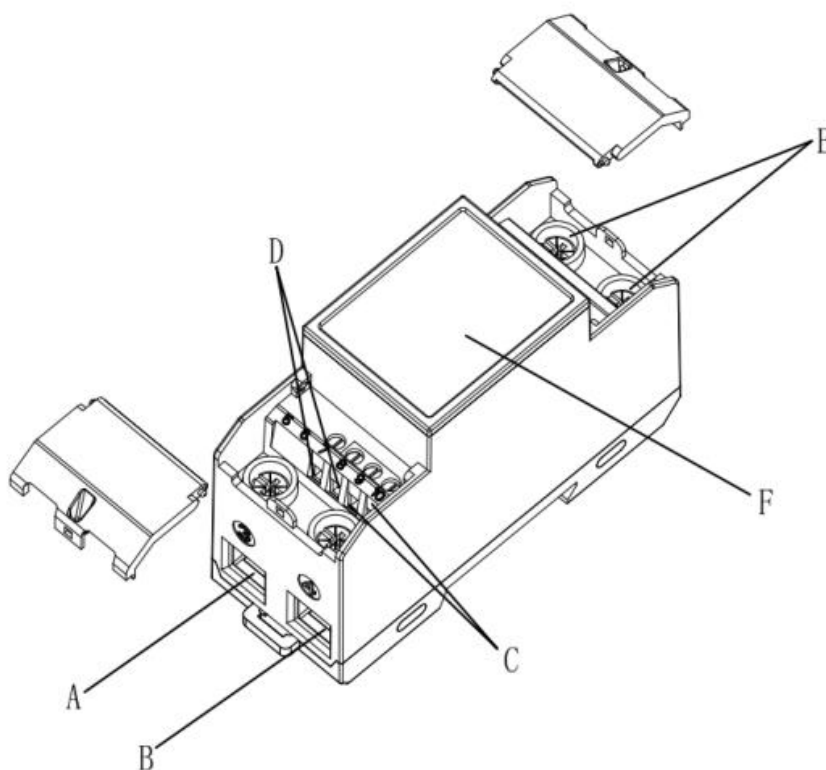
3.8. Standard Measurement Conditions

Ambient Temperature	25 ± 2℃
Frequency	50/60Hz ± 5%
Current	5A、100A
Voltage	230V ±20%
Magnetic Field	Resists external magnetic field 400mT (constant)

3.9. Standards and Certifications

Standard	IEC 62052-11:2020 IEC 62053-21:2020 IEC 62053-23:2020 EN 50470-3:2022 EN IEC62052-31:2024
Certification	MID

4. Structure



Number	Structure Description
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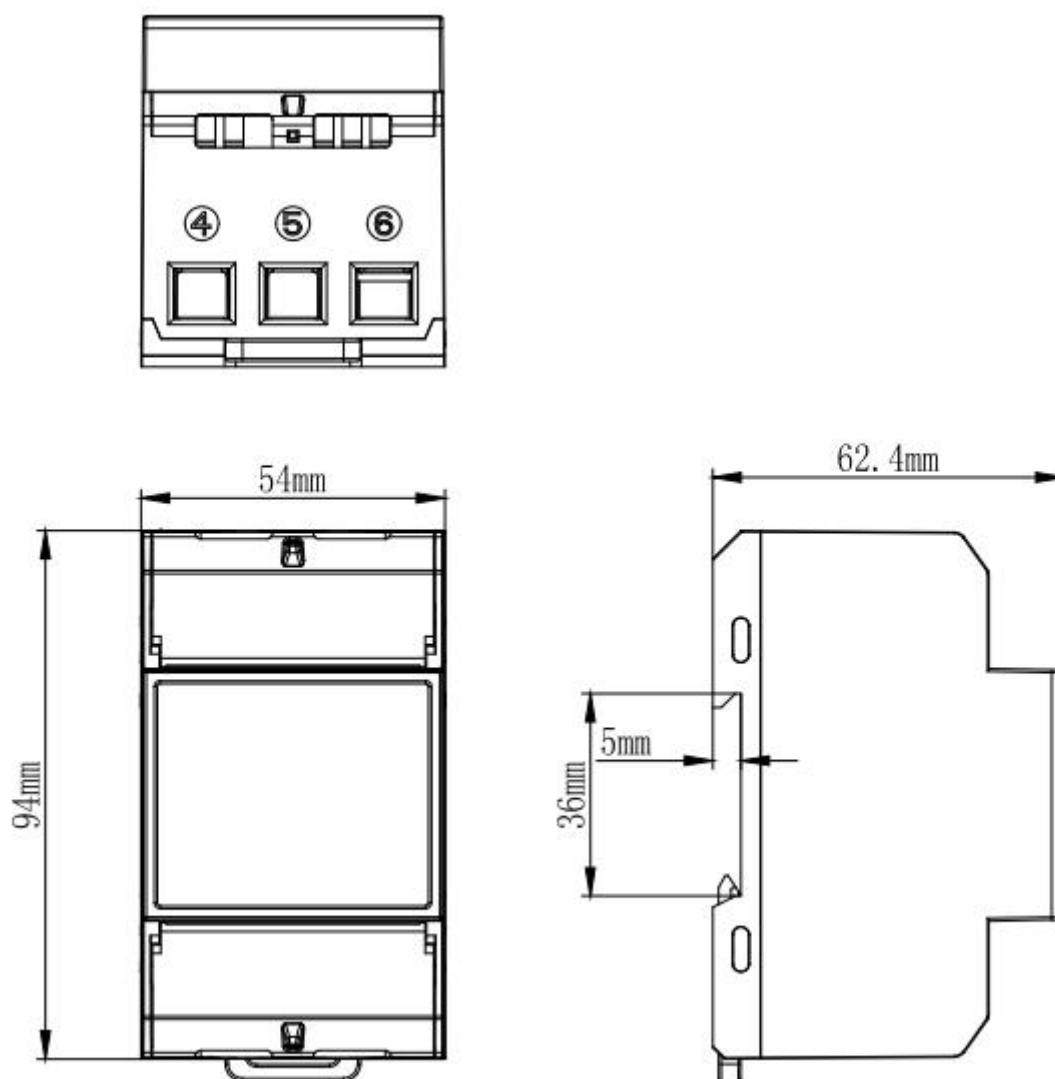
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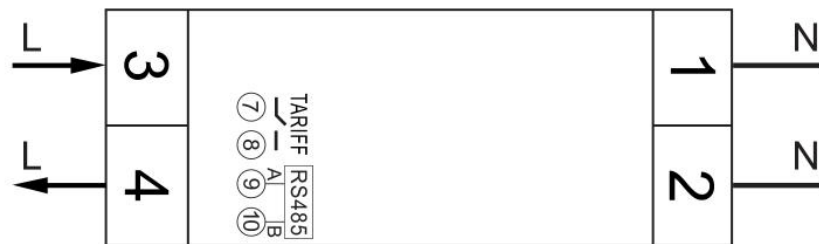
A	L Input
B	L Output
C	RS485 interface (DEM2A302/DEM2A202 only), SO interface (DEM2A001 only)
D	Tariff switch (DEM2A302/DEM2A202 only)
E	N Input
F	LCD

5. Dimension



Case Dimension	36mm×94mm×62.4mm
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6. Wiring



Note: During the wiring connection, the torque of Terminals 7, 8, 9 and 10 should be controlled within 0.4 N·m, while the torque of Terminals 1, 2, 3 and 4 wires should be controlled within 2.5 N·m. Otherwise, it may cause wire slippage.

Terminals 1 and 2 are N-line interfaces.

Terminals 3 and 4 are L input and L output.

Terminals 7 and 8 are digital output control switches for rate (only available in DEM2A302/DEM2A202).

Terminals 9 and 10 are a group of RS485 interfaces (only available in DEM2A302/DEM2A202), or SO interface (only available in DEM2A001).

7. Input Description

7.1. Digital Input

No.	Digital Input	Description	Remarks
1	Open	Tariff 1	Tariff Management
	Closed	Tariff 2	

Note: When interfaces 7 and 7 are not connected, they are in an open state, and tariff 1 applies.

When interfaces 7 and 8 are connected with wires, they are in a closed state, and tariff 2 applies.

8. Display and Operation

8.1. Overview

The DEM2A series display consists of five main pages:

Measurement Page: Displays energy data and other general electrical parameters.

Tariff Page: Displays tariff-based energy information.

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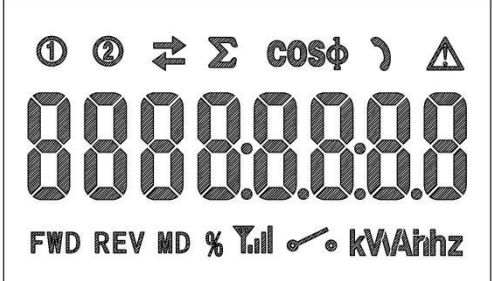
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Demand Page: Displays maximum demand values.

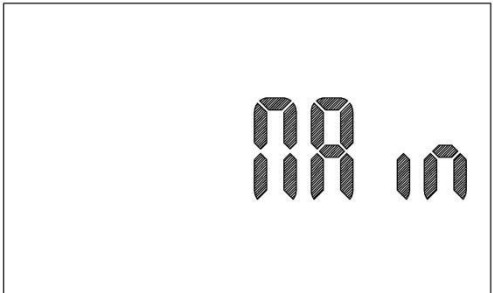
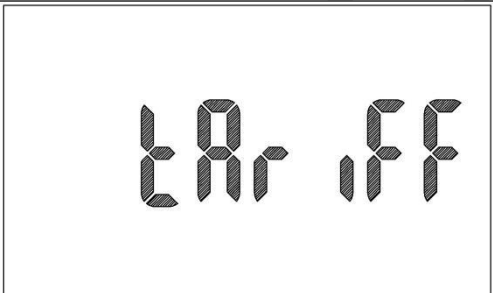
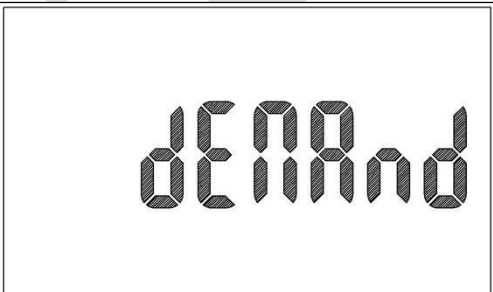
Information Page: Displays general information and current configuration parameters.

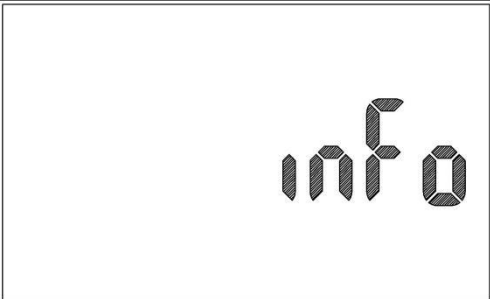
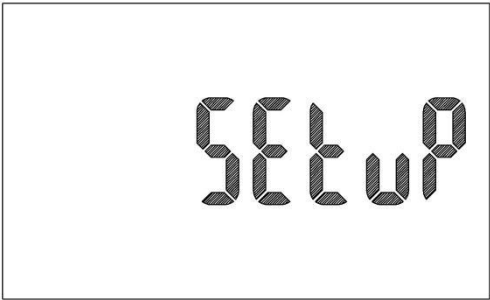
Settings Page: Allows configuration of meter functional parameters.

8.2. Full Display Page

No.	Illustration	Content	Remarks
1		LCD Full Display	Shows full display after power-on, then enters main interface.

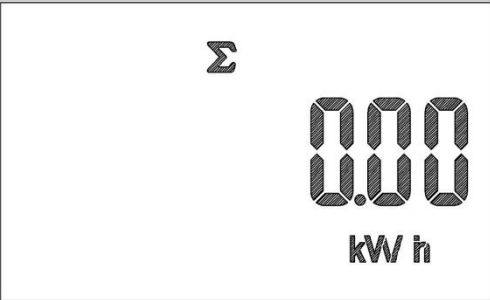
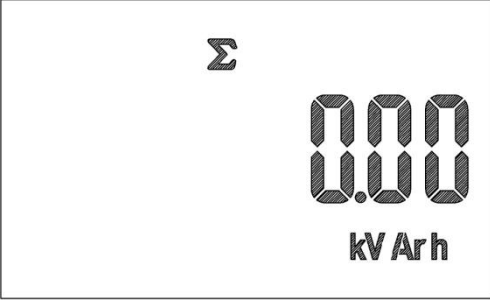
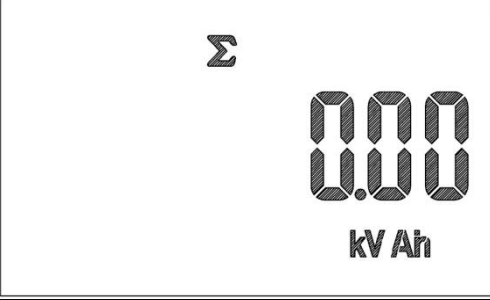
8.3. Switching Pages

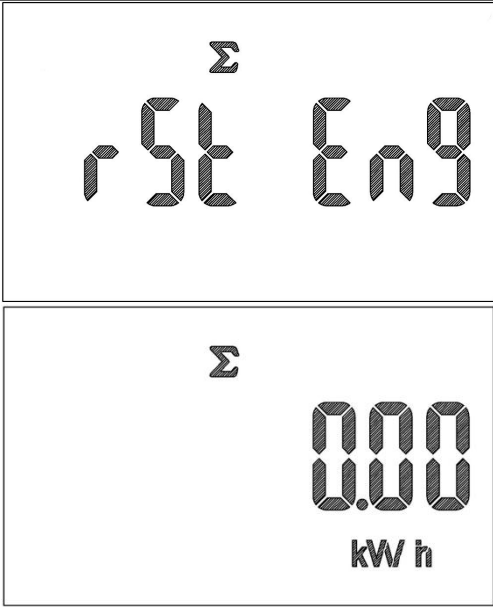
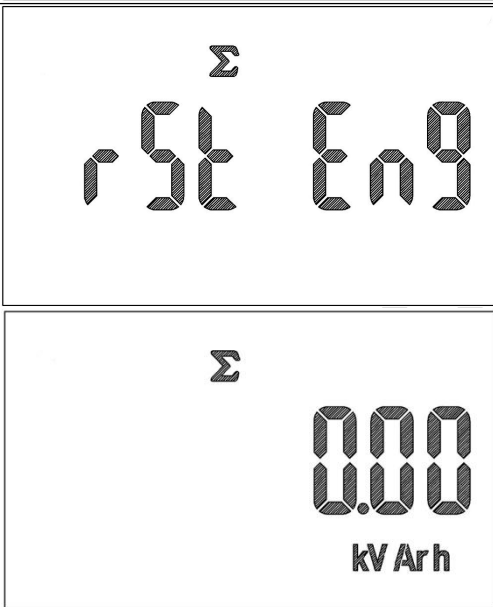
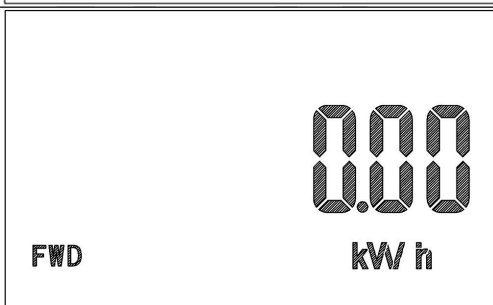
No.	Illustration	Content	Remarks
1		Measurement Page	
2		Tariff Page	DEM2A001 doesn't have this page.
3		Demand Page	

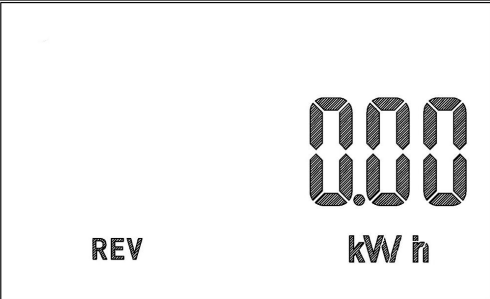
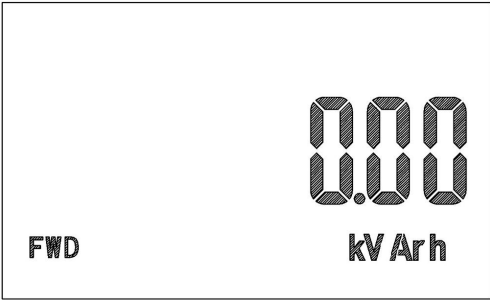
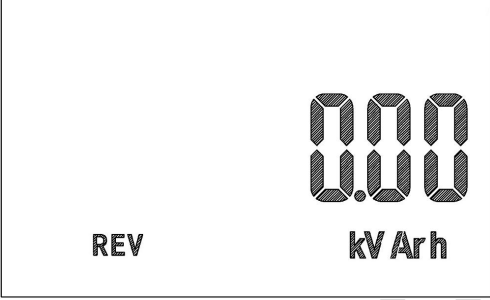
4		Information Page	
5		Settings Page	

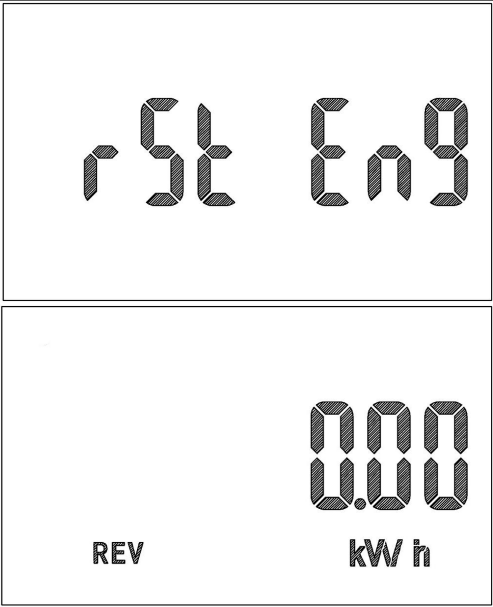
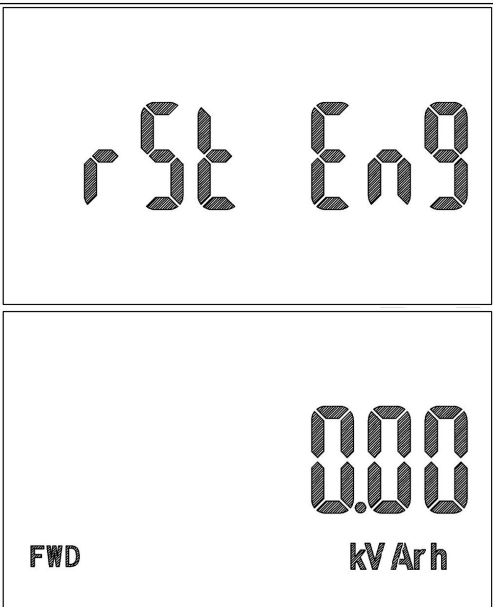
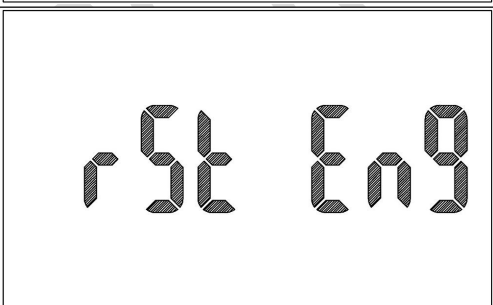
8.4. Measurement Pages

(On the LCD of DEM2A302/DEM2A202, there might be the symbol ①. This indicates that the current mode is the DS tariff mode, and the tariff 1 situation.)

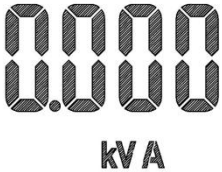
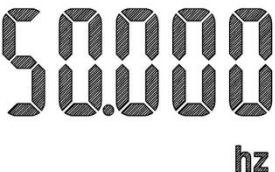
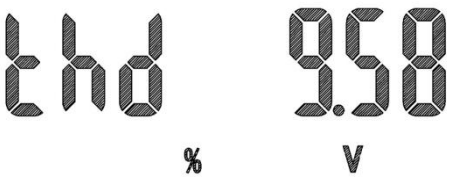
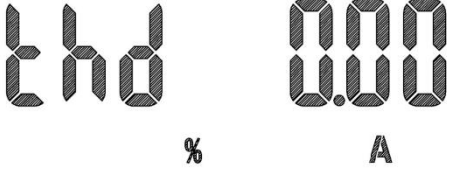
No.	Illustration	Content	Remarks
1		Total Active Energy	
2		Total Reactive Energy	
3		Total Apparent Energy	

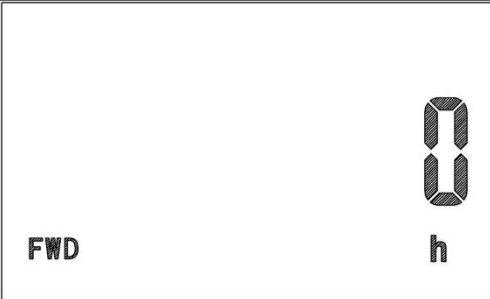
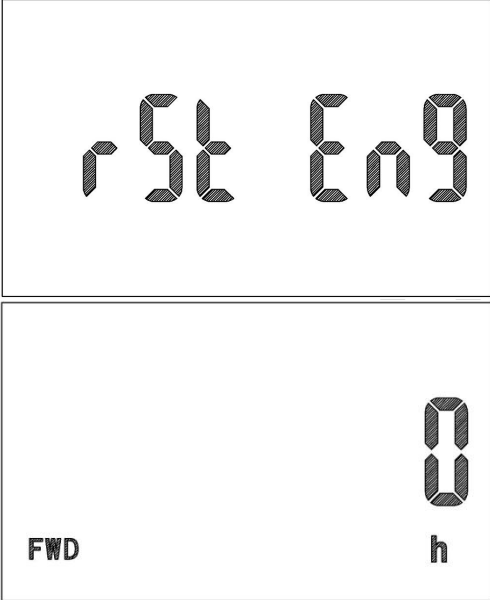
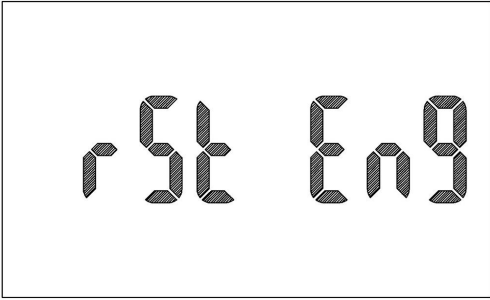
4		Total Active Energy(can be cleared)	The clearable identifier can switch back and forth with the total active power for display. Clear it in the basic parameters of the PC software.
5		Total Reactive Energy(can be cleared)	The clearable identifier can switch back and forth with the total reactive power for display
6		Total Forward Active Energy	

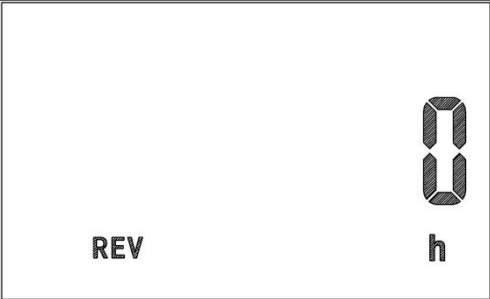
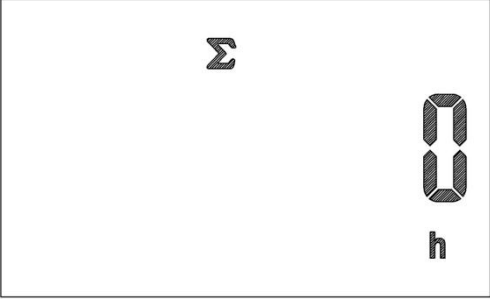
7		Total Reverse Active Energy	
8		Total Forward Reactive Energy	
9		Total Reverse Reactive Energy	
10		Total Forward Active Energy(clearable)	Clearable identifiers and forward/reverse active energy display alternate in real time.

11		Total Reverse Active Energy(clearable)	Clearable identifiers and reverse active energy display switching back and forth
12		Total Forward Reactive Energy(clearable)	The clearable identifier can switch the display between the forward total reactive energy and the reverse total reactive energy.
13		Total Reverse Reactive Energy(clearable)	Clearable identifiers and reverse display of total reactive energy consumption alternately switch between displays.

	0.00 REV kV Arh		
14	230.0 V	Voltage	
15	0.000 A	Current	
16	0.000 kW	Active power	
17	0.000 kV Ar	Reactive power	

18		Apparent Power	
19		Power Factor	
20		Frequency	
21		Voltage THD	
22		Current THD	

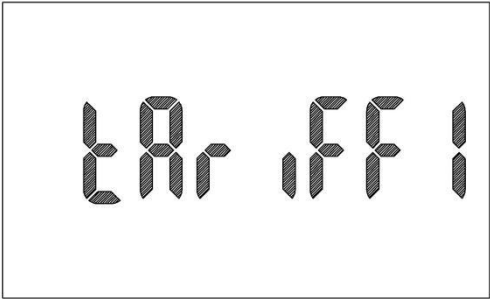
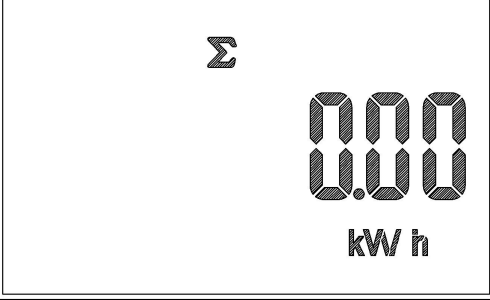
23		Operating Time(KW+)	
24		Operating Time(KW-)	
25		Operating Time(KW+) (clearable)	
26		Operating Time(KW-) (clearable)	

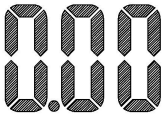
			
27		Total Operating Time	

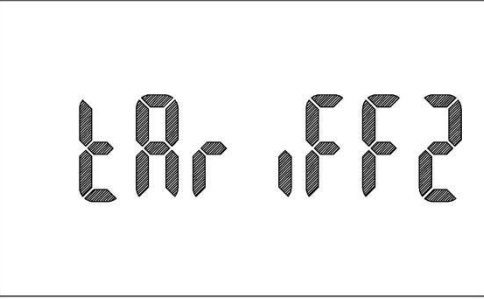
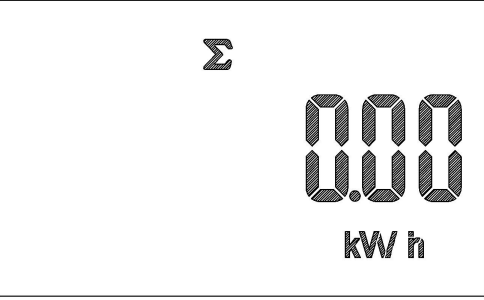
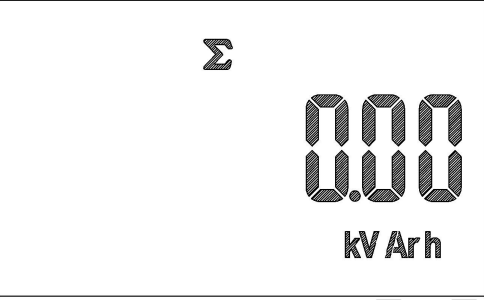
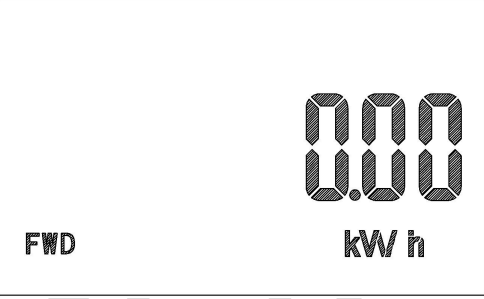
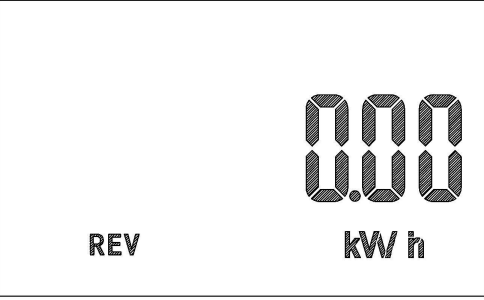
8.5. Tariff Pages

RTC & TOU Tariff

(The following illustration shows the RTC rate mode. Since DEM2A001 does not have a tariff function, the following page does not display.)

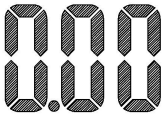
No.	Illustration	Content	Remarks
1		T1	
2		T1 Total active energy	

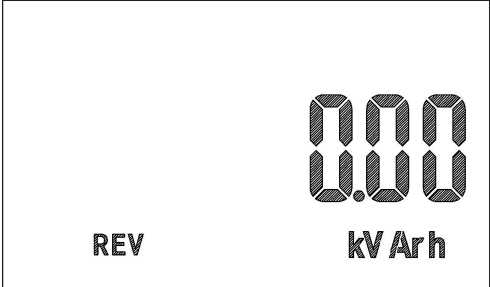
3	Σ  kV Arh	T1 Total reactive energy	
4	 kW h FWD	T1 Total Forward active energy	
5	 kW h REV	T1 Total Reverse active energy	
6	 kV Arh FWD	T1 Total Forward reactive energy	
7	 kV Arh REV	T1 Total Reverse reactive energy	

8		T2	
9		T2 Total active energy	
10		T2 Total reactive energy	
11		T2 Total Forward active energy	
12		T2 Total Reverse active energy	

13	FWD 000 0.00 kV Arh	T2 Total Forward reactive energy	
14	FWD 000 0.00 kV Arh	T2 Total Reverse reactive energy	
15	000 0.00 kV Arh 000 0.00 kV Arh	T3	
16	Σ 000 0.00 kW h	T3 Total active energy	
17	Σ 000 0.00 kV Arh	T3 Total reactive energy	

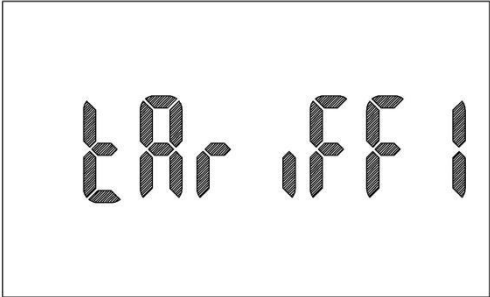
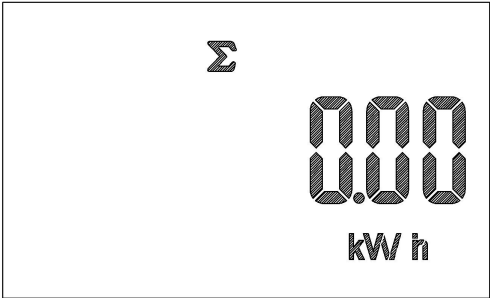
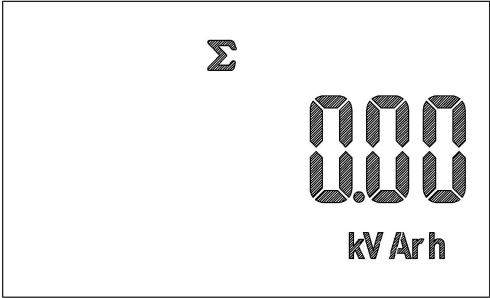
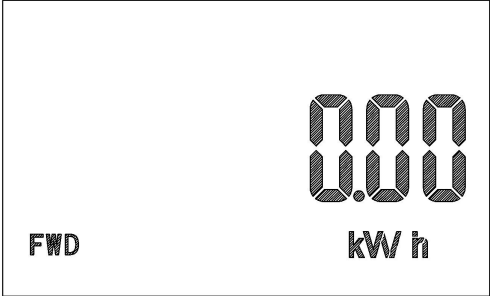
18	FWD 000 kW h	T3 Total Forward active energy	
19	REV 000 kW h	T3 Total Reverse active energy	
20	FWD 000 kV Arh	T3 Total Forward reactive energy	
21	REV 000 kV Arh	T3 Total Reverse reactive energy	
22	Err FF4	T4	

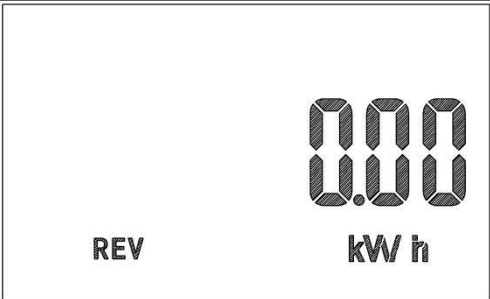
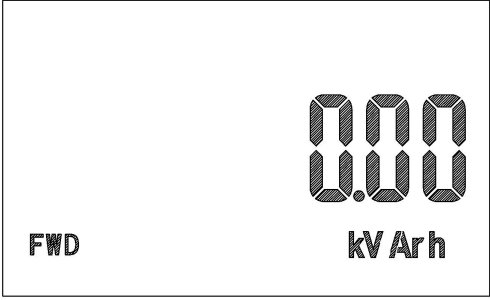
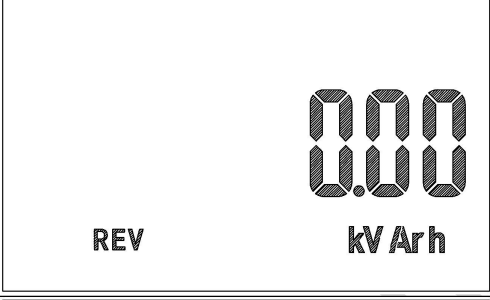
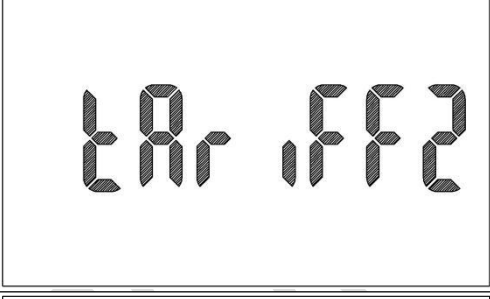
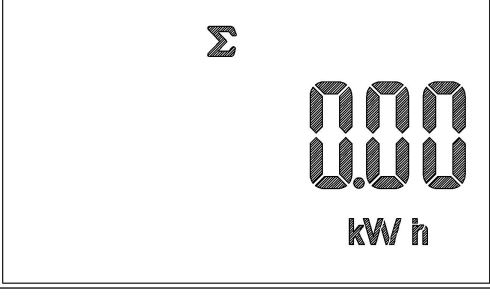
23	Σ  kW h	T4 Total active energy	
24	Σ  kV Arh	T4 Total reactive energy	
25	 FWD kW h	T4 Total Forward active energy	
26	 REV kW h	T4 Total Reverse active energy	
27	 FWD kV Arh	T4 Total Forward reactive energy	

28		T4 Total Reverse reactive energy	
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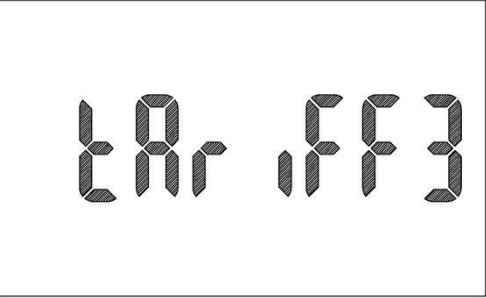
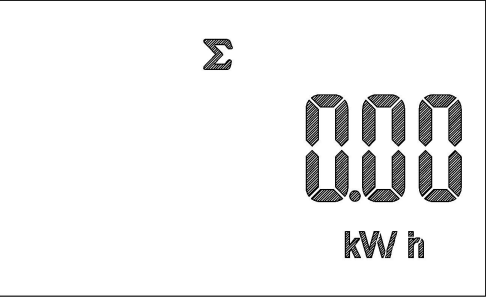
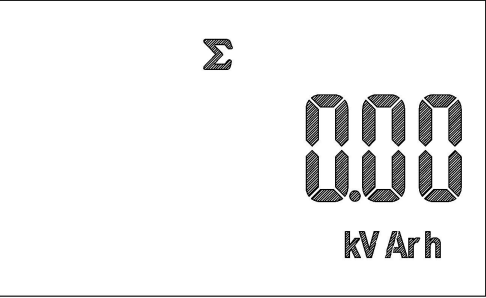
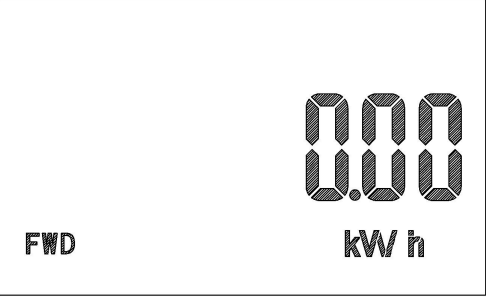
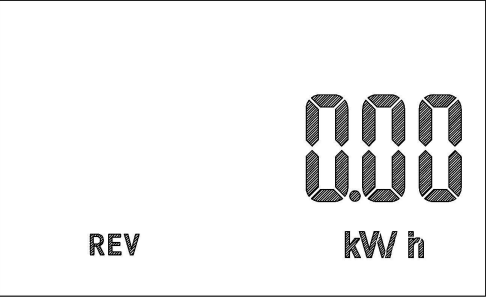
Switch Tariff

(The following illustrations are for Switch Tariff mode, Tariff 1 situation)

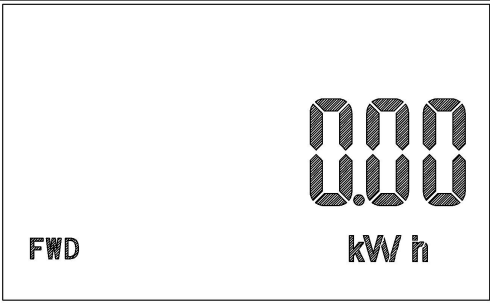
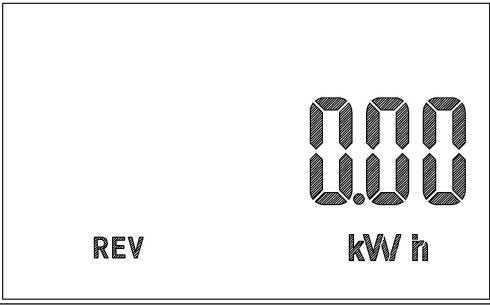
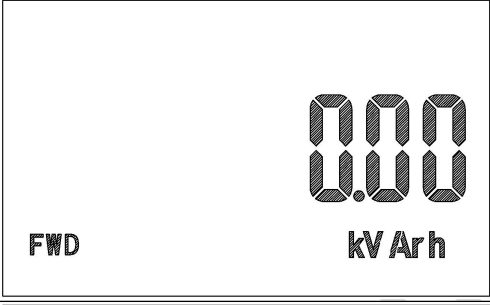
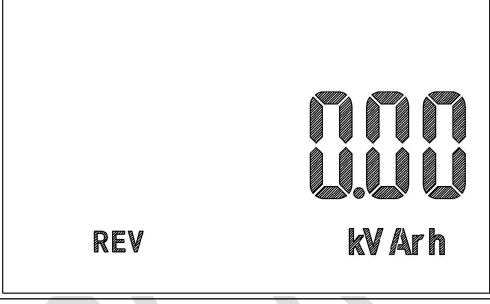
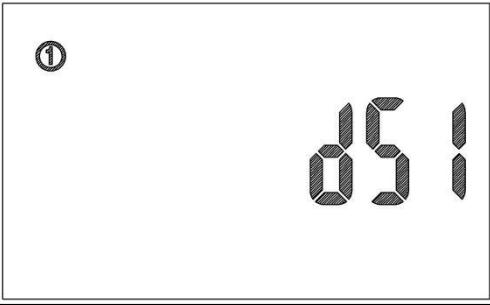
No.	Illustration	Content	Remarks
1		T1	
2		T1 Total active energy	
3		T1 Total reactive energy	
4		T1 Total Forward active energy	

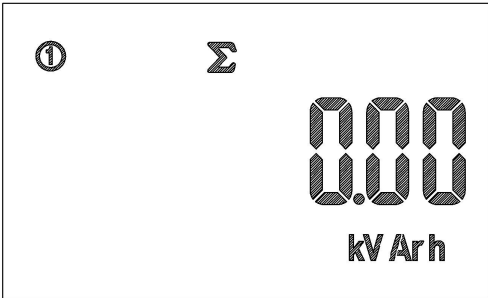
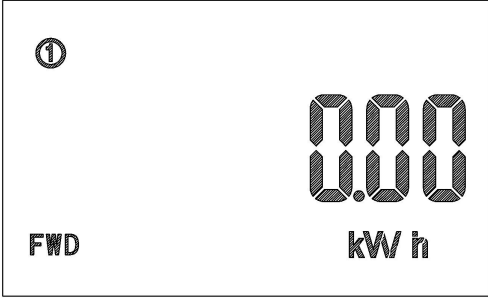
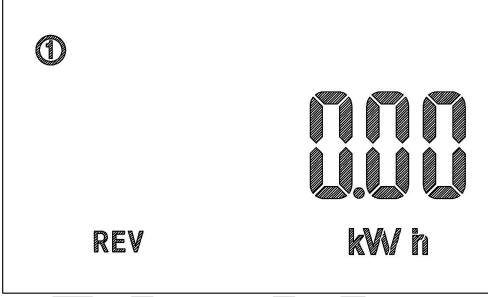
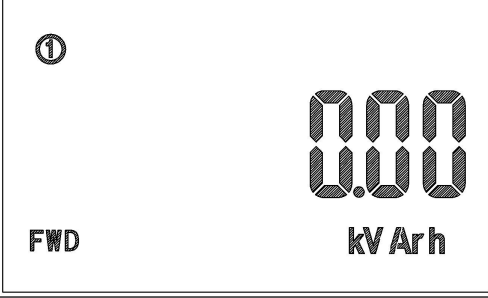
5		T1 Total Reverse active energy	
6		T1 Total Forward reactive energy	
7		T1 Total Reverse reactive energy	
8		T2	
9		T2 Total active energy	

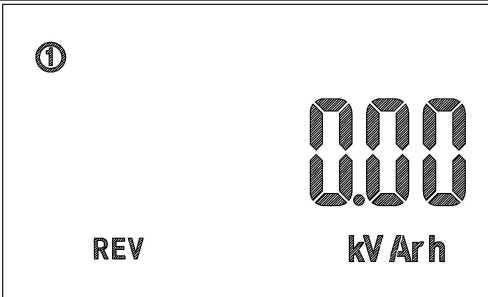
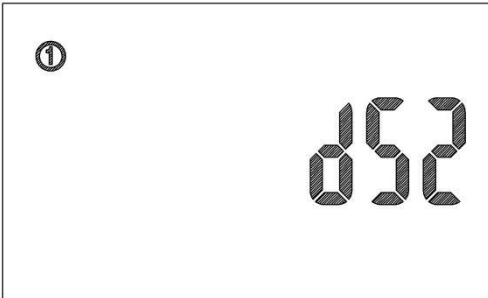
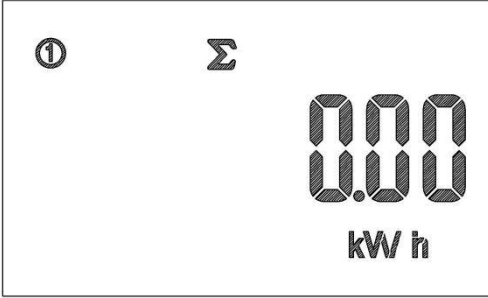
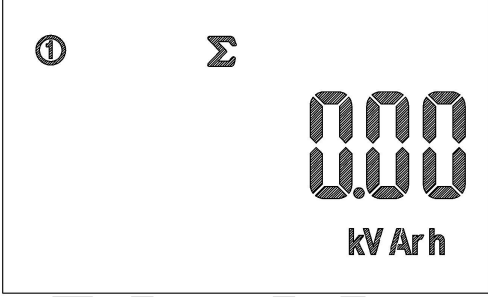
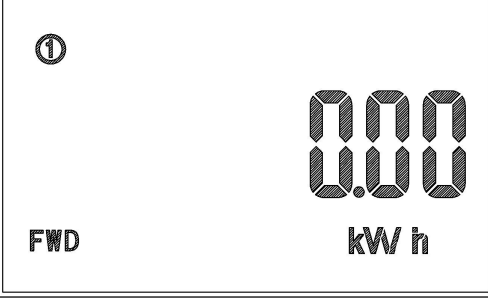
10	Σ 000 kV Arh	T2 Total reactive energy	
11	000 FWD kW h	T2 Total Forward active energy	
12	000 REV kW h	T2 Total Reverse active energy	
13	000 FWD kV Arh	T2 Total Forward reactive energy	
14	000 FWD kV Arh	T2 Total Reverse reactive energy	

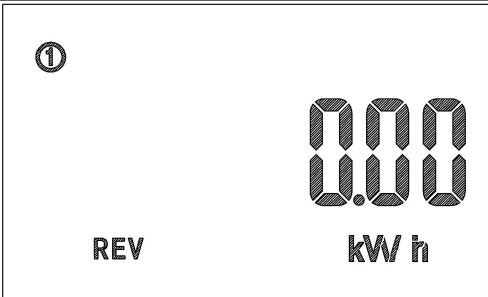
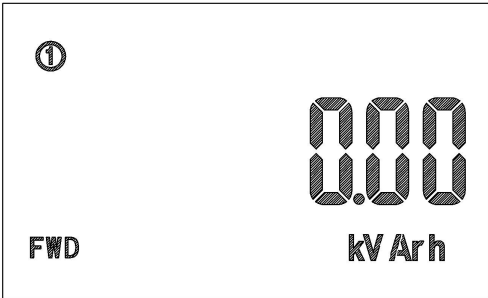
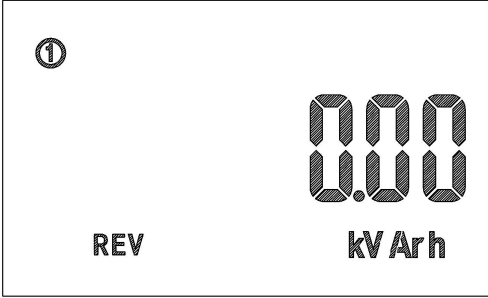
15		T3	
16		T3 Total active energy	
17		T3 Total reactive energy	
18		T3 Total Forward active energy	
19		T3 Total Reverse active energy	

20	FWD 000 kV Arh	T3 Total Forward reactive energy	
21	REV 000 kV Arh	T3 Total Reverse reactive energy	
22	000 000 000	T4	
23	Σ 000 kW h	T4 Total active energy	
24	Σ 000 kV Arh	T4 Total reactive energy	

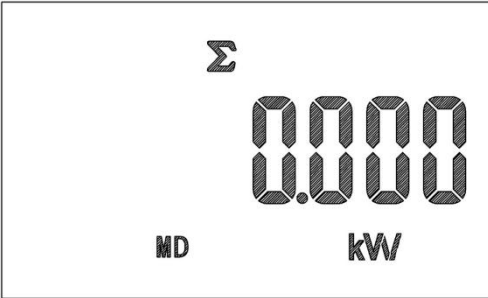
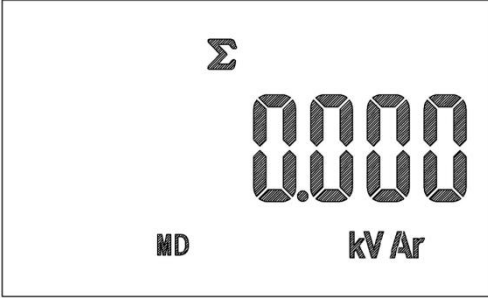
25		T4 Total Forward active energy	
26		T4 Total Reverse active energy	
27		T4 Total Forward reactive energy	
28		T4 Total Reverse reactive energy	
DS Tariff (The below figures illustrate the DS tariff mode. For tariff 1, since DEM2A001 doesn't have tariff function, the following page does not display any information.)			
No.	Illustration	Content	Remarks
1		DS1	

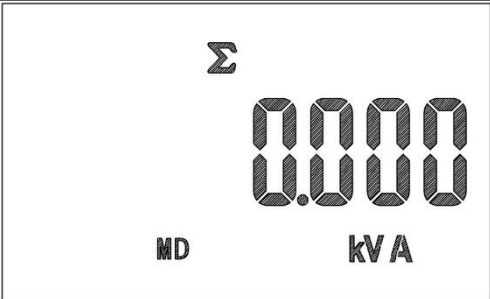
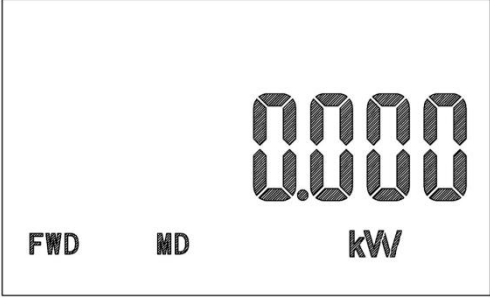
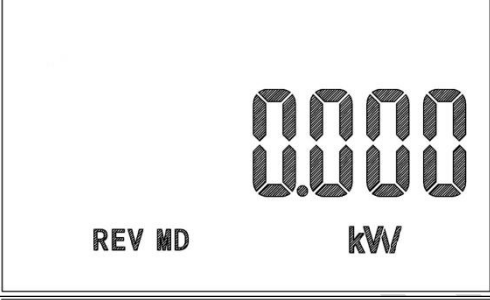
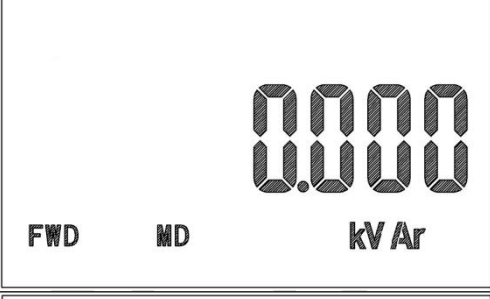
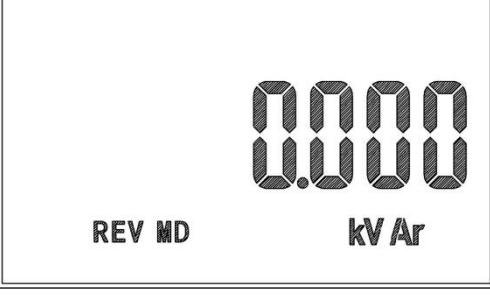
2		DS1 Total active energy	
3		DS1 Total reactive energy	
4		DS1 Total Forward active energy	
5		DS1 Total Reverse active energy	
6		DS1 Total Forward reactive energy	

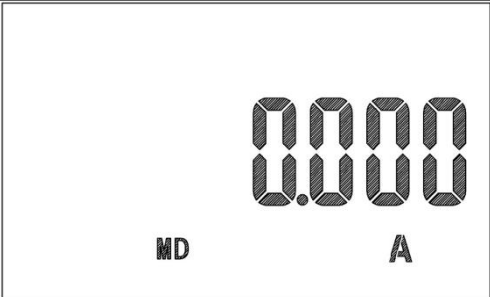
7		DS1 Total Reverse reactive energy	
8		DS2	View DS2 information in DS1 mode
9		DS2 Total active energy	View DS2 information in DS1 mode
10		DS2 Total reactive energy	View DS2 information in DS1 mode
11		DS2 Total Forward active energy	View DS2 information in DS1 mode

12		DS2 Total Reverse active energy	View DS2 information in DS1 mode
13		DS2 Total Forward reactive energy	View DS2 information in DS1 mode
14		DS2 Total Reverse reactive energy	View DS2 information in DS1 mode

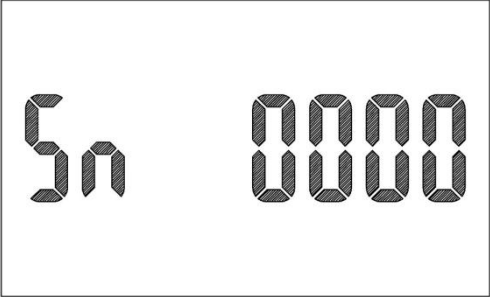
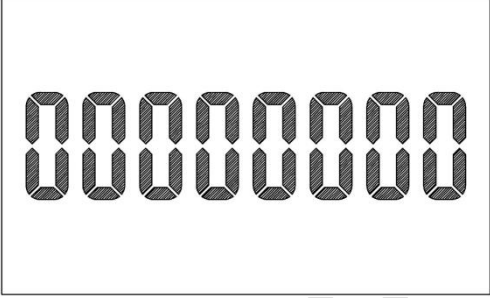
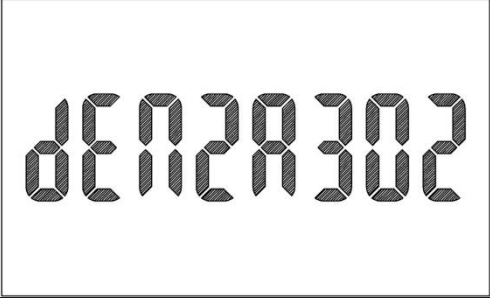
8.6. Demand Pages

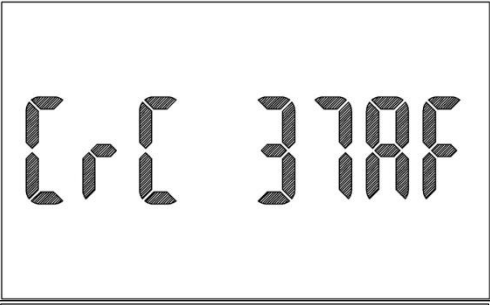
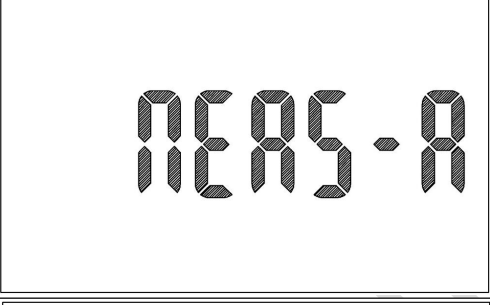
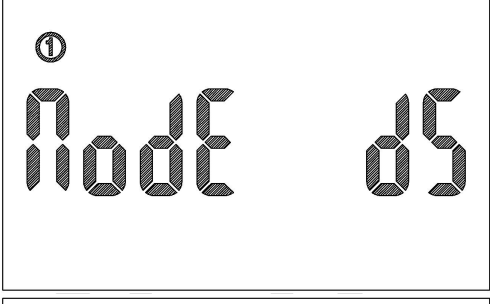
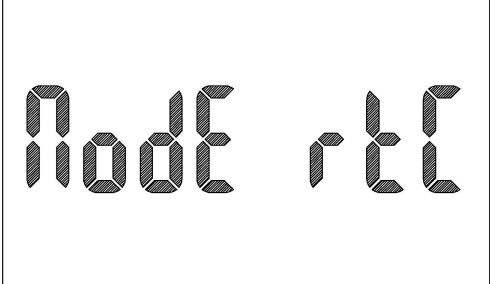
No.	Illustration	Content	Remarks
1		Maximum total active demand	
2		Maximum total reactive demand	

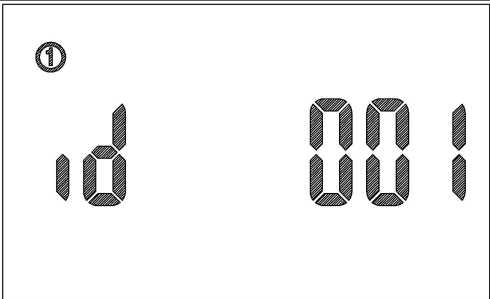
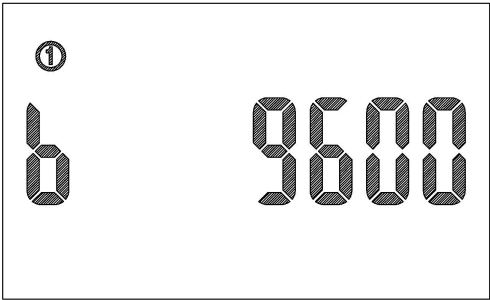
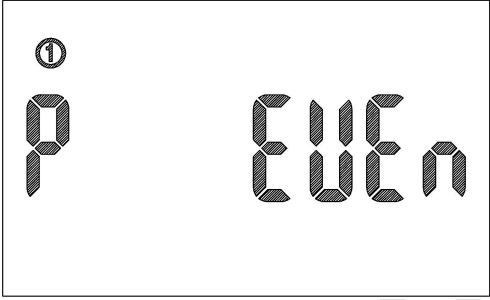
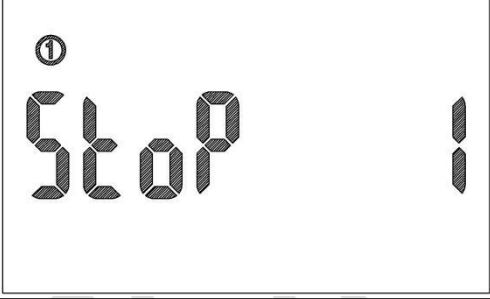
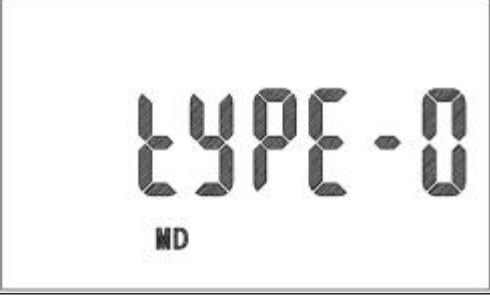
3	 Σ 0.0000 MD kVA	Maximum total apparent demand	
4	 0.0000 FWD MD kW	Maximum total forward active demand	
5	 0.0000 REV MD kW	Maximum total reverse active demand	
6	 0.0000 FWD MD kVAr	Maximum total forward reactive demand	
7	 0.0000 REV MD kVAr	Maximum total reverse reactive demand	

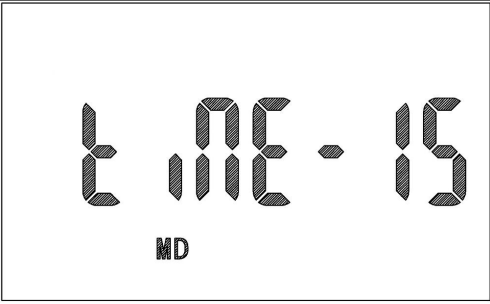
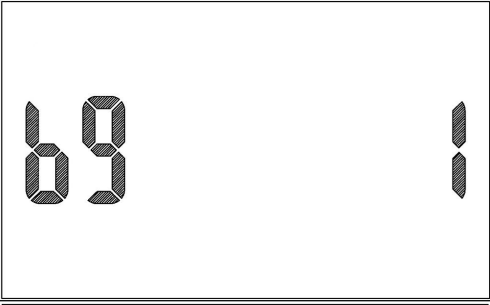
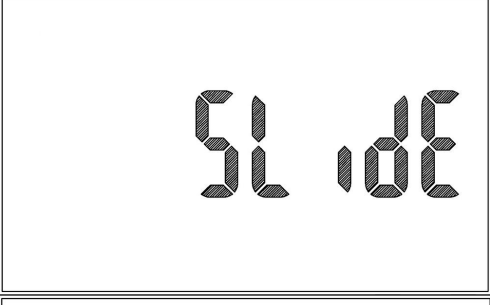
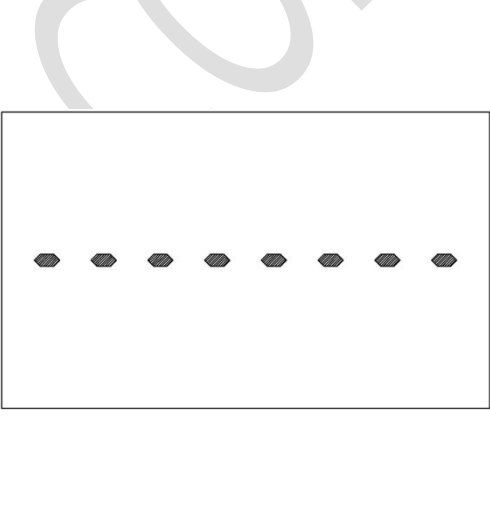
8		Maximum current demand	
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8.7. Information Pages

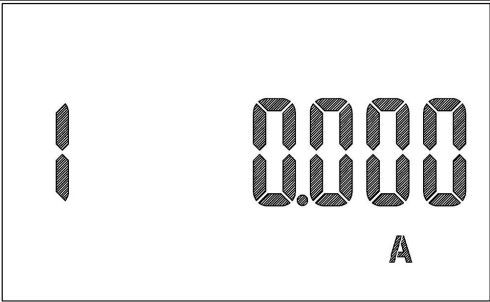
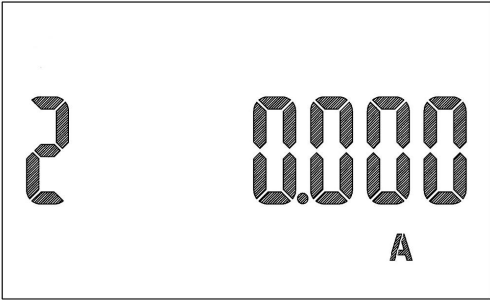
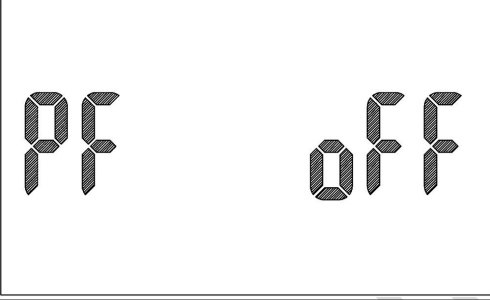
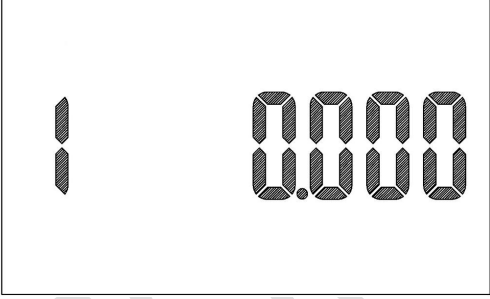
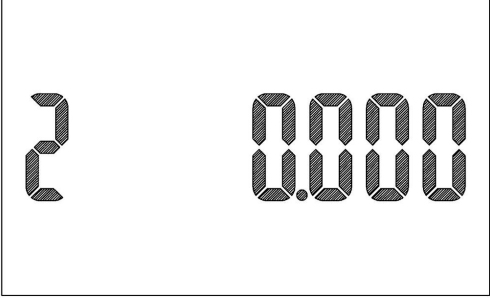
No.	Illustration	Content	Remarks
1	 	Serial number	SN 00000000000 0
2		Model	
3		Manufacture month	

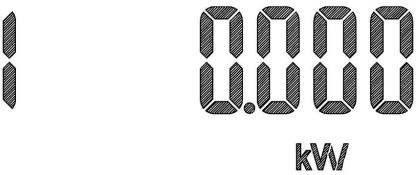
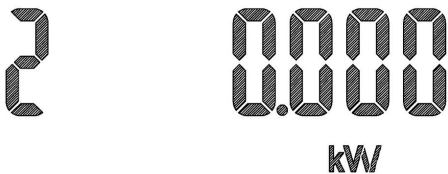
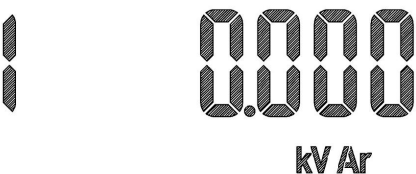
4		Version No.	
5		Firmware checksum	
6		Measurement mode	
7	 	Tariff mode	DC mode or RTC mode The DEM2A001 does not have this page.

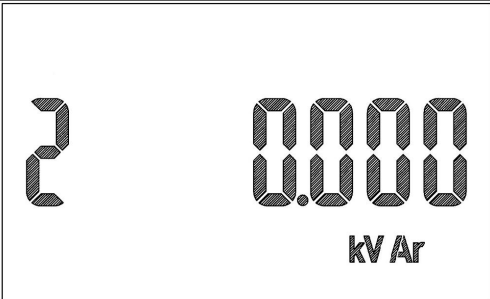
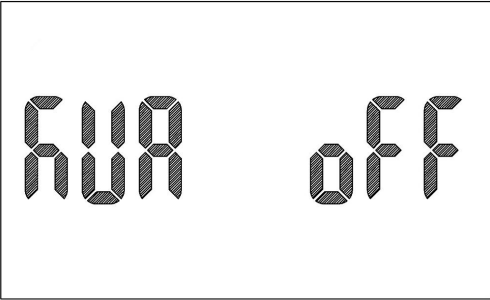
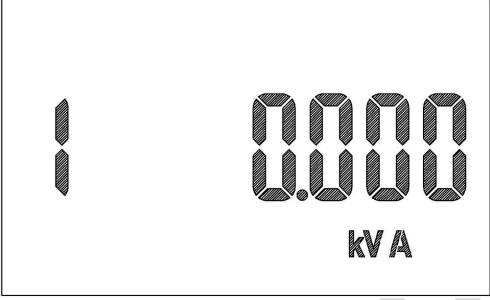
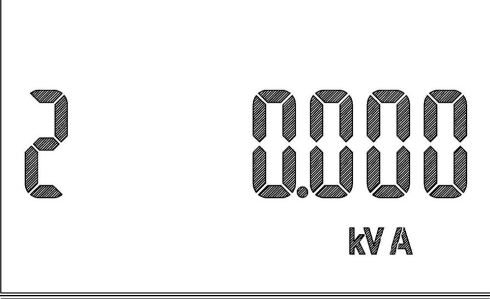
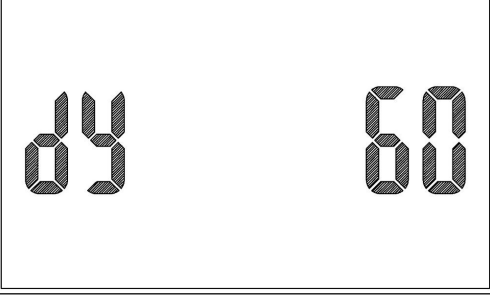
8		Communication ID	DEM2A001 doesn't have this page.
9		Baud rate	DEM2A001 doesn't have this page.
10		Communication Check Bit	DEM2A001 doesn't have this page.
11		Communication Stop Bit	DEM2A001 doesn't have this page.
12		Demand Type	Default setting: 0 settable: 0 – interval type; 1 – slip type

13		Demand Time	
14		Backlight duration	Unit: Minute
15		Display Mode	Roll Display
16		Home Mode Page	
17		Alarm Information	Figure 1: No Alarm Figure 2 Example: Simultaneous alarms for phase voltage, active power, and wiring errors 1 – Phase voltage 2 – (No alarm) 3 – Current 4 – Power

			factor 5 – Active power 6 – Reactive power 7 – Apparent power 8 – Wiring error
18-1		Phase Voltage Threshold switch	Default is off; it switches between 18-1, 18-2, and 18-3.
18-2		Phase Voltage Threshold setH	
18-3		Phase Voltage Threshold setL	
19-1		Current threshold switch	Default is off; 19-1 and 19-2/3 alternate display.

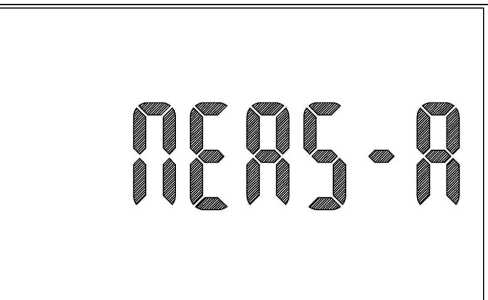
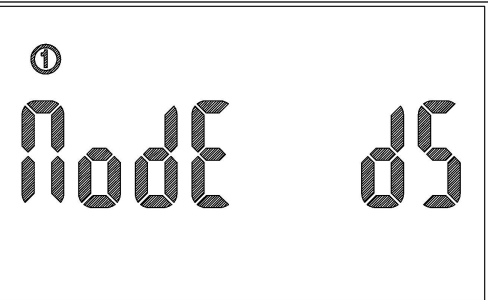
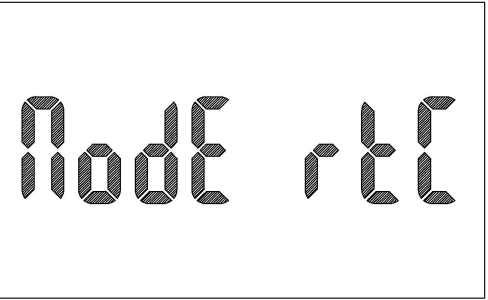
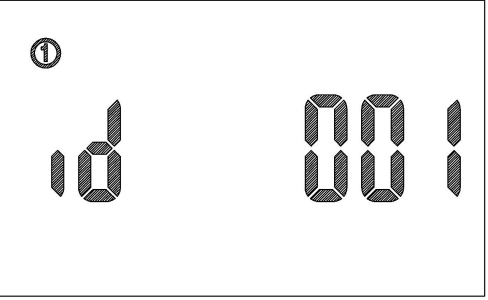
19-2		Current threshold setH	
19-3		Current threshold setL	
20-1		Power factor threshold switch	Default is off; switch between 20-1, 20-2, and 20-3 for display.
20-2		Power factor threshold setH	
20-3		Power factor threshold setL	

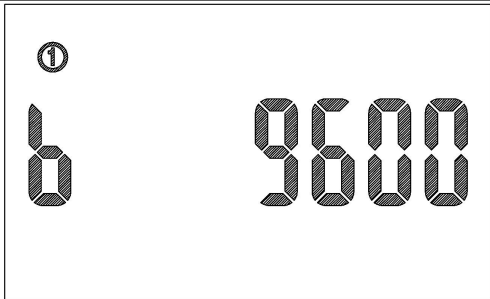
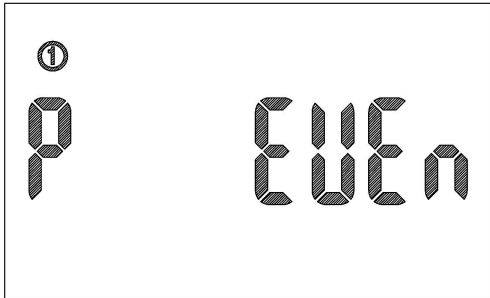
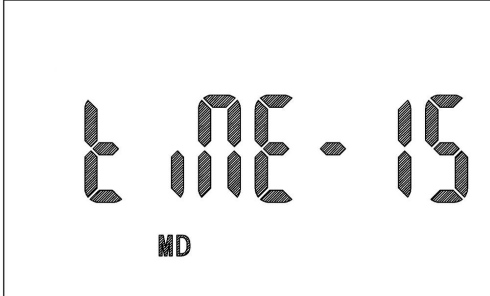
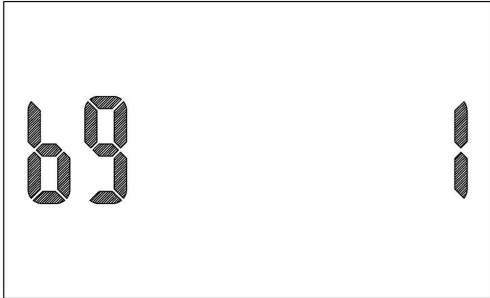
21-1		Active power threshold switch	Default is off; 21-1 switches back and forth between 21-2 and 21-3.
21-2		Active power threshold setH	
21-3		Active power threshold setL	
22-1		Reactive power threshold switch	Default is off; 22-1 switches back and forth between 22-2 and 22-3.
22-2		Reactive power threshold setH	

22-3		Reactive power threshold setL	
23-1		Apparent power threshold switch	Default is off; switch between 23-1, 23-2, and 23-3 for display.
23-2		Apparent power threshold setH	
23-3		Apparent power threshold setL	
24		Alarm delay time	Default setting: 60; unit (seconds)

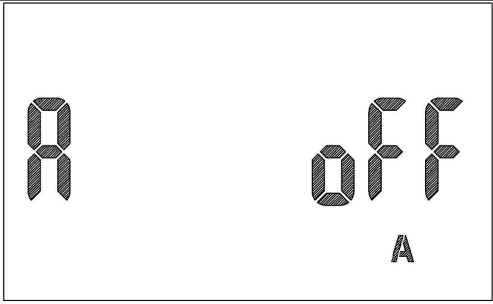
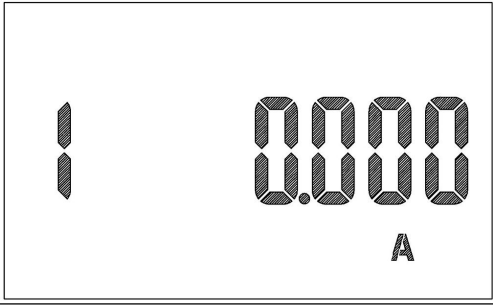
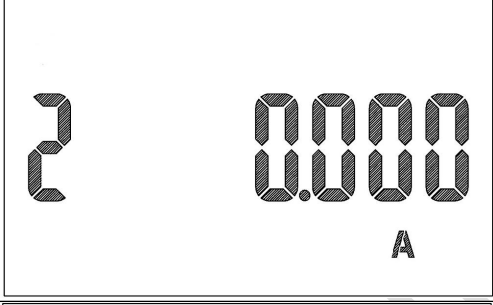
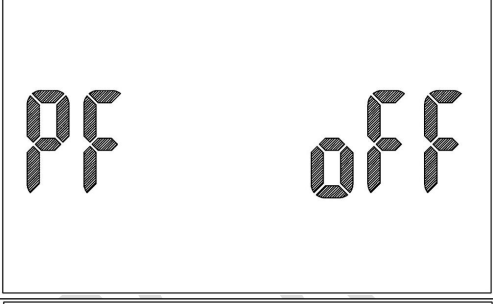
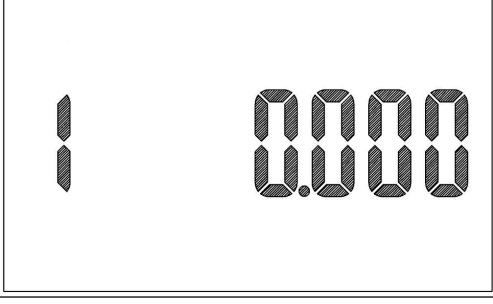
25		SO output type	DEM2A302 and DEM2A202 don't have this page.
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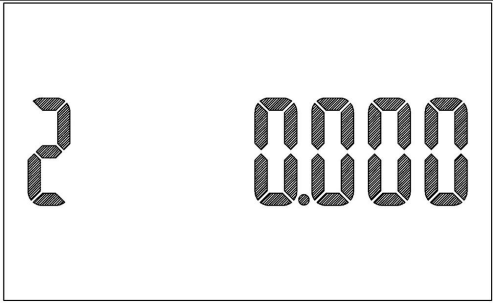
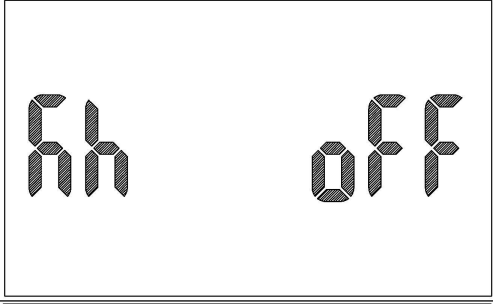
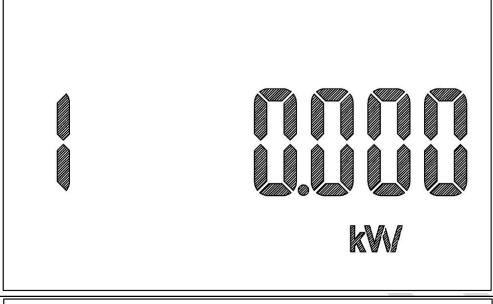
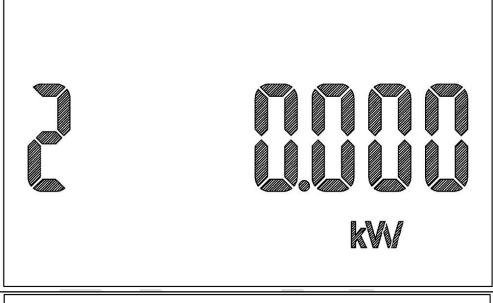
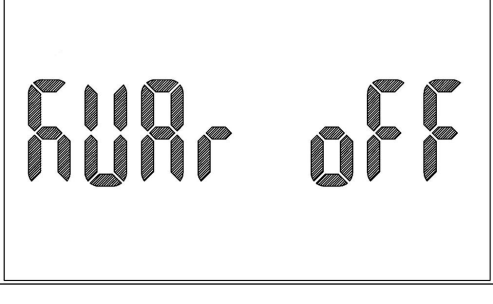
8.8. Setting pages

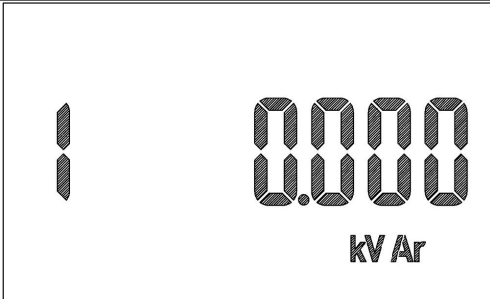
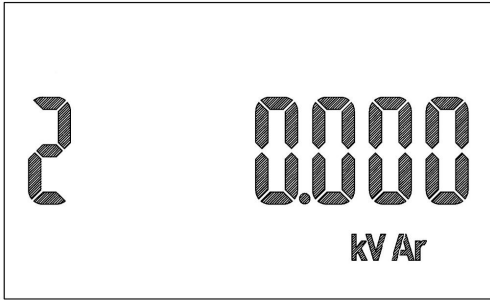
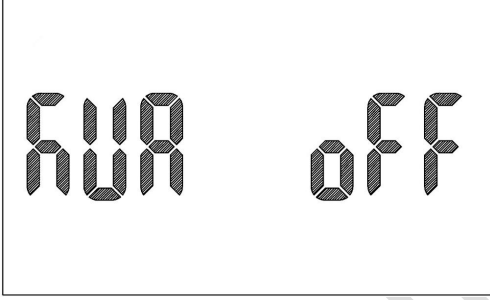
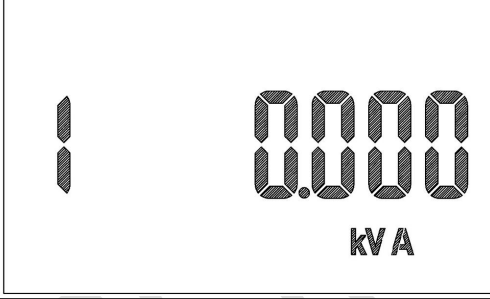
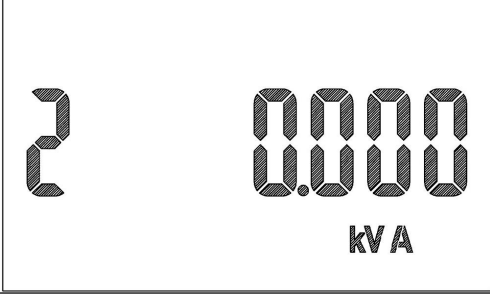
8.9.	8.10.	8.11.	8.12.
1		Measurement mode	
2	 	Tariff mode	DS mode or RTC mode can be switched. DEM2A001 doesn't have this page.
3		Communication ID	DEM2A001 doesn't have this page.

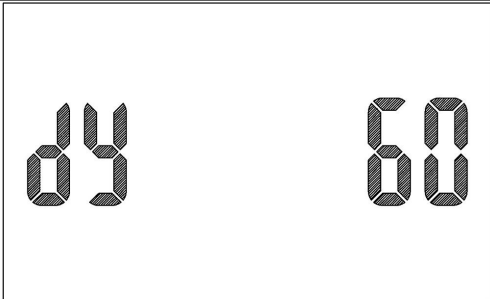
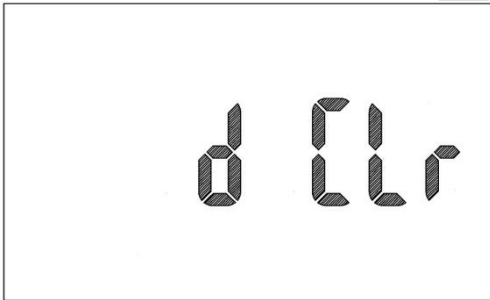
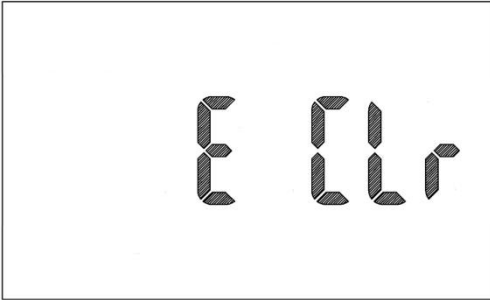
4		Baud rate	DEM2A001 doesn't have this page.
5		Communication Check Bit	DEM2A001 doesn't have this page.
6		Demand Type	Default setting: 0 settable: 0—interval type; 1—slip type
7		Demand Time	
8		Backlight duration	Default setting: 1; Unit (minutes)

9		Display Mode	Default setting: SLIDE rotation display mode; Customizable: Home page mode
10		Home Mode Page	
11-1		Phase Voltage Threshold switch	Default is off; it alternates between displaying 11-1, 11-2, and 11-3.
11-2		Phase Voltage Threshold setH	The threshold value H must be greater than L.
11-3		Phase Voltage Threshold setL	

12-1		Current threshold switch	Default is off; switch between 12-1, 12-2, and 12-3 for display.
12-2		Current threshold setH	The threshold value H must be greater than L.
12-3		Current threshold setL	
13-1		Power factor threshold switch	Default is off; switch between 13-1, 13-2, and 13-3 for display
13-2		Power factor threshold setH	When setting the power factor threshold, L must be greater than H.

13-3		Power factor threshold setL	
14-1		Active power threshold switch	Default is off; switch between 14-1, 14-2, and 14-3 for display
14-2		Active power threshold setH	The threshold value H must be greater than L
14-3		Active power threshold setL	
15-1		Reactive power threshold switch	Default is off; switch between 15-1, 15-2, and 15-3 for display

15-2		Reactive power threshold setH	The threshold value H must be greater than L
15-3		Reactive power threshold setL	
16-1		Apparent power threshold Switch	Default is off; switch between 16-1, 16-2, and 16-3 for display
16-2		Apparent power threshold setH	The threshold value H must be greater than L
16-3		Apparent power threshold setL	

17		Alarm delay time	Default setting: 60; unit (seconds)
18		SO output type	DEM2A302 and DEM2A202 don't have this page.
19		Clear the demand	Right-click to enter the demand clearance page; the default setting is yes. Left-click to switch to no. In the yes state, hold down the right-click button to delete the current demand data recorded by the meter. After deletion, the page will display "d clred"
20		Clear the energy	Right-click to enter the electricity data deletion page; the default setting is 'yes'. Left-click to switch to 'no'. In the 'yes' state,

			long-pressur e the right-click button to delete the current electricity meter readings. After deletion, the page displays 'E cleared'.
21		Set the password	

8.13. Button Operation

- Long press the middle button to enter menu switching. Short press the left/right buttons to switch menus. Short press the middle button to enter the selected menu page. Entering the settings menu requires a password; default is all zeros.
- After entering the settings menu, you need to enter a 4-digit password. Short press left/right to select the corresponding digit, short press the middle button to switch digits, and long press the middle button to confirm the password.。

9. Alarm

9.1. Alarming function

The DEM2A series meter can manage electrical parameter alarm functions. To set an alarm, the following parameters need to be defined:

- Monitored Variable
- Alarm Threshold (setH)
- Alarm Cancel Threshold (setL)
- Alarm Delay Time

Note: The alarm threshold (setH) should be bigger than the alarm cancellation threshold (setL); the power factor alarm threshold (setH) should be smaller than the alarm cancellation threshold (setL).

After setup, when the monitored value exceeds the alarm threshold and the duration exceeds the delay time, the meter enters the alarm state. It exits the alarm state when the monitored value falls below the cancel threshold.

The DEM2A series meter supports monitoring the following variables:

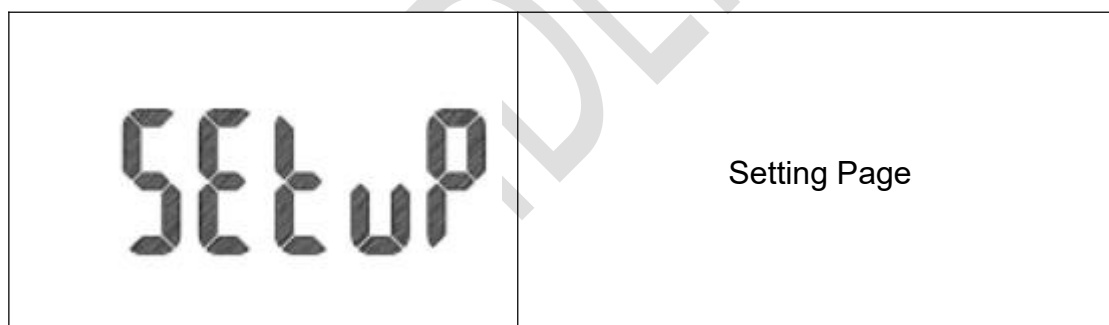
- Voltage (Phase Voltage / Line Voltage)
- Current
- Power Factor
- Power (Active Power / Reactive Power / Apparent Power)

Setup Example:

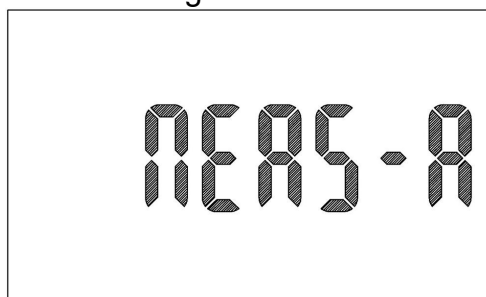
Monitored Variable	Voltage (V)
Alarm Threshold (setH)	250V
Alarm Cancel Threshold (setL)	240V
Alarm Delay Time	5s

9.2. Alarming Setting

- After powering on, press and hold the middle button to enter the menu switching state, then press the left or right button to switch up and down the menu until the screen displays the settings menu page as shown in the figure below.



- In the settings menu, short press the middle button to enter the settings page, where you will be required to enter a 4-digit password. Short press the left or right button to select the corresponding numbers, and short press the middle button to change the number of digits. After entering the password, long press the middle button to confirm and enter the page shown in the image below. The default password is 0000.



- Short press the left or right button to switch settings information until you reach the desired alarm parameter page, then Short press the middle button to enter the settings.
- Taking phase voltage as an example, short press the left or right button to switch to the page shown in the image below, then short press the middle button to enter the phase voltage settings. The alarm is off by default. Short press the left or right button to control the on/off state, toggling between on and off. After switching, press and hold the middle button for 3 seconds to save.
- In the phase voltage settings, short press the middle button to switch settings. When you reach the third line of the LCD screen shown in the image below, you can set the voltage upper limit. Short press the left or right button to select a number, and press the middle button to switch the digits. After completing all settings, press and hold the middle button to save and exit the current settings.

	Phase Voltage Threshold Switch
	Phase Voltage Threshold setH
	Phase Voltage Threshold setL

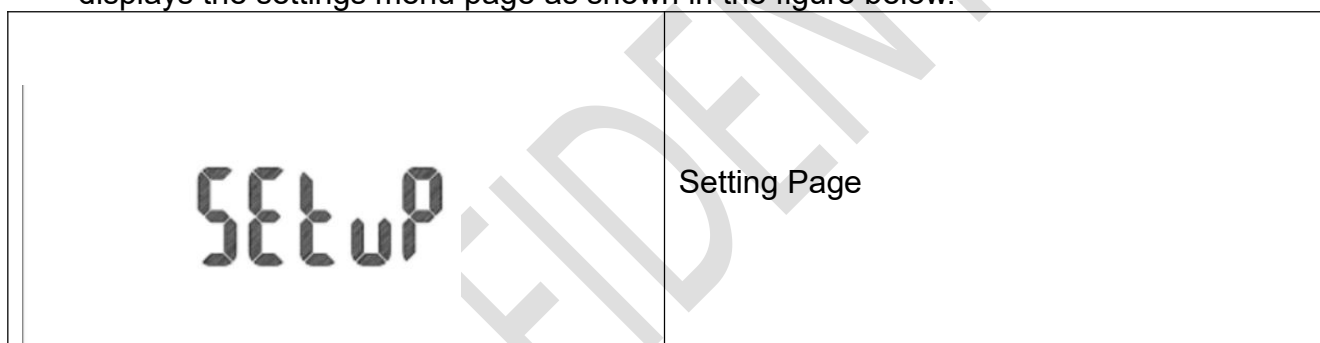
10. Tariff

10.1. Tariff Function

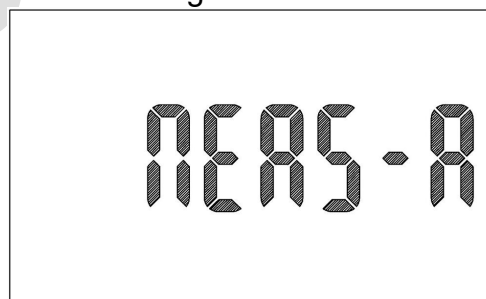
- DEM32302 supports time-of-use tariff (default 4 tariffs, 8 periods) and dual tariff controlled by digital input.
- DEM2A202 supports dual-tariff controlled by digital input.
- DEM2A001 doesn't have tariff function.
- The periods are divided into weekday periods, weekend (Saturday and Sunday) periods, and holiday periods. Different period tables have different priorities: holiday > weekend > weekday. When running tariff, the meter first checks if it is a holiday; if yes, uses the holiday period table. If it is not a holiday but is a weekend, it runs the weekend period table. If it is neither a holiday nor a weekend, it runs the weekday period table.
- If no tariff is set, the meter runs RTC Tariff 1 or DS Tariff 1 depending on the tariff mode1

10.2. Tariff Setting

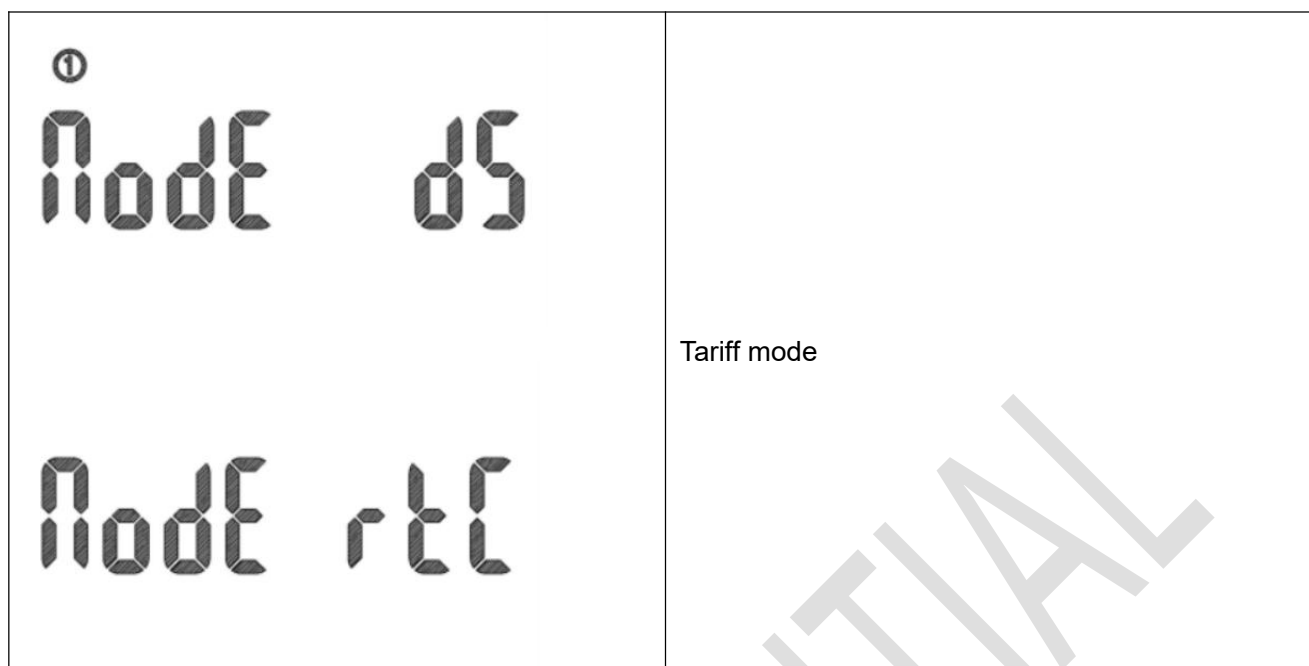
- After powering on, press and hold the middle button to enter the menu switching state, then press the left or right button to switch up and down the menu until the screen displays the settings menu page as shown in the figure below.



- In the settings menu, short press the middle button to enter the settings page, where you will be required to enter a 4-digit password. Short press the left or right button to select the corresponding numbers, and short press the middle button to change the number of digits. After entering the password, long press the middle button to confirm and enter the page shown in the image below. The default password is 0000.



- Short press the left or right button to switch settings information. Once on the tariff switching page, short press the middle button to enter the settings.



- After entering the rate settings page, short press the left or right button to switch tariff modes. After switching, long press the middle button to save the settings.

Weekday Tariff Table
Example:

Hour	Minute	Tariff
1	30	1
2	30	2
13	30	3
18	0	4
22	0	1
0	0	0
0	0	0
0	0	0

On non-weekend and non-holiday days:

01:30 to 02:30 runs Tariff 1 (Tariff 1 energy increases)

02:30 to 13:30 runs Tariff 2 (Tariff 2 energy increases)

13:30 to 18:00 runs Tariff 3 (Tariff 3 energy increases)

18:00 to 22:00 runs Tariff 4 (Tariff 4 energy increases)

22:00 to 01:30 runs Tariff 1 (Tariff 1 energy increases)

The remaining 3 records are not enabled.

Weekend Tariff Table, set referring to the Weekday Tariff Table.

Holiday Tariff Table, set referring to the Weekday Tariff Table.

Holiday Table

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Month	Day
1	5
1	6
3	15
3	16

...

12	30
12	31

Upper limit 100 holiday records.

11. Demand

11.1. Average Value Calculation

Calculates the average value of the electrical variable within the set integration interval (default is 15 min).

11.2. Integration Interval

The integration interval starts from power-on or reset command issuance. The first value is displayed at the end of the first integration interval.

11.3. Example

Integration example:

10:00:00 Reset

Set integration time: 15 min.

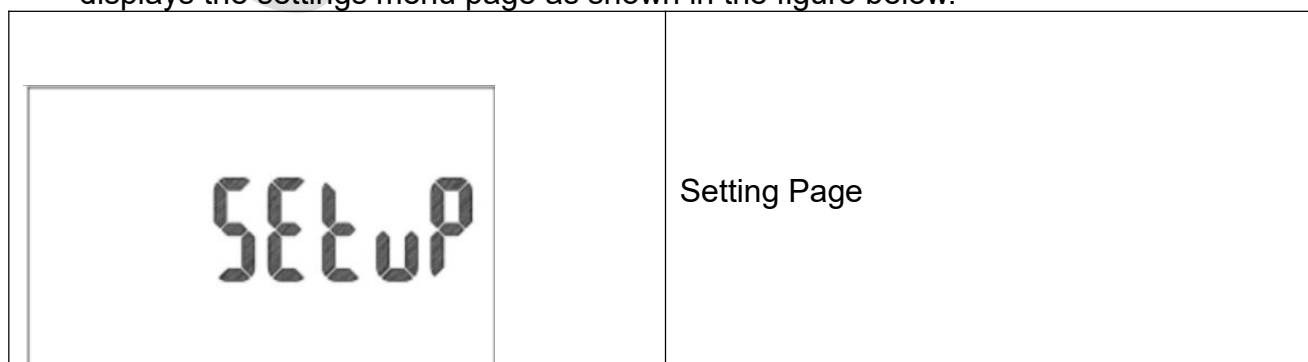
10:15:00 The first value displayed corresponds to the interval from 10:00:30 to 10:15:00.

Block Interval Type: Settles the average value within each 15-minute block.

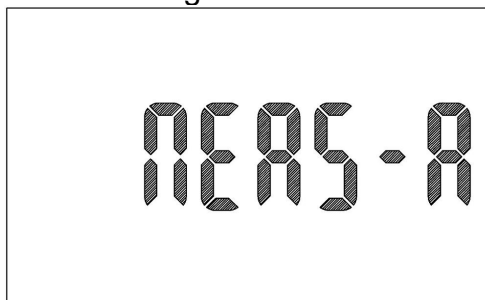
Sliding Type: Settles the average value of the previous interval time every minute.

11.4. Demand Setting

- After powering on, press and hold the middle button to enter the menu switching state, then press the left or right button to switch up and down the menu until the screen displays the settings menu page as shown in the figure below.



- In the settings menu, short press the middle button to enter the settings page, where you will be required to enter a 4-digit password. Short press the left or right button to select the corresponding numbers, and short press the middle button to change the number of digits. After entering the password, long press the middle button to confirm and enter the page shown in the image below. The default password is 0000.



- Short press the left button to switch settings. Continue switching until you reach the demand type settings page shown below; then short press the right button to configure the demand type. The default value is 0; short press the left button to switch: 0 – interval-based, 1 – slip-based. After completing the settings, long press the right button to save and exit.

	Demand type	Set by default: 0 Settable: 0-interval type 1-slip type
--	-------------	--

- Short press the right button to switch settings. Continue switching until you reach the demand time setting page shown below; then short press the left button to adjust the point interval for demand settings. The default interval is 15 minutes. Short press the left button to modify the interval, and after completing the settings, long press the right button to save and exit.

	Demand time
--	-------------

12. Auxiliary Functions

12.1. Wiring Check

The wiring check function can automatically detect and correct wiring errors.

Before enabling this function, the following three conditions must be met simultaneously:

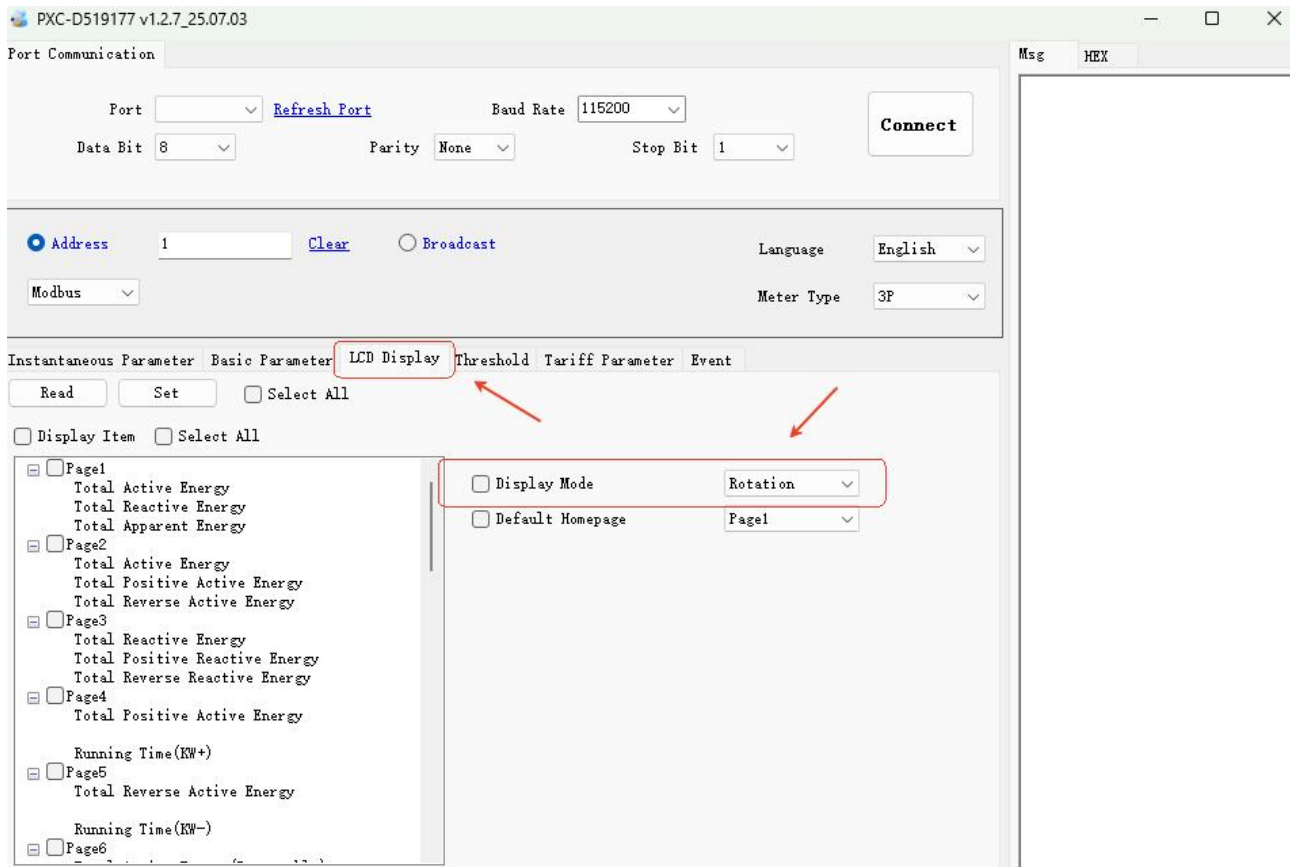
- System Type: Must be set to "3P+N" system.
- Voltage Connection: All voltage lines must be correctly connected.
- Current Status: All phase currents must be greater than zero, and the phase offset range must be between lagging 45° and leading 15° (i.e., inductive power factor > 0.7, capacitive power factor > 0.96).

12.2. Screen Saver

If the screen saver function is enabled, after 5 minutes of no operation, the system will perform different operations according to the set screen saver program type:

- If in "Homepage" mode, the home page is displayed.
- If in "Slide" mode, a slideshow starts, cycling through the selected pages.
-

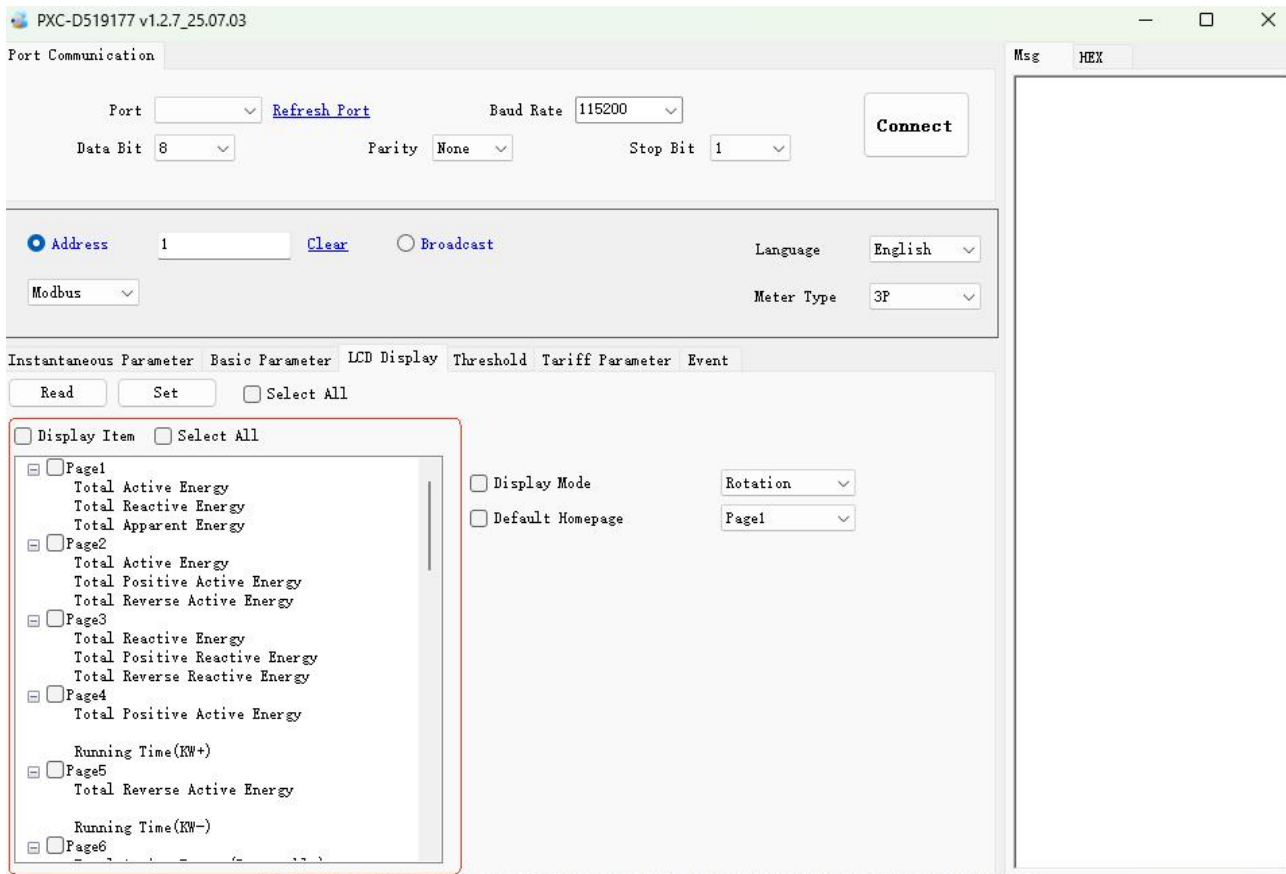
Open the PC software as shown in the image below, go to the display page, and check the display mode to enable the screen saver. The drop-down menu next to display mode allows you to select the screen saver mode. Once enabled, if there is no activity for 5 minutes, it will automatically display the home page or a rotating display task.



12.3. Page Filter

You can hide pages you don't need to see in the upper computer software, making the overall page display of the meter more concise. Hidden pages will not be displayed in page rotation or button page turning.

Open the PC software shown in the image below and enter the display page. The list on the left side of the page will display all the pages of the meter that can be displayed. Select the pages that are checked and they will be displayed; those that are not checked will not be displayed.



13. Installation Instructions

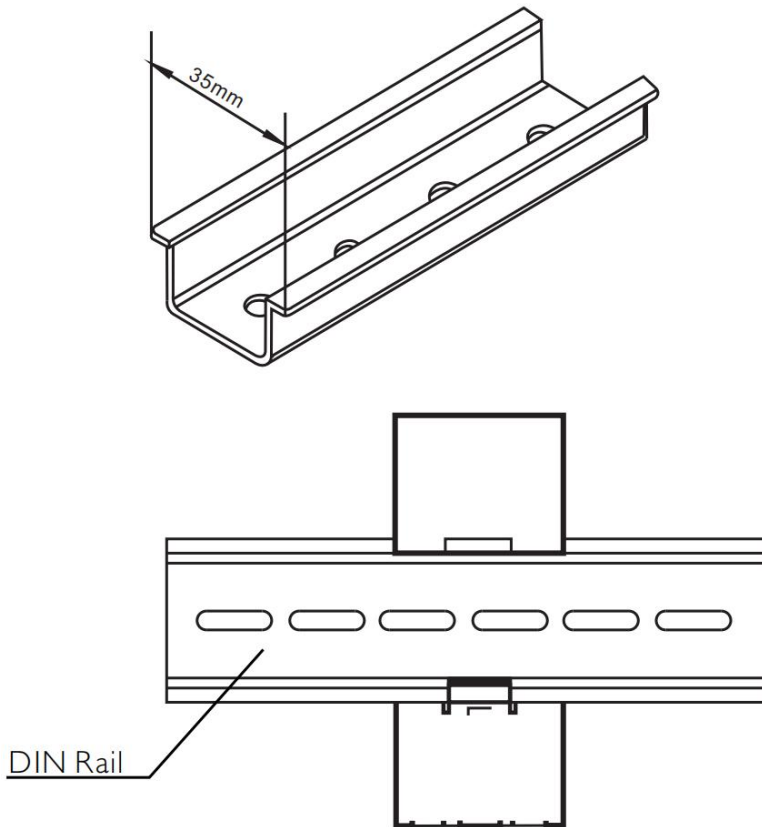
35mm standard DIN rail installation. The meter should be installed indoors or outdoors in a meter box.

- During installation, first snap the clip on top of the meter into the guide rail, ensuring it's securely in place. Then press the meter down to lock it into place. Note: Always snap the clip into place before pressing down; pressing directly may break the clip!
- During disassembly, first pull down the latch at the bottom of the guide rail. Then lift the lower half of the meter off the rail. Once the lower half is off, push the meter upwards to disengage the clip on top. This completes the disassembly. Note: Always disengage the lower half of the meter off the rail before pushing it upwards. Forcing it off directly may break the clip on top!

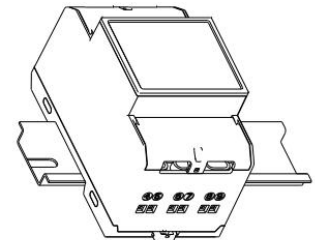
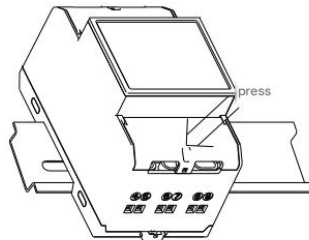
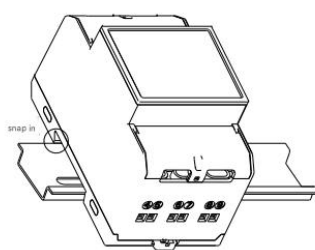
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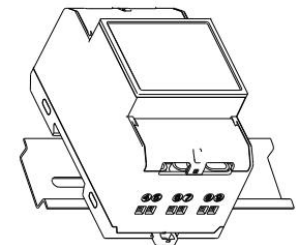
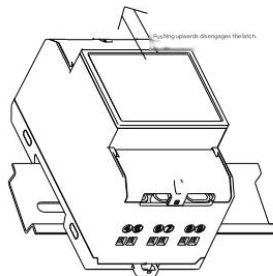
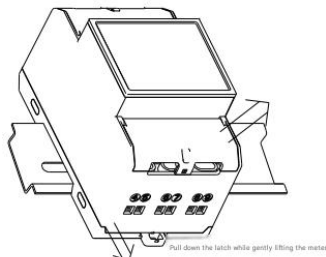
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Install



Disassembly



14. Safety Instructions

- According to the 2014/32/EU directive, the installation of this meter must comply with mechanical environment "M1", low impact, low vibration.
- According to the 2014/32/EU directive, the installation of this meter must comply with electromagnetic environment "E2".

14.1. Storage and Transportation

The energy meter should not be subjected to severe impacts during transportation and storage. It should be transported and stored according to the provisions of GB13384-2008 "General Technical Conditions for Packaging of Instruments and Meters"; the energy meter should be stored in its original packaging, the storage environment temperature range is 0---40°C, relative humidity does not exceed 85%, and the air contains no corrosive gases; when stored in a warehouse, the energy meter should be placed on a rack, stacking height not exceeding 10 boxes; after unpacking, the stacking height of single-packaged energy meters should not exceed 5 layers.

14.2. Personal Safety Information

This manual does not contain all safety measures for the operation of this equipment (module, device), as special operating conditions, local specifications or local regulations may require further measures. But it contains information that must be followed to protect personal safety and avoid damage to the equipment. According to the severity of the warning, it is highlighted with a warning triangle with an exclamation mark or lightning.



Means failure to comply with the instructions may result in death, serious injury, or significant damage

14.3. Precautions



Means risk of electric shock and failure to take necessary safety precautions will result in death, serious injury, or considerable material damage.

14.4. Qualified Personnel

The installation and operation of this equipment described in this manual may only be performed by qualified personnel.

Only persons authorized to install, connect, and use this equipment and who have appropriate knowledge of electrical equipment and grounding and circuits, and who can be considered qualified personnel according to safety and regulatory standards in the electronic manual.

14.5. Use

The equipment (device, module) may only be used for the application cases specified in the catalog and user manual, and only with YTL approved equipment and components.

14.6. Disclaimer

We have checked the content of this publication and have made every effort to ensure the descriptions are as accurate as possible. However, deviations from the description cannot be completely ruled out, and therefore no liability can be accepted for errors or omissions in the information provided.

The data in this manual is checked regularly, and necessary revisions will be made in subsequent versions. If you have any suggestions, please let us know.

Subject to technical modifications without notice.

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14.7. General Warnings

After unpacking, please ensure the integrity of the device. If in doubt, do not use the device and contact a technician. The installation of the electrical appliance must be carried out only by a skilled electrician. Generally applicable safety measures must be observed.

If the device malfunctions and/or fails, switch it off immediately. Please be sure to contact a technician for repair. Failure to comply with the above may compromise the safety of the device.

15. Warranty

If the product is found not to comply with the technical specifications within 18 months, the manufacturer will repair and return the product provided the lead seal is intact.

15.1. Warranty Period Calculation Method

The warranty is handled according to the commercial invoice issued by our company, calculated from the date the meter leaves the warehouse, for a period of 18 months, deducting the time for spare parts-free repair and delivery time.

15.2. Warranty Scope

When the user fully follows the energy meter transportation, storage, installation, and application procedures, and under the condition of the company's seal integrity (the meter seal is not removed), if the energy meter does not meet quality requirements and valid evidence is provided (e.g., meter photo, certificate photo, customer local user feedback documents, relevant government department documents, etc.) should be provided by the customer.

10.2.2 We will repair, replace, or return the meter under the following circumstances:

- No demonstration and no prior explanation;
- Does not comply with the implementation standards indicated on the product or its packaging;
- (If the standard on the product/packaging is requested by the customer but does not comply with the company's product implementation standards, the customer shall make corresponding responsibility commitments);
- Does not comply with the quality status indicated by the product manual, physical samples, etc.

The non-conforming meter shall be determined through consultation with the user. Generally, we will return for repair or replenish the goods in the next order. Special circumstances shall be determined through consultation between both parties.

Note: The quality guarantee is not applicable if there is no valid invoice, cannot provide evidence corresponding to the quality problem of the order, and damage caused by force majeure or the warranty has expired, but it can be recovered for repair (transportation and other related costs need to be borne by the customer).

15.3. Technical Support

If you have any problems with our products, please contact:

Zhejiang Yongtailong Electronic Co., Ltd.
 No. 320 Tongsheng Road, Tongxiang City, Zhejiang, China
 Postal Code: 314500
 Official Website: www.ytl-e.com
 Tel: 0573-88105687 Fax: 0573-88100423



16. Version Update Notes

Version Number	Modification Date	Modification notes
V1.0	2026-04-28	Initial publish
V2.0	2026-07-02	Update the reactive power accuracy to 1% in chapter 3.2