

AT180G-YF
Three Phase Din Rail Prepayment
Energy Meter
User Instruction Manual
V1.0



Hangzhou Anting Electric Power Technology Co., Ltd

Declarations

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Chapter 1 Product Overview

1.1 Product Introduction

AT180G-YF series three-phase din rail prepayment meter is a new generation of smart three-phase electronic energy meter. It meets the technical requirements of accuracy class 1 of the IEC62053-21 standard for energy meter. It has a complete prepayment management system for energy sales management. The meter automatically deducts credit according to the electricity consumption. The recharge operation can be done remotely without any media like IC card. The meter has a two-level balance alarm function and an emergency credit function. The electricity supply will be automatically cut off when the user credit turns to zero, or reaches a preset value. It has RS485 communication interface and supports RS485 (9600 bps) high speed communication function, which is ideal for electric energy monitoring.

AT180G-YF series are featured in multi-function, multi-purpose, high stability and long life, which are suitable for real-time power monitoring system.

The meter has 1 pulse output, and the pulse constant, pulse width and output unit can be set.

1.2 Product Features

- Multifunctional parameters measurement
- Support bi-directional power metering
- Clearable display of electricity usage

- Support direct access type, CT variable ratio access
- Support RS485 communication function
- Standard din rail mounting
- LCD display, white backlight
- LCD refresh time: 1 second, support manual page turning and automatic display rotation (can be set to switch)

Chapter 2 Technical Specifications

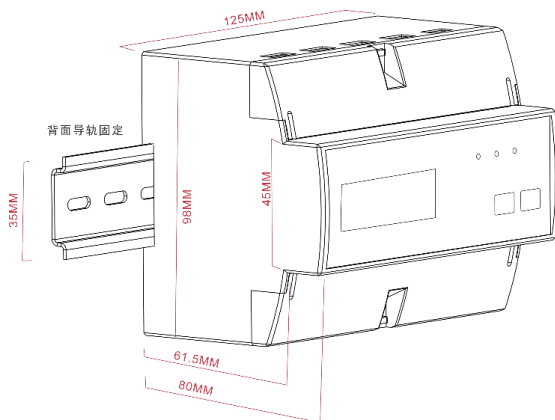
2.1 Technical Parameters

Parameters		Value
Working Voltage	Rated value	230V AC
	Range	±20 ratings
Measurement Form		Valid values
Input current		Rated value 5A
Maximum current		Direct access type:100A、CT type: 1.2times of rated value
Short-time overcurrent		30 times the maximum current lasting 0.01 seconds
Input Frequency	Rated Value	50/60Hz
	Range	45-65Hz
Voltage withstand capacity	AC withstand voltage	4kV/1min
	Pulse withstand	6kV-1.2μs waveform

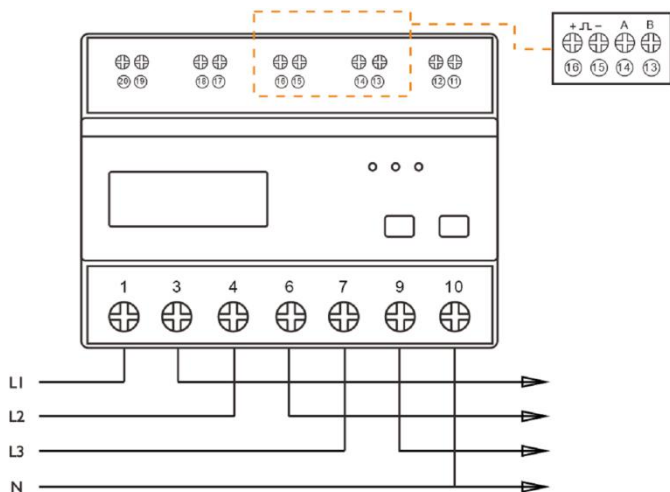
	voltage	
Power consumption		$\leq 2W$
Pulse port output		Can be set
Pulse light output		Fixed to 1000imp/kWh
Maximum reading		999999.99kWh
Measurement accuracy	Voltage, current	0.5%
	Frequency	0.2%
	Power Factor	0.5%
	Power	$\pm 1\%$
	Energy	$\pm 1\%$
RS485 communication	Bus Type	RS485
	Communication protocol	Modbus RTU
Performance standard	Operating Humidity	$\leq 90\%$, no condensation
	Storage Humidity	$\leq 95\%$
	Operating Temperature	$-25^{\circ}C \sim +55^{\circ}C$
	Storage Temperature	$-40^{\circ}C \sim +70^{\circ}C$
	Installation category	VATII
	Protection class	IP51 (Indoor)

	Insulation class	II
	Altitude	≤2000m

2.2 Shape and installation dimensions



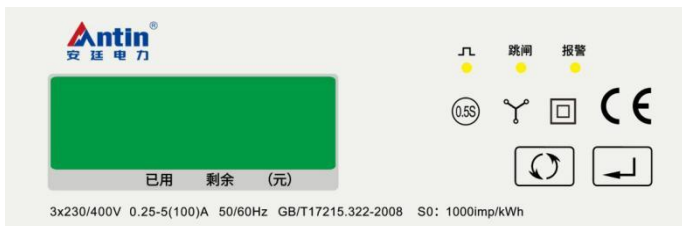
2.3 Wiring Diagram



Chapter 3 Operating Instructions

3.1 Panel Indication and Key Operation Instructions

3.1.1 Panel Instructions



After the wiring is correct, the power is turned on and it will enter the normal measurement state, and the screen will be displayed as follows:


The first screen	Power-on full-screen display
Second screen	Displays the software version
The third screen	Remaining amount
Fourth screen	Accumulate the total amount that has been used
Fifth screen	Accumulated amount of electricity used
Sixth screen	There is always active power
Seventh screen	The amount of this top-up
Eighth screen	Correspondence address
Ninth screen	Newsletter baud rate
Tenth screen	Communication check digit


Eleventh screen	Communication stop bit
Twelfth screen	Pulse constant
Thirteenth screen	The serial number of the meter
Fourteenth screen	Software version number
Fault interface	Display fault code: The display interface of the fault code and the normal display interface will automatically switch the display in turn, and the switching time is 3s. Error-01 indicates that the relay cannot be disconnected from the fault.

At the touch of a button, you can view:

The remaining→ amount, the accumulated amount used, the accumulated amount of electricity used→, the total active power, the →amount of the recharge→, the mailing address, the →communication baud rate→, the communication check bit, the communication stop bit→, the pulse constant, the →serial number of the meter→→→Software version number

3.1.2 Key Definition

keystroke	definition	Short press function	Long press on the function
 Button No. 1	Exit/pag e turn key	Measurement mode: Toggle the display screen. In setting mode: toggle the	Measurement mode: Enter or exit the auxiliary information

		sibling menu or increase the single digit.	viewing interface. In setup mode: Return to the previous menu.
	Confirm key	Measurement mode: Invalid. In setup mode: move the cursor (the cursor is the bits that are flashing in the set state).	Measurement mode: Enter the setup mode. In setting mode, you can check the selection of menu items and the modification of parameters.

Note: (1): Holding down the button for more than 3 seconds is regarded as a long press operation, otherwise it is regarded as a short press operation.

3.2 Prepaid Function Description

Alarm threshold and emergency amount:

The meter has a two-level balance alarm threshold, called the first-level alarm threshold and the second-level alarm threshold, where the first-level alarm threshold is greater than the second-level alarm threshold, that is, the first-level alarm value is triggered first when the balance is insufficient.

The meter has the function of emergency amount, when the emergency amount is set to a value greater than 0, the emergency function is turned on, that is, the user is allowed to overdraft a certain amount of expenses, if the user uses

the emergency amount, then the next time the electricity bill is recharged, the emergency amount used will be deducted first, and the remaining electricity fee will be recharged to the meter. When the emergency amount is set to 0, disable this feature.

3.2.1 Electricity purchase

The user shall go to the electricity sales management department to handle the power purchase business。

When the remaining amount of the meter is less than the first-level alarm value, the alarm indicator starts to flash. This function reminds the user that the amount is insufficient and needs to be recharged.






If you do not recharge at this time, when the remaining amount of the meter is less than the secondary alarm value, the alarm indicator will become solid at this time. The feature reminds users that they need to top up immediately.







3.2.2 Emergency


When the remaining amount of the meter reaches 0, the relay will be automatically disconnected and the power will be cut off, and if the emergency amount function is not turned on, the relay will always remain disconnected. If the emergency amount function is turned on, the meter will automatically turn on the relay after the user presses any button, and the relay will be automatically disconnected until the user consumes the emergency amount.

3.3 Measurement Parameters

You can view by pressing the button: the remaining amount →, the total amount that has been used →, the total amount that has been used →, the total active power →, the amount of this recharge →, the communication address, the communication baud rate →, the communication check bit →, the → communication stop bit →, and the pulse constant → Meter serial number, → software version number

	Remaining amount For example: \$60.00
	Accumulate the total amount that has been used For example: \$80.00
	There is always active power For example: 120.00kWh
	The amount of this top-up For example: \$120.00
	Correspondence address For example: 001

	<p>Newsletter baud rate For example: 9600</p>
	<p>Communication check digit For example: None 说明：校验位 nrepresentativenone; E-representative even; o Representative ODD</p>
	<p>Communication stop bit For example:1</p>
	<p>Pulse constant For example, the image on the left represents the pulse output mode with the total active charge and the pulse constant at 1000imp/kWh</p>
	<p>Meter serial number For example: 20111201</p>
	<p>Software version number For example: 12 01.00</p>

	<p>Fault code For example: Err-01</p> <p>Err-01: Indicates that the relay cannot be disconnected from the fault.</p> <p>Err-02: Indicates that the meter battery is dead, and the system time may be wrong after the meter is re-energized.</p> <p>The display interface of the fault code and the normal display interface automatically switch the display in turn, and the switching time is 3S.</p>
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3.4 Auxiliary Parameters








Under the measurement parameter interface, press and hold the No. 1 button to enter the auxiliary display interface, and at this time, you can turn the page by pressing the No. 1 button. Under the auxiliary display interface, press and hold the No. 1 button to return to the main display interface. If there is no button operation for more than 1 minute in the auxiliary display interface, the meter will automatically return to the main display interface.


At the touch of a button, you can view:

Phase voltage of L1, phase voltage of L2, phase voltage of L3, phase voltage of L1, current of L2, current of L3 →, active power of L1, active power of L2, → active power of L3, total active power → of L1, → power → factor → → → of → L1 → Power factor of → L2, power factor → of L3, → total power factor →

frequency




	<p>L1 phase voltage For example: 230.0V</p>
	<p>L2 phase voltage For example: 230.0V</p>
	<p>L3 phase voltage For example: 230.0V</p>
	<p>L1 current For example: 5.003A</p>
	<p>L2 current For example: 5.003A</p>
	<p>L3 For example: 5.003A</p>
	<p>L1 active power For example: 1.1kW</p>





	<p>L2 active power For example: 1.1kW</p>
	<p>L3 active power For example: 1.1kW</p>
	<p>Total active power For example: 3.3kW</p>
	<p>The power factor of L1 For example: 0.5</p>
	<p>The power factor of L2 For example: 0.5</p>
	<p>The power factor of L3 For example: 0.5</p>
	<p>Total power factor For example: 0.5</p>






 <p>The LCD display shows the number 50.02 followed by the unit Hz. Below the display, there are three small labels: 已用, 剩余, and (元).</p>	frequency
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3.5 Basic Settings





Press and hold the "No. 2 button" for three seconds to enter the setting mode (if the setting interface is not operated in the next minute, exit the setting interface and return to the remaining amount interface):



 <p>The LCD display shows the word Good. Below the display, there are three small labels: 已用, 剩余, and (元).</p>	The setting is successful, display: good
 <p>The LCD display shows the word Err. Below the display, there are three small labels: 已用, 剩余, and (元).</p>	The setting failed, and the :err message is displayed
 <p>The LCD display shows PAS followed by 0000. Below the display, there are three small labels: 已用, 剩余, and (元).</p>	<p>password</p> <p>Enter the settings page and ask for a password</p> <p>Default password: 1000</p> <p>Short press the "No. 1 button" to select the number, and short press the "No. 2 button" to select the shift. Then long press the "No. 2 button" to enter the setting system.</p>



	<p>Correspondence address</p> <p>Default mailing address: 001</p> <p>Mailing address range: 001~247</p>
	<p>Press the number 1 button to adjust the number of the set bits.</p> <p>Press the number 2 button to move the setting bit.</p> <p>Press and hold the No. 2 button to confirm the setting, and the meter will save the setting value and exit the setting state.</p> <p>Press and hold the No. 1 button to exit the setting state without saving the setting parameters.</p>
	<p>baud rate</p> <p>Default baud rate: 9600bps</p> <p>Baud rate range: 1200, 2400, 4800, 9600.</p>
	<p>Press the number 1 button to select the baud rate value.</p> <p>Press and hold the No. 2 button to confirm the setting, and the meter will save the setting value and exit the setting state.</p>

	<p>Press and hold the No. 1 button to exit the setting state without saving the setting parameters.</p>
	<p>Check digit Default: None 可选:None,Even,Odd</p>
	<p>Press the number 1 button to select the check digit type.</p> <p>Press and hold the No. 2 button to confirm the setting, and the meter will save the setting value and exit the setting state.</p> <p>Press and hold the No. 1 button to exit the setting state without saving the setting parameters.</p> <p> Representative None,</p> <p> Representative Even,</p> <p> Representative Odd</p>

	<p>Check digit</p> <p>Default: 1</p> <p>Optional: 1, 2</p> <p>Note: The stop bit can be set to 2 only when the check digit is set to None</p>
	<p>Press the number 1 button to select the value of the stop bit.</p> <p>Press and hold the No. 2 button to confirm the setting, and the meter will save the setting value and exit the setting state.</p> <p>Press and hold the No. 1 button to exit the setting state without saving the setting parameters.</p>
	<p>Pulse output port constant</p> <p>默认:1000IMP/kWh</p> <p>Optional: 1000, 100, 10, 1.</p>
	<p>Press the number 1 button to select the value of the pulse constant.</p> <p>Press and hold the No. 2 button to confirm the setting, and the meter will save the setting value and exit the setting state.</p> <p>Press and hold the No. 1 button to exit</p>

	<p>the setting state without saving the setting parameters.</p>
	<p>Pulse width Default: 35 ms Optional: 200, 100, 60. If the pulse constant is equal to 1000 imp/kWh, the setting screen is not available for the user to set and the pulse width is fixed at 35 ms.</p>
	<p>Press the No. 1 button to select the value of the pulse width. Press and hold the No. 2 button to confirm the setting, and the meter will save the setting value and exit the setting state. Press and hold the No. 1 button to exit the setting state without saving the setting parameters.</p>
	<p>Automatic rotation time Default: 0s (no wheeling) Wheel display time range: 0 ~ 30s.</p>
	<p>Press the number 1 button to adjust the number of the set bits. Press the number 2 button to move the</p>

	<p>setting bit.</p> <p>Press and hold the No. 2 button to confirm the setting, and the meter will save the setting value and exit the setting state.</p> <p>Press and hold the No. 1 button to exit the setting state without saving the setting parameters.</p>
	<p>Backlight lights up the time</p> <p>Default: 60 minutes</p> <p>可选:off,on,5,10,20,30,60,120.</p> <p>OFF means that the backlight is always off, and ON means that the backlight is always on.</p>
	<p>Press the No. 1 button to select the value of the pulse width.</p> <p>Press and hold the No. 2 button to confirm the setting, and the meter will save the setting value and exit the setting state.</p> <p>Press and hold the No. 1 button to exit the setting state without saving the setting parameters.</p>

	<p>User password</p> <p>Default: 1000</p> <p>Optional: 0~9999</p>
	<p>Press the number 1 button to increase or decrease the number of the set bits.</p> <p>Press the number 2 button to move the setting bit.</p> <p>Press and hold the No. 2 button to confirm the setting, and the meter will save the setting value and exit the setting state.</p> <p>Press and hold the No. 1 button to exit the setting state without saving the setting parameters.</p>

English correspondence table of digital tubes

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

After-sales service

1. If the user does not understand the description in the manual during installation and commissioning, please contact the technical director.
2. The company's technology is ready to answer product-related questions.
3. The problems arising in the use of the product will be replied within one working day.
4. Our company has a one-year free warranty for the above products from the date of sale.

Technical descriptions are subject to change without notice

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