

ADW350 Wireless Metering Meter

Installation and Use Manual V1. 0

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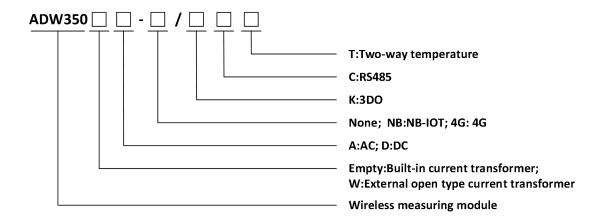
20	7.1 RS485 networking communication failure
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1 Overview

ADW350 Wireless Metering Meter is mainly used to metering three phase active energy on low voltage network. The product boasts of advantages including compact size, high precision, rich features. According to different requirements, there are many communications functions like RS485 communication, NB, 4G, adding the new current sampling mode using external transformer. It can be flexibly installed in the distribution box to achieve sub-item electric energy metering, operation and maintenance supervision or power monitoring requirements for different regions and different loads.

2 Product model and specification

2.1 Naming Rules



2.2 Functional Characteristics

Chart 1 Functions of ADW350

Functions	Description
Display mode	LED
Energy metering	Active kWh (positive and negative), quadrant reactive power energy
Electrical measurement	U、I、P、Q、S、PF、F
Harmonic function	THDv、Harmonic on 2nd-31st
Pulse output	Active pulse output
Three-phase unbalance degree	Voltage unbalance,current unbalance
Temperature measurement	Two way temperature (Alternate configuration:T)
DI/DO	3DO (Alternate configuration:K)
External current transformer	External open type current transformer (Alternate configuration:W)
Electrical parameter	Undervoltage, undercurrent, overcurrent, underload, etc

	Infrared communication
Communication	RS485 (Alternate configuration:C)
Communication	NB-IOT(Alternate configuration:NB)
	4G (Alternate configuration:4G)

3 Technical parameter

3.1 Electrical performance

Chart 2 Electrical performance of ADW350

		AC: 3×57.7/100V, 3×220/380V, 3×380/660V, 3×100V, 3×380V,
	Rated voltage	3×660V;
Voltage input		DC: 48V
v orage input	Reference	AC: 50Hz
	frequency	AC: JUIIZ
	Consumption	<0.5VA (Each phase)
	I4	AC: $3 \times 20(100)$ A, $3 \times 1(6)$ A
Current input	Input current	DC: 50A, 100A
	Consumption	<1VA (Each phase)
	Power Supply	AC: 85~265V
Auxiliary power	1 ower suppry	DC: 48V±20%
	Power consumption	<5W
	Electrical parameter	Class 0.5
	Active energy	Class 1, Class $0.5S(3 \times 1(6)A)$
Measurement	accuracy	
performance	Temperature Range	-40℃~100℃
	Temperature	±2°C
	accuracy	
DO	Contact Rating	5A, AC250V/DC30V
Pulse	Width of pulse	80±20ms
Pulse	Pulse constant	AC: 400imp/kWh DC: 1600imp/kWh
	Wireless	2G; NB; 4G
	Infrared	TI 1 1 1200
Communication	communication	The constant baud rate is 1200
Communication	Interface	RS485(A、B)
	Connection mode	Shielded twisted pair conductors
	Protocol	MODBUS-RTU

3.2 Work environment

Chart 3 Work environment

Temperature range	Operating temperature	-20°C~55°C
remperature range	Storage temperature	-40°C~70°C
	Humidity	≤95% (No condensation)

Altitude <2000m

4 Dimension and installing description

4.1 Dimension (Unit: mm)

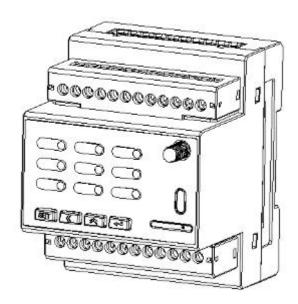


Figure 1 Rendering of ADW350

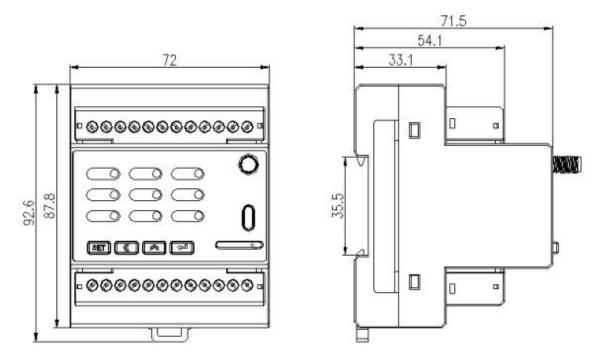


Figure 2 Dimension of ADW350

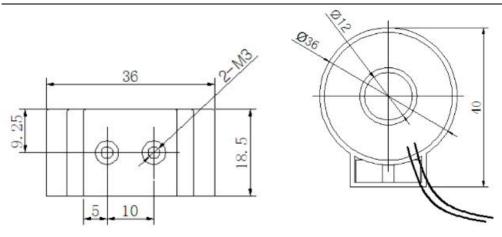


Figure 3 Dimension of transformer (ADW350WA 20(100)A)

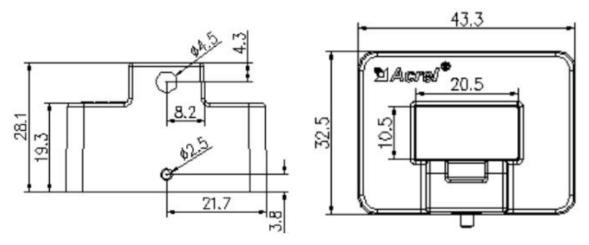


Figure 4 Dimension of Hall current sensor AHKC-BS (ADW350WD)

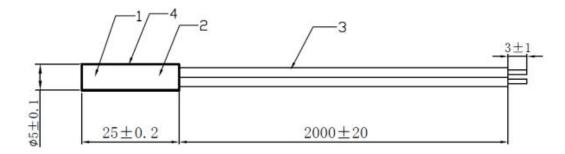
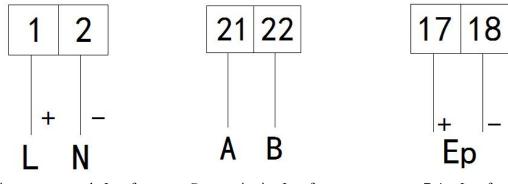


Figure 5 Dimension of K-Type

4.2 Interfaces of Auxiliary power supply, Communication and Pulse



Auxiliary power supply Interface

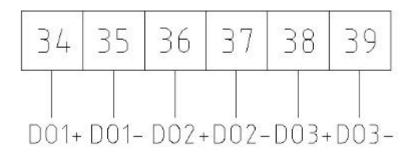
Communication Interface

Pulse Interface

4.3 Interfaces of DI and DO

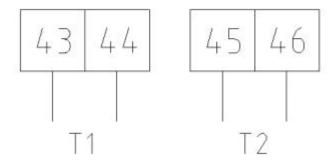
The digital output is realized by relay for remote control and alarm output.

The digital input is realized by digital signal input. The meter has a built-in +12V working power supply so that it does not require external power supply. The meter collects the external break-make information with digital input module and displays it locally. The digital input not only collects and displays the local break-time information but also provides the remote transmission, i.e. remote communication, with RS485.



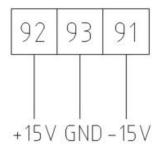
Digital output

4.4 Interfaces of Temperature



Temperature input

4.5 Interfaces of Hall current sensor



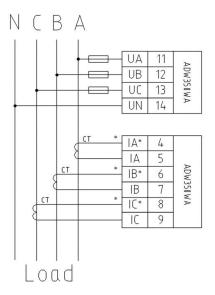
Auxiliary Power

4.6 Instruction of wiring

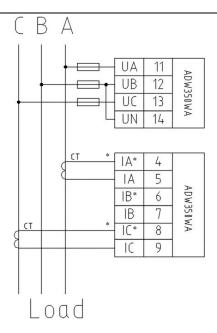
There are four modes of connection like 3-phase 4-wire (current connected via CT), 3-phase 3-wire (current connected via CT), 3-phase 4-wire (current connected via PT and CT) and 3-phase -wire (current connected via PT and CT).

4.6.1 ADW350WA

3-phase 4-wire:



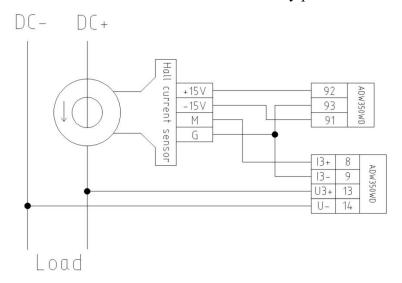
3-phase 3-wire:



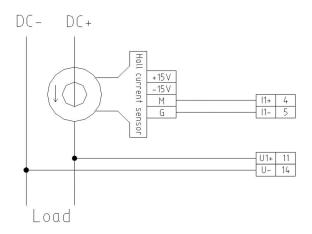
4.6.2 ADW350WD

Three single-phase DC can be connected.

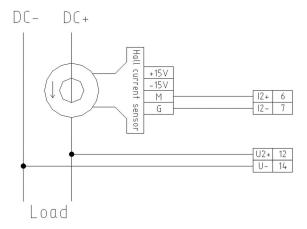
Connection method of Hall current sensor and auxiliary power terminal:



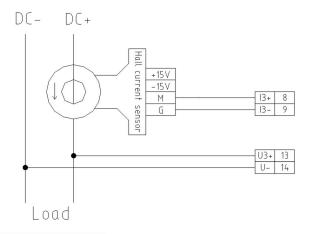
Loop 1st:



Loop 2nd:



Loop 3rd:



5 Main functions and features

5.1 Measurement

Measure all electrical parameters, including voltage U, current I, active power P, reactive power Q, apparent power S, power factor PF, Voltage imbalance, Current imbalance, frequency, 31st harmonic content and total harmonic content. The measured voltage U keeps one decimal place, the measured frequency F keeps two decimal places, the measured current I keeps three decimal places and the measured power P keeps four decimal places. Voltage imbalance and Current imbalance keeps four decimal places.

Example: U = 220.1V, f = 49.98HZ, I = 1.999A, P = 0.2199KW, $\triangle = 0.00\%$

Supporting 4-way temperature measurement, range: $-40 \sim 99 \,^{\circ}\text{C}$, accuracy: $\pm 2 \,^{\circ}\text{C}$

Supporting aftercurrent measurement, The initial range: $0\sim1000$ mA, Range multiples can be set $(1\sim60)$.

5.2 Metering

It can measure the current combined active power, positive active power, reverse active power, inductive reactive power, capacitive reactive power, as seen in the electric power.

5.3 Demand

Demand-related concepts are listed as follows:

Demand	Average power measured during the demand period
Max. demand	Maximum amount of demand during a specified period of time
Sliding window time	A recurrence method to measure the demand from any time point during a period shorter than the demand period. The demand measured by this means is called sliding demand. The recurrence time is sliding window time.
Demand period	Time interval when the same average power is measured continuously, also known as window time

Measure eight maximum demands, i.e. A/B/C three-phase current ,positive active, negative active, inductive reactive , capacitive reactive and apparent power demands and the time of maximum demand.

5.4 Historical data

Record the historical data on electricity consumption covering previous 12 months (including four quadrant and multi-rate tariff).

5.5 Digital input/ output

There are three -way Digital output. The Digital output is realized by relay for remote control and alarm output. i.e. remote communication, with RS485.

5.6 Wireless Communication Function

The ADW350 supports NB and 4G communications. Specific agreements on NB and 4G communications can be obtained by contacting relevant personnel of our company.

6 Communication description

6.1 Protocol

The meters adapt Modbus protocol. Please refer to the relevant standards for more information.

6.2 MODBUS

MODBUS-RTU protocol has 03H and 10H command to read and write registers respectively. The following chart is registers' address list:

Start Address (Hexadecimal)	Variable	Length	R/W	Notes
0000Н	Address	2	R/W	1~247
				1: 1200bps
0001H	Baud rate	2	R/W	2: 3400bps
000111	Daud Tale	2	IX/ W	3: 4800bps
				4: 9600bps
0002H~0003H	Reserved			

High byte: parity mode, low byte: 0-1 stop Bit, 1-2 stop Bit					High byte: 0-none, 1-even, 2-odd;		
Description	0004H	High byte: parity mode, low	2.	R/W			
	000 111	byte: stop Bit	_	10			
O007H	0005H						
O008H	0006Н						
O009H	0007H		Backl	ight Tim	ne		
000DH Current specification 000EH PT 000FH CT 0010H Reserved 0011H-0013H Time, date (second, minute, hour, day, month, year) 0014H Voltage of A phase 2 R 0015H Voltage of B phase 2 R 0016H Voltage of C phase 2 R 0017H Voltage between A-B 2 R 0018H Voltage between B-C 2 R 0019H Voltage between C-A 2 R 001AH Electricity of A phase 2 R 001BH Electricity of C phase 2 R 001DH Vector sum of 3-phase current 2 R 001DH Active power of A phase 4 R 0020H Active power of B phase 4 R 0020H Active power of D phase 4 R 0024H Total active power 4 R 0028H Reactive power of D phase 4 R </td <td>0008H</td> <td></td> <td>(</td> <td>Code</td> <td></td>	0008H		(Code			
O00EH	0009H~000CH		Re	served			
O00FH O010H Reserved	000DH		Current s	specifica	ation		
0010H	000EH			PT			
0011H-0013H Time, date (second, minute, hour, day, month, year) 0014H Voltage of A phase 2 R 0015H Voltage of B phase 2 R 0016H Voltage of C phase 2 R 0017H Voltage between A-B 2 R 0018H Voltage between B-C 2 R 0019H Voltage between C-A 2 R 0010H Electricity of A phase 2 R 001DH Electricity of C phase 2 R 001DH Vector sum of 3-phase current 2 R 001DH Vector sum of 3-phase current 2 R 001DH Active power of A phase 4 R 002DH Active power of B phase 4 R 002H Active power of C phase 4 R 002H Reactive power of A phase 4 R 002H Reactive power of C phase 4 R 002H Reactive power of B phase 4 R <t< td=""><td>000FH</td><td></td><td></td><td>CT</td><td></td></t<>	000FH			CT			
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Notinge of B phase 2 R	0011H~0013H	Time, date (se	cond, min	ute, hou	r, day, month, year)		
Woltage of C phase 2	0014H	Voltage of A phase	2	R			
Olification	0015H	Voltage of B phase	2	R	Int		
0018H Voltage between B-C 2 R 0019H Voltage between C-A 2 R 001AH Electricity of A phase 2 R 001BH Electricity of B phase 2 R 001CH Electricity of C phase 2 R 001DH Vector sum of 3-phase current 2 R 001DH Active power of A phase 4 R 0020H Active power of B phase 4 R 0020H Active power of C phase 4 R 0024H Total active power 4 R 0028H Reactive power of A phase 4 R 002AH Reactive power of C phase 4 R 002CH Total reactive power 4 R 002CH Apparent power of A phase 4 R 003H Apparent power of B phase 4 R 003H Total apparent power 4 R 003H Power factor of A phase 2 R 003H Power factor of B phase 2 R	0016H	Voltage of C phase	2	R			
0018H Voltage between B-C 2 R 0019H Voltage between C-A 2 R 001AH Electricity of A phase 2 R 001BH Electricity of B phase 2 R 001CH Electricity of C phase 2 R 001DH Vector sum of 3-phase current 2 R 001EH Active power of A phase 4 R 0020H Active power of B phase 4 R 0024H Total active power 4 R 0028H Reactive power of A phase 4 R 002AH Reactive power of C phase 4 R 002CH Total reactive power 4 R 002BH Apparent power of A phase 4 R 002CH Total reactive power of B phase 4 R 0030H Apparent power of B phase 4 R 003H Apparent power of C phase 4 R 003H Power factor of A phase 2 R 003H Power factor of B phase 2 R <td>0017H</td> <td>Voltage between A-B</td> <td>2</td> <td>R</td> <td>1</td>	0017H	Voltage between A-B	2	R	1		
001AH Electricity of A phase 2 R 001BH Electricity of B phase 2 R 001CH Electricity of C phase 2 R 001DH Vector sum of 3-phase 2 R 001DH Active power of A phase 4 R 0020H Active power of B phase 4 R 0022H Active power of A phase 4 R 0026H Reactive power of A phase 4 R 0020H Reactive power of B phase 4 R 0020H Apparent power of C phase 4 R 0030H Apparent power of B phase 4 R 0030H Apparent power of C phase 4 R 0030H Apparent power of C phase 4 R 0030H Total apparent power 4 R 0030H Power factor of B phase 2 R 0037H Power factor of B phase 2 R 0038H Int Keep 3 decimal places	0018H	Voltage between B-C	2	R	-		
001BH Electricity of B phase 2 R 001CH Electricity of C phase 2 R 001DH Vector sum of 3-phase current 2 R 001EH Active power of A phase 4 R 002OH Active power of B phase 4 R 002H Active power of C phase 4 R 002H Total active power of A phase 4 R 002AH Reactive power of B phase 4 R 002BH Reactive power of C phase 4 R 002CH Total reactive power 4 R 002CH Total reactive power 4 R 003CH Apparent power of A phase 4 R 003CH Apparent power of B phase 4 R 003CH Apparent power of C phase 5 R 003CH Apparent power of C phase 4 R 003CH Apparent power of C phase 5 R 003CH Apparent power of C phase 6 R 003CH Apparent power of C p	0019H	Voltage between C-A	2	R			
001CH Electricity of C phase 2 R 001DH Vector sum of 3-phase current 2 R 001EH Active power of A phase 4 R 0020H Active power of C phase 4 R 0022H Total active power of A phase 4 R 0028H Reactive power of B phase 4 R 0020H Reactive power of B phase 4 R 0028H Reactive power of B phase 4 R 0020H Apparent power of A phase 4 R 0030H Apparent power of B phase 4 R 0030H Apparent power of B phase 4 R 0030H Apparent power of C phase 4 R 0030H Power factor of A phase 2 R 1nt 1nt 1nt 1nt 1nt 1nt 1nt 1n	001AH	Electricity of A phase	2	R			
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Reactive power of A phase O028H Reactive power of B phase 4 R	0026Н		4	R			
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Apparent power of C phase O034H Total apparent power Power factor of A phase O037H Power factor of B phase Power factor of B phase O038H Reep 3 decimal places Reep 3 decimal places	0030H	Apparent power of B phase	4	R			
0034H Total apparent power 4 R 0036H Power factor of A phase 2 R 0037H Power factor of B phase 2 R Keep 3 decimal places	0032H	Apparent power of C phase	4	R			
0036H Power factor of A phase 2 R 0037H Power factor of B phase 2 R 10038H Int 10038H R 10038H R	0034H	Total apparent power	4	R	1 .		
0037H Power factor of B phase 2 R Keep 3 decimal places	0036Н		2	R	•		
0028H 2 B	0037H		2	R			
	0038H	Power factor of C phase	2	R	Reep 3 decimal places		

0039Н	Total power factor	2	R	
003AH	*	Re	served	
003BH	Frequency of power	2	R	Int Keep 2 decimal places
003CH	Total energy consumption	4	R	
003EH	Forward active energy consumption	4	R	Int unit kWh
0040H	Reversing active energy consumption	4	R	Keep 2 decimal places
0042H	Forward reactive energy consumption	4	R	Int unit kVarh
0044H	Reversing reactive energy consumption	4	R	Keep 2 decimal places
0046Н	Total energy consumption on A phase	4	R	T _{art}
0048H	Forward active energy consumption on A phase	4	R	Int unit kWh Keep 2 decimal places
004AH	Reversing active energy consumption on A phase	4	R	Recp 2 deciniai piaces
004CH	Forward reactive energy consumption on A phase	4	R	Int
004EH	Reversing reactive energy consumption on A phase	4	R	unit kVarh Keep 2 decimal places
0050Н	Total energy consumption on B phase	4	R	Int
0052Н	Forward active energy consumption on B phase	4	R	Int unit kWh Keep 2 decimal places
0054H	Reversing active energy consumption on B phase	4	R	Reep 2 decimal places
0056Н	Forward reactive energy consumption on B phase	4	R	Int unit kVarh
0058H	Reversing reactive energy consumption on B phase	4	R	Keep 2 decimal places
005AH	Total energy consumption on C phase	4	R	T _{art}
005CH	Forward active energy consumption on C phase	4	R	Int unit kWh Keen 2 decimal places
005EH	Reversing active energy consumption on C phase	4	R	Keep 2 decimal places
0060Н	Forward reactive energy consumption on C phase	4	R	Int
0062Н	Reversing reactive energy consumption on C phase	4	R	unit kVarh Keep 2 decimal places
0064H	Maximum forward active	4	R	Int

	demand in current month			unit KW
				Keep 3 decimal places
0066H~0067H	Occur time	4	R	Minute, hour, day, month
				Int
0068H	Maximum reversing active	4	R	unit kVar
	demand in current month			Keep 3 decimal places
006AH~006BH	Occur time	4	R	Minute, hour, day, month
	1			Int
006CH	Maximum forward reactive	4	R	unit kVar
	demand in current month			Keep 3 decimal places
006EH~006FH	Occur time	4	R	Minute, hour, day, month
	Maximum reversing reactive			Int
0070H	demand in current month	4	R	unit kVar
	demand in current month			Keep 3 decimal places
0072H~0073H	Occur time	4	R	Minute, hour, day, month
0074Н	THDUa	2	R	
0075H	THDUb	2	R	Total distortion rate of voltage
0076Н	THDUc	2	R	and current on each phase
0077H	THDIa	2	R	Int
0078H	THDIb	2	R	Keep 2 decimal places
0079Н	THDIc	2	R	
007AH	THUa(Harmonic on	2×30	R	
	2nd-31st)			Harmonic voltage on 2nd-31st
0098H	THUa(Harmonic on	2×30	R	Int
	2nd-31st)			Keep 2 decimal places
00B6H	THUb(Harmonic on	2×30	R	
	2nd-31st)			
00D4H	THUc(Harmonic on	2×30	R	
	2nd-31st)			Harmonic current on 2nd-31st
00F2H	THIa(Harmonic on	2×30	R	Int
	2nd-31st)			Keep 2 decimal places
0110H	THIb(Harmonic on	2×30	R	
	2nd-31st) Fundamental voltage on A			
012EH		2	R	
	phase Fundamental voltage on B			
012FH	phase	2	R	
	Fundamental voltage on C			Int
	phase	2	R	unit V
0130H		l .	1	WIIIL Y
0130H				Keep 1 decimal places
0130H 0131H	Harmonic voltage on A	2	R	Keep 1 decimal places
0131H	Harmonic voltage on A phase		R	Keep 1 decimal places
	Harmonic voltage on A	2	R R	Keep 1 decimal places

	phase			
0134Н	Fundamental current on A phase	2	R	
0135H	Fundamental current on B phase	2	R	
0136Н	Fundamental current on C phase	2	R	Int unit A
0137Н	Harmonic current on A phase	2	R	Keep 2 decimal places
0138H	Harmonic current on B	2	R	
0139Н	Harmonic current on C phase	2	R	
013AH	Fundamental active power on A phase	4	R	
013CH	Fundamental active power on B phase	4	R	Int unit kW
013EH	Fundamental active power on C phase	4	R	Keep 3 decimal places
0140H	Fundamental active power	4	R	
0142Н	Fundamental reactive power on A phase	4	R	
0144H	Fundamental reactive power on B phase	4	R	Int unit kVar
0146Н	Fundamental reactive power on C phase	4	R	Keep 3 decimal places
0148H	Fundamental reactive power	4	R	
014AH	Harmonic active power on A phase	4	R	
014CH	Harmonic active power on B phase	4	R	Int unit kW
014EH	Harmonic active power on C phase	4	R	Keep 3 decimal places
0150H	Harmonic active power	4	R	
0152Н	Harmonic reactive power on A phase	4	R	
0154Н	Harmonic reactive power on B phase	4	R	Int unit kVar
0156Н	Harmonic reactive power on C phase	4	R	Keep 3 decimal places
0158H	Harmonic reactive power	4	R	
015AH	Current forward active demand	4	R	Int unit kW

015CH	Current reversing active demand	4	R	Keep 3 decimal places
015EH	Current forward reactive demand	4	R	Int unit kVar
0160Н	Current reversing reactive demand	4	R	Keep 3 decimal places
0162H	Voltage imbalance	2	R	Int
0163H	Current imbalance	2	R	unit 0.01%
0164H	Temperature on A phase	2	R	Int
0165H	Temperature on B phase	2	R	unit 0.1°C
0166Н	Temperature on C phase	2	R	unit 0.1 C
0167H~01BDH	Reserved			
01BFH	wireless signal strength	2	R	Int
01C1H		Reserved		
01C2H	DO1	2	R/W	Int
010211	DOI	2	10 **	Bit0 effective
01C3H	DO2	2	R/W	Int
010311	202		15 ''	Bit0 effective
01E1H	DO3	2	R/W	Int
UIDIII	200		10 ,,	Bit0 effective

6.3 Settings of Alarm

Start Address (Hexadecimal)	Variable	Length	R/W	Notes
01DOH	Alarm permission bits	2	R/W	Bit0: overvoltage alarm permission bits Bit1: undervoltage alarm permission bits Bit2: overcurrent alarm permission bits Bit3: undercurrent alarm permission bits Bit4: overpower alarm permission bits Bit5: underpower alarm permission bits
01D1H	overvoltage alarm threshold	2	R/W	Int unit 0.1V
01D2H	overvoltage alarm time-delay	2	R/W	Int unit 0.01S
01D3H	undervoltage alarm	2	R/W	Int

	threshold			unit 0.1V
01D4H	undervoltage alarm	2	R/W	Int
VID4H	time-delay	2	IK/ W	unit 0.01S
010511	overcurrent alarm	2	D/III	Int
01D5H	threshold	2	R/W	unit 0.01A
	Overcurrent alarm			Int
01D6H	time-delay	2	R/W	unit 0.01S
	undercurrent alarm			Int
01D7H	threshold	2	R/W	unit 0.01A
	undercurrent alarm			Int
01D8H	time-delay	2	R/W	unit 0.01S
	·			
01D9H	overpower alarm	2	R/W	Int
	threshold			unit 0.001kw
01DAH	overpower alarm	2	R/W	Int
	time-delay			unit 0.01S
01DBH	underpower alarm	2	R/W	Int
OIDBII	threshold	2	IV W	unit 0.001kw
01DCH	underpower alarm	2	D/W	Int
01DCH	time-delay	2	R/W	unit 0.01S
01DDH~01E0H	Reserved			
				0:Electrical level
01E2H	DO3 Output mode	2	R/W	1:Purse
				0:DO
01E3H	DO3 Related content	2	R/W	1: Total failure
	DO3 Related content			0:None
				1:1S
	DO3 Output pulse	2	R/W	
01E4H				2:2S
	width			3:3S
				4:4S
				5:5S
01E5H	DO1 Output mode	2	R/W	0:Electrical level
012311	DOT Output mode	2	IV W	1:Purse
015(11		2	D/W	0:DO
01E6H	DO1 Related content	2	R/W	1: Total failure
				0:None
				1:1S
	DO1 Output pulse			2:2S
01E7H	width	2	R/W	3:3S
	width			4:4S
				5:5S
			+ +	0: Electrical level
01E8H	DO2 Output mode	2	R/W	
				1:Purse
01E9H	DO2 Related content	2	R/W	0:DO
				1:Total failure

				0:None	
				1:1S	
OTEAH	DO2 Output pulse	2	R/W	2:2S	
01EAH	width	2	K/W	3:3S	
				4:4S	
				5:5S	

6.4 Historical Data Memory

Start address (high byte)	Data type	
48-53H	Last 1 month-last 12 months	

Start address	Data type
(low byte)	
00H	Record date and time
03H	History total active energy
05H	History total forward active energy
07H	History total reversing active energy
09H	History total forward reactive energy
0BH	History total reversing reactive energy
0DH	Total active energy on A phase
0FH	Total forward active energy on A phase
11H	Total reversing active energy on A phase
13H	Total forward reactive energy on A phase
15H	Total reversing reactive energy on A phase
17H	Total active energy on B phase
19H	Total forward active energy on B phase
1BH	Total reversing active energy on B phase
1DH	Total forward reactive energy on B phase
1FH	Total reversing reactive energy on B phase
21H	Total active energy on C phase
23H	Total forward active energy on C phase
25H	Total reversing active energy on C phase
27H	Total forward reactive energy on C phase
29H	Total reversing reactive energy on C phase
2BH	Current spike electric energy
2DH	Current peak electric energy
2FH	Current flat electric energy
31H	Current valley electric energy
33H	Current forward active spike electric energy
35H	Current forward active spike electric energy
37H	Current forward active flat electric energy
39H	-
	Current forward active valley electric energy
3ВН	Current reversing active spike electric energy

3DH	Current reversing Active peak electric energy
3FH	Current reversing active flat electric energy
41H	Current reversing Active valley electric energy
43H	Current forward reactive spike electric energy
45H	Current forward reactive spike electric energy
47H	Current forward reactive flat electric energy
49H	Current forward reactive valley electric energy
4BH	Current reversing reactive spike electric energy
4DH	Current reversing reactive peak electric energy
4FH	Current reversing reactive flat electric energy
51H	Current reversing reactive valley electric energy

6.5 Record of extreme value and occurrence time

1) Maximum records:

Starting address of interval (high byte)	Type of historical data
04	Extremum of the month and Occurrence time
05	Extremum of last 1 month and Occurrence time
06	Extremum of last 2 month and Occurrence time
07	Extremum of last 3 month and Occurrence time

Offset address of interval (low byte)	Data type
00	Voltage of A phase maximum value
00	and occurrence time
03	Voltage of B phase maximum value
03	and occurrence time
06	Voltage of C phase maximum value
00	and occurrence time
09	Voltage between A-B maximum value
09	and occurrence time
0C	Voltage between A-B maximum value
000	and occurrence time
0F	Voltage between A-B maximum value
OI	and occurrence time
12	Electricity of A phase maximum value
12	and occurrence time
15	Electricity of B phase maximum value
13	and occurrence time
18	Electricity of C phase maximum value
10	and occurrence time
1B	Three phase current vector sum
	maximum value and occurrence time
1E	Active power of A phase maximum

	1 1
	value and occurrence time
22	Active power of B phase maximum
	value and occurrence time
26	Active power of C phase maximum
20	value and occurrence time
2A	Total active power maximum value
ZA	and occurrence time
2E	Reactive power of A phase maximum
ZE	value and occurrence time
22	Reactive power of B phase maximum
32	value and occurrence time
36	Reactive power of C phase maximum
	value and occurrence time
3A	Total reactive power maximum value
3A	and occurrence time
3E	Apparent power of A phase maximum
3E	value and occurrence time
42	Apparent power of B phase maximum
42	value and occurrence time
46	Apparent power of C phase maximum
40	value and occurrence time
4A	Total apparent power maximum value
4A	and occurrence time

2) **Minimum record:**

Starting address of interval (high byte)	Type of historical data
04	Extremum of the month
	and Occurrence time
05	Extremum of last 1 month
	and Occurrence time
06	Extremum of last 2 month
	and Occurrence time
07	Extremum of last 3 month
	and Occurrence time

Offset address of interval (low byte))	Data type
4E	Voltage of A phase Minimum Value and occurrence time
51	Voltage of B phase Minimum Value and occurrence time
54	Voltage of C phase Minimum Value and occurrence time
57	Voltage between A-B Minimum Value and occurrence time
5A	Voltage between B-C Minimum value and occurrence time
5D	Voltage between C-A Minimum value and occurrence time

60	Electricity of A phase Minimum value	
60	and occurrence time	
(2	Electricity of B phase Minimum value	
63	and occurrence time	
	Electricity of C phase Minimum value	
66	and occurrence time	
69	Three phase current vector sum	
09	Minimum value and occurrence time	
6C	Active power of A phase Minimum	
60	value and occurrence time	
70	Active power of B phase Minimum	
/0	value and occurrence time	
74	Active power of C phase Minimum	
/4	value and occurrence time	
78	Total active power Minimum value and	
78	occurrence time	
7C	Reactive power of A phase Minimum	
, c	value and occurrence time	
80	Reactive power of B phase Minimum	
00	value and occurrence time	
84	Reactive power of C phase Minimum	
64	value and occurrence time	
88	Total reactive power Minimum value	
00	and occurrence time	
8C	Apparent power of A phase Minimum	
	value and occurrence time	
90	Apparent power of B phase Minimum	
)0	value and occurrence time	
94	Apparent power of C phase Minimum	
94	value and occurrence time	
98	Total apparent power Minimum value	
76	and occurrence time	

Note: The record of every extreme value and occurrence time is 6 bits, and the data configuration can be refered as below:

ADD1		Event names	Data type	Note
0400	Н	Maximum voltage of A phase and	The data of Maximum voltage of A phase	data and decimal place refer to address table 6.2
0401	Н	occurrence time	Occurrence time of minutes and hours	high byte : minutes

0402H	Occurrence time of Days and months	high byte : Days	
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7 Common troubleshooting

7.1 RS485 networking communication failure

Suggestion: Please first confirm whether the RS485 wiring is loose, AB connection reverse and other problems, and then check the table through the button to see if the general selection parameters, such as address, baud rate, check digit, etc., are set correctly.

7.2 Wireless communication failure of instrumentation

Suggestion: Please connect RS485 interface on the meter and USB convert to 485 serial port to read the parameters, and confirm whether the parameters are the same as the upper terminal wireless configuration (channel and spread spectrum factor). If different, please modify the meter's wireless parameters and retest the master terminal after the same, and if the same, it may be the meter and master terminal are in a relative long distance. It is too far to communicate or the scene is seriously disturbed. We can try to use the external antenna at the same time, or consider the newly added wireless master terminals, and then test it.

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