476

AMC200(L) DC Multi-Circuit Intelligent Power Acquisition And Monitoring Device

Installation and operation instruction V1.0

Acrel Co.,Ltd.

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1 Overview

AMC200(L) DC multi-circuit intelligent power acquisition and monitoring device is mainly used for the full electrical parameter measurement of multiple circuits, and can be connected to the current input of up to 12 single-phase DC circuits at the same time. It can directly measure parameters such as voltage, current and power.

2 Product Model And Function

Model	Basic Function
AMC200L-12DE	It can be connected to 12 single-phase DC circuits at the same time, can directly measure parameters such as voltage, current, power, etc., 6 switch inputs (2 active, 4 passive), 2 switch outputs, 1 RS485, 4 channels NTC temperature measurement, 1 channels temperature and humidity measurement,with LCD Display

3 Technical Parameter

Technical Parameter		Technical Indicator
Input	DC Voltage	One channel:DC -48V
	DC Current	12 Channels Hall Current Sensor:Hall sensor secondary side DC 5V access
	State Grid Monitoring	One channel:DC 0-5V
	Overload	Voltage: 1.2 times for 1 second, 2 times for 1 second; Current: 1.2 times for 1 second, 10 times for 1 second
Frequency		Voltage,Current Class 0.5,Power Class 1.0
Resolution		The voltage output accuracy is 0.01V, the current output accuracy is 0.01A, the power output accuracy is 0.01kW, and the power output accuracy is 0.01kWh
Function	Basic Function	Monitoring equipment system time, total voltage, total output current, total power, total electrical energy, voltage of each sub channel, current of each sub channel, power of each sub channel, electrical energy of each sub channel; RS485 communication
	Alarm Function	DC voltage output too low alarm, DC voltage output too high alarm, one-time power-off alarm, module voltage loss alarm, metering sub channel error alarm, internal program error alarm, clock error alarm, memory unit failure alarm, AC input power failure alarm
	Timing function	Support broadcast timing, remote timing calibration of metering module can be carried out through RS485 communication interface
	Communication	Single-channel RS485, the default baud rate is 9600bps, and can be set to 1200-9600bps. Communication protocol: YD/T1363 protocol or Modbus RTU protocol
	Hall power supply	A set of ±12V power output
	Humidity And Temperature	4 Channels NTC Temperature Monitoring:Temperature:-20-100℃（Accuracy±2℃） Humidity:20-90%RH（Accuracy ±5%RH）
Auxiliary power	Voltage Range	DC -40V～-60V
	Power consumption	The whole device≤2W (without Hall power supply output)
Storage		It has the storage function of historical energy data and historical alarm information
Insulation resistance		≥40MΩ
Environment	Temperature	Working Temperature:-20℃～+60℃；Storage Temperature:-40℃～+70℃

	Humidity	≤98% no condensation, no corrosive gas place
	Altitude	≤4000m

4 Dimension And Wiring Instruction

4.1 Dimensions (Unit：mm)

1) AMC200(L) DC Multi-Circuit Intelligent Power Acquisition And Monitoring Device

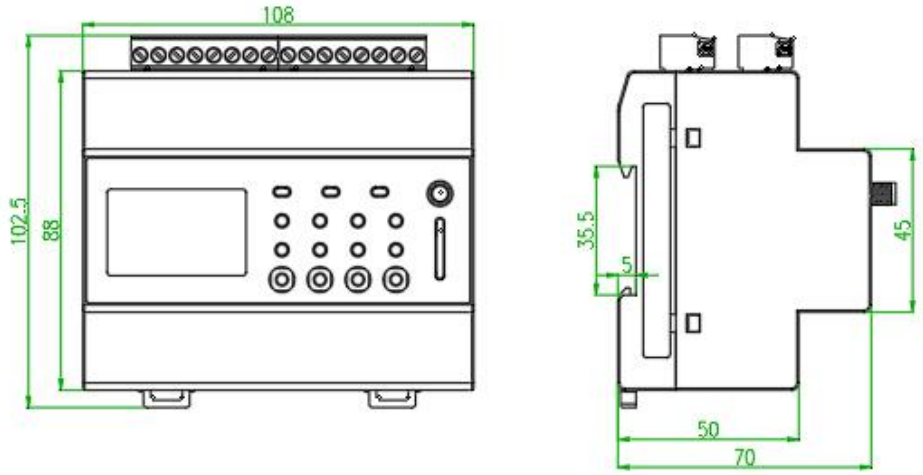
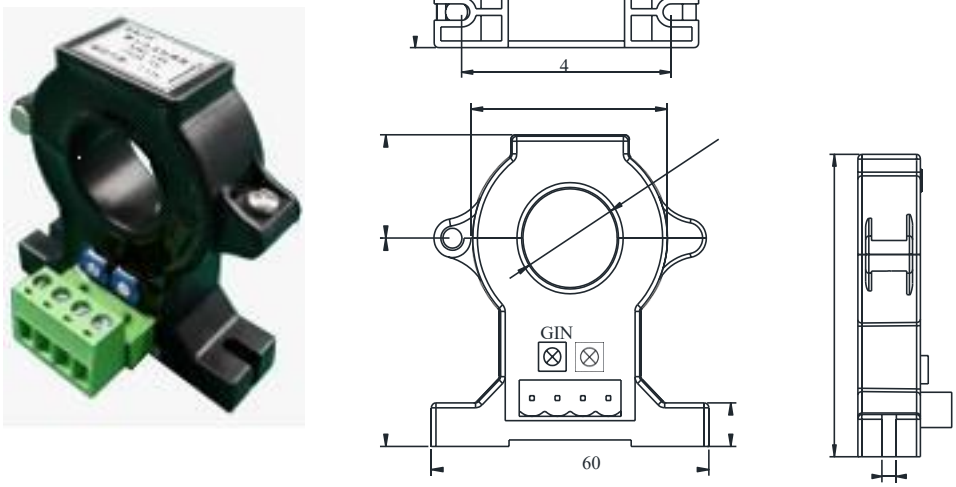
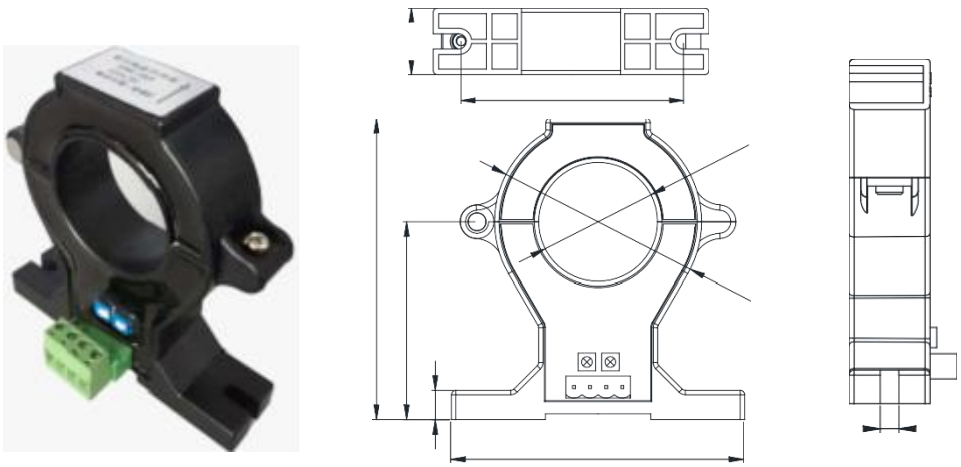


Figure 1 Dimension of AMC200(L)

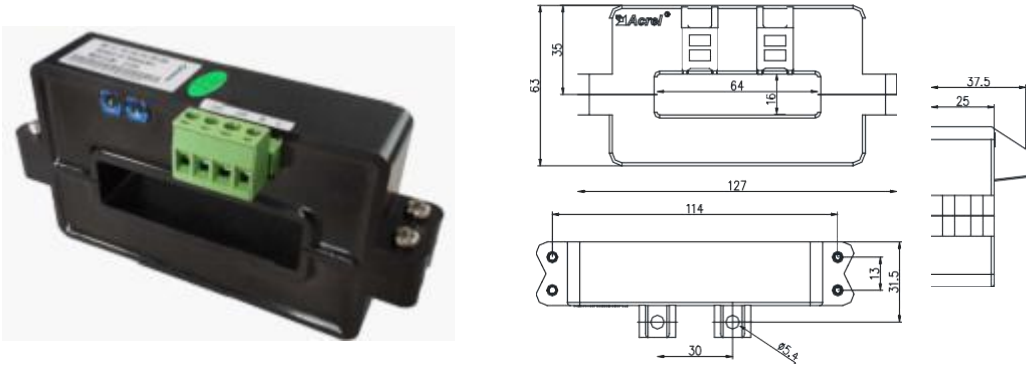
2) Recommend Hall Current Sensor



AHKC-EKA（50A/5V）Diameter Φ20mm



AHKC-EKB（100A/5V）Diameter Φ40mm



AHKC-K(200A/5V) Diameter Φ64*16mm

Figure 2 Recommend Dimension of Hall Current Sensor

4.2 Installation Method

1) AMC200(L) DC Multi-Circuit Intelligent Power Acquisition And Monitoring Device

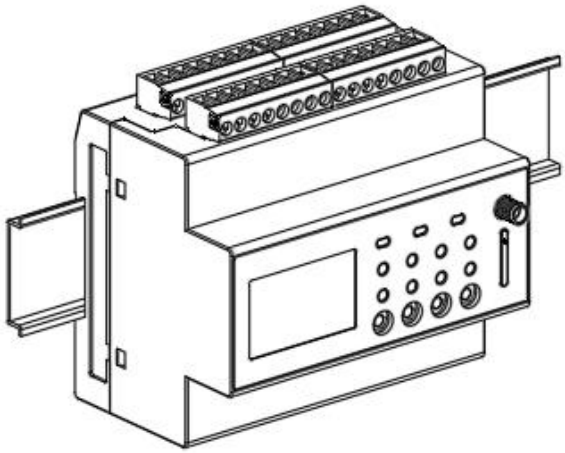


Figure 3 AMC200(L) Installation Method

2) Hall Current Sensor

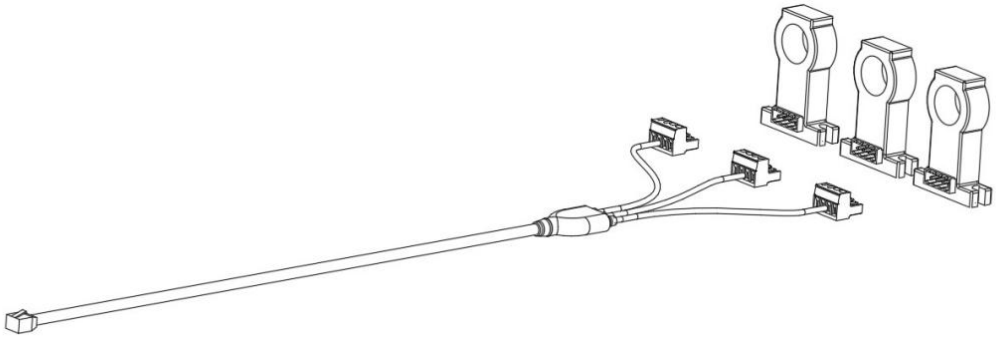


Figure 4 Matching Hall Current sensor installation method

4.3 Wiring Instruction

1) Wiring Terminal Instruction

AMC200L-12DE

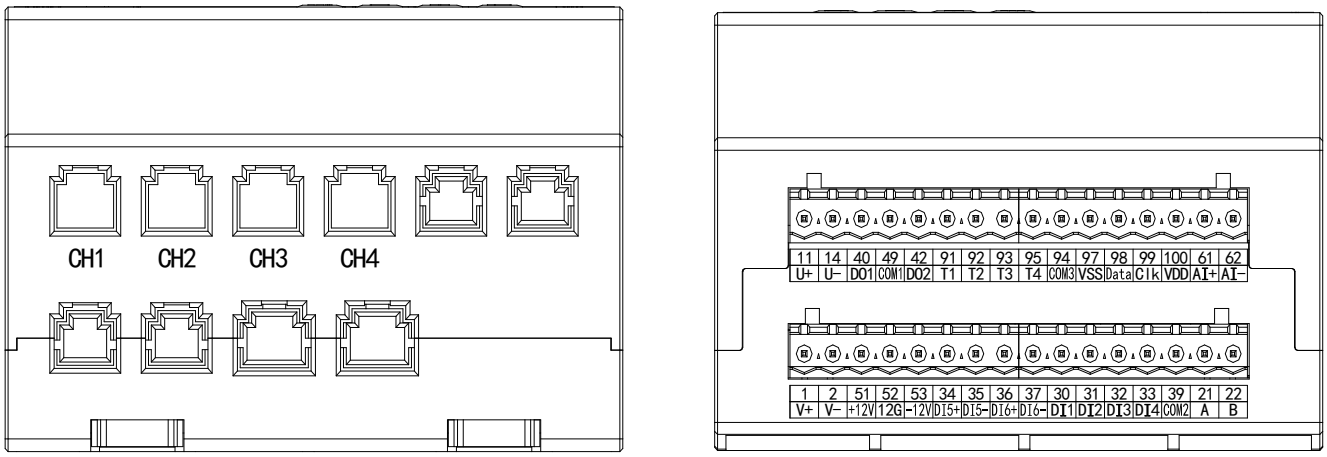


Figure 5 AMC200L DC Wiring Terminal Diagram

Terminal Number	Definition	Instruction	Remark
1	V+	Auxiliary power	DC 40-60V
2	V-		
11	U+	Voltage input	DC 48V
14	U-		
21	A	Communication	RS485 Communication
22	B		
30	DI1	Switch input	Passive dry contact input
31	DI2		
32	DI3		
33	DI4		
39	COM2		
34	DI5+	**Active switch input**	**AC 220V state grid or generator signal access**
35	DI5-		
36	DI6+		
37	DI6-		
40	D01	relay output	AC 250V/3A DC 30V/3A; Normally open contact output; contact capacity: AC 250V/3A DC 30V/3A;
42	DO2		
49	COM1		
51	+12V	Hall Current sensor power supply	Provide power to 12 hall current sensor at the same time
52	12G		
53	-12V		
61	AI+	State Grid Monitoring	DC 0-5V
62	AI-		
91	T1	NTC Temperature Monitoring	Temperature Range:-20-100℃（Accuracy ±2℃）
92	T2		
93	T3		
95	T4		
94	COM3		
97	VSS	Humidity And	Temperature:-20-100℃（Accuracy±2℃）

98	Data	Temperature Monitoring	Humidity：20-90%RH（Accuracy ±5%RH）
99	Clk		
100	VDD		
	CH1-CH4	Number of current Circuit	One CHx represents 3 single-phase DC circuits, AMC200L-12DE can connect up to 12 single-phase circuits;

2) Voltage, current and Hall current sensor wiring method (the figure below takes one channel as an example)

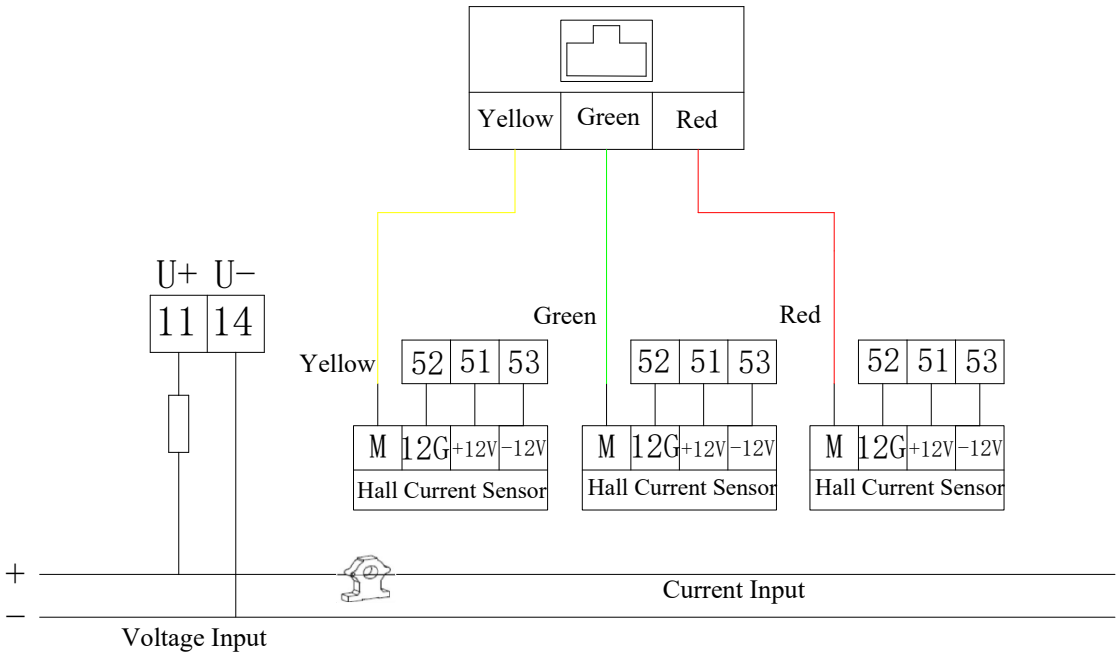


Figure 6 AMC200LVoltage、Current And Hall Current Sensor Wiring Method

Note: A group of two Hall connecting lines needs to be connected to the M terminals. For example: the yellow lead wire of one connecting line is a group of yellow and black, corresponding to the yellow part of the above picture, and needs to be connected to the same group of yellow lines and black lines.

3) Humidity And Temperature Sensor Wiring Method

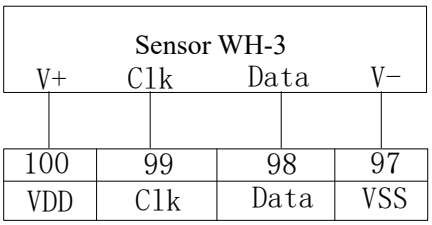
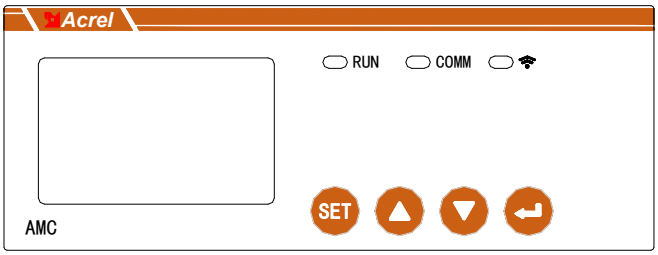


Figure 7 Humidity And Temperature Sensor Wiring Method

5 Use And Operation Guide

5.1 Panel And Button Function Instruction

5.1.1Panel Instruction

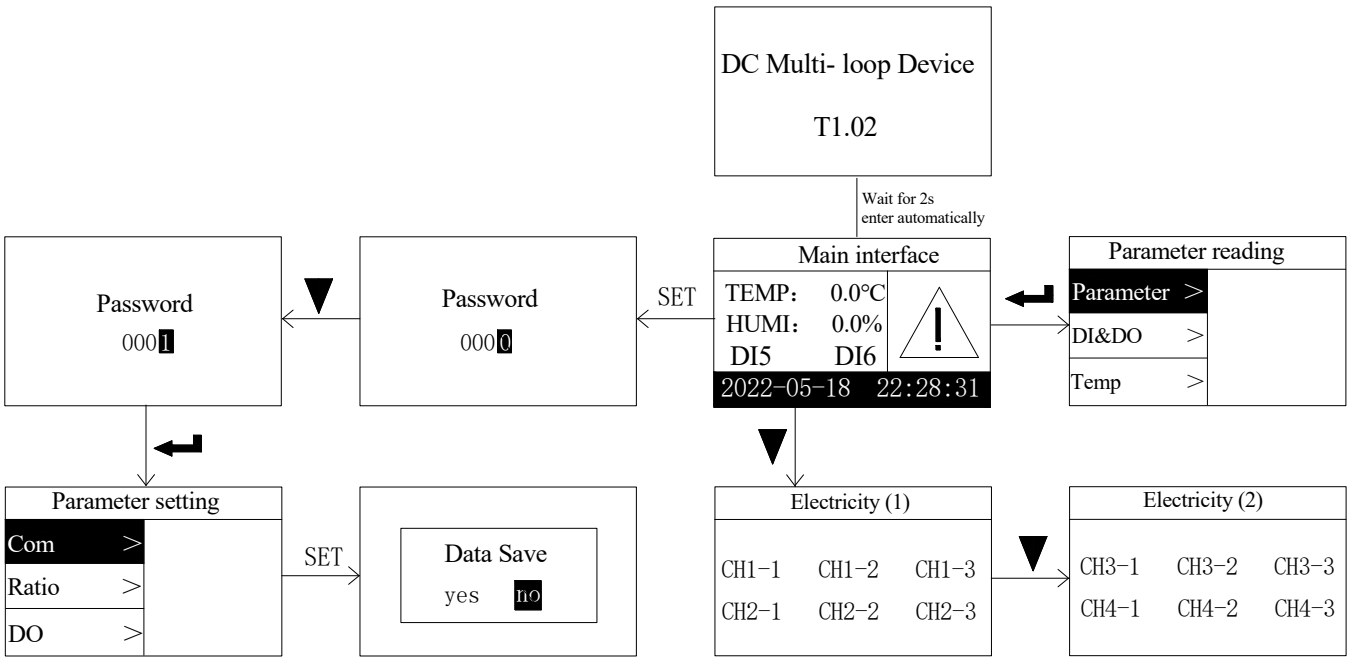
AMC200L-12DE	

5.1.2 Button Function Instruction (for the Meter Model with LCD Display)

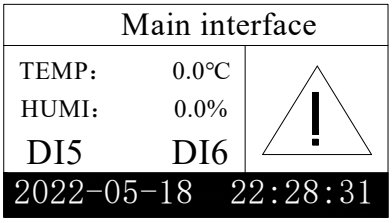
SET Button(SET)	In the measurement mode, press this key to enter the parameter setting mode, the instrument prompts to enter the password PASS, after entering the correct password (0001), the instrument can be parameterized; In parameter mode, press this key to save data or not, it can be used to return to the previous menu;
Up Button(▲)	In measurement mode, it is used to switch display items; In the parameter setting mode, it is used for the selection of menu items and the selection of the number of digits for parameters;
Down Button(▼)	In measurement mode, it is used to switch display items; In parameter setting mode, it is used to select menu items and increase the value of each digit;
Enter Button(↵)	In measurement mode, it is used for parameter viewing; In parameter setting mode, it is used to confirm the selection of menu items and confirm the modification of parameters;

5.2 Power-up Operation And Display Instruction

After power-on, the power-on interface is displayed as DC multi-loop device; after waiting for 2S, the power-on interface will automatically enter the main interface: (1) Press the SET button to enter the password interface, press the button to enter the password "0001", and press the Enter button to enter the parameter setting interface (the parameter setting options will be explained in detail in 5.4), press the SET button to enter the data saving interface, and use the up and down buttons to switch the cursor to select whether to save; (2) Press the button to enter the electricity (1) interface, Then press the button to enter the electricity (2) interface; (3) press the Enter button to enter the main interface (the parameter reading options will be explained in detail in 5.3). The operation flowchart is shown in the figure below.



The first interface description is shown in the figure below：



：Exclamation mark will be displayed when alarming

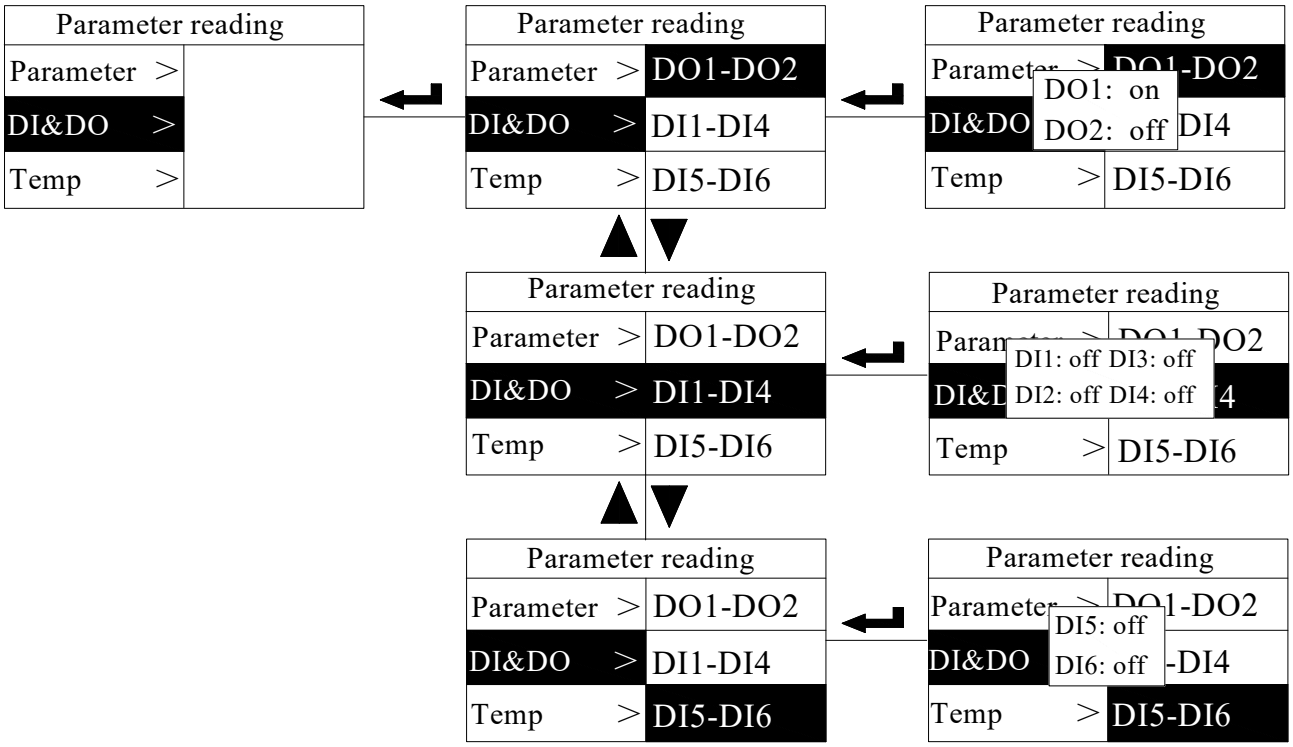
DI5、DI6：Active input

（DI5：When there are white characters on a black background, it means that there is a signal in the active input)

5.3 Parameter reading interface Instruction

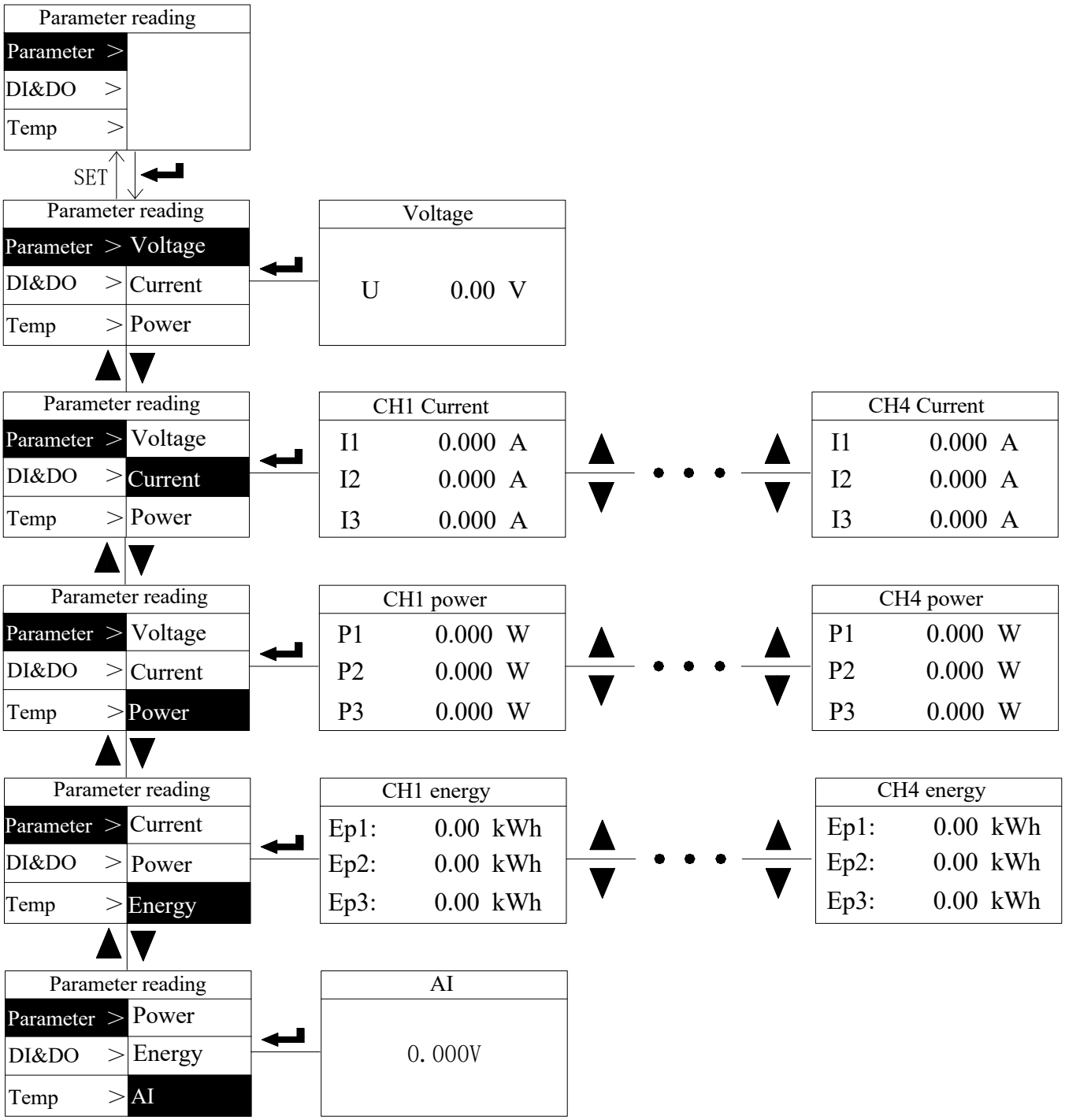
5.3.1 DI&DO Instruction

Press the up or the down button button to move the cursor to the DI&DO interface. Press the Enter button to see three categories, Pressing the the up or the down button enter button can pop up corresponding window that shows the data record of DO1-DO2, DI1-DI4 and DI5-DI6.



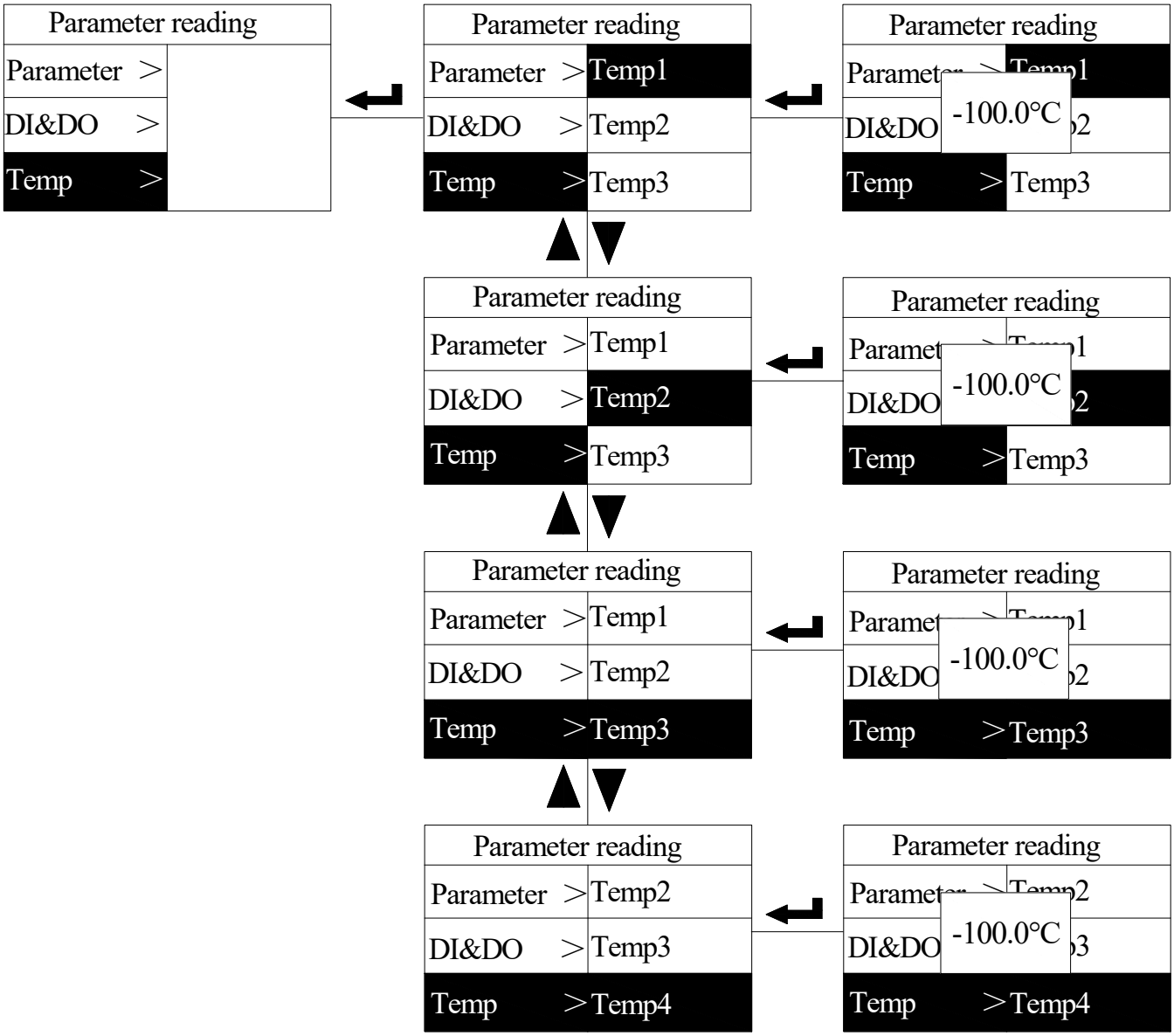
5.3.2 Parameter Instruction

Enter the main interface, the cursor defaults to the parameter, press the Enter button, you can enter the parameter interface to view the information; the parameter column includes voltage, current, power, energy and AI (you can view the parameters through the Enter/up/down buttons for specific information.The default display is the first channel).



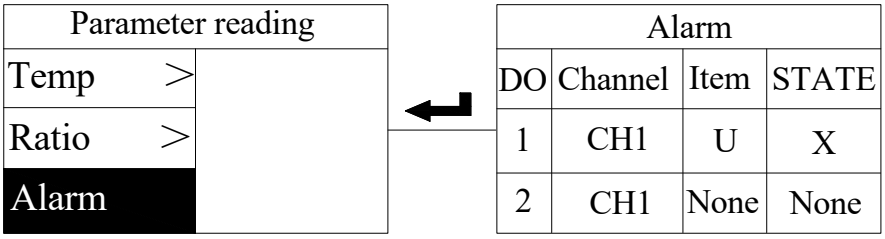
5.3.3 Temperature Instruction

Press the the up or the down button to move the cursor to the temperature interface, press the Enter button to see the four categories of temp1-temp4, and press the Enter button again to view the specific temperature value. When the probe is not connected, the temperature is displayed as -100°C, and when the probe is short-circuited, the temperature is displayed as 200°C.



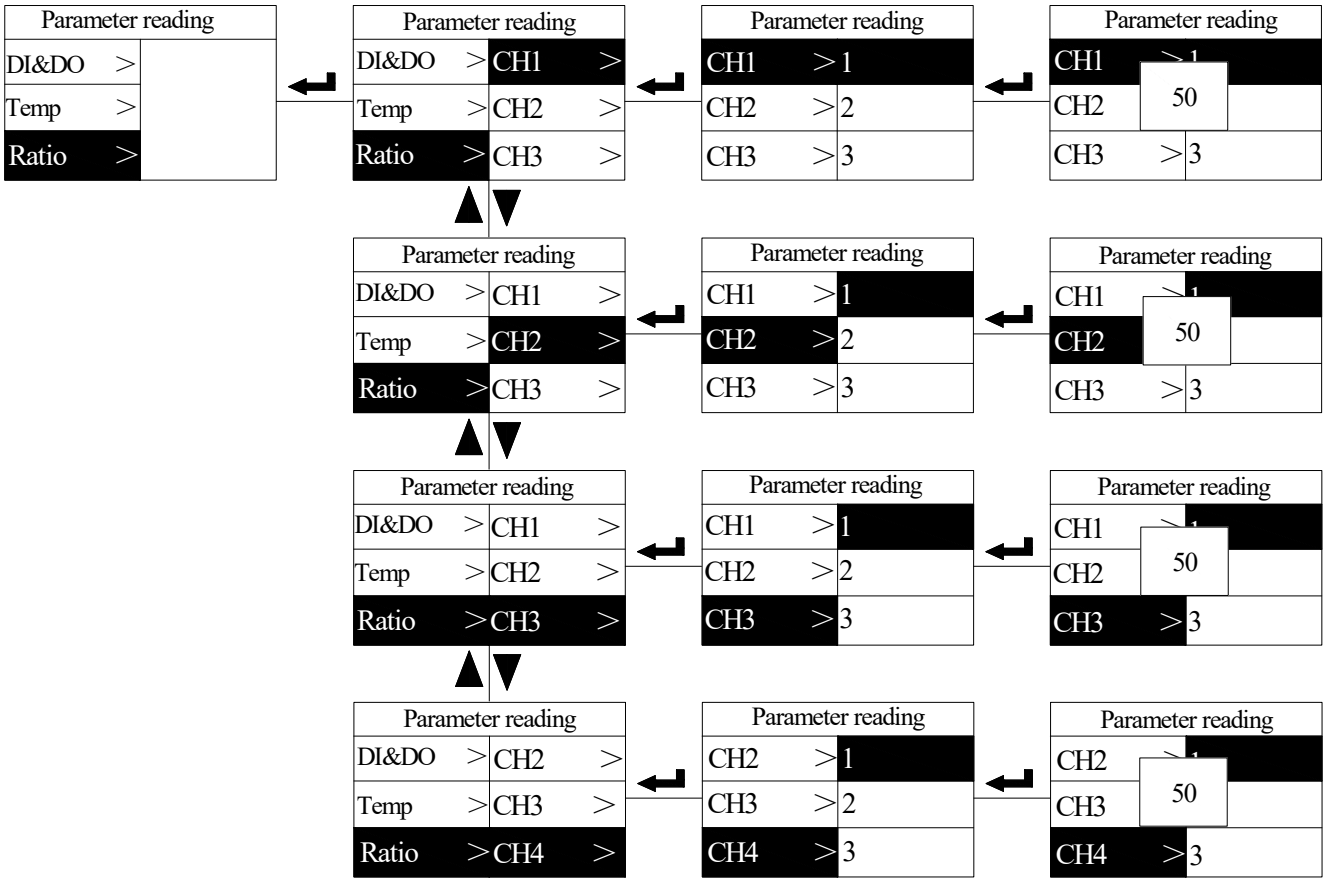
5.3.4 Alarm Instruction

Press the up or the down button to move the cursor to the alarm interface, and press the Enter button to directly view the alarm information.



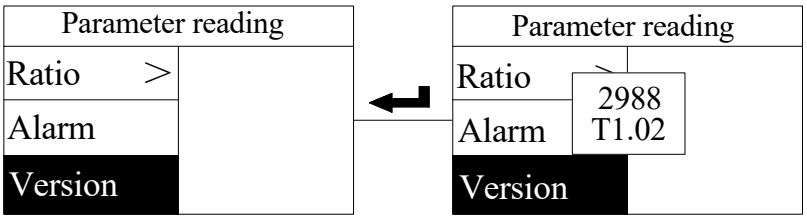
5.3.5 Ratio Instruction

Press the up or the down button to move the cursor to the ratio interface, press the Enter button to see the four channels CH1-CH4, and press the Enter button again to view the ratio value of each channel. The default value is "50", **the current ratio can be set according to the primary current mode, for example, the Hall sensor specification is 200A/5V, and the current transformation ratio is set to 200.**



5.3.6 Version Instruction

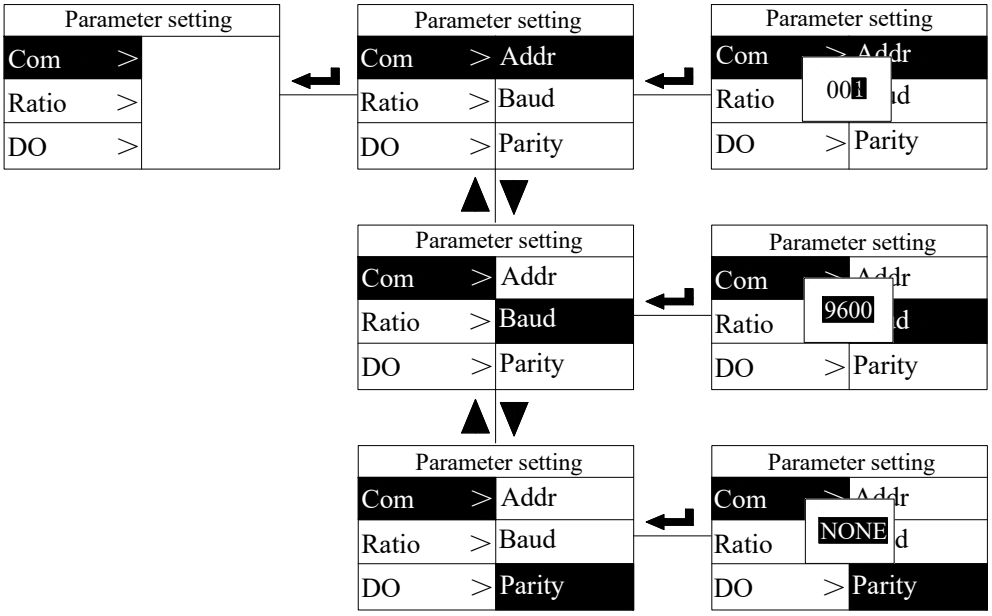
Press the up or the down button to move the cursor to the version interface, press the Enter button to view the program number and version number information directly.



5.4 Parameter Setting Instruction

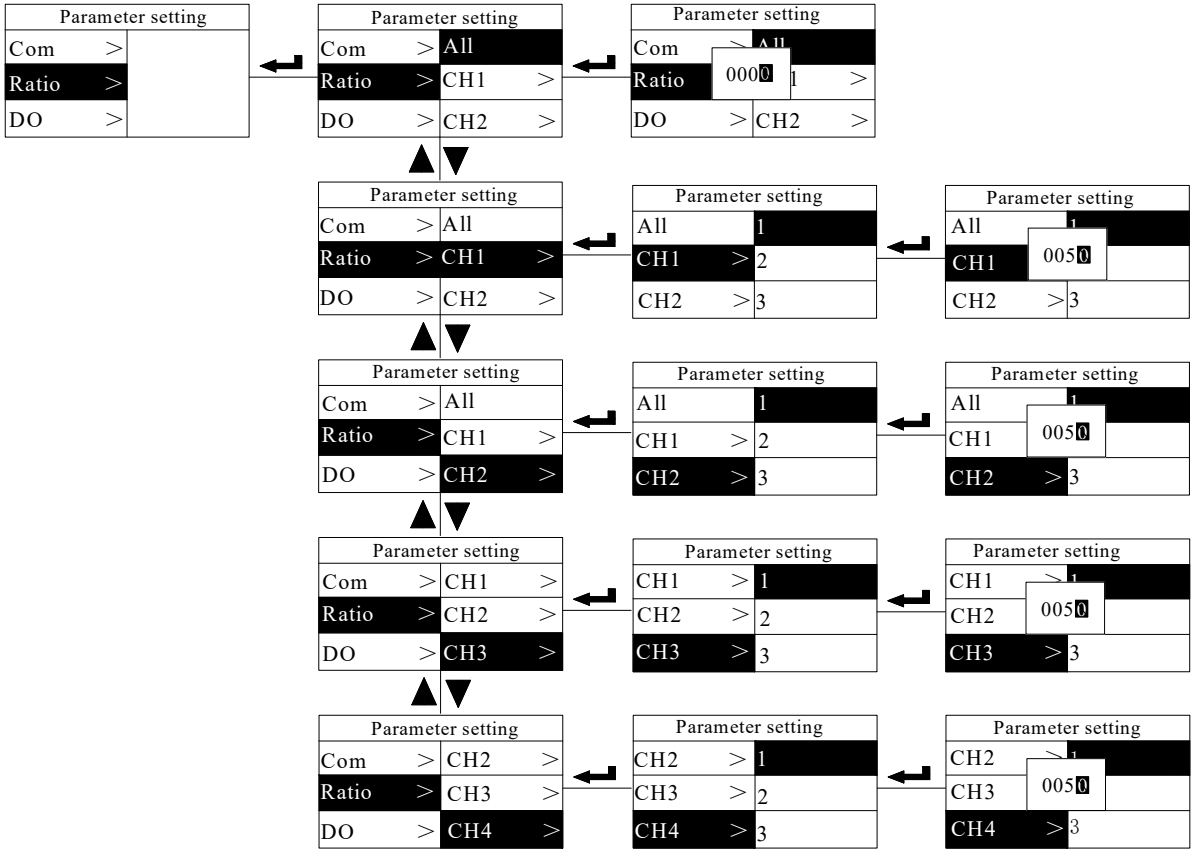
5.4.1 Communication Parameter Setting

Enter the parameter setting interface, the cursor stops at the communication setting by default, press the Enter button to see the three types of address, baud rate, and parity, and press the Enter button again to pop up various parameter interfaces that can be set; press the up and down buttons to Switch the settings of address, baud rate and parity. The address can be set to 1-247; the baud rate can be set to 1200, 2400, 4800, 9600; the parity bit can be set to EVEN (even parity), ODD (odd parity), NONE (no parity).



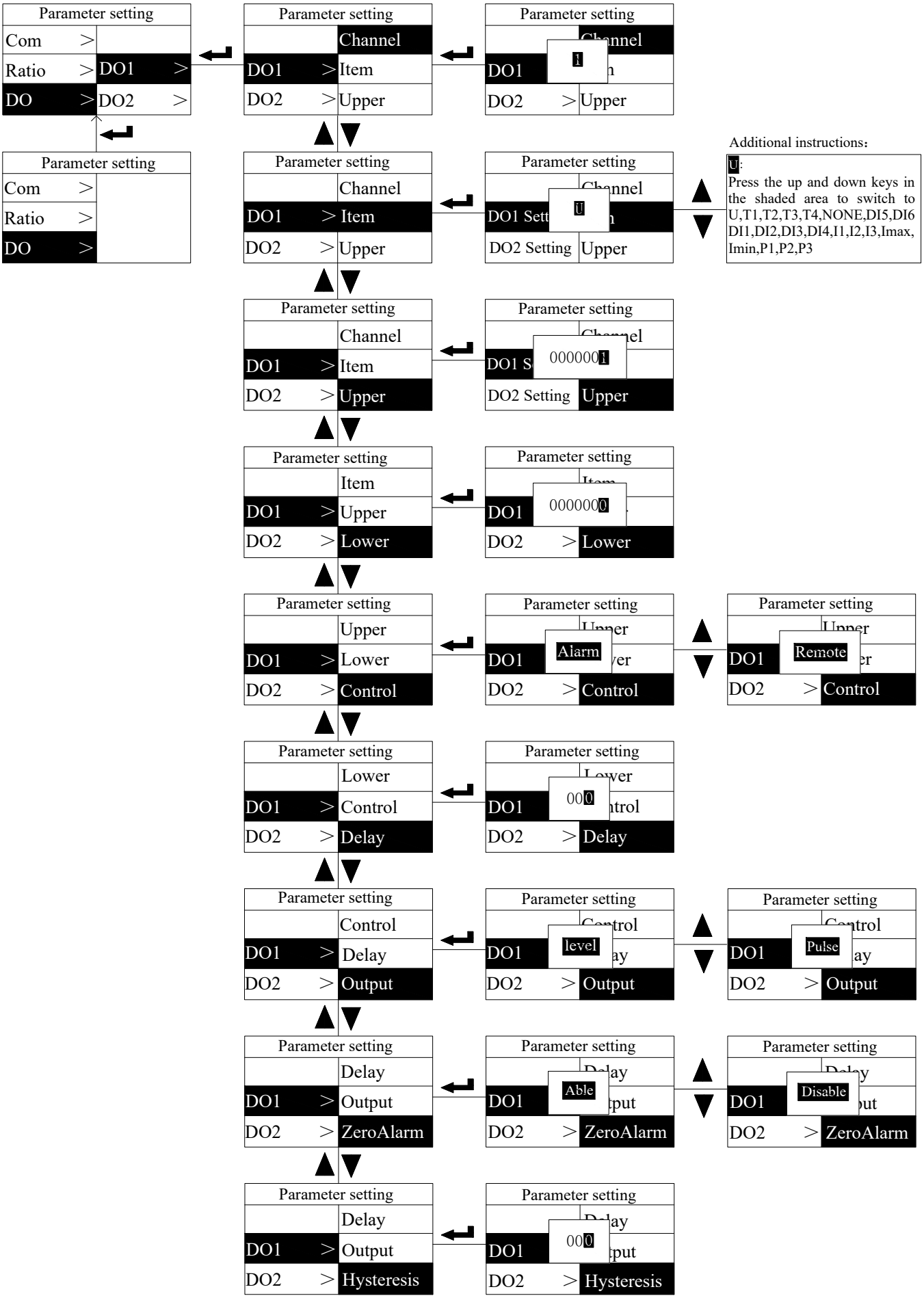
5.4.2 Ratio Parameter Setting

Press the up or the down button to move the cursor to the ratio setting, press the Enter button to see all channels and the four channels CH1-CH4, and press the Enter button again to pop up various parameters that can be set. The default ratio of each channel is 1.



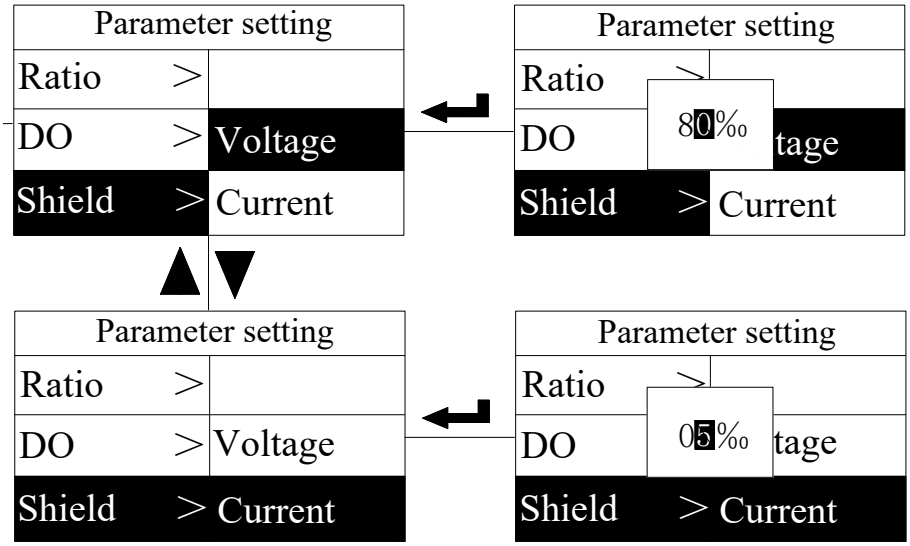
5.4.3 DO Parameter Setting

Press the up or the down button to move the cursor to the DO setting, press the Enter button to see the DO1 setting, DO2 setting, press the Enter button, various parameters that can be set will pop up, including alarm channel,alarm item,control,alarm upper limit,alarm lower limit,alarm delay, output mode, zero alarm enable, alarm hysteresis. The settable parameters of DO1 and D02 are the same. The following is DO1 for example.The control can be set to remote and alarm; the output can be set to level (0 or 1) and  pulse; the delay can be set to 1-999; the upper alarm limit can be set to 204, and the lower alarm limit can be set to 105; all alarm item please refer to the supplementary description for alarm selection.


Parameter setting
Com >
Ratio >
DO >
DO1 >
DO2 >
Channel
Item
Upper
Lower
Control
Delay
Output
Hysteresis
ZeroAlarm
Alarm
Remote
level
Pulse
Able
Disable
Setting
Additional instructions:
U:
Press the up and down keys in the shaded area to switch to U,T1,T2,T3,T4,NONE,DI5,DI6 DI1,DI2,DI3,DI4,I1,I2,I3,Imax, Imin,P1,P2,P3

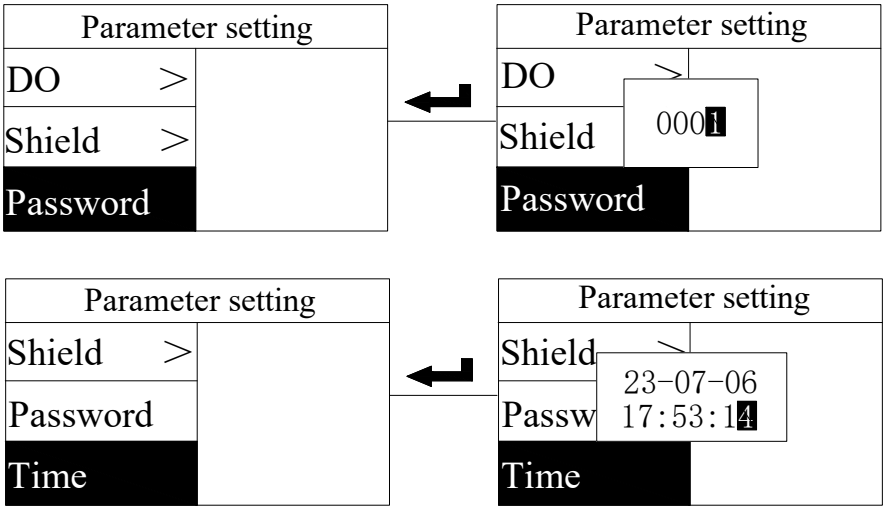
5.4.4 Shield Parameter Setting

Press the up or the down button to move the cursor to the zero point shield, press the Enter button to see the two types of voltage and current, press the Enter button again to set the voltage and current parameters, the voltage shielding value defaults to 80‰, and the current shielding value defaults to 5‰.



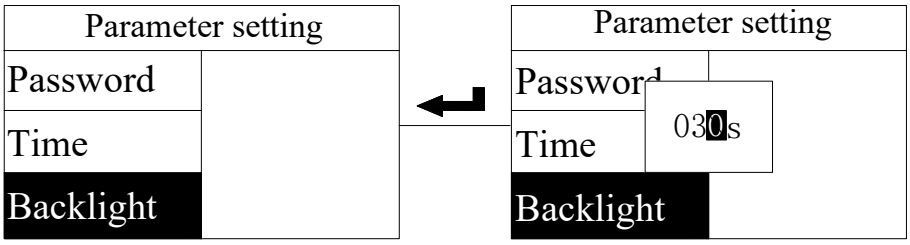
5.4.5 Password And Time Setting

Press the up button or the down button to move the cursor to the password setting or time setting, press the Enter button to enter the password setting or time setting interface, the password can be set to 1-9999, the default secret is 1; the time can be set with the up and down keys to set the year, month, day, hour, minute, and second.



5.4.6 Backlight Time Settings

Press the up or the down button to move the cursor to the backlight time, and press the Enter button to enter the backlight time setting interface.Backlight time can be set to 0-300s, and "0" means it is always on.



6 Communication Instruction

Communication Address

Address	Decimal	Content	Data Type	Number of bytes	R/W	Unit	Remark
0	0	Address	uint16_t	2	R/W		1-247
1	1	Baud Rate	uint16_t	2	R/W		0：1200；1：2400； 2：4800； 3：9600；4：19200；5：38400；
2	2	Check Digit	uint16_t	2	R/W		0: No parity 1: Odd parity 2: Even parity
3	3	Meter Model	uint16_t	2	R/W		4：AMC200-12DE;5:AMC200-24DE 6:AMC200-12DE_4G；7:AMC200-12DE_NB; 8:AMC200-24DE_4G；9:AMC200-24DE_NB; 10:AMC200L-12DE;11:AMC200L-24DE 12:AMC200L-12DE_4G； 13:AMC200L-12DE_NB; 14:AMC200L-24DE_4G； 15:AMC200L-24DE_NB;
4	4	Numbers of channels	uint16_t	2	R		12：12 channels 24：24 channels；
5	5	On-site storage time interval	uint16_t	2	R/W	minute	Default: 60 minutes
6	6	meter time	uint16_t	2	R/W		Hex Such as: 0x00 0x15 -> 0x00 discard 21 years
7	7		uint16_t	2	R/W		Hex Such as: 0x01 0x03 -> January 3
8	8		uint16_t	2	R/W		Hex Such as: 0x03 0x15 -> Wednesday 21:00
9	9		uint16_t	2	R/W		Hex Such as: 0x01 0x03 -> 1 minute 3 seconds
A	10	Protocol Selection	uint16_t	2	R/W		0: Modbus 1: Tower protocol Default: Modbus
B	11	page countdown	uint16_t	2	R/W	Second	Default: 180 seconds Range is (60-65536) seconds
C	12	Voltage zero shield value	uint16_t	2	R/W		Example: 8 means 8 thousandths The range is thousandths (3-99)
D	13	Current zero shield value	uint16_t	2	R/W		Example: 8 means 8 thousandths The range is thousandths (3-99)
E	14	Home Current Display	uint16_t	2	R/W		1: The home page displays the first current
F	15	DO1 alarm upper limit value	uint32_t	2	R/W		DO1 alarm upper limit value>0
10	16						
11	17	DO1 alarm lower limit value	uint32_t	2	R/W		DO1 alarm upper limit value≥0
12	18						
13	19	system password	uint16_t	2	R/W		1-9999
14	20	meter reading day	uint16_t	2	R/W		Hex Such as: 0x15 0x02 -> 02:00 on the 21st
15	21	Meter Number	uint32_t	2	R/W		
16	22						

17	23	Backlight time	uint16_t	2	R/W	Second	The default range is 30 seconds (0-300)
18	24	Rated voltage	uint16_t	2	R	V	Default：48V
19	25	Rated current	uint16_t	2	R	A	Default：5V
1A	26	print log	uint16_t	2	R/W		1: On 0: Off
1B	27	DO1_Modbus configuration	uint32_t	2	R/W		(Priority bit0 is the highest) bit0:I1;bit1:I2; bit2:I3 ;bit3:current maximum value;bit4:current minimum value bit5:P1; bit6:P2 bit7:P3 bit8:U;bit9:T1;bit10:T2;bit11:T3;bit12:T4 bit13: reserved; bit14: zero alarm enable; bit20-bit27: Alarm hysteresis; bit28-bit31: Number of channels;
1C	28						
1D	29	DO2_Modbus configuration	uint32_t	2	R/W		(Priority bit0 is the highest) bit0:I1;bit1:I2; bit2:I3 ;bit3:current maximum value;bit4:current minimum value bit5:P1; bit6:P2 bit7:P3 bit8:U;bit9:T1;bit10:T2;bit11:T3;bit12:T4 bit13: reserved; bit14: zero alarm enable; bit20-bit27: Alarm hysteresis; bit28-bit31: Number of channels;
1E	30						
1F	31	Zero calibration	uint16_t	2	W		Current zero calibration: 0x8801: the first channel; 0x8802: the second channel; and so on; 0x88FF: all Voltage zero calibration: 0x9901: the first channel; 0x9902: the second channel; and so on; 0x99FF: all
20	32	clear data	uint16_t	2	W		Clear energy: 0x6601: the first channel 0x6602: the second channel; and so on; 0x66FF: all Clear historical data: 0x7701: historical data every minute 0x7702: historical data every 60 minutes; 0x7703: Alarm historical data 0x7704: Historical data of meter reading day; 0x7705: Monthly frozen historical data 0x77FF: All
21	33	DI1-6 status	uint16_t	2	R		1: Closure 0: Disconnect bit0:DI5;bit1:DI6;bit2:DI1; bit3:DI2 ;bit4:DI3;bit5:DI4
22	34	DO1-2 status	uint16_t	2	R		1: Closure 0: Disconnect bit0:DO1 ;bit8:DO2
23	35	DO1-2 control	uint16_t	2	W		1: Closure 0: Disconnect bit0:DO1 ;bit8:DO2
24	36	DO1_TOWER	uint32_t	4	R/W		(Priority bit0 is the highest)

25	37	configuration						bit0:DI5;bit1:DI6;bit2:DI1; bit3:DI2 ;bit4:DI3;bit5:DI4 bit6: DC voltage is too high; bit7: DC voltage is too low bit8: A power-off alarm bit9: measurement module failure alarm; bit10: AC input power failure bit19: (1: level output 0: pulse output); bit20: remote control or alarm mode selection (0: remote control 1: alarm) bit21-bit30: pulse width (s)
26	38	DO2_TOWER configuration		uint32_t	4	R/W		(Priority bit0 is the highest) bit0:DI5;bit1:DI6;bit2:DI1; bit3:DI2 ;bit4:DI3;bit5:DI4 bit6: DC voltage is too high; bit7: DC voltage is too low bit8: A power-off alarm bit9: measurement module failure alarm; bit10: AC input power failure bit19: (1: level output 0: pulse output); bit20: remote control or alarm mode selection (0: remote control 1: alarm) bit21-bit30: pulse width (s)
27	39							
28	40	Gateway Serial Identification Number	SN	char	20	R/W		SN number is 14 digits and the last 6 digits are reserved Default: acrel000000001000000 In the register, the high-order bits come first, and the low-order bits come first; example: the sixteen-bit data stored in register 60 is 0x6361
29	41							
2A	42							
2B	43							
2C	44							
2D	45							
2E	46							
2F	47							
30	48							
31	49							
32	50	Reserve						
33	51	IP		uint16_t	2	R/W		Example: 0x23 0x70 0x1A 0x1E means IP: 112.35.30.26
34	52							
35	53	The port number		uint16_t	2	R/W		For example: 0x1ADF means port number: 6879
36	54	RSSI		uint16_t	2	R		Signal value
37	55	link 1 marker		uint16_t	2	R		Connected to Acrel Firefighting Cloud Platform Flag Bit 1: Linked 0: Not Connected
38	56	Temperature	T1 Temperature T1	uint16_t	2	R	℃	NTC is not connected to display -100°C, short-circuited display -200°C
39	57		Temperature	uint16_t	2	R	℃	NTC is not connected to display -100°C,

		Temperature And Humidity	T2					short-circuited display -200°C
3A	58		Temperature T3	uint16_t	2	R	℃	NTC is not connected to display -100°C, short-circuited display -200°C
3B	59		Temperature T4	uint16_t	2	R	℃	NTC is not connected to display -100°C, short-circuited display -200°C
3C	60		Environment Temperature	float	4	R	℃	Missed display 9999℃
3D	61							
3E	62		Environment Humidity	float	4	R	%	Missed display 9999℃
3F	63							
40	64	DO2 alarm upper limit value		uint32_t	2	R/W		
41	65							
42	66	DO2 alarm lower limit value		uint32_t	2	R/W		
43	67							
44	68	Electrical parameter threshold	DC voltage too high threshold	uint32_t	4	R/W	V	Default: 58.00V Actual value = Communication value /100
45	69							
46	70		DC voltage too low threshold	uint32_t	4	R/W	V	Default: 47.00V Actual value = Communication value /100
47	71							
48	72		DC one-time power-off alarm threshold	uint32_t	4	R/W	V	Default: 46.00V Actual value = Communication value /100
49	73							
4A	74		AC input power failure alarm threshold	uint32_t	4	R/W	Hz	Default: 85.00V Actual value = Communication value /100
4B	75							
4C	76		AC Voltage Calculation Parameters	uint32_t	4	R/W	Hz	Default：0
4D	77							
4E	78	Software	software number	uint16_t	2	R		Hex Such as: 0x06 0xD2 -> 1746
4F	79		version number	uint16_t	2	R		Hex Such as: 0x00 0x64 -> V100
50	80	CT1		uint16_t	2	R/W		1-9999
51	81	CT2		uint16_t	2	R/W		1-9999
52	82	CT3		uint16_t	2	R/W		1-9999
53	83	CT4		uint16_t	2	R/W		1-9999
54	84	CT5		uint16_t	2	R/W		1-9999
55	85	CT6		uint16_t	2	R/W		1-9999
56	86	CT7		uint16_t	2	R/W		1-9999

57	87	CT8	uint16_t	2	R/W		1-9999
58	88	CT9	uint16_t	2	R/W		1-9999
59	89	CT10	uint16_t	2	R/W		1-9999
5A	90	CT11	uint16_t	2	R/W		1-9999
5B	91	CT12	uint16_t	2	R/W		1-9999
5C	92	CT13	uint16_t	2	R/W		1-9999
5D	93	CT14	uint16_t	2	R/W		1-9999
5E	94	CT15	uint16_t	2	R/W		1-9999
5F	95	CT16	uint16_t	2	R/W		1-9999
60	96	CT17	uint16_t	2	R/W		1-9999
61	97	CT18	uint16_t	2	R/W		1-9999
62	98	CT19	uint16_t	2	R/W		1-9999
63	99	CT20	uint16_t	2	R/W		1-9999
64	100	CT21	uint16_t	2	R/W		1-9999
65	101	CT22	uint16_t	2	R/W		1-9999
66	102	CT23	uint16_t	2	R/W		1-9999
67	103	CT24	uint16_t	2	R/W		1-9999
68	104	5V voltage sampling value	uint16_t	2	R/W		Unit:mV
69	105	AC input voltage	uint16_t	2	R		Unit V = 5V voltage sampling value * AC voltage calculation parameters With two decimal places, actual value = communication value / 100;

Channel 1-12 Remote Monitor Data

6A	106	The 1st channel	DC voltage	float	4	R	V	
6B	107							
6C	108		DC Current	float	4	R	A	
6D	109							
6E	110		DC power	float	4	R	kW	
6F	111							
70	112		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
71	113							
72	114	The 2nd channel	DC voltage	uint32_t	4	R	V	
73	115							
74	116		DC Current	uint32_t	4	R	A	
75	117							
76	118		DC power	uint32_t	4	R	kW	

77	119							
78	120		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
79	121							
7A	122	The 3rd channel	DC voltage	uint32_t	4	R	V	
7B	123							
7C	124		DC Current	uint32_t	4	R	A	
7D	125							
7E	126		DC power	uint32_t	4	R	kW	
7F	127							
80	128		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
81	129							
82	130	The 4th channel	DC voltage	uint32_t	4	R	V	
83	131							
84	132		DC Current	uint32_t	4	R	A	
85	133							
86	134		DC power	uint32_t	4	R	kW	
87	135							
88	136		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
89	137							
8A	138	The 5th channel	DC voltage	uint32_t	4	R	V	
8B	139							
8C	140		DC Current	uint32_t	4	R	A	
8D	141							
8E	142		DC power	uint32_t	4	R	kW	
8F	143							
90	144		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
91	145							
92	146	The 6th channel	DC voltage	uint32_t	4	R	V	
93	147							
94	148		DC Current	uint32_t	4	R	A	
95	149							
96	150		DC power	uint32_t	4	R	kW	
97	151							
98	152		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
99	153							

9A	154	The 7th channel	DC voltage	uint32_t	4	R	V	
9B	155							
9C	156		DC Current	uint32_t	4	R	A	
9D	157							
9E	158		DC power	uint32_t	4	R	kW	
9F	159							
A0	160		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
A1	161							
A2	162	The 8th channel	DC voltage	uint32_t	4	R	V	
A3	163							
A4	164		DC Current	uint32_t	4	R	A	
A5	165							
A6	166		DC power	uint32_t	4	R	kW	
A7	167							
A8	168		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
A9	169							
AA	170	The 9th channel	DC voltage	uint32_t	4	R	V	
AB	171							
AC	172		DC Current	uint32_t	4	R	A	
AD	173							
AE	174		DC power	uint32_t	4	R	kW	
AF	175							
B0	176		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
B1	177							
B2	178	The 10th channel	DC voltage	uint32_t	4	R	V	
B3	179							
B4	180		DC Current	uint32_t	4	R	A	
B5	181							
B6	182		DC power	uint32_t	4	R	kW	
B7	183							
B8	184		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
B9	185							
BA	186	The 11st channel	DC voltage	uint32_t	4	R	V	
BB	187							
BC	188		DC Current	uint32_t	4	R	A	

BD	189							
BE	190		DC power	uint32_t	4	R	kW	
BF	191							
C0	192		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
C1	193							
C2	194	The 12nd channel	DC voltage	uint32_t	4	R	V	
C3	195							
C4	196		DC Current	uint32_t	4	R	A	
C5	197							
C6	198		DC power	uint32_t	4	R	kW	
C7	199							
C8	200		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
C9	201							

Channel 13-24 Remote Monitor Data

Address	Decimal	Content		Number of bytes	R/W	Unit	Remark	Number of bytes
CA	202	The 13rd channel	DC voltage	uint32_t	4	R	V	
CB	203							
CC	204		DC Current	uint32_t	4	R	A	
CD	205							
CE	206		DC power	uint32_t	4	R	kW	
CF	207							
D0	208		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
D1	209							
D2	210	The 14th channel	DC voltage	uint32_t	4	R	V	
D3	211							
D4	212		DC Current	uint32_t	4	R	A	
D5	213							
D6	214		DC power	uint32_t	4	R	kW	
D7	215							
D8	216		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
D9	217							
DA	218	The 15th channel	DC voltage	uint32_t	4	R	V	
DB	219							
DC	220		DC Current	uint32_t	4	R	A	
DD	221							
DE	222		DC power	uint32_t	4	R	kW	
DF	223							
E0	224		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
E1	225							
E2	226	The 16th	DC voltage	uint32_t	4	R	V	

E3	227	channel						
E4	228		DC Current	uint32_t	4	R	A	
E5	229							
E6	230		DC power	uint32_t	4	R	kW	
E7	231							
E8	232		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
E9	233							
EA	234	The 17th channel	DC voltage	uint32_t	4	R	V	
EB	235							
EC	236		DC Current	uint32_t	4	R	A	
ED	237							
EE	238		DC power	uint32_t	4	R	kW	
EF	239							
F0	240		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
F1	241							
F2	242	The 18th channel	DC voltage	uint32_t	4	R	V	
F3	243							
F4	244		DC Current	uint32_t	4	R	A	
F5	245							
F6	246		DC power	uint32_t	4	R	kW	
F7	247							
F8	248		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
F9	249							
FA	250	The 19th channel	DC voltage	uint32_t	4	R	V	
FB	251							
FC	252		DC Current	uint32_t	4	R	A	
FD	253							
FE	254		DC power	uint32_t	4	R	kW	
FF	255							
100	256		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
101	257							
102	258	The 20th channel	DC voltage	uint32_t	4	R	V	
103	259							
104	260		DC Current	uint32_t	4	R	A	
105	261							
106	262		DC power	uint32_t	4	R	kW	
107	263							
108	264		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
109	265							
10A	266	The 21st channel	DC voltage	uint32_t	4	R	V	
10B	267							
10C	268		DC Current	uint32_t	4	R	A	
10D	269							
10E	270		DC power	uint32_t	4	R	kW	

10F	271							
110	272		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
111	273							
112	274	The 22nd channel	DC voltage	uint32_t	4	R	V	
113	275							
114	276		DC Current	uint32_t	4	R	A	
115	277							
116	278		DC power	uint32_t	4	R	kW	
117	279							
118	280		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
119	281							
11A	282	The 13rd channel	DC voltage	uint32_t	4	R	V	
11B	283							
11C	284		DC Current	uint32_t	4	R	A	
11D	285							
11E	286		DC power	uint32_t	4	R	kW	
11F	287							
120	288		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
121	289							
122	290	The 24th channel	DC voltage	uint32_t	4	R	V	
123	291							
124	292		DC Current	uint32_t	4	R	A	
125	293							
126	294		DC power	uint32_t	4	R	kW	
127	295							
128	296		DC energy reading	uint32_t	4	R	kWh	Unit：0.01kWh
129	297							

Metering module (1-8) alarm information

Address	Decimal	Content		Data Type	Bytes	R/W	Unit	Remark
12A	298	Block 1 Metering Module	The channel DC output voltage is too low+ The channel DC output voltage is too high	uint16_t	1	R		Alarm Instruction 00H: normal 01H: There is an alarm 80~EFH: Custom F0H: Other faults
12B	299		One power off + module failure	uint16_t	1	R		
12C	300	Block 2 Metering Module	The channel DC output voltage is too low+ The channel DC output voltage is too high	uint16_t	1	R		
12D	301		One power off + module failure	uint16_t	1	R		
12E	302	Block 3 Metering Module	The channel DC output voltage is too low+ The channel DC output voltage is too high	uint16_t	1	R		
12F	303		One power off + module failure	uint16_t	1	R		

130	304	Block 4 Metering Module	The channel DC output voltage is too low+ The channel DC output voltage is too high	uint16_t	1	R		
131	305		One power off + module failure	uint16_t	1	R		
132	306	Block 5 Metering Module	The channel DC output voltage is too low+ The channel DC output voltage is too high	uint16_t	1	R		
133	307		One power off + module failure	uint16_t	1	R		
134	308	Block 6 Metering Module	The channel DC output voltage is too low+ The channel DC output voltage is too high	uint16_t	1	R		
135	309		One power off + module failure	uint16_t	1	R		
136	310	Block 7 Metering Module	The channel DC output voltage is too low+ The channel DC output voltage is too high	uint16_t	1	R		
137	311		power off + module failure	uint16_t	1	R		
138	312	Block 8 Metering Module	The channel DC output voltage is too low+ The channel DC output voltage is too high	uint16_t	1	R		
139	313		power off + module failure	uint16_t	1	R		

7 Common Troubleshooting

Analysis and troubleshooting of common faults

Fault Content	Analysis	Remarks
No display when power on	Check if the power supply voltage is within the operating voltage range	
Incorrect readings of voltage, current, energy, etc.	Check whether the voltage-to-current ratio setting is correct Check whether the wiring mode setting is consistent with the actual Check whether the voltage transformer and current transformer are in good condition	
Incorrect power or power factor	Check whether the wiring mode setting is consistent with the actual Check whether the voltage and current phase sequence is correct Check for correct wiring	
Communication is not normal	Check whether the address, baud rate, check digit, etc. in the communication settings are consistent with the host computer Check if the RS485 converter is normal Check if the protocol used by the meter is correct The communication terminal should be connected in parallel with a resistance of more than 120 ohms Check for correct wiring	

Headquarters: Acrel Co., LTD.
Address: No.253 Yulv Road Jiading District, Shanghai，China
TEL.: 0086-21-69158338　0086-21-69156052　0086-21-59156392　0086-21-69156971
Fax: 0086-21-69158303
Web-site: www.acrel-electric.com
E-mail: ACREL008@vip.163.com
Postcode: 201801

Manufacturer: Jiangsu Acrel Electrical Manufacturing Co., LTD.
Address: No.5 Dongmeng Road,Dongmeng industrial Park, Nanzha Street,Jiangyin City,Jiangsu Province,China
TEL：0086-510-86179966
Fax：0086-510-86179975
Web-site: www.jsacrel.com
Postcode: 214405
E-mail: sales@email.acrel.cn