517

ALP500 低压保护测控装置

ALP500 Low voltage protection measurement and control device

安装使用说明书 V1.0

Installation Manual V1.0

安科瑞电气股份有限公司

Acrel Co. Ltd

申　　明

Statement

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The company reserves the right to modify the product specifications described in this manual without prior notice. Before placing an order, please consult your local agent for the latest specification of this product.

目录

1 概述.....1

2 产品特点.....1

3 型号说明.....3

4 主要参数.....8

4.1 技术指标.....8

4.2 功能配置.....10

5 外形及接线端子.....14

5.1 外形尺寸.....14

5.2 端子定义.....15

6 保护功能说明.....22

6.1 过流保护.....22

6.1.1 定时限过流保护.....22

6.1.2 反时限过流.....22

6.2 零序电流保护.....26

6.2.1 定时限零序过流.....26

6.2.2 反时限零序过流.....27

6.3 负序过流保护.....28

6.4 零线过流保护.....28

6.5 电流不平衡保护.....29

6.6 电流需量保护.....29

6.7 联动保护.....30

6.8 欠电压保护.....31

6.9 过电压保护.....31

6.10 电压不平衡保护.....32

6.11 漏电流保护.....32

6.12 欠载保护.....33

6.13 断相保护.....33

6.14 过功率保护.....34

6.15 欠功率保护.....34

6.16 相序保护.....35

6.17 短路保护.....35

6.18 合闸时间保护.....36

6.19 内部故障保护.....36

6.20 控制回路异常保护.....36

6.21 PT 断线保护.....37
6.22 温度传感器故障保护.....37
6.23 过温保护.....38
7 功能设置与说明.....38
7.1 主体按钮与 LED 灯.....38
7.2 功能设置菜单介绍.....39
7.3 操作界面说明.....47
8 通讯设置与说明.....61
8.1 测量参数通讯地址.....61
8.2 谐波数据通讯地址.....95
8.3 系统参数通讯地址.....97
8.4 保护功能通讯地址.....111
8.5 可编程定义通讯地址.....137
8.6 通讯参数设定通讯地址.....144
8.7 事件记录通讯地址.....151
9 典型接线图.....168
9.1 无测量模块，25A、100A 规格接线图.....168
9.2 无测量模块，1A、5A 规格接线图.....170
9.3 有测量模块，25A、100A 规格接线图.....171
9.4 有测量模块，1A、5A 规格接线图.....172

Contents

1 Overview 1

2 Product Features 1

3 Model Description 3

4 Main parameters 8

4.1 Specifications 8

4.2 Function configuration 10

5 Appearance and terminals 14

5.1 Dimensions 14

5.2 Terminal definition 15

6 Protection function description 22

6.1 Overcurrent protection 22

6.1.1 Definite time overcurrent protection 22

6.1.2 Inverse time overcurrent 22

6.2 Zero-sequence current protection 26

6.2.1 Definite-time zero-sequence overcurrent 26

6.2.2 Inverse time zero-sequence overcurrent 27

6.3 Negative sequence overcurrent protection 28

6.4 Neutral line overcurrent protection 28

6.5 Current unbalance protection 29

6.6 Current demand protection 29

6.7 Linkage protection 30

6.8 Undervoltage protection 31

6.9 Overvoltage protection 31

6.10 Voltage unbalance protection 32

6.11 Leakage current protection 32

6.12 Underload protection 33

6.13 Phase failure protection 33

6.14 Overpower Protection 34

6.15 Under-power Protection 34

6.16 Phase sequence protection 35

6.17 Short circuit protection 35

6.18 Closing time protection 36

6.19 Internal fault protection.....36
6.20 Abnormal control circuit protection.....36
6.21 PT disconnection protection.....37
6.22 Temperature sensor fault protection.....37
6.23 Over temperature protection 38
7 Function setting and description.....38
7.1 Main body buttons and LED lights.....38
7.2 Introduction to function setting menu 39
7.3 Operation Interface Description.....47
8 Communication settings and instructions.....61
8.1 Measurement parameter communication address.....61
8.2 Harmonic data communication address 95
8.3 System parameter communication address.....97
8.4 Protection function communication address 111
8.5 Programmable defined communication address.....137
8.6 Communication parameter setting communication address 144
8.7 Event log communication address.....151
9 Typical Wiring Diagram.....168
9.1 No measurement module, 25A, 100A specification wiring diagram.....168
9.2 No measurement module, 1A, 5A specification wiring diagram.....170
9.3 With measurement module, 25A, 100A specification wiring diagram
.....171
9.4 With measurement module, 1A,
.....172

1 概述

1.General

ALP500 低压保护测控装置（以下简称低压保护装置）适用于额定电压至 AC660V 低压配电回路，集电力监控、馈线保护、分合闸控制、通讯组网、节点测温、运维管理等功能于一体。具备反时限过流、三段式过流、过功率、零序过流、欠压、过压、不平衡（电压、电流）、零线过电流、漏电流等多种保护功能。可选配不同通讯模块适应现场通讯需求。

该产品采用嵌入式安装，由主体、互感器和选配的功能模块组成。

ALP500 low-voltage protection measurement and control device (hereinafter referred to as low-voltage protection device) is suitable for low-voltage power distribution circuit with rated voltage to AC660V , integrating power monitoring, feeder protection, opening and closing control, communication networking, node temperature measurement, operation and maintenance management and other functions. It has various protection functions such as inverse time overcurrent, three-stage overcurrent, overpower, zero sequence overcurrent, undervoltage, overvoltage, unbalance (voltage, current), neutral line overcurrent, and leakage current. Different communication modules can be selected to meet the needs of on-site communication.

The product adopts embedded installation and consists of a main body, a transformer and optional functional modules.

2 产品特点

2.Product Description

■ 辅助电源宽电压输入，支持 AC85-265V/DC100-300V 供电。

■ 支持基波和全波全电参量测量（U、I、P、Q、S、PF、F、EP、EQ），电压及电流不平衡度，电压、电流正序、负序、零序分量，三相电压相角，剩余电流，电压、电流 2-63 次分次谐波测量，分次谐波含有率及总谐波畸变率，母线及电气节点测温，零线电流检测，负荷率，需量。

■ 保护功能包括反时限过流、三段式过流、过功率、零序过流、欠电压、过电压、不平衡（电压、电流）、零线过流、漏电流、温度、瞬时速断、负序保护、欠功率、相序、PT 断线、温度传感器故障等。

■ 标配 4 路可编程 DI 输入，可选配开关量模块额外增加 10 路可编程 DI，默认采用内置 DC24V 电源，也可选择外部有源湿接点（详见选型表格）。

■ 4 路可编程 DO 输出，可选配开关量模块额外增加 3 路可编程 DO。

■ 灵活丰富的通讯功能，主体标配 2 路 MODBUS_RTU 通讯，还有 1 路 MODBUS-TCP 模块、1 路 PROFIBUS-DPV0、2 路 PROFIBUS-DPV0 模块、1 路 4G 通讯、1 路 Lora 通讯可供选配（选其一）。

■ 可选配 1-2 路 DC4-20mA 模拟量输出接口，与 DCS 系统相接，可实现对现场设备的监控。

■ 具有分合闸记录、DI 变位记录、故障记录、故障录波等多种事件记录，并显示分合闸状态、断路器异常、运行时间、断路器正常跳闸次数、故障跳闸次数、电压暂降、暂升等各类运行信息及事件。

■ 具备 USB 接口，可通过 U 盘导出故障记录、写入设置数据、升级程序。

■ Auxiliary power supply with wide voltage input, supporting AC85-265V/DC100-300V power supply.

■ Support fundamental wave and full wave full electric parameter measurement (U, I, P, Q, S, PF, F, EP, EQ), voltage and current unbalance, voltage and current positive sequence, negative sequence, zero sequence components , three-phase voltage phase angle, residual current, voltage and current 2-63 sub-harmonic measurement, sub-harmonic content rate and total harmonic distortion rate, bus and electrical node temperature measurement, zero line current detection, load rate , demand.

■ Protection functions include inverse time overcurrent, three-stage overcurrent, overpower, zero sequence overcurrent, undervoltage, overvoltage, unbalance (voltage, current), zero line overcurrent, leakage current, temperature, instantaneous quick break, Negative sequence protection, under power, phase sequence, PT disconnection, temperature sensor failure, etc.

■ 4 channels of programmable DI input as standard, 10 channels of programmable DI can be added as an optional switch module, built-in DC24V power supply is used by default, and external active wet contacts can also be selected (see the selection table for details).

■ 4-way programmable DO output, optional switch module can add 3-way programmable DO.

■ Flexible and rich communication functions, the main body is equipped with 2 channels of MODBUS_RTU communication as standard, and 1 channel of MODBUS-TCP module, 1 channel of PROFIBUS-DPV0, 2 channels of PROFIBUS-DPV0 module, 1 channel of 4G communication, and 1 channel of Lora communication are optional (choose one).

■ 1-2 channels of DC4-20mA analog output interface can be selected to connect with DCS system, which can realize the monitoring of field equipment.

■ It has various event records such as opening and closing records, DI displacement records, fault records, and fault recordings, and displays opening and closing status, abnormality of circuit breakers, running time, times of normal trips of circuit breakers, times of fault trips, voltage temporary Various operating information and events such as descent and sudden rise.

■ Equipped with a USB interface, which can export fault records, write setting data, and upgrade programs through the U disk.

■ 4-way programmable DO output, optional switch module can add 3-way programmable DO.

■ Flexible and rich communication functions, the main body is equipped with 2 channels of MODBUS_RTU communication as standard, and 1 channel of MODBUS-TCP module, 1 channel of PROFIBUS-DPV0, 2 channels of PROFIBUS-DPV0 module, 1 channel of 4G communication, and 1 channel of Lora communication are optional (choose one).

■ 1-2 channels of DC4-20mA analog output interface can be selected to connect with DCS system, which can realize the monitoring of field equipment.

■ It has various event records such as opening and closing records, DI displacement records, fault records, and fault recordings, and displays opening and closing status, abnormality of circuit breakers, running time, times of normal trips of circuit breakers, times of fault trips, voltage temporary Various operating information and events such as descent and sudden rise.

■ Equipped with a USB interface, which can export fault records, write setting data, and upgrade programs through the U disk.

3 型号说明

3. Model Description

ALP500 系列低压保护测控装置 ALP500 Low voltage protection measurement and control device

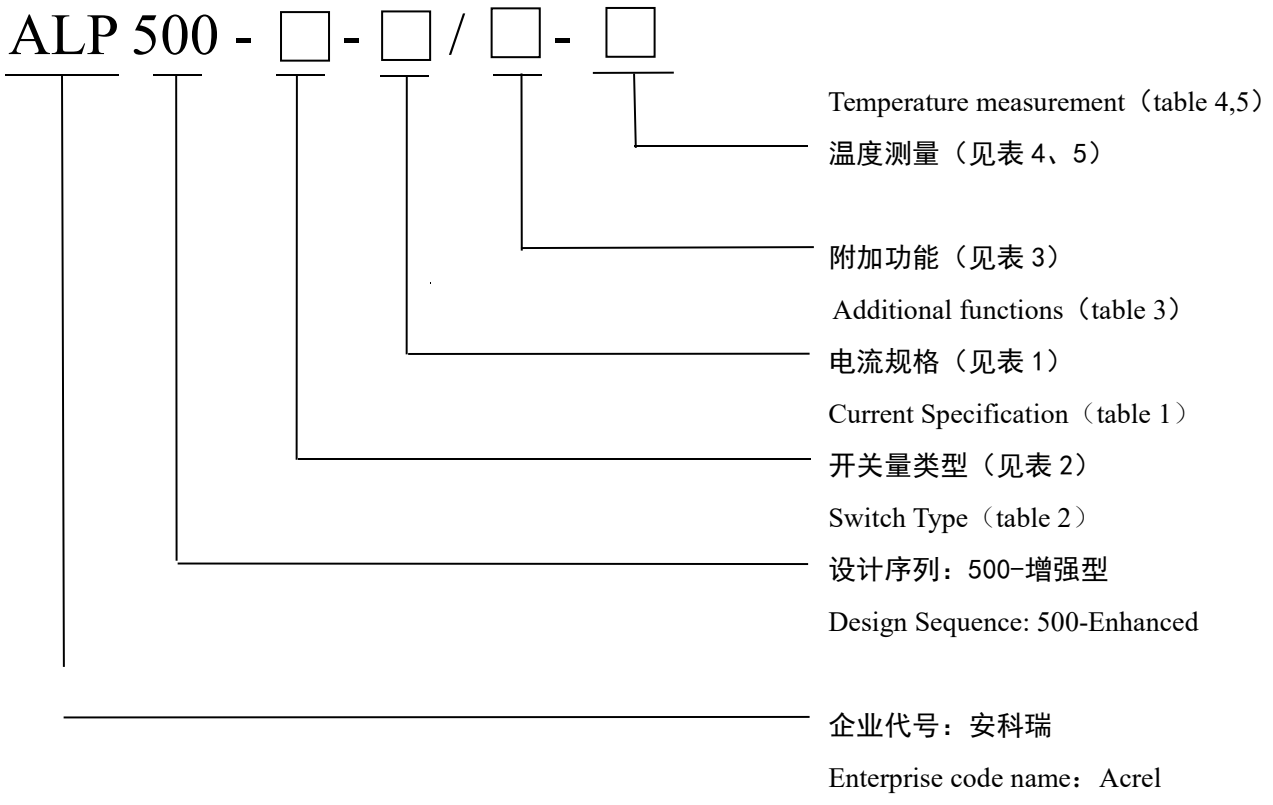


表 1 额定电流

Table 1 Rated Current

电流规格	变比设置	适用额定电流范围（A）
1	支持	0.5-6300
5		0.5-6300
25	不支持	6-25
100		25-100

Current Specification	Ratio Setting	Applicable rated current range (A)
1	YES	0.5-6300
5		0.5-6300
25	No	6-25
100		25-100

标配开关量数量为 4DI、4DO，开关量类型见表 2：

The standard switch quantity is 4DI, 4DO, and the switch quantity type is shown in Table 2:

表 2 主体开关量类型

Table 2 Main Switch Quantity Type

主体开关量类型	代号
DI 为干结点，DO 外部电源为 AC220V	K1
DI 为湿结点，DC110V 输入，DO 外部电源为 AC220V	K2
DI 为湿结点，DC220V 输入，DO 外部电源为 AC220V	K3
DI 为湿结点，AC220V 输入，DO 外部电源为 AC220V	K4

Main Switch Quantity Type	Code Name
DI is a dry node, DO external power supply is AC220V	K1
DI is wet node, DC110V input, DO external power supply is AC220V	K2
DI is wet node, DC220V input, DO external power supply is AC220V	K3
DI is wet node, AC220V input, DO external power supply is AC220V	K4

附加功能见表 3：

Additional Functions are listed in Table 3:

表 3 附加功能

Table 3 Additional Functions

附加功能		代号	附加功能	代号
2-63 次谐波电压、电流		H	波形记录	WR
通讯模块（选一）	1 路 PROFIBUS DPV0 通讯	CP	漏电保护	L
	2 路 PROFIBUS DPV0 通讯	2CP	计量模块	S
	以太网通讯(MODBUS TCP 协议)	MCE	1 路 4-20mA 变送输出	M1
	4G	4G	2 路 4-20mA 变送输出	M2
	Lora	LORA	开关量模块	MD

Additional Functions		Code Name	Additional Functions	Code Name
2-63 harmonic voltage and current		H	Waveform record	WR
communication module (choose one)	1way PROFIBUS DPV0communication	CP	Leakage Protection	L
	2way PROFIBUS DPV0communication	2CP	Metering module	S
	Ethernet communication (MODBUS TCP protocol)	MCE	1way 4-20mA Transmission Output	M1
	4G	4G	2way 4-20mA Transmission Output	M2
	Lora	LORA	Switch module	MD

有线测温：WxPx 见表 4：

Wired Temperature Measurement：WxPx　　Refer to Table 4：

表 4 有线测温模块

Table 4 Wired Temperature Measurement module

代号	定义
W1	测温传感器类型为 PT100
W2	测温传感器类型为 PT1000

W3	测温传感器类型为 NTC
Px	有线测温节点数，范围：1-9

Code Name	Definition
W1	The temperature sensor type ： PT100
W2	The temperature sensor type ： PT1000
W3	The temperature sensor type ： NTC
Px	Number of wired temperature measurement nodes, range:1-9

无线测温：NxPxx 见表 5：

Wireless Temperature Measurement：NxPxx　Refer to Table 5：

表 5 无线测温模块

Table 4 Wireless Temperature Measurement module

代号	定义
N1	测温传感器类型为 ATE100,带电池，螺栓式安装
N2	测温传感器类型为 ATE200,带电池，表带式安装
N3	测温传感器类型为 ATE400,感应取电，表带式安装
Pxx	无线测温节点数，范围：1-60

Code Name	Definition
N1	The temperature sensor type ： ATE100,with battery, bolt-on
N2	The temperature sensor type ： ATE200, With battery, strap-mounted
N3	The temperature sensor type ： ATE400, CT Powered, strap-mounted
Pxx	Number of wireless temperature measurement nodes, range:1-60

备注：

（1）、额定电流超过 100A 的馈线回路可选择 1A 或 5A 规格的 ALP500 低压线路保护测控装置，用户需额外配置 3 只 XXX/1 或 XXX/5 的保护型互感器；

（2）、需要零线电流监测的用户需额外下单 1 只用于监测零线电流的 XXX/5 的电流互感器。

Remark:

(1) The feeder circuit with a rated current exceeding 100A can choose the ALP500 low-voltage line protection measurement and control device with a specification of 1A or 5A, and the user needs to configure 3 additional

protective transformers of XXX/1 or XXX/5;

(2) Users who need neutral line current monitoring need to place an additional order for 1 XXX/5 current transformer for monitoring neutral line current.

4 主要参数

4.Main Parameters

4.1 技术指标

4.1 technical indicators

ALP500 主要技术指标见表 6：

ALP500 Main technical indicators refer to table 6：

表 6 技术指标

技术参数		技术指标	
辅助电源		支持 AC 85-265V/DC 100-300V 宽范围电源输入	
额定工作电压		AC 380V / 660V，50Hz / 60Hz	
额定工作电流		1 (0.5A-6300A)	XXX/1 互感器搭配外置电流互感器
		5 (0.5A-6300A)	XXX/5 互感器搭配外置电流互感器
		25(6A-25A)	外置电流互感器
		100(25A-100A)	
精度	保护精度	三相电流	1.0 级
		三相电压	0.5 级
		功率、电能	2.5 级
	计量精度	三相电流、电压	0.5 级
		有功功率、电能	0.5 级
		无功功率、电能	1.0 级
继电器输出触点容量		标配 4 路	阻性负载、AC250V/10A
		选配 3 路	
开关量输入		标配 4 路无源干结点	可选配有源 DC110V、DC220V、AC220V 输入
		选配 10 路无源干结点	
通讯功能		标配	2 路 MODBUS RTU 通讯
		选配（任选其一）	1 路 MODBUS-TCP
			1 路 PROFIBUS-DPV0
			2 路 PROFIBUS-DPV0
			1 路 4G 通讯
			1 路 Lora 通讯

使用环境	工作温度	-10ºC～55ºC
	贮存温度	-25ºC～70ºC
	相对湿度	≤95％不结露，无腐蚀性气体
	海拔	≤2000m
污染等级	3 级	
防护等级	主体 IP54，附加功能模块 IP20	
安装类别	III 级	

Table 6 technical indicators

Technical Parameters		Technical Indicators	
Auxiliary power		Support AC 85-265V/DC 100-300V Wide range power input	
Rated Voltage		AC 380V / 660V，50Hz / 60Hz	
Rated Current		1 (0.5A-6300A)	XXX/1Transformer with external current transformer
		5 (0.5A-6300A)	XXX/5Transformer with external current transformer
		25(6A-25A)	external current transformer
		100(25A-100A)	
Accuracy	Protection Accuracy	3-phase Current	1.0 Class
		3-phase Voltage	0.5 Class
		Power，Electrical Energy	2.5 Class
	Measuring Accuracy	3-phase Current、Voltage	0.5 Class
		Active Power，Electrical Energy	0.5 Class
		Reactive Power，Electrical Energy	1.0 Class
Relay output contact capacity		Standard configuration 4 channels	resistive load、AC250V/10A
		Optional 3 channels	
Switch Quantity Input		Standard configuration 4 channels passive dry junction	Optional active DC110V 、 DC220V 、 AC220V input
		Optional 10 channels passive dry junction	
Communication		Standard configuration	2 way MODBUS RTU Communication

	Optional（Choose one）	1 way MODBUS-TCP
		1 way PROFIBUS-DPV0
		2 way PROFIBUS-DPV0
		1 way 4G communication
		1 way Lora communication
Application Environment	Working Temperature	-10ºC～55ºC
	Storage temperature	-25ºC～70ºC
	Relative humidity	≤95％No condensation, no corrosive gas
	Altitude	≤2000m
pollution level	3 Class	
Protection Grade	Main Body IP54，Additional function modules IP20	
Installation Type	III Class	

4.2 功能配置

4.2 Functions Configuration

表 7 功能配置

功能 \ 说明		功能配置	
		标配功能	选配功能
保护功能	过流（三段定时限过流、反时限过流）	√	
	零序电流保护（三段定时限、反时限）	√	
	负序过流	√	
	零线过流	√	
	电流需量	√	
	电流不平衡	√	
	断相	√	
	欠载	√	
	漏电		√
	短路	√	
	欠电压	√	
	过电压	√	
	相序	√	
	欠功率	√	
	过功率	√	
	电压不平衡	√	

	联动	√	
	内部故障	√	
	合闸时间	√	
	PT 断线	√	
	控制回路异常	√	
	温度传感器故障		√
	过温		√
控制方式	面板按键分合闸	√	
	本地按钮分合闸		
	远程遥控分合闸		
	总线通讯分合闸		
	条件控制（下单前沟通）		
	时段控制（下单前沟通）		
测量功能	三相电流、三相线电压、有功功率、无功功率、功率因数、频率、有功电能、无功电能等	√	
	2-63 次电流、电压谐波、谐波含有率、总谐波畸变率		√
	漏电流		√
	零线电流		√
通讯功能	2 路 Modbus-RTU 通讯	√	
	1 路 Profibus-DP 通讯		√(选其一)
	2 路 Profibus-DP 通讯		
	1 路 Modbus-TCP 通讯		
	1 路 4G 通讯		
	1 路 Lora		
开关量输入	4 路 DI	√	
	10 路 DI		√
继电器输出	4 路 DO	√	
	3 路 DO		√
模拟量输出	1 路 4-20mA 输出		√
	2 路 4-20mA 输出		√
事件记录	合闸记录、分闸记录、DI 变位记录、故障记录、运行信息	√	
	故障录波		√

Table 7 Functions Configuration

Functions \ Statement		Functions Configuration	
		Standard	Optional
Protection Functions	Over current (three-stage fixed time over current, inverse time over current)	√	
	Zero-sequence current protection (three-stage fixed time, inverse time)	√	
	Negative sequence over current	√	
	neutral line over current	√	
	current demand	√	
	Current Unbalance	√	
	phase failure	√	
	under load	√	
	Leakage		√
	short circuit	√	
	Under voltage	√	
	Over voltage	√	
	phase sequence	√	
	under power	√	
	Over Power	√	
	Voltage Unbalance	√	
	linkage	√	
	internal failure	√	
	Closing time	√	
	PT Disconnection	√	
	control abnormal loop	√	
	Temperature Sensor Failure		√
	Over Temperature		√
Controlling method	Panel button opening and closing	√	
	Local button opening and closing		
	Remote control opening and closing		
	Bus communication opening and closing		

	Condition control (communication before placing an order)		
	Time period control (communication before placing an order)		
Measuring Functions	Three-phase current, three-phase line voltage, active power, reactive power, power factor, frequency, active energy, reactive energy, etc.	√	
	2-63 Sub- current, voltage harmonics, harmonic content rate, total harmonic distortion rate		√
	Leakage current		√
	Neutral current		√
Communication	2 way Modbus-RTU Communication	√	
	1 way Profibus-DP Communication		√(choose one)
	2 way Profibus-DP Communication		
	1way Modbus-TCP Communication		
	1 way 4G Communication		
	1 way Lora Communication		
Switch Input	4 way DI	√	
	10 way DI		√
Relay output	4 way DO	√	
	3 way DO		√
Analog output	1 way 4-20mA output		√
	2 way 4-20mA output		√

Event Record	Closing record, opening record, DI displacement record, fault record, running information	√	
	Fault recording		√

5 外形及接线端子

5.Dimension and terminals

5.1 外形尺寸

5.1 Dimension

5.1.1 ALP500 主体外形尺寸如图 1 所示：

5.1.1 ALP500 The overall dimensions of the main body are shown in Figure 1:

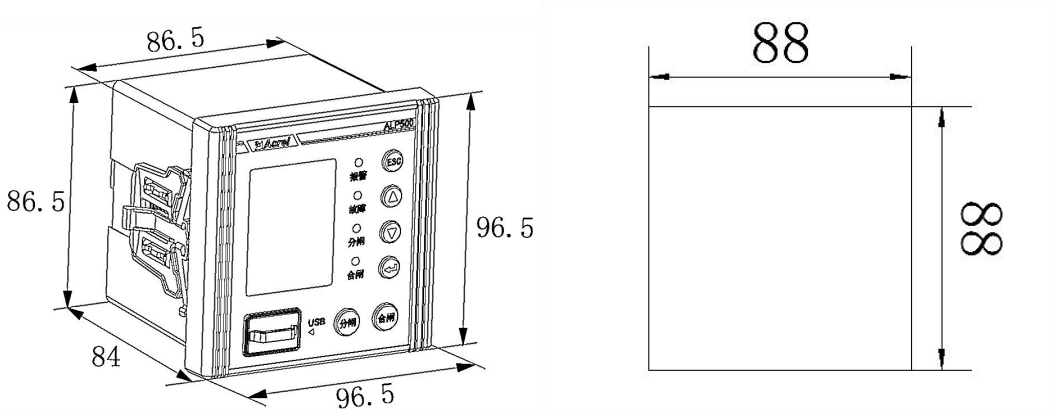


图 1 主体外形尺寸（开孔尺寸 88*88）

Figure 1 Overall dimensions of the main body (opening size 88*88)

5.1.2 附加功能模块外形尺寸如图 2 所示：

5.1.2 The dimensions of the additional functional modules are shown in Figure 2:

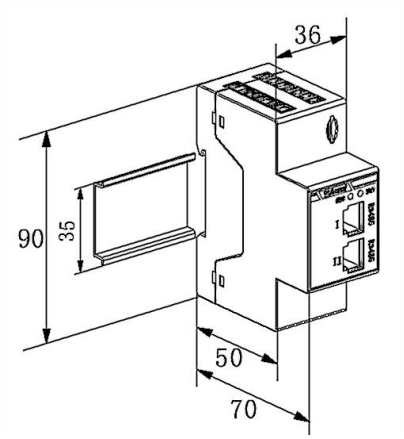


图 2 附加功能模块外形尺寸

Figure 2 Dimensions of additional function modules

5.1.3 电流互感器外形尺寸图如图 3 所示：

5.1.3 Dimensions of the current transformer are shown in Figure 3:

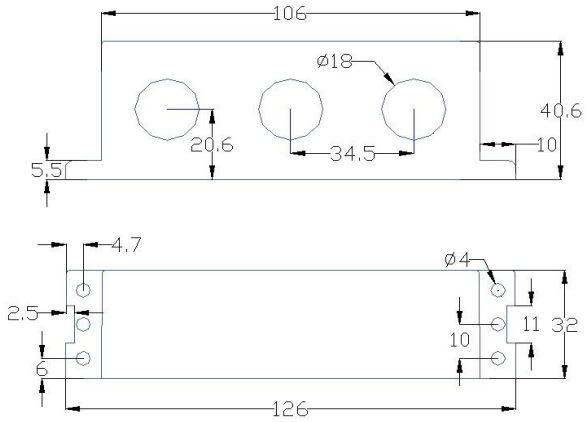


图 3：电流互感器外形尺寸

Figure 3: Outline Dimensions of Current Transformer

5.2 端子定义

5.2 Terminal definition

ALP500 主体端子号与功能定义见表 8：

Refer to Table 8 for the terminal code and function definitions of the main body of the ALP500:

表 8 主体端子

端子号	功能定义	备注
1	电源输入 L（直流时为+）	辅助电源接入此两端子
2	电源输入 N（直流时为-）	
3	Un 输入	三相电压输入
4	Ua 相电压输入	
5	Ub 相电压输入	
6	Uc 相电压输入	
7、8	DO1（合闸输出）	4 路可编程继电器输出（DO）（功能定义为出厂默认设置，用户可根据需要自行设置）
9、10	DO2（分闸输出）	
11、12	DO3（故障输出）	
95、96	DO4（报警输出）	
14	DI1（断路器状态）	4 路可编程开关量输入（DI）（功能定义为出厂默认设置，用
15	DI2（本地分闸）	

16	DI3（本地合闸）	户可根据需要自行设置）
17	DI4（复位）	
23	COM2（DI 输入公共端）	
25	A1	第一路 MODBUS 通讯
26	B1	
27	A2	第二路 MODBUS 通讯
28	B2	
29	TP+	IRIG-B 对时
30	TP-	
34	第一路模拟量输出 AO1+	2 路 4-20mA 模拟量输出
35	第二路模拟量输出 AO2+	
36	模拟量输出公共端 AO-	
40	IL	漏电流测量
41	IL*	
42	COM3(电流输入公共端)	三相电流输入
43	Ia 相电流输入	
44	Ib 相电流输入	
45	Ic 相电流输入	
50	In	零线电流测量
51	In*	

Table 8 Main Body terminal

Terminal code	Function Definition	Remark
1	Power input L (+ for DC)	Auxiliary power is connected to the two terminals
2	Power input N (- for DC)	
3	Un Input	Three-phase Voltage Input
4	Ua Phase voltage input	
5	Ub Phase voltage input	
6	Uc Phase voltage input	
7、8	DO1 (closing output)	4 programmable relay outputs (DO) (The function is defined as the factory default setting, and the user can set it according to the needs)
9、10	DO2 (opening output)	
11、12	DO3 (fault output)	
95、96	DO4 (Alarm Output)	
14	DI1（The status of circuit breaker）	4-way programmable digital input

15	DI2（Local opening）	(DI) (The function is defined as the factory default setting, and the user can set it according to the needs)
16	DI3（Local closing）	
17	DI4（Reset）	
23	COM2（DI input common terminal）	
25	A1	First way MODBUS communication
26	B1	
27	A2	Second way MODBUS communication
28	B2	
29	TP+	IRIG-B On time
30	TP-	
34	First way analog output AO1+	2 way4-20mA Analog output
35	Second way analog output AO2+	
36	Analog output common port AO-	
40	IL	Leakage Current Measurement
41	IL*	
42	COM3(Current input common port)	Three Phase Current Input
43	Ia Phase Current Input	
44	Ib Phase Current Input	
45	Ic Phase Current Input	
50	In	Neutral current measurement
51	In*	

ALP500 开关量模块端子号与功能定义见表 9：

The terminal numbers and function definitions of the ALP500 switch module are shown in Table 9:

表 9 开关量模块端子

端子号	功能定义	备注
1、2	DO5（普通 DO）	3 路可编程 DO 输出（功能定义出厂默认为普通 DO，用户可根据需要自行设置）
3、4	DO6	
5、6	DO7	
7	COM1	10 路可编程 DI 输入（功能定义出厂默认为普通 DI，用户可根据需要自行设置）
8	COM2	
9	DI5（普通 DI）	
10	DI6	
11	DI7	
12	DI8	

13	DI9	
14	COM3	
15	COM4	
16	DI10	
17	DI11	
18	DI12	
19	DI13	
20	DI14	

Table 9 Switch module terminal

Terminal code	Function Definition	Remark
1、2	DO5（Common DO）	3-way programmable DO output (function definition factory default is normal DO, users can set it by themselves according to their needs)
3、4	DO6	
5、6	DO7	
7	COM1	10-way programmable DI input (function definition factory default is common DI, users can set it by themselves according to their needs)
8	COM2	
9	DI5（common DI）	
10	DI6	
11	DI7	
12	DI8	
13	DI9	
14	COM3	
15	COM4	
16	DI10	
17	DI11	
18	DI12	
19	DI13	
20	DI14	

ALP500 计量模块端子号与功能定义见表 10：

The terminal numbers and function definitions of the ALP500 metering module are shown in Table 10:

表 10 计量模块端子

端子号	功能定义	备注
4	IA+(A 相电流进线)	三相电流输入
5	IA-(A 相电流进线)	
6	IB+(B 相电流进线)	
7	IB-(B 相电流进线)	
8	IC+(C 相电流进线)	
9	IC-(C 相电流进线)	
11	UA(A 相电压)	三相电压输入
12	UB(B 相电压)	
13	UC(C 相电压)	
14	UN(N 相接入)	

Table 10 Metering Module Terminals

Terminal Code	Function Definition	Remark
4	IA+(A Phase current incoming line)	Three Phase Current Input
5	IA-(A Phase current incoming line)	
6	IB+(B Phase current incoming line)	
7	IB-(B Phase current incoming line)	
8	IC+(C Phase current incoming line)	
9	IC-(C Phase current incoming line)	
11	UA(A phase voltage)	Three Phase Voltage Input
12	UB(B phase voltage)	
13	UC(C phase voltage)	
14	UN(N phase input)	

ALP500 有线测温模块端子号与功能定义见表 11：

The terminal numbers and function definitions of the ALP500 wired temperature measurement module are shown in Table 11:

表 11 有线测温模块端子

1	T1A	第 1 路测温
2	T1B	
3	C	第 1、2 路测温公共端
4	T2B	第 2 路测温
5	T2A	

6	T3A	第 3 路测温
7	T3B	
8	C	第 3、4 路测温公共端
9	T4B	第 4 路测温
10	T4A	
11	T5A	第 5 路测温
12	T5B	
13	C	第 5、6 路测温公共端
14	T6B	第 6 路测温
15	T6A	
16	T7A	第 7 路测温
17	T7B	
18	C	第 7、8 路测温公共端
19	T8B	第 8 路测温
20	T8A	
21	C	第 9 路测温公共端
22	T9B	第 9 路测温
23	T9A	

Table 11 Wired temperature measurement module terminal

1	T1A	First way Temp Measuring
2	T1B	
3	C	The 1st and 2nd temperature measurement public terminals
4	T2B	Second way Temp Measuring
5	T2A	
6	T3A	The 3rd way Temp Measuring
7	T3B	
8	C	The 3rd and 4th temperature measurement public terminals
9	T4B	The 4th way Temp Measuring
10	T4A	
11	T5A	The 5th way Temp Measuring
12	T5B	
13	C	The 5th and 6th temperature measurement public terminals

14	T6B	The 6th way Temp Measuring
15	T6A	
16	T7A	The 7th way Temp Measuring
17	T7B	
18	C	The 7th and 8th temperature measurement public terminals
19	T8B	The 8th way Temp Measuring
20	T8A	
21	C	The 9th temperature measurement public terminals
22	T9B	The 9th way Temp Measuring
23	T9A	

ALP500-Profibus 通讯模块端子号与功能定义见表 12：

The terminal codes and function definitions of the ALP500-Profibus communication module are shown in Table 12:

表 12 通讯模块端子

端子号	功能定义	备注
1	A1	第一路 Profibus 通讯
2	B1	
3	A2	第二路 Profibus 通讯
4	B2	

Table 12 Communication module terminal

Terminal Code	Function Definition	Remark
1	A1	The first way Profibus communication
2	B1	
3	A2	The second way Profibus communication
4	B2	

6 保护功能说明 6 Protection function description

6.1 过流保护 6.1 Over Current Protection

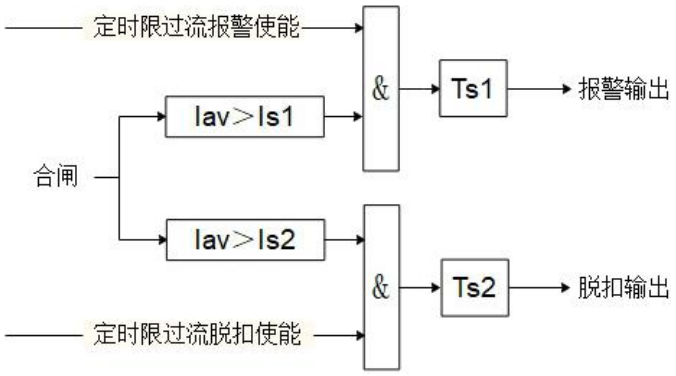
6.1.1 定时限过流保护 6.1.1 Fixed Time Over Current Protection

在测控装置显示合闸状态下，当线路平均电流 Iav 超过设定阈值 Is 时，会触发定时限过流保护，可设定延迟时间 Ts，保护动作将在延迟时间之后触发。

本装置具备三段定时限过流保护，可设定不同的过流阈值及分闸时间。

When the measurement and control device shows the closed state, when the line average current Iav exceeds the set threshold Is, the fixed time over current protection will be triggered, and the delay time Ts can be set, and the protection action will be triggered after the delay time.

This device has three-stage fixed time over current protection, which can set different over current thresholds and opening time.



定时限过流报警使能 Fixed time over current alarm enable

定时限过流脱扣使能 Fixed time over current trip enable

合闸 Closing 报警输出 Alarm output 脱扣输出 Trip output

6.1.2 反时限过流 6.1.2 Inverse time over current

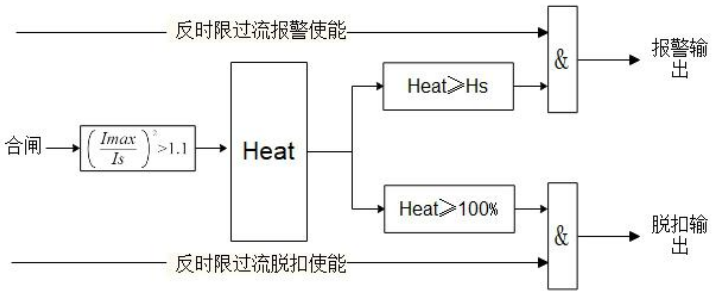
当线路在过负荷情况下长时间运行时，会导致线缆过热，绝缘降低产生危险，保护器根据线缆的发热特性，计算线缆的热容量，从而对线路以及负载进行保护。

反时限过流保护起动条件为，在测控装置显示合闸状态下，三相电流最大值 Imax 与设定动作值 Is 的比值的平方大于 1.1 时，计算线路热容量百分比，当热容量达到设定的报警阈值 Hs 时，产生报警动作，热容量达到 100%时，产生保护动作。

When the line runs under overload for a long time, it will cause the cable to overheat, and the insulation will be reduced to cause danger. The protector calculates the heat capacity of the cable according to the heating characteristics of the cable, so as to protect the line and the load.

The starting condition of the inverse time over current protection is that when the measurement and control device shows the closed state, when the square of the ratio of the maximum value of the three-phase current Imax to

the set action value Is is greater than 1.1, calculate the percentage of heat capacity of the line, and when the heat capacity reaches the set alarm When the threshold Hs is reached, an alarm action is generated, and when the heat capacity reaches 100%, a protection action is generated.



反时限过流报警使能 Inverse time over current alarm enable

反时限过流脱扣使能 Inverse time over current trip enable

合闸 Closing 报警输出 Alarm output 脱扣输出 Trip output

反时限过流保护共有 8 簇反时限特性曲线可供选择，通过对三相电流的监测，实现保护功能

反时限过流保护时间特性：

There are 8 clusters of inverse time characteristic curves to choose from in the inverse time over current protection, and the protection function is realized by monitoring the three-phase current

Inverse time over current protection time characteristics:

$$t = Tp \times \left(\frac{K}{\left(\frac{I}{Is}\right)^{\alpha} - 1} + L \right)$$

其中：

t = 跳闸时间

K = 系数（见表）

I = 电流测量值

Is = 程序设定的门限值

α = 系数（见表）

L = ANSI/IEEE 系数（对 IEC 曲线为 0）

Tp = 时间因子

in:

t = trip time

K = factor (see table)

I = current measurement

Is = Threshold value set by the program

α = coefficient (see table)

L = ANSI/IEEE coefficient (0 for IEC curve)

Tp = time factor

表 13 反时限过流保护曲线动作特性

特性序号	特性类型	标准	K 因子	α 因子	L 因子
IEC1	标准反时限	IEC	0.14	0.02	0
IEC2	非常反时限	IEC	13.5	1	0
IEC3	极端反时限	IEC	80	2	0
CO2	短时反时限	CO2	0.00342	0.02	0.00242
CO8	长时反时限	CO8	5.95	2	0.18
IEEE1	中度反时限	ANSI/IEEE	0.0515	0.02	0.114
IEEE2	非常反时限	ANSI/IEEE	19.61	2	0.491
IEEE3	极端反时限	ANSI/IEEE	28.2	2	0.1215

Table 13 Action characteristics of inverse time over current protection curve

characteristic serial number	Type	Standard	K Factor	αFactor	L Factor
IEC1	standard inverse	IEC	0.14	0.02	0
IEC2	Uncommon Inverse	IEC	13.5	1	0
IEC3	Extreme Inverse	IEC	80	2	0
CO2	Short time Inverse	CO2	0.00342	0.02	0.00242
CO8	Long Time Inverse	CO8	5.95	2	0.18
IEEE1	Medium Inverse	ANSI/IEEE	0.0515	0.02	0.114
IEEE2	Uncommon Inverse	ANSI/IEEE	19.61	2	0.491
IEEE3	Extreme Inverse	ANSI/IEEE	28.2	2	0.1215

反时限过流保护复位时间特性：

IEC1、IEC2、IEC3 复位特性：

反时限过流保护动作前：

当三相电流回复到 I<Is 时返回。

反时限过流保护动作后：

报警在故障原因消失后返回。

脱扣保持，脱扣复位通过复位键或者接收到复位命令复位。

适用于 CO2、CO8、IEEE1、IEEE2、IEEE3 复位特性：

适用于这 5 中曲线的复位特性是：

Inverse time over current protection reset time characteristics:

IEC1, IEC2, IEC3 reset characteristics:

Before inverse time over current protection action:

Return when the three-phase current returns to I<Is.

After inverse time over current protection action:

The alarm returns after the cause of the fault disappears.

Trip hold, trip reset reset by reset key or receive reset command.

Applicable to CO2, CO8, IEEE1, IEEE2, IEEE3 reset characteristics:

The reset characteristics applicable to these 5 curves are:

$$t = Tre \times \left(\frac{K}{1 - (I/Is)^{\alpha}} \right)$$

其中：

t = 复位时间

K = 系数（见表）

I = 电流测量值

Is = 程序设定的门限值（起动值）

α = 系数（见表）

Tre = 复位时间因子

in:

t = reset time

K = factor (see table)

I = current measurement

Is = Threshold value set by the program (starting value)

α = coefficient (see table)

Tre = reset time factor

表 14 反时限过流保护曲线复位特性

特性序号	特性类型	标准	K 因子	α 因子
CO2	短时反时限	CO2	0.323	2
CO8	长时反时限	CO8	5.95	2
IEEE1	中度反时限	ANSI/IEEE	4.85	2
IEEE2	非常反时限	ANSI/IEEE	21.6	2
IEEE3	极端反时限	ANSI/IEEE	29.1	2

反时限过流保护动作前：

当三相电流回复到 I<Is 时，按复位公式返回。

反时限过流保护动作后：

报警在报警条件消失后返回。

脱扣保持，脱扣复位通过复位键或者接收到复位命令复位。

Table 14 Reset characteristics of inverse time over current protection curve

characteristic serial number	Type	Standard	K Factor	αFactor
CO2	Short Time Inverse	CO2	0.323	2
CO8	Long Time Inverse	CO8	5.95	2
IEEE1	Medium Inverse	ANSI/IEEE	4.85	2
IEEE2	Uncommon Inverse	ANSI/IEEE	21.6	2
IEEE3	Extreme Inverse	ANSI/IEEE	29.1	2

Before inverse time over current protection action:

When the three-phase current returns to I<Is, return according to the reset formula.

After inverse time over current protection action:

Alarm returns after the alarm condition disappears.

Trip hold, trip reset reset by reset key or receive reset command.

6.2 零序电流保护 6.2 Zero sequence current protection

6.2.1 定时限零序过流 6.2.1 Definite-time zero-sequence over current

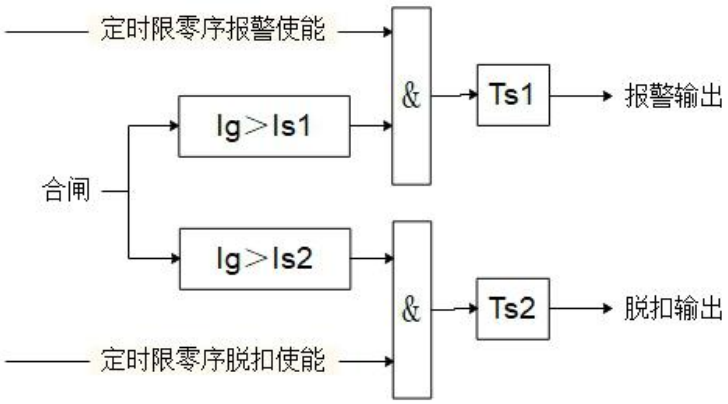
在测控装置显示合闸状态下，通过测量三相电流计算出零序电流，当零序电流 Ig 超过设定阈值 Is 时，

会触发定时限过流保护，可设定延迟时间 Ts，保护动作将在延迟时间之后触发。

本装置具备三段定时限零序过流保护，可设定不同的过流阈值及分闸时间。

When the measurement and control device shows the closed state, the zero-sequence current is calculated by measuring the three-phase current. When the zero-sequence current Ig exceeds the set threshold Is, the fixed time over current protection will be triggered. The delay time Ts can be set, and the protection action will be Triggered after a delay time.

The device is equipped with three-stage definite-time zero-sequence over current protection, and different over current thresholds and opening times can be set.



定时限零序报警使能 Fixed time zero sequence alarm enable

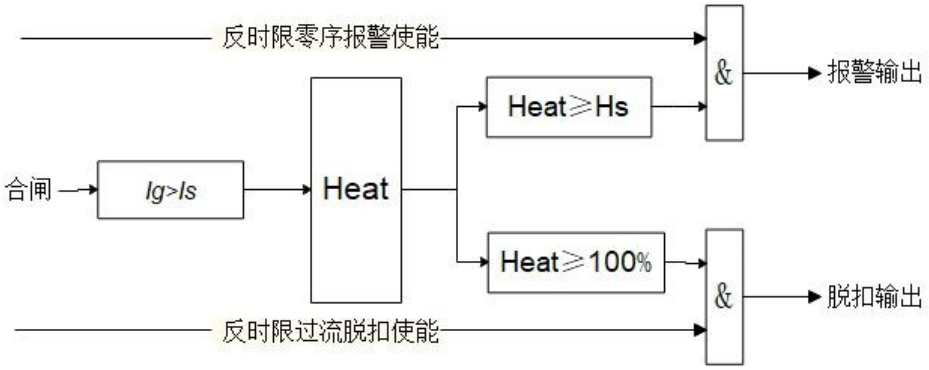
定时限零序脱扣使能 Fixed time zero sequence trip enable

合闸 Closing 报警输出 Alarm output 脱扣输出 Trip output

6.2.2 反时限零序过流 6.2.2 Inverse time zero sequence over current

反时限零序过流保护起动条件为，在测控装置显示合闸状态下，零序电流 Ig 大于设定动作值 Is 时，计算线路热容量百分比，当热容量达到设定的报警阈值 Hs 时，产生报警动作，热容量达到 100%时，产生保护动作。

The starting condition of the inverse time zero-sequence over current protection is that when the measurement and control device shows the closed state, when the zero-sequence current Ig is greater than the set action value Is, calculate the percentage of heat capacity of the line, and when the heat capacity reaches the set alarm threshold Hs, an alarm is generated Action, when the heat reaches 100% of the capacity, a protection action will occur.



定时限零序报警使能 Fixed time zero sequence alarm enable

反时限过流脱扣使能 Inverse time over current trip enable

合闸 Closing 报警输出 Alarm output 脱扣输出 Trip output

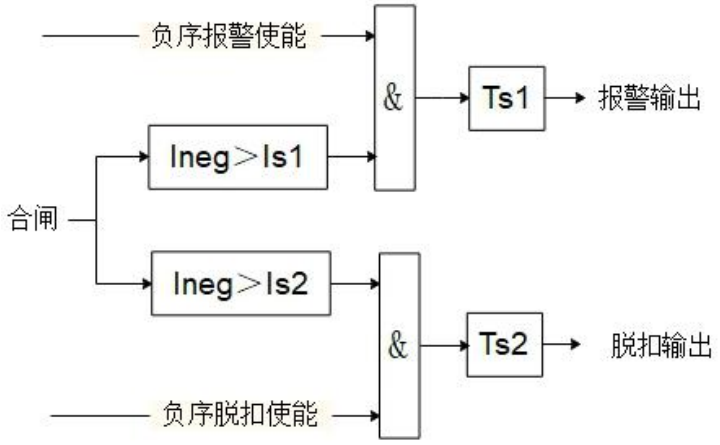
注：反时限零序保护曲线有且仅有 IEC1、IEC2、IEC3，其对应的保护曲线动作特性和复位特性与反时限过流部分相同。

Note: There are only IEC1, IEC2, and IEC3 inverse-time zero-sequence protection curves, and the corresponding action characteristics and reset characteristics of the protection curves are the same as those of the inverse-time over current part.

6.3 负序过流保护 6.3 Negative sequence over current protection

在测控装置显示合闸状态下，通过检测三相电流数据，计算出负序电流，当负序电流百分比 Ineg 高于设定的保护阈值 Is 时，在设定的保护延时 Ts 之后输出报跳闸指令。

When the measurement and control device shows the closed state, the negative sequence current is calculated by detecting the three-phase current data. When the negative sequence current percentage Ineg is higher than the set protection threshold Is, the output will report tripping after the set protection delay Ts instruction.



负序报警使能 Negative sequence alarm enable

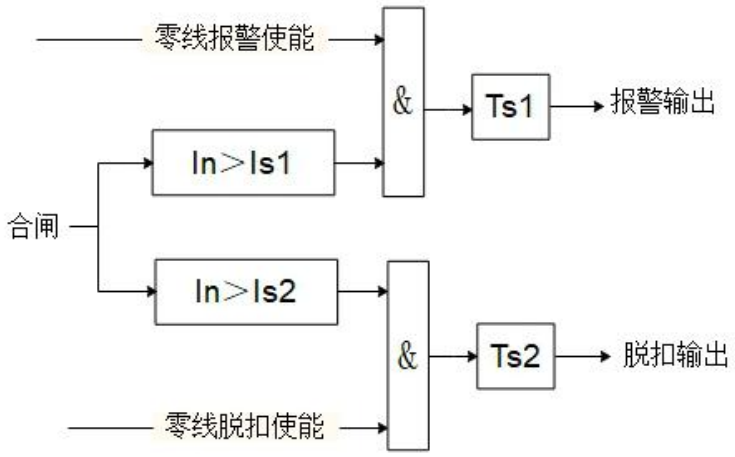
负序脱扣使能 Negative sequence trip enable

合闸 Closing 报警输出 Alarm output 脱扣输出 Trip output

6.4 零线过流保护 6.4 Neutral line over current protection

在测控装置显示合闸状态下，通过零线互感器采集零线电流 In，当零线电流 In 高于设定的保护阈值时，在设定的保护延时之后输出跳闸指令。

When the measurement and control device shows the closed state, the neutral current In is collected through the neutral transformer. When the neutral current In is higher than the set protection threshold, a trip command is output after the set protection delay.



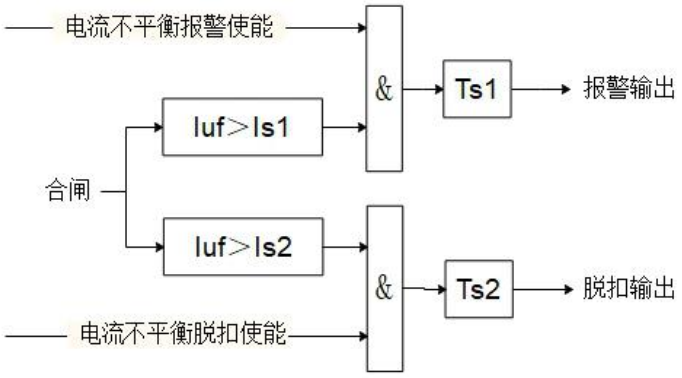
零线报警使能 Neutral alarm enable　零线脱扣使能 Neutral trip enable

合闸 Closing　报警输出 Alarm output　脱扣输出 Trip output

6.5 电流不平衡保护 6.5 Current unbalance protection

在测控装置显示合闸状态下，通过采集到的三相电流计算电流不平衡度 Iuf，当电流不平度高于设定阈值 Is 时，在设定的保护延时 Ts 之后输出报警或跳闸指令。

When the measurement and control device shows the closed state, the current unbalance Iuf is calculated by the collected three-phase current. When the current unbalance is higher than the set threshold Is, an alarm or trip command is output after the set protection delay Ts.



电流不平衡报警使能　Current unbalance alarm enable

电流不平衡脱扣使能　Current unbalance trip enable

合闸 Closing　报警输出 Alarm output　脱扣输出 Trip output

6.6 电流需量保护 6.6 Current demand protection

采用滑差方式计算需量电流，时间窗口为设定的需量周期 Tt，在窗口每滑动需量宽度 Tw 时，需量电流更新，动作特性如下：

(1) 需量电流百分比大于等于电流需量报警设定值 Is1 持续 Ts1 时间后，发出报警信号，达到或超过设定的电流需量脱扣设定值 Is2 持续时间 Ts2 后，执行脱扣；

(2) 发生过 1 次需量保护，重新合闸后，一段时间内，需量电流仍大于等于电流需量报警阈值 Is1 且持续需量

宽度 Tw 时，产生第二次报警，超过脱扣阈值 Is2 并持续 3 倍需量宽度 Tw 的延时时间时，执行第二次脱扣；

(3) 发生过 2 次需量保护，重新合闸后，一段时间内，需量电流仍大于等于电流需量报警阈值 Is1 且持续需量宽度 Tw 时，产生第三次报警，超过脱扣阈值 Is2 并持续 2 倍需量宽度 Tw 的延时时间后，执行第三次脱扣。

(4) 在首次执行需量脱扣后，若 30 分钟时间内，没有再次发生需量保护，同时，经过此段时间后，若再次发生需量保护，则应重新执行（1）-（3）过程。

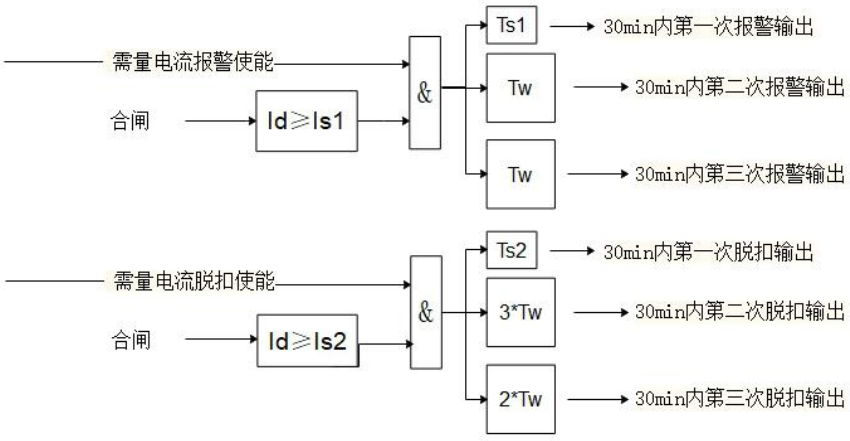
The demand current is calculated by the slip method, and the time window is the set demand period Tt. When the window slides the demand width Tw, the demand current is updated, and the action characteristics are as follows:

(1) When the demand current percentage is greater than or equal to the current demand alarm set value Is1 and lasts for Ts1, an alarm signal is sent, and after reaching or exceeding the set current demand trip set value Is2 for a duration of Ts2, the trip is performed;

(2) Once demand protection has occurred, after reclosing, within a period of time, if the demand current is still greater than or equal to the current demand alarm threshold Is1 and the demand width Tw continues, a second alarm will be generated, exceeding the tripping threshold When Is2 lasts for a delay time that is 3 times the demand width Tw, the second tripping is performed;

(3) Demand protection has occurred twice, and after reclosing, within a period of time, when the demand current is still greater than or equal to the current demand alarm threshold Is1 and the demand width Tw continues, a third alarm will be generated, exceeding the tripping threshold After Is2 and the delay time of 2 times the demand width Tw, the third tripping is performed.

(4) After the first execution of the demand trip, if the demand protection does not occur again within 30 minutes, and at the same time, after this period of time, if the demand protection occurs again, you should re-execute (1)-(3)process.



需量电流报警使能 Demand current alarm enable 需量电流脱扣使能 Demand current trip enable

第一次/二次/三次 报警输出 First/second/Third Alarm output

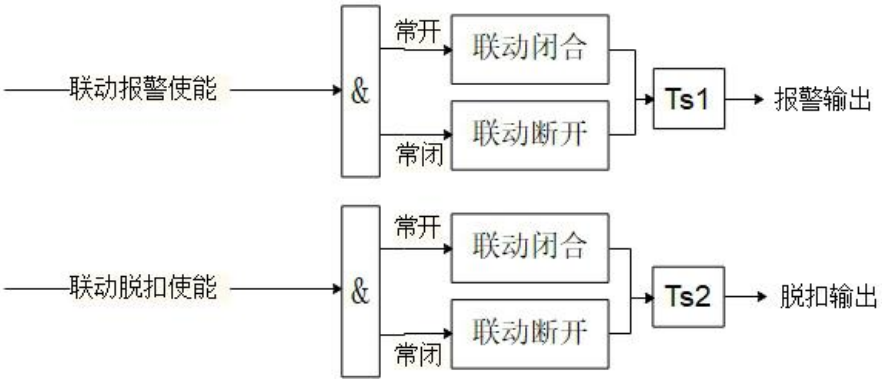
第一次/二次/三次 脱扣输出 First/second/Third Trip output

6.7 联动保护 6.7 Linkage protection

设定外部联动的DI，当检测到外部联动信号输入时，在设定的保护延时Ts之后输出跳闸指令。

Set the DI of the external linkage, when the external linkage signal input is detected, the trip command will be output

after the set protection delay Ts.

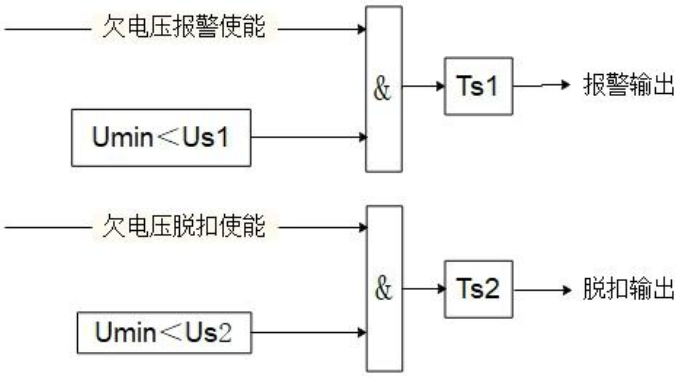


联动报警使能 Linkage alarm enable 联动脱扣使能 Linkage trip enable
常开 Normally open 常闭 Normally closed
联动闭合 Linkage closed 联动断开 Linkage open
报警输出 Alarm output 脱扣输出 Trip output

6.8 欠电压保护 6.8 Under voltage Protection

检测三相线路线电压，当线路最小线电压Umin低于设定的欠压阈值Us时，在设定的保护延时之后输出跳闸指令。

Detect the line voltage of the three-phase line. When the minimum line voltage Umin of the line is lower than the set under voltage threshold Us, the trip command will be output after the set protection delay.

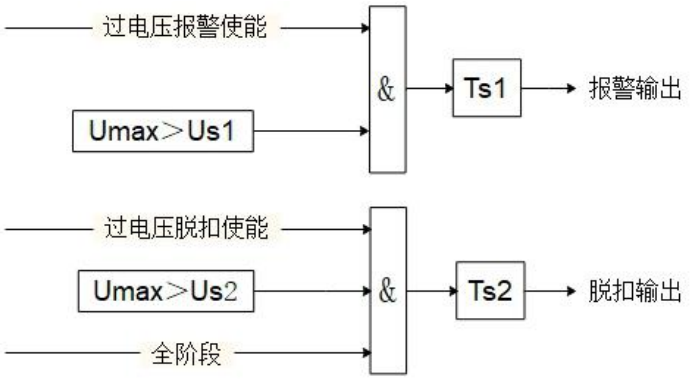


欠电压报警使能 Under voltage alarm enable 欠电压脱扣使能 Under voltage trip enable
报警输出 Alarm output 脱扣输出 Trip output

6.9 过电压保护 6.9 Over voltage protection

检测三相线路线电压，当线路最大线电压Umax高于设定的过压阈值时，在设定的保护延时之后输出跳闸指令。

Umax of the line is higher than the set over voltage threshold, the trip command will be output after the set protection delay.

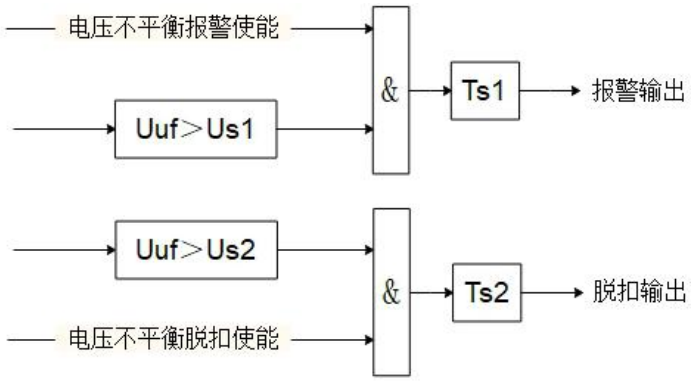


过电压报警使能 Over voltage alarm enable
过电压脱扣使能 Over voltage trip enable
全阶段 all stages
报警输出 Alarm output 脱扣输出 Trip output

6.10 电压不平衡保护 6.10 Voltage Unbalance Protection

通过采集到的三相电压计算电压不平衡度，当电压不平度 Uuf 高于设定阈值 Us 时，在设定的保护延时之后输出跳闸指令。

The voltage unbalance is calculated by the collected three-phase voltage, and when the voltage unbalance Uuf is higher than the set threshold Us, a trip command is output after the set protection delay.

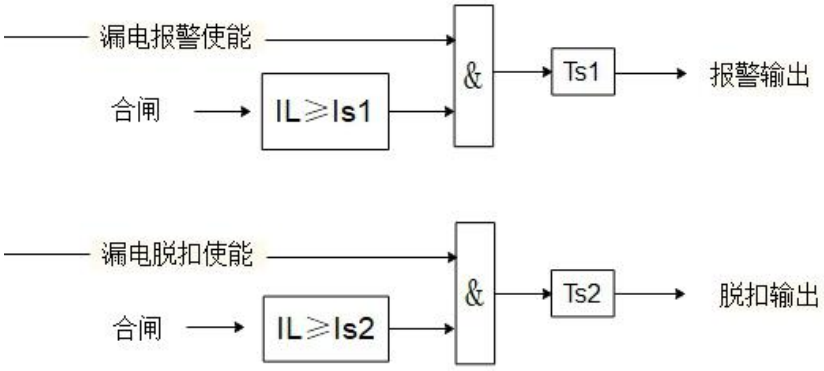


电压不平衡报警使能 Voltage unbalance alarm enable
电压不平衡脱扣使能 Voltage unbalance trip enable
报警输出 Alarm output 脱扣输出 Trip output

6.11 漏电流保护 6.11 Leakage current protection

漏电保护需选配漏电互感器，在测控装置显示合闸状态下，通过漏电互感器检测漏电流 IL，当漏电流大于设定值 Is 时，在设定的保护延时之后输出跳闸指令。

Leakage protection needs to be equipped with a leakage transformer. When the measurement and control device shows the closing state, the leakage current IL is detected through the leakage transformer. When the leakage current is greater than the set value Is, a tripping command is output after the set protection delay.



漏电报警使能 Leakage alarm enable

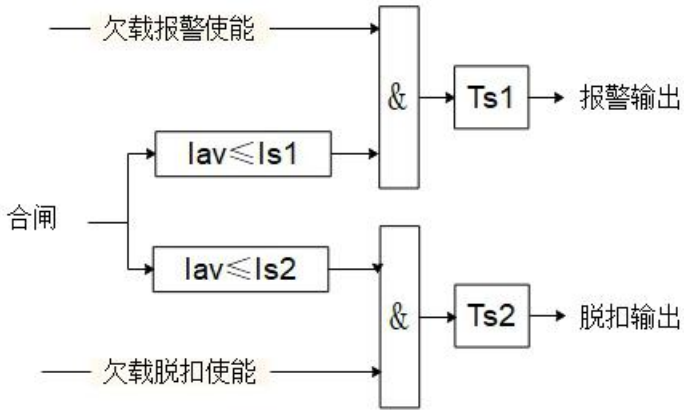
漏电脱扣使能 Leakage trip enable

报警输出 Alarm output 脱扣输出 Trip output

6.12 欠载保护 6.12 Under load protection

在测控装置显示合闸状态下，检测到三相平均电流 Iav 低于设定阈值 Is 时，在设定的保护延时之后输出跳闸指令。

When the measurement and control device shows the closing state, when it detects that the three-phase average current Iav is lower than the set threshold Is, a trip command is output after the set protection delay.



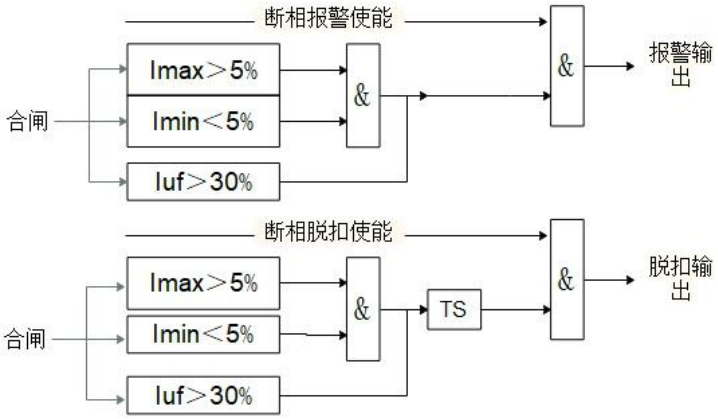
欠载报警使能 Under load alarm enable 欠载脱扣使能 Under load trip enable

合闸 Closing 报警输出 Alarm output 脱扣输出 Trip output

6.13 断相保护 6.13 Phase failure protection

在测控装置显示合闸状态下，当最大电流大于 5%额定电流且最小电流小于 5%额定电流时或者三相电流不平衡大于 30%时，在设定的保护延时之后输出跳闸指令。

When the measurement and control device shows the closed state, when the maximum current is greater than 5% of the rated current and the minimum current is less than 5% of the rated current, or the three-phase current imbalance is greater than 30%, the trip command will be output after the set protection delay.



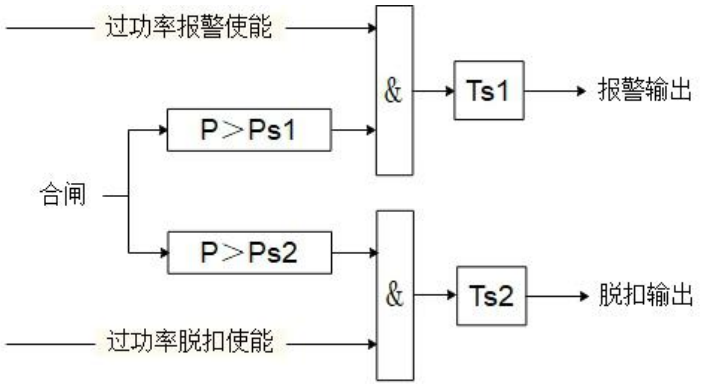
断相报警使能 Phase failure alarm enable　断相脱扣使能　Phase failure trip enable

合闸 Closing 报警输出 Alarm output　脱扣输出 Trip output

6.14 过功率保护 6.14 Over Power Protection

在测控装置显示合闸状态下，当总有功功率 P 高于设定阈值 Ps 时，在设定的保护延时之后输出跳闸指令。

When the measurement and control device shows the closing state, when the total active power P is higher than the set threshold Ps, a trip command is output after the set protection delay.



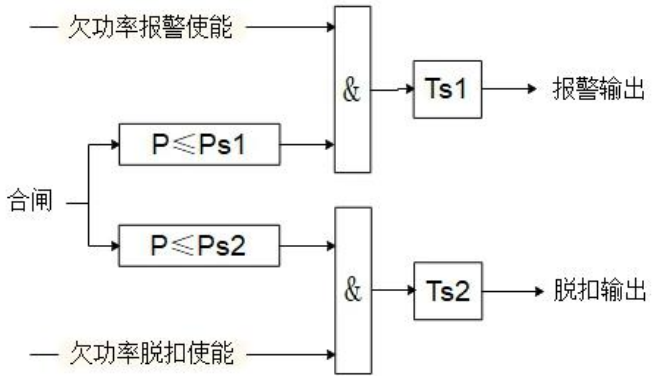
过功率报警使能 Over power alarm enable 过功率脱扣使能 Over power trip enable

合闸 Closing 报警输出 Alarm output　脱扣输出 Trip output

6.15 欠功率保护 6.15 Under-power protection

在测控装置显示合闸状态下，当总有功功率 P 低于设定阈值 Ps 时，在设定的保护延时之后输出跳闸指令。

When the measurement and control device shows the closing state, when the total active power P is lower than the set threshold Ps, a trip command is output after the set protection delay.



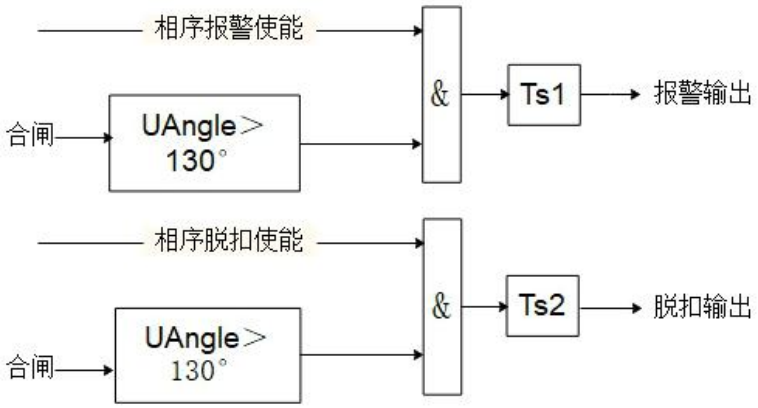
欠功率报警使能 Under power alarm enable 欠功率脱扣使能 Under power trip enable

合闸 Closing 报警输出 Alarm output 脱扣输出 Trip output

6.16 相序保护 6.16 Phase sequence protection

检测三相电压相角，当出现两相电压相角差 UAngle 大于 130°时，判定相序错误，在设定的保护延时之后输出跳闸指令。

Detect the phase angle of the three-phase voltage. When the phase angle difference UAngle of the two-phase voltage is greater than 130°, it is judged that the phase sequence is wrong, and the trip command is output after the set protection delay.



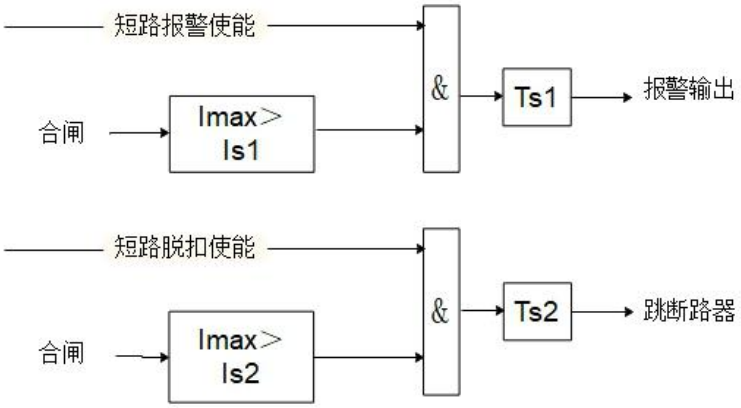
相序报警使能 Phase sequence alarm enable 相序脱扣使能 Phase sequence trip enable

合闸 Closing 报警输出 Alarm output 脱扣输出 Trip output

6.17 短路保护 6.17 Short Circuit Protection

在测控装置显示合闸状态下，检测到线路最大电流 Imax 超过短路设定的电流阈值 Is 时，在设定的保护延时之后输出跳闸指令。

When the measurement and control device shows the closed state, when it is detected that the maximum current Imax of the line exceeds the current threshold Is set by the short circuit, a tripping command is output after the set protection delay.



短路报警使能 Short circuit alarm enable 短路脱扣使能 Short circuit trip enable

合闸 Closing 报警输出 Alarm output 脱扣输出 Trip output

6.18 合闸时间保护 6.18 Closing Time Protection

从收到合闸信号时开始计时，当合闸时间达到设定的阈值后，保护装置仍没有检测到电流时，判断为合闸超时，在设定的保护延时之后输出跳闸指令。

Start timing when the closing signal is received. When the closing time reaches the set threshold and the protection device still does not detect the current, it will be judged as closing timeout, and the tripping command will be output after the set protection delay.

6.19 内部故障保护 6.19 Internal Fault Protection

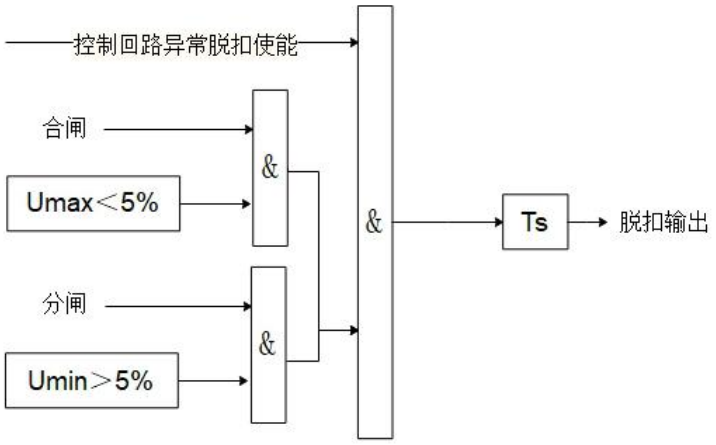
检测到内部故障时，在设定的保护延时之后输出跳闸指令。

When an internal fault is detected, a trip command is output after the set protection delay.

6.20 控制回路异常保护 6.20 Abnormal protection of control loop

在测控装置显示合闸状态下，最大线电压 Umax 小于 5%额定电压，或在测控装置显示分闸状态下，最小线电压 Umin 大于 5%额定电压，判定为控制回路异常故障，在设定的保护延时之后输出跳闸指令。

When the measurement and control device shows that the switch is closed, the maximum line voltage Umax is less than 5% of the rated voltage, or when the measurement and control device shows that the switch is in the open state, the minimum line voltage Umin is greater than 5% of the rated voltage. The trip command is output after the protection delay.



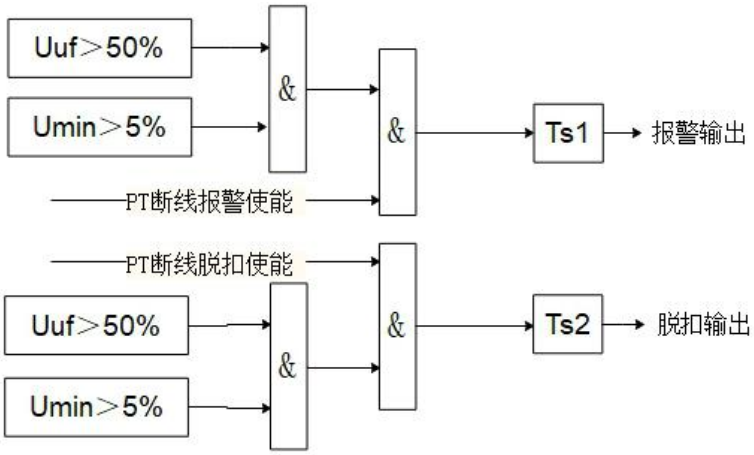
控制回路异常脱扣使能 Controlling circuit abnormal trip enable

合闸 Closing 分闸 Opening 脱扣输出 Trip output

6.21 PT 断线保护 6.21 PT disconnection protection

检测到电压不平衡 Uuf 大于 50%且最大线电压大于 5%额定电压时，判定为 PT 断线故障，在设定的保护延时之后输出跳闸指令。

When it is detected that the voltage unbalance Uuf is greater than 50% and the maximum line voltage is greater than 5% of the rated voltage, it is judged as a PT disconnection fault, and a trip command is output after the set protection delay.



PT断线报警使能 PT disconnection alarm enable PT断线脱扣使能 PT disconnection trip enable

报警输出Alarm output 脱扣输出Trip output

6.22 温度传感器故障保护 6.22 Temperature Sensor Fault Protection

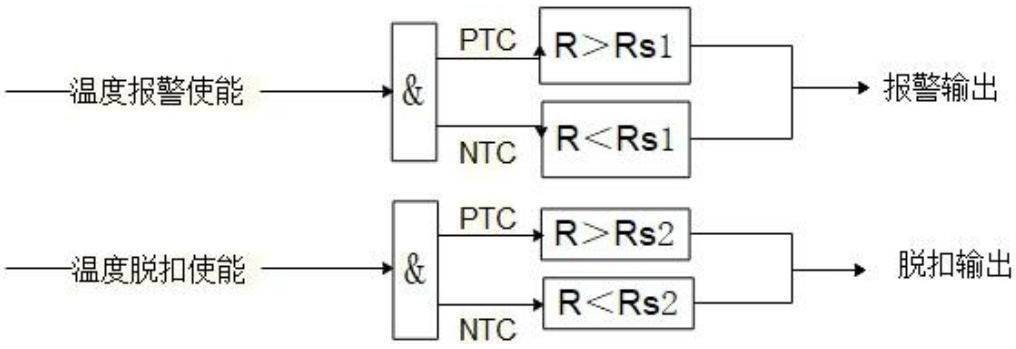
检测温度传感器状态，当检测到故障时，在设定的保护延时之后输出跳闸指令。

Detect the state of the temperature sensor, when a fault is detected, a trip command will be output after the set protection delay.

6.23 过温保护 6.23 Over temperature protection

通过温度传感器检测温度，当传感器类型为 PTC，且温度 R 高于设定温度阈值 Rs 或传感器类型为 NTC，且温度 R 低于设定温度阈值 Rs 时，判定为温度过高，在设定的保护延时之后输出跳闸指令。

The temperature is detected by the temperature sensor. When the sensor type is PTC and the temperature R is higher than the set temperature threshold Rs or the sensor type is NTC and the temperature R is lower than the set temperature threshold Rs, it is determined that the temperature is too high. The trip command is output after the protection delay.



温度报警使能 Temperature alarm enable 温度脱扣使能 Temperature trip enable
报警输出Alarm output 脱扣输出Trip output

7 功能设置与说明 7 Function setting and description

7.1 主体按钮与 LED 灯 7.1 Main body buttons and LED lights

表 15 按钮与 LED 灯说明

序号	名称	状态	功能说明
1	分闸	按下	面板控制分闸继电器输出
2	合闸	按下	面板控制合闸继电器输出
3	ESC	按下/长按	按下返回上级界面；取消操作/ 故障状态时，长按复位故障
4	左方向键	按下	上翻菜单；修改数据时数据移位
5	右方向键	按下	下翻菜单；修改数据
6	回车按键	按下	进入设置菜单、写入修改后的数据
7	报警 LED 指示灯	亮	该指示灯亮表示有报警产生
8	故障 LED 指示灯	亮	该指示灯亮表示故障脱扣
9	分闸 LED 指示灯	亮	该指示灯常亮表示断路器处于分闸状态
10	合闸 LED 指示灯	亮	该指示灯常亮表示断路器处于合闸状态状态

Table 15 Description of buttons and LED lights

Code	Name	Status	Function Description
1	Opening	Press	Press the panel to control the closing relay output
2	Closing	Press	Press the panel to control the closing relay output
3	ESC	Press/ Long Press	Press to return to the upper interface; cancel the operation/ In the fault state, long press to reset the fault
4	Left Button	Press	Scroll up the menu; data shift when modifying data
5	Right Button	Press	Scroll down the menu; modify data
6	Enter Button	Press	Enter the setting menu, write the modified data
7	Alarm LED Indicator Light	Light up	The indicator light indicates that there is an alarm
8	Fault LED Indicator Light	Light up	The indicator light is on to indicate fault tripping
9	Opening LED Indicator Light	Light up	The indicator light is always on, indicating that the circuit breaker is in the opening state
10	Closing LED Indicator Light	Light up	The indicator light is always on, indicating that the circuit breaker is in the closing state

7.2 功能设置菜单介绍

7.2 Introduction to function setting menu

表 16 功能菜单设置

主菜单	功能	类别	设定范围	默认值	Unit
通讯设置	Modbus Rtu	地址 1	1-247	1	-
		波特率 1	1200-38400	9600	bps
		校验位 1	None、2 Stop、Odd、Even	None	-
		地址 2	1-247	1	-
		波特率 2	1200-38400	9600	bps
		校验位 2	None、2 Stop、Odd、Even	None	-
	4G/Tcpip	功能选择	4G Madter、4G Exchange、 Modbus Tcp、Tcp Master	4G Master	-
		IP	0.0.0.0-255.255.255.255	192.168.1.10	-
		Mask	0.0.0.0-255.255.255.255	255.255.255. 0	-
		Gate	0.0.0.0-255.255.255.255	192.168.1.1	-

		Port	0-65535	502	-
		Dhcp	Off、On	Off	-
		主服务器 Ip	0.0.0.0-255.255.255.255	47.96.11.156	-
		主服务器 Port	0-65535	20071	-
		分合闸密码使能	Off/On	On	-
		分合闸控制密码	0-99999999	99999999	-
		Ip/域名选择	IP/域名	域名	-
	Profibus	Addr1	1-247	1	-
		Addr2	1-247	1	-
	Lora	功能开关	开、关	关	
		工作模式	透传、测试	透传	
		设备地址	1-247	1	
		通讯频段	0-91	5	
		扩展因数	6-12	9	
		信号带宽	0-45	9	
系统参数	额定电流	1A	0.1-6300	1	A
		5A	0.5-6300	5	A
		25A	6-25	25	A
		100A	25-100	100	A
	额定电压	-	0-2000	380	V
	额定功率	-	0.1-999.99	0.1	kW
	额定频率	-	40-70	50	Hz
	接线方式	-	1P2L、3P4L、3P3L/3CT、3P3L/2CT	3P4L	-
	主体三相 CT	-	1-2000	1	-
	主体零线 CT	-	1-2000	1	-
	计量三相 CT	-	1-2000	1	-
	保护选择	-	全波值/基波值	全波值	-
	变送设置	类型 1	Ia、Ib、Ic、Iav、In、Uab、Ubc、Uca、Uav、热容量、P、Freq	Ia	-
		满度值 1	-	2 倍 Ie	A
		类型 2	同类型 1	-	-
		满度值 2			
	语言选择	-	中文/英文	中文	-
	密码	-	1-9999	1	-
	时间设置	-	20xx-xx-xx xx:xx:xx	-	-
	主界面索引	-	1-6	-	-
	电压暂升暂降设置	暂升阈值	112-150		%
		暂降阈值	50-90		%

		暂升恢复阈值	0-150		%
		暂降恢复阈值	50-90		%
	软件版本	主体	xxxx-V1.x.x	-	-
		计量	-	-	-
		测温	-	-	-
		开关量	-	-	-
		通讯模块	-	-	-
		主体开关量类型	-	-	-
		模块开关量类型	-	-	-
	回复出厂	-	是/否	否	-
	功能开关	计量模块	开/关	关	-
		测温模块	开/关	关	-
		开关量模块	开/关	关	-
		通讯模块	开/关	关	-
		故障录波	开/关	关	-
		谐波功能	开/关	关	-
控制权限	权限	-	全控、检修、面板、就地、远程、通讯、二选一、三选一	全控	-
保护设置	过流保护	一段定时限过流	报警阈值：10-800	110	%
			脱扣阈值：10-800	120	%
			报警延时：0.00-600.00	10	s
			脱扣延时：0.00-600.00	10	s
			返回系数：5-50	5	s
			报警：禁止/允许	允许	-
			脱扣：禁止/允许	允许	-
		二段定时限过流	报警阈值：10-800	160	%
			脱扣阈值：10-800	200	%
			报警延时：0.00-600.00	5	%
			脱扣延时：0.00-600.00	5	s
			返回系数：5-50	5	s
			报警：禁止/允许	允许	-
			脱扣：禁止/允许	允许	-
		三段定时限过流	报警阈值：10-800	250	%
			脱扣阈值：10-800	300	%
			报警延时：0.00-600.00	2	s
			脱扣延时：0.00-600.00	2	s
			返回系数：5-50	5	s
			报警：禁止/允许	允许	-
			脱扣：禁止/允许	允许	-

		反时限过流	保护曲线：IEC1、IEC2 、IEC3 、CO2、CO8、IEEE1、IEEE2、IEEE3	IEC1	-
			冷却时间：0-30	5	min
			时间系数：0.025-1.500	1.000	s
			复位系数：0.025-3.200	1.000	s
			报警阈值：10-800	85	%
			脱扣阈值：10-800	100	%
			复位方式：手动/自动	手动	-
			报警：禁止/允许	允许	-
			脱扣：禁止/允许	允许	-
	零序电流保护	一段定时限零序	报警阈值：10-800	20	%
			脱扣阈值：10-800	30	%
			报警延时：0.00-600.00	0.5	s
			脱扣延时：0.00-600.00	0.5	s
			返回系数：5-50	5	s
			报警：禁止/允许	允许	-
			脱扣：禁止/允许	允许	-
		二段定时限零序	报警阈值：10-800	40	%
			脱扣阈值：10-800	60	%
			报警延时：0.00-600.00	0.5	%
			脱扣延时：0.00-600.00	0.5	s
			返回系数：5-50	5	s
			报警：禁止/允许	允许	-
			脱扣：禁止/允许	允许	-
		三段定时限零序	报警阈值：10-800	70	%
			脱扣阈值：10-800	85	%
			报警延时：0.00-600.00	0.5	s
			脱扣延时：0.00-600.00	0.5	s
			返回系数：5-50	5	s
			报警：禁止/允许	允许	-
			脱扣：禁止/允许	允许	-
		反时限零序	保护曲线：IEC1、IEC2 、IEC3	IEC1	-
			冷却时间：0-30	5	min
			时间系数：0.025-1.500	1.000	s
			报警阈值：10-800	20	%
			脱扣阈值：10-800	50	%
			复位方式：手动/自动	自动	-
			报警：禁止/允许	允许	-
			脱扣：禁止/允许	允许	-
	负序电流	一段负序电流	报警阈值：10-100	20	%
			脱扣阈值：10-100	30	%

			报警延时：0.00-600.00	5.0	s
			脱扣延时：0.00-600.00	5.0	s
			返回系数：5-50	5	s
			报警：禁止/允许	禁止	-
			脱扣：禁止/允许	禁止	-
		二段负序电流	报警阈值：10-100	40	%
			脱扣阈值：10-100	60	%
			报警延时：0.00-600.00	5.0	%
			脱扣延时：0.00-600.00	5.0	s
			返回系数：5-50	5	s
			报警：禁止/允许	禁止	-
			脱扣：禁止/允许	禁止	-
	零线电流	报警阈值	0-5000	100	%
		脱扣阈值	0-5000	80	%
		报警延时	0.00-600.00	5	s
		脱扣延时	0.00-600.00	5	s
		返回系数	5-50	5	%
		报警使能	禁止/允许	禁止	-
		脱扣使能	禁止/允许	禁止	-
	电流不平衡	报警阈值	10-100	20	%
		脱扣阈值	10-100	30	%
		报警延时	0.00-600.00	5	s
		脱扣延时	0.00-600.00	5	s
		返回系数	5-50	5	%
		报警使能	禁止/允许	禁止	-
		脱扣使能	禁止/允许	禁止	-
	电流需量	报警阈值	10-800	110	%
		脱扣阈值	10-800	120	%
		报警延时	1-25	5	min
		脱扣延时	1-25	5	min
		返回系数	5-50	5	%
		需量宽度	1、2、3、5	1	min
		需量周期	5、10、15、30、60	5	min
		报警使能	禁止/允许	允许	-
		脱扣使能	禁止/允许	允许	-
	漏电	报警阈值	30-1000	80	mA
		脱扣阈值	30-1000	100	mA
		报警延时	0.00-600.00	5	s
		脱扣延时	0.00-600.00	5	s
		返回系数	5-50	5	%
		报警使能	禁止/允许	允许	-

		脱扣使能	禁止/允许	允许	-
	欠载	报警阈值	10-95	80	%
		脱扣阈值	10-95	90	%
		报警延时	0.00-600.00	5	s
		脱扣延时	0.00-600.00	5	s
		返回系数	5-50	5	%
		报警使能	禁止/允许	禁止	-
		脱扣使能	禁止/允许	禁止	-
	短路	报警阈值	10-800	400	%
		脱扣阈值	10-800	500	%
		报警延时	0.00-600.00	0.5	s
		脱扣延时	0.00-600.00	0.5	s
		返回系数	5-50	5	%
		报警使能	禁止/允许	禁止	-
		脱扣使能	禁止/允许	禁止	-
	联动保护	联动 1	报警延时：0.06-600.00	5.00	s
			脱扣延时：0.06-600.00	5.00	s
			报警：禁止/允许	禁止	-
			脱扣：禁止/允许	禁止	-
		联动 2	同联动 1	-	-
		联动 3			
	过电压	报警阈值	110-150	110	%
		脱扣阈值	110-150	120	%
		报警延时	0.00-600.00	5	s
		脱扣延时	0.00-600.00	5	s
		返回系数	5-50	5	%
		报警使能	禁止/允许	允许	-
		脱扣使能	禁止/允许	允许	-
	欠电压	报警阈值	45-90	80	%
		脱扣阈值	45-90	90	%
		报警延时	0.00-600.00	5	s
		脱扣延时	0.00-600.00	5	s
		返回系数	5-50	5	%
		报警使能	禁止/允许	禁止	-
		脱扣使能	禁止/允许	禁止	-
	电压不平衡	报警阈值	10-100	20	%
		脱扣阈值	10-100	30	%
		报警延时	0.00-600.00	5	s
		脱扣延时	0.00-600.00	5	s
		返回系数	5-50	5	%
		报警使能	禁止/允许	禁止	-

		脱扣使能	禁止/允许	禁止	-
	断相	报警延时	0.00-600.00	0.5	s
		脱扣延时	0.00-600.00	0.5	s
		报警使能	禁止/允许	禁止	-
		脱扣使能	禁止/允许	允许	-
	过功率	报警阈值	100-200	110	%
		脱扣阈值	100-200	120	%
		报警延时	0.00-600.00	5	s
		脱扣延时	0.00-600.00	5	s
		返回系数	5-50	5	%
		报警使能	禁止/允许	禁止	-
		脱扣使能	禁止/允许	禁止	-
	欠功率	报警阈值	10-95	80	%
		脱扣阈值	10-95	90	%
		报警延时	0.00-600.00	5	s
		脱扣延时	0.00-600.00	5	s
		返回系数	5-50	5	%
		报警使能	禁止/允许	禁止	-
		脱扣使能	禁止/允许	禁止	-
	相序	报警阈值	120-240	130	°
		脱扣阈值	120-240	130	°
		报警延时	0.00-600.00	0.5	s
		脱扣延时	0.00-600.00	0.5	s
		返回系数	5-50	5%	%
		报警使能	禁止/允许	禁止	-
		脱扣使能	禁止/允许	允许	-
	运行时间	报警阈值	1-50000	10000	h
		报警使能	禁止/允许	禁止	-
	故障次数	故障次数	1-50000	1000	次
		报警使能	禁止/允许	禁止	-
	内部故障	报警使能	禁止/允许	禁止	-
		脱扣使能	禁止/允许	禁止	-
	控制回路异常	脱扣延时	0.00-600.00	1.00	s
		脱扣使能	禁止/允许	禁止	-
	PT 断线	报警延时	0.00-600.00	0.1	s
		脱扣延时	0.00-600.00	0.1	s
		报警使能	禁止/允许	禁止	-
		脱扣使能	禁止/允许	禁止	-
	温度保护	分组 1 过温	报警阈值：0.0-120.0	60.0	℃
			脱扣阈值：0.0-120.0	80.0	℃
			返回系数：0.0-10.0	5.0	℃

			复位方式：手动/自动	手动	-
			报警：禁止/允许	禁止	-
			脱扣：禁止/允许	禁止	-
		分组 2 过温-分组 6 过温	同上	-	-
		温度传感器故障	复位方式：手动/自动	手动	-
			报警：禁止/允许	禁止	-
			脱扣：禁止/允许	禁止	-
节点测温	有线测温	传感器类型	PT100、PT1000、NTC	PT100	-
		通道使能	禁止/允许	禁止	-
		分组选择	0-6	0	-
		温度查询	-	-	-
	无线测温	ID 设置	0000-ffff	0000	-
		传感器投入	禁止/允许	禁止	-
		分组选择	0-6	0	-
		温度查询	-	-	-
可编程设置	DI 设置	DI1	类型：常开/常闭	常开	-
			定义：普通 DI、断路器状态、本地分闸、本地合闸、远程分闸、远程合闸、联动 1、联动 2、联动 3、复位	断路器状态	-
		DI2	同 DI1	本地合闸	-
		DI3		本地分闸	-
		DI4		复位	-
		DI5-DI14		普通 DI	-
	DO 设置	DO1	类型：常开/常闭	常开	
			定义：普通 DO、分闸输出、合闸输出、故障输出、报警输出、逻辑图 1 输出、逻辑图 2 输出、逻辑图 3 输出、测温报警输出、测温脱扣输出、装置自检输出、装置电源输出、DI1-DI14 控制 DO 输出	合闸输出	-
			脉冲时间：0.0-25.0（0-电平输出，0.1-25.0 脉冲输出）	2.0	s
			报警输出：开/关	开	-
			脱扣输出：开/关	开	-
		DO2	类型：常开/常闭	常开	-
			定义：同 DO1	分闸输出	-
			脉冲时间：0.0-25.0	2.0	s

			报警输出：开/关	开	-
			脱扣输出：开/关	开	-
		DO3	类型：常开/常闭	常开	-
			定义：同 DO1	故障输出	-
			脉冲时间：0.0-25.0	0.0	s
			报警输出：开/关	开	-
			脱扣输出：开/关	开	-
		DO4	类型：常开/常闭	常开	-
			定义：同 DO1	报警输出	-
			脉冲时间：0.0-25.0	0.0	s
			报警输出：开/关	开	-
			脱扣输出：开/关	开	-
		DO5-DO7	类型：常开/常闭	常开	-
			定义：同 DO1	普通 DO	-
			脉冲时间：0.0-25.0	0.0	s
			报警输出：开/关	开	-
			脱扣输出：开/关	开	-
	逻辑图设置	类型	A、A*B、A+B、A*B*C、A+B)*C、(A*B)+C、A+B+C、A*B*C*D、(A+B)*C*D、(A*B+C)*D、(A+B+C)*D、A*B*C+D、(A+B)*C+D、A*B+C+D、A+B+C+D、A*B*C*D*E、(A+B)*C*D*E、(A*B+C)*D*E、(A+B+C)*D*E、(A*B*C+D)*E、((A+B)*C+D)*E、(A*B+C+D)*E、(A+B+C+D)*E、A*B*C*D+E、(A+B)*C*D+E、(A*B+C)*D+E、(A+B+C)*D+E、A*B*C+D+E、(A+B)*C+D+E、A*B+C+D+E、A+B+C+D+E	A	-
		输入	无、DI1-DI14、DO1-DO7、分闸动作、合闸动作、分闸状态、合闸状态、总报警输出、各项报警输出、总脱扣输出、各项脱扣输出	DI1	-
		逻辑	正逻辑/反逻辑	正逻辑	-
		延时	0.0-60.0	0.0	s
	Test	DO1-7 测试	开/关	关	-

Table 16 Function menu Settings

primary menu	function	class	Set the scope	Windows default	unit
Communication Settings	Modbus Rtu	Address 1	1-247	1	-
		Porter rate 1	1200-38400	9600	bps
		Check byte 1	None、2 Stop、Odd、Even	None	-
		Address 2	1-247	1	-
		Porter rate 2	1200-38400	9600	bps
		Check byte 2	None、2 Stop、Odd、Even	None	-
	4G/Tcpip	FS	4G Madter、4G Exchange、Modbus Tcp、Tcp Master	4G Master	-
		IP	0.0.0.0-255.255.255.255	192.168.1.10	-
		Mask	0.0.0.0-255.255.255.255	255.255.255.0	-
		Gate	0.0.0.0-255.255.255.255	192.168.1.1	-
		Port	0-65535	502	-
		Dhcp	Off、On	Off	-
		Master Server Ip	0.0.0.0-255.255.255.255	47.96.11.156	-
		Master server, Port	0-65535	20071	-
		Opening and closing code to enable	Off/On	On	-
		Switch-on control code	0-99999999	99999999	-
		Ip / domain name selection	IP/ realm name	realm name	-
	Profibus	Addr1	1-247	1	-
		Addr2	1-247	1	-
	Lora	functional switch	Open, close	close	
		work pattern	Through transmission, test	unvarnished transmission	
		device address	1-247	1	
		Communication frequency band	0-91	5	
		flare factor	6-12	9	
		signal bandwidth	0-45	9	
system parameter	rated current	1A	0.1-6300	1	A
		5A	0.5-6300	5	A
		25A	6-25	25	A
		100A	25-100	100	A
	rated voltage	-	0-2000	380	V

	power rating	-	0.1-999.99	0.1	kW
	rated frequency	-	40-70	50	Hz
	mode of connection	-	1P2L、3P4L、3P3L/3CT、3P3L/2CT	3P4L	-
	Main body three-phase CT	-	1-2000	1	-
	Main body zero line CT	-	1-2000	1	-
	Measurement of three-phase CT	-	1-2000	1	-
	Protect the choice	-	Full wave value / base wave value	Full wave value	-
	Transform Settings	Type 1	Ia, Ib, Ic, Iav, In, Uab, Ub, Ubc, Uca, Uav, heat capacity, P, and Freq	Ia	-
		Full value 1	-	Two times Ie	A
		Type 2	Same type 1	-	-
		Full value 2			
	language selection	-	Chinese / English	the Chinese language	-
	password	-	1-9999	1	-
	Time setting	-	20xx-xx-xx xx:xx:xx	-	-
	Main interface index	-	1-6	-	-
	Temporary voltage rise and temporary drop setting	Temporary rise threshold	112-150		%
		Temporarily drop threshold	50-90		%
		Temporary rise recovery threshold	0-150		%
		The recovery threshold is temporarily lowered	50-90		%
	software release	main body	xxxx-V1.x.x	-	-
		calculate	-	-	-
		thermometric	-	-	-
		switching value	-	-	-
		Communicatio n module	-	-	-
		Main body switch quantity type	-	-	-

		Module switch quantity type	-	-	-
	Reply to the factory	-	Yes / no	deny	-
	functional switch	Measurement module	Open / close	close	-
		Temperature measurement module	Open / close	close	-
		Switch volume module	Open / close	close	-
		Communicatio n module	Open / close	close	-
		Fault recording wave	Open / close	close	-
		Harmonic function	Open / close	close	-
Control permissions	authority	-	Full control, maintenance, panel, local, remote, communication, two choose one, three choose one	Full control	-
Protection Settings	Over current protection	A fixed time limit for overflow	Alarm threshold: 10-800	110	%
			Withdraw threshold: 10-800	120	%
			Alarm delay: 0.00-600.00	10	s
			Delay delay: 0.00-600.00	10	s
			Return factor: 5-50	5	s
			Alarm: prohibyteed / allowed	permit	-
			Withhold: prohibyteed / allowed	permit	-
		Two-section set time limit over-flow	Alarm threshold: 10-800	160	%
			Withdraw threshold: 10-800	200	%
			Alarm delay: 0.00-600.00	5	%
			Delay delay: 0.00-600.00	5	s
			Return factor: 5-50	5	s
			Alarm: prohibyteed / allowed	permit	-
			Withhold: prohibyteed / allowed	permit	-
		Three set time limit over flow	Alarm threshold: 10-800	250	%
			Withdraw threshold: 10-800	300	%
			Alarm delay: 0.00-600.00	2	s
			Delay delay: 0.00-600.00	2	s
			Return factor: 5-50	5	s
			Alarm: prohibyteed / allowed	permit	-
			Withhold: prohibyteed / allowed	permit	-
		Reverse time limit	Protective curve: IEC1, IEC2, IEC3, CO2, CO8, IEEE 1, IEEE 2, IEEE 3	IEC1	-
			Cooling time: 0-30	5	min

			Time factor: 0.025-1.500	1.000	s
			Reset coefficient: 0.025-3.200	1.000	s
			Alarm threshold: 10-800	85	%
			Withdraw threshold: 10-800	100	%
			Reset mode: manual / automatic	hand movement	-
			Alarm: prohibyteed / allowed	permit	-
			Withhold: prohibyteed / allowed	permit	-
	sequence current protection	A fixed time limit with a zero-order period	Alarm threshold: 10-800	20	%
			Withdraw threshold: 10-800	30	%
			Alarm delay: 0.00-600.00	0.5	s
			Delay delay: 0.00-600.00	0.5	s
			Return factor: 5-50	5	s
			Alarm: prohibyteed / allowed	permit	-
			Withhold: prohibyteed / allowed	permit	-
		Two paragraphs set time limit zero order	Alarm threshold: 10-800	40	%
			Withdraw threshold: 10-800	60	%
			Alarm delay: 0.00-600.00	0.5	%
			Delay delay: 0.00-600.00	0.5	s
			Return factor: 5-50	5	s
			Alarm: prohibyteed / allowed	permit	-
			Withhold: prohibyteed / allowed	permit	-
		Three sections of set time limit and zero order	Alarm threshold: 10-800	70	%
			Withdraw threshold: 10-800	85	%
			Alarm delay: 0.00-600.00	0.5	s
			Delay delay: 0.00-600.00	0.5	s
			Return factor: 5-50	5	s
			Alarm: prohibyteed / allowed	permit	-
			Withhold: prohibyteed / allowed	permit	-
		The reverse time limit is zero	Protective curve: IEC1, IEC2, IEC3	IEC1	-
			Cooling time: 0-30	5	min
			Time factor: 0.025-1.500	1.000	s
			Alarm threshold: 10-800	20	%
			Withdraw threshold: 10-800	50	%
			Reset mode: manual / automatic	voluntarily	-
			Alarm: prohibyteed / allowed	permit	-
			Withhold: prohibyteed / allowed	permit	-
	negative-sequence current	A negative order current	Alarm threshold: 10-100	20	%
			Withdraw threshold: 10-100	30	%
			Alarm delay: 0.00-600.00	5.0	s
			Delay delay: 0.00-600.00	5.0	s
			Return factor: 5-50	5	s
			Alarm: prohibyteed / allowed	prohibyte	-
			Withhold: prohibyteed / allowed	prohibyte	-
		Negative	Alarm threshold: 10-100	40	%

		sequence current of the second segment	Withdraw threshold: 10-100	60	%
			Alarm delay: 0.00-600.00	5.0	%
			Delay delay: 0.00-600.00	5.0	s
			Return factor: 5-50	5	s
			Alarm: prohibyteed / allowed	prohibyte	-
			Withhold: prohibyteed / allowed	prohibyte	-
	Zero line current	Alarm threshold	0-5000	100	%
		Debuckle threshold	0-5000	80	%
		Alarm delay	0.00-600.00	5	s
		Debuckle delay	0.00-600.00	5	s
		drop-off to pick-up ratio	5-50	5	%
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle enabling	Prohibyteed / Allowed	prohibyte	-
	Current imbalance	Alarm threshold	10-100	20	%
		Debuckle threshold	10-100	30	%
		Alarm delay	0.00-600.00	5	s
		Debuckle delay	0.00-600.00	5	s
		drop-off to pick-up ratio	5-50	5	%
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle enabling	Prohibyteed / Allowed	prohibyte	-
	current demand	Alarm threshold	10-800	110	%
		Debuckle threshold	10-800	120	%
		Alarm delay	1-25	5	min
		Debuckle delay	1-25	5	min
		drop-off to pick-up ratio	5-50	5	%
		Demand width	1、2、3、5	1	min
		Demand period	5、10、15、30、60	5	min
		Alarm enabling	Prohibyteed / Allowed	permit	-

		Unbuckle enabling	Prohibyteed / Allowed	permit	-
	leakage of electricity	Alarm threshold	30-1000	80	mA
		Debuckle threshold	30-1000	100	mA
		Alarm delay	0.00-600.00	5	s
		Debuckle delay	0.00-600.00	5	s
		drop-off to pick-up ratio	5-50	5	%
		Alarm enabling	Prohibyteed / Allowed	permit	-
		Unbuckle enabling	Prohibyteed / Allowed	permit	-
	under load	Alarm threshold	10-95	80	%
		Debuckle threshold	10-95	90	%
		Alarm delay	0.00-600.00	5	s
		Debuckle delay	0.00-600.00	5	s
		drop-off to pick-up ratio	5-50	5	%
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle enabling	Prohibyteed / Allowed	prohibyte	-
	short	Alarm threshold	10-800	400	%
		Debuckle threshold	10-800	500	%
		Alarm delay	0.00-600.00	0.5	s
		Debuckle delay	0.00-600.00	0.5	s
		drop-off to pick-up ratio	5-50	5	%
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle enabling	Prohibyteed / Allowed	prohibyte	-
	Linkage protection	Linkage 1	Alarm delay: 0.06-600.00	5.00	s
			Delay delay: 0.06-600.00	5.00	s
			Alarm: prohibyteed / allowed	prohibyte	-
			Withhold: prohibyteed / allowed	prohibyte	-
		Linkage 2	With linkage 1	-	-

		Linkage 3			
	overvoltage	Alarm threshold	110-150	110	%
		Debuckle threshold	110-150	120	%
		Alarm delay	0.00-600.00	5	s
		Debuckle delay	0.00-600.00	5	s
		drop-off to pick-up ratio	5-50	5	%
		Alarm enabling	Prohibyteed / Allowed	permit	-
		Unbuckle enabling	Prohibyteed / Allowed	permit	-
	undertension	Alarm threshold	45-90	80	%
		Debuckle threshold	45-90	90	%
		Alarm delay	0.00-600.00	5	s
		Debuckle delay	0.00-600.00	5	s
		drop-off to pick-up ratio	5-50	5	%
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle enabling	Prohibyteed / Allowed	prohibyte	-
	Voltage imbalance	Alarm threshold	10-100	20	%
		Debuckle threshold	10-100	30	%
		Alarm delay	0.00-600.00	5	s
		Debuckle delay	0.00-600.00	5	s
		drop-off to pick-up ratio	5-50	5	%
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle enabling	Prohibyteed / Allowed	prohibyte	-
	loss of phase	Alarm delay	0.00-600.00	0.5	s
		Debuckle delay	0.00-600.00	0.5	s
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle	Prohibyteed / Allowed	permit	-

		enabling			
	Over power	Alarm threshold	100-200	110	%
		Debuckle threshold	100-200	120	%
		Alarm delay	0.00-600.00	5	s
		Debuckle delay	0.00-600.00	5	s
		drop-off to pick-up ratio	5-50	5	%
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle enabling	Prohibyteed / Allowed	prohibyte	-
	Overpower	Alarm threshold	10-95	80	%
		Debuckle threshold	10-95	90	%
		Alarm delay	0.00-600.00	5	s
		Debuckle delay	0.00-600.00	5	s
		drop-off to pick-up ratio	5-50	5	%
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle enabling	Prohibyteed / Allowed	prohibyte	-
	phase sequence	Alarm threshold	120-240	130	°
		Debuckle threshold	120-240	130	°
		Alarm delay	0.00-600.00	0.5	s
		Debuckle delay	0.00-600.00	0.5	s
		drop-off to pick-up ratio	5-50	5%	%
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle enabling	Prohibyteed / Allowed	permit	-
	performance period	Alarm threshold	1-50000	10000	h
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
	Number of failures	Number of failures	1-50000	1000	Times

		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
	internal fault	Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle enabling	Prohibyteed / Allowed	prohibyte	-
	Control loop anomaly	Debuckle delay	0.00-600.00	1.00	s
		Unbuckle enabling	Prohibyteed / Allowed	prohibyte	-
	PT breakage	Alarm delay	0.00-600.00	0.1	s
		Debuckle delay	0.00-600.00	0.1	s
		Alarm enabling	Prohibyteed / Allowed	prohibyte	-
		Unbuckle enabling	Prohibyteed / Allowed	prohibyte	-
	Temperature protection	Group 1 over temperature	Alarm threshold: 0.0-120.0	60.0	℃
			Withdraw threshold: 0.0-120.0	80.0	℃
			Return factor: 0.0-10.0	5.0	℃
			Reset mode: manual / automatic	hand movement	-
			Alarm: prohibyteed / allowed	prohibyte	-
			Withhold: prohibyteed / allowed	prohibyte	-
		Group 2 overtemperature-group 6 overtemperature	ditto	-	-
		Temperature sensor fault	Reset mode: manual / automatic	hand movement	-
			Alarm: prohibyteed / allowed	prohibyte	-
			Withhold: prohibyteed / allowed	prohibyte	-
Node temperature measurement	Wired temperature measurement	Sensor type	PT100、PT1000、NTC	PT100	-
		Channel enabling	Prohibyteed / Allowed	prohibyte	-
		Group selection	0-6	0	-
		Temperature query	-	-	-
	Wireless temperature measurement	ID set up	0000-ffff	0000	-
		Sensor input	Prohibyteed / Allowed	prohibyte	-
		Group selection	0-6	0	-
		Temperature query	-	-	-

Programmable Settings	DI set up	DI1	Type: normally open / closed	normally open	-
			Definition: ordinary DI, circuit breaker status, local switching, local closing, remote switching, remote closing, linkage 1, linkage 2, linkage 3, reset	Circuit breaker status	-
		DI2	The same DI1	Local closing	-
		DI3		Local separation	-
		DI4		reset	-
		DI5-DI14		common DI	-
	DO set up	DO1	Type: normally open / closed	normally open	
			Definition: ordinary DO, switch output, closing output, fault output, alarm output, logic diagram 2 output, logic diagram 3 output, temperature alarm output, temperature tripping output, device self-test output, device power output, DI1-DI14 control DO output	Switch output	-
			Pulse time: 0.0-25.0 (0-level output, 0.1-25.0 pulse output)	2.0	s
			Alarm output: on / off	open	-
			Untrip output: on / off	open	-
		DO2	Type: normally open / closed	normally open	-
			Definition: the same as DO 1	Switch output	-
			Pulse time: 0.0-25.0	2.0	s
			Alarm output: on / off	open	-
			Untrip output: on / off	open	-
		DO3	Type: normally open / closed	normally open	-
			Definition: the same as DO 1	Failure output	-
			Pulse time: 0.0-25.0	0.0	s
			Alarm output: on / off	open	-
			Untrip output: on / off	open	-
		DO4	Type: normally open / closed	normally open	-
			Definition: the same as DO 1	Alarm output	-

			Pulse time: 0.0-25.0	0.0	s
			Alarm output: on / off	open	-
			Untrip output: on / off	open	-
		DO5-DO7	Type: normally open / closed	normally open	-
			Definition: the same as DO 1	common DO	-
			Pulse time: 0.0-25.0	0.0	s
			Alarm output: on / off	open	-
			Untrip output: on / off	open	-
	Logic diagram setting	type	A、A*B、A+B、A*B*C、A+B)*C、(A*B)+C、A+B+C、A*B*C*D、(A+B)*C*D、(A*B+C)*D、(A+B+C)*D、A*B*C+D、(A+B)*C+D、A*B+C+D、A+B+C+D、A*B*C*D*E、(A+B)*C*D*E、(A*B+C)*D*E、(A+B+C)*D*E、(A*B*C+D)*E、((A+B)*C+D)*E、(A*B+C+D)*E、(A+B+C+D)*E、A*B*C*D+E、(A+B)*C*D+E、(A*B+C)*D+E、(A+B+C)*D+E、A*B*C+D+E、(A+B)*C+D+E、A*B+C+D+E、A+B+C+D+E	A	-
		import	No, DI1-DI14, DO 1-DO 7, closing action, closing action, closing state, closing state, total alarm output, alarm output, total tripping output, all tripping output	DI1	-
		logic	Positive logic / inverse logic	positive logic	-
		delayed	0.0-60.0	0.0	s
	Test	The DO 1-7 test	Open / close	close	-

7.3 操作界面说明 7.3 Operation Interface Description

主界面显示，可通过面板上下键翻页显示，详情见图 4：

The main interface is displayed, which can be displayed through the up and down keys on the panel, as shown in Figure 4 for details:

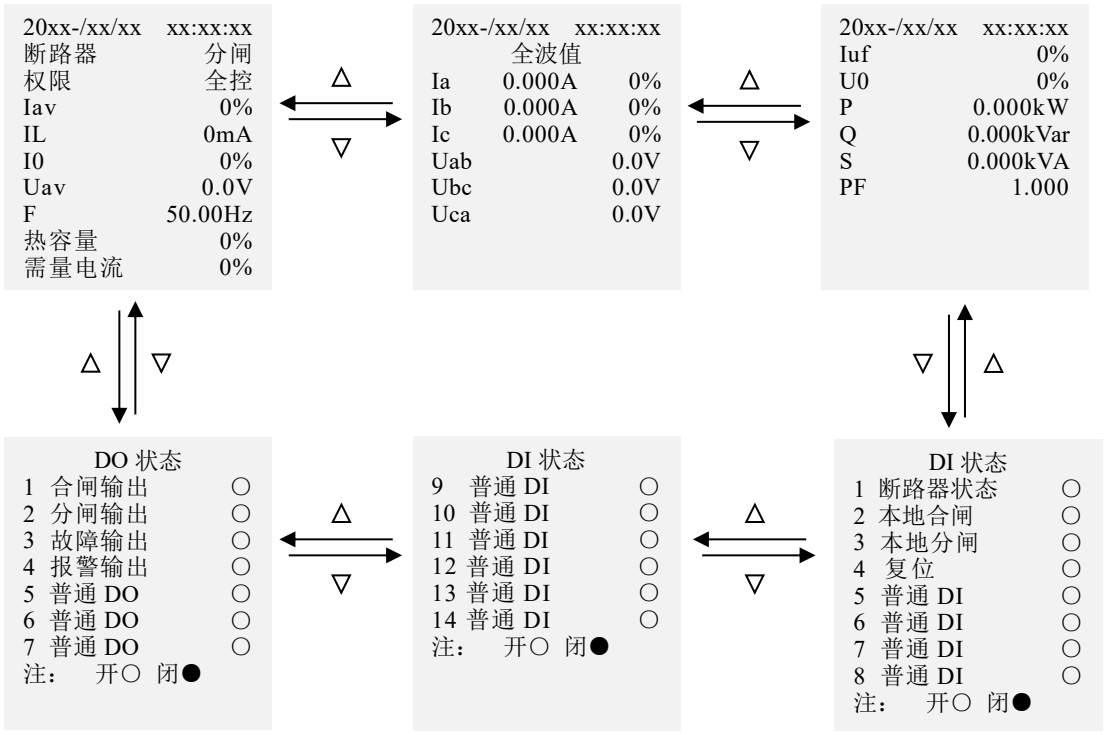


图 4 主界面显示

Figure 4 The main interface Display

主界面按回车进入密码输入界面，按上下键切换输入密码（默认 0001），进入菜单设置界面，详情见图 5：

Press Enter on the main interface to enter the password input interface, press the up and down keys to switch the input password (default 0001), and enter the menu setting interface, see Figure 5 for details:

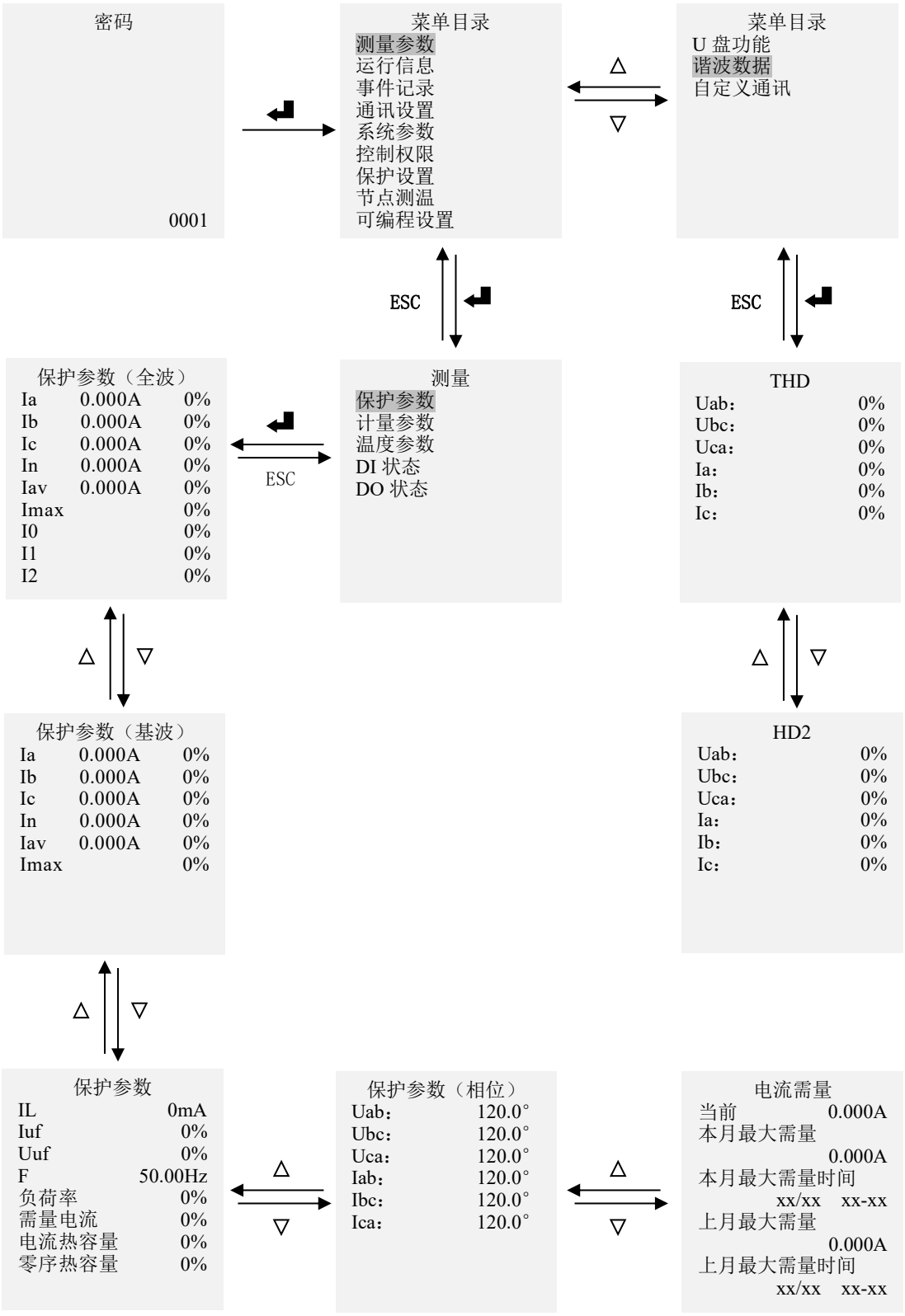


图 5 功能菜单显示

Figure 5 Function menu display

8 通讯设置与说明 8 Communication settings and instructions

通讯协议为标准 Modbus-RTU 协议，数据解析为高字在前，低字在后。

The communication protocol is the standard Modbus-RTU protocol, and the data is analyzed as high word first, low word last.

8.1 测量参数通讯地址 8.1 Measurement parameter communication address

见表 17：Refer to table 17

表 17 测量参数地址表

分类	地址	参数	读写属性	取值范围	类型
保护参数（全波值）	0	A 相有效值电流	R	0.001A	word
	1				word
	2	B 相有效值电流	R	0.001A	word
	3				word
	4	C 相有效值电流	R	0.001A	word
	5				word
	6	N 相有效值电流	R	0.001A	word
	7				word
	8	A 相电压	R	0～999.9V	word
	9	B 相电压	R	0～999.9V	word
	10	C 相电压	R	0～999.9V	word
	11	Uab 有效值线电压	R	0～999.9V	word
	12	Ubc 有效值线电压	R	0～999.9V	word
	13	Uca 有效值线电压	R	0～999.9V	word
	14	总有功功率	R	-2376000 ～ 2376000(Unit:W)	word
	15				word
	16	总无功功率	R	-2376000 ～ 2376000(Unit:Var)	word
	17				word
	18	总视在功率	R	0 ～ 2376000(Unit:VA)	word
	19				word
	20	A 相有功功率	R	-792000 ～ 792000(Unit:W)	word
	21		R		word
	22	B 相有功功率	R	-792000 ～ 792000(Unit:W)	word
	23				word
	24	C 相有功功率	R	-792000 ～ 792000(Unit:W)	word
	25				word
	26	A 相无功功率	R	-792000 ～ 792000(Unit:Var)	word

	27				word
	28	B 相无功功率	R	-792000 ～ 792000(Unit:Var)	word
	29				word
	30	C 相无功功率	R	-792000 ～ 792000(Unit:Var)	word
	31				word
	32	A 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	33				word
	34	B 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	35				word
	36	C 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	37				word
	38	全波功率因数	R	0.001	word
	39	全波 A 相功率因数	R	0.001	word
	40	全波 B 相功率因数	R	0.001	word
	41	全波 C 相功率因数	R	0.001	word
	42	频率	R	4000-7000，Unit0.01Hz	word
	43	漏电电流	R	0-1000mA	word
	44	正序电流百分比	R	0-100%	word
	45	负序电流百分比	R	0-100%	word
	46	零序电流百分比	R	0-100%	word
	47	正序电压百分比	R	0-100%	word
	48	负序电压百分比	R	0-100%	word
	49	零序电压百分比		0-100%	word
	50	电流不平衡度	R	0-100%	word
	51	电压不平衡	R	0-100%	word
	52	AB 相电压相角差	R	0-2400	word
	53	BC 相电压相角差	R	0-2400	word
	54	CA 相电压相角差	R	0-2400	word
	55	AB 电流角度	R	0-2400	word
	56	BC 电流角度	R	0-2400	word
	57	CA 电流角度	R	0-2400	word
	58	负荷率	R	0%-999%	word
	59	预留	R		
	60	需量电流	R	0.001A	word
	61				word
	62	过流热容量百分比	R	0-100%	word

	63	零序热容量百分比	R	0-100%	word
	64	A 相有效值电流百分比	R	0-100%	word
	65	B 相有效值电流百分比	R	0-100%	word
	66	C 相有效值电流百分比	R	0-100%	word
	67	N 相有效值电流百分比	R	0-100%	word
	68	平均有效值电流百分比	R	0-100%	word
	69	最大有效值电流百分比	R	0-100%	word
	70	年月	R/W	高 byte:00-99,低 byte:0-12	word
	71	日时	R/W	高 byte:0-31,低 byte:0-23	word
	72	分秒	R/W	高 byte:0-59,低 byte:0-59	word
	73	变送输出 1	R	400~2400	word
	74	变送输出 2	R	400~2400	word
	75-99	保留			
保护参数（基波值）	100	A 相基波电流	R	0.001A	word
	101				word
	102	B 相基波电流	R	0.001A	word
	103				word
	104	C 相基波电流	R	0.001A	word
	105				word
	106	N 相基波电流	R	0.001A	word
	107				word
	108	Ua 基波相电压	R	0～999.9V	word
	109	Ub 基波相电压	R	0～999.9V	word
	110	Uc 基波相电压	R	0～999.9V	word
	111	Uab 基波线电压	R	0～999.9V	word
	112	Ubc 基波线电压	R	0～999.9V	word
	113	Uca 基波线电压	R	0～999.9V	word
	114	基波总有功功率	R	-2376000 ～ 2376000(Unit:W)	word
	115				word
	116	基波总无功功率	R	-2376000 ～ 2376000(Unit:Var)	word
	117				word
	118	基波总视在功率	R	0 ～ 2376000(Unit:VA)	word
	119				word
	120	基波 A 相有功功率	R	-792000 ～ 792000(Unit:W)	word
	121				word
	122	基波 B 相有功功率	R	-792000 ～ 792000(Unit:W)	word

	123				word
	124	基波 C 相有功功率	R	-792000 ～ 792000(Unit:W)	word
	125				word
	126	基波 A 相无功功率	R	-792000 ～ 792000(Unit:Var)	word
	127				word
	128	基波 B 相无功功率	R	-792000 ～ 792000(Unit:Var)	word
	129				word
	130	基波 C 相无功功率	R	-792000 ～ 792000(Unit:Var)	word
	131				word
	132	基波 A 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	133				word
	134	基波 B 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	135				word
	136	基波 C 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	137		R		word
	138	基波功率因数	R	0.001	word
	139	基波 A 相功率因数	R	0.001	word
	140	基波 B 相功率因数	R	0.001	word
	141	基波 C 相功率因数	R	0.001	word
	142	A 相基波电流百分比	R	0-100%	word
	143	B 相基波电流百分比	R	0-100%	word
	144	C 相基波电流百分比	R	0-100%	word
	145	N 相基波电流百分比	R	0-100%	word
	146	平均基波电流百分比	R	0-100%	word
	147	最大基波电流百分比	R	0-100%	word
	148-149	保留	R		
计量参数（全波）	200	A 相有效值电流	R	0.001A	word
	201				word
	202	B 相有效值电流	R	0.001A	word
	203				word
	204	C 相有效值电流	R	0.001A	word
	205				word
	206	A 相电压	R	0～999.9V	word
	207	B 相电压	R	0～999.9V	word
	208	C 相电压	R	0～999.9V	word

	209	Uab 有效值线电压	R	0～999.9V	word
	210	Ubc 有效值线电压	R	0～999.9V	word
	211	Uca 有效值线电压	R	0～999.9V	word
	212	全波总有功功率	R	-2376000 ～ 2376000(Unit:W)	word
	213				word
	214	全波总无功功率	R	-2376000 ～ 2376000(Unit:Var)	word
	215				word
	216	全波总视在功率	R	0 ～ 2376000(Unit:VA)	word
	217				word
	218	全波 A 相有功功率	R	-792000 ～ 792000(Unit:W)	word
	219				word
	220	全波 B 相有功功率	R	-792000 ～ 792000(Unit:W)	word
	221				word
	222	全波 C 相有功功率	R	-792000 ～ 792000(Unit:W)	word
	223				word
	224	全波 A 相无功功率	R	-792000 ～ 792000(Unit:Var)	word
	225				word
	226	全波 B 相无功功率	R	-792000 ～ 792000(Unit:Var)	word
	227				word
	228	全波 C 相无功功率	R	-792000 ～ 792000(Unit:Var)	word
	229				word
	230	全波 A 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	231				word
	232	全波 B 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	233				word
	234	全波 C 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	235				word
	236	全波功率因数	R	0.001	word
	237	全波 A 相功率因数	R	0.001	word
	238	全波 B 相功率因数	R	0.001	word
	239	全波 C 相功率因数	R	0.001	word
	240	频率	R	0.01HZ	word
	241	A 相电压相角差	R	0.1 度	word
	242	B 相电压相角差（相对 UA）	R	0.1 度	word
	243	C 相电压相角差（相对	R	0.1 度	word

		UA）			
	244	IA 角度（相对 UA）	R	0.1 度	word
	245	IB 角度（相对 UA）	R	0.1 度	word
	246	IC 角度（相对 UA）	R	0.1 度	word
	247-249	保留			
计量参数（基波）	250	A 相基波电流	R	0.001A	word
	251				word
	252	B 相基波电流	R	0.001A	word
	253				word
	254	C 相基波电流	R	0.001A	word
	255				word
	256	A 相电压	R	0～999.9V	word
	257	B 相电压	R	0～999.9V	word
	258	C 相电压	R	0～999.9V	word
	259	Uab 基波线电压	R	0～999.9V	word
	260	Ubc 基波线电压	R	0～999.9V	word
	261	Uca 基波线电压	R	0～999.9V	word
	262	基波总有功功率	R	-2376000 ～ 2376000(Unit:W)	word
	263				word
	264	基波总无功功率	R	-2376000 ～ 2376000(Unit:Var)	word
	265				word
	266	基波总视在功率	R	0 ～ 2376000(Unit:VA)	word
	267				word
	268	基波 A 相有功功率	R	-792000 ～ 792000(Unit:W)	word
	269				word
	270	基波 B 相有功功率	R	-792000 ～ 792000(Unit:W)	word
	271				word
	272	基波 C 相有功功率	R	-792000 ～ 792000(Unit:W)	word
	273				word
	274	基波 A 相无功功率	R	-792000 ～ 792000(Unit:Var)	Word
	275				word
	276	基波 B 相无功功率	R	-792000 ～ 792000(Unit:Var)	word
	277				word
	278	基波 C 相无功功率	R	-792000 ～ 792000(Unit:Var)	word
	279				word

	280	基波 A 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	281				word
	282	基波 B 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	283				word
	284	基波 C 相视在功率	R	0 ～ 2376000(Unit:VA)	word
	285				word
	286	基波功率因数	R	0.001	word
	287	基波 A 相功率因数	R	0.001	word
	288	基波 B 相功率因数	R	0.001	word
	289	基波 C 相功率因数	R	0.001	word
	290	测量模块版本	R		word
	291	测量模块编号	R		word
	292-299	保留			
电能数据	300	全波总有功电能	R	Unit1kwh	word
	301				word
	302	全波正向有功电能	R	Unit1kwh	word
	303				word
	304	全波反向有功电能	R	Unit1kwh	word
	305				word
	306	全波总无功电能	R	Unit1kwh	word
	307				word
	308	全波感性无功电能	R	Unit1kwh	word
	309				word
	310	全波容性无功电能	R	Unit1kwh	word
	311				word
	312	全波总有功电能小数位	R	0-999 wh	word
	313	全波正向电能小数位	R	0-999 wh	word
	314	全波反向有功电能小数位	R	0-999 wh	word
	315	全波总有功电能小数位	R	0-999 wh	word
	316	全波感性无功电能小数位	R	0-999 wh	word
	317	全波容性无功电能小数位	R	0-999 wh	word

	318	全波总有功电能进位	R	0-65535	word
	319	全波正向电能进位	R	0-65535	word
	320	全波反向有功电能进位	R	0-65535	word
	321	全波总有功电能进位	R	0-65535	word
	322	全波感性无功电能进位	R	0-65535	word
	323	全波容性无功电能进位	R	0-65535	word
	324	基波总有功电能	R	Unit1kwh	word
	325		R		
	326	基波正向有功电能	R	Unit1kwh	word
	327		R		
	328	基波反向有功电能	R	Unit1kwh	word
	329		R		
	330	基波总无功电能	R	Unit1kwh	word
	331		R		
	332	基波感性无功电能	R	Unit1kwh	word
	333		R		
	334	基波容性无功电能	R	Unit1kwh	word
	335		R		
	336	基波总有功电能小数位	R	0-999 wh	word
	337	基波正向电能小数位	R	0-999 wh	word
	338	基波反向有功电能小数位	R	0-999 wh	word
	339	基波总有功电能小数位	R	0-999 wh	word
	340	基波感性无功电能小数位	R	0-999 wh	word
	341	基波容性无功电能小数位	R	0-999 wh	word
	342	基波总有功电能进位	R	0-65535	word
	343	基波正向电能进位	R	0-65535	word
	344	基波反向有功电能进位	R	0-65535	word
	345	基波总有功电能进位	R	0-65535	word
	346	基波感性无功电能进位	R	0-65535	word
	347	基波容性无功电能进位	R	0-65535	word
	348-399	保留	R		
需量	400	当前电流需量	R	Unit0.001A	word

	401				word
	402	本月最大电流需量	R	Unit0.001A	word
	403				word
	404	本月最大需量发生月日	R	高字节月，低字节日	word
	405	本月最大需量发生时分	R	高字节时，低字节分	word
	406	上月最大电流需量	R	Unit0.001A	word
	407				word
	408	上月最大需量发生月日	R	高字节月，低字节日	word
	409	上月最大需量发生时分	R	高字节时，低字节分	word
	410	当前有功功率需量	R	Unit1W	word
	411				word
	412	本月最大有功功率需量	R	Unit1W	word
	413				word
	414	本月最大需量发生月日	R	高字节月，低字节日	word
	415	本月最大需量发生时分	R	高字节时，低字节分	word
	416	上月最大有功功率需量	R	Unit1W	word
	417				word
	418	上月最大需量发生月日	R	高字节月，低字节日	word
	419	上月最大需量发生时分	R	高字节时，低字节分	word
	420	当前无功功率需量	R	Unit1var	word
	421				word
	422	本月最大无功功率需量	R	Unit1var	word
	423				word
	424	本月最大需量发生月日	R	高字节月，低字节日	word
	425	本月最大需量发生时分	R	高字节时，低字节分	word
	426	上月最大无功功率需量	R	Unit1var	word
	427				word
	428	上月最大需量发生月日	R	高字节月，低字节日	word
	429	上月最大需量发生时分	R	高字节时，低字节分	word
	430	当前视在功率需量	R	Unit1VA	word
	431				word
	432	本月最大视在功率需量	R	Unit1VA	word
	433				word
	434	本月最大需量发生月日	R	高字节月，低字节日	word
	435	本月最大需量发生时分	R	高字节时，低字节分	word
	436	上月最大视在功率需量	R	Unit1VA	word

	437				word
	438	上月最大需量发生月日	R	高字节月，低字节日	word
	439	上月最大需量发生时分	R	高字节时，低字节分	word
母线测温	500	有线测温温度值 1	R	0.1 度	word
	501	有线测温温度值 2	R	0.1 度	word
	502	有线测温温度值 3	R	0.1 度	word
	503	有线测温温度值 4	R	0.1 度	word
	504	有线测温温度值 5	R	0.1 度	word
	505	有线测温温度值 6	R	0.1 度	word
	506	有线测温温度值 7	R	0.1 度	word
	507	有线测温温度值 8	R	0.1 度	word
	508	有线测温温度值 9	R	0.1 度	word
	509	有线温度传感器类型	R/W	0.1 度	word
	510	无线测温温度值 1	R	0.1 度	word
	511	无线测温温度值 2	R	0.1 度	word
	512	无线测温温度值 3	R	0.1 度	word
	513	无线测温温度值 4	R	0.1 度	word
	514	无线测温温度值 5	R	0.1 度	word
	515	无线测温温度值 6	R	0.1 度	word
	516	无线测温温度值 7	R	0.1 度	word
	517	无线测温温度值 8	R	0.1 度	word
	518	无线测温温度值 9	R	0.1 度	word
	519	无线测温温度值 10	R	0.1 度	word
	520	无线测温温度值 11	R	0.1 度	word
	521	无线测温温度值 12	R	0.1 度	word
	522	无线测温温度值 13	R	0.1 度	word
	523	无线测温温度值 14	R	0.1 度	word
	524	无线测温温度值 15	R	0.1 度	word
	525	无线测温温度值 16	R	0.1 度	word
	526	无线测温温度值 17	R	0.1 度	word
	527	无线测温温度值 18	R	0.1 度	word
	528	无线测温温度值 19	R	0.1 度	word
	529	无线测温温度值 20	R	0.1 度	word
	530	无线测温温度值 21	R	0.1 度	word
	531	无线测温温度值 22	R	0.1 度	word
	532	无线测温温度值 23	R	0.1 度	word

	533	无线测温温度值 24	R	0.1 度	word
	534	无线测温温度值 25	R	0.1 度	word
	535	无线测温温度值 26	R	0.1 度	word
	536	无线测温温度值 27	R	0.1 度	word
	537	无线测温温度值 28	R	0.1 度	word
	538	无线测温温度值 29	R	0.1 度	word
	539	无线测温温度值 30	R	0.1 度	word
	540-569	无线测温温度值 31-60	R	0.1 度	word
	570	无线测温 ID 值 1	R/W		word
	571	无线测温 ID 值 2	R/W		word
	572	无线测温 ID 值 3	R/W		word
	573	无线测温 ID 值 4	R/W		word
	574	无线测温 ID 值 5	R/W		word
	575	无线测温 ID 值 6	R/W		word
	576	无线测温 ID 值 7	R/W		word
	577	无线测温 ID 值 8	R/W		word
	578	无线测温 ID 值 9	R/W		word
	579	无线测温 ID 值 10	R/W		word
	580	无线测温 ID 值 11	R/W		word
	581	无线测温 ID 值 12	R/W		word
	582	无线测温 ID 值 13	R/W		word
	583	无线测温 ID 值 14	R/W		word
	584	无线测温 ID 值 15	R/W		word
	585	无线测温 ID 值 16	R/W		word
	586	无线测温 ID 值 17	R/W		word
	587	无线测温 ID 值 18	R/W		word
	588	无线测温 ID 值 19	R/W		word
	589	无线测温 ID 值 20	R/W		word
	590	无线测温 ID 值 21	R/W		word
	591	无线测温 ID 值 22	R/W		word
	592	无线测温 ID 值 23	R/W		word
	593	无线测温 ID 值 24	R/W		word
	594	无线测温 ID 值 25	R/W		word
	595	无线测温 ID 值 26	R/W		word
	596	无线测温 ID 值 27	R/W		word

	597	无线测温 ID 值 28	R/W		word
	598	无线测温 ID 值 29	R/W		word
	599	无线测温 ID 值 30	R/W		word
	600-629	无线测温 ID 值 31-60	R/W		word
	630	有线测温是否投入	R/W	byte0-8 对应有线第 1-9 通道	word
	631	无线测温是否投入	R/W	byte0-15 对应无线第 1-16 路	word
	632	无线测温是否投入	R/W	byte0-15 对应无线第 17-32 路	word
	633	无线测温是否投入	R/W	byte0-15 对应无线第 33-48 路	word
	634	无线测温是否投入	R/W	byte0-11 对应无线第 49-60 路	word
	635	有线测温通道 2-1 分组选择	R/W	低字节有线 1，高字节有线 2 数值范围：1-6	word
	636	有线测温通道 4-3 分组选择	R/W		word
	637	有线测温通道 6-5 分组选择	R/W		word
	638	有线测温通道 8-7 分组选择	R/W		word
	639	有线测温通道 9 分组选择	R/W		word
	640	无线测温通道 2-1 分组选择	R/W		word
	641	无线测温通道 4-3 分组选择	R/W		word
	642	无线测温通道 6-5 分组选择	R/W		word
	643	无线测温通道 8-7 分组选择	R/W		word
	644	无线测温通道 10-9 分组选择	R/W		word
	645	无线测温通道 12-11 分组选择	R/W		word
	646	无线测温通道 14-13 分组选择	R/W		word
	647	无线测温通道 16-15 分组选择	R/W		word

	648	无线测温通道 18-17 分组选择	R/W		word
	649	无线测温通道 20-19 分组选择	R/W		word
	650	无线测温通道 22-21 分组选择	R/W		word
	651	无线测温通道 24-23 分组选择	R/W		word
	652	无线测温通道 26-25 分组选择	R/W		word
	653	无线测温通道 28-27 分组选择	R/W		word
	654	无线测温通道 30-29 分组选择	R/W		word
	655-669	无线测温 ID 值 60-31 保留	R/W		word
	670	温度模块的内部数据,AD 值和欧姆值	R	0-1000，Unit0.1%，下同	word
	671				word
	672-699				word

Table 17 Measurement parameter address table

Classification	Address	Parameters	Read and write properties	Range	Type
Protection parameters (full wave value)	0	A Phase RMS current	R	0.001A	word
	1				word
	2	B Phase RMS current	R	0.001A	word
	3				word
	4	C Phase RMS current	R	0.001A	word
	5				word
	6	N Phase RMS current	R	0.001A	word
	7				word
	8	A phase voltage	R	0～999.9V	word
	9	B phase voltage	R	0～999.9V	word
	10	C phase voltage	R	0～999.9V	word

	11	Uab RMS line voltage	R	0～999.9V	word
	12	Ubc RMS line voltage	R	0～999.9V	word
	13	Uca RMS line voltage	R	0～999.9V	word
	14	Total Active Power	R	-2376000 ～ 2376000(Unit:W)	word
	15				word
	16	Total Reactive Power	R	-2376000 ～ 2376000(Unit:Var)	word
	17				word
	18	total apparent power	R	0 ～ 2376000(Unit:VA)	word
	19				word
	20	A phase Active Power	R R	-792000 ～ 792000(Unit:W)	word
	21				word
	22	B phase Active Power	R	-792000 ～ 792000(Unit:W)	word
	23				word
	24	C phase Active Power	R	-792000 ～ 792000(Unit:W)	word
	25				word
	26	A phase Reactive Power	R	-792000 ～ 792000(Unit:Var)	word
	27				word
	28	B phase Reactive Power	R	-792000 ～ 792000(Unit:Var)	word
	29				word
	30	C phase Reactive Power	R	-792000 ～ 792000(Unit:Var)	word
	31				word
	32	A phase apparent power	R	0 ～ 2376000(Unit:VA)	word
	33				word
	34	B phase apparent power	R	0 ～ 2376000(Unit:VA)	word
	35				word
	36	C phase apparent power	R	0 ～ 2376000(Unit:VA)	word
	37				word
	38	full wave power factor	R	0.001	word
	39	full wave A phase power factor	R	0.001	word
	40	full wave B phase	R	0.001	word

		power factor			
	41	full wave C phase power factor	R	0.001	word
	42	Frequency	R	4000-7000，Unit0.01Hz	word
	43	Leakage Current	R	0-1000mA	word
	44	Positive sequence current percentage	R	0-100%	word
	45	Negative sequence current percentage	R	0-100%	word
	46	Zero sequence current percentage	R	0-100%	word
	47	Positive sequence voltage percentage	R	0-100%	word
	48	Negative sequence voltage percentage	R	0-100%	word
	49	Zero sequence voltage percentage		0-100%	word
	50	current unbalance	R	0-100%	word
	51	voltage imbalance	R	0-100%	word
	52	AB phase voltage phase angle difference	R	0-2400	word
	53	BC phase voltage phase angle difference	R	0-2400	word
	54	CA phase voltage phase angle difference	R	0-2400	word
	55	AB current angle	R	0-2400	word
	56	BC current angle	R	0-2400	word
	57	CA current angle	R	0-2400	word
	58	Load factor	R	0%-999%	word
	59	reserve	R		
	60	demand current	R	0.001A	word
	61				word
	62	Over current thermal capacity percentage	R	0-100%	word
	63	Zero sequence	R	0-100%	word

		heat capacity percentage			
	64	A Phase RMS current percentage	R	0-100%	word
	65	B Phase RMS current percentage	R	0-100%	word
	66	C Phase RMS current percentage	R	0-100%	word
	67	N Phase RMS current percentage	R	0-100%	word
	68	Average Phase RMS current percentage	R	0-100%	word
	69	Maximum Phase RMS current percentage	R	0-100%	word
	70	Year/Month	R/W	High byte:00-99, Low byte:0-12	word
	71	Day/Hour	R/W	High byte:0-31, Low byte:0-23	word
	72	分秒	R/W	High byte:0-59, Low byte:0-59	word
	73	Transmission output 1	R	400~2400	word
	74	Transmission output 2	R	400~2400	word
	75-99	Reserve			
Protection parameters (fundamental value)	100	A Phase fundamental current	R	0.001A	word
	101				word
	102	B Phase fundamental current	R	0.001A	word
	103				word
	104	C Phase fundamental current	R	0.001A	word
	105				word
	106	N Phase fundamental current	R	0.001A	word
	107				word
	108	Ua Fundamental phase voltage	R	0～999.9V	word
	109	Ub Fundamental phase voltage	R	0～999.9V	word
	110	Uc Fundamental phase	R	0～999.9V	word

		voltage			
	111	Uab Fundamental phase voltage	R	0～999.9V	word
	112	Ubc Fundamental phase voltage	R	0～999.9V	word
	113	Uca Fundamental phase voltage	R	0～999.9V	word
	114	Fundamental total active power	R	-2376000 ～ 2376000(Unit:W)	word
	115				word
	116	Fundamental total reactive power	R	-2376000 ～ 2376000(Unit:Var)	word
	117				word
	118	Fundamental total apparent power	R	0 ～ 2376000(Unit:VA)	word
	119				word
	120	Fundamental A Phase active power	R	-792000 ～ 792000(Unit:W)	word
	121				word
	122	Fundamental B Phase active power	R	-792000 ～ 792000(Unit:W)	word
	123				word
	124	Fundamental C Phase active power	R	-792000 ～ 792000(Unit:W)	word
	125				word
	126	Fundamental A Phase reactive power	R	-792000 ～ 792000(Unit:Var)	word
	127				word
	128	Fundamental B Phase reactive power	R	-792000 ～ 792000(Unit:Var)	word
	129				word
	130	Fundamental C Phase reactive power	R	-792000 ～ 792000(Unit:Var)	word
	131				word
	132	Fundamental A phase apparent power	R	0 ～ 2376000(Unit:VA)	word
	133				word
	134	Fundamental B phase apparent power	R	0 ～ 2376000(Unit:VA)	word
	135				word
	136	Fundamental C phase apparent power	R	0 ～ 2376000(Unit:VA)	word
	137		R		word
	138	Fundamental Power Factor	R	0.001	word
	139	Fundamental A phase Power Factor	R	0.001	word
	140	Fundamental B phase	R	0.001	word

		Power Factor			
	141	Fundamental C phase Power Factor	R	0.001	word
	142	A phase Fundamental current percentage	R	0-100%	word
	143	B phase Fundamental current percentage	R	0-100%	word
	144	C phase Fundamental current percentage	R	0-100%	word
	145	N phase Fundamental current percentage	R	0-100%	word
	146	Average Fundamental current percentage	R	0-100%	word
	147	Maximum Fundamental current percentage	R	0-100%	word
	148-149	Reserve	R		
Measurement parameters (full wave)	200	A phase RMS current	R	0.001A	word
	201				word
	202	B phase RMS current	R	0.001A	word
	203				word
	204	C phase RMS current	R	0.001A	word
	205				word
	206	A phase Voltage	R	0～999.9V	word
	207	B phase Voltage	R	0～999.9V	word
	208	C phase Voltage	R	0～999.9V	word
	209	Uab RMS line voltage	R	0～999.9V	word
	210	Ubc RMS line voltage	R	0～999.9V	word
	211	Uca RMS	R	0～999.9V	word

		line voltage			
	212	Full wave total active power	R	-2376000 ～ 2376000(Unit:W)	word
	213				word
	214	Full wave Total Reactive Power	R	-2376000 ～ 2376000(Unit:Var)	word
	215				word
	216	Full wave Total apparent power	R	0 ～ 2376000(Unit:VA)	word
	217				word
	218	Full wave A phase active power	R	-792000 ～ 792000(Unit:W)	word
	219				word
	220	Full wave B phase active power	R	-792000 ～ 792000(Unit:W)	word
	221				word
	222	Full wave C phase active power	R	-792000 ～ 792000(Unit:W)	word
	223				word
	224	Full wave A phase Reactive Power	R	-792000 ～ 792000(Unit:Var)	word
	225				word
	226	Full wave B phase Reactive Power	R	-792000 ～ 792000(Unit:Var)	word
	227				word
	228	Full wave C phase Reactive Power	R	-792000 ～ 792000(Unit:Var)	word
	229				word
	230	Full wave A phase apparent Power	R	0 ～ 2376000(Unit:VA)	word
	231				word
	232	Full wave B phase apparent Power	R	0 ～ 2376000(Unit:VA)	word
	233				word
	234	Full wave C phase apparent Power	R	0 ～ 2376000(Unit:VA)	word
	235				word
	236	Full Wave Power Factor	R	0.001	word
	237	Full Wave A phase Power Factor	R	0.001	word
	238	Full Wave B phase Power Factor	R	0.001	word
	239	Full Wave C phase Power Factor	R	0.001	word
	240	Frequency	R	0.01HZ	word
	241	A phase Voltage phase Angle difference	R	0.1 度	word

	242	B phase Voltage phase Angle difference（to UA）	R	0.1 度	word
	243	C phase Voltage phase Angle difference（to UA）	R	0.1 度	word
	244	IA angle（to UA）	R	0.1 度	word
	245	IB angle（to UA）	R	0.1 度	word
	246	IC angle（to UA）	R	0.1 度	word
	247-249	reserve			
Measurement parameters (fundamental wave)	250	A Phase fundamental current	R	0.001A	word
	251				word
	252	B Phase fundamental current	R	0.001A	word
	253				word
	254	C Phase fundamental current	R	0.001A	word
	255				word
	256	A phase Voltage	R	0～999.9V	word
	257	B phase Voltage	R	0～999.9V	word
	258	C phase Voltage	R	0～999.9V	word
	259	Uab Fundamental line voltage	R	0～999.9V	word
	260	Ubc Fundamental line voltage	R	0～999.9V	word
	261	Uca Fundamental line voltage	R	0～999.9V	word
	262	Fundamental total Active Power	R	-2376000 ～ 2376000(Unit:W)	word
	263				word
	264	Fundamental total Reactive Power	R	-2376000 ～ 2376000(Unit:Var)	word
	265				word
	266	Fundamental total Apparent Power	R	0 ～ 2376000(Unit:VA)	word
	267				word
	268	Fundamental A phase Active Power	R	-792000 ～ 792000(Unit:W)	word
	269				word
	270	Fundamental B phase Active Power	R	-792000 ～ 792000(Unit:W)	word
	271				word
	272	Fundamental C phase	R	-792000 ～ 792000(Unit:W)	word

	273	Active Power			word
	274	Fundamental A phase Reactive Power	R	-792000 ～ 792000(Unit:Var)	Word
	275				word
	276	Fundamental B phase Reactive Power	R	-792000 ～ 792000(Unit:Var)	word
	277				word
	278	Fundamental C phase Reactive Power	R	-792000 ～ 792000(Unit:Var)	word
	279				word
	280	Fundamental A phase Apparent Power	R	0 ～ 2376000(Unit:VA)	word
	281				word
	282	Fundamental B phase Apparent Power	R	0 ～ 2376000(Unit:VA)	word
	283				word
	284	Fundamental C phase Apparent Power	R	0 ～ 2376000(Unit:VA)	word
	285				word
	286	Fundamental Power Factor	R	0.001	word
	287	Fundamental A Phase Power Factor	R	0.001	word
	288	Fundamental B Phase Power Factor	R	0.001	word
	289	Fundamental C Phase Power Factor	R	0.001	word
	290	Measure Module Version	R		word
	291	Measure Module Code	R		word
	292-299	Reserve			
Energy data	300	Full wave total active energy	R	Unit1kwh	word
	301				word
	302	Full wave Forward active energy	R	Unit1kwh	word
	303				word
	304	Full wave Reverse active energy	R	Unit1kwh	word
	305				word
	306	Full wave total reactive energy	R	Unit1kwh	word
	307				word
	308	Full wave inductive	R	Unit1kwh	word

	309	reactive energy			word
	310	Full wave capacitive reactive energy	R	Unit1kwh	word
	311				word
	312	Full wave total active energy decimal place	R	0-999 wh	word
	313	Full wave forward energy decimal places	R	0-999 wh	word
	314	Full wave reverse active energy decimal places	R	0-999 wh	word
	315	Full wave total active energy decimal places	R	0-999 wh	word
	316	full wave inductive reactive energy decimal places	R	0-999 wh	word
	317	Full wave capacitive reactive energy decimal place	R	0-999 wh	word
	318	Full wave total active energy carry	R	0-65535	word
	319	Full wave positive energy carry	R	0-65535	word
	320	Full wave reverse active energy carry	R	0-65535	word
	321	Full wave total active energy carry	R	0-65535	word
	322	Full wave inductive reactive energy carry	R	0-65535	word
	323	Full wave capacitive reactive energy carry	R	0-65535	word

	324	Fundamental total active energy	R	Unit1kwh	word
	325		R		
	326	Fundamental forward active energy	R	Unit1kwh	word
	327		R		
	328	Fundamental reverse active energy	R	Unit1kwh	word
	329		R		
	330	Fundamental total reactive energy	R	Unit1kwh	word
	331		R		
	332	Fundamental wave inductive reactive energy	R	Unit1kwh	word
	333		R		
	334	Fundamental capacitive reactive energy	R	Unit1kwh	word
	335		R		
	336	Decimal places of fundamental total active energy	R	0-999 wh	word
	337	Decimal places of fundamental reverse active energy	R	0-999 wh	word
	338	Fundamental Reverse active energy decimal places	R	0-999 wh	word
	339	Fundamental total active energy decimal places	R	0-999 wh	word
	340	Fundamental wave inductive reactive energy decimal places	R	0-999 wh	word
	341	Fundamental capacitive reactive energy decimal places	R	0-999 wh	word
	342	Fundamental capacitive reactive energy decimal places	R	0-65535	word
	343	Fundamental wave	R	0-65535	word

		forward electric energy carry			
	344	Fundamental reverse active energy carry	R	0-65535	word
	345	Fundamental total active energy carry	R	0-65535	word
	346	Fundamental wave inductive reactive energy carry	R	0-65535	word
	347	Fundamental wave capacitive reactive energy carry	R	0-65535	word
	348-399	Reserve	R		
Demand	400	current demand at present	R	Unit0.001A	word
	401				word
	402	The maximum current demand of this month	R	Unit0.001A	word
	403				word
	404	The month and day when the maximum demand occurs in this month	R	high byte month, low byte day	word
	405	The time when the maximum demand occurs in this month	R	high byte hour, low byte minute	word
	406	Maximum current demand last month	R	Unit0.001A	word
	407				word
	408	The month and day when the maximum demand occurred in the previous month	R	high byte month, low byte day	word
	409	The time when the maximum demand occurred in the previous month	R	high byte hour, low byte minute	word
	410	Current Active	R	Unit1W	word

	411	Power Demand			word
	412	The maximum active power demand in this month	R	Unit1W	word
	413				word
	414	The month and day when the maximum demand occurs in this month	R	high byte month, low byte day	word
	415	The time when the maximum demand occurs in this month	R	high byte hour, low byte minute	word
	416	Maximum active power demand last month	R	Unit1W	word
	417				word
	418	The month and day when the maximum demand occurred in the previous month	R	high byte month, low byte day	word
	419	The time when the maximum demand occurred in the previous month	R	high byte hour, low byte minute	word
	420	Current reactive power demand	R	Unit1var	word
	421				word
	422	The maximum reactive power demand of this month	R	Unit1var	word
	423				word
	424	The month and day when the maximum demand occurs in this month	R	high byte month, low byte day	word
	425	The time when the maximum demand occurs in this month	R	high byte hour, low byte minute	word
	426	Maximum reactive	R	Unit1var	word

	427	power demand last month			word
	428	The month and day when the maximum demand occurred in the previous month	R	high byte month, low byte day	word
	429	The time when the maximum demand occurred in the previous month	R	high byte hour, low byte minute	word
	430	Current Apparent Power Demand	R	Unit1VA	word
	431				word
	432	The maximum apparent power demand of the month	R	Unit1VA	word
	433				word
	434	The month and day when the maximum demand occurs in this month	R	high byte month, low byte day	word
	435	The time when the maximum demand occurs in this month	R	high byte hour, low byte minute	word
	436	Maximum apparent power demand last month	R	Unit1VA	word
	437				word
	438	The month and day when the maximum demand occurred in the previous month	R	high byte month, low byte day	word
	439	The time when the maximum demand occurred in the previous month	R	high byte hour, low byte minute	word
母线测温	500	Wired temperature	R	0.1℃	word

		measurement temperature value1			
	501	Wired temperature measurement temperature value2	R	0.1℃	word
	502	Wired temperature measurement temperature value3	R	0.1℃	word
	503	Wired temperature measurement temperature value4	R	0.1℃	word
	504	Wired temperature measurement temperature value5	R	0.1℃	word
	505	Wired temperature measurement temperature value6	R	0.1℃	word
	506	Wired temperature measurement temperature value7	R	0.1℃	word
	507	Wired temperature measurement temperature value8	R	0.1℃	word
	508	Wired temperature measurement temperature value9	R	0.1℃	word
	509	Wired temperature measurement sensor type	R/W	0.1℃	word
	510	Wireless temperature measurement temperature value1	R	0.1℃	word
	511	Wireless temperature measurement temperature value2	R	0.1℃	word
	512	Wireless temperature	R	0.1℃	word

		measurement temperature value3			
	513	Wireless temperature measurement temperature value4	R	0.1℃	word
	514	Wireless temperature measurement temperature value5	R	0.1℃	word
	515	Wireless temperature measurement temperature value6	R	0.1℃	word
	516	Wireless temperature measurement temperature value7	R	0.1℃	word
	517	Wireless temperature measurement temperature value8	R	0.1℃	word
	518	Wireless temperature measurement temperature value9	R	0.1℃	word
	519	Wireless temperature measurement temperature value10	R	0.1℃	word
	520	Wireless temperature measurement temperature value11	R	0.1℃	word
	521	Wireless temperature measurement temperature value12	R	0.1℃	word
	522	Wireless temperature measurement temperature value13	R	0.1℃	word
	523	Wireless temperature measurement temperature value14	R	0.1℃	word
	524	Wireless temperature	R	0.1℃	word

		measurement temperature value15			
	525	Wireless temperature measurement temperature value16	R	0.1℃	word
	526	Wireless temperature measurement temperature value17	R	0.1℃	word
	527	Wireless temperature measurement temperature value18	R	0.1℃	word
	528	Wireless temperature measurement temperature value19	R	0.1℃	word
	529	Wireless temperature measurement temperature value20	R	0.1℃	word
	530	Wireless temperature measurement temperature value21	R	0.1℃	word
	531	Wireless temperature measurement temperature value22	R	0.1℃	word
	532	Wireless temperature measurement temperature value23	R	0.1℃	word
	533	Wireless temperature measurement temperature value24	R	0.1℃	word
	534	Wireless temperature measurement temperature value25	R	0.1℃	word
	535	Wireless temperature measurement temperature value26	R	0.1℃	word
	536	Wireless temperature	R	0.1℃	word

		measurement temperature value27			
	537	Wireless temperature measurement temperature value28	R	0.1℃	word
	538	Wireless temperature measurement temperature value29	R	0.1℃	word
	539	Wireless temperature measurement temperature value30	R	0.1℃	word
	540-569	Wireless temperature measurement temperature value 31-60	R	0.1℃	word
	570	Wireless temperature measurement ID value1	R/W		word
	571	Wireless temperature measurement ID value2	R/W		word
	572	Wireless temperature measurement ID value3	R/W		word
	573	Wireless temperature measurement ID value4	R/W		word
	574	Wireless temperature measurement ID value5	R/W		word
	575	Wireless temperature measurement ID value6	R/W		word
	576	Wireless temperature measurement ID value7	R/W		word

	577	Wireless temperature measurement ID value8	R/W		word
	578	Wireless temperature measurement ID value9	R/W		word
	579	Wireless temperature measurement ID value10	R/W		word
	580	Wireless temperature measurement ID value11	R/W		word
	581	Wireless temperature measurement ID value12	R/W		word
	582	Wireless temperature measurement ID value13	R/W		word
	583	Wireless temperature measurement ID value14	R/W		word
	584	Wireless temperature measurement ID value15	R/W		word
	585	Wireless temperature measurement ID value16	R/W		word
	586	Wireless temperature measurement ID value17	R/W		word
	587	Wireless temperature measurement ID value18	R/W		word
	588	Wireless temperature measurement ID value19	R/W		word

	589	Wireless temperature measurement ID value20	R/W		word
	590	Wireless temperature measurement ID value21	R/W		word
	591	Wireless temperature measurement ID value22	R/W		word
	592	Wireless temperature measurement ID value23	R/W		word
	593	Wireless temperature measurement ID value24	R/W		word
	594	Wireless temperature measurement ID value25	R/W		word
	595	Wireless temperature measurement ID value26	R/W		word
	596	Wireless temperature measurement ID value27	R/W		word
	597	Wireless temperature measurement ID value28	R/W		word
	598	Wireless temperature measurement ID value29	R/W		word
	599	Wireless temperature measurement ID value30	R/W		word
	600-629	Wireless temperature measurement ID value31-60	R/W		word

	630	If wired temperature measurement enabled	R/W	byte0-8 Corresponding to wired channels 1-9	word
	631	If wireless temperature measurement enabled	R/W	byte0-15 Corresponding to wired channels 1-16	word
	632	If wireless temperature measurement enabled	R/W	byte0-15 Corresponding to wireless channels 17-32	word
	633	If wireless temperature measurement enabled	R/W	byte0-15 Corresponding to wireless channels 33-48	word
	634	If wireless temperature measurement enabled	R/W	byte0-11 Corresponding to wireless channels 49-60	word
	635	Wired temperature measurement channel2-1 group selection	R/W	Low byte wired 1, high byte wired 2 Value range: 1-6	word
	636	Wired temperature measurement channel4-3group selection	R/W		word
	637	Wired temperature measurement channel6-5group selection	R/W		word
	638	Wired temperature measurement channel8-7group selection	R/W		word
	639	Wired temperature measurement channel9group selection	R/W		word
	640	Wireless temperature	R/W		word

		measurement channel2-1group selection			
	641	Wireless temperature measurement channel4-3group selection	R/W		word
	642	Wireless temperature measurement channel6-5group selection	R/W		word
	643	Wireless temperature measurement channel8-7group selection	R/W		word
	644	Wireless temperature measurement channel10-9group selection	R/W		word
	645	Wireless temperature measurement channel12-11group selection	R/W		word
	646	Wireless temperature measurement channel14-13group selection	R/W		word
	647	Wireless temperature measurement channel16-15group selection	R/W		word
	648	Wireless temperature measurement channel18-17group selection	R/W		word
	649	Wireless temperature	R/W		word

		measurement channel20-19group selection			
	650	Wireless temperature measurement channel22-21group selection	R/W		word
	651	Wireless temperature measurement channel24-23group selection	R/W		word
	652	Wireless temperature measurement channel26-25group selection	R/W		word
	653	Wireless temperature measurement channel28-27group selection	R/W		word
	654	Wireless temperature measurement channel30-29group selection	R/W		word
	655-669	Wireless temperature measurement ID value60-31 reserve	R/W		word
	670	Internal data of temperature module, AD value and ohm value	R	0-1000，Unit0.1%，Below is as same	word
	671				word
	672-699				word

8.2 谐波数据通讯地址 8.2 Harmonic data communication address

见表 18：Refer to table 18:

表 18 谐波参数地址表

分类	地址	参数	读写属性	取值范围	类型
谐波	700	AB 线电压总谐波含量	R	0-1000	word
	701	BC 线相电压总谐波含量	R	0-1000	word
	702	CA 线相电压总谐波含量	R	0-1000	word
	703	A 相电流总谐波含量	R	0-1000	word
	704	B 相电流总谐波含量	R	0-1000	word
	705	C 相电流总谐波含量	R	0-1000	word
	706-767	A 相电压 2~63 次电压谐波含量	R	0-1000	word
	768-829	B 相电压 2~63 次电压谐波含量	R	0-1000	word
	830-891	C 相电压 2~63 次电压谐波含量	R	0-1000	word
	892-953	A 相电流 2~63 次电流谐波含量	R	0-1000	word
	954-1015	B 相电流 2~63 次电流谐波含量	R	0-1000	word
	1016-1077	C 相电流 2~63 次电流谐波含量	R	0-1000	word
	1078-1099	保留			

Table 18 Harmonic parameter address table

Category	Address	Parameters	Read-write attribute	Range	Type
Harmonic	700	AB line voltage total harmonic content	R	0-1000	word
	701	BC line phase voltage total harmonic content	R	0-1000	word
	702	CA line phase voltage total harmonic content	R	0-1000	word
	703	A phase Current total harmonic content	R	0-1000	word
	704	B phase Current total	R	0-1000	word

		harmonic content			
	705	C phase Current total harmonic content	R	0-1000	word
	706-767	A Phase voltage 2~63 voltage harmonic content	R	0-1000	word
	768-829	B Phase voltage 2~63 voltage harmonic content	R	0-1000	word
	830-891	C Phase voltage 2~63 voltage harmonic content	R	0-1000	word
	892-953	A Phase current 2~63 current harmonic content	R	0-1000	word
	954-1015	B Phase voltage 2~63 voltage harmonic content	R	0-1000	word
	1016-1077	C Phase voltage 2~63 voltage harmonic content	R	0-1000	word
	1078-1099	Reserve			

8.3 系统参数通讯地址 8.3 System parameter communication address

见表 19：Refer to table 19

表 19 系统参数地址表

分类	地址	参数	读写属性	取值范围	类型
运行信息	1100	控制权限	R	0-检修，1 面板，2-本地，3-远程，4-通讯，5-全控	word
	1101	脱扣状态 1	R	byte0:反时限过流;byte1:反时限零序;byte2:一段定时限过流；byte3：二段定时限过流；byte4：三段定时限过流；byte5：一段定时限零序；byte6：二段定时限零序；byte7：三段定时限零序；	word

				byte8：一段负序电流；byte9：二段负序电流；byte10：零线电流；byte11：电流不平衡；byte12：电流需量；byte13：联动 1；byte14：联动 2；byte15：联动 3；	
	1102	脱扣状态 2	R	byte0：欠压；byte1：过压；byte2：电压不平衡；byte3：漏电；byte4：欠载；byte5：断相；byte6：过功率；byte7：欠功率；byte8：相序；byte9：短路；byte12：内部故障，byte13 控制回路异常，byte14 PT 断线，byte15 温度传感器故障	word
	1103	脱扣状态 3	R	byte0:分组 1 过温,byte1:分组 2 过温,byte2:分组 3 过温，byte3：分组 4 过温，byte4：分组 5 过温，byte5：分组 6 过温	word
	1104	报警状态 1	R	byte0:反时限过流;byte1:反时限零序;byte2:一段定时限过流；byte3：二段定时限过流；byte4：三段定时限过流；byte5：一段定时限零序；byte6：二段定时限零序；byte7：三段定时限零序；byte8：一段负序电流；byte9：二段负序电流；byte10：零线电流；byte11：电流不平衡；byte12：电流需量；byte13：联动 1；byte14：联动 2；byte15：联动 3；	word
	1105	报警状态 2	R	byte0：欠压；byte1：过压；byte2：电压不平衡；byte3：漏电；byte4：欠载；byte5：断相；byte6：过功率；byte7：欠功率；byte8：相序；byte9：短路；byte10：运行时间；byte11：故障次数； byte12：内部故障，byte14 PT 断线，byte15 温度传感器故障	word
	1106	报警状态 3	R	byte0:分组 1 过温,byte1:分组 2 过温,byte2:分组 3 过温，byte3：分组 4 过温，byte4：分组 5 过温，byte5：分组 6 过温	word
	1107	DI 状态	R	byte0-byte13 对应开关量输入 DI1-DI14	word
	1108	DO 状态	R/W	byte0 继电器 1、byte1 继电器 2、byte2 继电器 3、byte3 继电器 4、byte4 继电器 5、byte5	word

				继电器 6、byte6 继电器 7	
	1109	运行状态	R	1：合闸；0：分闸	word
	1110	总合闸次数	R		word
	1111	总分闸次数	R		word
	1112	总故障脱扣次数	R		word
	1113	本次合闸时间	R	Unit min	word
	1114	本次分闸时间	R	Unit min	word
	1115	总合闸时间	R	Unit h	word
	1116	总分闸时间	R	Unit h	word
	1117	断路器正常跳闸次数	R		word
	1118	断路器异常跳闸次数	R		word
	1119	电流需量故障次数	R		word
	1120	需量保护剩余时间	R	min	word
	1121	合闸超时剩余时间	R	h	word
	1122	故障剩余次数	R		word
	1123	最新故障记录通讯地址	R		word
	1124	最新 DI 变位记录通讯地址	R		word
	1125	最新合闸记录通讯地址	R		word
	1126	最新分闸记录通讯地址	R		word
	1127	最新电压暂升记录通讯地址	R		word
	1128	最新电压暂降记录通讯地址	R		word
	1129	最新故障录波通讯地址	R		word

	1130	最新参数设置通讯地址	R		word
	1131	最新装置上电记录通讯地址	R		word
	1132	最新装置断电记录通讯地址	R		word
	1133	当前记录到的上电次数	R	0-60000	word
	1134	当前记录到的断电次数	R	0-60000	word
	1135-1199	保留			
控制参数	1200	控制权限设置	R/W	0-检修，1-面板，2-就地，3-远程，4-通讯，5-二选一，6-三选一，7 全控	word
	1201	三选一控制权限编程输出 1	R/W	0-检修，1-面板，2-就地，3-远程，4-通讯，默认 0	word
	1202	三选一控制权限编程输出 2	R/W	0-检修，1-面板，2-就地，3-远程，4-通讯，默认 1	word
	1203	三选一控制权限编程输出 3	R/W	0-检修，1-面板，2-就地，3-远程，4-通讯，默认 2	word
	1204	三选一控制权限编程输出 4	R/W	0-检修,1-面板,2-就地,3-远程,4-通讯，默认 3	word
	1205-1249	保留			
清除记录功能	1250	清除电能	W	0xa5b5	word
	1251	清除运行信息	W	0xa5b5	word
	1252	清除记录	W	0xa5b5	word
系统参数	1300	恢复出厂设置	W	0xFFFF	word
	1301	电流规格	R	10-1A、50-5A、250-25A、1000-100A	word
	1302	运行控制位	R	1、合闸；0、分闸；2、复位	word
	1303	基波开关	R/W	0 有效值，1 基波	word
	1304	CT 变比(三相)	R/W	1A：1-5000 5A：1-1000	word
	1305	CT 变比(零线)	R/W	1A：1-5000 5A：1-1000	word
	1306	计量模块 CT	R/W	1A：1-5000 5A：1-1000	word
	1307	额定频率	R/W	45-70	word
	1308	额定电流	R/W	1A：0.1-6300.0A 5A:0.5-6300.0A	word

				25A:5.0-25.0 100A:25.0-100.0	
	1309	额定电压	R/W	0-20000	word
	1310	额定功率	R/W	高位	word
	1311		R/W	低位	word
	1312	接线方式	R/W	0 单相模式 1 三相四线，2 三相三线	word
	1313	主界面当前页面索引号	R/W	1～7	word
	1314	中英文切换	R/W	0-中文，1-英文	word
	1315	电流屏蔽值	R/W		word
	1316	密码	R/W	4 位数显示	word
	1317	功能开关	R/W	byte0-计量模块（含 Lora）；byte1-测温模块；byte2-开关量；byte3-通讯模块；byte4-谐波开关；byte5-录波开关（谐波开关和录波开关出厂调试写入，其他功能支持菜单设置）	word
	1318	运行记录最大时间	R/W	1-5 小时	word
	1319	校准使能	R/W		word
	1320	变送模块 1 设定	R/W	变送类型；0-Ia,1-Ib,2-Ic,3-Iav,4-In,5-Uab,6-Ubc,7-Uca,8-Uav,9-热容量,10-P,11-F	word
	1321	变送模块 1 的满度对应值	R/W	电流默认同 2 倍额定值	word
	1322				
	1323	变送模块 2 设定	R/W	变送类型；0-Ia,1-Ib,2-Ic,3-Iav,4-In,5-Uab,6-Ubc,7-Uca,8-Uav,9-热容量,10-P,11-F	word
	1324	变送模块 2 的满度对应值	R/W	电流默认同 2 倍额定值	word
	1325				
	1326	主体软件版本	R		word
	1327	主体软件编号	R		word
	1328	主体开关量类型	R		word
	1329	计量模块软件版本	R		word
	1330	计量模块软件编号	R		word
	1331	测温模块软件版	R		word

		本			
	1332	测温模块软件编号	R		word
	1333	开关量模块软件版本	R		word
	1334	开关量模块软件编号	R		word
	1335	开关量开关量类型	R		word
	1336	通讯模块 1（4G、以太网，profibus,profinet）软件版本	R	允许内部通信写，禁止外部通信写	word
	1337	通讯模块 1（4G、以太网，profibus,profinet）软件编号	R	允许内部通信写，禁止外部通信写	word
	1338	4G 模块与服务器通讯状态	R		word
	1339	以太网模块与服务器通讯状态	R		word
	1340-1341	保留			
	1342	主体与模块通讯状态	R	1：正常；0：断开；byte0 计量 byte1 测温 byte2 开关量 byte3 通信 1	word
	1343	电压暂升阈值	R/W	100-150%	word
	1344	电压暂降阈值	R/W	50-99	word
	1345	电压暂升恢复大小	R/W	100-150	word
	1346	电压暂降恢复大小	R/W	50-99	word
	1347-1399	保留			

Table 19 System parameter address table

category	addre	parameters	Read-Write	Range	Type

	ss		Attribute		
Operation Information	1100	Control Privilege	R	0-inspection, 1 panel, 2-local, 3-remote, 4-communication, 5-full control	word
	1101	Trip condition1	R	byte0: Inverse time over current; byte1: Inverse time zero sequence; byte2: One-stage definite over current; byte3: Two-stage definite over current; byte4: Three-stage definite over current; byte5: One-stage definite-time zero-sequence; byte6: Two-stage definite-time zero-sequence; byte7: Three-stage definite-time zero-sequence; byte8: Negative sequence current of one stage; byte9: Negative sequence current of two stages; byte10: Zero line current; byte11: Current imbalance; byte12: Current demand; byte13: Linkage 1; byte14: Linkage 2; byte15: Linkage 3;	word
	1102	Trip condition2	R	byte0: Under voltage; byte1: Over voltage; byte2: Voltage imbalance; byte3: Leakage; byte4: Under load; byte5: Phase failure; byte6: Overpower; byte7: Under power; byte8: Phase sequence; byte9: Short circuit; byte12 : Internal fault, byte13 control circuit abnormality, byte14 PT disconnection, byte15 temperature sensor fault	word
	1103	Trip condition3	R	byte0: group 1 over temperature, byte1: group 2 over temperature, byte2: group 3 over temperature, byte3: group 4 over temperature, byte4: group 5 over temperature, byte5: group 6 over temperature	word
	1104	Alarm condition1	R	byte0: Inverse time over current; byte1: Inverse time zero sequence; byte2: One-stage definite over current; byte3: Two-stage definite over current; byte4: Three-stage definite over current; byte5: One-stage definite-time zero-sequence; byte6: Two-stage definite-time zero-sequence; byte7: Three-stage definite-time zero-sequence; byte8: Negative sequence current of one stage; byte9: Negative sequence current of two stages;	word

				byte10: Zero line current; byte11: Current imbalance; byte12: Current demand; byte13: Linkage 1; byte14: Linkage 2; byte15: Linkage 3;	
	1105	Alarm condition2	R	byte0: Under voltage; byte1: Over voltage; byte2: Voltage imbalance; byte3: Leakage; byte4: Under load; byte5: Phase failure; byte6: Overpower; byte7: Under power; byte8: Phase sequence; byte9: Short circuit; byte10 : running time; byte11: fault times; byte12: internal fault, byte14 PT disconnection, byte15 temperature sensor fault	word
	1106	Alarm condition3	R	byte0: group 1 over temperature, byte1: group 2 over temperature, byte2: group 3 over temperature, byte3: group 4 over temperature, byte4: group 5 over temperature, byte5: group 6 over temperature	word
	1107	DI Status	R	byte0-byte13 Relevant digital input DI1-DI14	word
	1108	DO Status	R/W	byte0Relay1、byte1Relay2、byte2Relay3、byte3Relay4、byte4Relay5、byte5Relay6、byte6Relay7	word
	1109	Operation Status	R	1：opening；0：closing	word
	1110	Total closing times	R		word
	1111	Total opening times	R		word
	1112	Total fault trip times	R		word
	1113	This closing time	R	Unit min	word
	1114	This opening time	R	Unit min	word
	1115	Total closing time	R	Unit h	word

	1116	Total opening time	R	Unit h	word
	1117	Circuit breaker normal trip times	R		word
	1118	Circuit breaker Abnormal trip times	R		word
	1119	Current demand failure times	R		word
	1120	Demand protection remaining time	R	min	word
	1121	Closing timeout remaining time	R	h	word
	1122	Failure remaining	R		word
	1123	Communication address of the latest fault record	R		word
	1124	The latest DI displacement record communication address	R		word
	1125	Latest closing record mailing address	R		word
	1126	Mailing	R		word

		address of the latest opening record			
	1127	Mailing address of the latest voltage swell record	R		word
	1128	Mailing address of the latest voltage sag records	R		word
	1129	The latest fault record communicatio n address	R		word
	1130	The latest parameter setting communicatio n address	R		word
	1131	Mailing address of the latest device power-on record	R		word
	1132	Mailing address of the latest device power failure record	R		word
	1133	The number of power-on times currently recorded	R	0-60000	word
	1134	The number	R	0-60000	word

		of power outages currently recorded			
	1135-1199	reserve			
Controlling parameters	1200	Control permissions settings	R/W	0-overhaul, 1-panel, 2-local, 3-remote, 4-communication, 5-choose one of two, 6-choose one of three, 7 full control	word
	1201	Choose one of three control authority programming output 1	R/W	0-inspection, 1-panel, 2-local, 3-remote, 4-communication, default 0	word
	1202	Choose one of three control authority programming output 2	R/W	0-inspection, 1-panel, 2-local, 3-remote, 4-communication, default 1	word
	1203	Choose one of three control authority programming output 3	R/W	0-inspection, 1-panel, 2-local, 3-remote, 4-communication, default 2	word
	1204	Choose one of three control authority programming output 4	R/W	0-inspection, 1-panel, 2-local, 3-remote, 4-communication, default 3	word
	1205-1249	Reserve			
Clear record function	1250	Clear energy	W	0xa5b5	word
	1251	Clear running information	W	0xa5b5	word
	1252	clear record	W	0xa5b5	word
System	1300	restore factory	W	0xFFFF	word

parameter		settings			
	1301	Current Specifications	R	10-1A、50-5A、250-25A、1000-100A	word
	1302	Running control byte	R	1、合闸；0、分闸；2、复位	word
	1303	fundamental wave switch	R/W	0 有效值，1 基波	word
	1304	CT ratio (three-phase)	R/W	1A：1-5000　5A：1-1000	word
	1305	CT ratio (zero line)	R/W	1A：1-5000　5A：1-1000	word
	1306	metering module CT	R/W	1A：1-5000　5A：1-1000	word
	1307	Rated frequency	R/W	45-70	word
	1308	Rated current	R/W	1A：0.1-6300.0A 5A:0.5-6300.0A 25A:5.0-25.0 100A:25.0-100.0	word
	1309	Rated voltage	R/W	0-20000	word
	1310	Rated Power	R/W	High order	word
	1311		R/W	Low order	word
	1312	wiring method	R/W	0 Single-phase mode 1 Three-phase four-wire, 2 Three-phase three-wire	word
	1313	The current page index number of the main interface	R/W	1～7	word
	1314	Switch between Chinese and English	R/W	0-Chinese，1-English	word
	1315	current Block value	R/W		word
	1316	password	R/W	4 digits display	word
	1317	function switch	R/W	byte0-measurement module (including Lora); byte1-temperature measurement module; byte2-switch value;	word

				byte3-communication module; byte4-harmonic switch; byte5-recording switch (harmonic switch and recording switch factory debugging write, other functions Support menu settings)	
	1318	maximum time of running record	R/W	1-5hours	word
	1319	Calibration enable	R/W		word
	1320	Transmitter module 1 setting	R/W	transmission type; 0-Ia,1-Ib,2-Ic,3-Iav,4-In,5-Uab,6-Ubc, 7-Uca,8-Uav,9-Heat capacity,10-P,11-F	word
	1321	The corresponding value of the full scale of the transmitter module 1	R/W	Current default is 2 times the rated value	word
	1322				
	1323	Transmitter module 2 setting	R/W	transmission type; transmission type; 0-Ia,1-Ib,2-Ic,3-Iav,4-In,5-Uab,6-Ubc, 7-Uca,8-Uav,9-Heat capacity,10-P,11-F	word
	1324	The corresponding value of the full scale of the transmitter module 2	R/W	Current default is 2 times the rated value	word
	1325				
	1326	Main software version	R		word
	1327	Main software number	R		word
	1328	Main switch	R		word

		type			
	1329	Metering Module Software Version	R		word
	1330	Metering module software number	R		word
	1331	Temperature measurement module software version	R		word
	1332	Temperature measurement module software number	R		word
	1333	Switch module software version	R		word
	1334	Digital module software number	R		word
	1335	switch type	R		word
	1336	Communication module 1 (4G, Ethernet, profibus, profinet) software version	R	Allow internal communication to write, prohibyte external communication to write	word
	1337	Communicati	R	Allow internal communication to write, prohibyte	word

		on module 1 (4G, Ethernet, profibus, profinet) software number		external communication to write	
	1338	4G module and server communicatio n status	R		word
	1339	Ethernet module and server communicatio n status	R		word
	1340-1341	reserve			
	1342	Main body and module communicatio n status	R	1: normal; 0: disconnected; byte0 measurement byte1 temperature measurement byte2 switching value byte3 communication 1	word
	1343	Voltage swell threshold	R/W	100-150%	word
	1344	Voltage Sag Threshold	R/W	50-99	word
	1345	Voltage swell recovery size	R/W	100-150	word
	1346	Voltage sag recovery size	R/W	50-99	word
	1347-1399	reserve			

8.4 保护功能通讯地址 8.4 Protection function communication address

见表 20：refer to table 20:

表 20 保护参数地址表

分类	地址	参数	读写属性	取值范围	类型
基本保护	1400	报警使能 1	R/W	byte0:反时限过流;byte1:反时限零序;byte2:一段定时限过流；byte3：二段定时限过流；byte4：三段定时限过流；byte5：一段定时限零序；byte6：二段定时限零序；byte7：三段定时限零序；byte8：一段负序电流；byte9：二段负序电流；byte10：零线电流；byte11：电流不平衡；byte12：电流需量；byte13：联动 1；byte14：联动 2；byte15：联动 3；	word
	1401	报警使能 2	R/W	byte0：欠压；byte1：过压；byte2：电压不平衡；byte3：漏电；byte4：欠载；byte5：断相；byte6：过功率；byte7：欠功率；byte8：相序；byte9：短路；byte10：合闸时间；byte11：故障次数； byte12：内部故障，byte14 PT 断线，byte15 温度传感器故障	word
	1402	报警使能 3		byte0:分组 1 过温,byte1:分组 2 过温,byte2:分组 3 过温，byte3：分组 4 过温，byte4：分组 5 过温，byte5：分组 6 过温	word
	1403	脱扣使能 1	R/W	byte0:反时限过流;byte1:反时限零序;byte2:一段定时限过流；byte3：二段定时限过流；byte4：三段定时限过流；byte5：一段定时限零序；byte6：二段定时限零序；byte7：三段定时限零序；byte8：一段负序电流；byte9：二段负序电流；byte10：零线电流；byte11：电流不平衡；byte12：电流需量；byte13：联动 1；byte14：联动 2；byte15：联动 3；	word
	1404	脱扣使能 2	R/W	byte0：欠压；byte1：过压；byte2：电压不平衡；byte3：漏电；byte4：欠载；byte5：断相；byte6：过功率；byte7：欠功率；byte8：相序；byte9：短路；byte12：内部故障，byte13 控制回路异常，byte14 PT 断线，byte15 温度传感器故障	word
	1405	脱扣使能 3		byte0:分组 1 过温,byte1:分组 2 过温,byte2:分组 3 过温，byte3：分组 4 过温，byte4：分	word

				组 5 过温，byte5：分组 6 过温	
	1406	反时限过流保护曲线	R/W	0-IEC1 1-IEC2 2-IEC3 3-CO2 4-C08 5-IEEE1 6-IEEE2 7-IEEE3	word
	1407	反时限过流保护冷却时间	R/W	0-30min	word
	1408	反时限过流时间系数	R/W	0.025s-1.500s	word
	1409	反时限过流复位时间系数	R/W	0.025s-3.200s	word
	1410	反时限过流保护动作值	R/W	10%-800%	word
	1411	反时限过流保护报警值	R/W	10%-800%	word
	1412	反时限过流保护复位方式	R/W	0-手动 1-自动	word
	1413	反时限零序保护曲线	R/W	0-IEC1 1-IEC2 2-IEC3	word
	1414	反时限零序保护冷却时间	R/W	0-30min	word
	1415	反时限零序时间系数	R/W	0.025s-1.500s	word
	1416	反时限零序保护动作值	R/W	10%-800%	word
	1417	反时限零序保护报警值	R/W	10%-800%	word
	1418	反时限零序保护复位方式	R/W	0-手动 1-自动	word
	1419	一段定时限过流报警阈值	R/W	10%-800%	word
	1420	一段定时限过流保护阈值	R/W	10%-800%	word
	1421	一段定时限过流报警延时	R/W	0.00s-600.00s	word
	1422	一段定时限过流保护延时	R/W	0.00s-600.00s	word

	1423	一段定时限过流保护返回系数	R/W	5%-50%	word
	1424	二段定时限过流报警阈值	R/W	10%-800%	word
	1425	二段定时限过流保护阈值	R/W	10%-800%	word
	1426	二段定时限过流报警延时	R/W	0.00s-600.00s	word
	1427	二段定时限过流保护延时	R/W	0.00s-600.00s	word
	1428	二段定时限过流保护返回系数	R/W	5%-50%	word
	1429	三段定时限过流报警阈值	R/W	10%-800%	word
	1430	三段定时限过流保护阈值	R/W	10%-800%	word
	1431	三段定时限过流报警延时	R/W	0.00s-600.00s	word
	1432	三段定时限过流保护延时	R/W	0.00s-600.00s	word
	1433	三段定时限过流保护返回系数	R/W	5%-50%	word
	1434	一段定时限零序报警阈值	R/W	10%-800%	word
	1435	一段定时限零序脱扣阈值	R/W	10%-800%	word
	1436	一段定时限零序报警延时	R/W	0.00s-600.00s	word
	1437	一段定时限零序脱扣延时	R/W	0.00s-600.00s	word
	1438	一段定时限零序保护返回系数	R/W	5%-50%	word
	1439	二段定时限零序报警阈值	R/W	10%-800%	word
	1440	二段定时限零序脱扣阈值	R/W	10%-800%	word

	1441	二段定时限零序报警延时	R/W	0.00s-600.00s	word
	1442	二段定时限零序脱扣延时	R/W	0.00s-600.00s	word
	1443	二段定时限零序保护返回系数	R/W	5%-50%	word
	1444	三段定时限零序报警阈值	R/W	10%-800%	word
	1445	三段定时限零序脱扣阈值	R/W	10%-800%	word
	1446	三段定时限零序报警延时	R/W	0.00s-600.00s	word
	1447	三段定时限零序脱扣延时	R/W	0.00s-600.00s	word
	1448	三段定时限零序保护返回系数	R/W	5%-50%	word
	1449	一段负序电流报警阈值	R/W	10%-100%	word
	1450	一段负序电流脱扣阈值	R/W	10%-100%	word
	1451	一段负序电流报警延时	R/W	0.00s-600.00s	word
	1452	一段负序电流脱扣延时	R/W	0.00s-600.00s	word
	1453	一段负序电流返回系数	R/W	5%-50%	word
	1454	二段负序电流报警阈值	R/W	10%-100%	word
	1455	二段负序电流脱扣阈值	R/W	10%-100%	word
	1456	二段负序电流报警延时	R/W	0.00s-600.00s	word
	1457	二段负序电流脱扣延时	R/W	0.00s-600.00s	word
	1458	二段负序电流返回系数	R/W	5%-50%	word

	1459	零线电流报警阈值	R/W	0A-5000A	word
	1460	零线电流脱扣阈值	R/W	0A-5000A	word
	1461	零线电流报警延时	R/W	0.00s-600.00s	word
	1462	零线电流脱扣延时	R/W	0.00s-600.00s	word
	1463	零线电流返回系数	R/W	5%-50%	word
	1464	电流不平衡报警阈值	R/W	10%-100%	word
	1465	电流不平衡脱扣阈值	R/W	10%-100%	word
	1466	电流不平衡报警延时	R/W	0.00s-600.00s	word
	1467	电流不平衡脱扣延时	R/W	0.00s-600.00s	word
	1468	电流不平衡返回系数	R/W	5%-50%	word
	1469	电流需量报警阈值	R/W	10%-800%	word
	1470	电流需量脱扣阈值	R/W	10%-800%	word
	1471	电流需量报警时间长度	R/W	1-25min	word
	1472	电流需量脱扣时间长度	R/W	1-25min	word
	1473	电流需量保护返回系数	R/W	5%-50%	word
	1474	需量宽度	R/W	1、2、3、5min	word
	1475	需量周期	R/W	5、10、15、30、60min	word
	1476	联动 1 报警延时	R/W	0.06s-600.00s	word
	1477	联动 1 脱扣延时	R/W	0.06s-600.00s	word
	1478	联动 2 报警延时	R/W	0.06s-600.00s	word
	1479	联动 2 脱扣延时	R/W	0.06s-600.00s	word

	1480	联动 3 报警延时	R/W	0.06s-600.00s	word
	1481	联动 3 脱扣延时	R/W	0.06s-600.00s	word
	1482	欠压报警阈值	R/W	45%-90%	word
	1483	欠压脱扣阈值	R/W	45%-90%	word
	1484	欠压报警延时	R/W	0.00s-600.00s	word
	1485	欠压脱扣延时	R/W	0.00s-600.00s	word
	1486	欠压返回系数	R/W	5%-50%	word
	1487	过压报警阈值	R/W	110%-150%	word
	1488	过压脱扣阈值	R/W	110%-150%	word
	1489	过压报警延时	R/W	0.00s-600.00s	word
	1490	过压脱扣延时	R/W	0.00s-600.00s	word
	1491	过压返回系数	R/W	5%-50%	word
	1492	电压不平衡报警域值设定	R/W	10%-100%	word
	1493	电压不平衡脱扣域值设定	R/W	10%-100%	word
	1494	电压不平衡报警延时设定	R/W	0.00s-600.00s	word
	1495	电压不平衡脱扣延时设定	R/W	0.00s-600.00s	word
	1496	电压不平衡返回系数	R/W	5%-50%	word
	1497	漏电报警阈值	R/W	30mA-1000mA	word
	1498	漏电脱扣阈值	R/W	30mA-1000mA	word
	1499	漏电报警延时	R/W	0.00s-600.00s	word
	1500	漏电脱扣延时	R/W	0.00s-600.00s	word
	1501	漏电返回系数	R/W	5%-50%	word
	1502	预留	R/W		word
	1503	欠载报警域值设定	R/W	10%-95%	word
	1504	欠载脱扣域值设定	R/W	10%-95%	word
	1505	欠载报警延时设定	R/W	0.00s-600.00s	word
	1506	欠载脱扣延时设定	R/W	0.00s-600.00s	word

	1507	欠载返回系数	R/W	5%-50%	word
	1508	断相报警延时	R/W	0.00s-600.00s	word
	1509	断相脱扣延时	R/W	0.00s-600.00s	word
	1510	过功率报警域值设定	R/W	100%-200%	word
	1511	过功率脱扣域值设定	R/W	100%-200%	word
	1512	过功率报警延时	R/W	0.00s-600.00s	word
	1513	过功率脱扣延时	R/W	0.00s-600.00s	word
	1514	过功率返回系数	R/W	5%-50%	word
	1515	欠功率报警域值设定	R/W	10%-95%	word
	1516	欠功率脱扣域值设定	R/W	10%-95%	word
	1517	欠功率报警延时	R/W	0.00s-600.00s	word
	1518	欠功率脱扣延时	R/W	0.00s-600.00s	word
	1519	欠功率返回系数	R/W	5%-50%	word
	1520	相序报警阈值	R/W	120° -240°	word
	1521	相序脱扣阈值	R/W	120° -240°	word
	1522	相序报警延时	R/W	0.00s-600.00s	word
	1523	相序脱扣延时	R/W	0.00s-600.00s	word
	1524	相序返回系数	R/W	5%-50%	word
	1525	短路报警阈值	R/W	10%-800%	word
	1526	短路脱扣阈值	R/W	10%-800%	word
	1527	短路报警延时	R/W	0.00s-600.00s	word
	1528	短路脱扣延时	R/W	0.00s-600.00s	word
	1529	短路返回系数	R/W	5%-50%	word
	1530	合闸时间报警条件	R/W	1-50000H	word
	1531	故障次数报警条件	R/W	1-50000 次	word
	1532	控制回路异常延时	R/W	0.00s-600.00s	word
	1533	PT 断线报警延时	R/W	0.00s-600.00s	word
	1534	PT 断线脱扣延	R/W	0.00s-600.00s	word

		时			
	1535	过温恢复设置	R/W	byte0:分组 1 恢复，0-手动；1-自动； byte1-byte5:分组 2-6 恢复，0-手动；1-自动	word
	1536	过温分组 1 报警阈值	R/W	0.0-120.0℃	word
	1537	过温分组 1 脱扣阈值	R/W	0.0-120.0℃	word
	1538	过温分组 1 返回温度	R/W	0.0-10.0℃	word
	1539	过温分组 2 报警阈值	R/W	0.0-120.0℃	word
	1540	过温分组 2 脱扣阈值	R/W	0.0-120.0℃	word
	1541	过温分组 2 返回系数	R/W	0.0-10.0℃	word
	1542	过温分组 3 报警阈值	R/W	0.0-120.0℃	word
	1543	过温分组 3 脱扣阈值	R/W	0.0-120.0℃	word
	1544	过温分组 3 返回系数	R/W	0.0-10.0℃	word
	1545	过温分组 4 报警阈值	R/W	0.0-120.0℃	word
	1546	过温分组 4 脱扣阈值	R/W	0.0-120.0℃	word
	1547	过温分组 4 返回系数	R/W	0.0-10.0℃	word
	1548	过温分组 5 报警阈值	R/W	0.0-120.0℃	word
	1549	过温分组 5 脱扣阈值	R/W	0.0-120.0℃	word
	1550	过温分组 5 返回系数	R/W	0.0-10.0℃	word
	1551	过温分组 6 报警阈值	R/W	0.0-120.0℃	word
	1552	过温分组 6 脱扣	R/W	0.0-120.0℃	word

		阈值			
	1553	过温分组 6 返回系数	R/W	0.0-10.0℃	word
	1554	合闸屏蔽时间	R/W	0.0s-10.0s	word
	1555-1699	预留			

Table 20 Protection parameter address table

Category	address	parameters	Read-Write Attribute	Range	Type
Basic Protection	1400	Alarm enable1	R/W	byte0: Inverse time over current; byte1: Inverse time zero sequence; byte2: One-stage definite over current; byte3: Two-stage definite over current; byte4: Three-stage definite over current; byte5: One-stage definite-time zero-sequence; byte6: Two-stage definite-time zero-sequence; byte7: Three-stage definite-time zero-sequence; byte8: Negative sequence current of one stage; byte9: Negative sequence current of two stages; byte10: Zero line current; byte11: Current imbalance; byte12: Current demand; byte13: Linkage 1; byte14: Linkage 2; byte15: Linkage 3;	word
	1401	Alarm enable2	R/W	byte0: Under voltage; byte1: Over voltage; byte2: Voltage imbalance; byte3: Leakage; byte4: Under load; byte5: Phase failure; byte6: Overpower; byte7: Under power; byte8: Phase sequence; byte9: Short circuit; byte10 : closing time; byte11: fault times; byte12: internal fault, byte14 PT disconnection, byte15 temperature sensor fault	word
	1402	Alarm enable3		byte0: group 1 over temperature, byte1: group 2 over temperature, byte2: group 3 over temperature, byte3: group 4 over temperature, byte4: group 5 over temperature, byte5: group 6 over temperature	word

	1403	Trip enable 1	R/W	byte0: Inverse time over current; byte1: Inverse time zero sequence; byte2: One-stage definite over current; byte3: Two-stage definite over current; byte4: Three-stage definite over current; byte5: One-stage definite-time zero-sequence; byte6: Two-stage definite-time zero-sequence; byte7: Three-stage definite-time zero-sequence; byte8: Negative sequence current of one stage; byte9: Negative sequence current of two stages; byte10: Zero line current; byte11: Current imbalance; byte12: Current demand; byte13: Linkage 1; byte14: Linkage 2; byte15: Linkage 3;	word
	1404	Trip enable 2	R/W	byte0: Under voltage; byte1: Over voltage; byte2: Voltage imbalance; byte3: Leakage; byte4: Under load; byte5: Phase failure; byte6: Overpower; byte7: Under power; byte8: Phase sequence; byte9: Short circuit; byte12 : Internal fault, byte13 control circuit abnormality, byte14 PT disconnection, byte15 temperature sensor fault	word
	1405	Trip enable 3		byte0: group 1 over temperature, byte1: group 2 over temperature, byte2: group 3 over temperature, byte3: group 4 over temperature, byte4: group 5 over temperature, byte5: group 6 over temperature	word
	1406	Inverse time over current protection curve	R/W	0-IEC1 1-IEC2 2-IEC3 3-CO2 4-CO8 5-IEEE1 6-IEEE2 7-IEEE3	word
	1407	Inverse time over current protection cooling time	R/W	0-30min	word
	1408	Inverse time over current	R/W	0.025s-1.500s	word

		time coefficient			
	1409	Inverse time over current reset time coefficient	R/W	0.025s-3.200s	word
	1410	Action value of inverse time over current protection	R/W	10%-800%	word
	1411	Inverse time over current protection alarm value	R/W	10%-800%	word
	1412	Inverse time over current protection reset mode	R/W	0-Manual 1-Automatic	word
	1413	Inverse time zero sequence protection curve	R/W	0-IEC1 1-IEC2 2-IEC3	word
	1414	Inverse time zero sequence protection cooling time	R/W	0-30min	word
	1415	Inverse time zero sequence time coefficient	R/W	0.025s-1.500s	word
	1416	Action value of inverse time zero sequence protection	R/W	10%-800%	word
	1417	Inverse time zero sequence	R/W	10%-800%	word

		protection alarm value			
	1418	Inverse time zero sequence protection reset mode	R/W	0-Manual 1-Automatic	word
	1419	A definite time over current alarm threshold	R/W	10%-800%	word
	1420	A definite period of over current protection threshold	R/W	10%-800%	word
	1421	A definite time delay for over current alarm	R/W	0.00s-600.00s	word
	1422	A definite time delay for over current protection	R/W	0.00s-600.00s	word
	1423	One-stage definite time over current protection return coefficient	R/W	5%-50%	word
	1424	Two-stage definite time limit overcurrent alarm threshold	R/W	10%-800%	word

	1425	Two-stage definite time over current protection threshold	R/W	10%-800%	word
	1426	Two-stage definite time limit over current alarm delay	R/W	0.00s-600.00s	word
	1427	Two-stage definite time over current protection delay	R/W	0.00s-600.00s	word
	1428	Two-stage definite time over current protection return coefficient	R/W	5%-50%	word
	1429	Three-stage definite time over current alarm threshold	R/W	10%-800%	word
	1430	Three-stage definite time over current protection threshold	R/W	10%-800%	word
	1431	Three Stage definite time limit over current alarm delay	R/W	0.00s-600.00s	word

	1432	Three stage definite time over current protection delay	R/W	0.00s-600.00s	word
	1433	Three stage definite time over current protection return coefficient	R/W	5%-50%	word
	1434	A definite time zero sequence alarm threshold	R/W	10%-800%	word
	1435	Zero-sequence tripping threshold for a period of definite time	R/W	10%-800%	word
	1436	A definite time zero sequence alarm delay	R/W	0.00s-600.00s	word
	1437	A definite time delay for zero sequence tripping	R/W	0.00s-600.00s	word
	1438	One-stage definite time zero-sequence protection return coefficient	R/W	5%-50%	word
	1439	Two-stage	R/W	10%-800%	word

		definite time zero sequence alarm threshold			
	1440	Two-stage definite time zero-sequence tripping threshold	R/W	10%-800%	word
	1441	Two-stage definite time zero sequence alarm delay	R/W	0.00s-600.00s	word
	1442	Two-stage definite time zero-sequence tripping delay	R/W	0.00s-600.00s	word
	1443	Two-stage definite time zero sequence protection return coefficient	R/W	5%-50%	word
	1444	Three-stage definite time zero sequence alarm threshold	R/W	10%-800%	word
	1445	Three-stage definite time zero-sequence tripping threshold	R/W	10%-800%	word
	1446	Three-stage definite time zero sequence	R/W	0.00s-600.00s	word

		alarm delay			
	1447	Three-stage definite time delay for zero-sequence tripping	R/W	0.00s-600.00s	word
	1448	Three-stage definite time zero sequence protection return coefficient	R/W	5%-50%	word
	1449	One-stage negative sequence current alarm threshold	R/W	10%-100%	word
	1450	One stage negative sequence current tripping threshold	R/W	10%-100%	word
	1451	One-stage negative sequence current alarm delay	R/W	0.00s-600.00s	word
	1452	One-stage negative sequence current trip	R/W	0.00s-600.00s	word

		delay			
	1453	One-stage negative sequence current return coefficient	R/W	5%-50%	word
	1454	Two-stage negative sequence current alarm threshold	R/W	10%-100%	word
	1455	Two-stage negative sequence current tripping threshold	R/W	10%-100%	word
	1456	Two-stage negative sequence current alarm delay	R/W	0.00s-600.00s	word
	1457	Two-stage negative sequence current trip delay	R/W	0.00s-600.00s	word
	1458	Two stage negative sequence current return coefficient	R/W	5%-50%	word
	1459	Neutral current alarm threshold	R/W	0A-5000A	word
	1460	Neutral	R/W	0A-5000A	word

		current trip threshold			
	1461	Neutral current alarm delay	R/W	0.00s-600.00s	word
	1462	Neutral current trip delay	R/W	0.00s-600.00s	word
	1463	Neutral current return coefficient	R/W	5%-50%	word
	1464	Current unbalance alarm threshold	R/W	10%-100%	word
	1465	Current unbalance trip threshold	R/W	10%-100%	word
	1466	Current unbalance alarm delay	R/W	0.00s-600.00s	word
	1467	Current unbalance trip delay	R/W	0.00s-600.00s	word
	1468	Current unbalance return coefficient	R/W	5%-50%	word
	1469	Current Demand Alarm Threshold	R/W	10%-800%	word
	1470	Current Demand Trip Threshold	R/W	10%-800%	word
	1471	Current	R/W	1-25min	word

		demand alarm time length			
	1472	Current demand trip time length	R/W	1-25min	word
	1473	Return coefficient of current demand protection	R/W	5%-50%	word
	1474	demand width	R/W	1、2、3、5min	word
	1475	demand cycle	R/W	5、10、15、30、60min	word
	1476	Linkage 1 alarm delay	R/W	0.06s-600.00s	word
	1477	Linkage 1 tripping delay	R/W	0.06s-600.00s	word
	1478	Linkage 2 alarm delay	R/W	0.06s-600.00s	word
	1479	Linkage 2 tripping delay	R/W	0.06s-600.00s	word
	1480	Linkage 3 alarm delay	R/W	0.06s-600.00s	word
	1481	Linkage 3 tripping delay	R/W	0.06s-600.00s	word
	1482	Under voltage Alarm Threshold	R/W	45%-90%	word
	1483	Under voltage trip threshold	R/W	45%-90%	word
	1484	Under voltage alarm delay	R/W	0.00s-600.00s	word
	1485	Under voltage trip delay	R/W	0.00s-600.00s	word
	1486	Under voltage Return Coefficient	R/W	5%-50%	word

	1487	Over voltage alarm threshold	R/W	110%-150%	word
	1488	Over voltage trip threshold	R/W	110%-150%	word
	1489	Over voltage alarm delay	R/W	0.00s-600.00s	word
	1490	Over voltage trip delay	R/W	0.00s-600.00s	word
	1491	Over voltage Return Coefficient	R/W	5%-50%	word
	1492	Voltage unbalance alarm threshold setting	R/W	10%-100%	word
	1493	Voltage unbalance tripping threshold setting	R/W	10%-100%	word
	1494	Voltage unbalance alarm delay setting	R/W	0.00s-600.00s	word
	1495	Voltage unbalance trip delay setting	R/W	0.00s-600.00s	word
	1496	Voltage unbalance return coefficient	R/W	5%-50%	word
	1497	Leakage alarm threshold	R/W	30mA-1000mA	word
	1498	Leakage trip	R/W	30mA-1000mA	word

		threshold			
	1499	Leakage alarm delay	R/W	0.00s-600.00s	word
	1500	Leakage trip delay	R/W	0.00s-600.00s	word
	1501	Leakage Return Coefficient	R/W	5%-50%	word
	1502	reserve	R/W		word
	1503	Under load alarm threshold setting	R/W	10%-95%	word
	1504	Under load trip threshold setting	R/W	10%-95%	word
	1505	Under load alarm delay setting	R/W	0.00s-600.00s	word
	1506	Under load trip delay setting	R/W	0.00s-600.00s	word
	1507	Under load return factor	R/W	5%-50%	word
	1508	Phase failure alarm delay	R/W	0.00s-600.00s	word
	1509	Phase failure trip delay	R/W	0.00s-600.00s	word
	1510	Overpower alarm threshold setting	R/W	100%-200%	word
	1511	Overpower tripping threshold setting	R/W	100%-200%	word

	1512	Over power alarm delay	R/W	0.00s-600.00s	word
	1513	Overpower trip delay	R/W	0.00s-600.00s	word
	1514	over power return factor	R/W	5%-50%	word
	1515	Under power alarm threshold setting	R/W	10%-95%	word
	1516	Under power tripping threshold setting	R/W	10%-95%	word
	1517	Under power alarm delay	R/W	0.00s-600.00s	word
	1518	Under power trip delay	R/W	0.00s-600.00s	word
	1519	Under power return factor	R/W	5%-50%	word
	1520	Phase Sequence Alarm Threshold	R/W	120°-240°	word
	1521	Phase sequence trip threshold	R/W	120°-240°	word
	1522	Phase sequence alarm delay	R/W	0.00s-600.00s	word
	1523	Phase sequence trip delay	R/W	0.00s-600.00s	word
	1524	Phase sequence return	R/W	5%-50%	word

		coefficient			
	1525	Short circuit alarm threshold	R/W	10%-800%	word
	1526	Short circuit trip threshold	R/W	10%-800%	word
	1527	Short circuit alarm delay	R/W	0.00s-600.00s	word
	1528	Short circuit trip delay	R/W	0.00s-600.00s	word
	1529	Short circuit return factor	R/W	5%-50%	word
	1530	Closing time alarm condition	R/W	1-50000H	word
	1531	Fault times alarm condition	R/W	1-50000 次	word
	1532	Control loop abnormal delay	R/W	0.00s-600.00s	word
	1533	PT disconnection alarm delay	R/W	0.00s-600.00s	word
	1534	PT disconnection trip delay	R/W	0.00s-600.00s	word
	1535	Over temperature recovery setting	R/W	byte0: group 1 recovery, 0-manual; 1-auto; byte1-byte5: group 2-6 recovery, 0-manual; 1-auto	word
	1536	Over temperature group 1 alarm threshold	R/W	0.0-120.0℃	word
	1537	Over	R/W	0.0-120.0℃	word

		temperature group 1 tripping threshold			
	1538	Over temperature group 1 return temperature	R/W	0.0-10.0℃	word
	1539	Over temperature group 2 alarm threshold	R/W	0.0-120.0℃	word
	1540	Over temperature group 2 tripping threshold	R/W	0.0-120.0℃	word
	1541	Over temperature group 2 return temperature	R/W	0.0-10.0℃	word
	1542	Over temperature group 3 alarm threshold	R/W	0.0-120.0℃	word
	1543	Over temperature group 3 tripping threshold	R/W	0.0-120.0℃	word
	1544	Over temperature group 3 return coefficient	R/W	0.0-10.0℃	word
	1545	Over temperature	R/W	0.0-120.0℃	word

		group 4 alarm threshold			
	1546	Over temperature group 4 tripping threshold	R/W	0.0-120.0℃	word
	1547	Over temperature group 5 return coefficient	R/W	0.0-10.0℃	word
	1548	Over temperature group 5 alarm threshold	R/W	0.0-120.0℃	word
	1549	Over temperature group 5 tripping threshold	R/W	0.0-120.0℃	word
	1550	Over temperature group 5 return coefficient	R/W	0.0-10.0℃	word
	1551	Over temperature group 6 alarm threshold	R/W	0.0-120.0℃	word
	1552	Over temperature group 6 tripping threshold	R/W	0.0-120.0℃	word
	1553	Over	R/W	0.0-10.0℃	word

		temperature group 6 return coefficient			
	1554	Closing shielding time	R/W	0.0s-10.0s	word
	1555-1699	Reserve			

8.5 可编程定义通讯地址 8.5 Programmable definition of communication address

见表 21：refer to table 21:

表 21 可编程定义地址表

分类	地址	参数	读写属性	取值范围	类型
可编程设定	1700	继电器初始状态设定	R/W	0-常开，1-常闭；byte0-byte6 对应 DO1-DO7	word
	1701	DO1 可编程定义	R/W	0-普通 DO；1-分闸输出；2-合闸输出；3-故障输出；4-报警输出；5-逻辑图 1 输出；6-逻辑图 2 输出；7-逻辑图 3 输出；8-测温报警输出；9-测温脱扣输出；10-装置自检输出；11-装置电源输出；12-25 DI 控制 DO 输出；	word
	1702	DO1 动作设定（时间）	R/W	0-电平；（3-250）-脉冲宽度，Unit0.1S	word
	1703	DO1 脱扣故障具体设定 1	R/W	对应脱扣允许位 1 定义	word
	1704	DO1 脱扣故障具体设定 2	R/W	对应脱扣允许位 2 定义	word
	1705	DO1 脱扣故障具体设定 3	R/W		word
	1706	DO1 报警故障具体设定 1	R/W	对应报警允许位 1 定义	word
	1707	DO1 报警故障具体设定 2	R/W	对应报警允许位 2 定义	word
	1708	DO1 报警故障具体设定 3	R/W		word
	1709-1716	DO2 可编程	R/W	同 DO1 可编程设定	word

	1717-1724	DO3 可编程	R/W		word
	1725-1732	DO4 可编程定义	R/W		word
	1733-1740	DO5 可编程定义	R/W		word
	1741-1748	DO6 可编程定义	R/W		word
	1749-1756	DO7 可编程	R/W		word
	1757-1999	预留	R/W		word
	2000	DI 常开常闭设置	R/W	byte0-byte13 对应 DI1-14，0-常开；1-常闭	word
	2001	DI1 可编程	R/W	0-普通 DI；1-断路器状态；2-本地分闸；3-本地合闸；4-远程分闸；5-远程合闸；6-联动 1；7 联动 2；8-联动 3；9-复位； 10-控制权限 1；11-控制权限 2 12-弹簧储能监视 13-控制回路监视	word
	2002	DI2 可编程	R/W	同 DI1 可编程设定	wordword word
	2003	DI3 可编程			
	2004	DI4 可编程			
	2005	DI5 可编程			
	2006	DI6 可编程			
	2007	DI7 可编程			
	2008	DI8 可编程			
	2009	DI9 可编程			
	2010	DI10 可编程			
	2011	DI11 可编程			
	2012	DI12 可编程			
	2013	DI13 可编程			
	2014	DI14 可编程			
	2015-2099	预留	R/W		

	2100	逻辑图输入定义 1	R/W	0-关闭;1-A;2-A*B;3-A+B;4-A*B*C;5-(A+B)*C;6-(A*B)+C;7-A+B+C;8-A*B*C*D;9-(A+B)*C*D;10-(A*B+C)*D;11-(A+B+C)*D;12-A*B*C+D;13-(A+B)*C+D;14-A*B+C+D;15-A+B+C+D;16-A*B*C*D*E;17-(A+B)*C*D*E;18-(A*B+C)*D*E;19-(A+B+C)*D*E;20-(A*B*C+D)*E;21-((A+B)*C+D)*E;22-(A*B+C+D)*E;23-(A+B+C+D)*E;24-A*B*C*D+E;25-(A+B)*C*D+E;26-(A*B+C)*D+E;27-(A+B+C)*D+E;28-A*B*C+D+E;29-(A+B)*C+D+E;30-A*B+C+D+E;31-A+B+C+D+E	word
	2101	输入条件 A	R/W	低字节： 0-无输入； 1-14 DI1-DI14; 15-21 DO1-DO7 26-分闸动作 27-合闸动作 28-分闸状态 29-合闸状态 30-总报警输出 31-69 报警输出（对应报警使能（报警使能 1byte0 对应 1）） 80-总脱扣输出 81-120 脱扣输出（对应脱扣使能（脱扣使能 1byte0 对应 41）） 0-正逻辑 1-反逻辑	word
	2102	输入条件 B	R/W	同输入条件 A	word
	2103	输入条件 C			
	2104	输入条件 D			
	2105	输入条件 E			
	2106	输入 A 延时时间	R/W	0.0s-60.0s	word
	2107	输入 B 延时时间	R/W	0.0s-60.0s	word
	2108	输入 C 延时时间	R/W	0.0s-60.0s	word
	2109	输入 D 延时时间	R/W	0.0s-60.0s	word
	2110	输入 E 延时时间	R/W	0.0s-60.0s	word
	2111-2	逻辑图输入定义	R/W	同逻辑图输入定义 1	word

	121	2			
	2122-2132	逻辑图输入定义3			word
	2133	普通 DO 写入 DO 状态	R/W		word
	2134-2299	保留			

Table 21 Programmable defined address table

Category	address	parameter	Read-write attribute	Range	Type
Programmable Setting	1700	Relay initial state setting	R/W	0-normally open, 1-normally closed; byte0-byte6 corresponds to DO1-DO7	word
	1701	DO1 programmable definition	R/W	0-common DO; 1-opening output; 2-closing output; 3-fault output; 4-alarm output; 5-logic diagram 1 output; Logic diagram 3 output; 8-temperature measurement alarm output; 9-temperature measurement trip output; 10-device self-test output; 11-device power output; 12-25 DI control DO output;；	word
	1702	DO1 action setting (time)	R/W	0-level; (3-250)-pulse width, Unit0.1S	word
	1703	DO1 tripping fault specific setting 1	R/W	corresponding to the definition of tripping allow byte 1	word
	1704	DO1 trip fault specific setting 2	R/W	corresponding to the definition of trip allow byte 2	word
	1705	DO1 trip fault specific setting 3	R/W		word
	1706	DO1 alarm failure specific setting 1	R/W	corresponding to the definition of alarm enable byte 1	word
	1707	DO1 alarm fault specific	R/W	corresponding to the definition of alarm enable byte 2	word

		setting 2			
	1708	DO1 alarm fault specific setting 3	R/W		word
	1709-1716	DO2 programmable	R/W	Same as DO1 programmable setting	word
	1717-1724	DO3 programmable	R/W		word
	1725-1732	DO4 programmable setting	R/W		word
	1733-1740	DO5 programmable setting	R/W		word
	1741-1748	DO6 programmable setting	R/W		word
	1749-1756	DO7 programmable	R/W		word
	1757-1999	reserve	R/W		word
	2000	DI Normally open normally closed setting	R/W	byte0-byte13 corresponds to DI1-14, 0-normally open; 1-normally closed	word
	2001	DI1 programmable	R/W	0-common DI; 1-circuit breaker status; 2-local opening; 3-local closing; 4-remote opening; 5-remote closing; 6-linkage 1; 7-linkage 2; 8-linkage 3;9 -Reset; 10-Control authority 1; 11-Control authority 2 12-Spring energy monitoring 13-Control circuit monitoring	word
	2002	DI2 Programmable	R/W	Same as DI1 programmable setting	word
	2003	DI3 Programmable			
	2004	DI4			

		Programmable			
	2005	DI5 Programmable			
	2006	DI6 Programmable			
	2007	DI7 Programmable			
	2008	DI8 Programmable			
	2009	DI9 Programmable			
	2010	DI10 Programmable			
	2011	DI11 Programmable			
	2012	DI12 Programmable			
	2013	DI13 Programmable			
	2014	DI14 Programmable			
	2015-2099	Reserve	R/W		
	2100	Logic Diagram Input Definition 1	R/W	0-Close Close;1-A;2-A*B;3-A+B;4-A*B*C;5-(A+B)*C;6-(A*B)+C;7-A+B+C;8-A*B*C*D;9-(A+B)*C*D;10-(A*B+C)*D;11-(A+B+C)*D;12-A*B*C+D;13-(A+B)*C+D;14-A*B+C+D;15-A+B+C+D;16-A*B*C*D*E;17-(A+B)*C*D*E;18-(A*B+C)*D*E;19-(A+B+C)*D*E;20-(A*B*C+D)*E;21-((A+B)*C+D)*E;22-(A*B+C+D)*E;23-(A+B+C+D)*E;24-A*B*C*D+E;25-(A+B)*C*D+E;26-(A*B+C)*D+E;27-(A+B+C)*D+E;28-A*B*C+D+E;29-(A+B)*C+D+E;30-A*B+C+D+E;31-A+B+C+D+E	word

	2101	input condition A	R/W	low byte: 0 - no input; 1-14 DI1-DI14; 15-21 DO1-DO7 26-Opening action 27- Closing action 28-Open state 29- Closing state 30-total alarm output 31-69 Alarm output (corresponding to alarm enable (alarm enable 1byte0 corresponds to 1)) 80-total trip output 81-120 Trip output (corresponding to trip enable (trip enable 1byte0 corresponds to 41)) 0-positive logic 1-negative logic	word
	2102	input condition B	R/W	Same as input condition A	word
	2103	input condition C			
	2104	input condition D			
	2105	input condition E			
	2106	Enter A delay time	R/W	0.0s-60.0s	word
	2107	Enter B delay time	R/W	0.0s-60.0s	word
	2108	Enter C delay time	R/W	0.0s-60.0s	word
	2109	Enter D delay time	R/W	0.0s-60.0s	word
	2110	Enter E delay time	R/W	0.0s-60.0s	word
	2111-2121	logic diagram input	R/W	Same as logic diagram input definition 1	word

		definition 2			
	2122-2132	logic diagram input definition 3			word
	2133	Ordinary DO write DO status	R/W		word
	2134-2299	reserve			

8.6 通讯参数设定通讯地址 8.6 Communication parameter setting communication address

见表 22：refer to table 22:

表 22 通讯设置地址表

分类	地址	参数	读写属性	取值范围	类型
通讯	2300	MODBUS RTU1 地址设定	R/W	1～247	word
	2301	MODBUS RTU1 波特率设定	R/W	0	word
	2302	MODBUS RTU1 奇偶校验位	R/W	1～247	word
	2303	MODBUS RTU2 地址设定	R/W	同上	word
	2304	MODBUS RTU2 波特率设定	R/W		word
	2305	MODBUS RTU2 奇偶校验位	R/W		word
	2306	profibus 模块 1 地址	R/W		word
	2307	profibus 模块 2 地址	R/W		word
	2308-2309	预留			
	2310	LORA 开关状态	R/W	1-LORA 打开，0-关闭	word
	2311	lora 模式	R/W	0-透传 1-jasion 主发	word

	2312	lora 设备地址	R/W	1-247	word
	2313	lora 频段（MHz）	R/W	0-91	word
	2314	扩展因数	R/W	6-12	word
	2315	信号带宽	R/W	0-45	word
	2316	序列号 1	R/W		word
	2317	序列号 2	R/W		word
	2318	序列号 3	R/W		word
	2319	序列号 4	R/W		word
	2320	序列号 5/以太网 MAC	R/W		word
	2321	序列号 6/以太网 MAC	R/W		word
	2322	序列号 7/以太网 MAC	R/W		word
	2323	功能选择	R/W	0-以太网 modbusTCP 协议，1-以太网主发 JASIONG 协议，2-4G 主发 JASION 协议，3-4G 透传协议	word
	2324	MODBUS TCP IP	R/W	IP 地址前两字节，高字节在前	word
	2325	MODBUS TCP IP	R/W	IP 地址后两字节，高字节在前	word
	2326	MODBUS TCP 掩码	R/W	子网掩码前两字节，高字节在前	word
	2327	MODBUS TCP 掩码	R/W	子网掩码后两字节，高字节在前	word
	2328	MODBUS TCP 网关	R/W	网关前两字节，高字节在前	word
	2329	MODBUS TCP 网关	R/W	网关后两字节，高字节在前	word
	2330	MODBUS TCP 端口号	R/W	0-65535	word
	2331	MODBUS TCP DHCP	R/W	0-关，1-开	word
	2332	主站服务端 IP	R/W		word
	2333	主站服务端 IP	R/W	4G 和以太网共用	word
	2334	主站服务端端口号	R/W		word
	2335	操作密码验证设置使能	R/W	0 禁止，1 使能	word
	2336	设置操作密码高位	R/W		word
	2337	设置操作密码低位	R/W		word

	2338	Ip/域名功能选择	R/W	0=使用 IP，1=使用域名	word
	2339	域名数组 1	R/W		word
	2340	域名数组 2	R/W		word
	2341	域名数组 3	R/W		word
	2342	域名数组 4	R/W		word
	2343	域名数组 5	R/W		word
	2344	域名数组 6	R/W		word
	2345	域名数组 7	R/W		word
	2346	域名数组 8	R/W		word
	2347	域名数组 9	R/W		word
	2348	域名数组 10	R/W		word
	2349	域名数组 11	R/W		word
	2350	域名数组 12	R/W		word
	2351	域名数组 13	R/W		word
	2352	域名数组 14	R/W		word
	2353	域名数组 15	R/W		word
	2354	域名数组 16	R/W		word
	2355	域名数组 17	R/W		word
	2356	域名数组 18	R/W		word
	2357	域名数组 19	R/W		word
	2358	域名数组 20	R/W		word
	2359	域名数组 21	R/W		word
	2360	域名数组 22	R/W		word
	2361	域名数组 23	R/W		word
	2362	域名数组 24	R/W		word
	2363-2366	保留			

Table 22 Communication setting address table

Category	address	parameter	Read-write attribute	Range	Type
Communication	2300	MODBUS RTU1 address setting	R/W	1～247	word

	2301	MODBUS RTU1 Baud rate setting	R/W	0	word
	2302	MODBUS RTU1 parity byte	R/W	1～247	word
	2303	MODBUS RTU2 address setting	R/W	Same as above	word
	2304	MODBUS RTU2 Baud rate setting	R/W		word
	2305	MODBUS RTU2 parity byte	R/W		word
	2306	Profibus module 1 address	R/W		word
	2307	Profibus module 2 address	R/W		word
	2308-2309	reserve			
	2310	LORA switch status	R/W	1-LORA open，0-closed	word
	2311	Lora Mode	R/W	0-transparent transmission 1-jasion main transfer	word
	2312	Lora device address	R/W	1-247	word
	2313	Lora frequency band（MHz）	R/W	0-91	word
	2314	Expansion factor	R/W	6-12	word
	2315	Signal	R/W	0-45	word

		Bandwidth			
	2316	Serial number 1	R/W		word
	2317	Serial number 2	R/W		word
	2318	Serial number 3	R/W		word
	2319	Serial number 4	R/W		word
	2320	Serial Number 5/Ethernet MAC	R/W		word
	2321	Serial Number 6/Ethernet MAC	R/W		word
	2322	Serial Number 7/Ethernet MAC	R/W		word
	2323	Function selection	R/W	0-Ethernet modbusTCP protocol, 1-Ethernet mainly sends JASION protocol, 2-4G mainly sends JASION protocol, 3-4G transparent transmission protocol	word
	2324	MODBUS TCP IP	R/W	The first two bytes of the IP address, the high byte first	word
	2325	MODBUS TCP IP	R/W	IP address last two bytes, high byte first	word
	2326	MODBUS TCP mask	R/W	Subnet mask first two bytes, high byte first	word
	2327	MODBUS TCP mask	R/W	Subnet mask last two bytes, high byte first	word
	2328	MODBUS TCP gateway	R/W	The first two bytes of the gateway, the high byte first	word
	2329	MODBUS	R/W	The last two bytes of the gateway, the high byte	word

		TCP gateway		first	
	2330	MODBUS TCP port number	R/W	0-65535	word
	2331	MODBUS TCP DHCP	R/W	0-Close，1-Open	word
	2332	Master station server IP	R/W		word
	2333	Master station server IP	R/W	4G and Ethernet shared	word
	2334	Master station server port number	R/W		word
	2335	Operation password verification setting enable	R/W	0 disable, 1 enable	word
	2336	Set the high byte of operation password	R/W		word
	2337	Set operation password low byte	R/W		word
	2338	Ip/domain name function selection	R/W	0=use IP, 1=use domain name	word
	2339	Domain name array 1	R/W		word
	2340	Domain name array 2	R/W		word
	2341	Domain	R/W		word

		name array 3			
	2342	Domain name array 4	R/W		word
	2343	Domain name array 5	R/W		word
	2344	Domain name array 6	R/W		word
	2345	Domain name array 7	R/W		word
	2346	Domain name array 8	R/W		word
	2347	Domain name array 9	R/W		word
	2348	Domain name array 10	R/W		word
	2349	Domain name array 11	R/W		word
	2350	Domain name array 12	R/W		word
	2351	Domain name array 13	R/W		word
	2352	Domain name array 14	R/W		word
	2353	Domain name array 15	R/W		word
	2354	Domain name array 16	R/W		word
	2355	Domain name array	R/W		word

		17			
	2356	Domain name array 18	R/W		word
	2357	Domain name array 19	R/W		word
	2358	Domain name array 20	R/W		word
	2359	Domain name array 21	R/W		word
	2360	Domain name array 22	R/W		word
	2361	Domain name array 23	R/W		word
	2362	Domain name array 24	R/W		word
	2363-2366	reserve			

8.7 事件记录通讯地址 8.7 Event log communication address

见表 23：refer to table 23:

表 23 事件记录地址表

分类	地址	参数	读写属性	取值范围	类型
DI 变位记录 1	2500	动作 1 时间-年月	R	高字为年，低字为月	word
	2501	动作 1 时间-日时	R	高字为日，低字为时	word
	2502	动作 1 时间-分秒	R	高字为分，低字为秒	word
	2503	DI 编号	R		word

	2504	DI 状态	R		word
	2505-2507	预留			
DI 变位记录 2 - DI 变位记录 100	2508-3244	同上	R		word
	3245-3299	预留			
合闸记录 1	3300	动作 1 时间-年月	R	高字为年，低字为月	word
	3301	动作 1 时间-日时	R	高字为时、日，低字为时	word
	3302	动作 1 时间-分秒	R	高字为分，低字为秒	word
	3303	合闸位置	R	0-外部 1-通讯 2-就地 3-面板 4-远程	word
	3304	合闸最大电流	R	Unit 1%	word
	3305	合闸最低电压	R	Unit 1%	word
	3306	合闸是否成功	R	1-合闸失败，当前处于分闸状态 2-进入合闸状态 3-当前处于 Trip condition	word
	3307	保留			
合闸记录 2 - 合闸记录 8	3308-3363	同上	R		word
	3364-3399	预留			
分闸记录 1	3400	动作 1 时间-年月	R	高字为年，低字为月	word
	3401	动作 1 时间-日时	R	高字为时、日，低字为时	word
	3402	动作 1 时间-分秒	R	高字为分，低字为秒	word

	3403	分闸位置	R	0-外部 1-通讯 2-就地 3-面板 4-远程 5-脱扣	word
	3404	分闸最大电流	R	Unit 1%	word
	3405	分闸最低电压	R	Unit 1%	word
	3406	分闸是否成功	R	1-分闸失败，当前处于合闸状态 2-进入分闸状态 3-进入 Trip condition	word
	3407-3408	保留			
分闸记录 2 - 分闸记录 8	3409-3464	同上	R		word
	3465-3699	预留			
参数修改记录	3700	修改时间-年月	R	高字为年，低字为月	word
	3701	修改时间-日时	R	高字为时、日，低字为时	word
	3702	修改时间-分秒	R	高字为分，低字为秒	word
	3703	首通讯地址	R		word
	3704	通讯地址长度	R		word
	3705	设置方式	R	0=lcd,1=rs485-1,2=rs485-2,3=commModule	word
参数修改记录 2-8	3706-3747	同上	R		word
	3748-4099	预留			
装置上电记录 1	4100	装置上电时间-年月	R	高字为年，低字为月	word
	4101	装置上电时间-日时	R	高字为时、日，低字为时	word
	4102	装置上电时间-分秒	R	高字为分，低字为秒	word
	4103	本条上电索引	R	记录这一次是第几次上电	word
装置上电记录 2-8	4104-4131	同上	R		word

装置断电记录1	4132	装置断电时间-年月	R	高字为年，低字为月	word
	4133	装置断电时间-日时	R	高字为时、日，低字为时	word
	4134	装置断电时间-分秒	R	高字为分，低字为秒	word
	4135	本条断电索引	R	记录这一次是第几次断电	word
装置断电记录2-8	4136-4163	同上	R		word
	4164-4599	预留			
调试记录	4600	调试时间-年月	R	高字为年，低字为月	word
	4601	调试时间-日时	R	高字为时、日，低字为时	word
	4602	调试时间-分秒	R	高字为分，低字为秒	word
	4603	条形码 1	R		word
	4604	条形码 2	R		word
	4605	条形码 3	R		word
自定义通讯地址	5000	自定义地址 1 对应值	R	同对应的通讯地址	word
	5001-5199	自定义地址 2 对应值-自定义地址 199 对应值	R		word
	5300-5499	自定义地址 1 对应的地址设置-自定义地址 199 对应的地址设置	R/W		word
故障记录 1	5700	动作 1 时间-年月	R	高字为年，低字为月	word
	5701	动作 1 时间-日时	R	高字为时、日，低字为时	word
	5702	动作 1 时间-分秒	R	高字为分，低字为秒	word

	5703	故障 Trip condition1	R		word
	5704	故障 Trip condition2	R		word
	5705	故障 Trip condition3	R		word
	5706	Error Alarm condition1	R		word
	5707	Error Alarm condition2	R		word
	5708	Error Alarm condition3	R		word
	5709	基波开关、接线方式	R	低字节:基波开关；高字节:接线方式	word
	5710	A 相电流	R	0.001A	word
	5711				
	5712	B 相电流	R	0.001A	word
	5713				
	5714	C 相电流	R	0.001A	word
	5715				
	5716	零线电流	R	0.001A	word
	5717				
	5718	A 相电压	R	0～999.9V	word
	5719	B 相电压	R	0～999.9V	word
	5720	C 相电压	R	0～999.9V	word
	5721	A 相电流总谐波含量	R	0-1000	word
	5722	B 相电流总谐波含量	R	0-1000	word
	5723	C 相电流总谐波含量	R	0-1000	word
	5724	AB 线电压总谐波含量	R	0-1000	word
	5725	BC 线电压总谐波含量	R	0-1000	word
	5726	CA 线电压总谐	R	0-1000	word

		波含量			
	5727	频率	R		word
	5728	总视在功率	R	0 ～ 2376000(Unit:VA)	word
	5729				word
	5730	总有功功率	R	0 ～ 2376000(Unit:VA)	word
	5731				word
	5732	总无功功率	R	0 ～ 2376000(Unit:VA)	word
	5733				word
	5734	总功率因数	R	0.001	word
	5735	正序电流	R	0.001A	word
	5736	负序电流	R	0.001A	word
	5737	零序电流	R	0.001A	word
	5738	正序电压	R	0～999.9V	word
	5739	负序电压	R	0～999.9V	word
	5740	零序电压	R	0～999.9V	word
	5741	温度故障通道	R	高字节：1，无线；0，有线； 低字节：通道号	word
	5742	故障温度值	R		word
	5743	漏电流	R		word
	5744	DI 状态	R		word
	5745	DO 状态	R		word
	5746	分合闸状态	R		word
	5747-5749	保留			
故障记录 2 - 故障记录 100	5750-10699	同上	R		word
电压暂升 1	11000	动作 1 时间-年月	R	高字为年，低字为月	word
	11001	动作 1 时间-日时	R	高字为时、日，低字为时	word
	11002	动作 1 时间-分秒	R	高字为分，低字为秒	word
	11003	A 相电压	R		word
	11004	B 相电压	R		word

	11005	C 相电压	R		word
	11006	接线方式	R		word
	11007	状态	R	1 事件记录中，0 已经完成的事件	word
	11008	持续时间（低字）	R		word
	11009	持续时间（高字）	R		word
电压暂升 2 - 电压暂升 8	11010-11079	同上	R		word
电压暂降 1	11080	动作 1 时间-年月	R	高字为年，低字为月	word
	11081	动作 1 时间-日时	R	高字为日，低字为时	word
	11082	动作 1 时间-分秒	R	高字为分，低字为秒	word
	11083	A 相电压	R		word
	11084	B 相电压	R		word
	11085	C 相电压	R		word
	11086	接线方式	R		word
	11087	状态	R	1 事件记录中，0 已经完成的事件	word
	11088	持续时间（低字）	R	组合成长整形，Unit 毫秒	word
	11089	持续时间（高字）	R		word
电压暂降 2 - 电压暂降 8	11190-11159	同上	R		word
	11160-11999	预留			
本月报表	12000	总有功电能	R		word
	12001				word
	12002	总无功电能	R		word
	12003				word

	12004	正向有功电能	R		word
	12005				word
	12006	反向有功电能	R		word
	12007				word
	12008	正向无功电能	R		word
	12009				word
	12010	反向无功电能	R		word
	12011				word
	12012-12019	保留			
上 1 月-上 12 月报表	12020-12039	上 1 月报表	R	同本月报表	word
	12040-12059	上 2 月报表	R		
	12060-12079	上 3 月报表	R		
	12080-12099	上 4 月报表	R		
	12100-12119	上 5 月报表	R		
	12120-12139	上 6 月报表	R		
	12140-12159	上 7 月报表	R		
	12160-12179	上 8 月报表	R		
	12180-12199	上 9 月报表	R		
	12200-12219	上 10 月报表	R		
	12220-12239	上 11 月报表	R		
	12240-12259	上 12 月报表	R		

Table 23 Event record address table

Category	Address	Parameter	Read-Write Attribute	Range	Type
DI displacement record 1	2500	Action 1 time-year, month	R	high byte is year, low byte is month	word
	2501	Action 1 time-day and hour	R	high byte is day, low byte is hour	word
	2502	Action 1 time-minute and second	R	The high byte is minutes, the low byte is seconds	word
	2503	DI Code	R		word
	2504	DI status	R		word
	2505-2507	Reserve			
DI displacement record 2 - DI displacement record 100	2508-3244	Same as above	R		word
	3245-3299	Reserve			
Closing Record 1	3300	Action 1 time-year, month	R	high byte is year, low byte is month	word
	3301	Action 1 time-day and hour	R	high byte is hour，day, low byte is hour	word
	3302	Action 1 time-minute and	R	high byte is minute, low byte is second	word

		second			
	3303	Closing position	R	0-external 1-communication 2-local 3-panel 4-remote	word
	3304	Closing maximum current	R	Unit 1%	word
	3305	Minimum closing voltage	R	Unit 1%	word
	3306	Whether the closing is successful or not	R	1-failed to close, currently in the opening state 2-entering the closing state 3-currently in the trip condition	word
	3307	Reserve			
Closing Record 2 - Closing Record 8	3308-3363	Same as above	R		word
	3364-3399	Reserve			
Opening Record 1	3400	Action 1 time-year, month	R	high byte is year, low byte is month	word
	3401	Action 1 Time-Day Hour	R	High byte is hour, day, low byte is hour	word
	3402	Action 1 time-minute and second	R	High byte is minute, the low byte is second	word
	3403	Opening position	R	0-external 1-communication 2-local 3-panel 4-remote 5-trip	word
	3404	Opening maximum current	R	Unit 1%	word
	3405	Opening minimum	R	Unit 1%	word

		voltage			
	3406	Whether the opening is successful or not	R	1-opening failed, currently in the closing state 2-entering the opening state 3-entering the trip condition	word
	3407-3408	Reserve			
Opening record 2 - opening record 8	3409-3464	Same as above	R		word
	3465-3699	Reserve			
Parameter modification record	3700	Modification time-year, month	R	High byte is year, low byte is month	word
	3701	Modification time-date and time	R	high byte is hour and day, and the low byte is hour	word
	3702	Modification time-minute and second	R	High byte is minute, the low byte is second	word
	3703	Initial mailing address	R		word
	3704	Communication address length	R		word
	3705	setting method	R	0=lcd,1=rs485-1,2=rs485-2,3=commModule	word
Parameter Modification record 2-8	3706-3747	Same as above	R		word
	3748-4099	Reserve			
Device	4100	Device	R	High byte is year, low byte is month	word

power-on record 1		power-on time-year, month			
	4101	Device power-on time-day hour	R	High byte is hour day, low byte is hour	word
	4102	Device power-on time-minute second	R	High byte is minute, low byte is second	word
	4103	The power-on index	R	this article records the number of power-on times this time	word
Device power-on record 2-8	4104-4131	Same as above	R		word
Device power-off record 1	4132	Device power-off time-year month	R	High byte is the year, and the low byte is the month	word
	4133	Device power-off time-day hour	R	High byte is the hour day, and the low byte is the hour	word
	4134	Device power-off time-minute and second	R	High byte is the minute, and the low byte is the second	word
	4135	The power-off index	R	this article records the number of power-offs this time	word
Device power-off record 2-8	4136-4163	Same as above	R		word
	4164-4599	Reserve			
Debugging record	4600	Debugging time-year, month	R	High byte is the year, and the low byte is the month	word
	4601	Debug time-day	R	High byte is the hour day,	word

		hour		and the low byte is the hour	
	4602	Debugging time - minute and second	R	High byte is the minute, and the low byte is the second	word
	4603	Bar code 1	R		word
	4604	Bar code 2	R		word
	4605	Bar code 3	R		word
Custom communication address	5000	Corresponding value of custom address 1	R	Same as the corresponding communication address	word
	5001-5199	Corresponding value of custom address 2-Custom address 199	R		word
	5300-5499	Address setting corresponding to custom address 1-Address setting corresponding to custom address 199	R/W		word
故障记录 1	5700	Action1 time-year month	R	High byte is the year, and the low byte is the month	word
	5701	Action1 time-Hour day	R	High byte is the hour day, and the low byte is the hour	word
	5702	Action1 time-Minute second	R	High byte is the minute, and the low byte is the second	word
	5703	Error Trip condition1	R		word
	5704	Error Trip condition2	R		word
	5705	Error Trip condition3	R		word
	5706	Error Alarm	R		word

		condition1			
	5707	Error Alarm condition2	R		word
	5708	Error Alarm condition3	R		word
	5709	Fundamental wave switch, wiring mode	R	low byte: fundamental wave switch; high byte: wiring mode	word
	5710	A phase current	R	0.001A	word
	5711				
	5712	B phase current	R	0.001A	word
	5713				
	5714	C phase current	R	0.001A	word
	5715				
	5716	Neutral current	R	0.001A	word
	5717				
	5718	A phase voltage	R	0～999.9V	word
	5719	B phase voltage	R	0～999.9V	word
	5720	C phase voltage	R	0～999.9V	word
	5721	A phase current total harmonic content	R	0-1000	word
	5722	B phase current total harmonic content	R	0-1000	word
	5723	C phase current total harmonic content	R	0-1000	word
	5724	AB line voltage total harmonic content	R	0-1000	word
	5725	BC line voltage total harmonic content	R	0-1000	word
	5726	CA line voltage total harmonic	R	0-1000	word

		content			
	5727	Frequency	R		word
	5728	total apparent power	R	0 ～ 2376000(Unit:VA)	word
	5729				word
	5730	total active power	R	0 ～ 2376000(Unit:VA)	word
	5731				word
	5732	total reactive power	R	0 ～ 2376000(Unit:VA)	word
	5733				word
	5734	total power factor	R	0.001	word
	5735	positive sequence current	R	0.001A	word
	5736	negative sequence current	R	0.001A	word
	5737	Zero sequence current	R	0.001A	word
	5738	positive sequence voltage	R	0～999.9V	word
	5739	negative sequence voltage	R	0～999.9V	word
	5740	Zero sequence voltage	R	0～999.9V	word
	5741	Temperature Fault Channel	R	High byte: 1, wireless; 0, wired; Low byte: channel number	word
	5742	Fault temperature value	R		word
	5743	leakage current	R		word
	5744	DI status	R		word
	5745	DO status	R		word

	5746	Opening and closing state	R		word
	5747-5749	Reserve			
Fault record 2 - Fault record 100	5750-10699	Same as above	R		word
voltage swell 1	11000	Action1 time-year month	R	High byte is the year, and the low byte is the month	word
	11001	Action1 time-Hour day	R	High byte is the Hour,day and the low byte is the Hour	word
	11002	Action1 time-Minute Second	R	High byte is the minute, and the low byte is the second	word
	11003	A phase voltage	R		word
	11004	B phase voltage	R		word
	11005	C phase voltage	R		word
	11006	Wiring method	R		word
	11007	Status	R	1 event record, 0 completed events	word
	11008	Duration (low Byte)	R		word
	11009	Duration (high Byte)	R		word
voltage swell 2 - voltage swell 8	11010-11079	Same as above	R		word
voltage swell 1	11080	Action1 time-year month	R	High byte is the year, and the low byte is the month	word
	11081	Action1 time-Hour day	R	High byte is the Hour,day and the low byte is the Hour	word
	11082	Action1 time-Minute Second	R	High byte is the minute, and the low byte is the second	word

	11083	A phase voltage	R		word
	11084	B phase voltage	R		word
	11085	C phase voltage	R		word
	11086	Wiring method	R		word
	11087	Status	R	1 event record, 0 completed events	word
	11088	Duration (low Byte)	R	Combined into a long integer, Unit milliseconds	word
	11089	Duration (high Byte)	R		word
voltage swell 2 - voltage swell 8	11190-11159	Same as above	R		word
	11160-11999	Reserve			
Report of this month	12000	Total active energy	R		word
	12001				word
	12002	Total reactive energy	R		word
	12003				word
	12004	Forward active energy	R		word
	12005				word
	12006	Reverse active energy	R		word
	12007				word
	12008	Forward reactive energy	R		word
	12009				word
	12010	Reverse reactive energy	R		word
	12011				word
	12012-12019	Reserve			
Last January-last December report	12020-12039	Last 1 month report	R	Same as current month report	word
	12040-12059	Last 2 months report	R		
	12060-12079	Last 3 months report	R		
	12080-12099	Last 4 months report	R		

	12100-12119	Last 5 months report	R		
	12120-12139	Last 6 months report	R		
	12140-12159	Last 7 months report	R		
	12160-12179	Last 8 months report	R		
	12180-12199	Last 9 months report	R		
	12200-12219	Last 10 months report	R		
	12220-12239	Last 11 months report	R		
	12240-12259	Last 12 months report	R		

9 典型接线图 9 Typical Wiring Diagram

9.1 无测量模块，25A、100A 规格接线图 9.1 No measurement module, 25A, 100A specification wiring diagram

当电流规格为 25A、100A，且没有选配测量模块时，测量电压分别接入 Ua、Ub、UC（3P4L 零线接入 Un），测量电流通过配套的互感器进行测量（按照电流方向从互感器 P1 进，P2 出，出线黄、蓝、红、黑分别对应接入 Ia、Ib、Ic、COM），选配漏电测量功能后，将 A、B、C 同时穿入漏电互感器（若有 N 线，一并接入），出线接入 IL、IL*，详见图 6：

When the current specification is 25A, 100A, and there is no optional measurement module, the measurement voltage is respectively connected to Ua, Ub, UC (the 3P4L neutral line is connected to Un), and the measurement current is measured through the matching transformer (according to the current direction from the mutual inductance P1 enters, P2 exits, and the yellow, blue, red, and black outgoing lines are connected to Ia, Ib, Ic, and COM respectively). After the leakage measurement function is selected, A, B, and C are simultaneously inserted into the leakage transformer (if any N line, connected together), the outgoing line is connected to IL, IL*, see Figure 6 for details:

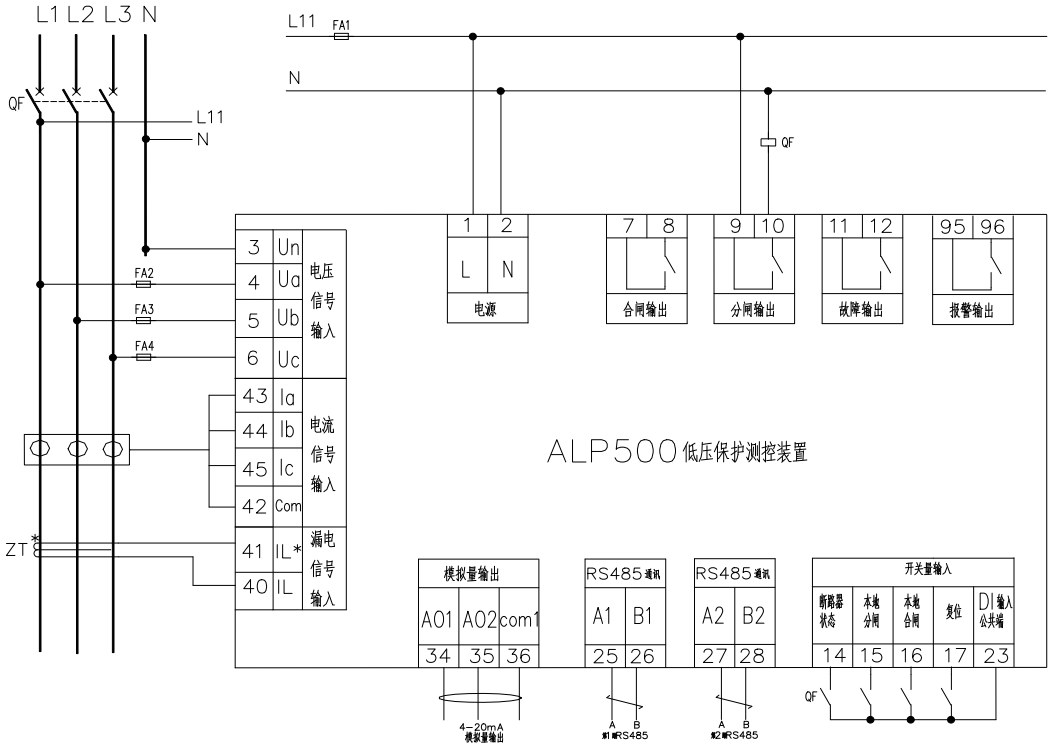


图 6 无测量模块，25A、100A 接线图

Figure 6 No measurement module, 25A, 100A wiring diagram

9.2 无测量模块，1A、5A 规格接线图 9.2 No measurement module, 1A, 5A specification wiring diagram

当电流规格为 1A、5A，且没有选配测量模块时，测量电压分别接入 Ua、Ub、UC（3P4L 零线接入 Un），测量电流需要先通过 xxx/1A、xxx/5A 的保护型互感器（根据测控装置电流规格选互感器二次电流规格），二次出线穿过配套的互感器再短接进行测量（按照电流方向从互感器 P1 进，P2 出，出线黄、蓝、红、黑分别对应接入 Ia、Ib、Ic、COM），选配漏电测量功能后，将 A、B、C 同时穿入漏电互感器（若有 N 线，一并接入），出线接入 IL、IL*，详见图 7：

When the current specification is 1A, 5A, and there is no optional measurement module, the measurement voltage is respectively connected to Ua, Ub, UC (the 3P4L neutral line is connected to Un), and the measurement current needs to pass through the protection type of xxx/1A, xxx/5A Transformer (select the secondary current specification of the transformer according to the current specification of the measurement and control device), the secondary outgoing line passes through the matching transformer and then short-circuits for measurement (according to the current direction, it enters from the transformer P1 and exits from P2, and the outgoing lines are yellow, blue, and red. , black are respectively connected to Ia, Ib, Ic, COM), after selecting the leakage measurement function, put A, B, C into the leakage transformer at the same time (if there is N line, connect them together), and the outgoing line is connected to IL , IL*, see Figure 7 for details:

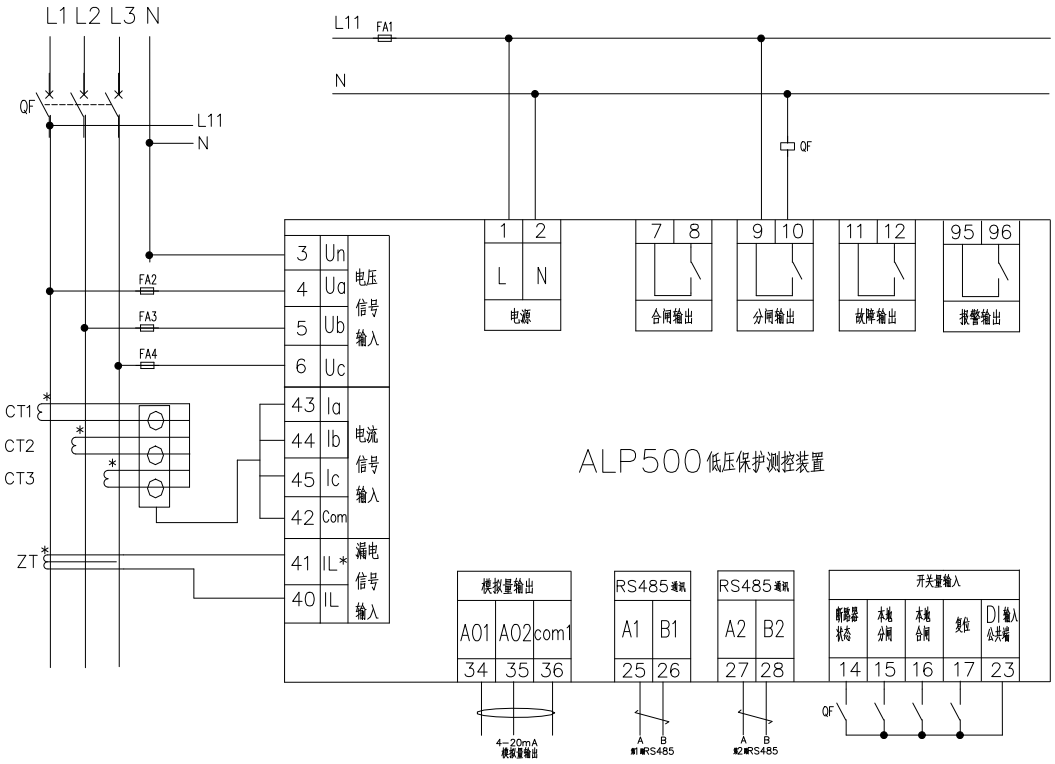


图 7 无测量模块，1A、5A 接线图

Figure 7 No measurement module, 1A, 5A wiring diagram

9.3 有测量模块，25A、100A 规格接线图 9.3 With measurement module, 25A, 100A specification wiring diagram

当电流规格为 25A、100A，且选配测量模块时，测量电压需分别接入测控装置主体和测量模块的 Ua、Ub、UC（3P4L 零线接入 Un），测量模块测量电流穿过 xxx/5A 的测量型互感器，接入测量模块（电流方向 P1 进 P2 出，S1 接 IA+、IB+、IC+，S2 接 IA-、IB-、IC-），主体电流参数测量通过配套的互感器进行测量（按照电流方向从互感器 P1 进，P2 出，出线黄、蓝、红、黑分别对应接入 Ia、Ib、Ic、COM），选配漏电测量功能后，将 A、B、C 同时穿入漏电互感器（若有 N 线，一并接入），出线接入 IL、IL*，详见图 8：

When the current specification is 25A, 100A, and the measurement module is selected, the measurement voltage needs to be connected to Ua, Ub, and UC of the main body of the measurement and control device and the measurement module (the 3P4L neutral line is connected to Un), and the measurement current of the measurement module passes through xxx/ The 5A measurement transformer is connected to the measurement module (current direction P1 enters P2 and exits, S1 connects to IA+, IB+, IC+, S2 connects to IA-, IB-, IC-), and the main current parameters are measured through the matching transformer. (According to the current direction, it enters from transformer P1 and exits from P2, and the yellow, blue, red, and black outgoing lines are connected to Ia, Ib, Ic, and COM respectively). After the leakage measurement function is selected, A, B, and C are simultaneously inserted into Leakage current transformer (if there is an N line, connect it together), and the outgoing line is connected to IL and IL*, see Figure 8 for details:

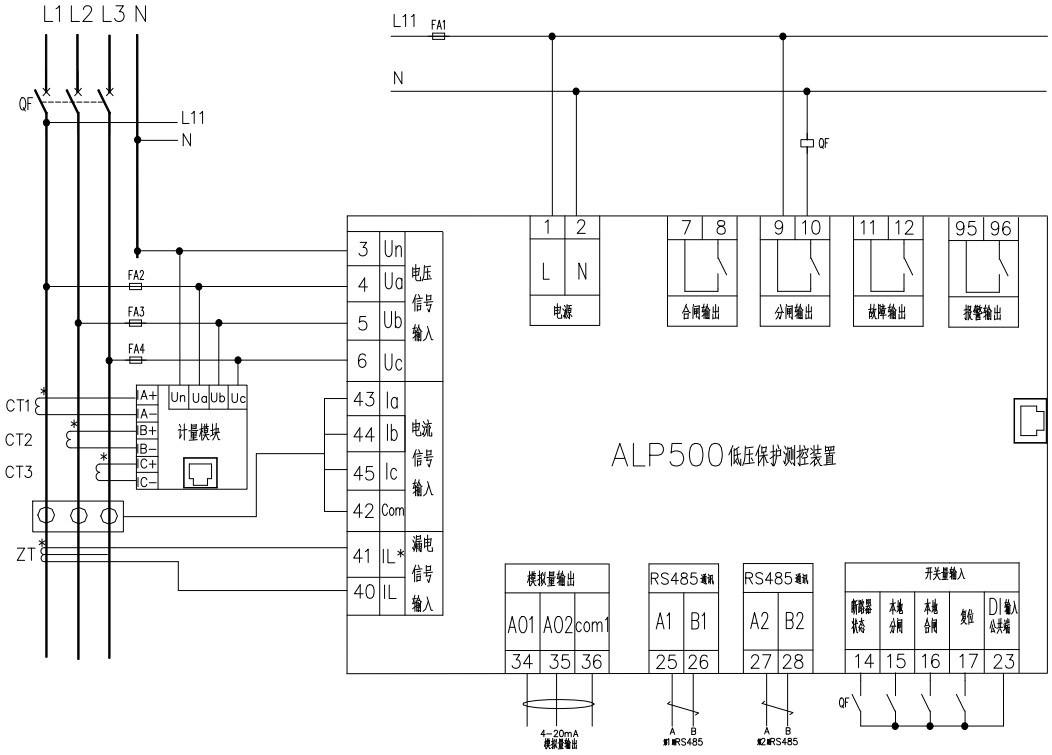


图 8 有测量模块，25A、100A 接线图

Figure 8 With measurement module, 25A, 100A wiring diagram

9.4 有测量模块，1A、5A 规格接线图 9.4 With measurement module, 1A, 5A specification wiring diagram

当电流规格为 1A、5A，且选配测量模块时，测量电压需分别接入测控装置主体和测量模块的 Ua、Ub、UC（3P4L 零线接入 Un），测量模块测量电流穿过 xxx/5A 的测量型互感器，接入测量模块（电流方向 P1 进 P2 出，S1 接 IA+、IB+、IC+，S2 接 IA-、IB-、IC-），主体电流参数测量需要先通过 xxx/1A、xxx/5A 的保护型互感器（根据测控装置电流规格选互感器二次电流规格），二次出线穿过配套的互感器再短接进行测量（按照电流方向从互感器 P1 进，P2 出，出线黄、蓝、红、黑分别对应接入 Ia、Ib、Ic、COM），选配漏电测量功能后，将 A、B、C 同时穿入漏电互感器（若有 N 线，一并接入），出线接入 IL、IL*，详见图 9：

When the current specification is 1A, 5A, and the measurement module is selected, the measurement voltage needs to be connected to the main body of the measurement and control device and the Ua, Ub, and UC of the measurement module (the 3P4L neutral wire is connected to Un), and the measurement current of the measurement module passes through xxx/ The 5A measurement transformer is connected to the measurement module (current direction P1 enters P2 and exits, S1 connects to IA+, IB+, IC+, S2 connects to IA-, IB-, IC-), the main current parameter measurement needs to pass xxx/1A, xxx/5A protective transformer (select the secondary current specification of the transformer according to the current specification of the measurement and control device), the secondary outgoing line passes through the matching transformer and then short-circuits for measurement (according to the current direction, it enters from the transformer P1, exits from P2, The yellow, blue, red, and black outgoing lines are connected to Ia, Ib, Ic, and COM respectively). After the leakage measurement function is selected, put A, B, and C into the leakage transformer at the same time (if there is N line, connect it together)), the outgoing line is connected to IL and IL*, see Figure 9 for details:

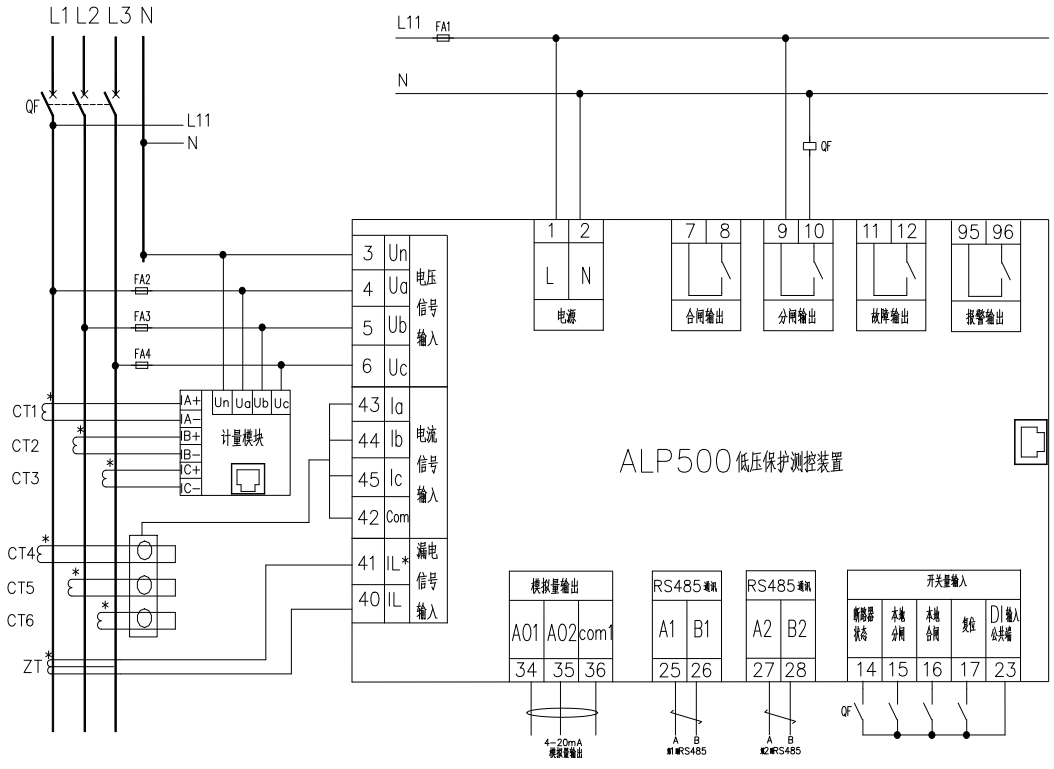


图 9 有测量模块，1A、5A 接线图

Figure 9 With measurement module, 1A, 5A wiring diagram

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