102

ACR 系列网络多功能电力仪表

ACR Series Network Multi-functional Power Meters

安装使用说明书 V2.6

Installation and Operation Instruction V2.6

安科瑞电气股份有限公司

Acrel Co.. Ltd.

目　录

1. 概述 General

ACR系列网络多功能电力仪表，是针对电力系统、工矿企业、公用设施、智能大厦的电力监控需求而设计的智能表，它集成电力参数的测量以及电能监测和考核管理。

ACR Series Network Multi-Functional Power Meters ，are intelligent meters, designed for power monitoring of Power Systems, industrial and mining establishments, public utility, intelligent building. they integrate the power parameters measurement and electric energy measurement and checking management .

2. 技术参数 Technical parameters

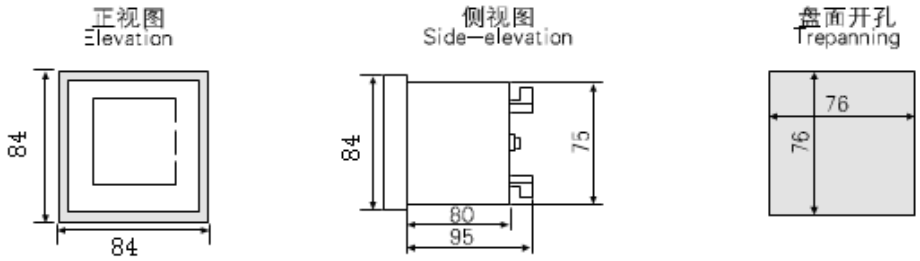
技术参数 Technical parameters			指标 Value
输入 Input	网络 Network		三相三线、三相四线 Three-phase three wire、three-phase four wire
	频率 Frequency		45～65Hz
	电压 Voltage		额定值 Rating：AC 100V、400V
			过负荷：1.2 倍额定值（连续）； 2 倍额定值持续 1 秒 Overload：1.2 times Rating(continuous)；2 times Rating for 1 second
			功耗 Power consumption：小于 less than0.2VA
	电流 Current		额定值 Rating：AC 1A、5A
			过负荷：1.2 倍额定值（连续）； 10 倍额定值持续 1 秒 Overload：1.2 times Rating(continuous)；10 times Rating for 1 second
			功耗 Power consumption：小于 less than 0.2VA
输出 Output	电能 Electric energy		输出方式:集电极开路的光耦脉冲，2 路输出(选配) Output mode：open-collector photo-coupler pulse，2 channels Output
			脉冲常数：10000、40000、160000 imp/kWh 等 Pulse constant：10000 、40000、160000imp/kWh
	通讯 Communication		RS485 接口、Modbus-RTU 协议 RS485 interface、Modbus-RTU protocol
	显示 Display		LED、LCD
功能 Function	开关量 Switching	输入 Input	2、4 或 8 路干接点输入 2、4 Or 8 channels dry contacts Input
		输出 Output	输出方式：2 或 4 路继电器常开触点输出 Output mode：2 Or 4 channels relay NO contact Output
			触点容量 Contact capacity：AC 250V/3A、DC 30V/3A
	模拟量输出 Anolog output		输出方式：1、2 或 4 路输出，0～20mA、4～20mA 可编程(需用户指定) Output mode：1、 2 Or 4 channels Output. 0-20mA 4-20mA programmable
			负载能力 Load capacity：≤500Ω
			温度系数 temperature coefficient：300ppm/℃
测量精度 Measurement Precision			电流、电压：0.2 级，功率、有功电能：0.5 级，频率 0.01Hz、无功电能：1 级 Current、Voltage：0.2 class，active Electric energy ：0.5 class，Frequency：0.01Hz，reactive Electric energy：1 class
电源 Power supply			AC85～265V 或 DC100～350V； 功耗 Power consumption≤10VA

安全性 Security	工频耐压：电源//开关量输出//电流输入//电压输入和变送//通讯//脉冲输出//开关量输入之间 AC2kV 1min； 电源、开关量输出、电流输入、电压输入两两之间 AC2kV 1min； 变送、通讯、脉冲输出、开关量输入两两之间 AC1kV 1min； 绝缘电阻：输入、输出端对机壳>100MΩ Power frequency withstand voltage:Between Power supply//Switching Output// Current Input//voltage Input and Transmitting// Communication //Pulse Output//switching input AC2 kV 1min; Between Power supply、switching output、Current Input、voltage Input AC2 kV 1min; Between Transmitting、Communication、Pulse Output、switching input AC 1kV 1 min; Insulation resistance：Input、Output end to machine enclosure >100MΩ
环境 Environment	工作温度 Operational temperature ：-10℃～+55℃; 储存温度 storage temperature：-20℃～+70℃ 相对湿度 Relative humidity：5%～95% 不结露 no condensation; 海拔高度 Altitude：≤2500m

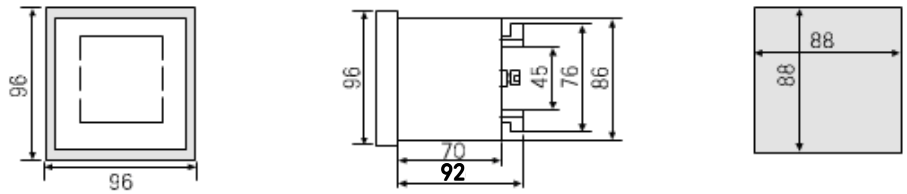
3. 安装 Installing

3.1 外形及安装开孔尺寸 Outline and mounting cutout size（单位 Unit：mm）

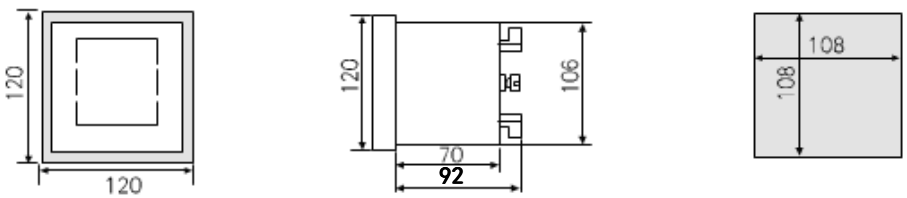
ACR1xx 系列　　ACR 1xx Series



ACR2xx系列　　ACR2xxSeries



ACR3xx系列　　ACR3xxSeries



3.2 安装方法 Installing method

3.3 注意事项 Notice

3.3.1 电压输入 Voltage Input

输入电压应不高于产品的额定输入电压（100V 或 400V）的 120%，否则应考虑使用 PT；

在电压输入端须安装 1A 保险丝；

Input voltage should not higher than 120% of product's Input voltage(100V or 400V), otherwise, should use PT;

1A fuse should be mounted on the voltage Input end;

3.3.2 电流输入 Current Input

电流输入必须使用外部 CT 接入。

接线时确保输入电流与电压相序一致，即 1 号线接线端接 A 相电压，则 5、6 号接线端一定要接 A 相电流，否则会出现显示数值和符号错误；同时确保电流进出线连接正确（标*号端子接进线）；

如果使用的 CT 上连有其它仪表，接线应采用串接方式；

安装接线时建议使用接线排，不要直接接 CT，以便于拆装；

去除产品的电流输入连线前，必须先切断 CT 一次回路或者短接二次回路！

Current input must use external CT access

When wiring, ensure that the Input current and voltage has same phase sequence, i.e. if 1# terminal is connected with A phase voltage, then 5,6# terminal must be connected with A phase current, otherwise, display value and symbol error may occur; while ensure the connection correctness of current inlet and outlet (symbol *terminal connecting with inlet);

If the used CT connected with other meters , the connection is adopting series connection mode;

When wiring,using Connector bar is recommended, not connected with CT directly, to facilitate dismounting ;

Before removing product current Input connection, firstly, cutoff CT primary circuit or short the secondary circuit!

3.3.3 通讯接线 Communication connection

该仪表提供异步半双工 RS485 通讯接口，采用 MODBUS-RTU 协议，各种数据信息均可在通讯线路上传送。理论上在一条线路上可以同时连接多达 128 个仪表，每个仪表均可设定其通讯地址（Addr），通讯速率（buad)也可通过设置选择。

通讯连接建议使用三芯屏蔽线，线径不小于 0.5mm^2，分别接 A、B、COM2，屏蔽层接大地，**COM2 禁止接大地**，布线时应使通讯线远离强电电缆或其他强电场环境。

建议最末端仪表的 A、B 之间加匹配电阻，阻值范围为 120Ω～10kΩ。

具体接线实例见6.6所示。

This meter provides asynchronism half duplex RS485 Communication interface, adopts MODBUS-RTU protocol, various data information may be transmitting on the Communication Line .Theoretically ,on the same Line, meters up to 128 may be connected at the same time, each meter can set up its Communication address(Addr), Communication rate(buad)may be selected

Communication connection recommendation of three-core shielded wire, its linear diameter is no less than 0.5mm^2.separately connecting A, B, COM2 ,the shielded layer connecting earth, COM2 is prohibited by the earth.when wiring, the Communication line shall be far away from strong current cable or other strong electric field environment.

Recommendation of adding matched resistance between A, B of the last meter, the rated resistance range is 120Ω-10kΩ.

4. 编程与使用 Program and Usage

4.1 测量项目及面板说明(数码显示)Explanation for measurement items and faceplate

仪表面板右侧V123指示灯点亮时，三排数码管分别显示三相电压；I123指示灯点亮时，三排数码管分别显示三相电流；PQλ指示灯点亮时，三排数码管分别显示总有功功率、总无功功率、总功率因数；面板上左边三个灯为功率负号指示灯，当任一负号灯点亮时表明该排显示值为负值；EPQ指示灯点亮表示显示项目为电能，ACR网络电力仪表可以监测四象限电能数据：

On the ACR Network power meters faceplate,when its right side V123 indicator lights, three rows digitrons separately Displays three- phase voltage,I123indIcator lights, three rows digitrons separately Displays three-phase current; PQλ indicator lights, three rows digitrons separately Displays total active power, total reactive power, total power factor; but its top-left three indicators as power minus sign indicators, when any minus sign indicator lights, this shows the Displaying is negative value; EPQ indicator Lights, shows the Displaying Item is Electric energy, ACR Network power meters can measure four quadrant Electric energy data:

EPI--吸收有功电能 capture active Electric energy

EPE--释放有功电能 release active Electric energy

EQL--感性无功电能 Inductive reactive Electric energy

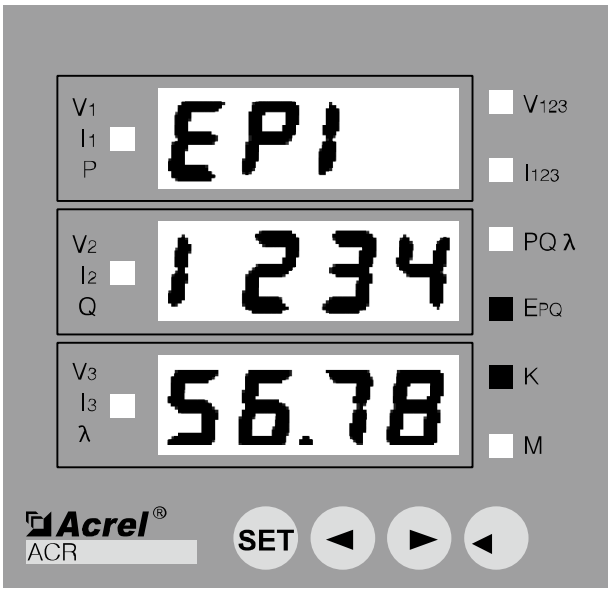
EQC--容性无功电能 capacitive reactive Electric energy

右侧k、M代表所显示项目的单位数量级为千或兆。

Right side k、M: k=kilo; M= million

例：如下图所示，“E_{PQ}”指示灯亮，第一排数码管显示EPI，表示当前显示吸收有功电能，k指示灯亮，表示电能单位为kWh，读电能时将第二排数码管和第三排数码管连读，如下图所示电能为123456.78kWh。

Example: As below figure shows: EPQ indicator lights, the first row digitrons Display EPI, currently Display the capture active Electric energy, K indicator ″(Lights, shows Electric energy Unit is kWh, the Electric energy reading value is the second row digitrons plus the third row digitrons, the Electric energy shown in below figure is 123456.78kWh.



注：

1、通常情况下，用户都是用电状态，此时应读取 EPI 值（吸收有功电能）；发电厂向外发电时读取 EPE 值（释放有功电能）。如果用户既有用电情况、又有发电机向外发电情况，则仪表 EPI 和 EPE 里都会有电能显示。

2、 ACR 仪表显示电能值时，无特殊说明普通型指示的电能数据为一次侧电能，此值无须再乘以电流、电压变比。液晶复费率型指示的电能数据为二次侧电能值，该值乘以电流、电压变比才是一次侧电能值。

3、当用户发现电能或功率指示明显不正常时，可通过查看三个分相功率确认有无接线错误。切换到 PQλ 指示灯亮（不带 PQλ 页面的可在指定页面按回车键查看分相功率，规格不同略有差异），三行分别显示总有功功率、总无功功率、三相功率因数时，按回车键，此时三行分别显示 PA、PB、PC 三个分相有功功率，若用电状态时存在任一分相功率为负（负号指示灯亮）均属不正常。检查该相电流电压接线，观察是否存在 CT 进出线反，或电压与电流相序不对应等情况。若用户采用 3 相 3 线接线方式（2CT 接法），只显示两个分相功率，不能使用上述方法判断，建议客户咨询我司技术支持人员。

4、各型号产品对应的前面板会有所不同，图示面板仅供举例参考。

Note:1.In a general way, users is in electricity utilization, at this time, read EPI value (capture active Electric energy); if power plant output of its power, read EPE value (release active Electric energy) .If users use power and generate power for other, then Electric energy display appear in meters of EPI and EPE。

2. When ACR meters display Electric energy value, LED (digitron) indicated Electric energy data is the primary side Electric energy, this value need not be multiplied by current, voltage transformation ratio. But LCD (liquid crystal) indicated Electric energy data is the secondary side Electric energy value, This value need be multiplied by current, voltage transformation ratio to display primary side Electric energy value.

3. When user discover that the display of Electric energy or power is abnormal clearly, may check three phase splitting power value and symbols for error wiring. Switch to PQ A'indicator lights, three - row digitrons display total active power, total reactive power, three-phase power factor, pressing ENTER button, for long time, at this time, three - row digitrons separately display PA. PB. PC three splitting phase active power, if use power but any phase splitting power is negative(minus sign

indicator lights).it is abnormal. Check This phase current, voltage connection, to see if CT inlet and outlet is reversal, or voltage and current with improper phase sequence If the user adopts the three- phase-three-wire connection mode (2CT connection), pressing ENTER button for long time, to Display two phase splitting power, the above judge method is not proper, please consult our technical support personnel.

4. Corresponding to the front panel of each type of product will be different,graphic panel can only be for reference.

4.2 按键功能说明 Explanation for keypad functionality

ACR 系列网络电力仪表四个按键从左到右依次为 SET 键、左键、右键、回车键。

Four keys of ACR series Network Electric Meters separately indicate SET key, LEFT key, RIGHT key, ENTER key from left to right.

SET 键 SET button	测量模式下，按该键进入编程模式，仪表提示输入密码 PASS，输入正确密码后，可对仪表进行编程设置；编程模式下，用于返回上一级菜单 Under measurement mode, Press This key enter programming mode, meters hint Input password PASS, after Input correct password, set up meters programming; Under programming mode, used for Return to previous menu。
左键 Left button	测量模式下，用于切换显示项目； 编程模式下，用于切换同级菜单或个位数的减小。 Under measurement mode, used for switching Display item; Under programming mode, used for switching same class menu or ones place reduced。
右键 Right button	测量模式下，用于切换显示项目； 编程模式下，用于切换同级菜单或个位数的增加。 Under measurement mode, used for switching Display item; Under programming mode, used for switching same class menu or ones place increase。
回车键 ENTER button	测量模式下，显示电能数据时按该键可查看分时复费率电能（有该功能时）； 编程模式下，用于菜单项目的选择确认和参数的修改确认。 Under measurement mode, when Displaying Electric energy data, press This key can look over time sharing multi-rate Electric energy(if any); Programming mode, used for menu item selection confirm and parameter revision confirm。

4.3 操作说明 Explanation of operation（第 1、2、3 排显示分别用 LEDA、LEDB、LEDC 表示）(1.、2、 3 row digitrons is separately presented by LEDA, LEDB,LEDC)

显示电流、电压时，电流单位为 A，电压单位为 V。

When display current、voltage,Current Display common Unit is A,Voltage Unit is usually V。

显示功率时，有功功率单位为 W，无功功率单位为 var。

When display power ,active power Unit is W, reactive power Unit is var。

显示电能时低位的电能数据显示在 LEDC 上，高位数据显示在 LEDB 上，有功电能的单位为 kWh，无功电能的单位为 kvarh。

当测量值达到预定数值时，k 或 M 量级灯亮，上述单位按量级转换。

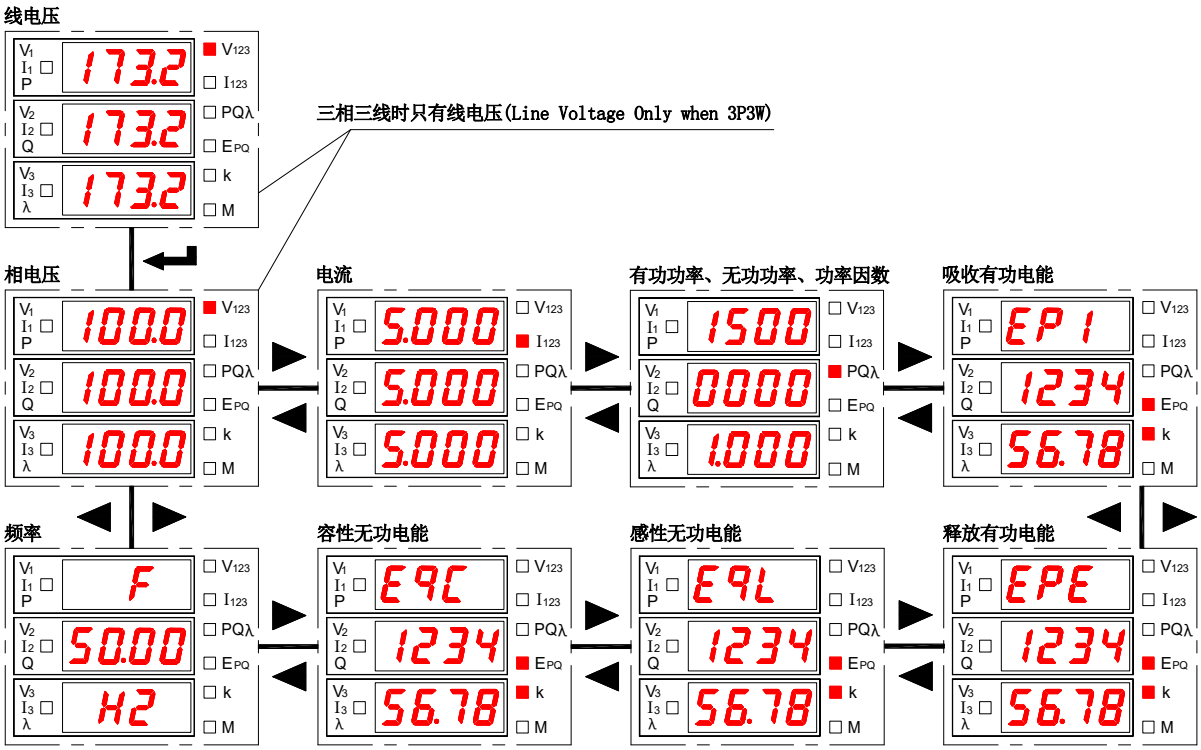
When display active Electric energy, low level Electric energy data display on the LEDC, high level data display on the LEDB, active Electric energy unit is kWh, reactive power Unit is var. when Electric energy value reach to preset value, k lamp die out, M lamp lights, Unit switch to MWh. Reactive Electric energy Unit specified as kvarh, when Electric energy value reach to preset value, k lamp die out, M lamp lights, Unit switch to Mvarh.

面板上左边三个灯为功率负号指示灯，当任一负号指示灯点亮时表明该排显示值为负值；否则为正。

On the face plate top-left, three lamps as power minus sign indicator, if any of minus sign indicators lights, the Display value of this row is negative value, otherwise, it is positive value.

4.3.1 查看 ACR120E、220E、320E 电流、电压、功率、电能和频率

Look over ACR120E、220E、320E current、voltage、power、Electric energy and frequenc



4.4 编程菜单 Programming menu

4.4.1 仪表通用编程菜单 Meters general Programming menu

第一级菜单 First menu	第二级菜单 Second menu	第三级菜单 Tertiary menu	说明 Description
SYS	dISP		开机显示画面选择 Power-on display
	CodE	0-9999	密码设置（初始密码 0001） Password setting (Initial password 0001)

	CLr.E		电能清零,清除成功显示 OK Press ENTER key Electric energy clear
	CLr.d		按回车键，清除需量，清除成功显示 OK Press Enter key, clear demand record
	EPE9	E1/E2	一次侧电能(E1)、二次侧电能(E2)切换 Primary(EI) or secondary(E2) energy display option
	PLUS	1.6-160.0	脉冲常数默认 10000imp/KWh (例：10.0 表示脉冲常数为 10000imp/kWh) Constant of Energy plus default 10000imp/KWh(e.g:10.0- 10000imp/kWh)
In	LinE	3P3L、3P4L	接线方式(三相三线、三相四线) Connection mode (Three-phase-three-wire Three-phase-four-wire)
	In.U	100、400	输入电压范围 Input voltage range
	In.I	1、5	输入电流范围 Input current range
	In.Pt	0-9999	电压倍数 Voltage Multiple
	In.Ct	0-9999	电流倍数 Current Multiple
bUS	Addr	1-247	通讯地址 Communication address
	bAUd	4800、9600、19200、38400	通讯波特率 Communication baud rate
	ModE	None/2bit/odd/even	通信模式 Communication data mode
tr.1-tr.4			第一路到第四路变送输出（详见 4.5.2） First channel transforming output(for details, see 4.5.2)
do.1-do.4			第一路到第四路开关量输出（详见 4.4.3） First channel to fourth Channel transforming output(for details,see 4.4.3)

4.4.2 带开关量输出增加的菜单 Menu for increasing switching output

ACR 仪表开关量输出采用继电器输出，有两种控制方式：1、报警方式（“SEL”选择不为零）；2、总线控制方式（“SEL”选择为“0. do”,此时“dLy”设置为 0 为电平输出方式，设置非零为脉 冲方式动作后延时设置的时间自动断开）

ACR meters switch volume output adopts relay output; there are two control modes: 1. Alarm mode ("SEL" as zero); 2. Bus control mode ("SEL" as "0.do", and then "dLy" set as 0 level output mode; set as non-zero means auto disconnection of pulse mode post action delay time)

“SEL”中设置 DO 输出类型，“0. do”表示为通信控制（此时如果 DLY 设置为 0 输出为电平方式，否则为脉冲方式，如果 DLY 设置为 2，吸合后 2 秒自动断开），其他为报警控制（见下表）

"SEL" set DO output type, "0.do" indicate communication control (and then in case DLY set as 0 output potential mode, or else pulse mode; in case DLY set as 2, auto disconnect in 0.02 seconds after closing), other alarm control (given in table below)

“dLy”为报警延时（报警用时推荐不设置为 0 防止干扰误动，输出类型为 DO 时作脉冲或电平输出控制）

"dLy" as alarm delay (alarm setting not recommended as 0 to prevent error action due to interference,DO output Mode set as pulse or trigger output control.)

“bAnd”为不动作带设置

"bAnd" no action interval

“AL.Hi”为高报警数值设置（不用设置最大 9999）

"AL.Hi" high alarm value setting (no setting of maximum 9999)

“AL.Lo”为低报警数值设置（不用设置最小-9999）

"AL.Lo" low alarm value setting (no setting of minimum -9999)

（以上 3 个设置与电量的显示值对应，显示中含小数点。例：输入 220V 100A/5A，三相四线，则 100%P 总为 220*100*3=66kW。如 100%功率时高报警，“AL.Hi”可取 66.00；100%电压时高报警，“AL.Hi”可取 220.0；100%电流时高报警，“AL.Hi”可取 100.0）

（three sets above correspond to electric energy readings and readings contain decimal point, e.g. input 220V 100A/5A, three phase four wire, 100% P total as 220*100*3=66kW, e.g. 100% power high alarm, "AL.Hi" taken as 66.00; 100% voltage high alarm, "AL.Hi" taken as 220.0; 100% current high alarm, "AL.Hi" taken as 100.0)

“In.=0”为信号为 0 时是否允许低报警，Lo.on 使能，Lo.of 禁止

" In.=0" whether the low alarm is allowed when the signal is 0, Lo.on enabled, Lo.of disabled.

01	02	03	04	05	06	07	08
UA	UB	UC	三相相电压最值	UAB	UBC	UCA	三相线电压最值
09	10	11	12	13	14	15	16
IA	IB	IC	三相电流最值	PA	PB	PC	P 总
17	18	19	20	21	22	23	24
QA	QB	QC	Q 总	SA	SB	SC	S 总
25	26	27	28	29	30		31

PFA	PFB	PFC	PF	F	电压不平衡	电流不平衡

32	33	34
DI1(联动)	DI2(联动)	FL（组合报警）
对应通道的“In.=0”需要设置为“Lo.on”		第 2 路 DO 可设置

注：

1. 三相 XX 最值表示：高报警时为三相中最大值，低报警时为三相中最小值。

Note: 1. Indication of three phase XX maximum/minimum value: high alarm represents maximum value of three phase; low alarm represents minimum value of three phase

2.第 2 路 DO 可设置“34.FL”组合报警功能，设置后二级菜单变为“SEL”(功能选择)、“dLy”(延时)、“H- U”(过线电压)、“L- U”(欠线电压)、“H- F”(过频率)、“L- F”(欠频率)、“H- P”(过功率)、“L- P”(欠功率)、“H- I”(过电流)、“L-PF”(欠功率因数) 、“H-b.U”(过电压不平衡，设置为-1 断相，判定条件至少一相>0.5Ue, 至少一相<0.1Ue) 、“H-b.I”(过电流不平衡，设置为-1 断相，判定条件至少一相>0.2Ie,至少一相<0.01Ie)

2. Secondary DO to be set as "34.FL" combination alarm function; after setting, level II menu changed as "SEL" (function selection), "dLy" (delay), "H-U" (high voltage), "L-U" (low voltage), "H-F" (high frequency), "L-F" (low frequency), "H-P" (high frequency), "L-P" (low frequency), "H-I" (high current), "L-PF" (low power factor), " H-b.U " (over voltage unbalance, set as -1 phase miss, judgment condition at least one phase>0.5Ue, at least one phase<0.1Ue), " H-b.I " (over current unbalance, set as -1 phase miss, judgment condition at least one phase>0.2Ie, at least one phase<0.01Ie)

3.不平衡计算

（偏移平均值最大的值与平均值的差值）/平均值*100%，如果分母的平均值小于额定值，分母为额定值。电压额定值 Ue：3 相 4 线 Ue 为相电压，菜单中设置的 400V 的仪表为 220V*PT，100V 的仪表为 57V*PT。电流额定值 Ie：5A 的仪表为 5A*CT，1A 的仪表为 1A*CT。

不平衡度下设置的参数为百分比格式，如设置为 20 表示 20%。

3.Unbalance calculation

(Difference between maximum deviation from the mean value and mean value)/mean value *100%,if the mean value of denominator is less than the rated value, the denominator is rated value; voltage rated value Ue; 3 phase 4 wire Ue as the phase voltage, menu setting 400V instrument as 220V*PT, 100V instrument as 57V*PT.Current rated value Ie: 5A instrument as 5A*CT, 1A instrument as 1A*CT.

Unbalance set parameter in percentage, e.g. 20 means 20%

4.5 编程示例 Programming example

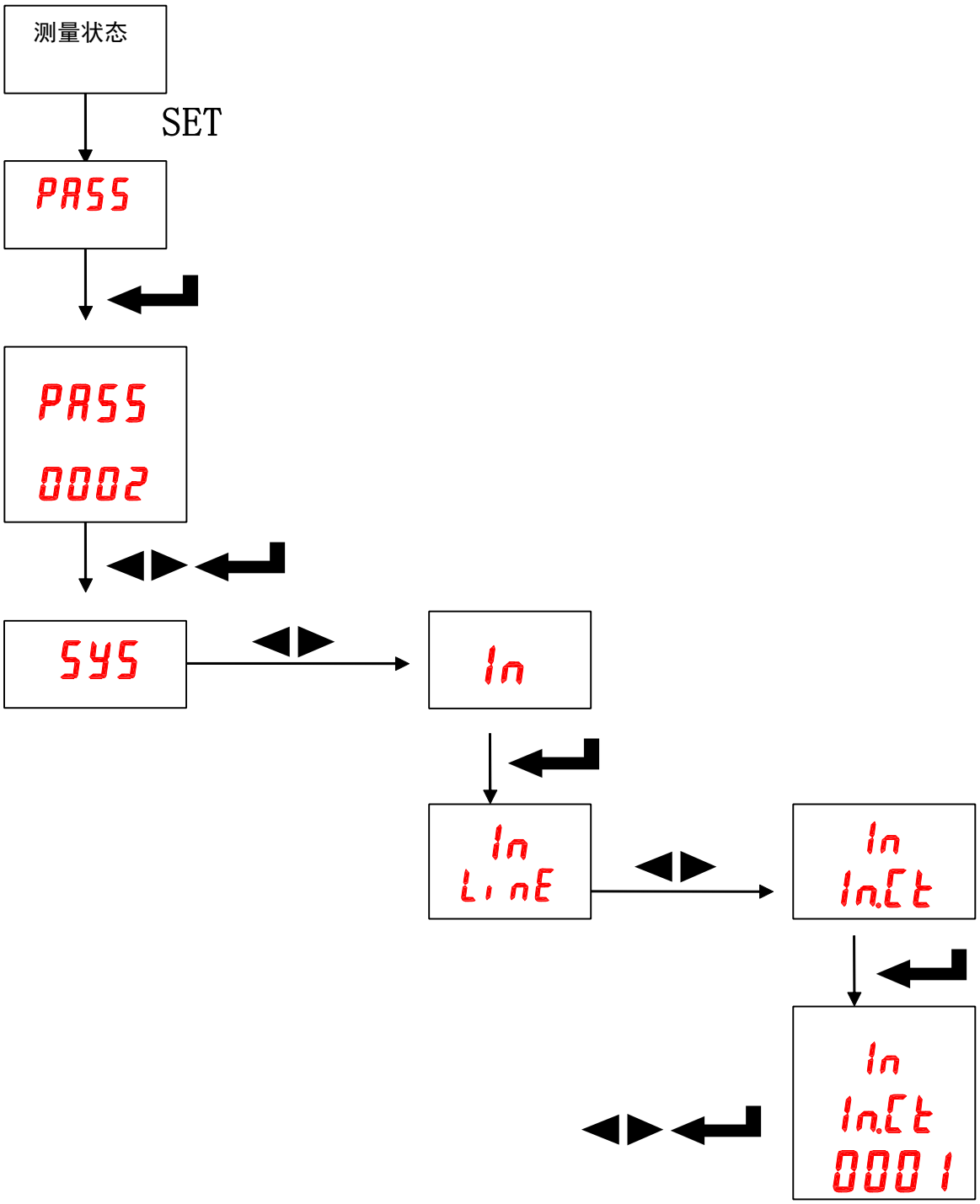
编程示例以流程图的形式介绍改变编程菜单中的某些选项，如电流倍数、变送设置等。

The programming example use flow chart to introduce how to change some options of programming menu such as current times, transducer setting etc.

注：在设置或选择完成后，需按回车键进行确认，确认完成后连续点按 SET 键直到出现 SAVE/YES 页面，此时必须按回车键确认，否则设置无效。

Note: After completing setting or selecting, press ENTER button to confirm, after confirming, pressing SET key until SAVE/YES page appear, now, the ENTER button must be pressed to confirm, otherwise, the setting is invalid.

4.5.1 如何修改电流倍数 How to revise the current times

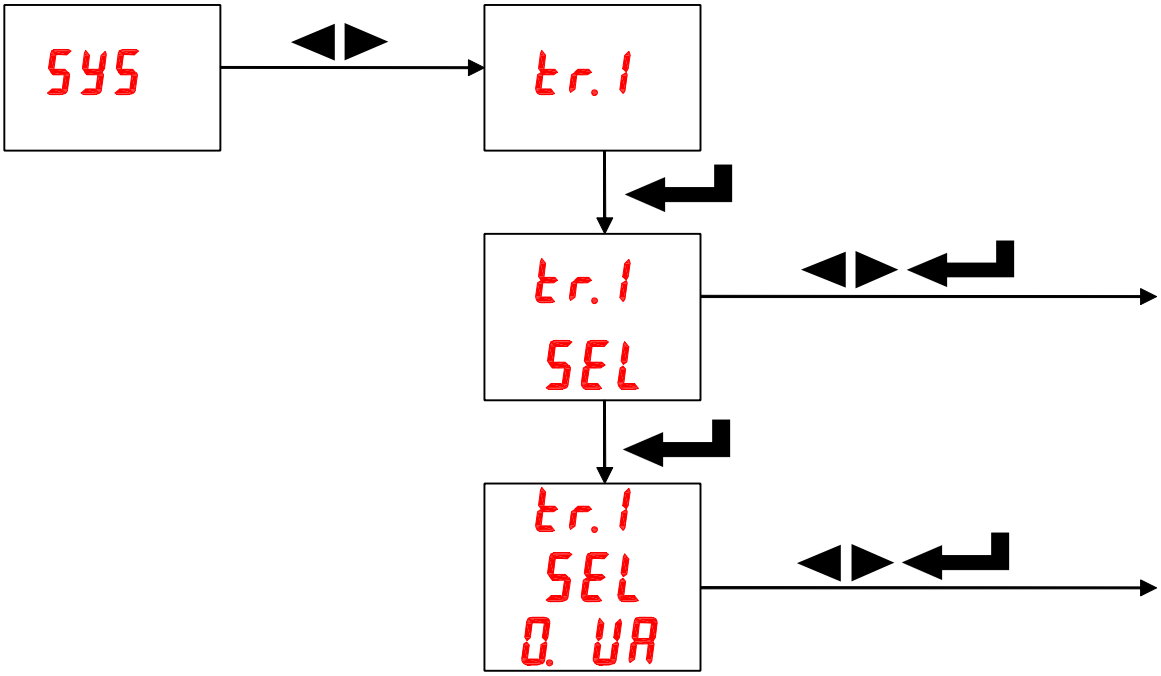


4.5.2 如何修改变送设置 How to revise transmitting setting

模拟变送输出可选择将电网中常见的 26 个电量（UA、UB、UC、UAB、UBC、UCA、IA、IB、IC、PA、PB、PC、P 总、QA、QB、QC、Q 总、PFA、PFB、PFC、PF 总、SA、SB、SC、S 总、F）隔离变送输出为 0～20mA 或 4～20mA 的直流信号。

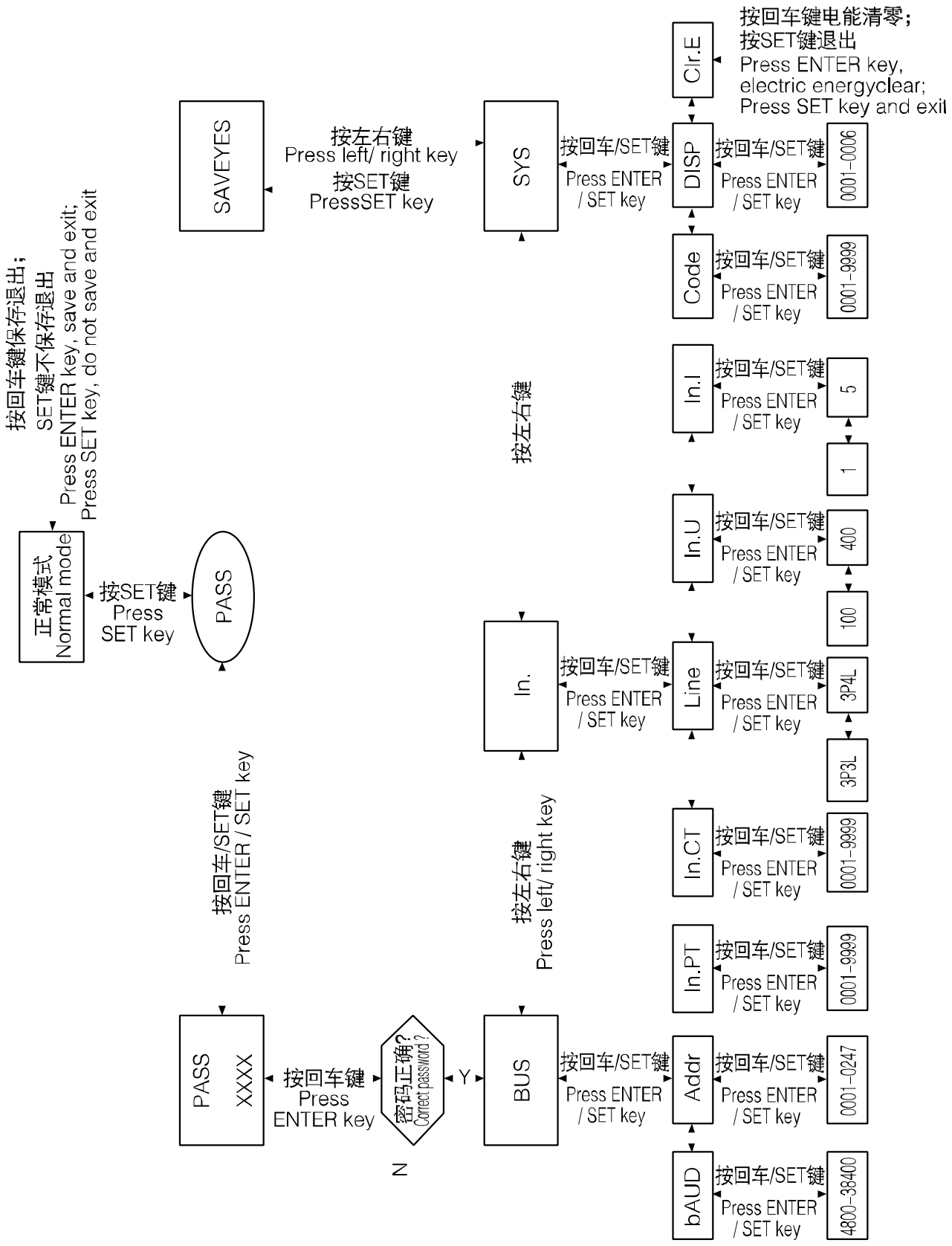
Analog transmitting output can select any of 26 electric parameters from grid (UA. UB. UC. UAB.

UBC. UCA. IA. IB. IC. PA. PB. PC. P total. QA. QB. QC. Q total. PFA. PFB. PFC. PF total . SA. SB. SC. S total. F) and isolate transmitting output as DC signal of 0-20mA or 4-20mA.



tr.1	第一路变送 First channel transmitting
SEL	00 01 02 03 04 05 06 07 UA UB UC UAB UBC UCA IA IB 08 09 10 11 12 13 14 15 IC PA PB PC P 总 QA QB QC 16 17 18 19 20 21 22 23 Q 总 SA SB SC S 总 PFA PFB PFC 24 25 PF F
tYPE	4～20mA 或 0～20mA
Ao.Hi	20mA 输出与电量的显示值相对应，取最高四位整数（小数点忽略）不足补 0。如输入为 220V，100A/5A，三相三线，则 220kV×100A×$\sqrt{3}$=38.10kW；如 100%总功率时输出 20mA（SEL 选 12.tP），“Ao.Hi”可取 38.10；100%AB 相线电压时输出 20mA（SEL 选 3.UAB），“Ao.Hi”可取 381.0；100%A 相电流时输出 20mA（SEL 选 6. IA），“Ao.Hi”可取 100.0 20mA output is corresponding with electric parameter display value:if input is 220V,100A/5A,3-phase-3-wire,then 100% P total is 220V×100A×$\sqrt{3}$=38.10kW, display value is 38.10kW, and analog output setting of other electric parameters is similar;
Ao.Lo	类似 Ao.Hi Similar to Ao.Hi

4.5.3 编程设置流程图 Programming set flow chart



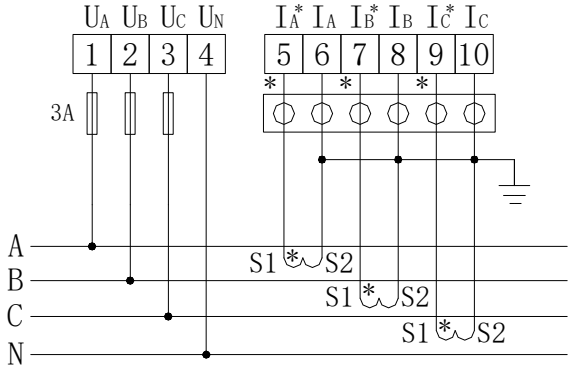
5. 产品接线方法 Wiring method

（注：如与仪表壳体上接线图不一致，以仪表壳体上接线图为准）

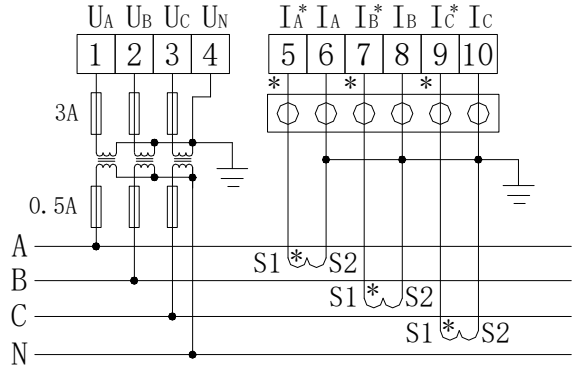
(Note：if it is different from the Wiring diagram on the meters cabinet, follows the Wiring diagram on the meters cabinet)

根据不同的设计要求，推荐在电源、电压输入端子增加保险丝以满足相关电气规范的安全性要求。

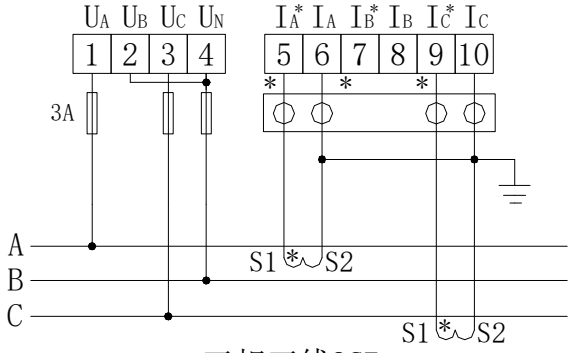
According to varied design requirements, power and voltage input terminals are recommended with fuse to meet with the safety performance requirements of prevailing electric codes.



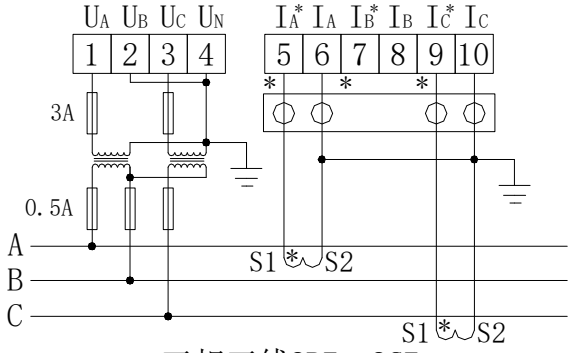
三相四线3CT



三相四线3PT、3CT

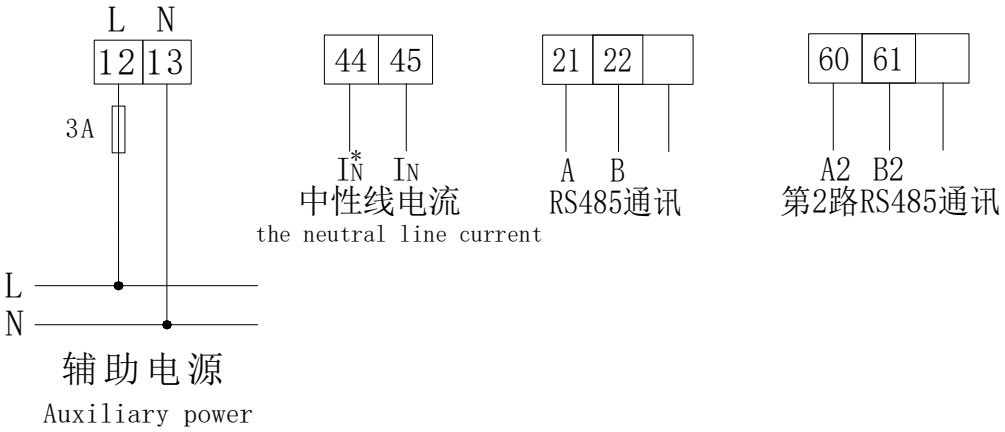


三相三线2CT



三相三线2PT、2CT

注：○ ○ ○ ○ ○ ○ 为用于CT二次侧短接的试验端子



6 通讯地址表 communication address table

地址 Address	参数 Parameter	读写属性 Read or write	数值范围 Value range	数据类型 Data type
0000H	保护密码 Protective password	R/W	0001-9999	Word
0001H 高字节 0001H high byte	通讯地址 Communication address	R/W	0001-0247	Word
0001H 低字节 0001H low byte	通讯波特率 Communication baud rate	R/W	0-3: 38400、 19200s 9600、 4800bps	
0002H	控制字 Control word	R/W	第 8 位-接线方式(0-三相四线、1-三相三线） 第 7 位-输入电压范围(0-400V、1-100V) 第 2 位-输入电流范围(0-5A、1-1A) 8th bit-Connection mode (0-three-phase four wire, 1-three-phase three wire) 7th bit-input voltage range (0-400V.1-100V) Second bit-Input current range(0-5A, 1-1A)	Word
0003H	PT 变比 PT transformation ratio	R/W	1-9999	Word
0004H	CT 变比 CT transformation ratio	R/W	1-9999	Word
0005H-0010H	保留 Reserved			Word
0011H 高字节 0011H high byte	背光控制 Backlight control	R/W	仅适用 LCD 显示仪表 0 为常亮 Only applied to LCD Display meters 0= lights	Word
0011H 低字节 0011H low byte	保留 Reserved	R/W		
0012H-001DH	Rt-1~Rt-4 八个时段参数设置 Rt-1 ~Rt-8 8 - period of time Parameter setting	R/W	每个时段占用三个字节 Each - period of time occupy 3 byte	Word
001EH-001FH	日期时间设置 Data time setting	R/W	年、月、日、时、分、秒 Year、month、day、hour、minute、second	Word
0021H 高字节 0021H high byte	自动抄表日期 Automatic meter reading date	R/W	月、日 Months day	Word
0021H 低字节 0021H low byte	当前时间费率	R/W	1-尖、2-峰、3-平、4-谷 1-spike、2-peak、3-flat、4-valley	Word
0022H	开关量输入输出状态 Switching Input output condition	R/W	见 6.3.1 See 6.3.1	Word
0023H 高字节 0023H high byte	小数点 U(DPT) Decimal point U(DPT)	R	3～7	Word
0023H 低字节 0023H low byte	小数点 I(DCT) Decimal point I(DCT)	R	1～5	Word
0024H 高字节 0024H high byte	小数点 PQ(DPQ) Decimal point PQ(DPQ)	R	4～10	Word

0024H 低字节 0024H low byte	符号 PQ Symbol PQ	R	高位-低位:Q、Qc、Qb、 Qa、P、Pc、Pb、 Pa;0 为正,1 为负 High bit-low bit:Q, Qc, Qb, Qa, P, Pc, Pb, Pa;0= positive, 1= negative	Word
0025H	相电压 UA Phase voltage UA	R	0-9999	Word
0026H	相电压 UB Phase voltage UB	R	0-9999	Word
0027H	相电压 UC Phase voltage UC	R	0-9999	Word
0028H	线电压 UAB Line voltage UA 巳	R	0-9999	Word
0029H	线电压 UBC Line voltage UBC	R	0-9999	Word
002AH	线电压 U C A Line voltage UCA	R	0-9999	Word
002BH	IA	R	0-9999	Word
002CH	IB	R	0-9999	Word
002DH	IC	R	0-9999	Word
002EH	PA	R	0-9999	Word
002FH	PB	R	0-9999	Word
0030H	PC	R	0-9999	Word
0031H	P 总 P total	R	0-9999	Word
0032H	QA	R	0-9999	Word
0033H	QB	R	0-9999	Word
0034H	QC	R	0-9999	Word
0035H	Q 总 Q total	R	0-9999	Word
0036H	PFA	R	0-9999	Word

0037H	PFB	R	0-9999	Word
0038H	PFC	R	0-9999	Word
0039H	PF 总 PF total	R	0-9999	Word
003AH	SA	R	0-9999	Word
003BH	SB	R	0-9999	Word
003CH	SC	R	0-9999	Word
003DH	S 总 S total	R	0-9999	Word
003EH	频率 F Frequency F	R	4500-6500	Word

以下为电能地址表 Electric energy address table

003FH-0040H	吸收有功电能二次侧(Wh) Capture active Electric energy secondary side	R/W	0～999999999	Long
0041H-0042H	释放有功电能二次侧(Wh) Release active Electric energy secondary side	R/W		
0043H-0044H	感性无功电能二次侧(Varh) Inductive reactive Electric energy secondary side	R/W		
0045H-0046H	容性无功电能二次侧(Varh) Capacitive reactive Electric energy secondary side	R/W		
0047H-0048H	吸收有功电能侧一次侧(Wh) Capture active Electric energy primary side	R	0～999999999*PT*CT	Float
0049H-004AH	释放有功电能一次侧(Wh) Release active Electric energy primary side	R		
004BH~004CH	感性无功电能一次侧(Varh) Inductive reactive Electric energy primary side	R		
004DH-004EH	容性无功电能一次侧(Varh) Capacitive reactive Electric energy primary side	R		

以下部分为 ACRxxxEFL 带复费率电能计匿的补充地址表，所有电能均为二次侧电能

Follows are ACRxxxEFL complementary address table fitted with multi-rate electric energy measurement, all Electric energy are secondary side Electric energy

004FH	最大需置 Maximum demand	R	0-9999	Word
0050H-0051H	最大需量发生时间 Maximum demand occur time	R	月、日、时、分 Months 、day、hour、minute	Long

地址 Address	参数 Parameter	读写属性 Read or write	数值范围 Value rang	数据类型 Data type
0052H~0053H	总有功电能二次侧 Total active Electric energy secondary side	R/W	0-999999999	Long
0054H-0055H	总尖有功电能二次侧 Total spike active Electric energy secondary side	R/W	0-999999999	Long
0056H-0057H	总峰有功电能二次侧 T otal peak active Electric energy secondary side	R/W	0-999999999	Long
0058H-0059H	总平有功电能二次侧 Total flat active Electric energy secondary side	R/W	0-999999999	Long
005AH-005BH	总谷有功电能二次侧 Total valley active Electric energy secondary side	R/W	0-999999999	Long
005CH	所要查询电能的时间 Enquiring Electric energy time	R	年、月 Year、month	Word
005DH～005EH	所查询月总有功电能 Enquiring month total active Electric energy	R/W	0-999999999	Long
005FH-0060H	所查询月尖有功电能 Enquiring month spike active Electric energy	R/W	0-999999999	Long
0061H-0062H	所查询月峰有功电能 Enquiring month peak active Electric energy	R/W	0-999999999	Long
0063H-0064H	所查询月平有功电能 Enquiring month flat active Electric energy	R/W	0-999999999	Long
0065H-0066H	所查询月谷有功电能 Enquiring month valley active Efectric energy	R/W	0-999999999	Long
0067H	当前时间 Current time	R	年、月 year、month	Word
0068H-0069H	当前月总有功电能 Current month total active Electric energy	R/W	0-999999999	Long

006AH-006BH	当前月尖有功电能 Current month spike active Electric energy	R/W	0-999999999	Long
006CH-006DH	当前月峰有功电能 Current month peak active Electric energy	R/W	0-999999999	Long
006EH-006FH	当前月平有功电能 Current month flat active Electric energy	R/W	0-999999999	Long
0070H-0071H	当前月谷有功电能 Current month valley active Electric energy	R/W	0-999999999	Long

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