

CPM3310 智能电力测控仪 Critical Power Meter

一、概述 General

CPM3310 智能电力测控仪可测量单相和三相电网的全部电参数 Critical Power Meter CPM3310, measures all the electric quantities of single- and three- phase electric network:

- ◇ 各相相电流、平均相电流; Phase current, average phase current
- ◇ 各相相(线)电压、平均相(线)电压; Phase(line) voltage, average phase(line) voltage
- ◇ 频率; Frequency
- ◇ 各相有功功率、总有功功率; Phase active power, total active power
- ◇ 各相无功功率、总无功功率; Phase reactive power, total reactive power
- ◇ 各相视在功率、总视在功率; Phase apparent power, total apparent power
- ◇ 各相功率因数、总功率因数; Phase power factor, average power factor
- ◇ 某一时间段的各相电流、总有功功率、总无功功率、总视在功率最大值; Phase current, total active power, total reactive power, total apparent power maximum at certain duration
- ◇ 某一时间段的各相电流、电压谐波分量; Phase current, voltage harmonics at certain duration
- ◇ 正、负有功电能; 正、负无功电能; Import/export active(reactive) energy
- ◇ 尖、峰、平、谷时段有功电能; 尖、峰、平、谷四时段的当前、上次、上上次有功电能; 本月、上月、上上月有功电能。本月、上月、上上月尖峰平谷四时段电能。
- ◇ The active energy of sharp, peak, level and valley period time; The active energy of sharp, peak, level and valley period time of current time, the last time and the time before last time; The active energy of present month, last month and the month before last. The active energy of sharp, peak, level and valley period time of present month, last month and the month before last.
- ◇ SOE 事件记录 SOE event record: 可记录最近 32 条开关量输入、输出状态变化、发生时间及发生时刻的电压、电流、频率瞬时测量值。Record up to 32 events including the state of DI and DO, occurrence time, instantaneous measurement value of voltage, current and frequency when the DI, DO trigger.
- ◇ YM-B5 模块配合 CPM3310 使用, 主要功能有六路遥信输入、两路继电器输出, 可监控开关状态及故障报警。
YM-B5 module which has 6 DI and 2DO should be used with CPM3310 to achieve switch state monitoring and fault alarming.



二、技术参数 Specifications

- 主机尺寸 Host dimension: 96 mm×96 mm×61mm 模块尺寸 Module dimension: 88 mm×58 mm×26.5mm
- 开孔尺寸 Trepanning dimension: 92 mm×92 mm
- 测量 Measurement: 适用于 3 相 4 线(平衡或非平衡), 3 相 3 线(平衡或非平衡), 1 相 3 线, 单相电网
3P4W(balanced & unbalanced loads); 3P3W(balanced & unbalanced loads); 1P3W; Single-phase network
- 电压 (真有效值) Voltage (Real effective value): 30~600V(线电压 Line voltage); 20~400V(相电压 Phase voltage)
PT 变比 PT Ratio: 1~50000; 输入功耗 Input power consumption: ≤0.25VA (220V) ; ≤0.60VA (600V)
连续过载 Continuous overload: 800V
- 电流(真有效值) Current (Real effective value): 0~6A 最小可测量电流 Min. measurable current: 5mA
CT 变比 CT transformation ratio(programmable): 1~50000; 输入功耗 Input power consumption: 0.2VA
连续过载 Continuous overload: 10A 冲击过载 Concussive overload: 100A/1s
- 功率 Power: 单相功率 Single-phase power: 0~2400W/var/VA; 总功率 Total power: 0~7200W/var/VA
- 频率 Frequency: 50/60Hz
- 功率因数 Power factor: -1~1
- 谐波测量 Measurement harmonic: 电压 Voltage THD: 3~37 次谐波含量 The content of 3rd~37th harmonic
电流 Current THD: 3~37 次谐波含量 The content of 3rd~37th harmonic
- 显示背光 Display backlight: 背光点亮时间 1~59999s 可设, 设置为 0 时背光常亮, 出厂默认为 120s。The time of backlight can be set from 1 to 59999s."0" indicates lighting on and the default value is 120s.
- 辅助电源 Auxiliary power: ①AC85V~265V or DC85V~330V; ②DC18V~90V(可选 Optional); 功耗 Power consumption: ≤5VA
- 测量精度 Measurement accuracy: 电流 Current: 0.5%(0.5~6A)
相电压 Phase voltage: 0.5%(20~400V) 线电压 Line voltage: 0.5%(30~600V)
功率 Power: 1.0% 功率因数 Power Factor: 1.0%
频率 Frequency: 0.1%(50/60Hz) 电能 Energy: 1.0%(0.5L/0.5C)
- 绝缘强度 Insulation resistance: 电压/电流/电源/外壳间 Voltage/current/power supply/shell: 2.0kV/min·2mA
输出/电源间 Output/power supply: 2.0kV/min·2mA
- 工作条件 Operating conditions: 工作温度 Operating-temp. range: -15~55℃ 储存温度 Storage temp. range: -25~75℃
相对湿度 Relative humidity: 20~95%RH 无凝露 without condensation

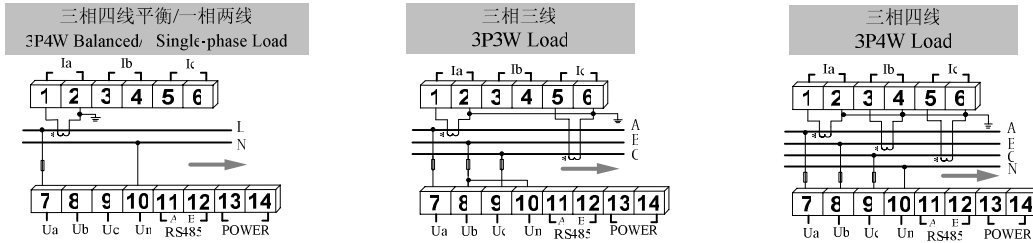
● **电磁兼容 Electromagnetic compatibility**

1.2/50-8/20us 浪涌 Immunity to 1.2/50-8/20us Surge: 电源 Power supply: 4kV; I/O: 2kV
 快速瞬变脉冲串 Immunity to electrical fast transient/burst: 电源 Power supply: 4kV,2.5kHz; I/O: 2kV, 5kHz
 静电放电 Immunity to electrostatic discharge: 接触放电 Contact discharge: 6kV; 气隙放电 Air discharge: 8kV

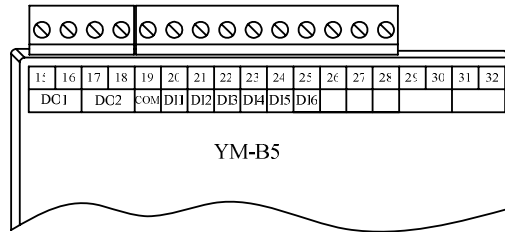
● **通讯 Communication Interface:** 接口 Port: RS-485; 地址 Address: 1~247

波特率 Baud ratio: 1200/2400/4800/9600/19200; 校验位 Parity bit: 无 null
 数据位 Data bit: 8bits 停止位 Stop bit: 1bits; 通讯协议 Communication protocol: Modbus RTU

三、接线与安装 Wiring and Installation



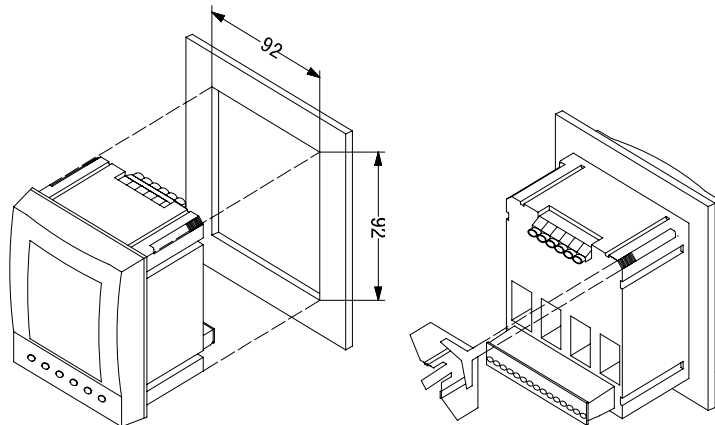
YM-B5 接线图 Wiring diagram



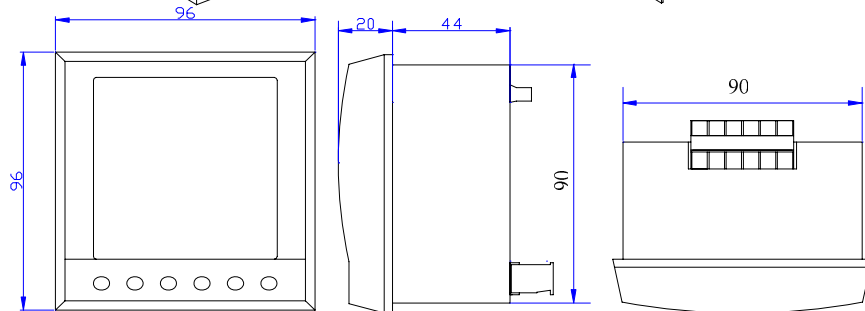
注 Note: 安装时电压输入回路和辅助电源 (POWER) 必须接入大小约 0.5A 的保险丝。A 0.5 Amp fuse has to be equipped with the input circuit and auxiliary power for safety protection

◇ **外形尺寸 Dimension**

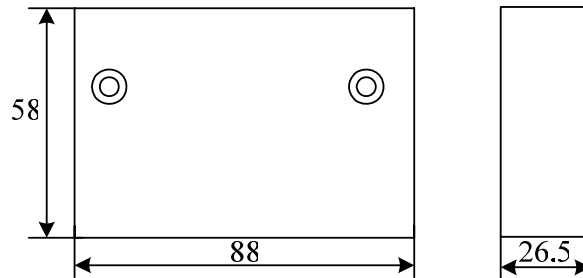
产品安装图
Installing diagram:
(单位 unit: mm)



主机外形尺寸
Dimension of the
master:
(单位 unit: mm)



扩展模块尺寸
Dimension of
extension module
(单位 unit: mm)



◇ 现场安装 On-site installation

仪表在初次安装时应作好以下工作,以保证维护尽可能方便。When the meter is first installed, several rules shall be complied with:

- 1、应提供一个 CT 短接盒,这样使仪表在维护或校准拆下后电流的输入不连接时,不会使 CT 开路。Please introduce a CT switch box to prevent open circuit when the input current of the meter is not connected.
- 2、电压输入回路和辅助电源必须接入合适的保险丝。An adequate fuse has to be equipped with the input circuit and auxiliary power
- 3、电气连接线要求:电流输入线用 2.5 mm² 多股阻燃铜线,电压输入线、电源线用 1.5 mm² 多股阻燃铜线,RS485 通讯用 1.0 mm² 屏蔽双绞线。2.5 sq.mm stranded fire-resistant copper core wire should be adopted for current input; 1.5 sq.mm stranded fire-resistant copper core wire should be adopted for voltage input and power supply; 1.0 sq.mm STP (Shielded Twisted Pair) should be adopted for RS-485 communication.

四、操作 Operation

显示模式按键功能 Displaying measuring quantities

- ◇ 按“P”键多次,分别显示三相电流和平均电流、电流需量、电流基波值、电流总畸变率。Press [I] once to display 3-phase current and average current; current demand, current fundamental wave value, current total distortion ratio.
- ◇ 按“U”键多次,分别显示三相相电压和平均相电压、三相线电压和平均线电压、电压基波值、电压总畸变率; Press [U] once to display 3-phase phase voltage, average phase voltage, 3-phase line voltage, average voltage, voltage fundamental wave value, voltage total distortion ratio.
- ◇ 按“P/PF”键多次,分别显示三相的有功功率和总有功功率、三相的无功功率和总无功功率、三相的视在功率和总视在功率; Press [P/PF] to display every 3-phase active and total active power, 3-phase reactive and total reactive power, 3-phase apparent total power.
- ◇ 按“F/N1”键,切换到测量参数的子菜单(如在电流电压画面下的合相值切换到显示频率值,画面在总畸变率切换到各次谐波含有率)。Press "F/N1" button, switch to the sub-menu of measured parameters (such as in a combined current and voltage phase values under the screen to switch to display the frequency value, the total distortion of the screen to switch to all the harmonics rate)
- ◇ 按“N2”键,切换到时间和电能数据的子菜单(如日期画面切换至时间画面)。Press "N2" button, switch to the sub-menu of time and energy data (such as the date switches to the time)
- ◇ 按“E/T”键,分别在时间和电能数据的主菜单间切换。Press "E / T" button, then switch separately the time and energy data menu.

注 Note:

Σ+表示正向有功/无功电能	Σ+ is forward active / reactive energy
Σ-表示负向有功/无功电能	Σ- is reverse active / reactive energy
L1表示 A 相有功电能	L1 is phase A active energy
L2表示 B 相有功电能	L2 is phase B active energy
L3表示 C 相有功电能	L3 is phase C active energy
HI 表示峰时段有功电能	HI is the active energy of peak period time
H0表示当前峰时段有功电能	H0 is the active energy of peak period time of current time
H1表示上次峰时段有功电能	H1 is the active energy of peak period time of the last time
H2表示上上次峰时段有功电能	H2 is the active energy of peak period time of the time before last
H (本月峰时段有功电能)	H is the active energy of peak period time of current month
H- (上月峰时段有功电能)	H- is the active energy of peak period time of last month
H' (上上月峰时段有功电能)	H' is the active energy of peak period time of the month before last
MI 表示平时段有功电能	MI is the active energy of level period time
M0表示当前平时段有功电能	M0 is the active energy of level period time of current time
M1表示上次平时段有功电能	M1 is the active energy of level period time of the last time
M2表示上上次平时段有功电能	M2 is the active energy of level period time of the time before last

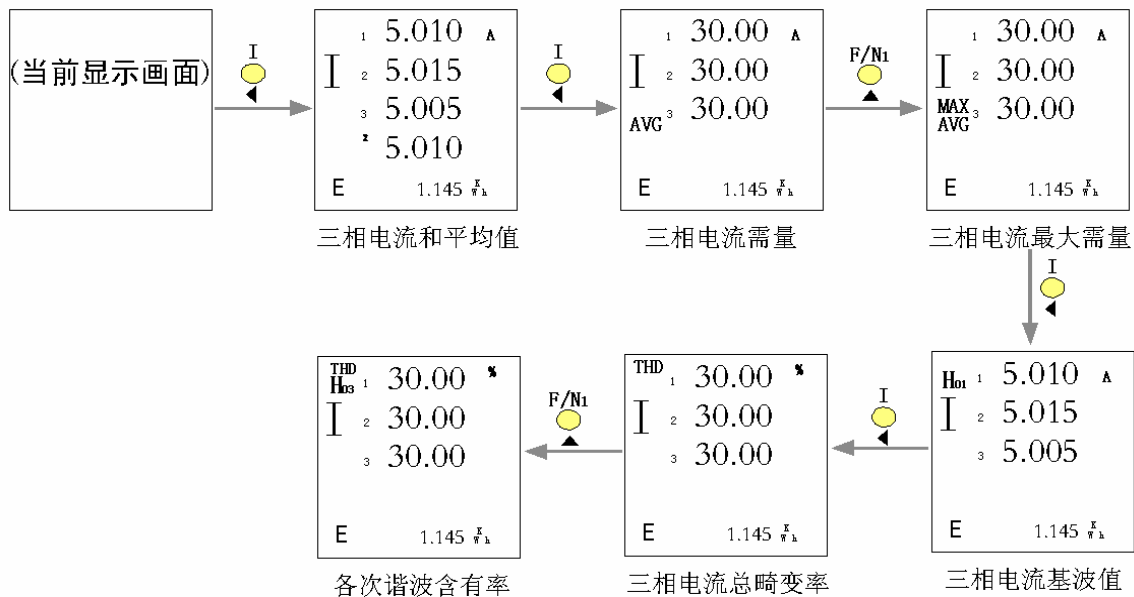
<p>M.(本月平时段有功电能)</p> <p>M-(上月平时段有功电能)</p> <p>M'(上上月平时段有功电能)</p> <p>Lo 表示谷时段有功电能</p> <p>L0表示当前谷时段有功电能</p> <p>L1表示上次谷时段有功电能</p> <p>L2表示上上次谷时段有功电能</p> <p>L.(本月谷时段有功电能)</p> <p>L-(上月谷时段有功电能)</p> <p>L'(上上月谷时段有功电能)</p> <p>To 表示尖时段有功电能</p> <p>T0表示当前的尖时段有功电能</p> <p>T1表示上次的尖时段有功电能</p> <p>T2表示上上次的尖时段有功电能</p> <p>T.(本月尖时段有功电能)</p> <p>T-(上月尖时段有功电能)</p> <p>T'(上上月尖时段有功电能)</p> <p>b0表示本月有功电能</p> <p>b1表示上月有功电能</p> <p>b2表示上上月有功电能</p>	<p>M. is the active energy of level period time of current month</p> <p>M- is the active energy of level period time of last month</p> <p>M' is the active energy of level period time of the month before last</p> <p>Lo is the active energy of valley period time</p> <p>L0 is the active energy of valley period time of current time</p> <p>L1 is the active energy of valley period time of the last time</p> <p>L2 is the active energy of valley period time of the time before last time</p> <p>L. is the active energy of valley period time of current month</p> <p>L- is the active energy of valley period time of last month</p> <p>L' is the active energy of valley period time of the month before last</p> <p>To is the active energy of sharp period time</p> <p>T0 is the active energy of sharp period time of current time</p> <p>T1 is the active energy of sharp period time of the last time</p> <p>T2 is the active energy of sharp period time of the time before last time</p> <p>T. is the active energy of sharp period time of current month</p> <p>T- is the active energy of sharp period time of last month</p> <p>T' is the active energy of sharp period time of the month before last</p> <p>b0 is the active energy of this month</p> <p>b1 is the active energy of the last month</p> <p>b2 is the active energy of the month before last</p>
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编程模式下按键功能 The keys function in the programming mode

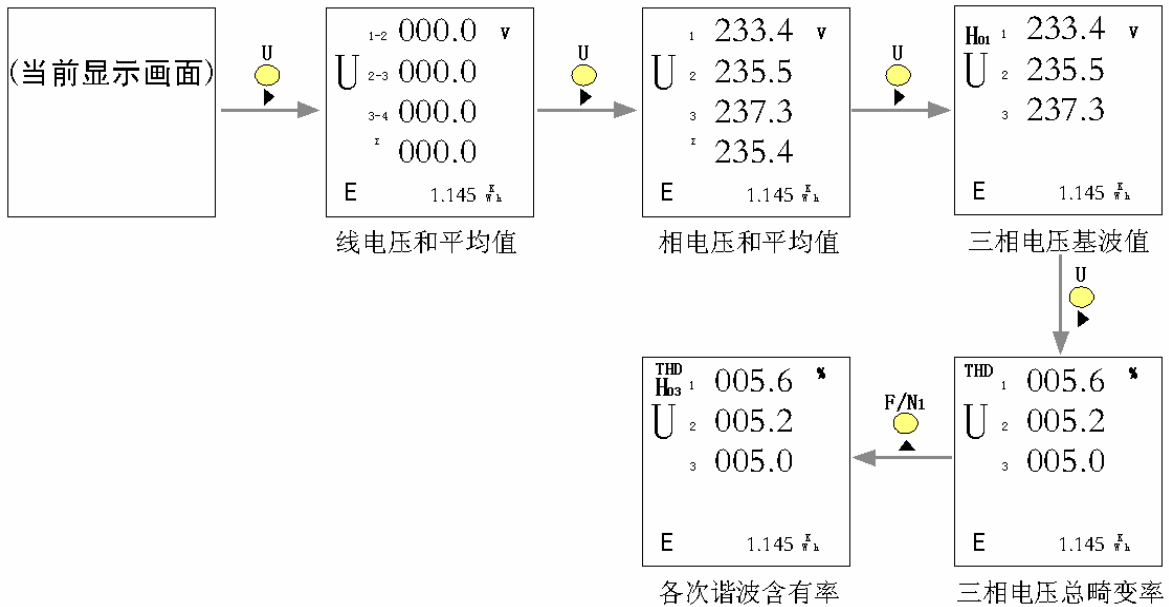
- ◀: 设置菜单中, 由子菜返回上一级菜单; 有光标, 光标左移按键 In the setting menu, the sub-menu returns to previous menu; Cursor appears, press it to left.
- ▶: 设置菜单中, 由主菜单进入下一级菜单; 无光标, 出现光标; 有光标, 光标右移按键 In the setting menu, enter the submenu from the main menu, no cursor, then press the key and cursor appears, press it to right.
- ▼: 设置菜单中移至选择菜单相邻的下一个项目或键入数值时作为递减的功能。Down key from the setting menu to sub-menu.
- ▲: 设置菜单中移至选择菜单相邻的上一个项目或键入数值时作为递增的功能。Up key from the setting menu to the sub menu.
- ↵: 确认功能(回车键)Confirmed key

PROG: 编程切换键 programming switch key

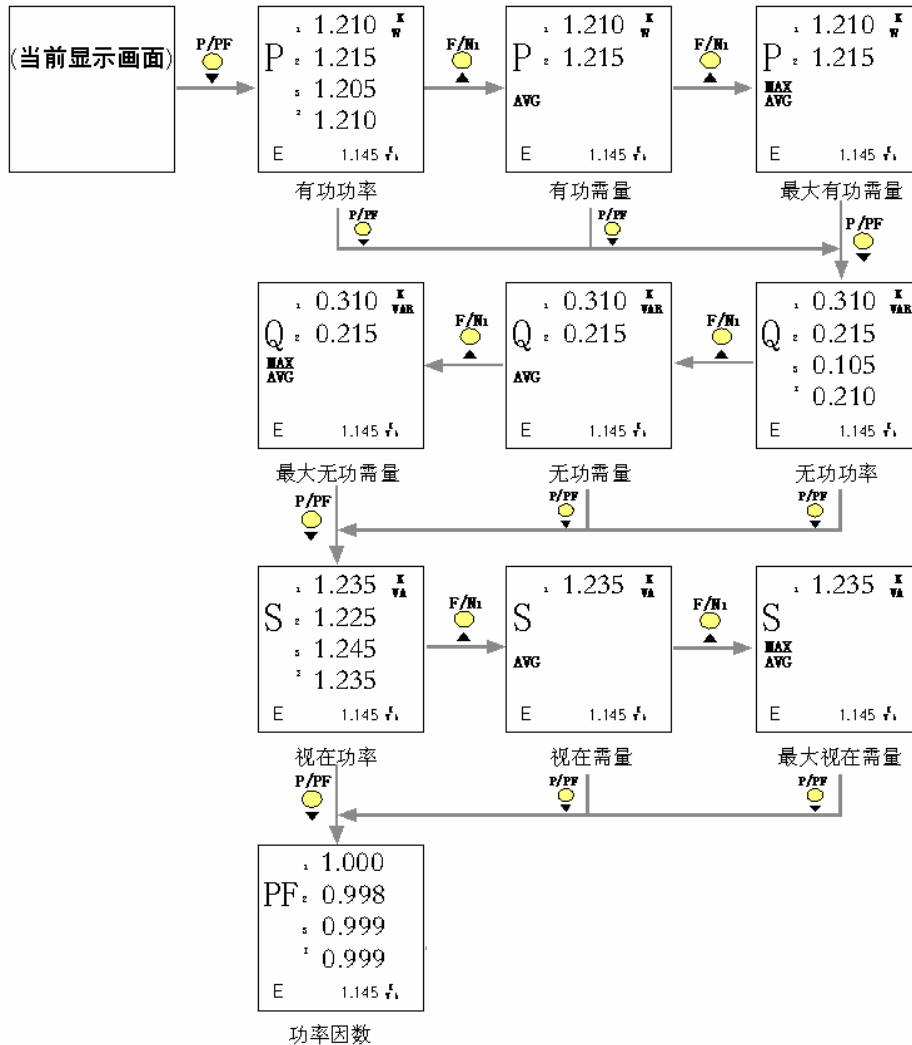
电流数据查询 data query of current



电压数据查询 data query of voltage

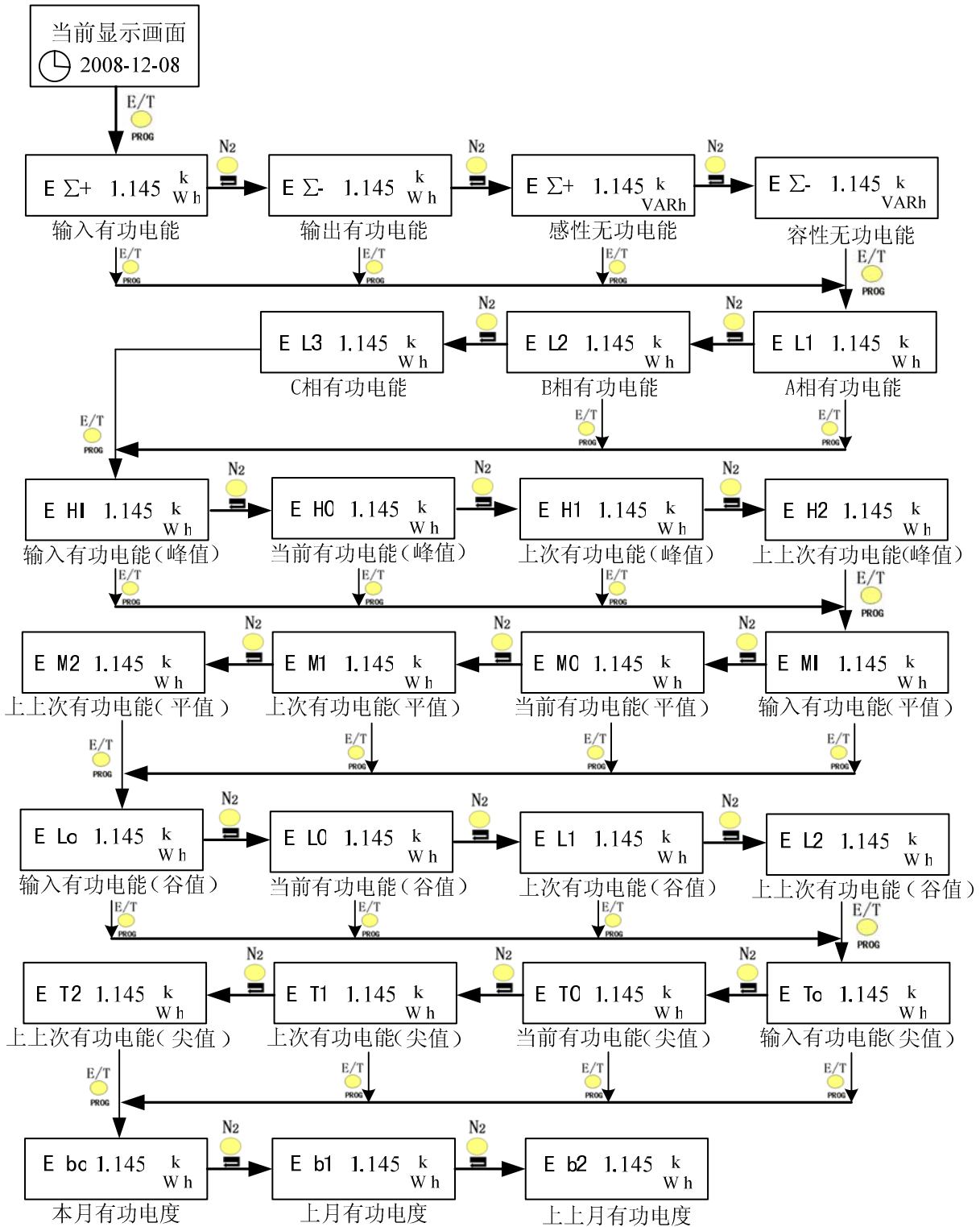


功率与功率因数数据查询 data query of power and power factor

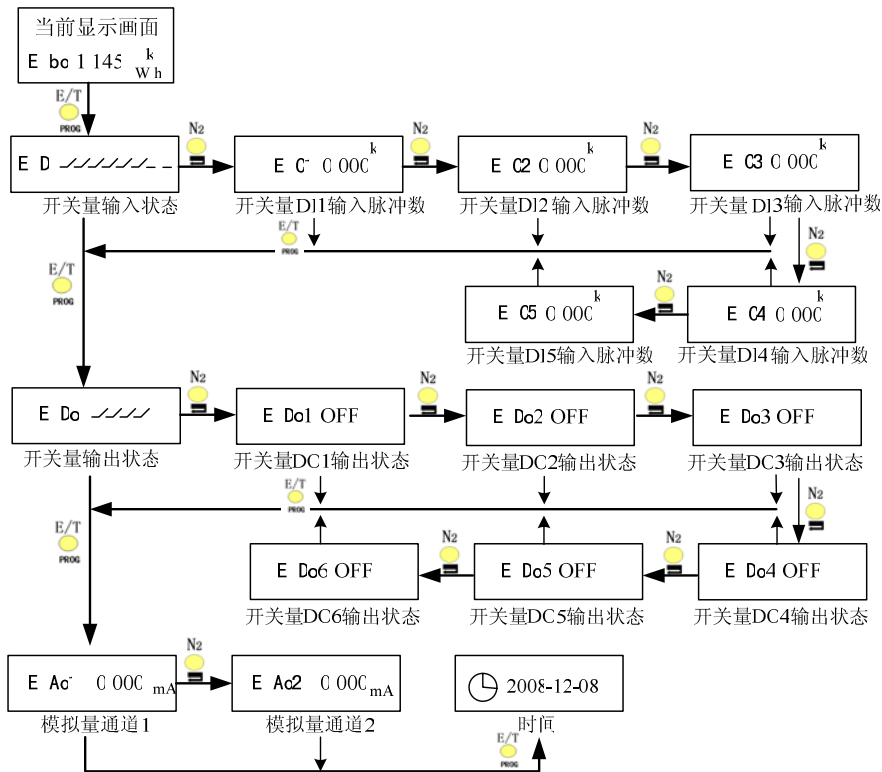


电能数据和扩展模块数据在一行，假设当前在“时间”界面。Data of electrical energy and the extension module are on the same line.

Suppose the current screen is "date".



开关量与模拟量 Switching value and analog value

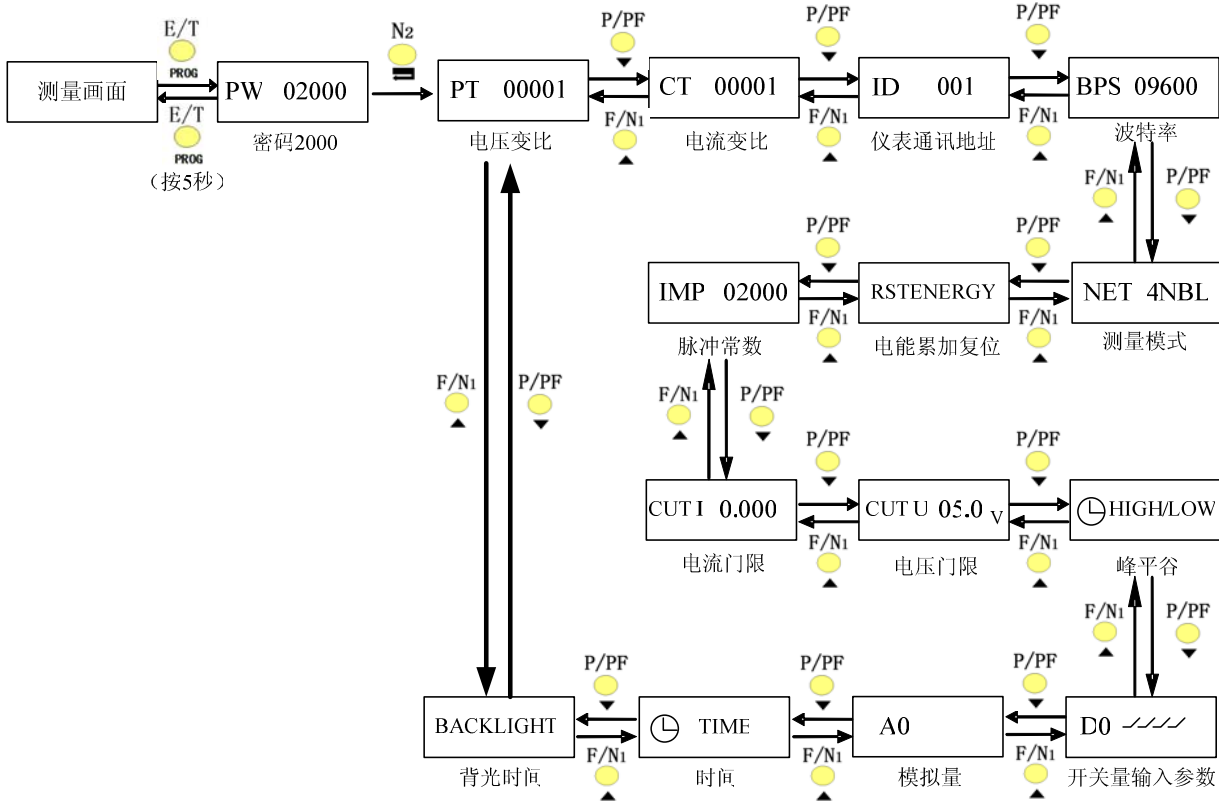


如何编程 Compiling program

◇ 进入、退出编程模式 Enter/quit compiling mode:

在显示模式下按“E/T”键 5 秒进入编程模式,在编程模式下按“E/T”键 5 秒退出设置模式。Press “E/T” five seconds to enter the compiling mode in the display status, press “E/T” five second to quit the compiling mode in the programming status.

进入编程模式后,在PW画面输入密码 02000,按“▲”或“▼”多次,依次进入“PT、CT、ID、BPS、NET、RSTENERGY、IMP、CUT.I、CUT.U、HIGH/LoW、DO、AO、TIME、BACKLIGHT”等菜单模式。When enter the programming mode, in the PW menu input the defaulted password 02000,Press ▲/▼ several times to enter modes [“PT、CT、ID、BPS、NET、RSTENERGY、IMP、CUT.I、CUT.U、HIGH/LoW、DO、AO、TIME、BACKLIGHT” and other menu.

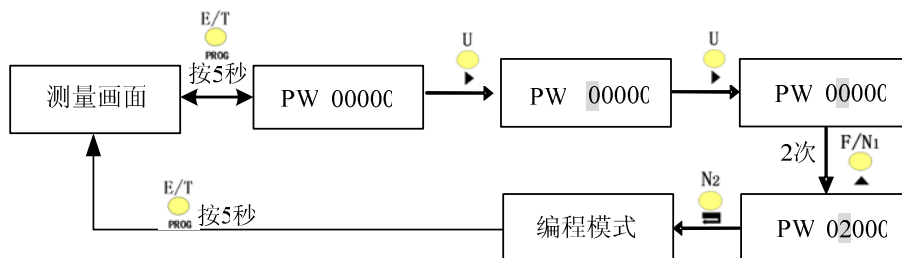


注 Note:

PT 表示电压变比，出厂默认值为“1”
 CT 表示电流变比，出厂默认值为“1”
 ID 表示本机地址，出厂默认值为“1”
 BPS 表示通讯波特率，出厂默认值为“9600”
 NET 表示网络线制，出厂默认值为“4NBL”
 RSTENERGY 表示电能累加复位，出厂默认值为“0”
 IMP 表示电能常数，出厂默认值为“2000”
 CUT.I 表示电流门限
 CUT.U 表示电压门限
 HIGH/LoW 表示尖时段、峰时段和谷时段等时间段设置
 DO 表示继电器参数设置
 AO 表示模拟量输出设置
 BACKLIGHT 表示背光时间，出厂默认值为“120”

[PT] (voltage transformation ratio)=1(defaulted)
 [CT] (current transformation ratio)=1(defaulted)
 [ID](local address)=1(defaulted)
 [BPS](communication baud ratio)=9600(defaulted)
 [NET](network & wire system)=4NBL(defaulted)
 [RSTENERGY](accumulative energy reset)=0(defaulted)
 [IMP] (energy constant)=2000(defaulted)
 [CUT.I](current threshold)
 [CUT.U](voltage threshold)
 [HIGH/LoW](time period set of sharp, peak, and valley)
 [DO](relay parameter set)
 [AO](analog output set)
 [BACKLIGHT](back light time)=120(defaulted)

◇ **进入编程模式流程**

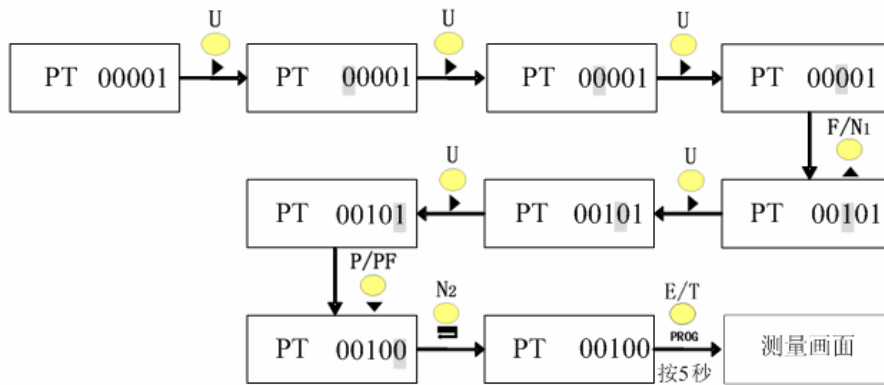


◇ **变比、地址设定、电能常数、背光时间 Setting transformation ratio and address, energy constant, backlight time (PT、CT、ID、IMP、BACKLIGHT)**

在 PT 模式下，按“▶”键一次，PT 左边一位数值闪动，再按“▶”一次，左第二位闪动.....再用“▲”和“▼”键进行变比数值设定，设定完成后按“◀”键确认。In [PT] mode, press [▶] once, and the figure on the left blinks; press [▶] one more time, the second figure on the left blinks, and so on. Press [▲]/[▼] to set transformation ratio, and press “[◀]” to confirm. CT、ID、

IMP、BACKLIGHT 设定与 PT 设定相同 Setting CT、ID、IMP、BACKLIGHT is the same as the above.

示例：“PT 变比”由当前的“1”更改为“100”，然后返回。For example: Modify the value of PT from one to one hundred.



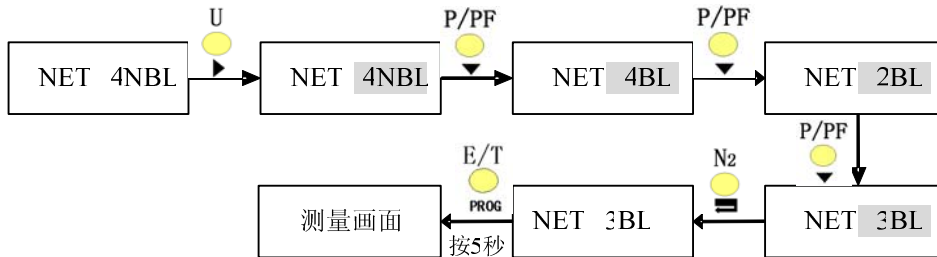
◇ **波特率设定 Setting communication baud ratio (BPS)**

在 BPS 模式下，按“▶”键一次，预置的 BPS 数值在闪动，按“▲”和“▼”在 1200, 2400, 4800, 9600, 19200 之间选择你所需要的数字，选定后按“◀”确认。In [bps] mode, press [▶] once, and the defaulted value of [BPS] blink. Press [▲]/[▼] to select the figures 1200, 2400, 4800, 9600 and 19200. Press [◀] to confirm.

◇ **线制设定 Setting network & wire system (NET)**

在 NET 模式下，按“▶”，预置的线制闪动，按“▲”和“▼”在 4NBL、4BL、2BL、3BL、3NBL、1BL 之间选择你所需的数值，选定后按“◀”确认。In [NET] mode, press [▶], and the defaulted value of [NET] blinks. Press [▲]/[▼] to select 4NBL, 2BL, 3BL, 3NBL and 1BL. Press [◀] to confirm.

示例：测量系统由当前的“4NBL”更改为“3BL”，并返回。For example: Modify the NET from 4NBL to 3BL.



注 Note:

- | | |
|------------------|------------------------------|
| 4NBL 表示三相四线不平衡系统 | 4NBL= 3P4W unbalanced system |
| 4BL 表示三相四线平衡系统 | 4BL=3P4W balanced system |
| 2BL 表示一相三线系统 | 2BL=1P3W system |
| 3BL 表示三相三线平衡系统 | 3BL =3P3W balanced system |
| 3NBL 表示三相三线不平衡系统 | 3NBL=3P3W unbalanced system |
| 1BL 表示单相系统 | 1BL=single-phase system |

◇ **复费率时段设置 (HIGH/LoW) Setting period of multi-rate**

在 HIGH/LoW 模式下，按“▶”键一次进入 HI-1（峰时段第 1 时间段）按“▲”和“▼”可选择 4 个峰时段，4 个谷时段设置，4 个尖时段设置，再按“▶”键一次进入时间设置，设置时间格式小时：分钟~小时：分钟，设置完成后“◀”确认。

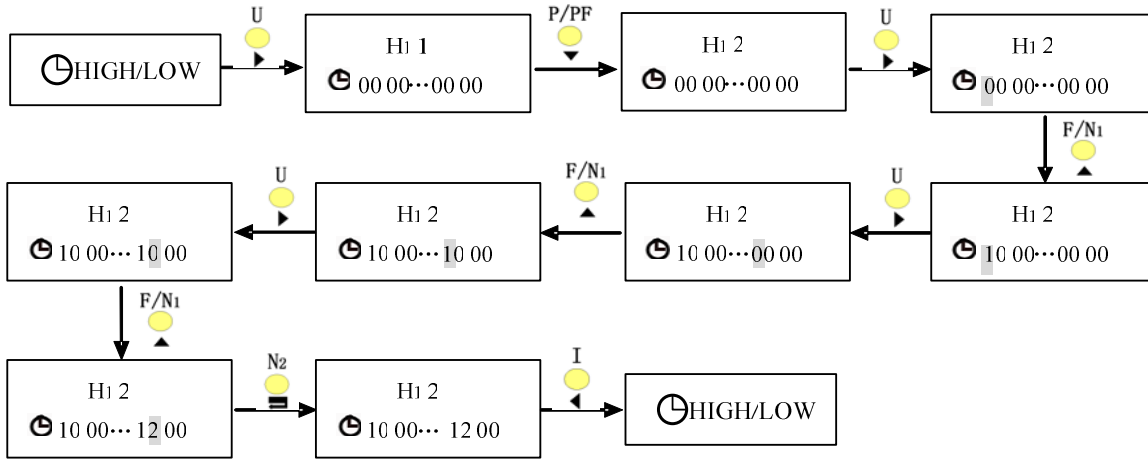
In the HIGH/LoW mode, press “▶” to enter the HI-1 (the first period of peak) setting menu. Then, press “▲” and “▼”to select from the four peak time consumption, four off-peak time consumption and four sharp time consumption. At last, press “▶” to enter time setting menu whose format is hour: minute ~ hour: minute.

注：时间段顺序是按尖、峰、谷、平（没有设置的时段为平时段）时段进行累加，当设定时段的时间相冲突时按尖峰谷平的顺序进行累加。

Note: the sequence of time consumption follows sharp, peak, off-peak and shoulder (the time consumption isn't set). If the time consumption clashes follow the sequence of sharp, peak, off-peak and shoulder.

示例：设置峰时段 2 为 10: 00-12: 00。

For example: Set the second peak time consumption to 10: 00 to 12: 00.



继电器设定 (DO) Setting DO

在 DO 模式下，按“▶”键一次，进入 DO1，按“▲”和“▼”在 DO1, DO2, DO3, DO4, 之间选择你所需要的继电器设置，选定后按“▶”键进入下一级菜单，这里以 DO1 为例，其它继电器参数一样设置。

Press “▶” once to enter DO1 setting in DO mode. Press “▲” and “▼” to change from DO1, DO2, DO3 and DO4. Then enter the sub-menu by pressing “▶”. Below, take the DO1 setting for example.

在 DO1 菜单下，按“▶”键进入，SEL.OFF (如果没有要求厂家设定，出厂默认为“OFF”即关闭)，再按“▶”键，“OFF”闪动，按“▲”和“▼”在 UA L、ON、OFF 闪动，在 UA L 闪动时按“▶”键可分为两部分闪动，在闪动部分可按“▲”和“▼”来选择你所需要的参数。

Press “▶” to enter setting in the DO1 menu. If there is no requirement for setting, the default value is “OFF” (SEL.OFF). Then the “OFF” flickers by pressing “▶” again. By Pressing “▲” and “▼”, the flickering characters change from UA L, ON and OFF. Press “▶” divide UA L into two parts flickering when the character “UA L” flickers. Then press “▲” and “▼” to select the needed value.






前半部分可选 U (相电压)、UL (线电压)、I (电流)、F (频率)、P (有功功率)、PF (功率因数)、Q (无功功率)、S (视在功率)；





U (phase voltage), UL (line voltage), I (current), F (frequency), P (active power), PF (power factor), Q (reactive power) and S (apparent power) can be selected for the first half of “UA L”.







后半部分可选 AL (A 相参数超限告警)、BL (B 相参数超限告警)、CL (C 相参数超限告警)、L (平均值或合相参数超限告警)；AR (A 相参数设定区域内告警)、BR (B 相参数设定区域内告警)、CR (C 相参数设定区域内告警)、R (平均值或合相参数在设定区域内告警)；1/3L (三相参数当中任一相参数超限告警)、3/3L (三相参数当中同时三相参数超限而产生告警)；1/3R (三相参数当中任一相参数在设定区域内产生告警)、3/3R (三相参数当中同时三相参数在设定区域内产生告警)。







AL (threshold Crossing alarm of phase A), BL (threshold Crossing alarm of phase B), CL (threshold Crossing alarm of phase C), L (threshold Crossing alarm of average or conjunction), AR (zone alarm of phase A), BR (zone alarm of phase B), CR (zone alarm of phase C), R (zone alarm of average or conjunction), 1/3L (threshold Crossing alarm of any phase), 3/3L (threshold







Crossing alarm of three phases), 1/3R (zone alarm of any phase) and 3/3R (zone alarm of three phases) can be selected for the second half of“UAL”.







设置完成后按“”确认，按“”键进入 VL1（启动值），再按“”键进行数值设置（电压数值设置时是显示数值×变比÷10 即是设置的数值，如：变比为 100 时，设置数值为 1000V 启动，那么设置显示数值是 1000÷10×100 即 10000，电流数值设置时是显示数值×变比÷1000 即是设置的数值，有功、无功、视在功率显示数即变比为“1”时设置的参数，设置写成后会自动剩变比，当最高位数值为“0”时按“”键可以设置为“-”号，频率和功率因数设置不受变比影响），设置完成后按“”确认；

Press “” to confirm after finish setting. Press “” to enter VL1 (starting value), then press “” to set the value. (The setting value of voltage is the displaying value × PT ÷10. For example: When the PT is 100 and the setting starting value is 1000V, the displaying value is 1000÷10×100 equaling to10000. The setting value of current is the displaying value × CT ÷1000. The setting value of active power, reactive power and apparent power is the displaying value when the value of PT and CT is 1. The value of PT and CT will be multiplied automatically. Press “”to set minus sign when the top digit is zero. The setting value of frequency and power factor are unaffected by the transformation ratio)

在 VL1 设置完成确认后按“”键进入 VL2（复归值），再按“”键进行数值设置（设定数值与上面相同），设置完成后按“”确认；在 VL2 设置完成确认后按“”键进入 DLY1（启动时间）再按“”键进行数值设置（设定数值 0~255S），设置完成后按“”确认；

First, press “” to enter VL2 (resetting value) setting after finish VL1 setting. Then press “” to set the value following the operation as the above. At last, Press “” to confirm. After that, press “” to enter DLY1 (starting time) setting, and press “” to set the value (from 0 to 255s). At last, press “” to confirm.

在 DLY1 设置完成确认后按“”键进入 DLY2（复归时间），再按“”键进行数值设置（设定数值 0~255S），设置完成后按“”确认；按“”键进入 DURA（保持时间），再按“”键进行数值设置（设定数值 0~255S，当设定值为 0 时表示继电器一直出口，直到解除告警后才返回，设定其它数值后即保持设定时间后继电器返回后不再出口，除非解除告警后又有新的告警发生时才会有第二次出口），设置完成后按“”确认。

First, press “” to enter DLY2 (resetting value) setting after finish DLY1 setting. Then press “” to set the value (from 0 to 255s). At last, Press “” to confirm. After that, press “” to enter DURA (holding time) setting, then press “” to set the value (from 0 to 255s). The relay keeps output when the setting value is zero until the alarm is removed. The relay returns after the holding time is up when the setting value is other value otherwise there is other new alarm happening. At last, press “” to confirm.

自控方式：Automatic control

	参数类型 parameter type	显示 display
相电压类 Phase voltage	A 相电压超限 threshold Crossing alarm of voltage of phase A	SEL UA L
	B 相电压超限 threshold crossing alarm of voltage of phase B	SEL UB L
	C 相电压超限 threshold crossing alarm of voltage of phase C	SEL UC L
	平均电压超限 threshold crossing alarm of average voltage	SEL U L

	A 相电压区域 zone alarm of voltage of phase A	SEL UA R
	B 相电压区域 zone alarm of voltage of phase B	SEL UB R
	C 相电压区域 zone alarm of voltage of phase C	SEL UC R
	平均相电压区域 zone alarm of average voltage	SEL U R
	三相电压任一满足越限条件 threshold crossing alarm of voltage of any phase	SEL U1/3L
	三相电压同时满足越限条件 threshold crossing alarm of voltage of three phase	SEL U3/3L
	三相电压任一满足区域条件 zone alarm of any phase	SEL U1/3R
	三相电压同时满足区域条件 zone alarm of three phase	SEL U3/3R
线电压类 Line voltage	AB 线电压越限 threshold crossing alarm of line voltage of AB	SEL ULA L
	BC 线电压越限 threshold crossing alarm of line voltage of BC	SEL ULB L
	CA 线电压越限 threshold crossing alarm of line voltage of CA	SEL ULC L
	平均线电压越限 threshold crossing alarm of average line voltage	SEL UL L
	AB 线电压区域 zone alarm of line voltage of AB	SEL ULA R
	BC 线电压区域 zone alarm of line voltage of BC	SEL ULB R
	CA 线电压区域 zone alarm of line voltage of BC	SEL ULC R
	平均线电压区域 zone alarm of average line voltage	SEL UL R
	三相线电压任一满足越限条件 threshold crossing alarm of any line voltage	SEL UL1/3L
	三相线电压同时满足越限条件 threshold crossing alarm of three line voltage	SEL UL3/3L
	三相线电压任一满足区域条件 zone alarm of any line voltage	SEL UL1/3R
	三相线电压同时满足区域条件 zone alarm of three line voltage	SEL UL3/3R
电流类 Current	A 相电流越限 threshold crossing alarm of current of phase A	SEL IA L
	B 相电流越限 threshold crossing alarm of current of phase B	SEL IB L
	C 相电流越限 threshold crossing alarm of current of phase C	SEL IC L
	平均电流越限 threshold crossing alarm of average current	SEL I L
	A 相电流区域 zone alarm of current of phase A	SEL IA R
	B 相电流区域 zone alarm of current of phase B	SEL IB R

	C 相电流区域 zone alarm of current of phase C	SEL IC R
	平均电流区域 zone alarm of average current	SEL I R
	三相电流任一满足越限条件 threshold crossing alarm of current of any phase	SEL I1/3L
	三相电流同时满足越限条件 threshold crossing alarm of current of three phases	SEL I3/3L
	三相电流任一满足区域条件 zone alarm of current of any phase	SEL I1/3R
	三相电流同时满足区域条件 zone alarm of current of three phases	SEL I3/3R
频率 Frequency	频率越限 threshold crossing alarm of frequency	SEL F L
	频率区域 zone alarm of frequency	SEL F R
有功功率类 Active power	A 相有功功率越限 threshold crossing alarm of active power of phase A	SEL PA L
	B 相有功功率越限 threshold crossing alarm of active power of phase B	SEL PB L
	C 相有功功率越限 threshold crossing alarm of active power of phase C	SEL PC L
	平均有功功率越限 threshold crossing alarm of average active power	SEL P L
	A 相有功功率区域 zone alarm of active power of phase A	SEL PA R
	B 相有功功率区域 zone alarm of active power of phase B	SEL PB R
	C 相有功功率区域 zone alarm of active power of phase C	SEL PC R
	平均有功功率区域 zone alarm of average active power	SEL P R
	三相有功任一满足越限条件 threshold crossing alarm of active power of any phase	SEL P1/3L
	三相有功同时满足越限条件 threshold crossing alarm of active power of three phases	SEL P3/3L
	三相有功任一满足区域条件 zone alarm of active power of any phase	SEL P1/3R
三相有功同时满足区域条件 zone alarm of active power of three phases	SEL P3/3R	
功率因数类 Power factor	A 相功率因数越限 threshold crossing alarm of power factor of phase A	SEL PFA L
	B 相功率因数越限 threshold crossing alarm of power factor of phase B	SEL PFB L
	C 相功率因数越限 threshold crossing alarm of power factor of phase C	SEL PFC L
	平均功率因数越限 threshold crossing alarm of average power factor	SEL PF L
	A 相功率因数区域 zone alarm of power factor of phase A	SEL PFA R
	B 相功率因数区域 zone alarm of power factor of phase B	SEL PFB R

	C 相功率因数区域 zone alarm of power factor of phase C	SEL PFC R
	平均功率因数区域 zone alarm of average power factor	SEL PF R
	三相功率因数任一满足越限条件 threshold crossing alarm of power factor of any phase	SEL PF1/3L
	三相功率因数同时满足越限条件 threshold crossing alarm of power factor of any phase	SEL PF3/3L
	三相功率因数任一满足区域条件 zone alarm of power factor of any phase	SEL PF1/3R
	三相功率因数同时满足区域条件 zone alarm of power factor of three phases	SEL PF3/3R
无功功率类 Reactive power	A 相无功功率越限 threshold crossing alarm of reactive power of phase A	SEL QA L
	B 相无功功率越限 threshold crossing alarm of reactive power of phase B	SEL QB L
	C 相无功功率越限 threshold crossing alarm of reactive power of phase C	SEL QC L
	平均无功功率越限 threshold crossing alarm of average reactive power	SEL Q L
	A 相无功功率区域 zone alarm of reactive power of phase A	SEL QA R
	B 相无功功率区域 zone alarm of reactive power of phase B	SEL QB R
	C 相无功功率区域 zone alarm of reactive power of phase C	SEL QC R
	平均无功功率区域 zone alarm of average reactive power	SEL Q R
	三相无功任一满足越限条件 threshold crossing alarm of reactive power of any phase	SEL Q1/3L
	三相无功同时满足越限条件 threshold crossing alarm of reactive power of three phases	SEL Q3/3L
视在功率类 Apparent power	三相无功任一满足区域条件 zone alarm of reactive power of any phase	SEL Q1/3L
	三相无功同时满足区域条件 zone alarm of reactive power of three phases	SEL Q3/3L
	A 相视在功率越限 threshold crossing alarm of apparent power of phase A	SEL SA L
	B 相视在功率越限 threshold crossing alarm of apparent power of phase B	SEL SB L
	C 相视在功率越限 threshold crossing alarm of apparent power of phase C	SEL SC L
	平均视在功率越限 threshold crossing alarm of average apparent power	SEL S L
	A 相视在功率区域 zone alarm of apparent power of phase A	SEL SA R
	B 相视在功率区域 zone alarm of apparent power of phase B	SEL SB R
C 相视在功率区域 zone alarm of apparent power of phase C	SEL SC R	

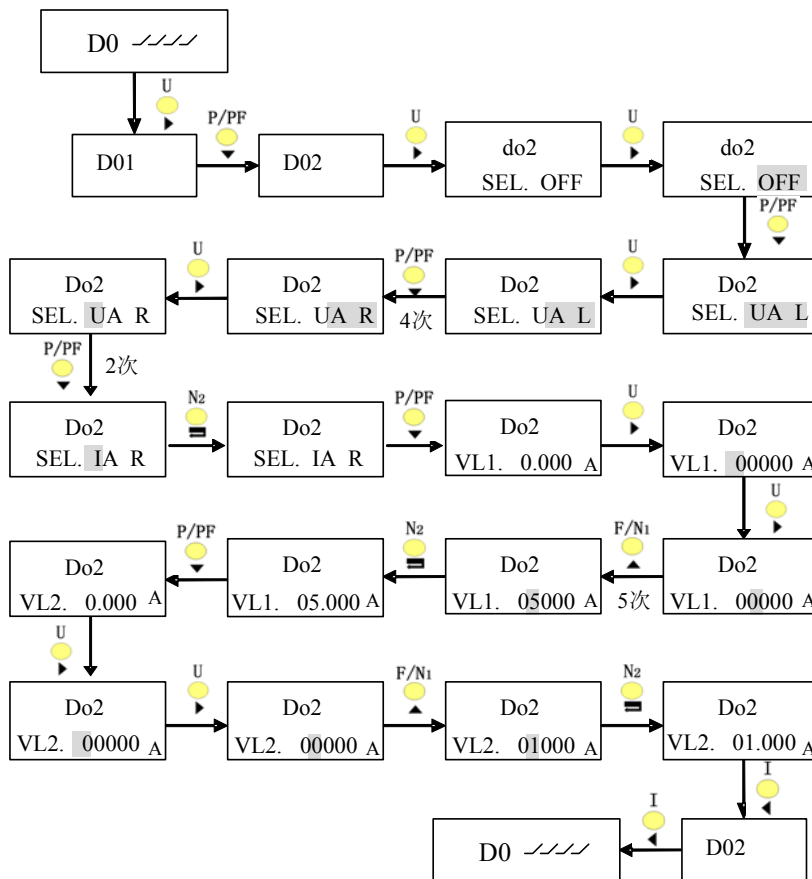
	平均视在功率区域 zone alarm of average apparent power	SEL S R
	三相视在任一满足越限条件 threshold crossing alarm of apparent power of any phase	SEL S1/3L
	三相视在同时满足越限条件 threshold crossing alarm of apparent power of three phases	SEL S3/3L
	三相视在任一满足区域条件 zone alarm of apparent power of any phase	SEL S1/3R
	三相视在同时满足区域条件 zone alarm of apparent power of three phases	SEL S3/3R

注：当 VL1 值大于 VL2 值时，继电器高于 VL1 值时是闭合状态，低于 VL2 时继电器断开。当 VL1 值小于 VL2 值时，继电器低于 VL1 值时是闭合状态，高于 VL2 时继电器断开。

Note: When VL1 > VL2, the relay is on when the value is greater than VL1 while the relay is off when less than VL2. When VL1 < VL2, the relay is on when the value is less than VL1 while the relay is off when greater than VL2.

举例：设置第 2 路开关量在 A 相电流小于 1A 或大于 5A 动作输出。

For example: Set the second DO switching on when the current of phase A is less than 1A or greater than 5A.



◆ 电能累加复位设定 Accumulated energy reset (RSTENERGY)

全部电能复位，操作如下 Resetting all the energy quantities:

在 RSTENERGY 方式下，按“▶”一次，显示“RST ALL N”，再按“▶”一次，预置的 N 闪动，按“▲”或“▼”选择 Y，选定后按“◀”确认，这时所有电能数据变为“0”。In the RSTENERGY mode, press “▶”once to display the menu of “RST ALL N”. And

press “▶” again, the energy flickers. Then press “▲” or “▼” select “Y” and “↵” to clear the energy.

在 RSTENERGY 方式下, 按“▶”键, 显示“RST ALL N”, 按“▲”或“▼”在+Wh、-Wh、+vh、-vh 之间选择你所需的电能, 选择好后, 按“▶”一次, “N”在闪动, 按“▲”或“▼”在 N 和 Y 之间选择“Y”, 选定后按“↵”确认, 这时需要归零的电能数据变为“0”。In the RSTENERGY mode, press “▶” once to display the menu of “RST ALL N”. And press “▲” or “▼” to select the parameter from +Wh, -Wh, +vh, and -vh. After finish selecting, then press energy flickers. Then press “▶” and the energy flickers. At last, press “▲” or “▼” select “Y” and “↵” to clear the energy.