JJSY-3BS-FE　JJSY-3BT-FE 三相失压断流计时仪
THREE PHASE FOUR WIRE OF LOW VOLTAGE AND CURRENT TIMER

一、概述 Overview

JJSY 系列三相失压断流计时仪适用于电力三相三线、三相四线系统，通过对电网电压（PT）回路、电流（CT）回路进行监视，能准确判断电网运行状态，并详细记录其处于故障期间的各种参数，以便供电部门对电网进行管理，追补人为或非人为的漏计电能，是理想的电能计量监视仪表。

JJSY series three phase four wire of low voltage and current timer suitable for electrical system of three-phase three-wire and three-phase four-wire. Through the monitoring of the power grid voltage (PT) circuit and current (CT) circuit , can accurately determine the operation state of power grid, and detailed records various parameters during failure period, which is easy for electricity sector to manage the power grid, trace leakage electric energy records that man-made or not, is the perfect electric energy measurement &monitoring instrument.

二、工作原理 Operating principle

本失压断流计时仪内部由高速度低功耗微控制器、电流电压采集电路、高精度时基发生电路、LCD 显示驱动电路、报警输出电路、电源供电电路、数据保存电路等部分组成。本仪表通过对电流电压信号和电能脉冲的采集，实现对电网及不正常工作电量的监视。工作原理框图见图 1。

three phase four wire of low voltage and current timer combined with high-speed low-power dissipation microcontroller, current and voltage acquisition circuit, high-precision time base generating circuit, LCD display driver circuit, alarm output circuit, power supply circuit and data storage circuit. The instrument is able to achieve the monitoring of power grid and abnormal working power through acquisition of current and voltage signals. Figure 1 shows operating principle block diagram.

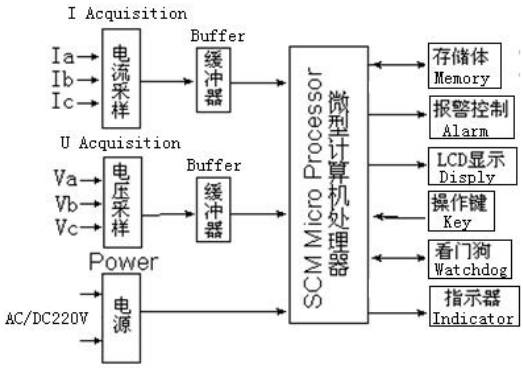


图 1　工作原理框图

Figure 1 operating principle Block diagram

三、主要功能 Main function

1、失压计时 Under voltage time record

基本功能：在有负荷电流的条件下，电能计量电压回路的高电压侧或低电压侧，发生一相、两相或三相失电压，计时器应可靠计时，并且有故障相别的指示，直到电压恢复为止。

Basic function: under the condition of a load current, electric energy metering voltage circuit of high voltage side and low voltage side, a phase, two phase or three phase voltage, the timer should be reliable timing, and have other instructions, fault phase until the voltage recovery.

当任何相电压低于 78%Ue 时，且负荷电流大于 0.5%，

失电压仪报警并计时，当电压恢复至 85%Ue 时，计时器恢复正常。当三相负荷电流都小于 0.5%，即使三相都失电压（电压为 0V），计时器不判定为故障，不计时不报警。

When any phase voltage is lower than 78% Ue, and load current is more than 0.5%,Loss of voltage meter alarm and timer, when the voltage recovery to 85% Ue, timer is back to normal. When the three-phase load current is less than 0.5%, even if the three-phase voltage allowed (voltage of 0 v), a timer is not judged failure,no time no alarm.

2、断流计时 Break current time record

当三相电流互感器任何相或两相二次侧（CT）开路时，至少有一相电压为正常值（大于 85%Ue），该一相或两相为失电流故障，计时器计时报警。

When any phase or three phase current transformer (CT) two phase secondary side when open, at least one phase voltage as the normal value (greater than 85% Ue) , the phase or two phase for the loss of current fault, timer timing alarm.

3、故障电量纪录 Power failure records

当仪表有计量脉冲输入时，能准确分相计量故障电能，从而得到比较精确的电量追补。

When the instrument has external active power input, able to measure and record accurate fault electrical energy of each phase, to get electricity reclaiming more accurate.

4、故障次数纪录 number of failures Records

当电压回路（PT）发生失压，电流回路（CT）发生开路时，仪表内部启动故障次数计数器，记录失压次数或断流次数。它是一个辅助参量。

When undervoltage occurs to voltage circuit (PT), or current circuit (CT) open, instrument will start counter of failure times, to record times of under voltage and break current. It is an auxiliary parameter.

5、事件纪录 Event Record

本仪表能按事件发生先后顺序实时记录失压、断流的起始日期、起始时间、终止日期、终止时间。事件纪录多达 100 项。

The instrument can record in time sequence of events of undervoltage and break current, include start and end date, start and end time. Able to record up to 100 events.

6、数据通讯 Data Communication

对于有通讯功能的仪表，通过仪表 RS485 通讯辅助接线端子，可与通讯终端或上位机进行数据通讯，在无中继设备的情况下通讯距离小于 1200m。(此功能用户提供通讯规约，并在订货前加以说明)。

Instrument which has communication function, is through RS485 communication auxiliary wiring terminal, able to achieve data communicate with communication terminal or upper computer, communication distance less than 1200m under non trunking circumstance. (customer provide communication agreement, and state in contract.)

7、数据查询 Data Check

仪表正常工作时，可通过控制按钮或遥控器查询某页内容或某项内容。

While Instrument working normally, able to check any page or any content through control button or remote control

8、参数设置 Parameter settings

通过编程器可对表号、脉冲常数（100-99900)、通讯波特率（1200-9600)、循环显示时间间隔（1-99 秒)、日期（当前日期)、时间（当前时间）进行设置。

Through programmer able to setting of meter number, pulse content (100-99900), communication baud rate (1200-9600), cycling display time interval (1-99 seconds), date (current date),and time (current time).

9、报警输出 Alarm output

当仪表处于失压、断流状态时，可通过蜂鸣器或外界大功率报警装置进行报警。仪表出现报警后，可通过按下仪表“上行”或“下行”按钮或遥控器复位按钮进行关闭。关闭报警输出，不会影响仪表的数据记录。

When the instrument is under voltage, or break current state, is able to alarm through buzzer alarm device or an external high-power alarm device.

Press "Upward" and "Down" button on instrument to turn on or off of alarm output.

Open or close the alarm output will not affect the instrument's data records.

10、辅助电源：AC/DC220V（极限 80~265V)，功率消耗 10W

Auxiliary power supply :AC,DC220V（Limit 80~265v)，Power consumption：:10w

四、型号规格 Model Specification

型号 Model	类别 Category	标称电压 Nominal voltage	额定电流 Rated current	供电电源 Power supply
JJSY-3BS-FE	三相三线 Three-phase three-wire	3x100V, 3x110V 3x380V	3x1A，3x5A	AC/DC80-265V

JJSY-3BT-FE	三相四线 Three-phase four-wire	3x220V, 3x63.5V 3x57.73V	3x1A，3x5A	AC/DC80-265V

五、主要技术参数 Main technical parameters

1、计时准确度 Timing accuracy <0.5s/d

2、启动电压 Starting voltage 78%Un±2V

3、返回电压 Back voltage 85%Un±2V

4、启动电流 Starting current <0.5%Ib

5、电流回路阻抗 Current circuit impedance

额定电流为 5A 时 <0.05Ω；

额定电流为 1A 时 <0.5Ω；

While rated current at 5A <0.05Ω

While rated current at 1A, <0.5Ω

6、计时器容量 Caculargraph Capacity

0~9999.99 小时 hours

7、计度器容量 Register Capacity 0~9999.99kW•h

8、掉电运行时间

Power outage working time>180 天 days

9、掉电数据保存时间

Power outage data storage time >10 年 years

10、电气参数 Electrical parameters

工作电压 Working Voltage Un±20%（Un 为额定电压）

Un ± 20% (Un for rated voltage)

额定电流 Rated current: 3x1A，3x5A

绝缘耐压 Dielectric voltage withstan >2000VAC

电压回路功耗 Voltage circuit power consumption <3VA

电能脉冲输入 Active energy pulse input ： 无源脉冲

amplitude <50V, pulse width ≥ 10ms

11．适用条件 Applicable Conditions

工作温度 Working temperature -25℃～+60℃

工作环境湿度 Working ambient humidity ≤95%RH

12、外形尺寸及重量 Dimensions and weight

外形尺寸 Dimensions 265x170x77mm

重量约 Weight 1.7kg

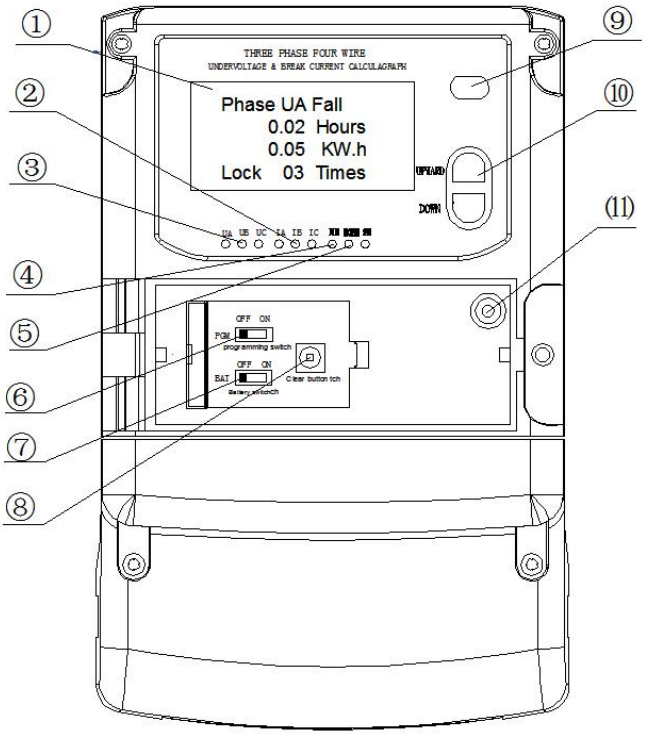


图 2 失压断流计时仪外观图

Figure 2, Appearance of under voltage & break current calculagraph

六、操作方法 methods of operation

1、外观及控制功能键介绍 Described of the appearance and control function keys

①液晶显示 LCD

具有显示功能，可通过遥控器或仪表控制按钮查询相关内容。在无任何操作的情况下，主要内容自动循环显示，循环显示的间隔时间可设定。

Has display function, able to check related content through remote control or instrument control button. Under non-operation status, the main content display in cycle automatically, time interval of display cycle is able to set.

②断流指示 break current indication

仪表正常工作时，Ia、Ib、Ic 指示灯常亮；当仪表所接电流处于断流状态时，Ia、Ib、Ic 指示灯闪烁报警。

While instrument working normally, Ia, Ib, Ic always light; when instrument at break current condition, Ia, Ib, Ic lights will flashing alarm.

③失压指示 under voltage indication

仪表正常工作时，Ua、Ub、Uc 指示灯常亮；当仪表所接电压处于失压状态时，Ua、Ub、Uc 指示灯闪烁报警。
While instrument working normally, Ua, Ub, Uc always light; when instrument at under voltage condition,Ua, Ub, Uc lights will flashing alarm.

④脉冲指示 Pulse indication

当仪表有电能脉冲输入时，脉冲指示灯闪烁，此时仪表可记录不正常工作电能量。
When the instrument has active power pulse input, pulse indicate light will flash, at this stage instrument can recorded abnormal working electric energy.

⑤通讯指示 Communication instructions

通讯指示灯分为接收和发送两种，指示仪表的通讯工作状态。
Communication indicate lights divided into receive and transmit, both to indicate the working status of the communication instrument.

⑥编程开关 programming switch

本仪表出厂时已进行默认设置，并使编程开关处于锁定状态。用户若要重新编程，请打开透明罩及设置开关罩盖，且必须将编程开关拨至“开 ON”状态，并输入编程密码后方可进行编程操作。编程结束后，必须将仪表编程开关重新拨至“关 OFF”状态。具体编程内容见编程内容表。

注：不推荐用户自行编程

The instrument has factory default settings, and made programming switch locked. To re-programming the user have to turn programmed switch to "on" state, and enter the password before programming operation. After programming, programming switch must re-allocated to "off" state. See programming content table of contents specific program.

Note: user self-programming is not recommend.

⑦电池开关（未用） Battery switch（Not used）

本仪表采用高性能可充电电池，保证仪表在三相断电的情况下能正常工作，当仪表正式挂网运行时，应将电池开关拨至“开 ON”位置，在不用或储藏状态下将电池开关拨至“关 OFF”位置。

⑧清零按钮 Clear button

将编程开关拨至“开 ON”状态，且当前液晶显示“Unlock”时，按“清零”按钮一次，可清除仪表内所有记录和故障数据，而日期、时间和设置数据则保留，清零完毕将编程开关拨至“关 OFF”的位置。

turn the program switch to "on" position, and lcd screen will display "unlock",press "reset" button once, able to clear all record and failure data of instrument, date,time and setting information will retain, when reset finish turn the program switch to "off" position

⑨红外通讯 Infrared communication window

窗口当用遥控器对本仪表进行编程时，须对准本窗口。通讯距离不大于 5 米。
When use remote control to program instrument, have to aim at the window directly. Communication distance no more than 5 meters.

⑩显示控制按钮 Display control buttons

本仪表显示部分共分为三页，即显示实时数据、显示记录查询和编程数据，每页又分若干项。“设置”按钮可实

现翻页功能（注：同时按下“上行”和“下行”键，相当于按下“设置”键），按“上行”和“下行”按钮可实现向上或向下循环选择查看某一具体数据项的功能。

the display part of this instrument has 3 pages, they are display actual time data,display record query and programming data, each page has varies item."setting" button has flip over function(PS: press "up"and "down" button at the same time as press "setting" button), press "up" or "down" button able to realize the function of upward or downward recurrently to select and view any specific data item.

⑾设置确认键 setting confirm button

本仪表可现场手动设置，手动设置时，将编程开关拨至“开 ON”状态，按”设置确认键”可进入手动现场编程状态，仪表显示“000000”要求输入编程密码，密码不正确返回，密码正确进入设置，通过按“上行+1”和“下行移位”键对仪表各项参数进行设置，某项设置完成，按”设置确认键”保存设置并翻页，设置完成按“设置确认键”回复到正常显示状态。

this instrument able to setting manully,while manul setting, turn programming switch to "on" position, press"setting confirm button" enter mannul setting programming state, the instrument will display "000000" request to enter programming cord, will return if cord incorrect, will enter setting if cord correct. press"up +1" and "shift down" button to set each item of instrument. when finish any item setting, press "setting confirm button" to save and turn page. when finish setting press "setting confirm button"to return to normal display state.

2、数据查询 data inquery

I、第 1 页 实时数据查询（按“上行”或“下行”按妞）

The first page actual time data inquery（press "up" or "down" button ）

1）Item、A 相电压失压参数（累计时间、累计电量、累计次数）

phase A undervoltage parameter(delta time, delta electric quantity, delta times)

Phase UA Fall		
	0.02	Hours
	0.05	KW.h
Lock	03	Times

2）Item、B 电压失压参数（累计时间、累计电量、累计次数）

phase B undervoltage parameter(delta time, delta electric quantity, delta times)

Phase UB Fall		
	0.02	Hours
	0.05	KW.h
Lock	03	Times

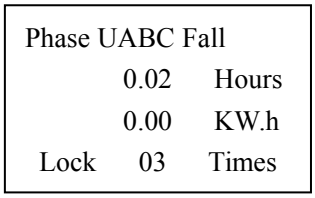
3）Item、C 电压失压参数（累计时间、累计电量、累计次数）

phase C undervoltage parameter(delta time, delta electric quantity, delta times)

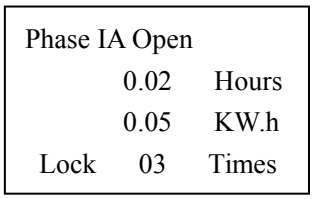
Phase UC Fall		
	0.02	Hours
	0.05	KW.h
Lock	03	Times

4）Item、ABC 电压失压参数（累计时间、累计电量、累计次数）

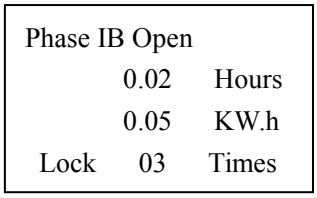
phase ABC undervoltage parameter(delta time, delta electric quantity, delta times)



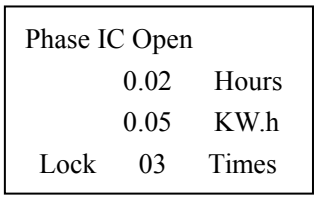
5）Item、A 电流断流参数（累计时间、累计电量、累计次数）
phase A break current parameter(delta time, delta electric quantity, delta times)



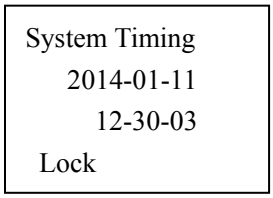
6）Item、B 电流断流参数（累计时间、累计电量、累计次数）
phase B break current parameter(delta time, delta electric quantity, delta times)



7）Item、C 电流断流参数（累计时间、累计电量、累计次数）
phase C break current parameter(delta time, delta electric quantity, delta times)

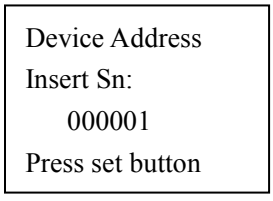


8）Item、系统时钟（年月日时分秒）The system clock（Year month day hours minutes seconds）



II、第 2 页，编程数据查询（按“设置”键或同时按下“上行”及“下行”键切换）。再按“上行”或“下行”键翻查记录。
The second page , programming data query (press "setting" botton or press "up" and "down" button at the same time to switch over).then press "up" or "down" button to check record.

1）Item、仪表编号（也是通讯地址）Instrument number (and address)



2）Item、脉冲常数 Pulse constant

Pulse constant Insert con: 3200 Press set button

3） Item、通讯波特率 The communication baud rate

Device Baud Insert Baud: 9600 Press set button

4）Item、自动循环显示时间 Automatic cycle time

Device Autotime Insert time: 10 S Press set button

III、第 3 页，记录查询 （按“设置”键或同时按下“上行”及“下行”键切换)。再按“上行”或“下行”键翻查记录。

The third page，,recording query (press "setting" botton or press "up" and "down" button at the same time to switch over).then press "up" or "down" button to check record.

如：第八条记录（A 相电流 2014-01-11-12-30-03 开始断流）

Such as: eighth records (A phase current 2014-01-11-12-30-03 start stop)

No.08 IA 2014-01-11 12-30-03 Star

如：第九条记录（A 相电流 2014-01-11-13-30-03 断流结束）

Such as: ninth records (2014-01-11-13-30-03 stop A phase current end)

No.09 IA 2014-01-11 13-30-03 End

如无记录时钟显示 If there is no record of the clock display 00-00-00

共有 00-99 条记录 A total of 00-99 records

3、工作参数设置 Working parameter setting

①将仪表编程开关拨至“开 ON”状态。 turn programming switch to "on" position,

②按“设置确认”键进入编程菜单，仪表显示“000000”，最右位开始闪烁。

Press the "set" button to enter the menu, the instrument shows "000000",the right to start flashing

③按“上行”键加 1 当前位的数据，按“下行”键闪铄位左移一位。输入编程密码完毕后，按“设置确认”键，若输入密码（8）正确，则可进入编程状态进行编程设置；若输入密码不正确则跳出编程菜单。

Press the "up" button, and 1 current position data, press the "down" button scintillation position shift left a programming, input password, and then press the "Settings" button. If the input password is correct, can be programmed into the program state; if the input password is not correct,jump out the programming menu.

④编程内容共分七项，具体见编程内容表，每输入一项，按“设置确认”键，则完成该项设置。此时编程内容自动下移一项，可连续编程。

Programming is divided into seven sections, see the table of contents of each specific programming, enter one, press the "Settings" button, then complete the set. The programming content auto down a, continuous programming.

⑤所有项编程完毕后，将仪表编程开关拨至“关 OFF”状态，自动退出编程状态。

All programming is completed, the instrument programming switch to the"OFF" state, automatically exit the program state

编程内容表 Programming table of contents

1）Item、仪表编号（也是通讯地址）Instrument number (and address)

Device Address Insert Sn: 000001 Press set button

编程范围 Programming 000001-999999

2）Item、脉冲常数 Pulse constant

Pulse constant Insert con: 3200 Press set button

编程范围 Programming 100-9990

3） Item、通讯波特率 The communication baud rate

Device Baud Insert Baud: 9600 Press set button

编程范围 Programming 1200-9600

4）Item、自动循环显示时间 Automatic cycle time

Device Autotime Insert time: 10 S Press set button

编程范围 Programming 00-99

5） Item、系统日期（年月日）The system date（Year month day）

System Timing Insert date: 2013-12-09 Press set button

6） Item、系统时间（时分秒）The system time（hours minutes seconds）

System Timing Insert time: 11-10-05 Press set button

7） Item、编程密码修改 Programming change password

Device Code Insert Code: 123456 Press set button

4、报警输出 Alarm output

当仪表处于失压、断流状态时，可通过蜂鸣器或外接大功率报警装置进行报警。报警输出可通过按下仪表“上行”或“下行”按钮进行关闭。关闭报警输出，不会影响仪表的数据记录

When the instrument is in the undervoltage &break current state, through the buzzer or external power alarm device alarm. Alarm output can press"up" or "down" button to close the. Close the alarm output, will not affect the data recording instrument

七、安装与接线 Installation and connection

1、安装 Installation：

本仪表底壳上端有挂钩，可用 M4 挂钩螺钉固定，下部左右两侧各有一个安装孔，可用 M4 的螺钉将其固定在安装底板上。孔距 230x150

This instrument is arranged at the upper end of the hook the bottom shell,available M4 hook screw fixation, the lower part of each side is provided with a mounting hole, screw can be used M4 which is fixed on the mounting plate. 230x150 pitch of holes

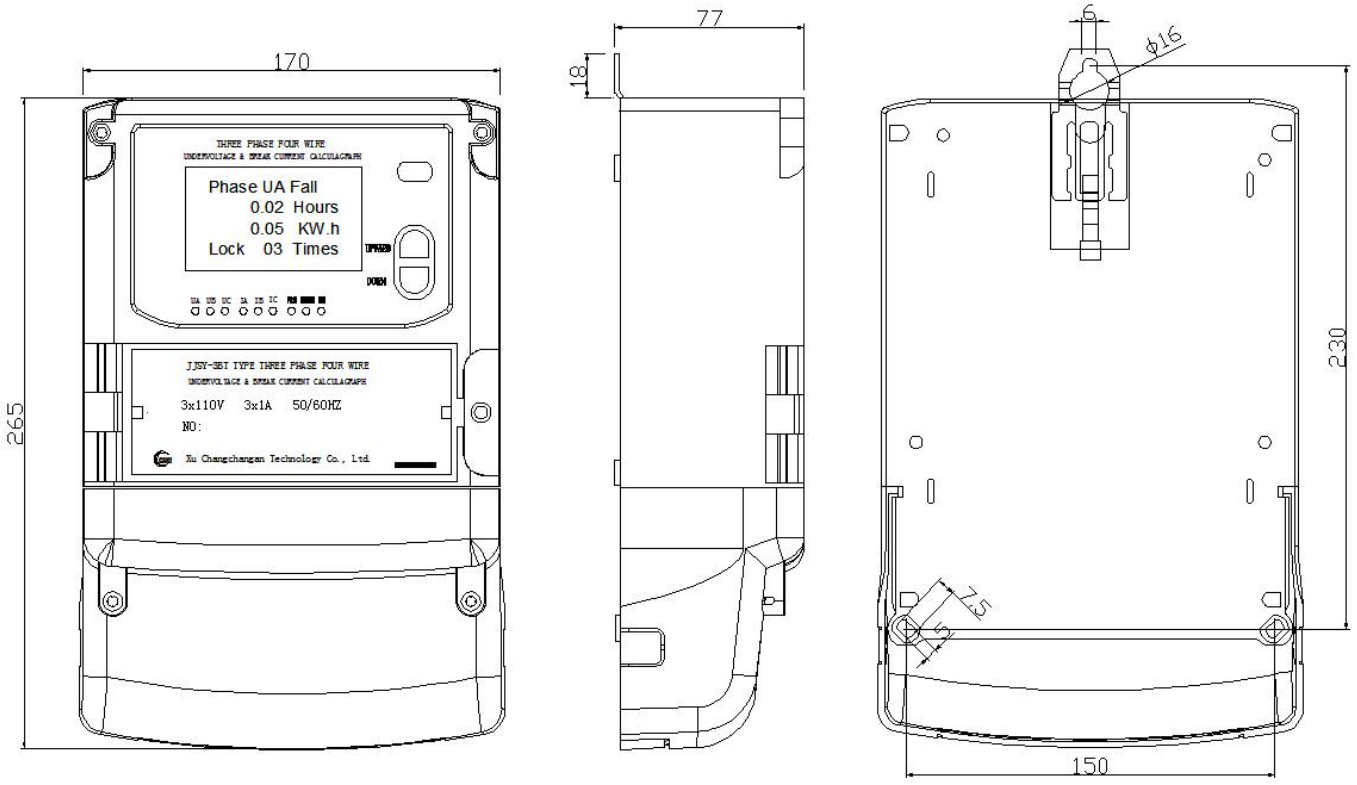
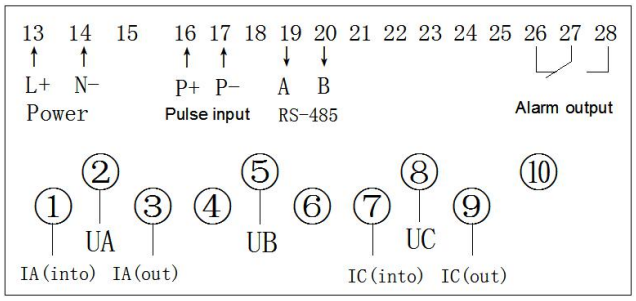


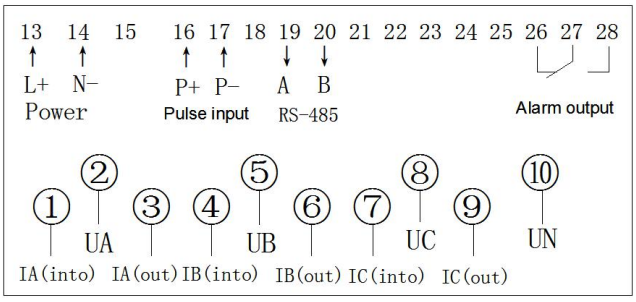
图 Figure 3：安装尺寸图　Mounting dimensions

2、接线

①三相三线失压断流计时仪接线图(JJSY-3BS-FE)
Three-phase three wire system wiring diagram



②三相四线失压断流计时仪接线图(JJSY-3BT-FE)
Three-phase four wire system wiring diagram



3、接线说明 Wiring instructions

主接线端子 The main terminal

①UA、UB、UC：分别接 Respectively A、B、C 三相电压相线 Phase voltage or line of three-phase voltage。

②IA 进 Into、IA 出 out、IB 进 Into 、IB 出 out、IC 进 Into、IC 出 out：分别接 Respectively A、B、C 三相电流进出线 Incoming and outgoing three-phase current（三相三线仪表不接 Three-phase three wire instrument not connected IB 进 Into、IB 出 out）。

③UN 接零线（三相三线仪表不接此线）UN connected to the zero line (three-phase three wireinstrument does not take this line)

辅助接线端子 Auxiliary terminal

①L, N 接辅助电源 AC, DC220V（30-265V），直流供电不分正，负。

N L, the auxiliary power supply AC, DC220V（30-265V）, DC power supply is not divided into positive, negative.

②P+脉冲输入+、P-脉冲输入-：接无源电能脉冲线，此时仪表可记录非正常工作电量。

P + pulse input +, P-pulse input -: take active power pulse line, this time meter to record consumption of non-normal.

③RS485+(A)、RS485-(B)：对于有通讯功能的仪表，通过此接线端子，可与通讯中端进行数据通讯。

RS485 +, RS485-: for a communication instrument, through the terminal, communication terminal with data communication.

④报警公共端、报警常开端、报警常闭端：当用户需要外接大功率报警器时，可通过此接线端子接出。本仪表提供常开报警输出和常闭报警输出两种接线方式。

alarm the public side, the police often start, alarm normally closed side: when the user needs an external power alarm, you can pick out through this terminal. This instrument provides normally open and normally closed alarm output Alarm output two terminals.