GMP-731 Series
Power Automatic Switching Device(PASD)
User Manual

Nanjing Godgoal Electronics Automation Co.,Ltd

DIRECTORY

1. App scope

GMP-731 series PASD(Power Automatic Switching Device) is for the enterprise 35 KV power system . the new measurement device is called "four in one" system, it is used in petro, steel, metallurgy, etc, also suitable for electric power industry to protect the function requirement is more agile occasion.

GMP-731 series PASD adopts advanced technology, the careful design, make protection and control are relatively independent and mutual confluence, protection device work from measurement and control and the influence of the external communication, to ensure the safety and reliability of the protection. GMP-731 series protection measurement device support the field not only the protection, monitor, control function, also support the integrated automation all kinds of advanced application functions, such as the failure information, electricity quantitative change to send function etc, the power system for the enterprise of the safety, stability and economic operation to provide the solid foundation.

2. Main Features

- Device adopt totally closed case, power strictly separate, cancel the backplane wiring way traditional, at the same time in the software design and adopt corresponding measures of anti-jamming, device EMC ability greatly improved.
- Hardware is rich in resources, the num of digital input signal is 11, provide abundant output signal.
- Operating circuit ac, dc flexible configuration, can adapt to all kinds of operation mechanism.
- Protection function facilities, action quick, reliable performance.
- Have the perfect device testing function, the convenient the commissioning and testing.
- Hardware support prevailed GPS differential second pulse or IRIG-B yards prev, device can automatic identification.
- Perfect the case record function, can save the latest 32 times action report, the latest 32 times SOE displacements record report, the latest 32 times users operation record report。
- Protection function and communication function respectively by independent CPU to achieve, the status of the network does not affect the normal operation of the protection. Good HMI.
- Support RS-485 communication, MODBUS-RTU agreement。
- Meet 《The DL/T 478- 2001static relay protection and safety automatic equipment general technology conditions of code requirements》.
- Meet 《The GB14285-93 relay protection and safety automatic device technical》.

3. Function and Configuration

GMP-731 PASD is protection function and RTU(Remote Terminal Unit) device, the device is called "Four in one" protection (protection, remote measure, remote control, remote state). For the power system.

Protection configuration:

1) Three busbar and one switch automatic switch;
2) Three busbar and one switch automatic switch or switch back
3) Three busbar automatic switch and Control generator
4) Backup busbar switch automatic back

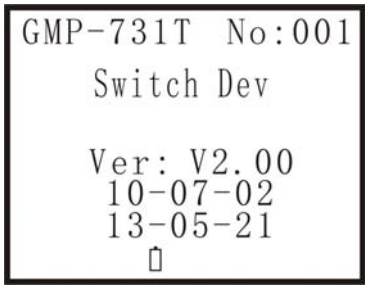
Measurement and control function:

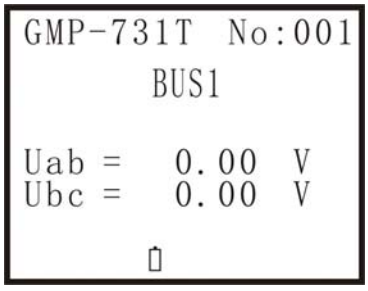
1) Customers can programming digital input number is 11;
2) Four groups circuit breaker remote control;
3) UAB1 、UBC1 、UAB2 、UBC2 、UAB3 、UBC3 、UAB4 、UBC4;
4) SOE event record;

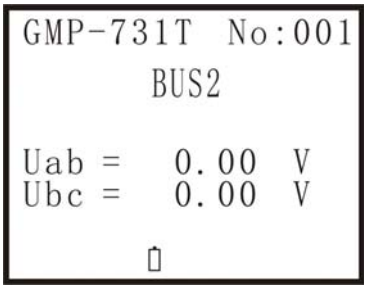
4. About LCD Display

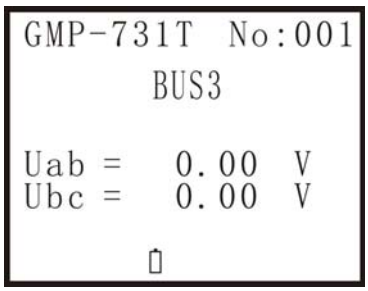
4.1 The First Menu Display

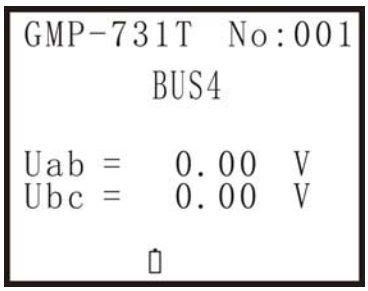
After power on, LCD normal shows the picture:

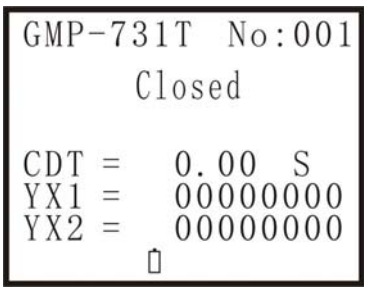






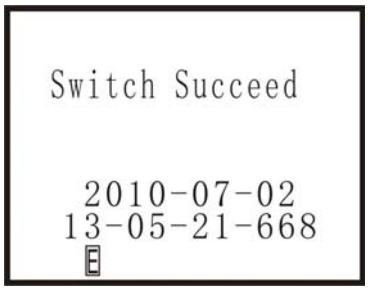






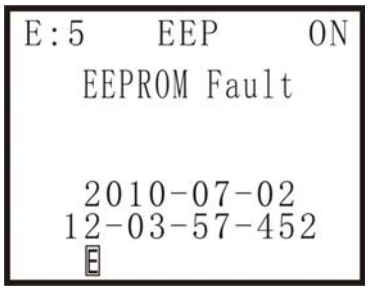
4.2 Protection Display

Device can save 32 times action report, when protecting the action, to display the latest LCD screen a protect action report, when the report has more action components, all action components will cyclic display, the format as follows:



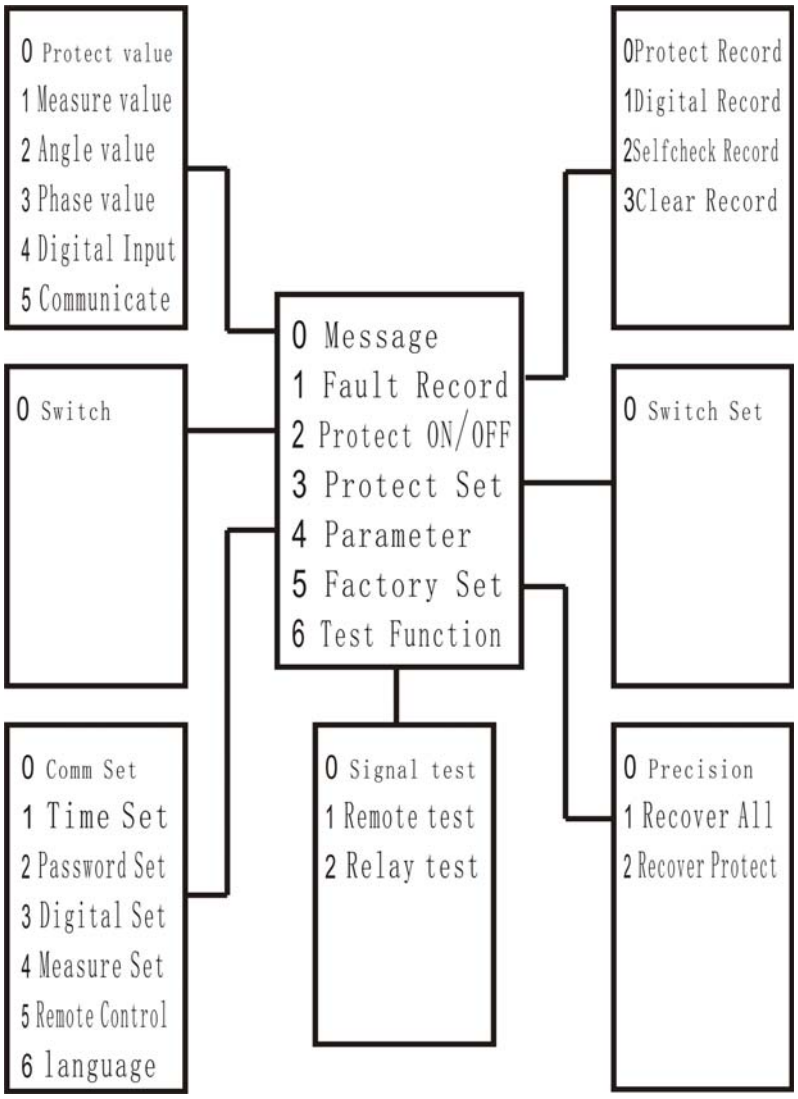
4.3 Error about system self check

This device can save 32 times system self-check report, protection device operation, the error will immediately display hardware self report, when a self-check report have multiple error messages, all information will cyclic display, the format as follows:



5. Menu about Function

In the first screen, press the "确认" button to enter the main menu, press '↑'、'↓'、'确认'and'取消' button to selector menu. Using the following commands menu tree directory structure:



5.1 Real-time information

This menu is mainly used to display the current voltage of the real-time measure values and the switch state, Only the amount of the display value and the actual operation consistent, the protection to the correct action. Advice when the quantity of these put button '↑'、'↓' Used to scroll screen to view the information, "确认" button to view detailed information.

Protect Value:

Uab1、Ubc1、Uab2、Ubc2、Uab3、Ubc3、Uab4、Ubc4

Measure Value:

Angle value:

Phase value:

State information:

Real-State digital input 1-16、Logic-State digital input 17-32

Communciation information:

Receive code 、send code

5.2 History information

This menu is mainly used to access history. First shows the latest a report, button ‘↑’ show before report, press button ‘↓’ show after report, button “取消” exit menu.

Protection event record: 32 records
Sequence Of event record: 32 records
Self check event record: 32 records
Clear record: Clear Protection event, Clear Sequence Of event, Clear Self check event

5.3 Protect on/off

This menu is mainly used to check and modify protect. Button ‘↑’, ‘↓’ used to select and modify the object, ″+″ and ″-″ used to modify. Button “取消” for change to return to give up, “确定” for the modification and then to return. Protection for fixed value range is: ON/OFF.

5.4 Protection setting value

This menu is mainly used to check and modify protection. Button ‘↑’,‘↓’choice of the press to modify fixed value object, ‘←’、‘→’ used to select the value of one modified, ″+″ and ″-″ used to modify the Numbers. Button ’取消’ for change to return to give up, ″确定″ for the modification and then to return. Protection setting value scope of reference the current menu and maximum and minimum.

5.5 Device parameters

Communication parameters: the communication address, communication rate
Clock parameters: check and modify clock of device
Password parameters: password enable, password change
Remote state parameter: state scan time
Measure parameter: voltage a value,
Remote control parameters: remote control pulse width setting

5.6 Factory set

This menu is mainly used to manufacturer with factory test, debug the measurement precision, restore the initial parameters, restore the initial protection setting value.

5.7 Test function

This menu is mainly used in the test. remote signal test, remote control test, export test, drive test.

6. Technology parameters

6.1 Mechanical and environmental parameters

6.1.1 The product shape dimension

Please refer to the part 11

6.1.2 Work environment

emperature:-25 ℃ ~ + 60 ℃ ensure normal work

Humidity pressure, with DL478

6.1.3 Mechanical properties

Can withstand harsh level for the level I vibration response, the shock response

6.2 Electrical parameters

6.2.1 Input data

DC voltage: 220V, 110V Allow deviation＋15 % , -20 %

AC voltage: 57.7V/220V （phase voltage）, 100V/380V （line voltage）

Frequency: 50Hz

6.2.2 Power consumption

AC voltage: < 0.5VA/phase

DC power: normal＜15W

Trip ＜25W

6.3 Main technical data

6.3.1 PASD Logic

Normal votage setting value: 0-400V

Lost votage setting value: 0-400V

Switch delay time: 0-100s

Switch normal status time: 0-100s

Time of switch machinery: 0-100s

Voltage accuracy: 5%

Time accuracy: setting time ×1%+35ms

6.3.2 Remote state input

resolution＜2ms

Signal input type: no source contacts

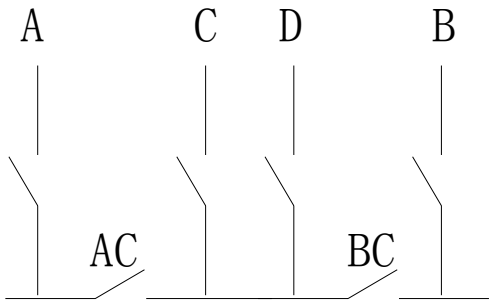
6.3.3 Output capacity

Signal capacity: allow long-term through the current 5 A, cut off the current 0.3 A (DC220V, V/R 1 ms)

Export trip capacity: allow long-term through the current 5 A cut off the current 0.3 A (DC220V, V/R LMS)

7. Logic

7.1 single line diagram

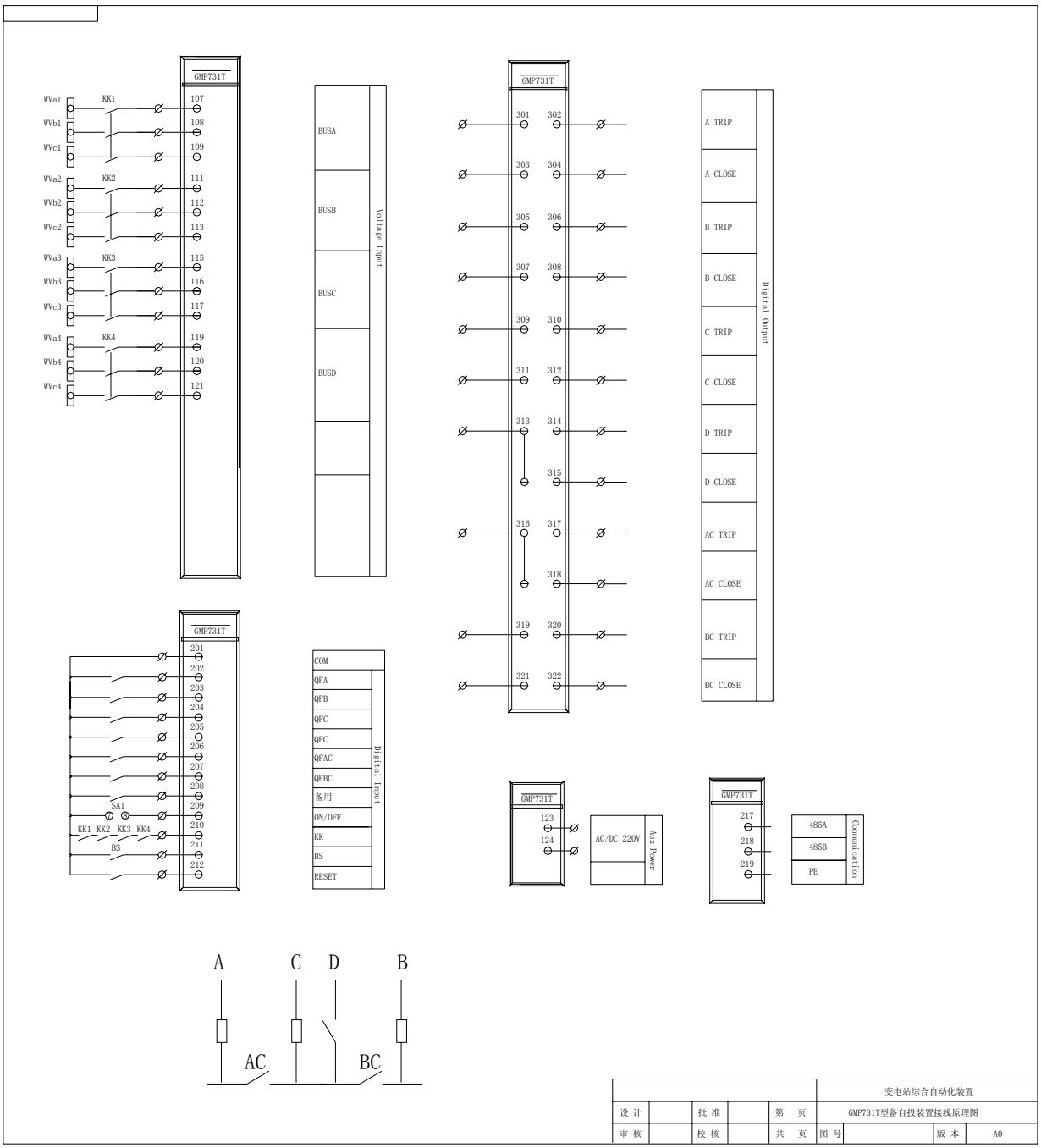


7.2 PASD logic grah

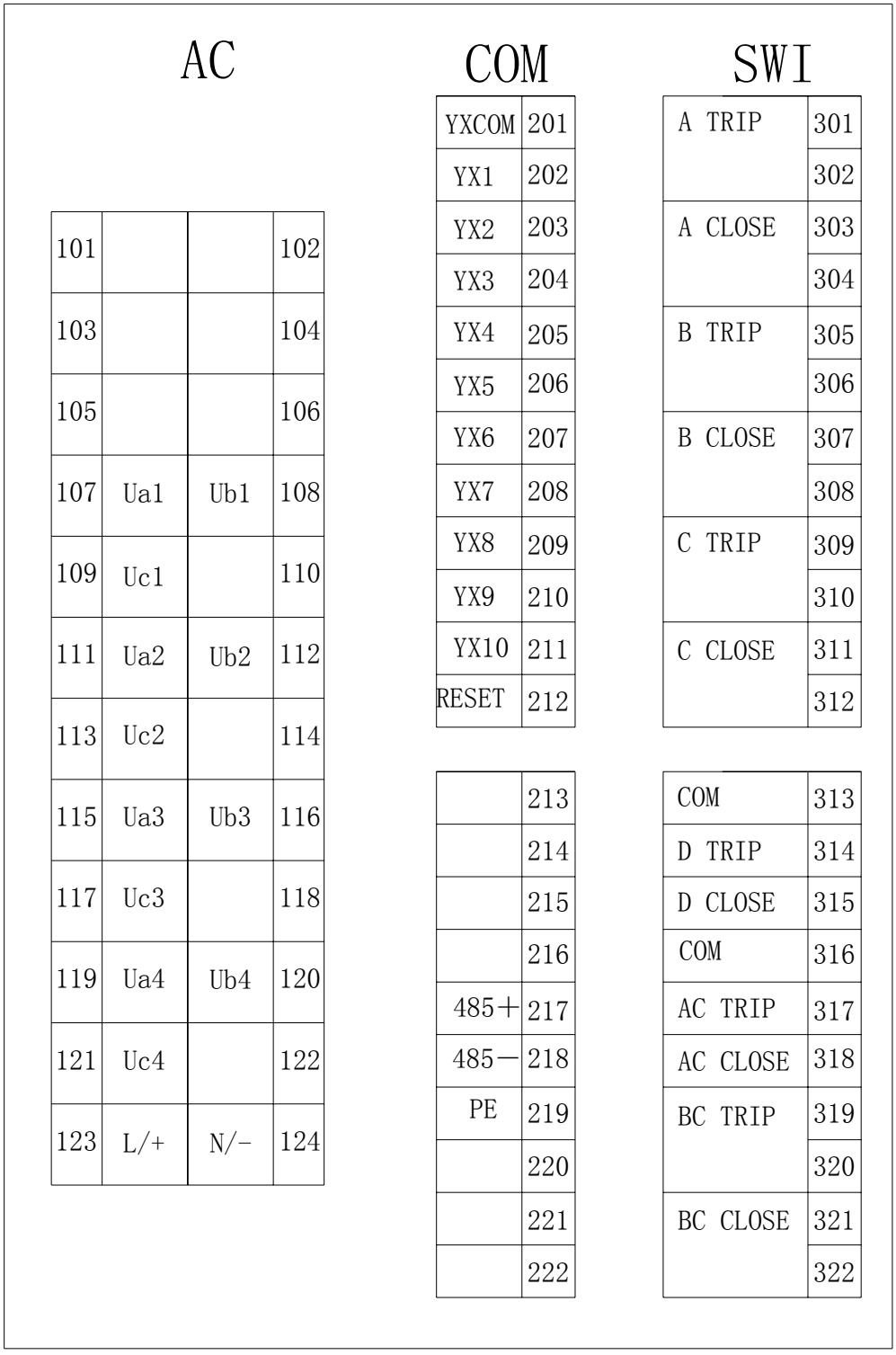
NUM	A	B	C	D	AC	BC
1	1	1	1	0	0	0
2	0	1	1	0	1	0
3	0	0	1	0	1	1
4	1	0	1	0	0	1
5	1	0	0	0	1	1
6	0	1	1	0	1	0
7	0	1	0	0	1	1
8	0	0	0	1	1	1

8. Hardware and Wiring Diagram

8.1 Wiring Diagram



8.2 Wiring position Diagram



8.3 Position meaning

Terminal 107 ~ 121 voltage input terminals.

Terminal 123 ~ 124 for device power input terminals

Terminal 201 for the letter a public terminals.

Terminal 202 ~ 212 letter for remote input terminals.

Terminal 213 ~ 214 for analog output terminals.

Terminal 215 ~ 216 yards for the GPS B prevailed terminals.

Terminal 217 ~ 219 for 485 communication terminals.

Terminal 220 ~ 222 for CAN communication terminals.

Terminal 301 ~ 322 output control for export.

9. Protection value and setting instructions

9.1 System setting value

SN	NAME	RANGE	NOTE
1	The voltage of primary	0～110.0	
2			

9.2 Protection setting value

SN	TYPE	PROTECTION ON/OFF	NAME	RAGE	STEP LENGTH
1	PASD	SWITCH ON/OFF BUS RETURN ON/OFF Back SWITCH ON/OFF Back RETURN ON/OFF	NORMAL VOLTAGE	0~500V	0.01
			LOST VOLTAGE	0~500V	0.01
			BUS1 TIME1	0~100S	0.01
			BUS1 TIME2	0~100S	0.01
			BUS2 TIME1	0~100S	0.01
			BUS2 TIME2	0~100S	0.01
			BUS3 TIME1	0~100S	0.01
			BUS3 TIME2	0~100S	0.01
			BUS4 TIME1	0~100S	0.01
			BUS4 TIME2	0~100S	0.01
			DL TIME	0~100S	0.01
			StandbyTIME	0~100S	0.01

9.3 Communication parameters

SN	NAME	RAGE	NOTE
1	ADDRESS	1~240	
2	RATE	1200~19200	

9.4 Other parameters

SN	NAME	RAGE	NOTE
1	PASSWORD ENABLE	ON/OFF	
2	PASSWORD SET	000~999	
3	STATE SCAN TIME	0.01~1.00s	
4	REMOTE CONTROL PULSE WIDTH	0~10.00s	Relay return time

10. Note

10.1 Installation note

1) If the panel configuration installation, Device must be reliable grounding, which has grounded copper platoon, must be connected to the power station will be its reliable grounding online.

2) Possible should use shield cable, shielding layer in the field and the control room and grounding switch, each line and neutral three-phase wire should be placed in the same cable inside.

10.2 The accident analysis note

For the convenience of accident analysis, special recommend that users keep device action report. Remove device report or frequent test was covered fault information, can reference the following methods:

1) In the drive test or far away before signal testing, the internal storage device to the information and the background of the storage of complete information to be saved.

2) Information including the tripping device report, a report, run reports, self-check reports, system setting value and protect fixed value and various operation record.

3) The other information should also records, including accident process, protection device led, pictures show lcd, such as sure a plugin damage, changing the plugin must observe carefully plugin state (including have peculiar smell, burn mark, components different shape, etc.).

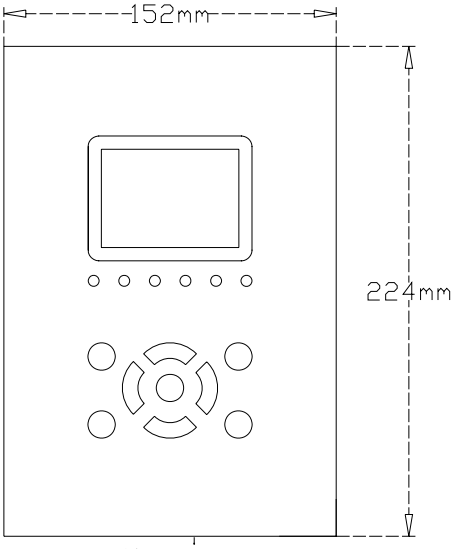
4) Device local information have conditions meet printers print, monitoring the background information to prevent be covering for additional storage.

5) If special circumstances, please notify the manufacturer to assist the failure information gain and save.

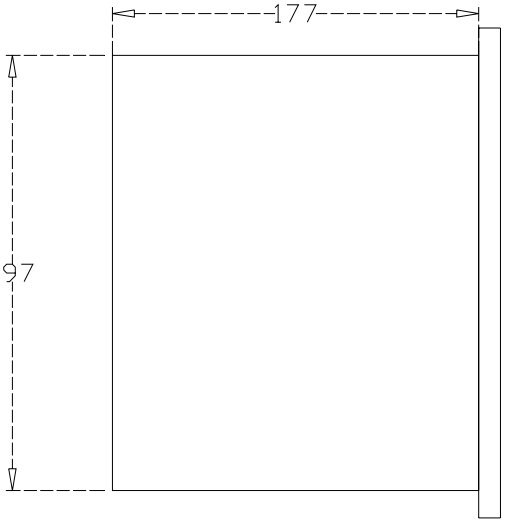
6)The accident analysis need original records, device version information and field process instructions.

11. Structure and installation

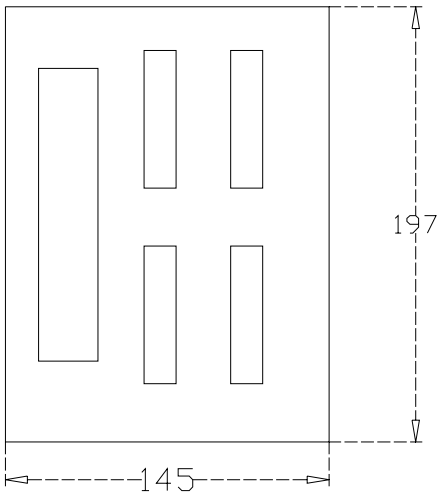
11.1 Installation size



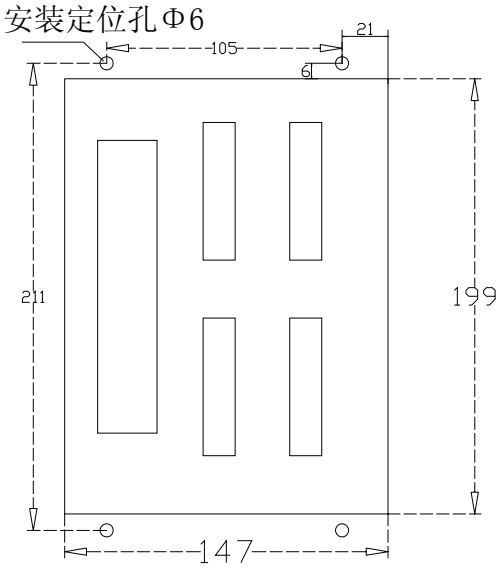
前视



侧视



背视



开孔尺寸图

备注：4个安装定位孔用于固定保护装置，
孔径为6mm，使用Φ5螺丝