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Acrel-2000T/A instruction of wireless temperature measuring equipment

ANKERI ELECTRIC LIMITED

Claims Ming Ming

We reserve the right to modify the product specifications described in this manual without prior notice. Before ordering, please contact the local agent for the latest specifications of this product.

1 Installation Guide

1.1 Product Overview

Acrel-2000T/A wireless temperature measuring and collecting equipment is suitable for temperature monitoring of high voltage switchgear contacts and contacts, knife switch, middle head of high voltage cable, dry transformer, low voltage high current and so on. A device can be used in conjunction with a wireless temperature measuring transceiver to achieve up to 240 wireless temperature measuring sensor data, including ATE100、ATE200、ATE300B 、ATE300、ATE400. matching sensors Wireless temperature sensor and transceiver exchange through wireless signal transmission, will not affect the insulation performance of the system, more safe to use. The device has the characteristics of complete isolation, convenient installation, strong anti-interference ability and reliable operation, which solves the safety problem of contact temperature monitoring in high voltage state.

1.2 Key technical indicators

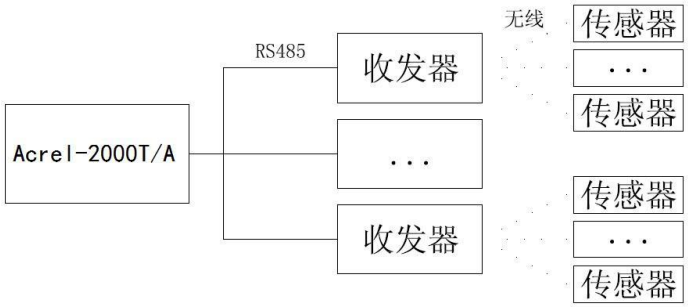
Table 1 ATP Series of wireless temperature measurement centralized acquisition touch screen technology

Project		Indicators
Working Power		DC 220V (±10 per cent)
Points of access to temperature measurement		Up to 240 points
Scope of temperature measurement		-40℃~125℃
Temperature accuracy		±2℃
Sensor battery life		≥5 years
Communications	Interface	RS485/ Ethernet
	Agreement	MODBUS-RTU
Environme	Working temperature	-10℃~55℃

ntal requirements	Relative humidity	≤95%
	Altitude	m ≤3000

1.3 Product Topology

1.3.1 Active Wireless Programme



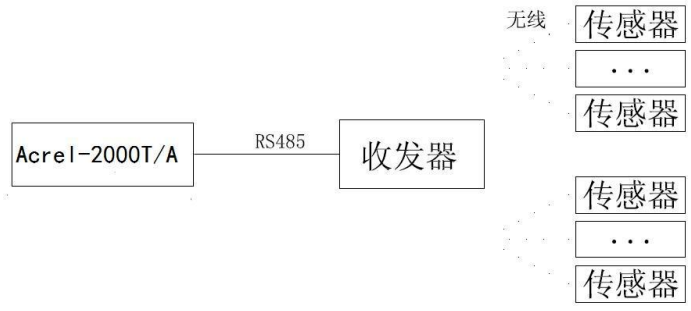
1. 

Active Wireless Temperature Measurement Configuration		
Name of name	Model	Quantity
Subject	ATP007/ATP010	1
Wireless Temperature Transceiver	ATC200	Up to 20
Wireless Temperature Sensor	ATE100 or ATE200	Up to 240

2. 

Active Wireless Temperature Measurement Configuration		
Name of name	Model	Quantity
Subject	ATP007/ATP010	1
Wireless Temperature Transceiver	ATC400	1
Wireless Temperature Sensor	ATE300B	Up to 240

1.3.2 Passive wireless scheme



1. 

Configuration of Passive Wireless Temperature Measurement Scheme		
Name of name	Model	Quantity
Subject	ATP007/ATP010	1
Wireless Temperature Transceiver	ATC400	1
Wireless Temperature Sensor	ATE300	Up to 240

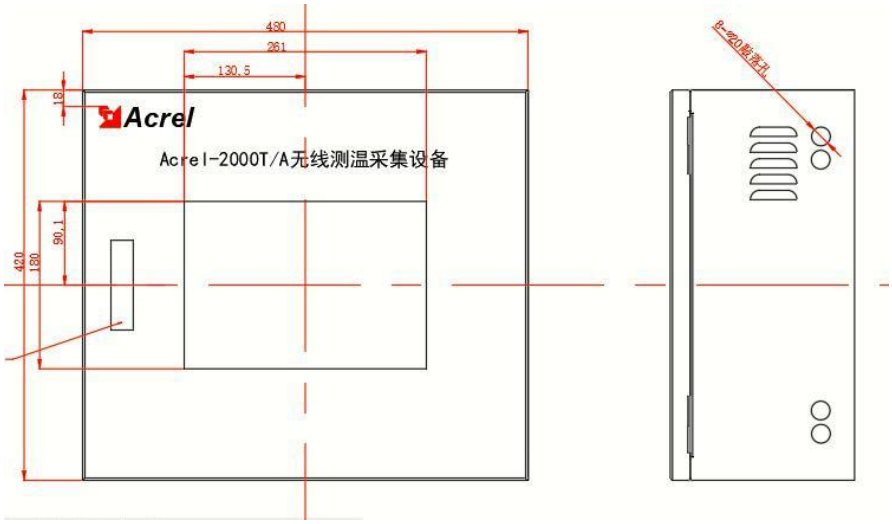
2. 

Configuration of Passive Wireless Temperature Measurement Scheme		
Name of name	**Model**	**Quantity**
Subject	ATP007/ATP010	1
Wireless Temperature Transceiver	ATC450-C	1
Wireless Temperature Sensor	ATE400	Up to 240

1.4 Product installation

1.4.1 Installation Method of Acre l-2000T/A Wireless Temperature Measuring Acquisition Equipment

The size and appearance of the Acrel-2000T/A wireless temperature measuring and collecting



equipment are shown in the following figure:

cabinet size :420(L)480(W)200(H) mm.


Acrel
Acrel-2000T/A无线测温采集设备
MCGS

The touch screen used by the device is embedded panel installation, touch screen size is divided into two types are 7 inches and 10 inches, installation hole size as shown below:

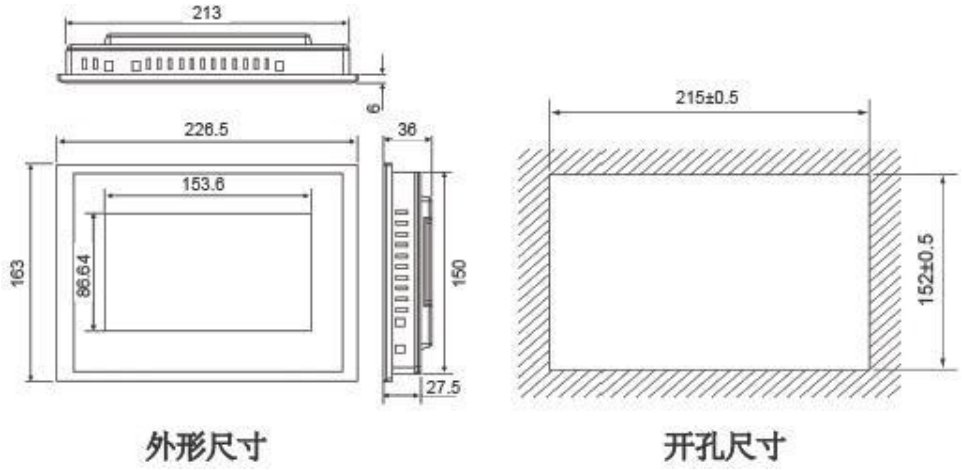


Figure :7-inch touch screen hole size (unit mm)

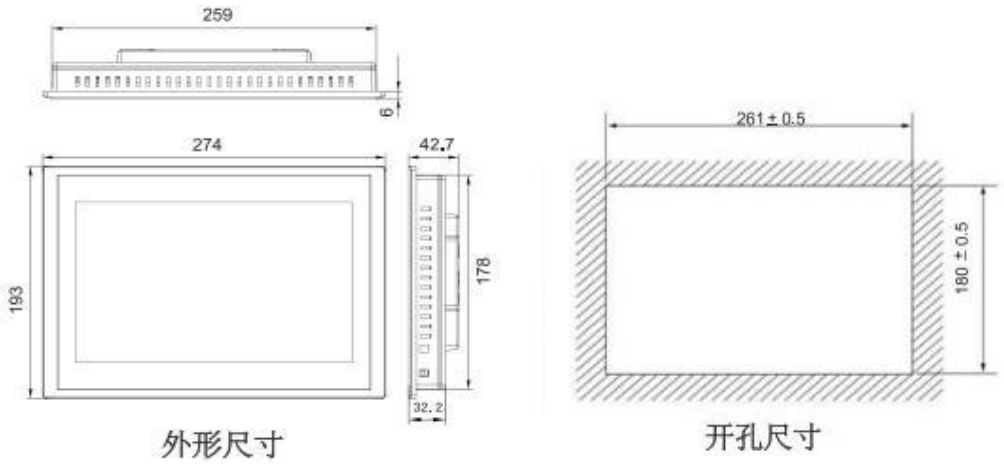


Figure :10 inch touch screen hole size (unit mm)

The installation method is shown below:

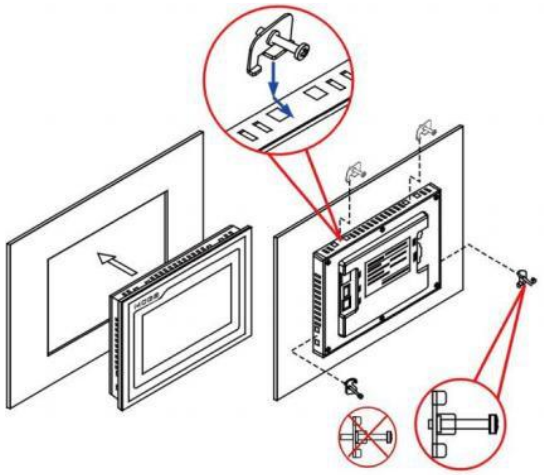


Figure: Touch screen installation method

1.4.2 Installation of wireless temperature transceivers

A wireless temperature measuring transceiver may be installed using a guide rail (DIN35mm) or bolted, as shown below:

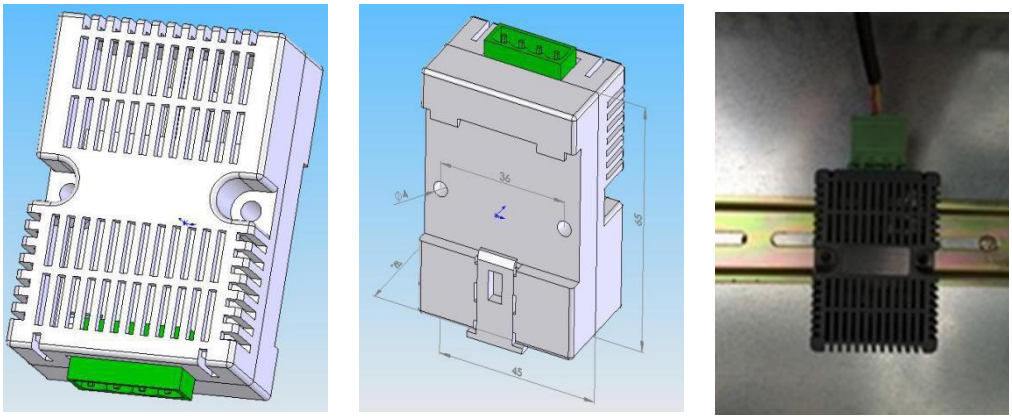


Figure: Wireless Temperature Transceiver Profile and Installation Example

1.4.3 Installation of wireless temperature sensors

Wireless temperature sensor has a variety of models, corresponding to bolt fixing, strap fixing, strap binding, alloy plate fixing and other installation methods.

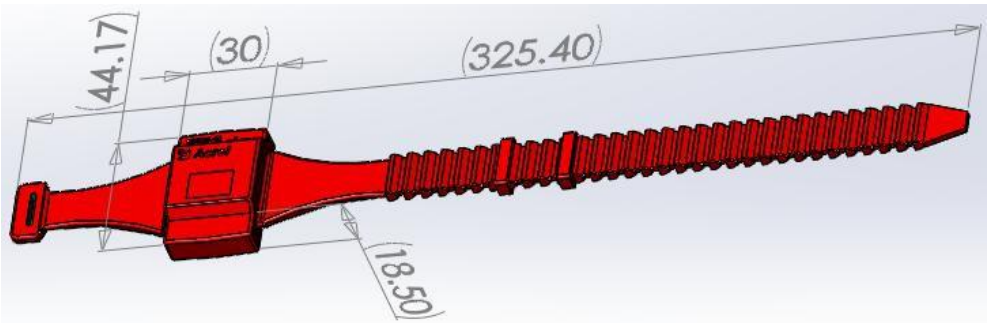
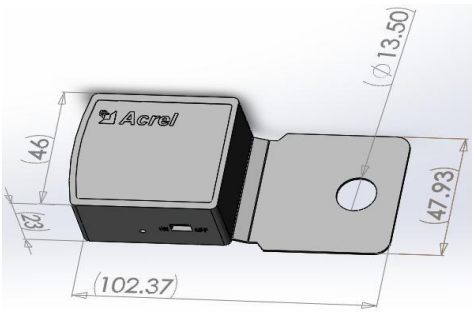


Figure: Watchband wireless temperature sensor ATE200



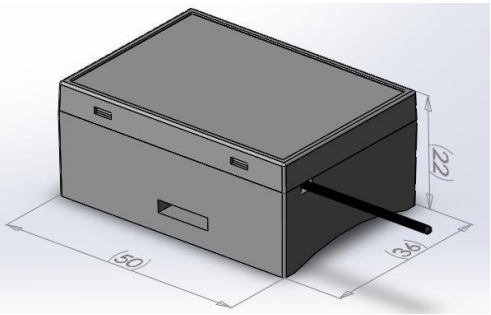
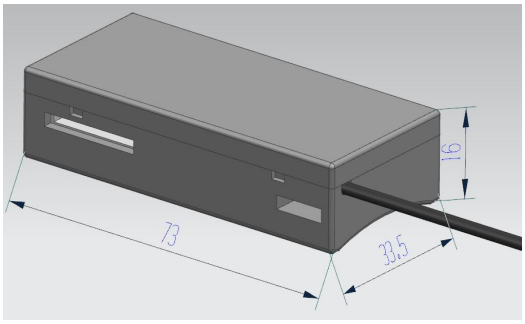


Figure: Bolted wireless temperature sensor ATE100Figure: Banded wireless temperature sensor ATE300B



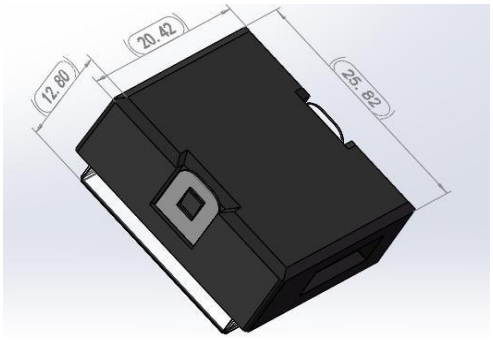


Figure: Passive wireless temperature sensor ATE300 Figure: Passive wireless temperature sensor ATE400

Structure description ATE300 bundled
passive wireless temperature sensor :1—
— passive wireless temperature sensor
main body
2 —— the temperature probe and fasten it to the temperature measuring place
3 —— strap for fixing sensor body
4 —— alloy sheet for induction

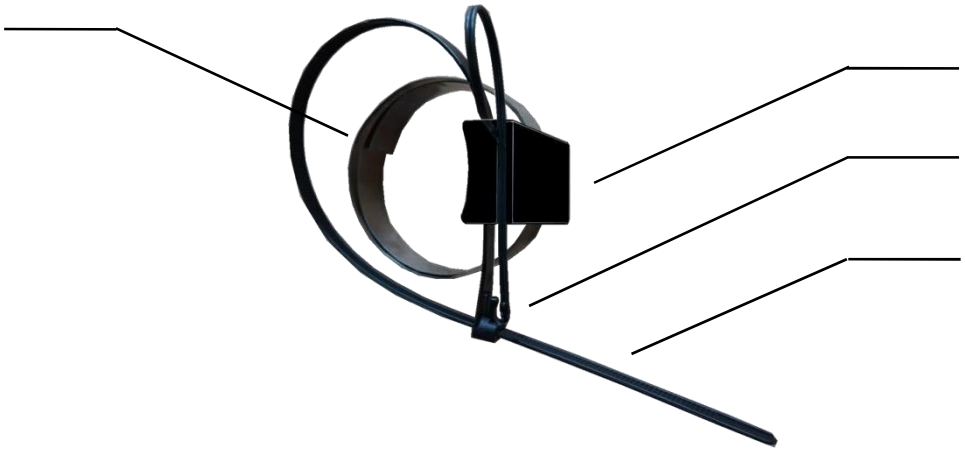


Figure: Description of ATE300 structure

1.5 Touch Screen
Back Terminal

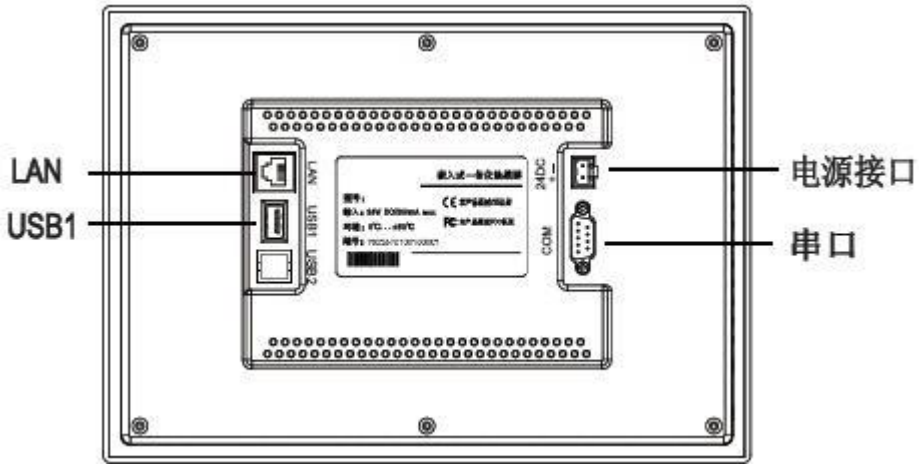
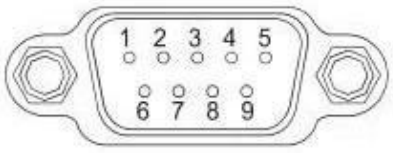


Figure: Touch screen back terminal



串口引脚定义

接口	PIN	引脚定义
COM1	2	RS232 RXD
	3	RS232 TXD
	5	GND
COM2	7	RS485 +
	8	RS485 —
COM3	4	RS485 +
	9	RS485 —

Figure: Serial Pin Definition

Normally, COM2 connect wireless temperature transceiver, serial port COM3 connect background system.

2 Product Operational Guidelines

Acrel-2000T/A wireless temperature acquisition equipment and wireless temperature transceiver are installed, and the communication cable between the two is connected, and then the DC24V working power is connected to the two through the power converter. By turning on the switch of the wireless temperature sensor at the temperature measuring point, the temperature of each temperature sensor node can be received and displayed Acrel-2000T/A the wireless temperature measuring and collecting equipment.

2.1 Temperature display

Acrel-2000T/A the wireless temperature measurement and acquisition equipment is powered on into the working state, the default is the "real-time

temperature" interface, in which the temperature values collected by each node can be observed.

Figure: Real-time Temperature Interface

2.2 Setting setting

After the user "login "(" user" default login password is 0008, can modify the password through the login interface), you can set the high temperature alarm value and name of the wireless temperature sensor group through the "parameter setting" menu. Touch screen displays alarm and buzzer calls. After setting the parameters, be sure to click the Save Settings button, otherwise the set value is not successful.

Figure: Login Management Interface

Figure: Parameter Settings

2.3 Alarm information

Enter the current alarm interface to display the current alarm, as shown in figure 2.4; to view all historical alarms, enter the History alarm interface. In the "current alarm" interface to view the real-time alarm, when there is alarm, this interface shows alarm warning, and buzzer calls, when buzzer calls, click confirm alarm, buzzer will stop calling, At the same time, the word color of alarm will turn blue.

Chart: Current Alarm

2.4 Temperature curve

Enter the temperature curve interface, each page has 12 curves, a total of 20 pages. Temperature recorded every 1 hour

Degree, can be stored for 100 days. Specific curve requirements can be adjusted on the screen. Is there a graph of the previous test here? You can put an

example ()

Figure: Temperature curve

3 Newsletter Guide

This chapter mainly describes how to use software to read the temperature of wireless temperature measurement node through communication port. Grasp the content of this chapter requires you to have a MODBUS agreement knowledge reserve and read all the other chapters of this book, have a more comprehensive understanding of the product functions and application concepts.

This chapter includes: communication application format, application details and parameter address table.

3.1 Communication Format

The examples in this section will use the format shown in the following table as much as possible, and the data is hexadecimal.

3.1.1 Read data (function code 04 H (read-only register)/03 H (read-write register))

This function allows users to obtain data and system parameters collected and recorded by the device. There is no limit to the number of data requested by the host at a time, but not beyond the defined address range.

For example, the host sends query data frames:

Address	Functional code	Starting address		Number of registers		CRC16 Verification Code	
		High	Low	High	Low	High	Low
01H	03H	00H	30H	00H	03H	05H	C4H

The device returns a response data frame:

Address	Functional code	Number of bytes	Data 1		Data 2		Data 3		CRC16 Verification Code	
			High	Low	High	Low	High	Low	High	Low
01H	03H	06H	00H	00H	00H	00H	00H	00H	21H	75H

3.1.2 preset single register (function code 06 H)

This function code allows the user to change the contents of a single register, through which working parameters can be written to the device.

Address	Functional code	Register address		Preset value		CRC16 Verification Code	
		High	Low	High	Low	High	Low

The device returns a response data frame:

Address	Functional code	Register address		Preset value		CRC16 Verification Code	
		High	Low	High	Low	High	Low
01H	06H	00H	03H	03H	E8H	74H	79H

3.1.3 preset multiple registers (function code 10 H)

This function code allows the user to change the contents of multiple registers, through which working parameters can be written to the device.

Address	Function	Starting address		Number of registers		bytes	Preset value 1		Preset value 2		CRC16	
		High	Low	High	Low		High	Low	High	Low	High	Low

01H	10H	00H	03H	00H	02H	04H	00H	28H	00H	64H	59H	32H

The device returns a response data frame:

Address	Functional code	Starting address		Number of registers		CRC16 Verification Code	
		High byte	Low byte	High byte	Low byte	High byte	Low byte
01H	10H	00H	03H	00H	02H	B1H	C8H

3.2 Address List

Address	Parameters	Property	Numerical range	Data type
0000H	Address	R/W	001~247	UWord
0001H	Reservation	R		UWord
0002H	Alarm status	R	0, no temperature over line ;1, temperature over line alarm.	UWord
0003H	Transceiver ambient temperature	R	-55~125(℃)(×10 integer transfers)	Word
0004H 00F3H	Sensor temperature values	R	-50~125(℃),(×10 integer transmissions), total 240	Word
00F4H 01E3H	ID of sensors	R	Each sensor should have a ID of 240	UWord
01E4H 01F2H	Wireless Temperature Sensor Online status	R	Bit data, bit0~bit239 corresponding to 1~240 respectively The device is online ;0—— offline and 1—— online.	UWord
01F3H 0201H	Wireless Temperature Sensor Battery status	R	Bit data, bit0~bit239 corresponding to 1~240 respectively Battery status 0—— normal 1—— low voltage.	UWord
0202H 0251H	Wireless Temperature Sensor High Temperature setting	R/W	-50~125(℃), for a total of 80(3 sensors per set value); and (i)	Word

Note :[1]R — read only; R/W — readable, writeable.

3.3 Communications settings

If all data is required to be passed into the background monitoring system, the correct communication address should be set, the default communication address is 1, the baud rate is 9600, the communication address is set in the parameter setting interface, and in the forward data address input box. Then click Save Settings, or return to default address 1.

Headquarters: Ankeri Electric Co., Ltd

Address :253 Yulu Road, Ma Dong Industrial Park, Jiading, Shanghai

Tel：(86)021-69158300　69158301　69158302

Fax：(86)021-69158303　69158339

Hotline :800-820-6632

Http：//www.acrel.cn　E-mail：ACREL001@vip.163.com

Zip Code :201801

Production Base: Jiangsu Ankeri Electric Appliance Manufacturing Co., Ltd

Address: No.5 ASEAN Road, ASEAN Industrial Park, Nanzha Town, Jiangyin City

Tel：(86)0510-86179966　86179967　86179968

Fax：(86)0510-86179975　86179970

E-mail：JY-ACREL001@vip.com

Post Code :214405