



Danger and warning!

This device can be installed only by professionals.

The manufacturer shall not be held responsible for any accident caused by the failure to comply with the instructions in this manual.



Risks of electric shocks, burning, or explosion

- This device can be installed and maintained only by qualified people.
- Before operating the device, isolate the voltage input and power supply and short-circuit the secondary windings of all current transformers.
- Use appropriate voltage tester to make sure the voltage has been cut-off.
- Put all mechanical parts, doors, or covers in their original positions before energizing the device.
- Always supply the device with the correct working voltage during its operation.

Failure to take these preventive measures could cause damage to equipment or injuries to people.

CONTENTS

Chapter 1 Introduction.....	5
1.1 System Structure	6
1.2 Technical Specification.....	7
1.3 Function Illustration.....	9
Chapter 2 Installation and Wiring.....	10
2.1 Environment	10
2.2. Installation and Usage	10
2.3 Order Information	15
2.4 Power Supply.....	15
Chapter 3 Display and Operation instruction	16
3.1 Summary.....	16
3.2 Key features	16
3.3 Data Query.....	16
Chapter 4 Software Configuration	20
Chapter 5 Webpage Illustration	20
5.1 Summary.....	20
5.2 Login	20
5.3 System Information.....	21
5.4 Data Management	22
5.5 Basic Configuration.....	25
5.6 Check Engineering Configuration.....	29
5.7 System maintenance.....	33
Chapter 6 Data collection.....	34
6.1 Summary.....	34
6.2 Collect Function	34

6.3 Acquisition Process Description	35
Chapter 7 Data Forwarding Function.....	36
7.1 Summary.....	36
7.2 Forwarding configuration table	36
7.3 Data Forwarding Function.....	36
Chapter 8 Record Function.....	38
8.1 Summary.....	38
8.2 History and Event Logging.....	38
8.3 Logging Record.....	39
Chapter 9 Alarm System	39
9.1 Summary.....	39
9.2 Alarm Analysis	40
Chapter 10 Auxiliary Function	43
10.1 Communication	43
10.2 DI input.....	44
10.3 Relay Output.....	44
10.4 Analog input.....	45
10.5 Clock	45
Chapter 11 Maintenance and Trouble shooting	46
Chapter 12 Technical Specification	47

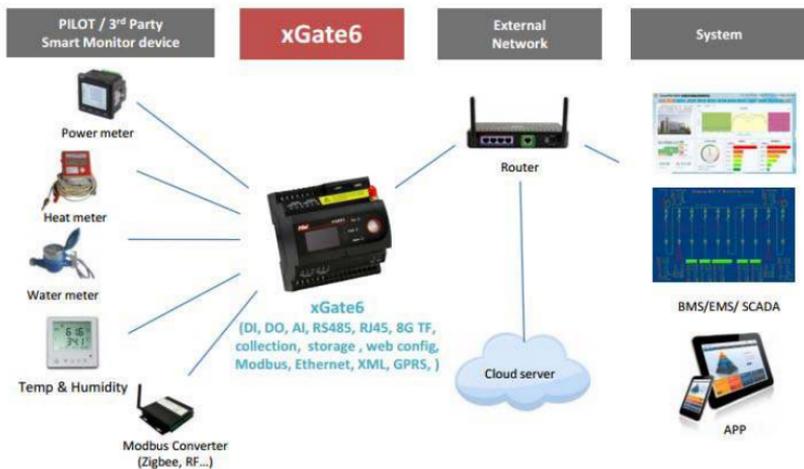
Chapter 1 Introduction

xGate6 intelligent gateway be widely used for different smart device data collection and analysis, to fulfill automated management and maintenance. To monitor each device real time running status and provide alarm notice on the problems which caused in the process of usage, greatly reducing the manpower, material and other maintenance costs.

Product Features

1. Stable and Reliable. All the interface of device use isolated protection design, equipped with wide temperature working ability, suit for working in different on-site hazard environment.
2. Easy operation. There is no special technical knowledge requirement for engineering staff, we provide configuration software to do easy operation which can fulfill data collection, analysis and storage;
3. Strong function. Provide different interface, built-in real time data base and history data base;
4. Ring network topology structure, make sure the communication stability
5. Distributed Deployment and Ethernet Network Management, adapt to any scene environment
6. Detailed historical data recording, Sound alarm event management, provide data support on failure analysis, report generation
7. A variety of alarm linkage

1.1 System Structure



xGate6 intelligent gateway monitoring platform consist of 4 parts, they are Gateway module, Smart Device (intelligent power meter, smart power supply, etc), Temperature and humidity sensor and Data Center (cloud), each part with following functions:

Module Name	Description
Gateway Module	With the function of data collection, control, transmit and event alarm record function Gateway module can divide to 1-4 logic group, the maximum smart device connected is 240
Smart Device	Support Modbus-RTU
Temperature and humidity sensor	Measure temperature and humidity (4-20mA analog output)
Data Center	Provide data analysis and presentation
Cloud	Provide data analysis and presentation, and fulfill Remote Monitoring Service

1.2 Technical Specification

Specifications		
CPU	ARM cortex-A8 800MHz	
Memory	DDR3 512MB	
flash	Nand flash 512MB	
Ethernet Port	Dual 10/100M Ethernet port	
Input / output	xGate6-2XX	2 x RS485 2 x Analog Input (4-20mA) 4 x Digital Input 1xDigital Output (AC220V/5A DC30V/5A) 。
	xGate6-4CX	4 x RS485
USB	1xUSB2.0	
SIM	1 x GSM SIM card, support 2G standard SIM card (15mm x 25mm)	
TF	Standard 8GB, support 16GB TF Card	
RS485 Baud rate	300bps-115200bps (settable)	

RS485 work mode	half-duplex (<u>xGate6</u> master mode)	
Performance		
Slave device	<=240 (with 4 x RS485, per RS485 max 60 slave devices)	
MTBF	>=50,000 hours	
EMC Standard		
Oscillatory waves immunity	GB/T17626.12-1998 (IEC61000-4-12:1995)	III
Electrostatic discharge immunity	GB/T17626.2-2006 (IEC61000-4-2:2001)	III
Electromagnetic field immunity	GB/T17626.3-2006 (IEC61000-4-3:1998)	IV
Electrical fast transient	GB/T17626.4-2008 (IEC61000-4-4:1998)	III
Surge immunity	GB/T17626.5-2008 (IEC61000-4-5:2005)	III
Radio-frequency conduction	GB/T17626.6-2008 (IEC61000-4-6:1998)	III
Power Frequency Magnetic Field Immunity	GB/T17626.8-2008 (IEC61000-4-6:2001)	III
Electromagnetic emission limit value	GB/T14598.16-2002 (IEC60255-25:2000)	PASS
Power frequency immunity tests	GB/T17626.8-2008 (IEC61000-4-8:2001)	A
Operation Environment		

Power Supply	DC18-36V
Power consumption	<5W
Operation Temperature	Working Temperature: -15℃- +55℃ , Storage Temperature: -25℃- +70℃。
Operation Humidity	5-95%,No condensation
Dimension	
L*W*H	90mm*94mm*68mm

1.3 Function Illustration

Item	Yes / No	Note
Modbus Protocol data collection	•	
Modbus Protocol data transmit	•	
FTP upload XML data	•	
Pilot cloud data upload	•	
Alarm	•	
Web Management	•	
GPRS transmit	•	
Room Temperature	•	Model choose with Z
Room Humidity	•	Model choose with Z
Record		
Maximum storage 36 month history data	•	
Maximum storage 36 month alarm record	•	
Logging	•	

Chapter 2 Installation and Wiring

2.1 Environment

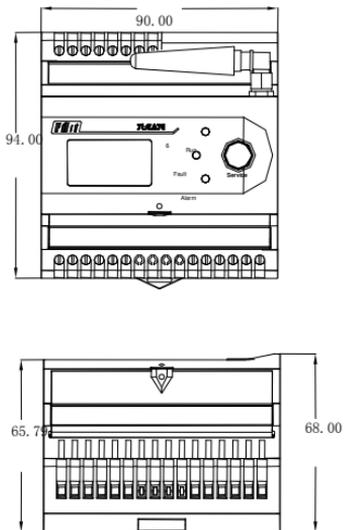
- (1) Standard operating temperature : $-10^{\circ}\text{C} \sim +55^{\circ}\text{C}$
- (2) Storage temperature : $-40^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- (3) Working humidity : 5% ~ 95%RH , Non-condensing

2.2. Installation and Usage

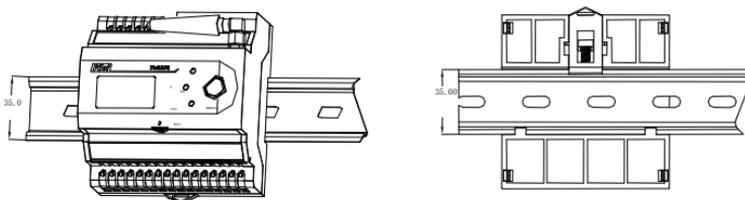
xGate6 intelligent monitoring system consist of the parts of gateway, smart monitoring device, data center

2.2.1 Installation

(1) Dimension



(2) Installation



2.2.2 Definition for Terminals

2.2.2.1 xGate6-4C:

Terminal No.	Code	Definition
1	24V+	24V+ DC Power Supply
2	24V-	24V- DC Power Supply
3	Null	Null
4	Null	Null
5	Null	Null
6	Null	Null
7	RS485A B-	RS485A-
8	RS485A A+	RS485A+
9	RS485A SHEL	RS485A Shield
10	RS485B B-	RS485B-
11	RS485B A+	RS485B+
12	RS485B SHEL	RS485B Shield
13	RS485D SHEL	RS485D Shield
14	RS485D A+	RS485D+
15	RS485D B-	RS485D-
16	RS485C SHEL	RS485C Shield
17	RS485C A+	RS485C+
18	RS485C B-	RS485C-
	LAN1	Ethernet port 1 (10M/100M)
	LAN2	Ethernet port 2 (10M/100M)
	USB	USB2.0 (can extend wifi)
	SIM	SIM(can extend GPRS)
	TF	TF card (standard)

2.2.2.2 xGate6-2ZG:

Terminal No.	Code	Definition
1	24V+	24V+ DC Power Supply
2	24V-	24V- DC Power Supply
3	Null	Null
4	Null	Null
5	RL11	Relay Output
6	RL12	Relay Output
7	RS485A B-	RS485A-
8	RS485A A+	RS485A+
9	RS485A SHEL	RS485A Shield
10	RS485B B-	RS485B-
11	RS485B A+	RS485B+
12	RS485B SHEL	RS485B Shield
13	+I1	4-20mA current 1 input +
14	COM	4-20mA current 1 (2) input -
15	+I2	4-20mA current 2 input +
16	S1	Status input 1
17	S2	Status input 2
18	S3	Status input 3
19	S4	Status input 4
20	Scom	Status input Comm
	LAN1	Ethernet port 1 (10M/100M)
	LAN2	Ethernet port 2 (10M/100M)
	USB	USB2.0 (Reserved, can extend wifi)
	SIM	SIM(Reserved, can extend GPRS)

2.2.2.3 Indicate Light Illustration

No	Code	Color	Definition
1	GPRS	Green	GPRS Running Light (Reserved)
2	RUN	Green	Device running light (interval 1 seconds with 2 times fast flash)
3	FAULT	Red	Malfunction Light(Reserved)
4	ALARM	Yellow	Alarming
5	LAN1-LINK	Green	Ethernet port 1 link light
6	LAN1-ACT	Yellow	Ethernet port 1 data light
5	LAN2-LINK	Green	Ethernet port 2 link light
6	LAN2-ACT	Yellow	Ethernet port 2 data light

Ethernet port indicate light illustration

No	Code	10M	100M	Illustration
1	LINK	OFF	ON	Normal connection
2	ACT	Flash	Flash	Flash: with data transmit ON: No data

2.3 Order Information

Model : xGate6-2Z	
Gateway	
	2 x RS485
	4 x DI Input
	2 x Analog Input (DC 4-20mA)
	1 x Relay Output
Model : xGate6-2ZG	
Gateway	
	2 x RS485
	4 x DI Input
	2 x Analog Input (DC 4-20mA)
	1 x Relay Output
	1x GPRS
Model : xGate6-4C	
Gateway	
	4 x RS485
Model : xGate6-4CG	
Gateway	
	4 x RS485
	1 x GPRS
Standard built in port :	
	1 x USB2.0
	1 x TF card (8GB)
	2 x 10M/100M NIC

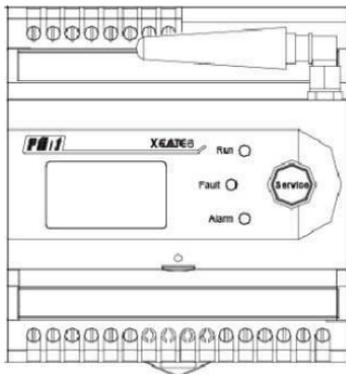
2.4 Power Supply

	Power Supply
xGate6	DC 18V-36V Power loss < 5W

Chapter 3 Display and Operation

instruction

3.1 Summary



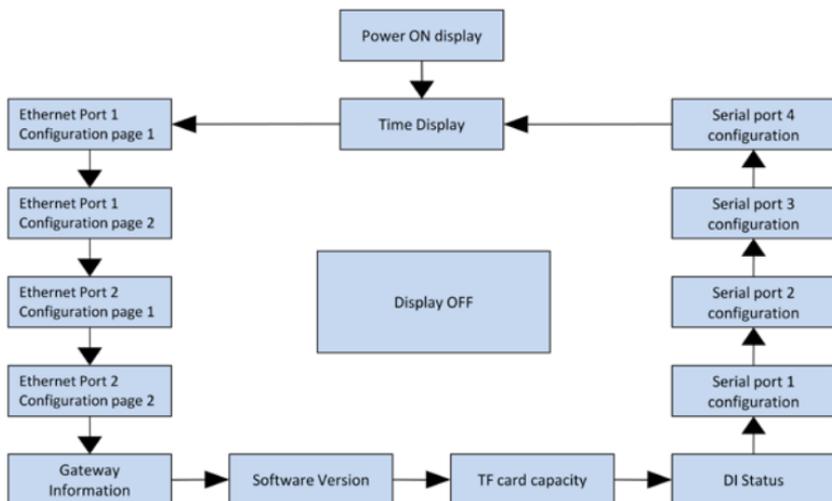
If there is no operation within 30s, the display will OFF automatically

3.2 Key features

xGate6 panel just with one key for operation

3.3 Data Query

Following isxGate6 display menu structure:



3.3.1 Power ON Display Interface

<p>Data Display :</p> <p>Gateway is starting</p>	
--	--

3.3.2 Time Display Interface

<p>Data Display :</p> <p>Displays the current gateway local time</p>	
--	--

3.3.3 Network port configuration

<p>Data display</p> <p>DHCP : Whether to open the Dynamic Host</p> <p>Configuration</p> <p>IP address, gateway address, subnet mask</p>	<div data-bbox="580 182 906 336"> ETH 1 CONF DHCP: enable/disable IP Address: 192.168.15.3</div> <div data-bbox="580 357 906 518"><p>Gateway Address 192.168.16.1</p><p>NetMask 255.255.240.0</p></div> <div data-bbox="580 539 906 693"> ETH 2 CONF DHCP: enable/disable IP Address: 192.168.16.3</div> <div data-bbox="580 721 906 882"><p>Gateway Address 192.168.16.1</p><p>NetMask 255.255.240.0</p></div>
---	---

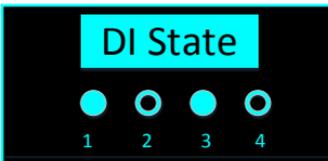
3.3.4 Gateway Information Display Interface

<p>Data Display :</p> <p>Gateway serial number</p> <p>Software version number</p>	 <p>The screenshot shows two screens. The top screen is titled 'IgateInfo' and displays 'Series number: BMS1505069000'. The bottom screen is titled 'Version' and displays 'version: V1.00'.</p>
---	---

3.3.5 TF Card Capacity Display Interface

<p>Data Display :</p> <p>TF card: Total Capacity</p> <p>TF card: Remaining Capacity</p>	 <p>The screenshot shows a screen titled 'TF Card' with two rows of data: 'Total: 03713 M' and 'Remain: 03633 M'.</p>
---	--

3.3.6 DI Status Display Interface

<p>Data Display :</p> <p>DI status: 4 DI working status</p>	 <p>The screenshot shows a screen titled 'DI State' with four circular indicators labeled 1, 2, 3, and 4. Indicators 1 and 3 are solid blue, while indicators 2 and 4 are hollow blue circles.</p>
---	---

3.3.7 Serial port display interface

<p>Data Display :</p> <p>Sequentially displaying the number of the baud rate, number of data bits, parity, and</p>	 <p>The screenshot shows a screen titled 'Port 1 Conf' with the settings '4800 8 E 1' displayed below it.</p>
--	--

data bit settings.



Chapter 4 Software Configuration

Please refer to 《xGate6 Software Configuration Manual.doc》

Chapter 5 Webpage Illustration

5.1 Summary

Web page can provide basic parameter setting, smart device real time data and historical alarm data, log files & engineering query, system firmware upgrade.

5.2 Login

Connect the gateway to a PC (if there is LAN wireless router, support tablet or smart phone log in), open the IE browser (supports IE9 +, Firefox, chrome and other browsers), enter the gateway IP address for loading



Factory default setting

User Name: admin

Password: admin

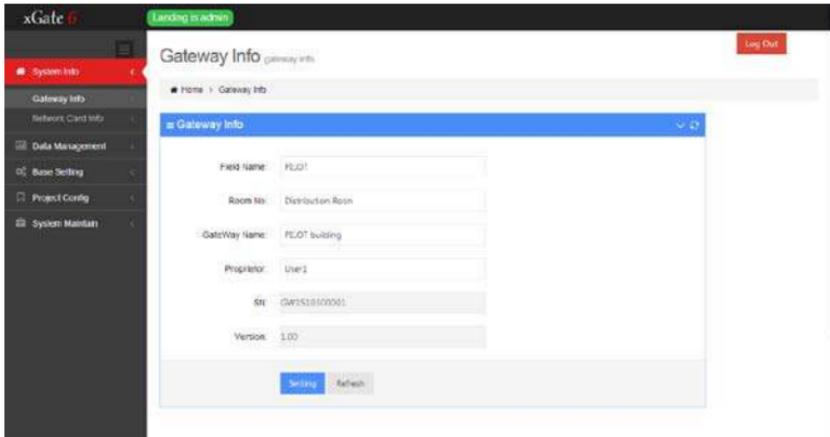
Notice: If there is modify on password or user name and forgot the new information, can use super Account for support

Super Account : root

Super Password : pilot_zh

5.3 System Information

After login, click the system information on the left menu bar, will display the basic information of the current gateway.



Gateway information including the engine room information where the smart monitoring device be installed, the gateway name (can be configured), the gateway serial number, version number.

Configuration will be done according to on-site smart device area information, engine room number, gateway name.

Click [Configure] button, will pop up **【successful configuration】** information after the configuration is successful ;

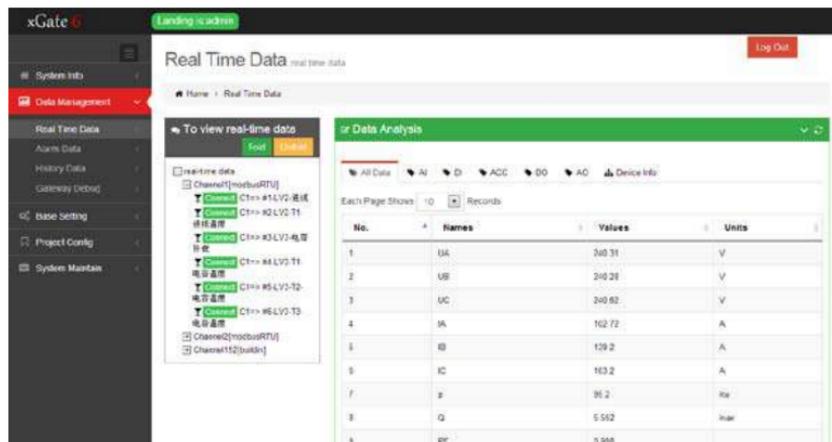
Click [Refresh] button to query the current configuration of the gateway. After success will pop up [Refresh success] Information

5.4 Data Management

After login, click [Data Management] on the left menu bar, there are sub-menu [real-time data] and [historical data].

5.4.1 Real-time Data

Click left side menu bar [Data Management]--[Real time Data], comes to smart device information interface



Real-time data page be used to manage the smart device voltage, current, power, kWh, etc parameter and each device connection status.

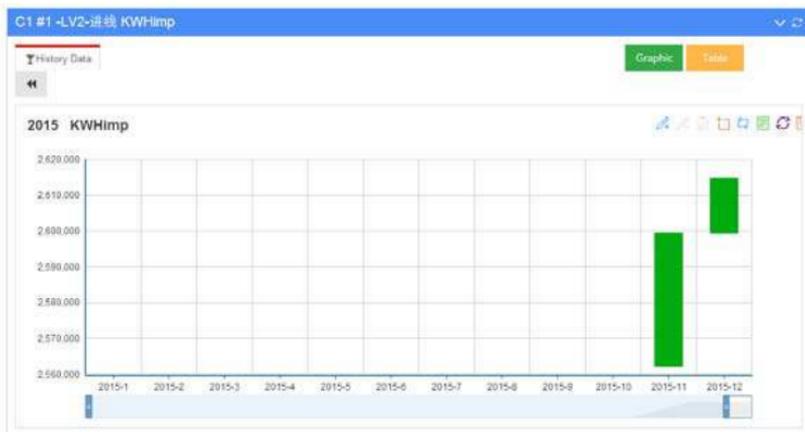
Item	Illustration
1. Classified information	Display smart device current all kinds of information [Data analysis]--each smart device voltage, current, power, kWh etc, each page display with 3 different mode for choose: 15, 30,100 [Connection information]—display present joint communication status
2. Content of Classified	Please refer to classified [② Classified information]

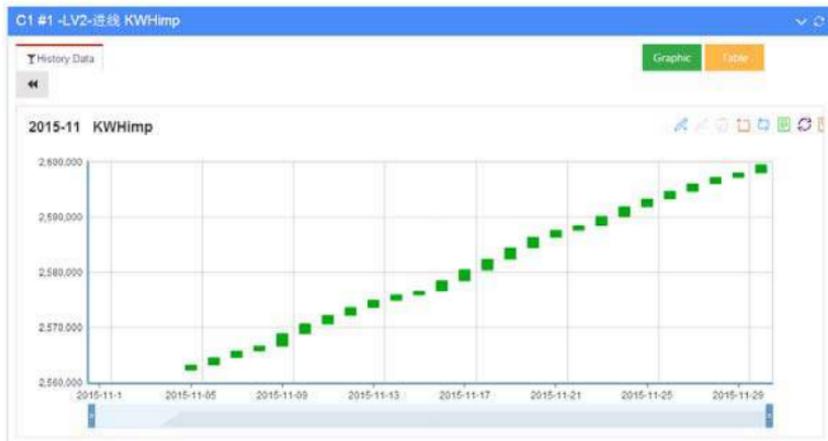
information

5.4.2 History Data

Click left side menu bar [Data Management] ->[History Data], comes to Malfunction history data interface

The screenshot shows the xGate software interface. On the left is a navigation menu with 'Data Management' selected. The main area displays the 'History Data' interface. A 'Query Condition:' dialog box is open, showing a 'Device List' with a search bar and a list of devices. The 'Please select a time' section is set to '2015 IA'. The 'Please select a time' section is set to '2015 IA'.





Item	Illustration
1. History record query criteria	Query the history record by time or parameter type
② History Information	Display history record information

Notice :

Gateway maximum storage last 5 years historical alarm record, if more than 5 years, the new data will cover old data automatically month by month

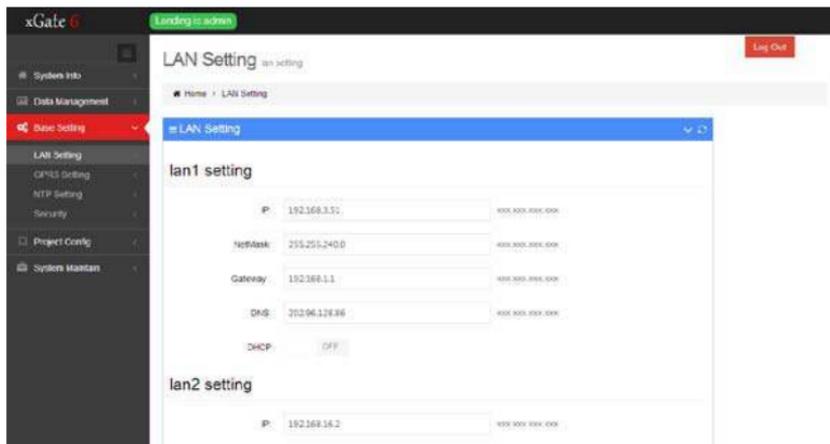
History data generated after insert TF card, recorded in accordance with the maximum load calculation (240 monomer smart device). TF card capacity recommended should be no less than 8GB

5.5 Basic Configuration

Basic configuration includes network interface parameter configuration, GPRS set up, Timing set up and system security configuration.

5.5.1 LAN Configuration

Click left side menu bar [Basic Configuration] ->[LAN Setting], comes to network configuration interface

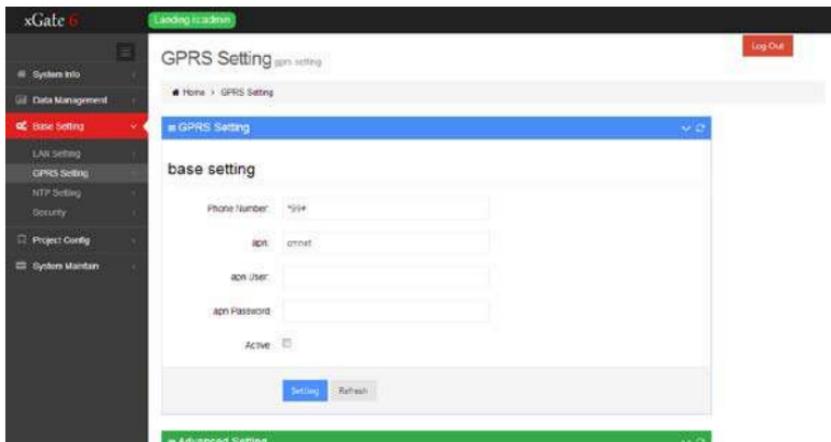


Ethernet port can be configured with dual NIC IP address, subnet mask, gateway, DNS information. Please finish network configuration with correct network parameters.

Notice: The network segment not be allowed all the same in dual NIC!

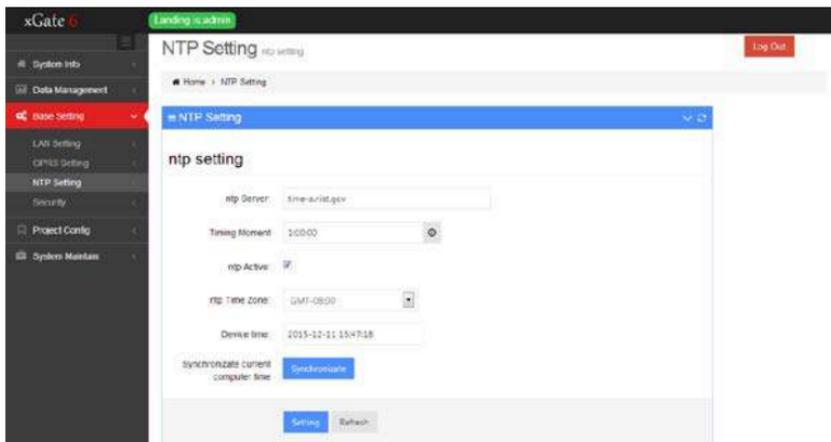
5.5.2 GPRS Configuration

Click left side menu bar [Basic Configuration] -> [GPRS Setting], it comes to GPRS setting interface



5.5.3 NTP Timing Setting

Click left side menu bar [Basic Configuration] -> [NTP Timing Setting], it comes to NTP Timing Setting interface



Item	Illustration
NTP Server	Fill in NTP server address, finish the NTP server name or IP address
Clock synchronization	define each day time and do NTP clock synchronization
NTP Activation	Active NTP function. Click as enabled NTP
Synchronization of computer time	Manual clock synchronization. synchronize the clock of gateway and the current PC time

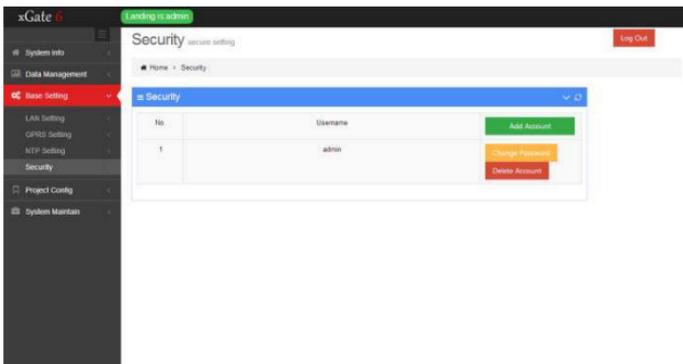
Notice :

When synchronized NTP server is the public network server :

- (1). Ensure access to gateway network lines are connected to the public network link
- (2). **【LAN Configuration】** Gateway address is correctly configured (Even the public network routing address)
- (3). If public NTP server be set as Domain, should correctly fill in [LAN Configuration]

5.5.4 System Security Configuration

Click left side menu bar [Basic Configuration] -> [System Security Setting], it comes to system security configuration interface

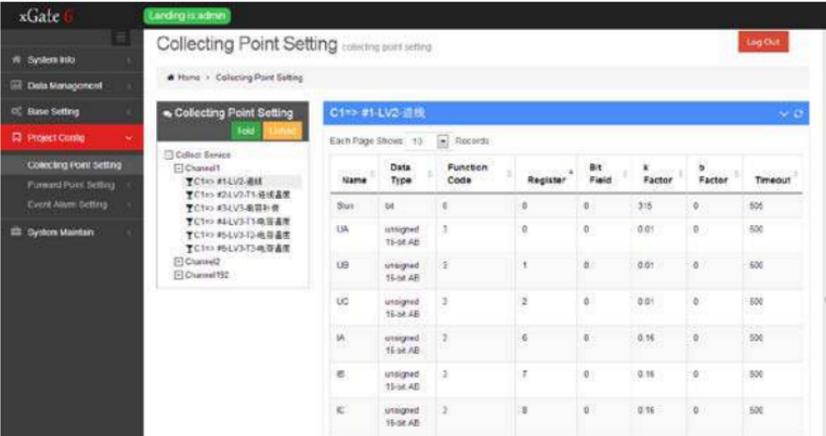


Modify login User Name and Password.

5.6 Check Engineering Configuration

xGate6 provides engineering parameter configuration query function (not support web configuration at this moment), can help to check the gateway configuration information from web page at the time of on-site debugging
Including [Collection Point Configuration], [Forward Point Configuration], [Event Alarm Point Configuration]

5.6.1 Check Collect point Configuration



The screenshot shows the 'Collecting Point Setting' page in the xGate6 web interface. The page title is 'Collecting Point Setting' and the breadcrumb is 'Home > Collecting Point Setting'. The page is for 'C110> #1-LV2-道橋'. The table below shows the configuration for various collected services.

Name	Data Type	Function Code	Register	Bit Field	k Factor	s Factor	Timeout
Bus	04	0	0	0	3:15	0	500
UA	unsigned 15-bit AB	3	0	0	0:01	0	500
UB	unsigned 15-bit AB	2	1	0	0:01	0	500
UC	unsigned 15-bit AB	3	2	0	0:01	0	500
IA	unsigned 15-bit AB	3	6	0	0:16	0	500
IB	unsigned 15-bit AB	3	7	0	0:16	0	500
IC	unsigned 15-bit AB	2	8	0	0:16	0	500

Channel Illustration:

Item	Illustration
Channel1	Corresponding to xGate6 RS485A The configuration for smart device parameter should be the same as actual installation on the project
Channel 2	Corresponding to xGate6 RS485B The configuration for smart device parameter should be the same as actual installation on the project
Channel 3	Corresponding to xGate6 RS485C The configuration for smart device parameter should be the same as actual installation on the project
Channel4	Corresponding to xGate6 RS485D The configuration for smart device parameter should be the same as actual installation on the project
Virtual Channel	Virtual Device: room temperature, room humidity

Measuring point configuration illustration:

Item	Illustration
Name	Measuring point name. Such as A phase voltage, A phase current
Data Type	Smart device communication protocol defined measuring point data type
Function Code	Fixed 03H
Register	Smart device measuring point register number
Bit field	Register bit offset for the measuring point
K factor	Ratio between the transmission data and the actual data, will calculate the actual value together with K factor and b factor. For example: Protocol transmit A phase voltage is 22000, K factor is 0.01, b factor is 0.1 Actual voltage is: $22000 * 0.01 + 0.1 = 200.1$
B factor	
Over time	Respond overtime for the measuring point collect data frame Default 500ms, can be adjusted according to on site application environment

5.6.2 Forward Point Configuration

Forward service is modbus TCP server, fixed to TCP 502 port. This function support random forward for all the measuring point of smart device. Clients can configure the forward table according to measuring point requirement (Just support to use configuration software for configure, web page just can view the current gateway configuration information)

The screenshot shows the 'Forward Point Setting' page in the xGate web interface. The page title is 'Forward Point Setting' and it includes a 'Log Out' button. The main content area is titled 'Forward Point' and shows a table of configurations. The table has the following columns: Name, Data Type, Function Code, Register, K Factor, B Factor, and Relevance. The data in the table is as follows:

Name	Data Type	Function Code	Register	K Factor	B Factor	Relevance
通道1_V2-相位_有功功率	Float 32-bit ABCD	2	3	1	0	01110100
通道1_V2-相位_UA	Float 32-bit ABCD	2	2	1	0	01110000
通道1_V2-相位_UB	Float 32-bit ABCD	2	4	1	0	01110001
通道1_V2-相位_UC	Float 32-bit ABCD	2	6	1	0	01110002
通道1_V2-相位_UA	Float 32-bit ABCD	2	8	1	0	01110003
通道1_V2-相位_IB	Float 32-bit ABCD	2	10	1	0	01110004
通道1_V2-相位_IC	Float 32-bit ABCD	2	12	1	0	01110005

Measuring point configuration illustration

Item	Illustration
Name	Measuring point name
Data Type	Defaults to 32-bit floating point byte order is big-endian mode
Function Code	Fixed 03H
Register Number	Range: 0-65535
K factor	Ratio between the transmission data and the actual data, will calculate the actual value together with K factor and b factor. For example: Protocol transmit A phase voltage is 22000, K factor is 0.01, b factor is 0.1 Actual voltage is: $22000 * 0.01 + 0.1 = 200.1$
B factor	
Relation	Measuring Point ID. ID including measuring point channel, device address, type,

number. Relative to collect point. For example : 0x00010000
=>
00 01 00 00
Channel 0 address 1 AI Number 0

5.6.3 Event Alarm point Configuration

No.	Active	Event Point Settings	Group	Event Type	Threshold Value/Quary Time(min)	Hysteresis Value	Holding Time (ms)	Recovery Time (ms)	Trigger Action	Reset
1	<input checked="" type="checkbox"/>	01113101	1	2	10	0	0	0	Event Log	No Reset
2	<input checked="" type="checkbox"/>	01113001	1	2	10	0	0	0	Event Log	No Reset
3	<input checked="" type="checkbox"/>	01113001	1	2	10	0	0	0	Event Log	No Reset
4	<input checked="" type="checkbox"/>	01113002	1	2	10	0	0	0	Event Log	No Reset
5	<input checked="" type="checkbox"/>	01113003	1	2	10	0	0	0	Event Log	No Reset

Item	Illustration
Activation	Active this event
Monitoring type	Measuring point type
Group	Group number, range 1-4 (not used at this moment)
Event type	upper limit, lower limit, timing of the trigger
Threshold/Time interval	If [Event type] is over limit alarm, it is threshold If [Event type] is timing of the trigger, it is time interval (unit: Second)
Hysteresis value	After over limit alarm happened, return back to this value will cancel the alarm. Just [Event type] setting as over limit will be valid. If setting value is 0, invalid
Hold Time	After over limit alarm happened and keep on this value setting time will alarm. Just [Event type] setting as over limit will be valid. If setting value is 0, invalid
Recovery Time	After over limit alarm happened, in the time of return back to the normal value will alarm. Just valid for [Event type] setting as over limit and [Revert], If setting value is 0, invalid

Trigger action	When alarm happened, can choose relative activation. Choose: light, relay 1, relay 2, event record
Revert	alarm whether be cancelled after real time value revert to normal

5.7 System Maintenance

System Maintenance provide maintenance for monitoring system log information, gateway upgrades, acquisition upgrade

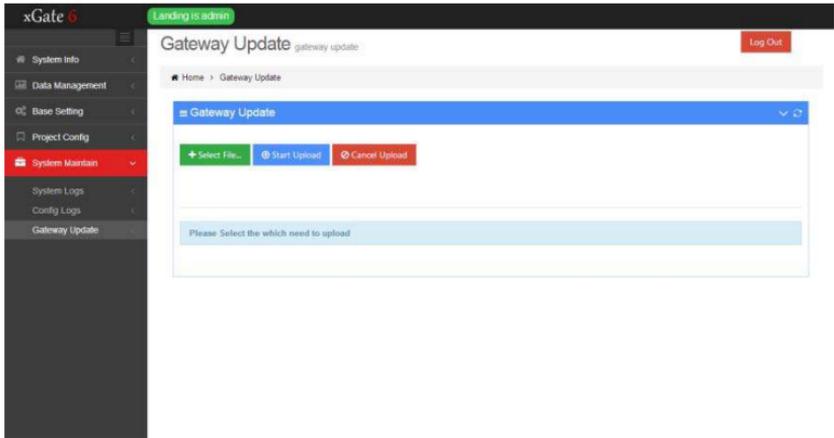
5.7.1 System log

The screenshot displays the 'System Logs' page in the xGate application. The left sidebar contains a navigation menu with 'System Maintain' highlighted. The main area shows a table of system logs with the following data:

No.	Time	Configuration Details
108	2015-12-13 20:36:44	INFO: Smart2IV is start
107	2015-12-09 00:19:34	INFO: Smart2IV is start
106	2015-12-09 22:27:41	INFO: Smart2IV is start
105	2015-12-08 21:16:13	INFO: Smart2IV is start
104	2015-12-08 21:00:31	INFO: Smart2IV is start
103	2015-12-01 13:00:21	INFO: Smart2IV is start
102	2015-12-01 14:59:51	INFO: Smart2IV is start
101	2015-12-01 14:47:11	INFO: Smart2IV is start
100	2015-12-01 14:36:13	INFO: Smart2IV is start
99	2015-12-01 14:27:54	INFO: Smart2IV is start

Recording system startup information, Error information, in order to facilitate fault location and on-site commissioning

5.7.2 Gateway Firmware Upgrade



When system need for upgrade, upgrade the software into gateway from this interface

Chapter 6 Data collection

6.1 Summary

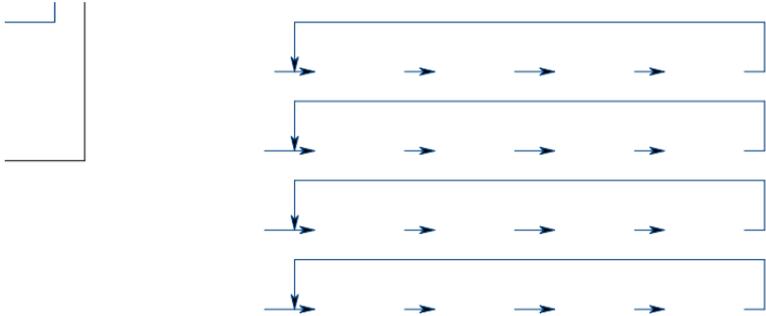
xGate6 gateway provide 4 channel RS485 to communicate with smart device (intelligent power meter, smart power supply, etc)

6.2 Collect Function

- (1). Each gateway equip with 4 channel RS485 port
- (2). Each RS485 channel connect with maxim 60 pieces smart device
- (3). Slave address for each channel RS485 devices connected must be unique
- (4). Serial port parameter for each channel RS485 devices connected must be unique

6.3 Acquisition Process Description

(1). 4 Channel data acquisition at the same time in parallel



(2). Acquisition time interval is 0 second, there will be 3 times repeat request if any failure for one device data collection, after 3 times break will jump to the next one. One hour later will repoll again.

[Repoll interval], [Repeat times], [Break times] and [Repoll time] parameters can be configured

Parameter	Illustration
【Repoll Inv】 = 0	Repoll interval is 0, no need wait and continue the next time repoll
【Repeat times】 = 0	If repoll fails, no request again
【Break times】 = 0	No break judge, the overtime request device in this time poll, will request again in next repoll
【Repoll time】 = 0	Break repoll time is 0, if device break, will request again in next time repoll

Chapter 7 Data Forwarding Function

7.1 Summary

xGate6 support both web view function and data forward function.

This gateway support multi-Host TCP connection, in theory there is no limit on the number of connections, but the actual use is recommended to limit the number of connections no more than 20

7.2 Forwarding configuration table

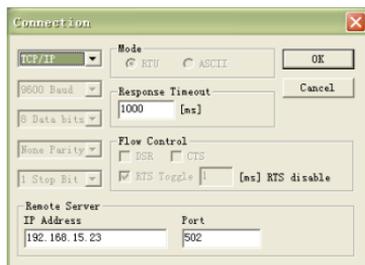
The user configurate the forwarding table according to each detail measuring point. Please refer to <xGate6 Intelligent Gateway Configuration Software>

7.3 Data Forwarding Function

Configure the forwarding table base on Chapter 5.2, the user can read the real time data by the software which connect with gateway through modbus TCP

We are using modbus Poll as example:

1. Choose TCP/IP connection mode, input IP address (here is 192.168.15.3), port number 502



- (1). Set up new modbus query. Click [Setup] -> **[read/write definition]** , set the

slave register starting address is 0 and reading register number is 10

(2). Set the read register starting address and display format **【display】** -> **【float inverse】**



2、 After configuration, can sequentially to read the smart device real-time data, one message can read maxim 512 measuring point. When a larger number of measuring points need to get real-time data, can divide into several sections

3、 If there are several data center need to read the data from gateway at the same time, can connect all of them to port 502 on the gateway. Suggest maxim number no more than 20

Chapter 8 Record Function

8.1 Summary

xGate6 provide 36 months history and alarm record, 1000 piece data logging record, the user can check those information from web page

Record information be saved in TF card, so please check TF card before operation
xGate6 can save 36 months history data, if more than 36 months, the system will cover the oldest month data automatically by new

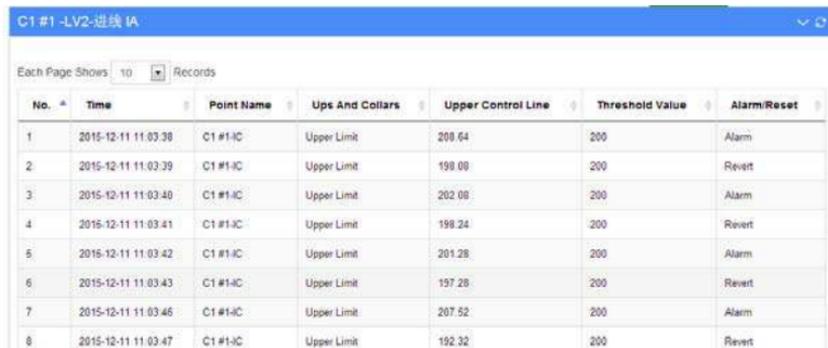
8.2 History and Event Logging

xGate6 can record the user configured each measuring point timing storage records, there are 2 different kinds storage time interval:

A; Storage by moments. Such as: hh:mm:ss

B; Storage by time. Such as: each xx minutes save one time

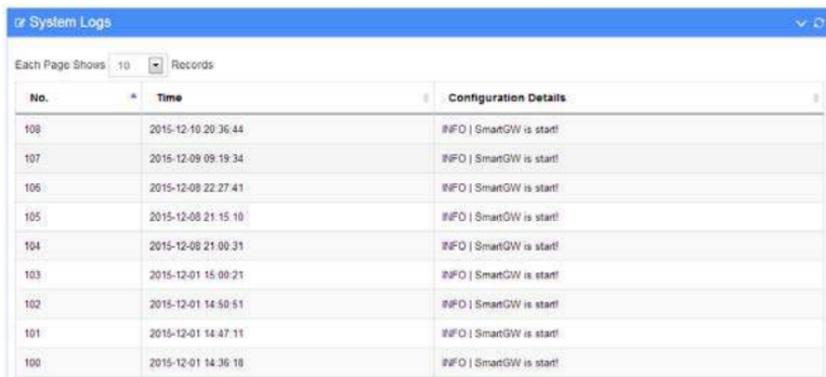
xGate6 can record each measuring point alarm record which be configured by user, to activate event alarm record by setting the over limit value (up limit or low limit), can check and analysis the record information through WEB.



No.	Time	Point Name	Ups And Coilers	Upper Control Line	Threshold Value	Alarm/Reset
1	2015-12-11 11:03:38	C1 #1-IC	Upper Limit	209.64	200	Alarm
2	2015-12-11 11:03:39	C1 #1-IC	Upper Limit	199.08	200	Revert
3	2015-12-11 11:03:40	C1 #1-IC	Upper Limit	202.08	200	Alarm
4	2015-12-11 11:03:41	C1 #1-IC	Upper Limit	198.24	200	Revert
5	2015-12-11 11:03:42	C1 #1-IC	Upper Limit	201.28	200	Alarm
6	2015-12-11 11:03:43	C1 #1-IC	Upper Limit	197.28	200	Revert
7	2015-12-11 11:03:46	C1 #1-IC	Upper Limit	207.52	200	Alarm
8	2015-12-11 11:03:47	C1 #1-IC	Upper Limit	192.32	200	Revert

8.3 Logging Record

xGate6 intelligent gateway will record the running status information and fault information, in order to support project commissioning and on-site maintenance, Record information be viewed and analysis from web page, as following format



The screenshot shows a web interface titled "System Logs". Below the title bar, there is a control for "Each Page Shows" set to "10" and "Records". The main content is a table with three columns: "No.", "Time", and "Configuration Details". The table contains ten rows of log entries, all with the message "INFO | SmartGW is start!".

No.	Time	Configuration Details
108	2015-12-10 20:36:44	INFO SmartGW is start!
107	2015-12-09 09:19:34	INFO SmartGW is start!
106	2015-12-08 22:27:41	INFO SmartGW is start!
105	2015-12-08 21:15:10	INFO SmartGW is start!
104	2015-12-08 21:00:31	INFO SmartGW is start!
103	2015-12-01 15:00:21	INFO SmartGW is start!
102	2015-12-01 14:50:51	INFO SmartGW is start!
101	2015-12-01 14:47:11	INFO SmartGW is start!
100	2015-12-01 14:36:18	INFO SmartGW is start!

Chapter 9 Alarm System

9.1 Summary

xGate6 with customized alarm system, can monitor all smart device parameters and set the linkage, there is no quantity limit on setting the alarm parameter, support all the measuring point over limit alarm.

Notice: Alarm parameter setting need to reference<xGate6 configuration software manual.doc>

9.2 Alarm Analysis

9.2.1 Alarm Judge Type

There are two types: Upper Limit and Lower Limit, the value can be free setting

9.2.2 Alarm Object Type

Analogue setting system can monitor all electrical parameter, as following listed normal parameters:

Over Limit Type	Parameter Type
Upper Limit	Voltage
	Current
	Active Power
	Reactive Power
	Frequency
	Power Factor
	Other parameters
Lower Limit	Voltage
	Current
	Active Power
	Reactive Power
	Frequency
	Power Factor
	Other parameters

9.2.3 Alarm Action Condition

After define monitoring parameters, need to set the trigger condition

For example: define A phase voltage upper limit action

Set the item number, event type set as upper limit, limit value 265.0 V, trigger action is [Event Record]. The Hysteresis value, hold time, recovery time is 0

If the voltage over than 265.0 V, there will be one event record information

9.2.4 Alarm Holding Time

When the alarm object fulfill over limit condition, still need to fulfill the time requirement which can be absolutely activated. In the total delay time, if the alarm object return back to the limit value, then will not be activated. The unit for activation delay is second, setting range is 0-65535. If set the value to 0, it means that the alarm will be activated at the moment object over limit. Because of smart device repoll time interval is long, so suggest to set this value in actual application to 0

9.2.5 Alarm Hysteresis value

When the alarm object be activated, alarm will be cancelled after real time value return back to hysteresis value setting range. This value in order to avoid the object real time value frequently fluctuation at limit value which will cause to repeat alarm output. The range can be set according to the actual object

For example: set the A phase voltage alarm upper limit is 265.0 V, hysteresis value is 20.0 V, when smart device got value >265.0 V will trigger alarm, at 250.0 V, alarm not cancel, return back to 265.0 V will not repeat alarm. Until the voltage <245.0 V, alarm will be cancelled

Hysteresis value be set according to measuring point on-site environment, if setting value is 0, it means that at the moment the real time value not within the limit range, and [Alarm return time] is 0, [Revert] is yes, will cancel alarm immediately. Because of smart device repoll time interval is long, so suggest to set this value in actual application to 0

9.2.6 Alarm Holding Time

When alarm object fulfill over limit condition and return back not fulfill over limit condition, the alarm not be cancelled immediately, but to wait the alarm recovery value continue to [Alarm holding time], then cancel alarm. if setting value is 0, it means at the moment the object not fulfill over limit condition, and [Hysteresis value] is 0, [Revert] is yes, will cancel alarm immediately. Because of smart device repoll time interval is long, so suggest to set this value in actual application to 0

9.2.7 Alarm Trigger Activation

Trigger activation including:

Trigger Activation	Illustration
LED Light	Alarm---ON Cancel---OFF
Relay 1	Alarm---OFF Cancel---ON
Relay 2	Alarm---OFF Cancel---ON
Event Record	record alarm and cancel

Chapter 10 Auxiliary Function

10.1 Communication

xGate6 with maxim 4 x RS485 port, 4 of them independent from each other.

Please refer to following wiring example, in the actual application, In order to prevent signal reflection, normally need to add on parallel an approximately 120-ohm resistor by the end of network

xGate6 with 2 port RJ45, support IEEE-802.3 Ethernet standard 10BaseT/100BaseTX

10.1.1 Communication media

Communication use standard 22# shielded Twisted Pair, total length no more than 1200 meter long

10.1.2 Communication Protocol

Standard Modbus-RTU, RS485 communication protocol, Please refer to "xGate6 communication protocol" manual

10.1.3 Communication Parameter

Communication Parameter including:

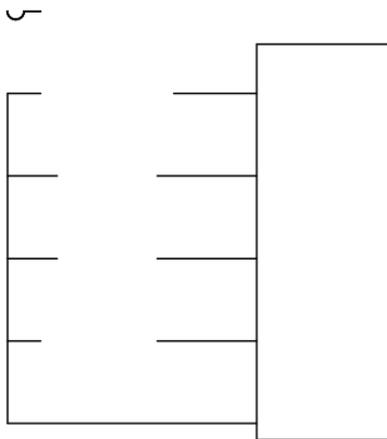
1. Meter address ID
2. Baud rate: 2400, 4800, 9600, 19200, 38400, 57600, 115200

10.1.4 Communication port against strong electrical function

Short time (within 5 minutes) strong electricity connection (220V AC) no damage, after move away strong electricity will recovery back to normal communication

10.2 DI input

xGate6 provide 4 loop DI input (no outside power supply), be used to monitor breaker signal, wiring as following:



DI input connection wiring

10.3 Relay Output

xGate6 with 2 loop relay output, Relay standard 250Aac/5A, can work together with alarm system to monitor the information of parameter over limit.

10.4 Analog input

Support 4-20mA input from temperature humidity sensor

10.5 Clock

xGate6 built in NTP server and with time synchronization function

Chapter 11 Maintenance and Trouble shooting

Problems	Causes	Solutions
No display after power on	Power supply failure	<p>Check 24V+ & 24V- terminal and make sure with correct power supply</p> <p>Check the fuse of power supply whether be burned</p>
Measuring value wrong or incompatible with target	voltage measurement wrong	<p>Check the connection</p> <p>Check whether measurement voltage compatible with device rated parameter</p>
	Current measurement wrong	<p>Check whether measurement current compatible with device rated parameter</p> <p>Check Hall sensor setting</p>
DI status no change	DI activation voltage wrong	<p>Check connection wiring</p> <p>Check outside node type</p>
Relay no working	Not received control commend	Check communication
	Relay working mode wrong	Check whether relay under correct mode
Can not communication with UP side device	Communication address wrong	Check device address
	Baud rate wrong	Check device baud rate

	Did not add resistor by the end of network	Check whether add 120 ohm resistor
	communication interference	Check communication shield
	Communication interruption	Check communication cable

Chapter 12 Technical Specification

Dimension	Panel : 96mm (L) × 96mm (W) × 13.5mm (H)	
	No extend module : 96mm (L) × 96mm (W) × 58.6mm (H)	
	With extend module : 96mm(L) × 96mm(W) × 80.1mm(H)	
IP	Panel :	IP52
	Back & Side :	IP30
Power Supply	DC12-36V	

Item	Reference Standard	Class
Sasser immunity	GB/T17626.12-1998 (IEC61000-4-12:1995)	III
Electrostatic discharge immunity	GB/T17626.2-2006 (IEC61000-4-2:2001)	III
RFEMS	GB/T17626.3-2006 (IEC61000-4-3:1998)	IV
Electrical fast transient burst immunity	GB/T17626.4-2008 (IEC61000-4-4:1998)	III
Surge Immunity	GB/T17626.5-2008 (IEC61000-4-5:2005)	III
RF conducted immunity	GB/T17626.6-2008 (IEC61000-4-6:1998)	III
Power frequency magnetic field immunity	GB/T17626.8-2008 (IEC61000-4-6:2001)	III
Electromagnetic emission limits	GB/T14598.16-2002 (IEC60255-25:2000)	PASS
Power frequency immunity	GB/T17626.8-2008 (IEC61000-4-8:2001)	A

Notice:

- PILOT reserves the right to modify this manual without prior notice in view of continued improvement.
- Email: overseamarket@pmac.com.cn

***Pilot* Zhuhai Pilot Technology Co., Ltd.**

Add: No. 15, Keji 6 Road, Chuangxin Hai'an, Tangjia High-tech Zone, Zhuhai, Guangdong, 519085 China

Tel: +86-756-3629926/3629688

Fax: +86-756-3629600/ 3629670

<http://www.pmac.com.cn>

