ORIGINAL MANUAL

Kaysun

INSTALLATION & OWNER'S MANUAL

Gateway

K8-MODBUS

Thank you for purchasing our product.
Before using the unit, please read this manual carefully and keep it for future reference.

Contents

Safety Precautions 2
Product Description 4
Function Codes for Commands 5
1 Debugging 6
1.1 Checking the Communication Between the Gateway and Refrigerant System 6
1.1.1 Opening Web Debugging Page 6
1.1.2 Discrete Input and Input Register 7
1.1.3 Determining Whether the Communication Is Normal 8
1.2 Modbus Interface Debugging 8
1.2.1 Configuring Modbus Gateway 9
1.2.2 Modbus/RTU 10
1.2.3 Modbus/TCP 20
2 Mapping Tables 32
Precautions for Integrated Development 32
2.1 Discrete Input 34
2.1.1 IDU 34
2.1.2 ODU 34
2.2 Input Register 35
2.2.1 IDU 35
2.2.2 ODU 40
2.2.3 By IDU/ODU Parameter Type (Continuous Addresses) 43
2.3 Holding Register 47
2.3.1 All-off Control Register 47
2.3.2 IDU Control Register 1 48
2.3.3 IDU Control Register 2 56
3 Web Functions 61
3.1 System Settings 62
3.2 DataView 63
3.3 Firmware Upgrade 64
4 Restoring Factory Settings 65
Installation 66

Safety Precautions

The Installation & Owner's Manual of this product describes how to properly handle the product, prevent personal injury and property losses, as well as how to use the product correctly and safely. Read the following carefully, make sure you understand the content (symbols and marks), and observe the precautions below.

⚠ CAUTION

Read the safety warnings carefully prior to installation.

Be sure to observe the important safety precautions provided be low.

Meanings of labels:

⚠ Warning Indicates that improper handling may lead to personal injury or material loss.

⚠ Caution Indicates that the operations will be affected due to ignoring a precaution.

After the installation is completed, confirm that no errors occur during the trial run, and hand over the manual to the customer for safekeeping.

Icon Description

Icon	Name	
⃠	Prohibited. Information about what is specifically prohibited is provided using graphs or texts in the icon or nearby.	
ⓘ	Mandatory. A specific mandatory requirement is provided using graphs or texts in the icon or nearby.	
⚠ Warning	Commissioned Installation	Ask your local dealer or professionals to install the product. Installation personnel must have relevant professional knowledge. Incorrect installation by non-professionals may lead to a fire, electric shock, or injury.
⃠ Warning of Use	Prohibited	Do not use combustible paints to spray directly on the data converter as this may cause a fire.
	Prohibited	Do not handle the product with wet hands, and do not let water seep into the device. Otherwise, an electric shock may occur.

⚠ WARNING

This unit must be installed by professional technicians. Users are not allowed to install the unit themselves; otherwise, personal injury or damage to the controller may occur.

Other electrical wiring work must be carried out by a professional technician according to the circuit diagram. All wiring work must comply with electrical safety specifications.

It is forbidden to modify the use and function of the product without authorization.

⚠ CAUTION

Do not install the product in a location where flammable gas can easily leak. Any leakage within the vicinity of the device may cause a fire.

The wiring must be compatible with controller current.

Be sure to check the wiring before powering on the product. Never install the machine while the power is on.

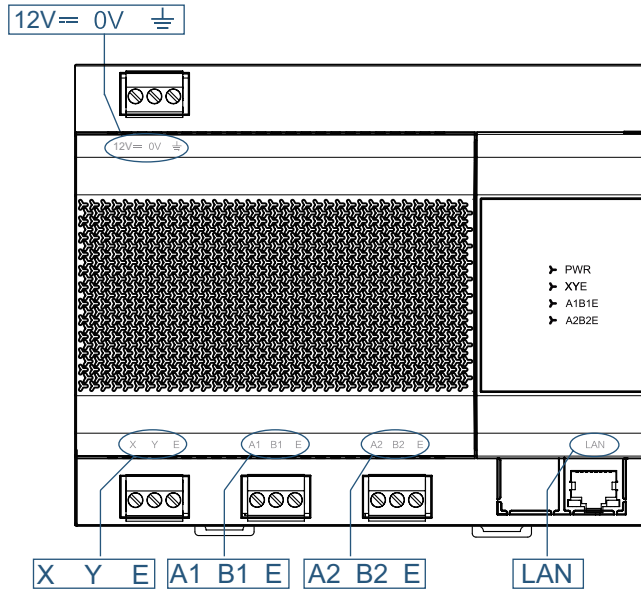
In the event of any malfunction, please contact a professional technician. DO NOT disassemble or repair the unit without authorization.

This equipment is not suitable for places where children gather.

Product Description

K8-MODBUS Gateway (this Gateway) provides standard Modbus services for VRF units.

It is suitable for all S8 series units, that is, S8 ODUs and S8 IDUs.



Port	Function
12V 0V	12V DC power supply
X Y E	Isolated RS-485 ports, connecting to S8 VRF units in up to eight refrigerant systems (The maximum IDU quantity is 64.) *The X port of the Gateway is connected to the X port of the ODU, and the Y port of the Gateway is connected to the Y port of the ODU. When multiple refrigerant systems are connected, they need to use different addresses.
A1 B1 E	Modbus/RTU
A2 B2 E	Reserved port
LAN	Provides the Modubus/TCP protocols, and enables web page configuration (The computer and this Gateway need to be in the same network segment.) * The Modbus/TCP interface of the Modbus Gateway supports only port 502.

Indicator	Item	Status	Description
PWR	Power supply	Off	The Gateway is powered off.
		Steady on	The Gateway is powered on.
X Y E	X1Y1E communication status	Off/Steady on	No data transmitting
		Blinking	Data transmitting
A1 B1 E	X2Y2E communication status	Off/Steady on	No data transmitting
		Blinking	Data transmitting
A2 B2 E	Reserved		

Operating ambient temperature	-10°C to +50°C
Operating ambient humidity	RH25%~RH90%

Function Codes for Commands

Function Code	Function Name	Description
0x02	Discrete input	Read
0x03	Read Holding Register	Read
0x04	Read Input Register	Read
0x06	Write Single Register	Write
0x10	Write Multiple Registers	Write

1 Debugging

According to the description above, connect the X Y E ports on the ODU to those on the access Gateway. (*1)

A1 B1 E ports provide Modbus RTU protocol interfaces, and the LAN port provides Modus TCP protocol interfaces. The integrator can select the access mode based on the actual project requirements, and select the corresponding access mode for debugging.

(*1) When the refrigerant system is powered on, system detection will take some time. During this period, the Gateway may obtain incorrect information of the refrigerant system. You are advised to perform Modbus Gateway debugging after the refrigerant system is stable (about 15 minutes after power-on, depending on the actual refrigerant system).

Before integrated development by a third party, ensure that all steps in section 1 Debugging are completed on the Modbus Gateway on site.

1.1 Checking the Communication Between the Gateway and Refrigerant System

On the web page embedded on the Gateway, check whether the Gateway and refrigerant system are communicating normally.

(*2)

1. The PC and the Gateway need to be in the same network segment. For specific settings, consult relevant IT personnel.
2. The PC OS can be Windows 7 (32-bit or 64-bit) or later versions.

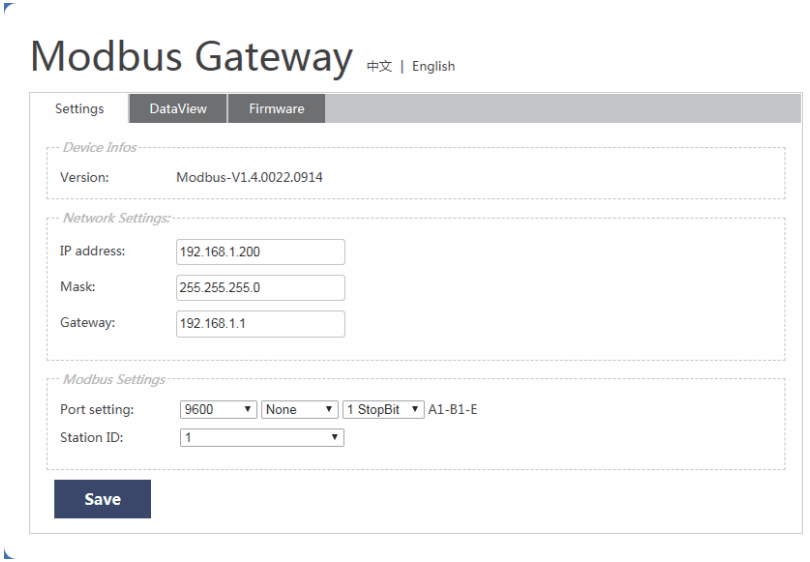
1.1.1 Opening Web Debugging Page

In the address bar of Chrome browser (*3), enter "http://Gateway IP address" to open the web page of the Gateway. For example, the default IP address of the Gateway is 192.168.1.200. enter" http://192.168.1.200" to open the web page as shown below.

(*3)

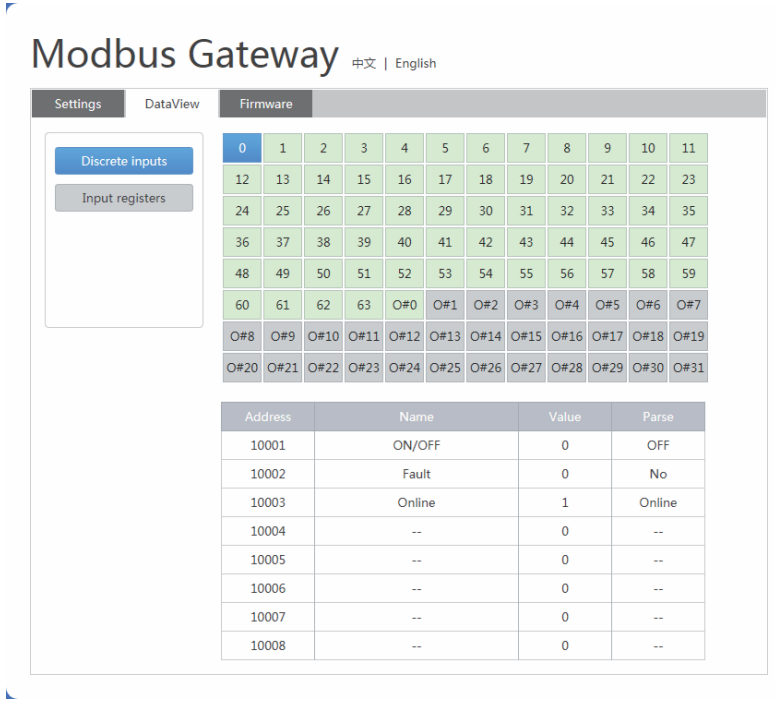
1: Chrome browser needs to be in 70.0 or any later version.

2. Other browsers may be incompatible, preventing the Web function from working properly.



1.1.2 Discrete Input and Input Register

Click "DataView" to check the online information of the refrigerant system that the Gateway has obtained so far.



A pure number indicates an IDU, and the numeral indicates the IDU address. For example, IDU 0

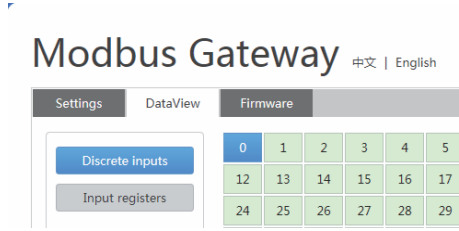
0

"O#number" indicates an ODU, and the numeral indicates the ODU address. For example, ODU 0

O#0

Offline	Online	Selected
0 RGB (210,212,214)	0 RGB (225,243,216)	0 RGBA (87,176,254,1) 0%, RGBA (64,144,245,1) 100%

You can click an address to view the specific parameters of the device, and click "Discrete inputs" or "Input registers" to check different information.



1.1.3 Determining Whether the Communication Is Normal

1. The number of devices online is consistent with the actual project.

2. Device parameters are correct.

If the above two points are met, the Gateway and refrigerant system communicate normally. In this case, you can proceed to "Modbus Interface Debugging ".

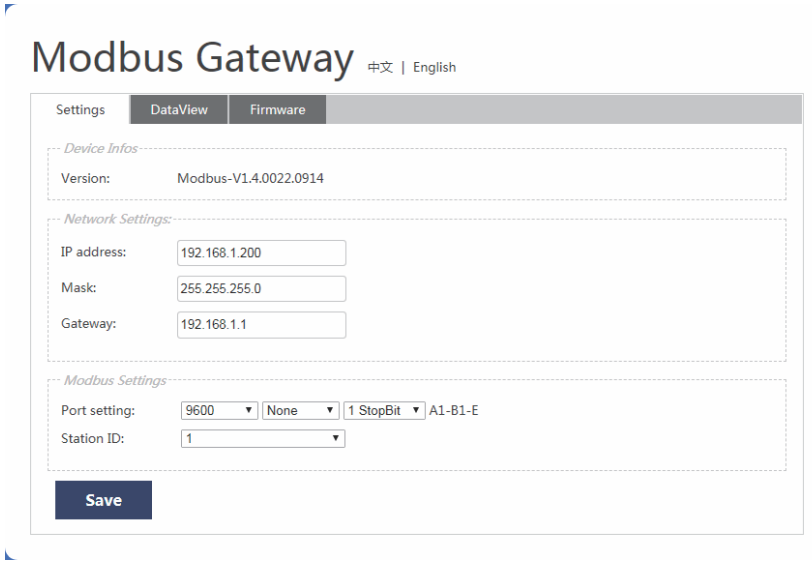
If the number of devices is inconsistent with the actual project, or the device parameters are displayed incorrectly, check X Y E connection, and confirm whether the refrigerant system works properly.

1.2 Modbus Interface Debugging

Interface debugging requires knowledge of the Modbus protocol. The following section deems that the user has relevant knowledge by default.

This document uses the Modbus Poll software as an example only, and the product does not provide the Modbus Poll software.

1.2.1 Configuring Modbus Gateway



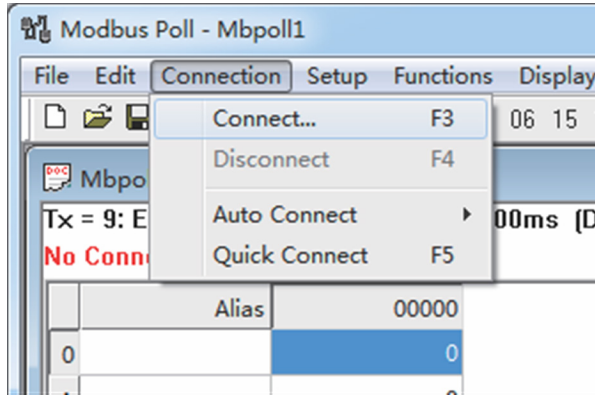
On the "Settings" page, configure Modbus parameters.

Network Settings	IP address	IP address of the Modbus Gateway
	Mask	Subnet mask in the IP configuration
	Gateway	Default gateway in the IP configuration
Modbus Settings	Port setting	Modbus interface configuration The first field indicates the baud rate. The default value is 9600. (Available values include 4800, 9600, 19200, and 38400.) The second field indicates the parity check. The default value is none. (Available values include none, even, and odd.) The third field indicates the stop bit. The default value is 1 StopBit. (Available values include 1 StopBit and 2 StopBit.) * The data bit supports only 8. * The Modbus/TCP interface of the Modbus Gateway supports only port 502.
	Station ID	Modbus station ID, ranging from 1 to 254. The default value is 1.

1.2.2 Modbus/RTU

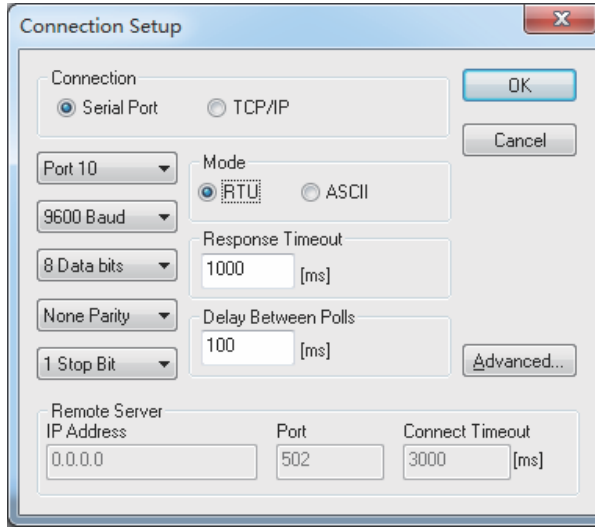
Configuring Modbus/RTU Parameters

Click "Connection" > "Connect" and configure Modbus Poll connection parameters:

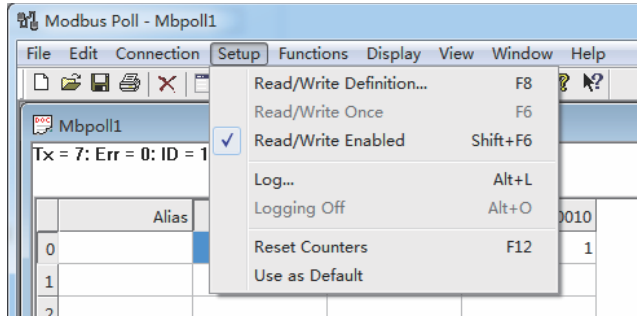


Choose "Serial Port" for "Connection" and "RTU" for "Mode".

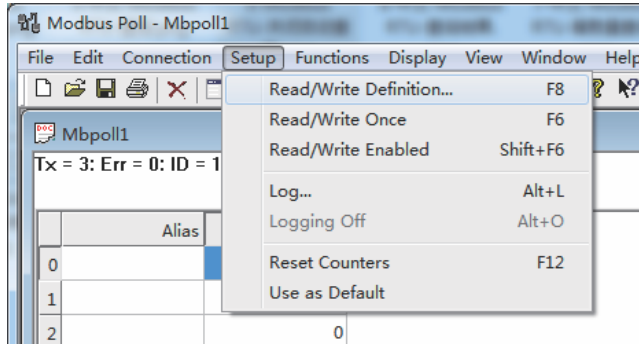
The serial port configuration needs to be consistent with the configuration in the Gateway "Modbus Settings".



Click "Setup" > "Read/Write Enabled". If the √ icon is not displayed, the auto sending function is cancelled.



Click "Setup" > "Read/Write Definition..." to set read/write configuration:



Example: Read Discrete input

Example: Read "On/Off status", "Fault status", and "Online status" of IDU 1.

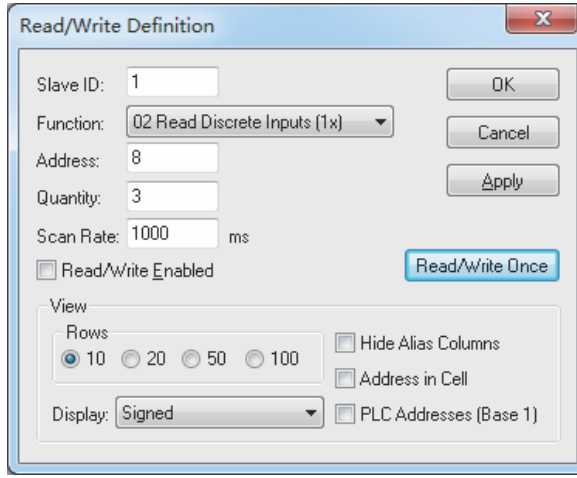
Refer to "2 Mapping Tables" > "2.1 Discrete Input" > "2.2.1 IDU".

n# IDU (The valid value of n ranges from 0 to 63.)	2	n*8+1+10000	ON/OFF	0: off 1: on
	2	n*8+2+10000	Fault	0: no fault 1: fault
	2	n*8+3+10000	Online	0: offline 1: online

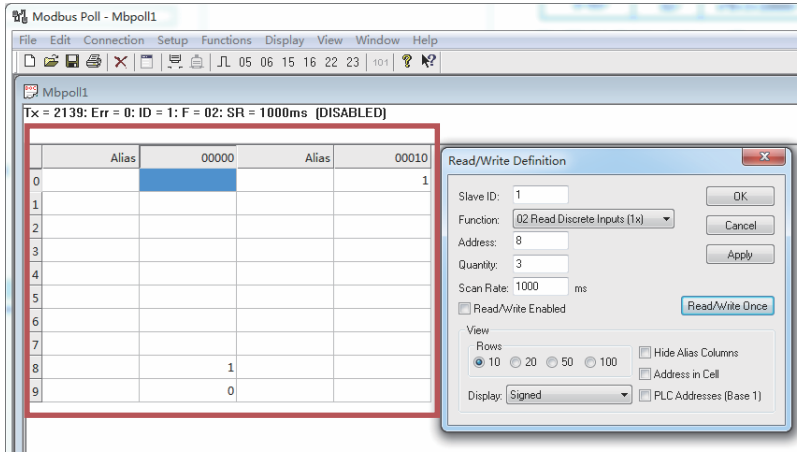
Obtained Register address and Protocol address are as listed below.

Name	Register address	Protocol address = Register address - 10001
ON/OFF	10009	8
Fault	10010	9
Online	10011	10

Modbus Poll adopts Protocol address. Set as follows: Modbus slave station address 1 (Slave ID: 1), command code 02 (Function: 02), start address 8 (Address: 8), read length 3 (Quantity: 3)



Click "Read/Write Once". The read values will be displayed in the area with a red box.



The interpretation is listed below.

Parameter name	Register address	Protocol address	Value	Definition
ON/OFF	10009	8	1	On
Fault	10010	9	0	No fault
Online	10011	10	1	Online

Packets are listed below.

Packet sent by Modbus Poll	01 02 00 08 00 03 B9 C9
Packet replied by Modbus Gateway	01 02 01 05 61 8B

Example: Read Input Register

Example: Read "Operating mode", "Operating fan speed", and "Set temperature" of IDU 1.

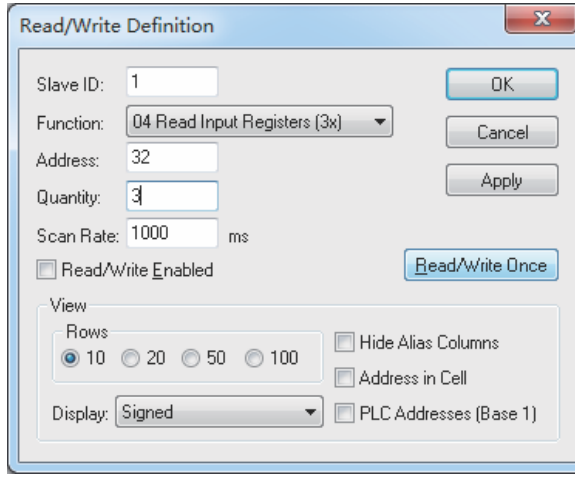
Refer to "2 Mapping Tables" > "2.2 Input Register" > "2.2.1 IDU".

n#IDU (The valid value of n ranges from 0 to 63.)	04	30002+n*32	Operating mode	Bit7	Auto mode 1: yes,0: no
				Bit4~Bit0	Actual mode 0: Off 1: Fan 2: Cooling 3: Heating 4: Forced cooling 6: Drying
	04	30002+n*32	Fan speed level	Bit7	Auto (Fixed) fan speed 1: yes,0: no
				Bit4~Bit0	For a 7-speed fan, values 1-7 indicate fan speeds 1 to 7, respectively.For a 3-speed fan, values 1 and 2 indicate low fan speed, 3 and 4 indicate medium fan speed, 5, 6, and 7 indicate high fan speed.
	04	30002+n*32	Set temperature	Actual temperature (°C)*10	

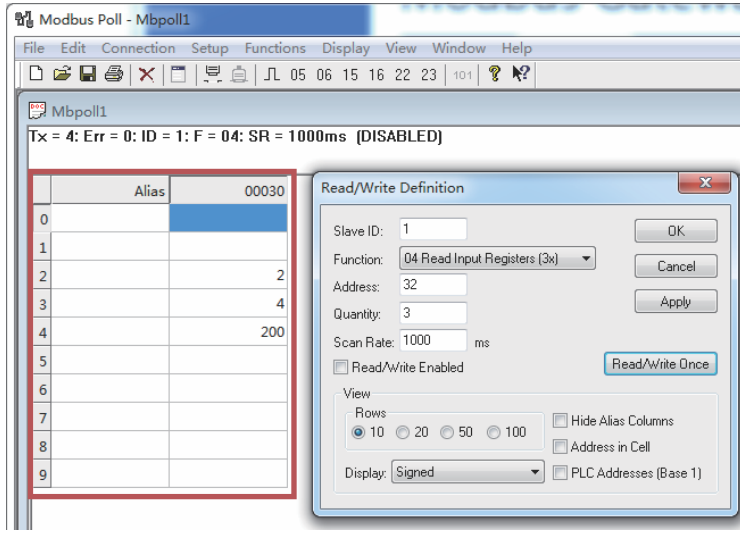
Obtained Register address and Protocol address are as listed below.

Name	Register address	Protocol address = Register address - 30001
Operating mode	30033	32
Operating fan speed	30034	33
Set temperature	30035	34

Modbus Poll adopts Protocol address. Set as follows: Modbus slave station address 1 (Slave ID: 1), command code 04 (Function: 04), start address 32 (Address: 32), read length 3 (Quantity: 3)



Click "Read/Write Once". The read values will be displayed in the area with a red box.



The interpretation is listed below.

Name	Register address	Protocol address	Data	Definition
Operating mode	30033	32	2	Cool
Operating fan speed	30034	33	4	Medium fan speed / Fan speed 4
Set temperature	30035	34	200	20°C

Packet sent by Modbus Poll	01 04 00 20 00 03 B1 C1
Packet replied by Modbus Gateway	01 04 06 00 02 00 04 00 C8 59 04

Example 1: Write Multiple Holding Register

Example: Write "Set mode", "Set fan speed", and "Set temperature" of IDU 1.

Refer to "2 Mapping Tables" > "2.3 Holding Register" > "2.3.2 IDU Control Register 1".

<table>
<tr><td rowspan="3">n# IDU
(The valid value of n ranges from 0 to 63.)</td><td>06/16</td><td>40002+n*25</td><td>Set mode</td><td>0xFF: Unchanged
0x9F: Off
0xDF: On

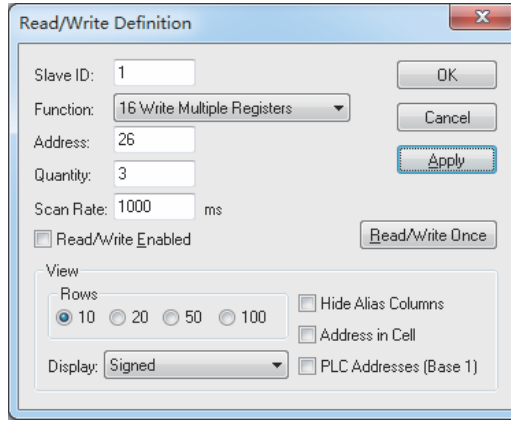
Start up and specify the operating mode:<table><tr><td>Bit7</td><td>Auto mode, valid when the value is 1</td></tr><tr><td>Bit6</td><td>Fixed to 1</td></tr><tr><td>Bit5</td><td>Fixed to 0</td></tr><tr><td>Bit0~Bit4</td><td>1: Fan
2: Cooling
3: Heating
6: Drying</td></tr></table></td></tr>
<tr><td>06/16</td><td>40003+n*25</td><td>Set fan speed</td><td>0xFF: Unchanged<table><tr><td>Bit7</td><td>Auto fan speed 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>For a 7-fan-speed IDU, values 1-7 indicate fan speeds 1 to 7, respectively.
For a 3-fan-speed IDU, values 1 and 2 indicate low fan speed, 3 and 4 indicate medium fan speed, 5, 6, and 7 indicate high fan speed.</td></tr></table>Example:
0x80: Auto fan speed is set.
0x01: For a 7-fan-speed IDU, fan speed 1 is set.
For a 3-fan-speed IDU, low fan speed is set.</td></tr>
<tr><td>06/16</td><td>40004+n*25</td><td>Set temperature</td><td>0xFF: Unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Example:
0x91: The temperature is set to 17.5°C.
0x11: The temperature is set to 17°C.</td></tr>
</table>

*If auto mode is set, "cooling temperature in auto mode (40005+n*25)" and "heating temperature in auto mode (40006+n*25)" are required. "Set temperature (40004+n*25)" can be set the same as" cooling temperature in auto mode (40005+n*25)".

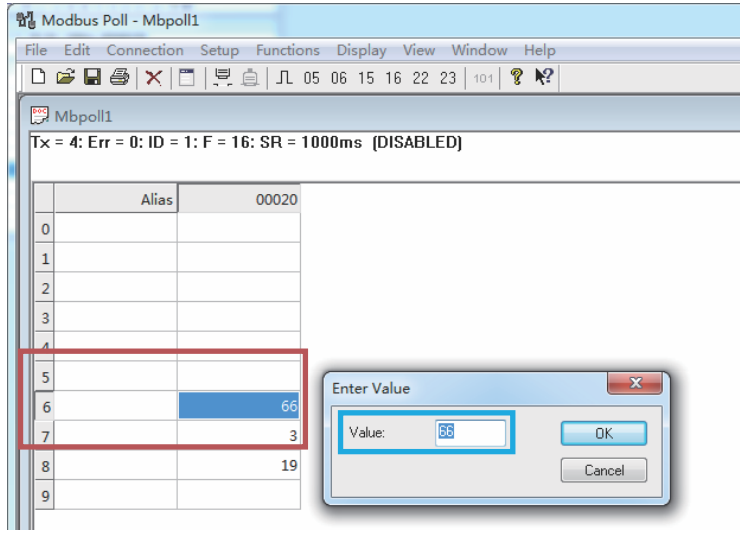
Obtained Register address and Protocol address are as listed below.

Name	Register address	Protocol address = Register address - 40001
Set mode	40027	26
Set fan speed	40028	27
Set temperature	40029	28

Modbus Poll adopts Protocol address. Set as follows: Modbus slave station address 1 (Slave ID: 1), command code 16 (Function: 16), start address 26 (Address: 26), read length 3 (Quantity: 3)



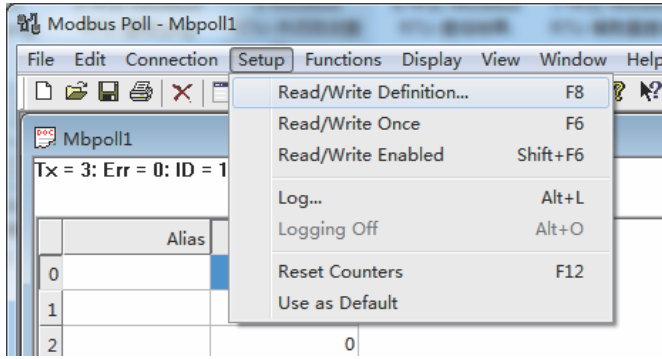
Click "OK", double-click the corresponding address (in the red box), and enter the desired control parameter in the displayed window (blue box), and click "OK" to close the window.



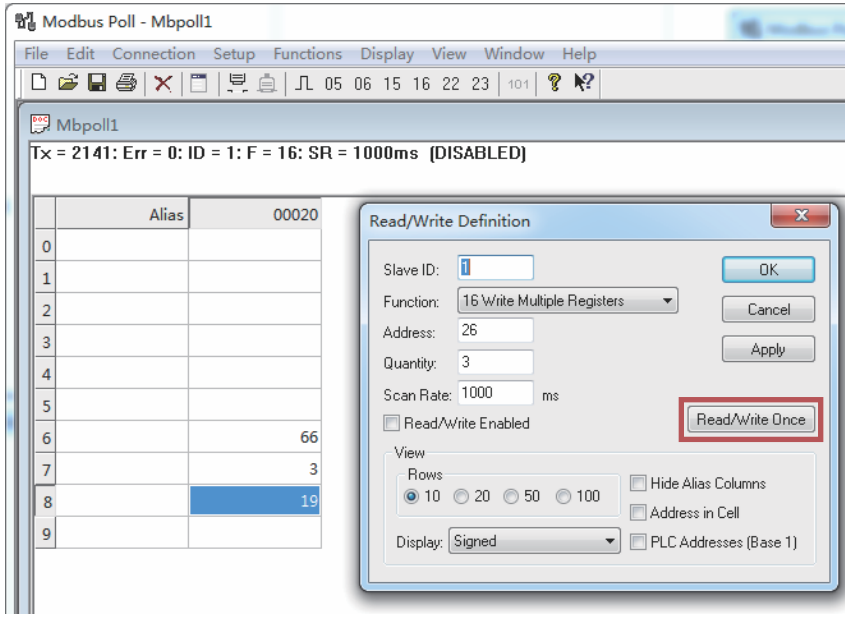
Set parameters:

Name	Register address	Protocol address	Data	Definition
Set mode	40027	26	66(0x42)	Cooling upon startup
Set fan speed	40028	27	03(0x03)	Speed 3
Set temperature	40029	28	19(0x13)	19°C

The above steps only configure the parameters to be written, and the command is not sent. Click "Setup" > "Read/Write Definition...":



Click "Read/Write Once". Then, the command is sent:



Packets are listed below.

Packet sent by Modbus Poll	01 10 00 1A 00 03 06 00 42 00 03 00 13 0E F7
Packet replied by Modbus Gateway	01 10 00 1A 00 03 A1 CF

Example 2: Write Single Holding Register

Example: Write "Set mode" of IDU 1. The IDU must support separate writing of a single parameter. Otherwise, an error will occur. See "Precautions" in "2 Mapping Tables".

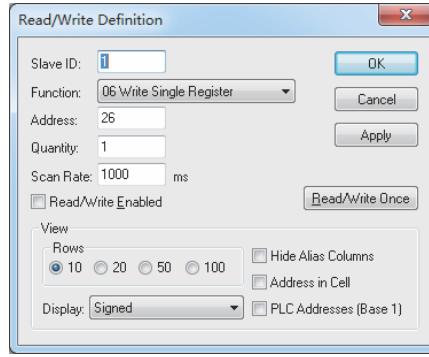
Refer to "2 Mapping Tables" > "2.3 Holding Register" > "2.3.2 IDU Control Register 1".

n#IDU (The valid value of n ranges from 0 to 63.)	06/16	40002+n*25	Set mode	0xFF: Unchanged 0x9F: Off 0xDF: On Start up and specify the operating mode: Bit7: Auto mode, valid when the value is 1 Bit6: Fixed to 1 Bit5: Fixed to 0 Bit0~Bit4: 1: Fan 2: Cooling 3: Heating 6: Drying

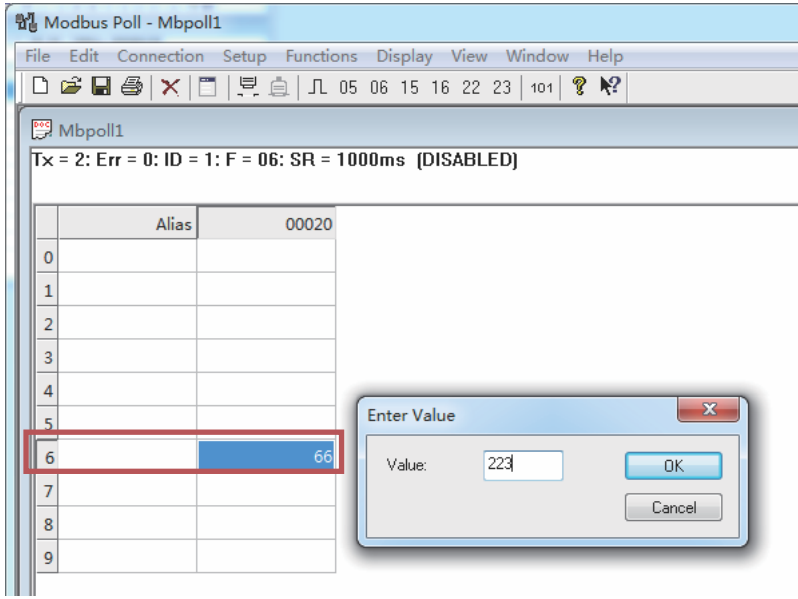
Obtained Register address and Protocol address are as listed be low.

Name	Register address	Protocol address = Register address - 40001
Set mode	40027	26

Modbus Poll adopts Protocol address. Set as follows: Modbus slave station address 1 (Slave ID: 1), command code 06 (Function: 06), start address 26 (Address: 26), read length 1 (Quantity: 1)



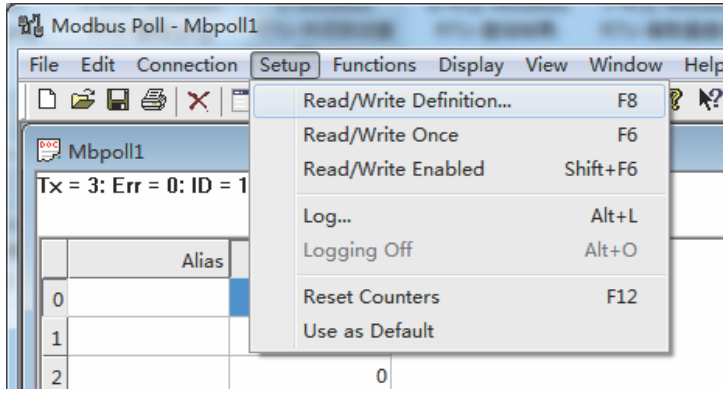
Click "OK", double-click the corresponding address (in the red box), and enter the desired control parameter in the displayed window (blue box), and click "OK" to close the window.



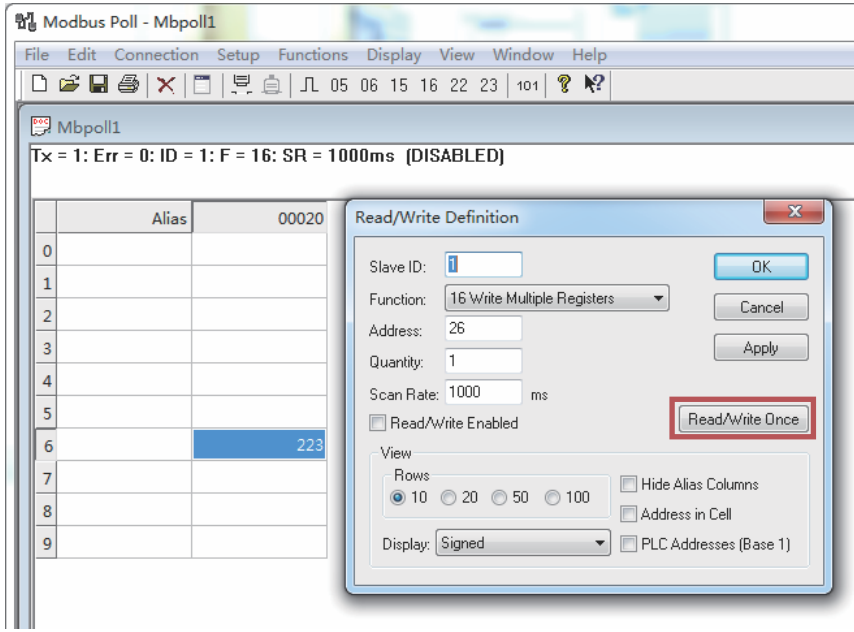
Set parameters:

Name	Register address	Protocol address	Data	Definition
Set mode	40027	26	223 (0xDF)	On

The above steps only configure the parameters to be written, and the command is not sent. Click "Setup" > "Read/Write Definition...":



Click "Read/Write Once". Then, the command is sent:



Packets are listed below.

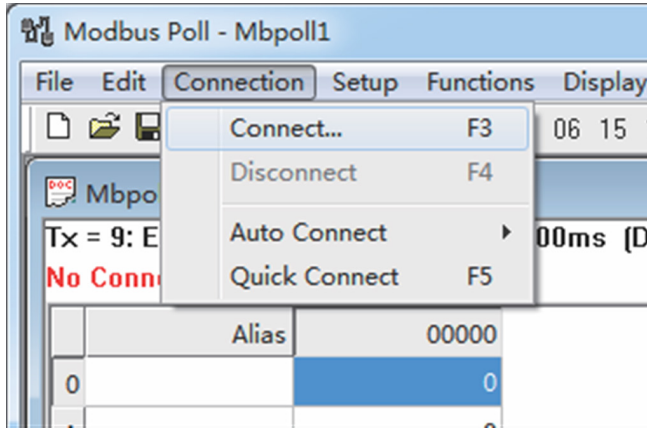
Packet sent by Modbus Poll	01 06 00 1A 00 DF E9 95
Packet replied by Modbus Gateway	01 06 00 1A 00 DF E9 95

1.2.3 Modbus/TCP

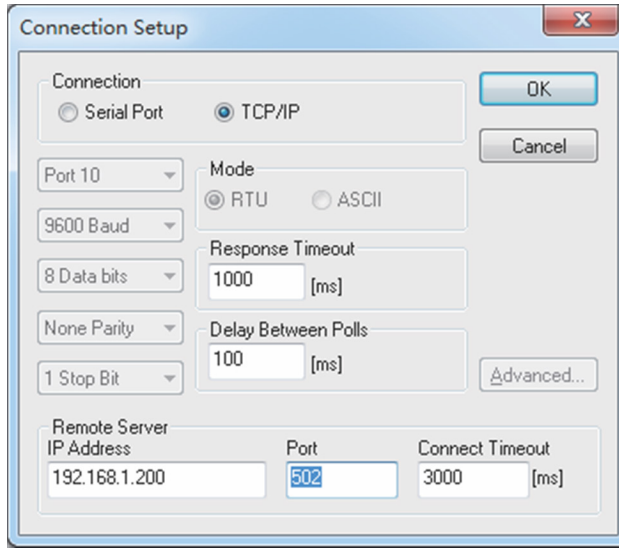
For Modbus/TCP protocol interface debugging, set the IP address of the PC to be in the same network segment as that of the Modbus Gateway.

Configuring Modbus/TCP Parameters

Click "Connection" > "Connect" and configure Modbus Poll connection parameters:



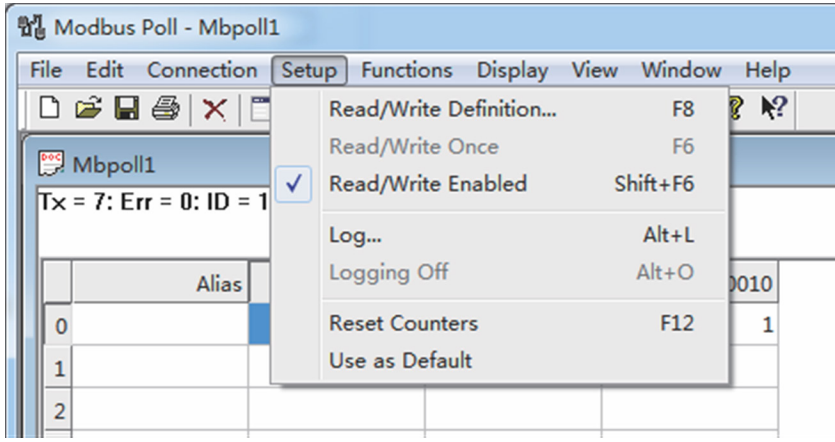
Choose "TCP/IP" for "Connection" and enter the Gateway IP address in the "IP Address" field, such as 192.168.1.200:



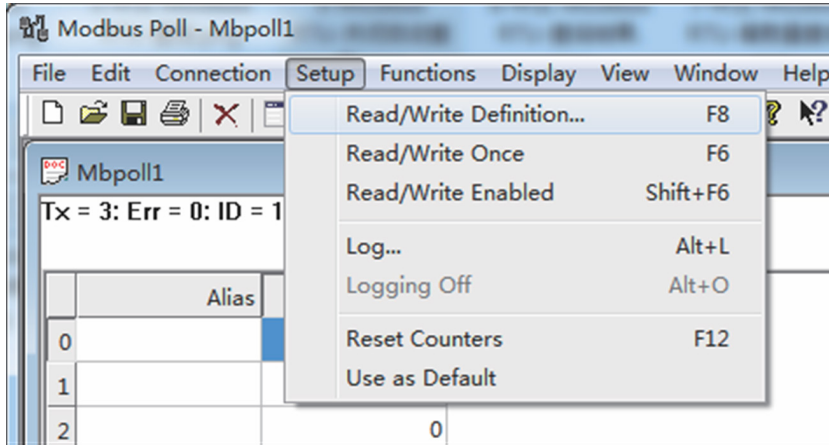
* Response Timeout and Delay Between Polls need to be adjusted based on the actual conditions of the project. For gateway debugging only, configurations in the screenshot above can be used.

* In the "IP Address" field, enter the Modbus Gateway IP address. Port is fixed to 502. Connect Timeout needs to be adjusted based on the actual conditions of the project. For gateway debugging only, configurations in the screenshot above can be used.

Click "Setup" > "Read/Write Enabled". If the √ icon is not displayed, the auto sending function is cancelled.



Click "Setup" > "Read/Write Definition..." to set read/write configuration:



Example: Read Discrete input

Example: Read "On/Off status", "Fault status", and "Online status" of IDU 1.

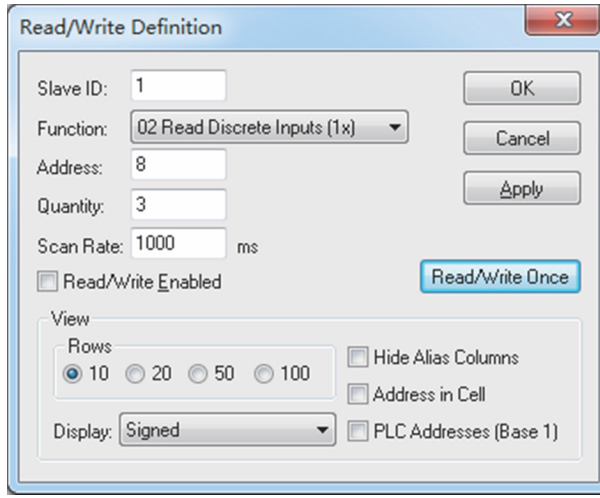
Refer to "2 Mapping Tables" > "2.1 Discrete Input" > "2.1.1 IDU".

n# IDU (The valid value of n ranges from 0 to 63.)	02	n*8+1+10000	On/Off status	0: off 1: on
	02	n*8+2+10000	Fault status	0: no fault 1: fault
	02	n*8+3+10000	Online status	0: offline 1: online

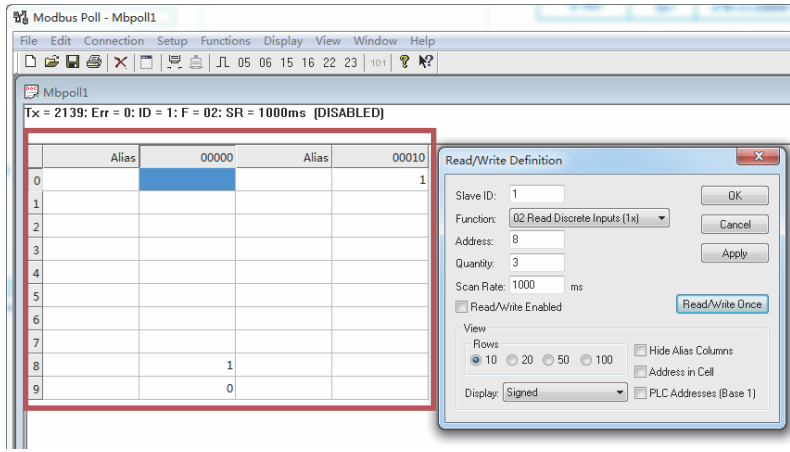
Obtained Register address and Protocol address are as listed below.

Name	Register address	Protocol address = Register address - 10001
On/Off status	10009	8
Fault status	10010	9
Online status	10011	10

Modbus Poll adopts Protocol address. Set as follows: Modbus slave station address 1 (Slave ID: 1), command code 02 (Function: 02), start address 8 (Address: 8), read length 3 (Quantity: 3)



Click "Read/Write Once".. The read values will be displayed in the area with a red box.



The interpretation is listed below.

Name	Register address	Protocol address	Data	Definition
On/Off status	10009	8	1	On
Fault status	10010	9	0	No fault
Online status	10011	10	1	Online

Packets are listed below.

Packet sent by Modbus Poll	00 04 00 00 00 06 01 02 00 08 00 03
Packet replied by Modbus Gateway	00 04 00 00 00 04 01 02 01 05

Example: Read Input Register

Example: Read "Operating mode", "Operating fan speed", and "Set temperature" of IDU 1.

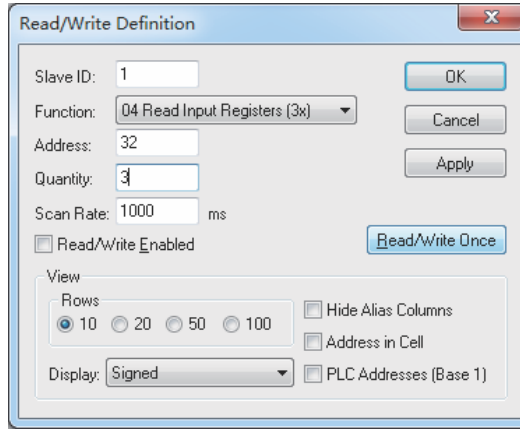
Refer to "2 Mapping Tables" > "2.2 Input Register" > "2.2.1 IDU".

<table>
<tr><td rowspan="3">n# IDU (The valid value of n ranges from 0 to 63.)</td><td>04</td><td>30001+n*32</td><td>Operating mode</td><td><table><tr><td>Bit7</td><td>Auto mode 1: yes,0: no</td></tr><tr><td>Bit4~Bit0</td><td>Actual mode
0: Off 1: Fan 2: Cooling 3: Heating
4: Forced cooling 6: Drying</td></tr></table></td></tr>
<tr><td>04</td><td>30002+n*32</td><td>Fan speed level</td><td><table><tr><td>Bit7</td><td>Auto (Fixed) fan speed 1: yes,0: no</td></tr><tr><td>Bit4~Bit0</td><td>For a 7-speed fan, values 1-7 indicate fan speeds 1 to 7, respectively.
For a 3-speed fan, values 1 and 2 indicate low fan speed, 3 and 4 indicate medium fan speed, 5, 6, and 7 indicate high fan speed.</td></tr></table></td></tr>
<tr><td>04</td><td>30003+n*32</td><td>Set temperature</td><td>Actual temperature (°C)*10</td></tr>
</table>

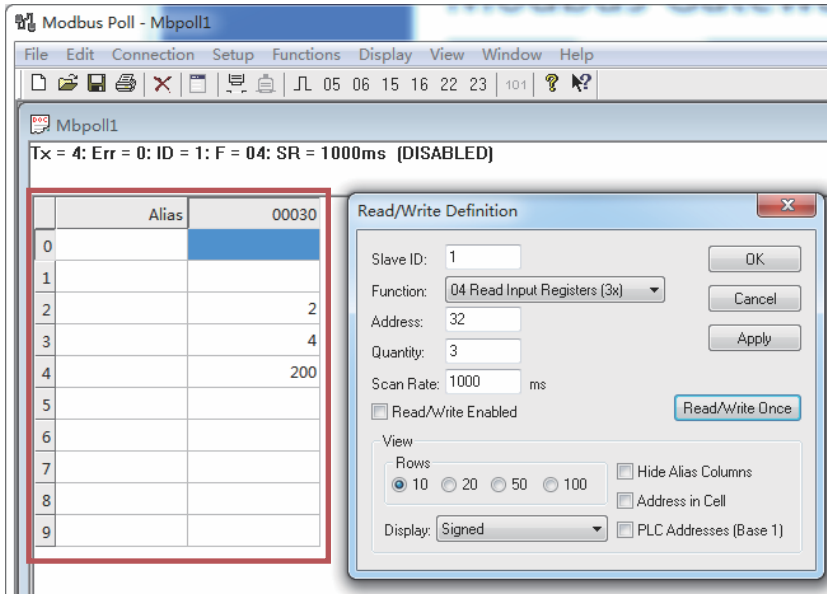
Obtained Register address and Protocol address are as listed below.

Name	Register address	Protocol address = Register address - 30001
Operating mode	30033	32
Operating fan speed	30034	33
Set temperature	30035	34

Modbus Poll adopts Protocol address. Set as follows: Modbus slave station address 1 (Slave ID: 1), command code 04 (Function: 04), start address 32 (Address: 32), read length 3 (Quantity: 3)



Click "Read/Write Once". The read values will be displayed in the area with a red box.



The interpretation is listed below.

Name	Register address	Protocol address	Data	Definition
Operating mode	30033	32	2	Cool
Operating fan speed	30034	33	4	Medium fan speed/Fan speed 4
Set temperature	30035	34	200	20°C

Packets are listed below.

Packet sent by Modbus Poll	00 87 00 00 00 06 01 04 00 20 00 03
Packet replied by Modbus Gateway	00 87 00 00 00 09 01 04 06 00 02 00 04 00 C8

Example 1: Write Multiple Holding Register

Example: Write "Set mode", "Set fan speed", and "Set temperature" of IDU 1.

Refer to "2 Mapping Tables" > "2.3 Holding Register" > "2.3.2 IDU Control Register 1".

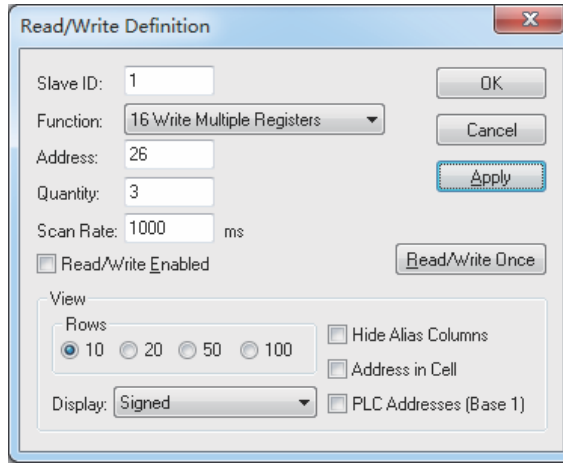
<table>
<tr><td rowspan="3">n#IDU
(The valid value of n ranges from 0 to 63.)</td><td>06/16</td><td>40002+n*25</td><td>Set mode</td><td>0xFF: Unchanged
0x9F: Off
0xDF: On

Start up and specify the operating mode:<table><tr><td>Bit7</td><td>Auto mode, valid when the value is 1</td></tr><tr><td>Bit6</td><td>Fixed to 1</td></tr><tr><td>Bit5</td><td>Fixed to 0</td></tr><tr><td>Bit0~Bit4</td><td>1: Fan
2: Cooling
3: Heating
6: Drying</td></tr></table></td></tr>
<tr><td>06/16</td><td>40003+n*25</td><td>Set fan speed</td><td>0xFF: Unchanged<table><tr><td>Bit7</td><td>Auto fan speed 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>For a 7-fan-speed IDU, values 1-7 indicate fan speeds 1 to 7, respectively. For a 3-fan-speed IDU, values 1 and 2 indicate low fan speed, 3 and 4 indicate medium fan speed, 5, 6, and 7 indicate high fan speed.</td></tr></table>Example:
0x80: Auto fan speed is set.
0x01: For a 7-fan-speed IDU, fan speed 1 is set. For a 3-fan-speed IDU, low fan speed is set.</td></tr>
<tr><td>06/16</td><td>40004+n*25</td><td>Set temperature</td><td>0xFF: Unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Example:
0x91: The temperature is set to 17.5°C.
0x11: The temperature is set to 17°C.</td></tr>
</table>

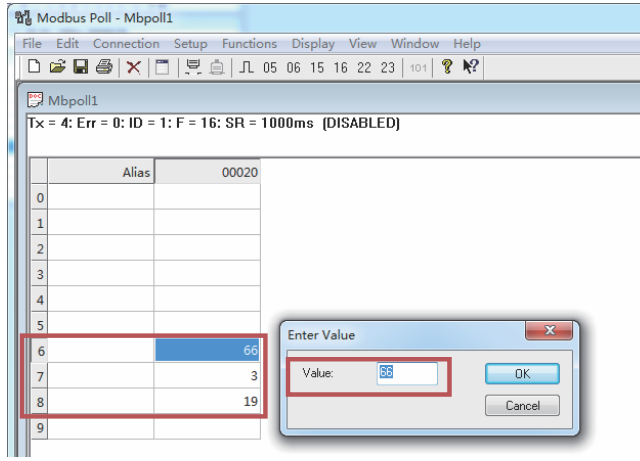
Obtained Register address and Protocol address are as listed below.

Name	Register address	Protocol address = Register address - 40001
Set mode	40027	26
Set fan speed	40028	27
Set temperature	40029	28

Modbus Poll adopts Protocol address. Set as follows: Modbus slave station address 1 (Slave ID: 1), command code 16 (Function: 16), start address 26 (Address: 26), read length 3 (Quantity: 3)



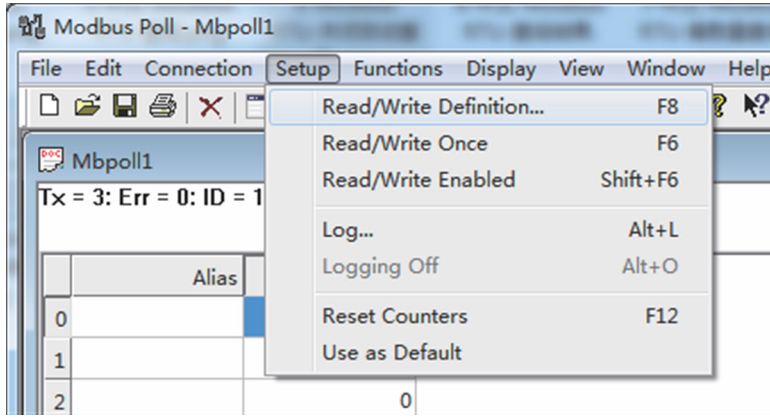
Click "OK", double-click the corresponding address (in the red box), and enter the desired control parameter in the displayed window (blue box), and click "OK" to close the window.



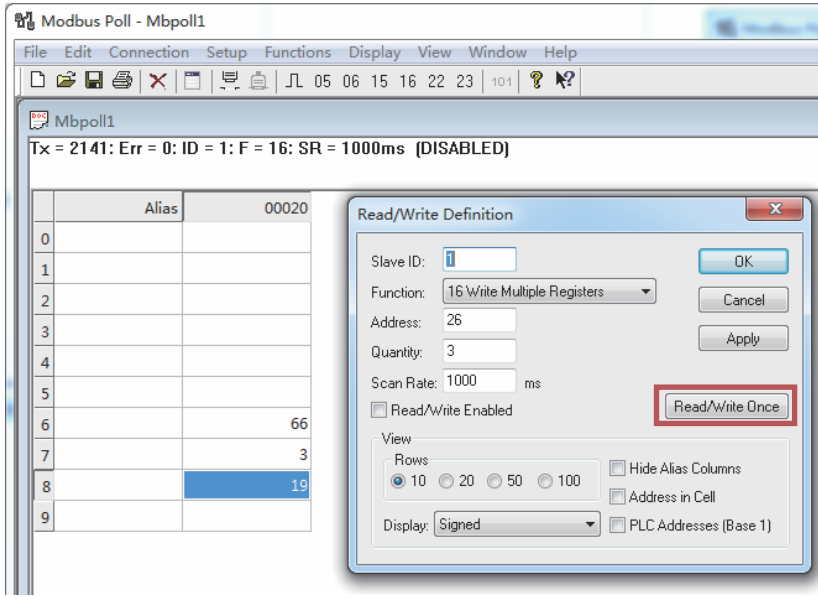
Set parameters:

Name	Register address	Protocol address	Data	Definition
Set mode	40027	26	66 (0x42)	Cooling upon startup
Set fan speed	40028	27	03 (0x03)	Speed 3
Set temperature	40029	28	19 (0x13)	19°C

Click "Setup" > "Read/Write Definition...":



Click "Read/Write Once". Then, the command is sent: The above steps only configure the parameters to be written, and the command is not sent.



Packets are listed below.

Packet sent by Modbus Poll	00 89 00 00 00 0D 01 10 00 1A 00 03 06 00 42 00 03 00 13
Packet replied by Modbus Gateway	00 89 00 00 00 06 01 10 00 1A 00 03

Example 2: Write Single Holding Register

Example: Write "Set mode" of IDU 1.

The IDU must support separate writing of a single parameter. Otherwise, an error will occur. See "Precautions" in "2 Mapping Tables".

Refer to "2 Mapping Tables" > "2.3 Holding Register" > "2.3.2 IDU Control Register 1".

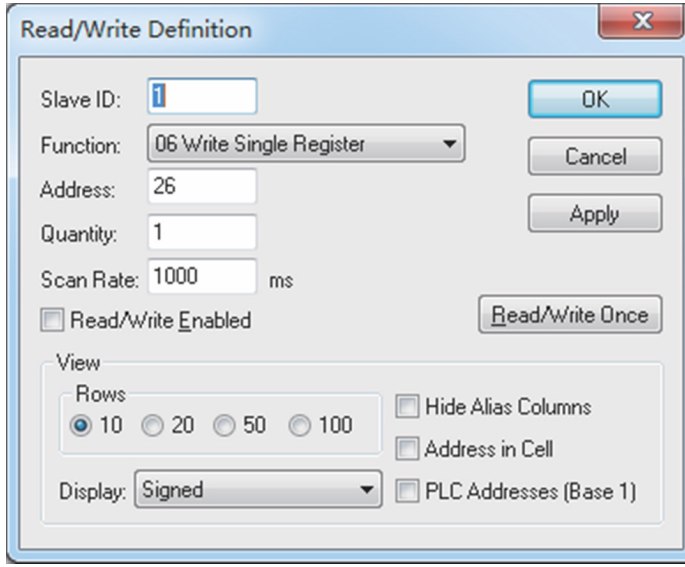
<table>
<tr>
<td>n#IDU (The valid value of n ranges from 0 to 63.)</td>
<td>06/16</td>
<td>40002+n*25</td>
<td>Set mode</td>
<td>0xFF: Unchanged
0x9F: Off
0xDF: On

Start up and specify the operating mode:
<table>
<tr><td>Bit7</td><td>Auto mode, valid when the value is 1</td></tr>
<tr><td>Bit6</td><td>Fixed to 1</td></tr>
<tr><td>Bit5</td><td>Fixed to 0</td></tr>
<tr><td>Bit0~Bit4</td><td>1: Fan
2: Cooling
3: Heating
6: Drying</td></tr>
</table>
</td>
</tr>
</table>

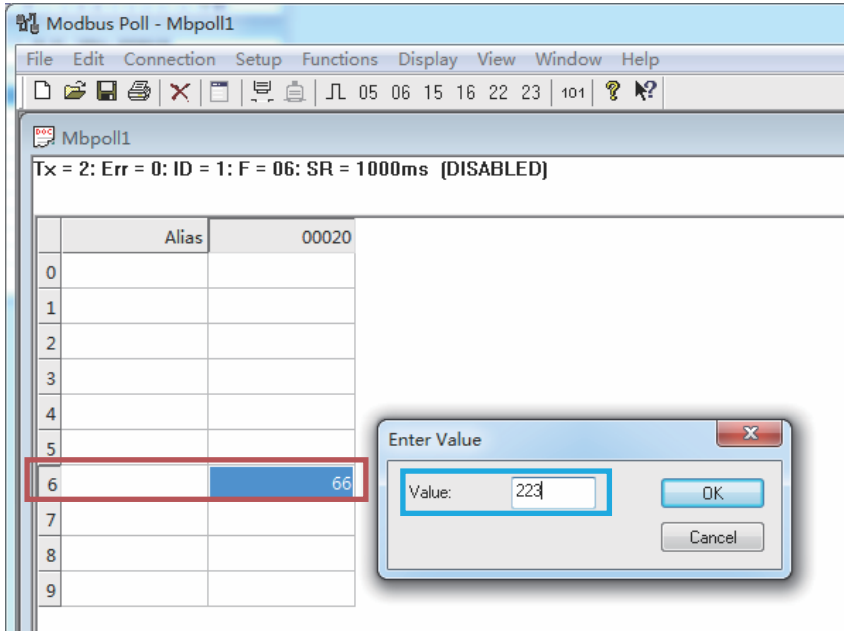
Obtained Register address and Protocol address are as listed below.

Name	Register address	Protocol address = Register address - 40001
Set mode	40027	26

Modbus Poll adopts Protocol address. Set as follows: Modbus slave station address 1 (Slave ID: 1), command code 06 (Function: 06), start address 26 (Address: 26), read length 1 (Quantity: 1)



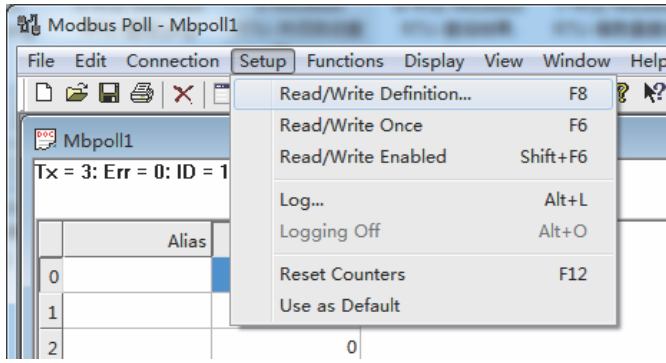
Click "OK", double-click the corresponding address (in the red box), and enter the desired control parameter in the displayed window (blue box), and click "OK" to close the window.



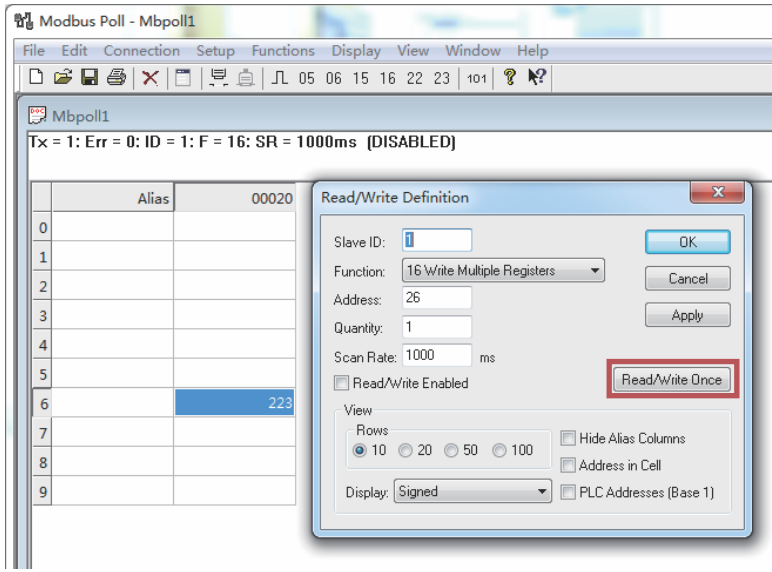
Set parameters:

Name	Register address	Protocol address	Data	Definition
Set mode	40027	26	223 (0xDF)	On

The above steps only configure the parameters to be written, and the command is not sent. Click "Setup" > "Read/Write Definition...":



Click "Read/Write Once". Then, the command is sent:



Packets are listed below.

Packet sent by Modbus Poll	00 8A 00 00 00 06 01 06 00 1A 00 DF
Packet replied by Modbus Gateway	00 8A 00 00 00 06 01 06 00 1A 00 DF

2 Mapping Tables

The conversion relationship between Register address and Protocol address is listed below.

Type	Protocol address (*4)
Discrete input	Protocol address = Register address - 10001
Input Register	Protocol address = Register address - 30001
Holding Register	Protocol address = Register address - 40001

(*4): By default, Modbus Poll uses Protocol address to read/write Modbus registers. Protocol address needs to be calculated based on the conversion in the table above. Please choose to use the Protocol address, Register address or software-defined address based on the actual integration software.

In mapping tables, an IDU/ODU number indicates the address of the IDU/ODU. For example, IDU 0 indicates an IDU whose address is 0.

Precautions for Integrated Development

1. Some models do not support certain registers in the mapping tables. In this case, values of the unsupported registers are random and meaningless. For example, if IDU 0 does not support swing up/down, the read value of Modbus register "swing up/down (30009)" does not have actual meaning, and the value may be not in the valid range.
2. The register range in the mapping tables is the maximum range supported by all models. The range of registers supported by some models is smaller than that in the mapping tables. The actually supported range depends on the specific model.

Example1:

The valid value range of Holding Register "Set mode" includes on, off, auto, cool, heat, dry, and fan. However, the model of IDU 0 supports only on, off, cool, dry, and fan. When Holding Register "Set mode (40002)" is set to heat, IDU 0 may be actually turned off or work abnormally.

Example 2:

The valid value range of Holding Register "Set temperature" is 1-100, indicating 1°C to 100°C. However, the model of IDU 0 supports only 17°C to 30°C. When Holding Register "Set temperature (40004)" is set to 0x64 (100°C), the actual operating temperature of IDU 0 may be 30°C, which is abnormal.

Example 3:

The valid value range of Holding Register "Set temperature" is 1-100, indicating 1°C to 100°C. However, the model of IDU 0 does not support 0.5°C. When Holding Register "Set temperature (40004)" is set to 0x91 (17.5°C), the actual operating temperature of IDU 0 may be 17°C, which is abnormal.

3. General control parameters of IDUs include "Set mode", "Set temperature", "Set fan speed", "Cooling temperature in auto mode", "Heating temperature in auto mode", "Swing left/right", and "Swing up/down". Some models require that all the general control parameters are set at the same time. That is, command code 16 is used to set all the general control parameters at the same time. Parameters cannot be remained "unchanged". If only some of the parameters are configured, unconfigured parameters may be different from what is expected.

Example:

If only the "Set mode" is set to cool, "Set fan speed" is set to low fan speed, "cooling temperature in auto mode" is set to 26°C, and "heating temperature in auto mode" is set to 20°C, after the IDU receives the command, "Set temperature" may be the temperature set upon last startup or a random temperature, such as 30°C, and "Swing left/right" and "Swing up/down" may be auto swing or fixed swing angles.

4. The Modbus Gateway polls to obtain the operating status of the refrigerant system. The duration of a polling cycle depends on the refrigerant system type and number of devices accessed to the Modbus Gateway (*5). When the Modbus Gateway sends a control command, the device generally responds within 5s, but the Modbus Gateway may only obtain the latest operating status of the device after a polling cycle.

(*5)

When the Modbus Gateway is connected to eight refrigerant systems and 64 IDUs, laborary test data shows that the maximum polling cycle is about five minutes. The duration may vary in actual projects.

2.1 Discrete Input

2.1.1 IDU

	Function code	Register address	Data length	Name	Definition
0#IDU	02	10001	1 bit	On/Off	0: off 1: on
	02	10002	1 bit	Fault	0: no fault 1: fault
	02	10003	1 bit	Online	0: offline 1: online
	02	10004	1 bit	/	/
	02	10005	1 bit	/	/
	02	10006	1 bit	/	/
	02	10007	1 bit	/	/
	02	10008	1 bit	/	/
1#IDU	02	10009	1 bit	On/Off	0: off 1: on
	02	10010	1 bit	Fault	0: no fault 1: fault
	02	10011	1 bit	Online	0: offline 1: online
	02	10012	1 bit	/	/
	02	10013	1 bit	/	/
	02	10014	1 bit	/	/
	02	10015	1 bit	/	/
	02	10016	1 bit	/	/
...	...	....	...	...	...
n# IDU (The valid value of n ranges from 0 to 63.)	02	10001 + n*8	1 bit	On/Off	0: off 1: on
	02	10002 +n*8	1 bit	Fault	0: no fault 1: fault
	02	10003 + n*8	1 bit	Online	0: offline 1: online
	02	10004 + n*8	1 bit	/	/
	02	10005 + n*8	1 bit	/	/
	02	10006 + n*8	1 bit	/	/
	02	10007 + n*8	1 bit	/	/
	02	10008 + n*8	1 bit	/	/

2.1.2 ODU

	Function code	Register address	Data length	Name	Definition
0#ODU	02	11001	1 bit	On/Off	0: off 1: on
	02	11002	1 bit	Fault	0: no fault 1: fault
	02	11003	1 bit	Online	0: offline 1: online
	02	11004	1 bit	Fan 1 on/off	0: off 1: on
	02	11005	1 bit	Fan 2 on/off	0: off 1: on
	02	11006	1 bit	Compressor 1 on/off status	0: off 1: on
	02	11007	1 bit	Compressor 2 on/off status	0: off 1: on
	02	11008	1 bit	/	/

	Function code	Register address	Data length	Name	Definition
1#ODU	02	11009		On/Off	0: off 1: on
	02	11010	1 bit	Fault	0: no fault 1: fault
	02	11011	1 bit	Online	0: offline 1: online
	02	11012	1 bit	Fan 1 on/off	0: off 1: on
	02	11013	1 bit	Fan 2 on/off	0: off 1: on
	02	11014	1 bit	Compressor 1 on/off status	0: off 1: on
	02	11015	1 bit	Compressor 2 on/off status	0: off 1: on
	02	11016	1 bit	/	/
...	...	....		....	...
n# ODU (The valid value of n ranges from 0 to 31.)	02	11001 + n*8	1 bit	On/Off	0: off 1: on
	02	11002 + n*8	1 bit	Fault	0: no fault 1: fault
	02	11003 + n*8	1 bit	Online	0: offline 1: online
	02	11004 + n*8	1 bit	Fan 1 on/off	0: off 1: on
	02	11005 + n*8	1 bit	Fan 2 on/off	0: off 1: on
	02	11006 + n*8	1 bit	Compressor 1 on/off status	0: off 1: on
	02	11007 + n*8	1 bit	Compressor 2 on/off status	0: off 1: on
	02	11008 + n*8	1 bit	/	/

2.2 Input Register

2.2.1 IDU

	Function code	Register address	Data length	Name	Definition
0#IDU	04	30001	2 Bytes	Operating mode	Bit7: Auto mode 1: yes, 0: no Bit4~Bit0: Actual mode 0: Shutdown 1: Fan 2: Cooling 3: Heating 4: Forced cooling 6: Drying
	04	30002	2 Bytes	Operating fan speed	Bit7: Auto fan speed 1: yes, 0: no Bit4~Bit0: 7-fan-speed IDU 1-7: speed 1 to speed 7 3-fan-speed IDU 1, 2: Low fan speed 3, 4: Medium fan speed 5, 6, 7: High fan speed
	04	30003	2 Bytes	Set temperature	Actual temperature (°C) x 10
	04	30004	2 Bytes	Cooling temperature in auto mode	Actual temperature (°C) x 10

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="15">0#IDU</td><td>04</td><td>30005</td><td>2 Bytes</td><td>Heating temperature in auto mode</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30006</td><td>2 Bytes</td><td>Indoor ambient temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30007</td><td>2 Bytes</td><td>IDU error code</td><td>Low byte of error code+Bit 0 of the high byte of the error code<table><tr><td>0</td><td>No fault</td></tr><tr><td>1~20</td><td>A0~AF, AH, AL, AP, AU</td></tr><tr><td>21~40</td><td>b0~bF, bH, bL, bP, bU</td></tr><tr><td>41~60</td><td>C0~CF, CH, CL, CP, CU</td></tr><tr><td>61~80</td><td>E0~EF, EH, EL, EP, EU</td></tr><tr><td>81~100</td><td>F0~FF, FH, FL, FP, FU</td></tr><tr><td>101~120</td><td>H0~HF, HH, HL, HP, HU</td></tr><tr><td>121~140</td><td>L0~LF, LH, LL, LP, LU</td></tr><tr><td>141-160</td><td>J0~JF, JH, JL, JP, JU</td></tr><tr><td>161-180</td><td>n0~nF, nH, nL, nP, nU</td></tr><tr><td>181-200</td><td>P0~PF, PH, PL, PP, PU</td></tr><tr><td>201-220</td><td>r0~rF, rH, rL, rP, rU</td></tr><tr><td>221-240</td><td>t0~tF, tH, tL, tP, Tu</td></tr><tr><td>241-260</td><td>U0~UF, UH, UL, UP, UU</td></tr></table></td></tr>
<tr><td>04</td><td>30008</td><td>2 Bytes</td><td>Swing left/right</td><td>1-5: swing angle 1-5, 14: auto swing</td></tr>
<tr><td>04</td><td>30009</td><td>2 Bytes</td><td>Swing up/down</td><td>1-5: swing angle 1-5, 14: auto swing</td></tr>
<tr><td>04</td><td>30010</td><td>2 Bytes</td><td>Upper limit of cooling temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30011</td><td>2 Bytes</td><td>Lower limit of cooling temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30012</td><td>2 Bytes</td><td>Upper limit of heating temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30013</td><td>2 Bytes</td><td>Lower limit of heating temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30014</td><td>2 Bytes</td><td>Mode lock</td><td><table><tr><td>Bit7</td><td>1: auto mode locked, 0: auto mode unlocked</td></tr><tr><td>Bit4~Bit0</td><td>0: unlocked,
1: fan mode locked,
2: cool mode locked,
3: heat mode locked,
6: dry mode locked</td></tr></table>When bit 7 and bits 4-0 are all 0, no mode is locked.</td></tr>
<tr><td>04</td><td>30015</td><td>2 Bytes</td><td>On/Off lock</td><td>0: unlocked, 1: on locked, 2: off locked</td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="16">0#IDU</td><td>04</td><td>30016</td><td>2 Bytes</td><td>Fan speed lock</td><td><table><tr><td>0</td><td>Fan speed unlocked</td></tr><tr><td>1-7</td><td>7-fan-speed IDU
1-7: speed 1 to speed 7 locked
3-fan-speed IDU
1, 2: low fan speed locked
3, 4: medium fan speed locked
5, 6, 7: high fan speed locked</td></tr><tr><td>14</td><td>Auto fan speed locked</td></tr></table></td></tr>
<tr><td>04</td><td>30017</td><td>2 Bytes</td><td>Swing up/down lock</td><td>0: unlocked
1-5: angle 1 to angle 5 locked
14: auto swing locked</td></tr>
<tr><td>04</td><td>30018</td><td>2 Bytes</td><td>Remote controller lock</td><td>0: unlocked, 1: locked</td></tr>
<tr><td>04</td><td>30019</td><td>2 Bytes</td><td>Wired controller lock</td><td>0: unlocked, 1: locked</td></tr>
<tr><td>04</td><td>30020</td><td>2 Bytes</td><td>IDU electronic expansion valve</td><td>Actual opening</td></tr>
<tr><td>04</td><td>30021</td><td>2 Bytes</td><td>T2A</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30022</td><td>2 Bytes</td><td>T2B</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30023</td><td>2 Bytes</td><td>IDU model</td><td><table><tr><td>0: 1st Generation IDU</td><td>12: Inverter Split AC</td></tr><tr><td>1: 4-Way Cassette</td><td rowspan="2">13: Heat Recovery Ventilator</td></tr><tr><td>2: Wall-mounted</td></tr><tr><td>3: Medium Static Pressure Duct</td><td>14: 1-Way Cassette</td></tr><tr><td></td><td>15: 2-Way Cassette</td></tr><tr><td>4: Low Static Pressure Duct</td><td>16: console</td></tr><tr><td>5: Air Handling Unit</td><td>17: High Temperature Hydro Module</td></tr><tr><td>6: High Static Pressure Duct</td><td></td></tr><tr><td>7: Compact 4-Way Cassette</td><td rowspan="2">21: AHUKIT (return air control)</td></tr><tr><td>8: Ceiling & Floor</td></tr><tr><td>9、10: Floor Standing</td><td>22: Floor Standing</td></tr><tr><td>11、18、20: Fresh Air Processing Unit</td><td>24: AHUKIT (discharge air control)</td></tr></table></td></tr>
<tr><td>04</td><td>30024</td><td>2 Bytes</td><td>IDU HP</td><td>0-200: 0-20 HP
201-220: 21-40 HP
221-240: 42-80 HP</td></tr>
<tr><td>04</td><td>30025</td><td>2 Bytes</td><td>IDU fan speed levels</td><td>0: 3 fan speed levels
1: 7 fan speed levels</td></tr>
<tr><td>04</td><td>30026</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>04</td><td>30027</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>04</td><td>30028</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>04</td><td>30029</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="3">0#IDU</td><td>04</td><td>30030</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>04</td><td>30031</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>04</td><td>30032</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td></tr>
<tr><td rowspan="9">n# IDU (The valid value of n ranges from 0 to 63.)</td><td>04</td><td>30001+n*32</td><td>2 Bytes</td><td>Operating mode</td><td>Bit7: Auto mode 1: yes, 0: no
Bit4~Bit0: Actual mode
0: Shutdown
1: Fan
2: Cooling
3: Heating
4: Forced cooling
6: Drying</td></tr>
<tr><td>04</td><td>30002+n*32</td><td>2 Bytes</td><td>Operating fan speed</td><td>Bit7: Auto fan speed 1: yes, 0: no
Bit4~Bit0:
7-fan-speed IDU
1-7: speed 1 to speed 7
3-fan-speed IDU
1, 2: low fan speed
3, 4: medium fan speed
5, 6, 7: high fan speed</td></tr>
<tr><td>04</td><td>30003+n*32</td><td>2 Bytes</td><td>Set temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30004+n*32</td><td>2 Bytes</td><td>Cooling temperature in auto mode</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30005+n*32</td><td>2 Bytes</td><td>Heating temperature in auto mode</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30006+n*32</td><td>2 Bytes</td><td>Indoor ambient temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30007+n*32</td><td>2 Bytes</td><td>IDU error code</td><td>Low byte of error code+Bit 0 of the high byte of the error code
0: No fault
1~20: A0~AF, AH, AL, AP, AU
21~40: b0~bF, bH, bL, bP, bU
41~60: C0~CF, CH, CL, CP, CU
61~80: E0~EF, EH, EL, EP, EU
81~100: F0~FF, FH, FL, FP, FU
101~120: H0~HF, HH, HL, HP, HU
121~140: L0~LF, LH, LL, LP, LU
141-160: J0~JF, JH, JL, JP, JU
161-180: n0~nF, nH, nL, nP, nU
181-200: P0~PF, PH, PL, PP, PU
201-220: r0~rF, rH, rL, rP, rU
221-240: t0~tF, tH, tL, tP, Tu
241-260: U0~UF, UH, UL, UP, UU</td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="16">n# IDU (The valid value of n ranges from 0 to 63.)</td><td>04</td><td>30008+n*32</td><td>2 Bytes</td><td>Swing left/right</td><td>1-5: swing angle 1-5, 14: auto swing</td></tr>
<tr><td>04</td><td>30009+n*32</td><td>2 Bytes</td><td>Swing up/down</td><td>1-5: swing angle 1-5, 14: auto swing</td></tr>
<tr><td>04</td><td>30010+n*32</td><td>2 Bytes</td><td>Upper limit of cooling temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30011+n*32</td><td>2 Bytes</td><td>Lower limit of cooling temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30012+n*32</td><td>2 Bytes</td><td>Upper limit of heating temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30013+n*32</td><td>2 Bytes</td><td>Lower limit of heating temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30014+n*32</td><td>2 Bytes</td><td>Mode lock</td><td><table><tr><td>Bit7</td><td>1: auto mode locked, 0: auto mode unlocked</td></tr><tr><td>Bit4~Bit0</td><td>0: unlocked,
1: fan mode locked,
2: cool mode locked,
3: heat mode locked,
6: dry mode locked</td></tr></table>When bit 7 and bits 4-0 are all 0, no mode is locked.</td></tr>
<tr><td>04</td><td>30015+n*32</td><td>2 Bytes</td><td>On/Off lock</td><td>0: unlocked, 1: on locked, 2: off locked</td></tr>
<tr><td>04</td><td>30016+n*32</td><td>2 Bytes</td><td>Fan speed lock</td><td><table><tr><td>0</td><td>Fan speed unlocked</td></tr><tr><td>1-7</td><td>7-fan-speed IDU
1-7: speed 1 to speed 7 locked
3-fan-speed IDU
1, 2: low fan speed locked
3, 4: medium fan speed locked
5, 6, 7: high fan speed locked</td></tr><tr><td>14</td><td>Auto fan speed locked</td></tr></table></td></tr>
<tr><td>04</td><td>30017+n*32</td><td>2 Bytes</td><td>Swing up/down locked</td><td>0: unlocked
1-5: angle 1 to angle 5 locked
14: auto swing locked</td></tr>
<tr><td>04</td><td>30018+n*32</td><td>2 Bytes</td><td>Remote control locking</td><td>0: unlocked, 1: locked</td></tr>
<tr><td>04</td><td>30019+n*32</td><td>2 Bytes</td><td>Wired controller locking</td><td>0: unlocked, 1: locked</td></tr>
<tr><td>04</td><td>30020+n*32</td><td>2 Bytes</td><td>IDU electronic expansion valve</td><td>Actual opening</td></tr>
<tr><td>04</td><td>30021+n*32</td><td>2 Bytes</td><td>T2A</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>30022+n*32</td><td>2 Bytes</td><td>T2B</td><td>Actual temperature (°C) x 10</td></tr>
</table>

	Function code	Register address	Data length	Name	Definition
n# IDU (The valid value of n ranges from 0 to 63.)	04	30023+n*32	2 Bytes	IDU model	0: 1st Generation IDU 1: 4-Way Cassette 2: Wall-mounted 3: Medium Static Pressure Duct 4: Low Static Pressure Duct 5: Air Handling Unit 6: High Static Pressure Duct 7: Compact 4-Way Cassette 8: Ceiling & Floor 9、10: Floor Standing 11、18、20: Fresh Air Processing Unit 12: Inverter Split AC 13: Heat Recovery Ventilator 14: 1-Way Cassette 15: 2-Way Cassette 16: console 17: High Temperature Hydro Module 21: AHUKIT (return air control) 22: Floor Standing 24: AHUKIT (discharge air control)
	04	30024+n*32	2 Bytes	IDU HP	0-200: 0-20 HP 201-220: 21-40 HP 221-240: 42-80 HP
	04	30025+n*32	2 Bytes	IDU fan speed levels	0: 3 fan speed levels 1: 7 fan speed levels
	04	30026+n*32	2 Bytes	Reserved	Reserved
	04	30027+n*32	2 Bytes	Reserved	Reserved
	04	30028+n*32	2 Bytes	Reserved	Reserved
	04	30029+n*32	2 Bytes	Reserved	Reserved
	04	30030+n*32	2 Bytes	Reserved	Reserved
	04	30031+n*32	2 Bytes	Reserved	Reserved
	04	30032+n*32	2 Bytes	Reserved	Reserved

2.2.2 ODU

	Function code	Register address	Data length	Name	Definition
n# IDU (The valid value of n ranges from 0 to 63.)	04	34001	2 Bytes	Operating mode	0: Shutdown 2: Cooling 3: Heating 4: Forced cooling 29: Mix-cooling 30: Mix-heating
	04	34002	2 Bytes	Fan 1	Speed of fan 1
	04	34003	2 Bytes	Fan 2	Speed of fan 2
	04	34004	2 Bytes	Outdoor ambient temperature	Actual temperature (°C) x 10
	04	34005	2 Bytes	Frequency of compressor 1	Speed of compressor 1

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="16">n# IDU (The valid value of n ranges from 0 to 63.)</td><td>04</td><td>34006</td><td>2 Bytes</td><td>Frequency of compressor 2</td><td>Speed of compressor 2</td></tr>
<tr><td>04</td><td>34007</td><td>2 Bytes</td><td>Discharge temperature of compressor 1</td><td>Discharge temperature of compressor 1</td></tr>
<tr><td>04</td><td>34008</td><td>2 Bytes</td><td>Discharge temperature of compressor 2</td><td>Discharge temperature of compressor 2</td></tr>
<tr><td>04</td><td>34009</td><td>2 Bytes</td><td>High pressure</td><td>Actual pressure x 10</td></tr>
<tr><td>04</td><td>34010</td><td>2 Bytes</td><td>Low pressure</td><td>Actual pressure x 100</td></tr>
<tr><td>04</td><td>34011</td><td>2 Bytes</td><td>Error code</td><td>Low byte of error code+Bit 0 of the high byte of the error code<table><tr><td>0</td><td>No fault</td></tr><tr><td>1~20</td><td>A0~AF, AH, AL, AP, AU</td></tr><tr><td>21~40</td><td>b0~bF, bH, bL, bP, bU</td></tr><tr><td>41~60</td><td>C0~CF, CH, CL, CP, CU</td></tr><tr><td>61~80</td><td>E0~EF, EH, EL, EP, EU</td></tr><tr><td>81~100</td><td>F0~FF, FH, FL, FP, FU</td></tr><tr><td>101~120</td><td>H0~HF, HH, HL, HP, HU</td></tr><tr><td>121~140</td><td>L0~LF, LH, LL, LP, LU</td></tr><tr><td>141-160</td><td>J0~JF, JH, JL, JP, JU</td></tr><tr><td>161-180</td><td>n0~nF, nH, nL, nP, nU</td></tr><tr><td>181-200</td><td>P0~PF, PH, PL, PP, PU</td></tr><tr><td>201-220</td><td>r0~rF, rH, rL, rP, rU</td></tr><tr><td>221-240</td><td>t0~tF, tH, tL, tP, Tu</td></tr><tr><td>241-260</td><td>U0~UF, UH, UL, UP, UU</td></tr></table></td></tr>
<tr><td>04</td><td>34012</td><td>2 Bytes</td><td>T3</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>34013</td><td>2 Bytes</td><td>Discharge superheat</td><td>Discharge superheat</td></tr>
<tr><td>04</td><td>34014</td><td>2 Bytes</td><td>Compressor current 1</td><td>Actual current value</td></tr>
<tr><td>04</td><td>34015</td><td>2 Bytes</td><td>Compressor current 2</td><td>Actual current value</td></tr>
<tr><td>04</td><td>34016</td><td>2 Bytes</td><td>HP</td><td>1-100: 0.1-10 HP
101-240: 11-150 HP</td></tr>
<tr><td>04</td><td>34017</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>04</td><td>34018</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>04</td><td>34019</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>04</td><td>34020</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td></tr>
<tr><td>n# ODU (The valid value of n ranges from 0 to 31.)</td><td>04</td><td>34001+20*n</td><td>2 Bytes</td><td>Operating mode</td><td>0: Shutdown
2: Cooling
3: Heating
4: Forced cooling
29: Mix-cooling
30: Mix-heating</td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="25">n# ODU (The valid value of n ranges from 0 to 31.)</td><td>04</td><td>34002+20*n</td><td>2 Bytes</td><td>Fan 1</td><td>Speed of fan 1</td></tr>
<tr><td>04</td><td>34003+20*n</td><td>2 Bytes</td><td>Fan 2</td><td>Speed of fan 2</td></tr>
<tr><td>04</td><td>34004+20*n</td><td>2 Bytes</td><td>Outdoor ambient temperature</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>34005+20*n</td><td>2 Bytes</td><td>Frequency of compressor 1</td><td>Speed of compressor 1</td></tr>
<tr><td>04</td><td>34006+20*n</td><td>2 Bytes</td><td>Frequency of compressor 2</td><td>Speed of compressor 2</td></tr>
<tr><td>04</td><td>34007+20*n</td><td>2 Bytes</td><td>Discharge temperature of compressor 1</td><td>Discharge temperature of compressor 1</td></tr>
<tr><td>04</td><td>34008+20*n</td><td>2 Bytes</td><td>Discharge temperature of compressor 2</td><td>Discharge temperature of compressor 2</td></tr>
<tr><td>04</td><td>34009+20*n</td><td>2 Bytes</td><td>High pressure</td><td>Actual pressure x 10</td></tr>
<tr><td>04</td><td>34010+20*n</td><td>2 Bytes</td><td>Low pressure</td><td>Actual pressure x 100</td></tr>
<tr><td>04</td><td>34011+20*n</td><td>2 Bytes</td><td>Error code</td><td>Low byte of error code+Bit 0 of the high byte of the error code<table><tr><td>0</td><td>No fault</td></tr><tr><td>1~20</td><td>A0~AF, AH, AL, AP, AU</td></tr><tr><td>21~40</td><td>b0~bF, bH, bL, bP, bU</td></tr><tr><td>41~60</td><td>C0~CF, CH, CL, CP, CU</td></tr><tr><td>61~80</td><td>E0~EF, EH, EL, EP, EU</td></tr><tr><td>81~100</td><td>F0~FF, FH, FL, FP, FU</td></tr><tr><td>101~120</td><td>H0~HF, HH, HL, HP, HU</td></tr><tr><td>121~140</td><td>L0~LF, LH, LL, LP, LU</td></tr><tr><td>141-160</td><td>J0~JF, JH, JL, JP, JU</td></tr><tr><td>161-180</td><td>n0~nF, nH, nL, nP, nU</td></tr><tr><td>181-200</td><td>P0~PF, PH, PL, PP, PU</td></tr><tr><td>201-220</td><td>r0~rF, rH, rL, rP, rU</td></tr><tr><td>221-240</td><td>t0~tF, tH, tL, tP, Tu</td></tr><tr><td>241-260</td><td>U0~UF, UH, UL, UP, UU</td></tr></table></td></tr>
<tr><td>04</td><td>34012+20*n</td><td>2 Bytes</td><td>T3</td><td>Actual temperature (°C) x 10</td></tr>
<tr><td>04</td><td>34013+20*n</td><td>2 Bytes</td><td>Discharge superheat</td><td>Discharge superheat</td></tr>
<tr><td>04</td><td>34014+20*n</td><td>2 Bytes</td><td>Compressor current 1</td><td>Actual current value</td></tr>
<tr><td>04</td><td>34015+20*n</td><td>2 Bytes</td><td>Compressor current 2</td><td>Actual current value</td></tr>
<tr><td>04</td><td>34016+20*n</td><td>2 Bytes</td><td>HP</td><td>1-100: 0.1-10 HP101-240: 11-150 HP</td></tr>
<tr><td>04</td><td>34017+20*n</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>04</td><td>34018+20*n</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>04</td><td>34019+20*n</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>04</td><td>34020+20*n</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
</table>

2.2.3 By IDU/ODU Parameter Type (Continuous Addresses)

	Function code	Register address	Data length	Name	Definition
IDU operating mode	04	36001	2 Bytes	IDU 0	Bit7: Auto mode 1: yes, 0: no Bit4~Bit0: Actual mode 0: Shutdown 1: Fan 2: Cooling 3: Heating 4: Forced cooling 6: Drying
	04	36002	2 Bytes	IDU 1	
	04	36003	2 Bytes	IDU 2	
	...	...	...	...	
	04	36063	2 Bytes	IDU 62	
	04	36064	2 Bytes	IDU 63	
IDU operating fan speed	04	36065	2 Bytes	IDU 0	Bit7: Auto fan speed 1: yes, 0: no Bit4~Bit0: 7-fan-speed IDU 1-7: speed 1 to speed 7 3-fan-speed IDU 1, 2: low fan speed 3, 4: medium fan speed 5, 6, 7: high fan speed
	04	36066	2 Bytes	IDU 1	
	04	36067	2 Bytes	IDU 2	
	...	...	...	...	
	04	36127	2 Bytes	IDU 62	
	04	36128	2 Bytes	IDU 63	
IDU set temperature	04	36129	2 Bytes	IDU 0	Actual temperature (°C) x 10
	04	36130	2 Bytes	IDU 1	
	04	36131	2 Bytes	IDU 2	
	...	...	...	...	
	04	36191	2 Bytes	IDU 62	
	04	36192	2 Bytes	IDU 63	
IDU ambient temperature	04	36193	2 Bytes	IDU 0	Actual temperature (°C) x 10
	04	36194	2 Bytes	IDU 1	
	04	36195	2 Bytes	IDU 2	
	...	...	...	...	
	04	36255	2 Bytes	IDU 62	
	04	36256	2 Bytes	IDU 63	
IDU on/off status	04	36257	2 Bytes	IDUs 0-15	Bit 00: operating status of IDU 00, 1: on, 0: off Bit 01: operating status of IDU 01, 1: on, 0: off ... Bit 15: operating status of IDU 15, 1: on, 0: off

	Function code	Register address	Data length	Name	Definition
IDU on/off status	04	36258	2 Bytes	IDUs 16-31	Bit 00: operating status of IDU 16, 1: on, 0: off Bit 01: operating status of IDU 17, 1: on, 0: off ... Bit 15: operating status of IDU 31, 1: on, 0: off
	04	36259	2 Bytes	IDUs 32-47	Bit 00: operating status of IDU 32, 1: on, 0: off Bit 01: operating status of IDU 33, 1: on, 0: off ... Bit 15: operating status of IDU 47, 1: on, 0: off
	04	36260	2 Bytes	IDUs 48-63	Bit 00: operating status of IDU 48, 1: on, 0: off Bit 01: operating status of IDU 49, 1: on, 0: off ... Bit 15: operating status of IDU 63, 1: on, 0: off
IDU online status	04	36261	2 Bytes	IDUs 0-15	Bit 00: online status of IDU 00, 1: online, 0: offline Bit 01: online status of IDU 01, 1: online, 0: offline ... Bit 15: online status of IDU 15, 1: online, 0: offline
	04	36262	2 Bytes	IDUs 16-31	Bit 00: online status of IDU 16, 1: online, 0: offline Bit 01: online status of IDU 17, 1: online, 0: offline ... Bit 15: online status of IDU 31, 1: online, 0: offline
	04	36263	2 Bytes	IDUs 32-47	Bit 00: online status of IDU 32, 1: online, 0: offline Bit 01: online status of IDU 33, 1: online, 0: offline ... Bit 15: online status of IDU 47, 1: online, 0: offline

	Function code	Register address	Data length	Name	Definition
IDU online status	04	36264	2 Bytes	IDUs 48-63	Bit 00: online status of IDU 48, 1: online, 0: offline Bit 01: online status of IDU 49, 1: online, 0: offline ... Bit 15: online status of IDU 63, 1: online, 0: offline
IDU fault status	04	36265	2 Bytes	IDUs 0-15	Bit 00: fault status of IDU 00, 1: yes, 0: no Bit 01: fault status of IDU 01, 1: yes, 0: no ... Bit 15: fault status of IDU 15, 1: yes, 0: no
	04	36266	2 Bytes	IDUs 16-31	Bit 00: fault status of IDU 16, 1: yes, 0: no Bit 01: fault status of IDU 17, 1: yes, 0: no ... Bit 15: fault status of IDU 31, 1: yes, 0: no
	04	36267	2 Bytes	IDUs 32-47	Bit 00: fault status of IDU 32, 1: yes, 0: no Bit 01: fault status of IDU 33, 1: yes, 0: no ... Bit 15: fault status of IDU 47, 1: yes, 0: no
	04	36268	2 Bytes	IDUs 48-63	Bit 00: fault status of IDU 48, 1: yes, 0: no Bit 01: fault status of IDU 49, 1: yes, 0: no ... Bit 15: fault status of IDU 63, 1: yes, 0: no
ODU operating status	04	36269	2 Bytes	ODUs 0-15	Bit 00: operating status of ODU 00 (system 00), 1: yes, 0: no Bit 01: operating status of ODU 01 (system 00), 1: yes, 0: no ... Bit 12: operating status of ODU 12 (system 03), 1: yes, 0: no Bit 13: operating status of ODU 13 (system 03), 1: yes, 0: no Bit 14: operating status of ODU 14 (system 03), 1: yes, 0: no Bit 15: operating status of ODU 15 (system 03), 1: yes, 0: no

	Function code	Register address	Data length	Name	Definition
ODU operating status	04	36270	2 Bytes	ODUs 16-31	Bit 00: operating status of ODU 16 (system 04), 1: yes, 0: no Bit 01: operating status of ODU 17 (system 04), 1: yes, 0: no ... Bit 12: operating status of ODU 28 (system 07), 1: yes, 0: no Bit 13: operating status of ODU 29 (system 07), 1: yes, 0: no Bit 14: operating status of ODU 30 (system 07), 1: yes, 0: no Bit 15: operating status of ODU 31 (system 07), 1: yes, 0: no
ODU fault status	04	36271	2 Bytes	ODUs 0-15	Bit 00: fault status of ODU 00 (system 00), 1: yes, 0: no Bit 01: fault status of ODU 01 (system 00), 1: yes, 0: no ... Bit 12: fault status of ODU 12 (system 03), 1: yes, 0: no Bit 13: fault status of ODU 13 (system 03), 1: yes, 0: no Bit 14: fault status of ODU 14 (system 03), 1: yes, 0: no Bit 15: fault status of ODU 15 (system 03), 1: yes, 0: no
	04	36272	2 Bytes	ODUs 16-31	Bit 00: fault status of ODU 16 (system 04), 1: yes, 0: no Bit 01: fault status of ODU 17 (system 04), 1: yes, 0: no ... Bit 12: fault status of ODU 28 (system 07), 1: yes, 0: no Bit 13: fault status of ODU 29 (system 07), 1: yes, 0: no Bit 14: fault status of ODU 30 (system 07), 1: yes, 0: no Bit 15: fault status of ODU 31 (system 07), 1: yes, 0: no

	Function code	Register address	Data length	Name	Definition
ODU online status	04	36273	2 Bytes	ODUs 0-15	Bit 00: online status of ODU 00 (system 00), 1: yes, 0: no Bit 01: online status of ODU 01 (system 00), 1: yes, 0: no ... Bit 12: online status of ODU 12 (system 03), 1: yes, 0: no Bit 13: online status of ODU 13 (system 03), 1: yes, 0: no Bit 14: online status of ODU 14 (system 03), 1: yes, 0: no Bit 15: online status of ODU 15 (system 03), 1: yes, 0: no
	04	36274	2 Bytes	ODUs 16-31	Bit 00: online status of ODU 16 (system 04), 1: yes, 0: no Bit 01: online status of ODU 17 (system 04), 1: yes, 0: no ... Bit 12: online status of ODU 28 (system 07), 1: yes, 0: no Bit 13: online status of ODU 29 (system 07), 1: yes, 0: no Bit 14: online status of ODU 30 (system 07), 1: yes, 0: no Bit 15: online status of ODU 31 (system 07), 1: yes, 0: no

2.3 Holding Register

2.3.1 All-off Control Register

	Function code	Register address	Data length	Name	Definition
IDUs 0-63	06	40001	2 Bytes	Turn off IDUs 0-63	1: all off

2.3.2 IDU Control Register 1

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="3">0#IDU</td><td>06/16</td><td>40002</td><td>2 Bytes</td><td>Set mode</td><td>0xFF: unchanged
0x9F: off
0xDF: on

Start up and specify the operating mode:<table><tr><td>Bit7</td><td>Auto mode, valid when the value is 1</td></tr><tr><td>Bit6</td><td>Fixed to 1</td></tr><tr><td>Bit5</td><td>Fixed to 0</td></tr><tr><td>Bit0~Bit4</td><td>1: Fan
2: Cooling
3: Heating
6: Drying</td></tr></table></td></tr>
<tr><td>06/16</td><td>40003</td><td>2 Bytes</td><td>Set fan speed</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>Auto fan speed 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>For a 7-fan-speed IDU, values 1-7 indicate fan speeds 1 to 7, respectively. For a 3-fan-speed IDU, values 1 and 2 indicate low fan speed, 3 and 4 indicate medium fan speed, 5, 6, and 7 indicate high fan speed.</td></tr></table>Examples:
0x80: Auto fan speed is set.
0x01: For a 7-fan-speed IDU, fan speed 1 is set. For a 3-fan-speed IDU, low fan speed is set.</td></tr>
<tr><td>06/16</td><td>40004</td><td>2 Bytes</td><td>Set temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The temperature is set to 17.5°C.
0x11: The temperature is set to 17°C.</td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="5">0#IDU</td><td>06/16</td><td>40005</td><td>2 Bytes</td><td>Cooling temperature in auto mode</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The cooling temperature in auto mode is 17.5°C.
0x11: The cooling temperature in auto mode is 17°C.</td></tr>
<tr><td>06/16</td><td>40006</td><td>2 Bytes</td><td>Heating temperature in auto mode</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The cooling temperature in auto mode is 17.5°C.
0x11: The cooling temperature in auto mode is 17°C.</td></tr>
<tr><td>06/16</td><td>40007</td><td>2 Bytes</td><td>Swing Left/Right</td><td>0xFF: unchanged
1-5: angle 1 to angle 5
14: auto swing</td></tr>
<tr><td>06/16</td><td>40008</td><td>2 Bytes</td><td>Swing up/down</td><td>0xFF: unchanged
1-5: angle 1 to angle 5
14: auto swing</td></tr>
<tr><td>06/16</td><td>40009</td><td>2 Bytes</td><td>Upper limit of heating temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The upper limit of the heating temperature is 17.5°C.
0x11: The upper limit of the heating temperature is 17°C.</td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="4">0#IDU</td><td>06/16</td><td>40010</td><td>2 Bytes</td><td>Lower limit of heating temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The lower limit of the heating temperature is 17.5°C.
0x11: The lower limit of the heating temperature is 17°C.</td></tr>
<tr><td>06/16</td><td>40011</td><td>2 Bytes</td><td>Upper limit of cooling temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The upper limit of the cooling temperature is 17.5°C.
0x11: The upper limit of the cooling temperature is 17°C.</td></tr>
<tr><td>06/16</td><td>40012</td><td>2 Bytes</td><td>Lower limit of cooling temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The lower limit of the cooling temperature is 17.5°C.
0x11: The lower limit of the cooling temperature is 17°C.</td></tr>
<tr><td>06/16</td><td>40013</td><td>2 Bytes</td><td>Mode lock</td><td>0x00: unlocked
Specific mode lock<table><tr><td>Bit7</td><td>Auto mode lock, valid when the value is 1</td></tr><tr><td>Bit5~Bit6</td><td>Fixed to 0</td></tr><tr><td>Bit0~Bit4</td><td>1: fan mode locked
2: cool mode locked
3: heat mode locked
6: dry mode locked</td></tr></table></td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="11">0#IDU</td><td>06/16</td><td>40014</td><td>2 Bytes</td><td>On/Off lock</td><td>0x0F: unchanged
0: unlocked
1: on locked
2: off locked</td></tr>
<tr><td>06/16</td><td>40015</td><td>2 Bytes</td><td>Fan speed lock</td><td><table><tr><td>0x0F</td><td>Unchanged</td></tr><tr><td>Bit0~Bit4</td><td>Unlock</td></tr><tr><td>0</td><td>For a 7-fan-speed IDU, values 1-7 indicate fan speeds 1 to 7, respectively.
For a 3-fan-speed IDU, values 1 and 2 indicate low fan speed,3 and 4 indicate medium fan speed, 5, 6, and 7 indicate high fan speed.</td></tr><tr><td>14</td><td>Auto fan speed locked</td></tr></table></td></tr>
<tr><td>06/16</td><td>40016</td><td>2 Bytes</td><td>Swing up/down lock</td><td>0x0F: unchanged
0: unlocked
1-5: angle 1 to angle 5 locked
14: auto swing locked</td></tr>
<tr><td>06/16</td><td>40017</td><td>2 Bytes</td><td>Remote controller lock</td><td>0x03: unchanged
0: unlocked
1: locked</td></tr>
<tr><td>06/16</td><td>40018</td><td>2 Bytes</td><td>Wired controller lock</td><td>0x03: unchanged
0: unlocked
1: locked</td></tr>
<tr><td>06/16</td><td>40019</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>06/16</td><td>40020</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>06/16</td><td>40021</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>06/16</td><td>40022</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>06/16</td><td>40023</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td><td>...</td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="3">n# IDU (The valid value of n ranges from 0 to 63.)</td><td>06/16</td><td>40002+n*25</td><td>2 Bytes</td><td>Set mode</td><td>0xFF: unchanged
0x9F: off
0xDF: on
Start up and specify the operating mode:<table><tr><td>Bit7</td><td>Auto mode, valid when the</td></tr><tr><td>Bit6</td><td>value is 1</td></tr><tr><td>Bit5</td><td>Fixed to 1</td></tr><tr><td>Bit0~Bit4</td><td>Fixed to 0
1: Fan
2: Cooling
3: Heating
6: Drying</td></tr></table></td></tr>
<tr><td>06/16</td><td>40003+n*25</td><td>2 Bytes</td><td>Set fan speed</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>Auto fan speed 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>For a 7-fan-speed IDU, values 1-7 indicate fan speeds 1 to 7, respectively.
For a 3-fan-speed IDU, values 1 and 2 indicate low fan speed, 3 and 4 indicate medium fan speed, 5, 6, and 7 indicate high fan speed.</td></tr></table>Examples:
0x80: Auto fan speed is set.
0x01: For a 7-fan-speed IDU, fan speed 1 is set. For a 3-fan-speed IDU, low fan speed is set.</td></tr>
<tr><td>06/16</td><td>40004+n*25</td><td>2 Bytes</td><td>Set temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The temperature is set to 17.5°C.
0x11: The temperature is set to 17°C.</td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="6">n# IDU (The valid value of n ranges from 0 to 63.)</td><td>06/16</td><td>40005+n*25</td><td>2 Bytes</td><td>Cooling temperature in auto mode</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The cooling temperature in auto mode is 17.5°C.
0x11: The cooling temperature in auto mode is 17°C.</td></tr>
<tr><td>06/16</td><td>40006+n*25</td><td>2 Bytes</td><td>Heating temperature in auto mode</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The cooling temperature in auto mode is 17.5°C.
0x11: The cooling temperature in auto mode is 17°C.</td></tr>
<tr><td>06/16</td><td>40007+n*25</td><td>2 Bytes</td><td>Swing Left/Right</td><td>0xFF: unchanged
1-5: angle 1 to angle 5
14: auto swing</td></tr>
<tr><td>06/16</td><td>40008+n*25</td><td>2 Bytes</td><td>Swing up/down</td><td>0xFF: unchanged
1-5: angle 1 to angle 5
14: auto swing</td></tr>
<tr><td>06/16</td><td>40009+n*25</td><td>2 Bytes</td><td>Upper limit of heating temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The upper limit of the heating temperature is 17.5°C.
0x11: The upper limit of the heating temperature is 17°C.</td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="4">n# IDU (The valid value of n ranges from 0 to 63.)</td><td>06/16</td><td>40010+n*25</td><td>2 Bytes</td><td>Lower limit of heating temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The lower limit of the heating temperature is 17.5°C.
0x11: The lower limit of the heating temperature is 17°C.</td></tr>
<tr><td>06/16</td><td>40011+n*25</td><td>2 Bytes</td><td>Upper limit of cooling temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The upper limit of the cooling temperature is 17.5°C.
0x11: The upper limit of the cooling temperature is 17°C.</td></tr>
<tr><td>06/16</td><td>40012+n*25</td><td>2 Bytes</td><td>Lower limit of cooling temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The lower limit of the cooling temperature is 17.5°C.
0x11: The lower limit of the cooling temperature is 17°C.</td></tr>
<tr><td>06/16</td><td>40013+n*25</td><td>2 Bytes</td><td>Mode lock</td><td>0x00: unlocked
Specific mode lock<table><tr><td>Bit7</td><td>Auto mode lock, valid when the value is 1</td></tr><tr><td>Bit5~Bit6</td><td>Fixed to 0</td></tr><tr><td>Bit0~Bit4</td><td>1: fan mode locked
2: cool mode locked
3: heat mode locked
6: dry mode locked</td></tr></table></td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="11">n# IDU (The valid value of n ranges from 0 to 63.)</td><td>06/16</td><td>40014+n*25</td><td>2 Bytes</td><td>On/Off lock</td><td>0x0F: unchanged
0: unlocked
1: on locked
2: off locked</td></tr>
<tr><td>06/16</td><td>40015+n*25</td><td>2 Bytes</td><td>Fan speed lock</td><td><table><tr><td>0x0F</td><td>Unchanged</td></tr><tr><td>Bit0~Bit4</td><td>Unlock</td></tr><tr><td>0</td><td>For a 7-fan-speed IDU, values 1-7 indicate fan speeds 1 to 7, respectively.
For a 3-fan-speed IDU, values 1 and 2 indicate low fan speed, 3 and 4 indicate medium fan speed, 5, 6, and 7 indicate high fan speed.</td></tr><tr><td>14</td><td>Auto fan speed locked</td></tr></table></td></tr>
<tr><td>06/16</td><td>40016+n*25</td><td>2 Bytes</td><td>Swing up/down lock</td><td>0x0F: unchanged
0: unlocked
1-5: angle 1 to angle 5 locked
14: auto swing locked</td></tr>
<tr><td>06/16</td><td>40017+n*25</td><td>2 Bytes</td><td>Remote controller lock</td><td>0x03: unchanged
0: unlocked
1: locked</td></tr>
<tr><td>06/16</td><td>40018+n*25</td><td>2 Bytes</td><td>Wired controller lock</td><td>0x03: unchanged
0: unlocked
1: locked</td></tr>
<tr><td>06/16</td><td>40019+n*25</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>06/16</td><td>40020+n*25</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>06/16</td><td>40021+n*25</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>06/16</td><td>40022+n*25</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
<tr><td>06/16</td><td>40023+n*25</td><td>2 Bytes</td><td>Reserved</td><td>Reserved</td></tr>
</table>

* In "Set mode", value 0xDF indicates sending the power-on command only, and the actual mode of the IDU depends on the logic of the IDU, and is generally the last operating mode memorized by the IDU.

2.3.3 IDU Control Register 2

Use registers 41602-41605 to select the desired IDU and use registers 41606-41622 to set specific group control parameters.

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="6">Group control of any IDU</td><td>06/16</td><td>41602</td><td>2 Bytes</td><td>Selection of IDUs 0-15</td><td>Control IDUs 0-15
Bit 0: IDU 0. 1: selected, 0: unselected
Bit 1: IDU 1. 1: selected, 0: unselected
...
Bit 15: IDU 15. 1: selected, 0: unselected</td></tr>
<tr><td>06/16</td><td>41603</td><td>2 Bytes</td><td>Selection of IDUs 16-31</td><td>Control IDUs 16-31
Bit 0: IDU 16. 1: selected, 0: unselected
Bit 1: IDU 17. 1: selected, 0: unselected
...
Bit 31: IDU 31. 1: selected, 0: unselected</td></tr>
<tr><td>06/16</td><td>41604</td><td>2 Bytes</td><td>Selection of IDUs 32-47</td><td>Control IDUs 32-47
Bit 0: IDU 32. 1: selected, 0: unselected
Bit 1: IDU 33. 1: selected, 0: unselected
...
Bit 31: IDU 47. 1: selected, 0: unselected</td></tr>
<tr><td>06/16</td><td>41605</td><td>2 Bytes</td><td>Selection of IDUs 48-63</td><td>Control IDUs 48-63
Bit 0: IDU 48. 1: selected, 0: unselected
Bit 1: IDU 49. 1: selected, 0: unselected
...
Bit 31: IDU 63. 1: selected, 0: unselected</td></tr>
<tr><td>06/16</td><td>41606</td><td>2 Bytes</td><td>Set mode</td><td>0xFF: unchanged
0x9F: off
0xDF: on

Start up and specify the operating mode:<table><tr><td>Bit7</td><td>Auto mode, valid when the value is 1</td></tr><tr><td>Bit6</td><td>Fixed to 1</td></tr><tr><td>Bit5</td><td>Fixed to 0</td></tr><tr><td>Bit0~Bit4</td><td>1: Fan
2: Cooling
3: Heating
6: Drying</td></tr></table></td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="4">Group control of any IDU</td><td>06/16</td><td>41607</td><td>2 Bytes</td><td>Set fan speed</td><td>0xFF: unchanged
<table><tr><td>Bit7</td><td>Auto fan speed 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>For a 7-fan-speed IDU, values 1-7 indicate fan speeds 1 to 7, respectively.
For a 3-fan-speed IDU, values 1 and 2 indicate low fan speed, 3 and 4 indicate medium fan speed, 5, 6, and 7 indicate high fan speed.</td></tr></table>Examples:
0x80: Auto fan speed is set.
0x01: For a 7-fan-speed IDU, fan speed 1 is set. For a 3-fan-speed IDU, low fan speed is set.</td></tr>
<tr><td>06/16</td><td>41608</td><td>2 Bytes</td><td>Set temperature</td><td>0xFF: unchanged
<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The temperature is set to 17.5°C.
0x11: The temperature is set to 17°C.</td></tr>
<tr><td>06/16</td><td>41609</td><td>2 Bytes</td><td>Cooling temperature in auto mode</td><td>0xFF: unchanged
<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The cooling temperature in auto mode is 17.5°C.
0x11: The cooling temperature in auto mode is 17°C.</td></tr>
<tr><td>06/16</td><td>41610</td><td>2 Bytes</td><td>Heating temperature in auto mode</td><td>0xFF: unchanged
<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The cooling temperature in auto mode is 17.5°C.
0x11: The cooling temperature in auto mode is 17°C.</td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="5">Group control of any IDU</td><td>06/16</td><td>41611</td><td>2 Bytes</td><td>Swing left/right</td><td>0xFF: unchanged
1-5: angle 1 to angle 5
14: auto swing</td></tr>
<tr><td>06/16</td><td>41612</td><td>2 Bytes</td><td>Swing up/down</td><td>0xFF: unchanged
1-5: angle 1 to angle 5
14: auto swing</td></tr>
<tr><td>06/16</td><td>41613</td><td>2 Bytes</td><td>Upper limit of heating temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The upper limit of the heating temperature is 17.5°C.
0x11: The upper limit of the heating temperature is 17°C.</td></tr>
<tr><td>06/16</td><td>41614</td><td>2 Bytes</td><td>Lower limit of heating temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The lower limit of the heating temperature is 17.5°C.
0x11: The lower limit of the heating temperature is 17°C.</td></tr>
<tr><td>06/16</td><td>41615</td><td>2 Bytes</td><td>Upper limit of cooling temperature</td><td>0xFF: unchanged<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The upper limit of the cooling temperature is 17.5°C.
0x11: The upper limit of the cooling temperature is 17°C.</td></tr>
</table>

<table>
<tr><th></th><th>Function code</th><th>Register address</th><th>Data length</th><th>Name</th><th>Definition</th></tr>
<tr><td rowspan="5">Group control of any IDU</td><td>06/16</td><td>41616</td><td>2 Bytes</td><td>Lower limit of cooling temperature</td><td>0xFF: unchanged
<table><tr><td>Bit7</td><td>0.5°C, 1: yes, 0: no</td></tr><tr><td>Bit0-Bit6</td><td>The setting range of 1-100 means 1°C to 100°C.</td></tr></table>Examples:
0x91: The lower limit of the cooling temperature is 17.5°C.
0x11: The lower limit of the cooling temperature is 17°C.</td></tr>
<tr><td>06/16</td><td>41617</td><td>2 Bytes</td><td>Mode lock</td><td>0x00: unlocked
Specific mode lock<table><tr><td>Bit7</td><td>Auto mode lock, valid when the value is 1</td></tr><tr><td>Bit5~Bit6</td><td>Fixed to 0</td></tr><tr><td>Bit0~Bit4</td><td>1: fan mode locked
2: cool mode locked
3: heat mode locked
6: dry mode locked</td></tr></table></td></tr>
<tr><td>06/16</td><td>41618</td><td>2 Bytes</td><td>On/Off lock</td><td>0x0F: unchanged
0: unlocked
1: on locked
2: off locked</td></tr>
<tr><td>06/16</td><td>41619</td><td>2 Bytes</td><td>Fan speed lock</td><td><table><tr><td>0x0F</td><td>Unchanged</td></tr><tr><td>Bit5~Bit6</td><td>Unlock</td></tr><tr><td>0</td><td>For a 7-fan-speed IDU, values 1-7 indicate fan speeds 1 to 7, respectively.
For a 3-fan-speed IDU, values 1 and 2 indicate low fan speed, 3 and 4 indicate medium fan speed, 5, 6, and 7 indicate high fan speed.</td></tr><tr><td>14</td><td>Auto fan speed locked</td></tr></table></td></tr>
<tr><td>06/16</td><td>41620</td><td>2 Bytes</td><td>Swing up/down lock</td><td>0x0F: unchanged
0: unlocked
1-5: angle 1 to angle 5 locked
14: auto swing locked</td></tr>
</table>

	Function code	Register address	Data length	Name	Definition
Group control of any IDU	06/16	41621	2 Bytes	Remote controller lock	0x03: unchanged 0: unlocked 1: locked
	06/16	41622	2 Bytes	Wired controller lock	0x03: unchanged 0: unlocked 1: locked
	06/16	41623	2 Bytes	Reserved	Reserved

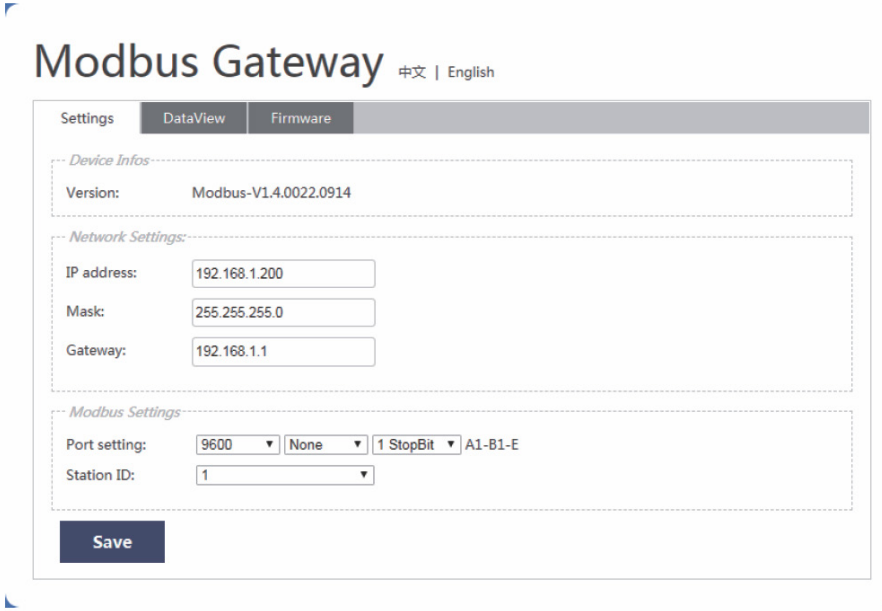
3 Web Functions

The Gateway is embedded with a web server, which can be used to upgrade and configure the Gateway.

The default IP address of the Gateway is 192.168.1.200. In the address bar of Chrome browser, enter "http://Gateway IP address" to open the web page of the Gateway.

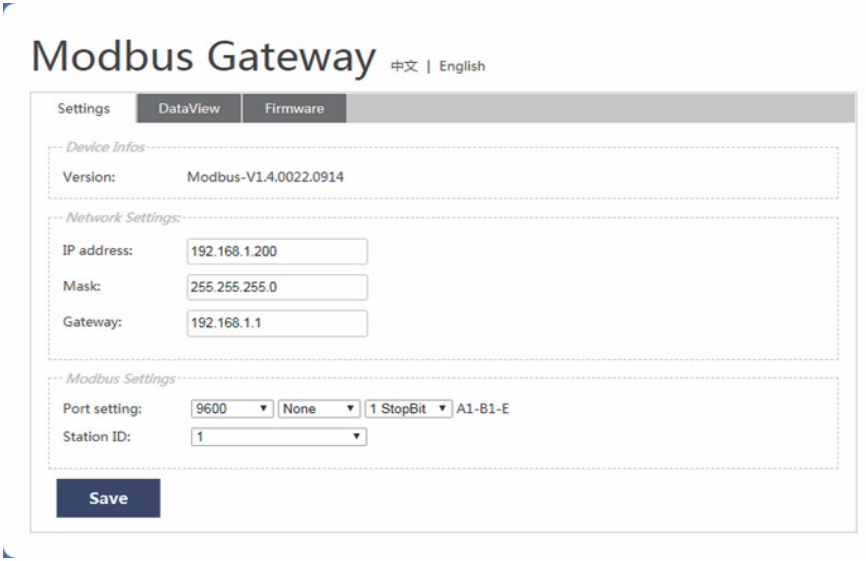
*

1. The PC and the Gateway need to be in the same network segment. For specific settings, consult relevant IT personnel.
2. The PC OS can be Windows 7 (32-bit or 64-bit) or later versions. 3. Chrome browser needs to be in 70.0 or any later version.
4. Other browsers may be incompatible, preventing the Web function from working properly.



Click 中文 | English to switch the language to Chinese or English.

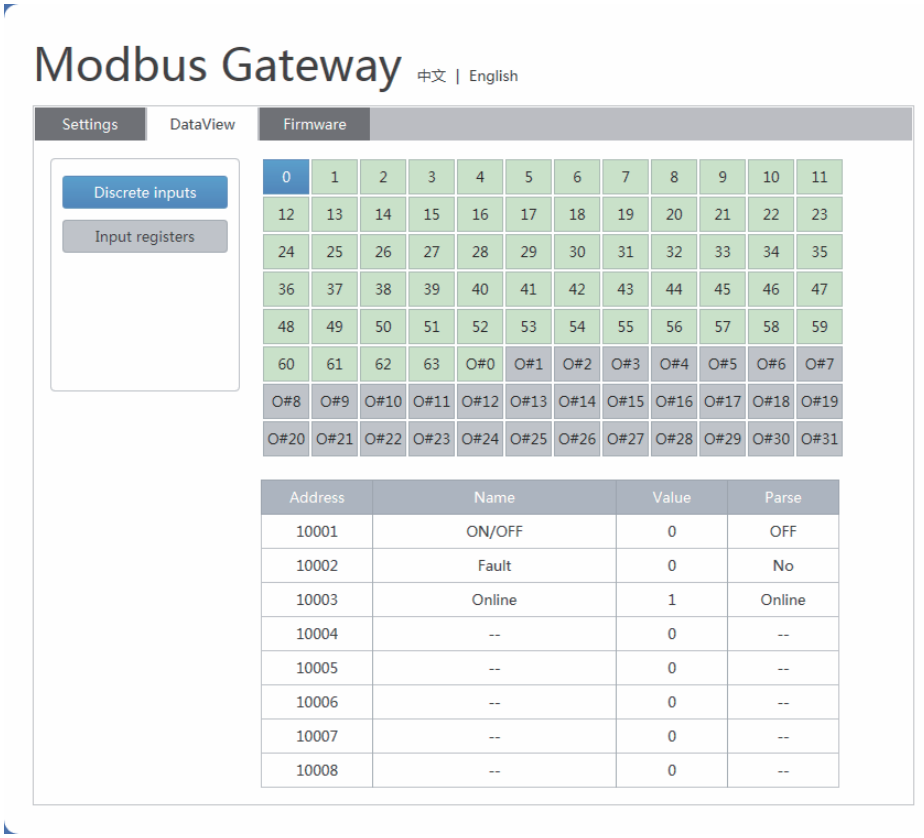
3.1 System Settings



Web function list

Device Infos	Version	Version of the Modbus Gateway
Network Settings	IP address	IP address of the Modbus Gateway
	Mask	Subnet mask in the IP configuration
	Gateway	Default gateway in the IP configuration
Modbus Settings	Port setting	Modbus interface configuration The first field indicates the baud rate. The default value is 9600. (Available values include 4800, 9600, 19200, and 38400.) The second field indicates the parity check. The default value is none. (Available values include none, even, and odd.) The third field indicates the stop bit. The default value is 1 StopBit. (Available values include 1 StopBit and 2 StopBit.) * The data bit supports only 8. * The Modbus/TCP interface of the Modbus Gateway supports only port 502.
User	Station ID	Modbus station ID, ranging from 1 to 254.The default value is 1.

3.2 DataView



A pure number indicates an IDU, and the numeral indicates the IDU address. For example, IDU 0

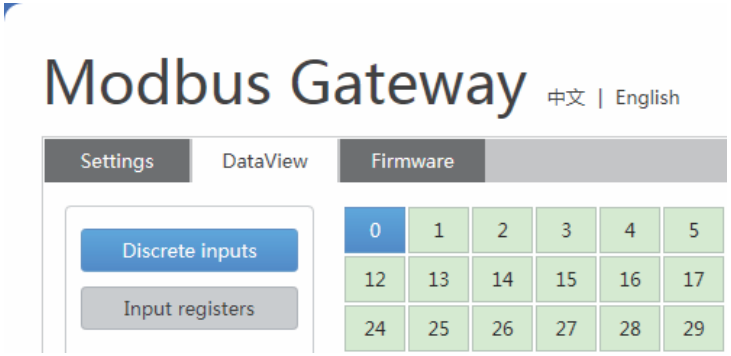
0

"O#number" indicates an ODU, and the numeral indicates the ODU address. For example, ODU 0

O#0

Offline	Online	Selected
0 RGB (210,212,214)	0 RGB (210,212,214)	0 RGBA (87,176,254,1) 0%, RGBA (64,144,245,1) 100%)

You can click an address to view the specific parameters of the device, and click "Discrete inputs" or "Input registers" to check different information.



3.3 Firmware Upgrade

Click "Select the file to upload", select the desired firmware in the displayed window, and click "Upload".

* Only professionals can use this function. Otherwise, the Modbus Gateway may be damaged and cannot be used.

4 Restoring Factory Settings

	SW1
Function	Restoring Factory Settings

When the factory configuration is restored, the Gateway IP address and other parameters are set to factory setting values.

Steps:

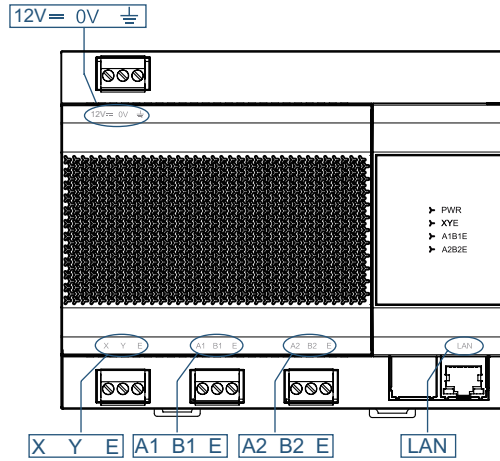
1. Cut off the Gateway power supply, open the Gateway shell, press and hold SW1 and turn on the power of the Gateway;

2. Keep holding SW1 until the digital display shows "LL" and release SW1; when the digital display shows "FF", the Gateway has been restored to factory configuration and automatically reset and restarted.

* For details of this function, consult professional technicians.

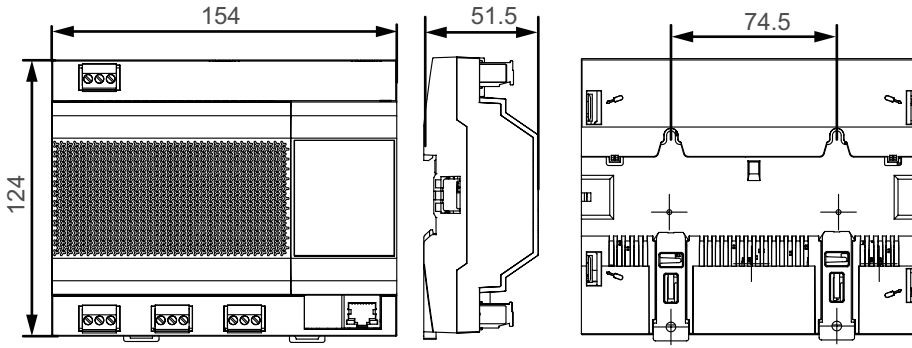
Installation

1 Product Introduction



2 Product Dimensions

Unit: mm



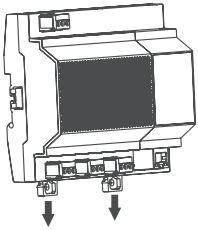
3 Installation Accessories

Please confirm that you have all the following parts.

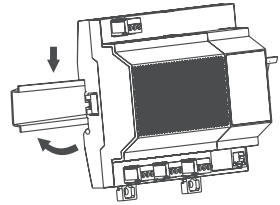
No.	Name	Quantity	Remarks
1	Self-tapping screw	4	ST4*20
2	Plastic expansion pipe	4	For installing the controller onto the wall
3	3-pin black terminal	3	For communication
4	3-pin gray terminal	1	For connecting the power supply
5	Power adaptor	1	Module: AP24S1200WP-XS1 Input:100-240V~50/60Hz 0.8A Output:12V 2.0A 24.0W

4 Installation Method

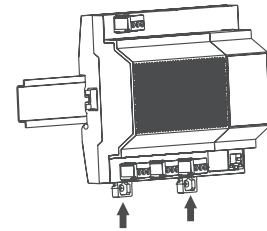
1. Installing the Guide Rail



Pull open the handle buckle

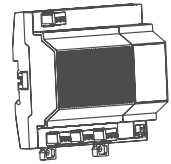


Snap fit the product on the guide rail

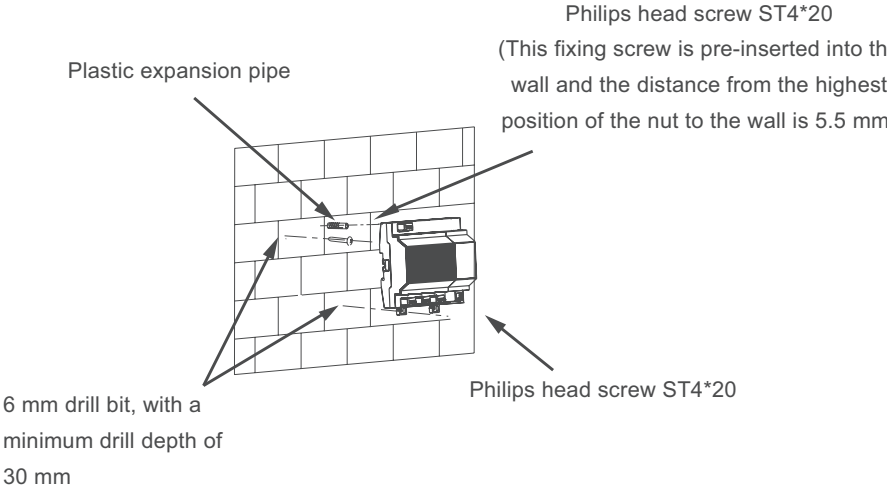


Close the handle buckle

2. Mounting the Device on the Wall



Pull open the handle buckle



16111200000777 V.A

MAIN OFFICE
Blasco de Garay, 4-6
08960 Sant Just Desvern
(Barcelona)
Tel. +34 93 480 33 22
http:// www.frigicoll.es/
http://www.kaysun.es/en/

MADRID
Senda Galiana, 1
Polígono Industrial Coslada
Coslada (Madrid)
Tel. +34 91 669 97 01
Fax. +34 91 674 21 00
madrid@frigicoll.es