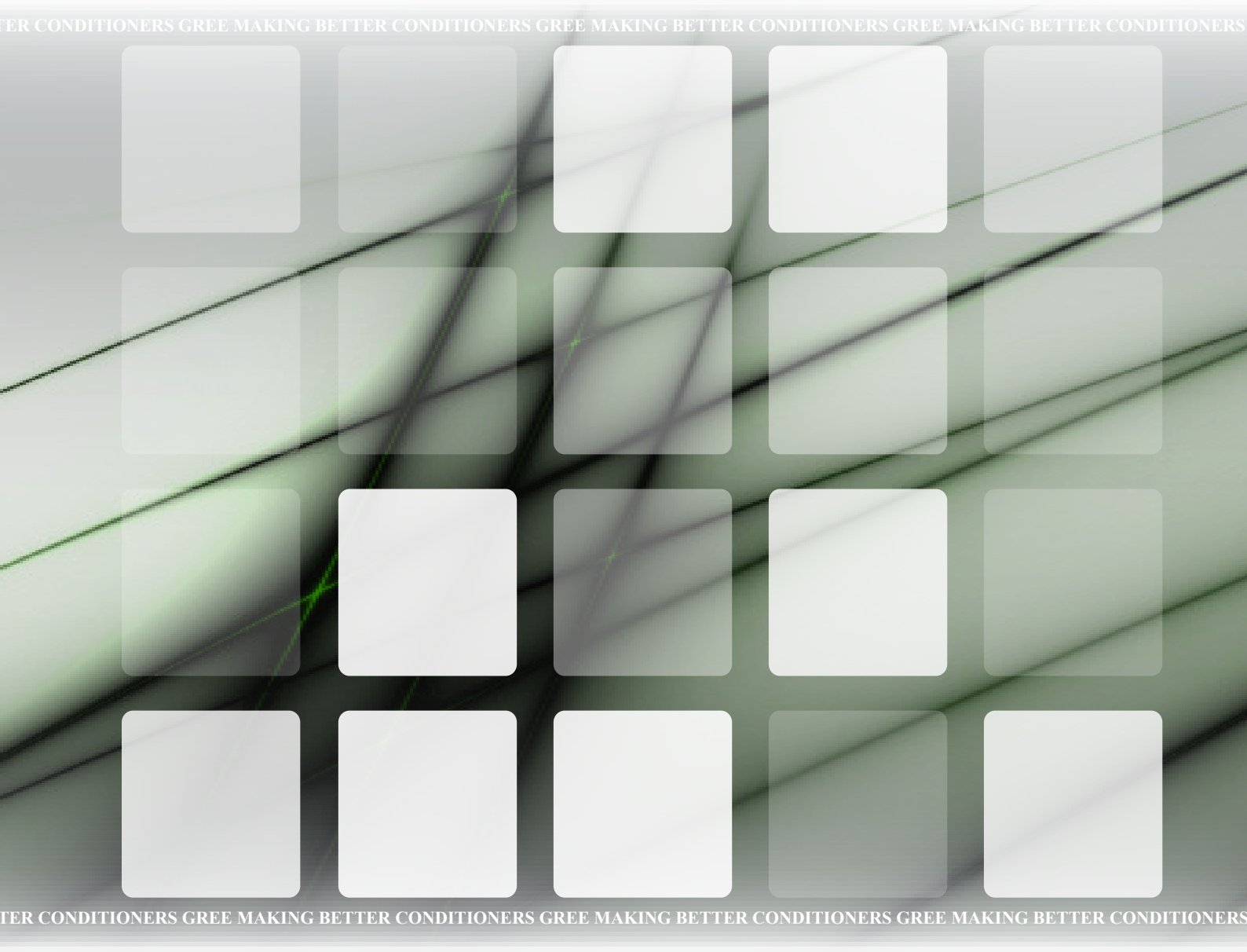
Gree Modbus Gateway(Pro)

(GC201707)



GREE ELECTRIC APPLIANCES INC.OF ZHUHAI

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1 Introduction of Modbus Gateway(Pro)

1.1 Function Introduction

Gree Modbus Gateway(Pro) are intended to realize the data exchange between the air conditioner and BMS, and provides ten I/Os (five inputs are DI1, DI2, DI3, DI4, DI5 and five outputs are DO1, DO2, DO3, DO4, DO5). DI1 is the fire alarm interface. The status of other I/Os is mapped to the specific objects of the Modbus bus and is defined by the user. This gateway is applicable for Gree multi VRF system which adopts CAN protocol.

NOTE : ME30-24/E5(M) is an independent Modbus gateway(only used in BMS system) , it is not compatible with Gree's remote monitoring and control software !

1.2 Product Appearance

1.3 Composition

Gateway ME30-24/E5(M) contains the following parts:

Modbus Gateway(Pro)	1 set
User's manual	1 piece

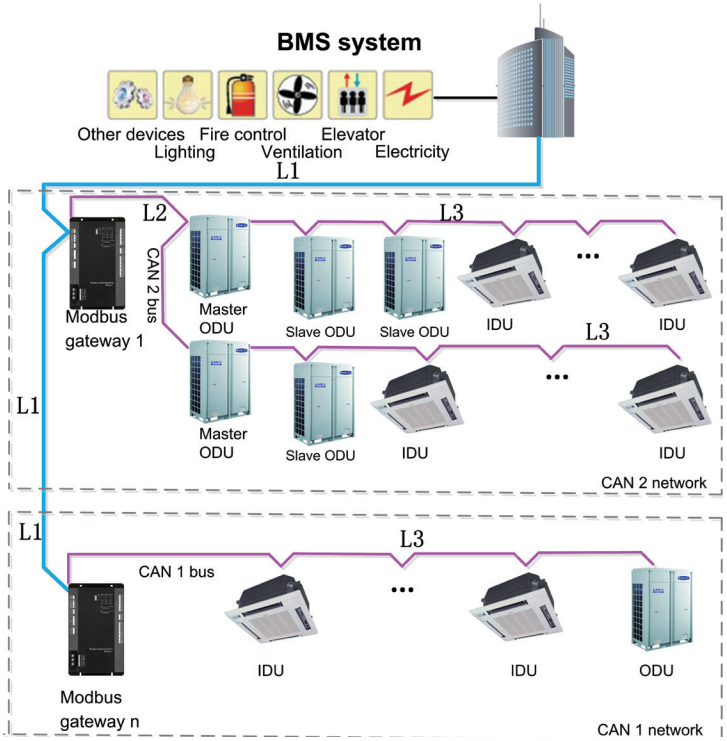
1.4 Interface and Indicator

Power interface			Power supply is 100VAC~240VAC, 50/60Hz
Communication interface	485-1 interface		Connect to BMS through two-core connection wire, to realize communication between Modbus Gateway(Pro) and BMS
	CAN interface		Connect to air conditioner through two-core connection wire, to realize communication between Modbus Gateway(Pro) and air conditioner
LED display	485-1	RX	When the Modbus Gateway(Pro) receives data from BMS, it will flash
		TX	When the Modbus Gateway(Pro) transfers data to BMS, it will flash
	CAN	RX	When the data from the equipment (e.g. air conditioner) connected with Modbus Gateway(Pro) is received, it will flash
		TX	When the data is transferred to the equipment (e.g. air conditioner) connected with Modbus Gateway(Pro), it will flash
Power LED			When power supply of Modbus Gateway(Pro) is normal, it will be always on
Operation LED			When Modbus Gateway(Pro) works normally, it will blink
DI/DO	DI1		Input of fire alarm signal
	DI2~5		Digital input, applicable for active
	DO1~5		Relay output, normally open contact

NOTE:

For detailed introductions of above functions, please refer to the owner's manual.

2 Gateway Topology



Topology Introduction:

(The distance from the farthest system to Modbus Gateway(Pro) is within 500m)

Modbus bus:

L1 shown in the figure is the Modbus bus.

CAN1 network:

which is consist of Modbus Gateway(Pro) and all IDUs and ODUs of the system. One CAN1 network can be connected to maximum 80 IDUs.

CAN2 network:

which is consist of Modbus Gateway(Pro) and main control ODU of the system. One CAN2 network can be connected to maximum 16 systems and 255 IDUs.

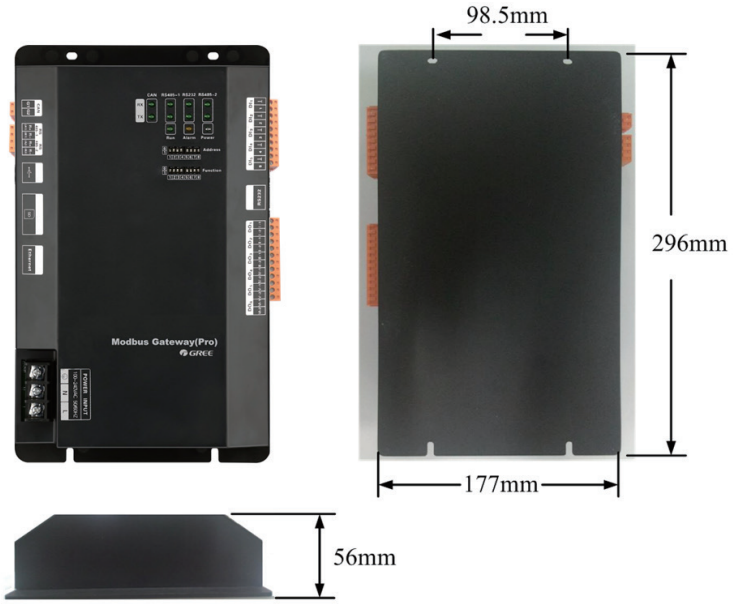
System:

one system consists of one set of outdoor unit (one set of outdoor unit is a module group consisting of 1~4 modules, that is 1~4 outdoor units) and it's connected indoor units.

Connectable unit quantity of Modbus Gateway(Pro):

one Modbus Gateway(Pro) can be connected with 16 systems and 255 indoor units in maximum.

3 Dimension Diagram



Length x width x height: 296×177×56(mm)

Notices for installation and operation

(1) Power supply should be correct. Otherwise, Modbus Gateway(Pro) cannot work normally or even be damaged.

(2) DIP setting of Modbus Gateway(Pro) shall be correct. Otherwise, communication error may be caused.

(3) Make sure the communication cable is connected to correct interface. Otherwise, communication error may be caused.

(4) Do not expose Modbus Gateway(Pro) in direct sunlight or high-temperature and humid environment. Place the gateway in central control cabinet.

4 Model Selection Procedures

4.1 Model Selection Regulation

4.1.1 Supply Range

S=standard equipped component; O=user prepared component; P=user optional component

Name	Model	Note	Remark
Modbus Gateway(Pro) Kits	Gateway ME30-24/ E5(M)	Connectable to BMS system. Protocol interface: Modbus protocol, CAN protocol Hardware interface: 485-1 port, CAN port Main components: Modbus Gateway(Pro), User's Manual	S
Power cord	--	0.5mm^2--1mm^2	O
Communication cable	Light/Ordinary PVC sheathed twisted pair copper wire(60227 IEC52/60227 IEC53)	2×0.75mm^2; IEC60227-5:2007; the length of communication cable depends on the engineering requirements	O
Photoelectric isolation converter	Photoelectric isolation converter GD02	It shall be applied when BMS connection adopts RS232 communication way. Main components: converter, wire of DB9 serial port	P
Photoelectric isolation repeater	RS485 Photoelectric isolation repeater RS485	A repeater shall be added for every excessive 800m length of communication wire. A repeater shall be added for every excessive 30 Modbus gateway. The repeater is optional when these conditions are met	P

4.2 Examples of Model Selection

4.2.1 Example 1

Project status: The project has 20 sets of GMV 5 DC Inverter Multi VRF (composed of 5 systems) and 250 sets of indoor unit. The distance from the farthest system to Modbus Gateway(Pro) is within 500m. User's BMS system shall be connected. Communication distance between Modbus Gateway(Pro) and BMS system device is within 800m. User's BMS system adopts RS485 communication way.

Model selection: one Modbus Gateway(Pro) can connect with 16 systems and 255 indoor units in maximum.

As this project has 5 systems and 250 indoor units, one Modbus Gateway(Pro) is needed.

4.2.2 Example 2

Project status: The project has 20 sets of GMV 5 DC Inverter Multi VRF (composed of 5 systems) and 250 sets of indoor unit. The distance from the farthest system to Modbus Gateway(Pro) is within 500m. User's BMS system shall be connected. Communication distance between Modbus Gateway(Pro) and BMS system device exceeds 800m. User's BMS system adopts RS232 communication way.

Model selection: one Modbus Gateway(Pro) can connect with 16 systems and 255 indoor units in maximum.

As this project has 5 systems and 250 indoor units, one Modbus Gateway(Pro) is needed. As the communication distance exceeds 800m, one photoelectric isolation repeater is needed. As user's BMS system adopts RS232 communication way, one photoelectric isolation converter is needed.

4.2.3 Example 3

Project status: The project has 80 sets of GMV 5 DC Inverter Multi VRF (composed of 20 systems) and 500 sets of indoor unit. The distance from the farthest system to Modbus Gateway(Pro) is within 500m. User's BMS system shall be connected. Communication distance between Modbus Gateway(Pro) and BMS system device exceeds 800m. User's BMS system adopts RS232 communication way.

Model selection: one Modbus Gateway(Pro) can connect with 16 systems and 255 indoor units in maximum.

As this project has 20 systems and 500 indoor units, two Modbus Gateways(Pro) are needed. As the communication distance exceeds 800m, one photoelectric isolation repeater is needed. As user's BMS system adopts RS232 communication way, one photoelectric isolation converter is needed.

Gree Electric Appliances, Inc. of Zhuhai, founded in 1991, is the world's largest air conditioner enterprise integrating R&D, manufacturing, marketing and services.

Technology Innovation and quality are always our priority. With efforts of thousands of Gree's engineers, we own more than 3500 patents for our products.

Nowadays, we have 7 production bases in Zhuhai, Chongqing, Hefei and Zhengzhou(China), as well as Brazil, Pakistan and Vietnam, with annual production capacity of 30 million sets of residential air conditioners and 4 million sets of commercial air conditioners.

With the installation of Gree commercial air conditioners in important projects at home and abroad like Media Village for 2008 Beijing Olympic Games, Stadiums for 2010 World Cup in South Africa, as well as India Telecom base station, Gree commercial air conditioners are ready to develop steadily to every corner in the world, to present a more comfortable and harmonious working environment and family atmosphere.

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