



Installation, Operation, and Maintenance

# 24 Volt Adaptor

Model: ME34-44/G

## ⚠ SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

## ⚠ AVERTISSEMENT DE SÉCURITÉ

Seul le personnel qualifié doit installer et procéder à l'entretien des équipements. L'installation, le démarrage et la réparation des équipements de chauffage, de ventilation et de climatisation peuvent être dangereux et nécessitent une formation et des connaissances spécifiques. Un équipement mal installé, réglé ou modifié par un individu non qualifié peut entraîner des blessures graves, voire mortelles. Lors de toute intervention sur l'équipement, respectez toutes les précautions figurant dans la documentation et sur les étiquettes et autocollants fixés à l'équipement.

## To Users

Thank you for selecting Gree's product. Please read this instruction manual carefully before installing and using the product, so as to master and correctly use the product. In order to guide you to correctly install and use our product and achieve expected operating effect, we hereby instruct as below:

- (1) This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- (2) This instruction manual is a universal manual; some functions are only applicable to particular product. All the illustrations and information in the instruction manual are only for reference, and control interface should be subject to actual operation.
- (3) In order to make the product better, we will continuously conduct improvement and innovation. We have the right to make necessary revision to the product from time to time due to the reason of sales or production, and reserve the right to revise the contents without further notice.



- (4) For personal injury or property loss and damage caused by improper operation such as improper installation and debugging, unnecessary maintenance, violation of related national laws and rules and industrial standard, and violation of this instruction manual, etc., we will bear no liability.
- (5) The 24 Volt Adaptor is the universal component, when indoor unit has connected with the 24 Volt Adaptor, some functions will be invalid. These functions won't affect the normal operation of the unit.
- (6) The 24 Volt Adaptor is a general model, applicable for several kinds of units, some functions of the 24 Volt Adaptor are not available for certain kinds of units.
- (7) The final right to interpret for this instruction manual belongs to Gree Electric Appliances Inc. of Zhuhai.

# Contents

|                                                    |           |
|----------------------------------------------------|-----------|
| <b>1 Safety Notices (Please be sure to abide )</b> | <b>1</b>  |
| <b>2 Notices for Use</b>                           | <b>2</b>  |
| <b>3 Functions Overview</b>                        | <b>3</b>  |
| <b>4 Detail Introduction</b>                       | <b>4</b>  |
| 4.1 Interface Function Instruction                 | 4         |
| 4.2 Button Instruction                             | 6         |
| 4.3 Display Instruction                            | 7         |
| 4.4 Function Instruction                           | 7         |
| <b>5 Product Installation</b>                      | <b>14</b> |
| 5.1 Product Dimension                              | 14        |
| 5.2 Installation Procedure                         | 15        |
| 5.3 Communication Connection                       | 16        |
| <b>6 Malfunction Display</b>                       | <b>20</b> |

## 1 Safety Notices (Please be sure to abide)



**WARNING:** If these safety notices are not abided strictly, it may cause severe damage to the unit or the people.



**NOTE:** If these safety notices are not abided strictly, it may cause slight or medium damage to the unit or the people.



This sign indicates that the items operation must be prohibited. Improper operation may cause severe damage or death to people.



This sign indicates that the items must be observed. Improper operation may cause damage to people or property.



### **WARNING!**

This product can't be installed at corrosive, inflammable or explosive environment or the place with special requirements, such as kitchen. Otherwise, it will affect the normal operation or shorten the service life of the unit, or even cause fire hazard or serious injury. As for the above special places, please adopt special air conditioners with anti-corrosive or anti-explosion function.

## 2 Notices for Use



### NOTICE !

- (1) This device use 24VAC for power supply. Do not connect other power to this device. Otherwise, it may cause fire hazard or damage to the unit.
- (2) Before touching the electric components, please be sure the appliance is disconnected to power.
- (3) Never install the appliance in a damp place or allow it to be exposed to direct sunlight.
- (4) Never install the appliance near heat source or a place that may easily get splashes of water.
- (5) Please install the appliance in a place without electromagnetic interference or dusty particles.
- (6) Make sure that the communication wires are connected to the correct ports, otherwise communication failure will occur and may damage the appliance.
- (7) Once wires are connected, use insulative tape to protect the wires from oxidation and short circuit.
- (8) Working conditions for the appliance:
  - ① Temperature: -20~+60°C;
  - ② Relative humidity: ≤85%;
  - ③ Install it indoors and avoid direct sunlight, rain and snow.
- (9) Thermostat should be configured for use with a conventional system.
- (10) Functions with “\*” are optional for indoor units. If a function is not included in an indoor unit, the adaptor can't set the function, or setting of this function is invalid to the indoor unit.

### 3 Functions Overview

24 volt adaptor is applicable for Gree split-type unit, cassette unit, duct-type unit, floor ceiling unit and so on.

Transfer the control signal of 24VAC HVAC Thermostat (such as nest) into the control signal of Gree split-type unit, cassette unit, duct-type unit, floor ceiling unit and so on to make the third party 24VAC HVAC Thermostat can control Gree split-type unit, cassette unit, duct-type unit, floor ceiling unit and so on. The device type should be set as “24 Volt Adaptor”. As for different type of 24VAC HVAC Thermostat, the output 24VAC signal is different. Please set different interface type for 24 volt adaptor according to the output signal type of your purchased 24VAC HVAC Thermostat.



#### **NOTE!**

- ① The signal of 24VAC HVAC Thermostat is the control command for controlling compressor, 4-way valve, indoor fan and other loads (set “00” for P01). And the type of 4-way valve (P02) also needs to be set. Refer to “parameter setting” for details.
- ② The signal of 24VAC HVAC Thermostat is the control command for setting cooling, heating, fan and other operation modes (set “01” for P01).

Please refer to the section of parameter setting for detailed setting operation.

Appearance of 24 volt adaptor is shown as below:



Fig. 3.1 Appearance of 24 volt adaptor

## 4 Detail Introduction

### 4.1 Interface Function Instruction

Schematic diagram of interface of main board and interface function instruction are shown as below:

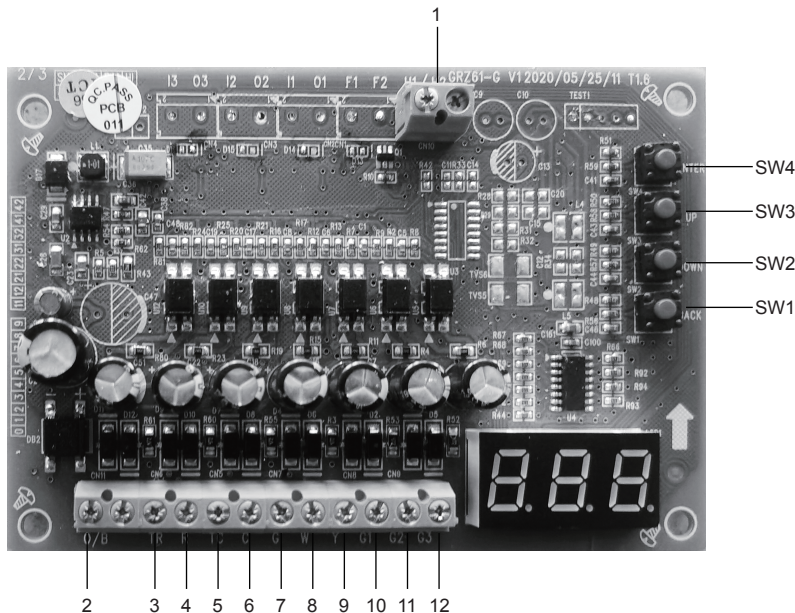


Fig.4.1 Schematic diagram of interface's function

Table 4.1.1 Function instruction of interface of main board

| No. | Interface | Instruction                                               |
|-----|-----------|-----------------------------------------------------------|
| 1   | H1, H2    | RS485 communication interface, connecting the indoor unit |
| 2   | O/B       | 4-way valve for heat pumps                                |
| 3   | TR        | Supply power for adaptor (24VAC)                          |

| No. | Interface | Instruction                          |
|-----|-----------|--------------------------------------|
| 4   | R         | Supply power for thermostat (24VAC)  |
| 5   | TC        | Supply power for adapter (Common)    |
| 6   | C         | Supply power for thermostat (Common) |
| 7   | G         | Fan/ indoor fan                      |
| 8   | W         | Heating/E-heater                     |
| 9   | Y         | Cooling/compressor                   |
| 10  | G1        | Low fan speed                        |
| 11  | G2        | Medium fan speed                     |
| 12  | G3        | High fan speed                       |

## 4.2 Button Instruction

Function instruction for buttons are shown as below:

Table 4.2.1 Function instruction for buttons

| No. | Buttons name | Button function                                                          |
|-----|--------------|--------------------------------------------------------------------------|
| SW1 | BACK         | Return after parameter setting                                           |
| SW2 | DOWN         | Decrease parameter setting                                               |
| SW3 | UP           | Increase parameter setting                                               |
| SW4 | ENTER        | Enter into project parameter setting and confirm parameter setting value |



## 4.3 Display Instruction

3-bit nixie tube displays error code and engineering parameter setting.

Table 4.3.1 Display of 3-bit nixie tube

| Display content | Meaning                                                                                                                                                           |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Error code      | When there's malfunction for the unit, please contact the after-sales service person. Please refer to the section of "error code" for the detailed error content. |

## 4.4 Function Instruction

### 4.4.1 Mode Setting

- (1) When setting the signal of 24VAC as the control command of compressor, 4-way valve, indoor fan and other loads (set "00" for P01), the interface meaning is as below:

Table 4.4.1 Interface meaning of 24 Volt Adaptor (load control)

| Interface | Meaning                    |
|-----------|----------------------------|
| O/B       | 4-way valve for heat pumps |
| G         | Indoor fan                 |
| W         | E-heater                   |
| Y         | Compressor                 |
| G1        | Low fan speed              |
| G2        | Medium fan speed           |
| G3        | High fan speed             |

When setting O/B interface as the interface of 4-way valve for cooling, the corresponding operation modes for the input signals of different interfaces on the main board is:

Table 4.4.2 Corresponding operation mode for each input signal (set “01” for P02)

Note: “G” in the below table represents G/G1/G2/G3 signal of thermostat.

| Y | G | O | W | Mode                 |
|---|---|---|---|----------------------|
| * | x | * | * | OFF                  |
| x | √ | * | x | Fan                  |
| √ | √ | x | x | Heating              |
| x | √ | * | √ | Heating and E-heater |
| x | x | √ | √ | OFF                  |
| √ | √ | √ | x | Cooling              |
| √ | √ | x | √ | Heating and E-heater |
| √ | √ | √ | √ | OFF                  |

When setting O/B interface as the interface of 4-way valve for heating, the corresponding operation modes for the input signals of different interfaces on the main board is:

Table 4.4.3 Corresponding operation mode for each input signal (set “00” for P02)

Note: “G” in the below table represents G/G1/G2/G3 signal of thermostat.

| Y | G | B | W | Mode                 |
|---|---|---|---|----------------------|
| * | x | * | * | OFF                  |
| x | √ | * | x | Fan                  |
| √ | √ | x | x | Cooling              |
| x | √ | * | √ | Heating and E-heater |

| Y | G | B | W | Mode                 |
|---|---|---|---|----------------------|
| × | × | √ | √ | OFF                  |
| √ | √ | √ | × | Heating              |
| √ | √ | × | √ | OFF                  |
| √ | √ | √ | √ | Heating and E-heater |

- (2) When setting 24VAC signal as the control command for cooling, heating, fan and other operation modes (set “01” for P01), the interface meaning is as below:

Table 4.4.4 Interface meaning of 24 Volt Adaptor (mode control)

| Interface | Meaning          |
|-----------|------------------|
| G         | Fan              |
| W         | Heating          |
| Y         | Cooling          |
| G1        | Low fan speed    |
| G2        | Medium fan speed |
| G3        | High fan speed   |

The corresponding operation modes for the input signals of different interfaces on the main board are:

Table 4.4.5 Corresponding operation mode for each input signal (mode control)

| Y | W | G | G1 | G2 | G3 | Mode    |
|---|---|---|----|----|----|---------|
| √ | × | * | *  | *  | *  | Cooling |

| Y | W | G | G1 | G2 | G3 | Mode    |
|---|---|---|----|----|----|---------|
| x | √ | * | *  | *  | *  | Heating |
| x | x | √ | *  | *  | *  | Fan     |
| x | x | * | √  | *  | *  | Fan     |
| x | x | * | *  | √  | *  | Fan     |
| x | x | * | *  | *  | √  | Fan     |
| √ | √ | * | *  | *  | *  | OFF     |
| x | x | x | x  | x  | x  | OFF     |

**NOTES!**

- ① “√” indicates ON; “x” indicates OFF; “\*” indicates ON or OFF.
- ② When mode is Heating and E-heater: If the unit supports auxiliary heating, when it meets the activation condition of auxiliary heating under heating mode, the auxiliary heating mode will be turned on.
- ③ When G1, G2 and G3 are all OFF, the defaulted fan speed is auto fan speed (change the fan speed by referring to the parameter setting P03 Refer to “parameter setting” for details); When any one interface of G1, G2 and G3 is ON, the fan speed is decided by the signal of G1, G2 and G3. See the table as below:

Table 4.4.6 Control of fan speed

| G | G1 | G2 | G3 | Mode             |
|---|----|----|----|------------------|
| * | *  | *  | √  | High fan speed   |
| * | *  | √  | x  | Medium fan speed |
| * | √  | x  | x  | Low fan speed    |

### 4.4.2 Temperature Setting

- (1) When the unit is operating under cooling mode, the adaptor is fixed to send the set temperature of 16°C to the indoor unit;
- (2) When the unit is operating under heating mode, the adaptor is fixed to send the set temperature of 30°C to the indoor unit;
- (3) When the unit is operating under fan mode, the adaptor is fixed to send the set temperature of 26°C to the indoor unit.

### 4.4.3 Parameter Setting

- (1) Press “ENTER” button to enter into parameter setting page. The nixie tube displays “P00”.
- (2) Press “UP” or “DOWN” button can select parameter code. Press “ENTER” button to switch to parameter value setting and the nixie tube flashes to display the parameter value. Press “UP” or “DOWN” button can adjust the parameter value and then press “ENTER” to complete the setting and return to previous level.
- (3) Press “BACK” button to return to previous level.



#### **NOTE!**

After entering the parameter setting state, there will be no operation in 20s, and the parameter setting state will be exited.

Unit parameters setting list is shown as below:

Table 4.4.7 Unit parameters setting list

| Parameter code | Parameter name                     | Parameter range                                                                    | Default value | Remark                                                                                                                                                                                                                                                                                                                              |
|----------------|------------------------------------|------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P00            | Error code check                   | The last 5 error codes occurred                                                    | --            | Check historic error. When nixie tube displays "P00", press "ENTER (SW4)" button to enter historic error check; press "UP (SW3)" or "DOWN (SW2)" to switch to display 5 historic errors.                                                                                                                                            |
| P01            | Device type setting                | 00: 24 Volt Adaptor(load control)<br>01: 24 Volt Adaptor(mode control)             | 00            | When set to "00", "01", as an adapter for the 24V thermostat, it needs to be connected to a third-party thermostat.                                                                                                                                                                                                                 |
| P02            | Energization method of 4-way valve | 00: 4-way valve of heating is energized<br>01: 4-way valve of cooling is energized | 00            | "O" is applicable for the unit which operates under the cooling mode and its 4-way valve is energized;<br>"B" is applicable for the unit which operates under the heating mode and its 4-way valve is energized;                                                                                                                    |
| P03            | Fan speed setting                  | 00: auto<br>01: low<br>02: medium<br>03: high<br>04: turbo                         | 00            | When P03 is set at "00", the fan speed when the indoor unit is started is subject to the signal of temperature controller; when P03 is set at other parameter (not "00"), P03 shall prevail and it can be set as low, medium, high, and turbo fan speed. Air supply mode should not be set as turbo. Air supply mode cancels turbo. |

## 24 Volt Adaptor

| Parameter code | Parameter name         | Parameter range                                   | Default value | Remark                                                                                                                                                                                                                                             |
|----------------|------------------------|---------------------------------------------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P04            | Delay OFF time setting | 00: 0min<br>01: 5 min<br>02: 10 min<br>03: 30 min | 00            | When the third party thermostat has reached to the temperature point (Y and W signal are all OFF), the adaptor will continue to operate for a period of time for ensuring the operation effect. The delay OFF time can be set through P04 setting. |

## 5 Product Installation

### 5.1 Product Dimension

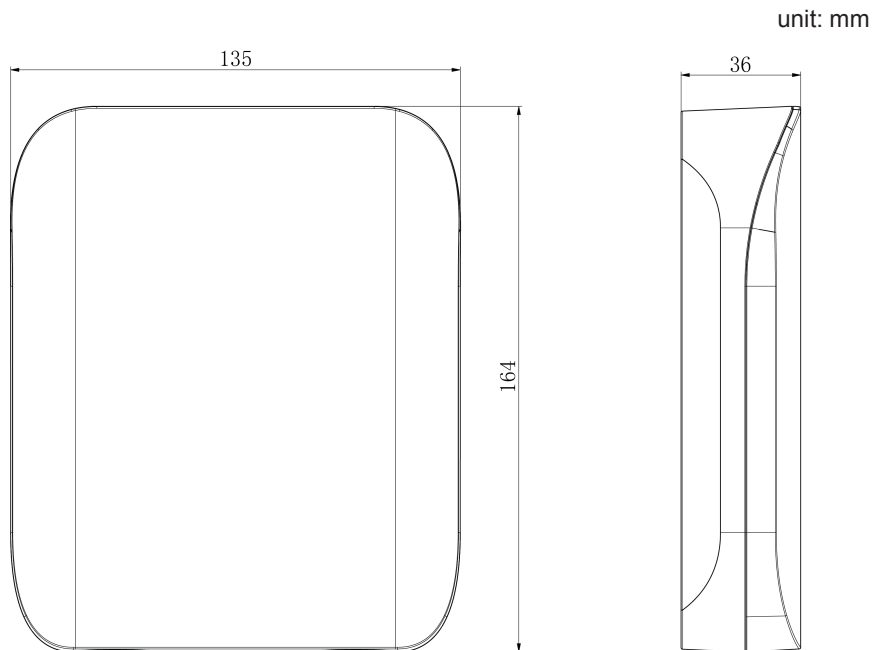


Fig. 5.1 Product dimension



## 5.2 Installation Procedure

- (1) Twist off the screws used for fixing the cover, and then open the cover of 24 volt adaptor.
- (2) Check whether the screws used for fixing the screws of main board is loose. If yes, please tighten the screws until the main board is fixed.
- (3) Attach the bottom case of 24 volt adaptor at the in stallation position (such as wall), and then use the screw to fix the bottom case and the installation hole on the wall together.

Connect the wires to the corresponding wiring terminal by passing through the rubber ring, and then tighten the screws on the contact to fix the connection wire.

- (4) Press the wires with wire-fixing clamp and then tighten the screws used for fixing the wire-fixing clamp.

### Note:

If the wires may loose when fixing them with a wire clip, fold the wires once or more times and then fix them with a wire clip. Otherwise, the communication function may be affected due to the unreliable fixing.

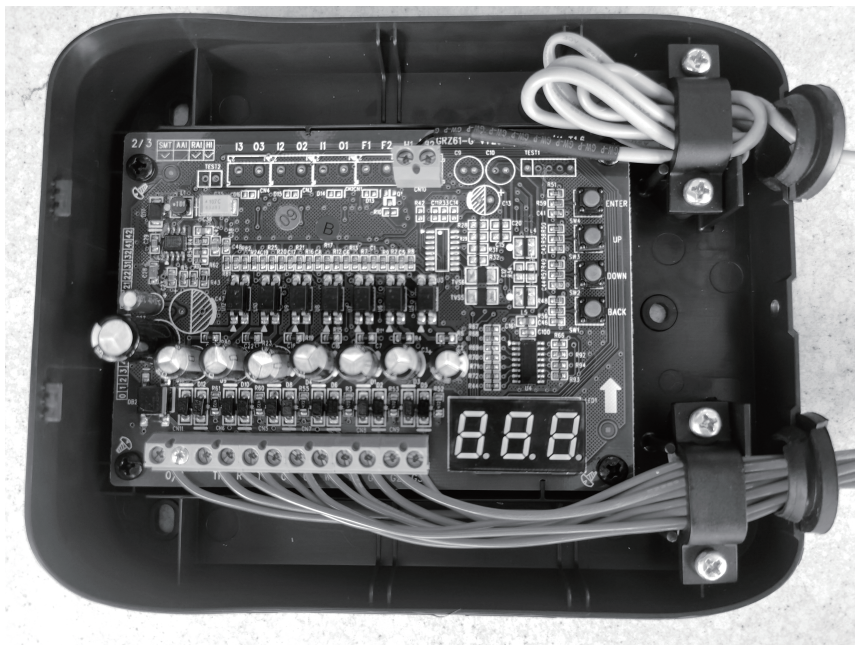


Fig. 5.2 Wiring diagram

## 5.3 Communication Connection

### 5.3.1 Connection between Adaptor and Indoor Unit

Connect H1 and H2 of communication interface of adaptor RS485 to corresponding position of wired controller of unit to finish the installation.

Communication connection method:

Wiring method with the indoor unit's network, which is shown as below:

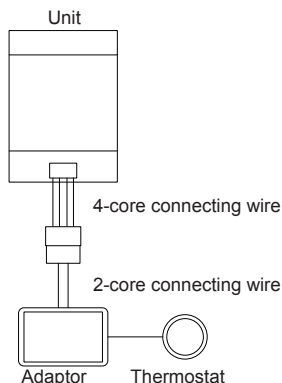


Fig. 5.3 One adaptor controls one indoor unit



### NOTE!

If the indoor unit has 4-core connecting wire, please connect the 2-core connecting wires of 24 volt adaptor. If the indoor unit has no 4-core connecting wire, please connect to the mainboard of indoor unit after connecting 4-core connecting wire with 2-core connecting wire of 24 volt adaptor.

RS485 communication interface of 24 volt adaptor is the non-polar interface. It's no need to consider the polar of RS485 interface for wiring.

### 5.3.2 Connection of Adaptor and Thermostat

The connection between 24 volt adaptor and the third party 24VAC HVAC thermostat is shown as below:

- (1) When the output signal of thermostat is the control command of load, such

as compressor, 4-way valve, indoor fan. The connection method is shown as below:

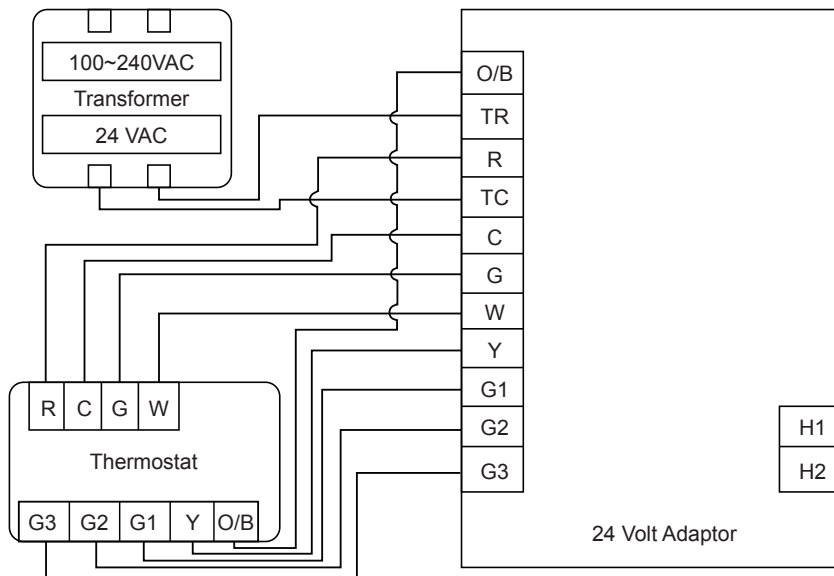


Fig. 5.4 Connection method of 24 Volt Adaptor (load control)



#### NOTE!

The 4-way valve interface of 24VAC HVAC thermostat may only has type "O" or

“B”, and it can also connect O/B of adaptor , while it needs to set adaptor to ensure that the adaptor has the same meaning with the interface of 24VAC HVAC thermostat.

- (2) When the output single of 24VAC HVAC thermostat is the control command for operation mode, such as heating, cooling or fan mode. The connection method is shown as below:

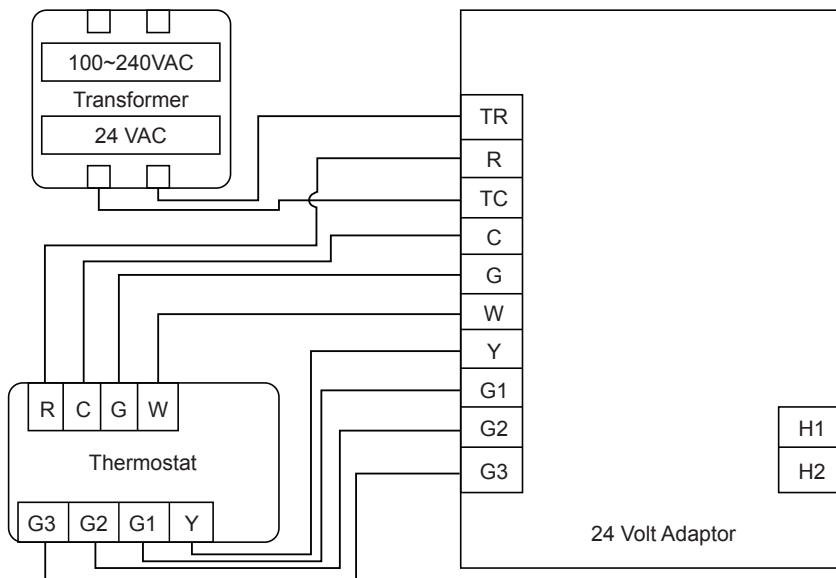


Fig. 5.5 Schematic diagram of wiring between adaptor and thermostat

**NOTE!**

If the thermostat hasn't G1, G2 and G3 (low, medium and high fan speeds) interfaces, it's no need to connect wires for these three interfaces of adaptor.

## 6 Malfunction Display

When there's malfunction during operation, the nixie tube of 24 volt adaptor will display the error code. If multiple malfunctions occur at the same time, error codes error codes will be displayed circularly.

**CAUTION:**

When there's malfunction, please turn off the unit and ask for professional person to maintain it.

Table 6.1 Error Code List

| Error                                                            | Error Code | Error                                                    | Error Code |
|------------------------------------------------------------------|------------|----------------------------------------------------------|------------|
| Return air temperature sensor open/short circuited               | F1         | Drive board communication error                          | P6         |
| evaporator temperature sensor open/short circuited               | F2         | Compressor overheating protection                        | H3         |
| Indoor unit liquid valve temperature sensor open/short circuited | b5         | Indoor and outdoor units unmatched                       | LP         |
| Indoor gas valve temperature sensor open/short circuited         | b7         | Communication line misconnected or expansion valve error | dn         |
| IPM temperature sensor open/short circuited                      | P7         | Running mode conflict                                    | E7         |
| Outdoor ambient temperature sensor open/short circuited          | F3         | Pump-down                                                | Fo         |

## 24 Volt Adaptor

| Error                                                                   | Error Code | Error                                                           | Error Code |
|-------------------------------------------------------------------------|------------|-----------------------------------------------------------------|------------|
| Outdoor unit condenser mid-tube temperature sensor open/short circuited | F4         | Main error at grid connection side                              | y2         |
| Discharge temperature sensor open/short circuited                       | F5         | Forced defrosting                                               | H1         |
| Indoor and outdoor communication error                                  | E6         | Compressor startup failure                                      | Lc         |
| DC bus under-voltage protection                                         | PL         | High discharge temperature protection                           | E4         |
| DC bus over-voltage protection                                          | PH         | Overload protection                                             | E8         |
| Compressor phase current sensing circuit error                          | U1         | Whole unit over-current protection                              | E5         |
| Compressor demagnetization protection                                   | HE         | Over phase current protection                                   | P5         |
| PFC protection                                                          | Hc         | Compressor desynchronizing                                      | H7         |
| IPM Temperature Protection                                              | P8         | IPM Current protection                                          | H5         |
| Over-power protection                                                   | L9         | Compressor phase loss/reversal protection                       | Ld         |
| System charge shortage or blockage protection                           | F0         | Frequency restricted/reduced with whole unit current protection | F8         |
| Capacitor charging error                                                | PU         | Frequency restricted/reduced with IPM current protection        | En         |
| High pressure protection                                                | E1         | Frequency restricted/reduced with high discharge temperature    | F9         |
| Low pressure protection                                                 | E3         | Frequency restricted/reduced with anti-freezing protection      | FH         |
| Compressor stalling                                                     | LE         | Frequency restricted/reduced with overload protection           | F6         |
| Over-speeding                                                           | LF         | Frequency restricted/reduced with IPM temperature protection    | EU         |
| Drive board temperature sensor error                                    | PF         | Indoor unit full water error                                    | E9         |
| AC contactor protection                                                 | P9         | Anti-freezing protection                                        | E2         |
| Temperature drift protection                                            | PE         | AC input voltage abnormal                                       | PP         |

| Error                                               | Error Code | Error                                    | Error Code |
|-----------------------------------------------------|------------|------------------------------------------|------------|
| Sensor connection protection                        | Pd         | Whole unit current sensing circuit error | U5         |
| DC bus voltage drop error                           | U3         | 4-way valve reversing error              | U7         |
| Outdoor fan 1 error protection                      | L3         | Motor stalling                           | H6         |
| Outdoor fan 2 error protection                      | LA         | PG motor zero-crossing protection        | U8         |
| compressor inhalation temperature sensor error      | dc         | Indoor fan tripping error                | U0         |
| Communication error between IDU and grid connection | Ln         | IDU network address error                | y3         |
| Communication error between ODU and grid connection | LM         | Ip address allocation overflow           | yb         |



Trane - by Trane Technologies (NYSE: TT), a global climate innovator - creates comfortable, energy efficient indoor environments for commercial and residential applications. For more information, please visit [trane.com](http://trane.com) or [tranetechnologies.com](http://tranetechnologies.com).

Trane has a policy of continuous product and product data improvement and reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.