



QD82U+ UNIVERSAL AC/DC INVERTER CONTROL SYSTEM FOR SPLIT AIR CONDITIONER



1. Preface

This is our latest universal control system for AC/DC inverter split air conditioners. Thank you for choosing this product, and it's our great pleasure to bring convenience for your daily life. Please read the user's manual carefully before using this control system, which will assist you to install and use the control system correctly.

2. Control system introduction

- 1) Parts of control system: ① universal indoor board, ② remote control, ③ universal outdoor inverter board, ④ electrolytic capacitor board.
- 2) Enable to drive strong AC/DC compressor.
- 3) Available for indoor brushless DC motor or PG motor.
- 4) Enable to drive outdoor AC/DC fan motor.
- 5) Applicable for controlling electronic expansion valve.

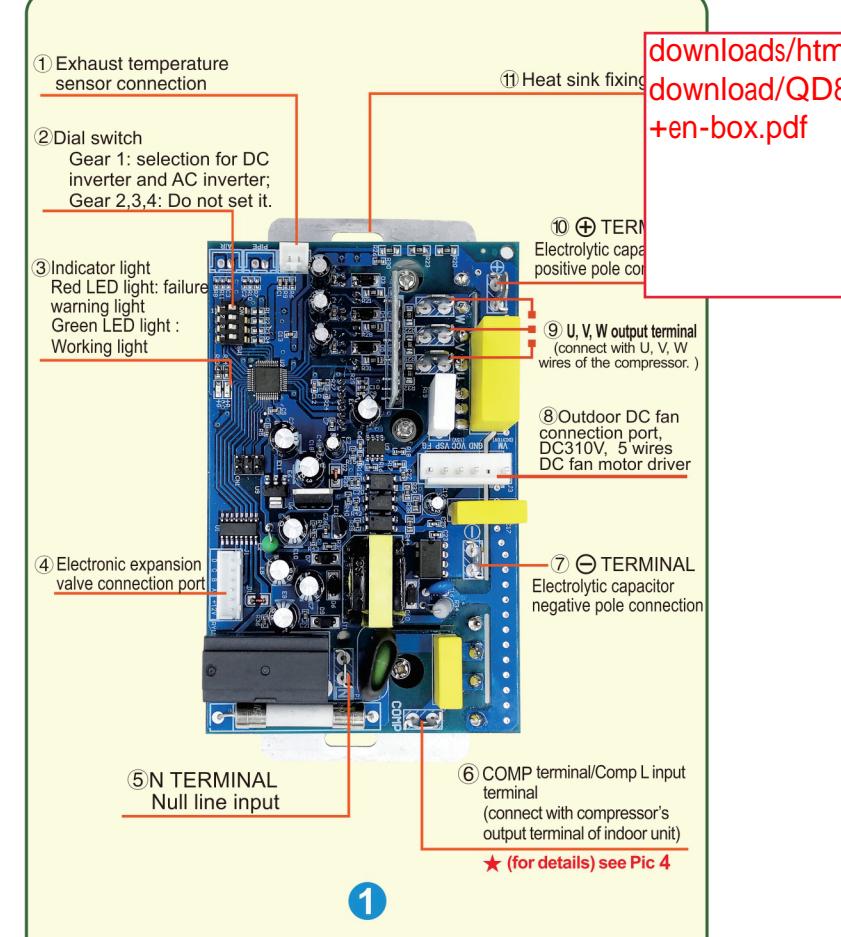
3. Attentions before installation

- Please hire technicians with qualification for installation and do conduct power-on test before it. There still high voltage in the PCB board within 3 minutes after power off. Please be careful.
- Please identify the air conditioner type(DC inverter or AC inverter) and the fan motor type(DC fan motor or AC fan motor).
- Users just need to use the gear 1 to select DC inverter or AC inverter. Ensure other gears remain default setting.
- Gear 1(default setting is at the number side) is suitable for DC compressor. So before installation, please identify the compressor type(DC inverter or AC inverter). For AC inverter, please set gear 1 to ON side.
- Ensure the electrolytic capacitor positive/negative pole connect to the \oplus and \ominus plug of the module correctly.
- Connect the three wires(U, V, W) of the original compressor with plugs (U, V, W) of the outdoor inverter board correspondingly. Ensure the connection is stable.
- With 3 minutes' delay for protection, the compressor will restart after 3 minutes for power off or defrost.
- If the air conditioner works absolutely noisy, check three phases to see if there are cases of phase missing or phase dislocation. Ensure the maximum compressor working current is less than 110% of air conditioner rated current.
- Any damage due to improper installation or burned module from human factors are not in warranty scope. If products need factory maintenance, please return the main board together with the packing box and a note to clarify specific failure phenomenon.

4. Outdoor unit instruction

4.1 Structure and installation of outdoor inverter board

- 1) Outdoor inverter board structure diagram
- 2) Exhaust temperature sensor connection port: when compressor exhaust temperature is higher than 110°C , it will shut down for protection.
- 3) Dial switch: it has 4 gears to choose. Users just need to use gear 1 to select DC inverter or AC inverter. Ensure other gears remain the default setting. The default setting(at the number side) for gear 1 is suitable for DC compressor. So before installation, please identify the compressor type(DC inverter or AC inverter). For AC inverter, please set gear 1 to ON side.
- 4) Indicator light: when the unit is working normally, choosing DC inverter, the green LED light will be on; Choosing AC inverter, the green LED light will flicker. When failures occur, the green LED light will be off, and the red LED light will flicker. The red LED light will flicker differently according to the failure phenomenon. For details, please check the Failure Guide for reference.
- 5) Electronic expansion valve connection port: electronic expansion valve has two types of wires: 5 wires and 6 wires, please find the 12V terminal through referring to the connection way of original inverter board and expansion valve.
- 6) N TERMINAL: Null line input.
- 7) COMP TERMINAL: connect with the COMP of the universal indoor board.



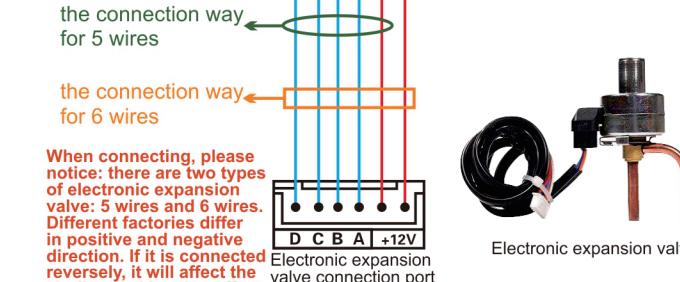
GEAR	ON	NUMBER(1,2,3,4)
1	AC inverter	DC inverter
2	NULL	NULL
3	NULL	NULL
4	NULL	NULL

- 2) Installation for outdoor inverter board: Step 1: Before installation, please use the ohm band of the multimeter to test the compressor and make sure the compressor coil is good and the resistance of three compressor feet is the same. If not, something may be wrong with the compressor. In that case, don't install the control system to avoid damaging it.

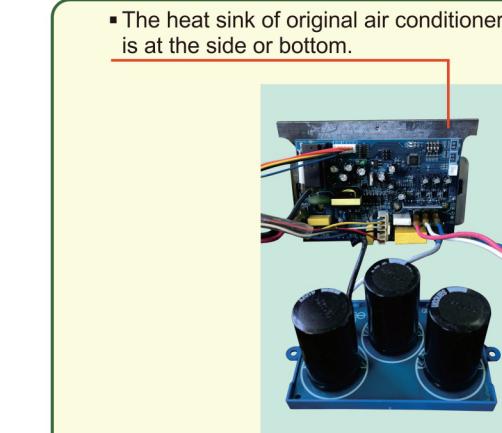
Step 2: Electronic expansion valve installation



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3) Graphic reference for installation:



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4.2 Fault guide for outdoor units

● AC inverter outdoor unit fault code meaning:

Red LED light flashing frequency	Trouble explanation
Once	DC bus over voltage and undervoltage
Twice	Over current protection
3 times	IPM over current protection
4 times	Over exhaust temperature

● DC inverter outdoor unit trouble code meaning:

Red LED light flashing frequency	Trouble explanation
Once	DC bus over voltage and undervoltage
Twice	Over current protection
3 times	IPM over current protection
4 times	Over exhaust temperature
5 times	Compressor rotor out-of-step trouble

● Note: when the outdoor unit shut-down alarm blows, identify trouble reasons and restart after power off to end the alarm.

4.3 Technical parameters

Application scope	Split air conditioner
Maximum service power	24000BTU
Maximum input voltage	AC240V
Minimum input voltage	AC180V
Maximum output current	20A
Maximum output frequency	100Hz



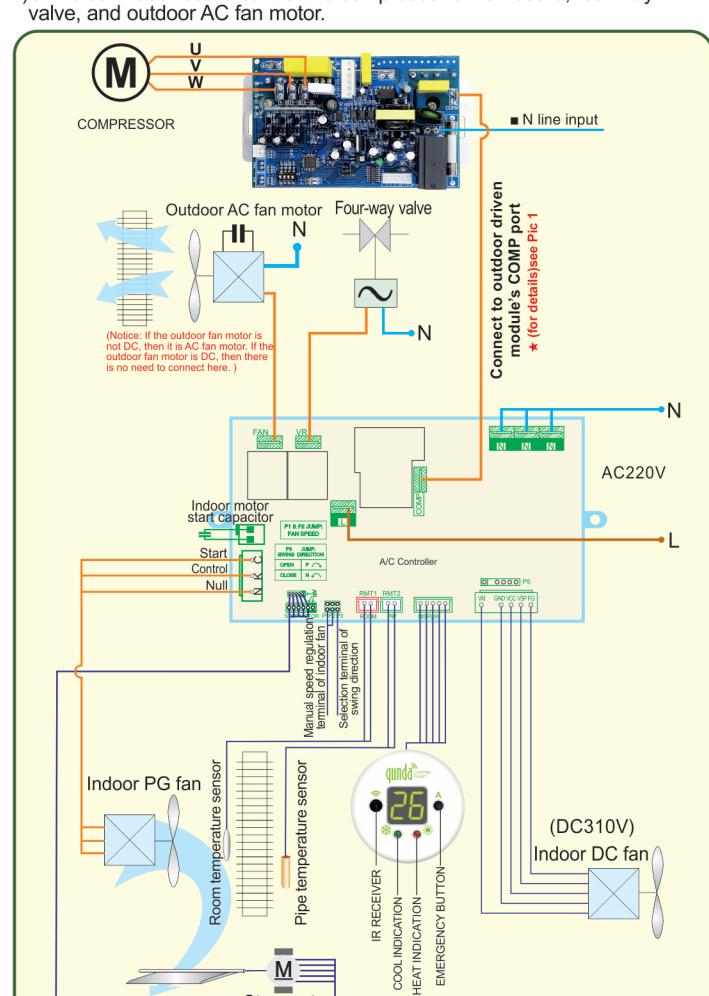
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5. Indoor unit instruction

5.1 Indoor unit wire diagram and installation instruction

- 1) Universal indoor board control the compressor driven board, four-way valve, and outdoor AC fan motor.



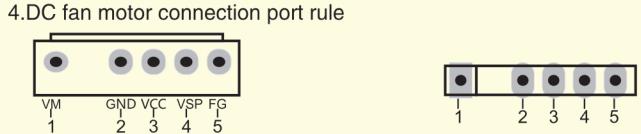
Attention:

1. The indoor board is applicable for PG fan and brushless DC fan, but they can not be used simultaneously.
2. Ensure there is no strong light in front of IR receiver.
3. The common pin of stepper motor output socket is 12V. The stepper motor common pin has to be inserted into one common pin of the stepper motor output socket. It will control the positive and negative rotation of the stepper motor by using and not using short circuit jumper for P3.

P3 jumper: the swing direction for stepper motor

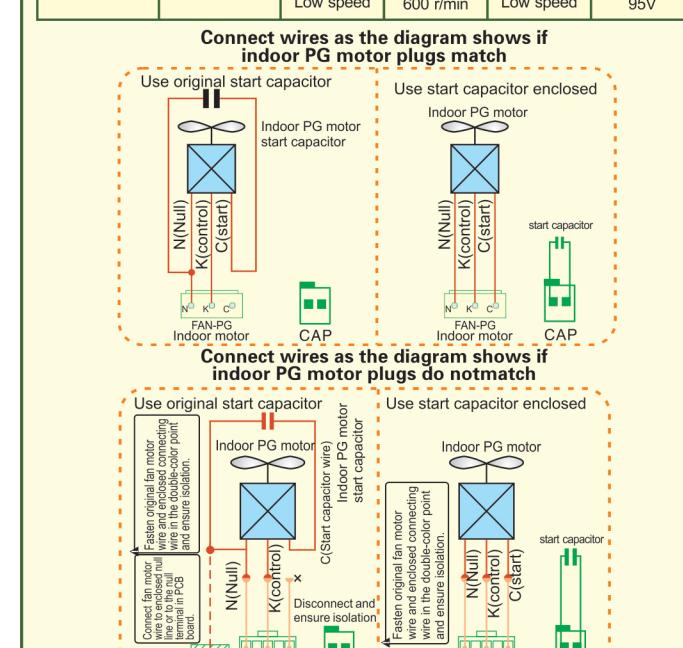
P3: open circuit	the stepper motor rotates positively
P3: short circuit	the stepper motor rotates reversely

4. DC fan motor connection port rule



Name	Parameter	Description
1	VM	Fan power supply 310V
2	GND	Fan earth terminal
3	VCC	Power DC 15V
4	VSP	Control voltage DC 0-6.5V
5	FG	Fan feedback

P1 P2 situation		DC fan speed		PG fan speed	
Higher gear	P1 Short circuit P2 Open circuit	High speed	1600 r/min	High speed	218V
		Medium speed	1300 r/min	Medium speed	210V
		Low speed	1100 r/min	Low speed	200V
Default fan speed gear	P1 Open circuit P2 Open circuit	High speed	1340 r/min	High speed	195V
		Medium speed	1160 r/min	Medium speed	176V
		Low speed	880 r/min	Low speed	155V
Lower fan speed gear	P1 Open circuit P2 Short circuit	High speed	1200 r/min	High speed	182V
		Medium speed	1000 r/min	Medium speed	168V
		Low speed	800 r/min	Low speed	140V
Ultralow gear	P1 Short circuit P2 Short circuit	High speed	1000 r/min	High speed	143V
		Medium speed	800 r/min	Medium speed	118V
		Low speed	600 r/min	Low speed	95V



5.2 Indoor unit fault code meaning

trouble display (in display panel)	Trouble explanation
E1	Room temperature sensor trouble
E2	Indoor pipe temperature sensor trouble

5.3 Indoor unit display panel instruction

- 1) MODE DISPLAY
 - AUTO MODE: Temperature directories display "AU"
 - COOL MODE: Cool indicator light on, temperature directories display setting temperature and room temperature, when setting it display setting temperature that by remote, and then display room temperature.
 - DRY MODE: Temperature directory displays "DR".
 - VENTILATION MODE: Temperature directory displays "FR".
 - HEAT MODE: Heat indicator light on, temperature directory will display setting temperature and room temperature. When

defrosting, temperature area displays "DF", indicate that air-conditioner is in defrosting state.

● SWING: when in sleep mode, the luminance will be dark, make people have a good rest, setting temperature adjusts automatically and air conditioner shuts down after 8 hours.

● TIMER ON: Temperature area displays "ON" and flashes, it means air conditioner is in timer on mode.

● TIMER OFF: Temperature directory displays the current mode or temperature and flashes, it means air conditioner is in timer off mode.

2) REMARKS

- IR receiver: To receive the instruction from remote
- Emergency button: without remote, pressing this button can start air-conditioner. Press it to turn into cool mode, setting temperature will be 26°C , fan speed and direction will be automatic. Press again, it will turn into heat mode, setting temperature is 20°C , fan speed and direction will be automatic. Press again to turn off the air-conditioner. Circulating operation.

3) Compressor instruction

In heat or cool mode, when indicator light of heat and cool flashes, it means air-conditioner reaches the setting temperature, or compressor in 3 minutes protection state, compressor shut down now, when the indicator light on, it means compressor is on.

5.4 Indoor unit remote manual



1) ON/OFF key: press to turn on/ off the A/C.

2) TEMP(temperature setting key): it can set the temperature from 16°C to 30°C . The key would not work under the auto or dry mode.

3) Mode key: working modes conversion (auto, cooling, dry, ventilation, heating). In the auto mode, the A/C would come to the heating mode when the room temperature is under 21°C ; when the room temperature is higher than 27°C , the A/C would come to the cooling mode. The setting temperature is 24°C .