

BP199 Intelligent Variable Frequency Electronic Control Board

1.Warning

Important reminder: Before any operation on the electronic control board (wiring, maintenance), the power must be turned off.

- Install an appropriate circuit breakers at the incoming line position.
- Connect the grounding wire to the corresponding terminal of J1 on the electronic control board (Figure 2).
- The power cord and control cable must be separated (buttons, receivers, infrared safety protection, etc.). To avoid electrical interference, it is recommended to use shielded cables.

2.Technical specifications

Model	BP199
Power Supply(+6% - 10%)	230V
Absorption Power(W)	10W
Maximum Motor Load(W)	750W
Maximum Accessory Load(A)	0.3A
Working Environment Temperature	-20℃—+50℃
Fuse	5A
Basic Setting Functions	Refer to Table 1
Advanced Setting Function	Refer to Table 2

3.Circuit layout and components

DL	Display screen O: opening the door C : closing the door
LED	Input signal status indication
J1	Power terminal block (AC230V)
J2	Flashing light wiring terminal (AC230V<60W)
J3	Low voltage terminal block
J4	485 communication terminal block
J5	Bluetooth/WIFI module interface
J6	
J7	Motor interface
J8	4AB control interface (ICL)
J9	Limit switch interface
J10	External travel interface
F1	Motor/Transformer Fuse (230V=5A)
F	Black :Manual single key cycle/Function setting quick exit button
MT_V	Motor slow speed quick setting button (15-35)

SET	White: Long press for 3 seconds to enter the function menu settings
SPEED	Motor fast speed quick setting button (15-100)
<<<	Red: Number Shift Key
+	Yellow: Add function setting button
-	Blue: Reduce function settings button
FORCE	Gray: Adjust the force of the motor when it encounters resistance when closing the door. The larger the encounter, the greater the resistance
TIME	Green: Motor slow position adjustment/Fast slow learning function

Table 1

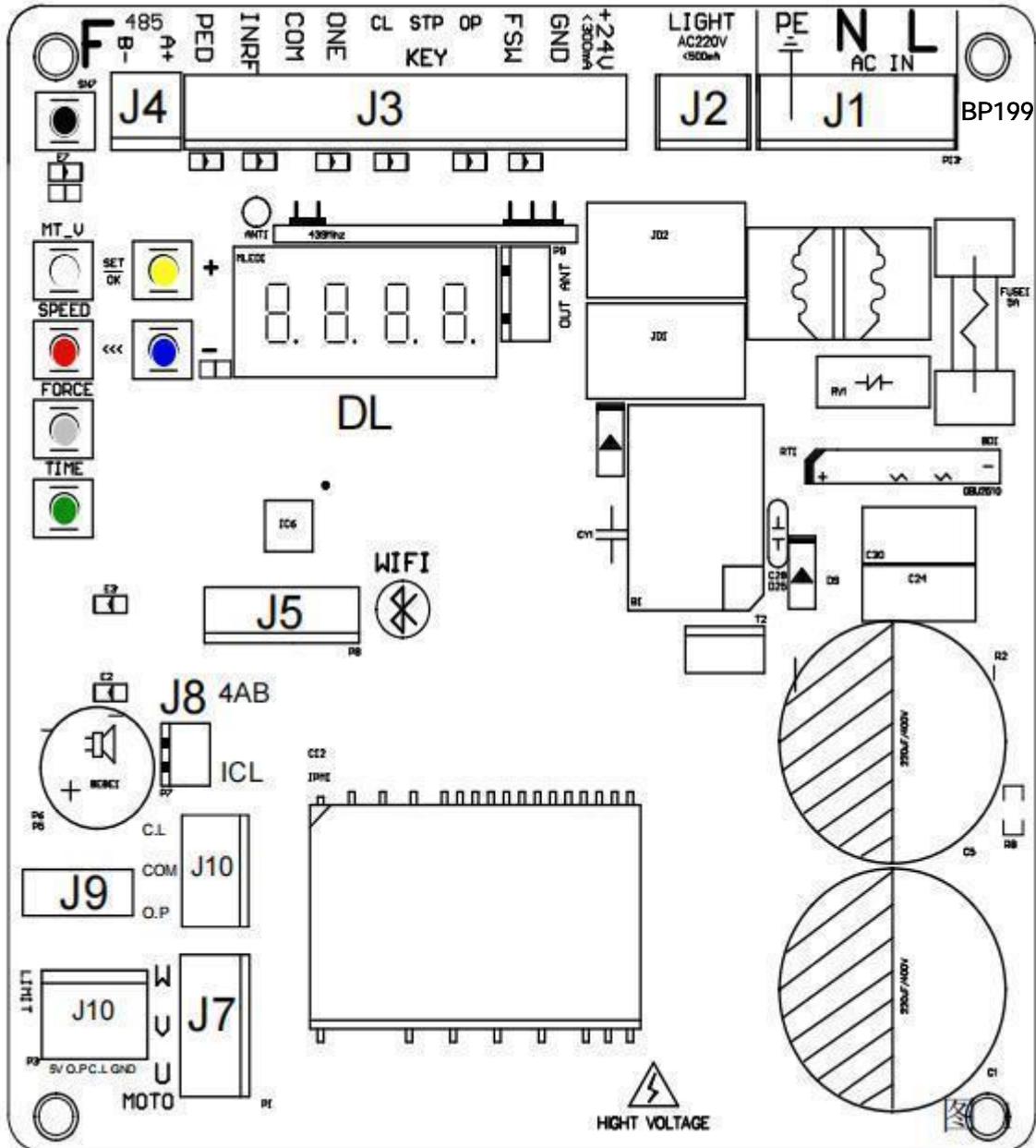


Figure 1

4. Adding and Deleting Remotes

Remote control added:

Long press and hold the + key (yellow) for **3** seconds, display **5. XXX**, then release it and immediately hold down any button of the remote control without releasing it. A beep indicates successful learning. Repeat the operation to continue learning.

Learn up to 250 remote controls.

Remote control deletion:

Long press and hold the + key (yellow) for 3 seconds, display **5. XXX**, then release and immediately press and hold the - key (blue) for more than **5** seconds, long beep, display **DEL .O**. It means that the deletion was successful.

5. Slow speed position setting (motor protection time)

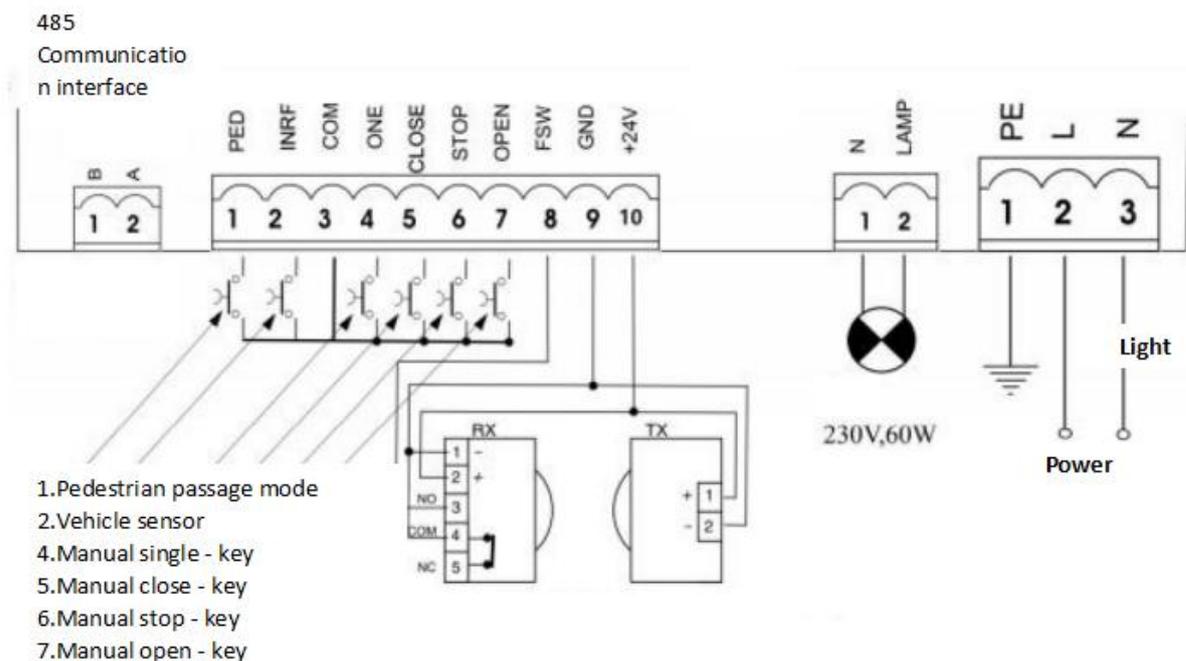
A. Automatic mode. When powering on, let the door open and close once. The distance can be set through the TIME button.

B. Manual mode. With the door in the close position, long press the TIME button. After 5 seconds, release the button when the door starts to move. The door will first open and then close, and the setting is completed. The slow speed distance can be set through the TIME button.

Attention:

The speed displayed on the LED screen during motor operation is the actual speed of the motor ($\text{value} * 30 = \text{actual motor PRM}$). If the set speed value is too large or the door is too heavy, the actual speed will not reach the set speed value, indicating that the set value is too large or the door weight exceeds the thrust range of the motor. The appropriate speed of the motor is 50 ($50 * 30 = 1500\text{RPM}$).

6. Circuit connection



7. Wiring instructions

7.1 J1 Wiring Terminal - Power Supply (Figure.1)

Power supply (terminal PE-N-L)

PE:Ground wire N:Power supply (neutral wire) L:Power supply (live wire)

Attention: The system must be connected to the grounding wire and a suitable air switch must be installed at the incoming position.

7.2 J2 Wiring terminal - Flashing Light (Figure .1)

Flashing light - (terminal J2): AC230V flashing light output

7.3 J3 Wiring terminal - Accessories (Figure .1)

INRF— Vehicle Sensor Input

When there is a vehicle sensor signal input during closing, the door will first perform a 5-second opening action. If there is no signal input at this time, the door will first stop and then continue to perform the closing action. If there is a continuous signal input, the door will open to the limit and stop. When there is no signal, the door will close.

ONE—Single key cycle input. When there is a signal input, the actions of open - stop - close - stop are executed separately.

CL— Close input. When there is a signal input, only the closing action is executed.

STOP — Stop input. When there is a signal input, only the stop action is executed.

OPEN—Open input. When there is a signal input, only the opening action is executed.

FSW—Door closing safety protection device contact : To prevent collisions in the moving area of the door during closing. When the door is closing and the safety protection device is triggered, the door will move in the opposite direction until it stops at the limit position.

GND +24V—24V DC power supply

Important reminder: The maximum load of the accessories is 300mA.

FSW - Close door safety protection device contact (terminal 7):

Avoid collision in the area where the door moves when closing the door. When closing the door, after the safety protection device is triggered, the door will move in the opposite direction to the limit stop.

GND+24V - (terminals 8,9) 24V DC power supply

Important notice: The maximum load of the attachment is 300mA

7.4 J4 Wiring terminal - 485 Communication Interface (Figure.1)

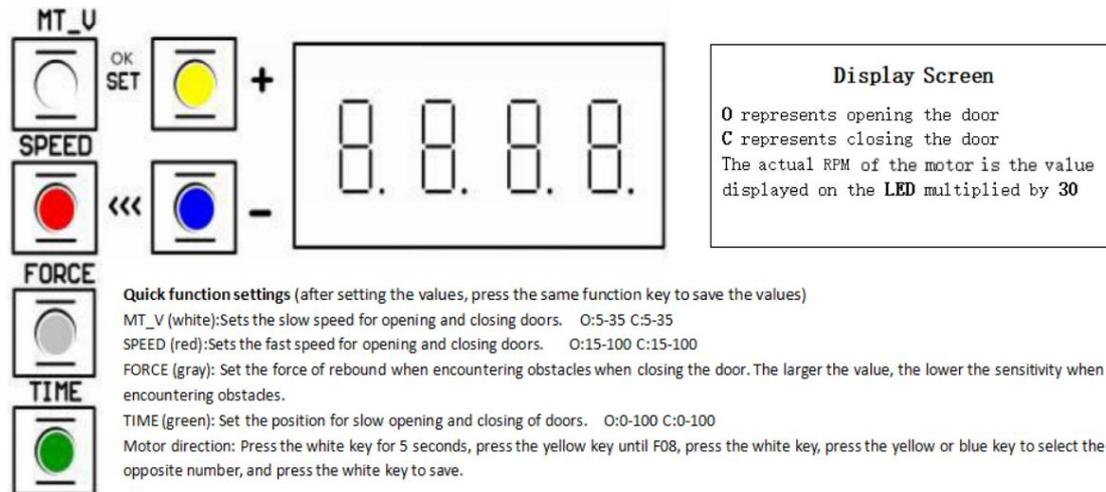
B-A+ - (Terminal J3)

Used for dual machine communication (connected with twisted pair wires), achieving dual machine synchronization, AB gate function, etc. For specific function settings, please refer to the F4 function in the advanced settings section.

7.5 J5Wiring terminal - External Manual Control Interface (Figure.1)

This interface can be inserted with wifi module or Bluetooth module to achieve mobile phone control functions.

8.Function settings



8.1 Quick function settings (O:door opening, C :door closing)

8.1.1 Set slow speed:

Short press the **white** key (displaying O.15)→short press the **yellow** or **blue** key to set the value→short press the **white** key to save (display C.15)→short press the **yellow** or **blue** key to set the value→short press the **white** key to save

8.1.2 Set fast speed:

Short press the **red** key (displaying O.15)→short press the **yellow** or **blue** key to set the value→short press the **red** key to save (display C.15)→short press the **yellow** or **blue** key to set the value→short press the **red** key to save

8.1.3 Set the return force when encountering obstacles:

Short press the **gray** key (displaying numbers)→short press the **yellow** or **blue** key to adjust the value (the smaller the value, the more sensitive it is)→short press the gray key to save

8.1.4 Set the slow opening and closing positions:

Short press the **green** key (displaying O.20)→short press the **yellow** or **blue** key to set the value→short press the **green** key to save (display C.20)→short press the **yellow** or **blue** key to set the value→short press the **green** key to save

8.1.5 Set the motor running time:

Close the door to the stroke, press and hold the **green** button for more than 7 seconds. When the motor is activated and released, the door will first open to the stroke, and then close to the stroke setting.

8.1.6 Motor direction:

Long press the **white** key for 5 seconds (displays F.01)→short press the **yellow** key to F08→Short press the **white** key→short press the **yellow** or **blue** key to select the opposite number, press the **white** key to save.

8.2 Advanced feature settings:

Press and hold the **white** key for 5 seconds to enter, displaying F01. Use the **yellow** and **blue** keys to switch functions. Press the **white** key to enter detailed function settings, and press the **white** key to confirm. Pressing the black key can quickly exit the function settings, but the data set will not be saved.

Advanced Settings			
Display	Function	Default value	notes
F01	Remote control mode	3	When set to single key function 1, the operation key is the key pressed during learning
	1 Remote control single key loop 3 Remote control three key function 4 Four identical keys with single key loop function		
F02	Travel, infrared, and ground sensing functions	000	For example: 000: All are normally open 100:Only the itinerary is normally closed 010: Only infrared is normally closed 001:Only the ground feeling is normally closed
	0 represents normally open, 1 represents normally closed. Set by using the shift key<<<<		
F03	Automatic door closing function	0	For example: 3. It means that the door will automatically close after 3 seconds
	0 Turn off the function. 1-250 seconds		
F04	Dual machine communication function	0	Dual machine synchronization operation: The host enters F4 and selects 1, SET, O.000, press+, O.001, SET, C.000, SET to save. The slave motor enters F4, select 1, SET,O.000, SET,C.000, Press SET to save.

	0.Turn off function 1.Dual machine synchronization function 2.AB interlock function		Dual machine asynchronous operation: The host enters F4 and selects 1, SET,O.000 , Press+, O.002 (open the door for 2 seconds) SET,C.000, Press+, C.003 (close the door for 3 seconds), press SET to save. Slave motor enters F4, select 1, SET,O.000, SET,C.000, Press SET to save.
F05	Motor protection time function	2700	Unit 50Hz operating speed 50ms
	0.Turn off function 1-9999 activation function		
F06	Remote control lock key function	00	Close key function
	00 Close key function		
	01 Turn on the remote lock key lock function 10 Remote control lock key as pedestrian channel function		
F07	Set pedestrian walkway width	150	Approximately 1.5m
	0-9999		
F08	Motor running direction	1	Simultaneously changing the direction of the motor and the direction of travel
	0 Motor reverse 1 Motor rotates forward		
F09	Motor slow speed mode	0	The four magnet method is to slow down the first magnet and stop at the second magnet
	0 Two magnet input method 1. Four magnet input method		
F10	Bus voltage detection	1	Enable protection function
	0 Turn off function 1 Enable protection function		Less than AC85V, the motor stops working. Report Er04
F20	High speed operation speed when open the door	050	High speed operation speed when open the door 15-100
F21	High speed operation speed when closing the door	050	High speed operation speed when closing the door 15-100
F22	Slow opening speed	015	Slow opening speed 15-50
F23	Slow closing speed	015	Slow closing speed 15-50
F24	Slowly open the door position	015	Slowly open the door position 0-XXX
F25	Close the door slowly position	015	Close the door slowly position 0-XXX

F26	Sensitivity setting for encountering obstacles	200	0-1000 The smaller the value, the higher the sensitivity
F27	Remote locking sign	0	0: Not locked; 1: Lock Can be manually set to 0 to unlock
F28	Engineering mode (password required to enter)	XXXX	Please refer to Table 3 for specific operations
F29	Restore factory settings		
F30	View the number of remote controls		
F31	View debugging data		
F32	View software version		

Engineering mode setting

Press F28→SET (white)→Enter password (please consult)→SET (white)→Confirm entry

28 01	Motor acceleration time	15	
28 02	Motor deceleration time	15	
28 03	Frequency electric ratio used in non deceleration processes	22	Non professionals are not allowed to move!
28 04	Frequency electric ratio used during deceleration process	18	Non professionals are not allowed to move!
28 04	Maximum voltage modulation numerical control	3000	Non professionals are not allowed to move!
28 06	Frequency change step value setting	1	Non professionals are not allowed to move!
28 07	Error recovery time	0050	5 seconds
28 07	Automatic learning of door width cache value	XXXX	When the user does not manually learn the door width, the cached data is stored every time the power is turned on
28 08	Manually learning the gate width cache value	XXXX	
28 09	Save itinerary status values	0000	
28 10	The speed at which the motor runs when set to slow speed	36	The speed returned when encountering obstacles is the same as the speed parameter set for slow speed
28 11	Maximum design current of circuit board	0600	Default current of 6A. Unit 10mA
28 12	Installation Engineering Mode	0	0: Turn off this feature. The value is the number of times it can run. Fault Er08

Fault code

Er01	Intelligent module protection	Motor short circuit or short circuit in motor wiring, high module temperature
Er02	The operating current exceeds the maximum design current	Door overweight

Er03	Intelligent module temperature too high	Wait until the temperature drops before operating
Er04	The input voltage is too low	The input voltage is less than about AC85V
Er05	Hall counter malfunction	Motor return to factory for repair
Er06	Abnormal communication between two machines	Check the communication line
Er07	Input voltage too high	Input voltage greater than approximately AC285V
Er08	On board malfunction	Please call the installation engineering personnel

Fault phenomenon		
1	The LED lights on the circuit board are not on	Check the fuse, whether the input power is normal, and whether the external equipment is short circuited. If the short circuit, power supply, and fuse are all normal, they need to be returned to the factory for repair
2	The motor cannot reach the set speed at high speed	The door is too heavy and the motor thrust is insufficient. Replace it with a high-power motor or reduce the speed.
3	The motor does not operate and there are no fault codes	There is a problem with the circuit board, please return it to the factory for repair
4	Er01 appears multiple times during motor operation	The door is too heavy and the motor thrust is not enough. Replace it with a high-power motor.