Directory index

Control panel overview

Currently we have three control panel models: PB553, PB554, and PB555. Each of them can match any of the three control system (P20B29, P23B32, and P25B37).

PB553 features

*Clear and user friendly interface;

*3.5" TFT display, specialized interface display with separate pages;

*System functions real-time displayed on the panel, easy reading and parameters real-time updating;

*With RTC and malfunction information display;

*Capacitive touch buttons with back light, with navigation and shortcut buttons;

*Changing system configuration on panel;

*Install and uninstall panel manually without any tools.

Image and size

[8.858"]
225.0mm

[3.071"]
78.0mm

[1.772"]
44.0mm

[1.205"]
R30.8mm

[8.354"]
151.0mm

Control panel overview
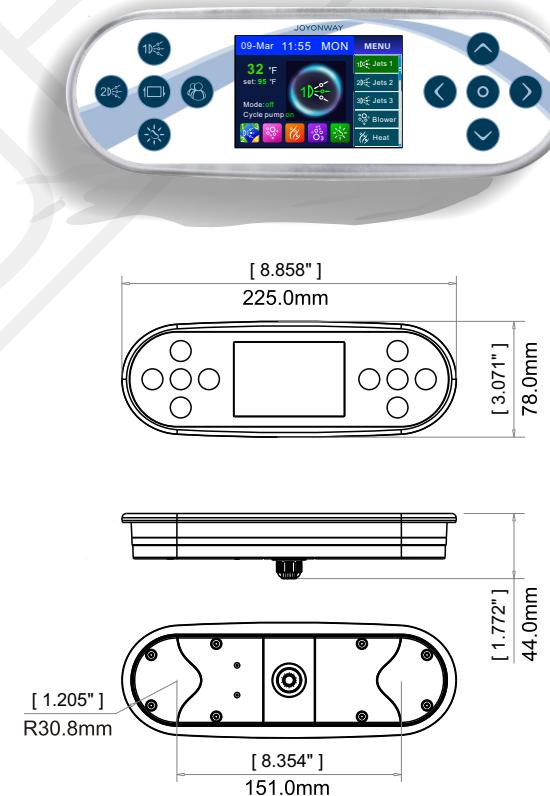
PB554 features

*Clear and user friendly interface;

*2.0″ TFT display, specialized interface
   display with separate pages;

*System functions real-time displayed on
   the panel, easy reading and parameters
   real-time updating;

*With RTC and malfunction information display;

*Capacitive touch buttons with back light,
   with navigation and shortcut buttons;

*Changing system configuration on panel;

*Install and uninstall panel manually
   without any tools.

Image and size

[6.693"]
170.0mm

[2.283"]
58.0mm

[1.752"]
43.5mm

[0.870"]
R22.3mm

[6.268"]
115.0mm

Control panel overview

PB555 features

*Clear and user friendly interface;

*3.5″ TFT display, specialized interface
display with separate pages;

*System functions real-time displayed on
the panel, easy reading and parameters
real-time updating;

*With RTC and malfunction information display;

*Capacitive touch buttons with back light,
with navigation and shortcut buttons;

*Changing system configuration on panel;

*Install and uninstall panel manually
without any tools.

Image and size

[7.008″]
178.0mm

[2.913″]
74.0mm

[1.772″]
44.0mm

[0.315″]
4*R6.1mm

[2.417″]
61.6mm

[6.512″]
165.6mm

Control panel installation

① Hole Making
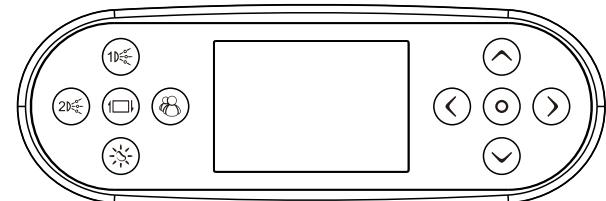
R32.0mm [1.248"]

PB553 Hole making

151.0mm
[5.945"]
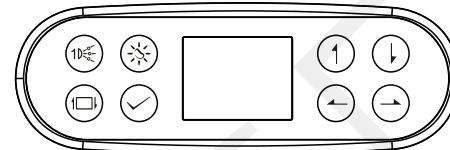
R23.5mm [0.906"]

PB554 Hole making

115.0mm
[4.528"]
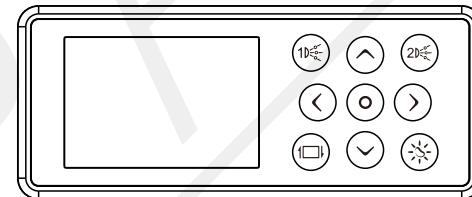
R4.0mm [0.156"]

PB555 Hole making

62.0mm
[2.441"]
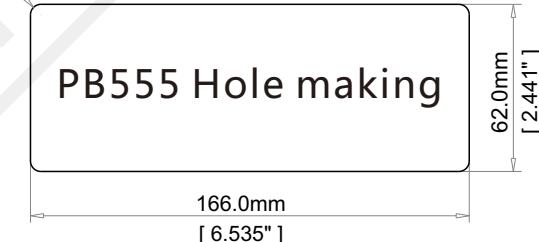
166.0mm
[6.535"]

② Make hole in the appropriate position on the tub. Keep the hole and its surrounding area clean. If there is burr around the hole, it has to be removed to avoid infirm sticking of the panel.
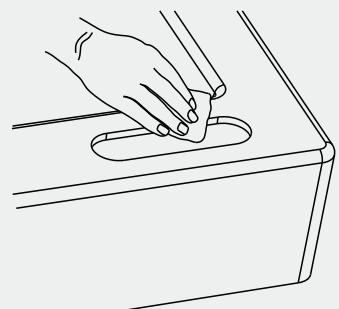
③ Do not touch the VHB tape after its protective sticker is torn off and avoid water or impurities stick to the tape. Please stick the panel to the tub firmly within 5 minutes after protective sticker of the tape is off.
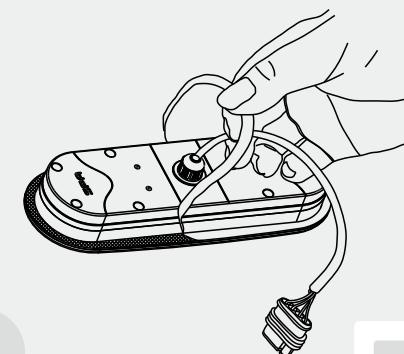
Control panel installation

Put the panel to the cleaned hole.
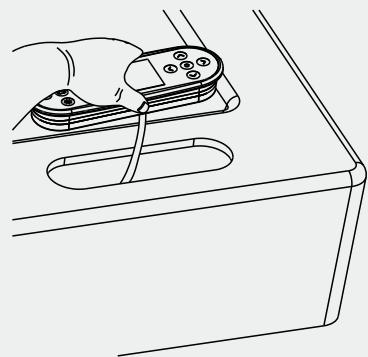
4

Press the panel for 30-60 seconds for firm sticking after placing it to the hole.

5
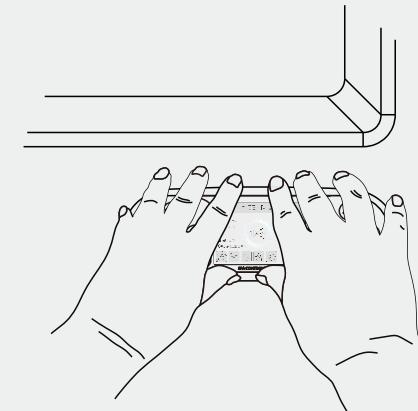
Control system overview

Currently we have three types of control system, P20B29, P23B32, and P25B37. They are basic control system, short as control system. Each of them can be matched with any of the three control panels (PB553, PB554, and PB555).

Control system overview

When the input voltage is 230V~50HZ, there are three ways for power connection. 1PX32A,2PX16A and 3PX16A. Parameters of control systems are as following:

1.P20B29 parameters:

HEATER PUMP OPTION (DEPEND ON SWITCH A5)										
CIRC PUMP		LOW SPEED OF PUMP1								
PUMP1(1/2SPD)	CIRC PUMP	PUMP1(2 SPD)	CIRC PUMP	PUMP2(1/2 SPD)	PUMP3(1/2 SPD)	PUMP4	BLOWER	OZONE	LIGHT	AUX POWER
HIGH:10A MAX LOW:2.5A MAX	2.5A MAX	HIGH:10A MAX LOW:2.5A MAX	N/A	HIGH:10A MAX LOW:2.5A MAX	HIGH:10A MAX LOW:2.5A MAX	10A MAX	5A MAX	1A MAX	12VDC 2A MAX	1A MAX

2.P23B32 parameters:

HEATER PUMP OPTION (DEPEND ON SWITCH A5)								
CIRC PUMP		LOW SPEED OF PUMP1						
PUMP1(1 SPD)	CIRC PUMP	PUMP1(2 SPD)	CIRC PUMP	PUMP2	BLOWER (PUMP3)	OZONE	LIGHT	AUX POWER
10A MAX	2.5A MAX	HIGH:10A MAX LOW:2.5A MAX	N/A	10A MAX	10A MAX	1A MAX	12VDC 15W MAX	1A MAX

3.P25B37 parameters:

HEATER PUMP OPTION (DEPEND ON SWITCH A5)						
CIRC PUMP		LOW SPEED OF PUMP				
PUMP1(1 SPD)	CIRC PUMP	PUMP1(2 SPD)	CIRC PUMP	BLOWER(PUMP2)	LIGHT	OZONE
10A MAX	2.5A MAX	HIGH:10A MAX LOW:2.5A MAX	N/A	10A MAX	12VDC 15W MAX	1A MAX

Control system overview

PB20B29 overview:

POWER INPUT

AUX POWER OUTPUT

COM CONNECTORS WIRING

LIGHT

PUMP2
PUMP4
CIRC PUMP
OZONE
PUMP1
PUMP3
BLOWER

PB20B29 size:

[14.173"]
360.00 mm

278.20 mm [10.850"]

63.20 mm [2.488"]

82.09 mm [3.232"]

08
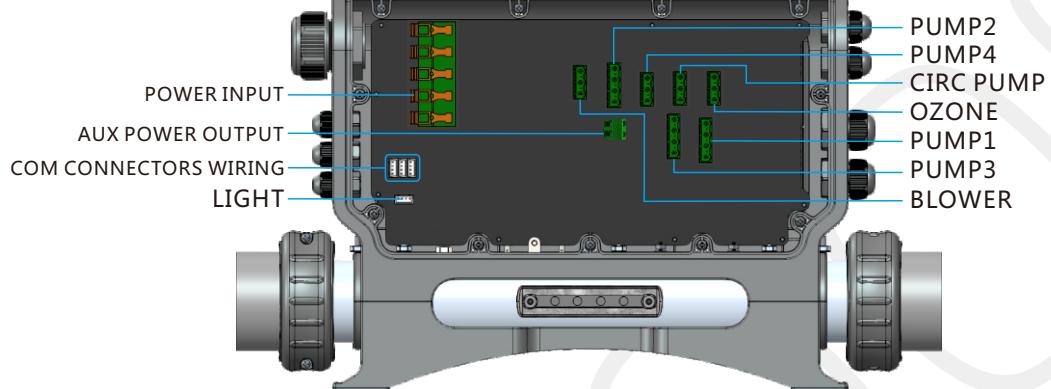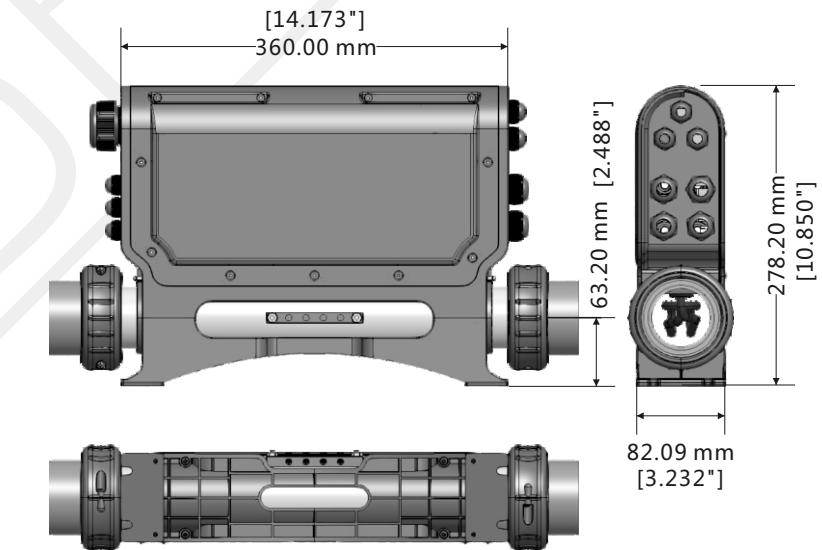
Control system overview

PB23B32 overview:

POWER INPUT
AUX POWER OUTPUT
LED LIGHT
COM CONNECTORS
WIRING

BLOWER(OR PUMP3)
PUMP2
PUMP1
CIRC PUMP
OZONE

PB23B32 size:

[14.173"]
360.00 mm

[2.488"]
63.20 mm

233.20 mm
[9.095"]

82.09 mm
[3.232"]

09
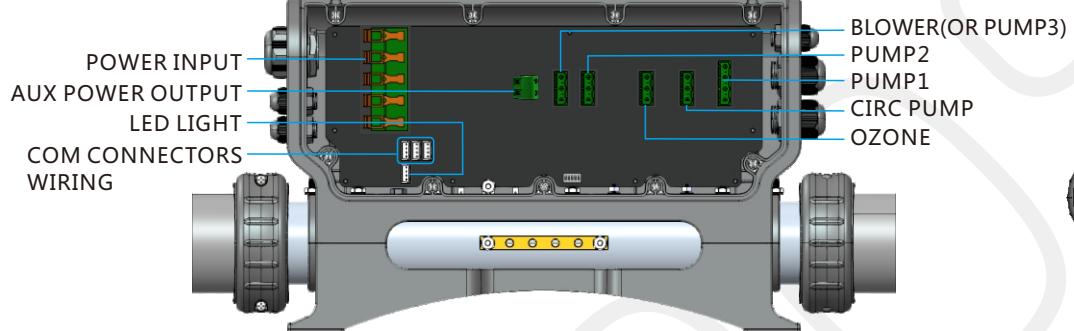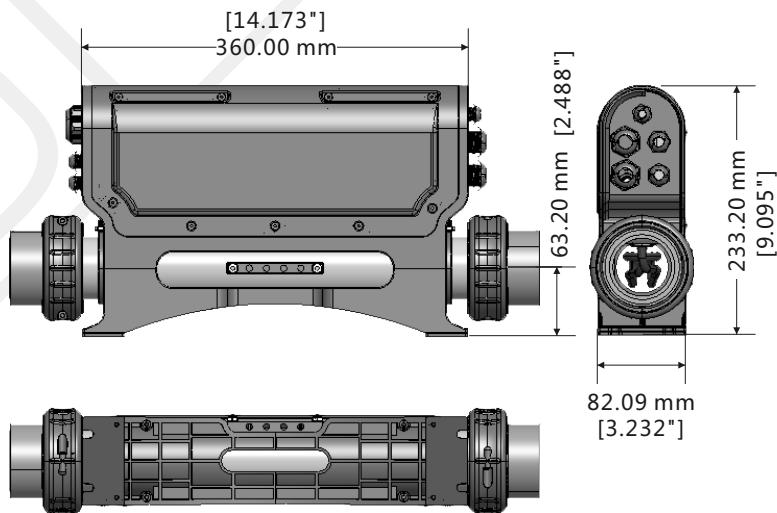
Control system overview

PB25B37 overview:
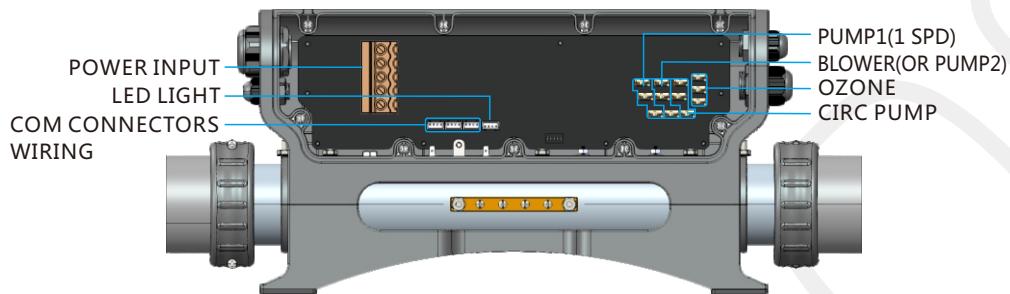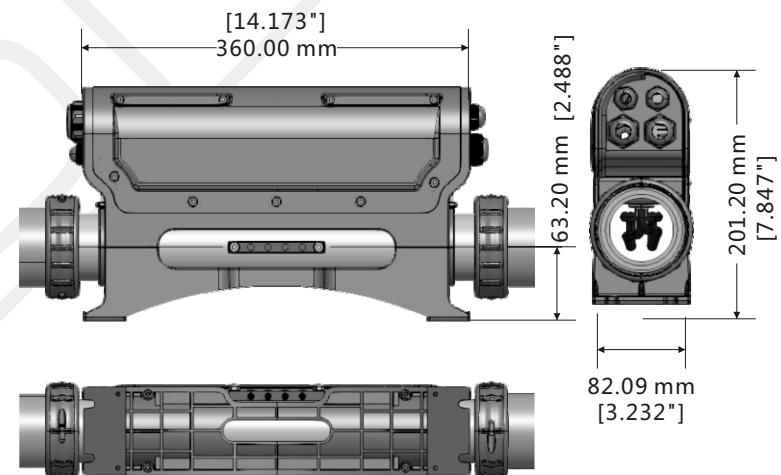
POWER INPUT
LED LIGHT
COM CONNECTORS
WIRING

PUMP1(1 SPD)
BLOWER(OR PUMP2)
OZONE
CIRC PUMP

PB25B37 size:

[14.173"]
360.00 mm

[2.488"]
63.20 mm

201.20 mm
[7.847"]

82.09 mm
[3.232"]

Control system installation

M6 nut — X 4pcs
M6 spring shim — X 4pcs
M6 flat gasket — X 4pcs

M6*30 bolt — X 4pcs

X 2pcs

10#bolt
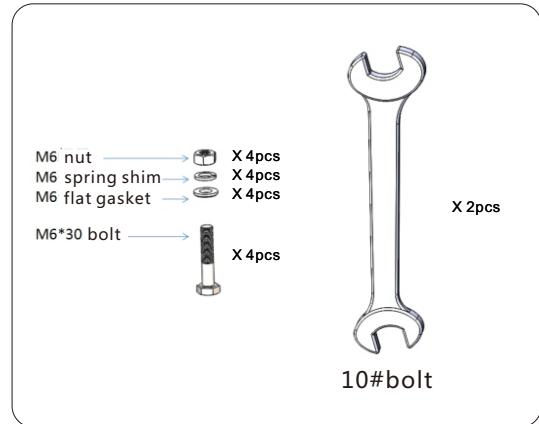
Materials and tools needed

[13.599"]
345.41mm

[0.276"]
Ø7mm-6

[1.969"]
50mm
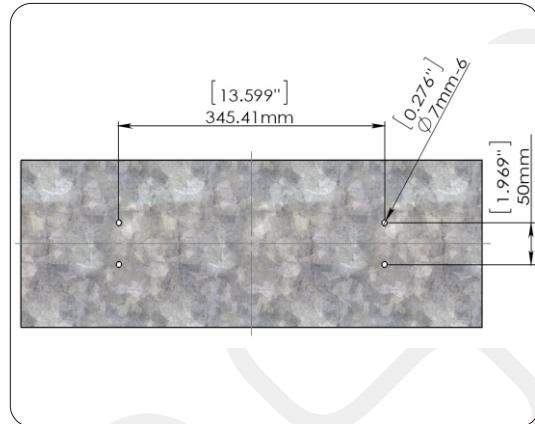
Make hole on the retaining plate as to the size and location descried in the graphic.
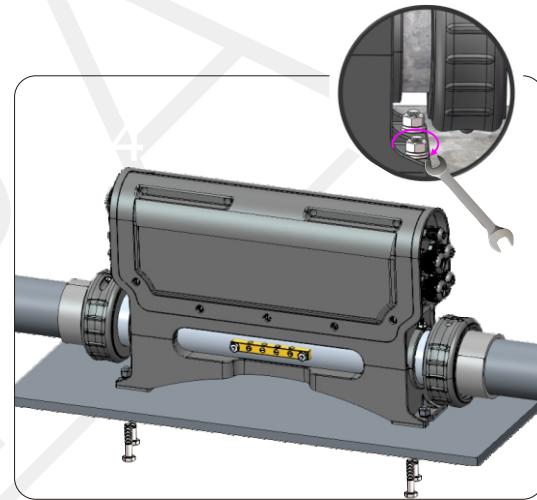
Put the control system right against the holes on the retaining plate. Fixate the control system with M6 combination screws.

①

②
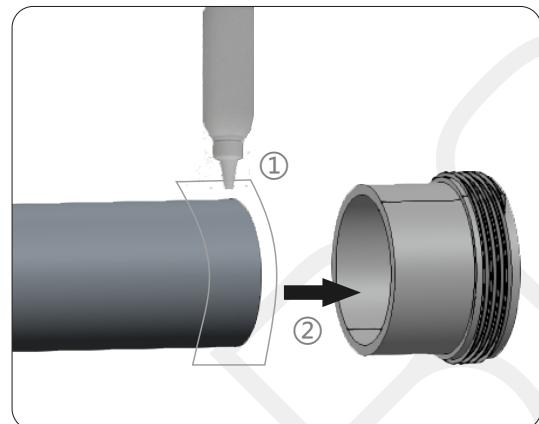
Smear evenly the indicated area on the left side with glue. Then stick the left side and right side together firmly.
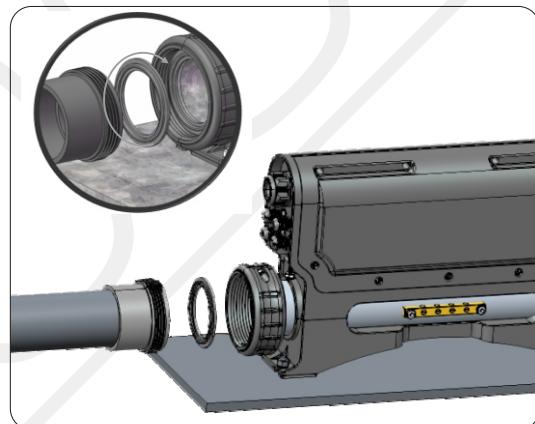
Put sealing resin ring into the controller and tighten the water pipe joint.
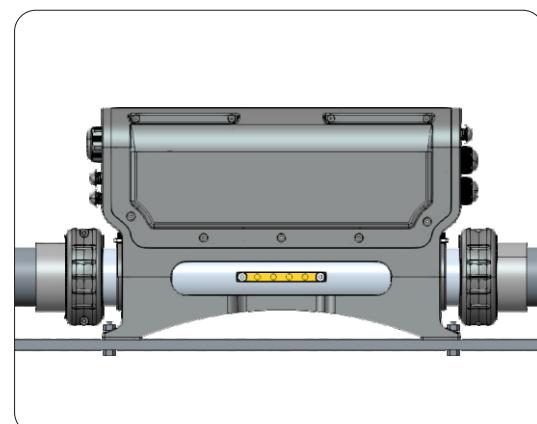
Control system fixation and installation is finished after water pipe joint is tightened.

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Control system load and wiring

This part specifies the parameters and configuration of the control system power input and load output. Please choose the appropriate control system according to SPA application requirement.

P20B29

P20B29 Wiring Diagram

INPUT1: 220-240V~ 50Hz 1Px32A   J3 ↔ J5 J4 ↔ J6 J8 ↔ J9

INPUT2: 220-240V~ 50Hz 2Px16A   J1 ↔ J7 J3 ↔ J4 J8 ↔ J9

INPUT3: 220-240V~ 50Hz 3Px16A   J4 ↔ J7 J8 ↔ J9

3.0kW@230V~ HEATER

SWITCHBANK S1 SETTING (ON ▲ / OFF ▼)

HOST SYSTEM	▲ A1 ▼	SLAVE SYSTEM
POWER NOT LIMIT	▲ A2 ▼	POWER LIMIT *1
NOT ASSIGNED	▲ A3 ▼	NOT ASSIGNED
SETTING *2	▲ A4 ▼	STORE SETTING *3
CIRC PUMP(HEATER PUMP)	▲ A5 ▼	LOW SPEED OF PUMP1(HEATER PUMP)

*1 WHEN SWITCH A2 ▼, HEATER CAN NOT WORK WITH PUMP3.
*2 USE PANEL TO SETUP THE LOAD CONFIGURATION WHEN A4 ▲.
*3 SWITCH A4 SHOULD BE SETTED TO OFF UPON FINAL INSTALLATION A4 ▼.

LIGHTS WIRING

FOUR LINES RGB LIGHTS*1

TWO LINES LIGHTS*1

COM CONNECTORS WIRING

CONNECTOR / CONNECT TO / SYSTEM TYPE	HOST SYSTEM	SLAVE SYSTEM
CN23 CN24 CN25	PANELS WIFI TRANSCEIVER AV DEVICE SLAVE SYSTEM	HOST SYSTEM PANELS WIFI TRANSCEIVER AV DEVICE

LOAD PARAMETERS   FOR 1 SPEED PUMP1、PUMP2 AND PUMP3, PLS CONNECT TO L(HIGH).

HEATER PUMP OPTION (DEPEND ON SWITCH A5)										
CIRC PUMP		LOW SPEED OF PUMP1								
PUMP1(1/2SPD*2)	CIRC PUMP	PUMP1(2 SPD)	CIRC PUMP	PUMP2(1/2 SPD*2)	PUMP3(1/2 SPD*2)	PUMP4	BLOWER	OZONE	LIGHT	AUX POWER
HIGH:10A MAX LOW:2.5A MAX	2.5A MAX	HIGH:10A MAX LOW:2.5A MAX	N/A	HIGH:10A MAX LOW:2.5A MAX	HIGH:10A MAX LOW:2.5A MAX	10A MAX	5A MAX	1A MAX	12VDC 2A MAX	1A MAX
CN1	CN6	CN1		CN2	CN3	CN4	CN5	CN7	CN22	CN10

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Control system load and wiring

Three connection ways for P20B29 control system power input:
1. 1P 230V~ 1x32A;   2. 2P 230V~ 2x16A;   3. 3P 230V~ 3x16A
Please refer to P20B29 diagram and control system wiring instruction for power input detailed wiring method. Please be noted that total current of each phase load should not surpass max input current allowed. Load connected to each phase power supply will be specified later for total current calculation of load connected to each phase power supply.

Load output :

Setting 1: set circ pump as heater pump (WHEN SWITCHBAK S1 A5 ON)

PUMP1	230V~	1/2-Speed(*note 1)	HIGH:10A MAX	LOW: 2.5A MAX
PUMP2	230V~	1/2-Speed(*note 1)	HIGH:10A MAX	LOW: 2.5A MAX
PUMP3	230V~	1/2-Speed(*note 1)	HIGH:10A MAX	LOW: 2.5A MAX
PUMP4	230V~	1-Speed	10A MAX	

CIRC PUMP   230V~   2.5A MAX (This is the heater pump)
BLOWER   230V~   5A MAX
OZONE   230V~   1A MAX
LIGHT   12VDC   2A MAX, 4-line RGB OR 2-line NORMAL TYPE (*note 1)
HEATER   3kW @ 230V~
AUX POWER   230V~ 1A MAX

(*note 1) Use panel to setup

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Control system load and wiring

Setting 2: set low speed of PUMP 1 as heater pump (WHEN SWITCHBAK S1 A5 OFF)

PUMP1   230V~ 2-Speed   HIGH:10A MAX   LOW: 2.5A MAX
                 low speed of PUMP1 is the heater pump
PUMP2   230V~   1/2-Speed(note 1)   HIGH:10A MAX   LOW: 2.5A MAX
PUMP3   230V~   1/2-Speed(note 1)   HIGH:10A MAX   LOW: 2.5A MAX
PUMP4   230V~   1-Speed   10A MAX

CIRC PUMP   N/A
BLOWER   230V~ 5A MAX
OZONE   230V~ 1A MAX
LIGHT   12VDC 2A MAX, 4-line RGB OR 2-line NORMAL TYPE (*note 1)
HEATER   3kW @ 230V~
AUX POWER 230V~ 1A MAX

(*note1) Use panel to setup

The above part describes the max loads that can be connected to the control system. If the SPA control system does not need PUMP 2, PUMP 3, PUMP 4, BLOWER or OZONE, they can be set as none on the panel at function setting. Light type can be set as four- wire RGB light or two- wire common light on the panel at function setting. A5 of SWITCH BANK S1 decides whether heater pump uses low speed of pump 1 (A5 OFF) or CIRC PUMP (A5 ON). When operating function setting, A4 of SWITCHBANK S1 needs to be pulled to "on". After the function setting, please pull the A4 back to "off" and the system will store and lock the setting.

Control system load and wiring

Load current calculation:

To ensure the normal operation of the control system, when the loads are confirmed, loads total current should be calculated and power input type (1P, 2P or 3P) needs to be chosen, to avoid loads total current being larger than the corresponding phase current. Please be noted that to avoid the current being too large, below limitations are made to the starting of the loads: when PUMP 3 is started, heater will be turned off automatically. PUMP 2 and PUMP 4 can not be started at the same time.

| power input type	phase	loads connected
Input1 230V~ 1PX32A	L	all the load
Input2 230V~ 2PX16A	L1	HEATER、PUMP3
	L2	PUMP1、PUMP2 、PUMP4、 BLOWER、CIRC PUMP、OZONE
Input3 230V~ 3PX16A	L1	HEATER、 PUMP3
	L2	PUMP2 、 PUMP4、BLOWER
	L3	PUMP1 、CIRC PUMP、OZONE

SWITCHBANK S1 application :

A1 of SWITCHBANK S1 is used to set the type of the control system. When there is only one control system (defined as basic control system), please set the control system as HOST SYSTEM; if there are multi control systems connected (max four, defined as large control system), please set one of them as HOST SYSTEM. Other control systems can be defined as #1 SLAVE SYSTEM, #2 SLAVE SYSTEM, #3 SLAVE SYSTEM. A5 of SWITCH BANK S1 decides whether heater pump uses low speed of pump 1 (A5 OFF) or CIRC PUMP (A5 ON). A4 of SWITCHBANK S1 is used for control system function configuration. When operating function setting on the control panel, A4 of SWITCHBANK S1 needs to be pulled to "on". After the function setting, please pull the A4 back to "off" and the system will store and lock the setting.and lock the setting.

P23B32

INPUT1: 220-240V~ 50Hz 1Px32A

J3 ↔ J5   J4 ↔ J6   J8 ↔ J9

F2 500V~/30A

F1 500V~/30A

250V~/T10A
F3

N BLUE TB1
L BROWN
G YLW/GRN

CN10 AUX_POWER

K9 3 L / 2 N / 1 G CN5 BLOWER
K3 3 L / 2 N / 1 G CN2 PUMP2
K11 3 L / 2 N / 1 G CN7 OZONE
K10 CIRC PUMP CN6
K1 3 L / 2 N / 1 G CN1 PUMP1
4 L(LOW) / 3 L(HIGH) / 2 N / 1 G

L J15 N J16

P23B32 Wiring Diagram

CN25 COM3 CN24 COM2 CN23 COM1
CN22 LIGHT

A1 A5 ON
S1 OFF

CN20 TEMP CN21A T.F.A CN21M T.F.M

K12 K13 HEATER

INPUT2: 220-240V~ 50Hz 2Px16A
J1↔J7 J3↔J4 J8↔J9

N2 BLUE
L2 BROWN
N1 BLUE   TB1
L1 BROWN
G YLW/GRN

INPUT3: 220-240V~ 50Hz 3Px16A
J4↔J7 J8↔J9

L3
L2
N BLUE   TB1
L1
G YLW/GRN

LIGHTS WIRING

FOUR LINES RGB LIGHTS*1 — B G R +12V

TWO LINES LIGHTS*1 — GND +12V

NTC AUTO RESET THERMO SWITCH

IT CAN BE USED FOR EQUIPOTENTIAL CONNECTION

MANUAL RESET THERMO SWITCH

3.0kW@230V~ HEATER

COM CONNECTORS WIRING

SYSTEM TYPE / CONNECTOR	HOST SYSTEM	SLAVE SYSTEM
CN23 CN24 CN25	PANELS WIFI TRANSCEIVER AV DEVICE SLAVE SYSTEM	HOST SYSTEM PANELS WIFI TRANSCEIVER AV DEVICE

*1 WHEN SWITCH A2 ▼, HEATER CAN NOT WORK WITH PUMPS.
*2 USE PANEL TO SETUP THE LOAD CONFIGURATION WHEN A4 ▲.
*3 SWITCH A4 SHOULD BE SETTED TO OFF UPON FINAL INSTALLATION A4 ▼.

LOAD PARAMETERS   FOR 1 SPEED PUMP1, PLS CONNECT TO L(HIGH).

HEATER PUMP OPTION (DEPEND ON SWITCH A5)								
CIRC PUMP		LOW SPEED OF PUMP1						
PUMP1(1 SPD)	CIRC PUMP	PUMP1(2 SPD)	CIRC PUMP	PUMP2	BLOWER (PUMP3)	OZONE	LIGHT	AUX POWER
10A MAX	2.5A MAX	HIGH:10A MAX LOW:2.5A MAX	N/A	10A MAX	10A MAX	1A MAX	12VDC 15W MAX	1A MAX
CN1	CN6	CN1		CN2	CN5	CN7	CN22	CN10

SWITCHBANK S1 SETTING (ON ▲ / OFF ▼)

HOST SYSTEM	▲ A1 ▼	SLAVE SYSTEM
POWER NOT LIMIT	▲ A2 ▼	POWER LIMIT*1
BLOWER OUTPUT (CN5)	▲ A3 ▼	PUMP3 OUTPUT (CN5)
SETTING*2	▲ A4 ▼	STORE SETTING*3
PUMP1 1 SPEED	▲ A5 ▼	PUMP1 2 SPEED

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Control system load and wiring

Three connection ways for P23B32 control system power input:

1.1P 230V~ 1X32A; 2. 2P 230V~ 2X16A 3. 3P 230V~ 3X16A

Please refer to P23B32 diagram and control system wiring instruction for power input detailed wiring method. Please be noted that total current of each phase load should not surpass max input current allowed. Load connected to each phase power supply will be specified later for total current calculation of load connected to each phase power supply.

System Load distribution: System Load output :

Setting 1: set circ pump as heater pump (WHEN SWITCHBAK S1 A5 ON)

PUMP1	230V~ 1-Speed 10A MAX
PUMP2	230V~ 1-Speed 10A MAX
BLOWER (OR PUMP3)	230V~ 5A MAX(BLOWER OUTPUT WHEN SWITCH BANK S1 A3 ON / PUMP3 OUTPUT WHEN S1 A3 OFF)
CIRC PUMP	230V~ 2.5A MAX (This is the heater pump)
OZONE	230V~ 1A MAX
LIGHT	12VDC 15W MAX, 4-line RGB OR 2-line NORMAL TYPE (*note 1)
HEATER	3KW @ 230V~
AUX POWER	230V~ 1A MAX

(*note 1) Use panel to setup

Control system load and wiring

Setting 2: set low speed of pump 1 as heater pump (WHEN SWITCHBAK S1 A5 OFF)

PUMP1   230V~   2-Speed   HIGH:10A MAX   LOW: 2.5A MAX
                       low speed of PUMP1 is the heater pump
PUMP2   230V~   1-Speed   10A MAX
CIRC PUMP   N/A
BLOWER(OR PUMP3)   230V~   5A MAX(BLOWER OUTPUT WHEN
                           SWITCHBANK S1 A3 ON/PUMP3 OUTPUT
                           WHEN S1 A3 OFF)

OZONE   230V~   1A MAX
LIGHT   12VDC   15W MAX, 4-line RGB OR 2-line NORMAL TYPE(*note1)
HEATER   3KW @ 230V~
AUX POWER   230V~   1A MAX

(*note 1) Use panel to setup

Note:low speed of PUMP1 and CIRC PUMP use the same relay.

The above part describes the max loads that can be connected to the control system. If the SPA control system does not need PUMP 2, BLOWER (PUMP3) or OZONE, they can be set as none on the panel at function setting. Light type can be set as four- wire RGB light or two- wire common light on the panel at function setting. A5 of SWITCHBANK S1 decides whether heater pump uses low speed of PUMP 1 (A5 OFF) or CIRC PUMP (A5 ON). When operating function setting, A4 of SWITCHBANK S1 needs to be pulled to "on". After the function setting, please pull the A4 back to "off" and the system will store and lock the setting.

Control system load and wiring

Load current calculation:

To ensure the normal operation of the control system, when the loads are confirmed, loads total current should be calculated and power input type (1P, 2P or 3P) needs to be chosen, to avoid loads total current being larger than the corresponding phase current. To reduce the max working current, please turn on the power limitation. (SWITCH BANK S1 A2 OFF)

| power input type	phase	loads connected
Input1 230V~ 1PX32A	L	all the load
Input2 230V~ 2PX16A	L1	HEATER
	L2	PUMP1 ,PUMP2, BLOWER(PUMP3), CIRC PUMP, OZONE
Input3 230V~ 3PX16A	L1	HEATER
	L2	PUMP2 ,BLOWER(PUMP3)
	L3	PUMP1, CIRC PUMP, OZONE

SWITCHBANK S1 application:

A1 of SWITCHBANK S1 is used to set the type of the control system. When there is only one control system (defined as basic control system), please set the control system as HOST SYSTEM; if there are multi control systems connected (max four, defined as large control system), and please set one of them as HOST SYSTEM. Other control system can be defined as #1 SLAVE SYSTEM, #2 SLAVE SYSTEM, #3 SLAVE SYSTEM. A2 of SWITCHBANK S1 decides whether to turn on power limitation when controlling the loads. Without power limitation (A2 on), all the loads can be started at the same time. With power limitation (A2 OFF), when the high speed of pump1 or pump2 or pump3 is started, the heater will be turned off. A3 of SWITCHBANK S1 decides whether the function blower or pump3 can be operated. When A3 is pulled to on, blower function can be operated; when A3 is pulled to off, pump3 function can be operated. A5 of SWITCHBANK S1 decides whether heater pump uses low speed of PUMP1 (A5 OFF) or CIRC PUMP (A5 ON). A4 of SWITCHBANK S1 is used for control system function configuration. When operating function setting on the panel, A4 of SWITCHBANK S1 needs to be pulled to "on". After the function setting, please pull the A4 back to "off" and the system will store and lock the setting.

P25B37

INPUT1: 220~240V~ 50Hz 1Px32A J3 ↔ J5 J8 ↔ J9

N BLUE
L BROWN
G YLW/GRN
TB1

J7 J9 J8 250V~/T10A F3
J3
J1
J5
J6
500V~/30A F1

P25B37
Wiring Diagram

K1 K9 K10 K11
J21 J24 J27 J30 L
J22 J25 J28 J31 N
J23 J26 J29 J32 G
J16 L
K12 K13

A1 A5 ON
S1   OFF

CN25 COM3 CN24 COM2 CN23 COM1 CN22 LIGHT
CN20 TEMP. CN21A T.F.A CN21M T.F.M

J10

INPUT2: 220~240V~ 50Hz 2Px16A J1 ↔ J7 J8 ↔ J9

N2 BLUE
L2 BROWN
N1 BLUE
L1 BROWN
G YLW/GRN
TB1

J7 J9 J8
J3
J1
J5
J6
500V~/30A F1

INPUT3: 220~240V~ 50Hz 3Px16A J7 ↔ J8

L3
L2
N BLUE
L1
G YLW/GRN
TB1

J7 J9 J8
J3
J1
J5
J6
500V~/30A F1

LOAD PARAMETERS

HEATER PUMP OPTION (DEPEND ON SWITCH A5)							
CIRC PUMP		LOW SPEED OF PUMP			BLOWER(PUMP2)	LIGHT	OZONE
PUMP1(1 SPD)	CIRC PUMP	PUMP1(2 SPD)		CIRC PUMP			
10A MAX	2.5A MAX	HIGH:10A MAX LOW:2.5A MAX		N/A	10A MAX	12VDC 15W MAX	1A MAX
L-J21 N-J22 G-J23	L-J27 N-J28 G-J29	L (HIGH)-J21 N-J22 L (LOW)-J27 G-J23			L-J24 N-J25 G-J26	CN22	L-J30 N-J31 G-J32

COM CONNECTORS WIRING

CONNECTOR:	SYSTEM TYPE CONNECT TO	HOST SYSTEM	SLAVE SYSTEM
CN23 CN24 CN25		PANELS WIFI TRANSCEIVER AV DEVICE SLAVE SYSTEM	HOST SYSTEM PANELS WIFI TRANSCEIVER AV DEVICE

LIGHTS WIRING

FOUR LINES B
RGB G
LIGHTS*1 R
+12V

TWO LINES GND
LIGHTS*1 +12V

NTC
AUTO RESET THERMO SWITCH
MANUAL RESET THERMO SWITCH
IT CAN BE USED FOR EQUIPOTENTIAL CONNECTION
HEATER

3.0kW@230V~ HEATER

CE 1.27.10009001S V01

SWITCHBANK S1 SETTING (ON ▲ / OFF ▼)

HOST SYSTEM	▲ A1 ▼	SLAVE SYSTEM
POWER NOT LIMIT	▲ A2 ▼	POWER LIMIT*1
BLOWER OUTPUT (L-J24 N-J25 G-J26)	▲ A3 ▼	PUMP2 OUTPUT (L-J24 N-J25 G-J26)
SETTING*2	▲ A4 ▼	STORE SETTING*3
PUMP1 1 SPEED	▲ A5 ▼	PUMP1 2 SPEED

*1 WHEN SWITCH A2 ▼, HEATER CAN NOT WORK WITH PUMPS.

*2 USE PANEL TO SETUP THE LOAD CONFIGURATION WHEN A4 ▲.

*3 SWITCH A4 SHOULD BE SETTED TO OFF UPON FINAL INSTALLATION A4 ▼.

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Control system load and wiring

Control system load and wiring

Three connection ways for P25B37 control system power input:

1.1P 230V~ 1X32A; 2. 2P 230V~ 2X16A 3. 3P 230V~ 3X16A

Please refer to P25B37 diagram and control system wiring instruction for power input detailed wiring method. Please be noted that total current of each phase load should not surpass max input current allowed. Load connected to each phase power supply will be specified later.

System load parameters distribution: Load output :

Setting 1: set circ pump as heater pump (WHEN SWITCHBAK S1 A5 ON)

PUMP1	230V~ 1-Speed 10A MAX
BLOWER (OR PUMP2)	230V~ 5A MAX(BLOWER OUTPUT WHEN SWITCH BANK S1 A3 ON / PUMP2 OUTPUT WHEN S1 A3 OFF)
CIRC PUMP	230V~ 2.5A MAX (This is the heater pump)
OZONE	230V~ 1A MAX
LIGHT	12VDC 15W MAX, 4-line RGB OR 2-line NORMAL TYPE (*note 1)
HEATER	3KW @ 230V~

(*note 1) Use panel to setup

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Control system load and wiring

Setting 2: set low speed of PUMP 1 as heater PUMP (WHEN SWITCHBAK S1 A5 OFF)

PUMP1	230V~ 2-Speed HIGH:10A MAX LOW: 2.5A MAX low speed of PUMP1 is the heater pump
CIRC PUMP	N/A
BLOWER(OR PUMP2)	230V~ 5A MAX (BLOWER OUTPUT WHEN SWITCHBANK S1 A3 ON / PUMP2 OUTPUT WHEN SWITCHBANK S1 A3 OFF)
OZONE	230V~ 1A MAX
LIGHT	12VDC 15W MAX, 4-line RGB OR 2-line NORMAL TYPE (*note 1)
HEATER	3KW @ 230V~

(*note1) Use panel to setup
Note: low speed of PUMP1 and CIRC PUMP use the same relay.

The above part describes the max loads that can be connected to the control system. If the SPA control system does not need BLOWER (PUMP2) or OZONE, they can be set as none on the panel at function setting. Light type can be set as four-wire RGB light or two-wire common light on the panel at the function setting. A5 of SWITCHBANK S1 decides whether heater pump uses low speed of PUMP1 (A5 OFF) or CIRC PUMP (A5 ON). When operating function setting, A4 of SWITCHBANK S1 needs to be pulled to "on". After the function setting, please pull the A4 back to "off" and the system will store and lock the setting.

Control system load and wiring

Load current calculation:

To ensure the normal operation of the control system, when the loads are confirmed, loads total current should be calculated and power input type (1P, 2P or 3P) needs to be chosen, to avoid it being larger than the corresponding phase current. To reduce the max working current, please turn on the power limitation. (SWITCH BANK S1 A2 OFF)

power input type	phase	loads connected
Input1 230V~ 1PX32A	L	all the load
Input2 230V~ 2PX16A	L1	HEATER
	L2	PUMP1 ,BLOWER(PUMP2), CIRC PUMP, OZONE
Input3 230V~ 3PX16A	L1	HEATER
	L2	PUMP1,BLOWER(PUMP2)
	L3	CIRC PUMP, OZONE

SWITCHBANK S1 application:

A1 of SWITCHBANK S1 is used to set the type of the control system. When there is only one control system (defined as basic control system), please set the control system as HOST SYSTEM; if there are multi control systems connected (max four, defined as large control system), please set one of them as HOST SYSTEM. Other control system can be defined as #1 SLAVE SYSTEM, #2 SLAVE SYSTEM, #3 SLAVE SYSTEM. A2 of SWITCHBANK S1 decides whether to turn on power limitation when controlling the loads. Without power limitation (A2 on), all the loads can be started at the same time. With power limitation (A2 OFF), when the high speed of pump1 or pump2 is started, the heater will be turned off. A3 of SWITCHBANK S1 decides whether the function blower or pump3 can be operated. When A3 is pulled to on, blower function can be operated; when A3 is pulled to off, pump3 function can be operated. A5 of SWITCHBANK S1 decides whether heater pump uses low speed of PUMP1 (A5 OFF) or CIRC PUMP (A5 on). A4 of SWITCHBANK S1 is used for control system function configuration. When operating function setting on the panel, A4 of SWITCHBANK S1 needs to be pulled to "on". After the function setting, please pull the A4 back to "off" and the system will store and lock the setting.

Control system installation instruction

## P20B29/P23B32 main power cable connecting
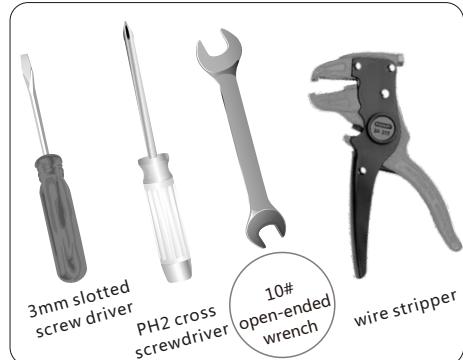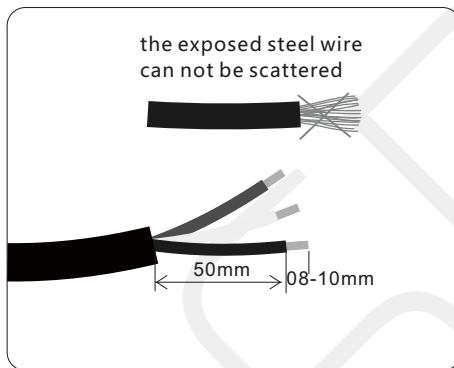
Installation tool:

As in the picture :
① to choose the main power cable specification according control system load parameters and control system total current ;
② Main power cable outer diameter rang: D= (13~20) mm, D=(18~25)mm can be specially made. But the water proof ring inside the glen head needs to be changed ;
③ Twist the exposed steel wires together in one direction. Steel wires must not be scattered。

the exposed steel wire can not be scattered

50mm 08-10mm

Pull up the orange buckle
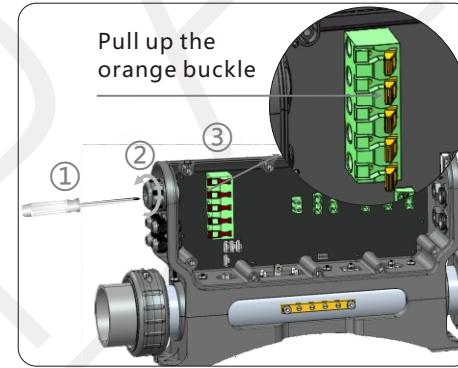
As in the picture :
① poke open the waterproof capsule with screwdriver. The clean the rubber plug of the poked water capsule ;
② Loose the glen head ;
③ Pull the buckle of main power input connector up to open the connector's wiring connection port open.
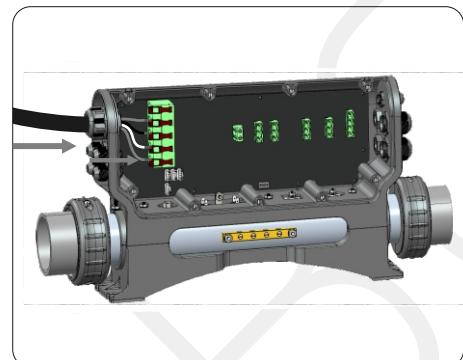
Pull in the main power cable from the glen head hole. According to the wiring diagram beside the connector, connect every cable to its required position.

Fasten the connector buckle. Check if every cable is firmly fixated.
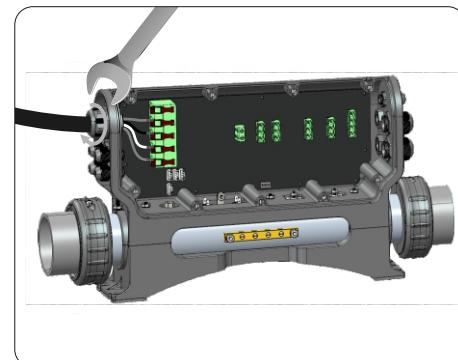
Adjust the main power cable to appropriate position. Tighten the glen head manually then retighten it with wrench.

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Control system installation instruction

P25B37 main power cable connecting
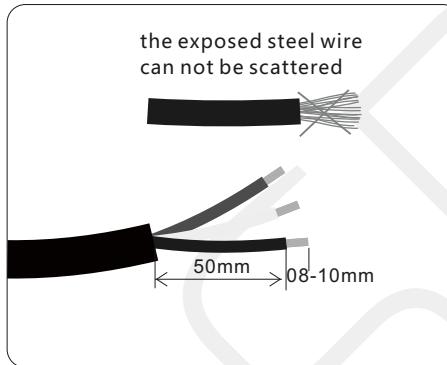
Installation tool:

3mm slotted screw driver | PH2 cross screwdriver | 10# open-ended wrench | wire stripper

the exposed steel wire can not be scattered

50mm 08-10mm

As in the picture :
① to choose the main power cable specification according control system load parameters and control system total current ;
② Main power cable outer diameter rang: D= (09~16) mm; D= (13~18)mm can be specially made. But the water proof ring inside the glen head needs to be changed ;
③ Twist the exposed steel wires together in one direction. Steel wires must not be scattered。
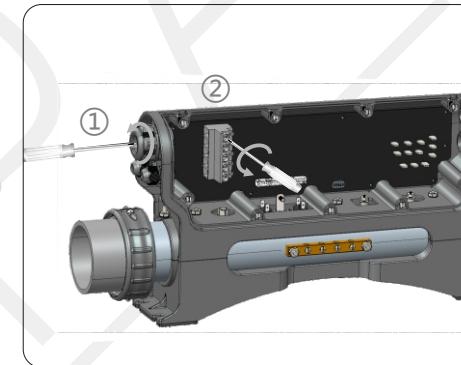
As in the picture :
① Poke open the waterproof capsule with screwdriver. The clean the rubber plug of the poked water capsule ;
② Loose the glen head ;
③ Loose the screw on the main power connector with screwdriver。
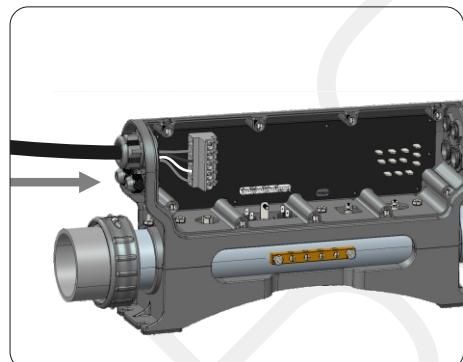
Pull in the main power cable from the glen head hole. According to the wiring diagram beside the connector, connect every cable to its required position
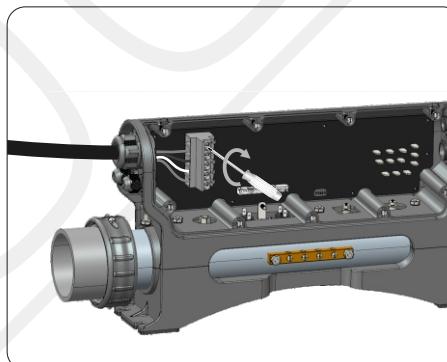
Fasten the screws on the connector. Check if every cable is firmly fixated。

Adjust the main power cable to appropriate position. Tighten the glen head manually then retighten it with wrench。

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Control system installation instruction

High voltage load cable connecting

Installation tool:

the exposed steel wire can not be scattered

50mm 08-10mm

As in the picture：
① to choose the main power cable specification according control system load parameters and control system total current；
② Twist the exposed steel wires together in one direction. Steel wires must not be scattered。

As in the picture：
① Poke open the waterproof capsule with screwdriver. The clean the rubber plug of the poked water capsule；
② Loose the glen head。

Pull in the load power cable from the glen head hole. Reserve appropriate length for next step cable connection。

As in the picture：
① As shown in the picture, press down the connector orange buckle with slotted screwdriver；
② Pull the exposed steel wire into the hole beside the orange buckle. Please have it properly inserted；
③ Loose screwdriver to press tight the power cable。

Plug the load power cable connector into the correspondent socket. Then reserve proper length for load power cable and tighten the glen head。

3mm slotted screw driver

PH2 cross screwdriver

10# open-ended wrench

wire stripper

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Control system installation instruction

High voltage load cable connecting

Installation tool:

3mm slotted screw driver
PH2 cross screwdriver
10# open-ended wrench
wire stripper

the exposed steel wire can not be scattered

50mm   08-10mm

As in the picture :
① to choose the main power cable specification according control system load parameters and control system total current ;
② Twist the exposed steel wires together in one direction. Steel wires must not be scattered。

② ①

As in the picture :
① Poke open the waterproof capsule with screwdriver. The clean the rubber plug of the poked water capsule ;
② Loose the glen head。

Pull in the load power cable from the glen head hole. Reserve appropriate length for next step cable connection。

① ②

As in the picture :
① Put the rubber coat onto the steel wire, then insert the steel wires into wire connecting base as step ① ;
② Press tight the steel wire with the wire stripper. Insert the wires in to the wiring connecting base with rubber coat, as the step ②
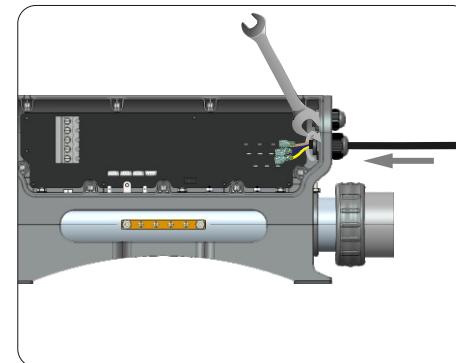
Plug the load power cable connector into the correspondent socket. Then reserve proper length for load power cable and tighten the glen head。

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Control system connection and setting

Before using the control system, please conduct the below procedures:

1. Connecting control system. (skip this step if there is only one control system)
2. Connecting panel, WIFI module and RF module to control system
3. Set the type of control system. (SYSTEM TYPE), (HOST SYSTEM OR SLAVE SYSTEM). if there is only one control system, set it as HOST SYSTEM.
4. Set panel ID. If there is only one control panel, then it dose not need to set control panel ID.
5. Operate the control system function configuration on the control panel.

Basic control system and large control system composition and connection

If SPA only uses one control system, then it is defined as basic control system. Basic control system can connect 1-2 control panels, I WIFI control module and 1 RF module. Basic control system composition is as below:

Control system connection and setting

In basic control system, the basic composition is 1 control panel and 1 control system. Basic control system has 3 communication ports. They are connector CN22, CN23 and CN24. Any communication port can connect control panel, WIFI TRANSCEIVER and RF RECEIVER. Before connecting power to the control system, set the control system (SYSTEM TYPE) as (HOST SYSTEM). After power connection, set control panel ID on the control panel. Then operate control system function configuration on the control panel.

When the SPA has many loads, and the basic control system can not meet the requirement of the loads, it needs to use multi control system, i.e., large control system. Large control system is composed of 2-4 control systems which can connect 1-4 control panels, 1 WIFI control modules and 1 RF control module. Composition of large control system is as below:

Control system connection and setting

In large control system, every control system has 3 communication ports. They are connector CN22, CN23 and CN24. Control systems are in series connection among each other, and can be connected to any communication port of the respective system main board. Control panel, WIFI TANSCEIVER and RF RECEIVER can be connected to any communication port left on the control system. Before connecting power to the control system, please set the system type of the control system. Only one control system can be set as host control system. Other control systems have to be set as slave control system. After power connection to the control system, please set the control panel ID on the control panel. Then operate control system function configuration on the control panel.

Control system connection and setting

System type setting of basic control system and large control system

When the control system connection is finished, before power connecting, please set control system type (SYSTEM TYPE). (SYSTEM TYPE) includes (HOST SYSTEM) and (SLAVE SYSTEM) . Please set the (SYSTEM TYPE) with power out.

There is 5-digit dial switch SWITCHBANK S1 as the picture below:
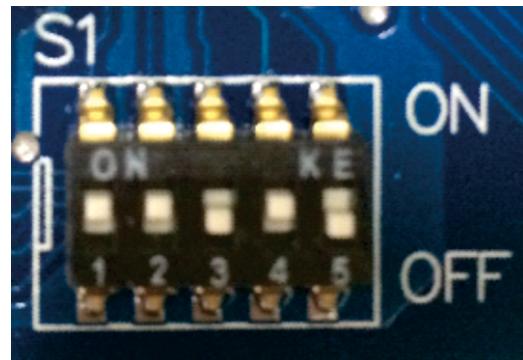
The locations of dial switch are as following:
location 1—A1   location 2 –A2   location 3 –A3
location 4 –A4   location 5 –A5

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Control system connection and setting

A1 and A2 can be used to set system type (SYSTEM TYPE). As the chart below:

HOST SYSTEM	▲ A1 ▼	SLAVE SYSTEM
	▲ A2 ▼	
	▲ A3 ▼	
	▲ A4 ▼	
	▲ A5 ▼	

If SPA only has one control system, i.e., the basic control system, please pull the dial switch of A1 to ON (▲) . Then the control system is set as Host system.

If SPA control system only uses 2 to 4 control systems (i.e. large control system), please set one of the control system (SYSTEM TYPE) as (HOST SYSTEM) and other control system s (SYSTEM TYPE) as (#1 SLAVE SYSTEM), (#2 SLAVE SYSTEM) and (#3 SLAVE SYSTEM). As the chart above, the setting method:
Pull the dial switch A1 to ON(▲). Then the control system is set as (HOST SYSTEM); pull the A1 dial switch to OFF(▼), then the system is set as #1 slave system (#1 SLAVE SYSTEM); if customer wants to set the control system type to #2 SLAVE SYSTEM or #3 SLAVE SYSTEM, please contact us.

Control system connection and setting

Basic control system and large control system control panel ID setting

After the (SYSTEM TYPE) setting of the control system, system can be connected to power. After power connection, the first step should be control panel ID setting on the control panel.

If control system only connects one control panel, then control panel ID setting can be skipped.

If control system connects 2 to 4 pcs of control panels please set the control panel ID to 1,2,3,4, different control panel ID can not be set as the same figure.

Below is the control panel ID setting procedure:

1.Disconnect the power supply to the control system of this control panel. Pull the A4 of the SWITCH BANK S1 on the main board to ON(▲) to allow control panel to do ID setting.

2.Connect power supply to the control system. When the control panel display normally, please enter into Set->Function interface as the picture below:

Set->Function		MENU
Jets1	1	Blower
Jets2	1	Ozone
Light	2	Light
Blower	1	
Ozone	1	Mode
Cycle Pump	1	
Panel ID	1	Set
Back		

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Control system connection and setting

3.Using the up and down key to move the bar-type cursor to Panel ID. Then press OK. The figure of panel ID will change to 1 or 2 or 3 or 4. This figure will be the current control panel ID as the picture below.
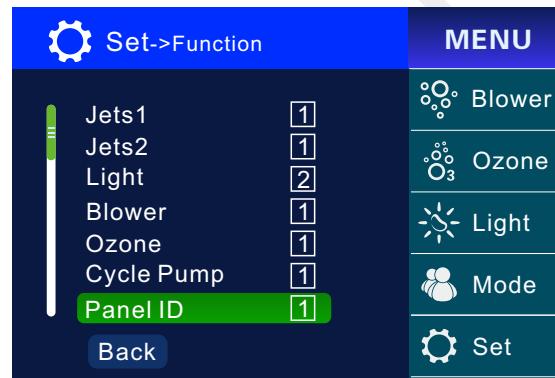
4.If the control system connects multi panels, please operate procedure 2 and procedure 3 on every panel. Please set the every control panel ID to different figure.

5.When the setting is finished, please exit Set->Function. Control panel will store the set ID.

6.After setting, please pull the A4 of SWITCH BANK S1 on the control system main board to OFF(▼). Control system will lock the set ID.

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Control system connection and setting

Control panel correct displaying

Panel correct display after control system control type setting and control panel ID setting:

After control system control type and control panel ID setting, connect power to the system. Control panel display will be as the picture below.

If it is the basic control system, control panel should display date, time and temperature.

If it is large control system, besides date, time and temperature, control system number should also be displayed. For example large control system that control panel PB553 connected to has 4 control systems. Then as the picture below, there should be four bars standing for 4 control systems.
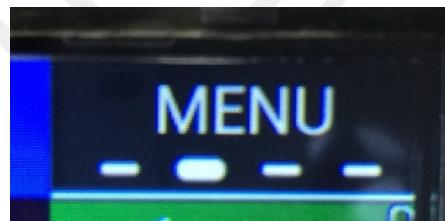
As the picture shown, the thicker bar means control panel is operating #2 slave control system. At this time, slave control system controlled by control panel can be changed with left and right keys on the control panel.

Control system connection and setting

When the control system is correctly connected and can display normally after powered on, it may be required to set the loads connected to the control system on the panel. The setting includes light type, 1 spd of the pump or 2 spd of the pump or none. Please be noted that setting of heater pump type, blower function switching to pump, power limitation need to be done with SWITCHBANK S1. Please refer to control system load and wiring for detailed method.

Loads setting procedures are as following:

1. Disconnect the power of the control system. If it is basic control system, please pull the A4 of SWITCH BANK S1 on the main board to ON(▲) , allowing control panel to operate load setting (panel will display function menu); if it is large control system, pull the A4 of SWITCH BANK S1 on the main board of control system to ON(▲). A4 position is as picture on the right:

2. After power connection to the system, if it is large control system, please press the left and right key on the control panel to choose the control system needs to be set. The thicker bar represents the control system that is currently being operated by the control panel as shown in the picture below:
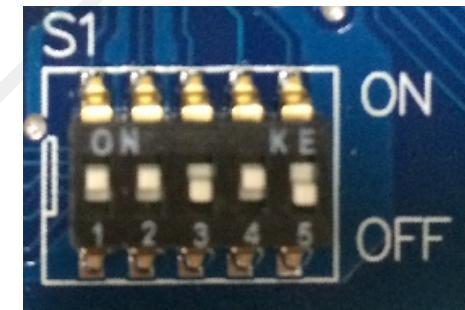
For example, the large control system is composed of four control systems. The current control system being set is the second one.

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Control system connection and setting

3.Entering into the interface of Set-> Function, like below.

Set	MENU
Temperature >>	Blower
Auto Lock Off	Ozone
Brightness >>	Light
Date&Time >>	Mode
Wifi Ap	Set
Function >>	
About >>	
Back	

Set->Function	MENU
Jets1 [1]	Blower
Jets2 [1]	Ozone
Light [2]	Light
Blower [1]	Mode
Ozone [1]	Set
Cycle Pump [1]	
Panel ID [1]	
Back	
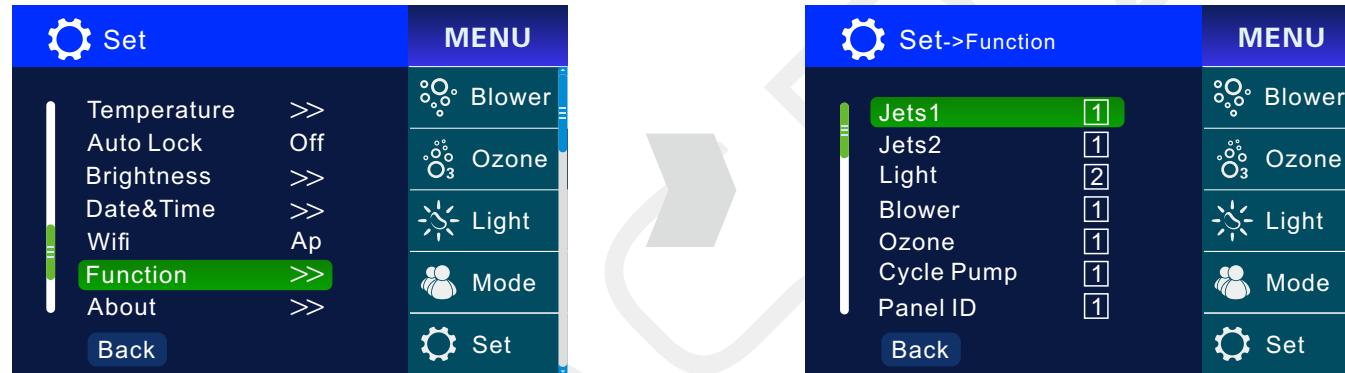
1.Choose and change every item with up, down and OK key.

4.The display and meaning of every setting is as below:

PUMP 1 setting

Jets1 [1]   Set PUMP 1 as 1-speed PUMP
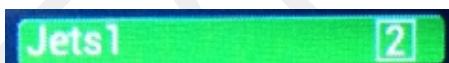
Jets1 [2]   Set PUMP 1 as 2-speed PUMP

PUMP 1 can not be set as 0 (none),
PUMP 1 MUST exist.

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Control system connection and setting

PUMP 2 setting

`Jets2  [1]` Set PUMP 2 as 1-speed PUMP
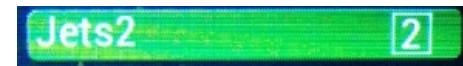
`Jets2  [2]` Set PUMP 2 as 2-speed PUMP

`Jets2  [0]` Set the control system as no PUMP 2

PUMP 3 setting
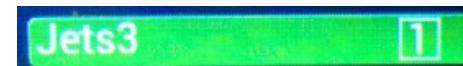
`Jets3  [1]` Set PUMP 3 as 1-speed PUMP
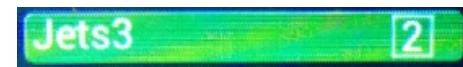
`Jets3  [2]` Set PUMP 3 as 2-speed PUMP
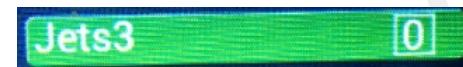
`Jets3  [0]` Set the control system as no PUMP 3

PUMP 4 setting

`Jets4  [1]` Set PUMP 4 as 1-speed PUMP
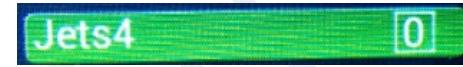
`Jets4  [0]` Set the control system as no PUMP 4

Light setting

`Light  [1]` Set the light as 2-wire normal light

`Light  [2]` Set the light as 4-wire RGB light

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Control system connection and setting

Blower setting
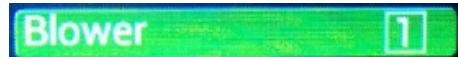
| Blower | 1 | Set the control system with blower |

Set the control system with blower
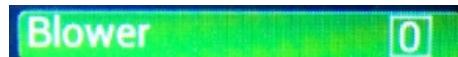
| Blower | 0 |

Set the control system without blower

Ozone setting

| Ozone | 1 |

Set the control system with ozone
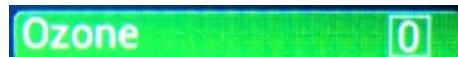
| Ozone | 0 |

Set the control system without ozone

Panel ID setting

| Panel ID | 1 |

Setting current control panel ID. (operation method refers to instruction before)

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Control system connection and setting

5.After finishing the setting, return to main interface.

6.Disconnect the control system power. Pull the A4 of SWITCH BANK S1 on main board to OFF (▼). Then control system will lock the setting. A4 position as shown right side:

7.If use large control system, please repeat the above procedures.
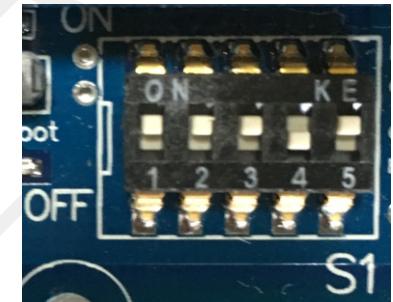
Till now, all the connection and setting has been finished.

With large control system, the bars number below the "MENU" on the control panel screen is the number of control systems. The bars sequence is from host system to slave system. The current control system controlled by the panel is with thicker bar. Press left and right key to switch the control system controlled by the panel.
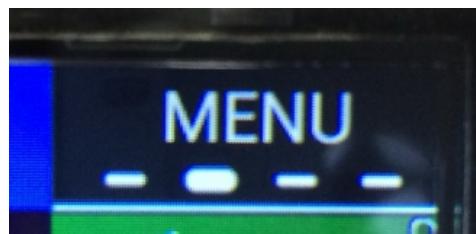
For example, in this picture, the large control system contains four control systems. The current system controlled by panel is the second system.

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Control system control regulation

Pump operation:

Pump will turn off automatically after running for 30 minutes. When manually controlled cycle pump is off, if pump is started, the cycle pump will be started automatically.

Blower operation:

Blower will turn off automatically after running for 30 minutes.

Heating mode

There are two kinds of heating modes:

Timing heating: in menu of Set-> heating time, timing heating can be started and operation time length can be set. Everyday two time periods can be set. Control system will start and stop the heating function according to the set time period.

Manually controlled heating: set Set-> Manual Heating as ON, then manual heating function is on. Heating function can be started or stopped with keys on the panel. 2 hours after manual heating is started, it will be turned off. And system will switch to timing heating; if heating is manually turned off, the system will also switch to timing heating.

When the system detects the water temperature being low, it will automatically start heating function. The cycle pump will be started in ahead before heating function is started.

Control system control regulation

Filtration cycle:

Timing water cycle: in menu of Set-> Filter time, timing water cycle function can be started and operation period can be set. Time period can be set and chosen to run automatically cycle pump. Every day two time periods can be set. The control system will start and stop cycle pump according to the time period set.

Manually controlled water cycle: if the control system has single cycle pump, then set Set-.>Manual Cpump as On, manually controlled water cycle pump will be on. Then cycle pump can be started or turned off manually with keys on the panel. 2 hours after cycle pump is started manually, it will be turned off. And control system will switch to timing water cycle. When cycle pump is turned off manually, control system will also switch to timing water cycle.

When the control system has single cycle pump, if pump or blower is started, cycle pump may be started automatically.

Control system control regulation

Ozone operation:

Ozone has manual and auto modes. In manual mode, ozone generator can be started or turned off directly with keys on the panel. When the ozone generator is started, cycle pump will also be started. Ozone generator will be turned off after running for 1 h; in auto mode, when cycle pump is started, ozone generator will also be started. But ozone generator will not be started at the same time with pump.

Light
Light has two modes: on/off mode and RGB mode.
When light is set as normal type, light will be in on/off mode. When light is set as RGB type, light is in RGB mode. Below 8 controlling state can be chosen with light keys on the control panel.

State 1   auto color change (cycle color change from 2-8 in cycle)
State 2   red
State 3   green
State 4   yellow (green+red)
State 5   blue
State 6   purple (blue+red)
State 7   cyan (blue+green)
State 8   white

Control system alarming information

When some problems occur requiring users' attention, the alarming information will be displayed on the control panel. If several problems occur at the same time, the alarming info will be displayed in turn. The info will be displayed with white background and red words. Below is the display state of some examples:

PB553/PB555 alarming display position

PB554 alarming display position

Below is the control system alarming information detailed analysis:

Control system alarming information

SYSTEM SETTINGS ERROR

F9:SYSTEM SETTINGS ERROR

Reason: after power connection, the system reads its configuration verification to be incorrect from EEPROM (main board memory). Action: please disconnect the power and wait for 10 seconds to repower the system. If it the problem remains, please contact technical support.

TEMPERATURE IS TOO HIGH

F3:TEMPERATURE IS TOO HIGH

Reason: the system detects temperature sensor's temperature being too high. This can happen when the heater is on, and there is no water in the heating pipe or the water flow is too slim. Action: please ensure there is water in the SPA tub. If the problems occur frequently, please contact technical support.

Control system alarming information

TEMPERATURE IS TOO LOW

F4:TEMPERATURE IS TOO LOW

Control system detects temperature from temperature sensor's being too low. Please pay attention to freezing problem.

AUTO-RESET THERMOSWITCH OPEN

F5:AUTO-RESET THERMOSWITCH OPEN

Reason: when the auto-reset thermo switch on the heating pipe is open, it indicates that the heating pipe temperature is too high. This may happen when heater is started and there is no water in heating pipe or water flow is too slim. Action: Please ensure there is water in the SPA tub. If the problem occurs frequently, please contact for technical support.

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Control system alarming information

MANUAL-RESET THERMOSWITCH OPEN

F6:MANUAL-RESET THERMOSWITCH OPEN

The manual-reset thermo switch is open on the heating pipe. This indicates the heating pipe temperature is too high. Please contact technical support.

TEMPERATURE SENSOR DISCONNECTED

F1:TEMPERATURE SENSOR DISCONNECTED

Control system detects the temperature sensor is disconnected. Please check the connection of temperature sensor to the system. And replace it with a new one if necessary.

Control system alarming information

TEMPERATURE SENSOR SHORTCIRCUIT

F2:TEMPERATURE SENSOR SHORTCIRCUIT

Control system detects the temperature sensor is short circuited. Please check the temperature sensor and its connection, replace it with a new one if necessary.

EEPROM(MEMORY) ERROR

F8:EEPROM(MEMORY) ERROR

After power connection, the control system detects problem with EEPROM (main board memory). Please disconnect the power and wait for 10 seconds to repower the system. If the problem remains, please contact technical support.

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Control panel operation instruction

PB553 panel image
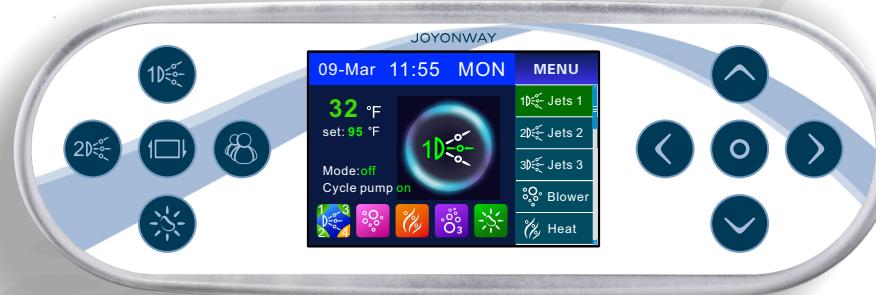
PB555 panel image

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Control panel operation instruction

Below are control panel interfaces of PB553 and PB555. Both control panel PB553 and PB555 can match P20B29, P23B32 and P25B37. And they will real time display the control system state.

Main interface image
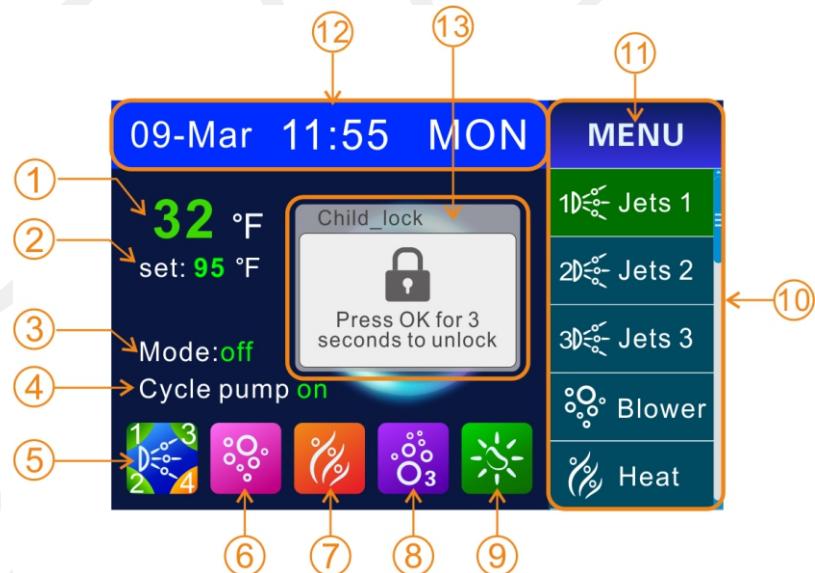
Left side is state display area
Right side is menu display area

State display area:

When control panel and control system are connected, control panel screen can display every function's state of the whole system. User can easily learn the control system condition with the icons and words.

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Control panel operation instruction

1):The current water temperature and the value changes with the water temperature. Temperature unit can be set as (℉) or (℃)

2):Temperature unit setting. According to user's need options of (℉) or (℃) are available.

3):Display mode: the system can store four different displaying modes. Users can switch to different display mode they need. And user can set the mode.

4):Cycle filtration state: cycle filtration can remove the dirt inside the tub and purify the water. User can set cycle filtration time length.

5):Pump state : when the pump is started, the icon will turn from half transparent to full lighting. If low speed pump of (pump)jet 1 is started, there will be a "1" displayed in the up left corner with green background. If the high speed pump of pump 1 is started, "1' will be displayed in the up left corner with orange background. Other pumps are with the similar displaying method with pump1.

6):Blower state display: when the blower is started, icon will be displayed normally. When the blower is off, the icon will change to half transparent.

7):Heating display : when the heating function is started, the icon will blink. If the heating pipe begins to work then the icon will be displayed normally. When the heating function is off, the icon will change to half transparent.

8):Ozone state display : ozone can disinfect. When ozone function is started, the icon will be displayed normally. If it is turned off, the icon will change to half transparent.

9):Lamp state display : when the lamp is on, the icon will be displayed normally. If it is off, the icon will change to half transparent.

Control panel operation instruction

Menu displaying area:

10): Press up and down navigation key to move the cursor. The item chosen by cursor will have green background for words. Press OK to turn on/off or change the state of the chosen item. If some items only have on or off state, then OK key will turn them on or off. If some items have multi states, then OK sky will change their states in turn. The changed state will be displayed in state area. Cursor position in the menu will be displayed in the progress bar of right side. User can see from the progress bar whether the cursor has moved to the very top or very bottom of the menu.

11): With large control system, on the top of the menu interface, under "Menu", there will be a few bars. The number of bars represents the number of control systems. Every bar stands for one control system. Press left or right key to switch for different control system. The current interface displays the control system that the thicker bar represent. With basic control system, there will be no bars under "Menu" on the top of menu interface. The last item "set" is used to enter into setting interface.

Time and date:

12): It displays the current time and date. From left to right is: date-month-hour-minute and week. User can set time in setting interface.

Hint information:

13): When there is error in control system or the keys are locked, the screen displays the error information or keys lock state. Be aware of the malfunction, user should deal with it according to control system alarming information described before. If the malfunction can not be solved, please stop operation right away and contact technical support. Professionals can identify the source of malfunction with all the information available.

Control panel operation instruction

Keys functions description:

Control panel PB553 has 10 keys and PB555 has 9 keys. They are navigation keys and shortcut keys.

PB553 keys description

- Mode selecting
- pump 1
- navigation key (right)
- navigation key (up)
- light
- Screen Invert
- pump2
- navigation key (down)
- confirm
- navigation key (left)
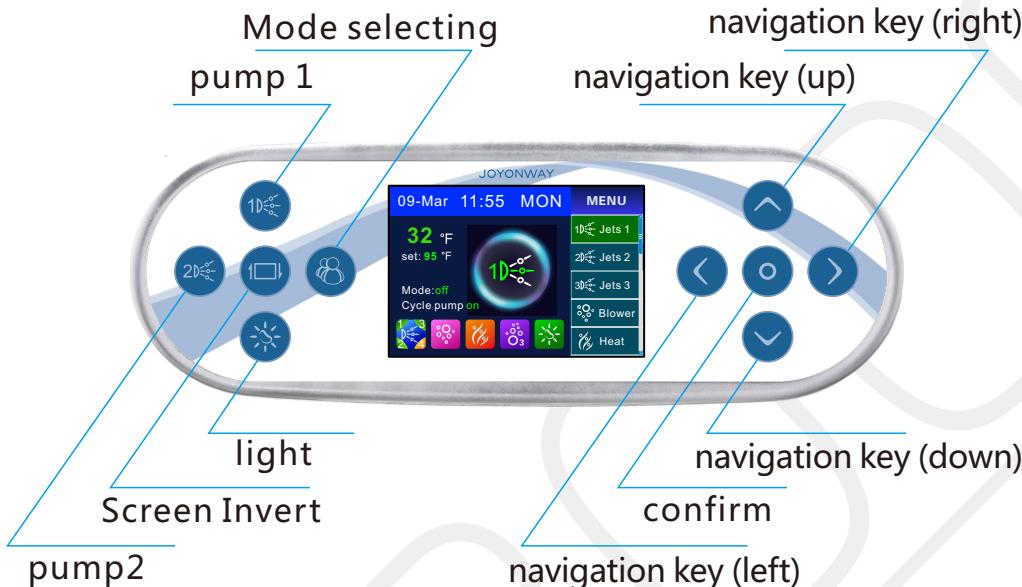
PB555 keys description

- pump2
- navigation key (up)
- pump 1
- confirm
- navigation key (right)
- navigation key (left)
- light
- navigation key (down)
- Screen Invert

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Control panel operation instruction

PB553 and PB555 have the same navigation keys:" ⌃ "、" ⌄ "、" ⌃ "、" ⌃ "、" ◦ ". Users can realize all the operation with navigation keys. In the display interface, the green background of words or icons is the choosing cursor. Only one item can be chosen in every interface. With navigation key, the position of cursor can be changed and relative setting can be changed.

Shortcut key operation instruction:

PB553 shortcut keys include: " 1 "、" 2 "、" ▭ "、" ☀ "、" 👥 " ;

PB555 shortcut keys include: " 1 "、" 2 "、" ▭ "、" ☀ " 。

User can start or stop the correspondent function in any interface without returning to home interface.

Pump 1 shortcut key: " 1 " or " 1 " , will be used to control the on/off of pump 1 , if pump 1 is single speed pump; if (pump)jet 1 is double speed pump, press continuously the key can switch from low speed to high speed or off. The sequence is: start low speed,->start high speed->turn off.

Pump 2 shortcuts key: " 2 " or " 2 " , are with the same function as pump 1.

Screen Invert shortcut key: " ▭ " or " ▭ " , it can realize the displayed content 180 degree inverting and navigation key direction will be changed accordingly.

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Control panel operation instruction

Light shortcut key: " " or " " , Light has two modes, in mode of on and off, press the shortcut key can turn on and off the light. In RGB mode, light has 9 states of auto color change, red, green, yellow, blue, purple, cyan, white and turning off. User can switch among these states.

Mode selecting shortcut key: " " , It is only applicable for PB553. It has four different modes. Press the key in turn can select the different modes stored by the user.

Control panel operation instruction
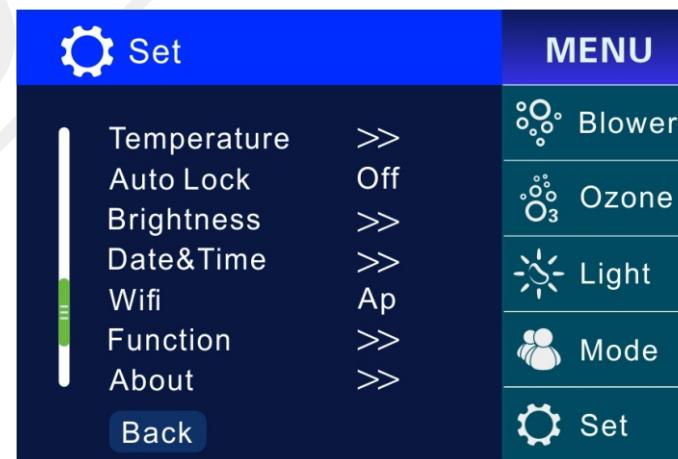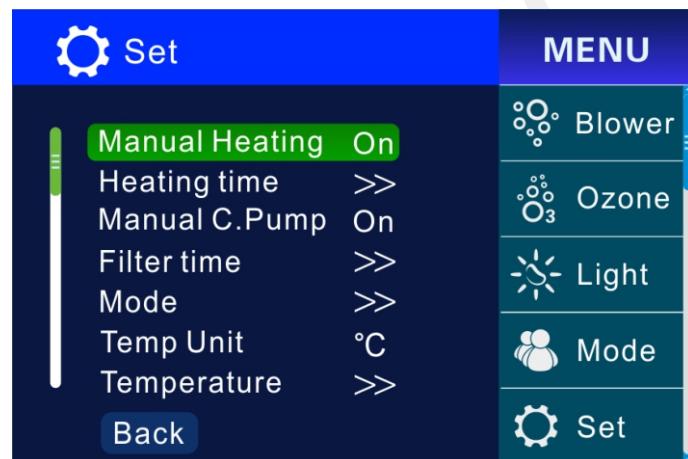
Move the cursor to the last item " set" in the menu of the home interface, press " ⊙ " and enter into setting interface. There are totally 11 items in the setting interface including auxiliary system function, time setting, user habit storage, system information, etc. User can set the appropriate mode and heating time length with their own need.
Manual Heating

Manual Heating

When manual heating function is started, a " Heat " heating choice will be added in the menu. User can manually start the heater in the home interface. When the manual heating function is turned off, the heating choice will disappear.

Control panel operation instruction

Heating time

When the control system is set as timing heating mode, heater can operate automatically in two sets of the time periods. And the two time periods are independent from each other. Two time period can be set overlapped, like time period 06:15 ---13:15, , time period 10:15---16:15. Then heater will work between 06:15---16:15. if the starting time is larger than the ending time, then heater will continuously work till the end time of next day, for example if the time period is between 20:00---10:00, then the heater will work from the 20:00 of first day till the 10:00 of the next day. Note: when the time period is set as on, the heater will work, if time period is set as off, heater will turn off.

When the green cursor is at " 1 " or" 2 " , press " ○ " to set the time period as on or off. Press " > " , entering into time setting. Press " ○ " to move the cursor. Press " < " and " > " to set the time. Press " ^ " and " ∨ " to exit the time editing. And cursor will be move back to the very left side. After the time setting is done, press " Back " to return and store the setting.

Note: These set times are all based on system time. So user need to ensure the accuracy of the system time when setting the time period.

Control panel operation instruction

Manual C.Pump

This item will appear when the control system has separate pump as cycle pump. When the manual cycle pump function is started, there will be a cycle pump item " CPump " in the function operation interface. User can manually start cycle pump in the home interface. When the manual cycle pump function is turned off, this item will disappear.

Filter time

To purify the water and keep the tub clean it is necessary to filter the water regularly. When the control system is set as timing water cycle mode, its starting and stopping method is the same as timing heating on/off and their time period setting methods are the same. User need to regularly change the filter or strainer according to the water quality.

Mode

User can set and store the function state according to their preference which is defined as mode. PB553 and PB555 control panel have four different modes. They can be stored and selected with navigation keys.
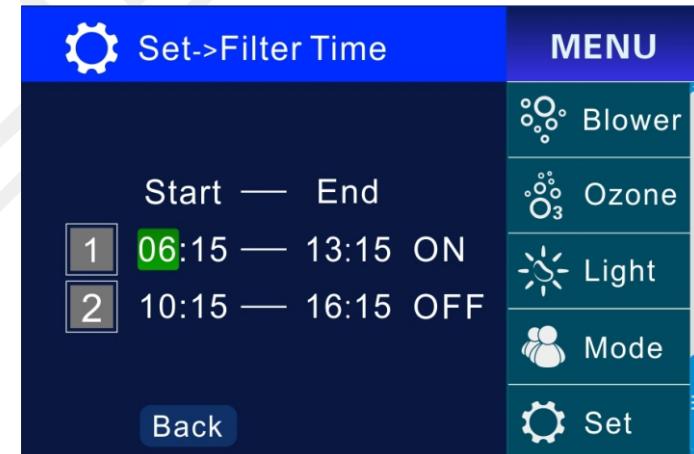
Control panel operation instruction

How to store the setting: first, set each function according to personal need. In Set-> Mode of the menu, by pressing "⌃" and "⌄" to move the cursor to the items need to be saved then press "○" . if the square on the right side of the item is solid, then it indicates the current mode is stored. Mode of jet(pump), blower, ozone, heat, and brightness can be stored.

How to select the mode stored? In the main interface, by pressing "⌃" and "⌄" to move the cursor to "👥 Mode" . Then press "○" to select the stored the modes. PB 553 control panel can use mode selecting short-cut key "👥" . Note: please pre-set when use the mode function the first time.
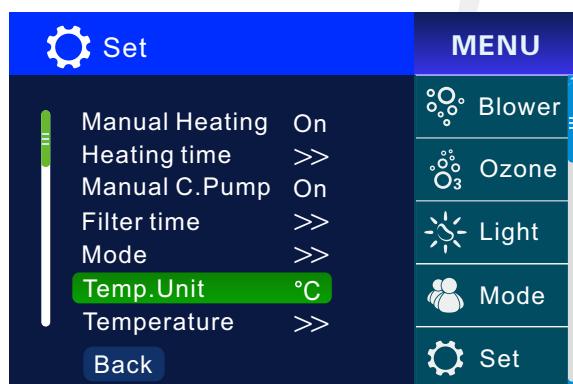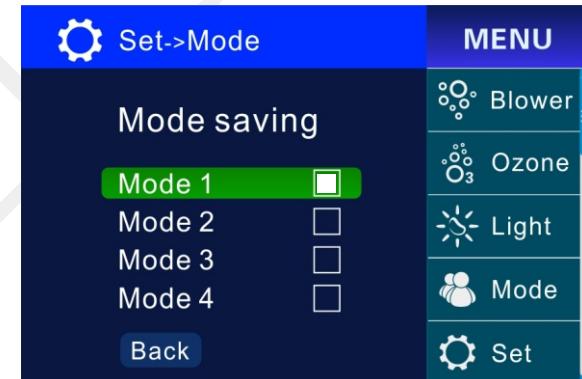
Temp. unit

In menu of Set, press "⌃" and "⌄" to move the cursor to "Temp. unit" , then press "○", setting the temperature unit as ℃ or ℉.

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Control panel operation instruction

Temperature

It refers to set the water temperature inside the bath tub. Water temperature range is 50 F- 104F (10C -40C). In Set-> Temperature of the menu, temperature value can be increased and decreased with " < " and " > " . The set temperature will be automatically stored when exit menu. When the set temperature value is higher than the current water temperature and the heat function is on. The heater will automatically heat.
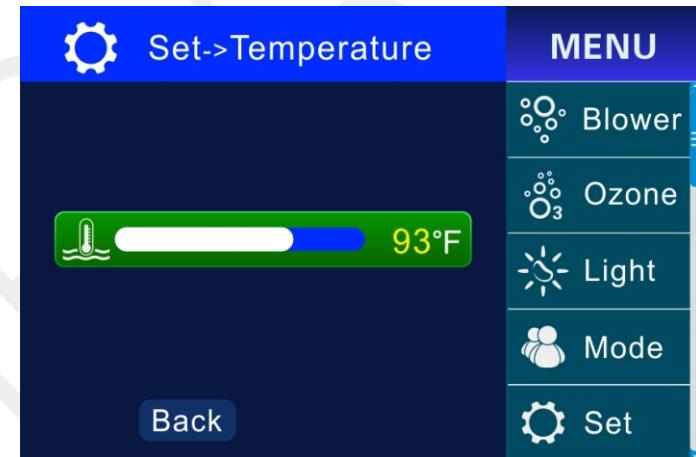
Ozone

Ozone function has manual mode and auto mode.

In the Set of the menu, by pressing " ^ " and " v " to move the cursor to Ozone.

Then press " o " to set the ozone as auto start or manual start.

Auto start operation can refer to control regulation description of the control system.

When manual mode is chosen, there will be a symbol of" Ozone "increased in the menu. User can manually start the ozone in main interface. When manual start mode is turned off, the symbol will disappear.

Control panel operation instruction

Auto lock

To avoid unconscious touch of the keys, the panel is equipped with auto lock function. In the set of menu, pressing " ⌃ " and " ⌄ " to move the cursor to the item of "Auto Lock". Then press " ○ ". The lock starting time can be set as "off", "30S", "1 min" and "3 min". When set as off, the lock function is turned off. Set as "30S" or other time length, the control panel will return to main interface and start lock function when detecting no actions on the panel key within the set time. When the lock is started, press continuously " ○ " for 3S, "Auto Lock" disappear from the screen and lock stops.

Brightness

To ensure that user can use the control system comfortably with different lighting environment, the backlight brightness of the screen can be adjusted according to the environment lighting condition. Backlight brightness range is 1-30. In the set-> Brightness of the menu, pressing " ❯ " and " ❮ " to adjust the backlight brightness. The set value will be automatically stored when exiting menu.
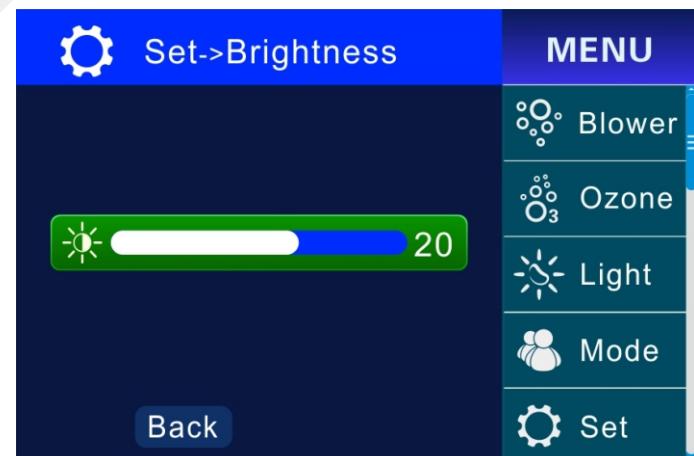
Control panel operation instruction

Date & Time

Time accuracy is very important to the control system. All the timing function setting (timing heating and timing water cycle) is based on the control system time. So the user needs to set the control system time in ahead.
In the Set-> Date &Time of the menu, press " ⊙ " to move the cursor, and set the date and time with " ❮ " and " ❯ " . The setting will be automatically stored after exiting the menu. If the control system is off power, the correct time setting can be kept for a few days.
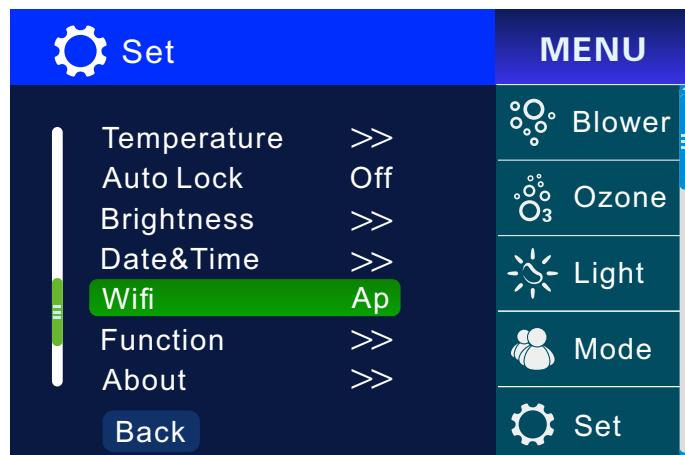
Wifi

Wifi transceiver has three states: "OFF" , " AP" , and "Sta" . Wifi mode can be compulsively set as AP or OFF. But it can not be set as Sta mode compulsively. When the wifi transceiver is connected to a router, the system will automatically set the wifi mode as Sta.
When the Wifi mode is compulsively set as AP, the wifi transceiver will be automatically disconnected and the connected the Wifi will be forgotten. When users compulsively set the wifi mode as OFF, wifi transceiver will stop working.

Reset the APP login password: when users forget APP login password, they can reset the password on the panel to the factory default "Joyonway" . When the wifi transceiver is on OFF mode, pressing" ❯ " , Wifi state will be displayed as "clean" . After a few seconds, when Wifi state is switched to "AP" , it indicates the password is successfully reset. For Wifi connection and operation method, please refer to SPA APP manual instruction.

Control panel operation instruction

Function

Function setting is used to set control system loads and Panel ID. When the control system is allowed to be set (please refer to the description in control system connection and setting), find the item "Function>>" in the Set of menu, press "⌃" and "⌄" to move the cursor to item "Function>>" then press "○" to enter Set-> Function. In Set-> Function of the menu, there are totally 12 items. They are (pump)Jet1, Jet 2, Jet 3, Jet 4, Light, Blower, Water cycle Ozone, Independent cycle, Heat, Water level and Panel ID as the picture shown below.

Pressing "⌃" and "⌄", moving the cursor to the item to be set. Then press "○" to change its configuration parameter.

To (pump)jet (jet1, jet2, jet3, and jet4), if the figure in "☐" is 2, then it is double speed pump. If the figure in "☐" is 1, then it is single speed pump. If the figure in "☐" is 0, then it is invalid.

To light, if the figure in "☐" is 2, then it is in RGB mode, if the figure in "☐" is 1, then it is in on/off mode. If the figure inside is 0 then the light is invalid.

To cycle pump, if the figure in "☐" is 1, then control system is separately set with cycle pump; if the figure in "☐" is 0, then the jet 1 low speed pump is set as cycle pump.

Set->Funtion		MENU
		Blower
Jets 1	2	Ozone
Jets 2	2	
Jets 3	2	Light
Jets 4	1	
Light	1	Mode
Blower	1	
Ozone	0	Set
Back		
Cycle pump	1	Mode
Panel ID	1	
Back		Set

For Power Limit, it can be set as 0, 1, 2, 3, to limit the total power output of the main board. For detailed setting condition, please refer to power control description.
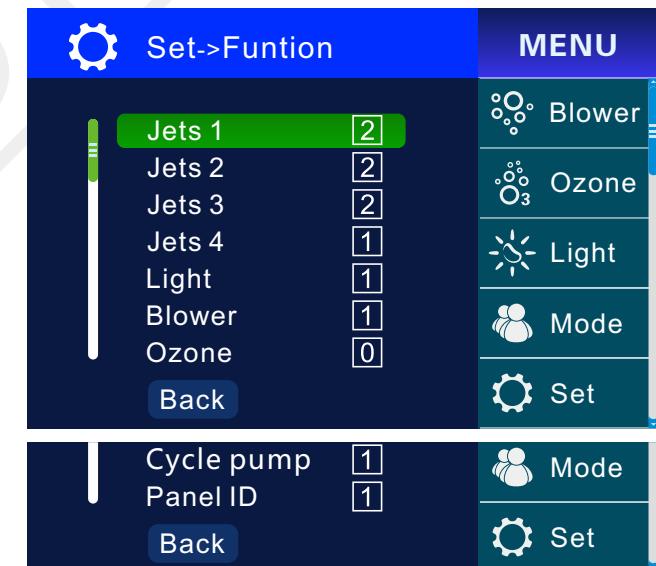
Control panel operation instruction

To panel ID, it can be set as 1, 2, 3, or 4, these numbers are used to differ control panels and the control panel ID must be unique. To other loads, if the figure in " □ " is 1, then this load is set. If the figure in " □ " is 0 then the load is invalid.
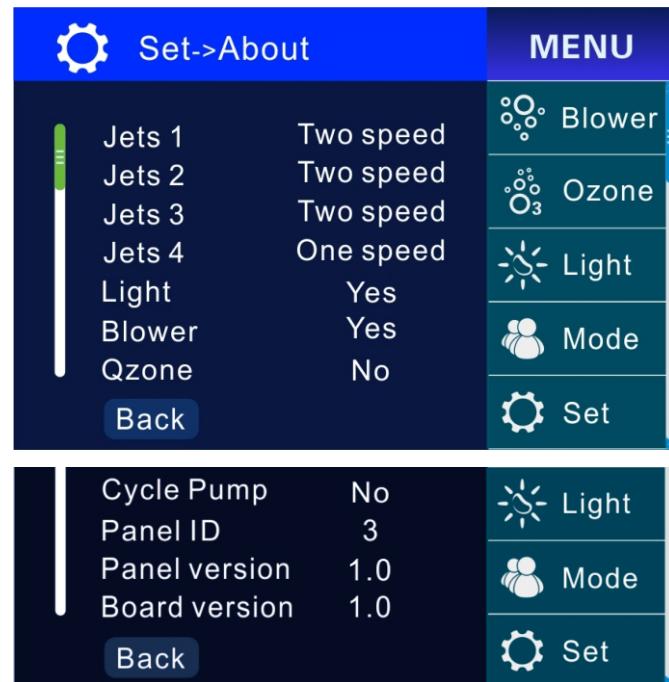
About
In the Set of Menu, press " ⌃ " and " ⌄ " to move the cursor to item "About". Then press " ◉ " to enter Set-> About. In Set-> About of the menu, the current control system function configuration condition and software version is displayed.

In the choices for (pump) jet1, jet2, jet3 and jet4, "Two speeds" means double speeds pump. "One speed" Means single speed pump. To light, RGB represents the light is set as RGB mode. "Yes" represents the light is set as on/OFF mode. "No" means it is invalid.
To blower, "Yes" means the blower function is set. "No" means it is invalid.

To ozone, "yes' means ozone function is set, "No" means ozone function is invalid.
To cycle pump, "yes" means control system is set with separate cycle pump. "No" means Jet 1 , the low speed pump is set as cycle pump. To panel ID, the figure means control panel ID. NO. To panel version and control system board version, figure means soft ware version NO.

Restore factory settings
This function is used to restore all the settings back to factory default value.

Control panel operation instruction

PB554 control panel image

Control panel operation instruction

Below is the main interface of PB554 control panel. Control panel PB554 can be connected to P20B29, P23B32 or P25B37 control system and display real time control system state.
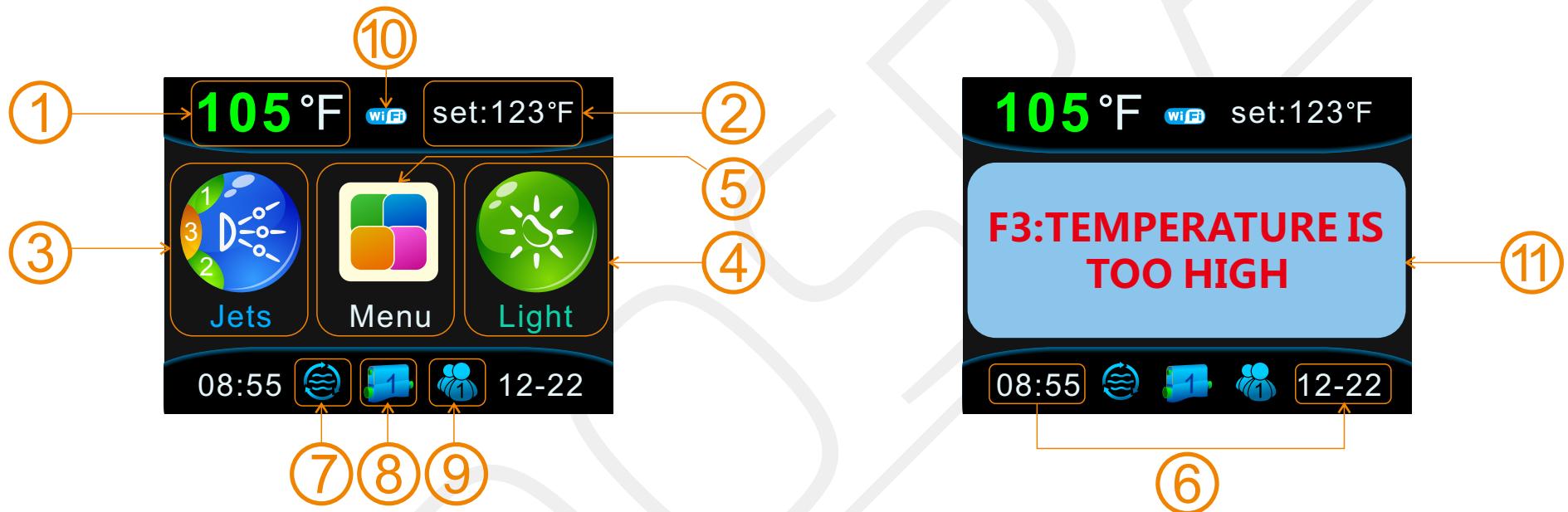
State displaying area:

When the control panel is connected to the control system, the screen in the control panel can display state for all the functions of the whole control system. User can easily learn the control system state with the symbols and words.

01) : display of current water temperature, unit option: (℉) or (℃)

02) : to set the temperature, unit option: (℉) or (℃)

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Control panel operation instruction

03) : (pump)Jets status: Icon will be highlighted when any (pump) jet is started. the left part of the icon will show the (pump) jet series number and the working state (green=low speed, orange= high speed) ; icon will show in half-transparent if all the (pump) jets are off.

04) : Lamp status: Icon will be highlighted when the light is on; icon will show in half-transparent if the light is off.

05) : Sub-menu symbol

06) : Date and time: time shows on lower left corner, date shows on lower right corner

07) : Recycle filter and heating status: Icon will blink when heating is started, if the heating tube starts heating, the icon will be highlighted. If the heating function is off, the icon will be half transparent. When the recycle filter function is on, the icon will be highlighted; icon will be in half-transparent if the filter is off.

08) : When the control panel works with large control system, this icon will be shown. The number in the middle of the icon represent the series No. of the control system.

09) : User mode: The system can store 5 different modes. User can switch to the needed mode or set the modes themselves.

10) : Wifi status display.

11) : When errors occur or panel key is locked, the screen will display error and lock. User can solve the malfunction according to control system alarming information described before. If malfunction can not be solved, please stop using the control right away and seek help from the professional technician. They can locate the source of the malfunction with the information available.

Control panel operation instruction

navigation key :

(pump) jet 1

light   navigation key (up)

navigation key (down)

confirm   navigation key (left)

Screen Invert   navigation key (right)
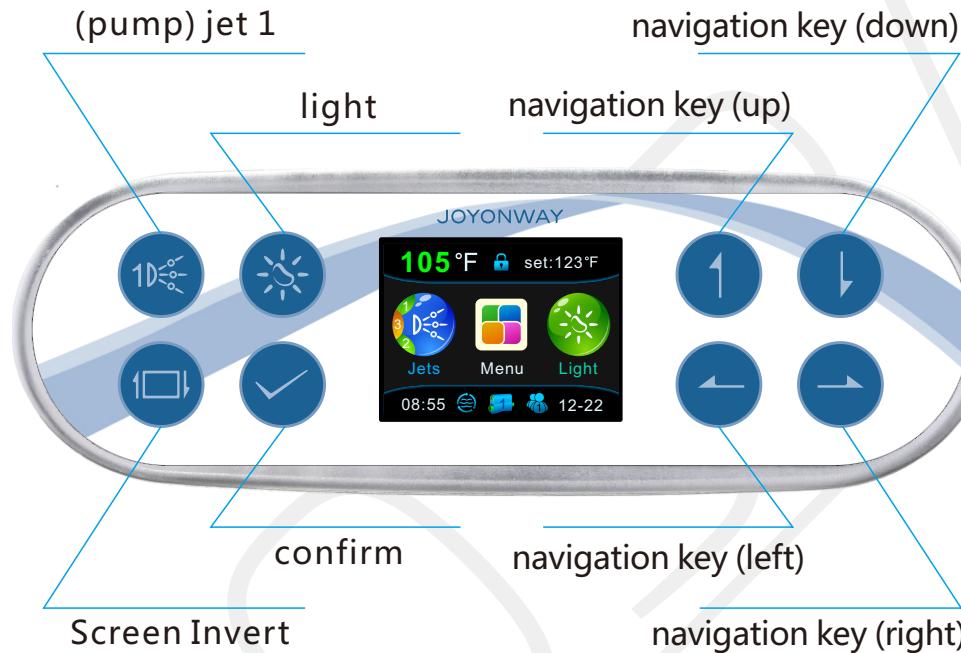
PB554 navigation key : " 🔼 "、" 🔽 "、" ◀ "、" ▶ "、" ✓ ".
By pressing the navigation key, user can do all the operation. In the display interface, the green background of the words or symbol is the choosing cursor. In every interface only one item can be chosen. With navigation key, cursor location or correspondent setting can be changed.

PB554 control panel short-cut key " 🔘 "、" ☀ "、" 🔲 "、. User can start or stop the correspondent function with short-cut key in any interface without returning to the main interface.

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Control panel operation instruction

Short-cut key (pump) Jet 1: " 🔘 " , If (pump) jet 1 is single speed pump, then the key will be used to control the on and off of (pump) jet 1. If (pump) jet 1 is double speed, then keep pressing the key, it will switch from low speed pump, high speed pump to off. The sequence is: start low speed pump-> start high speed pump-> off.

Shortcut key light: " 🔘 " , To control the light working status: light has two modes. In on/off mode, pressing the key can start and turn off the light. In RGB mode, it has 9 statuses of auto color change, red, green, yellow, blue, purple, and cyan, white and off. User can switch among these statues.

Short-cut key ofScreen Invert: " 🔘 " , Press this button to turn the main interface upside down. And the direction of navigation key will be changed accordingly.

Control panel operation instruction

Function operation interface:

Press " ✓ " in the main interface to go to the function operation interface.

In the function operation interface, the icon will be shown in bigger size if the cursor is on it. Press " ↓ " to move the cursor to the " ⤺ " . Press " 1 " to move the cursor to the selected (bigger size) icon.
If cursor selects " ⤺ " , press " ✓ " to go back to the main menu.

In the function operation interface, press " ← " or " → " to move the different function icons to the middle of the screen(to select the icons). The corresponding name and working status of the function will be showed in the upside of the screen, press " ✓ " to switch the working status of the controlled function.

Control panel operation instruction

Set interface:

In the function operation interface, press " ⬅ " and " ➡ " to move the cursor to setting icon " ⚙ " . Press again " ✓ " to enter into set interface. In the set interface, the character will be highlighted if the cursor is on it. Press " 1 " or " ↓ " to move the cursor location. Press " ✓ " to enter into the second level interface of the chosen function or change its status.

Manual Heating

When the manual heating function is started, there will be a heating icon " 🔥 " added in the function operation interface. User can start heating function in the function operation interface manually. When the manual heating function is turned off, the icon will disappear.

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Control panel operation instruction

Heating time

When the control system is set as timing heating mode, heater can operate in two sets of time periods automatically. And the two time periods are independent from each other. And the time periods can overlap. For example, time period 1. 06:15---13:15, time period 2. 10:15---16:15. Then the heater will heat from 06:15---16:15. if the starting time is larger than the finishing time, then the heater will heat till the finishing time of the second day. For example, if set time period 20:00---10:00, then the heater will heat from the first day 20:00 till the second day 10:00. Please be noted that if the time period is set as on, then the heater will be started; if off, then the heater will be turned off.

When the green cursor is on " 1 " or " 2 " , press " ✓ " to set the time period as "on" or "off" . Press " → " to enter into time setting. In time setting, press " ✓ " to move the cursor. Press " ← " and " → " to operate time setting. Press " 1 " and " ↓ " to exit the edited time period. The cursor will move back to the left side. When the time setting is finished, press " ⤺ " to return and store the setting.

```
⚙ >Heating Time

      Start        End
1   11:10 — 17:20  On
2   22:25 — 23:55  Off
          ⤺
```

Attention: all the time setting is based on the system time. So user needs to keep the system time accurate before operating the time period setting.

Control panel operation instruction

Manual Cpump

The manual cpump item will appear if there is separate pump in the system set as cycle pump. When the manual cycle pump is started, there will be a cycle pump icon " " added in the function operation interface. User can start cycle pump manually in function operation interface. The item will disappear when the manual cycle pump function is turned off.

Filter time

In order to purify water, maintain the cleanness of bath tub, timing filtering is necessary. Filter time and heating time are similar in setting. Please reference to the time setting of timing heating for time setting of timing filter. Please change the filter or strainer according to the water quality,
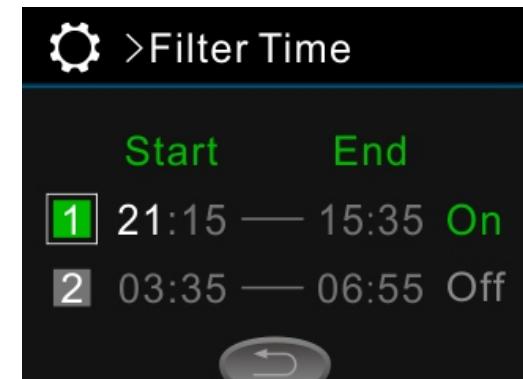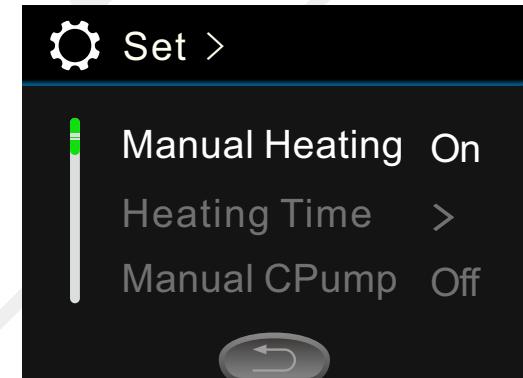
Control panel operation instruction

Mode

User can store the function setting according to their preference which is defined as mode. PB554 control panel can store four different modes. They can be stored and selected with navigation keys.

How to store the setting: first, set each function according to personal preference. In " ⚙ >Mode ", by pressing " ↑ " and " ↓ " to move the cursor to the items need to be saved then press " ✓ " . If the square on the right side of the item is solid, then it indicates the current mode is stored. Mode of (pump) jets, blower, ozone, heat, and brightness can be stored.

How to select the mode stored? In the function operation interface, by pressing " ↑ " and " ↓ " to move the cursor to " ⚙ >Mode " . Then press " ✓ " to select the stored the modes.
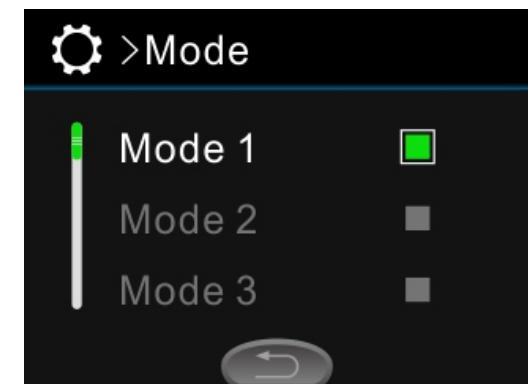
Control panel operation instruction

Temp. unit

In "⚙ Set ⟩" , press "↑" and "↓" to move the cursor to" Temp unit" then press "✓" to set the temperature as ℃ or ℉ .

⚙ >Temperature

🌡————● 92℉
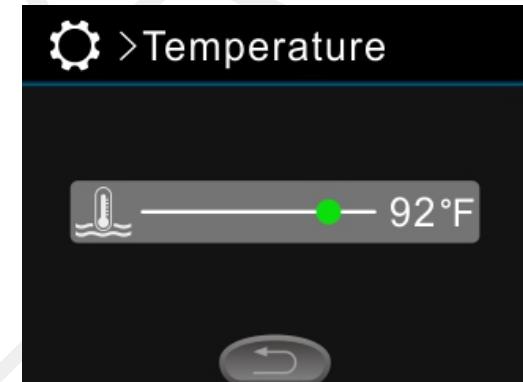
Temperature

Temperature setting refers to the temperature of the water inside the tub. The setting range is 50℉~104℉ (10℃~40℃) . In Set-> Temperature, press "←" and "→" to set the value of the temperature. The set value will be automatically stored after exiting the menu. When the set temperature is higher than the current water temperature and the heating function is started, the heater will start heating automatically.

Control panel operation instruction

Ozone

Zone has two modes: auto and manual

In "⚙ Set >", press "↑" and "↓" to move the cursor to "Ozone", then press "✓", to set zone as auto mode or manual mode. Auto mode operation can refer to control system control regulation described before. When manual mode is started, there will be a "🔴O₃" added in the function operation interface. User can start the ozone generator manually. When the manual mode is turned off, the symbol "🔴O₃" will disappear.

Auto lock

To avoid inadvertent operation of the keys the panel has auto lock function.

In "⚙ Set >", press "↑" and "↓" to move the cursor to "Auto lock", then press "✓" to set the auto lock starting time as "30S ", "1 min", "3min" or "off". When set as off, the lock function is turned off; when set as "30S" or other time value, the panel will return to main interface and start lock function if no operation is detected within the set time length. When lock function is started, press continuously "✓" for 3S till Auto lock disappear, then the panel is unlocked.

⚙ Set >

Ozone   M
Auto Lock   Off
Brightness   >

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Control panel operation instruction

Brightness

To ensure that user can use the control system comfortably with different lighting environment, the backlight brightness of the screen can be adjusted according to the environment lighting condition. Backlight brightness range is 1-16. In " ⚙ >Brightness " , pressing " ← " and " → " to adjust the backlight brightness. The set value will be automatically stored when exiting the menu.
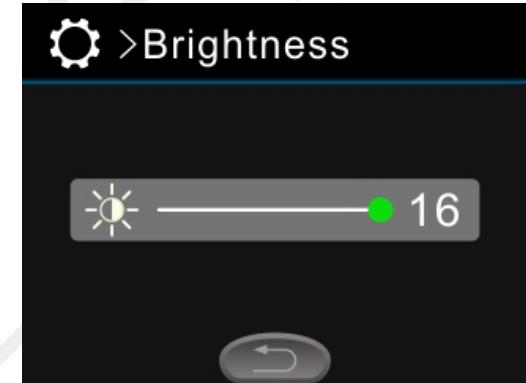
Date & Time

Time accuracy is very important to the control system. All the timing function setting (timing heating and timing water cycle) is based on the control system time. So the user needs to set the control system time in ahead.

In " ⚙ >Date & Time " , press " ✓ " to move the cursor, and set the date and time with " ← " and " → " . The setting will be automatically stored after exiting the menu. If the control system is off power, the correct time setting can be kept for a few days.
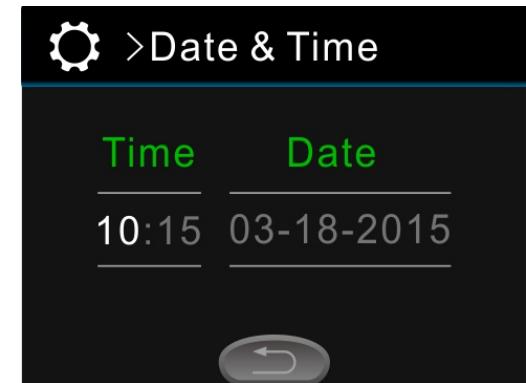
Control panel operation instruction

Wifi

When control system is connected with Wifi module, then in " ⚙ Set > " , there is Wifi choice. Press " 1 " and " ⬇ " to move the cursor to "Wifi" and press " ✓ " . Wifi can be set as AP mode , Sta mode, forget the connected Wifi or off. When Wifi module is working in AP mode, user can search Joyonway-xxxx with cell phone APP to connect to the control system; when wifi module is working in Sta mode, user can connect to control system with local area network or internet. For Wifi connecting and operating please refer to APP instruction.
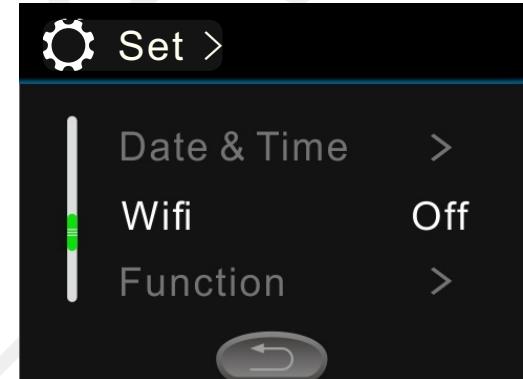
Function

Function is used to set control system loads and Panel ID. When the control system is allowed to be set (please refer to the description in control system connection and setting), find the item "Function>>" in the Set of menu, press " 1 " and " ⬇ " to move the cursor to item "Function>>" then press " ✓ " to enter Set-> Function of the menu.
In Set-> Function of the menu, there are totally 12 items. They are (pump) Jet1, Jet 2, Jet 3, Jet 4, Light, Blower, Water cycle Ozone, Independent cycle, Heat, Water level and Panel ID as the picture shown below.

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Control panel operation instruction

Pressing "①" and "↓", moving the cursor to the item to be set. Then press "✓" to change its configuration parameter.

To (pump) jet (jet1, jet2, jet3, and jet4) , if the figure in "☐" is 2, then it is double speed pump. If the figure in "☐" is 1, then it is single speed pump. If the figure in "☐" is 0, then it is invalid.

To light, if the figure in "☐" is 2, then it is in RGB mode, if the figure in "☐" is 1, then it is in on/off mode. If the figure inside is 0 then the light is invalid.

To cycle pump, if the figure in "☐" is 1, then control system is separately set with cycle pump; if the figure in "☐" is 0, then the jet 1 low speed pump is set as cycle pump.

To panel ID, it can be set as 1, 2, 3, or 4. These numbers are used to differ different control panels and the control panel ID must be unique. To other loads, if the figure in "☐" is 1, then this load has been set. If the figure in "☐" is 0, then the load is invalid.

⚙ >Function

Jets 1	2
Jets 2	1
Jets 3	2

Heat Cycle	1
Ozone	1
Cycle Pump	1

Heat	1
Water Level	1
Panel ID	4

Control panel operation instruction

⚙ >About
Jets1   Two Speed
Jets2   Two Speed
Jets3   Two Speed
⮌

Jets4   No
Light   RGB
Blower   Yes

Ozone   Yes
Cycle Pump   Yes
Panel ID   1

| |
| --- |
| Panel ID   1 |
| Panel Version   1.0 |
| Board Version   1.0 |

About

In " ⚙ Set > " , press " 1 " and " ↓ " to move the cursor to item "About" . Then press " ✓ " to enter " ⚙ >About " . In Set-> About of the menu, the current control system function configuration condition and software version is displayed.

In (pump) jet1, jet2, jet3 and jet4, "Two speeds" means double speeds pump. "One speed" Means single speed pump.

In choices of light, RGB means the light is set as RGB mode. "Yes" represents the light is set as on/OFF mode. "No" means it is invalid.

In blower, "Yes" means the blower function has been set and "No" means the blower is invalid.

In the choices of ozone, "yes" means ozone function is set, "No" means ozone function is invalid. In cycle pump, "yes" means control system is set with separate cycle pump. "No" means the low speed pump of Jet 1 is set as cycle pump. In panel ID, figure means control panel ID. NO. In panel version and control system board version, figure means soft ware version NO.