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Control panel overview

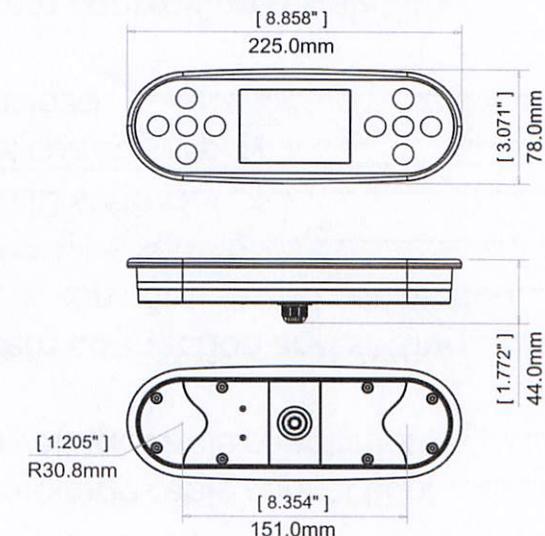
PB553

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.

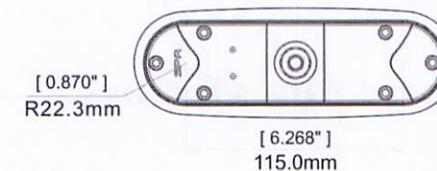
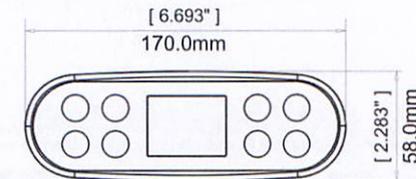
Image and size



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



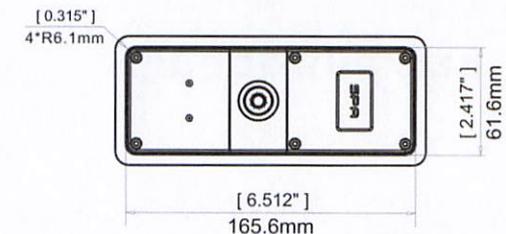
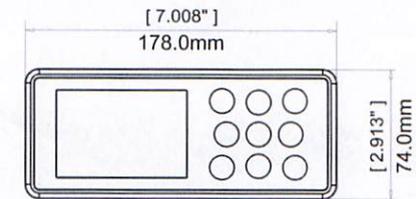
Control panel overview

PB555

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.

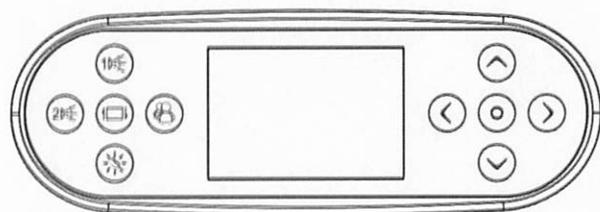
Image and size



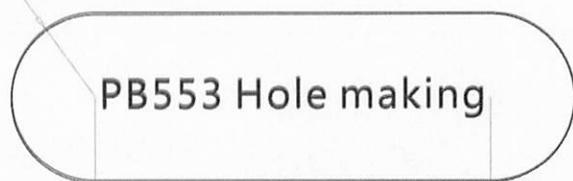
Control panel installation

Hole making and installation

1 Hole Making

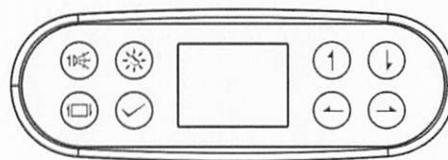


R32.0mm [1.248"]

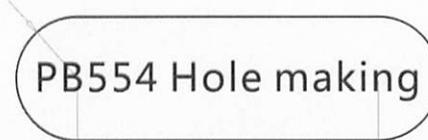


PB553 Hole making

151.0mm
[5.945"]

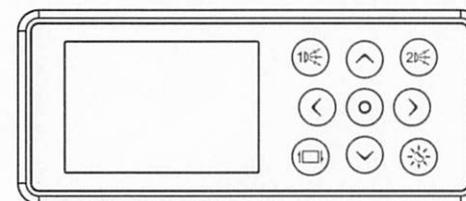


R23.5mm [0.906"]



PB554 Hole making

115.0mm
[4.528"]



R4.0mm [0.156"]

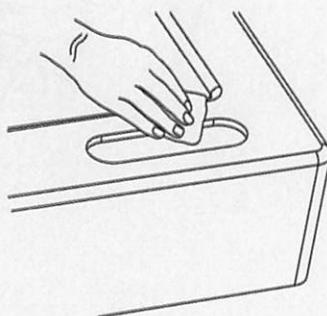


PB555 Hole making

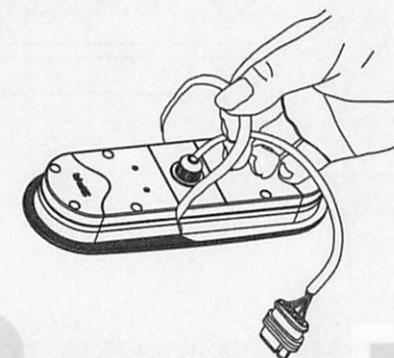
166.0mm
[6.535"]

62.0mm
[2.441"]

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.



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.



2

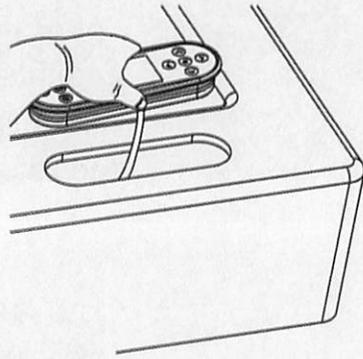
3

04

Control panel installation

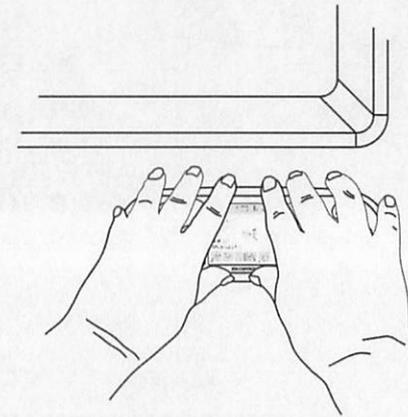
Hole making and installation

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

control system appearance

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

P20B29, P23B32, and P25B37 load parameters

When the input voltage is AC230V50HZ, there are three ways for power connection. 1PX32A, 2PX16A and 3PX16A. Parameters of control systems are as following:

1.P20B29 parameters:

HEATER PUMP OPTION										
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: 230VAC 10A MAX LOW: 230VAC 4A MAX	230VAC 4A MAX	HIGH: 230VAC 10A MAX LOW: 230VAC 4A MAX	N/A	HIGH: 230VAC 10A MAX LOW: 230VAC 4A MAX	HIGH: 230VAC 10A MAX LOW: 230VAC 4A MAX	230VAC 10A MAX	230VAC 6A MAX	230VAC 1A MAX	12VDC 2A MAX	230VAC 1A MAX

2.P23B32 parameters:

HEATER PUMP OPTION								
CIRC PUMP		LOW SPEED OF PUMP1						
PUMP1(1 SPD)	CIRC PUMP	PUMP1(2 SPD)	CIRC PUMP	PUMP2	BLOWER	OZONE	LIGHT	AUX POWER
230VAC 10A MAX	230VAC 4A MAX	HIGH:230VAC 10A MAX LOW:230VAC 4A MAX	N/A	230VAC 10A MAX	230VAC 6A MAX	230VAC 1A MAX	12VDC 2A MAX	230VAC 1A MAX

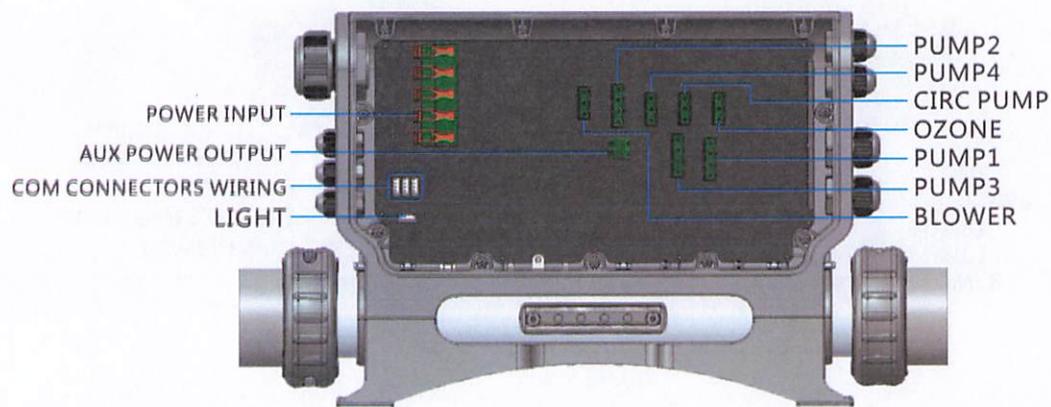
3.P25B37 parameters:

HEATER PUMP OPTION						
CIRC PUMP		LOW SPEED OF PUMP				
PUMP(1 SPD)	CIRC PUMP	PUMP(2 SPD)	CIRC PUMP	BLOWER(OR AUX POWER)	OZONE	LIGHT
230VAC 10A MAX	230VAC 4A MAX	HIGH:230VAC 10A MAX LOW:230VAC 4A MAX	N/A	230VAC 6A MAX	230VAC 1A MAX	12VDC 2A 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	L-J30 N-J31 G-J32	

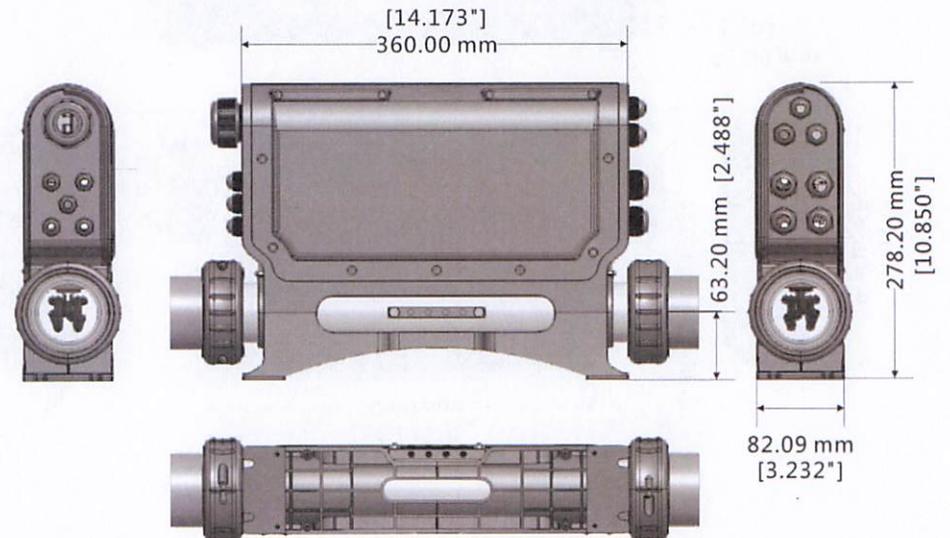
Control system overview

PB20B29 overview and size

PB20B29 overview:



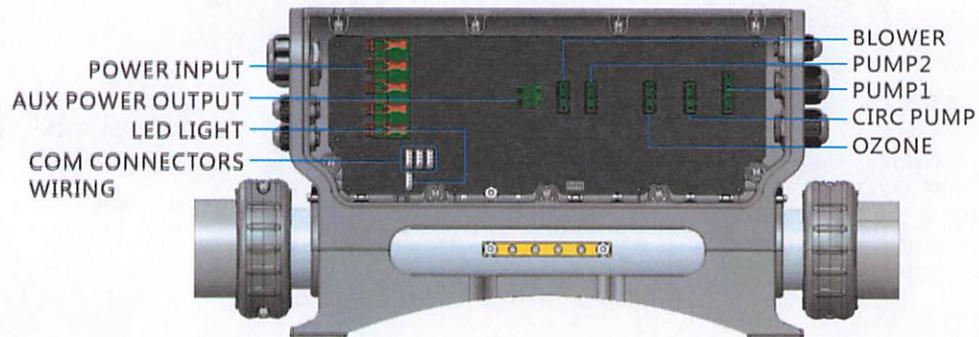
PB20B29 size:



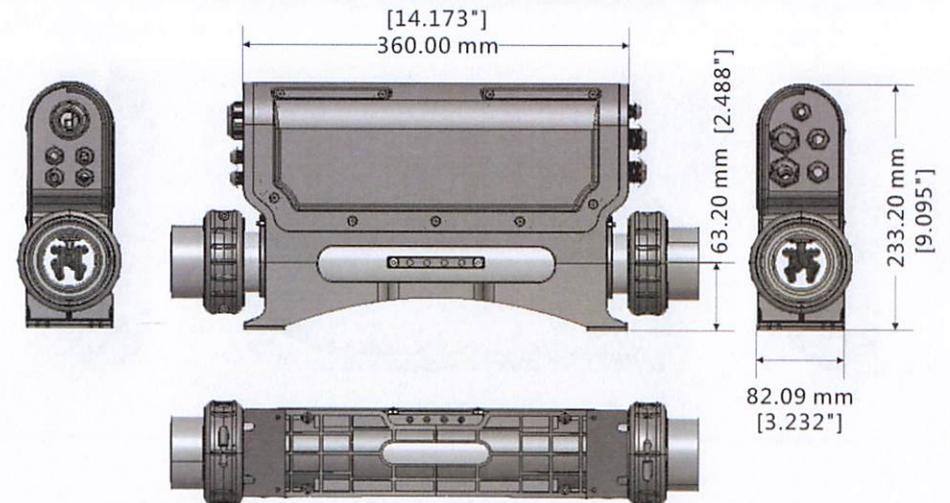
Control system overview

PB23B32 overview and size

PB23B32 overview:



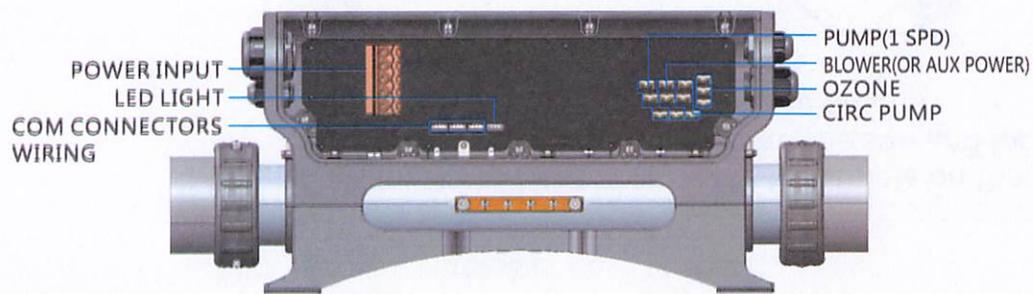
PB23B32 size:



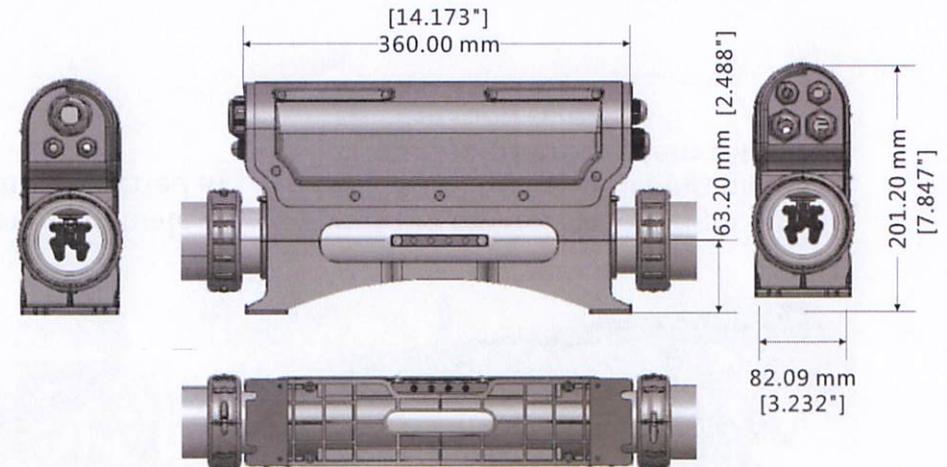
Control system overview

PB25B37 overview and size

PB25B37 overview:

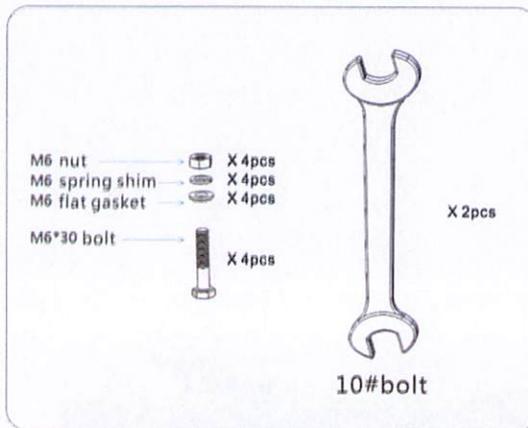


PB25B37 size:

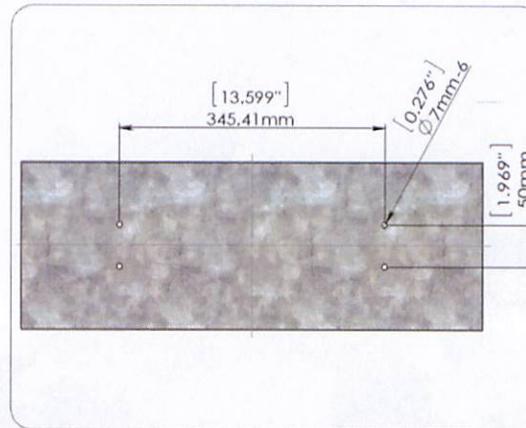


Control system installation

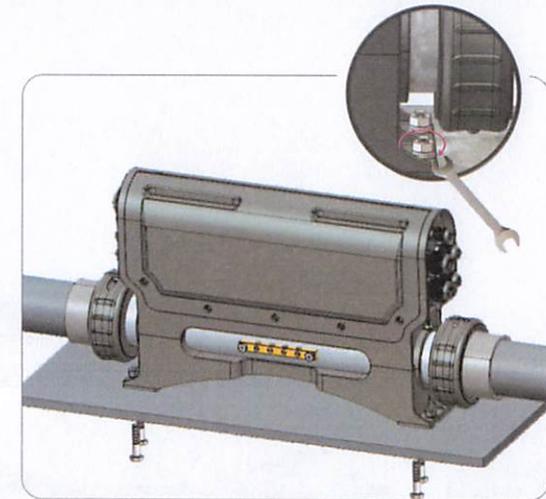
Control system installation instruction



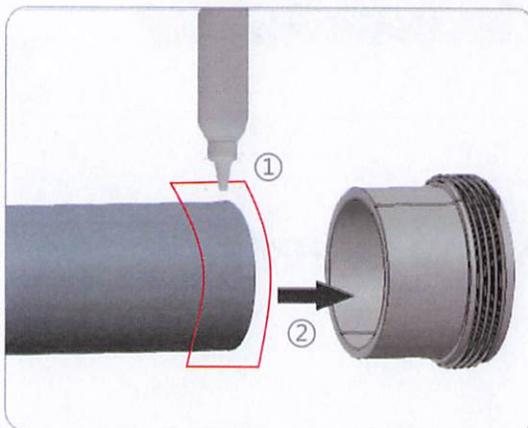
Materials and tools needed



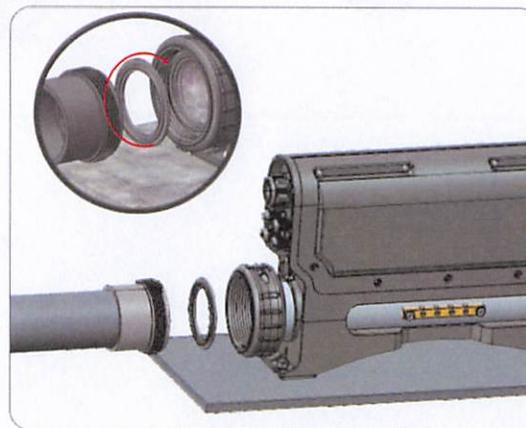
Make hole on the retaining plate as to the size and location described in the graphic.



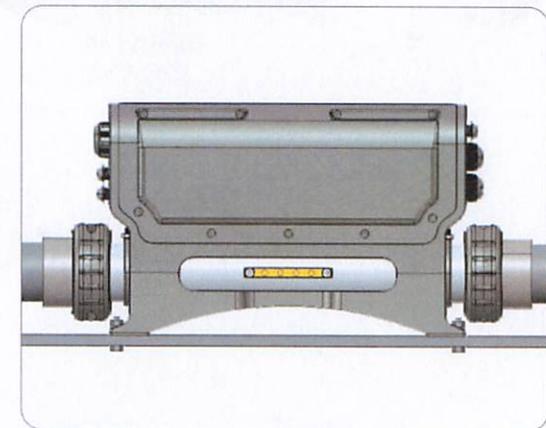
Put the control system right against the holes on the retaining plate. Fixate the control system with M6 combination screws.



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.



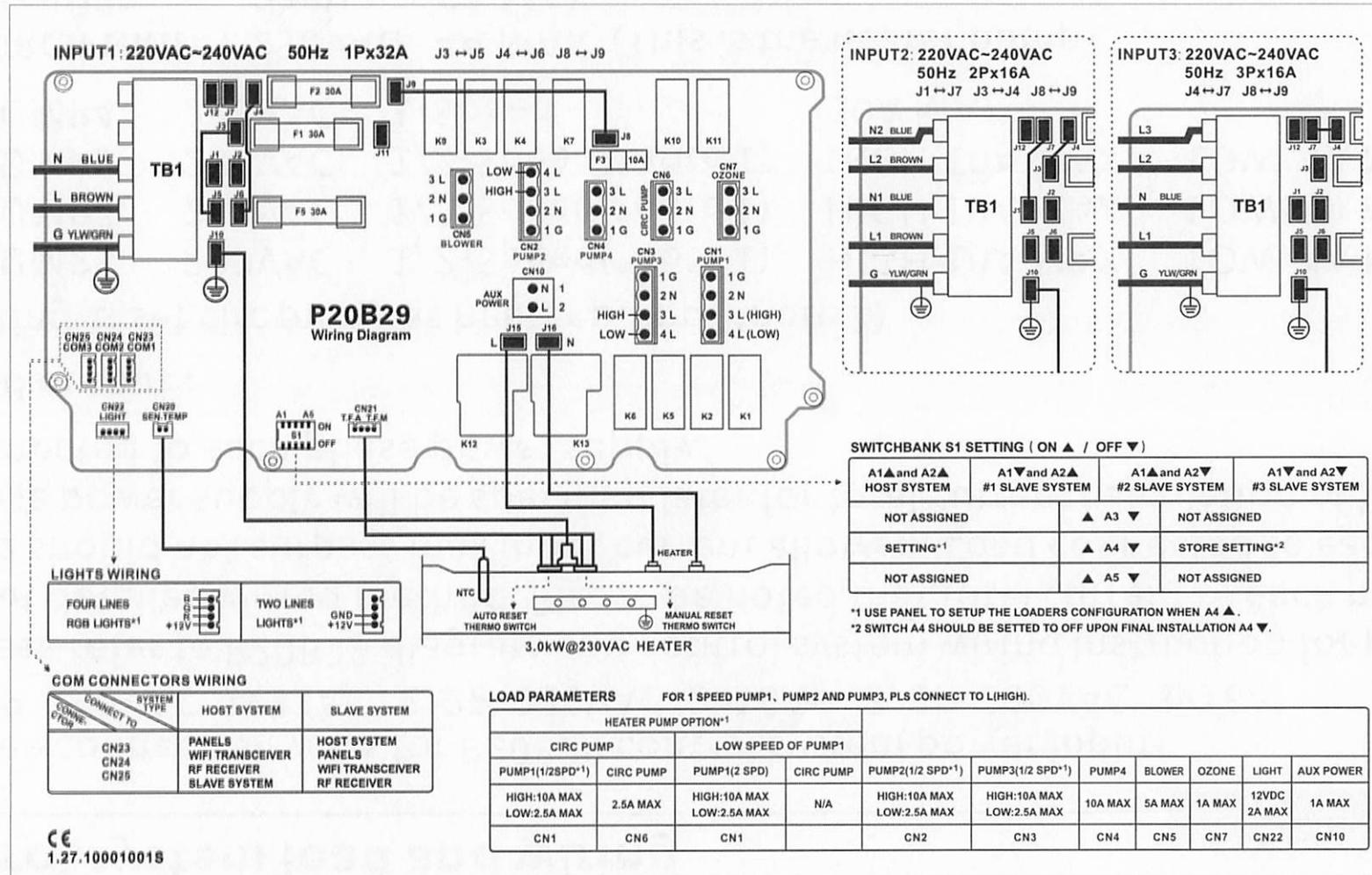
Control system fixation and installation is finished after water pipe joint is tightened.

Control system load and wiring

P20B29 wiring diagram

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

P20B29



Control system load and wiring

P20B29 load

Three connection ways for P20B29 control system power input:

1. 1P 230VAC 1x32A; 2. 2P 230VAC 2x16A; 3. 3P 230VAC 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 (*note 1)

PUMP1	230VAC	1/2-Speed(*note 1)	HIGH:10A MAX	LOW: 4A MAX
PUMP2	230VAC	1/2-Speed(*note 1)	HIGH:10A MAX	LOW: 4A MAX
PUMP3	230VAC	1/2-Speed(*note 1)	HIGH:10A MAX	LOW: 4A MAX
PUMP4	230VAC	1-Speed	10A MAX	
CIRC PUMP	230VAC	4A MAX	(This is the heater pump)	
BLOWER	230VAC	6A MAX		
OZONE	230VAC	1A MAX		
LIGHT	12VDC	2A MAX,	4-line RGB OR 2-line NORMAL TYPE (*note 1)	
HEATER	3kW @ 230VAC			
AUX POWER	230VAC	1A MAX		

(*note 1) Use panel to setup

Control system load and wiring

P20B29 load

Setting 2: set low speed of PUMP 1 as heater pump (* note1)

PUMP1 230VAC 2-Speed HIGH:10A MAX LOW: 4A MAX
low speed of PUMP1 is the heater pump

PUMP2 230VAC 1/2-Speed(note 1) HIGH:10A MAX LOW: 4A MAX

PUMP3 230VAC 1/2-Speed(note 1) HIGH:10A MAX LOW: 4A MAX

PUMP4 230VAC 1-Speed 10A MAX

CIRC PUMP N/A

BLOWER 230VAC 6A MAX

OZONE 230VAC 1A MAX

LIGHT 12VDC 2A MAX, 4-line RGB OR 2-line NORMAL TYPE (*note 1)

HEATER 3kW @ 230VAC

AUX POWER 230VAC 1A MAX

(*note1) Use panel to setup

The above part described the max loads that can be connected to the control system. If the SPA does not need PUMP 2, PUMP 3, PUMP 4, BLOWER or OZONE, they can be set as none on the panel at function setting. Or set heater pump to use low speed of pump 1 or CIRC pump at the function setting interface of the panel. Set the light type to 4-wire RGB or 2-wire general light. When operating function setting, A4 of SWITCHBANK S1 needs to be adjusted to "on" . After the function setting, please adjust the A4 back to "off" and the system will store and lock the setting.

Control system load and wiring

P20B29 load

Load current calculation:

To ensure the normal operation of the control system, loads total current should be calculated after loads are confirmed to avoid it 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 heater is started, PUMP 3 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 230VAC 1PX32A	L	all the load
Input2 230VAC 2PX16A	L1	HEATER、PUMP3
	L2	PUMP1、PUMP2、PUMP4、BLOWER、CIRC PUMP、OZONE
Input3 230VAC 3PX16A	L1	HEATER、PUMP3
	L2	PUMP2、PUMP4、BLOWER
	L3	PUMP1、CIRC PUMP、OZONE

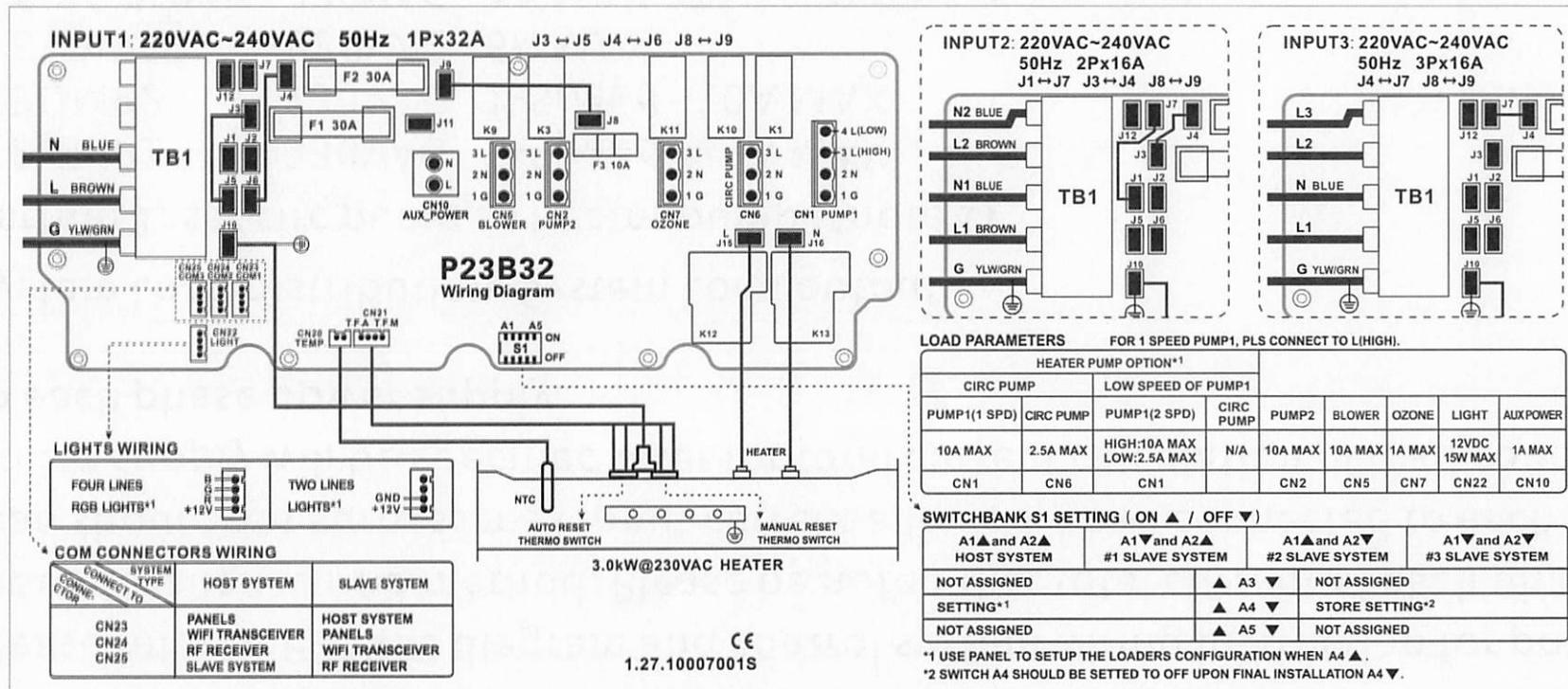
SWITCHBANK S1 application

A1 and A2 of SWITCHBANK S1 are 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. 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 adjusted to "on". After the function setting, please adjust the A4 back to "off" and the system will store and lock the setting.

Control system load and wiring

P23B32 wiring diagram

P23B32



Control system load and wiring

P23B32 load

Three connection ways for P23B32 control system power input:

1. 1P 230VAC 1X32A; 2. 2P 230VAC 2X16A 3. 3P 230VAC 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 (*note 1)

PUMP1 230VAC 1-Speed 10A MAX

PUMP2 230VAC 1-Speed 10A MAX

BLOWER 230VAC 6A MAX

CIRC PUMP 230VAC 4A MAX (This is the heater pump)

OZONE 230VAC 1A MAX

LIGHT 12VDC 1A MAX, 4-line RGB OR 2-line NORMAL TYPE (*note 1)

HEATER 3KW @ 230VAC

AUX POWER 230VAC 1A MAX

(*note 1) Use panel to setup

Control system load and wiring

P23B32 load

Setting 2: set low speed of pump 1 as heater pump (* note1)

PUMP1 230VAC 2-Speed HIGH:10A MAX LOW: 4A MAX
low speed of PUMP1 is the heater pump

PUMP2 230VAC 1-Speed 10A MAX
CIRC PUMP N/A

BLOWER 230VAC 6A MAX

OZONE 230VAC 1A MAX

LIGHT 12VDC 1A MAX, 4-line RGB OR 2-line NORMAL TYPE(*note1)

HEATER 3KW @ 230VAC

AUX POWER 230VAC 1A MAX

(*note1) Use panel to setup

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

The above part described the max loads that can be connected to the control system. If the SPA does not need PUMP 2, BLOWER or OZONE, they can be set as none on the panel at function setting. Or set heater pump to use low speed of PUMP 1 or CIRC PUMP at the function setting interface of the panel. Set the light type to 4-wire RGB or 2-wire general light. When operating function setting, A4 of SWITCHBANK S1 needs to be adjusted to "on" . After the function setting, please adjust the A4 back to "off" and the system will store and lock the setting.

Control system load and wiring

P23B32 load

Load current calculation:

To ensure the normal operation of the control system, loads total current should be calculated after loads are confirmed to avoid it being larger than the corresponding phase current.

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

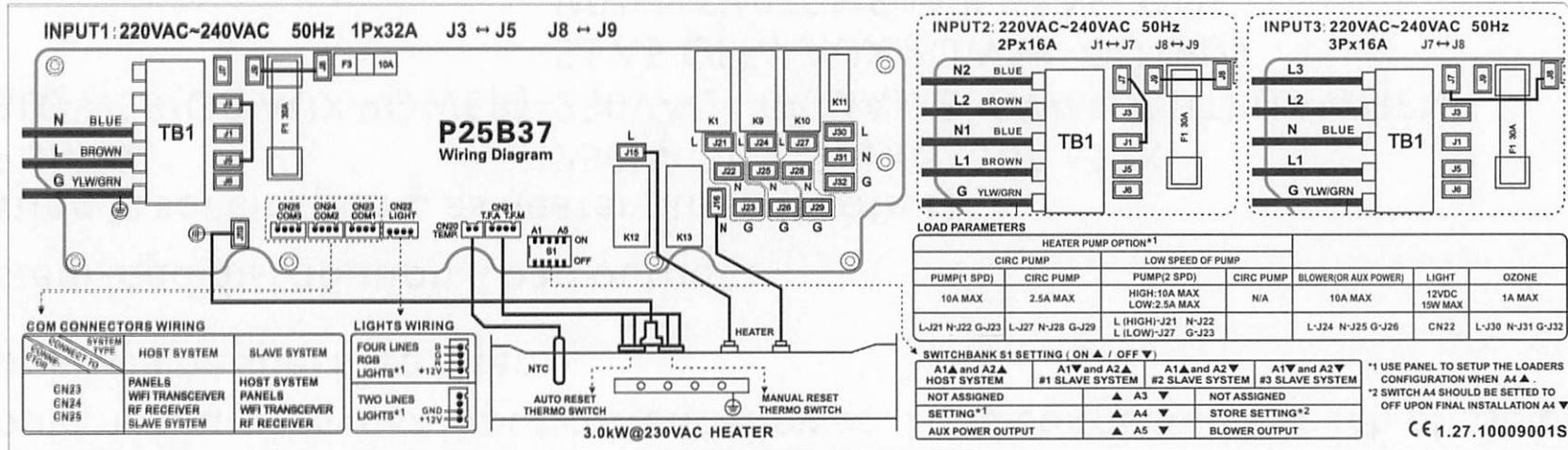
SWITCHBANK S1 application

A1 and A2 of SWITCHBANK S1 are 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. 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 adjusted to "on" . After the function setting, please adjust the A4 back to "off" and the system will store and lock the setting.

Control system load and wiring

P25B37 wiring diagram

P25B37



Control system load and wiring

P25B37 load

Control system load and wiring

Three connection ways for P25B37 control system power input:

1. 1P 230VAC 1X32A; 2. 2P 230VAC 2X16A 3. 3P 230VAC 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 distribution: Load output :

Setting 1: set circ pump as heater pump (*note 1)

PUMP1	230VAC	1-Speed	10A MAX
BLOWER(OR AUX POWER)	230VAC	6A MAX(BLOWER OUTPUT WHEN S1 A5 OFF / AUX POWER OUTPUT WHEN SWITCHBANK S1 A5 ON)	
CIRC PUMP	230VAC	4A MAX	(This is the heater pump)
OZONE	230VAC	1A MAX	
LIGHT	12VDC	1A MAX,	4-line RGB OR 2-line NORMAL TYPE (*note 1)
HEATER	3KW @ 230VAC		

(*note 1) Use panel to setup

Control system load and wiring

P25B37 load

Setting 2: set low speed of PUMP 1 as heater PUMP (* note1)

PUMP1	230VAC 2-Speed HIGH:10A MAX LOW: 4A MAX low speed of PUMP1 is the heater pump CIRC PUMPNA
BLOWER(OR AUX POWER)	230VAC 6A MAX (BLOWER OUTPUT WHEN SWITCHBANK S1 A5 OFF / AUX POWER OUTPUT WHEN SWITCHBANK S1 A5 ON)
OZONE	230VAC 1A MAX
LIGHT	12VDC 1A MAX, 4-line RGB OR 2-line NORMAL TYPE (*note 1)
HEATER	3KW @ 230VAC

(*note1) Use panel to setup

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

The above part described the max loads that can be connected to the control system. If the SPA does not need BLOWER or OZONE, they can be set as none on the panel at function setting. Or set heater pump to use low speed of PUMP 1 or CIRC PUMP at the function setting interface of the panel. Set the light type to 4-wire RGB or 2-wire general light. When operating function setting, A4 of SWITCHBANK S1 needs to be adjusted to "on" . After the function setting, please adjust the A4 back to "off" and the system will store and lock the setting.

Control system load and wiring

P25B37 load

Load current calculation:

To ensure the normal operation of the control system, loads total current should be calculated after loads are confirmed to avoid it be larger than the corresponding phase current. In some models of P25B37, when PUMP1 is started, HEATER will be turned off automatically. (Operate the Power Limit setting in Set->Function->Power Limit of the menu on the panel).

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

SWITCHBANK S1 application

A1 and A2 of SWITCHBANK S1 are 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. 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 adjusted to "on" . After the function setting, please adjust the A4 back to "off" and the system will store and lock the setting.

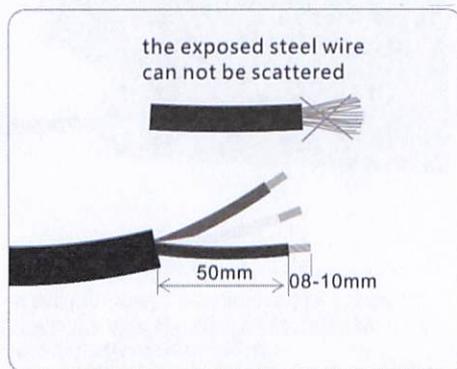
Control system installation instruction

main power cable connecting

P20B29/P23B32 main power cable connecting

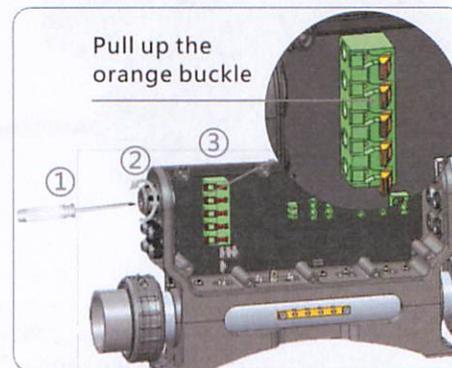


Installation tool:



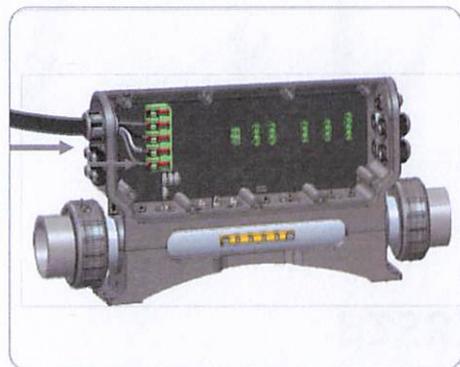
As in the picture :

- ① to choose the main power cable specification according to control system load parameters and control system total current ;
- ② Main power cable outer diameter rang: $D=(13\sim 20)$ mm, $D=(18\sim 25)$ 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.

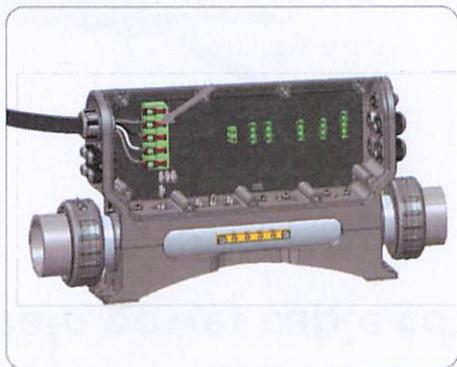


As in the picture :

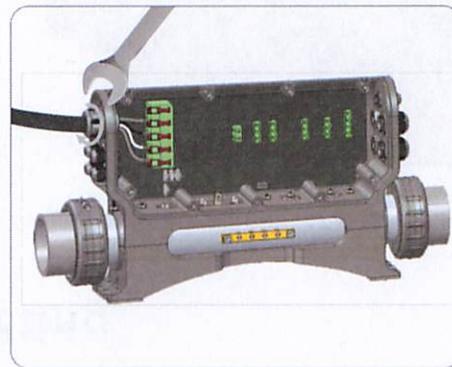
- ① poke open the waterproof capsule with screwdriver. The clean the rubber plug of the poked water capsule ;
- ② Loose the glen head ;
- ③ Pull the buckle of main power input connector up to open the connector's wiring connection port open.



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.

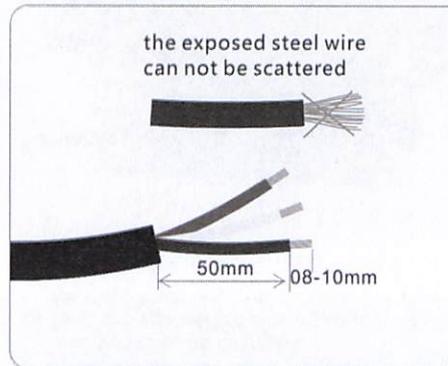
Control system installation instruction

main power cable connecting

P25B37 main power cable connecting

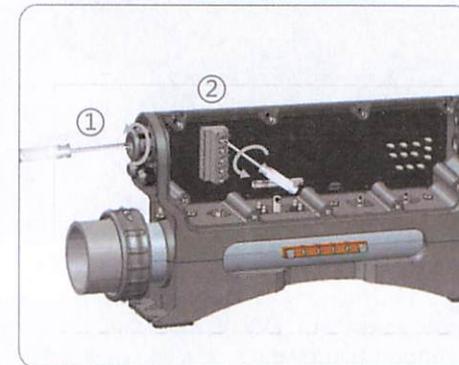


Installation tool:



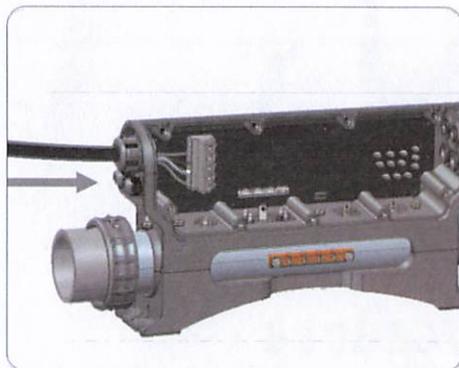
As in the picture :

- 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= (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.

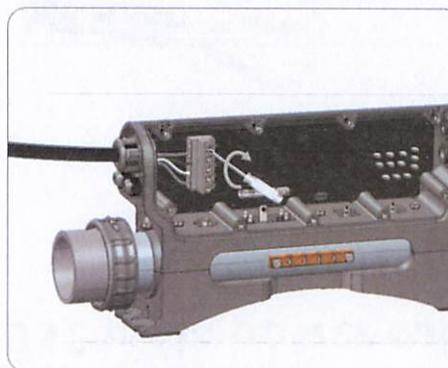


As in the picture :

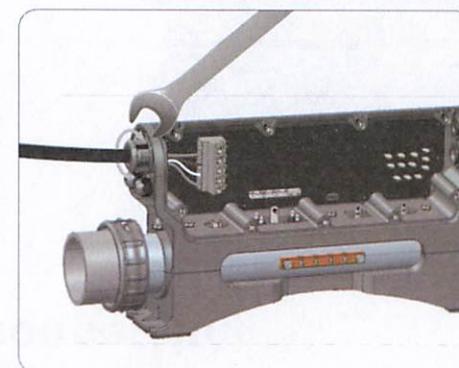
- ① Poke open the waterproof capsule with screwdriver. The clean the rubber plug of the poked water capsule ;
- ② Loose the glen head ;
- ③ Loose the screw on the main power connector with screwdriver.



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.

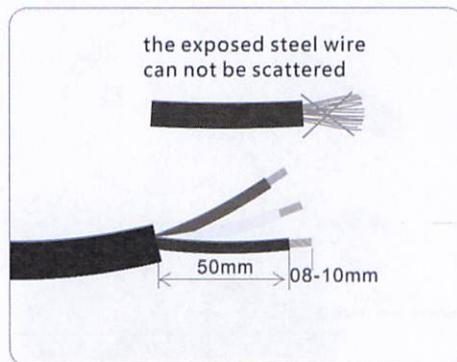


Adjust the main power cable to appropriate position. Tighten the glen head manually then retighten it with wrench.

High voltage load cable connecting

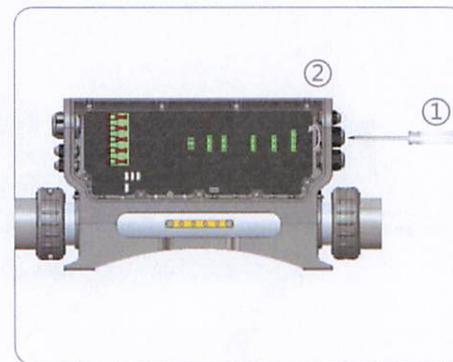


Installation tool:



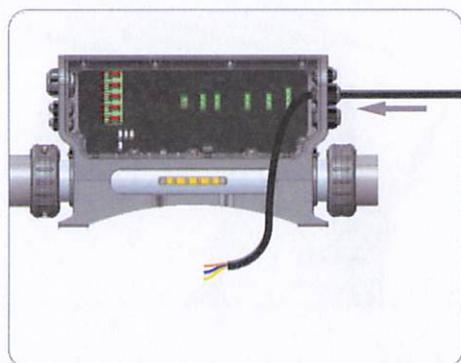
As in the picture :

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

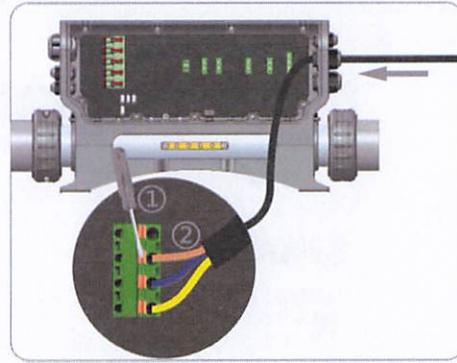


As in the picture :

- ① Poke open the waterproof capsule with screwdriver. The clean the rubber plug of the poked water capsule ;
- ② Loose the glen head.

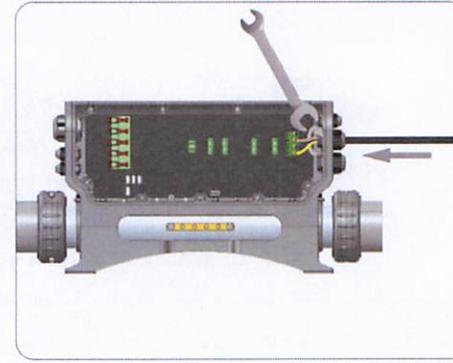


Pull in the load power cable from the glen head hole. Reserve appropriate length for next step cable connection.



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.

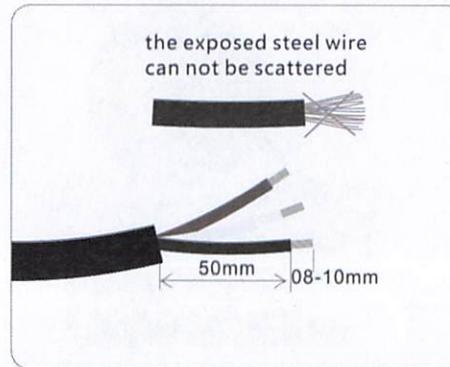
Control system installation instruction

P25B37 high voltage load cable connecting

High voltage load cable connecting

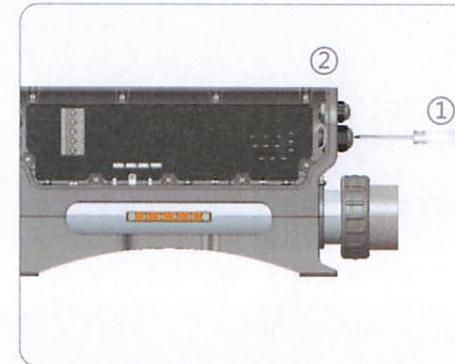


Installation tool:



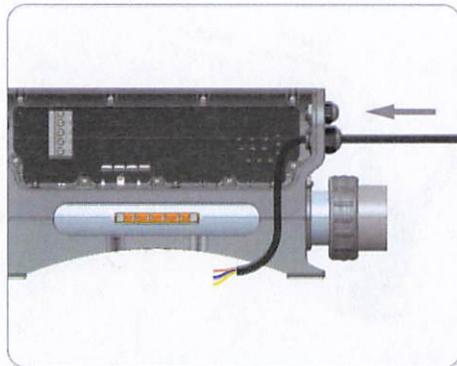
As in the picture :

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

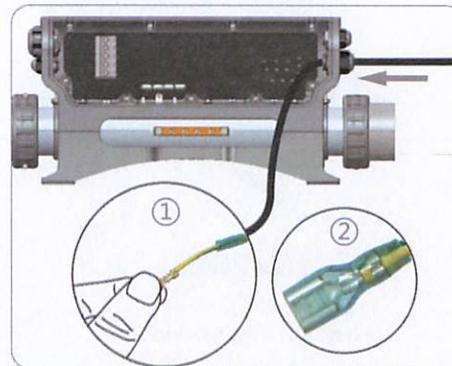


As in the picture :

- ① Poke open the waterproof capsule with screwdriver. The clean the rubber plug of the poked water capsule ;
- ② Loose the glen head.

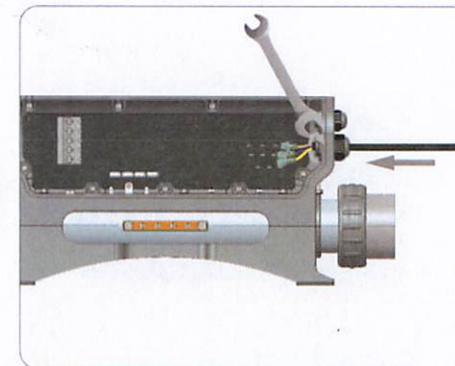


Pull in the load power cable from the glen head hole. Reserve appropriate length for next step cable connection.



As in the picture :

- ① 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.