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# Installation & Technical Manual

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## **WARNINGS (SAFETY NOTES)**

1. THIS APPLIANCE MUST BE INSTALLED BY A QUALIFIED SERVICE TECHNICIAN.
2. This appliance is not intended to be installed outdoors. The appliance should be installed in indoor environments only.
3. The appliance must be connected to a suitably rated and weather protected power supply.
4. The supply line should be a dedicated power circuit and means for disconnection must be incorporated in the fixed wiring in accordance with your local wiring regulations. Means for disconnection from the supply mains should have a contact separation in all poles that provide full disconnection under overvoltage category III conditions.
5. The appliance should be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30mA.
6. When installing appliance refer to your local wiring regulations. In particular refer to ECP 2 & ECP 25 (AS/NZ) and EN 60364-4-1 & EN 60364-7-1 (EU). The installer must ensure all parts are installed in the correct zone in accordance with your local wiring regulations. In particular refer to AS/NZ 3000:2000.
7. Earthed appliances must be permanently connected to fixed wiring (European models only).
8. Parts incorporating electrical components, except remote control devices, must be located or fixed so that they cannot fall into the bath or spa.
9. Parts containing live parts, except parts supplied with safety extra-low voltage not exceeding 12V, must be inaccessible to a person in the bath or spa.
10. The appliance should be installed in an enclosure (e.g. under the spa) such that all electrical connections cannot be accessible to the user without the use of a tool.
11. It is the pool builder / installer's responsibility to select suitable loads and configure load shed settings (if required) to ensure the system does not exceed its rated maximum total load.
12. It is the installer's responsibility to ensure the floor is capable of supporting the expected load of the bath or spa and an adequate drainage system has to be provided to deal with overflow water.
13. The whirlpool spa should incorporate a water filtration system that the required level of water purity can be achieved.

# Controller Installation Instructions

## Controller Installation

1) The controller should be mounted vertically in a fixed location in an indoor environment - e.g. underneath the spa pool.

2) An adequate support structure for controller mounting must be provided. This support structure should attach to the framework of the spa pool and not to the spa pool shell itself, and shall be capable of supporting the weight of the controller. Each support shall at least meet the minimum dimensions (50mm x 350mm). The controller must be fixed to its mounting with screws. For ease of installation the controller features moulded mounting brackets with screw location cut-outs (refer aside).

3) Sufficient space should be allowed for controller installation and cable connections (390mm x 410mm x 215mm). Minimum distances from the controller itself to the nearest surrounding structure should also be maintained (suggested dimensions referenced in diagrams 1 & 2 below).

4) The pool builder should ensure the controller is located in a suitable position to prevent water dripping or pooling on or around the unit. Loop all cables before connection to controller to prevent water running down the cable and into the unit.

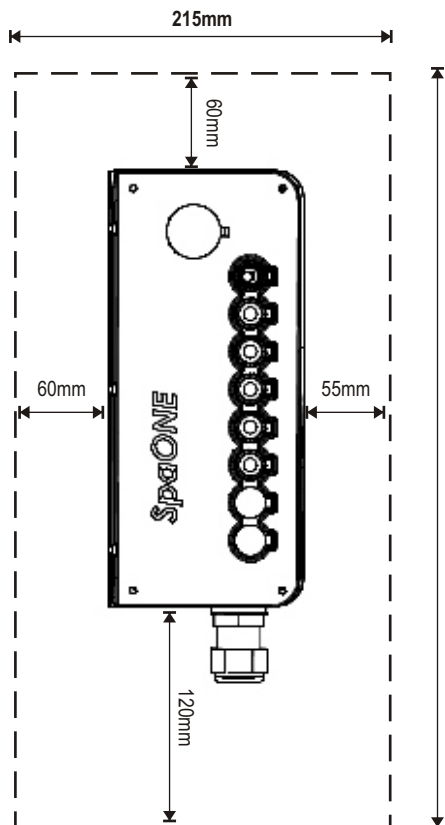
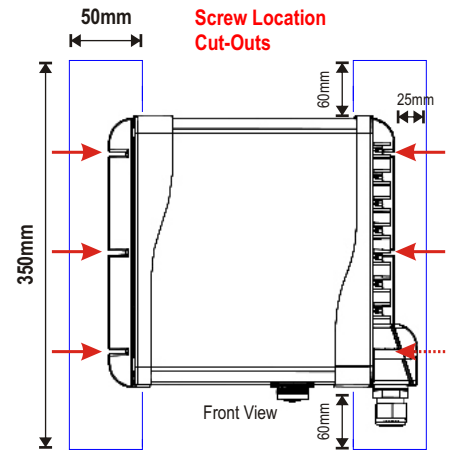


Diagram 1 - Side View

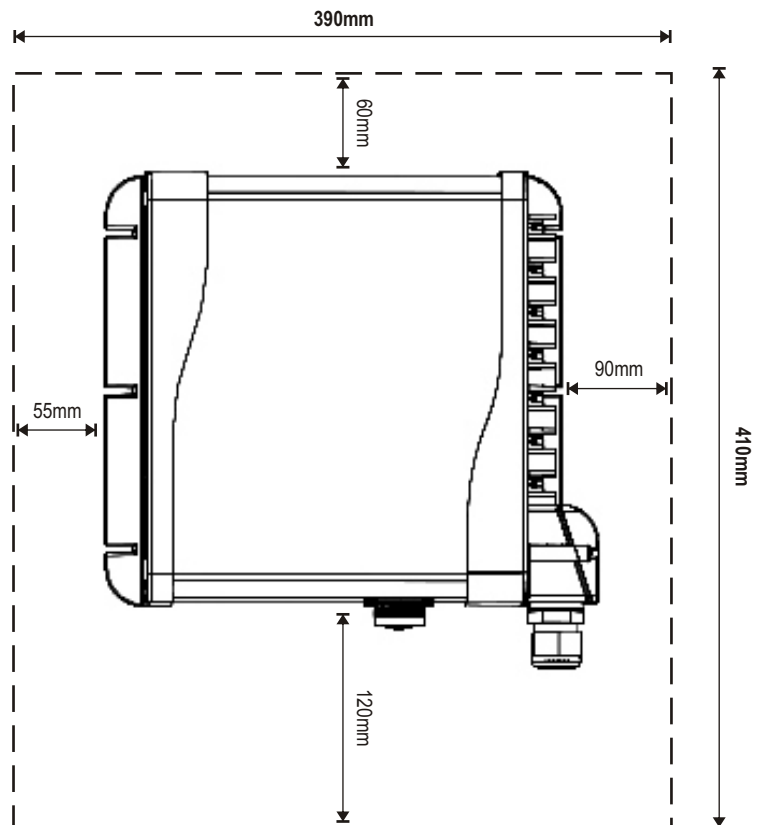


Diagram 2 - Front View

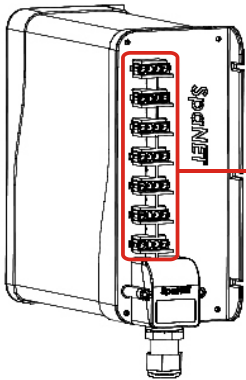


### Important Notes:

1. The controller is not intended to be installed outdoor. The controller should be installed in indoor environments only.
2. The controller should be installed in an enclosure (e.g. under the spa) so that all electrical connections cannot be accessible without the use of a tool.
3. Loop all wires before they enter the controller to prevent water running down the lead and into the unit.

# Controller Installation Instructions

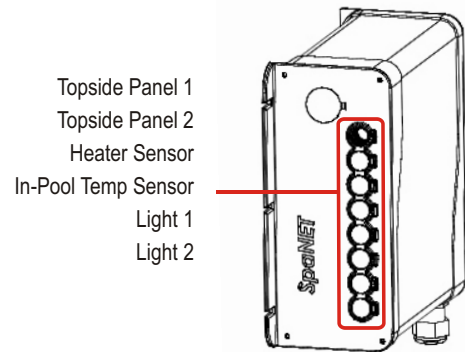
## XS-2000/3000 AMP End Cap



- Heater
- Circ Pump
- Pump 1
- Pump 2
- Pump 3 (XS-3000 only)
- Ozone
- Blower

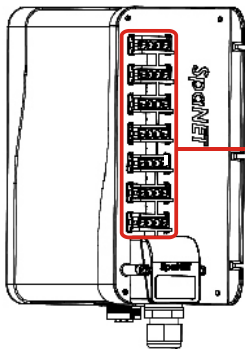
*Note: If Pump 1 = 2 spd  
Pump 2 outlet N/A*

## XS-2000 Mini-Din End Cap



- Topside Panel 1
- Topside Panel 2
- Heater Sensor
- In-Pool Temp Sensor
- Light 1
- Light 2

## XS-4000 AMP End Cap

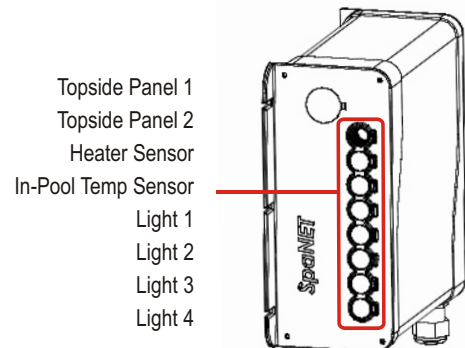


- Circ Pump
- Pump 1
- Pump 2
- Pump 3
- Pump 4
- Ozone
- Blower

*Note: If Pump 1 = 2 spd  
Pump 2 outlet N/A*

*If Pump 3 = 2 spd  
Pump 4 outlet N/A*

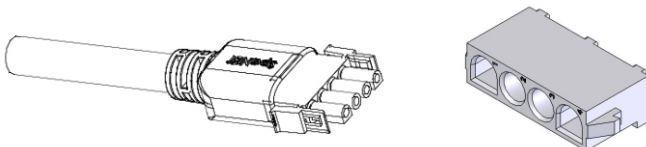
## XS-3000/4000 Mini-Din End Cap



- Topside Panel 1
- Topside Panel 2
- Heater Sensor
- In-Pool Temp Sensor
- Light 1
- Light 2
- Light 3
- Light 4

The AMP end cap provides the power output sockets for pool accessories. Each output socket is clearly labelled including the maximum load for that outlet. For product familiarisation the output socket configuration is shown above.

All accessories must be connected with a SpaNET AMP Cordset (sold separately) for correct power connection and earthing. The AMP connectors feature a key pattern (pictured below) for failsafe one-way connection. **When connecting accessories be sure to check the AMP cordset is pressed firmly into the socket and make sure the side locking tabs have locked into place.**

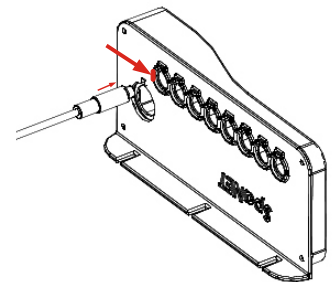


### ⚠ Important Notes:

1. Waterproof bungs (supplied) MUST be installed on ALL unused AMP outlets.
2. The sum of the outlet loadings should NOT EXCEED the "Max Total Load" for that system. The pool builder/installer must choose suitable loads and set DIP Switches (refer pg 8) to ensure the system does not exceed its maximum total load (refer product specification label).

The Mini-Din end cap provides output sockets for low voltage connections (Topside Panels, Sensors & Lights). Each output socket is clearly identified by a printed label on the top side of the enclosure. For product familiarisation the output socket configuration is shown above.

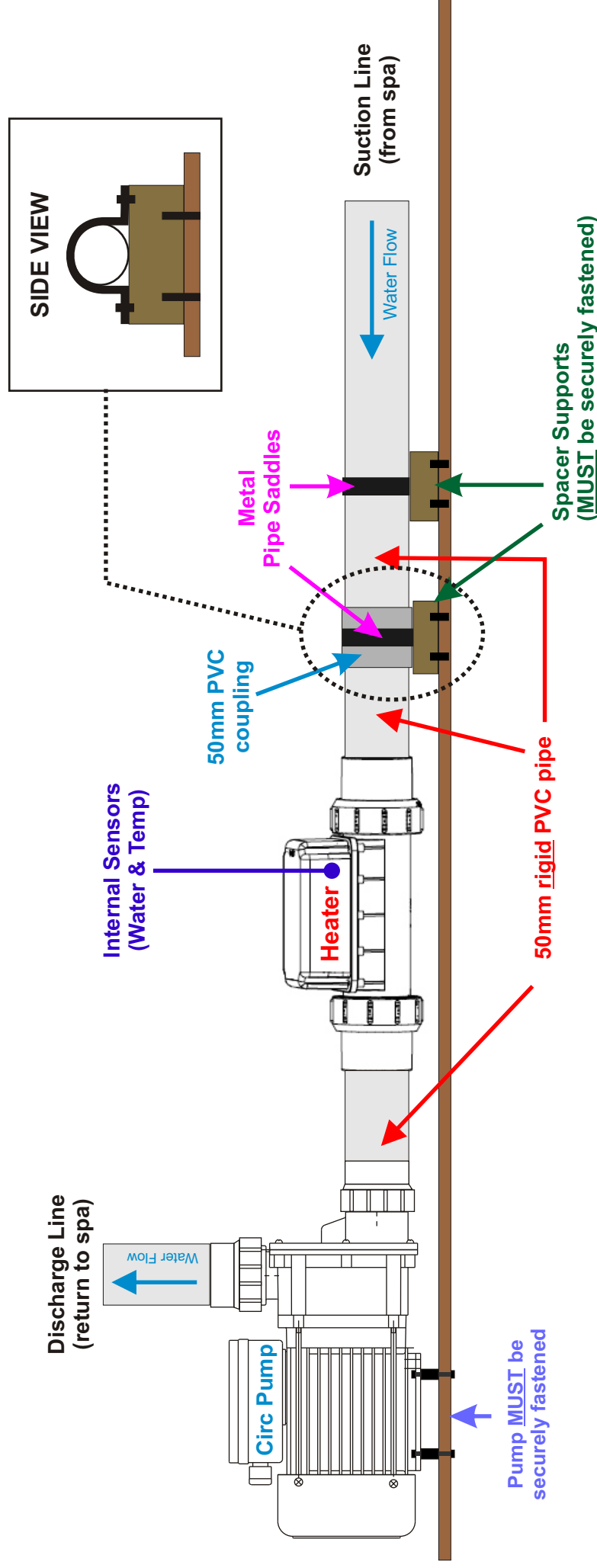
Each low voltage device comes complete with mini-din lead. The mini-din connectors feature a key pattern for easy connection. Be sure to match the lead key (indicated by the indentation on the lead connector) to the left hand side of the output socket (refer below). The mini-din sockets have ribbed internal waterproofing seals which create a tight, secure fit. Be sure to check the mini-din lead is pressed firmly into the socket to ensure proper connection.



### ⚠ Important Notes:

1. A flat bladed screwdriver is required to remove waterproof mini-din bungs.
2. Waterproof bungs (supplied) MUST be installed on ALL unused mini-din sockets.

# SpaNET heater plumbing installation



## NOTES:

1. All heater and pump unions should be connected and gently tightened with a tool on a bench before plumbing to the spa
2. The pump must be installed in a level horizontal plane and must be securely fastened to the spa base or metal frame
3. Rigid PVC pipe **MUST** be used on either side of the heater unit
4. The heater must have sufficient clearance from the spa base to allow the unions to be unscrewed in the event of servicing the heater
5. The heater should be plumbed on the suction line
6. The heater should be orientated so that the water flows over the internal sensors first
7. The two spacer supports should be correctly sized and securely fastened to the spa base or metal frame
8. Two metal pipe saddles (galvanised or stainless steel) must be used to secure the pipe work to the spacer supports
9. The two metal pipe saddles should be spaced between (50 - 100mm) apart

This design ensures all flex and movement created by water flow through the pipework is absorbed at the secure points where the metal saddles are fitted.



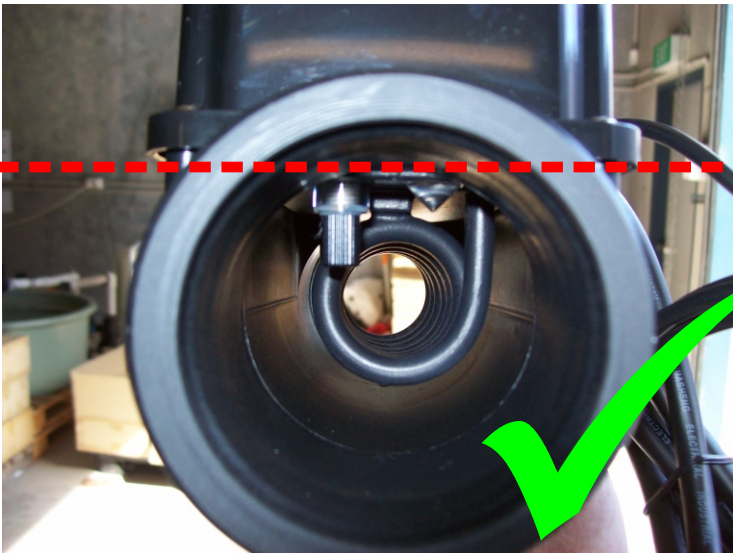
# Correct SpaNET Heater Orientation



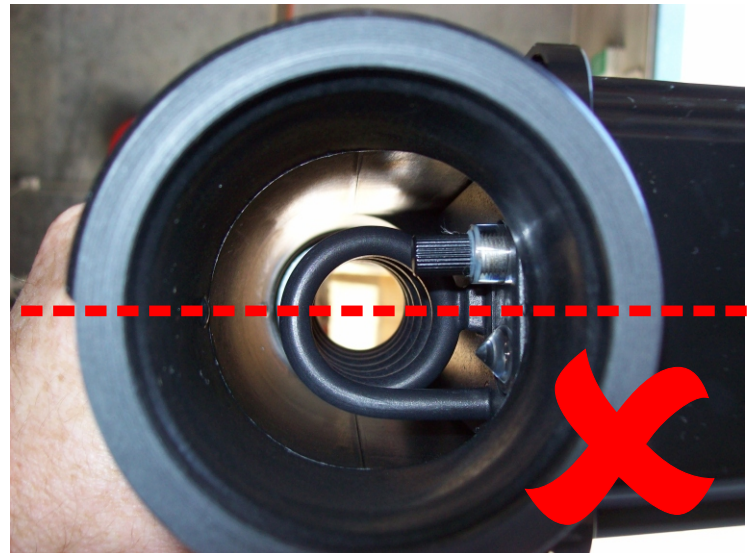
Upright Install = Correct



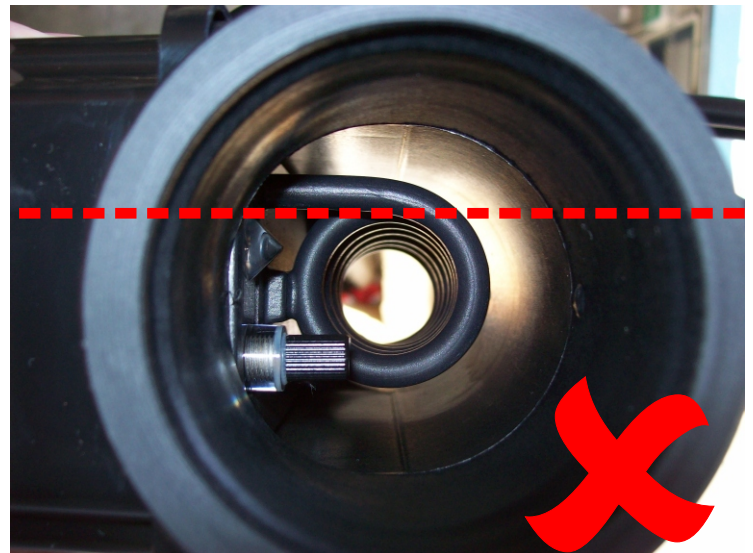
Side Install = Incorrect



Upright Install = Water level only covers optical sensor cone once tube completely filled with water



Side Install = Sensor detects water when tube only half full

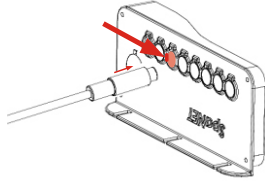


Side Install = Sensor detects water when tube only 3/4 full

# Installation Instructions

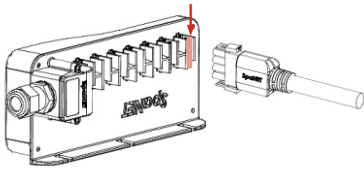
## Heater Connection

1. Locate the remote heater tube as per the plumbing installation instructions.
2. Connect the mini-din sensor lead to enclosure outlet socket where labelled "Heater".

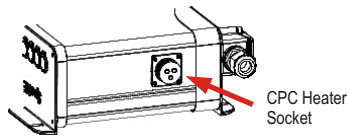


3. Connect the AMP or CPC power lead to enclosure power outlet socket where labelled "Heater".

XS-2000/3000



XS-4000



CPC Heater Socket



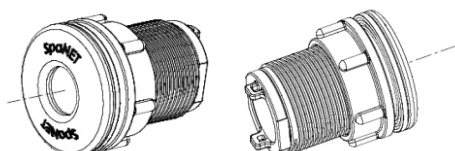
### Important Note:

Loop all wires (mini-din and AMP) before they connect to the controller to prevent water running down the lead and into the unit.

## In-Pool Temperature Sensor

1. Drill out a 35mm diameter hole in the pool shell for sensor mounting.
2. Remove foam insulation and lock nut from sensor body.
3. Feeding the mini-din lead through the hole first, install sensor body into pool shell, using **neutral cure silicon** on the inside of the spa to form a waterproof seal. Screw lock nut onto thread (**BY HAND ONLY**) on the underside of the shell to tighten and lock sensor into place.
4. Replace foam insulation to located temp sensor body (*insulation MUST be fitted to achieve accurate temperature control*).
5. Connect mini-din sensor lead to enclosure outlet socket where labelled "In Pool Sensor".

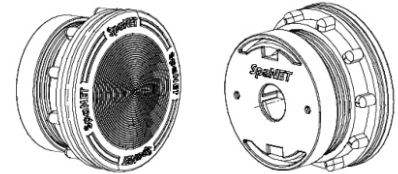
**Note:** The controller will automatically detect the presence of the in-pool temperature sensor. The sensor is also auto calibrating. No further setting or adjustment is required.



## Colour LED Spa Light

1. Drill out a 62mm diameter hole (for 2.5" light) or a 95mm diameter hole (for 5" light) in the pool shell for light mounting.
2. Remove lock nut and seal from light body.
3. Feeding the mini-din lead through the hole first, install light body into pool shell, using the seal on the inside of the spa to adequately waterproof. Screw lock nut onto thread on the underside of the shell to tighten and lock light into place.
4. Connect light lead to ANY enclosure outlet socket where labelled "Light".

**Note:** The controller will automatically detect the presence of any connected lights. No further setting or adjustment is required.



## Topside Panels

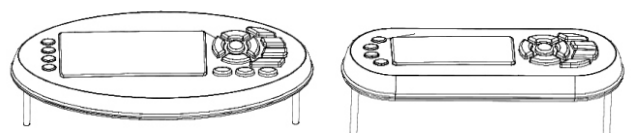
1. Drill mounting bolt and lead holes in spa shell where required.
2. Remove wing nuts from panel mounting bolts.
3. Feed the mini-din lead through the middle lead hole.
4. Remove adhesive foam gasket backing from panel.
5. Install panel onto pool shell locating mounting bolts through previously drilled holes => Press and hold panel down firmly for 30 seconds to adhere foam gasket to pool shell.
6. Use the wing nuts on the underside of the shell to tighten and lock panel into place.
7. Connect mini-din panel lead to enclosure outlet socket where labelled "T/PAD 1".

**Notes:** 1. A second panel outlet is provided - T/PAD 2



### Important Note:

Parts incorporating electrical components (ie topside panels) must be located or fixed so that they cannot fall into the bath or spa.





# Electrical Installation



## Wiring Precautions

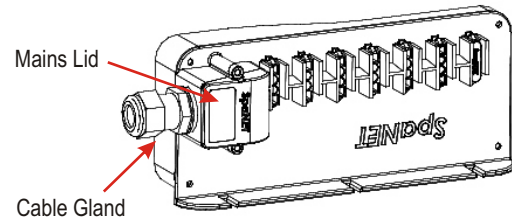
1. SpaNET spa controls are designed for use with single phase power ONLY. Three phase power will not supply proper voltage to the system. Three phase power may also overheat the pumps and cause the Residual Current Device (R.C.D) to trip.
2. Make sure all power is OFF before you attempt any connection.
3. When connecting mains power OR if mains housing lid removed always be aware that you are dealing with high voltage parts => High voltage can seriously injure or kill.
4. Always keep your fingers and hand tools away from any wiring, connection or circuit board when the power is ON. Touching anything in these areas could result in serious injury or even death.
5. Carefully examine all wires for cuts or defects before attempting connection. If the supply cord is damaged it must be replaced.

## Electrical Installation

1. The appliance must be connected to a suitably rated and weather protected power supply.
2. The supply line should be a dedicated power circuit and means for disconnection must be incorporated in the fixed wiring in accordance with your local wiring code. Means for disconnection from the supply mains should have a contact separation in all poles that provide full disconnection under overvoltage category III conditions.
3. The appliance should be supplied through a residual current device (RCD) having a rated residual operating current not exceeding 30mA.
4. When installing appliance refer to your local wiring regulations. In particular refer to ECP 2 & ECP 25 (AS/NZ) and EN 60364-4-1 & EN 60364-7-1 (EU). The installer must ensure all parts are installed in the correct zone in accordance with your local wiring regulations. In particular refer to AS/NZ 3000:2000.
5. Earthed appliances must be permanently connected to fixed wiring (European models only).
6. Parts incorporating electrical components, except remote control devices, must be located or fixed so that they cannot fall into the bath or spa.
7. Parts containing live parts, except parts supplied with safety extra-low voltage not exceeding 12V, must be inaccessible to a person in the bath or spa.
8. The appliance should be installed in an enclosure (e.g. under the spa) such that all electrical connections cannot be accessible to the user without the use of a tool.
9. It is recommended that power wiring be separated from signal wiring (ie. mini-din leads) to prevent interference.
10. Loop wires before they enter the unit to prevent water running down the lead and into the spa control.
11. Check all connections are correct and tight including the cable gland.
12. Check that the spa control and power supply are not overloaded. **It is the pool builder / installer's responsibility to select suitable loads and DIP switch settings to ensure the spa control does not exceed its maximum total loading (refer "Loading Calculations" - pg 10), and to ensure the supply wiring is correctly rated.**

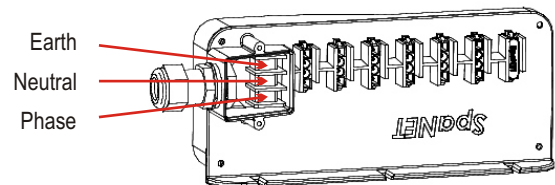
## Mains Housing Lid

The mains power connection is contained within its own housing on the AMP end cap of the enclosure (refer below).



The mains entry point features a cable gland for cord grip and removable lid for easy access to the mains terminal block. The mains lid contains an 'o'-ring seal for adequate water proofing to IPX4 standards. Two Philips head screws hold the mains lid into place. Remove the two screws and mains lid will come off.

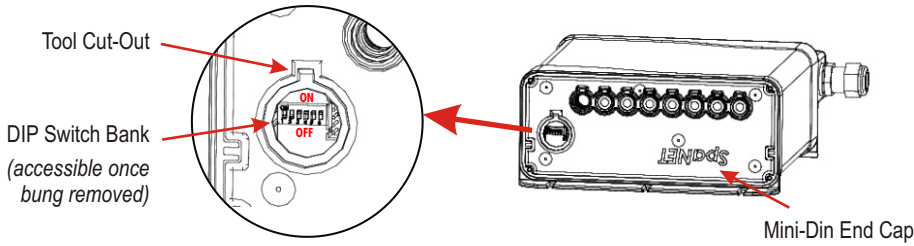
When connecting mains power ensure the cable gland is fitted securely to provide adequate cable strain relief. Tighten cable gland with use of a tool to ensure supply line anchorage point cannot be removed by hand. Connect the Earth, Neutral and Phase wiring to the terminal block as depicted below.



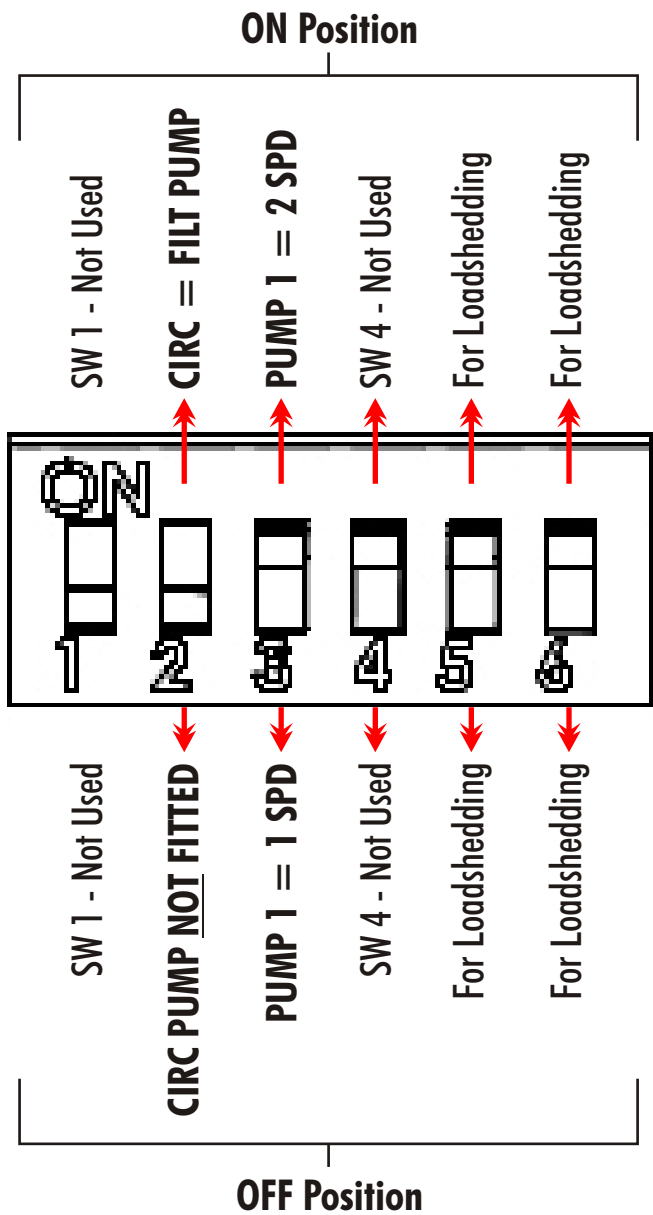


# XS-2000 DIP Switches

The DIP switch bank can be accessed by removing the white (transparent) blanking bung from the mini-din end cap (illustrated below). Use a flat bladed screwdriver to remove the bung => insert driver into moulding cut-out and use tool to prise bung out.



Switches set to the **top** of the switch bank are in the **ON** position (the ON position is labelled). Switches set to the **bottom** of the switch bank are in the **OFF** position (the OFF position is indicated by the switch numbers).



DIP SWITCH	SETTING	ON	OFF
2	Circ = Filtration Pump	YES	NO
3	Pump 1 Type	2 SPD	1 SPD

**Note:** 1. If Pump 1 = 2 spd; Pump 2 outlet cannot be used

## DIP Switches 5 & 6 (Load Shedding)

When the controller load sheds it turns the heater OFF to keep the total power draw to its maximum rated load (10A or 15A). The filtration pump is NOT considered a load - all other pumps and the blower are. Load shedding is governed by the load shed count. **Load shed count = the number of pumps and/or blower, (not counting the filtration pump), required to be turned ON for the heater to load shed and turn OFF.**

**For example:**

Load shed count = 1. Heater will turn OFF if filtration pump is running and any other pump or the blower is turned on.

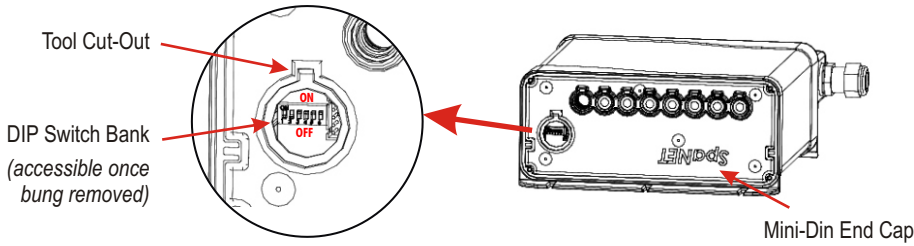
Load shed count = 2. Heater will turn OFF if filtration pump is running and any two other loads (pumps/blower) are turned on.

**NOTE:** For 2-spd pump 1: low speed is considered the filtration pump and high speed is considered a load.

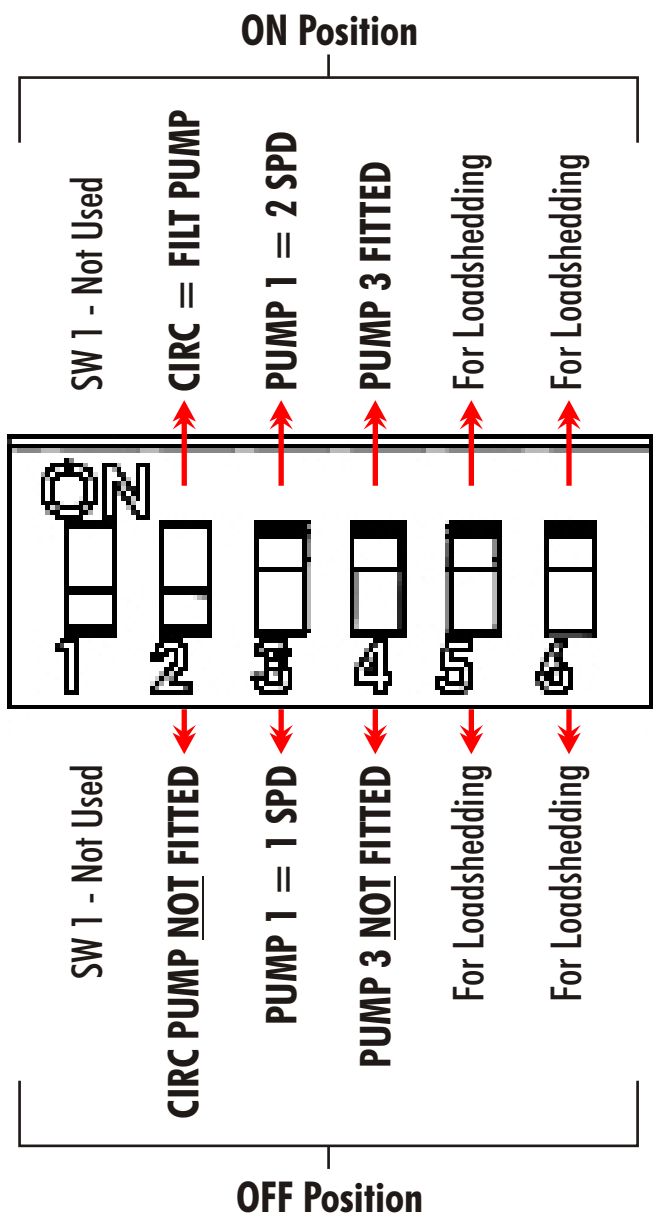
LOAD SHED COUNT	DIP SW 5	DIP SW 6
4 loads (heater ON at all times – load shedding disabled)	OFF	OFF
3 loads (heater OFF when any three loads other than filtration pump is turned ON)	OFF	ON
2 loads (heater OFF when any two loads other than filtration pump is turned ON)	ON	OFF
1 load (heater OFF when any one load other than filtration pump is turned ON)	ON	ON

# XS-3000 DIP Switches

The DIP switch bank can be accessed by removing the white (transparent) blanking bung from the mini-din end cap (illustrated below). Use a flat bladed screwdriver to remove the bung => insert driver into moulding cut-out and use tool to prise bung out.



Switches set to the **top** of the switch bank are in the **ON** position (the ON position is labelled). Switches set to the **bottom** of the switch bank are in the **OFF** position (the OFF position is indicated by the switch numbers).



DIP SWITCH	SETTING	ON	OFF
2	Circ = Filtration Pump	YES	NO
3	Pump 1 Type	2 SPD	1 SPD
4	Pump 3 Fitted	YES	NO

**Notes:**

1. If Pump 1 = 2 spd; Pump 2 outlet cannot be used
2. If Pump 1 = 2 spd and additional 1 spd pump is to be used => connect to Pump 3 outlet and ensure DIP Switch 4 is set to ON.

## DIP Switches 5 & 6 (Load Shedding)

When the controller load sheds it turns the heater OFF to keep the total power draw to its maximum rated load (15A or 32A). The filtration pump is NOT considered a load - all other pumps and the blower are. Load shedding is governed by the load shed count. **Load shed count = the number of pumps and/or blower, (not counting the filtration pump), required to be turned ON for the heater to load shed and turn OFF.**

**For example:**

Load shed count = 1. Heater will turn OFF if filtration pump is running and any other pump or the blower is turned on.

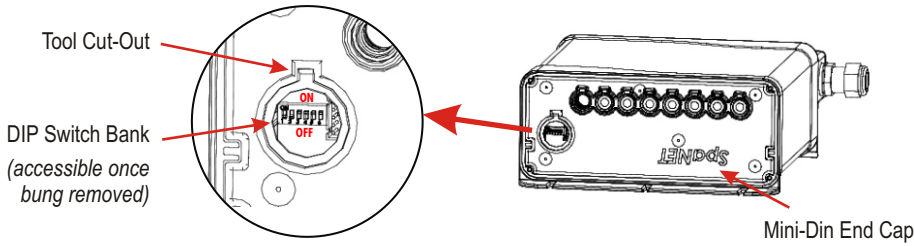
Load shed count = 2. Heater will turn OFF if filtration pump is running and any two other loads (pumps/blower) are turned on.

**NOTE:** For 2-spd pump 1: low speed is considered the filtration pump and high speed is considered a load.

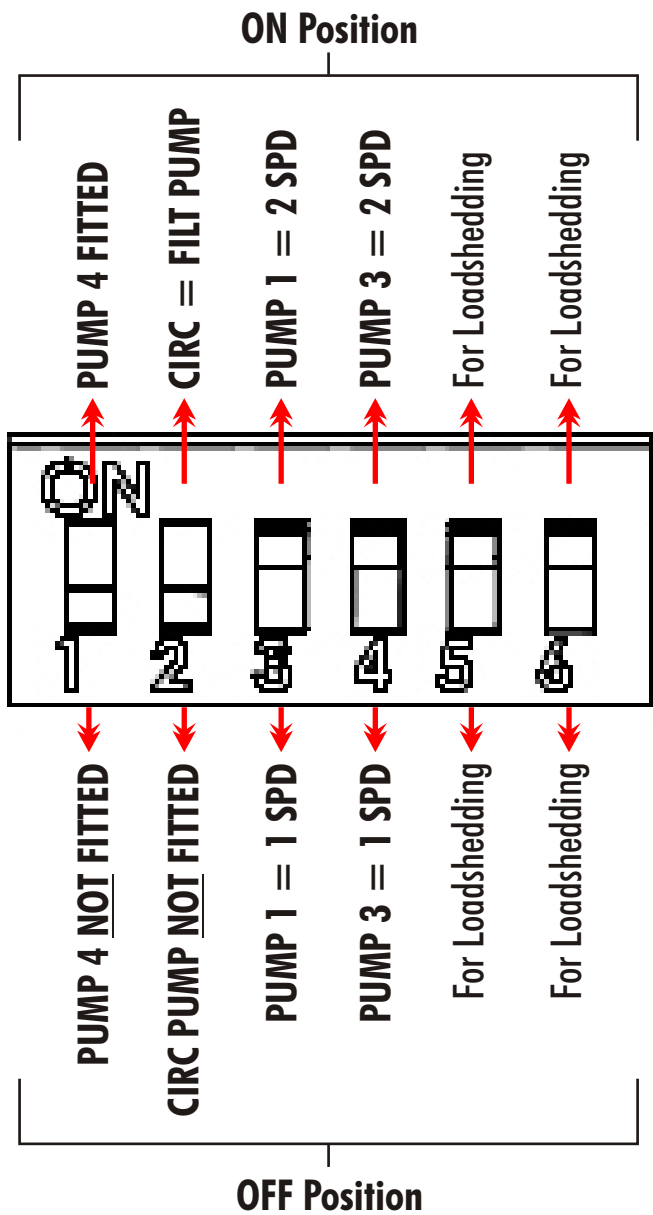
LOAD SHED COUNT	DIP SW 5	DIP SW 6
4 loads (heater ON at all times – load shedding disabled)	OFF	OFF
3 loads (heater OFF when any three loads other than filtration pump is turned ON)	OFF	ON
2 loads (heater OFF when any two loads other than filtration pump is turned ON)	ON	OFF
1 load (heater OFF when any one load other than filtration pump is turned ON)	ON	ON

# XS-4000 DIP Switches

The DIP switch bank can be accessed by removing the white (transparent) blanking bung from the mini-din end cap (illustrated below). Use a flat bladed screwdriver to remove the bung => insert driver into moulding cut-out and use tool to prise bung out.



Switches set to the **top** of the switch bank are in the **ON** position (the ON position is labelled). Switches set to the **bottom** of the switch bank are in the **OFF** position (the OFF position is indicated by the switch numbers).



DIP SWITCH	SETTING	ON	OFF
1	Pump 4 Fitted	YES	NO
2	Circ = Filtration Pump	YES	NO
3	Pump 1 Type	2 SPD	1 SPD
4	Pump 3 Type	2 SPD	1 SPD

**Note:** 1. If Pump 1 = 2 spd; Pump 2 outlet cannot be used  
2. If Pump 3 = 2 spd; Pump 4 outlet cannot be used

## DIP Switches 5 & 6 (Load Shedding)

When the controller load sheds it turns the heater OFF to keep the total power draw to its maximum rated load (45A). The filtration pump is NOT considered a load - all other pumps and the blower are. Load shedding is governed by the load shed count. **Load shed count = the number of pumps and/or blower, (not counting the filtration pump), required to be turned ON for the heater to load shed and turn OFF.**

For example:

Load shed count = 2. Heater will turn OFF if filtration pump is running and any two other loads (pumps/blower) are turned on.

Load shed count = 3. Heater will turn OFF if filtration pump is running and any three other loads (pumps/blower) are turned on.



**NOTE:** If pump 1 = 2 spd: low speed is considered the filtration pump and high speed is considered a load.

LOAD SHED COUNT	DIP SW 5	DIP SW 6
5 loads (heater ON at all times – load shedding disabled)	OFF	OFF
4 loads (heater OFF when any four loads other than filtration pump are turned ON)	OFF	ON
3 loads (heater OFF when any three loads other than filtration pump are turned ON)	ON	OFF
2 loads (heater OFF when any two loads other than filtration pump are turned ON)	ON	ON

# Software Setup

SpaNET spa controller software features an OEM menu to provide access to setup parameters that allow the pool builder / installer to adjust certain spa configuration settings. These settings do not need to be modified very often and include: Temperature Unit, Ozone Control, 24hr Ozone, 24hr Circ, Load Limit and EEPROM Reset.

To access the OEM menu:

1. Press and hold the BLOWER (  ) + SANITISE (  ) buttons simultaneously for two seconds until "UNIT" is displayed
2. Once activated use the UP or DOWN button to navigate the OEM menu
3. Press the OK button to select the current option and adjust the setting
4. When adjusting settings use the UP or DOWN button to alter the setting
5. Press OK to confirm each selection

## OEM MENU

NAME	DESCRIPTION	"OK" FUNCTION
UNIT	Temperature Unit	°C / °F
OZNE	Ozone Control	ON = ozone on when spa in manual use OFF = ozone off when spa in manual use
O24	24HR Ozone	ON = ozone outlet on 24hrs* OFF = ozone on with filtration pump only
C24	24HR Circ	ON = circ pump outlet on 24hrs OFF = circ pump outlet controlled by DIP switch
L.LMT	Load Limit Number of loads that can run simultaneously	1 ~ 5 loads
EPRM	EEPROM Reset	Restore OEM & User menu settings to default
EXIT	Exit menu	Exit menu

### Notes on OEM Menu Operation:

- \*. If ozone output set to 24hrs, power to the ozone outlet will still be governed by how the Ozone Control (OZNE) option is set (ie. if 24 hr ozone is set to ON, but Ozone Control is set to OFF, the ozone outlet will still turn OFF when spa in manual use)
- 1. All menus will timeout after 10 seconds if no further button press is detected.
- 2. If EPRM is selected the screen will display ESET whilst the default software settings are restored. Once complete the screen will return to the default display mode.