



INTELLICENTER™

POOL/SPA CONTROL SYSTEM

INSTALLATION
& OPERATION MANUAL



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SECTION 1: CONTROL SYSTEM OVERVIEW

Welcome! Your Pentair IntelliCenter™ Control System will change the way you view pool and spa controls. This innovation in pool and spa automation offers complete freedom for you while having full automation control over your pool, spa, lights, heater, cleaners and much more. You can now schedule multiple start and stop times to control your lights, heater, spa jets, and filter pumps. The historical usage data feature provides a convenient way to help you conserve energy. Using an iPhone®, iPad® mobile digital device or an Android® wireless device, you can now control your pool and spa from anywhere inside or outside your home. The IntelliCenter Control System is a scalable system that can be used with popular home automation systems.

This manual describes how to install the IntelliCenter Control System and associated equipment.

Features

- 4" x 3" capacitive touch sensitive colour touch screen.
- Day Time and Night Time colour screen modes.
- Multifunction Schedules/Programs.
- Adjustable schedule timer for easy system scheduling.
- 100 Schedules/Programs.
- 16 Groups: Assign groups of lighting and AUX circuits to be controlled by a single button.
- Supports up to 16 IntelliFlo® VF and VS Pumps.
- Supports up to four Spa Command® Spa Side Remotes, and two iS4 Spa Side Remotes.
- Valves: Intake/Return plus A and B valve circuits. Expandable up to 10 valves (shared equipment).
- Indoor Control Panel, Wireless Hand-Held Remote, Outdoor Control Panel.
- IntelliChem® Controller: Supports one per body. Note: See page 63 for IntelliCenter Control System models, part numbers, and replacement kits.
- IntelliChlor® Salt Chlorine Generator: Supports one per body.
- 40 Auxiliary Circuits (up to three Expansion Enclosures).
- Spa Manual Heat Function.
- Support for two Bodies of Water.
- Spa Side Control Enable/Disable.
- Solar Heating Option/Support.
- 16 Heat Pump Support: RS-485 Support, Heat Pump Cooling Support.
- Real Time Clock.
- Assignable Circuit Names and Custom Circuit Names.
- Two Speed Pump Support.
- English/Metric Support.
- Sensor Calibration
- Passcode Protection
- USB port for use with a standard flash drive. Save the system's configuration and upgrade the system's firmware.
- WiFi Wireless Connection: Supports wireless Internet connection for remote system control

SECTION 2: CONTROL SYSTEM INSTALLATION OVERVIEW

RISK OF ELECTRICAL SHOCK. BEFORE REMOVING THE HIGH VOLTAGE COVER PANEL FROM THE ENCLOSURE SWITCH OFF THE MAIN POWER AT THE HOME AT THE MAIN CIRCUIT BREAKER BOX.



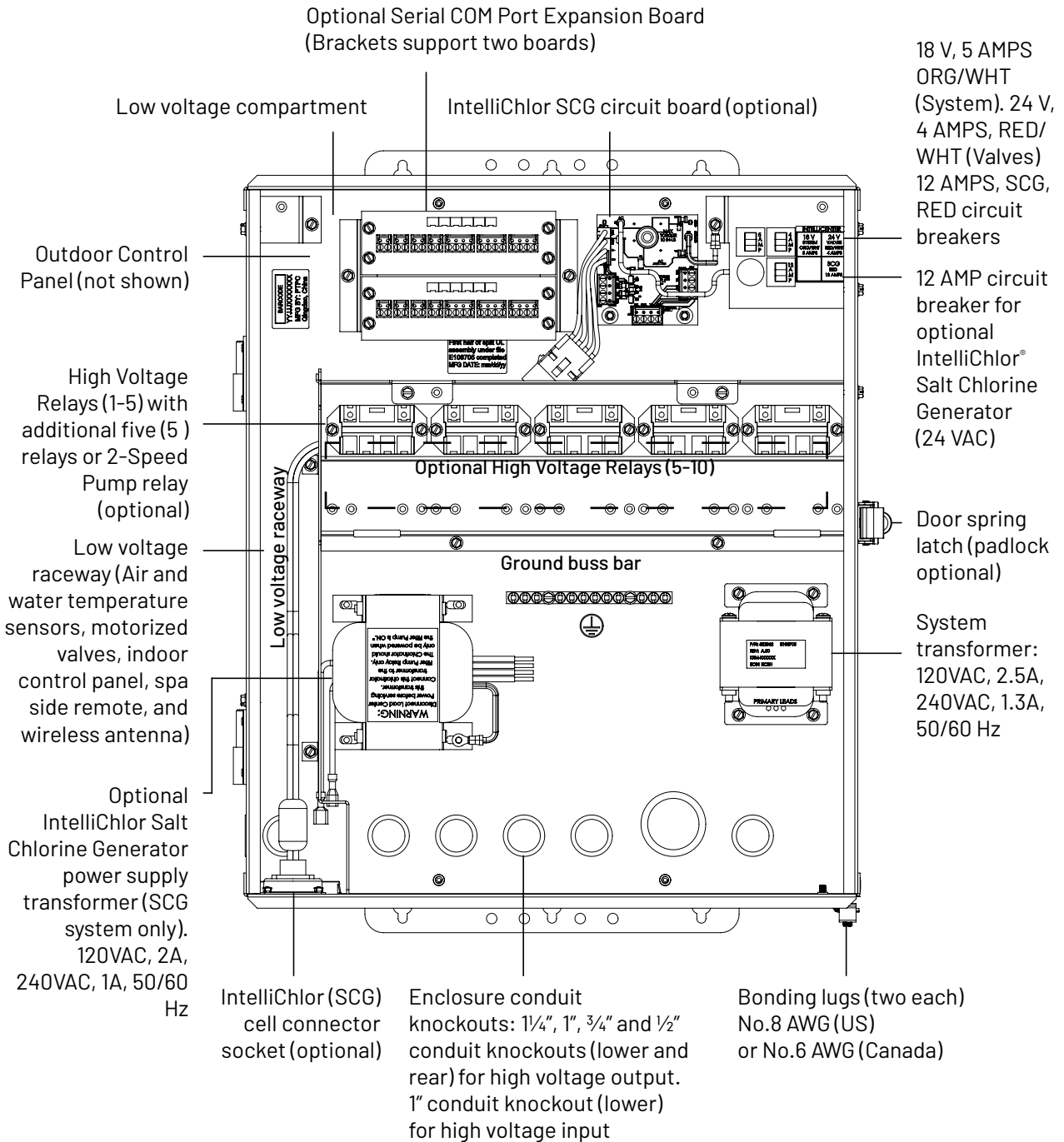
This manual describes how to install, configure and operate the IntelliCenter Control System. Please take time to read through this manual to familiarize yourself with the IntelliCenter Control System.

Please read the following guidelines carefully:

- The IntelliCenter Control System Power Centre must be installed at the equipment pad.
- AC power for the Power Centre must be provided from the main circuit breaker panel located at the house.
- All electrical equipment, except for spa-side remote switches, must be installed no less than 3.5m from pool and/or spa, and comply with all national, state, and local codes (AS/NZS 3000).
- Install the Power Centre no less than 3.5m from pool, spa, and hot tub. Additionally, the installation shall allow the user enough space to stand clear of the filter and pump during system start-up, as explained on page 34.
- The TYPE 3R “Rainproof” enclosure can be mounted outside or inside of a pool equipment shed or other enclosure.
- Before choosing the final location for the enclosure, consider the length of all of the conductors that will have to be connected to the enclosure. Make sure to consider cable lengths for the sensors to the Power Centre location. The air temperature sensor cable is three (3) feet (91.44 cm) long and the water temperature sensor cable is 25 feet (7.62 m) long.
- Mount the Power Centre on a flat vertical surface so the conduit knockouts are located at the bottom of the enclosure. Upper and lower brackets are provided to mount the enclosure.
- DO NOT mount the enclosure horizontally. Water can enter the conduit knockouts and cause damage to the system and an electrical shock hazard. Install with conduit knockouts down.
- Consider the Power Centre location when routing conduit carrying the AC power to the Power Centre, and the conduit that will be run to the high voltage equipment.
- Install the Power Centre so that drainage is provided for all electrical components.
- Motors should be listed for pool and spa applications and have built-in thermal protection.
- Allow at least 5 ft (1.5 m) of unobstructed access to the front of the Power Centre for the owner or service personnel.
- The Power Centre provides grounding screw terminals for grounding all equipment. All equipment including the Power Centre enclosure must be bonded to earth ground.

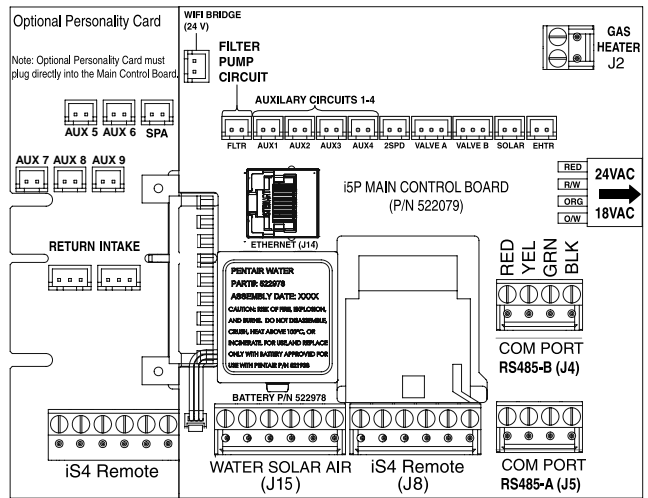
SECTION 1: CONTROL SYSTEM POWER CENTRE

The IntelliCenter Control System Power Centre must be installed at the equipment pad. AC power to the Power Centre is provided from the electrical circuit breaker panel (sub panel) installed at the equipment pad. The Power Centre should be installed next to the sub panel.

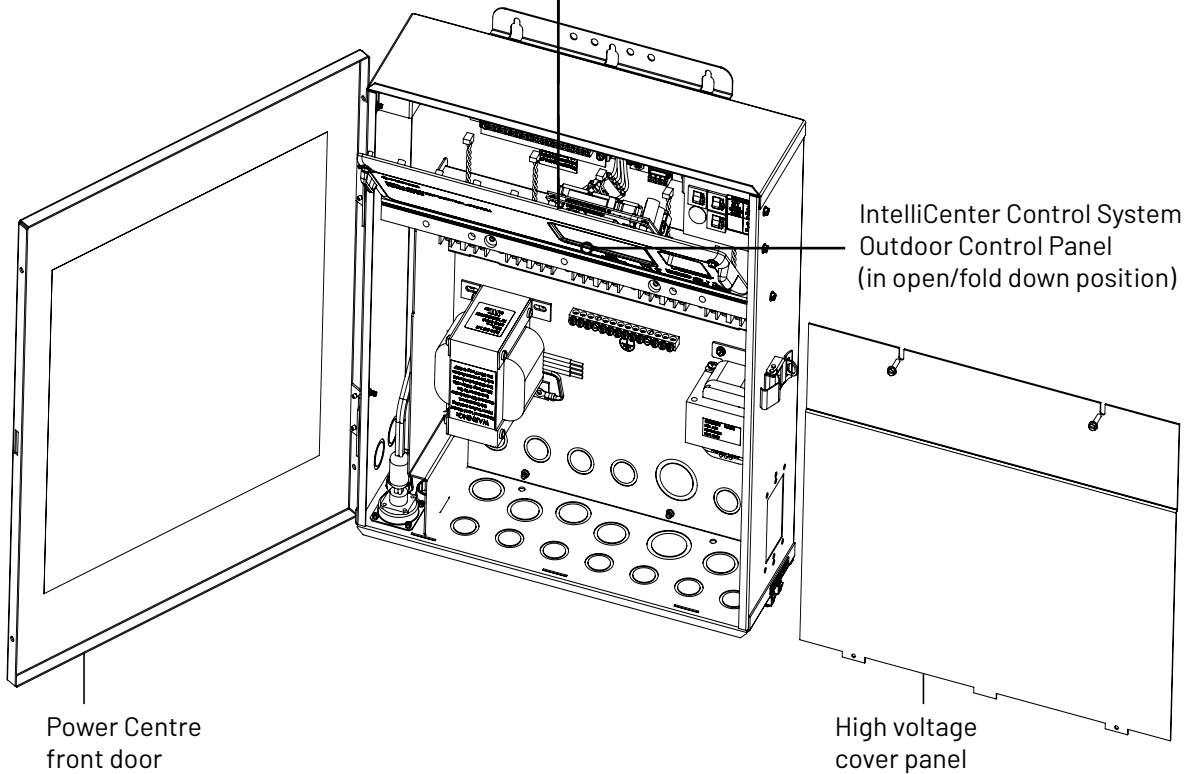


**IntelliCenter Control System Power Centre (20" H x 17" W x 5 1/4" D)
(Front view with door and high voltage cover panel removed)**

CONTROL SYSTEM POWER CENTRE



i5P MAIN CONTROL BOARD (P/N 522079)
IntelliCenter Control System Main Circuit Board (i5 with optional Expansion Card shown)



Power Centre front door

IntelliCenter Control System Outdoor Control Panel (in open/fold down position)

High voltage cover panel

IntelliCenter Control System Power Centre

PREPARING POWER CENTRE ENCLOSURE



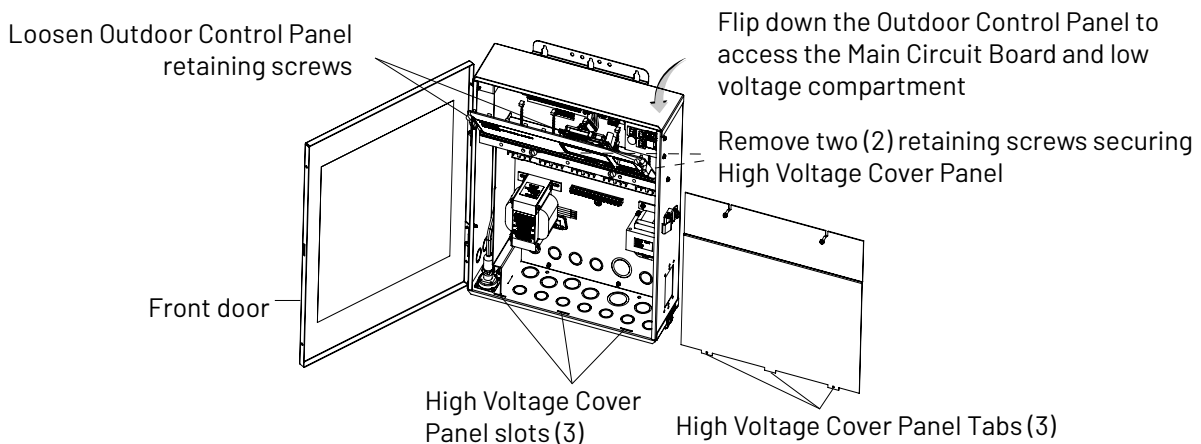
WARNING

BEFORE INSTALLING THE POWER CENTRE, ALWAYS SWITCH OFF THE MAIN POWER into the home at the main circuit breaker box.

Before mounting the Power Centre, first remove the front door and the high voltage cover panel to access the enclosure conduit knockouts and low voltage raceway (see page 9 & 10).

To remove the Centre or Power Centre high voltage cover panel:

1. Unpack the Power Centre from the shipping carton.
2. Unlatch the front door spring latch and open the front door.
3. Remove the two retaining screws from the High Voltage Cover Panel. Remove the panel from the enclosure.
4. Loosen the two retaining screws securing from the top edge of the Outdoor Control Panel. Fold down the Outdoor Control Panel to access the circuit board sockets connectors for the electrical connections.
5. For new installation, proceed with:
 - **Mounting the Power Centre**, page 7-8
 - **Power Centre Conduit Knockout Locations**, page 9-11
 - **Installing Conduit and Conductors to the Enclosure**, page 11
 - **Electrical Wiring and High Voltage Power Centre Connections**, page 12-14
 - **Electrical Wiring and High Voltage Connections**, page 12-14
 - **Accessing the Control Circuit Boards and Electronics**, page 15
 - **Connecting Relay Valve Actuators, Sensors, Gas Heater, Pumps, Sanitizers**, page 16
6. After electrical connections have been completed; close the Outdoor Control Panel and tighten the two retaining screws. Reinstall the High Voltage Panel: Insert the panel's three tabs into the lower slots on the enclosure. Secure the panel with the two (2) retaining screws. Close the front door and secure with the latch.



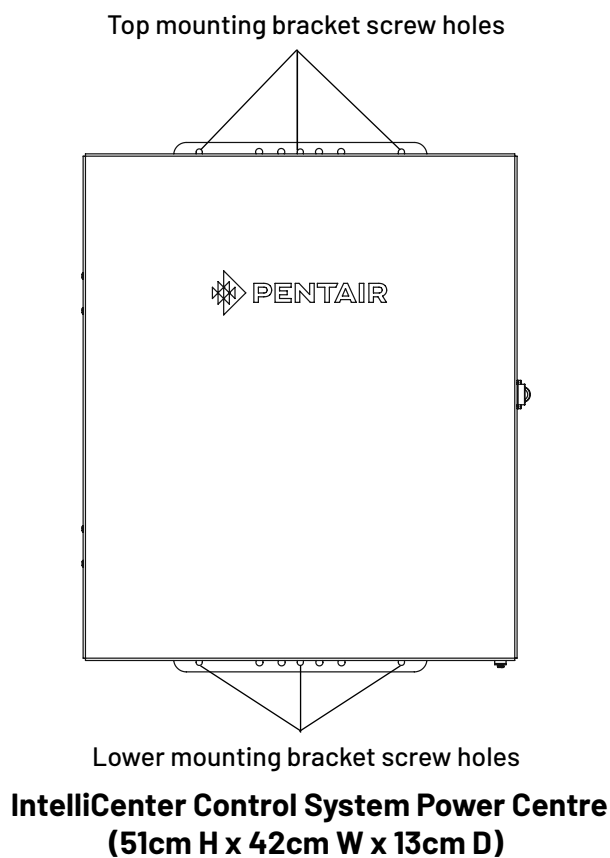
IntelliCenter Control System Power Centre (Front View)

MOUNTING CONTROL SYSTEM POWER CENTRE

Mount the IntelliCenter Control System Power Centre on a flat vertical surface, such as a wall or post at eye level, at least 3 m from the pool, spa or hot tub.

To mount the Power Centre:

1. Position the enclosure against a vertical flat surface. If wall anchors are being used, support the enclosure in position (horizontally level and square) against the surface and mark the bracket hole pattern on the wall.
2. Secure the enclosure with three (3) screws in the top and lower mounting bracket holes. If using wall anchors, drill and set the anchors and secure the enclosure with screws.



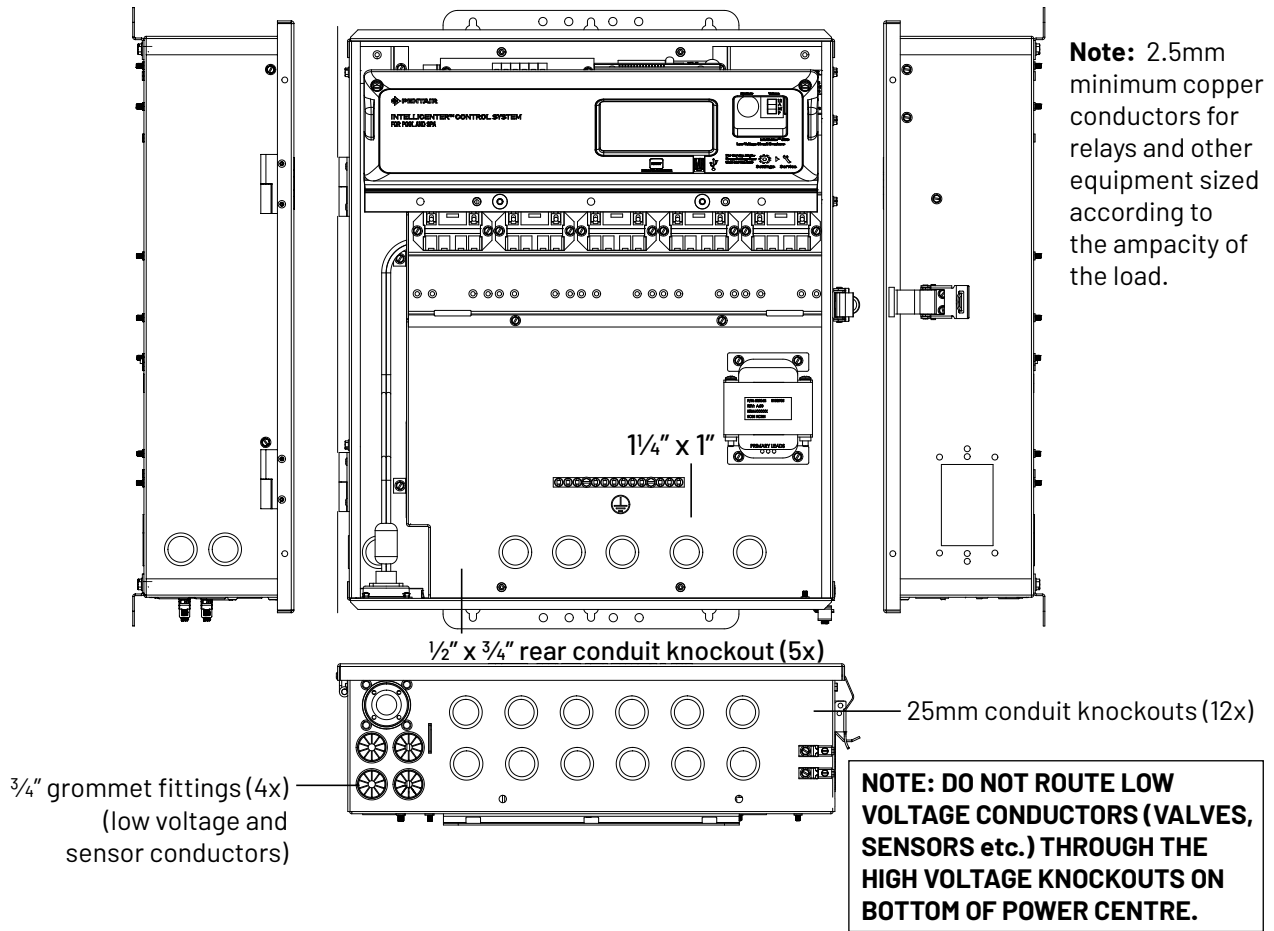
INSTALLING CONDUIT & CONDUCTORS TO THE ENCLOSURE

Before installing electrical conduit to the enclosure, read the following recommended guidelines:

NOTE: All electrical installation, including electrical wiring methods and materials used to complete the electrical installation of the IntelliCenter Control System **MUST BE PERFORMED BY A QUALIFIED ELECTRICIAN** in accordance with the Wiring Rules (AS/NZS 3000) as well as any local electrical codes in effect at the time of installation.

- Determine the number of low and high voltage circuits being used in the IntelliCenter™ Control System Power Centre. The conduit length is based on the conductor size, and the number of conductors within the conduit. **The number of pieces of equipment to be controlled will dictate the size of the conduit. DO NOT RUN HIGH VOLTAGE AND LOW VOLTAGE CONDUCTORS IN THE SAME CONDUIT.**
- Use 2.5mm minimum or better copper conductors for relay circuits depending on the load requirement. Be sure to follow all regulation safety codes for the number and size of conductors that can be installed in various sizes of conduit.
- Supply conductor must be sized to support all loads. The maximum supply current must NOT exceed 150 AMP at 240 VAC.
- Supply circuits must be protected by suitable RCD's suitably rated. If one relay is used for more than one device, verify that the total current draw (all equipment) does not exceed the current rating of the circuit.
- The IntelliCenter Control System automation control circuit board requires 240 VAC, 1.3A power to operate the control logic circuits and the optional IntelliChlor® Salt Chlorine generator. This power should be connected to one of the circuit breakers in the sub panel.
- To avoid obstruction into the Power Centre, when using electrical conduit complete the installation of the conduit before concrete is poured. Also, underground conduit should be positioned in well compacted soil. Ensure that all conduit joints are well sealed and watertight.

POWER CENTRE CONDUIT KNOCKOUT LOCATIONS



**IntelliCenter™ Control System Power Centre
(Lower, side and back panel knockout locations)**

ELECTRICAL WIRING & HIGH VOLTAGE CONNECTIONS



TO AVOID AN ELECTRICAL HAZARD - Do not connect the power source conductors to the Power Centre until all electrical connections for all loads (heaters, pumps, motorized valves, and lights etc.) have been completed.

Main AC Power Connection (Power Centre)

The IntelliCenter™ Control System Power Centre is rated for 150 AMP maximum Single Phase power. Run properly rated conductors (A, N, and GROUND) from the primary house electrical panel or sub-panel to the main AC power relays on the Power Centre. The connection at the main house panel or sub-panel should adequately rated RCDs/RCBOs for all the circuit loads on the power centre.

Grounding and Bonding Connections

Connect a ground conductor from the primary house electrical panel to the Power Centre or Power Centre GROUND BUS BAR (see page 3 and 5). Also ground each piece of high voltage (240VAC) equipment that is connected to the Power Centre relays or circuit breakers. Also connect the Power Centre to the pool bonding system using 6 AWG conductor.

RCD Connections

Use the house's main electrical panel or a sub-panel to mount approved RCD's.

CONNECTING POWER CENTRE RELAYS

For the IntelliCenter Control Systems most have high voltage relays pre-installed in the Power Centre (as shown on page 17); auxiliary circuits (AUX) plus one relay for the filter pump.

- The IntelliCenter Control System Power Centre must be installed at the equipment pad.

- **Shared Equipment: Pool and spa combinations with shared filtration system** –

The Personality Kit models are:

- i5PS (P/N 521912) – Four auxiliary circuits plus filter pump operation. Five relays are included in the Power Centre.

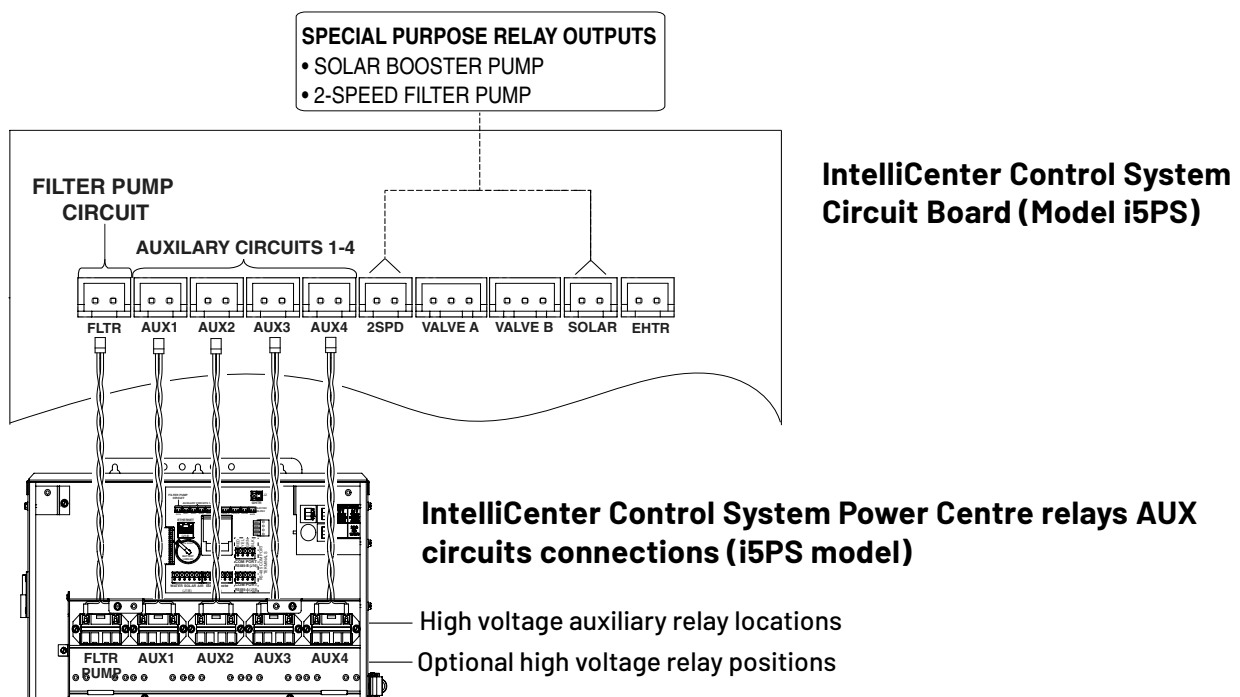
- i8PS (P/N 521913) – Seven auxiliary circuits plus filter pump operation. Eight relays are included in the Power Centre.

- **Dual Equipment: Pool and Spa with Dual Sets of Equipment** – The IntelliCenter control system i10D (P/N 521915) is designed to operate two sets of pool equipment. Each set of a equipment (Pool or Spa) can control one temperature setting. This IntelliCenter control system Personality Kit can control up to 10 pumps and/or lighting circuits, plus two heater circuits. The Personality Kit includes, eight auxiliary circuits plus two filter pumps. Ten relays are included in the Power Centre.

To connect the pre-installed relay cable plugs to the IntelliCenter Control System circuit board AUX plugs:

- Route the power relay cable plugs up into the Low Voltage Compartment (as shown on page 17) to the circuit board. Insert the plug into the two-pin sockets, beginning with **FLTR PUMP**, then **AUX1, AUX2, AUX3,** and **AUX4**. For the two-pin socket locations, refer to the diagram shown below. For IntelliCenter control System system wiring diagrams, see page 59-59.

Note: For optional relays; insert each optional auxiliary relay plug into the one of the two-pin sockets, beginning with AUX5, AUX6, AUX7, AUX8 and AUX 9.

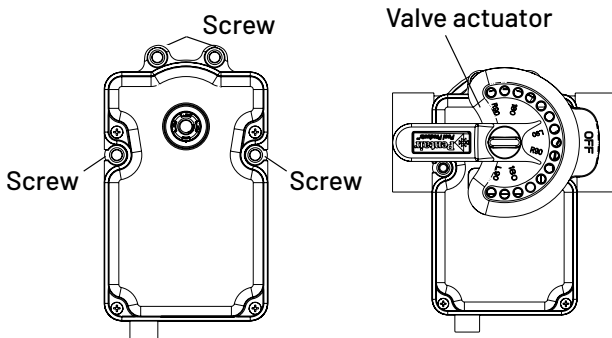


INSTALLING VALVE ACTUATORS

The IntelliCenter™ Control System can control multiple valve actuators. Two of the valve outputs are dedicated to the pool/spa intake (INTAKE) and return (RETURN) valves. Valve A or Valve B actuators are for general purpose use (solar, water-feature, in-floor cleaner, etc.). For IntelliCenter Control System shared equipment systems there are two motorized valve actuators (CVA-24T, P/N 263045) provided in the kit.

To install the valve actuator (two-way valve example shown):

1. Remove the valve knob, handle and the four screws, from the valve cover (indicated with arrows).
2. Align the splines of the actuator shaft over the shaft of the valve.
3. If the actuator is not aligned with the mounting holes on the valve cover, rotate the actuator (while still attached to the valve) until the actuator is positioned correctly over the valve.
4. Secure the actuator with the screws provided. Only use self-tapping screws when required.
6. Mount the valve handle and knob onto the actuator.



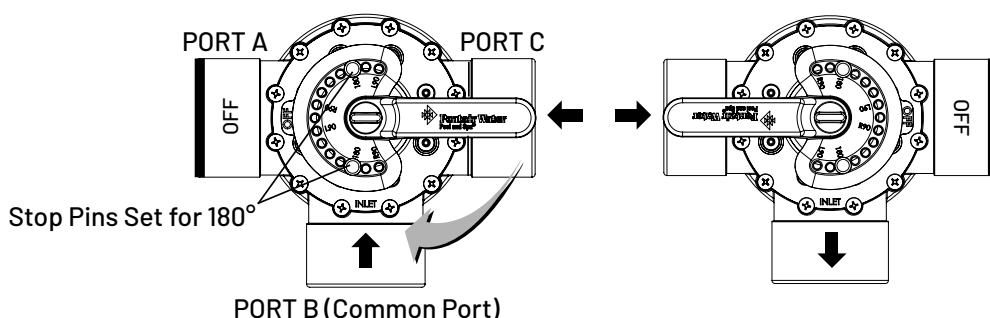
Adjusting the valve position (3-way valve shown below)

If the valve rotates to the wrong position, adjust the switch on the back of the actuator between ON1 and ON2 positions. This will rotate the valve to the correct position. The following diagram shows the standard plumbing and valve actuator position.

Valve Handle Operation: To reposition the valve handle: Rotate the handle to the desired "OFF" position. The diverter valve handle OFF indicator, represents the current position of the valve's internal diverter seal which will stop the flow of water. The valve handle stop-pins determine the position of the diverter valve's internal seal to stop or allow water flow.

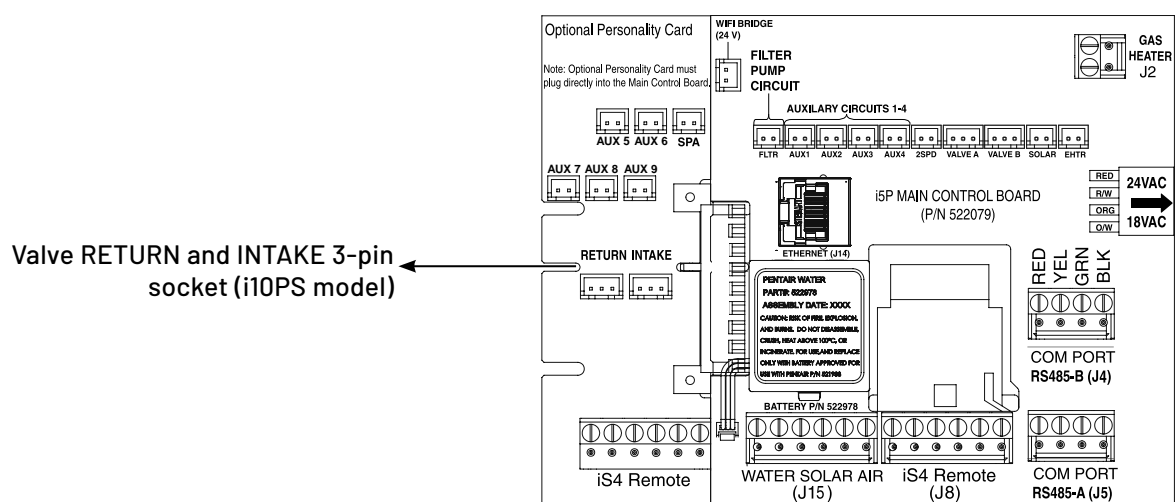
Note: When a motorized valve actuator is installed, stop-pins are not required.

Handle Stop-Pins Positions: The two movable stop-pins can be set to allow the valve handle's position to completely stop the flow of water, regulate a limited flow, or allow the maximum flow. To set the stop-pins: Insert the stop-pins in the pin holes according to the corresponding "degree indicator" displayed on top of the handle. The stop-pin positions can be set to 180°, L90° (left-side) and R90° (right side). Repositioning of either stop-pins allows the handle to be set to any desired percentage of water flow.

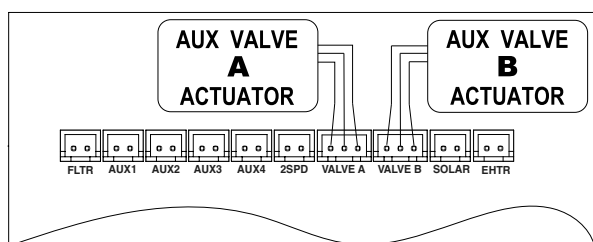


INSTALLING VALVE ACTUATORS

- At the Power Centre, route the cable up through the 1" grommet and low voltage raceway to the circuit board (as shown below).
- Connect the Valve A actuator cable plug into the INTAKE (suction) 3-pin socket, and Valve B actuator cable plug into the RETURN three-pin socket on the IntelliCenter™ Control System Personality circuit board. Excess cable can be coiled in the enclosure low voltage raceway left side compartment (see page 7). Do not coil the conductor in Power Centre upper low voltage compartment. For valve actuator circuit board socket location see below. For plumbing requirements, see Item 2 and 3 on page 69.

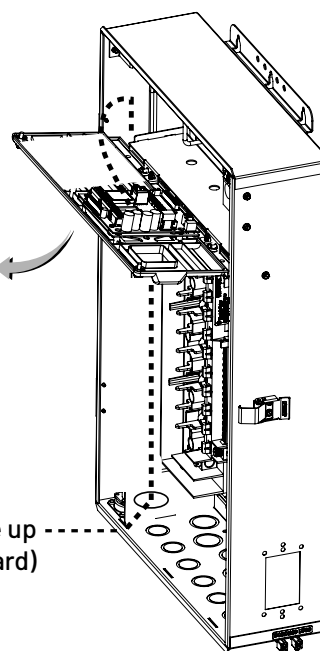


IntelliCenter Control System Main Circuit Board (with i100PS optional expansion card shown)



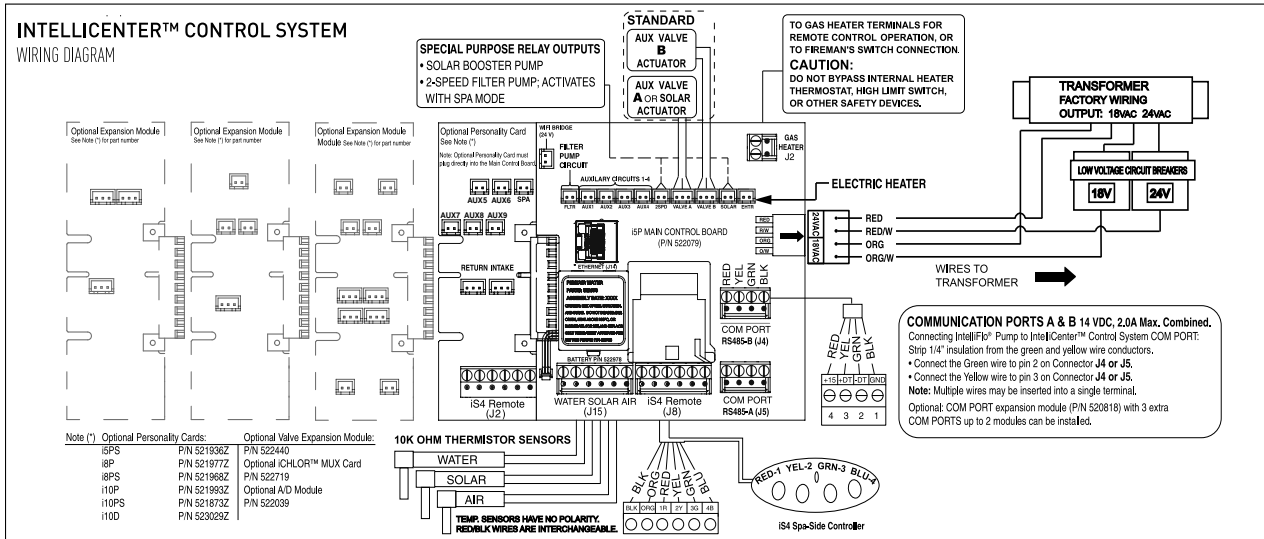
IntelliCenter Control System Main Circuit Board (Actuator A & B socket location)

To actuator: Three conductor cable (Route up into low-voltage raceway to main circuit board)



INSTALLING VALVE ACTUATORS

8. Optional Valve Module Expansion Boards: Using one Valve Module Expansion board (P/N 522038), six additional valve actuators (VALVE C, D, E, F, G, H) can be added to the system for a total of 10 actuators. The expansion board attaches to the edge of the IntelliCenter Control System circuit board. For installation and operation information, refer to the Valve Actuator Installation Guide (P/N 270140).



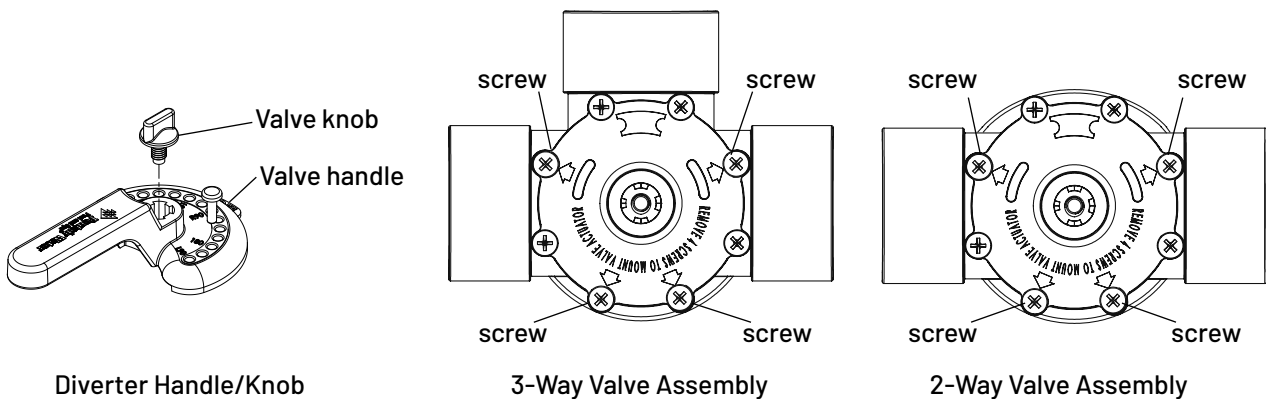
IntelliCenter™ Control System Circuit Board (Model i8PS shown)

INSTALLING INTELLIVALVE® VALVE ACTUATOR

The IntelliValve Valve Actuator can be installed on a 2-way, 3-way or 3-way Y valve assembly.

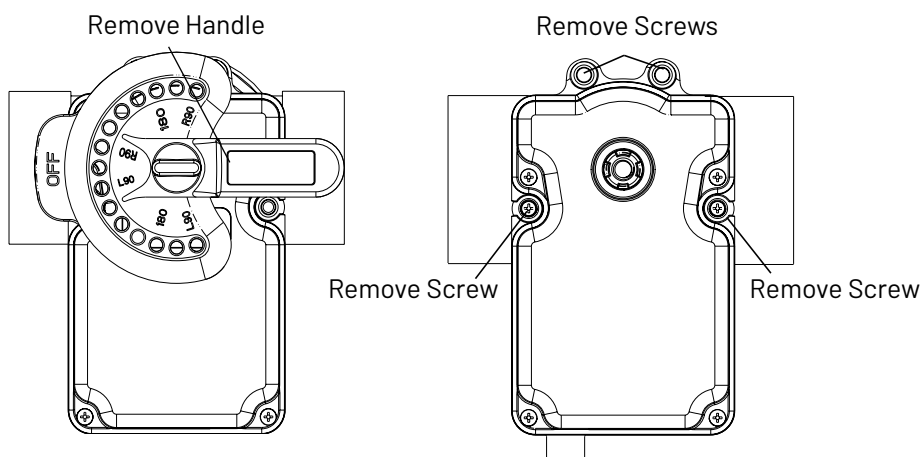
Valve assembly without actuator:

- Unscrew and remove the diverter valve knob and handle. Remove the four screws from the valve assembly top cover (embossed arrows indicate the screw locations as shown below).



Valve assembly with existing actuator:

1. **CAUTION** Switch OFF the main system power at the circuit breakers.
2. Disconnect the valve actuator power cord from the control system.
3. Unscrew and remove the diverter valve knob and handle from the valve actuator.
4. Remove the four screws from the valve actuator assembly. Remove the actuator from the valve, as shown below.



Valve Assembly with Actuator

MOUNT INTELLIVALVE® VALVE ACTUATOR ONTO VALVE

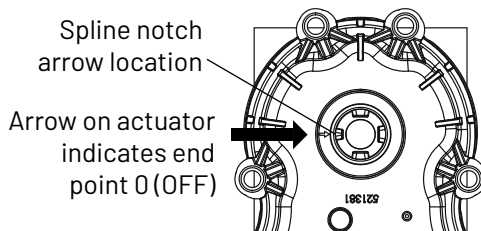
1. Align the splines of the IntelliValve valve actuator shaft over the shaft of the valve.

Note: The keyed square spline notch (as shown below) indicates the position of the diverter.

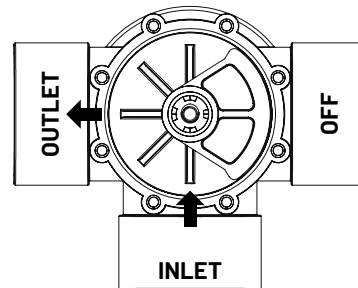
Note: End Point at 0 (OFF) is the default position of the IntelliValve Valve Actuator.

Note: There is silicone on the actuator assembly and spline. While mounting the IntelliValve valve actuator be careful not to get silicone on the bottom of the IntelliValve assembly.

2. If the IntelliValve valve actuator does not align with the mounting holes on the valve cover, rotate the actuator (while still attached to the valve) until the actuator manufacturers holes line up on the valve.



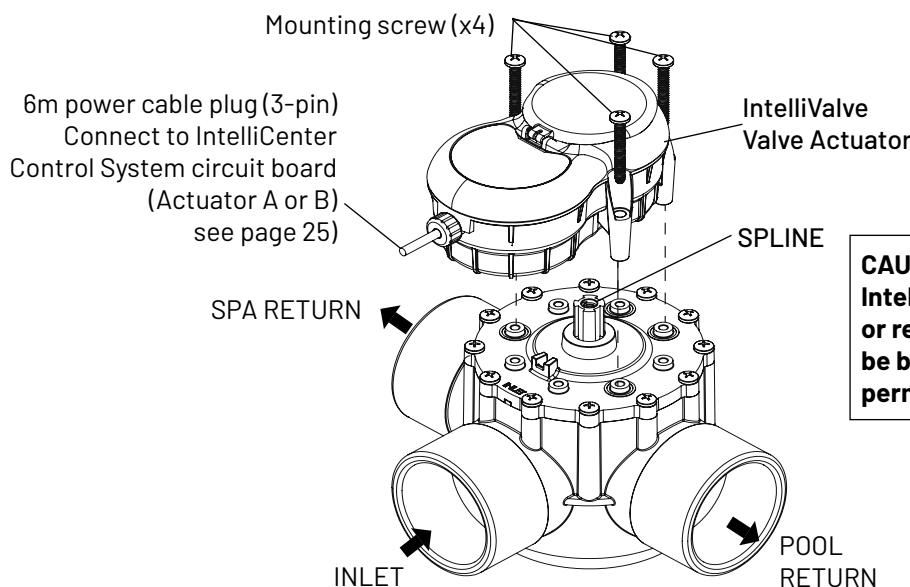
IntelliValve Actuator Spline Notch (underside view)



Valve Assembly (top view) with diverter at end point 0 OFF

3. Mount the IntelliValve valve actuator onto the valve assembly and secure it with the four 2¼ inch mounting screws provided, as shown on the next page.

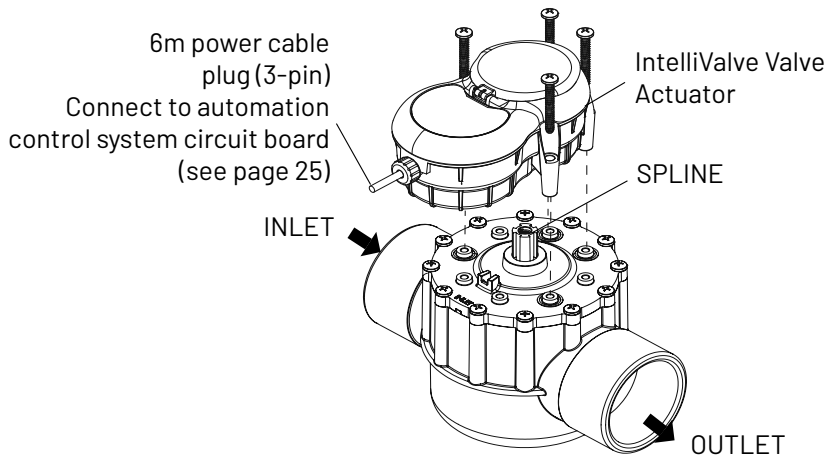
Note: DO NOT over tighten the mounting screws.



CAUTION: DO NOT mount the IntelliValve so that the suction or return line of the pump can be blocked. This will cause permanent pump damage.

IntelliValve Valve Actuator Mounted on a 3-Port Valve assembly

INSTALLING INTELLIVALVE® VALVE ACTUATOR (continued)



IntelliValve Valve Actuator Mounted on a 2-Port Valve assembly

Operating the IntelliValve Valve Actuator (Basic Functions) - See IntelliValve User's Guide (P/N 522301) for more information.

Mode Button: Press the MODE button (press and release) to toggle between AUTO/OFF, SET and SERVICE mode.

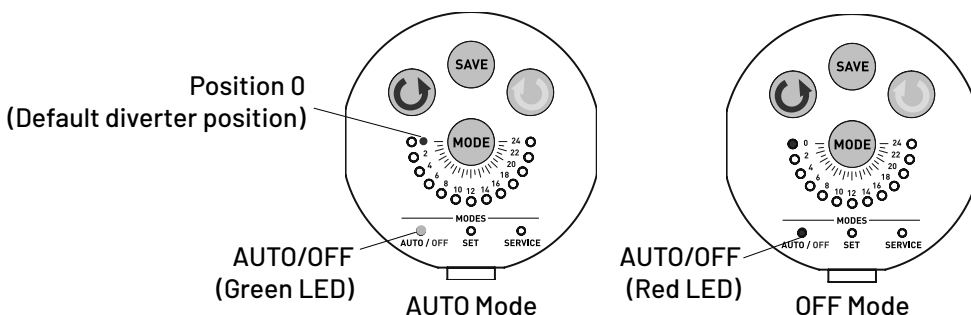
- **AUTO Mode:** Normal Operation
- **OFF Mode:** Disable IntelliValve Actuator function
- **SET Mode:** Set travel end points of valve diverter
- **SERVICE Mode:** Manual control - Temporary Settings

AUTO Mode (Green LED): The AUTO LED indicator is lit Green when the IntelliValve valve actuator is in normal operation.

- The actuator will move the diverter via the pool and spa automation control system.
- Only the current diverter position LED is lit while the diverter is in motion.
- Reversing Home Position from one end point to the other can only be done in AUTO MODE.

OFF Mode:

- (Red LED): OFF mode can only be enabled while in AUTO or SERVICE mode.
- Press and hold SAVE until AUTO LED turns Red.
- All other buttons are disabled during OFF mode.
- To return to ON, press and hold SAVE again until AUTO LED turns Green.



CONNECTING POWER TO INTELLIVALVE® VALVE ACTUATOR

After the IntelliValve Valve Actuator is mounted on to each of the valve assemblies, connect each IntelliValve Valve Actuator 24 V power cable to the 3-pin power sockets on the automation control system circuit board. The IntelliCenter Control System can control up to four IntelliValve automatic valve actuators via a RS-485 four conductor connection. For more information, see the IntelliCenter™ Control Panel User's Guide (P/N 522990). Two of the standard valve outputs are dedicated to the pool/spa INTAKE and RETURN valves. Valve A or Valve B actuators are for general purpose use (solar, water-feature, in-floor cleaner, etc.).

Note: This device must be installed by a licensed or certified electrician or a qualified pool professional in accordance with the National Electrical Code (NEC), NFPA 70 or the Canadian Electrical Code (CEC), CSA C22.1.



WARNING

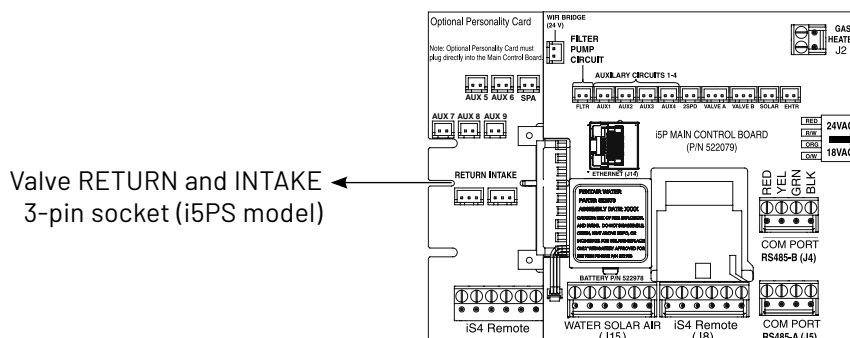
BEFORE INSTALLATION OR SERVICING THE INTELLIVALVE® VALVE ACTUATOR Always disconnect power at the circuit breaker before servicing. Failure to do so could result in death or serious injury to service person, pool users or others due to electric shock.

To connect the IntelliValve Actuator Power Cable:

1. At the Power Centre route the 6m IntelliValve Valve Actuator power cable up through the Power Centre 1" grommet and low voltage raceway to the IntelliCenter main circuit board (as shown on page 3).
2. Connect the Valve A actuator cable plug into the **INTAKE** (suction) 3-pin socket, and Valve B actuator cable plug into the **RETURN** three-pin socket on the IntelliCenter Control System circuit board. Excess cable can be coiled in the enclosure low voltage raceway left side compartment (see page 7). Do not coil the conductor in Power Centre upper low voltage compartment. See IntelliValve Valve Actuator circuit board socket location below. For plumbing requirements, see Item 2 and 3 on page 54.

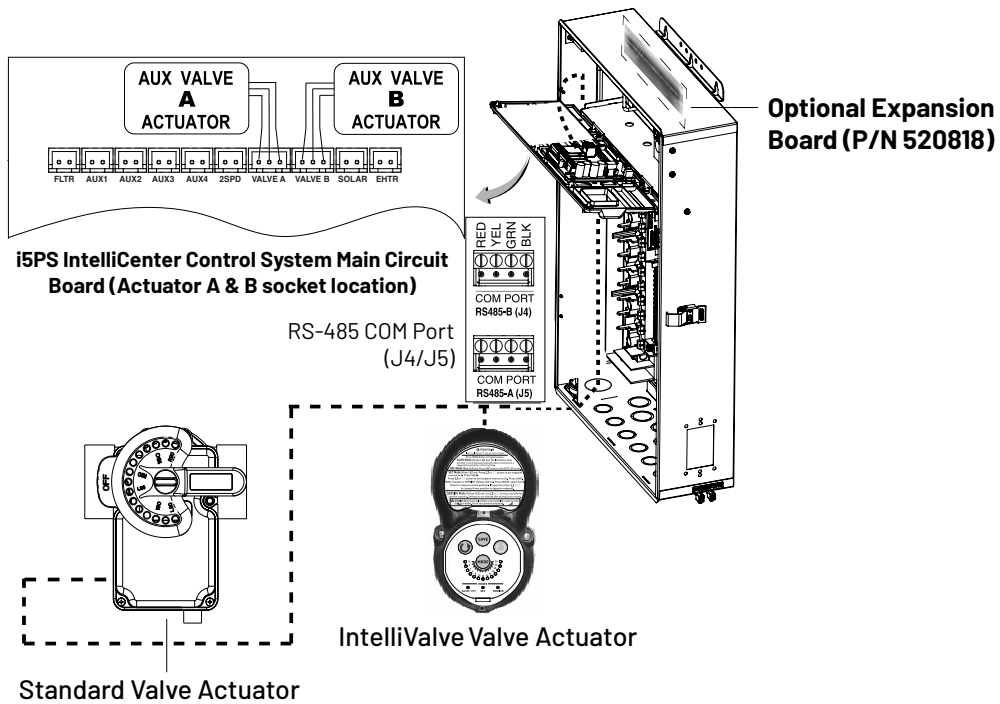
Note: IntelliCenter Control System Optional Valve Module Expansion Board: Using a Valve Module Expansion board (P/N 522038), three additional valve actuators (VALVE C, D and E) can be added to the system. The expansion board attaches to the edge of the IntelliCenter main circuit board. For installation and operation information, refer to the Valve Actuator Installation Guide (P/N 520294).

Test the IntelliValve Valve Actuator: Switch on power to the IntelliCenter Control System at the circuit breaker and verify that the IntelliValve valve actuator is operating correctly.



Model i5PS IntelliCenter Control System Main Circuit Board

CONNECTING POWER TO INTELLIVALVE® VALVE ACTUATOR



Connecting a Standard Actuator and IntelliValve Valve Actuator:

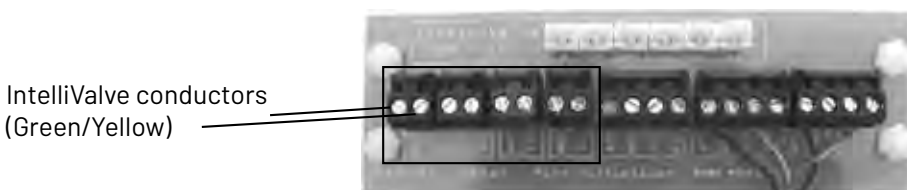
Connect the three conductor cable connector from the actuator to Valve A or Valve B three-pin socket on the IntelliCenter Control System Personality circuit board. Route the cable into low-voltage raceway to the IntelliCenter Control System main circuit board.

RS-485 COM Port (J4/J5) Connection for Automation Control:

Use the GREEN and YELLOW conductors on the IntelliValve actuator (remove the tie wraps from the wires). Connect the Green/Yellow conductors to the Green and Yellow screw terminals on RS-485 COM Port (J4 or J5) located on the Personality board. Route the IntelliValve cable into low-voltage raceway to the Expansion board mounted on the back of the Power Centre. **Note: If there are no RS-485 COM Ports available, install the optional Expansion Board, see below.**

Note: Optional Expansion Board (P/N 520818):

Use the GREEN and YELLOW conductors on the IntelliValve actuator (remove the tie wraps from the wires). Connect the Green/Yellow conductors to one of the 2-pin Green and Yellow screw terminals located on the Expansion board. Route the IntelliValve cable into low-voltage raceway to the Expansion board mounted on the back of the Power Centre.



Optional Expansion Board (Located in the Power Centre)

INSTALLING WATER TEMPERATURE SENSOR

To install the water sensor:

1. Select a convenient location to mount the water sensor in the plumbing system between the filter pump and filter. Drill a 3/8" diameter hole in one side of the pipe.
2. Insert tip of sensor into the hole. Use the band clamp to secure the sensor to the pipe. Tighten the clamp just enough so that the o-ring begins to flatten. Do not overtighten.
3. Fasten the cable to the plumbing with cable ties.
4. Run 22 AWG two-conductor cable (included in kit) between the sensor and the Power Centre. Route the cable up through the low voltage raceway to the circuit board, as shown below.
5. Cut off the excess conductor and the strip conductors 1/4 inch.
6. Insert the conductors into the **WATER SENSOR** screw terminals (**J15**) on the main IntelliCenter Control System circuit board. For sensor circuit board screw terminal location see page 26.

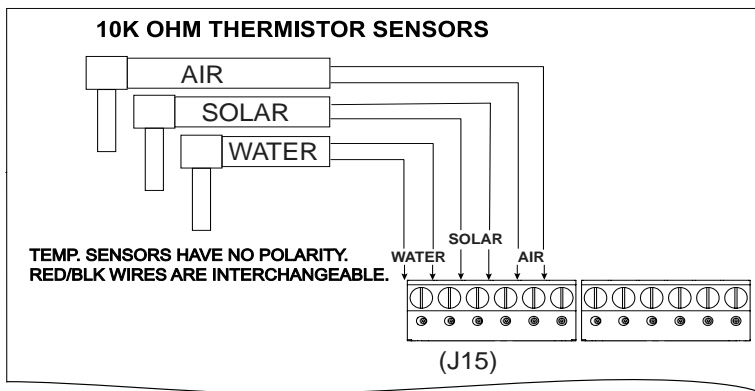
INSTALLING AMBIENT AIR TEMP SENSOR (for freeze protection)

To install the air sensor:

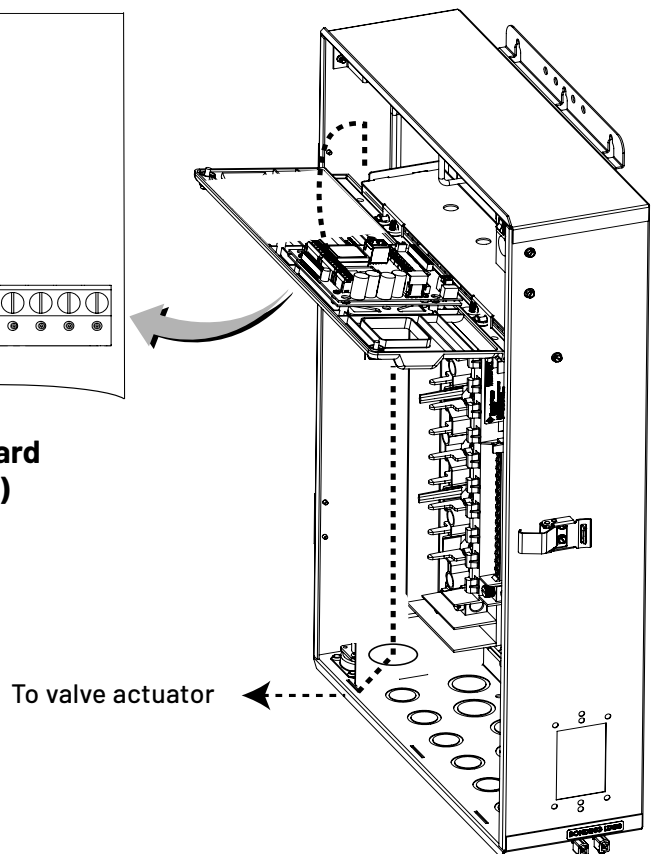
1. Mount the sensor in the open air, in a shaded area, away from air conditioners. During the winter months, to avoid freeze damage to pool and spa equipment, mount the air sensor in a shaded area to assure proper temperature readings. The Home screen displays the current ambient air temperature.

Run 22 AWG two-conductor cable (included in kit) between the sensor and the Power Centre. Route the cable up through the low voltage raceway to the circuit board (as shown below).

2. Cut off the excess conductor and the strip conductors $\frac{1}{4}$ inch.
3. Insert the conductors into the AIR screw terminals (J15) on the IntelliCenter™ Control System main circuit board. For sensor circuit board screw terminal location.



**IntelliCenter Control System Circuit Board
(Air, Water and Solar sensor location)**



INSTALLING THE SOLAR TEMPERATURE SENSOR (protection)

Solar Panels Installation

- Be sure the maximum flow of water through the solar panels, a solar booster pump should be added if panels are installed at a very high elevation.
- It is recommended that the solar panels are mounted in a way that gravity will allow draining whenever the filter pump is not on.
- For systems with glazed panels, damage can occur from overheating if the filter pump is still running after the solar has turned off. To enable glazed panels to automatically drain whenever the solar turns off (even if the filter pump is still running), a 1/2" motorized solar drain valve should be plumbed from the solar feed line, through a check valve, to a zero psi point (such as pool fill line or jet air intake).

Solar Temperature Sensor Installation (as shown on page 26)

Run a two-conductor cable between the sensor and the IntelliCenter™ Control System circuit board in the Power Centre.

To install the solar sensor:

⚠ CAUTION DO NOT DRILL HOLE AND CLAMP SENSOR INTO SOLAR PIPE.

1. Mount the sensor on a flat surface, with the same exposure to sun as the solar collectors (next to the collectors is recommended) or any sunny location. Do not let the sensor touch the panels. For glazed panels, install the sensor between collector and glazing.
2. If necessary, splice a two-conductor extension conductor to the sensor. Run two-conductor cable between the sensor and the enclosure. Use waterproof connectors to connect the sensor to the cable. Use twisted pair 20 AWG outdoor rated sensor wiring and be sure the conductor connections are protected from the environment. Use shielded cable for long runs or runs near other electrical wiring.
3. Cut off the excess conductor and the strip back conductors 1/4 inch.
4. Insert the conductors into the **SOLAR SENSOR** screw terminals (**J15**) on IntelliCenter Control System circuit board. For sensor circuit board screw terminal location see page 26.

TEMPERATURE VS. RESISTANCE DATA

The IntelliCenter™ Control System use 10k Ohm thermistor sensors. When the solar sensor is disconnected from the control system, the sensor will read 10k Ohm at 77° F (25°C). Refer to the following table for the resistance at other temperatures. An accurate reading should give a temperature setting that is accurate to ±0.2° C from 0 to 70° C.

T (°C)	T (°F)	R (Ω)
-50	-58	669,500
-45	-49	471,500
-40	-40	336,200
-35	-31	242,500
-37	-35	280,100
-34	-30	234,100
-32	-25	196,300
-29	-20	165,100
-30	-22	176,800
-26	-15	139,300
-25	-13	130,300
-23	-10	118,000
-21	-5	100,200
-20	-4	97,000
-18	0	85,350
-15	5	72,910
-12	10	62,480
-9	15	53,640
-10	14	55,300
-7	20	46,230
-5	23	42,300
-4	25	39,910
-1	30	34,560
0	32	32,600
2	35	30,000
5	40	26,100
5	41	25,400
7	45	22,760
10	50	19,900
13	55	17,440
15	59	15,700
16	60	15,310

T (°C)	T (°F)	R (Ω)
18	65	13,480
20	68	12,500
21	70	11,880
24	75	10,500
25	77	10,000
27	80	9,298
29	85	8,250
30	86	8,056
32	90	7,331
35	95	6,530
38	100	5,826
40	104	5,326
41	105	5,209
43	110	4,663
45	113	4,367
46	115	4,182
49	120	3,757
50	122	3,602
52	125	3,381
54	130	3,047
55	131	2,985
57	135	2,750
60	140	2,487
63	145	2,251
65	149	2,083
66	150	2,041
68	155	1,854
70	158	1,752
71	160	1,686
74	165	1,535
75	167	1,480
77	170	1,400

T (°C)	T (°F)	R (Ω)
79	175	1,278
80	176	1,256
82	180	1,168
85	185	1,071
88	190	980
90	194	916
91	195	900
93	200	827
95	203	787
96	205	761
99	210	701
100	212	679
102	215	646
104	220	596
105	221	587
107	225	552
110	230	510
113	235	472
115	239	444
116	240	438
120	248	389
125	257	341
130	266	300
135	275	264
140	284	234
145	293	208
150	302	185
24	75	10,500

CONNECTING A STANDARD GAS HEATER TO POWER CENTRE

The IntelliCenter™ Control System heater control uses low voltage dry contacts that can be connected to most gas heaters or heat pumps with 24 VAC control circuits. The following connection instructions are for gas heaters and heat pumps with low voltage thermostats. To connect the heater thermostat cable plug to the IntelliCenter Control System circuit board:

1. Switch OFF power to the heater.

⚠ CAUTION **IMPORTANT: DO NOT** disconnect or conductor around the thermostat, pressure switch, high limit switch, or other safety devices.

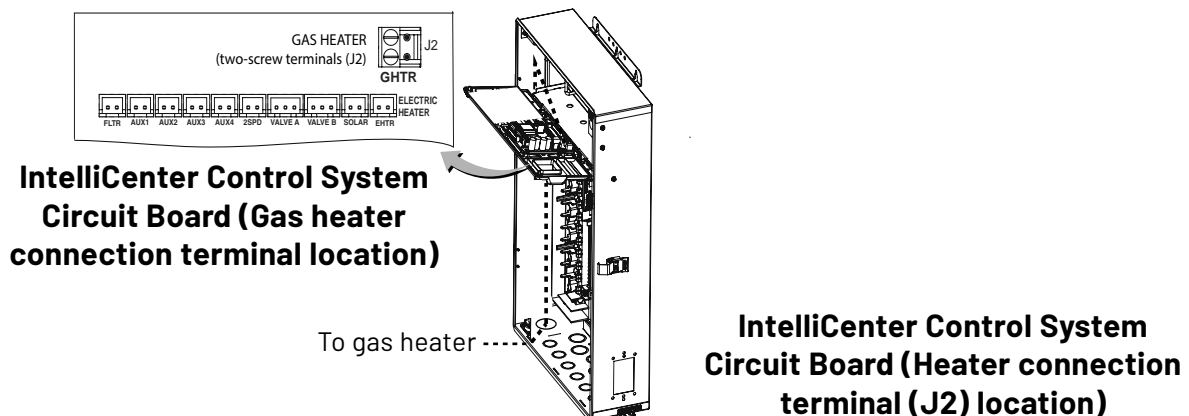
2. Remove the factory installed jumper from the heater's Fireman's Switch connector. At the heater, connect the conductors in accordance with heater manufacturer's instructions. For older heaters without instructions for remote operation, connect the conductors to the Fireman's switch connections in series with the thermostat, pressure switch, and other safety switches.
3. Run a two-conductor cable from the heater Fireman's Switch connector through the low voltage raceway to the Power Centre circuit board, as shown below.

NOTE: Use 221° F (105° C) temperature rated conductor for connection to the heater. When connecting conductors inside the heater, be cautious of HOT internal parts of the heater. Refer to the minimum temperature rating for conductors recommended by the manufacturer. See the heater owners manual for details.

4. Strip back the conductors ¼ in.
5. Insert the conductors into the **GAS HEATER** two-screw terminals (**J2**) on the motherboard. For heater circuit board screw terminal location see below.

⚠ CAUTION Be sure that the conductors from the heater to the IntelliCenter Control System Power Centre are not near or touching any line voltage conductors in the heater. Failure to follow these instructions may cause the heater to malfunction.

6. Set the Power (Thermostat Select) switch to either Pool or Spa.
7. Set the heater's Pool and Spa thermostats to their maximum position.

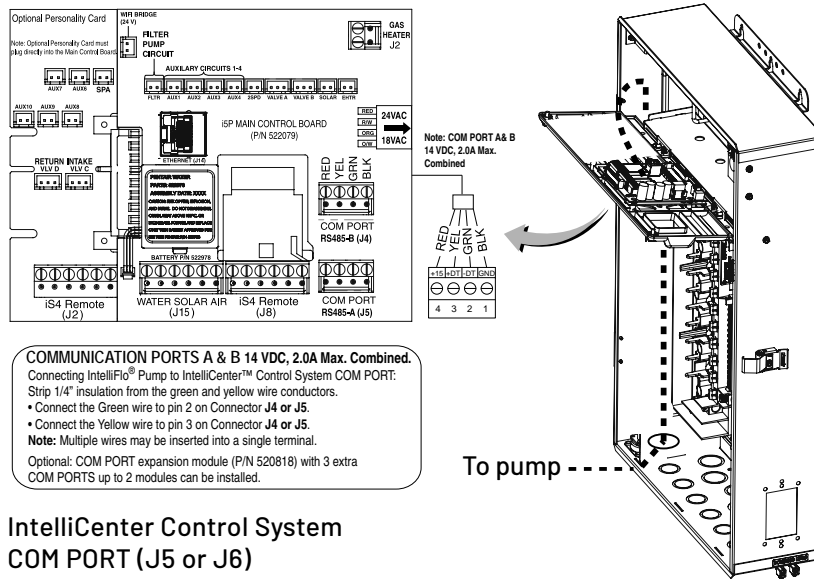


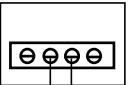
CONNECTING AN INTELLIFLO® PUMP TO POWER CENTRE

A 15m communication cable is provided with IntelliFlo pump. The IntelliCenter™ Control System filter pump output is rated at 240VAC, 15 AMP maximum. NOTE: Check the electrical rating marked on the pump motor before connecting it to the system.

To connect the IntelliFlo pump communication cable to the Power Centre:

1. Switch AC power OFF to the Power Centre at the main house circuit breakers.
2. Run the communication cable from the pump to the Power Centre.
3. Insert the cable conductors into the one of the plastic grommet fittings, located on the lower left side of the enclosure and pull the cable up through the low voltage to the circuit board, as shown below.
4. Strip back the outer jacket four inches. Strip back each conductor a ¼-inch.
5. **IntelliCenter Control System COM Port (J4 or J5):** Insert the conductors into the COM Port screw terminals located on the top of the IntelliCenter Control System circuit board (see diagram below). Secure the conductors with the screws. For wiring details, refer to the pin configuration shown below. Note: Multiple conductors may be inserted into a single screw terminal.



	COM Port screw terminal connector	IntelliFlo Pump (2-wire cable)
	2 (GRN)	GREEN (Pin 6)
	3 (YEL)	YELLOW (Pin 7)

IntelliFlo pump communication cable pin out

CONNECTING THE INTELLICHLOR® SCG POWER CORD TO THE ENCLOSURE SOCKET

The IntelliChlor SCG cell power cord is connected to the socket on the bottom of the IntelliCenter™ Control System Power Centre enclosure.

⚠ WARNING

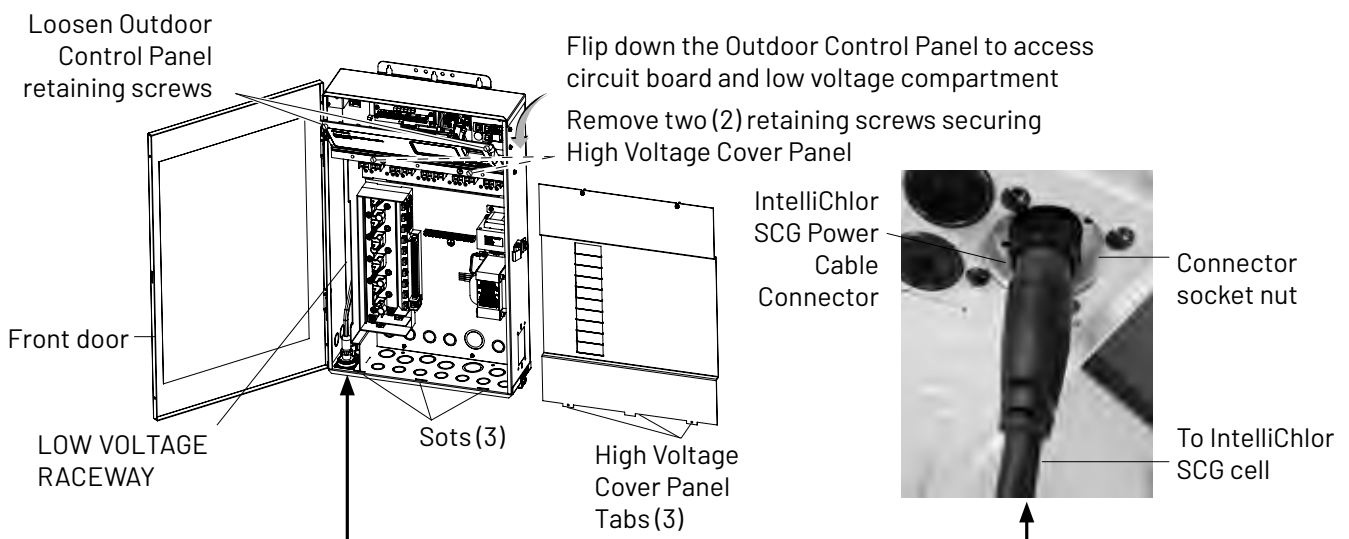
BEFORE REMOVING THE HIGH VOLTAGE COVER PANEL FROM THE POWER CENTRE, switch the main power OFF into the home at the main circuit breaker box and also switch OFF the main power to the Power Centre.

⚠ WARNING

TO AVOID AN ELECTRICAL HAZARD AND EQUIPMENT DAMAGE TO THE ENCLOSURE AND INTELLICHLOR SCG CELL: FIRST DISCONNECT AC POWER TO THE ENCLOSURE BEFORE CONNECTING THE INTELLICHLOR SCG CELL POWER CABLE TO THE ENCLOSURE SOCKET.

To connect the IntelliChlor SCG power cord to the Power Centre:

1. Switch OFF AC power to the enclosure at the main house panel circuit breaker.
2. Unlatch the front door latch and open the front door. Remove the two retaining screws from the High Voltage Cover Panel and remove the panel.
3. Loosen the two retaining screws securing from the top edge of the Outdoor Control Panel. Fold down the Outdoor Control Panel to access the circuit board sockets connectors for the electrical connections.
4. Align the four pins of the IntelliChlor cell power cord connector with the socket on the bottom of the enclosure and insert the cord connector into the socket.
5. Rotate the socket nut until it locks the connector in place. Do not over tighten the nut (hand tighten only).
6. Proceed to "Connecting IntelliChlor® SCG COM Port Cable" on next page.



IntelliCenter Control System (Power Centre with IntelliChlor SCG option)

CONNECTING INTELLICHLOR® SCG COMM. CABLE TO COM PORT

The IntelliChlor SCG communicates from the IntelliCenter™ Control System circuit board to the IntelliChlor SCG circuit board via an RS-485 communications four conductor, 22 AWG or larger cable. This cable (provided in kit) connects to both the IntelliChlor (SCG) circuit board COM port terminal and the IntelliCenter Control System circuit board COM port.

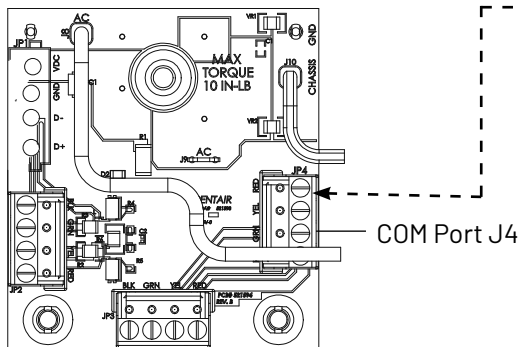


WARNING

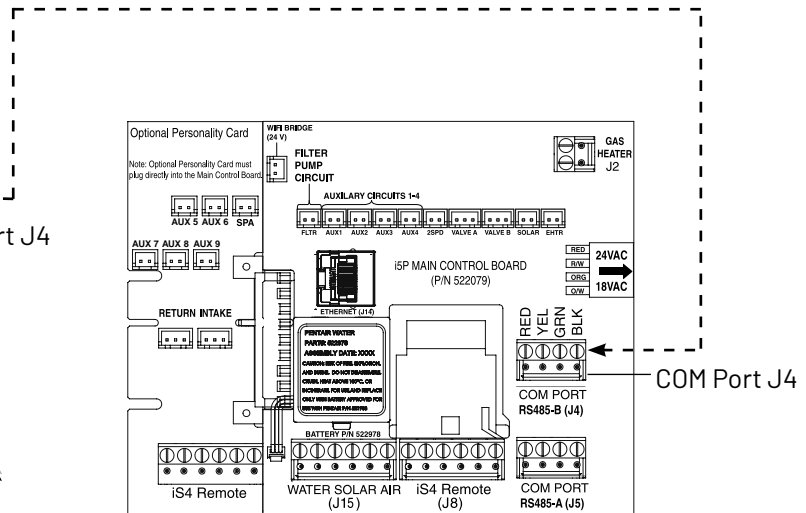
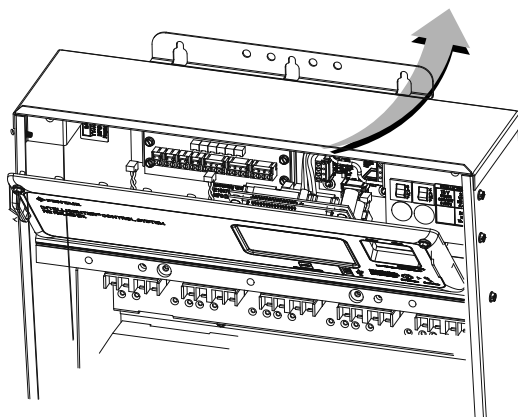
TO AVOID AN ELECTRICAL HAZARD AND EQUIPMENT DAMAGE TO THE ENCLOSURE AND INTELLICHLOR CELL: FIRST DISCONNECT AC POWER TO THE ENCLOSURE BEFORE CONNECTING THE INTELLICHLOR COMMUNICATION CABLE.

To connect the IntelliChlor SCG COM port cable (see page 34 for connector pinouts/colour match):

1. First, connect the cable to **COM port J4 on the IntelliChlor SCG circuit board**, then connect the other end of the cable to the IntelliCenter Control System COM port (**J4 of J5**) screw terminal located on the IntelliCenter Control System circuit board (see screw terminal location below). Note: Any of the three COM ports on the IntelliCenter Control System circuit board can be used for the IntelliChlor SCG communications cable.
2. After electrical connections have been completed, close the Outdoor Control Panel and tighten the two retaining screws. Reinstall the High Voltage Panel: Insert the panel's three tabs into the lower slots on the enclosure. Secure the panel with the two retaining screws. Close the front door and secure with the latch. See page 34.
3. **Switch ON AC POWER** to the power centre at the circuit breaker.



IntelliChlor SCG circuit board



IntelliCenter Control System main circuit board (with i10PS optional expansion card shown)

IntelliCenter Control System Power Centre (with IntelliChlor SCG option) (Control Panel not shown)

CONNECTING A SALT CHLORINE GENERATOR TO THE POWER CENTRE

Be sure to check each conductor colour between the salt chlorine generator and the IntelliCenter™ Control System Power Centre (with SCG option) as shown in the following wiring tables.

Commonly used salt chlorine generator wiring is shown below. However, but you should still verify with the manufacturers documentation. Failure to connect the salt chlorine generator properly can permanently damage the IntelliCenter Control System and/or the salt chlorine generator.

Wiring Description (IntelliChlor® SCG Circuit board COM Port to IntelliCenter Control System COM Port J4/J5)

SCG COM Port Wiring Colour Connection	Description	From IntelliChlor SCG Power Centre COM Port #1
RED	+15 VDC	RED
YELLOW	+ DATA	YELLOW
GREEN	- DATA	GREEN
BLACK	GROUND	BLACK

Wiring the IntelliChem® Controller to the Power Centre

Be sure to check each conductor colour between IntelliChem Controller and the IntelliCenter Control System Power Centre as shown in the following wiring table.

Wiring Description (IntelliChem COM Port to IntelliCenter Control System COM Port)

IntelliChem Controller COM Port (J7) Wiring Colour Connection	Description	From IntelliCenter Control System COM Port (J4 / J5)
RED (DO NOT USE)	+15 VDC	RED (DO NOT USE)
YELLOW	+ DATA	YELLOW
GREEN	- DATA	GREEN
BLACK	GROUND	BLACK

SECTION 2: INTELLICENTER™ CONTROL SYSTEM START UP

System Start-Up

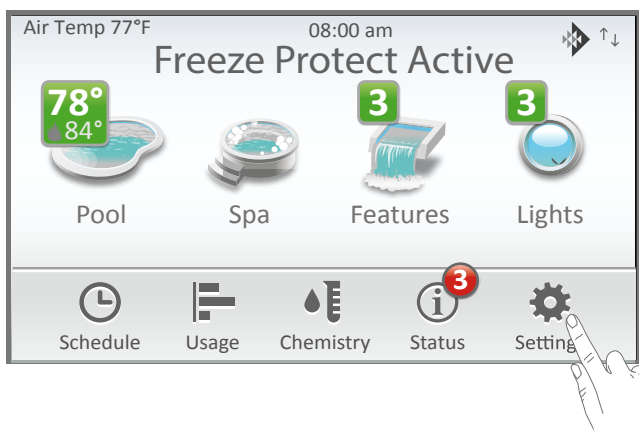
Note: The following information describes how to configure the IntelliCenter Control System using the step-by-step Setup Wizard. For more detailed information refer to the IntelliCenter™ Control System User's Guide (P/N 522990).

Power On the Power Centre

1. After all the necessary pool and spa equipment has been connected to the Power Centre, replace and secure the High Voltage Panel on to the front of the Power Centre.
2. Switch on the main circuit breakers to apply power to the Power Centre.

Start the Setup Wizard

1. The IntelliCenter™ Control System Outdoor Control Panel will be powered on.
2. From the Home screen tap **Settings > Advanced system Configuration > Wizard**.
3. Follow the screen prompts to configure the system. When finished save the system configuration. The system is now ready for operations. For more information refer to the IntelliCenter™ Systems User's Guide.
4. Continue on next page. See Initial System Power Up.



About the Setup Wizard: The IntelliCenter Control System Setup Wizard provides step-by-step screens to assist in setting up the pool/spa equipment. To complete the Setup Wizard takes about 10 minutes. If you are unsure how to answer a question, you can skip the question and continue with the setup, then go back to the Wizard later to change or edit the setup information.

Internet Connection and adding a new account for www.intellicenter.com:

After the Setup Wizard has been successfully completed, go to Settings > Pentair User Portal. From there you can setup either a Wireless or Ethernet connection to connect to the Internet and add a new account or login using an existing account, which includes setting up a password, pool system's owner's name, address and contact information. This account allows access to www.intellicenter.com for remote access to the pool system via a smartphone or PC.

INTELLICENTER™ CONTROL SYSTEM MENU

Home Screen

- Pool screen
- Spa screen
- Features (individual/groups)
- Lights (individual/groups)
- Schedule (pump schedule)
- Usage
- Chemistry (IntelliChem® Controller/IntelliChlor® SCG)
- Status

Settings

- Service mode
- Vacation mode
- Support
- **General:** location, date & time, units (fahrenheit/celsius), features and lights list order, general list order, backlight (deep sleep: wireless control panel only, temperature sensor calibration, day / night themes, manual operation priority, manual heat, chemistry readings badge, badge colours.
- **Alerts and Notifications:** Choose which system status, alerts and warnings badges to display on the Home screen Status icon.
- **Security:** (Passcode Protect)
- **Pentair User Portal:** (intellcenter.com)
- **Groups:** Configure groups of AUX circuits, Light circuits and Feature circuits.
- **System Reboot:** Reboot the panel

ADVANCED SYSTEM CONFIGURATION

Installation Setup:

- Body configuration, circuits, pumps, heaters, valves, chemistry, pool/spa cover.
- **Remotes Setup:** iS4, SpaCommand remotes.
- **Network and WiFi Setup:** Configure ethernet, connect to a wireless network, adjust wireless transmit power, internet connection test, reboot WiFi device.
- **IntelliCenter Wireless Remote Setup:** Configure the address and panel # for wireless remote.
- **Delays:** Valve delay, heater cool down, freeze cycle time (min), spa freeze, override (min), override delays.
- **System:** System information, detected hardware, system diagnostic information, firmware update (update from panel, update from usb, update from ethernet), factory diagnostics.
- **Import/Export:** Import system configuration, export system configuration.
- **Restore Factory Defaults:** Restore system to factory configuration.
- **Setup Wizard:** Step-by-step system configuration.

INTELLICENTER™ CONTROL SYSTEM TEST

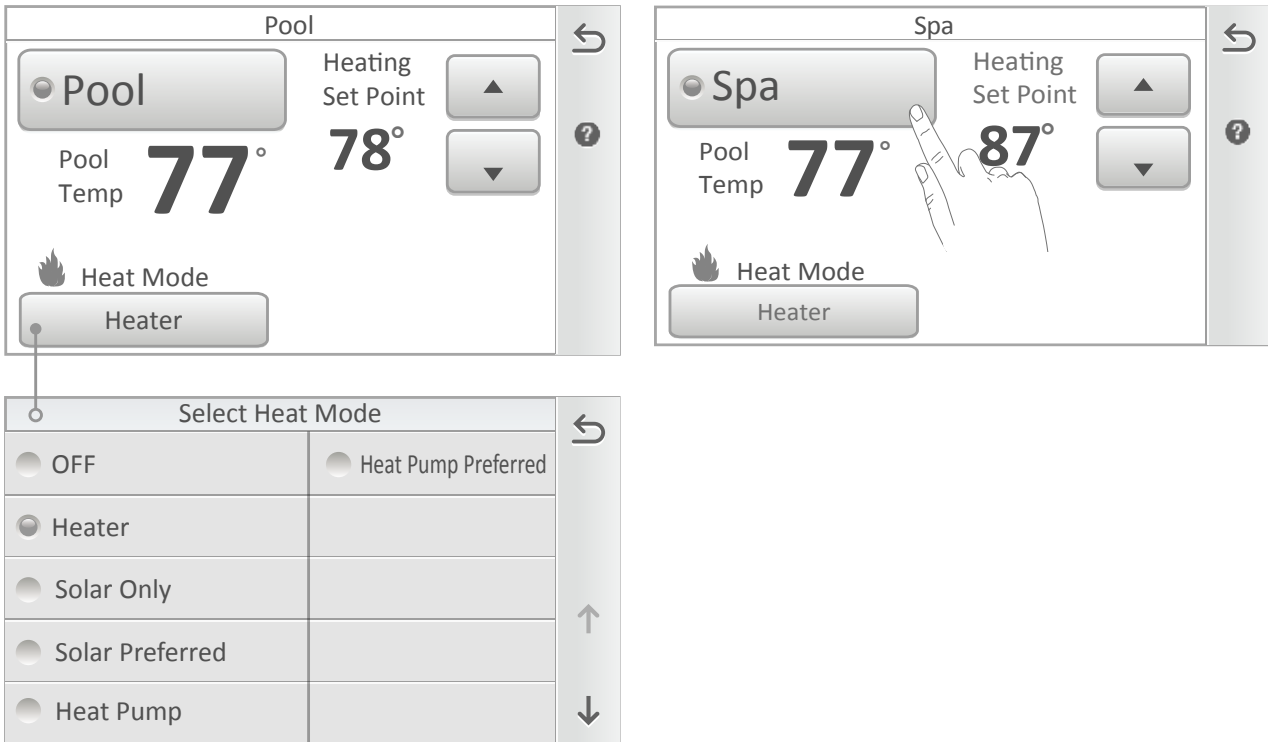
The following describes how to test the IntelliCenter Control System Outdoor Control Panel to activate the heater, valves and pumps. This test assumes that all system equipment has been properly installed and connected to the IntelliCenter Control System Power Centre.

Testing Valve Actuators and Pumps

Use the following steps to test the valve actuators (CVA24T) for proper rotation for i5PS IntelliCenter Control System (shared equipment).

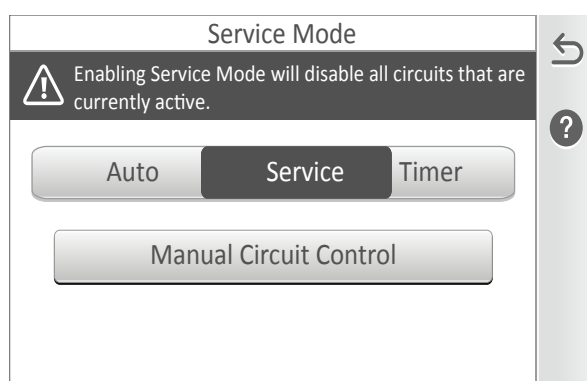
To test the valve actuators and pump:

1. Switch on the main circuit breakers to apply power to the IntelliCenter Control System Power Centre.
2. **Pool and Spa Pump and Heater Test:** From the Home screen, **tap Pool > Pool (or tap Spa > Spa)** to activate the pool pump (or Spa pump) and heater. **Tap the Heat Mode** button and select a different heat source. The Heat Mode button indicator is Red to indicate the heater is on, Blue is heater cool down mode. When the heater is on a flame indicator is shown on the Home screen pool Green badge. **Tap Return** to return the Home screen.



INTELLICENTER™ CONTROL SYSTEM TEST

- 3. Testing equipment auxiliary circuits:** From the Home screen, tap **Settings > Service Mode > Service**. Note: Service Mode is displayed on the Home screen.
- 4. Tap Manual Circuit Control.** To test the equipment, tap the displayed circuits (pump, aux, solar, heater) to confirm proper operation. When the pool circulation pump is on water will flow from the pool and returned into the pool. The Green radio button is lit when equipment is manually switched on. Grey indicates the circuit is off.
- 5. After testing the auxiliary circuits, tap the Return arrow** to return to the Service Mode screen. Tap **Auto** to return the system to operating mode. Tap and hold the **Return arrow** to return to the Home screen.



- 6. Manual Test Valve Actuators:** Set both valve actuators (CVA-24T) for suction and return. Use the toggle switch on the rear of the CVA-24 to withdraw and return water from the pool.

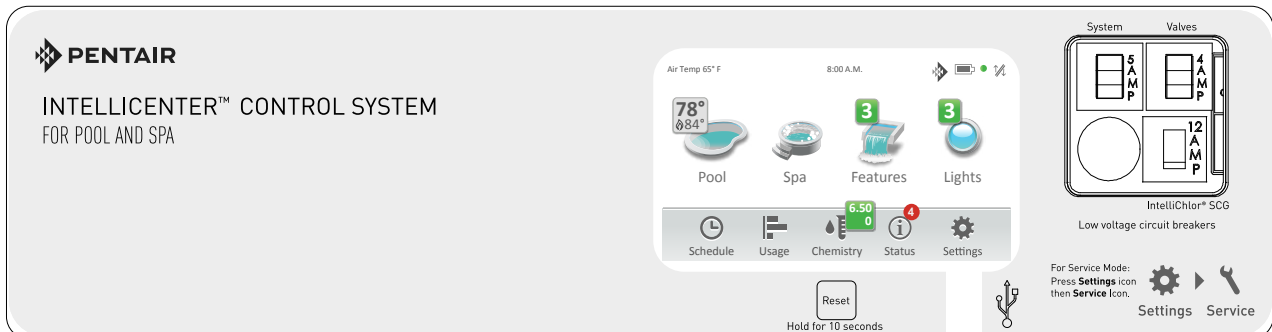
Note: With the circulation pump operating, if the water is not being removed and returned to the pool, it may be necessary to toggle the valve ON1 and ON2 switch (or vice versa).

Solar Valve Test

1. Switch on the main circuit breakers to apply power to the IntelliCenter™ Control System power centre.
2. Check that Solar Valve is in solar bypass position, diverting water away from solar panels. If Solar Valve is staged incorrectly (diverting water to the solar panels), reverse switch on back of Valve Actuator (change from ON1 to ON2, or vice-versa). The Valve Actuator will automatically rotate to the correct position.
3. Check that Solar Valve has rotated from the "solar bypass" position to the "solar" position, diverting water through the solar panels.
4. The system is now ready to be operated as desired.

INTELLICENTER™ CTRL SYSTEM OUTDOOR CTRL PANELS

For IntelliCenter Control System Outdoor Control Panel Wiring Diagrams, see pages 58-59.



IntelliCenter Control System Outdoor Control Panel (see page 63 for part numbers)



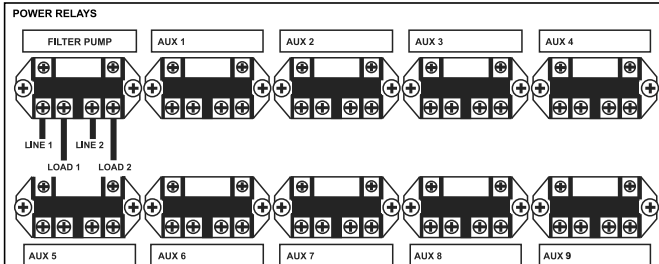
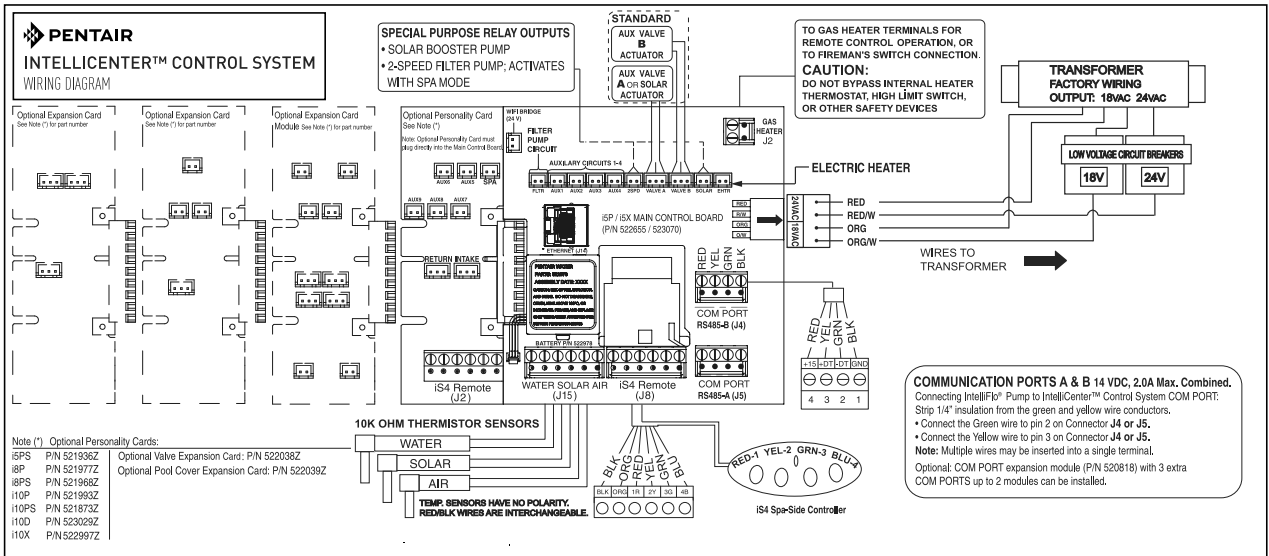
IntelliCenter Control System Wireless Controller
P/N 522036 (Optional)



IntelliCenter Control System Indoor Control Panel
P/N 522035 (Optional)

INTELLICENTER™ CTRL SYSTEM POWER CTR WIRING DIAGRAM

WARNING PREVENT ELECTROCUTION INSTALL ACCORDING TO WIRING RULES AS/NZS 3000 DISCONNECT ALL SUPPLY CONNECTIONS BEFORE SERVICING.



Input (Control Only): 0.5A @ 230-240VAC, 50Hz
MAXIMUM LOAD: 150A, 120-240VAC 50Hz

USE COPPER CONDUCTORS ONLY
 INSTALL IN ACCORDANCE WITH WIRING RULES AS/NZS 3000
 DOUBLE INSULATED TO WATER CIRCUIT

Enclosure suitable for INDOOR or OUTDOOR USE.
INGRESS PROTECTION: IPX4

IMPORTANT: This Control Panel must be installed by a qualified person in accordance with the Wiring Rules (AS/NZS 3000), as well as all statutes and regulations required by the local authority.

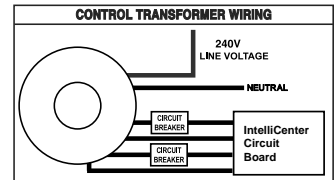
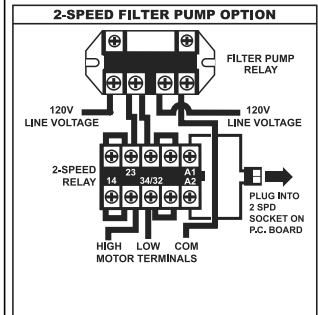
Mount enclosure with electrical sockets and conduit holes facing downwards.

This control is not provided with integral RCD protection. Suitable RCD protection shall be provided by the installer in the fixed wiring in accordance with the wiring rules.

A method of disconnection, providing contact separation in both Active and Neutral lines should be provided by the installer.

Make sure connections inside the low and high voltage compartments are well insulated, connectors are properly seated and wiring lugs tight/need. After wiring is completed, install front panel over wiring compartments and secure with screws provided.

WARNING
 DO NOT USE A CONTROL SYSTEM TO CONTROL AN AUTOMATIC POOL COVER. SWIMMERS CAN BECOME ENTRAPPED UNDER THE COVER, WHICH COULD RESULT IN INJURY AND/OR DEATH.



RELAY CONTACT OUTPUT
 General: 25A, 277VAC

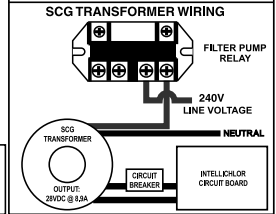
PUMP	LIGHT
1.5 HP 120 VAC	1.5 KW 120 VAC TUNGSTEN
3 HP 277 VAC	4.8 KW 240 VAC TUNGSTEN
20 FLA/120 LRA, 120 VAC	20A, 277 VAC BALLAST
17 FLA/102 LRA, 277 VAC	

INTELLICHLOR® SALT CHLORINE GENERATOR OPTION

TRANSFORMER INPUT:
 240VAC @ 1.3A, 50 Hz
 Secondary: 28VAC @ 8.9A

Input (Control +SCG): 1.8A @ 230-240VAC, 50Hz

WARNING! DISCONNECT LOAD CENTER BEFORE SERVICING SCG TRANSFORMER.
 Connect this chlorinator transformer to the FILTER PUMP RELAY ONLY. The chlorinator should only be powered when the Filter Pump is ON.



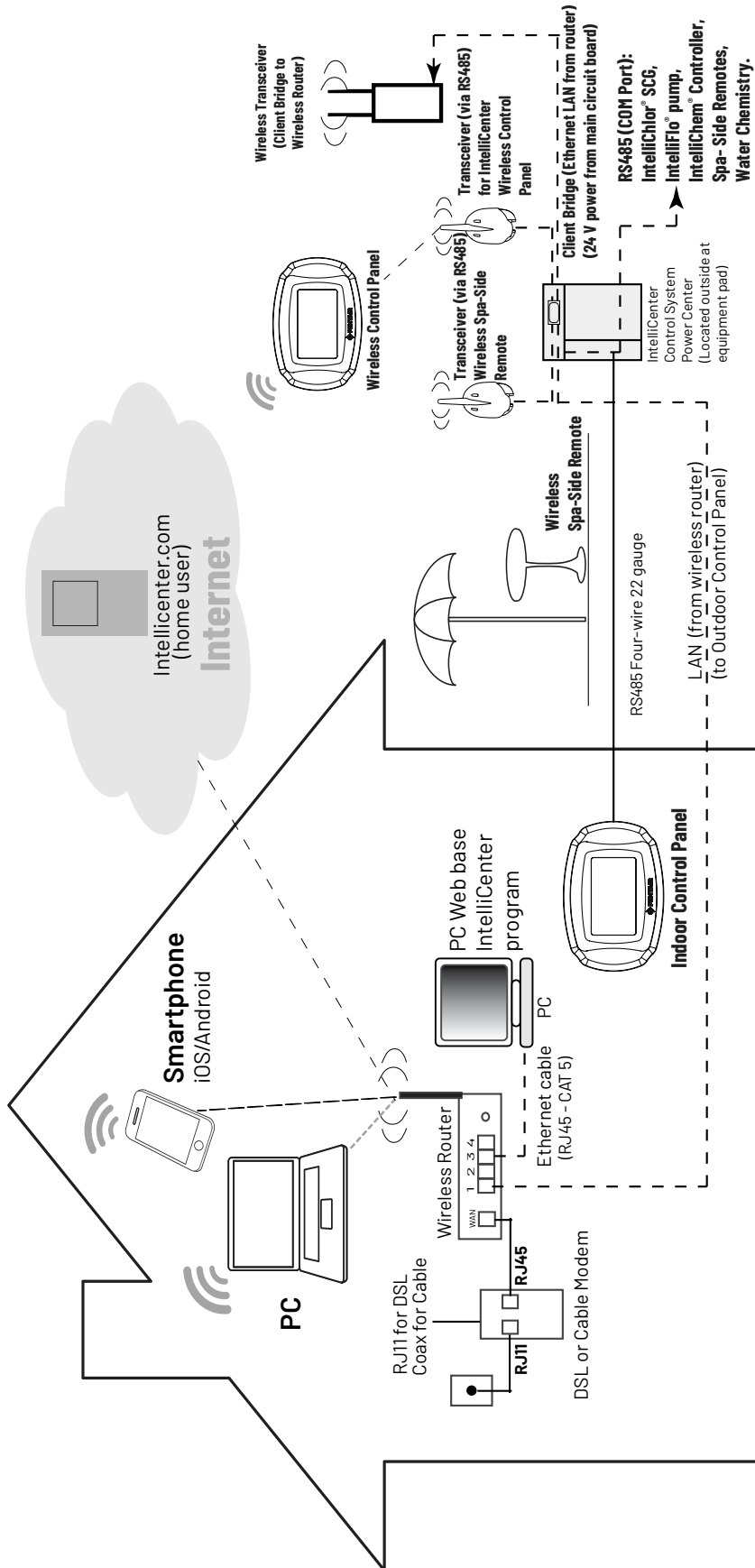
PREVENT WATER DAMAGE KEEP DOOR CLOSED

A disconnecting means must be located within sight from the equipment and at least 5 feet (1.52m) from the inside walls of the pool, spa or hot tub.

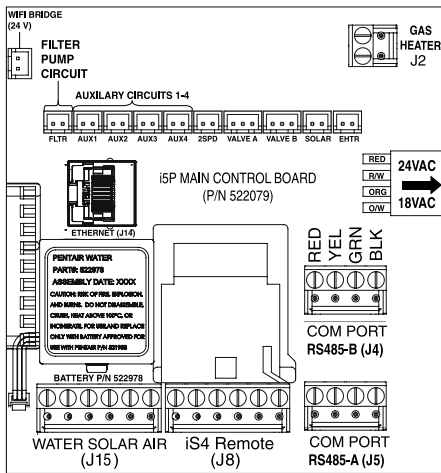
PENTAIR
 Customer Support: 1300-137-344

IntelliCenter Control System Power Centre Wiring Diagram

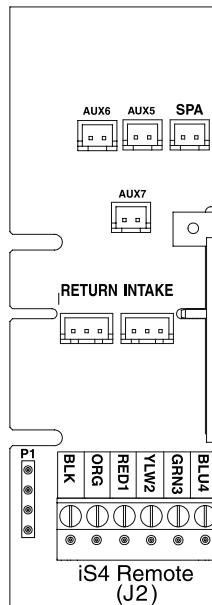
INTELLICENTER™ CTRL SYSTEM WIRELESS CONNECTIONS



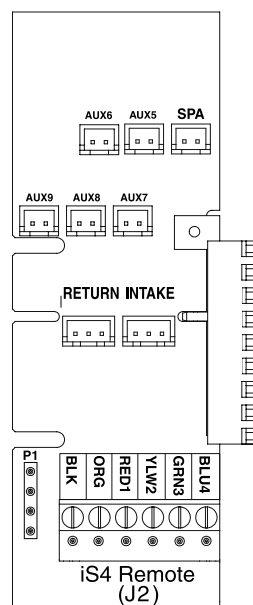
INTELLICENTER™ CTRL SYSTEM OPTL PERSONALITY CARDS



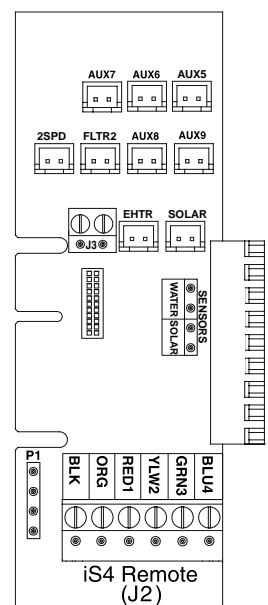
i5P, Single Body
(P/N 521909)



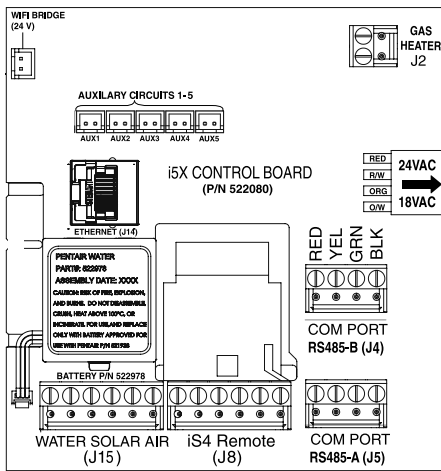
i8PS, Shared
Equipment
(P/N 521913)



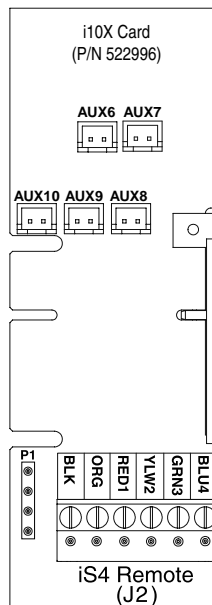
i10PS, Shared
Equip.
(P/N 521914)



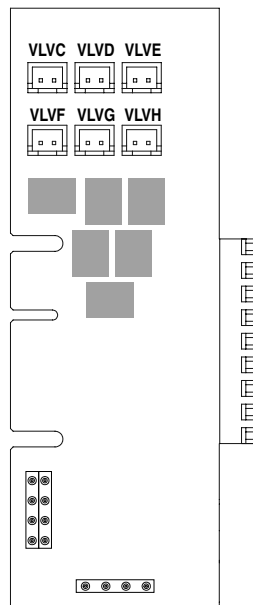
i10D, Dual Equip.
(P/N 521915)



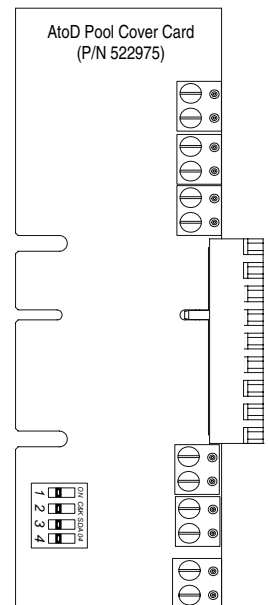
i5X Expansion
(P/N 522080)



i10X Expansion
(P/N 522996)
(Requires i5X)



Valve Expansion
Module
(P/N 522038Z)



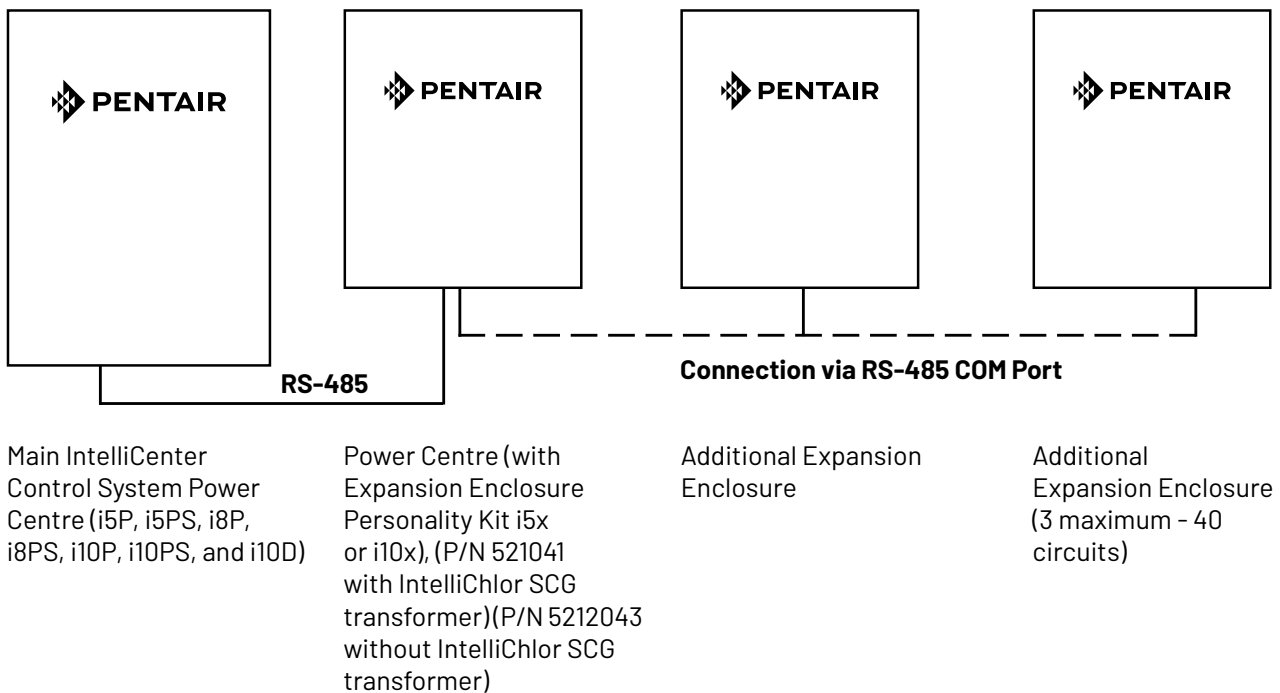
Analog to Digital
Pool Cover Card
(P/N 522039Z)

INTELLICENTER™ CONTROL SYSTEM EXPANSION KITS

Expansion Kits: Models i5X (P/N 521033) and i10X (P/N 521034), offer five or ten additional Auxiliary Circuits. Each IntelliCenter Control System Expansion Kit requires a Power Centre (P/N 521214). Up to three Expansion Kits and Power Centres may be added to a system, for control of up to 38 Auxiliary Circuits (40 auxiliary circuits i10x).

OPTL INTELLICENTER™ CTRL SYSTEM EXPANSION ENCLOSURES

Expansion enclosures can support all of the same high voltage connections as the main load to the Power Centre. A total of three enclosures can be added for a total of 40 auxiliary circuits that can support a maximum of four bodies of water. The Expansion enclosure supports the same COM port connections, and includes two actuators and a Power Centre. The Expansion enclosure can be expanded to include up to five actuators (with valve module P/N 520285). Refer to the IntelliCenter Control System Expansion Kit Installation Guide (P/N 520471) for more information.



OPTL INTELLICENTER™ CTRL SYSTEM EXPANSION ENCLOSURES

**1 or 2 bodies of water
(3 Expansion enclosures):**

**3 or 4 bodies of water
(3 Expansion enclosures):**

OCP0: Main Circuit board - i5P capability	OCP0: Master Motherboard - i5P capability. Has to use one of the following Personality Cards: i5PS, i8PS, i10PS or i10D
EXP1: Exp Motherboard - i5X or i10X	OCP1: Motherboard - i5P + any Personality Card. Can use any of the 6 Personality Cards. Note: Motherboard in OCP1 same as OCP0 (OCP0 is Master).
EXP2: Exp Motherboard - i5X or i10X	EXP1: Exp Motherboard - i5X or i10X
EXP3: Exp Motherboard - i5X or i10X	EXP2: Exp Motherboard - i5X or i10X

- Main Power Centre (all models) = 2 (A & B)
- There are six (6) valves = 6 (C, D, E, F, G, H)
- Three (3) Expansion enclosures total
- One Valve module on Main Power Centre (valve expansion card)

OPTIONAL INTELLICENTER™ CONTROL SYSTEM KIT CONTENTS

The following items are included in the IntelliCenter Control System kit which may also include the optional IntelliChlor® SCG.

- IntelliCenter Control System Outdoor Control Panel (mounted in the power centre).
- IntelliCenter Control System Common Power Centre enclosure.
- Motorized valve actuators (P/N 263045), Qty. 2 (not included with single-body system or dual equipment).
- Temperature Sensors: Water Sensor (25 foot cable, o-ring and hose clamp), Qty. 1, For i10D only, Qty. 2 are provided. Air Sensor (with short cable).
- IntelliCenter Control System Installation Guide (this manual).

Optional Equipment

- IntelliChlor Salt Chlorine Generator model IC20 (P/N 520554) or IC40 (P/N 520555).
 - IntelliChlor SCG User's Guide (P/N 520589)
- IntelliChem® Controller no-pump (P/N 521357), one-pump (P/N 522621), two-pump (P/N 522622).
 - IntelliChem Controller Installation and User's Guide (P/N 521363)

INTELLICENTER™ CTRL SYSTEM REPLACEMENT PARTS LIST

Kit Next Gen i5P OCP PCBA w/ Faceplate CLC/CPC	P/N 523050
Kit Next Gen i5X Expansion PCBA w/ Faceplate CLC/CPC	P/N 523051
NG i5PS Personality PCBA	P/N 521936Z
NG i8P Personality PCBA	P/N 521977Z
NG i8PS Personality PCBA	P/N 521968Z
NG i10P Personality PCBA	P/N 521993Z
NG i10PS Personality PCBA	P/N 521873Z
NG i10D Personality PCBA	P/N 523029Z
NG i10X Expansion Card PCBA	P/N 522997Z
NG Faceplate, OCP, for CLC/CPC (with overlay)	P/N 522004Z
NG Faceplate, IT/ET OCP Upgrade, for CLC/CPC	P/N 522005Z

INTELLICENTER™ CONTROL SYSTEM ACCESSORY EQUIPMENT

IntelliCenter Control System Indoor Control Panel kit	P/N 522035
IntelliCenter Control System Wireless Control Panel kit	P/N 522036
IntelliCenter Control System Valve Expansion Card (PCBA)	P/N 522038Z
IntelliCenter Control System Pool Cover Interface Card (PCBA)	P/N 522039Z
SpaCommand® 10 Ten-Function Spa-Side remote, 150 ft. cable	P/N 521176
Three HP Power Relay	P/N 520106
IntelliChem® Controller	P/N 521356



IntelliCenter Control System
Indoor Control Panel (P/N 522035)



IntelliCenter Control System
Wireless Control Panel (P/N 522036)



SpaCommand® Spa-Side
Controller (P/N 521176)



IntelliChem®
(P/N 521357-AU)

INTELLICENTER™ CTRL SYSTEM CONFIGURATIONS & MODELS

PANEL:	TYPE:	CAPABILITY:	PANEL:	CAPABILITY:
OCPO	i5P	i5P Capabilities: Single body of water (Pool or Spa) Filter pump relay + 4 AUX relays Valve A & B Heater control (Gas & Electric) Solar relay output 2-speed relay output Water, Air, Solar Sensor Two COM ports Ethernet port iS4 port	1 or 2 bodies of water: OCPO	Main Circuit board - i5P capability
			EXP1:	Exp Motherboard - i5X or i10X
			EXP2:	Exp Motherboard - i5X or i10X
			EXP3:	Exp Motherboard - i5X or i10X
OCPO	i5PS	i5PS Capabilities: Shared equipment (Pool and Spa) Intake & Return valves Same as i5P (see above for details)	3 or 4 bodies of water: OCPO:	Master Motherboard - i5P capability. Has to use one of these Personality. Cards: i5PS, i8PS, i10PS or i10D
OCPO	i8P	i8P Capabilities: Single body of water (Pool or Spa) Filter pump relay + 7 AUX relays Same as i5P (see above for details)	OCP1:	Motherboard - i5P + any Personality. Card. Can use any of the 6 Personality Cards. Note: Motherboard in OCP1 same as OCPO (OCPO is Master)
OCPO	i8PS	i8PS Capabilities: Shared equipment (Pool and Spa) Filter pump relay+ 7 AUX relays Intake & Return valves Same as i5P (see above for details)	EXP2:	Exp Motherboard - i5X or i10X
OCPO	i10P	i10P Capabilities: Single body of water (Pool or Spa) Filter pump relay+ 9 AUX relays Same as i5P (see i5P for details)	EXP3:	Exp Motherboard - i5X or i10X
OCPO	i10PS	i10PS Capabilities: Shared equipment (Pool and Spa) Filter pump relay+ 9 AUX relays Intake and Return valves Same as i5P (see i5P for details)	OCPI-4 VALVEXP	Valve Expansion Card: 6 extra valve outputs (C, D, E, F, G, H)
	i10D	i10D Capabilities: Dual Bodies of water with separate Pumps, Filters and Heaters Two filter pump relay + 8 AUX relays Valve A & B Same as i5P (see i5P for details)	OCPI-4	Allows external input for system control

INTELLICENTER™ CTRL SYSTEM CONFIGURATIONS & MODELS

PANEL:	TYPE:	CAPABILITY:	PANEL:	CAPABILITY:
	OCP2-4 i5X	i5X Expansion Capabilities: Expansion Panel 5 extra AUX relays outputs and relays Valve A & B		A TO DXP (eg. Pool Cover) Analog/Digital Expansion Card:
	OCP2-4 i10X	I10X Expansion Capabilities: Expansion Panel 10 extra AUX relay outputs and relays Valve A & B		
	OCP1-4 VALVEXP	Valve Expansion module: 5 extra valve outputs (C, D, E, F, & G)		
	OCP1-4 ATODXP	Analog/Digital Expansion module: Allows external input for system control (eg. Pool Cover)		

PLUMBING REQUIREMENTS

It is important that the pool and spa plumbing system be in accordance with local codes and the Recommended Hydraulic Schematics (page 55 and 56). Before starting, please review the diagrams and the following recommended guidelines:

- 1 The spa should be at or above the level of the pool.

If the spa is attached to the pool, provide a dam between the two bodies of water to allow the spa to overflow into the pool. If the spa is not attached to the pool, an overflow, sufficient in size to carry a full pump-flow, must be installed at the water level in the spa.

- 2 Plumb a three-port **Intake Valve** on the suction-side of the filter pump, so that the centre port of the valve is connected to the pump inlet. Connect the spa suction to one side of the Intake Valve, and the pool suction to the other side.

- 3 Plumb a three-port **Return Valve** on the return-side of the heater, so that the return water will enter the valve through the centre port.

Connect the spa return to one side of Return Valve, and the pool return to the other side.

- 4 If required, install a spa makeup line (consisting of a manual gate or ball valve, for elevated spas install a check valve) to bypass the pool return line. This will enable some of the chemically-balanced water from the pool to cycle through the spa. The manual valve will allow the amount of bypass to be adjusted.

- 5 If the spa is to be constructed in concrete, special provision should be made at this time for the installation of the Spa-Side remote control.

Select a convenient location in the deck or above water level in the spa wall (where the Spa-Side remote will not be submerged by the spa water), and install a 6 in to 12 in length of one inch PVC pipe to provide a receptacle for the Spa-Side remote. The pipe should be level and protrude beyond the finished surface of the spa. It will be cut back later at installation time. Reduce the pipe size down to ½ in or ¾ in conduit, and run it to the proposed Power Centre location at the equipment pad. Use sweep elbows for turns.

The Spa-Side remote will not be installed until the spa construction is completed.

- 6 For systems which incorporate a skimmer, it is possible to balance the amount of suction between the skimmer and main drain for maintenance purposes. This is easily accomplished by installing a manual three-port mixing valve at the suction line. Plumb one port to the skimmer and the other to the main drain.

- 7 If a "non-booster pump" pressure-side pool cleaner is being used, plumb a manual three-port valve between the filter pump and filter, with the third port plumbed to the pool cleaner line, and install a motorized two-port **Pool Cleaner Valve** at this line. The motorized valve will automatically open whenever the Control System activates the pool cleaner.

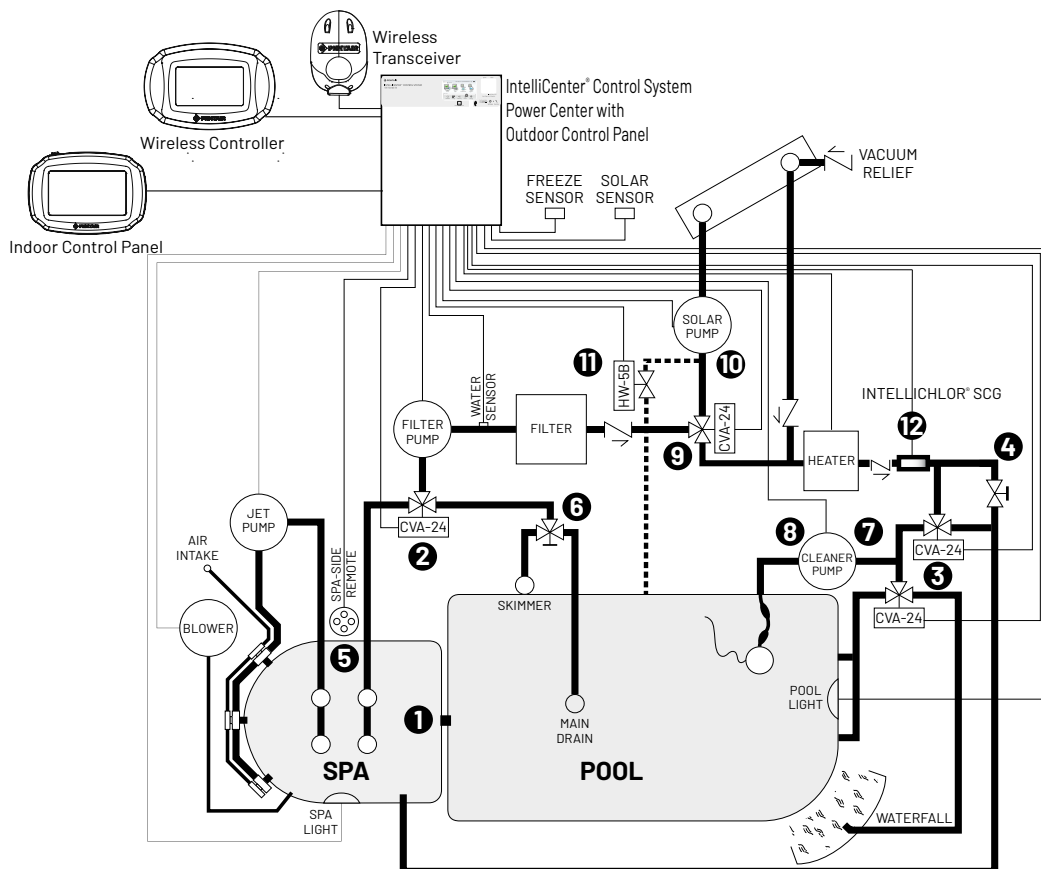
- 8 If a booster pump pool cleaner is being used, plumb the booster pump so that its suction-side is connected to the pool return, after the heater, and as close to the ground as practical.

PLUMBING REQUIREMENTS

- 9 Plumb the solar feed and return lines between the filter and the heater. Install a three-port valve at the feed line. Use a solar valve (model SOL-2T), to allow automatic draining of the panels.
- 10 A solar booster pump should be used when the distance to the panels exceed 60m or the panels are elevated higher than 7.5m.
- 11 Glazed solar panels require a drain valve (model HW-5B) to allow draining of the panels. This prevents damage from overheating water. Install a drain valve at the solar feed line and connect to the pool fill line.
- 12 SCG systems only: IntelliChlor® IC40 or IC20 Salt Chlorine Generator cell with check valve at the heater output. Refer to IntelliChlor Salt Chlorine Generator User's Guide (P/N 520589) for plumbing requirements.

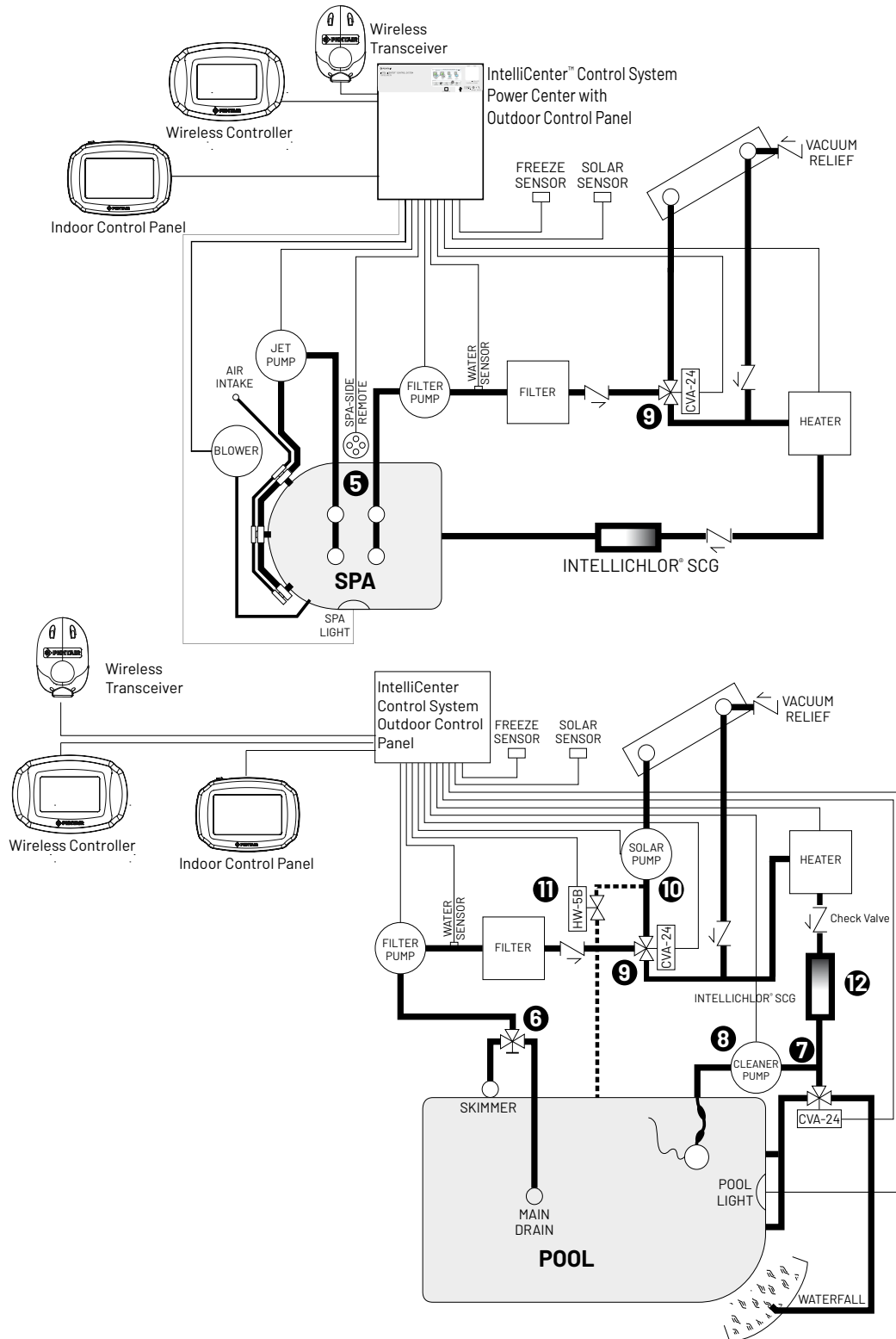
EQUIPMENT LOCATION

All equipment, with the exception of the spa-side remote, must be located at least 3.5m from the water's edge.



Recommended Hydraulic Schematic for Shared Equipment System

EQUIPMENT LOCATION



Recommended Hydraulic Schematic for Single Body Systems