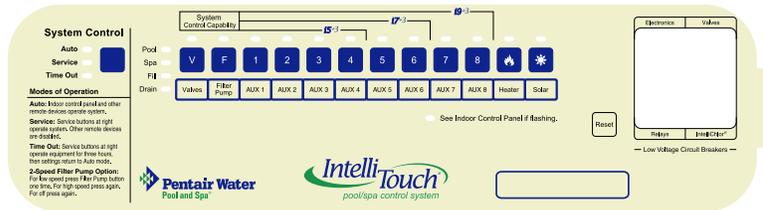




IntelliTouch® Pool and Spa Control System (with optional IntelliChlor® Salt Chlorine Generator) Personality Kit Installation Guide



IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

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IMPORTANT WARNING AND SAFETY INSTRUCTIONS

Read and Follow all WARNING and SAFETY Instructions

⚠ DANGER SERIOUS BODILY INJURY OR DEATH CAN RESULT IF THIS PRODUCT (UNIT) IS NOT INSTALLED AND USED CORRECTLY.

⚠ DANGER INSTALLERS, POOL OPERATORS AND POOL OWNERS MUST READ THESE WARNINGS AND ALL INSTRUCTIONS BEFORE USING THIS PRODUCT. This Guide provides installation and operation instructions for the product. Consult Pentair Water Pool and Spa, Inc. with any questions regarding this product.

⚠ WARNING This product is intended for use in swimming pool applications only.

⚠ WARNING Most states and local codes regulate the construction, installation, and operation of public pools and spas, and the construction of residential pools and spas. It is important to comply with these codes, many of which directly regulate the installation and use of this product. Consult your local building and health codes for more information.



IMPORTANT NOTICE - Attention Installer: This Installation Guide (“Guide”) contains important information about the installation, operation and safe use of this product. This Guide should be given to the owner and/or operator of this equipment.

Attention User: This Guide contains important information that will help you in operating and maintaining this product. Please retain it for future reference.

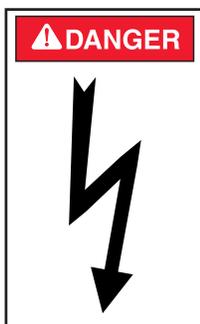
⚠ WARNING Before installing this product, read and follow all safety warning notices and instructions which are included. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage. Call (800) 831-7133 for additional free copies of these instructions.

This product is designed and manufactured for safe and reliable service when installed, operated and maintained according to the information and installation codes referred to in this Guide.

⚠ This is a safety alert symbol. When you see this symbol in this manual or on the product, look for one of the following signal words; **DANGER**, **WARNING**, **CAUTION** and **NOTICE** and comply with the information. Be alert to the potential hazard. Ensure to read and comply with all of the warnings and cautions in this manual.

Risk of Electrical Shock or Electrocution!

- Always disconnect power at the circuit breaker before servicing the load center
- Improper installation can create an electrical shock hazard that can result in death or serious injury.



This product 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. All applicable local installation codes and ordinances must also be adhered to. Improper installation will create an electrical hazard which could result in death or serious injury to pool users, installers or others due to electrical shock, and may also cause damage to property. Always disconnect the power to the pool light at the circuit breaker before servicing the light. Failure to do so could result in death or serious injury to serviceman, pool users or others due to electrical shock.

IMPORTANT WARNING AND SAFETY INSTRUCTIONS

⚠ DANGER



Water temperature in excess of 100° F (37.7° C) may be hazardous to your health. Prolonged immersion in hot water may induce hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above normal body temperature of 98.6° F (37° C.). Effects of hyperthermia include: (1) Unawareness of impending danger. (2) Failure to perceive heat. (3) Failure to recognize the need to leave the spa. (4) Physical inability to exit the spa. (5) Fetal damage in pregnant women. (6) Unconsciousness resulting in danger of drowning. The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia in hot tubs and spas.

⚠ WARNING

A pool or spa pump must be installed by a qualified pool and spa service professional in accordance with the National Electrical Code and all applicable local codes and ordinances. Improper installation may create an electrical hazard which could result in death or serious injury to pool users, installers, or others due to electrical shock, and may also cause damage to property.

⚠ WARNING

The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia in hot tubs and spas. This product is intended to control heaters with built-in high limit circuits **ONLY**. Failure to do so may cause property damage or personal injury.

⚠ WARNING

Do not use this product to control an automatic pool cover. Swimmers may become entrapped underneath the cover.

⚠ WARNING

For units intended for use in other than single-family dwellings, a clearly labeled emergency switch shall be provided as part of the installation. The switch shall be readily accessible to the occupants and shall be installed at least five (5) feet (1.52 m) away, adjacent to, and within sight of, the unit.

⚠ WARNING

Except for listed spa-side remote controls, install a minimum of five (5) feet (1.52 m) from the inside wall of the pool and spa.

⚠ WARNING

The electrical supply for this product must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with the National Electrical Code (NEC), NFPA 70 or the Canadian Electrical Code (CEC), CSA C22.1. All applicable local installation codes and ordinances must also be adhered to. The disconnecting means must be readily accessible to the tub occupant but installed at least five 5ft. (1.52 m), (Canada 3 m (9.75 ft) from the inside wall of the pool.

⚠ WARNING

Use only copper supply conductor's rated for 60C/75C sized based on ampacity to support all loads (refer to NEC tables). Load center input supply to be protected by 150 Amp Maximum, 240 VAC Main Circuit Breaker.

For information about the Virginia Graeme Baker Pool and Spa Safety Act, contact the Consumer Product Safety Commission at (301) 504-7908 or visit www.cpsc.gov.

NOTE: Always turn off all power to the pool pump before installing the cover or working on any suction outlet.

Two Speed Pump Controls Notice (Title 20 Compliance)

Please read the following important Safety Instructions - When using two-speed pumps manufactured on or after January 1, 2008, the pump's default circulation speed **MUST** be set to the **LOWEST SPEED**, with a high speed override capability being for a temporary period not to exceed one normal cycle, or two hours, whichever is less.

IMPORTANT WARNING AND SAFETY INSTRUCTIONS

FCC Standard - 47 CFR Part 15, Subpart C (Section 15.247). This version is limited to chapter 1 to chapter 11 by specified firmware controlled in the U.S.A.

Canada - Industry Canada (IC) - The IntelliChlor device complies with RSS210 of Industry Canada. (1999). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Instruction to user - The IntelliChlor device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. The IntelliChlor device generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by switching the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: The user is cautioned that changes and modifications made to the IntelliChlor device without the approval of the manufacturer could void the user's authority to operate this equipment.

General Installation Information

1. All work must be performed by a licensed electrician, and must conform to all national, state, and local codes.
2. Install to provide drainage of compartment for electrical components.
3. If this system is used to control underwater lighting fixtures, a ground-fault interrupter (GFCI) must be provided for these fixtures. Conductors on the load side of the ground-fault circuit-interrupter shall **not** occupy conduit, junction boxes or enclosures containing other conductors unless such conductors are also protected by a ground-fault circuit-interrupter. Refer to local codes for details.
4. A terminal bar stamped  is located inside the supply terminal box. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors supplying this equipment (no smaller than 12 AWG or 3.3 mm). The bonding lug(s) provided on this unit are intended to connect a minimum of one No. 8 AWG for US installation and two No. 6 AWG for Canadian installations solid copper conductor between this unit and any metal equipment, metal enclosures or electrical equipment, metal water pipe, or conduit within 5 feet (1.5 m) of the unit.
5. The electrical supply for this product must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with in accordance with the National Electrical Code (NEC), NFPA 70 or the Canadian Electrical Code (CEC), CSA C22.1. All applicable local installation codes and ordinances must also be adhered to. The disconnecting means must be readily accessible to the tub occupant but installed at least 10 ft. (3.05 m) from the inside wall of the pool.
6. **GAS HEATER:** This automation control system is designed to supply high voltage (120 VAC / 240 VAC) to a gas heater and override the thermostat in the heater's control circuit. This automation control system is intended to control gas heaters with a high temperature limit switch(s) safety circuit.

Technical Support

Sanford, North Carolina (8 A.M. to 5 P.M. ET.)

Moorpark, California (8 A.M. to 5 P.M. PS.)

Phone: (800) 831-7133

Fax: (800) 284-4151

Web sites

<http://www.pentairpool.com> and [staritepool.com](http://www.staritepool.com)

Download the IntelliTouch® User's Guide (PDF) from the Web

http://www.pentairpool.com/owners_manuals/controls/IntelliTouch_Pool_Spa_Cntrl_Instll_Guide.pdf

Related IntelliTouch Manuals

EasyTouch and IntelliTouch Load Center Installation Guide	(P/N 521139)
EasyTouch User's Guide	(P/N 521044)
IntelliTouch User's Guide	(P/N 521075)
IntelliTouch Expansion Center Kit User's Guide	(P/N 520471)
IntelliTouch i-Link Protocol Interface Adapter User's Guide	(P/N 520450)
ScreenLogic® User's Guide	(P/N 520493)
ScreenLogic Video & Lighting Protocol Adapter User's Guide	(P/N 520936)

In this Installation Guide

Use the information in this manual for installing the IntelliTouch Personality Kit contents.

- For Load Center and Power Center installation instructions, refer to EasyTouch® and IntelliTouch® Load Center Installation Guide (P/N 521139).
- For Accessory installation and operation instructions, refer to the User's Guide provided with the accessory.

Note: For IntelliTouch Indoor and MobileTouch® Controller, refer to the IntelliTouch System User's Guide (P/N 521075).

Introduction

Welcome! Your Pentair Pool and Spa® (“Pentair”) IntelliTouch® 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, pump, cleaners and much more. You can now schedule multiple start and stop times to control your lights, heater, spa jets, and filter pumps. Using the IntelliTouch® Indoor Control Panel or IntelliTouch MobileTouch® wireless control panel you can control your pool, spa, and lights from anywhere inside or outside of your home. Optional controllers are also available such as the wireless Digital Tablet, iPhone, iPad or iPod Touch interface (purchased separately), and in-wall Touch Screen that can interface with your PC. IntelliTouch is a scalable system that can be upgraded to a completely integrated home automation solution including audio, security, climate, irrigation and more. For more information about using these interfaces, refer to the ScreenLogic2™ Interface Kits on page 6.

IntelliTouch System Overview

An IntelliTouch system can include five (5) to 40 high voltage relays circuits that can be used to control any combination of pumps, lights, water features. A maximum of ten (10) relays can be housed in an IntelliTouch Load Center or Power Center. Up to three (3) Load Centers or Power Centers can be connected to a main Load Center for a maximum of 40 relays. User-configurable circuits can be used to control equipment. The “Feature Macro” circuits feature allows any number of circuits to be combined and controlled by a single button.

An optional IntelliTouch Dimmer Module (P/N 520406) can be installed for use to dim any high voltage incandescent light such as Pentair Amerlite® and Pentair SpaBrite® lights. The dimmer module supports multiple lights from 100 watts up to 1,000 watts and installs in a standard relay location. Any number of dimmers (up to 10 maximum) may be used with a maximum combined load of 4,000 watt in a single Load Center.

In the home

The IntelliTouch system can utilize multiple wired and wireless controllers including the Digital Tablet, iPhone or iPad Touch interface (purchased separately), the wired in-wall Touch Screen, Indoor Control Panel, and the wireless MobileTouch® remote control panel. Your existing home PC can also be used to control the IntelliTouch system via the ScreenLogic2 interfaces. A maximum of four (4) ScreenLogic2 interfaces can be used, for example, four Tablets or four in-wall Touch Screen’s, or four PC’s in any combination.

Around the pool

Located near your spa, the IntelliTouch, SpaCommand® or iS4 spa-side remote provide control buttons for various pool and spa functions. The SpaCommand spa-side remote also provides a temperature display.

At the equipment pad

The pool pump, filter, and various IntelliTouch remote controllers and interfaces are connected to the IntelliTouch Load Center and/or Power Center enclosure which are located at the equipment pad. The Load Center enclosure is where the high voltage lines from the circuit breaker panel junction box at the home are connected to. The pool service person can periodically check pool operations from the Load Center.

Also at the equipment pad there are system pool and spa pipes connected to the pump, heater and filtration system. Mounted on top the valves are motorized valve actuators (with attached 25 ft cable for wiring) used to automatically change the direction flow of water through the plumbing system. There are also temperature sensors and a cable that connects to the heater.

IntelliTouch System Components

The main required components of an IntelliTouch system is a Load Center or Power Center, IntelliTouch Personality Kit, and Interface:

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The main required components of an IntelliTouch system is a Load Center or Power Center, IntelliTouch Personality Kit, and Interface:

Load or Power Center

- **Load Center:** Provides a larger footprint (26" H x 17" W x 5-1/4" D) Includes built-in sub panel (150 AMPS) capable of holding up to eight 1" breakers. Also includes five 25 AMP three HP relays, 110/240 V transformer with secondary side circuit protection. Multiple knockouts for different sizes of conduit are supplied as well as a GFCI side knockout. The Load Center provides ample space for all high and low voltage wiring needs.
- **Power Center:** Offers a smaller footprint (20" H x 17" W x 5-1/4" D) than the Load Center. The Power Center does not include a circuit breaker base. Users should choose this enclosure if they already have existing circuit breakers/sub-panel for their equipment.

IntelliTouch Personality Kits

There are several types of IntelliTouch control systems available for different pool/spa configurations:

- **Shared Equipment: Pool and spa combinations with shared filtration system** – Pool owners can enjoy the convenience of motorized valves for water flow separation between pool and spa. The Personality Kit models are:
 - **i5+3 (P/N 521219)** – Four auxiliary circuits plus filter pump operation (create a Feature circuit for valve actuators without using an existing output auxiliary circuit, and special light functions for color lighting). Five relays are included in the Load Center.
 - **i7+3 (P/N 521220)** – Six auxiliary circuits plus filter pump operation and the +3 option (create a Feature circuit for valve actuators without using an existing output auxiliary circuit, and special light functions for color lighting). Two relays are included in the kit and five in the Load Center.
 - **i9+3 (P/N 521221)** – Eight auxiliary circuits plus filter pump operation and the +3 option (create a Feature circuit for valve actuators without using an existing output auxiliary circuit, and special light functions for color lighting). Four relays are included in the kit and five in the Load Center.
- **Dual Equipment: Pool and Spa with Dual Sets of Equipment** – The IntelliTouch i10+3D (P/N 521222) is designed to operate two sets of pool equipment. Each set of a equipment (Pool or Spa) can control one temperature setting. This IntelliTouch Personality Kit can control up to 10 pumps and/or lighting circuits, plus two heater circuits. The Personality Kit includes, eight auxiliary circuits plus a filter pump. The +3 option (create a Feature Macro circuit for valve actuators without using an existing output auxiliary circuit). Five relays are included in the kit and five in the Load Center. You can create a Feature circuit for valve actuators without using an existing output auxiliary circuit, and special light functions for color lighting.

- **Single Equipment: Pool Only or Spa Only Applications** – The IntelliTouch i5S+3 (P/N 521219) and i9+3S provide advanced automation for a single body of water. The i5+3S (P/N 521223) and i9+3S (P/N 521224) Personality Kits includes four auxiliary circuits plus filter pump operation. Five relays are included in the Load Center. The i9+3S Personality Kits includes eight auxiliary circuits plus filter pump operation and the +3 option (create a Feature Macro circuit for valve actuators without using an existing output aux circuit). Four relays are included in the kit and five in the Load Center. You can create a Feature circuit for valve actuators without using an existing output auxiliary circuit, and special light functions for color lighting. This model also allows HI-TEMP and LO-TEMP settings.

IntelliTouch Accessory Power Center Expansion Kits

- **Expansion Kits:** Models i5X (P/N 521225) and i10X (P/N 521226), offer five or ten additional Auxiliary Circuits for systems i9+3, i9+3S and i10+3D. Each IntelliTouch Expansion Kit requires a Load Center (P/N 521213) or Power Center (P/N 521214). Up to three Expansion Kits and Load or Power Centers may be added to a system, for control of up to 38 Auxiliary Circuits (40 auxiliary circuits for i10+3D).

IntelliTouch Personality Kit Contents

The following items are included in the IntelliTouch Personality Kit.

- An IntelliTouch interface
- Outdoor Control Panel. Includes a main controller circuit board and a Personality circuit board.
- Power Relays - (Models i5+3, i5S+3 no relays, i7+3 Qty. 2, i9+3, i9+3S Qty 4, i10+3D Qty 5, i5x (no relays, i10x (5 relays)
- Valve Actuators - Qty 2 (Models i5+3, i7+3, i9+3)
- Temperature Sensors - Water Sensor (with long cable, including o-ring and hose clamp), Air Sensors (with short cable). For i10+3D only, two Water Sensor (with long cable)
- Wiring Diagram Label for models i5S+3 and i9+3S and i10+3D. For models i5+3, i7+3, i9+3, refer to the Load Center and Power Center inside front door.
- Load Center or Power Center parts bag: Includes relay screws (see page 2).
- Label Sheet - A set of adhesive labels for custom identification (used to label the outdoor control panel buttons). Use a pair of fine-tip tweezers to remove the labels from the sheet.
- IntelliTouch Personality Kit Installation Guide (P/N 521074).

Note: For information about the IntelliTouch Indoor Control Panel and MobileTouch® Wireless Controller, refer to the IntelliTouch System User's Guide (P/N 521075).

Optional Equipment (IntelliChem)

- IntelliChem® no-pump (P/N 521357), one-pump (P/N 521356), two-pump (P/N 521355)
- IntelliChem Installation and User's Guide (P/N 521363)



IntelliChem® Water Chemistry Controller (P/N 521356)

IntelliTouch Interfaces

Choose one or more of the following interface options to control pool and spa operations.

- **iPhone™/iPad® Touch Interface (P/N 520500)** – Includes Protocol Interface Adapter that connects to existing Desktop or Laptop PC. This allows control of IntelliTouch pool and spa systems via PC (requires PC with an Ethernet connection, and Windows® XP operating system).
- **iTC35 Kit (P/N 520502)** – Includes in-wall color touch screen with Ethernet (RJ45) connection and Protocol Interface Adapter and wireless router. The in-wall Touch screen is custom configured for IntelliTouch systems. Requires an Ethernet cable to router.
- **iTC45 Kit (P/N 520503)** – Includes wireless Tablet with color touch screen, Protocol Interface Adapter, and wireless router. The Tablet is custom configured for IntelliTouch systems.



iPhone™
(for use with ScreenLogic2™)



In-Wall Touch Screen



Digital Tablet



Indoor Control Panel

- **Indoor Control Panel (P/N 520138)** – 3.75” monochrome backlit LCD control panel. Connects to the IntelliTouch Personality board in the Load Center.
- **MobileTouch® Kit (P/N 520906)** – 3.75” monochrome backlit LCD wireless control panel with Transceiver antenna. Allows any IntelliTouch wired system to also have a wireless remote with all the capabilities of the Indoor Control Panel. With an average range of 300 feet, pool owners have system control anywhere around the home or yard. Powered by a rechargeable lithium-ion battery. Includes a cradle for recharging. The MobileTouch control panel without the Transceiver antenna (P/N 520907) is also available.
- **QuickTouch® II (P/N 521245) and QT4 (P/N 520148) Wireless Remote:** Four-function wireless remote for pool and spa functions of your choice. This controller transmitter operates up to 150 feet range from the Load Center or Power Center.
- **SpaCommand® (P/N 521176):** 10-function (SpaCommand™) and 4-function (iS4) spa-side remote controller for pool and spa functions of your choice. The controllers can operate up to 150 feet range from the Load Center or Power Center.



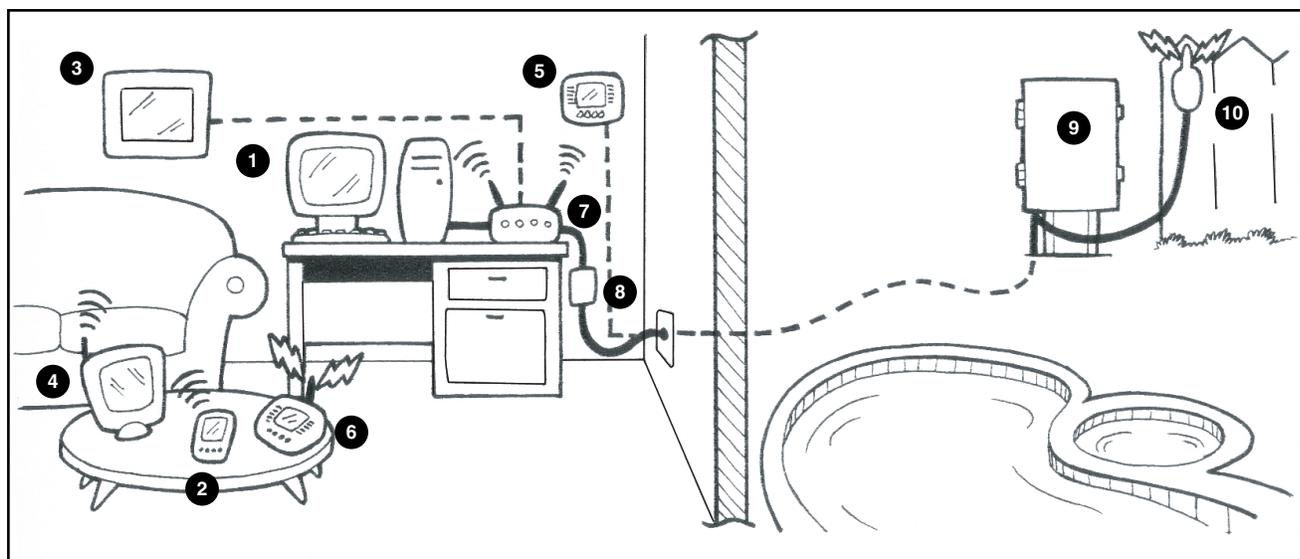
MobileTouch® Wireless Controller



SpaCommand™



QuickTouch® II wireless remote



IntelliTouch in Your home

- 1 **Personal Computer (PC):** Existing home owner's PC or Laptop. Connects to a wireless router and the ScreenLogic2 Protocol adapter for control of IntelliTouch pool/spa systems. Requires a PC/Laptop (Windows 7, Vista or XP) with Ethernet/RJ45 adapter installed.
- 2 **i-Pad®, iPad Touch® or iPhone®:** Enables you to control your pool and spa features using the ScreenLogic2 interface.
- 3 **In-Wall Touch Screen:** A color display with Ethernet (RJ45) connector. Connects to the provided wireless router and Protocol adapter via Ethernet (RJ45) for control of IntelliTouch pool and spa systems.
- 4 **Wireless Tablet:** This control panel consists of a color touch screen. Receives and transmits commands via wireless router and Protocol adapter for control of IntelliTouch pool/spa systems.
- 5 **Indoor Control Panel:** This control panel for IntelliTouch systems, consists of a backlit LCD and connects into the Load Center for control of IntelliTouch pool and spa systems.
- 6 **MobileTouch Wireless Remote:** This wireless control panel has a backlit LCD. Receives and transmits commands via the Transceiver antenna located at the Load Center.
- 7 **Wireless router:** Connects to the PC or Laptop via Ethernet connection to the Protocol adapter.
- 8 **Protocol adapter:** Connects to wireless router via Ethernet connection and to Personality board (Load/Power Center) via a four-wire 22-AWG cable.
- 9 **IntelliTouch Load Center or Power Center.** The main control center. Includes the Outdoor Control Panel that controls pump, heater, and light relays. Receives commands via Protocol adapter, and wireless and wired control panels connected to the Personality board.
- 10 **MobileTouch Transceiver antenna:** This antenna sends and receives commands to and from the MobileTouch control panel.

Tools required

- 3/16 in. diameter drill (for mounting Indoor Control Panel).
- 5/16 in. diameter drill (for mounting Water Temperature Sensor).

ScreenLogic2 Interface Kits

The following items are included in your ScreenLogic2 Kit.

iPhone/iPad Touch Interface Kit (P/N 520500)

- Protocol adapter for use with existing Desktop or Laptop PC, iPhone, iPod Touch, or iPad
- ScreenLogic2 User's Guide
- CD-ROM containing ScreenLogic2 PC user interface software

In-Wall Touch Screen (iTC35 Kit - P/N 520502)

- In-wall Touch Screen, Cradle, and AC adapter.
- Protocol adapter.
- ScreenLogic2 User's Guide (this manual).
- CD-ROM containing ScreenLogic2 PC user interface software.

Digital Wireless Tablet (iTC45 Kit - P/N 520503)

- Digital Tablet (with internal battery pack), stylus, built-in Wi-Fi 802.11b wireless LAN adapter with antenna.
- Protocol adapter.
- ScreenLogic2 User's Guide (this manual).
- CD-ROM containing ScreenLogic2 PC user interface software.

ScreenLogic2 Interface Accessory Kits

If you need additional interfaces, first order one of the ScreenLogic2 interface kits listed above, then order one or more of the following accessory interfaces accessory kits:

- In-Wall Touch Screen, CD-ROM and manual (P/N 520498)
- Tablet, CD-ROM and manual (P/N 520499)

Note: The above Accessory Kits interfaces utilize the existing protocol adapter supplied in the 520500 - 520503 kits.

IntelliTouch Accessories

- 521225 i5X Expansion Kit five Auxiliaries.
- 521226 i10X Expansion Kit ten Auxiliaries.
- 520906 MobileTouch Wireless Control Panel and Transceiver.
- 520355 Colored Faceplate Kit for surface-mount. Tan, Grey, or Black with label set.
- 520354 Colored Faceplate Kit for recessed-mount. Tan, Grey, or Black with label set.
- 520335 Mud box recessing SpaCommand into deck or tile.
- 520138 Indoor Control Panel, White.
- 520198 Two-Speed Three HP Relay up to three additional valve actuators.
- 520285 Valve module for controlling three additional actuators.
- 520106 Three HP Power Relay.
- 687000 Two Telephone remote control for any single circuit, usually Spa mode.
- 520148 QuickTouch II Four-Function Wireless Remote Kit, Transmitter and Receiver.
- 520406 Dimmer Module. Supports up to 4,000 Watts maximum load (four dimmers handling 1,000 Watts each).
- 520442 i-Link Home Automation Adapter Interface for IntelliTouch.
- 520403 Dual Heater Kit. Utilize a gas heater and heat pump.

Installation Steps Summary

Note: The following installation instructions assume that the Load Center or Power Center is installed at the equipment pad. For Load Center and Power Center installation instructions, refer to the Load Center and Power Center Installation Guide (P/N 521139).

The recommended installation steps for the Personality Kit parts are as follows:

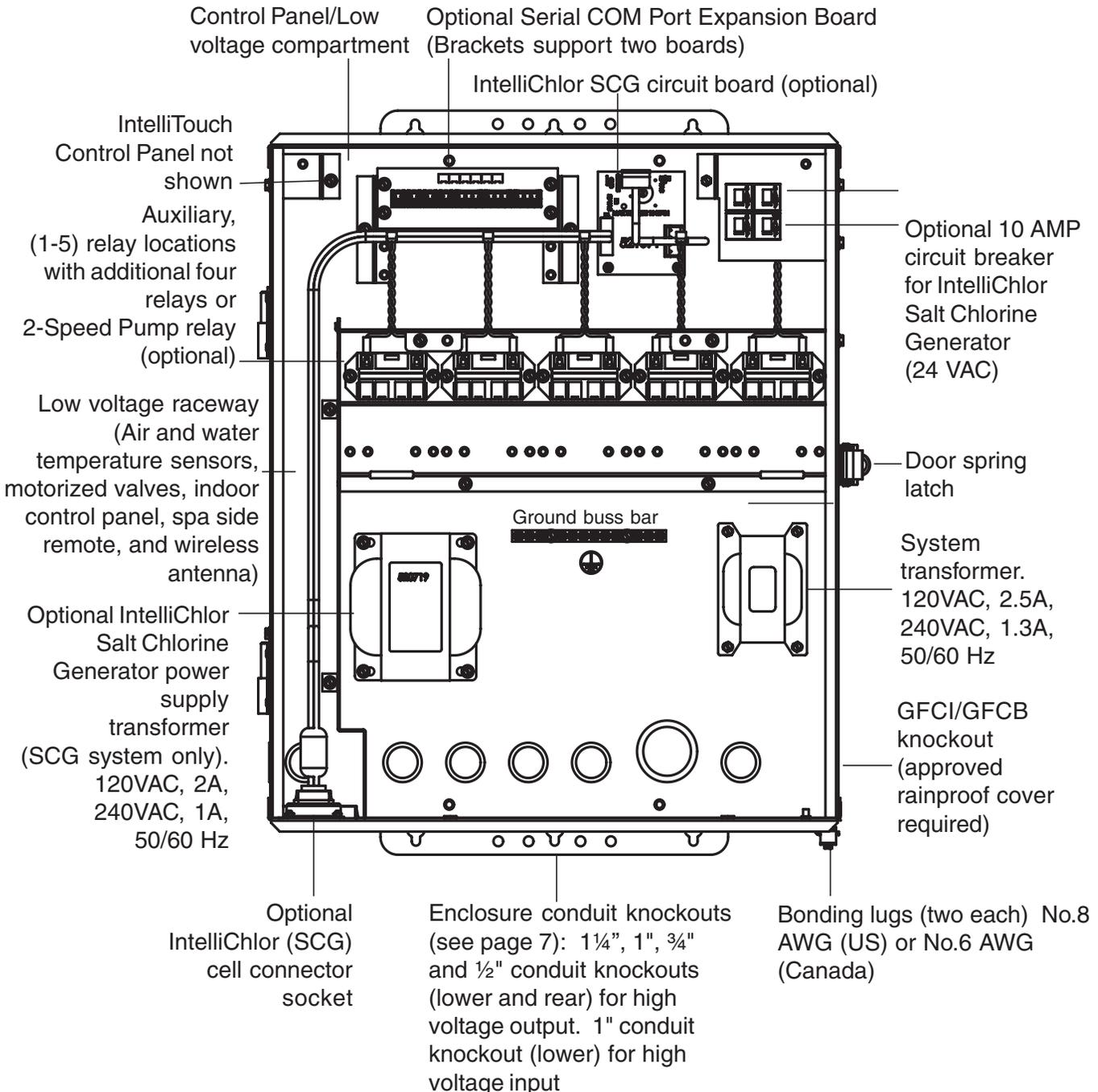
- 1 Install the Outdoor Control Panel (page 14):** Install the IntelliTouch Personality board in the Load Center or Power Center. Also, review the high voltage connection locations in the Power/Load Center.
- 2 Connect IntelliTouch Relays (page 16 - 17):** Connect the relay plugs to the IntelliTouch Personality circuit board. IntelliTouch has five pre-installed relays in the Power/Load Center.
Install auxiliary relays (page 18): Install and connect the relay(s). The number of relays
- 3 included in the Personality Kit depend on the Outdoor Control Panel model (i5+3, i5S (none), i7+3 (Qty. 2), i9+3, i9+3S (Qty. 4), i10+3D (Qty. 5).**
- 4 Install Valve Actuators (page 18):** Install the valve actuators on the valve assembly and connect to the Personality board.
- 5 Install Temperature Sensors (page 20):** Install the water and air sensors and connect the cable plugs to the Personality board.
- 6 Connect Heater Thermostat cable (page 22):** Connect the heater thermostat cable plug to the IntelliTouch Personality circuit board.
- 7 Connect Heat Pump Cable (UltraTemp®) (page 23):** Connect the heat pump cable to the IntelliTouch COM port.
- 8 Connect IntelliFlo Pump Communication Cable (page 23):** Connect the IntelliFlo pump communication cable to the IntelliTouch COM port.
- 9 Rewiring the System Transformer for 240 VAC (page 25):** Reconfigure the system transformer for 240 VAC.
- 10 Install the IntelliTouch Indoor Control Panel (page 26):** Wall-mount the Indoor Control Panel and connect to the Personality circuit board.
- 11 Install the MobileTouch Wireless Control Panel (page 30):** Mount the transceiver and connect to the Personality board.
- 12 Affixing the System Wiring Diagram Label (page 37):** Affix the wiring diagram on the inside of the front door of the Power/Load Center (for models i5S, i9+3S, i10+3D only).

High Voltage Connections

⚠ WARNING - It is required that the main power into the home be switched OFF at the main circuit breaker box whenever the high voltage cover-panel is removed. The main power must also be switched OFF to access the Power/Load Center enclosure low voltage raceway.

Power Center (without built-in Subpanel) - IntelliTouch System Only

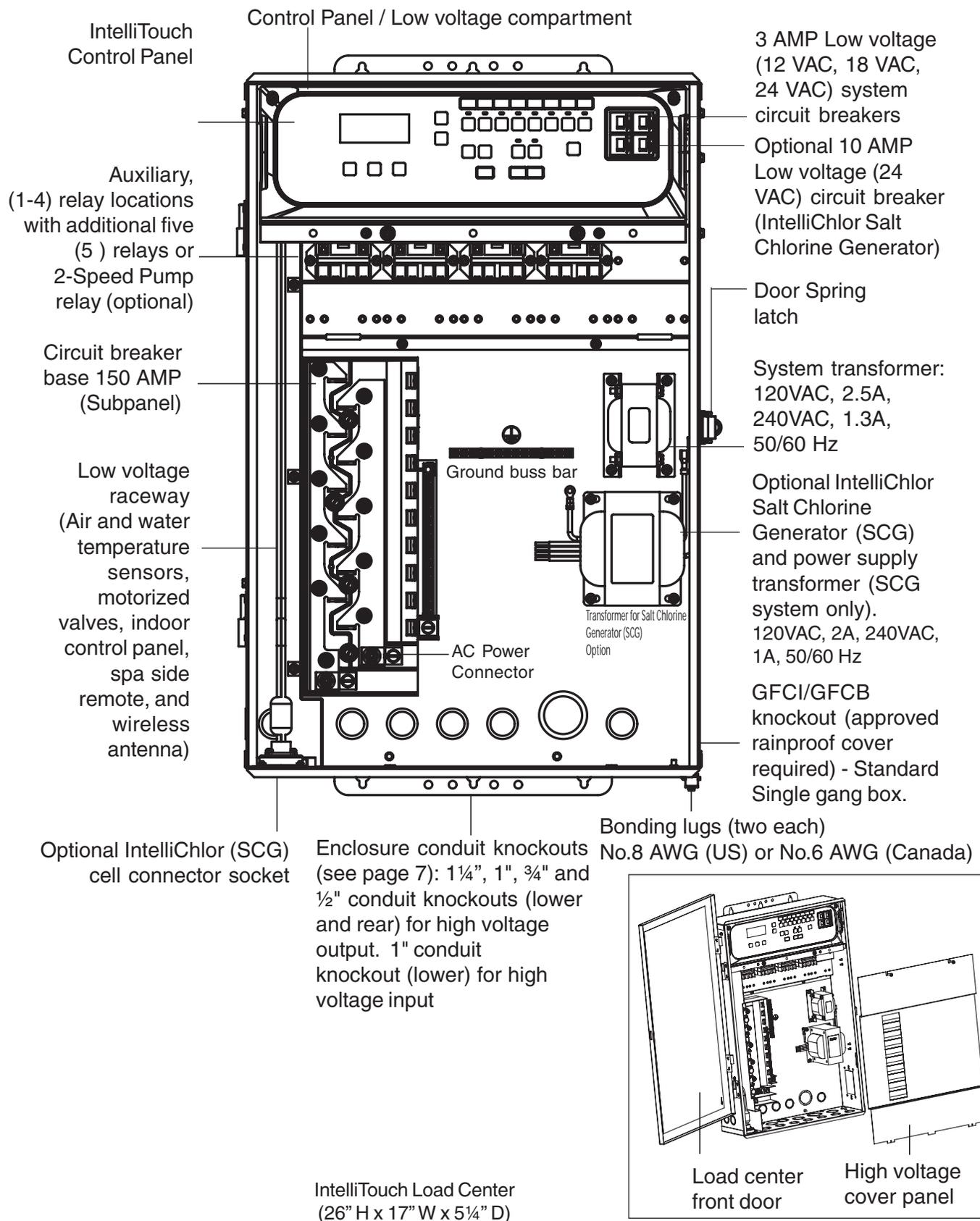
The IntelliTouch Power Center (without sub-panel) must be installed at the equipment pad. AC power to the Power Center is provided from the an electrical circuit breaker panel (sub-panel) installed at the equipment pad. The Power Center should be installed next to the sub-panel.



IntelliTouch Power Center (20" H x 17" W x 5¼" D)
(Front view with door and high voltage cover panel removed)

Load Center (with built-in Subpanel) - IntelliTouch Systems

The Load Center must be installed at the equipment pad. The AC power for the Load Center is provided from the main-panel circuit breaker located at the house.



Installing the Outdoor Control Panel

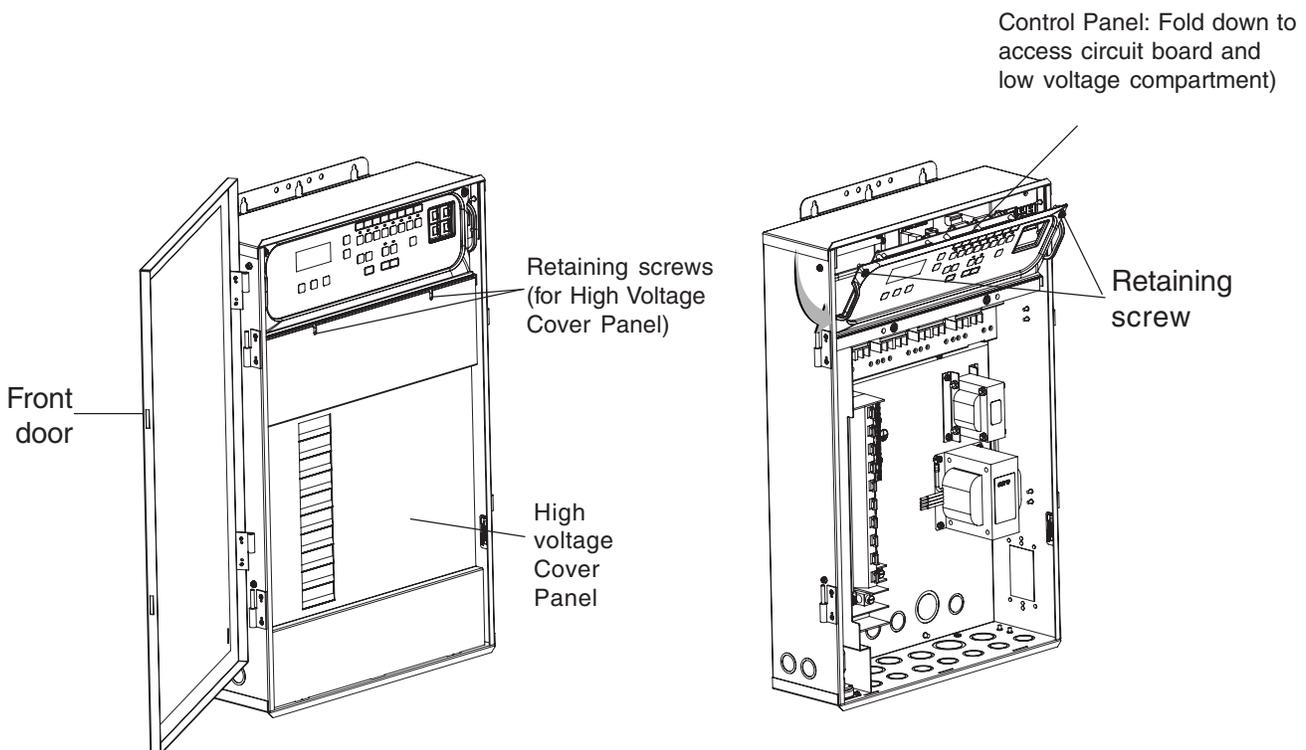


WARNING BEFORE INSTALLING THE LOAD CENTER AND POWER CENTER, ALWAYS SWITCH OFF THE MAIN POWER into the home at the main circuit breaker box.

The IntelliTouch Outdoor Control Panel includes a main circuit board and the Personality circuit board. The Personality board is mounted on top of the main circuit board which mounts on the back of the Outdoor Control Panel. The control panel installs in the top part of the Power/Load Center enclosure. The Power/Load Center receives control inputs from the Personality board and distributes high voltage power to Pentair Valve Actuators (PVA), control pumps, lights, and heater operations. The IntelliTouch remote Indoor Control Panel also controls these and other functions, such as pool and spa lights.

To install the Outdoor Control Panel:

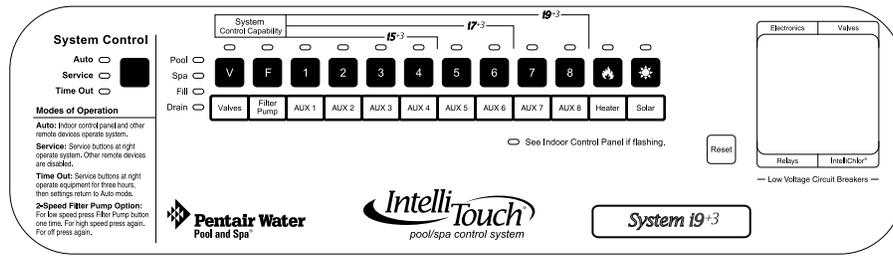
1. Unlatch the front door spring latch and open the front door of the Load Center.
2. Remove the two (2) retaining screws securing the high voltage cover-panel. Remove the HIGH VOLTAGE COVER PANEL from the enclosure.
3. Remove the Outdoor Control Panel from the Personality Kit and its packaging.
4. Mount the Outdoor Control Panel in the top part of the Load Center. Secure the lower edge of the control panel with the two retaining screws. Once secured, the Control Panel can hinge out and down to access the Personality board for low voltage connections.
5. When finished with the low voltage connections on the Personality board, close the hinged control panel and secure it with the two access screws.
6. Install the cover-panel and secure it with the two screws.
7. Close the front door of the Load Center. Fasten the two spring latch.



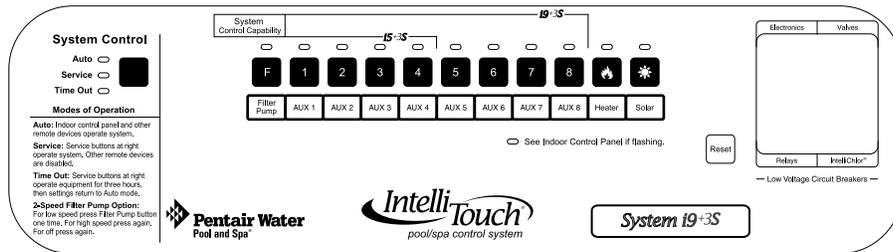
Load Center (front view)
(front door and high voltage compartment panel removed)

IntelliTouch Outdoor Control Panels

For IntelliTouch system wiring diagrams, see pages 41-43.

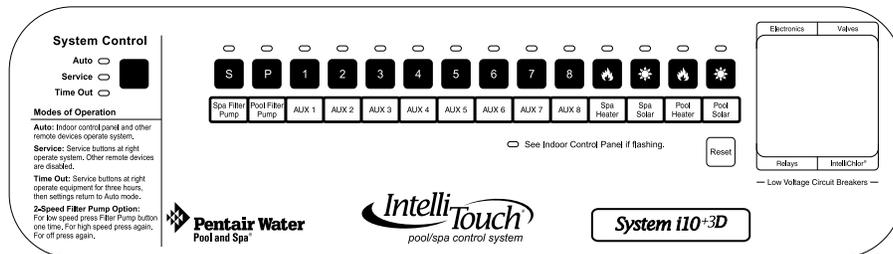


Shared Equipment Systems Model i5+3, i7+3, i9+3



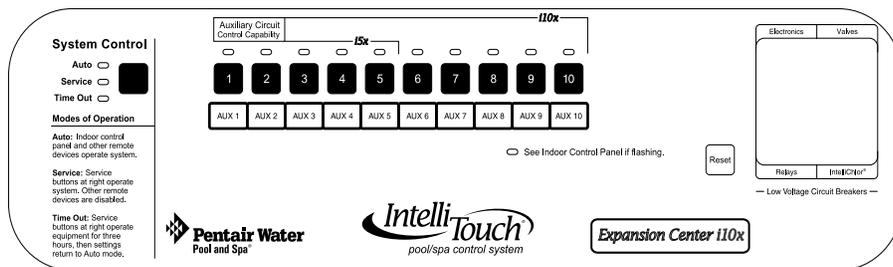
Single Body Systems Model i5+3S, i9+3S

Operates the same as i5+3, i9+3, except no valve controls.



Dual Body Dual Equipment System Model i10+3D

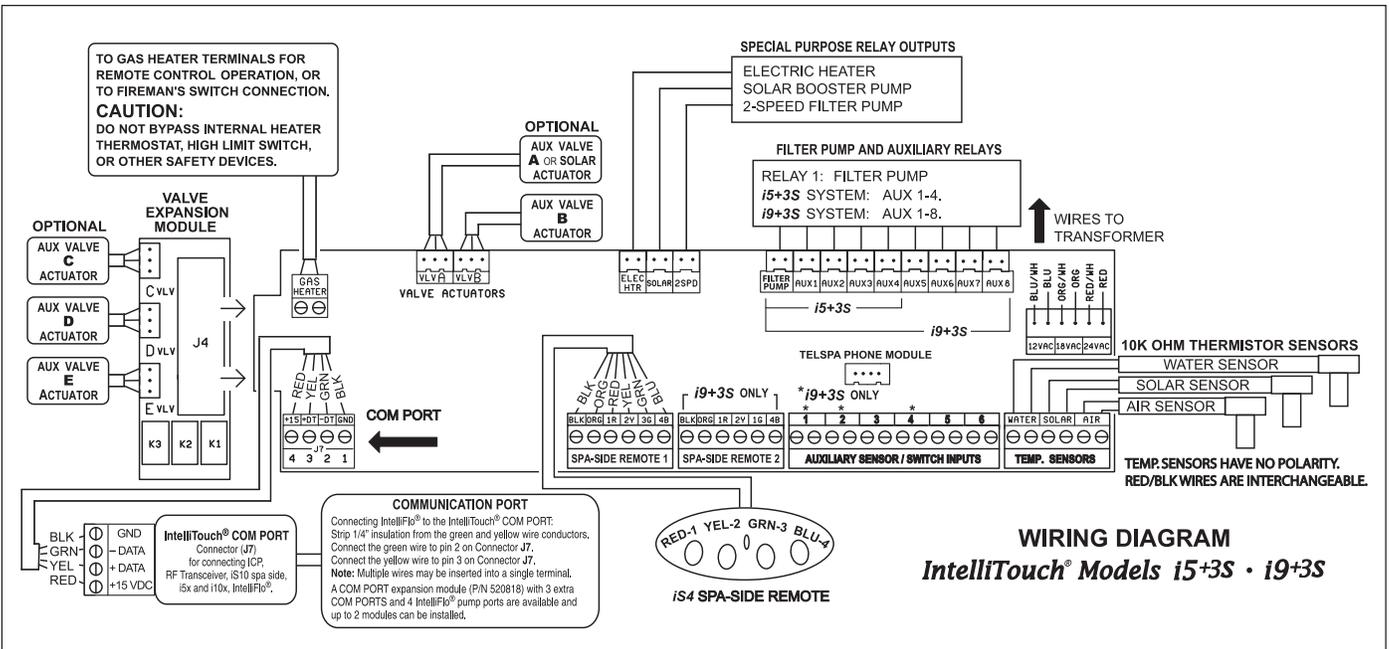
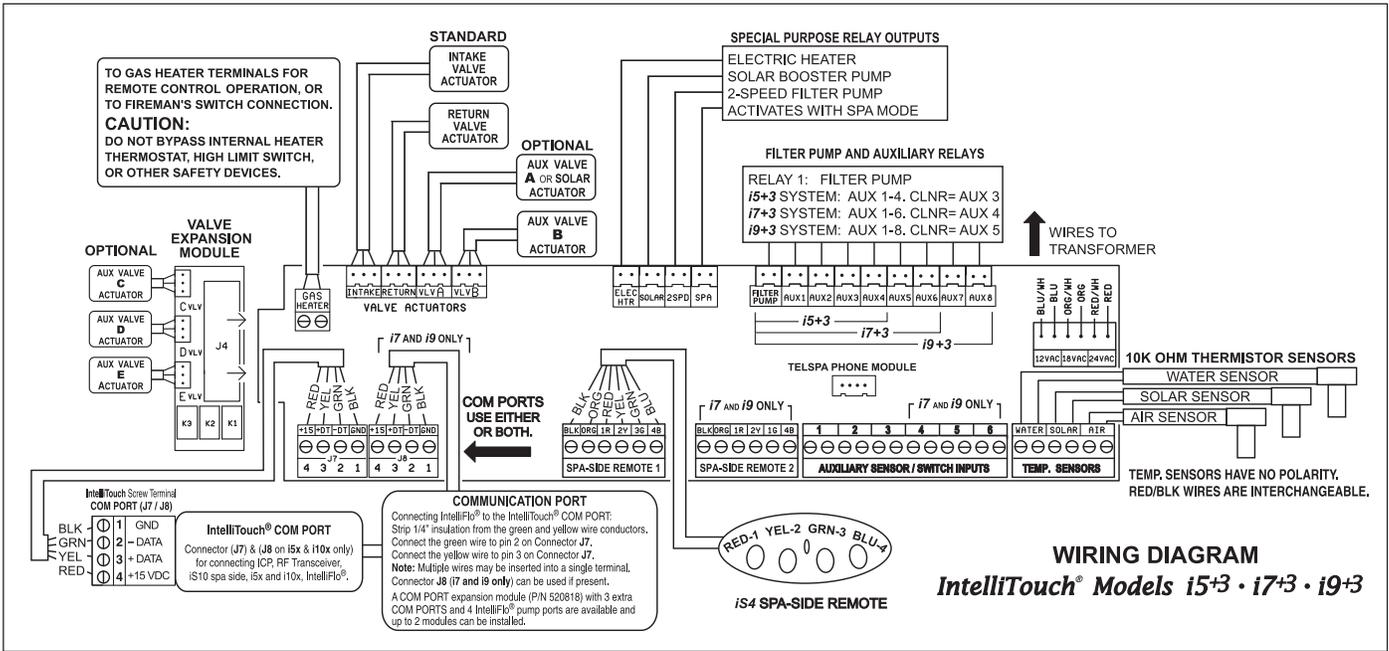
The i10+3D is designed to operate two sets of pool equipment. Each set of a equipment (Pool or Spa) can control one temperature setting. Operation same as i9+3 except S and P buttons operate independent filter pumps and the Heater and Solar buttons operate independent heating systems and no valve controls.



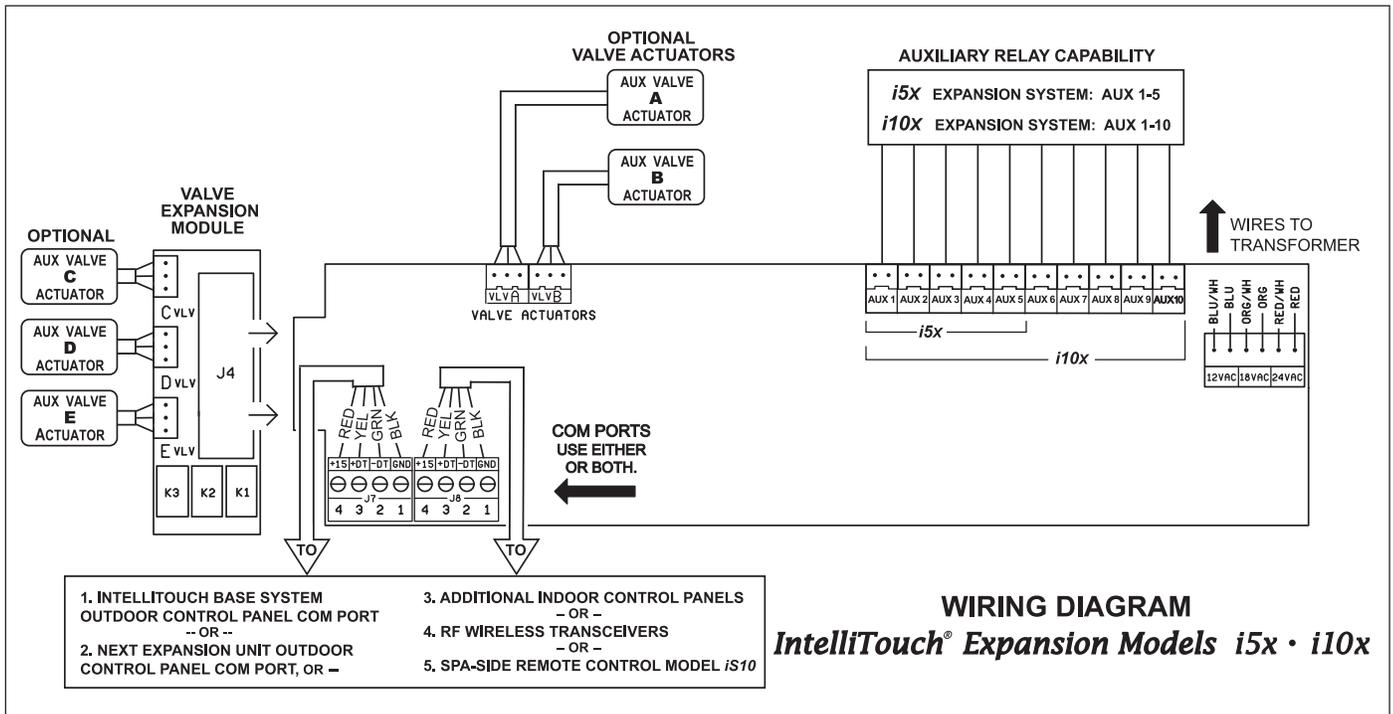
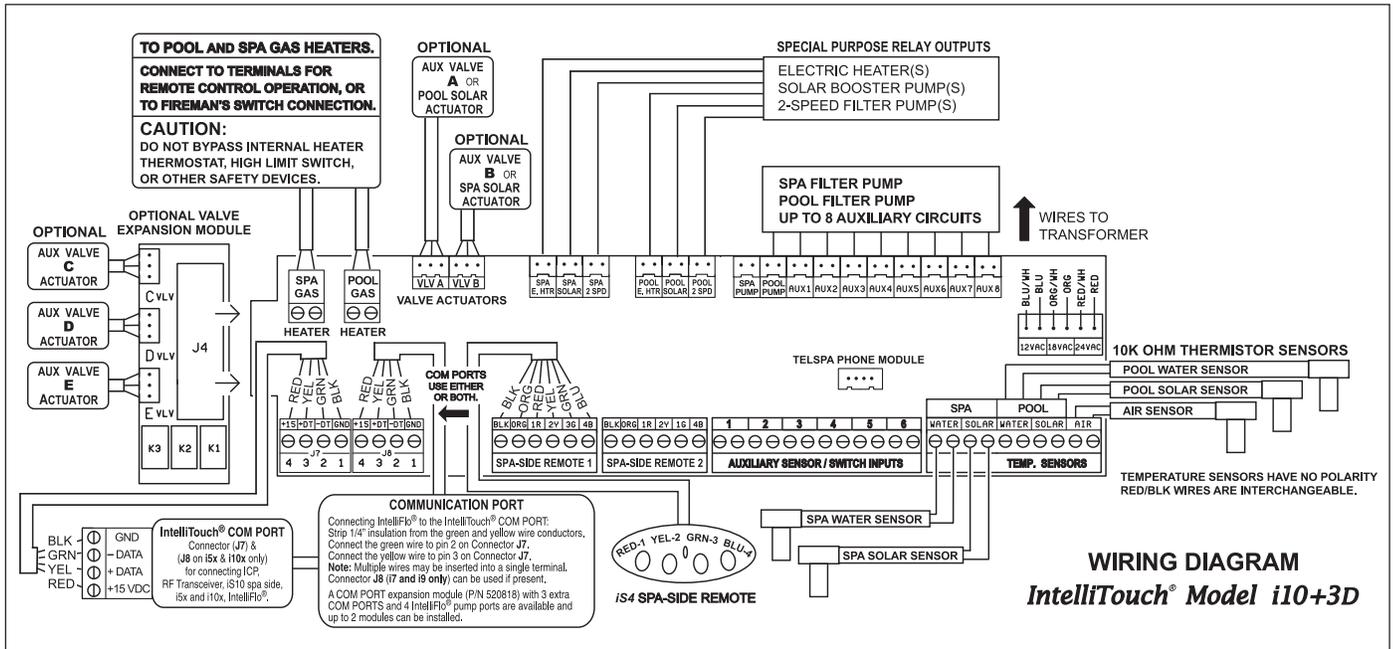
Expansion Centers Model i5x, i10x

Expansion Centers provide additional valve and auxiliary circuits. They are designed to operate with base systems: i9+3, i9+3S, i10+3D. The "Auxiliary circuit control capability" buttons operate the same way as on the main base Outdoor Control Panel.

IntelliTouch System Wiring Diagram (i10+3D, i5+3S and i9+3S)



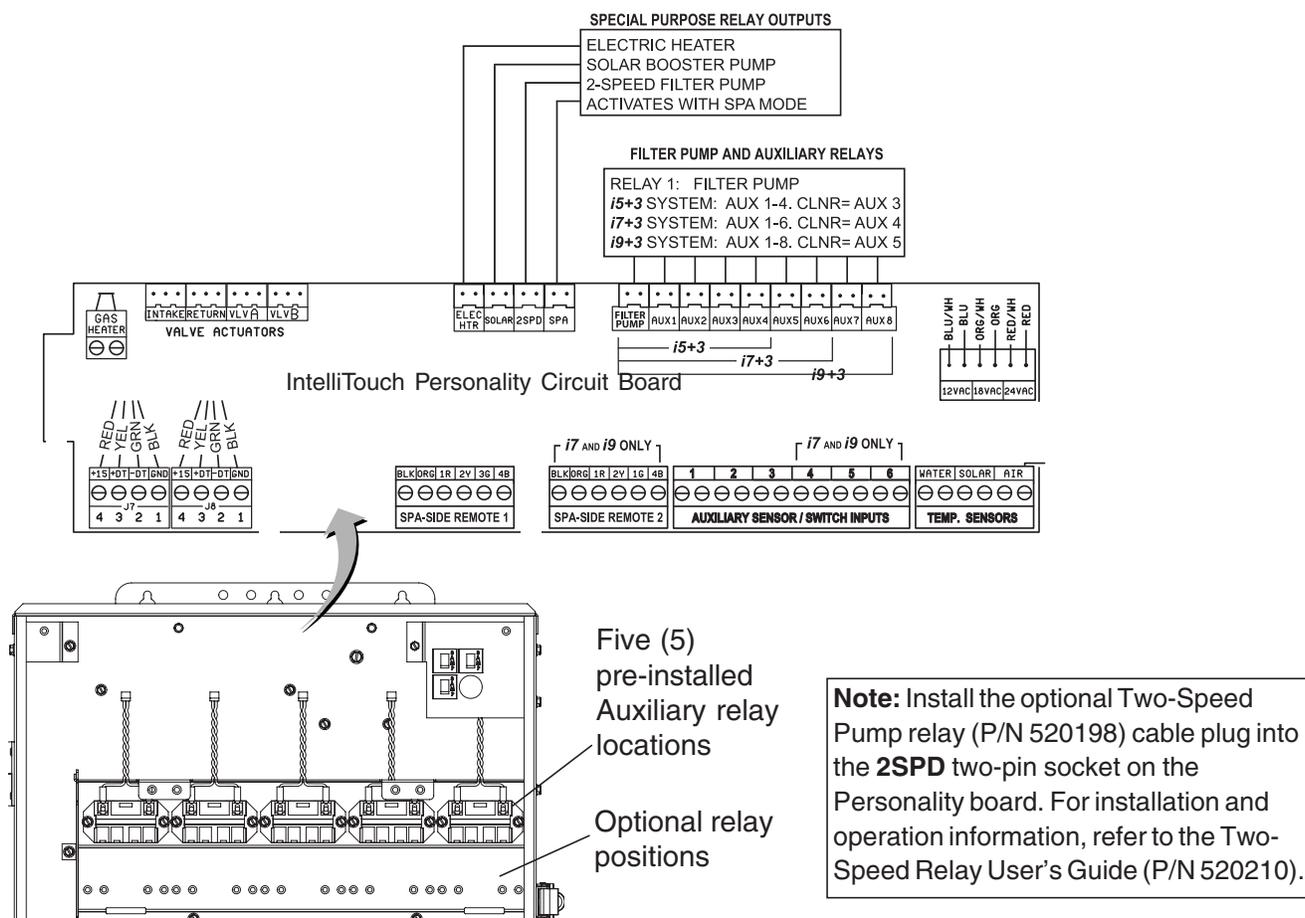
IntelliTouch System Wiring Diagram (i10x and i5x)



Connecting the IntelliTouch System Relays

There are five pre-installed relays in the IntelliTouch Load Center or Power Center. To connect the pre-installed relay cable plugs to the IntelliTouch Personality circuit board:

- Route the power relay cable plugs up through the high voltage compartment to the Personality 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 IntelliTouch system wiring diagrams, see pages 39-41. Note: **For optional relays**; insert each optional auxiliary relay plug into the one of the two-pin sockets, beginning with **AUX5**, **AUX6**, **AUX7** and **AUX8**.
- Dual Equipment: Pool and Spa with Dual Sets of Equipment** – The IntelliTouch i10+3D (P/N 521222) is designed to operate two sets of pool equipment. Each set of a equipment (Pool or Spa) can control one temperature setting. This IntelliTouch Personality Kit can control up to 10 pumps and/or lighting circuits, plus two heater circuits. The Personality Kit includes, eight auxiliary circuits plus a filter pump.
- Single Equipment: Pool Only or Spa Only Applications** – The IntelliTouch i5S+3 (P/N 521219) and i9+3S provide advanced automation for a single body of water. The i5S+3 Personality Kits includes four auxiliary circuits plus filter pump operation. Five relays are included in the Load Center. The i9+3S (P/N 521224) Personality Kits includes eight auxiliary circuits plus filter pump operation and the +3 option (create a Feature Macro circuit for valve actuators without using an existing output auxiliary circuit). Four relays are included in the kit and five in the Load Center. You can create a Feature circuit for valve actuators without using an existing output auxiliary circuit, and special light functions for color lighting. This model also allows HI-TEMP and LO-TEMP settings.

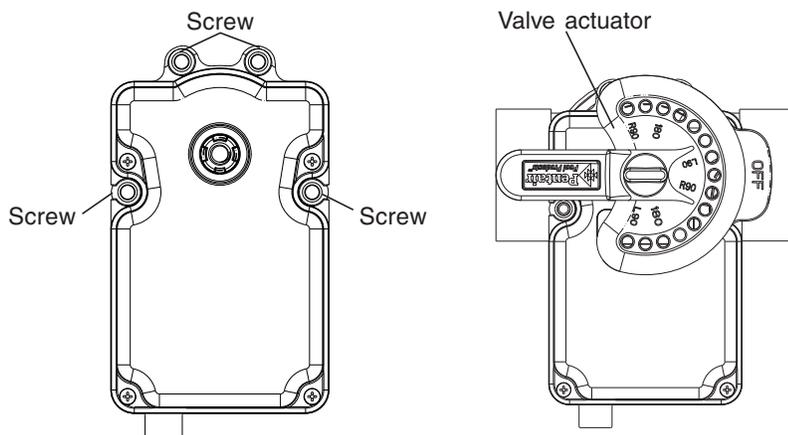


Installing Valve Actuators

The IntelliTouch automation control system can control up to four automatic 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.). Using the IntelliTouch Valve Expansion Board, an addition three actuators can be added to the IntelliTouch Personality circuit board (for more information, see next page). For IntelliTouch 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.
5. Mount the valve handle and knob onto the actuator.

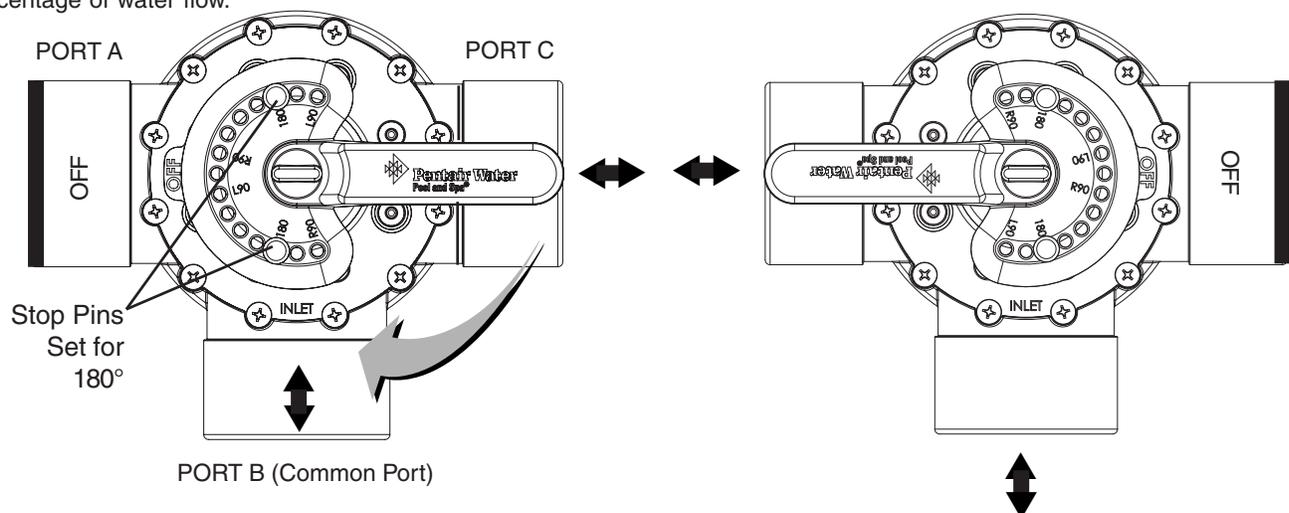


Adjusting the valve position (3-way valve shown below)

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.

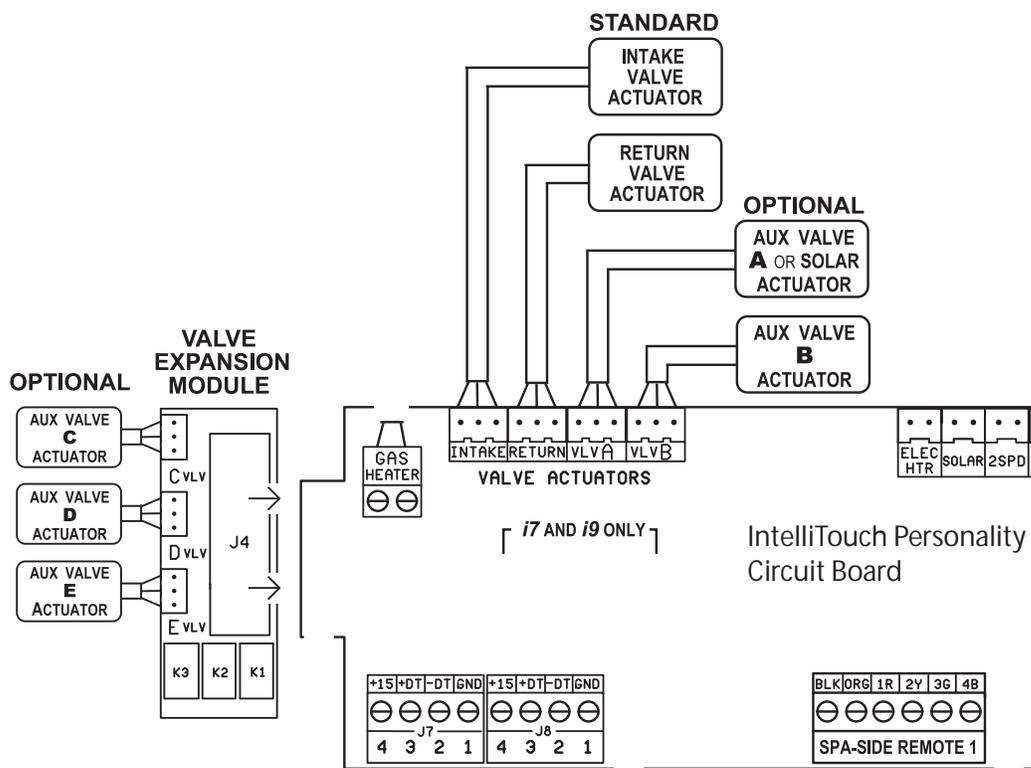
Valve Handle Operation: To reposition the valve handle: Rotate the handle to the desired “OFF” position. The diverter valve handle OFF indicator, represents the current position of the valve’s internal diverter seal which will stop the flow of water. The valve handle stop-pins determine the position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



6. At the Load Center or Power Center, route the cable up through the 1” grommet and low voltage raceway to the circuit board.
7. **IntelliTouch Personality:** 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 left side of the Personality board. Excess cable can be coiled in the enclosure low voltage raceway left side compartment. Do not coil the wire in upper low voltage compartment. For IntelliTouch circuit board connections, see below. For IntelliTouch system wiring diagram, see pag 34. For more information about plumbing requirements, see Item 2 and 3 of “Plumbing Requirements” on page 35.

IntelliTouch Optional Valve Module Expansion Board: Using a Valve Module Expansion board (P/N 520285), three additional valve actuators (VALVE C, D and E) can be added to the system. The expansion board attaches to the edge of the IntelliTouch Personality board. For installation and operation information, refer to the IntelliTouch Valve Actuator Installation Guide (P/N 520294).



IntelliTouch Personality Circuit Board

Installing and Connecting Temperature Sensors

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 5/16" 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 enclosure. Route the conductor up through the low voltage raceway to the circuit board.
5. Cut off the excess conductor and the strip conductors ¼ inch. Use waterproof connectors (provided) to connect the sensor to cable.

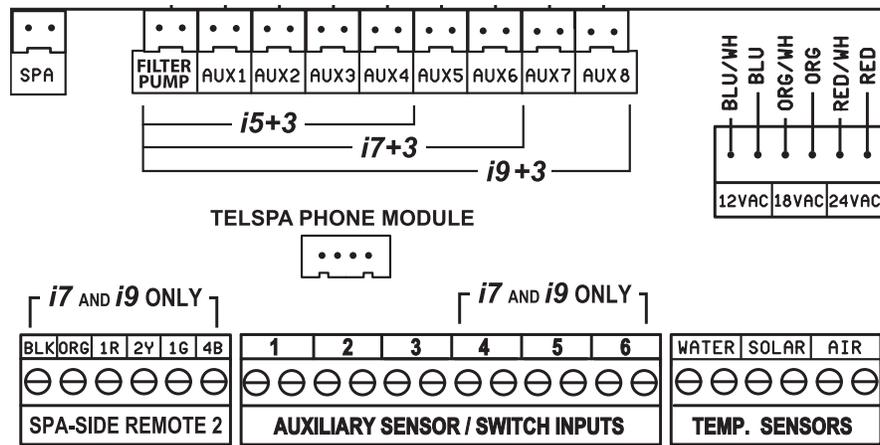
IntelliTouch System: Insert the conductors into the **WATER SENSOR** screw terminals (**J5**) on right-side of the Personality circuit board. For system wiring diagram, see page 34.

Ambient Air Temperature 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 main screen displays the current ambient air temperature.
2. Fasten the cable to the plumbing with cable ties.
3. Run 22 AWG two-conductor cable (included in kit) between the sensor and the enclosure. Route the conductor up through the low voltage raceway to the circuit board.
5. Cut off the excess conductor and the strip conductors ¼ inch. Use waterproof connectors (provided) to connect the sensor to cable.

IntelliTouch System: Insert the conductors into the **AIR** screw terminals (**J5**) on right side of the Personality circuit board. For IntelliTouch system wiring diagram, see page 34.



IntelliTouch Personality Circuit Board

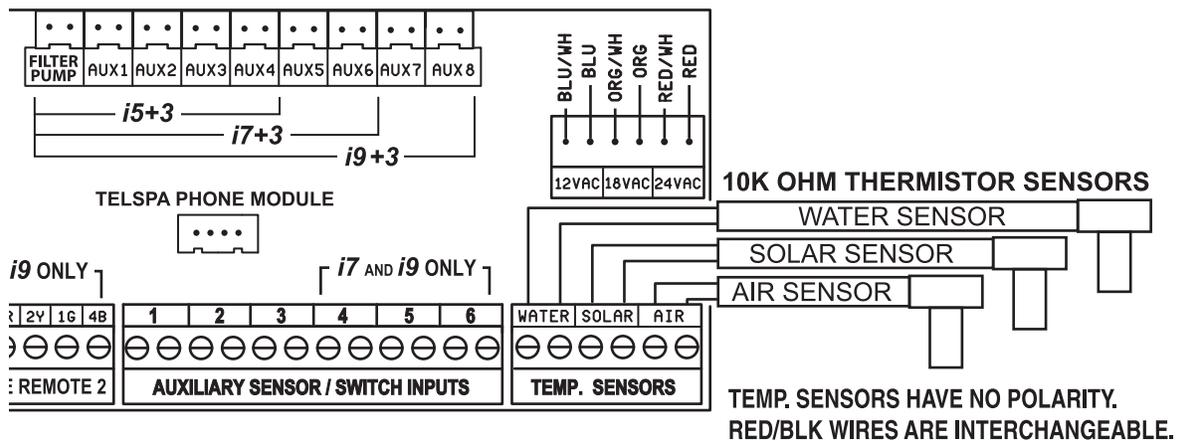
Solar Temperature Sensor (Optional)

Run a two-conductor cable between the sensor and the IntelliTouch Personality circuit board in the Load Center.

To install the solar sensor:

- 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. **WARNING: DO NOT DRILL HOLE AND CLAMP SENSOR INTO SOLAR PIPE.** 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 conductors ¼ inch. Use waterproof connectors (provided) to connect the sensor to cable.

IntelliTouch System: Insert the conductors into the **SOLAR SENSOR** screw terminals (**J5**) on right side of the Personality circuit board. For IntelliTouch system wiring diagram, see page 34.



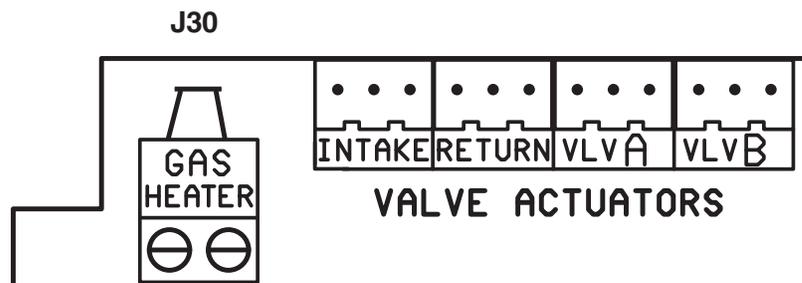
IntelliTouch Personality Circuit Board

Connecting a Standard Gas Heater

For IntelliTouch heater control, there are 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 IntelliTouch Personality circuit board:

1. **CAUTION! Switch the power OFF to the heater.**
2. Remove the factory installed jumper from the heater's "Ext Switch" connector. **CAUTION IMPORTANT: DO NOT** disconnect or conductor around the thermostat, pressure switch, high limit switch, or other safety devices. 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 thermostat "Ext Switch" connector to the low voltage raceway to the Personality board in the Load Center. **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 the conductors ¼ in.
IntelliTouch Personality circuit board: Insert the two conductors into the **GAS HEATER (J30)** two-screw terminal on the left side of the Personality circuit board. For IntelliTouch system wiring diagram, see page 34.
CAUTION: Be sure that the conductors from the heater to the Load Center or Power Center are not near or touching any line voltage conductors in the heater. Failure to follow these instructions may cause the heater to malfunction.
5. Set the Power (Thermostat Select) switch to either "Pool" or "Spa."
6. Set the "Pool" and "Spa" thermostats to their maximum position.



IntelliTouch Personality Circuit Board

Connecting an UltraTemp® Heat Pump

Be sure to check the UltraTemp terminal block conductor colors and pinouts (located on the back of the Auto Set board) before connecting it to the IntelliTouch COM ports. See the wiring table below for the pin configuration.

IMPORTANT: On the UltraTemp AutoSet circuit board ONLY CONNECT PIN 3 (YELLOW) and PIN 2 (GREEN) to the IntelliTouch COM port pins YELLOW and GREEN respectively. Do not connect pin 1 or pin 4 on the AutoSet board or the COM port. These pins are not used.

Wiring Description

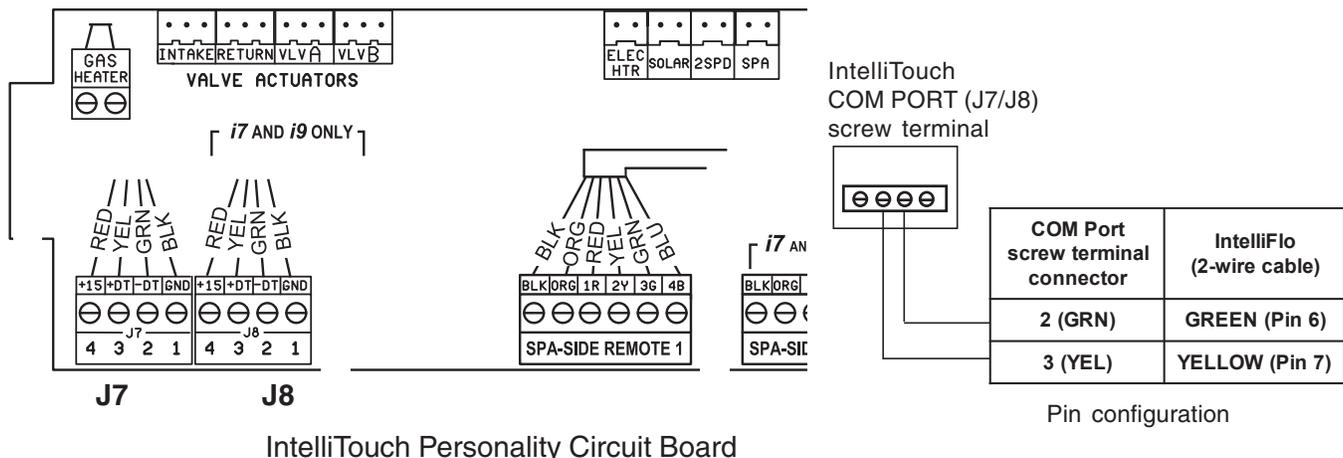
COM port wire color	Description	UltraFlo pin number and wire color
PIN 4 (RED) (DO NOT USE)	+15 VDC	PIN 4 (DO NOT USE)
PIN 3 (YELLOW)	+ DATA	PIN 3 (YELLOW)
PIN 2 (GREEN)	- DATA	PIN 2 (GREEN)
PIN 1 (BLACK) (DO NOT USE)	GROUND	PIN 1 (DO NOT USE)

Connecting an IntelliFlo Pump

The RS-232 communication cable (provided with pump) consists of a 50 ft 22 AWG four conductor low voltage cable. The IntelliTouch filter pump output is rated at 120 VAC, 15 AMP maximum. Check the electrical rating marked on the pump motor before connecting it to the system.

To connect the IntelliFlo communication cable to the Load Center:

- CAUTION! Switch AC power OFF to the load center or power center at the main house circuit breakers.**
- Run the communication cable from the pump to the enclosure.
- Insert the cable 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 low voltage compartment to the IntelliTouch Personality circuit board.
- Strip back the outer jacket four (4) inches. Strip back each conductor a ¼-inch.
- IntelliTouch:** Insert the conductors into either of the COM PORTS (J7 and J8) screw terminals located on the left side of the Personality circuit board. 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. For IntelliTouch system wiring diagram, see page 34.



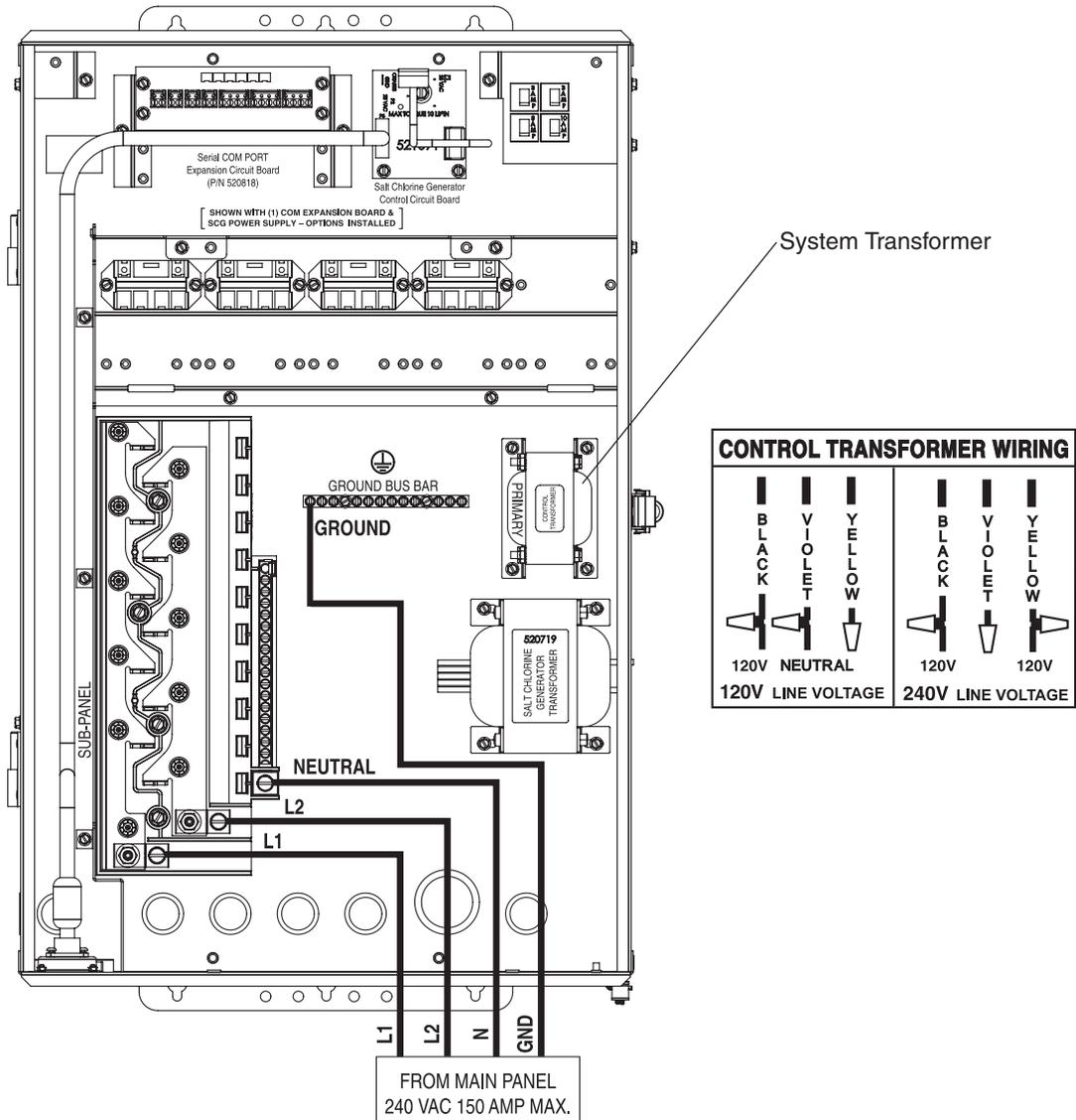
Rewiring the System Transformer for 240 VAC

The Load Center and Power Center system transformer can be wired for 120 VAC at 2AMP 50/60 Hz (factory installed) or 240 VAC at 1AMP 50/60 Hz. The system transformer is pre-wired at the factory for 120 VAC service.

To rewire the system transformer and for 240 VAC:

WARNING BEFORE REMOVING THE HIGH VOLTAGE COVER PANEL FROM THE LOAD CENTER OR POWER CENTER ENCLOSURE switch the main power OFF into the home at the main circuit breaker box and also switch OFF the main power to the Load Center and Power Center.

1. **CAUTION! Switch the power OFF to the Load Center and Power Center.**
2. Unlatch the front door latch and open the front door.
3. Remove the two (2) retaining screws securing the high voltage cover-panel. Remove the HIGH VOLTAGE COVER PANEL from the enclosure (see illustration on page 10).
4. Rewire the system transformer for 240 VAC as shown in the wiring diagram below.
5. Install the high voltage cover panel and secure it with the two retaining screws.
6. Close the enclosure front door and secure with the latch.



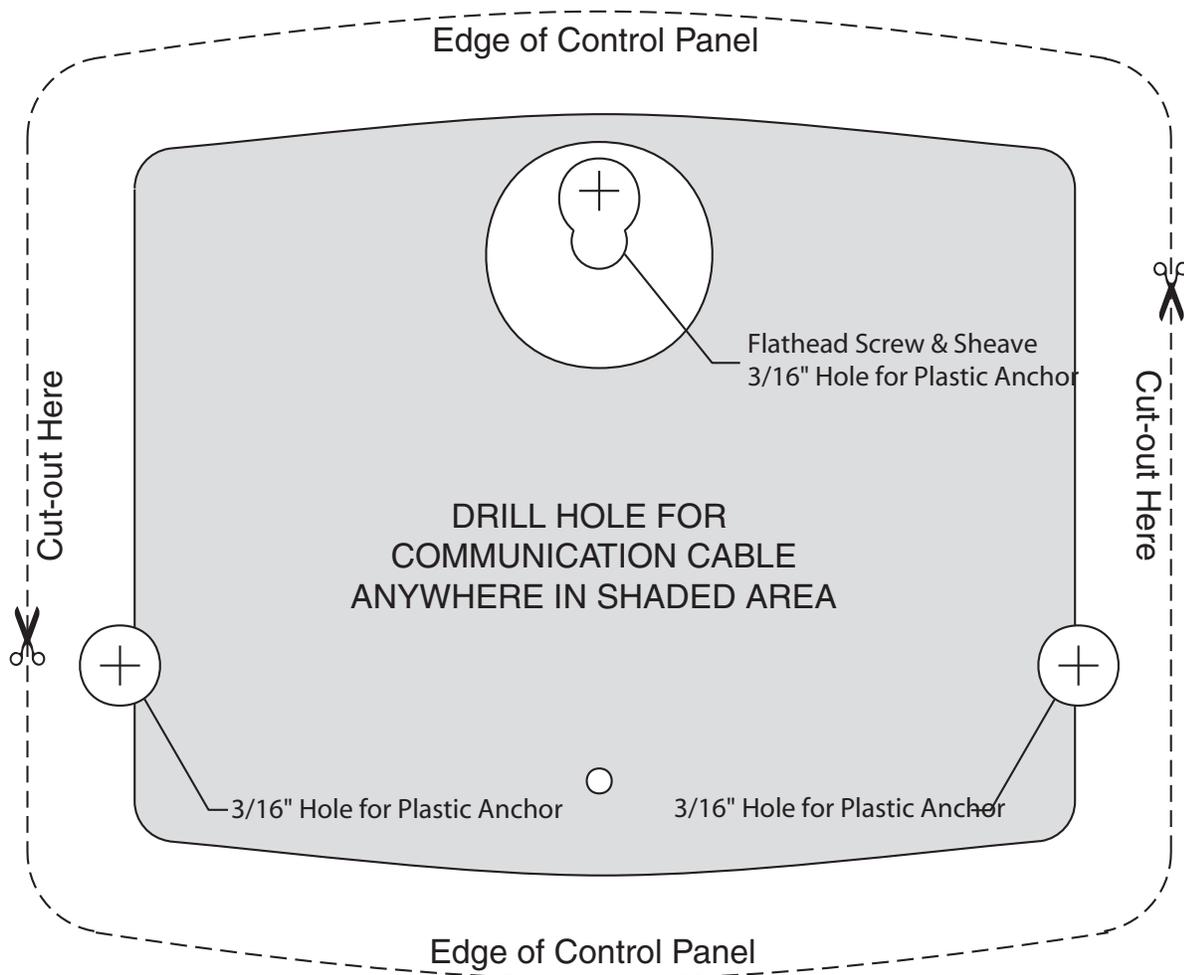
Installing the Indoor Control Panel

The Indoor Control Panel controls pool, spa, lights and other functions of the IntelliTouch system from inside the home or a sheltered area. Select a convenient wall location inside the house or other weather-protected area for mounting the Control Panel.

Drill Control Panel Wall Mounting Holes

To drill the control panel mounting holes:

1. The Control Panel is 5- $\frac{3}{4}$ in. wide. Using the cutout template below, mark the three screw locations on the wall for the mounting holes. Drill the three mounting holes. If the screws are not being screwed into studs, drill $\frac{3}{16}$ in. holes and insert wall anchors (included in the kit) as required.
2. Drill a hole $\frac{1}{4}$ in. within the gray area shown in the template for the communication cable to feed through.



Indoor Control Panel Template

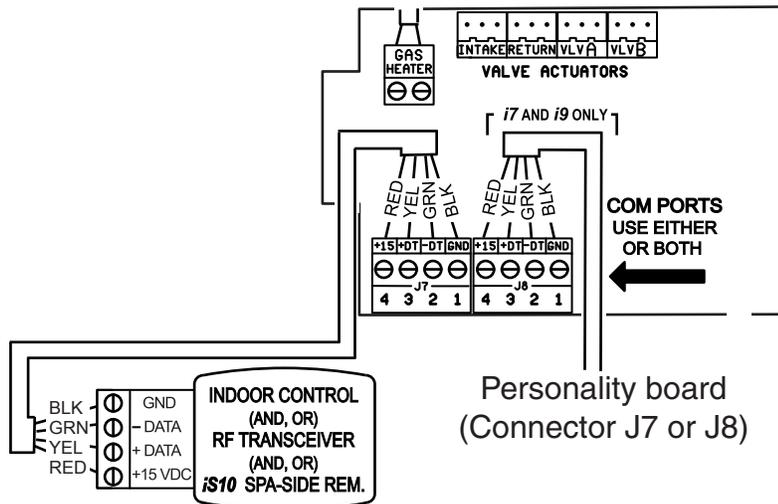
Cabling the Indoor Control Panel at the Load Center

To connect the Indoor Control Panel cable to the Personality board:

1. Turn off the main system power before making any connections.
2. Run a UL approved four conductor cable (22 AWG) from the Indoor Control Panel to the Load Center. The preferred conductor color scheme is: Red, yellow, green, and black.

CAUTION Do NOT short GND or +15V connections (Red or Black) to data lines (Green or Yellow). The Control Panel board may be permanently damaged. Do NOT reverse GND or +15V or system will not operate.

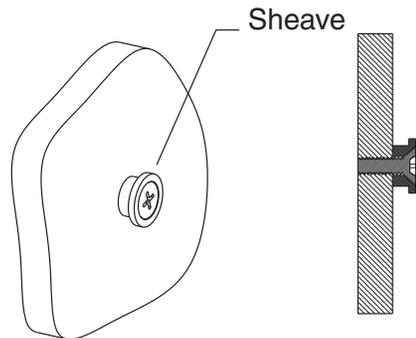
3. Route the cable up through the low voltage raceway to the Personality board. To access the Personality board, refer to Installing the Outdoor Control Panel, page 10.
4. Strip back the communication cable conductors ¼ in. Insert the conductors into the screw terminals (provided in the kit). Secure the conductors with the screws. Make sure to match the color-coding of the conductors: Red = +15, Yellow = +DT, Green = -DT, and GND = Black.
5. Insert the cable plug onto either of the **COM PORTS (J7 or J8)** connectors located on the left side of the Personality circuit board. For IntelliTouch connector locations, see page 34.
6. Proceed with **Cabling the Indoor Control Panel**, page 24.



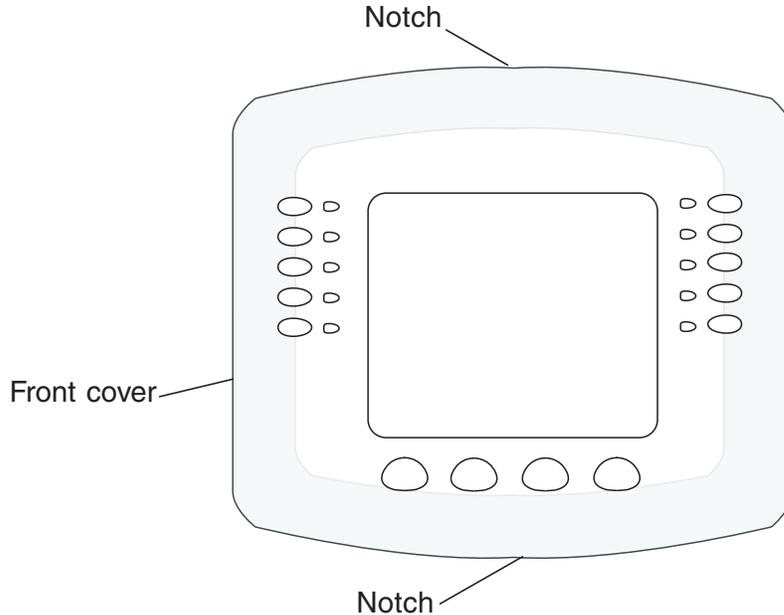
Cabling the Indoor Control Panel

To connect the communication cable to the Indoor Control Panel:

1. Route the cable through the house wall to the location of the Indoor Control Panel. Pull a working length of the communication cable out of the house wall.
2. Drill the flathead screw (provided) through the mounting sheave and into the wall.

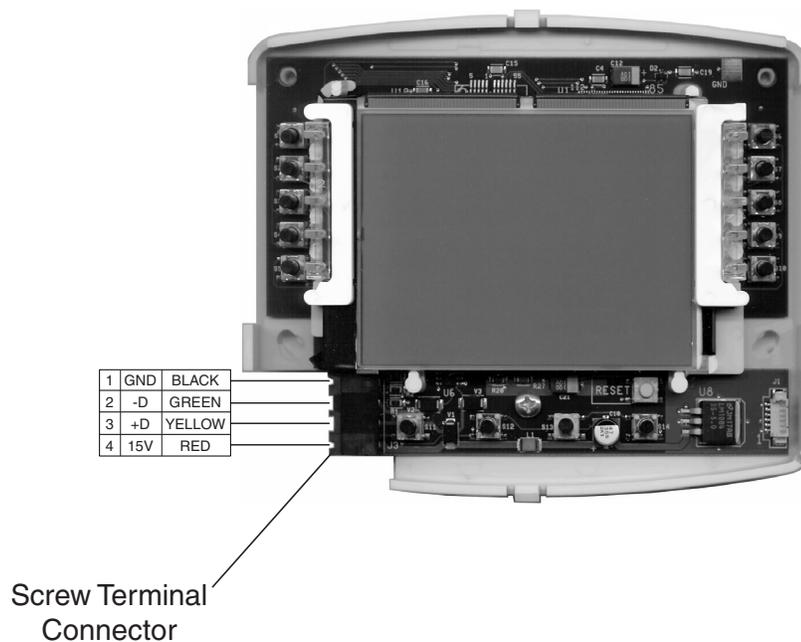


3. **Remove the control panel front cover:** From the front of the control panel, insert the tip of a small flat-blade screw driver into the notch on the top edge of the control panel cover and gently pry the cover off from the control panel base.



Indoor Control Panel (front view)

4. Strip the leads of the communication cable conductors $\frac{1}{4}$ in. Insert the conductors into the screw terminals (provided in the Personality Kit). Make sure to match the color-coding of the conductors (see front of circuit board). An optional cable clip feature has been built into the back plate to help guide the communication cable.
5. Insert the screw terminal connector onto the circuit board socket.
6. Mount the control panel on the wall. Slide the control panel back plate over the mounting sheave and slide down. Rotate back plate as necessary to make level. The bottom mounting holes should be visible through cutouts in the controller board.
7. Feed the cable back into the wall so that the remainder left outside the wall fits behind the back plate.
8. Install the pan head screws into the wall to secure the back plate.
9. Mount the control panel cover over back plate and snap in place to secure. Remove the clear protective plastic sheet from the control panel LCD.



Indoor Control Panel (rear view)

MobileTouch Wireless Controller

The MobileTouch wireless controller provides wireless control of the IntelliTouch system. The MobileTouch controller kit consists of:

- Hand-held wireless LCD control panel
- Cradle AC adapter for recharging the unit
- Transceiver antenna module

Mounting and Connecting the MobileTouch Transceiver Module

The Transceiver module is a two-way radio device with an attached antenna that communicates to and from the IntelliTouch system via the MobileTouch hand-held wireless controller. Mount the Transceiver module at a convenience location (on a flat vertical surface) near the Load Center or Power Center, at a minimum of 5 ft. above ground level to optimize the functional operating range of the MobileTouch wireless control panel.

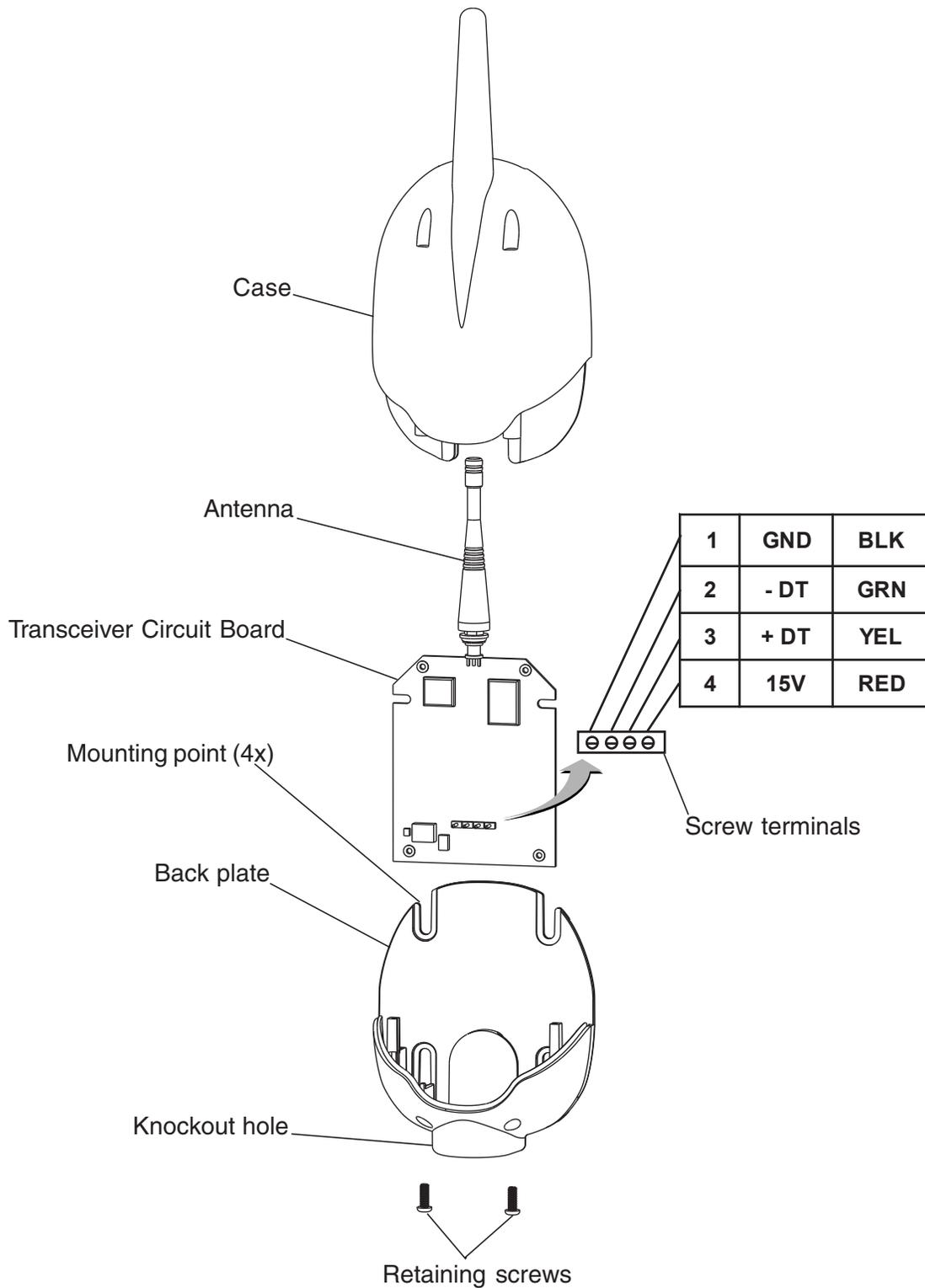
⚠ CAUTION! To avoid signal interference, mount the Transceiver module antenna a minimum of 10 ft. away from the Load Center or Power Center, any metal surface/structure, or air blower located in the immediate area of the equipment pad.

The MobileTouch wireless controller has an operating range of up to 300 ft. from the MobileTouch transceiver antenna (line of sight) which is typically located near the IntelliTouch load center. The optimum wireless transmit and receive range may be affected by physical obstructions, (especially those containing metal), weather conditions, and geographical features.

To mount the Transceiver module:

1. **⚠ CAUTION - Switch the main power off at the Load Center or Power Center.**
2. Remove the two retaining screws located on the underside of the transceiver. Carefully slide the transceiver case up and off the Transceiver back plate.
3. Remove the Transceiver circuit board. Slide the circuit board up and out of the back plate.
4. Position the back plate against the mounting surface so that the transceiver is oriented in an upright position (with the antenna pointing upwards). Use a pencil to mark the four mounting points. Drill four 3/16 in. diameter holes into the mounting surface and insert the four plastic anchors (provided in the Personality Kit).
5. Feed a UL approved four 22 AWG conductor cable through the knockout hole at the bottom of the enclosure. Do not run cable conductors through the drain holes. If the knockout hole is not being used to run conductor through, drill a hole through the bottom of the back plate and seal it using a fitting with a few feet of conduit or some other sealant between the case and the cable.
6. Position the back plate over the mounting points and secure it with the four mounting screws (provided in the Personality Kit).
7. Carefully slide the Transceiver circuit board back into the back plate.
8. Strip back the conductors ¼ inch. The recommended conductor color scheme is red, yellow, green, and black. Insert the conductors into the screw terminals (provided in the Personality Kit). Connect the screw terminal connector onto the circuit board. For wiring details, see page 34.
9. Slide the Transceiver circuit board case into the back plate. Secure the case using the two retaining screws.
10. Proceed with **Connecting the Transceiver Module Cable to the Personality Board**, on page 28.

⚠ CAUTION Water damage may occur if the case retaining screws are not secured or a new hole is drilled for the cable and not sealed. Do not seal drain holes.



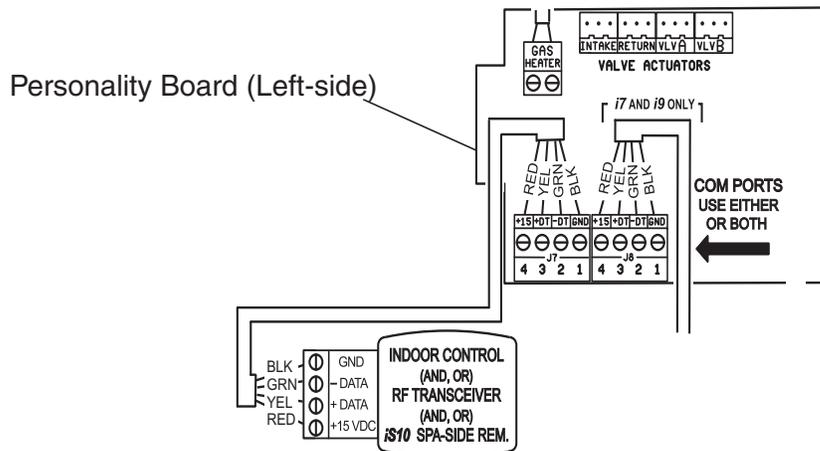
Transceiver Module

Connecting the Transceiver to the Personality Circuit Board

To connect the Transceiver Module cable:

1. **⚠ CAUTION - Switch the main power off at the Load Center or Power Center.**
2. At the Load Center or Power Center, route the Transceiver module cable up through the low voltage raceway to the Personality circuit board. To access the Personality circuit board, see “Installing the Outdoor Control Panel” on page 10.
3. Strip back the cable conductors $\frac{1}{4}$ inch. Insert the conductors into the screw terminals (provided in the Personality Kit). Secure the conductors with the screws. Make sure to match the color-coding of the conductors: GND = Black, Green = -DT, Yellow = +DT, and Red = +15
4. Insert the screw terminal connector onto either of the **COM PORTS (J7 and J8)** connectors located on the left side of the Personality circuit board. For IntelliTouch system wiring diagrams, see page 34.

Note: Multiple conductors may be inserted into a single screw terminal.



Using the MobileTouch Wireless Controller

Do not leave the MobileTouch wireless controller in direct sunlight for extended periods of time. If the control panel LCD screen darkens, place it in the shade for five minutes or until the screen returns to normal before using. Do not adjust the contrast, the screen will become too light to see when it cools down to its normal operating temperature.

⚠ WARNING Do not plug in the cradle AC adapter into an AC wall outlet power source within five (5) feet of the pool and spa. Canadian installations require a minimum of three meters from pool water. Do not recharge outdoors.

⚠ CAUTION The hand-held LCD control panel is NOT intended to be submersible. Remove unit immediately if dropped in water.

Setting up the MobileTouch Wireless Controller

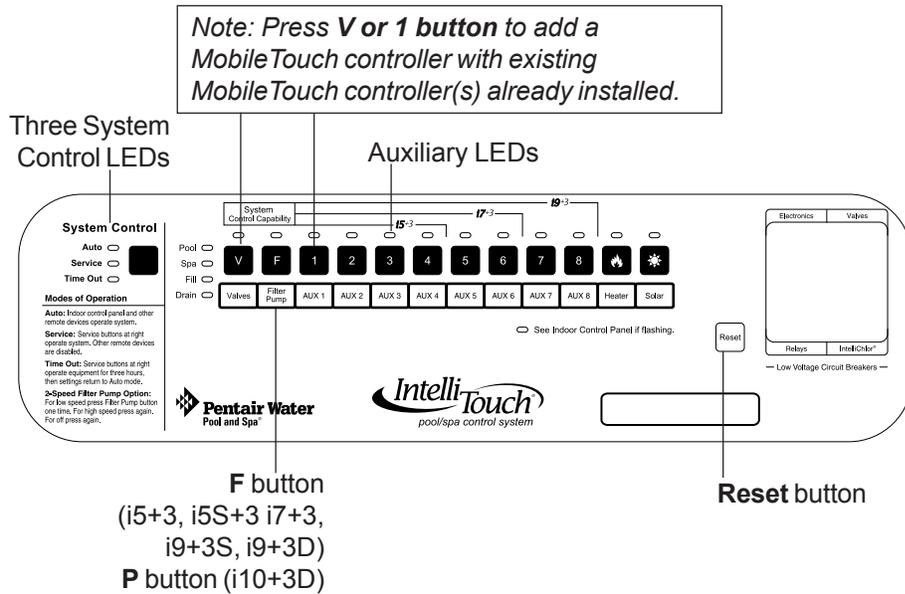
The following describes how to assign the MobileTouch wireless controller a communication address for the first time and to add a MobileTouch controller to a system with a controller already installed.

To manually setup a MobileTouch wireless controller:

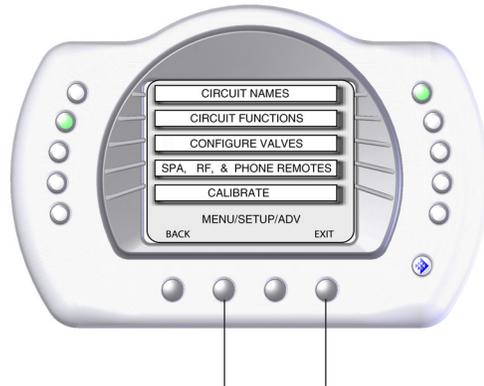
1. On the Outdoor Control Panel, press the **Reset** button.
2. **First Time MobileTouch install:** The three red **System Control** LEDs will be lit (solid). Wait a few seconds then press the **“F” Filter** button. For model i10+3 press the **“P” Pool Filter Pump** button.

Add a MobileTouch with existing MobileTouch installed: The three red **System Control** LEDs will be lit (solid). Wait a few seconds then press the **“V” button** or **“1” button**.

3. The three red **System Control** LEDs and the auxiliary button **LEDs** will begin cycling. **Wait until the LEDs stop cycling.** The three System Control LEDs will start to blink on and off. The system is ready to enable the MobileTouch wireless controller. Continue with step 4. **See note on page 34 if using MobileTouch firmware version 1.160/2.160.**



4. From the MobileTouch controller Advanced screen, press the **lower buttons 2 and 4 at the same time**. The Service Personnel screen will be displayed.



Press button **2 and 4** at the same time to access the Service Personnel screen

Setting up the MobileTouch Wireless Controller (Continued)

- Press the button next to **LOCK ON ADDRESS** to access the next screen.



- Note:** Before pressing the “Lock On Address” move at least 20 to 30 feet away from the transceiver. Press the button next to **LOCK ON ADDRESS** to assign a unique frequency for the MobileTouch controller to avoid inference from other wireless devices within range of the MobileTouch transceiver.

Note: For MobileTouch firmware version 1.160/2.160: The "Lock On Address" line displays "MAN ADDRESS LOCK AUTO" - Press **AUTO** to lock on the address. If MobileTouch does not connect then use the MAN (manual) mode. You will notice on the IntelliTouch outdoor control panel there are three System Control LEDs flashing on and off. There are also two other LEDs going on and off. Watch these LEDs and you will see a pause, followed by one of the AUX 1 - 8 or Heater or solar LEDs flash on, then it goes off and a second LED will flash on. Then pause and repeat over and over. AUX 1 - 8 represent number 1 - 8, Heat = 9, and solar = 0. So if you see Pause, AUX 2, AUX 7, see Pause, AUX 2, AUX 7, etc. This indicates CHANNEL 27. The first LED is the 10's digit, the second LED is the ones digit. Press MAN on the address lock line, a new screen will appear, displaying **ENTER LOCK CODE**. Use the **LEFT and RIGHT buttons** to decrease or increase the number (16 to 47). So in this example you would set it to 27. Press **SAVE**, you will return back to the prior screen. Press the **RESET button** on the outdoor control panel and your MobileTouch is ready to use. If the MobileTouch is not connecting check your wiring connections.

- After selecting “Lock On Address” the MobileTouch controller is now ready to operate the IntelliTouch system. The “Service Personnel” screen will be displayed.
- Press **Exit** to return to the main screen or proceed with **Step 9** if you are adding another MobileTouch controller while the IntelliTouch outdoor control panel LEDs are flashing.
- To add another MobileTouch controller at this time**, repeat Steps 4 through 8 for each controller, if not, continue with Step 10.
- Return the Load Center or Power Center. The System Control LEDs will be flashing. Press the **Reset** button. When the “Auto” LED is illuminated the process is complete and the system is ready for operation.

Charging the MobileTouch Wireless Controller

When you are not using the MobileTouch controller, place it in the cradle to recharge the battery. This allows the battery to be fully charged at all times.

To charge the MobileTouch controller battery:

- Plug the AC adapter into an AC wall outlet. Insert the AC Adapter plug into the bottom of the cradle and place the MobileTouch controller in the cradle.

Note: When the MobileTouch controller is placed in the cradle the display and backlight will be on. After five minutes the backlight will shut off. The MobileTouch controller and display are always on when seated in the cradle. To turn the backlight on, press any button.

Charging the battery:

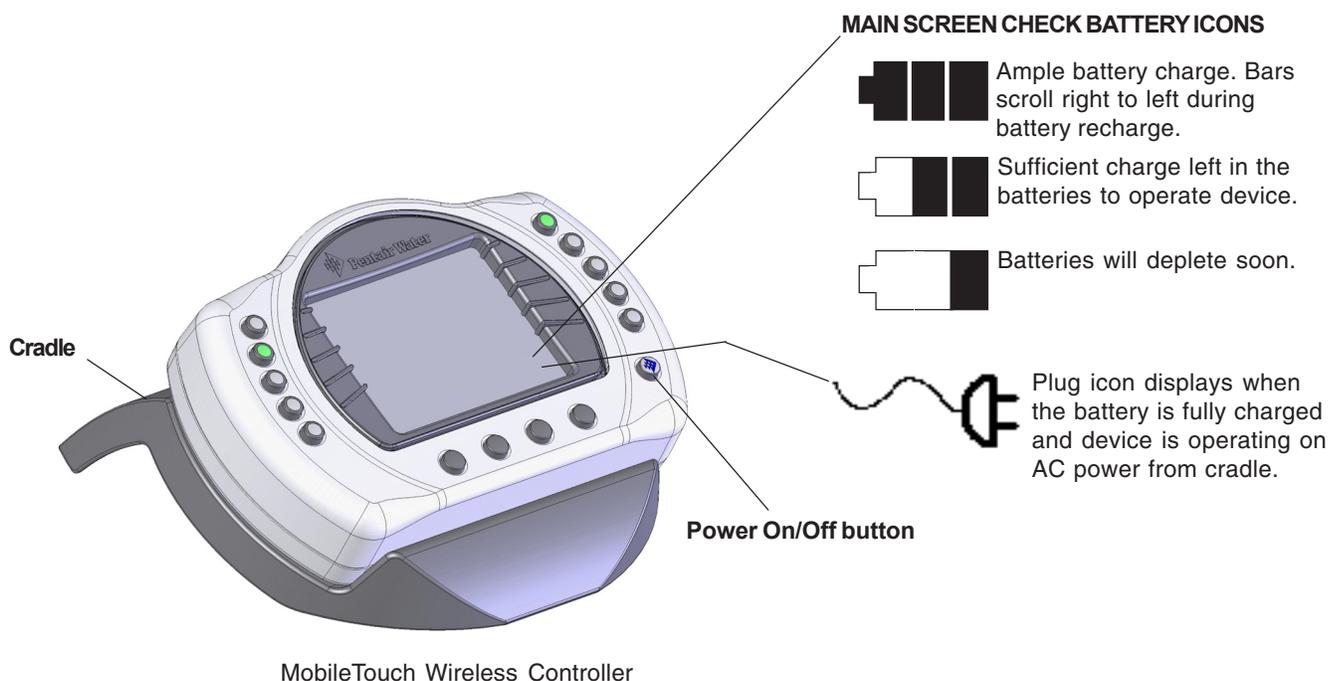
- If the battery screen icon displays one or no bars or the screen is blank, this may indicate that the battery cannot power the device and needs recharging. During battery recharge, the battery icon bars scroll from right to left. A complete battery charge takes about 3 to 4 hours. After a complete battery recharge, the battery icon is replaced with a **power plug** icon, indicating the battery is fully charged and is now operating on AC power from the cradle. **Note:** If the battery requires replacement, only use Pentair replacement battery (P/N 520815Z).

Using the MobileTouch Wireless Controller

The range of the MobileTouch wireless controller can be up to 300 feet from its transceiver antenna (line of sight). The transceiver antenna is typically located outside near the IntelliTouch Load Center. The device can be used all day at full power with a complete battery charge (3 to 4 hours).

To use the MobileTouch wireless controller:

1. Remove the MobileTouch wireless controller from the cradle. The controller can also be used while seated in the cradle with AC power connected to the cradle.
2. Press the Power button on the front right-side to switch the unit ON. The main screen is displayed. The LCD backlight will turn off in five minutes if not in use. The battery icon displays three bars, indicating the battery is fully charged. Press the controller's power switch to switch Off the device.



System Start-Up

The following information describes basic start-up procedures. For more detailed troubleshooting information, refer to the *IntelliTouch Systems User's Guide (P/N 521075)*. Before you power up the Power/Load Center check the following:

Check Electronics

Check that the following plugs are seated correctly on the Personality board:

- Relay connectors - **FLTR PUMP - AUX1 - AUX10**
- Temperature sensors connectors **WATER, SOLAR, AIR**
- Transformer conductor harness **J2** attached to the Personality circuit board.
- Heater control connector **ELEC HTR** or two-conductor screw terminal.

Refer to Summary Installation Steps (page 7) and IntelliTouch system wiring diagrams on pages 38-41.

System Test

The following describes how to test the 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 Power/Load Center.

Testing Valve Actuators and Pumps

Use the following steps to test the valve actuators (CVA24T) for proper rotation. For Outdoor Control Panel System i5+3, i7+3, i9+3 (shared equipment).

To test the valve actuators and pump:

1. Power up the Power/Load Center.
2. Press the **SYSTEM CONTROL** button on the Outdoor Control Panel until the **SERVICE** light is on. .
3. Press the **V (Valve)** button to select **POOL**.
4. Press the **F (Filter Pump)** button to activate the filter pump. Water will be removed from the pool and returned to the pool.
5. 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 filter pump operating, if the water is not being removed and returned to the pool, it may be necessary to reverse the **RETURN** with **VLV A** (or **VLV B**) plugs on the Personality board.

Testing the auxiliary relays

Affix the auxiliary relay labels to the appropriate buttons on the Outdoor Control Panel. If necessary, write the function on the control panel.

- Toggle the filter pump, each auxiliary circuit, heater and solar and verify the function. Press the **SYSTEM CONTROL** button to set the system in “**AUTO**” mode when done.

Solar System Installation

- To ensure 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 System Start-Up

1. Switch power on to the IntelliTouch Load Center.
2. If pool cleaner protection has been added to the system, the pool cleaner pump motor should be activated whenever the pool cleaner timer is on. Momentarily turn pool cleaner on and off to check the motor is operating correctly.
3. 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.
4. Check that Solar Valve has rotated from the "solar bypass" position to the "solar" position, diverting water through the solar panels.
5. The system is now ready to be operated as desired.

Pool Cleaner Protection

Recommended for use in pool systems which utilize a "booster pump" pool cleaner. This feature automatically turns off the pool cleaner pump for a few minutes whenever solar is initiated. This will protect the pump from damage caused by air in the solar panels at system start-up.

Affixing the System Wiring Diagram Label

To affix the wiring diagram label on the enclosure inside front door:

1. Open the enclosure front door.
2. Peel the backing off the IntelliTouch wiring diagram label.
3. Position the label in middle of the inside of the front door. Apply even pressure on the surface of the label to secure in place.

IntelliTouch System Wiring Diagram (i5+3, i7+3, i9+3)

WARNING

PREVENT ELECTROCUTION

INSTALL AT LEAST 5 FEET (1.2m) FROM INSIDE WALL OF POOL OR SPA.

DISCONNECT ALL SUPPLY CONNECTIONS BEFORE SERVICING. THIS APPLIANCE MAY HAVE UP TO 11 SUPPLY CONNECTIONS.

TO GAS HEATER TERMINALS FOR REMOTE CONTROL OPERATION, OR TO FIREMAN'S SWITCH CONNECTION. CAUTION: DO NOT BYPASS INTERNAL HEATER THERMOSTAT, HIGH LIMIT SWITCH, OR OTHER SAFETY DEVICES.

VALVE EXPANSION MODULE: AUX VALVE C ACTUATOR, D ACTUATOR, E ACTUATOR.

VALVE ACTUATORS: INTAKE VALVE ACTUATOR, RETURN VALVE ACTUATOR, OPTIONAL AUX VALVE A OR SOLAR ACTUATOR, OPTIONAL AUX VALVE B ACTUATOR.

SPECIAL PURPOSE RELAY OUTPUTS: ELECTRIC HEATER, SOLAR BOOSTER PUMP, 2-SPEED FILTER PUMP (ACTIVATES WITH SPA MODE).

TRANSFORMER FACTORY WIRING OUTPUT: 12VAC, 18VAC, 24VAC.

LOW VOLTAGE CIRCUIT BREAKERS: 12V, 18V, 24V.

10K OHM THERMISTOR SENSORS: WATER SENSOR, SOLAR SENSOR, AIR SENSOR. (TEMP. SENSORS HAVE NO POLARITY. RED/BLK WIRES ARE INTERCHANGEABLE.)

RELAY 1: FILTER PUMP
i5+3 SYSTEM: AUX 1-4, CLNR= AUX 3
i7+3 SYSTEM: AUX 1-6, CLNR= AUX 4
i9+3 SYSTEM: AUX 1-8, CLNR= AUX 5

COM PORTS USE EITHER OR BOTH: J7, J8, J9, J10, J11, J12, J13, J14, J15, J16, J17, J18.

IntelliTouch COM PORT: 1 GND, 2 - DATA, 3 + DATA, 4 +15 VDC.

IntelliFlo COM PORT: Connecting IntelliFlo to the IntelliTouch COM PORT. Strip 1/4" insulation from the green and yellow wire conductors. Connect the green wire to pin 2 on Connector J7. Connect the yellow wire to pin 3 on Connector J7. Note: Multiple wires may be inserted into a single terminal. Connector J8 (i7 and i9 only) can be used if present. For additional COM ports, the optional COM PORT expansion module (PIN 520818) includes 3 COM PORTS and 4 IntelliFlo pump ports - 2 modules can be installed.

WIRING DIAGRAM IntelliTouch Models i5+3 · i7+3 · i9+3

POWER RELAYS

ADDITIONAL POWER RELAYS FOR MODEL *i7+3* (AUX 5-6) AND MODEL *i9+3* (AUX 5-8)

2-SPEED FILTER PUMP OPTION

PLUG INTO 2 SPD SOCKET ON P.C. BOARD

CAUTION: RISK OF ELECTRIC SHOCK, READ INSTALLATION MANUAL.

IMPORTANT: This Control Panel must be installed in compliance with the National Electrical Code (NFPA 70) including article 680, as well as all local Authority Having Jurisdiction requirements. Mount enclosure with conduit holes down. This control is not provided with integral GFCI protection for the lighting circuit. When this control is used to power or switch an underwater luminaire, suitable GFCI protection shall be provided in the field. Follow manufacturers' instructions for installing and testing of Ground Fault Circuit Breakers (GFCB) and Interrupters (GFCI); (Canada Class A GFCI). An APPROVED GFCI duplex receptacle may be installed in the rectangular knockout provided on the right side of the enclosure. If the panel is installed outdoors, an APPROVED TYPE 3R (RAINPROOF) Cover MUST be installed over the wiring device in the rectangular opening. Make sure connections inside the low voltage compartment are well insulated, connectors properly seated and wiring lugs tightened. After wiring is completed, install front panel over wiring compartment opening.

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

TYPE 3R "Rainproof" (IPX3). Enclosure suitable for INDOOR or OUTDOOR USE. Control Panel suitable for SWIMMING POOL/SPA applications. Electrical Rating: 120/240VAC 150 AMP Single Phase (3 Wire). The input line to this control panel should be protected by a 240VAC circuit breaker rated at NO MORE than 150 Amperes maximum.

Control Transformer Input: 120VAC, 2A; 240VAC, 1A, 50/60Hz. SCG Transformer Input (if equipped): 120VAC, 2.5A; 240 VAC, 1.3A, 50/60 Hz.

Short Circuit Current Rating: 5000 RMS SYMMETRICAL AMPERES. Use COPPER CONDUCTORS ONLY.

Use 14 AWG to 6 AWG, 60/75°C Copper conductors for all field wiring.

CONTROL TRANSFORMER WIRING

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	

PREVENT WATER DAMAGE

KEEP DOOR CLOSED

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

IntelliChlor® SALT CHLORINE GENERATOR OPTION FOR OUTDOOR USE ONLY

TRANSFORMER INPUT: 120VAC@2.5A, 50/60 Hz - 240VAC@1.3A, 50/60 Hz

WIRING CONFIGURATION FACTORY SET FOR 240V.

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.

SCG TRANSFORMER WIRING

240V Line Voltage Transformer Leads

- 120V: YELLOW, VIOLET/BLUE, BLACK
- 120V: WHITE

120V Line Voltage Transformer Leads

- 120V: YELLOW, BLACK
- NEUTRAL: VIOLET/BLUE, WHITE

Sanford NC • Moorpark CA

Pentair Water Pool and Spa® Automation

UL LISTED POOL/SPA CONTROLLER 5K42

Customer Service 800-831-7133

PIN 521242 REV. B 1-28-11

IntelliTouch System Wiring Diagram

Personality Kit Installation Guide

Plumbing Requirements

It is important that the pool and spa plumbing system be in accordance with local codes and the Recommended Hydraulic Schematics (page 9, 10 and 11). 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 center 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 center 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 make-up 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 Load/Power Center 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.

- 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.

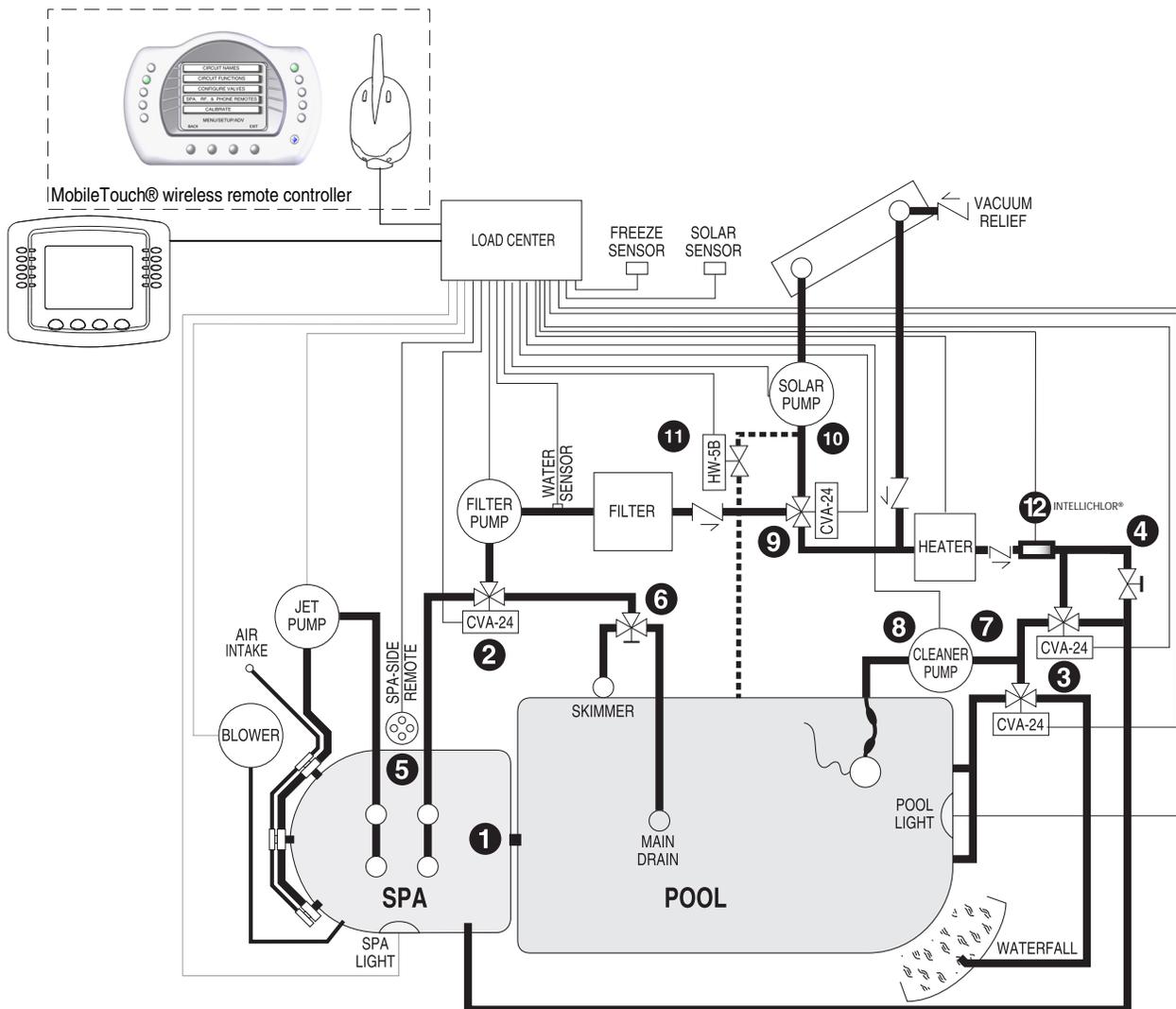
- A solar booster pump should be used when the distance to the panels exceed 200 ft., or the panels are elevated higher than 25 ft.

- 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.

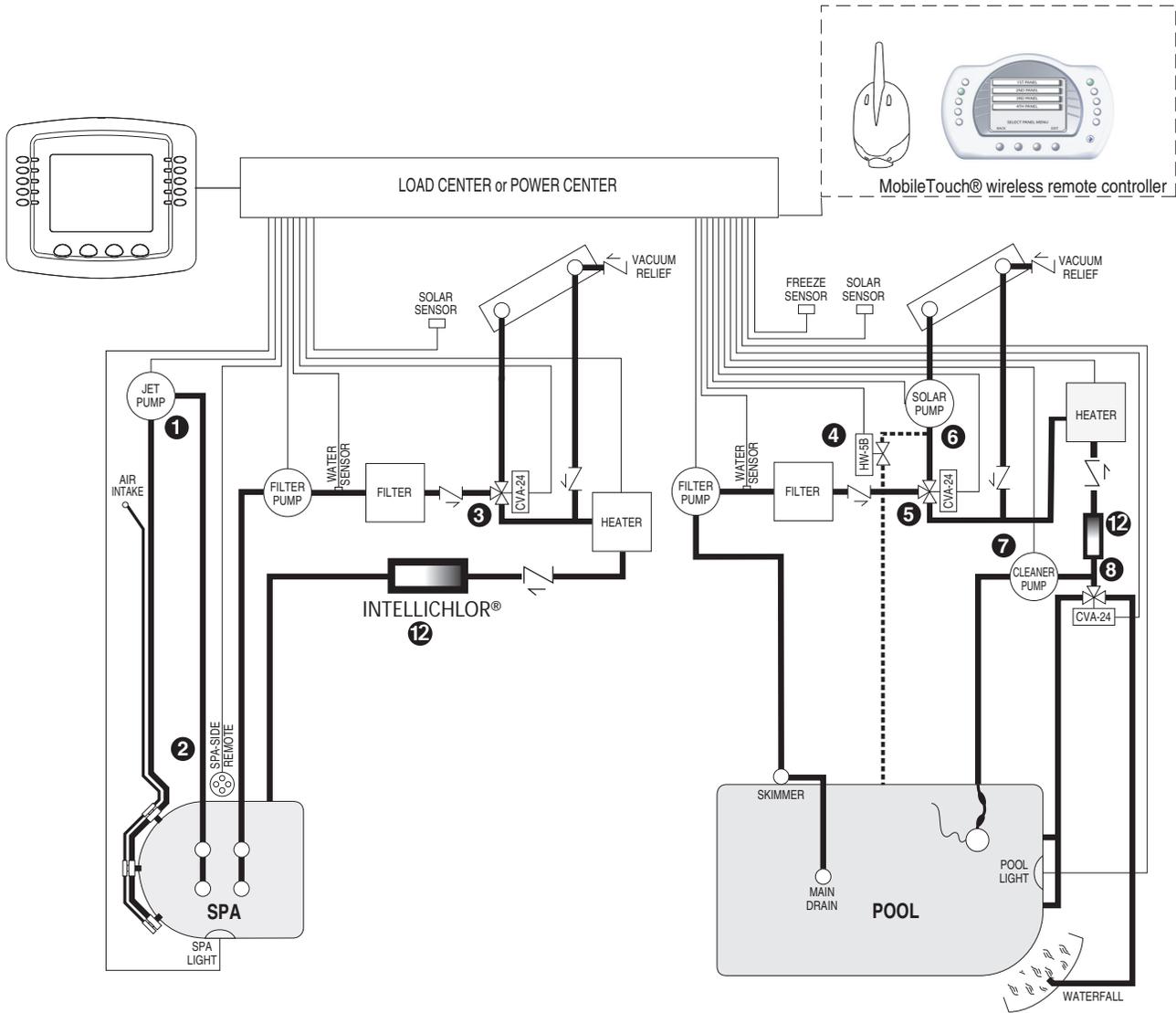
- 12 **Salt Chlorine Generator (SCG):** IntelliChlor IC40 or IC20 salt chlorine generator cell with check valve at the heater output. Refer to IntelliChlor User's Guide (P/N 520589) for plumbing requirements.

Equipment Location

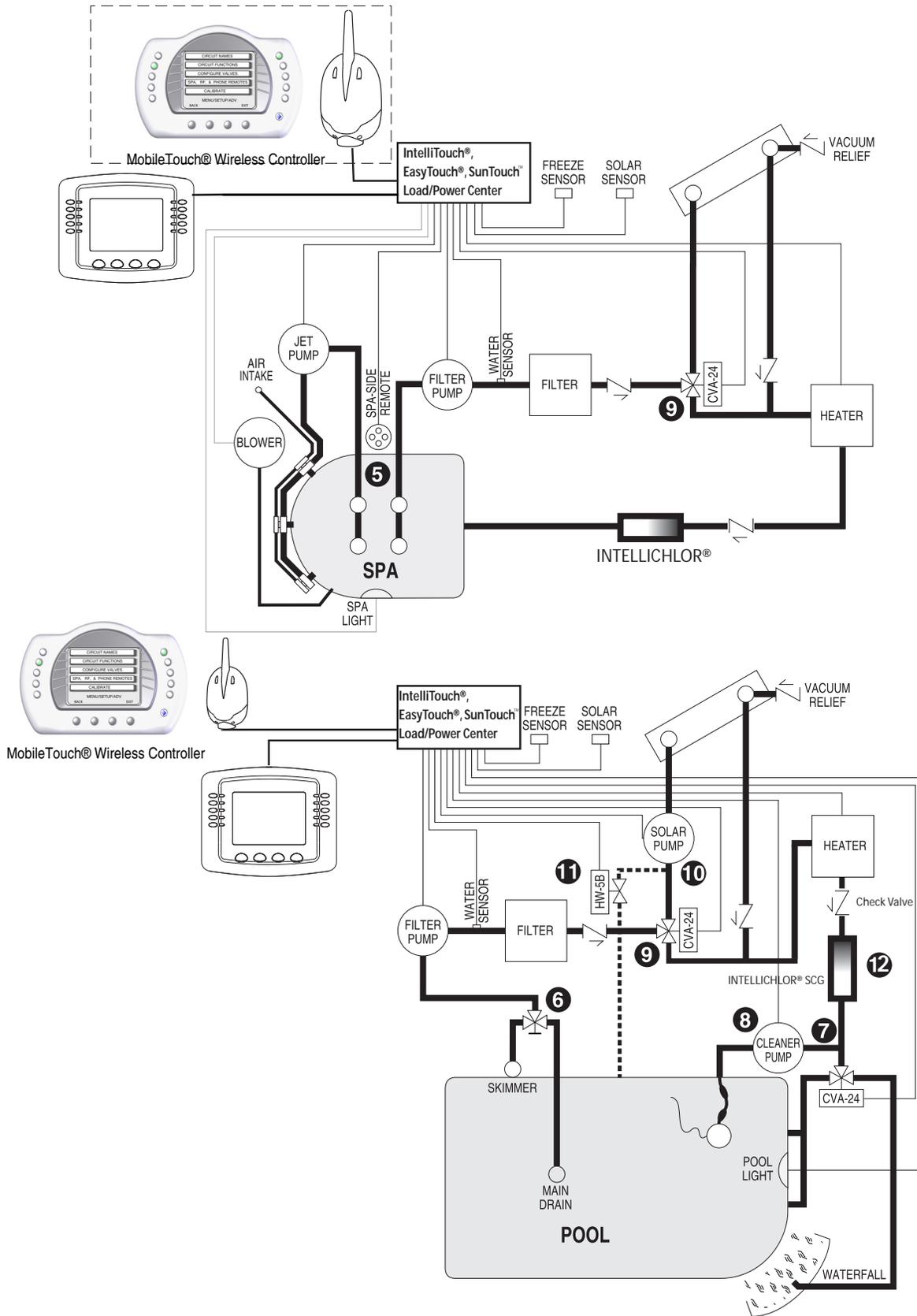
All equipment, with the exception of the Spa-Side remote, must be located at least 10 ft. from the water's edge.



Recommended Hydraulic Schematic for Shared Equipment System



Recommended Hydraulic Schematic for Dual Equipment System



Recommended Hydraulic Schematic for Single Body System

Glossary

Expansion Kit (IntelliTouch): A kit that includes additional auxiliaries to an existing Personality Kit. Requires a Load Center for each Expansion Kit Power Center.

Feature Circuits: Programmable circuits that may control relays and/or valve actuators. For details, see the IntelliTouch Systems User's Guide (P/N 521075)

High Voltage Compartment: Large lower right compartment of Load Center for all high voltage wiring including circuit breakers, relays, and GFCI.

Indoor Control Panel: IntelliTouch remote control panel with LCD (liquid crystal display) is wired to the Personality circuit board in the Power/Load Center. The control panel can be wall mounted inside a house to control IntelliTouch systems.

SpaCommand: Ten function spa-side remote with temperature changing capability. Can be spa wall or deck mounted.

Load Center: Metal enclosure with power relays, transformer, and circuit breakers. The Load Center is installed prior to Personality Kit installation. Used for distributing power for controlling IntelliTouch systems. Also known as the "sub-panel."

Low Voltage Compartment: Top compartment of Load Center for all low voltage wiring.

Low Voltage Raceway: Vertical space in the left side of Power/Load Center for low voltage cabling.

MobileTouch Controller (IntelliTouch): Wireless controller for the IntelliTouch Systems with all the functionality of the Indoor Control Panel.

Mud Box: Enclosure to provide mounting features for SpaCommand spa-side remote that is cast into gunite, concrete, or other spa wall/deck construction.

Outdoor Control Panel: Control panel with flexible hinge installed in upper portion of Power/Load Center to control IntelliTouch systems.

Personality Board (IntelliTouch): The circuit board mounted on top of the Outdoor Control Panel control board. The Personality board defines the system capabilities.

Personality Kit (IntelliTouch): Set of parts to define the capability of a system; may include: Outdoor Control Panel, temperature sensors, actuators, control panel (Indoor or MobileTouch), additional relays, actuators.

Power Center: Same as Load Center with the exception of the circuit breaker base.

Relay Circuits: The circuits that control the relays on the Personality Board (IntelliTouch). Connectors on top edge of the circuit board.

Screw Terminal Connector: Removable connector that may attach to circuit board with multiple sockets (anywhere from 2 to 12) to receive conductors from controllers and sensors; conductors held by screw terminals; multiple conductors of a small enough gauge (usually 22 AWG) may be coupled to a single socket of a terminal connector.

Transceiver: Circuit board with attached antenna that can send and receive radio frequency (wireless) transmissions. Used with wireless controllers.



P/N 521074 - Rev A