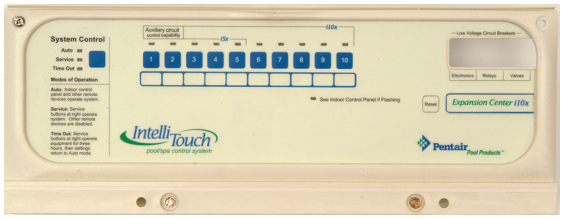
IntelliTouch®
pool/spa control system

IntelliTouch®
Pool and Spa Control System
Personality Kit



Installation Guide

IMPORTANT SAFETY INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS
SAVE THESE INSTRUCTIONS

Pentair Water
Pool and Spa®

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1620 Hawkins Ave., Sanford, NC 27330 • (919) 566-8000
10951 West Los Angeles Ave., Moorpark, CA 93021 • (805) 523-2400

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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

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

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

Related IntelliTouch Manuals

IntelliTouch Load Center Installation Guide	(P/N 520100)
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)

IMPORTANT SAFETY PRECAUTIONS

Important Notice:

Attention Installer: This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner and/or operator of this equipment.

⚠ **WARNING** - Before installing this product, read and follow all 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.

⚠ **WARNING** - Water temperature in excess of 100 degrees Fahrenheit 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). The symptoms of hyperthermia include drowsiness, lethargy, dizziness, fainting, and an increase in the internal temperature of the body.

The 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.

⚠ **WARNING** - To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

⚠ **WARNING** - **The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia in hot tubs and spas.**

⚠ **WARNING** - Control System 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 10 feet (3.05 m) away, adjacent to, and within sight of, the unit.

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

IMPORTANT SAFETY PRECAUTIONS (Continued)

FCC Regulatory Safety Notice - The MobileTouch wireless control panel 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. This 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 equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment 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.
- Modifications not expressly approved by the party responsible for FCC compliance could void the user's authority to operate the 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 Section 422-20 of the National Electrical Code, ANSI/NFPA 70.1987. 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. Supply conductor must be sized to support all loads. Maximum supply conductor current must be 125 Amps at 125 VAC or 63 Amps at 240 VAC.

Introduction

Welcome! Your Pentair IntelliTouch Pool and Spa and 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 MobileTouch® wireless control panel you can control your pool, spa, and lights from anywhere inside or outside your home. Optional controllers are also available such as the wireless Digital Tablet or Personal Digital Assistant (PDA), 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 IntelliTouch ScreenLogic® Interface Accessory Kits on page 7.

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, Personal Digital Assistant (PDA), 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 ScreenLogic interfaces. A maximum of four (4) ScreenLogic interfaces can be used, for example, four Tablets, or four PDA’s, or four in-wall Touch Screen’s, or four PC’s in any combination.

Around the pool

Located near your spa, the IntelliTouch, iS10 or iS4 spa-side remote provide control buttons for various pool and spa functions. The iS10 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 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:

Load or Power Center

- **Load Center:** Provides a larger footprint (17" W x 23" H) Includes built-in sub panel (125 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 (17" W x 17" H) 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.
- **Expansion Kits:** Models i5X and i10X, 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 520136) or Power Center (P/N 520137). 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 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 520505)** – 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 520507)** – 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 520509)** – 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 520510) 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 520506) 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 520508) 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 Personality Kit Contents

The following items are included in the IntelliTouch Personality Kit. If any item is missing or damaged in the IntelliTouch kit, contact your authorized dealer, or contact Pentair Technical Support (page 9).

- An IntelliTouch interface (see page 4)
- Outdoor Control Panel. Includes a motherboard 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 (this manual)

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 the Load Center and Power Center Installation Guide (P/N 520100).
- 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 520102).*

IntelliTouch Interfaces

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

- **iTC15 Kit (P/N 520500)** – Includes Protocol Interface Adapter and wireless router 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).
- **iTC25 Kit (P/N 520501)** – Includes Wireless Personal Digital Assistant (PDA) with 3.5" color touch screen custom configured for IntelliTouch systems, wireless router, and a Protocol Interface Adapter.
- **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.

In-Wall Touch Screen

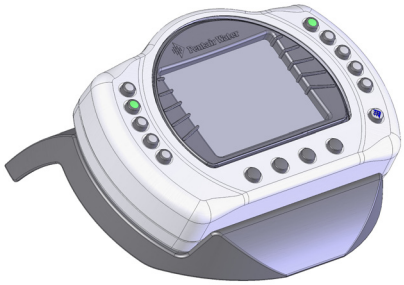
Digital Tablet

PDA

- **Indoor Control Panel (P/N 520138)** – 3.75” monochrome backlit LCD control panel. Connects to the 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® Wireless Remote (QT4) - (P/N 520148):** 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.
- **iS10 and iS4:** 10-function (iS10) 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 or Power Center.
- **i-Link™ Protocol Interface Adapter (P/N 520442):** Allows home automation systems such as Crestron®, AMX®, Liton™ and others to control IntelliTouch.

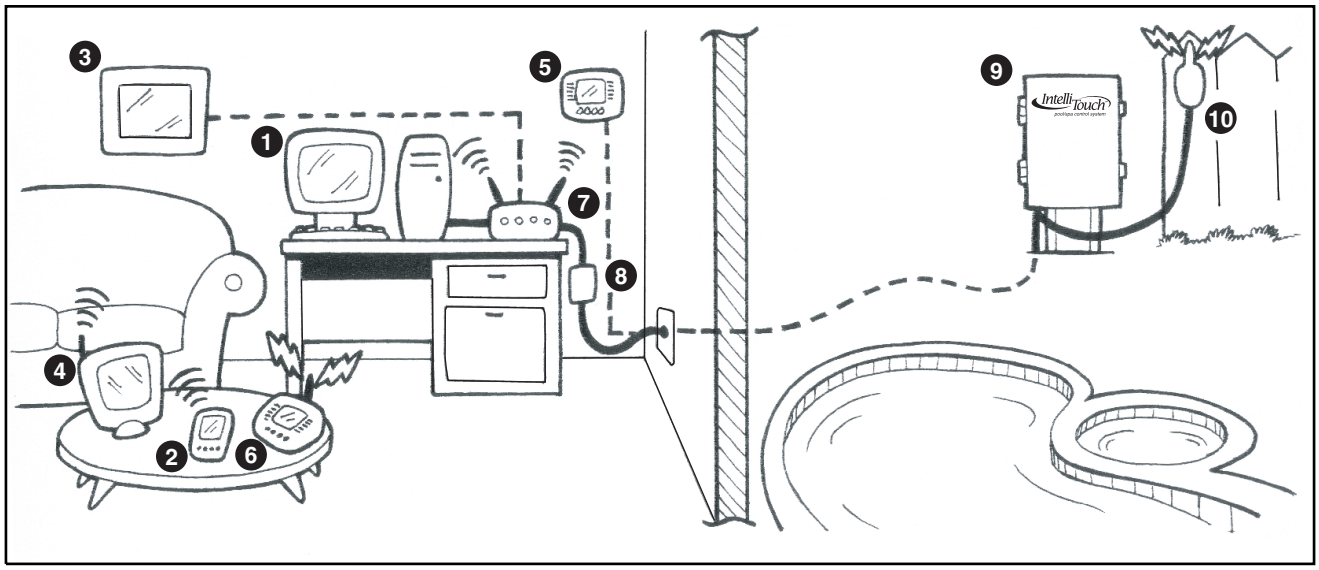
Indoor Control Panel

i-Link™ Protocol Interface Adapter



MobileTouch® Wireless Controller

QuickTouch® wireless remoter (QT4)



IntelliTouch in and around your home

1. **Personal Computer (PC):** Existing home owner's PC or Laptop. Connects to a wireless router and the IntelliTouch Protocol adapter for control of IntelliTouch pool/spa systems. Requires a PC/ Laptop (Windows XP) with Ethernet/RJ45 adapter installed.

2. **Personal Digital Assistant (PDA):** This wireless PDA with a color touch screen enables you to control your pool and spa features using the IntelliTouch ScreenLogic interface. The PDA is custom configured for IntelliTouch systems.

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. The in-wall Touch Screen is custom configured for IntelliTouch 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. The Tablet is custom configured for IntelliTouch systems.

5. **Indoor Control Panel:** This control panel consists of a 3.75" monochrome backlit LCD and connects to the Personality Board in the Load Center or Power Center for control of IntelliTouch pool and spa systems.

6. **MobileTouch:** This wireless control panel has a 3.75" monochrome backlit LCD. Receives and transmits commands via the Transceiver antenna located at the Load or Power 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. **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:** Connects to the Personality circuit board. Sends and receives commands to and from the MobileTouch wireless control panel.

IntelliTouch Interface Kits

The following items are included in your IntelliTouch interface kit.

PC Interface (iTC15 Kit - P/N 520500)

- Protocol adapter for use with existing Desktop or Laptop PC
- Wireless router (802.11b/g) with AC adapter
- IntelliTouch ScreenLogic User's Guide
- CD-ROM containing IntelliTouch ScreenLogic PC user interface software

Personal Digital Assistant (PDA) (iTC25 Kit - P/N 520501)

- Personal Digital Assistant (PDA) with built-in Wi-Fi 802.11 wireless LAN adapter with antenna. Refer to the manufacturers documentation for kit contents
- Wireless router (802.11b/g) with AC adapter
- Protocol adapter
- IntelliTouch ScreenLogic User's Guide
- CD-ROM containing IntelliTouch ScreenLogic PC user interface software

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

- In-wall Digital Tablet, and AC adapter
- Wireless router (802.11b/g) with AC adapter
- Protocol adapter
- IntelliTouch ScreenLogic User's Guide
- CD-ROM containing IntelliTouch ScreenLogic PC user interface software

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

- Digital Tablet (with internal battery pack), stylus, built-in Wi-Fi 802.11 wireless LAN adapter with antenna.
- Wireless router (802.11b/g) with AC adapter
- Protocol adapter
- IntelliTouch ScreenLogic User's Guide
- CD-ROM containing IntelliTouch ScreenLogic PC user interface software

IntelliTouch ScreenLogic Interface Accessory Kits

Up to a total of four ScreenLogic interfaces can be used with an IntelliTouch system, as shown above. If you need additional interfaces, first order one of the ScreenLogic interface kits, then order one or more of the following accessory interfaces accessory kits:

- PDA, CD-ROM and manual (P/N 520497)
- 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 do not include a Protocol adapter or wireless router.*

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 520100).*

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

1. **Install the Outdoor Control Panel (page 16):** Install the Personality board in the Load Center or Power Center. Also, review the high voltage connection locations in the Power/Load Center.
2. **Connect pre-installed relays (page 17)**: Connect the relay plugs to the Personality board. The four relays are pre-installed in the Power/Load Center.
3. **Install auxiliary relays (page 18):** Install and connect the relay(s). The number of relays included in the Personality Kit depend on the Outdoor Control Panel model (i5, i5S (none), i7+3 (Qty. 2), i9+3, i9+3S (Qty. 4), i10+3D (Qty. 5).
4. **Install Valve Actuators (page 19):** 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. **Install Heat Thermostat (page 21):** Connect the heater thermostat cable plug to the Personality board.
7. **Connect the Transformer (page 21):** Connect the transformer cable plug to the Personality board.
8. **Install the Indoor Control Panel (page 22):** Wall-mount the Indoor Control Panel and connect to the Personality board.
9. **Install the MobileTouch Wireless Control Panel (page 26):** Mount the transceiver and connect to the Personality board.
10. **Affixing the System Wiring Diagram Label (page 31):** Affix the wiring diagram on the inside of the front door of the Power/Load Center (for models i5S, i9+3S, i10+3D only).

Tools required

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

Accessory Equipment

520142	i5X Expansion Kit five Auxiliaries.
520142	i10X Expansion Kit ten Auxiliaries.
520906	MobileTouch Wireless Control Panel and Transceiver.
520149	iS10+3 Ten-Function Spa-Side remote, Surface/recessed-mount faceplate, 150 ft. cable.
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 iS10 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 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).

Plumbing Requirements

It is important that the pool and spa plumbing system be in accordance with local codes and the Recommended Hydraulic Schematics (page 11, 12 and 13). 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.

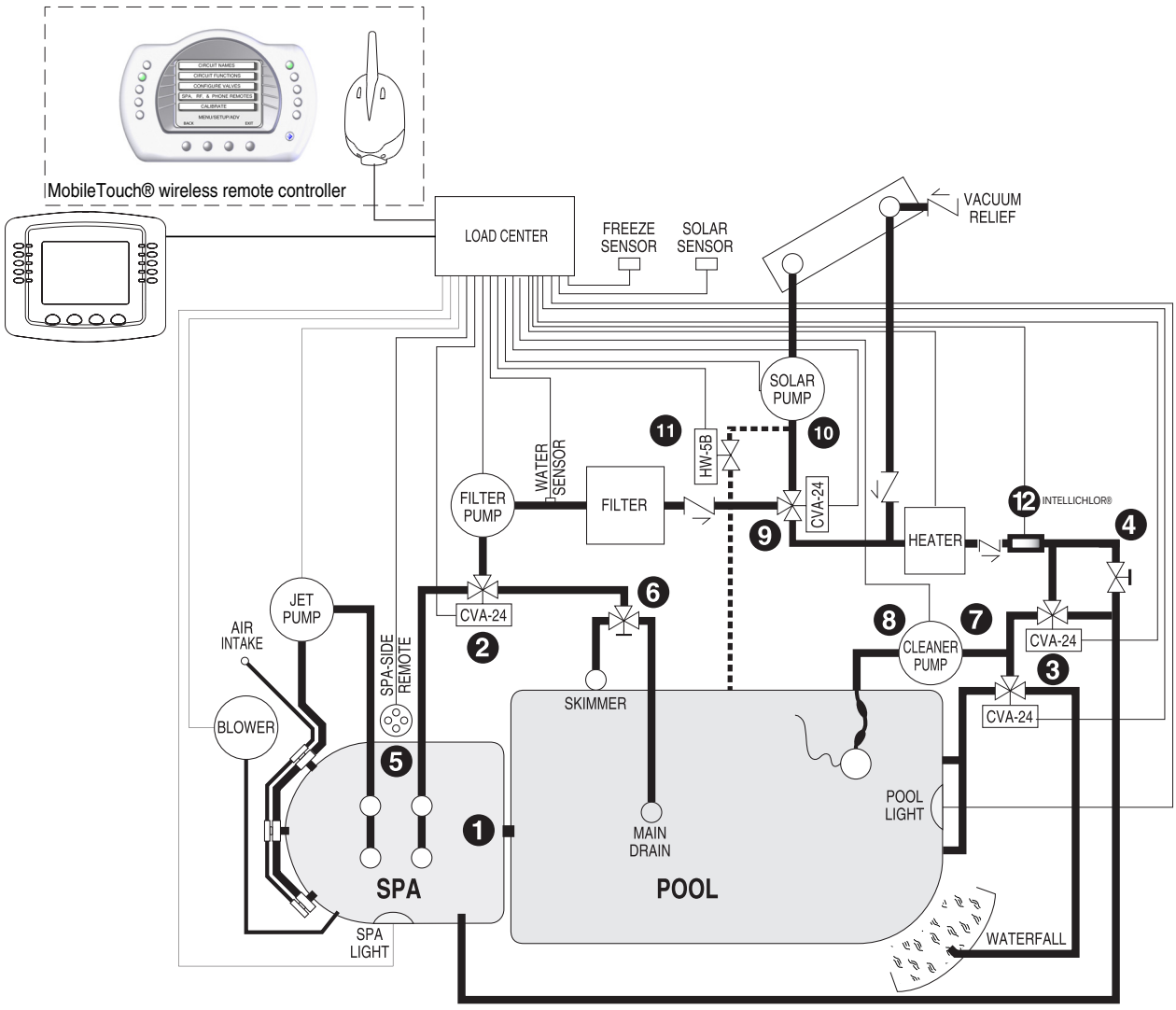
10. A solar booster pump should be used when the distance to the panels exceed 200 ft., or the panels are elevated higher than 25 ft.

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.

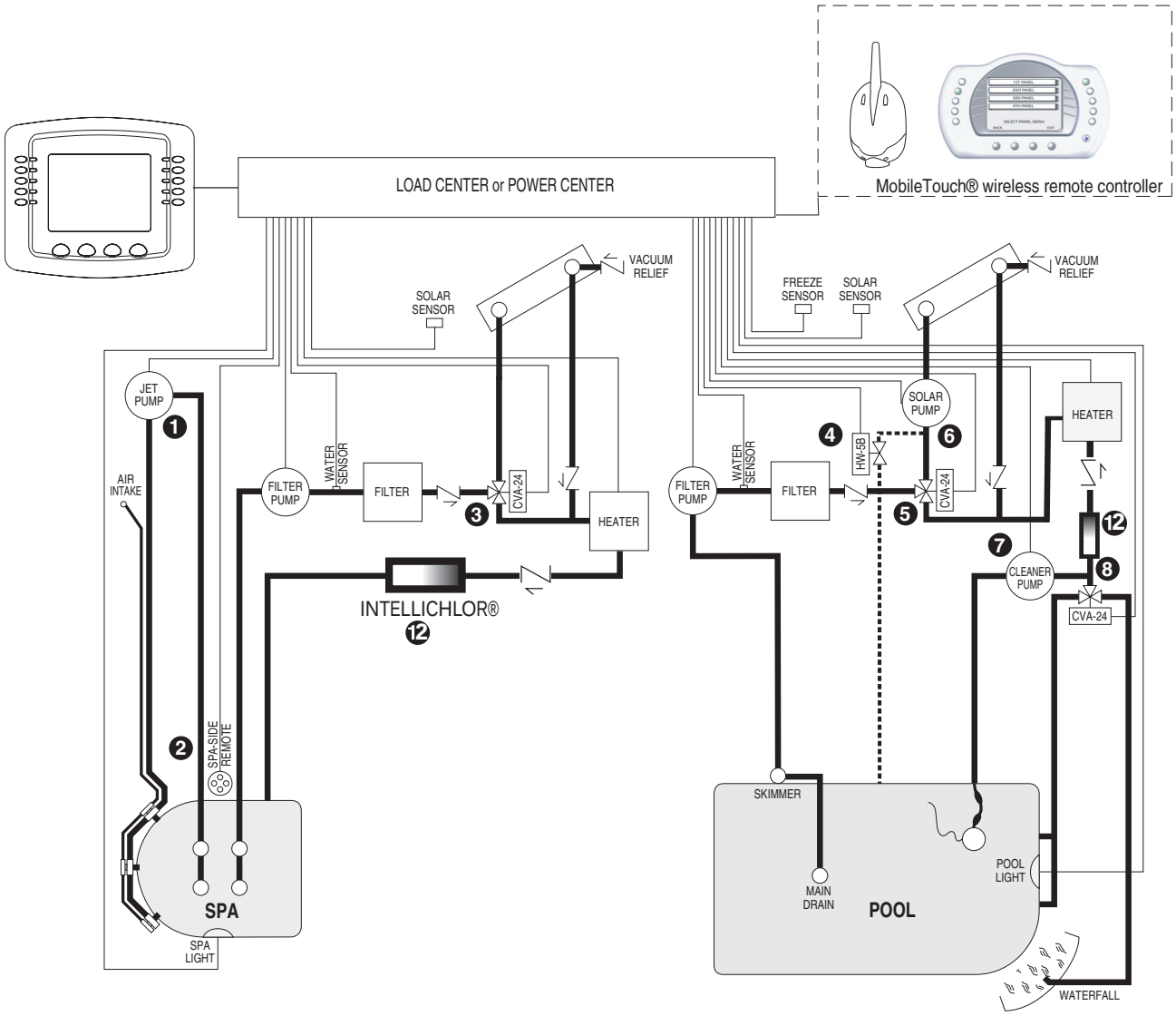
12. **Salt Chlorine Generator (SCG):** IntelliChlor IC40 or IC20 salt chlorine generator cell with check valve at the heater output. Refer to IntelliChlor User's Guide (P/N 520589) for plumbing requirements.

Equipment Location

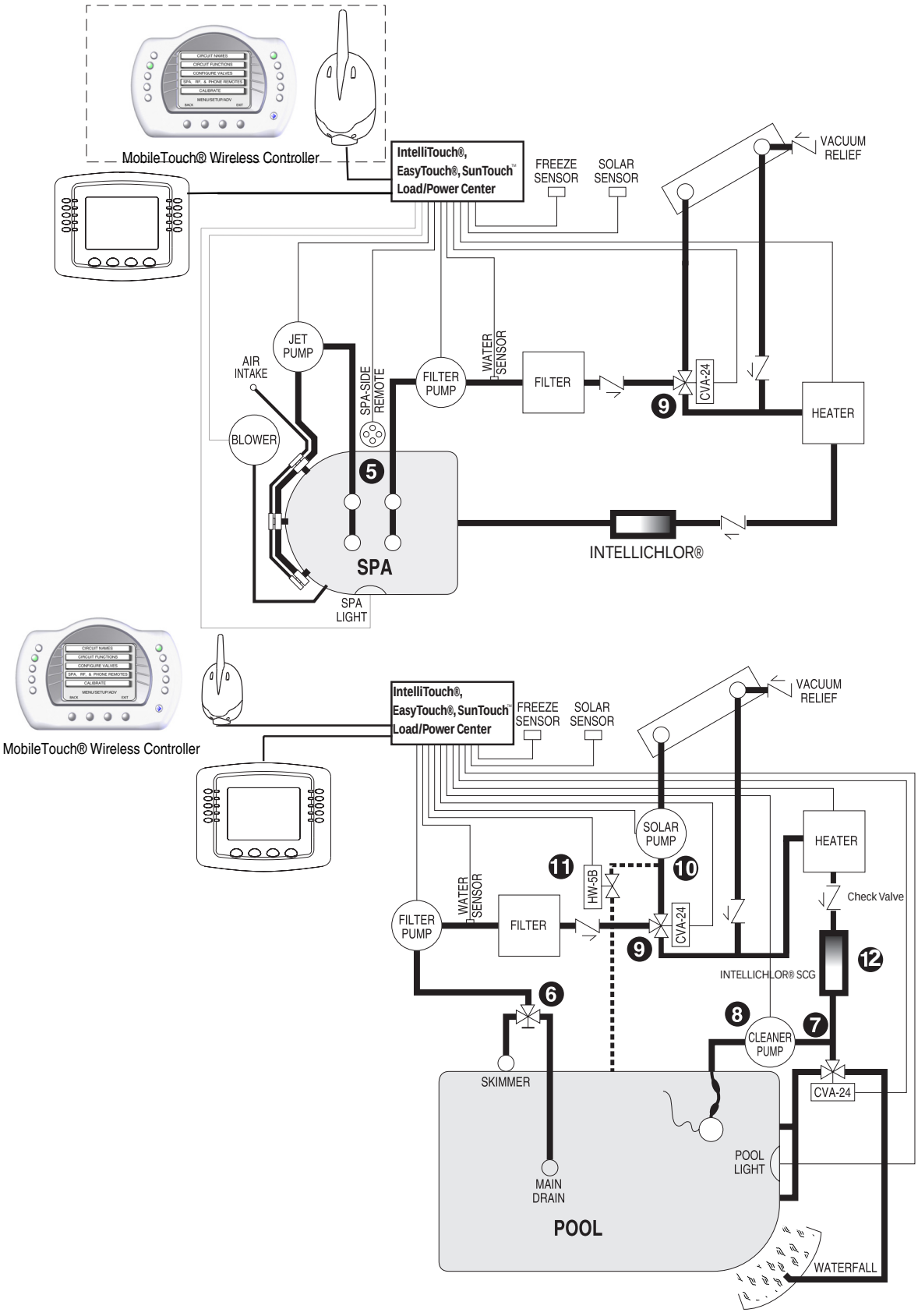
All equipment, with the exception of the Spa-Side remote, must be located at least 10 ft. from the water's edge.



Recommended Hydraulic Schematic for Shared Equipment System



Recommended Hydraulic Schematic for Dual Equipment System



Recommended Hydraulic Schematic for Single Body System

High Voltage Connections

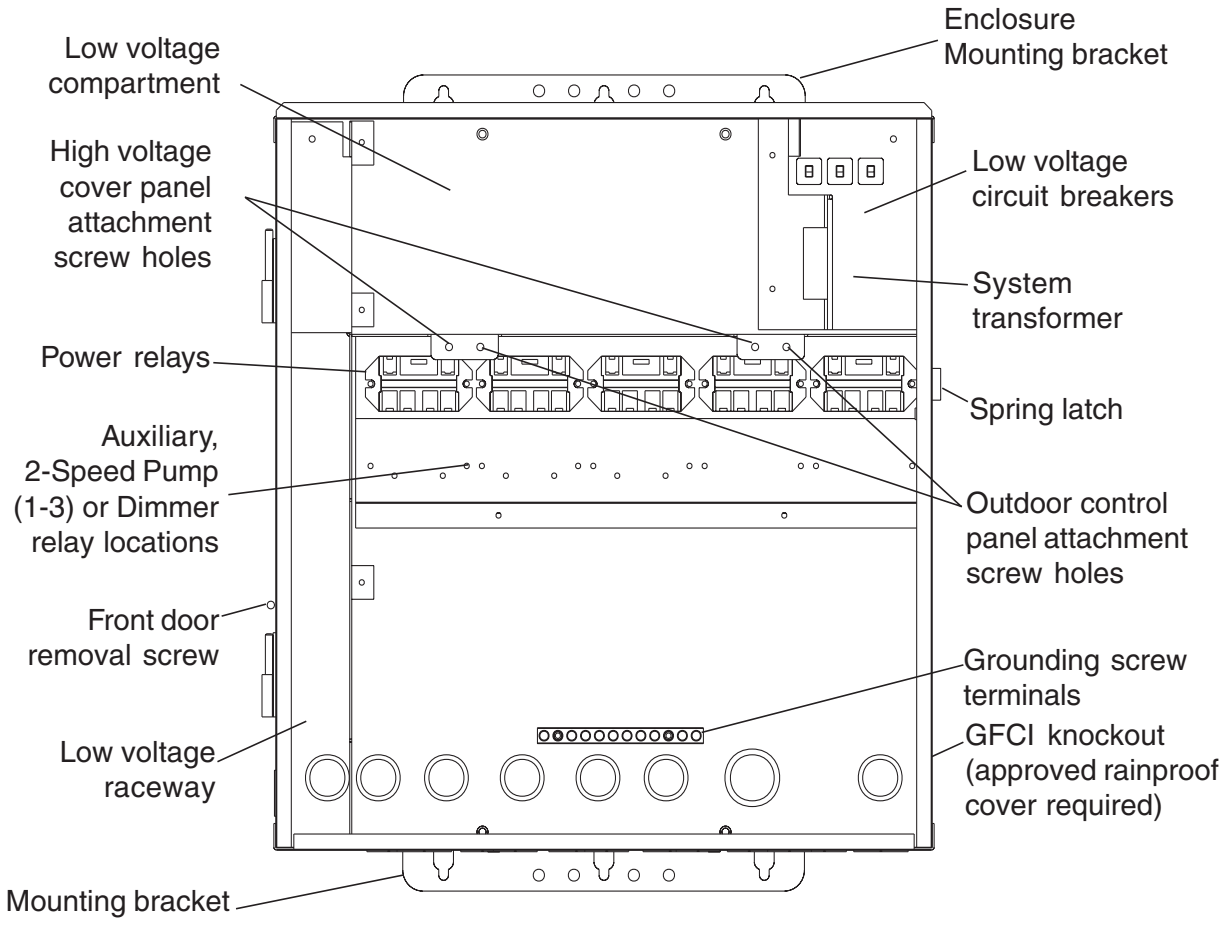
WARNING - It is required that the main power into the home be switched OFF at the main circuit breaker box whenever the high voltage cover-panel is removed. The main power must also be switched OFF to access the Power/Load Center enclosure low voltage raceway.

Power Center and Load Center Description

Power Center and Load Center enclosures are identical with the exception of the circuit breaker base (Sub-panel). For details, refer to the Load Center illustration, see page 15. Not shown is the high voltage cover-panel and the front door. See the WARNING information above before opening the cover-panel.

Power Center (without Sub-panel)

The Power Center is connected to an electrical circuit breaker panel (Sub-panel) installed at the equipment pad. The AC power is provided from the Main-panel (located at the house) to the Sub-panel. The Power Center is installed next to the Sub-panel. For complete Power/Load Center installation instructions, refer to the Load/Power Center User's Guide (P/N 520100).

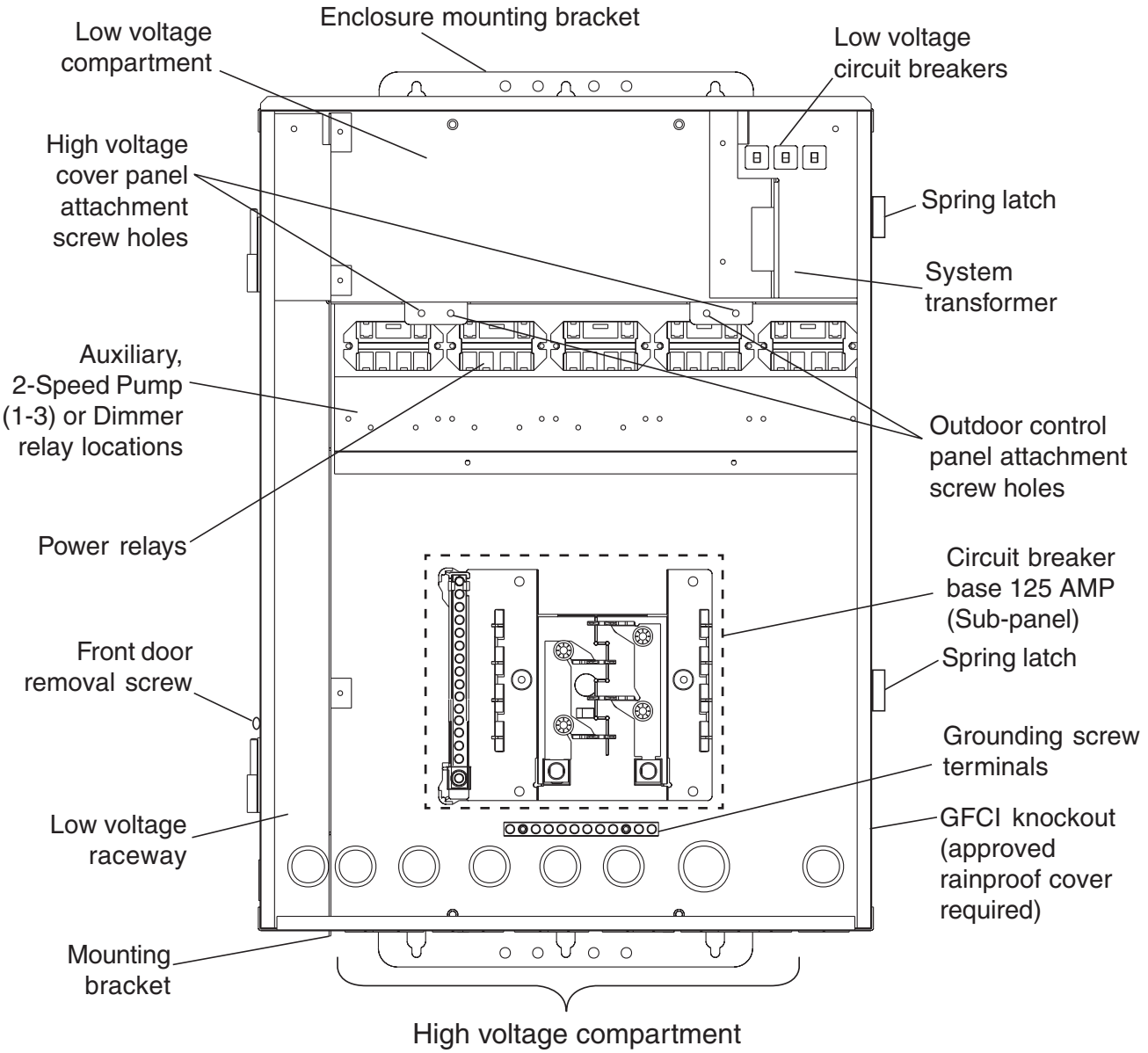


Power Center Enclosure (17" H x 17" W x 4.8" D)

Load Center (with built-in Sub-panel)

The Load Center is installed at the equipment pad. The AC power for the Load Center is provided from the Main-panel located at the house. For complete Power/Load Center installation instructions, refer to the Load/Power center User's Guide (P/N 520100).

Note: *Up to three additional Expansion Centers (i5x or i10x) can be added to a base Power/Load Center: i9+3, i9+3S, i10+3D. For more information about using multiple Power/Load Center, refer to the IntelliTouch Systems User's Guide (P/N 520102) and the IntelliTouch Installation Guide (P/N 520101).*



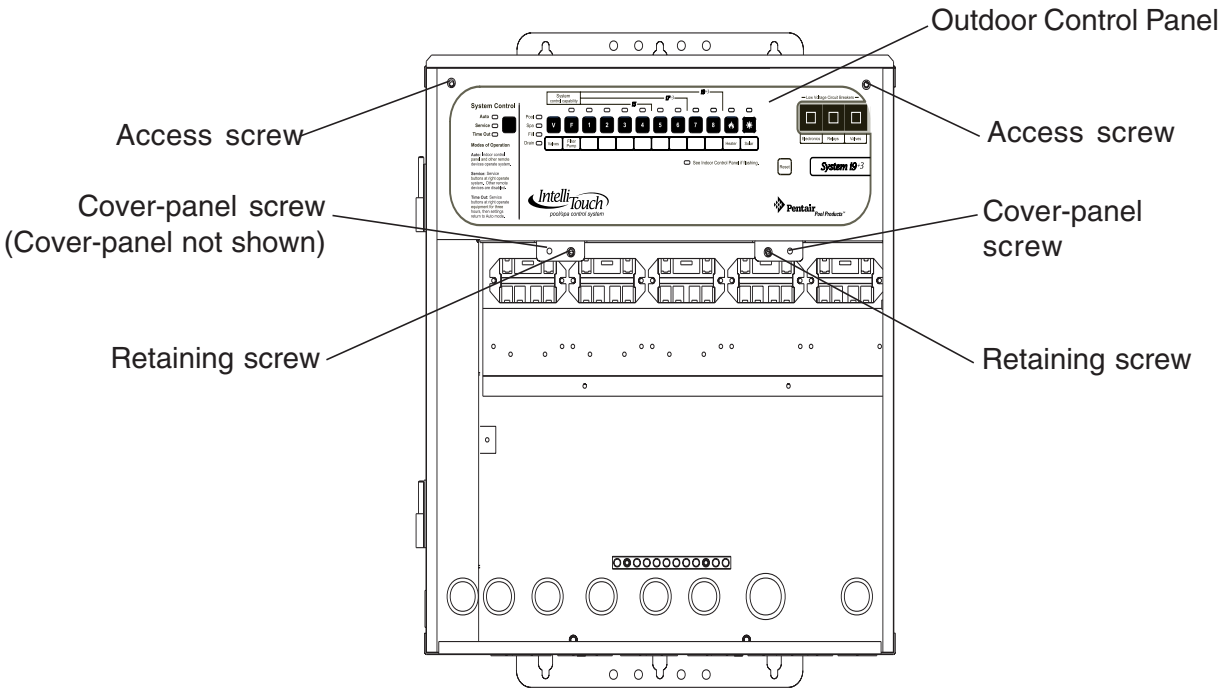
Load Center Enclosure
(23" H x 17" W x 4.8" D)

Installing the Outdoor Control Panel

The Outdoor Control Panel includes a motherboard and Personality board. The Personality board is mounted on top of the Motherboard 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 latches, and open the front door of the Power/Load Center.
2. Remove the screws securing the high voltage cover-panel, and remove it 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 Power/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 Power/Load Center. Fasten the two spring latches.

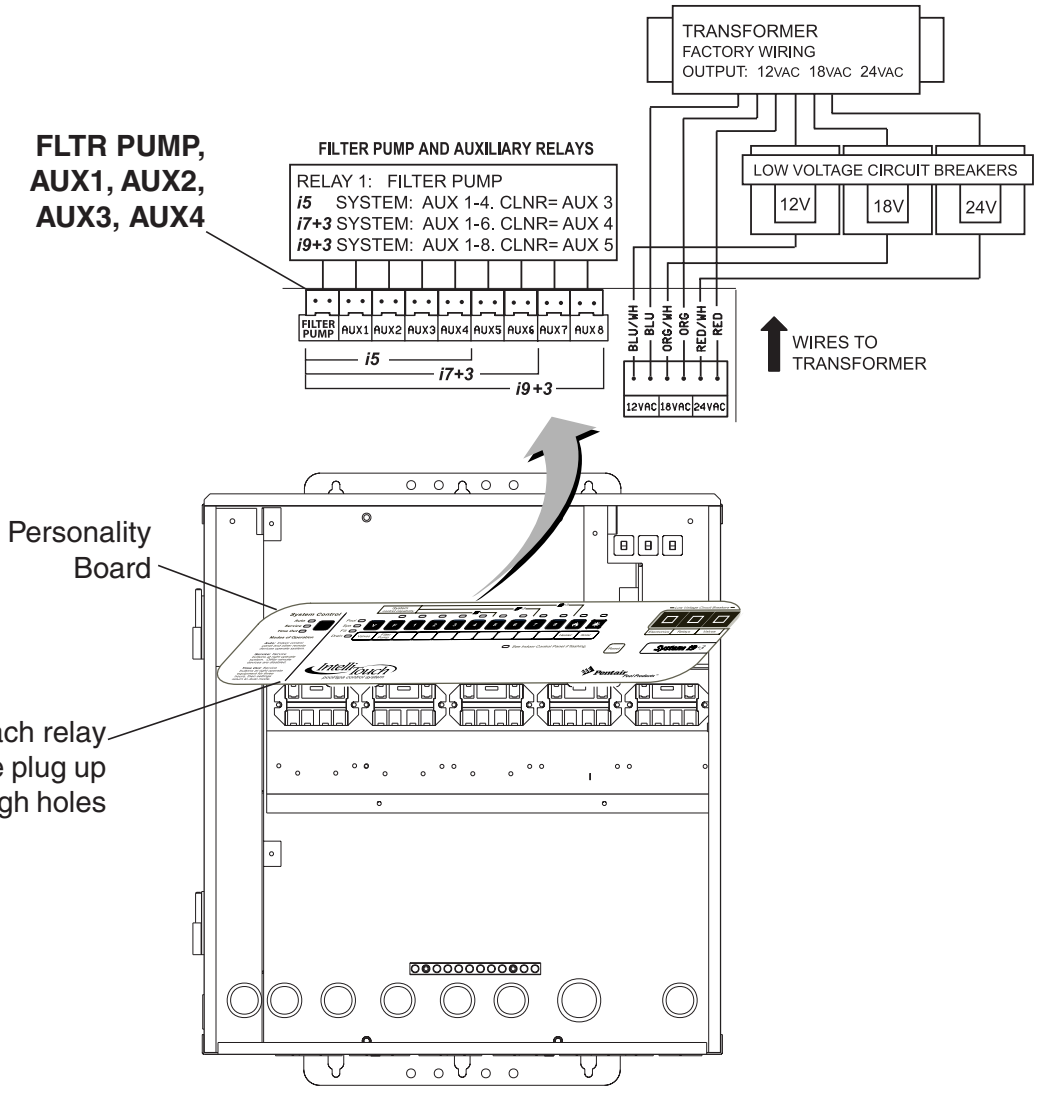


Power Center

Connecting the Pre-Installed Relays

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

- Route the power relay cable plugs up through the high voltage compartment to the Personality 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 and the System Wiring Diagrams on pages 32 and 33.
- **Dual Equipment: Pool and Spa with Dual Sets of Equipment** – The IntelliTouch i10+3D (P/N 520510) 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 520506) 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 520508) 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.



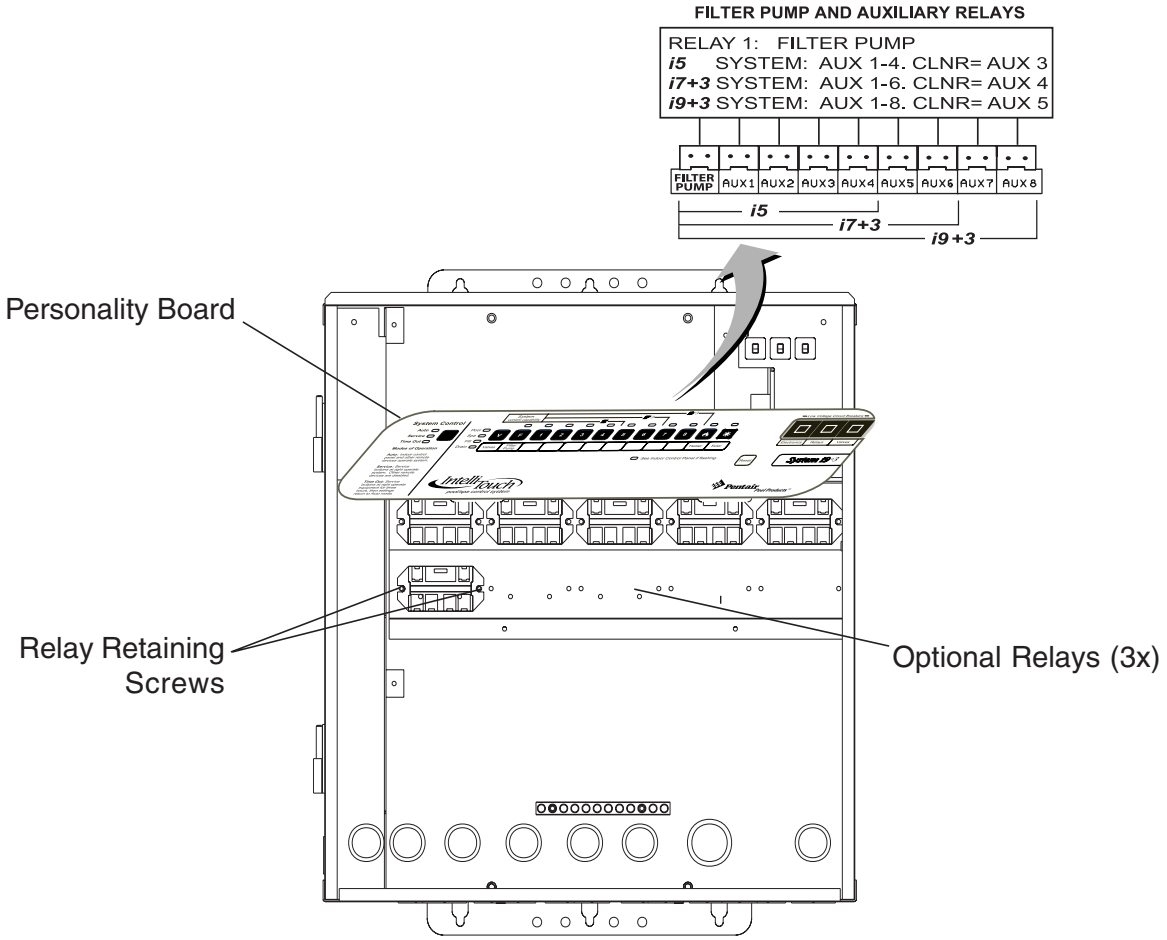
Installing Auxiliary Relays

Install additional axillary relays as needed. Depending on the Personality Kit there may be as many as five additional relays.

To install a relay:

1. At the Power/Load Center, install the relays below the pre-installed relays. Secure in place with two retaining screws.
2. Route the relay cable plug up through the holes into the high voltage compartment to the Personality board.
3. Insert each auxiliary relay plug into the one of the two-pin sockets, beginning with **AUX5, AUX6, AUX7** and **AUX8** on the Personality board. For wiring details, refer to the System Wiring Diagrams on pages 32 and 33.

   Note: *Install the optional Two-Speed Pump relay (P/N 520198) cable plug into the **2SPD** two-pin socket on the Personality board. For installation and operation information, refer to the Two-Speed Relay User's Guide (P/N 520210).*

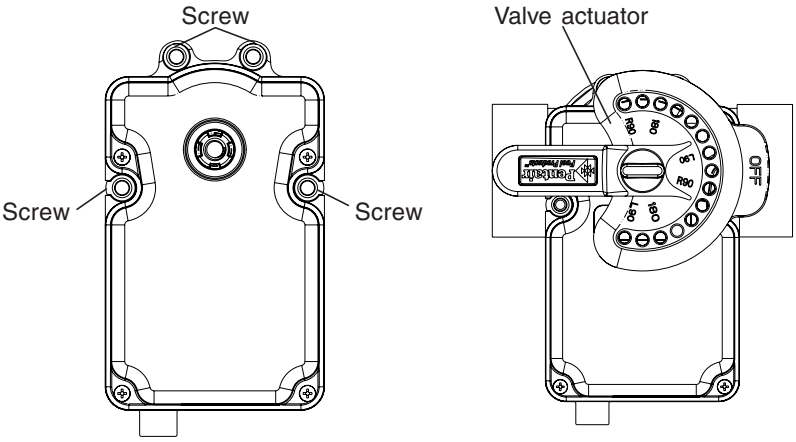


Installing Valve Actuators

For shared equipment systems there are two motorized valve actuators (CVA-24T, P/N 263045).

To install the valve actuators:

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.



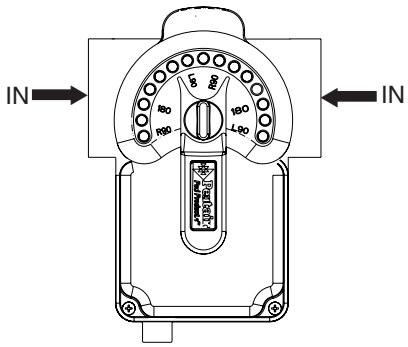
Valve Module Expansion Board: Three additional valve actuators can be added to the system if necessary using a Valve Module Expansion board (P/N 520285). The expansion board attaches to the edge of the Personality board. For installation and operation information, refer to the IntelliTouch Valve Actuator Installation Guide (P/N 520294).

6. At the Load Center, route the cable up through the 1" grommet and low voltage raceway to Personality board (see page 15).
5. 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. For wiring details, refer to the System Wiring Diagrams, page 32 and 33. Excess cable can be coiled in the enclosure low voltage raceway left side compartment. Do not coil the wire in upper low voltage compartment.

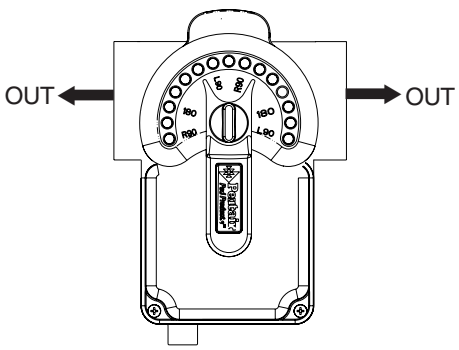
   For Solar Heating use **VLV A** (3-pin socket). Use **VLA B** (3-pin socket) for an optional auxiliary relay.

Adjusting the valve position

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.



OUT (Valve A - Suction)



IN (Valve B - Return)

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. Run 22 gauge two-conductor cable (included in kit) between the sensor and the Personality board. Route the wire up through the Load Center low voltage raceway to the Personality board.
4. Fasten the cable to the plumbing with cable ties.
5. Cut off the excess wire and the strip conductors ¼ inch. Use waterproof connectors (provided) to connect the sensor to cable. Insert the wires into the **WATER SENSOR** screw terminals (**J5**) on right-side of the Personality board. For wiring details, refer to the System Wiring Diagrams, page 32 and 33.

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. Route the wire through the low voltage raceway to the motherboard.
3. Fasten the cable to the plumbing with cable ties.
4. Cut off the excess wire and the strip conductors ¼ in. Insert the wires into the **AIR** screw terminals (**J5**) on right side of the Personality board. For wiring details, refer to the System Wiring Diagrams, page 32 and 33.

Solar Temperature Sensor (Optional)

Run a two-conductor cable between the sensor and the IntelliTouch 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 wire to the sensor. Run two-conductor cable between the sensor and the Load Center. Use waterproof connectors to connect the sensor to the cable. Use twisted pair 20 AWG outdoor rated sensor wiring and be sure the wire connections are protected from the environment. Use shielded cable for long runs or runs near other electrical wiring.

3 Strip the conductors ¼ in. Insert the wires into the **SOLAR SENSOR** screw terminals **(J5)** on right side of the Personality board. For wiring details, refer to the System Wiring Diagrams, page 32 and 33.

Connecting IntelliTouch to a Standard Gas Heater (Pentair MiniMax, MasterTemp)

To connect a Pentair MiniMax, or MasterTemp, or to the IntelliTouch Load Center:
The following instructions are for gas heaters and heat pumps with low voltage thermostats. To connect the heater thermostat cable plug to the Personality board:

1. 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 wire around the thermostat, pressure switch, high limit switch, or other safety devices. At the heater, connect the wires in accordance with heater manufacturer's instructions. For older heaters without instructions for remote operation, connect the wires 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 105° C temperature rated wire for connection to the heater. When connecting wires inside the heater, be cautious of HOT internal parts of the heater. Refer to the minimum temperature rating for wires recommended by the manufacturer. See the heater owners manual for details.
4. Strip the conductors ¼ in. Insert the two wires into the **GAS HEATER** (**J30**) two-screw terminal on the left side of the Personality board. For wiring details, refer to the System Wiring Diagrams on pages 32 and 33.

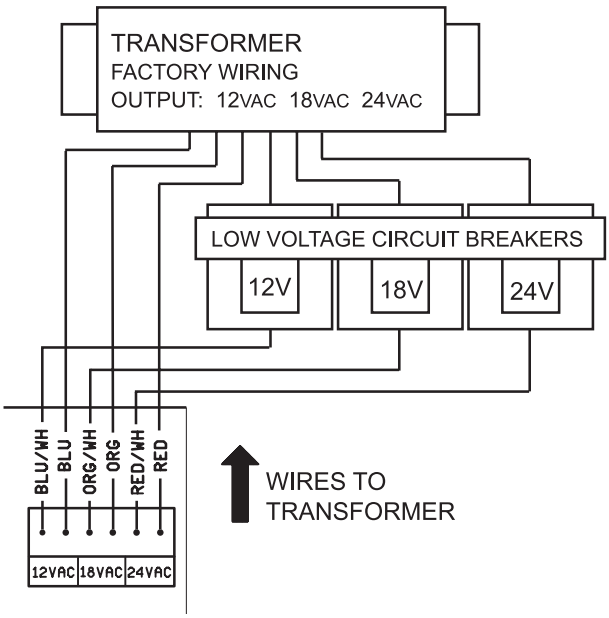
   CAUTION: Be sure that the wires from the heater to the Load Center are not near or touching any line voltage wires in the heater. Failure to follow these instructions may cause the heater to malfunction.

5. Set the Power (Thermostat Select) switch to either "Pool" or "Spa."
6. Set the "Pool" and "Spa" thermostats to their maximum position.

Connecting the Transformer

To connect the transformer wire harness onto the Personality board:

- Connect the transformer plug onto connector **J2** on the right side of Personality board. The plug is keyed onto the pins so that the six wires point towards back of the board. From left to right the wire colors should be blue, orange, red. For the connector location, refer to the diagram shown below and the System Wiring Diagrams for models i5, i7+3, and i9+3, page 32 and 33.



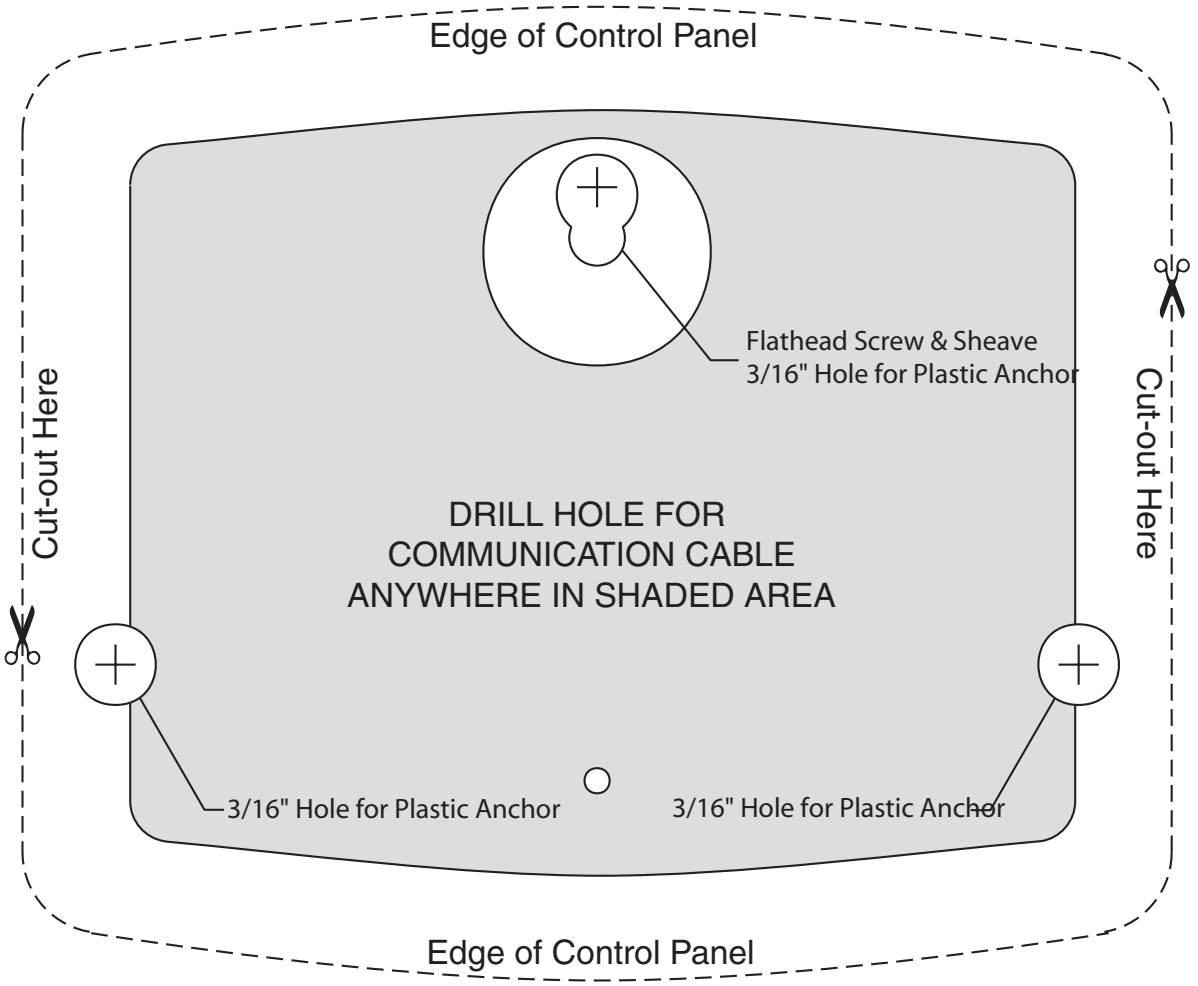
Installing the Indoor Control Panel

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 5-¾ 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 3/16 in. holes and insert wall anchors (included in the kit) as required.
2. Drill a hole ¼ in. within the gray area shown in the template for the communication cable to feed through.



Indoor Control Panel Template

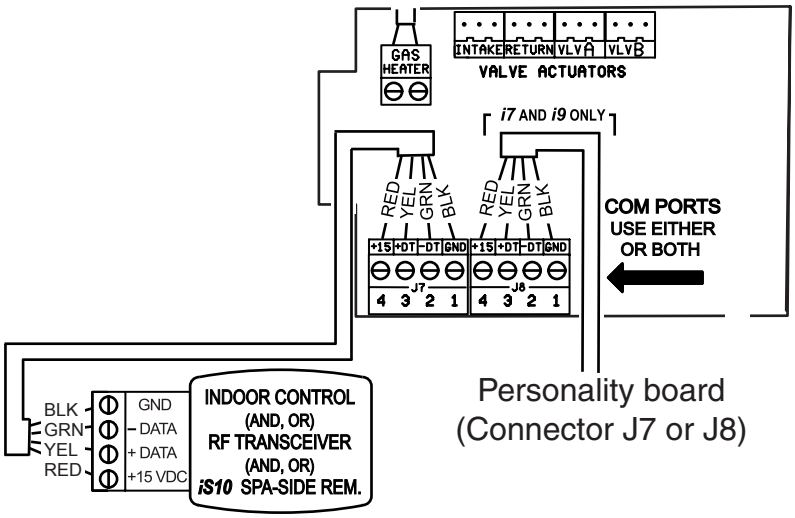
Cabling the Indoor Control Panel at the Load Center

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 wire 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.

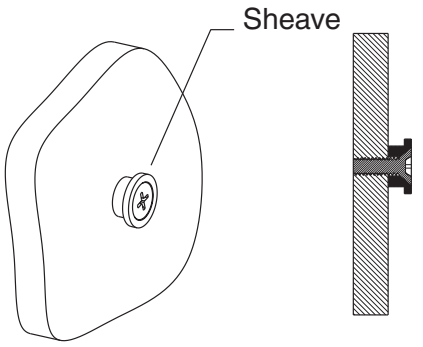
3. Route the cable up through the low voltage raceway to the Personality board. To access the Personality board, refer to Installing the Outdoor Control Panel, page 16.
4. Strip back the communication cable conductors ¼ in. Insert the wires into the screw terminals (provided in the kit). Secure the wires with the screws. Make sure to match the color-coding of the wires: 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 board. For connector locations, refer to the Wiring Diagrams on pages 32 and 33.
6. Proceed with **Cabling the Indoor Control Panel**, page 24.



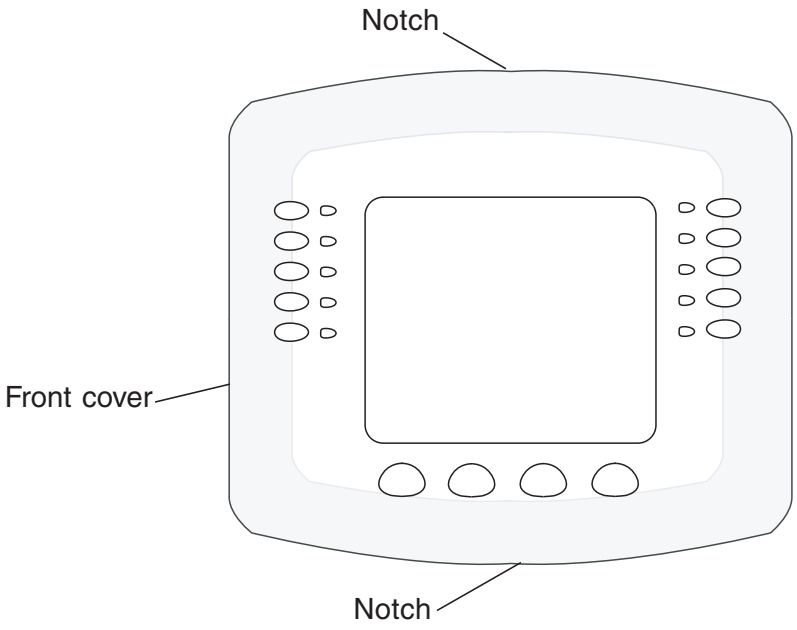
Cabling the Indoor Control Panel

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.

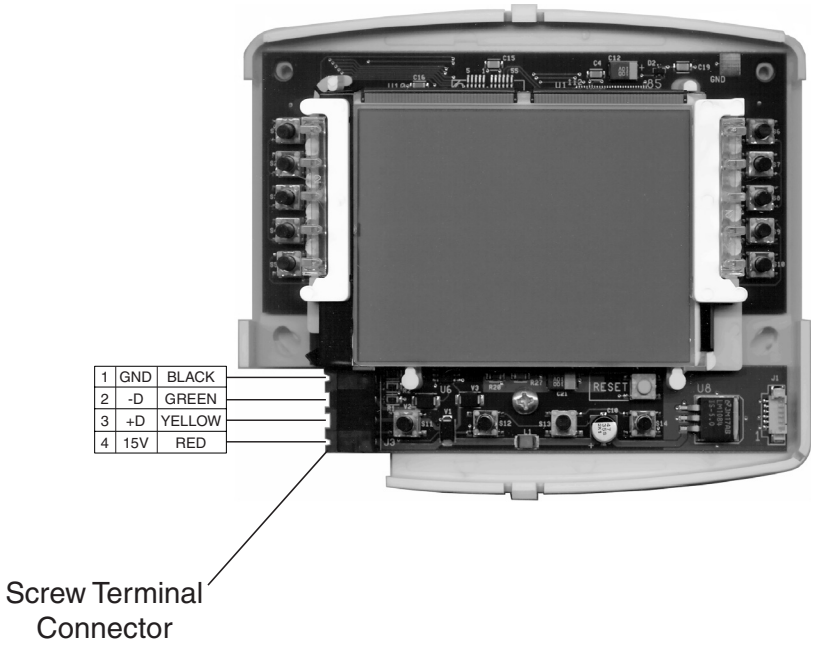


3. **Remove the control panel front cover**: From the front of the control panel, insert the tip of a small flat-blade screw driver into the notch on the top edge of the control panel cover and gently pry the cover off from the control panel base.



Indoor Control Panel (front view)

4. Strip the leads of the communication cable wires ¼ in. Insert the wires into the screw terminals (provided in the Personality Kit). Make sure to match the color-coding of the wires (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.

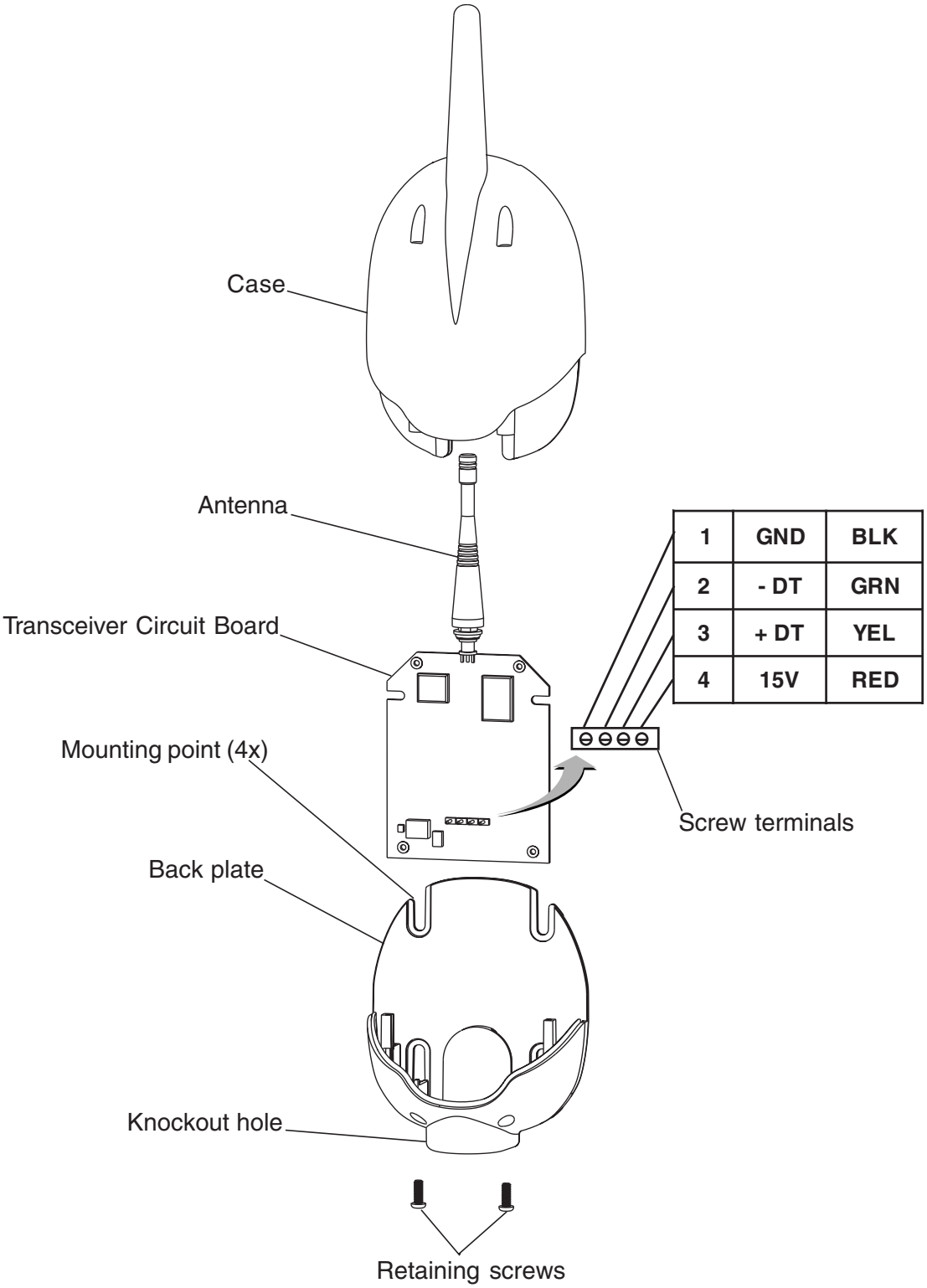
CAUTION To avoid signal interference, mount the Transceiver module antenna a minimum of 10 ft. away from the Load Center or Power Center, any metal surface/structure, or air blower located in the immediate area of the equipment pad.

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 wire through the drain holes. If the knockout hole is not being used to run wire 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 wires ¼ inch. The recommended wire color scheme is red, yellow, green, and black. Insert the wires into the screw terminals (provided in the Personality Kit). Connect the screw terminal connector onto the circuit board. For wiring details, see page 20.
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.



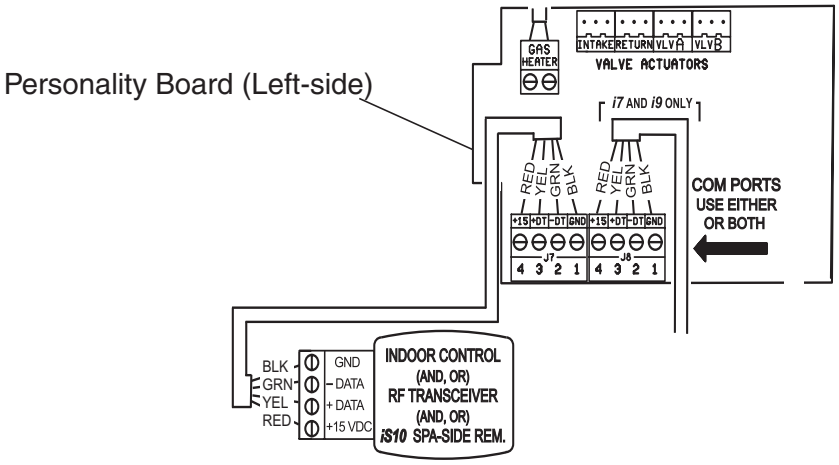
Transceiver Module

Connecting the Transceiver to the Personality 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 board. To access the Personality board, refer to Installing the Outdoor Control Panel, page 16.
3. Strip back the cable conductors ¼ inch. Insert the wires into the screw terminals (provided in the Personality Kit). Secure the wires with the screws. Make sure to match the color-coding of the wires: 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 board. For wiring details, refer to the Wiring Diagrams for models i5, i7+3, and i9+3, page 32 and 33.

   Note: *Multiple wires 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

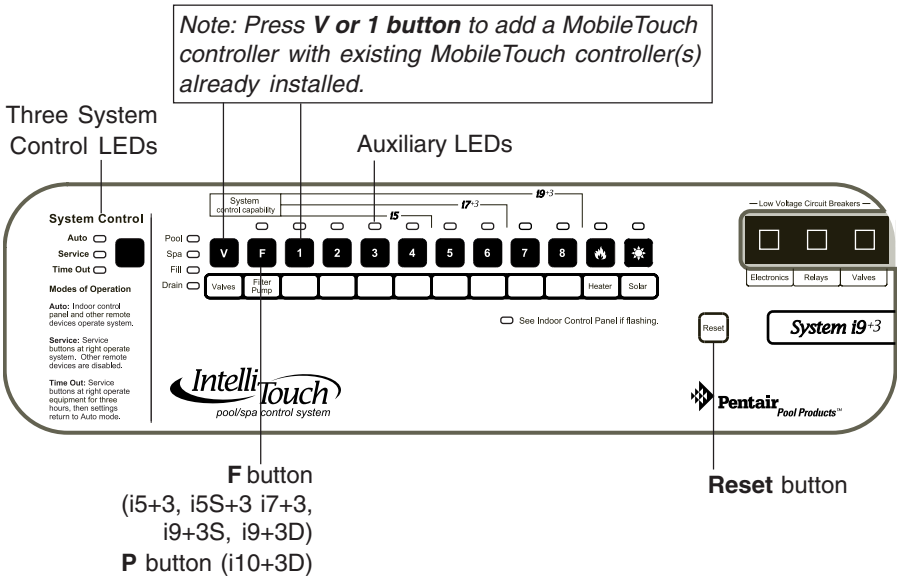
The following describes how to assign the MobileTouch wireless controller a communication address for the first time and to add a MobileTouch controller to a system with a controller already installed.

To manually setup a MobileTouch wireless controller:

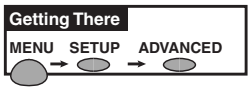
1. On the Outdoor Control Panel, press the **Reset** button.
2. **First Time MobileTouch install:** The three red **System Control** LEDs will be lit (solid). Wait a few seconds then press the **"F" Filter button**. For model i10+3 press the **"P" Pool Filter Pump** button.

   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**.

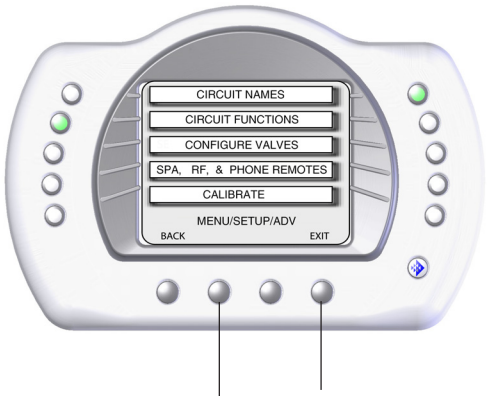
3. The three red **System Control** LEDs and the auxiliary button **LEDs** will begin cycling. ***Wait until the LEDs stop cycling.*** The three System Control LEDs will start to blink on and off. The system is ready to enable the MobileTouch wireless controller. Continue with step 4.



Go to the Advanced screen.



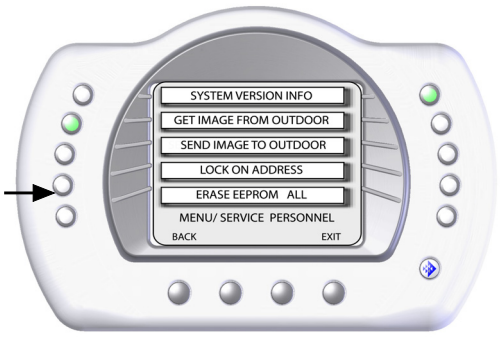
4. From the MobileTouch controller Advanced screen, press the lower **buttons 2 and 4 at the same time**. The Service Personnel screen will be displayed.



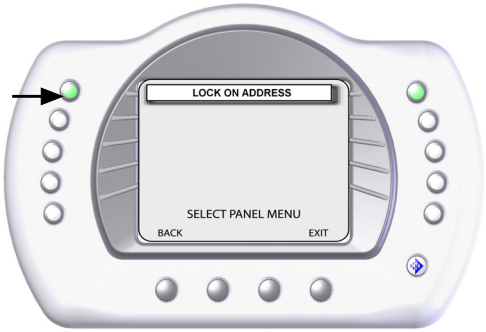
Press button 2 and 4 at the same time to access the Service Personnel screen

Setting up the MobileTouch Wireless Controller (Continued)

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



6. 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.



7. After selecting “Lock On Address” the MobileTouch controller is now ready to operate the IntelliTouch system. The “Service Personnel” screen will be displayed.
8. Press **Exit** to return to the main screen or proceed with **Step 9** if you are adding multiple MobileTouch controllers while the IntelliTouch outdoor control panel LEDs are flashing.
9. **To add another MobileTouch controller at this time**, repeat Steps 4 through 8 for each controller, if not, continue with Step 10.
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).

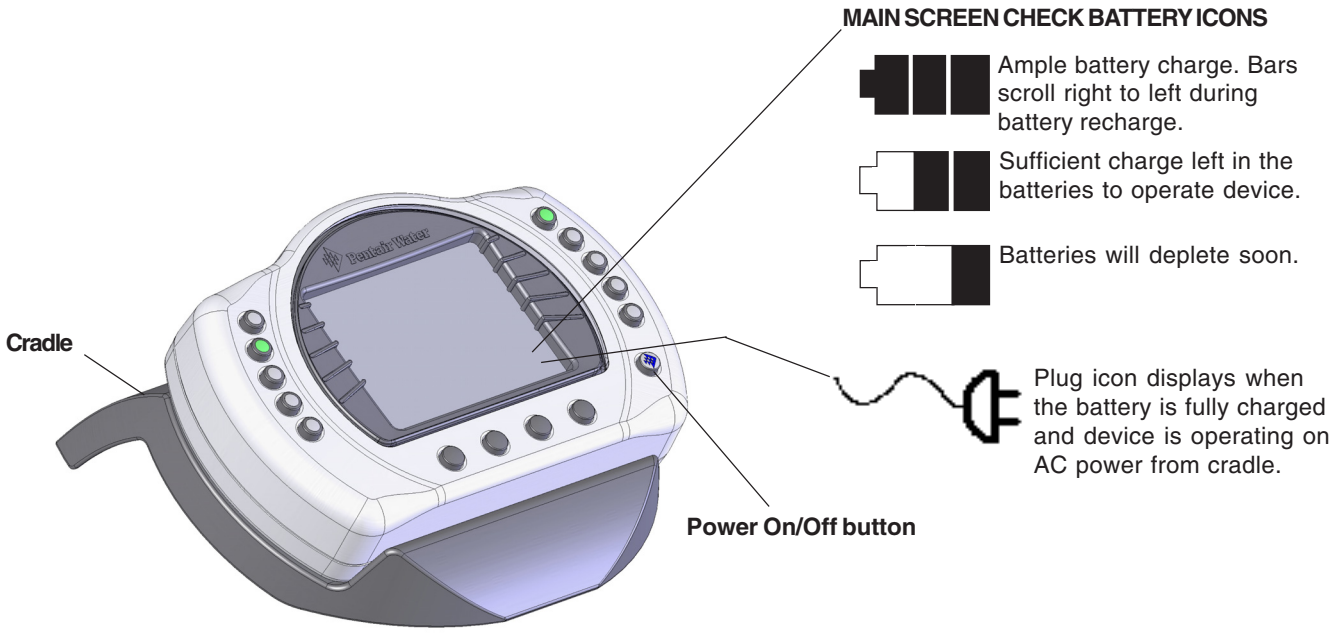
Using the MobileTouch Wireless Controller

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.



MobileTouch Wireless Controller

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 520102)*. 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 wire harness **J2** attached to the Personality board.
- Heater control connector **ELEC HTR** or two-wire screw terminal.

Refer to Summary Installation Steps (page 8) and Power/Load System Wiring Diagrams, page 25 and 26.

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, 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.

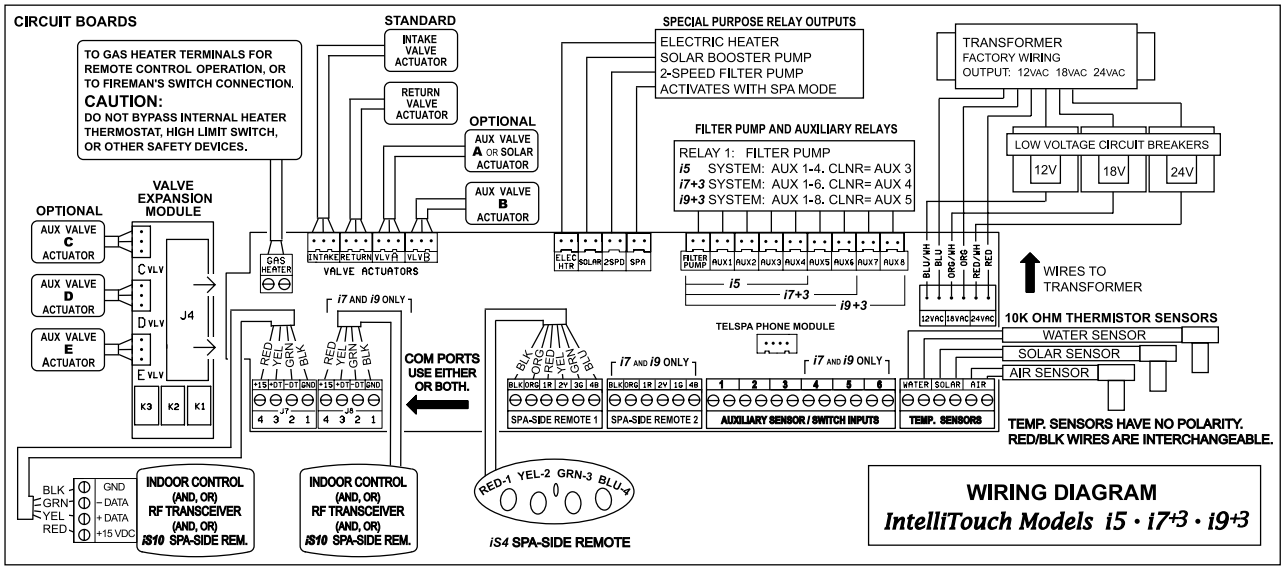
Affixing the System Wiring Diagram Label

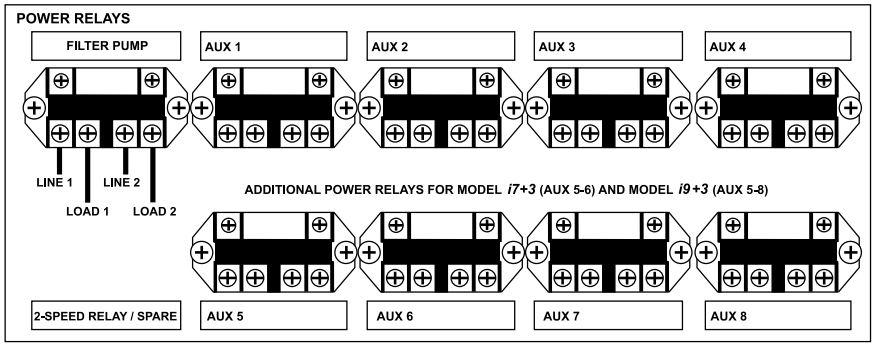
To affix the wiring diagram label on the enclosure inside front door:

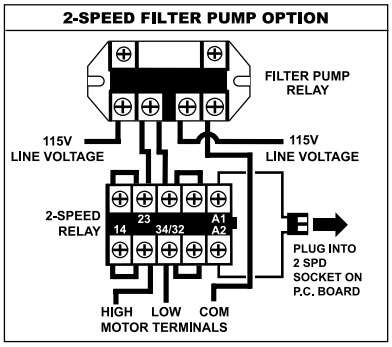
1. Open the enclosure front door.
2. Peel the backing off the wiring diagram label.
3. Position the label in middle of the inside of the front door. Apply even pressure on the surface of the label to secure in place.

IntelliTouch

WARNING **PREVENT ELECTROCUTION**
INSTALL AT LEAST 5 FEET FROM INSIDE WALL OF SPA OR POOL
DISCONNECT ALL CONNECTIONS BEFORE SERVICING THIS UNIT. THIS APPLIANCE HAS UP TO 11 SUPPLY CONNECTIONS.



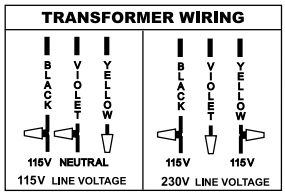




RAINPROOF (TYPE 3R) CONTROL PANEL. FOR INDOOR OR OUTDOOR USE.
SUITABLE FOR SWIMMING POOL/SPA APPLICATIONS
120V 125 AMP OR 240V 63 AMP MAX. SINGLE PHASE.
60 - 75°C. MIN. INSULATION
SHORT CIRCUIT RATING: 5000 SYMMETRICAL AMPERES.
TRANSFORMER INPUT: 120V., 2 A., 50/60Hz;
240V., 2 WIRES, 1A., 50/60Hz.

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



CAUTION: RISK OF ELECTRIC SHOCK, READ INSTALLATION MANUAL.
IMPORTANT: This control panel must be installed according to the National Electrical Code (including article 680) and local code requirements. Mount with conduit hole down. The main lugs and neutral main are suitable for No. 14 to 2 AWG conductors. Use No. 14 to 6 AWG COPPER or ALUMINUM conductors for branch circuit wiring. Install interchangeable circuit breakers designed to fit this control panel interior, see list of suitable types below. Follow manufacturers instructions for installing and testing of ground fault circuit breakers (GFCB) and interrupters (GFCI). Additional approved wiring devices may be installed in the rectangular side knockout or inside the enclosure, provided the wiring devices have lead connections. Otherwise, the device with uninsulated terminals must be covered by internally installed metallic or nonmetallic wall box. When using side knockout, an approved rainproof cover must be installed over the wiring device if used outdoors. Make sure connections to low voltage compartment are sound and properly insulated. After wiring, install front panel over wiring compartment and close unused breaker openings with filler plates.

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LISTED
POOL/SPA CONTROLLER
5K42

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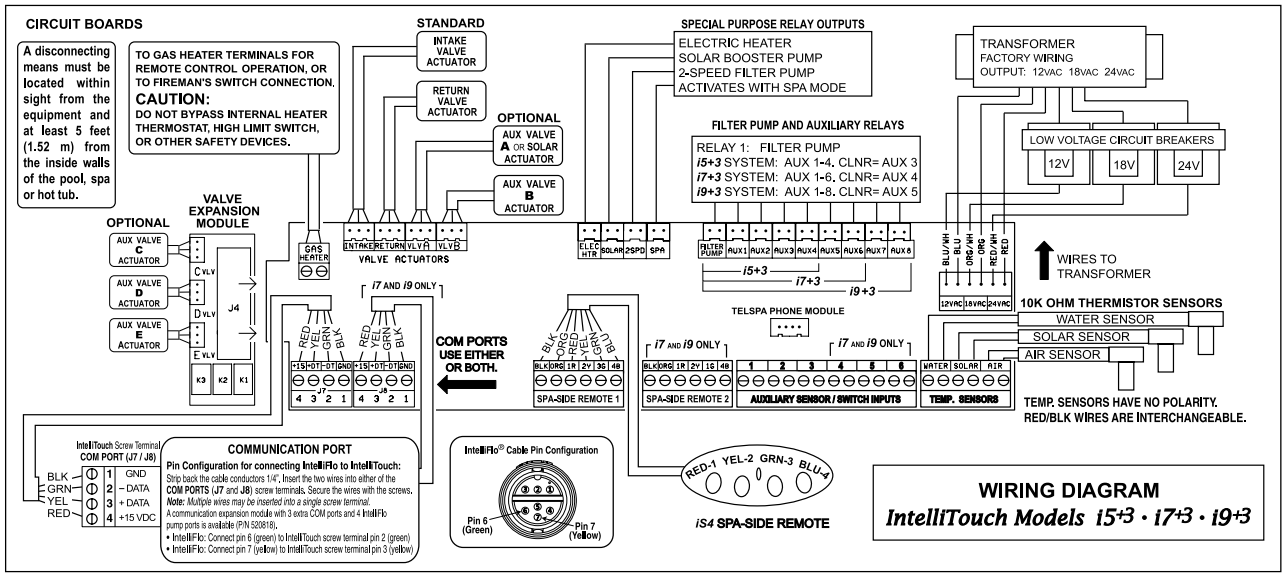
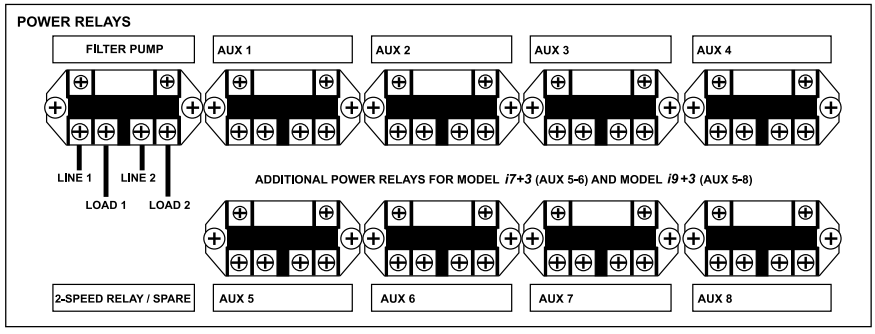
System Wiring Diagram (Power Center)

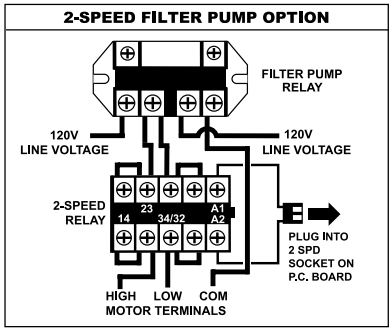
IntelliTouch®

⚠ WARNING **PREVENT ELECTROCUTION** INSTALL AT LEAST 5 FEET FROM INSIDE WALL OF SPA OR POOL

DISCONNECT ALL CONNECTIONS BEFORE SERVICING THIS UNIT. THIS APPLIANCE HAS UP TO 11 SUPPLY CONNECTIONS.





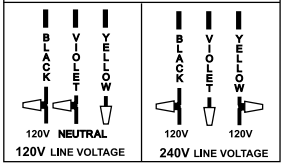


RAINPROOF (TYPE 3R) CONTROL PANEL. FOR INDOOR OR OUTDOOR USE.
SUITABLE FOR SWIMMING POOL/SPA APPLICATIONS
120V/240V 125 AMP MAX. SINGLE PHASE.
60 - 75˚C. MIN. INSULATION - REQUIRED ON ALL FIELD WIRING.
SHORT CIRCUIT RATING: 5000 SYMMETRICAL AMPERES.
TRANSFORMER INPUT: 120V., 2 A., 50/60Hz;
240V., 2 WIRES, 1A., 50/60Hz.

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

TRANSFORMER WIRING



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POOL/SPA CONTROLLER
5K42

SUITABLE CIRCUIT BREAKERS	
SIEMENS	QP, QT, QPF, QE, QAF
MURRAY	MP-T, MH-T, MP-GT, MP-ET, MP-AT
TOTAL CONNECTED LOAD OF QT OR MH-T BREAKERS ON ONE BRANCH BUS SHALL NOT EXCEED 110A.	

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System Wiring Diagram (Load Center)

Glossary

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

Feature Circuits: Programmable circuits that may control relays and/or valve actuators. For details, see the IntelliTouch Systems User's Guide (P/N 520102)

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

Indoor Control Panel: This 14 button remote controller with LCD (liquid crystal display) is wired to the Personality board in the Power/Load Center. The control panel can be wall mounted inside a house to control IntelliTouch Systems.

iS4: Four function Spa-Side remote. Can be spa wall or deck mounted.

iS10: Up to 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: Wireless controller for the IntelliTouch Systems with all the functionality of the Indoor Control Panel.

Mud Box: Enclosure to provide mounting features for iS10 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: The circuit board mounted on top of the Outdoor Control Panel motherboard. The Personality board defines the system capabilities.

Personality Kit: 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. 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 wires from controllers and sensors; wires held by screw terminals; multiple wires 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 the MobileTouch wireless controller.

Notes

Notes

P/N 520101 - Rev D