Identifying Connections and Selecting Proper Input Voltage

Figure 4-2 below shows the reverse side of the Three-Circuit Clock Control Panel. Detailed connection information is provided below the diagram.

CAUTION: If the Source Voltage Selector Jumper is in the wrong position, the F1 fuse will blow and you may damage the circuit board, voiding the warranty.

1. **Before making any connections: Set the Source Voltage Selector Jumper.** The factory default position for this jumper is the 240 Volt position.
2. If the input voltage for the clock is 120 Volts, change this jumper to the 120 Volt position.

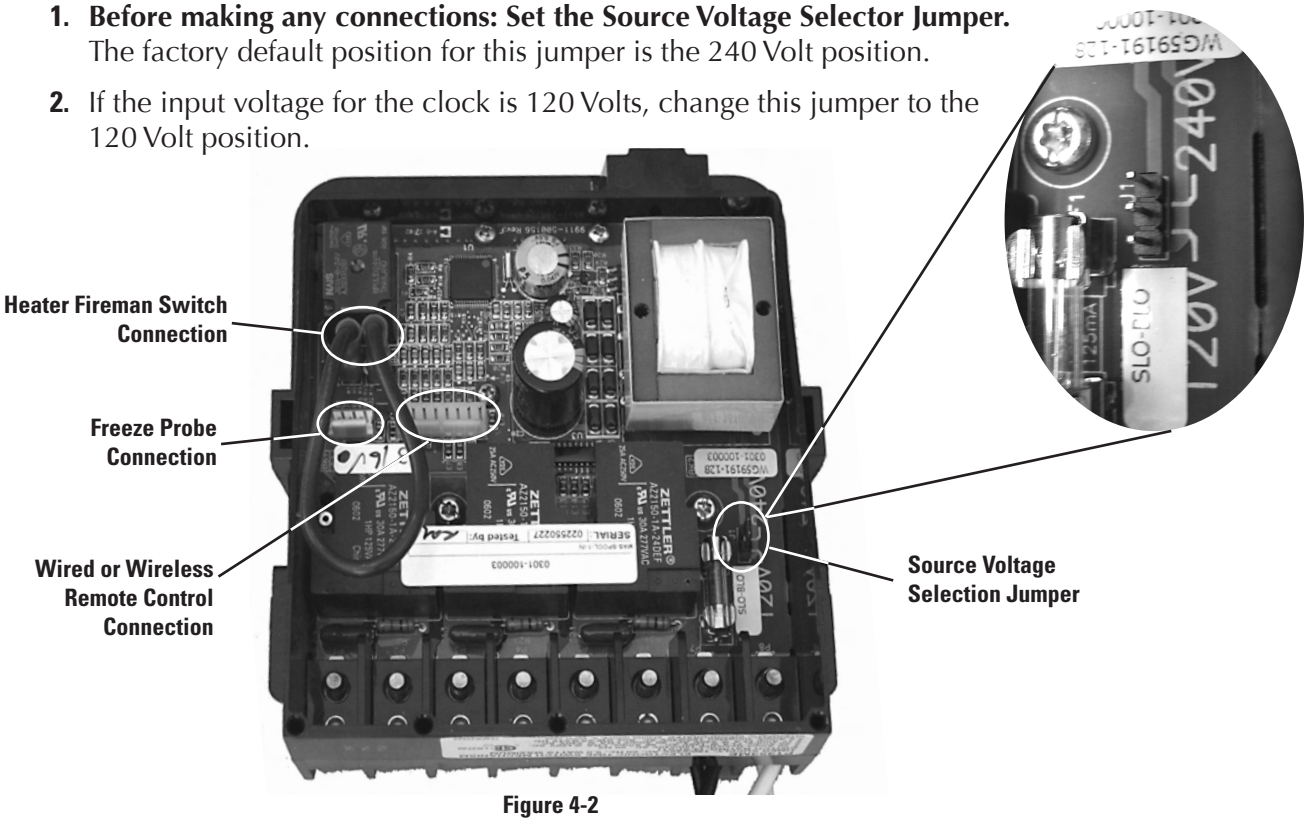

Figure 4-2

Connection Detail

- **Freeze Probe Connection** — For the Intermatic Freeze Sensor *(178PA0001A)*, which is necessary for the freeze protection circuit and programming to work. Disconnect power when connecting the freeze sensor. Only an Intermatic sensor can be used. Refer to page 34 for programming information.
- **Heater Firemen Switch Connection** — For the firemen switch wires that connect to the Pool/Spa heater. If installing with a Wireless Remote Control, use the two brown wires coming from the panel-mounted antenna to create the circuit between this switch and the heater. Connectors should be ¼" female spade connectors crimped to insulated-type wire. This connection is a simple SPST contact, and switches the supplied heater voltage. It does not supply voltage to the heater thermostat. In non-wireless installations, clip the "loop" supplied, then connect with wire nut connectors. Refer to page 33 for programming information.
- **Remote Control Connection** — For the Intermatic Remote Control *(133PE1484A)*, which allows you to remotely turn On or Off all three available circuits. It also has status lights that indicate when a load is On, Off or delayed. If using the Three-Button Wired Remote Control *(133PE1484A)*, it connects here as well.

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Circuit Ratings

CLOCK SOURCE VOLTAGE — 120/240VAC, 50/60 Hz.

POWER CONSUMPTION — 6.0 Watts Max.

CIRCUIT CONTACT CONFIGURATION — SPST

CIRCUIT SWITCH RATINGS ALL MODES:

- 20A Resistive, 120/240 VAC., 50/60 Hz
- 20A FLA@120 VAC, 96A LRA@120 VAC, 50/60 Hz
- 17A FLA@240 VAC, 80A LRA@240 VAC, 50/60 Hz
- 5 Amps Tungsten, 120/240 VAC, 50/60 Hz
- 5 Amps Ballast, 120/240 VAC, 50/60 Hz

EVENTS PER CIRCUIT — 3 On/Off Events Per Circuit

INTERNAL BATTERY POWER

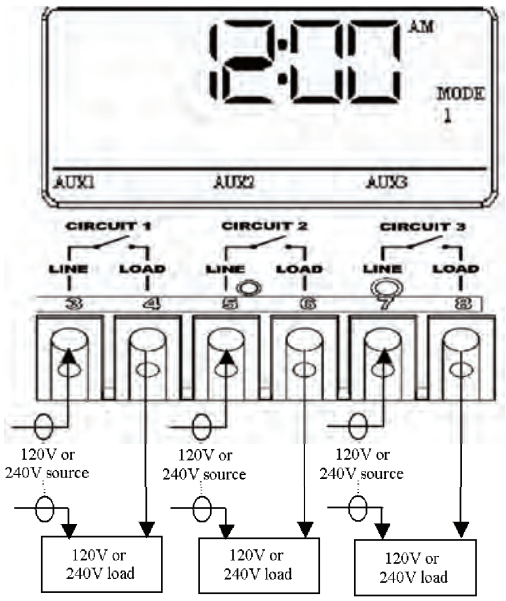
- 40 Year retention for all programmed settings
- Up to 24-hours

Mode Selection/Definition

IMPORTANT NOTE—There are five modes to choose from, depending on your pool or spa equipment pad configuration. Each mode has specific programming, timing, and lockout features that are designed to work with specific types of pool or spa equipment. Mode setting is generally done only once and usually during the initial installation. It is purposely difficult to enter the mode-changing program and should only be done by a Qualified Installer. Be sure you fully understand each mode definitions and installation, prior to selecting the proper mode.

Mode 1 — (Aux1, Aux2, Aux3)

Each of the three single pole circuits are defined generically, and can control any load within each of its individual circuit ratings. All three circuits act independent of each other.



NOTE: This drawing illustrates that only one leg is broken, with the other leg going directly to load, whether 120V or 240V.

Figure 4-3

Mode 2 — (Pump High, Pump Low, Aux3)

Circuit one and two are dedicated single pole outputs for a two-speed pump load. Circuits one and two will never be ON at the same time, consistent with a two-speed pump application. Circuit three is single pole circuit for a generic load, and independent of circuits one and two..

NOTE: This drawing illustrates that <u>only one</u> leg is broken, with the other leg going directly to load, whether 120V or 240V.

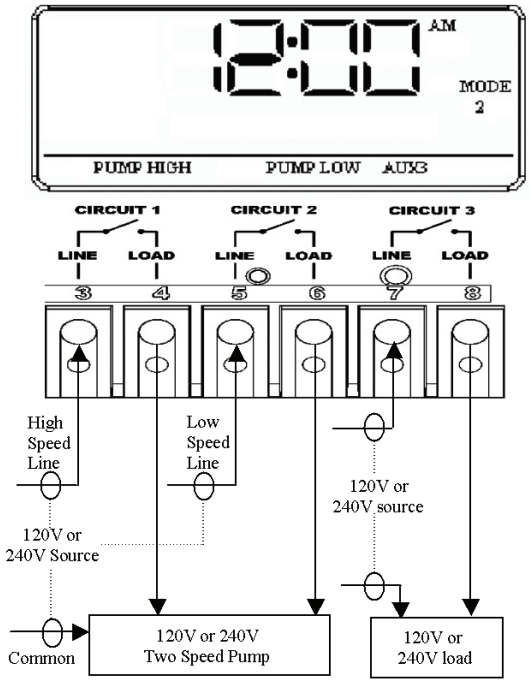


Figure 4-4

Mode 3 — (Pump, Aux2, Cleaner Pump)

Circuit one and three are dedicated single pole outputs for a single speed pump working with a pressure side cleaner pump. Circuit three will never come on unless circuit one is on for at least one minute, consistent with a pressure side cleaner pump. Circuit two is a single pole circuit for a generic load, independent of circuits one and three..

NOTE: This drawing illustrates that <u>only one</u> leg is broken, with the other leg going directly to load, whether 120V or 240V.

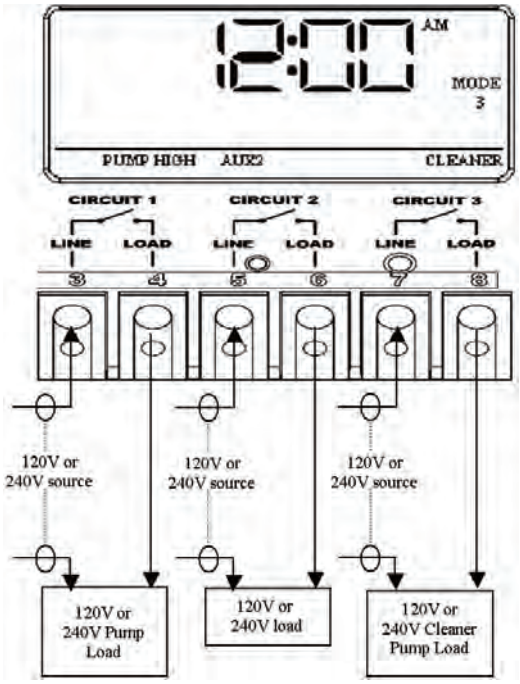


Figure 4-5

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Mode 4 — (Pump High, Pump Low, Cleaner Pump)

Circuit one and two are dedicated single pole outputs for a two-speed pump load. Circuits one and two will never be ON at the same time, consistent with a two-speed pump application. Circuit three is also a dedicated single pole output for a pressure side cleaner pump. Circuit three will never come on unless circuit one is on for at least one minute, consistent with a pressure side cleaner pump.

NOTE: This drawing illustrates that <u>only one</u> leg is broken, with the other leg going directly to load, whether 120V or 240V.

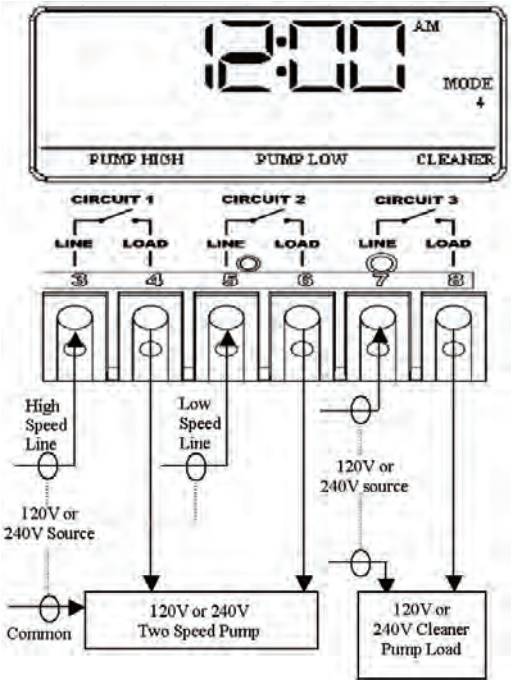


Figure 4-6

Mode 5 — (Pump, Pump, Aux3)

Circuit one and two are now coupled together making up one circuit capable of switching the power source to one pump. The On/Off button for circuit one now controls both circuit one and two simultaneously. The On/Off button for circuit two is disabled. Circuit three remains a single pole circuit for a generic load, and is independent of circuits one and two..

NOTE: This drawing illustrates that <u>only one</u> leg is broken, with the other leg going directly to load, whether 120V or 240V.

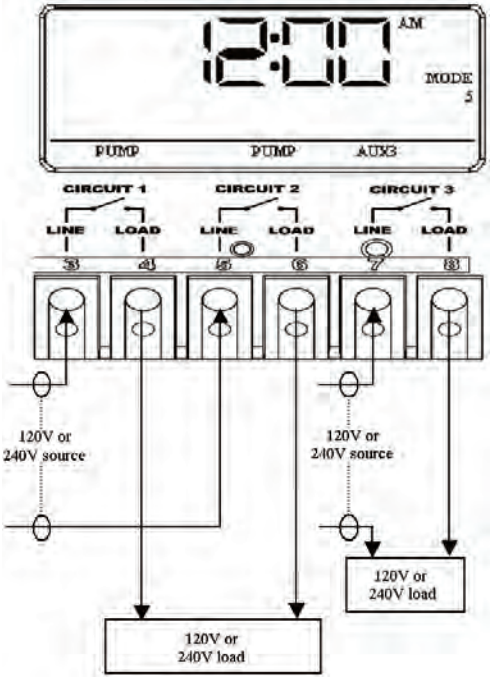


Figure 4-7

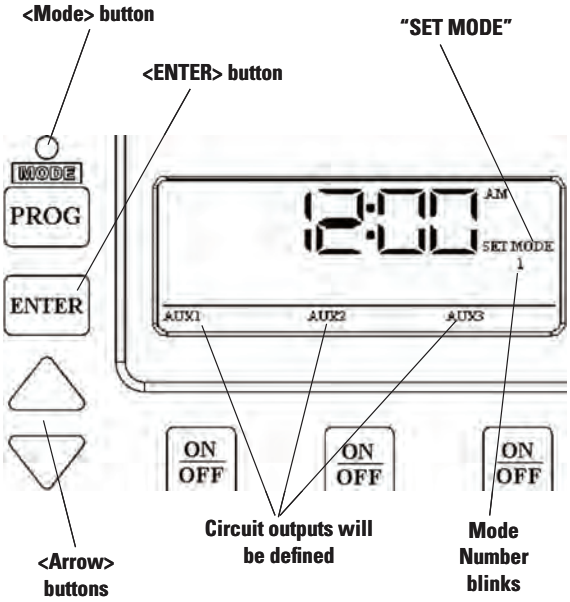
Setting Mode

Overview

Determine the mode that would be best for your installation, then select it using the instructions provided below.

Procedure

NOTE: If you don't press a button within 60 seconds while setting **Mode**, the control will save current settings and return to normal operating mode.



1. With a small pointed tool (i.e., pen, pencil, screwdriver, etc.,), press and hold the **<MODE> button** for about 5 seconds until the display shows **SET MODE** and the **Mode Number** blinks.
2. Use the **<Arrow> buttons** to cycle through all five available modes. Each **circuit output will be defined** on the display as you cycle through the available modes.
3. Once the desired mode number is displayed, press and release the **<ENTER> button**. This saves the mode number to memory and exits SET MODE programming.

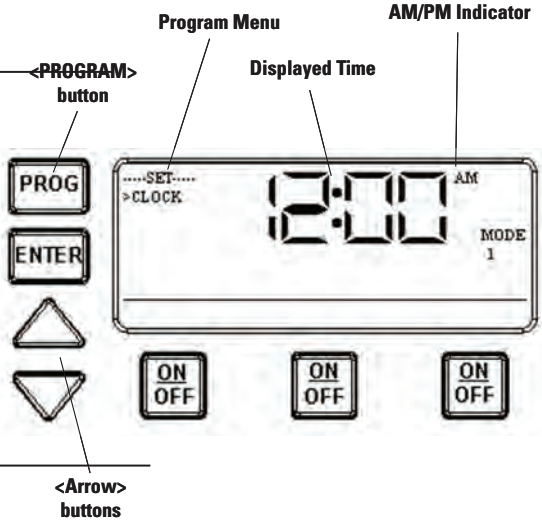
Setting Time of Day

Overview

This procedure makes sure that timer-controlled actions will occur at the right time.

Procedure

NOTE: If you don't press a button within 60 seconds while setting **Time of Day**, the control will save current settings and return to normal operating mode.



1. Press and release the **<PROGRAM> button**. The **displayed time** will start to blink, and the **program menu** will display Set Clock.
2. Use the **<Arrow> buttons** to change the time.

   NOTE: Check the AM and PM indicator to make sure your setting is correct.
3. When the time is set, you have two choices:
   - Press and release the **<ENTER>** button to save and exit programming.
   - Press and release the **<PROGRAM>** button to save and go on to the next programming feature.

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Setting the On/Off Times for Each Circuit

Overview

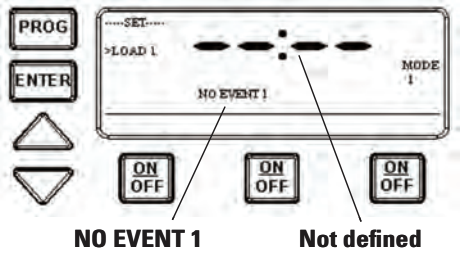
You can set up to *three* separate ON/OFF times per load or circuit, and you can set specific times for them to turn on and off, i.e., you want the filter pump to run from noon till 4:00 P.M., or you want lights on from 7:00 P.M., off at 11:00 P.M., then on again at 6:00 A.M. and off at 8:00 A.M.

Procedure

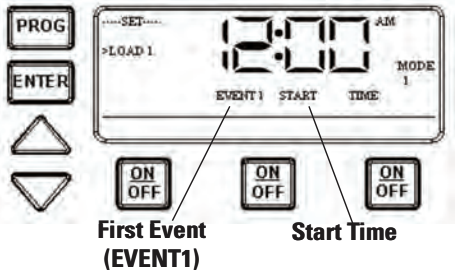
PROGRAMMING TIP: You can use the **<ENTER>** button to review all the events for each circuit. You can use the **<PROGRAM>** button to advance through each circuit and on to the next programming feature.

1. If you pressed and released the program key from the previous procedure, the screen display should look like the illustration at the right. [If not, press and release the <PROGRAM> button ***twice***.]

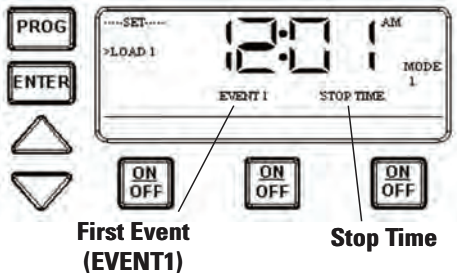
   Note that the display indicates that the first event of circuit one has not been defined **(NO EVENT1)**.



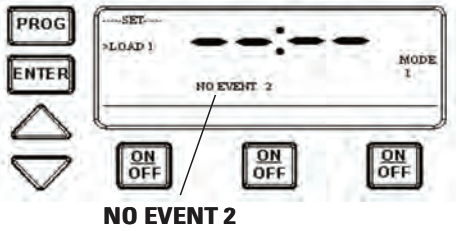
2. Use the <Arrow> buttons to define the **Start** time for the **first event (EVENT1)** for circuit one. The screen displays:



3. Once you are satisfied with the start time, press and release the <ENTER> button, saving the start time. The display will prompt for the **Stop time** for the **first event (EVENT1)** for circuit one. The screen displays:



4. Use the <Arrow> buttons to define the **Stop** time for the first event (EVENT1) for circuit one. Press and release the <ENTER> button when complete. The program will now advance to the second event (EVENT2) for circuit one, as shown below. Note that the display indicates that the second event of circuit one **has not been defined (NO EVENT2)**.



5. Repeat Steps 2 thru 4 to set a second event for circuit #1, and for subsequent events you wish to set up.

Notes on Setting On/Off Times for Each Mode

General Note

- The ON/OFF buttons were provided for service operations, and for circumstances where instantaneous response is required. If the intent is to turn equipment on and off everyday at the same time, programming individual events will make sure these functions take place.
- All circuits will respond to a programmed off time. Therefore, when a circuit is turned on with the ON/OFF button, it automatically turns itself off at the end of the next programmed event.
- If there are no events programmed, the circuit stays on until the ON/OFF button is pressed again.
- If the ON/OFF button is pressed while the corresponding circuit is on, it turns the circuit off and supersedes any program in progress. The priority is always given to the last manual operation.

Mode 1 — (Aux1, Aux2, Aux3)

All three of the available circuits act independently, and up to three individual on/off times can be set for each circuit independently.

Mode 2 — (Pump High, Pump Low, Aux 3)

In this mode circuits 1 & 2 are connect to a two speed pump, and Aux 3 is connected independent of circuits 1 & 2. In the event that you program high and low speed to be on at the same time or if their independent ON times overlap, high speed will always take precedence.

> **Example:** *Low speed is programmed to come ON at noon and run until 6 PM. High speed is programmed to come on at 2 PM and turn off at 4 PM. In this case the pump will come ON at noon in low speed, go to high speed at 2 PM, and back to low speed at 4 PM, and shut off at 6 PM.*

All manual ON operations for circuits 1 & 2 override all programmed ON times. Therefore, any desired low and high-speed run combinations need to be programmed as separate events and cannot controlled by combining the manual ON/OFF button with a scheduled event. The last speed started manually has priority over all prior automatic and manual operations.

> **Example:** *You would like to run the pump in high speed for 6 hours and low speed for the remainder of the time. Program a 6-hour event for high speed, and an 18-hour event for low speed. Do not turn the low speed on manually, and program a 6-hour event for high speed. The high speed will not occur.*

Mode 3 — (Filter Pump, Aux2, Cleaner Pump)

The cleaner pump cannot turn on unless the filter pump has been on for at least 30 seconds. Therefore, for any ON/OFF time programmed for the cleaner pump, the filter pump will come on first, followed 30 seconds later by the cleaner pump. Both the cleaner and filter pump will turn off according to the programmed off time. When programming an event for the cleaner pump, it is not necessary to program a separate event for the filter pump, as it will automatically turn on when the cleaner pump turns on at its next scheduled on time.

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Mode 4 – (Pump High, Pump Low, Cleaner Pump)

Mode 4 is a combination of Modes 2 and 3, so refer above to Modes 2 and 3 for programming specifics. Note that if the cleaner pump is programmed to come ON, the control will turn ON the filter pump to high speed 30 seconds prior to turning the cleaner pump ON, even if the filter pump is currently on in low speed.

Mode 5 – (Aux1, Aux3)

Both of the available circuits act independently, similar to Mode 1. Therefore you can set up to three individual ON/OFF times for each circuit and they will act independently.

Setting the Heater's Cool Down Time (optional)

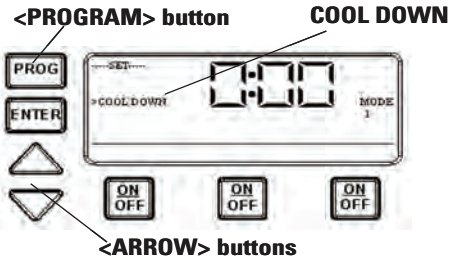
Overview

The heater's cool down time is a time defined by the programmer. This time is defined as the additional time the pump will run, over and beyond the desired pump OFF time, to make sure the heater is cooled down before shutting off.

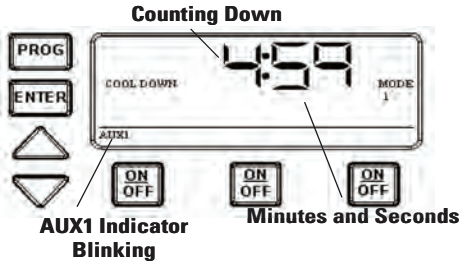
If the heater were to stay on after the pump had shut off, the water in the pipe could boil, damaging the system. Refer to heater manufacturer for specific time.

If a cool down time is programmed, the cool down cycle will occur in all cases, even if the user turns off the pump. To override the cool down time, press and release the **ON/OFF** key a second time during the cool down cycle. The cool down feature only applies to Circuit #1, in all modes.

Procedure



1. Use the **<PROGRAM>** button to advance to the **COOL DOWN** setting, as shown. The default cool down time is zero.
2. Use the **<ARROW>** buttons to modify the cool down time. The programming range is from zero to fifteen minutes and no seconds.
3. When you've set the cool down time, press the <ENTER> button to save and exit, or the **<PROGRAM>** button to save and advance to the next programming feature.



The display will look like the example shown at the right when the Heater's Cool Down Time feature is activated. In this example, the cool down time was set for 5 minutes, and is in the process of **counting down** to zero, showing **minutes and seconds**.

The **AUX1** indicator is blinking, indicating that the Cool Down feature is activated for Circuit #1. The Cool Down feature only affects Circuit #1. When the countdown display reaches zero, Circuit #1 will open and the time display will change back to the time of day.

NOTE: You can override the Cool Down feature during countdown by pressing and releasing the ON/OFF button associated with Circuit #1. This will end the cool down cycle and immediately power off Circuit #1.

Setting Freeze Temperature (optional)

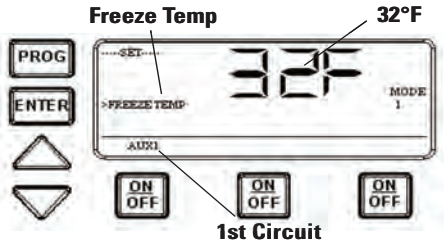
Overview

Freeze temperature programming will not appear unless the optional Intermatic Freeze Sensor (*178PA28A*) has been installed. This is the only freeze sensor that will work with the P1353ME Controller.

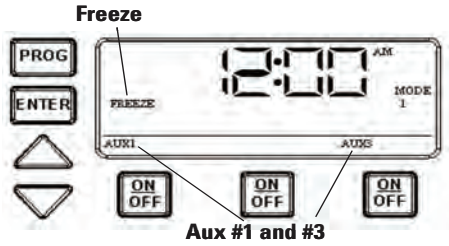
Power must be disconnected when connecting the 178PA28A sensor.

If Intermatic Freeze Sensor (*178PA28A*) has been installed, use the following procedure to program freeze temperature.

Procedure



1. Use the <PROGRAM> button to advance to the **Freeze Temp** setting, as shown. The **1st Circuit** and **32°F** are the factory default settings.
2. Use the <ARROW> buttons to modify the desired freeze temperature trip point. The programming range is 32° through 44° F.
3. After you have set the desired trip temperature, push and release the desired ON/OFF button to indicate which circuits should come ON when the trip temperature is reached.
4. When programming is complete, , press the <ENTER> button to save and exit, or the <PROGRAM> button to save and advance to the next programming feature.



The display will look like the example shown at the right when the Freeze Control feature is activated. In this example, the freeze sensor was connected, enabling the Freeze Control feature. Circuits #1 and #3 were programmed to come on during a **Freeze** condition.

AUX1 and **AUX3** will blink, indicating that the control has activated these two circuits due to a freeze condition.

NOTE: You can override the circuits during a freeze condition by pressing and releasing the corresponding ON/OFF buttons. This will turn the devices OFF. The override will only last one hour, so if the freeze condition still exists after one hour, Circuits #1 and #3 will come back on.

NOTE: Freeze protection stays enabled until the outside air temperature exceeds the programmed freeze temperature for more than one minute.

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Section 5:

Programming the Valve/Pump Switch Mechanism

Overview of the Valve/Pump Switch Control Panel

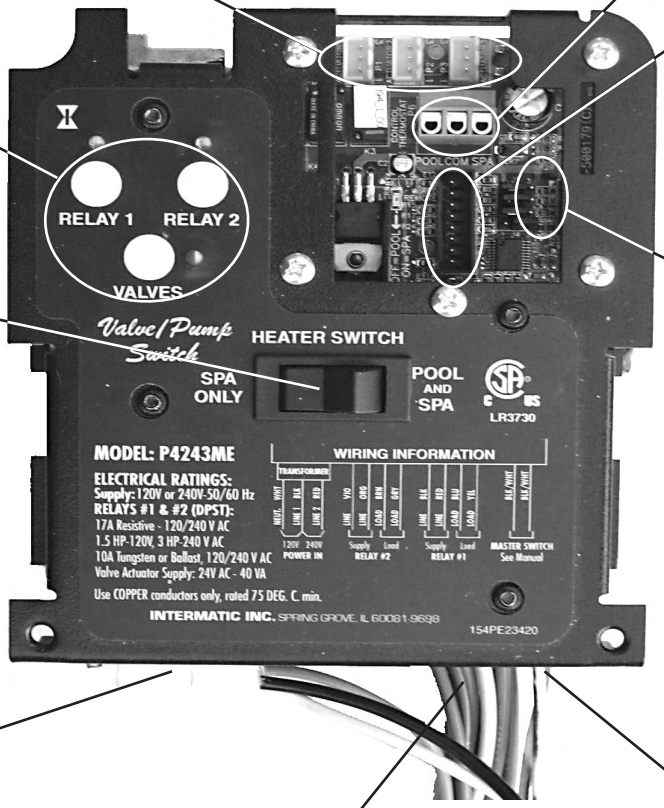
Front View

ACTUATOR CONNECTION — The Pump/Valve Switch mechanism supports up to three 24V valve actuators.

HEATER THERMOSTAT CONNECTOR — supports the three wires from the heaters thermostat. The wires should be marked Pool, Common, and Spa. The mechanism will switch the thermostat when the actuators change.

WIRED OR WIRELESS CONNECTOR will support either the wired spa side remote or the panel-mounted wireless transceiver.

SERVICE BUTTONS — allow you to operate the mechanism at the panel.



POOL/SPA THERMOSTAT SWITCH — allows you to switch between the pool and spa thermostat or just the spa only. In the spa only mode, the pool thermostat is disabled.

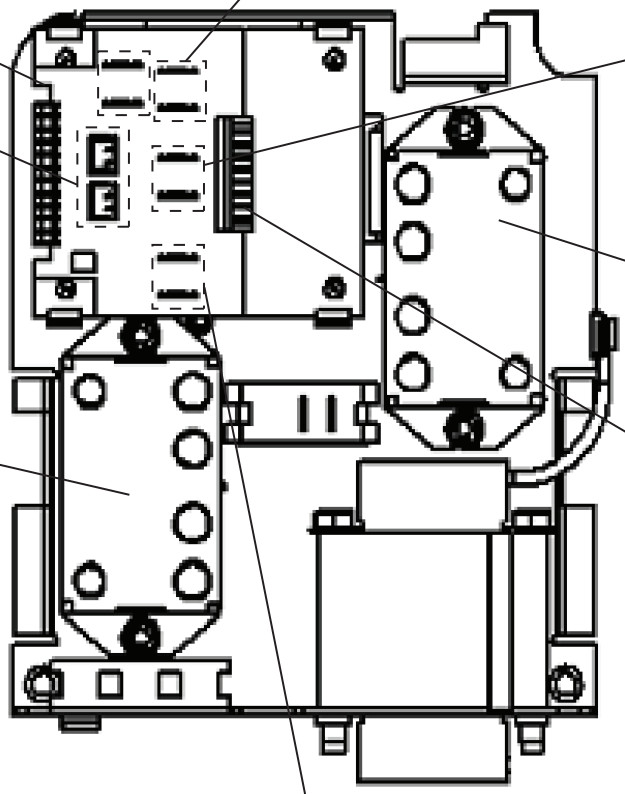
JUMPER BLOCK CONFIGURATION — used when a simple single-pole single through switch is going to be used in conjunction with the Sensor Line to control the Pool to Spa Mech. This is the most inexpensive way to achieve total pool/spa automation.

DUAL-VOLTAGE TRANSFORMER — is capable of being powered with either 120V or 240V.

SENSOR LINE — allows the mechanism to be controlled by a single pole sing throw switch (i.e. toggle switch, relay, wall switch, etc.). See page xxx for details.

CIRCUITS 1 & 2 — The pool to spa mechanism supports up to two auxiliary 3HP circuit loads. You can have different source voltages for each circuit, depending on your equipment requirements.

Rear View



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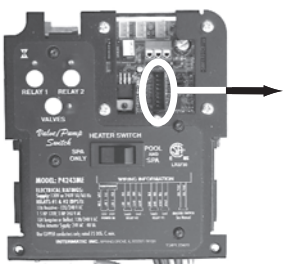
Installing the Three-Button Wired Remote Control

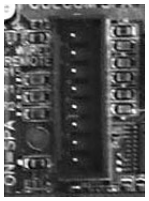
Three-Button Wired Remoe Control *(133PE1484A)*

The Three-Button Wired Remote Control *(133PE1484A)* can be installed to plug into either the Three-Circuit Clock *(PE1353ME)* or Valve/Pump Switch *(PE4243ME)*.

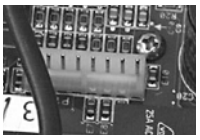
When plugged into one of these mechanisms, it replaces the wireless method of controlling the three circuits within the mechanism. For example, if you plug the Three-Button Wired Remote Control into the Valve/Pump Switch, the two relays and the pool/spa control will no longer be controllable using the Hand-Held Wireless Remote. The Three-Button Wired Remote Control ***must*** be installed where a third mechanism is needed in the enclosure box, since the Wireless Hand-Held Remote. can only control two mechanisms.

See illustrations below for connection detail.





Connection to Valve/Pump Switch *(PE4243ME)*



Connection to Three-Circuit Clock *(PE1353ME)*

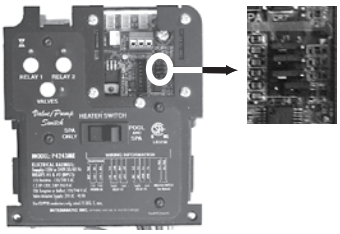
Installing Other Wired Remote Connections (Master Switch)

You can install any ON/OFF switch to the sensor line to provide wired control of the two relays and the Pool/Spa actuators in the Valve/Pump Switch *(PE4243ME)*, giving you dual control (master switch and wireless) control of these circuits.

> ***In use, a wired remote switch toggles all circuits to their opposite state.*** This means that if Relays 1 and 2 are ON, and the actuator valve is in SPA, the wired remote switch will turn Relays 1 and 2 OFF, while switching the actuator valve to POOL. It does this by toggling Relays 1 and 2 and the actuator valve back and forth from their default state in order to return the system to its default setting after the owner has made temporary changes to the settings. For example, if using the phone while sitting in the spa, the owner may turn off the jets to reduce noise. The next time the Master Switch is used, the jets will revert to being ON when the system is in spa mode.

INSTALLATION ISSUE: If you want to change the default state for your installation and you manually press the switches on the Valve/Pump Switch control panel, your changes will be temporary with the wired remote switch (master switch) because it will return the circuits to their factory default setting when it is activated, eliminating your custom settings.

Therefore, if you want to make permanent changes to the factory defaults, you must use the jumper, as shown at the right. Then the wired remote switch's return to defaults will not delete your changes.



- Putting the jumper on pins 1 and 2 sets the system default state to OPEN = OFF. This is the factory default state.
- Putting the jumper on pins 2 and 3 sets the system default state to CLOSED = ON.

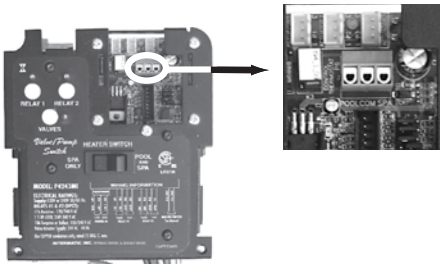
Connecting the Heater Switch to Control Temperatures

Overview

The primary means of controlling the heater is using the Hand-Held Controller. If there is no Hand-Held Controller in the system, the heater switch provides an alternate method.

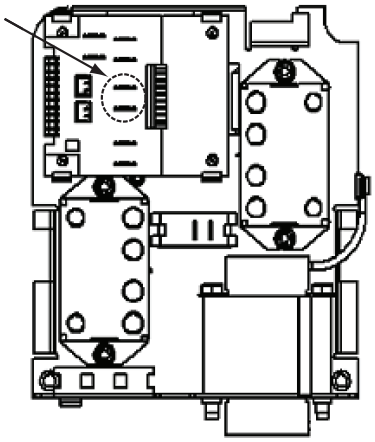
This Switch can be also used in conjunction with the Hand-Held Controller to provide maximum temperature limits for the pool and spa. Control by this Switch is primary over the Hand-Held.

Procedure



1. Wire the heater thermostats to the blue connectors visible on the front of the Valve/Pump Switch, as shown.
2. Set limits on the heaters themselves, so that when the Switch powers the heaters, they will reach the temperatures you have set.
3. Make temperature adjustments at the heaters themselves.

If Connecting an External Timer:



Overview

You can add an external timer to a circuit, converting it from “on-demand” control to timer control. External timers are available from Intermatic but are not included with the I-Wave system. When connected to the system, the external timer powers Relay 1 on and off according to its time settings.

Procedure

Connect your timer to Relay 1 on the back of the Valve/Pump Switch Mechanism, as shown in the circled area of the illustration at the right.

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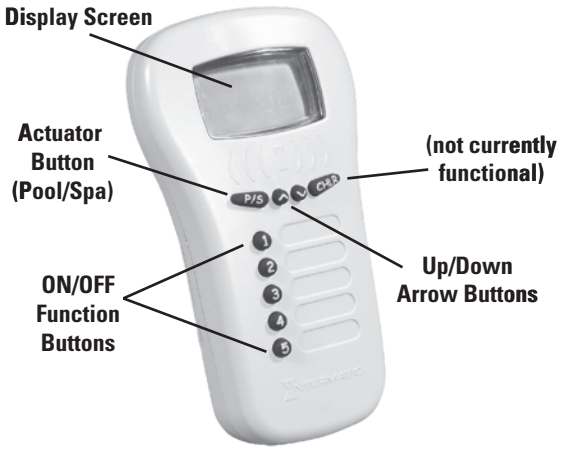
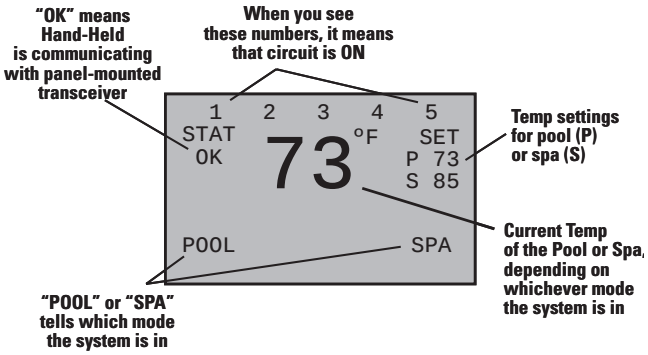
Section 6:

Programming the Hand-Held Remote Transceiver

Overview

The Hand-Held Remote Tranceiver *(PE950)* is the focal point of user convenience. It's water-resistant, shock-resistant, and is easy to program for handy remote control of the functions at a specific pool-spa installation. An assortment of self-stick labels are provided to identify the functions you program into the five control buttons. We suggest that you program the device first, then apply the appropriate label from the assortment supplied.





Detail on Hand-Held Remote Display Screen

Synchronizing the Hand-Held with the Receiver

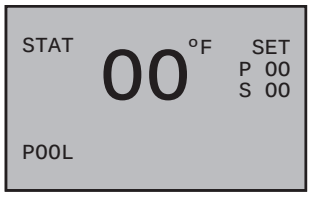
When you've finished physical installation and wiring and have **enabled power to the control center**, you need to synchronize the Hand-Held with the Panel-Mounted Transceiver. This is a two step process: first, delete any programming that might exist in the Hand-Held Remote and Receiver, then synchronize the two devices with each other.

Deleting Any Existing Programming

This procedure deletes any existing programming from the Remote and Receiver units so they are ready to be programmed into the network of this installation.

NOTE: If the word **FAILURE** instead of **SUCCESS** appears at the bottom of the screen during any of the following steps, repeat the programming procedure, then try replacing the batteries in the Hand-Held. If the problem persists, contact Intermatic Customer Service.

1. Press any button on the Hand-Held Remote to wake it from sleep. (The unit goes to sleep to conserve battery life when it has been idle for 30 seconds.) The screen display on the Hand-Held looks like the example on the right.



2. Press and hold the **<P/S>** and **<CHLR>** buttons at the same time for about 5 seconds. This will put the device in programming mode, as shown at the right.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
```

3. Press the **<4>** function button to select **RESET CONTROLLER**. The screen refreshes and displays only the line **4 RESET CONTROLLER**, then returns to the full screen with the word **SUCCESS** at the bottom, as shown..

```
LEARN     VER x


4  RESET CONTROLLER
```

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
     SUCCESS
```

4. Now press the **<3>** function button on the Hand-Held Remote to select **RESET NODE**. The screen refreshes and displays only the line **3 RESET NODE**.

```
LEARN     VER x


3  RESET NODE
```

5. Press the black button on the base of the Panel-Mounted Transceiver. The display returns to the full screen with the word **SUCCESS** at the bottom, as shown.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
     SUCCESS
```

The two devices are now "clean" and are ready to be linked together within the network you have installed.

Linking the Hand-Held Remote to the Receiver

1. If necessary, press any button on the Hand-Held Remote to wake it from sleep. (The unit goes to sleep to conserve battery life when it has been idle for 30 seconds.) The screen display on the Hand-Held looks like the example on the right.

```
STAT        °F   SET
      00         P 00
                 S 00

POOL
```

2. Press and hold the **<P/S>** and **<CHLR>** buttons at the same time for about 5 seconds. This will put the device in programming mode, as shown at the right.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
```

3. Press the **<1>** function button to select **INCLUDE NODE**. The screen refreshes and displays only the line **1 INCLUDE NODE**, as shown.

```
LEARN     VER x
1  INCLUDE NODE
```

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4. Push the black button on the base of the Panel-Mounted Transceiver. The screen returns to the full screen with the word **SUCCESS** at the bottom, as shown.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
     SUCCESS
```

5. Press the **<2>** function button to select **ADD TO GROUP**. The screen refreshes and displays only the line **2 ADD TO GROUP**.

```
LEARN     VER x

2  ADD TO GROUP
```

6. Push the black button on the base of the Panel-Mounted Transceiver. The screen returns to the full screen with the word **SUCCESS** at the bottom, as shown.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
     SUCCESS
```

7. Press the **<CHLR>** button on the Hand-Held Remote to exit programming mode. On the left side of the screen, you will see the words **STAT OK**.

```
STAT          °F   SET
 OK    00         P 00
                  S 00

POOL
```

The two devices are now linked together within the network you have installed.

NOTE: If the two devices have not successfully reset or linked together — and you are seeing only the word **STAT** on the left side of the screen — it's likely that old programming still exists in either device. Carefully repeat the two procedures above. If the problem persists, contact Intermatic Customer Service.

Testing I-Wave Reception

At the heart of the I-Wave system is *Z-wave*™ wireless technology, which makes use of Transceiver Repeater Modules *(HA04C)* to ensure that no problems in reception occur. Signal reception between Hand-Held Controllers and the Control Center is affected by distance (about 100 feet, direct line of sight) and by physical obstacles (like brick walls or structures). However, by plugging in repeaters where necessary, it's no problem to span distances or overcome obstacles.

Transceiver Repeater Module (HA04C)

Test reception by walking around the yard with the Hand-Held Remote and look on he screen to see if there are any areas where **STAT OK** changes to **STAT** (which means the Hand-Held and the Control Center are no longer communicating). If you identify any location where you are out of range, you need to install and configure a repeater between the location and the Control Center.

Installing and Configuring Repeaters When Necessary

1. Plug a Transceiver Repeater Module *(HA04C)* into any electrical outlet that is located where you have determined a reception problem can be solved.
2. If necessary, press any button on the Hand-Held Remote to wake it from sleep. Because you are at a location in between the control center and the problem area, the screen display on the Hand-Held will look like the example on the right.

```
STAT      °F   SET
 OK    72     P 72
                S 85

POOL
```

3. Press and hold the **<P/S>** and **<CHLR>** buttons at the same time for about 5 seconds. This will put the device in programming mode, as shown at the right.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
```

4. Press the **<1>** function button to select **INCLUDE NODE**. The screen refreshes and displays only the line **1 INCLUDE NODE**, as shown.

```
LEARN     VER x
1  INCLUDE NODE
```

5. Push the black button on the Repeater. The word **SUCCESS** appears at the bottom of the Hand-Held's screen as shown.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
     SUCCESS
```

6. Press the **<2>** function button on the Hand-Held to select **ADD TO GROUP**. The screen refreshes and displays only the line **2 ADD TO GROUP.**

```
LEARN     VER x

2  ADD TO GROUP
```

7. Push the black button on the base of the Panel-Mounted Transceiver. The screen returns to the full screen with the word **SUCCESS** at the bottom, as shown.
8. Press the **<CHLR>** button on the Hand-Held Remote to exit programming mode. When you now carry the Hand-Held Remote in the problem area, you will now see the words **STAT OK** on the left side of the screen.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
     SUCCESS
```

The repeater is now part of the network. You can add more repeaters as necessary.

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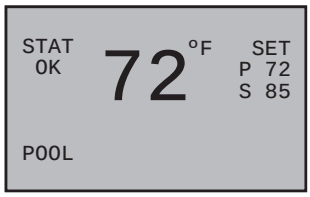
Everyday Use of the Hand-Held Controller

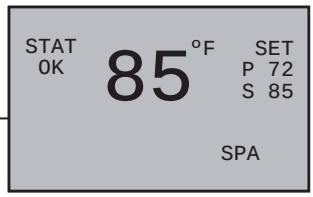
The complete everyday functionality of the pool/spa system you have installed can be conveniently controlled using the Hand-Held Remote.

Changing between Pool and Spa

The Valve Actuator *(PE24VA)* that you have installed in the system directs water either to the pool or the spa. To use the hand-Held Controller to control this valve:



1. Press any button on the Hand-Held Remote to wake it from sleep. (The unit goes to sleep to conserve battery life when it has been idle for 30 seconds.) The screen display on the Hand-Held looks like the example on the right.
2. Note on the Hand-Held Remote Screen the current mode for the system:
   - POOL on the left side of the screen indicates the pool temperature setting (shown in the example).
   - SPA on the right side of the screen indicates the spa temperature setting.
3. Press the **<P/S>** button. The system will change to the opposite mode from its current setting.



4. Note the change on the Hand-Held Remote Screen. In the example at the right, the mode is now changed to Spa, and the temperature shown is the water temperature of the Spa.

NOTE: The large temperature display shown on the Hand-Held Remote Screen reflects the current water temperature of the Pool or Spa, depending on which mode is active.

Setting Pool and Spa Temperatures

If connected and linked, the Hand-Held Remote controls the independent water temperatures of both the pool and spa.

1. View the current temperature on the right side of the Hand-Held Remote Screen under the word SET.
   - **P** = current pool water set temperature
   - **S** = current spa water set temperature
2. Press the **<P/S>** button if necessary to change the system to Pool or Spa mode.
3. Press the **<UP>** or **<DOWN>** arrow buttons to raise or lower the setting to the desired temperature. You can hold the button down and the value will automatically change.
4. Release the arrow button when the setting reaches the temperature you want. After a few seconds, the display returns to the current temperature of the pool or spa, depending on which mode you select.

Operating Programmed Functions

Depending on how you have wired the system, the five function buttons on the Hand-Held Remote control the five circuits in the Control Center. You should apply the appropriate label to the five buttons — describing the appropriate equipment according to your installation — from the assortment of labels supplied.

- Buttons **<1>**, **<2>**, and **<3>** control circuits **1**, **2**, and **3** on the Three-Circuit Clock Mechanism *(P1353ME)* that is installed on the left side of the Control Center.
- Buttons **<4>** and **<5>** control **Relay 1** and **Relay 2** on the Valve/Pump Switch Control *(P4243ME)* that is installed on the right side of the Control Center.

When you press any of these buttons, the appropriate circuit toggles ON or OFF. In addition, when the circuit is ON, the Hand-Held Controller's display shows the circuit number along the top of the screen.

Advanced Features

Configuring Two or More Hand-Held Remote Controllers

Many installations will find it convenient to use two Hand-Held Remote Controllers. Once you have linked one Hand-Held to the Control Center, it's easy to add a second controller to the network.

1. Make sure the Hand-Held you are adding to the network has been reset, with any previous programming deleted.

   a. Press any button on the Hand-Held Remote to wake it from sleep. (The unit goes to sleep to conserve battery life when it has been idle for 30 seconds.)

```
STAT      °F   SET
 OK    72      P 72
                S 85

POOL
```

   b. Press and hold the **<P/S>** and **<CHLR>** buttons at the same time for about 5 seconds. This will put the device in programming mode, as shown at the right.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
```

   c. Press the **<4>** function button to select **RESET CONTROLLER**. The device resets and the word **SUCCESS** appears at the bottom of the screen.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
     SUCCESS
```

2. On both Hand-Held units, press and hold the **<P/S>** and **<CHLR>** buttons at the same time for about 5 seconds to put them into programming mode, as shown at the right.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
```

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3. On the Hand-Held you are adding to the network:

   a. Press the **<5>** button to select **MORE OPTIONS**. A new screen will appear, as shown at the right.

```
LEARN     VER x
1  MODE 3/4
2  READY FOR ADD


5  PREVIOUS OPTIONS
C  EXIT
```

   b. Press the **<2>** button on the new screen to select **READY TO ADD**. The screen refreshes and displays only the line **2 READY TO ADD**.

```
LEARN     VER x

2  READY FOR ADD
```

4. Promptly, on the Hand-Held that is already part of the network, press the **<1>** button to select **INCLUDE NODE**. After a few seconds, the word **SUCCESS** should appear on the screens of both units.

```
LEARN     VER x
1  MODE 3/4
2  READY FOR ADD


5  PREVIOUS OPTIONS
C  EXIT
     SUCCESS
```

5. Press the **<CHLR>** button on both Hand-Held Controllers to exit programming mode. The left side of the screen of both Controllers will say **STAT OK**, indicating that the procedure has been successful.

NOTE: The first Hand-Held you link to the Control Center is considered the PRIMARY controller and all other units are SECONDARY. The PRIMARY controller must be used to "introduce" or link any additional Hand-Held units to the Control Center.

Programming to Protect a Pool Cleaner Pump

When you installed and wired the system, you may have included a cleaner pump along with a spa (Mode 3) or with a two-speed filter pump (Mode 4).

You will want to make sure this pump is never powered on when the system is in spa mode.

The system can accommodate these two scenarios.

1. Press any button on the Hand-Held Remote to wake it from sleep. (The unit goes to sleep to conserve battery life when it has been idle for 30 seconds.)

```
STAT          °F   SET
 OK    72         P 72
                  S 85

POOL
```

2. Press and hold the **<P/S>** and **<CHLR>** buttons at the same time for about 5 seconds. This will put the device in programming mode, as shown at the right.

```
LEARN     VER x
1  INCLUDE NODE
2  ADD TO GROUP
3  RESET NODE
4  RESET CONTROLLER
5  MORE OPTIONS
C  EXIT
```

3. Press the **<5>** button to select **MORE OPTIONS**. A new screen will appear, as shown at the right.

```
LEARN     VER x
1  MODE 3/4
2  READY FOR ADD


5  PREVIOUS OPTIONS
C  EXIT
```

4. Press the **<1>** button on the new screen to select **MODE 3/4 ON**.

NOTE: This button toggles between ON and OFF.

That's all there is to it. When Mode 3/4 is set to **ON**:

- The system will automatically turn the cleaner pump **OFF** any time the spa mode is activated, protecting the cleaner pump.
- If the owner switches to pool mode or to the high-speed pump mode, the system waits 30 seconds before powering **ON** the cleaner pump, making sure there is adequate water in the system.

Using Two Hand-Held Controllers to Operate the System

When two or more Hand-Held Controllers are being used to operate a system, each will synchronize itself to the other according to whatever function the other controller has activated.

For example, if you press the **<1>** button on one controller, the following will happen:

- **Circuit 1** at the control center will toggle on or off, depending on its current state.
- The number **1** will appear along the top of the Hand-Held Controller's screen.
- Then, a few seconds later, the number **1** will also appear along the top of the second Hand-Held Controller's screen.

The owner can add up to 5 Hand-Held Controllers to a system.

Manually Turning Equipment On and Off

At the Control Center

For service purposes, the five circuits and the pool/spa actuators can be operated manually at the Control Center.

Simply press any of the circuit buttons on either the Three-Circuit Clock or the Valve/Pump Switch mechanisms to toggle between ON and OFF.

Any manual OFF/ON controlling will be reflected on the screen of the Hand-Held Controller.

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Section 7:

Checking Out the System / Troubleshooting

After you have completed installation and programming, make sure the system is working OK by completing the checklist below. Later on, if problems develop in using the system, this same checklist will help you troubleshoot the problem.

When you finish checking each item, place a check mark in the box at the right.

What to check	How to run the check	TROUBLESHOOTING — What to do if it doesn't work	✔
Time of Day Setting	Verify that display on Three-Circuit Clock Mechanism *(P1353ME)* is showing correct time of day.	1. Follow instructions for setting the correct time on page 30 of this manual. 2. Recheck that the set time is correct.	
Check circuits on the Three-Circuit Clock Mechanism *(P1353ME)*	1. Press the first ON/OFF button on the face of the mechanism. 2. Verify that the Hand-Held Receiver shows that the circuit has powered on. 3. Verify that the wired function activates properly (e.g., a pump comes on). 4. Turn the circuit off using the appropriate button on the Hand-Held Remote. 5. Repeat with ON/OFF buttons two and three.	If any of the circuits don't work: 1. Check your wiring for the circuit. 2. Make sure you have set the correct Mode for the installation. See page 27 of this manual. 3. If the Hand-Held Remote fails to turn off the circuit, check its programming. See page 39 of this manual.	
Check circuits on the Valve/ Pump Switch Mechanism *(P4243ME)*	1. Press the RELAY 1 button on the face of the mechanism. 2. Verify that the Hand-Held Receiver shows that the circuit has powered on. 3. Verify that the wired function activates (e.g., a pump comes on). 4. Turn the circuit off using the appropriate button on the Hand-Held Remote. 5. Repeat with the RELAY 2 button.	If any of the circuits don't work: 1. Check your wiring for the circuit. 2. Make sure you have set the correct Mode for the installation. See page 27 of this manual. 3. If the Hand-Held Remote fails to turn off the circuit, check its programming. See page 39 of this manual.	
Check that the Actuator valves correct switch between pool and spa.	1. Press the VALVES button on the Valve/Pump Switch Mechanism *(P4243ME)*. 2. Verify that the Hand-Held Receiver shows that the actuator valves have changed position. 3. Verify that the actuator valves have correctly switched position. 4. Switch the valves back using the P/S button on the Hand-Held Remote.	If any of the valves don't switch: 1. Check your wiring for the circuit. 2. If the Hand-Held Remote fails to turn off the circuit, check its programming. See page 39 of this manual.	
Check that the actuator valves are synchronized.	As you watch them move back and forth, verify that the valves are oriented the same way: to pool, then to spa	Re-synchronize the valves. See page 21 of this manual.	
Verify that the Hand-Held Remote is controlling pool and spa temperature.			

What to check	How to run the check	TROUBLESHOOTING — What to do if it doesn't work	✔
Check that protection for pool cleaner pump is working.	Mode 3 and 4		
Check wireless reception all around the yard.		If any dead spots are located, install Repeaters. See page 41 of this manual.	
Check that the Fireman's Switch is working (if installed).	1. Press the ON/OFF button on the Three-Circuit Clock Mechanism *(P1353ME)* to power OFF the pump. 2. Watch for the time display to count down the interval you have programmed.	Re-program the Fireman's Switch timing. See page 33 of this manual.	
Check that the Freeze Sensor is working (if installed).	1. Place the freeze sensor in a cup of ice. 2. Wait for the temperature of the sensor to approaches that of the ice. 3. Verify that the heater has come on.	Re-program the Freeze Sensor. See page 34 of this manual.	
Check that the Three-Button Wired Remote Control is working (if installed)	1. Press each of the three buttons on the Wired Remote Control. 2. Verify that the functions controlled by those circuits activate properly.	If any of the circuits don't work, check your wiring for that circuit.	
Check that the External Timer is working (if installed)			

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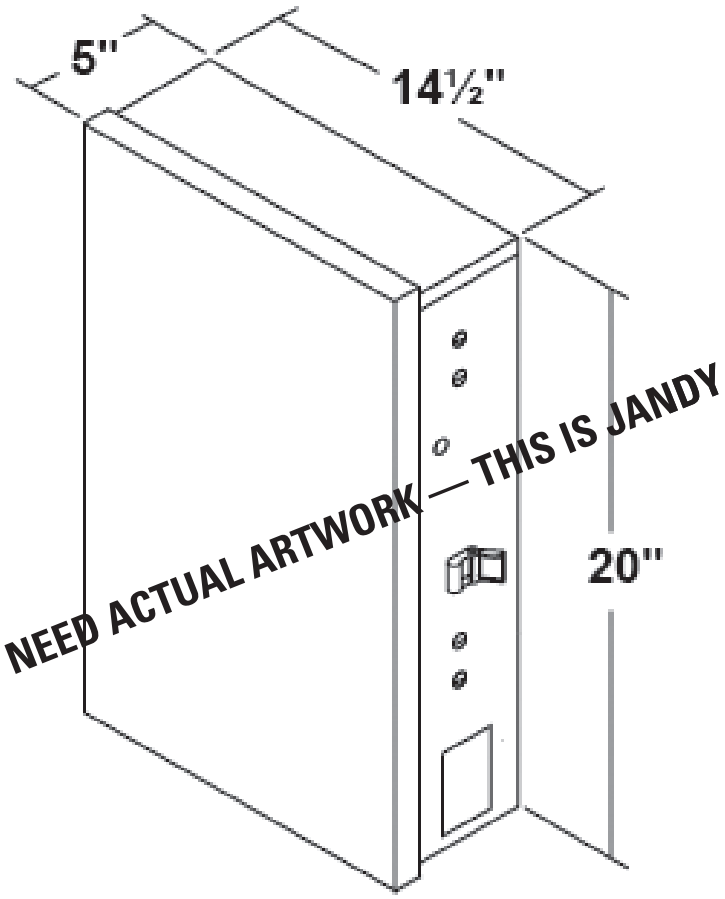
Section 7:

Enclosure Specifications



Suitable listed breakers (purchase locally)						
	CIRCULT BREAKER					FILLER PLATE
MANUFACURER	SINGLE	DOUBLE	TWIN	QUAD	GFCB	
Cutler-Hammer	BR	BR	BRD	BRD	BRD	BRFP
Murray	MP-T	MP-T	MH-T	MH-T	MH-T	LX100FP
Siemens	QP	QP	QT	QT	QT	QF3
Square-D	HOM	HOM	HOMT	HOMT	HOMT	HOMFP
Thomas & Betts	TB	TB	TBBD	TBBD	TBBD	FP-1C-TB

Section 9:

Warranty

ONE YEAR LIMITED WARRANTY

If, within one (1) year from the date of purchase, this product fails due to defect in material or workmanship, Intermatic Incorporated will repair or replace it, as its sole option, free of charge. This warranty is extended to the original household purchaser only and is not transferable. This warranty does not apply to: (a) damage to units caused by accident, dropping, or abuse in handling, acts of God, or any negligent use; (b) units which have been subject to unauthorized repair, opened, taken apart, or otherwise modified; (c) units not used in accordance with instructions; (d) damages exceeding the cost of the product; (e) sealed lamps and/or lamp bulbs, LEDs, and batteries; (f) the finish on any portion of the product, such as surface and/or weatheriong, as this is considered normal wear and tear; (g) transit damage, initial installation costs, removal costs, or reinstallation costs.

INTERMATIC INCORPORATED WILL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES. ALL IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY MODIFIED TO EXIST ONLY AS CONTAINED IN THIS LIMITED WARRANTY, AMND SHALL BE OF THE SAME DURATION AS THE WARRANTY PERIOD STATE ABOVE. SOME STATES DO NOT ALLOW LIMITATIONS ON THE DURATION OF AN IMPLIED WARRANTY, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

This warranty service is available by either (a) returning the product to the dealer from whom the unit was purchased, or (b) mailing the product, along with proof of purchase, postage prepaid, to the authorized service center listed below. This warranty is made by: Intermatic Incorporated/ After Sales Service/7777 Winn Rd., Spring Grove, IL 60081-7000 <http://intermatic.com>. Please be sure to wrap the product securely to avoid shipping damage.

Because of our commitment to continuing research and improvements, Intermatic Incorporated reserves the right to make changes, without notice, in the specifications and material contained herein, and shall not be responsible for any damages, direct or consequential, caused by reliance on the material presented.

WARRANTY REGISTRATION

Owner's Name_____ **Signature**_____

Street Adddress_____ **Date of Purchase** _____

City_____ **State** _____ **Zip** _____ **Phone** _____

Authorized Dealer _____ **Sales Rep** _____

City_____ **State** _____ **Zip** _____ **Phone** _____

How did you hear about our product? (Please check all that apply.)

___Pool Store Employee ___Pool Builder ___Pool Service ___Direct Mail Ad ___In-Store Display ___ Friend/Relative

___Magazine ___Newspaper ___Radio ___TV ___Catalog ___Other: _____

To activate your warranty, please return this portion to:

INTERMATIC
Providing a Brighter Solution™

Intermatic, Inc.
7777 Winn Road
Spring Grove, IL 60081
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Installation Notes

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Intermatic Customer Service: 815-675-7000
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