

X Wave Series

PE950 Hand-Held Remote Transceiver

PE650 Panel-Mounted Transceiver

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Installation and User Guide

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Section 1:

Overview

The Intermatic I-Wave PE650 and PE950 make it possible to add wireless capability to a wide variety of pool and/or spa control systems. The PE650 Panel-Mounted Transceiver receives commands from the PE950 Hand-Held Transceiver to provide convenient, affordable, wireless control.

The Panel-Mounted Transceiver (PE650) and Antenna (PA118)

The Panel-Mounted Transceiver takes commands from the Wireless Hand-Held Transceiver and hands them off to a maximum of two mechanisms involved in controlling the pool and/or spa system. Depending on the installation, this might include:

- One or two Intermatic three-circuit clock mechanisms (*P1353ME*)
- One or two Intermatic valve/pump switch mechanisms (*P4243ME*)
- One of each mechanism

The Panel-Mounted Transceiver is shown here with its removable antenna (*PA118*).



PE650

The Wireless Hand-Held Transceiver (PE950)

The Wireless Hand-Held Transceiver transmits commands to the Panel Mounted Transceiver and displays the status of the equipment.



PE950

The device can control up to six functions. Depending on the specifics of an installation, these functions might come from the following:

- The three loads in the Three-Circuit Clock (P1353ME)
- The two relays in the Valve/Pump Switch (P4243ME)
- The dedicated load in the Valve/Pump Switch (P4243ME) that controls up to three actuators
- Temperature control with two settings for pool and spa
- Or any combination thereof

The device floats if thrown in the pool or spa, is water-submersible, shock resistant, and requires three (3) AA batteries. Battery life is about one year in typical use.

The Wireless Hand-Held Transceiver can communicate only with the Panel-Mounted Transceiver, and is compatible with no other hardware. In addition, when the components

of a specific system are linked together into a network, communication with another neighboring system cannot occur. Up to five units can be used in a single installation.

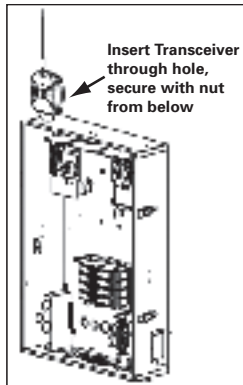
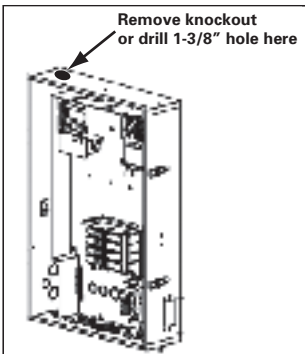
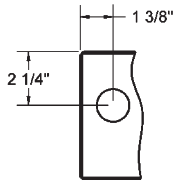
Section 2:

Installing the Panel-Mounted Transceiver

The Panel-Mounted Transceiver (PE650) mounts through a hole at the top of the steel enclosure just above the low voltage raceway, and — depending on the specifics of the installation — plugs into the Three-Circuit Clock Control (*P1353ME*), Valve-Pump Switch (*P4243ME*) mechanisms, or any combination thereof that are mounted inside.

Mounting the Unit

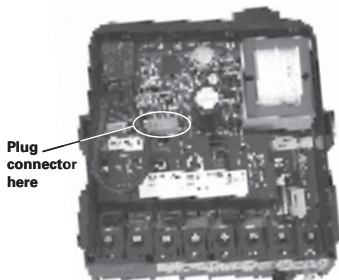
If a knock-out is not present in the steel enclosure, drill a 1-3/8" hole in the upper left corner of the enclosure, as shown.



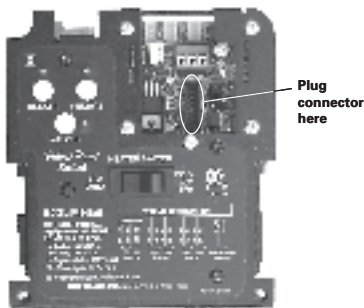
Connecting Wiring

Plug the Panel-Mounted Transceiver wires into the mechanism(s) that make up the installation. During installation, be careful of the following:

- Remove power when plugging the panel-mounted transceiver to any mechanism.
- Respect polarity of the plug. DO NOT connect backwards.
- Be sure to plug in all eight pins of the connector.



Connecting to Three-Circuit Clock Mechanism (P1353ME)



Connecting to Valve/Pump Switch Mechanism (P4243ME)

Connecting a Water Temperature Sensor (optional)

The Intermatic I-Wave PE650 and PE950 wireless components can monitor water temperature with use of an Intermatic Water Temperature Sensor (PA122).

The Intermatic water temperature sensor (PA122) is required to monitor either or both the pool and spa water temperatures, depending on the position of the diverter valves, and completes the circuit allowing you to control the heater with the Handheld Transceiver (PE950). Only an Intermatic (PA122) Water Temperature Sensor will work with the Panel Mount Transceiver (PE650).

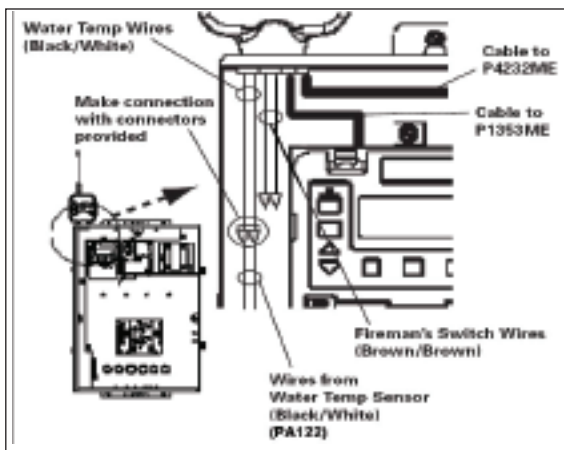
In a pool/spa application, a Valve/Pump Mechanism (P4243ME) can be installed to automatically control the motorized diverter valves, and enable both the pool and spa water temperature set points on the handheld transceiver (PE950).

If there is only a pool or spa to control, then a Valve/Pump Mechanism (P4243ME) is not required and only the SET Pool Temperature Set Point will be functional on the Handheld Transceiver (PE950)

Disconnect power when connecting the water temp sensor. Follow instructions that came with the water temperature sensor for mounting it to the system's plumbing. Tips and a wiring diagram, which follow, will help with the installation.

Refer to page 32 of this manual for information concerning setting the temperatures for both your pool and spa.

- Drill a 3/8" hole in the pipe between the filter pump and filter and install the Water Temperature Sensor with hose clamp (not provided). Ensure the O-ring is in place.
- Run the wire to the Control Center, through the low voltage raceway. Connect both wires to the Panel-Mounted Receiver. See the diagram below.



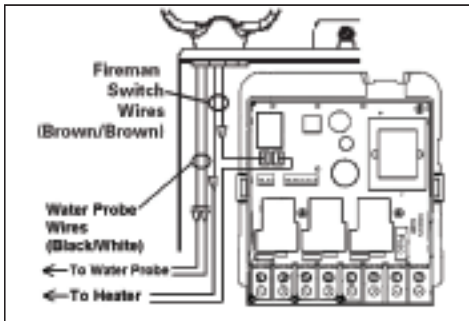
Connecting a Heater (optional)

The Intermatic I-Wave PE650 and PE950 wireless components can control most heaters or heat pumps that use thermostatic circuitry of 24 VAC @ 2A or

less. First, consult your heater instruction documentation and determine if your heater requires a cool down period prior to turning off the filter pump. Then refer to the appropriate instructions below to connect your heater.

If Cool Down Period Is Required

When the heater manufacturer requires a cool down period, you must install, or have installed, a Three Circuit Clock Mechanism (*P1353ME*) in your installation. The *P1353ME* needs to be wired in series with the Panel Mount Transceiver in order for the cool down feature to work properly. Refer to the diagram and instructions below for connecting both the Panel Mount Receiver (*PE650*) and Three Circuit Clock Mechanism to your heater. Refer to the Cool Down Programming instructions in your *P1353ME* manual for cool down programming setup.



1. Connect one of the brown wires coming from the Panel-Mounted Transceiver

directly to one of the heater control wires.

2. Cut in half the yellow loop wire on the back of the Three-Circuit Clock Mechanism.
3. Connect one of the resulting yellow wires to the remaining heater control wire.
4. Connect the other yellow wire to the remaining brown wire coming from the panel mount. (It doesn't matter which goes with which.)

If Cool Down Period Is Not Required

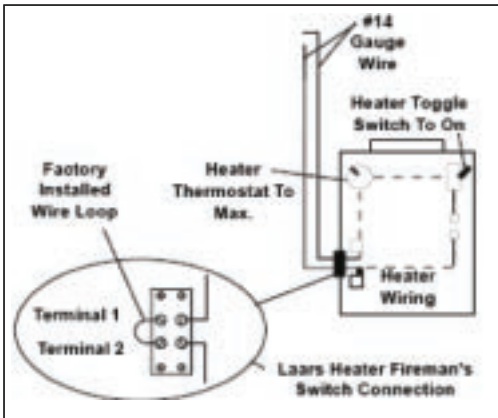
If your heater manufacturer does not require a cool down period, then simply connect the heater control wires directly to the brown/brown wires coming from the Panel-Mounted Transceiver.

The Connection at the Heater

Locate your heater on the next pages and follow the instructions for proper installation of your I-Wave control center.

Connection for Teledyne Laars Heater

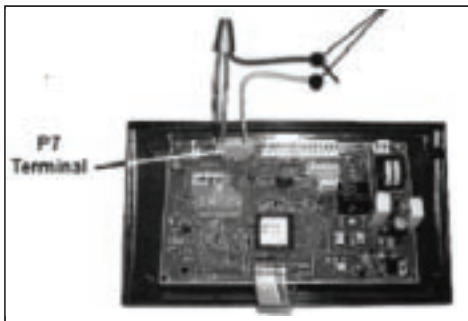
1. Connect two #14 gauge wires, designed for use in hot environments, to the two black wires, marked heater connection, on the panel-mounted receiver.
2. Connect the other ends of the #14 gauge wires from Step 1 to the Fireman's Switch terminal bar in place of the factory installed wire loop.
3. Do not disconnect high limit or pressure switches.



4. Turn the heater thermostat(s) to maximum setting.
5. Turn the heater switch to the ON position. For dual thermostat heaters turn switch to Spa position.

Connection for Raypak Heaters

The following connection procedure is for the two wire-one function configuration Raypak heater.

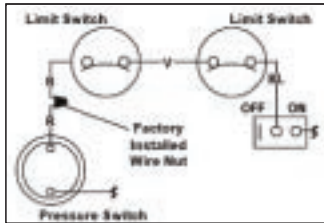


- 1.** Connect two #14 gauge wires, designed for use in hot environments, to the two black wires on the panel-mounted receiver.
- 2.** Connect one end of either #14 gauge wires from Step 1 to both the orange/black and black/orange wires on the Raypak heater.
- 3.** Connect the remaining #14 gauge wire from Step 1 to the yellow/black wire on the Raypak heater.

Connection for Hayward Heaters

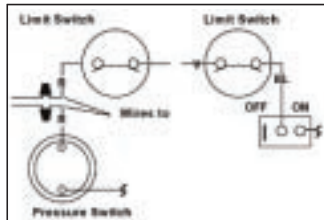
1. Remove service door on Heater.

2. Remove factory-installed wire connector between two (2) red wires labeled



“CONNECTION FOR FIELD INSTALLED CONTROL SWITCH.”

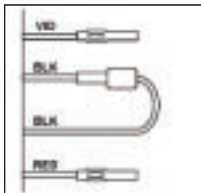
3. Connect two #14 gauge wires, designed for use in hot environments, to the two red wires.



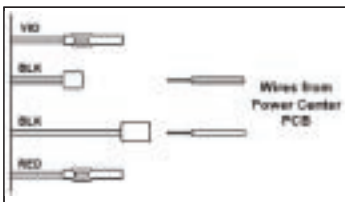
4. Wire the other end to the two black wires, marked heater connection, on the panel-mounted receiver in your I-Wave Control Center.
5. Do not disconnect high limit or pressure switches.
6. Turn heater thermostat(s) to max setting.
7. Turn the thermostat selector switch to the ON, HIGH, or SPA position.

Connection for Pentair Heater

1. Remove heater service door on your Pentair Heater.
2. Separate the black wires (common) from each other.



3. Connect two #14 gauge wires, designed for use in hot environments, to the two black wires, marked

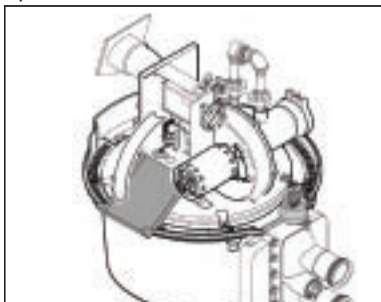


heater connection, on the panel-mounted receiver in the I-Wave Control Center and attach the other end to the two black wires on the heater.

4. Do not disconnect high limit or pressure switches.
5. Turn the heater thermostat(s) to maximum setting.
6. Turn the heater toggle switch on.

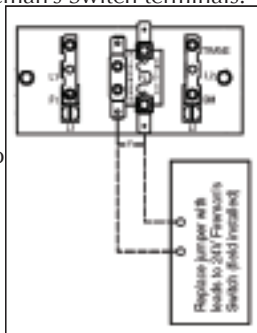
Connection for Sta-Rite Heaters

1. Turn off power to heater at main circuit breaker panel.
2. Unbolt and remove the upper jacket halves (Refer to heater owners manual).
3. Open control box cover.



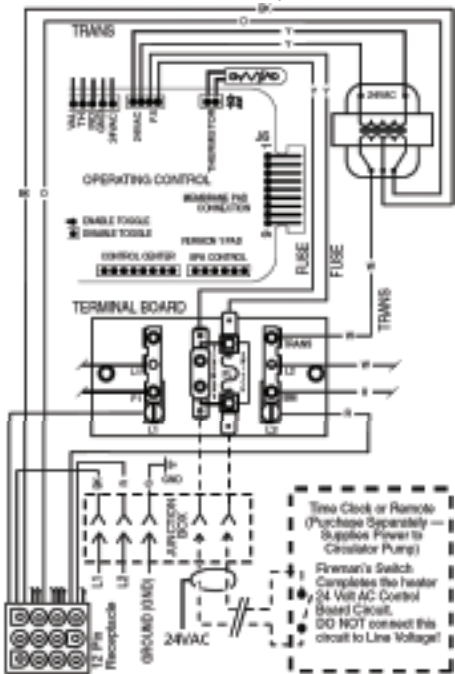
4. Remove the factory-installed jumper between the Fireman's Switch terminals.

5. Connect two #14 gauge wires, designed for use in hot environments, to the two black wires, marked heater connection, on the panel-mounted



receiver in the I-Wave Control Center. Attach the other end to the two spade

terminals at the heater. You can also cut the yellow jumper wire and wire connect the black wires to each yellow wire.



6. Route the wires out through the knockout on the bottom of the Control Box.
7. Do not disconnect high limit or pressure switches.
8. Turn the heater on and maximize the temperature setting.

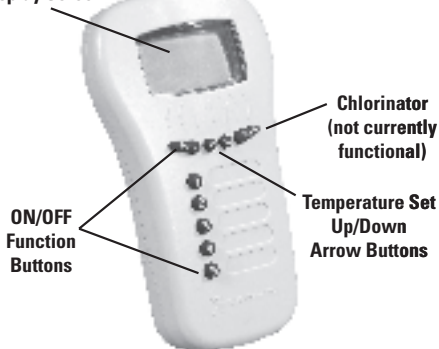
Section 3:

Setting Up the Hand-Held Remote Transceiver

Overview

The Hand-Held Remote Transceiver (*PE950*) is the focal point of user convenience, its buttons controlling functions according to the specifics of the installation.

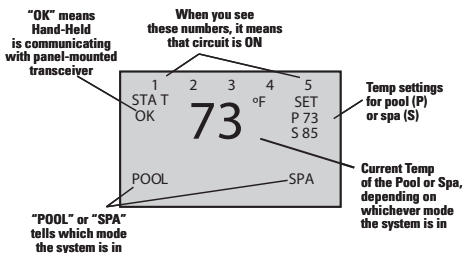
Display Screen



The unit is 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 equipment you program into control buttons 1-5. We suggest that you program the device first, then apply the appropriate label from the assortment supplied.

The display panel on the unit provides pool and spa water temperature information, and makes it easy to control and program.



Detail on Hand-Held Remote Display Screen

Synchronizing the Hand-Held with the Panel-Mounted Transceiver

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.

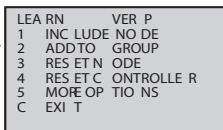
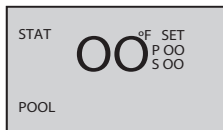
This is a two step process: *first*, delete any programming that might exist in the Hand-Held Remote and Receiver, *then* synchronize the two devices with each other.

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, refer to appropriate troubleshooting procedures beginning on page 42.

1. Press and release 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 60 seconds.) The screen display on the Hand-Held should look generally like the example on the right, though it may display actual temperatures and settings.
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.



NOTE: If you pause in the programming procedure for 30 seconds or so, the screen automatically returns to Step 1.

3. Press and release 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..

```
LEAR N      VER x

4 RES  ET C  ONTROLLER
```

```
LEAR N      VER x
1 INC  LUDE NODE E
2 ADD  TO  GROUP
3 RES  ET N  ODE
4 RES  ET C  ONTROLLER
5 MOR  E OP TION S
C EXI  T
      SUC CESS
```

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

```
LEAR N      VER x

3 RES  ET N  ODE
```

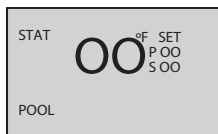
5. Press and release the black button on the base of the Panel-Mounted Transceiver. The display returns to the full screen with the word **SUCCESS** at the bottom, as shown.

```
LEAR N      VER x
1 INC  LUDE NODE E
2 ADD  TO  GROUP
3 RES  ET N  ODE
4 RES  ET C  ONTROLLER
5 MOR  E OP TION S
C EXI  T
      SUC CESS
```

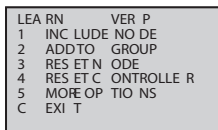
The two devices are now “clean” and are ready to be linked together within the network you have installed.

Linking the Hand-Held Remote to the Panel-Mounted Transceiver

1. If necessary, press and release 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 60 seconds.) The screen display on the Hand-Held should look generally like the example on the right, though it may display actual temperatures and settings.

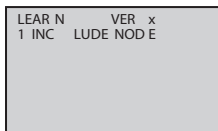


2. Press and hold the **<P/S>** and **<CHLR>** buttons at the same time for about 5 seconds. This will put the device in programming mode, as shown at the right.



NOTE: If you pause in the programming procedure for 30 seconds or so, the screen automatically returns to Step 1.

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



4. Push and release the black button on the base of the Panel-Mounted Transceiver. The

LEAR N	VER x
1 INC	LUDE NOD E
2 ADD	TO GROUP
3 RES	ET N ODE
4 RES	ET C ONTROLLER
5 MOR	E OP TION S
C EXI	T
SUC CESS	

screen returns to the full screen with the word **SUCCESS** at the bottom, as shown.

5. Press and release the <2> function button to select **ADD TO GROUP**. The screen

LEAR N	VER x
2 ADD	TO GROUP

refreshes and displays only the line 2 **ADD TO GROUP**.

6. Push and release the black button on the base of the Panel-Mounted Transceiver. The

LEAR N	VER x
1 INC	LUDE NOD E
2 ADD	TO GROUP
3 RES	ET N ODE
4 RES	ET C ONTROLLER
5 MOR	E OP TION S
C EXI	T
SUC CESS	

screen returns to the full screen with the word **SUCCESS** at the bottom, as shown.

7. Press and release the <CHLR> button on the Hand-Held Remote to exit programming

STAT OK	00°F SET POO S OO
POOL	

mode. On the left side of the screen, you will see the words **STAT OK**.

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 Deleting Any Existing Programming (on page 20) and Linking the Hand-Held Remote to the Receiver (on page 23). If the problem persists, refer to appropriate troubleshooting procedures beginning on page 42.*

Testing I-Wave Reception

At the heart of the I-Wave system is Z-wave™ wireless technology. Test reception by walking the site with the Hand-Held Remote and look on the screen to see if there are any areas where **STAT OK** changes to **STAT** (which means the Hand-Held and the Control Center are not communicating).

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, wire lash in walls, or steel structures).

If you identify any locations in the area of operation where communications problems occur — typically when a structure blocks the line of sight between the Hand-Held and the Control Center, we have two solutions. The specific details of the installation site will determine which solution you apply first.

Option One: The 35-ft. Antenna Extension Cable (PA121)

The Antenna Extension Cable lets you move the antenna into direct line of sight from the area of operation — where the home owner will be using the Hand-Held Remote.

- 1.** Unscrew the antenna from the top of the Panel-Mounted Transceiver.
- 2.** Screw the male end of the 35-ft. Antenna Extension Cable into the top of the Panel-Mounted Transceiver.
- 3.** Run the cable underground from the Control Center to the location that will provide a direct line of sight between the Hand-Held Remote and the area of operation.
- 4.** Screw the antenna into the female end of the 35-ft. Antenna Extension Cable.
- 5.** Securely mount the end of the cable with the antenna in the air.

Option Two: Repeaters (HA04C)

Repeaters are plugged into 120-volt electric outlets, and cannot be used when outlets are not available. If outlets are available, repeaters are easy to install and configure, and can also be useful if the home owner wants to be able to use the Hand-Held Remote from inside the house.



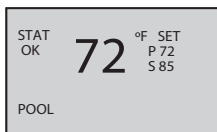
**Transceiver
Repeater Module
(HA04C)**

Repeaters can relay signals to bridge between a dead spot and the Control Center.

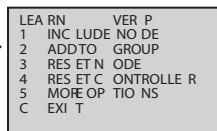
NOTE: *The relay between Repeaters and the rest of the system causes a delay in response time. Wait a few seconds for commands you enter on the Hand-Held Remote to register.*

1. Plug a Transceiver Repeater Module (HA04C), available from Intermatic, into any electrical outlet that is located where you have determined a reception problem can be solved.

2. If necessary, press and release 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 generally like the example shown.



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.



NOTE: *If you pause in the programming procedure for 30 seconds, the screen automatically returns to Step 2.*

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

LEAR N	VER x
3 RES	ET N ODE

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

LEAR N	VER x
1 INC	LUDE NOD E
2 ADD	TO GROUP
3 RES	ET N ODE
4 RES	ET C ONTROLLER
5 MOR	E OP TION S
C EXI	T
SUC CESS	

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

LEAR N	VER x
1 INC	LUDE NOD E

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

LEAR N	VER x
1 INC	LUDE NOD E
2 ADD	TO GROUP
3 RES	ET N ODE
4 RES	ET C ONTROLLER
5 MOR	E OP TION S
C EXI	T
SUC CESS	

6. Press and release the <2> function button on the Hand-Held to select **ADD TO GROUP**.

LEAR N	VER x
2 ADD TO GROUP	

The screen refreshes and displays only the line **2 ADD TO GROUP**.

7. Push and release the black button on the base of the Panel-Mounted Transceiver. The

LEAR N	VER x
1 INC LUDE NOD E	
2 ADD TO GROUP	
3 RES ET N ODE	
4 RES ET C ONTROLLER	
5 MOR EOP TION S	
C EXI T	
SUC CESS	

screen returns to the full screen with the word **SUCCESS** at the bottom, as shown.

8. Press and release 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.

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

REMEMBER: *When you have one or more repeaters installed in a network, you increase the response time: the time between when you press a button on the Hand-Held Remote and when the reaction takes place.*

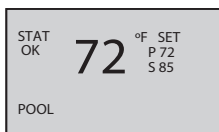
Everyday Use of the Hand-Held Controller

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

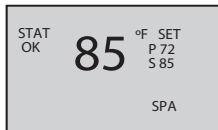
If Valve Actuator (*PE24VA*) is installed in the system, it directs water either to the pool or the spa. To use the hand-Held Controller to control this valve:

1. Press and release 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 60 seconds.) The screen display on the Hand-Held should look generally 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 and release 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.

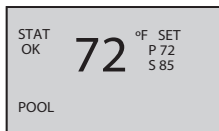


NOTE: *The large temperature display shown on the Hand-Held Remote Screen reflects the current water temperature of the Pool or Spa, depending on which mode is active.*

Setting Pool and Spa Temperatures

If connected and linked, the Hand-Held Remote can control 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 and release the **<P/S>** button if necessary to change the system between Pool and Spa mode. Depending on which mode is selected, the word POOL (lower left) or SPA (lower right) appears on the screen
 3. Press and release 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 and 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.

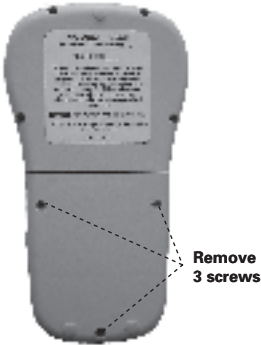
Operating Programmed Functions

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.

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.

Changing Batteries

The Hand-Held Remote Transceiver requires three (3) AA batteries. Battery life is about one year in typical use. To change batteries, use a small Phillips screwdriver to remove the three screws on the back of the unit, as indicated.



Place three new batteries in the unit, making sure to observe "+" and "-" polarity.



Manually Turning Equipment ON/OFF

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

Simply press and release 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.

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 additional controllers.

NOTES: *The first Hand-Held you link to the Control Center is considered the PRIMARY controller and all other units are*

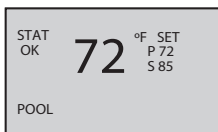
*SECONDARY. You can tell the status of a controller from the **VER** (version) code at the top of the display: the letter "P" = **PRIMARY**; the letter "S" = **SECONDARY**.*

LEARN	VER P
1 INC LUDE NO DE	
2 ADDTO GROUP	
3 RES ET N ODE	
4 RES ET C ONTROLLE R	
5 MORE OP TIO NS	
C EXI T	

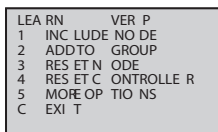
The PRIMARY controller must be used to “introduce” or link any additional (SECONDARY) Hand-Held units to the Control Center.

If the PRIMARY controller must be replaced (due to loss, damage, etc.), you must reprogram from scratch to create a new PRIMARY controller, then reprogram any additional controllers as SECONDARY controllers.

1. Press and release 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 60 seconds.) The screen display on the Hand-Held should look generally like the example shown.



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.



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

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

LEA RN	VER x
1	BOOSTER
2	ADDNEW CO NTROL LER
3	ADJ UST TEMP 0
5	PRE VIOU S O PTION S
C	EXI T

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

LEA RN	VER x
2	ADDNEW CO NTROL LER

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

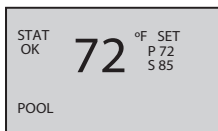
LEA RN	VER x
1	INC LUDE NO DE
2	ADDTO GROUP
3	RES ET N ODE
4	RES ET C ONTROLLE R
5	MORE OP TIO NS
C	EXI T
	SUC CES S

5. Press and release 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.

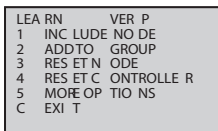
Programming to Protect a Pool Cleaner Pump

If your equipment pad facilitates both a pool and spa and includes a booster pump, you will want to make sure the booster pump is never powered on when the system is in the spa mode. This system can accommodate these two scenarios.

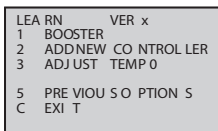
1. Press and release any button on the Hand-Held Remote to wake it from sleep. (The unit goes to sleep to conserve battery life when it has been idle for 30 seconds.)



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.



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



4. Press and release the <1> button on the new screen to select **BOOSTER**.

NOTE: *This button toggles between ON and OFF.*

That's it. When Booster 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.

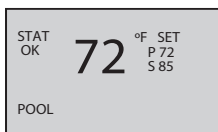
The owner can add up to 5 Hand-Held Controllers to a system.

Calibrating the Temperature Display

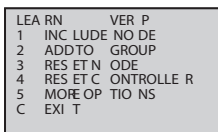
If the homeowner is using a floating thermometer or other device to measure water temperature, there may be discrepancy between that device and the temperature shown on the Hand-Held Remote.

Use the following procedure to calibrate the temperature display on the Hand-Held Remote to match that of another device.

1. Press and release 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.)

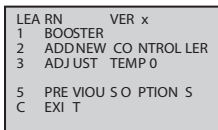


2. Press and hold the **<P/S>** and **<CHLR>** buttons at the same time for about 5 seconds.

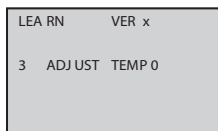


This will put the device in programming mode, as shown.

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



4. Press and release the **<3>** button on the new screen to select **ADJUST TEMP 0**.



5. Use the **<UP>** or **<DOWN>** arrow keys to add or subtract degrees shown by the Hand-Held display.

For example, if you stop at **ADJUST TEMP +5**, the Hand-Held display will add 5 degrees to the temperature as measured by the water temperature probe.

The adjustment can be set from +20 to -20 degrees.

6. Press and release the **<3>** button again to save the change and exit.

Section 4:

Check out and Troubleshooting

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

Verify that the Hand-Held Remote is working properly

What to do

1. Wake up the Hand-Held Remote by pressing any button.
2. On the right hand side of the display there should be a "P" and "S" indicating the pool and spa set temperatures. Use the arrow keys to increase or decrease these set points. The display will change back in five seconds.
3. Pushing the <CHLR> button should change the display to "CHLORINATOR NOT AVAILABLE". This display will change back in five seconds.
4. Holding down the <P/S> and <CHLR> buttons simultaneously for five seconds should enter you into the programming screen. Use the number keys to navigate these menus. Press the <CHLR> button to exit the programming screen.

If you can't complete this procedure successfully, follow the steps below to troubleshoot.

<i>If it doesn't work</i>	<i>Reference/Procedure</i>
Verify that batteries are installed properly and fully charged.	<ol style="list-style-type: none">1. The Hand-Held Remote takes 3 AAA batteries. Make sure the batteries are installed and are properly aligned according to the polarity markings in the battery compartment.2. Do not mix fully charged batteries with partially charged batteries in the Hand-Held Remote.3. Do not use rechargeable batteries in the Hand-Held Remote.4. If the Low Bat indicator is visible in the display, the Hand-Held Remote will function intermittently. Replace batteries immediately.
Verify that the Hand-Held Remote has successfully awakened from its sleep state.	<ol style="list-style-type: none">1. Push any button on the Hand-Held Remote to wake it from its sleep state. Failure to awaken means there will be nothing visible on the display!2. If the Hand-Held Remote is awake and none of its buttons are pressed, it should go back into its sleep state after one minute.

<i>If it doesn't work</i>	<i>Reference/Procedure</i>
Verify that the Hand-Held Remote is successfully linked up to the Panel-mounted Transceiver.	<ol style="list-style-type: none">1. Check that the display panel on the Hand-Held Remote says STAT OK, not just STAT.2. If not, reprogram the Hand-Held Remote. See pages 20-25.3. Replace the Hand-Held Remote if unable to successfully program.4. Replace the Panel-Mounted Transceiver if still not able to establish communication with the replacement Hand-Held Remote.

Verify that the Hand-Held Remote is controlling pool and spa temperature

What to do

1. Wake up the Hand-Held Remote by pressing any button.
2. Depending on how your suction and discharge valves are turned, the display should show the actual water temperature of either the pool or spa.
3. On the right hand side of the display there should be a **P** and **S** indicating the pool and spa set temperatures. Press the **<ARROW>** buttons to adjust the set point so that it is higher then the actual water temperature.
4. Verify that the word **HEATING** appears at the bottom of the display. This indicates that the heater should be heating, if it is working properly and the system is wired and plumbed properly.
5. Verify that the heater is actually heating.

6. Press the **<ARROW>** buttons to lower the set temperature below the actual water temperature.
7. Verify that the word **HEATING** goes out at the bottom of the display. This indicates that the heater should not be heating, if the heater is working properly and the system is wired and plumbed properly.
8. Verify that heater has stopped heating.

If you can't complete these procedures successfully, follow the steps in the next column to troubleshoot.

<i>If it doesn't work</i>	<i>Reference/Procedure</i>
Verify that filter pump is turned ON and running.	Turn ON the circuit that controls the filter pump. Verify that the filter pump is running and that there is adequate flow through the heater.
Verify that power is turned ON to the heater.	Verify that the heater circuit breaker is ON and the heater actually has power.
Verify that the heater thermostat at the Heater is turned up fully for both pool and spa settings.	All thermostats on the heater must be set to their maximum setting.

<i>If it doesn't work</i>	<i>Reference/Procedure</i>
<p>Verify that the Pool and Spa Set point on the Hand-Held Remote is set higher than the actual water temperature shown on its display.</p>	<ol style="list-style-type: none"> 1. On the right hand side of the display there should be a P and S indicating the pool and spa set temperatures. Press the <ARROW> buttons to adjust the set point so that it is higher than the actual water temperature. 2. Verify that the word HEATING appears at the bottom of the display. This indicates that the heater should be heating, if it is working properly and the system is wired and plumbed properly.
<p>Verify that the Fireman switch wires from the Panel-Mounted Transceiver are connected properly to the heater.</p>	<p>Identify your heater (see page 13) and retrace your wiring to verify all lines are connected properly.</p>
<p>Verify heater works independently of the control system.</p>	<ol style="list-style-type: none"> 1. Remove all wires from the control to the heater and hook up the heater system as a stand-alone unit. 2. Verify that the heater works with its own thermostat.

<i>If it doesn't work</i>	<i>Reference/Procedure</i>
Results of trouble-shooting	<ol style="list-style-type: none">1. If the heater does not work independently of the control, repair the heater.2. If the heater does work independently of the control, replace the Panel-Mounted Transceiver. See page 4 for ordering information.

Check for successful wireless reception all around the yard

What to do

1. Wake up the Hand-Held Remote by pressing any button.
2. Identify and walk to the areas where you intend to use the Hand-Held Remote, and make sure you see **STAT OK** in the upper left corner of the display at all times in these areas.
3. If the word **OK** disappears and the display reads only **STAT**, follow the procedures in the next column.

If you can't complete this procedure successfully, follow the steps below to troubleshoot.

<i>If it doesn't work</i>	<i>Reference/Procedure</i>
Verify that the Hand-Held Remote is working properly.	Follow the troubleshooting procedures on page 42.

<i>If it doesn't work</i>	<i>Reference/Procedure</i>
Verify that the Hand-Held Remote is successfully communicating with the Panel-mounted Transceiver.	<ol style="list-style-type: none">1. Stand next to the control box with the Hand-Held Remote.2. Verify that the unit works by pressing buttons on the Hand-Held Remote and listen for clicks, verifying that relays have opened or closed.
Install Transceiver Repeater Modules (HA04C) where necessary to improve or broaden range.	<ol style="list-style-type: none">1. Locate a 120 Volt outlet someplace between the Panel Mount Transceiver and the area the Hand Held Transceiver lost communication.2. Install a Transceiver Repeater Module (HA04C) in this outlet and program the Repeater Module by following the instructions on page 26-29.3. Contact Intermatic for Transceiver Repeater Module ordering information.

<i>If it doesn't work</i>	<i>Reference/Procedure</i>
<p>Install the Intermatic 35-ft. Antenna Extension Cable Assembly (PA121) to improve or broaden range.</p> <p>NOTE: Only an Intermatic 35-ft. Antenna Extension Cable Assembly (PA121) will work with the I-Wave Control. Contact Intermatic to order.</p>	<ol style="list-style-type: none"> 1. If a 120 Volt outlet is not strategically located or the Transceiver Repeater Module doesn't work, you may have to remote the antenna on the Panel Mount Transceiver located on the top of the enclosure. 2. Remove the antenna located at the top of the Panel-Mounted Transceiver by turning the antenna counter clockwise. 3. Install the female end of the cable where the antenna was previously connected. Install the antenna on the other end of the cable. 5. Route the cable to a location where the antenna will be in the direct Line of Sight of the area where the Hand-Held Remote will be most frequently used. Mount the cable and antenna with the mounting kit that comes with the Intermatic 35-ft. Antenna Extension Cable Assembly (PA121). 7. Repeat the "What to do" procedure to verify that your installation was successful.

Check that the buttons operate the correct relays

What to do

- 1. Wake up the Hand-Held Remote by pressing any button.
- 2. Standing near the Control Center so you can observe the relays clicking, press buttons <1> through <5>.
- 3. Verify that the correct relays operated.
- 4. Repeat this procedure to check other buttons and relays.

If you can't complete this procedure successfully, follow the steps below to troubleshoot.

<i>If it doesn't work</i>	<i>Reference/Procedure</i>
The wires coming from the Panel-Mounted Transceiver are likely wired backwards to the mechanisms in the Control Center.	<ul style="list-style-type: none">1. Check the wiring. (See page 8.)2. Reverse if necessary.

Check that the Fireman's Switch is Working (if installed)

What to do

1. Make sure all equipment is OFF but power is present at the panel.
2. Make sure the water valves are in the Pool position and the VALVE light on the control is OFF.
3. Push Circuit #1 ON to turn on the Filter Pump.
4. Wake up the Hand-Held Remote Transceiver by pressing any button. The display should show the actual water temperature of the pool.
5. On the right hand side of the display is a **P** and an **S** indicating the pool and spa set temperatures. Use the arrow keys to adjust the pool set point so that the final set point is higher than the actual water temperature.
6. At the bottom of the display, the word **HEATING** should come on. This indicates that the heater should be heating, presuming that the heater is working properly and the system is wired and plumbed properly.
7. Verify that the heater is actually heating.
8. Push Circuit #1 OFF to turn off the Filter Pump. The heater should shut off but the Filter pump should continue to run while the display on the Three-circuit Clock starts to count down from its programmed setting.
9. When the clock's programmed setting reaches zero, the Filter pump should shut off.

If you can't complete this procedure successfully, follow the steps below to troubleshoot.

<i>If it doesn't work</i>	<i>Reference/Procedure</i>
Verify that the Three-Circuit Clock and Pump/Valve switch are working properly.	<ol style="list-style-type: none">1. Review the <i>What to do</i> suggestions for the “<i>Check circuits on the Three-Circuit Clock Mechanism (P1353ME)</i>” troubleshooting information provided with the mechanism.2. Review the <i>What to do</i> suggestions for the “<i>Check circuits on the Valve/Pump Mechanism (P4243ME)</i>” troubleshooting information in the documentation that accompanied the mechanism.
Verify heater and wireless system are working properly together.	Review <i>What to do</i> suggestions for the “ <i>Verify that the Hand-Held Remote Transceiver is controlling pool and spa temperature</i> ” troubleshooting information on page 44.
Verify a Fireman's Switch delay time has been programmed in the Three Circuit Clock.	Review “ <i>Setting the Heaters Cool Down Time</i> ” in the documentation that accompanied the mechanism.

If unit doesn't work after satisfying the three items above, replace the Three Circuit Clock (*P1353ME*). Contact Intermatic for ordering details.

Installation Notes

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Installation Notes

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