

Smart Sense Manager™

Installation and Operation Instructions



beachcomber
HOT TUBS





THE BEACHCOMBER SMART SENSE MANAGER™ IS COMPATIBLE WITH BEACHCOMBER SMART SENSE TECHNOLOGY™ MANAGEMENT SYSTEMS
1 YEAR REPLACEMENT GUARANTEE

BEACHCOMBER GUARANTEES THE TRANSCEIVER AND ACCOMPANYING SMART SENSE MANAGER TO THE ORIGINAL OWNER FOR A PERIOD OF 1 YEAR FROM THE DATE OF PURCHASE, (AFTERMARKET ADD ON) OR DELIVERY DATE OF THE HOT TUB, (IF THE UNIT CAME INSTALLED AT THE FACTORY). IF THE PRODUCT FAILS DUE TO A DEFECT IN MATERIALS OR WORKMANSHIP, BEACHCOMBER WILL REPLACE THE NON-FUNCTIONING UNIT AT NO CHARGE, (PARTS ONLY, NO LABOR). BEACHCOMBER IS NOT RESPONSIBLE FOR COSMETIC OR WATER DAMAGE TO EITHER UNIT.

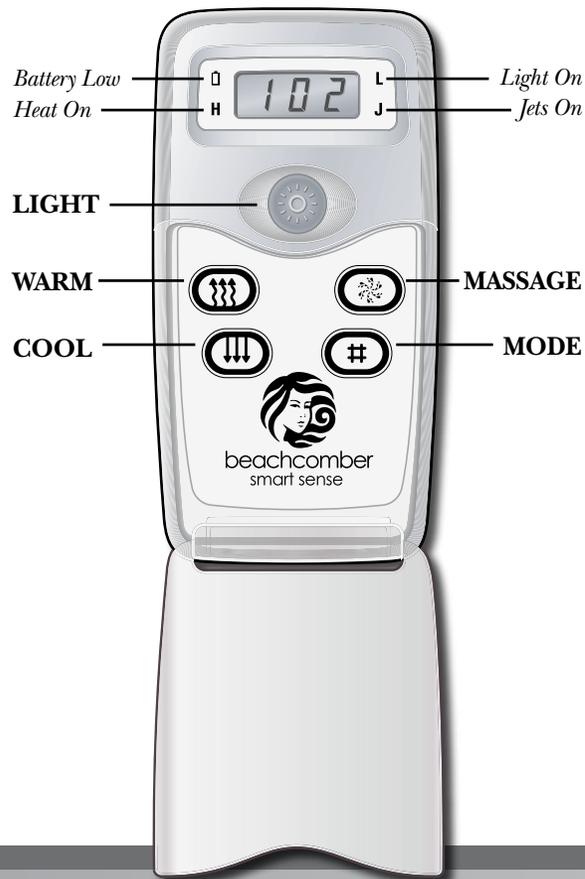
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SMART SENSE MANAGER ILLUSTRATION AND BUTTON CALL OUTS



CAUTION:
Pull with your
fingernail from
either top corner
tab to open



SMART SENSE MANAGER INSTALLATION

Perform the following three steps to install your Smart Sense Manager:

Step 1: Install the Transceiver

The Transceiver is designed for installation beneath the hot tub skirt, near the Smart Sense Technology Management control unit. The Transceiver interfaces with the control unit through an 8-pin cable, which plugs into a main control panel jack in the control unit. To install the Transceiver, follow the steps below.

1. Shut off power to the hot tub via the GFCI circuit breaker or house panel circuit breaker.
2. Remove the hot tub skirt access panel, or remove the hot tub safety step in Protec equipped models to allow access to the control unit.
3. Remove the Smart Sense Technology Management System cover.
4. Remove the screw holding the cable clamp in place.
5. Plug the Transceiver cable into one of the unused Main Control Panel jacks on the control circuit board.
6. Route the Transceiver cable through one of the unused cable clamp slots, close the cable clamp and tighten the screw.
7. Replace the Smart Sense Technology Management System cover, then screw into place.
8. Find a location to mount the Transceiver. Some general guidelines for mounting are as follows:
 - A. The unit can be mounted with screws, tie-wraps or double-sided foam tape.
 - B. Position the unit with the arrow pointing up.
 - C. Locate the unit on the side of the hot tub that faces the house.
 - D. Mount as high as practical to maximize range.
 - E. Avoid mounting behind metal objects such as metal framing or the control box.
 - F. Mount away from pumps, blowers and high-voltage cables whenever possible.

Step 2: Train the Smart Sense Manager

1. Holding the Smart Sense Manager, stand 10 to 20 feet from the Transceiver.
2. Turn off the power to the hot tub. After 15 seconds, turn the power back on. This puts the Transceiver in training mode for 30 seconds.
3. About 10 seconds after turning the power back on, hold down the WARM and COOL buttons until “trn” appears on the display. Release the buttons. At this time, the Smart Sense Manager will beep twice if the Train Command was performed successfully.
4. If “Err” appears on the display, the Train Command was not performed successfully. Possible causes may be:
 - A. The Transceiver is not powered up.
 - B. The Transceiver is not in training mode.
 - C. There is a problem with the RF communication. Confirm that you were between 10 and 20 feet from the Transceiver when performing the Train Command.

Step 3: Install the Smart Sense Manager

The Smart Sense Manager must be mounted in a location where it receives a strong signal from the Transceiver at all times. This will ensure that if a noteworthy problem occurs at the hot tub, the Smart Sense Manager will be able to alert the homeowner.

A signal quality test has been built into the Smart Sense Manager and can easily be activated by the homeowner.

Note: The Smart Sense Manager(s) must be trained before the signal quality can be tested.

1. Find a suitable location for mounting the Smart Sense Manager. The location should be convenient for the homeowner, while as close to the hot tub as practical. Avoid mounting the Smart Sense Manager near the following:
Heat sources (such as radiators, air ducts and sunlight), areas of excessive moisture (such as a bathroom), television sets and other electronic equipment, cordless telephones, personal computers, microwave ovens, electric motors, other wireless devices.

2. Hold the Smart Sense Manager in the approximate location it would be mounted.
3. Hold the MASSAGE and LIGHT buttons down at the same time for about 6-9 seconds. A number will be displayed. Release both buttons.
 - A. If the number displayed is 24, this is a good location for mounting the Smart Sense Manager. Continue to Step 4.
 - B. If the number is 23 or less, a better location needs to be found.
 - C. In general, move closer to the hot tub, and away from obstacles that may block the signal such as: fireplaces, metal appliances, bathroom plumbing, etc.
 - D. Repeat the above steps until a suitable location is found.

Note: If suitable signal quality cannot be achieved in a desired mounting location, try repositioning the Transceiver to see if reception improves.

4. Mount the wall bracket with the included mounting hardware as follows:
 - A. For Sheet rock or Plaster
 1. Hold the wall bracket on the wall in its desired location.
 2. With a pencil, mark a dot on the wall in the center of the two mounting holes.
 3. Drill two 3/16" holes (3/4" to 1" deep) in the wall where the dots are located.
 4. Insert the plastic anchors into the two holes. Tap the anchors with a hammer until only the round head shows.
 5. Hold the wall bracket over the anchors and secure by screwing the two screws into the anchors.
 - B. For Wood Surfaces
 1. Hold the wall bracket on the wall in its desired location.
 2. With a pencil, mark a dot on the wall in the center of the two mounting holes.
 3. Drill two 3/32" holes (1/2" to 3/4" deep) in the wall where the dots are located.
 4. Hold the wall bracket over the drilled holes and secure by screwing the two screws into the holes.

Note: When the Smart Sense Manager is not in use, placing it on the wall bracket will ensure that it has a good signal, and can alert the homeowner to any problems with the hot tub.

START UP

1. Press any button to wake up the Smart Sense Manager if the display is blank. Once the Smart Sense Manager is awake:
 - A. The LCD and indicator icons will display the status of the hot tub.
 - B. The Smart Sense Manager can send commands to the hot tub with button presses similar to those of the main hot tub panel.
 - C. Always wait for the button press to take effect. There is a small delay as the signal is passed from the Smart Sense Manager to the hot tub and a response is verified.
 - D. The Smart Sense Manager will stay awake for 15 seconds after the last button press.

Note: The button press used to wake up the Smart Sense Manager will not send a command to the hot tub.

TO DISPLAY WATER TEMPERATURE

In most cases, you should already see the water temperature displayed. It may be alternating with one or more messages (listed on pages 13-15 of this document).

1. If the display shows “Ecn,” the hot tub is in Economy Mode:
 - A. Press the MESSAGE button while the Smart Sense Manager is displaying “Ecn” to turn on the MESSAGE(1) pump. At this point the hot tub will be in Standard-in-Economy Mode, indicated by “SE” on the display. If your hot tub is equipped with a circ pump, it turns on with the MESSAGE pump.
 - B. It takes approximately two minutes for the hot tub to read the water temperature after the pump starts. During this time the Smart Sense Manager will go back to sleep.
 - C. After two minutes has elapsed, press the MESSAGE button to display the water temperature.

If the display shows “SLP” alone, the hot tub is in Sleep Mode and will not show the current water temperature except during a filter cycle. *(See next page for instructions on changing mode.)*

BUTTON OPERATION



LIGHT

The LIGHT button on the Smart Sense Manager works exactly like the LIGHT button on your hot tub's control panel.



WARM/COOL

Press the WARM or COOL button once to display the set temperature. Each time either button is pressed again, the set temperature will increase or decrease depending on which button is pressed. After three seconds, the LCD will automatically display the last measured hot tub temperature.



MODE

This button is used to switch between Standard, Economy, and Sleep Modes. Press MODE to enter mode programming, press COOL to cycle through to the desired mode (LCD flashes until confirmed), then press MODE to confirm selection.



MASSAGE

The MASSAGE button on the Smart Sense Manager works like the MASSAGE1 button on your hot tub's control panel (or like the MASSAGE button if your hot tub's control panel has only one MASSAGE button).



TRAINING AND CLEARING

Why Training and Clearing

Each Smart Sense Manager and Transceiver has a unique address assigned to them at the time of manufacture. The Smart Sense Manager and Transceiver must learn the address of the other in order to communicate with each other. This learning process is accomplished with the **Train Command**. A Smart Sense Manager can only learn the address of one Transceiver; however, a Transceiver can learn the address of up to six Smart Sense Managers. This enables up to six Smart Sense Managers to monitor and control a single hot tub.

The **Clear Command** is used to untrain a Smart Sense Manager from a Transceiver. It clears the Transceiver address from the memory of a Smart Sense Manager and the Smart Sense Manager address from the memory of the Transceiver.

The **Clear All Command** is used to untrain all Smart Sense Managers trained to a particular Transceiver. This function is useful if a Smart Sense Manager is lost or stolen and you want to make sure that it can no longer communicate with your hot tub.

Train Command

This command trains a Smart Sense Manager and a Transceiver to communicate with each other. The Smart Sense Manager should be located between 10 and 20 feet from the Transceiver when performing the Train Command.

To perform the Train Command, see page 5 “Step 2: Train the Smart Sense Manager.”

Clear Command

This command is used to untrain a Smart Sense Manager from a Transceiver. It clears the Transceiver address from the memory of a Smart Sense Manager and the Smart Sense Manager address from the memory of the Transceiver.

Perform this command if you no longer want a Smart Sense Manager to communicate with the Transceiver.

The Smart Sense Manager should be located between 10 and 20 feet from the Transceiver when performing the Clear Command.

To perform the Clear Command:

1. Press the COOL and LIGHT buttons until “CLr” appears on the display. Release the buttons. At this time, the Smart Sense Manager will beep twice if the Clear Command was performed successfully. “CLr” will flash for five seconds and then the display will be blank.
2. If “Err” appears on the display, the Clear Command was not performed successfully. Possible causes may be:
 - A. The Transceiver is not powered up.
 - B. The Transceiver is not trained to the Smart Sense Manager Panel.
 - C. There is a problem with the RF communication. Confirm that you were between 10 and 20 feet from the Transceiver when performing the Clear Command.

Clear All Command

This command erases the addresses of all the Smart Sense Managers from a Transceiver as well as clearing the Transceiver address from the memory of the Smart Sense Manager initiating the command. Once the Clear All Command has been executed, no Smart Sense Manager will be able to communicate with the Transceiver. Communication can be re-established by performing a Train Command for each Smart Sense Manager that you would like to communicate with the Transceiver.

The Smart Sense Manager should be located between 10 and 20 feet from the Transceiver when performing the Clear All Command.

To perform the Clear All Command:

1. Press the MESSAGE and WARM buttons until “CLA” appears on the display. Release the buttons. At this time, the Smart Sense Manager will beep twice if the Clear All Command was performed successfully. “CLA” will flash for five seconds and then the display will be blank.
2. If “Err” appears on the display, the Clear All Command was not performed successfully. Possible causes may be:
 - A. The Transceiver is not powered up.
 - B. The Transceiver is not trained to the Smart Sense Manager Panel.
 - C. There is a problem with the RF communication. Confirm that you were between 10 and 20 feet from the Transceiver when performing the Clear All Command.

HEATING MODE MESSAGES

Message	Meaning	Action Required
<i>Std</i>	The hot tub is operating in Standard Mode. Heater will come on whenever water temperature drops 1°F/0.5°C below set point	Temperature display is current after pump has been running for at least two minutes.
<i>Ecn</i>	The hot tub is operating in Economy Mode. Heater will come on only during filter cycle times.	“Ecn” will appear solid on the display when the temperature is not current. “Ecn” will alternate with the temperature when the temperature is current
<i>SE</i>	The hot tub is operating in Standard-in-Economy Mode. A massage button has been pressed in Economy Mode	Operates the same as Standard Mode, then reverts to Economy Mode after 1 hour. Press MODE to switch directly to Economy Mode.
<i>SLP</i>	The hot tub is operating in Sleep Mode. Heater will come on only when water is 20°F/11°C below set point and only during filter cycle times.	“SLP” will appear solid on the display when the temperature is not current. “SLP” will alternate with the temperature when the temperature is current.

Consult your main control panel instructions for the meaning of any additional three-letter messages that may appear on the Smart Sense Manager Display.

DIAGNOSTIC DISPLAY MESSAGES

Message	Error Meaning	Message	Error Meaning
<i>dr</i>	Inadequate water detected	<i>OHH</i>	Overheat - DO NOT ENTER TUB!
<i>dry</i>	Inadequate water detected	<i>OHS</i>	Overheat - DO NOT ENTER TUB!
<i>HFL</i>	Could indicate flow problem	<i>Pr</i>	Hot tub in priming mode
<i>ICE</i>	Potential freeze	<i>SbY</i>	Standby Mode
<i>LF</i>	Persistent low flow problems	<i>SnA</i>	Hot tub is shut down - sensor A service required
<i>Snb</i>	Hot tub is shut down - sensor B service required	<i>SnS</i>	Sensors out of balance
<i>SnS</i>	Alternating with Temperature - Sensors out of balance, service required		
Reminder Messages			
<i>rCH</i>	Install new Microfilter Cartridge	<i>rdr</i>	Drain and refill hot tub
<i>rCL</i>	Remove, clean, and reinstall Microfilter Cartridge	<i>rPH</i>	Test and adjust pH chemical levels
<i>rCO</i>	Clean and condition Heatshield	<i>rtg</i>	Test and reset GFCI

Press the MODE or WARM/COOL button to reset and clear the reminder from the display. Please refer to trouble shooting guide in the Owner's Guide for complete explanation of diagnostic messages.

ALARMS

One of the key functions of the Smart Sense Manager is to continuously monitor the health of the hot tub. About once an hour, the Smart Sense Manager automatically wakes up and sends a message to the hot tub controller asking if any critical problems have been detected. If any problems have been detected, the Smart Sense Manager sounds an alarm by beeping once every 20 seconds and flashing the LED's on the display until the alarm is acknowledged.

The alarm can be acknowledged by pressing any button on the Smart Sense Manager. When a button is pressed, the unit will beep every two seconds and the cause of the alarm will be displayed for about 15 seconds. When the display clears, the beeping will stop and the Smart Sense Manager will go back to sleep. Until the alarm condition is corrected, each time the Smart Sense Manager is manually awakened (by pressing any button), the unit will beep every two seconds and the cause of the alarm will again be displayed for about 15 seconds.

Note: If the Smart Sense Manager cannot establish communications with the Transceiver over a three-hour period of time, it will sound an alarm. When awakened by a button press, it will display “no SPA”. This condition can be caused by either a power loss at the hot tub (a critical issue in a winter climate) or by the Smart Sense Manager being too far away from the Transceiver. It will also occur if the Transceiver is not properly connected to the hot tub control circuit board.

Note: If the Smart Sense Manager sounds an alarm when it is awakened (by pressing any button) and it has not sounded an alarm up to this time, this is a critical problem that has just been detected by the Smart Sense Manager.

The Smart Sense Manager will display the same kind of diagnostic message your main control panel displays. For example, in the case of heater overheat condition, the Smart Sense Manager will display “OHH”.

Low Battery Alarm

Once the Smart Sense Manager detects a low battery condition, it will beep (and light the Battery Low LED) several times a minute until you wake it up and see the “Lo bAt” display. From that point on, it will not beep (or light the LED) when not awake, but will show “Lo bAt” part of the time while awake. Replace the batteries as soon as possible by removing the battery cover and installing three new AAA alkaline batteries.

Note: If you replace the batteries with batteries that are weak, it may take up to a day before the Smart Sense Manager will start alerting you to a low battery condition.

REPLACING A TRANSCEIVER

If you ever have to replace the Transceiver, you must perform the Train Command with your existing and new Smart Sense Manager(s). See page 5 “Step 2: Train the Smart Sense Manager.” If you have more than one Smart Sense Manager, perform the Train Command with each one.

REPLACING A SMART SENSE MANAGER

If you ever have to replace a Smart Sense Manager, perform the following sequence with the **new Smart Sense Manager**:

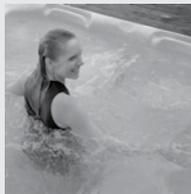
1. Perform the Train Command.
2. Perform the Clear All Command. This clears all Smart Sense Manager addresses from the Transceiver, including the address of the failed or missing Smart Sense Manager.
3. Perform the Train Command again. If you have more than one Smart Sense Manager, perform the Train Command with each one.

THINGS TO AVOID

Be careful to avoid pressing two buttons at the same time during normal use. Certain button combinations put the Smart Sense Manager into special test modes which are not covered in this manual. If the Smart Sense Manager accidentally gets put into a special test mode and does not operate normally, wait 15 seconds for the Smart Sense Manager to go into Sleep Mode. It should return to normal operation upon awaking. If not, remove the battery cover from the back of the unit, then remove and reinstall one of the batteries. This should reset the Smart Sense Manager to normal operation.

NOTES:

NOTES:



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