The ACE Retro System is the next generation of ACE systems. It has the same features as the integrated ACE system but is accessed through an independent user interface mounted to the spa skirt. The unit operates just as the integrated unit and can be tested in a similar manner.

Compatibility:

The ACE retro system is designed for HotSpring Spas built between 2004 and 2009. The key compatibility requirement is that the spa be equipped with a pass-thru connection between the equipment compartment and filter bucket.

The Ace retro is also compatible with currently released HotSpring and Limelight spas. Both brands are equipped with pass-thru connection.

The **Use level indicator** displays current Use level setting from Off – 10. This light will flash when it is time for the 30-day check-up.

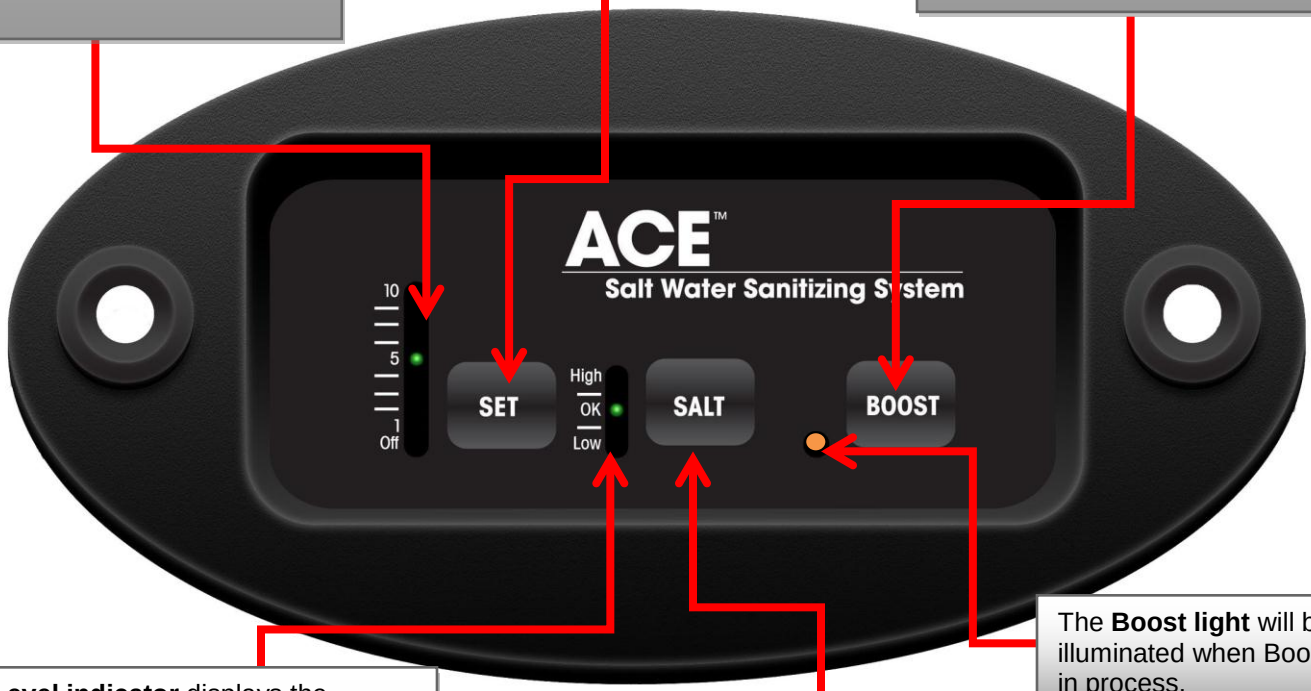
30-day check-up: Test and balance water. Adjust Use level based on chlorine reading. If Use level is unchanged, press SET to scroll back to current setting to confirm that the check-up was done.

The **Set button** adjusts Use level from Off – 10. Smaller spas tend to require lower use levels.

Test water with a test strip weekly to confirm chlorine level and adjust up if chlorine is below 1 ppm and down if chlorine is above 5 ppm.

The **Boost button** activates the Boost function to increase chlorine generation for 24 hours.

Use this function before, during, or after events where the spa will be used more frequently than normal. Light will indicate Boost is in process.



The **Boost light** will be illuminated when Boost is in process.

The **Salt Level indicator** displays the current salt level.

Red flashing – High salt error - offline
Red/green – OK (upper end)
Green/green – OK
Yellow/green – OK (lower end)
Yellow flashing – Low salt error - offline*
*Low salt level reading may indicate the cell is dirty. Inspect cell before adding salt.

The **Salt button** activates an automatic Salt Test.

The Salt indicator light will scroll while the system is testing. Ensure all jet pumps are off when running an automatic salt test.

Components:

The ACE retro uses the same components as the integrated ACE system. The only difference is the controller/interface. Note an I2C hub is not required for the ACE retro because it does not communicate with the spa.

Connections:

Power supply: The power supply connects to the same terminal as the circulation pump with the use of flag splitters. This is done as a means to shut off the ACE when the circulation is stopped, for example during summer timer.

Controller: The Controller connects to the power supply. It also connects to the pressure switch port in the IQ2020 controller. The spa pressure switch then plugs into the ACE pressure switch jump board. The ACE retro monitors the pressure switch and shuts off generation when no flow is sensed. For spas not equipped with a pressure switch, plug the pressure switch bypass jumper into the ACE.

Cell: The chlorinator cell connects to the ACE via the standard bullets.

Operation:

The ACE retro operates is a similar manner to the integrated ACE system. The ACE retro system operates on a user programmed sequence. The user sets the USE level and the system chlorinates on the set program. Chlorination happens during a portion of (4) six hour cycles depending on the level set. The higher the USE setting, the longer the unit will energize the electrodes and more chlorine will be produced. The system does not have a chlorine sensor therefore it is the user's responsibility to adjust the output to meet their needs.

USE level: The SET button scrolls through positions 0 – 10 as shown on the level indicator on the left side of the controller. Red indicates the system is off.
0 – system off
1 – low use mode
2 – 10 increasing levels of chlorination

Salt level: The center of the controller has the salt chart and salt button. The chart displays the most recent salt test value. Although the water is constantly monitored, the salt value is only updated at the beginning of each cycle or when a manual test is requested by pressing the SALT button. The lights will scroll while a test is being performed ~ 15 seconds.

Red (flashing)	- High salt/system off-line: no chlorination current over 1200 mA
Red/green	- Salt level ok: upper green level
Green	- Salt level ok: mid green level
Green/Yellow	- Salt level ok: lower green level
Yellow (flashing)	- Low salt/system off-line: no chlorination current under 500 mA

Note: The ACE will not produce chlorine with the salt level is flashing. (high or low)

Boost: A manual boost feature is provided for times when the extra chlorine is needed beyond the current setting. Ideal for intermittent bather load increases. If a consistent increase in bather load is seen, increase the USE level rather than boost.

The boost runs the cell for a full 24 hours and then reverts back to the programmed use level. A boost is equivalent to USE 10. It is possible to start and stop the boost by pressing the boost button.

The boost feature is also good for troubleshooting the system. Activating the boost will power the electrodes and allow for measurement of voltage and current.

Maintenance Timer:

The ACE is equipped with a maintenance timer designed to remind the user to inspect the spa and perform regular maintenance. 30 days after the last USE setting input the USE indicator light will begin to flash. After 33 days, the Use level will drop to 1. To reset the timer and stop the flashing light, a USE level needs to be input.

Summer timer:

When the spa shuts off the circulation pump due to summer timer, the pressure switch will open and the ACE will go offline as indicated by the flashing red use level light. Because not all spas are equipped with a pressure switch, it is recommended to connect the ACE to the circ pump power terminals. When the circulation pump is off, the ACE interface will shut down and no lights will be visible.

Troubleshooting:

The ACE retro has a number system checks, safety features, and trouble shooting light sequences that are similar to those in use in the integrated ACE. The table below lists all of the light sequences, what they mean, and what to inspect.

Light Sequence	Condition	Action
All lights solid/boost off	Operating normally	--
Boost light solid	boosting	--
USE level indicator "OFF"	System is off	• Check to see if summer timer is active. • Verify power source
Scrolling Salt meter lights	Salt test active	--
Salt lights solid	Ok salt	--
Flashing red salt meter	High salt – system off line and not generating	• Verify cell current is > 1200mA during a salt test • Use a salt test strip and verify salt is over 2000 ppm • Drain a portion of the water and fill with clean water.
Flashing yellow salt meter	Inspect cell/check salt – system offline and not generating	• Verify cell current is < 500mA during a salt test • Use a salt test strip and verify salt is under 750 ppm • If salt is low, add salt • If salt is ok, clean the cell and filter (or replace with paper filter) • Retest with cell in main tub and if salt reading is still low the cell may need to be replaced.
Flashing Use light	30-day timer	• Change the use level
OFF flashing 1/sec	Summer timer active/pressure switch – system not generating	• Verify pressure switch is working and replace if necessary. • Bypass pressure switch with PS bypass jumper PN 72768
OFF & USE 3 flashing 2/sec	Low input voltage	• Inspect 12V power supply for 11.5 minimum output to Ace controller
OFF & USE 7 flashing 2/sec	Cell open circuit	• Verify cell is connected to the controller. • Inspect cell for blockage and replace or clean
OFF & USE 10 flashing 2/sec	Cell short circuit	• Verify cell is connected to the controller and no exposed metal is touching. • Inspect the cell for reason of short. • Replace if needed