

# Installation QUICK START GUIDE



CL-1000-X1.5



CL-990-X1.5

CLEARLINE® SYSTEM

Model CL-1000-X1.5/CL-990-X1.5



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ELECTROSEA®

# GENERAL

## DO

1. Refer to the CLEARLINE Installation and Operation Manual for complete instructions.
2. If seawater lines are impacted with barnacles and marine growth, then ElectroSea recommends professional descaling **before** installation of the CLEARLINE System.
3. All ClearCell seawater plumbing connections must be performed by a qualified marine installation professional.
4. All seawater connections should use marine grade hose that is double clamped with two stainless steel clamps, reversing the clamps. Failure to properly secure seawater connections could result in sinking the vessel.
5. Confirm the vessel is operating in seawater with salinity greater than 20 parts per thousand. Seawater with low salinity (brackish or freshwater) will prevent CLEARLINE from operating.
6. Use only original parts supplied by ElectroSea. They are made of special titanium, stainless and other high quality materials. Use of non-factory or substitute parts will void the Warranty.



**FOR PARTS AND ACCESSORIES  
CONTACT ELECTROSEA**

**WWW.ELECTROSEA.COM**  
**(952) 475-8084 | (888) 384-8881**

## DO NOT

**DO NOT** install CLEARLINE on a seawater system that is clogged with existing marine growth, has clogged strainers or other obstructions to seawater flow.

**DO NOT PERFORM ACID DESCALING OF SEAWATER CIRCUIT AFTER THE CLEARLINE SYSTEM HAS BEEN INSTALLED.**

**DESCALING ACIDS OR CLEANING CHEMICALS WILL DAMAGE THE CLEARCELL CANISTER, CLEARCELL ELECTRODE AND VOID THE WARRANTY.**

**DO NOT TOUCH THE CLEARCELL ELECTRODE PLATES OR USE ANY TYPE OF MECHANICAL BRUSH.**

**THE CLEARCELL ELECTRODE PLATES CONTAIN A SPECIAL METAL OXIDE COATING THAT WILL BE PERMANENTLY DAMAGED IF YOU HANDLE IT.**

**DO NOT** use CLEARLINE with engines or generators.

**DO NOT** connect dissimilar metals to the ClearCell.

**DO NOT** use non-factory parts and/or accessories.

# CLEARLINE CL-1000 INHIBIT AND PUMP CONTROL WIRING

## DO

**INHIBIT:** CLEARLINE can “inhibit” (stop) the generation of chlorine when it receives a signal from Reverse Osmosis (R.O.) Watermaker or Baitwell.

1. Locate the Watermaker, Baitwell, etc. power control switch.
2. Connect CLEARLINE Inhibit cable.

Available input signals are:

POWER TYPE	WIRE COLOR
(1) 24 or 12VDC	Black and Brown
(1) 240 or 120VAC	Red and Orange



3. Verify CLEARLINE “Inhibit” yellow led is illuminated when watermaker or baitwell is operating.

**PUMP CONTROL:** CLEARLINE can control the process of alternating pumps for a specific duration. This is useful with two seawater pumps that require cycling.

1. Locate Seawater Intake Pump to be controlled. See the wiring diagram in the CL-1000-X1.5 Installation Manual for details.
2. Connect the Pump cable to the CLEARLINE Control Unit Pump Monitor and the vessel’s pump controls.
3. Select Pump Mode: “Pump #1 and Pump #2 Alternating”.
4. Select Pump Time: Set the Pump Time duration.

### FOR VIKING YACHTS

The Pump Mode and Time feature automates the manual process of alternating the operation of Pump #1 and Pump #2 for a specific time duration (i.e. every 4 hours). CLEARLINE alternates seawater pumps when both Centralized Seawater Control switches are in the “OFF” position.

**OFF** = Default position when CLEARLINE operating

**AUTO** = bypass CLEARLINE

**MANUAL** = bypass CLEARLINE to force pumps ON

## DO NOT

**DO NOT** connect CLEARLINE Inhibit cable to always ON 12/24VDC, or 120/240VAC source. CLEARLINE will be in a permanent Inhibit state and will not generate chlorine.

**DO NOT** connect multiple inputs to each 12/24VDC, or 120/240VAC source.

**DO NOT** connect CLEARLINE pump control cable unless you have reviewed the vessel’s pump wiring schematics and verified all wiring connections.

# ELECTRICAL

## DO

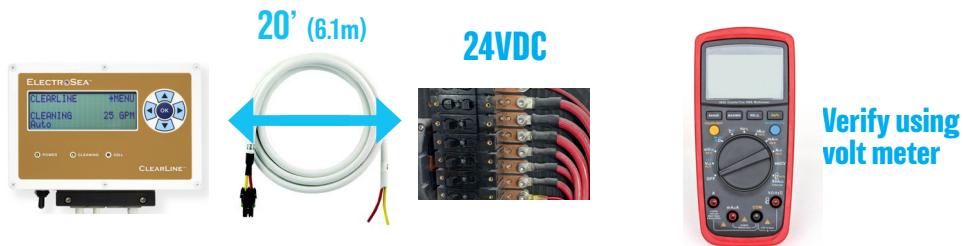
1. Connect CLEARLINE Control Unit:
  - Within 12 ft. (3.7m) of ClearCell
  - Within 12 ft. (3.7m) of Flow Sensor
  - Within 20 ft. (6.1m) of 24VDC power source



### OPTIONAL CABLE ACCESSORIES

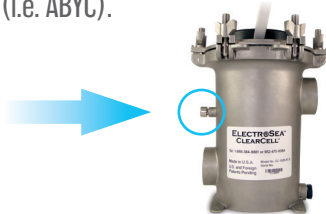
PART NUMBER	DESCRIPTION
CBL01-CC-EXT-15FT	15' (4.6m) ClearCell Extended Cable
CBL01-CC-EXT-20FT	20' (6.1m) ClearCell Extended Cable

2. Connect CLEARLINE Control Unit to constant 24VDC power source on the vessel. Connect the **RED (+)** and **YELLOW (-)** wires of the Power Cable to this source according to the appropriate electrical standards (i.e. ABYC).



3. Connect vessel bonding wire to ClearCell bonding terminal according to appropriate bonding standards (i.e. ABYC).

Bonding wire to vessel ground



## DO NOT

**DO NOT** cut, extend, or splice the 12' (3.7m) ClearCell cable. Longer ClearCell cables are available from ElectroSea.



**NOTICE** Modification of ClearCell cable will impair CLEARLINE operation.

**DO NOT** connect multiple ClearCell cables together.

**DO NOT** connect CLEARLINE to a non-24VDC power source.

**DO NOT** connect the red (+) and yellow (-) power wires to the incorrect polarity.

**DO NOT** connect CLEARLINE to an intermittent power source. Intermittent operation of CLEARLINE could allow biofouling.



**DO NOT perform acid descaling after the CLEARLINE System has been installed. Descaling acids will damage the ClearCell canister, ClearCell Electrode and void the Warranty.**

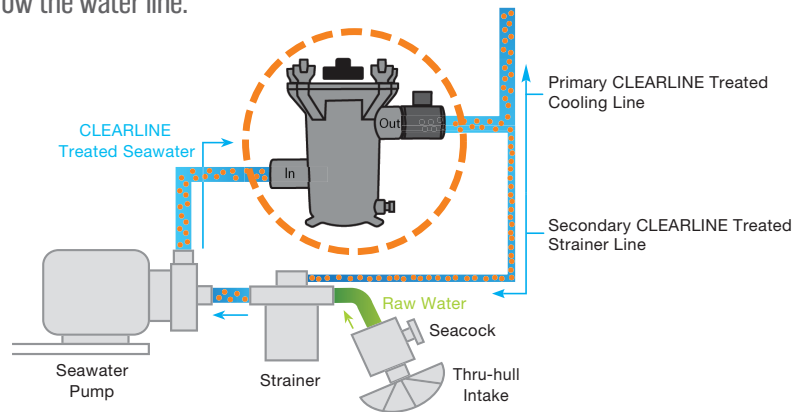
# PLUMBING

## DO

Make fewest changes to vessel's factory plumbing as possible.

**NOTICE** Check manufacturer's seawater flow specifications of all downstream equipment.

- The ClearCell should be installed **after the seawater intake strainer and pump**, and **before** any seawater cooled equipment such as the air conditioner, chiller, etc. The ClearCell should be installed at or below the water line.

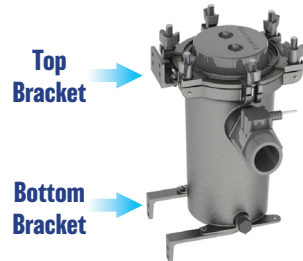


- ClearCell must be mounted so it is level.
- ClearCell should be mounted at or below the waterline.

### OPTION A Base Tab Mounting



### OPTION B Side Mount



### OPTION C Base Tab Extension Bracket



(OPTIONAL MOUNTING COMPONENT)

PART #	DESCRIPTION
BTEB-5.5	Extension bracket mounting feet tabs

## DO NOT

**DO NOT** exceed ClearCell maximum pressure of 70 PSI.

**DO NOT** decrease seawater flow below manufacturer's specifications for downstream cooling equipment.

**DO NOT** install Flow Sensor on ClearCell input or in incorrect direction/orientation on the output.

**DO NOT** place elbows or restrictions between ClearCell Output and Flow Sensor.

**NOTICE** Limit the use of 90° elbows as they restrict flow and cause pressure drop.



**NOTICE** Failure to turn OFF all seacock valves in the seawater circuit before CLEARLINE installation could result in sinking the vessel.

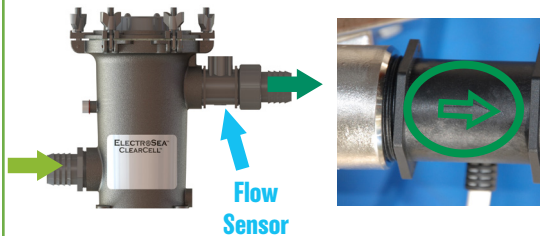
**NOTICE** The ClearCell is made of 2205 Duplex Stainless Steel for high corrosion resistance. Do not connect dissimilar metals to the ClearCell.

# DO

## CLEARCELL CANISTER AND FLOW SENSOR INSTALLATION

The ClearCell canister and Flow Sensor have directional INPUT and OUTPUT requirements. Seawater MUST enter at the INPUT port and flow through the ClearCell and Flow Sensor according to the marked labels.

1. Mount Flow Sensor on ClearCell Output port.
  - Flow Sensor must be oriented so seawater follows direction of flow arrows.



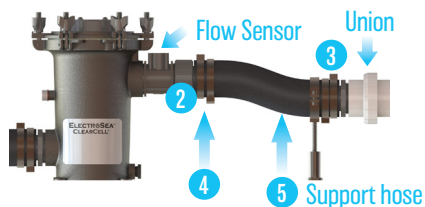
### Recommended ClearCell to Flow Sensor Pipe Connections

- 4x turns of Hercules® MEGATAPE™ PTFE or equivalent
- Hercules® REAL-TUFF Thread Sealant or equivalent

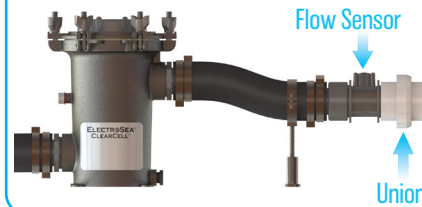
**NOTICE** If Flow Sensor cannot be located directly at ClearCell output, then there should be 12" (30.5cm) of the same size hose before and after flow sensor.

2. Connect the threaded female PVC hose connector to Flow Sensor output. Use PTFE tape and thread sealant.
3. Connect male PVC hose connector to threaded Union. The Union provides quick access to the Flow Sensor as necessary. Use PTFE tape and thread sealant.
4. Add flexible hose of desired length and join hose connector on Flow Sensor output to hose connector on Union. Use two hose clamps (not included), reversing the clamps, over the flexible hose connections.
5. Add flexible hose hanger, hose strap or hose support bracket within 12" (30.5cm) of Flow Sensor. Make sure the Flow Sensor output hose and Union are properly supported.

### FLOW SENSOR CONNECTED TO CLEARCELL



### FLOW SENSOR CONNECTED TO UNION



# DO NOT

**DO NOT** block or restrict access to the top of ClearCell.



**NOTICE** ClearCell must be accessible from the top to remove the Electrode Assembly for service.

**DO NOT** place 90° elbows, or other flow restrictive plumbing fitting, BEFORE the Flow Sensor. This will alter the measured flow and cause improper operation of the CLEARLINE System.



**DO NOT** let the weight of the hose or any plumbing hang unsupported on the Flow Sensor. Use hose hangers, hose straps or hose support brackets that are attached securely to a bulkhead, stringer or other solid object to relieve any force on the Flow Sensor when connected to ClearCell.

**NOTICE** Failure to use hose clamps could result in a seawater leak or hose disconnection, causing damage to property and/or the vessel sinking.

**DO NOT** split or divert seawater before the Flow Sensor.

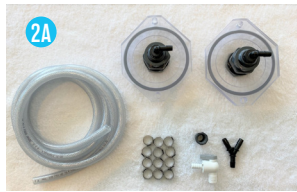
**NOTICE** All seawater flowing through the ClearCell must flow through the Flow Sensor.

# DO

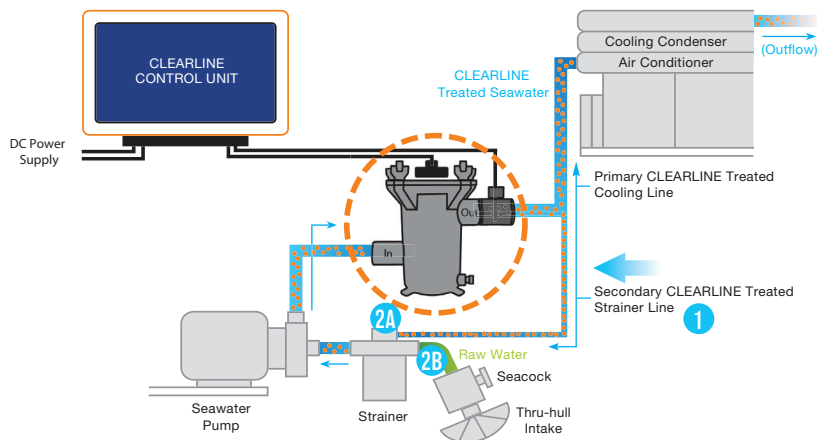
## OPTIONAL STRAINER RETURN LINE

1. OPTIONAL: Add a CLEARLINE treated strainer return line with a tee-fitting and ball valve after the ClearCell Flow Sensor, that goes back to the strainer.
  - The CLEARLINE treated strainer return line should be connected **after the ClearCell Flow Sensor output** and return to the strainer lid or after the seacock.
  - The CLEARLINE treated return line to the strainer should be 3/8" (9.5mm) ID flexible hose and include a ball valve.
2. There are two options to install the CLEARLINE treated return line to the strainer:
  - 2A. Use CLEARLINE Strainer Accessory Kit to plumb the return line directly to the top of the strainer lid. The CLEARLINE Strainer Accessory Kit includes a custom strainer lid, ball valve, tubing, and fittings.

PART NUMBER	DESCRIPTION
DSA-1.5	Arctic Steel 1.5" (3.8cm) Dual Strainer Accessory
DSA-SP1	SCOT Pump Dual Strainer Accessory



- 2B. Add a T-Fitting and ball valve after the seacock and before the strainer.



# DO NOT

- DO NOT** drill through the top of any strainer lid. The lid will crack and/or fail over time and could result in sinking the vessel.
- DO NOT** connect CLEARLINE treated strainer return line before the pump on the suction side.
- DO NOT** add two CLEARLINE treated return lines. Connect CLEARLINE treated return line EITHER to the strainer OR t-fitting and ball valve after seacock.



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