ENERGENICS CART DISINFECTION CHAMBER

Installation and Operation Manual

HOCL (IDEC) ELA-400ANW

ADVANCED DISINFECTION TECHNOLOGY

energenics.com

2025

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PART 1:

INSTALLATION & UTILITY CONNECTION REQUIREMENTS HYPOCHLOROUS ACID (HOCL) CHAMBER

PART 2:

IDEC DISPLAY - HOCL CHAMBER OPERATING AND PROGRAMMING INSTRUCTIONS

PART 3:

OPERATION AND MAINTENANCE MANUAL FOR ELA-ANW SERIES HOCL GENERATORS

PART 1

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INSTALLATION & UTILITY CONNECTION REQUIREMENTS HYPOCHLOROUS ACID (HOCL) CHAMBER

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CHAMBER UNLOADING & INSTALLATION

Your Chamber is shipped fully assembled and ready for your predetermined floor or pit placement. **Follow these directions:**

DO NOT SIGN BILL OF LADING UNTIL INSPECTED

1. Unwrap Chamber and inspect for damage during shipping.

2. The Chamber should be picked up with a forklift using long forks (60” minimum). If this type of forklift is not available, the Chamber should be carefully removed from the truck by other means. **Use caution not to damage fiberglass base beams.**

3. Lift the Chamber to unbolt the wood securing it to the shipping pallet. Remove the pallet and any plywood under the Chamber.

4. Slowly lower the Chamber onto the floor.

Floor Installation

1. Ensure Chamber is facing desired direction. Slide Chamber into final position (use wood between the Chamber frame and forks for added protection).

2. Mount to the floor in 4-8 places using appropriate fasteners per floor type.

3. Install 2 (supplied) yellow exit posts approximately 4” past the trailing edge of each door on the discharge side of the Chamber.

4. Mount sensors on yellow exit post side closest to the Chamber to avoid damage from discharged carts. Installed sensors will ensure the cart is completely clear of the doors before beginning a new cycle. (See Page 9)

5. Mount entrance and exit ramps on models with built in sump option. Ensure exit ramp is flush to the floor level for smooth exit of carts.

Pit Installation

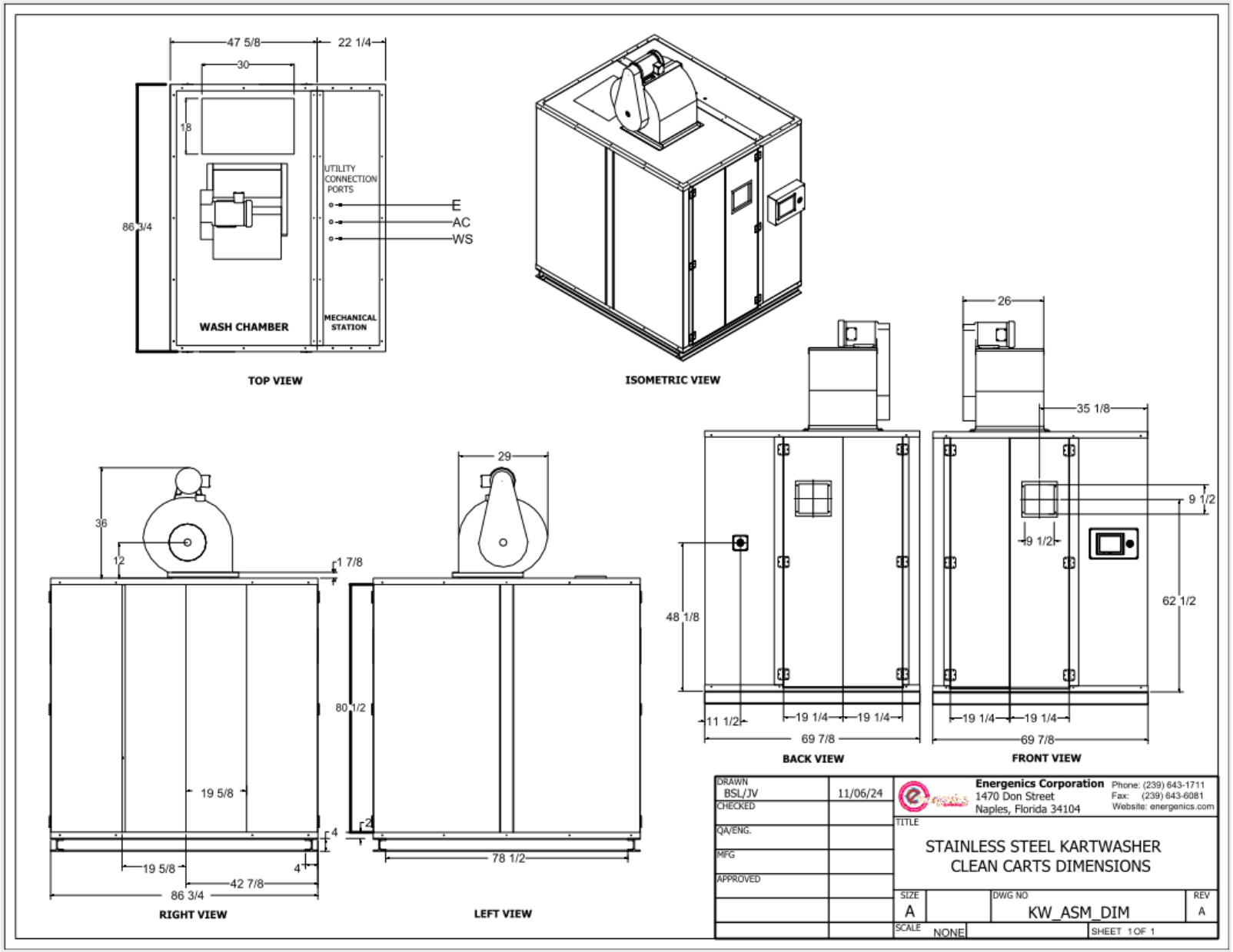
1. Ensure the Chamber is facing desired direction. Remove the shipping blocks.

2. Employ appropriate rigging techniques and personnel to carefully lower the Chamber into the prepared pit. (See Page 7)

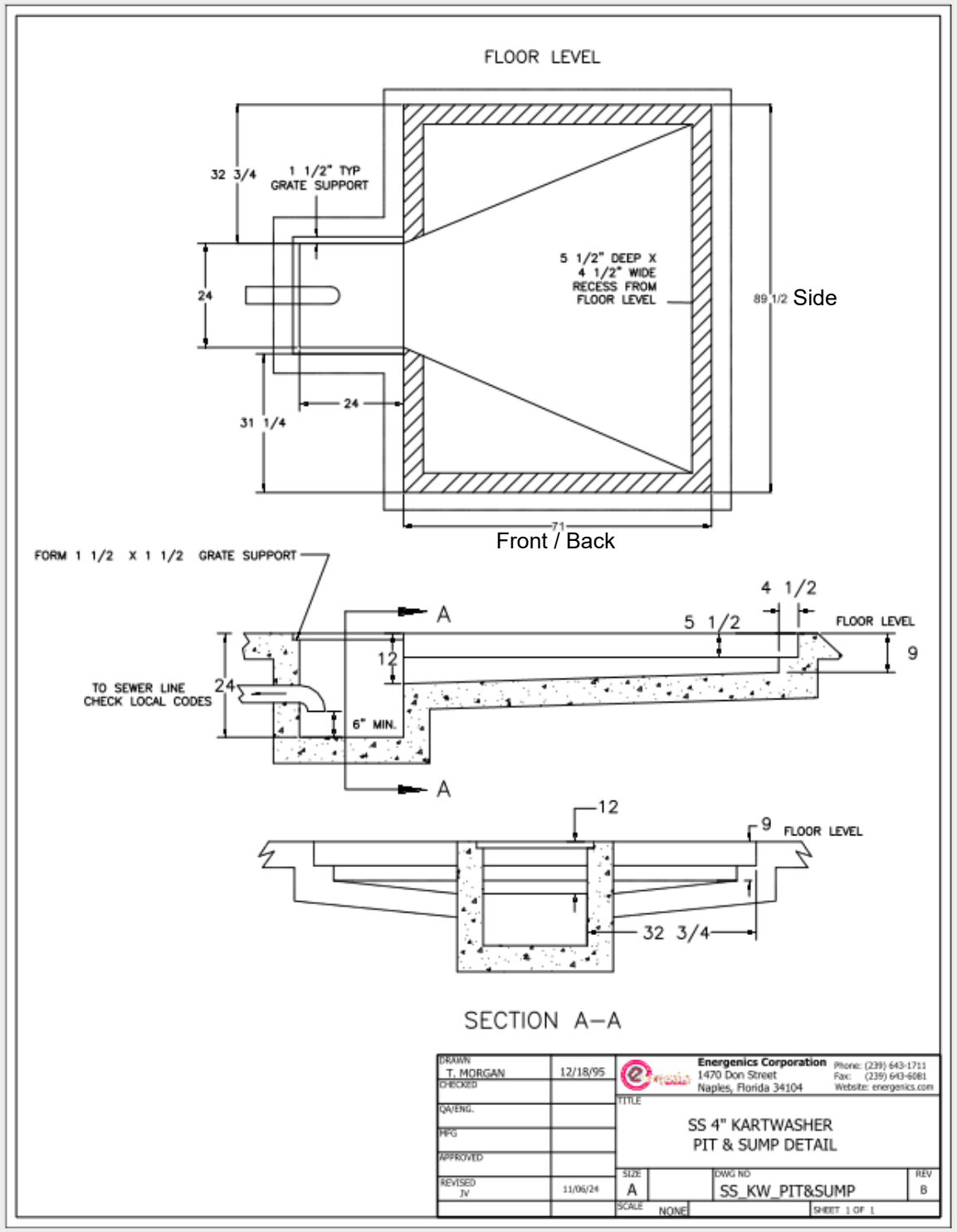
3. Install (2) yellow exit posts (supplied) approximately 4” past the trailing edge of each door on the discharge side of the Chamber.

4. On side closest to the Chamber (to avoid damage from discharged carts), mount photo-eye sensors on yellow exit posts. Sensor installation is required to ensure a cart has completely cleared the exit doors before unit will beginning a new cycle. (See Page 9)

KARTWASHER OVERALL DIMENSIONS

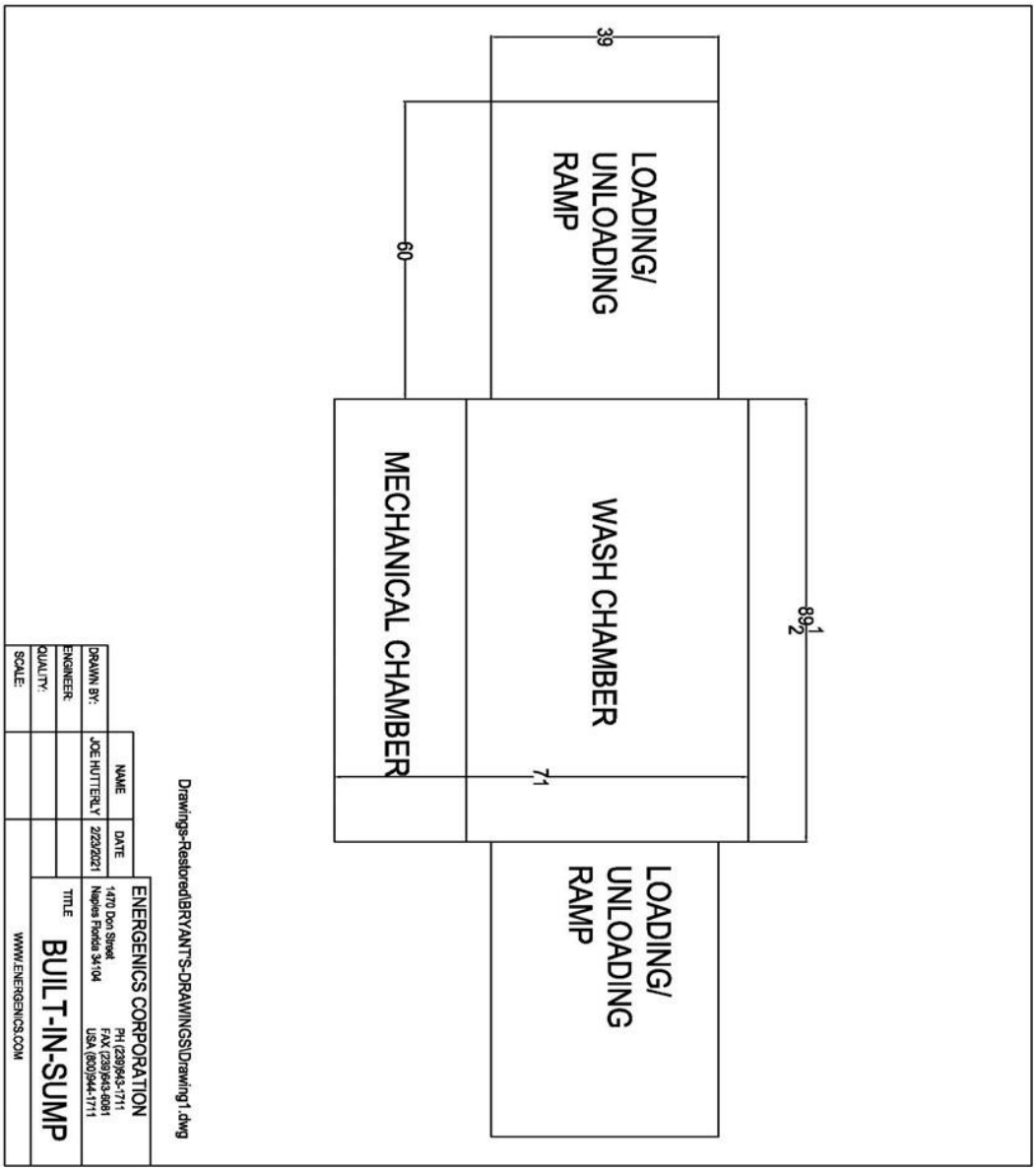


4-INCH BEAM PIT DIMENSIONS



***This configuration allows carts to be loaded / unloaded at floor level. The unit is permanently installed and not easily moved.**

BUILT-IN SUMP WITH LOADING / UNLOADING RAMPS



***This configuration allows the Kartwasher to be placed on the surface of a finished floor. A 1-inch piece of PVC coupling is installed under each loading / unloading ramp (required) for draining. Use one end for draining and cap the opposite side. The built-in sump allows for relocation of the unit for future growth.**

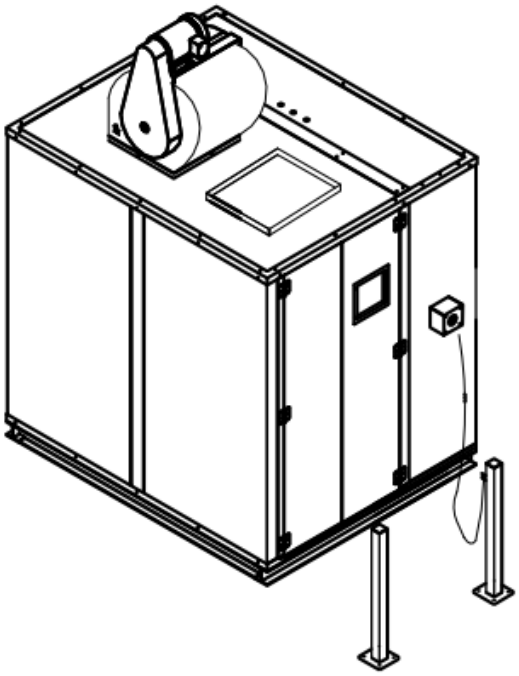
EXIT POST AND SENSOR PLACEMENT

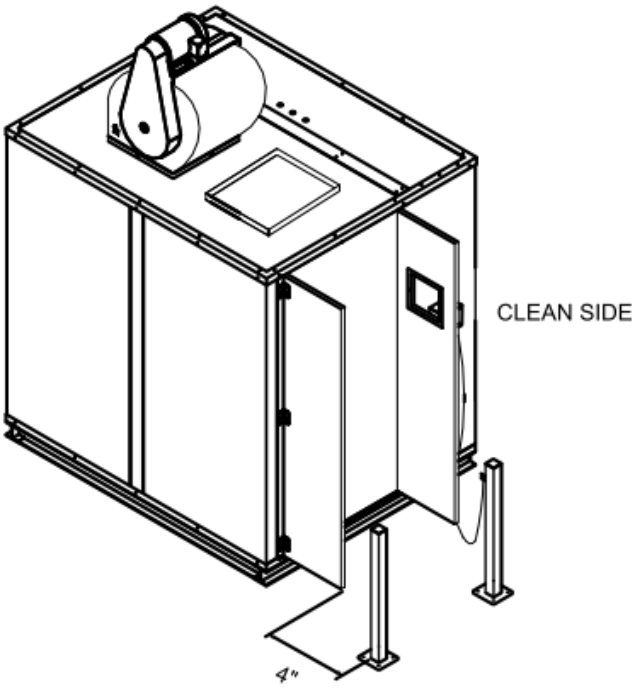
1. Post Setup
   - Install both posts ~4” past the trailing edge of the open exit door.
   - One post has the sensor pre-mounted; the other has the reflector installed (see pictures below)
   - The sensor post must be located on the same side as the E-stop box.
   - Mount both posts equidistant from the door, directly facing each other.
   - Secure them vertically and level using appropriate fasteners.

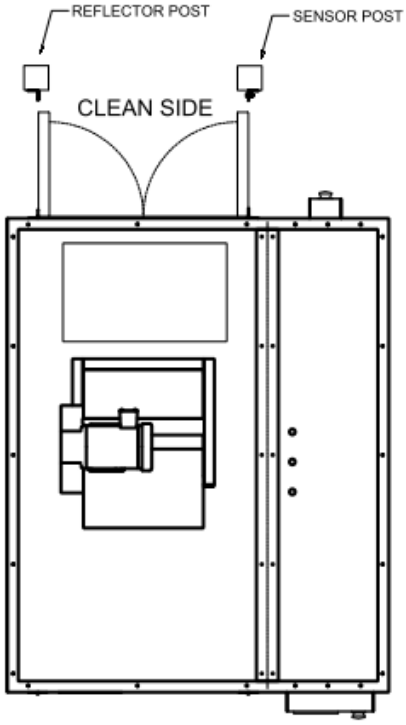
2. Sensor and Reflector Alignment
   - Align the sensor so it points directly at the reflector across the doorway.
   - Ensure both are mounted at the same height for a clear beam path.

3. Electrical Connection
   - The sensor has an M12 4-pin male connector.
   - Plug it into the M12 female connector from the E-stop box.
   - Confirm the connection is tight and secure.

4. Final Check (with Chamber powered)
   - Green LED = Sensor has power.
   - Yellow LED = Beam is aligned and signal is received.
   - If the yellow LED is off, slightly adjust the sensor until it lights up.
   - Use the sensitivity dial to fine-tune detection if needed.


CLEAN SIDE


CLEAN SIDE
4"


REFLECTOR POST
SENSOR POST
CLEAN SIDE
SOIL SIDE

TOP VIEW

SALT PURITY REQUIREMENTS

1. **To ensure optimal performance, the salt used must be >99% pure and not contain additives.** Swimming pool and spa grade salt is recommended.

   *Using lesser quality salt may cause rapid plugging of the diaphragm.

   *Using salts with a substantial amount of other cations (e.g. magnesium or calcium) will result in extra cleansing and a reduced lifetime of the membrane.

SOLUTION PURITY REQUIREMENTS

Ideal conditions for solution production:

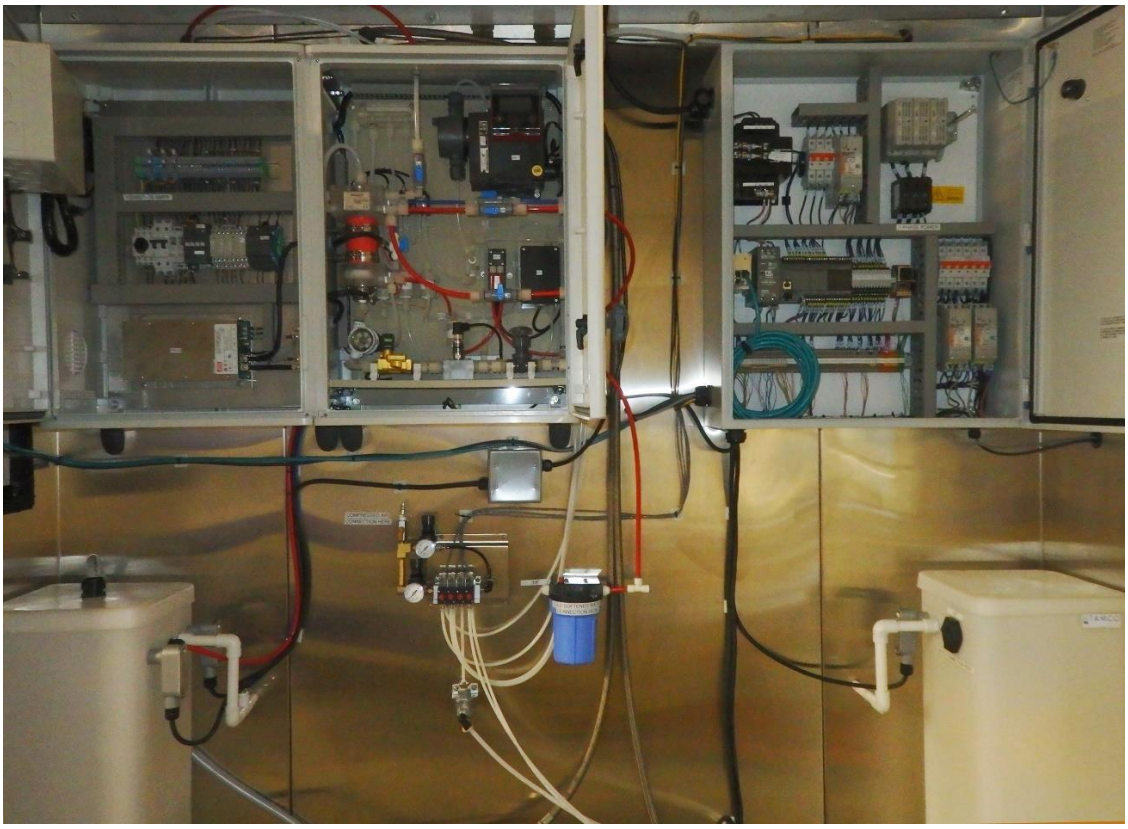
Salt: >99% purity NaCL; Granulated

Water: electrical conductivity, (EC) <30 µS/cm @ 20°C (68° F) (pH 5.0-8.0) temp <20°C (68°F)

UTILITY REQUIREMENTS

Failure to comply with utility requirements may result in:

- Damage to the machine
- Incurred travel expenses of factory technician(s)
- Voided warranty



WATER SUPPLY REQUIREMENTS

1. The HOCL Chamber requires a 3/4" fresh, cold, and **softened** water supply line.

2. Connect a dedicated **softened** water supply line (less than 50mg/L or 3.5 grains/gal of calcium carbonate) to the provided filter (blue).

   ***Water hardness greater than the above stated levels will result in premature wear to internal components, additional maintenance, shortened service life, and produce a corrosive chemical solution.**

3. Water Pressure must be consistent; no lower than 15 psi and no greater than 35 psi.

   ***Water pressure below 15 psi will result in the System Alarm "LOW WATER PRESSURE/FLOW" on the Envirolyte unit display. Water pressure above 35 psi will result in the System Alarm "BIG FLOW." The machine will not operate in an Alarm State (alarm states will automatically reset in the event of anomalous fluctuations).**

4. Water temperature should be 68°F (20°C).

   ***Envirolyte factory solution purity requirements call for a 68°F water supply. Under no circumstances should the water supply exceed 85°F.**

   ***Water supply over 90°F will result in a System Alert visible to the operator (machine will continue to operate) indicating "OVER TEMPERATURE WATER" and will greatly reduce lifetime of the electrolysis cell.**

COMPRESSED AIR SUPPLY REQUIREMENTS

1. The HOCL Chamber requires a 1/2" compressed air supply line.

2. Connect filtered, dried compressed air with a constant pressure no lower than 80 psi and no higher than 100 psi.

   *If supplied air pressure is below 80 psi, the cart floor will not properly lift to eject the cart. If air pressure is above 100 psi, premature failure of the solenoid valves will occur. These are not covered under the standard warranty.

Regulated Pressures:

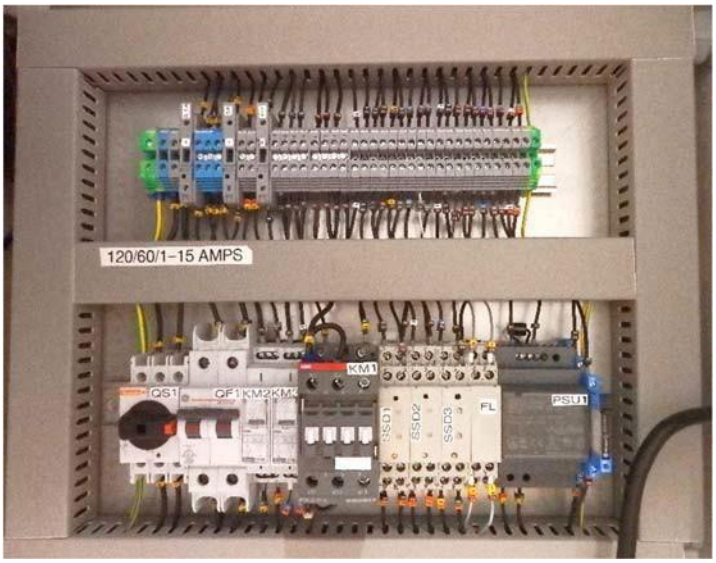
Upper (80 psi) - Ejector Bags and Stop Pin

Lower (20 psi) - Doors

ELECTRICAL SUPPLY REQUIREMENTS
(ENVIROLYTE GENERATOR)

1. Connect dedicated 120V/60/1 wiring from building power source. Ampere requirement is 15 amp.

   ***Do not power the HOCL generator system with power obtained from the Kartwasher control panel.** The generator will draw excessive amps resulting in blown fuses.

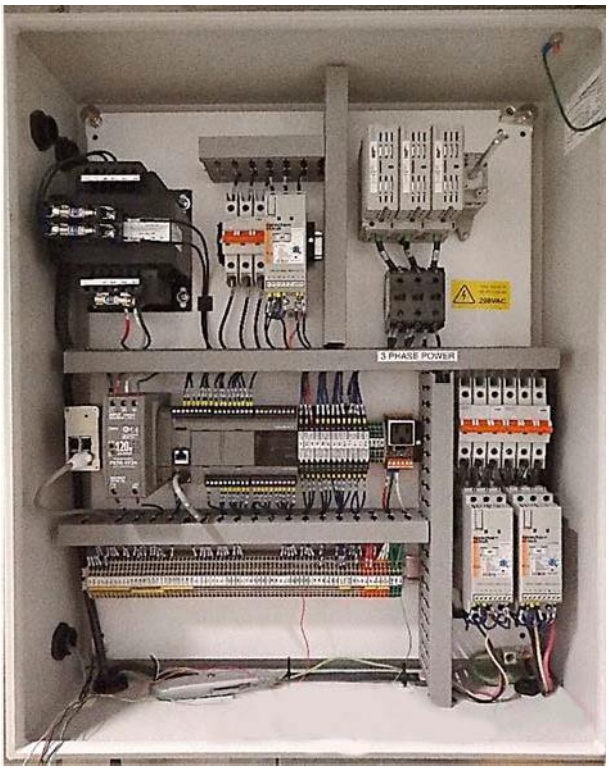


120/60/1 15 amp

ELECTRICAL SUPPLY REQUIREMENTS
(CHAMBER CONTROL PANEL)

1. Connect dedicated 240/60/3 (26.8 FLA) or 480/60/3 (13.4 FLA) wiring from building power source.

   *Breaker size to be determined by local electrical codes and installers.

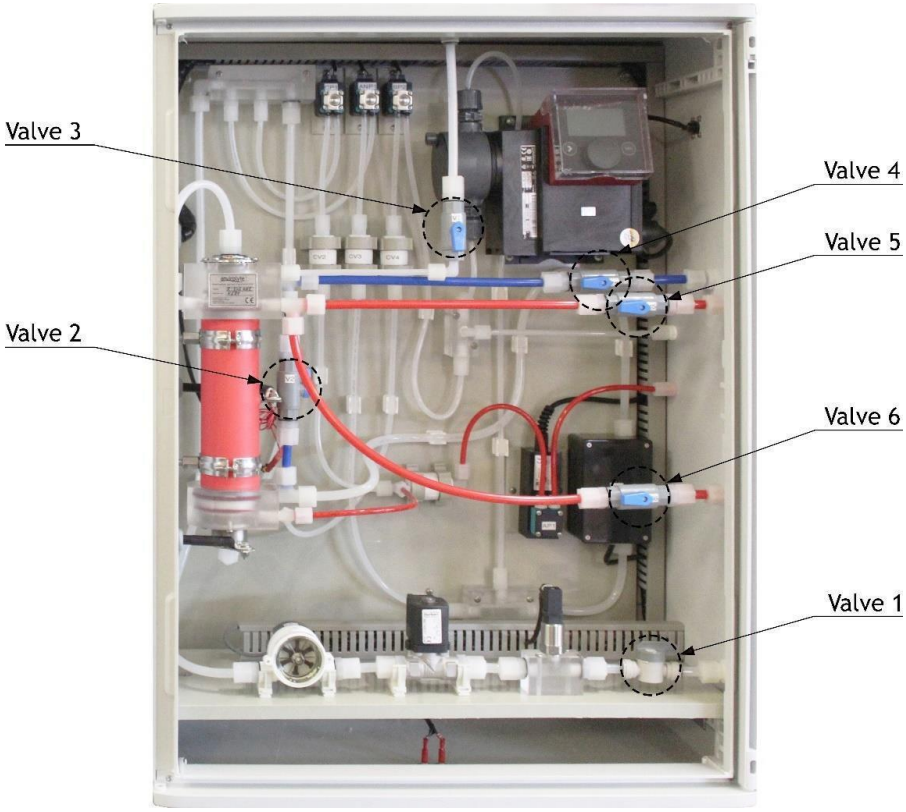


240/60/3 26.8 FLA

480/60/3 13.4 FLA

ENVIROLYTE VALVE POSITIONS

Default valve positions for normal operations are as follows:



Valve	Operation Mode	Flushing Mode
V1	Constant Flow Valve	Constant Flow Valve
V2	Closed	Open
V3	Semi-Closed (H2 Vent)	Closed
V4	Open	Closed
V5	Open	Closed
V6	Closed	Open

CHEMICAL TESTING

Regular testing of newly generated solution using acceptable Free Chlorine PPM and pH test strips should be performed. Testing is done using solution contained within the chemical holding tank and not the brine tank. Below are examples of test strips with acceptable parameters:

Free Chlorine PPM Test Strips
Range: 0 - 1,000 PPM
(Should Match Device Setting)

pH Test Strips
Range: 0.0 - 14.0
(7.1 = Neutral)

Note: Hard water will cause excessively high pH levels leading to corrosion and scaling.

BLOWER INSTALLATION

This section explains how to install and connect the blower unit to the top of the chamber. The blower ships with the mounting hardware pre-installed on its square base. These fasteners must be removed prior to installation, then reused to secure the blower in place.

Installation Steps:

1. **Prepare the Chamber**

Clean the top panel where the blower will be mounted. Verify that the mounting holes on the chamber align with the blower's base.

2. Remove Mounting Hardware

Remove the four screws, washers, and locknuts from the blower's base. Keep the hardware close by—you'll reuse it in Step 4.

3. Position the Blower

Lift and place the blower onto the Chamber top.

4. Orientation

Motor conduit box should face the SOIL SIDE
Motor rotation arrow should point toward the exhaust vent and CLEAN SIDE

5. Secure the Blower

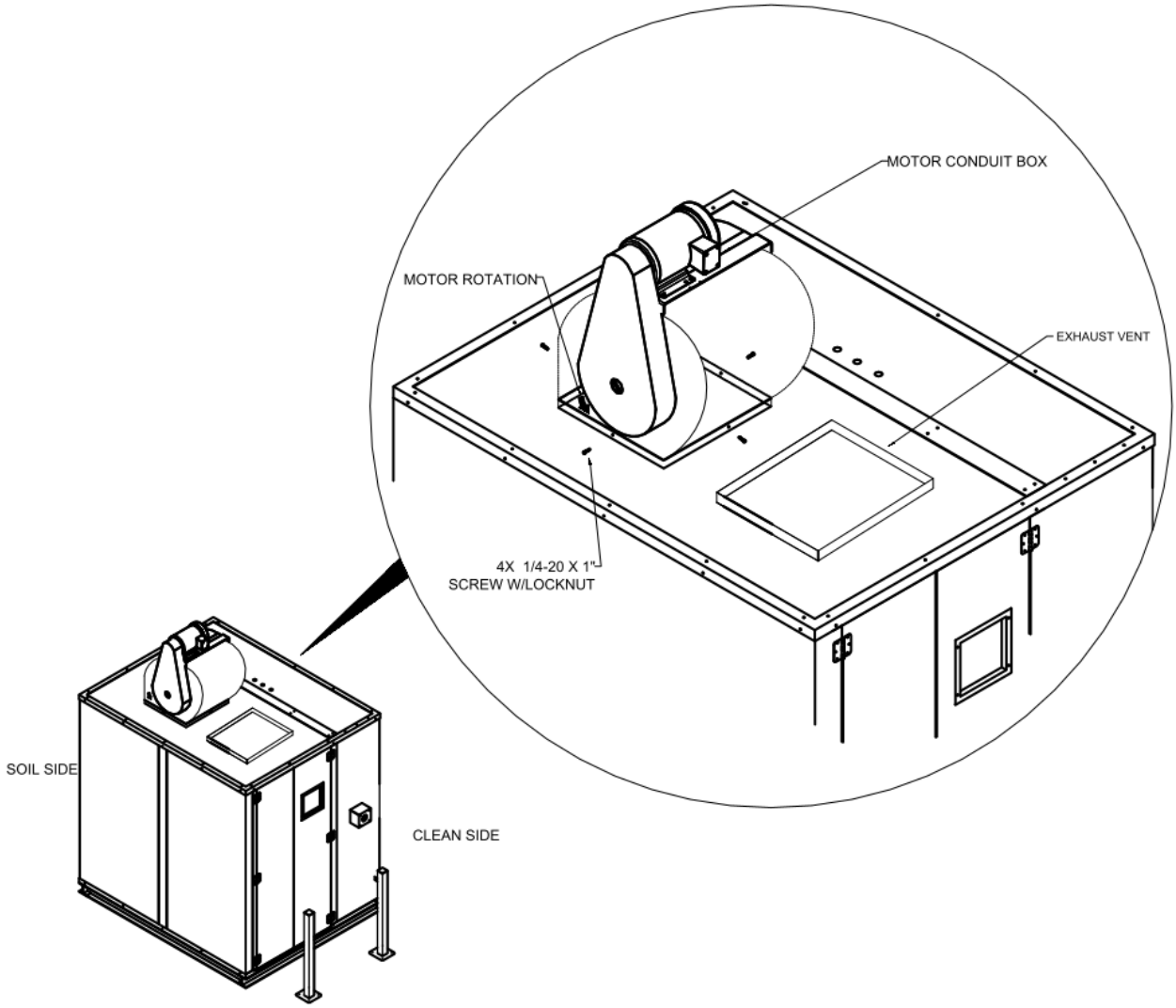
Reinstall the screws through the blower base into the chamber top panel. Add washers and locknuts underneath, and tighten them evenly.

6. Make Electrical Connections

The power cable is already routed to the top of the Chamber—its other end is wired to the control panel. Open the motor conduit box on the blower. Wire the motor according to the wiring diagram on the motor nameplate, matching the Chamber's voltage (e.g., 208V, 230V, or 460V). Use appropriate connectors and follow standard safety and code-compliant wiring practices. Secure the conduit and confirm strain relief is in place.

7. Confirm Motor Rotation

Once installation is complete and the system is powered up, briefly bump the motor to check rotation. The blower fan should rotate in the direction shown by the arrow on the housing. If the motor is spinning in the wrong direction, swap any two of the three power wires to reverse rotation.


MOTOR CONDUIT BOX
MOTOR ROTATION
EXHAUST VENT
4X 1/4-20 X 1"
SCREW W/LOCKNUT
SOIL SIDE
CLEAN SIDE

INSTALLATION IS NOW COMPLETE

TO OPERATE AND TO SELECT OR CHANGE CYCLE SETTINGS, REFER TO ENERGENICS KARTWASHER OPERATION MANUAL (PART 2)

PART2

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OPERATING AND PROGRAMMING INSTRUCTIONS FOR HOCL-IDEC DISPLAY CHAMBER

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PRIOR TO START UP

1. Open dedicated water supply valve (facility) to pressurize the Envirolyte HOCL generator.
   *The dedicated incoming water pressure should be >15 psi and < 35 psi. Water temperature should not exceed 85 degrees F. Hardness of water should be less than 50mg/l or 3.5 grains/ gallon if calcium carbonate.

2. Open air supply valve (facility).
   *Constant filtered, dried compressed air with pressure > 80 psi and < 100 psi. In the Mechanical Chamber, check that the first air pressure regulator is set to 80 psi and the second regulator is set to 20 psi.

3. Turn on main power disconnect (facility).

1. Turn the power disconnect switch handle, located on the front exterior of the Chamber control cabinet, to the ON position.

4. Open the Envirolyte Control Panel and toggle power switches (upper left corner) to the ON position.

THE CHAMBER IS NOW READY FOR OPERATION!

PERSONAL INJURY AND/OR EQUIPMENT DAMAGE HAZARD: Before servicing or in case of an emergency, stop cycle by pressing one of the Emergency Stop pushbuttons.

SEQUENCE PROGRAMMING PROCEDURE

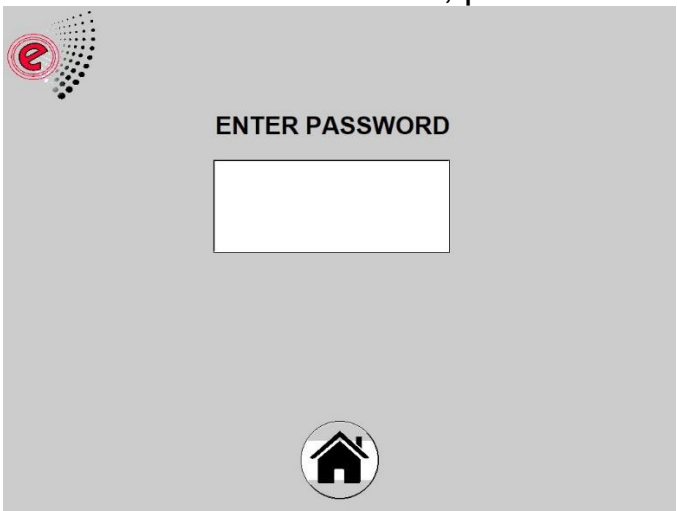
The Chamber is equipped with a PLC (Programmable Logic Controller) that runs pre-programmed operating cycles for processing the carts, including an additional pre-wash cycle. The default settings for each sequence are listed below and can be customized to meet specific operational needs.

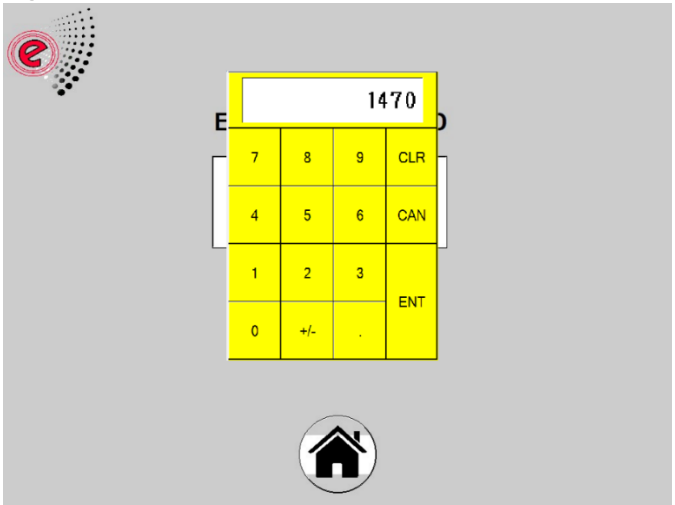
DEFAULT CYCLE SETTINGS

Pre-wash Cycle	15 seconds
Disinfect Cycle	15 seconds
Drain Cycle	5 seconds
Dry Cycle (blower)	90 seconds
Cart Exit	5 seconds

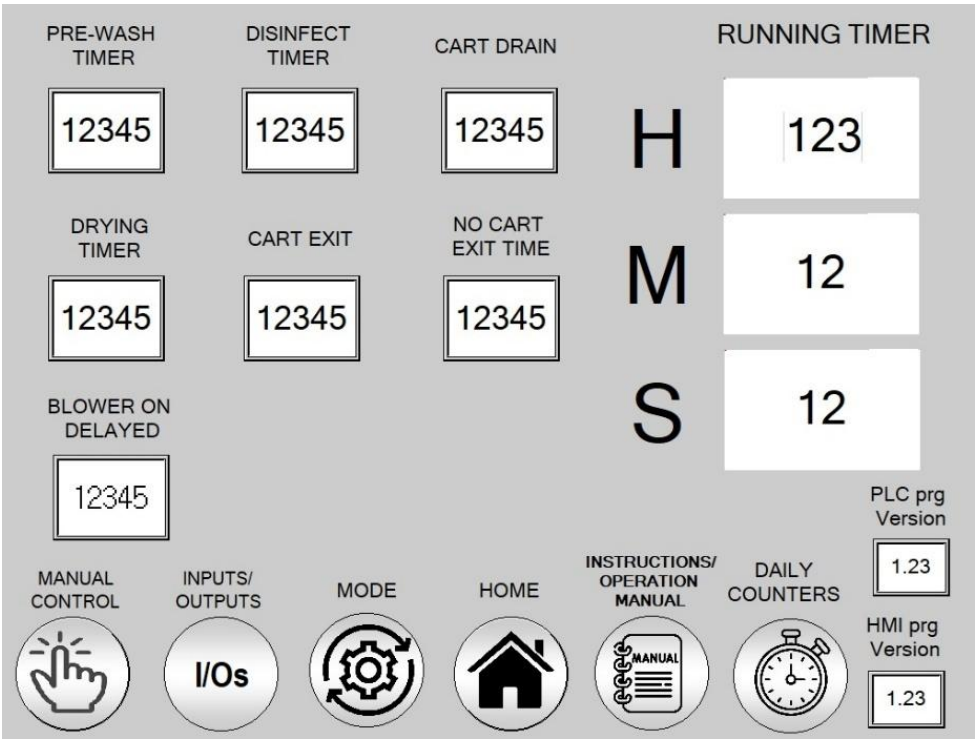
Before operating the machine or making any adjustments to the sequences or modes of operation, access the SETTINGS screen from the main menu by following the steps outlined below.

1. On the Home screen, press the Settings button





2. Tap on the Password Screen to enter the password and type 1470 and press the ENT button

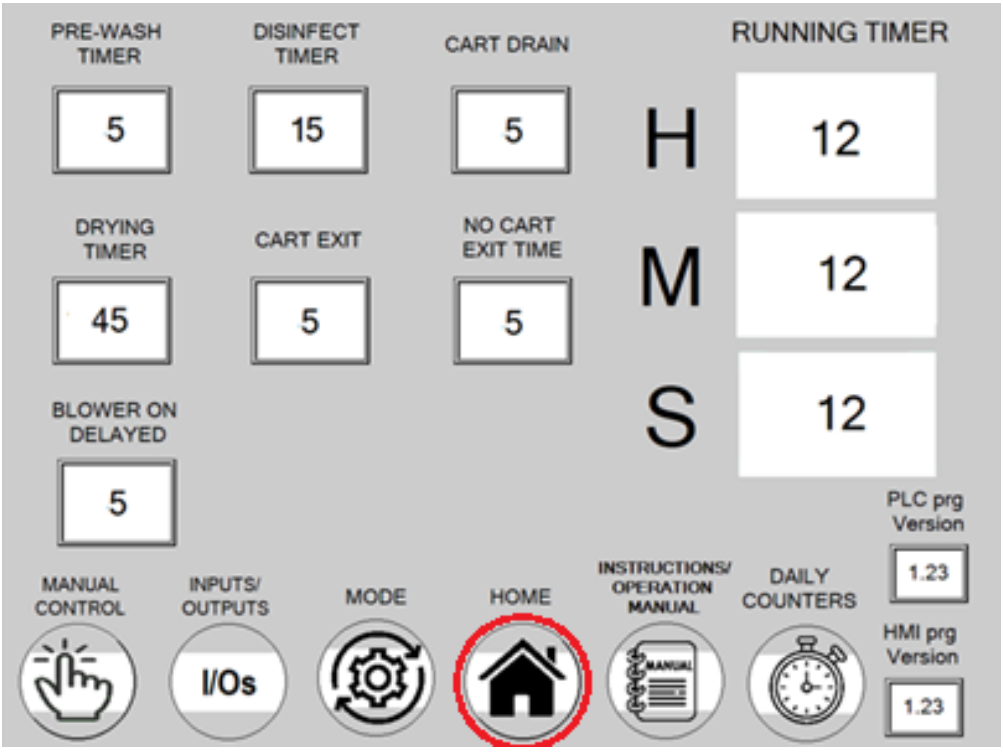


SETTINGS SCREEN

4. Tap in the designated box to change the desired timer

NOTE: All timers are set in seconds

5.Type the new value and press the ENT button



Once all the timers are set correctly, exit to Main screen at any time by pressing the HOME button.

OPERATION MODE

This screen can be accessed through the Settings screen by pressing the MODE button.

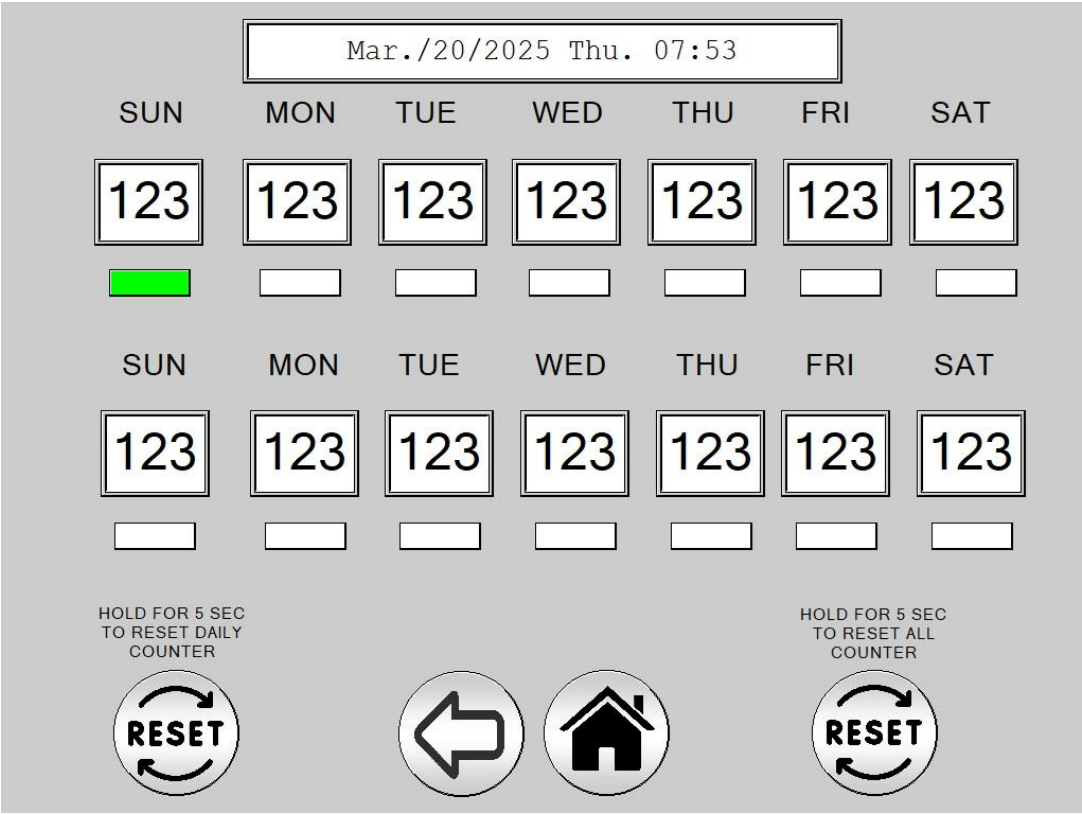
The standard Chamber performs four sequences to complete a full cycle: Disinfect, Drain, Dry, and Eject.

For this standard mode, the operation mode must be set to DISINFECT — the corresponding button will be highlighted green when selected.

If your system includes the optional Pre-Wash feature, an additional sequence is performed prior to the Disinfect stage. To enable this feature, the system is equipped with an additional tank, pump, and nozzle halo specifically dedicated to the Pre-Wash process.

When using the Pre-Wash feature, the operation mode must be set to PRE-WASH/DISINFECT — this button will also be highlighted green when selected.

DAILY COUNTERS

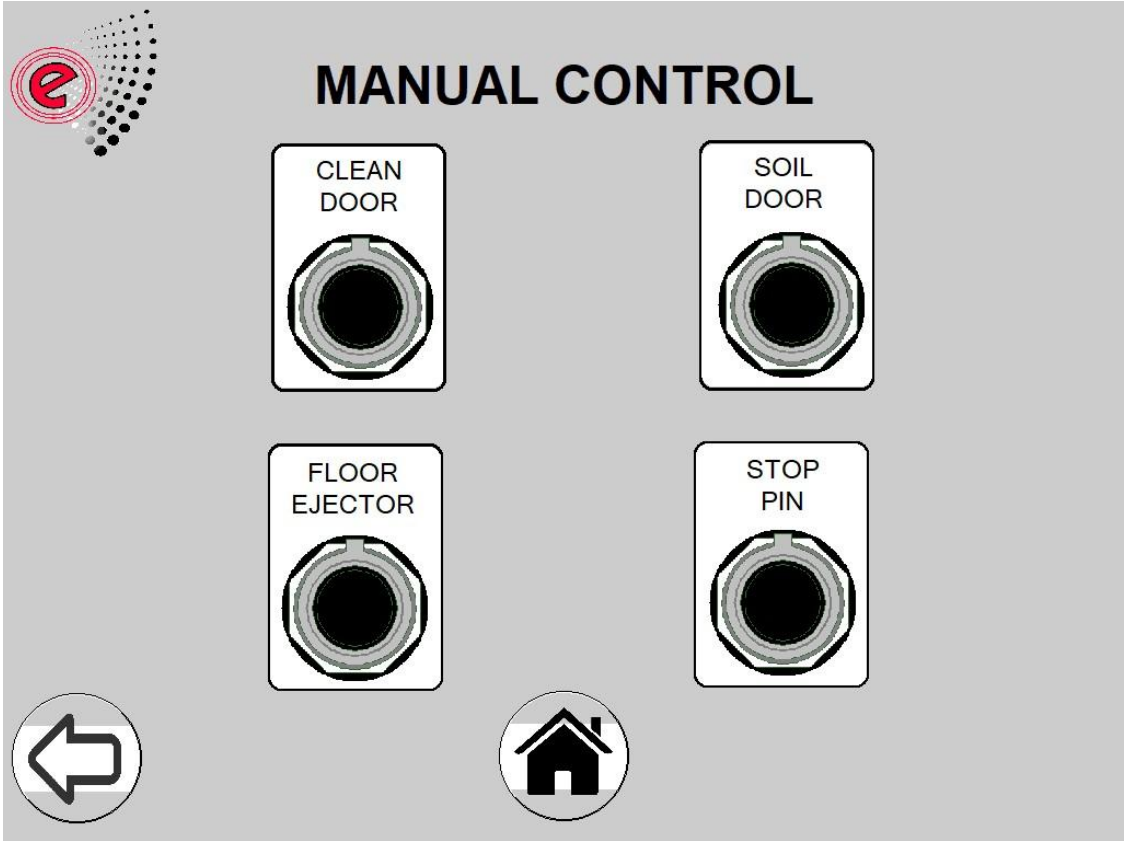


This screen can be accessed through the Settings screen by pressing the Daily Counters button.

This screen displays the daily cycle count for the last two weeks. A green indicator below the counter box highlights the current day of the week.

To reset the counter, you have two options: reset the current daily counter or reset all counters. To select an option, press and hold the desired button for 5 seconds.

MANUAL CONTROL



This screen can be accessed through the Settings screen by pressing the MANUAL CONTROL button. (It is intended for troubleshooting purposes only)

To perform Manual Control Operations:

1. Press the desired door button to activate. Press it again to deactivate.
2. Press the “Stop Pin” button to disengage the floor wheel stop pin.
3. Press the “Floor Ejector” to raise the floor.

NOTE: When a button is pressed, it will turn red to indicate activation. Press it again to deactivate, and it will return to black. <u>Ensure all buttons are deactivated before leaving this screen.</u>

INPUTS / OUTPUTS STATUS SCREEN

This screen can be accessed through the Settings screen by pressing the INPUTS/OUTPUTS button.

This screen is intended to give operators real-time visibility into what the system is sensing and how it's responding. It allows users to see the current state of inputs like sensors, switches, or safety devices, as well as outputs like pumps, solenoids, or alarms.

During troubleshooting or maintenance, use this I/O status screen in conjunction with the Cycle Status Indicator table below to quickly identify issues such as a failed sensor or an output that isn't activating as expected.

CYCLE STATUS INDICATOR TABLE		
SEQUENCE	**ACTIVE INPUTS**	**ACTIVE OUTPUTS**
LOAD	6,7	NONE
START	6,7	6
PRE-WASH	6,10,16	2,15,16
DISINFECT	6,10,14	4,6,10,15,16
RINSE	6,10	6,10,15,16
DRAIN	6,10	15,16
DRY	6,10	5,6,10,15,16
EJECT	5,10	6,7,10,11,15,16

INPUTS SECTION

Input 2: E-Stop - Illuminates when any E-Stop buttons are depressed

Input 3: Wash Tank Level - Illuminates when sanitizer / detergent tank level is low.

Input 4: Chemical Tank Level - Illuminates when rinse agent tank level is low. (Not applicable to HOCL models)

Input 5: Clean Door Open - Illuminates when clean door is open.

Input 6: Clean Door Closed - Illuminates when clean door is closed.

Input 7: Soil Door Open - Illuminates when soiled door is open.

Input 10: Soil Door Closed - Illuminates when soil door is closed.

Input 11: Cart Exit Sensor - Illuminates when cart passes the sensor mounted on the clean side posts.

Input 12: Cart in Sensor- Illuminates when cart passes the sensor mounted inside the chamber by the clean doors.

Input 13: Water Tank Level Low - Illuminates when water level is low in the storage tank.

Input 14: Water Pump Contact - Illuminates when Disinfect pump contactor is engaged.

Input 15: Blower Contact - Illuminates when blower contactor is engaged.

Input 16: Blower Contact - Illuminates when pre-wash pump contactor is engaged.

OUTPUTS SECTION

Output 2: Pre-wash Pump - Illuminates when pre-wash pump is engaged. (Available only on models with this option).

Output 3: Chamber Light - Illuminates when wash chamber light is on. (Available only on models with this option).

Output 4: Disinfect Pump - Illuminates when water pump is on.

Output 5: Blower - Illuminates when drying blower is on.

Output 6: Soil Door - Illuminates when "soil-side" door is closed.

Output 7: Clean Door - Illuminates when "clean-side" door is closed.

Output 10: Air Bag Valve - Illuminates when floor is raised / tilted.

Output 11: Stop Pin - Illuminates when wheel stop pin is engaged.

Output 12: Spare

Output 13: Spare

Output 14: Chemical Pump Relay: Illuminates when chemical pump is operating. (Not applicable to HOCL models)

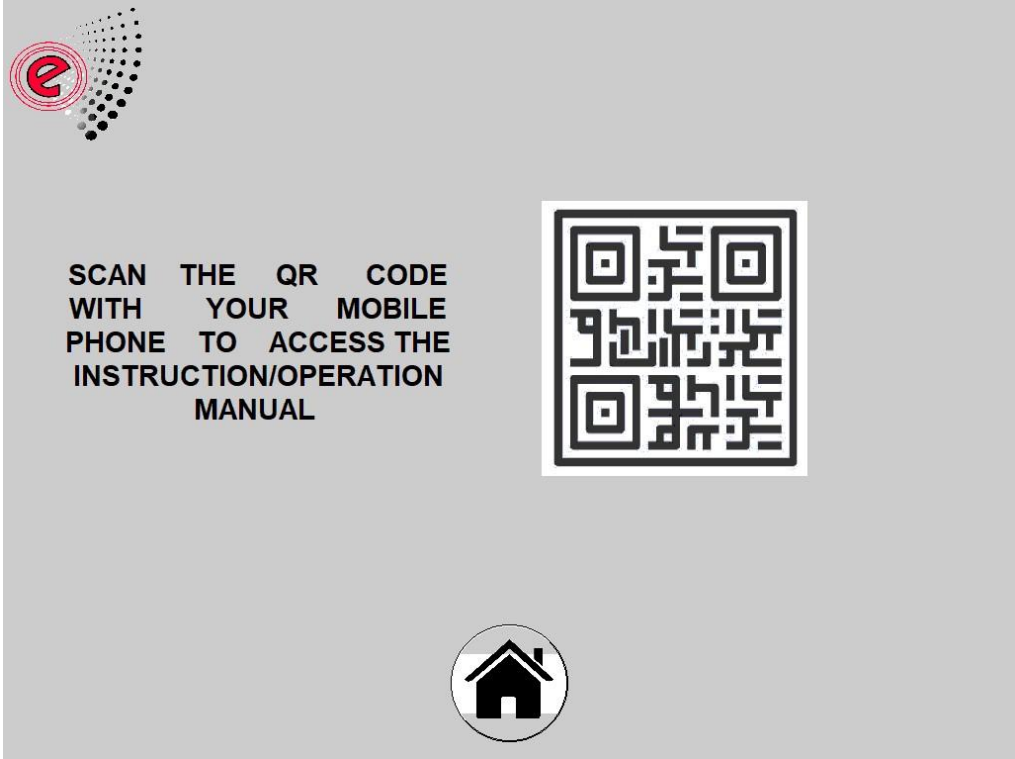
Output 15:Beacon Light - Illuminates when open "clean-side" door beacon

and siren are operating. (VA spec'd models only).

Output 16:UV Light - Activates when a signal is sent to turn on the UV light.

Output 17: Spare

INSTRUCTIONS/OPERATION MANUAL



This screen can be accessed through the Settings menu by pressing the INSTRUCTION MANUAL button, which opens an electronic version of this manual.

CYCLE START SEQUENCE OF OPERATION

LOAD SEQUENCE

The Chamber is prepared to operate. Operator should:

1. Completely load the cart into the wash/disinfect chamber.
2. Ensure front wheel is resting against the eject pin located on the floor.
3. Observe door open/close clearance.

START SEQUENCE

A cart has been loaded into the Chamber and is ready for disinfection.

Press green "START" button to begin cycle.

NOTE: If the Chamber is equipped with the “Prewash” option package, you would have 2 modes of operation to choose from: “Disinfect” and/or “Wash/Disinfect” as shown in figure 2.

PRE-WASH SEQUENCE

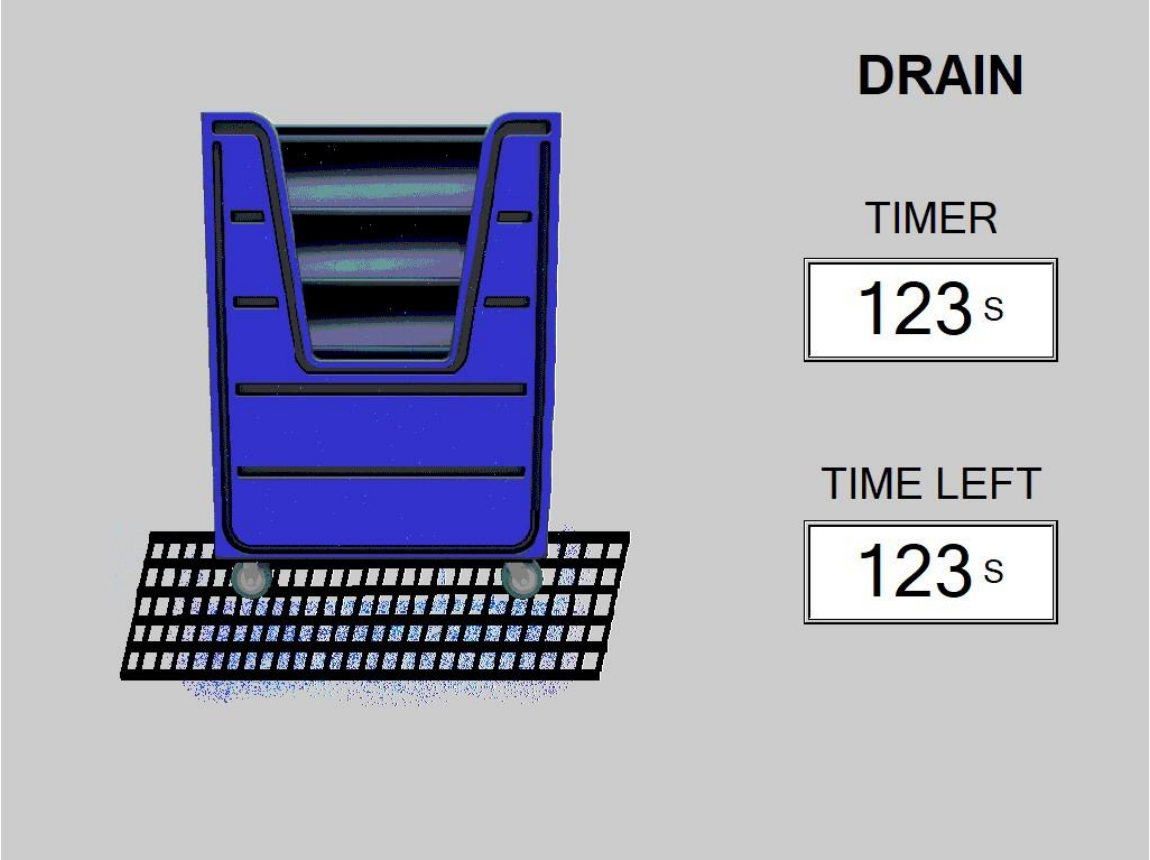
The Pre-wash Sequence has started and will process the inside and outside of the cart. Total time remaining for cycle completion is shown in the "TIME LEFT" box and is measured in seconds.

NOTE:The pre-wash screen appears only if the Chamber is equipped with the 'Pre-wash' option package and the 'Pre-Wash & Disinfect' mode is selected on the Operation Mode screen.

DISINFECT SEQUENCE

The Disinfect Sequence has started and will process the inside and outside of the cart. Total time remaining for cycle completion is shown in the "TIME LEFT" box and is measured in seconds.

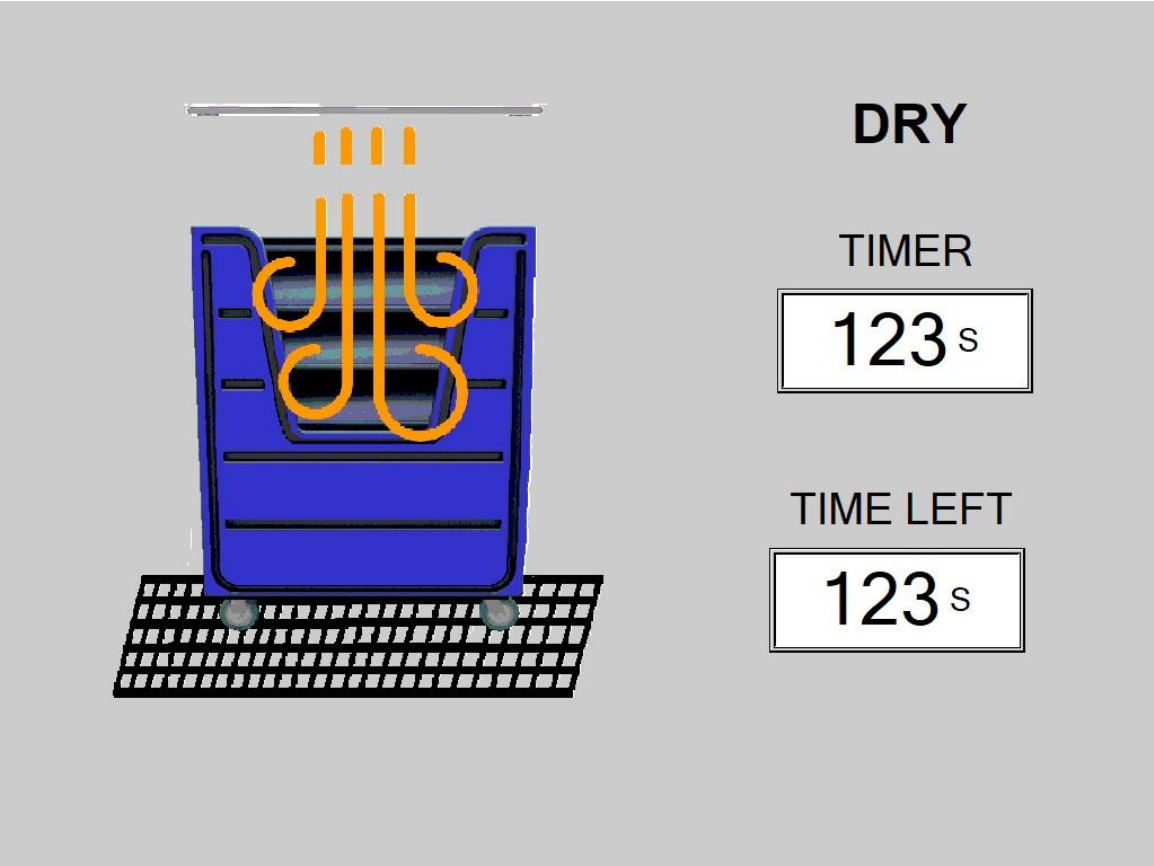
DRAIN SEQUENCE



The Drain Sequence will begin following the Disinfect Cycle. During this phase, the cart tilts to allow water to drain out through designated holes at the bottom. Total time remaining for cycle completion is shown in the "TIME LEFT" box and is measured in seconds.

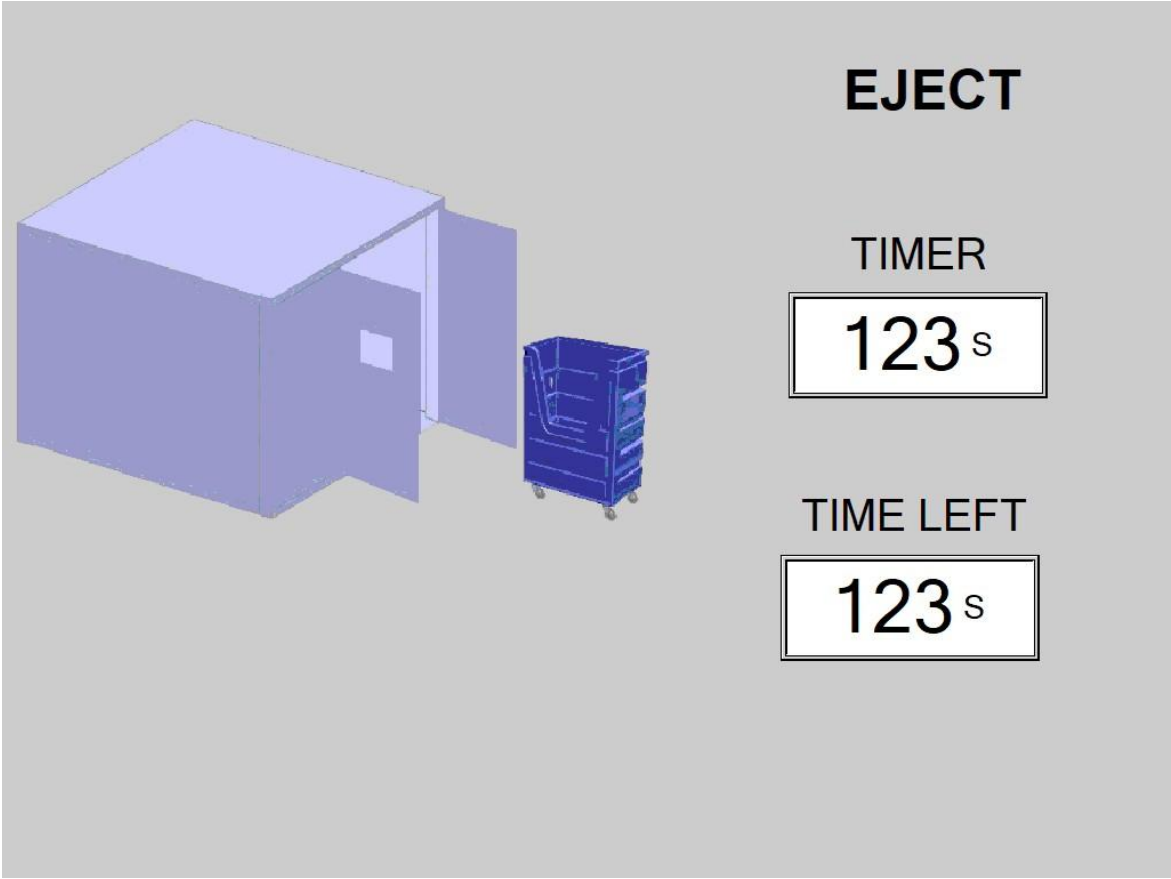
NOTE: If there are no drain holes in the cart, ½” holes should be drilled in each corner of the base.

DRY SEQUENCE



The Dry Sequence has started. During the Dry Cycle, the cart will remain tilted to allow excess water to drain through the holes in the cart bottom. Cycle time remaining for the drying process is shown in the "TIME LEFT" box and is measured in seconds.

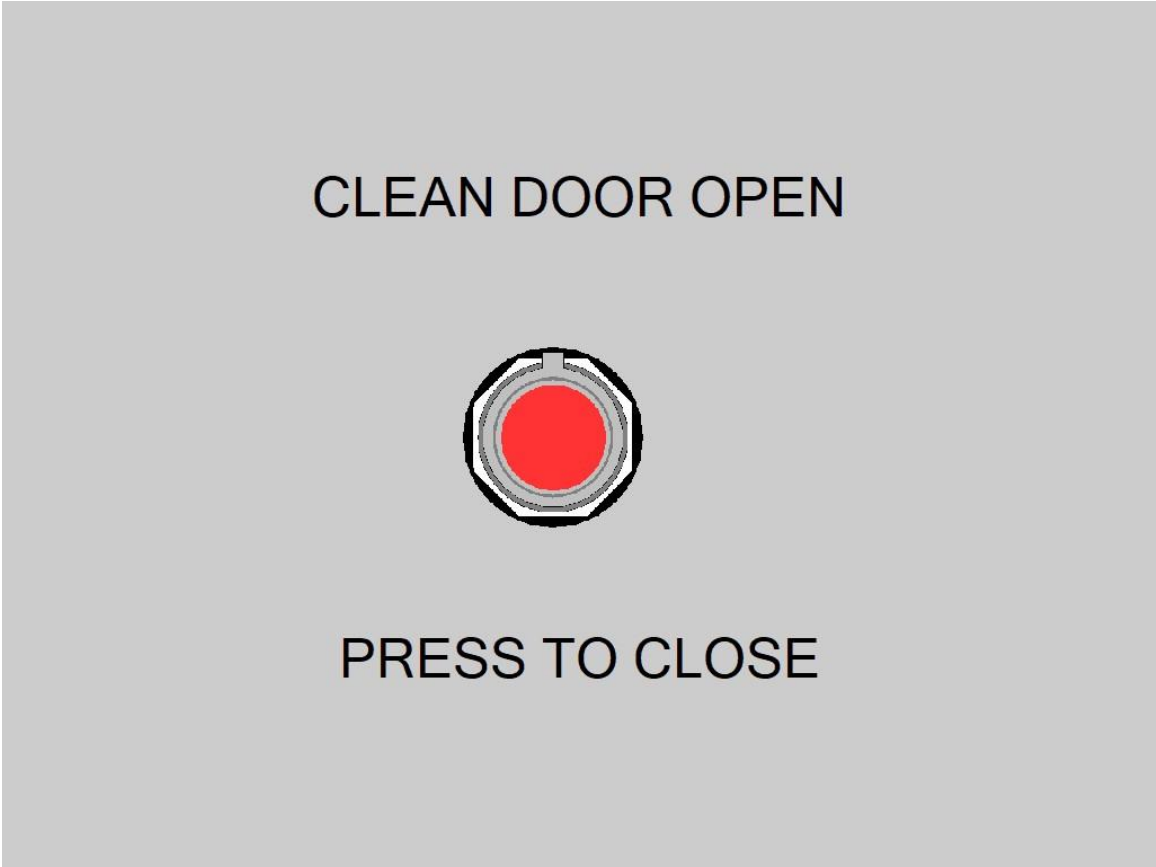
EJECT SEQUENCE



The Eject Sequence has started. The "clean-side" door opens and the wheel-stop pin releases the cart to exit the wash chamber. After the cart is fully ejected past the photo-eye sensors mounted on the yellow exit posts, the "clean-side" door will close allowing the "soil- side" door to open to setup a new wash sequence.

NOTE: If a cart has not completely passed the exit post sensors—indicating the unit is ready for a new cycle—the exit door will not close, and the entry door will not open. If the cart is not detected within the time set by the "No Cart Exit Time" timer (configured in the Settings screen), the following screen will appear,

prompting the operator to manually to close the clean door and reset the Chamber for a new cycle.



ALARM SCREENS

This screen appears when any Emergency Stop button has been pressed or activated, and the Chamber immediately stops all operations.

This screen appears when the disinfectant level in the tank is low. The Chamber immediately stops all operations to prevent running the pump dry.

This screen appears when the water level in the water tank is low. The Chamber immediately stops all operations to prevent the pump from running dry.

This screen appears when the controller detects a malfunction during the cycle and shuts down the operation of the Chamber.

MAINTENANCE

Your Energenics Disinfection Chamber is designed for low maintenance and long life. All maintenance items are assessable at floor level.

ROUTINE MONITORING:

Indicator alerts on the control screen notify operators to adverse operating conditions involving pH and water temperature.

The electric photo-eye on exit posts should be kept clean from dirt and debris. They should be wiped off with a clean cloth as needed.

MONTHLY:

Check, remove, and clean wash chamber spray nozzles.

QUARTERLY:

Periodically test the Emergency Stop buttons to ensure operating safety.

Check the door air cylinders and auto ejector cylinder.

ANNUALLY:

Check water tank float and float seals.

Inside the washing compartment, inspect the caulking around the base between the fiberglass and aluminum. Re-caulk if necessary, to prevent water from entering between the aluminum flange and the fiberglass panel.

Replace the metering pump tubes per the instructions attached. Use 1/4" outside diameter tubing for the pump.

LIMITED WARRANTY & DISCLAIMER STANDARD CONDITIONS OF SALES

Energenics Corporation (herein called Energenics) warrants to the original purchaser, & to the original purchaser alone, its products to be free from defects in material and workmanship under normal use & service for a period of twenty-four (24) months from the date of shipment. Energenics' obligations under this warranty shall be limited solely to the repair or replacement of such parts, which Energenics examination shall disclose to Energenics satisfaction to have been thus defective & to the shipment of the repaired or replacement part or parts to the original purchaser F.O.B. point of shipment. In no event shall Energenics be liable for any consequential, incidental or special damages of any kind caused by the defect. The Warranty set forth shall not apply to & Energenics shall not be responsible for any equipment or part, which has been repaired or altered in any way, regardless of how or why the part was altered or repaired nor for any equipment or part, which has been subjected to the negligence or accident, improper use or care, nor for equipment or part with respect to which Energenics instructions relating to installation, maintenance, or use have not been followed. This limited warranty is expressly made in lieu of all other warranties, expressed or implied, and in lieu of all other obligations or liabilities on the part of Energenics.

The purchaser by acceptance of the delivery of any part or product from Energenics agrees to indemnify Energenics & to hold it harmless against any liability, which may arise if the part or product received is mis-applied, improperly installed, improperly maintained, misused or abused, altered or rendered partially or totally inoperative due to any cause.

RETURNS: Merchandise may not be returned unless a RMA is obtained from Energenics. A copy of the RMA must accompany the returned item as the packing Slip. Energenics will assume no responsibility for merchandise returned neither without such prior approval nor for any charges or expenses incurred therewith.

CANCELLATIONS: Any order may be canceled by the purchaser only upon written notice & upon payment to Energenics of reasonable & proper cancellation charges.

SALES & SIMILAR TAXES: Energenics prices do not include sales, use, gross receipts, excise or similar taxes, license fees & export or import duties. All taxes or other charges assessed to Energenics by reason of a transaction with the Purchaser must be paid by the Purchaser.

PRICE POLICY: All sales are made F.O.B. point of shipment and all prices are subject to change without notice.

DESIGN CHANGES: Energenics reserves the right to make changes in the design & changes or improvements in its products without notice or without imposing any obligation upon Energenics to install the same upon products heretofore manufactured.

GENERAL: No alteration, modification or extension of the foregoing conditions shall be binding upon Energenics unless made in writing & signed by an officer of Energenics.

AVOIDING UNNECESSARY SERVICE COSTS

Ensure the water supplied to the Envirolyte is cold and softened. Hard water will lead to problems both in the Envirolyte generator system and the Chamber spray system.

Any modifications made to the system without the express written consent of Energenics Corp. will result in termination of the warranty agreement. This includes modifications to the wash pump, wash pump settings, pump system hoses, spray nozzles, and associated tanks, sensors, and fittings. Any travel expenses incurred by Energenics for repair(s) resulting from unauthorized modifications will be the responsibility of the end user

ELA-400ANW

GENERATOR OF DISINFECTING FLUID

Operation and maintenance manual

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1. General Information

Thank you for purchasing Envirolyte generator of disinfecting fluids. This unit is based on the Electrolyzed water (EW) technology developed by Envirolyte Industries International Ltd. for multitude of different applications. Before using this unit, read the instructions manual carefully for obtaining the best results and ensuring safety & health measures.

This instructions manual (Original instructions) gives an overview of the ela400anw unit and its purpose. The manual includes information about the manufacturer, installation, intended use, handling and maintenance of the product.

In this manual the Envirolyte ela400anw is also referred to as the product or unit.

The Envirolyte ela400anw unit is delivered in one enclosure consisting of two compartments:

- Electrical compartment
- Hydraulic compartment

Envirolyte ela400anw unit is designed to produce electrolyzed (EW) water- anolyte for use in a multitude of different applications where there is a need for disinfection, sterilization and water purification.

For instruction-details on specific applications please contact the manufacturer or your nearest Envirolyte distributor.

Any questions regarding the product or its working principle should be directed to the manufacturer.

Any questions regarding subjects or points regarding the product that are not covered by this manual should be directed to the manufacturer.

Reading and understanding the content of this manual is mandatory to anyone installing, performing maintenance or operating the product.

The operator of the unit must be at least 18 years old and have sufficient experience and knowledge to work with this product.

When handling, installing, maintaining and using the product and its various parts, all applicable national laws, regulations, and the contents of this manual must be taken into account to ensure the safety and reliability of the product.

All maintenance must be carried out by persons with the appropriate skill and technical competence.

Changing the construction of the product, adding or removing parts is only allowed after consulting with the manufacturer.

The product must only be used for the operations intended for it. It is strictly forbidden to use the product for non-intended operations or uses.

The unit utilizes an electrolyser (cell) to electrically activate a solution of common salt (NaCl). There are two chambers (anode chamber and cathode chamber) separated by a diaphragm each having an electrode one positive and one negative. A DC current passes through the solution producing Anolyte out of the positive chamber after the brine volume undergone treatment in the negative chamber. The strength of the solution varies according the current flowing between the electrodes and gives different values for ORP (redox-potential), pH and C.ac (active chlorine).

The general set-up for these units is for generation of 100% of Neutral Anolyte with ~500 ppm of FAC.

The generator is calibrated to produce Anolyte with a constant quality. However, the parameters of the fluids may differ as a result of differences in mineralization of the mains water. Therefor we advise you to check pH, ORP and level of active chlorine accordingly at every installation location. Please contact Envirolyte should you require some minor adjustment.

2. Distributor

Omni-lyte Enviro Inc.
95041 RD 42N
Wawanesa, MB
Canada
R0K 2G0
tel. +1 800-419-5707
http://www.omnilyte.com/

3. Symbols

The warning symbols below are used to indicate the risks that a user may encounter during the handling of the product. Warning symbols shall only indicate situations that may arise in the event of intended use or reasonably foreseeable misuse. Processes that do not display warning symbols are not necessarily safe.

Serious situations arising from non-compliance with safety requirements and/or non-compliance with the instructions in this manual are not marked with warning symbols. Such situations must be considered dangerous.

	DANGER!	IMMEDIATE or possibly imminent danger.

This marks a danger that can result in serious bodily injury and/or death.

	CAUTION!	Potentially hazardous situation.

This marks a risk that can result in damage of the users' health (s) and/or bodily injury.

4. Terms

Product, unit	Envirolyte ela400anw generator of disinfecting fluids or its part
Handling	Transportation, installation, maintenance, or other activities and/or operations where people come into contact with the product
Utilization	Disposing of the product
Installation	An operation related to assembling and mounting of the product
Maintenance	An operation related to cleaning, repair or replacement of parts of the product
ANK - Anolyte	Colorless transparent biocidical liquid with a slight chlorine smell. It consists predominantly of Hypochlorous acid (HClO) and Hypochlorite ion (OCl^-) wich give it superior sporicidal and biocidal activity.
Maintenance sheet	A document filled during maintenance work, showing all information on the maintenance performed
Maintenance book	A document consisting of maintenance sheets of individual maintenance procedures
Operator, user	Person who works with the unit or carries out maintenance work
Brine, saline solution	A solution of salt and water
PLC	Programmable Logic Controller

5. Personal protective equipment

During the handling, installation and maintenance of the product, protective equipment must be used.

Use of at least the following personal protective equipment is required during handling of the product:

- Work gloves
- Safety goggles

During the handling of hydrochloric acid, the following protective equipment is required:

- Vapor respirator, Rubber gloves, Boots, Full suit, Face shield

	DANGER!	Failure to use personal protective equipment can result in damage of the users' health and/or bodily injury.

6. Emergency stop buttons

This product is fitted with one emergency stop button for emergencies. The emergency stop button is located on the front cover of the product (see Picture 1).

Pressing the emergency stop button stops the operation of the product.

The emergency stop button must be pressed immediately if the operator or any other person nearby thinks that a dangerous situation may or may have occurred.

After the danger has passed, turn the emergency stop button 45 degrees to move it back to its original position.

Before restarting the unit, the operator must make sure that the danger has passed.

7. Product description

7.1 Features

Envirolyte ela400anw unit has been developed to automatically produce ANK-Anolyte only and to act as a stand-alone unit.

The unique design of the electrolyzer ensures that the brine solution has maximum contact with the electrodes and therefore ensures the most effective use of energy and minimum waste of raw materials.

There is minimal hydraulic resistance against the liquids flowing through the cell chambers, which ensures that optimal flow rate is achieved.

The electrodes are specifically designed to endure high electrochemical loading as is the diaphragm, which separates the solutions.

The enclosures are made of non-corrosive materials. Tubes and connectors are made of PVDF plastics and are highly resistant against aggressive solutions.

Overall dimensions of the enclosure are 1020 x 720 x 300 mm and 1090 x 720 x 300 mm with all fittings and cable connectors.

Automatic start and stop functions of the unit are controlled by the level switch in the anolyte container.

The pressure relay in ela400anw is used to stop the unit and keep it in a waiting mode if the water pressure drops below ~0.3 bar and start operation as soon as the pressure of the main water reaches ~0.5 bar.

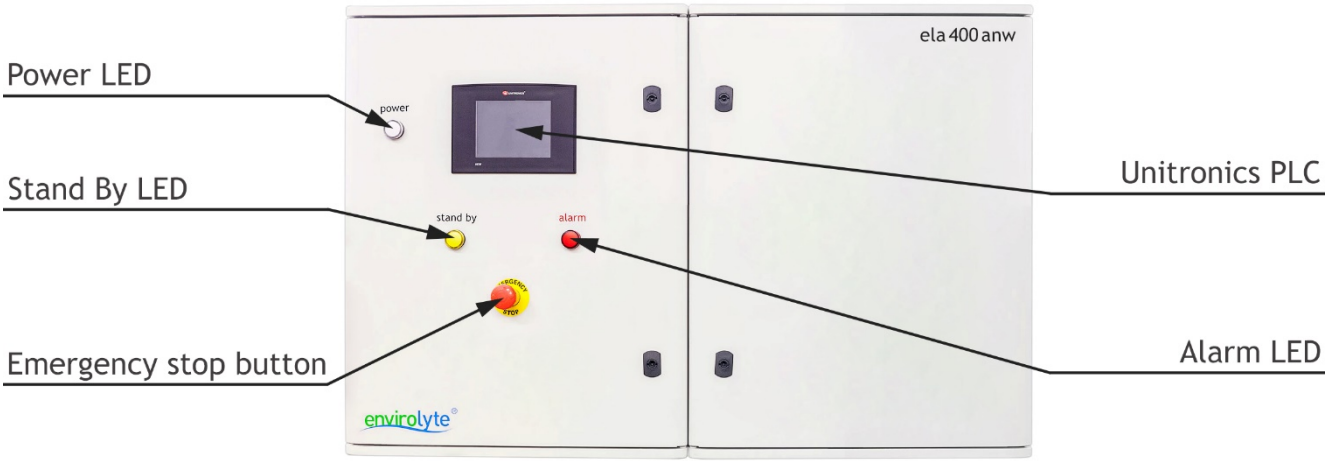
The unit will give an Alarm signal if the water flow drops below ~20 L/h. Interference of the operator is necessary to find out and eliminate low flow.

7.2 Power supply

The product requires the existence of 110V or 230V power source (depending on the modification of the unit). A standard plug is used to connect the product to power grid.

1 x C10A current breaker is used to terminate power in the unit in case of any electrical failure such as short cuts etc. Thus, preventing any potential harm to personnel.

7.3 Different parts of the product



Picture 1 – Front view

Electrical supply.

The unit is equipped with flexible cord plugs that fulfill the requirements of the safety rules. Before connecting the flexible cords to the power points ensure that the size of the electric wires at your place is sufficient to supply the power required by the unit (Amps, 120 Volts, 1 phase 15amp circuit).

Warning: This unit must be earthed: Earthing the machine is a guarantee of safety and is required by regulations. In no event shall the manufacturer be liable for consequential or special damages to persons and/or objects due to failure to observe this safety rule.

Mains power switches: The mains switch is located on the SIDE of the electrical enclosure. Setting the switch to OFF removes all applied power from the unit.

Exhaust venting: During the production of disinfection fluids the exhaust air is warm and therefore a proper location should be chosen. Temperature rise of power supply is approximately 60°C above ambient air. Venting to a large and well-ventilated place is desirable.

Collecting ANK-Anolyte.

The incoming water flows under regular pressure through the Envirolyte electrolyzer. This means that the outlet of activated solutions should be collected so that **no back pressure** can occur at any time during the production. Therefore, the tube-end of the ANK-Anolyte should be located at the top of the collecting containers and avoid direct connection to tubes or other closed-water-system.

CAUTION: Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cords from the AC sockets prior to connecting or disconnecting any signal lead, prior to replacing fuse, and prior to altering the set-up of the unit. When you are not using the unit for a long period of time, it is recommended to disconnect the power cords from the AC sockets.

8. Handling, installation and utilization

8.1 Handling

Avoid violent shaking of the unit during packaging and transportation.

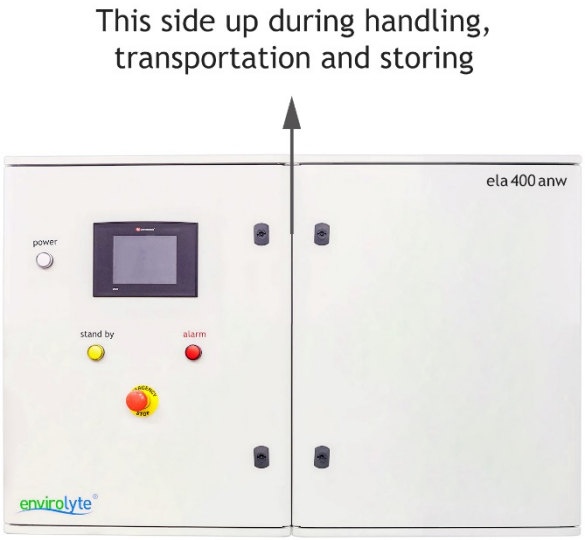
Before packaging, make sure that all plugs have been removed from the unit.

When you are not using the unit for a long period of time, it is recommended to disconnect the power cord from the AC socket.

For long term storage pack the unit in a proper enclosure and store in a dry place at room temperature.

The electrolyzer and tubing might contain aqueous solutions. Keep the unit free of frost!

Handling, transportation and storing is only allowed in the orientation shown on Picture 2.



Picture 2 – Allowed orientation for handling, transportation and storing

	CAUTION!	Handling, transporting or storing the product in any other orientation may cause the product to malfunction and/or damage to the product.

	CAUTION!	Dropping the product can cause bodily injury and damage to the product.

8.2 Installation

Before installation, make sure that the wall is able to withstand the load applied to the wall by the product and that the wall is suitable for dowels and drilling.

	CAUTION!	Installing the product on a wall that is not capable of supporting its weight may cause damage to the product and injury to those nearby.

It is prohibited to place or store items/objects on the product.

The product should only be installed indoors on a flat vertical wall. The temperature of the operating environment must remain between 10°C and 30°C.

Do not use the unit under following conditions:

- Extremely hot, cold or humid places
- Nearby appliances generating a strong magnetic field
- Places subject to vibration
- Poorly ventilated places

	CAUTION!	Installing the unit outdoors or in an unsuitable environment may cause the product to malfunction and/or damage to the product.

Advised Installation requirements:

- Install a manual valve prior to the unit in the mains water supply to close all water to the unit.
- Install a simple water filter to avoid deposits within the unit (~20 microns).
- Install a pressure controller to set the right mains water pressure (~2-3 bar).
- Install a flow meter to manually set the exact volume and for visual control of water flow. Alternatively, you can set the right flow for the unit using the valve V1 inside the hydraulic cabinet (see Picture 3).

Picture 3 – Valve V1

Product installation steps:

1. Unpack the unit and ensure that all parts as per the packing list are present and undamaged. Locate the unit adjacent to a power and water supply and securely mount it to a wall. Make sure that there is free access to all elements of the installation.
2. During the production of activated solutions, the exhaust air is warm and therefore a proper location should be chosen. Temperature rise of power supply is approximately 60° C above ambient air. Venting to a large and well-ventilated place is advisable.
3. Earth the unit.
4. Check all valves inside the hydraulic cabinet and make sure that they are all in the positions shown on Picture 5.
5. Ensure that containers are available for holding the salt solution (salt hopper) and the Anolyte. These containers should ideally be placed next to the unit and made of industrial plastic.
6. Ensure that the pressure of the water supply is ~2.0 and the water flow is ~40 L/h.
7. Connect the water input tube to the marked input connector (see Picture 6).
8. Connect the salt input tube to the input connector (see Picture 6).
9. Connect the Anolyte and Catholyte output tubes to the corresponding output connectors (see Picture 6).
10. Insert ANK-Anolyte into the container. Direct the catholyte hose to drain (see Picture 5).
11. Prepare the salt solution which for standard applications should be a >25% NaCl solution (see Chapter 10.1 for instructions). Immerse the salt pickup (incl. salt filter) into the prepared brine solution (see Picture 6).
12. Ensure that all switches are switched off. Double-check that all plugs are connected to the right sockets. Check if tubes are properly fitted.
13. Check all power connections if they might have gone loose. Tighten them up and clean from rust, if any.
14. Turn on the main power switch.
15. Install the level switch into Anolyte container (see Picture 6).
16. Make one person responsible for operating the unit or provide traceability of operators.

	CAUTION!	Failure to properly mount the product may cause damage to the product and injury to those nearby.

	CAUTION!	Failure to use personal protective equipment during the installation can result in damage of the users' health and/or bodily injury.

	DANGER!	Failure to properly earth the product may result in a risk of electric shock.

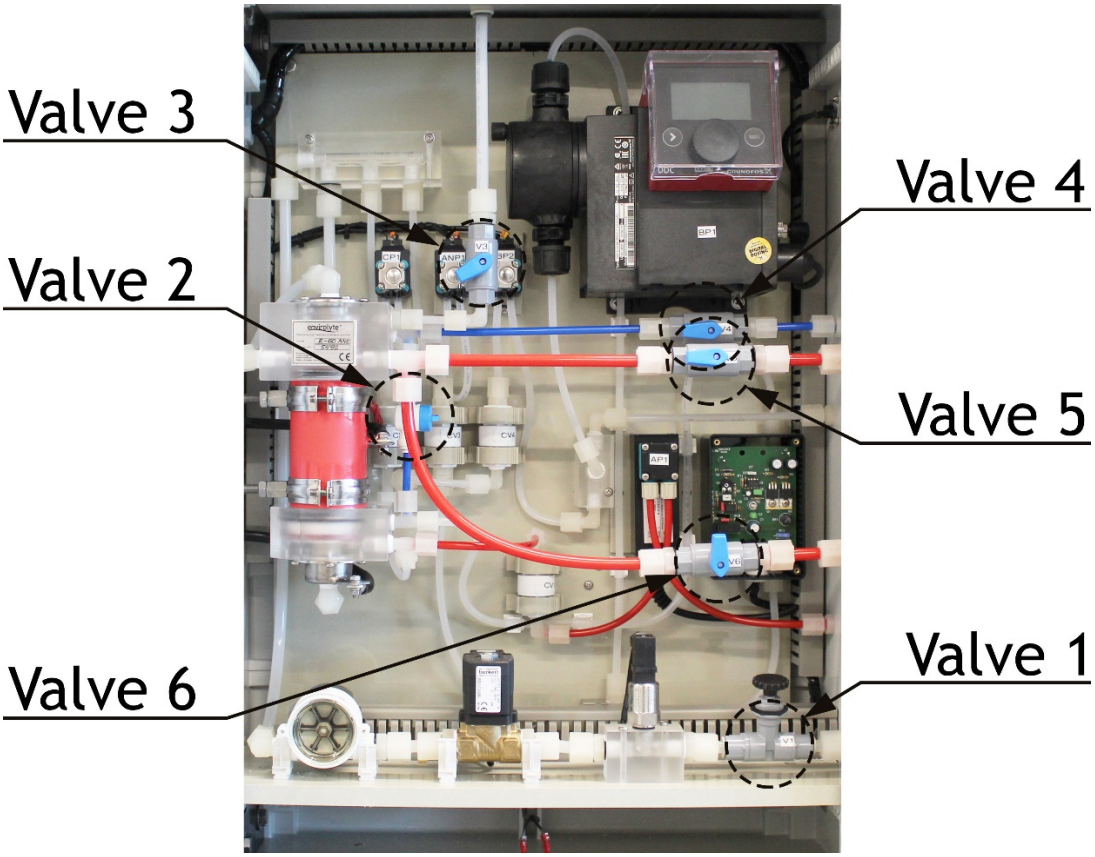
Important note on hydrogen:

ela400anw has a hydrogen outlet. The tubing is supplied to be connected to H2 outlet (see Picture 4) and be directed outside the installation room. This set up combined with passive ventilation is sufficient to sort out hydrogen concerns.

Picture 4 – H_2 outlet

Important note on catholyte:

Catholyte pump is an integral part of the ela400anw. ela400anw will be producing ~0,7 LPH of catholyte. Generally, catholyte is safe to drain. However, for collecting catholyte, considering 24/7 operation and in order to be able to store 3-day-volume it will take ~ 50 L plastic tank made of alkali resistant material, i.e. PVC or similar. In the area where the solution is produced there must be good ventilation. Preferably local exhaust ventilation. For those with very sensitive skin it may be advisable to wear gloves. Store in a cool dry ventilated area in a ventilated plastic containers and ensure the solution is correctly labelled. Do not seal containers completely, make sure any gas from the tank has the natural way to be safely evacuated.



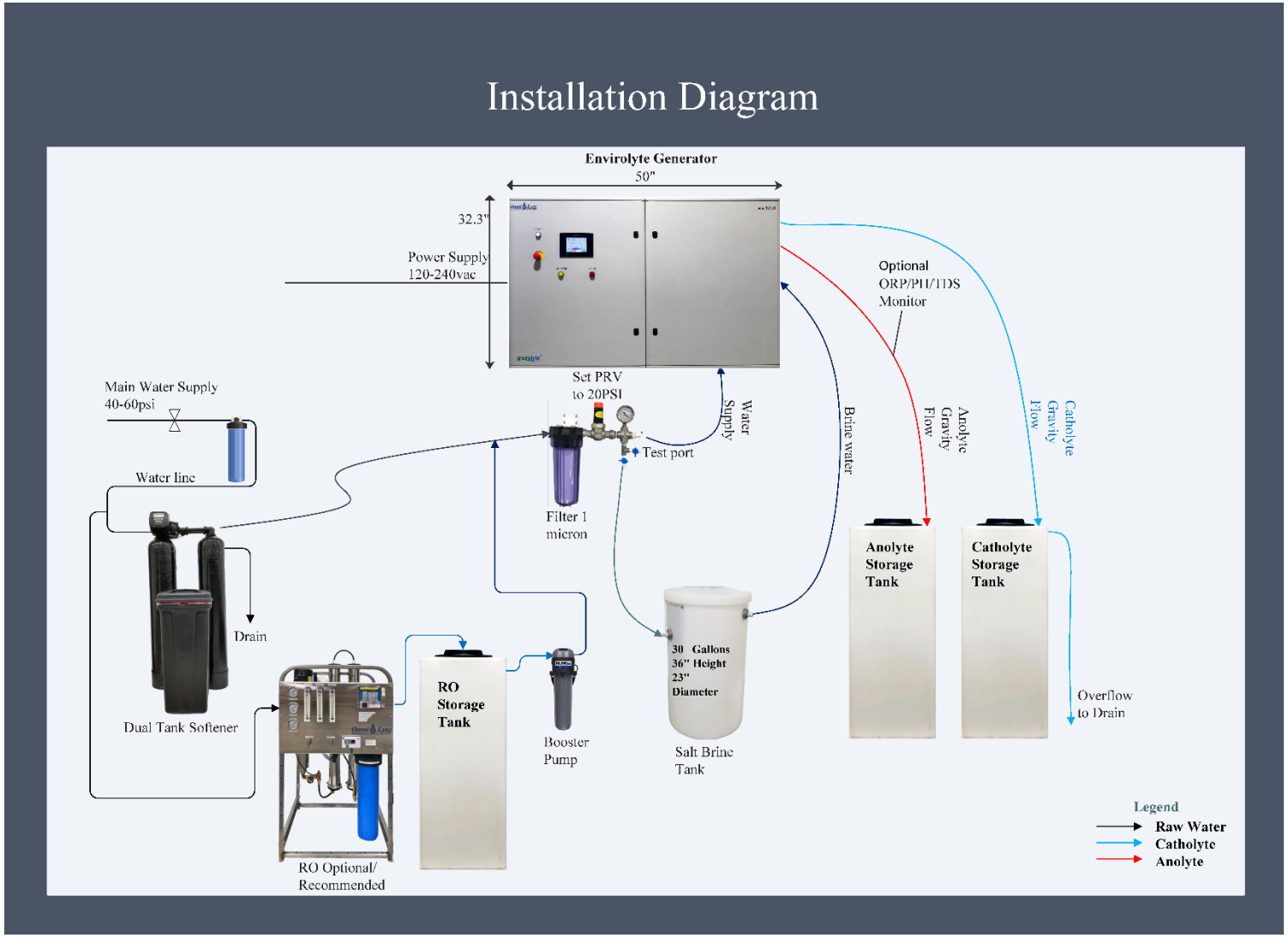
Picture 5 – Inside view of the hydraulic cabinet

8.3 Utilization

Before disposal the product must be first disconnected from the power grid and water source.

Water and solutions must be drained from the product.

The product must be taken to the correct disposal facility.



Picture 6 – Installation layout

9. Pre-use inspection of the product

Prior to using the product, a pre-use inspection of the product must be carried out. The pre-use inspection is necessary for the smooth operation of the product and for the safety of nearby people.

It is forbidden to start using the product before a pre-use inspection has been performed.

Pre-use inspection must include the following tasks:

- Ensure that the ventilation in the room is sufficient.
- Ensure that the ventilation opening of the product is not blocked.
- Always use a salt filter (provided with the product) to prevent the NaCl-particles blocking the tubing inside the unit.
- Before connecting the product to a power source, make sure that the electrical plug and the used wall socket are dry and clean.
- Ensure that safety & health instructions are always available for the operator.

- It is advised to have the Anolyte hose located at the top of the collecting containers to avoid back pressure for easy and smooth operation of the unit.

	DANGER!	Connecting a wet or heavily soiled plug to a power source may result in a risk of electric shock.

	CAUTION!	Failure to perform a pre-use inspection can result in damage of the users' health and/or bodily injury.

10. Operating with the product

10.1 Preparation of saturated saline (NaCl) solution

Recommended Salt or Equivalent

Picture 7 – Morton 40lb salt bag

MORTON® PROFESSIONAL'S CHOICE® POOL SALT

High purity, easy to carry, open and pour packaging 40LB Bag (see Picture 7)

Salt purity

The Envirolyte electrolyzer uses aqueous solutions of NaCl to produce Neutral Anolyte and Catholyte. In order to prevent the diaphragm from rapidly plugging up, we advise to use NaCl with the highest purity. The ECA-diaphragm is designed to allow cations, in particular sodium ions to pass through. Using salts with a substantial amount of other cations (e.g. magnesium or calcium), that could be in the salt will result in extra cleansing of the membrane and will eventually result in a reduced lifetime.

Purity requirements:

Water: electrical conductivity, (EC) <30 µS/cm @ 20˚C (pH 5.0-8.0) temp <20˚C
Salt: >99.94% purity NaCL

Preparation of saline solution

The use of salt hopper is advised to prepare the brine (see Picture 7 and Table 1). A salt hopper ensures that the saline solution is always of the same quality. The saline solution is always fully saturated and different dilutions of the saline solution are avoided. In a salt hopper the saline-solution for the Envirolyte unit is pumped from the bottom of the container, whereas a thick layer (>25 cm) of NaCl is placed on a permeable mesh. This holds the salt above the bottom of the container, allows water to pass though the mesh. The water that passes the salt layer is fully saturated. Depending on the capacity of the salt hopper, the operator only has periodically to fill the container with softened/filtered water and NaCl. Please ask your distributor for the drawing of one of the possible designs of the salt hopper.

Manual preparation of 100 of litres saline solution

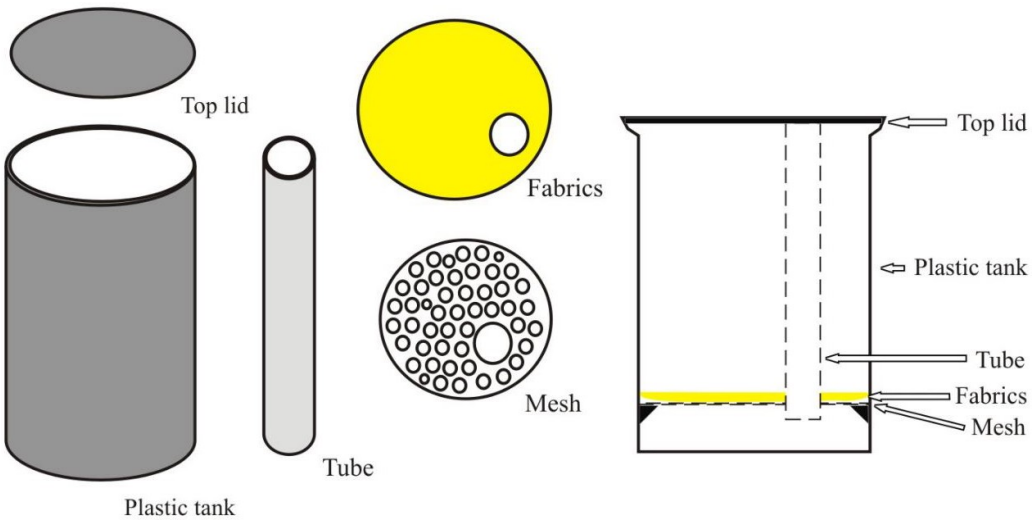
In case no salt hopper is available, the operator must prepare and monitor the saline solution before and during the production of activated solutions. Using unsaturated saline solution can result in shutdowns of the unit.

1. Fill up a container with 100 liters of softened/filtered water.
2. Weigh 25 kg of salt.
3. Add the 25 kg of salt to the 100-litre container.
4. Mix the solution in the container until the salt is completely dissolved.
5. Mix the brine during generation of activated solutions to ensure the equal quality.

Using pure salts, softened/filtered water and salt hopper guarantee best performances and maximum lifetime of the Envirolyte electrolyzer.

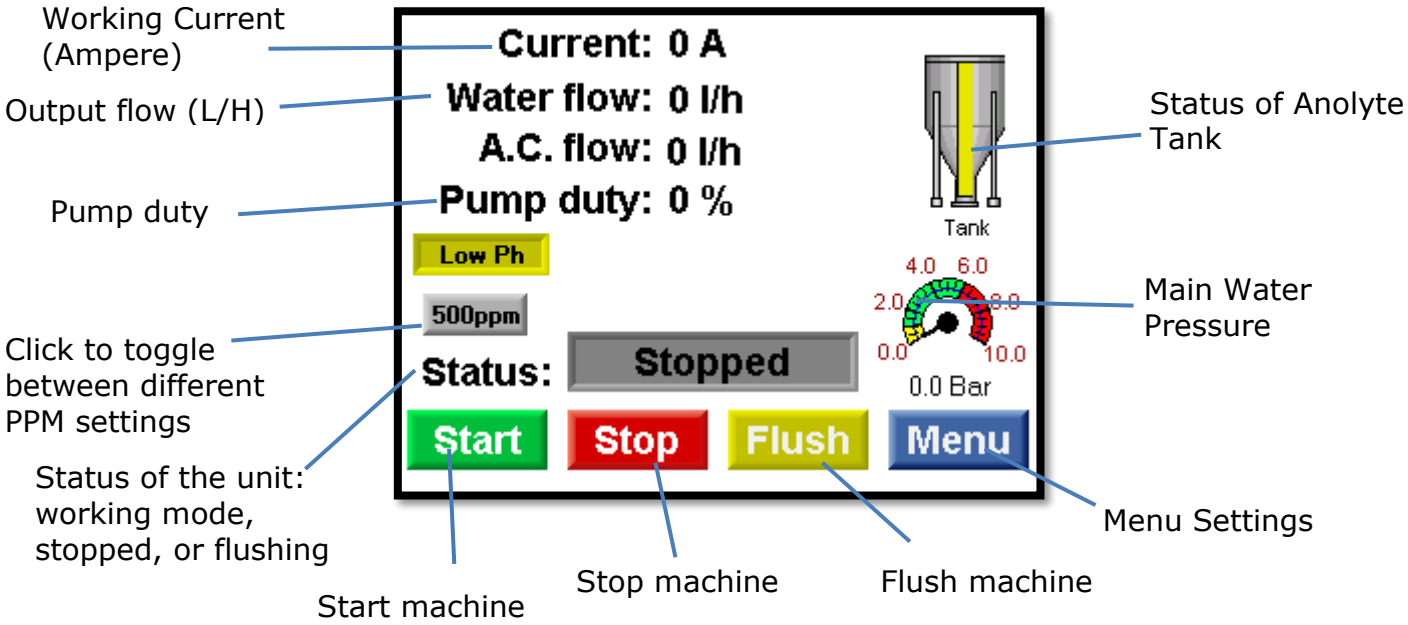
Salt hopper size	Diameter	Height
100 L	~1,0 m	~1,3 m
250 L	~1,5 m	~1,4 m
500 L	~2,0 m	~1,6 m

Table 1 – Advised dimensions for salt hoppers



Picture 7 – Salt hopper components

10.2 Control data reader



Picture 8 – Control data reader

This PLC (see Picture 8) is used to access the following information:

1. Operation – main screen:

    - Mains flow
    - Brine saturation
    - Working current
    - Mains water pressure
    - Status of anolyte tank: full or empty
    - Status of the unit: working mode/standby/flushing (alarm signal)

2. Flushing mode:

    - Activate flushing
    - Activate drain
    - Get back to main screen and resume operation

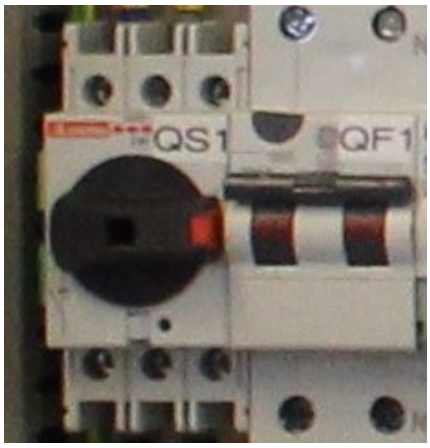
3. Diagnostics of the problems:

    - Inadequate mains water flow and pressure
    - Brine pump problem
    - Mains flow switch problem
    - Brine quality/saturation
    - Any of the RCDs tripping off
    - Inadequate working current
    - Anolyte tank status

Technical specification and details of the Vision 570 PLC of ela400anw can be download from www.unitronics.com

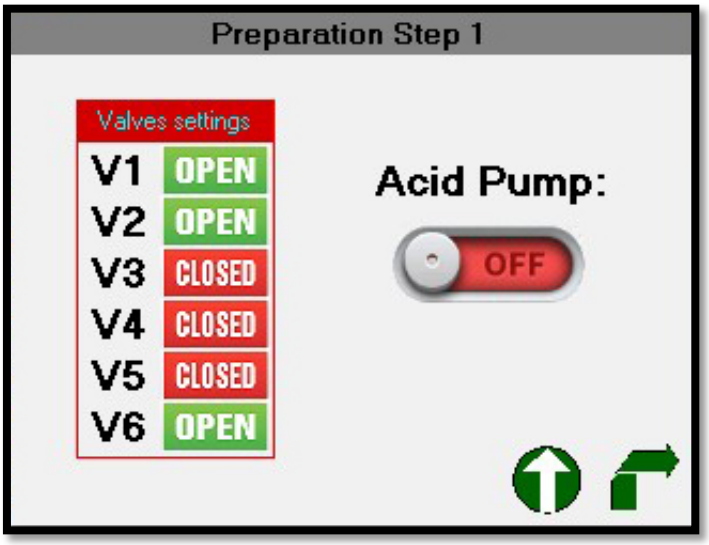
10.2 Preparation procedures

1. Make sure that the emergency switch is in the Ready to use position.
2. Switch on the power to the cells (see picture 9).
3. Press Menu to enter menu of the device (see picture 10).
4. Press Preparation to enter preparation menu (see picture 11).



Picture 8 – RCD inside the unit

Picture 10 – Menu on the PLC



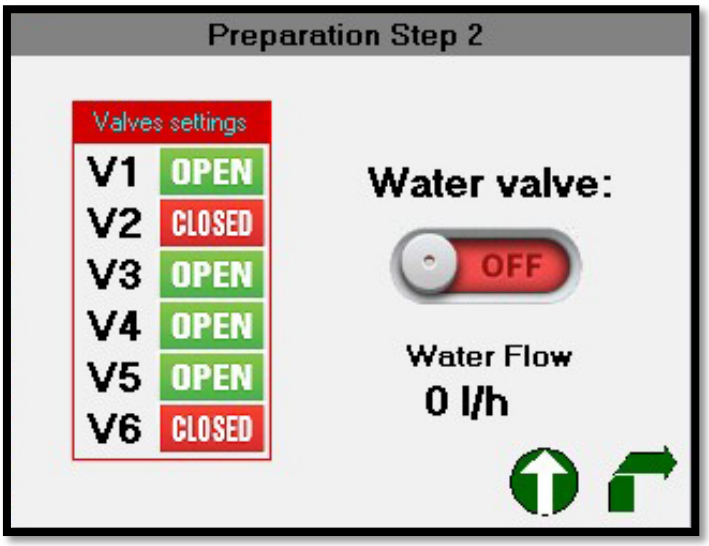
Picture 11 – STEP 1 on the PLC

STEP 1:

Immerse the Acid in hose into a canister with water. Have all valves as in flushing mode (see Table 2). Press OFF to start acid pump. It will fill the cell chambers with water. Press ON when you see water running off the Acid out hose.

Press to go back the **Main Screen.**

Press "Arrow to the right" to go STEP2.



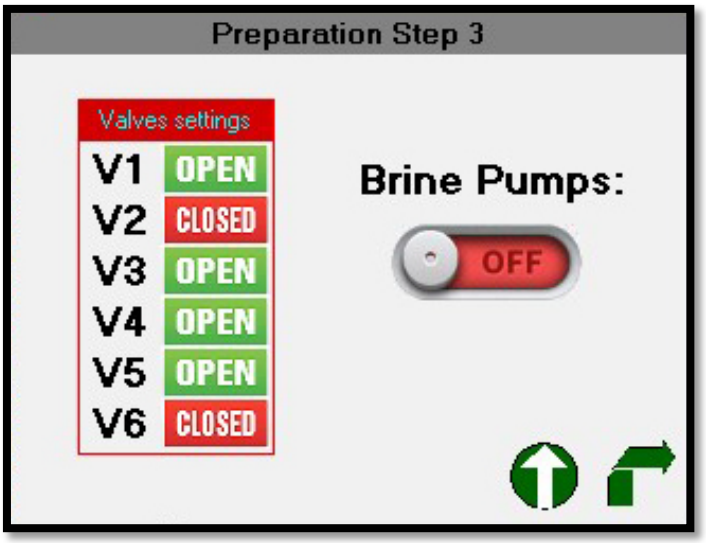
Picture 12 – STEP 2 on the PLC

STEP 2:

Have all valves as for operation (see Table 2). Press OFF to let the water run through the unit. You can see the flow rate on the PLC and using V1 or any external valve set the correct flow rate for this unit which is 40 L/h. Press ON to terminate this procedure.

Press to go back the **Main Screen.**

Press "Arrow to the right" to go STEP3.



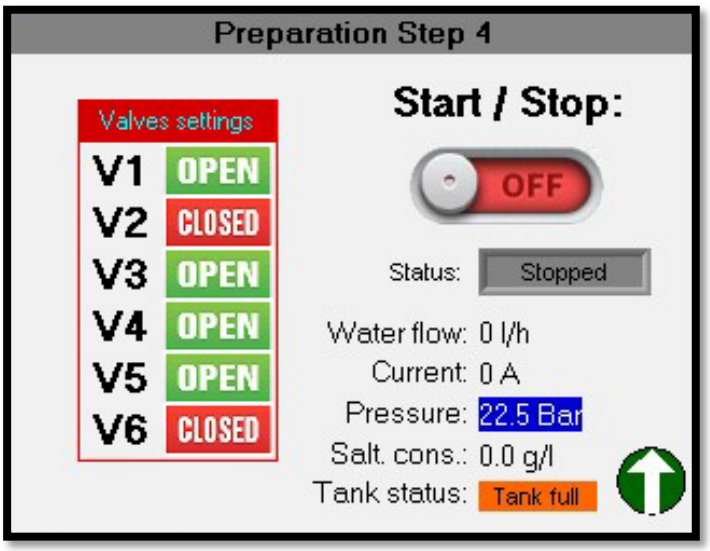
Picture 13 – STEP 3 on the PLC

STEP 3:

Have all valves as for operation. Press OFF to start brine pump. Press ON to terminate this procedure when you see the brine cross the suction head of the brine pump.

Press to go back the **Main Screen.**

Press "Arrow to the right" to go STEP4.



Picture 14 – STEP 4 on the PLC

STEP 4:

Have all valves as for operation. Press to start the unit. Let it run till it reaches its operational parameters. Once achieved the unit will stop and indicate it is ready for operation.

Press to go back the **Main Screen.**
Filling of the brine and cathodic lines must only be done once before the first operation of the unit.

#	Operation mode	Flushing mode
V1	Open	Open
V2	Closed	Open
V3	Semi-closed to let only H2 out	Closed
V4	Open	Closed
V5	Open	Closed
V6	Closed	Open

Table 2 - Valve positions for different modes

10.3 Operation

1. Make sure that the salt solution pickup is fully submerged in the salt solution and that the ANK Anolyte hose is in the container.
2. Turn on the water supply.
3. Press Start on the main menu of the PLC to start the unit. Press Stop if you want to stop the unit.
4. Check the volume of water flowing through the machine on the PLC. Flow should be gradually reaching 40 l/h. Adjust it if needed, using V1 in the unit or any external valve, if installed.
5. At the beginning, the PLC will display 2-5 A.
6. It will take about 2-3 min for the current to slowly rise to ~26 amps to ensure 500 mg/l of active chlorine in Anolyte.
7. Set the hydrogen valve to have only hydrogen isolated for smooth operation of the unit.
8. Press Stop if you want to stop the unit.

The noise level of this product is low and no hearing protection is required during the operation of the unit.

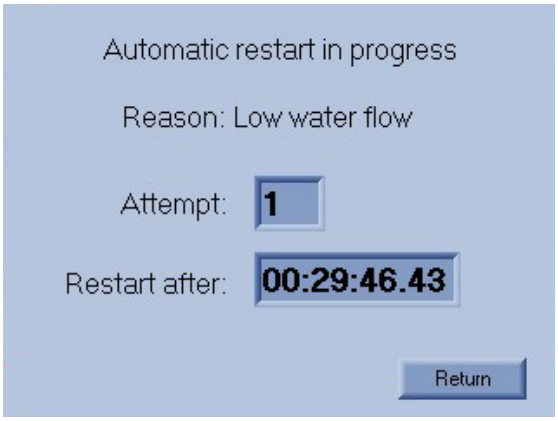
The ela400anw unit has a current stabilization and, after being put into operation, it will reach the working current according to the setting by itself, adjusting the speed of the brine pump according to the water flow and quality of the brine. If, after a few minutes the unit does not reach the working current, please check the water flow, if it is adequate, and brine concentration. All these reading you can take from PLC.

During operation there must be always a constant, although very limited (just dripping out) flow through cathode chamber (catholyte outlet) of the electrolyzer what is provided by a special cathodic line pump. Setting of the pump for particular speed is done by Envirolyte during manufacturing and must not be changed.
Smooth operation of ANW type of ela machines depends on the sustainable ratio between general flow and flows in anode and cathode chambers. Flow in cathode and anode chambers is controlled by the catholyte (CP1) and anolyte pump (ANP1) accordingly and does not require any calibration.

10.4 Termination of the operation.

When production is completed or you want to stop the machine, press Stop on the PLC.

10.5 Alarms

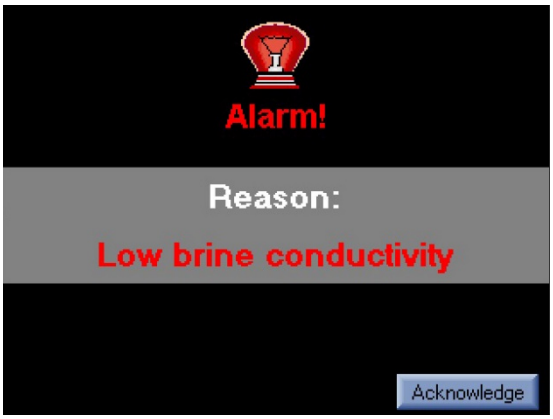


Picture 15 – Automatic restart in progress

Picture 16 – Cell overheat alarm

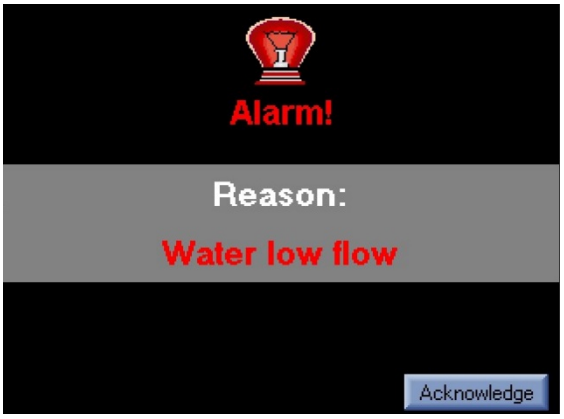
Picture 17 – Flush needed alarm

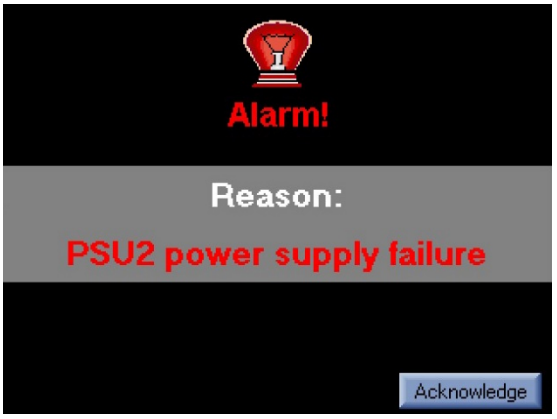
Picture 18 – Leakage alarm



Picture 19 – Low brine alarm

Picture 20 – Voltage on Cell alarm

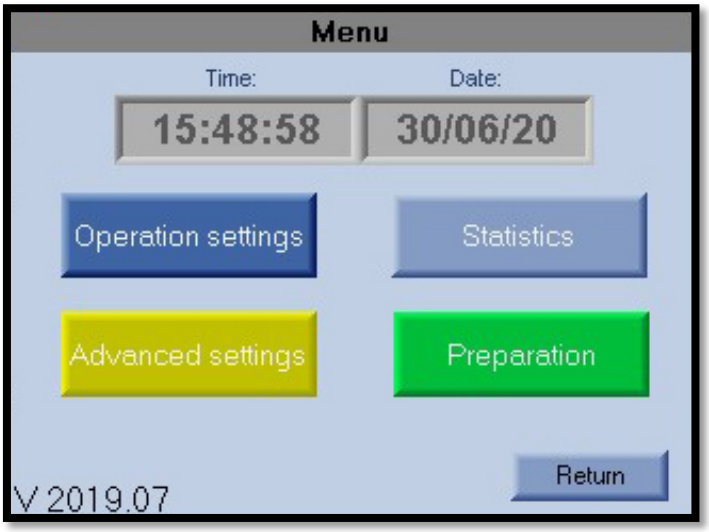




Picture 21 – Low water flow alarm Picture 22 – Power supply alarm

10.6 Menu

Press Menu to enter the **Menu** of the device.

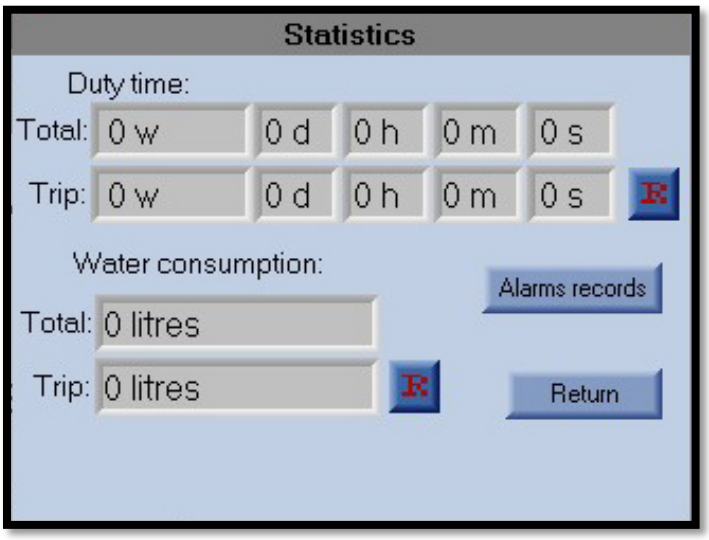


Picture 23 – Menu on the PLC

Press Return to go back the **Main Screen.**

1) Statistics.

Press Statistics to enter the **Statistic menu.**



Picture 24 – Statistics menu

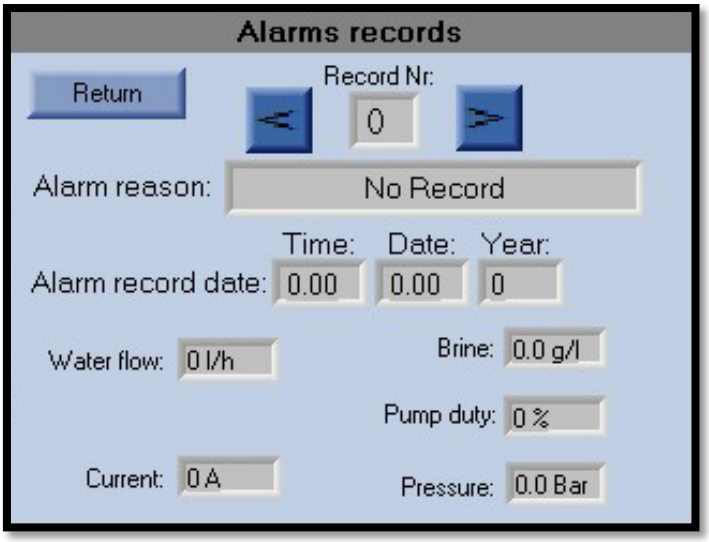
This menu shows the total "Duty time" of the device and the total amount of "Water consumption". It is possible to reset "Trip" counters.

To do this, press at the counter you want to reset.

Press Return to go back the **Menu.**

1.1) Alarms records.

Alternatively, press Alarms records to enter the **Alarms records** menu.



Picture 25 – Alarms records menu

This menu displays all "Alarm" information stored in the database.

Use and to navigate through the list.

Press

to go back the **Statistics** menu.

2) Operation settings.

Press

to enter the Operation settings menu.

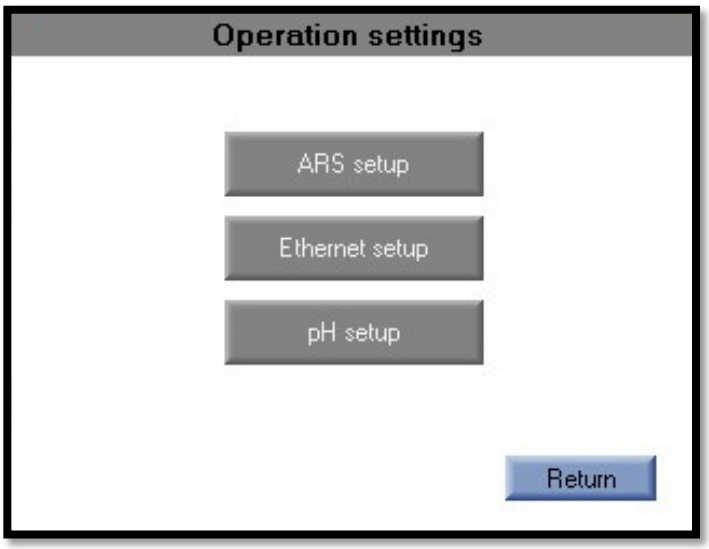
Picture 26 – Password display

Press

to input password:

Picture 27 – Input password display

Enter the password (Default password is 4321). and press .

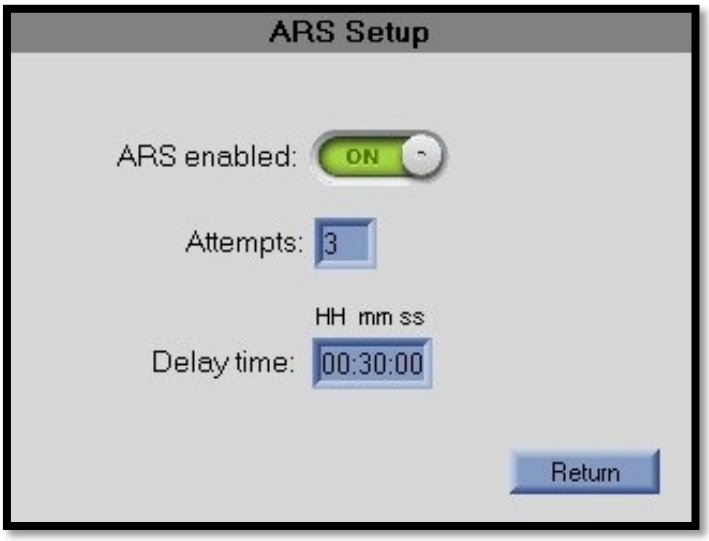


Picture 28 – Operation settings

2.1) ARS setup.

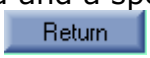
Press

to enter the **ARS setup** menu.



Picture 29 – ARS setup menu

ARS setup will allow the device to start automatically after losing water after a specified period and a specified number of times

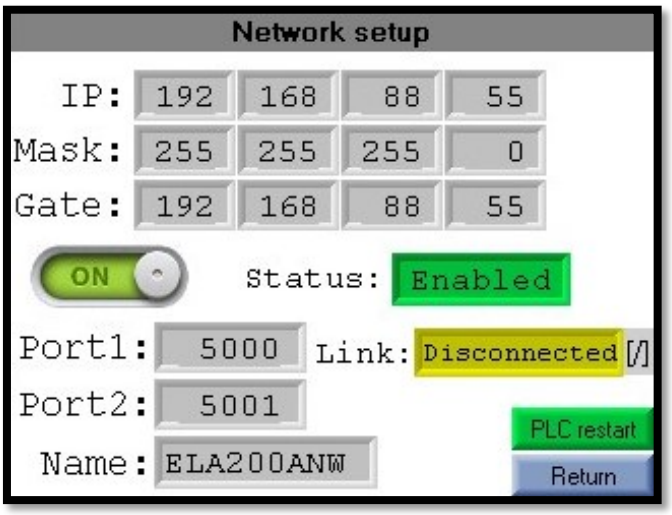
Press 

to go back the **Operation settings** menu.

2.2) Ethernet setup (Option)

Press

to enter the **Ethernet setup** menu.



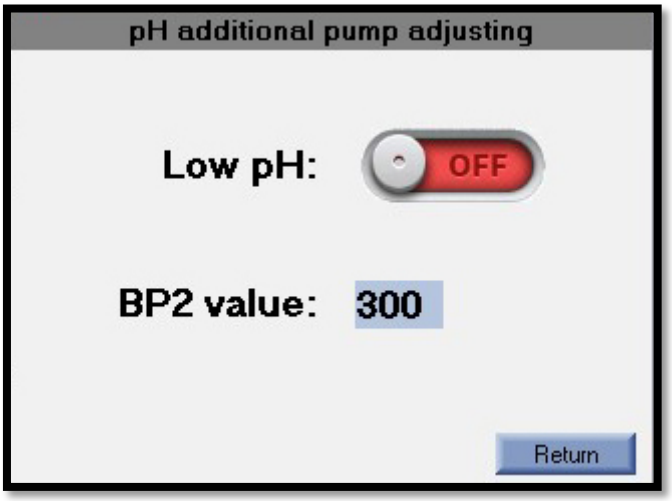
Picture 30 – Network setup

In this menu, the parameters for working with the Ethernet connection are set.

Press Return to go back the **Operation settings** menu.

2.3) pH setup (Option)

Press pH setup to enter the **pH setup** menu.



Picture 31 – Network setup

In this menu, the pH is adjusted using an additional pump. An increase BP2 value leads to a decrease in pH. Adjustable range between 0 and 4090

Press Return to go back the **Operation settings** menu.

3) Advanced settings.

Press Advanced settings to enter the **Advanced settings** menu.

This menu intended for the qualified service personnel.

11. Maintenance

What may appear to be trouble is not always a real problem. Re-start the unit a couple of times. See if it helps. If not, you can read all the problems which might influence smooth performance of the unit such as low pressure/flow of the mains water, low quality of brine etc. on the PLC. React accordingly.

Regular maintenance of the product is mandatory.

Maintenance operations may only be performed by authorized personnel. The personnel must be at least 18 years of age. The personnel must be familiar with the accident prevention instructions and must have read and understood this manual and its annexes. The personnel must have sufficient experience with similar products to conduct the service operations.

The personnel have to wear safety equipment during maintenance.

All conducted maintenance operations must be listed in the maintenance book of this product. The maintenance book must include number of the maintenance, date, work content, name/names of the personnel who performs the maintenance.

For every maintenance work performed, one maintenance sheet must be printed, filled and stored. See page 50 of this manual for the maintenance sheet template.

Filling and storing of the maintenance book of this unit is a requirement for the warranty.

No warranty is provided in the cases where the filled maintenance book is not provided to the manufacturer.

11.1 Daily Maintenance

- Check if volume of NaCl in the brine container is adequate for the output required for that day.
- Check the generator to see if there are any obvious problems, i.e. leakages.
- Check the flow indicator for adequate flow through the generator.
- Check if the current meter indicates the working current according to the setting.

11.2 Weekly Maintenance

- Check if volume of NaCl in the brine container is adequate for the output required for that day.
- Check the generator to see if there are any obvious problems, i.e. leakages.
- Check the flow indicator for adequate flow through the generator.
- Check if the current meter indicates the working current according to the setting.
- Check Anolyte quality measuring pH, ORP and active chlorine of freshly generated Anolyte. Take a sample from Anolyte container.

11.3 Monthly Maintenance (depending on hardness of the water)

- Check if volume of NaCl in the brine container is adequate for the output required for that day.
- Check the generator to see if there are any obvious problems, i.e. leakages.
- Check the flow indicator for adequate flow through the generator.
- Check if the current meter indicates the working current according to the setting.
- Check Anolyte quality measuring pH, ORP and active chlorine of freshly generated Anolyte. Take a sample from Anolyte container.
- Check the power connection to see if it might have gone loose. Tighten if necessary. Clean it from rust as well, if any.
- Carry out cell flushing procedures (see Chapter 11.4 for instructions).

	CAUTION!	Failure to perform regular maintenance may cause the product to malfunction and/or damage to the product.

	CAUTION!	Failure to use personal protective equipment during maintenance can result in damage of the users' health and/or bodily injury.

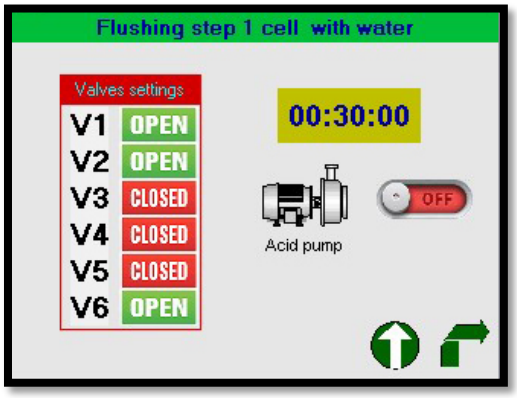
11.4 Cell Flushing instructions.

The cell(s) in the Envirolyte unit needs to be flushed regularly as hardness of water will result in deposits on the electrodes and diaphragm. As the hardness of water varies all over the world, it is difficult to say how many times the Envirolyte unit should be flushed but the necessity for flushing is controlled by the PLC of ela400 anw and will be indicated on the display when the necessity arises.

Chemicals / Materials needed:

1. Omni Descaler 110
2. Hydrochloric acid (~10-15%)
3. Container/jug (~10 Liters)

1. Have all valves as in flushing mode (see Table 2). For inside view of the unit see Picture 35.
2. Having the unit powered press Flush in the main menu. You will get to manual flush menu STEP 1. You can read all STEPS on the PLC after pressing Flush.

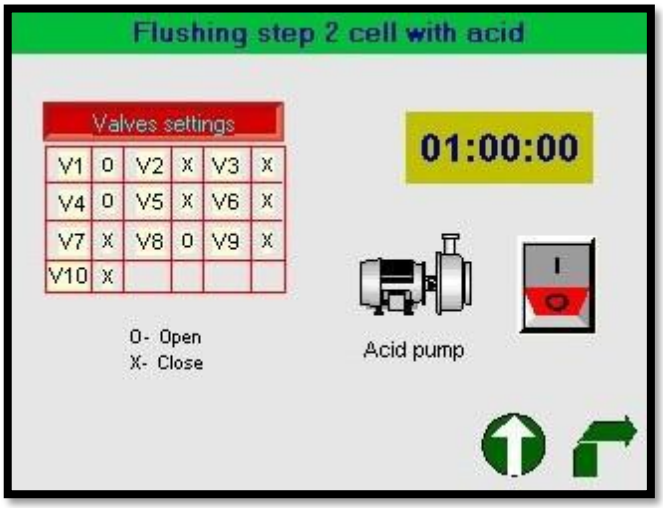


Picture 32 – STEP 1 on the PLC

STEP 1

As a STEP 1 cell(s) is prewashed with water before flushing with acid. Direct the Acid out/Drain hose to drain. Immerse the Acid in hose into a canister with water. Preset time for this procedure is 30 minutes. To start the procedure press OFF. To abort the procedure press ON. If you need to Exit to the main menu press . After completing this procedure press to proceed to STEP 2.

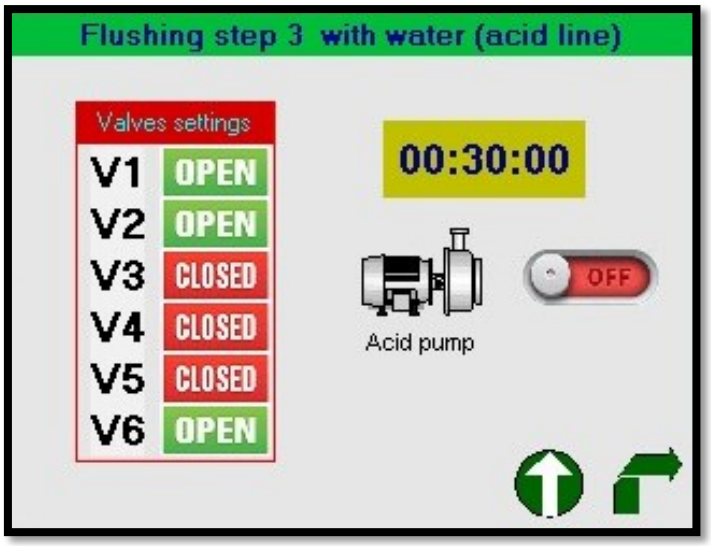
	CAUTION!	Improper position of the valves can cause a breakdown of the membrane and, as a result, a malfunction of the entire device!



Picture 33 – STEP 2 on the PLC

STEP 2

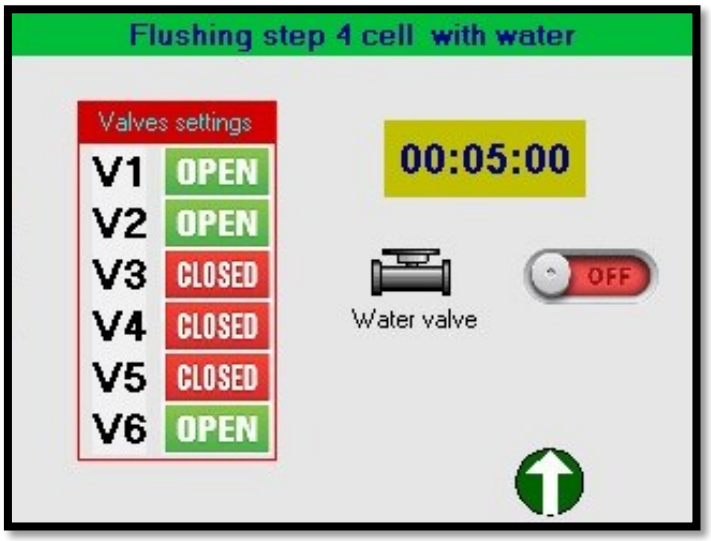
As STEP 2 cell(s) is flushed with acid. Immerse Acid in and Drain/Acid out hoses into the container with acid. Preset time for this procedure is 1 hour. To start the procedure press OFF. To abort the procedure press ON. If you need to Exit to the main menu press . In order to move to the next procedure press . You will get to the flush menu STEP 3.



Picture 34 – STEP 3 on the PLC

STEP 3

As STEP 3 the acid pump is washed with water. Immerse Acid In hose in the container with water and direct Drain/Acid out hose to drain. Preset time for this procedure is 30 minutes. To start the procedure press OFF. To abort the procedure press ON. If you need to Exit to the main menu press . In order to go to the next STEP 4 press .



Picture 35 – STEP 4 on the PLC

STEP 4

As STEP 4 the hydraulic system is washed with water. Preset time for this procedure is 5 minutes.

To start the procedure press OFF. To abort the procedure press ON. If you need to Exit to the main menu press .

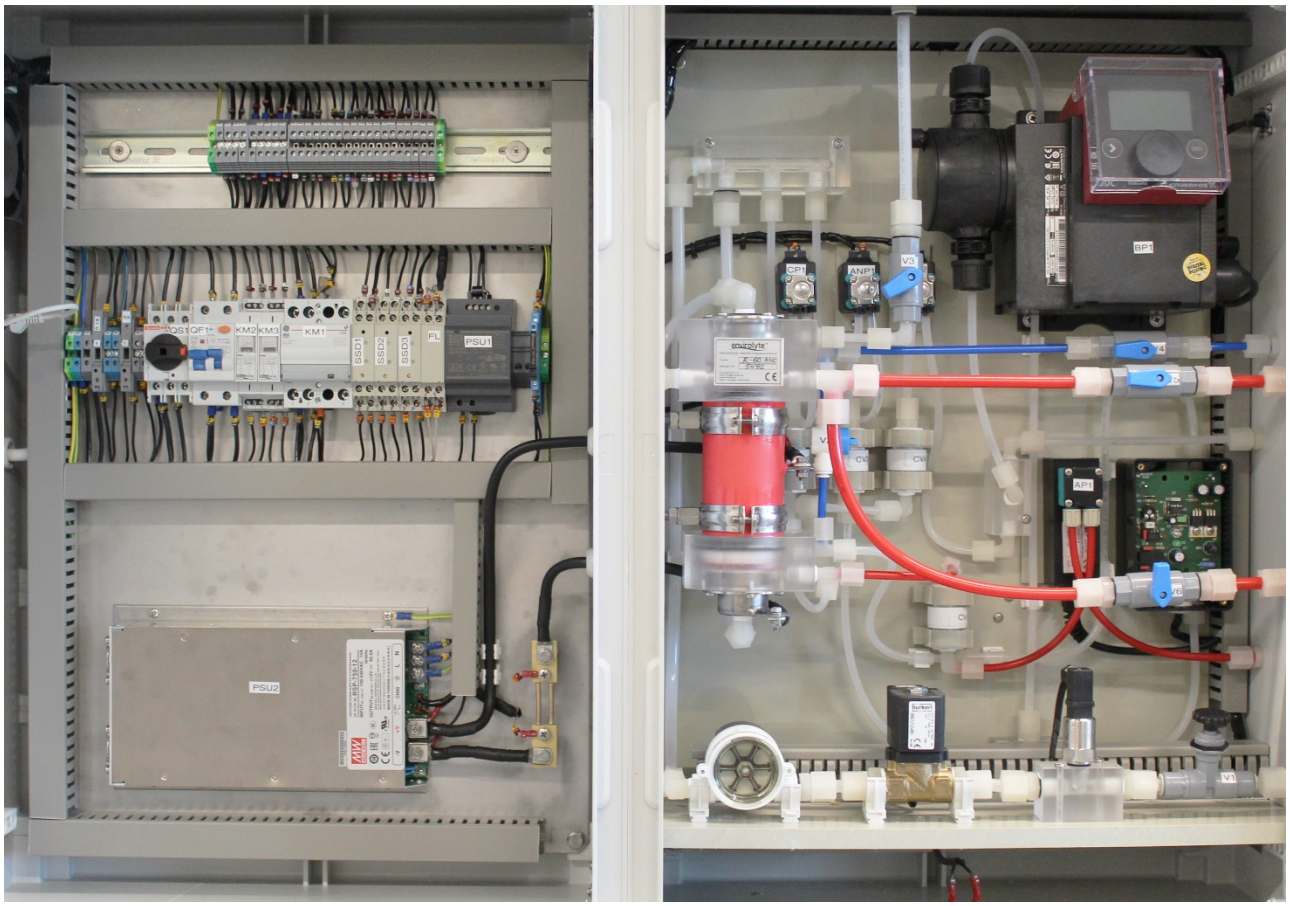
After the STEP 4 is completed put all valves in the position for Operation. Press Start to start the unit as advised in Operation chapter.

When Acid Flushing, it is very important to verify that the cell is clean and free from scale deposits. To control how the Acid flushing was done you need to monitor salt consumption before and after Acid flushing.

On the controller you may see salt consumption under dirty or scaled cell conditions. Generally, it is ~4 g/l for these types of generators. Once finished, you may verify salt consumption as g/l on the display after removing scale deposit from the cell. Generally, it should be ~2- 3 G/L. If you see it higher, we advise to repeat the flushing procedure to bring salt consumption to the required level or check calibration of conductivity sensor.

	DANGER!	Failure to use the required personal protective equipment during the handling of hydrochloric acid can result in damage of the users' health and/or bodily injury.

When you do cell flushing it is very important to be sure that you do it really good, meaning that after flushing procedure cell is clean and free from scale deposits again. In order to control how the flushing was done you need to control salt consumption before and after flushing. You can see this by reducing the load on the salt pump.

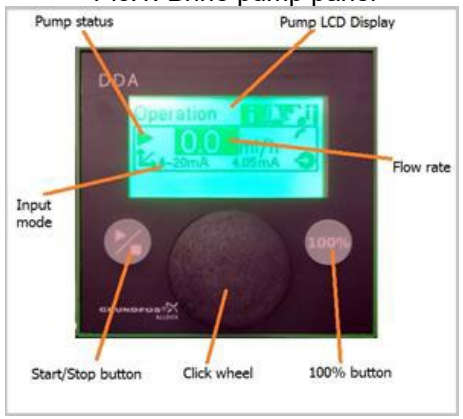
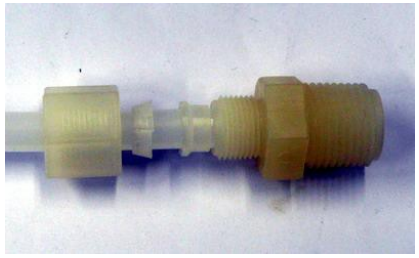


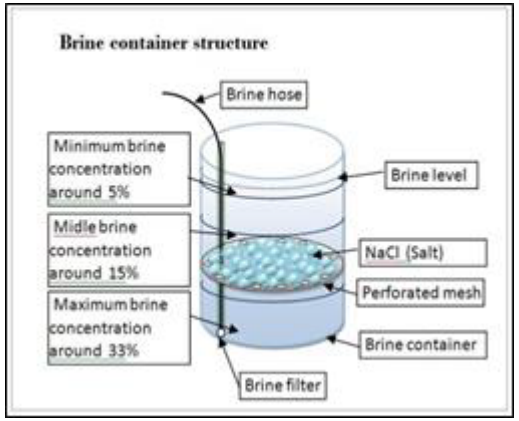
Picture 36 – Inside view of the unit

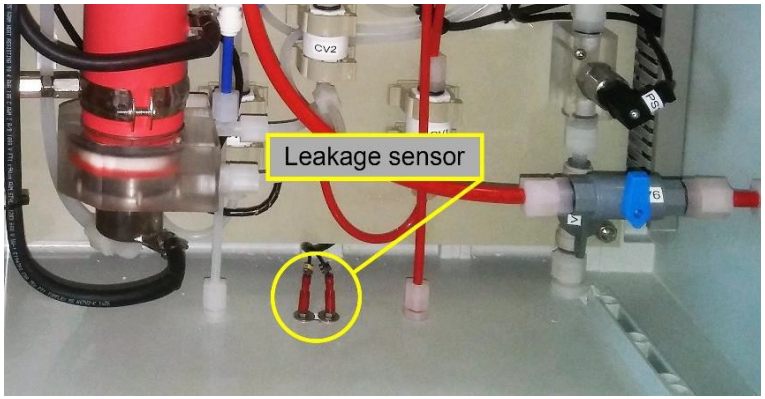
11.5 Unit setting and calibration

The Envirolyte Unit is calibrated before it leaves the factory therefore unless required by the customer the machine should need minimal if any calibration when installing, the internal flow and balance taps are pre-set at the factory and unless the taps have been replaced there is no need to reset.

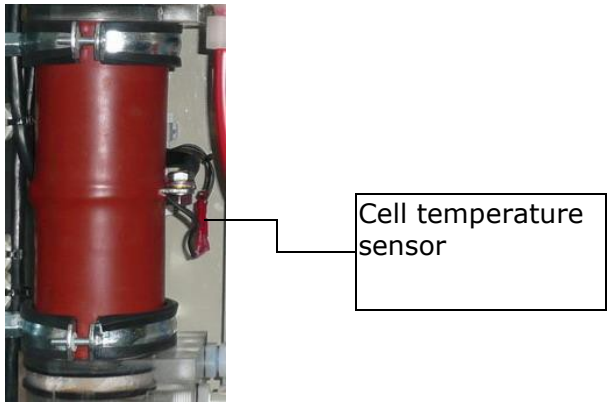
12. Troubleshooting

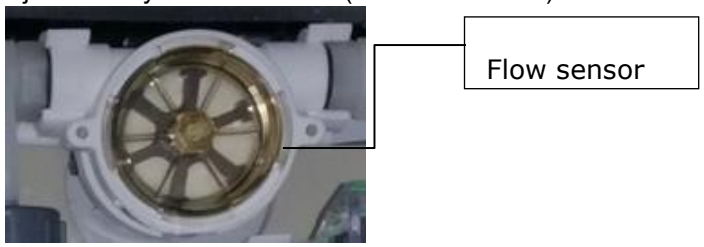
PLC reading	PLC message	Reasons	Troubleshooting
Low brine conductivity	 Pic.1. Brine pump panel 	Occurs when brine saturation is less than 10% for more than 2 min. 1) The brine pump stops working during unit operating OR 2) Air lock in brine tube that prevents suctions OR 3) Low brine saturation	When alarm occurs, press Acknowledge on PCL to acknowledge the info, check brine saturation and start the unit again. 1) After starting the unit check brine flow. You can read the immediate flow value on the pump LCD display. Pic 1. If pump does not work during operation check Start/Stop button which could have been mistakenly activated which is indicated in pump status on pump LCD display. Then push Start/Stop button, status must show run sign. Another reason for pump not working can be its setting for different mode, not analog output (see Pic 1). To make sure you have analog output you need to have the same sign on the low line of pump LCD as you can see on the Pic.1. If pump is set to other mode then please check pump manual and set it back to analog input 4-20mA. Pump manual can be downloaded Here 2) Check if brine input tube connector is tightly fixed. Check if the fitting is set in right order (see Pic. 2) Pic. 2 

			In order to prevent or overcome a potential air lock in the brine line and pump: Insert the brine suction hose in to the brine container. Stop the unit. There is a button on the front panel of the pump marked 100%. Press this button and hold it. You will see how brine starts moving in the tubing. Wait till it fills up the whole tubing but most important it goes through and beyond pump suction head. Release the 100% button. 3) Check that the brine suction hose immersed in to the brine container and get brine from bottom. (See Pic 3) Control that brine concentration is at least 20%. Check that brine filter is not clogged with impurities. Pic. 3 

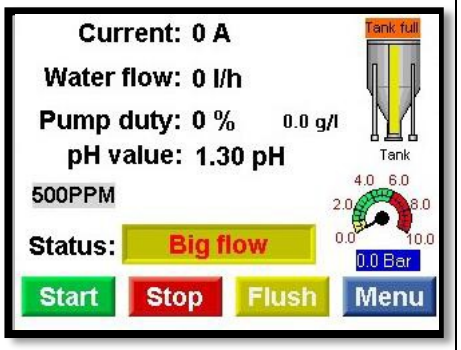
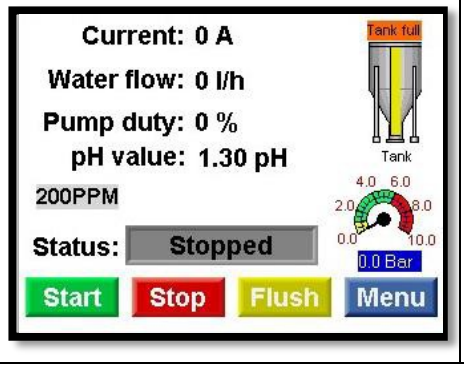
PLC reading	PLC message	Reasons	Troubleshooting
Leakage		Occurs when leakage sensor is wet due to leakage in hydraulic joints. Leakage sensor is wet due to leakage in the hydraulic section of the unit.	When alarm occurs, press Acknowledge on PLC to acknowledge the info, solve the leakage reason, get leakage sensor dried and start the unit again. Inspect all hydraulics joints, sort out what might have caused the leakage. Get the leakage sensor dried off. 

PLC reading	PLC message	Reasons	Troubleshooting
Power supply error		Occurs when power supply does not function properly or power supply malfunctions. No DC Voltage on the Cell. Overcurrent.	When alarm occurs, press Acknowledge on PLC to acknowledge the info, check power supply and start unit again. If the error continues to occur, flush the cell and try to run the device again. If flushing does not help, contact Envirolyte Industries or your authorized distributor.

PLC reading	PLC message	Reasons	Troubleshooting
Cell overheating		Occurs when cell is overheated. Temperature sensor on cell has made contact.	When alarm occurs, press Acknowledge on PLC to acknowledge the info, check that disinfecting liquids outputs are not blocked and start the unit again.  Check list: 1. Check temperature sensors socket, it must be clean and dry and correctly connected. 2. Find the reason for cell overheating. The possible cause of cell overheating can be: 1. High input water temperature, over 30°C. 2. Low flow through the cell during operation. 3. Cell is scaled. 4. Loosened or rusted wires contact to the cell. Troubleshooting procedure: Flush cell with HCl 10% acid according unit manual and check water flow rate.

PLC reading	PLC message	Reasons	Troubleshooting
Low flow		Occurs when flow through unit is less than allowed minimum l/h. Flow rate correct but alarm occurs.	The alarm will occur after "ARS" automatic restart system has done 3 attempts to start the unit. When alarm occurs, press Acknowledge to acknowledge the info, check that liquids outputs are not blocked and start unit again. Adjust flow by valve V1 or V2 (for A.C. low flow)  Check list: 1. Check that flow sensor contacts are dry and clean and correctly connected with wires. 2. Check that flow sensor is not clogged. 3. Check that liquid output is not blocked. 4. Check that input valve is open and does not malfunction **Troubleshooting procedure:** 1. If broken, replace flow sensor. 2. In case of faulty flow meter and the urgent necessity for anolyte due to sensitivity of the operation, flow alarm can be temporarily disabled in setup/alarms section of the PLC. 3. If the flow sensor is sensible to water impurity then at least a 50-micron fabric filter must be installed on the water supply.

PLC reading	**PLC message**	**Reasons**	**Troubleshooting**
Flushing needed		Occurs when cell is scaled. Unit consume too much NaCl (salt)	When alarm occurs, press Acknowledge to acknowledge the info, flush cell and start unit again. Check list: 1. Check that cell is not scaled. 2. Check DC Voltage on cell contacts, it must be ~24 VDC. Troubleshooting procedure: Flush cell according to the unit manual, using fresh 10% HCl acid. If DC Voltage on cell contacts significantly lower than 5 VDC check power supply and mains input AC Voltage.

PLC reading	PLC message	Reasons	Troubleshooting
Big Flow Warning status.		Occurs when flow is too big for this unit model. Flow 50% bigger that the right flow for the unit.	Reduce flow using water input valve to nominal model flow rate. Check list: 1. Check that input water pressure is no more 2 bar. 2. Check that cell or tubes junctions have no leakage. 3. Check that input tap valve V1 is full open. Troubleshooting procedure: Adjust input pressure using in line pressure regulator Solve leakage reasons. Adjust flow using V1 tap valve inside the unit.
PLC reading	**PLC message**	**Reasons**	**Troubleshooting**
Low pressure		Unit will stay in standby mode and not start if water pressures not enough. Immediate water pressure can be read from PLC display.	1. Check (if installed) that the water filter is not blocked. 2. Check that V1 valve is not closed 3. Check (if installed) that the pressure regulator is set for ~1.5 - 2.0 bar. 4. Check if you have mains water supply.

CE declaration of conformity

This appliance is manufactured to conform to the Low Voltage Electrical Equipment and Electrical Safety Regulations and is designed to comply with the requirements of the following EC Directives:

Approvals	Labels
NSF 61 Certificate # - C0209302-01 - C0209303-01 -	
ISO 9001:2015 Certificate# - EST48716A	
CSA-SPE-40 Intertek Field Evaluation Service for Electrical Equipment in Canada, *CSA Equivalent*	
CE -EEC Directive Rule 1 under 93/42, Medical Device Class 1 (safe for contact)	

Distributor Warranty certificate

Distributor: **Omni-lyte Enviro Inc.**
Address: **95041 Rd 42N**
Wawanesa, MB R0K 2G0
Tel: **1-800-419-5707**
Fax: **1-888-433-8415**

The present warranty is issued for one year duration from the purchase date and is valid if the product will be found defective due to materials or workmanship under the following conditions

← The product should be purchased from the Envirolyte authorized distributors only and should be used in strict compliance with the manual, under prescribed technical standards and security regulations.

← Sellers who are authorized dealers of producer and service centers enlisted below carry out the warranty duties under the present warranty in the aforesaid territory. The present does not apply to products purchased from unauthorized dealers, who have their own responsibilities in front of purchasers as per legislation on Purchaser Rights.

← The present warranty is not valid if the damage or defect is caused by fire, lightning and other acts of God, mechanical damage, improper use, wear and tear, neglectful handling, repair or adaptation made without Envirolyte Industries International Ltd consent, as well as by installation, adaptation, modification or use violating technical conditions or security regulations.

← In case during the warranty period a part or part of the product were replaced with part or parts not supplied by producer or certified by producer and which did not have the required quality or could not be used for the product, or the product was disassembled or without Envirolyte Industries International Ltd, purchaser shall loose all and every rights under the present warranty, including the right of reimbursement.

The duties under the present warranty are carried out by the sellers, who are authorized dealers of the producer and by the service centers enlisted below:

- Name and address of the seller: Energenics Corporation
- Date of purchase:
- Model name: ela400anw
- Serial No.:
- Seller's signature:

Contact Information:

1470 Don Street
Naples, FL 34104
800-944-1711
sales@energenics.com

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1-800-419-5707
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