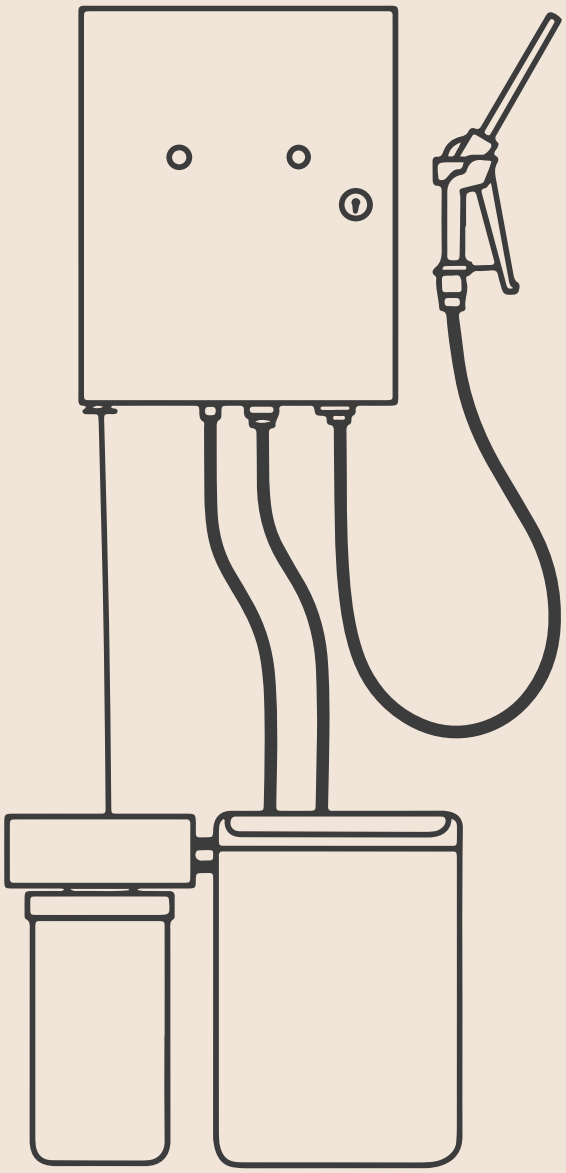
SC-100



GreenTechGlobal
PURE GENIUS

SC-100

“The SC-100 machine is very user friendly, the solution is created on site which means there’s no consumables or lead times through suppliers, giving us an unlimited cleaning solution and long term cost benefit.”

There is no COSHH required as the solution turns back to water once it has been used in operation, enabling us to have children back in the room in minimal time. Being allergy free means it reduces the time pupils and staff are away from school, and also allows us to use it around those with asthma without the COSHH implications that come with using a chemical product.”

EYRES MONSELL PRIMARY SCHOOL

BENIHANA

“AquaTeck spray from Greenteck is a fantastic product, it’s a game changer in this industry replacing sanitiser, all-purpose cleaner, and degreaser at once with the safest liquid (drinkable water).”

Contents

Contact

0208 150 6222

info@greenteckglobal.com

www.greenteckglobal.com

GreenTeck Global Limited
2 Moses Winter Way
Wallingford
Oxfordshire
OX10 9FE

SC-100

GreenTeck Global

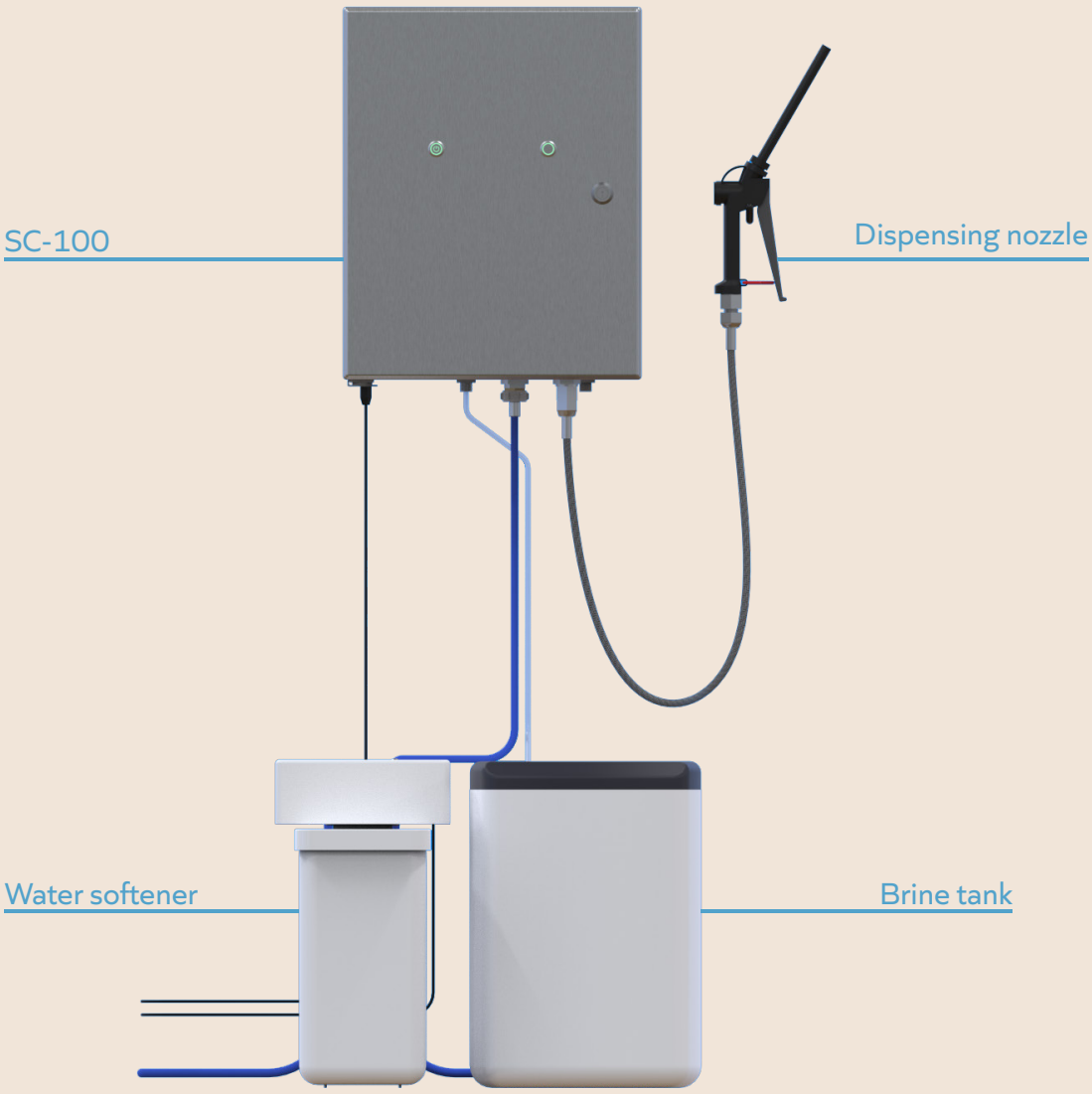
GreenTeck Global is an innovator in alternative green technologies; providing sustainable, energy-conscious and cost-effective solutions that make a proven difference to the environment.

When the very future of our planet necessitates the need for cleaner air and cleaner water, GreenTeck is pioneering ways to reduce the cost and complexity of bacteria, pathogen and odour control.

Introduction

The AquaTeck SC-100 produces an effective, chemical-free cleaning solution using HOCL technology. Simple to use and maintain, the machine inputs tap water, electricity, and small amounts of brine to instantly produce a cleaning solution on demand. The SC-100 is great for refilling bottles, mop buckets, and fogging equipment at medium to large-scale businesses. Once the chemical-free solution has sanitised a surface, it simply reverts to water, oxygen and salt.

The complete system includes the AquaTeck SC-100 panel, dispensing nozzle, brine tank, and a water softener unit.



Hypochlorous Acid (HOCl)

Chlorine and Microbes

Chlorine has been used as the basis for water treatment and disinfection due to its effectiveness and abundance all over the world, the main source being in our oceans in the form of sodium chloride (Salt).

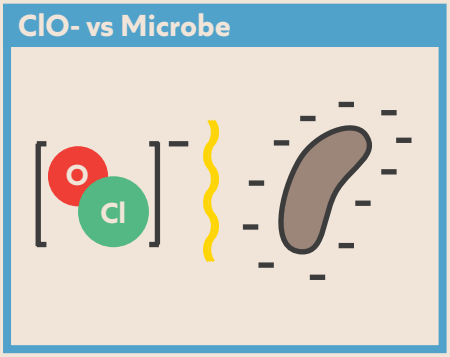
Conventionally, bleach based on the chemical sodium hypochlorite (NaOCl) is used to disinfect bacteria and viruses. However hypochlorous acid (HOCl) is proven to be 80 to 100 times more effective as an antimicrobial compared to sodium hypochlorite.

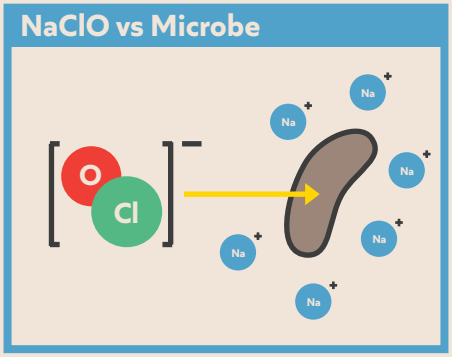
All bacteria and many viruses are protected by a negatively charged membrane, therefore the negatively charged hypochlorite ion (ClO-) is repelled away from the microbes and is unable to pass through the membrane layer.

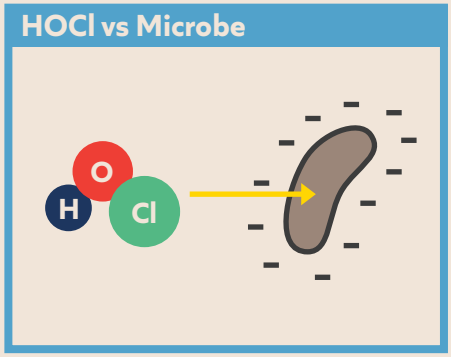
NaOCl vs HOCl

Sodium hypochlorite (NaOCl) breaks through the membrane layer in a forceful manner. This is commonly practised by raising the pH of the hypochlorite ion to about pH 13 by adding sodium hydroxide. The high pH causes the membrane to lose its structure allowing the hypochlorite ions to pass into the centre of the microbe. However, this process requires a high concentration as it must overpower and control the entire surrounding environment.

Hypochlorous acid (HOCl) is a relatively small molecule with no overall charge meaning it can easily diffuse through the membrane layer and enter the centre of the microbe. Once inside, HOCl disrupts vital processes within the microbes such as breaking down nucleic and halting protein production, killing them with a small but highly effective dose.







Accreditations

MSL Microbiology Testing Laboratories

BS EN 14476

Certified to kill 99.994% of Coronavirus. Testing standards certify a 99.99% kill of all viruses, HOCl was tested against a COVID-19 surrogate.

ALS Testing Laboratories

BS EN 1276

Certified to kill 99.999% of all bacteria. This was tested against Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa and Enterococcus hirae.

Modified BS EN 1276

Method modified to give a more precise kill rate. Kills 99.99999% of Salmonella enterica. Kills more than 99.99999% of Escherichia coli. Kills more than 99.999999% of Listeria monocytogenes.

BS EN 13697

Certified as an effective biocide on an array of organisms in dirty conditions
The microbial solution consisted of Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa and Enterococcus faecalis, Saccharomyces cerevisiae and Candida albicans.

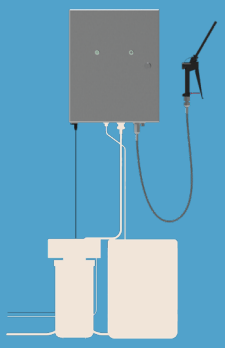
Perfectus Biomed Group

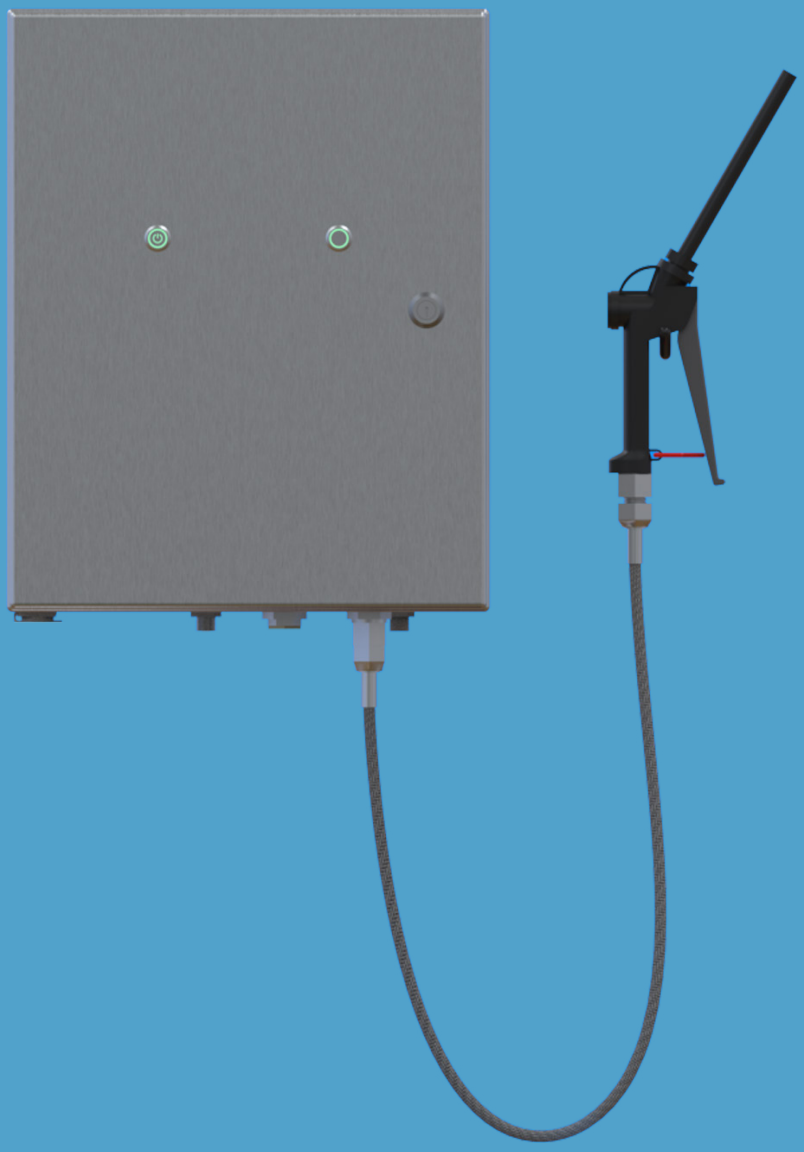
BS EN 1650:2019

Certified to kill 99.99% of all yeast and fungi. This approves HOCl for use as an effective fungicide and yeasticide for use in food, industrial, domestic and institutional areas. Over 99.99% effective against C. albicans in less than 60 seconds. Also tested against A. brasiliensis as model fungi, achieving a kill rate exceeding 99.99%.

SC-100

Section 1: SC-100 Panel





Product Parameters

Description	Model	Size
HOCl Production System	AquaTeck SC-100	400 x 220 x 550 mm

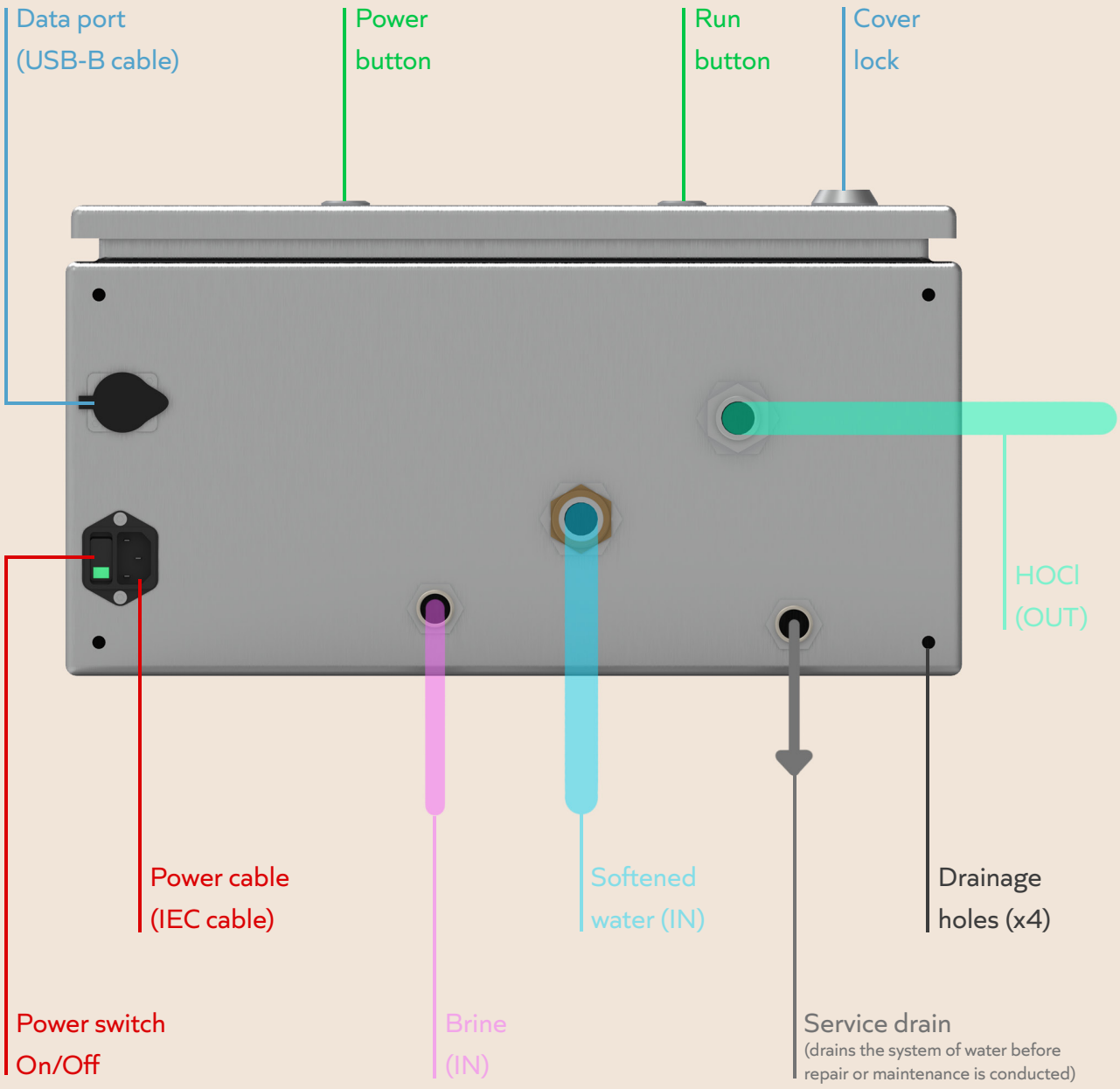
Weight	Power supply
18 kg	90 - 250 V AC / 50 Hz / min. 6 A

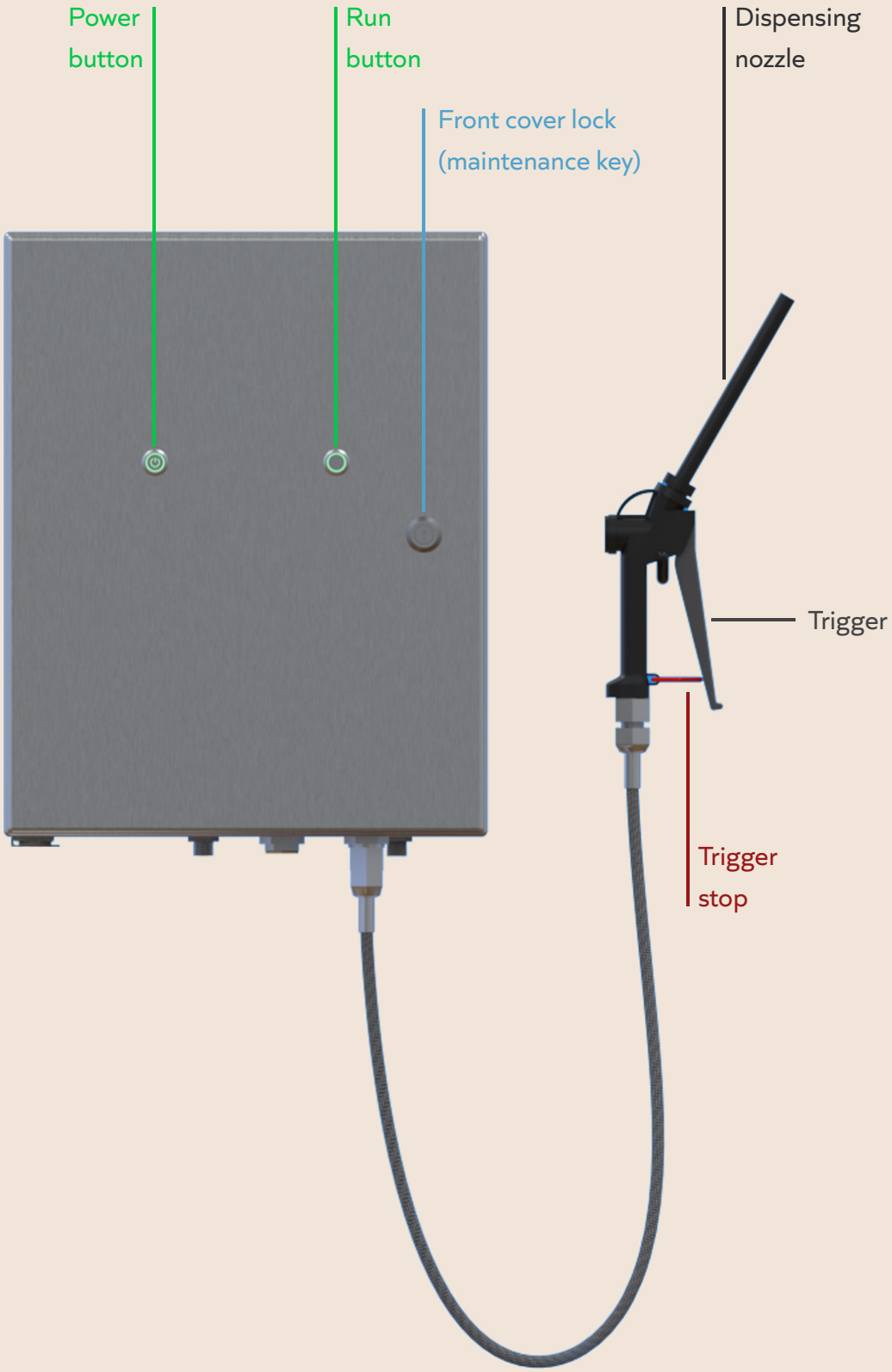
Water intake	Water output	Operating water temperature
Softened tap water and brine	HOCl	5 - 30 °C

Flow
Max 175 litres/h

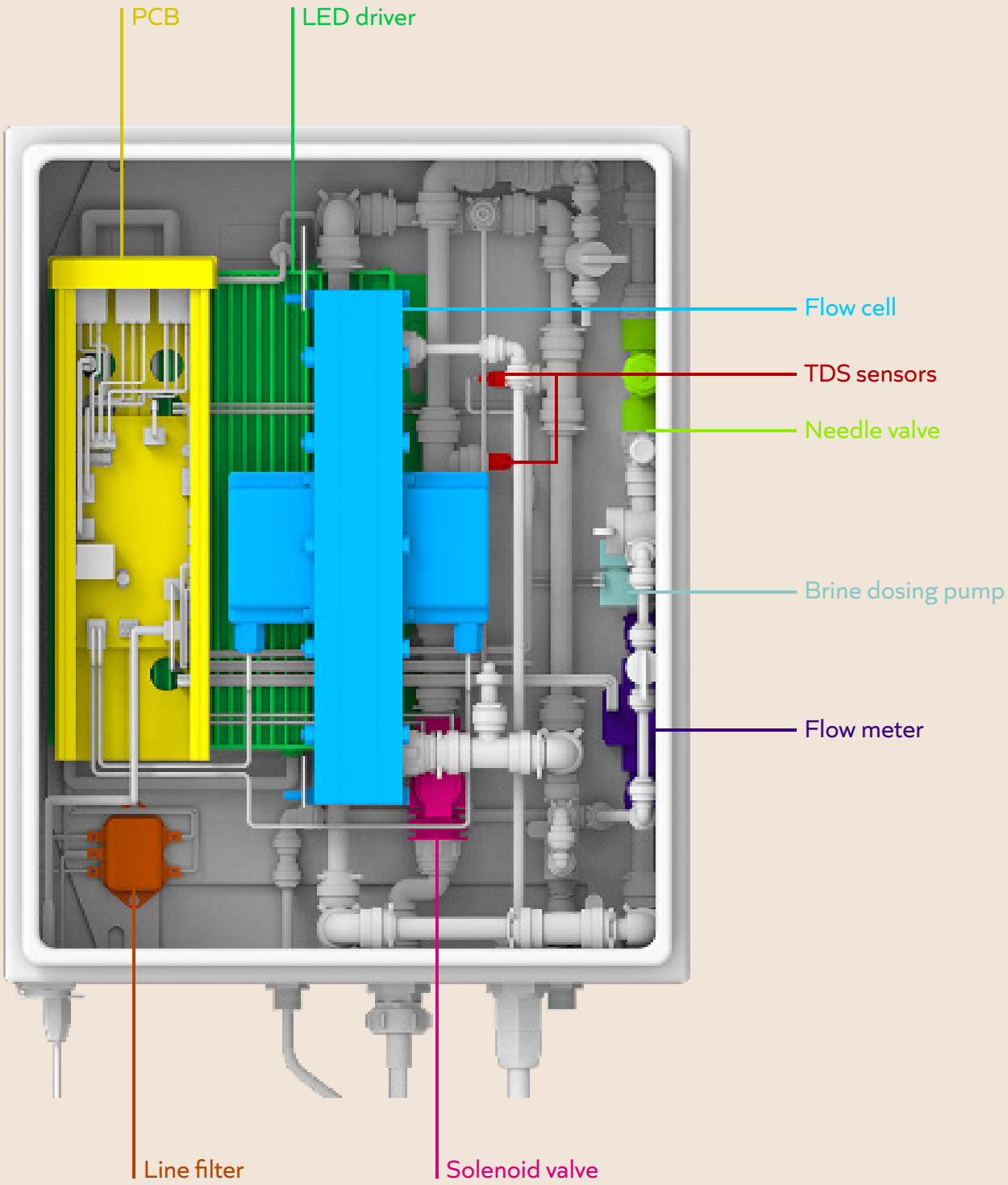
SC-100 Exterior

The SC-100 panel has a simple exterior for user-friendly operation. Both power and run buttons are on the front panel of the machine, alongside the cover lock for the panel's door. All other components are arranged on the bottom of the machine, this includes the two ports for mains power from an IEC cable and data from a USB-B cable. Then (from left to right) you will find the brine input from the brine tank, softened water input from the water softener, HOCl output to the dispensing nozzle, and service drain output.




Power button
Run button
Front cover lock (maintenance key)
Dispensing nozzle
Trigger
Trigger stop

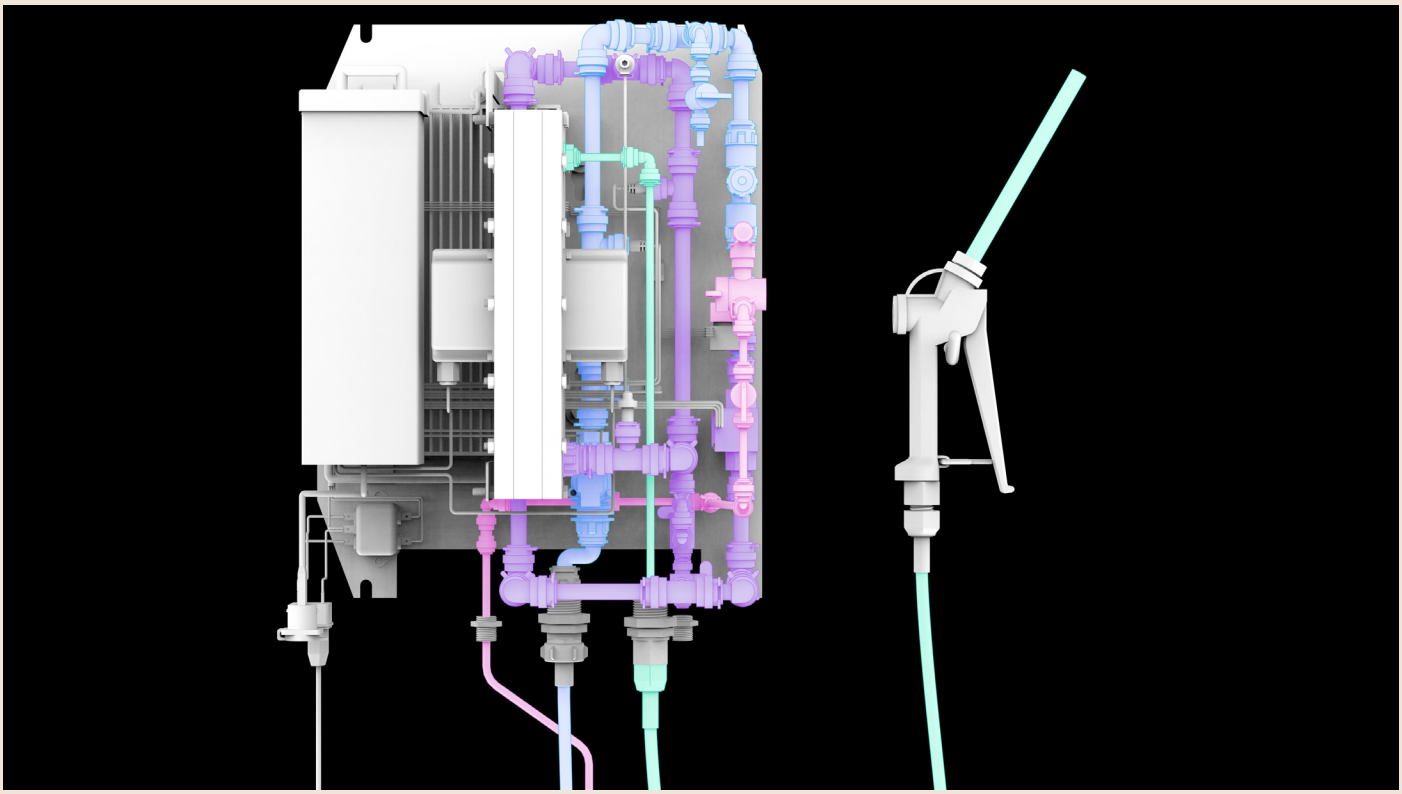
SC-100 Interior



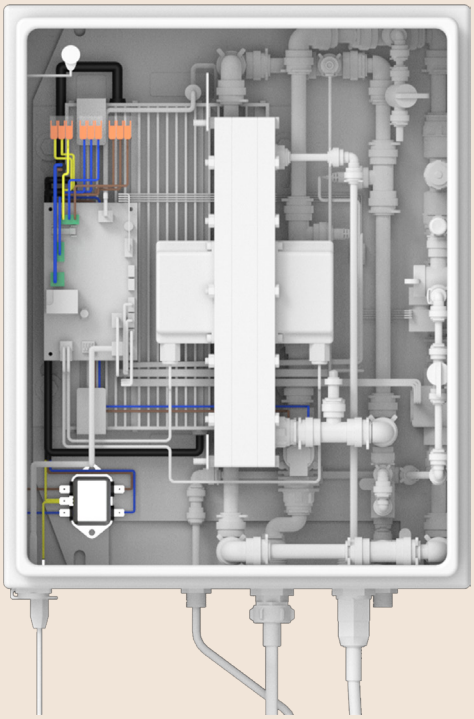
SC-100 Plumbing

The SC-100 uses and processes four types of liquid. Brine solution and softened water are input into the unit. The two liquids then combine together and input into the flow cell where they are electrolysed into HOCl. HOCl solution outputs from the unit via the dispensing nozzle.

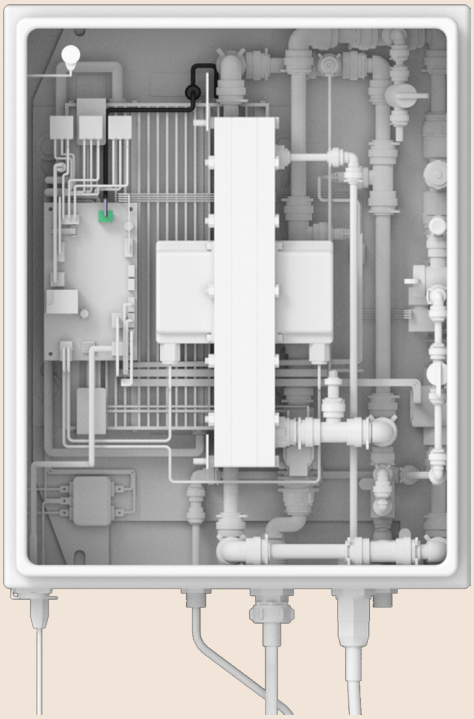
- HOCl (OUT)
- Softened water (IN)
- Brine (IN)
- Softened water + brine



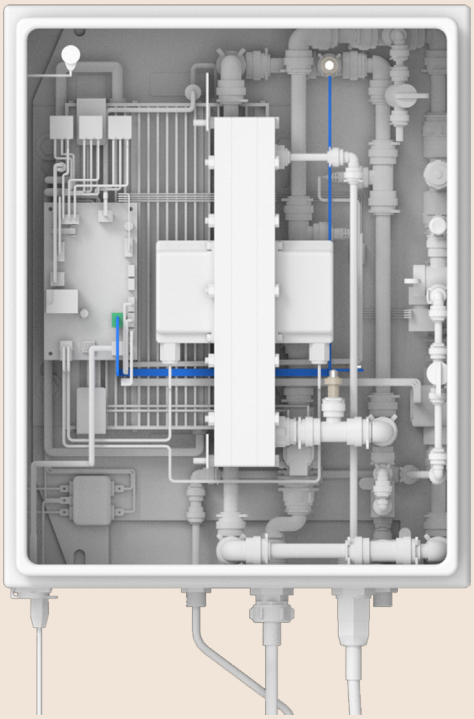
SC-100 Electronics



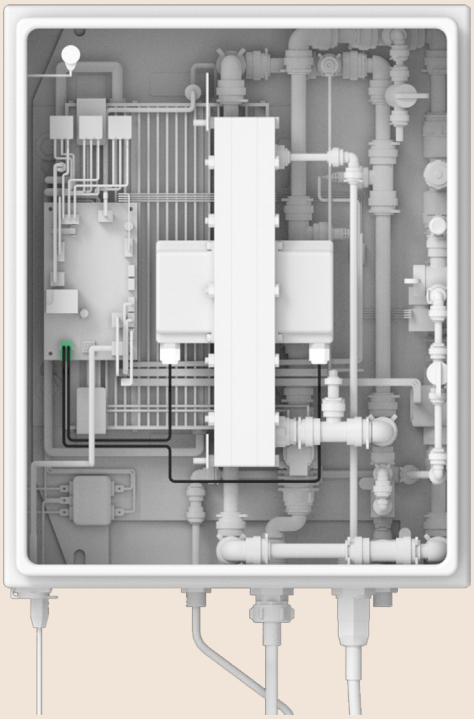
Mains power supply inputs through the IEC port, transfers through the line filter then runs to the PCB.



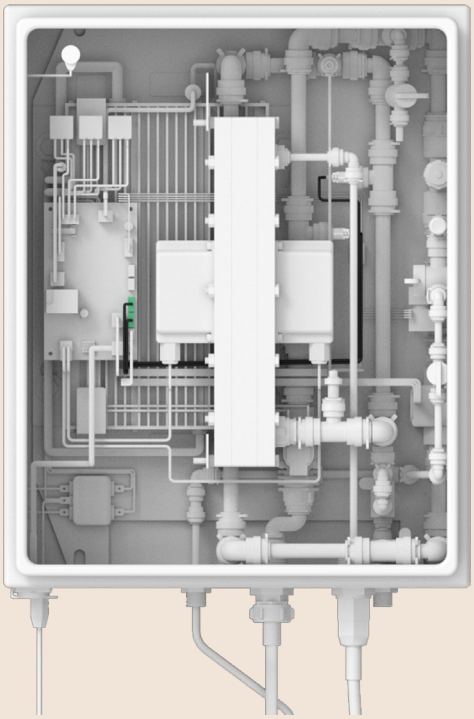
The LED driver is connected to the PCB by a set of coloured wires encased in black cable.



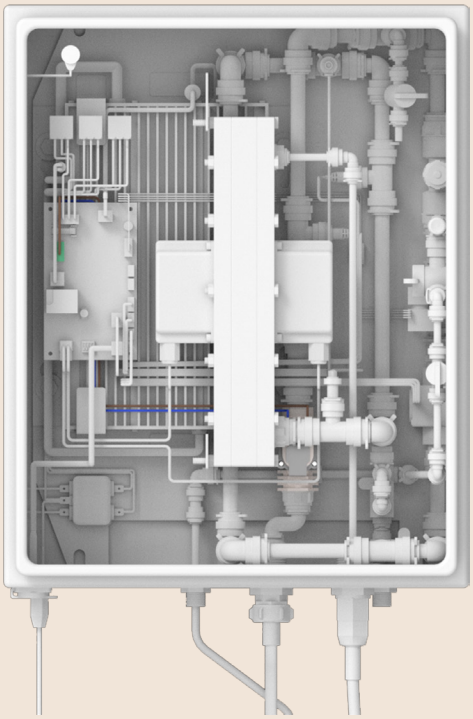
There are three earth points around the unit that are connected to the PCB with blue wires.



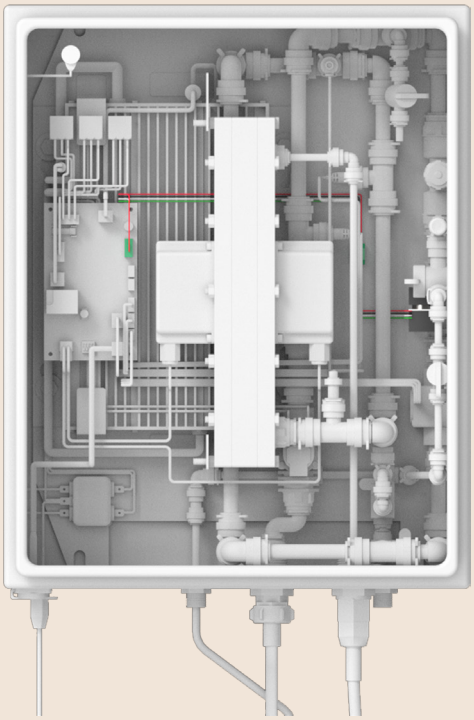
There are two supplies to the flow cell from the PCB with black wires.



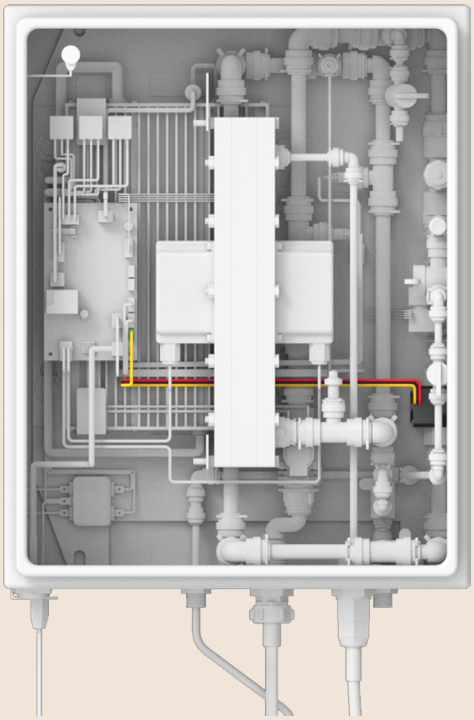
There are two TDS sensors in the SC-100 unit, these are connected to the PCB with black wires.



The solenoid valve is connected to the PCB with a brown and a blue wire.



The brine dosing pump is connected by four wires; red, white, black, green.



The flow meter is connected to the PCB with three wires; red, black, yellow

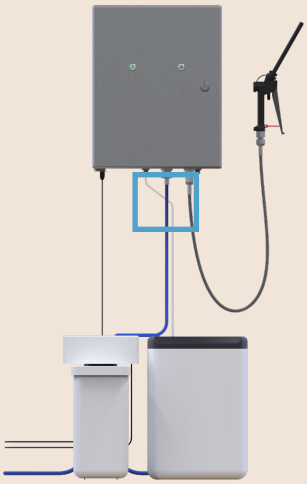
Display and Errors

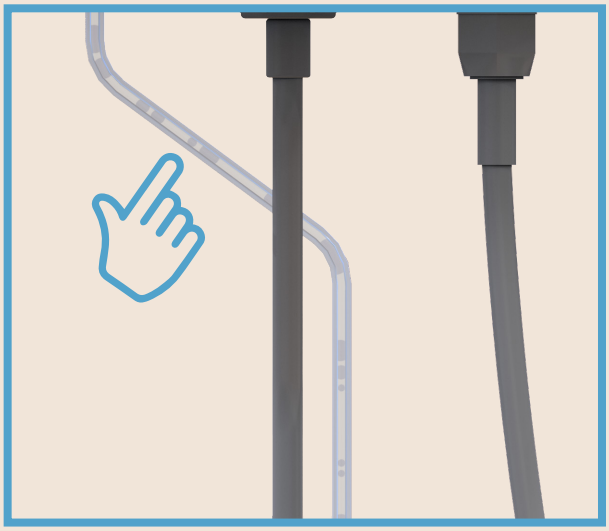
Power Button	Run Button	Description	
		Status	Off mode (equipment off)
		Status	Standby mode
		Status	Ready mode (flow: 0 litres/h)
		Status	Production mode (max: 175 litres/h)
		Status Correction	Flow too slight - no HOCl production Hold RUN button for five seconds Equipment switches to standby mode
		Status Correction	Check fill level of salt water tablets - check salt regularly Hold POWER and RUN button for five seconds Equipment switches to standby mode This status is also triggered once a month as a reminder to check the salt levels
		Status Correction	Technical defect - no HOCl production Contact service engineer

Common Error

Bubbles in brine line

The most common error found in the system is caused by a lack of brine reaching the SC-100 unit. This can be identified by inspecting the thin, clear pipe, known as the brine line, which connects the brine tank to the SC-100. If the pipe is full of bubbles, it means that pockets of air have leaked into the system, and without a consistent flow of brine the system will fault.



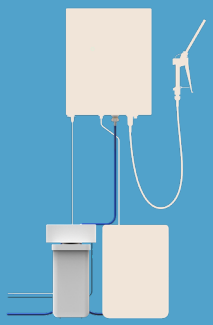


To solve this error, you should first follow the brine tank and softener SOP (page 25), which will allow you to check if there is enough brine in the tank itself and if the brine line is submerged in the brine solution. Once the brine tank has been checked over, the SC-100 can run the brine pump in order to restore a consistent flow. First, ensure the system is in 'Off mode' displaying no light from the two buttons. Next, press and hold the 'RUN button' for approximately eight to ten seconds, the RUN button will start to flash green, and the system will pump brine for ten seconds. Next, inspect the brine line, if it is free of bubbles, you can operate the SC-100 as normal, however, you may need to repeat this process 3-4 times in order to remove all bubbles. If the machine is free of bubbles, yet still faulting, contact GreenTeck Global for assistance.

Power Button Run Button

SC-100

Section 2: Water Softener



Product Parameters

Description	Model	Size
Water Softener	SC-100 Water Softener	320 x 520 x 670 mm

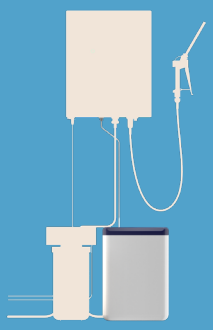
Weight	Power supply
14 kg (when empty)	230 V AC / 50 Hz

Water quality	Operating water pressure	Operating water temperature
Clean Tap Water	2.0 - 4.0 bar	5 - 30 °C

Salt tablets
Salt (NaCl) approved under the Biocide Ordinance (EU 528/2012)

SC-100

Section 3: Brine Tank



Product Parameters

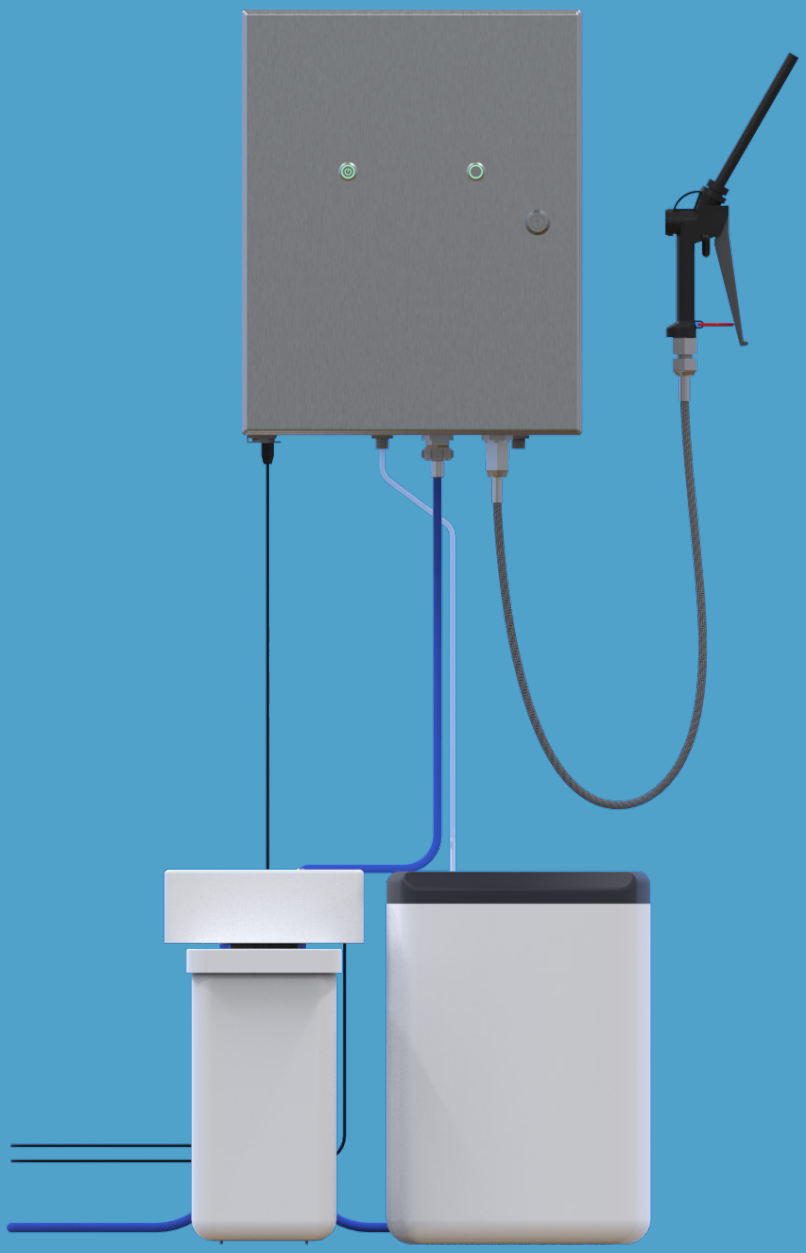
Description	Model	Size
Brine Tank	SC-100 Brine Tank	310 x 340 x 440 mm

Salt tablets
Salt (NaCl) approved under the Biocide Ordinance (EU 528/2012)

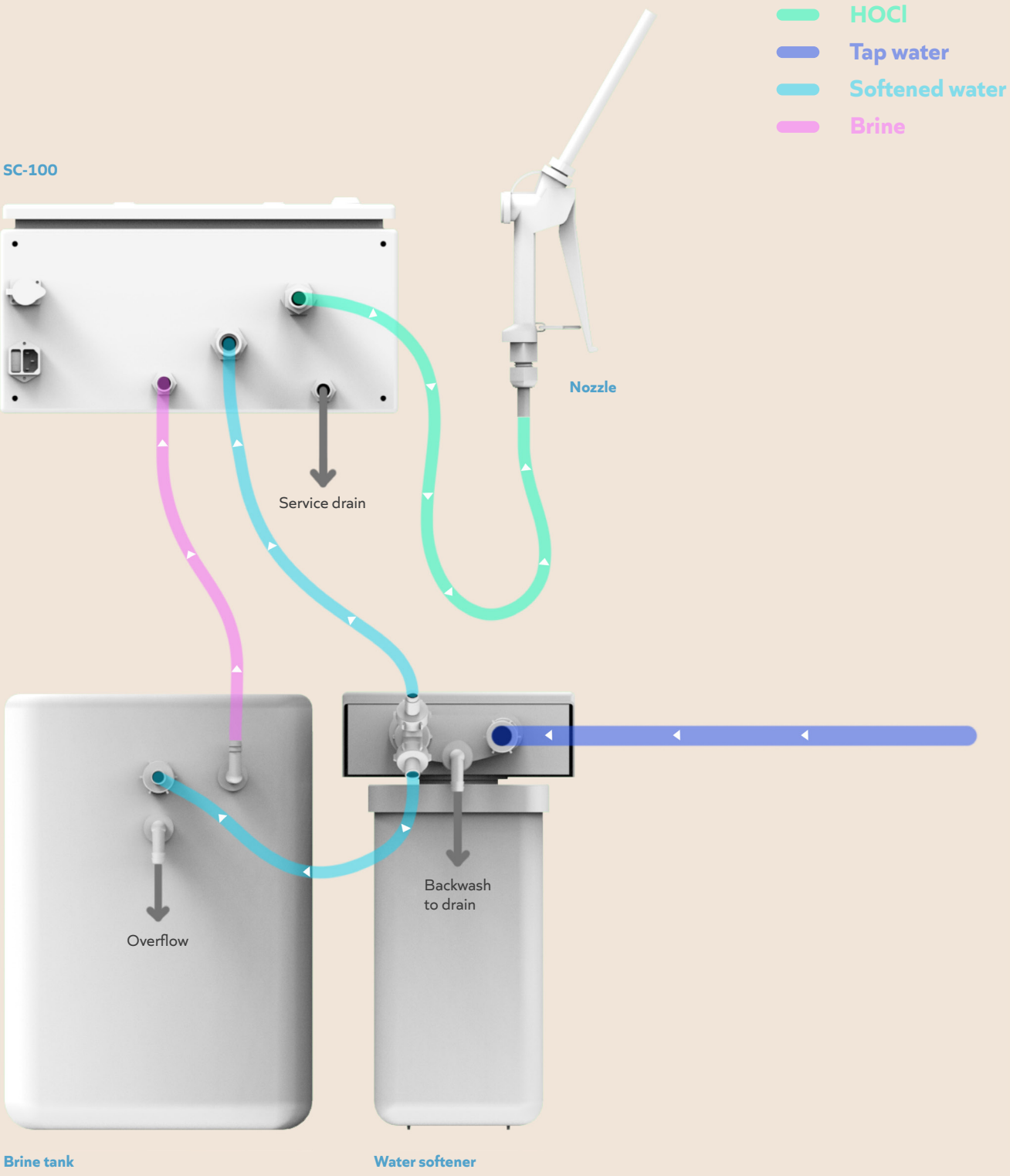
Water quality	Operating water temperature
Softened Tap Water	5 - 30 °C

SC-100

Section 4: Full System



System Layout



SC-100

Pre-Installation Guide

In preparation for the install of your SC-100, there are three key utilities which need to be identified and made accessible in close proximity to the SC-100 location.

Two UK mains power supply plug sockets

Mains electricity is required as a source of power for the SC-100 panel and the water softener.

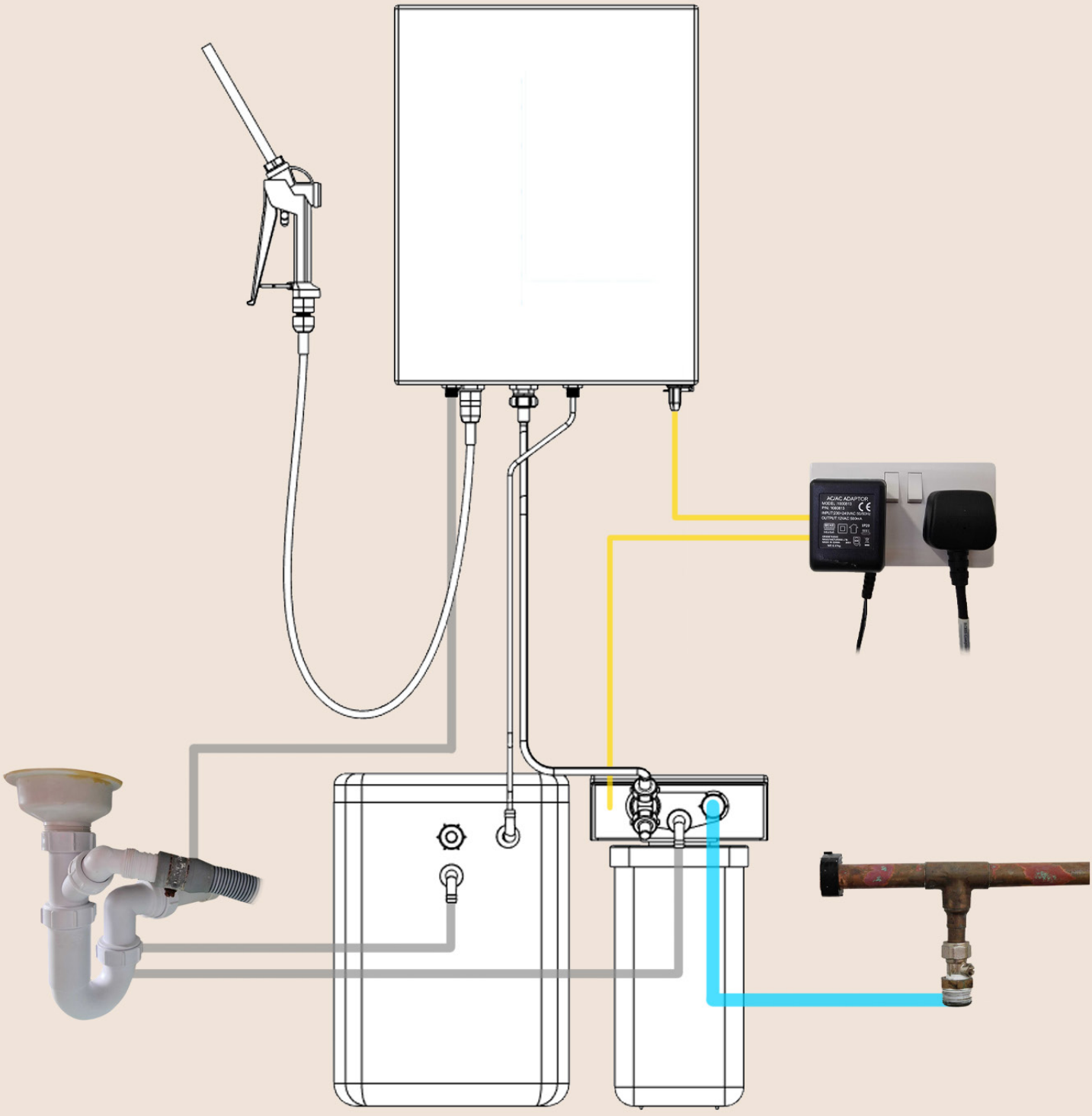
One 3/4" BSP mains water connection (preferably with a shut off valve)

A mains water connection is required to supply the water softener with tap water which will circulate around the full SC-100 system.

Space to accomodate three 1/2" drainage hosepipes (two overflow, one waste water)

The full SC-100 system requires three points of drainage for waste water and overflow water to drain out of the system from.

Diagram of utility inputs and outputs



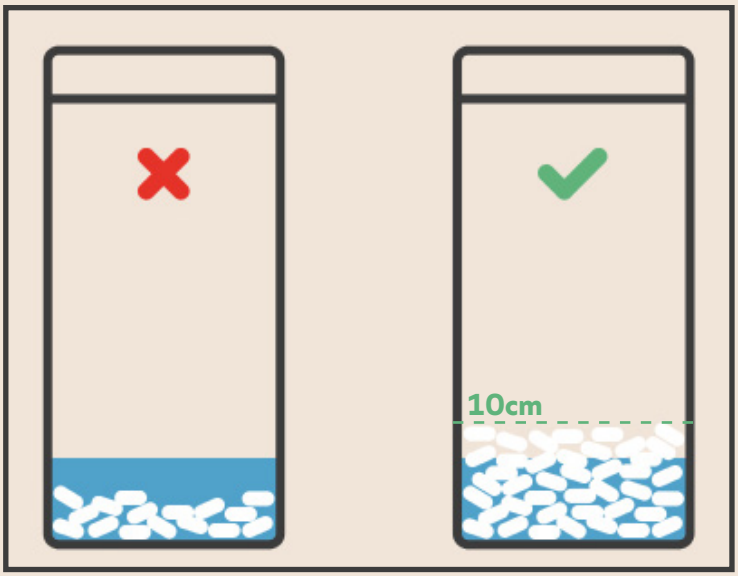
Brine Tank and Softener SOP

CHECK SALT AND WATER LEVELS AT LEAST ONCE A WEEK

Only trained operators should use the SC-100. Basic training should cover HOCl production and inspection of the brine tanks. Other tasks listed in this SOP are not necessary for basic operation of the unit.

Tank Inspection Procedure

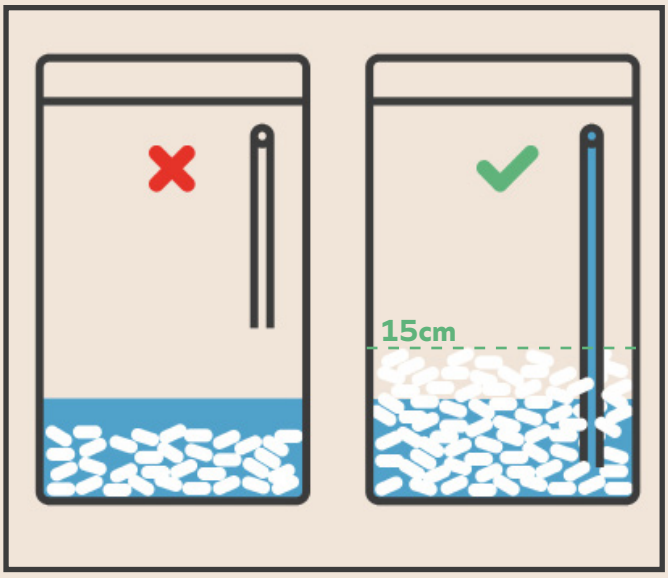
1 Open the lid of the brine tank on the water softener.



2 If the salt level is below the water level, more salt tablets should be added to a depth of approximately 10cm.

3 Close the lid of the brine tank on the water softener.

4 Open the lid of the seperatre brine tank.



5 If the salt level is below the water level, more salt tablets should be added to a depth of at least 15cm.

6 Ensure that the brine pipe is located below the waterline.

7 Close the lid of the seperate brine tank. The salt levels check is now complete.

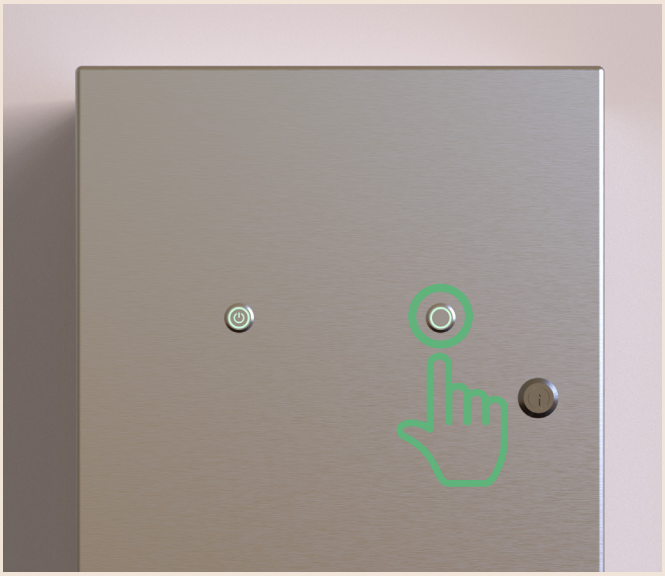
HOCl Generation SOP

CHECK SALT AND WATER LEVELS AT LEAST ONCE A WEEK

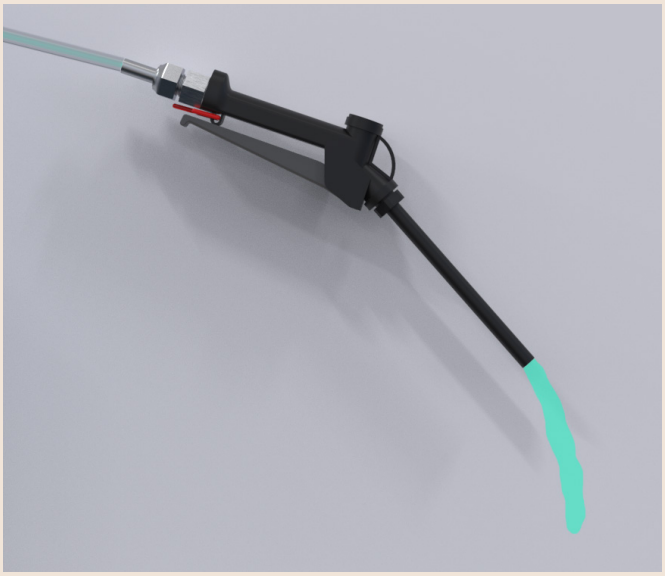
Only trained operators should use the SC-100. Basic training should cover HOCl production and inspection of the brine tanks. Other tasks listed in this SOP are not necessary for basic operation of the unit.

SC-100 Operation Procedure

1 Turn the SC-100 on by pressing the left button, it will light up green.

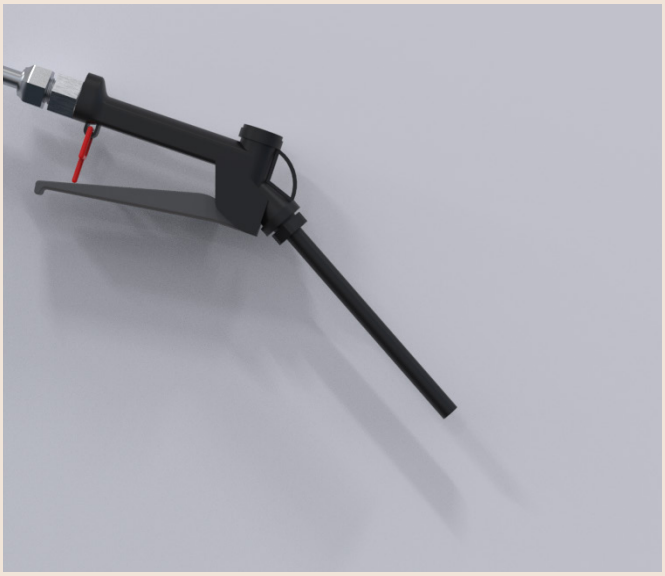


2 Activate the running mode by pressing the right button, it will light up green.



3 Squeeze the nozzle trigger, and dispense HOCl for at least 60 seconds before filling any containers.

4 Place the tip of the dispensing nozzle into a suitable container and squeeze the trigger to begin dispensing HOCl.



5 Release the trigger to stop flow of HOCl.

6 Turn the SC-100 off by pressing the left button - the lights will go out.

Batch Recording

CHECK SALT AND WATER LEVELS AT LEAST ONCE A WEEK

It is important to log each batch of the solution produced. This provides users with an expiry date for the HOCL, and accurate traceability in the event of CQC or EHO inspection. It is also recommended that any stored solution is replaced every two weeks, in order to maximise effectiveness. Don't worry, the liquid poured down the drain is not harmful to the environment and will quickly turn back to water and salt.

SC-100 Operation Procedure

To record the batch, fill out the form included below and label any container including the batch of solution produced.

Solution Volume (litres)	Date of Production	Salt Checked	Signed

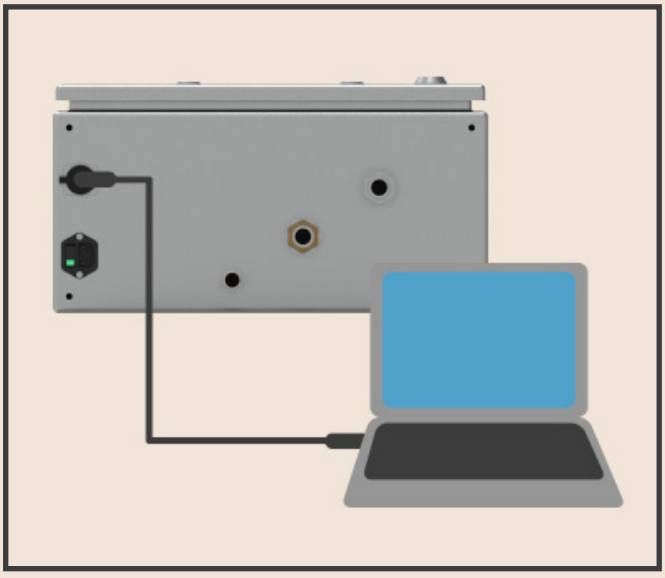
Solution Volume (litres)	Date of Production	Salt Checked	Signed

Data Collection SOP

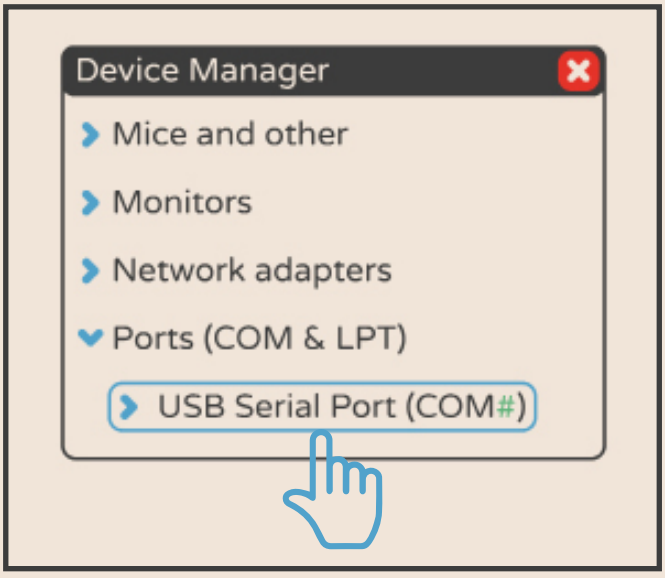
CHECK SALT AND WATER LEVELS AT LEAST ONCE A WEEK

Only trained operators should use the SC-100. Basic training should cover HOCl production and inspection of the brine tanks. Other tasks listed in this SOP are not necessary for basic operation of the unit.

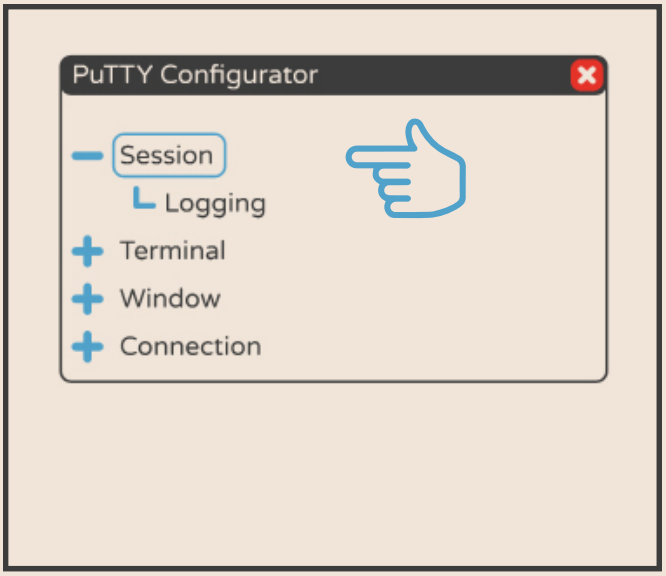
SC-100 Operation Procedure



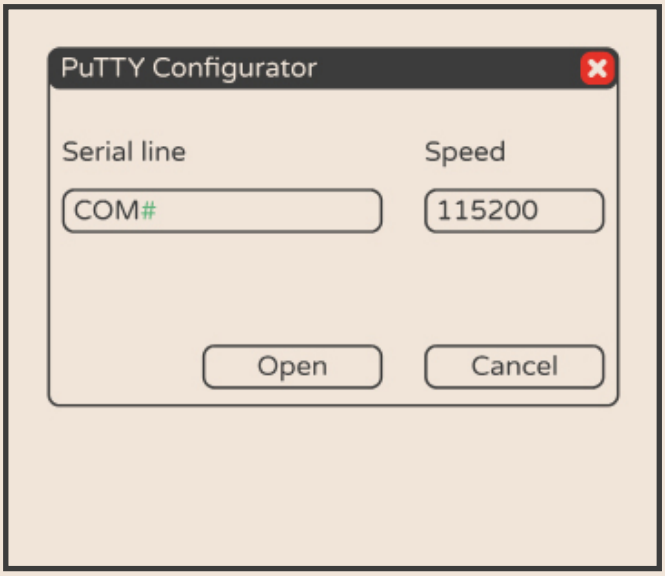
1 Connect a USB-B cable to the port on the underside of the SC-100. Connect the USB-A end of the cable to the PC.



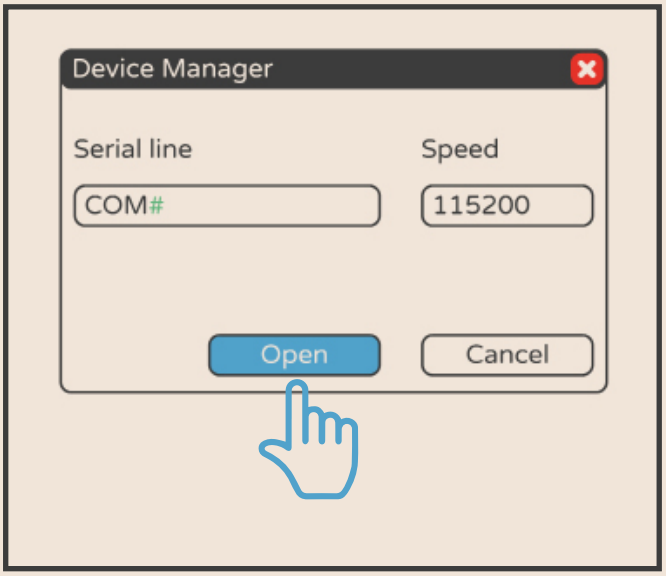
2 Navigate to the Device Manager on the PC and find the number of the COM port for the connection.



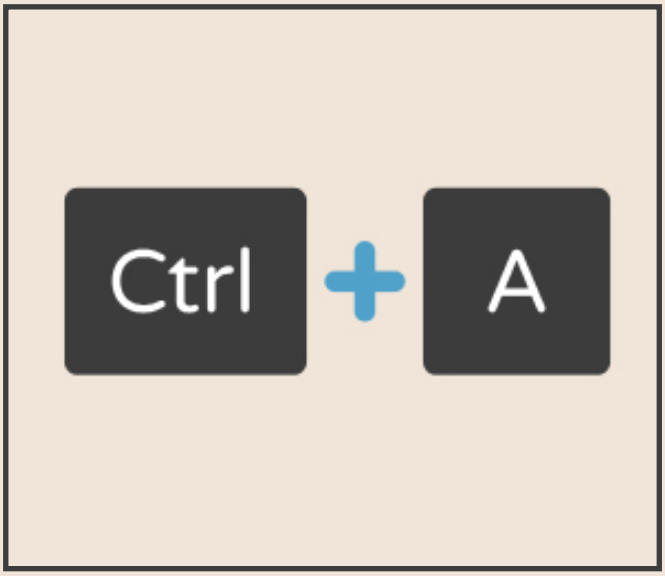
3 Open the PuTTY software and navigate to the Session category. PuTTY can be downloaded from; https://www.putty.org/



4 Select Serial connection type, enter the COM# into the Serial line field and 115200 into the Speed field.



5 Click Open to connect to the SC-100.



6 Press Ctrl + A to bring up the SC-100 information, which includes the runtime and number of litres produced.

Contextual Setup

The SC-100 dispenses HOCl solution which can be used to refill a vast range of cleaning equipment. It is recommended that users store some HOCl in containers, as an insurance in the event of a system fault or running low on salt.

Backup HOCl must be stored in opaque containers that do not let sunlight through (e.g. Fig. 7). It is also best practise to empty and refill these tanks every two weeks to maximise the effectiveness of the HOCl solution.

1. SC-100 unit (wall mounted)
2. HOCl dispensing nozzle
3. Water softener
4. Brine tank
5. GreenTeck Flairosol (refillable misting bottle)
6. GreenTeck 500ml (refillable spray bottle)
7. GreenTeck 5 litre (refillable storage tank)

Safety Data Sheet

SECTION 1: Identification of the substance/ mixture and of the company/undertaking

1.1. Product identifier: Mixtures

Trade name
GreenTeck Pure Genius

Product Group
Disinfectants

1.2. Relevant identified uses of the substance or mixture and uses advised against
Relevant identified uses
Industrial and for professional and non-professional use (surface cleaning and sanitisation)
Uses advised against
Any other use outside recommended.

1.3. Details of the supplier of the safety data sheet:
Supplier
Name: GreenTeck Global Ltd.
Address: 2 Moses Winter Way
Wallingford
Oxfordshire
UK
OX10 9FE
E-Mail: will@greenteckglobal.com

1.4. EMERGENCY TELEPHONE NUMBER:
THE NATIONAL FOCUS FOR CHEMICAL INCIDENTS: +44 029 2041 6388
NATIONAL CHEMICAL EMERGENCY CENTRE: +44 01235 463060

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture:
Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS] : Not classified

2.2. Label elements
Labelling according to Regulation (EC) No 1272/2008 [CLP/GHS] : No labelling applicable

2.3. Other hazards
None known.

SECTION 3: Composition/information on ingredients

3.1. Substances
Hypochlorous acid: 0.012% to 0.20%
CAS No: 7790-92-3
(Active Chlorine released from hypochlorous acid)
Sodium Chloride: 0.55% to 0.70%
CAS No: 7647-14-5
Water: >99.1%
CAS No: 7732-18-5

3.2. Mixtures
Description of the mixture
This mixture does not contain any substances to be mentioned according to the criteria of section 3.2 of REACH annex II
Hazardous ingredients
None

SECTION 4: First aid measures

4.1. Description of first aid measures
Following inhalation
If discomfort develops, remove from further exposure and allow to breathe fresh air. Obtain medical attention if any discomfort continues.
Following skin contact
Rinse area with water. Non-sensitising.
Following eye contact
If discomfort develops, flush eyes with plenty of water and remove contact lenses. Obtain medical attention if irritation continues.
Following ingestion
None required.

4.2. Most important symptoms and effects, both acute and delayed
No information available.

4.3. Indication of any immediate medical attention and special treatment needed
No information available.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2. Special hazards arising from the substance or mixture
Not flammable or explosive.

5.3. Advice for fire-fighters
No additional information available.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate non-emergency personnel.

6.2. Environmental precautions
If allowed by the local environmental regulatory, spills can be washed to sewer with plenty of water.

6.3. Methods and material for containment and cleaning up
Mop up / absorb with inert material (cloth, paper towel, etc.). Cleaning materials may be disposed of as normal refuse.

6.4. Reference to other sections
See also section 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Protective gloves recommended. Wash hands after working with product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions : Store in a closed, opaque container. Keep in a cool, well ventilated place, keep the container closed when not in use. The product is designed for immediate usage or short term storage under specific conditions based on user instructions. Prolonged storage reduces the cleaning and disinfection abilities.
Incompatible products : Strong acids or products containing ammonia (development of hazardous gases), hydrogen peroxide.
Incompatible materials : Direct sunlight, UV light, heat.
Storage temperature : 5-30°C.

7.3. Specific end uses
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
No occupational exposure limit available.

8.2. Exposure controls
Eye/Face protection : Not needed for normal use. Protective goggles recommended if spraying product
Skin protection : Protective rubber or nitrile gloves recommended to be worn while handling product
Respiratory protection : Not needed for normal use. It is recommended to avoid breathing droplets created by spraying
Thermal hazards : None.
Environmental exposure controls : None.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Appearance:	Clear Solution
Colour:	Colourless
Odour:	Slight chlorine odour
Odour threshold:	Not available
pH:	6.5 – 8.0
Melting point/freezing point:	0° C / - 2° C
Initial boiling point and boiling range:	100° C
Solid/gas flammability:	Not applicable
Upper/lower flammability or explosive limits:	Not applicable
Vapour density:	Not available
Flash point:	Not applicable
Evaporation rate:	Not available
Vapour pressure:	20 - 25 hPa (20° C)

Safety Data Sheet

Relative density:	1.0 – 1.01 g/mL
Solubility in water:	Completely soluble
Solubility in oil:	Not soluble
Partition coefficient (n-octanol/water):	Not available
Auto-ignition temperature:	Not applicable
Viscosity:	Not available
Ignition temperature:	Not applicable

9.2. Other information
No additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable under normal conditions. See section 10.3.

10.2. Chemical stability
Stable under normal conditions. Sunlight and high temperatures degrade the active chlorine content. Product label contains shelf life information.

10.3. Possibility of hazardous reactions
Do not mix with strong acids or strong bases. Chlorine gas may be released in the presence of strong acid. Chloramine gas may be released in the presence of ammonia.

10.4. Conditions to avoid
Direct sunlight, extremely high and low temperatures.

10.5. Incompatible materials
No information available.

10.6. Hazardous decomposition products
None.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Sodium chloride – CAS: 7647-14-5

Term	Endpoint	Value	Species	Reference
Accute oral toxicity	LD50	3550mg/kg	Rat	ECHA
Acute dermal toxicity	LD50	>10000mg/kg	Rabbit	ECHA
Acuteinhalative toxicity	LD50	>42mg/L/1h	Rat	ECHA

Skin irritation rabbit result: Slightly to not irritant (ECHA).
Eye irritation result: No data available.
Sensitisation mouse test: Not sensitizing (ECHA).
Human experience result: Negative (ECHA).
Germ cell mutagenicity: Genotoxicity in vitro Ames test. Result: negative (ECHA).

SECTION 12: Ecological information

12.1. Toxicity
No additional information available.

12.2. Persistence and degradability
The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential
No additional information available.

12.4. Mobility in soil
Hypochlorite as an inorganic substance with an infinite water solubility and very low partitioning coefficients should be considered to be mobile in soil and sediment.

12.5. Results of PBT and vPvB assessment
Sodium chloride is an inorganic salt, which will dissociate into its respective ionic species for which no further biological oxidation is possible.
Hypochlorous acid will partially dissociate into its respective ionic species for which no further biological oxidation is possible. Therefore neither of the substances are PBT / vPvB.

12.6. Other adverse effects:
None.

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Dispose in a safe manner in accordance with local and national regulations. All packaging may be recycled.

SECTION 14: Transport information

14.1. In accordance with ADR / RID / IMDG / IATA / ADN
UN number: N/A
UN proper shipping name: N/A
Transport hazard class(es): N/A
Packing group: N/A
Environmental hazards: N/A

14.2. Special precautions from user
Overland transport: N/A
Transport by sea: N/A
Air transport: N/A
Inland waterway transport: N/A
Rail transport: N/A

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
The product is not classified as dangerous according to EU-directive 1272/2008.
Regulation (EC) No 648/2004 on detergents
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer – classified as not ozone-depleting.
This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w).
Occupational restrictions
Take note of Dir 94/33/EC and 92/85/EEC on the protection of young people and pregnant workers.

15.2. Chemical Safety Assessment
For this substance a chemical safety assessment was not carried out.

SECTION 16: Other information

16.1. Abbreviations and acronyms
Used abbreviations and acronyms can be looked up at www.wikipedia.org.

16.2. Key literature references and sources for data
REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.
ECHA – European Chemicals Agency
ECOTOX Knowledge Base

16.3. Relevant R-, H- and EUH-phrases
None.

16.4. Training advice
Provide adequate information, instruction and training for operators.

16.5. Further information
The product contains no volatile organic compounds.

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product. It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

Creative Care

"In the homes where we have replaced chemical cleaning with the AquaTeck product we have seen nearly 60% savings on our cleaning materials cost each month."

"In December 2021, Great Western Railway started using an AquaTeck SC-100 to produce solution to refill their spray bottles and cleaning equipment. In the space of 3 months they had refilled the equivalent of 1,435 single use cleaning bottles - saving almost 30kg of plastic in just 90 days."

GWR

0208 150 6222

info@greenteckglobal.com

www.greenteckglobal.com

GreenTeck Global Limited
2 Moses Winter Way
Wallingford
Oxfordshire
OX10 9FE

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