

USI HYDROCELL 1

Instruction Manual



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1. Specifications

USER INTERFACE	
Display	7 inch (800x480 pixels) full colour graphical display with anti-glare cover
Programming	Touch screen (optional wireless keypad)
Operating Systems	Windows CE 60 R3 (license included)
Enclosure rating	IP65
Logging	32GB SD Card records sampling events; alarm conditions; pump starts, pumped volume and configuration.
SOFTWARE	
Modes	Fully user programmable for calibration volume, line purge, start bottle, continuous or fixed cycle sample interval.
Display Features	Graphical display of bottle filling action, current fill status, alarm conditions, spot sampling
Engineering	Password protected engineering mode for diagnostics, testing and software upgrades.
POWER	
Supply (AC)	85-240V 5A
Supply (DC)	24V 5A
PUMP	
Media source suitability	Wastewater from non-pressurised submersed sampling point
Type	Peristaltic with 24Vdc motor
Pump tube	Thick walled marprene tube, 8mm internal diameter
Intake tube	Braided LDPE up to 40m length
Maximum lift	7 metres (23 feet)
Repeatability	Typically, ± 5 ml (this may vary depending on the density of the liquid)
CONTROL	
Sample trigger	Pulsed input / 4-20mA input / contact closure / timed
Time based	Fully user programmable
OUTPUTS AND COMMUNICATIONS	
Alarms	1 x User programmable SPCO rated at 5A@230Vac
Digital	2 x USB, 1 x Ethernet

Table 1.1 – Device Specifications

2. General Information

The information contained in this manual has been carefully checked and is believed to be accurate. However, Smart Storm assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Smart Storm be liable for direct, indirect, special, incidental or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. In the interest of continued product development, Smart Storm reserves the right to make improvements in this manual and the products it describes at any time, without notice or obligation. Revised editions may be found on Smart Storm's web site www.smartstormgroup.com.

2.1. Safety Information

Please read this entire manual before unpacking, setting up or operating this equipment. Pay attention to all danger, warning and caution statements. Failure to do so could result in serious injury to the operator or damage to the equipment. Make sure that the protection provided by this equipment is not impaired, do not use or install this equipment in any manner other than that specified in this manual.

DANGER






Smart Storm products are designed for outdoor use and are provided with a high level of ingress protection against liquids and dust (see specification for rating). If these products are connected to a mains electricity socket by means of a cable and plug rather than by fixed wiring, the level of ingress protection of the plug and socket connection against liquids and dust is considerably lower. It is the responsibility of the operator to protect the plug and socket connection in such a manner that the connection has an adequate level of ingress protection against liquids and dust and complies with the local safety regulations. When the instrument is used outdoors, it should be connected only to a suitable socket with at least IP44 rating (protection against water sprayed from all directions).

2.2. Use of Hazard Information

DANGER
Indicates a potentially or imminently hazardous situation which, if not avoided, could result in death or serious injury.
WARNING
Indicates a potentially or imminently hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION
Indicates a potentially hazardous situation that may result in minor or moderate injury.
NOTICE
Indicates a situation that, if not avoided, could result in damage to the instrument. It also indicates information that requires special notice.

2.3. Precautionary Labels

Read all labels and tags attached to the instrument. Personal injury or damage to the instrument could occur if not fully observed.

	This symbol, if noted on the instrument, references the instruction manual for operation and/or safety information.
	This symbol, when noted on a product enclosure or barrier, indicates that a risk of electrical shock and/or electrocution exists
	This symbol, if noted on the product, indicates the need for protective eye wear.
	This symbol, when noted on the product, identifies the location of the connection for Protective Earth (ground).
	This symbol, when noted on the product, identifies the location of a fuse or current limiting device.

2.4. Wiring and Handling Precaution

DANGER

Electrocution Hazard. Always disconnect mains supply before removing covers and connecting any external wiring.

Only qualified Electricians should install this product. IET BS7671:2008 wiring regulations must be adhered to when installing the product.

NOTICE

Delicate internal electronic components can be damaged by static electricity, resulting in indeterminate instrument performance or eventual failure. Smart Storm recommends taking the following steps to prevent ESD damage to your instrument:

- Before touching any instrument electronic components (such as printed circuit cards and the components on them) discharge static electricity from your body. The user can accomplish this by touching an **earth - grounded** metal surface for 3 seconds such as the chassis of an instrument, or a metal conduit or pipe.
- To reduce static build-up, avoid excessive movement. Transport static-sensitive components in anti-static containers or packaging.
- To discharge static electricity from your body and keep it discharged, wear a wrist strap connected by a wire to earth ground, especially when handling circuit boards.
- Handle all static - sensitive components in a static - safe area. If possible, use anti-static floor pads and work bench pads.

DANGER

Electrocution hazard. Always install a ground fault interrupt circuit (GFIC)/ residual current circuit breaker (RCCB) with a maximum trigger current of 30 mA. If installed outside, provide overvoltage protection through a MCB rated not greater than 5 Amps.

DANGER

With fixed wiring, a disconnecting device (local interruption) must be integrated into the power supply line. The disconnecting device must meet BS7671:2008 standards and regulations. It must be installed near the device, be able to be reached easily by the operator and labelled as a disconnecting device.

If the connection is established using a mains connection cable that is permanently connected to the power supply, the plug of the mains connection cable can serve as local interruption.

DANGER

Ensure the relays are not subjected to loads great than 5 Amps as this will cause internal damage and possible product destruction.

3. Introduction

The Hydrocell Wastewater Sampler Range is designed to collect composite (flow, event or time proportional) samples of trade effluent discharges in industrial applications.

The bottles available for sampling in the Hydrocell gives flexibility in sampling and collecting, allowing both Continuous and Single Programmed Sequences to be performed.

The large display and touch screen is simple, user friendly programming and clear reporting of the Sampler Status.

4. Installing the Hydrocell

4.1. Location

The Hydrocell 1 is IP65 rated allowing it to be located outside and close to the required sample point. Whilst it includes a High-Resolution Display, care should be taken when positioning the Hydrocell to avoid direct sunlight. This will make the screen difficult to see and ultimately cause permanent damage.

4.2. Electrical Connections

The Hydrocell can be supplied in either 24Vdc or 85-240Vac versions and is supplied with a pre-fitted 10-meter power cable:

24V	Cable 1 +ve,	Cable 2 -ve/GND
AC	Cable 1 Brown Live	Cable 2-Blue Neutral, Green and Yellow GND.

The sampler will boot immediately once the power is connected; it is recommended a local switch/isolator is fitted to the power cable.

A 10-meter sample request cable with a 3-pin connector is supplied. This mates with the connector on the side of the Hydrocell.

4.3. Intake Hose Connection

The Hydrocell can be supplied with a 10-meter length of braided intake hose.

One end of the intake hose should be attached to the Peristaltic Pump and secured with a suitable Jubilee Clip.

The other end should be placed in the effluent at the point from which the sample is to be taken. The following points should be considered when fitting the intake tube:

- Keep the run as short as possible.
- Avoid U bends in the hose as this can lead to airlocks and inaccurate sample volumes. Ideally, place the Hydrocell as high as possible such that the intake tube runs down and horizontally.
- Ensure that the intake tube is below water level when a sample is requested – where a low flow is anticipated, it may be necessary to fit a reservoir to collect the liquid (e.g. after a flume).
- It may be advisable to fit a weight to the end of the Hose or to fit a solid pipe to ensure there is no bending of the Hose above the waterline.
- During a purge and sample the effluent may be disturbed and cause incorrect flow readings. If possible, place away from any open channel measuring equipment.
- Ensure the sample taken is representative of the effluent going to drain. Some systems can be prone to acidic or caustic build up near the edge of tanks and flumes.
- Ensure the sample intake is clear of any build-up of sediment.
- Consider fitting a filter to the end of the Intake Hose to stop the Hose becoming blocked.

5. Operating the Hydrocell

5.1.1 Home Screen

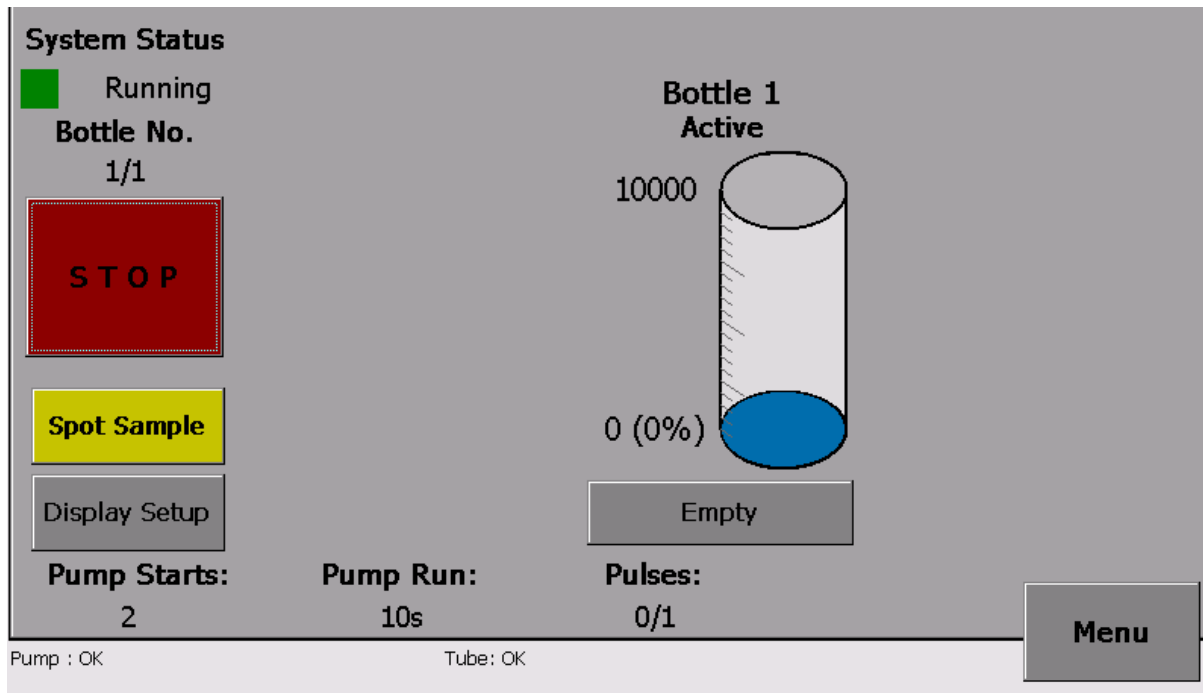


Figure 5.1A HC1 Home Screen

The Home Screen provides information about the status of the Hydrocell. This also shows how full the sample bottle is.

The System Status is displayed at the top left of the screen immediately above the Stop/Start and Spot Sample Buttons.

An indication of the time/events to the next sample is displayed in the bottom left of the screen. This may be the number of Pulses/Contact closures, the Time or the volume of Flow, depending up on the configuration of the Sampling.

5.1.2 Display Setup

Display Setup button allows access to Screens giving information regarding the Set-Up and History of the Hydrocell.

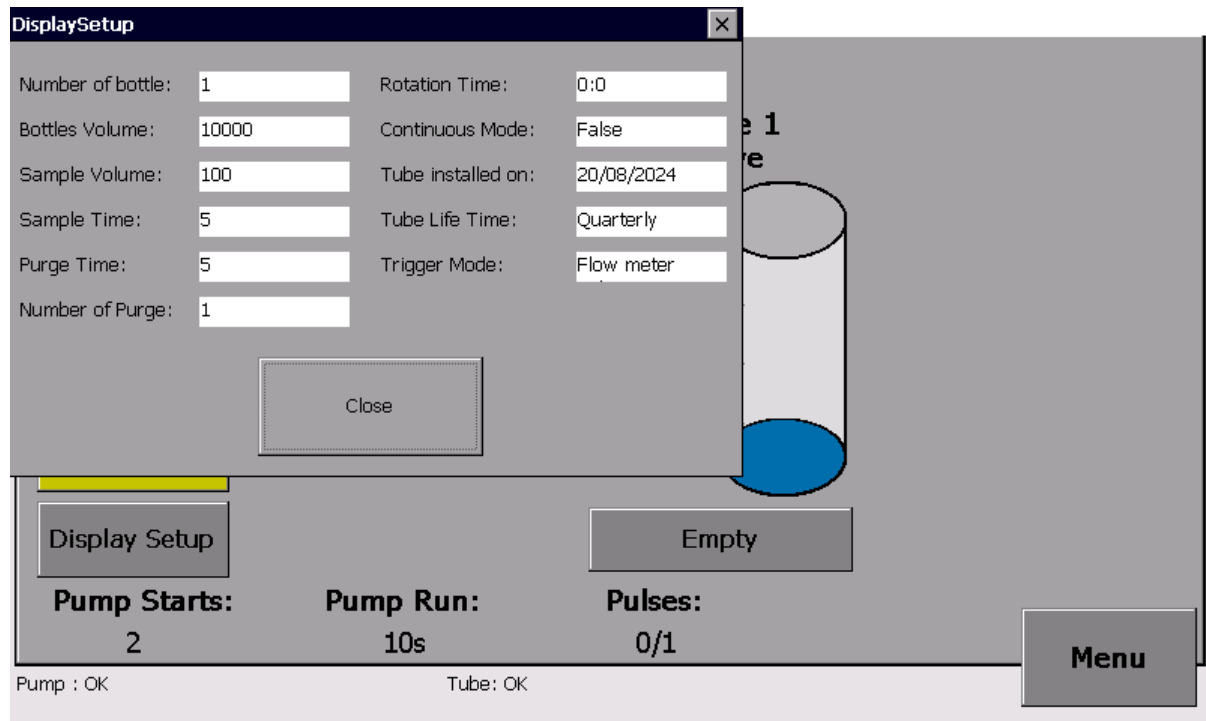


Figure 5.1B HC1 Display Setup

A button is provided to access the Menu for configuring the Hydrocell.

The Home Screen is also used to empty Bottles and take Spot Samples.

5.1.3 Start/Stop Button

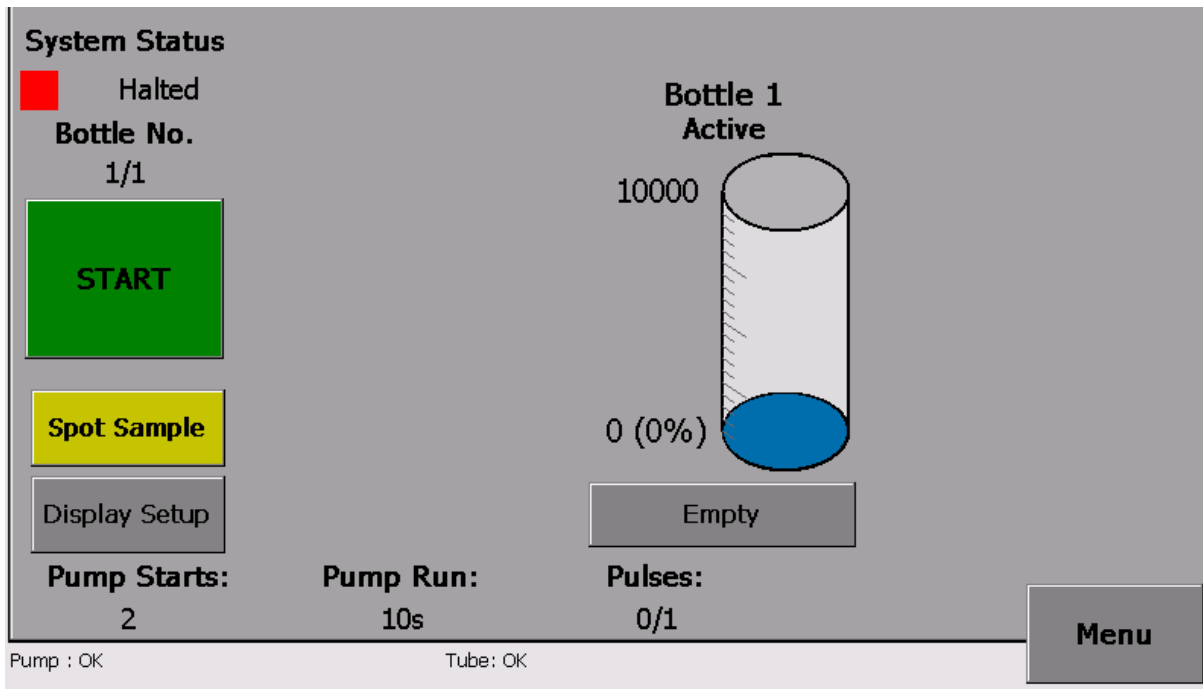


Figure 5.2 HC1 Pressing the Stop Button

When the Stop Button is pressed, the Button will change to a green Start Button and the System Status will change depending on the Programming Mode of the Hydrocell.

If the Hydrocell is in Continuous Mode, the System Status will show STOP and sampling will re commence once the start button is pressed

If the Hydrocell is in Programmed Mode, the System Status will show PAUSE and sampling will re commence once the start button is pushed.

In both Modes no samples will be taken whilst the Hydrocell is either STOPPED or PAUSED.

5.1.4 Spot Sample Button

The Spot Sample Button is used to take a Manual Sample. This is typically used to check the operation of the sampler (calibration and functionality) or to take an immediate, non-composite sample for testing.

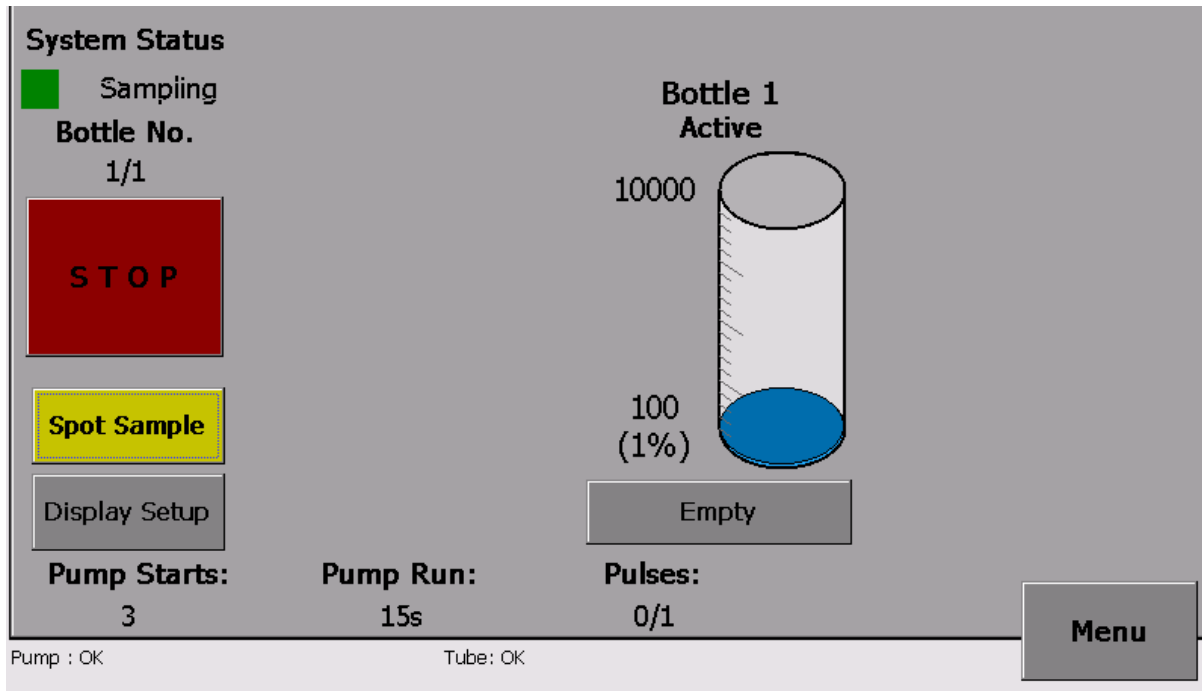


Figure 5.2 HC1 Spot Sample

When the SPOT SAMPLE Button is pressed, the Button changes to a red STOP Button. Pressing this Button at any time during the Sample Process will immediately halt the process and return the sampler to its previous status.

The Spot Sample will mirror the process when a sample request is received, having the same timings and sequence and sampling into the Active Bottle.

Following the spot sample request the System Status will change to Purging and the Peristaltic Pump will rotate in the direction that will drive air out through the Intake Hose (if the pump is functioning correctly this will cause bubbling in the effluent). The number of Purges is set on the Sampling Page.

The System Status will then change to Sampling and the Peristaltic Pump will rotate in the opposite direction. This will draw a sample up through the Intake Hose and into the Active Bottle.

Finally, the Hydrocell will carry out a Post Purge designed to evacuate the INTAKE HOSE of any liquid.

At the end of the Spot Sample Sequence the Hydrocell will return to its previous Status and the percentage volume in the Bottle will increase by the volume set on the Sampling Page.

N.B. The Spot Sample will take a Sample even when the Status is STOPPED. Care must be taken that it is not pressed when the Peristaltic Pump is being worked upon.

5.1.5 Emptying the Bottle

The Hydrocell tracks the volume of liquid in each Bottle by multiplying the number of Samples taken into the Bottle by the Sample size. This volume is then shown as a percentage of the total Bottle volume.

If the next Sample would make the Bottle exceed 95% of its volume, the Sample will not be taken, and a pop-up message will appear on the Display.

To continue the Bottle must be emptied and reset to empty on the screen. Cancel the pop-up message by pressing OK.

To empty the Bottle, press the Empty Button on the Touchscreen as shown on figure 5.4B overleaf.

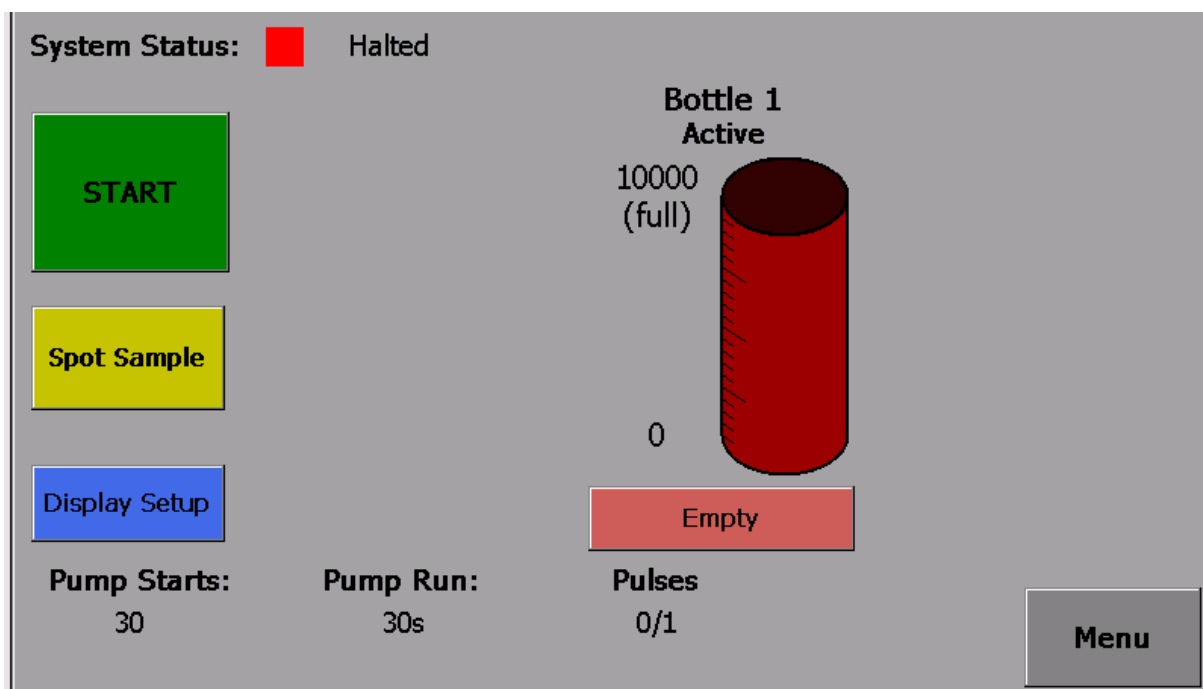


Figure 5.4A HC1 Emptying the Bottle

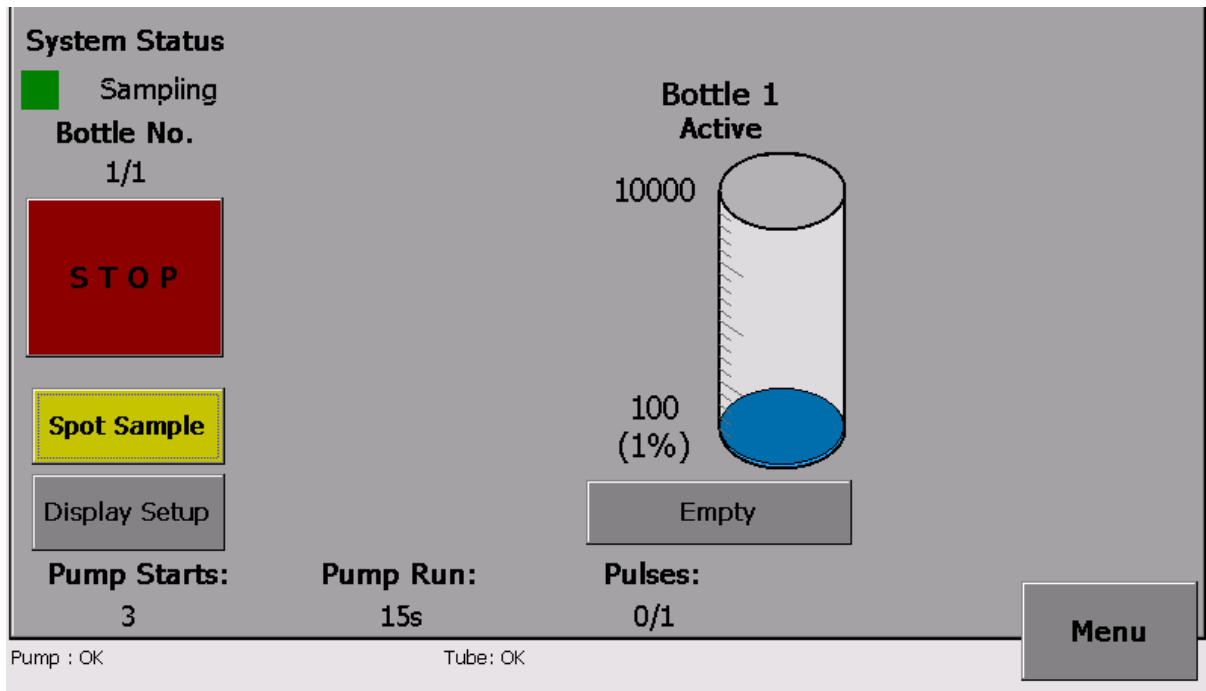


Figure 5.4B HC1 Emptying button

Once you have pressed the EMPTY Button, the volume will be reset to 0% and the Hydrocell can now take a Sample.

N.B. Emptying the Bottle only resets the volume of the Bottle it does not physically empty the Bottle!

After resetting the volume, it is essential that all the effluent is removed from the Bottle to prevent overfilling.

When the Hydrocell is running in Continuous Mode an option is provided to Pause the program sample to a single changeover time. It is therefore essential to ensure the Bottles are regularly emptied.

5.1.6 LEDs

LEDs on the Hydrocell Fascia.



Figure 5.6 HC1 LEDs

5.1.7 Display Settings

The Display setup Button gives access to information regarding the Set-up and operation of the Hydrocell.

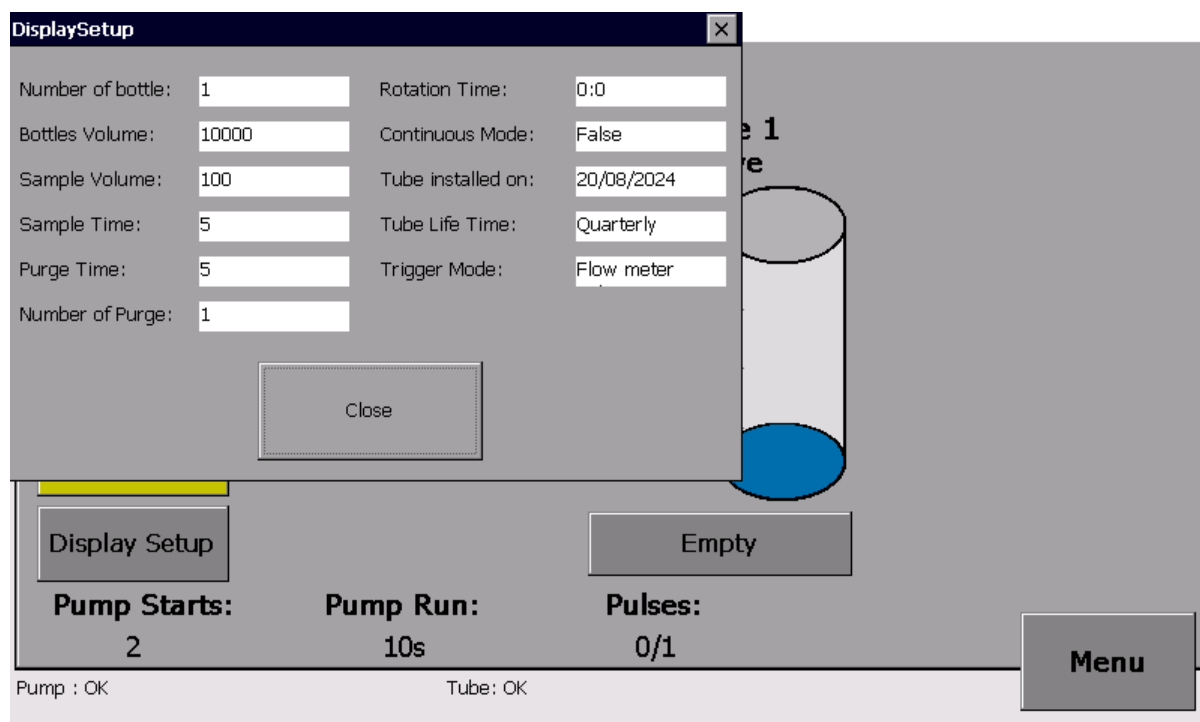


Fig 5.9 HC1 Display setup Information

The Display setup Information screen shows details of the information programmed in the sampler's menu and tube replacement.

5.2.1 Password

The Hydrocell is configured from the Menu Screens. These are accessed by pressing the Menu Button on the Home Screen and entering the Password.

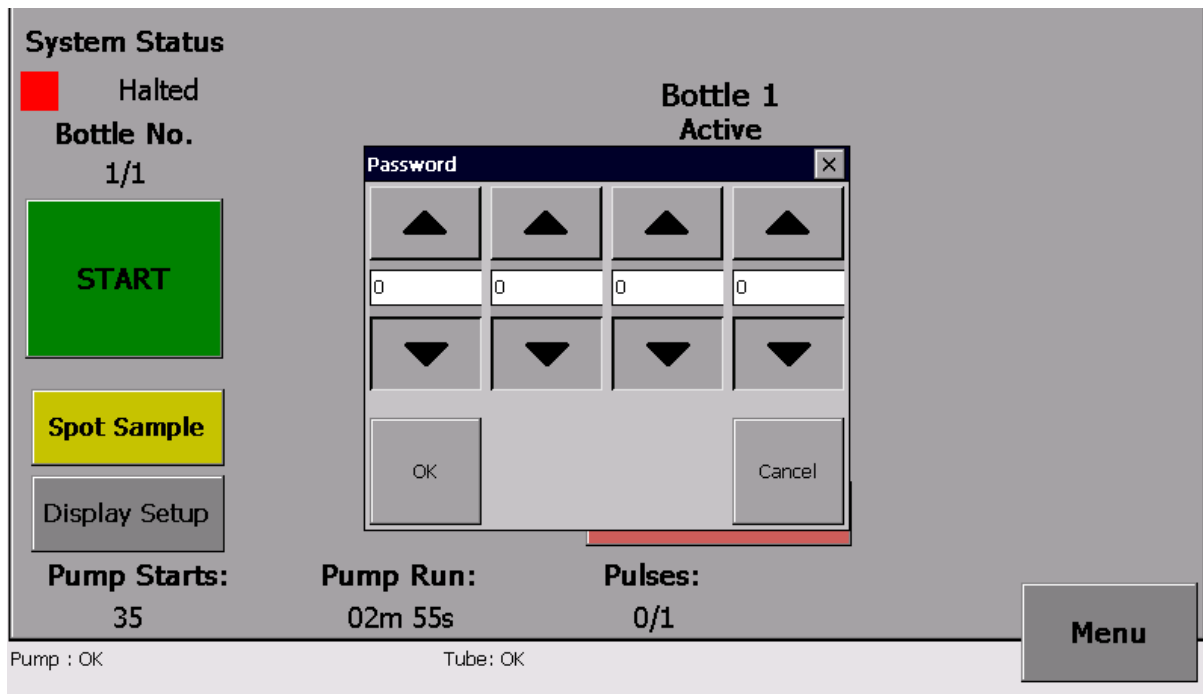


Fig 6.1 HC1 Password Screen

The Password is factory set to 2010 and if correctly entered the MENU Screen will appear. The Hydrocell will be placed in PAUSED mode whilst accessing the Menu and will need to return to **RUNNING** when the Menu is exited.

5.2.2 Menu Screen

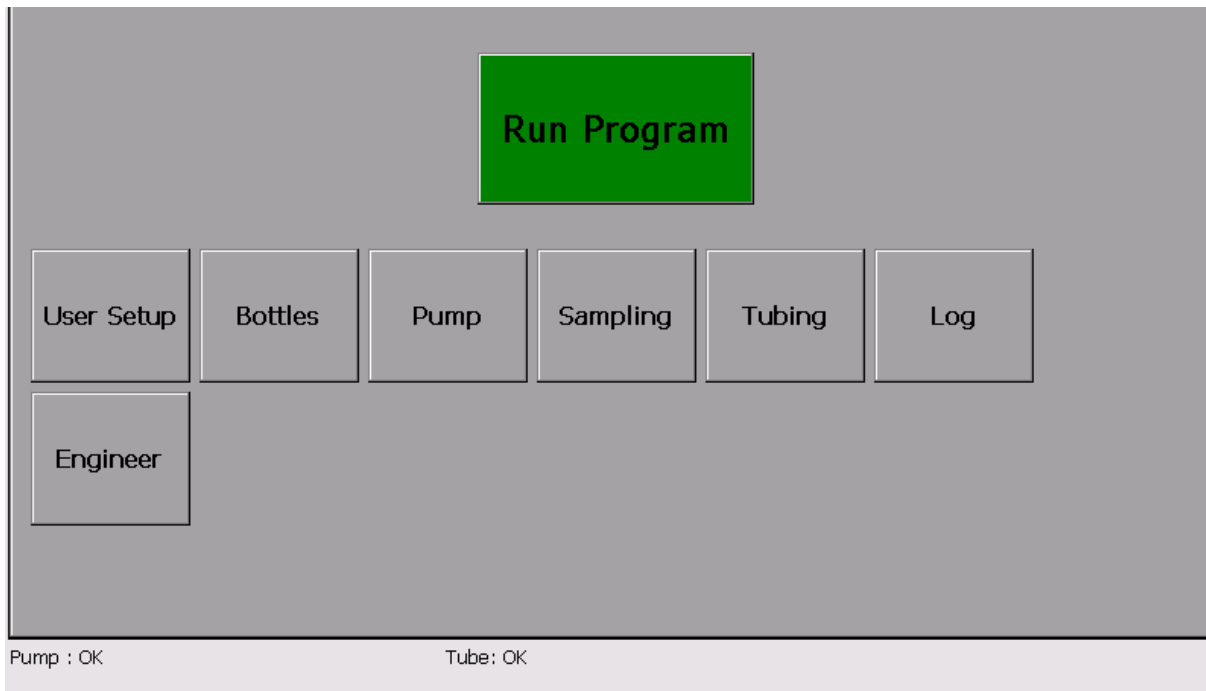


Fig 6.2 HC1 Menu Screen

The large Run Mode Button returns the Hydrocell to the Home Screen. The Engineering Button is only accessible when the Engineering Password is entered. For further information please contact Smart Storm.

The Menu will time-out 15 minutes after no button is pressed to prevent the Hydrocell being left in a PAUSED state.

5.3. Sampling Screen

The Sampling Screen is used to configure the size of the sample and the method of triggering the sample.

The screenshot displays the HC1 Sampling Screen with the following configuration:

Continuous mode	Trigger	Sample every	Filter Length
<input checked="" type="checkbox"/>	Flow meter pulse	1 pulse(s)	50 μ s

Stop if bottle not empty	Sample Volume	Sample Time	Lock	Purge Time
<input type="checkbox"/>	100 mL	5.0 s	<input checked="" type="checkbox"/>	5.0 s

Bottle Change Over Time (hh:mm): 0 : 0

Number of Purges: 1

Buttons: Calibrate, Purge, Menu

Status: Pump : OK, Tube : OK

Fig 6 HC1 Sampling Screen

4.3.1 Choosing the Sample Size

The Hydrocell is designed to fill the bottle to approximately 95% of its volume and stop. Ideally the sample should be Flow Proportional i.e. more samples should be taken when the flow is high, and the bottle should fill over the entire time the Bottle is Active.

Consider a Bottle which is Active for a period of 24 hours (e.g. a single bottle changeover is set at 00:00) and an average daily flow of 30m³.

The flow proportional sample request can be set to trigger every 1m³, such that there are 30 sample requests on average every day.

If the sample size is set to 100ml then on an average day, the bottle will fill to 75% (3 litres) of its total volume. This will leave overhead for days when larger volumes occur. Similarly, the sample request can be set to 0.5m³ and the Sample size set to 50ml with the same resultant volume.

The sample size would typically be set to between 50ml and 200ml depending on the bottle size and nature of the effluent.

Enter the value of the Sample Size and Bottle Volume into the appropriate boxes.

N.B. If the wrong values are entered the Hydrocell will over or under fill the Bottle.

5.3.2 Entering the Sample and Purge Times

The sequence for taking a sample consists of 3 stages:

- Pre-Purge.
- Sample
- Post-Purge

The Pre-Purge stage is designed to clear the Intake Hose of any residual liquid from a previous sample and clear any blockage before a Sample is taken. The Pump Head will rotate in the opposite direction to that of a sample and blow air from the Hydrocell through the Intake Hose. An option is included to have more than one Pre-Purge, and this should be used where blockages may be expected.

The post-purge is similarly designed to evacuate the effluent from the Intake Hose after a sample has been taken. Again, an option for multiple Purges is included.

The Purge times are usually set to the same time as the sample time to ensure the pipe is fully purged, however it may be prudent to shorten or omit the purges if it is thought this may adversely disturb any suspended solids in the effluent.

The Sample Time should be set to take the required Sample size. The required sample time is a function of the length and lift of the Intake Hose and can be set by a process of trial and error.

Three Buttons are provided to calibrate the Sample Size:

- Purge
- Sample
- Calibrate

Purge and Sample, when pressed will run the Pump for up to 60 seconds and can be stopped by repressing the Button.

Calibrate will take a Sample according to the Sample and Purge Times.

To initially set the Sample time, ensure the Intake Hose is fully submerged and free from blockages.

Press the Purge Button and ensure that bubbles can be seen in the effluent. Press the Sample Button and record the time taken for the effluent to begin to fill the bottle. Add 2 seconds to this time and enter it as the Sample and Purge Times.

Place a measuring jug in place of the sample Bottle and press the Calibrate Button. When the sampling cycle has finished check the amount of liquid in the measuring jug and adjust the sampling time accordingly. Adjustments should be kept small, bearing in mind that the volume of liquid is only dependent on the length of time after the liquid has been drawn to pump (i.e. if the sample time is set to 22 seconds and it takes 20 seconds to draw liquid to the pump to double the sample size change the sample time to 24 seconds, not 44 second!).

Finally decide if it is necessary to vary the number and length of the purges.

N.B. As the Pump Tube ages it may be necessary to re-calibrate the Sample Time to maintain the Sample Volume.

5.3.3 Reset Pump Tube

A Button is provided to reset the time the Peristaltic Pump Tube has been installed. Pressing this Button and confirming will reset the values displayed on the Settings Screen to indicate when the Pump Tube should be changed.

Typically, a pump Tube will last around 100 hours, although this is dependent on the nature of the effluent.

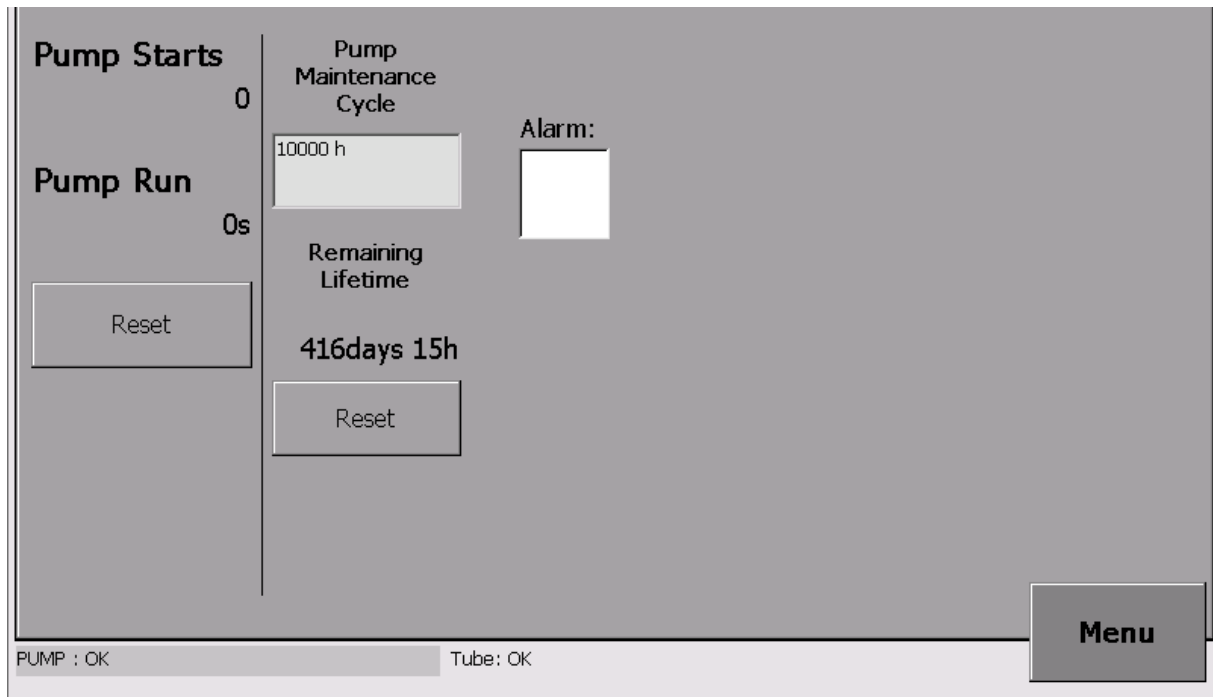


Fig 6.1 HC1 Pump Menu

5.3.4 Sampling Mode

Several different trigger methods are available to initiate a sample request on the Hydrocell 1:

- **Timed** (all versions) – A sample is taken after the specified number of minutes. This method does not give a Flow Proportional Composite Sample. Samples are taken even when there is no flow.
- **Sample Request** (all versions) – The sample is initiated by Contact Closure. This would typically be achieved by connecting the inputs to the Common and Normally Open Outputs of a relay and setting the relay to trigger after a certain volume of effluent had been recorded on a Flow Meter. This will give a Flow Proportional Composite Sample.
- The number of Inputs required before a Sample is taken must be entered and the Filter Length – the length of time the relay must be closed to be recognised as an input. The Filter Length is used to eliminate false trigger in noisy environments and must be less than the relay closure time of the Flow Meter. A value of 50mS would be typical.
- **4-20mA** (factory build) – The Hydrocell 4-20mA input is connected to the 4-20mA output of a Flow Meter. The flow values that are represented by 4mA and 20mA are then entered into The Hydrocell – this information should be available on the Flow Meter.

The Hydrocell can calculate the volume of effluent by sampling the flowrate and multiplying this by the time period.

The Volume after which a Sample should be taken can be calculated from the average daily flow, the sample volume, and the Bottle size.

Continuous mode	Trigger	Sample every	Filter Length
<input checked="" type="checkbox"/>	Flow meter pulse	1 pulse(s)	50 μ s
Stop if bottle not empty	Sample Volume	Sample Time	Lock
<input type="checkbox"/>	100 mL	5.0 s	<input checked="" type="checkbox"/>
Bottle Change Over Time (hh:mm)			Number of Purges
<input type="text" value="0"/> : <input type="text" value="0"/>			1
		Calibrate	Purge
Pump : OK			Tube : OK
			Menu

Fig 6.2 HC1 Sampling Menu

Sampling Menu Description:

- Run Continuously:
 - o If not checked: When the sample Bottle is 95% full or at the end of the current day, it will automatically stop. This is the safest mode of operation and prevents overflow.
 - o If checked: The sample will not stop and will assume that the bottles have been emptied.
- Stop if bottle not empty:
 - o If checked: On a new day, if the bottle is not emptied, the Hydrocell will stop. To empty a bottle, physically empty it and press the empty button on the running display. This will be coloured red if the bottle is full.
 - o If not checked: The Hydrocell will continue whatever the state of the bottle is (unless it is full).
- Trigger:
 - o Flow meter pulse: The Hydrocell will perform a sample every time it receives a pulse from a flow meter.
 - o Time Interval: The Hydrocell will perform a sample on a defined time interval in minutes.
- Sample/Purge Time: Time in seconds for which the pump runs to grab a sample/purge the tube.
- Number of Purge: Number of purges before a sample and after it.
- Calibrate Sample: Perform a simple sample cycle (purge, sample, purge).

- Purge: Purge the tube.
- Sample Sequence: A sample sequence consists of a minimum of 3 cycles:
 - o Purge: The pump runs in reverse and pumps air down the tube into the sample vessel. This clears the tube of any debris or stale sample.
 - o Sample: The pump then sucks a sample through to the 10L container.
 - o Purge Again: The sampler then purges again to ensure the intake tube is clear for the next sample.

N.B. sometimes it is necessary to purge more than once to clear the intake tube.

How to calibrate the sample volume:

The sample volume is determined by the time the pump must run to collect your desired sample volume.

- 1) Set the sample time to 30 seconds.
- 2) Place a graduated measuring jug under the discharge point for sample Bottle.
- 3) Press the “Calibrate Sample” button, read the message that appears and confirm.
- 4) Once the sample is finished, compare the volume taken by the sampler, with the one you want:
- 5) If the sample taken is too big, decrease the sample time, empty the jug and go back to 2
- 6) If the sample taken is too small or no sample is collected, increase the sample time, clean the jug and go back to 2.
- 7) If the sample taken is of the correct volume, then the sample time is now correctly calibrated.

5.3.5 Bottle Menu

The sample bottle can also be emptied on this screen.

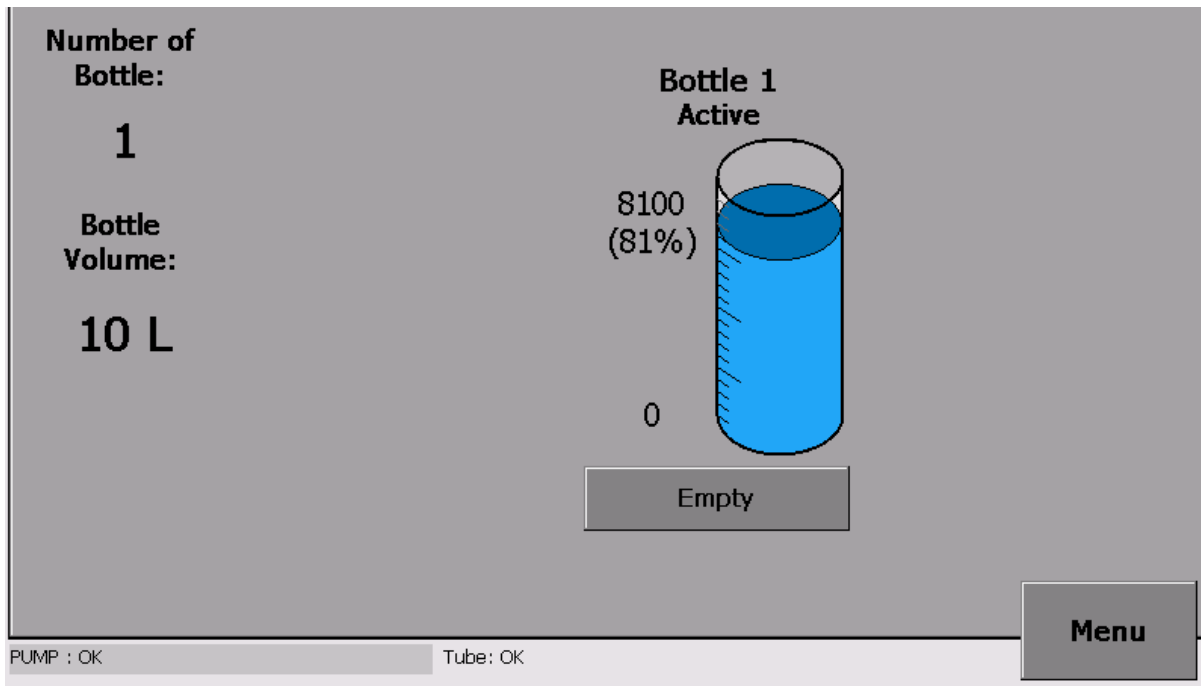


Fig 6.3 HC1 Bottle screen Bottle 1 active

5.4.1 About Screen

The About Screen is used for entering the information to be seen on the Settings Screen and provides information about the site and contacts for anyone working on the equipment.

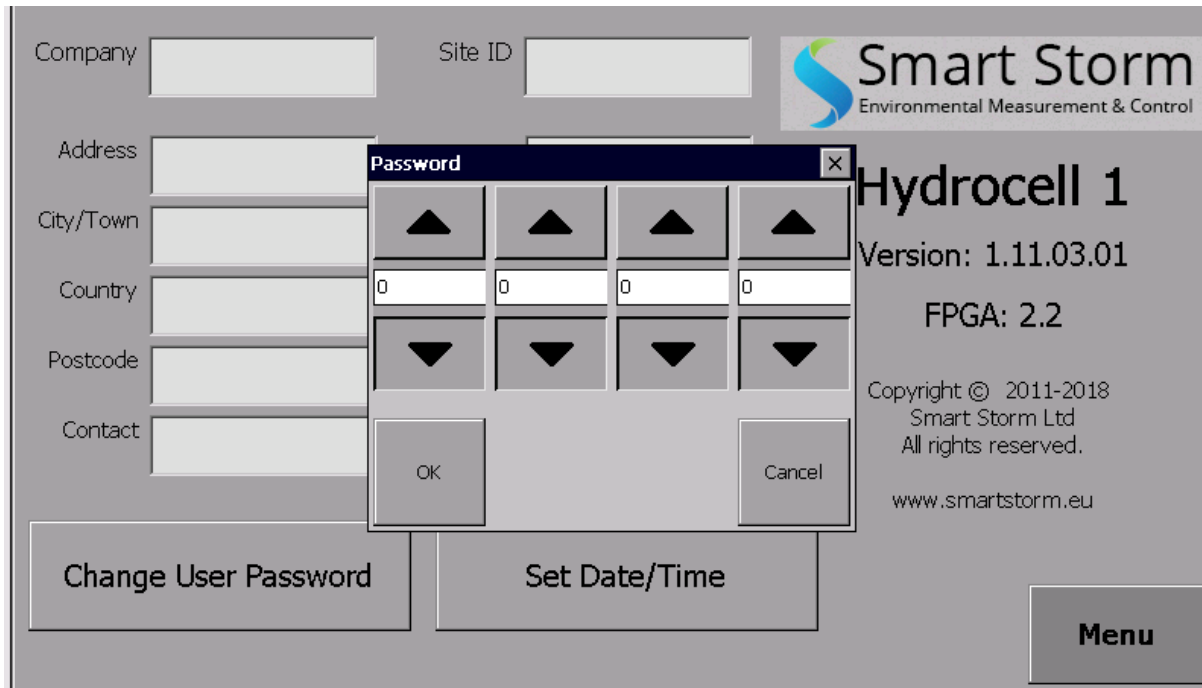
The screenshot shows the 'About Screen' for the Hydrocell 1 device. It features a grey background with white text and input fields. On the left, there are two columns of input fields: 'Company', 'Address', 'City/Town', 'Country', 'Postcode', and 'Contact' in the first column; and 'Site ID', 'Voice No.', 'Fax No.', 'Modem No.', and 'Comment' in the second. To the right of these fields is the 'Smart Storm Environmental Measurement & Control' logo. Below the logo, the text reads 'Hydrocell 1', 'Version: 1.11.03.01', and 'FPGA: 2.2'. Further down, it says 'Copyright © 2011-2015 Smart Storm Ltd All rights reserved.' and 'www.smartstorm.eu'. At the bottom of the main content area, there are two large buttons: 'Change User Password' and 'Set Date/Time'. A 'Menu' button is located in the bottom right corner. At the very bottom of the screen, a status bar displays 'PUMP : OK' and 'Tube : OK'.

Fig 6.5 HC1 About Screen

Information is entered by clicking on the relative field and using the pop-up keyboard.

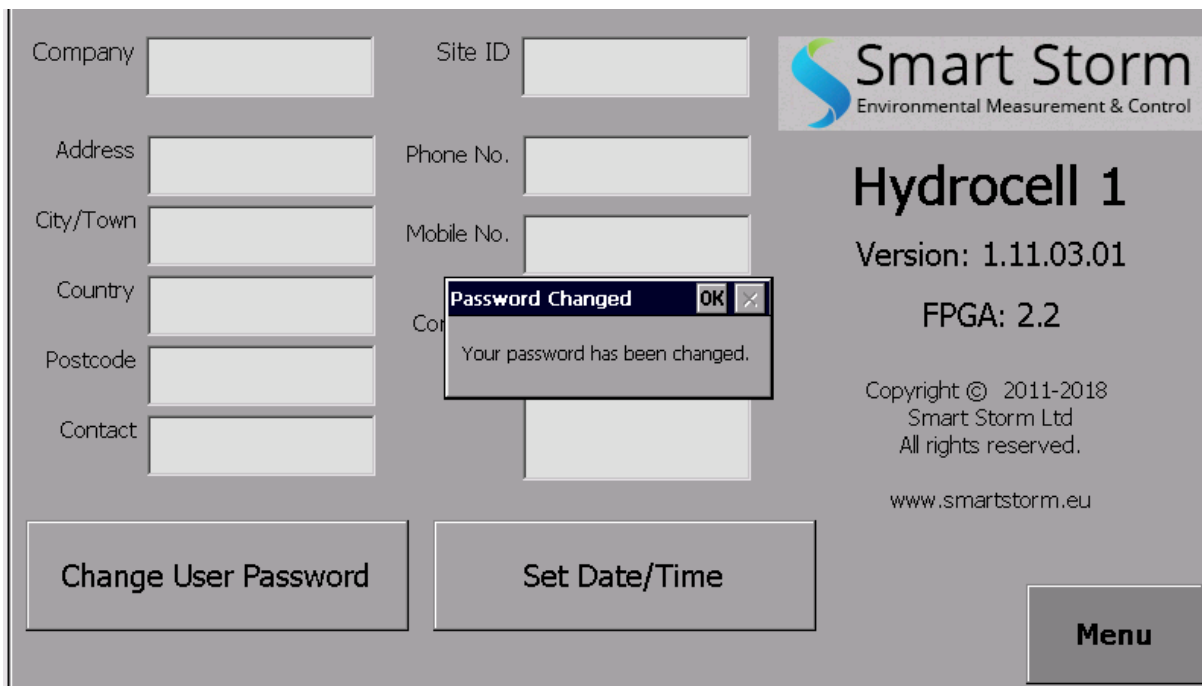
5.4.2 Change User Password

To change the Password, press the Change User Password Button. A pop-up password screen will appear. Enter the new Password. Press OK a small window will appear showing Password changed. Press OK. The Password has changed.



The screenshot shows the Hydrocell 1 user interface. On the left, there are input fields for Company, Site ID, Address, City/Town, Country, Postcode, and Contact. Below these fields are two buttons: 'Change User Password' and 'Set Date/Time'. On the right, the Smart Storm logo is displayed above the text 'Hydrocell 1', 'Version: 1.11.03.01', 'FPGA: 2.2', and copyright information. A 'Menu' button is located at the bottom right. A 'Password' dialog box is open in the center, featuring four up arrow buttons, four input fields containing '0', four down arrow buttons, and 'OK' and 'Cancel' buttons.

Fig 6.6A HC1 Change User Password



The screenshot shows the Hydrocell 1 user interface after the password change process. The 'Change User Password' button is now disabled. A 'Password Changed' dialog box is open in the center, displaying the message 'Your password has been changed.' with 'OK' and 'Cancel' buttons. The rest of the interface, including the input fields and the right-hand side information, remains the same as in Fig 6.6A.

Fig 6.6B HC1 Change User Password

Care should be taken when changing the password as it will change immediately without confirmation.

If the password is lost the Engineering Password can be used to restore it.

Contact Smart Storm for further information.

5.4.3 Set Time and Date

The time and date can be changed from the About Screen. Click on the Set Date/Time Button.

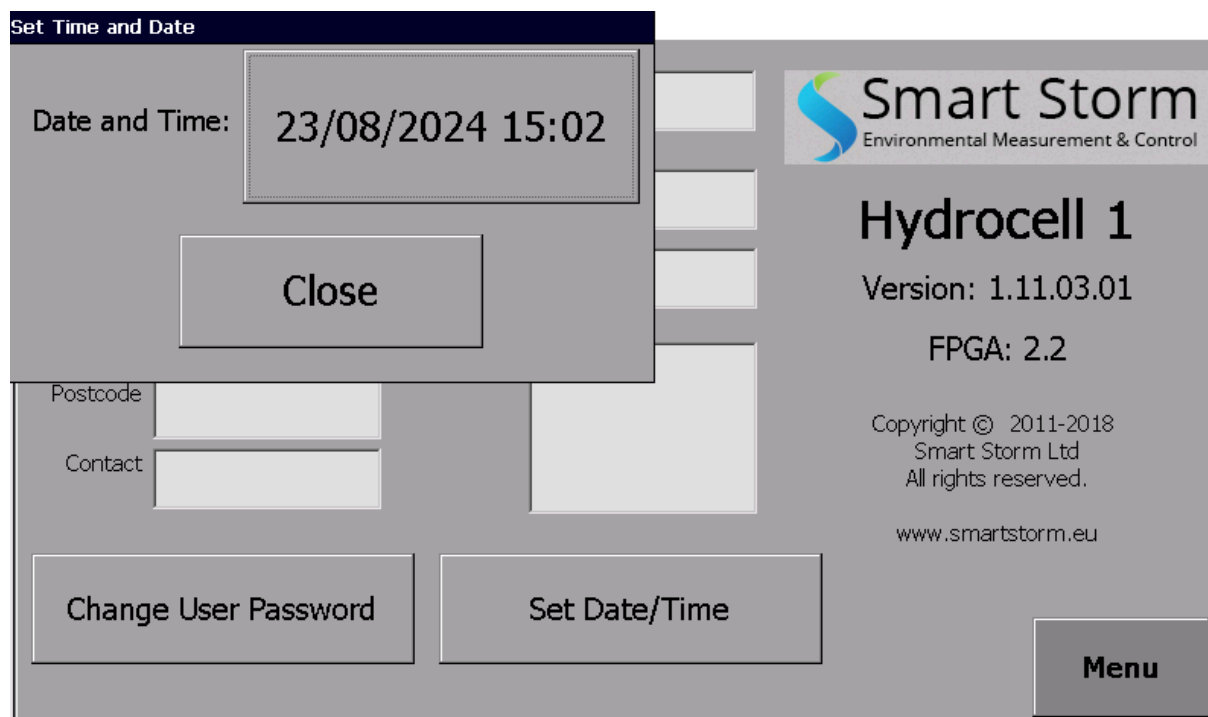


Fig 6.7A HC1 Set Time and Date

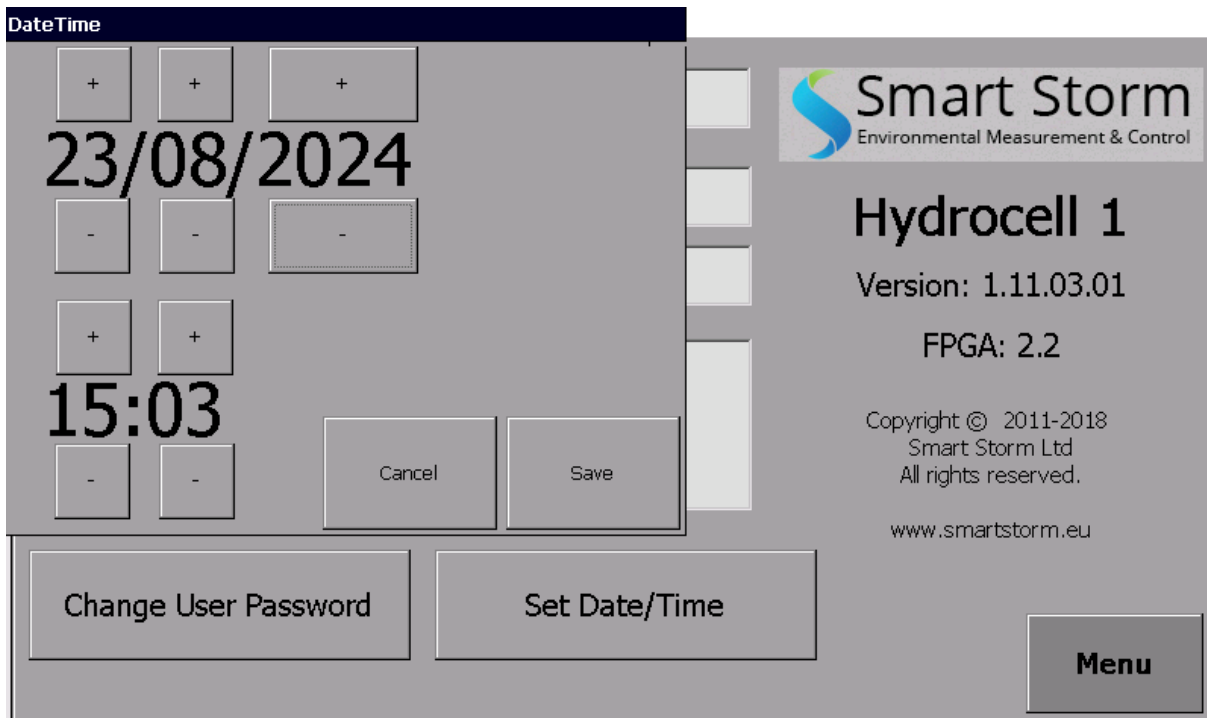


Fig 6.7B HC1 Set Time and Date

Click on the individual fields to change the value using the pop-up Keypad. When all required fields have been changed click on the UPDATE Button. It may take up to a minute for the Time/Date to change.

5.4.4 Tubing

Description:

- Life: Expected lifetime of the tube.
- Installation Date: Date of the installation of the current tube.
- Alarm: If enabled, an alarm is enabled when the tube lifetime is almost finished.
- Preliminary Alert: If an alarm is enabled, an alert will be sent n days before the end of the tube lifetime.

The screenshot displays a configuration interface for tubing installation. It features a 'Life' dropdown menu with 'Quarterly' selected. The 'Installation Date' is configured with 'Day' set to 20, 'Month' set to 8, and 'Year' set to 2024. Each of these three fields has an up arrow button above it and a down arrow button below it. To the right of the date fields is an 'Alarm:' checkbox, which is currently unchecked. At the bottom left, there are two status indicators: 'PUMP : OK' and 'Tube : OK'. At the bottom right, there is a 'Menu' button.

Fig 6.8 HC1 Tubing Installation Date

6. Wastewater Non-Refrigerated Sampler Service Tasks

Daily – Performed by customer

- ✓ Take Spot sample.
- ✓ Empty bottle from 2 days ago.
- ✓ Clean empty bottle with water.
- ✓ Reset bottle status on Touch Screen to Empty.

Monthly – Performed by Service Engineer

- ✓ Perform tasks as daily above.
- ✓ Calibrate sample volume and adjust if necessary.
- ✓ Check status of peristaltic pump tube and replace always every 6 months.
- ✓ Check purge cycle at intake point.
- ✓ Download data log and check any error status.
- ✓ Check all hose, connections internally and externally.
- ✓ If hose pipe available blow through intake line to clean debris build up.
- ✓ Check Desiccator pouch and replace every 6 months.

7. Declaration of Conformity

We
Smart Storm Limited
The Old Mill
Wainstalls
Halifax
HX2 7TJ

Declare under our sole responsibility that the products:

USI, Hydrocell, USM, Avocet 9000, Mudsens, GreaseBuster FS

to which this declaration relates, is in conformity with the following directive.

The Electromagnetic Compatibility (EMC) Directive 2004/108/EC

And the following harmonised European Norms (EN standards), IRC and Environment Agency standards.

<u>Standard</u>	<u>Issue</u>
BS EN 50081-1 Emissions	1992
BS EN 50082-2 Immunity	1995
IEC 801 Immunity	1992
BS EN61010-1 Low Voltage	1993

We also declare that the products:

Named above

are of UK origin and are manufactured and tested to Smart Storm internal quality standards defined in the company's formal ISO9001:2015 quality manual.

Dr John Duffy
Managing Director