

Installation, Operation & Maintenance Manual

Sentry SAL-Q & SAL-B Park Hazardous Controller Sampler Controllers

S-LS-IOM-00402-0 9-16





Do not install, maintain, or operate this equipment without reading, understanding, and following the appropriate Sentry Equipment Corp instructions. Otherwise, injury, damage, or both may result.

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Note

The information contained in this document is subject to change without notice.

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Safety Information

Please read the entire manual before attempting to unpack, set up, or operate this product. Pay careful attention to all Warnings, Cautions, and Notes. Failure to do so could result in serious personal injury and/or equipment damage.

Use of Hazard Information

If multiple hazards exist, the signal word corresponding to the greatest hazard shall be used.

Definitions

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

CAUTION

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

NOTICE

NOTICE is used to address practices not related to personal injury.

NOTE

Information that requires special emphasis.

TIP

Alternate techniques or clarifying information.

SHALL: This word is understood to be mandatory.

SHOULD: This word is understood to be advisory.

General Safety Precautions

Product Selection, Installation, and Use

WARNING

Improper selection, installation, or use can cause personal injury or property damage. It is solely the responsibility of users, through their own analysis and testing, to select products suitable for their specific application requirements, ensure they are properly maintained, and limit their use to their intended purpose.

Follow proper local, state, and federal regulations for proper installation and operational requirements.

Always use caution and common sense when working with any chemical. Read the product label and Material Safety Data Sheets (MSDS) carefully and follow the instructions exactly.

Potential Equipment Hazards

WARNING

Hot surfaces! This equipment may have very hot surfaces. If an operator contacts a hot surface, injury may occur. Use protective clothing to prevent injury. If other equipment comes in contact with a hot surface, damage to the equipment may occur. Ensure the area around this equipment is kept clear to prevent damage from occurring.

High pressures! This equipment may contain fluids at very high pressures. Prior to installing, removing or maintaining this equipment, ensure that the equipment is isolated from all connecting piping, the equipment is depressurized, the contents have been drained, and the equipment is cool.

Moving parts! This equipment may contain moving parts. All drive guards and doors must be secured in place when this machine is being operated.

General Description

The Sentry® SAL-Q and SAL-B Park sampler controller is specifically designed for use with the Sentry ISOLOK® SAL-Q and SAL-B Park samplers in a Class I, Div. 2 or Zone 2 environment. The sampler controller operates the sampler through three operating positions. Timer set points for each of these positions are adjustable:

- Extend: the sampler plunger is extended into the process stream
- Retract: the plunger is retracted into the sampler and the sample is deposited in the jar
- Park: the plunger waits in a safe position, ready to extend when necessary

This sampler controller has batch and flow proportional sampling options. Service mode of this controller contains step-by-step instructions for the installation and removal of your ISOLOK SAL-Q or SAL-B Park sampler. The sampler controller also contains a current cycle counter to keep track of the number of samples taken.

Installation

Mounting the Sampler Controller

- If the sampler controller is to be mounted near the sampler, then the controller must meet the National Electrical Code for the area. Sentry Equipment Corp supplies electrical components to meet the standards specified by the customer. For example: Class, division and group as outlined in the National Electrical Code.

NOTE

When penetrating the controller enclosure, use tubes and fittings that maintain the environmental rating of the enclosure.

- Installation should be performed by qualified personal in accordance with local codes and procedures.
- Mount the controller in a location that is easily accessible and within view of the sampler.
- Mount the controller in a vibration-free location and have a qualified electrician wire the controller to the electrical supply.
- Surge suppression and filtering are recommended but not required.
- Hard wire the sampler controller to instrument-quality power using appropriate certified conduit, fittings, and wiring or cable.
- Use a suitable external over-current protection device, such as a fuse or circuit breaker (15 A), and disconnect device.
 - The over-current protection and disconnect devices shall be installed on both the hot (L) and neutral (N) leads.
 - The disconnect device shall be located near the equipment and marked with appropriate ON(I) OFF(O) markings as specified by local codes.
- For fixed wiring methods, the ground conductor shall have green with a yellow stripe as the insulation.

Inputs and Outputs

Inputs

- I1. **Remote Enable:** External contact from customer which when open prohibits all operation of the sampler. If not used, jumper input.
- I2. **Remote Start:** External contact from customer, which initiates sampling when in Remote mode.
- I3. **Manual Grab Pushbutton:** Allows the operator to immediately collect a sample. Sampler must be currently in the Retract or Park portion of the sampling cycle. Hold for 5 seconds to invoke a grab batch routine.
- I4. **Sampler Off/Auto Switch:** Turns the controller on. This mode allows for operation of the controller by the operator. If the switch is in the OFF position the sampler will operate only in maintenance mode.
- I5. **IC Door:** Proximity sensor input confirming the position of the door on the indexing cabinet. Operation is inhibited if the door is open.
- I6. **IC Carousel:** Proximity sensor input confirming the position of the carousel of the indexing cabinet.
- I7. **IC Manual Pushbutton:** Manual advance pushbutton for the indexing cabinet.
- I8. **Confirm PB:** Confirms steps in maintenance operations and selection of options. It is lit when applicable.
- H1. **High Speed Counter:** Flow counter input used for flow-based sampling.
H2., H3. Not used.
- A1. **4-20 mA Input:** Flow meter output used for flow-based proportional sampling.
A2., I13., I14. Not used.
- I15. **Esc Pushbutton:** Used for screen navigation – most commonly to exit the current screen.
- I16. **Left Pushbutton:** Used for screen navigation – moves cursor to the left of current position.
- I17. **Up Pushbutton:** Used for screen navigation – moves cursor up from current position. Also used to increase numerical value.
- I18. **Down Pushbutton:** Used for screen navigation – moves cursor down from current position. Also used to decrease numerical value.
- I19. **Right Pushbutton:** Used for screen navigation – moves cursor to the right of the current position.
- I20. **Enter Pushbutton:** Used for screen navigation – most commonly accepts a cursor selection or numerical value.
- I21. **Reset Pushbutton:** Used for reset options and counters as directed by user screens.
I22., I23., I24. Not used.

Outputs

- Q1. Spare – Reserved for future use.
- Q2. **SOL153** (Port “C”, “P8”)
- Q3. Spare
- Q4. **SOL151** (Port “A”, “P6”) (Port “B”/“P5”)
- Q5. **Confirm light on Pushbutton** – Blue PBLT121
- Q6. **Sampler Active light** – Red LT-135
- Q7. **SOL150** (Port “E”) Purge/Air Eject
- Q8., Q9., Q10., Q11., Q12: Spares.

↻ NOTE:

If others provide control, it should follow the minimum requirements of the operating logic outlined in this section.

Sampler Installation Sequence

⚠ CAUTION

Do not open the sampler controller air supply valve until instructed during the installation procedure. The sampler controller is connected to the instrument air supply. Air ports at the bottom of the sampler controller should be connected to the corresponding ports on the sampler.

1. Verify that power is applied to the controller; the PLC display screen inside the enclosure should be on.
2. Press the **ESCAPE** push button to access the *Main Menu*.
3. Select *Service* from the *main menu* (use push buttons to navigate) and then press **ENTER** to access the *Maintenance* menu.
4. Select *Installation* from the maintenance menu and then press **ENTER**.
5. At the prompt, select the appropriate sampler and then press **ENTER**.
6. The first screen of the installation sequence asks for confirmation of your intent to install the selected sampler.
 - a. To begin the installation sequence, press **CONFIRM**.
 - b. To return to the beginning of the installation sequence at any time, press **RESET**.
 - c. To exit the installation sequence at any time, press **ESCAPE**.
7. The PLC screen advances to the next step in the installation sequence each time you press **CONFIRM**. Read each screen, perform the action, and press **CONFIRM** after each action to complete sampler installation.



Installation sequence for SAL-Q sampler:

- a. Do you wish to install the SAL-Q?
- b. Open bleed port
- c. Bleeding
- d. Close bleed port
- e. Remove closure plate
- f. Install rails
- g. Install sampler
- h. Install 4 button head bolts
- i. Remove padlock
- j. Remove lock pin
- k. Open valve
- l. Rotate hand wheel CW
- m. Install 4 sampler to gate valve bolts
- n. Re-insert lock pin
- o. Turn on air
- p. Install complete

Installation sequence for SAL-B Park sampler:

- a. Do you wish to start installation of the SAL-B Park sampler?
- b. Open TT2 port
- c. Bleeding
- d. Remove closure plate
- e. Install sampler
- f. Close TT2 port
- g. Remove padlock
- h. Remove lock pin
- i. Rotate handle
- j. Re-insert lock pin
- k. Turn on air
- l. Install complete

8. Once installation is complete, the screen returns to the Main Menu.

Operation

Setpoints

After the sampler and controller are installed, timer and batch setpoints must be verified or changed from the factory preset values.

1. Press the **ESCAPE** push button to access the *Main Menu*.
2. Select SETPOINTS from the *main menu* (use push buttons to navigate) and then press **ENTER** to access the *Setpoints* menu.
3. From the *Setpoints* menu, select *Change*, and then press **ENTER**.
4. The *Setpoints* screens list all the setpoints available for adjustment.
 - a. *Extend*: Timer that determines the duration the sample probe is in the process stream (max 600 sec).
 - b. *Retract*: Timer that determines the duration the sample probe is retracted, allowing the sample to be deposited into the sample container (max 600 sec).
 - c. *Park*: Timer that determines the duration between samples. There are three setpoints that work together to determine park time:
 - Park [seconds]: max 59 sec
 - Park [minutes]: max 59 min
 - Park [hours]: max 16 hr
 - d. *Delay*: (for samplers with the purge option) Timer that determines the duration between when the sample probe retracts and when purge occurs.
 - e. *Purge*: (for samplers with the purge option) Timer that determines the duration that purge is active.

NOTE

The total time value for delay and purge combined cannot be greater than the retract time.

- f. *Batch*: Determines the number of samples in a batch.
 - g. *Quick Grab*: Determines the number of samples in a quick grab.
5. To change setpoint values:
 - a. Use the arrow keys to select the setpoint you wish to change, then press **ENTER**.
 - b. Use the left and right arrow keys to select a digit to change, then use the up and down arrow keys to incrementally adjust that digit. The counters do roll over (e.g., when increasing the ones place value, the counter will advance from 09 to 10). Once the desired setpoint value is displayed, press **ENTER**.
 - c. Press **ESCAPE** to exit the individual setpoint screen and return to the *Setpoints* menu. If you exit the screen before pressing **ENTER**, the setpoint value will not change.
 6. Refer to the Sequence of Operation section (below) for more information on how the timer setpoints affect sampler operation.



Sequence of Operation

NOTE

The default or resting position for the sampler plunger is the park position.

1. *Energize front solenoid:* Sampler plunger extends into the process stream.
2. *Start extend timer:* Extend timer setpoint determines time the plunger remains in the process stream (max 600 sec).
3. *Extend timer expires.*
4. *De-energize front solenoid.*
5. *Energize rear and rear auxiliary solenoid:* Plunger retracts far enough to deposit sample into the container.
6. *Start retract timer:* Retract timer setpoint determines time the plunger remains in retracted position (max 600 sec).
7. *Retract timer expires.*
8. *De-energize rear and rear auxiliary solenoid:* Plunger returns to park position.
9. *Start park timer:* Park timer setpoint determines the time between samples (max 16 hr 59 min 59 sec).
10. *Park timer expires.*
11. Repeat cycle.

Starting and Operating the Controller

When the OFF/AUTO selector switch on the door of the controller enclosure is in the OFF position, the sampler will not operate. The sampler solenoids are only energized for maintenance functions in this position.

When the selector switch is in the AUTO position, the sampler will operate.

Modes of Operation

The controller operates in two modes, local and remote.

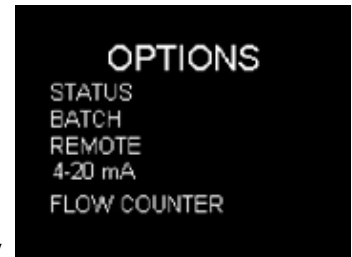
- Local mode is the default mode of operation.
 - All operating commands are initiated at the controller.
 - All sampling modes are available in local mode.
- Remote mode requires an external contact to initiate commands. See the electronic wiring diagram supplied with your controller for information on wiring the external remote contact.
 - From the *Main Menu*, select OPTIONS and then press **ENTER**.
 - From the *Options* menu, select REMOTE and then press **ENTER**.
 - Press **CONFIRM** to enable Remote mode. (To return to Local mode, press the **CONFIRM** button again.)
 - In remote mode, sampling is started and stopped based on an external contact.
 - When the contact is closed, sampling starts.
 - When the contact is removed, sampling stops.



- If contact is removed in the middle of the extend or retract portion of the sampling cycle, the sampler completes that portion of the cycle and then stops.
 - A momentary closure of the remote contact results in a single sample being taken.
- Continuous and batch sampling modes are available in remote mode.

Sampling Modes

- Continuous sampling is the default sampling mode in both local and remote modes of operation. In continuous mode, the sampling cycle repeats continuously until the controller is turned off.
- Batch sampling is available in both local and remote modes of operation. With batch sampling enabled, the sampling cycle repeats a given number of times (determined by the batch setpoint) and then stops until the batch counter is reset. This option might be used to fill a container and then stop sampling until the container can be replaced.
 - To enable batch mode:
 - From the *Main Menu*, select **OPTIONS** and then press **ENTER**.
 - Select **BATCH** and then press **ENTER**.
 - On the **BATCH** screen, press the **CONFIRM** button to enable batch mode.
 - To enter or change the setpoint from the **BATCH** screen, use the arrow keys to change the batch setpoint value and then press **ENTER**.
 - To reset the batch counter, press the **RESET** button. This resets the batch counter to zero and sampling resumes.
- Grab sampling takes a single sample and is a local manual function although the controller may be in either local or remote mode. A grab sample can be taken any time the sampler is not actively sampling. To take a grab sample:
 - Verify that the **SAMPLER ACTIVE** light is on but not flashing. (The light flashes when the sampler is actively sampling.)
 - Press the **GRAB SAMPLE** push button on the front of the enclosure.
 - When the grab sample is complete, the cycle timer resumes counting from the point at which it was interrupted.



NOTE:

Before initiating a quick grab, be sure to verify that the desired quick grab setpoint has been entered.

- A *quick grab* is a given number of sample cycles (determined by the quick grab setpoint) taken in a short period of time. The sample cycle is shortened by ignoring the park timer. To initiate a quick grab:
 - Verify that the **SAMPLER ACTIVE** light is on but not flashing. (The light flashes when the sampler is actively sampling.)
 - Press and hold the **GRAB SAMPLE** push button on the front of the enclosure for five seconds.
 - When the quick grab is complete, cycle the **OFF/AUTO** selector switch to resume sampling.

Stopping the controller

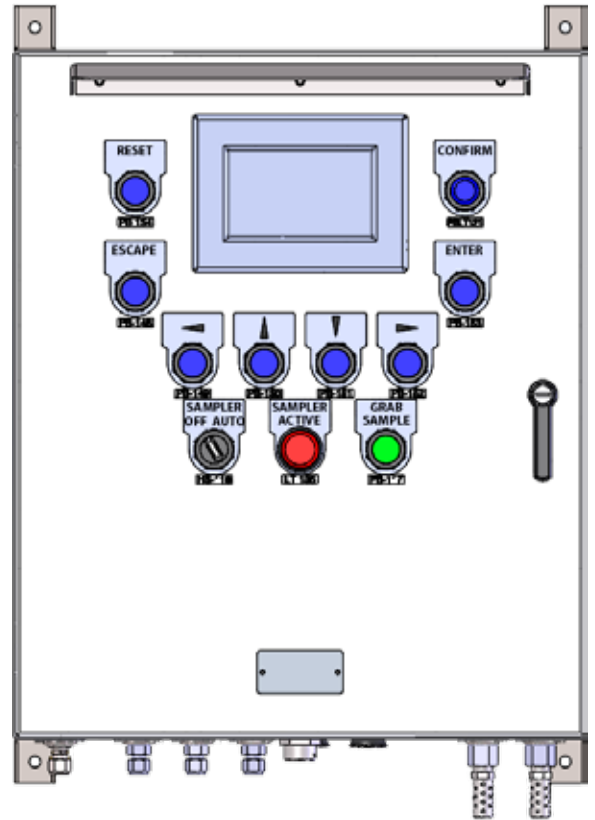
To stop the program and return the sample probe to the retracted position, place the selector switch in the **OFF** position.



Using the Controller Buttons

The Sentry SAL-Q & SAL-B Park sampler controller for hazardous environments is designed for all user inputs to be from the pushbuttons and switches on the front of the enclosure.

- **RESET:** Button function varies based on context. For example, on the Batch screen, it is used to reset the batch count to 0, while on the Maintenance menu it is used to access additional menu items. During sampler installation or removal, pressing the RESET button begins the instruction sequence from the beginning. Other uses of the RESET button are provided in context on the PLC screen as needed.
- **CONFIRM:** Button function varies based on context. For example, during sampler installation or removal, pressing the CONFIRM button advances the instruction sequence to the next screen, while on the Batch screen, pressing CONFIRM enables or disables the batch option. Other uses of the CONFIRM button are provided in context on the PLC screen as needed.
- **ESCAPE:** From the Main Operations screen, pressing ESCAPE accesses the Main Menu. From any other screen, pressing ESCAPE returns the user to the previous screen or menu.
- **ENTER:** Used to select a menu item or accept a value.
- **Arrows:** Used to navigate menus and screens.
- **SAMPLER OFF/AUTO:** Selector switch
- **SAMPLER ACTIVE:** Light indicates sampler state. Solid light indicates the sampler is in park position. Flashing light indicates the sampler is on and is in either the extend or retract position. No light indicates that the sampler is off.
- **GRAB SAMPLE:** Press and release this button to take a single sample. Press and hold this button for five seconds for a *quick grab*—a preset number of samples taken one after another, ignoring the park time setpoint.

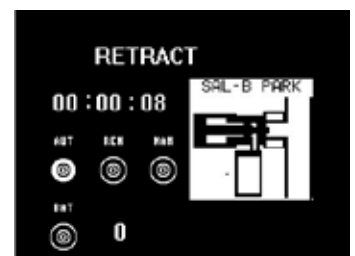


Menu Screens, Functions and Operations

Main Operations Screen

The main operations screen depicts the sampler, current state, and timer values. This screen is for information only; no setpoints or options may be changed from this screen. The small indicators confirm the current mode(s) selected.

- AUT = auto mode
- REM = remote mode
- MAN = manual grab sample
- BAT = batch mode



When batch mode is enabled, the number of samples taken for this batch is displayed next to the BAT indicator. When a batch is complete, the BAT indicator flashes.

Main Menu

To access the main menu from the main operations screen, press ESCAPE. Use the up and down arrow buttons to select the desired menu option, and then press ENTER. There are four selections on the main menu:

- MAIN: returns to the main operations screen
- SETPOINTS: accesses the Setpoints menu
- OPTIONS: accesses the Options menu
- SERVICE: accesses the Service menu
- ALARMS: accesses the Alarms menu

Setpoints Menu

There are two selections on the setpoints menu:

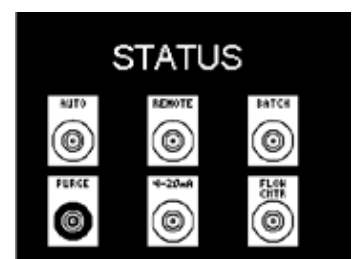
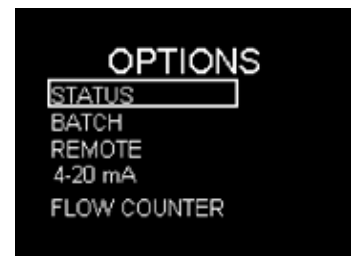
- VIEW: lists the setpoints and their values; no changes can be made
- CHANGE: lists the setpoints and their values; values can be edited

Please see the previous Setpoints section for more information on each setpoint.

Options Menu

The options menu has five selections: status, batch, remote, 4–20 mA, and flow counter.

- STATUS
 - The status screen displays all current options selected for operation of the controller. This screen is for information only.
 - If an indicator is filled, that option is enabled. For example, on the screen shown, PURGE mode is selected.
- BATCH
 - Enter or change the setpoint by using the arrow keys to change the batch setpoint value, and then press **ENTER** to accept the new value.
 - Reset the batch counter by pressing the **RESET** button. This resets the batch counter to zero and sampling resumes.
 - Enable or disable batch mode by pressing the **CONFIRM** button.
- REMOTE
 - Press **CONFIRM** to enable or disable the remote operating mode.



- 4–20 mA

- The 4–20 mA option is for flow proportional sampling. With this option, a 4–20 mA signal from a flow meter is input into the controller. Based on the analog input from the flow meter, a sampling rate is determined. This value is a linear interpolation between the min and max points entered, and is used in place of the park setpoint.

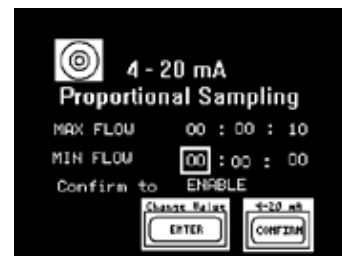
- To enter the setpoints for max flow and min flow:

- Use the **RIGHT** and **LEFT** arrows to move between fields. When the desired field is selected, press **ENTER**.
 - In the field change screen, use the **UP** and **DOWN** arrow keys to adjust the field value, and then press **ENTER** to accept the new value.

- To enable 4–20 mA flow proportional sampling, press **CONFIRM**.

- For example:

- Operator sets the max flow time to 10 seconds and the min flow time to 30 seconds, and then enables the option by pressing **CONFIRM**.
 - The controller is placed in AUTO mode using the selector switch.
 - If the flow input signal is at 12 mA, about half of full scale, the controller calculates the park time to be 20 seconds. The sampler extends and retracts based on the setpoint values, parks for 20 seconds, and then starts the cycle over again.
 - If the flow input changes to 4 mA, the extend and retract values stay the same, but the park value is adjusted to 30 seconds.
 - If the input falls below 4 mA, timer operation is suspended. As soon as the input goes above 4 mA, the timing resumes, picking up where it left off.

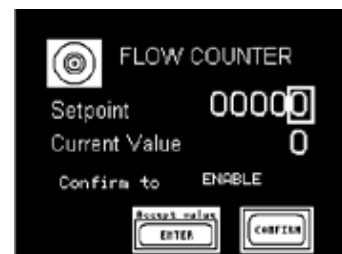


- FLOW COUNTER

- The controller can accept a square wave input from a flow counter and sample after a given number of pulses (determined by the flow counter setpoint). The square wave must have an ON time of at least 200 microseconds for the controller to recognize the input.

- To enter the flow counter setpoint, use the arrow keys to adjust the value, then press **ENTER** to accept the new value.

- Enable or disable this option by pressing **CONFIRM**.



Service (Maintenance) Menu

The Maintenance menu options are listed across two screens. To move between the first and second screens, press the **RESET** button.

■ I/O STATUS

- The IO Status screen allows you to see the current state of inputs and outputs to the controller. This screen is very useful during the trouble-shooting phase of startup to help verify inputs and outputs.
- All of the digital inputs (I) and the digital outputs (Q) are represented by indicator buttons. If the button is solid, the signal is present.
- A1 represents the raw unscaled value of the analog input. HSC1 represents the current value of the high-speed counter.

■ CHANGE SAMPLER

- The Change Sampler option allows the operator to change the type of sampler that is used with the controller.

■ INSTALLATION

- When the operator selects the Installation option, the first screen asks for confirmation of your intent to install the selected sampler. To continue with the installation, press **CONFIRM**.
- Perform the actions described on the subsequent screens and press **CONFIRM** as each action is completed.
- Solenoids automatically fire during installation when required.
- If the installation needs to be restarted for any reason, press **RESTART**. This returns the display to the first instruction and de-energizes all solenoids.
- To cancel the installation process, press **RESTART** and then **ESCAPE**.

■ REMOVAL

- When the operator selects the Removal option, the first screen asks for confirmation of your intent to remove the selected sampler. To continue with removal, press **CONFIRM**.
- Perform the actions described on the subsequent screens and press the **CONFIRM** button as each action is completed.
- Solenoids automatically fire during removal when required.
- If the removal needs to be restarted for any reason, press the **RESTART** button. This returns the display to the first instruction and de-energizes all solenoids.
- To cancel the removal process, press **RESTART** and then **ESCAPE**.



- **CYCLE COUNTER**

- The cycle counter tracks the number of samples taken by the sampler.
- The ETERNAL counter cannot be reset and displays the total number of samples ever taken by the sampler. This counter is limited to 4,294,967,296.
- The CURRENT counter represents the number of samples taken since the last reset. This counter is limited to 65,536.
- To reset the current counter, press the **RESET** button.



- **OP SEQUENCE**

- This selection is for information only. Each step in the sequence of operation is clearly detailed and can be useful for troubleshooting.
- Press **CONFIRM** to advance to the next screen.
- Press **RESET** to return to the first screen.

- **QUICK START**

- The first time power is applied, the sampler controller defaults to Quick Start. Quick Start leads the operator through the sampler controller set-up procedure step-by-step.
- To access Quick Start on subsequent power-ups:
 - From the Main Menu, select SERVICE to access the Maintenance menu.
 - From the Maintenance menu, select QUICK START.
- Quick Start guides you through each step required for simple operation of the sampler.
 - Connections need to be verified using the engineering drawings for your sampler.
 - The important and most common setpoints are requested.
 - Once Quick Start is complete, you can start local operation of your sampler manually or in continuous mode.



- **LOAD DEFAULTS**

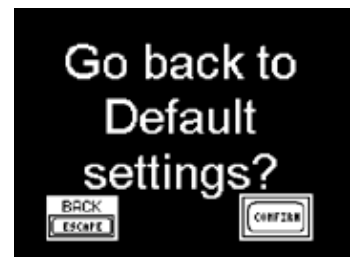
- The Load Defaults option allows the controller to return to the original factory settings. The setpoints reset to the factory defaults and modes clear.
- To reset the controller, press **CONFIRM**.

- **CONTACT US**

- If a problem arises with the sampler or controller, please contact Sentry Equipment Corp at the telephone number listed on the screen.

- **CONFIGURATION**

- The configuration option is for factory use only.



Maintenance

Please contact Sentry Customer Service for assistance with any needed maintenance on the sampler controller.

Sampler Removal Sequence

In the event that sampler maintenance requires removal of the sampler, use the following procedure.

CAUTION

Do not close the sampler controller air supply valve until instructed during the installation procedure. The sampler controller is connected to the instrument air supply. Air ports at the bottom of the sampler controller should be connected to the corresponding ports on the sampler.

1. Verify that power is applied to the controller; the PLC display screen inside the enclosure should be on.
2. Press the **ESCAPE** button to access the *Main Menu*.
3. Select *Service* from the *main menu* and then press **ENTER** to access the *Maintenance* menu.
4. Select *Removal* from the maintenance menu and then press **ENTER**.
5. The first screen of the removal sequence reads: "Do you wish to start SAL-DBB removal?"
 - a. To begin the removal sequence, press **CONFIRM**.
 - b. To return to the beginning of the removal sequence at any time, press **RESET**.
 - c. To exit the removal sequence at any time, press **ESCAPE**.

6. The PLC screen advances to the next step in the removal sequence each time you press the **CONFIRM** button. Read each screen, perform the action, and press the **CONFIRM** button after each action to complete sampler removal.

Removal sequence for SAL-Q

- a. Do you wish to remove SAL-Q sampler?
- b. Remove 4 sampler to gate valve bolts
- c. Rotate hand wheel CCW
- d. Remove lock pin
- e. Close valve
- f. Re-insert lock pin
- g. Install padlock
- h. Turn off air
- i. Install padlock on air valve
- j. Open bleed port
- k. Bleeding
- l. Close bleed port
- m. Remove 4 button head bolts
- n. Remove sampler
- o. Remove rails
- p. Install closure plate
- q. Removal complete

Removal sequence for SAL-B Park

- a. Do you wish to remove SAL-B Park?
- b. Remove lock pin
- c. Rotate handle
- d. Re-insert lock pin
- e. Install padlock on handle
- f. Turn off air
- g. Install padlock on air valve handle
- h. Open TT2 port
- i. Bleeding
- j. Close TT2 port
- k. Remove sampler
- l. Install closure plate
- m. Removal complete



Troubleshooting

WARNING

Live power in box. Disconnect the power to the controller before opening and/or servicing.

Electrical

- No power (indicated by black PLC screen)
 - CB106 turned off
 - PWS108 faulty
 - LED illuminated = power present
 - LED not illuminated = no power present
 - Faulty wiring
 - Check for loose wires
 - PLC failure
- PLC at main screen and will not run
 - Contact closure required between TB2-1 and TB2-4
 - Sampler must be placed in Auto on door switch
 - For Auto mode: Sampler must receive start signal from end user
 - For Remote mode: Activate remote mode by pushing **Remote** key on PLC

Pneumatic

- PLC running sampler not moving
 - No air or lack of air pressure (see below)
 - Leaking seals on sampler
 - Replace seals
- No air or lack of air pressure
 - Check air pressure gage
 - Regulator adjusted too low
 - See sampler manual for suggested settings, typically 80–100 psi
 - Filter bowl dirty or full
 - Change filter and/or blow down water
 - Manual shut-off valve closed
 - Remote shut-off valve closed
 - Plugged air lines
- Black material in poly-tube
 - Seal failure on sampler
 - Replace seal kit immediately
 - Replace any contaminated component
- Not purging
 - On field installs, two purge port plugs need to be removed, one exterior and one interior on the valve body

- Solenoid valve not firing
 - Watch for LED on solenoid to change state
 - Listen for actuation of valve
 - Replace solenoid valve as needed
- Plugged port
 - Blow down the check valve and port on sampler

Power Loss

↪ NOTE:

When there is a power loss, PLC counts are lost. When the sampling sequence restarts, counts actively start from zero (0).

When a power loss occurs, the PLC reverts to an idle state. Operator involvement is required to determine whether sample containers need to be changed and to cycle the SAMPLER OFF/AUTO switch.

- If the SAMPLER OFF/AUTO switch is in the AUTO position, cycle the switch to resume operation.
- If the controller is operating in remote mode, cycle the SAMPLER OFF/AUTO switch, and then cycle the sampling signal from the end user.
- If the controller is operating in remote mode and using a pulse sampling signal, cycle the SAMPLER OFF/AUTO switch. The sampler responds when the next pulse is received.

Standard Warranty

Sentry Equipment Corp (“Seller”) warrants products manufactured by it and supplied hereunder (“Products”) to be free from defects in workmanship and, to the extent materials are selected by Seller, to be free from defects in materials, in each case for a period as defined in the table below:

Brand	Product Line	Warranty Period
Sentry®	<ul style="list-style-type: none"> ▪ Steam & Water Sampling Products and Systems ▪ Solid & Powder Sampling Products and Systems ▪ Gas Sampling Products and Systems ▪ Liquid & Slurry Sampling Products and Systems ▪ Pipeline Integrity Products 	Eighteen months from date of shipment or twelve months from startup (whichever occurs first)
Waters Equipment	Steam & Water Sampling Products and Systems	Twelve months from date of shipment

To view the full warranty, go to www.sentry-equip.com/warranty.

Customer Support

With proven sampling expertise since 1924, Sentry products and services provide business operations the critical insights to optimize process control and product quality. We deliver true representative sampling and analysis techniques to customers around the globe, empowering them to accurately monitor and measure processes for improved production efficiency, output, and safety. Standing behind our commitments, we are determined to tackle any application, anywhere.

We know that running an efficient operation isn't easy. It requires thorough, careful analysis of controlled, real-time data achieved through reliable, accurate, and repeatable process monitoring, and measuring. By effectively conditioning, sampling, and measuring gas, liquid, slurry, powder, solids, steam, or water within their production environments, our customers obtain the critical insights they need to control and optimize their processes.

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- Technical Support—Troubleshooting, training, and technical manuals.
- Field Service & Retrofits—When a problem needs immediate attention.
- Replacements Parts & Consumables—Order your replacement parts and consumables.
- Sentry ProShield Services – select from four ProShield Guardian service plans providing different levels of support to protect your large system investments with regularly scheduled maintenance.

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