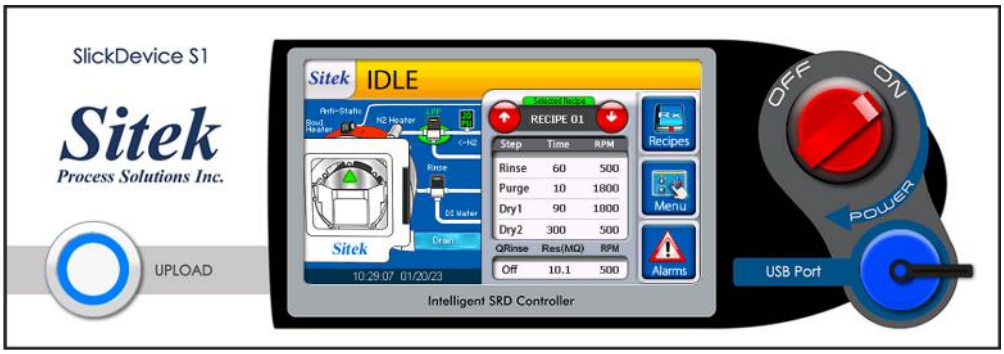
SlickDevice™ S1/F1 Intelligent SRD Controller

Owner's Manual



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Introduction

The S1 and F1 models of SITEK's SlickDevice™ are the first intelligent replacement controllers for the Semitool Spin Rinse Dryer.

SlickDevice™ uses intelligent automation and control algorithms for smooth and safe tool operation using a clear and easy-to-read interface showing the process in real-time.

Featuring an intuitive Graphic User Interface, advanced analytics, programmable process settings, and built-in diagnostic tools, the SlickDevice™ S1/F1 SRD controllers provide all required functionality for a reliable and continuous operation.

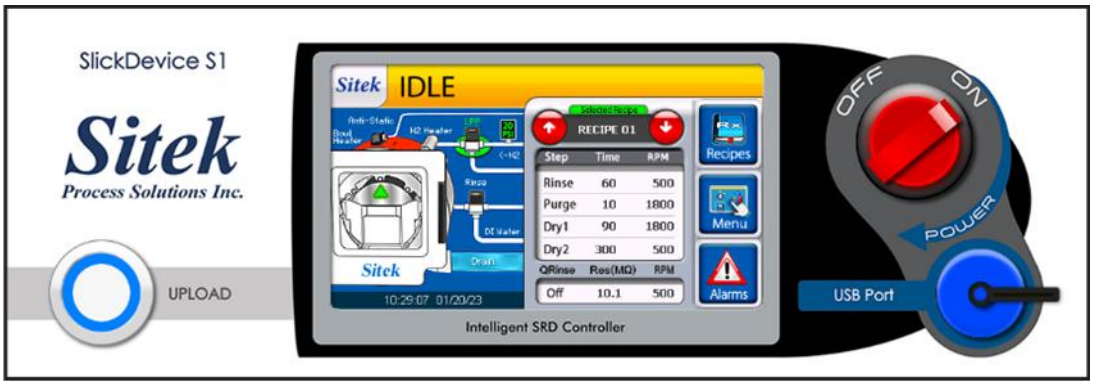
Benefits

- Direct cost savings through the N2 Saver feature
- Intuitive and user-friendly operator interface
- Direct “plug and play” upgrade
- Full-color Touch screen display that can be operated wearing any gloves
- Intelligent controller technology featuring advanced automation and control algorithms
- Real-time alerts and warnings
- Programmable process settings and easy recipe editing interface
- Quality rinse (Q-Rinse) option for enhanced operation
- Advanced Diagnostic tools and maintenance mode with intuitive troubleshooting
- Time-saving and better results with automatic checklists for sensors

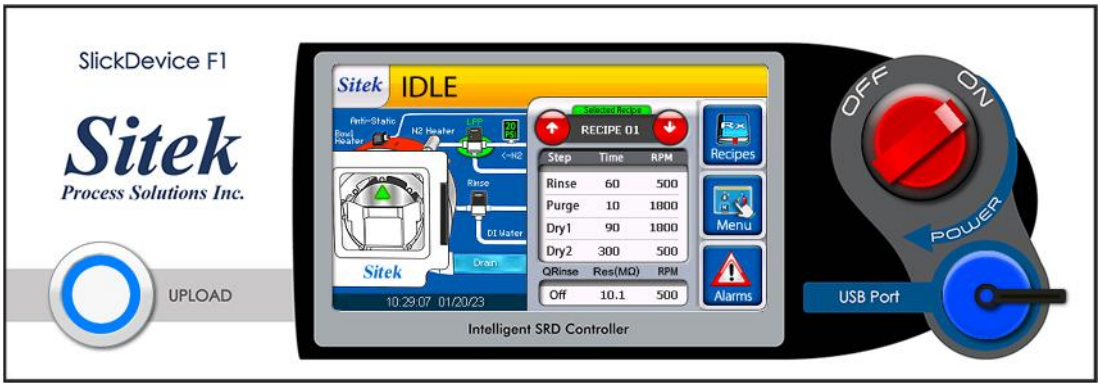
Layout

Front panel:

- Illuminated “Upload” push button for data transfer
- Crystal-Lex full color touch screen display
- Illuminated, industrial grade ON/OFF switch
- Protective cap over mini-USB port



The S1 Model of the SlickDevice™ is a highly efficient controller designed to operate with SRDs that feature Brushless DC Motors and Servo Amps.



The SlickDevice™ F1 Model is specifically engineered to operate with SRDs that have brushed DC motors and DC motor controllers.

Rear panel S1 Model:

- Resistivity probe connector
- RPJ12 umbilical cord connector
- RPJ19 connector for servo amp
- 50 pin ribbon cable RPJ2 connector
- Ground cable
- All connectors match existing Semitool 101 or 102 controllers. **Replacement to a 102 controller requires an adapter to account for an alternate pin format.

Rear panel F1 Model:

- Resistivity probe connector
- RPJ12 umbilical cord connector
- 50 pin ribbon cable RPJ2 connector
- Ground cable
- All connectors match existing Semitool 101 or 102 controllers. **Replacement to a 102 controller requires an adapter to account for an alternate pin format.

Process Description

The Spin Rinse Dryer (SRD) is a rinse and drying system that uses centrifugal forces to rinse and dry the surface of a substrate.

The substrates are usually loaded into the SRD's stainless-steel chamber and axially rotated while injecting DI (deionized water) for the rinse process.

The liquid on the substrate surface is spun off and drained from the bowl, while liquid droplets on the drying chamber surfaces are evaporated.

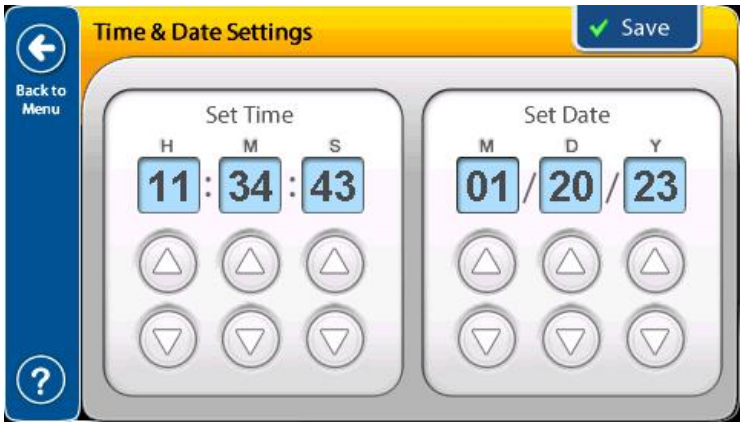
To improve with drying the substrates, ambient or heated N2 or CDA is introduced at controlled RPM and time duration. Heater blanket(s) assist in drying by directly heating the chamber surface.

Features

- 6 total recipe capacity:
  - 5 process recipes
  - 1 auto cycles
- Data logging and analytics
- Safe Manual Mode operation with alarm diagnostics
- N2 waste reduction
- Heated or ambient N2 process configuration

Initial Start Up

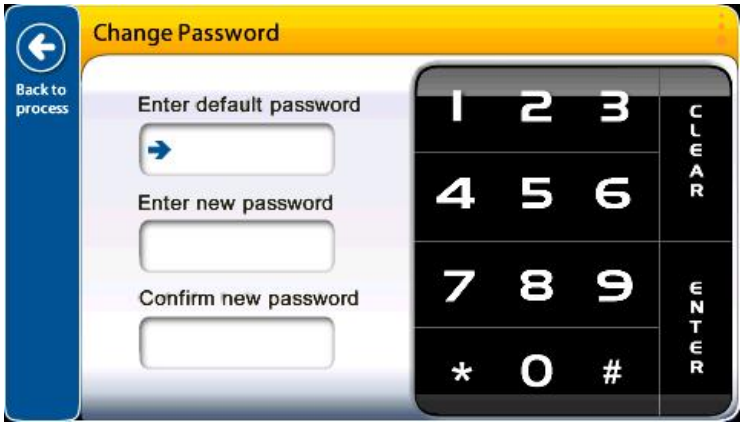
- Once the SlickDevice™ controller is installed into the SRD, connect the ground wire, and complete all cable connections, including the 110v/220v power cord.
- Turn on the N2 and DI water facility supply to the tool.
- Turn on the SlickDevice™ controller.



First, the Time & Date must be set. A screen requiring this step will automatically populate.

To set the time, use the up/down arrows under "H,M,S" in "*Set Time*".

To set the date, use the up/down arrows under "*Set Date*".



Next, a password must be set. A screen requiring this step will automatically populate.

The initial password is **0-0-0-0.**

The password can now be changed to any 4 numbers combination.

The password can be changed later in the Settings section of the controller.

The controller is now ready for the initial run.

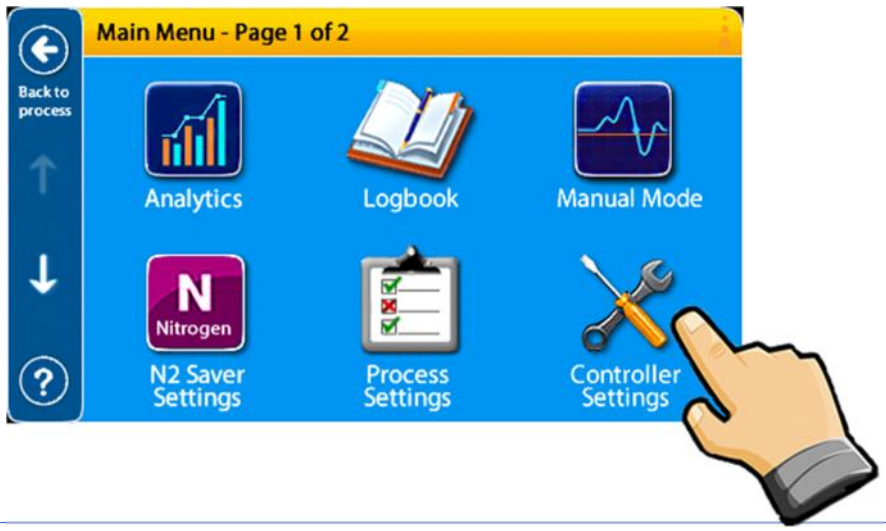
Note: The controller will self-calibrate to the motor controller and motor.

General Settings

Adjustment of general settings (Clock, Brightness, Volume and Password).

When the Idle screen appears, Press "*Menu*".

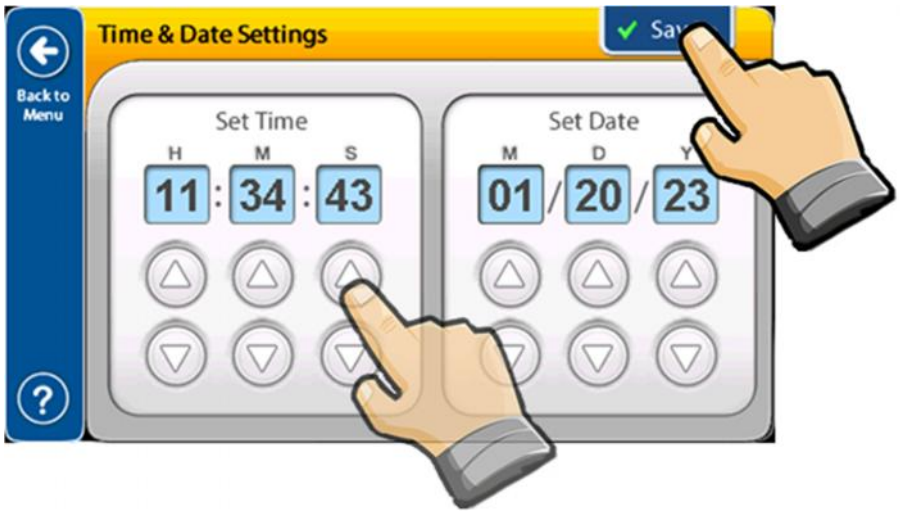
Enter the password that was set on initial startup.



Select "*Controller Settings*" from the Main Menu page 1 of 2.

Clock Setting

Select "*Clock*" from the Settings page.

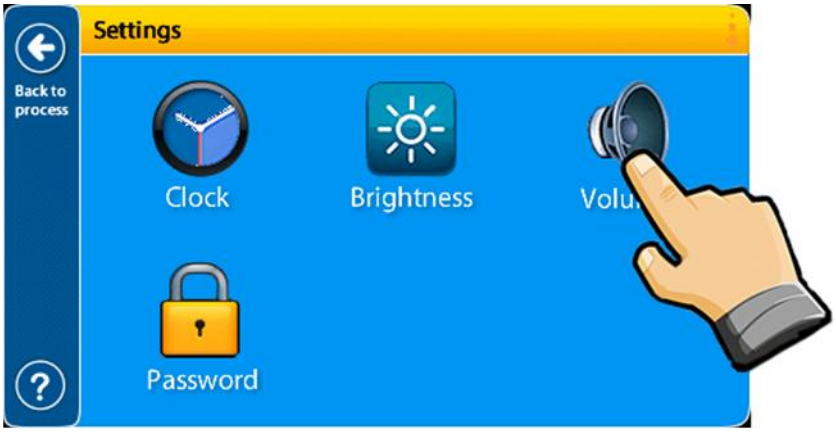


To set the time, use the up/down arrows under "H,M,S" in "*Set Time*".

To set the date, use the up/down arrows under "*Set Date*".

Save settings and press *"back to menu"*.

Screen Brightness and Volume



Select *"Brightness"* or *"Volume"* from the Settings page.

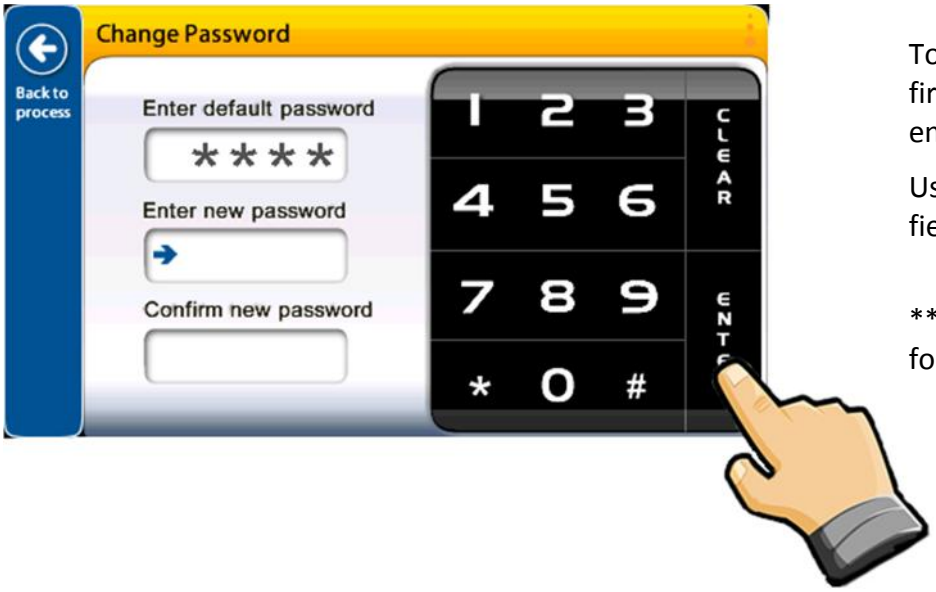
Move the slider to set the "*Screen Brightness"* or "*Beep Volume"*.

Touch default to set the default value for Screen Brightness/Volume.

The default value corresponds to recommended SITEK setting.

Change Password

Select *"Password"* from the Settings page.



To change the password, you must first enter the current password, then enter and confirm the new password.

Use *"ENTER"* to move to the next field.

** Forgot password? Contact SITEK for password reset procedure.

Recipe Program Settings

Idle: Also known as the Operator mode.

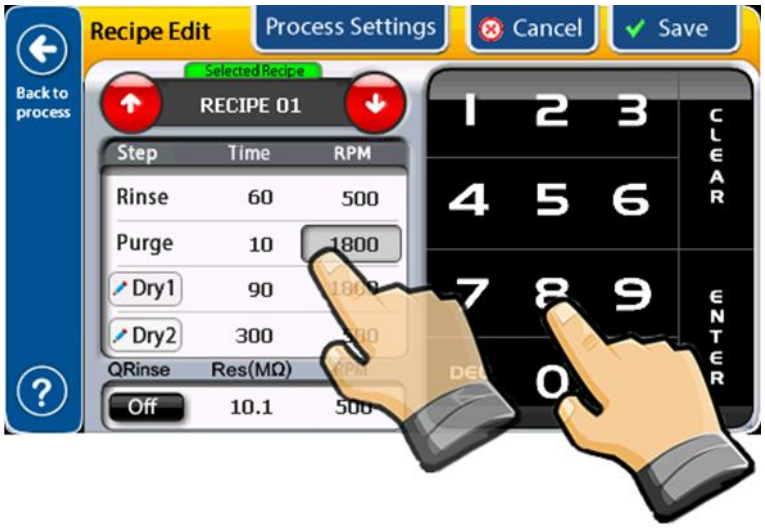
To create or modify a recipe, select "*Recipe*" to access and edit recipes.

Enter the password to access Recipe Edit mode.

Using the Recipe Edit screen you can edit Time, RPM, Resistivity, and Q-Rinse. You can also change the process settings for Dry1 and Dry2 steps by selecting either of those respective icons.

Use the numeric pad on the right to enter numeric data. Use Clear to delete a current value inside of a field.

You can navigate to each cell using *"ENTER"* or by tapping on it directly.



To create or modify an existing recipe, select the desired cell so it becomes highlighted.

Key in the new value for "Time" or "RPM" using the numbers pad.

Select *"ENTER"* to move to the next field.

Select "*CLEAR*" to erase the previous value, then use the number pad to enter a new value.

If an incorrect entry is made, use the "Delete" button to re-enter a new value.

Selecting *"Cancel"* or leaving the recipe prior to saving will disregard all changes.

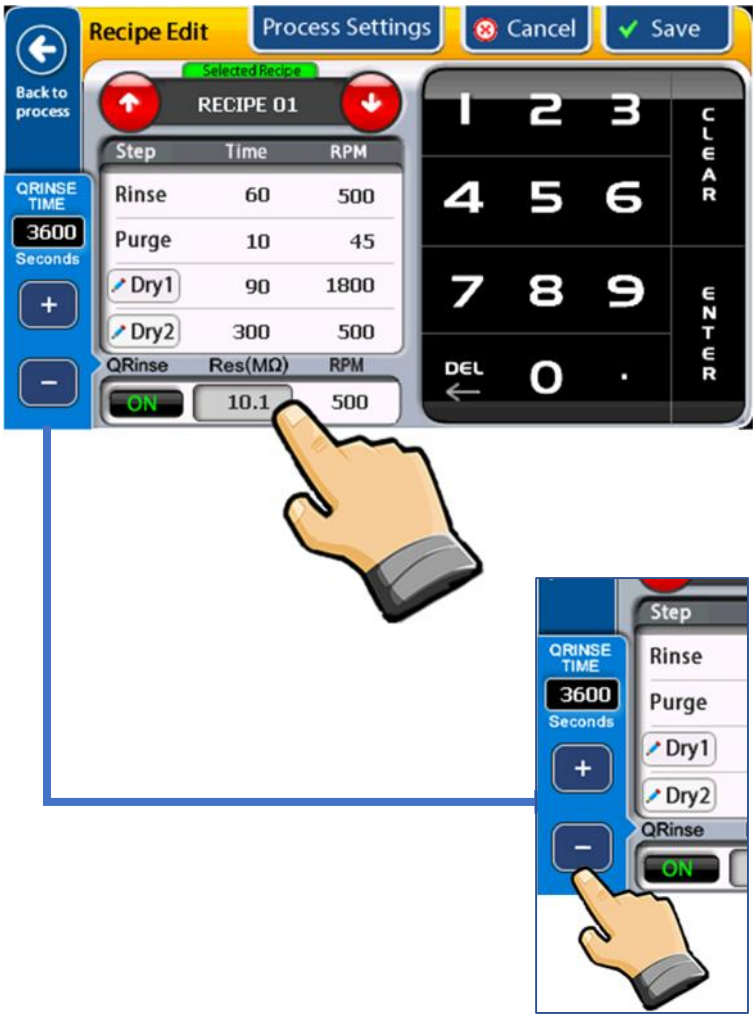
When completed, select "*Save*" to capture the changes. Verify the new values once the display has refreshed.

Return to the main process screen via "*Back to process*".

Quality Rinse

The Quality Rinse (Q-Rinse) function is offered as an additional feature. Q-Rinse requires a DI resistivity set point to be met to complete the rinse process and proceed to purge.

An advanced algorithm is utilized to determine a temperature compensated resistivity value measured during the Q-Rinse step.



The available range for Resistivity Value in Q-Rinse step is zero to 18 Megohm.

"QRINSE TIME" determines how long the controller will continue rinsing if the set point is not met. If this timer concludes, the controller will alarm.

Quality Rinse time can be adjusted using + or – symbols. Available range from zero to 3600 Seconds.

Skip step or Dry only recipe

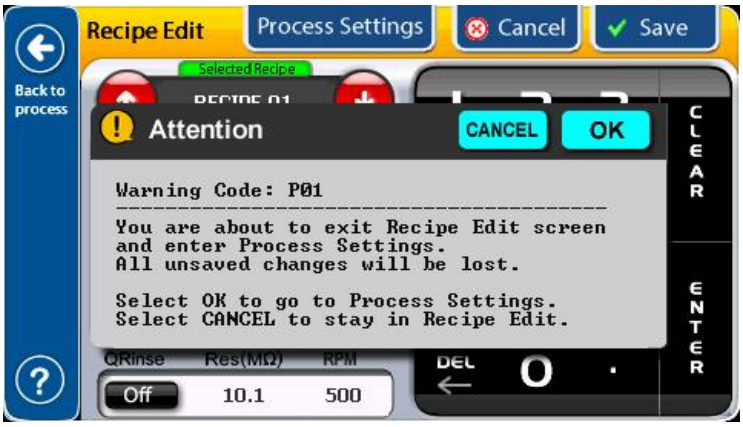
To create a Dry only recipe or to skip any step, place a zero in the "Time" cell to skip that step. The recipe will advance accordingly.

Editing Process Settings in a recipe

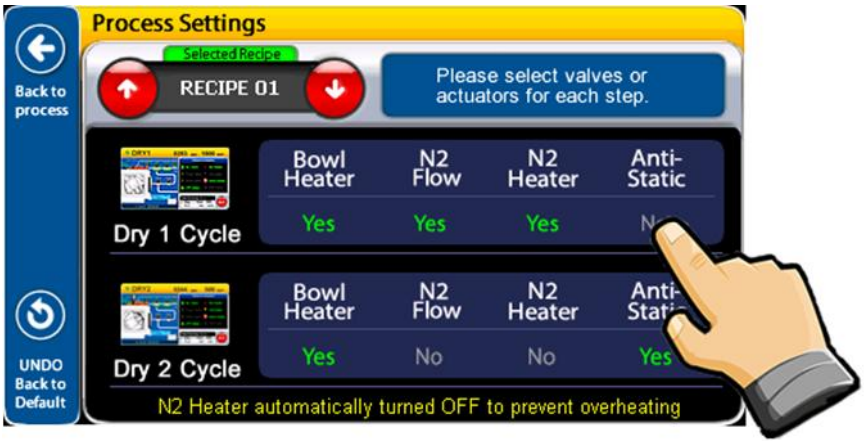
Use the Dry buttons with the pencil icon to edit the process parameters for Dry cycles. 

Process parameters like Nitrogen Flow, Nitrogen heater, Blanket Heater or Static Eliminator can be adjusted for each recipe.

You can also use the "*Process Settings*" button on the top of the screen for the same function.



NOTE: Save the recipe by pressing "*Save*" before selecting Process Settings.



Touching the corresponding valve or actuator will toggle the selected parameter during the Dry 1 or Dry 2 Cycle.

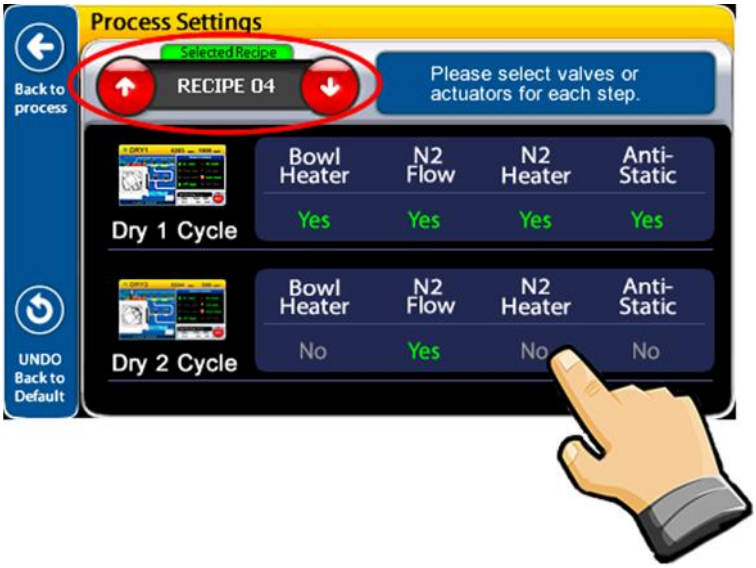
Every selection is saved automatically. Touching the *"UNDO"* button restores all parameters to default values for Dry1 and Dry2 Cycles.

Note: If the tool does not include a Static Eliminator, turning the Anti-Static eliminator off will remove any alarm related to this option.

This example shows how to set the process to deactivate "Anti-Static" for Recipe 04 during Dry1 and Dry2 cycles.

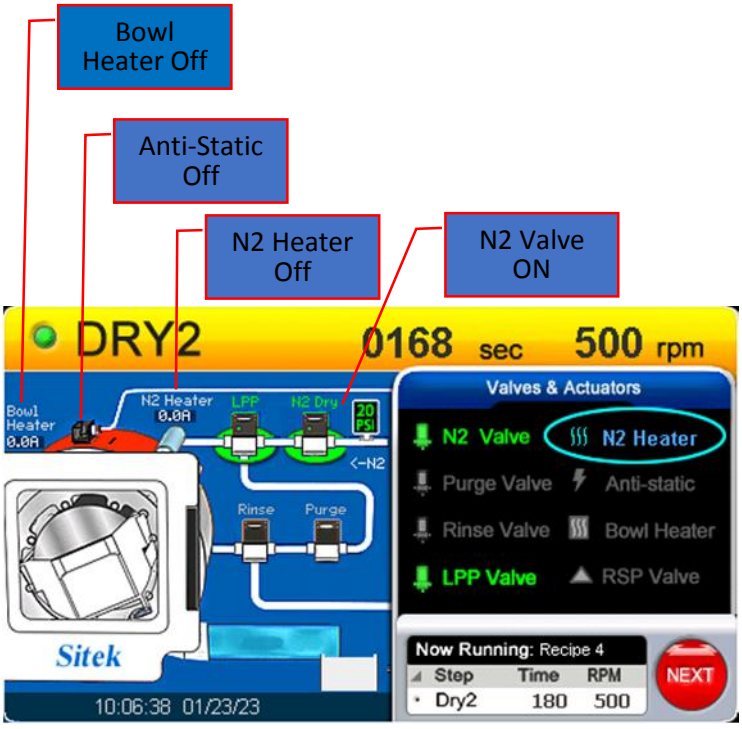
Process Setting Example

In this example, the process is set to run the Dry 2 Cycle with just N2 flowing into the chamber, no N2 Heater, no Bowl Heater, and no Anti-Static for Recipe 04.



Setting the process to run the Dry 2 Cycle with just N2 flowing into the chamber, No N2 Heater, No Bowl Heater, and No Anti-Static is simple. After selecting "RECIPE 04", touch every option to activate "Yes" or "No".

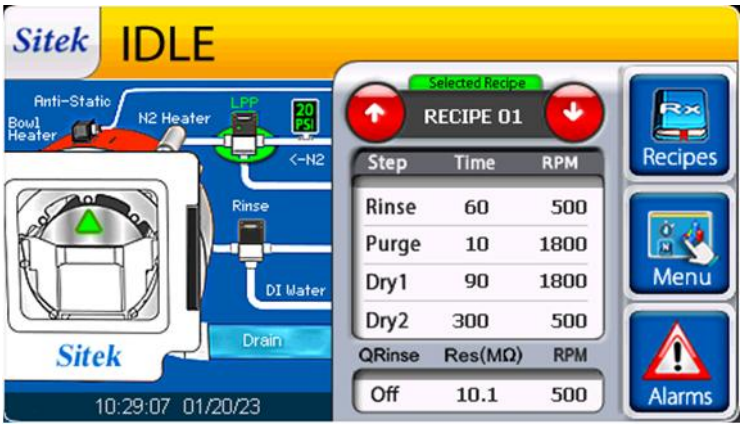
Running the Recipe



This is a recipe running according to the previous process settings selections.

Quick Reference of Operations Screens

IDLE

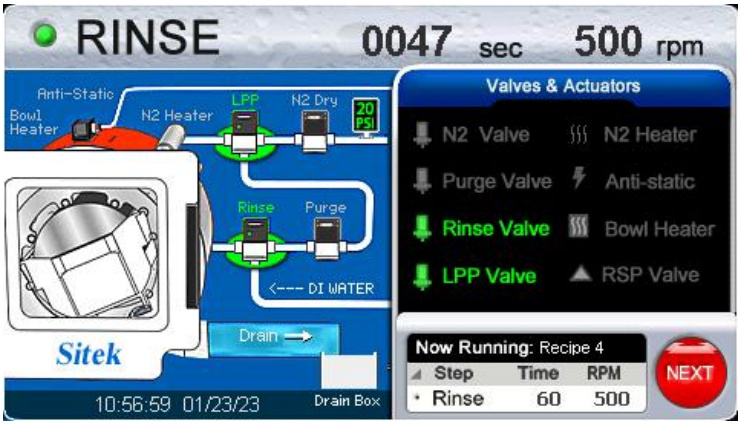


Idle: Also known as the Operator screen. Once the cassette of wafers is loaded and the door is closed a recipe is selected.

To begin the process, the start button on the SRD is pressed. Valve status is highlighted when open. If an alarm condition is present, the "Alarm" icon in the lower right corner of the screen will flash. At this time, maintenance personnel should be notified.

SlickDevice™ Intelligent SRD controller checks all parameters before starting the process. Should a required parameter or sensor state not meet the initial conditions, the screen will show a message detailing the condition preventing the tool from starting.

Rinse

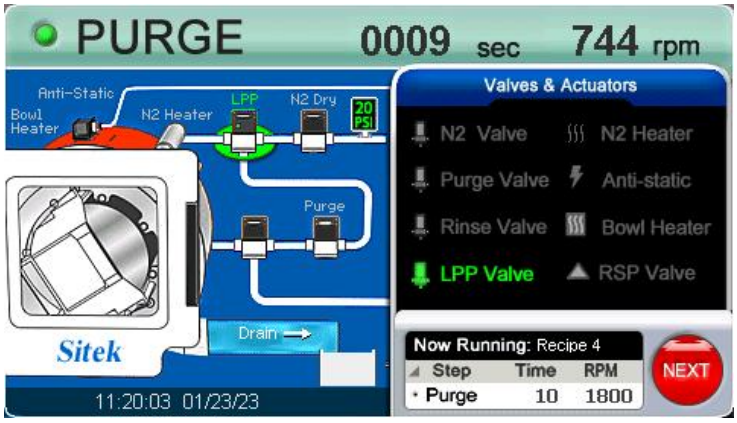


Rinse: The first step of the process, which will commence if conditions are correct (door closed, N2 pressure met, etc.). The resistivity reading is displayed during rinse.

The “Valves and Actuators” tab to the right of the screen displays the current valve and actuator state during each processing step.

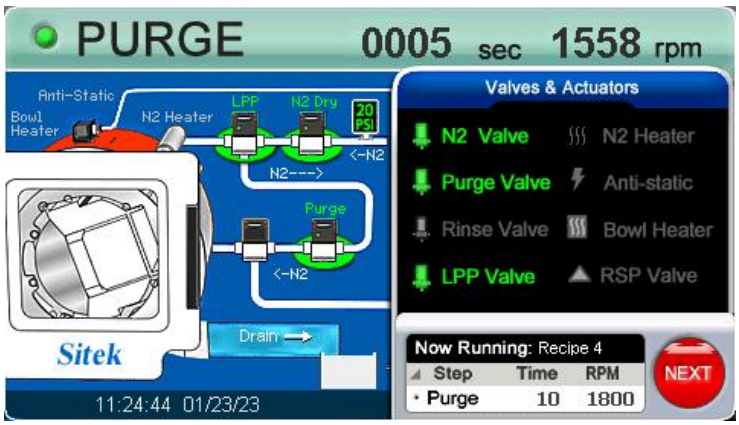
On the left of the screen, a mimic shows the real-time flow and process data. The advanced speed control algorithm keeps the rotor speed according to the recipe setpoint.

Purge



Purge: After the rinse step finishes, there is a 3-second delay to allow the rinse valve to close fully before purging the DI manifold with N2.

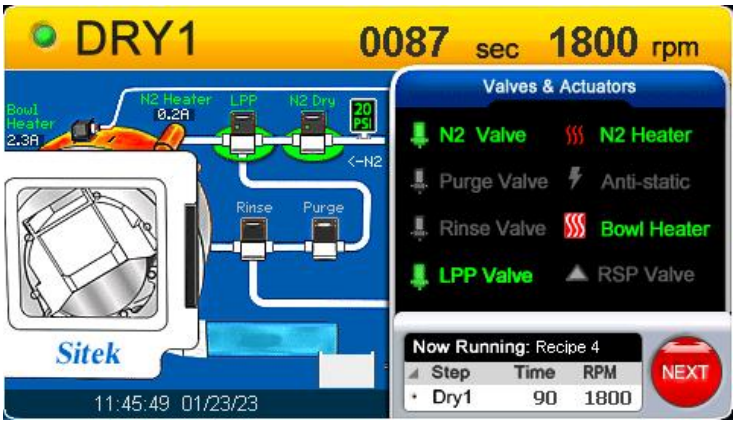
Rotor speed is adjusting in this recipe to reach the selected Purge RPM setpoint.



Purge: Once the 3-second delay is over, the Purge and N2 valve opens to purge the residual DI Water from the DI manifold.

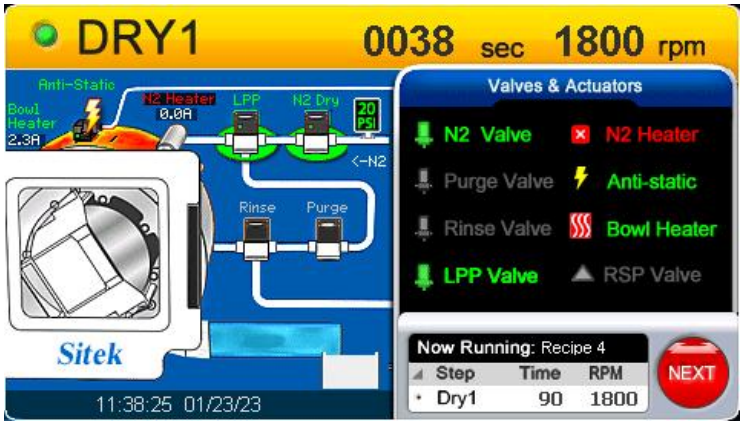
The valve’s current state and N2 flow are shown on the screen’s left side.

Dry1



Dry 1: Depending on the process settings, the S1 indicates that the Bowl Heater is on, the N2 Heater is on, and the N2 pressure is correct.

Typically, Dry 1 uses a shorter time and higher RPM step such as 90 seconds and 1800 RPM.



The heaters' current is monitored in real-time during the process. The heaters' amperage value is shown, and the corresponding color-matching state appears on the heaters' mimic.

In this example an N2 Heater fail is shown on *Valves and Actuators* tab.

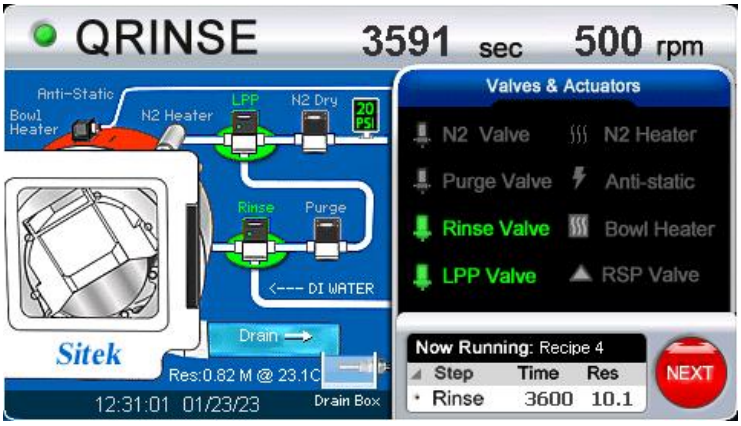
Dry2

Dry 2: Final step, typically a longer time and lower RPM such as 300 seconds and 600 RPM.

Typical process settings are N2 Flow on, N2 Heater on, Bowl Heater on, and Anti-Static on.

Any of these parameters can be changed using *Process Settings*. on Main Menu – Page 1 of 2 or using the Recipe Edit screen.

Q-rinse (Optional step)



Q-Rinse: Initiates if rinse cycle did not meet the DI resistivity set point.

The system will continue to rinse for the time selected on the recipe or until the set point is met. The maximum Q-Rinse time is 3600 seconds.

An alarm will display if the tool cannot reach the resistivity setpoint within the specified time.

Process Complete Successful

Process Complete Successful: If the run is completed without incident, a "Successful" indication is displayed.
The operator can open the door to remove the cassette at this time. Opening the door will signal to the controller that the run is acknowledged and is now complete.

Note: Pressing the tool STOP button or touching OK on the screen also acknowledges the end of the process.

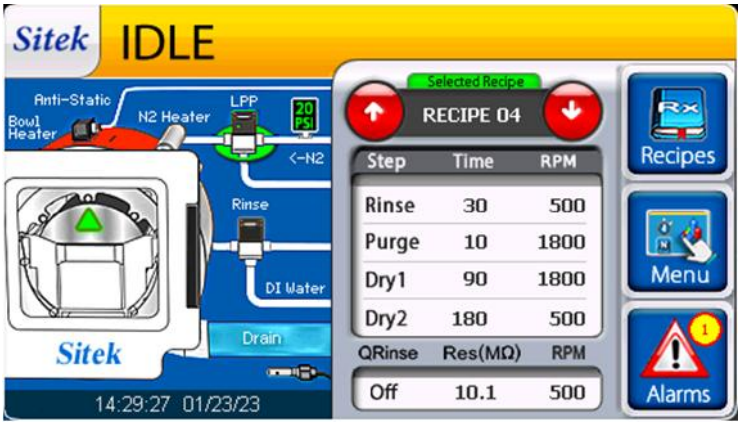
If the SRD is equipped with a light Indicator or a light tower, the blue color lamp will be on indicating a successful run is complete and the operator can remove the cassette from the chamber.

Process Complete Unsuccessfull

Process Complete Unsuccessful: If an unsuccessful run occurs, an error message will display and notify the operator. This is saved in the log report.

If the tool is equipped with a light Indicator or a light tower, alternating red and blue colors will flash, indicating an unsuccessful run.

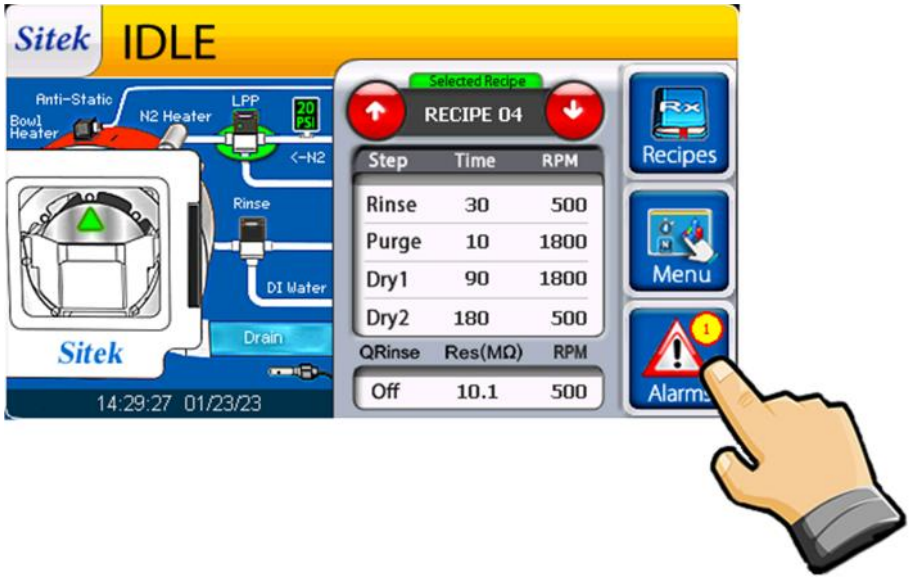
The operator can acknowledge by opening the door, pressing the tool STOP button, or



After an unsuccessful run is acknowledged, the SRD Controller returns to the Idle State, and a circle with a number appears next to the Alarms icon on the Idle Screen showing how many error messages were found during the unsuccessful run.

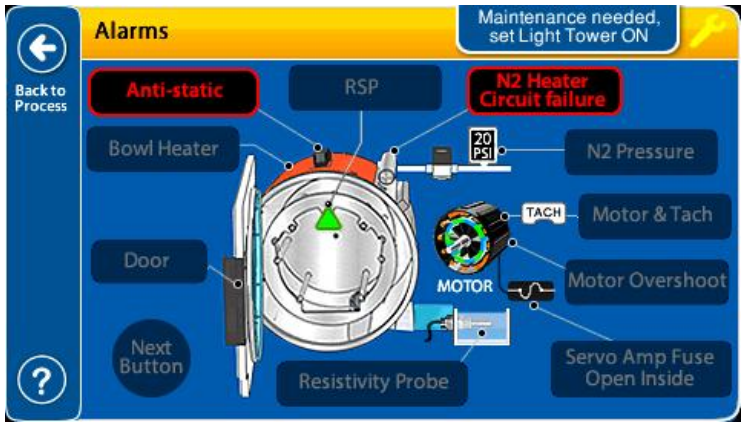
Alarms

The Alarms Screen can be accessed from the main Operator Screen.



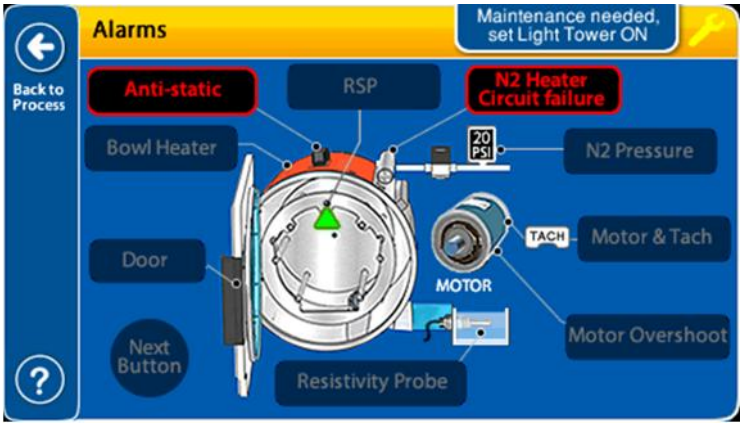
Alarms can also be accessed through Main Menu – Page 1 of 2.

The Alarms Screen shows a detailed diagram indicating the detected origin of the failure. This diagram show alarms caused by: Anti-Static Failure, Rotor Stop Positioner, N2 Heater Circuit, N2 Pressure, Motor & Tach, Motor Overshoot, Servo Amp fuse open inside the SRD Controller, Resistivity Probe failure, Door Open, Bowl Heater or if a step was skipped by pressing the Next Button. See the following page of this manual, for a detailed log of alarms



The image shows the Alarm Screen corresponding to the S1 Model.

In this example, the process run was unsuccessful due to a failure on the Static eliminator and a failure on the N2 Heater electrical circuit.



The Alarm Screen of the F1 model differs slightly because of its DC motor type, which doesn't have a servo amp and an internal fuse.

Every time an alarm is present, the corresponding Light Indicator flashes in red color

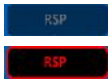
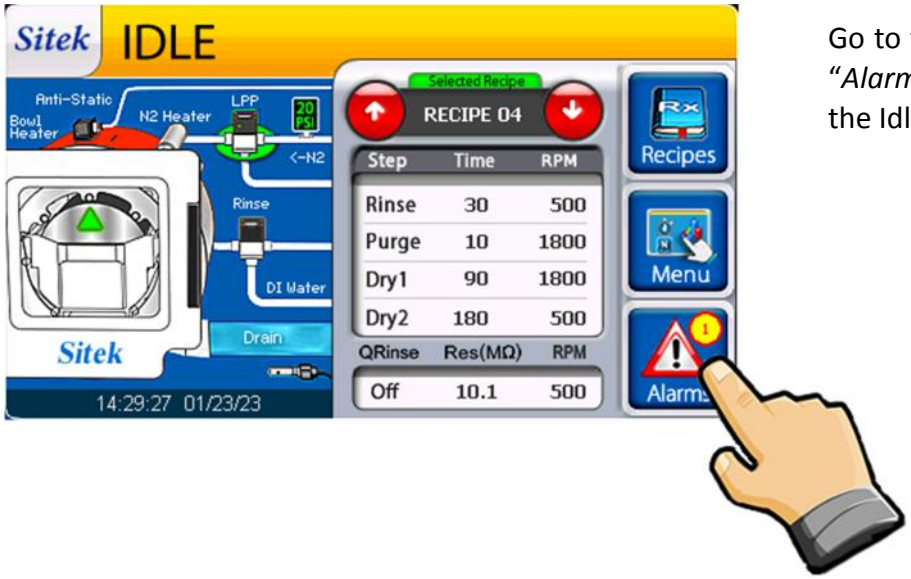
Alarm	Icon	Possible Reason	Potential Solution
Anti-Static		Anti-static circuit failure	Verify if a Static eliminator is connected to the tool. Verify if the Static Eliminator circuit is operating correctly (Check this using the built-in diagnostic tools available on the *Manual Mode* screen)
RSP		Rotor Stop Positioner sensor failure. Home sensor failure	Verify electrical connections and wiring contacts, check the position sensor operation, verifiy changing states, and flag position is adjusted correctly, or replace sensor. Verify the 50-pin connector between SRD and SlickDevice.
N2 Heater		N2 heater electrical circuit failure	Verify N2 heater circuit operation using the built-in diagnostic tools available on the Manual Mode screen. Confirm that N2 pressure is present to enable the N2 heater operation. Verify electrical wiring and connectors. Verify overtemp switch on N2 heater circuit. Verify the pressure switch on the N2 heater circuit. Verifiy the ACR valve controlling the N2 flow.
N2 Pressure		N2 Pressure	Verify facility N2 supply pressure is above the minimum value (20 PSI). Verify 20 PSI pressure switch operation. Check wring and connectors for 20 PSI pressure switch. Check if pressure falls below 20 PSI during tool operation. Verify the 50-pin connector between SRD and SlickDevice.
Motor and tach		Tach sensor failure. Motor circuit failure.	Using the built-in tools available on *Manual Mode* screen verify tach sensor operation. Verify wiring and connectors to the Tach Sensor. Verify Umbical Connector. Verify the 50-pin connector between SRD and SlickDevice. Verify motor wiring and connectors. Verify motor servo amp.
Motor Overshoot		Rotor of diferent size/weigth recently installed	Verify Rotor installation. Verify motor wiring and connectors. Run a test recipe using speeds below 900 RPM and at least 50 second on each step, this will left enough time for the motor self calibration algorithm to re-learn.
Servo Amp Fuse Open Inside		Fuse failure inside controller	Contact Sitek for controller recalibration and repair.
Resistivity probe		Running a Qrinse recipe without a Resistivity probe connected to the SlickDevice controller	Check if a Resistivity probe is connected to the back of the controller. Check Resistivity probe wiring and connectors.
Next Button		Next Button actuated while running recipe	Pushing the Next button while the process is running skips the current step and moves to the next step, this is mainly used during test runs. Do not use Next button during a regular recipe run.
Door		Door was open while rotor was running	Chek door seal. Verify door sensor. Verify door sensor wiring and connectors. Verify door adjustment.
Bowl Heater		Bowl Heater circuit failed	Verify Bowl heater circuit operation using the built-in diagnostic tools available on the Manual Mode screen. Verify Bowl Heater wiring and connectors. Verify overtemp switch on Bowl heater circuit. Verify process pwitch on Bowl Heater circuit. Verify Umbilical cable.

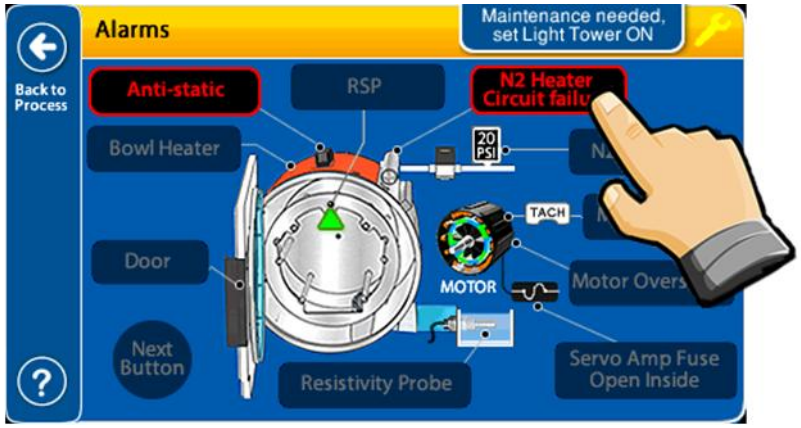
Table 1. Potential solutions to system alarms.

Note: Please be aware that the "Servo Amp fuse open inside" entry in Table 1 should not be applied to the SlickDevice™ F1 Model.

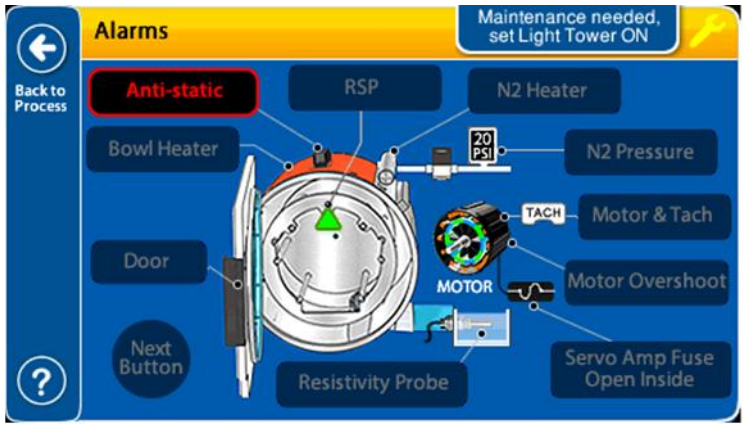
How to clear alarms



Go to the Alarms Screen by selecting the "*Alarms*" button on the bottom right of the Idle Screen.

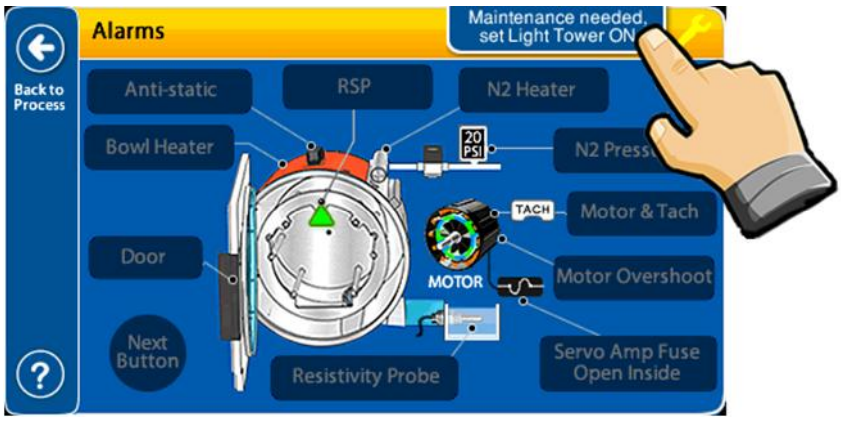


Touch the illuminated alarm icon to acknowledge and clear the alarm.

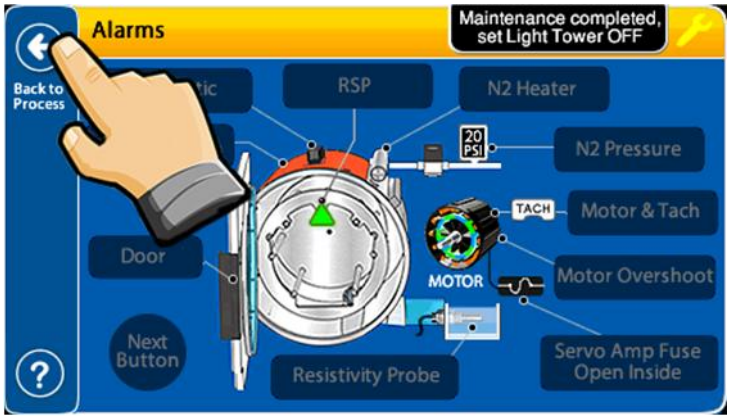


The alarm icon will turn off. If the condition persists after returning to the Idle Screen, the alarm will light again and repeat until the issue is fixed.

Maintenance Mode / Tool Down

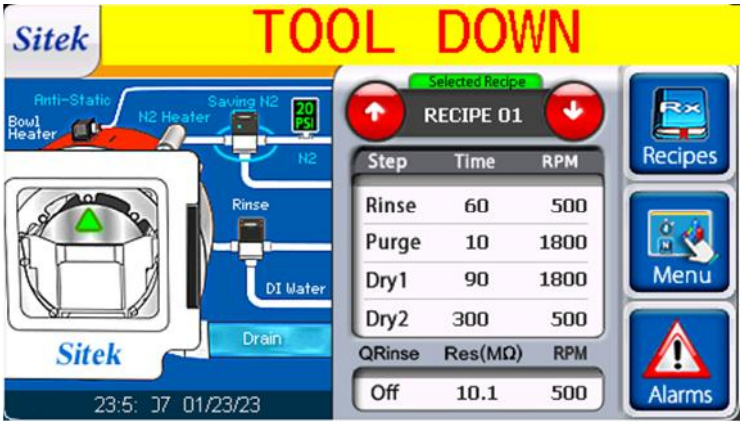


To set the SRD into a Down State, select the "*Maintenance needed, set Light Tower ON*" button at the top of the screen.



Once the "*Maintenance needed, set Light Tower ON*" button is selected, the button background changes to black, and the tool will be on Tool Down State after returning to Idle.

To go back to Idle, please select "*Back to process*"



A flashing "TOOL DOWN" text label appears on the top part of the Idle Screen showing the current tool state.

The tool still can run and operate all functions in this state so troubleshooting can proceed, however this state is intended for maintenance personal only.

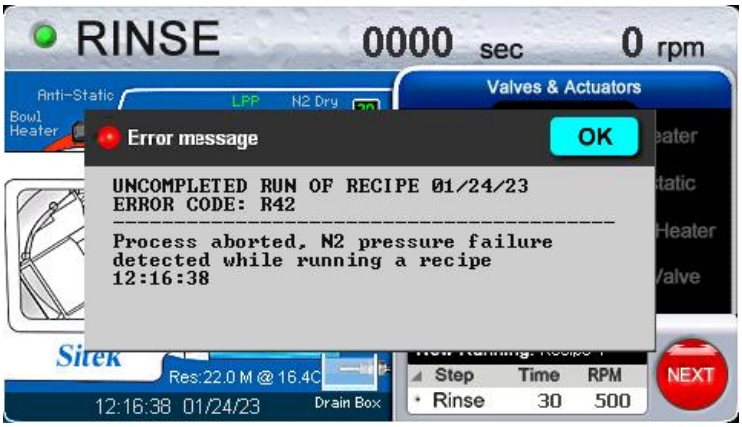
Error codes

SlickDevice™ error codes consist of a letter followed by two numbers. Example: Error R42.

Errors are classified into the following categories:

The letter shows the type of error.

I: **information error**: Wrong password or other information error.
S: **Start**: A failure prevents the tool from starting a normal process.
R: **Running**: Errors detected while running a process.
M: **Manual**: Errors detected while in Manual Mode.



Screen showing ERROR CODE R42:
UNCOMPLETED RUN OF RECIPE: N2 PRESSURE FAILED WHILE RUNNING A RECIPE
“Process aborted, N2 pressure failure detected while running a recipe"

This is an example of an error code. In this case, the N2 pressure supply falls below the minimum value during a recipe running, the process is aborted, and an error message is shown on the screen.

Error Code = R42. It starts with the letter R meaning it was a Running error.

Error Codes List

ERROR CODE: I01

NEW PASSWORD CONFIRMATION ERROR
“New password and confirmation password must be the same."

ERROR CODE: S05

MICROSD CARD NOT DETECTED
“MicroSD card not detected. Please check MicroSD card or touch OK to ignore."
MicroSD card was not detected when SlickDevice™ is Power On.

ERROR CODE: S06

ERROR READING SYSTEM DATA LOG
“Error reading data logger. Sorry, Logbook not available. “
User tried to check the System log, but an SD card was not detected/Installed

ERROR CODE: S10

INVALID RECIPE VALUE
"Please check recipe values for RPM. RPM value on a recipe must be between 50 and 3200 RPM."

ERROR CODE: S11

RESISTIVITY PROBE NOT DETECTED IN A RECIPE USING QRINSE CYCLE
Resistivity Probe not connected; Quality Rinse cycle requires a resistivity probe."
"->Select OK to run cycle without QRinse."
"->Select CANCEL to abort this run."

ERROR CODE: S30

CHECK SERVO AMP FUSE INSIDE SLICKDEVICE™ SRD CONTROLLER
“Check Servo Amp fuse inside SlickDevice™ controller."

ERROR CODE: S31

DOOR IS OPEN, START BUTTON WAS PRESSED AND DOOR IS STILL OPEN.
"-- Door is open starting normal cycle."

ERROR CODE: S32

N2 PRESSURE FAILURE, PROCESS CAN NOT START
"-- N2 Pressure Failure detected!"

ERROR CODE: S33

ROTOR IS NOT UP, PROCESS CAN NOT START
"-- Rotor up failure. Rotor is not up."

ERROR CODE: S34

CLEAR ALARMS
“Please clear all alarms before starting."

ERROR CODE: M41

DOOR WAS OPENED WHILE RUNNING IN MANUAL MODE
“Door was opened while motor was spinning during Manual Operation"

ERROR CODE: M42

"MANUAL MODE: WARNING:"
"N2 Heater will not turn ON without N2 pressure."

ERROR CODE: M45

MOTOR OR TACH OR AMP FAILED WHILE IN MANUAL OPERATION"
"Motor/Tach/Amp failure while in Manual Mode."

ERROR CODE: R40

UNCOMPLETED RUN OF RECIPE: SERVO AMP FUSE FAILED WHILE RUNNING A RECIPE
"Servo Amp fuse inside SlickDevice™ controller is open. Amp fuse failed while running a recipe"

ERROR CODE: R41

UNCOMPLETED RUN OF RECIPE: DOOR OPENED WHILE RUNNING A RECIPE
"Process aborted, door was opened while running a recipe."

ERROR CODE: R42

UNCOMPLETED RUN OF RECIPE: N2 PRESSURE FAILED WHILE RUNNING A RECIPE
“Process aborted, N2 pressure failure detected while running a recipe"

ERROR CODE: R44

UNCOMPLETED RUN OF RECIPE: PROCESS ABORTED BY USER
"Process aborted by user. User stopped process while running a recipe."

ERROR CODE: R45

UNCOMPLETED RUN OF RECIPE: MOTOR OR TACH SENSOR OR SERVO AMP FAILED WHILE RUNNING A RECIPE
"Process aborted. Motor/Tach/Amp failure detected."

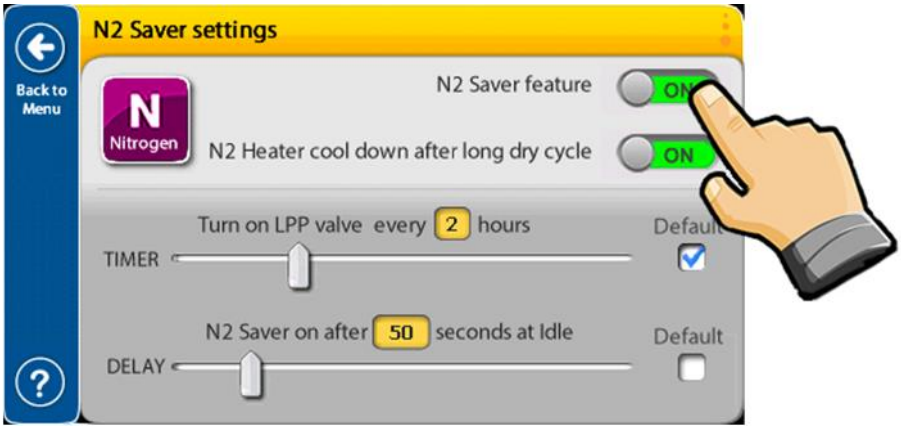
End or error codes list.

Note: Please be aware that the Error Code S30 - CHECK SERVO AMP FUSE INSIDE SLICKDEVICE™ SRD CONTROLLER "Check Servo Amp fuse inside SlickDevice™ controller" does not apply to the SlickDevice™ F1 Model.

N2 Saver: Customized Nitrogen Parameters

The N2 Settings icon leads to a feature for reducing N2 consumption while the tool is in idle. The N2 Saver provides a dynamic range of adjustment in terms of Nitrogen flow frequency after process.

Select the Nitrogen icon to access the settings page from the Main Menu.



N2 Saver settings:

Slide the N2 Saver feature switch to the left to enable.

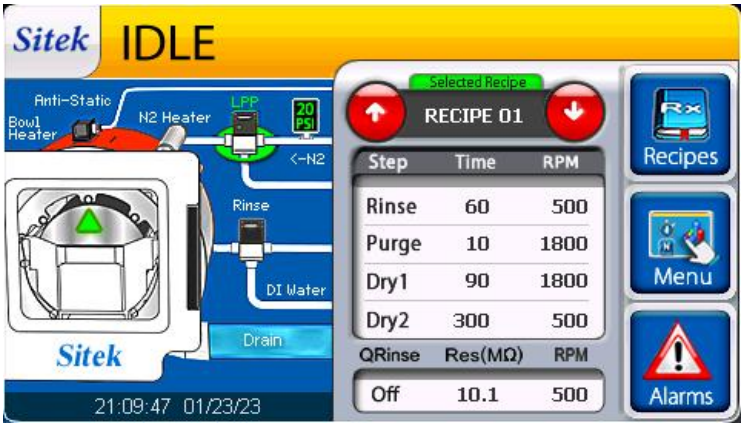
The N2 Heater cool down will provide N2 flow post dry cycle process to dissipate heat and extend heater life. Slide the switch to the left as illustrated to enable.

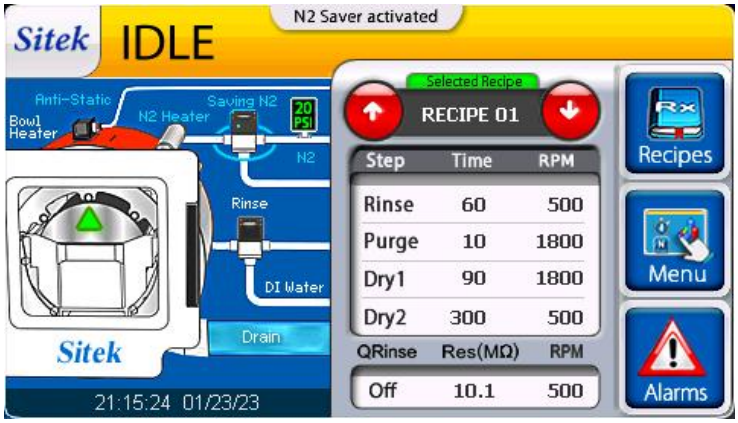
Timer determines the elapsed time between N2 purges.

The maximum setting is 8 hours and is determined in 1-hour increments. (Default value is 2 hours)

This timer resets after any process run.

Delay controls the time after a run is completed before the N2 Saver turns on. The maximum setting is 300 seconds and is determined in 10 second increments. (Default value is 20 seconds).



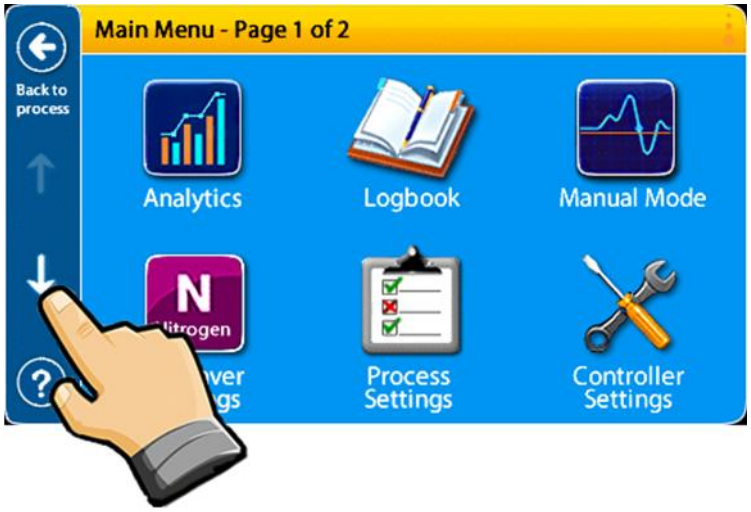


Once a run is completed and the system returns to Idle, the N2 Saver delay starts counting to the programmed number of seconds to activate the N2 Saver feature. A label on top of the screen indicates when N2 saving is on.

The blue base ring color for the N2 valve and upper “N2 Saver activated” banner indicate when the N2 saver is active.

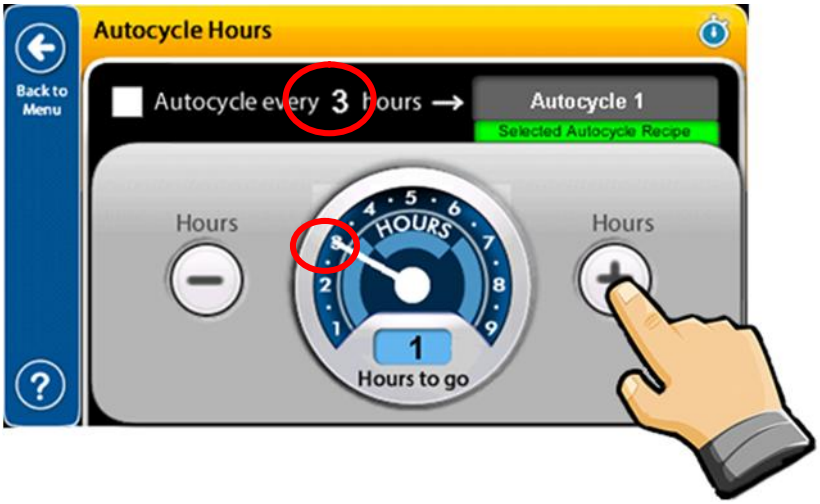
Autocycle

This function is a typical rinse/purge/dry/dry process that automatically runs at set intervals at a fixed value of 300 RPM. This is typically used to exercise the tool after longer idle periods.



Autocycle is programmed by hours. To set the Autocycle and select the hours between each run, go to the main menu and use the down arrow to go to Main Menu – page 2 of 2.

Select Autocycle to enter the Autocycle settings page.

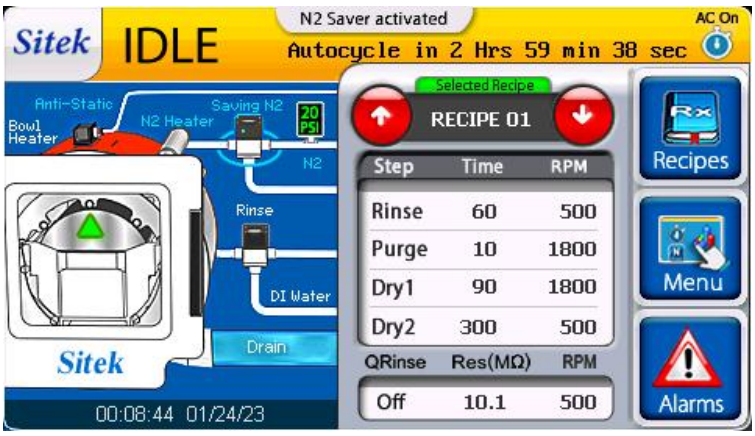


The maximum setting is 9 hours and is determined in 1-hour increments. (Default value is 2 hours)

Use the + or – symbols to adjust the number of hours to occur between each Autocycle.

Select the check mark to activate the Autocycle.

In this example, the user is programming an Autocycle every 3 hours by selecting the checkmark.



After returning to Idle, a countdown for the Autocycle is shown in the top right section of the screen.

If a recipe is run, the timer will restart once the recipe is complete. This is true for whether an ordinary recipe or Autocycle recipe is run.

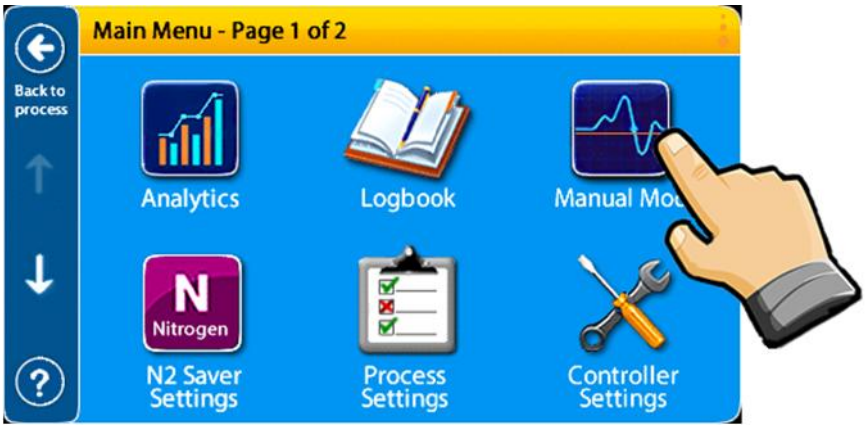
Manual Mode

WARNING: Manual Mode is intended to be used by authorized and trained personnel only. This mode enables specific vital components to be actuated for testing or verification purposes.

Security interlocks have been programmed to avoid hazardous conditions. Even with security interlocks activated, dangerous situations may occur.

Improper electrical or pneumatic circuit operation can cause serious injuries or death. The improper operation could also damage equipment. Read this manual before operating valves, relays, actuators, motors, or any other components using the SlickDevice™ SRD Controller.

To operate Manual Mode, select "*Menu*" on Idle Screen.

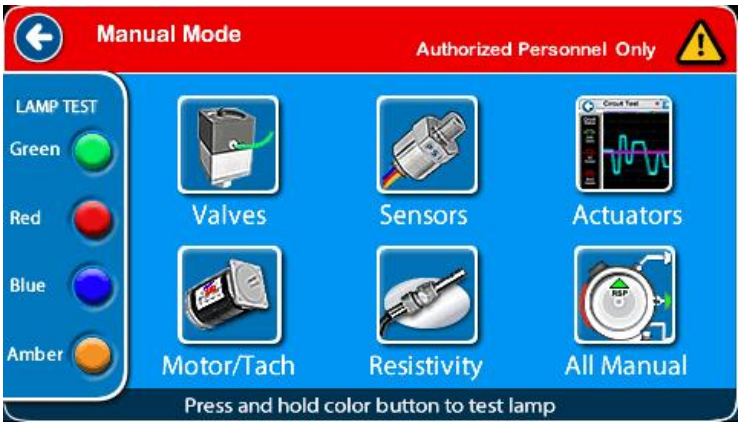


Then select "*Manual Mode*" on Main Menu Page 1 of 2.

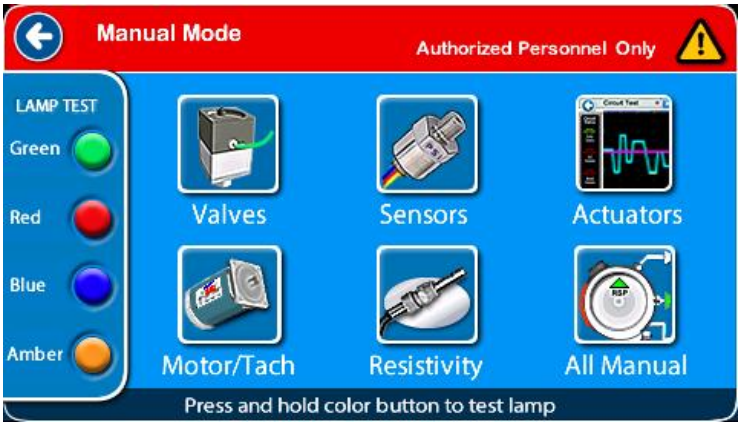
As mentioned before, the Manual Mode is intended for trained and authorized personnel only.

The user must read and agree with this statement and press "*I have read and agree*" before proceeding.

A log will register the user's agreement, and every selection made using this mode. This log will record the time, date, and description of the task performed by the user. The log is stored in a Secure Digital Card (SD Card).

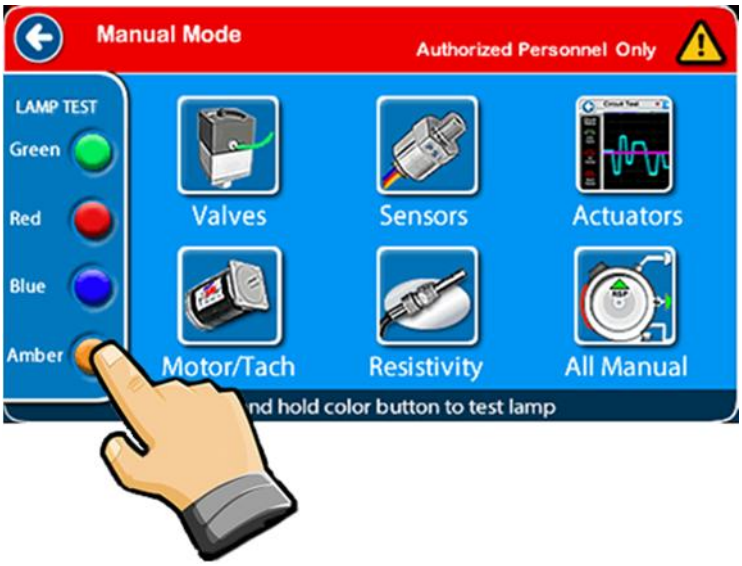


Manual Mode enables the user to operate Valves, Actuators, Motor, Heaters, Resistivity Cell, Lamps, and test Sensors without running a specific process or recipe.



The Manual Mode screen of the F1 model shows a brushed DC motor. The functionalities explained are applicable to both the S1 and F1 models.

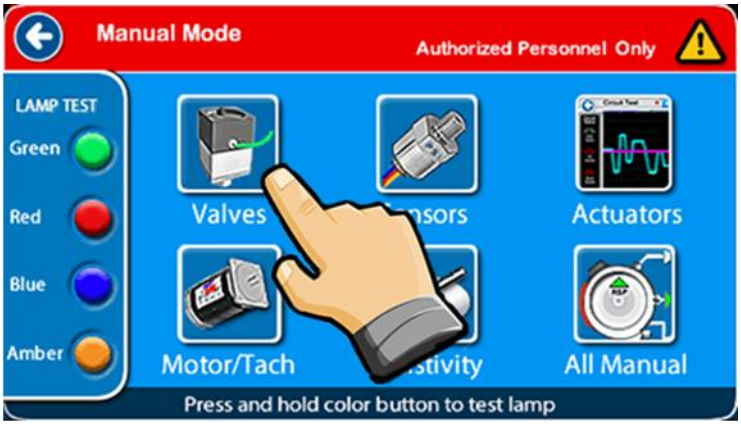
Lamp test



If the tool is equipped with a Light Indicator, the user can test every color of the indicator by pressing and holding the corresponding lamp color.

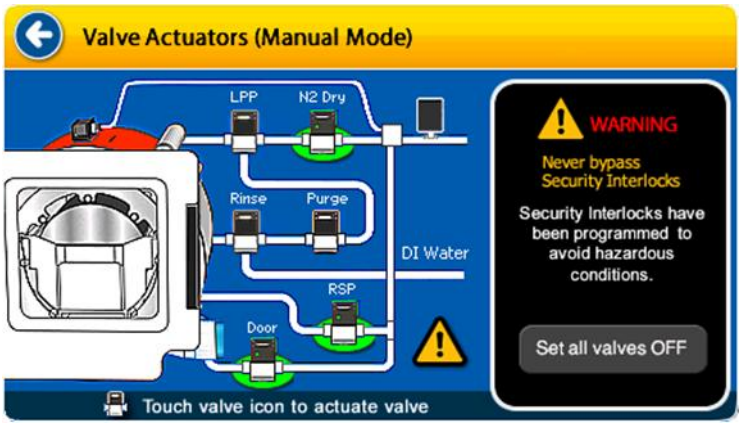
Just one color can be tested at a time.

Valve Actuators



Select Valves icon to test valve solenoids (Actuators) in Manual Mode.

Using this option, the following valves can be manually actuated: Low Pressure Purge, N2 Dry, Rinse, Purge, Rotor Stop Positioner and Door Seal.



The screen shows the valves available inside the SRD and how they are connected.

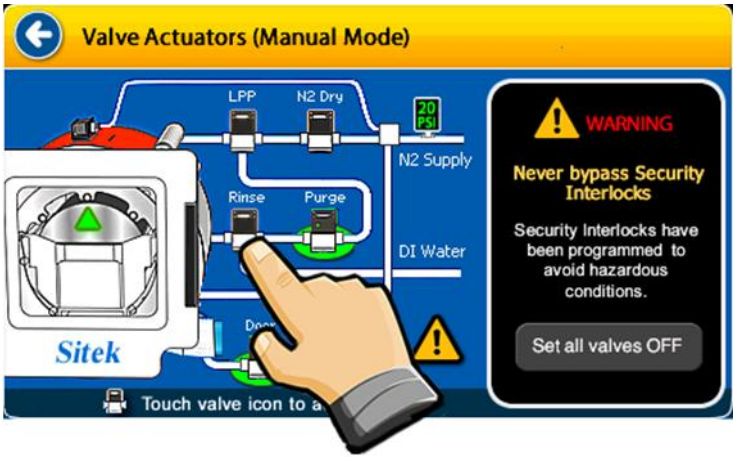
Select the corresponding valve icon to actuate the valve solenoid.

Some actions cannot be executed simultaneously, see Valve Security Interlocks on next page.

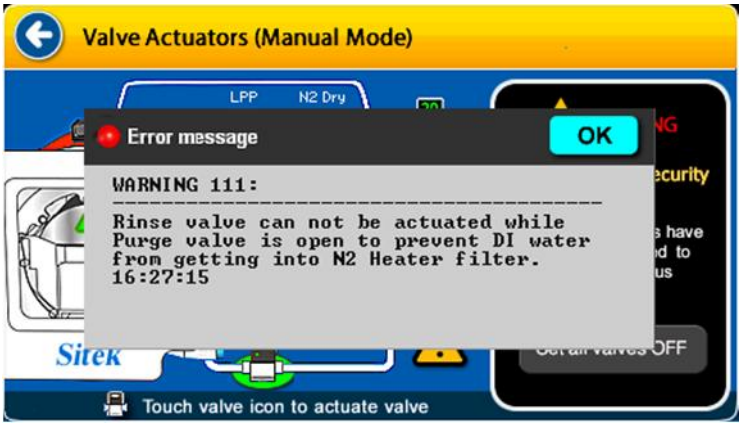
Valve Security Interlocks.

When the combined simultaneous operation of two or more valves could lead to a potential problem, the SlickDevice™ Intelligent SRD controller shows a warning message indicating the reason and suggesting how it can be done.

For example, the Door valve cannot be actuated until the door is closed to prevent the Door Seal from expanding without the window in home position.



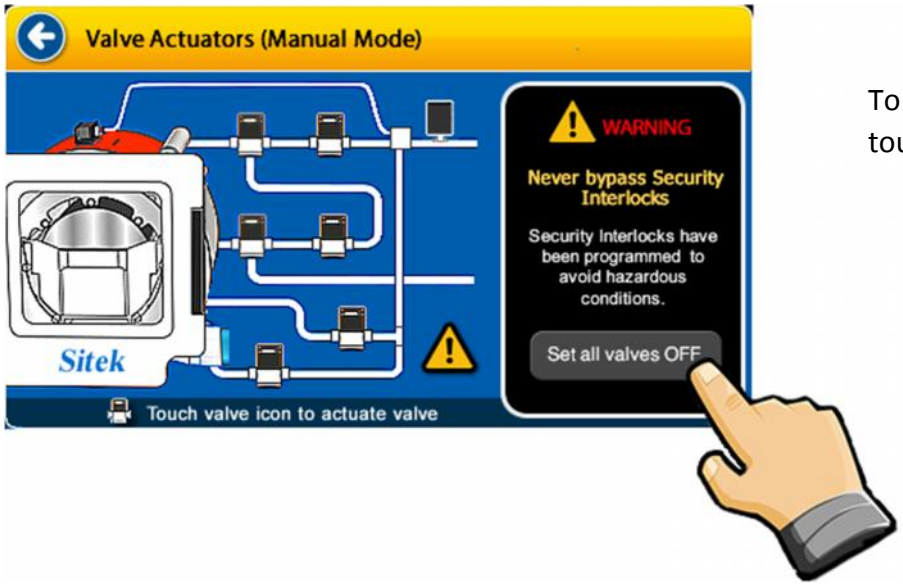
In this example, the user tries to touch the Rinse valve to operate the corresponding Rinse solenoid.



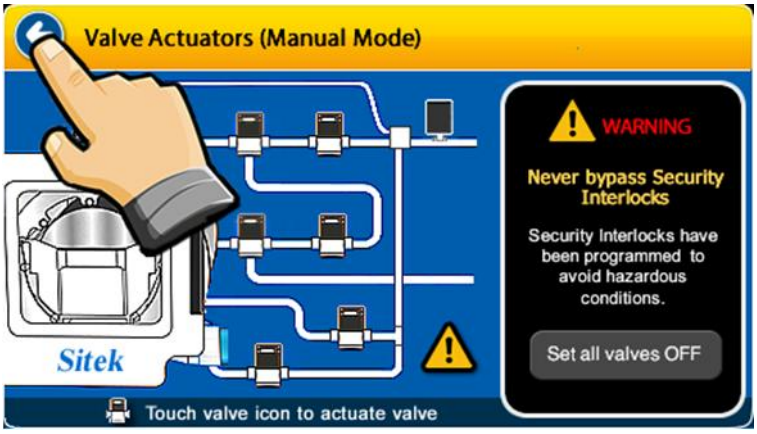
However, a potential problem could arise because the Purge valve is already open. The system detects this condition and shows a warning message.

.

Security Interlocks have been programmed to avoid hazardous conditions.
Never bypass Security Interlocks

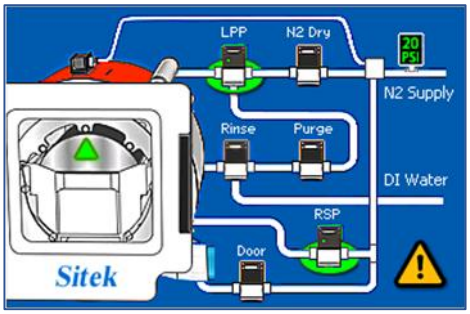


To turn off all valves simultaneously, touch "*Set all valves OFF*"

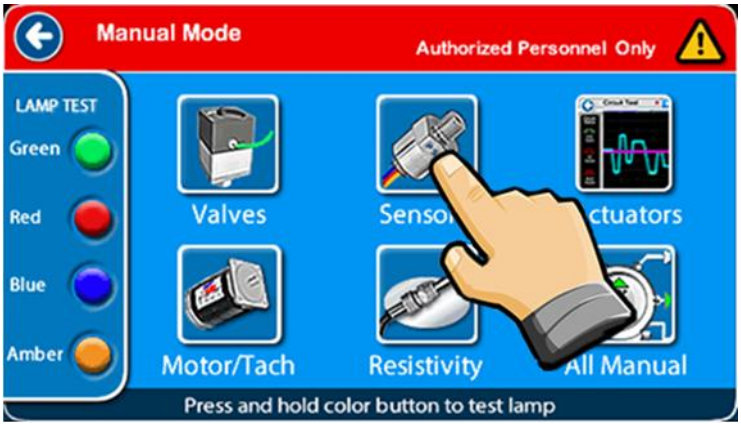


After testing the valve Actuator, go back to Manual Mode pressing the arrow on the top left corner of the screen.

SlickDevice™ sets the valves back to default settings upon returning to the Manual Mode screen.

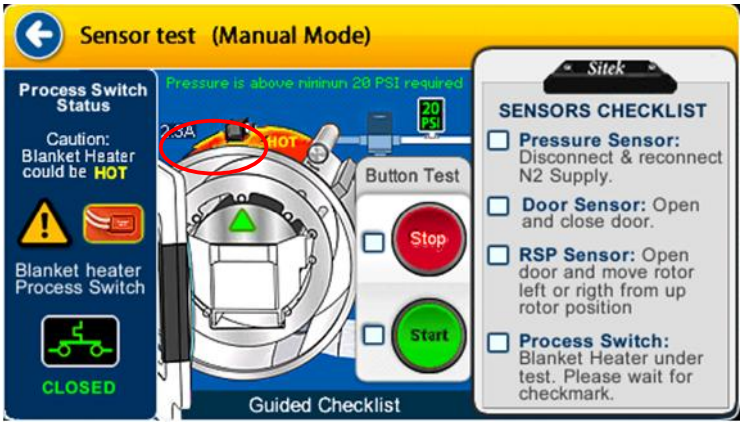


Sensors Test f



The sensors test is also known as Sensors Checklist.

The user can take advantage of this built-in tool to test all the sensors inside the SRD to check functionality and availability.



The sensors test is a guided checklist to confirm the sensor's operation.

Upon selecting this screen, the SlickDevice™ starts the test of sensors inside the SRD. One of them is the Blanket Heater Process Switch, so the Bowl Heater is automatically turned on.

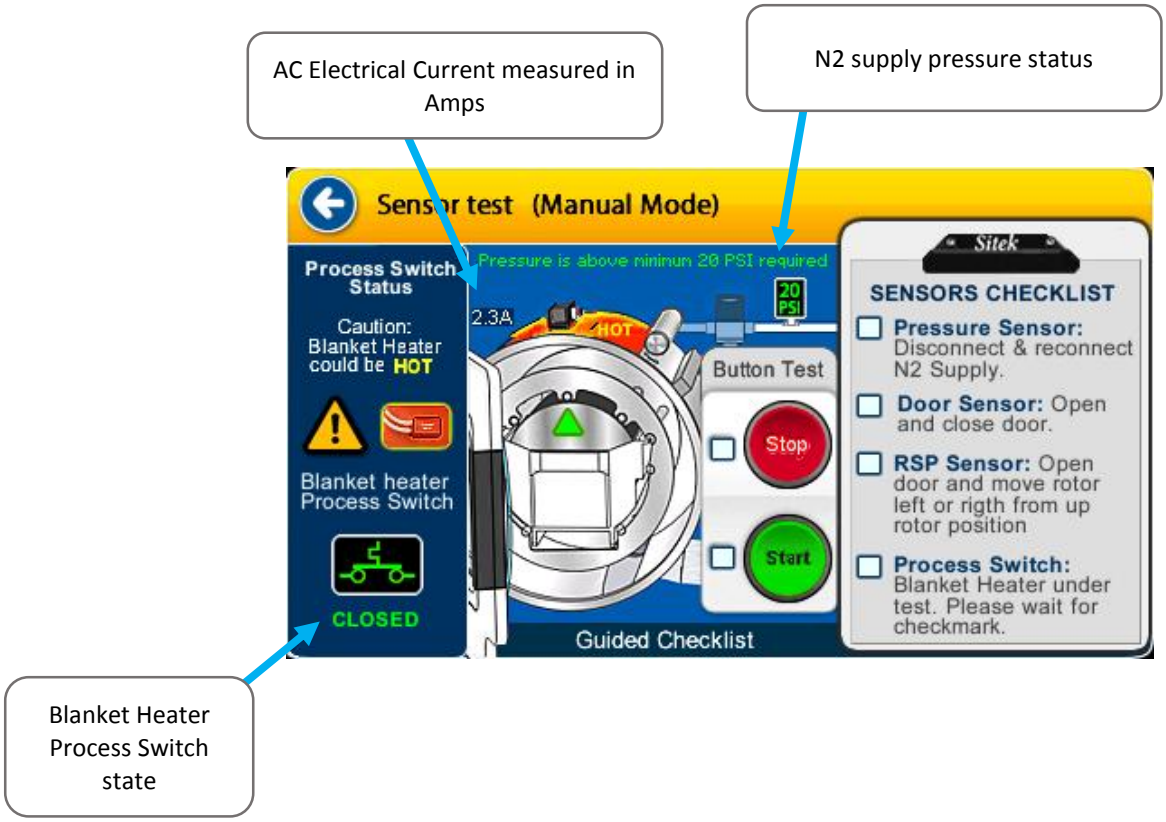
WARNING

AC Electrical current is provided to the Bowl Heater during the sensors test. AC Current measure is shown on the screen. The Blanket Heater could be HOT!

How to check the sensors

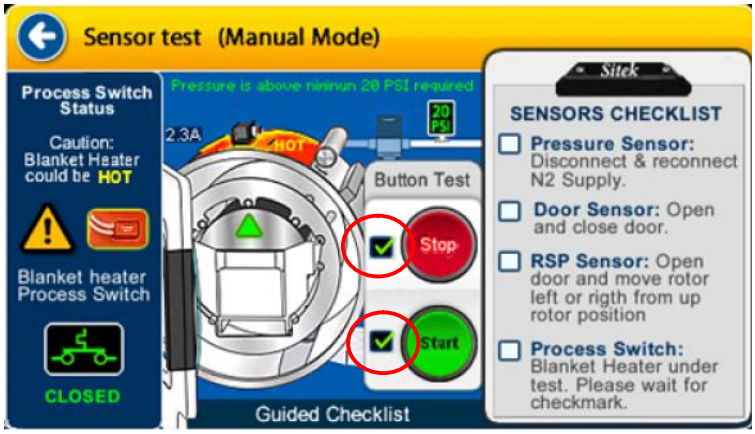
The first sensor operation confirmed is the blanket heater process switch. An icon showing this switch's open or closed position can be seen on the bottom left of the sensors test screen. If the Blanket Heater Process Switch is closed, the Blanket Heater (Bowl Heater) is turned on, and the AC electrical current flowing into the circuit displays on the top of the SRD mimic.

The N2 pressure sensor operation inside the tool is confirmed by an icon on the mimic area.



Using this built-in tool, maintenance personnel does not need to remove SRD side panels and use a multimeter or clamp meter to determine heater statuses.

Start and Stop Button test



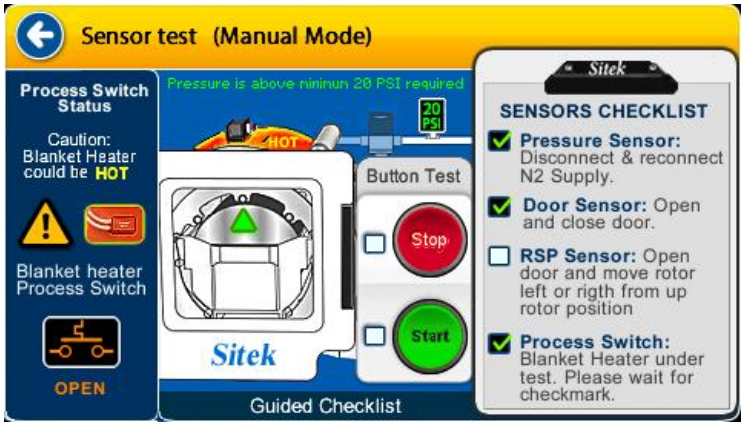
Press either the START or STOP button to detect button functionality in the tool

To test the START and STOP button sensors, press the corresponding buttons on the tool. (This is a sensor test only; the SRD will not start by pressing the START button while using this Sensor test.)

The START and STOP button detection is confirmed by a checkmark next to each button on the screen.

Sensors Check List

The sensors checklist is a guided checklist to test the following sensors easily and securely: Pressure Sensor, Door Sensor, Rotor Stop Positioner Sensor, and Blanket Heater Process Sensor.



Testing Pressure Sensor: To test this sensor, disconnect and reconnect the N2 supply to the SRD. The SlickDevice™ automatically detects the information sent by the sensor inside the tool and checks the corresponding checkmark provided the sensor is working correctly. The easiest way to do this is to turn the regulator off until pressure drops to 0.

Door Sensor: To test the door switch, open and close the door. The SlickDevice™ automatically detects the information sent by the Door Sensor and checks the corresponding checkmark if the door switch is operating properly.

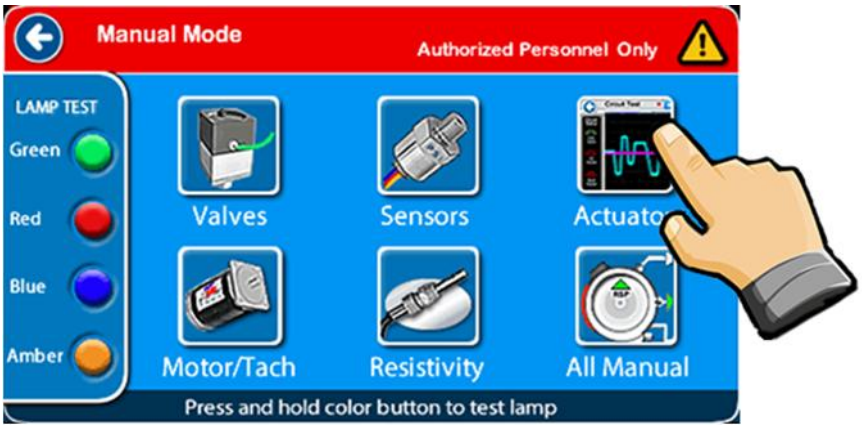
RSP Sensor: To test the Rotor Stop Positioner Sensor, open the door and rotate the rotor slightly left or right from the rotor up position. Turn the N2 supply off to move the rotor if necessary.

Process Switch: The process switch test is automatic. As soon as the Sensor Test screen is selected, the SlickDevice™ controller checks the process switch state and sends AC current to the blanket heater. The process should turn off after the Blanket Heater Process Switch reaches the pre-set sensor temperature, then the SlickDevice™ controller checks the corresponding check mark.

If the process switch fails, the blanket heater temperature reaches the Overtemp Switch pre-set value and cuts out the AC to the heater.

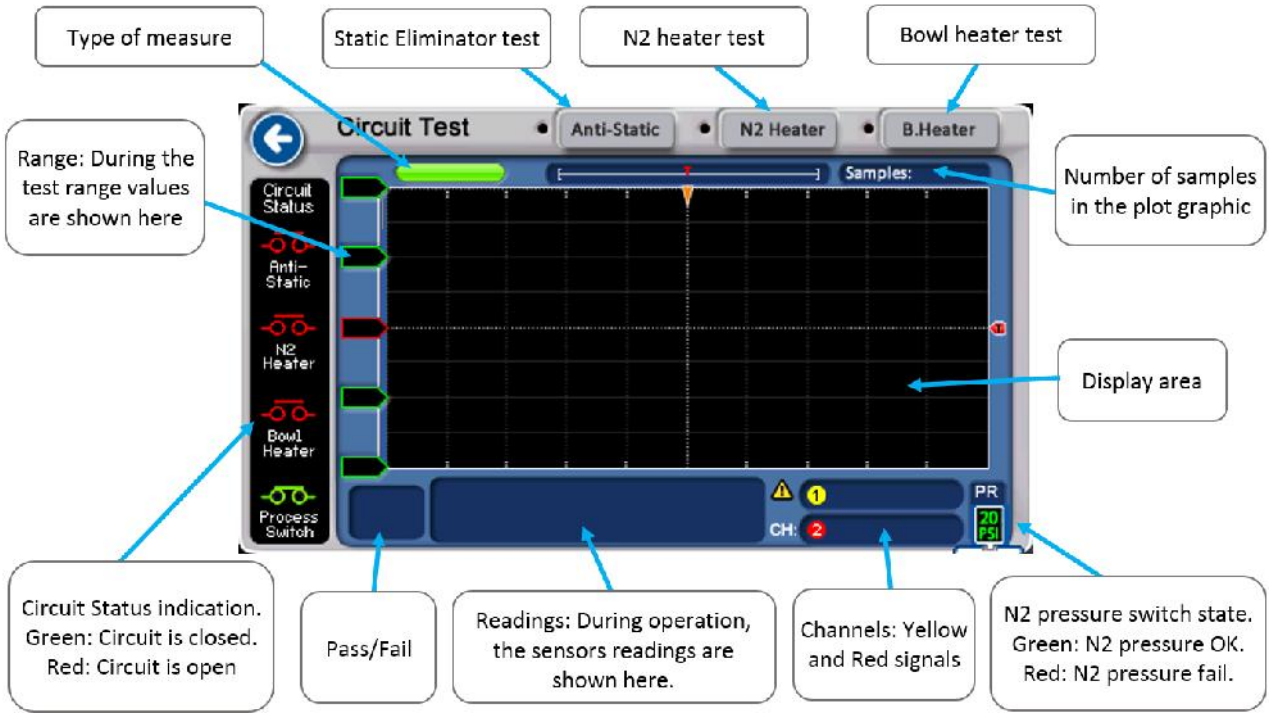
Actuators

The SlickDevice™ provides an oscilloscope-style built-in tool to test the electric circuits for the Static Eliminator, the Bowl Heater, and the N2 Heater inside the SRD. Using this built-in tool removes the need to open the SRD in the field to reach the electric circuits inside and use different types of meters for testing.



To select the oscilloscope-style built-in tool go to Manual Mode and select *"Actuators"*.

The following image shows the main parts of the actuator screen.



Actuators – Anti-Static

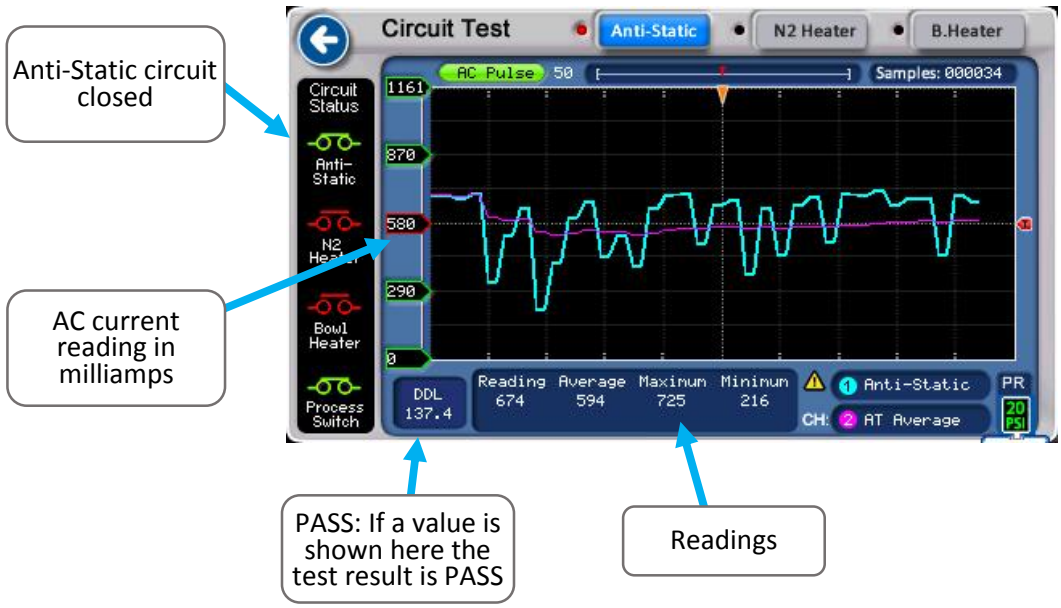
SlickDevice™ uses a SITEK proprietary algorithm called DDL to detect the correct operation of the static eliminator. An internal sensor detects a pulsing current, and the corresponding readings are plotted in a graphic in the display area.

Channel 1, in magenta color, shows the pulse reading, while channel two, in purple, shows the average.

The current measure reading, average reading, maximum and minimum values are shown in the reading area.

The DDL algorithm calculates the result and displays a value in the Pass/Fail area. If the Pass/Fail area shows a number, the test result is PASS.

Anti-Static unit working properly



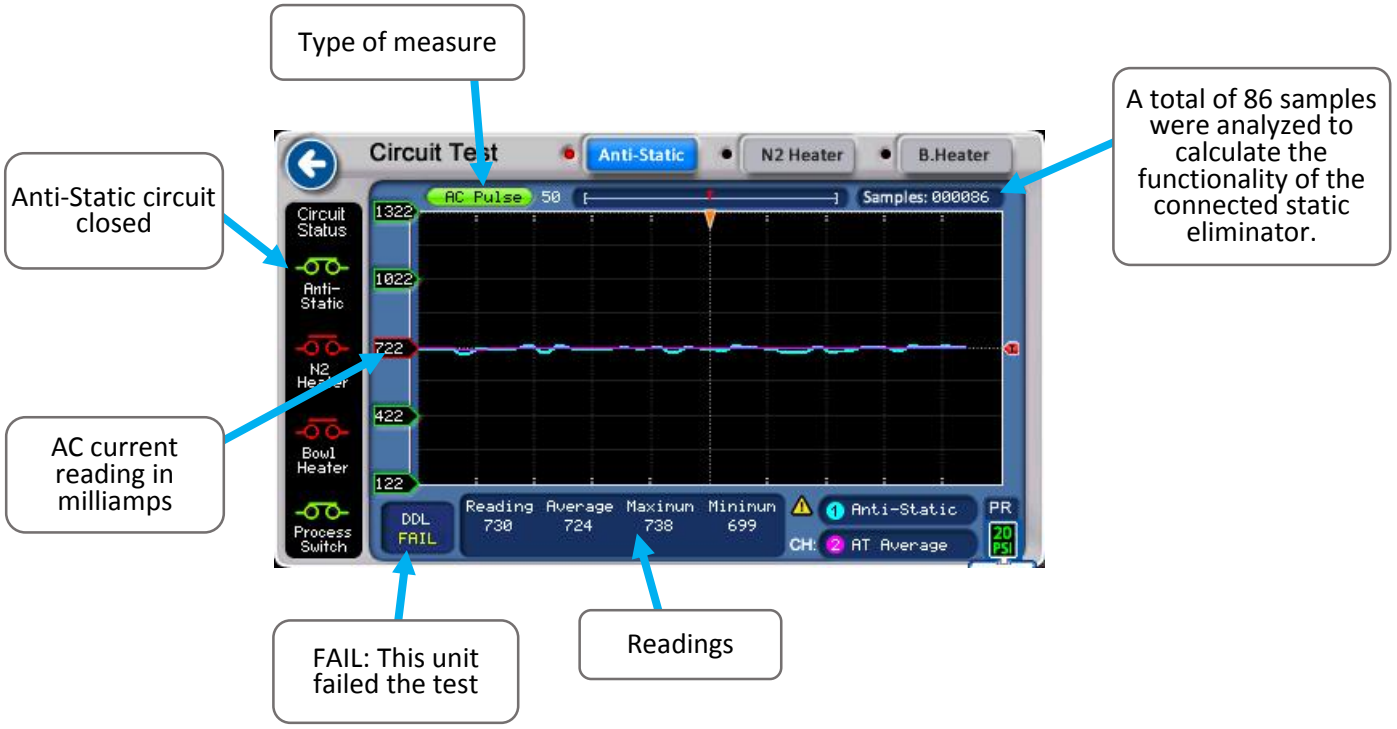
Please consider that an unplugged or non-existing Anti-Static unit is different from a failing Anti-Static unit. If the Circuit Status icon for Anti-Static remains open, that is an indication that an Anti-Static unit is not connected inside the SRD.

Anti-Static unit failing

SlickDevice™ detects a failing Anti-Static unit through a SITEK proprietary DDL algorithm. This algorithm analyzes the samples to calculate a value indicating the functionality of the Static eliminator under test.

A failing static eliminator is different from a normally operating static eliminator and the SlickDevice™ can detect this difference using the DDL algorithm.

The following image shows an Anti-Static unit failing the test.

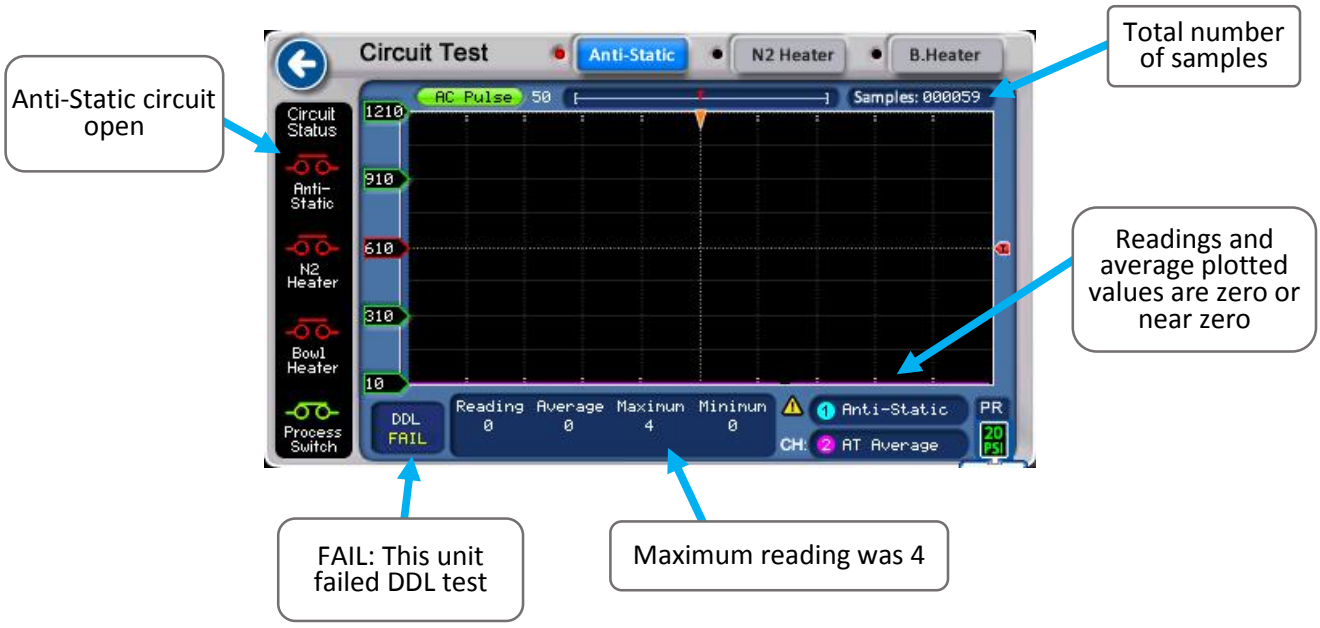


Please consider that an unplugged or non-existing Anti-Static unit is different from a failing Anti-Static unit. If the Circuit Status icon for Anti-Static remains open, then it is an indication that an Anti-Static unit is not connected inside the SRD.

Anti-Static unit not connected

SlickDevice™ can detect a missing or unplugged Anti-Static unit using the DDL algorithm. In some cases, an Anti-Static is installed inside the SRD, but its electrical connector is not making good contact. In this case the Actuator Screen for Anti-Static will show a circuit open icon on the Circuit Status window.

The Pass/Fail area shows “Fail”



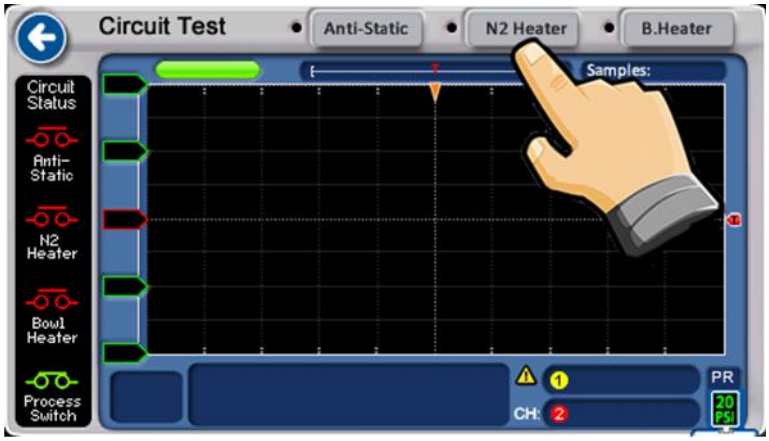
Actuators – N2 Heater

The Actuators option inside the Manual Mode provides an oscilloscope-like built-in tool for testing. This feature can also be used for heater testing. The N2 Heater and Bowl Heater can be tested simultaneously or separately using the circuit test.

AC electrical current is provided to the heaters during the circuit test. Heaters could be extremely hot!

A supply of N2 is required to avoid damaging the heater due to extreme temperatures and a security interlock has been programmed to prevent damage to the tool.

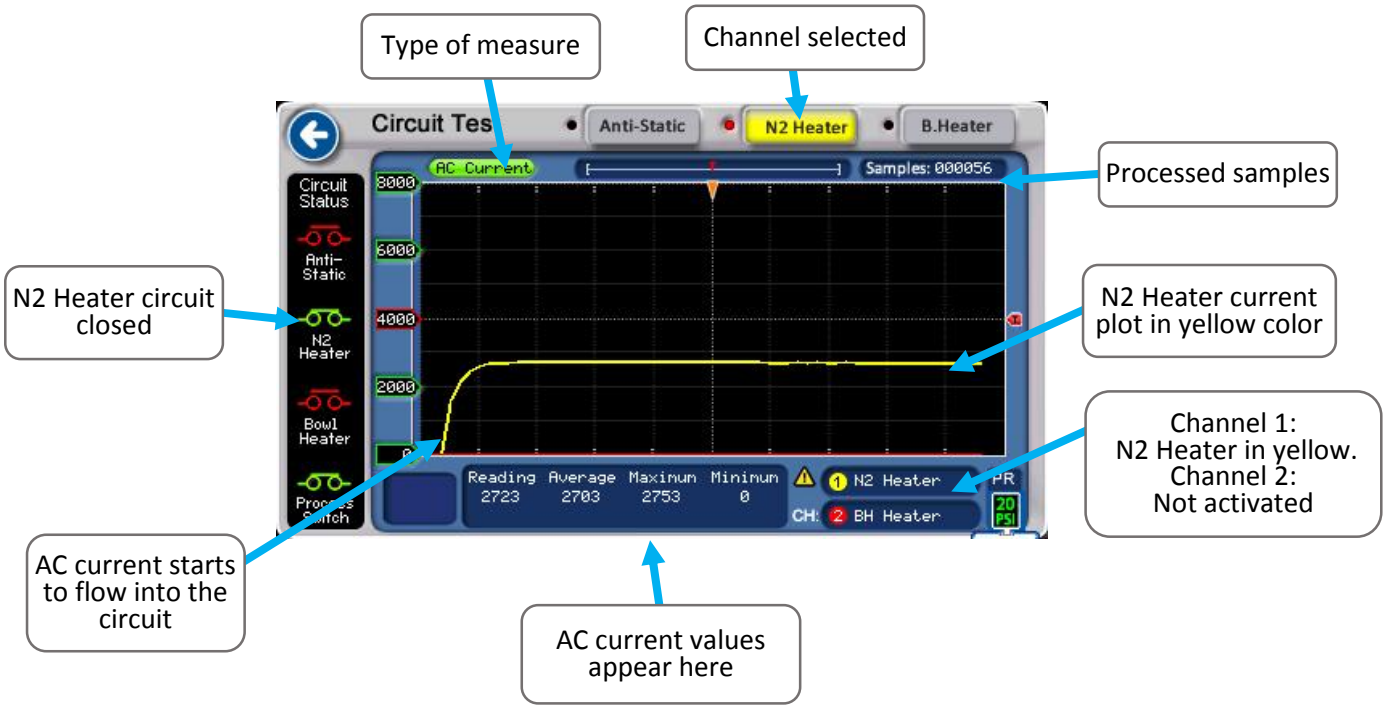
Only the heaters can be tested simultaneously; the Anti-Static test does not work simultaneously with heater test.



To start the N2 Heater circuit test, make sure the Anti-Static option is turned off as only heaters can be tested simultaneously.

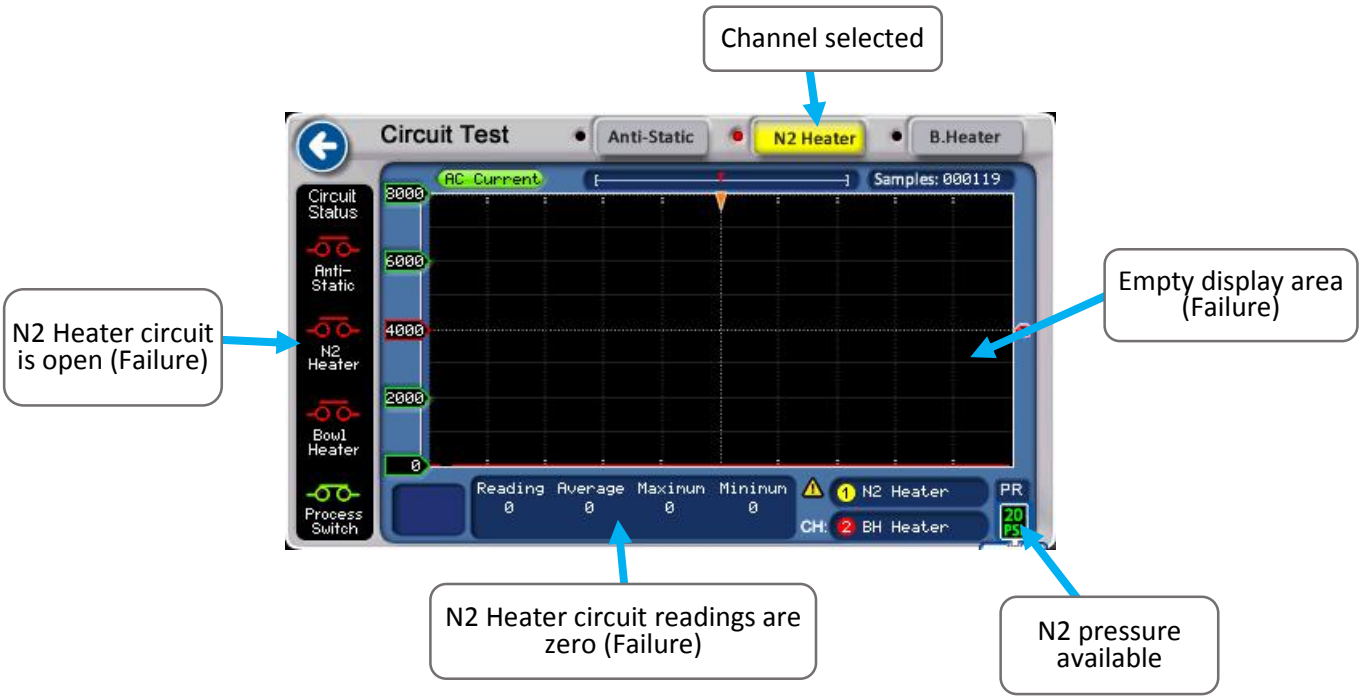
N2 Heater working properly

Selecting the N2 Heater test activates the N2 dry valve to introduce N2 through the N2 manifold. Once N2 is flowing into the chamber, an AC voltage is provided to the heater and the screen shows the current heater consumption in AC milliamps.



N2 Heater failing

The N2 Heater circuit comprises the heater itself, an overtemp switch, and a pressure switch to detect the minimum pressure required to operate. This circuit requires the proper operation of the ACR valve controlling the N2 flow into the chamber. If any of these parts fail, the circuit test fails. Typically, an AC current of zero represents this type of N2 Heater circuit failure.

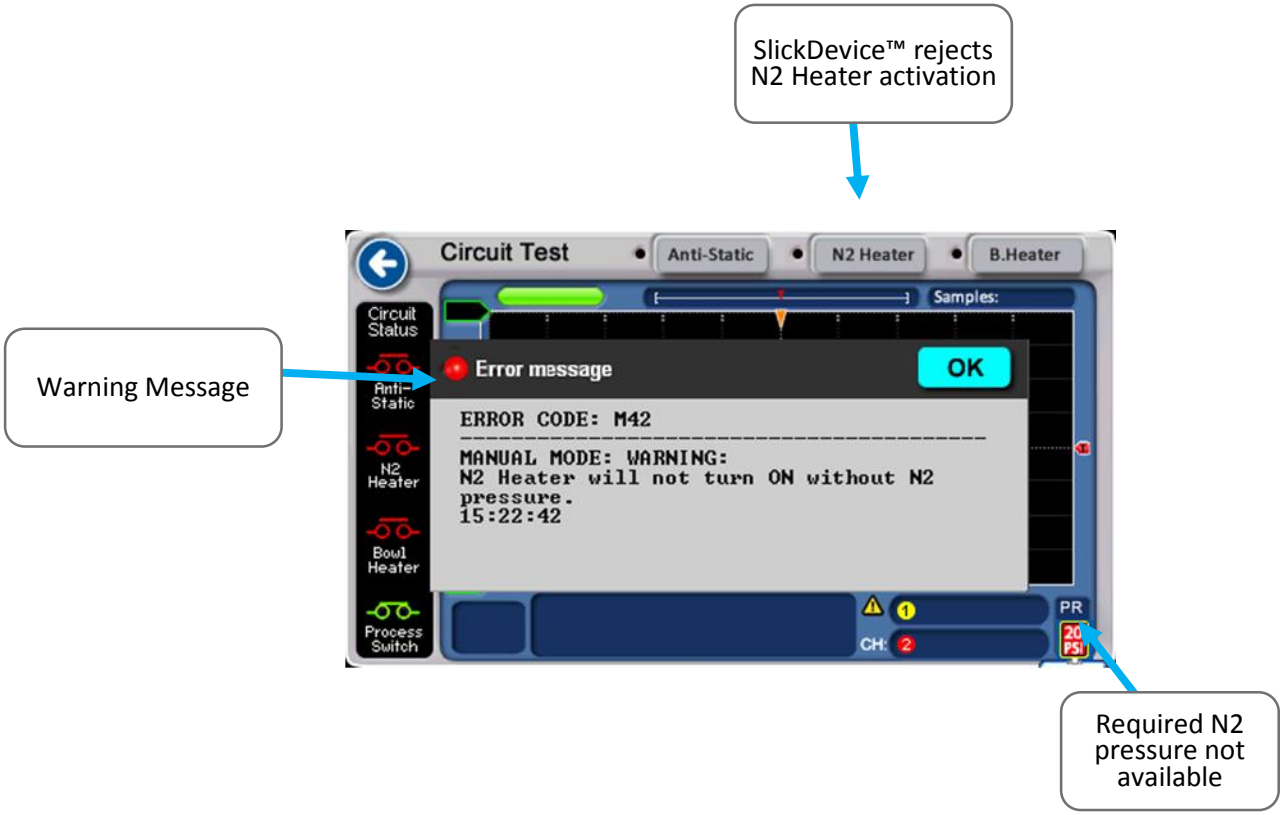


N2 Heater Security Interlock

Improper electrical or pneumatic circuit operation can cause serious injuries or death. The improper operation could also damage equipment. Do not bypass security interlocks!

The N2 Heater test requires the appropriate amount of N2 flowing into the N2 Heater to avoid overheating or heater damage.

The N2 Heater circuit test can only be performed if the proper N2 supply is available during the test.

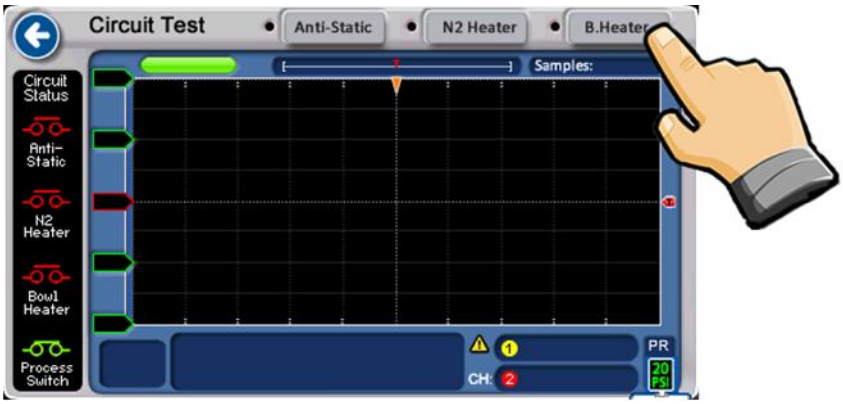


Actuators – Bowl Heater

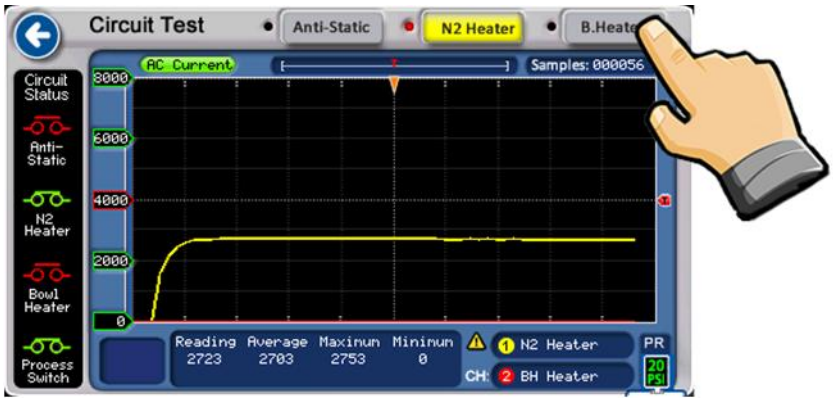
The Actuators option inside the Manual Mode provides an oscilloscope-like built-in tool for testing. This feature can also be used for heater testing. The N2 Heater and Bowl Heater can be tested simultaneously or separately using the circuit test.

AC Electrical current is provided to the heaters during the circuit test. Heaters could be extremely hot!

Only the heaters can be tested simultaneously as Anti-Static test does not work simultaneously with heater test.



To start the Bowl Heater circuit test, make sure the Anti-Static option is turned off.



The Bowl Heater circuit test can also be started while an N2 circuit test is running. Both N2 Heater and Bowl Heater circuit tests can be performed simultaneously.

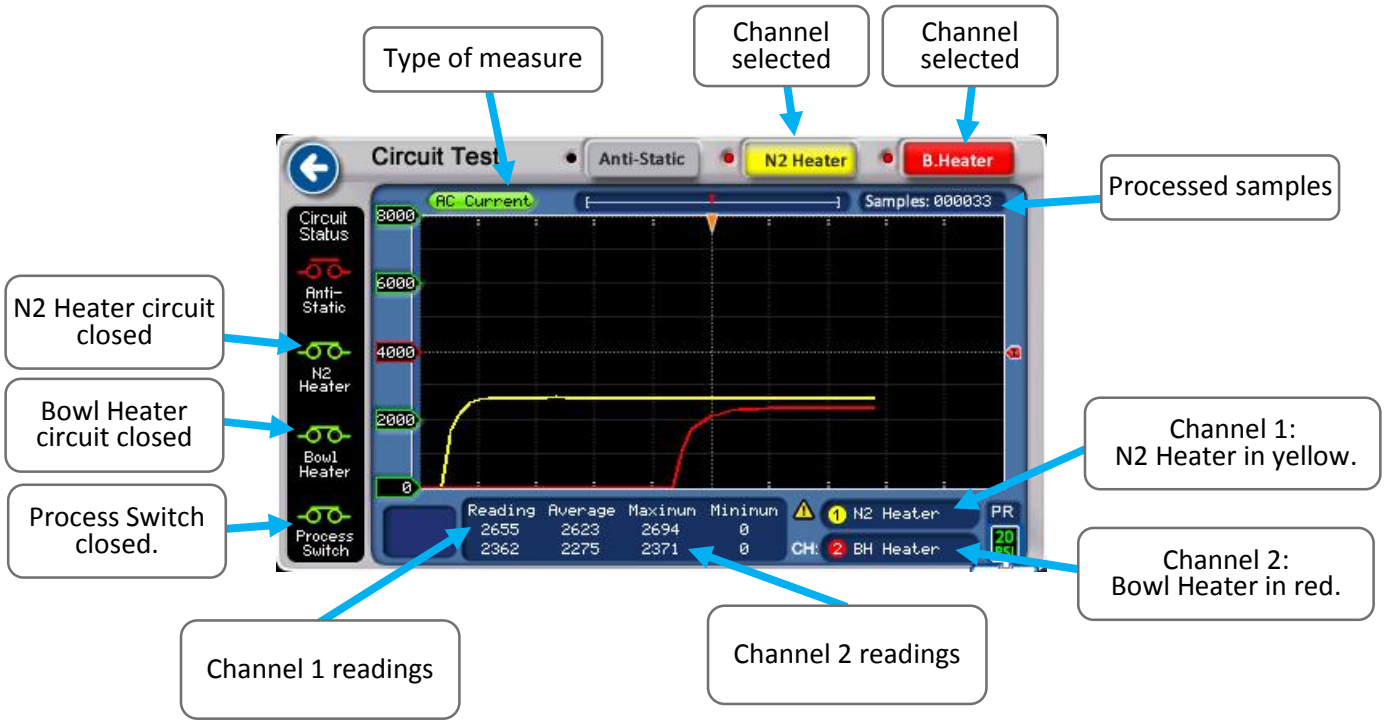
Bowl Heater working properly

The Bowl Heater circuit comprises the heater itself, an overtemp switch, and a process switch. N2 flow is not required to perform the Bowl Heater test.

An AC voltage is provided for the Bowl Heater operation, and the screen shows the current heater consumption in AC milliamps.

If the N2 Heater test is running, the results are shown simultaneously.

The number of samples corresponds to the samples taken since the first heater was activated.

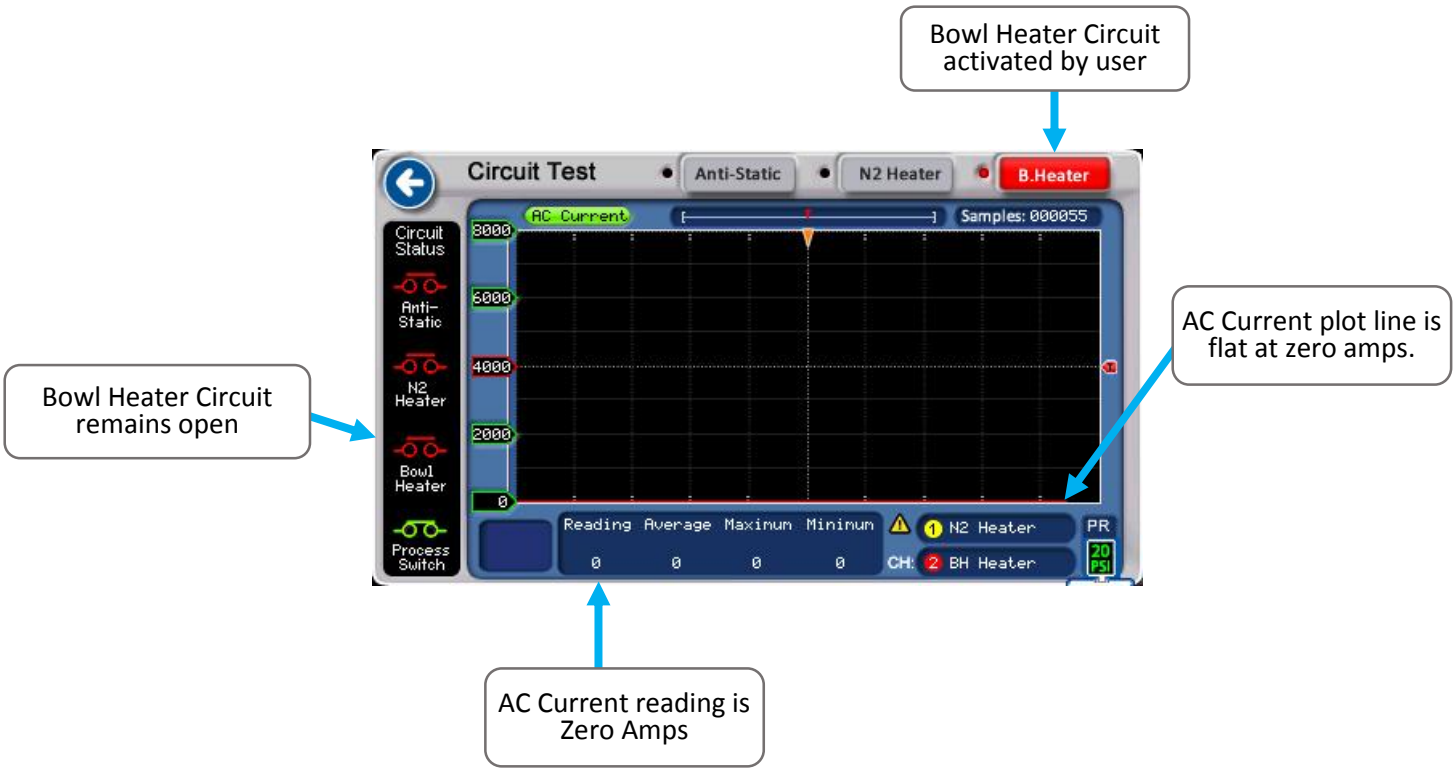


Bowl Heater failing

As mentioned before, the Bowl Heater Circuit comprises the heater itself, an overtemp switch, and a process switch. Any of these components failing will result in a Bowl Heater Circuit failure.

The below image shows a failing Bowl Heater Circuit Test. Even with the actuator activated, the Bowl Heater Circuit Status icon indicates an open circuit detected. Also, the AC Current readings are zero, and the red line showing the current in the graphic display is continuously flat at zero amps.

All this is evidence of a faulty Bowl Heater Circuit.

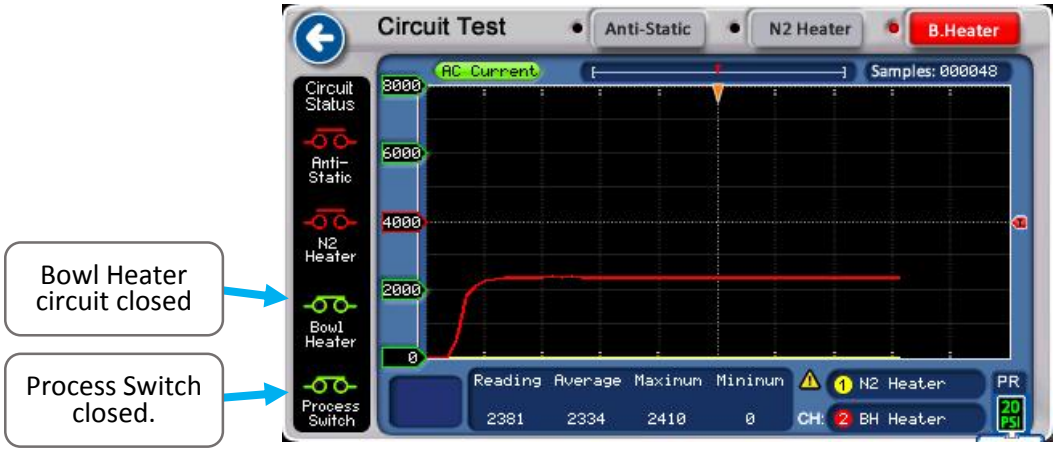


Bowl Heater Process Switch

There are two thermal switches connected to the Bowl Heater Circuit: The Process Switch and the Overtemp Switch, and both are thermostats switches. Thermostat switches are used in equipment to open or close a circuit when the temperature changes. Thermostats are available in a wide range of temperature settings and tolerances.

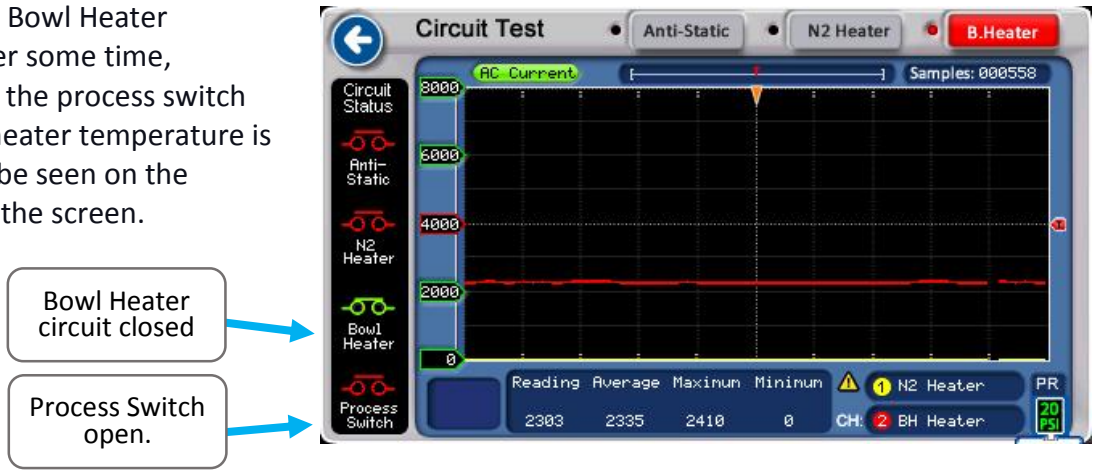
The process switch is a thermostat switch used to open or close a detection circuit when the temperature changes around 160 F. This switch works as a sensor for the SRD controller to regulate the Bowl Heater temperature.

The process switch on the SRD opens when the Bowl Heater temperature is above 160 F, and it remains closed when the temperature is below this value. The process switch status is shown in real-time on the bottom left part of the actuator's screen.



The image above shows a Bowl Heater circuit being tested, the AC current reading is 2381 milliamps or 2.3 amps, and the process switch is closed, indicating the Bowl Heater temperature is below the thermostat (Pressure Switch) temperature value. In a typical SRD, the process switch opens at 160 degrees F.

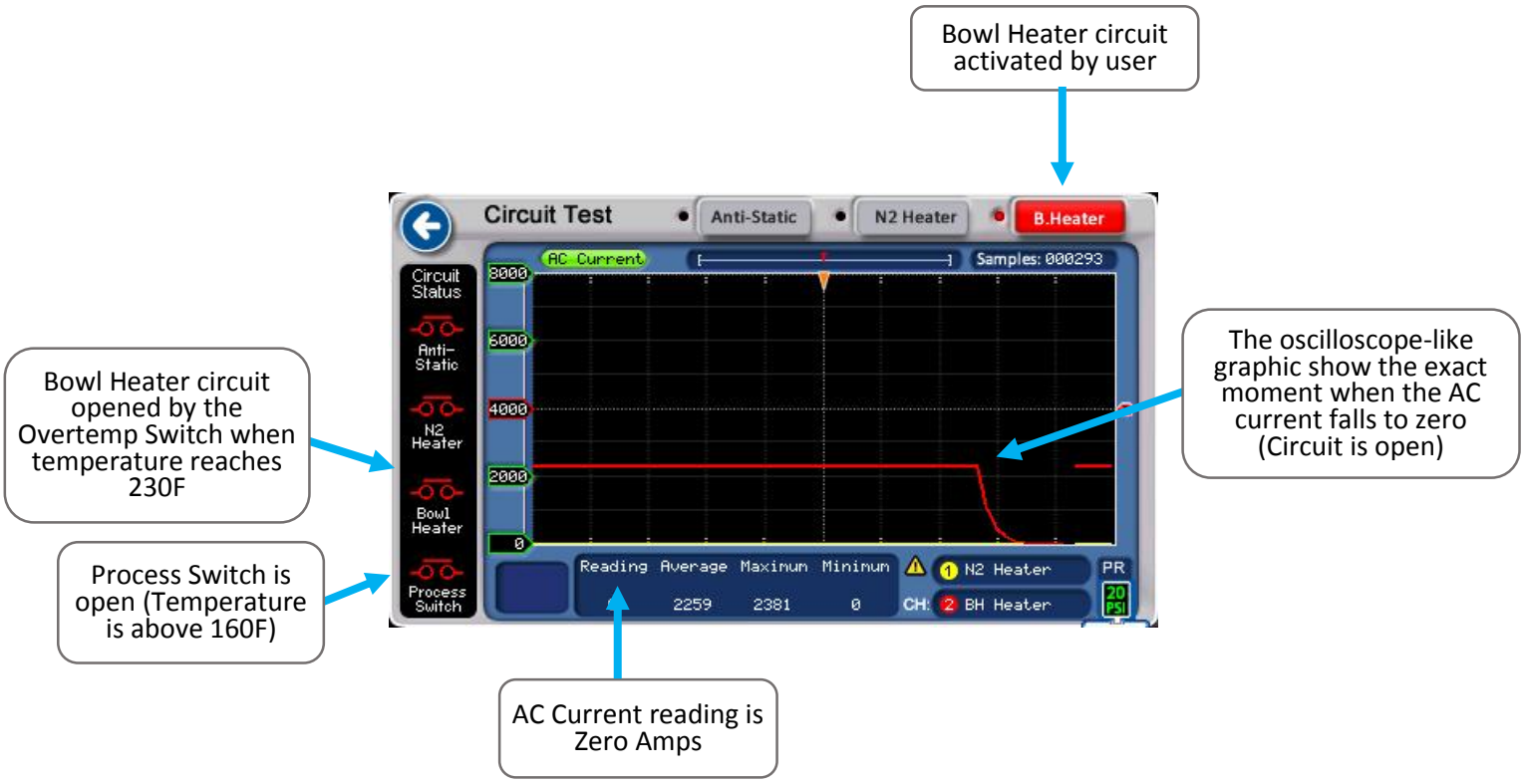
Once in operation, the Bowl Heater temperature rises; after some time, normally 1–2 minutes, the process switch opens, indicating the heater temperature is at least 160F; this can be seen on the bottom left portion of the screen.



Bowl Heater Overtemp Switch

The actuators featured in the SlickDevice™ Manual Mode can be used to test the second security switch inside the Bowl Heater: the Overtemp switch. The overtemp is a thermostat switch with a temperature setting above the process switch, typically 230 degrees F. The Overtemp Switch controls the Bowl Heater circuit and is not used as a sensor; instead, it is used as a safety control switch. In this way, the temperature should never exceed 230 F in the heater.

During the Manual Mode for the Bowl Heater Circuit Test, the SlickDevice™ shows the Process Switch status. Even with the Process Switch opened, the temperature continues rising until the second security switch, the Overtemp Switch, opens the heater AC circuit. This allows the user to validate the operation of both security switches inside the SRD Bowl Heater.



Motor and Tach – Manual Mode

SlickDevice™ provides a built-in tool to test the motor and tachometer operation in an easy and safe way, the user must proceed with care.

AC Electrical current is provided to the Motor Servo Drive during the motor test.

Dangerous DC high voltage inside the Motor Servo Drive and Brushless motor during the motor test.

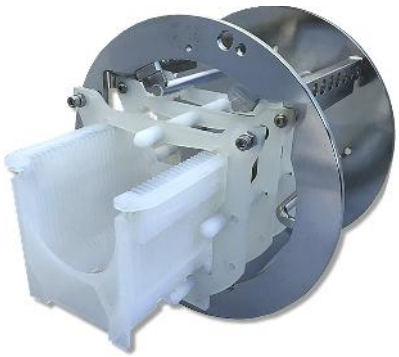
DANGER:

The maximum setpoint on the Manual Mode Motor Speed test is 3200 RPM.

Depending on the installed rotor size, the rotor load, or the rotor balance, your Maximum Rotor Speed could be lower than this value. Never exceed the maximum rotational speed indicated in your rotor.

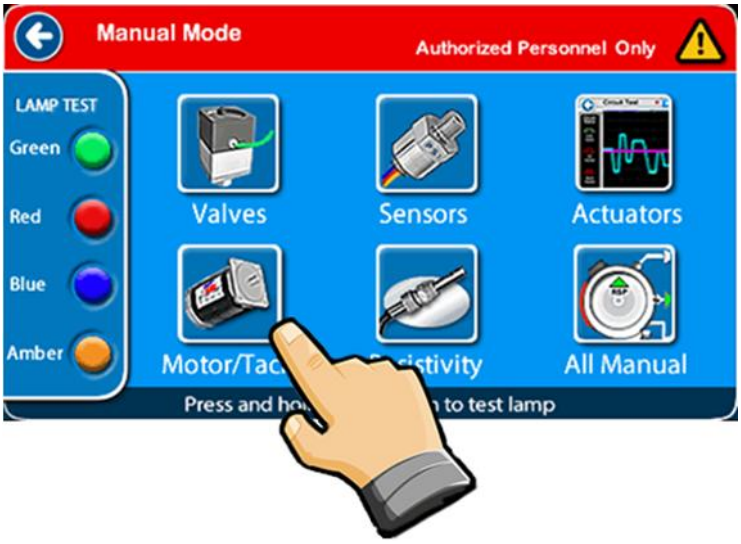
You must know your maximum rotor speed before running this test.

Exceeding maximum rotor speed can damage the SRD, destroy substrates, and cause serious injuries or death.

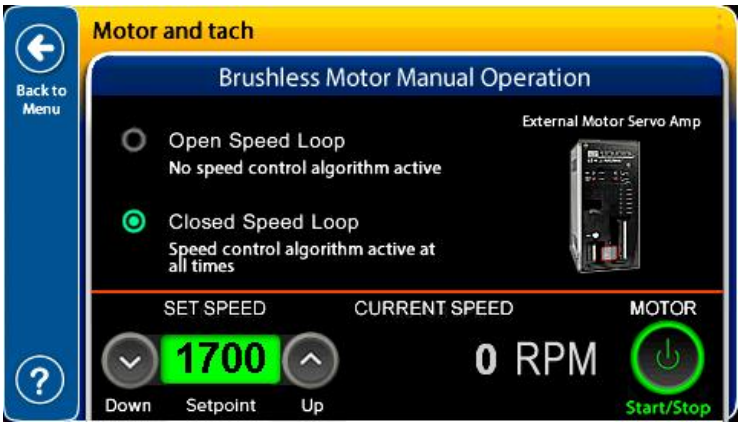


The maximum rotor speed and maximum wafers load is usually engraved in the front portion of each rotor.

Motor/Tach Manual Mode For S1 Model

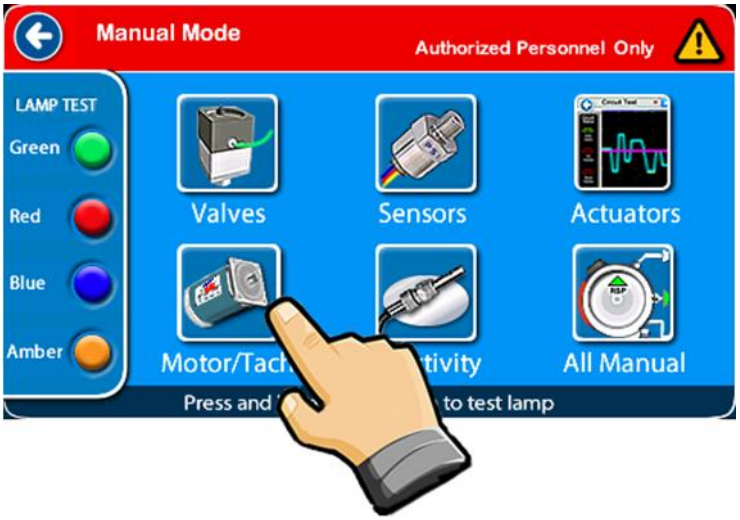


Select Motor/Tach icon in the Manual Mode screen to test the SRD Brushless Motor and the Tachometer sensor.

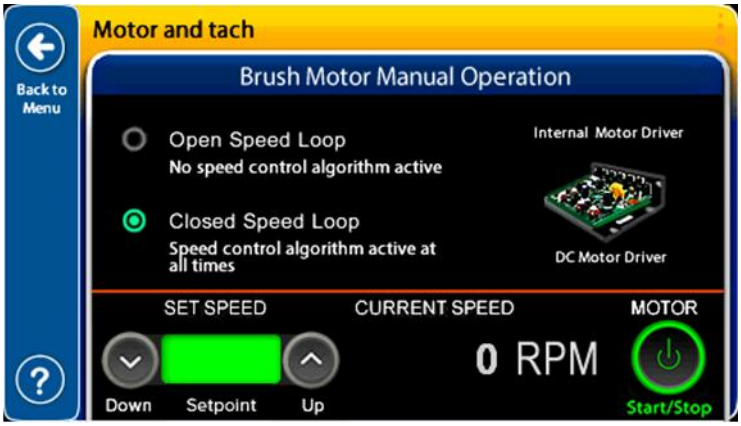


The SlickDevice™ provides a built-in tool to test the motor and tachometer operation. The motor test can be run in Open Speed Loop or Closed Speed loop.

Motor/Tach Manual Mode For F1 Model



Select Motor/Tach icon in the Manual Mode screen to test the SRD Brushed DC motor and the Tachometer sensor.



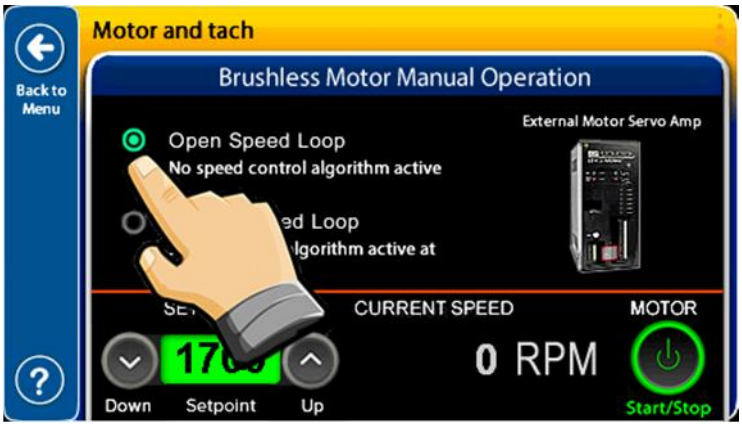
The SlickDevice™ provides a built-in tool to test the motor and tachometer operation. The motor test can be run in *"Open Speed Loop"* or *"Closed Speed Loop"* using the internal motor driver.

Open Speed Loop

The controller sets the motor speed to the calculated value for the selected RPM setpoint in an open speed loop. There is no feedback on the current motor speed and the controller does not attempt to correct the possible error between the current motor rotational speed, and the setpoint. It would be like driving a car without a speedometer.

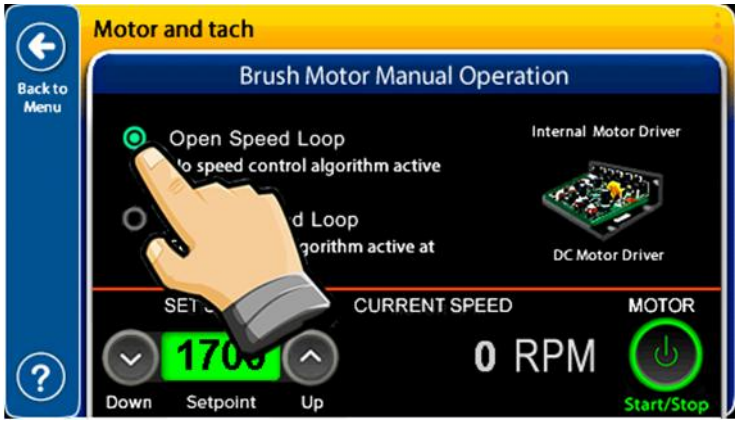
The motor rotational speed is measured in RPM (Revolutions Per Minute). RPM is used after a number to indicate how many times the rotor turns one complete circle in 60 seconds.

This is the primary test for a SRD motor, and it is recommended to start any motor testing. Running the first test in Open Speed loop mode without the controller's intervention is the easiest way to check the essential motor functions: Start, ramping up, ramping down, brake, and stop.



The Closed Speed Loop mode is the default mode; change this by touching the "*Open Speed Loop*" button.

About the F1 Model



The F1 model and S1 model have the same motor manual operation screen functionalities. The only difference is that the F1 model has a "Brush Motor Manual Operation" label and a “DC Motor Driver” image.

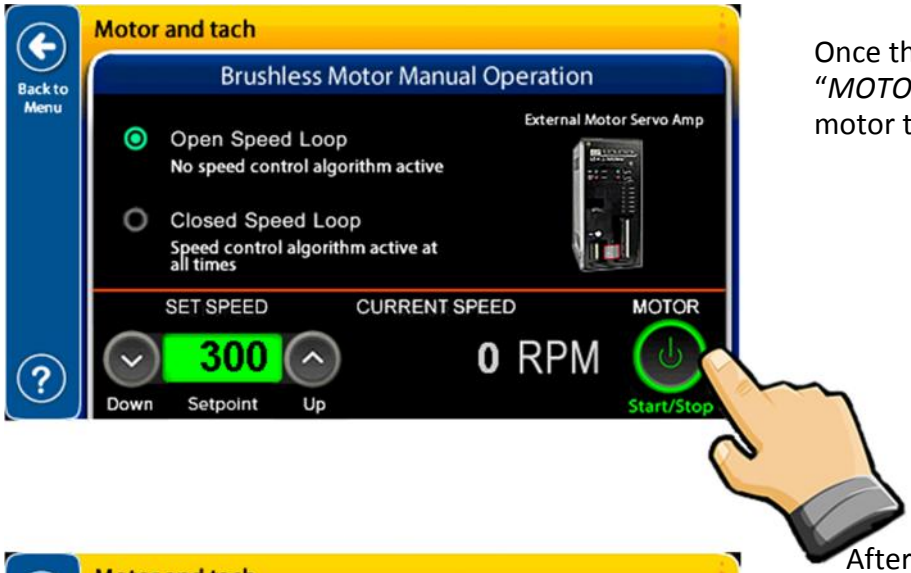
The explanations provided for the S1 model also apply to the F1 model, and we will use the S1 model images for reference.

Select a lower speed for the first test by touching the down arrow under the “SET SPEED” area.

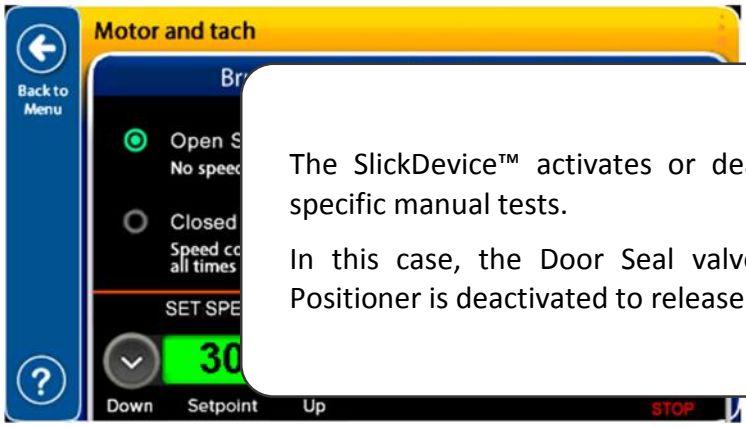
The setpoint value lower 10 RPM each time the button is pressed. A setpoint of 300 RPM is suggested.

The setpoint value goes up or down 10 RPM each time the button is pressed. If the button is held down, automatically repeat the selection at a rate of 5 times per second to speed up the navigation between higher and lower speed values. If the button is pressed for more than a second, the value goes up or down 50 RPM each time.

Keep the “Up” or “Down” button pressed to speed up the navigation between higher and lower speed values.



Once the setpoint is selected hit the green "*MOTOR Start/Stop*" button to start the motor test in "Open Speed Loop" mode.



After Start is pressed, the motor initiates, and the rotor speed is shown under

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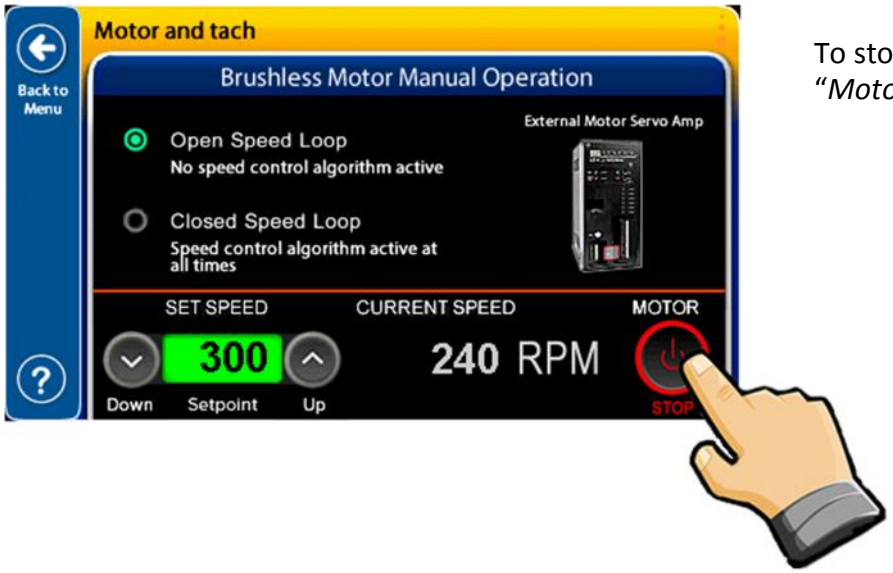
match.

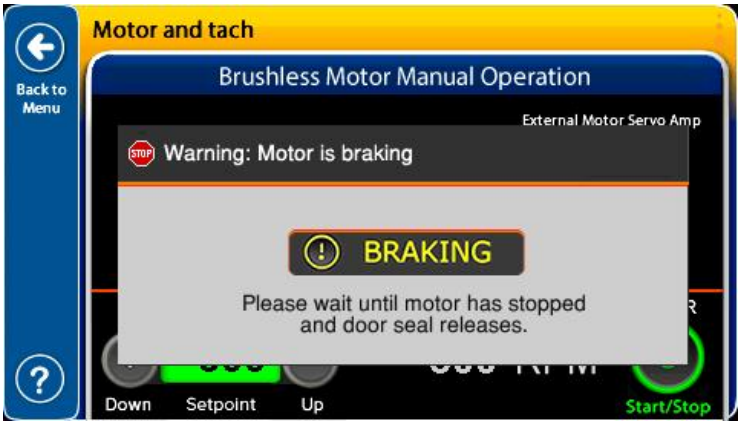
The SlickDevice™ activates or deactivates solenoid valves to perform specific manual tests.

In this case, the Door Seal valve is activated while the Rotor Stop Positioner is deactivated to release the rotor before the motor starts.



To stop the motor test, press the red "*Motor Stop*" button.

The user can also stop the motor test using the red STOP button on the SRD.



A warning message indicates the motor is braking.

Once the rotor stops, the Door Seal releases, and the Rotor Stop Positioner locks the rotor in the home position.

The Open Speed Loop test provides a method to test the basic motor functions and it lets the user know if the motor connections are met and if the motor servo drive is working.

Closed Speed Loop

In the Closed Speed Loop mode, the controller is actively working to reach and maintain the setpoint. The SlickDevice™ controller sends hundreds of control signals in a fraction of a second to keep the speed within a maximum of 2 RPM from the setpoint.

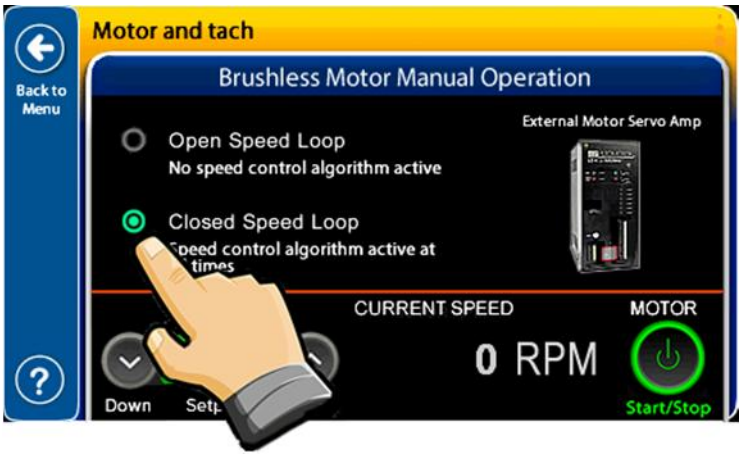
The Closed Speed Loop adjusts the motor operation parameters continuously to fix any variation in load, voltage, current, or other external conditions that could create rotor speed fluctuations.

The Closed Speed Loop is the standard operation mode for the motor control algorithm when the SRD runs a process as it keeps the rotor speed to the selected recipe RPM settings.

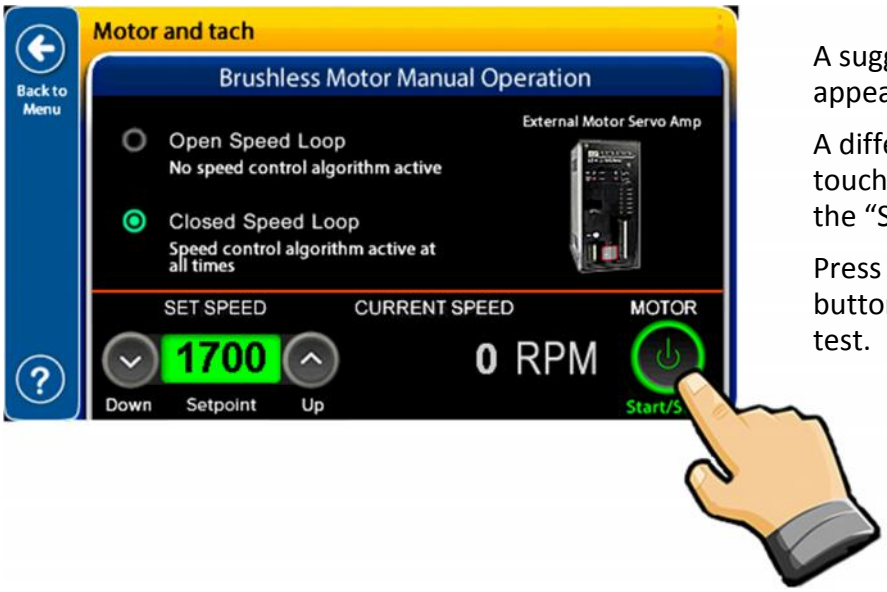
The Closed Speed Loop requires feedback to detect the current rotor speed. This feedback comes from an encoder on the back part of the motor. The encoder is fitted to an optical sensor capturing a signal that is then converted into an indication of the motor's rotational speed. This combination of the encoder and optical sensor are called the tachometer.

This image shows an example of the encoder and optical sensor. Both parts work together to detect the motor rotational speed and are known as the tachometer.

Once the motor operation is verified using the Open Speed Loop the next step is to test the Closed Speed Loop.



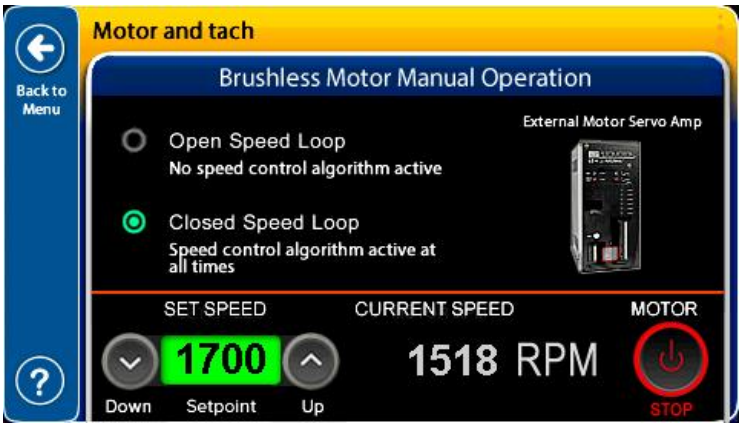
Go to “Motor and Tach” screen and make sure the “*Closed Speed Loop”* option is selected.



A suggested setpoint of 1700 RPM appears under the “SET SPEED”.

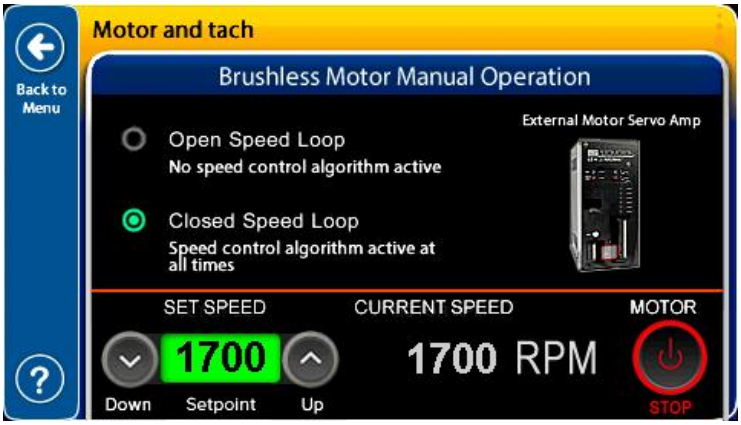
A different setpoint can be selected by touching the “Up” or “Down” arrow under the “SET SPEED” area.

Press the green "*MOTOR Start/Stop*" button to start the Closed Speed Loop test.



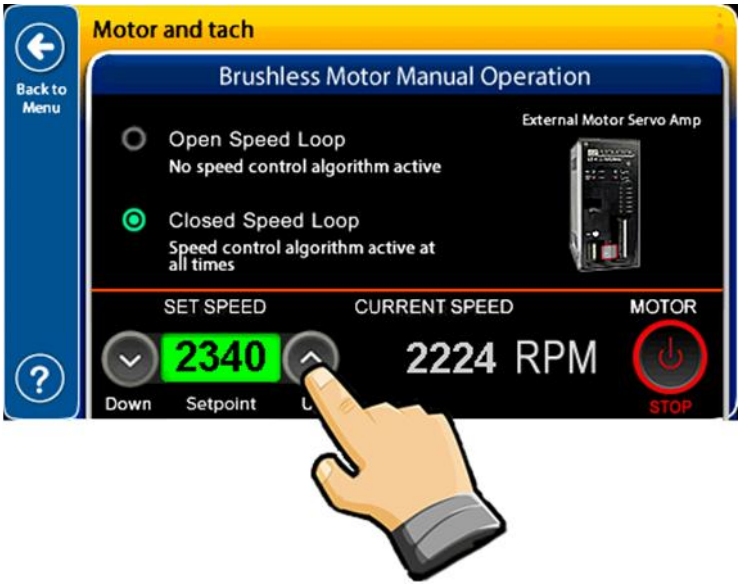
After starting, the previously green “*Start/Stop*” button turns red, and the legend is now “*STOP”.* Use this same button to stop the motor test.

The motor is now ramping up to the selected speed and the Closed Speed Algorithm adjusts the speed to the indicated setpoint.



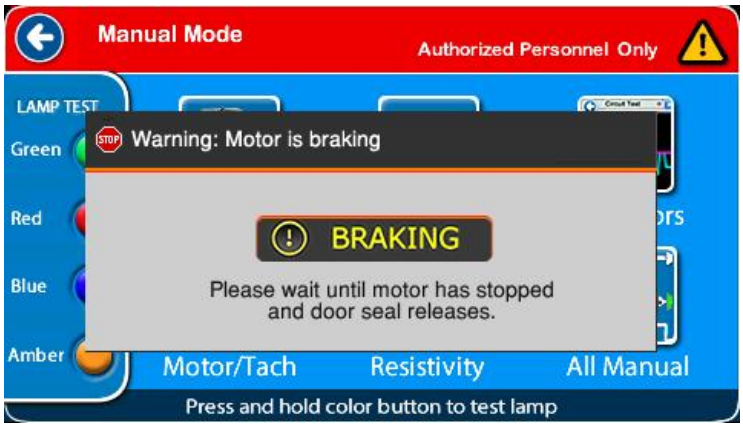
After ramping up, the motor speed stabilizes at the selected setpoint.

The Closed Speed Loop algorithm maintains the rotor speed within 2 RPM.



In the Closed Speed Loop test the motor follows the setpoint changes in real-time.

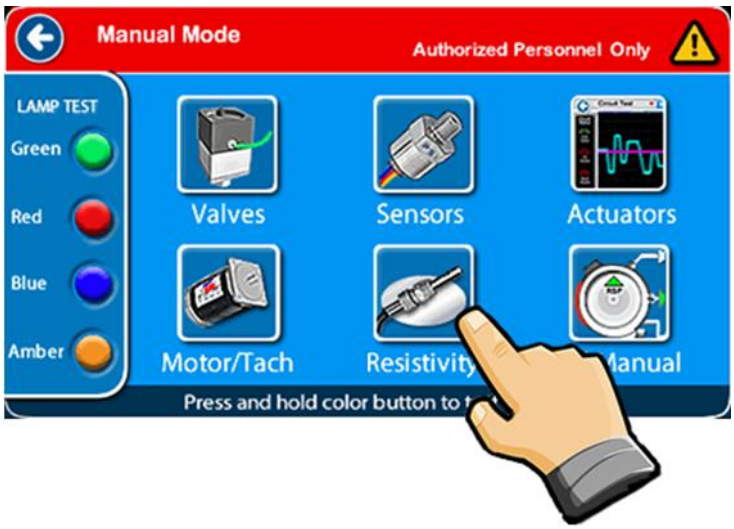
Selecting "*Back to Menu*" while the motor is running stops the motor, activates the brake, and waits until the motor is completely stopped before letting the user select any other option.



When the user ends the Motor test by selecting "*Back to Menu*", the system does not allow another option until the motor is completely stopped and the Door Seal releases.

Resistivity Probe Test

The SlickDevice™ provides a built-in tool to test resistivity probes. Using this tool, it is possible to know if a resistivity probe is connected to your SRD and if it is working correctly.

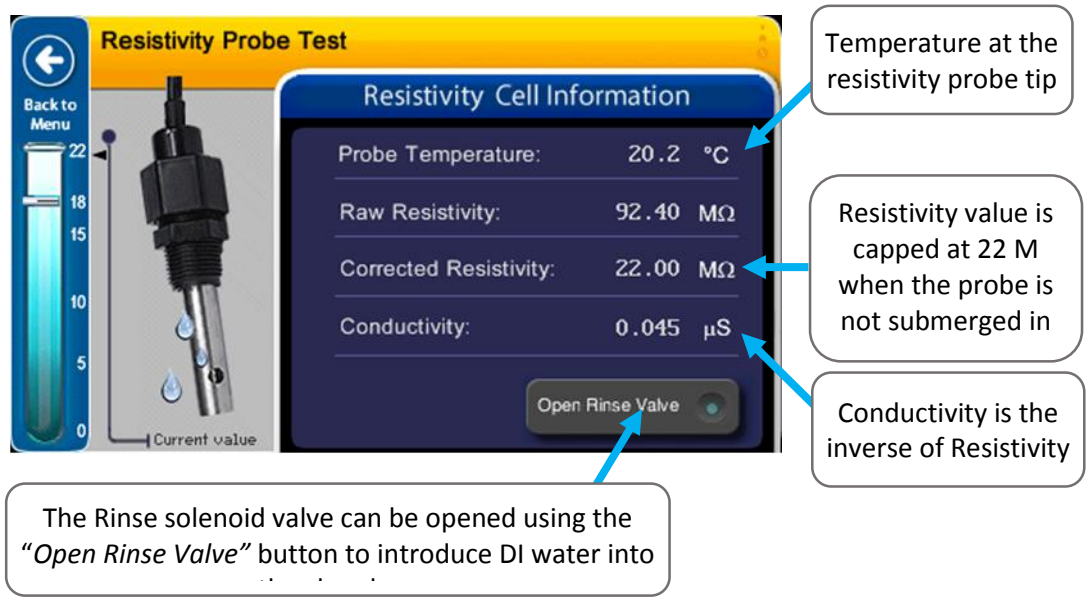


To test the Resistivity probe, go to "Manual Mode", then select "*Resistivity*".

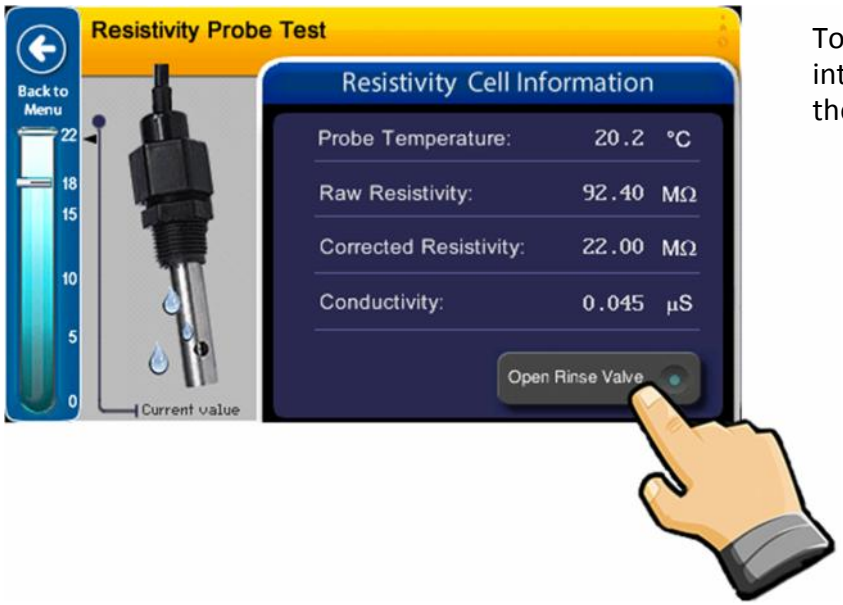
Resistivity is measured in megaohms per centimeter (MΩ-Cm) and is temperature dependent. So, the resistivity probe includes a temperature sensor on the probe tip. The raw reading must be temperature compensated to get the correct resistivity value, which is the displayed wastewater resistivity value.

When the resistivity probe is dry, the resistivity reading is falsely high, and the corrected resistivity value is capped at 22 M to indicate the probe is dry and not submerged in water.

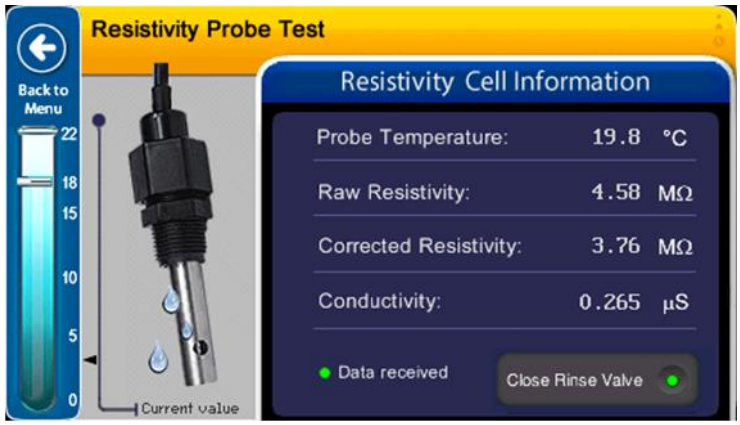
The SRD must be connected to a DI water supply to run the Resistivity Probe Test.



Resistivity Probe working properly

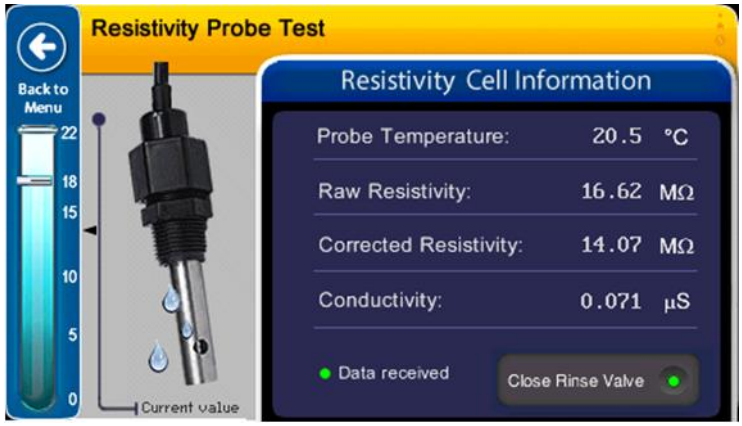


To start the Resistivity Probe Test, introduce DI water into the SRD by using the "*Open Rinse Valve*" button.



The algorithm calculating the corrected resistivity value requires many samples before obtaining a result, so the resistivity value will fall first and then rise.

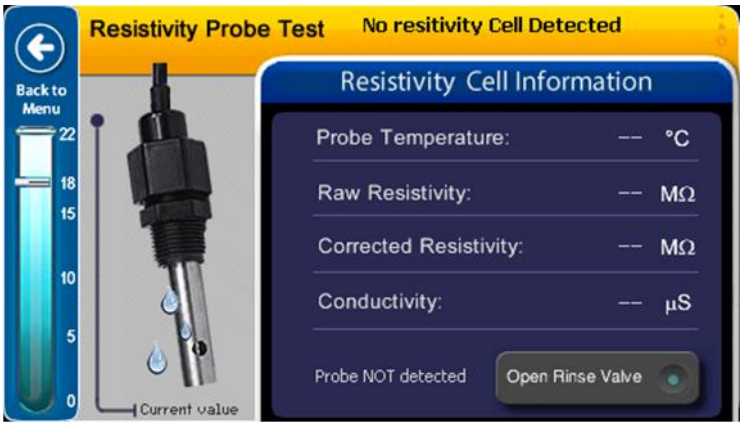
A flashing "Data received" message is shown every time a reading is available.



The resistivity probe screen shows the probe temperature, the Resistivity Raw value, and the Corrected Resistivity value.

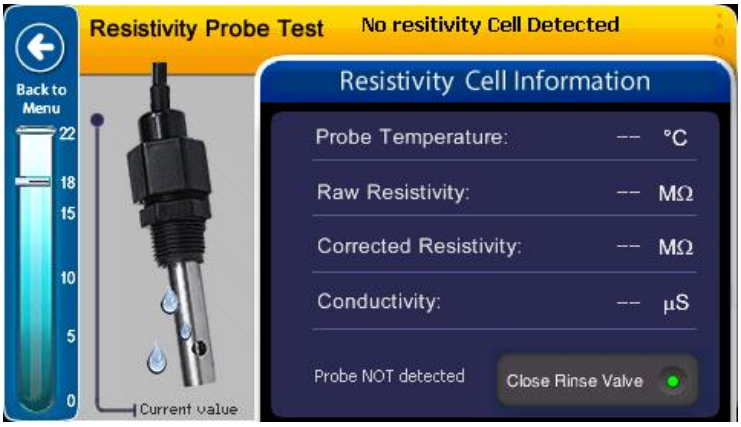
The Corrected Resistivity value corresponds to the temperature compensated Resistivity. This is also the value used by the Quality Rinse cycle.

Resistivity Probe not connected



If the SlickDevice™ does not detect a resistivity probe, the cell values are empty, and a "No Resistivity Cell detected" message appears on the screen.

A “Probe NOT Detected” message appears on the bottom part.

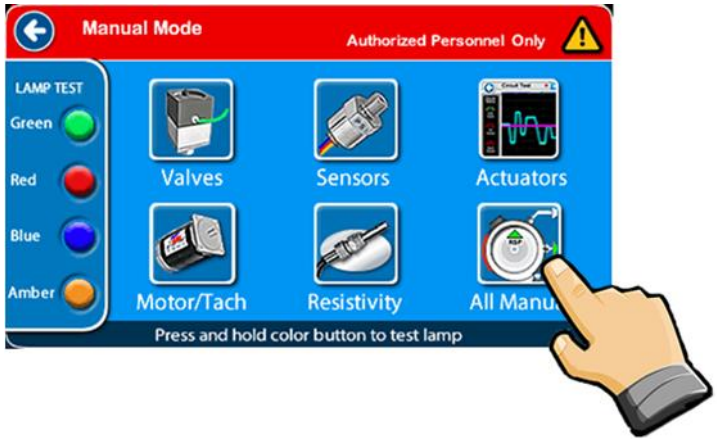


Select "*Open Rinse Valve*" to introduce DI Water into the chamber and wait for one minute.

If the "No resistivity Cell Detected' is still on top of the screen after one minute, the system indicates a Resistivity Probe is not present.

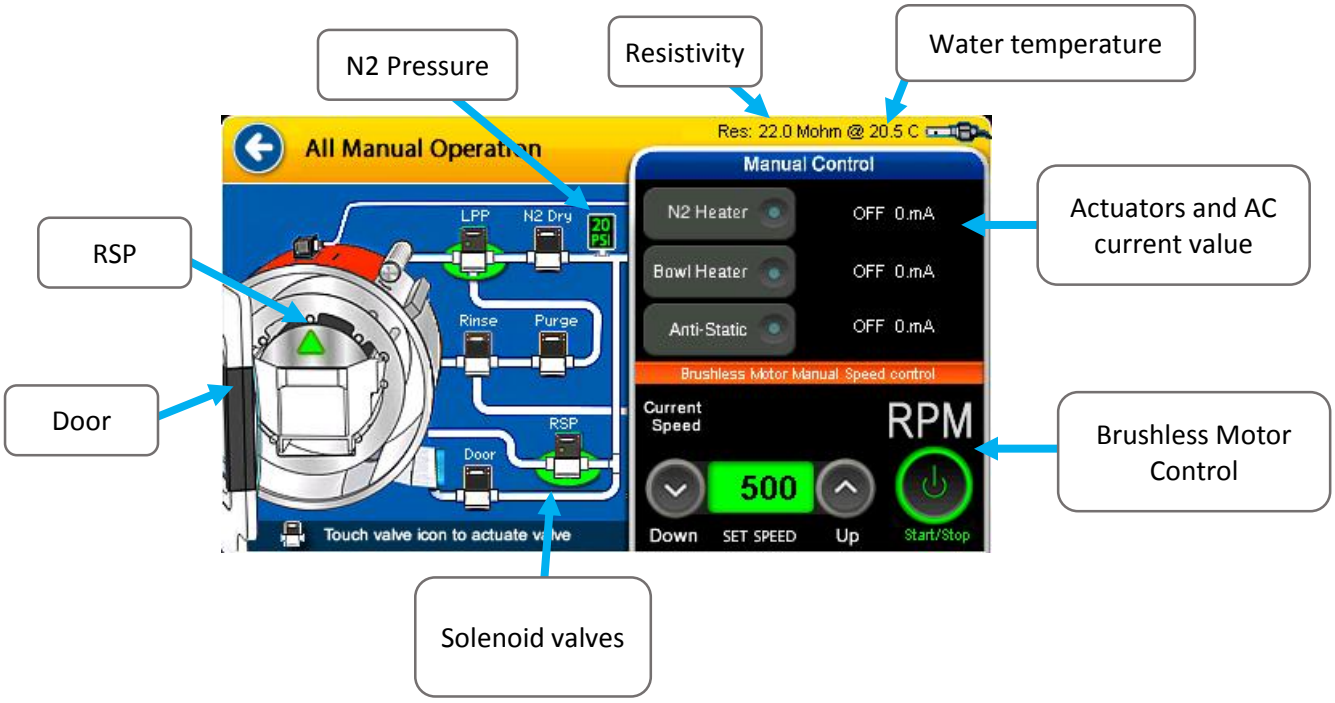
All Manual Operation

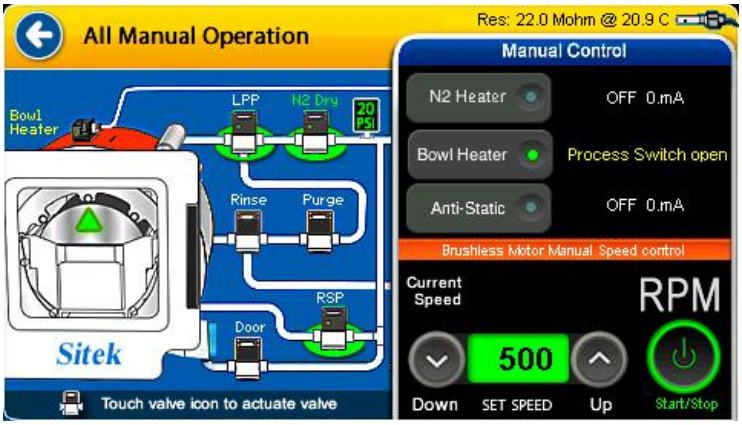
The All Manual Operation mode summarizes all the built-in troubleshooting tools in just one screen. This option is intended for advanced users with training and a good understanding of all possible risks of the Manual Mode operation. Security interlocks have been programmed to avoid hazardous conditions.



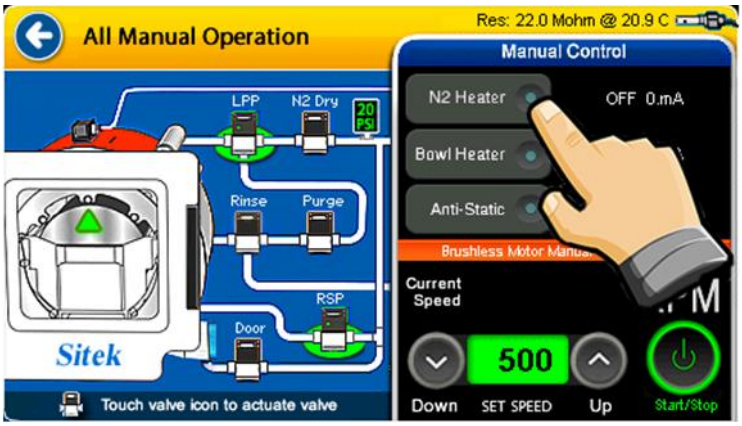
To access all built-in troubleshooting tools in only one screen, go to "Manual Mode" and select "*All Manual*".

The All Manual Operation screen includes a mimic showing all the Solenoid Valves and tubing, Door, Rotor Stop Positioner, N2 Pressure Sensor, a Heaters control area, a Brushless Motor manual speed control, the current Resistivity value, and water temperature all in one single screen.

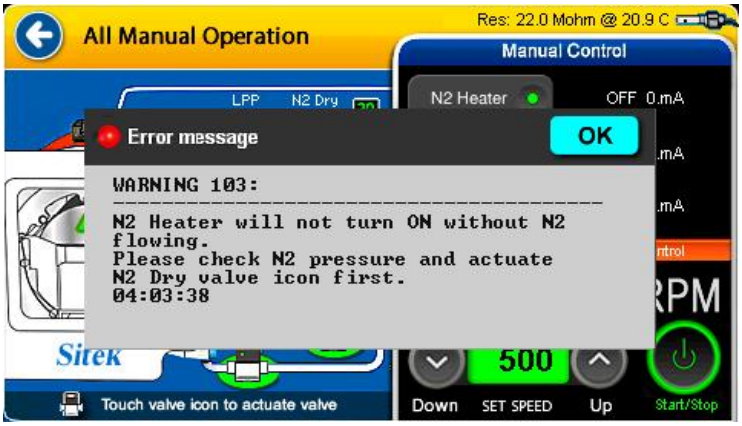




"All Manual Operation" gives the user a whole view of the current SRD state.



In this example the user is about to turn on the N2 Heater using manual control



The security interlock prevents turning On the N2 Heater without any N2 pressure flowing through the heater first.

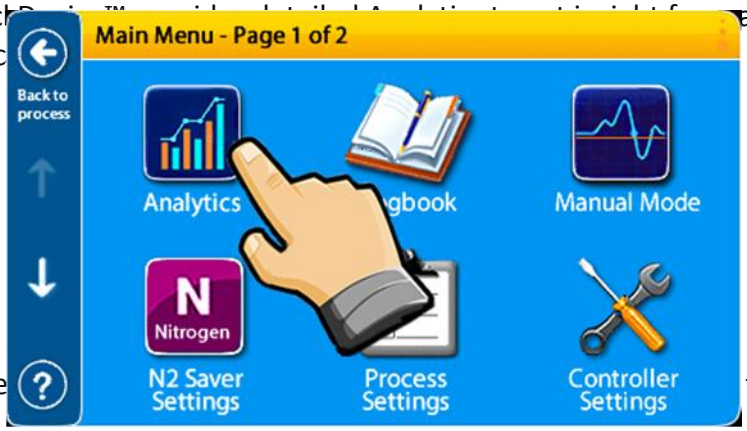
Manual Mode Security Interlocks list.

Context	Warning	Message
Motor and tach All Manual	Warning 101	Motor can not be activated while door is open
Actuators All Manual	Warning 103	N2 Heater will not turn ON without N2 flowing
Valves All Manual	Warning 104	Motor can not be activated until door is closed and door seal is actuated.
Valves All Manual	Warning 105	Rinse valve can not be actuated until door is closed and door seal is also actuated.
Valves All Manual	Warning 106	RSP can not be actuated while motor is running.
Valves All Manual	Warning 107	Door seal can not be deactivated while motor is still running.
Valves All Manual	Warning 108	Door seal can not be deactivated while Rinse valve is actuated
Valves All Manual	Warning 109	Door seal can not be actuated while door is open.
Resistivity	Warning 131	Rinse valve can not be actuated until door is closed.

Table 2. Security Interlocks in Manual Mode

Analytics

Slick aggregated data and make actionable dec



The the SRD operation and health state for:

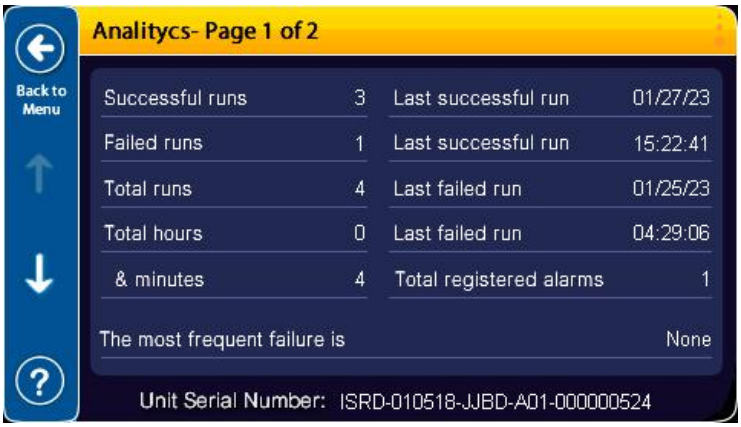
- Total successful runs
- Total failed runs
- Total runs
- Total hours and minutes of operation
- Last successful run date
- Last successful run time
- Last failed run date
- Last failed run time
- Total registered alarms
- Most frequent failure
- Most recent failure
- The last known amperage consumption registered for N2 Heater
- The last known amperage consumption registered for Bowl Heater
- The Last known DDL value recorded for Anti-Static

Also, a detailed record of recorded failures for each one of the following categories:

- Motor, Tachometer or Servo Amp.
- N2 Pressure
- N2 Heater
- Bowl Heater
- Overshoot Failure
- Door Opened
- User Stopped /Aborted
- Next Step/ Skip Step selected

All analytics information is saved in permanent memory and cannot be modified. Analytics is where the quantified, historical data is stored, and failure records are captured for tracking purposes and analysis.

To access the SRD analytics information, go to Main Menu – Page 1 of 2 and select "*Analytics*"



Page 1 of shows the primary statistics gathered from the SRD since the first time the SlickDevice™ controller was installed into the tool.

Page 2 of "Analytics" shows the primary common failures by category, the most recent failure, and the last known values for Heaters and Static Eliminator.

Logbook

SlickDevice™ keeps a detailed Logbook with more than 125 different events to be recorded. The event's history in the tool is collected for future reference and sorted by date and time. The logbook is stored in

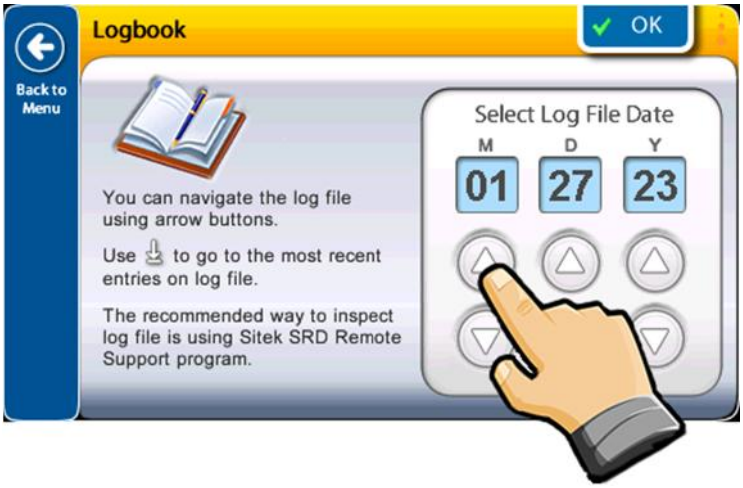
a Secure Digital Flash memory inside the SlickDevice™ Controller. Every time power is applied to the SlickDevice™, the system checks for the SD card.

An easy-to-read interface with logbook date selection, navigation, and most recent entry buttons are provided.

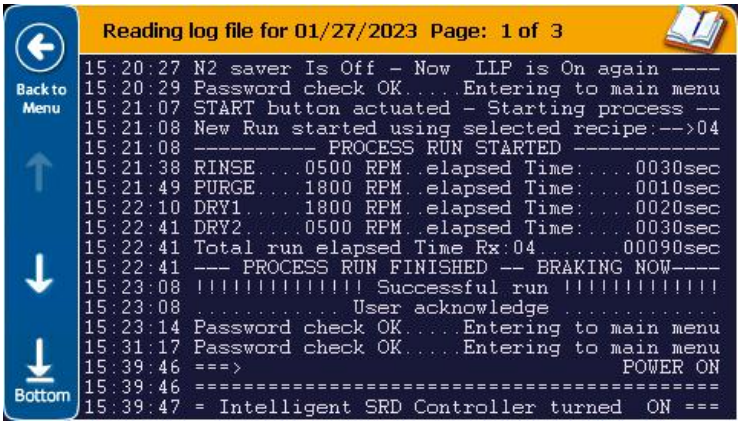
The system clock with the correct date and time must be set for this function to work as intended.

The Logbook information can be downloaded to a PC or Laptop in plain text format or Excel (CSV file), using a proprietary software. The download process is covered in the next chapter of this manual.

To access logbook information, go to main Menu – Page 1 of 2 and select "*Logbook*"

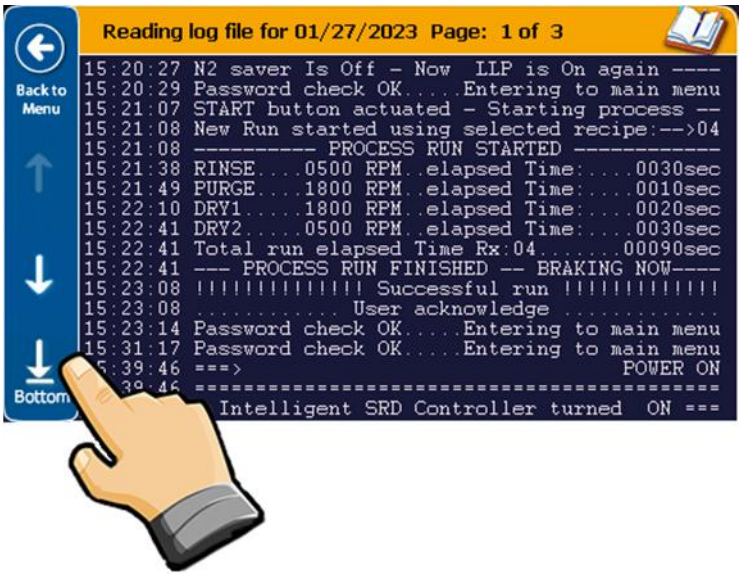


The current date is used by default so use up or down arrows to change the logbook date you are searching.

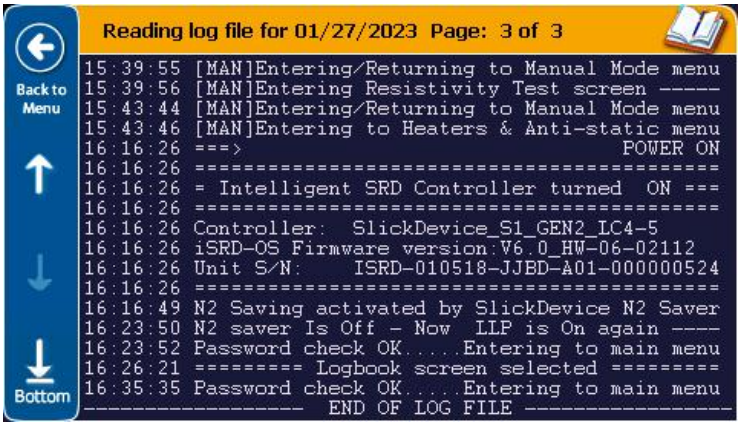


The selected date's logbook number of pages is displayed on top of the screen.

Every event is time stamped and is shown in ascending order from the oldest to most recent event.



To navigate to the most recent event, select "*Bottom*"



To go up or down one page use the up or down arrow. To go back select "*Back to Menu*"

How to download SITEK SlickDevice™ log information onto your laptop.

To download the log information inside the SITEK SlickDevice™ SRD Controller, you will need the following:

1. SITEK SRD Controller Remote Support software. (Contact SITEK for copy of software)
2. USB Cable. (USB-A to USB Mini-B)

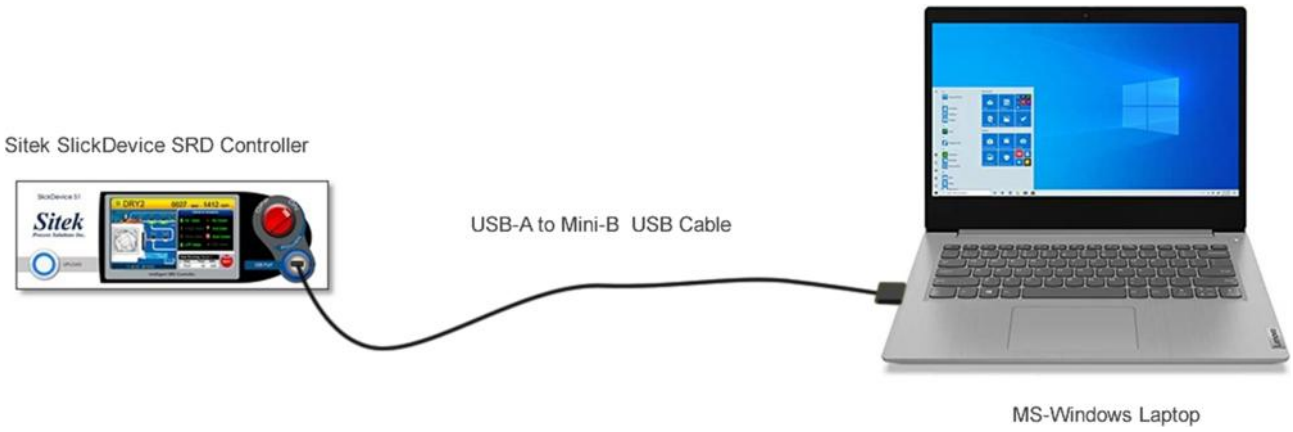
Using the SITEK SRD Controller Remote Support software, you can download a copy of the log file for a specific date. The program shows a log file list inside the SRD controller, and you can download a copy of any log file as a plain text (.txt) file or a CSV file onto your laptop.

Program Installation:

Installing SITEK SRD Controller Remote Support on a MS-Windows (Windows 7, Windows 10) laptop only requires 3 steps:

1. Contact SITEK for a copy of the SITEK SlickDevice™ SRD Controller software.
2. Create a new folder using any folder name, for example, “SlickDevice™ S1 Support Program".
3. Copy all the SITEK provided files to the folder. You do not need to run an installer to get this ready on your laptop - just copy the files into the new folder.

USB Cable: Connect the USB Cable to the USB port on the laptop and the USB Connector on your SITEK SRD Controller front panel.



Operation:

Before running the SITEK SRD Remote Support software, you must turn on the SlickDevice™ and go to "*Menu*".

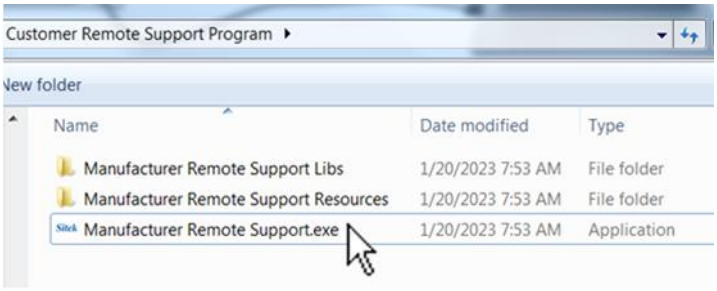
After entering the PASSWORD (default password is 0000, however, your current password may have been changed by a user) you will see the "Main Menu - Page 1 of 2" Screen. Select the down arrow to go to "Main Menu - Page 2 of 2".

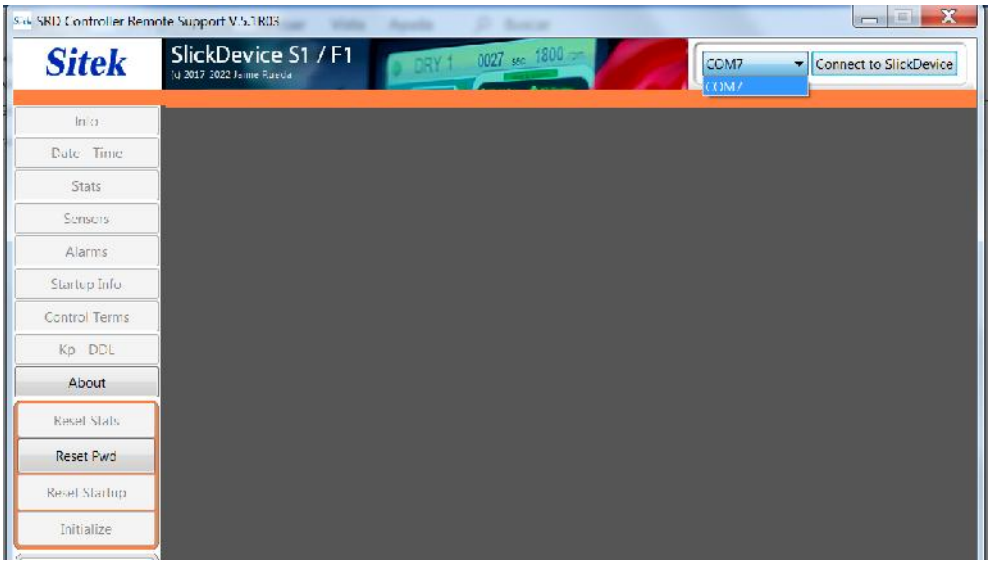
Your SITEK SRD Controller should now show a screen like this:

Then select "*Controller Info*"

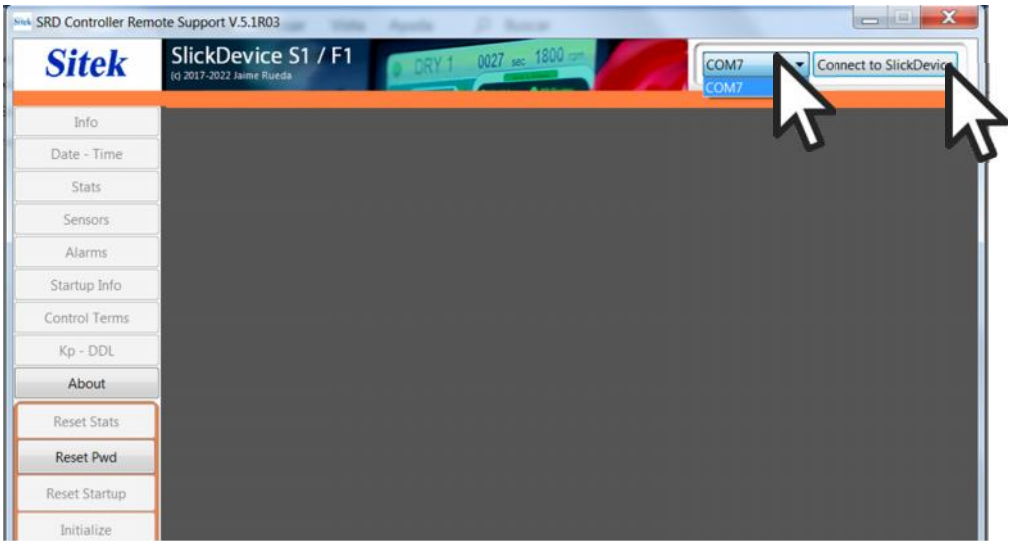
Now, your tool is ready to download log files.

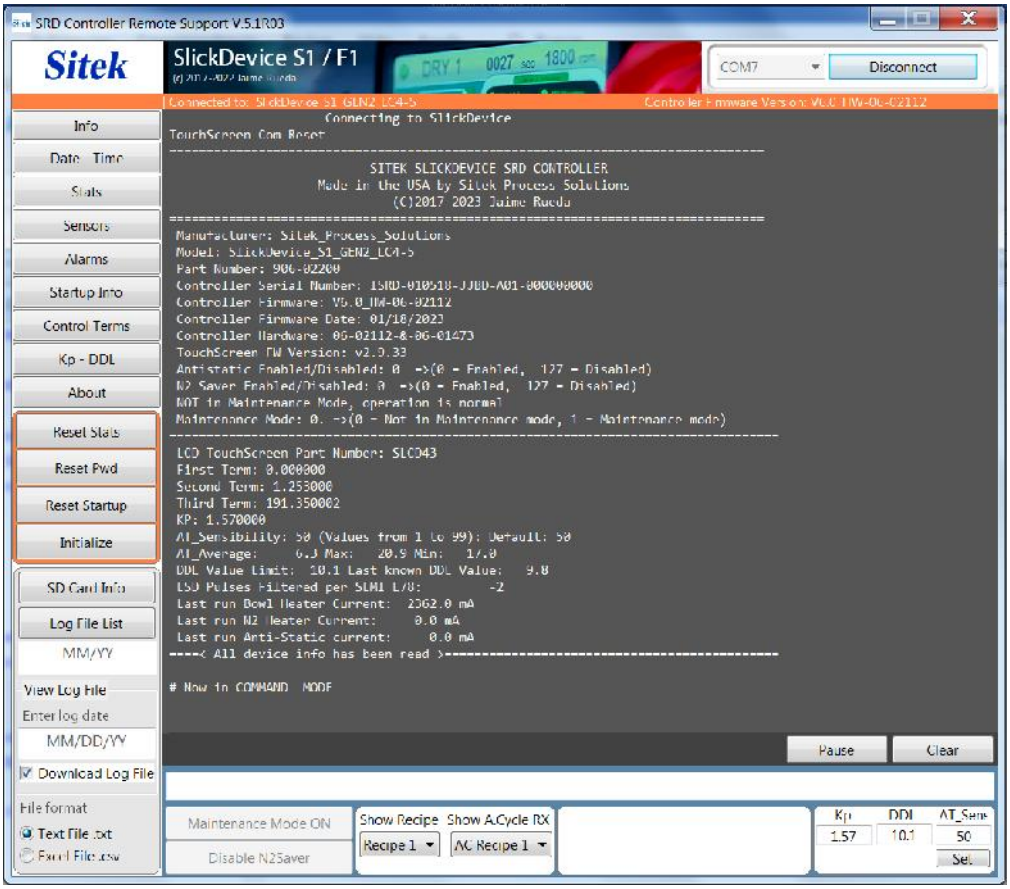
The next step is to run the SITEK Remote Support program on your laptop.
Go to the recently installed folder and open the program "Manufacturer Remote Support.exe"



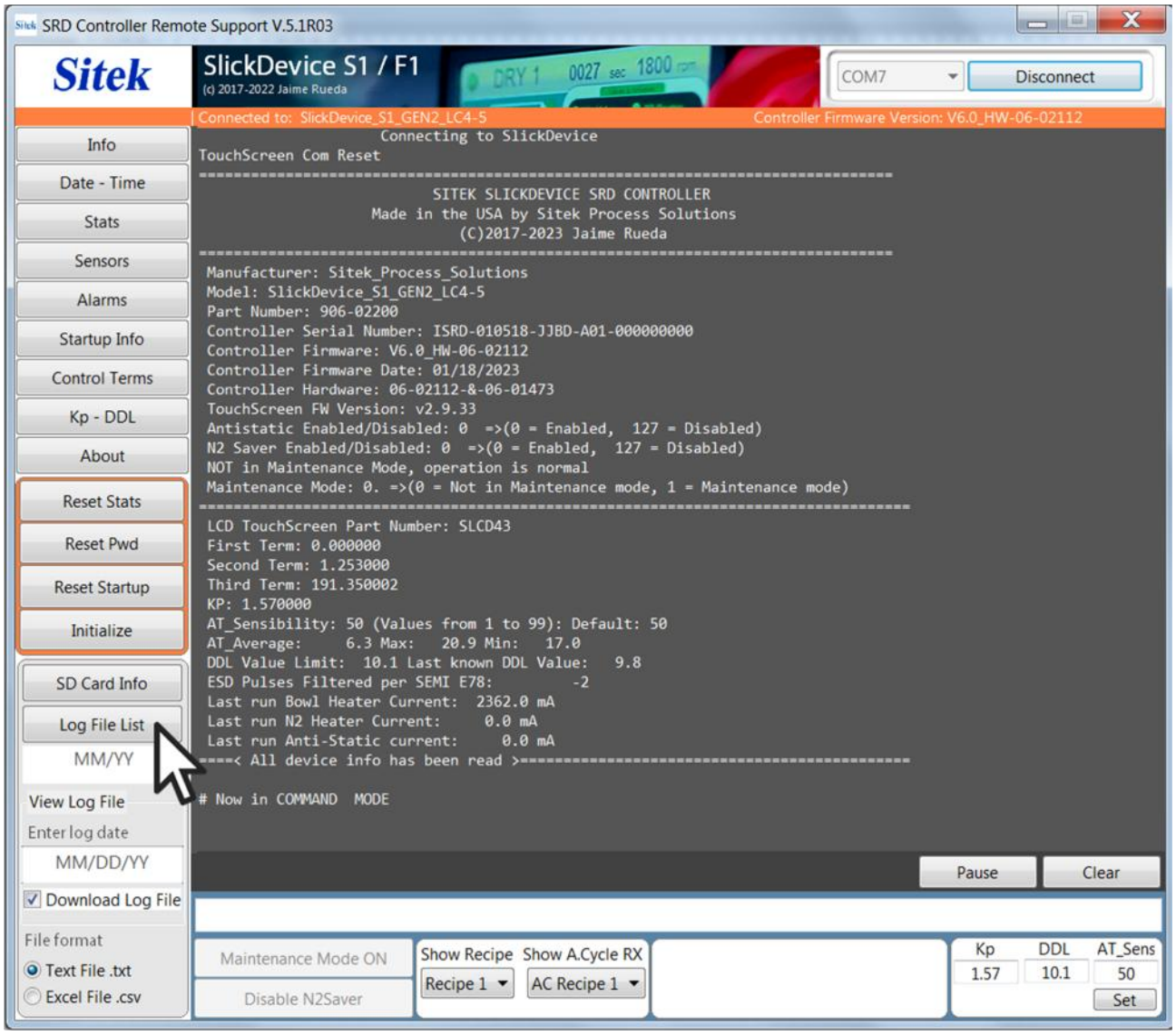


Select the COM port connected to the SITEK SlickDevice™ SRD Controller and then click on *"Connect to SlickDevice"*. The correct COM port should automatically populate.

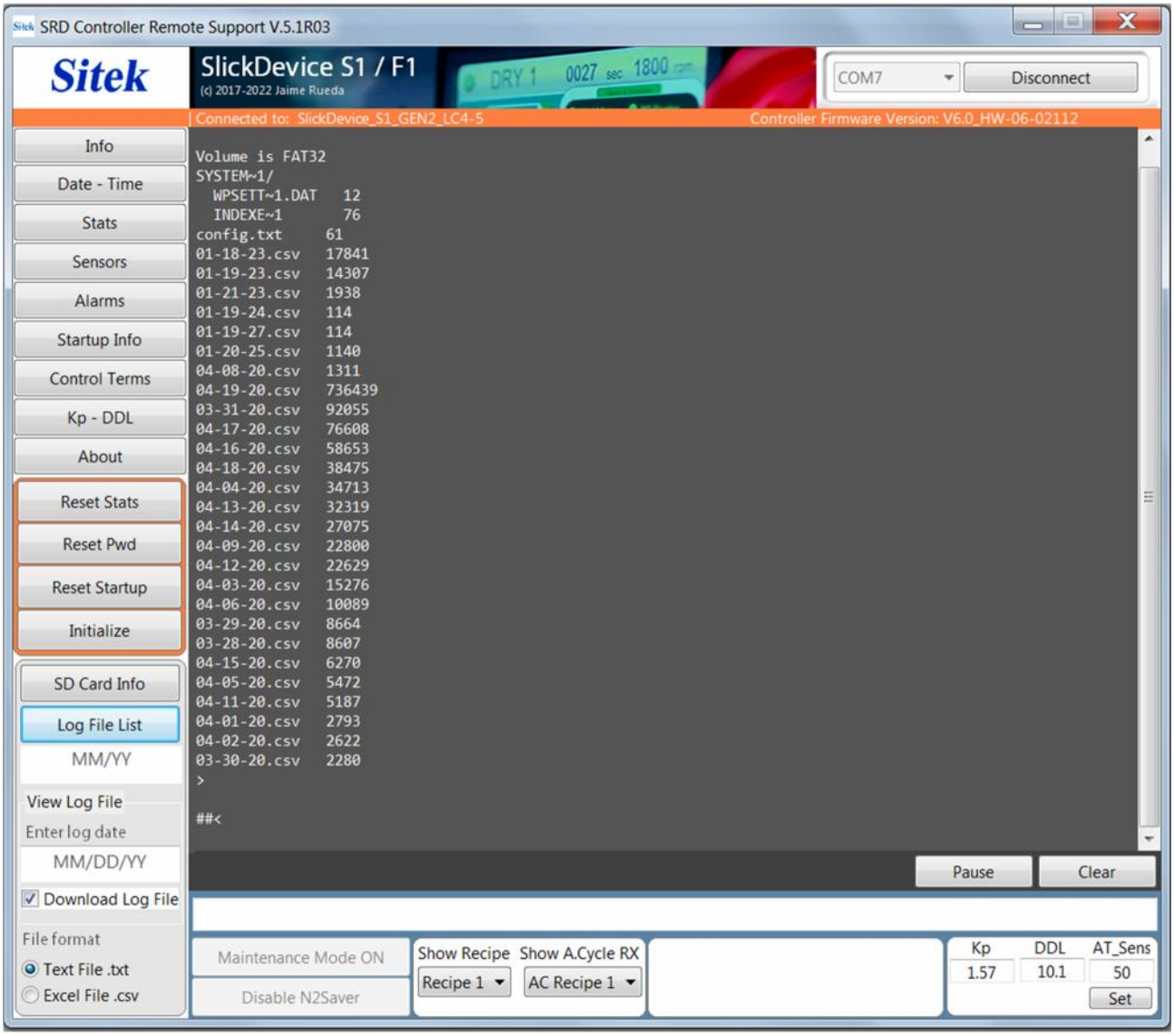




To see a list of the log files inside the SITEK SRD Controller, click on *"Log File List"*

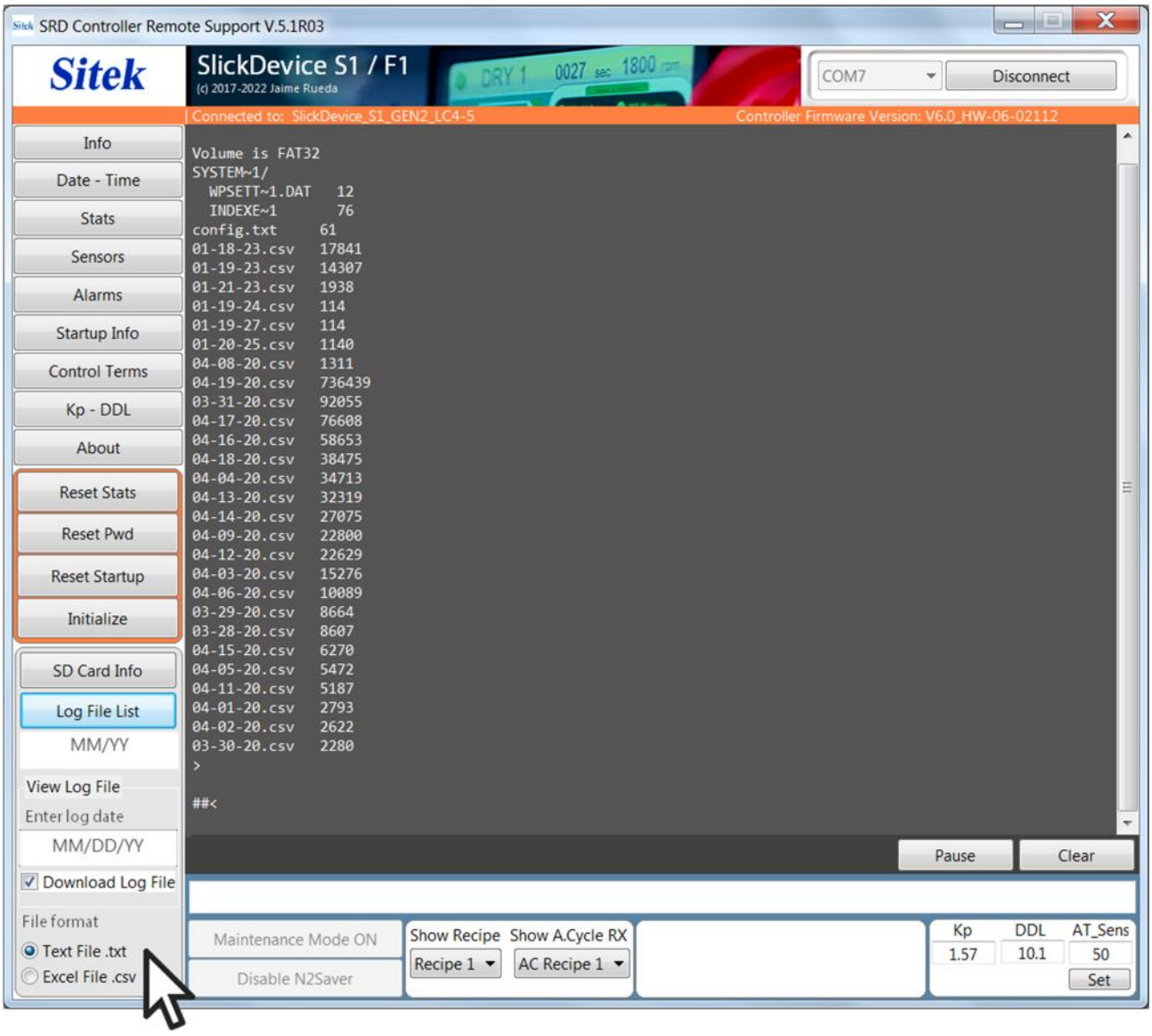


You can now see a list showing all the log files inside the SITEK SRD Controller. The Log File List should look like this:

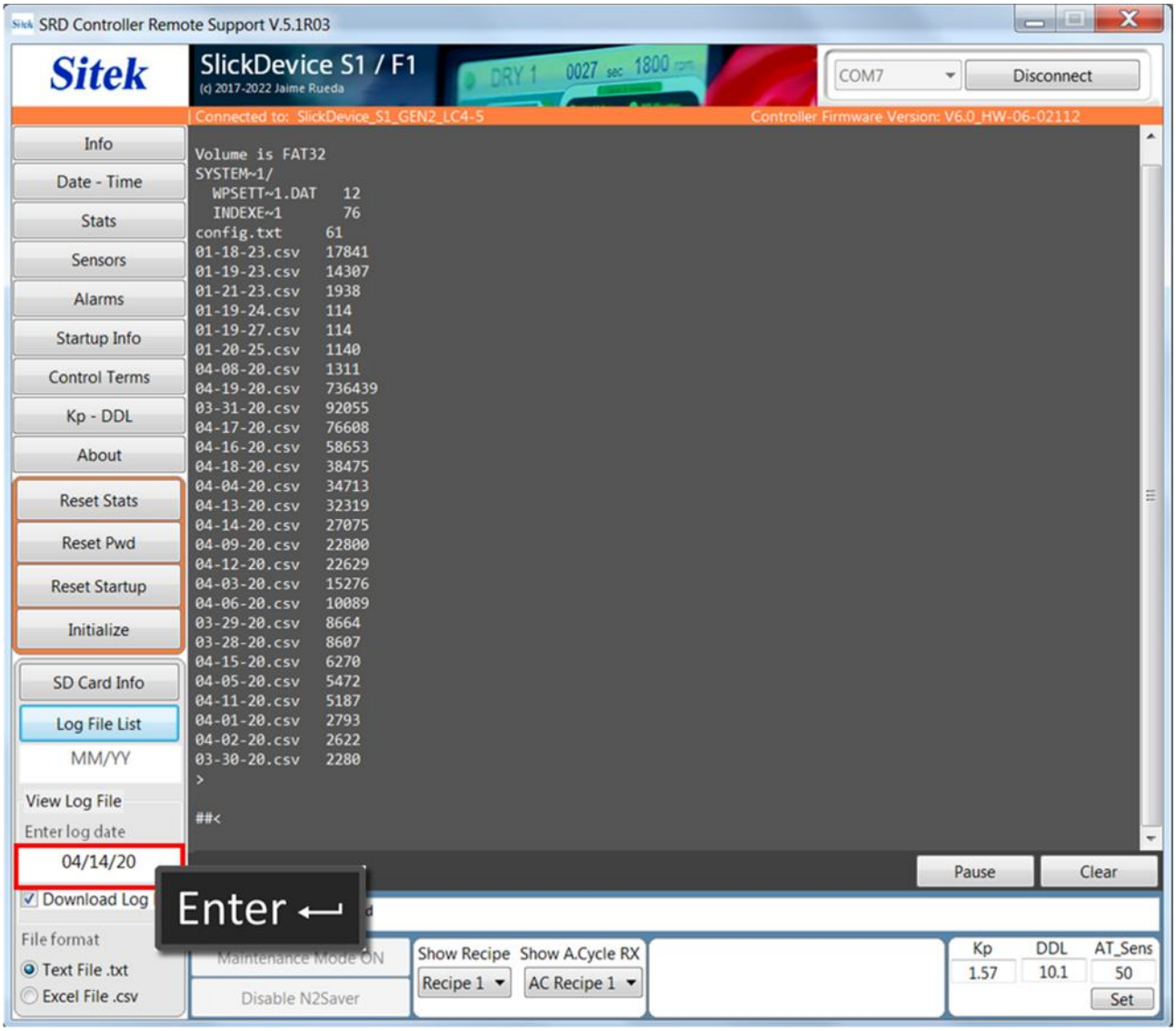


Download file:

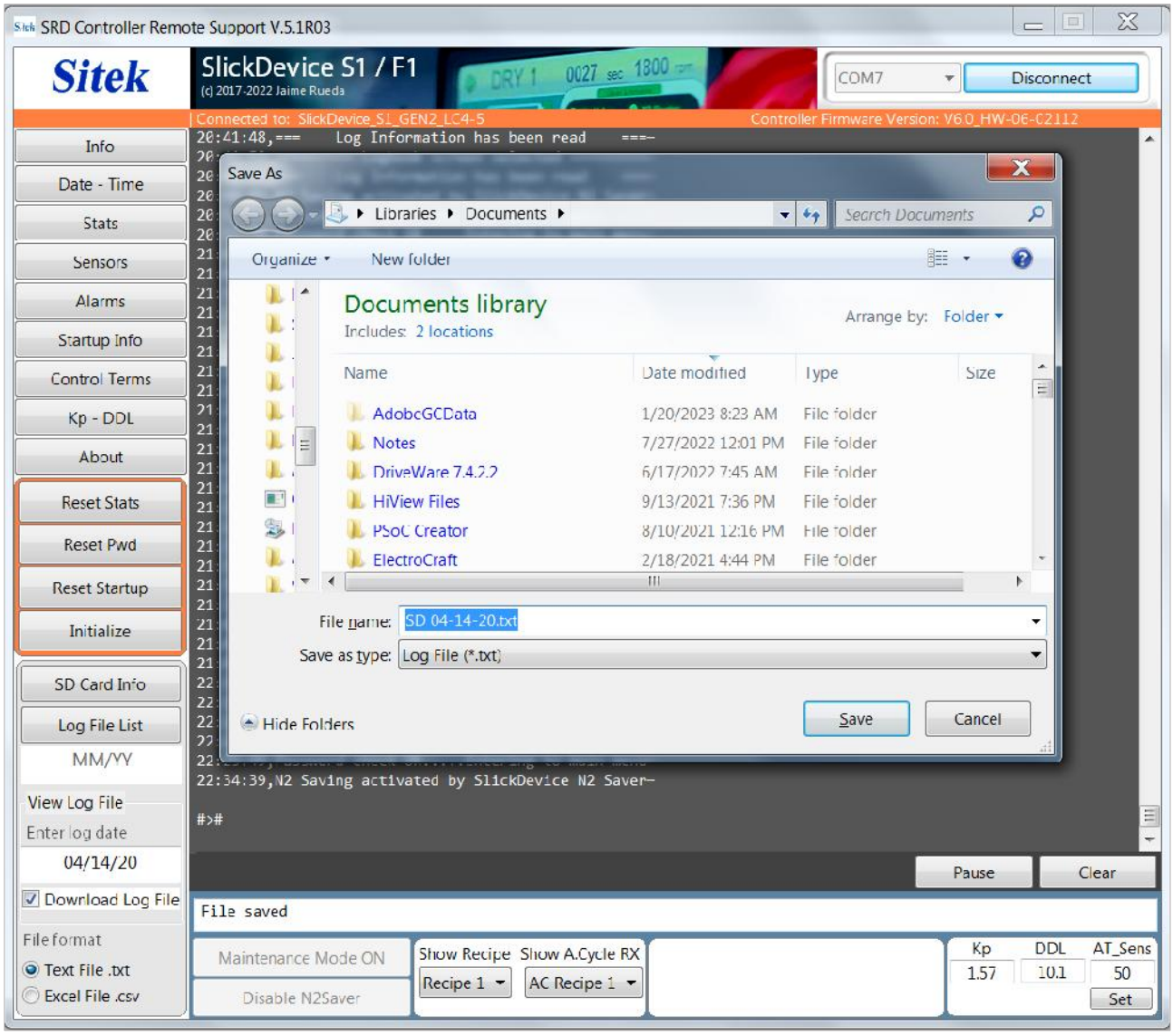
To download a copy of any of the log files you must first select the file format you want for the downloaded file and you can select between *"Text File .txt"* or *"Excel File .csv"* format. (Default value is "*Text File.txt*")



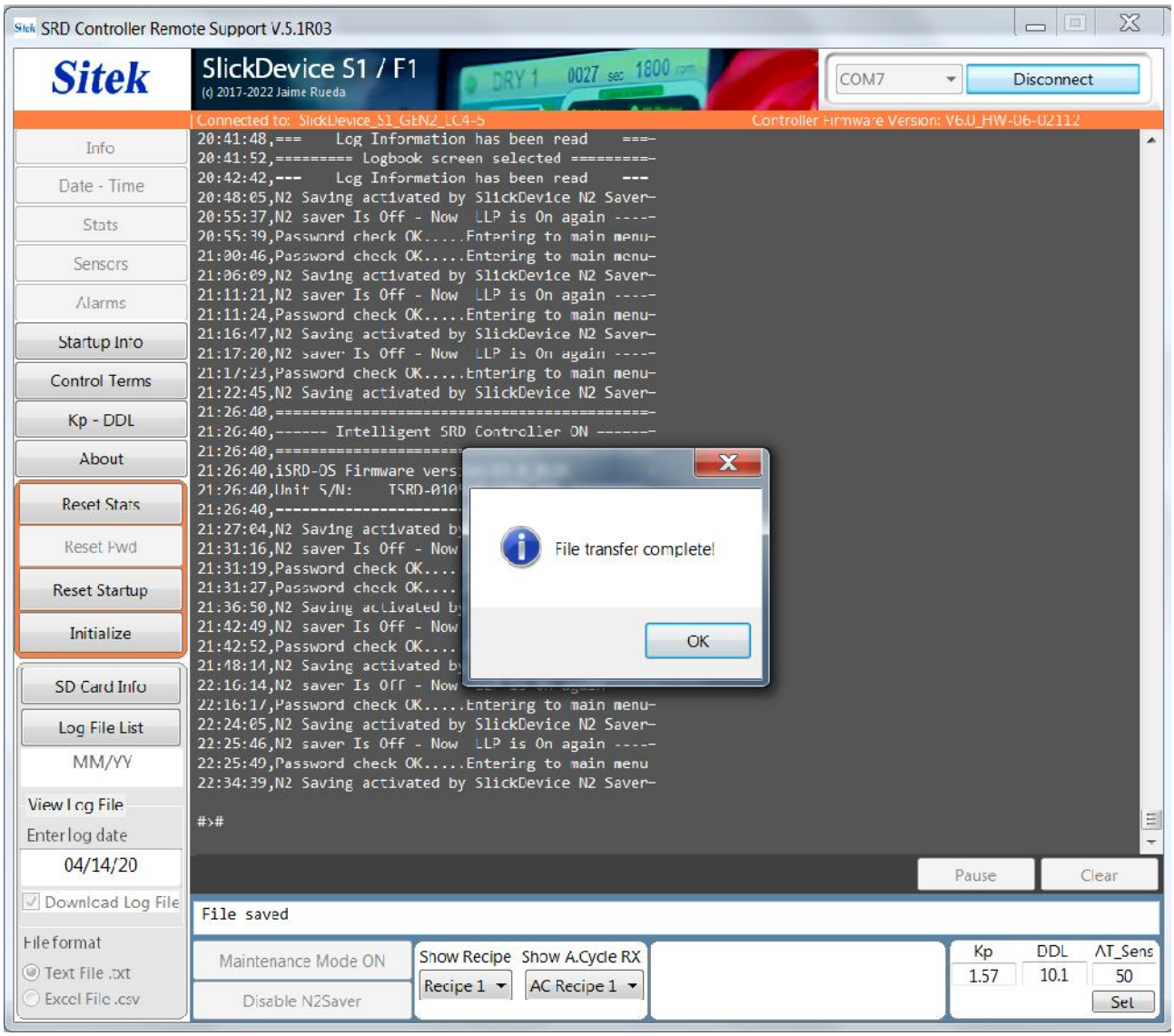
Then, using “Enter log date”, confirm the month, day and year corresponding to the file to be downloaded and hit ENTER on the keyboard. In this example the selected file is for date 04/14/20.



Select the desired file location on your laptop and click on "*Save*".



After the selected file is downloaded you can see the "File transfer complete!" indication.



Thank you for using the SITEK SlickDevice™ controller and reviewing our manual! We hope you enjoy our product.

For any other questions or comments, please contact SITEK directly. You can reach us through our website or phone.

SITEK Process Solutions

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