

## Rinseware 1001 Series Intelligent Spin Rinse Dryer Controllers

Rinseware TM 1001 Series Intelligent SRD controller build on years of innovation. The new platform is designed to enable the next phase of semiconductor fabrication evolution, providing an easy and seamless migration, bringing many tools to reduce downtime and reduce operating costs while extending the life of existing Semitool Spin Rinse Dryers. iSRD Firmware provides the tools to remote firmware updates and functionality diagnostics that include a rich featured color touchscreen interface showing detailed mimics in an operator friendly environment. By decreasing the amount of training time required and preprogramming a number of common functions, 1001 series can help you save on operating costs. Complex procedures are easily implemented inside the controller and a step by step method lets the maintenance personnel to avoid costly downtime. Advanced algorithms perform precise resistivity calculations, provide a better and smooth speed motor control and detect heaters and ionizer failures. Antistatic operation is monitored and can be enabled or disable in an easy way. Particle problem could be reduce or eliminated using the preprogramed cleaning method included in the 1.07 firmware version.

Figure 1. Rinseware SlickDevice 1001BL Intelligent SRD Controller



### Product overview

SlickDevice 1001BL builds on the best-in-class offering of Spin Rinse Dryer controller. The new controller has been developed as a direct drop-in replacement for the old outdated PSC-101 currently on many Semitool® single stack, double stack and cabinet SRDs. SlickDevice 1001BL features state-of-the-art electronics with an easy to use touchscreen interface for real-time control, data logging and better performance and diagnostics, designed by veterans at the industry.

Semitool<sup>®</sup> SRDs have been performing dependably under heavy and prolonged use for many years. Because of this refurbished Spin Rinse Dryer equipments are still on demand, however there is a big concern about the age and availability of a key component: The controller inside. Rinseware’s Intelligent SRD Controller brings all the advantages of modern control systems to a reliable platform enhancing their performance while maintaining his core elements, eliminating the concerns about the age and short supply of this key component.

**Figure 2.** Rinseware SlickDevice 1001BL on a Semitool Single Stack 270 Spin Rinse Dryer



### Key Business Benefits

- Save Capex by extending the life of existing Semitool<sup>®</sup> Spin Rinse Dryers.
- Reduce Downtime in the Fab.
  - Firmware updates do not require disassembling equipment.
  - Real-time alerts notify operators when SRD is malfunctioning and where the problem is.

- Reduce operating Costs.
  - Easy to use interface requires limited training.
  - Pre-set programs for common functions.
  - Customizable programs for unique requirements.
  - Remote access for offsite technicians.

### **Drop-in Installation**

SlickDevice 1001BL is very easy to install, simply disconnect the old controller interface cables, connect the new controller with no modifications inside the SRD and start to see the difference.

### **Remote Access**

Operating costs are further reduced as offsite technicians can access the SlickDevice unit remotely. Downtime can also be reduced as even firmware updates can be made remotely and do not require disassembling equipment. Rinseware support team can check the SRD's functionality and get diagnostics without going in the fab.

### **Touch Screen**

Featuring a 4.3" full color touchscreen, easy to use, easy to touch even with any kind of glove. Recipes can be edited by Process Engineer using a simple spreadsheet-like interface. Detailed mimics show functions, sensors are easily monitored, and valves and actuators can be operated by maintenance personnel to perform a test that reduces downtime. Operator only needs to choose the right recipe and press the start button on the tool. All the required variables are monitored by the controller.

### **Real Time Error Logging**

In addition, errors are logged on a micro-SD card for easy retrieval. Detailed log by time and date are stored in a CSV file format. Downtime is further reduced as the SlickDevice 1001 alert technicians when the SRD unit is malfunctioning. This could help save hours of downtime and damage to silicon inventory.

### Improved efficiency

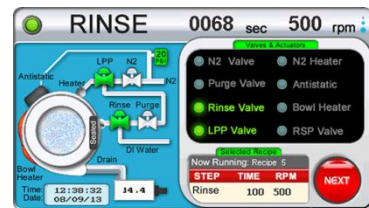
Built-in procedures for the cleaning process reduce down-time by using pre-programmed recipes and the necessary steps required with full graphic indications.

### Reduces Downtime

Technicians can detect malfunctions and errors on real time. Motor can be calibrated using the screen instead of disassembling the SRD.

### Intelligent Technology

The precise time, the correct RPM stability and the total control of all process variables, sensors, valves and actuators are the foundation to achieve good results from the Spin Rinse Dry process.



### Easy programming

Programming the SlickDevice 1001 is an easy task, Touchscreen interface is intuitive with similar features you found in tablets and smartphones.

### Operator friendly

The operator simply selects the required program and presses start. All of the required variables are monitored; you can see a summary page at the end of the program to ensure that everything ran successfully.

**Table 1.** Rinseware SlickDevice 1001 Product Specifications

Services and Specifications	SlickDevice 1001BL
<b>Memory type and capacity</b>	Flash Memory: 200KB, SRAM1: 51KB, SRAM2: 4KB, HEAP MEMORY: 55KB, MC EEPROM: 4KB, EX EEPROM 2x512KB
<b>Real Time Log</b>	Class 4 Micro SD HC 4GB
<b>USB 1 Interface Port</b>	FTTDI Type USB MiniB USB 2.0 Interface 12 Mbps full-Speed. Standard Windows baud rates from 300bps to 921.6Kbps RS232
<b>USB 2 Interface Port</b>	FTTDI Type USB MiniB USB 2.0 Interface 12 Mbps full-Speed. Standard Windows baud rates from 300bps to 921.6Kbps UART
<b>Conductivity, Resistivity Measurement</b>	Rinseware fast convergence proprietary algorithm with temperature compensation for use with foxboro conductivity/resistivity cell 921-EA2 Constant K= 0.1
<b>SRD Motor Control method</b>	Rinseware proprietary algorithm for control of Automotion LC4 with nominal 115 VAC 1 Phase 50/60 Hz. Nominal output 8 Amp 160V 18Khz - 20 Khz 3 Phase.
<b>Motor speed calibration</b>	Rinseware proprietary algorithm with 4 constants
<b>Available Process Recipes</b>	16 Process recipes with optional Quality rinse cycle using resistivity. More recipes can be a
<b>Autocycle Recipes</b>	4 Autocycle recipe for use with per run, per hour, per days autocycles
<b>Process cycles</b>	5 process cycles including Rinse, Quality Rinse, Purge, dry1 and dry2. Resistivity cell can be enabled/disabled, Antistatic ionizer can be enabled/disabled
<b>LC4 Controller Motor Interface RPJ19</b>	8 Pin rugged CPC Circular Plastic Connector SER 2
<b>SRD Power Interface RPJ12</b>	14 pin rugged CPC Circular Plastic Connector SER 1
<b>Logic control Interface RPJ2</b>	50 Pos D-Sub Connector amp limite HDP-20
<b>TouchScreen</b>	4.3" LCD Display with touch sensor, WQVGA Resolution
<b>Power Specifications</b>	
<b>AC Input Voltage</b>	110 to 120 VAC
<b>AC Input Frequency</b>	47 to 63 Hz
<b>AC Input Current Range AC power Supply (Maximum)</b>	11.5 to 0.6A
<b>AC Input Surge Current</b>	<50A
<b>Physical Specifications</b>	
<b>Dimensions (H x W X D) ( Without power button, without power cord restraint)</b>	3.45 x 9.68 x 13.0 in (87.6 x 245.87 x 330.2 mm)
<b>Dimensions (H x W X D) (Including power button and power cord restraint)</b>	3.45 x 9.68 x 14.25 in (87.6 x 245.87 x 368.3 mm)
<b>Total Weigth</b>	9.5 lb (4.3 kg)
<b>Airflow</b>	Back side, upper side
<b>Environmental Specifications</b>	
<b>Operating Conditions</b>	
<b>Temperature: 13,123 feet (4,000m) Maximum Altitude</b>	N/A
<b>Temperature: 9,843 feet (3,000m) Maximum Altitude</b>	32 to 104°F (0 to 40°C)
<b>Temperature: 5,906 feet (1,800m) Maximum Altitude</b>	32 to 104°F (0 to 40°C)
<b>Temperature: Short-Term (per NEBS) 5,906 feet (1,800m) Maximum Altitude</b>	N/A
<b>Non-Operating Conditions</b>	
<b>Temperature</b>	-40 to 158°F (-40 to 80°C)
<b>Relative Humidity</b>	10 to 90%
<b>Altitude</b>	15,000 ft (4,750m)