

The Model 300

Family of Integrated Dispensing Systems



INTEGRATED DESIGNS, LP



CHEMICAL MANAGEMENT SOLUTIONS
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Model 300

Field Proven Technology

The Model 300 Family of Integrated Dispense Systems provide automated control and monitoring of all critical process parameters. The units have no mechanical displacement and are designed to monitor and dispense all photolithography chemistries.

Photoresist is dispensed at a precise rate and can be delivered with swing-arm synchronization. Edge-bead remover (EBR) and developer are bubble-free and dispensed at a uniform flow-rate.

The dispense units integrate chemical source switching, liquid level detection and chemical dispensing into one unit. Flexibility in reservoir sizes allows the system to be adapted to a wide range of chemical dispensing applications.

The system uses digitally controlled Pulse Width Modulation to control process gas, and chemistry is displaced through a completely integrated filter.

Because there is only one moving part in the flow path, the systems are incredibly reliable and maintenance-free.

The pressure "servo-loop" provides a consistent flow regardless of the number of open output valves and compensates for filter loading. The system will not allow itself to run out of chemistry, making it impossible to introduce air into the dispense lines.

The user-friendly controller can manage operations of up to four dispense units, and each dispense unit can operate up to three dispense points simultaneously. Chemistry is supplied to each unit from up to two sources, depending on user specification. The controller is capable of handling Model 300/310 units in any combination utilizing the same firmware.



The controller offers a flexible software interface for specifying parameters and monitoring and controlling operations. All dispense parameters are digitally controlled and have an access-code protection system. Plus, the dispense units may be programmed while the process equipment is running.

Options include a serial communications card allowing communications with the connected process equipment, IDI ChemLink® or Bulk Pumping Systems. Utilization of the RS 232 communications port allows complete digital control over all parameters from a host computer.

Safety Features

- CE Certified
- Exhaust routes chemical vapors into a compatible house exhaust system
- Chemical reservoir automatically vented to exhaust if power fails
- Battery backed RAM retains programmed data in the event of a power failure
- All electronics isolated from Chemical vapors
- Audible and visible alarms

Controller Features

- Operates up to 4 dispense systems (12 dispense points)
- Operates dispense systems in any combination or pressure range (M300/310)
- Monitors Source and filter condition
- Provides superior maintenance features
- Simple equipment interface
- In buffer can operation, the controller can notify the operator for refill, or control fully automated refill of the buffer tank
- Controller provides a synchronization signal for swing arm operation
- RS232, 422 and 485 communications option available

"The IDS not only helped increase production, it also decreased waste and helped the company save on handling, dumping and clean-up costs"

Dispense System Features

- Only one moving part in the dispense path: On-demand pressure dispensing features no bellows, diaphragms or stepper motors.
- Analog capacitance or float style liquid level sensor ensures that the filter is never uncovered during normal operation.
- Point-of-use filtration system uses an inverted filter to support auto-venting, preventing bubbles from entering the dispense path and reducing the effects of outgassing.
- Flare fittings used on all fluid paths (no pipe threads).
- Switching inputs allows easy switching between bottles, bags, cans or bulk fill containers.
- Filtration auto-vent/auto-purge vents or purges back to source line to avoid wasted chemicals.
- Multiple outputs for up to three different tracks or modules within a system.
- Independent shut-off/suck-back control valves provide for a clean chemical shut-off and controllable suck-back.
- "Delta P" servo loop pressure control compensates for filter loading and sets off alarm at filter life limit.
- The all-Teflon™ fluid path is compatible with resists, develops and solvents, SOG, Low-K materials, and anti-reflective coatings.



Model 310

Flexibility

The Model 300 family of dispense products is always changing to meet the needs of the Semiconductor industry. We currently provide models to dispense up to 1 liter per dispense, and units to dispense corrosive chemistries. The units can monitor a bulk fill canister and signal either the operator or a bulk fill supply to refill the canister.

For situations where filling from a remote location is required (remote storage of chemical in the sub-fab) the Model 300/310 units can be connected to a CAM unit allowing the 300 to continue to monitor the sources while being filled from the CAM.

With foaming chemistries (ex. water based Tarc's) the M300/310's can be connected to an RFM unit providing it with an uninterrupted source while still allowing full control of source monitoring and selection.

The Model 300 family of devices is also equipped to operate utilizing Nowpak Smart Probes® to insure that the correct source is installed on the unit.



Cam-E

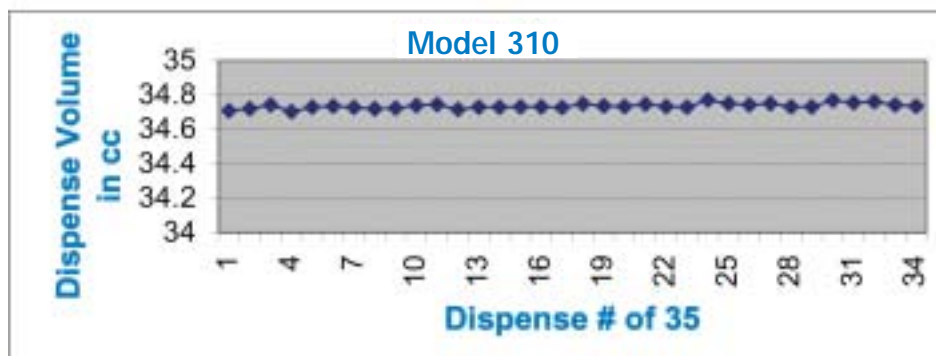
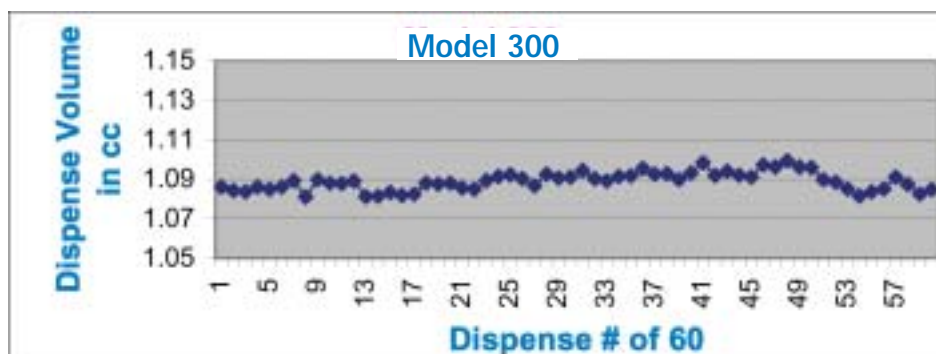


RFM

Specifications

Reliability:	MTBF > 1,000,000 dispenses
Repeatability:	1-10 ml: < .01 1 sigma > 10 ml: +/- .1%
Dispense Volume:	M300 0.05 - 100cc M310 0.05 - 500cc 1 liter M310 0.05 - 1000cc (programmed in 0.01 sec increments)
Dispense Rate:	1 cp = 25 cc/sec, 300 cp = 1 cc/sec* (programmed in .1 psi increments 0-25)
Differential Pressure:	0-35 psi
Viscosity Range:	1-300 cp
Filter Size:	.05, .1u or .2u 2" / 4"
Controller	
(a) Size:	9"L x 10"W x 5"H
(b) Power:	110V, 1 amp minimum
Dispense Unit	
(a) Size:	M300 5.5"W x 9.5"L x 12.5"H M310 5.5"W x 9.5"L x 14.5"H
(b) N ² :	Regulated 70 psi @ .75 cfm

*Will vary depending on line size and type of filter used.



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- ChemLink® Chemical Management and Bulk Delivery Systems
- IDI: Pressure on Demand Dispense
- Cybor™: Positive Displacement: Resist, Polyimide
- ADS: Acid Delivery Systems