



D3000

*The reliable,
quick-to-install
dispenser!*

Beta



Automatic Feed Rate Control:

An embedded control algorithm that “learns” how to adjust the feed ON/OFF cycle in order to minimize overshoot and improve the “low detergent” alarm function.

Pat#5,500,050

Beta



The Problem

- Overshoot of the concentration setpoint caused overuse of detergent. Especially evident when using powders.
- Existing control systems are difficult to adjust for proper ON/OFF feed ratios .
- Temporary clogging and slow “first of the day” feeds caused frequent false “low detergent” alarms.
- Encapsulated products were often removed from service before they were fully depleted.
- Once a “correct” ON/OFF ratio was set, a change in conditions would often greatly reduce its effectiveness.



The Solution

- Investigate the dynamics related to mixing and feeding of all detergent systems including liquids, powders, tablets, paste, slurry and cast in place detergent systems.
- Develop a new control scheme that will automatically adjust the critical ON/OFF feed times, based on measured conductivity changes between previous feed cycles.
- Use non-volatile memory to store the data so that the control scheme will work without a constant power source.
- Develop a complementary scheme to calculate the low detergent alarm to allow for clearing clogs and “first of the day” slow feeds.



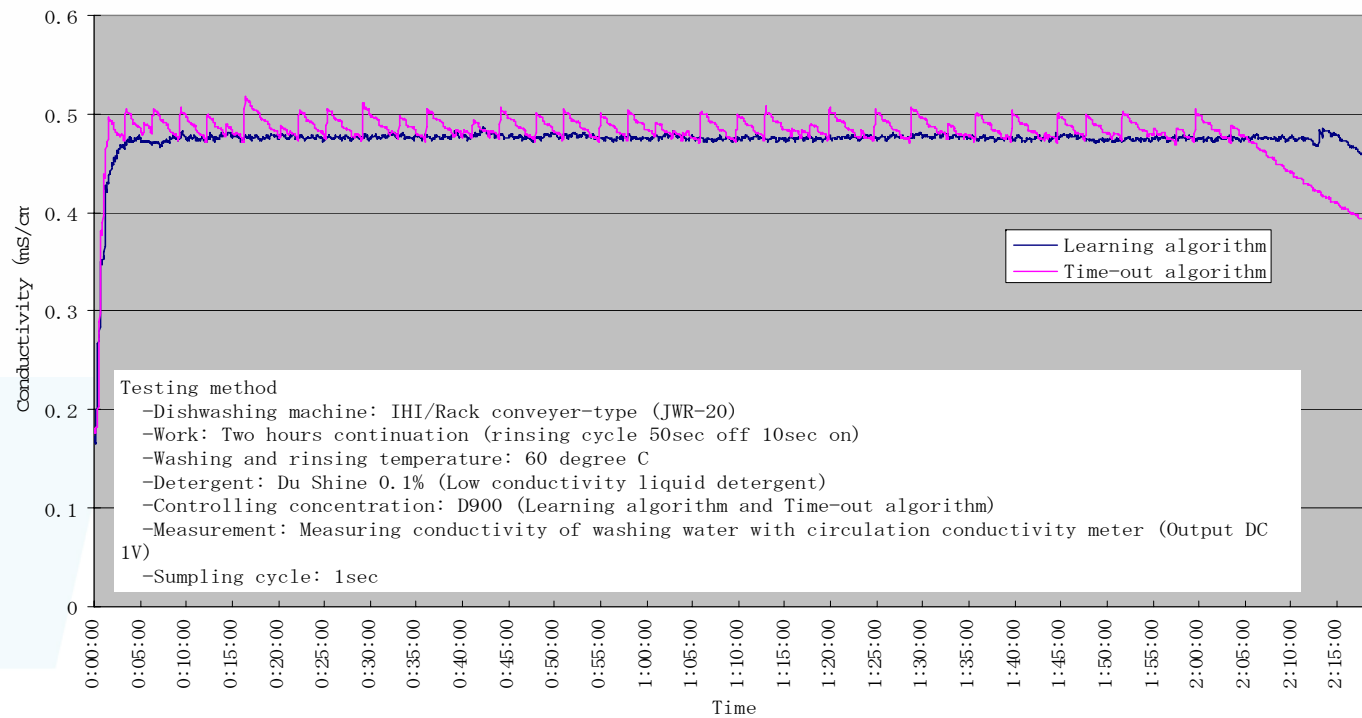
The Benefits

- Eliminate installation time related to setting the “ratio feed” and low detergent.
- Reduce the amount of chemical “overshoot”. This benefit is greater for granular and tablet type products with typical liquid products as well.
- Reduce false low detergent alarms due to clogging.
- Reliable low detergent alarms when feeding to door machines.
- Encapsulated products are typically able to be fully emptied before the low detergent alarm sounds.

Beta



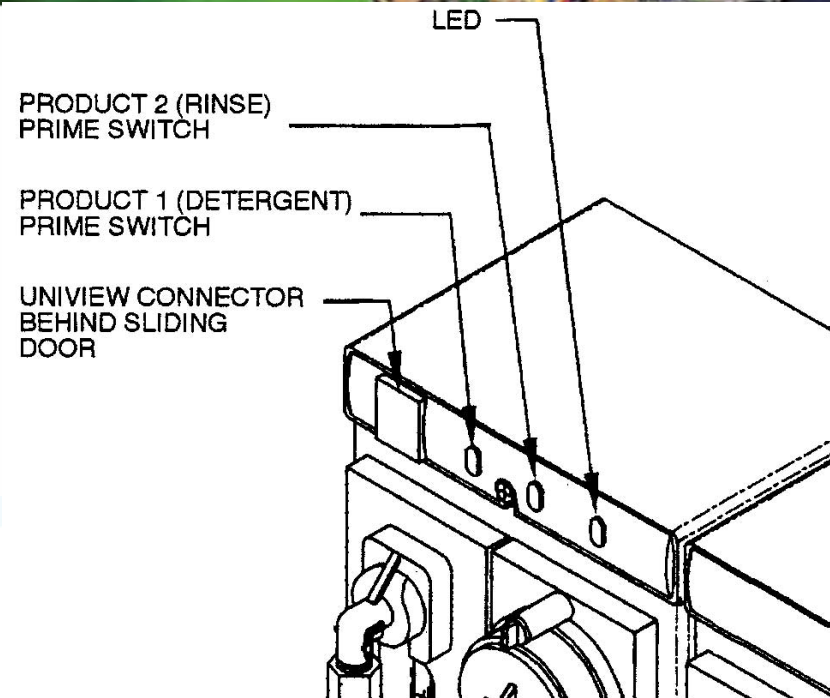
Du Shine (0.1%) Control Property





Introducing D3000

- D3000 was created to provide more modularity and capitalize on economies of scale, combining the features and look of several of our designs into one standard unit
- D000 features:
 - External power supply
 - Beta's famous rinse tube
 - Removable programmer
 - Rack count
 - Spares compatibility
 - Modularity
 - Adaptable to both distributor and fully-trained sales channels
 - Learning algorithm
 - Virtual Clean Probe



Pressing both prime buttons primes the third product

Beta



No more conduit!

		Conduit cost
Conduit installation time	10 minutes, at cost of time of about \$90/hour	\$15.00
Conduit installation materials		\$12.00
Carrying cost of conduit	10% of raw material cost	\$1.20
Subtotal		\$28.20
Number of accounts	2000	
Conduit cost for all accounts		\$56,400

Electrical codes usually require high voltage to be isolated in conduit. Conduit installation costs in time and money are estimated on the left. With a typical large regional having roughly 2000 accounts, this equates to almost \$60,000!

- D3000 uses external power supplies in their own enclosures are installed in the washer
- Keeping all the high voltage in the washer and just routing 24V signals out to the dispenser; no more conduit is required!
- Another problem with conduit is that some installers don't actually install it, leaving their company exposed to inspector complaints and lawsuits if any safety hazards arise
- D3000 eliminates the conduit, the cost of conduit, and the risk of litigation from routing high voltage in the kitchen

Beta



Beta Rinse Tube: Virtually Lasts Forever!

- Some companies change rinse tubes about every 3 months
- Beta's rinse tube lasts 2 years or more in most accounts, reducing the operating cost by \$32.26 per account
- Savings per account x approximate # of accounts = \$64,000 in savings over a two year period!!!

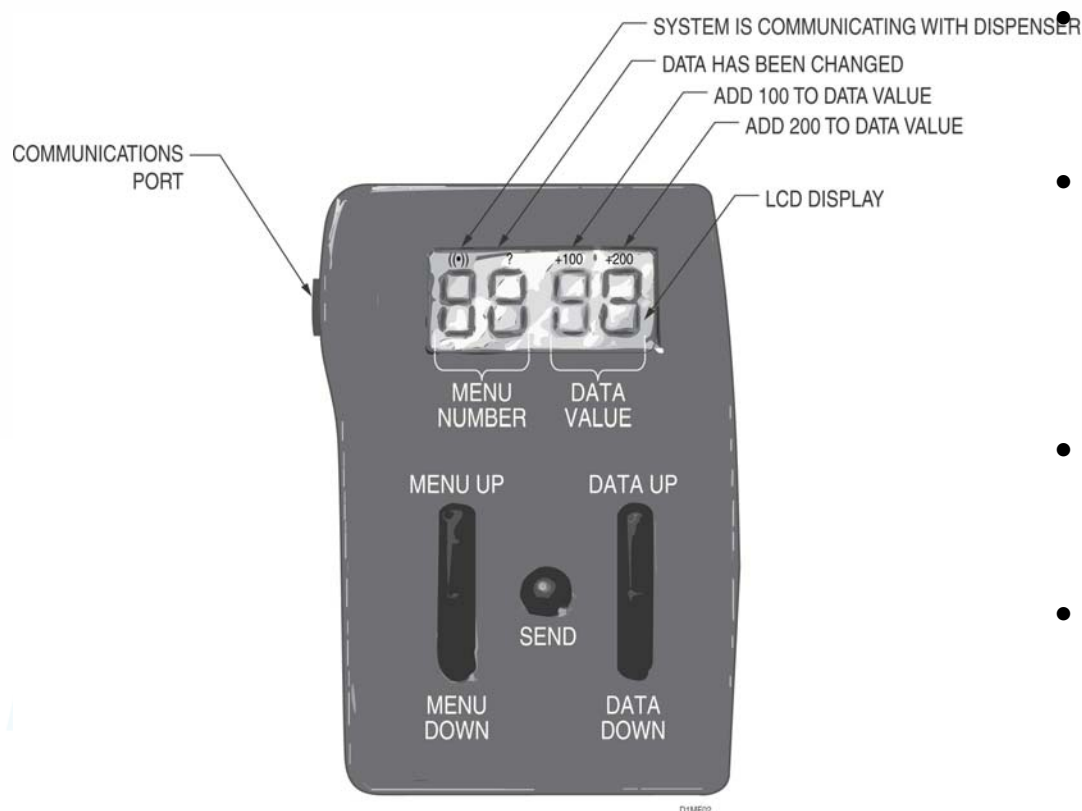
	Beta	Competitor
Tubes replacement interval	Every 2 years	Every 3 months
Rinse tubes used over 2 years	1	8
Cost per tube	\$7.98	\$5.00
2 year tube cost	\$7.98	\$40.00
# warewash dispensers in field	2000	2000
Operating cost	\$15,960	\$80,000
Savings with Beta	\$64,040	

Data based on lab tests and customer reports. Life on flight kitchen machines running 20 hours per day will be shorter, but we still expect it will compare extremely favorably to the competition as outlined above. Data presumes tube installed in Beta dispenser injecting into typical 35 PSI or lower. These statements are provided based on information available, are subject to change without notice, and do not constitute a guarantee of performance.





Secure programming



A removable programmer can be used, so competitors can't tamper with your setup information

- Using a removable programmer helps minimize dispenser cost, so you only pay for the parts that stay on the wall, dispensing your chemical and making you money!
- Field installers report the removable programmer reduces programming time!
- Programming buttons on the dispenser are sometimes damaged by end user abuse---this headache is avoided with a removable programmer

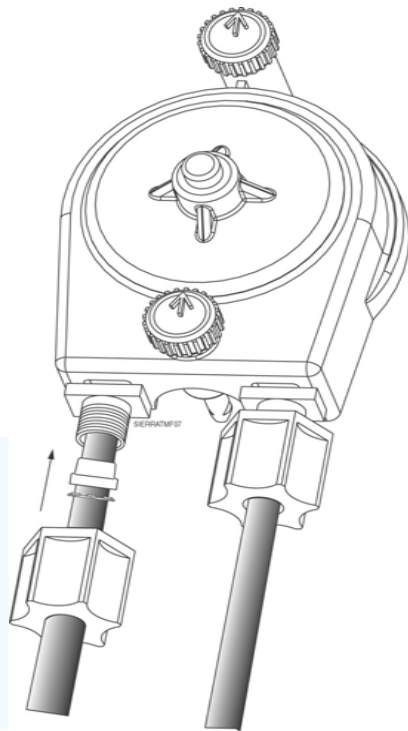
By providing a dispenser with power, the Uniview programmer can be used to program units prior to installation. Please note the Uniview programmer does not hold a copy of setups, so cloning ala Summit E is not possible.





- Rack count up to 2,400,000 allows for activity-based billing
- Menu 17 shows the first three digits, displaying a “100” or “200” on the top right for any value in the millions
- Menu 18 shows the last two digits
- Menu 19 shows the last two digits
- For example, the example on the right shows a rack count of 1,251,672.

Beta



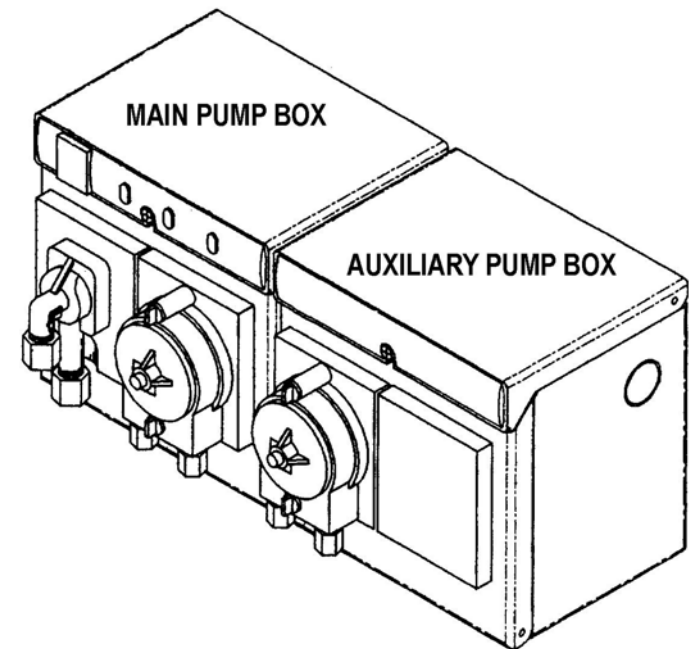
- Programming menus are similar to NS1000E
- Improved pulse speed control for lower costs and greater consistency
- Spares are compatible with most previous Beta warewashing systems, using:
 - The same reliable 100 series pumps
 - The same solenoids
 - The same pump tubing
- Also, the D3000 PCB can be used in older NS500 and NS1000E enclosures

Beta



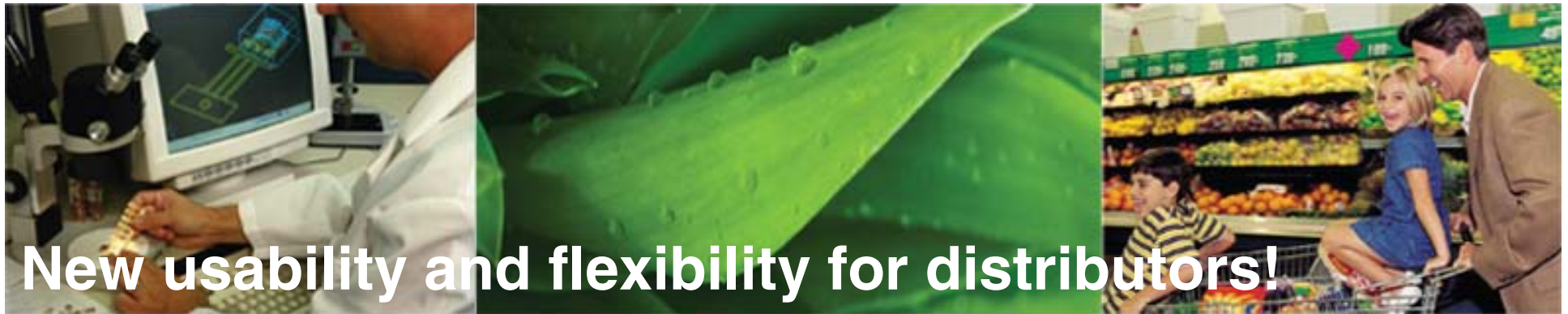
Simple Modularity

- Many customers want to stock one dispenser, rather than several configurations
- With D3000, you can snap out a pump and replace it with a solenoid, or visa versa in seconds
- Handles 24VAC direct power, or 115/230 VAC via an external power supply
- With D3000, you can add an aux box with a third sanitizer pump in seconds; no pump ID switches are required



Whether installing with a programmer or potentiometer dials, any D3000 offers both time mode and probe mode

Beta



- Some distributors in the past complained that Beta didn't have a simple dispenser with both probe and probeless controls
- They complained digital programming with buttons programming was too complicated for the distributor
- The D3000 has a switch on the PCB, allowing them to select either probe or probeless operation, and set up with a few potentiometers
- This allows for easy launch with distributors since there's less training required and the field staff won't be put off by complicated programming

Beta



- Many of our customers sell both through distributors, as well as through their more fully-trained salesforce
- For distributors, they prefer a simple unit with basic potentiometer (dials) set-up, such as our NS500, or Tahoe shown on the top right
- For their more fully-trained salesforce, they prefer a full-featured unit with more settings and flexibility, such as our NS1000E or Sierra shown on the right
- Our new D3000 allows for fully programmable features with the detachable Uniview programmer, OR simple setup using just potentiometers, so you get the best of both worlds, all in one dispenser



+



=



Beta



Patented Learning Algorithm Logic

- The D3000 pumps detergent whenever the probe's conductivity reading indicates wash tank concentration is below setpoint. It feeds up to five times before issuing an alarm.
- These dispensers have a patented learning algorithm which determines the length of the feeds. How does the learning algorithm work?
 - It measures how many Beta Units below setpoint the conductivity is
 - It pumps about one second per Beta Unit below setpoint on the first feed.
 - The second feed duration is calculated by the dispenser, based on the rise in Beta Units per second of pump run time in the first feed.
 - The learning algorithm averages the results of the last five feeds to determine the best feed rate to get to setpoint without overshoot averaging
- This learning algorithm provides superior results in terms of maintaining setpoint and preventing overfeeding. It also saves the installer time, because he or she just programs a single setpoint variable instead of four variables: reduced feed rate, low detergent delay, overfeed delay, and setpoint.

Beta



Patented Learning Algorithm = Sales Tool

- A timed mode dispenser will dose the same amount of chemical whether there's a light or heavy soil load. This limits effectiveness and causes waste.
- Competitors' probe mode dispensers have fixed feed rates, which are not capable of adjusting themselves to washing conditions which change moment-by-moment with changes in water pressure and soil load
- The learning algorithm feeds more with heavy soil or increased water pressure, ensuring consistent results!
- The learning algorithm feeds less with light soil or less water pressure, preventing detergent wastage.
 - *Heavy soil load dishes still get clean*
 - *Detergent is wasted on light soil load racks*
 - *Compensates for different water flowrates, from fluctuating kitchen water pressure*
 - ***This second point is frequently mentioned to customers, but what shocks their customers and impacts their business most is the first point!***

Beta



Beta VCP: Ensures pumps keep pumping!

	Beta	Competitor
Average dispenser downtime, mostly due to dirty probe	0.5 day per year	4 days per year
Average chemical sales per account per year	3000	3000
Lost revenue per account per year from dirty probes	\$ 4.11	\$ 32.88
# warewash dispensers in field	2000	2000
Lost chemical sales	8219.18	65753.42
Approximate chemical margin	60%	60%
Lost profit from chemical that wasn't pumped	\$ 4,931.51	\$ 39,452.05
Beta increase in chemical revenue	\$ 34,520.55	

- Whenever a chemical pump is out of action for servicing, the chemical isn't being used, representing lost chemical revenue
- Beta's patented Virtual Clean Probe, VCP, keeps you pumping, so you don't lose chemical sales
- Competitor dispensers fail due to probe scale, resulting in downtime and lost revenue
- Beta's VCP increases chemical revenue approximately \$35,000!
- **With the reduction in conduit expense, reduction in rinse tube servicing, and additional revenue from VCP, the D3000 increases profitability over \$150,000!**

Data based on lab tests and customer reports. Life on flight kitchen machines running 20 hours per day will be shorter, but we still expect it will compare extremely favorably to the competition as outlined above. Data presumes tube installed in Beta dispenser injecting into typical 35 PSI or lower. These statements are provided based on information available, are subject to change without notice, and do not constitute a guarantee of performance.





D3000 Benefits Summary

Feature	Benefit
External power supply	Reduced installation time and cost
Beta rinse tube	Less tube servicing and cost
Secure programming	No competitor tampering
Rack count	Activity based billing
Common spares	No cost to transition to the new dispenser
Modular	Reduces carrying costs
Perfect for distributors	Reduces carrying costs
Learning algorithm	Cleaner dishes with less detergent waste
VCP	Reduces operational costs, increases customer satisfaction, increases profitability in activity based billing accounts



D3000

*The reliable,
quick-to-install
dispenser!*

Beta