

Ultra Micro-Pro UMP-100L



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EQUIPMENT RATINGS

This includes equipment supply, description of I/O connections, duty cycle and operating environmental conditions.

- Pollution degree 2;
- Installation category 2;
- Altitude 2000 m;
- Humidity 50% to 80%
- Electrical supply 120, 208, or 240 Vac, 50/60 Hz;
- Indoor use statement;
- Temperature 5°C to 40°C;
- Statement advising that mains supply voltage fluctuations are not to exceed 10 percent of the nominal supply voltage.



CAUTION: Wear protective clothing and eyewear when dispensing chemicals or other materials. Observe safety handling instructions (MSDS) of chemical mfrs.



CAUTION: To avoid severe or fatal shock, always disconnect main power when servicing the unit.



CAUTION: When installing any equipment, ensure that all national and local safety, electrical, and plumbing codes are met.

KNIGHT

EC – DECLARATION OF CONFORMITY

Equipment Description: Chemical Dispenser Equipment

Type/Model Number: UMP Classic

The signing legal authorities state that the above mentioned equipment meets the requirements for emission, immunity and safety according to.

Application of Council Directives:

**Electromagnetic compatibility
(EMC) Directive 2004/108/EC (and former Directive 89/336/EEC as amended by 92/31/EEC and 93/68/EEC)**

Standards to Which Conformity Is Declared: **EN 61326-1: 2006** Electrical Equipment Measurement, Control & Laboratory Use (Normal Environment)

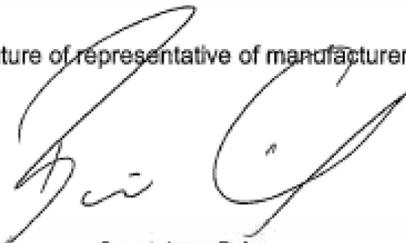
For Information: The "Electromagnetic Test" took place at the DNB Engineering, Riverside, CA, U.S.A

**Electrical Safety
Low Voltage Directive (LVD) 2006/95/EC (and former Directive 73/23/EEC)**

Standards to Which Conformity Is Declared: **EN 61010-1 (2nd Edition) - Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements**

For Information: The "Electrical Safety Test" took place at the CSA International, Irvine, CA, U.S.A

Signature of representative of manufacturer:



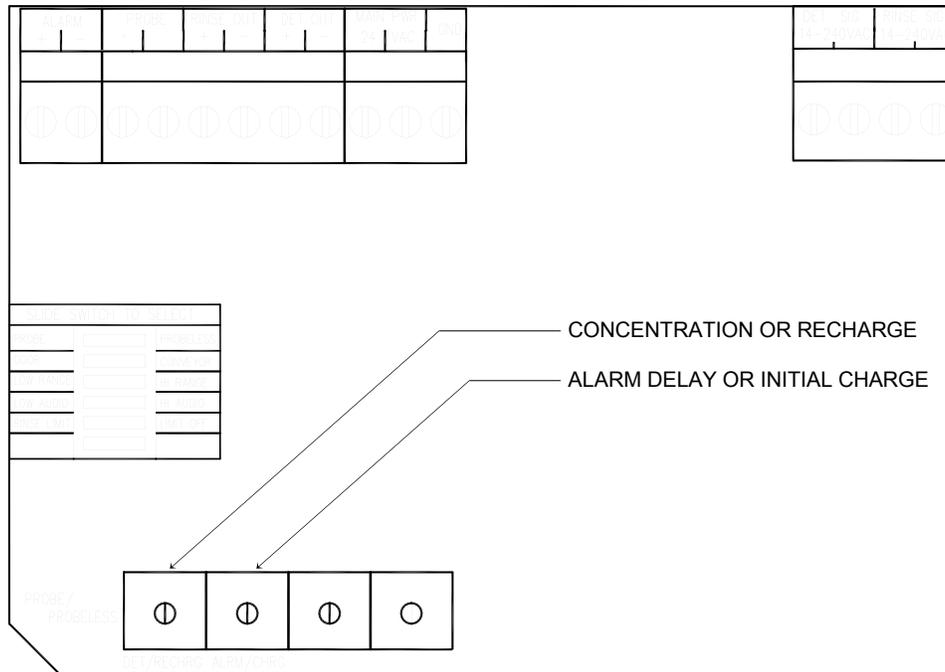
Name: Comiskey, Brian

Position: Vice President, Engineering

Date: August 28, 2008

INTRODUCTION

Ultra Micro-Pro UMP-100 warewash system provides the versatility of probe or probeless detergent control through advanced microprocessor design while retaining overall operational simplicity.



SLIDE SWITCH SETTINGS

- Probe/Probeless Switch: Allows you to select operation with or without a probe
- Door/Conveyor Switch: Sets alarm delay range for probe mode. Sets initial charge timing range for probeless mode.
- Low/High Range Switch: Used if operating in probe mode. Selects concentration ranges.
- Low/High Audio Switch: Sets the alarm volume.

POTENTIOMETER SETTINGS

- Concentration or Recharge Pot: In “probe mode” sets detergent concentration strength. In “probeless mode” sets the pump time necessary to recharge the detergent concentration.
- Alarm Delay or Initial Charge Pot: In “probe mode” sets the time before the alarm sounds if the probe senses low detergent concentration. In “probeless mode” sets the pump time necessary to initially charge the detergent concentration.

INSTALLATION

Mount the unit (using suitable hardware) with the provided bracket in the accessory kit. Try to keep the unit within three feet from the final rinse line to avoid long tubing runs.

CAUTION: Do not mount the unit in the direct path of steam. This can short circuit and permanently damage the unit. Mounting the unit on the side, on the back, or on the vents of the dishwasher may cause thermal overload and damage or hinder the performance of the unit.

Check all applicable plumbing and electrical codes before proceeding with the installation. This will help to ensure that the system is installed in safe and suitable manner. A wiring schematic of the dishwasher should be used as reference for making electrical connections — this is typically provided by the dishwasher manufacturer if one cannot be located on the machine itself.

PLUMBING

LIQUID DETERGENT PLUMBING

- (1) Install the provided bulkhead fitting through a wall of the wash tank (above water level). If an existing mounting hole cannot be located, use of a 7/8" hole saw or punch may be desired.
- (2) Cut a suitable length of 1/4" OD poly tubing and connect between the discharge (right) side of the detergent pump's squeeze tube and the bulkhead fitting.
- (3) Cut a suitable length of 1/4" OD poly tubing and connect between the suction (left) side of the detergent pump's squeeze tube and the pickup tube provided. Be sure to draw tubing through the end of the pickup tube.
- (4) Hand-tighten the compression nuts on both the bulkhead fitting and pickup tube. Plastic ties can be used to cinch around the connections where the poly tubing is inserted into the pump's squeeze tube.

PROBE INSTALLATION (if required)

- (1) Install the probe in the wash tank below the water level. It should be away from incoming water supplies, near the recirculating pump intake, and 3 to 4 inches from corners, heating elements, or the bottom of the tank. If an existing mounting hole cannot be located, use of a 7/8" hole saw or punch may be desired.
- (2) Connect leads from the terminals on the probe to the "probe" terminals on the circuit board.
- (3) For best results, use 18 AWG multi-stranded copper wire for the probe connection. Avoid running the wire near high voltage AC lines.

ELECTRICAL



Turn off all power before wiring the control. Check with a voltmeter to ensure power is off.

MAIN POWER CONNECTION

One step-down transformer is provided with the UMP control. Connect the high voltage side, through a switch or circuit breaker in close proximity to the equipment and marked UMP, to any 115/208/230 VAC power source that is "on" when the dishmachine is "on" (i.e. mains switch on dishmachine).

NOTE: The UMP will only operate detergent or rinse when electrically signaled.

To wire main power connection:

- (1) Check the voltage of the main power source and make sure that it matches one of the three available input voltages (115/208/230 VAC) of the transformer inside the Ultra Micro-Pro.
- (2) Remove all power from the dishwasher.
- (3) Connect leads from the main power source to the appropriate terminals on the wiring barrier (live wire needs to be hooked up to the WHT HOT terminal and the neutral to the BLK 115 VAC terminal for a 120V set up).
- (4) Connect a ground wire from an appropriate ground connection at the main power source to the earth ground terminal on the metal wiring barrier bracket. Use a ring terminal on the ground wire and ensure that both ground wire terminals are securely fastened on the bracket grounding post.

* CAUTION: The UMP unit has high voltage connected to the transformer. Always disconnect main power when servicing the unit.

REMOTE ALARM

A remote 3 - 28 VDC alarm may be wired to the "alarm" terminals on the circuit board. See wiring diagram on page 10.

DETERGENT POWER SIGNAL

A detergent power signal is required to activate the detergent probe sensing or probeless initial charge. Detergent power can be jumpered from main power.

- (1) Check the dishwasher for a power source that is active during the washcycle only (example: the magnetic contactor that controls the washpump motor) and verify voltage. The Ultra Micro-Pro circuit board will accept a detergent power signal of 14 - 240 VAC.
- (2) Remove all power from the dishwasher.
- (3) Connect leads from the detergent signal power source to the detergent signal terminals on the circuit board.

RINSE POWER SIGNAL

The rinse power signal triggers the detergent "recharge" injection if probeless mode is selected

- (1) Check the dishwasher for a power source that is active during the rinse cycle only (example: the rinse solenoid or rinse cycle light) and verify voltage. The Ultra Micro-Pro circuit board will accept a signal of 14 - 240 VAC. If a direct signal can't be located on the dishwasher, a pressure switch can be used to provide a signal (see next section below).
- (2) Remove all power from the dishwasher.
- (3) Connect leads from the rinse signal source to the rinse signal terminals on the circuit board.

PROBE OPERATION

- With the detergent power “on”, the conductivity probe senses detergent concentration. When concentration drops below the setpoint, the control automatically turns on detergent feed.
- Low and high concentration ranges allow easy setting on all types of water conditions.
- When the detergent concentration is within 15% of the setpoint, the control automatically pulse feeds (3 seconds on / 2 seconds off) to prevent over-use of chemical.
- An “out of product” alarm will automatically sound if the detergent setpoint is not reached in a specific time period.

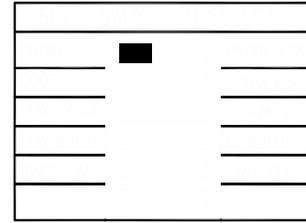
CONCENTRATION SETPOINT ADJUSTMENT

- (1) With low range selected, slowly adjust the detergent concentration pot clockwise a few degrees. Detergent will pulse feed, then stop.
- (2) Using a chemical titration kit, test detergent concentration of the wash water. Continue to increase the pot until the desired setpoint.
- (3) If at full clockwise position of concentration pot and wash water concentration is not strong enough, turn pot back full counter-clockwise. Switch to high range.
- (4) Slowly adjust pot clockwise until detergent feed begins, then stops. Using chemical titration kit, continue adjusting pot until desired concentration setpoint is reached.

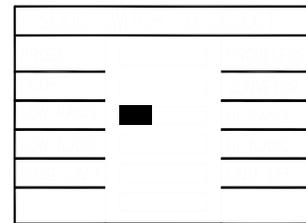
ALARM DELAY SETTING

If the detergent setpoint is not achieved within the time set on the alarm delay pot, the alarm will sound and the unit will continue to feed. If the detergent setpoint is still not reached within a second time frame (double the first) the alarm will stay on, and detergent feed will stop.

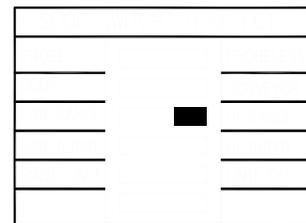
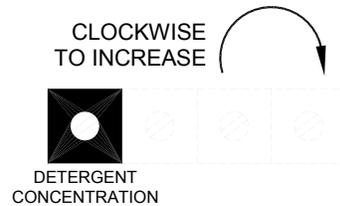
- (1) Delay time settings are:
 Door 1 to 64 seconds
 Conveyor 1 to 128 seconds
- (2) For conveyor type dishwashers, adjust the alarm delay to be slightly longer than the time it takes for the unit to achieve the setpoint with a fresh tank of water. For door type dishwashers, the alarm setting should be calibrated to 5 - 10 seconds less than the washcycle timing.
- (3) Select low or high volume for the alarm.



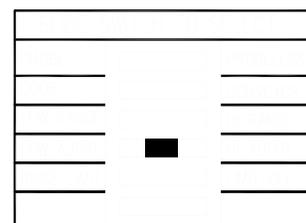
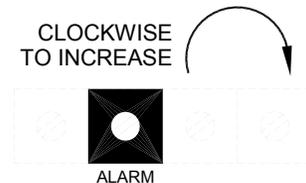
SLIDE LEFT TO ACTIVATE



SLIDE LEFT TO ACTIVATE



SLIDE RIGHT TO ACTIVATE



SLIDE LEFT OR RIGHT TO ACTIVATE

PROBELESS OPERATION

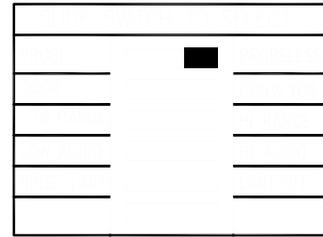
- Controls detergent concentration without a probe, based on timed detergent feed.
- Initial charge time feeds detergent to the concentration setpoint when dishmachines are initially filled.
- Recharge time feeds detergent to maintain detergent setpoint as rinse water dilutes the dishmachine.
- Door or conveyor switch selection optimizes probeless operation for different types of dishwashers.

INITIAL CHARGE DETERGENT SETTINGS

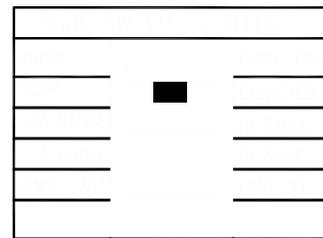
- (1) Select door or conveyor setting.
- (2) For dishmachines that fill through the rinse valve, a detergent signal is not necessary for initial charge if the control is set to door. The control senses by the rinse signal when the rinse has been on over 30 seconds and runs the detergent for the initial charge amount.
- (3) For all other types of machines, the initial charge amount will be dispensed each time a detergent signal is applied.
- (4) Adjust the charge potentiometer clockwise for the amount needed to initially charge the washtank with detergent. The ranges are:
 Door 1 to 64 seconds
 Conveyor 1 to 128 seconds

RECHARGE DETERGENT SETTINGS

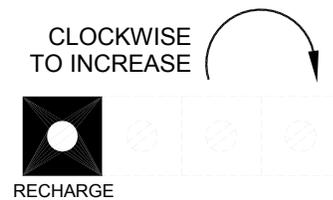
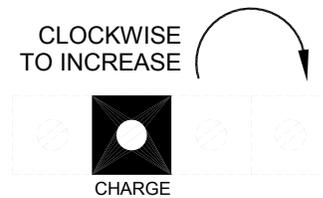
- (1) Adjust the recharge potentiometer to the amount of detergent needed for one rack. The range is 0 – 10 seconds.
- (2) With door selected, the recharge detergent amount will be dispensed one time when a rinse signal is received.
- (3) With conveyor selected, the recharge detergent amount will be dispensed after a 12 second continuous rinse signal. It will continue to dispense every 12 seconds if the rinse signal remains on (i.e. two racks in a conveyor train, two detergent recharges).



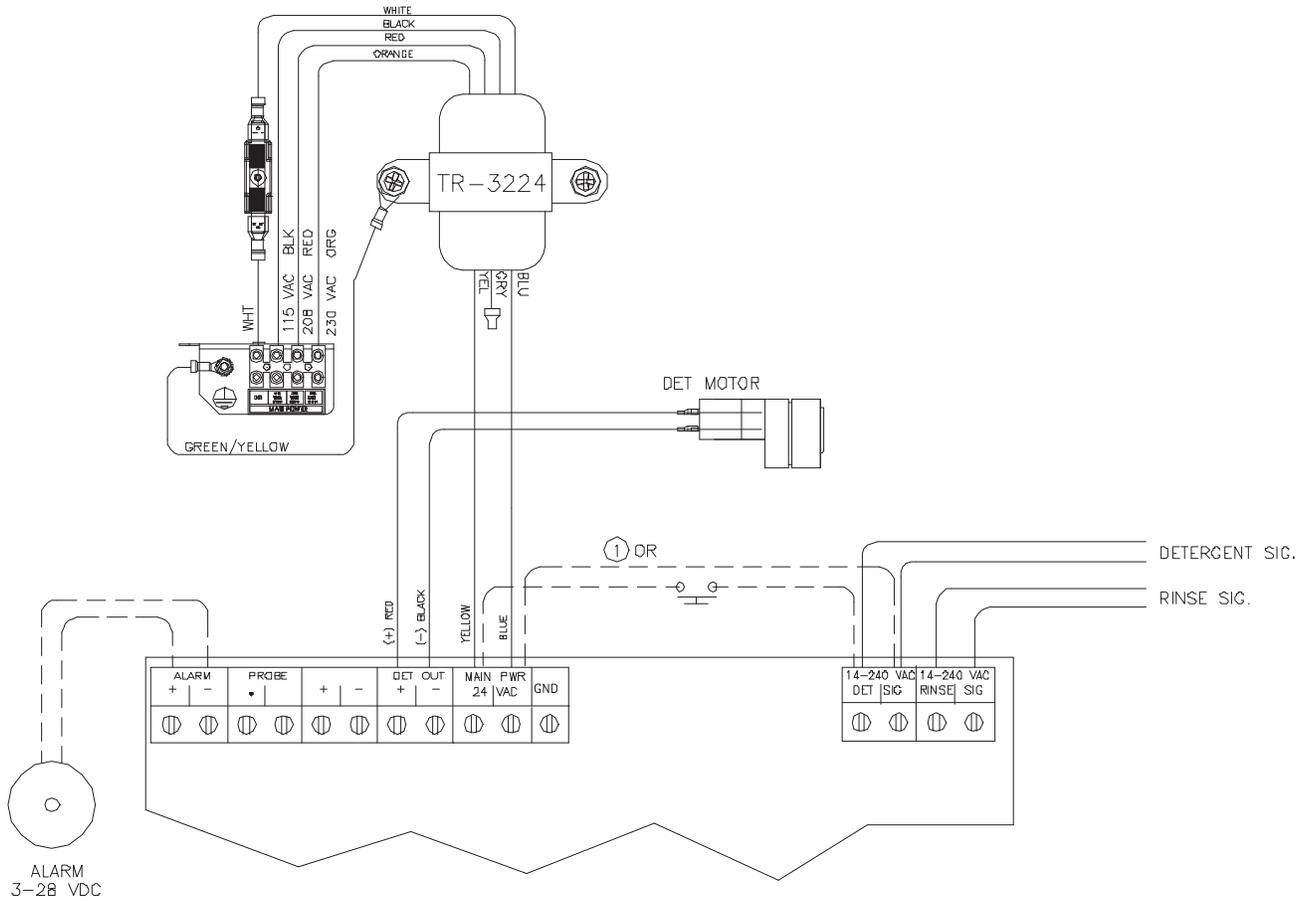
SLIDE RIGHT TO ACTIVATE



SLIDE LEFT OR RIGHT TO ACTIVATE



SYSTEM WIRING DIAGRAM



① FOR WASHING MACHINE W/O DETERGENT SIGNAL DEVICE
 USE POWER WIRES OPTION AS SIGNAL SOURCE
 SIGNAL CAN BE APPLIED THROUGH OPTIONAL SWITCH FOR MANUAL CHARGE

NOTES:

DISCLAIMER

Knight LLC does not accept responsibility for the mishandling, misuse, or non-performance of the described items when used for purposes other than those specified in the instructions. For hazardous materials information consult label, MSDS, or Knight LLC. Knight products are not for use in potentially explosive environments. Any use of our equipment in such an environment is at the risk of the user, Knight does not accept any liability in such circumstances.

WARRANTY

For complete product terms and conditions scan the QR code below or enter the following URL into your browser:
<http://cfstech.info/t-and-c>



SCAN



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