

Solid Converter Instruction Manual

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INTRODUCTION

The Knight Solid Converter is a solid-to-liquid laundry chemical converter designed to feed one to four Knight laundry dispensers, such as the On Premise Series (for best results, use 25 oz/min pumps). The system produces a use-strength solution with enough concentration to replace standard liquid laundry chemistry.

OPERATION

The system works by using a concentrated spray of water to erode solid laundry chemical into a liquid form. The liquid is held in a vessel where the volume level is maintained by a float switch (which operates much like a level control in a toilet tank). As the level in the vessel drops, the float sinks and switches on a water solenoid valve to convert more solid to liquid when its needed.

The Knight peristaltic pump uses the vessel as its source of liquid chemical. Converted solid material is pumped in the same manner as a common liquid laundry chemical with the same accuracy and efficiency.

The system design and feed rate of Knight's laundry dispensers allow for a maximum of 4 washers serviced by a single Solid Converter (see diagram on page 7).

DISPENSER COMPATIBILITY

Knight will not guarantee the performance of this system with competitive liquid laundry dispensing systems. The performance of other liquid systems with converted solid laundry chemistry is not known and will not be covered under our warranty program or Technical Support services.

INSTALLATION

❑ Wall-mounting the system:

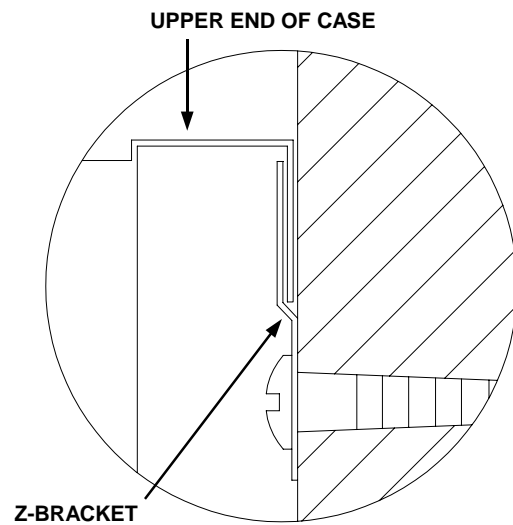
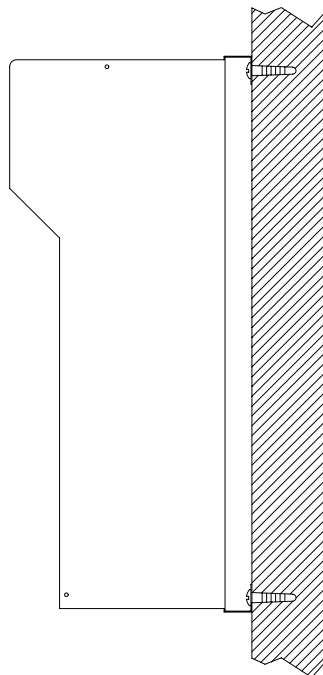
Locating the Solid Converter in a convenient location for operators is crucial. The system can not service the needs of the end-user if products can not be loaded, observed, and unloaded easily.

Locate the system in an area where operators can view product levels without obstruction. Use appropriate mounting hardware to support the system's weight and potential abuse by the user. Whenever possible, mount the system on studs or on concrete with lead anchors, not plastic.

For ease of installation, the Solid Converter can be mounted using a Z-bracket. When mounting multiple Solid Converters adjacent to each other, ensure that there is enough space between the brackets when laying out their location.

After the bracket location has been laid out, secure the bracket to the wall using the same weight and hardware considerations mentioned above. Hang the Solid Converter on the bracket and use the lower mounting holes of the case to secure the position.

TYPICAL MOUNTING EXAMPLE



❑ *Power:*

The Solid Converter requires a wall-mount 115 - 24 VAC transformer (Knight P/N 2000500). This transformer can power up to three units. When ordering parts, be sure to get one transformer for every three Solid Converter units.

Install the transformer, below or alongside the system. Connect the 24 VAC two lead secondary output from the transformer to the power barrier strip on the back wall of the Solid Converter.

Do not plug in the transformer yet!

The diagram below shows how to connect the transformer for three units. Take caution when routing the wires through the cases, so that the wires do not get pinched or strained.

❑ *Plumbing the system:*

CAUTION: Do not use water temperature in excess of 110° F.

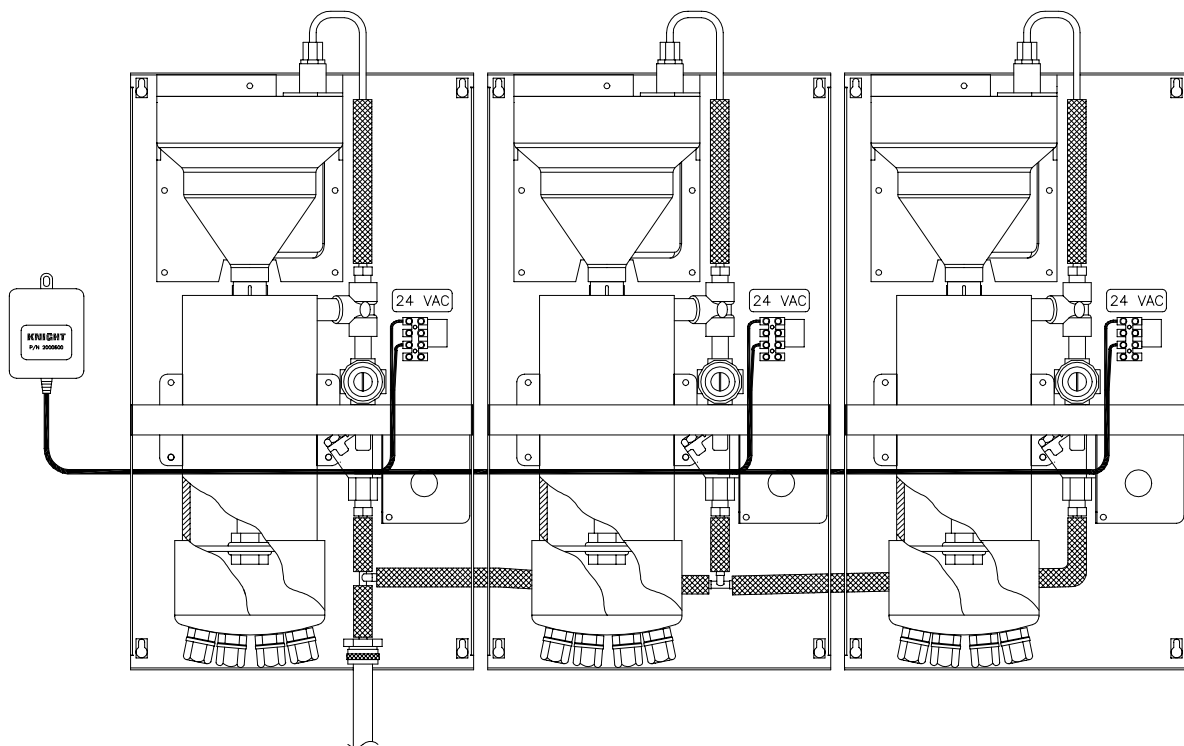
The manufacturer of your solid chemistry should provide you with recommended water temperature for converting their solid products to liquid in the most efficient manner.

Generally, water temperature for converting most solid products is 80° to 110° F. Temperatures in excess of 110° F can pose a safety hazard to the end-user. Industrial mixing valves or “Y” valves can be employed to produce the water temperature that works best with your solids. If inadequate water pressure and dissolvability of your solids is not sufficient, contact your chemical supplier.

The diagram below shows how to connect the plumbing for three units by using tee fittings and braided hose. The main water inlet should be connected to a standard appliance type hose.

❑ *Backflow Prevention:*

The installer takes responsibility for selecting the backflow prevention method that meets local plumbing authority standards and codes. A Reduced Pressure Zone backflow preventer, or “RPZ”, is the most widely recognized backflow prevention device used for chemical systems that operate with continuous water pressure. For a distributor near you, contact Watts Regulator Company at P.O. Box 60601, Charlotte, NC 28260. Phone: 508-688-1811.



☐ *Water Pressure:*

The Solid Converter is equipped with a pressure regulator for each product to be converted. Differences on solid chemistry produce different solubility rates for all products. Remember, pressure, temperature, and the solid itself determine how much solid can be converted to liquid in a given period of time. Consult your chemical manufacturer for recommended water pressure calibration for each solid. As with liquids, the key is to dispense the chemistry as quickly as possible to the washer to give it time to work on the linen. If the solubility rate of your products is not sufficient to treat the linen properly, contact your chemical manufacturer for assistance. Changes in chemical composition may be required to achieve proper use strength concentrations.

☐ *Calibration:*

CAUTION: Always wear safety glasses & gloves!

The following steps will calibrate the erosion rate of your products with the best accuracy.

- (1) Power up the system.
- (2) Insert new solid product container.
- (3) Pre-hydrate the product by activating the solenoid valves that erode the product. The easiest method is to disconnect one or more chemical suction lines from the bottom of the vessel (connected beneath supply tank, under the bowl) and let product run out into a clean bucket. This step prepares the solid for the normal erosion process.
- (4) Remove the product container and weigh it on a portable scale. Note the pre-conversion weight.
- (5) Next, re-insert the product container and allow the product to erode for 60 seconds.
- (6) Weigh the container again and subtract this weight from the original pre-conversion weight.
- (7) Adjust water pressure and temperature as needed to produce the desired solution strength. A 60 - 90 second conversion/dispense cycle for most solids should be adequate.
- (8) Consult your chemical manufacturer for recommended usage weights per load size and classification.

☐ *Connecting the dispenser:*

Measure the distance from the Solid Converter to each dispenser it will feed. The dispenser should be no more than 20 feet from the Solid Converter and no higher than 8 feet above it.

Use 3/8" poly tubing to connect the suction side of your Knight peristaltic pumps to the plastic compression fittings located on bottom of the Solid Converter vessel. The fittings should be hand tightened only (using a wrench may over tighten the fittings).

The diagram on page 7 shows an example of an installation with multiple Solid Converters feeding multiple dispensers. Refer to your dispenser's instruction manual for details on connecting the dispenser to the washer.

RUNNING THE SYSTEM

Now that the Solid Converter is calibrated and plumbed to your Knight laundry dispenser, it is ready to operate. Check the system out closely for water or chemical leaks prior to finishing the job.

Refer to the dispenser's instruction manual for details on programming chemical volumes and interfacing to the washer.

MAINTENANCE

The Solid Converter should be inspected once a month for leaks, damage, and wear and tear. Keep the solid bowl opening clean and free of foreign debris. Clean the cabinet and plastic safety shields also.

For additional product support, contact Knight Technical Services at the locations listed on the back of this manual.

TROUBLESHOOTING

❑ *Concentration too high or too low:*

Check pressure regulator. Adjust as needed.

Check water temperature. Consult with solid chemical mfr. for recommended temperature.

Check water supply for fluctuations in pressure. This problem may happen if the water line to the Solid Converter is also feeding other equipment.

❑ *Unable to transfer sufficient volume of chemical to dispenser (from converter):*

Check peristaltic pump for proper operation. May need larger pump and/or faster pump motor.

Check feed lines from bottom of vessel to the peristaltic pump. Ensure there are no obstructions, kinks, or damage to the poly tubing

❑ *Unable to transfer sufficient volume of chemical to washer (from dispenser):*

Check peristaltic pump for proper operation. May need larger pump and/or faster pump motor.

Check delivery lines from peristaltic pumps to the washer. Ensure there are no obstructions, kinks, or damage to the poly tubing.

❑ *Vessel overflows:*

Check solenoid valve for proper operation. A mechanical problem such as a ruptured diaphragm, or debris blocking the diaphragm, may be causing the valve to stick open.

Check float switch for proper operation. Float switch contacts may have welded together.

Check bottom end fittings for obstructions.

❑ *Vessel will not fill:*

Check water supply for adequate pressure and to ensure its turned ON. Ensure there are no kinks or obstructions in the water supply hose.

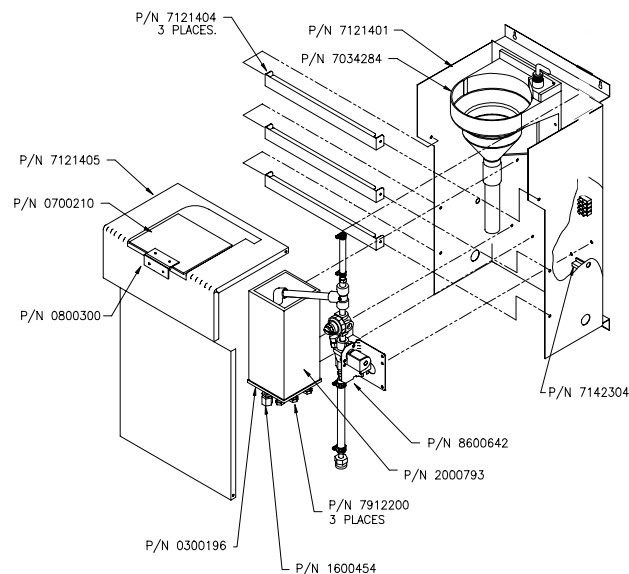
Check pressure regulator. Adjust as needed.

Check solenoid valve for proper operation. May be a blocked diaphragm. May be electrical problem such as a loose wire, or bad transformer.

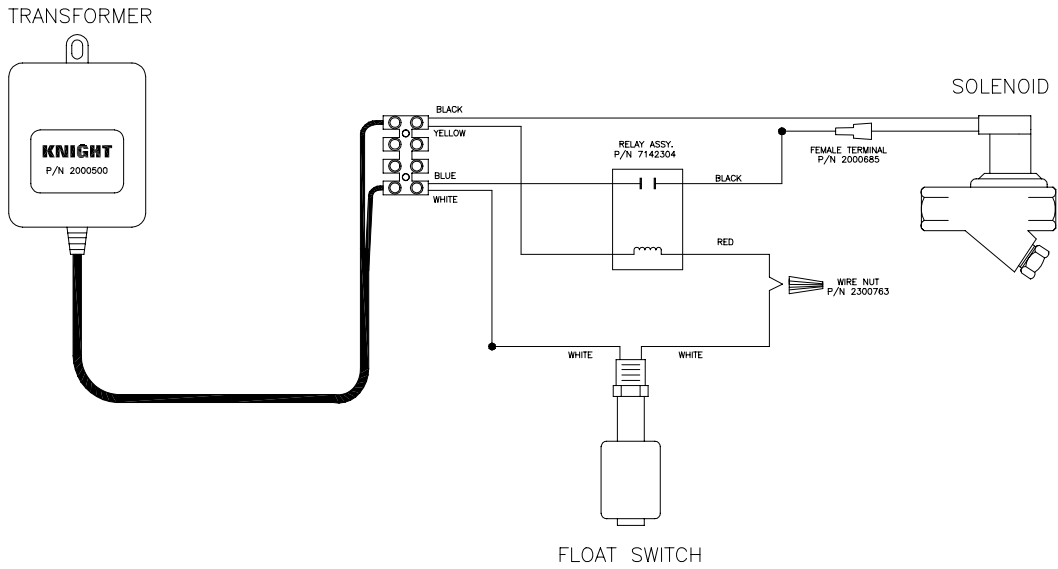
Ensure float switch is not stuck or binding.

Check paddle valve on bowl assembly. This component will shut off the water flow into the bowl if the container is removed, or riding up.

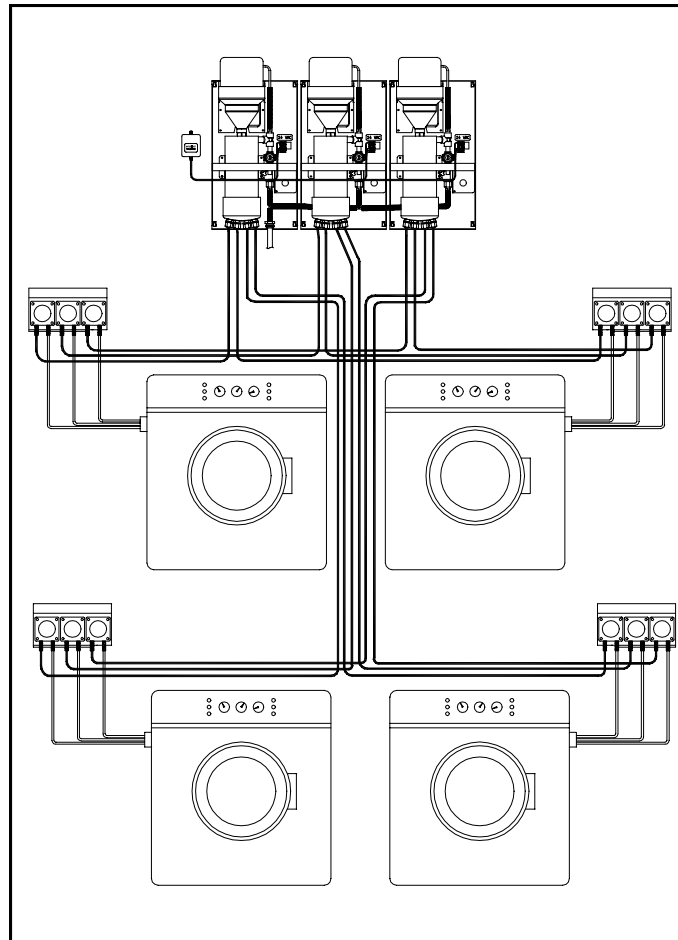
Check spray fitting in the bowl for obstructions.



WIRING DIAGRAM



MULTIPLE INSTALLATION DIAGRAM



DISCLAIMER

Knight Inc. 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 Inc.

WARRANTY

All Knight controls and pump systems are warranted against defects in material and workmanship for a period of ONE year. All electronic control boards have a TWO year warranty. Warranty applies only to the replacement or repair of such parts when returned to factory with a Knight Return Authorization (KRA) number, freight prepaid, and found to be defective upon factory authorized inspection. Bearings and pump seals or rubber and synthetic rubber parts such as "O" rings, diaphragms, squeeze tubing, and gaskets are considered expendable and are not covered under warranty. Warranty does not cover liability resulting from performance of this equipment nor the labor to replace this equipment. Product abuse or misuse voids warranty.

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