



The Automatic Ultrasonic Series

Tabletop Automatic Ultrasonic Washer - 3.5G

MODEL EI002



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Features & Specs



A "Hands-off" Procedure

THE MODEL E1002 IS THE TABLETOP VERSION OF OUR POPULAR AUTOMATIC ULTRASONIC WASHERS. IT FITS EASILY INTO EXISTING SHOPS AND OFFICES, REQUIRING NO SPECIAL INSTALLATION YET OFFERING ALL THE BENEFITS OF OUR LARGER EQUIPMENT.

Automatic Ultrasonic Washers are designed to simplify the cleaning process. The preprogrammed cycles are very similar to that of a dishwasher but our process incorporates high-powered ultrasonic technology. Esma's ultrasonic washers create a hands-off procedure that includes all the steps; ultrasonic cleaning, ultrasonic rinsing and hot air drying. Load it and push a button! It's that simple.

- Virtually eliminates hand scrubbing — risk to personnel is reduced as well as cross contamination that can result from multiple cleanings in the same ultrasonic tank.
- No more rinsing in sink under running water — ultrasonic rinsing eliminates the inefficiencies of tap rinsing where ragout contaminants from the cleaner are never fully flushed away.
- No more open air towel drying — The messy drip trails created from ultrasonic-to sink-to counter are eliminated and the infection control area of the office is streamlined.

Automatic Ultrasonic Washers create savings in many areas; time, space and aesthetics with the most significant savings being in direct labor dollars and all the hidden costs associated in this area. *Payback of capital purchase is measured in months!*



For best results, use ESMA General Purpose Cleaner E589, a low foaming cleaner concentrate specifically formulated for our automatic ultrasonic washers.

**UNIT HEIGHT FROM COUNTERTOP WITH COVER OPEN—29"

MODEL E1002			
CABINET DIMENSIONS:	13"W x 24"L x 18"H **	ULTRASONIC POWER:	300 WATT
TANK DIMENSIONS:	10"W x 12"L x 8"D	UNIT POWER:	1500W 15A 120V
TANK VOLUME:	3.5 GALLON	CYCLE TIME:	30 MINUTES

- ✓ UNPRECEDENTED WARRANTY
- ✓ SINGLE PUSH-BUTTON ACTIVATION
- ✓ LONG-LASTING POTTED TRANSDUCERS

- ✓ OVER 10 YEARS OF SUCCESSFUL IN-FIELD HISTORY
- ✓ PLC CONTROLLED, CUSTOM PROGRAMMING AVAILABLE

- ✓ ALL STAINLESS STEEL CONSTRUCTION
- ✓ SQUARE WAVE ULTRASONIC CIRCUITRY



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Instructions for Model E1002 Ultrasonic Washer



Introduction

The Model E1002 ultrasonic washer is equipped to run timed cycles of clean, rinse and dry.

The unit is housed in a 304 stainless steel cabinet. The tank is manufactured from SS 316 with 6 double potting transducers mounted on the bottom. The tank is fitted with a SS hinged cover, which houses the fans and heaters for air drying. An OMRON PLC is located in the tank cabinet which automatically controls the cleaning process. Indicator lights on the front of the unit monitor the flow of the cleaning process.

The Power Module contain self-tuning modular circuit boards, high velocity fans to cool the electronics, and a RFI filter to eliminate any high frequency interference.

PLEASE READ THESE INSTRUCTIONS THOROUGHLY BEFORE INSTALLATION AND OPERATION. CALL (800) 276-2466 IF YOU HAVE ANY QUESTIONS.

Installation

Place unit on a bench close to a sink or drain. The power module can be placed up to 10 feet away from tank, either on a shelf or in a cabinet.

The power module should not be positioned where it can be splashed with liquids, where it can attract dirt or abrasives, or where the air cooling by the fan can be restricted because of tight enclosures. Clearance of 1" is necessary both at the air intake and exhaust.

Electrical

The unit is rated at 1550W, 120VAC, 50/60HZ. Only the tank module is plugged into your 120VAC supply (diagram). A fuse, 15AMP, 120VAC is located at the rear of the unit.

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Plumbing

1. Water Input

The hot water source is to be connected to the ¼”NPT coupling marked input at the rear of the unit. A backflow regulator (not supplied) may have to be attached at your water source to comply with local regulations.

2. Water Output

The overflow drain line is to be connected to the ¾”NPT couplings at the rear of the unit. The drain pump, located on the rear side of the unit is to be connected to your drain. The manual drain should be connected with ¼”NPT ball valve and closed during operation. This drain is only to be used to manually drain the tank.

Control Function

1. Main Switch: When unit is ready for operation, turn ON the main switch on power module and the indicator lights on the power module and tank module will be ON.
2. Run-Stop Switch: Located at the rear of the tank cabinet must be in the RUN position for the programmable controller to operate. If during the program cycle you want to stop the process, turn switch to STOP position and the program will start over at the beginning of the cycle when START button is pushed. Use the Main switch if you wish to stop the unit and have the program remain where it is when the power is turned back on.
3. Start Button: With main switch ON and RUN-STOP switch set at RUN, push start button and the process will begin.

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Operation

Insert basket into tank. Add the proper amount of cleaning solution to the tank and push START button and water will enter tank. The program will continue through the various steps including the final alarm. See Table 1 for the steps in this program. Indicator lights on the front of the unit show the progress of the cleaning program.

Table 1

Step	Holding Relay	Action	Outputs	Components	Time, Seconds
1	HR 1301	Fill from Source	1000	S1	109
2	HR 1302	Ultrasonics	1001	U/S	600
3	HR 1303	Ultrasonics	1002	U/S	0
4	HR 1304	Ultrasonics	1003	U/S	0
5	HR 1305	Pump to Drain	1002, 1003	Drain Pump, S2	100
6	HR 1306	Fill from Source	1000	S1	109
7	HR 1307	Ultrasonic Rinse	1001	U/S	120
8	HR 1308	Ultrasonics with Cascade to Drain	1000, 1001	S1, U/S	120
9	HR 1309	Ultrasonic Rinse	1001	U/S	120
10	HR 1310	Pump to Drain	1002, 1003	Drain Pump, S2	100
11	HR 1311	Hot Air Dry	1003, 1004, 1005	Fan, Heater, S2	60
12	HR 1312	Dry/Drain	1002, 1003, 1004, 1005	Drain Pump, Fan, Heater, S2	60
13	HR 1313	Hot Air Dry	1003, 1004, 1005	Fan, Heater, S2	780
14	HR 1314	Cool Down	1003, 1004	Fan, S2	120
15	HR 1315	Alarm	1006	Buzzer	5

Component	PLC Output
S1 (Fill Solenoid)	1000
Ultrasonics	1001
Drain Pump	1002
S2 (Drain Solenoid)	1003
Fan	1004
Heater	1005
Buzzer	1006

Programmable Controller

An Omron CPM-20CDR programmable controller (PLC) is used to control the process. A peripheral device (C200H-PRO27-E) is available to change the program or modify the times of the process. PLC status indicators, located on top of the PLC, show the operating status according to the following table:

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Indicator	Status	Meaning
POWER (green)	ON	Power is being supplied to the PLC.
	OFF	Power isn't being supplied to the PLC.
RUN (green)	ON	The PLC is operating in RUN or MONITOR mode.
	OFF	The PLC is in PROGRAM mode or a fatal error has occurred.
ERROR/ALARM (red)	ON	A fatal error has occurred. (PLC operation stops.)
	FLASHING	A non-fatal error has occurred. (PLC operation continues.)
COMM (orange)	ON	Data is being transferred via the Peripheral Port.
	OFF	Data isn't being transferred via the Peripheral Port.

If the program needs to be modified please contact ESMA.

High Level Control

The tank has a high level sensor located in the dryer cover. The high level control will shut off the rinse solenoid if the water level gets to high in the tank. **Make sure dryer cover is closed during operation.**

Cleaning Agent

It is recommended to use a liquid cleaning concentrate that has a **defoaming** agent; powders tend to not dissolve properly and can damage solenoid valves. **Esma General Purpose Ultrasonic Cleaner E589** is recommended. 2 or 3 ounces of the cleaner is generally all that is needed per tank load. Adding too much cleaning agent can cause a problem during final rinsing leaving a soap film on instruments.

Drying

In the drying portion of the programs, the incoming air is heated in the tank cover to 160-180 degrees F. and forced by the fan through the tank cover. CAUTION: Do not touch the cover during the drying cycle because some areas of the cover will be hot.

Drying time will vary depending on the number of parts to be dried, if hot or cold water was used to rinse parts before drying and if the cover is closed on oven. NEVER place any towel or obstruction over the fan intake on cover. The air temperature during Hot Air Drying can be increased or decreased by adjusting two thermo-switches located in cover at hot air exit. The thermo-switches are adjusted as shown below.

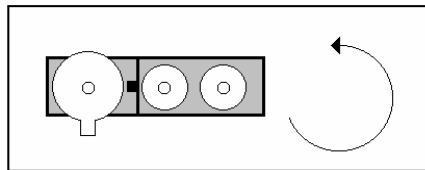
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1. Disconnect unit from 120VAC and 230VAC supplies.
2. Remove top plate of dryer cover.
3. Thermostat is located in front of heater.
4. See drawing 1. Turn control knob slightly counter-clockwise to decrease temperature.
5. Replace top plate and check air temperature. Repeat steps 1-4 if not satisfactory.



Maintenance

1. Drain Screens-A strainer for the drain line is located on the right rear side of tank cabinet. Periodically the screen has to be removed and cleaned. The tank and module are manufactured of 316 and 304 stainless steel. Clean with a commercially available cleaner for stainless kitchen appliances.

Power Modules

The power module contain the two circuit boards, fan, RFI filter etc. There are two lights, one per circuit board, to indicate if circuit boards are operating. If a light is out, the corresponding circuit board will have to be repaired.

Cleaning of Solenoids

A periodic cleaning of all solenoid valves is desirable. The time between cleanings will vary, depending on media and service conditions. In general, if the voltage to the coil is correct, sluggish valve operation, excessive leakage, or noise indicate that cleaning is required. A bulletin with maintenance instructions is enclosed.

FOR ASSISTANCE CALL: 800-276-2466

WARRANTY: Unit has one year guarantee, circuit boards two years and transducer bonds and tank weld seams a lifetime guarantee.

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