

OVERVIEW

1.1 INTRODUCTION

The Elgar EasyWave EW 371 and EW 801 are high efficiency AC power sources that provide sine wave output with minimum distortion. The microprocessor-controlled sine wave oscillator generates accurate and stable output voltages and frequencies.

The PWM (Pulse Width Modulation) approach of the power stage allows for full voltampere and current rating into loads. Model EW 801 supplies up to 800VA, Model EW 371 supplies up to 375VA. The accurate DSP (Digital Signal Processing) measurement capabilities provide independent verification of operating values, thus reducing the need for external measuring instruments.

The AC power source of the EW is considerably smaller, lighter and more efficient than traditional supplies with a similar output power capability.

This manual provides specifications, installation procedures, operation instructions and maintenance procedures for the Elgar EW programmable AC source.

1.2 KEY FEATURES

1.2.1 CONFIGURATION

- Local operation on front panel keypad
- Remote operation via GPIB or RS232 interface
- Protection against over-power, over-current, over-temperature, over-voltage, under-voltage, short circuit, and fan failure
- Temperature-controlled fan speed
- Built-in output isolation relays

1.2.2 INPUT/OUTPUT

- Selectable full scale output: 150V/300V/Auto
- Remote control using analog voltage reference
- Voltage (V), Frequency (F), Power Factor (PF), Crest Factor (CF), Current (I), and Power (P) measurement
- Programmable limit of output I_{pk}

1.3 SPECIFICATIONS

The operation specifications of the EW are listed below. Specifications are tested according to standard Elgar test procedures.

NOTE: All specifications are based on a $25 \pm 1^\circ\text{C}$, resistor load unless specified otherwise.

	EW 371	EW 801-115	EW 801-230
OUTPUT			
Max. Power	375VA	800VA	800VA
Voltage			
Range	150V/300V/Auto		
Accuracy (GPIB, RS-232, Front Panel)	0.2 % of F.S. (for freq. $\leq 200\text{Hz}$) 0.4 % of F.S. (for freq. $> 200\text{Hz}$)		
Resolution	0.1V		
Temp. Coeff.	0.1% per degree from 25°C		
Current			
Range	2.5A / 1.25A	5.33A / 2.67A	5.33A / 2.67A
C.F.	typical 2.8 for freq. $\leq 100\text{Hz}$ typical 2.2 for freq. $> 100\text{Hz}$		
Frequency			
Range	45 to 500Hz		
Accuracy	0.1% of programmed value		
Resolution	0.1Hz		
Temp. Coeff.	50 ppm/ $^\circ\text{C}$ from 25°C		
Distortion	typical 0.3% ($\leq 200\text{Hz}$) typical 0.8% for freq. $> 200\text{Hz}$		
Line Regulation	0.1% F.S.		
Load Regulation	0.05% F.S. ($\leq 200\text{Hz}$) 0.15% F.S. ($> 200\text{Hz}$)		
INPUT			
Voltage Range	90-132V and 180-250V	90-132V	180-250V
Current	7.5A max.	12A max.	6A max.
Current Inrush	50A max.	30A max.	30A max.
Frequency Range	47 - 63Hz		
Power Factor	typical 0.8	0.98 min.	0.98 min.

	MODEL 371	MODEL 801-115	MODEL 801-230
EFFICIENCY	typical 75%	typical 80%	
MEASUREMENT			
Voltage			
Range	0-150V / 0-300V		
Accuracy	0.3% F.S. +0.2% of reading max.		
Resolution	0.1V		
Current			
Range	0 to 10A	0 to 20A	0 to 20A
Accuracy	0.3% F.S. + 0.5% of reading		
Resolution	0.01A		
True Power			
Range	0-375W	0-800W	0-800W
Accuracy	2.5% F.S. max.		
Resolution	0.1 W		
EMI REQUIREMENT	FCC 15J Class A, CE		
PROTECTION	UVP,OLP,SHT,OPP,OTP,FAN		
OTHER			
Size (WxHxD)	19 in x 5.25 in x19 in (483 mm x 133 mm x 483 mm)		
Weight	40 lbs (18.2 Kg)	51 lbs (23.2 Kg)	51 lbs (23.2 Kg)
Temperature Range			
Operation	0°C to +40°C		
Storage	- 40°C to +85°C		
Humidity	30% to 90% RH noncondensing		

1.4 FRONT PANEL CONTROLS

The front panel keypad is used for data entry and test execution in local mode operation of the EW. The front panel is illustrated below (Figure 1-1), followed by a description of each of the controls and indicators.

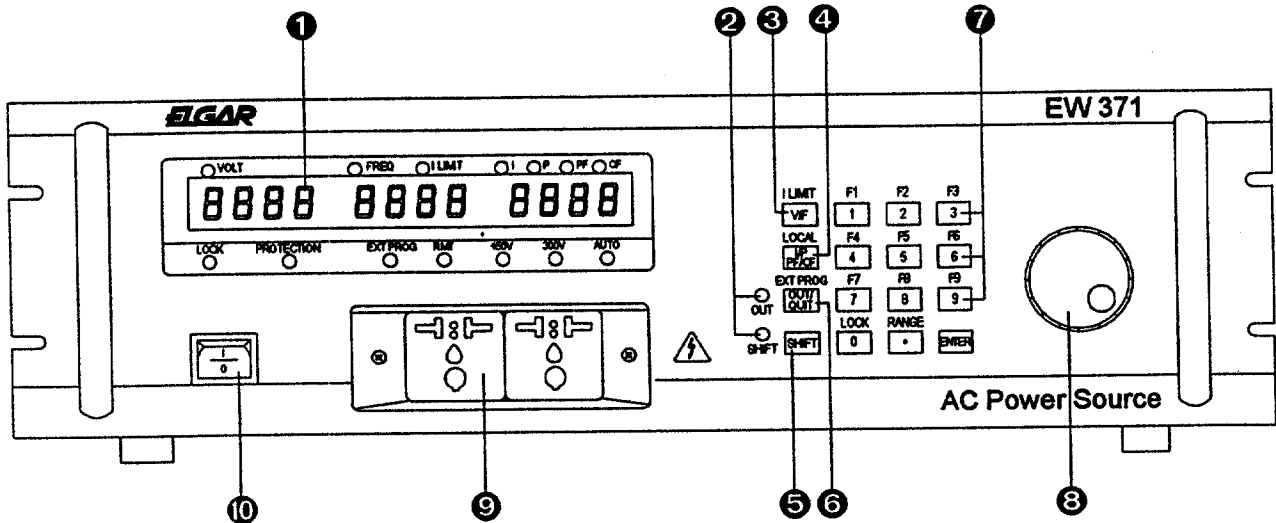


Figure 1-1 EW Front Panel

- 1 Alphanumeric LEDs.** A row of red 7-segment LEDs display setup messages and numeric values of settings or measurement results. The display area is divided into three sections; values of V appear on the left, frequency or I limit appears in the middle, and any of I/P/PF/CF measurement values appear on the right.
- 2** The "OUT" and "SHIFT" LEDs are located next to the corresponding keys on the keypad. When illuminated, they indicate activation of output and shift modes.
- 3 V/F or I Limit Selection Key.** In normal mode, this key allows you to program either voltage or frequency. In shift mode, this key allows you to program a peak current software limit.
- 4 I/P/PF/CF Selection Key.** In normal mode, repeatedly press this key to cycle through and select one of the measurement values. In shift mode, this key returns control from the remote PC to the front panel keypad.
- 5 Shift Mode Selection Key.** Press this key to switch the EW from the normal operational mode to the shift mode, or from shift back to normal.
- 6 OUT/QUIT Command Key.** In normal mode, press this key to enable the EW to output power to the load. During setup procedures, use this key to quit the current setup routine. In shift mode, this key enables external programming.

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- ⑥ **OUT/QUIT Command Key.** In normal mode, press this key to enable the EW to output power to the load. During setup procedures, use this key to quit the current setup routine. In shift mode, this key enables external programming.
- ⑦ **Numeric and Decimal Keys.** In normal mode, use these keys to program numeric data.
- In shift mode, use the numeric keys, to , to save data to or recall data from memory channels F1 to F9 respectively.
- The key enables data lock and configuration setup; the decimal key, , allows programming of the full range of output voltage.
- Always press the key to confirm parameter settings.
- ⑧ **Rotary Knob.** Turn the rotary knob to input programming data or select options.
- ⑨ **Universal Output Connectors.** These connectors output power to the loads.
- ⑩ **Main Power Switch.** Use this switch to power on and power off the EW.

1.5 REAR PANEL CONNECTORS

The rear panel of the EW is illustrated below in Figure 1-2.

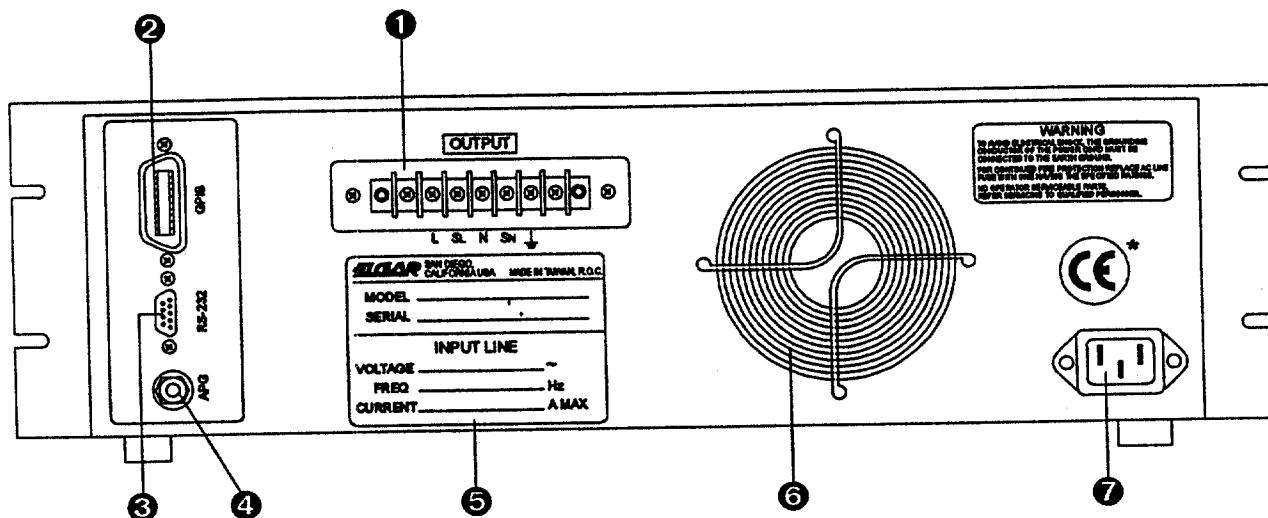


Figure 1-2 EW Rear Panel

- 1 Terminal Block.** The power line output is connected to the EW through this connector or the outlet at the front panel.
- 2 GPIB Connector.** The optional interface provided by the EW is to communicate with the remote GPIB controller.
- 3 RS-232C Connector.** This port, located on the optional GPIB board, provides an alternative interface to the EW for remote operation.
- 4 Ext. V Ref.** Control the output V_{rms} of the EW using an external DC voltage level. The signal is input through this BNC connector that is located on the same optional board as items 2 and 3.
- 5 Serial No. Label.** Each set of the EW instruments has its own identification number marked on this label.
- 6 Cooling Fan.** The speed of the cooling fan automatically increases or decreases as temperature rises or falls.
- 7 Power Line Input Connector.** The power line input is connected to the EW through this connector.

* If a unit does not fully conform to the European Community Low Voltage Directive, it will not display this label.