PowerWAVE EL 100XA

(500–3000 VA)

Technical Specification

KOHLER® POWER
uninterruptible

1. GENERAL SPECIFICATIONS

Model	EL1005XA	EL1012XA	EL1030 XA
Nominal Output Rating (CosØ:0.8) kVA	0.5kVA	1.25kVA	3kVA
Nominal Output Rating (CosØ:1) W	400 Watts	1000 Watts	2400 Watts
Audible Noise			
Efficiency (Load Dependant)	Up to 83% Inverter Mode/Up to 98% Changeover Mode		Up to 86% Inverter Mode/Up to 98% Changeover Mode
Operating Temperature (Ambient)	0-40 °C		
Altitude	<1000 meters (Above See level)		
Ventilation	Forced		
Relative Humidity	< 90%		
Protection Degree	IP 20		
Standards	EN 62040-1, EN 62040-2, EN 61000-2-2, EN 61000-3-2, EN 61000-4-2 EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8 EN 50171		
Transport	Packaged and On Pallet		

2. RECTIFIER SPECIFICATIONS

Model	EL1005XA	EL1012XA	EL1030XA
Nominal Input Voltage	230 VAC 1 phase + N		
Max Input current (A) per phase @100% resistive load, No charge current.	2.3A	5.2A	12.6A
Max Input current (A) per phase @100% resistive load, Full charge current.	6A	9A	24.6A
Input MCB Fitted to Cabinet	Type C 10A	Type C 16A	Type C 25A
Input Frequency Range	47 – 55Hz		
Input Power Factor	>0.99		
Input Voltage range	140 – 310 Vac		
Input THDi	<5%		
Input Protection	Fuses, Voltage & Frequency tolerance, Input power limit		

3. BATTERY SPECIFICATIONS

Model	EL1005XA	EL1012XA	EL1030XA
Battery Type	Sealed Lead Acid - maintenance Free		
Number of Blocks	4 x 12V Batteries		
Number of Cells	360		
Float voltage	54Vdc		
Battery Cut Off voltage	40Vdc		
Charger Max (A)	15A	15A	45A
Battery Installation	Internal		
Battery Test Automatic	Standard every 6 days		
Battery Protection	Polarity Protection/ Short Circuit Protection / Fuses		

4. INVERTER SPECIFICATIONS

Model	EL1005XA	EL1012XA	EL1030XA
Nominal Output Voltage	230 VAC 1 phase + N		
Output Frequency	50 Hz		
Output Frequency Tolerance - Free Running - Line Synchronized	± 3 % ± 10 %		
Overload Capability	120% Load:continuous 125-150% Load:1 min >150% Load:By-pass		
Harmonic Distortion	< 5 %		
Crest Factor	3/1		
Output Waveform	Sine Wave		
Short Circuit Protection	Electronic Short Circuit Protection		

5. BYPASS SPECIFICATIONS

Primary Components	Electronic Relay Switch
Nominal Voltage -V	230 VAC 1 phase + N
Nominal Frequency - Hz	50 Hz ± 5%
Retransfer:Changeover mode to Inverter	Automatic
Overload Capability	150 – 200 % Continuously
Manual By-Pass	Without Interruption

6. OPTIONAL EXTRAS

Input transformer	Galvanic isolation transformer at the input & output
Adaptors	SNMP, MODBUS, Remote Monitoring Panel, RS485
Communication	RS232 & DRY Contacts

7. HEAT DISSIPATION (At nominal load and voltage)

Model	EL1005XA	EL1012XA	**EL1030XA**
Watts	100	250	600

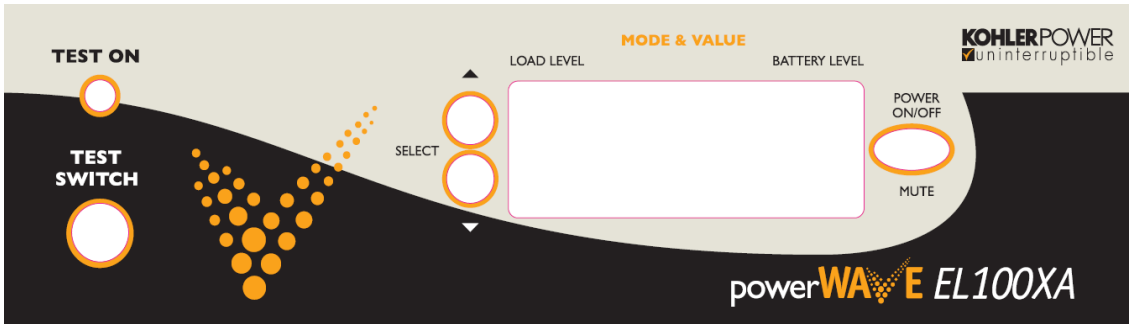
8. MECHANICAL SPECIFICATIONS

Model	EL1005XA	EL1012XA	**EL1030XA**
Dimension (h x w x d)	850 x 750 x 250	1250 x 750 x 250	1250 x 750 x 400
Weight (without battery) kgs	35	40	50
Protection Level	IP20		
Colour	Blue		

9. MAXIMUM OUTPUT MCB

Model	EL1005XA	EL1012XA	**EL1030XA**
Maximum MCB size to be used in Final Distribution	Type B 2A	Type B 4A	Type B 6A

10. DISPLAY



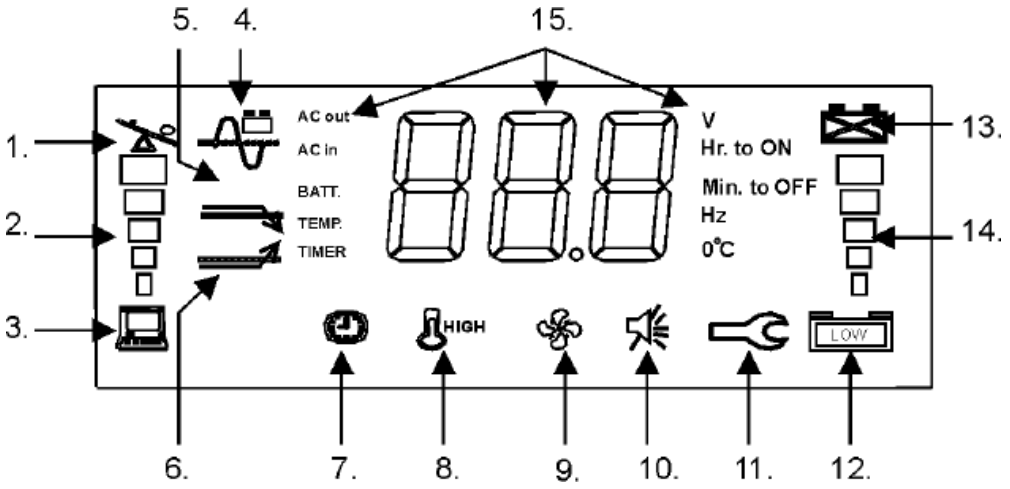
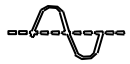
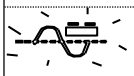
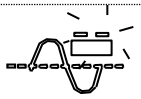
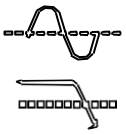
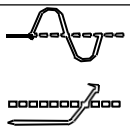


Figure 5. LCD Display

No.	Symbol	Indication	Description
1.		Over load	The loading exceeds the rating of Inverter.
2.		Load level	The higher the loading, the more bars will illuminate.
3.		Inverter is loaded	The Inverter is supplying a load.
4.		Normal mode	1) The sine wave symbol will display steadily without battery symbol when Inverter is in the normal mode.
		Battery mode	2) The sine wave symbol and battery symbol will blink when the Inverter is in back-up (inverter) mode.
		Test mode	3) The sine wave symbol will display steadily with blinking battery symbol when the Inverter is in testing mode.
5.		Buck mode	The AVR (Auto Voltage Regulator) is reducing the output voltage of the Inverter (when the input voltage is too high), and the sine wave symbol, as mentioned in item 4, will also display steadily to indicate that the output is in the normal mode.
6.		Boost mode	The AVR is increasing the output voltage of the Inverter (when the input voltage is too low), and the sine wave symbol, as mentioned in item 4, will display to indicate it is in the normal mode
8.	 **HIGH**	Thermal alarm	The temperature inside the Inverter is over 55℃. If the user does not reduce the load, the temperature will continue to rise and the Inverter will shut down automatically at 60℃.
9.		Fan is in “High speed”	The symbol will display whenever the cooling fan is running (or high speed), and will disappear when it is off (or low speed).
10.		Silence mode	The audible alarm has been silenced. To reset the alarm in Back-up mode, push the control button (not available during low battery level or abnormal condition).
11.		Inverter fault	The Inverter has failed and must be repaired. Contact a qualified service person.
12.		Battery normal	1) In normal operation, this symbol indicates a charged battery.
		Battery low	2) When the battery charge level is low, the word “LOW” will be added to the symbol.
13.		Battery replacement	The battery has failed and must be replaced. The battery is checked each time the Test Function is executed.

14.		Battery voltage level	1) The higher the battery voltage, the more bars will illuminate. 2) When the Inverter is charging the battery, the battery symbol and the level indicator will blink together.

15.	**Mode**	**Value**	**Description**
	AC out	V	AC output voltage.
	AC in	V	AC input voltage.
	AC out	Hz	AC output frequency.
	BATT.	V	DC battery voltage.
	TEMP.	°C	Inverter internal temperature.
	Selection Button for mode & value All the operation data will be displayed on LCD screen. By selecting the required mode (upward or downward), the related value will be displayed.		

AUDIBLE ALARM

During a utility failure or fault operation, the EL-Inverter a emits beeping sound for warning. In back-up mode, the alarm can be silenced by pushing the “MAIN CONTROL ON/OFF BUTTON” button. However, the warning of low battery will still sound urging user that load will be lost.

Basic Indication Table:

	STATUS	ALARM
Idle mode	Utility Good	No Beep
	Utility outage	No Beep
	Timer on, (refer to Item 5.5)	No Beep
Normal / Back-up mode	Normal (Utility good)	No Beep
	Back-up (No load)	One beep every 4 sec (alarm can be silenced).
	Back-up (Loaded)	2 beeps every 8 sec. (alarm can be silenced).
	Battery Low	4 beeps per sec (alarm can Not be silenced).
Abnormal Condition	Over load	Continuous alarm (alarm can Not be silenced).
	UPS fault	Every other 2 sec., 32 beeps in 2 sec (alarm can Not be silenced).
	Thermal alarm	Every other 2 sec., 32 beeps in 2 sec (alarm can Not be silenced).

11. DRY PORT CONNECTIONS

1. **Common for Relays** (Connected to pin 5 of AS400)
2. **Mains Failure, will not initiate if key switch is operated** (Connected to Pin 9 of AS400)
3. **Common Alarm** (Connected to pin 1 of AS400)
4. **Low Battery** (Connected to pin 7 of AS400)

The EL-Inverter has voltage free dry-contact (Binary) signals for programmable controllers and managements systems.

Located on the signal board inside the inverter there are 5 terminals that are connected to the AS400 inside the inverter module, all diagrams below/above show the functionality of the AS400 terminals.