AN IKONIX BRAND

6900S Series

6905S/6910S/6920S/6930S/6950S

AC Power Source

User Manual

E1.04

WARRANTY

EEC certifies that the instrument listed in this manual meets or exceeds published manufacturing specifications. This instrument was calibrated using standards that are traceable to the National Institute of Standards Taiwan.

Your new instrument is warranted to be free from defects in workmanship and material for a period of (2) year from date of shipment. During the warranty period, you must return the instrument to EEC or branch offices or its authorized distributor for repair. EEC reserves the right to use its discretion on replacing the faulty parts or replacing the assembly or the whole unit.

Under the following circumstances, EEC will void your warranty.

- Operate under non-normal, contrived omission, or accidental calamity (including, temblor, floods, rebellion, and fire etc.)
- Any non-authorized modifications, tampering or physical damage.
- Elimination of any connections in the earth grounding system or bypassing any safety systems.
- Use of non-authorized parts in the repair of this instrument. Parts used must be parts that are recommended by EEC as an acceptable specified part.

This warranty does not cover accessories not out of EEC manufacture.

Except as provided herein, EEC makes no warranties to the purchaser of this instrument and all other warranties, express or implied (including, without limitation, merchantability or fitness for a particular purpose) are hereby excluded, disclaimed and waived.

EEC recommends that your instrument need to be calibrated on every twelve month cycle.

Modification history

Date	Version	Content
2017/5	E1.00	First edition
2021/12	E1.02	CIS update
2023/9	E1.03	Error Message update, 6905S/6910S, 6930S/6950S consolidation
2024/9	E1.04	Add RS-232 interface (Previous products could not be modified.)

CONTENT

CHAPTER 1. INTRODUCTION

1.1 Product Marking Symbols

Product will be marked with this symbol when it is necessary to refer to the operation and service manual in order to prevent injury or equipment damage.

Product will be marked with this symbol when hazardous voltages may be present.

1.2 Safety Precaution

- This product and its related documentation must be reviewed with full acknowledgement on safety markings and instructions before operation.
- Before applying power, verify that the instrument is set to the correct line voltage and installed the correct fuse.
- When using an oscilloscope to measure DUT waveform, please refer description below to avoid DUT, instrument and oscilloscope damages. When the output of AC source has N-G or L-G shorted, customer must use differential isolation type of oscilloscope probe or using isolated oscilloscope.

To prevent accidental injury or death, these safety procedures must be strictly observed when handling and using the test instrument.

1.3 Service and Maintenance

User Service

To prevent electric shock do not remove the instrument cover. There are no user serviceable parts inside. Routine maintenance or cleaning of internal parts is not necessary. Any external cleaning should be done with a clean dry or slightly damp cloth. Avoid the use of cleaning agents or chemicals to prevent any foreign liquid from entering the cabinet through ventilation holes or damaging controls and switches, also some chemicals may damage plastic parts or lettering. Any replacement cables and high voltage components should be acquired directly from EEC or its distributor.

Service Interval

The instrument must be returned at least once a year to an EEC authorized service center for calibration and inspection of safety related components. EEC will not be held liable for injuries

suffered if the instrument is not properly maintained and safety checked annually.

User Modifications

Unauthorized user modifications will void your warranty. EEC will not be responsible for any injuries sustained due to unauthorized equipment modifications or use of parts not specified by EEC. Instruments returned to EEC with unsafe modifications will be returned to their original operating condition at the customer's expense.

CHAPTER 2. GETTING STARTED

This section contains information for the unpacking, inspection, preparation for use and storage of your EEC product. ◦

2.1 Unpacking and Inspection

Your instrument was shipped in a custom foam insulated container that complies with ASTM D4169-92a Assurance Level II Distribution Cycle 13 Performance Test Sequence
If the shipping carton is damaged, inspect the contents for visible damage such as dents, scratches, or broken display. If the instrument is damaged, notify the carrier and EEC's customer support department. Please save the shipping carton and packing material for the carrier's inspection. Our customer support department will assist you in the repair or replacement of your instrument. Please do not return your product without first notifying us. Please retain all of the original packaging materials.

2.2 Preparation For Use

2.2.1 Power Requirements

This instrument requires a power source of 110 volts AC ± 10%, 50/60 Hz single phase or 220 volts AC ±10%, 50/60 Hz single phase. Please check the rear panel to be sure the proper switch setting is selected for your line voltage requirements before turning your instrument on.

CAUTION Do not switch the line voltage selector switch located on the rear panel while the instrument is on or operating. This may cause internal damage and represents a safety risk to the operator.

2.2.2 Power Cable

WARNING Before connecting power to this instrument, the protective ground (Earth) terminals of this instrument must be connected to the protective conductor of the line (mains) power cord. The main plug shall only be inserted in a socket outlet (receptacle) provided with a protective ground (earth) contact. The main terminal shall only be connected to a connector provided with a protective ground (earth) contact. This protective ground (earth) **must not be defeated** by the use of an extension cord without a protective conductor (grounding).

!!! Please must use the Class I product to be as the load.

2.3 Environmental Conditions

Operating Environment
Temperatures:0° - 40° C (32°-104°F)
Relative humidity: 20% - 80%
Altitude: 2,000 meters (6,560 inches)

Please keep unimpeded around the units for good ventilation and convenient maintenance. The instrument should also be protected against temperature extremes which may cause condensation within the instrument.

Storage and Shipping Environment
This instrument may be stored or shipped in environments with the following limits:
Temperature..... -40° to +55°C
Altitude: ..... 7,620 meters (25,000 inches)

The instrument should also be protected against temperature extremes, which may cause condensation within the instrument.

Packaging
Original Packaging
Please retain all original packaging materials that you originally received. If you are returning your instrument to us for servicing please repackage the instrument in its original container. Please enclose the instrument with all options, accessories and test leads. Indicate the nature of the problem or type of service needed. Also, please mark the container "FRAGILE" to insure proper handling.

Other Packaging
If you do not have the original packaging materials, please follow the below guidelines:

- Wrap the instrument in a bubble pack or similar foam. Enclose the same information as above.
- Use a strong double-wall container that is made for shipping instrumentation. 350 lb. test material is adequate.
- Use a layer of shock-absorbing material 70 to 100 mm (3 to 4 inch) thick around all sides of the instrument. Protect the control panel with cardboard.
- Seal the container securely.
- Mark the container "FRAGILE" to insure proper handling.

CHAPTER 3. SPECIFICATIONS

3.1 Specification

Model			6905S	6910S	6920S	6930S	6950S
INPUT							
Phase			1				
Terminal			Terminal				
Voltage			110 / 220Vac ± 10%		220Vac ± 10%		
Frequency			47 – 63Hz				
Max. Current			10A / 5A	20A / 10A	20A	30A	50A
Power Factor			≧0.67				
OUTPUT							
Power rating			500VA	1000VA	2000VA	3000VA	5000VA[1]
Max. Current (r.m.s)[2]	0-155V		4.6A	9.2A	18.4A	27.6A	46.0A
	0-310V		2.3A	4.6A	9.2A	13.8A	23.0A
Phase			1Ø/2W				
Total Harmonic Distortion (THD)			<0.3% at 110 / 220V & 50 / 60Hz (Resistive Load)				
Crest Factor			≧3				
Line Regulation			±0.1V				
Load Regulation			± (0.5% of output + 0.5V) at Resistive Load				
SETTING							
Voltage	Range		0 - 310V, 155 / 310V Auto Range				
	Resolution		0.1V				
	Accuracy		±(1% of setting + 0.1% f.s)		±(1% of setting + 0.2% f.s)		
Frequency	Range		40 - 450Hz Full Range Adjust				
	Resolution		0.1Hz at 40.0 - 99.9Hz , 1Hz at 100 - 450Hz				
	Accuracy		±0.03% of setting				
MEASUREMENT							
Frequency	Range		0.0 - 450.0Hz				
	Resolution		0.1Hz				
	Accuracy		±0.1Hz				
Voltage	Range		0.0 - 400.0V				
	Resolution		0.1V				
	Accuracy		±(1% of reading + 0.1% f.s)		±(1% of reading + 0.2% f.s)		
Current (r.m.s)	Range	L	0.005A - 0.600A	0.005A - 1.200A	0.005A - 2.400A	-	-
		H	0.50A - 6.50A	1.00A - 13.00A	2.00A - 26.00A	0.05A - 39.00A	0.05A - 65.00A
Model			**6905S**	**6910S**	**6920S**	**6930S**	**6950S**
	Resolution	L	0.001A			-	-

		H	0.01A				
	Accuracy	L	± (1% of reading + 0.005A) at voltage > 5V			-	-
		H	± (1% of reading +0.05A)				
Power	Range	L	0.0W - 60W	0.0W - 120W	0.0W - 240W	-	-
		H	50W - 650W	100W - 1300W	200W - 2600W	0W - 3900W	0W - 6500W
	Resolution	L	0.1W			-	-
		H	1W				
	Accuracy[3]	L	± (2% of reading +1.5W)		± (2% of reading + 3W)	-	-
		H	± (2% of reading + 5W)		± (2% of reading +10W)	± (2% of reading + 5W)	
Power Factor	Range		0 – 1.000				
	Resolution		0.001				
	Accuracy		W / VA ,Calculated and displayed to three significant digits				
GENERAL							
Memory			3 memories				
Display			Green LED				
Over Current Fold Back			On/Off , Setting On when output current over setting Hi-A value it will fold back output voltage to keep constant output current is setting Hi-A value, Response time < 1.4s				
Efficiency			≧78%	≧80%			
Protection			OCP, OVP, OPP, OTP, Short Circuit and Alarm				
Operation Environment			0-40℃ / 20-80%RH				
Dimension (W x H x D), mm			430 x 89 x 400	430 x 89 x 400	430 x 89 x 500	430 x 222 x 500	430 x 222 x 500
Weight			18.2Kg	18.2Kg	30Kg	65g	65Kg

Product specifications are subject to change without notice.

*1 When PF 0.8 output can work continuously

*2 At working voltage 110V / 220V

【Ordering Information】

OPT.629 Input Voltage 100V / 200V for 6905S & 6910S

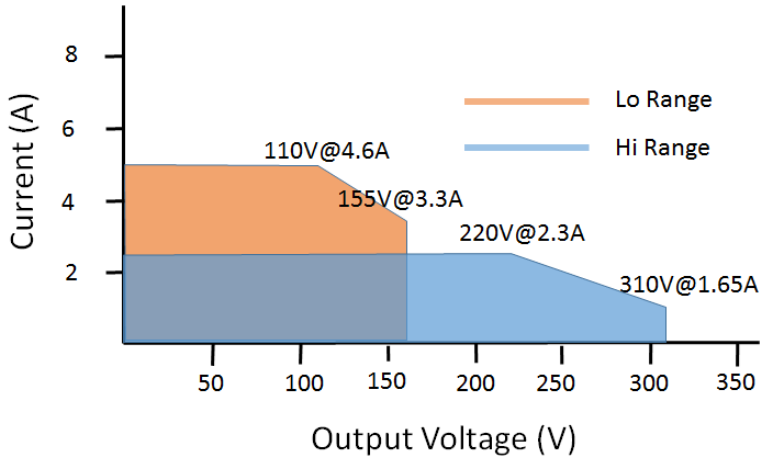
OPT.630 Input Voltage 120V / 240V for 6905S & 6910S

OPT.631 Input Voltage 200V for 6920S & 6930S & 6950S

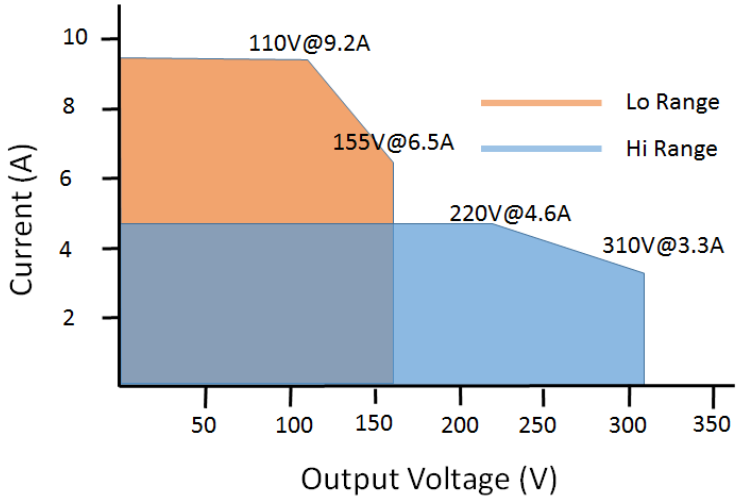
OPT.632 Input Voltage 240V for 6920S & 6930S & 6950S

OPT.682 RS-232 Interface

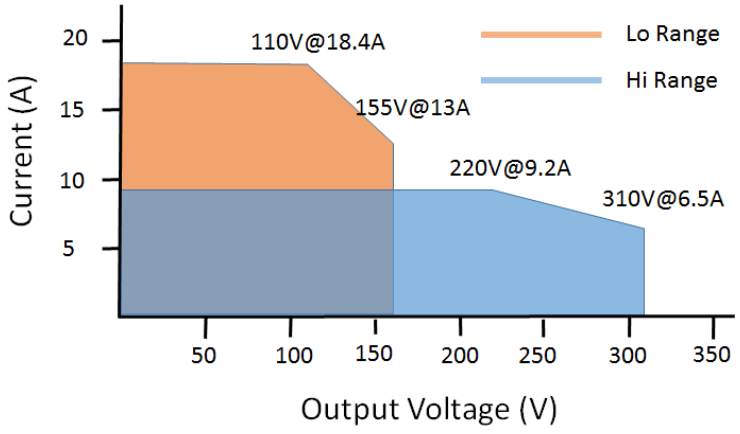
6905S rated output current (PF=1)



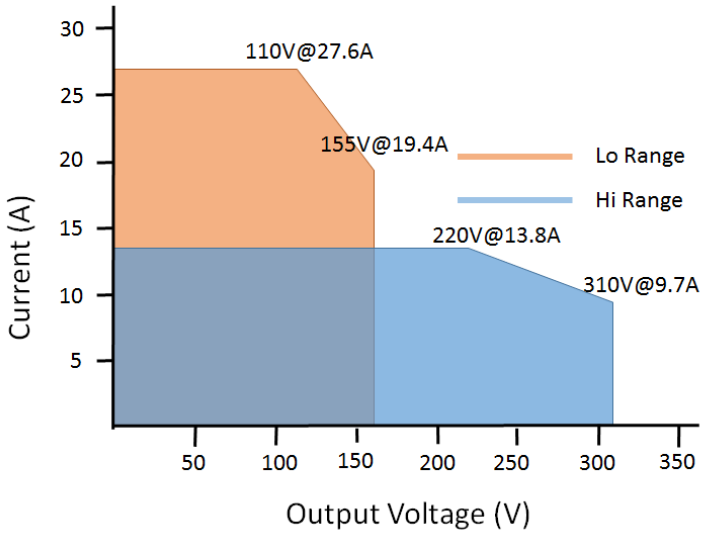
6910S rated output current (PF=1)



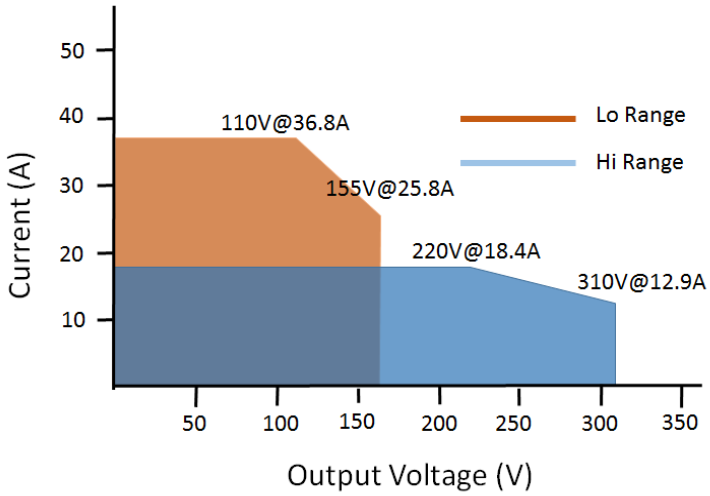
6920S rated output current (PF=1)



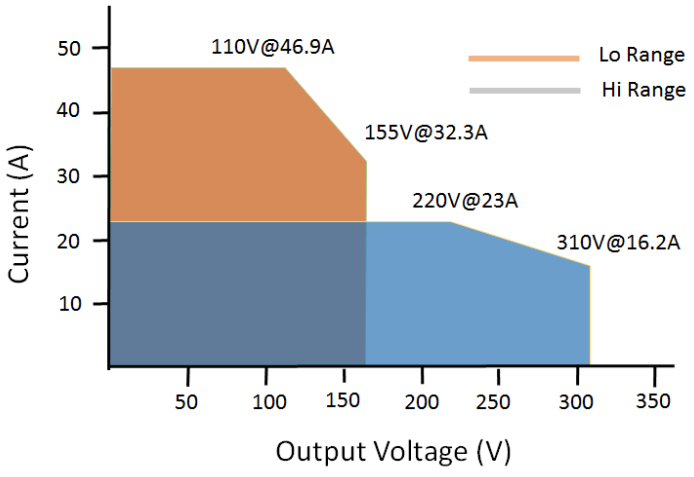
6930S rated output current (PF=1)



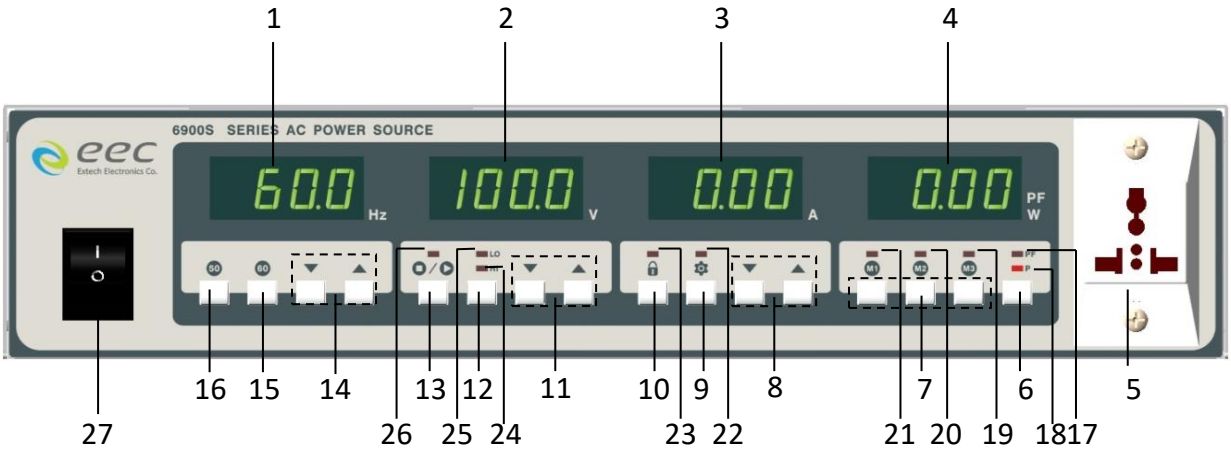
6950S rated output current (PF=1)



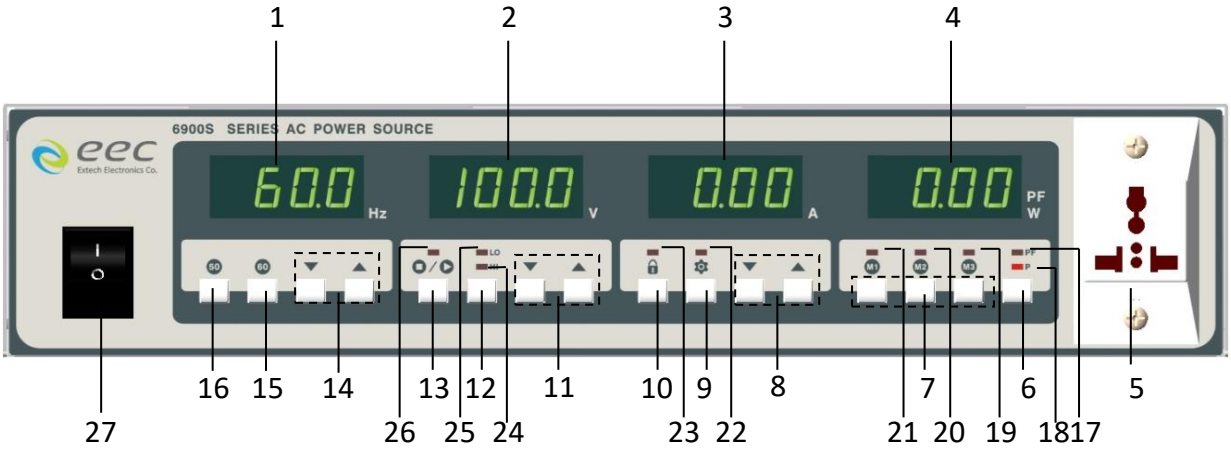
6950S rated output current (PF=0.8)



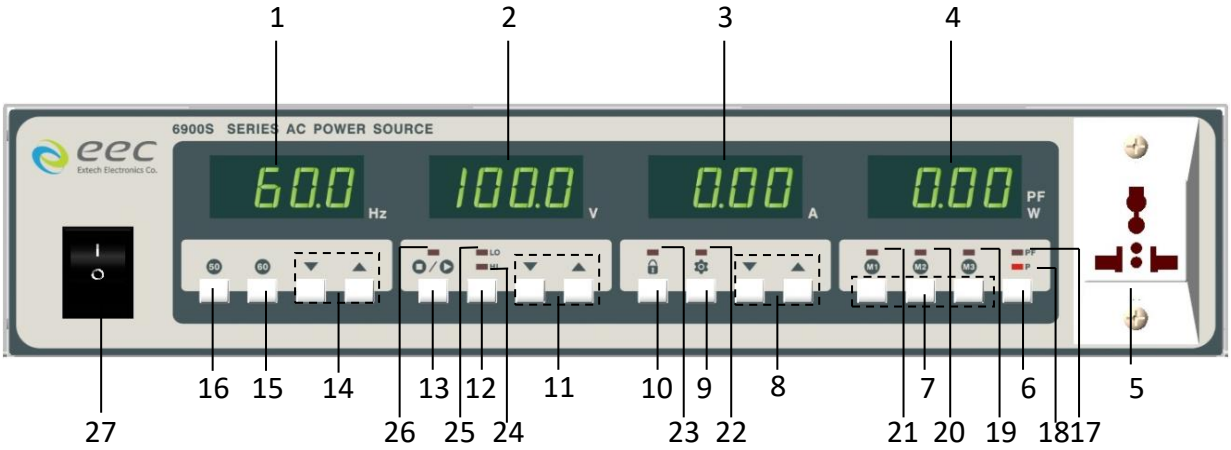
3.2 Front Panel Description



NO.	Item	Explain
1	FREQUENCY	It will display the output frequency. When the output is OFF, it shows the frequency setting. Otherwise, it shows the frequency of the output.
2	VOLTAGE	When the output is OFF it shows the output voltage setting. Otherwise it shows the voltage of the output.
3	CURRENT	When the output is OFF it shows the output current setting. Otherwise it shows the current of the output.
4	MULTI FUNCTION	Display the value of output wattage or power factor
5	UNIVERSAL AC OUTPUT SOCKET	Trip Current (20A)
6	P / PF SELECT BUTTON	Select the display of output wattage or power factor value.
7	M1, M2 AND M3 BUTTON	Store setting memories. [Press and hold for a second or above].
8	CURRENT ▲ / ▼ KEY	To increase or reduce the output current higher than the display value. Or be a selection key for System conditions.
9	KEY	Enter or exit from the setting of system parameter. You can utilize the ▲ / ▼ keys under VOLTAGE meter to select the parameter that you need to set, and the ▲ / ▼ keys under CURRENT meter to set parameters.
10	KEY	To disable all the keys on the front panel. It switches between Lock and Unlock.



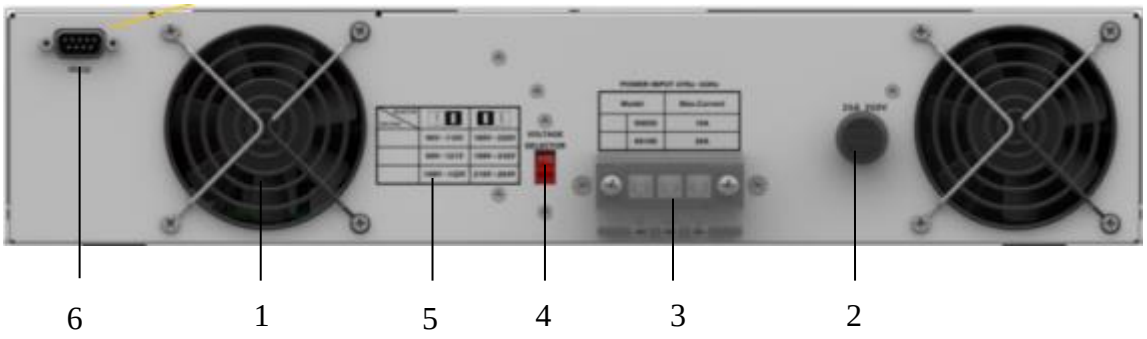
NO.	Item	Explain
11	VOLTAGE ▲ / ▼ KEY	To increase the output voltage higher than the display value. Or be a selection key for System items.
12	HI/LO KEY	High Range Voltage is 0 - 310V and Low Range Voltage is 0 - 155V.
13	⏻/▶ KEY	To turn the output ON and OFF, and press RESET key as abnormal operation occurs.
14	FREQUENCY ▲ / ▼ KEY	To increase or reduce the output frequency to higher or lower than the display value.
15	60 Hz KEY	Press to set the output frequency to 60 Hz.
16	50 Hz KEY	Press to set the output frequency to 50 Hz.
17	POWER FACTOR INDICATOR	When the LED is ON, the display shows the output power factor.
18	WATTMETER INDICATOR	When this LED is ON, the display shows the output power.
19	M3 INDICATOR	When the LED is ON, the output is set according to M3.
20	M2 INDICATOR	When the LED is ON, the output is set according to M2.
21	M1 INDICATOR	When the LED is ON, the output is set according to M1.
22	⚙ INDICATOR	When the LED is ON, the SYSTEM default setting is activated.



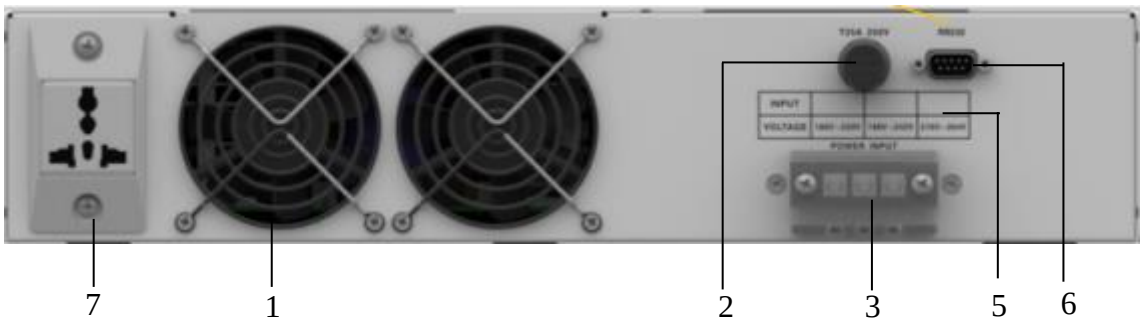
NO.	Item	Explain
23	INDICATOR	When this LED is lit, all the keys are disabled.
24	HI INDICATOR	When the LED is lit, the output is set to high range.
25	LO INDICATOR	When the LED is lit, the output is set to low range.
26	INDICATOR	When the LED is lit, it is at normal operation, whereas when the LED is blinking, it is at abnormal operation.
27	POWER SWITCH	Rocker style power switch with international ON (|) and OFF (0) markings.

3.3 Rear Panel Description

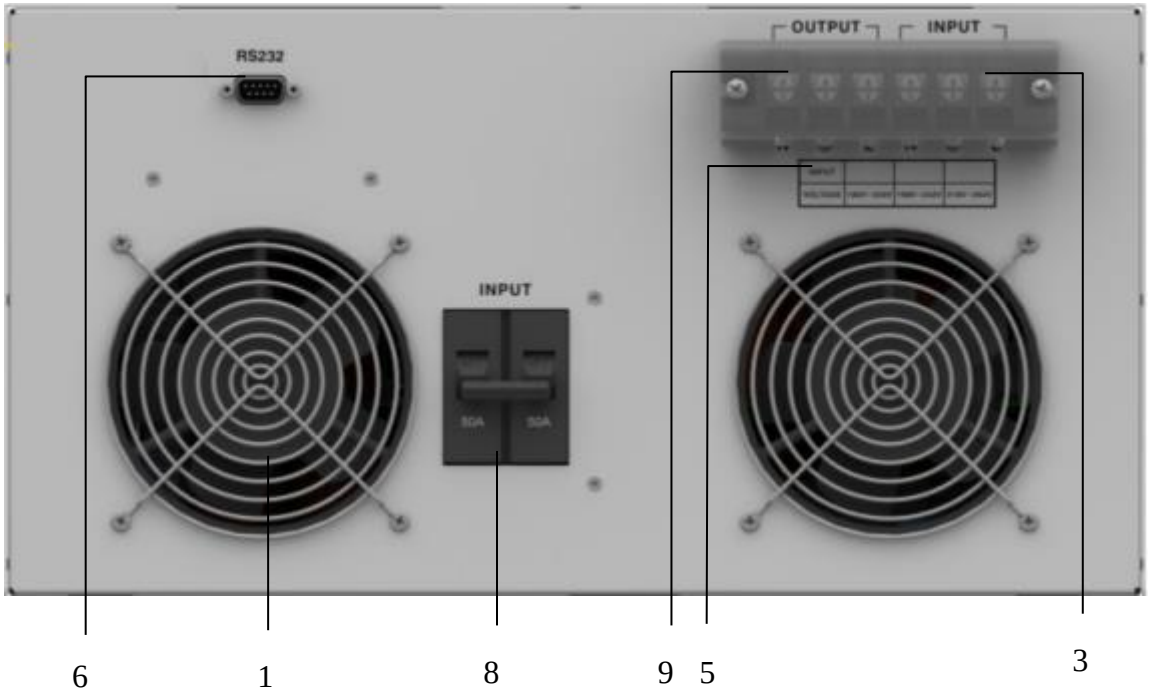
6905S /6910S rear panel



6920S rear panel



6930S & 6950S rear panel



NO.	Item	Explain
1	THERMAL FAN	To cool the instrument. When the temperature exceeds 60 ° C, the fan will enter the second speed.
2	FUSE RECEPTACLE	To change the fuse unplug the power (mains) cord and turn the fuse cap counter clockwise to remove the fuse.
3	Input Terminal Power Block	Provides input power to the instrument.
4	INPUT POWER SWITCH	Line voltage selection is set by the position of the switch. In the left position, it is set for 110-volt operation, in the right position it is set for 220-volt operation.
5	Indicated the input voltage range	Instrument input voltage indication
6	RS-232interface (optional)	Communication interface connected to the computer.
7	UNIVERSAL AC OUTPUT SOCKET	Trip Current (20A)
8	Input Circuit Breaker	Input power switch.
9	Output Terminal Power Block	Provides output power to the DUT.

CHAPTER 4. MANUAL OPERATION

4.1 Manual Operation

1. **Setting Of Output Voltage**

   High range voltage can be set between 0 - 310V while low range voltage is 0-155V under AC mode. Press and hold the ▲ or ▼ key will firstly clear the decimal number of setting to zero. Subsequently, every 0.3 seconds will change a step and thereafter a first integer of setting number will vary and then to the second integer and third integer of the voltage setting respectively. For the third integer, it takes 0.1 seconds only to vary every step in order to speed up the scrolling.

   Press and hold "∧", decimal (clear to 0) → 1st Integer (0.3sec / step) → 2nd Integer (0.3sec / step) → 3rd Integer (0.1sec / step)

   If the voltage is adjusted when the  indicator is ON, the AC Power Source will generate the output voltage accordingly. When the voltage display is blinking, the output voltage remains the same as the previous set voltage. After 2 second the voltage display will stop blinking and the new set voltage is accepted. Any invalid setting may not be accepted.

2. **Setting Of Output Frequency**

   For frequency setting in the range of 40-99.9 Hz, each change on the setting are 0.1Hz/step for normal setting and 1Hz/step for coarse setting. In 100-450 Hz range, each change on the setting are 1Hz/step for normal setting and 10Hz/step for coarse setting. As the 50 Hz or 60 Hz key is pressed, the desired frequency will be immediately updated. (The same method applied like voltage setting to scroll the display).

3. **Setting Of Voltage Range**

   If the desired voltage is lower than 155 V, press the HI / LO Key first. The LO LED is lighted to indicate the AC source is in 0 - 155 Volt range and allow a higher range of current limit. For the 0 - 310V of voltage range, the range of current limit drops to half as comparing the current limit at the 0 - 155V range (Refer to the specification table). Setting of voltage range may not influence the existing output voltage setting. Anyhow, changing the voltage range during the  indicator is ON will lead to the output voltage cutoff (about 20 ms) and this should be avoided if possible.

4. **Setting Of Current**

   While the OUTPUT is not activated, pressing the ▲ or ▼ key will enter to the setting mode of low-limit current. Press further ▲ or ▼ key to continue scrolling the display in order to change the current limit. If the setting is hold for 2 seconds, it will return to a standby mode from current setting mode. Meanwhile, at the standby mode, the output capacity (Refer to the specification table) limits the output current or allows setting the low limit current. The AC Power Source cuts off the output immediately when the actual current has exceeded the limits and a HI-A error message is shown. Any invalid current setting will not be accepted

If the system parameter “OC Fold” is ON and current high limit is set, the output voltage will drop down to maintain output current. If the High Limit is OFF, the output will cut off until the output current is over the current of protect circuit.

5. PF / P Select Button

Press PF/P select key to view Power Factor or Power (Watts) measurement.

6.  Button

This key is to turn ON or OFF the output voltage. When the  indicator is lit, the voltage is presence at the universal socket. If the indicator is blinking that shows an abnormal operation is encountered, thereby the output voltage will be cut off immediately. By pressing the  key will reset the audible alarm, an error message is indicated.

7. Front-Panel Lockout

Press the  key will lead to the LOCK indicator to be lit, in order to disable all keys on the front panel (except PF/P key). Further pressing the  key again it will reactivate all keys to function normally. The Lockout feature is to prevent any unauthorized alteration.

8. Storage Of 3 Memories

There is a feature to store the voltage, current and power on each memory and there are total 3 memories available. In order to store into each particular memory, press the M1, M2 or M3 keys for at least one second. To recall each memory, press the M1, M2 or M3 accordingly to retrieve the setting that being stored.

9. Power On Condition

Every time when turning on the AC Power Source, the voltage and current displays will indicate model and version respectively for the particular AC Power Source.

Model Version

4.2 System Parameter Setup

When the output is in OFF condition, press  key to enter into system parameter setup and SYSTEM indicator will light up. The indication of system parameter setup will be shown at the Voltage/Frequency display. By pressing the ▲ or ▼ key from the Voltage display, it then allows to scroll a system parameter setup menu; Power – Up, Frequency HI Limit, Frequency Low Limit, Voltage HI Limit, Voltage Low Limit and Over Current Fold Back settings.

SYSTEM PARAMETER

FREQUENCY	VOLTAGE	CURRENT	English	Explanation
			P-UP OFF	Output status of power up.
			P-UP On	
			P-UP LASt	
			Volt HI 310.0	Maximum voltage setting limit
			Volt LO 0.0	Minimum voltage setting limit
			FrEq HI 450.0	Maximum frequency setting limit
			FrEq LO 40.0	Minimum frequency setting limit
			OC Fold OFF	Output Current fold back disable
			ON	Output Current fold back enable

1. Power - Up

While the Voltage display indicates “P-UP”, press the ▲ or ▼ key from the Current display to select ON/OFF/LAST for the output status. As the Power-Up is turned OFF, the output is set to be at OFF condition after turn OFF or ON again the AC source. When the Power-Up is ON, then the output is instantly ON after the AC Power Source is being OFF and ON again. When the Power-Up is set to LAST, the display will indicate last POWER OFF setting status.

2. Voltage HI Limit

The Frequency display will indicate “Volt” and the Voltage display shows “HI”. Press the ▲ or ▼ key from the Current display to adjust the high limit voltage within the range of 0 - 310V.

3. Voltage Low Limit

The Frequency display will indicate “Volt” and the Voltage display shows “LO”. Press the ▲ or ▼ key from the Current display to adjust the low limit voltage within the range of 0 - 310V.

4. Frequency HI Limit

The Frequency display will indicate “FrEq” and the Voltage display shows “HI”. Press the ▲ or ▼ key from the Current display to adjust the high limit frequency within the range of 40 - 450Hz. When the frequency is set in the range of 40 - 99.9Hz, the resolution is 0.1HZ/STEP whereby the setting is done in 100HZ - 450Hz range, the resolution becomes 1HZ/STEP.

5. Frequency Low Limit

The Frequency display will indicate “FrEq” and the Voltage display shows “LO”. Press the ▲ or ▼ key from the Current display to adjust the low limit frequency within the range of 40 - 450Hz. When the frequency is set in the range of 40 - 99.9Hz, the resolution is 0.1HZ/STEP whereby the setting is done in 100HZ - 450Hz range, the resolution becomes 1HZ/STEP.

6. Over Current Fold Back

The Frequency display will indicate “OC” and the Voltage display shows “Fold”. press the ▲ or ▼ key from the Current display to select ON/OFF for the output status. (The same method applied as voltage setting). Setting On, When output current is higher than “HI-A” current setting current value, it will keep constant HI-A setting current value output.

4.3 Displayed Messages

Below are the descriptions of error messages that may occur at abnormal conditions:

At any abnormal conditions, there are several error messages to be indicated on the display LEDs. Thereafter the output will be disabled and the alarm will sound. The  LED Indicator will also light up at the same time. If the indicator is blinking that shows an abnormal operation is encountered, thereby the output voltage will be cut off immediately. By pressing the  key will reset the audible alarm, an error message is indicated.

WARNING All error messages occur in abnormal conditions and therefore must be recorded. Check the cause of the error to ensure the problem is eliminated before restarting the operation, or contact EEC, or our official distributors for further assistance. All error messages result in an audible alarm and the operator must be within range of the power supply to be able to hear the alarm and reset the supply. If the alarm continues to persist, please shut down the instrument and contact EEC or our official distributor.

 **Hz** If the heat sink of the instrument itself has exceeded 130 °C, the Frequency display will indicate “OtP”. This shows that the heat sink is overheated and thus the alarm will sound. Consequently, the  LED indicator will blink and the Voltage or Current displays will show the overloaded voltage or current respectively.

 **Hz** They will occur Over Current Protection that output circuit is short and the system will self protect within 1 second or the output current has exceeded 110% of maximum current rating for 1 second. At this time, the Frequency display will indicate “OCP” and the alarm will sound. Consequently, the  LED indicator will blink and the Voltage or Current displays will show the overloaded voltage or current respectively.

 **Hz** They will occur Over Power Protection that output power has exceeded 125% of maximum power rating and the system will self protect within 0.5 second or the output power has exceeded 110% of maximum power rating for 1 second. At this time, the Frequency display will indicate “OPP” and the alarm will sound. Consequently, the  LED indicator will blink and the Voltage or Current displays will show the overloaded voltage or current respectively.

If OCP and OPP are occurred at the same time, OCP will be activated first.

If the reading of output current has exceeded the setting of current, the Frequency display will indicate “HI-A” and the alarm will sound. Consequently, the  LED indicator will blink and the Voltage or Current displays will show the overloaded voltage or current respectively.

If the output voltage has exceeded 5V of setting voltage at 0 - 155V range or has exceeded 10V of setting voltage at 0 - 310V range, the Frequency display will indicate “OVP” and the alarm will sound. Consequently, the  LED indicator will blink and the Voltage or Current displays will show the overloaded voltage or current respectively.

If the Amplifier is fault or abnormal, or GBIT on the Amplifier is burned, the Frequency display will indicate “A-SH” and the alarm will sound.

Volt Err ：The amplifier will test first by itself after power on. If the test is failed, the displays will indicate “**Volt Err**” and the alarm will sound. It can not only test if the instrument function is normal and also can protect DUT to avoid it is damaged.

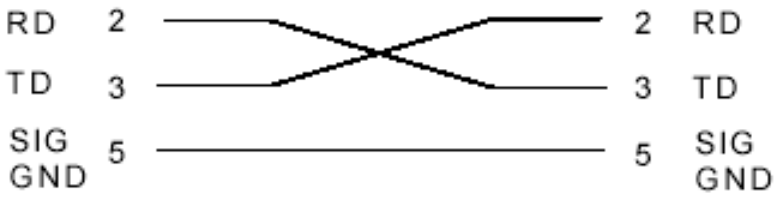
CHAPTER 5. Interface RS-232

Bus Remote Interface RS-232

This chapter provides information on the proper use and configuration of bus remote interface for RS232 interface, whereby both interfaces are using different command lists. These interfaces are optional on 6900S Series AC Power Source.

5.1 RS-232

The RS232 connection is configured as follows for a 9 pins Serial Port interface.



The COM port should have the following configuration: 9600 baud, 8 data bits, 1 stop bit, no polarity, and etc. This interface does not support XON/XOFF protocol or any hardware handshaking. The controller should be configured to ignore the Handshaking Lines DTR (PIN 4), DSR (PIN 6) and RTS (PIN 9). If the port cannot be configured through software to ignore the lines, the handshake lines should be then jumped together in two different sets. The PIN 4 and 6 jumped together while PIN 7 and 8 jumped together at the controller end of the cable.

When sending command over the RS232 bus the AC Power Source will send a response string of 06 Hex or 6 decimal and the Acknowledge (ACK) ASCII control code if the transfer was recognized and completed by the AC Power Source. If there is an error with the command string that is sent, the AC Power Source will respond with 15 Hex or 21 decimal and the Not Acknowledge (NAK) ASCII code. The ACK or NAK response allows for software handshaking, in order to monitor and control data flow. When requesting data from the AC Power Source, it will automatically send the data back to the controller input buffer. The controller input buffer will accumulate data being sent from the AC Power Source including the ACK and NAK response strings, until the controller has read it. When the strings or command has been sent, it must be terminated with LF=(0AH), such as “TEST”+LF.

5.2 Commands

COMMAND	Function	Description	UNIT
TEST	Test	Power On	
RESET	Reset	Power Off	
TD?	Testing meters data	Memory,Status,Freq,Volt,Curr,Power,PF	
TDFREQ?	Testing frequency meter	40.0~450.0	Hz
TDVOLT?	Testing voltage meter	0.0~300.0	V
TDCURR?	Testing current meter	0.00~42.00 (By Mode)	A
TDP?	Testing power meter	0~5000 (By Mode)	W
TDPF?	Testing pf meter	0.000~1.000	
METER X	SELECT METER X	X=0-1	
METER?	SELECT METER?	0=P,1=PF	
MEMORY X	SELECT MEMORY X	X=1~3	
MEMORY?	SELECT MEMORY?		
VOLT XXX.X	Voltage Setting	0.0~150.0 (LOW RANGE)	V
VOLT?	Setting Voltage Query	0.0~300.0 (HIGH RANGE)	
RANG X	Voltage Range Selection	X=0-1	
RANG?	Voltage Range Query	0=HIGH ,1=LOW	
FREQ XXXX	Frequency Setting	40.0~450.0	Hz
FREQ?	Setting Frequency Query		
AHI XXXX	High Limit of Current Setting	XXXX=0.000~42.00(By model has different limit)	A
AHI?	High Limit of Current Query		

System

COMMAND	Function	Description	UNIT
PUP X	Power Up Mode Setting	X=0-2	
PUP?	Power Up Mode Query	0=OFF,1=ON,2=LAST	
VHI XXXX	Hi Limit of Voltage Setting	0.0~300.0	V
VHI?	Hi Limit of Voltage Query		
VLO XXXX	Low Limit of Voltage Setting		
VLO?	Low Limit of Voltage Query		
FHI XXXX	Hi Limit of Frequency Setting	X=40.0~450.0	Hz
FHI?	Hi Limit of Frequency Query		
FLO XXXX	Low Limit of Frequency Setting		
FLO?	Low Limit of Frequency Query		
OF X	Over Current Fold Function Selection	X=0~1	
OF?	Over Current Fold Selection Query	0=OFF,1=ON	
LOCK X	LOCK Setting	X=0~1	
LOCK?	LOCK Query	0=OFF,1=ON	

CHAPTER 6. CALIBRATION PROCEDURE

All the AC Power Sources are calibrated at the factory before delivery. Unless necessarily, kindly do not re-calibrate within the first 12 months.

Follows calibration steps are an example for 6910S.

6.1 Calibration Procedure

Ensure the model version is correct before turn OFF the AC Power Source. Press and hold 🔒 、 ⚙ and ▼ key while turn ON the AC Power Source. After two seconds, the AC Power Source will indicate model number and version. It is now at calibration mode and press ▲ or ▼ key to select a calibration menu.

Low Range Voltage Calibration

Press ▲ or ▼ key from the Frequency display to select “V-LO". Connect a calibrated true RMS Voltmeter on one of the output socket and press ⏻/▶ key in order to activate the CPU to read a low range offset voltage and send a 150VAC output voltage. The accurate RMS Voltmeter will indicate an actual voltage value while the Current display on the AC Power Source will indicate a necessary value needed to be calibrated. Using the voltage value from the RMS Voltmeter, press ▲ or ▼ key from the Current display to scroll the display which indicate the current voltage value, in order to set the voltage according to the RMS Voltmeter. After it is done, press 🔒 key to save the data stored and the low range voltage calibration is completed.

High Range Voltage Calibration

Press ▲ or ▼ key from the Frequency display to select “V-HI". Connect a calibrated true RMS Voltmeter on one of the output socket and press ⏻/▶ key in order to activate the CPU to read a high range offset voltage and send a 300VAC output voltage. The accurate RMS Voltmeter will indicate an actual voltage value while the Current display on the AC Power Source will indicate a necessary value needed to be calibrated. Using the voltage value from the RMS Voltmeter, press ▲ or ▼ key from the Current display to scroll the display which indicates the current voltage value, in order to set the voltage according to the RMS Voltmeter. After it is finished, press 🔒 key to save the data stored and the high range voltage calibration is completed.

Low Range Current Calibration

Press ▲ or ▼ key from the Frequency display to select “A-LO". Connect a variable resistor as load and a calibrated true RMS Ammeter on one of the output socket and press  key in order to activate the CPU to read a low range offset current and send a 100VAC output voltage. The accurate RMS Ammeter will indicate an actual current value while the Current display on the AC Power Source will indicate a necessary value needed to be calibrated. Adjust the load or voltage to get the reading from the ammeter to be 1.000A. Using the current value from the RMS Ammeter, press ▲ or ▼ key from the Current display to scroll the display which indicates the current value, in order to set the current according to the RMS Ammeter. After it is done, press  key to save the data stored and the low range current calibration is completed.

High Range Current Calibration

Press ▲ or ▼ key from the Frequency display to select “A-HI". Connect a variable resistor as load and a calibrated true RMS Ammeter on one of the output socket and press  key in order to activate the CPU to read a high range offset current and send a 100VAC output voltage. The accurate RMS Ammeter will indicate an actual current value while the Current display on the AC Power Source will indicate a necessary value needed to be calibrated. Adjust the load or voltage to get the reading from the ammeter to be suggestion value(500VA≦ 4.50A、1KVA≦9.00A、2KVA≦18.00A). Using the current value from the RMS Ammeter, press ▲ or ▼ key from the Current display to scroll the display which indicates the current value, in order to set the current according to the RMS Ammeter. After it is done, press  key to save the data stored and the high range current calibration is completed.

Low Range Power Calibration

Press ▲ or ▼ key from the Frequency display to select “P-LO". Connect a variable resistor as load and a calibrated true RMS Power Meter on one of the output socket and press key in order to activate the CPU to read a low range offset power and send a 100VAC output voltage. The accurate RMS Power meter will indicate an actual power value while the Current display on the AC Power Source will indicate a necessary value needed to be calibrated. Adjust the load or voltage to get the reading from the RMS Power Meter to be 100.0W. By using the power value from the RMS Power Meter, press ▲ or ▼ key from the Current display to scroll the display which indicates the power value, in order to set the power according to the RMS Power Meter. After it is done, press to save the data stored and the low range power calibration is completed.

High Range Power Calibration

Press ▲ or ▼ key from the Frequency display to select “P-HI". Connect a variable resistor as load and a calibrated true RMS Power Meter on one of the output socket and press key in order to activate the CPU to read a high range offset power and send a 100VAC output voltage. The accurate RMS Power Meter will indicate an actual power value while the Current display on the AC Power Source will indicate a necessary value needed to be calibrated. Adjust the load or voltage to get the reading from the power meter to be suggestion value(500VA≦500W、1KVA≦1000W、2KVA≦2000W). Using the power value from the RMS Power Meter, press ▲ or ▼ key from the Current display to scroll the display which indicates the power value, in order to set the power according to the RMS Power Meter. After it is done, press to save the data stored and the high range power calibration is completed.

Each calibration items of the above is non-related to one another. If the calibration has to be terminated half way, user can just press key to exit the calibration mode.

After the calibration is completed, turn OFF the AC Power Source.

CHAPTER 7. SERVICE AND MAINTENANCE

Users' Protection

To avoid electric shock, do not dismantle the cover of the AC Power Source. When any abnormal symptom happens on the instrument, please kindly contact Ikonix office or the authorized local distributor for further assistance.

Consistency Of Service

The AC Power Source with the input circuit and all related parts are required to be checked and calibrated at least once every year. This is to protect user in terms of safety and to ensure a high accuracy of this AC Power Source all the time.

Users' Modification

Modification by user on the AC power Source internal circuits and parts are not allowed. The warranty is void if the warranty seal is broken or the AC Power Source is being opened by unauthorized person. Ikonix reserves the right to convert as original circuit and charge the customer.