
OPERATOR'S MANUAL

International Power Source

(Models 85510070, 85510080
and 85510090)

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INTRODUCTION

This International Power Source provides exceptionally distortion-free sine-wave output, unequalled peak current capability, and stable, oscillation-free operation into any power factor.

The International Power Source accepts 115 vac power at any frequency from 45 to 440 Hz. Output voltage range (selectable from the front panel) is 0 to 130 VAC or 0 to 260 vac. The International Power Source is rated at 1 kva output, single phase.

The International Power Source is ideal in the following applications:

- To test or burn-in equipment that has been configured to operate on the electrical power which is available overseas.
- To test equipment operation under abnormal power line conditions (i.e. when the voltage and frequency vary significantly from their nominal values).
- To operate equipment purchased overseas without modifications using North American line power.
- To power equipment requiring an input frequency that is more stable than is ordinarily available from the power mains.
- To serve as an isolated, adjustable voltage regulator to power any equipment.

DESCRIPTION

The International Power Source uses pulse width modulation (PWM) techniques to convert rectified line voltage into a highly stable ac sine wave. Wide-band voltage feedback and "feed forward" current feedback provide output regulation that can respond to a 100% load change in 200 μ seconds.

When line power is first applied by the INPUT POWER switch, a soft-start resistor is connected to limit the initial input current surge. This avoids tripping circuit breakers and prevents power dips that could disrupt other equipment. During this soft-start period, the International Power Source output is unconditionally inhibited (OUTPUT OFF indicator on). After 3 or 4 seconds, a relay closes shorting out the soft-start resistor. At this time, the International Power Source output may be turned on or off using the OUTPUT switch.

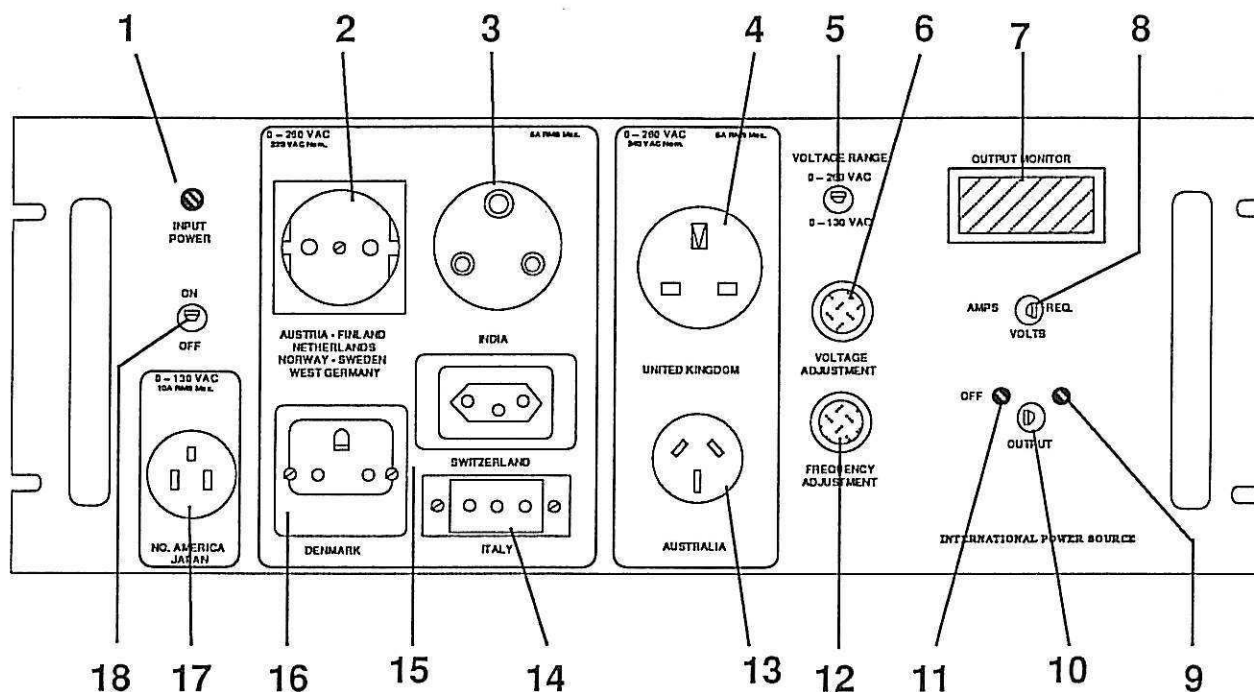
Protection circuitry is provided to detect fault conditions and prevent damage due to various types of overload. The protection circuitry detects RMS output over-current, excessive internal dc voltage, shorted output, and overheating. Any of these faults causes the International Power Source output to latch into the inhibit mode (OUTPUT OFF indicator on). Resetting requires turning the INPUT POWER switch off, correcting the fault, and reapplying power. Current limiting provides protection against peak output over-current without International Power Source shut-down.

The output of the PWM circuitry is filtered and transformer coupled to eliminate line transient and common mode spikes. Both output wires from the output transformer are floating and isolated from the input power lines. The G output terminal on each socket is tied to chassis ground and is connected to the input power ground.

SPECIFICATIONS

INPUT VOLTAGE	
85510070, 85510080 85510090	115 vac 230 vac
INPUT FREQUENCY	45 to 440 Hz
OUTPUT VOLTAGE	0 to 130 vac or 0 to 260 vac; set from the front panel potentiometer
OUTPUT FREQUENCY	
85510070, 85510090 85510080	47 to 63 Hz 47 to 500 Hz
OUTPUT VA	750 VA per unit, single phase
RMS OUTPUT CURRENT	
130 VAC RANGE 260 VAC RANGE	750 + output volts, 7.5 amps maximum below 100 vac 750 + output volts, 3.8 amps maximum below 200 vac
PEAK OUTPUT CURRENT	2 x RMS (standard models)
LINE & LOAD REGULATION	2%
FREQUENCY STABILITY	0.25%
EFFICIENCY	80% with full linear load
HARMONIC DISTORTION	Less than 1% into full linear load
POWER FACTOR	0 to 1
RESPONSE TIME	200 μ sec with 100% load change
OUTPUT PROTECTION	Automatic peak current limiting Automatic RMS current shutdown Automatic thermal shutdown
OPERATING TEMPERATURE	-10°C to + 40°C
STORAGE TEMPERATURE	-40°C to +75°C
WEIGHT	50 lbs
DIMENSIONS	7 in. (H) x 19 in. (W) x 17 in. (D) - slots for standard rack mounting

CONTROLS/INDICATORS



#	CONTROL/INDICATOR/ OUTPUT SOCKET	FUNCTION
1	INPUT POWER on indicator	Lights when power is applied to International Power Source and INPUT POWER switch is in the ON position.
2	SCHUKO/CEE 7-7 SOCKET	<p>220 vac outlets suitable for use with products destined for Austria, Finland, the Netherlands, Norway, Sweden, and West Germany. This socket may also be used in France and Belgium, provided that the cordset has a CEE 7-7 plug (PCC cordset model 86512030, for example).</p> <p>CAUTION! DO NOT CONNECT ANY FRENCH OR BELGIAN POWER CORD THAT DOES NOT UTILIZE THE GROUNDING SIDE CONTACTS OF THE SCHUKO SOCKET ON THE INTERNATIONAL POWER SOURCE. USE OF FRENCH OR BELGIAN PLUGS WITHOUT GROUNDING SIDE CONTACTS WILL LEAVE THE LOAD UNGROUNDED.</p>
3	INDIAN SOCKET	Indian socket (220 vac) conforming to British Standard 546 (formerly used as a standard in the UK) and also used in some parts of Africa.

(Controls/Indicators, continued)

#	CONTROL/INDICATOR/ OUTPUT SOCKET	FUNCTION
4	BRITISH SOCKET	British socket (240 vac) conforming to British Standard 1363. Also used in Malaysia, Singapore, and Hong Kong.
5	VOLTAGE RANGE switch	Used to adjust output voltage from 0-130 vac output ranges. The North American/Japan socket is only powered when this switch is in the 0-130 vac position.
6	VOLTAGE ADJUSTMENT control	Used to adjust output voltage from 0-130 vac or 0-260 vac depending on selection made on VOLTAGE RANGE switch. May be adjusted under both load and no-load conditions. Use the locking collar to secure your setting.
7	OUTPUT MONITOR	Reads output amps, volts, or frequency in hertz. OUTPUT must be ON to read amps or volts.
8	AMPS/VOLTS/FREQ switch	Used to select mode for monitor readout under both load and no-load conditions.
9	OUTPUT ON indicator	Lights when power is available at output sockets.
10	OUTPUT switch	Used to switch power on or off to output sockets.
11	OUTPUT OFF indicator	Lights when power to output sockets is switched off by output switch or after automatic shutdown.
12	OUTPUT FREQUENCY control	Used to adjust output frequency from 47-63 Hz (47-500 Hz for the 85510080). May be adjusted under both load and no-load conditions. Use the locking collar to secure your setting.
13	AUSTRALIAN SOCKET	Australian socket (240 vac) used in Australia. May also be used to power products destined for New Zealand, Papua New Guinea, and the People's Republic of China.
14	ITALIAN SOCKET	Italian socket (220 vac). This socket is also used in parts of North Africa and South America.
15	SWISS SOCKET	Swiss socket (220 vac) is used only in Switzerland.
16	DANISH SOCKET	Danish socket (220 vac) is used only in Denmark.
17	NORTH AMERICAN/JAPAN SOCKET	North American (115 vac nominal) is used in Canada, the U.S., Mexico (without the grounding contact), Japan, and other parts of the Far East.
18	INPUT POWER switch	Used to apply power to International Power Source.

OPERATING INSTRUCTIONS

RECEIVING

Upon receipt of the International Power Source, inspect both the shipping container and the International Power Source for damage. Notify the carrier immediately of any signification damage. Although it is the sole responsibility of the receiver to file any claims with the freight carrier, PANEL COMPONENTS CORPORATION will render all reasonable assistance, including providing estimates for repair.

Next, check the packing slip to see that all items listed are present. Claims for shortages will not be honored after 10 days or if the original packing material has been discarded. Also, check the International Power Source front panel to make sure that the unit is the one ordered.

It is recommended that the original shipping container and packing material be kept for at least 90 days for use in the unlikely event of a need for factory service.

INITIAL TEST

1. Set INPUT POWER switch (18) to OFF.
2. Set OUTPUT switch (10) to ON.
3. Set VOLTAGE switch (5) to 0-130 vac.
4. Turn VOLTAGE ADJUSTMENT control (6) until it is fully counterclockwise.
5. Set AMPS/VOLTS/FREQ switch (8) to VOLTS.
6. Plug power cord of 85510070 or 85510080 into a 115 vac outlet. For the 85510090 use a 230 vac outlet).
7. Set INPUT POWER switch (18) to ON.
 - The INPUT POWER on indicator (1) illuminates.
 - The OUTPUT OFF indicator (11) illuminates for 3-4 seconds.
 - After 3-4 seconds the OUTPUT ON indicator (9) illuminates.
 - The OUTPUT MONITOR (7) reads approximately 0 volts.
8. Slowly turn the VOLTAGE ADJUSTMENT control (6) until it is fully clockwise.
 - The OUTPUT MONITOR (7) increases steadily to a reading of approximately 130 volts.
9. Set the VOLTAGE switch (5) to 0-260 vac.
 - The OUTPUT MONITOR (7) reads approximately 260 volts.
10. Slowly turn the VOLTAGE ADJUSTMENT control (6) until it is fully counterclockwise.
 - The OUTPUT MONITOR (7) decreases steadily to a reading of approximately 0 volts.
11. Set the VOLTAGE switch (5) to the correct range and turn the VOLTAGE ADJUSTMENT control (6) until the OUTPUT MONITOR (7) indicates the correct voltage for the equipment to be powered. To

12. Set the AMPS/VOLTS/FREQ switch (8) to FREQ and slowly turn the FREQUENCY ADJUSTMENT control (12) fully clockwise and then fully counterclockwise.
 - The OUTPUT MONITOR (7) increases steadily to approximately 63 hertz (85510070 and 85510090) or 500 Hz (85510080) and then decreases steadily to approximately 47 hertz.
13. Turn the FREQUENCY ADJUSTMENT control (12) until the OUTPUT MONITOR (7) indicates the correct frequency for the equipment to be powered. To avoid inadvertently changing the setting on the FREQUENCY ADJUSTMENT control (12), turn the locking ring clockwise.
14. Set the OUTPUT switch (10) to OFF.
 - The OUTPUT ON indicator (9) goes out.
 - The OUTPUT OFF indicator (11) illuminates.

WARNING

To prevent a chance electrical shock, always set OUTPUT switch (10) to OFF before plugging or unplugging a piece of equipment into/from the INTERNATIONAL POWER SOURCE.

15. Plug the equipment into the correct socket (2, 3, 4, 13, 14, 15, 16 or 17).
16. Set the OUTPUT switch (10) to ON.
 - The OUTPUT OFF indicator (11) goes out.
 - The OUTPUT ON indicator (9) illuminates.
17. Set the AMPS/VOLTS/FREQ switch (8) to any position at any time so that output current, potential or frequency may be read on the OUTPUT MONITOR (7).

NOTE: If any of the function or indications are not as described above, please notify PANEL COMPONENTS CORPORATION for corrective action.

CHANGING LOADS

Use this procedure anytime one piece of equipment is unplugged and another is plugged into the INTERNATIONAL POWER SOURCE.

WARNING

To prevent a chance electrical shock, always set OUTPUT switch (10) to OFF before plugging or unplugging a piece of equipment into/from the INTERNATIONAL POWER SOURCE.

1. Set the OUTPUT switch (10) to OFF.
 - The OUTPUT ON indicator (9) goes out.
 - The OUTPUT OFF indicator (11) illuminates
2. Disconnect the equipment from the INTERNATIONAL POWER SOURCE.

3. Set the AMPS/VOLTS/FREQ switch (8) to VOLTS.
4. Check that the voltage reading on the OUTPUT MONITOR (7) is correct for the next piece of equipment that will be connected to the INTERNATIONAL POWER SOURCE.
 - Change the VOLTAGE switch (5) if necessary.
 - Adjust the VOLTAGE ADJUSTMENT control (6) if necessary.
 - If it is not, repeat step 4.
5. Plug the next piece of equipment into the correct socket (2, 3, 4, 13, 14, 15, 16 or 17).
6. Set the OUTPUT switch (10) to ON.
 - The OUTPUT OFF indicator (11) goes out.
 - The OUTPUT ON indicator (9) illuminates.
7. Set the AMPS/VOLTS/FREQ switch (8) to any position at any time so that output current, potential or frequency may be read on the OUTPUT MONITOR (7).

RESET AFTER FAULT

1. Output power has been inhibited if you observe the following indications during normal operations:
 - The OUTPUT switch (10) is in the ON position.
 - The OUTPUT ON indicator (9) goes out.
 - The OUTPUT OFF indicator (11) illuminates.
2. Set INPUT POWER switch (18) to OFF.
 - The INPUT POWER switch (1) goes out.
3. Correct the fault that caused the output to be inhibited.
 - Equipment may be drawing more than RMS OUTPUT CURRENT listed in specifications on page 2.
 - Something connected to an output socket (2, 3, 4, 13, 14, 15, 16, or 17) may be shorted.
 - The INTERNATIONAL POWER SOURCE may have overheated. Check that the cooling fan and the vents are not blocked. If overheating is the problem, allow the INTERNATIONAL POWER SOURCE adequate time to cool down before restarting.
4. Do the INITIAL TEST procedure starting on page 5.

SHUTDOWN

1. Set OUTPUT switch (10) to OFF;
 - The OUTPUT ON indicator (9) goes out.
 - The OUTPUT OFF indicator (11) illuminates.
2. Disconnect the equipment from INTERNATIONAL POWER SOURCE.
3. Set the INPUT POWER switch (18) to OFF.
 - The INPUT POWER indicator (1) goes out.

WARRANTY

FOR ALL DOMESTIC SHIPMENTS

Notwithstanding any provision of any agreement the following warranty is exclusive:

PANEL COMPONENTS CORPORATION warrants each product it manufactures to be free from defects in material and workmanship under normal use and service for the period of 12 months from date of purchase. This warranty shall not apply to any product or parts which have been subject to misuse, neglect, accident, or abnormal conditions of operation.

In the event of failure of a product covered by this warranty, PANEL COMPONENTS CORPORATION will repair and calibrate the product returned to the factory within 12 months of the original purchase; provided the factory's examination discloses to its satisfaction that the product was defective. PANEL COMPONENTS CORPORATION may, at its option, replace the product in lieu of repair. With regard to any product returned within 12 months of the original purchase, said repairs or replacement will be made without charge. If the failure has been caused by misuse, neglect, accident or abnormal conditions of operations, repairs will be billed at a nominal cost. In such case, an estimate will be submitted before work is started, if requested.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR MERCHANTABILITY, FITNESS, OR ADEQUACY FOR ANY PARTICULAR PURPOSE OR USE. PANEL COMPONENTS CORPORATION SHALL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER IN CONTRACT, TORT, OR OTHERWISE.

IF ANY FAILURE OCCURS, THE FOLLOWING STEPS SHOULD BE TAKEN:

1. Notify PANEL COMPONENTS CORPORATION, giving full details of the difficulty, and include the model number and serial number. On receipt of this information, service data or shipping instructions will be given to you.
2. On receipt of the shipping instructions, forward the instrument, *transportation prepaid*. Repairs will be made at the factory and the product returned, *surface* transportation prepaid.

SHIPPING TO MANUFACTURER FOR REPAIR

All shipments of PANEL COMPONENTS CORPORATION products should be made PREPAID. The product should be shipped in the original packing carton; or if it is not available, use any suitable container that is rigid and of adequate use. If a substitute container is used, the product should be wrapped in paper and surrounded with at least four inches of shock-absorbing material.

CLAIM FOR DAMAGE IN SHIPMENT TO ORIGINAL PURCHASER

All products should be thoroughly inspected immediately upon original delivery to purchaser. All material in container should be checked against the enclosed packing list. The manufacturer will not be responsible for shortages against the packing sheet unless notified immediately. If the product is damaged in any way, a claim should be filed with the carrier immediately. (To obtain a quotation to repair shipment damage, contact the factory.) Final claim and negotiations with the carrier must be completed by the customer.