

# KENWOOD

## PS-40

### SWITCH MODE POWER SUPPLY INSTRUCTION MANUAL

Thank you for purchasing the Kenwood PS-40 DC Power Supply. This unit has been carefully engineered and manufactured to rigid quality standards, and should give you satisfactory and dependable operation for many years.

**FEATURES:** The Kenwood PS-40 switch mode 13.8 VDC power supply is a compact, lightweight, matching supply compatible with the TS-50, TS-60, & most 100W HF transceivers. This supply is ideal for both home & travel, and since the AC input voltage is externally switch selectable, tools and changing fuses are not required.

#### 1. BEFORE OPERATION

Read this instruction manual before placing your new PS-40 power supply in service. Save this instruction manual for future reference.

The following explicit definitions apply in this manual:

**WARNING:** Do not disregard. Personal injury may occur.

**CAUTION:** Do not disregard. Equipment damage may occur.

**NOTE:** Inconvenience only if disregarded. No risk of equipment damage or personal injury.

**CAUTION:** 1. To begin, the transceiver, and the PS-40 Power Switches must be OFF.

2. This supply is shipped with the Input Voltage Selector Switch in the 115 VAC position. Do not connect to a 230 VAC power source until first selecting the 230V input switch position on the rear panel. Line fuse change is not required. Failure to follow this instruction will render the power supply inoperative. "Blown" input MOVs (metal oxide varistors) will not be serviced under the warranty.

3. Do not connect the AC line cord, and do not turn the power supply ON, until after the rear panel voltage selector switch is correctly set for your local line voltage, the DC connections, & the ground connections are double checked. Observe DC polarity!

4. Remove (and save) all packing material before operation. Do not block the vents or the fan exhaust. Allow 15 cm (6 inches) space around the supply.

5. Do not operate in or expose the supply to direct sunlight or heat.

6. Do not drop or insert conductive material, or any material, into the ventilation slots.

**INFORMATION:** What are the advantages of a Switch Mode Power Supply? High current capacity, excellent voltage regulation, light weight, compact, cool running, efficient, easily portable, and very reliable. The Kenwood PS-40 has been specifically designed for HF operation, and through careful engineering, has been designed with a high degree of electrical noise suppression. Follow these simple instructions to enjoy the benefits of this state-of-the-art, Kenwood DC power supply.

## 2. CONNECTION & OPERATION

- CONNECTION:** 1. Observe polarity! Connect the transceiver power supply cable positive lead(s) to the RED binding post, & the negative lead(s) to the BLACK binding post.
2. For safety & performance, connect a short ground lead between the transceiver and the PS-40 chassis ground lugs. Connect the equipment to an earth ground.
3. Check the position of the rear panel AC selector switch, which should be set to 115 VAC in the USA. If your local supply voltage is 230 VAC, slide this switch to the 230 VAC position. Line fuse change is not required.
4. Connect the AC plug to the AC power source, only after steps 1 - 3 are completed.

**NOTE:** 1. The PS-40 will not operate if the DC output terminals are shorted.

2. The PS-40 may not operate if the power switch is turned ON with the transceiver ON, in the transmit mode. (The PS-40 may overcurrent protect.)

- OPERATION:** 1. Position the radio, antenna, and power supply to minimize any received spurious noise from the supply, and excess RF energy from the transmitter. Ideally, the antenna should be no closer to the power supply than 35 feet, to reduce the possibility of transmitter energy effecting the supply, and of the supply introducing noise into the receiver.
2. With the transceiver OFF, turn the PS-40 power switch ON. The red LED will illuminate, indicating DC output.
3. Transceiver power may now be turned ON.
4. When shutting down operation for the day, first turn OFF the transceiver, then the PS-40.

## 3. SPECIFICATIONS

Power Requirement	115/230 VAC, $\pm 10\%$ , 50/60 Hz (rear panel switch)
Output Voltage:	13.8 VDC (reference)
Rated Output Current	20A Maximum (continuous), 23A Peak
Output Voltage Regulation	$\pm 50$ mV DC (no load)
	300 mV (at load current to 23A)
Ripple:	Less than 20 mV rms.
Efficiency:	80%, minimum
Dimensions:	178W x 63H x 225D mm (178 x 68 x 252 with projections)
	7.0W x 2.5H x 8.9D inch (7.0 x 2.7 x 9.9 with projections)
Weight:	2 kg (4.4 pounds) approximate
Temperature Operating Range	-20° C to +60° C
	-4° F to +140° F
Protection:	Excess AC Input, Output Over Voltage, Overcurrent, Thermal shut- down latches output off, (recycle the AC input to reset- turn off for 1 minute, then turn on.

**NOTE:** Ratings are subject to change without notice or obligation, due to advancements in technology.

**FCC Part 15 compliance statement:** "This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1.) This device may not cause harmful interference, and 2.) this device must accept any interference received, including interference that may cause undesired operation."

**4. CLEANING:** Disconnect AC power. Do not use any kind of solvent or abrasive. Use only a water dampened, soft cloth to wipe the unit. Dry the unit before reconnecting AC power.

- 5. TROUBLESHOOTING:** 1. If the supply fails to turn ON, be sure the associated transceiver is OFF. The supply will turn on with a moderate load (transceiver in receive mode), but may not turn ON if the associated transceiver is in the transmit (high current consumption) mode.
2. The supply may protect due to an excessive load or short. Turn the PS-40 Power Switch OFF, disconnect the DC leads, wait approximately one minute, and turn the supply back ON. Determine, and correct, the cause of protection.
3. The supply may turn off due to excess heat if the vents or the fan exhaust is blocked. Turn OFF the PS-40, & provide better spacing around the unit. After the supply is cool, once again power-up the unit. Note that the power switch must be cycled to unlatch thermal protection.
4. The supply may shut off due to excessive transmitter energy being coupled into the AC or DC lines. Either your antenna is too close (less than 10 feet, for example) to the equipment, or the antenna or feed system is not radiating properly. First, check the antenna system SWR. Then, if necessary, relocate either the antenna, or the equipment farther apart. Do not expose yourself to excessive RF fields.
5. The receiver may "hear" the supply. A slowly moving, slightly buzzing carrier heard in the receiver may be caused by the antenna being too close to the equipment. As with transmitter trouble, a loose coaxial connector, broken or missing ground, or no ground between the supply and transceiver ground studs may aggravate this problem. Normally, these noises will be below the background, or "band" noise. A distance of 35 feet between antenna & equipment is generally recommended for any 100W HF installation, for several reasons. RF feedback from the transmitter may create instability in any power supply, causing a poor sounding, raspy or unstable transmitted signal. Transmitter RF may couple into the house wiring, telephone lines, TV & stereo systems, and other appliances, causing "beeps", "pops", or other malfunctions. Follow good installation practices, even when operating temporary portable. Position the antenna as far, and as high from the equipment (and you, the operator) as possible. Remember, a poorly performing antenna system means you will not hear, and you will not be heard.

- 6. SERVICE** 1. Retain your bill of sale as proof of purchase.
2. If an abnormal odor or smoke is detected, immediately turn OFF & disconnect the supply.
3. Pack the supply in the original, or an equivalent box & packing. Include a note explaining the reason service is required. Provide your name & shipping address, along with your phone number(s) & best time to call. A Fax number, & E-mail address would also be helpful, so that we may contact you, if required.
4. Ship the unit to the following location for service;

Kenwood Service Corporation  
2201 East Dominguez Street  
Long Beach, CA 90810

- WARNING:** 1. No user serviceable parts inside. Refer service to a qualified service organization. For your safety, a schematic has NOT been provided.
2. To avoid the risk of electric shock, under no circumstance should the unit be opened. The internal line fuse is soldered-in. There are no user adjustments inside.
3. Do not connect, disconnect, or operate the supply in a damp or wet location.
4. Do not pull the power cord to disconnect the supply. Grasp the plug with dry fingers, taking care not to touch the "live" pins.