SS-100 UNIVERSAL “SOFT START” INSTALLATION INSTRUCTIONS

PARTS SUPPLIED WITH THIS KIT:

| (1) SS-100 “Soft Start” Circuit Board | (2) 100μF 63VDC Electrolytic Capacitors |
| (2) 48VDC SPDT Relays | (1) 1N4005 Diode |
| (2) 20Ω 10-Watt Resistors | (1) 2.4kΩ 2-Watt Resistor |

It is not possible to give exact installation instructions for the Universal “Soft Start” module because I have neither the schematic nor the physical layout of your specific amplifier or equipment. I can give you enough information, together with the theory of operation of the Universal “Soft Start”, to help you install this module.

**NOTE:** This module is designed for a typical 120 VAC only or 120/240 VAC dual-primary transformer system. See the installation diagram for the Clipperton-L amplifier below. This is a typical installation in a 117/234 VAC dual-primary power supply. The SS-100 will also in a 237 or 240 VAC single primary transformer system as long the AC mains are a 4-wire 234/240 VAC system (2 hot legs, a neutral and a ground!) It will not work in a 234/240 VAC 3-wire system (no neutral).

Please examine the SS-100 module. Note that there are letters on the foil side that designate the leads to be connected. The “C” and “D” leads will be connected to the switched power input. The “A” and “B” leads will be connected to the load. A #20 wire from the hole between pads “C” and “D” (user supplied) is connected to the return (finish lead of the transformer winding) of the input power line (NOT to chassis ground). The module can be mounted using silicone adhesive relay side to the chassis.

( ) Assemble the SS-100 according to the parts layout diagram.

The overall operation is quite simple. When the power switch is turned ON, 120 volts is applied to the load through a 20Ω 10W resistor in either or both sides of the AC input lines. The voltage at the load is measured by the diode connected to pad “A”. As the filter capacitors and other components charge or stabilize in current drain, the voltage at pad “A” rises. When this voltage reaches approximately 90 volts, the two relays are activated, shorting out the 20Ω resistors. Now the power circuit is back to its full power state and the soft start circuit is locked out of operation.

**INSTALLATION IN A 234/240 VAC 4-WIRE EQUIPMENT OR SYSTEM**

If this circuit is to be installed in equipment operating from 234 AC 4-wire mains system, the following connections must be used:

PAD A One leg of the 234/240 VAC to the load device, usually the transformer primary.
PAD B One leg of the 234/240 VAC to the load device, usually the transformer primary.
PAD C One leg of the 234/240 VAC mains supply (usually RED or BLACK).
PAD D One leg of the 234/240 VAC mains supply (usually RED or BLACK).
PAD F Connection to the neutral of the 234/40 VAC mains supply (usually WHITE) (NOT GROUND-GREEN).

**120-VOLT OPERATION**

If this circuit is to be installed in equipment operating from 120-volt AC power lines, a modification may be required. The 20Ω 10-watt resistors must be changed to 10Ω 10-watt. These resistors are readily available at any electronic store or can be purchased from Harbach Electronics. However, if the soft start is used with equipment running on less than 120 volts, the resistors probably do not need to be changed.

**NOTE:** If only one side of the input power line is switched, be sure that the switched lead is on the “C to A” side of the soft start circuit.
**SS-100 INSTALLATION IN A DENTRON CLIPPERRTON-L AMPLIFIER**

120/240 (117/234) VAC DUAL-PRIMARY TRANSFORMER POWER SUPPLY

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**Diagram:**

- **SS-100 PADS**
  - C → CUT
  - A

- **Small RED wire from SS-100 goes to terminal #3 of voltage selector strip**

- **117V JUMPERS**
  - Small jumper between terminals #3 and #4

- **INTERLOCK SW**
  - D → CUT

- **18A • SB • FUSE F1**
  - (12A • SB AT 234V AC)

- **C42, C43, BLK, GRN, WHT**

- **234 AC PRIMARY HOOKUP**
  - **LEAVE AS IS**
  - **INSTALL JUMPER**
  - **CONNECT TO 234V RETURN LINE**

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*Note:* The diagram includes detailed connections and jumpers necessary for the correct installation of the SS-100 in a Dentron Clippertron-L Amplifier.
A #20 wire goes through the hole between pads “C” and “D” and solders to the pad on the foil side of the PC board. This is the return (finish lead of the transformer winding) of the input power line (NOT connected to chassis ground). This is the component-side view.

HARBACH ELECTRONICS, LLC
Jeff Weinberg – W8CQ
468 County Road 620
Polk, OH 44866-9711
(419) 945-2359
http://www.harbagelectronics.com
info@harbagelectronics.com