

INIVEN

Power Supply
IP-23/IP-23R

INSTRUCTION MANUAL

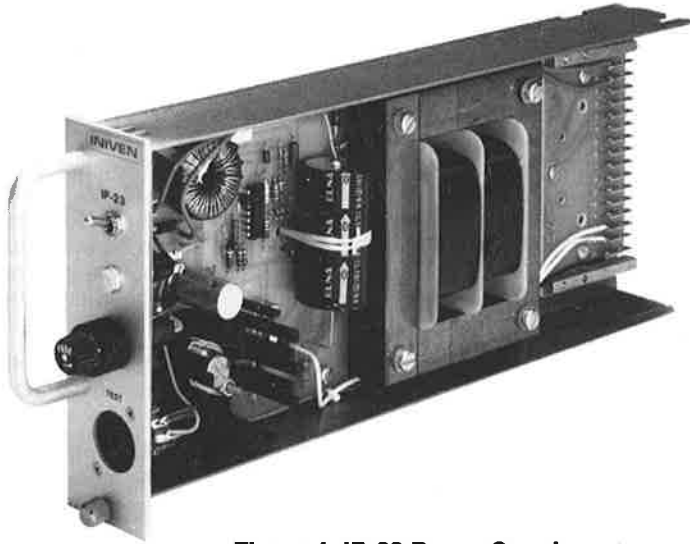


Figure 1. IP-23 Power Supply

DESCRIPTION

1.1 The INIVEN™ IP-23/IP-23R Power Supply (see Figure 1) is a "switching" type voltage regulated unit that delivers 12 Vdc at a maximum 2300mA. This unit is intended for use as a power supply for tone telemetry units.

1.2 Several features are incorporated into the IP-23 that provide ease of operation and test. Some of these features are listed in Table 1. The Model IP-23R features a power transfer relay that switches the load to an external battery and/or alarm if the IP-23R or ac power fails.

1.3 SPECIFICATIONS

Input Voltage: 105-135 Vac, 50-70 Hz

Input Current: 0.40 amperes maximum

Output Voltage: 11-13 Vdc Adjustable

Output Current: 2300 mA Maximum

Load Regulation: 150 mV maximum
(No load to Full Load)

Ripple: 50 mV maximum

Operating Temperature: -30 to +65°C

Temperature Co-efficient: 0.038% of output voltage C°

Primary Protection: 1 Amp Fused (Output current limited)

Weight: 5 lbs. (2.2 Kg)

Dimensions: (See Figure 3)

Table 1. Design Features

FEATURE	FUNCTION
Indicator Lamp	A front panel mounted lamp that indicates status of the output dc voltage.
Test Socket	The socket is front panel mounted and facilitates measurement of the output dc voltage.
On/Off Switch	Switch is mounted on front panel for ease of system operation.
Line Transient	Supply is designed such that no measurable transients are generated when power is applied or removed.
Power Dissipation	A switching regulator is employed to insure that internal power dissipation is held to a very low level.

2. INSTALLATION

2.1 Unpacking

2.2 Unpacking and handling of the IP-23/IP-23R Power Supply should be consistent with procedures used in handling electronic equipment.

2.3 Inspection

2.4 Visually inspect the power supply for damage from rough handling and faulty packing. Visually inspect for:

- (1) Loose wires.
- (2) Deformation in the frame.
- (3) Faceplate damage.
- (4) Evidence of moisture or condensation within the units.
- (5) Loose hardware or parts that may have been jarred loose during shipment or handling.

2.5 Installation

2.6 The IP-23/IP-23R Power Supply is mounted in standard INIVEN™ tone frames.

2.7 Install the power supply as follows:

- (1) Leave terminal block mounted, as shipped, on rear of each unit.
- (2) Remove mounting screws from terminal blocks.
- (3) Insert power supply into tone frame and secure with knurled retaining screw on front panel.
- (4) Install and tighten mounting screws that hold terminal block to mounting frame.
- (5) Power supply can now be removed, if desired.
- (6) Connect power supply as shown in Figure 2.

4. TROUBLE SHOOTING

4.1 Trouble shooting of the IP-23/IP-23R Power Supply can be accomplished by using the functional description of the unit and the system schematic. (See Figure 2).

5. PARTS LIST

The following parts list is included to facilitate maintenance of the IP-23/IP-23R Power Supply. All parts are listed in order of their reference designators, as applicable. Figure 3 exhibits the major components of the power supply. Figure 4 is a component diagram of printed circuit board A1.

5. IP-23/IP-23R Power Supply Assembly (see figure 3). The "Usable On Code" column identifies parts/assemblies which apply to only one particular power supply model. If the "Usable On Code" column is left blank, the part/assembly applies to all models.

MODEL	USABLE ON CODE
IP-23	A
IP-23R	B

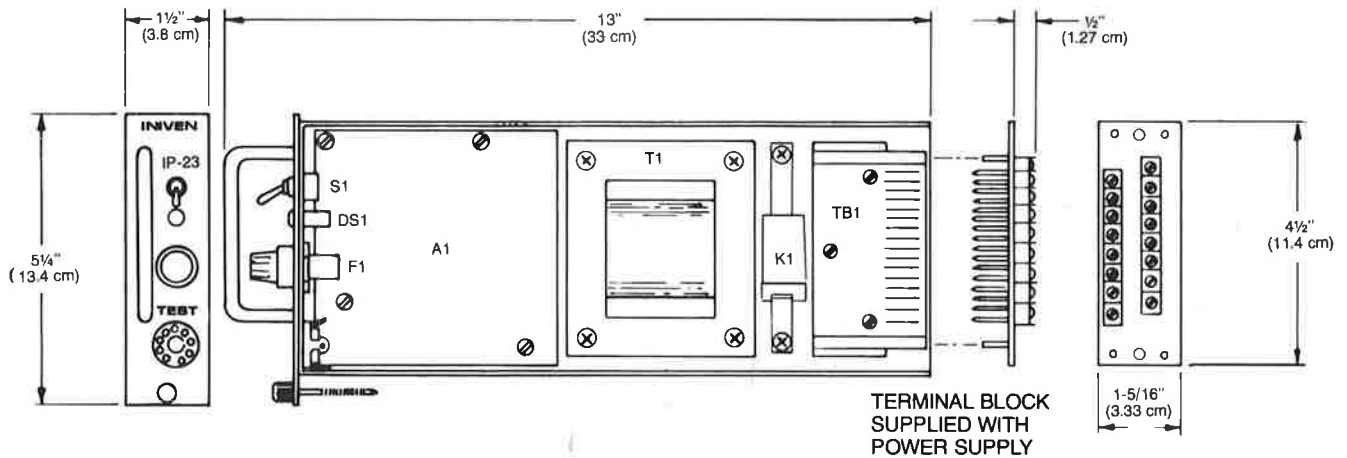


Figure 3. IP-23/IP-23R Power Supply — Dimensions and Component Identification.

REF DESIG	DESCRIPTION	QTY	USABLE ON CODE	PART NUMBER	MFR.
	IP-23 POWER SUPPLY		A	D210003	INIVEN
	IP-23R POWER SUPPLY		B	D210004	INIVEN
F1	• FUSE	1		3AG-1AMP	Littlefuse
J1	• CONNECTOR, Receptacle	1		417A4	Connector Corp.
	• HANDLE	1		230-18AL832C	Promptus Elec.
	• SCREW, Captive	1		A210301	INIVEN
	• INDICATOR, Cartridge	1		CML540285	Chicago Miniature
K1	• RELAY	1	B	T154X179	Allied
	• CLIP, Relay	1	B	30040-1	Allied
S1	• SWITCH, Toggle, SPDT	1		7101SYZB	C & C
	• FACEPLATE	1	A	B210151	INIVEN
	• FACEPLATE	1	B	B210152	INIVEN
T1	• TRANSFORMER	1		B210266	INIVEN
A1	• PRINTED CIRCUIT BOARD ASSY (See figure 4 for breakdown)	1		210005	INIVEN

5.2 Printed Circuit Board Assembly A1 (See figure 4)

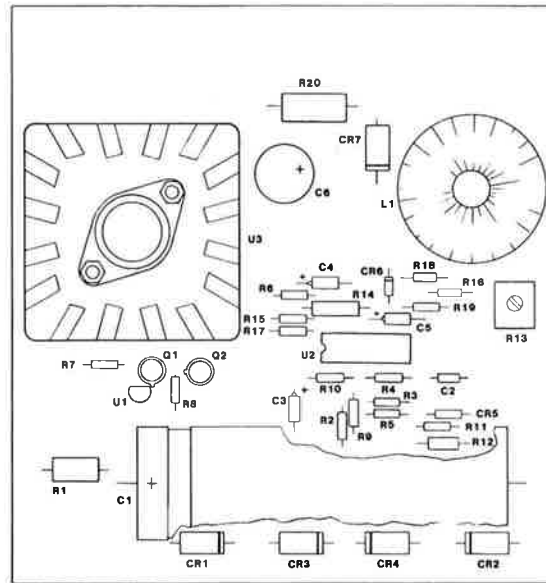


Figure 4. Printed Circuit Board Assembly A1

REF DESIG	DESCRIPTION	QTY	PART NUMBER	MFR.
	PRINTED CIRCUIT BOARD ASSY		D210005	INIVEN
C1	• CAPACITOR, 3300 uf, 50V, Electrolytic	1	50TL3300	Elna
C2	• CAPACITOR, 100 pf, 100V, 10%	1	C114C102K1X5CA	Kemet
C3, C4	• CAPACITOR, 0.1 uf, 35V, Tant	2	35SC0.1	Elna
C5	• CAPACITOR, 1.5 uf, 25V, Tant.	1	25SC1.5	Elna
C6	• CAPACITOR, 270 uf, 25V, Electrolytic	1	672D277H025DM5C	Sprague
CR1-CR4	• DIODE	4	MR501	Motorola
CR5	• DIODE	1	1N751A	
CR6	• DIODE	1	1N4148	
CR7	• DIODE	1	1N5353B	
L1	• COIL, Toroidal	1	B210267	INIVEN
Q1	• TRANSISTOR	1	2N2222A	
Q2	• TRANSISTOR	1	2N2907A	
R1	• RESISTOR, 3.3K, 1/2W, 5%	1	EB3325	Allen Bradley Co.
R2	• RESISTOR, 5.6K, 1/4W, 5%	1	CB5625	Allen Bradley Co.
R3	• RESISTOR, 47K, 1/4W, 5%	1	CB4735	Allen Bradley Co.
R4	• RESISTOR, 27K, 1/4W, 5%	1	CB2735	Allen Bradley Co.
R5	• RESISTOR, 100K, 1/4W, 5%	1	CB1045	Allen Bradley Co.
R6	• RESISTOR, 1.5K, 1/4W, 5%	1	CB1525	Allen Bradley Co.
R7	• RESISTOR, 1K, 1/4W, 5%	1	CB1025	Allen Bradley Co.
R8, R15-R18	• RESISTOR, 10K, 1/4W, 5%	5	CB1035	Allen Bradley Co.
R9	• RESISTOR, 470K, 1/4W, 5%	1	CB4745	Allen Bradley Co.
R10	• RESISTOR, 56K, 1/4W, 5%	1	CB5635	Allen Bradley Co.
R11	• RESISTOR, 15K, 1/4W, 5%	1	CB1535	Allen Bradley Co.
R12	• RESISTOR, 7.5K, 1/4W, 1%	1	RN60D7501F	
R13	• RESISTOR, Variable	1	3386P-1-502	Bourns
R14	• RESISTOR, 196K, Factory selected	1		
R19	• RESISTOR, 270K, 1/4W, 5%	1	CB2745	Allen Bradley Co.
R20	• RESISTOR, 0.1 ohm, 2W, 5%	1	HB01G5	Allen Bradley Co.
U1	• REGULATOR, Voltage	1	MC78L15ACP	Motorola
U2	• AMPLIFIER, Operational	1	RC4136DB	Raytheon
U3	• REGULATOR	1	PIC600	Unitrode