

Power Pack/Battery Eliminators

PRODUCT CODE (ASICC)	: 77606
QUALITY AND STANDARDS	: As per customers specification
PRODUCTION CAPACITY	: Qty. : 60,000 Nos. (per annum) Value : Rs. 70,80,000
YEAR OF PREPARATION	: 2002 – 2003
PREPARED AND UPDATED BY	: Small Industries Service Institute. Balanagar, Hyderabad 500037. And Office of the Development Commissioner (Small Scale Industries), Electronics and Electrical Division, 7th Floor, Nirman Bhavan, New Delhi-110011

INTRODUCTION

Battery eliminator is used in place of ordinary dry batteries as power source for equipments like radio receivers AM/FM, tape recorders, calculators etc. and other low power operated equipments. Battery eliminator's output is DC voltage which usually varies from 1.5 V / 3 V to 12 Volts / upto 500 mA. This item is reserved for manufacture in the small scale sector.

MARKET POTENTIAL

There are large number of units in Small Scale Sector in the country manufacturing Battery Eliminators. Since they are used with radio receivers, tape recorders, calculators and other low power operated equipments/appliances, the demand of Battery Eliminator is also in proportional to their use. The Battery Eliminators are available in the range of 1.5V/3V/6V/9V/12V at

500 mA between Rs. 40 to Rs. 170 depending upon the transformers using CRGO sheets and good quality components.

The consumer electronics sector continues to consolidate its production base and has achieved a production level of Rs. 12700 Crores during 2001 and which achieved a growth rate of 10% in 2001 over 2000. The production of Battery Eliminators in 2001 was to the tune of Rs. 18.03 Millions.

BASIS AND PRESUMPTIONS

- i) The basis for calculation of production capacity has been taken on single shift basis on 75% efficiency.
- ii) The maximum capacity utilization on single shift basis for 300 days a year. During first year and second year of operations the capacity utilization is 60% and

80% respectively. The unit is expected to achieve full capacity utilization from the third year onwards.

- iii) The salaries and wages, cost of raw materials, utilities, rents, etc. are based on the prevailing rates in and around Hyderabad. These cost factors are likely to vary with time and location.
- iv) Interest on term loan and working capital loan has been taken at the rate of 16% on an average. This rate may vary depending upon the policy of the financial institutions/agencies from time to time.
- v) The cost of machinery and equipments refer to a particular make/model and prices are approximate.
- vi) The break-even point percentage indicated is of full capacity utilization.
- vii) The project preparation cost etc. whenever required could be considered under pre-operative expenses.
- viii) The essential production machinery and test equipment required for the project have been indicated. The unit may also utilize common test facilities available at Electronics Test and Development Centres (ETDCs) and Electronic Regional Test Laboratories (ERTLs) set up by the State Governments and STQC Directorate of the Department of Information Technology, Ministry of Communication and Information Technology, to manufacture products conforming to Bureau of Indian Standards.

IMPLEMENTATION SCHEDULE

The major activities in the implementation of the project has been listed and the average time for implementation of the project is estimated at 12 months:

<i>Sl. No.</i>	<i>Name of Activity</i>	<i>Period in Months (Estimated)</i>
1.	Preparation of project report	1
2.	Registration and other formalities	1
3.	Sanction of loan by financial institutions	3
4.	Plant and Machinery:	
	a) Placement of orders	1
	b) Procurement	2
	c) Power connection/ Electrification	2
	d) Installation/Erection of machinery/ Test Equipment	2
5.	Procurement of raw materials	2
6.	Recruitment of Technical Personnel etc.	2
7.	Trial production	11
8.	Commercial production	12

Notes

1. Many of the above activities shall be initiated concurrently.
2. Procurement of raw materials commences from the 8th month onwards.
3. When imported plant and machinery are required, the implementation period of project may vary from 12 months to 15 months.

TECHNICAL ASPECTS

Process of Manufacture

The battery eliminator consists of a transformer (using CRGO sheets),

rectifying circuit and a filter. The output AC Voltage is stepped down and rectified and filtered. The components after checking to its value are assembled and soldered on the terminal strip/PCB. The PCB is mounted in the cabinet along with the transformer. Electro-mechanical components are fixed. After the wiring is completed the product is finally tested for its output voltage/current.

Quality Control and Standards

Input Voltage	220 Volts AC, 50 Hz.
Output Voltage	1.5 to 12 Volts DC
Load	500 mA
Ripple	Less than 2 mV

Production Capacity

Quantity	Value (Rs.)
60,000 Nos. per annum	70,80,000

Motive Power 5 KVA.

Pollution Control

The Govt. accords utmost importance to control environmental pollution. The small-scale entrepreneurs should have an environmental friendly attitude and adopt pollution control measures by process modification and technology substitution.

India having acceded to the Montreal Protocol in Sept. 1992, the production and use of Ozone Depleting Substances (ODS) like Chlorofluoro Carbon (CFC), Carbon Tetrachloride, Halons and Methyl Chloroform etc. need to be phased out immediately with alternative chemicals/solvents. A notification for detailed Rules to regulate ODS phase out under the Environment Protection Act, 1986 have been put in place with effect from 19th July 2000.

The following steps are suggested which may help to control pollution in electronics industry wherever applicable:

- i) In electronic industry fumes and gases are released during hand soldering / wave soldering/Dip soldering, which are harmful to people as well as environment and the end products. Alternate technologies may be used to phase out the existing polluting technologies. Numerous new fluxes have been developed containing 2-10% solids as opposed to the traditional 15-35% solids.
- ii) Electronic industry uses CFC, Carbon Tetrachloride and Methyl Chloroform for cleaning of printed circuit boards after assembly to remove flux residues left after soldering, and various kinds of foams for packaging.

Many alternative solvents could replace CFC-113 and Methyl Chloroform in electronics cleaning. Other Chlorinated solvents such as Trichloroethylene, Perchloroethylene and Methylene Chloride have been used as effective cleaners in electronics industry for many years. Other organic solvents such as Ketones and Alcohols are effective in removing both solder fluxes and many polar contaminants.

Energy Conservation

With the growing energy needs and shortage coupled with rising energy cost, a greater thrust in energy efficiency in industrial sector has been given by the Govt. of India since 1980s. The Energy Conservation Act, 2001 has been enacted on 18th August' 2001,

which provides for efficient use of energy, its conservation and capacity building of Bureau of Energy Efficiency created under the Act.

The following steps may help for conservation of electrical energy:

- i) Adoption of energy conserving technologies, production aids and testing facilities.
- ii) Efficient management of process/manufacturing machineries and systems, QC and testing equipments for yielding maximum Energy Conservation.
- iii) Optimum use of electrical energy for heating during soldering process can be obtained by using efficient temperature controlled soldering and desoldering stations.
- iv) Periodical maintenance of motors, compressors etc.
- v) Use of power factor correction capacitors. Proper selection and layout of lighting system; timely switching on-off of the lights; use of compact fluorescent lamps wherever possible etc.

FINANCIAL ASPECTS

A. Fixed Capital

(i) Land and Building			
Land	100 Sq.m.	Rented	
		@ Rs. 5000 per month	
Built up area Office, stores etc.	20 Sq.m.		
Working shed	80 Sq.m.		

(ii) Machinery and Equipments

Sl. No.	Description	Qty. (Nos.)	Rate (Rs.)	Total (Rs.)
1.	Oscilloscope 20 MHz	1	20000	20000
2.	DC Regulated power supply 30V,5A	1	5500	5500

Sl. No.	Description	Qty. (Nos.)	Rate (Rs.)	Total (Rs.)
3.	DC Regulated power supply 30V,2A	1	4500	4500
4.	Insulator Tester, 1000V	1	6000	6000
5.	Variac, 4 A	1	2000	2000
6.	Digital true RMS Multimeter 3½ digits	1	3500	3500
7.	Digital Multimeter 4½ digits	2	8500	17000
8.	Digital panel (Volt/ Amp) meter	2 Sets	2000	4000
9.	Drilling machine, ¼"	1	3000	3000
10.	Grinding m/c 100 mm	1	4000	4000
11.	Temp, controlled soldering stn.	4	2500	10000
	Total			79000
	<i>Electrification and installation charges @ 10% of machinery and equipment</i>			7900
	<i>Tools, Jigs and Fixtures etc.</i>			10000
	<i>Office equipment/working tables and furniture etc.</i>			50000
(iii)	Pre-operative Expenses			10000
	Total Fixed Capital			156900

B. Working capital (per month)

(i) Staff and Labour

Designation	Strength (Nos.)	Salary (Rs.)	Total (Rs.)
Manager	1	6,000	6,000
Sales Assistant	1	4,000	4,000
Peon/ Chowkidar	1	2,000	2,000
Skilled Workers	3	3500	10500
Semi skilled workers	2	3000	6000
Un skilled workers	1	2500	2500
	Total		31000
	<i>Add Perquisites @ 15% of the salaries</i>		4650
	Total		35650
	or Say		36000

(ii) Raw Material Required (per month)

Description	Qty. (Nos.)	Rate (Rs.)	Total (Rs.)
Transformer, 230V/12V, 9V, 6V 500 mA	1	45	45
IC's Voltage Regulator	1	6	6
Diodes	4	0.50	2
Electrolytic Capacitor	6	1	6
PCB (Glass Epoxy) (Rs. 0.25 per sq.cm.)	1	4.50	4.50
Single phase 8-Way Switches (Rotary)	1	6	6
Switch with Indicator, 5A	1	6	6
Mains Lead (1.5m) with 2-Pin Plug (Moulded)	1	5.50	5.50
Cabinet (Metallic) and Packaging	1	10	10
Miscellaneous hardware, insulated terminals, wires etc.	L.S.	-	4
Total			95

Total Requirement of Raw Materials for 5000 Nos. (per month) Rs. 475000

(iii) Utilities (per month) (Rs.)

Power	2500
Water	200
Total	2700

(iv) Other Contingent Expenses (per month) (Rs.)

Rent	5000
Postage and Stationery	500
Telephone	1000
Consumable stores	1000
Repair and Maintenance	500
Transport and Conveyance	4000
Advertisement and Publicity	3000
Insurance	200
Miscellaneous expenses	1000
Total	16200

(v) Total Recurring Expenses (per month) (i+ii+iii+iv) Rs. 529900

C. Total Capital Investment

(i) Fixed Capital	Rs. 156900
(ii) Working Capital on 3 months basis	Rs. 1589700
Total	Rs. 1746600

FINANCIAL ANALYSIS

(1) Cost of Production (per annum)	(Rs.)
Total recurring expenditure	6358800
Depreciation on machinery and equipment @ 10 %	7900
Depreciation on tools, jigs and fixtures @ 25%	2500
Depreciation on office equipment, furniture @ 20%	10000
Interest on total capital investment @ 16%	279456
Total	6658656
or Say	6659000

(2) Turnover (per annum)

Item	Quantity (Nos.)	Unit rate (Rs.)	Value (Rs.)
Battery Eliminator Power Pack, 1.5/3V/6V/9V/12V/500mA	60,000	118	7080000

(3) Profit (per annum) (Before Taxes) Rs. 421000

(4) Net Profit Ratio

$$\begin{aligned}
 &= \frac{\text{Profit (per annum)} \times 100}{\text{Sales (per annum)}} \\
 &= \frac{421000 \times 100}{7080000} \\
 &= 5.90\%
 \end{aligned}$$

(5) Rate of Return

$$\begin{aligned}
 &= \frac{\text{Profit (per annum)} \times 100}{\text{Total capital investment}} \\
 &= \frac{421000 \times 100}{1746600} \\
 &= 24.10\%
 \end{aligned}$$

(6) Break-even Point

Fixed Cost (per annum)	(Rs.)
Rent	60,000
Depreciation on machinery and equipment @ 10 %	7,900
Depreciation on tools, jigs and fixtures @ 25%	2,500

Fixed Cost (per annum)	(Rs.)
Depreciation on office equipment, furniture @ 20%	10,000
Interest on total capital investment @16%	279456
Insurance	2400
40% Salaries and wages	172800
40% other contingent and utilities (excluding rent and insurance)	65760
Total	600816
or Say	600800

B.E.P.

$$= \frac{\text{Fixed cost} \times 100}{\text{Fixed cost} + \text{Profit}}$$

$$= \frac{600800 \times 100}{600800 + 421000}$$

$$= 58.80\%$$

Additional Information

- (a) The Project Profile may be modified/tailored to suit the individual entrepreneurship qualities/capacity, production programme and also to suit the locational characteristics, wherever applicable.
- (b) The Electronics Technology is undergoing rapid strides of change and there is need for regular monitoring of the national and international technology scenario. The unit may, therefore, keep abreast with the new technologies in order to keep them in pace with the developments for global competition.
- (c) Quality today is not only confined to the product or service alone. It also extends to the process and environment in which they are generated. The ISO 9000 defines standards for Quality Management Systems and ISO 14001 defines standards for

Environmental Management System for acceptability at international level. The unit may therefore adopt these standards for global competition.

- (d) The margin money recommended is 25% of the working capital requirement at an average. However, the percentage of margin money may vary as per bank's discretion.

Addresses of Machinery and Equipment Suppliers

1. M/s. Aplab Limited
3rd Floor, 310-313, Chandralok Complex, S.D. Road, Secunderabad.500003
(Oscilloscope, Power Supplies, Multimeters.)
2. M/s. Systronics
2-2-647/A/3, 11th Floor Karur Vysya Bank Building, Shivam Road, New Nallakunta, Hyderabad-500013.
(Oscilloscope, Power Supplies, Multimeters.)
3. M/s. Instrument Techniques Pvt. Ltd.
B-2, Co-operative Estate, Balanagar, Hyderabad-500037
(Panel Meters, Insulation Power Supplies, Multimeters, Testers.)
4. M/s. Automatic Electric Limited
108/117, Chandralok Complex, S. D. Road, Secunderabad - 500 003.
(Panel Meters, Variac.)
5. M/s. Signetic Systems Pvt. Ltd.
C-3/4-117, Mallapur, Hyderabad - 500 076.
(Temp. controlled soldering/de-soldering stations.)

6. M/s. Ralli Wolf Limited
1-7-241/1, S.D. Road,
Secunderabad-500003.
(For m/c, hand tools and accessories)
7. M/s. Motor Industries Co. Ltd.
(Bosch Group-Power Tools)
1-7-241/11, S. D. Road,
Secunderabad - 500 003.
(M/c and Tools and accessories)
8. M/s. C I T D
Balanagar,
Hyderabad - 500 037.
(For dies and other implements.)
4. M/s. M. B. Electronics
4-3-258/A/F/411, 1st Floor,
Sri Electronics House,
Giriraja Lane, Bank Street,
Hyderabad-95.
(I.C'S Active, Passive Components.)
5. M/s. Saini Electronics
4-3-258/9-208,
Shree Electronics House,
Giriraj Lane, Bank Street,
Hyderabad-5000185.
(I.C'S Active and Passive components.)
6. M/s. Ogsval Industries
1-1/10, Ferozguda,
Hyderabad-500011.
(Solder Wires.)

Addresses of Raw Material Suppliers

1. M/s. BEL Abids
Hyderabad - 500 001.
(I.C'S Active, Passive components)
2. M/s. C D I L
C-120, Naraina Industrial Area,
New Delhi-110 028
(I.C'S Active, Passive components)
3. M/s. Keltron
1-1300/3,
Syndicate Bank Complex,
Hyderabad-20.
(Registers and Capacitors.)
7. M/s. Cosmic Engineering Enterprises
Plot. No.3, Electronics Complex
(Ext.), Kushaiguda,
Hyderabad-500 062
(PCB's)
8. M/s. Electromagnetic Cores and Coils
MIG-5, APIIC Colony Moulai Ali,
Hyderabad-40.
(Transformer, Coils.)