

**PROJECT PROFILE ON
SWITCH BOX
(ELECTRICAL EXTENSION BOARD / SWITCH BOARD)**

Product Name : Switch box (Electrical Extension Board / Switch Board)

PRODUCT CODE : 27331

QUALITY AND STANDARDS : As per state electricity board regulations

PRODUCTION CAPACITY : Qty : 750 Nos. (per annum)

Turn over : Rs. 9,00,000 /-

Total Capital Investment : Rs. 2,60,400/-

Profit on sales : 10.19 %

Rate of Return : 35.23 %

B.E.P : 79.88 %

YEAR OF PREPARATION : June 2020

PREPARED BY : MSME DEVELOPMENT INSTITUTE
GOVT. OF INDIA, MINISTRY OF MSME,
65/1, G S T ROAD, GUINDY
CHENNAI -600032, TAMILNADU
Website: www.msmedi-chennai.gov.in
Email: dcdi-chennai@dcmsme.gov.in

Introduction

The Switch Box is generally called as Switch Board or Extension Boards, refers to equipment which electrical switches, change over switches and protective devices such as fuse, breakers, etc.

Switch board is required at every branch circuits fed from one main circuit of a wiring installation in a building or premises for easy and safe handling of incoming power supply. These are, also used to protect the electrical distribution system in turn, connected electrical equipment from being damaged due to various faults like short circuit, over load, earth leakage, etc.

The Conductor system by means of which electrical energy is conveyed from mains to the consumer electrical appliances is known as distribution system. This system of distribution of power is known as low voltage or secondary distribution system.

Inside the house or building the number of wires used is either (i) two wire (phase & Neutral), (ii) three wire systems (Phase, neutral and earth). The choice of the wire used in the power distribution is determined by the type of power proposed to utilise in that circuit.

Generally the switching circuits are 5 A, 15A, 30A, 63A, etc.

Market Potential

The Switch Boards& Extension Boards, by virtue of being a functionally integral part of any distribution system have vast opportunities of demand. India is a developing country with a fast growing population and the economic growth of the country and the demand for any essential item grows as a function of population. Electrical power demand also grows as a function of population and commensurately the infrastructural requirement in the power sector grows.

This phased increase in the power distribution has by itself, necessitated increased production of electrical switch board, thereby creating a good scope for the electrical switch boards.

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 Cuttack. 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 14% 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

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 1 month after financial sanction:

<u>Sl. Activity Period</u>	<u>No. (In Months)</u>
1. Preparation of project report	}
2. Registration and other formalities	} 1 month
3. Sanction of loan by financial institutions	}
4. Plant and Machinery:	
a) Placement of orders	}
b) Procurement	} 1 month
c) Power connection/ Electrification	}
d) Installation/Erection of machinery	}
5. Preoperative / marketing activity Including trial production	1 month

Notes: Many of the above activities shall be initiated concurrently.

Process of Manufacture

The switch boards are made up of ply wood, acrylic and PVC fabricated enclosures semi-closed or totally enclosed type which provide control of electric power to appliances and equipments. Some times with provision for indicating the parameters like voltage, current, frequency, indicating lamps, will be reflected on the face of the main board.

Regulation of the power supply is available through switches and MCB's and fault protection through the use of ELCB. The sheet metal enclosure for the control panel is designed and fabricated in the unit. The components and accessories are bought out from the market by electrician and fitted as designed in the board. The circuit as per the design is laid out and the board is tested for proper functioning as per relevant standards.

In brief the manufacturing process consists of:

- i) Establishing the requirement and accordingly designing circuit diagram.
- ii) Fabricating the Switch Board - Marking, cutting, and drilling of sheet, if necessary Grinding.
- iii) Fixing the components/ accessories (switching devices) and controls.
- iv) Wiring according to circuit diagram
- v) Testing as per relevant specifications.

Quality Control and Standards

The Switch boards are manufactured as per Electricity Board rules of State Electricity Board regulations. The components and accessories are incorporated customer's requirement and demand and also confirming to IS Specifications. However, the standard of workmanship and quality of the raw material to be used are the basic needs of customers.

Production Capacity (per annum)

25 Switch boards of different sizes and 25 days in a month

Charges for switch cutting Rs. 20 per switch slot, every board will have slot of 4 to 12 at an average of 6 to cost Rs. 120 /- per board si considered in this project

Production capacity = 25 per day x 25 days per month x 12 months = 7500 Nos.

Turn over = 7500 Nos. @ Rs. 120 /- = Rs. 9,00,000 per ANNUM

Pollution Control

Government accords utmost importance to control environmental pollution. The micro enterprise should have an environmental friendly attitude and adopt pollution control measures. However this units has vey less pollution.

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 Government 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/ machineries and systems for yielding Energy Conservation.
- iii) Optimum use of electrical energy during process. Periodical maintenance of machineries etc.
- iv) 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 (Rs.) Rented building with a built up area of 1000 sq.ft. for office and workshop shed- Rented @ Rs. 10,000 per month.

(ii) Machinery and Equipments

Sl.	Description	Rate(Rs.)	Qty.	Amount(Rs.)
1	Bench Drilling Machine 20 mm Dia	15,500	1	15,500
2.	Table Grinding Machine 200 mm dia	1,20,000	1	1,20,000
3.	Hand Grinding Machine	3,500	1	3,500
4.	Cutting machine Hilem Ply wood & PVC	32,000	1	32,000
5	Bench Vice & table	5,000	1	5,000
	Total machineries			1,76,000
6	Hand Tools	2,000	Lump sum	2,000
	Total Tools			2,000
15..57	Office table with 3 chairs	10,500	1	10,500
8	Almirah	9,500	1	9,500
	Total Furnitures			20,000
9	Electrification & Installation	5,000	--	5,000
10	Pre-Operative Expenses	5,000	Lump sum	5,000
	Total Fixed Capital			2,08,000

B. Working Capital (per month)

(i) Personnel

Sl.	Designation	Salary(Rs.)	Strength	Amount(Rs.)
1	Manager / Entrepreneur	20,000	1	20,000
2	Helper	10,000	1	10,000
	Perquisite @ 15% of salaries			4,500
	Total			34,500

(ii) Raw Material (per month)

Sl.	Description	Rate (Rs.)	Qty	Amount(Rs.)
	Cutting tolls (consumables)	2,000	Lump sum	2,000

(iii) Utilities (per month)

Sl.	Description	Rate (Rs.)	Qty	Amount(Rs.)
1	Electricity Charges	6 /- per unit	400 units	2,400
2	Water	40 per can	25 cans	1,000
	TOTAL			3,400

(iv) Other Contingent Expenses (per month)

Sl.	Item Description	Rate (Rs.)	Qty	Amount(Rs.)
1	Rent	10,000	Agreement	10,000
2	Postage, stationery and telephone	500	Approx.	500
3	Transportation	500	Approx.	500
4	Insurance	1000	Approx.	1,000
5	Miscellaneous Expenses	500	Approx.	500
			TOTAL	12,500

(v) Total Recurring Expenditure

(i)	Personnel	34,500
(ii)	Raw Material Lump sum	2,000
(iii)	Utilities	3,400
(iv)	Other Contingent Expenses	12,500
	<u>Total</u>	<u>52,400</u>

(vi) Working Capital (for 1 month) = 52,400

This unit is service oriented, working capital for 1 month is sufficient.

C. Total Capital Investment :

a) Fixed Capital	2,08,000
b) Working Capital	<u>52,400</u>
Total	<u>2,60,400</u>

Financial Analysis

(1) Total Cost of Production (per year)	(Rs.)	
Total recurring expenditure		6,28,800
Rent of building		1,20,000
Depreciation on machinery and equipment @ 10%		17,600
Depreciation on Tools@ 20% and others @10%		1,400
Depreciation on office equipment @ 20%		4,000
Interest on Capital Investment @ 14% of 2,60,400		<u>36,456</u>
Total		<u>8,08,256</u>

(2) Turnover (per year) (Rs.)

Turn over = 7500 Nos. @ Rs. 120 /- = Rs. 9,00,000 per ANNUM

(3) **Net Profit** (per year) (Before Income Tax)

= Turnover- Total Cost of Production
= Rs. 9,00,000 - 8,08,256 = Rs. 91,744

(4) **Net Profit Ratio** = $\frac{\text{Net Profit per year} \times 100}{\text{Turnover per annum}}$ = $\frac{91,744 \times 100}{9,00,000}$ = **10.19%**

(5) **Rate of Return** = $\frac{\text{Net profit per year} \times 100}{\text{Total investment}}$ = $\frac{91,744 \times 100}{2,60,400}$ = **35.23%**

(6) Break-even Point (% of Total Production Envisaged)

Fixed Cost	(Rs.)
Depreciation on Machinery and equipment,	17,600
Depreciation on Tools, office equipment & others	5,400
Rent on Building and insurance	1,32,000
Interest on total investment	36,456
40% of salary and wages	1,65,600
40% of other contingent expenses (Excluding Rent and Insurance)	7,200
Total	3,64,256

B.E.P. = $\frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost} + \text{Profit}}$

Fixed Cost + Profit

$$= \frac{3,64,256 \times 100}{3,64,256 + 91,744} = \frac{3,64,256 \times 100}{4,56,000} = 79.88 \%$$

Additional Information

- The Project Profile may be modified/tailored to suit the individual entrepreneurship qualities/capacity, production programme and also to suit the local characteristics, wherever applicable.
- 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 unit may therefore adopt these standards for day to day competition.
- The margin money recommended is 25% of the working capital requirement at an average. However, the percentage of margin money may vary as per the scheme availed and entrepreneur merits.

Addresses of Machinery Equipment and Raw Material Suppliers

Raw Material Suppliers

Available at Local Market.

Machinery Suppliers

- M/s Harshite Enterprises, SIDCO Industrial Estate, Ambattur, Chennai – 98.
- M/s Bright Engineering works, Peenya Industrial Estate, Bangalore
- M/s Bharat Machines & spares, Andheri East, Mumbai
- M/s Perfect machines centre, 214 Lingi chetty steet, parrys, Chennai - 1.
- M/s Chandra machine tools 42, 2bd floor Post office street, Chennai – 1
- M/s Prosol, 192, 1st cross SIDCO Industrial estate, Chennai 600 098.
- M/s Vedant Engineering, 15, Shree harikrupa estate, Ahmadabad - 380038
- M/s Kabir Foundry works, 334, Industrial Area, Opp Gun Anged park, Ludhiana, Punjab.
- German Tools & Instruments, No.61/29, saify house 1st floor – shop no.2, sembudoss street, parrys, Chennai – 600 001