

## **PROJECT PROFILE ON ELECTRONIC WEIGHING SCALES**

PRODUCT CODE (ASICC) : 7532

QUALITY AND STANDARDS : IS 9281: 1981

PRODUCTION CAPACITYQty. : 3600 Nos.

Value : Rs.1,83,60,000

YEAR OF PREPARATION : 2020-21

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## **INTRODUCTION**

Electronic weighing systems are used in industries and business establishments for weighing and segregating materials accurately for process sales. The main advantages of an electronic weighing system when compared with mechanical weighing systems are:

- (a) Compactness and small size independent of capacity.
- (b) Ruggedness and high dependability.
- (c) High speed of response and rapid weighing.
- (d) Good accuracy.
- (e) Excellent flexibility to monitor multiple loads.
- (f) Analog and digital with print-out facility remote indication and parallel display.
- (g) Online processing through computer.

The electronic weighing system comprises the basic load cell, suitable signal conditioners and output recorders/ indicators giving both the analog and digital output for further processing. The signals from the load cell are amplified and fed to analog/ digital converter, which provide an output in the digital format for display/ printing/ processing etc. The strain gauge based load cell is the most popular weight transducer used in the electronic weighing system.

## **MARKET POTENTIAL**

The total production in industrial electronic and control instrumentation is showing growth rate every year. This product requires a good marketing set up duly backed by after sales service facilities. If the price of the weighing scales is brought down and good after-sales facility made available, there will be sufficient demand for this item.

## **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 Chennai. 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) setup 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:

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

## 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 manufacturing process involves the assembly of load cell, electronic circuits and electro mechanical hardware. Subsequently, the electronics assembly-the ICs, transistor, diodes, resistors, capacitors transformer, coils, relays, potentiometers are assembled on PCBs as per design.

The assembled PCBs are tested for performance. Subsequently the electronics assembly along with electro- mechanical assembly, hardware such as connectors/switches, terminals display, meters are assembled and housed in a metallic / fibre / plastic case with an appealing front panel. Finally the assembled unit is calibrated and tested as per the design specification.

### **Quality Control and Standards**

Weighing range	: Up to 20 kgs.
Accuracy	: 0.02%
Output	: Digital display (Fluorescent)
Power supply	: 230V, AC, 50 Hz
Production Capacity (per annum)	
Quantity	: 3600 Nos.
Value	: 1,83,60,000
Motive Power Required	: 10 KVA (approx.)

## **Pollution Control Requirements**

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:

- a. 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.
- b. 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

### Fixed Capital

#### Land and Building

1.	Built up area	100sq. meters
2.	Office/stores	20 sq. meters
3.	Factory	80 sq. meters
4.	Rent (per month)	Rs. 30000/-

#### (I) Machinery and Equipments

Sl. No.	Description No.	Qty.	Rate (Rs.)	Amount (Rs.)
1.	Bench Drilling machine 1/2"	1	10,000	10,000
2.	Digital Multi Meter (3 1/2 digits)	3	2,000	6,000
3.	Oscilloscope (0-20 MHz)	1	30,000	30,000
4.	IC Tester/EPROM Programmer	1	30,000	30,000
5.	Digital LCR Meter	1	15,000	15,000
6.	Load Cell Simulator (Imported)	1	30,000	30,000
7.	Portable Grinder	1	5,000	5,000
8.	Power Supply	2	4,500	9,000
9.	Standard Weights Brass	L S	LS	10,000
10.	Multimeter (Analog)	1	2,000	2,000

11.	UV Eraser	1	5,000	5,000
12.	Variacs (4A) Ind.	2	3,000	6,000
13.	Installation and electrification @10% on machinery and equipments			12,650
14.	OfficeFurnitureand Equipments			80,000
15.	Tools,DiesandEquipments			80,000
16.	Pre-operativeExpenses			30,000
	TotalFixedCapital			3,29,150/-
	orSay			3,29,000/-

Total Fixed Capital (I+II)=(Rs. 1,26,500+Rs 2,02,650)  
SAY = Rs 3,29,000/-

Working Capital (per month)

(i)..Salaries and Wages

Sl No.	Description No.	Qty	Rate (Rs.)	Amount (Rs.)
1.	Manager-cum-service Engineer.	1	40000/-	40,000
2.	Skilled Workers	2	21000/-	42,000
3.	Semi skilled workers	----	----- ---	-----
4.	Accountant-cum-Computer operator	1	19000/-	19,000
5.	Peon-cum-Watchman	----	----- --	-----
Total				101000/-
Perquisites@ 15%				15,150
Total				1,16,150/-

(ii) Raw Material

Sl. No.	Description	Qty.	Rate	Amount (Rs.)
1.	Cabinet/Housing (Metal)	300	150	45,000
2.	Fluorescent display (Imp.)	300	400	1,20,000
3.	Load cell (strain gauge)(Imp)	300	1700	5,10,000
4.	Mechanical hardware	300	250	75,000
5.	Noise Filter (Imp)	300	70	21,000
6.	PCB	300	200	60,000
7.	Rectifier (Imp)	300	70	21,000
8.	Resistors (Diodes and switches)	-----	LS	55,000
9.	Transformer	300	70	21,000
10.	ICs, Transistors, Diodes, switches etc.	----	LS	1,20,000
11.	Wires and cables. Connectors, consumables, Packing materials, etc.	----	L.S.	62,000
Total				11,10,000

(iii) Utilities (per month)

Sl.No.	Description		Amount(Rs.)
1.	Power		10,000
2.	Water		2000
Total			12,000



(iv) Other Contingent Expenses (per month)

Sl. No.	Description	Amount (Rs.)
1.	Rent	30,000
2.	Postage and stationery	5,000
3.	Telephone/ Fax Charges	5,000
4.	Repair and maintenance	5,000
5.	Transport/ Conveyance expenses	20,000
6.	Advertisement	10,000
7.	Insurance and taxes	2,000
8.	Misc. expenses	10,000
Total		87,000

(Rs1,19,600+Rs11,10,000+Rs12,000+Rs87,000)

Working Capital (per month) (i+ii+iii+iv) = Rs. 13,28,600/-  
Say = Rs. 13,28,600/-

Total Capital Investment

Sl. No.	Description	Amount (Rs.)
1.	Fixedcapital	Rs.3,29,000
2.	Working capital for3months	Rs.39,85,800
Total		Rs43,14,800/-

## FINANCIAL ANALYSIS

### Cost of Production (per annum)

Sl. No.	Description	Amount (Rs.)
1.	Depreciation on machinery	12,650
2.	Depreciation on office	16,000
3.	Depreciation on tools @ 25%	16,000
4.	Recurring expenditure (per Annum)	1,59,43,200
5.	Interest on capital investment @ 13 %	5,60,924
6.	Total	1,65,48,774
7.	Say	1,65,48,800

### Turnover (per annum)

Sl. No.	Description	Qty.	Rate (Rs.) (Average)	Amount (Rs.)
1.	Electronic weighing scales (up to 20 kgs)	3600 Nos.	5000	1,80,00,000

Profit (Before Taxes) = Sale Turnover (per annum) – Production Cost  
= Rs. 14,51,200

Net Profit Ratio = Profit (per annum) x 100/Sales (per annum)  
= 8.06%

Rate of Return = (Profit per annum x 100)/ Total capital Investment  
= 33.63%

## Break-even point (BEP)

Fixed Cost (FC) per annum

Sl. No.	Description	Amount (Rs.)
	Rent	3,60,000
	Depreciation on machinery & equipment @ 10 %	12,650
	Depreciation on tools, jigs and fixtures @ 25%	20,000
	Depreciation on office furniture @ 20%	16,000
	Interest on total capital investment @ 13 %	5,60,924
	Insurance and Taxes	24,000
	40% Salaries and wages	5,74,080
	40% other contingent (Excluding rent & insurance)	2,25,600
	Total	17,93,254
	Say	17,93,000

## Break-even Point

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

$$= \frac{17,93,000 \times 100}{17,93,000 + 14,51,200}$$

$$= 55.27\%$$

## **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. Agronic Instrument (P) Ltd. 201, Shiva-Shakti Industrial Estate, Mumbai-86.
2. M/s. Bergen Associates Pvt. Ltd. 1082, Sector 27-B, Chandigarh-19.
3. M/s. BPL (India) Ltd. 84, M. G. Road, Bangalore-560001.
4. M/s. Circuit Aids Inc. No. 5, Ranganathapura Magadi Road, Bangalore-79.
5. M/s. Navanidhi Electronics (P) Ltd. 1-60/1 Snehapuri, Nacharaam, Hyderabad-7
6. M/s. Noble Electronics 354, Lajpat Rai Market, Delhi-6.
7. M/s. Peico Electronics and Electrical Ltd. Shivasagar, Estate, Block-A, Dr. Annie Besant Road, Mumbai-12.
8. M/s. Quality Machine Tools 34, J.C. Road, VISL Building, Bangalore-2.
9. M/s. Swastic Machine Tools 4, Lata Chambers, Nashik-422 002.
10. M/s. Sysco Associates 30/106 (New No. 234) 11th Main, Malleswaram, Bangalore-3

## Addresses of Raw Material Suppliers

1. M/s. Amar Radio Corpn. 11/1, Thiglar Periyanna Lane, SJP Road, Bangalore-2.
2. M/s. Applied Electronics Ltd. A-5, Wagle Industrial Estate, Thane-4, (Mumbai)
3. M/s. Bakumbhai Ambalal Electronics Dept. Kaiser-T-Hind Building, Ballard Estate, Mumbai-38.
4. M/s. Bangalore Electronics No.124, Sadarpatrapa Road, Bangalore-2.
5. M/s. Electronics Trade and Technology Dev. 15/48, Malcha Marg, New Delhi-21.
6. M/s. General Electronics 19, 5<sup>th</sup> Floor, Tardeo Air Conditioned Market, Mumbai-34.
7. M/s. Inde Associates 16, Rest House Crescent, Off Church Street, Bangalore-1.
8. M/s. Interco Ltd. 456, Alexandra Road, 14.00 NOL Bldg. Singapore-0511.
9. M/s. Jairamadas and Sons P.Ltd. Mittal Towers, M.G.Road, Bangalore.
10. M/s. Micropack Ltd. Plot 16, Jigami Indl. Area, Anekal Taluk, Bangalore District-560 002.
11. M/s. Namtech Systems (P)Ltd. 35, Dacosta Square, St. Thamas Town, Bangalore-84.
12. M/s. OEN Connectors Ltd. Vyattila, PB No.2, Cochin-19.
13. M/s. Rosemound Ine P.O. Box 35129, Minneapolis, MN 56435(612) 941-5560, USA (*For scissors*)
14. M/s. Saini Electronics Pushapadant Nivas, 3, Chuman Lane, Dr. D. Bhadkamkar Marg. Mumbai-7.
15. M/s. Southern Electronics No.113, Sadarpatrapa Road, Bangalore-2.
16. M/s. Systronics 202-1206, Harsha House, Near Milan Cinema, Karampura Road, New Delhi-110015.
17. M/s. Tomson Electronics Pulickkal Buildings, Pallimukku, MG Road, Cochin
18. M/s. Shilpa International 107, Parklane, Secunderabad-3