



**PRODUCT MANUAL FOR
AC SUPPLIED ELECTRONIC BALLASTS FOR TUBULAR FLUORESCENT
LAMPS - GENERAL AND SAFETY REQUIREMENTS
ACCORDING TO IS 13021 (PART 1): 1991**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2019 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	Product	:	IS 13021(Part 1): 1991
	Title	:	ac Supplied Electronic Ballasts for Tubular Fluorescent Lamps-General and Safety Requirements
	No. of Amendments	:	1
2.	Sampling Guidelines:		
a)	Raw material	:	-
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	Five pieces
3.	List of Test Equipment	:	Please refer ANNEX – B
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – C .
5.	Possible tests in a day	:	Please refer ANNEX - D
6.	Scope of the Licence	:	Please refer ANNEX - E

ANNEX A

Grouping Guidelines

1. Samples of each variety of Ballast shall be tested considering the following:
 - i. Rated Voltage/ Voltage range
 - ii. Rated Wattage
 - iii. Classification (Independent Ballast/ Built-in-Ballast/ Integral Ballast)
2. All other parameters remaining the same, the following relaxation may be given when a variety is tested for all the requirements:
 - i. To cover a range of rated wattages, samples of minimum and maximum wattage shall be tested.
3. The Firm shall declare the varieties they intend to cover in the Licence. The Scope of Licence may be restricted based on the manufacturing and testing capabilities of the manufacturer.
4. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation to the extent possible.

ANNEX B**List Of Test Equipment***Major test equipment required to test as per the Indian Standard*

Sl. No.	Test Equipment	Tests used in with Clause Reference
1	Piece of Cloth, Hexane	Testing for Marking, Cl. 7.1
2	Digital Vernier Calipers	Creepage Distance clearance and Distance through Insulation, Cl. 10
3	Accessibility test panel with jointed and unjointed test finger, Apparatus as per Annex A of IS 13021(Part 1)	Protection Against Electric Shock, Cl. 11
4	Digital Voltmeter, Dummy cathode resistors	Protection against Electric Shock Cl 12
5	Humidity Chamber with Digital Timer, Digital Temp and Humidity Indicator, Megger (500 V dc), Timer and Metal Foil	Moisture resistance and Insulation, Cl. 13
6	High Voltage Test panel	Electric Strength, Cl. 14
7	Circuit as per Fig 1 of IS 13021(Part 1)	Abnormal Conditions, Cl. 15
8	AC Source, Lamp, Digital Voltmeter, High Frequency Spark Generator	Fault Conditions, Cl. 16
9	Torque Screw Driver	Terminals, Cl 8 and Current Carrying Parts and Connections, Cl. 17
10	Heating Oven with Temp controller, Ball pressure Apparatus, Glow wire and Needle Flame Test Apparatuses	Resistance to Heat and Fire, Cl. 18
11	Humidity Chamber with Temp and Humidity Controller, Measuring Cylinder 500 ml Ammonium Chloride, Carbon Tetrachloride, Distilled Water	Resistance to Corrosion, Cl. 19
12	Earth Resistance Test Apparatus	Provision for Earthing, Cl. 9
13	Air conditioner	To maintain ambient temperature

The above list is indicative only and may not be treated as exhaustive.

ANNEX C

Scheme Of Inspection And Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipment.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING AND MARKING – As per the requirements of IS 13021(Part 1): 1991.

4. CONTROL UNIT – Ballasts of each type and design manufactured in a day shall constitute a control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of [Table 1](#) and the levels of control in column 3 of [Table 1](#), shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

6. REJECTIONS – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1

(1)				(2)	(3)	
Test Details				Test equipment requirement R: required (or) S: Sub- contracting permitted	Levels of Control	
Cl.	Requirement	Test Methods			No. of Sample	Frequency
		Clause	Reference			
7.3	Durability and legibility of marking	7.3	IS 13021 (Part 1)	R	Each Ballast	
8	Terminals	8, 8.1	IS 13021 (Part 1)	R	Each Ballast	
9	Provision for earthing	9	IS 13021 (Part 1)	R	Each Ballast	
10	Creepage Distance and Clearances	10	IS 13021 (Part 1)	R	One	Once in three months for each classification and rating
11	Protection against accidental contacts with live parts	11	IS 13021 (Part 1)	R	One	
12	Protection against Electric Shock	12	IS 13021 (Part 1)	R	Three	Once in a month for each classification and rating
13	Moisture Resistance and Insulation	13	IS 13021 (Part 1)	S	Three	Once in three months for each classification and rating
14	Electric Strength	14	IS 13021 (Part 1)	R	Three	Each Control Unit
15	Abnormal Conditions	15	IS 13021 (Part 1)	S	Three	Once in six months for each classification and rating
16	Fault Conditions	16	IS 13021 (Part 1)	S	Three	
17	Current carrying parts and connections	17	IS 13021 (Part 1)	S	Three	
18	Resistance to heat and fire	18	IS 13021 (Part 1)	S	Three	
19	Resistance to corrosion	19	IS 13021 (Part 1)	S	Three	

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.

ANNEX D

Possible Tests in a day

- a. Protection Against Electric Shock (Cl. 12)
- b. Durability and Legibility of Marking (Cl. 7)
- c. Creepage Distance and Clearances (Cl. 10)
- d. Provisions for Earthing (Cl. 9)
- e. Electric Strength (Cl. 14)
- f. Terminals (Cl. 8)
- g. Protection against accidental contacts with live parts (Cl. 11)

ANNEX E**Scope of the Licence**

Scope of the Licence:	
Name of the Product	ac Supplied Electronic Ballast for Tubular Fluorescent Lamps
Classification	Independent Ballast/ Built-in-Ballast/ Integral Ballast
Rated Wattage	
Rated Voltage/ Voltage range	
Rated Frequency	