



उत्पाद मानुयल
आई एस 11360:1985 के अनुसार
स्वचालित इलेक्ट्रिक फायर अलार्म सिस्टम में उपयोग के लिए स्मोक डिटेक्टर के लिए

दस्तावेज संख्या- पी एम/आई एस 11360/1/नवंबर 2023

भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम की स्कीम-1 के तहत यह उत्पाद मानुयल प्रमाणीकरण के प्रचलन में रीति और पारदर्शिता के सुसंगत सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेन्स धारियों द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस लाइसेन्स/प्रमाण पत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज का उपयोग किया जा सकता है।

PRODUCT MANUAL FOR
SMOKE DETECTOR FOR USE IN AUTOMATIC
ELECTRICAL FIRE ALARM SYSTEM
ACCORDING TO IS 11360 : 1985

Document No.- PM/IS 11360/1/Nov 2023

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, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate

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PRODUCT MANUAL FOR SMOKE DETECTOR FOR USE IN AUTOMATIC ELECTRICAL FIRE ALARM SYSTEM ACCORDING TO IS 11360 : 1985

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1.	Product	:	IS 11360 : 1985
	Title	:	Smoke Detectors for Use in Automatic Electrical Fire Alarm System
2.	Sampling Guidelines:		
a)	Raw material	:	Nil
b)	Grouping Guidelines	:	Please refer ANNEX-A
c)	Sample size	:	15 nos. of Smoke Detectors + accessories alongwith instructions and technical specifications
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	:	(i) General Requirements, (ii) Directional Dependence & (iii) Reproducibility and Optimal Sensitivity
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 11360:1985 with the following scope:		
	Name of the product	Smoke Detectors for Use in Automatic Electrical Fire Alarm System	
	Type	Ionization Smoke Detector/ Optical (Photo-electric) Smoke Detector	
	Voltage category	Low Voltage/ High Voltage	
	Design		

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ANNEX-A

Grouping Guidelines

1. Smoke Detectors for Use in Automatic Electrical Fire Alarm System as per IS 11360 : 1985 is classified as follows:

- (i) Type : Ionization Smoke Detector / Optical (Photo-electric) Smoke Detector
- (ii) Voltage Category: Low Voltage Detector / High Voltage Detector

1.1 The manufacturer shall submit the drawings of each design of smoke detectors. The details of drawings of each components with type of material shall be indicated on each design. Manufacturer shall submit the instructions and technical specification for all accessories required to be connected to the detector, wiring diagram, ionization detector disposal procedure and description of circuit operation.

2. Samples of Smoke Detectors for Use in Automatic Electrical Fire Alarm System as per IS 11360 : 1985 for GoL/CSoL, shall be tested as per the following:

Each type, voltage category and design of smoke detector shall be tested for all requirements to include that particular type, voltage category and design in the scope of licence.

3. The firm shall be declaring the varieties of detectors 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 The Test Equipment***Major test equipment required to test as per the Indian Standard*

Sl No	Tests used in with Clause Reference	Test Equipment
1.	Directional Dependence – Cl 4.1, Reproducibility & Optimal Sensitivity- Cl 4.2, Stability – Cl 4.3 Repeatability – Cl 4.4, Air Movement – Cl 4.13, High Temperature – 4.10	a) Wind tunnel b) Anemometer c) Optical Density Meter (Lux meter)/ ionization chamber/ smoke scattering chamber (as applicable) d) Stove/Heating source e) Filter Paper
2.	Endurance Test – Cl 4.5 Supply Voltage Variation test – Cl 4.6	a) Programmable Test kit for 10 Seconds on 1 Second Off b) Programmable Test kit for 5 Seconds on 5 Seconds Off c) Power supply capable of delivering 1.1 times Rated voltage of detector
3.	Insulation Resistance test – Cl 4.7 Humidity Test – Cl 4.12	a) Metal Plate b) Insulation tester c) Humidity Chamber
4.	Vibration Test – Cl 4.8	a) Vibration tester with motor and Frequency controller
5.	Shock test – Cl 4.9	a) Shock Test unit b) Metal block-3.5 kg c) Hardwood d) Steel scale
6.	High Temperature test – Cl 4.10	a) Hot Air Oven
7.	Low Temperature test – Cl 4.11	a) Deep Freezer
8.	Ambient Light – Cl 4.15	a) Light Source b) Stop Watch
9.	Transient – Cl 4.16	a) Test kit for interrupting power supply b) Electric Drill c) Soldering Gun d) Electric Bell e) HV Transformer with 0.38 m Long and 2.1 mm ² Copper Conductors
10.	Dust – Cl 4.17	a) Dust Chamber with Fan b) Cement c) V-Shaped Curved plate d) Humidity Meter/ hygrometer
11.	Corrosion – Cl 4.14	a) Humidity Chamber

		b) Corrosion test chamber (with beaker, electric heater, thermostat and copper tubing) c) Sodium Thiosulphate d) Copper Wire e) Plastic Plate f) Sulphuric Acid
12.	Fire Test – Cl 4.18	a) Test Room (Size as per Clause 4.18.1 of IS 11360) b) Teak Wood Sticks c) Methyl Alcohol d) Lux Meter e) Polyurethane Foam f) Petroleum spirit/ petrol g) Square Metal Tray h) Aluminum Foil i) Air oven j) Vernier caliper k) Moisture meter l) Dish-40mm dia

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 manufacturers 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 requirement of of Clause No. 5 of IS -11360 : 1985. The Standard Mark, as given in the Schedule of the licence, shall be marked on each smoke detectors provided always that the smoke detectors thus marked conforms to all the requirement of the specification. In addition, details of BIS website shall be marked on the detectors or its packaging, as follows: “For details of BIS certification please visit www.bis.gov.in”.

4. CONTROL UNIT – 1000 Nos of smoke detectors of each type, voltage category and design, manufactured in a week shall constitute one 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.

5.1 All the production which conforms to the Indian Standard and covered by the license should be marked with Standard Mark.

5.3 DATA AND INSTRUCTIONS: Manufacturer shall provide the engineering drawings together with other relevant details of design and material(s), the instructions and technical specification for all accessories required to be connected to the detector, wiring diagram, ionization detector disposal procedure and description of circuit operation; in every lot of detectors supplied to the market as per Clause 6 of IS 11360:1985.

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		
C1.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
3	General Requirements	3	IS 11360 : 1985	R	Firm to have adequate in-process controls to check compliance of this parameter as per the requirements given in the Indian Standard. Appropriate records shall be maintained by the manufacturer for evidence of conformity		
4.1	Directional dependence	4.1	IS 11360 : 1985	R	One	Every Control Unit	
4.2	Reproducibility and optimal sensitivity	4.2	IS 11360 : 1985	R	Fifteen		
4.3	Stability	4.3	IS 11360 : 1985	S	One	Once in every 10000 nos of detectors	
4.4	Repeatability	4.4	IS 11360 : 1985	S	Two		
4.5	Endurance	4.5	IS 11360 : 1985	S	Three		
4.6	Supply voltage variation	4.6	IS 11360 : 1985	R	One	Every Control Unit	
4.7	Insulation resistance	4.7	IS 11360 : 1985	S	One	Once in every 10000 nos of detectors	
4.8	Vibration	4.8	IS 2175 : 1988	R	One	Every Control Unit	
4.9	Shock	4.9	IS 2175 : 1988	R	One		
4.10	High temperature	4.10	IS 11360 : 1985	S	One	Once in every 10000 nos of detectors	
4.11	Low temperature	4.11	IS 11360 : 1985	S	One		

4.12	Humidity	4.12	IS 11360 : 1985	S	One	Once in every 10000 nos of detectors	
4.13	Air movement	4.13	IS 11360 : 1985	R	One	Every Control unit	
4.14	Corrosion	4.14	IS 2175 : 1988	S	One	Once in every 10000 nos of detectors	
4.15	Ambient light	4.15	IS 11360 : 1985	R	One	Every Control Unit	
4.16	Transient	4.16	IS 11360 : 1985	S	One	Once in every 10000 nos of detectors	
4.17	Dust	4.17	IS 11360 : 1985	S	One		
4.18	Fire Test	4.18	IS 11360 : 1985	S	Four		

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