



Bureau of Indian Standards

Power/Energy Sector

IS 16444 (Part 1) : 2015 a.c. Static Direct Connected Watthour Smart Meter Class 1 and 2 — Specification

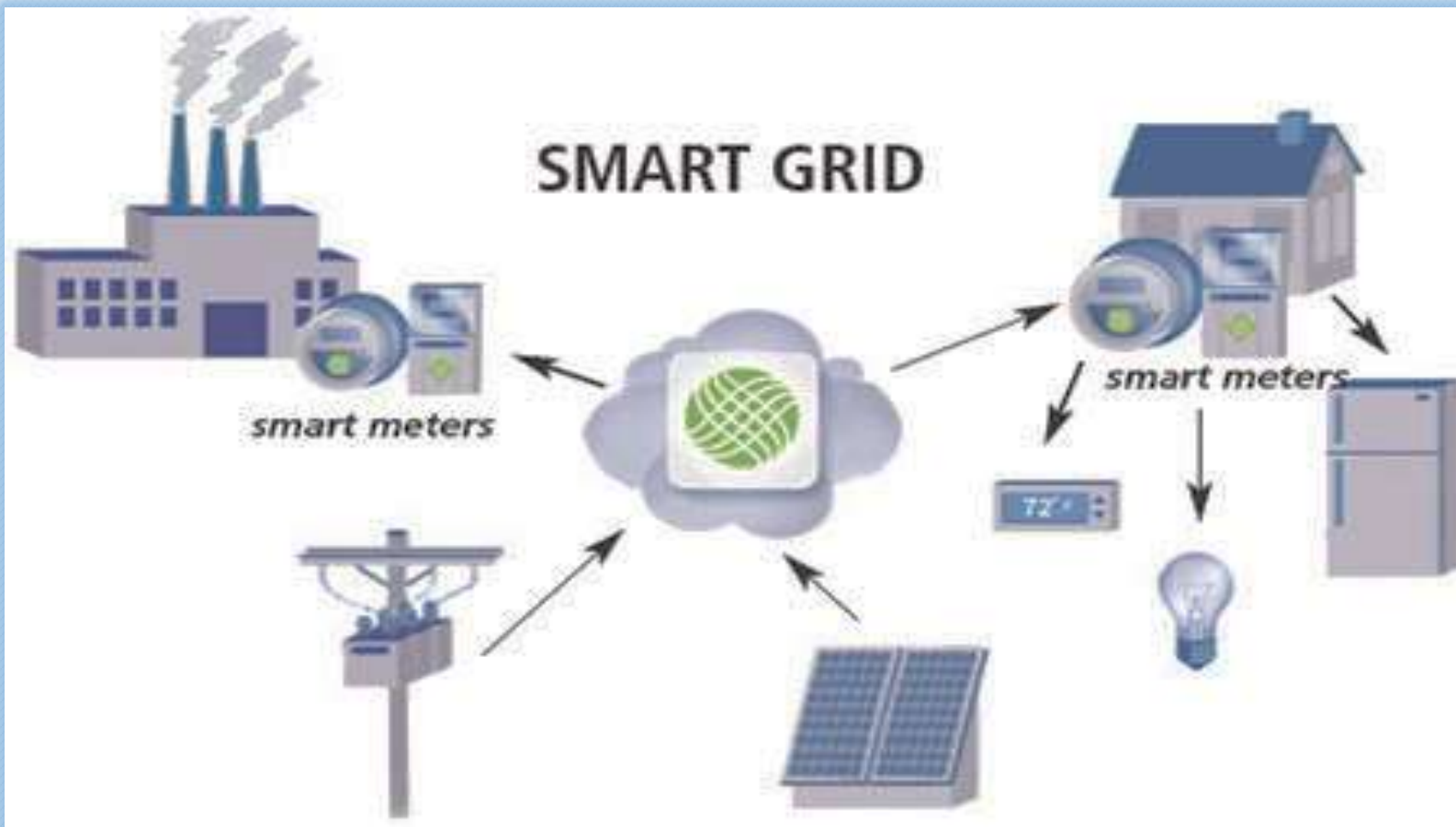


SCOPE – Part 1 of this series specifies static watt-hour smart meters of accuracy class 1 and 2 for the measurement of alternating current electrical active energy of frequency 50 Hz for single phase and three phase balanced and unbalanced loads.

It applies to: a) static watt-hour direct connected meters consisting of measuring element(s), time of use of register(s), display, load switch and built in type bi-directional communication module all integral with the meter housing. b) alternately the bi-directional communication module could be plug-in type on a dedicated slot with suitable sealing arrangement.

The smart meters as per IS 16444 (Part 1) shall be suitable for indoor/outdoor usage and capable of forward (import) or both forward (import) and reverse (export) energy measurement.

IS 16444 (Part 2) : 2017 a.c. Static Transformer Operated Watthour and Var-Hour Smart Meters, Class 0.2S, 0.5S and 1.0S - Part 2 Specification Transformer Operated Smart Meters



SCOPE - Part 2 of this series specifies ac static transformer operated watthour and var-hour smart meters of accuracy class 0.2S, 0.5S and 1.0S for the measurement of alternating current electrical active and reactive energy of frequency in the range 50 Hz for single phase and three phase balanced and unbalanced loads. It applies only to transformer operated static watthour and var-hour meters consisting of measuring element(s) and register(s) enclosed together in the meter case. It also applies to multi-rate tariff meters and meters which measure energy in both directions.

RELEVANCE OF INDIAN STANDARD

- Several programmes have been launched by Government of India to reform the energy and power sector. One such initiative was introduction of IT enabled services that has set the platform for deploying Smart Grids in India. The Smart Grid via its environment friendly and consumer centric approach would offer enhanced reliability, security, safety and efficiency for grid operations. The transition to Smart Grid would achieve the overarching objectives of Government to reduce AT&C losses (Aggregate Technical & Commercial losses) and provide 24×7 power for all.
- Advanced Metering Infrastructure (AMI) is a crucial part of a Smart Grid. It is an integrated system of smart meters, communication networks and data management systems that enables two way communication between the utilities and consumer premises equipment. Electrotechnical Department of BIS has prepared Indian standards IS 16444 (Parts 1 and 2) which specify requirements for direct and transformer connected smart meters.

BENEFITS

A smart meter:

- reveals more detailed energy consumption (compared to old accumulation meters), which could help you find ways to be more energy efficient
- allows connection or disconnection remotely, avoiding delays when moving or swapping electricity retailers or for other monitoring purposes
- allows better monitoring of the quality of electricity supply, including outages
- could help utilities/customers analyse the data to find cheaper electricity plans such as flexible or time-of-use pricing

BENEFITS

A smart meter :

- reveals usage data to assist when designing suitable solar and battery systems (Smart meter data provides critical household usage patterns that are helpful when sizing up a new solar PV system for your home)
- the smart meter provides data and information that are needed by various Smart Grid applications.
- The smart meter is capable of forward (import) or both forward (import) and reverse (export) energy measurement thus providing provision of net metering etc.

IS 17048 : 2018 - Halogen Free Flame Retardant HFFR Cables for Working Voltages up to and including 1100 Volts Specification



SCOPE- This specification covers general requirements of single and multicore cables/cords with rigid as well as flexible annealed bare/tinned copper and aluminium conductor insulated and sheathed (if any) with Thermoplastic or Crosslinked Halogen Free Flame Retardant (HFFR) material for voltages up to and including 1100 V a.c., 50 Hz, used in power and lighting installations including cables for low temperature applications. These cables may be used on d.c. systems for rated voltages up to and including 1500 V to earth. These cables are suitable to use for conductor temperature not exceeding 700C for thermoplastic or 900C for crosslinked material.

RELEVANCE OF INDIAN STANDARD

- In all fire disasters, fire, smoke, heat and toxic fumes are the main obstacles to safe evacuation of a building or area.
- A major contribution towards overcoming these hazards is the use of fire resistant and non-halogenated cables
- HFFR is practically halogen free and ensures that people trapped in fire can breathe easy facilitating better chances of their rescue.

ISSs notified under Cables (Quality Control Order)

Indian Standard	Name of Product
IS 694 : 2010	PVC Insulated Sheathed/Unsheathed Cables and cords for working voltages upto and including 1100 V
IS 1554 (Part 1) : 1988 IS 1554(Part 2):1988	PVC Insulated Heavy Duty Cables
IS 7098(Part 1):1988 IS 7098(Part 2):2011 IS 7098(Part 3):1993	Crosslinked Polyethylene Insulated Cables
IS 9968 (Part 1) : 1988 IS 9968 (Part 2) : 2002	Specification for Elastomer Insulated Cables
IS 14255 :1995	Aerial Bunched Cable - for working voltages upto and including 1100 V
IS 17048 : 2018	Halogen Free Flame Retardant (HFFR) Cables for Working Voltages Up to and Including 1100 V – Specification

IS 9537 series - Specification for Conduits for Electrical Installations



Conduit is a part of closed wiring system of circular or noncircular cross section for conductors and/or cables in electrical installations allowing to draw them in and/or to replace them.

IS 9537 series applies to conduits of circular cross section for the protection of conductors and/or cables in electrical installations

IS 9537 series- Published Standards

IS No.	Title	Scope
9537 (Part 1)	General Requirements	This standard applies to conduits of circular cross section for the protection of conductors and /or cables in electrical installations.
9537 (Part 2)	Rigid Steels Conduits	Requirements and methods of test of threaded/threadable plain rigid steel conduits
9537 (Part 3)	Rigid Plain Conduits of Insulating Material	Requirements and methods of tests for circular rigid non-flame propagating and non-threadable plain conduits of insulating materials
9537 (Part 4)	Pliable Self-recovering Conduits of Insulating Material	Requirements and methods of tests for pliable self-recovering plain and corrugated conduits of insulating materials.
9537 (Part 5)	Pliable Conduits of Insulating Material	Requirements for pliable non-flame propagating plain and corrugated conduits of insulating material.
9537 (Part 6)	Pliable Conduits of Metal and Composite Material	Requirements for pliable conduits of metal or composite materials
9537 (Part 8)	Threadable conduits of aluminium alloy	Requirements for plain rigid conduits of aluminium alloy

IS 12615 : 2018 - Line Operated Three Phase a.c. Motors (IE CODE) “Efficiency Classes and Performance Specification”



SCOPE- IS 12615 covers the efficiency classes and performance specifications of single-speed line operated a.c. motors that are rated for operation on a sinusoidal voltage supply and : a) Have a rated power from 0.12 kW to 1 000 kW; b) Have 2, 4, 6 or 8 poles; c) Have a rated voltage U_n up to 1 000 V with a rated frequency of 50 Hz.

Most motors covered by this standard are primarily rated for duty type S1 (continuous duty). Motors rated for duty cycles S2 and above with an equivalent S1 duty are also covered.

Relevance of Indian Standard

- Electric motors are the most important type of electric load in every industry. The motor driven systems account for about seventy percent of the energy consumed by the industry. There is a large potential for cost effective solution in the use of energy efficient motor systems by about twenty to thirty percent. Electric motor systems include a number of energy using products, such as motors, drives, pumps or fans, compressors, blowers and other machines. Energy efficient motors form a major component in contributing to the energy saving by way of increased efficiency of the product itself.
- This standard establishes a set of efficiency values based on frequency, number of poles and motor output power.

IS 16242(Part-1): 2014 – Uninterruptible Power Systems (UPS)

Part 1 General and Safety Requirements for UPS

SCOPE- This part of IEC 62040 applies to uninterruptible power systems (UPS) with an electrical energy storage device in the d.c. link.

The primary function of the UPS covered by this standard is to ensure continuity of an alternating power source. The UPS may also serve to improve the quality of the power source by keeping it within specified characteristics.

This standard is applicable to UPS which are movable, stationary, fixed or for building-in, for use in low-voltage distribution systems and intended to be installed in any operator accessible area or in restricted access locations as applicable



IS 1180 (Part 1) : 2014 — Outdoor/Indoor Type Oil Immersed Distribution Transformers Up to and Including 2 500 kVA, 33kV — Specification

Part 1 Mineral Oil Immersed



SCOPE- This standard specifies the requirements and tests including standard loss levels of mineral oil immersed, natural air-cooled, outdoor/indoor type, double wound distribution transformers for use in power distribution systems with nominal system voltages up to and including 33 kV and of following types and ratings:

- a) Three phase ratings up to and including 200 kVA both non-sealed type and sealed type.
- b) Three phase ratings higher than 200 kVA, up to and including 2 500 kVA both non-sealed type and sealed type.
- c) Single phase ratings up to and including 100 kVA

Relevance of Indian Standard

- Distribution transformers play an important role in the power system as they provide the final voltage transformation by stepping voltages down within a distribution circuit or from a distribution circuit to an end user or application.
- The phenomenal growth of power distribution network has put tremendous responsibilities on the distribution transformer industry to supply reliable and cost- effective transformers.
- The Electrotechnical department of BIS has published IS 1180 (Part 1) which specifies requirements and tests for mineral oil immersed distribution transformers. This standard also specifies various Energy Efficiency Levels (EELs) to ensure energy efficient transformers.

INDIAN STANDARDS ON LED STREET LIGHTING

- The following Indian Standards have been published on LED Street lighting:
- 1) IS 10322 (Part 5/ Section 3) : 2012 -- Luminaires Part 5 Particular requirements Section 3 Luminaires for Road and Street Lighting
- 2) IS 16107 (Part 2/Section 2) : 2017 -- Luminaires Performance Part 2 Particular Requirements Section 2 LED Street Lighting Luminaire

NEED FOR STANDARDS ON LED STREET LIGHTING

- So far luminaires with conventional light sources are being used for the street lighting luminaire. Keeping in view of the energy conservation, increased life and recurring savings on account of maintenance, energy efficient LED based street lighting luminaires are now being extensively used for street light.
- In view of the increased use of LED luminaire for street lighting particularly by the utilities and urban local bodies, national standards have been formulated in order to ensure the desired quality and energy efficiency of the luminaires.

Salient features of IS 10322 (Part 5/ Section 3)

- This standard covers safety and photometric requirements.
- This standard specifies requirements for road and street lighting luminaries for use with tungsten filament, tubular fluorescent, **LED, LED modules** and other discharge lamps on supply voltage not exceeding 1000 V.
- This standard is based on IEC 60598-2-3 .



Salient features of IS 16107(Part 2/Section 2)

- This standard specifies the performance requirements for LED street lighting luminaire suitable for use on dc supplies up to 250 V dc or on ac supplies up to 1 000 V at 50 Hz.
- This standard does not cover LED street light luminaires that intentionally produce coloured light; neither does it cover modules based on OLEDs (organic LEDs).
- The performance requirements are additional to the requirements given in IS 16107 (Part 1).
- The luminaire efficacy shall not be less than 80 lm/W.

COMPULSORY REGSITRATION ORDER

- LED luminaires as per IS 10322 (Part 5/Section 3) are covered under “Electronics and Information Technology Goods (Requirement for Compulsory Registration) Order” notified by Ministry of Electronics & Information Technology (MeitY).
- As per this order, manufacture of the LED street light luminaires must obtain registration from Bureau of Indian Standards (BIS) after getting their product tested from BIS recognized labs.



PV Panel

IS 14286 - Terrestrial Photovoltaic (PV) Modules – Design Qualification and Type Approval



IS 14286 (Part 1) : 2019
IEC 61215-1 : 2016

Test Requirements

IS 14286 (Part 2) : 2019
IEC 61215-2 : 2016

Test Procedures

IS 14286 (Part 1 / Sec 1) : 2019
IEC 61215-1-1 : 2016

Testing requirements of crystalline silicon photovoltaic PV modules

IS 14286 (Part 1 / Sec 2) : 2019
IEC 61215-1-1 : 2016

Testing requirements of thin - Film cadmium telluride CdTe based photovoltaic PV modules

IS 14286 (Part 1 / Sec 3) : 2019
IEC 61215-1-1 : 2016

Testing requirements of thin - Film amorphous silicon based photovoltaic PV modules

IS 14286 (Part 1 / Sec 4) : 2019
IEC 61215-1-1 : 2016

Testing requirements of thin - Film Cu In ga S se ₂ based photovoltaic PV modules

IS 16102 (Part 1 & Part 2) – Self Ballasted LED Lamps for General Lighting Services

Part 1 - Safety Requirements & Part 2 - Performance Requirements

SCOPE- Part 1 specifies the safety and interchangeability requirements, together with the test methods and conditions, required to show compliance of LED lamps with integral means for stable operation, intended for domestic and similar general lighting purposes, having:

- a) a rated power from 1 W to 25 W;
- b) a rated voltage of greater than 50 V up to 250 V and 50 Hz
- c) Edison screw caps E14 , E27 and Bayonet caps B22d and B15d



SCOPE- Part 2 specifies the performance requirements, together with the test methods and conditions, required to show compliance of LED lamps with integral means for stable operation, intended for domestic and similar general lighting purposes, having:

- a) a rated power from 1 W to 25 W;
- b) a rated voltage above 50 V ac up to and including 250 V ac at 50 Hz;
- c) Edison screw caps E14 , E27 and Bayonet caps B22d and B15d

IS 14665 on Traction Lifts



IS 14665 (Parts 1 to 5) cover various requirements for Electric Traction Lifts as follows:

- IS 14665 (Part 1) : 2000 Electric Traction Lifts Part 1 Guidelines For Outline Dimensions Of Passenger, Goods, Service And Hospital Lifts
- IS 14665 (Part 2/Sec 1 & 2) : 2000 Electric traction lifts : Part 2 code of practice for installation, operation and maintenance, Section 1 Passenger and Goods Lifts, Section 2 Service Lifts
- IS 14665 (Part 3/Sec 1 & 2) : 2000 Electric Traction : Part 3 Safety Rules Lifts, Section 1 Passenger and Goods Lifts, Section 2 Service Lifts
- IS 14665 (Part 4/Sec 1 to 9) : 2001 Electric Traction Lifts : Part 4 Components, Section 1 Lift Buffers, Section 2 Lift Guide Rails and Guide Shoes, Section 3 Lift Car frame, Car, Counterweight and Suspension, Section 4 Lift Safety Gears and Governors, Section 5 Lift Retiring Cam, Section 6 Lift Doors and Locking Devices and Contacts, Section 7 Lift Machines and Brakes, Section 8 Lift Wire Ropes, Section 9 Controller and Operating Devices for Lifts
- IS 14665 (Part 5) : 1999 Electric Traction Lifts — Specification Part 5 Inspection Manual

Other relevant standards on Lifts and Escalators

- IS 17106 (Part 1) : 2019/ ISO 22201-1 : 2017 Lifts (Elevators), Escalators and Moving Walks — Programmable Electronic Systems in Safety-related Applications : Part 1 Lifts (Elevators) (PESSRAL)
- IS 15785 : 2007 Installation and maintenance of lift without conventional machine rooms - Code of practice
- IS 15259 : 2002 Installation and maintenance of home lifts - Code of practice
- IS 15330 : 2003 Requirements of Lifts for Persons with Disabilities (*under revision*)
- IS 4591 Code of practice for installation and maintenance of escalators (*under revision*)

Relevance of Indian Standards on Lifts and Escalators

From being a luxury item in the early years, lift has now become an integral part of any building with more than 2 floors. With ageing population and growth of vertical cities, the installation of lifts are multiplying multifold year on year.

Lift being a safety critical item they need to be professionally installed & maintained to ensure safety. In order to ensure orderly development of the industry, Indian standards need to be followed during the installation and maintenance of the equipment.

It is recommended to use IS-compliant lifts and escalators for the safety of equipment and the passengers in States even where a Lift Act is not defined. For home lifts, recommended Indian Standards are IS 14665 and IS 15259. If it is a machine room less elevator then IS 15785, similarly IS 14671 if it is a hydraulic lift.

Quality Control of Lifts

- Various States of India have their own lift laws and rules which refer to the Indian Standards viz. The West Bengal Lifts Act, the Karnataka Lift Laws, the Bombay Lift Act and the Bombay Lift Rules.
- Lift licenses are issued by the State Lift/Electrical Inspectorate in compliance with State's Lift Act/rules

AN OVERVIEW OF ELECTRICAL SAFETY - Indian Standards





Electrical Fire Safety – Indian context

Table 1.9 (Contd...)

Sl. No.	State/UT	No. of Cases	Accidental Fire (Electrical Short Circuit)							
			No. of Persons Injured				No. of Persons Died			
			Male	Female	Trans-gender	Total	Male	Female	Trans-gender	Total
(1)										
STATE										
1 ANDHRA PRADESH		85	0	0	0	0	81	34	0	85
2 ARUNACHAL PRADESH		304	173	63	0	236	118	42	0	160
3 ASSAM		0	0	0	0	0	0	0	0	0
4 BIHAR		0	0	0	0	0	0	0	0	0
5 CHHATTISGARH		3	0	0	0	0	2	1	0	2
6 GOA		2	0	0	0	0	1	1	0	2
7 GUJARAT		0	0	0	0	0	0	0	0	0
8 HARYANA		92	0	0	0	0	63	19	0	82
9 HIMACHAL PRADESH		44	4	1	0	5	38	8	0	46
10 JAMMU & KASHMIR		118	0	0	0	0	98	32	0	118
11 JHARKHAND		0	0	0	0	0	0	0	0	0
12 KARNATAKA		262	0	0	0	0	214	52	0	266
13 KERALA		211	1	0	0	1	160	41	0	212
14 MADHYA PRADESH		2	0	0	0	0	0	0	0	0
15 MAHARASHTRA		222	14	0	0	14	0	0	0	14
16 MANIPUR		0	0	0	0	0	0	0	0	0
17 MEGHALAYA		0	0	0	0	0	0	0	0	0
18 MIZORAM		0	0	0	0	0	0	0	0	0
19 NAGALAND		0	0	0	0	0	0	0	0	0
20 ODISHA		0	0	0	0	0	0	0	0	0
21 PUNJAB		44	4	1	0	5	38	8	0	46
22 RAJASTHAN		118	0	0	0	0	98	32	0	118
23 SIKKIM		0	0	0	0	0	0	0	0	0
24 TAMIL NADU		262	0	0	0	0	214	52	0	266
25 TELANGANA		211	1	0	0	1	160	41	0	212
26 TRIPURA		2	0	0	0	0	0	0	0	0
27 UTTAR PRADESH		222	14	0	0	14	0	0	0	14
28 UTTARAKHAND		0	0	0	0	0	0	0	0	0
29 WEST BENGAL		118	12	0	0	12	0	0	0	12
TOTAL (STATES)		2413	230	0	0	230	1833	422	0	2255
UNION TERRITORIES										
30 A & N ISLANDS		2	0	0	0	0	0	0	0	0
31 CHANDIGARH		4	0	0	0	0	0	0	0	0
32 D & N HAVELI		0	0	0	0	0	0	0	0	0
33 DAMAN & DIU		0	0	0	0	0	0	0	0	0
34 DELHI (UT)		61	14	0	0	14	0	0	0	14
35 LAKSHADWEEP		0	0	0	0	0	0	0	0	0
36 PUDUCHERRY		5	0	0	0	0	4	1	0	5
TOTAL (UTs)		72	14	0	0	14	84	8	0	92
TOTAL (ALL INDIA)		2485	244	0	0	244	1917	430	0	2347

Table 1.9 (Contd...)

Sl. No.	State/UT	No. of Cases	Electrocution							
			No. of Persons Injured				No. of Persons Died			
			Male	Female	Trans-gender	Total	Male	Female	Trans-gender	Total
(1)			(100)	(101)	(102)	(103)	(104)	(105)	(106)	(107)
(1)										
STATE										
1 ANDHRA PRADESH		13	0	0	0	0	12	1	0	13
2 ARUNACHAL PRADESH		6	0	0	0	0	4	3	0	7
3 ASSAM		7	0	0	0	0	7	1	0	8
4 BIHAR		2	0	0	0	0	2	0	0	2
5 CHHATTISGARH		273	0	0	0	0	225	52	0	277
6 GOA		320	0	0	0	0	304	17	0	321
7 GUJARAT		1057	11	3	0	14	909	157	0	1066
8 HARYANA		11	0	0	0	0	11	1	0	12
9 HIMACHAL PRADESH		637	1	0	0	1	549	102	0	651
10 JAMMU & KASHMIR		496	0	0	0	0	400	96	0	496
11 JHARKHAND		41	0	0	0	0	34	7	0	41
12 KARNATAKA		35	659	97	0	756	2	39	4	43
13 KERALA		11	137	18	0	155	0	0	0	0
14 MADHYA PRADESH		280	8274	1518	0	9792	0	0	0	0
15 MAHARASHTRA		0	1	0	0	1	0	0	0	0
16 MANIPUR		0	2	0	0	2	0	0	0	0
17 MEGHALAYA		0	3	0	0	3	0	0	0	0
18 MIZORAM		0	0	0	0	0	0	0	0	0
19 NAGALAND		4	70	11	0	81	0	0	0	0
20 ODISHA		0	0	0	0	0	0	0	0	0
21 PUNJAB		10	0	0	0	10	10	0	0	10
22 RAJASTHAN		100	4	0	0	4	86	19	0	97
23 SIKKIM		10200	278	68	0	2848	1026	0	0	1026
24 TAMIL NADU		10	0	0	0	10	0	0	0	10
25 TELANGANA		100	4	0	0	4	86	19	0	97
26 TRIPURA		41	0	0	0	41	0	0	0	41
27 UTTAR PRADESH		10	0	0	0	10	0	0	0	10
28 UTTARAKHAND		100	4	0	0	4	86	19	0	97
29 WEST BENGAL		41	0	0	0	41	0	0	0	41
TOTAL (STATES)		10200	278	68	0	2848	1026	0	0	1026
UNION TERRITORIES										
30 A & N ISLANDS		10	0	0	0	10	0	0	0	10
31 CHANDIGARH		100	4	0	0	4	86	19	0	97
32 D & N HAVELI		0	0	0	0	0	0	0	0	0
33 DAMAN & DIU		0	0	0	0	0	0	0	0	0
34 DELHI (UT)		61	14	0	0	14	0	0	0	14
35 LAKSHADWEEP		0	0	0	0	0	0	0	0	0
36 PUDUCHERRY		5	0	0	0	5	4	1	0	5
TOTAL (UTs)		72	14	0	0	14	84	8	0	92
TOTAL (ALL INDIA)		10272	292	68	0	3062	1034	8	0	1042

Electrical Fire Safety – Indian context



THE HINDU

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CITIES » BENGALURU

BANGALORE, Feb 2

Updated: February 2, 2014 00:36 IST

Electrical accidents kill 94

SPECIAL CORRESPONDENT

COMMENT



9,962 Guj buildings inspected after Surat fire, 9,395 found unsafe

As many as 9,395 buildings across Gujarat, including schools, coaching centres, malls, restaurants and hotels, were found lacking in fire safety regulations during a mass inspection over the Surat coaching centre fire, state Chief Secretary Jagadip Narayan Singh said. Singh said officials in 162 municipalities across the state have inspected 9,962 buildings. Over 20 people were killed in the fire.

[swipe left for more at The Indian Express / Today](#)

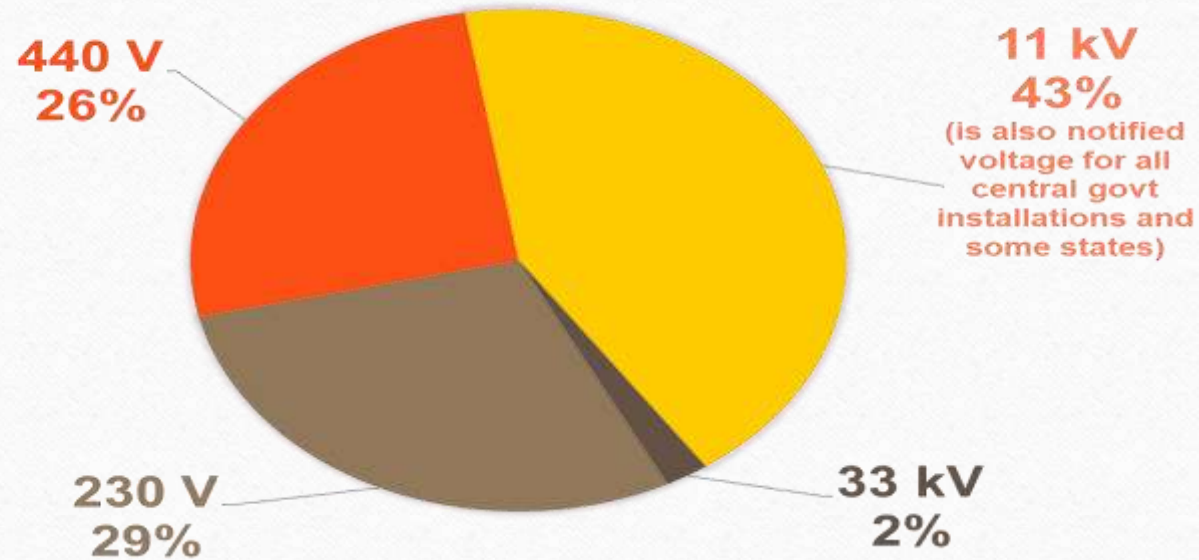
Refreshed Successfully

A total of 713 teams carrying out inspections
[Tap to know more](#)

200 ट्रांसफार्मर के गोदाम में आग, धमाके से पहले काबू

Patrika news network Posted: 2016-01-17 01:35:48 IST | Updated: 2016-01-17 01:35:48 IST

More than 55% electrical incidents occur in 230V – 440V



REGULATIONS, CODES & STANDARDS COVER



Regulations

- Electricity Act 2003
- Central Electricity Authority (Measures related to Safety and Electric Supply) Regulations 2010 and further amendments 2015 and 2018

Standards

- **IS 732 : 2019 – CODE OF PRACTICE FOR ELECTRICAL WIRING INSTALLATIONS**
- **NEC 2011 – NATIONAL ELECTRIC CODE**

Structure of IS 732:2019



This code gives the rules for the design, selection, erection and verification of electrical installations of buildings such as Residential / commercial / public / industrial / agriculture and horticulture premises etc

Clause 1: Refers to scope of the standard

Clause 2: References of different standards

Clause 3: Terminology used in the standard

Clause 4: Assessment of general characteristics

Clause 5: Selection & Erection of Electrical Equipment

Clause 6: Verification (Initial and periodic)

The compliance of Clause 4 , 5 and 6 is necessary to declare a building electrically safe

NATIONAL ELECTRICAL CODE 2011

The National Electrical Code is very important document and covers the followings:

- Standard good practices for selection of various items of electrical equipment forming part of power systems;
- Recommendations concerning safety and related matter in the wiring of electrical installations of buildings or industrial structures, promoting compatibility between such recommendations and those concerning the equipment installed;
- General safety procedures and practices in electrical work; and
- Additional precautions to be taken for use of electrical equipment for special environmental conditions like explosive and active atmosphere

NEC APPLIES TO:

- Standby Generating Plants
- Building Substations
- Domestic Dwellings
- Office Buildings
- Shopping And Commercial Centre's
- Institutions
- Recreation And Other Public Premises
- Medical Establishments
- Hotels
- Sports Buildings
- Industrial Premises
- Temporary And Permanent Outdoor Installations
- Agricultural Premises
- Installations In Hazardous Areas
- Solar Photovoltaic Installations



NATIONAL ELECTRICAL CODE 2011...

☐ NEC contains: 8 Parts and 30 Sections

- Part 1 General and Common Aspects
- Part 2 Electrical installations in stand by generating stations and captive substations
- Part 3 Electrical installations in non-industrial buildings
- Part 4 Electrical installations in industrial buildings
- Part 5 Outdoor installations
- Part 6 Electrical installations in agricultural premises
- Part 7 Electrical installations in Hazardous area
- Part 8 Solar Photovoltaic (PV) power supply systems

Accessing Indian Standards

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- Click on "Download" button corresponding to the Standard
- The button will redirect to sale portal.
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Accessing Indian Standards

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- Register on sales portal and download the Standard

Leveraging training & professional support by BIS

- A training portal has been developed by BIS to cater to the emerging training needs of various stakeholders.
- This training portal enables Industries (including Industry Associations), Central/ State Government organizations, Consumers (including Consumer groups, NGO, RWAs), Research Institutes, Laboratories, Academia, BIS departments/employees, etc. to participate online in the various training programmes conducted by BIS. The participation can be made individually or on behalf of their organization. The interested participants can also propose their own sector specific/skill based training programmes.
- These programmes can be online, offline or blended and they can be conducted at BIS locations or custom locations.
- The participants can access all the relevant course materials, case studies, reference materials, journals, certificates, etc. on the portal.
- This portal has a communication window for easy interaction with BIS.
- The interested stakeholders who want to become/nominate a faculty in BIS can also submit their applications online.
- To access the training portal, please go to e-BIS (www.manakonline.in) home page which will display the various digital services offered by BIS and select training portal. The screenshot of the same are as follows:

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 Conformity Assessment (Manakonline)

 Compulsory Registration Scheme (CRS)

 Foreign Manufacture Certification

 Management System Certification (MSCD)

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 Hallmarking

 Consumer Recognition/Complaints

 Training

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NEWS AND EVENTS

- Temporary measures for relaxation of provision of BIS Conformity Assessment Regulations 2018 for renewal of licence with late fee and renewal of deferred licence
- Extension of date of implementation of amendments to Indian Standards and revised Indian Standards
- Relaxation in fee for MSME units for licence under Bureau of Indian Standards (Conformity Assessment) Regulations 2018 and its amendments- req

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 Training Programmes Planned (Domestic)

 Training Programmes Conducted (Domestic)

 Proposals for New Programmes

 Faculty

 Fees

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 International Programmes

 Reference Materials

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- on "Laboratory Quality Management System & Internal Audit as per IS/ISO/IEC 17025 : 2017 " to be held during 20-23 July 2020.
- 2-day Online Training programme on " Transition to IS/ISO/IEC 17025 : 2017 " to be held during 27-28 July 2020.
- 4-day Online Training programme on " Medical Laboratories Quality Systems and Internal Audit as per IS/ISO 15189 : 2012 " to be held during 4-7 August 2020.
- 2-day Online Training programme on "Measurement Uncertainty" to be held during 06-07 August 2020.
- 4-day Online Training programme on "Laboratory Quality Management



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