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“Knowledge is such a treasure which cannot be stolen”



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*Indian Standard*

ELECTROTECHNICAL VOCABULARY

**PART 59 EDUCATIONAL OR TRAINING  
EQUIPMENT AND SYSTEMS**

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*Indian Standard*

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# *Indian Standard*

## ELEETROTECHNICAL VOCABULARY

### PART 59 EDUCATIONAL OR TRAINING EQUIPMENT AND SYSTEMS

#### 0. FOREWORD

**0.1** This Indian Standard ( Part 59 ) was adopted by the Indian Standards Institution on 18 June 1986, after the draft finalized by the Basic Standards on Electronics and Telecommunication Sectional Committee in consultation with the Recording Sectional Committee had been approved by the Electronics and Telecommunication Division Council.

**0.2** This standard covers terms and definitions intended to be used by practitioners in the field of audio-visual and electronic technology ( for information and communication ).

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#### 1. SCOPE

**1.1** This standard ( Part 59 ) covers terms and definitions relating to audio visual and electronic technology ( for information and communication ) for use in educational or training equipment and systems.

#### 2. TERMS AND DEFINITIONS

##### 2.1 Audio Equipment

**2.1.1** *Audio Equipment* — Devices used for processing sound signals, such as microphones, amplifiers, recorders and reproducers.

**2.1.2** *Audio Magnetic Tape Recorder* — A magnetic recording/reproducing apparatus in which the recording medium is in the form of a magnetic tape. The magnetic tape may be handled by any one of a number of methods, for example, reel to reel, cassette, or cartridge.

**2.1.3** *Audiostriped Card Recorder/Audiocard Recorder* — A special form of audio tape recorder which records and plays only audiostriped cards.

**2.1.4** *Audiopage Recorder* — A special form of audio tape recorder which records and plays only audiopages.

**2.1.5 Audio Tape Deck** — An apparatus consisting of a tape transport system, magnetic replay head, preamplifier(s) and associated controls.

**2.1.6 Record Player** — A mechanical device of a reproducing equipment consisting of a turntable with its driving system, a tone arm and a pick-up head.

**2.1.7 Audio Magnetic Tape Player** — A magnetic reproducing apparatus in which the recorded medium is in the form a magnetic tape. The tape may be handled by any one of a number of methods, for example, reel-to-reel, cassette, or cartridge.

**2.1.8 Dictating Machine** — A machine designed to record speech and some times also to reproduce it, so that a written record can be produced.

**2.1.9 Audio Tape Duplicator** — A recording system capable of making one or more copies of a recorded magnetic tape of blank tape(s), usually at higher than normal reproducing speed.

**2.1.10 Audio Desk/Audio Console** — A structure for mounting operator-controlled audio equipment.

**2.1.11 Audio Amplifier** — Electronic device which amplifies the level of input audio frequency signals.

**2.1.12 Audio Mixer** — Means in which the output signals of two or more sources are mixed.

**2.1.13 Audio-Compressor** — Electronic device often incorporated in a preamplifier for decreasing the dynamic range of a signal by raising the level of low volume parts of lowering the level of high volume parts or both.

**2.1.14 Radio Tuner** — Electronic device which detects and amplifies the signal of a broadcasting station. It may detect frequency modulation (FM) and/or amplitude (AM).

**2.1.15 Radio Receiver** — A device connected to an aerial or other source of radio signals in order to make available in some desired form the required information content of the signals.

**2.1.16 Listening Centre** — A distribution device into which headphones can be connected to enable more than one person to listen to an audio programme. It may have more than one programme channel, be monophonic or stereo, and may have volume controls.

**2.1.17 Earphone** — An electro-acoustic transducer which transforms electrical energy into sound energy and is intended to be closely coupled acoustically to the ear.



**2.1.18 Headphone** — Assembly of one or two earphones on a headband.

**2.1.19 Headset** — Assembly of a microphone and one or two earphones on a headband.

**2.1.20 Loudspeaker** — An electro-acoustic transducer that converts the electrical energy into acoustical energy.

**2.1.21 Microphone** — An electro-acoustic transducer that converts the acoustical energy into electrical energy.

## **2.2 Video Equipment**

**2.2.1 Video Equipment** — Devices used for generating, processing, storing, retrieving, distributing and/or displaying video signals. Also generally handles audio and control signals used with video.

**2.2.2 Video Signal** — Electrical signal generated from an optical image.

**2.2.3 Video Tape Recorder** — An equipment for recording and reproducing video and audio signals on magnetic tape. The tape may be handled by any one of a number of methods, for example, reel-to-reel, cassette, or cartridge.

**2.2.4 Video Tape Player** — An equipment for reproducing video and audio signals recorded on magnetic tape. The tape may be handled by any one of a number of methods, for example, reel-to-reel, cassette, or cartridge.

**2.2.5 Editing** — The selecting, rearranging and assembling of sequences into a new complete programme.

**2.2.6 Editing Video Tape Recorder** — A video tape recorder with special features which allow the electronic editing of video tapes.

**2.2.7 Video Tape Duplicator** — A recording system capable of making one or more copies of a recorded video tape on blank tape.

**2.2.8 Television Camera** — Equipment embodying the necessary optical and electronic apparatus for taking a television picture for transmission recording.

**2.2.9 Video Monitor** — An electronic device for controlling and displaying on a cathode ray tube (CRT) video signals provided by a video source.

**2.2.10 Television Receiver** — A receiver which reproduces the visual and aural components of a television programme.

**2.2.11 Television Desk/Television Console** — Desk-type structure equipped with a number of control devices for such things as picture and sound selection, special effects, and technical adjustments to maintain picture quality.

**2.2.12 Television Projector** — An electronic device that projects television pictures on a large screen by means of an optical system.

**2.2.13 Telewriter** — Apparatus in which the manually controlled movements of a pen over a plane surface are converted into two currents of varying strength for transmission over two independent channels to control, at the receiving end, the movement of a similar pen.

**2.2.14 Telecine Equipment/Telecine** — Equipment for televising films.

**2.2.15 Closed Circuit Television** — A system which distributes video and audio signals to specific receivers monitor by means of cable and/or microwave transmission.

**2.2.16 Film Chain** — A system of fixed television camera(s) and appropriate projector(s) used to transmit projected materials ( usually motion pictures, slides, filmstrips and opaque materials ) through a television system.

## **2.3 Photographic Equipment**

**2.3.1 Photographic Equipment** — Devices used in the production of either still or motion picture images on a light-sensitive surface.

**2.3.2 Motion Picture Camera** — A device designed for the photographic production of a series of images on motion picture film, usually at the rate of 18 or 24 images per second.

**2.3.3 Still Camera** — A device used for exposing photographic film intended to be shown as single photographs.

**2.3.4 Microform Camera** — A camera designed for producing micro-images which are generally negative and too small to be read without magnification.

**2.3.5 Exposure Meter/Light Meter** — A device used for determining the length of exposure and the aperture of the diaphragm based upon a measurement of the light, either falling on or reflected from the subject to be photographed, and the sensitivity of the film.

**2.3.6 Electronic Flash** — A reusable lighting device which emits a brief but intense flash of light to illuminate the object to be photographed.

**2.3.7 Copystand** — A vertical or horizontal stand with an adjustable bracket to hold a camera for photographing flat objects at close range.

**2.3.8 Slide Copier/Slide Duplicator** — A device for making one or more copies of a slide by photographic means.

**2.3.9 Enlarger** — A device designed to make an enlarged copy of a picture usually from a film negative, by projection of the film image onto a light-sensitive material.

**2.3.10 Motion Picture Editor** — A device which facilitates the selection and rearrangement of film sequences for the purposes of assembling them into a new complete programme.

## **2.4 Projected Display Equipment**

**2.4.1 Projected Display Equipment** — Devices used for projection of still or motion picture on to a screen.

**2.4.2 Diascope/Slide Projector** — A still projector used in cinema auditorium.

**2.4.3 Filmstrip Projector** — A designed to project a series of still images by transilluminating, in turn, each of a series of transparent images contained on a ( usually ) 35 mm wide length of film and transmitting the light to a screen by means of an optical system.

**2.4.4 Slide Mount** — An opaque frame to support and protect a transparency intended for projection.

**2.4.5 Sound Slide Projector** — A diascope designed to project slides and reproduce sound simultaneously.

**2.4.6 Overhead Projector** — A device which projects an image by transilluminating a large transparency resting on a typically 250 × 250 mm or larger horizontal stage, and transmitting the light to a screen located behind the operator/speaker, by means of a lens and mirror optical system, parts of which are located above the stage. An overhead projector operates from in front of the audience, and in normal or nearly normal room illumination.

**2.4.7 Viewer** — A device designed to permit an individual to examine, one at a time, small transparencies such as slides or filmstrip images, which are transilluminated and slightly magnified by the device.

**2.4.8 Sound Synchronizer** — A device linking a tape player or recorder and a slide projector or filmstrip projector and which causes the projector to change images in response to cue tones on the tape.

**2.4.9 Dissolve Control Unit** — A device which provides a gradual transition from one screen image to another by fading in the light of one projector as it fades out the light of another. When the transition is accomplished very rapidly, it is termed a 'cut'.

**2.4.10 Episcopes/Opaque Projector** — Apparatus for projecting image of opaque objects such as postcards, on a screen by making use of illumination from the front.

**2.4.11 Stereoscope** — An optical system, enabling each eye to see a different image of essentially the same object, to give a three dimensional effect.

**2.4.12 Epidiascope** — A combination of the diascope and episcopes.

**2.4.13 Microprojector** — A device designed to project enlarged images of microscope slides.

**2.4.14 Microform Reader** — A device designed for viewing microfilms and/or microfiche.

**2.4.15 Microform Reader/Printer** — A microform reader capable of providing enlarged copies on paper ( hard copies ).

**2.4.16 Front Projection Screen** — A screen which allows viewing of a projected image by reflected light.

**2.4.17 Rear Projection Screen** — A screen which allows viewing of a projected image by transmitted light.

**2.4.18 Motion Picture Projector** — A composite apparatus required for screening motion pictures and their accompanying sound tracks.

**2.4.19 Screen** — A prepared surface designed for viewing projected images.

**2.4.20 Image Modifier** — A camera-like device used for projecting an enlarged or reduced image of any original document through a transparent plate so that a tracing may be made on translucent paper laid on the plate.

## **2.5 Recorded Materials**

**2.5.1 Recorded Materials** — Materials, such as tape or film, on which information has been stored with the aim of subsequent reproduction.

## 2.5.2 *Recording*

**2.5.2.1** Action by which signals are stored in a material base.

**2.5.2.2** Techniques whereby information is embodied in a material base with the aim of preserving them with a view to their subsequent reproduction.

**2.5.2.3** Material base for signals after embodiment and, through extension, the signals themselves after reproduction.

**2.5.3** *Magnetic Tape* — A recording medium in the form of a ribbon, made of a nonmagnetic base coated with a magnetizable material in a suitable binder.

## 2.5.4 *Cassette*

**2.5.4.1** A device composed of a case containing two coplanar or superimposed hubs or reels on which a magnetic tape is wound, so that the tape can move from hub (reel) to hub (reel) during recording, reproduction, a fast forward movement or rewinding.

**2.5.4.2** The device can be easily and instantaneously inserted in a recording/reproducing equipment or in a reproducer designed for this purpose, without handling the magnetic tape.

## 2.5.5 *Cartridge*

**2.5.5.1** A device composed of a case containing a magnetic tape in the form of a multiturn endless loop carried on a single hub. The tape is unwound from the inside turn of the loop and wound on the outside turn of the loop.

**2.5.5.2** The device can be easily and instantaneously inserted in a recording/reproducing equipment or in a reproducer designed for this purpose without handling the magnetic tape.

**2.5.6** *Magnetic Disc/Magnetic Disk* — A flat circular plate with a magnetic surface on which signals can be recorded.

**2.5.7** *Audiotape* — A recording medium (magnetic tape) especially designed for the storage and reproduction of audio frequency signals.

**2.5.8** *Audioidisc/Audioidisk/Record/Phonodisc* — A piece of plastic material in the form of a disc on which audio information is mechanically recorded.

**2.5.9 Audio-Striped Card, Magnetic-Striped Card|Audiocard** — A semi-rigid card that has one or more magnetic stripes for the audio recording and playback of both instructor and student information, and one or more areas for the presentation of visual information.

**2.5.10 Audiopage|Audiosheet|Sound Page|Sound Sheet** — A sheet having a printing/writing surface on one side and a magnetic coating suitable for the recording and reproduction of audio information on the other side.

**2.5.11 Videotape** — A recording medium (magnetic tape) especially designed for the storage and reproduction of video signals. Audio and control signals can also be recorded.

**2.5.12 Videodisc|Videodisk** — A disk on which monochrome or colour video signals are recorded along a single spiral groove or concentric circles and which can be reproduced on a standard home TV screen by means of a specially designed disk playing apparatus. A recording may be optical, mechanical or magnetic. Audio information can be recorded on the same groove.

**2.5.13 Electronic Display Terminal|Equipment** — A device designed for display of video information (sometimes accompanied by sound), generally using a cathode-ray tube. The device can be a television receiver.

**2.5.14 Electronic Board** — This is a display device to which graphics can be transmitted electronically.

## **2.6 Projected and Magnified Materials**

**2.6.1 Projected and Magnified Materials** — Recorded visual materials which are intended to be enlarged or projected by means of an optical system.

**2.6.2 Aperture Card** — A card with a rectangular hole or holes specifically prepared for the mounting therein of transparent micro-images.

**2.6.3 Microform** — Any material, film or paper, printed or photographic, containing micro-images which are units of information, such as a page of text or a drawing.

**2.6.4 Microfiche** — A sheet of microfilm, usually 100 × 150 mm, containing multiple micro-images in a grid pattern.

**2.6.5 Microscope Slide** — A thin glass plate holding a minute object for viewing through a microscope or by a microprojector.

**2.6.6 *Filmstrip*** -- A length of film, usually perforated, that presents a sequence of related still pictures for projection one at a time.

**2.6.7 *Slide*** — A transparent image, usually photographic, intended for projection.

**2.6.8 *Slide/Tape-Tape/Slide*** — An ordered sequence of slides intended to be projected accompanied by a magnetic tape containing music and/or narration and/or sound effects; and, frequently, cue tones for picture advance and programme stop.

**2.6.9 *Overhead Slide/Overhead Transparency*** — A large transparency intended for projection by an overhead projector.

**2.6.10 *Stereograph*** — A pair of opaque or transparent images ( usually photographic ) intended to produce a three dimensional effect when viewed with stereoscopic equipment.

**2.6.11 *Hologram*** — A material which presents the illusion of three dimensions, complete with perspective. A hologram is created by a photographic technique utilizing a laser.

**2.6.12 *Motion Picture*** — A length of perforated photographic film bearing a sequence of images which create the illusion of movement when projected in rapid succession. The film may also contain a magnetic or photographic sound track.

**2.6.13 *Micro-Image*** — An image which is too small to be read without magnification.

# INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

## Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

## Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane Angle	radian	rad
Solid angle	steradian	sr

## Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	$1 \text{ N} = 1 \text{ kg.m/s}^2$
Energy	joule	J	$1 \text{ J} = 1 \text{ N.m}$
Power	watt	W	$1 \text{ W} = 1 \text{ J/s}$
Flux	weber	Wb	$1 \text{ Wb} = 1 \text{ V.s}$
Flux density	tesla	T	$1 \text{ T} = 1 \text{ Wb/m}^2$
Frequency	hertz	Hz	$1 \text{ Hz} = 1 \text{ c/s (s}^{-1}\text{)}$
Electric conductance	siemens	S	$1 \text{ S} = 1 \text{ A/V}$
Electromotive force	volt	V	$1 \text{ V} = 1 \text{ W/A}$
Pressure, stress	pascal	Pa	$1 \text{ Pa} = 1 \text{ N/m}^2$





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