भारतीय मानक **IS/IEC 63203-101-1 : 2021**

Indian Standard

वेरबल इलेक्ट्रोनिक डिवाइसस एवं टेक्नॉलजीस

भाग 101

अनुभाग 1 शब्दावली

Wearable Electronic Devices and Technologies

Part 101

Section 1 Terminology

ICS 01.040.31; 59.080.80

© BIS 2024
© IEC 2021

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI - 110002
www.bis.gov.in www.standardsbis.in

August 2024 **Price Group 5**

Wearable Electronic Devices and Technologies Sectional Committee, LITD 33

NATIONAL FOREWORD

This Indian Standard (Part 101/Sec 1) which is identical to IEC 63203-101-1 : 2021 ‘Wearable electronic devices and technologies Part 101-1 Terminology’ issued by the International Electrotechnical Commission (IEC) was adopted by the Bureau of Indian Standards on the recommendation of wearable Electronic Devices and Technologies Sectional Committee and the approval of the Electronics and Information Technology Division Council.

The text of IEC standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are however not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words ‘International Standard’ appears referring to this standard, they should be read as ‘Indian Standard’; and

b) Comma (,) has been used as a decimal marker while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be same as that of the specified value in this standard

CONTENTS

This Page has been Intentionally left blank

Indian Stqandard

WEARABLE ELECTRONIC DEVICES AND TECHNOLOGIES

PART 101

SECTION 1 TERMINOLOGY

1 Scope

This document provides terminology frequently used in literature related to wearable electronic devices and technologies in the IEC 63203 series. This list includes wearable electronic devices and technologies, near-body wearable electronics, on-body wearable electronics, in-body wearable electronics, and electronic textiles.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
wearable electronic device
electronic device intended to be located near to, on, or in, a human body

3.1.1
near-body wearable electronic device
near-body wearable electronics
wearable electronic device intended to be located near a human body but which does not make direct contact with its external surface

Note 1 to entry: Equipment that is not wearable (e.g. that operates in close proximity to the human body) is not considered to be near-body wearable electronics.

3.1.2
on-body wearable electronic device
on-body wearable electronics
wearable electronic device intended to be located on the external surface of a human body and which makes direct contact with it

Note 1 to entry: Portable equipment that is held in hand during use is not considered to be on-body wearable electronics.

3.1.3
in-body wearable electronic device
in-body wearable electronics
wearable electronic device intended to be located inside a human body

3.2
wearable electronic technology
technology related to the development of wearable electronic devices

Note 1 to entry: Examples: materials, applications, devices, components, systems or network.

3.3
electronic skin
wearable electronic device attached on human skin, the physical behaviour of which is close to that of human skin (i.e. flexible and elastic)

Note 1 to entry: Some electronic skins might mimic certain functionalities of human skin.

3.4
patchable electronics
wearable electronic device or component that can be attached to the human body

3.5
biodegradable electronics
electronic device and component that naturally dissolve after proper functioning

Note 1 to entry: Examples of functions: body monitoring, wound healing, therapy delivery.

3.6
ingestible electronics
in-body electronic device or component that is ingested orally

3.7
conformable wearable electronic device
wearable electronic device able to change form or shape in response to the external environment

3.8
stretchable electronic device
electronic device able to operate under stretched conditions and having an elastic behaviour

3.9
(electric) sensor
device which, when excited by a physical phenomenon, produces an electric signal characterizing the physical phenomenon

Note 1 to entry: Sensors such as touch sensors, temperature sensors, motion sensors, vital-voltage sensors, or electrocardiogram (ECG) sensors are specific types of sensors used in wearable devices.

[SOURCE: IEC 60050-151:2001, 151-13-48, modified – Note 1 to entry has been added.]

3.10
stretchable substrate
stretchable material
substrate or material able to recover original size and shape immediately after the removal of the extending force causing deformation

Note 1 to entry: In this document, the notion of "stretchability" is based on the elasticity of the substrate.

3.11
flexible substrate
flexible material
substrate or material able to be deformed under bending force to a certain point without causing breakage

3.12
electronic textile
e-textile
fibre, yarn, fabric, or textile end product combined with at least one electronic component or device

Note 1 to entry: Electronic devices, components and systems can be made at the levels of fibres, yarns, fabrics and garments.

3.13
smart textile system
textile-based system which exhibits an intended and exploitable response as a reaction either to changes in its surroundings/environment or to an external signal/input

[SOURCE: ISO/TR 23383:2020, 3.8]

3.14
textile electrode
electrode made of conductive fibre, conductive yarn or conductive fabric

3.15
textile capacitor
two-terminal textile material characterized by its capacitance

3.16
conductive fibre
fibre, such as staple or filament, having electrical conductivity

Note 1 to entry: Conductive fibre can be used for signal line, power transmission line, and electromagnetic shield.

Note 2 to entry: The conductive fibres can constitute conductive yarns.

3.17
conductive yarn
yarn having electrical conductivity

Note 1 to entry: Conductive yarn can be used for signal line, power transmission line, and electromagnetic shield.

3.18
conductive fabric
fabric, such as woven fabric, knitted fabric, or nonwoven fabric, having electrical conductivity

Note 1 to entry: Conductive fabric can be used at the level of signal line, power transmission line, and electromagnetic shield.

3.19
insulating material
insulant
material used to prevent electric conduction between conductive elements

Note 1 to entry: In the field of electromagnetism the term "insulant" is also used as a synonym for "insulating medium".

[SOURCE: IEC 60050-151:2001, 151-15-35]

3.20
insulating fibre
fibre, such as staple or filament, used to prevent electric conduction between conductive elements

Note 1 to entry: Fibre may also provide thermal, acoustic, or other types of insulation, but electrical insulation is most relevant to e-textiles.

3.21
insulating yarn
yarn used to prevent electric conduction between conductive elements

Note 1 to entry: Yarn may also provide thermal, acoustic, or other types of insulation, but electrical insulation is most relevant to e-textiles.

3.22
insulating fabric
fabric, such as woven fabric, knitted fabric, or nonwoven fabric, used to prevent electric conduction between conductive elements

Note 1 to entry: Fabric may also provide thermal, acoustic, or other types of insulation, but electrical insulation is most relevant to e-textiles.

3.23
semiconductive fibre
fibre, such as staple or filament, having electrical semiconducting properties which, due to charge carriers of both signs, are normally in the range between the electrical conductivities of conductors and insulating media and in which the volumic numbers of charge carriers can be changed by external means

3.24
semiconductive yarn
yarn having electrical semiconducting properties which, due to charge carriers of both signs, are normally in the range between the electrical conductivities of conductors and insulating media and in which the volumic numbers of charge carriers can be changed by external means

3.25
semiconductive fabric
fabric, such as woven fabric, knitted fabric, or nonwoven fabric, having electrical semiconducting properties which, due to charge carriers of both signs, are normally in the range between the electrical conductivities of conductors and insulating media and in which the volumic numbers of charge carriers can be changed by external means

Bibliography

IEC 60050-151:2001, *International Electrotechnical Vocabulary (IEV) – Part 151: Electrical and magnetic devices*

ISO/TR 23383:2020, *Textiles and textile products – Smart (Intelligent) textiles – Definitions, categorisation, applications and standardization needs*

_____

This Page has been Intentionally left blank

This Page has been Intentionally left blank

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 2016 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Head (Publication & Sales), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the website-www.bis.gov.in or www.standardsbis.in.

This Indian Standard has been developed from Doc No.: LITD 33 (24124).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402 *Website*: www.bis.gov.in

Regional Offices:		*Telephones*
Central	: 601/A, Konnectus Tower -1, 6th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	2323 7617
Eastern	: 8th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	2367 0012 2320 9474
Northern	: Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	265 9930
Southern	: C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	2254 1442 2254 1216
Western	: Manakalya, 5th Floor/MTNL CETTM, Technology Street, Hiranandani Gardens, Powai Mumbai 400076	25700030 25702715

Branches : AHMEDABAD, BENGALURU, BHOPAL, BHUBANESHWAR, CHANDIGARH, CHENNAI, COIMBATORE, DEHRADUN, DELHI, FARIDABAD, GHAZIABAD, GUWAHATI, HARYANA (CHANDIGARH), HUBLI, HYDERABAD, JAIPUR, JAMMU, JAMSHEDPUR, KOCHI, KOLKATA, LUCKNOW, MADURAI, MUMBAI, NAGPUR, NOIDA, PARWANOO, PATNA, PUNE, RAIPUR, RAJKOT, SURAT, VIJAYAWADA.

Published by BIS, New Delhi