PD IEC TR 63203-250-1:2021

BSI Standards Publication

# Wearable electronic devices and technologies

Part 250-1: Electronic textile — Snap fastener connectors between e-textiles and detachable electronic devices



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# National foreword

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The UK participation in its preparation was entrusted to Technical Committee AMT/9, Printed Electronics.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2021

ISBN 978 0 580 02196 7

ICS 59.080.30

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This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 July 2021.

**Amendments/corrigenda issued since publication**

| Date | Text affected |
|---|---|

# IEC TR 63203-250-1

Edition 1.0 2021-06

# TECHNICAL REPORT

colour inside

## Wearable electronic devices and technologies – Part 250-1: Electronic textile – Snap fastener connectors between e-textiles and detachable electronic devices

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 59.080.80

ISBN 978-2-8322-9891-6

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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IEC TR 63203-250-1 has been prepared by IEC technical committee 124: Wearable electronic devices and technologies. It is a Technical Report.

The text of this Technical Report is based on the following documents:

| Draft | Report on voting |
|---|---|
| 124/119/DTR | 124/143/RVDTR |

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Technical Report is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 63203 series, published under the general title *Wearable electronic devices and technologies*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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# INTRODUCTION

E-textiles are suitable for measuring biological signals such as electrocardiograms, electromyograms and respiratory rates in everyday life without discomfort. The e-textile is interwoven or coated with an electric material for sensing the body surface potential in order to measure biological signals. To measure these biological signals, a detachable electronic device is connected to measure the body surface potential from the e-textile.

However, there is no established standard on the method for connecting the detachable electronic device to the e-textile. In view of the above circumstances and in order to standardize connection interface issues, it is necessary to investigate the connector types between e-textile and the detachable electronic device.

To date, conductive snap fasteners have been the most commonly applied as connectors for e-textiles.

This document reviews conductive snap fastener connectors and gives some guidance for future standardization work as regards connectors for e-textiles.

# WEARABLE ELECTRONIC DEVICES AND TECHNOLOGIES –

# Part 250-1: Electronic textile – Snap fastener connectors between e-textiles and detachable electronic devices

## 1 Scope

This document reviews the use cases of conductive snap fasteners applied as electrical connectors for e-textile products available on the market and provides guidance on future standardization works.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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:

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

**3.1**
**snap fastener**
device for attaching one material to another consisting of matching male (stud) and female (socket) parts, each of which is attached to a separate material so that the parts can be joined by an appropriate force and separated by a sufficient perpendicular tensile force

**3.2**
**stud**
male functional part of a snap fastener which engages with, or snaps into, the mouth of the socket to form a closure of two parts of the item, or garment on which the fastener is used

**3.3**
**socket**
female functional part of the fastener which engages with the stud part of the fastener to form the closure of two parts of the item on which the fastener is used

## 4 Classification of devices by connector type

### 4.1 General

Snap fasteners may be used for connecting detachable electronic devices to e-textile products.