



BSI Standards Publication

Health informatics — Device interoperability

Part 10404: Personal health device communication —
Device specialization — Pulse oximeter

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National foreword

This British Standard is the UK implementation of EN ISO/IEEE 11073-10404:2022. It is identical to ISO/IEEE 11073-10404:2022. It supersedes BS EN ISO 11073-10404:2011, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee IST/35, Health informatics.

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Amendments/corrigenda issued since publication

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Supersedes EN ISO 11073-10404:2011

English Version

Health informatics - Device interoperability - Part 10404: Personal health device communication - Device specialization - Pulse oximeter (ISO/IEEE 11073- 10404:2022)

Informatique de santé - Interopérabilité des dispositifs
- Partie 10404: Communication entre dispositifs de
santé personnels - Spécialisation des dispositifs -
Oxymètre de pouls (ISO/IEEE 11073-10404:2022)

Medizinische Informatik - Kommunikation von Geräten
für die persönliche Gesundheit - Teil 10404:
Gerätespezifikation - Pulsoximeter (ISO/IEEE 11073-
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This second edition cancels and replaces the first edition (ISO/IEEE 11073-10404:2010), which has been technically revised.

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IEEE Std 11073-10404™-2020
(Revision of IEEE Std 11073-10404-2008)

Health informatics—Personal health device communication

Part 10404: Device specialization— Pulse oximeter

Developed by the
IEEE 11073™ Standards Committee
of the
IEEE Engineering in Medicine and Biology Society

Approved 30 January 2020
IEEE SA Standards Board

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Abstract: Within the context of the ISO/IEEE 11073 family of standards for device communication, this standard establishes a normative definition of communication between personal telehealth pulse oximetry devices and compute engines (e.g., cell phones, personal computers, personal health appliances, set top boxes) in a manner that enables plug-and-play interoperability. It leverages appropriate portions of existing standards including ISO/IEEE 11073 terminology, information models, application profile standards, and transport standards. It specifies the use of specific term codes, formats, and behaviors in telehealth environments restricting optionality in base frameworks in favor of interoperability. This standard defines a common core of communication functionality for personal telehealth pulse oximeters.

Keywords: IEEE 11073-10404™, medical device communication, personal health devices, PHD, pulse oximeter

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Introduction

This introduction is not part of IEEE Std 11073-10404-2020, Health informatics—Personal health device communication—Part 10404: Device specialization—Pulse oximeter.

ISO/IEEE 11073 standards enable communication between medical devices and external computer systems. This document uses the optimized framework created in IEEE Std 11073-20601-2019TM and describes a specific, interoperable communication approach for the pulse oximeter.¹ These standards align with, and draw on, the existing clinically focused standards to provide support for communication of data from clinical or personal health devices.

¹ Information on references can be found in Clause 2.

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Health informatics—Personal health device communication

Part 10404: Device specialization— Pulse oximeter

1. Overview

1.1 Scope

Within the context of the ISO/IEEE 11073 family of standards for device communication, this standard establishes a normative definition of communication between personal telehealth pulse oximeter devices and compute engines (e.g., cell phones, personal computers, personal health appliances, set top boxes) in a manner that enables plug-and-play (PnP) interoperability. It leverages appropriate portions of existing standards including ISO/IEEE 11073 terminology, information models, application profile standards, and transport standards. It specifies the use of specific term codes, formats, and behaviors in telehealth environments restricting optionality in base frameworks in favor of interoperability. This standard defines a common core of communication functionality for personal telehealth pulse oximeters.

1.2 Purpose

This standard addresses a need for an openly defined, independent standard for controlling information exchange to and from personal health devices (PHDs) and compute engines (e.g., cell phones, personal computers, personal health appliances, set top boxes). Interoperability is key to growing the potential market for these devices and enabling people to be better informed participants in the management of their health.

1.3 Context

See IEEE Std 11073-20601-2019^{TM2} for an overview of the environment within which this standard is written.

This standard, IEEE Std 11073-10404, defines the device specialization for the pulse oximeter, being a specific agent type, and provides a description of the device concepts, its capabilities, and its implementation according to this standard.

This standard is based on IEEE Std 11073-20601-2019, which in turn draws information from both ISO/IEEE 11073-10201:2004 [B6]³ and ISO/IEEE 11073-20101:2004 [B7]. The medical device encoding rules (MDER) used within this standard are fully described in IEEE Std 11073-20601-2019.

² Information on references can be found in Clause 2.

³ The numbers in brackets correspond to the numbers in the bibliography in Annex A.