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Health informatics — Point-of-care medical device communication —

Part 30400: Interface profile — Cabled Ethernet

*Informatique de santé — Communication entre dispositifs médicaux sur
le site des soins —*

Partie 30400: Profil d'interface — Ethernet câblé



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

IEEE Standards documents are developed within the IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board. The IEEE develops its standards through a consensus development process, approved by the American National Standards Institute, which brings together volunteers representing varied viewpoints and interests to achieve the final product. Volunteers are not necessarily members of the Institute and serve without compensation. While the IEEE administers the process and establishes rules to promote fairness in the consensus development process, the IEEE does not independently evaluate, test, or verify the accuracy of any of the information contained in its standards.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO/IEEE 11073-30400 was prepared by the IEEE 11073 Standards Committee of the IEEE Engineering in Medicine and Biology Society (as IEEE Std 11073-30400-2010). It was adopted by Technical Committee ISO/TC 215, *Health informatics*, in parallel with its approval by the ISO member bodies, under the “fast-track procedure” defined in the Partner Standards Development Organization cooperation agreement between ISO and IEEE. IEEE is responsible for the maintenance of this document with participation and input from ISO member bodies.

ISO/IEEE 11073 consists of the following parts, under the general title *Health informatics — Personal health device communication* (text in parentheses gives a variant of subtitle):

- *Part 10101: (Point-of-care medical device communication) Nomenclature*
- *Part 10201: (Point-of-care medical device communication) Domain information model*
- *Part 10404: Device specialization — Pulse oximeter*
- *Part 10407: Device specialization — Blood pressure monitor*
- *Part 10408: Device specialization — Thermometer*
- *Part 10415: Device specialization — Weighing scale*

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- *Part 10417: Device specialization — Glucose meter*
- *Part 10420: Device specialization — Body composition analyzer*
- *Part 10421: Device specialization — Peak expiratory flow monitor (peak flow)*
- *Part 10471: Device specialization — Independant living activity hub*
- *Part 10472: Device specialization — Medication monitor*
- *Part 20101: (Point-of-care medical device communication) Application profiles — Base standard*
- *Part 20601: Application profile — Optimized exchange protocol*
- *Part 30200: (Point-of-care medical device communication) Transport profile — Cable connected*
- *Part 30300: (Point-of-care medical device communication) Transport profile — Infrared wireless*
- *Part 30400: (Point-of-care medical device communication) Interface profile — Cabled Ethernet*
- *Part 90101: (Point-of-care medical device communication) Analytical instruments — Point-of-care test*
- *Part 91064: (Standard communication protocol) Computer-assisted electrocardiography*
- *Part 92001: (Medical waveform format) — Encoding rules*

Introduction

This introduction is not part of IEEE Std 11073-30400-2010, Health informatics—Point-of-Care medical device communication—Part 30400: Interface profile—Cabled Ethernet.

ISO/IEEE 11073 standards enable communication between medical devices and external computer systems. They provide automatic and detailed electronic data capture of patient vital signs information and device operational data. The primary goals are as follows:

- To provide real-time plug-and-play interoperability for patient-connected medical devices
- To facilitate the efficient exchange of vital signs and medical device data, acquired at the PoC, in all health care environments

“Real time” means that data from multiple devices can be retrieved, time correlated, and displayed or processed in fractions of a second. “Plug and play” means that all the clinician has to do is make the connection between devices. The devices automatically detect, configure, and initiate communication without any other human interaction.

“Efficient exchange of medical device data” means that information that is captured at the Point of Care (e.g., patient vital signs data) can be archived, retrieved, and processed by many different types of applications without extensive software and equipment support, and without needless loss of information. The standards are especially targeted at acute and continuing care devices, such as patient monitors, ventilators, infusion pumps, electrocardiogram (ECG) devices, and so on. They comprise a family of standards that can be layered together to provide connectivity optimized for the specific devices being interfaced.

This standard defines a communications interface profile. This profile is for a cable-connected, Ethernet-based local area network (LAN) for the interconnection of medical devices.

Specifically, this standard calls out layers 1 and 2 of the Open Systems Interconnection (OSI) reference model (physical and data link layers) communications services and protocols, as implemented in IEEE Std 802.3-2008,^a that are appropriate for the medical communications environment. This standard is one part of the family of ISO/IEEE 11073 series of standards. It is compatible with the upper layer ISO/IEEE 11073 standards. It is expected that this standard will be combined, as appropriate, with other standards from the ISO/IEEE 11073 series.

The primary users of this standard are technical personnel who are creating or interfacing with a medical communications system. Familiarity with the ISO/IEEE 11073 family of standards is recommended. Familiarity with communications and networking technologies is also recommended.

^a Information on references can be found in Clause 2.