

**Health informatics - Point-of-care medical  
device communication - Part 10201: Domain  
information model**

Health informatics - Point-of-care medical device  
communication - Part 10201: Domain information  
model

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 11073-10201:2005 sisaldab Euroopa standardi EN ISO 11073-10201:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 29.09.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 11073-10201:2005 consists of the English text of the European standard EN ISO 11073-10201:2005.</p> <p>This document is endorsed on 29.09.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

<p><b>Käsitlusala:</b> Within the context of the ISO/IEEE 11073 family of standards, this standard addresses the definition and structuring of information that is communicated or referred to in communication between application entities.</p>	<p><b>Scope:</b> Within the context of the ISO/IEEE 11073 family of standards, this standard addresses the definition and structuring of information that is communicated or referred to in communication between application entities.</p>
---	---

**ICS** 35.240.80

**Võtmesõnad:**

EUROPEAN STANDARD

**EN ISO 11073-10201**

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2005

ICS 35.240.80

English Version

Health informatics - Point-of-care medical device communication  
- Part 10201: Domain information model (ISO/IEEE 11073-  
10201:2004)

Informatique de santé - Communication entre dispositifs médicaux sur le site des soins - Partie 10201: Modèle d'information du domaine (ISO/IEEE 11073-10201:2004)

Medizinische Informatik - Kommunikation patientennaher medizinischer Geräte - Teil 10201: Bereichs-  
Informationsmodell

This European Standard was approved by CEN on 16 August 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Foreword

The text of ISO/IEEE 11073-10201:2004 has been prepared by Technical Committee ISO/TC 215 "Health informatics" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 11073-10201:2005 by Technical Committee CEN/TC 251 "Health informatics" the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2006, and conflicting national standards shall be withdrawn at the latest by February 2006.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## Endorsement notice

The text of ISO/IEEE 11073-10201:2004 has been approved by CEN as EN ISO 11073-10201:2005 without any modifications.

INTERNATIONAL  
STANDARD

**ISO/IEEE**  
**11073-10201**

First edition  
2004-12-15

---

---

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

Part 10201:  
Domain information model

*Informatique de santé — Communication entre dispositifs médicaux sur le  
site des soins —  
Partie 10201: Modèle d'information du domaine*



Reference number  
ISO/IEEE 11073-10201:2004(E)

© ISO/IEEE 2004

**Health informatics — Point-of-care  
medical device communication —  
Part 10201:  
Domain information model**

Sponsor

**IEEE 1073™ Standard Committee**

of the

**IEEE Engineering in Medicine and Biology Society**

Approved 24 June 2004

**IEEE-SA Standards Board**



**IEEE**

This document is a preview generated by EVS

### PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. Neither the ISO Central Secretariat nor the IEEE accepts any liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies and IEEE members. In the unlikely event that a problem relating to it is found, please inform the ISO Central Secretariat or the IEEE at the address given below.

**Abstract:** Within the context of the ISO/IEEE 11073 family of standards for point-of-care (POC) medical device communication (MDC), this standard provides an abstract object-oriented domain information model that specifies the structure of exchanged information, as well as the events and services that are supported by each object. All elements are specified using abstract syntax (ASN.1) and may be applied to many different implementation technologies, transfer syntaxes, and application service models. Core subjects include medical, alert, system, patient, control, archival, communication, and extended services. Model extensibility is supported, and a conformance model and statement template is provided.

**Keywords:** abstract syntax, alarm, alert, ASN.1, information model, medical device communications, medical information bus, MIB, point-of-care, POC, object-oriented, patient, remote control

---

This ISO/IEEE document is an International Standard and is copyright-protected by ISO and the IEEE. Except as permitted under the applicable laws of the user's country, neither this ISO/IEEE standard nor any extract from it may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission being secured.

Requests for permission to reproduce should be addressed to either ISO or the IEEE at the addresses below.

ISO copyright office  
Case postale 56 · CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Institute of Electrical and Electronics Engineers  
Standards Association  
Manager, Standards Intellectual Property  
445 Hoes Lane  
Piscataway, NJ 08854  
E-mail: [stds.ipr@ieee.org](mailto:stds.ipr@ieee.org)  
Web: [www.ieee.org](http://www.ieee.org)

Copyright © 2004 ISO/IEEE. All rights reserved.  
Published 15 December 2004. Printed in the United States of America.

IEEE is a registered trademark in the U.S. Patent & Trademark Office, owned by the Institute of Electrical and Electronics Engineers, Incorporated.

Print: ISBN 0-7381-4089-9 SH95256  
PDF: ISBN 0-7381-4090-2 SS95256

*No part of this publication may be reproduced in any form, in an electronic retrieval system or otherwise, without the prior written permission of the publisher.*

**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.

Use of an IEEE Standard is wholly voluntary. The IEEE disclaims liability for any personal injury, property or other damage, of any nature whatsoever, whether special, indirect, consequential, or compensatory, directly or indirectly resulting from the publication, use of, or reliance upon this, or any other IEEE Standard document.

The IEEE does not warrant or represent the accuracy or content of the material contained herein, and expressly disclaims any express or implied warranty, including any implied warranty of merchantability or fitness for a specific purpose, or that the use of the material contained herein is free from patent infringement. IEEE Standards documents are supplied **“AS IS.”**

The existence of an IEEE Standard does not imply that there are no other ways to produce, test, measure, purchase, market, or provide other goods and services related to the scope of the IEEE Standard. Furthermore, the viewpoint expressed at the time a standard is approved and issued is subject to change brought about through developments in the state of the art and comments received from users of the standard. Every IEEE Standard is subjected to review at least every five years for revision or reaffirmation. When a document is more than five years old and has not been reaffirmed, it is reasonable to conclude that its contents, although still of some value, do not wholly reflect the present state of the art. Users are cautioned to check to determine that they have the latest edition of any IEEE Standard.

In publishing and making this document available, the IEEE is not suggesting or rendering professional or other services for, or on behalf of, any person or entity. Nor is the IEEE undertaking to perform any duty owed by any other person or entity to another. Any person utilizing this, and any other IEEE Standards document, should rely upon the advice of a competent professional in determining the exercise of reasonable care in any given circumstances.

**Interpretations:** Occasionally questions may arise regarding the meaning of portions of standards as they relate to specific applications. When the need for interpretations is brought to the attention of IEEE, the Institute will initiate action to prepare appropriate responses. Since IEEE Standards represent a consensus of concerned interests, it is important to ensure that any interpretation has also received the concurrence of a balance of interests. For this reason, IEEE and the members of its societies and Standards Coordinating Committees are not able to provide an instant response to interpretation requests except in those cases where the matter has previously received formal consideration. At lectures, symposia, seminars, or educational courses, an individual presenting information on IEEE standards shall make it clear that his or her views should be considered the personal views of that individual rather than the formal position, explanation, or interpretation of the IEEE.

Comments for revision of IEEE Standards are welcome from any interested party, regardless of membership affiliation with IEEE. Suggestions for changes in documents should be in the form of a proposed change of text, together with appropriate supporting comments. Comments on standards and requests for interpretations should be addressed to:

Secretary, IEEE-SA Standards Board  
445 Hoes Lane  
Piscataway, NJ 08854 USA

**NOTE** — Attention is called to the possibility that implementation of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. The IEEE shall not be responsible for identifying patents for which a license may be required by an IEEE standard or for conducting inquiries into the legal validity or scope of those patents that are brought to its attention.

Authorization to photocopy portions of any individual standard for internal or personal use is granted by the Institute of Electrical and Electronics Engineers, Inc., provided that the appropriate fee is paid to Copyright Clearance Center. To arrange for payment of licensing fee, please contact Copyright Clearance Center, Customer Service, 222 Rosewood Drive, Danvers, MA 01923 USA; +1 978 750 8400. Permission to photocopy portions of any individual standard for educational classroom use can also be obtained through the Copyright Clearance Center.



## ISO 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.

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.

A pilot project between ISO and the IEEE has been formed to develop and maintain a group of ISO/IEEE standards in the field of medical devices as approved by Council resolution 43/2000. Under this pilot project, IEEE is responsible for the development and maintenance of these standards with participation and input from ISO member bodies.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. Neither ISO nor the IEEE shall be held responsible for identifying any or all such patent rights.

ISO/IEEE 11073-10201:2004(E) was prepared by IEEE 1073 Committee of the IEEE Engineering in Medicine and Biology Society.

## IEEE Introduction

This introduction is not part of ISO/IEEE 11073-10201:2004(E), Health informatics — Point-of-care medical device communication — Part 10201: Domain information model.

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 to:

- Provide real-time plug-and-play interoperability for patient-connected medical devices
- Facilitate the efficient exchange of vital signs and medical device data, acquired at the point-of-care, 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 — the systems automatically detect, configure, and communicate 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, ECG devices, etc. They comprise a family of standards that can be layered together to provide connectivity optimized for the specific devices being interfaced.

## Notice to users

### Patents

Attention is called to the possibility that implementation of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. The IEEE shall not be responsible for identifying patents or patent applications for which a license may be required by to implement an IEEE standard or for conducting inquiries into the legal validity or scope of those patents that are brought to its attention.

### Errata

Errata, if any, for this and all other standards can be accessed at the following URL: <http://standards.ieee.org/reading/ieee/updates/errata/index.html>. Users are encouraged to check this URL for errata periodically.

### Interpretations

Current interpretations can be accessed at the following URL: <http://standards.ieee.org/reading/ieee/interp/index.html>.

## Participants

At the time this standard was completed, the working group of the IEEE 1073 Standard Committee had the following membership:

**Todd H. Cooper, *Chair***

Wolfgang Bleicher  
Francis Cantraine  
Thomas Canup  
Mats Cardell  
Michael Chilbert  
Michael Elötotto  
Ken Fuchs  
Kai Hassing  
Gunther Hellmann

Jörg Kampmann  
Ron Kirkham  
Michael Krämer  
Alberto Macerata  
Simon Meij  
Angelo Rossi Mori  
Thomas Norgall  
Daniel Nowicki  
Thomas Penzel  
Francesco Pincioli

Melvin Reynolds  
Paul Rubel  
Lief Rystrom  
Paul Schluter  
Michael Spicer  
Alpo Värri  
Jan Wittenber  
Paul Woolman  
Christoph Zywietz

The following members of the individual balloting committee voted on this standard. Balloters may have voted for approval, disapproval, or abstention.

Thomas Canup  
Michael Chilbert  
Keith Chow  
Todd H. Cooper  
Grace Esche  
Kenneth Fuchs

John Grider  
Kai Hassing  
Tom Kannally  
Robert Kennelly  
Randall Krohn  
Yeou-Song Lee  
Daniel Nowicki

Melvin Reynolds  
Michael Spicer  
Richard Schrenker  
M. Michael Shabot  
Lars Steubesand  
Gin-shu Young

When the IEEE-SA Standards Board approved this standard on 24 June 2004, it had the following membership:

**Don Wright, *Chair***

**Steve M. Mills, *Vice Chair***

**Judith Gorman, *Secretary***

Chuck Adams  
H. Stephen Berger  
Mark D. Bowman  
Joseph A. Bruder  
Bob Davis  
Roberto de Marca Boisson  
Julian Forster\*  
Arnold M. Greenspan

Mark S. Halpin  
Raymond Hapeman  
Richard J. Holleman  
Richard H. Hulett  
Lowell G. Johnson  
Joseph L. Koepfinger\*  
Hermann Koch  
Thomas J. McGean  
Daleep C. Mohla

Paul Nikolic  
T. W. Olsen  
Ronald C. Petersen  
Gary S. Robinson  
Frank Stone  
Malcolm V. Thaden  
Doug Topping  
Joe D. Watson

\*Member Emeritus

Also included are the following nonvoting IEEE-SA Standards Board liaisons:

Satish K. Aggarwal, *NRC Representative*  
Richard DeBlasio, *DOE Representative*  
Alan Cookson, *NIST Representative*

Don Messina  
*IEEE Standards Project Editor*

## Contents

1.	Scope.....	1
2.	Normative references.....	1
3.	Definitions.....	4
4.	Abbreviations and acronyms.....	8
5.	General requirements.....	9
6.	DIM.....	9
6.1	General.....	9
6.1.1	Modeling concept.....	9
6.1.2	Scope of the DIM.....	11
6.1.3	Approach.....	11
6.1.4	Extension of the model.....	12
6.2	Package diagram—overview.....	12
6.3	Model for the Medical Package.....	12
6.3.1	VMO (i.e., virtual medical object).....	14
6.3.2	VMD (i.e., virtual medical device) object.....	14
6.3.3	Channel object.....	15
6.3.4	Metric object.....	15
6.3.5	Numeric object.....	15
6.3.6	Sample Array object.....	15
6.3.7	Real Time Sample Array object.....	15
6.3.8	Time Sample Array object.....	15
6.3.9	Distribution Sample Array object.....	16
6.3.10	Enumeration object.....	16
6.3.11	Complex Metric object.....	16
6.3.12	PM-Store (i.e., persistent metric) object.....	16
6.3.13	PM-Segment object.....	16
6.4	Model for the Alert Package.....	17
6.4.1	Alert object.....	17
6.4.2	Alert Status object.....	18
6.4.3	Alert Monitor object.....	18
6.5	Model for the System Package.....	19
6.5.1	VMS (i.e., virtual medical system) object.....	19
6.5.2	MDS object.....	19
6.5.3	Simple MDS object.....	20
6.5.4	Hydra MDS object.....	20
6.5.5	Composite Single Bed MDS object.....	20
6.5.6	Composite Multiple Bed MDS object.....	20
6.5.7	Log object.....	20
6.5.8	Event Log object.....	20
6.5.9	Battery object.....	20
6.5.10	Clock object.....	20
6.6	Model for the Control Package.....	21
6.6.1	SCO.....	22
6.6.2	Operation object.....	22
6.6.3	Select Item Operation object.....	22

6.6.4	Set Value Operation object .....	23
6.6.5	Set String Operation object.....	23
6.6.6	Toggle Flag Operation object .....	23
6.6.7	Activate Operation object .....	23
6.6.8	Limit Alert Operation object.....	23
6.6.9	Set Range Operation object .....	23
6.7	Model for the Extended Services Package .....	24
6.7.1	Scanner object.....	24
6.7.2	CfgScanner (i.e., configurable scanner) object.....	25
6.7.3	EpiCfgScanner (i.e., episodic configurable scanner) object.....	25
6.7.4	PeriCfgScanner (i.e., periodic configurable scanner) object .....	25
6.7.5	FastPeriCfgScanner (i.e., fast periodic configurable scanner) object.....	26
6.7.6	UcfgScanner (i.e., unconfigurable scanner) object.....	26
6.7.7	Context Scanner object .....	26
6.7.8	Alert Scanner object.....	26
6.7.9	Operating Scanner object.....	26
6.8	Model for the Communication Package .....	26
6.8.1	Communication Controller object .....	27
6.8.2	DCC (i.e., device communication controller) object .....	27
6.8.3	BCC (i.e., bedside communication controller) object .....	28
6.8.4	Device Interface object .....	28
6.8.5	MibElement object.....	28
6.8.6	Specialized MibElement object .....	28
6.9	Model for the Archival Package .....	28
6.9.1	Multipatient Archive object.....	29
6.9.2	Patient Archive object.....	29
6.9.3	Session Archive object.....	30
6.9.4	Physician object .....	30
6.9.5	Session Test object.....	30
6.9.6	Session Notes object .....	30
6.9.7	Ancillary object.....	30
6.10	Model for the Patient Package .....	30
6.10.1	Patient Demographics object .....	31
6.11	DIM—dynamic model.....	31
6.11.1	General.....	31
6.11.2	MDS communication finite state machine (FSM).....	31
6.11.3	Communicating systems—startup object interaction diagram .....	33
6.11.4	Communication Package—MibElement data access .....	34
6.11.5	Dynamic object relations .....	34
7.	DIM object definitions .....	36
7.1	General.....	36
7.1.1	Notation .....	36
7.1.2	Common data types .....	37
7.2	Top object .....	45
7.2.1	Attributes .....	45
7.2.2	Behavior.....	45
7.2.3	Notifications.....	45
7.3	Objects in the Medical Package.....	46
7.3.1	VMO .....	46
7.3.2	VMD object .....	47
7.3.3	Channel object .....	49
7.3.4	Metric object.....	50

7.3.5	Numeric object.....	56
7.3.6	Sample Array object .....	58
7.3.7	Real Time Sample Array object.....	63
7.3.8	Time Sample Array object.....	65
7.3.9	Distribution Sample Array object .....	67
7.3.10	Enumeration object .....	69
7.3.11	Complex Metric object .....	72
7.3.12	PM-Store object .....	75
7.3.13	PM-Segment object.....	78
7.4	Objects in the Alert Package.....	80
7.4.1	Alert object .....	80
7.4.2	Alert Status object.....	82
7.4.3	Alert Monitor object .....	84
7.5	Objects in the System Package .....	86
7.5.1	VMS object .....	86
7.5.2	MDS object .....	89
7.5.3	Simple MDS object.....	93
7.5.4	Hydra MDS object.....	93
7.5.5	Composite Single Bed MDS object.....	93
7.5.6	Composite Multiple Bed MDS object .....	93
7.5.7	Log object.....	93
7.5.8	Event Log object.....	95
7.5.9	Battery object.....	97
7.5.10	Clock object.....	99
7.6	Objects in the Control Package.....	105
7.6.1	SCO.....	105
7.6.2	Operation object.....	108
7.6.3	Select Item Operation object.....	110
7.6.4	Set Value Operation object.....	112
7.6.5	Set String Operation object.....	113
7.6.6	Toggle Flag Operation object .....	114
7.6.7	Activate Operation object .....	116
7.6.8	Limit Alert Operation object.....	116
7.6.9	Set Range Operation object .....	118
7.7	Objects in the Extended Services Package .....	120
7.7.1	Scanner object.....	120
7.7.2	CfgScanner object.....	121
7.7.3	EpiCfgScanner object .....	123
7.7.4	PeriCfgScanner object .....	124
7.7.5	FastPeriCfgScanner object.....	125
7.7.6	UcfgScanner object.....	126
7.7.7	Context Scanner object .....	127
7.7.8	Alert Scanner object.....	129
7.7.9	Operating Scanner object.....	130
7.8	Objects in the Communication Package .....	132
7.8.1	Communication Controller object .....	132
7.8.2	DCC object .....	135
7.8.3	BCC object.....	135
7.8.4	Device Interface object .....	135
7.8.5	MibElement object.....	136
7.8.6	Device Interface MibElement object .....	137
7.8.7	General Communication Statistics MibElement object.....	138
7.9	Objects in the Archival Package.....	140
7.9.1	Multipatient Archive object.....	140

7.9.2	Patient Archive object.....	141
7.9.3	Session Archive object.....	142
7.9.4	Physician object .....	143
7.9.5	Session Test object.....	145
7.9.6	Session Notes object .....	146
7.10	Objects in the Patient Package.....	147
7.10.1	Patient Demographics object .....	147
8.	Service model for communicating systems .....	151
8.1	General.....	151
8.2	Communicating systems .....	151
8.3	General service model overview.....	152
8.3.1	Conceptual architecture of communicating systems .....	153
8.4	General object management services definition .....	154
8.4.1	EVENT REPORT service.....	155
8.4.2	GET service .....	156
8.4.3	SET service .....	156
8.4.4	ACTION service.....	157
8.4.5	CREATE service.....	158
8.4.6	DELETE service.....	159
9.	MDIB nomenclature .....	160
10.	Conformance model.....	161
10.1	Applicability .....	161
10.2	Conformance specification .....	161
10.3	ICSs.....	162
10.3.1	General format .....	162
10.3.2	General ICS.....	162
10.3.3	Service Support ICS.....	164
10.3.4	DIM managed object class (MOC) ICS.....	165
10.3.5	MOC Attribute ICS.....	165
10.3.6	MOC Behavior ICS .....	166
10.3.7	MOC Notification ICS.....	166

# Health informatics — Point-of-care medical device communication — Part 10201: Domain information model

## 1. Scope

Within the context of the ISO/IEEE 11073 family of standards, this standard addresses the definition and structuring of information that is communicated or referred to in communication between application entities.

This standard provides a common representation of all application entities present in the application processes within the various devices independent of the syntax.

The definition of association control and lower layer communication is outside the scope of this standard.

## 2. Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CEN EN 1064, Medical informatics — Standard communication protocol — computer-assisted electrocardiography.<sup>1</sup>

CEN ENV 12052, Medical informatics — Medical imaging communication (MEDICOM).

IEEE Std 1073™, IEEE Standard for Medical Device Communications—Overview and Framework.<sup>2</sup>

<sup>1</sup>CEN publications are available from the European Committee for Standardization (CEN), 36, rue de Stassart, B-1050 Brussels, Belgium (<http://www.cenorm.be>).

<sup>2</sup>IEEE publications are available from the Institute of Electrical and Electronics Engineers, 445 Hoes Lane, Piscataway, NJ 08854, USA (<http://www.standards.ieee.org/>).



IETF RFC 1155, Structure and Identification of Management Information for TCP/IP-Based Internets.<sup>3</sup>

ISO 639-1, Code for the representation of names of languages — Part 1: Alpha-2 code.<sup>4</sup>

ISO 639-2, Codes for the representation of names of languages — Part 2: Alpha-3 code.

ISO 3166-1, Codes for the representation of names of countries and their subdivisions — Part 1: Country codes.

ISO 3166-2, Codes for the representation of names of countries and their subdivisions — Part 2: Country subdivision code.

ISO 3166-3, Codes for the representation of names of countries and their subdivisions — Part 3: Code for formerly used names of countries.

ISO 8601, Data elements and interchange formats — Information interchange — Representation of dates and times.

ISO 15225, Nomenclature — Specification for a nomenclature system for medical devices for the purpose of regulatory data exchange.

ISO/IEC 646, Information technology — ISO 7-bit coded character set for information interchange.<sup>5</sup>

ISO/IEC 2022, Information technology — Character code structure and extension techniques.

ISO/IEC 5218, Information technology — Codes for the representation of human sexes.

ISO/IEC 7498-1, Information technology — Open systems interconnection — Basic reference model — Part 1: The basic model.

ISO/IEC 7498-2, Information processing systems — Open systems interconnection — Basic reference model — Part 2: Security architecture.

ISO/IEC 7498-3, Information processing systems — Open systems interconnection — Basic reference model — Part 3: Naming and addressing.

ISO/IEC 7498-4, Information processing systems — Open systems interconnection — Basic reference model — Part 4: Management framework.

ISO/IEC 8649, Information processing systems — Open systems interconnection — Service definition for the Association Control Service Element.

ISO/IEC 8650-1, Information technology — Open systems interconnection — Connection-Oriented Protocol for the Association Control Service Element — Part 1: Protocol.

<sup>3</sup>Internet requests for comment (RFCs) are available from the Internet Engineering Task Force at <http://www.ietf.org/>.

<sup>4</sup>ISO publications are available from the ISO Central Secretariat, Case Postale 56, 1 rue de Varembe, CH-1211, Genève 20, Switzerland/Suisse (<http://www.iso.ch/>). ISO publications are also available in the United States from the Sales Department, American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036, USA (<http://www.ansi.org/>).

<sup>5</sup>ISO/IEC documents can be obtained from the ISO office, 1 rue de Varembe, Case Postale 56, CH-1211, Genève 20, Switzerland/Suisse (<http://www.iso.ch/>) and from the IEC office, 3 rue de Varembe, Case Postale 131, CH-1211, Genève 20, Switzerland/Suisse (<http://www.iec.ch/>). ISO/IEC publications are also available in the United States from the Sales Department, American National Standards Institute, 25 West 43rd Street, 4th Floor, New York, NY 10036, USA (<http://www.ansi.org/>).

ISO/IEC 8650-2, Information technology — Open systems interconnection — Protocol Specification for Association Control Service Element — Part 2: Protocol Implementation Conformance Statements (PICS) proforma.

ISO/IEC 8824-1, Information technology — Abstract Syntax Notation One (ASN.1) — Part 1: Specification of basic notation.

ISO/IEC 8824-2, Information technology — Abstract Syntax Notation One (ASN.1) — Part 2: Information object specification.

ISO/IEC 8859-*n*, Information processing — 8-bit single-byte coded graphic character sets — Part 1 to Part 15: Various alphabets.

ISO/IEC 9545, Information technology — Open systems interconnection — Application layer structure.

ISO/IEC 9595, Information technology — Open systems interconnection — Common management information service definition.

ISO/IEC 9596-1, Information technology — Open systems interconnection — Common Management Information Protocol — Part 1: Specification.

ISO/IEC 10040, Information technology — Open systems interconnection — Systems management overview.

ISO/IEC 10164-1, Information technology — Open systems interconnection — Systems management — Part 1: Object management function.

ISO/IEC 10164-2, Information technology — Open systems interconnection — Systems management — Part 2: State management function.

ISO/IEC 10164-3, Information technology — Open systems interconnection — System management — Part 3: Attributes for representing relationships.

ISO/IEC 10164-4, Information technology — Open systems interconnection — Systems management — Part 4: Alarm reporting function.

ISO/IEC 10164-5, Information technology — Open systems interconnection — Systems management — Part 5: Event management function.

ISO/IEC 10164-6, Information technology — Open systems interconnection — Systems management — Part 6: Log control function.

ISO/IEC 10164-7, Information technology — Open systems interconnection — Systems management — Part 7: Security alarm reporting function.

ISO/IEC 10164-8, Information technology — Open systems interconnection — Systems management — Part 8: Security audit trail function.

ISO/IEC 10164-9, Information technology — Open systems interconnection — Systems management — Part 9: Objects and attributes for access control.

ISO/IEC 10164-10, Information technology — Open systems interconnection — Systems management — Part 10: Usage metering function for accounting purposes.

ISO/IEC 10164-11, Information technology — Open systems interconnection — Systems management — Part 11: Metric objects and attributes.

ISO/IEC 10164-12, Information technology — Open systems interconnection — Systems management — Part 12: Test management function.

ISO/IEC 10164-13, Information technology — Open systems interconnection — Systems management — Part 13: Summarization function.

ISO/IEC 10164-14, Information technology — Open systems interconnection — Systems management — Part 14: Confidence and diagnostic test categories.

ISO/IEC 10165-1, Information technology — Open systems interconnection — Structure of management information — Part 1: Management information model.

ISO/IEC 10165-2, Information technology — Open systems interconnection — Structure of management information — Part 2: Definition of management information.

ISO/IEC 10646-1, Information technology — Universal multiple-octet coded character set (UCS) — Part 1: Architecture and basic multilingual plane.

ISO/IEEE 11073-10101, Health informatics — Point-of-care medical device communication — Part 10101: Nomenclature.

ISO/IEEE 11073-20101, Health informatics — Point-of-care medical device communication — Part 20101: Application profiles – Base standard.

NEMA PS 3, Digital imaging and communications in medicine (DICOM).<sup>6</sup>

### 3. Definitions

For the purpose of this standard, the following definitions apply. *The Authoritative Dictionary of IEEE Standards Terms*, Seventh Edition, should be referenced for terms not defined in this clause.

**3.1 agent:** Device that provides data in a manager-agent communicating system.

**3.2 alarm:** Signal that indicates abnormal events occurring to the patient or the device system.

**3.3 alert:** Synonym for the combination of patient-related physiological alarms, technical alarms, and equipment-user advisory signals.

**3.4 alert monitor:** Object representing the output of a device or system alarm processor and as such the overall device or system alarm condition.

**3.5 alert status:** Object representing the output of an alarm process that considers all alarm conditions in a scope that spans one or more objects.

**3.6 archival:** Relating to the storage of data over a prolonged period.

<sup>6</sup>NEMA publications are available from Global Engineering Documents, 15 Inverness Way East, Englewood, Colorado 80112, USA (<http://global.ihs.com/>).