

# DIN EN ISO 11073-10101:2021-01 (E)

Health informatics - Device interoperability - Part 10101: Point-of-care medical device communication - Nomenclature (ISO/IEEE 11073-10101:2020); English version EN ISO 11073-10101:2020, only on CD-ROM

---

## Contents

	Page
1. Scope .....	20
2. Normative references.....	20
3. Terms, definitions, symbols, and abbreviated terms.....	22
3.1 Terms and definitions .....	22
3.2 Symbols and abbreviated terms .....	22
4. Conformance .....	25
5. Introduction to the standard.....	25
6. Application .....	25
7. Semantics.....	26
7.1 Attribution .....	26
7.2 Coding .....	27
7.2.1 Context-sensitivity .....	27
7.2.2 Grouping .....	28
7.3 Synonyms .....	29
7.4 Deprecated terms .....	29
7.5 Withdrawn terms .....	29
8. Syntax.....	29
8.1 Transfer.....	29
8.1.1 Types.....	29
8.1.2 Notation .....	30
8.2 Programmatic form.....	32
8.2.1 Attribution.....	32
8.2.2 Notation .....	32
9. Extensibility.....	33
10. Version exporting .....	33
Annex A (normative) Nomenclature semantics.....	34
A.1 Overview of nomenclature for vital signs—Semantics .....	34
A.2 Code assignment to the MDIB elements.....	35
A.2.1 Overview.....	35
A.2.2 Relationship to other standards .....	35
A.2.3 Basic rules .....	35
A.2.4 Coding spaces .....	36
A.3 Data dictionary and codes for object-oriented modeling elements (Partition 1).....	45
A.3.1 Introduction.....	45
A.3.2 Object-oriented modeling elements: inventory tables .....	46
A.4 Data dictionary and codes for communication infrastructure (Partition 8).....	79
A.4.1 Introduction.....	79
A.4.2 Communication infrastructure: inventory tables .....	79
A.5 Nomenclature, data dictionary, and codes for vital signs devices (Partition 1) .....	84
A.5.1 Introduction.....	84
A.5.2 Base concepts.....	85

A.5.3 First set of differentiating criteria.....	85
A.5.4 Second set of differentiating criteria .....	86
A.5.5 Third set of differentiating criteria .....	86
A.5.6 Attributes.....	87
A.5.7 Device class discriminator .....	87
A.5.8 Code table .....	87
A.6 Terminology and codes for units of measurement (Partition 4).....	98
A.6.1 Introduction.....	98
A.6.2 Orders of magnitude discriminator .....	98
A.6.3 Units outside of SI.....	99
A.6.4 Units of measurement .....	100
A.6.5 Withdrawn terms for vital signs units of measurement.....	122
A.6.6 Deprecated terms for vital signs units of measurement.....	123
A.6.7 Deprecated Reflds for Vital Signs Units of Measurement .....	124
A.7 Nomenclature, data dictionary, and codes for metrics (measurements and enumerations) (Partition 2).....	125
A.7.1 Nomenclature for ECG measurements.....	125
A.7.2 Nomenclature for ECG enumerations .....	157
A.7.3 Nomenclature, data dictionary, and codes for haemodynamic monitoring measurements .....	173
A.7.4 Nomenclature and codes for respiratory, ventilator, and anesthesia measurements.....	192
A.7.5 Nomenclature, data dictionary, and codes for common blood-gas, blood, urine, and other fluid chemistry measurements .....	273
A.7.6 Nomenclature, data dictionary, and codes for fluid output measurements.....	288
A.7.7 Nomenclature, data dictionary, and codes for pumps .....	292
A.7.8 Nomenclature, data dictionary, and codes for neurological monitoring measurements .....	309
A.7.9 Nomenclature, data dictionary, and codes for neurophysiologic enumerations .....	322
A.7.10 Nomenclature, data dictionary, and codes for stimulation modes.....	346
A.7.11 Nomenclature, data dictionary, and codes for miscellaneous measurements.....	353
A.7.12 Nomenclature and code extensions for infant incubator and warmer microenvironments.....	360
A.7.13 Nomenclature, data dictionary, and codes for spirometry.....	362
A.7.14 Nomenclature and code extensions for personal health devices .....	372
A.8 Nomenclature, data dictionary, and codes for body sites (Partition 7) .....	377
A.8.1 Introduction.....	377
A.8.2 Sites for neurophysiological signal monitoring: locations near peripheral nerves.....	378
A.8.3 Sites for neurophysiological signal monitoring: locations near muscles.....	392
A.8.4 Sites for EEG-electrode placement on the head .....	430
A.8.5 Sites for EOG signal monitoring .....	438
A.8.6 Sites for general neurological monitoring measurements and drainage.....	443
A.8.7 Sites for cardiovascular measurements .....	445
A.8.8 Miscellaneous sites used in vital signs monitoring and measurement .....	451
A.8.9 Equipment sites used in vital signs monitoring and measurement .....	466
A.8.10 Qualifiers of body site locations.....	468
A.9 Nomenclature, data dictionary, and codes for events and alerts (Partition 3).....	472
A.9.1 Introduction.....	472
A.9.2 Diagnostic pattern events .....	472
A.9.3 Device-related and environment-related events .....	483
A.10 Systematic derivations of terms and codes for infrastructure (Partition 8).....	519
A.10.1 Introduction .....	519
A.10.2 Base concepts, device specialization.....	519
A.10.3 Base concepts, device sub-specialization .....	523
A.10.4 Base concepts, time synchronization profiles .....	526
A.11 Systematic derivations of terms and codes for personal health devices disease management (Partition 128).....	527
A.11.1 Introduction .....	527
A.11.2 Base concepts, general device properties .....	527
A.11.3 Base concepts, Basic ECG sensors and status.....	528

A.11.4 Base concepts, Basic ECG event context.....	528
A.11.5 Base concepts, SABTE sensors and settings.....	529
A.11.6 Base concepts, SABTE modes.....	540
A.11.7 Base concepts, Glucose Monitoring, carbohydrate source.....	542
A.11.8 Base concepts, Glucose Monitoring, carbohydrate source.....	543
A.11.9 Base concepts, Glucose Monitoring, carbohydrate sources.....	543
A.11.10 Base concepts, Glucose Monitoring, insulin type.....	545
A.11.11 Base concepts, Glucose Monitoring, insulin types.....	546
A.11.12 Base concepts, Glucose Monitoring, general health.....	547
A.11.13 Base concepts, Glucose Monitoring, general health.....	548
A.11.14 Base concepts, Glucose Monitoring, sample location.....	549
A.11.15 Base concepts, Glucose Monitoring, sample locations.....	549
A.11.16 Base concepts, Glucose Monitoring, meal.....	551
A.11.17 Base concepts, Glucose Monitoring, meal type.....	552
A.11.18 Base concepts, Glucose Monitoring, tester.....	553
A.11.19 Base concepts, Glucose Monitoring, tester type.....	554
A.11.20 INR Status and Context.....	554
A.11.21 Base concepts, Continuous Glucose Monitoring.....	556
A.11.22 Base concepts, Continuous Glucose Monitoring, status.....	558
A.11.23 Base concepts, Continuous Glucose Monitoring, device.....	559
A.11.24 Base concepts, Insulin Pump, sensors.....	560
A.11.25 Base concepts, Power StatusMonitor, sensors.....	563
A.11.26 Base concepts, Power Status Monitor, battery.....	564
A.11.27 Base concepts, Peak Expiratory Flow.....	565
A.12 Systematic derivations of terms and codes for health and fitness (Partition 129).....	566
A.12.1 Introduction.....	566
A.12.2 Base concepts.....	566
A.12.3 First set of differentiating criteria, sensors.....	566
A.12.4 Second set of differentiating criteria, activity.....	570
A.12.5 First set of differentiating criteria, exercise.....	572
A.12.6 Second set of differentiating criteria, exercise.....	572
A.13 Systematic derivations of terms and codes for independent living monitoring measurements (Partition 130).....	575
A.13.1 Introduction.....	575
A.13.2 Base concepts.....	575
A.13.3 First set of differentiating criteria, sensor.....	575
A.13.4 Second set of differentiating criteria, location, general.....	579
A.13.5 Second set of differentiating criteria, location, room.....	581
A.13.6 Second set of differentiating criteria, location, medical room.....	584
A.13.7 Second set of differentiating criteria, location, doors and windows.....	586
A.13.8 Second set of differentiating criteria, location, furniture.....	587
A.13.9 Second set of differentiating criteria, location, appliance.....	588
A.13.10 Third set of differentiating criteria, AI events.....	590
A.13.11 First set of differentiating criteria, sensors, medication dispenser.....	593
A.14 Nomenclature for error return codes (Partition 255).....	595
A.14.1 Base concepts.....	595
A.14.2 First set of differentiating criteria.....	595
A.14.3 Code table.....	595
A.14.4 Withdrawn terms for error return codes.....	596
A.15 Nomenclature, data dictionary, and codes for external nomenclatures and messaging standards (Partition 256).....	597
A.15.1 Introduction.....	597
A.15.2 Base concepts.....	597
A.15.3 First set of differentiating criteria.....	597
A.15.4 Second set of differentiating criteria.....	598
A.15.5 Third set of differentiating criteria.....	598

A.15.6 Discriminator .....	598
A.15.7 Code table .....	598
A.16 Information attributes to support IHE PCD DEC and PCHA/Continua Services Interface (Partition 1 and Partition 8) .....	602
A.16.1 Information attributes to support IHE PCD Alert Communication Management .....	602
A.16.2 Notification attributes to support IHE PCD Alert Communication Management .....	602
A.16.3 Infrastructure attributes to support PCHA/Continua Services Interface and IHE PCD DEC .....	602
A.16.4 Information attributes to support PCHA/Continua Services Interface .....	604
A.16.5 Information attributes to support IHE PCD DEC and PCHA/Continua Services Interface timekeeping .....	604
A.16.6 Information attributes to support semantics defined by this standard .....	607
A.16.7 Information attributes to support ECG semantics defined by this standard .....	607
Annex B (normative) Nomenclature syntax .....	608
B.1 General .....	608
B.1.1 Notation .....	608
B.1.2 Partition codes .....	608
B.2 Object infrastructure and device nomenclature – Partition 1 .....	609
B.2.1 Object infrastructure .....	609
B.2.2 Device nomenclature .....	630
B.3 Medical supervisory control and data acquisition (SCADA) – Partition 2 .....	650
B.3.1 Discriminator ranges .....	650
B.3.2 SCADA Term Codes .....	651
B.4 Events – Partition 3 .....	722
B.5 Dimensions – Partition 4 .....	741
B.6 Virtual attributes – Partition 5 .....	761
B.7 Parameter groups – Partition 6 .....	761
B.8 Body Sites – Partition 7 .....	761
B.9 Communication infrastructure – Partition 8 .....	802
B.10 File Exchange Format – Partition 9 .....	810
B.11 ECG Extension – Partition 10 .....	810
B.12 ICDO Extension – Partition 11 .....	810
B.13 PHD Disease Management – Partition 128 .....	810
B.14 PHD Health Fitness – Partition 129 .....	820
B.15 PHD Aging Independently – Partition 130 .....	824
B.16 Return Codes – Partition 255 .....	835
B.17 External nomenclature – Partition 256 .....	836
B.18 Device Settings – Partition 258 .....	837
B.19 Device Predicted Values – Partition 514 .....	840
Annex C (normative) Terms, discriminators, and numeric codes .....	843
C.1 Overview .....	843
C.2 Discriminators .....	843
C.3 Discriminator sets .....	844
C.3.1 Device Type [MVC] discriminator set .....	844
C.3.2 Statistical [MMM] discriminator set .....	844
C.3.3 Haemodynamic pressure measurements [SDM] discriminator set .....	844
C.3.4 Rates for countable events [RCE] discriminator set .....	845
C.3.5 Rates for countable neurological events [RCN] discriminator set .....	845
C.3.6 Body Site Orientation (laterally) [LAT] discriminator set .....	845
C.3.7 Unit of Measure [UoM] discriminator set .....	846
C.3.8 Unit of Measure (singular) [UoM1] discriminator .....	846
C.3.9 No [1] Discriminator .....	847
C.3.10 Event [2] discriminator set .....	847
C.3.11 Statistical profile [PN3] discriminator set .....	847

C.3.12 Location [LOC] discriminator set .....	848
C.3.13 Version of External Nomenclature [64] Discriminator .....	849
C.3.14 ECG lead designation from ISO/IEEE 11073-10101:2004 [LEAD1] discriminator set .....	849
C.3.15 ECG lead designation from ISO/IEEE 11073-10102:2012 [LEAD2] discriminator set .....	852
C.3.16 Equivalent ECG lead designations in ISO/IEEE 11073-10101:2004 and ISO/IEEE 11073-10102:2012 [LEAD] discriminator set .....	857
C.3.17 Comparison of ECG lead discriminators in ISO/IEEE 11073-10101:2004 and ISO/IEEE 11073-10102:2012 .....	859
C.4 Alphabetical listing of terms, discriminators, and numeric codes.....	862
C.4.1 Object-Oriented – Partition 1 .....	862
C.4.2 Supervisory Control and Data Acquisition (SCADA) – Partition 2 .....	895
C.4.3 Events and Alerts – Partition 3 .....	950
C.4.4 Dimensions – Partition 4 .....	965
C.4.5 Parameter Groups – Partition 6 .....	981
C.4.6 Body Sites – Partition 7.....	981
C.4.7 Communication Infrastructure—Partition 8.....	1014
C.4.8 PHD Disease Management—Partition 128 .....	1019
C.4.9 PHD Health Fitness—Partition 129 .....	1025
C.4.10 PHD Aging Independently—Partition 130.....	1028
C.4.11 Return Codes—Partition 255 .....	1036
C.4.12 External Nomenclature—Partition 256 .....	1036
C.4.13 Device Settings—Partition 258 .....	1037
C.4.14 Predicted Values—Partition 514 .....	1040
 Annex D (informative) Synonyms .....	1042
D.1.1 Term code Synonyms.....	1042
D.1.2 RefId synonyms .....	1042
 Annex E (informative) Breaths and inflations.....	1044
 Annex F (informative) Respiratory, ventilator, and anesthesia RefId naming conventions .....	1046
 Annex G (informative) Anesthesia ventilation and breathing circuits .....	1048
G.1 Bellows driven on expiratory side .....	1050
G.2 Piston driven on inspiratory side.....	1051
G.3 Mapleson circuits.....	1052
 Annex H (informative) Term approval and management process.....	1053
H.1 Term approval and management process.....	1053
H.1.1 Proposed term .....	1054
H.1.2 Proposed term review.....	1054
H.1.3 Provisional term .....	1054
H.1.4 Provisional term review .....	1054
H.1.5 Rejected term .....	1054
H.1.6 Accepted term .....	1054
H.1.7 IEEE Ballot .....	1054
H.1.8 Published term.....	1055
H.1.9 Deprecated term .....	1055
H.1.10 Withdrawn term .....	1055
H.2 Rosetta Terminology Mapping Management System (RTMMS).....	1055
H.3 Right to use.....	1055
 Annex I (informative) Bibliography.....	1057
 Annex J (informative) Revision history .....	1059

## Tables

Table 1—Nomenclature attributes.....	26
Table 2—Attribution example.....	26
Table 3—Systematic name derivation—medical device type example.....	27
Table A.2.4.1.1—Partition 1—Object-oriented elements, Device nomenclature.....	37
Table A.2.4.2.1—Partition 2—Metrics (multipage table).....	37
Table A.2.4.3.1—Partition 3—Alerts and events.....	39
Table A.2.4.4.1—Partition 4—Units of measurement (dimensions).....	39
Table A.2.4.6.1—Partition 6—Program group.....	40
Table A.2.4.7.1—Partition 7—Body sites.....	40
Table A.2.4.8.1—Partition 8—Communication infrastructure.....	41
Table A.2.4.9.1—Partition 9—Reserved for file exchange format (FEF).....	41
Table A.2.4.10.1—Partition 10—ECG additional nomenclature (annotated ECG).....	41
Table A.2.4.11.1—Partition 11—IDCO nomenclature.....	41
Table A.2.4.12.1—Partition 128—PHD disease management.....	42
Table A.2.4.13.1—Partition 129—PHD health and fitness.....	42
Table A.2.4.14.1—Partition 130—PHD aging independently.....	43
Table A.2.4.15.1—Partition 255—Return codes.....	43
Table A.2.4.16.1—Partition 256—External nomenclatures.....	43
Table A.2.4.17.1—Partition 258—Settings.....	44
Table A.2.4.18.1—Partition 514—Predicted values.....	44
Table A.2.4.19.1—Partition 1024—Private.....	44
Table A.3.2.1.1—Object-oriented modeling elements—General—object class items.....	46
Table A.3.2.1.2—Object-oriented modeling elements—General—attributes.....	47
Table A.3.2.1.3—Object-oriented modeling elements—General—attribute groups.....	47
Table A.3.2.1.4—Object-oriented modeling elements—General—behavior.....	47
Table A.3.2.1.5—Object-oriented modeling elements—General—notifications.....	47
Table A.3.2.2.1—Object-oriented modeling elements—Medical Package—object class items.....	47
Table A.3.2.2.2—Object-oriented modeling elements—Medical Package—attributes ( <i>multipage table</i> )... ..	48
Table A.3.2.2.3—Object-oriented modeling elements—Medical Package—attribute groups.....	52
Table A.3.2.2.4—Object-oriented modeling elements—Medical Package—behavior.....	52
Table A.3.2.2.5—Object-oriented modeling elements—Medical Package—notifications.....	52
Table A.3.2.3.1—Object-oriented modeling elements—Alert Package—object class items.....	53
Table A.3.2.3.2—Object-oriented modeling elements—Alert Package—attributes.....	53
Table A.3.2.3.3—Object-oriented modeling elements—Alert Package—attribute groups.....	53
Table A.3.2.3.4—Object-oriented modeling elements—Alert Package—behavior.....	53
Table A.3.2.3.5—Object-oriented modeling elements—Alert Package—notifications.....	54
Table A.3.2.4.1—Object-oriented modeling elements—System Package—object class items.....	54
Table A.3.2.4.2—Object-oriented modeling elements—System Package—attributes ( <i>multipage table</i> )... ..	54
Table A.3.2.4.3—Object-oriented modeling elements—System Package—attribute groups.....	56
Table A.3.2.4.4—Object-oriented modeling elements—System Package—behavior.....	57
Table A.3.2.4.5—Object-oriented modeling elements—System Package—notifications.....	57
Table A.3.2.5.1—Object-oriented modeling elements—Control Package—object class items.....	57
Table A.3.2.5.2—Object-oriented modeling elements—Control Package—attributes ( <i>multipage table</i> )... ..	57
Table A.3.2.5.3—Object-oriented modeling elements—Control Package—attribute groups.....	59
Table A.3.2.5.4—Object-oriented modeling elements—Control Package—behavior.....	59
Table A.3.2.5.5—Object-oriented modeling elements—Control Package—notifications.....	59
Table A.3.2.6.1—Object-oriented modeling elements—Extended Services Package—object class items.....	59
Table A.3.2.6.2—Object-oriented modeling elements—Extended Services Package—attributes.....	60
Table A.3.2.6.3—Object-oriented modeling elements—Extended Services Package—attribute groups... ..	60
Table A.3.2.6.4—Object-oriented modeling elements—Extended Services Package—behavior.....	61
Table A.3.2.6.5—Object-oriented modeling elements—Extended Services Package—notifications.....	61
Table A.3.2.7.1—Object-oriented modeling elements—Communication Package—object class items.....	61

Table A.3.2.7.2—Object-oriented modeling elements—Communication Package—attributes ( <i>multipage table</i> ) .....	62
Table A.3.2.7.3—Object-oriented modeling elements—Communication Package—attribute groups .....	63
Table A.3.2.7.4—Object-oriented modeling elements—Communication Package—behavior .....	63
Table A.3.2.7.5—Object-oriented modeling elements—Communication Package—notifications .....	63
Table A.3.2.8.1—Object-oriented modeling elements—Archival Package—object class items .....	63
Table A.3.2.8.2—Object-oriented modeling elements—Archival Package—attributes ( <i>multipage table</i> ) .....	64
Table A.3.2.8.3—Object-oriented modeling elements—Archival Package—attribute groups .....	65
Table A.3.2.8.4—Object-oriented modeling elements—Archival Package—behavior .....	65
Table A.3.2.8.5—Object-oriented modeling elements—Archival Package—notifications .....	65
Table A.3.2.9.1—Object-oriented modeling elements—Patient Package—object class items .....	65
Table A.3.2.9.2—Object-oriented modeling elements—Patient Package—attributes ( <i>multipage table</i> ).....	66
Table A.3.2.9.3—Object-oriented modeling elements—Patient Package—attribute groups .....	67
Table A.3.2.9.4—Object-oriented modeling elements—Patient Package—behavior .....	67
Table A.3.2.9.5—Object-oriented modeling elements—Patient Package—notifications .....	67
Table A.3.2.10.1—Object-oriented modeling elements—PHD—object class items .....	68
Table A.3.2.10.2—Object-oriented modeling elements—PHD—attributes ( <i>multipage table</i> ) .....	68
Table A.3.2.10.3—Object-oriented modeling elements—PHD—attribute groups .....	70
Table A.3.2.10.4—Object-oriented modeling elements—PHD-behavior .....	71
Table A.3.2.10.5—Object-oriented modeling elements—PHD—notifications .....	71
Table A.3.2.11.1—Object-oriented modeling elements—WCM—object class items .....	72
Table A.3.2.11.2—Object-oriented modeling elements—WCM—attributes ( <i>multipage table</i> ) .....	72
Table A.3.2.11.3—Object-oriented modeling elements—WCM—attribute groups .....	74
Table A.3.2.11.4—Object-oriented modeling elements—WCM—behavior .....	74
Table A.3.2.11.5—Object-oriented modeling elements—WCM—notifications .....	74
Table A.3.2.12.1—Object-oriented modeling elements—MEM-LS—object class items.....	74
Table A.3.2.12.2—Object-oriented modeling elements—MEM-LS—attributes ( <i>multipage table</i> ) .....	75
Table A.3.2.12.3—Object-oriented modeling elements—MEM-LS—attribute groups .....	77
Table A.3.2.12.4—Object-oriented modeling elements—MEM-LS—behavior .....	77
Table A.3.2.12.5—Object-oriented modeling elements—MEM-LS—notifications .....	77
Table A.3.2.13.1—Object-oriented modeling elements—USI—object class items.....	77
Table A.3.2.13.2—Object-oriented modeling elements—USI—attributes .....	77
Table A.3.2.13.3—Object-oriented modeling elements—USI—attribute groups.....	77
Table A.3.2.13.4—Object-oriented modeling elements—USI—behavior .....	78
Table A.3.2.13.5—Object-oriented modeling elements—USI—notifications.....	78
Table A.3.2.14.1—Object-oriented modeling elements—Deprecated identifier terms.....	78
Table A.4.1—Communication infrastructure—object class items .....	79
Table A.4.2—Communication infrastructure—attributes ( <i>multipage table</i> ) .....	80
Table A.4.3—Communication infrastructure—attribute groups .....	82
Table A.4.4—Communication infrastructure—behavior .....	82
Table A.4.5—Communication infrastructure—notifications .....	83
Table A.4.6—Communication infrastructure—profile support attributes .....	83
Table A.4.7—Communication infrastructure—optional package identifiers .....	83
Table A.4.8—Communication infrastructure—system specification components.....	83
Table A.5.1—Nomenclature and codes for vital signs devices ( <i>multipage table</i> ).....	88
Table A.6.2.1—Table of decimal factors .....	99
Table A.6.3.1—Non-SI units ( <i>multipage table</i> ) .....	99
Table A.6.4.1—Vital signs units of measurement ( <i>multipage table</i> ) .....	101
Table A.6.5.1—Withdrawn terms for vital signs units of measurement .....	122
Table A.6.6.1—Deprecated terms for vital signs units of measurement .....	123
Table A.6.7.1—Deprecated RefIDs for vital signs units of measurement .....	124
Table A.7.1.3.1—List of standardized ECG <lead> descriptors from SCP-ECG ( <i>multipage table</i> ).....	130
Table A.7.1.3.2—Nomenclature and codes for ECG lead descriptors from IEEE Std 11073-10101-2004 with discriminator group [LEAD1] ( <i>multipage table</i> ).....	132

Table A.7.1.3.3—Nomenclature and codes for ECG lead descriptors from IEEE Std 11073-10102 with discriminator group [LEAD2] ( <i>multipage table</i> ).....	135
Table A.7.1.6.1—Nomenclature and codes for global lead ECG measurements ( <i>multipage table</i> ).....	144
Table A.7.1.6.2—Nomenclature and codes for ECG measurements with lead origin ( <i>multipage table</i> ) ....	151
Table A.7.1.7.1—Deprecated terms for ECG measurements .....	156
Table A.7.1.8.1—Deprecated RefIds for ECG measurements defined in IEEE11073-10102 .....	156
Table A.7.2.6.1—Nomenclature and codes for ECG enumerations ( <i>multipage table</i> ) .....	160
Table A.7.2.7.1—Withdrawn terms for ECG enumerations .....	171
Table A.7.2.8.1—Deprecated terms for ECG enumerations .....	171
Table A.7.2.9.1—Deprecated RefIds for ECG enumerations .....	172
Table A.7.3.6.1—Nomenclature and codes for haemodynamic monitoring measurements ( <i>multipage table</i> ) .....	176
Table A.7.3.7.1—Deprecated terms for haemodynamic monitoring measurements.....	191
Table A.7.4.11.1—Ventilator modes bit string ( <i>multipage table</i> ).....	200
Table A.7.4.11.2—Ventilator modes nomenclature and codes ( <i>multipage table</i> ).....	202
Table A.7.4.16.1—Correction of gas measurements.....	206
Table A.7.4.17.1—Gas measurement sites.....	207
Table A.7.4.17.2—Default gas measurement sites.....	207
Table A.7.4.18.1—Inspiratory breath type classifications .....	209
Table A.7.4.19.1—Deployment of gas partial pressure and concentration and consumption information (informative).....	210
Table A.7.4.19.2—Nomenclature and codes for respiratory, ventilator, and anesthesia measurements ( <i>multipage table</i> ) .....	211
Table A.7.4.20.1—Deprecated terms for respiratory measurements.....	258
Table A.7.4.21.1—Deprecated RefIds for respiratory measurements.....	258
Table A.7.4.22.1—Recommended mapping of deprecated to ‘unified’ gas RefId prefixes (informative).....	259
Table A.7.4.23.1—Deprecated terms for respiratory measurements ( <i>multipage table</i> ) .....	260
Table A.7.4.24.1—Deprecated RefIds for respiratory measurements ( <i>multipage table</i> ) .....	265
Table A.7.4.25.1—Deprecated nomenclature for undefined respiratory measurements from Annex B ....	269
Table A.7.4.26.1—Nomenclature and codes for nebulizers ( <i>multipage table</i> ) .....	270
Table A.7.5.6.1—Nomenclature and codes for common blood-gas, blood, urine, and other fluid chemistry measurements ( <i>multipage table</i> ) .....	276
Table A.7.5.7.1—Withdrawn terms for blood-gas, blood, urine, and other fluid chemistry measurements .....	287
Table A.7.5.8.1—Deprecated RefIds for blood-gas, blood, urine, and other fluid chemistry measurements .....	287
Table A.7.6.6.1—Nomenclature and codes for fluid-output measurements ( <i>multipage table</i> ) .....	290
Table A.7.7.6.1—Nomenclature and codes for pump data ( <i>multipage table</i> ) .....	297
Table A.7.7.7.1—Deprecated RefIds for pump data .....	302
Table A.7.7.13.1—Pump modes bit string values (value to be communicated in enumeration observation element Mode     Device   Pump).....	305
Table A.7.7.19.1—Pump states bit string values (value to be communicated in EnumerationObservation with code: Status   Operational   Device   Pump).....	308
Table A.7.8.6.1—Nomenclature and codes for neurological monitoring measurements ( <i>multipage table</i> ) .....	313
Table A.7.9.6.1—Nomenclature and codes for neurophysiologic enumerations ( <i>multipage table</i> ).....	330
Table A.7.10.6.1—Nomenclature and codes for neurophysiologic stimulation modes ( <i>multipage table</i> ) ..	349
Table A.7.11.6.1—Nomenclature and codes for miscellaneous measurements.....	355
Table A.7.11.6.2—Nomenclature and codes for temperature ( <i>multipage table</i> ).....	356
Table A.7.11.7.1—Deprecated nomenclature for temperature.....	357
Table A.7.11.8.1—Body weight and surface area for pre-coordinated RefIds.....	358
Table A.7.11.9.1—Nomenclature and codes for body mass (weight) and estimates .....	359
Table A.7.12.1.1—Nomenclature and code extensions for infant incubator and warmer microenvironments ( <i>multipage table</i> ) .....	360
Table A.7.13.6.1—Nomenclature and codes for spirometry measurements ( <i>multipage table</i> ).....	364

Table A.7.14.1.1—Nomenclature and code extensions for personal health devices ( <i>multipage table</i> ).....	372
Table A.7.14.2.1—Deprecated RefIds for personal health devices.....	376
Table A.8.2.5.1—Nomenclature and codes for sites for neurophysiological signal monitoring: locations near peripheral nerves ( <i>multipage table</i> ).....	381
Table A.8.3.5.1—Nomenclature and codes for sites for neurophysiological signal monitoring: locations near or in muscles ( <i>multipage table</i> ).....	398
Table A.8.4.6.1—Nomenclature and codes for electrode sites for EEG according to the international 10–20 system ( <i>multipage table</i> ).....	433
Table A.8.5.6.1—Nomenclature and codes for sites for EOG signal monitoring ( <i>multipage table</i> ).....	441
Table A.8.6.5.1—Nomenclature and codes for general neurological sites for monitoring measurements and drainage.....	444
Table A.8.7.5.1—Nomenclature and codes for body sites for cardiovascular measurements ( <i>multipage table</i> ).....	447
Table A.8.8.5.1—Nomenclature and codes for miscellaneous body sites used in vital signs monitoring and measurement ( <i>multipage table</i> ).....	454
Table A.8.9.5.1—Nomenclature and codes for external sites used in vital signs monitoring and measurement.....	467
Table A.8.10.6.1—Nomenclature and codes for qualifiers of body site locations ( <i>multipage table</i> ).....	470
Table A.9.2.5.1—Nomenclature and codes for pattern events ( <i>multipage table</i> ).....	475
Table A.9.3.5.1—Nomenclature and codes for device-related and environment-related events ( <i>multipage table</i> ).....	491
Table A.9.3.6.1—Deprecated terms for device-related and environment-related events.....	518
Table A.9.3.7.1—Deprecated RefIds for device-related and environment-related events.....	518
Table A.10.2.3.1—Nomenclature and codes for infrastructure, device specialization ( <i>multipage table</i> ).....	520
Table A.10.2.4.1—Withdrawn terms for device specialization.....	522
Table A.10.3.3.1—Nomenclature and codes for Infrastructure, sub-specialization ( <i>multipage table</i> ).....	523
Table A.10.4.3.1—Time synchronization profiles.....	526
Table A.11.2.3.1—Nomenclature and codes for PHD Disease Management, general.....	527
Table A.11.3.3.1—Nomenclature and codes for PHD Disease Management, Basic ECG sensors.....	528
Table A.11.4.3.1—Nomenclature and codes for PHD Disease Management, Basic ECG event context.....	529
Table A.11.5.3.1—Nomenclature and codes for PHD Disease Management, SABTE sensors and settings ( <i>multipage table</i> ).....	530
Table A.11.5.4.1—Withdrawn terms for PHD Disease Management, SABTE sensors and settings ( <i>multipage table</i> ).....	536
Table A.11.6.3.1—Nomenclature and codes for PHD Disease Management, SABTE mode settings ( <i>multipage table</i> ).....	540
Table A.11.7.3.1—Nomenclature and codes for PHD Disease Management, Glucose carbohydrate source.....	542
Table A.11.8.3.1—Nomenclature and codes for PHD Disease Management, Glucose carbohydrate source.....	543
Table A.11.9.3.1—Nomenclature and codes for PHD Disease Management, Glucose moncarbohydrate sources.....	544
Table A.11.10.3.1—Nomenclature and codes for PHD Disease Management, Glucose Monitoring, insulin type.....	545
Table A.11.11.3.1—Nomenclature and codes for PHD Disease Management, insulin types.....	546
Table A.11.12.3.1—Nomenclature and codes for PHD Disease Management, general health.....	547
Table A.11.13.3.1—Nomenclature and codes for PHD Disease Management, general health.....	548
Table A.11.14.3.1—Nomenclature and codes for PHD Disease Management, Glucose Monitoring, sample location.....	549
Table A.11.15.3.1—Nomenclature and codes for PHD Disease Management, Glucose Monitoring, sample locations.....	550
Table A.11.16.3.1—Nomenclature and codes for PHD Disease Management, Glucose Monitoring, meal.....	551
Table A.11.17.3.1—Nomenclature and codes for PHD Disease Management, Glucose Monitoring, meal types.....	552

Table A.11.18.3.1—Nomenclature and codes for PHD Disease Management, Glucose Monitoring, tester .....	553
Table A.11.19.3.1—Nomenclature and codes for PHD Disease Management, Glucose Monitoring, tester types.....	554
Table A.11.20.3.1—Nomenclature and codes for PHD Disease Management, INR status and context.....	555
Table A.11.21.3.1—Nomenclature and codes for PHD Disease Management, CGM sensors ( <i>multipage table</i> ).....	556
Table A.11.22.3.1—Nomenclature and codes for PHD Disease Management, CGM sensors.....	558
Table A.11.23.3.1—Nomenclature and codes for PHD Disease Management, CGM device.....	559
Table A.11.24.3.1—Nomenclature and codes for PHD Disease Management, Insulin Pump ( <i>multipage table</i> ) .....	560
Table A.11.24.4.1—Deprecated term codes for PHD Disease Management, Insulin Pump.....	562
Table A.11.25.4.1—Nomenclature and codes for PHD Disease Management, PSM device.....	563
Table A.11.26.2.1—Nomenclature and codes for PHD Disease Management, PSM device.....	564
Table A.11.27.3.1—Nomenclature and codes for PHD Disease Management, PEF status .....	565
Table A.12.3.2.1—Nomenclature and codes for health and fitness sensors ( <i>multipage table</i> ) .....	567
Table A.12.3.3.1—Deprecated terms for PHD disease management, health and fitness ( <i>multipage table</i> ) .....	569
Table A.12.4.2.1—Nomenclature and codes for health and fitness activity ( <i>multipage table</i> ) .....	570
Table A.12.5.2.1—Nomenclature and codes for health and fitness exercise .....	572
Table A.12.6.2.1—Nomenclature and codes for health and fitness specific exercise .....	573
Table A.12.6.3.1—Deprecated terms for health and fitness exercise.....	574
Table A.13.3.2.1—Nomenclature and codes for assisted living sensors ( <i>multipage table</i> ).....	577
Table A.13.4.3.1—Nomenclature and codes AI locations, general.....	580
Table A.13.5.3.1—Nomenclature and codes AI locations, rooms ( <i>multipage table</i> ) .....	581
Table A.13.6.3.1—Nomenclature and codes AI locations, medical rooms ( <i>multipage table</i> ) .....	585
Table A.13.7.3.1—Nomenclature and codes AI locations, doors and windows .....	587
Table A.13.8.3.1—Nomenclature and codes for AI locations, furniture.....	588
Table A.13.9.3.1—Nomenclature and codes for AI locations, appliances ( <i>multipage table</i> ).....	589
Table A.13.10.2.1—Nomenclature and codes for AI events ( <i>multipage table</i> ) .....	591
Table A.13.11.3.1—Nomenclature and codes AI medication dispenser .....	594
Table A.14.3.1—Nomenclature for error return codes ( <i>multipage table</i> ) .....	595
Table A.14.4.1—Withdrawn nomenclature for error return codes.....	596
Table A.15.7.1—Nomenclature and codes for external nomenclatures and messaging standards ( <i>multipage table</i> ) .....	599
Table A.16.1.1—IHE PCD Alert Communication Management attributes.....	602
Table A.16.2.1—IHE PCD Alert Communication Management Notifications.....	602
Table A.16.3.1—Continua Services Interface infrastructure attributes.....	603
Table A.16.4.1—Continua Services Interface information attributes .....	604
Table A.16.5.1—IHE PCD and Continua Services Interface timekeeping information attributes ( <i>multipage table</i> ).....	605
Table A.16.6.1—Breathing circuit attributes .....	607
Table A.16.6.2—Calculation method attribute.....	607
Table A.16.7.1—ECG nomenclature attributes.....	607
Table C.3.1.1—Device Type [MVC] discriminator set.....	844
Table C.3.2.1—Statistical [MMM] discriminator set.....	844
Table C.3.3.1—Haemodynamic pressure measurements [SDM] discriminator set .....	844
Table C.3.4.1—Rates for countable events [RCE] discriminator set .....	845
Table C.3.5.1—Rates for countable neurological events [RCN] discriminator set .....	845
Table C.3.6.1—Body Site Orientation (laterally) [LAT] discriminator set.....	845
Table C.3.7.1—Units of Measure [UoM] discriminator set .....	846
Table C.3.8.1—Unit of Measure (singular) [UoM1] discriminator set .....	846
Table C.3.9.1—No Discriminator [1] discriminator set .....	847
Table C.3.10.1—Event Discriminator [EVT] discriminator set .....	847
Table C.3.11.1—Statistical profile [PN3] discriminator set.....	847
Table C.3.12.1—Location Discriminator [LOC] discriminator set.....	848

Table C.3.13.1—Version of External Nomenclature Discriminator [64].....	849
Table C.3.14.1—ECG lead discriminators [LEAD1] from ISO/IEEE 11073-10101:2004 ( <i>multipage table</i> ) .....	849
Table C.3.15.1—ECG lead discriminators [LEAD2] from ISO/IEEE 11073-10102:2012 ( <i>multipage table</i> ) .....	852
Table C.3.16.1—Equivalent ECG lead discriminators [LEAD] in ISO/IEEE 11073-10101:2004 and ISO/IEEE 11073-10102:2012 ( <i>multipage table</i> ) .....	857
Table C.3.17.1—Comparison of ECG lead discriminators in ISO/IEEE 11073-10101:2004 and ISO/IEEE 11073-10102:2012 ( <i>multipage table</i> ) .....	859
Table C.4.1.1—Object-Oriented—Partition 1 ( <i>multipage table</i> ) .....	862
Table C.4.2.1—SCADA—Partition 2 ( <i>multipage table</i> ).....	895
Table C.4.3.1—Events and Alerts—Partition 3 ( <i>multipage table</i> ).....	950
Table C.4.4.1—Dimensions—Partition 4 ( <i>multipage table</i> ) .....	965
Table C.4.5.1—Parameter Groups—Partition 6.....	981
Table C.4.6.1—Body Sites—Partition 7 ( <i>multipage table</i> ).....	981
Table C.4.7.1—Communication Infrastructure—Partition 8 ( <i>multipage table</i> ) .....	1014
Table C.4.8.1—PHD Disease Management—Partition 128 ( <i>multipage table</i> ) .....	1019
Table C.4.9.1—PHD Health Fitness—Partition 129 ( <i>multipage table</i> ) .....	1025
Table C.4.10.1—PHD Aging Independently—Partition 130 ( <i>multipage table</i> ).....	1028
Table C.4.11.1—Return Codes—Partition 255 .....	1036
Table C.4.12.1—External Nomenclature—Partition 256 ( <i>multipage table</i> ) .....	1036
Table C.4.13.1—Device Settings—Partition 258 ( <i>multipage table</i> ) .....	1037
Table C.4.14.1—Predicted Values—Partition 514 ( <i>multipage table</i> ) .....	1040
Table D.1.1.1—Term code synonyms.....	1042
Table D.1.1.2—Term code synonyms.....	1042
Table D.1.2.1—Reflid synonyms.....	1043
Table E.1—Inspiratory breath and inflation types and rates .....	1045
Table G.1—Gas measurement sites and anesthesia breathing circuit components (normative).....	1049
Table J.1—Revision history .....	1059

## Figures

Figure 1—Context-sensitive coding illustration.....	28
Figure 2—IEEE numbered series standards ISO ASN.1 OID assignments .....	30
Figure 3—IEEE 11073-10101-2004 ISO ASN.1 OID assignments.....	31
Figure 4—HL7 ISO ASN.1 OID assignments.....	31
Figure A.7.1.1—Basic form .....	126
Figure A.7.1.2—Multiform P Wave, 3 Extrema .....	126
Figure A.7.1.3—Multiform QRS .....	126
Figure A.7.1.4—ST-T morphologies.....	127
Figure A.7.1.5—Example for measurement of ventricular activation time at different QRS .....	128
Figure A.7.1.6—Ventricular activation time.....	129
Figure A.7.4.1—Gas concentration and partial pressure measurement locations .....	207
Figure A.7.4.2—Relationship between breaths and Inflations .....	208
Figure A.8.5.1—Schematic diagram of the EOG electrode positions .....	438
Figure E.1—Bi-Level pressure waveform with patient <P/> and <S/> breaths .....	1044
Figure G.1—Example of bellows-driven ventilator and circuit .....	1050
Figure G.2—Example of piston-driven ventilator and circuit .....	1051
Figure G.3—Mapleson circuits .....	1052
Figure H.1—Term approval and management process .....	1053