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

Part 10101: **Nomenclature**

AMENDMENT 1: Additional definitions

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

Partie 10101: Nomenclature

AMENDEMENT 1: Définitions supplementaires

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IEEE Std 11073-10101a™-2015
(Amendment to
ISO/IEEE 11073-10101:2004)

Health informatics—Point-of-care medical device communication

Part 10101: Nomenclature

Amendment 1: Additional Definitions

Sponsor

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

Approved 5 December 2015

IEEE-SA Standards Board

Abstract: Within the context of the ISO/IEEE 11073 family of standards for point-of-care (POC) medical device communication (MDC), the nomenclature defined by the base ISO/IEEE 11073-10101:2004 nomenclature standard is extended by this amendment. Significant extensions to support haemodynamics, respiration, ventilation and anesthesia monitoring, blood gas, urine, fluid-related metrics, and neurology, as well as units of measurements and measurement sites, are included. Formal definitions for observation identifiers used by the IEEE 11073 Personal Health Device standards and additional attributes for reporting their regulatory and certification status are also captured and provided. Information attributes to support alert communication and accurate medical device time synchronization and timekeeping are also defined.

Keywords: alert communication, anesthesia, blood gas, codes, Continua, fluid-related metrics, haemodynamics, IEEE 11073-10101a, IHE PCD, information model, ISO/IEEE 11073-10101, measurement sites, medical device certification, medical device communication, neurology, nomenclature, NTP, ontology, patient, PCHA, Personal Connected Health Alliance, POC, point-of-care, respiration, semantics, service model, terminology, time synchronization, timekeeping, units of measure, urine, ventilation

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Introduction

This introduction is not part of IEEE Std 11073-10101a™-2015, Health informatics—Point-of-care medical device communication—Part 10101: Nomenclature—Amendment 1: Additional Definitions.

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

This amendment extends the nomenclature originally defined by the base IEEE Std 11073-10101:2004 nomenclature standard. It reflects the continued innovation in medical device and system design for the past decade and is based on a highly successful collaboration with the following organizations:

— Integrating the Healthcare Enterprise (IHE) Patient Care Devices (PCD) domain

— Personal Connected Health Alliance (PCHA, formerly Continua Health Alliance)

— ISO/TC 121, Anaesthetic and respiratory equipment, Subcommittee 4, Terminology and semantics

In addition, other vendors and standards development and profiling organizations have contributed to and have recognized the value of this work and the benefit it provides to the user and provider communities and to the patients that we ultimately serve.

This nomenclature amendment includes significant extensions to support:

— haemodynamics

— respiratory, ventilation and anesthesia monitoring

— blood gas, urine, fluid chemistry and other fluid-related metrics

— neurology

— units of measurements and measurement sites

— new medical device types, including infant warmers and incubators

This amendment also provides:

— formal definitions for observation identifiers used by IEEE 11073 Personal Health Devices

— attributes for reporting medical device regulatory and certification status

— attributes to support alert communication

— attributes to support accurate medical device time synchronization and timekeeping

NOTES as used in this amendment (preceding editorial instructions) are not meant to be included in the rollup or part of the editorial instructions. They are used solely to provide informative guidance and background to the reader as to why certain changes were made.

Contents

Health informatics—Point-of-care medical device communication

Part 10101: Nomenclature

Amendment 1: Additional Definitions

NOTE—The editing instructions contained in this **amendment** define how to merge the material contained therein into the existing base standard and its amendments to form the comprehensive standard.

The editing instructions are shown in ***bold italic***. Four editing instructions are used: change, delete, insert, and replace. ***Change*** is used to make corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed by using ~~strikethrough~~ (to remove old material) and underscore (to add new material). ***Delete*** removes existing material. ***Insert*** adds new material without disturbing the existing material. Insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. ***Replace*** is used to make changes in figures or equations by removing the existing figure or equation and replacing it with a new one. Editing instructions, change markings, and this NOTE will not be carried over into future editions because the changes will be incorporated into the base standard.

4. Terms and definitions

Replace the boilerplate paragraph (and its footnote) with the following sentence as shown. Renumber footnotes accordingly.

For the purposes of this document, the following terms and definitions apply. The *IEEE Standards Dictionary Online* should be consulted for terms not defined in this clause.[1]

Insert the following new terms and definitions in alphabetical order:

base term: A fundamental semantic concept.

co-constraint: A rule describing a constraint whose scope is inclusive of more than one term.

constraint: A restriction on the set of values being assigned.

discriminators: A mechanism to provide additional semantic refinement to multiple base terms.

domain information model (DIM): The model describing common concepts and relationships for a problem domain.

electronic health records: A longitudinal collection of electronic health information about individual patients or populations. It is a record in digital format that is capable of being shared within or across different health care settings by being embedded in network-connected enterprise-wide information system.

reference ID (REFID): A unique, symbolic, and programmatic form for the term. The form is correlated to the context-free code (i.e., terms are by definition context-free with respect to all other terms); in this standard, terms are prefixed with "MDC_" for consistency.

systematic name: An organization of differentiating, relational descriptors that are unique for each term.

terminology: A synonym for nomenclature.

5. Symbols (and abbreviated terms)

Insert the following abbreviated terms into the existing list, in alphabetical order:

aka	also known as
DIM	domain information model
ECG	electrocardiogram
HL7	Health Level Seven
ID	identifier

[1] IEEE Standards Dictionary Online subscription is available at: http://www.ieee.org/portal/innovate/products/standard/standards_dictionary.html.

IHE PCD	Integrating the Healthcare Enterprise Patient Care Devices
MDC	Medical Device Communication
PCHA	Personal Connected Health Alliance (formerly Continua Health Alliance)
PHD	IEEE 11073 Personal Health Device series of communication standards, including the IEEE Std 11073-20601 base standard and -104XX Device Specializations
REFID	IEEE 11073 reference identifier
typ	typical

Annex A

(normative)

Nomenclature semantics

[*NOTES* in this amendment are not meant to be included in the rollup or part of the editorial instructions. They are used in this amendment solely to provide informative guidance and background to the reader as to why certain changes were made.]

***NOTE*—**This amendment extends the nomenclature defined by the base ISO/IEEE 11073-10101:2004 nomenclature standard. It includes significant extensions to support haemodynamics, respiration, ventilation and anesthesia monitoring, blood gas, urine, fluid-related metrics, and neurology, as well as specialized units of measurements and measurement sites. It also captures and provides formal definitions for observation identifiers used by the IEEE 11073 Personal Health Device standards and additional attributes for reporting their regulatory and certification status.

The nomenclature extensions may be used in other persistent storage and communication standards [e.g., Health Level Seven International (HL7) V2 and V3, and Digital Imaging and Communications in Medicine (DICOM)] for use by various applications, including clinical information systems, electronic patient records, and clinical research.

These enterprise-facing communication standards require that the IEEE 11073 concept of a ‘partition’ and ‘code’ be combined into a single 32-bit ‘context-free’ identifier, as part of a single Medical Device Communication (MDC) vocabulary identifier. In this amendment, the combined partition and code information is listed in the ‘Part::Code’ column, augmenting the earlier context-sensitive ‘Code’ column. This also facilitates aggregation and processing of medical device data defined in multiple IEEE 11073 partitions, such as advanced diagnostic electrocardiography, implanted devices, and personal health devices.

All new terms defined by this amendment express the context-free *Part::Code* identifiers without braces. Existing context-free from IEEE Std 11073-10101:2004 are enclosed in square braces [*Part::Code*] and ‘refid-synonyms’ are enclosed in wavy braces {*Part::Code*} terms. The braces indicate substantial equivalency to existing *Part::Code* identifiers and are used to identify terms that have been included for completeness or have been modified for clarity.

A.5 Nomenclature, data dictionary, and codes for vital signs devices (Block A)

A.5.7 Code table

NOTE—This table includes vital signs devices from Annex B of IEEE Std 11073-10101:2004 that were not defined in Annex A and new vital signs devices. It does not include vital signs devices that were already defined in Annex A (codes 1::4100 to 1::4508, inclusive). All are assigned to the partition MDC_PART_OBJ (1).

Insert the following rows at the end of Table A.5.1 as shown:

Table A.5.1—Nomenclature and codes for vital signs devices *(continued)*

Systematic name	Common term	Description/Definition	Reference ID	Part::Code
Device | | | <type>	Generic device	Generic device, may be used as placeholder.	MDC_DEV	1::4096
Device, general | | | <type>	General device	Generic device, of any type.	MDC_DEV_GENERAL	1::5120
Device, auxiliary | | | <type>	Auxiliary device	Generic device, of any type.	MDC_DEV_AUX	1::5124
Device | ElectricalPotential, Respiration | Lung, transthoracic impedance | <type>	ECG-derived respiration	Instrument for the indirect measurement of respiration rate by estimating transthoracic impedance using the ECG leads.	MDC_DEV_ECG_RESP	1::5128
Device | ElectricalPotential | Heart, arrhythmia or conduction disturbance | <type>	ECG arrhythmia	Instrument for acquisition, analysis and detection of cardiac arrhythmias or conduction disturbances.	MDC_DEV_ARRHY	1::5132
Device | Pressure | Haemodynamic | <type>	Haemodynamic pulse rate	Instrument for acquisition, analysis and detection of haemodynamic pulse rate and other information.	MDC_DEV_PULS	1::5136
Device | ElectricalPotential | Heart, ST deviation and cardiac repolarization | <type>	ECG ST	Instrument for acquisition, analysis and detection of ST deviation and cardiac repolarization disturbances.	MDC_DEV_ST	1::5140
Analyzer | Concentration | Airway, CO2 | <type>	CO2 gas analyzer, capnometer, capnograph	Instrument for the direct measurement of airway CO2 concentration and respiration rate.	MDC_DEV_CO2	1::5144
Device | Pressure, non-invasive | Blood | <type>	Non-invasive blood pressure	Instrument for the non-invasive measurement of blood pressure.	MDC_DEV_PRESS_BLD_NONINV	1::5148
Device | Flow, perfusion | Blood, cerebral | <type>	Cerebral perfusion	Instrument for the measurement of the level of blood perfusion in cerebral tissue.	MDC_DEV_CEREB_PERF	1::5152
Device | Concentration or PartialPressure, CO2 | Continuous | <type>	Continuous CO2	Instrument for the direct and continuous measurement of CO2 concentration or partial pressure.	MDC_DEV_CO2_CTS	1::5156
Device | PartialPressure, pCO2 | Skin, surface | <type>	Transcutaneous pCO2	Instrument for the indirect measurement of pCO2 partial pressure on the surface of the skin.	MDC_DEV_CO2_TCUT	1::5160
Analyzer | Concentration | Airway, O2 | <type>	O2 gas analyzer	Instrument for the direct measurement of airway O2 concentration and respiration rate.	MDC_DEV_O2	1::5164
Device | Concentration or PartialPressure, O2 | Continuous | <type>	Continuous O2	Instrument for the direct and continuous measurement of O2 concentration or partial pressure.	MDC_DEV_O2_CTS	1::5168

Table A.5.1—Nomenclature and codes for vital signs devices *(continued)*

Systematic name	Common term	Description/Definition	Reference ID	Part::Code
Device | PartialPressure, pO2 | Skin surface | <type>	Transcutaneous pO2	Instrument for the indirect measurement of pO2 partial pressure on the surface of the skin.	MDC_DEV_O2_TCUT	1::5172
Meter | Temperature | Difference | <type>	Temperature difference probe	Instrument that measures temperature difference between two body sites or temperature reference.	MDC_DEV_TEMP_DIFF	1::5176
Controller | | | <type>	Generic controller	Instrument that controls specific aspects of a device.	MDC_DEV_CNTRL	1::5180
Alert | | | <type>	Generic alarm	Instrument that processes or annunciates an alarm.	MDC_DEV_AL	1::5184
Device | Pressure, Pulmonary Artery, Occluded | Blood | <type>	Pulmonary wedge pressure	Instrument for the direct measurement of the pulmonary artery wedge pressure.	MDC_DEV_WEDGE	1::5188
Analyzer | Concentration | Blood, Venous | <type>	SvO2 monitor	Instrument that derives the % of venous O2.	MDC_DEV_O2_VEN_SAT	1::5192
Device | Persistent Metric Store | | <type>	Data storage	Device that stores physiologic information.	MDC_DEV_PMSTORE	1::5196
Analyzer | Rate | Heart | <type>	Heart rate analyzer	Instrument for measuring the rate of heart contractions.	MDC_DEV_CARD_RATE	1::5200
Monitor | Vital Signs | Physiologic | <type>	Vital signs monitor	Instrument for direct measurement and analysis of vital signs such as temperature, pulse or heart rate, blood pressure and respiratory rate.	MDC_DEV_SYS_VS	1::5204
Monitor | Vital Signs, Configurable | Physiologic | <type>	Configurable (modular) vital signs monitor	Configurable (modular) instrument for direct measurement and analysis of vital signs.	MDC_DEV_SYS_VS_CONFIG	1::5208
Monitor | Vital Signs, Non-configurable | Physiologic | <type>	Non-configurable vital signs monitor	Non-configurable (fixed functionality) instrument for direct measurement and analysis of vital signs.	MDC_DEV_SYS_VS_UNCONFIG	1::5212
Alert | | Status | <type>	Generic alarm status indicator	Instrument displays alarm status.	MDC_DEV_AL_STAT	1::5216
Device, waveform | | | <type>	General waveform device	Generic waveform device, of any type.	MDC_DEV_WV_GENERAL	1::5220
Device, numeric | | | <type>	General numeric device	Generic numeric device, of any type.	MDC_DEV_NU_GENERAL	1::5224
Meter | Pressure | | <type>	Pressure meter or sensor	Instrument or sensor for the direct measurement of pressure	MDC_DEV_METER_PRESS	1::5228
Device | Flow, perfusion | Blood | <type>	Perfusion	Instrument for the measurement of blood perfusion.	MDC_DEV_ANALY_PERF_REL	1::5232
Device | Plethysmograph | | <type>	Plethysmograph	Instrument for measuring changes in volume within an organ or body part due to fluctuations in the amount of blood or air it contains.	MDC_DEV_PLETH	1::5236
Calculator | Multi-Parameter | Cardiac | <type>	Cardiac calculator	Instrument that derives cardiac parameters	MDC_DEV_CALC_CARD	1::5240
Calculator | Multi-Parameter | Pulmonary | <type>	Pulmonary calculator	Instrument that derives pulmonary parameters	MDC_DEV_CALC_PULM	1::5244
Calculator | Multi-Parameter, with estimates | Pulmonary | <type>	Pulmonary estimates calculator	Instrument that derives pulmonary parameters, where one or more inputs to the calculation may be clinically acceptable approximations or alternative values.	MDC_DEV_CALC_PULM_EST	1::5248
Analyzer | Concentration, O2 | Blood, Arterial | <type>	SpO2 monitor	Instrument that derives the % of arterial O2 and pulse rate parameters (blood flow) and other analytes.	MDC_DEV_ANALY_SAT_O2_ART	1::5252
Analyzer | Concentration, O2 | Blood, Venous | <type>	SvO2 monitor	Instrument that derives the % of venous O2.	MDC_DEV_ANALY_SAT_O2_VEN	1::5256

Table A.5.1—Nomenclature and codes for vital signs devices *(continued)*

Systematic name	Common term	Description/Definition	Reference ID	Part::Code
Analyzer | Concentration, PgCO2 | Gastric, Mucosal | <type>	Gastric PgCO2 monitor	Instrument that measures gastric PgCO2 with tonometric catheters	MDC_DEV_ANALY_PCO2_GASTRIC	1::5260
Analyzer | ElectricalPotential, Bispectral Index | Brain | <type>	Bispectral Index	Instrument that measures the EEG and derives a "bispectral index", a computed EEG parameter.	MDC_DEV_EEG_BIS	1::5264
Analyzer | ElectricalPotential, Entropy | Brain | <type>	Entropy	Instrument that measures the EEG and derives an "entropy" index, a computed EEG parameter.	MDC_DEV_EEG_ENTROPY	1::5268
Analyzer | ElectricalPotential, SNAP Index | Brain | <type>	SNAP Index	Instrument that measures the EEG and derives an "SNAP" index, a computed EEG parameter.	MDC_DEV_EEG_SNAP	1::5272
Analyzer | ElectricalPotential, Patient State Index | Brain | <type>	Patient State Index	Instrument that measures the EEG and derives a "patient state index", a computed EEG parameter.	MDC_DEV_EEG_PSI	1::5276
Analyzer | Flow, Continuous | Blood | <type>	Continuous cardiac output	Instrument that continuously derives heart output from direct measurement of blood flow.	MDC_DEV_ANALY_CARD_OUTPUT_CTS	1::5280
Analyzer | Flow, Continuous, Non-invasive | Blood | <type>	Continuous non-invasive Cardiac Output	Instrument that derives heart output from direct measurement of blood flow.	MDC_DEV_ANALY_CARD_OUTPUT_NONINV	1::5284
Regulator | Microenvironment | Body, infant | <type>	Incubator, warmer, heater, humidifier	Instrument for modifying the ambient microenvironment for an infant, including skin temperature and ambient temperature, humidity and oxygen.	MDC_DEV_INFANT_MICROENV	1::5288
Regulator | Microenvironment, temperature | ambient | <type>	Incubator, warmer, heater.	Instrument for modifying the ambient temperature for an infant.	MDC_DEV_INFANT_MICROENV_TEMP_ENV	1::5292
Regulator | Microenvironment, temperature | patient | <type>	Incubator, warmer, heater.	Instrument for modifying the patient temperature for an infant.	MDC_DEV_INFANT_MICROENV_TEMP_PATIENT	1::5296
Regulator | Microenvironment, heater, convective | patient | <type>	Convective heater	Instrument for modifying the patient temperature using convective heating.	MDC_DEV_INFANT_MICROENV_HEATER_CONVECTIVE	1::5300
Regulator | Microenvironment, heater, radiant | patient | <type>	Radiant heater	Instrument for modifying the patient temperature using radiant heating.	MDC_DEV_INFANT_MICROENV_HEATER_RADIANT	1::5304
Analyzer | Concentration | Airway, N2 | <type>	N2 gas analyzer	Instrument for the direct measurement of airway N2 concentration.	MDC_DEV_N2	1::5308
Analyzer | Concentration | Airway, N2O | <type>	N2O gas analyzer	Instrument for the direct measurement of airway N2O concentration.	MDC_DEV_N2O	1::5312
Nebulizer | | | <type>	Nebulizer	Device that aerosolizes medications, diluents and water in airway gas for inhalation by patient.	MDC_DEV_NEBULIZER	1::5316
Device | ElectricalConductivity | Transthoracic conductance | <type>	Impedance cardiography	Instrument for the indirect measurement and estimation of cardiac and/or respiratory parameters by measuring the electrical conductivity of the thorax and its changes over time.	MDC_DEV_ICG	1::5320

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

A.6 Terminology and codes for units of measurement (Block B)

A.6.4 Units of measurement

NOTE—A total of 137 new base units of measure have been defined; the decade scale factor replaces the _X_ in the Reference ID. These are assigned to the MDC_PART_DIM partition (4).

Insert the following rows at the end of Table A.6.3 as shown:

Table A.6.3—Vital signs units of measurement *(continued)*

Dimension	Unit of measurement	Symbol (not normative)	Reference ID	Part::Code
Boolean	«boolean»	1/0	MDC_DIM_BOOLEAN	4::7776
decibel (reference level)	decibel («magnitude» volt)	dB(V), dB(mV) …	MDC_DIM_DECIBEL_X_VOLT	4::7808
	decibel (10 «magnitude» volts)	dB(10V), dB(10mV) …	MDC_DIM_DECIBEL_10_X_VOLT	4::7840
	decibel (10 nV)	dB(10nV)	MDC_DIM_DECIBEL_10_NANO_VOLT	4::7860
	decibel («magnitude» watt)	dB(W), db(10mW) …	MDC_DIM_DECIBEL_X_WATT	4::7872
	square «magnitude» cm(s)	cm^2	MDC_DIM_SQ_X_CM	4::8032
	«magnitude» gram(s) per square meter	$g\ m^{-2}$	MDC_DIM_X_G_PER_M_SQ	4::7744
	per «magnitude» second squared	s^{-2}	MDC_DIM_PER_X_SEC_SQ	4::8064
	revolutions per minute	rpm	MDC_DIM_X_ROTATIONS_PER_MIN	4::8096
mass dose rate per body weight	«magnitude» drops(s) per minute	$drops\ min^{-1}$	MDC_DIM_X_DROPS_PER_MIN	4::8128
	«magnitude» gram(s) per pound per minute	$g\ lb^{-1}\ min^{-1}$	MDC_DIM_X_G_PER_LB_PER_MIN	4::6784
	«magnitude» gram(s) per pound per hour	$g\ lb^{-1}\ h^{-1}$	MDC_DIM_X_G_PER_LB_PER_HR	4::6752
mass dose rate per body surface area	«magnitude» gram(s) per square meter per minute	$g\ m^2\ min^{-1}$	MDC_DIM_X_G_PER_M_SQ_PER_MIN	4::6848
	«magnitude» gram(s) per square meter per hour	$g\ m^2\ h^{-1}$	MDC_DIM_X_G_PER_M_SQ_PER_HR	4::6816
	«magnitude» gram(s) per square meter per day	$g\ m^2\ d^{-1}$	MDC_DIM_X_G_PER_M_SQ_PER_DAY	4::7168
Compliance per body weight	«magnitude» liter per centimeter of water per body weight	$l\ (cmH_2O)^{-1}\ kg^{-1}$	MDC_DIM_X_L_PER_CM_H2O_PER_KG	4::8160
	«magnitude» Tesla (magnetic flux density)	$Wb\ m^{-2}$	MDC_DIM_X_TESLA	4::8192
	«magnitude» volt-seconds	V.s	MDC_DIM_X_VOLT_SEC	4::8224
	«magnitude» volts per second	V/s	MDC_DIM_X_VOLT_PER_SEC	4::8256
	per «magnitude» ohm(s) (*aka* "Siemens")	Ω^{-1}, S	MDC_DIM_PER_X_OHM	4::8288
mol dose rate per body surface area	«magnitude» mole(s) per square meter	$mol\ m^{-2}$	MDC_DIM_X_MOLE_PER_M_SQ	4::7552
	«magnitude» equivalents per kilogram	$eq\ kg^{-1}$	MDC_DIM_X_EQUIV_PER_KG	4::7584
	«magnitude» equivalents per square meter	$eq\ m^{-2}$	MDC_DIM_X_EQUIV_PER_M_SQ	4::7616

Table A.6.3—Vital signs units of measurement *(continued)*

Dimension	Unit of measurement	Symbol (not normative)	Reference ID	Part::Code
mol dose rate per body surface area	«magnitude» mole(s) per square meter per second	mol m^{-2} s^{-1}	MDC_DIM_X_MOLE_PER_M_SQ_PER_SEC	4::7424
	«magnitude» mole(s) per square meter per minute	mol m^{-2} min^{-1}	MDC_DIM_X_MOLE_PER_M_SQ_PER_MIN	4::7456
	«magnitude» mole(s) per square meter per hour	mol m^{-2} h^{-1}	MDC_DIM_X_MOLE_PER_M_SQ_PER_HR	4::7488
	«magnitude» mole(s) per square meter per day	mol m^{-2} d^{-1}	MDC_DIM_X_MOLE_PER_M_SQ_PER_DAY	4::7520
eq dose rate per body weight	«magnitude» equivalents per pound per minute	eq lb^{-1} min^{-1}	MDC_DIM_X_EQUIV_PER_LB_PER_MIN	4::7040
	«magnitude» equivalents per pound per hour	eq lb^{-1} h^{-1}	MDC_DIM_X_EQUIV_PER_LB_PER_HR	4::7008
eq dose rate per body surface area	«magnitude» equivalents per square meter per minute	eq m^{-2} min^{-1}	MDC_DIM_X_EQUIV_PER_M_SQ_PER_MIN	4::7104
	«magnitude» equivalents per square meter per hour	eq m^{-2} h^{-1}	MDC_DIM_X_EQUIV_PER_M_SQ_PER_HR	4::7072
	«magnitude» equivalents per square meter per day	eq m^{-2} d^{-1}	MDC_DIM_X_EQUIV_PER_M_SQ_PER_DAY	4::7136
IU dose quantity per body weight	«magnitude» int. units per kilogram	i.u. kg^{-1}	MDC_DIM_X_INTL_UNIT_PER_KG	4::7680
IU dose quantity per body surface area	«magnitude» int. units per square meter	i.u. m^{-2}	MDC_DIM_X_INTL_UNIT_PER_M_SQ	4::7712
IU dose rate per body weight	«magnitude» international units per pound per minute	i.u. lb^{-1} min^{-1}	MDC_DIM_X_INTL_UNIT_PER_LB_PER_MIN	4::6912
	«magnitude» international units per pound per hour	i.u. lb^{-1} h^{-1}	MDC_DIM_X_INTL_UNIT_PER_LB_PER_HR	4::10400
	«magnitude» international units per pound per day	i.u. lb^{-1} d^{-1}	MDC_DIM_X_INTL_UNIT_PER_LB_PER_DAY	4::6880
IU dose rate per body surface area	«magnitude» int. units per square meter per sec	i.u. m^{-2} sec^{-1}	MDC_DIM_X_INTL_UNIT_PER_M_SQ_PER_SEC	4::7648
	«magnitude» international units per square meter per min	i.u. m^{-2} min^{-1}	MDC_DIM_X_INTL_UNIT_PER_M_SQ_PER_MIN	4::6976
	«magnitude» international units per square meter per hour	i.u. m^{-2} h^{-1}	MDC_DIM_X_INTL_UNIT_PER_M_SQ_PER_HR	4::6944
	«magnitude» international units per square meter per day	i.u. m^{-2} d^{-1}	MDC_DIM_X_INTL_UNIT_PER_M_SQ_PER_DAY	4::7200
Pulmonary/ Systemic Vascular Resistance Index	dyne seconds square meter per centimeter to the power of 5	dyne s m^2 cm^{-5}	MDC_DIM_DYNE_SEC_M_SQ_PER_CM_5	4::8320
thermal calories	«magnitude» calories (thermal)	cal	MDC_DIM_X_CAL	4::8352
nutrition label calories	«magnitude» nutritional calories (= 1000 thermal cal)	nutr cal	MDC_DIM_X_NUTR_CAL	4::8384
thermal caloric rate	«magnitude» calories (thermal) per day	cal per day	MDC_DIM_X_CAL_PER_DAY	4::8416
Flow rate per body weight	«magnitude» liters per kg per minute	L per kg per min	MDC_DIM_X_L_PER_KG_PER_MIN	4::7264
	«magnitude» liters per kg per hour	L per kg per hour	MDC_DIM_X_L_PER_KG_PER_HR	4::7232
	«magnitude» liters per kg per day	L per kg per day	MDC_DIM_X_L_PER_KG_PER_DAY	4::7296

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

Table A.6.3—Vital signs units of measurement *(continued)*

Dimension	Unit of measurement	Symbol (not normative)	Reference ID	Part::Code
Flow rate per body surface area	«magnitude» liters per meter squared per minute	L per m^2 per min	MDC_DIM_X_L_PER_M_SQ_PER_MIN	4::7328
	«magnitude» liters per meter squared per hour	L per m^2 per hour	MDC_DIM_X_L_PER_M_SQ_PER_HR	4::7360
	«magnitude» liters per meter squared per day	L per m^2 per day	MDC_DIM_X_L_PER_M_SQ_PER_DAY	4::7392
Work of breathing (per breath)	«magnitude» joule(s) per breath	J/breath	MDC_DIM_X_JOULES_PER_BREATH	4::8448
Work of breathing (per unit volume)	«magnitude» joule(s) per liter	J/L	MDC_DIM_X_JOULES_PER_L	4::8480
	«magnitude» joule(s) per milliliter	J/mL	MDC_DIM_X_JOULES_PER_ML	4::10528
Work of breathing (per unit time)	«magnitude» joule(s) per day	J/day	MDC_DIM_X_JOULES_PER_DAY	4::10496
Vascular Resistance	dyne seconds per centimeter to the power of 5	dyne s cm^{-5}	MDC_DIM_DYNE_SEC_PER_CM_5	4::8512
Vascular Resistance (Peripheral Reistance Unit)	mm[Hg] per (mL per sec)	PRU	MDC_DIM_MMHG_SEC_PER_ML	4::8544
Vascular Resistance (Wood's unit, pediatric)	mm[Hg] per (liter per minute)	Woods Unit, WU, HRU	MDC_DIM_MMHG_MIN_PER_L	4::8576
Amount of information	Bit	bit, b	MDC_DIM_BIT	4::8608
	Byte (8 bits)	byte, B	MDC_DIM_BYTE	4::8640
Volume concentration	drops per L	drops/L	MDC_DIM_DROPS_PER_X_L	4::8672
Shallow Breathing Index (breath)	breaths per minute per L	breaths/min/L	MDC_DIM_BREATHS_PER_MIN_PER_L	4::8704
Shallow Breathing Index (breaths squared)	number of breaths squared per minute per L	$breaths^2$/min/L	MDC_DIM_SQUARE_BREATHS_PER_MIN_PER_L	4::8736
Volume per minute per body weight	«magnitude» volume per minute per body weight	L/min/kg	MDC_DIM_X_L_PER_MIN_PER_KG	4::8768
Oxygen saturation-seconds	sat % seconds	sat-sec	MDC_DIM_O2_SAT_PERCENT_SEC	4::8800
millimeters per millivolt (display gain)	«magnitude» meters per volt	mm/mV	MDC_DIM_X_M_PER_VOLT	4::8832
Cardiac stroke work	«magnitude» gram-force meters	gf.m [trad g.m]	MDC_DIM_X_G_FORCE_M	4::8864
Cardiac stroke work per liter of fluid	«magnitude» gram-force meters per liter	gf.m/L [trad g.m/L]	MDC_DIM_X_G_FORCE_M_PER_L	4::8896
Cardiac Stroke Work per Body Surface Area	«magnitude» gram-force meters per square meter	gf.m/m^2 [trad g.m/m^2]	MDC_DIM_X_G_FORCE_M_PER_M_SQ	4::8928
Thermal caloric dose quantity per body weight	«magnitude» calories (thermal) per kg	cal per kg	MDC_DIM_X_CAL_PER_KG	4::8960
Thermal caloric dose rate per body weight	«magnitude» calories (thermal) per kg per day	cal per kg per day	MDC_DIM_X_CAL_PER_KG_PER_DAY	4::8992

Table A.6.3—Vital signs units of measurement *(continued)*

Dimension	Unit of measurement	Symbol (not normative)	Reference ID	Part::Code
Thermal caloric dose "concentration"	«magnitude» calories (thermal) per mL	cal per mL	MDC_DIM_X_CAL_PER_ML	4::9024
Arbitrary Unit (arb'U) [1]	«magnitude» arbitrary unit	arb.u	MDC_DIM_X_ARB_UNIT	4::9056
arb'U concentration	«magnitude» arbitrary units per cubic centimeter	arb.u cm^{-3}	MDC_DIM_X_ARB_UNIT_PER_CM_CUBE	4::9088
	«magnitude» arbitrary units per cubic meter	arb.u m^{-3}	MDC_DIM_X_ARB_UNIT_PER_M_CUBE	4::9120
	«magnitude» arbitrary units per liter	arb.u l^{-1}	MDC_DIM_X_ARB_UNIT_PER_L	4::9152
	«magnitude» arbitrary units per milliliter	arb.u ml^{-1}	MDC_DIM_X_ARB_UNIT_PER_ML	4::9184
arb'U mass flow rate	«magnitude» arbitrary units per second	arb.u s^{-1}	MDC_DIM_X_ARB_UNIT_PER_SEC	4::9216
	«magnitude» arbitrary units per minute	arb.u min^{-1}	MDC_DIM_X_ARB_UNIT_PER_MIN	4::9248
	«magnitude» arbitrary units per hour	arb.u h^{-1}	MDC_DIM_X_ARB_UNIT_PER_HR	4::9280
	«magnitude» arbitrary units per day	arb.u d^{-1}	MDC_DIM_X_ARB_UNIT_PER_DAY	4::9312
arb'U dose quantity per body weight	«magnitude» arbitrary units per kilogram	arb.u kg^{-1}	MDC_DIM_X_ARB_UNIT_PER_KG	4::9344
arb'U dose quantity per body surface area	«magnitude» arbitrary units per square meter	arb.u m^{-2}	MDC_DIM_X_ARB_UNIT_PER_M_SQ	4::9376
arb'U dose rate per body weight	«magnitude» arbitrary units per kilogram per second	arb.u kg^{-1} s^{-1}	MDC_DIM_X_ARB_UNIT_PER_KG_PER_SEC	4::9408
	«magnitude» arbitrary units per kilogram per minute	arb.u kg^{-1} min^{-1}	MDC_DIM_X_ARB_UNIT_PER_KG_PER_MIN	4::9440
	«magnitude» arbitrary units per kilogram per hour	arb.u kg^{-1} h^{-1}	MDC_DIM_X_ARB_UNIT_PER_KG_PER_HR	4::9472
	«magnitude» arbitrary units per kilogram per day	arb.u kg^{-1} d^{-1}	MDC_DIM_X_ARB_UNIT_PER_KG_PER_DAY	4::9504
	«magnitude» arbitrary units per pound per minute	arb.u lb^{-1} min^{-1}	MDC_DIM_X_ARB_UNIT_PER_LB_PER_MIN	4::9536
	«magnitude» arbitrary units per pound per hour	arb.u lb^{-1} h^{-1}	MDC_DIM_X_ARB_UNIT_PER_LB_PER_HR	4::10432
	«magnitude» arbitrary units per pound per day	arb.u lb^{-1} d^{-1}	MDC_DIM_X_ARB_UNIT_PER_LB_PER_DAY	4::9568
arb'U dose rate per body surface area	«magnitude» arbitrary units per square meter per sec	arb.u m^{-2} sec^{-1}	MDC_DIM_X_ARB_UNIT_PER_M_SQ_PER_SEC	4::9600
	«magnitude» arbitrary units per square meter per min	arb.u m^{-2} min^{-1}	MDC_DIM_X_ARB_UNIT_PER_M_SQ_PER_MIN	4::9632
	«magnitude» arbitrary units per square meter per hour	arb.u m^{-2} h^{-1}	MDC_DIM_X_ARB_UNIT_PER_M_SQ_PER_HR	4::9664
	«magnitude» arbitrary units per square meter per day	arb.u m^{-2} d^{-1}	MDC_DIM_X_ARB_UNIT_PER_M_SQ_PER_DAY	4::9696

[1] International (IU) and United States Pharmacopeia (USP) units are defined in terms of comparison to a physical reference preparation; the mass or volume that constitutes one 'unit' varies based on which substance is being measured and the variance is based on the biological activity or effect. IU and USP units are used to quantify vitamins, hormones, some medications, vaccines, blood products, and other biologically active substances. Although the meaning of IU and USP units differs from substance to substance, comparisons to the underlying WHO or USP reference preparation can be made, facilitating interoperability across multiple institutions. In contrast, arbitrary units [arb'U] contain an arbitrary scale factor and preclude any meaningful comparison across multiple institutions (although comparability within a given institution may be possible).

Table A.6.3—Vital signs units of measurement *(continued)*

Dimension	Unit of measurement	Symbol (not normative)	Reference ID	Part::Code
USP unit	«magnitude» USP unit	USP.u	MDC_DIM_X_USP_UNIT	4::9728
USP concentration	«magnitude» USP units per cubic centimeter	USP.u cm^{-3}	MDC_DIM_X_USP_UNIT_PER_CM_CUBE	4::9760
	«magnitude» USP units per cubic meter	USP.u m^{-3}	MDC_DIM_X_USP_UNIT_PER_M_CUBE	4::9792
	«magnitude» USP units per liter	USP.u l^{-1}	MDC_DIM_X_USP_UNIT_PER_L	4::9824
	«magnitude» USP units per milliliter	USP.u ml^{-1}	MDC_DIM_X_USP_UNIT_PER_ML	4::9856
USP mass flow rate	«magnitude» USP units per second	USP.u s^{-1}	MDC_DIM_X_USP_UNIT_PER_SEC	4::9888
	«magnitude» USP units per minute	USP.u min^{-1}	MDC_DIM_X_USP_UNIT_PER_MIN	4::9920
	«magnitude» USP units per hour	USP.u h^{-1}	MDC_DIM_X_USP_UNIT_PER_HR	4::9952
	«magnitude» USP units per day	USP.u d^{-1}	MDC_DIM_X_USP_UNIT_PER_DAY	4::9984
USP dose quantity per body weight	«magnitude» USP units per kilogram	USP.u kg^{-1}	MDC_DIM_X_USP_UNIT_PER_KG	4::10016
USP dose quantity per body surface area	«magnitude» USP units per square meter	USP.u m^{-2}	MDC_DIM_X_USP_UNIT_PER_M_SQ	4::10048
USP dose rate per body weight	«magnitude» USP units per kilogram per second	USP.u kg^{-1} s^{-1}	MDC_DIM_X_USP_UNIT_PER_KG_PER_SEC	4::10080
	«magnitude» USP units per kilogram per minute	USP.u kg^{-1} min^{-1}	MDC_DIM_X_USP_UNIT_PER_KG_PER_MIN	4::10112
	«magnitude» USP units per kilogram per hour	USP.u kg^{-1} h^{-1}	MDC_DIM_X_USP_UNIT_PER_KG_PER_HR	4::10144
	«magnitude» USP units per kilogram per day	USP.u kg^{-1} d^{-1}	MDC_DIM_X_USP_UNIT_PER_KG_PER_DAY	4::10176
	«magnitude» USP units per pound per minute	USP.u lb^{-1} min^{-1}	MDC_DIM_X_USP_UNIT_PER_LB_PER_MIN	4::10208
	«magnitude» USP units per pound per hour	USP.u lb^{-1} h^{-1}	MDC_DIM_X_USP_UNIT_PER_LB_PER_HR	4::10464
	«magnitude» USP units per pound per day	USP.u lb^{-1} d^{-1}	MDC_DIM_X_USP_UNIT_PER_LB_PER_DAY	4::10240
USP dose rate per body surface area	«magnitude» USP units per square meter per sec	USP.u m^{-2} sec^{-1}	MDC_DIM_X_USP_UNIT_PER_M_SQ_PER_SEC	4::10272
	«magnitude» USP units per square meter per min	USP.u m^{-2} min^{-1}	MDC_DIM_X_USP_UNIT_PER_M_SQ_PER_MIN	4::10304
	«magnitude» USP units per square meter per hour	USP.u m^{-2} h^{-1}	MDC_DIM_X_USP_UNIT_PER_M_SQ_PER_HR	4::10336
	«magnitude» USP units per square meter per day	USP.u m^{-2} d^{-1}	MDC_DIM_X_USP_UNIT_PER_M_SQ_PER_DAY	4::10368

Table A.6.3—Vital signs units of measurement *(continued)*

Dimension	Unit of measurement	Symbol (not normative)	Reference ID	Part::Code
Slope of component gas concentration per expired total gas volume	volume percent gas concentration per liter	vol % per liter	MDC_DIM_VOL_PERCENT_PER_L	4::10560
elastance	«magnitude» pascal per liter	Pa l^{-1}	MDC_DIM_X_PASCAL_PER_L	4::10592
	«magnitude» pascal per milliliter	Pa ml^{-1}	MDC_DIM_X_PASCAL_PER_ML	4::10624
	«magnitude» bar per liter	bar l^{-1}	MDC_DIM_X_BAR_PER_L	4::10656
	(«magnitude» bar per liter) /10	bar l^{-1} 10^{-1}	MDC_DIM_X_BAR_PER_L_PER_10	4::10688
	«magnitude» bar per milliliter	bar ml^{-1}	MDC_DIM_X_BAR_PER_ML	4::10720
resistance (hydraulic)	«magnitude» bar second per liter	bar s l^{-1}	MDC_DIM_X_BAR_SEC_PER_L	4::10752
	(«magnitude» bar second per liter) /10	bar s l^{-1} 10^{-1}	MDC_DIM_X_BAR_SEC_PER_L_PER_10	4::10784
compliance	«magnitude» liter per hectoPascal	L hPa^{-1}	MDC_DIM_X_L_PER_HPA	4::10816
	«magnitude» liter per bar	L bar^{-1}	MDC_DIM_X_L_PER_BAR	4::10848
	«magnitude» liter per millibar	L $mbar^{-1}$	MDC_DIM_X_L_PER_MBAR	4::10880
work (of breathing) per liter per unit time	«magnitude» joules per liter per second	J/L/s	MDC_DIM_X_JOULES_PER_L_PER_SEC	4::10912
rate of pressure change	millimeter mercury per minute	mmHg min^{-1}	MDC_DIM_MM_HG_PER_MIN	4::10944
	millimeters mercury per second	mmHg s^{-1}	MDC_DIM_MM_HG_PER_SEC	4::10976
	«magnitude» bars per second	bar s^{-1}	MDC_DIM_X_BAR_PER_SEC	4::11008
	centimeter of water per second	cmH_2O s^{-1}	MDC_DIM_CM_H2O_PER_SEC	4::11040
relative rate of change	percent per half-hour	% per 1/2 hr	MDC_DIM_PERCENT_PER_HALF_HOUR	4::11072
cardiac stroke volume per body surface area	«magnitude» liters per beat per square meter	L/beat/m^2	MDC_DIM_X_L_PER_BEAT_PER_M2	4::11104
electric field strength	«magnitude» volt per centimeter	V cm^{-1}	MDC_DIM_X_VOLT_PER_CM	4::11136
irradiance (flux density per wavelength)	«magnitude» watts per square centimeter per nm	W cm^{-2} nm^{-1}	MDC_DIM_X_WATT_PER_CM2_PER_NM	4::11168
pressure to voltage calibration	centimeter of water pressure per microvolt	cmH_2O μV^{-1}	MDC_DIM_CM_H2O_PER_UV	4::11200

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

A.7 Nomenclature, data dictionary, and codes for metrics (measurements and enumerations) (Block C)

A.7.3 Nomenclature and codes for hemodynamic monitoring measurements

A.7.3.6 Code table

NOTE—This table includes additional hemodynamic measurements and calculations based on non-invasive impedance cardiography (ICG) and an additional invasive blood pressure measurement obtained at the femoral artery.

Insert the following rows at the end of Table A.7.3.1 as shown:

Table A.7.3.1—Nomenclature and codes for haemodynamic monitoring measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Acceleration, initial | BloodFlow | Flow | Aorta, CVS	MDC_ACCELERATION_INDEX	Acceleration Index	ACI	Initial acceleration of blood flow in the aorta, which occurs within the first 10 to 20 milliseconds	2::19540
Ratio, Duration | electrical pre-ejection, mechanical systole | Flow | Aorta, CVS	MDC_SYSTOLIC_TIME_RATIO	Systolic Time Ratio	STR	The ratio of the electrical and mechanical systole duration (PEP/LVET).	2::19544
Fluid Content, Thoracic | | Conductivity | ChestCavity, CVS	MDC_THORACIC_FLUID_CONTENT	Thoracic Fluid Content	TFC	The electrical conductivity of the chest cavity, which is primarily determined by the intravascular, intraalveolar and the interstitial fluids in the thorax.	2::19548
Duration | AorticValve, Opening to Closing | Flow | Aorta, CVS	MDC_TIME_PD_VENT_L_AORT_EJCT	Left Ventricular Ejection Time	LVET	The time interval from opening to the closing of the aortic valve (mechanical systole).	2::19552
Duration | Pre-Ejection | Flow | Aorta, CVS	MDC_TIME_PD_VENT_L_AORT_PRE_EJCT	Pre-Ejection Period	PEP	The time interval from the beginning of electrical stimulation of the ventricles to the opening of the aortic valve (electrical systole).	2::19556
Index, Velocity | BloodFlow, Peak | Flow | Aorta, CVS	MDC_VELOCITY_INDEX	Velocity Index	VI	Peak velocity of blood flow in the aorta.	2::19560
Index | PerSurfaceArea | StrokeVolume | LeftVentricle, CVS	MDC_VOL_BLD_STROKE_INDEX	Stroke Volume Index	p-SVI	Left-ventricular stroke volume per heart beat, normalized for body surface area.	2::19564
Index | | Work, PerMinute, PerSurfaceArea | LeftVentricle, CVS	MDC_WK_LV_WORK_INDEX	Left Ventricular Work Index (per minute)	LVWI	Work performed by the left ventricle of the heart to eject the stroke volume over one minute's time, normalized for body surface area.	2::19568

Table A.7.3.1—Nomenclature and codes for haemodynamic monitoring measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Index | | Work, PerStroke, PerSurfaceArea | LeftVentricle, CVS	MDC_WK_LV_STROKE_INDEX	Left Ventricular Stroke Work Index	LVSWI	Work of left ventricle of the heart in one cardiac cycle and related to body surface area (LVSW/BSA)	[2::18692]
Index | | Work, PerStroke, PerSurfaceArea | RightVentricle, CVS	MDC_WK_RV_STROKE_INDEX	Right Ventricular Stroke Work Index	RVSWI	Work of right ventricle of the heart in one cardiac cycle and related to body surface area (RVSW/BSA)	2::19572
Pressure | | Blood | FemoralArtery, CVS	MDC_PRESS_BLD_ART_FEMORAL	Femoral Artery Pressure	.	Pressure of the blood in the femoral artery.	2::19576
Pressure | Systolic | Blood | FemoralArtery, CVS	MDC_PRESS_BLD_ART_FEMORAL_SYS	Systolic Femoral Arterial Catheter Pressure	.	Systolic pressure of the blood in the femoral artery.	2::19577
Pressure | Diastolic | Blood | FemoralArtery, CVS	MDC_PRESS_BLD_ART_FEMORAL_DIA	Diastolic Femoral Arterial Catheter Pressure	.	Mean pressure of the blood in the femoral artery.	2::19578
Pressure | Mean | Blood | FemoralArtery, CVS	MDC_PRESS_BLD_ART_FEMORAL_MEAN	Mean Femoral Arterial Catheter Pressure	.	Diastolic pressure of the blood in the femoral artery.	2::19579
Flow | | Blood, PulmonaryCapillary | CVS	MDC_FLOW_BLD_PULM_CAP	Pulmonary Capillary Blood Flow	.	Flow of the blood in the pulmonary capillaries.	2::19580
Ratio, Concentration | arterial oxygen, inspired oxygen (PaO2/FiO2) | ArterialOxygen | Blood, CVS	MDC_O2_OXYGENATION_RATIO	Oxygenation Ratio	PaO_2/FiO_2, PFr	Oxygenation Ratio, calculated as the ratio of PaO2 (partial pressure of arterial oxygen) divided by FiO2 (the fractional of inspired oxygen, e.g. FiO2 in air = 0.21).	2::19584
Ratio, Concentration | arterial oxygen, inspired oxygen (PaO2/FiO2) | ArterialOxygen | Blood, CVS	MDC_SPO2_OXYGENATION_RATIO	SPO2 Oxygenation Ratio	SpO_2/FiO_2, SFr	Peripheral oxygen saturation level (of hemoglobin) to fraction of inspired oxygen ratio. Equation: 100*SpO2(%)/FiO2(%). Note: this calculated value may be considered invalid under certain conditions, e.g. SpO2 is not sufficiently correlated with PaO2.	2::19600
Volume | PerMinute | Blood | Left Ventricle, CVS, by Fick method	MDC_OUTPUT_CARDIAC_FICK	Cardiac Output	CO	Quantity of blood pumped by the left ventricle into the aorta per minute, specifically by using the Fick method	2::19588
Volume | Per Minute Per Body Surface Area | ConsumedOxygen | Blood, CVS	MDC_SAT_O2_CONSUMP_INDEX	(Estimated) O2 Consumption Index	.	Estimated O2 Consumption, normalized by body surface area	2::19592

Table A.7.3.1—Nomenclature and codes for haemodynamic monitoring measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Volume | Per Minute Per Body Surface Area | DeliveredOxygen | Blood, CVS	MDC_SAT_O2_DELIV_INDEX	(Estimated) O2 Delivery Index	.	Estimated O2 Delivery, normalized by body surface area	2::19596
Pressure | | Blood | FemoralVein, CVS	MDC_PRESS_BLD_VEN_FEMORAL	Femoral Venous Pressure	.	Pressure of the blood in the femoral vein.	2::19604
Pressure | | Blood | BrachialArtery, CVS	MDC_PRESS_BLD_ART_BRACHIAL	Brachial Arterial Pressure	.	Pressure of the blood in the brachial artery.	2::19608
Rate | Beats | Heart | CVS, transthoracic impedance	MDC_TTHOR_HEART_RATE	Heart rate by transthoracic impedance	HR	Heart rate obtained from the variation of transthoracic impedance.	2::18482
Rate | Beats | Heart | CVS, manual palpation	MDC_PALPATION_HEART_RATE	Heart rate by palpation	HR	Heart rate obtained from an artery that is close to the surface and a pulse can be felt. [The most common places to measure heart rate using palpation are at the wrist (radial artery) and the neck (carotid artery).]	2::18490

A.7.4 Nomenclature and codes for respiratory, ventilator and anesthesia measurements

Delete subclause A.7.4.6 and Table A.7.4.1 and renumber the subclauses and tables accordingly. Insert new subclauses at the end of subclause A.7.4 as shown. Include new figures and footnotes and renumber accordingly.

A.7.4.18 Gas concentration and partial pressure measurements

Two top-level vocabulary branches for gas concentration and partial pressure measurements are defined: MDC_CONC_AWAY for measurements typically obtained at the patient connector port and MDC_CONC_GASDLV for measurements obtained in the system supplying the gas to the patient, with or without a mechanical ventilator.[1,2] The vocabulary branch Reference ID prefix is followed by the gas identifier and measurement phase on the waveform, similar to convention previously established in ISO/IEEE 11073-10101:2004. Additional Reference ID conventions are described in Annex E.

The gas measurement site may be conveyed by a separate attribute in cases where additional precision is required.[3] The gas measurement sites for gas flow, pressure, volume, concentration and partial pressure measurements are enumerated in Table A.7.4.4 and are keyed to Figure A.7.4.1.

Default measurement sites are defined for three subsets of Reference IDs listed in Table A.7.4.5. In all other cases, the allowed measurement sites and default site location (if any) are specified as co-constraints by other standards and profiles.

Additional gas measurement sites and breathing circuit components are described in Annex F. These may be used to describe alternative and more complex configurations, including:

- ***open systems*** that have no reservoir and no rebreathing;
- ***semiopen systems*** that have a reservoir but no rebreathing;
- ***semiclosed systems*** that have a reservoir and partial rebreathing; and
- ***closed systems*** that have a reservoir and complete rebreathing.

The topology of the breathing circuit can be described using a sequence of the site and component identifiers that closely follows the overall flow of gas, starting at the fresh gas port and ending at one or more exhaust or scavenger ports.

[1] The MDC_CONC_AWAY_ Reference ID prefix is already defined in ISO/IEEE 11073-10101-2004 and has been extended to support additional gases. The Part::Code identifiers are enclosed in square braces […] to indicate that existing MDC_CONC_AWAY_ numeric codes are used for this set of terms.

[2] The new MDC_CONC_GASDLV_ prefix has been defined as a 'synonym' to the existing MDC_VENT_CONC_ Reference ID prefix. The Part::Code identifiers are enclosed in wavy braces {…} to indicate that existing MDC_VENT_CONC_ numeric codes are used for this set of terms.

[3] For example, the gas measurement site is conveyed by OBX-20 in an HL7 V2.6 message,.

Table A.7.4.4—Gas measurement sites

Reference ID	Key	Description	Part::Code
MDC_GAS_MSMT_SITE_NOS		not specified	7::2048
MDC_GAS_MSMT_SITE_AWAY	①	airway adaptor (patient connection port)	7::2049
MDC_GAS_MSMT_SITE_YPI	②	Y-piece patient interface (circle)	7::2050
MDC_GAS_MSMT_SITE_ETT	③	endotracheal tube	7::2051
MDC_GAS_MSMT_SITE_FGF	④	fresh gas flow	7::2052
MDC_GAS_MSMT_SITE_EXH	⑤	exhaust (or scavenger)	7::2053
MDC_GAS_MSMT_SITE_IL	⑥	inspiratory limb	7::2054
MDC_GAS_MSMT_SITE_EL	⑦	expiratory limb	7::2055
MDC_GAS_MSMT_SITE_RB	⑧	right bronchus	7::2058
MDC_GAS_MSMT_SITE_LB	⑨	left bronchus	7::2057
MDC_GAS_MSMT_SITE_PI		patient interface	7::2060
MDC_GAS_MSMT_SITE_ETTC		endotracheal tube, near the carina	7::2061

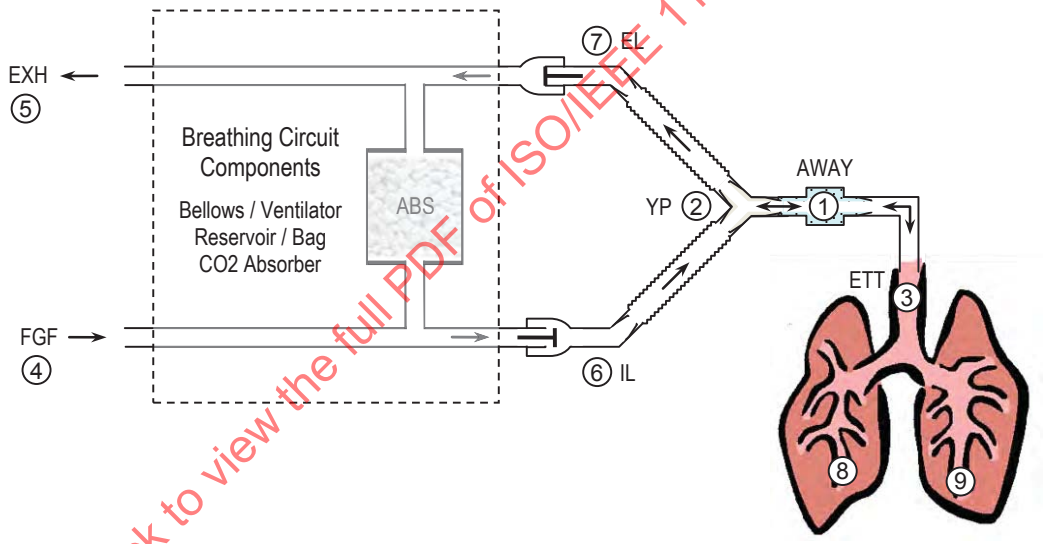

Figure A.7.4.1—Gas concentration and partial pressure measurement locations

Table A.7.4.5—Default gas measurement sites

Reference IDs that contain	Default gas measurement site	Description
_AWAY	MDC_GAS_MSMT_SITE_AWAY	patient connection port
MDC_CONC_GASDLV *and* _INSP	MDC_GAS_MSMT_SITE_IL	inspiratory limb during inspiratory phase
MDC_CONC_GASDLV *and* _EXP	MDC_GAS_MSMT_SITE_EL	expiratory limb during expiratory phase

A.7.4.19 Inspiratory breath type classification

In order to classify ventilator and patient interaction in response to a patient's breathing effort or an inflation delivered by the ventilator, the IEEE 11073 and ISO/TC121/SC4 Working Groups have defined a set of five observed breath-types: controlled, synchronized assisted, assisted, supported and unassisted. The five breath types and related precursor events are shown in Figure A.7.4.2.

Numeric observations such as breath rate, minute volume, and tidal volume reported by ventilators may be based on these breath types. In present-day ventilators, breaths are often classified either as spontaneous or mandatory. In an effort to provide clinicians, researchers and others with more specific data, the IEEE 11073 and ISO/TC121/SC4 Working Groups have defined more specific rate and volume observations (in this Standard and in ISO/CD 19223 [B2], respectively). Measurements qualified in this manner may be used to characterize the breathing patterns of the ventilated patient and obtain an indication of the degree of patient dependence on the ventilator. This Standard provides terms for both current use and in ISO 19223.

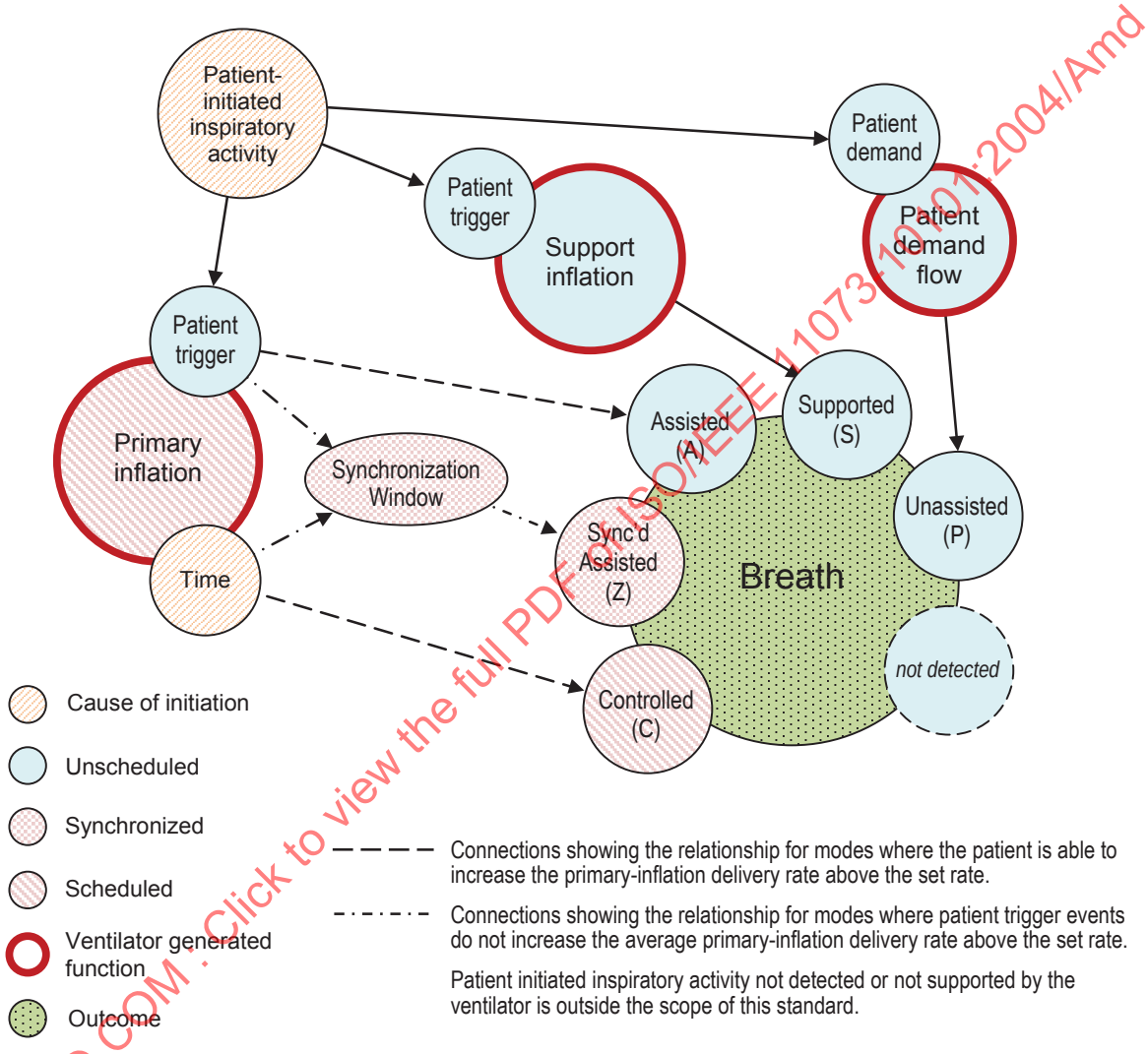

Figure A.7.4.2—Relationship between breaths and Inflations

The five breath type definitions are based the *initiation* of the breath (patient or ventilator) and its *intended delivery* – unassisted, *aka* **p**atient (P), **s**upport (S), **a**ssisted (A), synchron**z**ed assisted (Z) or **c**ontrolled (C). The five breath types are identified using the single-letter SD-codes { P, S, A, Z, C } that convey the start and intended delivery of the inspiratory phase of each breath or inflation. The SD-codes are defined in Table A.7.4.6.[4]

[4] SD-codes are *not* intended to provide a complete breath-by-breath description; instead, they focus primarily on the patient and ventilator synchronization implied by the words "spontaneous" and "mandatory" and concurrency of a patient (P) or support (S) breath with respect to an underlying assisted (A) or controlled (C) primary inflation.

Table A.7.4.6—Inspiratory breath type classifications

SD	SD description and examples
P	The ventilator performs no action on behalf of the patient: breaths or inspiratory gas flow are initiated and terminated by the patient where pressure and flow/volume delivery are determined by the patient without support or assistance by the ventilator. Includes unassisted breaths that are superimposed on the intermittently elevated baseline pressure with APRV, bilevel or spontaneous-only modes (see Note 1).
S	Ventilator inflations or inspiratory gas flow that are initiated by the patient and that are intended to be terminated by the patient where the inspiratory pressure is raised above baseline to support some portion of the work of breathing (WOB). Includes proportional assist ventilation (PAV) where the ventilator provides a level of support proportional to patient effort. Includes supported breaths that are superimposed on the intermittently elevated baseline pressure with APRV, bilevel or spontaneous-only modes.
A	Primary inflations that are initiated by the patient at greater than the set rate (see Note 2). The associated breaths are classified as having been assisted by the inflation.
Z	Primary inflations that have been assured to be delivered at the average set rate but which are initiated by the patient within a timed synchronization window. The associated breaths are classified as having had synchronized assistance by the inflation.
C	Primary inflations that are initiated by the ventilator at the set rate. The resulting breaths are classified as being controlled by the inflation. This includes backup ventilation breaths, apnea ventilation breaths and APRV and bilevel baseline pressure changes.
NOTE 1—APRV (Airway Pressure Relief Ventilation) or bilevel refer to ventilation modes where the baseline pressure is changed from time to time while allowing the patient to initiate either unassisted or supported breaths superimposed above the current baseline pressure level. NOTE 2—A *primary inflation* is a ventilator inflation type that has been selected for assured delivery at or greater than the set rate according to the selected mode. The selected inflation type will be one that is intended to be terminated by the ventilator if not initiated by the patient.	

The SD-codes { P, S, A, Z, C } provide a concise notation that can describe a subset of one or more inspiratory breath or inflation types that are included in a breath rate or other calculation. In a real-time setting this information can be sent immediately after the beginning of the inspiratory phase since the start and intended delivery information are known at that time.

The "concurrency" of unassisted and support breaths that are superimposed above a baseline or mandatory inspiratory phase (and expiratory phase) can be determined if the end of the inspiratory phase is reported at a later time. Annex D (informative) provides examples of how the SD-codes can be used to calculate a variety of breath rates when this information is known.

The five breath types { P, S, A, Z, C } are encoded using two REFID 'atoms': the first is '_BTSD', denoting 'Breath Type Start Delivery', and the second specifies one to five single-letter SD-codes { P, S, A, Z, C }. If a concurrency relationship between a P (patient breath) or S (support inflation) and an underlying A (assisted) or Z (synchronized assisted) or C (controlled) inflation is expressed, the P or S shall be prefaced by a lower-case 'i' to indicate the concurrency with respect to the underlying inspiratory phase of the A, Z or C inflation.

For example, using the base term MDC_VENT_RESP_RATE, the REFID for traditional 'spontaneous' breath rate is identified as MDC_VENT_RESP_BTSD_PS_RATE. Although legacy 'spontaneous' terms may be used when detailed { P, S, A, Z, C } information is not available, the newer '_BTSD' breath and inflation types should be used whenever possible. Additional breath rate examples and { P, S, A, Z, C } encodings are provided in Annex D.

A.7.4.20 Nomenclature and code table

This subclause defines nomenclature and code extensions for respiratory, ventilator and anesthesia measurements. It includes respiratory, ventilator and anesthesia terms that were originally defined in Table A.7.4.1 of IEEE Std 11073-10101-2004 as well as new terms defined since its publication.

This subclause also introduces several new conventions for REFID construction to support reporting of gas concentration and partial pressure and for supporting numeric observations such as breath rate, minute volume and tidal volume that are based on a subset of breath types. It also defines several new Reference ID 'synonyms' to support new conventions for their construction and to improve clarity.

This subclause also identifies terms from IEEE Std 11073-10101-2004 that are *not* recommended for new implementations, again with the goal of support a more systematic and contemporary treatment of ventilator terminology. For example, units-of-measure are assumed to be conveyed by a separate attribute, eliminating the need for separate observation identifiers for partial pressure (e.g., kPa or mm[Hg]) or concentration (% or {vol}%).

This subclause also introduces the _SETTING 'über-discriminator' convention. Gas setting identifiers are derived from the corresponding observation identifiers by appending '_SETTING' to the Reference ID and adding 0x01000000 to the Partition::Code. For example, the observed ventilator respiration rate is MDC_VENT_RESP_RATE [2::20514] and the corresponding setting is MDC_VENT_RESP_RATE_SETTING [258::20514], where the upper 16-bit partition value of 258 is 0x0100 + 2. This convention may be applied to any observation identifier in the SCADA partition.

The gas concentration and partial pressure measurement identifiers are summarized in Table A.7.4.7. Gases and volatile anesthetic agents are used to identify columns. The first seven rows indicate the physiologic and clinical role for each gas or agent. The lower group of 'MDC gas and phase' rows indicate the supported gas measurements that can be obtained at the patient airway (AWAY), the gas delivery system (GASDLV) and gas consumption over a single case or the total over multiple cases.

Table A.7.4.8 lists the nomenclature and codes for respiratory measurements, and includes all 'new' terms with a context free *Part::Code* (without braces) and 'existing' terms [*Part::Code*] and 'REFID-synonym' {*Part::Code*} terms, where braces indicate substantial equivalency to an existing *Part::Code* identifier.

NOTE—Per the editing instructions for subclause A.7.4, Table A.7.4.1 has been deleted and is replaced by Table A.7.4.8 that merges existing Table A.7.4.1 content with new content in a single comprehensive table. The following conventions were used to indicate the editing changes that were made to Table A.7.4.1 to create Table A.7.4.8:

- *Rows in Table A.7.4.8 that do not have a Part::Code that starts with '[' or '{' were **inserted** in the existing Table A.7.4.1.*
- *Rows in Table A.7.4.8 that have a Part::Code that starts with '[' **change** an existing Table A.7.4.1 row by using strikethrough (to remove old material) and underscore (to add new material).*
- *Rows in Table A.7.4.8 that have a Part::Code that starts with '{' were **inserted** in the existing Table A.7.4.1 as a Reference ID 'synonym' that may be used in lieu of an existing Reference ID having the same Part::Code. Although the existing Reference ID may be used, the newer Reference ID is preferred.*
- *Terms listed in Table A.7.4.10 are not recommended for future use; the mapping shown in Table A.7.4.9 should be used to convert an existing term to its equivalent term in Table A.7.4.8.*

Table A.7.4.7—Deployment of gas partial pressure and concentration and consumption information (informative)

Agents/Gases	Agent	Desflurane	Enflurane	Halothane	Isoflurane	Sevoflurane	N_2O	Xe	O_2	CO_2	Air	N_2	Ar	He	NO	NO_2	CO	Ethanol	CH_4
Volatile Agents	•	•	•	•	•	•													
MAC Gas	•	•	•	•	•	•	•	•											
Balance Gas							•	•	•		•	•	•	•					
Metabolically Useful									•	•									
Metabolically Consumed									•										
Metabolically Produced										•									
Unwanted Gas													•			•	•	•	•
MDC gas and phase																			
MDC_CONC_AWAY_*gas*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			
MDC_CONC_AWAY_*gas*_ET	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			
MDC_CONC_AWAY_*gas*_INSP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			
MDC_CONC_AWAY_*gas*_EXP		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			
MDC_CONC_GASDLV_*gas*		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			
MDC_CONC_GASDLV_*gas*_INSP		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			
MDC_CONC_GASDLV_*gas*_EXP		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓			
MDC_FLOW_*gas*_FG							✓		✓		✓								
MDC_PRESS_*gas*_SUPPLY							✓		✓		✓								
MDC_PRESS_*gas*_CYL							✓		✓[12]		✓								
MDC_VOL_DELIV_*gas*_CASE		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓								
MDC_VOL_DELIV_*gas*_TOTAL		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓								
MDC_VOL_DELIV_*gas*_LIQUID_CASE		✓	✓	✓	✓	✓													
MDC_VOL_DELIV_*gas*_LIQUID_TOTAL		✓	✓	✓	✓	✓													

Table A.7.4.8—Nomenclature and codes for respiratory measurements

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Respiratory Rates – method specific					
Rate | NOS | Breath | Breathing	MDC_RESP_RATE	Respiration rate	RR	Rate of breathing; method not specified	[2::20490]
Rate | | Breath | Patient, Spontaneous	MDC_RESP_SPONT_RATE	Spontaneous respiration rate (legacy devices and systems)	RR	Spontaneous respiration rate, the rate of breaths initiated and terminated by the patient where pressure and flow/volume delivery are determined by the patient without support or assistance by a ventilator. [This term may be used with legacy devices and systems where the precise definition of 'spontaneous' is unknown; otherwise, the more precise term MDC_RESP_BTSD_PS_RATE should be used.]	2::20594
Rate | | Breath | Patient, Spontaneous	MDC_RESP_BTSD_PS_RATE	Spontaneous respiration rate (preferred)	RR	Spontaneous respiration rate, the rate of breaths or inspiratory gas flow initiated by the patient where flow and/or volume is determined by the patient and are delivered with the intention that the breath will be terminated by the patient.	2::20602
Rate | Airway | Breath | Breathing	MDC_AWAY_RESP_RATE	Respiration rate	RR	Rate of breathing; method: direct airway flow measurement.	[2::20498]
Rate | Pressure | Breath | Breathing	MDC_PRESS_RESP_RATE	Respiration rate	RR	Rate of breathing; method: non-airway pressure measurement, e.g. central venous blood pressure (CVP).	[2::20530]
Rate | CO2 | Breath | Breathing	MDC_CO2_RESP_RATE	Respiration rate	RR	Rate of breathing; method: carbon dioxide measurement	[2::20522]
Rate | CO2 | Breath | Ventilator	MDC_VENT_CO2_RESP_RATE	Ventilation rate	.	Rate of mechanical ventilation; method: carbon dioxide concentration measurement. [This refers to the CO2 respiration rate measured by the ventilator and is not the set ventilator rate nor the ventilator inflation rate; it can include unassisted spontaneous breaths as well.]	[2::20538]
Rate | Acoustic | Breath | Breathing	MDC_ACOUSTIC_RESP_RATE	Acoustic Respiration Rate	RR-a	Rate of breathing; method: acoustic.	2::20578
Rate | Plethysmographic | Breath | Breathing	MDC_PULS_OXIM_PLETH_RESP_RATE	Plethysmographic Respiration Rate	RR-p	Rate of breathing; method: SpO2 plethysmography	2::20586
Rate | Transthoracic | Breath | Breathing	MDC_TTHOR_RESP_RATE	Respiration rate	RR	Rate of breathing; method: transthoracic impedance variations	[2::20506]
ElectricalImpedance | Transthoracic | Respiration | Breathing	MDC_IMPED_TTHOR	Transthoracic Impedance	Z0	Transthoracic measurement of electrical impedance (influenced by respiration and other factors)	[2::20708]
Ventilator Respiratory and Inflation Rates					
Rate | NOS | Breath | Ventilator	MDC_VENT_RESP_RATE	Ventilation rate	RR	Rate of mechanical ventilation; method not specified	[2::20514]
Rate | Displayed or Actual | Breath | Ventilator, Setting	MDC_VENT_RESP_RATE_SETTING	Set inflation rate	set RR	Displayed minimum and/or actual ventilator rate setting, may be mode dependent.	[258::20514]

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Rate | Minimum assured | Breath | Ventilator, Setting	MDC_VENT_RESP_RATE_MIN_SETTING	Minimum assured ventilation inflation rate setting	.	Minimum assured ventilator-initiated inflation rate, e.g. in continuous mandatory ventilation or assist/mandatory ventilation mode.	[258::20516]
Rate | Average | Breath | Ventilator, Setting	MDC_VENT_RESP_RATE_MEAN_SETTING *MDC_VENT_RESP_RATE_AVG_SETTING*	Average ventilation rate setting	.	Average ventilator-initiated inflation rate, e.g. in Synchronized Intermittent Mandatory Ventilation (SIMV) ventilation mode.	[258::20517]
Rate | Target, Calculated | Breath | Ventilator, all breath and inflation types	MDC_VENT_RESP_TARGET_AUTO_RATE	Target respiratory rate	target RR	The ventilator calculated target respiratory rate, typically used to achieve a desired minute volume or other objective.	2::21490
Rate | Backup | Breath | Ventilator	MDC_VENT_RESP_BACKUP_RATE	Backup ventilation rate	.	Minimum assured ventilation rate in modes that support spontaneous breaths	2::21410
Rate | Backup | Breath | Ventilator, Setting	MDC_VENT_RESP_BACKUP_RATE_SETTING	Backup ventilation rate setting	.	Apnea (backup) rate, e.g. in CSV mode.	258::21410
Rate | NOS | Breath | Ventilator and Patient, total breath rate, all breath types	MDC_VENT_RESP_BTSD_PSAZC_RATE	Total respiratory rate; total breath rate	.	Total rate of breaths or inspiratory gas flow comprised of unassisted (P), supported (S), assisted (A), synchronized assisted (Z) and controlled (C) breath types.	2::21418
Rate | NOS | Breath | Ventilator and Patient, patient-initiated breaths, unassisted by ventilator	MDC_VENT_RESP_BTSD_P_RATE	Unassisted spontaneous breath rate; respiration rate	.	Rate of breaths or inspiratory gas flow initiated and terminated by the patient where pressure and flow/volume delivery are determined by the patient without support or assistance by the ventilator. Includes unassisted breaths that are superimposed on the intermittently elevated baseline pressure with APRV, bilevel or spontaneous-only modes.	2::21426
Rate | NOS | Breath | Ventilator and Patient, patient-initiated breaths, delivered as supported breaths	MDC_VENT_RESP_BTSD_S_RATE	Supported breath rate	.	Rate of inflations or inspiratory gas flow initiated by the patient and that are intended to be terminated by the patient where the inspiratory pressure is raised above baseline to support some portion of the work of breathing (WOB). Includes proportional assist ventilation (PAV) where the ventilator provides a level of support proportional to patient effort. Includes supported breaths that are superimposed on the intermittently elevated baseline pressure with APRV, bilevel or spontaneous-only modes.	2::21434
Rate | NOS | Breath | Ventilator and Patient, patient-initiated primary inflations at a rate greater than set rate, delivered as assisted breaths	MDC_VENT_RESP_BTSD_A_RATE	Assisted breath rate	.	Rate of primary inflations initiated by the patient at greater than the set rate. The associated breaths are classified as having been assisted by the inflation.	2::21442

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Rate | NOS | Breath | Ventilator and Patient, patient-initiated primary inflations within a time synchronization widow, delivered as synchronized assisted breaths	MDC_VENT_RESP_BTSD_Z_RATE	Synchronized assisted breath rate	.	Rate of primary inflations that have been assured to be delivered at the average set rate but are initiated by the patient within a timed synchronization window. The associated breaths are classified as having had synchronized assistance by the inflation.	2::21450
Rate | NOS | Breath | Ventilator and Patient, primary inflations initiated by the ventilator at the set rate, delivered as controlled breaths	MDC_VENT_RESP_BTSD_C_RATE	Controlled breath rate	.	Rate of primary inflations that are initiated by the ventilator at the set rate. These breaths are classified as being controlled by the inflation. This includes backup safety breaths, apnea ventilation breaths and APRV and bilevel baseline pressure changes.	2::21458
Rate | NOS | Breath | Ventilator and Patient, unassisted and supported breaths	MDC_VENT_RESP_BTSD_PS_RATE	Spontaneous respiration rate (traditional)	.	Rate of breaths or inspiratory gas flow initiated by the patient where flow and/or volume is determined by the patient and is delivered with the intention that the breath will be terminated by the patient. Includes unassisted and supported breaths that are superimposed on the intermittently elevated baseline pressure with APRV, bilevel or spontaneous-only modes.	2::21466
Rate | NOS | Breath | Ventilator and Patient, delivered as assisted, synchronized assisted or controlled breaths by ventilator.	MDC_VENT_RESP_BTSD_AZC_RATE	Mandatory respiration rate (traditional)	.	Rate of breaths or inspiratory gas flow that are delivered as assisted, synchronized assisted or controlled breaths by the ventilator, at an average or minimum rate set by the ventilator.	2::21474
Rate | NOS | Breath | Ventilator and Patient, patient-initiated breaths, unassisted or delivered as supported, assisted or synchronized assisted breaths.	MDC_VENT_RESP_BTSD_PSAZ_RATE	Patient-initiated breath rate	.	Rate of breaths or inspiratory gas flow initiated by the patient that are unassisted or delivered as supported, assisted or synchronized assisted breaths.	2::21482
Rate | Volume/Flow | Breath | Ventilator	MDC_VENT_FLOW_RESP_RATE	Ventilation rate	.	Rate of mechanical ventilation, method: volume/flow relation (comment: pediatric)	[2::20554]
Rate | Pressure | Breath | Ventilator	MDC_VENT_PRESS_RESP_RATE	Ventilation rate	.	Rate of mechanical ventilation; method: pressure measurement	[2::20546]
Rate | | SighMultiple | Ventilator	MDC_VENT_SIGH_MULT_RATE	Ventilation multiple sigh number	.	Number of multiple sighs delivered per minute during mechanical ventilation	[2::20570]
Rate | | Sigh | Ventilator	MDC_VENT_SIGH_RATE	Ventilation sigh number	.	Number of sighs delivered per minute during mechanical ventilation	[2::20562]
Phase and Time Intervals					
Duration | Inspiratory Phase | Gas | Breath	MDC_TIME_PD_INSP	Inspiratory time	Tinsp	Duration of an inspiratory phase	2::21536
Duration | Expiratory Phase | Gas | Breath	MDC_TIME_PD_EXP	Expiratory time	Texp	Duration of an expiratory phase	2::21540
Duration | Inspiratory phase | Inflation | Ventilator	MDC_VENT_TIME_PD_INSP *MDC_VENT_TIME_PD_PPV*	Inspiratory time	Tinsp	Duration of the inflation phase if time-terminated	[2::21344]

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Duration | Inspiratory phase | Inflation | Ventilator, Setting	MDC_VENT_TIME_PD_INSP_SETTING	Inspiratory time setting	.	.	[258::21344]
Duration, ratio | Inspiratory phase, total respiratory period | Inflation | Ventilator	MDC_VENT_TIME_PD_INSP_PERCENT	Inspiratory time percent	Tinsp %	Duration of the inflation phase if time-terminated, expressed as a percent-ratio of the total respiratory period	2::21532
Duration, ratio | Inspiratory phase, total respiratory period | Inflation | Ventilator, Setting	MDC_VENT_TIME_PD_INSP_PERCENT_SETTING	Inspiratory time percent setting	.	.	258::21532
Duration, maximum | Inspiratory phase | Inflation | Ventilator, Setting	MDC_VENT_TIME_PD_INSP_MAX_SETTING	Maximum inspiratory time setting	.	The maximum inspiratory time to deliver a pressure-controlled or operator-set tidal volume inflation.	[258::21345]
Duration | Inspiratory phase | Inflation, Backup | Ventilator	MDC_VENT_TIME_PD_INSP_BACKUP	Backup inspiratory time	Backup Tinsp	The duration of the inspiratory phase for controlled (primary) inflations when a backup inflation is delivered.	2::21544
Duration | Inspiratory phase | Inflation, Backup | Ventilator, Setting	MDC_VENT_TIME_PD_INSP_BACKUP_SETTING	Backup inspiratory time setting		.	258::21544
Duration, maximum | Inspiratory phase | Pressure support inflation | Ventilator	MDC_VENT_TIME_PD_SUPP_MAX	Maximum pressure support time	Tsupp (maximum)	The maximum inspiratory time for a pressure-supported breath.	2::21549
Duration, maximum | Inspiratory phase | Pressure support inflation | Ventilator, Setting	MDC_VENT_TIME_PD_SUPP_MAX_SETTING	.	.	.	258::21549
Duration | Inspiratory pause | end inspiratory flow to start expiratory flow | Ventilator	MDC_VENT_TIME_PD_INSP_PAUSE	.	Tpause	Interval from the end of inspiratory flow to the start of expiratory flow during unassisted spontaneous breathing and pressure-regulated inflations, expressed as a time duration.	2::21552
Duration | Inspiratory pause | end inspiratory flow to start expiratory flow | Ventilator, Setting	MDC_VENT_TIME_PD_INSP_PAUSE_SETTING	.	.	Interval from the end of inspiratory flow to the start of expiratory flow during volume-control (VC) inflations, expressed as a time duration.	258::21552
Duration, ratio | Inspiratory pause, inspiratory phase | end inspiratory flow to start expiratory flow | Ventilator	MDC_VENT_TIME_PD_INSP_PAUSE_PERCENT	.	Tpause%	Interval from the end of inspiratory flow to the start of expiratory flow during unassisted spontaneous breathing and pressure-regulated inflations, expressed as a percentage of the duration of the inspiratory phase.	2::21556
Duration, ratio | Inspiratory pause, inspiratory phase | end inspiratory flow to start expiratory flow | Ventilator, Setting	MDC_VENT_TIME_PD_INSP_PAUSE_PERCENT_SETTING	.	.	Interval from the end of inspiratory flow to the start of expiratory flow during volume-control (VC) inflations, expressed as a percentage of the duration of the inspiratory phase.	258::21556
Duration | Expiratory pause | end expiratory flow to start inspiratory flow | Ventilator	MDC_VENT_TIME_PD_EXP_PAUSE	.	.	Duration of the expiratory phase from the end of expiratory flow to the start of inspiratory flow	2::20612

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Duration | Inspiratory hold | temporarily maintain constant lung volume (zero flow) at end inspiratory or inflation phase | Ventilator	MDC_VENT_TIME_PD_INSP_HOLD	.	Thold	The duration of an inspiratory hold, a ventilator function intended to temporarily maintain a constant lung volume, or to maintain a constant airway pressure, at the end of an inspiratory or inflation phase.	2::21560
Duration | Inspiratory hold | temporarily maintain constant lung volume (zero flow) at end inspiratory or inflation phase | Ventilator, Setting	MDC_VENT_TIME_PD_INSP_HOLD_SETTING	.	.	.	258::21560
Duration | Expiratory hold | temporarily maintain constant lung volume (zero flow) at set extension of the expiratory phase | Ventilator	MDC_VENT_TIME_PD_EXP_HOLD	.	.	Duration for an expiratory hold, a ventilator function intended to temporarily maintain a constant lung volume during a set extension of the expiratory phase.	2::21564
Duration | Expiratory hold | temporarily maintain constant lung volume (zero flow) at set extension of the expiratory phase | Ventilator, Setting	MDC_VENT_TIME_PD_EXP_HOLD_SETTING	.	.	.	258::21564
Ratio | Duration(InspiratoryPhase), Duration(ExpiratoryPhase) | Gas | Breathing	MDC_RATIO_IE	Ratio inspiration expiration time	T_I/T_E, I:E ratio	Ratio of durations of inspiratory and expiratory phases	[2::20760]
Ratio | Duration(InspiratoryPhase), Duration(ExpiratoryPhase) | Gas | Ventilator, Setting	MDC_RATIO_IE_SETTING	.	.	.	[258::20760]
Ratio, Duration | InspiratoryTime, TotalRespiratoryCycleTime | Flow | Gas, Airway	MDC_RATIO_INSP	Inspiratory Percent	.	Inspiratory time divided by the total respiratory cycle time, expressed as a percent.	2::21568
Duration | High baseline pressure | APRV or Bi-Level modes | Ventilator	MDC_VENT_TIME_PD_INSP_THIGH	Thigh	Thigh	The time duration that the ventilator holds the high (inspiratory) baseline pressure level in APRV or Bi-Level modes.	2::21572
Duration | High baseline pressure | APRV or Bi-Level modes | Ventilator, Setting	MDC_VENT_TIME_PD_INSP_THIGH_SETTING	.		.	258::21572
Duration | Low baseline pressure | APRV or Bi-Level modes | Ventilator	MDC_VENT_TIME_PD_EXP_TLOW	Tlow	Tlow	The time duration that the ventilator holds the low (expiratory) baseline pressure level in APRV or Bi-Level modes.	2::21576
Duration | Low baseline pressure | APRV or Bi-Level modes | Ventilator, Setting	MDC_VENT_TIME_PD_EXP_TLOW_SETTING	.	.	.	258::21576
Airway Measured Flow					
Flow | | Gas | Breathing	MDC_FLOW_AWAY	Airway flow	$\dot{V}$	Gas flow in airway	[2::20692]
Flow | Expiration | Gas	MDC_FLOW_AWAY_EXP	Expiratory airway	$\dot{V}_E$	Expiratory gas flow	[2::20696]

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Flow | Expiration, Maximum | Gas	MDC_FLOW_AWAY_EXP_MAX	Expiratory maximum airway flow	$\dot{V}_{E\,max}$	Maximum expiratory gas flow	[2::20697]
Flow | Gas | Airway | Inspiratory	MDC_FLOW_AWAY_INSP	Inspiratory airway flow	$\dot{V}_{I}$	Inspiratory gas flow in airway	[2::20700]
Flow | Inspiratory, Maximum | Gas	MDC_FLOW_AWAY_INSP_MAX	Inspiratory maximum airway flow	$\dot{V}_{I\,max}$	Maximum inspiratory gas flow	[2::20701]
Ventilator Measured Flow and Settings					
Flow | | Gas | Ventilator	MDC_VENT_FLOW	Ventilator airway flow	$\dot{V}$	Airway flow measured at the ventilator	[2::20868]
Flow | Expiration | Gas | Ventilator	MDC_VENT_FLOW_EXP	Ventilation expiratory flow	$\dot{V}_{E}$, Flow exp	Expiratory gas flow during mechanical ventilation	[2::20872]
Flow | Expiration, Maximum | Gas | Ventilator	MDC_VENT_FLOW_EXP_MAX	Ventilation expiratory maximum flow	$\dot{V}_{E\,max}$, Flow exp max	Maximum expiratory gas flow during mechanical ventilation	[2::20873]
Flow | Inspiration | Gas | Ventilator	MDC_VENT_FLOW_INSP	Ventilation inspiratory flow	$\dot{V}_{I}$, Flow insp	Inspiratory gas flow in airway during mechanical ventilation	[2::20876]
Flow | Inspiration | Gas | Ventilator, Setting	MDC_VENT_FLOW_INSP_SETTING	Inspiratory flow setting		.	[258::20876]
Flow | Inspiration, Maximum | Gas | Ventilator	MDC_VENT_FLOW_INSP_MAX	Ventilation inspiratory maximum flow	$\dot{V}_{I\,max}$, Flow insp max	Maximum inspiratory gas flow during mechanical ventilation	[2::20877]
Flow | Bias | Gas | Ventilator	MDC_VENT_FLOW_BIAS	Bias flow	Bias flow	The continuous flow that is circulated through the patient circuit but is not intended to contribute to the work of ventilation. Generally refers to a low-level flow that improves the responsiveness and accuracy of the ventilator's control and detection systems and to minimize rebreathing of expired gas.	2::21580
Flow | Bias | Gas | Ventilator, Setting	MDC_VENT_FLOW_BIAS_SETTING	.	.	.	258::21580
Flow | Continuous | Gas | Ventilator	MDC_VENT_FLOW_CONTINUOUS	Continuous flow		A continuous flow that passes through the ventilator breathing system, with a proportion intermittently passing to the patient's lung (e.g. whenever the airway pressure is raised by a pressure-controlled occlusion of the expiratory valve).	2::21584
Flow | Continuous | Gas | Ventilator, Setting	MDC_VENT_FLOW_CONTINUOUS_SETTING	.	.	.	258::21584
Tidal volume (airway and ventilator)					
Volume gas | | Lung, Tidal | Breathing	MDC_VOL_AWAY_TIDAL	Respiratory tidal volume	VT	Volume of gas leaving the patient through the patient connection port during an expiratory phase.	[2::20796]

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Volume gas per body mass | | Lung, Tidal | Breathing	MDC_VOL_AWAY_TIDAL_PER_IBW	Tidal volume per body mass	VT/kg	Volume of gas leaving the patient through the patient connection port, normalized by the patient's ideal body weight (*typ* kg), reported individually or as an average for all breath types.	2::22136
	MDC_VOL_AWAY_TIDAL_PER_IBW_SETTING		set VT/kg		258::22316
Volume | | Lung, Tidal, Inspiratory Phase | airway, per breath (breath type not specified; default = any)	MDC_VOL_AWAY_TIDAL_INSP	Inspired Tidal Volume	VTinsp	Volume of inspired gas during each breath, breath type(s) not specified.	2::21588
Volume | | Lung, Tidal, Expiratory Phase | airway, per breath (breath type not specified; default = any)	MDC_VOL_AWAY_TIDAL_EXP	Expired Tidal Volume	VTexp	Volume of expired gas for each breath, breath type(s) not specified. [This term may be used with legacy devices and systems where the breath types are unknown; otherwise, the more precise term MDC_VOL_AWAY_TIDAL_EXP_BTSD_PSAZC should be used.]	2::21592
Volume | | Lung, Tidal, Expiratory Phase | airway, per breath, all breath and inflation types.	MDC_VOL_AWAY_TIDAL_EXP_BTSD_PSAZC	Expired Tidal Volume (for all breath types)	VTexp	Volume of expired gas for all breath and inflation types, reported individually or as an average.	2::21600
Volume per BodyMass | | Lung, Tidal, Expiratory Phase | airway, per breath, all breath and inflation types.	MDC_VOL_AWAY_TIDAL_EXP_BTSD_PSAZC_PER_IBW *MDC_VOL_AWAY_TIDAL_EXP_PER_IBW*	Expired Tidal Volume per body mass (for all breath types)	VTexp/kg	Volume of expired gas for all breath and inflation types, normalized by the patient's ideal body weight (*typ* kg), reported individually or as an average.	2::21596
Volume | | Lung, Tidal, Expiratory Phase | airway, per unassisted or supported breath	MDC_VOL_AWAY_TIDAL_EXP_BTSD_PS	Expired Tidal Volume for unassisted or supported (*aka* spontaneous) breaths	VTexp spont	Volume of expired gas for unassisted or supported (*aka* spontaneous) breaths.	2::21604
Volume per BodyMass | | Lung, Tidal, Expiratory Phase | airway, per unassisted or supported breath	MDC_VOL_AWAY_TIDAL_EXP_BTSD_PS_PER_IBW	Expired Tidal Volume for unassisted or supported (*aka* spontaneous) breaths per body mass	VTexp/kg spont	Volume of expired gas for unassisted or supported (*aka* spontaneous) breaths, normalized by the patient's ideal body weight (*typ* kg).	2::21612
Volume | | Lung, Tidal, Expiratory Phase | airway, per assisted, synchronized assisted or controlled inflation	MDC_VOL_AWAY_TIDAL_EXP_BTSD_AZC	Expired Tidal Volume for assisted, synchronized assisted or controlled (*aka* mandatory) breaths	VTexp mand	Volume of expired gas for assisted, synchronized assisted or controlled (*aka* mandatory) breaths.	2::21608
Volume | | Lung, Tidal | Ventilator	MDC_VENT_VOL_TIDAL	Ventilation tidal volume	VT	Volume of gas delivered through the patient-connection port during a respiratory cycle	[2::20908]
Volume | | Lung, Tidal | Ventilator, Setting	MDC_VENT_VOL_TIDAL_SETTING	Tidal volume setting	set VT		[258::20908]
Volume | Target, Calculated | Lung, Tidal | Ventilator, all breath and inflation types	MDC_VENT_VOL_TIDAL_TARGET_AUTO	Target tidal volume	target VT	The ventilator calculated target volume of gas delivered to the patient.	2::22140
Volume | | Lung, Tidal, Inflation, Backup | Ventilator	MDC_VENT_VOL_TIDAL_BACKUP	Backup tidal volume	Backup VT	The volume of gas delivered to the patient when a backup inflation is delivered.	2::22144
Volume | | Lung, Tidal, Inflation, Backup | Ventilator, Setting	MDC_VENT_VOL_TIDAL_BACKUP_SETTING	Backup tidal volume setting		.	258::22144

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Volume | | Lung, Tidal, Inspiratory Phase | Ventilator	MDC_VENT_VOL_TIDAL_INSP	Inspired tidal volume (vent)	VTinsp (vent)	Volume of inspired gas during ventilator inflations.	2::22148
Volume | | Lung, Tidal, Inspiratory Phase | Ventilator, Setting	MDC_VENT_VOL_TIDAL_INSP_SETTING	Inspired tidal volume setting	set VTinsp	.	258::22148
Volume, minimum | | Lung, Tidal, Inspiratory Phase | Ventilator, Setting	MDC_VENT_VOL_TIDAL_INSP_MIN_SETTING	Minimum inspired tidal volume setting	set min VTinsp	Minimum volume of inspired gas during ventilator inflations.	258::22150
Minute volume (airway and ventilator, units = volume/minute)					
Flow | OneMinute | Gas | Breathing	MDC_VOL_MINUTE_AWAY	Minute volume	$\dot{V}$, MV	Total volume of gas breathed in 1 min	[2::20808]
Flow | OneMinute, Inspiratory | Gas	MDC_VOL_MINUTE_AWAY_INSP	Inspiratory Minute volume	$\dot{V}_I$, MVinsp	Volume of gas per minute entering the patient's airway during inspiratory phases	[2::20816]
Flow | OneMinute, Expired | Gas	MDC_VOL_MINUTE_AWAY_EXP	Expired Minute volume	$\dot{V}_E$, MVexp	Volume of gas per minute leaving the patient's airway during expiratory phases. [This term may be used with legacy devices and systems where the breath types are unknown; otherwise, the more precise term MDC_VOL_MINUTE_AWAY_EXP_BTSD_PSAZC should be used.]	[2::20812]
Flow | OneMinute | Lung, Tidal, Expiratory Phase | airway, total for all breath and inflation types	MDC_VOL_MINUTE_AWAY_EXP_BTSD_PSAZC	Expired minute volume (total for all breath types)	$\dot{V}_E$, MVexp	Volume of expired gas per minute for all breath and inflation types (total).	2::21620
Flow per BodyMass | OneMinute | Lung, Tidal, Expiratory Phase | airway, total for all breath and inflation types.	MDC_VOL_MINUTE_AWAY_EXP_BTSD_PSAZC_PER_IBW *MDC_VOL_MINUTE_AWAY_EXP_PER_IBW*	Expired minute volume per body mass	$\dot{V}_E$ /kg, MVexp/kg	Volume of expired gas per minute leaving the patient's airway, normalized by the patient's ideal body weight (*typ* kg), all breath and inflation types.	2::21616
Flow | OneMinute | Lung, Tidal, Expiratory Phase | airway, for unassisted or supported breaths	MDC_VOL_MINUTE_AWAY_EXP_BTSD_PS	Expired Minute volume for unassisted or supported (*aka* spontaneous) breaths	$\dot{V}_{E\ spont}$, MVexp spont	Volume of expired gas per minute for unassisted or supported (*aka* spontaneous) breaths.	2::21624
Flow per BodyMass | OneMinute | Lung, Tidal, Expiratory Phase | airway, for unassisted or supported breaths	MDC_VOL_MINUTE_AWAY_EXP_BTSD_PS_PER_IBW	Expired Minute volume for unassisted or supported (*aka* spontaneous) breaths per body mass	$\dot{V}_{E\ spont}$ /kg, MVexp/kg spont	Volume of expired gas per minute for unassisted or supported (*aka* spontaneous) breaths, normalized by the patient's ideal body weight (*typ* kg).	2::21632
Flow | OneMinute | Lung, Tidal, Expiratory Phase | airway, per assisted, synchronized assisted or controlled inflations	MDC_VOL_MINUTE_AWAY_EXP_BTSD_AZC	Expired Minute volume for assisted or controlled (*aka* mandatory) inflations	$\dot{V}_{E\ mand}$, MVexp mand	Volume of expired gas per minute for assisted, synchronized assisted or controlled (*aka* mandatory) breaths.	2::21628
Flow | OneMinute, Inspiration and Expiration | Gas | Ventilator	MDC_VENT_VOL_MINUTE	Inspiratory or expiratory minute volume.	$\dot{V}$, MV	Volume of gas per minute passing in to or out of the patient's airway during inspiratory or expiratory phases, respectively.	[2::20924]
Flow | OneMinute | Gas | Ventilator	MDC_VENT_VOL_MINUTE_AWAY	Ventilation minute volume	$\dot{V}$, MV	Total volume of gas delivered by ventilator during mechanical ventilation	[2::20936]

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Flow | OneMinute | Gas | Ventilator, Setting	MDC_VENT_VOL_MINUTE_AWAY_SETTING	.	set MV	.	[258::20936]
Flow | OneMinute, Inspiration | Gas | Ventilator	MDC_VENT_VOL_MINUTE_AWAY_INSP	Inspiratory minute volume	$\dot{V}_I$, MVinsp	Volume of gas per minute passing in to the patient's airway during inspiratory phases.	[2::20944]
Flow | OneMinute, Mandatory | Gas | Ventilator	MDC_VENT_VOL_MINUTE_AWAY_MAND	Mandatory Minute volume	MMV	Minimum volume of gas delivered in 1 min during mechanical and spontaneous respiration	[2::20940]
Flow | OneMinute, Mandatory | Gas | Ventilator, Setting	MDC_VENT_VOL_MINUTE_AWAY_MAND_SETTING	.	.	.	[258::20940]
Flow | OneMinute, Expiration | Gas | Ventilator	MDC_VENT_VOL_MINUTE_EXP	Expired minute volume	$\dot{V}_E$, MVexp	Volume of gas per minute exhaled by the patient.	[2::20928]
Flow | OneMinute, Inspiration | Gas | Ventilator	MDC_VENT_VOL_MINUTE_INSP	Ventilation inspiratory minute volume	$\dot{V}_I$, MVinsp	Total volume of gas breathed in during 1 min during mechanical ventilation	[2::20932]
Volume | Leakage | Ventilation | Ventilator	MDC_VENT_VOL_LEAK	Leakage volume	.	Volume of gas lost per minute by leakage in ventilation system, tubing, connectors, etc.	[2::21360]
Ratio | Leakage (inspired-expired, inspired) | Ventilation | Ventilator	MDC_VENT_VOL_LEAK_PERCENT	Leakage volume, percent	.	Relative volume of gas lost per minute by leakage in ventilation system, tubing, connectors, etc. calculated as the difference between inspired and expired volume, relative to inspired volume, expressed as a percentage.	2::22152
Minute Volume (Adaptive Support Ventilation: Reference, Percentage and Target Minute Volume)					
Flow | MinuteVolume, reference value based on ideal body mass | Lung, Tidal | airway, total for all breath and inflation types	MDC_VOL_MINUTE_AWAY_IBW_REF	Reference minute volume calculated for the patient's ideal body mass	100% MinVol	The reference minute volume calculated for the patient, based on the patient's ideal body weight *Example: 5 L/min*	2::22156
Percent | MinuteVolume, desired percentage value relative to reference value based on ideal body mass | Lung, Tidal | airway, total for all breath and inflation types	MDC_VOL_MINUTE_AWAY_IBW_PCTOF_REF_SETTING	Percentage of the reference minute volume calculated for the patient's ideal body mass	set %MinVol	The percentage of the reference minute volume (calculated for the patient based on the patient's ideal body weight) set by the clinician. *Example: 80% (of reference)*	258::22160
Flow | MinuteVolume, target value | Lung, Tidal | airway, total for all breath and inflation types	MDC_VOL_MINUTE_AWAY_IBW_TARGET	Target Minute Volume	MinVol (target)	The calculated target minute volume, the product of reference minute volume and the percentage set by the clinician. *Example: 80% * 5 L/min = 4 L/min*	2::22164
Other volumes					
Flow, integral | | Gas | Airway	MDC_VOL_AWAY			Integral flow of gas in airway, typically as a waveform or spirometry waveform segment	2::21636
Volume | | Lung, DeadSpace | RespiratoryTract	MDC_VOL_AWAY_DEADSP	Airway dead space	VD	Volume of gas in airway per breath not involved in respiratory gas exchange with no ventilator and no airway device. It includes both alveolar and anatomical dead space.	[2::20800]

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Ratio | DeadspaceVolume, TidalVolume | RespiratoryTract | Breathing	MDC_RATIO_AWAY_DEADSP_TIDAL	Dead space tidal volume ratio	VD/VT	Ratio of dead space in respiratory tract to tidal volume	[2::20764]
Volume | | Lung, VitalCapacity | LungStructure	MDC_CAPAC_VITAL	Vital capacity	VC	Difference in volume between maximum inspiration and maximum expiration	[2::20608]
Volume | | DeadSpace | Ventilator	MDC_VENT_VOL_AWAY_DEADSP	Ventilation dead space	VD	Volume of gas in airway per breath during mechanical ventilation not involved in respiratory exchange	[2::20912]
Ratio | DeadspaceVolume, TidalVolume | RespiratoryTract | Ventilator	MDC_VENT_VOL_AWAY_DEADSP_REL	Ventilation relative dead space	VD/VT	Ratio of dead space to tidal volume during mechanical ventilation.	[2::20916]
Volume | | Lung, Alveolar | RespiratoryTract	MDC_VENT_VOL_LUNG_ALV	Alveolar ventilation	AV	Volume of gas exchanged per breath in alveoli; difference between tidal volume and dead space	[2::21364]
Flow, OneMinute | | Lung, Alveolar | RespiratoryTract	MDC_VENT_VOL_MINUTE_LUNG_ALV	Alveolar minute ventilation	A$\dot{V}$, $\dot{V}_{alv}$	Volume of gas exchanged per minute in alveoli; difference between tidal volume and dead space	2::22168
Volume | | Lung, Trapped | Ventilator	MDC_VENT_VOL_LUNG_TRAPD	Trapped volume	CV	Volume of gas remaining in lung at end of expiration	[2::20920]
Airway and other pressures					
Pressure | | Gas | Airway	MDC_PRESS_AWAY	Airway pressure	PAW	Pressure of gas in airway	[2::20720]
Pressure | Maximum | Gas | Airway	MDC_PRESS_AWAY_MAX	Maximum airway pressure	Ppeak	Peak pressure of gas in airway	[2::20721]
Pressure | Mean | Gas | Airway	MDC_PRESS_AWAY_MEAN	Mean airway pressure		Average pressure of gas in airway	[2::20723]
Pressure | Continuous, Positive | Gas | Airway	MDC_PRESS_AWAY_CTS_POS	CPAP pressure	CPAP	Continuous pressure in airway during spontaneous respiration	[2::20724]
Pressure | Expiration | Gas | Airway	MDC_PRESS_AWAY_EXP	Expiratory airway pressure	PE	Pressure of gas in airway during expiration	[2::20740]
Pressure | Expiration, Maximum | Gas | Airway	MDC_PRESS_AWAY_EXP_MAX	Maximum expiratory airway pressure	PE max	Maximum pressure of gas in airway during expiration	[2::20741]
Pressure | Expiration, Minimum | Gas | Airway	MDC_PRESS_AWAY_EXP_MIN	Minimum expiratory airway pressure	PE min	Minimum airway pressure at any point during an expiratory phase before end expiration if less than end expiratory pressure	[2::20742]
Pressure | Inspiration | Gas | Airway	MDC_PRESS_AWAY_INSP	Inspiratory airway pressure	PI	Pressure of gas in airway during inspiration	[2::20744]
Pressure | Inspiration, Maximum | Gas | Airway	MDC_PRESS_AWAY_INSP_MAX	Maximum inspiratory airway pressure (peak inspiratory pressure)	PIP	Maximum pressure of gas in airway during inspiration	[2::20745]
Pressure | Inspiration, Mean | Gas | Airway	MDC_PRESS_AWAY_INSP_MEAN	Mean inspiratory airway pressure	PI mean	Mean pressure of gas in airway during inspiration	[2::20747]
Pressure | Inspiration, Minimum | Gas | Airway	MDC_PRESS_AWAY_INSP_MIN	Minimum inspiratory airway pressure	PI min	Minimum pressure of gas in airway during inspiration	[2::20746]
Pressure | Inspiration, End | Gas | Airway	MDC_PRESS_AWAY_INSP_END	End inspiratory pressure	EIP	Pressure of gas in airway measured at the end of the inspiratory phase (this may be coincident with the peak inspiratory pressure or the plateau pressure and thus may have the same value as either).	2::21640
Pressure | Intrapleural | Respiration | Breathing	MDC_PRESS_INTRAPL	Intrapleural Respiratory Pressure	PPL	Pressure in intrapleural space during breathing	[2::20752]

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Pressure | Esophageal | Respiration | Breathing	MDC_PRESS_ESOPH	Esophageal pressure	POES, Pes	Pressure measured in the esophagus	[2::20748]
Pressure | Gastric | Respiration | Breathing	MDC_PRESS_GASTRIC	Gastric pressure	Pga	Pressure measured in the stomach	2::22172
Pressure difference | Transpulmonary | Respiration | Breathing	MDC_PRESS_TRANSPULM	Transpulmonary pressure (difference)		The measured or estimated difference between the alveolar pressure and the intrapleural pressure.	2::22176
Pressure | Cuff, Endotracheal | Respiration | Breathing	MDC_PRESS_ETT_CUFF	Endotracheal cuff pressure		The pressure of the balloon that seals the endotracheal tube.	2::22180
Pressure | Cuff, Endotracheal | End-exhalation | Breathing	MDC_PRESS_ETT_CUFF_END_EXH	Endotracheal cuff pressure at the end of exhalation		The pressure of the balloon that seals the endotracheal tube at the end of exhalation.	2::22184
Ventilator and airway pressures					
Pressure | | Gas | Ventilator	MDC_VENT_PRESS	Ventilator pressure	PAW	Airway pressure during mechanical ventilation	[2::20884]
Pressure | Maximum | Gas | Ventilator	MDC_VENT_PRESS_MAX	Maximum ventilation pressure	PAW max	Maximum airway pressure during mechanical ventilation	[2::20885]
Pressure | Minimum | Gas | Ventilator	MDC_VENT_PRESS_MIN	Minimum ventilation pressure	PAW min	Minimum airway pressure during mechanical ventilation	[2::20886]
Pressure | | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY	Inspiratory airway pressure	Pinsp	Airway pressure, primarily during an inspiratory phase	[2::20900]
Pressure, maximum | | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_MAX	.	Pinsp max	Maximum inspiratory airway pressure	[2::20901]
Pressure, minimum | | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_MIN	.	Pinsp min	Minimum inspiratory airway pressure	[2::20902]
Pressure, mean | | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_MEAN	.	Pinsp mean	Mean inspiratory airway pressure	[2::20903]
Pressure | | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_SETTING	.	set Pinsp	Inspiratory airway pressure setting.	[258::20900]
Pressure, baseline | | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_BASELINE	Baseline airway pressure	BAP	Baseline airway pressure	2::21644
Pressure, baseline | | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_BASELINE_SETTING	.	set BAP	.	258::21644
Pressure, delta relative to baseline | | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_DELTA	Inspiratory airway pressure relative to PEEP or BAP	Δ Pinsp	Inspiratory airway pressure relative to PEEP or BAP.	2::21648
Pressure, delta relative to baseline | | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_DELTA_SETTING	.	set Δ Pinsp		258::21648
Pressure | Inspiratory phase | Inflation, Backup | Ventilator, Airway	MDC_VENT_PRESS_AWAY_BACKUP	Backup inspiratory airway pressure	backup Pinsp	The inspiratory airway pressure for controlled (primary) inflations when a backup inflation is delivered.	2::21652
Pressure | Inspiratory phase | Inflation, Backup | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_BACKUP_SETTING	.	.	.	258::21652

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Pressure, delta relative to baseline | Inspiratory phase | Inflation, Backup | Ventilator, Airway	MDC_VENT_PRESS_AWAY_DELTA_BACKUP	Backup inspiratory airway pressure relative to PEEP or BAP	backup Δ Pinsp	The inspiratory airway pressure relative to PEEP or BAP for controlled (primary) inflations when a backup inflation is delivered.	2::21656
Pressure, delta relative to baseline | Inspiratory phase | Inflation, Backup | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_DELTA_BACKUP_SETTING	.	.	.	258::21656
Pressure | Inspiratory phase | Pressure support inflation | Ventilator, Airway	MDC_VENT_PRESS_AWAY_SUPP	Pressure for support inflations	Psupp	The inspiratory airway pressure for pressure support inflations.	2::21660
Pressure | Inspiratory phase | Pressure support inflation | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_SUPP_SETTING	.	.	.	258::21660
Pressure, delta relative to baseline | Inspiratory phase | Pressure support inflation | Ventilator, Airway	MDC_VENT_PRESS_AWAY_DELTA_SUPP	Delta pressure for support inflations	Δ Psupp	The inspiratory airway pressure relative to PEEP or BAP for pressure support inflations.	2::21664
Pressure, delta relative to baseline | Inspiratory phase | Pressure support inflation | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_DELTA_SUPP_SETTING	.	.	.	258::21664
Pressure | High baseline pressure | APRV or Bi-Level modes | Ventilator, Airway	MDC_VENT_PRESS_AWAY_INSP_PHIGH	High pressure	Phigh	The high (inspiratory) pressure level for APRV or Bi-Level modes.	2::21668
Pressure | High baseline pressure | APRV or Bi-Level modes | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_INSP_PHIGH_SETTING	.	.	.	258::21668
Pressure | Low baseline pressure | APRV or Bi-Level modes | Ventilator, Airway	MDC_VENT_PRESS_AWAY_EXP_PLOW	Low pressure	Plow	The low (expiratory) pressure level for APRV or Bi-Level modes.	2::21672
Pressure | Low baseline pressure | APRV or Bi-Level modes | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_EXP_PLOW_SETTING	.	.	.	258::21672
Pressure Limits					
Pressure, limit | without cycling | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_LIMIT	Pressure limit	Plimit	The pressure at which the breath is limited and held for the remaining inspiratory time in a volume-controlled breath.	2::21676
Pressure, limit | without cycling | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_LIMIT_SETTING	.	.	.	258::21676
Pressure, maximum limit | with cycling | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_LIMIT_PMAX	Maximum pressure High pressure limit	Pmax	The maximum pressure allowed in the patient breathing circuit. Once reached, the inspiratory phase ends, and the ventilator immediately begins the expiratory phase.	2::21680
Pressure, maximum limit | with cycling | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_LIMIT_PMAX_SETTING	.	.	.	258::21680
Pressure, protective relief limit | | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_LIMIT_RELIEF	High pressure relief limit	Prelief	Threshold value at which a protection device prevents any further rise in the airway pressure	2::21684

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Pressure, protective relief limit | | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_LIMIT_RELIEF_SETTING	.	.	.	258::21684
Pressure, minimum limit | | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_LIMIT_PMIN	Minimum pressure	Pmin	The minimum target pressure limit.	2::21688
Pressure, minimum limit | | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_LIMIT_PMIN_SETTING	.	.	.	258::21688
Pressure, delta relative to baseline, minimum limit | | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_DELTA_LIMIT_PMIN	Minimum delta pressure	Δ Pmin	The minimum target pressure limit relative to PEEP or BAP.	2::21692
Pressure, delta relative to baseline, minimum limit | | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_DELTA_LIMIT_PMIN_SETTING	.	.	.	258::21692
Pressure risetimes					
Duration, pressure, risetime | controlled inflations | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_RISETIME_CTLD	Rise time	Rise time	The time for pressure to reach a preset fraction of the set inspiratory pressure for controlled inflations.	2::21696
Duration, pressure, risetime | controlled inflations | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_RISETIME_CTLD_SETTING	.	.	.	258::21696
Duration, ratio, pressure, risetime | controlled inflations | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_RISETIME_CTLD_PERCENT	Rise time percent	% Rise time	The time for pressure to reach a preset fraction of the set inspiratory pressure for controlled inflations, expressed as a percentage of the duration of the inspiratory phase.	2::22188
Duration, ratio, pressure, risetime | controlled inflations | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_RISETIME_CTLD_PERCENT_SETTING	.	.	.	258::22188
Duration, pressure, risetime | support inflations | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_RISETIME_SUPP	Pressure support rise time	PS rise time	The time for pressure to reach a preset fraction of the set inspiratory pressure for support breaths.	2::21700
Duration, pressure, risetime | support inflations | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_RISETIME_SUPP_SETTING	.	.	.	258::21700
Duration, ratio, pressure, risetime | support inflations | Gas | Ventilator, Airway	MDC_VENT_PRESS_AWAY_RISETIME_SUPP_PERCENT	Pressure support rise time percent	% PS rise time	The time for pressure to reach a preset fraction of the set inspiratory pressure for support breaths, expressed as a percentage of the duration of the inspiratory phase	2::22192
Duration, ratio, pressure, risetime | support inflations | Gas | Ventilator, Airway, Setting	MDC_VENT_PRESS_AWAY_RISETIME_SUPP_PERCENT_SETTING	.	.	.	258::22196
Plateau pressure					
Pressure | Plateau | Gas | Airway	MDC_PRESS_RESP_PLAT *MDC_PRESS_RESP_PLAT_STATIC*	Plateau pressure	.	Airway pressure during an inspiratory-hold procedure or during a flow pause in a pressure control inflation	[2::20712]

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Pressure | Plateau | Gas | Airway, Dynamic	MDC_PRESS_RESP_PLAT_DYNAMIC	Dynamic Plateau Pressure	.	The estimated airway pressure that would have occurred during an inspiratory-hold or during a flow pause in a pressure control inflation.	2::21704
Pressure | Pause | Gas | Airway	MDC_PRESS_RESP_PAUSE	Respiratory Pause pressure	.	Pressure in airway during pause between expiration and inspiration	[2::20716]
Pressure | Plateau | Gas | Ventilator	MDC_VENT_PRESS_RESP_PLAT	Ventilation plateau pressure	.	Pressure in airway in plateau phase during mechanical ventilation	[2::21352]
Pressure | Occlusion, Airway | Gas | Ventilator	MDC_VENT_PRESS_OCCL	Ventilation occlusion pressure	.	The negative airway pressure generated when briefly occluded during inspiration	[2::20892]
Pressure | Occlusion, 100 ms, Airway | Gas | Ventilator	MDC_VENT_PRESS_OCCL_P100MS	Ventilation occlusion pressure, P0.1 (100 ms)	P0.1	The negative airway pressure generated during the first 100 ms of an occluded inspiration	2::21708
Pressure | Occlusion, NIF maneuver, Airway | Gas | Ventilator	MDC_VENT_PRESS_OCCL_NIF	Negative Inspiratory Force (NIF)	NIF	The maximum negative airway pressure generated during an occluded inspiration arising from a Negative Inspiratory Force (NIF) maneuver	2::21712
Resistance and compliance					
Resistance | | Airway | Breathing	MDC_RES_AWAY	Airway Resistance	RAW	Resistance to gas flow within the airway	[2::20768]
Resistance | Expiration | Airway | Breathing	MDC_RES_AWAY_EXP	Expiratory Airway Resistance	REAW	Resistance to gas flow in airway during expiration	[2::20772]
Resistance | Inspiration | Airway | Breathing	MDC_RES_AWAY_INSP	Inspiratory Airway Resistance	RIAW	Resistance to gas flow within the airway during inspiration	[2::20776]
Resistance | Dynamic, Least Squares | Airway | Breathing	MDC_RES_AWAY_DYNAMIC	Dynamic airway resistance	R_{dyn}	Resistance to gas flow within the airway, dynamically calculated using a least squares or other curve fitting algorithm where airway resistance and lung compliance are related by the "equation of motion" $\Delta P_i = R_{dyn} \dot{V}_i + V_i/C_{dyn} + PEEP_{tot}$,	2::21524
Compliance | | Alveoli | LungStructure	MDC_COMPL_LUNG	Compliance of respiratory system	C TH+L	Change of tidal volume per unit change of airway pressure	[2::20616]
Compliance | Dynamic | Alveoli, Pleura | LungStructure	MDC_COMPL_LUNG_DYN	Thoracic compliance	C TH	Change of tidal volume per unit change of transthoracic pressure	[2::20620]
Compliance | Static | Alveoli, Pleura | LungStructure	MDC_COMPL_LUNG_STATIC	Lung compliance, static	C L	Change of tidal volume per unit change in esophageal pressure measured statically at expiration end	[2::20624]
Compliance | Dynamic, Least Squares | Alveoli | LungStructure	MDC_COMPL_LUNG_DYNAMIC	Dynamic compliance	C_{dyn}	Change of tidal volume per unit change of airway pressure, dynamically calculated using a least squares or other curve fitting algorithm where airway resistance and lung compliance are related by the "equation of motion" $\Delta P_i = R_{dyn} \dot{V}_i + V_i/C_{dyn} + PEEP_{tot}$,	2::21528

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
PEEP					
Pressure | End-expiratory, Extrinsic | Gas | Ventilator	MDC_PRESS_AWAY_END_EXP_POS *MDC_PRESS_AWAY_END_EXP_POS_EXTRINSIC*	Extrinsic PEEP (positive end expiratory pressure), applied	PEEPe	Positive end expiratory pressure applied to the airway.	[2::20732]
Pressure | End-expiratory, Extrinsic | Gas | Ventilator, Setting	MDC_PRESS_AWAY_END_EXP_POS_SETTING	.	.	Positive end expiratory pressure applied to the airway during spontaneous breathing, e.g. by an expiratory valve on the breathing circuit.	[258::20732]
Pressure | End-expiratory, Intrinsic | Gas | Airway	MDC_PRESS_AWAY_END_EXP_POS_INTRINSIC	Intrinsic PEEP (aka Auto PEEP)	PEEPi	The component of alveolar pressure in the lungs above extrinsic PEEP due to physiologic causes at the end of expiration.	[2::20736]
Pressure | End-expiratory, Total | Gas | Lungs	MDC_PRESS_AWAY_END_EXP_POS_TOTAL	Total PEEP	PEEPe+i	The sum of the extrinsic PEEPe and intrinsic PEEPi, representing the total pressure in the lungs at the end of expiration.	2::21716
Pressure | End-expiratory, Extrinsic, Dynamic | Gas | Airway	MDC_PRESS_AWAY_END_EXP_POS_EXTRINSIC_DYNAMIC	Dynamic extrinsic PEEP	PEEPe, dyn	Dynamic extrinsic PEEP, the minimum pressure at or near the end of expiration, reflecting the set PEEP from the ventilator.	2::21720
Pressure | End-expiratory, Intrinsic, Dynamic | Gas | Airway	MDC_PRESS_AWAY_END_EXP_POS_INTRINSIC_DYNAMIC	Dynamic intrinsic PEEP	PEEPi, dyn	Dynamic intrinsic PEEP, obtained during the short period between expiratory valve closure and flow arriving at the patient.	2::21724
Pressure | End-expiratory, Total, Dynamic | Gas | Airway	MDC_PRESS_AWAY_END_EXP_POS_TOTAL_DYNAMIC	Dynamic total PEEP	PEEPe+i, dyn	Dynamic total PEEP, obtained during the short period between expiratory valve closure and flow arriving at the patient.	2::21728
Pressure | End-expiratory, Applied | Gas | Ventilator	MDC_VENT_PRESS_AWAY_END_EXP_POS	Applied PEEP	PEEP	Positive end expiratory pressure applied to the airway.	[2::20904]
Pressure | End-expiratory, Applied | Gas | Ventilator (setting)	MDC_VENT_PRESS_AWAY_END_EXP_POS_SETTING	Set PEEP	set PEEP	Positive end expiratory pressure applied to the airway by the ventilator during expiratory phase.	[258::20904]
Apnea					
Duration | | Apnea | Breathing	MDC_TIME_PD_APNEA	Apnea Duration	A	Duration of apnea - no flow measured	[2::20784]
.	MDC_TIME_PD_APNEA_SETTING	Apnea alarm duration setting	.	.	[258::20784]
Duration | | Apnea, Central | Breathing	MDC_TIME_PD_APNEA_CENT	Central Apnea Duration	CA	Duration of apnea - no flow and no respiratory effort	[2::20788]
Duration | | Apnea, Mixed | Breathing	MDC_TIME_PD_APNEA_MIX	Mixed Apnea Duration	MA	Duration of apnea with central and obstructive components	[2::20792]
Duration | | Apnea, Obstructive | Breathing	MDC_TIME_PD_APNEA_OBSTRUC	Obstructive Apnea Duration	OA	Duration of apnea due to airway obstruction	[2::20780]
Patient-ventilator synchronization					
Pressure | | TriggerSensitivity, start inspiration | Ventilator	MDC_VENT_PRESS_TRIG_SENS	Ventilator pressure trigger sensitivity	.	Sensitivity of trigger in ventilator; a pressure value, for triggering an inflation.	[2::21356]
.	MDC_VENT_PRESS_TRIG_SENS_SETTING	.	.	.	[258::21356]
Flow | | TriggerSensitivity, start inspiration | Ventilator	MDC_VENT_FLOW_TRIG_SENS	Ventilator flow trigger sensitivity	.	Sensitivity of trigger in ventilator; a flow value, for triggering an inflation.	2::21732
.	MDC_VENT_FLOW_TRIG_SENS_SETTING	.	.	.	258::21732

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Flow, ratio, percent | | TriggerThreshold, end inspiration | Ventilator	MDC_VENT_FLOW_THRESH_END_INSP	Ventilator end-inspiratory flow threshold		Flow threshold in ventilator to end the inspiratory phase, expressed as a flow value.	2::21736
	MDC_VENT_FLOW_THRESH_END_INSP_SETTING				258::21736
Flow, ratio, percent | | TriggerThreshold, end inspiration | Ventilator	MDC_VENT_FLOW_THRESH_END_INSP_PERCENT	% Ventilator end-inspiratory flow threshold		Flow threshold in ventilator to end the inspiratory phase, expressed as a percentage of peak inspiratory flow.	2::22200
	MDC_VENT_FLOW_THRESH_END_INSP_PERCENT_SETTING				258::22200
Metabolics					
Energy, expended | per unit time | Metabolic, Indirect Calorimetry based on gas exchange | Patient	MDC_RESP_EXPENDED_ENERGY	Expended Energy	.	Expended energy measurement (or estimate) using indirect calorimetry based on O2 consumption and CO2 production by patient, measured over a period of time.	2::21740
Ratio | Flow(ExpiredCO2), Flow(O2used) | Gas | RespiratoryProcess	MDC_QUO_RESP	Respiratory quotient	RQ	Ratio of carbon dioxide expired to oxygen used	[2::20756]
Flow | Consumption | O2, Gas | Breathing	MDC_FLOW_O2_CONSUMP	O2 Consumption	$\dot{V}\,O_2$	The volume of oxygen a patient inhales (consumes) per minute.	[2::21348]
Flow per BodyMass | Consumption | O2, Gas | Breathing	MDC_FLOW_O2_CONSUMP_PER_IBW	O2 Consumption per body mass (*typ* kg)	$\dot{V}\,O_2$ /kg	The volume of oxygen a patient inhales (consumes) per minute, normalized by the patient's ideal body weight (*typ* kg).	2::21744
Flow per BodySurfaceArea | Consumption | O2, Gas | Breathing	MDC_FLOW_O2_CONSUMP_PER_BSA	O2 Consumption per body surface area (*typ* m^2)	$\dot{V}\,O_2$ /m^2	The volume of oxygen a patient inhales (consumes) per minute, normalized by patient body surface area (*typ* m^2).	2::21748
Flow | Production | CO2, Gas | Breathing	MDC_FLOW_CO2_PROD_RESP	CO2 Production	$\dot{V}\,CO_2$	Rate of production of carbon dioxide, measured by expired carbon dioxide in airway per unit time (*typ* /min)	[2::20704]
Flow per BodyMass | Production | CO2, Gas | Breathing	MDC_FLOW_CO2_PROD_RESP_PER_IBW	CO2 Production per body mass (*typ* kg)	$\dot{V}\,CO_2$ /kg	Rate of production of carbon dioxide, measured by expired carbon dioxide in airway per unit time (*typ* /min), normalized by the patient's ideal body weight (*typ* kg).	2::21752
Flow per BodySurfaceArea | Production | CO2, Gas | Breathing	MDC_FLOW_CO2_PROD_RESP_PER_BSA	CO2 Production per body surface area (*typ* m^2)	$\dot{V}\,CO_2$ /m^2	Rate of production of carbon dioxide, measured by expired carbon dioxide in airway per unit time (*typ* /min), normalized by patient body surface area (*typ* m^2).	2::21756

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Work of Breathing (WOB)					
Work of breathing, expended by patient (intrinsic) | per breath, volume or time | Resistive and Elastic | Breathing	MDC_WORK_OF_BREATHING_PATIENT	Work of breathing (intrinsic)	WOBp, WOB	The work expended by the patient over one or more inspiratory and expiratory cycles. Includes the physiologic resistive and elastic components of work and *may* exclude the work done by stored potential energy of the lung compliance overcoming airway resistance and tissue movement resistance during expiration. The preferred calculation method is based on the Campbell diagram in which lung volume on the ordinate is plotted against the pleural or esophageal pressure on the abscissa and does *not* include the additional work WOBi imposed on the patient by the breathing apparatus. Can be expressed as work per breath, work per unit volume, work per unit time (power) or work per unit volume per body mass.[1]	2::22204
Work of breathing, expended by patient | per breath, volume or time | Resistive | Breathing	MDC_WORK_OF_BREATHING_PATIENT_RESISTIVE	Work of breathing - resistive	WOBpr	The resistive component of the work of breathing by the patient, using principles based on the Campbell diagram.	2::22208
Work of breathing, expended by patient | per breath, volume or time | Elastic | Breathing	MDC_WORK_OF_BREATHING_PATIENT_ELASTIC	Work of breathing - elastic	WOBpe	The elastic component of the work of breathing by the patient, using principles based on Campbell diagram.	2::22212
Work of breathing, expended by ventilator and applied to patient | per breath, volume or time | Resistive and Elastic | Inflations and breathing	MDC_WORK_OF_BREATHING_VENTILATOR	Work of breathing - ventilator	WOBv	The work of breathing expended by the ventilator and applied to the patient over one or more inspiratory/inflation and expiratory cycles, calculated or estimated relative to the patient airway adaptor, endotracheal tube, endotracheal tube tip near the carina or other measurement site.[2]	2::22216
Work of breathing, expended by ventilator or patient and lost to breathing apparatus (extrinsic) | per breath, volume or time | Resistive	MDC_WORK_OF_BREATHING_IMPOSED	Imposed work of breathing (extrinsic)	WOBi	The additional resistive work imposed on the patient by the breathing apparatus (endotracheal tube, breathing circuit, humidifier, demand valves and exhalation valves) *including* reductions due to tube compensation, calculated or estimated relative to the patient airway adaptor, endotracheal tube, endotracheal tube tip near the carina or other measurement site.	2::22220

[1] The patient work of breathing (WOB_p) can be expressed as the sum of its two principal components, resistive (WOB_{pr}) and elastic (WOB_{pe}).

[2] The total work of breathing (WOB_{total}) can be calculated as the sum of the patient work of breathing (WOB_p) and the ventilator work of breathing (WOB_v).

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Inspiratory Pressure-time Product (PTP)					
Pressure · time product | per breath or per unit time for multiple breaths | Exertion by patient | Breathing, inspiratory phase	MDC_PRESS_TIME_PRODUCT_INSP	Inspiratory pressure-time product	PTP, PTPinsp	The integral of the transdiaphragmatic pressure (Peso – Pga) over the time interval between the start of the inspiratory effort and the end of the inspiratory phase of a respiratory cycle. Reflects the exertion of the respiratory muscles during inspiration. PTP can be expressed per breath or per unit time for multiple breaths.	2::22224
Tube Compensation					
Level, reduction of patient work of breathing | Percent of full tube compensation | Endotracheal or tracheal | Breathing, patient	MDC_VENT_TUBE_COMPENSATION_LEVEL	Tube compensation, Automatic tube compensation	TC, ATC	Endotracheal or tracheal tube compensation level, expressed as a percent from 0 (off) to 100 (full compensation) relative to level estimated by the ventilator based on tube type and size. Compensation method not specified.	2::22228
Type, tube | | Endotracheal or tracheal	MDC_VENT_TUBE_TYPE	Tube type		Tube type, endotracheal or tracheal.	2::22232
Size, tube | | Endotracheal or tracheal | diameter, inside	MDC_VENT_TUBE_SIZE	Tube size		Tube size (inside diameter) in millimeters.	2::22236
Miscellaneous					
Barometric Pressure | | Atmospheric	MDC_PRESS_BAROMETRIC	Barometric Pressure	.	Barometric (atmospheric) air pressure	2::21760
Barometric Pressure | | Ambient, immediate patient environment	MDC_PRESS_AIR_AMBIENT	Ambient Pressure	.	Ambient (immediate patient environment) air pressure	2::21764
Fraction | Cardiac output not exposed to ventilated alveoli relative to total cardiac output | | Blood, CVS	MDC_BLD_SHUNT_FRACTION	(Estimated) Blood Shunt Fraction	Qs/Qt	The (estimated) fraction of cardiac output that returns to the left heart without the benefit of exposure to ventilated alveoli.	2::21768
Difference, Oxygen Content | Arterial - Venous | Blood | Blood, CVS	MDC_CONC_PO2_ART_VEN_DIFF	(Estimated) Arterial-Venous O2 Content Difference	a-vO_2 diff	The (estimated) difference in the oxygen content of the blood between the arterial blood and the venous blood.	2::21772
Concentration | Partial Pressure, pCO2 | Blood, Pulmonary Artery | Fluid Chemistry	MDC_CONC_PCO2_ART_PULM	Pulmonary Arterial pCO2	.	Partial pressure of CO2 in the pulmonary artery	2::21776
Index, Resistance | PerSurfaceArea | Flow | PulmonaryBlood, CVS	MDC_RES_VASC_PULM_INDEX	Pulmonary Vascular Resistance Index	PVRI	Pulmonary Vascular Resistance Index, normalized with respect to body surface area	2::21780
Ratio | Flow(AlveolarVentilation), Flow(Perfusion) | LungStructure | Breathing	MDC_VENT_FLOW_RATIO_PERF_ALV_INDEX	Ventilation-perfusion index	$\dot{V}/\dot{Q}$	Ratio of alveolar ventilation and gas component to pulmonary capillary blood flow	[2::20880]
Index | Ratio (FlowDifference, PressureDifference) | GasTransport | LungStructure	MDC_COEF_GAS_TRAN	Gas transport coefficient	D	Coefficient relating partial pressures of gas between alveoli and pulmonary capillaries	[2::20948]
Concentration | Difference(Inspiration, Expiration) | Substance, Gas | Ventilator	MDC_VENT_CONC_SUBST_DELTA	Diff. inspired and expired substance conc. (ventilator)	.	Difference in substance concentration between inspiration and expiration during mechanical ventilation	[2::21008]

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Ratio, Oxygen Quantity | ConsumedOxygen, DeliveredOxygen | Blood, CVS	MDC_O2_EXTRACTION_RATIO	(Estimated) Oxygen Extraction Ratio	OER	The (estimated) ratio (fraction) of oxygen that is consumed divided by the oxygen that is delivered.	2::21784
Index | Ratio (SpontBreathRate, TidalVolume) OneMinute | Gas | Breathing	MDC_RESP_RAPID_SHALLOW_BREATHING_INDEX	Rapid Shallow Breathing Index	RSBI	The rapid shallow breathing index (RSBI) is calculated by dividing the spontaneous breath rate by the tidal volume, averaged over one minute.	2::21788
Duration | TimeConstant | Inspiratory phase | Breath, Calculation	MDC_RESP_TIME_CONSTANT_INSP	Inspiratory time constant	RCinsp, τ_I	The product of the inspiratory airway resistance and static compliance.	2::22240
Duration | TimeConstant | Expiratory phase | Breath, passive deflation	MDC_RESP_TIME_CONSTANT_EXP	Expiratory time constant	RCexp, τ_E	The time needed for the lungs to passively deflate by a certain amount or a percentage of volume. 1 x RCexp: 63% of volume to be exhaled. 2 x RCexp: 86% of volume to be exhaled. 3 x RCexp: 95% of volume to be exhaled. 4 x RCexp: 98% of volume to be exhaled.	2::22244
Ventilator Mode					
Mode | | VentilationMode | Ventilator	MDC_VENT_MODE	Ventilation mode	.	Selected mode of ventilator	[2::53280]
Mode | | BreathingMode | Respiration	MDC_VENT_MODE_RESP_SPONT	Respiration mode	.	Selected mode of respirator	[2::53281]
Mode | | VentilationMode, Backup | Ventilator	MDC_VENT_MODE_BACKUP	Backup ventilation mode	.	Selected backup mode of ventilator	2::53328
Agents and Gases					
Concentration, sum of ratios | Minimum Alveolar Concentration | anesthetic gas	MDC_CONC_MAC_SUM	MAC sum	MAC sum	Sum of the Minimum Alveolar Concentration for anesthetic gas and N2O	2::21792
Concentration, sum of ratios | Minimum Alveolar Concentration, Age Corrected | anesthetic gas	MDC_CONC_MAC_SUM_AGE_CORR	MAC age-corrected sum	MAC age	Age corrected sum of the Minimum Alveolar Concentration for anesthetic gas and N2O	2::21796
Ratio, Concentration | Relative to anesthetic needed to prevent movement in 50% patients | Volatile Anesthetic Agent | Alveolar	MDC_CONC_MAC	Mean Aveolar Concentration	MAC	Mean Aveolar Concentration, expressed as a percentage relative to the needed to prevent movement (motor response) in 50% of subjects in response to surgical (pain) stimulus.	2::21800
Flow | | Air, Gas	MDC_FLOW_AIR_FG	Fresh air flow	.	Flow of Air component of Fresh Gas	2::21804
Volume | Case, Delivered | Air, Gas	MDC_VOL_DELIV_AIR_CASE	Air delivered during a case	.	Volume (gas) of air delivered during a case, to a single patient during a single procedure.	2::21808
Volume | Total, Delivered | Air, Gas	MDC_VOL_DELIV_AIR_TOTAL	Total air delivered	.	Total volume (gas) of air delivered (potentially across multiple cases)	2::21812
Pressure | Supply, pipeline | Air, Gas	MDC_PRESS_AIR_SUPPLY	Air supply (pipeline) pressure		Air supply (pipeline) pressure	2::21816
Pressure | Cylinder | Air, Gas	MDC_PRESS_AIR_CYL	Air cylinder pressure		Air cylinder pressure	2::21820
Volume | SinceStartInspiration | Gas | Breathing	MDC_VOL_GAS_INSP_SINCE_START	Volume since start inspiration	V	Ventilated gas volume since start of inspiration (waveform)	[2::20804]

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Gas identification and selection					
Identity | | Agent(s), Gas | Airway	MDC_GASDLV_AGENT	Anesthetic agent(s)	Agent ID	The identity of volatile anesthetic agents that have been detected and/or are known to be present in airway gas during inspiration and/or inflation.	2::53332
Identity | | Agent(s), Gas | Airway, Setting or selection	MDC_GASDLV_AGENT_SETTING			The identity of volatile anesthetic agents based on user selection of vaporizer and/or cassette.	258::53332
Identity | | Balance Gas(es), Gas | Airway	MDC_GASDLV_BALANCE_GAS	Balance Gas	Balance Gas	The identity of the balance (carrier) gases that have been detected and/or are known to be present in airway gas during inspiration and/or inflation.	2::53333
Identity | | Balance Gas(es), Gas | Airway, Setting or selection	MDC_GASDLV_BALANCE_GAS_SETTING			The identity of the balance (carrier) gases based on user selection.	258::53333
Gas concentrations and partial pressures					
Concentration | | Agent, Gas | Airway	MDC_CONC_AWAY_AGENT	Concentration airway agent	%Agent	Concentration of agent in airway gas	[2::21384]
Concentration | EndTidal | Agent, Gas | Airway	MDC_CONC_AWAY_AGENT_ET	Concentration airway agent end tidal	.	Concentration of agent in airway gas measured at the end of expiration	[2::21388]
Concentration | Inspiration | Agent, Gas | Airway	MDC_CONC_AWAY_AGENT_INSP	Concentration airway agent inspiration	.	Concentration of agent in airway gas measured in inspiration	[2::21392]
Concentration | PartialPressure | Desflurane, Gas | Airway	MDC_CONC_AWAY_DESFL	Concentration (or partial pressure) of desflurane in airway gas	%Desfluran e	Measured partial pressure of desflurane in airway gas	[2::20952]
Concentration | PartialPressure, End Tidal | Desflurane, Gas | Airway	MDC_CONC_AWAY_DESFL_ET	End tidal desflurane concentration (or partial pressure) in airway gas	.	Partial pressure of desflurane in airway gas measured at the end of expiration	[2::21012]
.	MDC_CONC_AWAY_DESFL_ET_SETTING	.	.	.	[258::21012]
Concentration | PartialPressure, Expiration | Desflurane, Gas | Airway	MDC_CONC_AWAY_DESFL_EXP	Expired desflurane concentration (or partial pressure) in airway gas	.	Partial pressure of desflurane in airway gas measured during expiration	[2::21040]
Concentration | PartialPressure, Inspiration | Desflurane, Gas | Airway	MDC_CONC_AWAY_DESFL_INSP	Inspiratory desflurane concentration (or partial pressure) in airway gas		Partial pressure of desflurane in airway gas measured during inspiration	[2::21096]
Concentration | Partial Pressure | Desflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_DESFL	Concentration desflurane (gas delivery system or circuit)	.	Concentration of desflurane in airway gas in the system or circuit conducting gas to and from the patient	{2::20980}
Concentration | Partial Pressure, Expiration | Desflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_DESFL_EXP	Concentration airway desflurane expiratory (gas delivery system or circuit)	.	Concentration of desflurane in airway gas measured during expiration in the system or circuit conducting gas from the patient	{2::21068}
Concentration | Partial Pressure, Inspiration | Desflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_DESFL_INSP	Concentration airway desflurane inspiratory (gas delivery system or circuit)	.	Concentration of desflurane in airway gas measured during inspiration in the system or circuit conducting gas to the patient	{2::21128}
.	MDC_CONC_GASDLV_DESFL_INSP_SETTING	.	.	.	{258::21128}

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Volume | Case, Delivered | Desflurane, Gas	MDC_VOL_DELIV_DESFL_CASE	Desflurane gas delivered during a case	.	Volume of desflurane gas delivered during a case, to a single patient during a single procedure.	2::21824
Volume | Case, Delivered | Desflurane, Liquid	MDC_VOL_DELIV_DESFL_LIQUID_CASE	Desflurane liquid delivered during a case	.	Volume (liquid) of desflurane delivered during a case, to a single patient during a single procedure.	2::21828
Volume | Total, Delivered | Desflurane, Liquid	MDC_VOL_DELIV_DESFL_LIQUID_TOTAL	Total desflurane liquid delivered	.	Total volume (liquid) of desflurane delivered	2::21832
Volume | Total, Delivered | Desflurane, Gas	MDC_VOL_DELIV_DESFL_TOTAL	Total desflurane gas delivered	.	Total volume of desflurane gas delivered (potentially across multiple cases)	2::21836
Concentration | PartialPressure | Enflurane, Gas | Airway	MDC_CONC_AWAY_ENFL	Concentration (or partial pressure) of enflurane in airway gas	%Enflurane	Measured partial pressure of enflurane in airway gas	[2::20956]
Concentration | PartialPressure, End Tidal | Enflurane, Gas | Airway	MDC_CONC_AWAY_ENFL_ET	End tidal enflurane concentration (or partial pressure) in airway gas	.	Partial pressure of enflurane in airway gas measured at the end of expiration	[2::21016]
.	MDC_CONC_AWAY_ENFL_ET_SETTING	.	.	.	[258::21016]
Concentration | PartialPressure, Expiration | Enflurane, Gas | Airway	MDC_CONC_AWAY_ENFL_EXP	Expired enflurane concentration (or partial pressure) in airway gas	.	Partial pressure of enflurane in airway gas measured during expiration	[2::21044]
Concentration | PartialPressure, Inspiration | Enflurane, Gas | Airway	MDC_CONC_AWAY_ENFL_INSP	Inspiratory enflurane concentration (or partial pressure) in airway gas	.	Partial pressure of enflurane in airway gas measured during inspiration	[2::21100]
Concentration | Partial Pressure | Enflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_ENFL	Concentration enflurane (gas delivery system or circuit)	.	Concentration of enflurane in airway gas in the system or circuit conducting gas to and from the patient	{2::20984}
Concentration | Partial Pressure, Expiration | Enflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_ENFL_EXP	Concentration airway enflurane expiratory (gas delivery system or circuit)	.	Concentration of enflurane in airway gas measured during expiration in the system or circuit conducting gas from the patient	{2::21072}
Concentration | Partial Pressure, Inspiration | Enflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_ENFL_INSP	Concentration airway enflurane inspiratory (gas delivery system or circuit)	.	Concentration of enflurane in airway gas measured during inspiration in the system or circuit conducting gas to the patient.	{2::21132}
.	MDC_CONC_GASDLV_ENFL_INSP_SETTING	.	.	.	{258::21132}
Volume | Case, Delivered | Enflurane, Gas	MDC_VOL_DELIV_ENFL_CASE	Enflurane gas delivered during a case	.	Volume of enflurane gas delivered during a case, to a single patient during a single procedure.	2::21840
Volume | Case, Delivered | Enflurane, Liquid	MDC_VOL_DELIV_ENFL_LIQUID_CASE	Enflurane liquid delivered during a case	.	Volume (liquid) of enflurane delivered during a case, to a single patient during a single procedure.	2::21844
Volume | Total, Delivered | Enflurane, Liquid	MDC_VOL_DELIV_ENFL_LIQUID_TOTAL	Total enflurane liquid delivered	.	Total volume (liquid) of enflurane delivered	2::21848
Volume | Total, Delivered | Enflurane, Gas	MDC_VOL_DELIV_ENFL_TOTAL	Total enflurane gas delivered	.	Total volume of enflurane gas delivered (potentially across multiple cases)	2::21852

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | PartialPressure | Halothane, Gas | Airway	MDC_CONC_AWAY_HALOTH	Concentration (or partial pressure) of halothane in airway gas	%Halothane	Measured partial pressure of halothane in airway gas	[2::20960]
Concentration | PartialPressure, End Tidal | Halothane, Gas | Airway	MDC_CONC_AWAY_HALOTH_ET	End tidal halothane concentration (or partial pressure) in airway gas	.	Partial pressure of halothane in airway gas measured at the end of expiration	[2::21020]
.	MDC_CONC_AWAY_HALOTH_ET_SETTING	.	.	.	[258::21020]
Concentration | PartialPressure, Expiration | Halothane, Gas | Airway	MDC_CONC_AWAY_HALOTH_EXP	Expired halothane concentration (or partial pressure) in airway gas	.	Partial pressure of halothane in airway gas measured during expiration	[2::21048]
Concentration | PartialPressure, Inspiration | Halothane, Gas | Airway	MDC_CONC_AWAY_HALOTH_INSP	Inspiratory halothane concentration (or partial pressure) in airway gas	.	Partial pressure of halothane in airway gas measured during inspiration	[2::21104]
Concentration | Partial Pressure | Halothane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_HALOTH	Concentration halothane (gas delivery system or circuit)	.	Concentration of halothane in airway gas in the system or circuit conducting gas to and from the patient	{2::20988}
Concentration | Partial Pressure, Expiration | Halothane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_HALOTH_EXP	Concentration airway halothane expiratory (gas delivery system or circuit)	.	Concentration of halothane in airway gas measured during expiration in the system or circuit conducting gas from the patient	{2::21076}
Concentration | Partial Pressure, Inspiration | Halothane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_HALOTH_INSP	Concentration airway halothane inspiratory (gas delivery system or circuit)	.	Concentration of halothane in airway gas measured during inspiration in the system or circuit conducting gas to the patient	{2::21136}
.	MDC_CONC_GASDLV_HALOTH_INSP_SETTING	.	.	.	{258::21136}
Volume | Case, Delivered | Halothane, Gas	MDC_VOL_DELIV_HALOTH_CASE	Halothane gas delivered during a case	.	Volume of halothane gas delivered during a case, to a single patient during a single procedure.	2::21856
Volume | Case, Delivered | Halothane, Liquid	MDC_VOL_DELIV_HALOTH_LIQUID_CASE	Halothane liquid delivered during a case	.	Volume (liquid) of halothane delivered during a case, to a single patient during a single procedure.	2::21860
Volume | Total, Delivered | Halothane, Liquid	MDC_VOL_DELIV_HALOTH_LIQUID_TOTAL	Total halothane liquid delivered	.	Total volume (liquid) of halothane delivered	2::21864
Volume | Total, Delivered | Halothane, Gas	MDC_VOL_DELIV_HALOTH_TOTAL	Total halothane gas delivered	.	Total volume of halothane gas delivered (potentially across multiple cases)	2::21868
Concentration | PartialPressure | Isoflurane, Gas | Airway	MDC_CONC_AWAY_ISOFL	Concentration (or partial pressure) of isoflurane in airway gas	%Isoflurane	Measured partial pressure of isoflurane in airway gas	[2::20968]
Concentration | PartialPressure, End Tidal | Isoflurane, Gas | Airway	MDC_CONC_AWAY_ISOFL_ET	End tidal isoflurane concentration (or partial pressure) in airway gas	.	Partial pressure of isoflurane in airway gas measured at the end of expiration	[2::21028]
.	MDC_CONC_AWAY_ISOFL_ET_SETTING	.	.	.	[258::21028]
Concentration | PartialPressure, Expiration | Isoflurane, Gas | Airway	MDC_CONC_AWAY_ISOFL_EXP	Expired isoflurane concentration (or partial pressure) in airway gas	.	Partial pressure of isoflurane in airway gas measured during expiration	[2::21056]

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | PartialPressure, Inspiration | Isoflurane, Gas | Airway	MDC_CONC_AWAY_ISOFL_INSP	Inspiratory isoflurane concentration (or partial pressure) in airway gas	.	Partial pressure of isoflurane in airway gas measured during inspiration	[2::21112]
Concentration | Partial Pressure | Isoflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_ISOFL	Concentration Isoflurane (gas delivery system or circuit)	.	Concentration of isoflurane in airway gas in the system or circuit conducting gas to and from the patient	{2::20996}
Concentration | Partial Pressure, Expiration | Isoflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_ISOFL_EXP	Concentration airway isoflurane expiratory (gas delivery system or circuit)	.	Concentration of isoflurane in airway gas measured during expiration in the system or circuit conducting gas from the patient	{2::21084}
Concentration | Partial Pressure, Inspiration | Isoflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_ISOFL_INSP	Concentration airway isoflurane inspiratory (gas delivery system or circuit)	.	Concentration of isoflurane in airway gas measured during inspiration in the system or circuit conducting gas to the patient	{2::21144}
.	MDC_CONC_GASDLV_ISOFL_INSP_SETTING	.	.	.	{258::21144}
Volume | Case, Delivered | Isoflurane, Gas	MDC_VOL_DELIV_ISOFL_CASE	Isoflurane gas delivered during a case	.	Volume of isoflurane gas delivered during a case, to a single patient during a single procedure.	2::21872
Volume | Case, Delivered | Isoflurane, Liquid	MDC_VOL_DELIV_ISOFL_LIQUID_CASE	Isoflurane liquid delivered during a case	.	Volume (liquid) of isoflurane delivered during a case, to a single patient during a single procedure.	2::21876
Volume | Total, Delivered | Isoflurane, Liquid	MDC_VOL_DELIV_ISOFL_LIQUID_TOTAL	Total isoflurane liquid delivered	.	Total volume (liquid) of isoflurane delivered	2::21880
Volume | Total, Delivered | Isoflurane, Gas	MDC_VOL_DELIV_ISOFL_TOTAL	Total isoflurane gas delivered	.	Total volume of isoflurane gas delivered (potentially across multiple cases)	2::21884
Concentration | PartialPressure | Nitrous Oxide, Gas | Airway	MDC_CONC_AWAY_N2O	Concentration (or partial pressure) of nitrous oxide in airway gas	%N_2O, N_2O, %Nitrous Oxide	Measured partial pressure of nitrous oxide in airway gas	[2::20976]
Concentration | PartialPressure, End Tidal | Nitrous Oxide, Gas | Airway	MDC_CONC_AWAY_N2O_ET	End tidal nitrous oxide concentration (or partial pressure) in airway gas	.	Partial pressure of nitrous oxide in airway gas measured at the end of expiration	[2::21036]
Concentration | PartialPressure, Expiration | Nitrous Oxide, Gas | Airway	MDC_CONC_AWAY_N2O_EXP	Expired nitrous oxide concentration (or partial pressure) in airway gas	.	Partial pressure of nitrous oxide in airway gas measured during expiration	[2::21064]
Concentration | PartialPressure, Inspiration | Nitrous Oxide, Gas | Airway	MDC_CONC_AWAY_N2O_INSP	Inspiratory nitrous oxide concentration (or partial pressure) in airway gas	.	Partial pressure of nitrous oxide in airway gas measured during inspiration	[2::21120]
Concentration | Partial Pressure | N2O, Gas | Gas Delivery System	MDC_CONC_GASDLV_N2O	Concentration N2O (gas delivery system)	.	Concentration of nitrous oxide in airway gas in the system conducting gas to and from the patient	{2::21004}
Concentration | Partial Pressure, Expiration | N2O, Gas | Gas Delivery System	MDC_CONC_GASDLV_N2O_EXP	Concentration airway nitrous oxide expiratory (gas delivery system)	.	Concentration of nitrous oxide in airway gas measured during expiration in the system conducting gas from the patient	{2::21092}
Concentration | Partial Pressure, Inspiration | N2O, Gas | Gas Delivery System	MDC_CONC_GASDLV_N2O_INSP	Concentration airway nitrous oxide inspiratory (gas delivery system)	.	Concentration of nitrous oxide in airway gas measured during inspiration in the system conducting gas to the patient	{2::21152}

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Volume | Case, Delivered | Nitrous Oxide, Gas	MDC_VOL_DELIV_N2O_CASE	Nitrous oxide gas delivered during a case	.	Volume (gas) of nitrous oxide delivered during a case, to a single patient during a single procedure.	2::21888
Volume | Total, Delivered | Nitrous Oxide, Gas	MDC_VOL_DELIV_N2O_TOTAL	Total nitrous oxide gas delivered	.	Total volume (gas) of nitrous oxide delivered	2::21892
Pressure | Supply, pipeline | N2O, Gas	MDC_PRESS_N2O_SUPPLY	N2O supply (pipeline) pressure		N2O supply (pipeline) pressure	2::21896
Pressure | Cylinder | N2O, Gas	MDC_PRESS_N2O_CYL	N2O cylinder pressure		N2O cylinder pressure	2::21900
Concentration | PartialPressure | Sevoflurane, Gas | Airway	MDC_CONC_AWAY_SEVOFL	Concentration (or partial pressure) of sevoflurane in airway gas	%Sevoflurane	Measured partial pressure of sevoflurane in airway gas	[2::20964]
Concentration | PartialPressure, End Tidal | Sevoflurane, Gas | Airway	MDC_CONC_AWAY_SEVOFL_ET	End tidal sevoflurane concentration (or partial pressure) in airway gas	.	Partial pressure of sevoflurane in airway gas measured at the end of expiration	[2::21024]
.	MDC_CONC_AWAY_SEVOFL_ET_SETTING	.	.	.	[258::21024]
Concentration | PartialPressure, Expiration | Sevoflurane, Gas | Airway	MDC_CONC_AWAY_SEVOFL_EXP	Expired sevoflurane concentration (or partial pressure) in airway gas	.	Partial pressure of sevoflurane in airway gas measured during expiration	[2::21052]
Concentration | PartialPressure, Inspiration | Sevoflurane, Gas | Airway	MDC_CONC_AWAY_SEVOFL_INSP	Inspiratory sevoflurane concentration (or partial pressure) in airway gas	.	Partial pressure of sevoflurane in airway gas measured during inspiration	[2::21108]
Concentration | Partial Pressure | Sevoflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_SEVOFL	Concentration sevoflurane (gas delivery system or circuit)	.	Concentration of sevoflurane in airway gas in the system or circuit conducting gas to and from the patient	{2::20992}
Concentration | Partial Pressure, Expiration | Sevoflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_SEVOFL_EXP	Concentration airway sevoflurane expiratory (gas delivery system or circuit)	.	Concentration of sevoflurane in airway gas measured during expiration in the system or circuit conducting gas from the patient	{2::21080}
Concentration | Partial Pressure, Inspiration | Sevoflurane, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_SEVOFL_INSP	Concentration airway sevoflurane inspiratory (gas delivery system or circuit)	.	Concentration of sevoflurane in airway gas measured during inspiration in the system or circuit conducting gas to the patient	{2::21140}
.	MDC_CONC_GASDLV_SEVOFL_INSP_SETTING	.		.	{258::21140}
Volume | Case, Delivered | Sevoflurane, Gas	MDC_VOL_DELIV_SEVOFL_CASE	Sevoflurane gas delivered during a case	.	Volume of sevoflurane gas delivered during a case, to a single patient during a single procedure.	2::21904
Volume | Case, Delivered | Sevoflurane, Liquid	MDC_VOL_DELIV_SEVOFL_LIQUID_CASE	Sevoflurane liquid delivered during a case	.	Volume (liquid) of sevoflurane delivered during a case, to a single patient during a single procedure.	2::21908
Volume | Total, Delivered | Sevoflurane, Liquid	MDC_VOL_DELIV_SEVOFL_LIQUID_TOTAL	Total sevoflurane liquid delivered	.	Total volume (liquid) of sevoflurane delivered	2::21912
Volume | Total, Delivered | Sevoflurane, Gas	MDC_VOL_DELIV_SEVOFL_TOTAL	Total sevoflurane gas delivered	.	Total volume of sevoflurane gas delivered (potentially across multiple cases)	2::21916

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | PartialPressure | Ar, Gas | Airway	MDC_CONC_AWAY_AR	Concentration (or partial pressure) of argon in airway gas	%Ar, AR	Measured partial pressure of argon in airway gas	2::21920
Concentration | PartialPressure, Expiration | Ar, Gas | Airway	MDC_CONC_AWAY_AR_ET	End tidal argon concentration (or partial pressure) in airway gas	.	Partial pressure of argon in airway gas measured at the end of expiration	2::21924
Concentration | PartialPressure, Expiration | Ar, Gas | Airway	MDC_CONC_AWAY_AR_EXP	Expired argon concentration (or partial pressure) in airway gas	.	Partial pressure of argon in airway gas measured during expiration	2::21928
Concentration | PartialPressure, Inspiration | Ar, Gas | Airway	MDC_CONC_AWAY_AR_INSP	Inspiratory argon concentration (or partial pressure) in airway gas	.	Partial pressure of argon in airway gas measured during inspiration	2::21932
Concentration | Partial Pressure | Ar, Gas | Gas Delivery System	MDC_CONC_GASDLV_AR	Concentration argon (gas delivery system)	.	Concentration of argon in airway gas in the system conducting gas to and from the patient	2::21936
Concentration | Partial Pressure, Expiration | Ar, Gas | Gas Delivery System	MDC_CONC_GASDLV_AR_EXP	Concentration airway argon expiratory (gas delivery system)	.	Concentration of argon in airway gas measured during expiration in the system conducting gas from the patient	2::21940
Concentration | Partial Pressure, Inspiration | Ar, Gas | Gas Delivery System	MDC_CONC_GASDLV_AR_INSP	Concentration airway argon inspiratory (gas delivery system)	.	Concentration of argon in airway gas measured during inspiration in the system conducting gas to the patient	2::21944
Concentration | PartialPressure | CO2, Gas | Airway	MDC_CONC_AWAY_CO2	Concentration (or partial pressure) of carbon dioxide in airway gas	%CO_2, CO_2, pCO_2	Measured partial pressure of carbon dioxide in airway gas	[2::20628]
Concentration | PartialPressure, Expiration | CO2, Gas | Airway	MDC_CONC_AWAY_CO2_ET	End tidal carbon dioxide concentration (or partial pressure) in airway gas	%CO_2 ET, $EtCO_2$	Partial pressure of carbon dioxide in airway gas measured at the end of expiration	[2::20636]
Concentration | PartialPressure, Expiration | CO2, Gas | Airway	MDC_CONC_AWAY_CO2_EXP	Expired carbon dioxide concentration (or partial pressure) in airway gas	%CO_2 exp, pCO_2 exp	Partial pressure of carbon dioxide in airway gas measured during expiration	[2::20640]
Concentration | PartialPressure, Inspiration | CO2, Gas | Airway	MDC_CONC_AWAY_CO2_INSP	Inspiratory carbon dioxide concentration (or partial pressure) in airway gas	%CO_2 insp pCO_2 insp	Partial pressure of carbon dioxide in airway gas measured during inspiration	[2::20644]
Concentration | PartialPressure, CO2, Alveolar Plateau, slope with respect to expired gas volume | Gas | Airway	MDC_CONC_AWAY_CO2_EXP_PLATEAU_ALV_SLOPE	Slope of the alveolar plateau CO2 concentration with respect to expired volume	S(III)	The slope of the CO2 concentration with respect to the expired gas volume during the alveolar plateau (Phase III) representing the emptying of alveoli with CO2-rich gas. Method: volumetric capnography.	2::22248
Concentration | Partial Pressure | CO2, Gas | Gas Delivery System	MDC_CONC_GASDLV_CO2	Concentration carbon dioxide (gas delivery system)	%CO_2, CO2, pCO_2	Concentration of carbon dioxide in airway gas in the system conducting gas to and from the patient	2::21948
Concentration | Partial Pressure, Expiration | CO2, Gas | Gas Delivery System	MDC_CONC_GASDLV_CO2_EXP	Concentration airway carbon dioxide expiratory (gas delivery system)	.	Concentration of carbon dioxide in airway gas measured during expiration in the system conducting gas from the patient	2::21952

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | Partial Pressure, Inspiration | CO2, Gas | Gas Delivery System	MDC_CONC_GASDLV_CO2_INSP	Concentration airway carbon dioxide inspiratory (gas delivery system)	$FiCO_2$	Concentration of carbon dioxide in airway gas measured during inspiration in the system conducting gas to the patient	2::21956
Volume | Expiratory Phase | CO2, Gas | per breath (breath type not specified)	MDC_VOL_AWAY_TIDAL_CO2_EXP	Expired CO2 volume	$VeCO_2$	Volume of expired CO2 during each breath, breath type(s) not specified.	2::22252
Volume | Inspiratory Phase | CO2, Gas | per breath (breath type not specified)	MDC_VOL_AWAY_TIDAL_CO2_INSP	Inspired CO2 volume	$ViCO_2$	Volume of inspired CO2 during each breath, breath type(s) not specified.	2::22256
Volume | Case, Delivered | CO2, gas	MDC_VOL_DELIV_CO2_CASE	Carbon dioxide gas delivered during a case	.	Volume (gas) of carbon dioxide delivered during a case, to a single patient during a single procedure.	2::21960
Volume | Total, Delivered | CO2, Gas	MDC_VOL_DELIV_CO2_TOTAL	Total carbon dioxide gas delivered	.	Total volume (gas) of carbon dioxide delivered (potentially across multiple cases)	2::21964
Concentration | PartialPressure | He, Gas | Airway	MDC_CONC_AWAY_HE	Concentration (or partial pressure) of helium in airway gas	%He, HE	Measured partial pressure of helium in airway gas	2::21968
Concentration | PartialPressure, Expiration | He, Gas | Airway	MDC_CONC_AWAY_HE_ET	End tidal helium concentration (or partial pressure) in airway gas	.	Partial pressure of helium in airway gas measured at the end of expiration	2::21972
Concentration | PartialPressure, Expiration | He, Gas | Airway	MDC_CONC_AWAY_HE_EXP	Expired helium concentration (or partial pressure) in airway gas	.	Partial pressure of helium in airway gas measured during expiration	2::21976
Concentration | PartialPressure, Inspiration | He, Gas | Airway	MDC_CONC_AWAY_HE_INSP	Inspiratory helium concentration (or partial pressure) in airway gas	.	Partial pressure of helium in airway gas measured during inspiration	2::21980
Concentration | Partial Pressure | He, Gas | Gas Delivery System	MDC_CONC_GASDLV_HE	Concentration helium (gas delivery system)	.	Concentration of helium in airway gas in the system conducting gas to and from the patient	2::21984
Concentration | Partial Pressure, Expiration | He, Gas | Gas Delivery System	MDC_CONC_GASDLV_HE_EXP	Concentration airway helium expiratory (gas delivery system)	.	Concentration of helium in airway gas measured during expiration in the system conducting gas from the patient	2::21988
Concentration | Partial Pressure, Inspiration | He, Gas | Gas Delivery System	MDC_CONC_GASDLV_HE_INSP	Concentration airway helium inspiratory (gas delivery system)	.	Concentration of helium in airway gas measured during inspiration in the system conducting gas to the patient	2::21992
Volume | Case, Delivered | He, Gas	MDC_VOL_DELIV_HE_CASE	Helium gas delivered during a case	.	Volume of helium gas delivered during a case, to a single patient during a single procedure.	2::21996
Volume | Total, Delivered | He, Gas	MDC_VOL_DELIV_HE_TOTAL	Total helium gas delivered	.	Total of helium gas delivered (potentially across multiple cases)	2::22000
Concentration | PartialPressure | N2, Gas | Airway	MDC_CONC_AWAY_N2	Concentration (or partial pressure) of nitrogen in airway gas	$\%N_2$, N_2	Measured partial pressure of nitrogen in airway gas	[2::21372]
Concentration | PartialPressure, Expiration | N2, Gas | Airway	MDC_CONC_AWAY_N2_ET	End tidal nitrogen concentration (or partial pressure) in airway gas	$\%N_2$ ET, EtN_2	Partial pressure of nitrogen in airway gas measured at the end of expiration	[2::21376]

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | PartialPressure, Expiration | N2, Gas | Airway	MDC_CONC_AWAY_N2_EXP	Expired nitrogen concentration (or partial pressure) in airway gas	.	Partial pressure of nitrogen in airway gas measured during expiration	2::22004
Concentration | PartialPressure, Inspiration | N2, Gas | Airway	MDC_CONC_AWAY_N2_INSP	Inspiratory nitrogen concentration (or partial pressure) in airway gas	.	Partial pressure of nitrogen in airway gas measured during inspiration	[2::21380]
Concentration | Partial Pressure | N2, Gas | Gas Delivery System	MDC_CONC_GASDLV_N2	Concentration nitrogen (gas delivery system)	.	Concentration of nitrogen in airway gas in the system conducting gas to and from the patient	2::22008
Concentration | Partial Pressure, Expiration | N2, Gas | Gas Delivery System	MDC_CONC_GASDLV_N2_EXP	Concentration airway nitrogen expiratory (gas delivery system)	.	Concentration of nitrogen in airway gas measured during expiration in the system conducting gas from the patient	2::22012
Concentration | Partial Pressure, Inspiration | N2, Gas | Gas Delivery System	MDC_CONC_GASDLV_N2_INSP	Concentration airway nitrogen inspiratory (gas delivery system)	.	Concentration of nitrogen in airway gas measured during inspiration in the system conducting gas to the patient	2::22016
Flow | | N2O, Gas	MDC_FLOW_N2O_FG	Fresh gas nitrous oxide flow	.	Flow of Nitrous Oxide component of Fresh Gas	2::22020
Concentration | PartialPressure | NO, Gas | Airway	MDC_CONC_AWAY_NO	Concentration (or partial pressure) of nitric oxide in airway gas	%NO, NO, %Nitric Oxide	Measured partial pressure of nitric oxide in airway gas	2::22024
Concentration | PartialPressure, Expiration | NO, Gas | Airway	MDC_CONC_AWAY_NO_ET	End tidal nitric oxide concentration (or partial pressure) in airway gas	.	Partial pressure of nitric oxide in airway gas measured at the end of expiration	2::22028
Concentration | PartialPressure, Expiration | NO, Gas | Airway	MDC_CONC_AWAY_NO_EXP	Expired nitric oxide concentration (or partial pressure) in airway gas	.	Partial pressure of nitric oxide in airway gas measured during expiration	2::22032
Concentration | PartialPressure, Inspiration | NO, Gas | Airway	MDC_CONC_AWAY_NO_INSP	Inspiratory nitric oxide concentration (or partial pressure) in airway gas	.	Partial pressure of nitric oxide in airway gas measured during inspiration	2::22036
Concentration | Partial Pressure | NO, Gas | Gas Delivery System	MDC_CONC_GASDLV_NO	Concentration nitric oxide (gas delivery system)	.	Concentration of nitric oxide in airway gas in the system conducting gas to and from the patient	2::22040
Concentration | Partial Pressure, Expiration | NO, Gas | Gas Delivery System	MDC_CONC_GASDLV_NO_EXP	Concentration airway nitric oxide expiratory (gas delivery system)	.	Concentration of nitric oxide in airway gas measured during expiration in the system conducting gas from the patient	2::22044
Concentration | Partial Pressure, Inspiration | NO, Gas | Gas Delivery System	MDC_CONC_GASDLV_NO_INSP	Concentration airway nitric oxide inspiratory (gas delivery system)	.	Concentration of nitric oxide in airway gas measured during inspiration in the system conducting gas to the patient	2::22048
Volume | Case, Delivered | NO, Gas	MDC_VOL_DELIV_NO_CASE	Nitric oxide gas delivered during a case	.	Volume of nitric oxide gas delivered during a case, to a single patient during a single procedure.	2::22052
Volume | Total, Delivered | NO, Gas	MDC_VOL_DELIV_NO_TOTAL	Total nitric oxide gas delivered	.	Total volume of nitric oxide gas delivered (potentially across multiple cases)	2::22056

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | PartialPressure | NO2, Gas | Airway	MDC_CONC_AWAY_NO2	Concentration (or partial pressure) of nitrogen dioxide in airway gas	%NO_2, NO_2, %Nitrogen Dioxide	Measured partial pressure of nitrogen dioxide in airway gas	[2::20972]
Concentration | PartialPressure, Expiration | NO2, Gas | Airway	MDC_CONC_AWAY_NO2_ET	End tidal nitrogen dioxide concentration (or partial pressure) in airway gas	.	Partial pressure of nitrogen dioxide in airway gas measured at the end of expiration	[2::21032]
Concentration | PartialPressure, Expiration | NO2, Gas | Airway	MDC_CONC_AWAY_NO2_EXP	Expired nitrogen dioxide concentration (or partial pressure) in airway gas	.	Partial pressure of nitrogen dioxide in airway gas measured during expiration	[2::21060]
Concentration | PartialPressure, Inspiration | NO2, Gas | Airway	MDC_CONC_AWAY_NO2_INSP	Inspiratory nitrogen dioxide concentration (or partial pressure) in airway gas	.	Partial pressure of nitrogen dioxide in airway gas measured during inspiration	[2::21116]
Concentration | Partial Pressure | NO2, Gas | Gas Delivery System	MDC_CONC_GASDLV_NO2	Concentration NO2 (gas delivery system)	.	Concentration of nitrogen dioxide in airway gas in the system conducting gas to and from the patient	{2::21000}
Concentration | Partial Pressure, Expiration | NO2, Gas | Gas Delivery System	MDC_CONC_GASDLV_NO2_EXP	Concentration airway nitrogen dioxide expiratory (gas delivery system)	.	Concentration of nitrogen dioxide in airway gas measured during expiration in the system conducting gas from the patient	{2::21088}
Concentration | Partial Pressure, Inspiration | NO2, Gas | Gas Delivery System	MDC_CONC_GASDLV_NO2_INSP	Concentration airway nitrogen dioxide inspiratory (gas delivery system)	.	Concentration of nitrogen dioxide in airway gas measured during inspiration in the system conducting gas to the patient	{2::21148}
Concentration | PartialPressure | Oxygen, Gas | Airway	MDC_CONC_AWAY_O2	Concentration (or partial pressure) of oxygen in airway gas	%O_2, O_2, pO2	Measured partial pressure of oxygen in airway gas	[2::20836]
Concentration | PartialPressure, End Tidal | Oxygen, Gas | Airway	MDC_CONC_AWAY_O2_ET	End tidal oxygen concentration (or partial pressure) in airway gas	%O_2 ET, %EtO_2, EtO_2	Partial pressure of oxygen in airway gas measured at the end of expiration	[2::21368]
.	MDC_CONC_AWAY_O2_ET_SETTING	.	.	.	[258::21368]
Concentration | PartialPressure, Expiration | Oxygen, Gas | Airway	MDC_CONC_AWAY_O2_EXP	Expired oxygen concentration (or partial pressure) in airway gas	%O_2 exp, pO_2 exp	Partial pressure of oxygen in airway gas measured during expiration	2::22060
Concentration | PartialPressure, Inspiration | Oxygen, Gas | Airway	MDC_CONC_AWAY_O2_INSP	Inspiratory oxygen concentration (or partial pressure) in airway gas	%O_2 insp, pO_2 insp	Partial pressure of oxygen in airway gas measured during inspiration	[2::21124]
Volume | Expiratory Phase | O2, Gas | per breath (breath type not specified)	MDC_VOL_AWAY_TIDAL_O2_EXP	Expired O2 volume	VeO_2	Volume of expired O2 during each breath, breath type(s) not specified.	2::22260
Volume | Inspiratory Phase | O2, Gas | per breath (breath type not specified)	MDC_VOL_AWAY_TIDAL_O2_INSP	Inspired O2 volume	ViO_2	Volume of inspired O2 during each breath, breath type(s) not specified.	2::22264

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | Difference (PartialPressureInspiration, PartialPressureExpiration) | O2, Gas | Airway	MDC_CONC_AWAY_O2_DELTA *MDC_AWAY_O2_DELTA*	O2 pressure difference	PI-EO_2	Difference between inspiratory and expiratory partial pressures of oxygen in airway gas	[2::20672]
Concentration | Partial Pressure | O2, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_O2	Concentration oxygen (gas delivery system or circuit)	%O_2, O_2, pO_2	Concentration of oxygen in airway gas in the system or circuit conducting gas to and from the patient	2::22064
Concentration | Partial Pressure, Expiration | O2, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_O2_EXP	Concentration airway oxygen expiratory (gas delivery system or circuit)	FEO_2	Concentration of oxygen in airway gas measured during expiration in the system or circuit conducting gas from the patient	2::22068
Concentration | Partial Pressure, Inspiration | O2, Gas | Gas Delivery System or Circuit	MDC_CONC_GASDLV_O2_INSP	Concentration airway oxygen inspiratory (gas delivery system or circuit)	%FiO_2, FiO_2	Concentration of oxygen in airway gas measured during inspiration in the system or circuit conducting gas to the patient	2::22072
.	MDC_CONC_GASDLV_O2_INSP_SETTING	.	.	.	258::22072
Concentration | Difference(Inspiration, Expiration) | O2, Gas | Ventilator	MDC_CONC_GASDLV_O2_DELTA *MDC_VENT_CONC_AWAY_O2_DELTA*	Diff. inspired and expired oxygen conc. (ventilator)	FI-EO_2	Difference in oxygen concentration between inspiration and expiration during mechanical ventilation	[2::20840]
Volume | Case, Delivered | O2, Gas	MDC_VOL_DELIV_O2_CASE	Oxygen gas delivered during a case	.	Volume (gas) of oxygen delivered during a case, to a single patient during a single procedure.	2::22076
Volume | Total, Delivered | O2, Gas	MDC_VOL_DELIV_O2_TOTAL	Total oxygen gas delivered	.	Total volume (gas) of oxygen delivered (potentially across multiple cases)	2::22080
Flow | | O2, Gas	MDC_FLOW_O2_FG	Fresh gas oxygen flow	.	Flow of Oxygen component of Fresh Gas	2::22084
Pressure | Supply, pipeline | O2, Gas	MDC_PRESS_O2_SUPPLY	O2 supply (pipeline) pressure		O2 supply (pipeline) pressure	2::22088
Pressure | Cylinder | O2, Gas	MDC_PRESS_O2_CYL	O2 cylinder pressure		O2 cylinder pressure	2::22092
Pressure | Cylinder, 2nd | O2, Gas	MDC_PRESS_O2_CYL_2	O2 cylinder #2 pressure		O2 #2 cylinder pressure	2::22096
Concentration | PartialPressure | Xe, Gas | Airway	MDC_CONC_AWAY_XE	Concentration (or partial pressure) of xenon in airway gas	%Xe, Xe	Measured partial pressure of xenon in airway gas	2::22100
Concentration | PartialPressure, Expiration | Xe, Gas | Airway	MDC_CONC_AWAY_XE_ET	End tidal xenon concentration (or partial pressure) in airway gas		Partial pressure of xenon in airway gas measured at the end of expiration	2::22104
Concentration | PartialPressure, Expiration | Xe, Gas | Airway	MDC_CONC_AWAY_XE_EXP	Expired xenon concentration (or partial pressure) in airway gas	.	Partial pressure of xenon in airway gas measured during expiration	2::22108
Concentration | PartialPressure, Inspiration | Xe, Gas | Airway	MDC_CONC_AWAY_XE_INSP	Inspiratory xenon concentration (or partial pressure) in airway gas	.	Partial pressure of xenon in airway gas measured during inspiration	2::22112
Concentration | Partial Pressure | Xe, Gas | Gas Delivery System	MDC_CONC_GASDLV_XE	Concentration xenon (gas delivery system)	.	Concentration of xenon in airway gas in the system conducting gas to and from the patient	2::22116

Table A.7.4.8—Nomenclature and codes for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | Partial Pressure, Expiration | Xe, Gas | Gas Delivery System	MDC_CONC_GASDLV_XE_EXP	Concentration airway xenon expiratory (gas delivery system)	.	Concentration of xenon in airway gas measured during expiration in the system conducting gas from the patient	2::22120
Concentration | Partial Pressure, Inspiration | Xe, Gas | Gas Delivery System	MDC_CONC_GASDLV_XE_INSP	Concentration airway xenon inspiratory (gas delivery system)	.	Concentration of xenon in airway gas measured during inspiration in the system conducting gas to the patient	2::22124
Volume | Case, Delivered | Xe, Gas	MDC_VOL_DELIV_XE_CASE	Xenon gas delivered during a case	.	Volume of xenon gas delivered during a case, to a single patient during a single procedure.	2::22128
Volume | Total, Delivered | Xe, Gas	MDC_VOL_DELIV_XE_TOTAL	Total xenon gas delivered	.	Total volume of xenon gas delivered (potentially across multiple cases)	2::22132

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As described in A.7.4.18, two top-level vocabulary branches for gas concentration and partial pressure measurements are defined: MDC_CONC_AWAY for measurements obtained at the patient connector port and MDC_CONC_GASDLV for measurements obtained in the system supplying the gas to the patient, with or without a mechanical ventilator. The two vocabulary branches consolidate the five branches that were originally defined in ISO/IEEE 11073-10101:2004 and may be used in conjunction with the _SETTING 'über-discriminator' to indicate observations that are the target value of a setting (e.g. end-tidal gas concentration control).

The recommended mapping of existing 'retired' gas Reference ID prefixes listed in Table A.7.4.10 to 'unified' gas Reference ID prefixes listed in Table A.7.4.8 is shown in Table A.7.4.9. The Part::Code identifiers in Table A.7.4.10 are prefaced by '#' to indicate their 'retired' status and should not be used in new implementations.

Table A.7.4.9—Recommended mapping of 'retired' to 'unified' gas Reference ID prefixes (informative)

Interpretation	'retired' gas Reference ID prefix ...	'unified' gas Reference ID prefix ...
airway: partial pressure airway: concentration	MDC_AWAY MDC_CONC_AWAY	MDC_CONC_AWAY
vent airway: partial pressure vent airway: concentration vent agent (*typ*): concentration	MDC_VENT_AWAY MDC_VENT_CONC_AWAY MDC_VENT_CONC	MDC_CONC_GASDLV

Table A.7.4.10—Retired nomenclature and code extensions for respiratory measurements

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | PartialPressure | Desflurane, Gas | Airway	MDC_AWAY_DESFL	Partial pressure airway desflurane	.	Partial pressure of desflurane in airway gas measured	#2::21160
Concentration | PartialPressure, Expiration | Desflurane, Gas | Airway	MDC_AWAY_DESFL_EXP	Expiratory partial pressure airway desflurane	.	Partial pressure of desflurane in airway gas measured during expiration	#2::21224
Concentration | PartialPressure, Inspiration | Desflurane, Gas | Airway	MDC_AWAY_DESFL_INSP	Inspiratory partial pressure airway desflurane	.	Partial pressure of desflurane in airway gas measured during inspiration	#2::21284
Concentration | PartialPressure | Desflurane, Gas | Ventilator	MDC_VENT_AWAY_DESFL	Partial pressure ventilator desflurane	.	Partial pressure of desflurane in airway gas measured during mechanical ventilation	#2::21192
Concentration | PartialPressure, Expiration | Desflurane, Gas | Ventilator	MDC_VENT_DESFL_EXP	Expiratory partial pressure ventilator desflurane	.	Partial pressure of desflurane in airway gas measured during mechanical ventilation expiration	#2::21252
Concentration | PartialPressure, Inspiration | Desflurane, Gas | Ventilator	MDC_VENT_DESFL_INSP	Inspiratory partial pressure ventilator desflurane	.	Partial pressure of desflurane in airway gas measured during mechanical ventilation in inspiration	#2::21312
Concentration | PartialPressure | Enflurane, Gas | Airway	MDC_AWAY_ENFL	Partial pressure airway enflurane	.	Partial pressure of enflurane in airway gas measured	#2::21168
Concentration | PartialPressure, Expiration | Enflurane, Gas | Airway	MDC_AWAY_ENFL_EXP	Expiratory partial pressure airway enflurane	.	Partial pressure of enflurane in airway gas measured during expiration	#2::21228
Concentration | PartialPressure, Inspiration | Enflurane, Gas | Airway	MDC_AWAY_ENFL_INSP	Inspiratory partial pressure airway enflurane	.	Partial pressure of enflurane in airway gas measured during inspiration	#2::21288
Concentration | PartialPressure | Enflurane, Gas | Ventilator	MDC_VENT_ENFL	Partial pressure ventilator enflurane	.	Partial pressure of enflurane in airway gas measured during mechanical ventilation	#2::21196
Concentration | PartialPressure, Expiration | Enflurane, Gas | Ventilator	MDC_VENT_ENFL_EXP	Expiratory partial pressure ventilator enflurane	.	Partial pressure of enflurane in airway gas measured during mechanical ventilation expiration	#2::21256
Concentration | PartialPressure, Inspiration | Enflurane, Gas | Ventilator	MDC_VENT_ENFL_INSP	Inspiratory partial pressure ventilator enflurane	.	Partial pressure of enflurane in airway gas measured during mechanical ventilation in inspiration	#2::21316
Concentration | PartialPressure | Halothane, Gas | Airway	MDC_AWAY_HALOTH	Partial pressure airway halothane	.	Partial pressure of halothane in airway gas measured	#2::21172

Table A.7.4.10—Retired nomenclature and code extensions for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | PartialPressure, Expiration | Halothane, Gas | Airway	MDC_AWAY_HALOTH_EXP	Expiratory partial pressure airway halothane	.	Partial pressure of halothane in airway gas measured during expiration	#2::21232
Concentration | PartialPressure, Inspiration | Halothane, Gas | Airway	MDC_AWAY_HALOTH_INSP	Inspiratory partial pressure airway halothane	.	Partial pressure of halothane in airway gas measured during inspiration	#2::21292
Concentration | PartialPressure | Halothane, Gas | Ventilator	MDC_VENT_HALOTH	Partial pressure ventilator halothane	.	Partial pressure of halothane in airway gas measured during mechanical ventilation	#2::21200
Concentration | PartialPressure, Expiration | Halothane, Gas | Ventilator	MDC_VENT_HALOTH_EXP	Expiratory partial pressure ventilator halothane	.	Partial pressure of halothane in airway gas measured during mechanical ventilation expiration	#2::21260
Concentration | PartialPressure, Inspiration | Halothane, Gas | Ventilator	MDC_VENT_HALOTH_INSP	Inspiratory partial pressure ventilator halothane	.	Partial pressure of halothane in airway gas measured during mechanical ventilation in inspiration	#2::21320
Concentration | PartialPressure | Isoflurane, Gas | Airway	MDC_AWAY_ISOFL	Partial pressure airway isoflurane	.	Partial pressure of isoflurane in airway gas measured	#2::21180
Concentration | PartialPressure, Expiration | Isoflurane, Gas | Airway	MDC_AWAY_ISOFL_EXP	Expiratory partial pressure airway isoflurane	.	Partial pressure of isoflurane in airway gas measured during expiration	#2::21240
Concentration | PartialPressure, Inspiration | Isoflurane, Gas | Airway	MDC_AWAY_ISOFL_INSP	Inspiratory partial pressure airway isoflurane	.	Partial pressure of isoflurane in airway gas measured during inspiration	#2::21300
Concentration | PartialPressure | Isoflurane, Gas | Ventilator	MDC_VENT_ISOFL	Partial pressure ventilator isoflurane	.	Partial pressure of isoflurane in airway gas measured during mechanical ventilation	#2::21208
Concentration | PartialPressure , Expiration | Isoflurane, Gas | Ventilator	MDC_VENT_ISOFL_EXP	Expiratory partial pressure ventilator isoflurane	.	Partial pressure of isoflurane in airway gas measured during mechanical ventilation expiration	#2::21268
Concentration | PartialPressure, Inspiration | Isoflurane, Gas | Ventilator	MDC_VENT_ISOFL_INSP	Inspiratory partial pressure ventilator isoflurane	.	Partial pressure of isoflurane in airway gas measured during mechanical ventilation in inspiration	#2::21328
Concentration | PartialPressure | N2O, Gas | Airway	MDC_AWAY_N2O	Partial pressure airway nitrous oxide	.	Partial pressure of nitrous oxide in airway gas measured	#2::21188
Concentration | PartialPressure, Expiration | N2O, Gas | Airway	MDC_AWAY_N2O_EXP	Expiratory partial pressure airway nitrous oxide	.	Partial pressure of nitrous oxide in airway gas measured during expiration	#2::21248

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

Table A.7.4.10—Retired nomenclature and code extensions for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | PartialPressure, Inspiration | N2O, Gas | Airway	MDC_AWAY_N2O_INSP	Inspiratory partial pressure airway nitrous oxide	.	Partial pressure of nitrous oxide in airway gas measured during inspiration	#2::21308
Concentration | PartialPressure | N2O, Gas | Ventilator	MDC_VENT_N2O	Partial pressure ventilator nitrous oxide	.	Partial pressure of nitrous oxide in airway gas measured during mechanical ventilation	#2::21216
Concentration | PartialPressure, Expiration | N2O, Gas | Ventilator	MDC_VENT_N2O_EXP	Expiratory partial pressure ventilator nitrous oxide	.	Partial pressure of nitrous oxide in airway gas measured during mechanical ventilation expiration	#2::21276
Concentration | PartialPressure, Inspiration | N2O, Gas | Ventilator	MDC_VENT_N2O_INSP	Inspiratory partial pressure ventilator nitrous oxide	.	Partial pressure of nitrous oxide in airway gas measured during mechanical ventilation in inspiration	#2::21336
Concentration | PartialPressure | Sevoflurane, Gas | Airway	MDC_AWAY_SEVOFL	Partial pressure airway sevoflurane	.	Partial pressure of sevoflurane in airway gas measured	#2::21176
Concentration | PartialPressure, Expiration | Sevoflurane, Gas | Airway	MDC_AWAY_SEVOFL_EXP	Expiratory partial pressure airway sevoflurane	.	Partial pressure of sevoflurane in airway gas measured during expiration	#2::21236
Concentration | PartialPressure, Inspiration | Sevoflurane, Gas | Airway	MDC_AWAY_SEVOFL_INSP	Inspiratory partial pressure airway sevoflurane	.	Partial pressure of sevoflurane in airway gas measured during inspiration	#2::21296
Concentration | PartialPressure | Sevoflurane, Gas | Ventilator	MDC_VENT_SEVOFL	Partial pressure ventilator sevoflurane	.	Partial pressure of sevoflurane in airway gas measured during mechanical ventilation	#2::21204
Concentration | PartialPressure , Expiration | Sevoflurane, Gas | Ventilator	MDC_VENT_SEVOFL_EXP	Expiratory partial pressure ventilator sevoflurane	.	Partial pressure of sevoflurane in airway gas measured during mechanical ventilation expiration	#2::21264
Concentration | PartialPressure, Inspiration | Sevoflurane, Gas | Ventilator	MDC_VENT_SEVOFL_INSP	Inspiratory partial pressure ventilator sevoflurane	.	Partial pressure of sevoflurane in airway gas measured during mechanical ventilation in inspiration	#2::21324
Concentration | PartialPressure | CO2, Gas | Airway	MDC_AWAY_CO2	Partial pressure CO2	PCO2	Partial pressure of carbon dioxide in airway gas	#2::20652
Concentration | PartialPressure, EndTidal | CO2, Gas | Airway	MDC_AWAY_CO2_ET	EndTidal CO2 partial pressure	Pet CO2	Partial pressure of carbon dioxide in airway gas measured at end of expiration	#2::20656
Concentration | PartialPressure, Expiration | CO2, Gas | Airway	MDC_AWAY_CO2_EXP	Expiratory CO2 partial pressure	PECO2	Partial pressure of carbon dioxide in airway gas measured during expiration	#2::20660

Table A.7.4.10—Retired nomenclature and code extensions for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | PartialPressure, Inspiration | CO2, Gas | Airway	MDC_AWAY_CO2_INSP	Inspiratory CO2 partial pressure	PICO2	Partial pressure of carbon dioxide in airway gas measured in inspiration	#2::20664
Concentration | PartialPressure | CO2, Gas | Ventilator	MDC_VENT_AWAY_CO2	CO2 partial pressure (ventilator)	PCO2	Partial pressure of carbon dioxide in airway gas during mechanical ventilation	#2::20852
Concentration | PartialPressure, EndTidal | CO2, Gas | Ventilator	MDC_VENT_AWAY_CO2_ET	EndTidal CO2 partial pressure (ventilator)	PEtCO2	Partial pressure of carbon dioxide in airway at end expiration measured during mechanical ventilation	#2::20856
Concentration | PartialPressure, Expiration | CO2, Gas | Ventilator	MDC_VENT_AWAY_CO2_EXP	Expiratory CO2 partial pressure (ventilator)	PECO2	Partial pressure of carbon dioxide in airway gas during mechanical ventilation expiration	#2::20860
Concentration | PartialPressure, Inspiration | CO2, Gas | Ventilator	MDC_VENT_AWAY_CO2_INSP	Inspiratory CO2 partial pressure (ventilator)	PICO2	Partial pressure of carbon dioxide in airway gas in inspiration during mechanical ventilation	#2::20864
Concentration | | CO2, Gas | Ventilator	MDC_VENT_CONC_AWAY_CO2	Concentration CO2 (ventilator)	.	Concentration of carbon dioxide in airway gas during mechanical ventilation	#2::20820
Concentration | EndTidal | CO2, Gas | Ventilator	MDC_VENT_CONC_AWAY_CO2_ET	Concentration CO2 end tidal (ventilator)	.	Concentration of carbon dioxide in airway gas measured at the end of expiration during mechanical ventilation	#2::20824
Concentration | Expiration | CO2, Gas | Ventilator	MDC_VENT_CONC_AWAY_CO2_EXP	Concentration CO2 expiratory (ventilator)	.	Concentration of carbon dioxide in airway gas measured in expiration during mechanical ventilation	#2::20828
Concentration | Inspiration | CO2, Gas | Ventilator	MDC_VENT_CONC_AWAY_CO2_INSP	Concentration CO2 inspiratory (ventilator)	.	Concentration of carbon dioxide in airway gas measured in inspiration during mechanical ventilation	#2::20832
Concentration | PartialPressure | NO2, Gas | Airway	MDC_AWAY_NO2	Partial pressure airway nitrogen dioxide	.	Partial pressure of nitrogen dioxide in airway gas measured	#2::21184
Concentration | PartialPressure, Expiration | NO2, Gas | Airway	MDC_AWAY_NO2_EXP	Expiratory partial pressure airway nitrogen dioxide	.	Partial pressure of nitrogen dioxide in airway gas measured during expiration	#2::21244
Concentration | PartialPressure, Inspiration | NO2, Gas | Airway	MDC_AWAY_NO2_INSP	Inspiratory partial pressure airway nitrogen dioxide	.	Partial pressure of nitrogen dioxide in airway gas measured during inspiration	#2::21304

Table A.7.4.10—Retired nomenclature and code extensions for respiratory measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | PartialPressure | NO2, Gas | Ventilator	MDC_VENT_NO2	Partial pressure ventilator nitrogen dioxide	.	Partial pressure of nitrogen dioxide in airway gas measured during mechanical ventilation	#2::21212
Concentration | PartialPressure, Expiration | NO2, Gas | Ventilator	MDC_VENT_NO2_EXP	Expiratory partial pressure ventilator nitrogen dioxide	.	Partial pressure of nitrogen dioxide in airway gas measured during mechanical ventilation expiration	#2::21272
Concentration | PartialPressure, Inspiration | NO2, Gas | Ventilator	MDC_VENT_NO2_INSP	Inspiratory partial pressure ventilator nitrogen dioxide	.	Partial pressure of nitrogen dioxide in airway gas measured during mechanical ventilation in inspiration	#2::21332
Concentration | PartialPressure | O2, Gas | Airway	MDC_AWAY_O2	O2 partial pressure	PO2	Partial pressure of oxygen in airway	#2::20668
Concentration | PartialPressure, Expiration | O2, Gas | Airway	MDC_AWAY_O2_EXP	Expiratory O2 partial pressure	PEO2	Partial pressure of oxygen in airway gas measured during expiration	#2::20676
Concentration | PartialPressure, Inspiration | O2, Gas | Airway	MDC_AWAY_O2_INSP	Inspiratory O2 partial pressure	.	Partial pressure of oxygen in airway gas measured in inspiration	#2::20680
Concentration | PartialPressure | O2, Gas | Ventilator	MDC_VENT_AWAY_O2	O2 partial pressure (ventilator)	PO2	Partial pressure of oxygen in airway during mechanical ventilation	#2::21220
Concentration | PartialPressure, Expiration | O2, Gas | Ventilator	MDC_VENT_AWAY_O2_EXP	Expiratory O2 partial pressure (ventilator)	.	Partial pressure of oxygen in airway gas during mechanical ventilation expiration	#2::21280
Concentration | PartialPressure, Inspiration | O2, Gas | Ventilator	MDC_VENT_AWAY_O2_INSP	Inspiratory O2 partial pressure (ventilator)	PIO2	Partial pressure of oxygen in airway gas measured in inspiration during mechanical ventilation	#2::21340
Concentration | | O2 , Gas | Ventilator	MDC_VENT_CONC_AWAY_O2	Concentration oxygen (ventilator)	FIO2	Concentration of oxygen in airway during mechanical ventilation	#2::20648
Concentration | Expiration | O2, Gas | Ventilator	MDC_VENT_CONC_AWAY_O2_EXP	Concentration oxygen expiratory (ventilator)	FEO2	Concentration of oxygen in airway in expiration during mechanical ventilation	#2::20844
Concentration | Inspiration | O2, Gas | Ventilator	MDC_VENT_CONC_AWAY_O2_INSP	Ventilation inspired oxygen concentration	FIO2	Concentration of oxygen in inspiration during mechanical ventilation	#2::20848

Table A.7.4.11—Retired undefined nomenclature for respiratory measurements from Annex B

Systematic name	Reference ID	Common term	Acronym	Description/Definition/Use	Part::Code
	MDC_VENT_PRESS_PLAT			use MDC_VENT_PRESS_RESP_PLAT	#2::20888

Insert subclause A.7.4.21 after A.7.4.20.

A.7.4.21 Nomenclature and codes for nebulizers

NOTE—This table includes measurements and device type, configuration, and status information for nebulizers typically used with ventilators. A simple operational model is assumed where the nebulizer operates in *intermittent* (single-cycle), *scheduled* (multiple periodic cycles), or *continuous* (on/off) mode. Selecting intermittent mode delivers a single timed delivery based on the programmed run time and/or volume, and for scheduled mode, the number of cycles and pause time between cycles are also specified. Selecting continuous mode delivers nebulized medication until the medication runs out or delivery is stopped.

Table A.7.4.12—Nomenclature and code extensions for nebulizers

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Type | | Device | Nebulizer	MDC_NEB_DEV_TYPE	Nebulizer type		Specifies the nebulizer type, such as an aerosolizer (using a micro pump) or pneumatic (using an external air or oxygen supply).	2::53336
Status | Operational | Device | Nebulizer	MDC_NEB_DEV_STATUS	Nebulizer status		Specifies the nebulizer operational status, such as nebulizer on/off, nebulizer failure, no nebulizer, nebulizer not connected and other information.	2::53337
Mode | | Nebulization Mode | Nebulizer	MDC_NEB_DEV_MODE_SETTING	(set) nebulizer mode		Specifies the nebulizer operational mode, including intermittent, scheduled or continuous modes. Selecting intermittent mode delivers a single timed delivery based on the programmed run time and/or volume, and for scheduled mode, the number of cycles and pause time between cycles. Selecting continuous mode delivers nebulized medication until the medication runs out or delivery is stopped.	258::53338
Duration | Delivery | Nebulization of fluid, per cycle | Nebulizer, setting	MDC_NEB_TIME_PD_PER_CYCLE_SETTING	(set) nebulizer run time		Specifies the nebulizer run time per delivery cycle.	258::22272
Volume | Delivery | Fluid to be nebulized, per cycle | Nebulizer, setting	MDC_NEB_VOL_FLUID_PER_CYCLE_SETTING	(set) nebulizer volume		Specifies the nebulizer volume per delivery cycle.	258::22276
Count, cycles | Nebulization delivery cycles | Nebulization of fluid | Nebulizer, setting	MDC_NEB_CYCLES_SETTING	(set) nebulizer cycles		Specifies the number of nebulizer delivery cycles having a specified run time and/or volume when operating in scheduled mode.	258::22280
Duration | Inter-delivery | Pause between nebulization deliveries | Nebulizer, setting	MDC_NEB_TIME_PD_PAUSE_SETTING	(set) nebulizer pause time		Specifies the pause (time duration) between nebulizer delivery cycles when operating in scheduled mode.	258::22284
Count, cycles | Remaining | Nebulization | Nebulizer	MDC_NEB_CYCLES_REMAIN	Remaining number of cycles		Number of cycles remaining, including the current cycle. Transitions to zero when delivery completed.	2::22288
Duration | Delivery | Remaining nebulization time, current cycle | Nebulization | Nebulizer	MDC_NEB_TIME_PD_REMAIN_CURR_CYCLE	Remaining nebulization time for current cycle		Remaining nebulization time for current cycle. Transitions to zero at the start of the pause interval when delivery for the current cycle is completed	2::22292

Table A.7.4.12—Nomenclature and code extensions for nebulizers *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Duration | Delivery | Remaining nebulization time, total | Nebulization | Nebulizer	MDC_NEB_TIME_PD_REMAIN_TOTAL	Total remaining nebulization time for current set of delivery cycles		Total remaining nebulization delivery time for current set of delivery cycles (does not include pause time).	2::22296
Duration | Elapsed nebulization time, current cycle | Nebulization | Nebulizer	MDC_NEB_TIME_PD_ELAPSED_CURR_CYCLE	Elapsed nebulization time for current cycle		Elapsed time that fluid has been nebulized for current cycle.	2::22300
Volume | Elapsed nebulization time, total | Nebulization | Nebulizer	MDC_NEB_TIME_PD_ELAPSED_TOTAL	Total elapsed nebulization time for current set of delivery cycles		Total elapsed time that fluid that has been nebulized for current set of delivery cycles.	2::22304
Volume | Remaining fluid to be nebulized, current cycle | Nebulization | Nebulizer	MDC_NEB_VOL_FLUID_REMAIN_CURR_CYCLE	Remaining fluid to be nebulized for current cycle		Estimated remaining volume of fluid to be nebulized for current cycle.	2::22308
Volume | Remaining fluid to be nebulized, total | Nebulization | Nebulizer	MDC_NEB_VOL_FLUID_REMAIN_TOTAL	Total remaining fluid to be nebulized for current set of delivery cycles		Estimated total remaining volume of fluid to be nebulized for current set of delivery cycles.	2::22312
Volume | Fluid nebulized, current cycle | Nebulization | Nebulizer	MDC_NEB_VOL_FLUID_DELIV_CURR_CYCLE	Volume of fluid that has been nebulized for current cycle		Estimated volume of fluid that has been nebulized for current cycle.	2::22316
Volume | Fluid nebulized, total | Nebulization | Nebulizer	MDC_NEB_VOL_FLUID_DELIV_TOTAL	Total volume of fluid that has been nebulized for current set of delivery cycles		Estimated volume of fluid that has been nebulized for current set of delivery cycles.	2::22320
Flow, additional | Inspiratory airway | Gas | Nebulizer, pneumatic	MDC_VENT_FLOW_NEBULIZER	Nebulizer Flow		Additional inspiratory gas flow due to pneumatic nebulizer, externally indicated by a wall flow meter or other sensor. This information can be manually or automatically entered and typically requires compensation by the ventilator.	2::22324

NOTE—For example, consider a nebulizer programmed for two cycles (MDC_NEB_CYCLES_SETTING = 2) with an 'on' time MDC_NEB_TIME_PD_PER_CYCLE_SETTING of five (5) minutes and a cycle 'pause' time MDC_NEB_TIME_PD_PAUSE_SETTING of three (3) minutes, the following information would be periodically reported at one minute intervals:

MDC_NEB_CYCLES_REMAIN	0	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	0	0
MDC_NEB_TIME_PD_REMAIN_CURR_CYCLE	0	5	4	3	2	1	0	0	0	5	4	3	2	1	0	0	0	0	0
MDC_NEB_TIME_PD_REMAIN_TOTAL	0	10	9	8	7	6	5	5	5	5	4	3	2	1	0	0	0	0	0
MDC_NEB_TIME_PD_ELAPSED_CURR_CYCLE	0	0	1	2	3	4	5	5	5	0	1	2	3	4	5	5	5	0	0
MDC_NEB_TIME_PD_ELAPSED_TOTAL	0	0	1	2	3	4	5	5	5	5	6	7	8	9	10	10	10	0	0

A.7.5 Nomenclature, data dictionary, and codes for common blood-gas, blood, urine, and other fluid chemistry measurements

A.7.5.6 Code table

NOTE—This table includes additional fluid chemistry and non-invasive multiple analyte pulse oximetry measurements.

After inserting Acronym and Description/Definition columns with empty cells, insert the following rows at the end of Table A.7.5.1 as shown:

Table A.7.5.1—Nomenclature and codes for common blood-gas, blood, urine, and other fluid chemistry measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | BaseExcess | ExtracellularFluid | BloodChemistry	MDC_BASE_EXCESS_FLUID_EXTRACELLULAR	Base Excess of Extracellular Fluid	BEecf	Base excess of extracellular fluid	2::29144
Concentration | BaseExcess | ArterialBlood | BloodChemistry	MDC_BASE_EXCESS_BLD_ART	Base Excess of Arterial Blood	BE	Base excess of arterial blood	2::29180
Concentration | Total, Ca, Logarithmic, Normalized to pH 7.4 | ArterialBlood | FluidChemistry	MDC_CONC_CA_PH_NORMALIZED_ART	Ionized Calcium, Normalized to pH 7.4	iCa(N)	Ionized calcium in blood fluid, normalized to pH 7.4	2::29184
Concentration | Oxygen content, total, bound and unbound to hemoglobin | ArterialBlood | FluidChemistry, Pulse Oximetry	MDC_PULS_OXIM_CONC_HB_O2_ART_CALC	(Estimated) Arterial Oxygen Content	Sp-OC CaO2	An estimate of the amount of oxygen bound to hemoglobin plus the amount of oxygen dissolved in arterial blood (not bound to hemoglobin).	2::29208
Concentration | Carboxyhemoglobin | ArterialBlood | FluidChemistry, Pulse Oximetry	MDC_PULS_OXIM_HB_CO_ART	Arterial blood carboxyhemoglobin concentration	Sp-CO	Carboxyhemoglobin concentration in the arterial blood, measured by pulse oximetry.	2::29212
Concentration | Methemoglobin | ArterialBlood | FluidChemistry, Pulse Oximetry	MDC_PULS_OXIM_HB_MET_ART	Arterial blood methemoglobin concentration	Sp-Met	Methemoglobin concentration in the arterial blood, measured by pulse oximetry.	2::29216
Concentration | Hb, total | ArterialBlood | FluidChemistry, Pulse Oximetry	MDC_PULS_OXIM_HB_TOTAL_ART	Arterial blood hemoglobin concentration	Sp-Hb	Total Hemoglobin concentration in the arterial blood, measured by pulse oximetry.	2::29220

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

Table A.7.5.1— Nomenclature and codes for common blood-gas, blood, urine, and other fluid chemistry measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | Saturation, Oxygen | ArterialBlood, Preductal | FluidChemistry, Pulse Oximetry	MDC_PULS_OXIM_SAT_O2_ART_PREDUCTAL	Preductal SpO2		Preductal oxygen saturation measured at a site that receives blood flow from the aorta before the level of the ductus arteriosus (see Note 1).	2::29224
Concentration | Saturation, Oxygen | ArterialBlood, Postductal | FluidChemistry, Pulse Oximetry	MDC_PULS_OXIM_SAT_O2_ART_POSTDUCTAL	Postductal SpO2		Postductal oxygen saturation is measured at a site that receives blood flow from the aorta after the level of the ductus arteriosus (see Note 2).	2::29228
Concentration | Saturation, Oxygen | ArterialBlood, (Preductal, Postductal) difference | FluidChemistry, Pulse Oximetry	MDC_PULS_OXIM_SAT_O2_ART_PRE_POST_DIFF	Pre-postductal SpO2 difference		The difference between preductal and postductal oxygen saturation measurement (see Note 3).	2::29232
Index | SignalQuality, SpO2 | ArterialBlood | FluidChemistry, Pulse Oximetry	MDC_SPO2_SIGNAL_QUALITY_INDEX	SPO2 Signal Quality Index	SpO_2-SQI	SpO2 Signal Quality Index, an indication of overall signal quality for calculating SpO2 and other values using pulse oximetry.	2::29252
Concentration, PartialPressure | Difference, CO2 (gastric,arterial) | Gastric, mucosal | FluidChemistry	MDC_CONC_PCO2_GASTRIC_ART_DIFF	Gastric-arterial CO2 Gap	$P(g\text{-}a)CO_2$	Difference (gap) between gastric mucosal (PgCO2) and arterial (PaCO2) partial pressures of carbon dioxide.	2::29236
Concentration, PartialPressure | Difference, CO2 (gastric,endtidal) | Gastric, mucosal | FluidChemistry	MDC_CONC_PCO2_GASTRIC_ET_DIFF	Gastric-endtidal CO2 Gap	$P(g\text{-}et)CO_2$	Difference (gap) between gastric mucosal (PgCO2) and end-tidal (EtCO2) partial pressures of carbon dioxide.	2::29240
Concentration, PartialPressure | Total, CO2 | Gastric, mucosal | FluidChemistry	MDC_CONC_PCO2_GASTRIC_MUCOSAL	Gastric Mucosal PCO2	$PgCO_2$	Gastric mucosal (PgCO2) partial pressure of carbon dioxide.	2::29244
Concentration | Total, H+, Logarithmic | Gastric, Intramucosal | FluidChemistry	MDC_CONC_PH_INTRAMUCOSAL	Intramucosal pH	Phi	Intramucosal pH	2::29248

NOTE 1—For infant congenital heart disease screening, the right hand is usually used as the measurement site. The left hand is not used because depending on the location of the ductus, the left hand may receive preductal or postductal blood.

NOTE 2—For infant congenital heart disease screening, either the right or left foot is usually used as the measurement site.

NOTE 3—Even if both preductal and postductal measurements are in range, a difference of more than 3% may indicate structural disease such as coarctation of the aorta.

Insert the following text and table after the updated Table A.7.5.1 as shown:

The following terms from Table A.7.5.1 in ISO/IEEE 11073-10101:2004 are deprecated as they are incorrect blood chemistry terms. Serum is the part that remains following coagulation, and therefore cannot have coagulation measurements.

Table A.7.5.2—Deprecated nomenclature and codes for plasma coagulation measurements

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Duration | Coagulation | Serum | BloodChemistry	MDC_TIME_PD_SERUM	Serum coagulation time			#2::28988
Ratio | Coagulation | Serum | BloodChemistry	MDC_RATIO_SERUM_COAG	Serum coagulation ratio			#2::28980

A.7.8 Nomenclature, data dictionary, and codes for neurological monitoring measurements

NOTE—This table includes additional neurological measurements regarding burst suppression, signal quality index, and other 'computed' EEG variables used for assessing depth of consciousness, level of sedation, and hypnotic effect of anesthetic drugs in the brain.

Insert the following rows at the end of Table A.7.8.1 as shown:

Table A.7.8.1—Nomenclature and codes for neurological monitoring measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Count, Pattern | ParoxysmalActivity, Burst | Cortex, EEG | CNS	MDC_EEG_PAROX_CRTX_BURST_CNT	Burst Count	.	Epileptic or potentially epileptogenic activity identifiers, burst count	2::25169
Rate, Pattern | ParoxysmalActivity, Burst | Cortex, EEG | CNS	MDC_EEG_PAROX_CRTX_BURST_RATE	Burst Rate	.	Epileptic or potentially epileptogenic activity identifiers, burst rate	2::25170
Count, Pattern | ParoxysmalActivity, Spike | Cortex, EEG | CNS	MDC_EEG_PAROX_CRTX_SPK_CNT	Spike Count	.	Epileptic or potentially epileptogenic activity identifiers, spike count	[2::23905]
Index | SignalQuality, BIS | Cortex, EEG | CNS	MDC_EEG_SIGNAL_QUALITY_INDEX	Signal Quality Index	SQI, EEG-SQI	EEG Signal Quality Index, an indication of overall signal quality for calculating processed EEG variables such as BIS and interpreting EEG results.	2::22564
Power | Electromyographic | Cortex, EEG | CNS	MDC_EMG_ELEC_POTL_MUSCL	Electromyography	EMG	Electromyographic signal strength, predominantly representing muscle activity above 70 Hz.	2::22568
Index | Bispectral Index | Cortex, EEG | CNS	MDC_EEG_BISPECTRAL_INDEX	Bispectral Index	BIS	The bispectral index (BIS) is a quantitative assessment of depth of anesthesia, specifically the level of consciousness. It is an index that ranges from 0 to 100. No measurable cortical activity would result in a BIS of 0 and a typical awake state is usually associated with an index of 90 to 100. Typical values for a patient undergoing general anesthesia are 40 to 60.	2::22572

Table A.7.8.1—Nomenclature and codes for neurological monitoring measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Index | Response Entropy | Cortex, EEG | CNS	MDC_EEG_ENTROPY_RESPONSE	Response Entropy	RE	A computed EEG variable used for assessing the depth of anesthesia based on the irregularity of the FEMG signal in the 0.8 to 47 Hz frequency band. Typical values for patients undergoing general anesthesia are between 40 and 60, and at these levels of entropy response, the probability of patient accidental awareness is low. The overall display range for RE is 0 to 100.	2::22576
Index | State Entropy | Cortex, EEG | CNS	MDC_EEG_ENTROPY_STATE	State Entropy	SE	A computed EEG variable used for assessing the depth of anesthesia based on the irregularity of the EEG signal in the 0.8 to 32 Hz frequency band. Typical values for patients undergoing general anesthesia are between 40 and 60, and at these levels of entropy state, the probability of patient accidental awareness is low. The overall display range of SE is 0 to 91.	2::22580
Index | SNAP Index | Cortex, EEG | CNS	MDC_EEG_SNAP_INDEX	SNAP Index	SNAP Index	A computed EEG variable used to help assess the level of consciousness while under anesthesia based on the high- and low-frequency EEG. Index values range from 0 to 100, with 0 reflecting no measurable cortical activity and 100 reflecting the awake state.	2::22584
Index | Patient State Index | Cortex, EEG | CNS	MDC_EEG_PATIENT_STATE_INDEX	Patient State Index	PSI	A computed EEG index used to help assess the depth of sedation and anesthesia based on a multivariate combination of EEG variables.	2::22588

A.7.11 Nomenclature and code extensions for miscellaneous measurements

NOTE—This table includes additional gastric-mucosal measurements, transcutaneous measurements, and temperatures at various measurement sites.

Insert the following rows at the end of Table A.7.11.1 as shown:

Table A.7.11.1—Nomenclature and codes for miscellaneous measurements *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Temperature					
Power | | Trancutaneous probe | Heater	MDC_POWER_TCUT	Transcutaneous probe heater power	.	Transcutaneous sensor heater power	2::57416
Temperature | | Transcutaneous probe | Sensor	MDC_TEMP_TCUT	Transcutaneous probe temperature	.	Transcutaneous sensor temperature	2::57420
Temperature | | Axillary | Body	MDC_TEMP_AXIL	Axillary temperature	.	Axillary (armpit) temperature	2::57424
Temperature | | Myocardial | Heart, CVS, Body	MDC_TEMP_MYO	Myocardial temperature	.	Myocardial temperature	2::57428
Temperature | | Nasal | Body	MDC_TEMP_NASAL	Nasal temperature	.	Nasal temperature	2::57432
Temperature | | Room | Ambient	MDC_TEMP_ROOM	Room temperature	.	Room temperature	2::57436
Body weight and estimates					
Mass | Actual | | Body	MDC_MASS_BODY_ACTUAL	Patient actual weight		The measurement of the mass of patient, e.g., by a scale in bed, e.g., during therapy	[2::57664]
Mass | Actual | | Body, last taken	MDC_ATTR_PT_WEIGHT_LAST	Last Taken Weight	.	Last Taken Weight	2::57720
Mass | Estimated | | Body, Ideal	MDC_MASS_BODY_EST_IBW	Ideal Body Weight, Predicted Body Weight	IBW, PBW	Ideal body weight (IBW), an estimate based solely on patient height using the Devine Formula (1974): *Male (in kg): 50.0 + 2.3 kg per inch over 5 feet* *Female (in kg): 45.5 + 2.3 kg per inch over 5 feet* The Devine formula can be re-expressed using other units-of-measure. Also called the Predicted Body Weight.	2::57724
Mass | Estimated | | Body, Adjusted	MDC_MASS_BODY_EST_ABW	Adjusted Body Weight	ABW	Adjusted Body Weight, an estimate based on the IBW and following rule: *If the actual body weight is greater than 30% of the calculated IBW (all in kg), the adjusted body weight (ABW) estimate is:* *ABW = IBW + 0.4 (actual weight - IBW)*	2::57728

Insert subclause A.7.11.7 after A.7.11.6.

A.7.11.7 Body Weight and Surface Area

The Reference ID suffixes '_TBW', '_IBW', '_ABW', and '_BSA' may be applied to select base Reference IDs to indicate observations that are normalized to actual and estimated patient body weight and patient body surface area. The Reference ID suffixes are listed in Table A.7.11.1.

Table A.7.11.1—Body weight and surface area for pre-coordinated Reference IDs

REFID suffixes	Description	Units	Formula
_TBW _PER_TBW	Total Body Weight (actual measured)	kg, g, [lb_av]	Actual measured
_IBW _PER_IBW	Ideal Body Weight = Predicted Body Weight	kg, g, [lb_av]	Devine (1974)
_ABW _PER_ABW	Adjusted Body Weight	kg, g, [lb_av]	Various
_BSA _PER_BSA	Body Surface Area	m^2	

Insert new subclauses A.7.12 and A.7.13 after A.7.11 as shown.

A.7.12 Nomenclature and code extensions for infant incubator and warmer microenvironments

NOTE—This table includes measurements and device type, configuration, and status information for infant incubator and warmer 'microenvironments'.

Table A.7.12.1—Nomenclature and code extensions for infant incubator and warmer microenvironments

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Concentration | PartialPressure | Oxygen, Gas | Incubator, Microenvironment	MDC_CONC_O2_MICROENV	Oxygen Reading	.	The oxygen concentration inside the incubator micro-environment.	2::53216
Status, Operational | Air curtain | Airflow | Incubator, Microenvironment	MDC_MICROENV_AIR_CURTAIN_STATE	Air Curtain Status	.	The air curtain on an incubator is a specially-designed airflow to reduce temperature fluctuation and maintain the temperature inside the incubator when its access doors are opened. The air curtain state indicates whether the air curtain is on, off or has been disabled by the user.	2::53267
State, Bed | | State, open or closed | Incubator, Microenvironment	MDC_MICROENV_BED_STATE	Bed State	.	The bed state indicates whether the infant's incubator is closed, partially open or open, i.e. the top of the incubator is raised.	2::53266

ISO/IEEE 11073-10101:2004/Amd 1:2017(E)

Table A.7.12.1—Nomenclature and code extensions for infant incubator and warmer microenvironments *(continued)*

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code
Fan speed | Air curtain | Airflow | Incubator	MDC_MICROENV_FAN_SPEED	Fan Speed	.	The speed of the fan that controls the airflow in an infant incubator, such as low or high.	2::53269
Humidity, Relative | | Compartment | Incubator, Microenvironment	MDC_REL_HUMIDITY_MICROENV	Measured Relative Humidity	.	Measured relative humidity inside the infant incubator	2::53220
Temperature | | Compartment | Incubator, Microenvironment	MDC_TEMP_MICROENV	Compartment Probe Temperature	.	Compartment probe (incubator air) temperature	2::53224
Power, Relative | Heater | | Incubator or Warmer, Microenvironment	MDC_MICROENV_HEATER_APPLIED_PWR	Heater Power	.	The heater power is the percentage of power (or actual power in watts) necessary to maintain the set temperature of the incubator or warmer.	2::53228
Mode | Temperature Control | | Incubator or Warmer, Microenvironment	MDC_MICROENV_HEATER_CNTRL_MODE	Temperature Control Mode	.	Specifies the manner in which the temperature of an infant incubator or radiant warmer is controlled. For closed beds (incubators) the temperature is controlled based on patient sensor or air temperature. For open beds (open incubator or warmer) the temperature is controlled based on patient sensor or manually set temperature.	2::53268
Temperature | | Heat Sink, Heater | Incubator, Microenvironment	MDC_MICROENV_HEATER_HEAT_SINK_TEMP	Incubator heater heat sink temperature	.	Incubator heater heat sink and fin assembly temperature	2::53236
Resistance | Temperature-related | Heat Sink, Heater | Incubator, Microenvironment	MDC_MICROENV_HEATER_HEAT_SINK_RESIST	Incubator heater heat sink temperature sensor resistance	.	Incubator heater heat sink and fin assembly temperature sensor resistance	2::53232
Type | Heater | | Incubator or Warmer, Microenvironment	MDC_MICROENV_HEATER_TYPE	Incubator heater type	.	Incubator or warmer heater currently being used. This may include radiant, convective or none (no heat).	2::53265
Type | Bed | | Incubator or Warmer, Microenvironment	MDC_MICROENV_TYPE	Microenvironment Bed Type	.	The type of bed used for an infant in the neonatal intensive care unit or newborn nursery. A radiant warmer is an open bed, an incubator is a closed bed, and an incubator that can serve as a radiant warmer is a combination bed.	2::53264

A.7.13 Nomenclature and code extensions for personal health devices

NOTE—This table includes the measurement identifiers and definitions for the IEEE Std 11073-104xx Personal Health Device standards that have been approved and published as standards on or before 2013.

Table A.7.13.1—Nomenclature and code extensions for personal health devices

Systematic name	Reference ID	Common term	Acronym	Description/Definition	Part::Code	Ref
ModalityEnumeration | Measurement response time, fast | ArterialBlood | FluidChemistry, Pulse Oximetry	MDC_MODALITY_FAST	SpO2 fast response		The modality of fast-response SpO2 measurement. Rate of sampling of peripheral oxygen saturation by device.	2::19508	10404
ModalityEnumeration | Measurement response time, slow | ArterialBlood | FluidChemistry, Pulse Oximetry	MDC_MODALITY_SLOW	SpO2 slow response		The modality of slow-response SpO2 measurement. Rate of sampling of peripheral oxygen saturation by device.	2::19512	10404
ModalityEnumeration | Measurement response time, spot check | ArterialBlood | FluidChemistry, Pulse Oximetry	MDC_MODALITY_SPOT	SpO2 spot check		The modality of spot-check SpO2 measurement. Peripheral oxygen saturation.	2::19516	10404
PatternEvent | Rhythm | Artifact | CVS	MDC_PULS_OXIM_PULS_CHAR	Pulse characteristic status		Object containing status flags representing several characteristics of the pulse event	2::19533	10404
Status | value | FunctionalStatus | Device	MDC_PULS_OXIM_DEV_STATUS	Pulse Oximeter Device Status		Object containing sensor or pulse oximeter-specific status flags	2::19532	10404
Flow | Expiration, Maximum | Gas | Maximal Forced Expiration	MDC_FLOW_AWAY_EXP_FORCED_PEAK	peak expiratory flow	PEF	Peak Expiratory Flow (PEF): maximum flow measured at the mouth during an expiration delivered with maximal force starting immediately after achieving maximum lung inflation	2::21512	10421
Flow | Expiration, Maximum of Maximum | Gas | Maximal Forced Expiration	MDC_FLOW_AWAY_EXP_FORCED_PEAK_PB	Personal best		This value is determined by a healthcare professional or based on predicted average peak flow and is typically the highest peak condition.expiratory flow (PEF) reading an individual can obtain while in peak	2::21513	10421
Flow | Expiration, Maximum, 1s | Gas | Maximal Forced Expiration	MDC_VOL_AWAY_EXP_FORCED_1S	forced expiratory volume at 1s	FEV1	It is a measure of expiratory volume of a subject under forced conditions at 1 s, measured from time zero (time at which subject starts the expiration).	2::21514	10421

Table A.7.13.1—Nomenclature and code extensions for personal health devices *(continued)*

Systematic Name	Reference ID	Common Term	Acronym	Description/Definition	Part::Code	Ref
Flow | Expiration, Maximum, 6s | Gas | Maximal Forced Expiration	MDC_VOL_AWAY_EXP_FORCED_EXP_6S	forced expiratory volume at 6s	FEV6	It is a measure of expiratory volume of a subject under forced conditions at 6 s, measured from time zero (time at which subject starts the expiration).	2::21515	10421
Concentration | Total, Glucose | CapillaryWholeBlood | FluidChemistry	MDC_CONC_GLU_CAPILLARY_WHOLEBLOOD	Capillary whole blood glucose		Whole blood glucose concentration taken from capillary	2::29112	10417
Concentration | Total, Glucose | CapillaryPlasma | FluidChemistry	MDC_CONC_GLU_CAPILLARY_PLASMA	Capillary plasma glucose		Plasma glucose concentration taken from capillary	2::29116	10417
Concentration | Total, Glucose | VenousWholeBlood | FluidChemistry	MDC_CONC_GLU_VENOUS_WHOLEBLOOD	Venous whole blood glucose		Whole blood glucose concentration taken from venous	2::29120	10417
Concentration | Total, Glucose | VenousPlasma | FluidChemistry	MDC_CONC_GLU_VENOUS_PLASMA	Venous plasma glucose		Plasma glucose concentration taken from venous	2::29124	10417
Concentration | Total, Glucose | ArterialWholeBlood | FluidChemistry	MDC_CONC_GLU_ARTERIAL_WHOLEBLOOD	Arterial whole blood glucose		Whole blood glucose concentration taken from arterial	2::29128	10417
Concentration | Total, Glucose | ArterialPlasma | FluidChemistry	MDC_CONC_GLU_ARTERIAL_PLASMA	Arterial plasma glucose		Plasma glucose concentration taken from arterial	2::29132	10417
Concentration | Glucose | ControlSolution | FluidChemistry	MDC_CONC_GLU_CONTROL	Control Result		Glucose concentration measurement produced from control solution	2::29136	10417
Concentration | Glucose | InterstitialFluid | FluidChemistry	MDC_CONC_GLU_ISF	Interstitia Fluid Glucose		Glucose concentration measurement indirectly derived from interstitial fluid	2::29140	10417
Concentration | Total, Glucose | UndeterminedWholeBlood | FluidChemistry	MDC_CONC_GLU_UNDETERMINED_WHOLEBLOOD	Undetermined whole blood glucose		Whole blood glucose concentration taken from undetermined sample source	2::29292	10417
Concentration | Total, Glucose | UndeterminedPlasma | FluidChemistry	MDC_CONC_GLU_UNDETERMINED_PLASMA	Undetermined arterial plasma glucose		Plasma glucose concentration taken from undetermined sample source	2::29296	10417
Concentration | HbA1c	MDC_CONC_HBA1C	HbA1c		A1c or glycated hemoglobin concentration.	2::29148	10417
Ratio | Coagulation | Plasma | Blood Chemistry	MDC_RATIO_INR_COAG	Coagulation ratio – INR		The globally recommended normalized unit for measuring prothrombin time	2::29188	10418
Duration | Coagulation | Plasma | Blood Chemistry	MDC_TIME_PD_COAG	Coagulation time – prothrombin time		The time taken for a clot to form on the addition of a thromboplastin to a sample of venous or capillary blood	2::29192	10418

Table A.7.13.1—Nomenclature and code extensions for personal health devices *(continued)*

Systematic Name	Reference ID	Common Term	Acronym	Description/Definition	Part::Code	Ref
Quick value | Coagulation | Plasma | Blood Chemistry	MDC_QUICK_VALUE_COAG	Coagulation quick value		The measured prothrombin time is expressed in relation to the coagulation time of a healthy person, i.e., the "percentage of the standard value."	2::29196	10418
ISI | Coagulation | Plasma | Blood Chemistry	MDC_ISI_COAG	International Sensitivity Index		Standardized calibration for a thromboplastin compared to the WHO standard.	2::29200	10418
Control | Coagulation | Plasma | Blood Chemistry	MDC_COAG_CONTROL	Control calibration of INR		Control Solution of INR monitor	2::29204	10418
	MDC_TRIG_BEAT_MAX_INRUSH	SpO2 precise pulse		An enumeration that indicates the maximal inrush of the pulsatile wave has occurred	2::53259	10404
Temperature | | Axillary | Body	MDC_TEMP_AXILLA	Axillary (armpit) temperature		Axillary (armpit) temperature	2::57380	10408
Temperature | | GIT | Body	MDC_TEMP_GIT	Gastro-intestinal tract temperature		Gastro-intestinal tract temperature	2::57384	10408
Ratio | Computation | Body fat, Body weight | Body	MDC_BODY_FAT	body fat		The individual's body fat in kilograms divided by the individual's weight in kilograms	2::57676	20601
Ratio | Computation | Body mass, Body length | Body	MDC_RATIO_MASS_BODY_LEN_SQ	body mass index	BMI	The individual's body weight, in kilograms, divided by the square of height, in meters	2::57680	10415
Mass | Actual | fat free mass | Body	MDC_MASS_BODY_FAT_FREE	fat free mass	FFM	The sum of the soft lean mass and mineral mass in the human body.	2::57684	10420
Mass | Actual | Soft lean mass | Body	MDC_MASS_BODY_SOFT_LEAN	soft lean mass	SLM	The sum of the soft lean mass in the human body.	2::57688	10420
Ratio | Computation | Body water, Body weight | Body	MDC_BODY_WATER	body water		The individual's body water in kilograms divided by the individual's weight	2::57692	10420

A.8 Nomenclature, data dictionary, and codes for body sites (Block D)

A.8.1 Sites for EEG-electrode placement on the head

NOTE—This table defines additional measurement and electrode sites for electroencephalography.

Insert the following rows at the end of Table A.8.4.1 as shown. Renumber footnotes accordingly.

Table A.8.4.1—Nomenclature and codes for electrode sites for electroencephalography according to the International 10–20 system *(continued)*

Systematic name	Acronym	Description/Definition	Reference ID	Part::Code
Head | Regional, Occipital, Left | | CNS	LO	Regional EEG site, left occipital	MDC_HEAD_REGIONAL_OCCIPITAL_L	7::1845
Head | Regional, Occipital, Right | | CNS	RO	Regional EEG site, right occipital	MDC_HEAD_REGIONAL_OCCIPITAL_R	7::1846
Head | Regional, Parietal, Left | | CNS	LP	Regional EEG site, left parietal	MDC_HEAD_REGIONAL_PARIETAL_L	7::1849
Head | Regional, Parietal, Right | | CNS	RP	Regional EEG site, right parietal	MDC_HEAD_REGIONAL_PARIETAL_R	7::1850
Head | Regional, Temporal, Left | | CNS	LT	Regional EEG site, left temporal	MDC_HEAD_REGIONAL_TEMPORAL_L	7::1853
Head | Regional, Temporal, Right | | CNS	RT	Regional EEG site, right temporal	MDC_HEAD_REGIONAL_TEMPORAL_R	7::1854
Head | Regional, Frontal, Left | | CNS	LF	Regional EEG site, left frontal	MDC_HEAD_REGIONAL_FRONTAL_L	7::1857
Head | Regional, Frontal, Right | | CNS	RF	Regional EEG site, right frontal	MDC_HEAD_REGIONAL_FRONTAL_R	7::1858
Head | Regional, Frontal, Polar, Left | | CNS	LFp	Regional EEG site, left frontal polar	MDC_HEAD_REGIONAL_FRONTAL_POLAR_L	7::1861
Head | Regional, Frontal, Polar, Right | | CNS	RFp	Regional EEG site, right frontal polar	MDC_HEAD_REGIONAL_FRONTAL_POLAR_R	7::1862
Nerve | Cervicales | Spinal, Cervical, 5 | Body	C5S	Originates from the spinal column from above the cervical vertebra 5 (C5). Normally used for somatosensory evoked potentials, but can also be used as an EEG monitoring site.	MDC_NERV_SPIN_CERVIC_5	7::1864
Head | Custom site, X1 | | CNS	X1	Custom EEG electrode site, X1	MDC_HEAD_CUSTOM_1	7::1881
Head | Custom site, X2 | | CNS	X2	Custom EEG electrode site, X2	MDC_HEAD_CUSTOM_2	7::1882
Head | Custom site, X3 | | CNS	X3	Custom EEG electrode site, X3	MDC_HEAD_CUSTOM_3	7::1883
Head | Custom site, X4 | | CNS	X4	Custom EEG electrode site, X4	MDC_HEAD_CUSTOM_4	7::1884
Head | Custom site, X5 | | CNS	X5	Custom EEG electrode site, X5	MDC_HEAD_CUSTOM_5	7::1885
Head | Custom site, X6 | | CNS	X6	Custom EEG electrode site, X6	MDC_HEAD_CUSTOM_6	7::1886
Head | Ear, Left | | CNS	A1	Left ear (theta 120, phi 180)	MDC_HEAD_AURIC_L	7::1289
Head | Ear, Right | | CNS	A2	Right ear (theta 120, phi 0)	MDC_HEAD_AURIC_R	7::1290
NOTE—In IEEE Std 11073-10101:2004 the EEG auricular sites use same Reference ID as SpO2 sites but different codes; replaced EAR with AURIC for EEG A1 and A2 site REFIDs.				

Insert new Annex Clause A.11 after Clause A.10 as shown.

A.11 Information attributes to support IHE PCD DEC and PCHA Continua WAN

This clause defines new information attributes to support the IHE Patient Care Devices (PCD) Device to Enterprise (DEC) Technical Framework and the Personal Connected Health Alliance (PCHA, formerly Continua) 'Wide Area Network' (WAN) interface that uses the IHE PCD DEC Technical Framework.

A.11.1 Information attributes to support IHE PCD Alert Communication Management

Several new information attributes have been defined to support the IHE PCD DEC Alert Communication Management (ACM) profile. These have been assigned to the MDC_PART_OBJ partition (1).

Table A.11.1.1—IHE PCD Alert Communication Management attributes

Reference ID	Mnemonic	Description/Definition	Part::Code
MDC_ATTR_ALERT_SOURCE	Source identification	Identifies the physiological measurement or technical source responsible for the alert	1::2944
MDC_ATTR_EVENT_PHASE	Event phase	Specifies whether this message is the beginning, end or other state or state transition for the alert	1::2945
MDC_ATTR_ALARM_STATE	Alert state	Indicates the state of the underlying alert condition at the patient care device	1::2946
MDC_ATTR_ALARM_INACTIVATION_STATE	Inactivation state	Indicates whether visual or aural indications at the patient care device are inactivated	1::2947
MDC_ATTR_ALARM_PRIORITY	Priority	Alert priority	1::2948
MDC_ATTR_ALERT_TYPE	Type	Alert type	1::2949

A.11.2 Infrastructure attributes to support PCHA/Continua WAN and IHE PCD DEC

Several new information attributes have been defined to support the PCHA/Continua Wide Area Network (WAN) and IHE PCD DEC interfaces. These have been assigned to the MDC_PART_INFRA partition (8).

Table A.11.2.1—Continua WAN infrastructure attributes

Reference ID	Description/Definition	Part::Code
MDC_INFRA_HARMONIZATION_CONTINUA	Start of Infrastructure Harmonization range for Continua WAN	8::7680
MDC_ID_MODEL_NUMBER	The model number sub-element of the MDC_ATTR_ID_MODEL attribute.	8::7681
MDC_ID_MODEL_MANUFACTURER	The manufacturer sub-element of the MDC_ATTR_ID_MODEL attribute.	8::7682
MDC_ID_PROD_SPEC_UNSPECIFIED	The unspecified component id group of the MDC_ATTR_ID_PROD_SPECN attribute.	8::7683
MDC_ID_PROD_SPEC_SERIAL	The serial-number component id group of the MDC_ATTR_ID_PROD_SPECN attribute.	8::7684
MDC_ID_PROD_SPEC_PART	The part-number component id group of the MDC_ATTR_ID_PROD_SPECN attribute.	8::7685
MDC_ID_PROD_SPEC_HW	The hardware-revision component id group of the MDC_ATTR_ID_PROD_SPECN attribute.	8::7686
MDC_ID_PROD_SPEC_SW	The software-revision component id group of the MDC_ATTR_ID_PROD_SPECN attribute.	8::7687
MDC_ID_PROD_SPEC_FW	The firmware-revision component id group of the MDC_ATTR_ID_PROD_SPECN attribute.	8::7688

Table A.11.2.1—Continua WAN infrastructure attributes *(continued)*

Reference ID	Description/Definition	Part::Code
MDC_ID_PROD_SPEC_PROTOCOL_REV	The protocol-revision component id group of the MDC_ATTR_ID_PROD_SPECN attribute.	8::7689
MDC_ID_PROD_SPEC_GMDN	The prod-spec-gmdn component id group of the MDC_ATTR_ID_PROD_SPECN attribute.	8::7690
MDC_MODALITY_AVERAGING_TIME	Attribute that specifies the IEEE Std 11073-10104 SPO2 or Pulse Rate Modality as an enumeration of the following values: 150580^MDC_MODALITY_FAST^MDC or 150584^MDC_MODALITY_SLOW^MDC or 150588^MDC_MODALITY_SPOT^MDC"	8::7691
MDC_SA_SPECN_FLAGS	Sample Array Flags used to help downstream consumers display the Real Time Sample Array (RTSA) SA-Value waveform	8::7692
MDC_MOC_VMS_MDS_AHD	Defines the MDS-level entity for a Continua "Application Hosting Device" (AHD).	8::7693
MDC_REG_CERT_DATA_CONTINUA_VERSION	Regulation-Certification-Continua-Version (hypothetical decomposition of MDC_ATTR_REG-CERT-DATALIST Continua Body Certified Device Version sub element)	8::8064
MDC_REG_CERT_DATA_CONTINUA_CERT_DEV_LIST	Regulation-Certification-Continua-Certified-Device-List (hypothetical decomposition of MDC_ATTR_REGCERT-DATA-LIST Continua Body Certified Device List sub element)	8::8065
MDC_REG_CERT_DATA_CONTINUA_REG_STATUS	Regulation-Certification-Continua-Regulation-Status (hypothetical decomposition of MDC_ATTR_REGCERT-DATA-LIST Continua Body Regulation Status sub element)	8::8066
MDC_REG_CERT_DATA_CONTINUA_AHD_CERT_LIST	Regulation-Certification-Continua-AHD-Cert-List	8::8077

A.11.3 Information attributes to support PCHA/Continua WAN

An additional attribute has been defined to support the PCHA Continua Wide Area Network (WAN) device certification list and has been assigned to the MDC_PART_OBJ partition (1).

Table A.11.3.1—Continua WAN information attributes

Reference ID	Description/Definition	Part::Code
MDC_REG_CERT_DATA_AUTH_BODY	Used in the Continua WAN interface to denote the certification authority body sub-element(s).	1::2682

A.11.4 Information attributes to support IHE PCD DEC and PCHA/Continua WAN timekeeping

Additional attributes have been defined to support IHE PCD DEC and PCHA/Continua WAN time synchronization and timekeeping. These have been assigned to the MDC_PART_OBJ partition (1) as information attributes. New terms defined by this standard are indicated by 'IHE/Continua' in the Ref column; related terms from IEEE Std 11073-20601-2014 and ISO/IEEE 11073-10101:2004 are also included to provide context.

Table A.11.4.1—IHE PCD and Continua WAN timekeeping information attributes

Reference ID	Attribute name	Description/Definition	Part::Code	Ref
MDC_TIME_SYNC_PROTOCOL	TimeSyncProtocol	Specifies the time synchronization protocol (see Table A.11.4.2 for list of valid synchronization profiles).	1::2684	IHE/Continua
MDC_TIME_SYNC_ACCURACY	TimeSyncAccuracy	Specifies the known or estimated accuracy of the device or system absolute or base-offset time relative to a reference time source such as NTP.	1::2685	IHE/Continua
MDC_TIME_CAP_STATE	MdsTimeCapState	Specifies the timekeeping capabilities of the device(s) and system. The MdsTimeCapState bit values are defined in IEEE Std 11073-20601:2014.	1::2683	IHE/Continua
MDC_ATTR_MDS_TIME_INFO	MdsTimeInfo	This attribute defines the time handling capabilities and the status of the MDS. Usage of this attribute is required if synchronization or settable time is supported.	1::2629	20601
MDC_ATTR_TIME_REL	Relative-Time	Specifies the relative time value for system or device clock and derived objects (default 125 µs resolution counter having an arbitrary start time and value).	1::2447	10101
MDC_ATTR_TIME_REL_HI_RES	HighRes-Relative-Time	Specifies the high-res relative time value for system or device clock and derived objects (default 1 µs resolution counter having an arbitrary start time and value).	1::2536	10101
MDC_ATTR_TIME_ABS	Absolute-Time	Specifies the absolute date and time for system or device clock and derived objects (resolution of up to 1/100 of a second, encoded as eight pairs of 4-bit BCD nibbles denoting the { century, year, month, day, hour, minute, second, sec-fractions }).	1::2439	10101
MDC_ATTR_TIME_BO	BaseOffsetTime	Specifies the absolute date and time with local time-zone offset for system or device clock and derived objects expressed as a 64-bit value comprised of the 32-bit integer seconds, 16-bit fractional-seconds and signed 16-bit time-zone offset (in minutes).	1::2689	20601

Table A.11.4.1—IHE PCD and Continua WAN timekeeping information attributes *(continued)*

Reference ID	Attribute name	Description/Definition	Part::Code	Ref
MDC_ATTR_TIME_ABS_ADJUST	AbsoluteTimeAdjust	This attribute reports any date and time adjustments that occur either due to a person's changing the clock or events such as daylight savings time. This is used in event reports only. If queried with Get MDS Object command, this value shall be not present or 0. If the agent ever adjusts the date and time, this attribute is used in an event report to report such adjustment.	1::2658	20601
MDC_ATTR_TIME_STAMP_REL	Relative-Time-Stamp	Relative time stamp value for observations and derived objects.	1::2449	10101
MDC_ATTR_TIME_STAMP_REL_HI_RES	HiRes-Time-Stamp	Hi-Res relative time stamp value for observations and derived objects.	1::2537	10101
MDC_ATTR_TIME_STAMP_ABS	Absolute-Time-Stamp	Absolute time stamp value for observations and derived objects.	1::2448	10101
MDC_ATTR_TIME_STAMP_BO	BaseOffsetTimeStamp	Base-offset time stamp value for observations and derived objects.	1::2690	20601
MDC_ATTR_TIME_RES_REL		Specifies the resolution of the relative clock (if not the default value of 125 µs). For example, a clock that ticks at 1 s intervals would have a value of 8000.	1::2687	IHE/Continua
MDC_ATTR_TIME_RES_REL_HI_RES		Specifies the resolution of the high resolution relative clock (if not the default value of 1 µs). For example, a clock that ticks at 1 s intervals would have a value of 1000000.	1::2688	IHE/Continua
MDC_ATTR_TIME_RES_ABS		Specifies the resolution of the absolute date-time clock (if not the default value of 1/100 s). For example, a clock that ticks at 1 s intervals would have a value of 100.	1::2686	IHE/Continua
MDC_ATTR_TIME_NTP_REF_ID		Specifies the four octet NTP "Reference Identifier" that identifies the clock reference source. This compact binary representation is dependent on the NTP version and NTP stratum of the clock reference source (IETF RFC 5905).	1::2698	10101a
MDC_ATTR_TIME_TIMEBASE_ID		Specifes, as a text string, the universally unique identifier of the timebase providing the clock reference source.	1::2699	10101a

Table A.11.4.2—Time synchronization profiles

Reference ID	Description/Definition	Part::Code
MDC_TIME_SYNC_NONE	An uncalibrated and unsynchronized local clock source	8::7936
MDC_TIME_SYNC_EBWW	A manually set time, by 'eyeball and wristwatch'	8::7946
MDC_TIME_SYNC_NTPV3	Network Time Protocol Version 3.0 (RFC 1305)	8::7937
MDC_TIME_SYNC_NTPV4	Network Time Protocol Version 4.0 (under dev)	8::7938
MDC_TIME_SYNC_SNTPV4	Simple Network Time Protocol v4 (RFC 2030)	8::7939
MDC_TIME_SYNC_SNTPV4330	Simple Network Time Protocol v4 (RFC 4330)	8::7940
MDC_TIME_SYNC_BTV1	Bluetooth Medical Device Profile	8::7941
MDC_TIME_SYNC_USB_SOF	Synced to the 1kHz USB "start-of-frame" clock	8::7947
MDC_TIME_SYNC_RADIO	Atomic Clock synchronization through RF	8::7942
MDC_TIME_SYNC_HL7_NCK	Synchronized via Health Level 7 NCK (network clock)	8::7943
MDC_TIME_SYNC_CDMA	CDMA mobile telecommunications synchronization	8::7944
MDC_TIME_SYNC_GSM	GSM - Network Identity and Time Zone (NITZ)	8::7945
MDC_TIME_SYNC_OTHER	A time sync method that is out of scope for IEEE 11073	8::7948
MDC_TIME_SYNC_OTHER_MOBILE	A time sync method based on other mobile network technology that is not listed above	8::7949
MDC_TIME_SYNC_GPS	A time sync method based on GPS information	8::7950

A.11.5 Information attributes to support semantics defined by this standard

Additional attributes have been defined to convey breathing circuit information and calculation methods. These have been assigned to the MDC_PART_OBJ partition (1) as information attributes.

Table A.11.5.1—Breathing circuit attributes

DIM name	Reference ID	Derived from	Part::Code
Breathing-Circuit-List	MDC_ATTR_SITE_LIST_BREATHING_CKT	Metric and derived objects	1::2695
Breathing-Circuit-List	MDC_ATTR_SITE_LIST_BREATHING_CKT_EXT	Metric and derived objects	1::2697

Table A.11.5.2—Calculation method attribute

Attribute name	Attribute ID	Attribute type	Part::Code
Metric-Calc-Method	MDC_ATTR_METRIC_CALC_METHOD	Metric and derived objects	1::2701

Insert new Annex C as shown after Annex B (retaining the existing Annex B).

Annex C

(normative)

Terms and codes

C.1 Overview

This Annex provides a consolidated list of Reference IDs, discriminators, and numeric codes for terms defined in this standard. This information can be used to create a list of valid combinations of the Reference ID, discriminator(s), and the numeric codes.[1]

C.2 Discriminator sets

The discriminator sets that apply to terms defined in this standard are listed in Table C.1 below. Each discriminator set is identified by the capitalized acronym enclosed in square braces and includes the following information:

— **dOffset**, the discriminator value (offset) added to base term

— **dSuffix**, the suffix appended to the REFID [2]

— **dDescription**, a short description

Table C.1—Discriminator sets

[MVC] Device Type Discriminators {2 bits}		
dOffset	dSuffix	dDescription
0		{generic device} or not specified
1	_MDS	Medical Device System
2	_VMD	Virtual Medical Device
3	_CHAN	Channel

[MMM] Statistical Discriminators {2 bits}		
dOffset	dSuffix	dDescription
0		{base measurement} or not specified
1	_MAX	maximum value observed over an interval
2	_MIN	minimum value observed over an interval
3	_MEAN	mean value observed over an interval

[SDM] Hemodynamic pressure measurements {2 bits}		
dOffset	dSuffix	dDescription
0		{base measurement} or not specified
1	_SYS	systolic
2	_DIA	diastolic
3	_MEAN	mean

[1] Upon approval and publication of this standard, the XML Schema, XSLT transforms, and XML data files necessary to create the fully expanded and sorted lists will be available at the following URL: http://standards.ieee.org/downloads/11073/.

[2] The '_X_' denotes a unity scale factor for a decades-scalable [UoM] unit-of-measure. The _X_ may be omitted or included in the Reference ID if conveyed as a text string in a message, e.g., in OBX-6 of an HL7 V2 message.

Table C.1—Discriminator sets *(continued)*

[RCE] Rates for countable events {3 bits}		
dOffset	dSuffix	dDescription
0		{base pattern} or not specified
1	_CNT	number of occurrences of the base
2	_RATE	rate of counted events
3	_RATE_MAX	maximum rate of counted events
4	_RATE_MIN	minimum rate of counted events
5	_RATE_MEAN	mean rate of counted events
6	_TIME	time of event (non-specific)
7	_ANNOT	annotation

[RCN] Rates for countable neuro events {3 bits}		
dOffset	dSuffix	dDescription
0		{base pattern} or not specified
1	_CNT	number of occurrences of the base
2	_RATE	rate of counted events
3	_RATE_MAX	maximum rate of counted events
4	_RATE_MIN	minimum rate of counted events
5	_RATE_MEAN	mean rate of counted events
6	_TIME	time of event (non-specific)
7	_ANNOT	annotation

[LAT] Body Site Orientation (laterality) {2 bits}		
dOffset	dSuffix	dDescription
0		orientation (laterality) - nominal or unspecified
1	_L	orientation (laterality) - left side
2	_R	orientation (laterality) - right side

[UoM] Units of Measure {5 bits}		
dOffset	dSuffix	dDescription
0	_X_	10^{0}
1	_DECA_	10^{1}
2	_HECTO_	10^{2}
3	_KILO_	10^{3}
4	_MEGA_	10^{6}
5	_GIGA_	10^{9}
6	_TERA_	10^{12}
7	_PETA_	10^{15}
8	_EXA_	10^{18}
9	_ZETTA_	10^{21}
10	_YOTTA_	10^{24}
16	_DECI_	10^{-1}
17	_CENTI_	10^{-2}
18	_MILLI_	10^{-3}
19	_MICRO_	10^{-6}
20	_NANO_	10^{-9}
21	_PICO_	10^{-12}
22	_FEMTO_	10^{-15}
23	_ATTO_	10^{-18}
24	_ZEPTO_	10^{-21}
25	_YOCTO_	10^{-24}

[UoM1] Unit of Measure (singular) {5 bits}		
dOffset	dSuffix	dDescription
0		10^{0}

[1] No descriminator {0 bits}		
dOffset	dSuffix	dDescription
0		

C.3 Terms and discriminators

The Reference IDs, discriminators and numeric codes for terms defined in this standard are listed in Table C.2. Due to the large number of expanded terms, only the *base term* or the *primary term* (the latter for terms that end with a non-null dSuffix, e.g., _RATE of countable events) are listed. The terms are listed in their order of appearance in Annex A. Terms that end with a discriminator dSuffix (e.g., _MAX, _MIN, _MEAN and _SETTING) are included for clarity and consistency with Annex A.

— **Reference ID**

— **Disc**, the capitalized acronym discriminator sub-table identifier from Table C.1.

— **Part::Code**, specifyies the IEEE 11073 nomenclature partition and 16-bit numeric code.

[*x*::*yyyy*] indicates a term code originally defined in ISO/IEEE 11073-10101:2004

{x::yyyy} indicates a ‘synonym’ Reference ID for a term code originally defined in ISO/IEEE 11073-10101:2004

#x::yyyy indicates a ‘retired’ or ‘deprecated’ Reference ID and term code orginally defined in ISO/IEEE 11073-10101:2004

— **CF_CODE10**, expresses the Part::Code as a 32-bit ‘context free’ unsigned integer.

Table C.2—Terms, discriminators, and numeric codes

Reference ID	Disc	Part::Code	CF_CODE10
MDC_DEV	MVC	1::4096	69632
MDC_DEV_GENERAL	MVC	1::5120	70656
MDC_DEV_AUX	MVC	1::5124	70660
MDC_DEV_ECG_RESP	MVC	1::5128	70664
MDC_DEV_ARRHY	MVC	1::5132	70668
MDC_DEV_PULS	MVC	1::5136	70672
MDC_DEV_ST	MVC	1::5140	70676
MDC_DEV_CO2	MVC	1::5144	70680
MDC_DEV_PRESS_BLD_NONINV	MVC	1::5148	70684
MDC_DEV_CEREB_PERF	MVC	1::5152	70688
MDC_DEV_CO2_CTS	MVC	1::5156	70692
MDC_DEV_CO2_TCUT	MVC	1::5160	70696
MDC_DEV_O2	MVC	1::5164	70700
MDC_DEV_O2_CTS	MVC	1::5168	70704
MDC_DEV_O2_TCUT	MVC	1::5172	70708
MDC_DEV_TEMP_DIFF	MVC	1::5176	70712
MDC_DEV_CNTRL	MVC	1::5180	70716
MDC_DEV_AL	MVC	1::5184	70720
MDC_DEV_WEDGE	MVC	1::5188	70724
MDC_DEV_O2_VEN_SAT	MVC	1::5192	70728
MDC_DEV_PMSTORE	MVC	1::5196	70732
MDC_DEV_CARD_RATE	MVC	1::5200	70736
MDC_DEV_SYS_VS	MVC	1::5204	70740
MDC_DEV_SYS_VS_CONFIG	MVC	1::5208	70744
MDC_DEV_SYS_VS_UNCONFIG	MVC	1::5212	70748
MDC_DEV_AL_STAT	MVC	1::5216	70752
MDC_DEV_WV_GENERAL	MVC	1::5220	70756
MDC_DEV_NU_GENERAL	MVC	1::5224	70760
MDC_DEV_METER_PRESS	MVC	1::5228	70764
MDC_DEV_ANALY_PERF_REL	MVC	1::5232	70768
MDC_DEV_PLETH	MVC	1::5236	70772
MDC_DEV_CALC_CARD	MVC	1::5240	70776
MDC_DEV_CALC_PULM	MVC	1::5244	70780
MDC_DEV_CALC_PULM_EST	MVC	1::5248	70784
MDC_DEV_ANALY_SAT_O2_ART	MVC	1::5252	70788

Table C.2—Terms, discriminators, and numeric codes *(continued)*

Reference ID	Disc	Part::Code	CF_CODE10
MDC_DEV_ANALY_SAT_O2_VEN	MVC	1::5256	70792
MDC_DEV_ANALY_PCO2_GASTRIC	MVC	1::5260	70796
MDC_DEV_EEG_BIS	MVC	1::5264	70800
MDC_DEV_EEG_ENTROPY	MVC	1::5268	70804
MDC_DEV_EEG_SNAP	MVC	1::5272	70808
MDC_DEV_EEG_PSI	MVC	1::5276	70812
MDC_DEV_ANALY_CARD_OUTPUT_CTS	MVC	1::5280	70816
MDC_DEV_ANALY_CARD_OUTPUT_NONINV	MVC	1::5284	70820
MDC_DEV_INFANT_MICROENV	MVC	1::5288	70824
MDC_DEV_INFANT_MICROENV_TEMP_ENV	MVC	1::5292	70828
MDC_DEV_INFANT_MICROENV_TEMP_PATIENT	MVC	1::5296	70832
MDC_DEV_INFANT_MICROENV_HEATER_CONVECTIVE	MVC	1::5300	70836
MDC_DEV_INFANT_MICROENV_HEATER_RADIANT	MVC	1::5304	70840
MDC_DEV_N2	MVC	1::5308	70844
MDC_DEV_N2O	MVC	1::5312	70848
MDC_DEV_NEBULIZER	MVC	1::5316	70852
MDC_DEV_ICG	MVC	1::5320	70856
MDC_DIM_BOOLEAN	UoM1	4::7776	269920
MDC_DIM_DECIBEL_X_VOLT	UoM	4::7808	269952
MDC_DIM_DECIBEL_10_X_VOLT	UoM	4::7840	269984
MDC_DIM_DECIBEL_10_NANO_VOLT	UoM	4::7860	270004
MDC_DIM_DECIBEL_X_WATT	UoM	4::7872	270016
MDC_DIM_SQ_X_CM	UoM	4::8032	270176
MDC_DIM_X_G_PER_M_SQ	UoM	4::7744	269888
MDC_DIM_PER_X_SEC_SQ	UoM	4::8064	270208
MDC_DIM_X_ROTATIONS_PER_MIN	UoM	4::8096	270240
MDC_DIM_X_DROPS_PER_MIN	UoM	4::8128	270272
MDC_DIM_X_G_PER_LB_PER_MIN	UoM	4::6784	268928
MDC_DIM_X_G_PER_LB_PER_HR	UoM	4::6752	268896
MDC_DIM_X_G_PER_M_SQ_PER_MIN	UoM	4::6848	268992
MDC_DIM_X_G_PER_M_SQ_PER_HR	UoM	4::6816	268960
MDC_DIM_X_G_PER_M_SQ_PER_DAY	UoM	4::7168	269312
MDC_DIM_X_L_PER_CM_H2O_PER_KG	UoM	4::8160	270304
MDC_DIM_X_TESLA	UoM	4::8192	270336
MDC_DIM_X_VOLT_SEC	UoM	4::8224	270368
MDC_DIM_X_VOLT_PER_SEC	UoM	4::8256	270400
MDC_DIM_PER_X_OHM	UoM	4::8288	270432
MDC_DIM_X_MOLE_PER_M_SQ	UoM	4::7552	269696
MDC_DIM_X_EQUIV_PER_KG	UoM	4::7584	269728
MDC_DIM_X_EQUIV_PER_M_SQ	UoM	4::7616	269760
MDC_DIM_X_MOLE_PER_M_SQ_PER_SEC	UoM	4::7424	269568
MDC_DIM_X_MOLE_PER_M_SQ_PER_MIN	UoM	4::7456	269600
MDC_DIM_X_MOLE_PER_M_SQ_PER_HR	UoM	4::7488	269632
MDC_DIM_X_MOLE_PER_M_SQ_PER_DAY	UoM	4::7520	269664
MDC_DIM_X_EQUIV_PER_LB_PER_MIN	UoM	4::7040	269184
MDC_DIM_X_EQUIV_PER_LB_PER_HR	UoM	4::7008	269152
MDC_DIM_X_EQUIV_PER_M_SQ_PER_MIN	UoM	4::7104	269248
MDC_DIM_X_EQUIV_PER_M_SQ_PER_HR	UoM	4::7072	269216
MDC_DIM_X_EQUIV_PER_M_SQ_PER_DAY	UoM	4::7136	269280
MDC_DIM_X_INTL_UNIT_PER_KG	UoM	4::7680	269824
MDC_DIM_X_INTL_UNIT_PER_M_SQ	UoM	4::7712	269856
MDC_DIM_X_INTL_UNIT_PER_LB_PER_MIN	UoM	4::6912	269056
MDC_DIM_X_INTL_UNIT_PER_LB_PER_HR	UoM	4::10400	272544
MDC_DIM_X_INTL_UNIT_PER_LB_PER_DAY	UoM	4::6880	269024
MDC_DIM_X_INTL_UNIT_PER_M_SQ_PER_SEC	UoM	4::7648	269792
MDC_DIM_X_INTL_UNIT_PER_M_SQ_PER_MIN	UoM	4::6976	269120
MDC_DIM_X_INTL_UNIT_PER_M_SQ_PER_HR	UoM	4::6944	269088

Table C.2—Terms, discriminators, and numeric codes *(continued)*

Reference ID	Disc	Part::Code	CF_CODE10
MDC_DIM_X_INTL_UNIT_PER_M_SQ_PER_DAY	UoM	4::7200	269344
MDC_DIM_DYNE_SEC_M_SQ_PER_CM_5	UoM1	4::8320	270464
MDC_DIM_X_CAL	UoM	4::8352	270496
MDC_DIM_X_NUTR_CAL	UoM	4::8384	270528
MDC_DIM_X_CAL_PER_DAY	UoM	4::8416	270560
MDC_DIM_X_L_PER_KG_PER_MIN	UoM	4::7264	269408
MDC_DIM_X_L_PER_KG_PER_HR	UoM	4::7232	269376
MDC_DIM_X_L_PER_KG_PER_DAY	UoM	4::7296	269440
MDC_DIM_X_L_PER_M_SQ_PER_MIN	UoM	4::7328	269472
MDC_DIM_X_L_PER_M_SQ_PER_HR	UoM	4::7360	269504
MDC_DIM_X_L_PER_M_SQ_PER_DAY	UoM	4::7392	269536
MDC_DIM_X_JOULES_PER_BREATH	UoM	4::8448	270592
MDC_DIM_X_JOULES_PER_L	UoM	4::8480	270624
MDC_DIM_X_JOULES_PER_ML	UoM	4::10528	272672
MDC_DIM_X_JOULES_PER_DAY	UoM	4::10496	272640
MDC_DIM_DYNE_SEC_PER_CM_5	UoM1	4::8512	270656
MDC_DIM_MMHG_SEC_PER_ML	UoM1	4::8544	270688
MDC_DIM_MMHG_MIN_PER_L	UoM1	4::8576	270720
MDC_DIM_BIT	UoM1	4::8608	270752
MDC_DIM_BYTE	UoM1	4::8640	270784
MDC_DIM_DROPS_PER_X_L	UoM	4::8672	270816
MDC_DIM_BREATHS_PER_MIN_PER_L	UoM1	4::8704	270848
MDC_DIM_SQUARE_BREATHS_PER_MIN_PER_L	UoM1	4::8736	270880
MDC_DIM_X_L_PER_MIN_PER_KG	UoM	4::8768	270912
MDC_DIM_O2_SAT_PERCENT_SEC	UoM1	4::8800	270944
MDC_DIM_X_M_PER_VOLT	UoM	4::8832	270976
MDC_DIM_X_G_FORCE_M	UoM	4::8864	271008
MDC_DIM_X_G_FORCE_M_PER_L	UoM	4::8896	271040
MDC_DIM_X_G_FORCE_M_PER_M_SQ	UoM	4::8928	271072
MDC_DIM_X_CAL_PER_KG	UoM	4::8960	271104
MDC_DIM_X_CAL_PER_KG_PER_DAY	UoM	4::8992	271136
MDC_DIM_X_CAL_PER_ML	UoM	4::9024	271168
MDC_DIM_X_ARB_UNIT	UoM	4::9056	271200
MDC_DIM_X_ARB_UNIT_PER_CM_CUBE	UoM	4::9088	271232
MDC_DIM_X_ARB_UNIT_PER_M_CUBE	UoM	4::9120	271264
MDC_DIM_X_ARB_UNIT_PER_L	UoM	4::9152	271296
MDC_DIM_X_ARB_UNIT_PER_ML	UoM	4::9184	271328
MDC_DIM_X_ARB_UNIT_PER_SEC	UoM	4::9216	271360
MDC_DIM_X_ARB_UNIT_PER_MIN	UoM	4::9248	271392
MDC_DIM_X_ARB_UNIT_PER_HR	UoM	4::9280	271424
MDC_DIM_X_ARB_UNIT_PER_DAY	UoM	4::9312	271456
MDC_DIM_X_ARB_UNIT_PER_KG	UoM	4::9344	271488
MDC_DIM_X_ARB_UNIT_PER_M_SQ	UoM	4::9376	271520
MDC_DIM_X_ARB_UNIT_PER_KG_PER_SEC	UoM	4::9408	271552
MDC_DIM_X_ARB_UNIT_PER_KG_PER_MIN	UoM	4::9440	271584
MDC_DIM_X_ARB_UNIT_PER_KG_PER_HR	UoM	4::9472	271616
MDC_DIM_X_ARB_UNIT_PER_KG_PER_DAY	UoM	4::9504	271648
MDC_DIM_X_ARB_UNIT_PER_LB_PER_MIN	UoM	4::9536	271680
MDC_DIM_X_ARB_UNIT_PER_LB_PER_HR	UoM	4::10432	272576
MDC_DIM_X_ARB_UNIT_PER_LB_PER_DAY	UoM	4::9568	271712
MDC_DIM_X_ARB_UNIT_PER_M_SQ_PER_SEC	UoM	4::9600	271744
MDC_DIM_X_ARB_UNIT_PER_M_SQ_PER_MIN	UoM	4::9632	271776
MDC_DIM_X_ARB_UNIT_PER_M_SQ_PER_HR	UoM	4::9664	271808
MDC_DIM_X_ARB_UNIT_PER_M_SQ_PER_DAY	UoM	4::9696	271840
MDC_DIM_X_USP_UNIT	UoM	4::9728	271872
MDC_DIM_X_USP_UNIT_PER_CM_CUBE	UoM	4::9760	271904
MDC_DIM_X_USP_UNIT_PER_M_CUBE	UoM	4::9792	271936