



**SLOVENSKI STANDARD**  
**oSIST prEN IEC 61968-9:2023**  
**01-maj-2023**

---

**Združevanje aplikacij v elektropodjetjih - Sistemski vmesniki za upravljanje distribucije - 9. del: Vmesniki za odbiranje stanja električnih števecv in krmiljenje**

Application integration at electric utilities - System interfaces for distribution management - Part 9: Interfaces for meter reading and control

Integration von Anwendungen in Anlagen der Elektrizitätsversorgung - Systemschnittstellen für Netzführung - Teil 9: Zählerfernauslesung und -steuerung

Intégration d'applications pour les services électriques - Interfaces système pour la gestion de distribution - Partie 9: Interfaces pour le relevé et la commande des compteurs

**Ta slovenski standard je istoveten z: prEN IEC 61968-9:2023**

---

**ICS:**

29.240.30	Krmilna oprema za elektroenergetske sisteme	Control equipment for electric power systems
35.200	Vmesniška in povezovalna oprema	Interface and interconnection equipment

**oSIST prEN IEC 61968-9:2023**                      **en**





PROJECT NUMBER: <b>IEC 61968-9 ED3</b>	
DATE OF CIRCULATION: <b>2023-03-10</b>	CLOSING DATE FOR VOTING: <b>2023-06-02</b>
SUPERSEDES DOCUMENTS: <b>57/2486/RR</b>	

IEC TC 57: POWER SYSTEMS MANAGEMENT AND ASSOCIATED INFORMATION EXCHANGE	
SECRETARIAT: Germany	SECRETARY: Mr Heiko Englert
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 13	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING <b>Attention IEC-CENELEC parallel voting</b> The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of

- any relevant patent rights of which they are aware and to provide supporting documentation,
- any relevant "in some countries" clauses to be included should this proposal proceed. Recipients are reminded that the enquiry stage is the final stage for submitting "in some countries" clauses. See AC/22/2007.

TITLE:

**Application integration at electric utilities – System interfaces for distribution management – Part 9: Interfaces for meter reading and control**

PROPOSED STABILITY DATE: 2025

NOTE FROM TC/SC OFFICERS:

**Copyright © 2023 International Electrotechnical Commission, IEC.** All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.

## CONTENTS

FOREWORD.....	13
INTRODUCTION.....	17
1 Scope.....	18
2 Normative references .....	19
3 Terms, definitions and abbreviations .....	20
3.1 Terms and definitions.....	20
3.2 Abbreviations.....	21
4 Reference and information models .....	22
4.1 General approach to messaging.....	22
4.2 General approach to metering systems .....	22
4.3 Meter reading and control functions and components.....	23
4.4 Static information model .....	24
4.4.1 General .....	24
4.4.2 Classes for meter reading and control .....	25
4.4.3 Classes related to meter reading and control.....	27
5 Meter reading and control message types.....	28
5.1 General.....	28
5.2 End device event messages.....	28
5.2.1 General .....	28
5.2.2 Applications.....	29
5.2.3 Message format.....	35
5.3 Meter reading messages.....	37
5.3.1 General .....	37
5.3.2 Applications.....	38
5.3.3 Message formats .....	43
5.4 End device control messages.....	55
5.4.1 General .....	55
5.4.2 Applications.....	55
5.4.3 Message format.....	62
5.5 Meter service requests.....	66
5.5.1 General .....	66
5.6 Metering system events .....	67
5.6.1 General .....	67
5.6.2 Applications – Firmware upgrade.....	68
5.6.3 Message formats .....	68
5.7 Premises area networks.....	68
5.7.1 General .....	68
5.7.2 Applications.....	69
5.7.3 Message formats .....	71
5.8 Master data management messages .....	71
5.8.1 General .....	71
5.8.2 Applications.....	72
5.8.3 Message formats .....	76
Annex A (informative) Recommended use of message type verbs.....	86
A.1 Overview .....	86
Annex B (informative) Reply error codes.....	91

B.1	Overview .....	91
Annex C	(normative) Procedure for the generation of a ReadingType name .....	92
C.1	General.....	92
C.2	Understanding the important attributes of a data element name .....	92
C.2.1	General .....	92
C.2.2	Attribute #1, macroPeriod .....	92
C.2.3	Attribute #2, aggregate .....	93
C.2.4	Attribute #3, measuringPeriod .....	94
C.2.5	Attribute #4, accumulation .....	97
C.2.6	Attribute #5, flowDirection.....	100
C.2.7	Attribute #6, commodity .....	108
C.2.8	Attribute #7, measurementKind.....	109
C.2.9	Attributes #8 interharmonicNumerator.....	118
C.2.10	Attribute #9 interharmonicDenominator.....	118
C.2.11	Attributes #10 argumentNumerator .....	119
C.2.12	Attribute #11 argumentDenominator .....	119
C.2.13	Attribute #12, tou .....	120
C.2.14	Attribute #13, cpp .....	121
C.2.15	Attribute #14, consumptionTier .....	121
C.2.16	Attribute #15, phases.....	123
C.2.17	Attribute #16, multiplier.....	127
C.2.18	Attribute #17, unit .....	129
C.2.19	Attribute #18, currency .....	146
C.3	Using data element attributes to define the ReadingType name – Construction formula with example ReadingType codes .....	146
Annex D	(normative) Quality code enumerations.....	153
D.1	General.....	153
D.2	Identification of the system offering commentary on the data .....	153
D.3	Construction .....	153
D.4	Quality code system identifier .....	153
D.5	Quality code categorization.....	154
D.6	Quality code index .....	155
D.7	Example quality codes .....	165
Annex E	(normative) EndDeviceEventType enumerations .....	167
E.1	General.....	167
E.2	Alarm conditions .....	167
E.2.1	General .....	167
E.2.2	Clearing alarm conditions and communicating state/condition changes.....	167
E.3	Event data .....	168
E.4	The 4-Part ID: EndDeviceEventType.....	170
E.5	EndDeviceType.....	170
E.6	EndDeviceDomain .....	171
E.7	EndDeviceSubDomain .....	173
E.8	EndDeviceEventOrAction .....	179
E.9	Normative EndDeviceEventTypes .....	187
Annex F	(normative) EndDeviceControlType enumerations .....	208
F.1	General.....	208
F.2	Normative EndDeviceControlType Enumerations .....	208
Annex G	(normative) XML schemas for message payloads .....	211

G.1	General.....	211
G.2	ComModuleConfig .....	211
G.3	EndDeviceConfig .....	211
G.4	EndDeviceControls .....	211
G.5	EndDeviceEvents.....	211
G.6	GetComModuleConfig.....	212
G.7	GetEndDeviceConfig.....	212
G.8	GetEndDeviceControls.....	212
G.9	GetEndDeviceEvents .....	212
G.10	GetEndDeviceGroups .....	212
G.11	GetMeterConfig .....	212
G.12	GetMeterReadings .....	212
G.13	GetMeterReadSchedules .....	212
G.14	GetUsagePointConfig .....	212
G.15	GetUsagePointGroups .....	213
G.16	GetUsagePointLocationConfig .....	213
G.17	MasterDataLinkageConfig.....	213
G.18	MeterConfig .....	213
G.19	MeterReadings .....	213
G.20	MeterReadSchedules.....	213
G.21	UsagePointConfig.....	213
G.22	UsagePointGroups.....	213
G.23	UsagePointLocationConfig.....	213
Annex H (normative)	Querying Data Using Get Profiles .....	214
H.1	General.....	214
H.2	GetMeterReadings .....	214
H.3	GetEndDeviceConfig.....	215
Annex I (informative)	Master Data Management Transaction Processing .....	217
I.1	General.....	217
Annex J (informative)	Master data management use cases .....	218
J.1	General.....	218
J.2	Sample XML for Exemplary Master Data management use cases .....	234
J.2.1	Create MeterConfig – Two Meters – Step 1 .....	235
J.2.2	Create MeterConfig – Two Meters – Step 2 .....	237
J.2.3	Create MeterConfig – Two Meters – Step 3 .....	238
J.2.4	Create MeterConfig – Two Meters – Step 4 .....	239
J.2.5	Update MeterConfig (add MeterMultipliers, modify formNumber and ConfigurationEvent) – Step 1 .....	240
J.2.6	Update MeterConfig (add MeterMultipliers, modify formNumber and ConfigurationEvent) – Step 2 .....	241
J.2.7	Update MeterConfig (add MeterMultipliers, modify formNumber and ConfigurationEvent) – Step 3.....	242
J.2.8	UpdateMeterConfig (add MeterMultipliers, modify formNumber and ConfigurationEvent) – Step 4.....	243
J.2.9	Update MeterConfig (delete details) – Step 1.....	244
J.2.10	Update MeterConfig (delete details) – Step 2.....	245
J.2.11	Update MeterConfig (delete details) – Step 3.....	246
J.2.12	Update MeterConfig (delete details) – Step 4.....	247
J.2.13	Delete MeterConfig – Step 1.....	248

J.2.14	Delete MeterConfig – Step 2.....	249
J.2.15	Delete MeterConfig – Step 3.....	250
J.2.16	Delete MeterConfig – Step 4.....	251
J.2.17	Create UsagePointConfig – Step 1 .....	252
J.2.18	Create UsagePointConfig – Step 2 .....	253
J.2.19	Create UsagePointConfig – Step 3 .....	253
J.2.20	Create UsagePointConfig – Step 4 .....	254
J.2.21	Create MasterDataLinkageConfig – Step 1 .....	255
J.2.22	Create MasterDataLinkageConfig – Step 2 .....	256
J.2.23	Create MasterDataLinkageConfig – Step 3 .....	257
J.2.24	Create MasterDataLinkageConfig – Step 4 .....	258
J.2.25	Delete MasterDataLinkageConfig – Step 1.....	259
J.2.26	Delete MasterDataLinkageConfig – Step 2.....	260
J.2.27	Delete MasterDataLinkageConfig – Step 3.....	260
J.2.28	Delete MasterDataLinkageConfig – Step 4.....	261
J.2.29	Execute OperationSet – Step 1.....	261
J.2.30	Execute OperationSet – Step 2.....	263
J.2.31	Execute OperationSet – Step 3.....	263
J.2.32	Execute OperationSet – Step 4.....	264
J.2.33	Change ObjectNamesConfig.....	265
Annex K (normative)	EUMED Metering UML Model.....	266
K.1	EUMED Metering profile and associated European regulation.....	266
K.1.1	The EUMED Metering profile .....	266
K.1.2	The Associated European regulation .....	266
K.2	EUMED Metering Global View.....	267
K.3	EUMED Metering Entities.....	271
K.3.1	MeterReadingSet Entity .....	271
K.3.2	MeterReading Entity .....	271
K.3.3	Meter Entity .....	272
K.3.4	Customer Entity .....	272
K.3.5	IntervalBlock Entity .....	273
K.3.6	IntervalReading Entity .....	273
K.3.7	ReadingQuality Entity .....	274
K.3.8	UsagePoint Entity .....	275
K.3.9	UsagePointLocation Entity.....	275
K.3.10	ReadingType Entity .....	276
K.3.11	Name Entity.....	279
K.3.12	NameType Entity .....	279
K.3.13	NameTypeAuthority Entity .....	280
K.4	EUMED Metering Datatypes.....	281
K.4.1	AccumulationKind enumeration Datatype.....	282
K.4.2	AggregateKind enumeration Datatype.....	283
K.4.3	CommodityKind enumeration Datatype .....	284
K.4.4	Currency enumeration Datatype .....	285
K.4.5	CustomerKind enumeration Datatype.....	289
K.4.6	DateTimeInterval compound Datatype .....	290
K.4.7	FlowDirectionKind enumeration Datatype .....	290
K.4.8	MacroPeriodKind enumeration Datatype .....	292
K.4.9	MeasurementKind enumeration Datatype.....	293

K.4.10	MeasuringPeriodKind enumeration Datatype .....	296
K.4.11	PhaseCode enumeration Datatype.....	297
K.4.12	RationalNumber compound Datatype.....	298
K.4.13	ReadingInterharmonic compound Datatype.....	299
K.4.14	UnitMultiplier enumeration Datatype .....	299
K.4.15	UnitSymbol enumeration Datatype.....	300
Annex L (normative)	EUMED Metering XSD Schema .....	307
L.1	EUMED Metering Entities Global View .....	307
L.1.1	MeterReadingSet Entity .....	307
L.1.2	MeterReading Entity .....	307
L.1.3	Meter Entity .....	309
L.1.4	Customer Entity .....	309
L.1.5	IntervalBlock Entity .....	309
L.1.6	IntervalReading Entity .....	310
L.1.7	ReadingQuality Entity .....	311
L.1.8	UsagePoint Entity .....	311
L.1.9	UsagePointLocation Entity.....	311
L.1.10	ReadingType Entity .....	312
L.1.11	Name Entity.....	313
L.1.12	NameType Entity .....	313
L.1.13	NameTypeAuthority Entity .....	313
L.2	EUMED Metering Entities Description .....	314
L.3	EUMED Metering Datatypes Description .....	320
Annex M (informative)	Contextualization and examples of EUMED metering messages .....	360
M.1	Introduction.....	360
M.2	EUMED Metering Load Curve message payload .....	360
M.3	EUMED Metering Max Power message payload .....	361
M.4	EUMED Metering Index message payload.....	361
Bibliography	.....	363
Figure 1	– IEC 61968-9 scope .....	19
Figure 2	– Outage Detection, request/reply message exchange, example 1 .....	30
Figure 3	– Outage Detection, request / reply message exchange, Example 2.....	31
Figure 4	– Outage Detection, publish/subscribe exchange, Example 1 .....	32
Figure 5	– Outage Detection, publish/subscribe exchange, Example 2.....	32
Figure 6	– Meter Health Event exchange, Example 1 .....	33
Figure 7	– Meter Health Event exchange, Example 2 .....	34
Figure 8	– Power quality event exchange, Example 1 .....	35
Figure 9	– Power quality event exchange, Example 2 .....	35
Figure 10	– End device event message format.....	36
Figure 12	– Example use of meter read schedule to create subscription .....	38
Figure 13	– Example manual meter reading exchange .....	39
Figure 14	– Example On-Request meter read .....	41
Figure 15	– Historical MeterData exchange.....	42
Figure 16	– Example billing inquiry message exchange .....	42
Figure 17	– Meter readings message format .....	44



Figure 18 – Reading structure .....	45
Figure 19 – Timestamps assigned between systems .....	45
Figure 20 – Conventions for timeStamp and timePeriod .....	46
Figure 21 – IntervalBlock structure .....	46
Figure 22 – Interval data timestamp generation .....	47
Figure 23 – Time interval conventions .....	48
Figure 24 – ReadingType structure .....	49
Figure 30 – Meter read schedules message format .....	54
Figure 31 – Example load control message exchange .....	56
Figure 32 – Example message exchange for LC unit installation .....	57
Figure 33 – Example message exchange for change of customer program .....	58
Figure 34 – Example message exchange for change of customer program w/o MDM .....	58
Figure 35 – Example for change of customer program with meter change out .....	59
Figure 36 – Example message exchange for meter connect/disconnect .....	60
Figure 37 – Example of remote connect/disconnect directly between CIS and MS .....	61
Figure 38 – Example message exchange for real-time price signal .....	62
Figure 39 – End device controls message format .....	63
Figure 44 – Example end device event message exchange due to meter changeout .....	67
Figure 45 – Example firmware upgrade message exchange .....	68
Figure 46 – Pairing of a PAN device .....	69
Figure 47 – PAN device events .....	70
Figure 48 – PAN device controls .....	71
Figure 49 – Master data linkages .....	73
Figure 50 – Message exchange for transferring usage point information .....	74
Figure 51 – Message exchange for transferring meter information .....	75
Figure 52 – Message exchange for transferring end device information .....	75
Figure 53 – MasterDataLinkageConfig message format .....	77
Figure 55 – UsagePointConfig message format .....	79
Figure 57 – UsagePointLocationConfig message format .....	81
Figure 59 – End device config message format .....	83
Figure 60 – Meter configuration message .....	84
Figure 62 – ComModuleConfig message format .....	85
Figure C.1 – Typical enumerations for accumulation behaviour .....	100
Figure C.2 – Typical enumerations for direction of flow .....	107
Figure C.3 – Voltage measurements .....	118
Figure E.1 – Event data .....	168
Figure E.2 -- Multiple EndDeviceEventDetails Example 1 .....	169
Figure E.3 -- EndDeviceEventDetails example 2 .....	169
Figure E.4--EndDeviceEvent Example 3.....	170
Figure H.1 – GetMeterReadings .....	215
Figure H. 2 – GetMeterConfig .....	216
Figure J.1 -- Create MeterConfig – Two Meters – Step 1 .....	236
Figure J.2 -- Create MeterConfig – Two Meters – Step 2 .....	237

Figure J.3 -- Create MeterConfig – Two Meters – Step 3.....	238
Figure J.4 -- Create MeterConfig – Two Meters – Step 4.....	239
Figure J.5 -- Create MeterConfig – Update MeterConfig (add MeterMultiplies, modify formNumber and ConfigurationEvent) Step 1 .....	240
Figure J.6 -- Update MeterConfig (add MeterMultiplies, modify formNumber and ConfigurationEvent) Step 2.....	241
Figure J.7 -- Update MeterConfig (add MeterMultiplies, modify formNumber and ConfigurationEvent) Step 3.....	242
Figure J.8 -- Update MeterConfig (add MeterMultiplies, modify formNumber and ConfigurationEvent) Step 4.....	243
Figure J.9 -- Update MeterConfig (delete details) – Step 1 .....	244
Figure J.10 -- Update MeterConfig (delete details) – Step 2 .....	245
Figure J.11 -- Update MeterConfig (delete details) – Step 3 .....	246
Figure J.12 -- Update MeterConfig (delete details) – Step 4 .....	247
Figure J.13 -- Delete MeterConfig – Step 1 .....	248
Figure J.14 -- Delete MeterConfig – Step 2 .....	249
Figure J.15 -- Delete MeterConfig – Step 3 .....	250
Figure J.16 -- Delete MeterConfig – Step 4 .....	251
Figure J.17 -- Create UsagePointConfig – Step 1 .....	252
Figure J.18 -- Create UsagePointConfig – Step 2 .....	253
Figure J.19 -- Create UsagePointConfig – Step 3 .....	253
Figure J.20 -- Create UsagePointConfig – Step 4 .....	254
Figure J.21 -- Create MasterDataLinkageConfig – Step 1 .....	255
Figure J.22 -- Create MasterDataLinkageConfig – Step 2.....	256
Figure J.23 -- Create MasterDataLinkageConfig – Step 3.....	257
Figure J.24 -- Create MasterDataLinkageConfig – Step 4.....	258
Figure J.25 -- Delete MasterDataLinkageConfig – Step 1 .....	259
Figure J.26 -- Delete MasterDataLinkageConfig – Step 2.....	260
Figure J.27 -- Delete MasterDataLinkageConfig – Step 3.....	260
Figure J.28 -- Delete MasterDataLinkageConfig – Step 4.....	261
Figure J.29 -- Execute OperationSet – Step 1 .....	263
Figure J.30 -- Execute OperationSet – Step 2.....	263
Figure J.31 -- Execute OperationSet – Step 3.....	264
Figure J.32 -- Execute OperationSet – Step 4 .....	265
Figure K.1 – EUMED Metering Class diagram.....	270
Figure L.1 -- MeterReadingSet schema for EUMED Metering.....	307
Figure L.2 -- The MeterReading schema used for EUMED Metering.....	308
Figure L.3 -- Meter Entity .....	309
Figure L.4 -- Customer Schema used for EUMED Metering.....	309
Figure L.5 -- IntervalBlock Schema used for EUMED Metering.....	309
Figure L.6 -- IntervalReading schema used for EUMED metering.....	310
Figure L.7 -- ReadingQuality element for EUMED Metering.....	311
Figure L.8 -- UsagePoint element used in EUMED Metering .....	311
Figure L.9 -- UsagePointLocation element used in EUMED Metering .....	312

Figure L.10 – ReadingType element used in EUMED Metering .....	313
Figure L.11 – Name element used in EUMED Metering .....	313
Figure L.12 -- NameType element used in EUMED Metering .....	313
Figure L.13 -- NameTypeAuthority element used in EUMED Metering .....	314
Figure M.1 – Load curve XML message payload .....	360
Figure M.2 -- Max power XML message payload .....	361
Figure M.3 – Index XML message payload (extract 1) .....	362
Figure M.4 – Index XML message payload (extract 2) .....	362
Table 1 – Business functions and abstract components .....	24
Table 2 – Classes for meter reading and control .....	25
Table 3 – Classes related to meter reading and control .....	27
Table 4 – IEC 61968-9 configuration profiles .....	72
Table A.1 -- Recommended verb usage with related profiles .....	86
Table C.1 – Time-period of interest enumerations .....	93
Table C.2 – Data qualifier enumerations .....	93
Table C.3 – measuringPeriod enumerations .....	94
Table C.4 – Demand normalization scalars .....	96
Table C.5 – Accumulation behaviour enumerations .....	98
Table C.6 – Customary accumulation behaviour enumerations .....	100
Table C.7 – Direction of flow enumeration .....	101
Table C.8 – DirectionOfFlow enumeration equivalencies .....	107
Table C.9 – Commodity .....	108
Table C.10 – measurementKind Index .....	110
Table C.11 – Harmonic and Interharmonic enumerations .....	119
Table C.12 – Argument enumerations .....	119
Table C.13 – Time Of Use Enumerations .....	120
Table C.14 – Critical Peak Period Enumerations .....	121
Table C.15 – Consumption Tier Enumerations .....	122
Table C.16 – Example Combinations of TOU and Consumption Tier Enumerations .....	122
Table C.17 – Phase enumerations .....	123
Table C.18 – Power of ten enumerations .....	127
Table C.19 – Historical concentration multiplier enumerations .....	128
Table C.20 – Base SI units of measure .....	130
Table C.21 – Derived SI units of measure with special names .....	130
Table C.22 – Derived SI Units of Measure without Special Names .....	132
Table C.23 – Non-SI Units of Measure accepted for use with the International System of Units .....	135
Table C.24 – Dimensionless and Concentration Units of Measure .....	137
Table C.25 – Non-SI units whose values in SI units shall be obtained experimentally .....	139
Table C.26 – Other Non-SI Units of Measure .....	140
Table C.27 – Non-SI Units Associated with the CGS and the CGS-Gaussian System of Units .....	145
Table C.28 – Currency units of measure (from ISO 4217) .....	146

Table C.29 – ReadingType Examples .....	148
Table D.1 – System identifier .....	154
Table D.2 – Example quality code categories .....	154
Table D.3 – Validity related codes .....	155
Table D.4 – Diagnostics related codes .....	156
Table D.5 – Power quality related codes .....	156
Table D.6 – Tamper / revenue protection related codes .....	157
Table D.7 – Data collection related codes .....	157
Table D.8 – Failed reasonability testing related codes .....	159
Table D.9 – Failed validation testing related codes .....	159
Table D.10 – Edit related codes .....	160
Table D.11 – Estimation related codes .....	161
Table D.12 – Questionable related codes .....	162
Table D.13 – Derived related codes .....	163
Table D.14 – Projected related codes .....	164
Table D.15 – Example Quality Codes .....	165
Table E.1 – EndDeviceType codes .....	170
Table E.2 – EndDeviceDomain Codes .....	172
Table E.3 – EndDeviceSubdomain codes .....	173
Table E.4 – EndDeviceEventOrAction codes .....	179
Table E.5 – Battery events .....	187
Table E.6 – Billing events .....	187
Table E.7 – Cartridge events .....	188
Table E.8 – Clock events .....	188
Table E.9 – Communication events .....	189
Table E.10 – Configuration events .....	190
Table E.11 – Demand events .....	191
Table E.12 – Firmware events .....	191
Table E.13 – GasSupply events .....	193
Table E.14 – Installation events .....	193
Table E.15 – LoadControl events .....	194
Table E.16 – LoadProfile events .....	194
Table E.17 – Logs events .....	195
Table E.18 – Memory events .....	195
Table E.19 – Metrology events .....	196
Table E.20 – MobileSecurity events .....	197
Table E.21 – Modem events .....	198
Table E.22 – ModuleFirmware events .....	198
Table E.23 – Network events .....	198
Table E.24 – PAN / HAN events .....	199
Table E.25 – Power events .....	200
Table E.26 – Pressure events .....	203
Table E.27 – RCDSwitch events .....	204

Table E.28 – Security events .....	204
Table E.29 – Temperature events .....	206
Table E.30 – VideoDisplay events.....	206
Table E.31 – WaterSupply events .....	207
Table F.1 – Demand Controls .....	208
Table F.2 – LoadControl Controls .....	209
Table F.3 – PAN / HAN Controls .....	209
Table F.4 – RCDSwitch Controls.....	209
Table J.1 – Exemplary master data management / data synchronization use cases .....	219
Table K.1– Entities of the EUMED Metering Model .....	268
Table K.2 – Association ends of EUMED Metering ENTITIES::MeterReadingSet with other classes .....	271
Table K.3– Attributes of EUMED Metering ENTITIES::MeterReading .....	271
Table K.4 – Association ends of EUMED Metering ENTITIES::MeterReading with other classes .....	272
Table K.5 – Attributes of EUMED Metering ENTITIES::Meter .....	272
Table K.6 – Association ends of EUMED Metering ENTITIES::Meter with other classes .....	272
Table K.7 – Attributes of EUMED Metering ENTITIES::Customer .....	272
Table K.8 – Association ends of EUMED Metering ENTITIES::Customer with other classes .....	273
Table K.9 – Association ends of Metering::IntervalBlock with other classes .....	273
Table K.10 – Attributes of EUMED Metering ENTITIES::IntervalReading.....	273
Table K.11 – Association ends of EUMED Metering ENTITIES::IntervalReading with other classes .....	274
Table K.12 – Attributes of EUMED Metering ENTITIES::ReadingQuality .....	274
Table K.13 – Association ends of EUMED Metering ENTITIES::ReadingQuality with other classes .....	275
Table K.14 – Attributes of EUMED Metering ENTITIES::UsagePoint .....	275
Table K.15 – Association ends of EUMED Metering ENTITIES::UsagePoint with other classes .....	275
Table K.16 – Attributes of EUMED Metering ENTITIES::UsagePointLocation .....	276
Table K.17 – Association ends of EUMED Metering ENTITIES::UsagePointLocation with other classes .....	276
Table K.18 – Attributes of EUMED Metering ENTITIES::ReadingType.....	276
Table K.19 – Association ends of EUMED Metering ENTITIES::ReadingType with other classes .....	278
Table K.20 – Attributes of EUMED Metering ENTITIES::Name .....	279
Table K.21 – Association ends of EUMED Metering ENTITIES::Name with other classes .....	279
Table K.22 – Attributes of EUMED Metering ENTITIES::NameType .....	280
Table K.23 – Association ends of EUMED Metering ENTITIES::NameType with other classes .....	280
Table K.24 – Attributes of EUMED Metering ENTITIES::NameTypeAuthority .....	280
Table K.25 – Association ends of EUMED Metering ENTITIES::NameTypeAuthority with other classes .....	280
Table K.26 – Association ends of EUMED Metering ENTITIES::MeterReadingSet with other classes .....	280

Table K.27 – Datatypes of EUMED Metering Model .....	281
Table K.28 – Literals of EUMED Metering DATA TYPES::AccumulationKind .....	282
Table K.29 – Literals of EUMED Metering DATA TYPES::AggregateKind .....	284
Table K.30 – Literals of EUMED Metering DATA TYPES::CommodityKind .....	284
Table K.31 – Literals of EUMED Metering DATA TYPES::Currency .....	285
Table K.32 – Literals of EUMED Metering DATA TYPES::CustomerKind .....	289
Table K.33 – Attributes of EUMED Metering DATA TYPES::DateTimeInterval .....	290
Table K.34 – Literals of EUMED Metering DATA TYPES::FlowDirectionKind .....	290
Table K.35 – Literals of EUMED Metering DATA TYPES::MacroPeriodKind .....	292
Table K.36 – Literals of EUMED Metering DATA TYPES::MeasurementKind .....	293
Table K.37 – Literals of EUMED Metering DATA TYPES::MeasuringPeriodKind .....	296
Table K.38 – Literals of EUMED Metering DATA TYPES::PhaseCode .....	298
Table K.39 – Attributes of EUMED Metering DATA TYPES::RationalNumber .....	299
Table K.40 – Attributes of EUMED Metering DATA TYPES::ReadingInterharmonic .....	299
Table K.41 – Literals of EUMED Metering DATA TYPES::UnitMultiplier .....	300
Table K.42 – Literals of EUMED Metering DATA TYPES::UnitSymbol .....	301
Table L.1 – Association ends of EUMED Metering ENTITIES::IntervalBlock with other classes .....	310

iTech STANDARD PREVIEW  
(standards.iteh.ai)

[oSIST prEN IEC 61968-9:2023](https://standards.iteh.ai/catalog/standards/sist/737ff12b-4b44-4cac-b70d-ee335d331ac2/osist-pren-iec-61968-9-2023)

<https://standards.iteh.ai/catalog/standards/sist/737ff12b-4b44-4cac-b70d-ee335d331ac2/osist-pren-iec-61968-9-2023>

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

### ENTERPRISE BUSINESS FUNCTION INTERFACES FOR UTILITY OPERATIONS –

#### Part 9: Interfaces for meter reading and control

#### FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61968-9 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

This third edition cancels and replaces the second edition published in 2013. This edition constitutes a technical revision and includes the following significant technical changes with respect to the previous edition: