

SLOVENSKI STANDARD

SIST EN IEC 61968-3:2021

01-september-2021

Nadomešča:

SIST EN IEC 61968-3:2018

Združevanje aplikacij pri oskrbi z električno energijo - Sistemski vmesniki za upravljanje omrežja - 3. del: Vmesniki za delovanje omrežja

Application integration at electric utilities - System interfaces for distribution management
- Part 3: Interface for network operations

Integration von Anwendungen in Anlagen der Elektrizitätsversorgung -
Systemschnittstellen für Netzführung - Teil 3: Schnittstelle für Netzbetriebsarten

Intégration d'applications pour les services électriques - Interfaces système pour la
gestion de la distribution - Partie 3: Interface pour l'exploitation du réseau

Ta slovenski standard je istoveten z: **EN IEC 61968-3:2021**

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

SIST EN IEC 61968-3:2021

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN IEC 61968-3:2021

<https://standards.iteh.ai/catalog/standards/sist/b7ad14a9-2592-4775-9c51-9c6f93bfl80e/sist-en-iec-61968-3-2021>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 61968-3

June 2021

ICS 33.200

Supersedes EN IEC 61968-3:2018 and all of its amendments and corrigenda (if any)

English Version

**Application integration at electric utilities - System interfaces for
distribution management - Part 3: Interface for network
operations
(IEC 61968-3:2021)**

Intégration d'applications pour les services électriques -
Interfaces système pour la gestion de la distribution - Partie
3: Interface pour l'exploitation du réseau
(IEC 61968-3:2021)

Integration von Anwendungen in Anlagen der
Elektrizitätsversorgung - Systemschnittstellen für
Netzfürhrung - Teil 3: Schnittstelle für Netzbetriebsarten
(IEC 61968-3:2021)

This European Standard was approved by CENELEC on 2021-06-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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

<https://standards.iteh.ai/catalog/standards/sist/67ad14a9-2592-4775-9c51-9c6f93bf180e/sist-en-iec-61968-3-2021>

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 61968-3:2021 (E)**European foreword**

The text of document 57/2343/FDIS, future edition 3 of IEC 61968-3, prepared by IEC/TC 57 "Power systems management and associated information exchange" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61968-3:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-03-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-06-01

This document supersedes EN IEC 61968-3:2018 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

iTeh STANDARD PREVIEW
Endorsement notice
(standards.iteh.ai)

The text of the International Standard IEC 61968-3:2021 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61968-4	NOTE	Harmonized as EN IEC 61968-4
IEC 61968-5	NOTE	Harmonized as EN IEC 61968-5
IEC 61968-6	NOTE	Harmonized as EN 61968-6
IEC 61968-8	NOTE	Harmonized as EN 61968-8
IEC 61968-9	NOTE	Harmonized as EN 61968-9
IEC 61968-11	NOTE	Harmonized as EN 61968-11
IEC 61968-13	NOTE	Harmonized as EN IEC 61968-13
IEC 62361-100	NOTE	Harmonized as EN 62361-100

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61968-1	-	Application integration at electric utilities - System interfaces for distribution management - Part 1: Interface architecture and general recommendations	EN IEC 61968-1	-
IEC/TS 61968-2	-	Application integration at electric utilities - System interfaces for distribution management - Part 2: Glossary	-	-
IEC 61968-100	-	Application integration at electric utilities - System interfaces for distribution management - Part 100: Implementation profiles	EN 61968-100	-
IEC 61970-301	-	Energy management system application program interface (EMS-API) - Part 301: Common information model (CIM) base	EN IEC 61970-301	-

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN IEC 61968-3:2021

<https://standards.iteh.ai/catalog/standards/sist/b7ad14a9-2592-4775-9c51-9c6f93bfl80e/sist-en-iec-61968-3-2021>



IEC 61968-3

Edition 3.0 2021-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Application integration at electric utilities – System interfaces for distribution management –
Part 3: Interface for network operations**

**Intégration d'applications pour les services électriques – Interfaces système
pour la gestion de la distribution –
Partie 3: Interface pour l'exploitation du réseau**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.200

ISBN 978-2-8322-9596-0

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD	19
INTRODUCTION	22
1 Scope	23
2 Normative references	24
3 Terms, definitions and abbreviated terms	25
3.1 Terms and definitions	25
3.2 Abbreviated terms	25
4 Reference and information models	25
4.1 General approach to network operations	25
4.2 Reference model	26
4.3 Interface reference model	27
4.4 Network operations business functions and sub-business functions	27
4.5 Static information model	29
4.5.1 General	29
4.5.2 Classes for network operations	29
4.5.3 Classes related to network operations	32
5 Network operations message payloads	34
5.1 General	34
5.2 Summary of IEC 61968-3 message profiles	35
5.3 Config Profiles	36
5.3.1 General	36
5.3.2 Message payloads	38
5.3.3 AssetConfig payload	39
5.3.4 FaultCauseTypeConfig payload	44
5.3.5 LocationConfig payload	44
5.3.6 PowerSystemResourceConfig payload	45
5.3.7 OperationsDataLinkageConfig payload	46
5.3.8 Example – linking a Customer to a PowerSystemResource	48
5.4 PSRMeasurements payload	50
5.4.1 General	50
5.4.2 Message Payload	52
5.4.3 PSRMeasurements Payload – Accumulator	52
5.4.4 PSRMeasurements Payload – Analog	53
5.4.5 PSRMeasurements Payload – Discrete	55
5.4.6 PSRMeasurements Payload – StringMeasurement	57
5.4.7 GetPSRMeasurements payload	57
5.5 PSRControls payload	59
5.5.1 General	59
5.5.2 PSRControls Message Payload	60
5.5.3 PSRControls payload – AccumulatorReset	65
5.5.4 PSRControls payload – AnalogControl	65
5.5.5 PSRControls payload – Command	66
5.5.6 PSRControls payload – RaiseLowerCommand	68
5.5.7 PSRControls payload – SetPoint	69
5.6 SwitchingPlanRequests payload	70
5.6.1 General	70

5.6.2	Message Payload	71
5.6.3	Example XML	74
5.7	SwitchingPlan Definition and Execution	75
5.8	SwitchingPlans payload	76
5.8.1	General	76
5.8.2	Message payload	77
5.8.3	SwitchingPlans payload – SwitchingStepGroups fragment	81
5.8.4	SwitchingPlans payload – SwitchingStep fragment	82
5.8.5	Specifying Order of Step Execution	84
5.8.6	SwitchingPlans payload – ClampAction	86
5.8.7	SwitchingPlans payload – ClearanceAction	87
5.8.8	SwitchingPlans Payload – ControlAction	89
5.8.9	SwitchingPlans Payload – CutAction	91
5.8.10	SwitchingPlans payload – EnergyConsumerAction	92
5.8.11	SwitchingPlans payload – EnergySourceAction	94
5.8.12	SwitchingPlans payload – GenericAction	96
5.8.13	SwitchingPlans payload – GroundAction	98
5.8.14	SwitchingPlans payload – JumperAction	102
5.8.15	SwitchingPlans payload – MeasurementAction	104
5.8.16	SwitchingPlans payload – ShuntCompensatorAction	106
5.8.17	SwitchingPlans payload – SwitchAction	108
5.8.18	SwitchingPlans payload – TagAction	109
5.8.19	SwitchingPlans payload – VerificationAction	111
5.8.20	Example SwitchingPlan	112
5.8.21	Example XML for a complete SwitchingPlan	115
5.9	SwitchingOrders payload	117
5.9.1	General	117
5.9.2	Message payload	118
5.9.3	Example XML	121
5.10	SwitchingActions payload	122
5.10.1	General	122
5.10.2	Message Payload	123
5.10.3	SwitchingActions payload – SwitchingStep fragment	124
5.10.4	SwitchingActions payload – SwitchingStepGroups fragment	125
5.10.5	SwitchingActions payload – SwitchingPlan fragment	126
5.10.6	SwitchingActions payload – ClampAction	126
5.10.7	SwitchingActions payload – ClearanceAction	127
5.10.8	SwitchingActions payload – ControlAction	129
5.10.9	SwitchingActions Payload – CutAction	130
5.10.10	SwitchingActions payload – EnergyConsumerAction	131
5.10.11	SwitchingActions payload – EnergySourceAction	133
5.10.12	SwitchingActions payload – GenericAction	134
5.10.13	SwitchingActions payload – GroundAction	135
5.10.14	SwitchingActions payload – JumperAction	136
5.10.15	SwitchingActions payload – MeasurementAction	138
5.10.16	SwitchingActions payload – ShuntCompensatorAction	140
5.10.17	SwitchingActions payload – SwitchAction	141
5.10.18	SwitchingActions payload – TagAction	142

5.10.19	SwitchingActions payload – VerificationAction	143
5.10.20	Example XML	145
5.11	SwitchingEvents payload	145
5.11.1	General	145
5.11.2	Message payload	146
5.11.3	SwitchingEvents payload – ClampAction	148
5.11.4	SwitchingEvents payload – ClearanceAction	148
5.11.5	SwitchingEvents payload – ControlAction	149
5.11.6	SwitchingEvents Payload – CutAction	149
5.11.7	SwitchingEvents payload – EnergyConsumerAction	149
5.11.8	SwitchingEvents payload – EnergySourceAction	149
5.11.9	SwitchingEvents payload – GenericAction	149
5.11.10	SwitchingEvents payload – GroundAction	149
5.11.11	SwitchingEvents payload – JumperAction	149
5.11.12	SwitchingEvents payload – MeasurementAction	149
5.11.13	SwitchingEvents payload – ShuntCompensatorAction	149
5.11.14	SwitchingEvents payload – SwitchAction	149
5.11.15	SwitchingEvents payload – TagAction	149
5.11.16	SwitchingEvents payload – VerificationAction	150
5.11.17	Example XML	150
5.12	PlannedOutageNotification payload	150
5.12.1	General	150
5.12.2	Message payload	152
5.12.3	Example XML	153
5.13	PlannedOutages payload	154
5.13.1	General	154
5.13.2	Message payload	155
5.13.3	Example XML	159
5.14	TroubleTickets payload	159
5.15	Incidents payload	160
5.15.1	General	160
5.15.2	Message payload	162
5.15.3	Example XML	164
5.16	EquipmentFaults payload	165
5.16.1	General	165
5.16.2	Message payload	167
5.16.3	Example XML	169
5.17	LineFaults payload	170
5.17.1	General	170
5.17.2	Message payload	170
5.17.3	Example XML	172
5.18	UnplannedOutages payload	173
5.18.1	General	173
5.18.2	Message payload	174
5.18.3	Example XML	180
5.19	Metering message payloads	182
5.19.1	EndDeviceEvents	182
5.19.2	MeterReadings	183

5.20	Work message payloads	184
5.20.1	WorkRequests payload	184
5.21	TroubleOrders	185
5.21.1	General	185
5.21.2	Message payload	186
5.21.3	Example XML for an Incident TroubleOrder	200
6	Document Conventions	201
6.1	Message payload definitions	201
6.1.1	General	201
6.1.2	Mandatory versus Optional	202
6.2	Synchronous versus Asynchronous Messages	202
6.3	Message exchanges	202
6.3.1	General	202
Annex A	(informative) Use cases	203
A.1	General	203
A.2	FLISR for SCADA-detected outage, SCADA switching	203
A.2.1	Description of the use case	203
A.2.2	Use case diagrams	205
A.2.3	Technical details	206
A.2.4	Step by step analysis of use case	207
A.2.5	Information exchanged	209
A.2.6	Common terms and definitions	209
A.3	FLISR for trouble call and AMI outage, crew switching	209
A.3.1	Description of the use case	209
A.3.2	Use case diagrams	211
A.3.3	Technical details	212
A.3.4	Step by step analysis of use case	213
A.3.5	Information exchanged	217
A.3.6	Common terms and definitions	217
A.4	Planned outage for maintenance – Manual process	217
A.5	Planned outage for maintenance	219
A.5.1	General	219
A.5.2	Description of the use case	220
A.5.3	Use case diagrams	221
A.5.4	Technical details	222
A.5.5	Step by step analysis of use case	223
A.5.6	Information exchanged	230
A.5.7	Common terms and definitions	230
A.6	TroubleTicket creation	231
A.6.1	Description of the use case	231
A.6.2	Use case diagrams	231
A.6.3	Technical details	232
A.6.4	Step by step analysis of use case	233
A.6.5	Information exchanged	236
A.6.6	Common terms and definitions	236
A.7	CIS and OMS interactions during an unplanned outage	236
A.7.1	General	236
A.7.2	Description of the use case	236
A.7.3	Use case diagrams	237

A.7.4	Technical details.....	238
A.7.5	Step by step analysis of use case.....	240
A.7.6	Information exchanged	247
A.7.7	Common terms and definitions.....	247
A.8	Car hits pole but there is no outage	247
A.8.1	Description of the use case	247
A.8.2	Use case diagrams	249
A.8.3	Technical details.....	250
A.8.4	Step by step analysis of use case.....	251
A.8.5	Information exchanged	254
A.8.6	Common terms and definitions.....	254
A.9	Car hits pole and there is an outage.....	254
A.9.1	Description of the use case	254
A.9.2	Use case diagrams	256
A.9.3	Technical details.....	257
A.9.4	Further Information to the use case for classification / mapping	258
A.9.5	Step by step analysis of use case.....	258
A.9.6	Information exchanged	262
A.9.7	Common terms and definitions.....	262
Annex B (normative)	Payload fragments	263
B.1	General.....	263
B.2	Accumulator fragment.....	263
B.3	AccumulatorValue Fragment	265
B.4	ACLineSegment fragment	265
B.5	ActivityRecord fragment.....	267
B.6	Analog fragment.....	267
B.7	AnalogValue fragment	269
B.8	Approver fragment.....	269
B.9	Asset fragment.....	270
B.10	AssetContainer fragment.....	272
B.11	AssetInfo fragment.....	272
B.12	AssetOwner fragment.....	272
B.13	Author fragment	273
B.14	Cabinet fragment	273
B.15	Clamp fragment.....	274
B.16	Clearance fragment.....	275
B.17	ConductingEquipment fragment.....	276
B.18	Cut fragment	276
B.19	ConfigurationEvent fragment	277
B.20	ConnectivityNode fragment	278
B.21	CoordinateSystem fragment	279
B.22	Crew fragment	279
B.23	CrewMember fragment	281
B.24	CrewType fragment.....	281
B.25	Customer fragment.....	281
B.26	CustomerAgreement fragment	282
B.27	DeEnergizedUsagePoint fragment.....	283
B.28	Discrete fragment	284

B.29	DiscreteValue fragment.....	286
B.30	DuctBank fragment.....	286
B.31	Editor fragment.....	287
B.32	ElectronicAddress fragment.....	288
B.33	EndDevice fragment.....	289
B.34	EnergyConsumer fragment.....	289
B.35	EnergySource fragment.....	290
B.36	EnergizedUsagePoint fragment.....	292
B.37	Equipment fragment.....	292
B.38	EstimatedRestorationTime fragment.....	293
B.39	FaultImpedance fragment.....	293
B.40	FaultCauseTypes fragment.....	294
B.41	Feeder fragment.....	294
B.42	FieldSafetySupervisor fragment.....	294
B.43	FieldDispatchHistory fragment.....	295
B.44	Ground fragment.....	296
B.45	FieldDispatchStep fragment.....	296
B.46	Hazard fragment.....	297
B.47	Issuer fragment.....	297
B.48	IssuedBySupervisor fragment.....	298
B.49	IssuedToSupervisor fragment.....	299
B.50	lifecycleDate fragments.....	299
B.51	Jumper fragment.....	300
B.52	Location fragment.....	301
B.53	Manufacturer fragment.....	304
B.54	MeasurementValueQuality fragment.....	304
B.55	MeasurementValueSource fragment.....	307
B.56	Name fragment.....	307
B.57	NameType fragment.....	308
B.58	NameTypeAuthority fragment.....	308
B.59	OperationalTag fragment.....	308
B.60	Operator fragment.....	309
B.61	OperationsSafetySupervisor fragment.....	310
B.62	Organisation fragment.....	311
B.63	OutageIsolationEquipment fragment.....	312
B.64	OwnerShip fragment.....	313
B.65	Person fragment.....	313
B.66	Pole fragment.....	315
B.67	PositionPoint fragment.....	316
B.68	PowerSystemResource fragment.....	317
B.69	Priority fragment.....	319
B.70	ProductAssetModel fragment.....	319
B.71	PSRType fragment.....	321
B.72	ReleasedBySupervisor fragment.....	321
B.73	ReleasedToSupervisor fragment.....	321
B.74	RevisionHistory fragment.....	322
B.75	SafetyDocument fragment.....	323
B.76	ServiceLocation fragment.....	325

STANDARD PREVIEW
(standards.iteh.ai)
SIST EN IEC 61968-3:2021
<https://standards.iteh.ai/catalog/standards/sist/b7ad14a9-2592-4775-9c51-9c6f93bf180e/sist-en-iec-61968-3-2021>

B.77	ServicePointOutageSummary fragment	326
B.78	ShuntCompensator fragment	327
B.79	Status fragment	327
B.80	StreetAddress fragment	328
B.81	StreetDetail fragment	328
B.82	StringMeasurement fragment	329
B.83	StringMeasurementValue fragment	331
B.84	Structure fragment	331
B.85	Substation fragment	332
B.86	Switch fragment	332
B.87	SwitchPhase fragment	333
B.88	TaggedPSRs fragment	334
B.89	TelephoneNumber fragment	335
B.90	Terminal fragment	335
B.91	TimeSchedule fragment	337
B.92	Tower fragment	337
B.93	TownDetail fragment	338
B.94	TroubleReporter fragment	339
B.95	TroubleSymptoms fragment	340
B.96	UndergroundStructure fragment	342
B.97	UsagePoint fragment	342
B.98	UsagePointLocation fragment	343
B.99	WirePhaseInfo fragment	345
B.100	WirePosition fragment	345
B.101	WireSpacing fragment	346
B.102	WorkActivityRecord fragment	346
Annex C	(normative) Enumerated classes	348
C.1	AssetKind enumeration class	348
C.2	AssetLifeCycleStateKind enumeration class	348
C.3	AssetModelUsageKind enumeration class	349
C.4	ClearanceActionKind enumeration class	349
C.5	CorporateStandardKind enumeration class	349
C.6	CrewStatusKind enumeration class	350
C.7	CustomerKind enumeration class	350
C.8	ERTConfidenceKind enumeration class	350
C.9	InUseStateKind enumeration class	351
C.10	OutageCauseKind enumeration class	351
C.11	OutageStatusKind enumeration class	352
C.12	PhaseCode enumeration class	352
C.13	PhaseConnectedFaultKind enumeration class	353
C.14	PoleBaseKind enumeration class	354
C.15	RevisionKind enumeration class	354
C.16	RetiredReasonKind enumeration class	354
C.17	SinglePhaseKind enumeration class	355
C.18	Source enumeration class	355
C.19	StructureMaterialKind enumeration class	355
C.20	SwitchActionKind enumeration class	356
C.21	TagActionKind enumeration class	356

C.22	TempEquipActionKind enumeration class	356
C.23	TowerConstructionKind enumeration class	357
C.24	TroubleReportingKind enumeration class	357
C.25	TroubleSymptomsExtentKind enumeration class	357
C.26	TroubleSymptomsLightKind enumeration class	357
C.27	TroubleSymptomsPoleKind enumeration class	358
C.28	TroubleSymptomsTransformerKind enumeration class	358
C.29	TroubleSymptomsTreeKind enumeration class	358
C.30	TroubleSymptomsWireKind enumeration class	359
C.31	UndergroundStructureKind enumeration class	359
C.32	Validity enumeration class	360
C.33	WireUsageKind enumeration class	360
C.34	WorkKind enumeration class	360
C.35	WorkStatusKind enumeration class	361
C.36	WorkTaskKind enumeration class	361
Annex D	(informative) Profiles defined in other parts of IEC 61968	362
D.1	CustomerAgreementConfig payload	362
D.2	CustomerConfig payload	363
D.3	MeterConfig payload	365
D.4	UsagePointConfig payload	367
D.5	UsagePointLocationConfig payload	369
Bibliography		371
Figure 1	– IEC 61968-3 Scope	24
Figure 2	– IEC 61968-3 Reference model	26
Figure 3	– Example of a Push Message Exchange	37
Figure 4	– Example of a Pull Message Exchange	38
Figure 5	– AssetConfig payload (1)	43
Figure 6	– AssetConfig payload (2)	44
Figure 7	– FaultCauseTypeConfig payload	44
Figure 8	– LocationConfig payload	45
Figure 9	– PowerSystemResourceConfig payload	45
Figure 10	– OperationsDataLinkageConfig payload (1)	47
Figure 11	– OperationsDataLinkageConfig payload (2)	48
Figure 12	– PSRMeasurements sequence diagram	51
Figure 13	– Get/Reply Message Pattern for PSRMeasurements	51
Figure 14	– PSRMeasurements payload – Accumulator	53
Figure 15	– PSRMeasurements payload – Analog	54
Figure 16	– PSRMeasurements payload – Discrete	56
Figure 17	– PSRMeasurements payload – StringMeasurement	57
Figure 18	– GetPSRMeasurements payload	58
Figure 19	– PSRControls sequence diagram	59
Figure 20	– PSRControls payload – AccumulatorReset	65
Figure 21	– PSRControls payload – AnalogControl	66
Figure 22	– PSRControls payload – Command	67