

# **SLOVENSKI STANDARD**

## **SIST EN 62325-451-1:2017**

**01-september-2017**

**Nadomešča:**

**SIST EN 62325-451-1:2014**

---

**Okvir za komunikacije na trgu z električno energijo - 451-1. del: Poslovni proces potrjevanja in kontekstualni model za CIM za evropski trg**

Framework for energy market communications - Part 451-1: Acknowledgement business process and contextual model for CIM European market

Kommunikation im Energiemarkt - Teil 451-1: Geschäftsprozessnachweis und kontextbezogenes CIM-Modell für den europäischen Markt

Cadre pour les communications pour le marché de l'énergie - Partie 451-1: Processus métier d'accusé de réception et modèle contextuel pour le marché européen CIM

**Ta slovenski standard je istoveten z: EN 62325-451-1:2017**

---

**ICS:**

29.240.30	Krmilna oprema za elektroenergetske sisteme	Control equipment for electric power systems
33.200	Daljinsko krmiljenje, daljinske meritve (telemetrija)	Telecontrol. Telemetry

**SIST EN 62325-451-1:2017**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 62325-451-1:2017

<https://standards.iteh.ai/catalog/standards/sist/8df96b2c-b393-4b50-9754-dec792069baf/sist-en-62325-451-1-2017>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 62325-451-1**

June 2017

ICS 33.200

Supersedes EN 62325-451-1:2013

English Version

**Framework for energy market communications -  
Part 451-1: Acknowledgement business process and contextual  
model for CIM European market  
(IEC 62325-451-1:2017)**

Cadre pour les communications pour le marché de l'énergie -  
Partie 451-1: Processus métier d'accusé de réception et  
modèle contextuel pour le marché européen CIM  
(IEC 62325-451-1:2017)

Kommunikation im Energiemarkt -  
Teil 451-1: Geschäftsprozessnachweis und  
kontextbezogenes CIM-Modell für den europäischen Markt  
(IEC 62325-451-1:2017)

This European Standard was approved by CENELEC on 2017-03-06. 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/8d96b2c-b393-4b50-9754->

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, 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: Avenue Marnix 17, B-1000 Brussels**

**EN 62325-451-1:2017****European foreword**

The text of document 57/1789/FDIS, future edition 2 of IEC 62325-451-1, 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 62325-451-1:2017.

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) 2017-12-06
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-03-06

This document supersedes EN 62325-451-1:2013

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.

SIST EN 62325-451-1:2017  
<https://standards.iteh.ai/standards/iec-b393-4b50-9754-dec792069baf/sist-en-62325-451-1-2017>  
**Endorsement notice**

The text of the International Standard IEC 62325-451-1:2017 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 61968-11	NOTE	Harmonized as EN 61968-11.
IEC 61970-301	NOTE	Harmonized as EN 61970-301.
IEC 62325-301	NOTE	Harmonized as EN 62325-301.

## Annex ZA

(normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When 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](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/TS 61970-2	-	Energy management system application program interface (EMS-API) - Part 2: Glossary	CLC/TS 61970-2	-
IEC 62325-351	-	Framework for energy market communications - Part 351: CIM European market model exchange profile	EN 62325-351	-
IEC 62325-450	-	Framework for energy market communications - Part 450: Profile and context modelling rules	EN 62325-450	-
IEC 62361-100	-	Power systems management and associated information exchange - Interoperability in the long term - Part 100: CIM profiles to XML schema mapping	EN 62361-100	-

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 62325-451-1:2017

<https://standards.iteh.ai/catalog/standards/sist/8df96b2c-b393-4b50-9754-dec792069baf/sist-en-62325-451-1-2017>



IEC 62325-451-1

Edition 2.0 2017-01

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**Framework for energy market communications –  
Part 451-1: Acknowledgement business process and contextual model for CIM  
European market**

**Cadre pour les communications pour le marché de l'énergie –  
Partie 451-1: Processus métier d'accusé de réception et modèle contextuel  
pour le marché européen CIM**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 33.200

ISBN 978-2-8322-3862-2

**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.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references .....	8
3 Terms and definitions .....	8
4 Document contextual model and message assembly model basic concepts .....	10
4.1 Overview.....	10
4.2 European style market package structure .....	11
4.3 From the European style market profile to the document contextual model .....	12
4.4 From the document contextual model to the message assembly model .....	12
4.5 From the assembly model to the XML schema .....	12
5 The acknowledgment business process .....	12
5.1 Business process definition.....	12
5.1.1 General .....	12
5.1.2 Technical acknowledgment.....	13
5.1.3 Application acknowledgment.....	13
5.2 Business rules for the acknowledgment document .....	14
5.2.1 General.....	14
5.2.2 Time .....	14
5.2.3 Reason.....	14
6 Contextual and assembly models.....	15
6.1 Acknowledgement contextual model.....	15
6.1.1 Overview of the model .....	15
6.1.2 IsBasedOn relationships from the European style market profile .....	16
6.1.3 Detailed Acknowledgement contextual model .....	17
6.2 Acknowledgement assembly model.....	23
6.2.1 Overview of the model .....	23
6.2.2 IsBasedOn relationships from the European style market profile .....	23
6.2.3 Detailed Acknowledgement assembly model .....	24
6.2.4 Primitives .....	28
6.2.5 Datatypes .....	28
6.2.6 Enumerations .....	33
7 XML schema.....	33
7.1 XML schema URN namespace rules .....	33
7.2 Code list URN namespace rules.....	34
7.3 URI rules for model documentation .....	34
7.3.1 Datatype .....	34
7.3.2 Class .....	34
7.3.3 Attribute.....	34
7.3.4 Association end role name.....	35
7.4 Acknowledgement_MarketDocument schema.....	35
7.4.1 Schema structure .....	35
7.4.2 Schema description .....	37
Bibliography.....	41



Figure 2 – Overview of European style market profile dependency.....	11
Figure 3 – Acknowledgement process .....	13
Figure 4 – Acknowledgement contextual model.....	16
Figure 5 – Acknowledgement assembly model .....	23
Figure 6 – Acknowledgement_MarketDocument general XML schema structure.....	36
Figure 7 – Acknowledgement_MarketDocument TimeSeries XML schema structure.....	37
Table 1 – Codes used at the document header level .....	14
Table 2 – Codes used at the TimeSeries level when there is a Reason code of A03 at the document header level.....	15
Table 3 – Codes used at the Period level when there is a Reason code A03 at the document header level and a code A21 at the TimeSeries level .....	15
Table 4 – IsBasedOn dependency.....	17
Table 5 – Attributes of Acknowledgement contextual model::Acknowledgement_MarketDocument .....	17
Table 6 – Association ends of Acknowledgement contextual model::Acknowledgement_MarketDocument with other classes .....	18
Table 7 – Attributes of Acknowledgement contextual model::MarketParticipant .....	19
Table 8 – Association ends of Acknowledgement contextual model::MarketParticipant with other classes .....	19
Table 9 – Attributes of Acknowledgement contextual model::MarketRole .....	19
Table 10 – Attributes of Acknowledgement contextual model::Process.....	19
Table 11 – Attributes of Acknowledgement contextual model::Reason .....	20
Table 12 – Attributes of Acknowledgement contextual model::Received_MarketDocument .....	20
Table 13 – Association ends of Acknowledgement contextual model::Received_MarketDocument with other classes .....	20
Table 14 – Attributes of Acknowledgement contextual model::Receiver_MarketParticipant.....	21
Table 15 – Association ends of Acknowledgement contextual model::Receiver_MarketParticipant with other classes .....	21
Table 16 – Attributes of Acknowledgement contextual model::Time_Period.....	21
Table 17 – Association ends of Acknowledgement contextual model::Time_Period with other classes .....	22
Table 18 – Attributes of Acknowledgement contextual model::TimeSeries.....	22
Table 19 – Association ends of Acknowledgement contextual model::TimeSeries with other classes .....	22
Table 20 – IsBasedOn dependency.....	24
Table 21 – Attributes of Acknowledgement assembly model::Acknowledgement_MarketDocument .....	24
Table 22 – Association ends of Acknowledgement assembly model::Acknowledgement_MarketDocument with other classes .....	26
Table 23 – Attributes of Acknowledgement assembly model::Reason.....	26
Table 24 – Attributes of Acknowledgement assembly model::Time_Period .....	26
Table 25 – Association ends of Acknowledgement assembly model::Time_Period with other classes .....	27
Table 26 – Attributes of Acknowledgement assembly model::TimeSeries .....	27

Table 27 – Association ends of Acknowledgement assembly model:: TimeSeries with other classes .....	27
Table 28 – Attributes of ESMPDataTypes::ESMP_DateTimeInterval .....	28
Table 29 – Attributes of ESMPDataTypes::ESMP_DateTime .....	28
Table 30 – Restrictions of attributes for ESMPDataTypes::ESMP_DateTime .....	29
Table 31 – Attributes of ESMPDataTypes::ESMPVersion_String .....	29
Table 32 – Restrictions of attributes for ESMPDataTypes::ESMPVersion_String .....	29
Table 33 – Attributes of ESMPDataTypes::ID_String .....	30
Table 34 – Restrictions of attributes for ESMPDataTypes::ID_String .....	30
Table 35 – Attributes of ESMPDataTypes::MarketRoleKind_String .....	30
Table 36 – Attributes of ESMPDataTypes::MessageKind_String .....	30
Table 37 – Attributes of ESMPDataTypes::PartyID_String .....	31
Table 38 – Restrictions of attributes for ESMPDataTypes::PartyID_String .....	31
Table 39 – Attributes of ESMPDataTypes::PayloadId_String .....	31
Table 40 – Restrictions of attributes for ESMPDataTypes::PayloadId_String .....	31
Table 41 – Attributes of ESMPDataTypes::ProcessKind_String .....	31
Table 42 – Attributes of ESMPDataTypes::ReasonCode_String .....	32
Table 43 – Attributes of ESMPDataTypes::ReasonText_String .....	32
Table 44 – Restrictions of attributes for ESMPDataTypes::ReasonText_String .....	32
Table 45 – Attributes of ESMPDataTypes::YMDHM_DateTime .....	32
Table 46 – Restrictions of attributes for ESMPDataTypes::YMDHM_DateTime .....	33

SIST EN 62325-451-1:2017

<https://standards.iteh.ai/catalog/standards/sist/8df96b2c-b393-4b50-9754-dec792069baf/sist-en-62325-451-1-2017>

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## FRAMEWORK FOR ENERGY MARKET COMMUNICATIONS –

**Part 451-1: Acknowledgement business process  
and contextual model for CIM European market**

## 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.  
<https://standards.iteh.ai/catalog/standards/sist/8d96b2c-b393-4b50-9754-1ce090af9a00/iec-62325-451-1-2017>
- 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 62325-451-1 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

This second edition cancels and replaces the first edition published in 2013. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Addition of an optional attribute ProcessType to the acknowledgement document to ease routing of incoming acknowledgement document instances to the appropriate application.
- b) Clarification of the activity diagram for the acknowledgement process.
- c) Addition of the list of constraints on datatypes.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
57/1789/FDIS	57/1819/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all the parts in the IEC 62325 series, published under the general title *Framework for energy market communications*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## iTeh STANDARD PREVIEW

(standards.iteh.ai)

**IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

<https://standards.iteh.ai/catalog/standards/sist/8d96b2c-b393-4b50-9754-dec792069baf/sist-en-62325-451-1-2017>

## INTRODUCTION

This document is one part of the IEC 62325 series for deregulated energy market communications.

The principal objective of the IEC 62325 series is to produce standards which facilitate the integration of market application software developed independently by different vendors into a market management system, between market management systems and market participant systems. This is accomplished by defining message exchanges to allow these applications or systems access to public data and exchange information independent of how such information is represented internally.

The common information model (CIM), i.e. IEC 62325-301, IEC 61970-301 and IEC 61968-11, specifies the basis for the semantics for message exchange.

This European style market profile is based on different parts of the CIM IEC standard and specifies the content of the messages exchanged.

This document provides for the European style market profile the generic technical and application acknowledgement document that can be used in all European style market processes. These market processes are based on the European regulations, and on the concepts of third party access and zonal markets.

This document was originally based upon the work of the European Transmission System Operators (ETSO) and then on the work of the European Network of Transmission System Operators (ENTSO-E) on electronic data interchange.

SIST EN 62325-451-1:2017

<https://standards.iteh.ai/catalog/standards/sist/8df96b2c-b393-4b50-9754-dec792069baf/sist-en-62325-451-1-2017>