SLOVENSKI STANDARD
SIST EN IEC 62541-8:2026

01-maj-2026

Enotna arhitektura OPC - 8. del: Dostop do podatkov (IEC 62541-8:2025)

OPC unified architecture - Part 8: Data access (IEC 62541-8:2025)

OPC Unified Architecture - Teil 8: Zugriff auf Automatisierungsdaten (IEC 62541-8:2025)

Architecture unifiée OPC - Partie 8: Accès aux données (IEC 62541-8:2025)

Ta slovenski standard je istoveten z: **EN IEC 62541-8:2026**

ICS:

25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
35.240.50	Uporabniške rešitve IT v industriji	IT applications in industry

SIST EN IEC 62541-8:2026 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62541-8

February 2026

ICS 25.040.40; 35.100.05

Supersedes EN IEC 62541-8:2020

English Version

OPC unified architecture - Part 8: Data access (IEC 62541-8:2025)

Architecture unifiée OPC - Partie 8: Accès aux données (IEC 62541-8:2025)

OPC Unified Architecture - Teil 8: Zugriff auf Automatisierungsdaten (IEC 62541-8:2025)

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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.

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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

Ref. No. EN IEC 62541-8:2026 E

European foreword

The text of document 65E/1055/CDV, future edition 4 of IEC 62541-8, prepared by SC 65E "Devices and integration in enterprise systems" of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62541-8:2026.

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) 2027-02-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2029-02-28

This document supersedes EN IEC 62541-8:2020 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 standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62541-8:2025 was approved by CENELEC as a European Standard without any modification.

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.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 62541-1	-	OPC Unified Architecture - Part 1: Overview and concepts	EN IEC 62541-1	-
IEC 62541-3	-	OPC Unified Architecture - Part 3: Address Space Model	EN IEC 62541-3	-
IEC 62541-4	-	OPC unified architecture - Part 4: Services	EN IEC 62541-4	-
IEC 62541-5	-	OPC Unified architecture - Part 5: Information Model	EN IEC 62541-5	-
IEC 62541-19	-	OPC unified architecture - Part 19: Dictionary Reference	EN IEC 62541-19	-

IEC 62541-8

Edition 4.0 2025-12

INTERNATIONAL STANDARD

OPC unified architecture -
Part 8: Data access

ICS 25.040.40; 35.100.05

ISBN 978-2-8327-0849-1

IEC 62541-8:2025-12(en)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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OPC unified architecture - Part 8: Data access

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.
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IEC 62541-8 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2020. This edition constitutes a technical revision.

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

a) addition of a "Quantity Model" which can be referenced from EngineeringUnit Properties. The model defines quantities and assigned units. In addition it provides alternative units and the conversion to them.

b) addition of rules for ValuePrecision Property:

- can also be used for other subtypes like Duration and Decimal.
- rules have been added when ValuePrecision has negative values.

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

Draft	Report on voting
65E/1055/CDV	65E/1108/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

Throughout this document and the other parts of the IEC 62541 series, certain document conventions are used:

Italics are used to denote a defined term or definition that appears in the "Terms and definitions" clause in one of the parts of the IEC 62541 series.

Italics are also used to denote the name of a service input or output parameter or the name of a structure or element of a structure that are usually defined in tables.

The *italicized terms and names* are, with a few exceptions, written in camel-case (the practice of writing compound words or phrases in which the elements are joined without spaces, with each element's initial letter capitalized within the compound). For example, the defined term is *AddressSpace* instead of Address Space. This makes it easier to understand that there is a single definition for *AddressSpace*, not separate definitions for Address and Space.

A list of all parts in the IEC 62541 series, published under the general title *OPC Unified Architecture*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

1 Scope

This part of IEC 62541 is part of the overall OPC Unified Architecture (OPC UA) standard series and defines the information model associated with Data Access (DA). It particularly includes additional *VariableTypes* and complementary descriptions of the *NodeClasses* and *Attributes* needed for Data Access, additional *Properties*, and other information and behaviour.

The complete address space model, including all *NodeClasses* and *Attributes* is specified in IEC 62541-3. The services to detect and access data are specified in IEC 62541-4.

Annex A specifies how the information received from OPC COM Data Access (DA) Servers is mapped to the Data Access model.

2 Normative references

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.

IEC 62541-1, *OPC Unified Architecture - Part 1: Overview and Concepts*

IEC 62541-3, *OPC Unified Architecture - Part 3: Address Space Model*

IEC 62541-4, *OPC Unified Architecture - Part 4: Services*

IEC 62541-5, *OPC Unified Architecture - Part 5: Information Model*

IEC 62541-19, *OPC Unified Architecture - Part 19: Dictionary References*

UN/CEFACT: UNECE Recommendation N°20, *Codes for Units of Measure Used in International Trade*
https://www.unece.org/cefact/codesfortrade/codes_index.html

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62541-1, IEC 62541-3, and IEC 62541-4 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

– IEC Electropedia: available at https://www.electropedia.org/
– ISO Online browsing platform: available at https://www.iso.org/obp

3.1.1
DataItem
link to arbitrary, live automation data, that is, data that represents currently valid information

Note 1 to entry: Examples of such data are

- device data (such as temperature sensors),
- calculated data,
- status information (open/closed, moving),
- dynamically-changing system data (such as stock quotes),
- diagnostic data.

3.1.2
AnalogItem
DataItem that represents continuously-variable physical quantities (e.g., length, temperature), in contrast to the digital representation of data in discrete items

Note 1 to entry: Typical examples are the values provided by temperature sensors or pressure sensors. OPC UA defines specific *VariableTypes* to identify an *AnalogItem*. *Properties* describe the possible ranges of *AnalogItems*.

3.1.3
DiscreteItem
DataItem that represents data that can take on only a certain number of possible values (e.g., OPENING, OPEN, CLOSING, CLOSED)

Note 1 to entry: Specific *VariableTypes* are used to identify *DiscreteItems* with two states or with multiple states. *Properties* specify the string values for these states.

3.1.4
ArrayItem
DataItem that represents continuously-variable physical quantities and where each individual data point consists of multiple values represented by an array (e.g., the spectral response of a digital filter)

Note 1 to entry: Typical examples are the data provided by analyser devices. Specific *VariableTypes* are used to identify *ArrayItem* variants.

3.1.5
EngineeringUnits
units of measurement for *AnalogItems* that represent continuously-variable physical quantities (e.g., length, mass, time, temperature)

Note 1 to entry: This standard defines *Properties* to inform about the unit used for the *DataItem* value and about the highest and lowest value likely to be obtained in normal operation.

3.2 Abbreviated terms

DA Data Access

EU Engineering Unit

NaN Not a Number" defined in IEEE 754

UA Unified Architecture