



DPC: 24 / 30484353 DC

BSI Group Headquarters

389 Chiswick High Road London W4 4AL

Tel: +44 (0)20 8996 9000

Fax: +44 (0)20 8996 7400

www.bsigroup.com

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Responsible committee: GEL/65/5 Devices and integration in enterprise systems

Interested committees:

Title: BS EN IEC 62541-1 OPC Unified Architecture

Part 1: Overview and Concepts

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Responsible Committee Secretary: Ms Charmaine Mukherjee (BSI)

Direct tel:

E-mail: charmaine.mukherjee@bsigroup.com

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:

IEC 62541-1 ED1

DATE OF CIRCULATION:

2024-01-26

CLOSING DATE FOR VOTING:

2024-04-19

SUPERSEDES DOCUMENTS:

65E/949/NP, 65E/1009/RVN

IEC SC 65E : DEVICES AND INTEGRATION IN ENTERPRISE SYSTEMS

SECRETARIAT:

United States of America

SECRETARY:

Mr Donald (Bob) Lattimer

OF INTEREST TO THE FOLLOWING COMMITTEES:

PROPOSED HORIZONTAL STANDARD:

☐

Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

☐ EMC

☐ ENVIRONMENT

☐ QUALITY ASSURANCE

☐ SAFETY

☒ SUBMITTED FOR CENELEC PARALLEL VOTING

☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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The CENELEC members are invited to vote through the CENELEC online voting system.

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.

Recipients of this document are invited to submit, with their comments, notification of any relevant "In Some Countries" clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

OPC Unified Architecture – Part 1: Overview and Concepts

PROPOSED STABILITY DATE: 2026

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TABLES

INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPC UNIFIED ARCHITECTURE –

Part 1: Overview and Concepts

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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International Standard IEC 62541-1 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation.

The text of this international standard is based on the following documents:

CDV	Report on voting
65E/XX/CDV	65E/XX/RVC

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

Throughout this document and the other Parts of the series, certain document conventions are used:

125 *Italics* are used to denote a defined term or definition that appears in the “Terms and definition” clause
126 in one of the parts of the series.

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

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

134 A list of all parts of the IEC 62541 series is included in IEC 62541-1 clause 4 Structure of the OPC UA
135 series and published under the general title OPC Unified Architecture, can be found on the IEC website.

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

- 139 • reconfirmed,
- 140 • withdrawn,
- 141 • replaced by a revised edition, or
- 142 • amended.

143 A bilingual version of this publication may be issued at a later date.

144

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.

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OPC Unified Architecture Specification

Part 1: Overview and Concepts

1 Scope

This part of IEC 62541 presents the concepts and overview of the OPC Unified Architecture (OPC UA). Reading this document is helpful to understand the remaining parts of this multi-part document set. Each of the other parts is briefly explained along with a suggested reading order. Except for the Term definitions in clause 3.2, this Part is non-normative.

2 Normative References

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 and errata) applies.

IEC 61508 (all parts), *Functional safety of electrical/electronic/programmable electronic safety-related systems*

<https://www.iec.ch/functionalsafety/standards/>

IEC 61784 3:2017, Industrial communication networks – Profiles – Part 3: Functional safety fieldbuses – General rules and profile definitions

<https://webstore.iec.ch/publication/61165/>

IEC 62541-2, *OPC Unified Architecture – Part 2: Security*

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 62541-6, *OPC Unified Architecture – Part 6: Mappings*

IEC 62541-7, *OPC Unified Architecture – Part 7: Profiles*

IEC 62541-8, *OPC Unified Architecture – Part 8: Data Access*

IEC 62541-9, *OPC Unified Architecture – Part 9: Alarms and Conditions*

IEC 62541-10, *OPC Unified Architecture – Part 10: Programs*

IEC 62541-11, *OPC Unified Architecture – Part 11: Historical Access*

IEC 62541-12, *OPC Unified Architecture – Part 12: Discovery and Global Services*

IEC 62541-13, *OPC Unified Architecture – Part 13: Aggregates*

IEC 62541-14, *OPC Unified Architecture – Part 14: PubSub*

IEC 62541-15, *OPC Unified Architecture - Part 15: Safety*

184 IEC 62541-16, *OPC Unified Architecture - Part 16: State Machines*
185 IEC 62541-17, *OPC Unified Architecture - Part 17: Alias Names*
186 IEC 62541-18, *OPC Unified Architecture - Part 18: Role-Based Security*
187 IEC 62541-19, *OPC Unified Architecture - Part 19: Dictionary References*
188 IEC 62541-20, *OPC Unified Architecture - Part 20: File Transfer*
189 IEC 62541-21, *OPC Unified Architecture - Part 21: Device Onboarding*
190 IEC 62541-22, *OPC Unified Architecture - Part 22: Base Network Model*
191 IEC 62541-23, *OPC Unified Architecture - Part 23: Common ReferenceTypes*
192 IEC 62541-24, *OPC Unified Architecture - Part 24: Scheduler*
193 X.509, X.509 Public Key Certificate Infrastructure
194 <https://www.itu.int/rec/T-REC-X.509>
195

196 3 Terms, definitions, and abbreviations

197 3.1 Document conventions

198 Throughout this document and the referenced other Parts of the series, certain document conventions
199 are used.

200 Italics are used to denote a defined term or definition that appears in the “Terms and definition” clause
201 in one of the parts of the series.

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203 structure or element of a structure that are usually defined in tables.

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

209 3.2 Terms and definitions

210 For the purposes of this document, the following terms apply.

211 3.2.1

212 **AddressSpace**

213 collection of information that a *Server* makes visible to its *Clients*

214 Note 1 to entry: See IEC 62541-3 for a description of the contents and structure of the *Server AddressSpace*.

215 3.2.2

216 **Aggregate**

217 function that calculates derived values from *Raw data*

218 Note 1 to entry: Raw data may be from a historian or buffered real time data. Common Aggregates include averages over
219 a given time range, minimum over a time range and maximum over a time range.

220 3.2.3

221 **Alarm**

222 type of *Event* associated with a state condition that typically requires acknowledgement

223 Note 1 to entry: See IEC 62541-9 for a description of *Alarms*.