

© Copyright SEK Svensk Elstandard. Reproduction in any form without permission is prohibited.

Industriell processtyrning – Enheter och integration i företagssystem – Funktionsblock (FB) och EDDL – Del 4: EDD-tolkning

*Devices and integration in enterprise systems –
Function blocks (FB) for process control and electronic device description language (EDDL) –
Part 4: EDD interpretation*

Som svensk standard gäller europastandarden EN IEC 61804-4:2020. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 61804-4:2020.

Nationellt förord

Europastandarden EN IEC 61804-4:2020

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61804-4, Second edition, 2020 - Devices and integration in enterprise systems - Function blocks (FB) for process control and electronic device description language (EDDL) - Part 4: EDD interpretation**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61804-4, utgåva 1, 2016, gäller ej fr o m 2023-07-29.

ICS 35.240.50; 25.040.40

Denna standard är fastställd av SEK Svensk Elstandard, som också kan lämna upplysningar om **sakinnehållet** i standarden.
Postadress: Box 1284, 164 29 KISTA
Telefon: 08 - 444 14 00.
E-post: sek@elstandard.se. Internet: www.elstandard.se

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard

Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

EUROPEAN STANDARD

EN IEC 61804-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

August 2020

ICS 25.040.40; 35.240.50

Supersedes EN 61804-4:2016 and all of its amendments
and corrigenda (if any)

English Version

**Devices and integration in enterprise systems - Function blocks
(FB) for process control and electronic device description
language (EDDL) - Part 4: EDD interpretation
(IEC 61804-4:2020)**

Les dispositifs et leur intégration dans les systèmes de
l'entreprise - Blocs fonctionnels (FB) pour les procédés
industriels et le langage de description électronique de
produit (EDDL) - Partie 4: Interprétation EDD
(IEC 61804-4:2020)

Funktionsbausteine für die Prozessautomation und
elektronische Gerätebeschreibungssprache - Teil 4:
Interpretation von Gerätebeschreibungen
(IEC 61804-4:2020)

This European Standard was approved by CENELEC on 2020-07-29. 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.

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

© 2020 CENELEC All rights of exploitation in any form and by any means reserved worldwide for CENELEC Members.

Ref. No. EN IEC 61804-4:2020 E

SEK Svensk Elstandard

SS-EN IEC 61804-4, utg 2:2021

European foreword

The text of document 65E/633/CDV, future edition 2 of IEC 61804-4, 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 61804-4:2020.

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) 2021-04-29
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-07-29

This document supersedes EN 61804-4:2016 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.

Endorsement notice

The text of the International Standard IEC 61804-4:2020 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 61804-2:2018 NOTE Harmonized as EN IEC 61804-2:2018 (not modified)

IEC 62769-100¹ NOTE Harmonized as EN IEC 62769-100²

IEC 62769-115-2 NOTE Harmonized as EN IEC 62769-115-2³

¹ To be published. Stage at the time of publication: IEC AFDIS 62769-100:2020.

² To be published. Stage at the time of publication: FprEN IEC 62769-100:2020.

³ To be published. Stage at the time of publication: FprEN IEC 62769-115-2:2020.

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 61784-1	-	Industrial communication networks - Profiles Part 1: Fieldbus profiles	EN IEC 61784-1	-
IEC 61784-2	-	Industrial communication networks - Profiles - Part 2: Additional fieldbus profiles for real-time networks based on ISO/IEC/IEEE 8802-3	EN IEC 61784-2	-
IEC 61804-3	-	Devices and integration in enterprise systems - Function blocks (FB) for process control and electronic device description language (EDDL) - Part 3: EDDL syntax and semantics	EN IEC 61804-3	-
IEC 61804-5	-	Devices and intergration in enterprise systems - Function blocks (FB) for process control and electronic device description language (EDDL) - Part 5: EDDL Builtin library	EN IEC 61804-5	-
IEC 62734	-	Industrial networks - Wireless communication network and communication profiles - ISA 100.11a	EN 62734	-
IEC 62769-4 ⁴	-	Field Device Integration (FDI) - Part 4: FDI Packages	EN 62769-4 ⁵	-
IEC 62769-7 ⁶	-	Field Device Integration (FDI) - Part 7: FDI Communication Devices	EN 62769-7 ⁷	-

⁴ To be published. Stage at the time of publication: IEC RFDIS 62769-4:2020.

⁵ To be published. Stage at the time of publication: prEN 62769-4:2018.

⁶ To be published. Stage at the time of publication: IEC RFDIS 62769-7:2020.

⁷ To be published. Stage at the time of publication: prEN 62769-7:2018.

CONTENTS

FOREWORD.....	8
INTRODUCTION.....	11
1 Scope.....	12
2 Normative references	12
3 Terms, definitions, abbreviated terms acronyms and conventions.....	12
3.1 General terms and definitions	12
3.2 Terms and definitions related to modular devices.....	13
3.3 Abbreviated terms and acronyms	14
3.4 Conventions.....	14
4 EDDL user interface description	15
4.1 Overview.....	15
4.2 Menu conventions for handheld applications	15
4.3 Menu conventions for PC-based applications	16
4.3.1 Overview	16
4.3.2 Online root menus	16
4.3.3 Offline root menu	17
4.3.4 Example of EDD menu structure	17
4.3.5 User interface.....	22
4.4 Label concatenation for indirect variable references.....	25
4.4.1 General	25
4.4.2 Simple variable references	26
4.4.3 Complex variable references	26
4.5 Help concatenation	28
4.5.1 General	28
4.5.2 Simple variable references	28
4.5.3 Complex variable references	29
4.6 Containers and contained items.....	30
4.6.1 Overview	30
4.6.2 Permitted and default STYLES.....	30
4.6.3 Containers.....	32
4.6.4 Contained items.....	34
4.7 Layout rules	40
4.7.1 Overview	40
4.7.2 Controlling the layout by LAYOUT_TYPE attribute	41
4.7.3 Layout rules for WIDTH and HEIGHT.....	45
4.7.4 Layout rules for COLUMNBREAK and ROWBREAK.....	48
4.7.5 Layout examples	54
4.7.6 Conditional user interface.....	69
4.8 Graphical elements	75
5 EDDL data description.....	79
5.1 EDDL application stored device data.....	79
5.1.1 Overview	79
5.1.2 FILE	79
5.1.3 LIST	81
5.2 Exposing data items outside the EDD application.....	88
5.3 Initialization of EDD instances.....	88

5.3.1	Overview	88
5.3.2	Initialization support	88
5.3.3	TEMPLATE.....	88
5.4	Device model mapping.....	89
5.4.1	BLOCK_A.....	89
5.4.2	BLOCK_B.....	89
6	EDDL METHOD programming and usage of builtins	90
6.1	Method environment	90
6.1.1	General	90
6.1.2	Security	90
6.1.3	Device data	90
6.1.4	Method TYPE and parameters	91
6.1.5	Abort processing.....	91
6.2	Implementation requirements.....	92
6.3	Builtin MenuDisplay	92
6.4	Division by zero and undetermined floating values	95
6.4.1	Integer and unsigned integer values	95
6.4.2	Floating-point values	95
7	Modular devices	96
7.1	Overview.....	96
7.2	EDD identification	96
7.3	Instance object model.....	96
7.4	Offline configuration.....	97
7.5	Online configuration.....	97
7.6	Simple modular device example.....	97
7.6.1	General	97
7.6.2	Separate EDD file example with direct EDD referencing	98
7.6.3	Separate EDD file example with classification EDD referencing and interfaces	100
7.6.4	One EDD file example	102
7.6.5	Combination of single and separate modular device example	104
7.7	Upload and download for modular devices	104
7.8	Diagnostic.....	104
7.9	Reading modular device topology	105
7.9.1	SCAN	105
7.9.2	Detect module type.....	107
7.10	Configuration check	107
8	Session management	108
8.1	Overview.....	108
8.2	Data management.....	108
8.2.1	Overview	108
8.2.2	Caching for online session.....	109
8.2.3	Caching for offline session.....	110
8.2.4	Caching for dialogs and windows.....	111
8.2.5	Caching for METHODS	112
8.3	UI aspects of editing sessions.....	115
8.4	User roles	116
9	Offline and online configuration	116
9.1	Overview.....	116

9.2	Offline dataset	116
9.3	Offline configuration.....	116
9.4	Online dataset	116
9.5	Online configuration.....	116
9.6	Upload and download	117
9.6.1	Overview	117
9.6.2	Error recovery.....	118
9.6.3	Upload procedure	118
9.6.4	Download procedure.....	120
10	EDDL communication description	122
10.1	General.....	122
10.2	Parsing data received from the device	123
10.3	Parsing complex data items	123
10.4	Foundation Fieldbus	123
10.5	ISA100_Wireless communication model.....	127
	Annex A (normative) Device simulation.....	131
	Annex B (informative) Predefined identifiers	132
	Annex C (informative) Description of EDDL profiles	135
C.1	Communication Server (CS).....	135
C.2	Foundation Fieldbus (FF).....	135
C.3	Generic Protocol Extension (GPE)	135
C.4	HART.....	135
C.5	ISA100.....	135
C.6	PROFIBUS (PB).....	135
C.7	PROFINET (PN).....	136
	Annex D (normative) Upload/download caching model.....	137
	Bibliography.....	139
	Figure 1 – EDD example of root menus.....	22
	Figure 2 – Example of an EDD application for diagnostics	22
	Figure 3 – Example of an EDD application for process variables.....	23
	Figure 4 – Example of an EDD application for primary variables	23
	Figure 5 – Example of an EDD application for process-related device features	24
	Figure 6 – Example of an EDD application for device features	24
	Figure 7 – Example of an EDD application for maintenance features	25
	Figure 8 – Usage of COLLECTION MEMBERS in MENUs of STYLE GROUP.....	33
	Figure 9 – Displaying single bits of BIT_ENUMERATED	35
	Figure 10 – Displaying multiple bits of BIT_ENUMERATED.....	36
	Figure 11 – Example of an EDD application for a variable of type BIT_ENUMERATED	36
	Figure 12 – EDD example with a "write-only" variable (HANDLING WRITE).....	37
	Figure 13 – Basic layout elements	40
	Figure 14 – Example of layout with equal column width.....	42
	Figure 15 – Example of layout with optimized column width	42
	Figure 16 – Cell body in a layout with optimized column width (label to the left).....	43
	Figure 17 – Cell body in a layout with optimized column width (label on top).....	43
	Figure 18 – EDD source code for a layout with VARIABLEs spanning columns	47

Figure 19 – Layout with VARIABLES spanning multiple columns	47
Figure 20 – EDD source code for layout for protruding elements example.....	49
Figure 21 – Layout for protruding elements	49
Figure 22 – EDD source code for layout for partially filled rows example.....	50
Figure 23 – Layout for partially filled rows	50
Figure 24 – EDD source code for layout for partially filled rows example.....	51
Figure 25 – Layout for partially filled rows	51
Figure 26 – EDD source code for layout for oversized elements example.....	52
Figure 27 – Oversized element in a layout with equal column width	52
Figure 28 – Oversized element in a layout with optimized column width.....	52
Figure 29 – EDD source code example for a layout for columns in stacked group	53
Figure 30 – Layout for columns in stacked group	53
Figure 31 – EDD source code for layout for columns with GRAPHS in stacked group example	54
Figure 32 – Layout for columns with GRAPHS in stacked group	54
Figure 33 – Example of an EDD for an overview menu.....	55
Figure 34 – Example of an EDD application for an overview window	55
Figure 35 – EDD source code for a layout with menu items spanning a single column	55
Figure 36 – Example of a layout with menu items spanning a single column	56
Figure 37 – Example of an EDD using COLUMNBREAK	56
Figure 38 – Example of an EDD application for an overview window	57
Figure 39 – EDD example for an overview window	57
Figure 40 – Example of an EDD application for an overview window	58
Figure 41 – EDD source code for a layout with small in-line images.....	58
Figure 42 – Example of a layout with small in-line images.....	59
Figure 43 – EDD source code for a multi-column layout with GROUP	60
Figure 44 – Example of a multi-column layout with GROUP	61
Figure 45 – Example of an EDD for in-line graphs and charts	61
Figure 46 – Example of an EDD application for an in-line graph.....	62
Figure 47 – Example of an EDD for full-width graphs and charts	62
Figure 48 – Example of an EDD application for a full-width graph in a layout with equal column width.....	63
Figure 49 – Example of an EDD application for a full-width graph in a layout with optimized column width.....	64
Figure 50 – Example of an EDD for nested containers	65
Figure 51 – Example of an EDD application for nested containers	65
Figure 52 – Example of an EDD for EDIT_DISPLAYS	66
Figure 53 – Example of an EDD application for EDIT_DISPLAYS.....	67
Figure 54 – Example of an EDD for images.....	67
Figure 55 – Example of an EDD application for images	68
Figure 56 – Example of an EDD for large inline-images	68
Figure 57 – Example of layout with a large inline-image.....	69
Figure 58 – EDD example for VALIDITY in online session.....	70
Figure 59 – Example of an EDD application for a gauge with limit regions	76

Figure 60 – Example of an EDD for a gauge with limit regions	78
Figure 61 – Example of a file declaration	80
Figure 62 – Example of comparing valve signatures.....	81
Figure 63 – Example of more complex file declaration	82
Figure 64 – Example of reviewing the stored radar signals.....	83
Figure 65 – Example of an EDD that inserts, replaces, or compares radar signals	88
Figure 66 – Example of a BLOCK_A	89
Figure 67 – Example of a wizard	94
Figure 68 – The different relations of a module	97
Figure 69 – Components and possible configuration of the modular devices	98
Figure 70 – Separate EDD file example with direct EDD referencing.....	99
Figure 71 – EDD example for module1.....	99
Figure 72 – EDD example for module2.....	100
Figure 73 – EDD example for modular device	101
Figure 74 – EDD example for module1.....	102
Figure 75 – EDD example for module2.....	102
Figure 76 – EDD example for module2.....	103
Figure 77 – Upload/download order of a modular device	104
Figure 78 – Example of a SCAN METHOD.....	106
Figure 79 – Example of a DETECT METHOD.....	107
Figure 80 – Example of a CHECK_CONFIGURATION METHOD	108
Figure 81 – Data caching for an online session.....	110
Figure 82 – Data caching for an offline session.....	111
Figure 83 – Sub dialogs or windows using a shared edit cache	111
Figure 84 – Sub dialogs or windows using separate edit caches	112
Figure 85 – Data caching for nested METHODS	112
Figure 86 – Data caching for a METHOD invoked within a dialog or window	113
Figure 87 – Data caching for a METHOD invoking a dialog using an edit cache	113
Figure 88 – Data caching for a METHOD invoking a dialog	113
Figure 89 – Data flow for download to the device	117
Figure 90 – Data flow for upload from the device	118
Figure 91 – Example device with 2 unique BLOCK_A definitions.....	124
Figure 92 – Example EDD for a device with 2 unique BLOCK_A definitions	125
Figure 93 – BLOCK_A example with PARAMETER_LISTS.....	126
Figure 94 – Example EDD for a BLOCK_A with PARAMETER_LISTS	127
Figure 95 – Example ISA100_Wireless device objects representation.....	128
Figure 96 – Example EDD for a ISA100_Wireless device with 2 unique BLOCK_A definitions	129
Figure 97 – BLOCK_A example with PARAMETER_LISTS.....	129
Figure 98 – Example EDD for a BLOCK_A with PARAMETER_LISTS	130
Figure D.1 – Upload caching model	137
Figure D.2 – Download caching model	138
Table 1 – List of defined root menu identifiers for handhelds.....	15

Table 2 – List of defined root menu identifiers for PC-based devices	16
Table 3 – Fall back alternatives for online root menus.....	16
Table 4 – Fall back alternatives for offline root menus	17
Table 5 – Label rule summary for simple variable references	26
Table 6 – Label rule summary for simple variable references	26
Table 7 – Prefix rule summary for complex variable references.....	27
Table 8 – Prefix rule summary for complex variable references.....	27
Table 9 – Body rule summary for complex variable references.....	27
Table 10 – Body rule summary for complex variable references.....	27
Table 11 – Suffix rule summary for complex variable references.....	28
Table 12 – Suffix rule summary for complex variable references.....	28
Table 13 – Help rule summary for simple variable references	28
Table 14 – Help rule summary for simple variable references	28
Table 15 – Help prefix rule summary for complex variable references	29
Table 16 – Help prefix rule summary for complex variable references	29
Table 17 – Help suffix rule summary for complex variable references	29
Table 18 – Help suffix rule summary for complex variable references	29
Table 19 – Permitted contained items and default STYLES.....	31
Table 20 – Uninitialized state of VARIABLES on user interface	34
Table 21 – Example of "write-only" variable in an online dialog	38
Table 22 – Description of layout content	41
Table 23 – Minimum and maximum width for input fields spanning one column.....	43
Table 24 – WIDTH and HEIGHT span and applicability	45
Table 25 – Example 1 VALIDITY in an online session	71
Table 26 – Example 2 VALIDITY in an online session	72
Table 27 – Example 3 VALIDITY in an online session	73
Table 28 – Example 4 VALIDITY in an online session	74
Table 29 – Examples of floating-point results.....	95
Table 30 – Usages of COMPONENT_PATH.....	96
Table 31 – Diagnostic classifications	105
Table 32 – Terminology for session management	108
Table 33 – Terminology used in data management	109
Table 34 – Builtins for method cache controlling	114
Table 35 – List of defined upload menu identifiers	118
Table 36 – List of defined download menu identifiers	120
Table B.1 – ARRAY predefined identifiers.....	132
Table B.2 – COLLECTION predefined identifiers.....	132
Table B.3 – COMMAND predefined identifiers.....	132
Table B.4 – IMAGE predefined identifiers	133
Table B.5 – MENU predefined identifiers	133
Table B.6 – METHOD predefined identifiers.....	134
Table B.7 – VARIABLE predefined identifiers.....	134

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DEVICES AND INTEGRATION IN ENTERPRISE SYSTEMS –
FUNCTION BLOCKS (FB) FOR PROCESS CONTROL AND
ELECTRONIC DEVICE DESCRIPTION LANGUAGE (EDDL) –****Part 4: EDD interpretation**

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 61804-4 has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 2015. This edition constitutes a technical revision.

This edition was developed by merging material from multiple variants of existing EDDL specifications including those from FieldComm Group (Foundation™ Fieldbus¹, HART®²), PROFIBUS™³ Nutzerorganisation e.V. (PNO), and ISA100_Wireless™⁴ Compliance Institute (ISA100 WCI). When a profile deviation exists, it is now indicated in the context where the related deviation is found. As a result, the formatting and numbering of this edition may be different from any of the individual specifications from which this edition was derived.

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

- communication profiles ISA100 and GPE were added;
- description of rules for optimized-column-width layout have been added;
- description of the concatenation of labels and help was added;
- color banding for meter type charts was added.

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

CDV	Report on voting
65E/633/CDV	65E/690/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.

A list of all parts in the IEC 61804 series, published under the general title *Devices and integration in enterprise systems – Function blocks (FB) for process control and Electronic Device Description Language (EDDL)*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

¹ FOUNDATION™ Fieldbus is the trademark of FieldComm Group. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

² HART® is the registered trademark of FieldComm Group. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

³ PROFIBUS and PROFINET are the trademarks of the PROFIBUS Nutzerorganisation e.V. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

⁴ ISA100_Wireless™ is the trademark of ISA100 Wireless Compliance Institute. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.

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

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

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.

INTRODUCTION

This part of IEC 61804

- contains an overview of the use of EDDL;
- provides examples demonstrating the use of the EDDL constructs;
- shows how the use cases are fulfilled; and
- shows the proper EDD application interpretation for each example.

This part of IEC 61804 is not an EDDL tutorial and is not intended to replace the EDDL specification.

Instructions are provided for the EDD application, which describe what will be performed without prescribing the technology used in the host implementation. For example, the FILE construct describes data that is stored by the EDD application on behalf of the EDD. The FILE construct does not specify how the data is stored. The EDD application can use a database, a flat file, or any other implementation it chooses.

EDDL features are limited by profile for each of the communication technologies. The descriptions in this part of IEC 61804 refer to these features in a general sense and not all communication technologies will support all of the features described. The profile definitions in IEC 61804-3 are referred to in order to understand the features supported by each communication technology.

DEVICES AND INTEGRATION IN ENTERPRISE SYSTEMS – FUNCTION BLOCKS (FB) FOR PROCESS CONTROL AND ELECTRONIC DEVICE DESCRIPTION LANGUAGE (EDDL) –

Part 4: EDD interpretation

1 Scope

This part of IEC 61804 specifies EDD interpretation for EDD applications and EDDs to support EDD interoperability. This document is intended to ensure that field device developers use the EDDL constructs consistently and that the EDD applications have the same interpretations of the EDD. It supplements the EDDL specification to promote EDDL application interoperability and improve EDD portability between EDDL applications.

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 61784-1, *Industrial communication networks – Profiles – Part 1: Fieldbus profiles*

IEC 61784-2, *Industrial communication networks – Profiles – Part 2: Additional fieldbus profiles for real-time networks based on ISO/IEC/IEEE 8802-3*

IEC 61804-3, *Devices and integration in enterprise systems – Function blocks (FB) for process control and electronic device description language (EDDL) – Part 3: EDDL syntax and semantics*

IEC 61804-5, *Devices and integration in enterprise systems – Function blocks (FB) for process control and electronic device description language (EDDL) – Part 5: EDDL Built-in library*

IEC 62734, *Industrial networks – Wireless communication network and communication profiles – ISA 100.11a*

IEC 62769-4⁵, *Field Device Integration (FDI) – Part 4: FDI Packages*

IEC 62769-7⁶, *Field Device Integration (FDI) – Part 7: FDI Communication devices*

⁵ Under preparation. Stage at the time of publication: IEC RFDIS 62769-4:2020.

⁶ Under preparation. Stage at the time of publication: IEC RFDIS 62769-7:2020.