

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Function blocks (FB) for process control and electronic device description
language (EDDL) –
Part 4: EDD interpretation standards.iteh.ai

Blocs fonctionnels (FB) pour les procédés industriels et le langage de
description électronique de produit (EDDL) –
Partie 4: Interprétation EDD



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2015 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

More than 60 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient plus de 30 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

Plus de 60 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

**Blocs fonctionnels (FB) pour les procédés industriels et le langage de description électronique de produit (EDDL) –
Partie 4: Interprétation EDD**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 25.040.40; 35.240.50

ISBN 978-2-8322-2937-8

**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.....	8
INTRODUCTION.....	10
1 Scope.....	11
2 Normative references	11
3 Terms, definitions, abbreviated terms, acronyms and conventions.....	11
3.1 General terms and definitions	12
3.2 Terms and definitions related to modular devices.....	12
3.3 Abbreviated terms and acronyms.....	13
3.4 Conventions.....	13
4 EDDL user interface description	13
4.1 Overview.....	13
4.2 Menu conventions for handheld applications.....	14
4.3 Menu conventions for PC-based applications.....	14
4.3.1 Overview	14
4.3.2 Online Root Menus	14
4.3.3 Offline Root Menu.....	15
4.3.4 Example of EDD menu structure.....	15
4.3.5 User interface.....	20
4.4 Containers and contained items.....	23
4.4.1 Overview	23
4.4.2 Containers.....	23
4.4.3 Contained items.....	26
4.5 Layout rules.....	30
4.5.1 Overview	30
4.5.2 Layout rules for WIDTH and HEIGHT.....	30
4.5.3 Layout rules for COLUMNBREAK and ROWBREAK.....	31
4.5.4 Layout examples	37
4.5.5 Conditional user interface.....	45
4.6 Graphical elements.....	46
4.6.1 Overview	46
4.6.2 Graph and chart.....	47
4.6.3 Common attributes	47
4.6.4 CHART.....	48
4.6.5 GRAPH.....	56
4.6.6 AXIS.....	65
4.6.7 IMAGE.....	66
4.6.8 GRID	67
5 EDDL data description.....	69
5.1 Variables	69
5.1.1 VARIABLE TYPEs	69
5.1.2 VARIABLE CLASS.....	70
5.1.3 VARIABLE ACTIONS.....	70
5.2 EDDL application stored device data.....	70
5.2.1 Overview	70
5.2.2 FILE	71
5.2.3 LIST	73

5.3	Exposing data items outside the EDD application.....	80
5.4	Initialization of EDD instances.....	80
5.4.1	Overview	80
5.4.2	Initialization support	80
5.4.3	TEMPLATE.....	80
5.5	Device model mapping.....	81
5.5.1	BLOCK_A.....	81
5.5.2	BLOCK_B.....	82
6	EDDL METHOD programming and usage of Builtins	82
6.1	Builtin MenuDisplay	82
6.2	Division by zero and undetermined floating values	85
6.2.1	Integer and unsigned integer values	85
6.2.2	Floating-point values	85
7	Modular devices	85
7.1	Overview.....	85
7.2	EDD identification	86
7.3	Instance object model	86
7.4	Offline configuration.....	87
7.5	Online configuration.....	87
7.6	Simple modular device example.....	87
7.6.1	General	87
7.6.2	Separate EDD file example with direct EDD referencing	88
7.6.3	Separate EDD file example with classification EDD referencing and interfaces	89
7.6.4	One EDD file example	92
7.6.5	Combination of single and separate modular device example	93
7.7	COMPONENT_RELATION.....	93
7.7.1	General	93
7.7.2	NEXT_COMPONENT usage	93
7.7.3	REQUIRED_RANGES and ADDRESSING usage	93
7.8	Upload and download for modular devices	93
7.9	Diagnostic.....	94
7.10	Reading modular device topology	95
7.10.1	SCAN	95
7.10.2	Detect module type.....	96
7.11	Configuration check	97
8	Edit session.....	98
8.1	Data management.....	98
8.1.1	Overview	98
8.1.2	General rules.....	99
8.1.3	Data caching for dialogs and windows	99
8.1.4	Data caching for METHODS.....	100
8.2	UI aspects of editing sessions.....	102
8.3	User roles	103
9	Offline and online configuration	103
9.1	Overview.....	103
9.2	Offline dataset	104
9.3	Offline configuration.....	104
9.4	Online dataset	104

9.5	Online configuration	104
9.6	Upload and download	105
9.6.1	Overview	105
9.6.2	Error recovery.....	106
9.6.3	Upload procedure	106
9.6.4	Download procedure.....	107
10	EDDL communication description	109
10.1	COMMAND	109
10.1.1	General	109
10.1.2	OPERATION.....	109
10.1.3	TRANSACTION	110
10.1.4	Command addressing	113
10.2	Parsing data received from the device	114
10.2.1	General	114
10.2.2	Parsing complex data items.....	114
10.2.3	FOUNDATION Fieldbus	114
10.2.4	HART	115
10.2.5	PROFIBUS and PROFINET	115
10.3	FOUNDATION Fieldbus communication model.....	115
11	EDD development.....	119
11.1	Dictionaries.....	119
11.2	Reserved	119
Annex A	(normative) Device simulation.....	120
Annex B	(informative) Predefined identifiers	121
Figure 1	– EDD example of root menu.....	20
Figure 2	– Example of an EDD application for diagnostics	20
Figure 3	– Example of an EDD application for process variables.....	21
Figure 4	– Example of an EDD application for primary variables	21
Figure 5	– Example of an EDD application for process-related device features	22
Figure 6	– Example of an EDD application for device features	22
Figure 7	– Example of an EDD application for maintenance features	23
Figure 8	– Usage of COLLECTION MEMBERS in MENUs of STYLE GROUP.....	26
Figure 9	– Displaying single bits of BIT_ENUMERATED	27
Figure 10	– Displaying multiple bits of BIT_ENUMERATED.....	28
Figure 11	– Example of an EDD application for a variable of type BIT_ENUMERATED	28
Figure 12	– EDD source code for layout for protruding elements example.....	32
Figure 13	– Layout for protruding elements	32
Figure 14	– EDD source code for layout for partially filled rows example.....	33
Figure 15	– Layout for partially filled rows	33
Figure 16	– EDD source code for layout for partially filled rows example.....	34
Figure 17	– Layout for partially filled rows	34
Figure 18	– EDD source code for layout for oversized elements example.....	35
Figure 19	– Layout for oversized elements.....	35
Figure 20	– EDD source code example for a layout for columns in stacked group	36
Figure 21	– Layout for columns in stacked group	36

ITeCh STANDARD PREVIEW
(standards.iteh.ai)

<https://standards.iteh.ai/catalog/standards/sist/9ae583d3-20fe-4f90-9b1f-ba09628/iec-61804-4-2015>

Figure 22 – EDD source code for layout for columns with GRAPHS in stacked group example	37
Figure 23 – Layout for columns with GRAPHS in stacked group	37
Figure 24 – Example of an EDD for an overview menu	37
Figure 25 – Example of an EDD application for an overview window	38
Figure 26 – Example of an EDD using COLUMNBREAK	38
Figure 27 – Example of an EDD application for an overview window	39
Figure 28 – EDD example for an overview window	39
Figure 29 – Example of an EDD application for an overview window	40
Figure 30 – Example of an EDD for in-line graphs and charts	40
Figure 31 – Example of an EDD application for an in-line graph	41
Figure 32 – Example of an EDD for full-width graphs and charts	41
Figure 33 – Example of an EDD application for a full-width graph	42
Figure 34 – Example of an EDD for nested containers	43
Figure 35 – Example of an EDD application for nested containers	43
Figure 36 – Example of an EDD for EDIT_DISPLAYS	44
Figure 37 – Example of an EDD application for EDIT_DISPLAYS	44
Figure 38 – Example of an EDD for images	45
Figure 39 – Example of an EDD application for images	45
Figure 40 – HEIGHT and WIDTH attributes for CHART and GRAPH	47
Figure 41 – EMPHASIS attribute to differentiate one or more SOURCES or WAVEFORMs	48
Figure 42 – Example of a chart with one curve in a dialog	50
Figure 43 – Example of a chart with two SOURCES	51
Figure 44 – Displaying example of a chart with two SOURCES	52
Figure 45 – Example of a chart with three horizontal bars	53
Figure 46 – Displaying example of a chart with three horizontal bars	54
Figure 47 – Example of a chart in a dialog	56
Figure 48 – A graph and the visual elements	57
Figure 49 – Example of a graph	60
Figure 50 – Multiple used axes	61
Figure 51 – EDD with device-supported zooming and scrolling	65
Figure 52 – EDD example of an IMAGE	66
Figure 53 – EDD example of an IMAGE with the LINK attribute	66
Figure 54 – EDD example of a GRID	68
Figure 55 – Result of the EDD example	68
Figure 56 – Wrong usage of a BIT_ENUMERATED variable	69
Figure 57 – Usage of ENUMERATED instead of BIT_ENUMERATED	69
Figure 58 – Example of a file declaration	72
Figure 59 – Example of comparing valve signatures	73
Figure 60 – Example of more complex file declaration	74
Figure 61 – Example of reviewing the stored radar signals	75
Figure 62 – Example of an EDD that inserts, replaces, or compares radar signals	80
Figure 63 – Example of TEMPLATE usage	81

Figure 64 – Example of a BLOCK_A	82
Figure 65 – Example of a wizard	84
Figure 66 – The different relations of a module	87
Figure 67 – Components and possible configuration of the modular devices	87
Figure 68 – Separate EDD file example with direct EDD referencing	88
Figure 69 – EDD example for module1	89
Figure 70 – EDD example for module2	89
Figure 71 – EDD example for modular device	90
Figure 72 – EDD example for module1	91
Figure 73 – EDD example for module2	91
Figure 74 – EDD example for module2	93
Figure 75 – NEXT_COMPONENT usage	93
Figure 76 – REQUIRED_RANGES usage	93
Figure 77 – Upload/download order of a modular device	94
Figure 78 – Example of a SCAN METHOD	96
Figure 79 – Example of a DETECT METHOD	97
Figure 80 – Example of a CHECK_CONFIGURATION METHOD	98
Figure 81 – Data caching for an offline session	98
Figure 82 – Data caching for an online session	99
Figure 83 – Sub dialogs or windows using a shared edit cache	100
Figure 84 – Sub dialogs or windows using separate edit caches	100
Figure 85 – Data caching for nested METHODS	101
Figure 86 – Data caching for a METHOD invoked within a dialog	101
Figure 87 – Data caching for a METHOD invoking a dialog using an edit cache	101
Figure 88 – Data caching for a METHOD invoking a dialog	102
Figure 89 – Data flow for download to the device	105
Figure 90 – Data flow for upload from the device	105
Figure 91 – Example of a single item mask	111
Figure 92 – Mapping example with a single item mask	111
Figure 93 – Multiple item masks	111
Figure 94 – Mapping example with a multiple item mask	112
Figure 95 – INFO qualifier	112
Figure 96 – INDEX qualifier	113
Figure 97 – INFO and INDEX qualifier	113
Figure 98 – Example device with 2 unique BLOCK_A definitions	116
Figure 99 – Example EDD for a device with 2 unique BLOCK_A definitions	117
Figure 100 – BLOCK_A example with PARAMETER_LISTS	118
Figure 101 – Example EDD for a BLOCK_A with PARAMETER_LISTS	119
Table 1 – List of defined root menu identifiers for handhelds	14
Table 2 – List of defined root menu identifiers for PC-based devices	14
Table 3 – Fall back alternatives for online root menus	15
Table 4 – Fall back alternatives for offline root menus	15
Table 5 – Permitted contained items and default STYLES	24

Table 6 – WIDTH and HEIGHT span and applicability	31
Table 7 – Image formats	67
Table 8 – String handling	69
Table 9 – Examples of floating-point results	85
Table 10 – Usages of COMPONENT_PATH	86
Table 11 – Diagnostic classifications	95
Table 12 – Builtins for method cache controlling	102
Table 13 – List of defined upload menu identifiers	106
Table 14 – List of defined download menu identifiers	107
Table 15 – PROFIBUS and PROFINET communication mapping.....	110
Table B.1 – Predefined identifiers	121

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[IEC 61804-4:2015](https://standards.iteh.ai/catalog/standards/sist/9ae583d3-20fe-4f90-9b1f-29db7ba09628/iec-61804-4-2015)

<https://standards.iteh.ai/catalog/standards/sist/9ae583d3-20fe-4f90-9b1f-29db7ba09628/iec-61804-4-2015>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**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.
<http://standards.iteh.ai/>
- 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.
<https://standards.iteh.ai/catalog/standards/sist/9ac583d3-206c-490c-9b1f-7e77ac22e31c>
- 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 first edition cancels and replaces IEC TR 61804-4 published in 2006. This edition constitutes a technical revision.

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

- New paragraph:
 - EDDL data description
 - EDDL METHOD programming and usage of builtins
 - Edit session
 - Offline and online configuration

- EDDL communication description
- Enhancements in paragraph EDDL user interface descriptions

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

FDIS	Report on voting
65E/465/FDIS	65E/481/RVD

Full information on the voting for the approval of this 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 *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.

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 [IEC 61804-4:2015](#)
- amended. <https://standards.iteh.ai/catalog/standards/sist/9ae583d3-20fe-4f90-9b1f-29db7ba09628/iec-61804-4-2015>

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 was developed using material from FDI Cooperation LLC (Foundation™ Fieldbus¹, HART®² Communication Foundation (HCF), PROFIBUS™³ Nutzerorganisation e.V. (PNO)), OPC Foundation (OPCF) and FDT Group. IEC 61804 has the general title "Function blocks (FB) for process control and Electronic Device Description Language (EDDL)".

This edition does not reflect many of the various rules defined by the different communication foundations, however it is not a complete representation of those rules defined by each of the communication foundations today. Therefore, an EDD application and EDD developer will need to rely on both IEC 61804-4 and the respective communication foundation documents (e.g. specifications, test requirements, test cases) to develop a conformant application that will meet foundation registration requirements.

Conformity assessment of an EDD application is the responsibility of the respective communication foundations. In cases of any ambiguity, the rules of the respective communication foundations apply.

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.

1 FOUNDATION™ Fieldbus is the trademark of the Fieldbus Foundation. 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 the HART Communication Foundation. 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.

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, 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.

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 8802-3*

<https://standards.iteh.ai/catalog/standards/sist/9ae583d3-20fe-4f90-9b1f->

IEC 61804-2, *Function blocks (FB) for process control – Part 2: Specification of FB concept*

IEC 61804-3⁴, *Function blocks (FB) for process control and Electronic device description language (EDDL) – Part 3: EDDL syntax and semantics*

IEC 61804-5⁵, *Function blocks (FB) for process control and Electronic device description language (EDDL) – Part 5: EDDL Built-in library*

ISO/IEC 10918 (all parts), *Information technology – Digital compression and coding of continuous-tone still images*

ISO/IEC 15948, *Information technology – Computer graphics and image processing – Portable Network Graphics (PNG): Functional specification*

3 Terms, definitions, abbreviated terms, acronyms and conventions

For the purposes of this document, the terms and definitions given in IEC 61804-3 as well as the following apply.

⁴ To be published.

⁵ To be published.

3.1 General terms and definitions

3.1.1

EDD developer

individual or team that develops an EDD

3.1.2

container

user interface elements that contain other user interface elements

Note 1 to entry: Containers can include menus, windows, dialogs, tables, pages, groups, and other containers.

3.1.3

contained item

user interface elements that can be contained in containers

Note 1 to entry: Contained items can include variables, methods, graphs, charts, images, static text.

3.1.4

device developer

individual or team that develops a device and an EDD that describes the device

3.1.5

handheld

device with limited display resolution that restricts EDD applications user interface

3.2 Terms and definitions related to modular devices

3.2.1

channel

connection to a process that is being measured or controlled

IEC 61804-4:2015
<https://standards.iteh.ai/catalog/standards/sist/9ae583d3-20fe-4f90-9b1f-29db7ba09628/iec-61804-4-2015>

3.2.2

component

software or hardware item contained within the modular device concept

Note 1 to entry: A component cannot function separately from a modular device hosting it. A component may support one or more types of modular devices.

3.2.3

interface

basic declarations of basic constructs

Note 1 to entry: An interface defines all public parts that components may use.

3.2.4

modal window

a child window that requires users to interact with it before they can return to operating the parent application, thus preventing the workflow on the application main window

3.2.5

modular device

device that can contain a variety of software and or hardware components

3.3 Abbreviated terms and acronyms

CP	Communication Profile
CPF	Communication Profile Family
EDD	Electronic Device Description
EDDL	Electronic Device Description Language
PC	Personal computer
PI	PROFIBUS and PROFINET International
PI PROFILE PA	PI specific profile for Process Automation field devices

3.4 Conventions

There exists some differences using and interpreting EDDL based on the used communication network and device model. The different communication networks used within this part of IEC 61804 are:

- HART (according to IEC 61784-1 CPF 9)
- FOUNDATION fieldbus (according to IEC 61784-1 CPF 1)
- PROFIBUS (according to IEC 61784-1 CPF 3)
- PROFINET (according to IEC 61784-2 CPF 3)

EDD examples in this standard show parts of EDD implementations and are incomplete.

EDDL keywords are written in upper case letters. If more than one basic construct item is meant the keyword is written in uppercase letters added with a lower case 's' for example VARIABLES.

<https://standards.iteh.ai/catalog/standards/sist/9ae583d3-20fe-4f90-9b1f-29db7ba09628/iec-61804-4-2015>

The capitalized word Builtin refers to functions specified in IEC 61804-5.

EXAMPLE Builtin MenuDisplay refers to the Builtin named MenuDisplay specified in IEC 61804-5.

4 EDDL user interface description

4.1 Overview

Most EDD applications can be characterized as either a PC application or a handheld application. Due to the relatively small screen of a handheld device, handheld applications can only display a small amount of information at any given time. On the other hand, PC applications can provide a much more beneficial user interface, largely due to their larger screen size.

To support the capabilities of PC applications, the MENU construct has been extended in IEC 61804-3 compared to previous definitions in IEC 61804-2. Due to the differences in the user interfaces of PC applications and handheld applications, it is expected that many devices will define two MENU hierarchies – one for handheld applications and the other for PC applications. Some MENUs may be used in both hierarchies. Therefore, the entire hierarchy does not need to be specified twice.

Different menu structures for different classes of applications are possible. This standard shall be used to create menu structures in an EDD that are interpreted by applications in an unambiguous way. To provide interoperability across applications, this standard shall be followed.