



IEC 61804-3

Edition 2.0 2010-11

INTERNATIONAL STANDARD



**Function blocks (FB) for process control –
Part 3: Electronic Device Description Language (EDDL)**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE **XP**

ICS 25.040.40; 35.240.50

ISBN 978-2-88912-226-4

CONTENTS

FOREWORD.....	11
INTRODUCTION	14
1 Scope.....	15
2 Normative references.....	15
3 Terms, definitions, abbreviated terms and acronyms	16
3.1 Terms and definitions	16
3.2 Abbreviated terms and acronyms.....	21
4 Conformance statement	22
5 Conventions for lexical structures.....	22
6 EDD and EDDL model.....	24
6.1 Overview of EDD and EDDL.....	24
6.2 EDD architecture.....	24
6.3 Concepts of EDD	24
6.4 Principles of the EDD development process.....	24
6.5 Interrelations between the lexical structure and formal definitions	25
6.6 Builtins.....	25
6.7 Profiles	26
7 Electronic Device Description Language	26
7.1 Overview.....	26
7.2 EDD identification information	34
7.3 AXIS.....	37
7.4 BLOCK	39
7.5 CHART	49
7.6 COLLECTION.....	51
7.7 COMMAND.....	52
7.8 COMPONENT.....	58
7.9 COMPONENT_FOLDER.....	62
7.10 COMPONENT_REFERENCE	62
7.11 COMPONENT_RELATION	63
7.12 CONNECTION.....	65
7.13 DOMAIN	66
7.14 EDIT_DISPLAY.....	66
7.15 FILE	69
7.16 GRAPH.....	69
7.17 GRID	70
7.18 IMAGE.....	71
7.19 IMPORT.....	72
7.20 INTERFACE	87
7.21 LIKE	87
7.22 LIST	88
7.23 MENU.....	89
7.24 METHOD	96
7.25 PROGRAM.....	98
7.26 RECORD	99
7.27 REFERENCE_ARRAY	99
7.28 Relations.....	100

7.29 RESPONSE_CODES.....	101
7.30 SOURCE.....	102
7.31 TEMPLATE	103
7.32 VALUE_ARRAY	104
7.33 VARIABLE.....	105
7.34 VARIABLE_LIST	121
7.35 WAVEFORM.....	121
7.36 Common attributes.....	127
7.37 Conditional expression	134
7.38 Referencing.....	135
7.39 Strings	144
7.40 Expression	146
7.41 Text dictionary.....	150
Annex A (normative) EDDL formal definition.....	152
Annex B (normative) EDDL Builtin library.....	238
Annex C (informative) EDD example.....	388
Annex D (normative) Profiles of EDDL and Builtins	402
Annex E (informative) Historical background	434
Bibliography.....	435
Figure 1 – Position of the IEC 61804 series related to other standards and products	14
Figure 2 – EDD generation process.....	25
Figure 3 – BLOCK_A	27
Figure 4 – CHART	27
Figure 5 – COLLECTION.....	28
Figure 6 – COMMAND	28
Figure 7 – DOMAIN	28
Figure 8 – EDIT_DISPLAY	29
Figure 9 – FILE	29
Figure 10 – GRAPH.....	29
Figure 11 – GRID	29
Figure 12 – IMAGE.....	29
Figure 13 – LIKE	30
Figure 14 – LIST	30
Figure 15 – MENU.....	30
Figure 16 – PROGRAM.....	31
Figure 17 – RECORD.....	31
Figure 18 – REFERENCE_ARRAY	31
Figure 19 – REFRESH	32
Figure 20 – UNIT.....	32
Figure 21 – WRITE_AS_ONE	32
Figure 22 – SOURCE.....	32
Figure 23 – VALUE_ARRAY	32
Figure 24 – VARIABLE.....	33
Figure 25 – VARIABLE_LIST	33

Figure 26 – WAVEFORM.....	33
Figure 27 – EDDL import mechanisms	73
Figure 28 – MENU activation	96
Figure 29 – Time for read-and-write operation	120
Figure C.1 – Example of an operator screen using EDD	388
Table 1 – Field attribute descriptions	23
Table 2 – DD_REVISION attribute.....	35
Table 3 – DEVICE_REVISION attribute.....	35
Table 4 – DEVICE_TYPE attribute	35
Table 5 – EDD_PROFILE attribute	36
Table 6 – EDD_VERSION attribute.....	36
Table 7 – MANUFACTURER attribute.....	36
Table 8 – MANUFACTURER_EXT attribute	37
Table 9 – AXIS attributes	37
Table 10 – MAX_VALUE, MIN_VALUE attribute.....	38
Table 11 – SCALING attribute.....	38
Table 12 – BLOCK_A attributes	39
Table 13 – CHARACTERISTIC attribute.....	40
Table 14 – PARAMETER attributes	40
Table 15 – AXIS_ITEMS attribute.....	41
Table 16 – CHART_ITEMS attribute	41
Table 17 – COLLECTION_ITEMS attribute.....	41
Table 18 – EDIT_DISPLAY_ITEMS attribute.....	41
Table 19 – FILE_ITEMS attribute	42
Table 20 – GRAPH_ITEMS attribute.....	42
Table 21 – GRID_ITEMS attribute	42
Table 22 – IMAGE_ITEMS attribute.....	42
Table 23 – LIST_ITEMS attribute	43
Table 24 – MENU_ITEMS attribute.....	43
Table 25 – METHOD_ITEMS attribute	43
Table 26 – PARAMETER_LISTS attributes.....	44
Table 27 – REFERENCE_ARRAY_ITEMS attribute	44
Table 28 – REFRESH_ITEMS attribute	44
Table 29 – SOURCE_ITEMS attribute.....	44
Table 30 – UNIT_ITEMS attribute.....	45
Table 31 – WAVEFORM_ITEMS attribute.....	45
Table 32 – WRITE_AS_ONE_ITEMS attribute	45
Table 33 – CHARTS attribute.....	46
Table 34 – LISTS attribute.....	46
Table 35 – GRAPHS attribute	46
Table 36 – GRIDS attribute	47
Table 37 – MENUS attribute	47

Table 38 – METHODS attribute	47
Table 39 – BLOCK_B attributes	48
Table 40 – NUMBER attributes	48
Table 41 – TYPE attributes	49
Table 42 – CHART attributes	49
Table 43 – CYCLE_TIME attribute	50
Table 44 – LENGTH attribute	50
Table 45 – TYPE attribute	50
Table 46 – COLLECTION attributes	51
Table 47 – item-type	51
Table 48 – COMMAND attributes	52
Table 49 – OPERATION attribute	53
Table 50 – TRANSACTION attributes	54
Table 51 – REPLY and REQUEST attributes	54
Table 52 – INDEX attribute	55
Table 53 – BLOCK_B attribute	56
Table 54 – NUMBER attribute	56
Table 55 – SLOT attribute	56
Table 56 – SUB_SLOT attribute	57
Table 57 – CONNECTION attribute	57
Table 58 – HEADER attribute	57
Table 59 – MODULE attribute	57
Table 60 – COMPONENT attribute	58
Table 61 – CAN_DELETE attribute	59
Table 62 – CHECK_CONFIGURATION attribute	59
Table 63 – COMPONENT_RELATIONS attribute	59
Table 64 – DECLARATION attribute	60
Table 65 – DETECT attribute	60
Table 66 – EDD attribute	60
Table 67 – CHECK_CONFIGURATION attribute	61
Table 68 – REDUNDANCY attribute	61
Table 69 – SCAN attribute	61
Table 70 – SCAN_LIST attribute	61
Table 71 – COMPONENT_FOLDER attribute	62
Table 72 – COMPONENT_REFERENCE attribute	62
Table 73 – COMPONENT_RELATION attribute	63
Table 74 – COMPONENTS attribute	63
Table 75 – RELATION_TYPE attribute	64
Table 76 – ADDRESSING attribute	64
Table 77 – MAXIMUM_NUMBER attribute	65
Table 78 – MINIMUM_NUMBER attribute	65
Table 79 – REQUIRED_INTERFACE attribute	65
Table 80 – CONNECTION attribute	66

Table 81 – APPINSTANCE attribute	66
Table 82 – DOMAIN attributes	66
Table 83 – EDIT_DISPLAY attributes	67
Table 84 – EDIT_ITEMS attribute	67
Table 85 – DISPLAY_ITEM attributes	68
Table 86 – POST_EDIT_ACTIONS, PRE_EDIT_ACTIONS attribute	68
Table 87 – FILE attributes	69
Table 88 – GRAPH attributes	69
Table 89 – CYCLE_TIME attribute	70
Table 90 – X_AXIS attribute	70
Table 91 – GRID attributes	70
Table 92 – VECTORS attribute	71
Table 93 – ORIENTATION attribute	71
Table 94 – IMAGE attributes	72
Table 95 – PATH attribute	72
Table 96 – LINK attribute	72
Table 97 – Importing Device Description	73
Table 98 – Redefinition attributes	75
Table 99 – Redefinition rules for AXIS attributes	75
Table 100 – Redefinition rules for BLOCK_A attributes	75
Table 101 – Redefinition rules for BLOCK_B attributes	76
Table 102 – Redefinition rules for CHART attributes	77
Table 103 – Redefinition rules for COLLECTION attributes	77
Table 104 – Redefinition rules for COMMAND attributes	77
Table 105 – Redefinition rules for COMPONENT attributes	78
Table 106 – Redefinition rules for COMPONENT_FOLDER attributes	78
Table 107 – Redefinition rules for COMPONENT_REFERENCE attributes	79
Table 108 – Redefinition rules for COMPONENT_RELATION attributes	79
Table 109 – Redefinition rules for CONNECTION attributes	79
Table 110 – Redefinition rules for DOMAIN attributes	80
Table 111 – Redefinition rules for EDIT_DISPLAY attributes	80
Table 112 – Redefinition rules for FILE attributes	80
Table 113 – Redefinition rules for GRAPH attributes	81
Table 114 – Redefinition rules for GRID attributes	81
Table 115 – Redefinition rules for IMAGE attributes	81
Table 116 – Redefinition rules for INTERFACE attributes	82
Table 117 – Redefinition rules for LIST attributes	82
Table 118 – Redefinition rules for MENU attributes	82
Table 119 – Redefinition rules for METHOD attributes	83
Table 120 – Redefinition rules for PROGRAM attributes	83
Table 121 – Redefinition rules for RECORD attributes	83
Table 122 – Redefinition rules for REFERENCE_ARRAY attributes	83
Table 123 – Redefinition rules for RESPONSE_CODES attributes	84

Table 124 – Redefinition rules for SOURCE attributes	84
Table 125 – Redefinition rules for TEMPLATE attributes	84
Table 126 – Redefinition rules for VALUE_ARRAY attributes	85
Table 127 – Redefinition rules for VARIABLE attributes	85
Table 128 – Redefinition rules for VARIABLE_LIST attributes	86
Table 129 – Redefinition rules for WAVEFORM attributes	86
Table 130 – INTERFACE attribute	87
Table 131 – DECLARATION attribute	87
Table 132 – LIKE attributes	88
Table 133 – LIST attributes	88
Table 134 – TYPE attribute	88
Table 135 – CAPACITY, COUNT attribute	89
Table 136 – MENU attribute	89
Table 137 – ITEMS attribute	90
Table 138 – ACCESS attribute	91
Table 139 – POST_EDIT_ACTIONS, PRE_EDIT_ACTIONS, POST_READ_ACTIONS, PRE_READ_ACTIONS, POST_WRITE_ACTIONS, PRE_WRITE_ACTIONS attributes	91
Table 140 – PURPOSE attribute	93
Table 141 – ROLE attribute	94
Table 142 – STYLE attribute	94
Table 143 – METHOD attributes	97
Table 144 – ACCESS attributes	97
Table 145 – TYPE attributes	98
Table 146 – PROGRAM attributes	98
Table 147 – ARGUMENTS attribute	99
Table 148 – RECORD attributes	99
Table 149 – REFERENCE_ARRAY attribute	99
Table 150 – ELEMENTS attribute	100
Table 151 – REFRESH attributes	100
Table 152 – UNIT attributes	101
Table 153 – WRITE_AS_ONE attribute	101
Table 154 – RESPONSE_CODES attributes	101
Table 155 – SOURCE attributes	102
Table 156 – Y_AXIS attribute	103
Table 157 – TEMPLATE attributes	104
Table 158 – DEFAULT_VALUES attribute	104
Table 159 – VALUE_ARRAY attributes	104
Table 160 – NUMBER_OF_ELEMENTS attribute	105
Table 161 – TYPE attribute	105
Table 162 – VARIABLE attributes	105
Table 163 – CLASS attributes	106
Table 164 – TYPE attributes	107
Table 165 – DOUBLE, FLOAT, INTEGER, UNSIGNED_INTEGER attributes	109

Table 166 – DATE, DATE_AND_TIME, DURATION, TIME, TIME_VALUE attributes	111
Table 167 – BIT_ENUMERATED attributes	112
Table 168 – status–class attributes	113
Table 169 – ALL, AO, DV, TV attributes	114
Table 170 – Enumerated types attributes	114
Table 171 – Index type attributes	115
Table 172 – Object reference type attribute	115
Table 173 – DEFAULT_REFERENCE attributes	115
Table 174 – String types attributes	117
Table 175 – CONSTANT_UNIT attribute	117
Table 176 – DEFAULT_VALUE attribute	118
Table 177 – INITIAL_VALUE attribute	118
Table 178 – POST_EDIT_ACTIONS, PRE_EDIT_ACTIONS, POST_READ_ACTIONS, PRE_READ_ACTIONS, POST_WRITE_ACTIONS, PRE_WRITE_ACTIONS, REFRESH_ACTIONS attributes	118
Table 179 – READ/WRITE_TIMEOUT attributes	120
Table 180 – STYLE attribute	121
Table 181 – VARIABLE_LIST attributes	121
Table 182 – WAVEFORM attributes	121
Table 183 – TYPE attribute	122
Table 184 – XY attribute	122
Table 185 – YT attribute	123
Table 186 – HORIZONTAL attribute	124
Table 187 – VERTICAL attribute	124
Table 188 – EXIT_ACTIONS, INIT_ACTIONS, REFRESH_ACTIONS attribute	125
Table 189 – KEY_POINTS attribute	125
Table 190 – X_VALUES, Y_VALUES attribute	126
Table 191 – Y_AXIS attribute	126
Table 192 – CLASSIFICATION attribute	127
Table 193 – COMPONENT_PARENT attribute	128
Table 194 – COMPONENT_PATH attribute	128
Table 195 – DEFINITION attributes	129
Table 196 – EMPHASIS attribute	129
Table 197 – HANDLING attribute	130
Table 198 – HEIGHT/WIDTH attribute	130
Table 199 – HELP attribute	130
Table 200 – LABEL attribute	131
Table 201 – LINE_COLOR attribute	131
Table 202 – LINE_TYPE attribute	131
Table 203 – MEMBERS attributes	132
Table 204 – PROTOCOL attribute	133
Table 205 – RESPONSE_CODES attribute	133
Table 206 – SUPPLIED_INTERFACE attribute	133
Table 207 – VALIDITY attributes	134

Table 208 – IF, SELECT conditional	135
Table 209 – Referencing an EDD instance	135
Table 210 – Referencing elements of VARIABLE	136
Table 211 – Referencing elements of RECORD	136
Table 212 – Referencing elements of VALUE_ARRAY	136
Table 213 – Referencing members of COLLECTION	137
Table 214 – Referencing members of REFERENCE_ARRAY	137
Table 215 – Referencing members of VARIABLE_LISTS	137
Table 216 – Referencing members of a BLOCK_A PARAMETERS	137
Table 217 – Referencing members of BLOCK_A PARAMETER_LISTS	138
Table 218 – Referencing members of BLOCK_A LOCAL_PARAMETER	138
Table 219 – Referencing BLOCK_A CHARACTERISTICS	138
Table 220 – Referencing members of FILE	139
Table 221 – Referencing elements of LIST	139
Table 222 – Referencing members of CHART	139
Table 223 – Referencing members of GRAPH	139
Table 224 – Referencing members of SOURCE	140
Table 225 – Referencing AXIS of a GRAPH. SOURCE, WAVEFORM	140
Table 226 – Referencing PARAMETERS of specific BLOCK_A instance	140
Table 227 – Referencing LOCAL_PARAMETERS of specific BLOCK_A instance	141
Table 228 – Referencing CHARACTERISTICS of specific BLOCK_A instance	141
Table 229 – Referencing CHARTS of specific BLOCK_A instance	141
Table 230 – Referencing LISTS of specific BLOCK_A instance	142
Table 231 – Referencing GRAPHS of specific BLOCK_A instance	142
Table 232 – Referencing GRIDS of specific BLOCK_A instance	142
Table 233 – Referencing MENUS of specific BLOCK_A instance	143
Table 234 – Referencing METHODS of specific BLOCK_A instance	143
Table 235 – Referencing a COMPONENT instance	143
Table 236 – Referencing a COMPONENT type	144
Table 237 – string as a string literal	144
Table 238 – string as a string variable	144
Table 239 – String as an enumeration value	145
Table 240 – String as a dictionary reference	145
Table 241 – Referencing HELP and LABEL attributes of EDD instances	145
Table 242 – String operation	146
Table 243 – Format specifier	146
Table 244 – Primary expressions	146
Table 245 – Attribute values of VARIABLES	147
Table 246 – AXIS Attribute Values	147
Table 247 – LIST Attribute Values	148
Table 248 – Unary expressions	148
Table 249 – Multiplicative operators	148
Table 250 – Additive operators	149

Table 251 – Shift operators	149
Table 252 – Relational operators	149
Table 253 – Equality operators	150
Table 254 – Text dictionary attributes	151

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FUNCTION BLOCKS (FB) FOR PROCESS CONTROL –**Part 3: Electronic Device Description Language (EDDL)****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 61804-3 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 2006. This edition constitutes a technical revision.

The main changes with respect to the previous edition are listed below¹.

Additions

- Language elements to support modular devices, see , 7.9, 7.10, 7.36.1, 7.36.2, 7.36.3, 7.36.13, and 7.36.15;
- Language elements to support offline configuration, 7.31;
- Usage of UTF-8, see A.2.3.;

¹ The historical background to the EDDL specification is given in Annex E.

- Various BuiltIns;
 - BLOCK_A referencing. Updates to support access to multiple blocks, see 7.4.1, 7.38.18 up to 7.38.26.;
 - Add VALIDITY attribute to various lexical structures;
 - Support of multi-language images, see 7.18.2.1.;
 - In 7.23.1 deleted the restriction of the MENU item list;
 - Syntactical limitation on conditionals in 7.23.2.1 to restrict the MENU layout;
 - Add LIST and delete VARIABLE_LIST of the MENU items in 7.23.2.1;
 - Additional return value data types for METHOD TYPE, see 7.24.2.3;
 - Replace reference by a context specific specification in Table 170;
 - Clarification on KEY_POINTS behaviour, see 7.35.2.4;
 - Add TRANSPARENT to the lexical structure to make the list of attributes consistent, see 7.36.11;
 - Clarification on file behaviour, see 7.36.10;
 - Add in Table A.5 the new key-words;
 - Add the formal EDDL syntax in A.6.
- Corrections
 - Deleted in A.6 all non-needed constructs using the auxiliary ..._listR. These were created by a non-perfect syntax-checking tool.
 - Deleted in A.6 all non-needed "stmt1:" and "stmt2:". These were created by a non-perfect syntax-checking tool.
 - Made A.6 consistent about using a colon at the end of a term by amending colons in a consistent way.
 - Deleted not used references.
 - Deleted in several lexical structures the brackets and "<exp>"
 - Deleted in lexical structures the "[... <expr>]" where the conditional expression was not possible.
 - Exchanged the attribute WIDTH by HEIGHT in the subclause specifying HEIGHT.
 - Spelling errors like GUAGE exchanged to GAUGE.
 - Syntactical limitation on conditionals in ACTIONS (for example see 7.14.2.3 and 7.14.2.4) to support conditionals only in the METHODS.
 - Clarification on file behavior in 7.15.
 - Add GRID and IMAGES to the attribute list, see 7.19.
 - Deleted a duplication of element list in 7.23.2.1.
 - Defining and calling METHODS with parameter and return value, see 7.24.
 - Restriction on METHOD CLASS, see 7.24.2.2.
 - Clarification on SCALING_FACTOR behaviour, see Table 165.
 - Deleted EDDL operators from EDDL keyword list, see Table A.5.
 - Clarification on TIME_VALUE coding providing the absolute basis, see Table D.16 and Table D.17.

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

FDIS	Report on voting
65C/162/FDIS	65C/173/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 ISO/IEC Directives, Part 2.

A list of all parts of the IEC 61804 series, published under the general title *Function blocks (FB) for process control*, can be found on the IEC web site

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the 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.

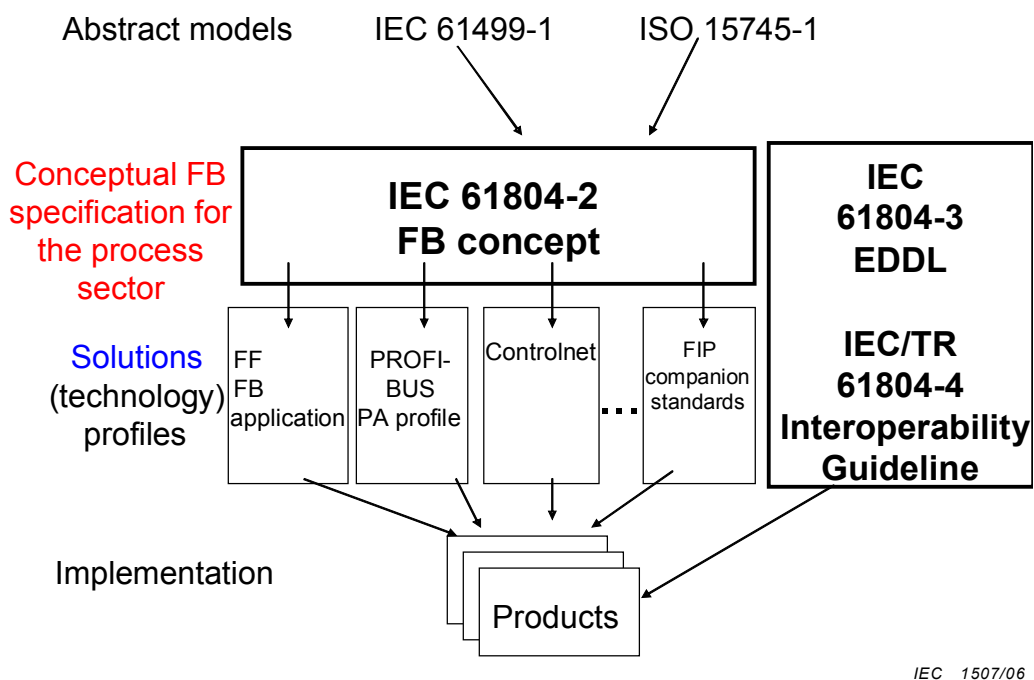
A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'color 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 the IEC 61804 series specifies the Electronic Device Description Language (EDDL) technology.

The EDDL fills the gap between the conceptual Function Block specification of IEC 61804-2 and a product implementation. It allows the manufacturers to use the same description method for devices based on different technologies and platforms. Figure 1 shows these aspects.



IEC 1507/06

Figure 1 – Position of the IEC 61804 series related to other standards and products

FUNCTION BLOCKS (FB) FOR PROCESS CONTROL –

Part 3: Electronic Device Description Language (EDDL)

1 Scope

This part of IEC 61804 specifies the Electronic Device Description Language (EDDL) technology, which enables the integration of real product details using the tools of the engineering life cycle.

This standard specifies EDDL as a generic language for describing the properties of automation system components. EDDL is capable of describing

- device parameters and their dependencies;
- device functions, for example, simulation mode, calibration;
- graphical representations, for example, menus;
- interactions with control devices;
- graphical representations:
 - enhanced user interface;
 - graphing system.
- persistent data store.

EDDL is to be used to create Electronic Device Description (EDD). This EDD is used with appropriate tools to generate interpretative code to support parameter handling, operation, and monitoring of automation system components such as remote I/Os, controllers, sensors, and programmable controllers. Tool implementation is outside the scope of this standard.

This standard specifies the semantic and lexical structure in a syntax-independent manner. A specific syntax is defined in Annex A, but it is possible to use the semantic model also with different syntaxes.

NOTE 1 The EDDL may also be used for the description of product properties in other domains.

The EDDL and the device-related EDD is applicable to industrial automation.

NOTE 2 Industrial automation may include devices such as generic digital and analog input/output modules, motion controllers, human machine interfaces, sensors, closed-loop controllers, encoders, hydraulic valves, and programmable controllers.

This International Standard satisfies the requirements of Clause 9 of IEC/TS 61804-1.

2 Normative references

The following referenced documents are indispensable for the application 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 61499-1:2005, *Function blocks – Part 1: Architecture*

IEC/TS 61804-1:2003, *Function blocks (FB) for process control – Part 1: Overview of system aspects*

ISO/IEC 2022, *Information technology – Character code structure and extension techniques*

ISO/IEC 2375:2003, *Information technology – Procedure for registration of escape sequences and coded character sets*

ISO/IEC 7498-1, *Information technology – Open Systems Interconnection – Basic Reference Model: The Basic Model*

ISO/IEC 8859-1:1998, *Information technology – 8-bit single-byte coded graphic character sets – Part 1: Latin alphabet No. 1*

ISO/IEC 9899, *Programming languages – C*

ISO/IEC 10646-1:2000, *Information technology – Universal Multiple-Octet Coded Character Set (UCS) – Part 1: Architecture and Basic Multilingual Plane*

ISO 639, *Code for the representation of names of languages*

ISO 3166-1:2006, *Codes for the representation of names of countries and their subdivisions – Part 1: Country codes*

IEEE 754:1985 (R1990), *Binary Floating-Point Arithmetic*

RFC 3629:2003, *UTF-8, User Datagram Protocol*, available at
<<http://www.ietf.org/rfc/rfc0768.txt>>