

INTERNATIONAL STANDARD

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

**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 5: Bibliothèque de Builtin EDDL**

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CONTENTS

FOREWORD.....	20
INTRODUCTION.....	23
1 Scope.....	24
2 Normative references	24
3 Terms, definitions, acronyms and abbreviated terms	24
3.1 Terms and definitions.....	24
3.2 Acronyms and abbreviated terms	24
4 Conventions for builtin descriptions	25
5 Builtin categories	26
5.1 Overview.....	26
5.2 User interface builtins	36
5.3 Communication builtins	37
5.4 Action builtins	39
6 EDDL builtin library.....	42
6.1 General.....	42
6.2 User interface builtins	42
6.2.1 Builtin ACKNOWLEDGE	42
6.2.2 Builtin acknowledge	43
6.2.3 Builtin DELAY	44
6.2.4 Builtin delay.....	44
6.2.5 Builtin delayfor.....	45
6.2.6 Builtin delayfor2.....	46
6.2.7 Builtin DISPLAY.....	48
6.2.8 Builtin display	49
6.2.9 Builtin display_bitenum	49
6.2.10 Builtin display_builtin_error.....	50
6.2.11 Builtin display_comm_error.....	50
6.2.12 Builtin display_comm_status.....	51
6.2.13 Builtin display_device_status	52
6.2.14 Builtin display_dynamics.....	52
6.2.15 Builtin display_dynamics2.....	53
6.2.16 Builtin display_message	54
6.2.17 Builtin display_message2	55
6.2.18 Builtin display_response_code.....	57
6.2.19 Builtin display_response_status.....	58
6.2.20 Builtin display_xmtr_status	58
6.2.21 Builtin edit_device_value	59
6.2.22 Builtin edit_device_value2	60
6.2.23 Builtin edit_local_value	62
6.2.24 Builtin edit_local_value2	63
6.2.25 Builtin get_acknowledgement	64
6.2.26 Builtin get_acknowledgement2.....	65
6.2.27 Builtin GET_DEV_VAR_VALUE	66
6.2.28 Builtin get_dev_var_value.....	67
6.2.29 Builtin GET_LOCAL_VAR_VALUE	68
6.2.30 Builtin get_local_var_value	68

6.2.31	Builtin Menu	69
6.2.32	Builtin MenuDisplay (version A)	70
6.2.33	Builtin MenuDisplay (version B)	71
6.2.34	Builtin PUT_MESSAGE	72
6.2.35	Builtin put_message	73
6.2.36	Builtin SELECT_FROM_LIST	75
6.2.37	Builtin select_from_list	76
6.2.38	Builtin select_from_menu	76
6.2.39	Builtin select_from_menu2	78
6.2.40	Prompt string formats	79
6.3	Communication builtins	80
6.3.1	Builtin abort_on_all_comm_errors	80
6.3.2	Builtin ABORT_ON_ALL_COMM_STATUS	81
6.3.3	Builtin ABORT_ON_ALL_DEVICE_STATUS	81
6.3.4	Builtin ABORT_ON_ALL_RESPONSE_CODES	82
6.3.5	Builtin abort_on_all_response_codes	82
6.3.6	Builtin ABORT_ON_COMM_ERROR	83
6.3.7	Builtin abort_on_comm_error	83
6.3.8	Builtin ABORT_ON_COMM_STATUS	84
6.3.9	Builtin ABORT_ON_DEVICE_STATUS	85
6.3.10	Builtin ABORT_ON_NO_DEVICE (deprecated)	85
6.3.11	Builtin ABORT_ON_RESPONSE_CODE	86
6.3.12	Builtin abort_on_response_code	87
6.3.13	Builtin ext_send_command	87
6.3.14	Builtin ext_send_command_trans	88
6.3.15	Builtin fail_on_all_comm_errors	89
6.3.16	Builtin fail_on_all_response_codes	90
6.3.17	Builtin fail_on_comm_error	90
6.3.18	Builtin fail_on_response_code	91
6.3.19	Builtin get_more_status	92
6.3.20	Builtin IGNORE_ALL_COMM_STATUS	92
6.3.21	Builtin IGNORE_ALL_DEVICE_STATUS	93
6.3.22	Builtin IGNORE_ALL_RESPONSE_CODES	93
6.3.23	Builtin IGNORE_COMM_ERROR	94
6.3.24	Builtin IGNORE_COMM_STATUS	95
6.3.25	Builtin IGNORE_DEVICE_STATUS	95
6.3.26	Builtin IGNORE_NO_DEVICE (deprecated)	96
6.3.27	Builtin IGNORE_RESPONSE_CODE	96
6.3.28	Builtin read_value	97
6.3.29	Builtin read_value2	97
6.3.30	Builtin ReadCommand	98
6.3.31	Builtin retry_on_all_comm_errors	99
6.3.32	Builtin RETRY_ON_ALL_COMM_STATUS	99
6.3.33	Builtin RETRY_ON_ALL_DEVICE_STATUS	100
6.3.34	Builtin RETRY_ON_ALL_RESPONSE_CODES	100
6.3.35	Builtin retry_on_all_response_codes	101
6.3.36	Builtin RETRY_ON_COMM_ERROR	102
6.3.37	Builtin retry_on_comm_error	102
6.3.38	Builtin RETRY_ON_COMM_STATUS	103

6.3.39	Builtin RETRY_ON_DEVICE_STATUS.....	103
6.3.40	Builtin RETRY_ON_NO_DEVICE (deprecated)	104
6.3.41	Builtin RETRY_ON_RESPONSE_CODE	105
6.3.42	Builtin retry_on_response_code.....	105
6.3.43	Builtin send.....	106
6.3.44	Builtin send_all_values	107
6.3.45	Builtin send_command.....	107
6.3.46	Builtin send_command_trans	108
6.3.47	Builtin send_trans	108
6.3.48	Builtin send_value	109
6.3.49	Builtin send_value2	110
6.3.50	Builtin SET_NUMBER_OF_RETRIES	111
6.3.51	Builtin WriteCommand	111
6.3.52	Builtin XMTR_ABORT_ON_ALL_COMM_STATUS.....	112
6.3.53	Builtin XMTR_ABORT_ON_ALL_DATA.....	112
6.3.54	Builtin XMTR_ABORT_ON_ALL_DEVICE_STATUS.....	113
6.3.55	Builtin XMTR_ABORT_ON_ALL_RESPONSE_CODES	113
6.3.56	Builtin XMTR_ABORT_ON_COMM_ERROR	114
6.3.57	Builtin XMTR_ABORT_ON_COMM_STATUS	114
6.3.58	Builtin XMTR_ABORT_ON_DATA.....	115
6.3.59	Builtin XMTR_ABORT_ON_DEVICE_STATUS	116
6.3.60	Builtin XMTR_ABORT_ON_NO_DEVICE (deprecated)	116
6.3.61	Builtin XMTR_ABORT_ON_RESPONSE_CODE	117
6.3.62	Builtin XMTR_IGNORE_ALL_COMM_STATUS	117
6.3.63	Builtin XMTR_IGNORE_ALL_DATA	118
6.3.64	Builtin XMTR_IGNORE_ALL_DEVICE_STATUS	118
6.3.65	Builtin XMTR_IGNORE_ALL_RESPONSE_CODES	119
6.3.66	Builtin XMTR_IGNORE_COMM_ERROR	119
6.3.67	Builtin XMTR_IGNORE_COMM_STATUS	120
6.3.68	Builtin XMTR_IGNORE_DATA	120
6.3.69	Builtin XMTR_IGNORE_DEVICE_STATUS	121
6.3.70	Builtin XMTR_IGNORE_NO_DEVICE (deprecated).....	121
6.3.71	Builtin XMTR_IGNORE_RESPONSE_CODE.....	122
6.3.72	Builtin XMTR_RETRY_ON_ALL_COMM_STATUS	123
6.3.73	Builtin XMTR_RETRY_ON_ALL_DATA	123
6.3.74	Builtin XMTR_RETRY_ON_ALL_DEVICE_STATUS	124
6.3.75	Builtin XMTR_RETRY_ON_ALL_RESPONSE_CODES	124
6.3.76	Builtin XMTR_RETRY_ON_COMM_ERROR	125
6.3.77	Builtin XMTR_RETRY_ON_COMM_STATUS	125
6.3.78	Builtin XMTR_RETRY_ON_DATA	126
6.3.79	Builtin XMTR_RETRY_ON_DEVICE_STATUS	126
6.3.80	Builtin XMTR_RETRY_ON_NO_DEVICE (deprecated).....	127
6.3.81	Builtin XMTR_RETRY_ON_RESPONSE_CODE.....	127
6.4	Action builtins	128
6.4.1	Builtin fgetval.....	128
6.4.2	Builtin fsetval	128
6.4.3	Builtin get_date	129
6.4.4	Builtin get_double.....	130
6.4.5	Builtin get_float.....	130

6.4.6	Builtin get_signed	131
6.4.7	Builtin get_string.....	132
6.4.8	Builtin get_unsigned	132
6.4.9	Builtin igetval.....	133
6.4.10	Builtin isetval	133
6.4.11	Builtin isOffline	134
6.4.12	Builtin lgetval	134
6.4.13	Builtin lsetval	135
6.4.14	Builtin put_date	135
6.4.15	Builtin put_double.....	136
6.4.16	Builtin put_float.....	137
6.4.17	Builtin put_signed	137
6.4.18	Builtin put_string.....	138
6.4.19	Builtin put_unsigned	139
6.4.20	Builtin sgetval	139
6.4.21	Builtin ssetval	140
6.5	Variable access builtins	140
6.5.1	Builtin assign	140
6.5.2	Builtin assign_double.....	141
6.5.3	Builtin assign_float	142
6.5.4	Builtin assign_int	142
6.5.5	Builtin assign_var	143
6.5.6	Builtin assign2	143
6.5.7	Builtin dassign	145
6.5.8	Builtin fassign	145
6.5.9	Builtin float_value	145
6.5.10	Builtin fvar_value	146
6.5.11	Builtin get_date_value	146
6.5.12	Builtin get_date_value2	147
6.5.13	Builtin get_double_value.....	148
6.5.14	Builtin get_double_value2.....	149
6.5.15	Builtin get_float_value	150
6.5.16	Builtin get_float_value2	151
6.5.17	Builtin get_signed_value	152
6.5.18	Builtin get_signed_value2.....	152
6.5.19	Builtin get_string_value	153
6.5.20	Builtin get_string_value2.....	154
6.5.21	Builtin get_unsigned_value	155
6.5.22	Builtin get_unsigned_value2	156
6.5.23	Builtin iassign	157
6.5.24	Builtin int_value	157
6.5.25	Builtin ivar_value	158
6.5.26	Builtin lassign	158
6.5.27	Builtin long_value	159
6.5.28	Builtin lvar_value	159
6.5.29	Builtin put_date_value	159
6.5.30	Builtin put_date_value2	160
6.5.31	Builtin put_double_value.....	161
6.5.32	Builtin put_double_value2.....	162

6.5.33	Builtin put_float_value	163
6.5.34	Builtin put_float_value2	164
6.5.35	Builtin put_signed_value	165
6.5.36	Builtin put_signed_value2	165
6.5.37	Builtin put_string_value	166
6.5.38	Builtin put_string_value2	167
6.5.39	Builtin put_unsigned_value	168
6.5.40	Builtin put_unsigned_value2	169
6.5.41	Builtin ret_double_value	170
6.5.42	Builtin ret_double_value2	171
6.5.43	Builtin ret_float_value	171
6.5.44	Builtin ret_float_value2	172
6.5.45	Builtin ret_signed_value	172
6.5.46	Builtin ret_signed_value2	173
6.5.47	Builtin ret_unsigned_value	174
6.5.48	Builtin ret_unsigned_value2	174
6.5.49	Builtin vassign	175
6.6	Normal termination builtins	175
6.6.1	Builtin discard_on_exit	175
6.6.2	Builtin save_on_exit	176
6.6.3	Builtin save_values	177
6.6.4	Builtin send_on_exit	178
6.7	Abnormal termination builtins	179
6.7.1	Builtin abort	179
6.7.2	Builtin add_abort_method (version A)	179
6.7.3	Builtin add_abort_method (version B)	180
6.7.4	Builtin method_abort	180
6.7.5	Builtin pop_abort_method	181
6.7.6	Builtin process_abort	181
6.7.7	Builtin push_abort_method	182
6.7.8	Builtin remove_abort_method (version A)	182
6.7.9	Builtin remove_abort_method (version B)	183
6.7.10	Builtin remove_all_abort_methods	183
6.8	String builtins	184
6.8.1	Builtin atof	184
6.8.2	Builtin atoi	184
6.8.3	Builtin BUILD_MESSAGE	185
6.8.4	Builtin dictionary_string	185
6.8.5	Builtin ftoa	186
6.8.6	Builtin get_comm_error_string	186
6.8.7	Builtin get_dictionary_string	187
6.8.8	Builtin get_enum_string	188
6.8.9	Builtin get_response_code_string	188
6.8.10	Builtin get_rspcode_string	189
6.8.11	Builtin get_rspcode_string_by_id	190
6.8.12	Builtin get_status_code_string (deprecated)	190
6.8.13	Builtin get_status_string	191
6.8.14	Builtin get_stddict_string	192
6.8.15	Builtin get_variable_string	192

6.8.16	Builtin itoa (version A)	193
6.8.17	Builtin itoa (version B)	193
6.8.18	Builtin strleft	194
6.8.19	Builtin strcmp	194
6.8.20	Builtin strlen	195
6.8.21	Builtin strlwr	196
6.8.22	Builtin strmid	196
6.8.23	Builtin strright	197
6.8.24	Builtin strstr	197
6.8.25	Builtin strtrim	198
6.8.26	Builtin strupr	199
6.8.27	Builtin trunc	199
6.9	Date time builtins	200
6.9.1	Builtin AddTime	200
6.9.2	Builtin DATE_AND_TIME_VALUE_to_string	200
6.9.3	Builtin Date_to_DayOfMonth	201
6.9.4	Builtin DATE_to_days	201
6.9.5	Builtin Date_to_Month	202
6.9.6	Builtin DATE_to_string	202
6.9.7	Builtin Date_To_Time	203
6.9.8	Builtin Date_to_Year	203
6.9.9	Builtin days_to_DATE	204
6.9.10	Builtin DELAY_TIME	204
6.9.11	Builtin DiffTime	204
6.9.12	Builtin From_DATE_AND_TIME_VALUE	205
6.9.13	Builtin From_TIME_VALUE	205
6.9.14	Builtin GetCurrentDate	206
6.9.15	Builtin GetCurrentDateAndTime	206
6.9.16	Builtin GetCurrentTime	207
6.9.17	Builtin GET_TICK_COUNT	207
6.9.18	Builtin Make_Time	207
6.9.19	Builtin seconds_to_TIME_VALUE	208
6.9.20	Builtin seconds_to_TIME_VALUE8	209
6.9.21	Builtin Time_To_Date	209
6.9.22	Builtin TIME_VALUE_to_Hour	209
6.9.23	Builtin TIME_VALUE_to_Minute	210
6.9.24	Builtin TIME_VALUE_to_Second	210
6.9.25	Builtin TIME_VALUE_to_seconds	211
6.9.26	Builtin TIME_VALUE_to_string	211
6.9.27	Builtin timet_to_string	212
6.9.28	Builtin timet_to_TIME_VALUE	213
6.9.29	Builtin timet_To_TIME_VALUE	213
6.9.30	Builtin timet_to_TIME_VALUE8	214
6.9.31	Builtin To_Date	214
6.9.32	Builtin To_Date_and_Time	215
6.9.33	Builtin To_Time	215
6.9.34	Builtin To_TIME_VALUE	216
6.9.35	Builtin To_TIME_VALUE8	216
6.10	Diagnostic builtins	217

6.10.1	Builtin get_comm_error	217
6.10.2	Builtin get_dds_error	217
6.10.3	Builtin get_response_code	218
6.11	Math builtins	219
6.11.1	Builtin abs	219
6.11.2	Builtin acos	219
6.11.3	Builtin asin	220
6.11.4	Builtin atan	220
6.11.5	Builtin ByteToDouble	221
6.11.6	Builtin ByteToFloat	221
6.11.7	Builtin ByteToLong	222
6.11.8	Builtin ByteToShort	222
6.11.9	Builtin cbrt	223
6.11.10	Builtin ceil	223
6.11.11	Builtin cos	224
6.11.12	Builtin cosh	224
6.11.13	Builtin DoubleToByte	225
6.11.14	Builtin drand	225
6.11.15	Builtin dseed	226
6.11.16	Builtin exp	226
6.11.17	Builtin FloatToByte	226
6.11.18	Builtin floor	227
6.11.19	Builtin fmod	227
6.11.20	Builtin fpclassify	228
6.11.21	Builtin is_NaN	229
6.11.22	Builtin log	229
6.11.23	Builtin log10	229
6.11.24	Builtin log2	230
6.11.25	Builtin LongToByte	230
6.11.26	Builtin nan	231
6.11.27	Builtin NaN_value	232
6.11.28	Builtin nanf	232
6.11.29	Builtin pow	233
6.11.30	Builtin round	233
6.11.31	Builtin ShortToByte	234
6.11.32	Builtin sin	234
6.11.33	Builtin sinh	235
6.11.34	Builtin sqrt	235
6.11.35	Builtin tan	235
6.11.36	Builtin tanh	236
6.12	List builtins	236
6.12.1	Builtin get_date_lelem	236
6.12.2	Builtin get_date_lelem2	237
6.12.3	Builtin get_double_lelem	238
6.12.4	Builtin get_double_lelem2	239
6.12.5	Builtin get_float_lelem	240
6.12.6	Builtin get_float_lelem2	241
6.12.7	Builtin get_signed_lelem	242
6.12.8	Builtin get_signed_lelem2	242

6.12.9	Builtin get_string_lelem	243
6.12.10	Builtin get_string_lelem2.....	244
6.12.11	Builtin get_unsigned_lelem	245
6.12.12	Builtin get_unsigned_lelem2	246
6.12.13	Builtin ListDeleteElementAt (version A).....	247
6.12.14	Builtin ListDeleteElementAt (version B).....	248
6.12.15	Builtin ListDeleteElementAt2.....	248
6.12.16	Builtin ListInsert (version A).....	249
6.12.17	Builtin ListInsert (version B).....	250
6.12.18	Builtin ListInsert2.....	250
6.13	Translation builtins.....	251
6.13.1	Builtin DICT_ID.....	251
6.13.2	Builtin get_block_instance_by_object_index	252
6.13.3	Builtin get_block_instance_by_tag	253
6.13.4	Builtin get_block_instance_count.....	254
6.13.5	Builtin get_resolve_status.....	254
6.13.6	Builtin ITEM_ID	255
6.13.7	Builtin MEMBER_ID	255
6.13.8	Builtin ObjectReference	256
6.13.9	Builtin resolve_array_ref.....	257
6.13.10	Builtin resolve_array_ref2.....	258
6.13.11	Builtin resolve_block_ref.....	258
6.13.12	Builtin resolve_block_ref2.....	259
6.13.13	Builtin resolve_list_ref	260
6.13.14	Builtin resolve_local_ref.....	260
6.13.15	Builtin resolve_local_ref2.....	261
6.13.16	Builtin resolve_param_list_ref.....	262
6.13.17	Builtin resolve_param_ref	262
6.13.18	Builtin resolve_param_ref2	263
6.13.19	Builtin resolve_record_ref.....	264
6.13.20	Builtin resolve_record_ref2	264
6.13.21	Builtin VARID.....	265
6.14	Block transfer builtins	265
6.14.1	Builtin abortTransferPort.....	265
6.14.2	Builtin closeTransferPort.....	266
6.14.3	Builtin fGetByte	266
6.14.4	Builtin get_transfer_status	267
6.14.5	Builtin openTransferPort.....	268
6.14.6	Builtin readItemFromDevice.....	268
6.14.7	Builtin writeItemToDevice	269
6.15	File builtins	269
6.15.1	Builtin browseIdentity.....	269
6.15.2	Builtin re_read_file.....	270
6.15.3	Builtin re_write_file	270
6.16	Identification builtins	271
6.16.1	Builtin GET_DD_REVISION	271
6.16.2	Builtin GET_DEVICE_REVISION	271
6.16.3	Builtin GET_DEVICE_TYPE.....	271
6.16.4	Builtin GET_MANUFACTURER.....	272

6.17	Development support builtins	272
6.17.1	Builtin _ERROR	272
6.17.2	Builtin _TRACE	273
6.17.3	Builtin _WARNING	273
6.17.4	Builtin LOG_MESSAGE	274
6.18	DDL references	274
6.18.1	Direct referencing of VARIABLES	274
6.18.2	Accessing standard dictionary strings	275
6.18.3	String support using DD_STRING	276
6.18.4	Referencing DD item attributes	276
6.19	Method functions	277
7	Builtins return codes	278
Figure 1 – A sample METHOD		278
Figure 2 – DD_STRING parameters passed by reference		278
Table 1 – Format for the builtin overview table		25
Table 2 – Contents of the builtin overview table		25
Table 3 – Format for the builtins lexical element tables		25
Table 4 – Contents of the lexical element table		26
Table 5 – Builtin overview		26
Table 6 – Usage of builtins		36
Table 7 – User interface builtins		36
Table 8 – Communication builtins		37
Table 9 – Action builtins		39
Table 10 – Builtin ACKNOWLEDGE		43
Table 11 – Builtin acknowledge		43
Table 12 – Builtin DELAY		44
Table 13 – Builtin delay		45
Table 14 – Builtin delayfor		45
Table 15 – Builtin delayfor2		47
Table 16 – Builtin DISPLAY		48
Table 17 – Builtin display		49
Table 18 – Builtin display_bitenum		49
Table 19 – Builtin display_builtin_error		50
Table 20 – Builtin display_comm_error		51
Table 21 – Builtin display_comm_status		51
Table 22 – Builtin display_device_status		52
Table 23 – Builtin display_dynamics		53
Table 24 – Builtin display_dynamics2		54
Table 25 – Builtin display_message		55
Table 26 – Builtin display_message2		56
Table 27 – Builtin display_response_code		57
Table 28 – Builtin display_response_status		58

Table 29 – Builtin display_xmtr_status	59
Table 30 – Builtin edit_device_value	59
Table 31 – Builtin edit_device_value2	61
Table 32 – Builtin edit_local_value	62
Table 33 – Builtin edit_local_value2	64
Table 34 – Builtin get_acknowledgement	65
Table 35 – Builtin get_acknowledgement2	66
Table 36 – Builtin GET_DEV_VAR_VALUE	67
Table 37 – Builtin get_dev_var_value	68
Table 38 – Builtin GET_LOCAL_VAR_VALUE	68
Table 39 – Builtin get_local_var_value	69
Table 40 – Builtin Menu	70
Table 41 – Builtin MenuDisplay	71
Table 42 – Builtin MenuDisplay	72
Table 43 – Builtin PUT_MESSAGE	73
Table 44 – Builtin put_message	74
Table 45 – Builtin SELECT_FROM_LIST	75
Table 46 – Builtin select_from_list	76
Table 47 – Builtin select_from_menu	77
Table 48 – Builtin select_from_menu2	79
Table 49 – Format options	80
Table 50 – Builtin abort_on_all_comm_errors	80
Table 51 – Builtin ABORT_ON_ALL_COMM_STATUS	81
Table 52 – Builtin ABORT_ON_ALL_DEVICE_STATUS	82
Table 53 – Builtin ABORT_ON_ALL_RESPONSE_CODES	82
Table 54 – Builtin abort_on_all_response_codes	83
Table 55 – Builtin ABORT_ON_COMM_ERROR	83
Table 56 – Builtin abort_on_comm_error	84
Table 57 – Builtin ABORT_ON_COMM_STATUS	84
Table 58 – Builtin ABORT_ON_DEVICE_STATUS	85
Table 59 – Builtin ABORT_ON_NO_DEVICE	86
Table 60 – Available abort and retry masks	86
Table 61 – Builtin ABORT_ON_RESPONSE_CODE	87
Table 62 – Builtin abort_on_response_code	87
Table 63 – Builtin ext_send_command	88
Table 64 – Builtin ext_send_command_trans	89
Table 65 – Builtin fail_on_all_comm_errors	90
Table 66 – Builtin fail_on_all_response_codes	90
Table 67 – Builtin fail_on_comm_error	91
Table 68 – Builtin fail_on_response_code	91
Table 69 – Builtin get_more_status	92
Table 70 – Builtin IGNORE_ALL_COMM_STATUS	93
Table 71 – Builtin IGNORE_ALL_DEVICE_STATUS	93

Table 72 – Builtin IGNORE_ALL_RESPONSE_CODES.....	94
Table 73 – Builtin IGNORE_COMM_ERROR.....	94
Table 74 – Builtin IGNORE_COMM_STATUS	95
Table 75 – Builtin IGNORE_DEVICE_STATUS	96
Table 76 – Builtin IGNORE_NO_DEVICE.....	96
Table 77 – Builtin IGNORE_RESPONSE_CODE.....	97
Table 78 – Builtin read_value.....	97
Table 79 – Builtin read_value2.....	98
Table 80 – Builtin ReadCommand	99
Table 81 – Builtin retry_on_all_comm_errors	99
Table 82 – Builtin RETRY_ON_ALL_COMM_STATUS	100
Table 83 – Builtin RETRY_ON_ALL_DEVICE_STATUS	100
Table 84 – Builtin RETRY_ON_ALL_RESPONSE_CODES.....	101
Table 85 – Builtin retry_on_all_response_codes	101
Table 86 – Builtin RETRY_ON_COMM_ERROR.....	102
Table 87 – Builtin retry_on_comm_error	103
Table 88 – Builtin RETRY_ON_COMM_STATUS	103
Table 89 – Builtin RETRY_ON_DEVICE_STATUS	104
Table 90 – Builtin RETRY_ON_NO_DEVICE.....	104
Table 91 – Builtin RETRY_ON_RESPONSE_CODE.....	105
Table 92 – Builtin retry_on_response_code	106
Table 93 – Builtin send	106
Table 94 – Builtin send_all_values.....	107
Table 95 – Builtin send_command	108
Table 96 – Builtin send_command_trans.....	108
Table 97 – Builtin send_trans.....	109
Table 98 – Builtin send_value	110
Table 99 – Builtin send_value2	111
Table 100 – Builtin SET_NUMBER_OF_RETRIES	111
Table 101 – Builtin WriteCommand	112
Table 102 – Builtin XMTR_ABORT_ON_ALL_COMM_STATUS.....	112
Table 103 – Builtin XMTR_ABORT_ON_ALL_DATA.....	113
Table 104 – Builtin XMTR_ABORT_ON_ALL_DEVICE_STATUS.....	113
Table 105 – Builtin XMTR_ABORT_ON_ALL_RESPONSE_CODES	114
Table 106 – Builtin XMTR_ABORT_ON_COMM_ERROR.....	114
Table 107 – Builtin XMTR_ABORT_ON_COMM_STATUS.....	115
Table 108 – Builtin XMTR_ABORT_ON_DATA.....	115
Table 109 – Builtin XMTR_ABORT_ON_DEVICE_STATUS.....	116
Table 110 – Builtin XMTR_ABORT_ON_NO_DEVICE	117
Table 111 – Builtin XMTR_ABORT_ON_RESPONSE_CODE	117
Table 112 – Builtin XMTR_IGNORE_ALL_COMM_STATUS	118
Table 113 – Builtin XMTR_IGNORE_ALL_DATA.....	118
Table 114 – Builtin XMTR_IGNORE_ALL_DEVICE_STATUS	119

Table 115 – Builtin XMTR_IGNORE_ALL_RESPONSE_CODES	119
Table 116 – Builtin XMTR_IGNORE_COMM_ERROR	120
Table 117 – Builtin XMTR_IGNORE_COMM_STATUS	120
Table 118 – Builtin XMTR_IGNORE_DATA	121
Table 119 – Builtin XMTR_IGNORE_DEVICE_STATUS	121
Table 120 – Builtin XMTR_IGNORE_NO_DEVICE	122
Table 121 – Builtin XMTR_IGNORE_RESPONSE_CODE	122
Table 122 – Builtin XMTR_RETRY_ON_ALL_COMM_STATUS	123
Table 123 – Builtin XMTR_RETRY_ON_ALL_DATA	123
Table 124 – Builtin XMTR_RETRY_ON_ALL_DEVICE_STATUS	124
Table 125 – Builtin XMTR_RETRY_ON_ALL_RESPONSE_CODES	125
Table 126 – Builtin XMTR_RETRY_ON_COMM_ERROR	125
Table 127 – Builtin XMTR_RETRY_ON_COMM_STATUS	126
Table 128 – Builtin XMTR_RETRY_ON_DATA	126
Table 129 – Builtin XMTR_RETRY_ON_DEVICE_STATUS	127
Table 130 – Builtin XMTR_RETRY_ON_NO_DEVICE	127
Table 131 – Builtin XMTR_RETRY_ON_RESPONSE_CODE	128
Table 132 – Builtin fgetval	128
Table 133 – Builtin fsetval	129
Table 134 – Builtin get_date	129
Table 135 – Builtin get_double	130
Table 136 – Builtin get_float	131
Table 137 – Builtin get_signed	131
Table 138 – Builtin get_string	132
Table 139 – Builtin get_unsigned	133
Table 140 – Builtin igetval	133
Table 141 – Builtin isetval	134
Table 142 – Builtin isOffline	134
Table 143 – Builtin lgetval	135
Table 144 – Builtin lsetval	135
Table 145 – Builtin put_date	136
Table 146 – Builtin put_double	136
Table 147 – Builtin put_float	137
Table 148 – Builtin put_signed	138
Table 149 – Builtin put_string	138
Table 150 – Builtin put_unsigned	139
Table 151 – Builtin sgetval	140
Table 152 – Builtin ssetval	140
Table 153 – Builtin assign	141
Table 154 – Builtin assign_double	141
Table 155 – Builtin assign_float	142
Table 156 – Builtin assign_int	142
Table 157 – Builtin assign_var	143

Table 158 – Builtin assign2	144
Table 159 – Builtin dassign	145
Table 160 – Builtin fassign	145
Table 161 – Builtin float_value	146
Table 162 – Builtin fvar_value	146
Table 163 – Builtin get_date_value	147
Table 164 – Builtin get_date_value2	148
Table 165 – Builtin get_double_value	149
Table 166 – Builtin get_double_value2	150
Table 167 – Builtin get_float_value	150
Table 168 – Builtin get_float_value2	151
Table 169 – builtin get_signed_value	152
Table 170 – Builtin get_signed_value2	153
Table 171 – Builtin get_string_value	154
Table 172 – Builtin get_string_value2	155
Table 173 – Builtin get_unsigned_value	156
Table 174 – Builtin get_unsigned_value2	157
Table 175 – Builtin iassign	157
Table 176 – Builtin int_value	158
Table 177 – Builtin ivar_value	158
Table 178 – Builtin lassign	158
Table 179 – Builtin long_value	159
Table 180 – Builtin lvar_value	159
Table 181 – Builtin put_date_value	160
Table 182 – Builtin put_date_value2	161
Table 183 – Builtin put_double_value	162
Table 184 – Builtin put_double_value2	163
Table 185 – Builtin put_float_value	163
Table 186 – Builtin put_float_value2	164
Table 187 – Builtin put_signed_value	165
Table 188 – Builtin put_signed_value2	166
Table 189 – Builtin put_string_value	167
Table 190 – Builtin put_string_value2	168
Table 191 – Builtin put_unsigned_value	169
Table 192 – Builtin put_unsigned_value2	170
Table 193 – Builtin ret_double_value	171
Table 194 – Builtin ret_double_value2	171
Table 195 – Builtin ret_float_value	172
Table 196 – Builtin ret_float_value2	172
Table 197 – Builtin ret_signed_value	173
Table 198 – Builtin ret_signed_value2	173
Table 199 – Builtin ret_unsigned_value	174
Table 200 – Builtin ret_unsigned_value2	174

Table 201 – Builtin vassign	175
Table 202 – Builtin discard_on_exit	176
Table 203 – Builtin save_on_exit	177
Table 204 – Builtin save_values.....	177
Table 205 – Builtin send_on_exit	178
Table 206 – Builtin abort.....	179
Table 207 – Builtin add_abort_method	179
Table 208 – Builtin add_abort_method	180
Table 209 – Builtin method_abort	181
Table 210 – Builtin pop_abort_method	181
Table 211 – Builtin process_abort.....	182
Table 212 – Builtin push_abort_method	182
Table 213 – Builtin remove_abort_method	183
Table 214 – Builtin remove_abort_method	183
Table 215 – Builtin remove_all_abort_methods	184
Table 216 – Builtin atof	184
Table 217 – Builtin atoi	185
Table 218 – Builtin BUILD_MESSAGE	185
Table 219 – Builtin dictionary_string	186
Table 220 – Builtin ftoa	186
Table 221 – Builtin get_comm_error_string	187
Table 222 – Builtin get_dictionary_string.....	187
Table 223 – Builtin get_enum_string	188
Table 224 – Builtin get_response_code_string	189
Table 225 – Builtin get_rspcode_string	190
Table 226 – Builtin get_rspcode_string_by_id	190
Table 227 – Builtin get_status_code_string	191
Table 228 – Builtin get_status_string	191
Table 229 – Builtin get_stddict_string	192
Table 230 – Builtin get_variable_string	193
Table 231 – Builtin itoa (version A)	193
Table 232 – Builtin itoa (version B)	194
Table 233 – Builtin strleft	194
Table 234 – Builtin strcmp	195
Table 235 – Builtin strlen	195
Table 236 – Builtin strlwr	196
Table 237 – Builtin strmid	197
Table 238 – Builtin strright	197
Table 239 – Builtin strstr	198
Table 240 – Builtin strtrim	198
Table 241 – Builtin strupr	199
Table 242 – Builtin trunc	199
Table 243 – Builtin AddTime	200

Table 244 – Builtin DATE_AND_TIME_VALUE_to_string	201
Table 245 – Builtin Date_to_DayOfMonth.....	201
Table 246 – Builtin DATE_to_days.....	202
Table 247 – Builtin Date_to_Month	202
Table 248 – Builtin DATE_to_string	203
Table 249 – Builtin Date_To_Time	203
Table 250 – Builtin Date_to_Year.....	203
Table 251 – Builtin days_to_DATE	204
Table 252 – Builtin DELAY_TIME.....	204
Table 253 – Builtin DiffTime	205
Table 254 – Builtin From_DATE_AND_TIME_VALUE.....	205
Table 255 – Builtin From_TIME_VALUE.....	206
Table 256 – Builtin GetCurrentDate	206
Table 257 – Builtin GetCurrentDateAndTime.....	206
Table 258 – Builtin GetCurrentTime	207
Table 259 – Builtin GET_TICK_COUNT	207
Table 260 – Builtin Make_Time	208
Table 261 – Builtin seconds_to_TIME_VALUE	208
Table 262 – Builtin seconds_to_TIME_VALUE	209
Table 263 – Builtin Time_To_Date	209
Table 264 – Builtin TIME_VALUE_to_Hour	210
Table 265 – Builtin TIME_VALUE_to_Minute	210
Table 266 – Builtin TIME_VALUE_to_Second	211
Table 267 – Builtin TIME_VALUE_to_seconds	211
Table 268 – Builtin TIME_VALUE_to_string	212
Table 269 – Builtin timet_to_string	213
Table 270 – Builtin timet_to_TIME_VALUE	213
Table 271 – Builtin timet_To_TIME_VALUE	214
Table 272 – Builtin timet_to_TIME_VALUE8	214
Table 273 – Builtin To_Date.....	214
Table 274 – Builtin To_Date_and_Time	215
Table 275 – Builtin To_Time	215
Table 276 – Builtin To_TIME_VALUE.....	216
Table 277 – Builtin To_TIME_VALUE8.....	216
Table 278 – Builtin get_comm_error.....	217
Table 279 – Builtin get_dds_error	218
Table 280 – Builtin get_response_code	219
Table 281 – Builtin abs	219
Table 282 – Builtin acos.....	220
Table 283 – Builtin asin	220
Table 284 – Builtin atan	221
Table 285 – Builtin ByteToDouble	221
Table 286 – Builtin ByteToFloat	222

Table 287 – Builtin ByteToLong	222
Table 288 – Builtin ByteToShort.....	223
Table 289 – Builtin cbrt	223
Table 290 – Builtin ceil	223
Table 291 – Builtin cos	224
Table 292 – Builtin cosh.....	224
Table 293 – Builtin DoubleToByte	225
Table 294 – Builtin drand	225
Table 295 – Builtin dseed	226
Table 296 – Builtin exp	226
Table 297 – Builtin FloatToByte	227
Table 298 – Builtin floor	227
Table 299 – Builtin fmod	228
Table 300 – Builtin fpclassify	228
Table 301 – Builtin is_NaN.....	229
Table 302 – Builtin log	229
Table 303 – Builtin log10	230
Table 304 – Builtin log2	230
Table 305 – Builtin LongToByte	231
Table 306 – Builtin nan	231
Table 307 – Builtin NaN_value.....	232
Table 308 – Builtin nanf	233
Table 309 – Builtin pow.....	233
Table 310 – Builtin round	233
Table 311 – Builtin ShortToByte.....	234
Table 312 – Builtin sin	234
Table 313 – Builtin sinh	235
Table 314 – Builtin sqrt	235
Table 315 – Builtin tan	236
Table 316 – Builtin tanh	236
Table 317 – Builtin get_date_lelem	237
Table 318 – Builtin get_date_lelem2	238
Table 319 – Builtin get_double_lelem	239
Table 320 – Builtin get_double_lelem2.....	240
Table 321 – Builtin get_float_lelem	240
Table 322 – Builtin get_float_lelem2	241
Table 323 – Builtin get_signed_lelem.....	242
Table 324 – Builtin get_signed_lelem2.....	243
Table 325 – Builtin get_string_lelem	244
Table 326 – Builtin get_string_lelem2	245
Table 327 – Builtin get_unsigned_lelem	246
Table 328 – Builtin get_unsigned_lelem2	247
Table 329 – Builtin ListDeleteElementAt	248

Table 330 – Builtin ListDeleteElementAt	248
Table 331 – Builtin ListDeleteElementAt2	249
Table 332 – Builtin ListInsert.....	250
Table 333 – Builtin ListInsert.....	250
Table 334 – Builtin ListInsert2.....	251
Table 335 – Builtin DICT_ID	252
Table 336 – Builtin get_block_instance_by_object_index	252
Table 337 – Builtin get_block_instance_by_tag	253
Table 338 – Builtin get_block_instance_count.....	254
Table 339 – Builtin get_resolve_status.....	255
Table 340 – Builtin ITEM_ID	255
Table 341 – Builtin MEMBER_ID.....	256
Table 342 – Builtin ObjectReference	256
Table 343 – Builtin resolve_array_ref.....	257
Table 344 – Builtin resolve_array_ref2.....	258
Table 345 – Builtin resolve_block_ref.....	259
Table 346 – Builtin resolve_block_ref2.....	260
Table 347 – Builtin resolve_list_ref	260
Table 348 – Builtin resolve_local_ref	261
Table 349 – Builtin resolve_local_ref2.....	261
Table 350 – Builtin resolve_param_list_ref.....	262
Table 351 – Builtin resolve_param_ref	263
Table 352 – Builtin resolve_param_ref2	263
Table 353 – Builtin resolve_record_ref.....	264
Table 354 – Builtin resolve_record_ref2	265
Table 355 – Builtin VARID	265
Table 356 – Builtin abortTransferPort.....	266
Table 357 – Builtin closeTransferPort	266
Table 358 – Builtin fGetByte	267
Table 359 – Builtin get_transfer_status	267
Table 360 – Builtin openTransferPort.....	268
Table 361 – Builtin readItemFromDevice.....	268
Table 362 – Builtin writeItemToDevice	269
Table 363 – Builtin browseIdentity	269
Table 364 – Builtin re_read_file	270
Table 365 – Builtin re_write_file	270
Table 366 – Builtin GET_DD_REVISION.....	271
Table 367 – Builtin GET_DEVICE_REVISION.....	271
Table 368 – Builtin GET_DEVICE_TYPE	272
Table 369 – Builtin GET_MANUFACTURER.....	272
Table 370 – Builtin _ERROR.....	273
Table 371 – Builtin _TRACE	273
Table 372 – Builtin _WARNING.....	274

Table 373 – Builtin LOG_MESSAGE	274
Table 374 – Referencable EDD item attributes	276
Table 375 – Contents of the return codes description table	279
Table 376 – Return code descriptions	279
Table 377 – Return code descriptions	279

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DEVICES AND INTEGRATION IN ENTERPRISE SYSTEMS –
FUNCTION BLOCKS (FB) FOR PROCESS CONTROL AND
ELECTRONIC DEVICE DESCRIPTION LANGUAGE (EDDL) –****Part 5: EDDL Builtin library****FOREWORD**

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International Standard IEC 61804-5 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). 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.
- The following builtins have been deprecated:
 - ABORT_ON_NO_DEVICE
 - IGNORE_NO_DEVICE
 - RETRY_ON_NO_DEVICE
 - XMTR_ABORT_ON_NO_DEVICE
 - XMTR_IGNORE_NO_DEVICE
 - XMTR_RETRY_ON_NO_DEVICE
 - get_status_code_string

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

CDV	Report on voting
65E/634/CDV	65E/691/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.

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- 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 a list of builtins that can be used inside of EDDL methods;
- defines the functionality and parameters for each builtin;
- describes how EDDL variables can be referenced from inside EDDL methods;

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 the overview of this part and 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 5: EDDL Builtin library

1 Scope

This part of IEC 61804 specifies the EDDL builtin library and provides the profiles of the various fieldbuses.

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 61804-3:2020, *Devices and integration in enterprise systems – Function blocks (FB) for process control and electronic device description language (EDDL) – Part 3: EDDL syntax and semantics*

ISO/IEC 9899, *Information technology – Programming Languages – C*

IEEE 754, *IEEE Standard for Binary Floating-Point Arithmetic*

SOMMAIRE

AVANT-PROPOS	298
INTRODUCTION.....	301
1 Domaine d'application	302
2 Références normatives	302
3 Termes, définitions, acronymes et abréviations	302
3.1 Termes et définitions	302
3.2 Acronymes et abréviations	302
4 Conventions pour les descriptions de builtin	303
5 Catégories de builtins	304
5.1 Vue d'ensemble	304
5.2 Builtins de l'interface utilisateur	314
5.3 Builtins de communication	315
5.4 Builtins d'action.....	317
6 Bibliothèque de builtin EDDL	320
6.1 Généralités	320
6.2 Builtins de l'interface utilisateur	321
6.2.1 Builtin ACKNOWLEDGE	321
6.2.2 Builtin acknowledge	321
6.2.3 Builtin DELAY	322
6.2.4 Builtin delay	322
6.2.5 Builtin delayfor.....	323
6.2.6 Builtin delayfor2.....	324
6.2.7 Builtin DISPLAY.....	326
6.2.8 Builtin display	327
6.2.9 Builtin display_bitenum	327
6.2.10 Builtin display_builtin_error.....	328
6.2.11 Builtin display_comm_error.....	329
6.2.12 Builtin display_comm_status.....	329
6.2.13 Builtin display_device_status	330
6.2.14 Builtin display_dynamics.....	330
6.2.15 Builtin display_dynamics2.....	331
6.2.16 Builtin display_message	333
6.2.17 Builtin display_message2	334
6.2.18 Builtin display_response_code.....	335
6.2.19 Builtin display_response_status.....	336
6.2.20 Builtin display_xmtr_status	337
6.2.21 Builtin edit_device_value	337
6.2.22 Builtin edit_device_value2	339
6.2.23 Builtin edit_local_value	341
6.2.24 Builtin edit_local_value2	342
6.2.25 Builtin get_acknowledgement	343
6.2.26 Builtin get_acknowledgement2.....	344
6.2.27 Builtin GET_DEV_VAR_VALUE	346
6.2.28 Builtin get_dev_var_value.....	346
6.2.29 Builtin GET_LOCAL_VAR_VALUE	347
6.2.30 Builtin get_local_var_value	348

6.2.31	Builtin Menu	349
6.2.32	Builtin MenuDisplay (version A)	350
6.2.33	Builtin MenuDisplay (version B)	351
6.2.34	Builtin PUT_MESSAGE.....	352
6.2.35	Builtin put_message	354
6.2.36	Builtin SELECT_FROM_LIST.....	355
6.2.37	Builtin select_from_list.....	356
6.2.38	Builtin select_from_menu.....	357
6.2.39	Builtin select_from_menu2.....	358
6.2.40	Formats de chaîne d'invite.....	361
6.3	Builtins de communication	361
6.3.1	Builtin abort_on_all_comm_errors.....	361
6.3.2	Builtin ABORT_ON_ALL_COMM_STATUS	362
6.3.3	Builtin ABORT_ON_ALL_DEVICE_STATUS	362
6.3.4	Builtin ABORT_ON_ALL_RESPONSE_CODES.....	363
6.3.5	Builtin abort_on_all_response_codes.....	364
6.3.6	Builtin ABORT_ON_COMM_ERROR.....	364
6.3.7	Builtin abort_on_comm_error.....	365
6.3.8	Builtin ABORT_ON_COMM_STATUS	365
6.3.9	Builtin ABORT_ON_DEVICE_STATUS	366
6.3.10	Builtin ABORT_ON_NO_DEVICE (déconseillé).....	367
6.3.11	Builtin ABORT_ON_RESPONSE_CODE.....	367
6.3.12	Builtin abort_on_response_code.....	369
6.3.13	Builtin ext_send_command	369
6.3.14	Builtin ext_send_command_trans	370
6.3.15	Builtin fail_on_all_comm_errors	371
6.3.16	Builtin fail_on_all_response_codes	372
6.3.17	Builtin fail_on_comm_error	373
6.3.18	Builtin fail_on_response_code	373
6.3.19	Builtin get_more_status	374
6.3.20	Builtin IGNORE_ALL_COMM_STATUS.....	375
6.3.21	Builtin IGNORE_ALL_DEVICE_STATUS.....	376
6.3.22	Builtin IGNORE_ALL_RESPONSE_CODES.....	376
6.3.23	Builtin IGNORE_COMM_ERROR.....	377
6.3.24	Builtin IGNORE_COMM_STATUS.....	377
6.3.25	Builtin IGNORE_DEVICE_STATUS.....	378
6.3.26	Builtin IGNORE_NO_DEVICE (déconseillé)	379
6.3.27	Builtin IGNORE_RESPONSE_CODE	379
6.3.28	Builtin read_value.....	380
6.3.29	Builtin read_value2.....	380
6.3.30	Builtin ReadCommand	381
6.3.31	Builtin retry_on_all_comm_errors.....	382
6.3.32	Builtin RETRY_ON_ALL_COMM_STATUS.....	382
6.3.33	Builtin RETRY_ON_ALL_DEVICE_STATUS.....	383
6.3.34	Builtin RETRY_ON_ALL_RESPONSE_CODES.....	384
6.3.35	Builtin retry_on_all_response_codes	384
6.3.36	Builtin RETRY_ON_COMM_ERROR.....	385
6.3.37	Builtin retry_on_comm_error.....	385
6.3.38	Builtin RETRY_ON_COMM_STATUS.....	386

6.3.39	Builtin RETRY_ON_DEVICE_STATUS.....	387
6.3.40	Builtin RETRY_ON_NO_DEVICE (déconseillé)	387
6.3.41	Builtin RETRY_ON_RESPONSE_CODE	388
6.3.42	Builtin retry_on_response_code.....	389
6.3.43	Builtin send.....	389
6.3.44	Builtin send_all_values	390
6.3.45	Builtin send_command.....	391
6.3.46	Builtin send_command_trans	391
6.3.47	Builtin send_trans	392
6.3.48	Builtin send_value	393
6.3.49	Builtin send_value2	394
6.3.50	Builtin SET_NUMBER_OF_RETRIES	395
6.3.51	Builtin WriteCommand	395
6.3.52	Builtin XMTR_ABORT_ON_ALL_COMM_STATUS.....	396
6.3.53	Builtin XMTR_ABORT_ON_ALL_DATA.....	396
6.3.54	Builtin XMTR_ABORT_ON_ALL_DEVICE_STATUS.....	397
6.3.55	Builtin XMTR_ABORT_ON_ALL_RESPONSE_CODES	398
6.3.56	Builtin XMTR_ABORT_ON_COMM_ERROR	398
6.3.57	Builtin XMTR_ABORT_ON_COMM_STATUS	399
6.3.58	Builtin XMTR_ABORT_ON_DATA.....	399
6.3.59	Builtin XMTR_ABORT_ON_DEVICE_STATUS	400
6.3.60	Builtin XMTR_ABORT_ON_NO_DEVICE (déconseillé)	401
6.3.61	Builtin XMTR_ABORT_ON_RESPONSE_CODE	401
6.3.62	Builtin XMTR_IGNORE_ALL_COMM_STATUS	402
6.3.63	Builtin XMTR_IGNORE_ALL_DATA	402
6.3.64	Builtin XMTR_IGNORE_ALL_DEVICE_STATUS	403
6.3.65	Builtin XMTR_IGNORE_ALL_RESPONSE_CODES	403
6.3.66	Builtin XMTR_IGNORE_COMM_ERROR	404
6.3.67	Builtin XMTR_IGNORE_COMM_STATUS	405
6.3.68	Builtin XMTR_IGNORE_DATA	405
6.3.69	Builtin XMTR_IGNORE_DEVICE_STATUS	406
6.3.70	Builtin XMTR_IGNORE_NO_DEVICE (déconseillé).....	406
6.3.71	Builtin XMTR_IGNORE_RESPONSE_CODE.....	407
6.3.72	Builtin XMTR_RETRY_ON_ALL_COMM_STATUS	408
6.3.73	Builtin XMTR_RETRY_ON_ALL_DATA	408
6.3.74	Builtin XMTR_RETRY_ON_ALL_DEVICE_STATUS	409
6.3.75	Builtin XMTR_RETRY_ON_ALL_RESPONSE_CODES	409
6.3.76	Builtin XMTR_RETRY_ON_COMM_ERROR	410
6.3.77	Builtin XMTR_RETRY_ON_COMM_STATUS	410
6.3.78	Builtin XMTR_RETRY_ON_DATA	411
6.3.79	Builtin XMTR_RETRY_ON_DEVICE_STATUS	412
6.3.80	Builtin XMTR_RETRY_ON_NO_DEVICE (déconseillé).....	412
6.3.81	Builtin XMTR_RETRY_ON_RESPONSE_CODE.....	413
6.4	Builtins d'action.....	413
6.4.1	Builtin fgetval.....	413
6.4.2	Builtin fsetval	414
6.4.3	Builtin get_date	414
6.4.4	Builtin get_double.....	415
6.4.5	Builtin get_float.....	416

6.4.6	Builtin get_signed	416
6.4.7	Builtin get_string.....	417
6.4.8	Builtin get_unsigned	418
6.4.9	Builtin igetval.....	418
6.4.10	Builtin isetval	419
6.4.11	Builtin isOffline	419
6.4.12	Builtin lgetval	420
6.4.13	Builtin lsetval	420
6.4.14	Builtin put_date	421
6.4.15	Builtin put_double.....	422
6.4.16	Builtin put_float.....	422
6.4.17	Builtin put_signed	423
6.4.18	Builtin put_string.....	424
6.4.19	Builtin put_unsigned	424
6.4.20	Builtin sgetval	425
6.4.21	Builtin ssetval	426
6.5	Builtins d'accès aux variables	426
6.5.1	Builtin assign	426
6.5.2	Builtin assign_double.....	427
6.5.3	Builtin assign_float	428
6.5.4	Builtin assign_int	428
6.5.5	Builtin assign_var	429
6.5.6	Builtin assign2	429
6.5.7	Builtin dassign	431
6.5.8	Builtin fassign	431
6.5.9	Builtin float_value	432
6.5.10	Builtin fvar_value	432
6.5.11	Builtin get_date_value	432
6.5.12	Builtin get_date_value2	433
6.5.13	Builtin get_double_value.....	434
6.5.14	Builtin get_double_value2.....	435
6.5.15	Builtin get_float_value	436
6.5.16	Builtin get_float_value2	437
6.5.17	Builtin get_signed_value	438
6.5.18	Builtin get_signed_value2.....	438
6.5.19	Builtin get_string_value	439
6.5.20	Builtin get_string_value2.....	440
6.5.21	Builtin get_unsigned_value	441
6.5.22	Builtin get_unsigned_value2	442
6.5.23	Builtin iassign	443
6.5.24	Builtin int_value	444
6.5.25	Builtin ivar_value	444
6.5.26	Builtin lassign	445
6.5.27	Builtin long_value	445
6.5.28	Builtin lvar_value	445
6.5.29	Builtin put_date_value	446
6.5.30	Builtin put_date_value2	447
6.5.31	Builtin put_double_value.....	448
6.5.32	Builtin put_double_value2.....	449

6.5.33	Builtin put_float_value	450
6.5.34	Builtin put_float_value2	451
6.5.35	Builtin put_signed_value	452
6.5.36	Builtin put_signed_value2	452
6.5.37	Builtin put_string_value	453
6.5.38	Builtin put_string_value2	454
6.5.39	Builtin put_unsigned_value	455
6.5.40	Builtin put_unsigned_value2	456
6.5.41	Builtin ret_double_value	458
6.5.42	Builtin ret_double_value2	458
6.5.43	Builtin ret_float_value	459
6.5.44	Builtin ret_float_value2	459
6.5.45	Builtin ret_signed_value	460
6.5.46	Builtin ret_signed_value2	460
6.5.47	Builtin ret_unsigned_value	461
6.5.48	Builtin ret_unsigned_value2	462
6.5.49	Builtin vassign	462
6.6	Builtins d'achèvement normal	463
6.6.1	Builtin discard_on_exit	463
6.6.2	Builtin save_on_exit	464
6.6.3	Builtin save_values	465
6.6.4	Builtin send_on_exit	465
6.7	Builtins d'achèvement anormal	466
6.7.1	Builtin abort	466
6.7.2	Builtin add_abort_method (version A)	467
6.7.3	Builtin add_abort_method (version B)	467
6.7.4	Builtin method_abort	468
6.7.5	Builtin pop_abort_method	469
6.7.6	Builtin process_abort	469
6.7.7	Builtin push_abort_method	470
6.7.8	Builtin remove_abort_method (version A)	470
6.7.9	Builtin remove_abort_method (version B)	471
6.7.10	Builtin remove_all_abort_methods	471
6.8	Builtins de chaîne	472
6.8.1	Builtin atof	472
6.8.2	Builtin atoi	472
6.8.3	Builtin BUILD_MESSAGE	473
6.8.4	Builtin dictionary_string	473
6.8.5	Builtin ftoa	474
6.8.6	Builtin get_comm_error_string	474
6.8.7	Builtin get_dictionary_string	475
6.8.8	Builtin get_enum_string	476
6.8.9	Builtin get_response_code_string	477
6.8.10	Builtin get_rspcode_string	478
6.8.11	Builtin get_rspcode_string_by_id	478
6.8.12	Builtin get_status_code_string (déconseillé)	479
6.8.13	Builtin get_status_string	479
6.8.14	Builtin get_stddict_string	480
6.8.15	Builtin get_variable_string	481

6.8.16	Builtin itoa (version A)	481
6.8.17	Builtin itoa (version B)	482
6.8.18	Builtin strleft	482
6.8.19	Builtin strcmp	483
6.8.20	Builtin strlen	483
6.8.21	Builtin strlwr	484
6.8.22	Builtin strmid	485
6.8.23	Builtin strright	485
6.8.24	Builtin strstr	486
6.8.25	Builtin strtrim	486
6.8.26	Builtin strupr	487
6.8.27	Builtin trunc	488
6.9	Builtins de date et heure	488
6.9.1	Builtin AddTime	488
6.9.2	Builtin DATE_AND_TIME_VALUE_to_string	489
6.9.3	Builtin Date_to_DayOfMonth	489
6.9.4	Builtin DATE_to_days	490
6.9.5	Builtin Date_to_Month	490
6.9.6	Builtin DATE_to_string	490
6.9.7	Builtin Date_To_Time	491
6.9.8	Builtin Date_to_Year	491
6.9.9	Builtin days_to_DATE	492
6.9.10	Builtin DELAY_TIME	492
6.9.11	Builtin DiffTime	493
6.9.12	Builtin From_DATE_AND_TIME_VALUE	493
6.9.13	Builtin From_TIME_VALUE	494
6.9.14	Builtin GetCurrentDate	494
6.9.15	Builtin GetCurrentDateAndTime	494
6.9.16	Builtin GetCurrentTime	495
6.9.17	Builtin GET_TICK_COUNT	495
6.9.18	Builtin Make_Time	496
6.9.19	Builtin seconds_to_TIME_VALUE	496
6.9.20	Builtin seconds_to_TIME_VALUE8	497
6.9.21	Builtin Time_To_Date	497
6.9.22	Builtin TIME_VALUE_to_Hour	498
6.9.23	Builtin TIME_VALUE_to_Minute	498
6.9.24	Builtin TIME_VALUE_to_Second	499
6.9.25	Builtin TIME_VALUE_to_seconds	499
6.9.26	Builtin TIME_VALUE_to_string	500
6.9.27	Builtin timet_to_string	501
6.9.28	Builtin timet_to_TIME_VALUE	501
6.9.29	Builtin timet_to_TIME_VALUE	502
6.9.30	Builtin timet_to_TIME_VALUE8	502
6.9.31	Builtin To_Date	503
6.9.32	Builtin To_Date_and_Time	503
6.9.33	Builtin To_Time	504
6.9.34	Builtin To_TIME_VALUE	504
6.9.35	Builtin To_TIME_VALUE8	505
6.10	Builtins de diagnostic	505

6.10.1	Builtin get_comm_error.....	505
6.10.2	Builtin get_dds_error	506
6.10.3	Builtin get_response_code.....	507
6.11	Builtins mathématiques	508
6.11.1	Builtin abs	508
6.11.2	Builtin acos.....	509
6.11.3	Builtin asin.....	509
6.11.4	Builtin atan	510
6.11.5	Builtin ByteToDouble	510
6.11.6	Builtin ByteToFloat	511
6.11.7	Builtin ByteToLong	511
6.11.8	Builtin ByteToShort.....	512
6.11.9	Builtin cbrt	512
6.11.10	Builtin ceil.....	512
6.11.11	Builtin cos.....	513
6.11.12	Builtin cosh.....	513
6.11.13	Builtin DoubleToByte	514
6.11.14	Builtin drand	514
6.11.15	Builtin dseed.....	515
6.11.16	Builtin exp	515
6.11.17	Builtin FloatToByte	516
6.11.18	Builtin floor	516
6.11.19	Builtin fmod	517
6.11.20	Builtin fpclassify.....	517
6.11.21	Builtin is_NaN.....	518
6.11.22	Builtin log	519
6.11.23	Builtin log10.....	519
6.11.24	Builtin log2	519
6.11.25	Builtin LongToByte	520
6.11.26	Builtin nan	520
6.11.27	Builtin NaN_value	521
6.11.28	Builtin nanf	522
6.11.29	Builtin pow.....	522
6.11.30	Builtin round	523
6.11.31	Builtin ShortToByte.....	523
6.11.32	Builtin sin.....	524
6.11.33	Builtin sinh.....	524
6.11.34	Builtin sqrt	524
6.11.35	Builtin tan	525
6.11.36	Builtin tanh	525
6.12	Builtins de liste	526
6.12.1	Builtin get_date_lelem	526
6.12.2	Builtin get_date_lelem2	527
6.12.3	Builtin get_double_lelem.....	528
6.12.4	Builtin get_double_lelem2.....	528
6.12.5	Builtin get_float_lelem	529
6.12.6	Builtin get_float_lelem2	530
6.12.7	Builtin get_signed_lelem.....	531
6.12.8	Builtin get_signed_lelem2	532

6.12.9	Builtin get_string_lelem	533
6.12.10	Builtin get_string_lelem2.....	533
6.12.11	Builtin get_unsigned_lelem	534
6.12.12	Builtin get_unsigned_lelem2	535
6.12.13	Builtin ListDeleteElementAt (version A).....	536
6.12.14	Builtin ListDeleteElementAt (version B).....	537
6.12.15	Builtin ListDeleteElementAt2.....	537
6.12.16	Builtin ListInsert (version A).....	538
6.12.17	Builtin ListInsert (version B).....	539
6.12.18	Builtin ListInsert2.....	539
6.13	Builtins de traduction	540
6.13.1	Builtin DICT_ID.....	540
6.13.2	Builtin get_block_instance_by_objet_index	541
6.13.3	Builtin get_block_instance_by_tag	542
6.13.4	Builtin get_block_instance_count.....	543
6.13.5	Builtin get_resolve_status.....	543
6.13.6	Builtin ITEM_ID	544
6.13.7	Builtin MEMBER_ID	544
6.13.8	Builtin ObjectReference	545
6.13.9	Builtin resolve_array_ref.....	546
6.13.10	Builtin resolve_array_ref2	547
6.13.11	Builtin resolve_block_ref.....	547
6.13.12	Builtin resolve_block_ref2.....	548
6.13.13	Builtin resolve_list_ref	549
6.13.14	Builtin resolve_local_ref.....	549
6.13.15	Builtin resolve_local_ref2.....	550
6.13.16	Builtin resolve_param_list_ref.....	551
6.13.17	Builtin resolve_param_ref	551
6.13.18	Builtin resolve_param_ref2	552
6.13.19	Builtin resolve_record_ref.....	553
6.13.20	Builtin resolve_record_ref2	553
6.13.21	Builtin VARID.....	554
6.14	Builtins de transfert de blocs.....	555
6.14.1	Builtin abortTransferPort.....	555
6.14.2	Builtin closeTransferPort.....	555
6.14.3	Builtin fGetByte	555
6.14.4	Builtin get_transfer_status	556
6.14.5	Builtin openTransferPort	557
6.14.6	Builtin readItemFromDevice.....	557
6.14.7	Builtin writeItemToDevice	558
6.15	Builtins de fichier	558
6.15.1	Builtin browseIdentity.....	558
6.15.2	Builtin re_read_file.....	559
6.15.3	Builtin re_write_file	559
6.16	Builtins d'identification	560
6.16.1	Builtin GET_DD_REVISION	560
6.16.2	Builtin GET_DEVICE_REVISION	560
6.16.3	Builtin GET_DEVICE_TYPE.....	561
6.16.4	Builtin GET_MANUFACTURER.....	561

6.17	Builtins d'aide au développement.....	561
6.17.1	Builtin _ERROR.....	561
6.17.2	Builtin _TRACE.....	562
6.17.3	Builtin _WARNING.....	563
6.17.4	Builtin LOG_MESSAGE	563
6.18	Références DDL	564
6.18.1	Référencement direct de VARIABLES	564
6.18.2	Accès à des chaînes du dictionnaire normalisé.....	565
6.18.3	Prise en charge de chaîne à l'aide de DD_STRING	565
6.18.4	Référencement d'attributs d'éléments DD	566
6.19	Fonctions de méthode.....	566
7	Codes de retour de builtins.....	568
Figure 1 – Exemple de METHOD		567
Figure 2 – Paramètres DD_STRING transmis par référence.....		568
Tableau 1 – Format du tableau de vue d'ensemble de builtin		303
Tableau 2 – Contenu du tableau de vue d'ensemble de builtin		303
Tableau 3 – Format des tableaux d'éléments lexicaux des builtins		304
Tableau 4 – Contenu du tableau d'éléments lexicaux.....		304
Tableau 5 – Vue d'ensemble de builtin.....		304
Tableau 6 – Usage des builtins		314
Tableau 7 – Builtins de l'interface utilisateur		314
Tableau 8 – Builtins de communication		315
Tableau 9 – Builtins d'action		317
Tableau 10 – Builtin ACKNOWLEDGE		321
Tableau 11 – Builtin acknowledge.....		322
Tableau 12 – Builtin DELAY.....		322
Tableau 13 – Builtin delay.....		323
Tableau 14 – Builtin delayfor		323
Tableau 15 – Builtin delayfor2.....		326
Tableau 16 – Builtin DISPLAY		327
Tableau 17 – Builtin display		327
Tableau 18 – Builtin display_bitenum.....		328
Tableau 19 – Builtin display_builtin_error.....		328
Tableau 20 – Builtin display_comm_error.....		329
Tableau 21 – Builtin display_comm_status.....		330
Tableau 22 – Builtin display_device_status		330
Tableau 23 – Builtin display_dynamics.....		331
Tableau 24 – Builtin display_dynamics2.....		332
Tableau 25 – Builtin display_message		333
Tableau 26 – Builtin display_message2		335
Tableau 27 – Builtin display_response_code.....		336
Tableau 28 – Builtin display_response_status.....		337

Tableau 29 – Builtin display_xmtr_status	337
Tableau 30 – Builtin edit_device_value	338
Tableau 31 – Builtin edit_device_value2	340
Tableau 32 – Builtin edit_local_value	341
Tableau 33 – Builtin edit_local_value2	343
Tableau 34 – Builtin get_acknowledgement	344
Tableau 35 – Builtin get_acknowledgement2	345
Tableau 36 – Builtin GET_DEV_VAR_VALUE	346
Tableau 37 – Builtin get_dev_var_value	347
Tableau 38 – Builtin GET_LOCAL_VAR_VALUE	348
Tableau 39 – Builtin get_local_var_value	348
Tableau 40 – Builtin Menu	349
Tableau 41 – Builtin MenuDisplay	351
Tableau 42 – Builtin MenuDisplay	352
Tableau 43 – Builtin PUT_MESSAGE	353
Tableau 44 – Builtin put_message	355
Tableau 45 – Builtin SELECT_FROM_LIST	356
Tableau 46 – Builtin select_from_list	357
Tableau 47 – Builtin select_from_menu	358
Tableau 48 – Builtin select_from_menu2	360
Tableau 49 – Options de format	361
Tableau 50 – Builtin abort_on_all_comm_errors	362
Tableau 51 – Builtin ABORT_ON_ALL_COMM_STATUS	362
Tableau 52 – Builtin ABORT_ON_ALL_DEVICE_STATUS	363
Tableau 53 – Builtin ABORT_ON_ALL_RESPONSE_CODES	364
Tableau 54 – Builtin abort_on_all_response_codes	364
Tableau 55 – Builtin ABORT_ON_COMM_ERROR	365
Tableau 56 – Builtin abort_on_comm_error	365
Tableau 57 – Builtin ABORT_ON_COMM_STATUS	366
Tableau 58 – Builtin ABORT_ON_DEVICE_STATUS	367
Tableau 59 – Builtin ABORT_ON_NO_DEVICE	367
Tableau 60 – Masques d'interruption et de relance disponibles	368
Tableau 61 – Builtin ABORT_ON_RESPONSE_CODE	368
Tableau 62 – Builtin abort_on_response_code	369
Tableau 63 – Builtin ext_send_command	370
Tableau 64 – Builtin ext_send_command_trans	371
Tableau 65 – Builtin fail_on_all_comm_errors	372
Tableau 66 – Builtin fail_on_all_response_codes	372
Tableau 67 – Builtin fail_on_comm_error	373
Tableau 68 – Builtin fail_on_response_code	374
Tableau 69 – Builtin get_more_status	375
Tableau 70 – Builtin IGNORE_ALL_COMM_STATUS	375
Tableau 71 – Builtin IGNORE_ALL_DEVICE_STATUS	376

Tableau 72 – Builtin IGNORE_ALL_RESPONSE_CODES	377
Tableau 73 – Builtin IGNORE_COMM_ERROR	377
Tableau 74 – Builtin IGNORE_COMM_STATUS	378
Tableau 75 – Builtin IGNORE_DEVICE_STATUS	378
Tableau 76 – Builtin IGNORE_NO_DEVICE	379
Tableau 77 – Builtin IGNORE_RESPONSE_CODE	380
Tableau 78 – Builtin read_value	380
Tableau 79 – Builtin read_value2	381
Tableau 80 – Builtin ReadCommand	382
Tableau 81 – Builtin retry_on_all_comm_errors	382
Tableau 82 – Builtin RETRY_ON_ALL_COMM_STATUS	383
Tableau 83 – Builtin RETRY_ON_ALL_DEVICE_STATUS	383
Tableau 84 – Builtin RETRY_ON_ALL_RESPONSE_CODES	384
Tableau 85 – Builtin retry_on_all_response_codes	385
Tableau 86 – Builtin RETRY_ON_COMM_ERROR	385
Tableau 87 – Builtin retry_on_comm_error	386
Tableau 88 – Builtin RETRY_ON_COMM_STATUS	386
Tableau 89 – Builtin RETRY_ON_DEVICE_STATUS	387
Tableau 90 – Builtin RETRY_ON_NO_DEVICE	388
Tableau 91 – Builtin RETRY_ON_RESPONSE_CODE	388
Tableau 92 – Builtin retry_on_response_code	389
Tableau 93 – Builtin send	390
Tableau 94 – Builtin send_all_values	391
Tableau 95 – Builtin send_command	391
Tableau 96 – Builtin send_command_trans	392
Tableau 97 – Builtin send_trans	393
Tableau 98 – Builtin send_value	393
Tableau 99 – Builtin send_value2	395
Tableau 100 – Builtin SET_NUMBER_OF_RETRIES	395
Tableau 101 – Builtin WriteCommand	396
Tableau 102 – Builtin XMTR_ABORT_ON_ALL_COMM_STATUS	396
Tableau 103 – Builtin XMTR_ABORT_ON_ALL_DATA	397
Tableau 104 – Builtin XMTR_ABORT_ON_ALL_DEVICE_STATUS	397
Tableau 105 – Builtin XMTR_ABORT_ON_ALL_RESPONSE_CODES	398
Tableau 106 – Builtin XMTR_ABORT_ON_COMM_ERROR	399
Tableau 107 – Builtin XMTR_ABORT_ON_COMM_STATUS	399
Tableau 108 – Builtin XMTR_ABORT_ON_DATA	400
Tableau 109 – Builtin XMTR_ABORT_ON_DEVICE_STATUS	400
Tableau 110 – Builtin XMTR_ABORT_ON_NO_DEVICE	401
Tableau 111 – Builtin XMTR_ABORT_ON_RESPONSE_CODE	402
Tableau 112 – Builtin XMTR_IGNORE_ALL_COMM_STATUS	402
Tableau 113 – Builtin XMTR_IGNORE_ALL_DATA	403
Tableau 114 – Builtin XMTR_IGNORE_ALL_DEVICE_STATUS	403

Tableau 115 – Builtin XMTR_IGNORE_ALL_RESPONSE_CODES	404
Tableau 116 – Builtin XMTR_IGNORE_COMM_ERROR	404
Tableau 117 – Builtin XMTR_IGNORE_COMM_STATUS	405
Tableau 118 – Builtin XMTR_IGNORE_DATA	406
Tableau 119 – Builtin XMTR_IGNORE_DEVICE_STATUS	406
Tableau 120 – Builtin XMTR_IGNORE_NO_DEVICE	407
Tableau 121 – Builtin XMTR_IGNORE_RESPONSE_CODE	407
Tableau 122 – Builtin XMTR_RETRY_ON_ALL_COMM_STATUS	408
Tableau 123 – Builtin XMTR_RETRY_ON_ALL_DATA	409
Tableau 124 – Builtin XMTR_RETRY_ON_ALL_DEVICE_STATUS	409
Tableau 125 – Builtin XMTR_RETRY_ON_ALL_RESPONSE_CODES	410
Tableau 126 – Builtin XMTR_RETRY_ON_COMM_ERROR	410
Tableau 127 – Builtin XMTR_RETRY_ON_COMM_STATUS	411
Tableau 128 – Builtin XMTR_RETRY_ON_DATA	411
Tableau 129 – Builtin XMTR_RETRY_ON_DEVICE_STATUS	412
Tableau 130 – Builtin XMTR_RETRY_ON_NO_DEVICE	413
Tableau 131 – Builtin XMTR_RETRY_ON_RESPONSE_CODE	413
Tableau 132 – Builtin fgetval	414
Tableau 133 – Builtin fsetval	414
Tableau 134 – Builtin get_date	415
Tableau 135 – Builtin get_double	415
Tableau 136 – Builtin get_float	416
Tableau 137 – Builtin get_signed	417
Tableau 138 – Builtin get_string	417
Tableau 139 – Builtin get_unsigned	418
Tableau 140 – Builtin igetval	419
Tableau 141 – Builtin isetval	419
Tableau 142 – Builtin isOffline	420
Tableau 143 – Builtin lgetval	420
Tableau 144 – Builtin lsetval	421
Tableau 145 – Builtin put_date	421
Tableau 146 – Builtin put_double	422
Tableau 147 – Builtin put_float	423
Tableau 148 – Builtin put_signed	423
Tableau 149 – Builtin put_string	424
Tableau 150 – Builtin put_unsigned	425
Tableau 151 – Builtin sgetval	425
Tableau 152 – Builtin ssetval	426
Tableau 153 – Builtin assign	427
Tableau 154 – Builtin assign_double	427
Tableau 155 – Builtin assign_float	428
Tableau 156 – Builtin assign_int	428
Tableau 157 – Builtin assign_var	429

Tableau 158 – Builtin assign2	430
Tableau 159 – Builtin dassign	431
Tableau 160 – Builtin fassign	431
Tableau 161 – Builtin float_value	432
Tableau 162 – Builtin fvar_value	432
Tableau 163 – Builtin get_date_value	433
Tableau 164 – Builtin get_date_value2	434
Tableau 165 – Builtin get_double_value	435
Tableau 166 – Builtin get_double_value2	436
Tableau 167 – Builtin get_float_value	436
Tableau 168 – Builtin get_float_value2	437
Tableau 169 – Builtin get_signed_value	438
Tableau 170 – Builtin get_signed_value2	439
Tableau 171 – Builtin get_string_value	440
Tableau 172 – Builtin get_string_value2	441
Tableau 173 – Builtin get_unsigned_value	442
Tableau 174 – Builtin get_unsigned_value2	443
Tableau 175 – Builtin iassign	444
Tableau 176 – Builtin int_value	444
Tableau 177 – Builtin ivar_value	444
Tableau 178 – Builtin lassign	445
Tableau 179 – Builtin long_value	445
Tableau 180 – Builtin lvar_value	446
Tableau 181 – Builtin put_date_value	446
Tableau 182 – Builtin put_date_value2	448
Tableau 183 – Builtin put_double_value	449
Tableau 184 – Builtin put_double_value2	450
Tableau 185 – Builtin put_float_value	450
Tableau 186 – Builtin put_float_value2	451
Tableau 187 – Builtin put_signed_value	452
Tableau 188 – Builtin put_signed_value2	453
Tableau 189 – Builtin put_string_value	454
Tableau 190 – Builtin put_string_value2	455
Tableau 191 – Builtin put_unsigned_value	456
Tableau 192 – Builtin put_unsigned_value2	457
Tableau 193 – Builtin ret_double_value	458
Tableau 194 – Builtin ret_double_value2	458
Tableau 195 – Builtin ret_float_value	459
Tableau 196 – Builtin ret_float_value2	460
Tableau 197 – Builtin ret_signed_value	460
Tableau 198 – Builtin ret_signed_value2	461
Tableau 199 – Builtin ret_unsigned_value	461
Tableau 200 – Builtin ret_unsigned_value2	462

Tableau 201 – Builtin vassign	463
Tableau 202 – Builtin discard_on_exit.....	464
Tableau 203 – Builtin save_on_exit.....	465
Tableau 204 – Builtin save_values.....	465
Tableau 205 – Builtin send_on_exit	466
Tableau 206 – Builtin abort	467
Tableau 207 – Builtin add_abort_method	467
Tableau 208 – Builtin add_abort_method	468
Tableau 209 – Builtin method_abort.....	469
Tableau 210 – Builtin pop_abort_method	469
Tableau 211 – Builtin process_abort	470
Tableau 212 – Builtin push_abort_method	470
Tableau 213 – Builtin remove_abort_method	471
Tableau 214 – Builtin remove_abort_method	471
Tableau 215 – Builtin remove_all_abort_methods	472
Tableau 216 – Builtin atof	472
Tableau 217 – Builtin atoi	473
Tableau 218 – Builtin BUILD_MESSAGE	473
Tableau 219 – Builtin dictionary_string	474
Tableau 220 – Builtin ftoa	474
Tableau 221 – Builtin get_comm_error_string	475
Tableau 222 – Builtin get_dictionary_string.....	476
Tableau 223 – Builtin get_enum_string	476
Tableau 224 – Builtin get_response_code_string	477
Tableau 225 – Builtin get_rspcode_string	478
Tableau 226 – Builtin get_rspcode_string_by_id	479
Tableau 227 – Builtin get_status_code_string	479
Tableau 228 – Builtin get_status_string	480
Tableau 229 – Builtin get_stddict_string.....	481
Tableau 230 – Builtin get_variable_string	481
Tableau 231 – Builtin itoa (version A)	482
Tableau 232 – Builtin itoa (version B)	482
Tableau 233 – Builtin strleft	483
Tableau 234 – Builtin strcmp.....	483
Tableau 235 – Builtin strlen	484
Tableau 236 – Builtin strlwr.....	484
Tableau 237 – Builtin strmid.....	485
Tableau 238 – Builtin strright	486
Tableau 239 – Builtin strstr	486
Tableau 240 – Builtin strtrim	487
Tableau 241 – Builtinstrupr	487
Tableau 242 – Builtin trunc	488
Tableau 243 – Builtin AddTime	488

Tableau 244 – Builtin DATE_AND_TIME_VALUE_to_string	489
Tableau 245 – Builtin Date_to_DayOfMonth.....	489
Tableau 246 – Builtin DATE_to_days	490
Tableau 247 – Builtin Date_to_Month	490
Tableau 248 – Builtin DATE_to_string.....	491
Tableau 249 – Builtin Date_To_Time	491
Tableau 250 – Builtin Date_to_Year.....	492
Tableau 251 – Builtin days_to_DATE	492
Tableau 252 – Builtin DELAY_TIME	492
Tableau 253 – Builtin DiffTime	493
Tableau 254 – Builtin From_DATE_AND_TIME_VALUE	493
Tableau 255 – Builtin From_TIME_VALUE	494
Tableau 256 – Builtin GetCurrentDate.....	494
Tableau 257 – Builtin GetCurrentDateAndTime	495
Tableau 258 – Builtin GetCurrentTime	495
Tableau 259 – Builtin GET_TICK_COUNT	496
Tableau 260 – Builtin Make_Time	496
Tableau 261 – Builtin seconds_to_TIME_VALUE	497
Tableau 262 – Builtin seconds_to_TIME_VALUE	497
Tableau 263 – Builtin Time_To_Date	497
Tableau 264 – Builtin TIME_VALUE_to_Hour.....	498
Tableau 265 – Builtin TIME_VALUE_to_Minute.....	498
Tableau 266 – Builtin TIME_VALUE_to_Second	499
Tableau 267 – Builtin TIME_VALUE_to_seconds	500
Tableau 268 – Builtin TIME_VALUE_to_string	500
Tableau 269 – Builtin timet_to_string	501
Tableau 270 – Builtin timet_to_TIME_VALUE	502
Tableau 271 – Builtin timet_To_TIME_VALUE	502
Tableau 272 – Builtin timet_to_TIME_VALUE8.....	502
Tableau 273 – Builtin To_Date.....	503
Tableau 274 – Builtin To_Date_and_Time.....	503
Tableau 275 – Builtin To_Time	504
Tableau 276 – Builtin To_TIME_VALUE	504
Tableau 277 – Builtin To_TIME_VALUE8	505
Tableau 278 – Builtin get_comm_error.....	506
Tableau 279 – Builtin get_ddds_error	507
Tableau 280 – Builtin get_response_code.....	508
Tableau 281 – Builtin abs	508
Tableau 282 – Builtin acos.....	509
Tableau 283 – Builtin asin.....	509
Tableau 284 – Builtin atan	510
Tableau 285 – Builtin ByteToDouble	510
Tableau 286 – Builtin ByteToFloat	511

Tableau 287 – Builtin ByteToLong	511
Tableau 288 – Builtin ByteToShort	512
Tableau 289 – Builtin cbrt	512
Tableau 290 – Builtin ceil	513
Tableau 291 – Builtin cos	513
Tableau 292 – Builtin cosh	514
Tableau 293 – Builtin DoubleToByte	514
Tableau 294 – Builtin drand	515
Tableau 295 – Builtin dseed	515
Tableau 296 – Builtin exp	516
Tableau 297 – Builtin FloatToByte	516
Tableau 298 – Builtin floor	517
Tableau 299 – Builtin fmod	517
Tableau 300 – Builtin fpclassify	518
Tableau 301 – Builtin is_NaN	518
Tableau 302 – Builtin log	519
Tableau 303 – Builtin log10	519
Tableau 304 – Builtin log2	520
Tableau 305 – Builtin LongToByte	520
Tableau 306 – Builtin nan	521
Tableau 307 – Builtin NaN_value	521
Tableau 308 – Builtin nanf	522
Tableau 309 – Builtin pow	523
Tableau 310 – Builtin round	523
Tableau 311 – Builtin ShortToByte	523
Tableau 312 – Builtin sin	524
Tableau 313 – Builtin sinh	524
Tableau 314 – Builtin sqrt	525
Tableau 315 – Builtin tan	525
Tableau 316 – Builtin tanh	526
Tableau 317 – Builtin get_date_lelem	526
Tableau 318 – Builtin get_date_lelem2	527
Tableau 319 – Builtin get_double_lelem	528
Tableau 320 – Builtin get_double_lelem2	529
Tableau 321 – Builtin get_float_lelem	530
Tableau 322 – Builtin get_float_lelem2	531
Tableau 323 – Builtin get_signed_lelem	531
Tableau 324 – Builtin get_signed_lelem2	532
Tableau 325 – Builtin get_string_lelem	533
Tableau 326 – Builtin get_string_lelem2	534
Tableau 327 – Builtin get_unsigned_lelem	535
Tableau 328 – Builtin get_unsigned_lelem2	536
Tableau 329 – Builtin ListDeleteElementAt	537

Tableau 330 – Builtin ListDeleteElementAt.....	537
Tableau 331 – Builtin ListDeleteElementAt2.....	538
Tableau 332 – Builtin ListInsert.....	539
Tableau 333 – Builtin ListInsert.....	539
Tableau 334 – Builtin ListInsert2.....	540
Tableau 335 – Builtin DICT_ID.....	541
Tableau 336 – Builtin get_block_instance_by_object_index	541
Tableau 337 – Builtin get_block_instance_by_tag	542
Tableau 338 – Builtin get_block_instance_count.....	543
Tableau 339 – Builtin get_resolve_status.....	544
Tableau 340 – Builtin ITEM_ID	544
Tableau 341 – Builtin MEMBER_ID.....	545
Tableau 342 – Builtin ObjectReference	545
Tableau 343 – Builtin resolve_array_ref.....	546
Tableau 344 – Builtin resolve_array_ref2.....	547
Tableau 345 – Builtin resolve_block_ref.....	548
Tableau 346 – Builtin resolve_block_ref2.....	549
Tableau 347 – Builtin resolve_list_ref	549
Tableau 348 – Builtin resolve_local_ref.....	550
Tableau 349 – Builtin resolve_local_ref2.....	550
Tableau 350 – Builtin resolve_param_list_ref.....	551
Tableau 351 – Builtin resolve_param_ref	552
Tableau 352 – Builtin resolve_param_ref2	552
Tableau 353 – Builtin resolve_record_ref	553
Tableau 354 – Builtin resolve_record_ref2	554
Tableau 355 – Builtin VARID.....	554
Tableau 356 – Builtin abortTransferPort.....	555
Tableau 357 – Builtin closeTransferPort.....	555
Tableau 358 – Builtin fGetByte.....	556
Tableau 359 – Builtin get_transfer_status	556
Tableau 360 – Builtin openTransferPort.....	557
Tableau 361 – Builtin readItemFromDevice.....	558
Tableau 362 – Builtin writeItemToDevice	558
Tableau 363 – Builtin browselIdentity.....	559
Tableau 364 – Builtin re_read_file.....	559
Tableau 365 – Builtin re_write_file	560
Tableau 366 – Builtin GET_DD_REVISION	560
Tableau 367 – Builtin GET_DEVICE_REVISION	560
Tableau 368 – Builtin GET_DEVICE_TYPE.....	561
Tableau 369 – Builtin GET_MANUFACTURER.....	561
Tableau 370 – Builtin _ERROR.....	562
Tableau 371 – Builtin _TRACE.....	562
Tableau 372 – Builtin _WARNING.....	563

Tableau 373 – Builtin LOG_MESSAGE	564
Tableau 374 – Attributs d'éléments EDD référençables	566
Tableau 375 – Contenu du tableau de descriptions de codes de retour	568
Tableau 376 – Descriptions de codes de retour	569
Tableau 377 – Descriptions de codes de retour	569

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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 5: Bibliothèque de Builtin EDDL

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La Norme internationale IEC 61804-5 a été établie par le sous-comité 65E: Les dispositifs et leur intégration dans les systèmes de l'entreprise, du comité d'études 65 de l'IEC: Mesure, commande et automation dans les processus industriels.

Cette deuxième édition annule et remplace la première édition parue en 2015. Cette édition constitue une révision technique.

La présente édition a été élaborée en fusionnant le contenu de plusieurs variantes des spécifications de l'EDDL existantes, y compris celles du FieldComm Group (Foundation™ Fieldbus¹, HART®²), du PROFIBUS™³ Nutzerorganisation e.V. (PNO), et de l'ISA100_Wireless™⁴ Compliance Institute (ISA100 WCI). Par conséquent, le formatage et la numérotation de la présente édition peuvent différer des spécifications individuelles desquelles elle est issue.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- ajout des profils de communication ISA100 et GPE;
- les builtins suivants ne sont plus conseillés:
 - ABORT_ON_NO_DEVICE
 - IGNORE_NO_DEVICE
 - RETRY_ON_NO_DEVICE
 - XMTR_ABORT_ON_NO_DEVICE
 - XMTR_IGNORE_NO_DEVICE
 - XMTR_RETRY_ON_NO_DEVICE
 - get_status_code_string

Le texte de cette Norme internationale est issu des documents suivants:

CDV	Rapport de vote
65E/634/CDV	65E/691/RVC

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette Norme internationale.

Cette publication a été rédigée selon les Directives ISO/IEC, Partie 2.

Une liste de toutes les parties de la série IEC 61804, publiées sous le titre général *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)*, peut être consultée sur le site web de l'IEC.

Les futures normes de cette série porteront dorénavant le nouveau titre général cité ci-dessus. Le titre des normes existant déjà dans cette série sera mis à jour lors de la prochaine édition.

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INTRODUCTION

La présente partie de l'IEC 61804

- contient une liste des builtins qui peuvent être utilisés dans des méthodes EDDL;
- définit la fonctionnalité et les paramètres de chaque builtin;
- décrit comment des variables EDDL peuvent être référencées à partir de méthodes EDDL.

Les fonctions EDDL dépendent du profil de chacune des technologies de communication. Les descriptions que contient la présente partie de l'IEC 61804 renvoient à ces fonctions d'une manière générale et les technologies de communication ne prennent pas toutes en charge l'ensemble des fonctions décrites. Les définitions de profils indiquées dans la présentation de cette partie et dans l'IEC 61804-3 sont mentionnées de manière à comprendre les fonctions prises en charge par chaque technologie de communication.

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 5: Bibliothèque de Builtin EDDL

1 Domaine d'application

La présente partie de l'IEC 61804 spécifie la bibliothèque de builtin EDDL et fournit les profils des différents bus de terrain.

2 Références normatives

Les documents suivants cités dans le texte constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 61804-3 :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 3: Sémantique et syntaxe EDDL*

ISO/IEC 9899, *Information technology – Programming Languages – C* (disponible en anglais seulement)

IEEE 754, *IEEE Standard for Binary Floating-Point Arithmetic* (disponible en anglais seulement)