ISO 13584-25:2004-06 (E)

Industrial automation systems and integration - Parts library - Part 25: Logical res ource: Logical model of supplier library with aggregate values and explicit content

Contents

Page

1 Scope 1

2 Normative references 1

3 Terms, definitions and abbreviations 2

4.1 Generic resources 7
4.1.1 ISO13584_IEC61360_dictionary_aggregate_extension_schema 7
4.1.2 ISO13584_aggregate_value_schema 7
4.2 Library integrated model 7
4.2.1 Conformance class 1: minimal dictionaries 8
4.2.2 Conformance class 2: dictionaries of items classes 8
4.2.3 Conformance class 3: complete dictionaries 9
4.2.4 Conformance class 4: complete dictionaries with limited nested aggregate values 9
4.2.5 Conformance class 5: libraries of item classes 9
4.2.6 Conformance class 6: complete libraries 9
4.2.7 Conformance class 7: complete libraries with limited nested aggregate values 9
4.2.8 Conformance class 10: library instances 9
4.2.9 Conformance class 11: library instances with asociated dictionary definitions 10

5 Fundamental concepts and assumptions 10
5.1 Aggregate-structured value of properties 10
5.2 Explicit description of a class extension 10

6 ISO13584_IEC61360_dictionary_aggregate_extension_schema 10
6.1 Introduction to the ISO13584_IEC61360_dictionary_aggregate_extension_schema 11
6.2 ISO13584_IEC61360_dictionary_aggregate_extension_schema entity definitions 11
6.2.1 Aggregate_entity_instance_type 11
6.2.2 Aggregate_type 12
6.2.3 List_type 12
6.2.4 Set_type 13
6.2.5 Bag_type 13
6.2.6 Array_type 14
6.2.7 Set_with_subset_constraint_type 14

7 ISO13584_aggregate_value_schema 15
7.1 Introduction to the ISO13584_aggregate_value_schema 16
7.2 ISO13584_aggregate_value_schema entity definitions 16
7.2.1 Aggregate_entity_instance_value 16
7.2.2 Aggregate_value 17
7.2.3 List_value 17
7.2.4 Set_value 17
7.2.5 Bag_value 18
7.2.6 Array_value 18
7.2.7 Set_with_subset_constraint_value 19
7.3 ISO13584 _ aggregate_value_schema rule definition 20
7.3.1 Allowed_aggregate_values rule 20
7.4 ISO13584_ aggregatevalue_schema function definitions 20
7.4.1 Compatible_complete_types_and_value function 20
7.4.2 Compatible_aggregate_domain_and_aggregate_value function 21
7.4.3 Data_type_final_type function 22

7.4.4 Compatible_aggregate_type_and_value function 23
7.4.5 Compatible_final_type_and_value function 28

8 Library integrated information model 25 31
8.1 ISO13584_25_IEC61360_5_liim_schema short listing 32
8.2 Conformance class requirements 38
8.2.1 Conformance class 1: minimal dictionaries 38
8.2.2 Conformance class 2: dictionaries of items classes 40
8.2.3 Conformance class 3: complete dictionaries 42
8.2.4 Conformance class 4: complete dictionaries with limited nested aggregate values 43
8.2.5 Conformance class 5: libraries of item classes 43
8.2.6 Conformance class 6: complete libraries 45
8.2.7 Conformance class 7: complete libraries with limited nested aggregate values 46
8.2.8 Conformance class 10: library instances 46
8.2.9 Conformance class 11: library instances with asociated dictionary definitions 48

Annex A (normative) Short names of entities defined in this part 52

Annex B (normative) Information object registration 53

B.1 Document identification 53
B.2 Schema identification 53
B.2.1 ISO13584_IEC61360_dictionary_aggregate_extension_schema 53
B.2.2 ISO13584_aggregate_value_schema 53
B.3.2 ISO13584_25_IEC61360_5_liim_schema 53

Annex C (normative) ISO13584_25_IEC61360_5_library_implicit_schema expanded listing 54

Annex D (normative) Standard data requirements for library integrated information model 25 56

D.1 Constraints on a library delivery file for referencing library integrated information model 25 56
D.2 Conformance class specification table 57
D.3 Standard data for conformance class 2 to 7 and 10 to 11 (all the conformance classes but conformance class 1) 57
D.3.1 Allowed_reference_to_LIIM_25_rule rule 58
D.3.2 Allowed_entity_instance_type_in_LIIM_25_rule rule 60
D.3.3 Allowed_language_assignement_rule rule 62
D.3.4 Compliant_http_protocol_25 function 62
D.3.5 Compliant_8859_1_protocol_25 function 63
D.3.6 Compliant_external_file_protocol_25 function 64
D.3.7 Is_correct_liim_25_application_value function 65
D.4 Additional constraint for conformance classes 4 and 7 66
D.4.1. nesting_level_aggregate_limit_rule rule 66
D.4.2. no_more_than_two_nested_levels function 67

Annex E (normative) Implementation method specific requirements for the library integrated information model 25 68

Annex F (informative) EXPRESS-G diagrams 69

Annex G (informative) Commented example of library integrated information model 25 physical files. Exchange of explicit general models 72

G.2 Description of the PAW parts family 73
G.2.1 Dictionary description: the BSU mechanism 74
G.2.2 Dictionary description: the dictionary element definition 74
G.2.3 Library specification: description of the class extension 75
G.3 A complete physical file for explicit general models 76

Annex H (informative) Commented example of library integrated information model 25 physical files. H.1 Description of the PAW parts family and its geometry 80

H.1.1 Dictionary description 80
H.2. Description of geometric representations for the PAW parts family 81
H.3. Library specification of the functional model class 82

Index 95

Figures Figure F.1 -- ISO13584_IEC61630_dictionary_aggregate_extension_schema diagram 1 of 1 70

Figure F.2 -- ISO13584_aggregate_value_schema diagram 1 of 1 71

Figure G.1 -- PAW family description 72

Figure G.2 -- Instance of a dictionary description 73

Figure G.3 -- Explicit description of a dictionary description 73

Figure G.4 -- Identifiers of the concepts involved in the PAW family 74

Figure G.5 -- The BSU / Dictionary element relationship 74

Figure G.6 -- Dictionary_element of the concepts involved in the PAW family 75

Figure G.7 -- Dictionary_element of the concepts involved in the PAW family 75

Figure G.8 -- Dictionary_element of the concepts involved in the PAW family 76

Figure H.1 -- The Identifiers of the concepts involved in the Paw family and its geometry Figure H.2 -- View control variables range definition 82

Figure H.3 -- Specification of the view created by a functional model class 82

Figure H.4 -- Description by extension of the instances of a functional model 83

Figure H.5 -- References to FORTRAN programs that display geometry 84

Figure H.6 -- The BSU / Dictionary element relationship 84

Tables Table 1 -- Conformance options of library integrated information model 25 32

Table A.1 -- Short names of entities 52

representation 81