

Australian Standard™

**Industrial automation systems and
integration—Parts library**

**Part 20: Logical resource: Logical
model of expressions**

This Australian Standard was prepared by Committee IT-006, Information Technology for Industrial Automation and Integration. It was approved on behalf of the Council of Standards Australia on 23 March 2004 and published on 3 June 2004.

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PREFACE

This Standard was prepared by the Standards Australia Committee IT-006, Information Technology for Industrial Automation and Integration.

This Standard is identical with, and has been reproduced from, ISO 13584-20:1998, *Industrial automation systems and integration—Parts library, Part 20: Logical resource; Logical model of expressions*.

The objective of this Standard is to provide an EXPRESS schema for expressions, that models the subset of the allowed expressions in the EXPRESS language defined in ISO 10303-11 that corresponds to integer, real, Boolean and string data types. This schema uses the resources defined in the generic expression schema.

This Standard is Part 20 of AS ISO 13584, *Industrial automation systems and integration—Parts library*, which is published in parts as follows:

Part 1: Overview and fundamental principles

Part 101: Geometrical view exchange protocol by parametric program

Part 20: Logical resource: Logical model of expressions (this Standard)

Part 24: Logical resource: Logical model of supplier library

Part 26: Logical resource: Information supplier identification

Part 31: Implementation resources: Geometric programming interface

Part 42: Description methodology: Methodology for structuring product families

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- (b) In the source text ‘this International Standard’ should read ‘this Australian Standard’.
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References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards as follows:

<i>Reference to International Standard</i>		<i>Australian Standard</i>	
ISO/IEC		AS/NZS	
9075	Information technology; database languages; SQL	3968.0	Information technology—Database languages—SQL, Part 0: Definition of data structures and basic operations
ISO		AS	
10303-11	Industrial automation systems and integration—Product data representation and exchange—Part 11: Description methods: The EXPRESS language reference manual	10303.11	Industrial automation systems and integration—Product data representation and exchange, Part 11: Description methods: The EXPRESS language reference manual
10303-44	Industrial automation systems and integration—Product data representation and exchange—Part 44: Integrated generic resources: Product structure configuration	10303.44	Industrial automation systems and integration—Product data representation and exchange, Part 44: Integrated generic resources: Product structure configuration

CONTENTS

	<i>Page</i>
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
3.1 Terms and definitions from ISO 10303-11	2
3.2 Terms and definitions from ISO 10303-44	2
3.3 Other terms and definitions	3
4 Abbreviated terms	5
5 Fundamental concepts and assumptions	6
5.1 Static and dynamic data	6
5.2 Syntax of expressions	6
5.3 Semantics of expressions	6
5.3.1 Semantic of expressions	6
5.3.2 Exchange time and evaluation time	6
5.4 Levels of abstraction in expression modelling	7
5.4.1 Specialisation of the ISO13584_generic_expressions_schema	7
5.4.2 Specialisation of the ISO13584_expressions_schema	7
5.5 Modelling a variable	7
5.5.1 Syntactic representation	7
5.5.2 Domain of values for a variable	8
5.5.3 Semantics of a variable	8
5.6 Mappability to the SQL language	8
6 ISO13584_generic_expressions_schema	8
6.1 Introduction	8
6.2 ISO13584_generic_expressions_schema entity definitions	9
6.2.1 Generic_expression	9
6.2.2 Simple_generic_expression	10
6.2.3 Generic_literal	10
6.2.4 Generic_variable	10
6.2.5 Variable_semantics	11
6.2.6 Environment	11
6.2.7 Unary_generic_expression	11
6.2.8 Binary_generic_expression	12
6.2.9 Multiple_arity_generic_expression	12
6.3 ISO13584_generic_expressions_schema function definitions	12
6.3.1 Is_acyclic_function	13
6.3.2 Used_variables_function	14

	<i>Page</i>
7 ISO13584_expressions_schema	15
7.1 Introduction	15
7.2 ISO13584_expressions_schema overall entity definitions.....	16
7.2.1 Expression	16
7.2.1.1 Variable.....	16
7.2.1.2 Defined_function.....	17
7.2.1.3 SQL_mappable_defined_function	17
7.3 ISO13584_expressions_schema : entity definitions for numeric expressions.....	17
7.3.1 Numeric_expression	17
7.3.2 Simple_numeric_expression.....	18
7.3.3 Literal_number	18
7.3.4 Int_literal	19
7.3.5 Real_literal.....	19
7.3.6 Numeric_variable	19
7.3.7 Int_numeric_variable.....	20
7.3.8 Real_numeric_variable	20
7.3.9 Unary_numeric_expression	20
7.3.10 Binary_numeric_expression.....	21
7.3.11 Multiple_arity_numeric_expression.....	21
7.3.12 Length_function	21
7.3.13 Value_function	22
7.3.14 Int_value_function.....	22
7.3.15 Numeric_defined_function	23
7.3.16 Plus_expression.....	23
7.3.17 Minus_expression	23
7.3.18 Mult_expression.....	24
7.3.19 Div_expression	24
7.3.20 Mod_expression.....	24
7.3.21 Slash_expression.....	25
7.3.22 Power_expression	25
7.3.23 Unary_function_call	25
7.3.24 binary_function_call	26
7.3.25 Multiple_arity_function_call	26
7.3.26 Abs_function	26
7.3.27 Minus_function.....	27
7.3.28 Sin_function	27
7.3.29 Cos_function	28
7.3.30 Tan_function	28
7.3.31 Asin_function	28
7.3.32 Acos_function	29
7.3.33 Exp_function	29
7.3.34 Log_function	29
7.3.35 Log2_function	30
7.3.36 Log10_function	30
7.3.37 Square_root_function.....	31
7.3.38 Atan_function	31
7.3.39 Maximum_function.....	31
7.3.40 Minimum_function.....	32
7.3.41 Integer_defined_function	32
7.3.42 Real_defined_function	32
7.4 Boolean_expression.....	33
7.4.1 Simple_boolean_expression.....	33
7.4.2 Boolean_literal	34
7.4.3 Boolean_variable	34
7.4.4 Unary_boolean_expression	34
7.4.5 Not_expression	34
7.4.6 Odd_function.....	35

	<i>Page</i>
7.4.7 Binary_boolean_expression.....	35
7.4.8 Multiple_arity_boolean_expression.....	36
7.4.9 Xor_expression.....	36
7.4.10 Equals_expression.....	37
7.4.11 And_expression.....	37
7.4.12 Or_expression.....	37
7.4.13 Comparison_expression.....	38
7.4.14 Comparison_equal.....	39
7.4.15 Comparison_greater.....	39
7.4.16 Comparison_greater_equal.....	39
7.4.17 Comparison_less.....	40
7.4.18 Comparison_less_equal.....	40
7.4.19 Comparison_not_equal.....	40
7.4.20 Like_expression.....	41
7.4.21 Interval_expression.....	41
7.4.22 Boolean_defined_function.....	42
7.5 String_expression.....	43
7.5.1 Simple_string_expression.....	43
7.5.2 String_literal.....	43
7.5.3 String_variable.....	44
7.5.4 Index_expression.....	44
7.5.5 Substring_expression.....	45
7.5.6 Concat_expression.....	46
7.5.7 Format_function.....	46
7.5.8 String_defined_function.....	47
7.6 Functions to determine properties of the expression.....	47
7.6.1 Is_int_expr.....	48
7.6.2 Is_SQL_mappable.....	50
7.6.3 Used_functions.....	53
Annex A (normative) Short names of entities.....	56
Annex B (normative) Information object registration.....	58
B.1 Document identification.....	58
B.2 Schema identification.....	58
B.2.1 ISO13584_generic_expressions_schema.....	58
B.2.2 ISO13584_expressions_schema.....	58
Annex C (informative) EXPRESS-G diagrams.....	59
Annex D (informative) Use of the ISO13584_expressions_schema.....	73
D.1 Introduction.....	73
D.2 Interpretation function and variable semantics.....	73
D.3 Representation of the interpretation function in ISO 13584 Part 20.....	73
D.4 Use of the variable_semantics entity to define the semantic of new variables.....	74
D.4.1 Use of a particular subtype of the variable_semantics entity.....	74
D.4.2 Multiple inheritance of the variable_semantics entity and of another entity.....	75
D.4.3 Defining a concept not represented in the model.....	77
Annex E (informative) Specialisation of the schemata.....	78
E.1 Introduction.....	78

	<i>Page</i>
E.2 Specialisation of the ISO13584_generic_expressions_schema.....	78
E.3 Specialisation of the ISO13584_expressions_schema.....	78
E.4 Methodology for specialisation of ISO 13584 part 20	79
E.5 Example of specialisation of the ISO13584_generic_expressions_schema schema.....	80
E.6 Example of specialisation of the ISO13584_expressions_schema schema	82
Annex F (informative) Static analysis of expressions	83
F.1 Introduction	83
F.2 is_acyclic function.....	83
F.3 Used_variables and used_functions functions.....	83
F.4 Is_SQL_mappable function.....	84
F.5 Type control and type synthesis	84
Index	85

Figures

Figure D.1 — Syntax and semantics association for variables	74
Figure D.2 — Specialisation of the semantics by subtyping of the variable_semantics entity.....	75
Figure D.3 — Specialisation of the semantics by subtyping the variable_semantics entity and another entity	76
Figure D.4 — Example of the definition of a concept not represented in the model : coordinates	77

Table

Table A.1 — Short names of entities	56
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INTRODUCTION

ISO 13584 is an International Standard for the computer-interpretable representation and exchange of part library data. The objective is to provide a neutral mechanism capable of transferring parts library data, independent of any application that is using a parts library data system. The nature of this description makes it suitable not only for the exchange of files containing parts, but also as a basis for implementing and sharing databases of parts library data.

ISO 13584 is organised as a series of parts, each published separately. The parts of ISO 13584 fall into one of the following series: conceptual descriptions, logical resources, implementation resources, description methodology, conformance testing, view exchange protocol, and standardised content. The series are described in ISO 13584-1. This part of ISO 13584 is a member of the logical resources series.

This part of ISO 13584 provides the general purpose EXPRESS resource constructs needed for expression modelling. These EXPRESS resource constructs are intended to be detailed in other parts of ISO 13584. They are also intended to be used outside ISO 13584 where EXPRESS information models of expressions prove to be useful.

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AUSTRALIAN STANDARD

Industrial automation systems and integration — Parts library — Part 20: Logical resource: Logical model of expressions

1 Scope

This part of ISO 13584 specifies:

- an EXPRESS schema for generic expressions;
- an EXPRESS schema for expressions, that models the subset of the allowed expressions in the EXPRESS language defined in ISO 10303-11 that corresponds to integer, real, Boolean and string data types. This schema uses the resources defined in the generic expression schema.

The following are within the scope of this part of ISO 13584:

- the exchange of expressions that involve both constants and variables;
- the function that checks whether or not a numeric expression should evaluate to an integer value;
- the constraints which ensure that an expression is semantically correct;
- the computation of the variables or functions used in an expression;
- the function that checks if an expression may be mapped on to the SQL query language.

The following are outside the scope of this part of ISO 13584:

- the assignment of values to variables within some context;
- the triggering mechanism that computes the value of an expression in a given context.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 13584. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 13584 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 9075: 1992, *Information technology — Database languages — SQL*.

ISO 10303-11: 1994, *Industrial automation systems and integration — Product data representation and exchange — Part 11: Description methods: The EXPRESS language reference manual*.