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Australian Standard™

Industrial automation systems and integration—Parts library

Part 20: Logical resource: Logical model of expressions

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Industrial automation systems and integration—Parts library

Part 20: Logical resource: Logical model of expressions

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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 part families

The terms 'normative' and 'informative' are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

As this Standard is reproduced from an international standard, the following applies:

(a) Its number appears on the cover and title page while the international standard number appears only on the cover

(b) In the source text 'this International Standard' should read 'this Australian Standard'.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards as follows:

Reference to International Standard		*Australian Standard*	
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

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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 13854 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 wherever EXPRESS information models of expressions prove to be useful.

NOTES

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.*