AS 10303.12—1999
ISO 10303.12:1997

Australian Standard™

Industrial automation systems and integration—Product data representation and exchange

Part 12: Description methods: The EXPRESS-I language reference manual

This Australian Standard was prepared by Committee IT/6, Information Technology for Industrial Automation and Integration. It was approved on behalf of the Council of Standards Australia on 16 February 1999 and published on 5 May 1999.

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PREFACE

This Standard was prepared by the Standards Australia Committee IT/6, Information Technology for Industrial Automation and Integration. It is identical with, and has been reproduced from, ISO/TR 10303-12:1997, *Industrial automation systems and integration–Product data representation and exchange,* Part 12: *Description methods: The EXPRESS-I language reference manual.*

The objective of this Standard is to provide, for designers of computer-interpretable representation and exchange of product data, the specification for elements of the EXPRESS-I language. This language is a formal data representation and abstract test case specification which can be used to exemplify the information requirements of other Parts of AS 10303 and is a companion to the EXPRESS and EXPRESS-G languages.

This Standard is Part 12 of AS 10303, *Industrial automation systems and integration—Product data representation and exchange,* which is published in Parts as follows:

Part 1: Overview and fundamental principles
Part 11: Description methods: The EXPRESS language reference manual
Part l2: Description methods: The EXPRESS-I language reference manual (this Standard)
Part 21: Implementation methods: Clear text encoding of the exchange structure
Part 31: Conformance testing methodology and framework: General concepts
Part 41: Integrated generic resources: Fundamentals of product description and support
Part 42: Integrated generic resources: Geometric and topological representation
Part 43: Integrated generic resources: Representation structures
Part 44: Integrated generic resources: Product structure configuration
Part 46: Integrated generic resources: Visual presentation
Part 47: Integrated generic resource: Shape variation tolerances
Part 101: Integrated application resources: Draughting
Part 105: Integrated application resource: Kinematics
Part 201: Application protocol: Explicit draughting
Part 202: Application protocol: Associative draughting
Part 203: Application protocol: Configuration controlled design
Part 207: Application protocol: Sheet metal die planning and design

The term 'normative' has been used in this Standard to define the application of the annex to which it applies. A 'normative' annex is an integral part of a Standard.

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

- Its number does not appear on each page of text and its identity is shown only on the cover and title page.
- In the source text 'this part of ISO TR 10303' should read 'this Australian Standard'.
- A full point should be substituted for a comma when referring to a decimal marker.

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

Reference to International Standard or other Publication		*Australian or Australian/New Zealand Standard*	
ISO		AS	
10303	Industrial automation systems and integration—Product data representation and exchange	10303	Industrial automation systems and integration—Product data representation and exchange
10303-1	Part 1: Overview and fundamental principles	10303.1	Part 1: Overview and fundamental principles

ISO		AS	
10303-11	Part 11: Description methods: The EXPRESS language reference manual	10303.11	Part 11: Description methods: The EXPRESS language reference manual
10303-31	Part 31: Conformance testing methodology and framework: General concepts	10303.31	Part 31: Conformance testing methodology and framework: General concepts
ISO/IEC		AS/NZS	
8824	Information technology—Abstract Syntax Notation One (ASN.1)	8824	Information technology—Abstract syntax notation one
8824-1	Part 1: Specification of basic notation	8824.1	Part 1: Specification of basic notation
10646	Information technology—Universal Multiple-Octet Coded Character Set (UCS)	4189	Information technology—Universal multiple-octet coded Character Set (UCS)
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1 Scope

This part of ISO 10303 defines a language by which an instance of (part of) a universe of discourse can be displayed. It also provides a formal description method for supporting the specification of abstract test cases. The language is called EXPRESS-I. It is a companion language to EXPRESS which is specified in ISO 10303-11.

EXPRESS-I is an instantiation language for a conceptual schema language as defined in ISO TR 9007, and the particular conceptual schema language that formed the starting point for EXPRESS-I was EXPRESS. The EXPRESS-I language provides for the display of the state of the objects belonging to a universe of discourse and the information units pertaining to those objects.

The following are within the scope:

- display of instances of schemas;
- display of instances of types and entities;
- abstract test case data;
- mapping from EXPRESS schemas and data types to EXPRESS-I instances.

The following are outside the scope of this part of ISO 10303:

- mapping from other (conceptual schema) languages to EXPRESS-I;
- definition of database formats;
- definition of file formats;
- definition of transfer formats;
- process control;
- information processing;
- exception handling.

EXPRESS-I is not a programming language.