INTERNATIONAL STANDARD ISO 10303-227:2005
TECHNICAL CORRIGENDUM 1

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Industrial automation systems and integration — Product data representation and exchange —

Part 227:
Application protocol: Plant spatial configuration

TECHNICAL CORRIGENDUM 1

Systèmes d'automatisation industrielle et intégration — Représentation et échange de données de produits —

Partie 227: Protocole d'application: Configuration spatiale d'usine

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 to ISO 10303-227:2005 was prepared by Technical Committee ISO/TC 184, *Industrial automation systems and integration*, Subcommittee SC 4, *Industrial data.*

Introduction

This Technical Corrigendum corrects ISO 10303-227:2005, Industrial automation systems and integration — Product data representation and exchange — Part 227: Application protocol: Plant spatial configuration.

The purpose of the modifications to the text of ISO 10303-227:2005 is to correct errors in the text and the Mapping Specification and to replace the object identifier for the document and the applicable schemas.

ICS 25.040.40 **Ref. No. ISO 10303-227:2005/Cor.1:2008(E)**

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Modifications to the text of ISO 10303-227:2005

Page 561, 5.1.10.13.6

*The purpose for this change is to correct a misspelled word. Replace "*constraing*" with "*constraint*" in the fourth line from the bottom of the page.*

Page 562, 5.1.10.13.6

*The purpose for this change is to correct misspelled words in three lines of text. Replace "*constraing*" with "*constraint*" in the eighth, nineteenth, and thirtieth lines of text on the page.*

Page 807, 5.1.12.1.10

The purpose for this change is to correct the Reference path. Replace 5.1.12.1.10 with the following text.

5.1.12.1.10 connection_inspection_record to inspection_condition

AIM element: PATH
Reference path: material_property <=
property_definition
{property_definition.description = 'connection inspection record'}
property_definition = represented_definition
represented_definition <-
property_definition_representation.definition
property_definition_representation =>
material_property_representation
material_property_representation.dependent_environment ->
data_environment
{data_environment.description = 'inspection condition'}
data_environment.elements[i] ->
property_definition_representation
property_definition_representation.definition ->
represented_definition
represented_definition = property_definition
property_definition
{property_definition.description = 'inspection condition'}

Page 807, 5.1.12.2

The purpose for this change is to correct the Reference path. Replace 5.1.12.2 with the following text.

5.1.12.2 Inspection_condition

AIM element: property_definition
Source: ISO 10303-45
Reference path: property_definition
{property_definition.description = 'inspection condition'}

Page 808, 5.1.12.2.2

The purpose for this change is to correct an aggregation in the Reference path. Replace the second line of the Reference path with the following text.

data_environment.elements[i] ->

Page 829, 5.1.13.13.6

The purpose for this change is to correct the Reference path. Replace 5.1.13.13.6 with the following text.

5.1.13.13.6 heat_tracing_type

AIM element: (descriptive_representation_item.description)
([descriptive_representation_item.description]
[document_usage_constraint.subject_element_value])
Source: ISO 10303-45, ISO 10303-41
Reference path: plant_line_segment_definition <=
product_definition
characterized_product_definition = product_definition
characterized_product_definition
characterized_definition = characterized_product_definition
characterized_definition <-
property_definition.definition
property_definition
represented_definition = property_definition
represented_definition <-
property_definition_representation.definition
property_definition_representation
property_definition_representation.used_representation ->
representation =>
(heat_tracing_representation
representation.items[i] ->
representation_item =>
descriptive_representation_item
descriptive_representation_item.description)
([heat_tracing_representation
representation.items[i] ->
representation_item =>
descriptive_representation_item
descriptive_representation_item.description]
[heat_tracing_representation
document_item = heat_tracing_representation
document_item <-
applied_document_reference.items[i]
applied_document_reference <=
document_reference
document_reference.assigned_document ->
document <-
document_usage_constraint.source
{document_usage_constraint
document_usage_constraint.subject_element = 'heat tracing'}
document_usage_constraint.subject_element_value])

Page 901, 5.1.16.18.3

The purpose for this change is to correct the Reference path. Replace 5.1.16.18.3 with the following text.

5.1.16.18.3 heat_tracing_type

AIM element: (descriptive_representation_item.description)
([descriptive_representation_item.description]
[document_usage_constraint.subject_element_value])
Source: ISO 10303-45, ISO 10303-41
Reference path: product <-
product_definition_formation.of_product
product_definition_formation <-
product_definition.formation
product_definition
characterized_product_definition = product_definition
characterized_product_definition
characterized_definition = characterized_product_definition
characterized_definition <-
property_definition.definition
property_definition
represented_definition = property_definition
represented_definition <-
property_definition_representation.definition
property_definition_representation
property_definition_representation.used_representation ->
representation =>
(heat_tracing_representation
representation.items[i] ->
representation_item =>
descriptive_representation_item
descriptive_representation_item.description)
([heat_tracing_representation
representation.items[i] ->
representation_item =>
descriptive_representation_item
descriptive_representation_item.description]
[heat_tracing_representation
document_item = heat_tracing_representation
document_item <-
applied_document_reference.items[i]
applied_document_reference <=
document_reference
document_reference.assigned_document ->
document <-
document_usage_constraint.source
{document_usage_constraint
document_usage_constraint.subject_element = 'heat tracing'}
document_usage_constraint.subject_element_value])

Page 919, 5.1.16.32
The purpose for this change is to correct the Reference path. Replace 5.1.16.32 with the following text.

5.1.16.32 Material_specification_selection

AIM element: [material_property]
[document]
Source: ISO 10303-41, ISO 10303-45
Reference path: {material_property
material_property <= property_definition
document_item = property_definition
document_item <-
applied_document_reference.items[i]
applied_document_reference
applied_document_reference <=
document_reference
document_reference.assigned_document ->
document
{document.kind ->
document_type
document_type.product_data_type = 'material specification'}}

Page 924, 5.1.16.35.3
The purpose for this change is to correct misspelled words in three lines of text. Replace "constraing" *with* "constraint" *in the twenty fourth, thirty sixth, and last lines of text on the page.*

Page 925, 5.1.16.35.3
The purpose for this change is to correct a misspelled word. Replace "constraing" *with* "constraint" *in the second line of text from the bottom of the clause.*

Page 938, 5.1.16.42.3
The purpose for this change is to correct the Reference path. Replace 5.1.16.42.3 with the following text.

5.1.16.42.3 heat_tracing_type

AIM element: (descriptive_representation_item.description)
([descriptive_representation_item.description]
[document_usage_constraint.subject_element_value])
Source: ISO 10303-45, ISO 10303-41
Reference path: piping_component_definition <=
product_definition
characterized_product_definition = product_definition
characterized_product_definition
characterized_definition = characterized_product_definition
characterized_definition <-
property_definition.definition
property_definition
represented_definition = property_definition
represented_definition <-
property_definition_representation.definition

property_definition_representation
property_definition_representation.used_representation ->
representation =>
(heat_tracing_representation
representation.items[i] ->
representation_item =>
descriptive_representation_item
descriptive_representation_item.description)
([heat_tracing_representation
representation.items[i] ->
representation_item =>
descriptive_representation_item
descriptive_representation_item.description]
[heat_tracing_representation
document_item = heat_tracing_representation
document_item <-
applied_document_reference.items[i]
applied_document_reference <=
document_reference
document_reference.assigned_document ->
document <-
document_usage_constraint.source
{document_usage_constraint
document_usage_constraint.subject_element = 'heat tracing'}
document_usage_constraint.subject_element_value])

Page 970, 5.1.16.56

The purpose for this change is to correct a Supertype symbol. Replace the first line of text on the page with the following text.

product_definition_context <=

Page 970, 5.1.16.56.1

The purpose for this change is to correct the Reference path. Replace 5.1.16.56.1 with the following text.

5.1.16.56.1 description

AIM element: property_definition.description
Source: ISO 10303-41
Reference path: product_definition
characterized_product_definition = product_definition
characterized_product_definition
characterized_definition = characterized_product_definition
characterized_definition <-
property_definition.definition
{property_definition =>
material_property =>
required_material_property}
property_definition
property_definition.description

Page 970, 5.1.16.56.4
The purpose for this change is to correct the Reference path. Replace 5.1.16.56.4 with the following text.

5.1.16.56.4 required_material_description to material_specification_selection

AIM element: PATH
Reference path: product_definition
characterized_product_definition = product_definition
characterized_product_definition
characterized_definition = characterized_product_definition
characterized_definition <-
property_definition.definition
property_definition =>
material_property

Page 1007, 5.1.17.14.2
The purpose for this change is to correct the Reference path. Replace 5.1.17.14.2 with the following text.

5.1.17.14.2 shape_representation to shape_representation_element_usage

AIM element: PATH
Rules: subtype_mandatory_shape_representation
Reference path: shape_representation <=
representation
representation.items[i] ->
representation_item

Page 1402, Annex C
The purpose for this change is to add Part 28 as an allowable Implementation method in addition to Part 21. Replace the first paragraph with the following text.

The implementation method defines what types of exchange behavior are required with respect to this part of ISO 10303. Conformance to this part of ISO 10303 shall be realized in an exchange structure. The file format shall be encoded according to the syntax and EXPRESS language mapping defined in either ISO 10303-21 or ISO 10303-28 and in the AIM defined in Annex A of this part of ISO 10303. The header exchange structure shall identify use of this part of ISO 10303 by the schema name 'plant_spatial_configuration'.

Page 1402, Annex C
Edition 2 of ISO 10303-21 added the capability to identify the particular Application protocol Conformance Class to which an exchange file conforms. The purpose for this change is to add the specification of values for this part of ISO 10303 to utilize that capability. Insert the following text after the existing paragraph.

C.1 General requirements

For various reasons, some entities may not be completely exported into an exchange structure. There may be mandatory information in the AIM that has no correspondence in the ARM. Sometimes an application may not maintain all the information that is anticipated for the data exchange. Other times,

the information may be maintained by a sending system but not included in the data exchange. Nevertheless, the preprocessor must provide values for all mandatory attributes in an exchange file.

When no data is provided by a sending system for a required string value, the preprocessor shall use '.UNUSED.' or the empty string ".

To further indicate the reason why no data is provided, the following convention shall be used:

— An empty string " indicates user data managed by the sending system but not provided for data exchange. As receiving system software may depend upon population of realistic data values for required attributes, use of empty strings is discouraged;

— A string with a value of '.UNUSED.' indicates user data in a mandatory attribute that is not managed by the sending system, is not known at the time of the data exchange, or is mandatory AIM information that has no correspondence in the ARM;

— $ is used in the physical file if an optional attribute is not instantiated.

C.2 Requirements specific to the implementation method defined in ISO 10303-21

If the implementation method is ISO 10303-21, the file format shall be encoded according to the syntax and EXPRESS language mapping defined in ISO 10303-21.

The FILE_SCHEMA element of the header shall specify the name of the EXPRESS schema used and include its object information identifier (see Annex E).

EXAMPLE The instance below identifies the ship_arrangement schema:

```
FILE_SCHEMA ((' PLANT_SPATIAL_CONFIGURATION { 1 0 10303 227 3 1 1} '))
```

C.3 Requirements specific to the implementation method defined in Edition 2 of ISO 10303-21

ISO 10303-21:2002 added the capability to specify the particular Conformance Class to which the Data section of an exchange file conforms. Exchange files conforming to the 2002 Edition of ISO 10303-21 shall contain one or more instances of the entity Section_context in the Header section of the file.

Example SECTION_CONTEXT ($,('CC1'));

If a single Data section is included in the exchange file, a single instance of the entity Section_context shall be included, and the value of the attribute section_context.section shall be $. The set of values of the attribute section_context.context_identifiers shall contain a single value to identify the particular Application protocol Conformance Class to which the data conforms.

The attribute value shall be one of:

— CC1;

— CC2;

— CC3;

— CC4;

— CC5;

— CC6;

— CC7;

— CC8;

— CC9;

— CC10;

— CC11.

Page 1405, E.1
Replace the object identifier with the following text.

{iso standard 10303 part(227) version(3)}

Page 1405, E.2
Replace the sublause in its entirety with the following text.

E.2 Schema identification

To provide for unambiguous identification of the plant_spatial_configuration expanded schema in an open information system, the object identifier

```
{ iso standard 10303 part(227) version(3) object(1) plant-spatial-
                              configuration(1) }
```

is assigned to the plant_spatial_configuration expanded schema (see annex A). The meaning of this value is defined in ISO/IEC 8824-1, and is described in ISO 10303-1.

To provide for unambiguous identification of the plant_spatial_configuration short form schema in an open information system, the object identifier

```
{ iso standard 10303 part(227) version(3) object(1) plant-spatial-
                              configuration-schema(2) }
```

is assigned to the plant_spatial_configuration short form schema (see 5.2). The meaning of this value is defined in ISO/IEC 8824-1, and is described in ISO 10303-1.