

Annex A

(normative)

AIM EXPRESS expanded listing

The following EXPRESS is the expanded form of the short form schema given in 5.2. In the event of any discrepancy between the short form and this expanded listing, the expanded listing shall be used.

```

SCHEMA electrotechnical_design;

  CONSTANT
    dummy_gri : geometric_representation_item :=
representation_item('') ||
                geometric_representation_item();
  END_CONSTANT;

  TYPE action_item = SELECT
    (action_directive,
     action_method,
     action_property,
     action_relationship,
     action_request_solution,
     alternate_product_relationship,
     applied_action_assignment,
     applied_classification_assignment,
     applied_document_reference,
     applied_person_and_organization_assignment,
     applied_presented_item,
     approval_status,
     assembly_component_usage_substitute,
     certification,
     characterized_object_relationship,
     class,
     class_system,
     configuration_design,
     configuration_effectivity,
     configuration_item,
     configured_effectivity_assignment,
     connectivity_definition,
     contract,
     descriptive_representation_item,
     document_file,
     document_relationship,
     drawing_revision,
     drawing_revision_sequence,
     drawing_sheet_revision,
     equipment_marking,
     executed_action,
     general_property,
     installation_location,
     installation_node,
     installation_route,

```

ISO 10303-212:2001(E)

```
installation_section,  
installation_section_end,  
installation_section_interface,  
installation_segment,  
interface,  
note_representation,  
notification,  
organization_relationship,  
organizational_project,  
path,  
person_and_organization,  
process_variable,  
product,  
product_concept,  
product_concept_feature,  
product_concept_feature_association,  
product_concept_feature_category,  
product_concept_feature_category_usage,  
product_definition,  
product_definition_formation,  
product_definition_formation_relationship,  
product_definition_relationship,  
product_definition_substitute,  
property_definition,  
property_definition_relationship,  
representation,  
representation_item_relationship,  
representation_relationship,  
security_classification,  
security_classification_level,  
shape_aspect_relationship,  
signal,  
terminal,  
versioned_action_request,  
vertex);  
END_TYPE; -- action_item
```

```
TYPE action_request_item = SELECT  
  (action_method,  
   action_property,  
   alternate_product_relationship,  
   assembly_component_usage_substitute,  
   characterized_object_relationship,  
   class_system,  
   configuration_design,  
   configuration_effectivity,  
   configuration_item,  
   configured_effectivity_assignment,  
   connectivity_definition,  
   document_file,  
   document_relationship,  
   drawing_revision,  
   drawing_sheet_revision,  
   equipment_marking,  
   general_property,
```

```

installation_location,
installation_node,
installation_route,
installation_section,
installation_section_end,
installation_section_interface,
interface,
note_representation,
notification,
path,
process_variable,
product,
product_concept,
product_concept_feature,
product_concept_feature_association,
product_concept_feature_category,
product_concept_feature_category_usage,
product_definition,
product_definition_formation,
product_definition_formation_relationship,
product_definition_relationship,
product_definition_substitute,
property_definition,
representation,
representation_item_relationship,
representation_relationship,
shape_aspect_relationship,
signal,
terminal,
vertex);
END_TYPE; -- action_request_item

TYPE ahead_or_behind = ENUMERATION OF
  (ahead,
   exact,
   behind);
END_TYPE; -- ahead_or_behind

TYPE amount_of_substance_measure = REAL;
END_TYPE; -- amount_of_substance_measure

TYPE approval_item = SELECT
  (action,
   action_directive,
   action_property,
   action_relationship,
   action_request_solution,
   alternate_product_relationship,
   applied_action_assignment,
   applied_classification_assignment,
   assembly_component_usage,
   assembly_component_usage_substitute,
   characterized_object_relationship,
   certification,
   class,

```

ISO 10303-212:2001(E)

```
class_system,  
configuration_design,  
configuration_effectivity,  
configuration_item,  
configured_effectivity_assignment,  
connectivity_definition,  
contract,  
descriptive_representation_item,  
document_file,  
document_relationship,  
drawing_revision,  
drawing_revision_sequence,  
drawing_sheet_revision,  
equipment_marking,  
general_property,  
installation_location,  
installation_node,  
installation_route,  
installation_section,  
installation_section_end,  
installation_section_interface,  
interface,  
note_representation,  
notification,  
organizational_project,  
path,  
process_variable,  
product,  
product_concept,  
product_concept_feature,  
product_concept_feature_association,  
product_concept_feature_category,  
product_concept_feature_category_usage,  
product_definition,  
product_definition_formation,  
product_definition_formation_relationship,  
product_definition_relationship,  
product_definition_substitute,  
property_definition,  
property_definition_relationship,  
representation,  
representation_item_relationship,  
representation_relationship,  
security_classification,  
shape_aspect_relationship,  
signal,  
terminal,  
versioned_action_request,  
vertex);  
END_TYPE; -- approval_item  
  
TYPE area_measure = REAL;  
END_TYPE; -- area_measure  
  
TYPE area_or_view = SELECT
```

```

    (presentation_area,
     presentation_view);
END_TYPE; -- area_or_view

TYPE associated_item = SELECT
    (action,
     action_directive,
     annotation_occurrence_relationship,
     applied_action_assignment,
     applied_classification_assignment,
     applied_identification_assignment,
     class,
     class_system,
     connecting_line_group,
     connectivity_definition,
     general_property,
     installation_location,
     installation_node,
     installation_route,
     installation_section,
     installation_section_end,
     installation_section_interface,
     installation_segment,
     interface,
     item_designation_assignment,
     note_representation,
     notification,
     organizational_project,
     page_connector_presentation_group,
     page_connector_reference_group,
     path,
     process_variable,
     product,
     product_definition,
     product_definition_formation,
     product_definition_relationship,
     property_definition,
     representation,
     representation_relationship,
     security_classification,
     security_classification_level,
     signal,
     terminal,
     versioned_action_request,
     vertex);
END_TYPE; -- associated_item

TYPE attribute_language_item = SELECT
    (action,
     action_directive,
     action_method,
     action_property,
     action_relationship,
     alternate_product_relationship,
     application_context,

```

ISO 10303-212:2001(E)

approval_relationship,
assembly_component_usage_substitute,
attribute_value_assignment,
certification,
class_system,
conditional_concept_feature,
configuration_design,
configuration_item,
configured_effectivity_assignment,
connectivity_definition,
contract,
descriptive_representation_item,
document_file,
document_relationship,
draughting_title,
drawing_sheet_revision,
effectivity,
effectivity_relationship,
equipment_marking,
event_occurrence,
external_source,
free_segment,
general_property,
general_property_relationship,
group,
identification_role,
inclusion_product_concept_feature,
installation_location,
installation_node,
installation_route,
installation_section,
installation_section_end,
installation_section_interface,
interface,
notification,
organization_relationship,
organizational_project,
organizational_project_relationship,
path,
presentation_view,
process_variable,
product,
product_concept,
product_concept_feature,
product_concept_feature_association,
product_concept_feature_category_usage,
product_concept_relationship,
product_definition,
product_definition_formation,
product_definition_formation_relationship,
product_definition_relationship,
product_definition_substitute,
product_related_product_category,
product_specification,
property_definition,

```

    representation,
    representation_relationship,
    routed_segment,
    shape_aspect_relationship,
    signal,
    terminal,
    versioned_action_request,
    vertex);
END_TYPE; -- attribute_language_item

TYPE attribute_type = SELECT
    (label,
     text);
END_TYPE; -- attribute_type

TYPE axis2_placement = SELECT
    (axis2_placement_2d,
     axis2_placement_3d);
END_TYPE; -- axis2_placement

TYPE b_spline_curve_form = ENUMERATION OF
    (polyline_form,
     circular_arc,
     elliptic_arc,
     parabolic_arc,
     hyperbolic_arc,
     unspecified);
END_TYPE; -- b_spline_curve_form

TYPE box_characteristic_select = SELECT
    (box_height,
     box_width,
     box_slant_angle,
     box_rotate_angle);
END_TYPE; -- box_characteristic_select

TYPE box_height = positive_ratio_measure;
END_TYPE; -- box_height

TYPE box_rotate_angle = plane_angle_measure;
END_TYPE; -- box_rotate_angle

TYPE box_slant_angle = plane_angle_measure;
END_TYPE; -- box_slant_angle

TYPE box_width = positive_ratio_measure;
END_TYPE; -- box_width

TYPE category_usage_item = SELECT
    (product_class);
END_TYPE; -- category_usage_item

TYPE celsius_temperature_measure = REAL;
END_TYPE; -- celsius_temperature_measure

```

ISO 10303-212:2001(E)

```
TYPE certification_item = SELECT
  (product_definition,
   product_definition_formation,
   product_definition_formation_relationship,
   product_definition_relationship);
END_TYPE; -- certification_item

TYPE character_spacing_select = SELECT
  (length_measure,
   ratio_measure,
   measure_with_unit,
   descriptive_measure);
END_TYPE; -- character_spacing_select

TYPE character_style_select = SELECT
  (text_style_for_defined_font);
END_TYPE; -- character_style_select

TYPE characterized_action_definition = SELECT
  (action,
   action_method,
   action_relationship);
END_TYPE; -- characterized_action_definition

TYPE characterized_definition = SELECT
  (characterized_object,
   characterized_product_definition,
   shape_definition);
END_TYPE; -- characterized_definition

TYPE characterized_product_definition = SELECT
  (product_definition,
   product_definition_relationship);
END_TYPE; -- characterized_product_definition

TYPE class_usage_effectivity_context_item = SELECT
  (product_definition);
END_TYPE; -- class_usage_effectivity_context_item

TYPE classification_item = SELECT
  (action_directive,
   action_method,
   applied_identification_assignment,
   approval,
   approval_status,
   class,
   colour_representation_item,
   configuration_item,
   connectivity_definition,
   contract,
   document_file,
   document_type,
   drawing_revision,
   drawing_sheet_revision,
   equipment_marking,
```



```

executed_action,
general_property,
installation_location,
installation_route,
installation_section,
installation_section_interface,
item_designation_assignment,
organizational_project,
path,
planar_extent,
product,
product_concept,
product_concept_feature_category,
product_definition,
product_definition_formation,
product_definition_relationship,
property_definition,
representation,
security_classification_level,
signal,
symbol_representation_map,
terminal,
versioned_action_request,
vertex);
END_TYPE; -- classification_item

TYPE compound_item_definition = SELECT
(list_representation_item,
set_representation_item);
END_TYPE; -- compound_item_definition

TYPE configuration_design_item = SELECT
(product_definition,
product_definition_formation);
END_TYPE; -- configuration_design_item

TYPE configured_effectivity_context_item = SELECT
(product_concept_feature_association);
END_TYPE; -- configured_effectivity_context_item

TYPE configured_effectivity_item = SELECT
(connectivity_definition,
installation_location,
product_definition,
signal);
END_TYPE; -- configured_effectivity_item

TYPE connecting_line_item = SELECT
(connectivity_definition);
END_TYPE; -- connecting_line_item

TYPE context_dependent_measure = REAL;
END_TYPE; -- context_dependent_measure

TYPE contract_item = SELECT

```

ISO 10303-212:2001(E)

```
(action_directive,  
  installation_location,  
  installation_node,  
  installation_route,  
  installation_section,  
  installation_section_end,  
  installation_section_interface,  
  notification,  
  organizational_project,  
  path,  
  process_variable,  
  product_definition,  
  product_definition_formation,  
  product_definition_relationship,  
  representation,  
  signal,  
  versioned_action_request,  
  vertex);  
END_TYPE; -- contract_item  
  
TYPE count_measure = NUMBER;  
END_TYPE; -- count_measure  
  
TYPE curve_font_or_scaled_curve_font_select = SELECT  
  (curve_style_font_select);  
END_TYPE; -- curve_font_or_scaled_curve_font_select  
  
TYPE curve_or_annotation_curve_occurrence = SELECT  
  (curve,  
  annotation_curve_occurrence);  
END_TYPE; -- curve_or_annotation_curve_occurrence  
  
TYPE curve_or_render = SELECT  
  (curve_style);  
END_TYPE; -- curve_or_render  
  
TYPE curve_style_font_select = SELECT  
  (curve_style_font,  
  pre_defined_curve_font,  
  externally_defined_curve_font);  
END_TYPE; -- curve_style_font_select  
  
TYPE date_and_time_item = SELECT  
  (action,  
  action_directive,  
  action_property,  
  action_relationship,  
  action_request_solution,  
  alternate_product_relationship,  
  applied_action_assignment,  
  applied_classification_assignment,  
  applied_document_reference,  
  applied_organization_assignment,  
  applied_person_and_organization_assignment,  
  applied_presented_item,
```

approval_person_organization,
approval_status,
assembly_component_usage_substitute,
characterized_object_relationship,
certification,
class,
class_system,
configuration_item,
configuration_design,
configured_effectivity_assignment,
connectivity_definition,
contract,
descriptive_representation_item,
document_file,
document_relationship,
drawing_revision,
drawing_revision_sequence,
drawing_sheet_revision,
effectivity,
event_occurrence,
executed_action,
general_property,
installation_location,
installation_node,
installation_route,
installation_section,
installation_section_end,
installation_section_interface,
installation_segment,
interface,
note_representation,
notification,
organization_relationship,
organizational_project,
path,
person_and_organization,
process_variable,
product,
product_concept,
product_concept_feature,
product_concept_feature_association,
product_concept_feature_category,
product_concept_feature_category_usage,
product_definition,
product_definition_formation,
product_definition_formation_relationship,
product_definition_relationship,
product_definition_substitute,
property_definition,
property_definition_relationship,
representation,
representation_item_relationship,
representation_relationship,
security_classification,
security_classification_level,

ISO 10303-212:2001(E)

```
shape_aspect_relationship,  
signal,  
terminal,  
versioned_action_request,  
vertex);  
END_TYPE; -- date_and_time_item  
  
TYPE date_item = SELECT  
(action,  
action_directive,  
action_property,  
action_relationship,  
action_request_solution,  
alternate_product_relationship,  
applied_action_assignment,  
applied_classification_assignment,  
applied_document_reference,  
applied_organization_assignment,  
applied_person_and_organization_assignment,  
applied_presented_item,  
approval_person_organization,  
approval_status,  
assembly_component_usage_substitute,  
characterized_object_relationship,  
certification,  
class,  
class_system,  
configuration_item,  
configuration_design,  
configured_effectivity_assignment,  
connectivity_definition,  
contract,  
descriptive_representation_item,  
document_file,  
document_relationship,  
drawing_revision,  
drawing_revision_sequence,  
drawing_sheet_revision,  
effectivity,  
event_occurrence,  
executed_action,  
general_property,  
installation_location,  
installation_node,  
installation_route,  
installation_section,  
installation_section_end,  
installation_section_interface,  
installation_segment,  
interface,  
note_representation,  
notification,  
organization_relationship,  
organizational_project,  
path,
```

```

person_and_organization,
process_variable,
product,
product_concept,
product_concept_feature,
product_concept_feature_association,
product_concept_feature_category,
product_concept_feature_category_usage,
product_definition,
product_definition_formation,
product_definition_formation_relationship,
product_definition_relationship,
product_definition_substitute,
property_definition,
property_definition_relationship,
representation,
representation_item_relationship,
representation_relationship,
security_classification,
security_classification_level,
shape_aspect_relationship,
signal,
terminal,
versioned_action_request,
vertex);
END_TYPE; -- date_item

TYPE date_time_or_event_occurrence = SELECT
  (date_time_select,
  event_occurrence);
END_TYPE; -- date_time_or_event_occurrence

TYPE date_time_select = SELECT
  (date,
  local_time,
  date_and_time);
END_TYPE; -- date_time_select

TYPE day_in_month_number = INTEGER;
WHERE
  wr1: ((1 <= SELF) AND (SELF <= 31));
END_TYPE; -- day_in_month_number

TYPE defined_glyph_select = SELECT
  (externally_defined_character_glyph);
END_TYPE; -- defined_glyph_select

TYPE defined_symbol_select = SELECT
  (pre_defined_symbol,
  externally_defined_symbol);
END_TYPE; -- defined_symbol_select

TYPE derived_property_select = SELECT
  (property_definition,
  action_property);

```