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**Engineering data exchange format for use in industrial automation systems
engineering – Automation markup language –
Part 4: Logic**

**Format d'échange de données pour une utilisation dans l'ingénierie des
systèmes d'automatisation industrielle – Automation markup language –
Partie 4: Logique**



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**ENGINEERING DATA EXCHANGE FORMAT FOR USE
IN INDUSTRIAL AUTOMATION SYSTEMS ENGINEERING –
AUTOMATION MARKUP LANGUAGE –**

Part 4: Logic

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The text of this International Standard is based on the following documents:

CDV	Report on voting
65E/654/CDV	65E/692/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62714 series, published under the general title *Engineering data exchange format for use in industrial systems engineering – Automation Markup Language*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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This part specifies the general AML architecture, the modelling of engineering data, classes, instances, relations, references, hierarchies, basic AML libraries and extended AML concepts.

- IEC 62714-2: Role class libraries

This part specifies additional AML libraries.

- IEC 62714-3: Geometry and kinematics

This part specifies the modelling of geometry and kinematics information.

- IEC 62714-4: Logic

This part specifies the modelling and referencing of logic information.

Further parts may be added in the future in order to interconnect further data standards to AML.

Clause 5 gives an informative overview of this part of the standard.

Clause 6 gives a normative description of the considered logic models.

Clause 7 gives a normative description of the AML logic XML schema, with which logic models can be stored.

Clause 8 specifies the normative provisions to store the logic models in AML logic XML.

Clause 9 defines how to store meta information about the source tool directly into the AML logic XML document.

Clause 10 defines a logic related role class library and interface class library.

Subclause 10.4.2 gives a normative description regarding referencing logic information in AML logic XML documents.

Clause 12 gives a normative description regarding referencing interlocking information in AML logic XML documents.

Annex A provides examples for the storage of logic models in AML logic XML.

Annex B describes the referencing methods for logic information.

Annex C describes the referencing methods for interlocking information.

Annex D gives a normative XML representation of the libraries defined in this document.

Annex E gives a normative XML representation of the AML logic XML schema defined in this document.

ENGINEERING DATA EXCHANGE FORMAT FOR USE IN INDUSTRIAL AUTOMATION SYSTEMS ENGINEERING – Automation Markup Language –

Part 4: Logic

1 Scope

This part of IEC 62714 specifies the integration of logic information as part of an AML model for the data exchange in a heterogenous engineering tool landscape of production systems.

This document specifies three types of logic information: sequencing, behaviour, and interlocking information.

This document deals with the six following sequencing and behaviour logic models (covering the different phases of the engineering process of production systems) and how they are integrated in AML: Gantt chart, activity-on-node network, timing diagram, Sequential Function Chart (SFC), Function Block Diagram (FBD), and mathematical expression.

This document specifies how to model Gantt chart, activity-on-node network, and timing diagram and how they are stored in Intermediate Modelling Layer (IML).

NOTE 1 With this, it is possible to transform one logic model into another one. A forward transformation supports the information enrichment process and reduces or avoids a re-entry of information between the exchanging engineering tools.

NOTE 2 Mapping of other logic models, e.g. event-driven logic models like state charts, onto IML is possible.

This document specifies how interlocking information is modelled (as interlocking source and target groups) in AML. The interlocking logic model is stored in Function Block Diagram (FBD).

This document specifies the AML logic XML schema that stores the logic models by using IEC 61131-10.

This document specifies how to reference PLC programs stored in PLCopen XML documents.

This document does not define details of the data exchange procedure or implementation requirements for the import/export tools.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61131-3, *Programmable controllers – Part 3: Programming languages*

IEC 61131-10, *Programmable controllers – Part 10: PLC open XML exchange format*