



<AutomationML/>

**The Glue for Seamless
Automation Engineering**

**Application Recommendation Extension:
DRIVE-CLiQ for Automation Project
Configuration**

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Contact: www.automationml.org

Table of contents

| | |
|--|---|
| Table of contents | 3 |
| List of tables | 4 |
| 1 Introduction..... | 5 |
| 1.1 Basics..... | 5 |
| 1.2 References..... | 6 |
| 2 General notes regarding exchange of Automation Project Configuration data | 7 |
| 3 Modelling of Bus Types for Drive-CLiQ in Automation Project Configuration data with AutomationML | 8 |
| 3.1 Subnet..... | 8 |
| 3.2 Node..... | 8 |
| 3.3 CommunicationInterface | 8 |
| 3.4 CommunicationPort | 8 |

List of tables

| | |
|---|---|
| Table 1 – Overview of AutomationML parts..... | 5 |
|---|---|

1 Introduction

A very frequently occurring task within the planning process of production and automation systems is the exchange of automation project configuration information of automation system devices between ECAD and PLC systems. To avoid multiple engineering in the participating systems ECAD and PLC systems need an interface for sharing this information.

In case of beginning engineering in the ECAD tool certain rules must be observed to get the hardware information in the correct location in the PLC tool. In case of beginning engineering in the PLC tool non placed functions must be placed and operated in the ECAD tool.

The application recommendation "Automation Project Configuration" describes these workflows and the method of hardware configuration modelling using AutomationML and refers in several items to bus types. Because not all existing and upcoming bus types can be described in the application recommendation "Automation Project Configuration" the specific extensions of each bus type shall be described in a separate bus specific specification.

This application recommendation extension describes the specific extensions for the Drive-CLiQ Bus. This Drive CLiQ Bus describes the interconnection between a drive control unit and the related drive components. These can be drive modules, motors or additional components such as encoder or sensor modules.

1.1 Basics

The data exchange format AutomationML which is standardising in the IEC 62714 standard is a neutral, free, and XML-based data format. It has been developed in order to support the data exchange between engineering tools in a heterogeneous engineering tool landscape.

Due to the different aspects of AutomationML the IEC 62714 consists of different parts.

Table 1 – Overview of AutomationML parts

| Part / Document Identifier | Title | Description |
|---|--|--|
| Part 1 / WP Arch, V 2.0.0 | Architecture and general requirements | This part specifies the general AutomationML architecture, the modelling of the engineering data, classes, instances, relations, references, hierarchies, basic AutomationML libraries and extended AutomationML concepts. |
| Part 2 / WP Lib V 2.0.0 | Role class libraries | This part specifies additional AutomationML libraries. |
| Whitepaper / WP Comm V 1.0.0 | Communication | This Whitepaper describes the modelling of Communication mechanisms in AutomationML |
| Whitepaper / WP eClass V 1.0.0 | AutomationML and eCl@ss integration | This Whitepaper describes the integration of eCl@ss in AutomationML |
| Best Practice Recommendation / BPR MlingExp V 1.0.0 | Multilingual expressions in AutomationML | This Whitepaper describes the handling of different texts for different languages in AutomationML |
| Best Practice Recommendation / BPR RefDes V 1.0.0 | Modelling of Reference Designations | This Whitepaper describes the handling of reference designations following IEC 81346-1:2009-07 within AutomationML |

1.2 References

The following documents are referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Extensible Markup Language (XML) 1.0:2004, W3C Recommendation (available at <<http://www.w3.org/TR/2004/REC-xml-20040204/>>)

IEC 62424:2008, Representation of process control engineering - Requests in P&I diagrams and data exchange between P&ID tools and PCE-CAE tools

Whitepaper AutomationML Part 1 – AutomationML Architecture, November 2018

Whitepaper AutomationML Part 2 – AutomationML Role Libraries, October 2014

Whitepaper AutomationML – AutomationML Communication, September 2014

Whitepaper AutomationML – AutomationML and eCI@ss Integration, November 2017

Best Practice Recommendation Multilingual expressions in AutomationML, March 2017

Best Practice Recommendation Modelling of Reference Designations, September 2017

Application Recommendation Automation Project Configuration, April 2020

2 General notes regarding exchange of Automation Project Configuration data

The AutomationML export of Automation Project Configuration data is based on the application recommendation "Automation Project Configuration". This recommendation only describes extensions, additional definitions or not needed objects from AR APC related to the communication technology of the DRIVE-CLiQ bus. Extensions are realized by derivation from abstract base class extension defined by AR APC.

3 Modelling of Bus Types for Drive-CLiQ in Automation Project Configuration data with AutomationML

3.1 Subnet

A “**Subnet**” is not supported for this bus type.

3.2 Node

A “**Node**” is not supported for this bus type.

3.3 CommunicationInterface

A “**CommunicationInterface**” is defined in AR APC.

The attribute “Type” shall have the value “DRIVE-CLiQ”.

3.4 CommunicationPort

A “**CommunicationPort**” is defined in AR APC.