AS 61850.6—2005

Australian Standard™

Communication networks and systems in substations

Part 6: Configuration description language for communication in electrical substations related to IEDs

This Australian Standard was prepared by Committee EL-050, Power System Control and Communication. It was approved on behalf of the Council of Standards Australia on 15 August 2005.
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Australian Electrical and Electronic Manufacturers Association
Commerce Queensland
Energy Networks Association
Engineers Australia

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PREFACE

This Standard was prepared by the Standards Australia Committee EL-050, Power System Control and Communication.

The objective of this Standard is to provide users and manufacturers of substation automation equipment with a specification for a file format for describing communication related IED (Intelligent Electronic Device) configurations and IED parameters, communication system configurations, switchyard (function) structures, and the relations between them.

This Standard is identical with, and has been reproduced from IEC/TR 61850-6, Ed.1 (2004), *Communication networks and systems in substations – Part 6: Configuration description language for communication in electrical substations related to IEDs*.

This Standard is Part of *Communication networks and systems in substations*. The series consists of the following:

Part 1: Introduction and overview

Part 2: Glossary

Part 3: General requirements

Part 4: System and project management

Part 5: Communication requirements for functions and device models

Part 6: Configuration description language for communication in electrical substations related to IEDs (this Standard)

Part 7.1: Basic communication structure for substation and feeder equipment—Principles and models

Part 7.2: Basic communication structure for substation and feeder equipment—Abstract communication service interface (ACSI)

Part 7.3: Basic communication structure for substation and feeder equipment—Common data classes

Part 7.4: Basic communication structure for substation and feeder equipment—Compatible logical node classes and data classes

Part 8.1: Specific communication service mapping (SCSM)—Mappings to MMS (ISO/IEC 9506-1 and ISO/IEC 9506-2) and to ISO/IEC 8802-3

Part 9.1: Specific communication service mapping (SCSM)—Sampled values over serial unidirectional multidrop point to point link

Part 9.2: Specific communication service mapping (SCSM)—Sampled values over ISO/IEC 8802-3

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(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

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(c) A full point should be substituted for a comma when referring to a decimal marker.

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The terms ‘normative’ and ‘informative’ are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

CONTENTS

INTRODUCTION

This part of IEC 61850 specifies a description language for the configuration of electrical substation IEDs. This language is called Substation Configuration description Language (SCL). It is used to describe IED configurations and communication systems according to IEC 61850-5 and IEC 61850-7-x. It allows the formal description of the relations between the substation automation system and the substation (switchyard). At the application level, the switchyard topology itself and the relation of the switchyard structure to the SAS functions (logical nodes) configured on the IEDs can be described.

SCL allows the description of an IED configuration to be passed to a communication and application system engineering tool, and to pass back the whole system configuration description to the IED configuration tool in a compatible way. Its main purpose is to allow the interoperable exchange of communication system configuration data between an IED configuration tool and a system configuration tool from different manufacturers.

IEC 61850-8-x and IEC 61850-9-x, which concern the mapping of IEC 61850-7-x to specific communication stacks, may extend these definitions according to their need with additional parts, or just by restrictions on the way the values of objects have to be used.

NOTES

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Communication networks and systems in substations

1 Scope

This part of the IEC 61850 series specifies a file format for describing communication related IED (Intelligent Electronic Device) configurations and IED parameters, communication system configurations, switchyard (function) structures, and the relations between them. The main purpose of this format is to exchange IED capability descriptions, and SA system descriptions between IED engineering tools and the system engineering tool(s) of different manufacturers in a compatible way.

The defined language is called Substation Configuration description Language (SCL). The IED and communication system model in SCL is according to IEC 61850-5 and IEC 61850-7-x. SCSM specific extensions or usage rules may be required in the appropriate parts.

The configuration language is based on the Extensible Markup Language (XML) version 1.0.

This standard does not specify individual implementations or products using the language, nor does it constrain the implementation of entities and interfaces within a computer system. This part of the standard does not specify the download format of configuration data to an IED, although it could be used for part of the configuration data.

2 Normative references

The following referenced documents are indispensable for the application 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.

References to international standards that are struck through in this clause are replaced by references to Australian or Australian/New Zealand Standards that are listed immediately thereafter and identified by shading. Any Australian or Australian/New Zealand Standard that is identical to the International Standard it replaces is identified as such.

IEC 61346-1:1996, *Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations – Part 1: Basic rules*

IEC 61346-2:2000, *Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations – Part 2: Classification of objects and codes for classes*

~~IEC 61850-2, *Communication networks and systems in substations – Part 2: Glossary*~~

AS 61850.2, *Communication networks and systems in substations,* Part 2: *Glossary* (identical to IEC 61850-2)

~~IEC 61850-5: *Communication networks and systems in substations – Part 5: Communication requirements for functions and device models*~~

AS 61850.5, *Communication networks and systems in substations,* Part 5: *Communication requirements for functions and device models* (identical to IEC 61850-5)