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Australian Standard™

Communication networks and systems in substations
Part 9.2: Specific communication service mapping (SCSM)—Sampled values over ISO/IEC 8802-3

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Commerce Queensland
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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 definition of the Specific Communication Service Mapping (SCSM) for the transmission of sampled values according to the abstract specification in IEC 61850-7-2.

This Standard is identical with, and has been reproduced from IEC 61850-9-2, Ed.1 (2004), *Communication networks and systems in substations – Part 9-2: Specific Communication Service Mapping (SCSM) – Sampled values over ISO/IEC 8802-3*.

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

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 (this Standard)

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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.

(b) In the source text ‘IEC 61850-9-2’ should read ‘AS 61850.9.2’.

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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.

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INTRODUCTION

This part of IEC 61850 defines the SCSM for sampled values over ISO/IEC 8802-3. The intent of this SCSM definition is to supplement IEC 61850-9-1 to include the complete mapping of the sampled value model.

This part of IEC 61850 applies to electronic current and voltage transformers (ECT and EVT having a digital output), merging units, and intelligent electronic devices for example protection units, bay controllers and meters.

Process bus communication structures can be arranged in different ways as described in Annex B and IEC 61850-1. In addition to the transmission of sampled value data sets, which are directly connected to ISO/IEC 8802-3, a selection of IEC 61850-8-1 services are necessary to support the access to the SV control block. References to the relevant IEC 61850-8-1 services are provided in this SCSM. For less complex devices (for example merging units) the sampled value control block can be pre-configured, in which case there is no need to implement IEC 61850-8-1 services based on the MMS-Stack.

This document defines the mapping of sampled value class model (IEC 61850-7-2) to ISO/IEC 8802-3. This SCSM, in combination with IEC 61850-7 and IEC 61850-6, allows interoperability between devices from different manufacturers.

This standard does not specify individual implementations or products, nor does it constrain the implementation of entities and interfaces within a computer system. This standard specifies the externally visible functionality of implementations together with conformance requirements for such functionalities.

Reading Guide

- This document is an extended mapping specification of IEC 61850-9-1 and IEC 61850-8-1 to cover sampled value transmission over ISO/IEC 8802-3.
- This document can best be understood if the reader is thoroughly familiar with IEC 61850-7-1, IEC 61850-7-2, IEC 61850-7-3 and IEC 61850-7-4.
- The ACSI services defined in IEC 61850-7-2 are not explained in this part of the standard.

NOTES

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Communication networks and systems in substations Part 9.2: Specific communication service mapping (SCSM)—Sampled values over ISO/IEC 8802-3

1 Scope

This part of IEC 61850 defines the Specific Communication Service Mapping (SCSM) for the transmission of sampled values according to the abstract specification in IEC 61850-7-2. The mapping is that of the abstract model on a mixed stack using direct access to an ISO/IEC 8802-3 link for the transmission of the samples in combination with IEC 61850-8-1.

Each SCSM consists of three parts:

– a specification of the communication stack being used,

– the mapping of the abstract specifications of IEC 61850-7 on the real elements of the stack being used, and

– the implementation specification of functionality, that is not covered by the stack being used.

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.

IEC 60874-10-1, *Connectors for optical fibres and cables – Part 10-1: Detail specification for fibre optic connector type BFOC/2,5 terminated to multimode fibre type A1*

IEC 60874-10-2, *Connectors for optical fibres and cables – Part 10-2: Detail specification for fibre optic connector type BFOC/2,5 terminated to single-mode fibre type B1*

IEC 60874-10-3, *Connectors for optical fibres and cables – Part 10-3: Detail specification for fibre optic adaptor type BFOC/2,5 for single and multimode fibre*

~~IEC 61850-7-1, *Communication networks and systems in substations – Part 7-1: Basic communication structure for substation and feeder equipment – Principles and models*~~

AS/NZS 61850.7.1, *Communication networks and systems in substations,* Part 7.1: *Basic communication structure for substation and feeder equipment—Principles and models* (identical to IEC 61850-7-1)

~~IEC 61850-7-2: *Communication networks and systems in substations – Part 7-2: Basic communication structure for substation and feeder equipment – Abstract communication service interface (ACSI)*~~

AS 61850.7.2, *Communication networks and systems in substations,* Part 7.2: *Basic communication structure for substation and feeder equipment—Abstract communication service interface (ACSI)* (identical to IEC 61850-7-2)

