MALAYSIAN STANDARD

MS 61850-8-1:2014

Communication networks and systems for power utility automation - Part 8-1: Specific communication service mapping (SCSM) - Mappings to MMS (ISO 9506-1 and ISO 9506-2) and to ISO/IEC 8802-3 (IEC 61850-8-1:2011, MOD)

ICS: 33.200

Descriptors: communication networks, systems, power utility automation, specific communication service mapping (SCSM), mapping, MMS

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Committee representation

The Industry Standards Committee on Generation, Transmission and Distribution of Energy (ISC E) under whose authority this Malaysian Standard was adopted, comprises representatives from the following organisations:

Association of Consulting Engineers Malaysia
Atomic Energy Licensing Board
Department of Standards Malaysia
Federation of Malaysian Manufacturers
Jabatan Kerja Raya Malaysia
Malaysian Association of Standards Users
Malaysian Cable Manufacturers Association
Malaysian Electrical Appliances and Distributors Association
Malaysian Green Technology Corporation
Ministry of Domestic Trade, Co-operatives and Consumerism
Ministry of International Trade and Industry
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SIRIM QAS International Sdn Bhd
Suruhanjaya Komunikasi dan Multimedia Malaysia
Suruhanjaya Tenaga
Tenaga Nasional Berhad
The Electrical and Electronics Association of Malaysia
The Institution of Engineers, Malaysia
Universiti Teknologi Malaysia

The Technical Committee on High Voltage Power Transmission which supervised the adoption of the IEC Standard as Malaysian Standard consists of representatives from the following organisations:

Federation of Malaysian Manufacturers
Malaysian National Committee of CIGRE
SIRIM Berhad (Secretariat)
Suruhanjaya Tenaga
Syarikat SESCO Berhad
Tenaga Nasional Berhad (Bahagian Penghantaran)
The Electrical and Electronics Association of Malaysia
The Institution of Engineers, Malaysia
Universiti Teknologi Malaysia

The Working Group on Power Systems Management and Associated Information Exchange which recommended the adoption of the IEC Standard as Malaysian Standard consists of representatives from the following organisations:

ABB Malaysia Sdn Bhd
Petroliam Nasional Berhad
Prestigious Discovery Sdn Bhd
PSI InControl Sdn Bhd
SIRIM Berhad (Secretariat)
Suruhanjaya Tenaga
Tenaga Nasional Berhad (Bahagian Penghantaran)
The Institution of Engineers, Malaysia
TNB Research Sdn Bhd
Universiti Tenaga Nasional

National foreword

The adoption of the IEC Standard as a Malaysian Standard was recommended by the Working Group on Power Systems Management and Associated Information Exchange under the authority of the Industry Standards Committee on Generation, Transmission and Distribution of Energy.

This Malaysian Standard is a modified adoption of IEC 61850-8-1:2011, *Communication networks and systems for power utility automation - Part 8-1: Specific communication service mapping (SCSM) - Mappings to MMS (ISO 9506-1 and ISO 9506-2) and to ISO/IEC 8802-3*, published by the International Electrotechnical Commission (IEC) with the following modifications:

a) in the source text, "this International Standard" should read "this Malaysian Standard";

b) the comma which is used as a decimal sign (if any), to read as a point;

c) the basis IEC 61850-8-1 is printed in English and French version. However, only the English version is retained for this Malaysian Standard; and

d)	**Clause/Subclause**	**Modifications**
2	Normative reference	Replace “commincation” with “communication” at IEC 61850-6

Explanation: Spelling error on the title of IEC 61850-6.

4	Abbreviation	Add abbreviation for FCDA i.e. Functionally Constrained Data Attribute Add “for Testing” at the meaning of PIXIT Delete the second abbreviation for “SNTP” Add abbreviation as “Substituted Value” for SV

Explanation: FDCA is stated in subclause 13.2 and FRSM is stated in subclauses 8.1.3.4.6.4 and 8.1.3.4.6.5. The correct abbreviation for PIXIT is “Protocol Implementation Extra Information for Testing”. Delete the second abbreviation for “SNTP” as it has been typed twice (duplication). SV can be used as “Sampled Value” and “Substituted Value”.

7.2	Logical device (LD)	Replace “LLNO” with “LLN0” at EXAMPLE
7.3.3	DataObjects	To replace “contruted” with “constructed”
8.1.3.2.1	General	To replace “mappes” with “maps”
8.1.3.4.1	MMPM Rejects	To replace “PICs/PIXIT” with “PICS/PIXIT”
8.1.3.4.2.4	GetNameList	To remove one of the “a”. It should be “..return a MMS”

National foreword (*continued)*

8.1.3.4.3.2	Read	Add symbol " at "…errorCode="object-access-denied"
8.1.3.4.3.6	DeleteNamedVariableList	To remove one of the "a". It should be "..return a MMS" To replace "MMSDeleteable=TRUE" with "MMSDeletable=TRUE"
8.1.3.4.4.1	Read	Replace "VGET" with "V-GET" Replace "DataAccessError="="object-non-existent" with "DataAccessError="object-non-existent"
8.1.3.4.4.2	Write	Replace "VPUT" with "V-PUT" Replace "the appropriate ListOfVariable Variable Specification or Variable List Name Specified" with "the appropriate ListOfVariable, VariableSpecification or VariableListNameSpecified"
8.1.3.4.5.1	ReadJournal	To remove one of the "a". It should be "..return a MMS"
8.1.3.4.6.1	FileDirectory	To remove one of the "a". It should be "..return a MMS"
8.1.3.8	EntryTime	To replace "offets" with "offset"
8.1.3.9	TriggerConditions	To replace "PACKED_LIST" with "PACKED LIST"
10.2.2.1	Associate	Replace "The ACSI associate response service" with "The ASCI associate response+ service", at the second sentence Replace "The ACSI associate response service" with "The ASCI associate response- service", at the third sentence
13.2	GenDataAttributeClass	Replace "between an FCD and a FCDA is" with "between a FCD and a FCDA is"
13.3	GetSubDataAttributeClass	Replace "between an FCD and a FCDA is" with "between a FCD and a FCDA is"

National foreword (*continued)*

14.3.1	GetDataSetValues	Replace “The Response+ shall a listOfAccessResults” with “The Response+ shall return a listOfAccessResult”
17.1.2	Buffered report control block Owner	Replace “ip adress” or “ip address” with “IP address”
	ISO 9506 information type constraints	Replace “the LCD LogEna value” with “the LCB’s LogEna value”
17.3.3.4. E.2	The MMS TimeOfDay	To replace “offets” with “offset” “Standard time sources” should be as a subtitle

Explanation: Typo error.

4.3.3	CreateDataSet	Replace “as defined in 8.1.2.4.3.4” with “as defined in 8.1.3.4.3.4”

Explanation: Incorrect subclause reference.

9.3	Server class service GetServerDirectory FILE class	Replace “as specified in Table 34. The MMS” with “as specified in Table 35”

Explanation: Wrong table reference.

Table 54	Mapping of CDC UTS to MMS type definition	Replace “See 17.1.2” with “See 8.1.2.4”

Explanation: Incorrect subclause reference.

16.1	Setting group control block definition	Replace “SP” with “SG” Reference to Table 60 instead of Table 61, i.e. regarding SFGCB

Explanation: Incorrect Functional Constraint FC, as the subclause is related with Setting Group. Setting Group functional constraint is “SG”. Wrong table reference at fourth sentence.

National foreword (*continued)*

17.3.4.2	GetLCBValues	Replace “class attributes (see 5).” with “class attributes (see Figure 5).”

Explanation: Wrong reference as to be consistent with subclause 17.3.4.4 GetLogStatusValues.

18.1.2.5.2	Mapping of the parameters of the GOOSE service primitive goID	Replace “65 octets” with “129 octets” Replace “specified in 8.1.3.6” to “specified in 8.1.3.7”

Explanation: To be consistent with Tables 42, 43 of IEC 61850-8-1 and MS IEC 61850-7-2. The correct subclause is 8.1.3.7 as it is refer to TimeStamp.

23.1	File transfer model	Replace “Table 100 for instance” with “Table 102 for instance”

Explanation: Appropriate table as reference related to Service Error.

24.3.1 24.3.2 Annex A	General Logical device Application protocol specification for GOOSE and GSE management	Replace “PICS” with “PICs”
Annex A	Application protocol specification for GOOSE and GSE management	Replace “size defined in 8.1.3.6” with “sized defined in 8.1.3.7”

Explanation: Incorrect term used for “PICs”. Wrong reference for TimeStamp, which refer to subclause 8.1.3.7.

8.1.3.8 Annex E	EntryTime	Replace “The MMS TimeOfDay epoch began at 0 hours on 1 January 1984 (MJD 40 587)” with “The MMS TimeOfDay epoch began at 0 hours on 1 January 1984 (MJD 40 700)”

Explanation: MMS TimeOfDay epoch should be equal to MJD 45 700 as stated in Table E.2.

e) reference to International Standards should be replaced by corresponding Malaysian Standards as follows:

National foreword (*concluded)*

Referenced International Standards	Corresponding Malaysian Standards
IEC 61850-2, *Communication networks and systems in substations - Part 2: Glossary*	MS IEC/TS 61850-2, *Communication networks and systems in substations - Part 2: Glossary*
IEC 61850-7-1, *Communication networks and systems for power utility automation - Part 7-1: Basic communication structure - Part 7-1: Principles and models*	MS 61850-7-1, *Communication networks and systems for power utility automation - Part 7-1: Basic communication structure - Part 7-1: Principles and models*
IEC 61850-7-2, *Communication networks and systems for power utility automation - Part 7-2: Basic communication structure - Abstract communication service interface (ACSI)*	MS 61850-7-2, *Communication networks and systems for power utility automation - Part 7-2: Basic communication structure - Abstract communication service interface (ACSI)*
IEC 61850-7-3, *Communication networks and systems for power utility automation - Part 7-3: Basic communication structure - Common data classes*	MS 61850-7-3, *Communication networks and systems for power utility automation - Part 7-3: Basic communication structure - Common data classes*
IEC 61850-7-4, *Communication networks and systems for power utility automation - Part 7-4: Basic communication structure - Compatible logical node classes and data object classes*	MS 61850-7-4, *Communication networks and systems for power utility automation - Part 7-4: Basic communication structure - Compatible logical node classes and data object classes*

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NOTE. MOD on the front cover indicates a modified standard i.e. a standard adapted from an International Standard with permitted technical deviations, which are clearly identified and explained. The changes in structure are permitted provided that the altered structure permits easy comparison of the content of the two standards. Modified standards also include the changes permitted under identical correspondence.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

Part 8-1: Specific communication service mapping (SCSM) – Mappings to MMS (ISO 9506-1 and ISO 9506-2) and to ISO/IEC 8802-3

FOREWORD

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International Standard IEC 61850-8-1 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

This second edition cancels and replaces the first edition, published in 2004, and constitutes a technical revision.

The main changes with respect to the previous edition are listed below:

– the support of gigabit Ethernet,
– the link layer redundancy,
– the extension of the length of the object reference,
– the extension of the reason for inclusion type for comprehensive logging,
– the mapping of the tracking services,

– a second mapping of the objectReference when used in the tracking services, or as linking,
– the extension of the AdditionalCause enumeration,
– the simulation of GOOSE telegram,
– the so-called fixed-length encoded GOOSE,
– the removal of the SCL Control Block,
– the mappings of ACSI service error codes and ISO 9506 error codes have changed (see 8.1.3.4). One change that should be noted is the change in usage of object-undefined. The object-undefined code has been replaced by object-non-existent in many responses.

The text of this standard is based on the following documents:

FDIS	Report on voting
57/1109/FDIS	57/1127/RVD

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

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

A list of all the parts in the IEC 61850 series, under the general title *Communication networks and systems for power utility automation*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.