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BSI Standards Publication

Communication networks and systems for power utility automation

Part 90–8: Object model for E-mobility

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National foreword

This Published Document is the UK implementation of IEC/TR 61850-90-8:2016.

The UK participation in its preparation was entrusted to Technical Committee PEL/57, Power systems management and associated information exchange.

A list of organizations represented on this committee can be obtained on request to its secretary.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

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FOREWORD

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IEC TR 61850-90-8, which is a technical report, has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
57/1603/DTR	57/1651/RVC

Full information on the voting for the approval of this technical report 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 parts in the IEC 61850 series, published under the general title *Communication networks and systems for power utility automation*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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- withdrawn,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.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This part of IEC 61850-90, which is a technical report, describes how current standardization for Electric Road Vehicles (EV) and the Vehicle-to-Grid Communication Interface can be linked to IEC 61850-7-420, which deals with Distributed Energy Resources (DER). This technical report provides necessary background information and proposes an object model for E-Mobility in order to establish an EV plugged into the power grid as DER according to the principles of IEC 61850-7-420. The basic information modeling in IEC 61850 and IEC 61850-7-420 already covers a lot of needs for the E-Mobility domain. Missing parts can be modeled as new logical nodes and data objects, which this technical report defines.

NOTE Editorial Notes on this technical report are summarized in Annex G.

COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

Part 90-8: Object model for E-mobility

1 Scope

This part of IEC 61850-90, which is a technical report, shows how IEC 61850-7-420 can be used to model the essential parts of the E-Mobility standards related to Electric Vehicles and Electric Vehicle Supply Equipments (IEC 62196, IEC 61851, IEC 15118) and the Power system (IEC 61850-7-420), in order to secure a high level of safety and interoperability.

The namespace of this document is:

- “(TR) IEC 61850-90-8:2015”

The name space "IEC 61850-90-8" is considered as "Transitional" since the model is expected to be included in the next edition of IEC 61850-7-420 [1] . Potential extensions/modifications may happen if/when the model is given International Standard status. The most optimal backward compatibility with the original content will be strived for during this move.

In accordance with the status of the ISO 15118 series and systems determined in IEC 61851-23 and -24, this technical report focuses on EV charging processes only. Discharging processes in order to support grid services are out of scope, but will be adopted when available in future versions of ISO 15118-2 and IEC 61851-1, -23 and -24.

2 Normative references

The following documents, in whole or in part, are normatively 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.

IEC 61850-7-4:2010, *Communication networks and systems for power utility automation – Part 7-4: Basic communication structure – Compatible logical node classes and data object classes*

IEC 61850-7-420:2009, *Communication networks and systems for power utility automation – Part 7-420: Basic communication structure – Distributed energy resources logical nodes*

IEC 61851-1:2010, *Electric vehicle conductive charging system – Part 1: General requirements*

IEC 61851-21-1:−, *Electric vehicle conductive charging system – Part 21-1: Electric vehicle onboard charger EMC requirements for conductive connection to a.c./d.c. supply*[1]

IEC 61851-21-2:−, *Electric vehicle conductive charging system – Part 21-2: EMC requirements for OFF board electric vehicle charging systems*[1]

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1 To be published.