

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Bi-directional grid-connected power converters –  
Part 2: Interface of GCPC and distributed energy resources**

**Convertisseurs de puissance connectés aux réseaux bidirectionnels –  
Partie 2: Interface du GCPC avec les ressources énergétiques réparties**



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IEC 62909-2

Edition 1.0 2019-03

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ICS 29.200

ISBN 978-2-8322-6613-7

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## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	7
3 Terms and definitions .....	7
4 GCPC general specifications .....	11
4.1 General.....	11
4.2 Description of GCPC and its components.....	11
4.3 Operating modes .....	11
4.4 Interfaces with distributed energy resources .....	11
4.101 Specific requirements for earth fault detection on DC-port interfaces .....	12
5 Performance requirements.....	12
6 Hazard protection requirements.....	12
7 Test requirements.....	12
8 Information and marking requirements.....	12
101 Interface requirements for EV section .....	13
101.1 General system requirement and interface .....	13
101.2 Protection against electric shock.....	13
101.3 Connection between the power supply and the EV .....	13
101.4 EV coupler requirements.....	13
101.5 Charging cable assembly requirements.....	13
101.6 Specific requirements for GCPC including EV section .....	13
101.7 Communication .....	13
101.8 Isolation.....	14
101.8.1 General .....	14
101.8.2 GCPC of system A.....	14
101.8.3 GCPC of system B.....	14
101.8.4 GCPC of system C.....	14
101.9 Connection/disconnection .....	15
101.10 Self-start up .....	16
101.10.1 General .....	16
101.10.2 EV section of system A.....	16
101.11 Test requirements and procedures for connection.....	19
101.12 EV section requirements .....	19
102 Interface requirements for BS section .....	19
102.1 General.....	19
102.2 System configuration .....	19
102.3 Voltage and current requirements .....	20
102.3.1 General .....	20
102.3.2 Location for the information for selection .....	20
102.3.3 Voltage and current ranges.....	20
102.4 Requirements of the control port.....	21
102.5 Functional safety requirements of the control port.....	21
102.6 Installation .....	21
103 Interface requirements for PV section.....	21
103.1 Protection against arc fault .....	21

Bibliography..... 23

Figure 101 – GCPC with multiple earth fault detection circuits ..... 12

Figure 102 – GCPC with EV section..... 13

Figure 103 – GCPC with an isolated DC/DC converter in its EV section ..... 14

Figure 104 – GCPC with a non-isolated DC/DC converter in its EV section ..... 15

Figure 105 – Active EV section of GCPC with a switch at DC-connection interface side ..... 15

Figure 106 – Inactive EV section..... 16

Figure 107 – Interface circuit for charging/discharging control of system A station ..... 18

Figure 108 – An example of GCPC containing a battery system with discrete DC/DC converter ..... 19

Figure 109 – An example of GCPC containing a battery system with an integrated dc/dc converter ..... 20

Figure 110 – External AFD..... 22

Figure 111 – Integrated AFD..... 22

Table 101 – Alphabetical list of terms ..... 8

Table 102 – Parameters and values for interface circuit in Figure 107..... 17

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**BI-DIRECTIONAL GRID-CONNECTED POWER CONVERTERS –****Part 2: Interface of GCPC and distributed energy resources**

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This International Standard is to be used in conjunction with IEC 62909-1:2017.

The clauses of particular requirements in this document supplement or modify the corresponding clauses in IEC 62909-1:2017. Where the text of subsequent clauses indicates an "addition" to or a "replacement" of the relevant requirement, test specification or explanation of IEC 62909-1:2017, these changes are made to the relevant text of IEC 62909-1:2017. Where no change is necessary and the clause is applicable, the words "The provisions of IEC 62909-1:2017, Clause XX shall apply" are used. Additional clauses, tables, figures and notes which are not included in IEC 62909-1:2017, are numbered starting from 101.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
22E/196/FDIS	22E/198/RVD

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

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

A list of all parts in the IEC 62909 series, published under the general title *Bi-directional grid-connected power converters*, can be found on the IEC website.

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

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

## INTRODUCTION

In order to optimize power consumption, for example, within the nanogrid of a home, electricity generation should be optimally combined with rechargeable energy storage. This optimization is accomplished, in part, by providing an efficient transfer between DC and AC electricity to accommodate storage batteries. The IEC 62909 series describes a bi-directional grid-connected power converter (GCPC) which efficiently integrates sources of power generation with energy storage.

IEC 62909-1 defines common general requirements, independent from the special characteristics of individual applications. This document defines the additional requirements necessary for interfacing particular types of distributed energy resources to a GCPC.

## **BI-DIRECTIONAL GRID-CONNECTED POWER CONVERTERS –**

### **Part 2: Interface of GCPC and distributed energy resources**

#### **1 Scope**

This part of IEC 62909 specifies GCPC interface requirements for particular distributed energy resources, namely electric vehicle (EV), battery, and photovoltaic (PV) systems. These requirements are in addition to the general requirements given in IEC 62909-1.

#### **2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60730-1:2013, *Automatic electrical controls – Part 1: General requirements*  
IEC 60730-1:2013/AMD1:2015

IEC 61508 (all parts), *Functional safety of electrical/electronic/programmable electronic safety-related systems*

IEC 61851-23:2014, *Electric vehicle conductive charging system – Part 23: DC electric vehicle charging station*

IEC 62909-1:2017, *Bi-directional grid-connected power converters – Part 1: General requirements*

#### **3 Terms and definitions**

For the purposes of this document, the terms and definitions given in IEC 62909-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

Table 101 provides an alphabetical cross-reference listing of terms.