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BSI Standards Publication

Distributed energy resources connection with the grid

Part 41: Requirements for frequency measurement used to control distributed energy resources (DER) and loads

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee GEL/8, Systems Aspects for Electrical Energy Supply.

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

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DISTRIBUTED ENERGY RESOURCES CONNECTION WITH THE GRID –

Part 41: Requirements for frequency measurement used to control distributed energy resources (DER) and loads

FOREWORD

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IEC TS 62786-41 has been prepared by IEC technical committee 8: System aspects of electrical energy supply. It is a Technical Specification.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
8/1649/DTS	8/1661/RVDTS

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

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

It has been developed as part of measurement series together with IEC TS 62786-42 on voltage measurement.

A list of all parts in the IEC 62786 series, published under the general title *Distributed energy resources connection with the grid*, 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 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- withdrawn,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.

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DISTRIBUTED ENERGY RESOURCES CONNECTION WITH THE GRID –

Part 41: Requirements for frequency measurement used to control distributed energy resources (DER) and loads

1 Scope

This part of IEC 62786, which is a Technical Specification, defines minimum requirements for frequency and rate of change of frequency measurements used to control distributed energy resources (DER) and loads connected to electrical power networks.

This document specifies the characteristics of frequency and rate of change of frequency measurements to evaluate their performances. It describes the main use cases of frequency and rate of change of frequency measurements, with associated level of performances. It describes the principle of functional tests to evaluate the specified characteristics and defines the influencing factors that affect these performances, under steady state or dynamic conditions.

This document defines the functional requirements applicable to frequency and rate of change of frequency measurements which can be inside or outside the DER or loads. In the case of DER, this document provides requirements additional to those which are defined in the other parts of IEC 62786 or standards produced by the relevant IEC technical committees (e.g. TC 82 for photovoltaic systems, TC 88 for wind systems, TC 120 for electrical energy storage systems (EES)).

This document is applicable to DER and loads regardless of the voltage level of the point of connection to the grid.

This document does not specify hardware, software or a method for frequency or rate of change of frequency measurement. It does not specify tests linked to environmental conditions associated with hardware devices (climatic, electromagnetic disturbances above 3 kHz, mechanical stress, etc.).

Frequency and rate of change of frequency measurements associated with time stamping are not in the scope of this document. These measurements are already covered by IEC 60255-118-1 [1][1].

Frequency and rate of change of frequency measurements associated with protection functions or protection relays are not in the scope of this document. These requirements are already covered by IEC 60255-181 [2].

NOTE As defined in the first paragraph, this document is focused on frequency and rate of change of frequency measurements used to control DER and loads. But the technical requirements defined in this document, with the list of declared characteristics and their associated functional tests, can also be applicable for other uses where "fast" frequency and ROCOF measurement is required (small or large generators of power substations connected to transmission or distribution grids, power meter devices, power quality instruments, etc.).

2 Normative references

There are no normative references in this document.

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1 Numbers in square brackets refer to the Bibliography.