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Requirements for the connection of micro-generators in parallel with public low-voltage distribution networks

Requirements for the connection of micro-generators in parallel with public low-voltage distribution networks

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA	NATIONAL FOREWORD
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50438

December 2007

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English version

Requirements for the connection of micro-generators in parallel with public low-voltage distribution networks

Prescriptions pour le raccordement de micro-générateurs en parallèle avec les réseaux publics de distribution à basse tension

Anforderungen für den Anschluss von Kleinst-Generatoren an das öffentliche Niederspannungsnetz

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Standard was prepared by WG 2 of the Technical Committee CENELEC TC 8X, System aspects for electrical energy supply.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50438 on 2007-09-11.

This European Standard supersedes CWA 14642:2003.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2008-10-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-10-01

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1 Scope

This European Standard specifies technical requirements for connection and operation of fixed installed micro-generators and their protection devices, irrespective of the micro-generators primary source of energy, in parallel with public low-voltage distribution networks, where micro-generation refers to equipment rated up to and including 16 A per phase, single or multi phase 230/400 V or multi phase 230 V (phase-to-phase voltage).

This European Standard is intended for installation mainly in the domestic market.

In some countries this document may be applied to generators with higher ratings used mostly in domestic and small commercial installations. These countries are listed in Annex E.

Whenever the scope is extended to equipment rated greater than 16 A per phase additional standards could be applicable.

Inform and Fit is the recommended procedure for installation of micro-generation except in those countries where legislation precludes this approach e.g. where it is mandatory for the DNO to give prior permission for the connection.

Table 1 – Countries allowing or not allowing Inform and Fit

Inform and Fit				Inform and Fit			
Code	**Country**	**Allowed**	**Not allowed**	**Code**	**Country**	**Allowed**	**Not allowed**
AT	Austria		x	IS	Iceland	x	
BE	Belgium	x		IT	Italy		x
CH	Switzerland		x	LT	Lithuania	x	
CY	Cyprus	x		LU	Luxembourg	x	
CZ	Czech Republic		x	LV	Latvia	x	
DE	Germany		x	MT	Malta	x	
DK	Denmark	x		NL	Netherlands	x	
EE	Estonia	x		NO	Norway		x
ES	Spain		x	PL	Poland		x
FI	Finland		x	PT	Portugal	x	
FR	France		x	RO	Romania	x	
GB	United Kingdom	x		SI	Slovenia	x	
GR	Greece	x		SE	Sweden		x
HU	Hungary	x		SK	Slovakia	x	
IE	Ireland	x					

The electrical interface is the principal focus and this includes the method of connection, the settings and protection requirements for connection, the operation of the electrical interface under normal conditions, emergency shutdown, distribution network-independent operation, start-up and distribution network synchronisation.

The provisions of this European Standard are not intended to ensure by themselves the safety of DNO personnel or their contracted parties.

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The intention of this European Standard is to ensure that the micro-generator satisfies appropriate provisions for

- the requirements of the DNO e.g. the distribution network protection,
- information to electricians working inside the house,
- quality of supply.

The following aspects are included in the scope:

- all micro-generation technologies are applicable.

The following aspects are excluded from the scope:

- multiple units that for one installation, in aggregate, exceed 16 A;
- issues of revenue rebalancing, metering or other commercial matters;
- generators never to be connected to the supply networks;
- requirements related to the primary energy source e.g. matters related to gas fired generator units;
- intended network independent operation.

NOTE If independent operation is intended, generally preliminary agreement of the DNO shall be obtained, however this is out of the scope of this document. Specific additional requirements most likely could be applicable.

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.

EN 50110 series		Operation of electrical installations
EN 50160		Voltage characteristics of electricity supplied by public distribution systems
EN 60255-6		Electrical relays – Part 6 : Measuring relays and protection equipment (IEC 60255-6)
EN 60664-1		Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests (IEC 60664-1)
EN 61000-3-2		Electromagnetic compatibility (EMC) – Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase) (IEC 61000-3-2)
EN 61000-3-3		Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection (IEC 61000-3-3)
EN 61000-6-1		Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1, mod.)
EN 61000-6-3 + A11	2001 2004	Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3:1996, mod.)
HD 384 / HD 60364 series		Electrical installations of buildings (IEC 60364 series, mod.)
IEC 60364-5-55		Electrical installations of buildings – Part 5-55: Selection and erection of electrical equipment - Other equipment

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