SVENSK STANDARD SS-EN 62116

Fastställd	Utgåva	Sida	Ansvarig kommitté
2011-12-07	1	1 (1+22)	SEK TK 82

Solcellsanläggningar – Provning av anordningar för förhindrande av ödrift

Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters

Som svensk standard gäller europastandarden EN 62116:2011. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62116:2011.

Nationellt förord

Europastandarden EN 62116:2011

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 62116, First edition, 2008 - Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters**

utarbetad inom International Electrotechnical Commission, IEC.

Gemensamma europeiska ändringar (common modifications) är markerade med rött och i de flesta fall dessutom med ett lodrätt streck i marginalen.

ICS 27.160

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

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SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62116

March 2011

ICS 27.160

English version

Test procedure of islanding prevention measures for utility-interconnected photovoltaic inverters

(IEC 62116:2008, modified)

Procédure d'essai des mesures de prévention contre l'ilotage pour onduleurs photovoltaïques interconnectés au réseau public
(CEI 62116:2008, modifiée)

Prüfverfahren für Maßnahmen zur Verhinderung der Inselbildung für Versorgungsunternehmen in Wechselwirkung mit Photovoltaik-Wechselrichtern
(IEC 62116:2008, modifiziert)

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 62116:2011 E

SEK Svensk Elstandard

Foreword

This European Standard consists of the text of the International Standard IEC 62116:2008 together with common modifications prepared by the Technical Committee CENELEC TC 82, Solar photovoltaic energy systems.

The text of the draft was submitted to the formal vote (see BT decision D136/C054) and was accepted by CENELEC as EN 62116 on 2011-01-02.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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)	2012-01-02
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-01-02

This European Standard consists of IEC 62116:2008 with some common modifications that have been developed within CLC/TC 82 and are identified in red and/or by a vertical line in the left margin of the text.

The scope of the common modifications is to add more detailed information on the application of the test procedure of islanding prevention measures.

Contents

Introduction

Islanding is a condition in which a portion of an electric power grid, containing both load and generation, is isolated from the remainder of the electric power grid. This situation is one with which electric power providers (utilities) must regularly contend. When an island is created purposely by the controlling utility — to isolate large sections of the utility grid, for example — it is called an intentional island. Conversely, an unintentional island can be created when a segment of the utility grid containing only customer-owned generation and load is isolated from the utility control.

Normally, the customer-owned generation is required to sense the absence of utility-controlled generation and cease energizing the grid. However, when the generation and load within the segment are well balanced prior to the isolation event, the utility is providing little power to the grid segment, thus making it difficult to detect when the isolation occurs. Damage can occur to customer equipment if the generation in the island, no longer under utility control, operates outside of normal voltage and frequency conditions. Customer and utility equipment can be damaged if the main grid recloses into the island out of synchronization. Energized lines within the island present a shock hazard to unsuspecting utility line-workers and network users who think the lines and their equipment are dead.

The PV Industry has pioneered the development of islanding detection and prevention measures. To satisfy the concerns of electric power providers, commercially-available utility-interconnected PV inverters have implemented a variety of islanding detection and prevention (also called anti-islanding) techniques. The industry has also developed a test procedure to demonstrate the efficiency of these anti-islanding techniques; that procedure is the subject of this document.

This standard provides a consensus test procedure to evaluate the efficiency of islanding prevention measures used by the power conditioner of utility-interconnected PV systems. Note that while this document specifically addresses inverters for photovoltaic systems, with some modifications the setup and procedure may also be used to evaluate inverters used with other generation sources or to evaluate separate anti-islanding devices intended for use in conjunction with PV inverters or other generation sources acting as or supplementing the anti-islanding feature of those sources.

Inverters and other devices meeting the requirements of this document can be considered non-islanding, meaning that under reasonable conditions, the device will detect island conditions and cease to energize the public electric power grid.

1 Scope and object

The purpose of this European Standard is to provide a test procedure to evaluate the performance of islanding prevention measures used with utility-interconnected PV systems.

This standard does not specify settings parameters (voltage and frequency trip magnitude and trip time) nor pass/fail criteria, because the EN 50438 and/or National standards and/or grid codes should be taken into account for this purpose.

This standard describes a guideline for testing the performance of automatic islanding prevention measures installed in or with single or multi-phase utility interactive PV inverters connected to the utility grid. The test procedure and criteria described are minimum requirements that will allow repeatability. Additional requirements or more stringent criteria may be specified if demonstrable risk can be shown. Inverters and other devices meeting the requirements of this standard are considered non-islanding as defined in CLC/TS 61836.

This standard may be applied to other types of utility-interconnected systems (e.g. inverter-based microturbine and fuel cells, induction and synchronous machines). However, technical review may be necessary for other than inverter-based PV systems.

Alternative testing procedures to evaluate the performance of islanding prevention may be allowed by national standards and/or grid codes.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition citied applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 61727, *Photovoltaic (PV) systems – Characteristics of the utility interface* (IEC 61727)

CLC/TS 61836, *Solar photovoltaic energy systems – Terms, definitions and symbols* (IEC/TS 61836)

EN 50438, *Requirements for the connection of micro-generators in parallel with public low-voltage distribution networks*