Irish Standard
I.S. EN 62586-1:2014

Power quality measurement in power supply systems - Part 1: Power quality instruments (PQI)

I.S. EN 62586-1:2014

Incorporating amendments/corrigenda/National Annexes issued since publication:

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62586-1

June 2014

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English Version

Power quality measurement in power supply systems - Part 1: Power quality instruments (PQI) (IEC 62586-1:2013)

Mesure de la qualité de l'alimentation dans les réseaux d'alimentation - Partie 1: Instruments de mesure de la qualité de l'alimentation
(CEI 62586-1:2013)

Messung der Spannungsqualität in Energieversorgungssystemen - Teil 1: Messgeräte für die Spannungsqualität
(IEC 62586-1:2013)

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Foreword

The text of document 85/460/FDIS, future edition 1 of IEC 62586-1, prepared by IEC/TC 85 "Measuring equipment for electrical and electromagnetic quantities" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62586-1:2014.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2014-12-20
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-01-16

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For the relationship with EU Directive see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 62586-1:2013 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60359	NOTE	Harmonized as EN 60359.
IEC 61010 Series	NOTE	Harmonized as EN 61010 Series (partly modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu

Publication	Year	Title	EN/HD	Year
IEC 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-
IEC 60068-2-1	-	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	-
IEC 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-14	-	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	-
IEC 60068-2-27	-	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60068-2-31	-	Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens	EN 60068-2-31	-
IEC 60068-2-52	-	Environmental testing - Part 2-52: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution)	EN 60068-2-52	-
IEC 60068-2-57	-	Environmental testing - Part 2-57: Tests - Test Ff: Vibration - Time-history and sine-beat method	EN 60068-2-57	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
IEC 60654-1	-	Industrial-process measurement and control equipment - Operating conditions - Part 1: Climatic conditions	EN 60654-1	-

Publication	Year	Title	EN/HD	Year
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60721-3-1	-	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 1: Storage	EN 60721-3-1	-
IEC 60721-3-2	-	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 2: Transportation	EN 60721-3-2	-
IEC 60721-3-3	-	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 3: Stationary use at weatherprotected locations	EN 60721-3-3	-
IEC 61000-4-7 +A1	2002 2008	Electromagnetic compatibility (EMC) - Part 4-7: Testing and measurement techniques - General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto	EN 61000-4-7 +A1	2002 2009
IEC 61000-4-15	2010	Electromagnetic compatibility (EMC) - Part 4-15: Testing and measurement techniques - Flickermeter - Functional and design specifications	EN 61000-4-15	2011
IEC 61000-4-30	2008	Electromagnetic compatibility (EMC) - Part 4-30 : Testing and measurement techniques - Power quality measurement methods	EN 61000-4-30	2009
IEC/TS 61000-6-5	-	Electromagnetic compatibilty (EMC) - Part 6-5: Generic standards - Immunity for power station and substation environments	-	-
IEC 61010-1	2010	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 1: General requirements	EN 61010-1	2010
IEC 61010-2-030	-	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-030: Particular requirements for testing and measuring circuits	EN 61010-2-030	-

Publication	Year	Title	EN/HD	Year
IEC 62262	-	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	-
IEC 62586-2	-	Power quality measurement in power supply systems - Part 2: Functional tests and uncertainty requirements	EN 62586-2	-
CISPR 22	-	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement	EN 55022	-

Annex ZZ
(informative)

Coverage of Essential Requirements of EU Directives

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers protection requirements of Annex I Article 1 of the EU Directive 2004/108/EC.

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive concerned.

WARNING: Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.

IEC 62586-1

Edition 1.0 2013-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Power quality measurement in power supply systems – Part 1: Power quality instruments (PQI)

Mesure de la qualité de l'alimentation dans les réseaux d'alimentation – Partie 1: Instruments de mesure de la qualité de l'alimentation

IEC 62586-1:2013

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IEC 62586-1

Edition 1.0 2013-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Power quality measurement in power supply systems – Part 1: Power quality instruments (PQI)

Mesure de la qualité de l'alimentation dans les réseaux d'alimentation – Partie 1: Instruments de mesure de la qualité de l'alimentation

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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POWER QUALITY MEASUREMENT IN POWER SUPPLY SYSTEMS –

Part 1: Power quality instruments (PQI)

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62586-1 has been prepared by IEC technical committee 85: Measuring equipment for electrical and electromagnetic quantities.

The text of this standard is based on the following documents:

FDIS	Report on voting
85/460/FDIS	85/466/RVD

Full information on the voting for the approval of this standard 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 of the IEC 62586 series, published under the general title *Power quality measurement in power supply systems,* 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 web site 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.

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

Electricity as delivered to the network users has several characteristics which are variable and which affect its usefulness to the network user.

Power quality instruments on the market have different characteristics. This standard provides a common system of references in order to facilitate their selection, comparison and evaluation. This standard specifies a classification based on product performances, environment and safety.

It is acknowledged that IEC 61000-4-30 is a basic EMC publication. Detailed guidance on instrument performance, performance verification methods, additional influence quantities and other similar information should, in general, be found in a product standard.

IEC 62586-1 is a product standard that refers to IEC 61000-4-30, IEC 61000-4-7 and IEC 61000-4-15 for measuring methods. IEC 62586-2 specifies functional tests and uncertainty requirements for instruments in the scope of IEC 62586-1.

IEC 62586-1 is therefore complementing basic EMC standards with environmental, safety and performance requirements.

POWER QUALITY MEASUREMENT IN POWER SUPPLY SYSTEMS –

Part 1: Power quality instruments (PQI)

1 Scope

This part of IEC 62586 specifies product and performance requirements for instruments whose functions include measuring, recording and possibly monitoring power quality parameters in power supply systems, and whose measuring methods (class A or class S) are defined in IEC 61000-4-30.

These requirements are applicable in single, dual- (split phase) and 3-phase a.c. power supply systems at 50 Hz or 60 Hz.

These instruments can be used:

– in the generation, transmission and distribution of electricity, for example inside a power station, substation or a distributed generator connection.
– at the interface point between the installation and the network, e.g. in order to check the compliance of the connection agreement between a network operator and the customer.

NOTE 1 These instruments can also be used for other applications, e.g. inside commercial / industrial installations especially where comparable measurements are needed (i.e. data centers or petrochemical plants).

These instruments are fixed-installed or portable. They are intended to be used indoors and/or outdoors.

Devices such as digital fault recorders, energy/power meters, protection relays or circuit breakers may include power quality functions defined in 61000-4-30 class A or class S. If such devices are specified according to this standard, then this standard fully applies and applies in addition to the relevant product standard. This standard does not replace the relevant product standard.

NOTE 2 It is not the intent of this standard to address user interface or topics unrelated to device measurement performance.

NOTE 3 The standard does not cover post-processing and interpretation of the data, for example with a dedicated software.

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 60068-1, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-1, *Environmental testing – Part 2-1: Tests – Tests A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Tests B: Dry heat*

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*