Irish Standard
I.S. EN 60255-121:2014

Measuring relays and protection equipment - Part 121: Functional requirements for distance protection

I.S. EN 60255-121:2014

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN 60255-121

July 2014

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English Version

Measuring relays and protection equipment - Part 121: Functional requirements for distance protection (IEC 60255-121:2014)

Relais de mesure et dispositifs de protection - Partie 121: Exigences fonctionnelles pour protection de distance (CEI 60255-121:2014)

Messrelais und Schutzeinrichtungen - Teil 121: Funktionsanforderungen für den Distanzschutz (IEC 60255-121:2014)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Ref. No. EN 60255-121:2014 E

Foreword

The text of document 95/319/FDIS, future edition 1 of IEC 60255-121, prepared by IEC/TC 95 "Measuring relays and protection equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60255-121:2014.

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)	2015-01-11
– latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2017-04-11

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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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 60050	series	International electrotechnical vocabulary	-	-
IEC 60255-1	-	Measuring relays and protection equipment -- Part 1: Common requirements	EN 60255-1	-
IEC 61850	series	Communication networks and systems for power utility automation	EN 61850	series
IEC 61869-2	2012	Instrument transformers -- Part 2: Additional requirements for current transformers	EN 61869-2	2012
IEC 61869-5	2011	Instrument transformers -- Part 5: Additional requirements for capacitor voltage transformers	EN 61869-5	2011

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IEC 60255-121

Edition 1.0 2014-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Measuring relays and protection equipment – Part 121: Functional requirements for distance protection

Relais de mesure et dispositifs de protection – Partie 121: Exigences fonctionnelles pour protection de distance

IEC 60255-121:2014-03(en-fr)

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INTERNATIONAL STANDARD

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Measuring relays and protection equipment – Part 121: Functional requirements for distance protection

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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International Standard IEC 60255-121 has been prepared by IEC technical committee 95: Measuring relays and protection equipment.

This standard cancels and replaces IEC 60255-16.

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

FDIS	Report on voting
95/319/FDIS	95/321/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 in the IEC 60255 series, published under the general title *Measuring relays and protection equipment,* 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
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MEASURING RELAYS AND PROTECTION EQUIPMENT –

Part 121: Functional requirements for distance protection

1 Scope

This part of IEC 60255 specifies minimum requirements for functional and performance evaluation of distance protection function typically used in, but not limited to, line applications for effectively earthed, three-phase power systems. This standard also defines how to document and publish performance tests.

This standard covers distance protection function whose operating characteristic can be defined on an impedance plane and includes specification of the protection function, measurement characteristics, phase selection, directionality, starting and time delay characteristics.

The test methodologies for verifying performance characteristics and accuracy are included in this standard. The standard defines the influencing factors that affect the accuracy under steady state conditions and performance characteristics during dynamic conditions. It also includes the instrument transformer requirements for the protection function.

The distance protection functions covered by this standard are as follows:

	IEEE/ANSI C37.2 Function numbers	IEC 61850-7-4 Logical nodes
Phase distance protection	21	PDIS
Earth (ground) distance protection	21G	PDIS

This standard does not specify the functional description of additional features often associated with digital distance relays such as power swing blocking (PSB), out of step tripping (OST), voltage transformer (VT) supervision, switch onto fault (SOTF), trip on reclose (TOR), the logic for cross country faults in not effectively earthed networks, and trip conversion logic. Only their influence on the distance protection function is covered in this standard. The protection of series-compensated lines is beyond the scope of this standard.

The general requirements for measuring relays and protection equipment are defined in IEC 60255-1.

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 60050 (all parts), *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org>)

IEC 60255-1, *Measuring relays and protection equipment – Part 1: Common requirements*

IEC 61850 (all parts), *Communication networks and systems for power utility automation*