
Distribution automation using distribution line carrier systems - Part 3: Mains signalling requirements - Section 21: MV phase-to-phase isolated capacitive coupling device

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Automatisation de la distribution à l'aide de systèmes de communication à courants porteurs -- Partie 3: Prescriptions concernant la transmission des signaux sur le secteur - - Section 21: Dispositif de couplage phase-phase capacitif isolé MT

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Distribution automation using distribution line carrier systems
Part 3: Mains signalling requirements
Section 21: MV phase-to-phase isolated capacitive coupling device
(IEC 1334-3-21:1996)

Automatisation de la distribution à l'aide de systèmes de communication à courants porteurs

Partie 3: Prescriptions concernant la transmission des signaux sur le secteur
Section 21: Dispositif de couplage phase-phase capacitif isolé MT
(CEI 1334-3-21:1996)

Verteilungsautomatisierung mit Hilfe von Trägersystemen auf Verteilungsleitungen

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Hauptabschnitt 21: Kapazitiv getrennte Außenleiter-Außenleiter-Ankopplungseinrichtungen für Mittelspannung
(IEC 1334-3-21:1996)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 57/248/FDIS, future edition 1 of IEC 1334-3-21, prepared by IEC TC 57, Power system control and associated communications, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61334-3-21 on 1996-07-02.

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) 1997-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 1997-04-01

Annexes designated "normative" are part of the body of the standard.
In this standard, annex ZA is normative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 1334-3-21:1996 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)**Normative references to international publications
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 38 (mod)	1983	IEC standard voltages ¹⁾	HD 472 S1	1989
IEC 71-1	1993	Insulation co-ordination Part 1: Definitions, principles and rules	EN 60071-1	1995
IEC 481	1974	Coupling devices for power line carrier systems	-	-
IEC 721	series	Classification of environmental conditions	EN 60721 HD 478	series series

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1) The title of HD 472 S1 is: Nominal voltages for low voltage public electricity supply systems

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**Automatisation de la distribution à l'aide
de systèmes de communication à courants
porteurs –**

Partie 3:

**Prescriptions concernant la transmission
des signaux sur le secteur –
Section 21: Dispositif de couplage phase-phase
capacitif isolé MT**

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**Distribution automation using distribution
line carrier systems –**

Part 3:

**Mains signalling requirements –
Section 21: MV phase-to-phase isolated
capacitive coupling device**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

DISTRIBUTION AUTOMATION USING DISTRIBUTION LINE
CARRIER SYSTEMS -Part 3: Mains signalling requirements -
Section 21: MV phase-to-phase isolated capacitive
coupling device

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 1334-3-21 has been prepared by IEC technical committee 57: Power system control and associated communications.

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

FDIS	Report on voting
57/248/FDIS	57/268/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.

INTRODUCTION

The already standardized capacitive coupling devices for power-line carrier systems (i.e. phase-to-earth and phase-to-phase) could be applied on DLC systems. In this case recommendations of IEC 481 are fully applicable.

However, the above-mentioned coupling devices are not fully suitable for an extensive application of DLC on MV networks for the following reasons:

- from a technical point of view, earthing the primary winding of the coupling transformer may cause unbalancing in the zero sequencing current, with negative effects on the directional overcurrent relay protections;
- from an economical point of view, the coupling device should have a price as low as possible.

These considerations lead to the standardization of another coupling device such as the MV phase-to-phase isolated capacitive coupling device, where "isolated" means: no connection of the primary section of the coupling device to the earth. Figure 1 shows a solution. Other solutions may become available.

As other coupling devices are standardized, new sections to IEC 1334-3 will be added.

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DISTRIBUTION AUTOMATION USING DISTRIBUTION LINE CARRIER SYSTEMS –

Part 3: Mains signalling requirements – Section 21: MV phase-to-phase isolated capacitive coupling device

1 Scope and object

This section of IEC 1334-3 applies only to MV phase-to-phase isolated capacitive coupling devices for MV (medium voltage) distribution line carrier (DLC) systems.

The coupling device ensures:

- a) the efficient transmission/reception of carrier-frequency signals between the DLC-transceiver and the power line;
- b) the safety of personnel and the protection of the low-voltage parts of the installation against the effects of the power-frequency voltage and transient overvoltages.

The object of this section of IEC 1334-3 is to establish definitions, requirements, methods of testing and rated values for phase-to-phase isolated capacitive coupling devices to be used in MV-DLC systems.

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2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this section of IEC 1334-3. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this section of IEC 1334-3 are encouraged to investigate the possibility of applying the most recent edition of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standard.

IEC 38: 1983, *IEC standard voltages*

IEC 71-1: 1993, *Insulation co-ordination – Part 1: Definitions, principles and rules*

IEC 481: 1974, *Coupling devices for power line carrier systems*

IEC 721: *Classification of environmental conditions*