SLOVENSKI STANDARD
SIST EN 50065-4-6:2023

01-maj-2023

Signalizacija po nizkonapetostnih električnih napeljavah v frekvenčnem območju od 3 kHz do 148,5 kHz - 4-6. del: Nizkonapetostni ločilni filtri - Fazni spojnik

Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz Part 4-6: Low voltage decoupling filters - Phase coupler

Signalübertragung auf elektrischen Niederspannungsnetzen im Frequenzbereich 3 kHz bis 148,5 kHz Teil 4-6: Niederspannungs-Entkopplungsfilter - Phasenkoppler

Transmission de signaux sur les réseaux électriques basse tension dans la bande de fréquences de 3 kHz à 148,5 kHz - Partie 4-6: Filtres de découplage basse tension - Coupleur de phase

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English Version

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

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European foreword

This document (EN 50065-4-6:2023) has been prepared by WG 12 “Filters” of CLC/TC 219 “Mains communicating systems”.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-09-24
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2026-03-24

This document supersedes EN 50065-4-6:2004 and all of its amendments and corrigenda (if any).

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

EN 50065 consists of the following parts, under the general title: Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz:

Part 1: General requirements, frequency bands and electromagnetic disturbances

Part 2-1: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in residential, commercial and light industrial environments

Part 2-2: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in industrial environments

Part 2-3: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 3 kHz to 95 kHz and intended for use by electricity suppliers and distributors

Part 4-1: Low voltage decoupling filters – Generic specification

Part 4-2: Low voltage decoupling filters – Safety requirements

Part 4-3: Low voltage decoupling filters – Incoming filter

Part 4-4: Low voltage decoupling filters – Impedance filter

Part 4-5: Low voltage decoupling filters – Segmentation filter

Part 4-6: Low voltage decoupling filters – Phase coupler

Part 4-7: Portable low voltage decoupling filters – Safety requirements

Part 7: Equipment impedance

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association.

Any feedback and questions on this document should be directed to the users’ national committee. A complete listing of these bodies can be found on the CENELEC website.

1 Scope

This document applies to phase couplers in a mains communication system intended for utility networks or household and similar fixed installation including residential, commercial and light industrial buildings.

Phase couplers are used to control the coupling of communication signals between phases or sections of a mains communication system.

This document defines

— the requirements to ensure a minimum coupling between the phases or sections of a mains communication system, and

— the requirements to ensure no change on the safety of the electrical installation.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 50065-1, *Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 1: General requirements, frequency bands and electromagnetic disturbances*

EN 50065-2-1, *Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-1: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in residential, commercial and light industrial environments*

EN 50065-2-2, *Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-2: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 95 kHz to 148,5 kHz and intended for use in industrial environments*

EN 50065-2-3, *Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 2-3: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 3 kHz to 95 kHz and intended for use by electricity suppliers and distributors*

EN 50065-4-1:2001, *Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 4-1: Low voltage decoupling filters - Generic specification*

EN 50065-4-2, *Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz and 1,6 MHz to 30 MHz - Part 4-2: Low voltage decoupling filters - Safety requirements*

3 Definitions

For the purposes of this document, the terms and definitions given in EN 50065-1, EN 50065-4-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
phase terminal
PT
connection to a phase conductor of the electrical installation in which the phase coupler is used

3.2
neutral terminal
NT
connection to a neutral conductor of the electrical installation in which the phase coupler is used (may or may not be provided)

3.3
mains frequency leakage current
r.m.s. value of any mains frequency current flowing between phase terminals

4 Classification

4.1 General

The classification is made according to the “mains frequency leakage current” of the phase coupler.

4.2 Type 1: standard type

The coupling may be achieved with suitable capacitors. Due to significant mains frequency leakage current the use of this type of phase coupler may be limited for safety reasons.

4.3 Type 2: low leakage type

The coupling may be achieved using a transformer.

5 Phase coupler electrical characteristics

5.1 General

The phase coupler shall meet the requirements given in EN 50065-4-1.

5.2 Immunity for EMC

The phase coupler shall meet the immunity requirements specified in:

— EN 50065-2-1 for phase coupler in residential, commercial and light industrial environments,

— EN 50065-2-2 for phase coupler in industrial environments,

— EN 50065-2-3 for phase coupler in the utility networks.

5.3 Mains frequency leakage current

The mains frequency leakage current, at the nominal voltage, is measured according to Figure 1. All terminals of the phase coupler are connected to the appropriate voltage, except one phase terminal that is connected to neutral through a gauge.