
Signalizacija po nizkonapetostnih električnih napeljavah v frekvenčnem območju od 3 kHz do 148,5 kHz – 4-5. del: Nizkonapetostni ločilni filtri – Razčlenjeni filter

Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 4-5: Low voltage decoupling filter - Segmentation filter

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 50065-4-5:2004](https://standards.iteh.ai/catalog/standards/sist/0c5f882f-1d23-4cc0-bbc1-332d2430266d/sist-en-50065-4-5-2004)

<https://standards.iteh.ai/catalog/standards/sist/0c5f882f-1d23-4cc0-bbc1-332d2430266d/sist-en-50065-4-5-2004>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 50065-4-5:2004

<https://standards.iteh.ai/catalog/standards/sist/0c5f882f-1d23-4cc0-bbc1-332d2430266d/sist-en-50065-4-5-2004>

EUROPEAN STANDARD

EN 50065-4-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2003

ICS 31.160; 33.040.30; 97.120

English version

**Signalling on low-voltage electrical installations
in the frequency range 3 kHz to 148,5 kHz
Part 4-5: Low voltage decoupling filter -
Segmentation filter**

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

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

ITeH STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 50065-4-5:2004

<https://standards.iteh.ai/catalog/standards/sist/0c5f882f-1d23-4cc0-bbc1-32c4f3120fd/sist-en-50065-4-5-2004>
This European Standard was approved by CENELEC on 2002-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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

This European Standard was prepared by SC 205A, Mains communicating systems, of Technical Committee CENELEC TC 205, Home and Building Electronic Systems (HBES).

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50065-4-5 on 2002-04-01.

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) 2003-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-04-01

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 7	Equipment impedance

Contents

	Page
1 Scope	4
2 Normative references	5
3 Classification	5
3.1 Type 1: Asymmetrical filter	5
3.2 Type 2: Symmetrical filter	5
4 Requirements	6
4.1 Marking	6
4.2 Electrical characteristics at mains frequency	6
4.2.1 Overvoltage	6
4.2.2 Immunity	6
4.3 Electrical characteristics at signalling frequency.....	6
4.3.1 Operating frequency range	6
4.3.2 Impedance	6
4.3.3 Transfer function	7
4.4 Safety.....	7
Figure 1 - The application of segmentation filters	4

1 Scope

This standard applies to segmentation filters in a mains communication system used for single or multiphase installations having a phase to neutral voltage not exceeding 250 V a.c. and a nominal current not exceeding 125 A, intended for household and similar fixed installation including residential, commercial and light industrial buildings and utility networks.

These filters (see Figure 1) are used to control the coupling of signals between two areas of a mains communication system.

The standard defines

- the minimum impedance in the relevant frequency range(s) at both ports,
- the minimum attenuation of signals transmitted between port.

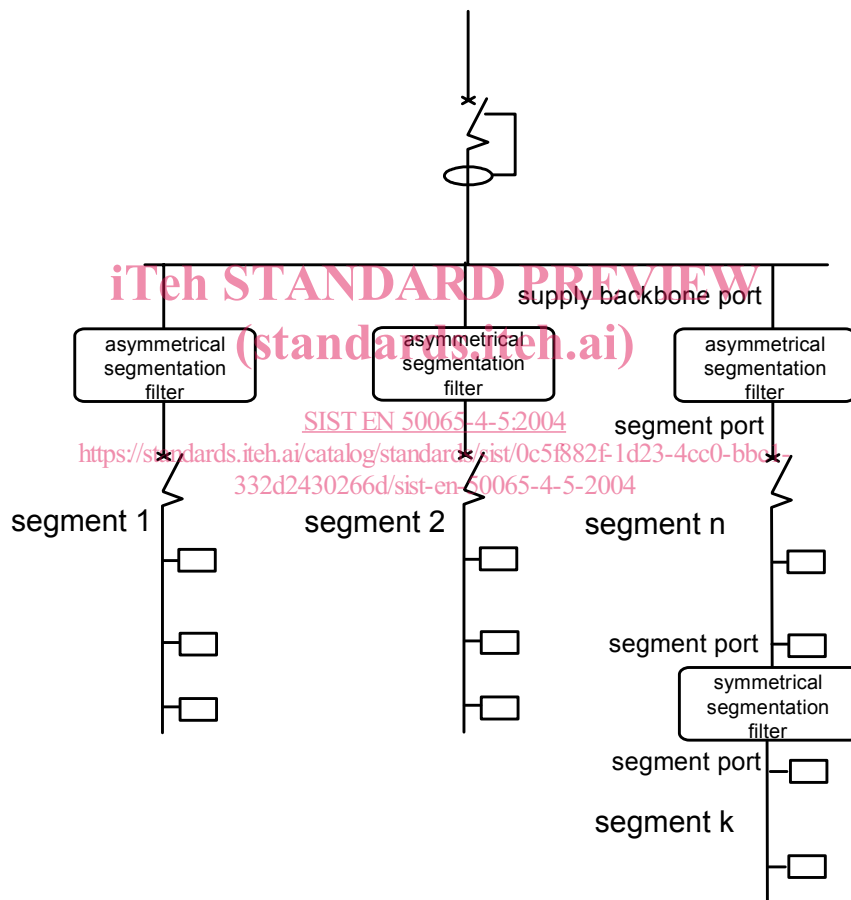


Figure 1 - The application of segmentation filters

2 Normative references

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).

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

STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 50065-4-5:2004
<https://standards.iteh.ai/catalog/standards/sist/0c5f882f-1d23-4cc0-bbc1-332d2430266d/sist-en-50065-4-5-2004>

3 Classification

Segmentation filters are used to separate one powerline communication system that operates in one operating frequency band, in several independent segments.

The combination of the appropriate segmentation filter in conjunction with an incoming filter and/or with an impedance filter shall be made according to local regulations.

3.1 Type 1: Asymmetrical filter

This filter has one "supply backbone port" and one "segment port". The "supply backbone port" and the "segment port" have different impedance characteristics in the operating frequency band and shall not be inverted. Communication may not be possible on the "supply backbone port".

3.2 Type 2: Symmetrical filter

This filter has two "segment port". Both "segment ports" have the same impedance characteristics at the operating frequency band and may be inverted. Usually the ports of a symmetrical segmentation filter are connected to different segments of one mains communication system.

4 Requirements

4.1 Marking

In addition and in accordance with clause 8 of EN 50065-4-2:

- the operating frequency range f_{\min} to f_{\max} when relevant shall be marked;
- the attenuation within these bands.

4.2 Electrical characteristics at mains frequency

4.2.1 Over voltage

The filter shall meet the requirements in accordance with 15.2 of EN 50065-4-2 with

- overvoltage category III for segmentation filters used on the consumer network,
- overvoltage category IV for segmentation filters used on the utility network.

4.2.2 Immunity

Immunity is specified as follows:

- according to EN 50065-2-1 for segmentation filters in residential, commercial and light industrial environments;
- according to EN 50065-2-2 for segmentation filters in industrial environments;
- according to EN 50065-2-3 for segmentation filters in the utility networks.

4.3 Electrical characteristics at signalling frequency

4.3.1 Operating frequency range

The operating frequency range is a (reduced) frequency range the filter is designed for in the relevant band:

- it shall be in the frequency band 3 kHz to 95 kHz for utility segmentation filters;
- it shall be in the frequency band 95 kHz to 148,5 kHz for consumer segmentation filters.

The manufacturer shall specify the operating frequency range.

4.3.2 Impedance

4.3.2.1 Asymmetrical segmentation filter (type 1)

On the segment port of the filter, when measured in the operating frequency range specified by the manufacturer f_{\min} to f_{\max} , according to 6.1 of EN 50065-4-1, the modulus value of the impedance shall be greater than 10 Ω .

On the "supply backbone port" there is no requirement

4.3.2.2 Symmetrical segmentation filter (type 2)

On both ports of the filter, when measured in the operating frequency range specified by the manufacturer f_{\min} to f_{\max} , according to 6.1 of EN 50065-4-1, the modulus value of the impedance shall be greater than 10 Ω .