Vervangt CR 205-009:1996

Nederlandse norm

NEN-EN 50090-5-2 (en)

Home and Building Electronic Systems (HBES)
- Part 5-2: Media and media dependent layers -
Network based on HBES Class 1, Twisted Pair

ICS 97.120
maart 2004

Als Nederlandse norm is aanvaard:
- EN 50090-5-24:2004,IDT

Normcommissie 381 025 "Telematica installaties"

NEN

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Nederlands voorwoord

Voor de in deze norm vermelde normatieve verwijzingen bestaan in Nederland de volgende equivalenten:

vermelde norm	Nederlandse norm	titel
EN 50090-1	-	-
EN 50090-2-2	NEN-EN 50090-2-2	Gebouwbeheersystemen (HBES) - Deel 2-2: Systeemoverzicht - Algemene technische eisen (en)
EN 50090-3-2:2004	NEN-EN 50090-3-2:2004	Gebouwbeheersystemen (HBES) - Deel 3-2: Toepassingsaspecten - Gebruikersproces voor HBES klasse 1 (en)
EN 50090-4-2:2004	NEN-EN 50090-4-2:2004	Gebouwbeheersystemen (HBES) - Deel 4-2: Media lokale lagen - Transportlaag, netwerklaag en algemene delen van gegevensverbindingslaag voor HBES Klasse 1 (en)
EN 50090-7-1:2004	NEN-EN 50090-7-1:2004	Gebouwbeheersystemen (HBES) - Deel 7-1: Systeemmanagement - Management procedures (en)
EN 50090-9-1:2004	-	-
EN 50290: series	-	-
EN 61000-4-5	NEN 11000-4-5	Elektromagnetische compatibiliteit (EMC) - Deel 4: Beproevingen en meettechnieken - Sectie 5: Stootspanningen - Immuniteitsproef (en,fr)
EN 61000-6-1	NEN-EN-IEC 61000-6-1	Elektromagnetische compatibiliteit (EMC) - Deel 6-1: Algemene normen - Immuniteit voor huishoudelijke, handels- en lichtindustriële omgevingen (en,fr)
EN 61000-6-2	NEN-EN-IEC 61000-6-2	Elektromagnetische compatibiliteit (EMC) - Deel 6-2: Algemene normen - Immuniteit voor industriële omgevingen (en,fr)
HD 21.2 S2	-	-
HD 22.2 S2	-	-
IEC 60189-2	-	-
IEC 60332-1	-	-
IEC 60754-2	-	-

EUROPEAN STANDARD **EN 50090-5-2**

NORME EUROPÉENNE

EUROPÄISCHE NORM February 2004

ICS 97.120 Supersedes R205-009:1996

English version

Home and Building Electronic Systems (HBES) Part 5-2: Media and media dependent layers - Network based on HBES Class 1, Twisted Pair

Systèmes électroniques pour les foyers domestiques et les bâtiments (HBES)
Partie 5-2: Medias et couches dépendantes des medias -
Réseau basé sur HBES Classe 1, Paire Torsadée

Elektrische Systemtechnik für Heim und Gebäude (ESHG)
Teil 5-2: Medien und medienabhängige Schichten -
Netzwerk basierend auf ESHG Klasse 1, Twisted Pair

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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

Ref. No. EN 50090-5-2:2004 E

Contents

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 205, Home and Building Electronic Systems (HBES) with the help of CENELEC co-operation partner Konnex Association (formerly EHBESA).
The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50090-5-2 on 2003-12-02.

This European Standard supersedes R205-009:1996.

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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)	2004-12-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2006-12-01

EN 50090-5-2 is part of the EN 50090 series of European Standards, which will comprise the following parts:

Part 1: Standardisation structure
Part 2: System overview
Part 3: Aspects of application
Part 4: Media independent layers
Part 5: Media and media dependent layers
Part 6: Interfaces
Part 7: System management
Part 8: Conformity assessment of products
Part 9: Installation requirements

Introduction

According to OSI Physical Layers consist of the medium, the cable, the connectors, the transmission technology etc. which refers to their hardware requirements. In this European Standard however, the status of the Physical Layer as a “communication medium” is emphasized.

1 Scope

This European Standard defines the mandatory and optional requirements for the medium specific physical and data link layer for HBES Class 1 Twisted Pair in its two variations called TP0 and TP1.

Data link layer interface and general definitions, which are media independent, are given in EN 50090-4-2.

2 Normative references

The following referenced documents are indispensable for the application 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 50090-1 [1)]	*Home and Building Electronic Systems (HBES) – Part 1: Standardisation structure*
EN 50090-2-2	*Home and Building Electronic Systems (HBES) – Part 2-2: System overview – General technical requirements*
EN 50090-3-2:2004	*Home and Building Electronic Systems (HBES) – Part 3-2: Aspects of application – User process for HBES Class 1*
EN 50090-4-2:2004	*Home and Building Electronic Systems (HBES) – Part 4-2: Media independent layers – Transport layer, network layer and general parts of data link layer for HBES Class 1*
EN 50090-7-1:2004	*Home and Building Electronic Systems (HBES) – Part 7-1: System Management – Management procedures*
EN 50090-9-1:2004	*Home and Building Electronic Systems (HBES) – Part 9-1: Installation requirements – Generic cabling for HBES Class 1 Twisted Pair*
EN 50290 series	*Communication cables*
EN 61000-4-5	*Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test* (IEC 61000-4-5)
EN 61000-6-1	*Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial and light-industrial environments* (IEC 61000-6-1, mod.)
EN 61000-6-2	*Electromagnetic compatibility (EMC) – Part 6-2: Generic standards - Immunity for industrial environments* (IEC 61000-6-2, mod.)
HD 21.2 S2	*Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 2: Test methods* (IEC 60227-2, mod.)

1) At draft stage.

HD 22.2 S2 *Rubber insulated cables of rated voltages up to and including 450/750 V – Part 2: Test methods* (IEC 60245-2, mod.)

IEC 60189-2 *Low-frequency cables and wires with PVC insulation and PVC sheath – Part 2: Cables in pairs, triples, quads and quintuples for inside installations*

IEC 60332-1 *Tests on electric cables under fire conditions – Part 1: Test on a single vertical insulated wire or cable*

IEC 60754-2 *Test on gases evolved during combustion of electric cables – Part 2: Determination of degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this part the terms and definitions given in EN 50090-1 and the following apply.

3.1.1
HBES Class 1 Twisted Pair Type 0
the Twisted Pair medium Twisted Pair Type 0 (TP0) is a physical layer specification for data and power transmission on a single twisted pair, allowing asynchronous character-oriented data transfer in a half duplex bi-directional communication mode, using a specifically unbalanced/unsymmetrical base-band signal coding with collision avoidance under SELV conditions

3.1.2
HBES Class 1 Twisted Pair Type 1
the Twisted Pair medium Twisted Pair Type 1 (TP1) is a physical layer specification for data and power transmission on a single twisted pair, allowing asynchronous character-oriented data transfer in a half duplex bi-directional communication mode, using a specifically balanced/symmetrical base-band signal coding with collision avoidance under SELV conditions

3.1.3
distributed power supply
the bus is powered in a distributed way by a number of the devices connected to the line (compared to a centralized power supply)

3.1.4
Logical Tag Extended HEE
usage of the L_Data_Extended frame dedicated to extended group addressing

3.1.5
Remote Powered Devices
remote Powered Bus Devices (RPD) do not extract their energy for the application circuit and the bus controller from the bus but from another independent source of energy, e.g. mains. Owing to the reduced DC power consumption of RPD, a bus line equipped with such devices requires less power from the installed Power Supply Unit (PSU). The connection of bus-controller and application to the same electrical potential reduces the effort of galvanic separation in RPD

3.1.6
TP0 C Factor
to simplify system engineering, the supply current of a TP0 device (both power supply and bus device) is expressed by a factor "C", defined as

$$C = \frac{\text{Actual current}}{\text{Reference device supply current}}$$

The actual current can either be the one provided by a power supply or used by a device

3.1.7
TP0 Character
11 bit set including 8 data bits, 1 check bit (odd parity bit) and two synchronisation bits (start and stop bits)

3.1.8
TP0 Distortion
percentage ratio of the deviation time between the instant a transition occurs and the ideal transition instant, and the bit duration (~208 µs); the distortion is measured for each bit of a character, starting with the start bit

3.1.9
TP0 Inter-Frame Time
time between the end of a frame (end of stop bit for the last character) and the beginning of the next frame (beginning of the start bit of the first character)

3.1.10
TP0 Line Load
percentage ratio representing the proportion of actual character transmission during a specified integration time interval

3.1.11
TP0 Odd parity bit
check bit whose value is such that there is an odd number of logic “0” within the data and parity fields

3.1.12
TP0 Repeater
connects a primary segment to a secondary segment

3.1.13
TP1 Backbone Couplers
15 backbone couplers can be used to couple up to 16 zones to a full sized TP1 network

3.1.14
TP1 Backbone Line
the main line of the inner zone is called backbone line

3.1.15
TP1 Bridge
four TP1-64 physical segments can be combined to a line by using bridges. To such a line 256 devices can then be connected

3.1.16
TP1 Line
a TP1 line consists of a maximum of 256 devices, either directly connected in case of TP1-256 or separated over 4 physical segments in case of TP1-64, each with 64 devices

3.1.17
TP1 Line Couplers
routers that combine lines to a zone are called line couplers

3.1.18
TP1 Logical Unit
converts the serial bit stream to octets and octets to the serial bit stream, which is a serial stream of characters

Bestelformulier

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__ ex. NEN-EN 50090-5-2:2004 en Gebouwbeheersystemen (HBES) - Deel 5-2: Media en media-afhankelijke lagen - Netwerk gebaseerd op HBES Klasse 1, Paarsgewijs gedraaid — € 99.98

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