SLOVENSKI STANDARD

SIST EN 50090-3-2:2005

september 2005

Stanovanjski in stavbni elektronski sistemi (HBES) – 3-2. del: Vidiki uporabe – Uporabniški proces za HBES razreda 1

Home and Building Electronic Systems (HBES) – Part 3-2: Aspects of application – User process for HBES Class 1

ICS 97.120

Referenčna številka
SIST EN 50090-3-2:2005(en)

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50090-3-2

February 2004

ICS 97.120

Supersedes EN 50090-3-2:1995

English version

Home and Building Electronic Systems (HBES) Part 3-2: Aspects of application - User process for HBES Class 1

Systèmes électroniques pour les foyers domestiques et les bâtiments (HBES) Partie 3-2: Aspects de l'application - Processus utilisateur HBES Classe 1

Elektrische Systemtechnik für Heim und Gebäude (ESHG) Teil 3-2: Anwendungsaspekte - Anwendungsprozess ESHG Klasse 1

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CENELEC

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

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Ref. No. EN 50090-3-2:2004 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 50090-3-2 on 2003-12-02.

This European Standard supersedes EN 50090-3-2:1995.

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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– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2006-12-01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 50090-3-2 is part of the EN 50090 series of European Standards, which will comprise the following parts:

Part 1: Standardization 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

The application interface layer is the layer between the application layer and the application. It contains the communication relevant tasks of the application. It eases the communication task of the application by offering a communication interface that abstracts from many application layer details.

This European Standard allows single-processor and dual-processor device designs. A dual processor device uses additional services to communicate via a serial External Message Interface with the external user application running in the second processor.

The following clauses specify the client and server functionality and the communication interface of the internal user application located in the Bus Access Unit (BAU).

The application interface layer contains the following objects and the access routines to them:

- **group objects**: can be accessed via Transport layer Service Access Points (TSAPs) on multicast communication services, see the corresponding clause in EN 50090-4-2. Group objects may also be references to interface objects;
- **interface objects**: can be accessed via application services on point-to-point connectionless and point-to-point connection-oriented communication modes. The interface objects are divided to system interface objects and application interface objects.
  - System interface objects are at this time:
    - the device object;
    - the group address table object;
    - the association table object, and
    - the application object.

    System interface objects are relevant for network management as specified in EN 50090-7-1.
  - Application interface objects are objects defined in the user application. They may be defined by the internal or external user application, based on interface object structure rules defined in this document. Application interface objects may also be referenced by a group object reference.

The following clause specifies the data structures of each of the application interface layer objects. Additionally they define by which application services these objects are accessible. Both the object client and object server functionality may be implemented by the external or the internal application interface layer. It is recommended to locate the group communication objects, the interface objects and the resource objects in the internal application interface layer.

1 Scope

This part of EN 50090 specifies the structure and functioning of servers for the objects which form the interface between the application layer and the application and management.

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: Standardization structure*

EN 50090-4-1:2004 — *Home and Building Electronic Systems (HBES) – Part 4-1: Media independent layers – Application layer 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*

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 EN 50090-4-1 apply.

3.2 Abbreviations

ASAP	Application Layer Service Access Point
BAU	Bus Access Unit
EMI	External Message Interface
HBES Class 1	refers to simple control and command
HBES Class 2	refers to Class 1 plus simple voice and stable picture transmission
HBES Class 3	refers to Class 2 plus complex video transfers
TSAP	Transport layer Service Access Point

4 Object models

This European Standard specifies two different kinds of objects that shall be supported for operational exchanges:

a) group objects
group objects shall be used to support the shared variable model;

b) interface objects
interface objects shall be used to support the client/server model and, if they are referenced by group objects, also the shared variable model of the group objects.

An application may use each kind of objects at any time.

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1) At draft stage.

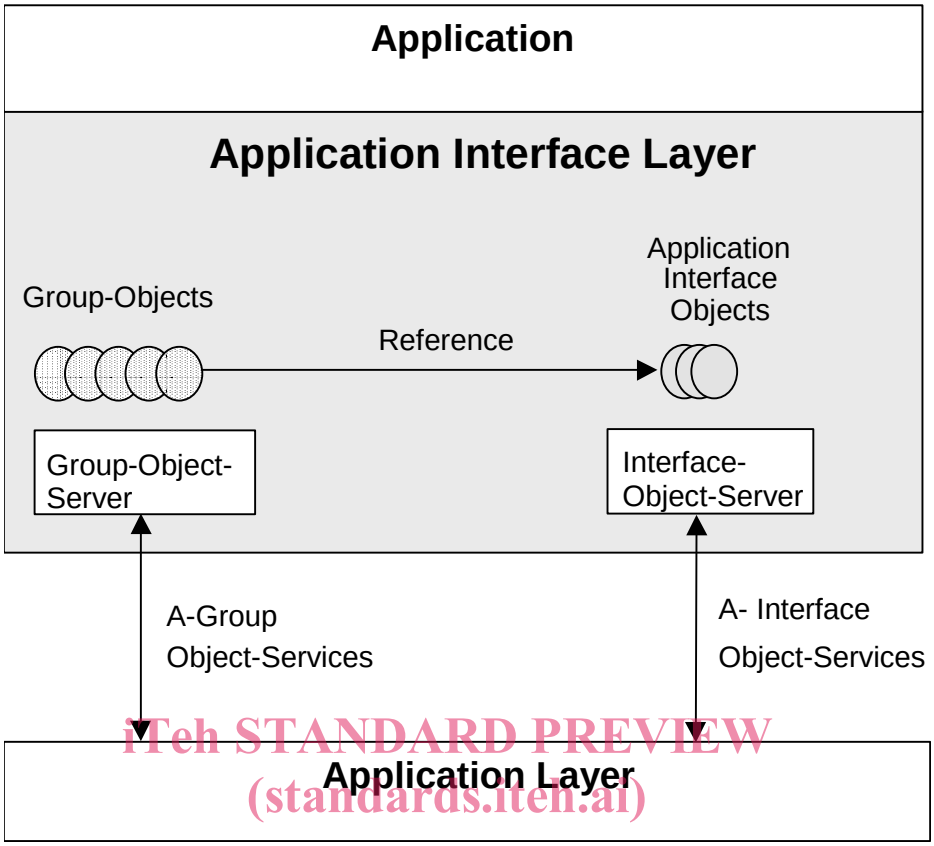

Figure 1 – User process model

5 Group object server

5.1 Overview

Group objects can be distributed to a number of devices. Each device may be transmitter and receiver for group object values. More than one group object can exist in an end device and a group object in a device may be assigned to one or more group addresses. Group objects of an end device may belong to the same or to different groups. Each group shall have a network wide unique group address. The group address shall be mapped to a local group-index (TSAP) by the transport layer; the group-index shall be unique for the communication services of the device. The application layer shall map the group-index by the association table to the group reference ID (Application Layer Service Access Point, ASAP) that shall be used to address the group objects.

5.2 General data structure group objects

5.2.1 Structure

In the sense of the previous clause a group object shall consist of three parts:

a) the group object description;

b) the object-value;

c) the communication-flags.

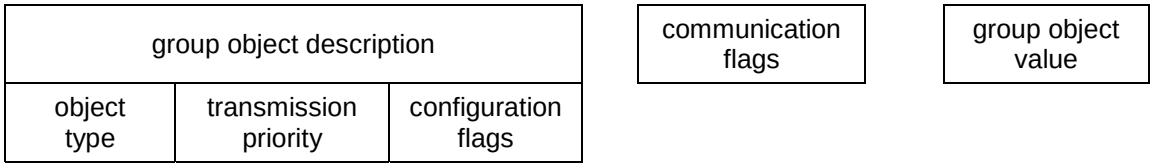

Figure 2 – Data structure of group objects

5.2.2 Group object description

5.2.2.1 Object type

The following value-types shall be possible:

Table 1 – Group object types

Value Length / Type	Value-size
Unsigned Integer (1)	1 bit
Unsigned Integer (2)	2 bit
Unsigned Integer (3)	3 bit
Unsigned Integer (4)	4 bit
Unsigned Integer (5)	5 bit
Unsigned Integer (6)	6 bit
Unsigned Integer (7)	7 bit
Unsigned Integer (8)	1 octet
Unsigned Integer (16)	2 octets
Octet (3)	3 octets
Octet (4)	4 octets
Octet (6)	6 octets
Octet (8)	8 octets
Octet (10)	10 octets
Octet (14)	14 octets
Interface object reference	4 to 14 octets

Only group objects of the same type may be linked to one group and for interface objects references also the interface object type with the same instance number shall be the same.

5.2.2.2 Transmission priority

The priority can only be “urgent”, “normal” or “low”. The transmission priority “system” shall not be allowed for communication using group objects.