SLOVENSKI STANDARD
SIST EN 50090-3-2:1997

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Home and building electronic systems (HBES) - Part 3-1: Aspects of application - User process

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

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

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

Ta slovenski standard je istoveten z: EN 50090-3-2:1995

ICS:

97.120	Avtomatske krmilne naprave za dom	Automatic controls for household use

SIST EN 50090-3-2:1997   **en**

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EUROPEAN STANDARD

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English version

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

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

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

This European Standard was approved by CENELEC on 1995-09-20. 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, 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

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Foreword

This European Standard has been prepared by the Technical Committee CENELEC TC 105, 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 50090-3-2 on 1995-09-20.

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)   1996-06-01

- latest date by which the national standards
  conflicting with the EN have to be withdrawn   (dow)   1996-06-01

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:   Transport layer and network layer

Part 5:   Media and media dependant layers

Part 6:   Interfaces

Part 7:   System management

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Introduction

This standard of the series on HBES standards deals with the user process. It is related to the HBES reference model as described in EN 50090-2-1.

1   Scope

This standard specifies the structure, the basic means and rules to describe the user process.

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 ared 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.

EN 50090-2-1   Home and Building Electronic Systems, HBES - Part 2-1: System overview, Architecture

EN 50090-3-1   Home and Building Electronic Systems, HBES - Part 3-1: Aspects of application: Introduction to the application structure

HD 592 S1   Binary floating-point arithmetic for microprocessor systems (IEC 559: 1989)

EN 29899   Programming Languages - C (ISO/IEC 9899:1990)

3   Definitions

For the purposes of this standard the definitions of EN 50090-2-1 and EN 50090-3-1 apply.

4   User process

4.1   Overview

The user process is that part of a device application process that belongs to the real system environment.

The device application process is constructed by application objects, which consist of data sets and HBES functions (see EN 50090-3-1).

As mentioned in EN 50090-2-1 the user process is divided in two parts, the local user process and the HBES user process. The method of description given in this standard has to be used for the HBES user process and may also be used for the local user process.

This method of description consists of

    - data sets

    - data sheets for HBES functions.

The user process itself is defined in EN 50090-2-1.

4.2   Data sets

4.2.1   Representation of information

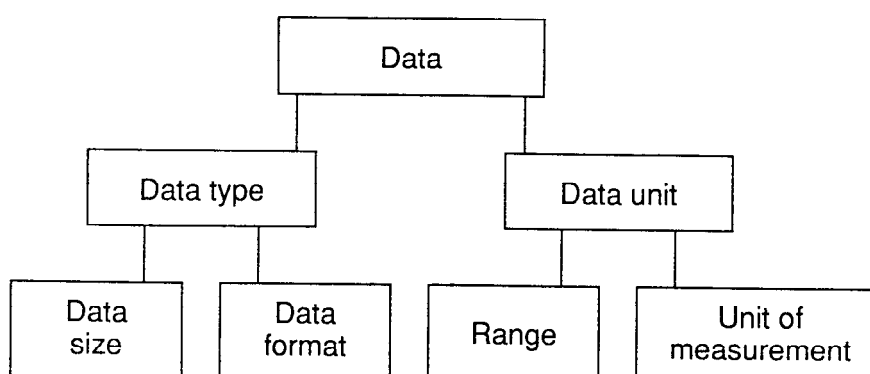The data of a data set are structured as shown in figure 1.

Figure 1: Data structure

The HBES data are given in detail in annex A.

The data sizes can be chosen from 1 bit up to n bytes. These data sizes can be selected for different HBES data types.

The data sizes are named as shown in table 1.

Examples of HBES data with data types and data units are shown in table 2.

The data format depends on the selection of the data type chosen. Each data type has well defined size and format.

In some cases the data unit is not defined. The units of measurement need not to be part of the communication and need not to be transmitted via the bus.

Table 1: Names of data sizes

Data size	Identifier
1 bit	U1
2 bits	U2
3 bits	U3
4 bits	U4
5 bits	U5
6 bits	U6
7 bits	U7
1 byte	UB1
2 bytes	UB2
3 bytes	UB3
4 bytes	UB4
n bytes	UBn

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Table 2: Examples of HBES data

Data				
	Data type		Data unit	
	Identifier	Format	Range	Unit of measurement
switching	U1	boolean		
dimming position	U1	boolean		
dimming control	U4	nibble		
dimming value	UB1	byte	OFF up to 100	%
scaling	UB1	unsigned integer	0 to 100	%
value	UB2	HBES floating point	-671088,64 to +670760,96	mA (current)
value	UB2	HBES floating point	-273 to +670760,96	°C (temperature)
time	UB3	bit string	second to week	second, minute, hour, day
date	UB3	bit string	day to 128 years	day, month, year

The table is not exhaustive.

4.2.2 Inputs and outputs

An element of a data set can correspond to an input from the local application process. This input then corresponds to an actual sensor, to a user action or to the result of a local operation. A data can also correspond to the input of a piece of information received from the HBES network, or generated by the application (e.g.: commands, ...) and/or transmitted over the HBES network.

An element of a data set can also correspond to an output generated by the local application process. This output can be transformed into a physical action (via a DAC, a relay output, etc. ...). It can also be used for a local dialogue.

An element of a data set may also correspond to the output of a piece of information that will be transmitted over the HBES network, or generated for use by the application itself, (e.g.: commands, ...). It is also possible that data, provided it is within a communication object) can correspond to both an input and an output to the HBES.

4.3 HBES functions

As explained in EN 50090-3-1, HBES functions allow detailed and consistent description of the application process. Each function can be defined by using a data sheet that comprises:

a) a verbal description of the operation;

b) inputs and outputs with name, value, type and unit, see annex A;

c) time diagram / status machine;

d) function block description;

e) description using the C-language according to EN 29899 (ANSI-C) or equivalent;

f) the ranges for SI units, see annex A.

Each description shall at least contain items a), b) and f).

Annex B gives an example of an unfilled form and of a filled form for such a data sheet.

Annex A (normative)

HBES data

A.1 Introduction

This annex reflects HBES data in detail. It reflects the current state of standardisation.
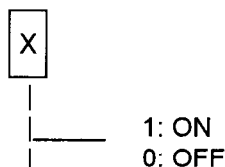
NOTE: There may be a need to provide for additional HBES data in the future.

A.2 HBES data: Switching

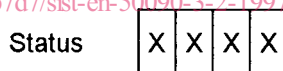A.2.1 Data size: U1

A.2.2 Definition:

Switching

```
        ┌───┐
        │ X │
        └───┘
          │
          │_____ 1: ON
          └────── 0: OFF
```

A.3 HBES data: Status

A.3.1 Data size: U4

A.3.2 Definition:

Status
```
┌───┬───┬───┬───┐
│ X │ X │ X │ X │
└───┴───┴───┴───┘
```
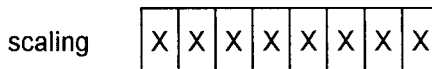
0: no reset
1: reset
   0: no change of state
   1: change of state
      0: normal
      1: faulty
         0: open/OFF
         1: closed/ON

A.4 HBES data: Scaling

A.4.1 Data size: UB1

A.4.2 Definition:

scaling
```
┌───┬───┬───┬───┬───┬───┬───┬───┐
│ X │ X │ X │ X │ X │ X │ X │ X │
└───┴───┴───┴───┴───┴───┴───┴───┘
```

0 0 0 0 0 0 0 0: reserved / off
0 0 0 0 0 0 0 1: "value low"

...

1 1 1 1 1 1 1 1: 100 %

NOTE: A scaling can have an offset