

# TECHNICAL REPORT

# ISO/IEC TR 15044

First edition  
2000-08

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## Information technology – Terminology for the Home Electronic System (HES)

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ISO/IEC TS 15044:2000  
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Reference number  
ISO/IEC TR 15044:2000(E)

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## CONTENTS

	Page
FOREWORD .....	3
Clause	
1 Scope .....	4
2 Terminology .....	4

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## INFORMATION TECHNOLOGY – TERMINOLOGY FOR THE HOME ELECTRONIC SYSTEM (HES)

### FOREWORD

- 1) ISO (International Organization for Standardization) and IEC (International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.
- 2) In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.
- 3) Attention is drawn to the possibility that some of the elements of this Technical Report may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC and ISO technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a technical report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where, for any other reason, there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when the technical committee has collected data of a different kind from that which is normally published as an International Standard, for example 'state of the art'.

Technical reports of types 1 and 2 are subject to review within three years of publication to decide whether they can be transformed into International Standards. Technical reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/IEC 15044, which is a technical report of type 2, was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

International Standards are drafted in accordance with ISO/IEC directives, Part 3.

This document is issued in the type 2 technical report series of publications (according to 15.2.2 of the Procedures for the technical work of ISO/IEC JTC 1 (1998)) as a prospective standard for provisional application in the field of the Home Electronic System (HES), because there is an urgent requirement for guidance on how standards in this field should be understood.

This document is not to be regarded as an International Standard. It is proposed for provisional application so that information and experience of its use in practice may be gathered. Comments on the content of this document should be sent to the IEC Central Office.

A review of this type 2 technical report will be carried out not later than three years after its publication with the option of extension for a further three years or conversion either to an International Standard or withdrawal.

# INFORMATION TECHNOLOGY – TERMINOLOGY FOR THE HOME ELECTRONIC SYSTEM (HES)

## 1 Scope

The home electronic system (HES) provides a common method for interfacing equipment with a variety of home control systems (HCS) such as sensors, actuators, appliances, user interfaces, controllers, switches etc. An HCS is a local area network specialized for residential communications, commonly called home automation.

This terminology is applicable to all standards and technical reports dealing with HES.

## 2 Terminology

### 2.1

#### **application**

field of use of an HES. An HES may support more than one application

### 2.2

#### **application object**

an HES object located within the HES device application process

### 2.3

#### **application process**

an element within an HES which performs the information processing for a particular application

### 2.4

#### **application protocol**

standardized protocol for the exchange of information between application processes in an HES. It is transported without interpretation by the home network resources

### 2.5

#### **architecture**

conceptual structure of systems that are to communicate with each other

### 2.6

#### **bridge**

functional unit interconnecting two home network systems that use the same network layer protocol but where there may be some differences in the link layer protocol

### 2.7

#### **classes of home control systems**

characterization of home control systems based on their transport capabilities

### 2.8

#### **connection**

association established between two peer entities across a network (or part of a network) for the purpose of communication between the entities. The association is explicitly established at some point in time, and exists until explicitly ended

**2.9****connection-mode service**

service providing communication between two entities within the context of a connection established between the entities

**2.10****connectionless-mode service**

service providing communication between two entities not within the context of a connection established between the entities

**2.11****control channel**

a communication channel that is established between two or more entities for the primary purpose of exchange of HES control and monitoring messages

**2.12****controller**

any device with the capability of controlling and possibly monitoring other devices

**2.13****device**

physical implementation of functions belonging to one or more functional groupings providing a service directly for an end-user

**2.14****device application process**

element within a device that performs information processing for a particular application. Device application processes can represent manual, automated, computerized or physical processes

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**2.15****domain**

range of validity

NOTE When used for a specific concept, the exact domain should be stated, for example application domain, user domain.

**2.16****end user**

entity outside the home control system domain that uses the services and functions of the home control system

**2.17****flow control**

function that controls the flow of data within a layer. It regulates the rate at which information is exchanged between peer entities

**2.18****functional grouping**

set of functions performing part of the operations of a home control system

NOTE The functions in a functional grouping might be performed in one or more pieces of equipment and the functions of several functional groupings might be performed in one piece of equipment.

**2.19****gateway**

unit connecting different networks or parts of one network and performing any necessary protocol translation

## 2.20

### HES device application process

that part of a device application process that is accessible through the HES communication network. An HES device application process is built up from application objects. The functionality of the HES device application process is defined in this series of standard or in appropriate product standards

## 2.21

### HES home network

home network supporting and including Universal Interfaces

## 2.22

### home control system

home network together with all the devices attached to it, including the rules for control, communication and management among application processes. Three classes of home control systems are defined

## 2.23

### home control system class 1

home control system with transport capabilities for telecontrol applications such as:

- control
- monitoring
- measurement
- alarm
- low-speed data transfer

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NOTE These capabilities are typically provided by:

- single packet-mode low bandwidth channel [ISO/IEC TS 15044:2000](https://standards.iteh.ai/catalog/standards/sist/c3a8bb81-77e5-42de-a946-c3402372535e/iso-iec-ts-15044-2000)
- digital transmission <https://standards.iteh.ai/catalog/standards/sist/c3a8bb81-77e5-42de-a946-c3402372535e/iso-iec-ts-15044-2000>

## 2.24

### home control system class 2

home control system with class 1 transport capabilities plus:

- switched voice or other information transfer of similar bandwidth

NOTE These capabilities are typically provided by a class 1 system enhanced with:

- multiple switched medium bandwidth channels
- analogue or digital transmission or both

In principle all class 2 capabilities can be supported on a single class 2 channel. For practical reasons however, class 2 home control systems may contain a separate channel or use a separate medium to support class 1 capabilities.

## 2.25

### home control system class 3

home control system with class 2 transport capabilities plus:

- switched high quality sound and video transfer and high speed data transfer

NOTE These capabilities are typically provided by a class 2 system enhanced with:

- multiple switched high bandwidth channels
- analogue or digital transmission or both

In principle all class 3 capabilities can be supported on a single class 3 channel. For practical reasons however, class 3 home control systems may contain separate channels or use separate media to support class 1 and 2 capabilities.

## 2.26

### home electronic system, HES

a home control system that conforms to the HES standards. There are three classes of HESs corresponding to the classes of home control systems



**2.27****home network**

internal network for digital and analogue information transport in home or business premises of similar complexity, providing defined access points and using any medium in any topology

**2.28****information channel**

a communication channel that is established between two or more entities for the primary purpose of exchange of information other than HES control and monitoring messages. Examples of such information are audio or video data, FAX data and analogue or digital speech signals

**2.29****interconnectivity**

ability of devices to be connected to a shared transmission medium by proper specification of mechanical, electrical and functional (lower layer protocol) characteristics

**2.30****interface**

shared boundary between two implementations of functions belonging to one or more functional groupings

**2.31****interoperability**

ability of devices to exchange commands via the higher layers resulting in meaningful actions. This includes aspects of the application domain which by definition is beyond the OSI domain

**2.32****isolating functions**

functions providing safety isolation between a device and an NAU

**2.33****local application process**

the part of an application process within a device that is not accessible through a communication network. It is located within the user domain and therefore may also be called the local user process

**2.34****medium attachment point**

physical connection point to a medium

**2.35****medium interface, MI**

interface placed at the medium attachment point, Reference Point A, which connects a device or a NAU directly to the transmission medium. Mechanical, electrical, functional and procedural characteristics are not provided in the HES standards

**2.36****network access point**

connection point giving access to a home network

**2.37****network access unit, NAU**

physical implementation of functions belonging to one or more functional groupings providing access to a home network and its transmission medium including the necessary functions for the particular implementation, for example contention control. It has one NSAP, and can be uniquely identified by one or more network addresses