TECHNICAL REPORT – TYPE 3

ISO/IEC TR 14762

First edition
2001-01

Information Technology – Home Control Systems – Guidelines for functional safety

PRICE CODE F

For price, see current catalogue

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INFORMATION TECHNOLOGY – HOME CONTROL SYSTEMS – GUIDELINES FOR FUNCTIONAL SAFETY

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 14762, which is a technical report of type 3, was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This document which is purely informative is not to be regarded as an International Standard. Comments on the content of this document should be sent to IEC Central Office.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

INTRODUCTION

This technical report gives guidance to the product committees, so that they can specify products using home control systems. It gives guidance on the default actions a device should take when it loses network access, and on the definition of the “safe” state of the product.

Verb forms such as “should” are used because a technical report is informative and should not contain requirements. However, if safety is to be achieved, compliance with the statement is compulsory.

INFORMATION TECHNOLOGY – HOME CONTROL SYSTEMS – GUIDELINES FOR FUNCTIONAL SAFETY

1 Scope

This technical report gives guidelines for functional safety of electrically-controlled devices intended to be integrated in a home control system (HCS), as defined in IEC Guide 110. These guidelines also apply to similar equipment having home and/or building control functions. Any reference to HCS includes similar equipment, such as sensors and activators for security and energy management.

1.1 User environment

This technical report is concerned with the safety of persons, surroundings, livestock and domestic animals. It includes personal protection against electric shock, effects of excessive temperature, radiation, explosion, implosion, mechanical stability and moving parts, as well as protection against fire. It covers safety both in homes and non-industrial buildings. (See IEC Guide 104.)

This technical report specifies requirements intended to ensure safety for the user and layperson who may come into contact with the equipment and, where specifically stated, for service personnel (see clause 1 of IEC 60950).

An HCS should comply with the requirements for functional safety indicated in this report. In addition, the individual equipment integrated into an HCS should comply with relevant product safety standards.

1.2 Hazards

Application of this technical report is intended to prevent injury or damage due to any of the following hazards that could result from malfunction or failure of an HCS:

- electric shocks;
- energy hazards;
- fire;
- mechanical and heat hazards;
- radiation hazards;
- chemical hazards.

Included is safety in homes and non-industrial buildings for persons, surroundings, livestock and domestic animals.

1.3 Conditions

This technical report covers all conditions of normal use and fault conditions.

Foreseeable misuse should be taken into consideration; however, sabotage, *force majeure* and intentional damage are excluded.

After abnormal operation or in a fault condition, a device should not interfere with the safety of the HCS and should remain safe for the user as defined in the relevant product safety standard. It is not required that the device should still be in full working order.

1.4 Possible protection measures

The following measures are suggested:

- measures to prevent an HCS from interfering with the safety of a device connected to the HCS;
- measures to ensure that a malfunction or a failure of an HCS does not impair the safety level of devices integrated into the system;
- measures to prevent a device integrated into an HCS from interfering with the safety of the HCS, or other devices connected to the HCS.

Some examples of such measures are

– appropriate installation of a device;
– adequate electrical safety of interface modules;
– control of HCS access;
– verification of safety critical information;
– safe mode of a device in the event of a malfunction or a failure of the HCS.

Relevant information should be given within installation or operation manuals (or instruction sheets).

2 Reference documents

IEC Guide 104, *The preparation of safety publications and the use of basic safety publications and group safety publications*

IEC Guide 110, *Home control systems – Guidelines relating to safety*

IEC Guide 112:2000, *Guide on the safety of multimedia equipment*

IEC 60065:1998, *Audio, video and similar electronic apparatus – Safety requirements*

IEC 60364 (all parts), *Electrical installation of buildings*

IEC 60950, *Safety of information technology equipment*

IEC 61508 (all parts), *Functional safety of electrical/electronic/programmable electronic safety-related systems*