

English version

**Electrical safety –
Classification of interfaces for equipment
to be connected to information and communications
technology networks
(IEC/TR 62102:2005)**

Sécurité électrique –
Classification des interfaces
pour les matériels destinés à être
connectés à des réseaux de traitement
de l'information et de communication
(CEI/TR 62102:2005)

Elektrische Sicherheit –
Klassifizierung der Schnittstellen
für den Anschluss von Geräten an
Informations- und Kommunikationsnetze
(IEC/TR 62102:2005)

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CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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Foreword

The text of the Technical Report IEC/TR 62102:2005, prepared by IEC TC 108, Safety of electronic equipment within the field of audio/video, information technology and communication technology, was submitted to the formal vote and was approved by CENELEC as CLC/TR 62102 on 2005-10-08.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the Technical Report IEC/TR 62102:2005 was approved by CENELEC as a Technical Report without any modification.

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Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

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.

NOTE Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60950-1 (mod)	2001	Information technology equipment – Safety Part 1: General requirements	EN 60950-1	2001
IEC 60950-21	2002	Information technology equipment - Safety Part 21: Remote power feeding	EN 60950-21	2003

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INTRODUCTION

This technical report is a guide to the determination of the interface requirements for equipment in terms of safety. It lists a number of interfaces and indicates the safety category of each listed interface. This technical report does not contain sufficient detail for conformance testing purposes, except when used in conjunction with product standards such as IEC 60950-1 and IEC 60950-21.

The equipment safety standards IEC 60950-1 and IEC 60950-21 specify the requirements for categories of circuits as **SELV circuits**, **TNV circuits**, **RFT circuits** and **hazardous voltage circuits** (among others). For stand-alone equipment it is a relatively simple matter to determine the different categories of circuits. However, an equipment which has data port interfaces is intended to be connected to other equipment, either locally or via a network. In this case, the safety categories of the interfaces which will be connected together have to be compatible with each other. Furthermore, the category of the interface of the remote equipment may be unknown. This is the case in systems where telecommunication equipment and data processing equipment are connected together via different types of interfaces and networks.

To overcome this situation it is necessary to classify the interfaces of equipment in such configurations according to the application and to select the safety category for the interfaces of the equipment and for the type of the network. Similarly, the interfaces have to be classified for protection against damage of the equipment and of the network. Aspects of protection are dealt with in the ITU-T K series of recommendations.

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ELECTRICAL SAFETY – CLASSIFICATION OF INTERFACES FOR EQUIPMENT TO BE CONNECTED TO INFORMATION AND COMMUNICATIONS TECHNOLOGY NETWORKS

1 Scope

This technical report applies to equipment interfaces. These interfaces within the equipment may be connected to **telecommunication networks**, may form part of the **telecommunication network** infrastructure or may provide localized transfer of data. This technical report provides guidance on the classification of interfaces in accordance with the circuit types defined in IEC 60950-1 and IEC 60950-21 following an analysis of the **telecommunication network** characteristics.

This technical report only covers equipment appropriately interconnected. Furthermore, it does not address damage caused by one equipment to another equipment to which it is connected. Exceptionally, interfaces may be designed for higher or lower levels for special applications. In such cases it should be ensured that only interfaces having the same safety category and protection level are connected together. This is based on the available specifications of the equipment manufacturers and network providers, and on information regarding the installation category of the mains interface.

This technical report is intended to be used by equipment designers, network operators, network regulators/authorities, standards writers and network installers. It is applicable to various interfaces of equipment. Network presentations are not equipment and so are not covered by IEC 60950-1 and IEC 60950-21; hence they are also not covered by this technical report. However, it is necessary to consider the characteristics, installation and presentation of **telecommunication networks** when determining what equipment interface requirements apply (for example, **SELV circuit**, **TNV-1 circuit**, **TNV-2 circuit**, **TNV-3 circuit** etc.).

If a standard other than IEC 60950-1 or IEC 60950-21 is used for designing the equipment and its interface (for example, IEC 62151 in conjunction with other product safety standards), then the corresponding requirements of these other standards are to be preferred.

If there is a conflict between this technical report and a more detailed specification, the latter prevails.

This technical report applies regardless of ownership or responsibility for installation and maintenance of the equipment or network.

NOTE Terminal equipment is often connected to customer premises cabling when used in a business environment, and there are standards covering such cabling.

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.

IEC 60950-1:2001, *Information technology equipment – Safety – Part 1: General requirements*

IEC 60950-21:2002, *Information technology equipment – Safety – Part 21: Remote power feeding*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 Definitions from IEC 60950-1

3.1.1

a.c. mains supply

a.c. power distribution system external to the equipment for supplying power to a.c. powered equipment. These power sources include public or private utilities and, unless otherwise specified in the standard, equivalent sources such as motor-driven generators and uninterruptible power supplies

[IEC 60950-1, definition 1.2.8.1]

3.1.2

hazardous voltage

voltage exceeding 42,4 V peak, or 60 V d.c., existing in a circuit which does not meet the requirements for either a **limited current circuit** or a **TNV circuit**

[IEC 60950-1, definition 1.2.8.5]

3.1.3

limited current circuit

circuit which is so designed and protected that, under both normal operating conditions and single fault conditions, the current which can be drawn is not hazardous

[IEC 60950-1, definition 1.2.8.8]

3.1.4

primary circuit

circuit which is directly connected to the **a.c. mains supply**. It includes, for example, the means for connection to the **a.c. mains supply**, the primary windings of transformers, motors and other loading devices

[IEC 60950-1, definition 1.2.8.3]

3.1.5

secondary circuit

circuit which has no direct connection to a **primary circuit** and derives its power from a transformer, converter or equivalent isolation device, or from a battery

[IEC 60950-1, definition 1.2.8.4]

3.1.6

SELV circuit

secondary circuit which is so designed and protected that under normal operating conditions and single fault conditions, its voltages do not exceed a safe value

[IEC 60950-1, definition 1.2.8.7]

3.1.7

TNV circuit (including TNV-1 circuit, TNV-2 circuit, TNV-3 circuit)

circuit that is in the equipment and to which the accessible area of contact is limited and that is so designed and protected that, under normal operating conditions and single fault conditions, the voltages do not exceed specified limit values

[IEC 60950-1, definition 1.2.8.10]