BRITISH STANDARD

BS EN
61310-1:2008

Safety of machinery — Indication, marking and actuation —

Part 1: Requirements for visual, acoustic and tactile signals

ICS 13.110; 29.020

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BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 61310-1:2008. It is identical to IEC 61310-1:2007. It supersedes BS EN 61310-1:1995 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/44, Safety of machinery — Electrotechnical aspects.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Sicherheit von Maschinen - Anzeigen, Kennzeichen und Bedienen - Teil 1: Anforderungen an sichtbare, hörbare und tastbare Signale (IEC 61310-1:2007)

This European Standard was approved by CENELEC on 2007-12-01. 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.

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CENELEC

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

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Foreword

The text of document 44/540/FDIS, future edition 2 of IEC 61310-1, prepared by IEC TC 44, Safety of machinery - Electrotechnical aspects, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61310-1 on 2007-12-01.

This European Standard supersedes EN 61310-1:1995.

EN 61310-1:2007 includes the following significant technical changes with respect to EN 61310-1:1995:

– adapted to the basic standards EN 60073, IEC 60417, ISO 3864-1, ISO 7000 and ISO 7010.

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)	2008-09-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2010-12-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directives MD (98/37/EC) and MD (2006/42/EC). See Annex ZZ.

Annexes ZA and ZZ have been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 61310-1:2007 was approved by CENELEC as a European Standard without any modification.

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INTRODUCTION

This standard should be used by suppliers of machines for which no product family or dedicated product standard exists. The requirements of this standard should also be used, for example, as a reference standard by ISO and IEC technical committees which prepare product family or dedicated product standards for machines. Where a product family or dedicated product standard exists, its requirements take precedence.

At human-machine interfaces, warning and danger signals need to convey safety-related meanings for the safe use and monitoring of machinery for exposed persons and operators.

It is via the human-machine interface that the operator interacts with the machinery or process in an open-loop system (see Figure 1). This interface consists of actuators, by means of which the operator initiates actions, and indicating devices, through which the operator receives information. In many applications, the information is represented by a signal which is encoded by a distinct set of rules and the operator has then to interpret the signal according to these rules. Different types of coding such as colour, shape or time are used as appropriate to the demands of the task of the operator.

The reasons for using codes are:

– to permit the spatial separation of the machinery from centralized control stations;
– to increase the perceptible amount of information given by an indicating device, for example, per display area unit, per unit of time;
– to decrease the mental work-load of an operator and/or exposed persons.

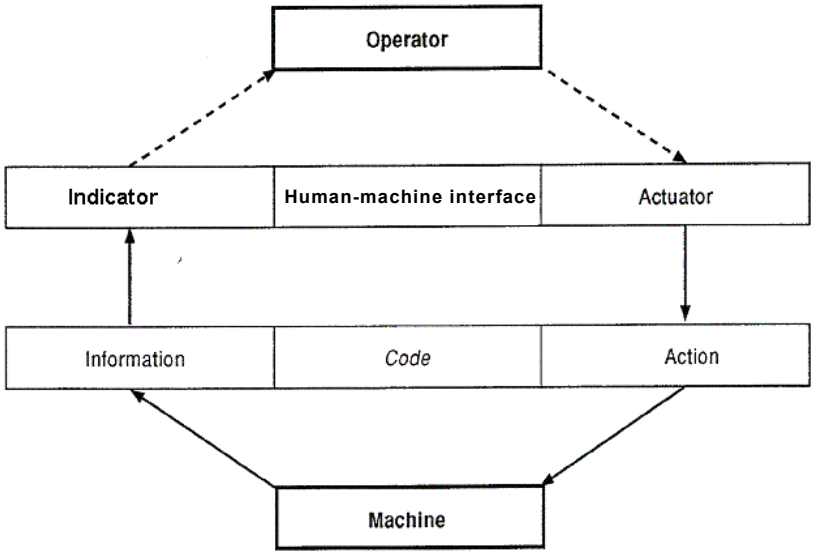


Figure 1 – Open-loop control, action and information systems

SAFETY OF MACHINERY – INDICATION, MARKING AND ACTUATION –

Part 1: Requirements for visual, acoustic and tactile signals

1 Scope

This part of IEC 61310 specifies requirements for visual, acoustic and tactile methods of indicating safety-related information, at the human-machine interface and to exposed persons.

It specifies a system of colours, safety signs, markings and other warnings, intended for use in the indication of hazardous situations and health hazards and for meeting certain emergencies. It also specifies ways of coding visual, acoustic and tactile signals for indicators and actuators to facilitate the safe use and monitoring of the machinery.

This standard is based on IEC 60073 with regard to coding by colour and alternative means, but is not limited to electrotechnical aspects.

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 60073:2002, *Basic and safety principles for man-machine interface, marking and identification – Coding principles for indicators and actuators*

IEC 60204-1:2005, *Safety of machinery – Electrical equipment of machines – Part 1: General requirements*

IEC 60417, *Graphical symbols for use on equipment*

ISO 3864-1:2002, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs in workplaces and public areas*

ISO 7000:2004, *Graphical symbols for use on equipment – Index and synopsis*

ISO 7010:2003, *Graphical symbols – Safety colours and safety signs – Safety signs used in workplaces and public areas*

ISO 7731:2003, *Ergonomics – Danger signals for public and work areas – Auditory danger signals*

ISO 13850, *Safety of machinery – Emergency stop – Principles for design*