AS/NZS 4024.1904:2014
IEC 61310-1, Ed. 2.0 (2007)

AS/NZS 4024.1904:2014

Australian/New Zealand Standard™

Safety of machinery

Part 1904: Displays, controls, actuators and signals—Indication, marking and actuation—Requirements for visual, auditory and tactile signals

STANDARDS Australia

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This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee SF-041, General Principles for the Guarding of Machinery. It was approved on behalf of the Council of Standards Australia on 5 June 2014 and on behalf of the Council of Standards New Zealand on 24 April 2014.
This Standard was published on 30 June 2014.

The following are represented on Committee SF-041:

Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Manufacturing Workers Union
Department of Mines and Petroleum, WA
Department of the Premier and Cabinet, SA
Engineers Australia
Federal Chamber of Automotive Industries
Human Factors and Ergonomics Society of Australia
Institute of Instrumentation, Control and Automation
National Safety Council of Australia
New Zealand Electrical Institute
NSW Department of Trade and Investment, Regional Infrastructure and Services
Safety Institute of Australia
University of Melbourne
Winery Engineering Association
WorkCover New South Wales
WorkSafe NZ
WorkSafe Victoria

This Standard was issued in draft form for comment as DR AS/NZS 4024.1904.

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Originated in Australia as part of AS 4024.1(Int)—1992.
Previous edition AS 4024.1904—2006.
Jointly revised and designated as AS/NZS 4024.1904:2014.

ISBN 978 1 74342 750 7

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee SF-041, General Principles for the Guarding of Machinery, to supersede AS 4024.1904—2006.

It is emphasized that this Standard is part of the AS(/NZS) 4024.1 series and it is imperative that it is used in conjunction with other applicable parts of the series. A complete listing of all current parts of the AS(/NZS) 4024.1 series can be found at the Standards Australia website <www.standards.org.au> and in AS/NZS 4024.1100, *Safety of machinery*, Part 1100: *Application Guide*.

The objective of this Standard is to specify the 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 identical with, and has been reproduced from IEC 61310-1 Ed. 2.0 (2007), *Safety of machinery—Indication, marking and actuation*, Part 1: *Requirements for visual, acoustic and tactile signals.*

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text 'this part of IEC 61310' should read 'this Australian/New Zealand Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian/New Zealand Standard*	
ISO		AS/NZS	
		4024	Safety of machinery
13850	Safety of machinery—Emergency stop—Principles for design	4024.1604	Part 1604: Design of controls, interlocks and guarding—Emergency stop—Principles for design
IEC		AS	
60204	Safety of machinery—Electrical equipment of machines	60204	Safety of machinery—Electrical equipment of machines
60204-1	Part 1: General requirements	60204.1	Part 1: General requirements (IEC 60204-1, Ed. 5 (FDIS) MOD)

The term 'informative' has been used in this Standard to define the application of the annex to which it applies. An 'informative' annex is only for information and guidance.

CONTENTS

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.

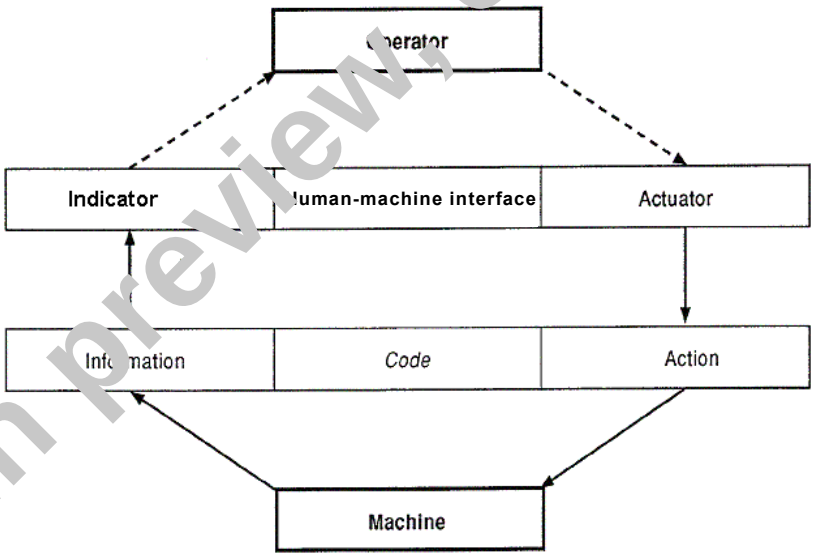

Figure 1 – Open-loop control, action and information systems

AUSTRALIAN/NEW ZEALAND STANDARD

Safety of machinery

Part 1904:
Displays, controls, actuators and signals—Indication, marking and actuation—Requirements for visual, auditory 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*