

Australian Standard[®]

**Automatic fire detection and alarm
systems**

Part 11: Visual warning devices



This Australian Standard® was prepared by Committee FP-002, Fire Detection, Warning, Control and Intercom Systems. It was approved on behalf of the Council of Standards Australia on 8 September 2010.
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- Audio Engineering Society
 - Australasian Fire and Emergency Service Authorities Council
 - Australian Building Codes Board
 - Australian Chamber of Commerce and Industry
 - Australian Industry Group
 - Australian Institute of Building Surveyors
 - CSIRO Manufacturing & Materials Technology
 - Deafness Forum of Australia
 - Department of Defence (Australia)
 - Fire Protection Association Australia
 - National Electrical and Communications Association
 - National Fire Industry Association
 - Property Council of Australia
 - Security Providers Association of Australia
 - Society of Fire Safety
-

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Part 11: Visual warning devices

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PREFACE

This Standard was prepared by Committee FP-002, Fire Detection, Warning, Control and Intercom Systems.

The objective of this Standard is to provide manufacturers and designers of fire detection and alarm systems with requirements for the design and performance of visual warning devices for use in fire detection, warning, control and intercom systems.

This Standard differs from the last edition in the following ways:

- (a) Synchronization is now an optional function.
- (b) Provision for evacuation and alert signals to ISO 7731 and ISO 8201 respectively.

Each optional function is included as a separate entity, with its own set of associated requirements, in order to permit visual warning devices with many different combinations of functions to comply with this Standard.

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STANDARDS AUSTRALIA

Australian Standard
Automatic fire detection and alarm systems

Part 11: Visual warning devices

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the design and performance of visual warning devices (VWDs) for use in fire detection, warning, control and alarm systems.

1.2 APPLICATION

This Standard applies to VWDs intended to provide a visual warning to hearing-impaired persons, persons employed in high ambient noise environments, and persons in environments such as hospital wards where aural alarms could have adverse effects, or as an instructional reinforcement to aural alarms. The VWDs are classified as shown in Clause 1.3.

1.3 CLASSIFICATION

VWDs shall be classified as follows:

- (a) Internally illuminated type.
- (b) LED matrix type.
- (c) Programmable message type.
- (d) Strobe type.

1.4 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

1670	Fire detection, warning, control and intercom systems—System design, installation and commissioning
1670.1	Part 1: Fire
1670.4	Part 4: System design, installation and commissioning—Sound systems and intercom systems for emergency purposes
2362	Fire detection, warning, control and intercom systems
2362.4	Method 4: Voltage stability test
2362.13	Method 13: Corrosion test
2362.16	Method 16: Impact test
2484	Fire—Glossary of terms relating to fire tests
2484.1	Part 1: Fire tests
2484.2	Part 2: Fire protection and firefighting equipment
2706	Numerical values—Rounding and interpretation of limiting values
3121	Approval and test specification—Insulating mouldings

AS

3786 Smoke alarms

60068 Environmental testing

60068.2.1 Part 2.1: Tests—Test A: Cold

60068.2.2 Part 2.2: Tests—Test B: Dry heat

60068.2.5 Part 2.5: Tests—Test Sa: Simulated solar radiation at ground level

60068.2.6 Part 2.6: Tests—Test Fc: Vibration (sinusoidal)

60068.2.30 Part 2.30: Tests—Test Db and guidance: Damp heat, cyclic (12 + 12-hour cycle)

60068.2.42 Part 2.42: Tests—Test Kc: Sulphur dioxide test for contacts and connections

60068.2.75 Part 2.75: Tests—Test Eh: Hammer tests

60529 Degrees of protection provided by enclosures (IP Code)

AS/NZS

3100 Approval and test specification—General requirements for electrical equipment

ISO

7731 Ergonomics—Danger signals for public and work areas—Auditory danger signals

8201 Acoustics—Audible emergency evacuation signal

UL

1638 Visual signalling appliances—Private mode emergency and general utility signalling

EN

50130-4 Alarms systems. Electromagnetic compatibility. Product family standard: Immunity requirements for components of fire, intruder and social alarm systems

1.5 DEFINITIONS

For the purpose of this Standard, the definitions given in AS 2484.1, AS 2484.2 and those below apply.

1.5.1 Internally illuminated visual warning device

A device that is illuminated by an internal light source in the alarm mode, to reveal an instructional message.

1.5.2 Programmable message type visual warning device

A device that provides a programmable visual warning, in an alphanumeric format, in the active state.

1.5.3 Visual warning device (VWD)

A device that provides a visual warning of an alarm state.

1.6 INTERPRETATION OF SPECIFIED LIMITING VALUES

For the purpose of assessing compliance with this Standard, the specified limiting values herein shall be interpreted in accordance with the ‘rounding method’ described in AS 2706, that is, the observed or calculated value shall be rounded to the same number of figures as in the specified limiting value and then compared with the specified limiting value. For example, for specified limiting values of 2.5, 2.50 and 2.500, the observed or calculated value would be rounded respectively to the nearest 0.1, 0.01 and 0.001.

SECTION 2 FUNCTIONS

2.1 GENERAL

The VWD shall reliably respond to input of a signal from the associated control and indicating equipment.

2.2 LIGHTING LEVELS AND FLASH RATE FOR INTERNALLY ILLUMINATED FIXED MESSAGE TYPE VWDs

2.2.1 Mean luminance

The mean luminance for internally illuminated VWDs shall be as follows:

- (a) Category 1 (low ambient light conditions)—25 to 150 candelas per square metre (cd/m^2).
- (b) Category 2 (high ambient light conditions)—100 to 350 cd/m^2 .

2.2.2 Luminance ratios

Where either the characters or the background is white, the mean luminance of the coloured portion of the VWD, when compared with the mean luminance of the white portions, shall be within the limits given in Table 2.1.

TABLE 2.1
INTERNALLY ILLUMINATED COLOUR/WHITE
LUMINANCE RATIOS

Colour	Ratio
Red	0.05 to 0.15
Yellow	0.7 min
Green	0.15 to 0.20
Blue	0.02 to 0.10

2.2.3 Uniformity

The ratio of maximum luminance to minimum luminance of any one colour across a VWD shall be not more than 6 to 1.

2.2.4 Flash rate

For internally illuminated type VWDs intended to flash in the alarm mode, the flash rate shall be between 1 Hz and 3 Hz and shall have a mark-to-space ratio of 1:1.

2.2.5 Synchronization—Optional function

The internally illuminated type VWD may have provision for synchronization, in which case a facility shall be provided to enable the synchronization of the flash of multiple units.

NOTE: Synchronization is used when multiple units are installed within the same viewing area.

2.3 LIGHTING LEVELS AND FLASH RATE FOR LED MATRIX FIXED MESSAGE TYPE VWDs

2.3.1 Mean luminance

The mean luminance for LED matrix VWDs shall be not less than 180 cd/m^2 .