

Australian Standard[®]

Illuminated flashing arrow signs



This Australian Standard® was prepared by Committee LG-006, Road traffic signals. It was approved on behalf of the Council of Standards Australia on 14 August 2006. This Standard was published on 28 August 2006.

The following are represented on Committee LG-006:

- ARRB Transport Research Ltd
- AUSTRROADS
- Australian Electrical and Electronic Manufacturers Association
- Australian Industry Group
- Brisbane City Council
- Commonwealth Department of Transport and Regional Services
- Department for Transport, Energy and Infrastructure (SA)
- IES: The Lighting Society
- Local Government New Zealand
- Roads and Traffic Authority of NSW
- VicRoads

Additional Interests:

- A1 Roadlines Pty Ltd
 - A D Engineering Pty Ltd
 - Aldridge Electrical Industries Pty Ltd
 - Aldridge Traffic Systems Pty Ltd
 - Arrow Emergency Systems
 - BARTCO Pty Ltd
 - Gold Leaf Automotive and Industrial Pty Ltd
 - Main Roads Department, Queensland
 - Roadrunner Parts
 - Roads & Traffic Authority of NSW
 - Steve Jenkins Associates
 - Tech Road
 - Traffic Technology International Pty Ltd
 - Traffictech
 - Watershift
-

This Standard was issued in draft form for comment as DR 05543.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through public comment period.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting www.standards.org.au

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

Australian Standard[®]

Illuminated flashing arrow signs

Originated as AS/NZS 4192:1994.
Second edition 2004.
Reissued incorporating Amendment No. 1 (February 2007).

COPYRIGHT

© Standards Australia

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Published by Standards Australia, GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 7698 1

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee LG-006, Road Traffic Signals, to supersede AS/NZS 4192:1994.

A1

This Standard incorporates Amendment No. 1 (February 2007). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The use of illuminated flashing arrow signs is subject to regulation by traffic control authorities. Guidance on their use is provided in AS 1742.3, *Manual on uniform traffic control devices*, Part 3: *Traffic control devices for works on roads*.

The significant technical changes that have been made in this Standard from the previous publication relate in general, to the replacement of three prescribed light sources with a performance-based specification for the light-emitting elements. Specifically this involves the following:

- (a) Revision of display panel sizes.
- (b) Definition of light-emitting elements.
- (c) Specification of element sizes.
- (d) Specification of luminous intensity distributions for large and small elements.
- (e) Revised chromaticity boundaries for elements.
- (f) Choice of large or small elements for both size A and B signs.
- (g) Separation of sign size from mounting style (e.g. size C signs not necessarily trailer mounted).
- (h) Provision of detailed requirements for photometric and colorimetric measurements.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	5
1.2 REFERENCED DOCUMENTS	5
1.3 DEFINITIONS	6
1.4 SIGN CLASSIFICATION	6
1.5 WARNING NOTICE.....	6
1.6 INSTRUCTION MANUAL.....	7
1.7 MARKING	7
SECTION 2 GENERAL DESIGN ARRANGEMENT AND PHOTOMETRIC REQUIREMENTS	
2.1 LIGHT-EMITTING ELEMENTS.....	8
2.2 SIGN SIZES AND VIEWING DISTANCES	12
2.3 DIMENSIONS AND ELEMENT LAYOUT	12
2.4 MOUNTING AND SCREENING OF LIGHT-EMITTING ELEMENTS	15
2.5 SURFACE FINISHES	15
2.6 ACCESS FOR MAINTENANCE	16
SECTION 3 SIGN OPERATION AND CONTROL	
3.1 LAMP SWITCHING SEQUENCES.....	17
3.2 PROVISION FOR FAIL-SAFE OPERATION.....	17
3.3 OPERATOR CONTROLS.....	17
3.4 LIGHT SENSOR.....	18
3.5 AUTOMATIC DIMMING FACILITY	21
3.6 ELEMENT OFF INTENSITY	21
3.7 LAMP SUPPLY VOLTAGE	21
3.8 LOW VOLTAGE PROTECTION	21
3.9 DRIVE CURRENT.....	21
3.10 OVERLOAD PROTECTION	21
3.11 ELECTROMAGNETIC COMPATIBILITY	21
SECTION 4 ENVIRONMENTAL REQUIREMENTS	
4.1 GENERAL CONSTRUCTION.....	22
4.2 TEMPERATURE AND HUMIDITY	22
4.3 ENCLOSURE PROTECTION.....	22
4.4 WIND LOADING	22
SECTION 5 PARTICULAR REQUIREMENTS FOR VEHICLE-MOUNTED SIGNS	
5.1 ARRANGEMENT	24
5.2 MOUNTING FACILITIES.....	24
5.3 POWER SUPPLY.....	24
5.4 INTERCONNECTING CABLES	24
SECTION 6 PARTICULAR REQUIREMENTS FOR TRAILER-MOUNTED SIGNS	
6.1 ARRANGEMENT.....	25
6.2 SECURITY.....	25
6.3 POWER SUPPLY SYSTEM	25
6.4 MOTOR-DRIVEN GENERATOR (where applicable).....	25
6.5 BATTERIES.....	26

6.6 TRAILER 26
6.7 WARNING NOTICE..... 26

APPENDICES

A PURCHASING GUIDELINES..... 27
B TEST CONDITIONS AND PROCEDURES FOR PHOTOMETRIC AND
COLORIMETRIC MEASUREMENTS..... 28
C SELECTION OF SUN SOURCES FOR SUN-PHANTOM MEASUREMENTS 34

STANDARDS AUSTRALIA

Australian Standard Illuminated flashing arrow signs

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the design, construction and performance of signs intended to display specific patterns of flashing yellow, circular lit elements, including arrows, typically used for the temporary diversion of vehicular traffic on roads. It specifies three sizes of sign, which are typically mounted on either a motor vehicle or trailer.

The Standard states the intended maximum viewing distance for each type of sign specified but it does not cover the appropriate use of each type. That is dealt with in AS 1742.3 and is normally the subject of regulation by the relevant traffic authority.

NOTE: See Appendix A for details of the information that should be supplied with an enquiry or order for illuminated flashing arrow signs to this Standard.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

- | | |
|--------|--|
| 1742 | Manual of uniform traffic control devices |
| 1742.3 | Part 3: Traffic control devices for works on roads |
| 4177 | Caravan and light trailer towing components |
| 4177.5 | Part 5: Electrical connectors |
| 60529 | Degrees of protection provided by enclosures (IP Code) |

AS/NZS

- | | |
|--------|---|
| 1170 | Structural design actions |
| 1170.2 | Part 2: Wind actions |
| 2344 | Limits of electromagnetic interference from overhead a.c. power lines |
| 2633 | Guide to the specification of colours |

CISPR 14.1 Electromagnetic compatibility—Requirements for household appliances, electric tools and similar apparatus—Emission

CIE

- | | |
|------|--|
| 15 | Colorimetry |
| 18.2 | The basis of physical photometry |
| 70 | The measurement of absolute luminous intensity distributions |

OTHER DOCUMENTS

Vehicle Standards Bulletin No. 1: Building small trailers. Federal Office of Road Safety, Canberra.

National Occupational Health and Safety Commission, NOHSC 1007, National Standard for Occupational Noise