

Australian Standard<sup>®</sup>

**Electronic flame safeguards and flame  
detectors**



This Australian Standard® was prepared by Committee AG-013, Components Used for Gas Appliances and Equipment. It was approved on behalf of the Council of Standards Australia on 10 December 2008.

This Standard was published on 31 December 2008.

---

The following are represented on Committee AG-013:

- Appliance and Component Testing
  - Association of Accredited Certification Bodies
  - Energy Networks Association
  - Engineers Australia
  - Gas Appliance Manufacturers Association of Australia
  - Gas Appliances and Services Association
  - Gas Technical Regulators Committee
  - LPG Australia
- 

This Standard was issued in draft form for comment as DR 08143.

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 the 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Standards may also be withdrawn.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](http://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](mailto:mail@standards.org.au), or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

---

Australian Standard<sup>®</sup>

**Electronic flame safeguards and flame detectors**

Originated as AG 210—1976.  
Republished and designated as AS 4625—2005.  
This edition 2008.

**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 8988 9

## PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee AG-013, Components Used for Gas Appliances and Equipment, to supersede AS 4625—2004. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to retain this Standard as an Australian Standard rather than develop it as an Australian/New Zealand Standard.

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, testing laboratories and similar organizations with uniform minimum requirements for the safety, performance and use of combination controls for electronic flame safeguards and flame detectors.

This Standard should not be regarded as a design specification or as an instruction manual.

In its preparation, consideration has been given to—

- (a) continuity of satisfactory operation;
- (b) the prevention of fire hazards, and explosions;
- (c) the prevention of injury to persons or property;
- (d) gas rules and regulations now in force; and
- (e) relevant International Standards.

The revision of the Standard focused on its alignment with EN 298 as it is the referenced standard for microprocessor and programmable flame safeguards. The intention was not to supersede the previous edition of AS 4625 with EN 298 but to complement and preserve the Australian local requirements. A number of new definitions were added and the classification of flame safeguards expanded to reflect the EN 298 notation and to better align with the Australian classification. In some cases, this was done to reflect and clarify what is used in the appliance application standards. Where needed, clarification of clauses and their intent was also undertaken as well as some revision of specific methods of test.

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.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements of this Standard.

## CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE .....	4
1.2 REFERENCED DOCUMENTS .....	4
1.3 DEFINITIONS .....	4
1.4 GENERAL REQUIREMENTS .....	6
1.5 CLASSIFICATION .....	7
SECTION 2 CONSTRUCTION AND DESIGN	
2.1 MATERIALS .....	9
2.2 CONSTRUCTION.....	9
2.3 DESIGN .....	10
2.4 MARKINGS .....	11
2.5 INSTRUCTIONS .....	11
SECTION 3 PERFORMANCE REQUIREMENTS	
3.1 GENERAL .....	13
3.2 ELECTRICAL.....	13
3.3 FLAME DETECTORS.....	13
3.4 FLAME FAILURE RESPONSE.....	14
3.5 COMPLIANCE WITH REQUIREMENTS .....	14
3.6 SAFE START CHECK.....	15
3.7 CONTINUAL SELF-CHECK .....	15
3.8 PROGRAMMING FUNCTION .....	16
3.9 DURABILITY .....	17
APPENDICES	
A METHOD OF TEST—MARKINGS AND LABELS (CLAUSE 2.4.4).....	19
B METHOD OF TEST—FLAME FAILURE RESPONSE (OTHER THAN TYPE C) (CLAUSES 3.1, 3.2.1, 3.2.2, 3.4.1, 3.4.4).....	20
C METHOD OF TEST—FLAME FAILURE RESPONSE (TYPE C) (CLAUSES 3.1, 3.2.1, 3.2.2, 3.4.2, 3.4.3).....	23
D METHOD OF TEST—VIEWING CELL RESPONSE (CLAUSE 3.3.2) .....	25
E METHOD OF TEST—OPEN-CIRCUIT AND SHORT-CIRCUIT OF FLAME DETECTOR (CLAUSE 3.3.3).....	26
F METHOD OF TEST—AIR INTERLOCK (CLAUSE 3.8).....	27
G METHOD OF TEST—DURABILITY (CLAUSES 3.9.1 and 3.9.2) .....	28
H SUPPLEMENT TO METHOD OF TEST IN APPENDIX G ON DURABILITY .....	30
I AS 4625 CLASS AND EN 298 CLASSIFICATION EQUIVALENCE GUIDE.....	32

## STANDARDS AUSTRALIA

---

**Australian Standard**  
**Electronic flame safeguards and flame detectors**

---

## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE**

The requirements of this Standard apply to electronic flame safeguards and flame detectors for use on gas or multi-fuel burners.

They do not cover complete burner management systems except insofar as the flame safeguard has provision to be interlocked into the burner management system.

Compliance with these requirements does not imply acceptability for use without supplemental tests or conditions in an intended application. The relevant application Standards should be referred to for more specific requirements.

**1.2 REFERENCED DOCUMENTS**

The following documents are referenced in this Standard:

AS

4620 Thermoelectric flame safeguards

4622 Electrical and electronic ignition devices for gas appliances

EN

298 Automatic gas burner control systems for gas burners and gas burning appliances with or without fans

**1.3 DEFINITIONS****1.3.1 Atmospheric burner**

A burner where all the air for combustion is provided at atmospheric pressure and is introduced by inspirating effect of an injector and/or by the natural draught in the combustion chamber.

**1.3.2 Authority**

Means the authority having jurisdiction or such authority as delegated. (See Technical regulator, Clause 1.3.5)

**1.3.3 Automatic ignition**

The lighting of gas at a burner without a manual operation whenever gas flows from the burner.

**1.3.4 Automatic operation**

The use of a sequence of operations that once initiated does not require any intermediate manual operation.

**1.3.5 Automatic shut off valve**

An automatic valve used to shut off gas supply to an appliance when a signal is generated indicating that a dangerous condition has developed.