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**ALL-OR-NOTHING  
ELECTRICAL RELAYS  
(INSTANTANEOUS AND  
TIMING RELAYS)**

[Title allocated by Defence Cataloguing Authority:  
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Instantaneous and Timing Relays) . . . . NSC 5945]

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**STANDARDS ASSOCIATION OF AUSTRALIA**

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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS AND departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Electrical and Electronic Manufacturers Association  
Confederation of Australian Industry  
Department of Defence  
Electrical Testing Laboratories  
Electricity Supply Association of Australia  
Railways of Australia Committee  
Telecom Australia

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This standard, prepared by Committee EL/28, Electrical Relays, was approved on behalf of the Council of the Standards Association of Australia on 25 May 1981, and was published on 7 September 1981.

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**AUSTRALIAN STANDARD**

**ALL-OR-NOTHING  
ELECTRICAL RELAYS  
(INSTANTANEOUS  
AND TIMING RELAYS)**

**AS 2481—1981**

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## PREFACE

This standard was prepared by the Association's Committee on Electrical Relays.

In its preparation, reference was made to the following IEC publications and documents, and acknowledgment is made of the assistance received therefrom:

### *Publications:*

- IEC 255-0-20 (1974) Contact Performance of Electrical Relays
- IEC 255-1-00 (1975) All-or-nothing Electrical Relays
- IEC 255-4 (1976) Single Input Energizing Quantity Measuring Relays With Dependent Specified Time
- IEC 255-5 (1977) Insulation Tests for Electrical Relays
- IEC 255-7 (1978) Test and Measurement Procedures for Electromechanical All-or-nothing Relays
- IEC 664 (1980) Insulation Co-ordination Within Low-voltage Systems Including Clearances and Creepage Distances for Equipment.

### *Documents:*

- 41A (Netherlands) 1, November 1972 Proposal for standard testing procedures for relays with hermetically sealed contacts and for hermetically sealed relays.
- 41A (Secretariat) 7, January 1974 Sectional document for all-or-nothing electro-mechanical relays including telecommunication relays.

Although IEC TC 41 intends to classify its standards in four levels on a hierarchical basis (general, generic, group and particular subjects), it was considered that this Australian standard should be reasonably complete for the family of relays covered. Accordingly, this standard incorporates portions of a number of IEC publications. It was also considered desirable not to await the issue of IEC standards covering all aspects but to base some sections of this standard on IEC Secretariat documents still to be finalized.

Attention is drawn particularly to the following matters herein:

- (a) Deviations from the IEC material mentioned (see Annex).
- (b) The terms *to pick up* and *to drop out* (see Clauses 2.4.4 and 2.4.5) refer solely to the application and removal of energizing quantities. In the event of some defect, these might not result in the expected function. (See the terms 'to operate' and 'to return' — Clauses 2.5.8 and 2.5.9 respectively.)
- (c) *Nominal range of ambient temperature*. Two standard ranges are specified (see Clause 3.4.1).

This standard may require reference to the following publications:

- AS 1099 Basic Environmental Testing Procedures for Electrotechnology
- AS 1199 Sampling Procedures and Tables for Inspection by Attributes
- AS 1560 Recommendations for the Design and Use of Components Intended for Mounting on Printed Circuit Boards
- AS 1852 International Electrotechnical Vocabulary
  - 1852(131) Electric and Magnetic Circuits
  - 1852(446) Electrical Relays
- AS 1931 High Voltage Testing Techniques
- AS 1939 Classification of Degrees of Protection Provided by Enclosures for Electrical Equipment
- AS 3121 Approval and Test Specification for Insulating Mouldings
- AS C100 Approval and Test Specification for Definitions and General Requirements for Electrical Materials and Equipment
- AS C320 Classification of Insulating Materials for Electrical Machinery and Apparatus on the Basis of Thermal Stability in Service
- IEC 112 Method for Determining the Comparative and the Proof Tracking Indices of Solid Insulating Materials Under Moist Conditions
- BS 9200 Reed Contact Units of Assessed Quality: Generic Data and Methods of Test

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**STANDARDS ASSOCIATION OF AUSTRALIA**

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**Australian Standard**  
**for**  
**ALL-OR-NOTHING ELECTRICAL RELAYS**  
**(INSTANTANEOUS AND TIMING RELAYS)**

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**SECTION 1. SCOPE AND OBJECT**

**1.1 SCOPE.** This standard specifies requirements for all-or-nothing electrical relays, including those with specified time, in new condition, and having contacts in their output circuits:

It may also specify some or all of the electrical requirements of relays with non-electrical inputs or outputs such as flow, temperature, and pressure relays.

**NOTE:** All-or-nothing relays are intended for use in applications such as power system protection and control, lifts, cranes, hoists, general industrial control, and electrical appliances.

Where the relays incorporate static devices, e.g. amplifiers or rectifiers, in their energizing circuits, special supplementary requirements may be necessary.

For special applications, e.g. marine, aeronautical, space, or in explosive atmospheres, additional requirements may need to be specified, e.g. double insulation in accordance with AS C100.

The standard is not intended to cover all aspects of relays used in telephony or telegraphy, or contactors, motor starters or control switching devices coming within the scope of AS 1029, AS 1202 and AS 1431, nor does it apply to relays for signalling and blocking systems for railways.

**1.2 OBJECT.** The objects of the standard are as follows:

- (a) To define the terms used (see Section 2).
- (b) To specify standard values (see Section 3).
- (c) To specify permissible temperatures, accuracy of specified times, and mechanical and electrical requirements (see Section 4).
- (d) To specify test methods (see Section 5).
- (e) To specify characteristics, indications and marking (see Section 6).
- (f) To specify information to be supplied with enquiries for particular relays (see Appendix L).