

Australian Standard[®]

**Fluorescent lamp ballasts of the
reactive type—Performance
requirements**

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Australian Electrical and Electronic Manufacturers Association
Confederation of Australian Industry
Consumer Electronics Suppliers Association
Department of Administrative Services
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PREFACE

This Standard was prepared by the Standards Australia Committee on Auxiliaries for Discharge Lamps, to supersede AS 2643—1983, *Fluorescent lamp ballasts—Performance requirements*.

It specifies performance requirements for ballasts of the reactive type that are essential to proper lamp operation designed for use with tubular fluorescent lamps having characteristics as specified in AS 1201, *Tubular fluorescent lamps for general lighting service*. Complete ballasts and their component parts, such as reactors, transformers and capacitors (having a capacitance of not more than 0.1 μF), essential to the functioning of ballasts in fluorescent lamp circuits are within the scope of this Standard.

Electrical safety requirements are not included herein, but are covered by AS 3168, *Approval and test specification for fluorescent lamp ballasts*.

This Standard, other than in editorial presentation, closely follows IEC 921, *Ballasts for tubular fluorescent lamps — Performance requirements*; however, some of the requirements of that publication have been modified to take account of local conditions. These modifications include a ballast loss test and associated marking requirements, an input power measurement, and an optional test for quiet operation of a ballast.

This Standard was revised in conjunction with a revision of AS 3168 essentially to limit the requirements specified herein to ballasts of the reactive type only. It should be noted that the revised edition of AS 3168 covers both reactive and electronic ballasts. Other changes or differences (from the 1983 edition) are the inclusion of a lamp operating current waveform test.

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STANDARDS AUSTRALIA

Australian Standard

Fluorescent lamp ballasts of the reactive type—Performance requirements

1 SCOPE This Standard specifies performance requirements for ballasts of the reactive type (hereinafter referred to as 'ballasts') designed for use on a.c. supplies up to 1000V at 50 Hz associated with tubular fluorescent lamps, operated with or without a starter switch, and having rated wattages, dimensions and characteristics as specified in AS 1201. It applies to complete ballasts and to their component parts, such as reactors, transformers and capacitors having a capacitance of not more than 0.1 μF , which are incorporated in the ballasts or supplied as separate elements essential to the functioning of ballasts in fluorescent lamp circuits.

NOTE: The committee which prepared this Standard has considered the preparation of a Standard for the performance requirements of electronic ballasts. However, the currently available information from the International Electrotechnical Commission (IEC) requires further investigation and is only in a very early stage of development. An Australian Standard will not be prepared until the IEC draft is further progressed. In the interim period, and in the absence of a Standard for electronic ballasts, the appropriate clauses of this Standard may be applied to electronic ballasts.

This Standard does not apply to the following:

- (a) Ballasts designed for use with cold cathode fluorescent lamps, requirements for which are specified in AS 3143.
- (b) Capacitors which are incorporated in starters.
- (c) Ballasts of the resistance type.

This Standard prescribes requirements for the characteristics of ballasts which are essential to proper lamp operation and also for the satisfactory operation of the ballasts themselves in fluorescent lamp circuits. Safety requirements for ballasts are specified by reference to AS 3168 and AS 3100 (see Clause 4).

NOTE: Comprehensive requirements for capacitors having a capacitance greater than 0.1 μF , for use in discharge lamp circuits, are provided in AS 2644.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

STANDARDS

AS

- 1201 Tubular fluorescent lamps for general lighting service
- 1259 Sound level meters
- 2644 Capacitors for use in discharge lamp circuits

IEC

- 155 Starters for fluorescent lamps

APPROVAL AND TEST SPECIFICATIONS

AS

- 3100 Definitions and general requirements for electrical materials and equipment
- 3143 Transformers for cold-cathode electric discharge lamps and lighting systems
- 3168 Fluorescent lamp ballasts

3 DEFINITIONS For the purpose of this Standard, the definitions given in AS 1201 and AS 3168, and those below apply.

3.1 High power factor ballast — ballast having a circuit power factor of at least 0.85 (leading or lagging).

NOTE: The value 0.85 takes into account the effect on the power factor of the distortion of the current waveform.

3.2 High audio-frequency input impedance ballast — ballast of which the input impedance in the frequency range 250 Hz to 2000 Hz exceeds the values specified in Clause 14.

3.3 Starting aid — any physical means which assists the lamp during starting in starterless circuits.

3.4 Starting capacitor — capacitor used in series multiple-lamp circuits to aid starting.

3.5 Choke-test voltage — sinusoidal voltage at rated frequency, which must be applied across the ballast to produce a current through the ballast, and which is equal to that current measured when the ballast is operated with a reference lamp, at rated mains voltage and frequency, and when the ballast is at a stable operating temperature.