AS 3963—1991

Australian Standard®

a.c. supplied electronic ballasts for tubular fluorescent lamps—Performance requirements

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Association of Consulting Engineers Australia

Australian Electrical and Electronic Manufacturers Association

Confederation of Australian Industry

Electricity Supply Association of Australia

Illuminating Engineering Societies of Australia

Ministry of Housing and Construction, Vic.

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PREFACE

This Standard was prepared by the Standards Australia Committee on Auxiliaries for Discharge Lamps. It specifies performance requirements for electronic ballasts designed for use with tubular fluorescent lamps having characteristics as specified by either –

(a) AS 1201: *Tubular fluorescent lamps for general lighting service*;

(b) IEC 901: *Single–capped fluorescent lamps—Safety and performance requirements*; or

(c) the manufacturer of the ballast.

Electrical safety requirements are not included herein, but are covered by AS 3134 (Int), *Approval and test specification — a.c supplied electronic ballasts for tubular fluorescent lamps*.

This Standard, other than in editorial presentation, closely follows IEC 929, *a.c. supplied electronic ballasts for tubular fluorescent lamps — Performance requirements.* Acknowledgment is made of the assistance received from this source.

CONTENTS

STANDARDS AUSTRALIA

Australian Standard

a.c. supplied electronic ballasts for tubular fluorescent lamps—Performance requirements

1 SCOPE This Standard specifies performance requirements for electronic ballasts for use on a.c. supplies up to 1000 V at 50 Hz with operating frequencies deviating from the supply frequency associated with or incorporated in tubular fluorescent lamps as specified in either AS 1201, IEC 901 or by the ballast manufacturer and operated with or without a starter switch.

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

AS	
1201	Tubular fluorescent lamps for general lighting service
3134 (Int)	Approval and test specification — a.c. supplied electronic ballasts for tubular fluorescent lamps
IEC	
901	Single-capped fluorescent lamps — Safety and performance requirements

3 DEFINITIONS For the purpose of this Standard, the definitions below apply.

3.1 Ballast — unit inserted between the supply and one or more fluorescent lamps which serves mainly to limit the lamp current to the required value. The unit may consist of one or more separate components.

It may also include means for transforming the supply voltage and arrangements which help to provide starting voltage and preheat current, prevent cold starting, reduce stroboscopic effects, correct the power factor or suppress radio interference.

3.2 Electronic ballast — mains-supplied a.c. to a.c. invertor, which includes stabilizing elements for starting and operating one or more tubular fluorescent lamps, generally at high frequency.

3.3 Independent ballast — ballast which can be mounted separately outside a luminaire, without any additional enclosure.

3.4 Built-in ballast — a ballast exclusively designed to be built into a luminaire, box, enclosure or similar container.

3.5 Integral ballast — ballast which forms a non-replaceable part of a luminaire or lamp and which cannot be tested separately.

3.6 Supply voltage — voltage applied to the complete circuit of one or more lamps and ballast.

3.7 Working voltage — highest r.m.s. voltage which may occur across any insulation, transients being neglected, in open-circuit conditions or during lamp operation, when the ballast is operated at its rated voltage.

3.8 Rectifying effect — effect which may occur at the end of lamp life when one cathode is broken or has insufficient electron emission resulting in the arc current in consecutive half cycles being unequal.

3.9 Rated maximum operating temperature of a ballast case: (t_c) — highest permissible temperature which may occur on the outer surface (at the indicated place if marked) of the ballast under normal operating conditions and at the rated voltage or the maximum of the rated voltage range.

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

3.11 Ballast lumen factor — ratio of the light output of a reference lamp when the ballast under test is operated at its rated voltage, compared with the light output of the same lamp operated with the appropriate reference ballast supplied at its rated voltage and frequency.

3.12 Reference ballast — special ballast for providing comparison standards for testing ballasts and for selecting reference lamps. It is essentially characterized by the fact that at its rated frequency it has a stable voltage/current ratio which is relatively uninfluenced by variations in current, temperature and the magnetic surroundings, as outlined in Appendix A.

3.13 Reference lamp — lamp for testing ballasts which, when associated with a reference ballast under the conditions specified in Appendices A and B, has electrical characteristics which are close to the nominal values as stated in the relevant lamp Standard for that particular type of lamp.

3.14 Calibration current of a reference ballast — value of current on which the calibration and control of the ballast are based.