

AS 60870.2.1—1998

IEC 60870-2-1:1995

Reconfirmed 2015

Australian Standard®

Telecontrol equipment and systems

Part 2.1: Operating conditions— Power supply and electromagnetic compatibility

[IEC title: Telecontrol equipment and systems, Part 2: Operating conditions—Section 1: Power supply and electromagnetic compatibility]

This Australian Standard was prepared by Committee IT/24, Supervisory Control and Data Acquisition. It was approved on behalf of the Council of Standards Australia on 5 January 1998 and published on 5 April 1998.

The following interests are represented on Committee IT/24:

Association of Consulting Engineers Australia
Australasian Railway Association
Australian Communications Authority
Australian Electrical and Electronic Manufacturers Association
Australian Fire Authorities Council
Australian Gas Association
Australian Pipeline Industry Association
Australian Security Industry Association
AUSTROADS
CIGRE AP35
Electricity Supply Association of Australia
Fire Protection Association of Australia
Institution of Engineers Australia
Telstra Corporation
Water Services Association of Australia

Review of Australian Standards. To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This Standard was issued in draft form for comment as DR 97133.

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 60870.2.1—1998

Telecontrol equipment and systems

Part 2.1: Operating conditions—Power supply and electromagnetic compatibility

RECONFIRMATION NOTICE

Technical Committee EL-050 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Reconfirmed documents cannot be amended, but may be formally revised and a new edition published.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 31 May 2015.

Reconfirmed documents cannot be amended, but may be formally revised and a new edition published.

The following are represented on Technical Committee EL-050:

Australian Industry Group
Chamber of Commerce and Industry Queensland
Energy Networks Association
Victoria University

NOTES

Australian Standard[®]

Telecontrol equipment and systems

Part 2.1: Operating conditions— Power supply and electromagnetic compatibility

First published as AS 60870.2.1 — 1998.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

PREFACE

This Standard was prepared by the Standards Australia Committee IT/24, Supervisory Control and Data Acquisition.

The Standard is identical with and has been reproduced from IEC 60870-2-1:1995, *Telecontrol equipment and systems*, Part 2: *Operating conditions*, Section 1: *Power supply and electromagnetic compatibility*.

IEC has decided to apply a new numbering system, the 60000 series, to all its existing and future publications, including amendments to existing Standards. As a consequence, IEC has modified the bibliographic references in its databases to accord with the new numbering system. All IEC publications issued since the beginning of 1997 will carry references in terms of the 60000 series numbering. Publications printed earlier than 1997 will continue to carry the old series of numbers. For example, a reference to the IEC 60870 series of Standards will be to IEC 870 if the current edition of the Standard was printed prior to 1997.

This Standard is identical with a pre-1997 document therefore it uses the old series of numbers.

The objective of this Standard is to provide manufacturers and users of telecontrol equipment and systems with power supply and EMC specifications in order to ensure optimal performance, under all conditions, in Australia.

As this Standard is reproduced from an international Standard, the following applies:

- (a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.
- (b) In the source text 'this International Standard' should read 'this Australian Standard'.
- (c) A full point substitutes for a comma when referring to a decimal marker.

The references to international Standards should be replaced by references to the following Australian Standards:

<i>Reference to International Standard or other Publication</i>		<i>Australian Standard</i>	
IEC		AS	
38	IEC standard voltages	—	
50	International Electrotechnical Vocabulary (IEV)		
50(161)	Chapter 161: Electromagnetic compatibility	—	
60	High-voltage test techniques	1931	High-voltage test techniques (all parts)
664	Insulation coordination for equipment within low-voltage systems	—	
664-1	Part 1: Principles, requirements and tests	—	
1000	Electromagnetic compatibility (EMC)		

IEC		AS
1000-3-2	Part 3: Limits—Section 2: Limits for harmonic current emissions (equipment input current less than or equal to 16 A per phase)	—
1000-3-3	Part 3: Limits—Section 3: Limitation of voltage fluctuations and flicker in low- voltage supply systems for equipment with rated current less than or equal to 16 A	—
1000-4-1	Part 4: Testing and measurement techniques—Section 1: Overview of immunity tests—Basic EMC Publication	—
1000-4-2	Part 4: Testing and measurement techniques—Section 2: Electrostatic discharge immunity test—Basic EMC Publication	—
1000-4-3	Part 4: Testing and measurement techniques—Section 3: Radiated, radio-frequency, electromagnetic field immunity test	—
1000-4-4	Part 4: Testing and measurement techniques—Section 4: Electrical fast transient/burst immunity test—Basic EMC Publication	—
1000-4-5	Part 4: Testing and measurement techniques—Section 5: Surge immunity test—Basic EMC Publication	—
1000-4-6(DIS)	Part 4: Testing and measurement techniques— Section 6: Immunity to conducted disturbances, induced by radio-frequency fields—Basic EMC Publication	—
1000-4-8	Part 4: Testing and measurement techniques— Section 8: Power frequency magnetic field immunity test—Basic EMC Publication	—
1000-4-9	Part 4: Testing and measurement techniques— Section 9: Pulse magnetic field immunity test—Basic EMC Publication	—
1000-4-10	Part 4: Testing and measurement techniques— Section 10: Damped oscillatory magnetic field immunity test— Basic EMC Publication	—

IEC		AS
1000-4-11	Part 4: Testing and measurement techniques— Section 11: Voltage dips, short interruptions and voltage variations immunity test—Basic EMC Publication	—
CISPR 22	Limits and methods of measurement of radio disturbance characteristics of information technology equipment	—
ITU-T		
Rec. P.53	Psophometer (apparatus for the objective measurement of circuit noise)	—

© Copyright — STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

CONTENTS

Clause		Page
1	Scope and object	1
2	Normative references	1
3	Definitions	3
4	Power supply	4
4.1	General	4
4.2	AC supply	4
4.2.1	AC voltage tolerances	4
4.2.2	Frequency tolerances	5
4.2.3	Harmonic content	5
4.3	DC supply	5
4.3.1	DC voltage tolerances	6
4.3.2	Earthing arrangements for d.c. supply	6
4.3.3	Voltage ripple of the d.c. supply	6
5	Electromagnetic compatibility	7
5.1	General	7
5.2	Immunity tests	7
5.3	Acceptance criteria for immunity tests	8
5.4	Emission tests	8
5.5	Protection techniques and installation guidelines	8
6	Insulation withstand voltages	18

