

AS/NZS 62386.304:2020



Australian/New Zealand Standard™

Digital addressable lighting interface

Part 304: Particular requirements — Input devices — Light sensor (IEC 62386-304:2017 (ED. 1.0) MOD)



currently in review, click buy full version

AS/NZS 62386.304:2020

This Joint Australian/New Zealand Standard™ was prepared by Joint Technical Committee EL-041, Lamps and Related Equipment. It was approved on behalf of the Council of Standards Australia on 5 November 2020 and by the New Zealand Standards Approval Board on 4 November 2020.

This Standard was published on 20 November 2020.

The following are represented on Committee EL-041:

Australian Industry Group
Better Regulation Division
CHOICE
Consumer Electronics Suppliers Association
Consumers' Federation of Australia
Department of Industry, Science, Energy and Resources
Electrical Compliance Testing Association of Australia
Electrical Regulatory Authorities Council
Energy Efficiency & Conservation Authority of New Zealand
IES: The Lighting Society
Joint Accreditation System of Australia and New Zealand
Joint Accreditation System of Australia and New Zealand — New Zealand
Lighting Council Australia
Lighting Council New Zealand
Master Electricians Australia
Master Electricians NZ
WorkSafe New Zealand

This Standard was issued in draft form for comment as AS/NZS 62386.304:2020.

Keeping Standards up-to-date

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

www.standards.org.au

www.standards.govt.nz

ISBN 978 1 76113 063 2

Australian/New Zealand Standard™

Digital addressable lighting interface

**Part 304: Particular requirements — Input
devices — Light sensor IEC 62386-304:2017 (ED.
1.0) MOD)**

First published as AS/NZS 62386.304:2020.



© IEC 2020 — All rights reserved

© Standards Australia Limited/the Crown in right of New Zealand, administered by the New Zealand Standards Executive 2020

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 either the IEC or the publisher, unless otherwise permitted under the Copyright Act 1968 (Cth). If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please see the contact details on the back cover or the contact us page of the website for further information.

Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-041, Lamps and Related Equipment.

The objective of this document is to specify a bus system for control by digital signals of electronic lighting equipment, with the addition of DC supplies.

This document is only applicable to AS/NZS 62386.103 input devices that deliver illuminance level information to the lighting control system through light level sensing.

Requirements for testing individual products during production are not included.

This document is an adoption with national modifications, and has been reproduced from, IEC 62386-304:2017 (ED. 1.0), *Digital addressable lighting interface — Part 304: Particular requirements — Input devices — Light sensor*. The modifications are additional requirements and are set out in [Appendix ZZ](#), which has been added at the end of the source text.

[Appendix ZZ](#) lists the variations to IEC 62386-304:2017 (ED. 1.0), for the application of this document in Australia and New Zealand.

As this document has been reproduced from an International Standard, the following applies:

- (a) In the source text “this part of IEC 62386” should read “this document”.
- (b) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

NOTES

Currently in preview, click buy full version

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	8
4 General	9
4.1 General.....	9
4.2 Version number	9
4.3 Insulation.....	9
5 Electrical specification.....	9
6 Interface power supply	9
7 Transmission protocol structure	9
8 Timing	9
9 Method of operation.....	10
9.1 General.....	10
9.2 Instance type	10
9.3 Input signal and value.....	10
9.4 Events	10
9.4.1 Priority use	10
9.4.2 Bus usage	10
9.4.3 Encoding	10
9.4.4 Event configuration.....	11
9.4.5 Event generation	11
9.5 Configuring the input device.....	13
9.5.1 Using the report timer.....	13
9.5.2 Using the deadtime timer.....	13
9.5.3 Setting the timers.....	13
9.5.4 Setting the hysteresis	13
9.5.5 Manual configuration	14
9.6 Exception handling.....	15
9.6.1 Physical sensor failure.....	15
9.6.2 Manufacturer specific errors	15
9.6.3 Error value.....	15
10 Declaration of variables	15
11 Definition of commands	16
11.1 General.....	16
11.2 Overview sheets	17
11.2.1 General	17
11.2.2 Standard commands.....	17
11.3 Event messages	17
11.3.1 INPUT NOTIFICATION (<i>device/instance, event</i>).....	17
11.3.2 POWER NOTIFICATION (<i>device</i>)	17
11.4 Device control instructions	17
11.5 Device configuration instructions.....	17
11.6 Device queries	17
11.7 Instance control instructions	17

11.8	Instance configuration instructions	18
11.8.1	General	18
11.8.2	SET EVENT FILTER (<i>DTR0</i>)	18
11.8.3	SET REPORT TIMER (<i>DTR0</i>)	18
11.8.4	SET HYSTERESIS (<i>DTR0</i>)	18
11.8.5	SET DEADTIME TIMER (<i>DTR0</i>)	18
11.8.6	SET HYSTERESIS MIN (<i>DTR0</i>)	18
11.9	Instance queries	18
11.9.1	General	18
11.9.2	QUERY DEADTIME TIMER	18
11.9.3	QUERY INSTANCE ERROR	18
11.9.4	QUERY REPORT TIMER	19
11.9.5	QUERY HYSTERESIS	19
11.9.6	QUERY HYSTERESIS MIN	19
11.10	Special commands	19
	Bibliography	20
	Figure 1 – IEC 62386 graphical overview	6
	Figure 2 – Example of <i>inputValue</i> changes and resultant hysteresis bands	12
	Table 1 – Illuminance level events	10
	Table 2 – Event filter	11
	Table 3 – Event timer setting	13
	Table 4 – Default and reset values for “ <i>hysteresisMin</i> ”	14
	Table 5 – “ <i>manualCapabilityInstance3xx</i> ” value	15
	Table 6 – “ <i>instanceErrorByte</i> ” values	15
	Table 7 – Declaration of device variables	16
	Table 8 – Restrictions to instance variables defined in IEC 62386-103:2014 and IEC 62386-103:2014/AMD1:—	16
	Table 9 – Declaration of instance variables	16
	Table 10 – Standard commands	17

INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIGITAL ADDRESSABLE LIGHTING INTERFACE –**Part 304: Particular requirements – Input devices –
Light sensor****FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, accept IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62386-304 has been prepared by subcommittee 34C: Auxiliaries for lamps, of IEC technical committee 34: Lamps and related equipment.

The text of this standard is based on the following documents:

FDIS	Report on voting
34C/1314/FDIS	34C/1334/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 304 of IEC 62386 is intended to be used in conjunction with:

- Part 101, which contains general requirements for system components;
- Part 103, which contains general requirements for control devices.

A list of all parts in the IEC 62386 series, published under the general title: *Digital addressable lighting interface*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

IEC 62386 contains several parts, referred to as series. The 1xx series includes the basic specifications. Part 101 contains general requirements for system components, Part 102 extends this information with general requirements for control gear and Part 103 extends it further with general requirements for control devices.

The 2xx parts extend the general requirements for control gear with lamp specific extensions (mainly for backward compatibility with Edition 1 of IEC 62386) and with control gear specific features.

The 3xx parts extend the general requirements for control devices with input device specific extensions describing the instance types as well as some common features that can be combined with multiple instance types.

This first edition of IEC 62386-304 is intended to be used in conjunction with IEC 62386-101:2014, IEC 62386-101:2014/AMD1:—, IEC 62386-102:2014 and IEC 62386-103:2014/AMD1:—. The division of IEC 62386 into separately published parts provides for ease of future amendments and revisions. Additional requirements will be added as and when a need for them is recognized.

The setup of the standards is graphically represented in Figure 1 below.

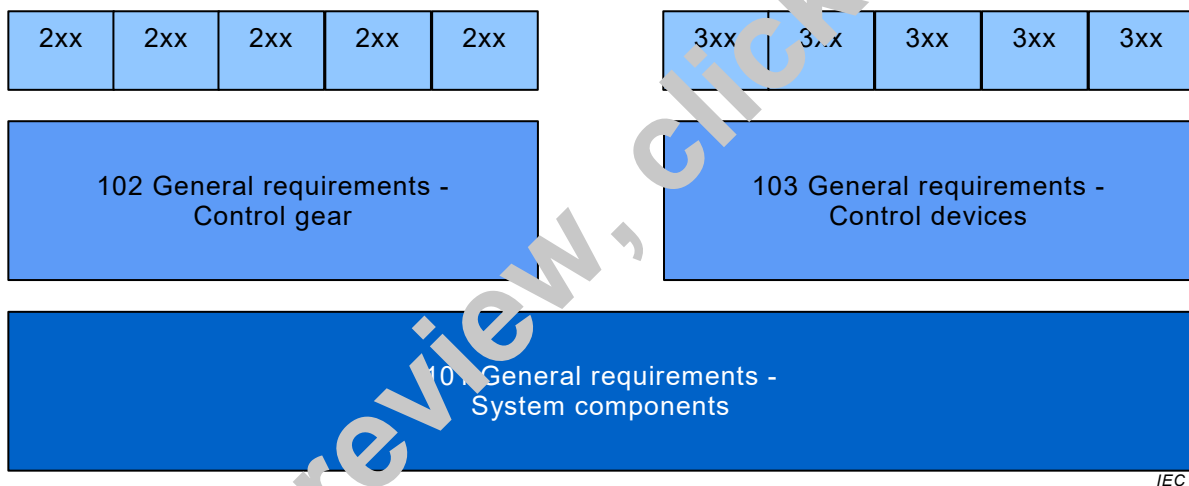


Figure 1 – IEC 62386 graphical overview

This document, and the other parts that make up the IEC 62386-300 series, in referring to any of the clauses of IEC 62386-1XX, specifies the extent to which such a clause is applicable and the order in which the tests are to be performed; the parts also include additional requirements, as necessary.

Where the requirements of any of the clauses of IEC 62386-1XX are referred to in this document by the sentence “The requirements of IEC 62386-1XX, Clause “n” apply”, this sentence is to be interpreted as meaning that all requirements of the clause in question of Part 1XX apply, except any which are clearly inapplicable.

The standardization of the control interface for control devices is intended to achieve compatible co-existence and multi-master operation between electronic control gear and lighting control devices, below the level of building management systems. This document describes a method of implementing light sensors.

All numbers used in this document are decimal numbers unless otherwise noted. Hexadecimal numbers are given in the format 0xVV, where VV is the value. Binary numbers are given in the format XXXXXXXXb or in the format XXXX XXXX, where X is 0 or 1; “x” in binary numbers means “don't care”.

The following typographic expressions are used:

Variables: “*variableName*” or “*variableName[3:0]*”, giving only bits 3 to 0 of “*variableName*”.

Time value is expressed in minutes and seconds: mm:ss

Range of values: [lowest, highest]

Command: “COMMAND NAME”

DIGITAL ADDRESSABLE LIGHTING INTERFACE –

Part 304: Particular requirements – Input devices – Light sensor

1 Scope

This part of IEC 62386 specifies a bus system for control by digital signals of electronic lighting equipment which is in line with the requirements of IEC 61347, with the addition of DC supplies.

This document is only applicable to IEC 62386-103:2014 and IEC 62386-103:2014/AMD1:— input devices that deliver illuminance level information to the lighting control system through light level sensing.

NOTE Requirements for testing individual products during production are not included.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62386-101:2014, *Digital addressable lighting interface – Part 101: General requirements – System components*
IEC 62386-101:2014/AMD1:—¹

IEC 62386-103:2014, *Digital addressable lighting interface – Part 103: General requirements – Control devices*
IEC 62386-103:2014/AMD1:—²

IEC 62386-333:—³, *Digital addressable lighting interface – Part 333: Particular requirements for control devices – Manual configuration (feature type 33)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62386-101 and IEC 62386-103 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

¹ Under preparation. Stage at the time of publication: IEC ACDV 62386-101/AMD1:2017.

² Under preparation. Stage at the time of publication: IEC ACDV 62386-103/AMD1:2017.

³ Under preparation. Stage at the time of publication: IEC CCDV 62386-333:2017.