

© Copyright SEK. Reproduction in any form without permission is prohibited.

Digitalt adresserbart gränssnitt för ljusarmaturer – Del 202: Särskilda fordringar på driftdon för kompletta armaturer för nödbelysning (apparater av typ 1)

*Digital addressable lighting interface –
Part 202: Particular requirements for control gear –
Self-contained emergency lighting (device type 1)*

Som svensk standard gäller europastandarden EN 62386-202:2009. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62386-202:2009.

Nationellt förord

Europastandarden EN 62386-202:2009

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 62386-202, First edition, 2009 - Digital addressable lighting interface - Part 202: Particular requirements for control gear - Self-contained emergency lighting (device type 1)**

utarbetad inom International Electrotechnical Commission, IEC.

Standarden ska användas tillsammans med SS-EN 62386-101 och SS-EN 62386-102.

ICS 29.140.50; 29.140.99

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringssarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utdriften av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringssarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringssverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtidens standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard

Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

English version

**Digital addressable lighting interface -
Part 202: Particular requirements for control gear -
Self-contained emergency lighting (device type 1)
(IEC 62386-202:2009)**

Interface d'éclairage
adressable numérique -
Partie 202: Exigences particulières
pour les appareillages de commande -
Blocs autonomes d'éclairage de secours
(dispositifs de type 1)
(CEI 62386-202:2009)

Digital adressierbare Schnittstelle
für die Beleuchtung -
Teil 202: Besondere Anforderungen
an Betriebsgeräte -
Notbeleuchtung mit Einzelbatterie
(Gerätetyp 1)
(IEC 62386-202:2009)

This European Standard was approved by CENELEC on 2009-07-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 34C/880/FDIS, future edition 1 of IEC 62386-202, prepared by SC 34C, Auxiliaries for lamps, of IEC TC 34, Lamps and related equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62386-202 on 2009-07-01.

This Part 202 is to be used in conjunction with EN 62386-101 and EN 62386-102, which contain general requirements for the relevant product type (control gear or control devices).

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2010-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2012-07-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 62386-202:2009 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60598-1	NOTE Harmonized as EN 60598-1:2008 (modified).
IEC 60669-2-1	NOTE Harmonized as EN 60669-2-1:2004 (modified).
IEC 60921	NOTE Harmonized as EN 60921:2004 (not modified).
IEC 60923	NOTE Harmonized as EN 60923:2005 (not modified).
IEC 60925	NOTE Harmonized as EN 60925:1991 (not modified).
IEC 60929	NOTE Harmonized as EN 60929:2006 (not modified).
IEC 61347-1	NOTE Harmonized as EN 61347-1:2008 (modified).
IEC 61347-2-3	NOTE Harmonized as EN 61347-2-3:2001 (not modified).
IEC 61547	NOTE Harmonized as EN 61547:2009 (not modified).
CISPR 15	NOTE Harmonized as EN 55015:2006 (not modified).

Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

The following referenced documents are indispensable for the application 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62386-101	2009	Digital addressable lighting interface - Part 101: General requirements - System	EN 62386-101	2009
IEC 62386-102	2009	Digital addressable lighting interface - Part 102: General requirements - Control gear	EN 62386-102	2009

CONTENTS

INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	8
4 General	10
5 Electrical specifications	10
6 Interface power supply	10
7 Transmission protocol structure.....	10
8 Timing	10
9 Method of operation	10
10 Declaration of variables.....	14
11 Definition of commands	15
12 Test procedures	26
Annex A (informative) Examples	104
Bibliography.....	107
 Figure 1 – Example of light level definitions	12
Figure 2 – Modes of operation	13
Figure 3 – Application extended control or configuration command sequence example	16
Figure 4 – Test sequence 'Features'	27
Figure 5 – Test sequence 'RESET'.....	30
Figure 6 – Test sequence '100 ms-timeout'	32
Figure 7 – Test sequence 'Commands in-between'	34
Figure 8 – Test sequence 'Persistent memory'	36
Figure 9 – Test sequence 'ON AND OFF'	39
Figure 10 – Test sequence 'OFF WITH FADING'.....	41
Figure 11 – Test sequence 'Physical address allocation'.....	42
Figure 12 – Test sequence 'QUERY LAMP POWER ON'.....	44
Figure 13 – Test sequence 'REST'	45
Figure 14 – Test sequence 'INHIBIT'.....	47
Figure 15 – Test sequence 'START/STOP FUNCTION TEST'	48
Figure 16 – Test sequence 'FUNCTION TEST FAILURE'	50
Figure 17 – Test sequence 'FUNCTION TEST REQUEST PENDING'	52
Figure 18 – Test sequence 'START/STOP DURATION TEST'	53
Figure 19 – Test sequence 'DURATION TEST FAILURE'	54
Figure 20 – Test sequence 'DURATION TEST REQUEST PENDING'.....	56
Figure 21 – Test sequence 'TESTS IN PARALLEL'	58
Figure 22 – Test sequence 'LAMP TIMER'	59
Figure 23 – Test sequence 'STOP PENDING TEST'	60
Figure 24 – Test sequence 'STORE THE DTR AS EMERGENCY LEVEL'	62

Figure 25 – Test sequence 'EMERGENCY LEVEL vs. MIN / MAX'	64
Figure 26 – Test sequence 'STORE TEST TIMING'	66
Figure 27 – Test sequence 'EXECUTE AUTOMATIC TEST'	68
Figure 28 – Test sequence 'STORE TEST EXECUTION TIMEOUT'	70
Figure 29 – Test sequence 'STORE PROLONG TIME'	72
Figure 30 – Test sequence 'START IDENTIFICATION'	73
Figure 31 – Test sequence 'INTERFACE FAILURE'	74
Figure 32 – Test sequence 'QUERY BATTERY CHARGE'	75
Figure 33 – Test sequence 'QUERY HARDWIRED INHIBIT'	76
Figure 34 – Test sequence 'QUERY HARDWIRED SWITCHED MAINS POWER'	77
Figure 35 – Test sequence 'QUERY PHYSICAL SELECTED'	78
Figure 36 – Test sequence 'REST: APPLICATION EXTENDED COMMAND SEQUENCE'	80
Figure 37 – Test sequence 'INHIBIT & TEST: APPL. EXT. COMMAND SEQUENCES'	82
Figure 38 – Test sequence 'RESET FT DONE FLAG: APPL. EXT. COMMAND SEQUENCE'	84
Figure 39 – Test sequence 'RESET DT DONE FLAG: APPL. EXT. COMMAND SEQUENCE'	86
Figure 40 – Test sequence 'CONFIGURATION: Other command after Enable Device Type 1'	88
Figure 41 – Test sequence 'CONFIGURATION: 100ms timeout'	90
Figure 42 – Test sequence 'CONFIGURATION: Commands in-between'	92
Figure 43 – Test sequence 'QUERY: Other command after Enable Device Type 1'	93
Figure 44 – Test sequence 'START IDENTIFICATION: APPL. EXT. COMMAND SEQUENCE'	95
Figure 45 – Test sequence 'Extended RESET'	97
Figure 46 – Test sequence 'Extended PERSISTENT MEMORY'	99
Figure 47 – Test sequence 'Restore Factory Settings'	101
Figure 48 – Test sequence 'Reserved DTR Selected Function'	102
Figure 49 – Test sequence 'QUERY EXTENDED VERSION NUMBER'	103
Figure A.1 – Duration test sequence example	105
Figure A.2 – Timing diagram for function and duration tests	105
Table 1 – Declaration of additional variables	14
Table 2 – Summary of the application extended command set	25
Table 3 – Types of emergency control gear	26
Table 4 – List of test sequences 'Configuration commands'	28
Table 5 – Parameters for test sequences 'RESET'	29
Table 6 – Parameters for test sequences '100 ms-timeout'	31
Table 7 – Parameters for test sequences 'Commands in-between'	33
Table 8 – Parameters for test sequences 'Persistent memory'	35
Table 9 – List of test sequences 'Arc power control commands'	37
Table 10 – Parameters for test sequences 'ON AND OFF'	38
Table 11 – Parameters for test sequences 'OFF WITH FADING'	40
Table 12 – List of test sequences 'Queries and reserved commands'	43

Table 13 – Parameters for test sequences 'INHIBIT'	46
Table 14 – Parameters for test sequences 'FUNCTION TEST FAILURE'.....	49
Table 15 – Parameters for test sequences 'FUNCTION TEST REQUEST PENDING'	51
Table 16 – Parameters for test sequences 'DURATION TEST REQUEST PENDING'	55
Table 17 – Parameters for test sequences 'TESTS IN PARALLEL'.....	57
Table 18 – Parameters for test sequences 'STORE THE DTR AS EMERGENCY LEVEL'	61
Table 19 – Parameters for test sequences 'EMERGENCY LEVEL vs. MIN / MAX'	63
Table 20 – Parameters for test sequences 'STORE TEST TIMING'	65
Table 21 – Parameters for test sequences 'EXECUTE AUTOMATIC TEST'	67
Table 22 – Parameters for test sequences 'STORE TEST EXECUTION TIMEOUT'	69
Table 23 – Parameters for test sequences 'STORE PROLONG TIME'.....	71
Table 24 – Parameters for test sequences 'REST: APPLICATION EXTENDED COMMAND SEQUENCE'	79
Table 25 – Parameters for test sequences 'INHIBIT & TEST: APPL. EXT. COMMAND SEQUENCES'	81
Table 26 – Parameters for test sequences 'RESET FT DONE FLAG: APPL. EXT. COMMAND SEQUENCE'	83
Table 27 – Parameters for test sequences 'RESET DT DONE FLAG: APPL. EXT. COMMAND SEQUENCE'	85
Table 28 – Parameters for test sequences 'CONFIGURATION: Other command after Enable Device Type 1	87
Table 29 – Parameters for test sequences 'CONFIGURATION: 100ms timeout'	89
Table 30 – Parameters for test sequences 'CONFIGURATION: Commands in-between'.....	91
Table 31 – Parameters for test sequences 'QUERY: Other command after Enable Device Type 1'	93
Table 32 – Parameters for test sequences 'START IDENTIFICATION: APPL. EXT. COMMAND SEQUENCE'	94
Table 33 – Parameters for test sequences 'Extended RESET'	96
Table 34 – Parameters for test sequences 'Extended PERSISTENT MEMORY'	98
Table 35 – Parameters for test sequences 'Restore Factory Settings'	100

INTRODUCTION

This first edition of IEC 62386-202 is published in conjunction with IEC 62386-101 and IEC 62386-102. 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.

This International Standard, and the other parts that make up IEC 62386-200 series, in referring to any of the clauses of IEC 62386-101 or IEC 62386-102, specify 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. All parts that make up the IEC 62386-200 series are self-contained and therefore do not include references to each other.

Where the requirements of any of the clauses of IEC 62386-101 or IEC 62386-102 are referred to in this International Standard by the statement "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 101 or Part 102 apply, except any which are inapplicable to the specific type of lamp control gear covered by this Part 202.

All numbers used in this International Standard 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'.

DIGITAL ADDRESSABLE LIGHTING INTERFACE –

Part 202: Particular requirements for control gear – Self-contained emergency lighting (device type 1)

1 Scope

This International Standard specifies a protocol and test procedures for the control by digital signals of electronic control gear for use on a.c. or d.c. supplies, associated with self-contained emergency lighting.

NOTE Tests in this standard are type tests. Requirements for testing individual control gear during production are not included.

2 Normative references

The following referenced documents are indispensable for the application 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 62386-101:2009, *Digital addressable lighting interface – Part 101: General requirements – System*

IEC 62386-102:2009, *Digital addressable lighting interface – Part 102: General requirements – Control gear*

