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International lamp coding system (ILCOS)

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Système international de codification des lampes (ILCOS)

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Système international de codification des lampes (ILCOS)

International lamp coding system (ILCOS)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INTERNATIONAL LAMP CODING SYSTEM (ILCOS)

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
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The main task of IEC technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a technical specification when

- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 61231, which is a technical specification has been prepared by subcommittee 34A: Lamps, of IEC technical committee 34: Lamps and related equipment.

This second edition cancels and replaces the first edition, published as a technical report of type 2 in 1993. It constitutes a technical revision, of which the main changes are indicated below.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
34A/838/CDV	34A/866/RVC

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Compared to the first edition, the major changes having an influence on the coding are the following.

– The standardization part is deleted, and thereby ILCOS T, because this version has found no application in practice.

– For nearly all lamp categories, the possibility of including further technical details in ILCOS L is extended.

– An extended short version ILCOS LE is introduced for tungsten filament, tungsten halogen and fluorescent lamps because of the need to make the application of the short code more flexible.

– For tungsten halogen and metal halide lamps, a new letter S is introduced in ILCOS L for self-shielded lamps, i.e. lamps designed to be suitable for use in open luminaires.

– For tungsten halogen lamps with integral front cover the letter I is replaced by the letter S in ILCOS L.

– For tungsten halogen lamps with double envelope, the code HE is deleted in ILCOS L, because these lamps are now covered as being single-ended self-shielded HSGS.

– For tungsten halogen lamps, the floodlight lamps are included in the general purpose type of lamps because of their general application. So the letter F is replaced by G in ILCOS L.

– For tungsten halogen lamps with integral metal (proximity) reflector, the code HI is replaced by HP in ILCOS L.

– For fluorescent lamps, the new development of ‘induction type lamps’ is introduced in ILCOS L by the letter I.

– For fluorescent lamps, the circular lamps are coded in ILCOS L as single-capped lamps, i.e. FSC instead of FC.

– For fluorescent lamps, the U-shaped lamps are coded in ILCOS L as double-capped lamps, i.e. FDU instead of FU.

– For metal halide lamps that are not standardized by the IEC, the full ILCOS D coding is kept under consideration, because of the complexity of the different lamp types and associated circuitry on the market.

Annex A is for information only.

The committee has decided that this publication remains valid until 2003-09.

At this date, in accordance with the committee’s decision, the publication will be

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

INTRODUCTION

The lamp industry strives continuously to meet customers' needs. Its innovative power has led to a tremendous variety of different light sources. To enable customers and experts to find their way within the diversity of products, a general system for the coding of lamps has been developed.

The code does not replace specific markings used by individual manufacturers on their lamps or in their catalogues, but it is promoted for cross-referencing purposes and, in due course, to replace national and regional lamp coding systems which already exist.

NOTE – The code does not give all the technical characteristics necessary to specify a lamp fully. For this the relevant lamp standard and/or the manufacturer's literature have to be consulted.

INTERNATIONAL LAMP CODING SYSTEM (ILCOS)

1 Scope and object

This technical specification gives the rules for the international lamp coding system and covers all lamp categories, excluding vehicle lamps. Coding for the main lamp types is specified and, for the others, will follow by amendments to this technical specification as appropriate.

The object of the international lamp coding system is:

– to improve communication about the different types of lamps;
– to help in discussions concerning interchangeability and compatibility of products;
– to create a closer relationship between international standards and manufacturers' literature (for example the code could be given in future in the relevant parts of a standard);
– to enable correct replacements of lamps;
– to be used as a complementary marking on the luminaire;
– to replace national and regional coding systems.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this technical specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this technical specification are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60357, *Tungsten halogen lamps (non-vehicle)*

IEC 60432-1, *Safety specifications for incandescent lamps – Part 1: Tungsten filament lamps for domestic and similar general lighting purposes*

IEC 60432-2, *Safety specifications for incandescent lamps – Part 2: Tungsten halogen lamps for domestic and similar general lighting purposes*

IEC 60887, *Glass bulb designation system for lamps*

IEC 61167, *Metal halide lamps*

CIE publication 29.2, *Guide on interior lighting*

3 Principles

The international lamp coding system has been developed on the basis of the following principles.

– It should be manufacturer-independent concerning its content and its wording.

– A relationship between the coding system and international standards should be established.

– It should be internationally acceptable. It is recognized that other systems with national and regional importance exist and that the change to an international code should be seen as a long-term process.

– The length of the code should be as short as possible and as long as necessary. Therefore, it should be possible to use the code in different lengths depending on the different purposes.

– In view of the technical diversity of the different lamp categories, it would not be practical to define the code for all types in the same way; the code depends therefore in its composition on the technical needs of the different lamp categories.

– The code should not replace manufacturer-specific marking on the lamp or in the catalogues, but should be used for cross-references in lamp and luminaire literature.

– The allocation of codes is based on interchangeability and compatibility.

An additional usage of the code on the lamp package should be envisaged for the future.

4 Basic structure

The complete lamp code ILCOS consists of a letter section and a figure section.

4.1 Letter section

The first letter of the letter section designates the lamp category as follows:

I Tungsten filament lamps

H Tungsten halogen lamps (non-vehicle)

F Fluorescent lamps

S High-pressure sodium lamps

L Low-pressure sodium lamps

Q High-pressure mercury lamps

M Metal halide lamps

X Special lamps

NOTE – Vehicle lamps, including their coding, are covered by national and/or regional legislation.

The next letters within the letter section give further details as outlined in the description of the different lamp categories. The letter section is separated from the rest by a hyphen.

4.2 Figure section

The figure section consists of several blocks mainly containing figures. Each block, separated by hyphens, contains characteristic values of lamps such as:

– wattage;
– voltage;
– lamp cap;
– dimensional values.

As a hyphen is used to separate the blocks, it cannot be applied within a block. As a consequence, the sign of equality = is used instead of the hyphen, for example within the cap designation.

The sequence and the specific content of the blocks is determined for each lamp category and described in 5.1 to 5.8.

4.3 Length of the code

The code can be used in different lengths depending on the purpose. In catalogues and leaflets, specialities, for example special applications, can be indicated with an asterisk (*) in the place where the difference occurs or at the end of the code and explained in a separate remark, also indicated with an asterisk (*).

The code can be shortened by deleting parts from the end, not by deleting intermediate parts. In general, if ‘standard’ types are concerned, the dimension block can be omitted. Intermediate parts may be omitted, providing the separating signs such as hyphens (–) and slashes (/) are given.

NOTE – These shortening rules do not apply to the extended short version ILCOS LE.

4.3.1 Short version: ILCOS L

The short version consists of the letter section or a part of it and is called ILCOS L. It can be used for the general classification of lamps. A survey of ILCOS L is given in annex A.

4.3.2 Extended short version: ILCOS LE

The extended short version, where applicable, consists of the first part of the letter section (ILCOS L) immediately followed (without spaces) by the relevant dimensions.

4.3.3 Standard version: ILCOS D

The standard version gives the complete designation and consists of the letter section and (a part of) the figure section. The use of ILCOS D should enable the customer to find the correct lamp type, for example in the case of lamp replacement from a different manufacturer. It can be used for the purpose of marking luminaires, when suitable also in an abbreviated form.

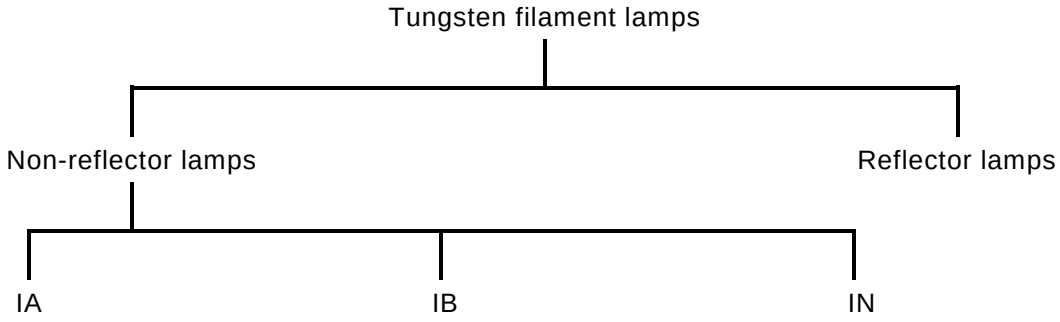
5 Lamp categories

For information about relevant lamp standards and lamp-related standards, see the IEC publications prepared by IEC technical committee 34.

5.1 Tungsten filament lamps

5.1.1 ILCOS L for tungsten filament lamps

The ILCOS L code is built up as follows:



After the first two letters IA, IB and IN the shape of the bulb follows, indicated as specified in IEC 60887.

The main bulb shape types are:

..A pear-shaped
..B candle (bulged)
..C conical
..G globular
..M mushroom
..P round bulb
..S pigmy (straight-sided)
..T tubular

An example with a modifier is:

..BA candle with angular tip