Irish Standard
I.S. EN 61747-4:2012

Liquid crystal display devices -- Part 4: Liquid crystal display modules and cells - Essential ratings and characteristics (IEC 61747-4:2012 (EQV))

I.S. EN 61747-4:2012

Incorporating amendments/corrigenda issued since publication:

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English version

Liquid crystal display devices - Part 4: Liquid crystal display modules and cells - Essential ratings and characteristics

(IEC 61747-4:2012)

Dispositifs d'affichage à cristaux liquides - Partie 4: Modules et cellules d'affichage à cristaux liquides - Valeurs limites et caractéristiques essentielles
(CEI 61747-4:2012)

Flüssigkristall-Anzeige-Bauelemente - Teil 4: Flüssigkristall-Anzeigemodule und -zellen -Wesentliche Grenz- und Kennwerte
(IEC 61747-4:2012)

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CENELEC

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

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Foreword

The text of document 110/349/CDV, future edition 2 of IEC 61747-4, prepared by IEC/TC 110 "Electronic display devices" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61747-4:2012.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2013-07-31
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2015-10-31

This document supersedes EN 61747-4:1998.

EN 61747-4:2012 includes the following significant technical changes with respect to EN 61747-4:1998:

– 2.1 and 3.1 of EN 61747-4:1998 were deleted because these items are defined in EN 61747-1;

– 2.7.6, in 2.7, Supplementary information, of EN 61747-4:1998 was deleted because the scope of this standard is about passive matrix monochrome liquid crystal display modules;

– the item “Gray scale: digital or analog” in 2.3.1 of EN 61747-4:1998 was changed to “Gray scale: number” because it is more accurate;

– contrast mode: light symbol on dark background (“LOD” or “positive image”) or dark symbol on light background (“DOL” or “negative image”) was introduced in this part of EN 61747 to replace the description in 2.3.1 and 3.3.1 of EN 61747-4:1998.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 61747-4:2012 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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.

Publication	Year	Title	EN/HD	Year
IEC 61747-1	1998	Liquid crystal and solid-state display devices - Part 1: Generic specification	EN 61747-1	1999

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LIQUID CRYSTAL DISPLAY DEVICES –

Part 4: Liquid crystal display modules and cells – Essential ratings and characteristics

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.
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International Standard IEC 61747-4 has been prepared by IEC technical committee 110: Electronic display devices.

This second edition cancels and replaces the first edition published in 1998. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

– 2.1 and 3.1 of IEC 61747-4:1998 were deleted because these items are defined in IEC 61747-1;
– 2.7.6, in 2.7, Supplementary information, of IEC 61747-4:1998 was deleted because the scope of this standard is about passive matrix monochrome liquid crystal display modules;
– The item "Gray scale: digital or analog" in 2.3.1 of IEC 61747-4:1998 was changed to "Gray scale: number" because it is more accurate;

– Contrast mode: light symbol on dark background (“LOD” or “positive image”) or dark symbol on light background (“DOL” or “negative image”) was introduced in this part of IEC 61747 to replace the description in 2.3.1 and 3.3.1 of IEC 61747-4:1998.

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

CDV	Report on voting
110/349/CDV	110/393/RVC

Full information on the voting for the approval of this standard 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 2.

This International Standard is to be used in conjunction with IEC 61747-1:1998 and its Amendment 1 (2003).

A list of all the parts in the IEC 61747 series, published under the general title *Liquid crystal display devices*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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

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

LIQUID CRYSTAL DISPLAY DEVICES –

Part 4: Liquid crystal display modules and cells – Essential ratings and characteristics

1 Scope

This part of IEC 61747 describes the essential ratings and characteristics of LCD cells and passive matrix monochrome liquid crystal display modules.

It does not apply to active matrix LCD cells nor to multicolour cells.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61747-1:1998, *Liquid crystal and solid-state display devices – Part 1: Generic specification*

3 Liquid crystal display modules

3.1 Principles and material used

Example: a TN display cell with electronic circuits and connector pins.

Where appropriate, a type of light source.

3.2 Modes of operation

3.2.1 Optical mode of operation

– illumination mode: for example reflective, transmissive, transflective
– gray scale: number
– contrast mode: light symbol on dark background (“LOD” or “positive image”) or dark symbol on light background (“DOL” or “negative image”)

3.2.2 Electrical mode of operation

– example: static mode or multiplex mode, etc.

3.3 Details of outline

3.3.1 Material, mechanical description

– examples: glass, plastic, metal, etc.
– construction: for example integrated backlight, bezel structure

3.3.2 Method of connection

– connector, flex cable or connection pins, etc.