

# TECHNICAL SPECIFICATION



LCD multi-screen display terminals –  
Part 1: Conceptual model

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INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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ICS 31.120

ISBN 978-2-8322-7720-1

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## LCD MULTI-SCREEN DISPLAY TERMINALS –

## Part 1: Conceptual model

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

IEC TS 63181-1, which is a technical specification, has been prepared by IEC technical committee 100: Audio, video and multimedia systems and equipment.

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

Enquiry draft	Report on voting
100/3243/DTS	100/3295/RVDTS

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

A list of all parts in the IEC 63181 series, published under the general title *LCD multi-screen display terminals*, 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- withdrawn,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.

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# LCD MULTI-SCREEN DISPLAY TERMINALS –

## Part 1: Conceptual model

### 1 Scope

This part of IEC 63181 specifies a conceptual model for LCD multi-screen display terminals. This document defines typical functional components to compose LCD multi-screen display terminals and describes the terminals' structure and signal flow. The document also clarifies signal processing in the terminals to create multi-screen sub-signals from a single video signal input.

### 2 Normative references

There are no normative references in this document.

### 3 Terms and definitions

For the purposes of this document, the following terms and definitions 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>

#### 3.1

##### **LCD unit**

LCD device that can display input signals independently

#### 3.2

##### **optical gap**

gap between the boundaries of two adjacent active area units in the LCD multi-screen display terminals

Note 1 to entry: Unit: mm.

#### 3.3

##### **physical gap**

gap between the sides of two adjacent screen units sides in the LCD multi-screen display terminals

Note 1 to entry: Unit: mm.

#### 3.4

##### **splicing processors**

signal processing unit to break up original input signal into sub-signals, and assigning those sub-signals to LCD splicing screens according to the customer's requirement(s)

#### 3.5

##### **LCD splicing screen**

screen composed of a single/multiple/many LCD unit(s) to form the m-by-n LCD unit matrix

**3.6  
splicing**

procedure to connect and control multiple LCD units by splicing processors to make all the LCD units cooperate to perform as a complete LCD splicing screen

**3.7  
LCD multi-screen display terminals**

final product comprising an LCD splicing screen, splicing processors, control software, signal matrix, signal sources, cables, shelf, etc.

**3.8  
LCD multi-screen display terminals installation deviation**

splicing displacement of LCD splicing screen in vertical and horizontal directions, and the flatness on the overall surface of the LCD splicing screen

**3.9  
splicing deviation**

displacement of displayed sub-signals between adjacent active area units caused by the installation deviation

**3.10  
roam**

displayed input signal that can be wandering at any position on the LCD splicing screen

**3.11  
signal matrix**

matrix that can switch input signal to standard format signal and transfer to splicing processors

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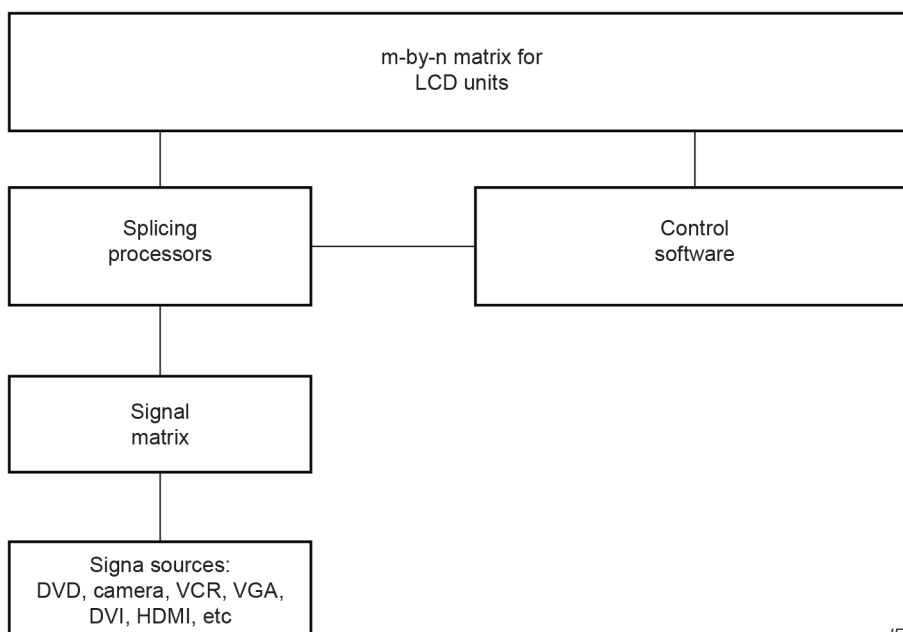
Note 1 to entry: The input signal sources can be DVD, camera, VCR, VGA, DVI, HDMI, etc.

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**4 Basic features**

**4.1 LCD multi-screen display terminals' basic frame**

See Figure 1 for the LCD multi-screen display terminals' basic frame.



IEC

**Figure 1 – LCD multi-screen display terminals' basic frame**



## 4.2 Components and functions of LCD multi-screen display terminals

### 4.2.1 Components

The components are included but not limited to: LCD splicing screen, splicing processors, control software, signal matrix, signal sources, and additional equipment.

### 4.2.2 Functions of components

#### 4.2.2.1 LCD splicing screen

It can display the input signal in various application modes, which are described in 5.2.

#### 4.2.2.2 Splicing processors

According to customer requirements, the processors divide an original input signal into multiple sub-signals, and output to the different LCD units, controlling the LCD splicing screen to properly display the input signal that is merged from sub-signals.

#### 4.2.2.3 Signal matrix

Switch from different input signals and transfer to splicing processors.

#### 4.2.2.4 Control software

The control software running on an independent hardware in the LCD multi-screen terminals, it has the responsibility of overall operation control, including:

- a) setting up the configuration parameters of LCD multi-screen display terminals, such as: luminance, colour, contrast, power on/off;
- b) controlling the signal matrix switch, such as: select input signals from multiple signal sources;
- c) control all kinds of display modes, user demand patterns, etc., such as: fast switching resolution, fast switching input source, typical application mode program switching.

#### 4.2.2.5 Signal sources

An abstract set of input signals, it can import signals from various signal sources, such as: DVD, camera, VCR, VGA, DVI, HDMI, etc.

#### 4.2.2.6 Additional equipment

The cable is selected based on the height of the screen system and actual installation condition(s).

## 5 Typical application

### 5.1 Application scenarios

#### 5.1.1 General

The application scenarios for LCD multi-screen display terminals include, but are not limited to, the items defined in 5.1.2 to 5.1.7.

#### 5.1.2 Transport information display

Display multi-capacity information content in real-time.