



Display device

A **display device** is an output device for presentation of information in visual^[1] or tactile form (the latter used for example in tactile electronic displays for blind people).^[2] When the input information that is supplied has an electrical signal the display is called an electronic display.

Common applications for *electronic visual displays* are television sets or computer monitors.

Types of electronic displays

In use

These are the technologies used to create the various displays in use today.

- Liquid crystal display (LCD)
 - Light-emitting diode (LED) backlit LCD
 - Thin-film transistor (TFT) LCD
 - Quantum dot (QLED) display
- Light-emitting diode (LED) display
 - OLED display
 - AMOLED display
 - Super AMOLED display

Segment displays



Nixie tubes, LED display and VF display, top to bottom



Display board at Frankfurt (Main) Hauptbahnhof (2005)

Some displays can show only digits or alphanumeric characters. They are called **segment displays**, because they are composed of several segments that switch on and off to give appearance of desired glyph. The segments are usually single LEDs or liquid crystals. They are mostly used in digital watches and pocket calculators. Common types are seven-segment displays which are used for numerals only, and alphanumeric fourteen-segment displays and sixteen-segment displays which can display numerals and Roman alphabet letters.

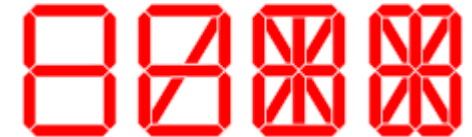


Digital clocks display changing numerals

Other types

- Vacuum fluorescent display
- Electroluminescent (ELD) display
- Plasma (PDP) display
- Laser-powered phosphor display

Cathode-ray tubes were also formerly widely used.



The common segment display shown side by side: 7-segment, 9-segment, 14-segment and 16-segment display

Full area 2 dimensional displays

2 dimensional displays that cover a full area (usually a rectangle) are also called **video displays**, since it is the main modality of presenting video.

Applications of full-area 2-dimensional displays

Full-area 2-dimensional displays are used in, for example:

- Television set
- Computer monitors
- Head-mounted displays, Heads-up displays and Virtual reality headsets
- Broadcast reference monitor
- Medical monitors
- Mobile displays (for mobile devices)
- Smartphone displays (for smartphones)

- Video walls

Underlying technologies of full-area 2-dimensional displays

Underlying technologies for full-area 2-dimensional displays include:

- Cathode ray tube display (CRT)
- Light-emitting diode display (LED)
- Electroluminescent display (ELD)
- Electronic paper, E Ink
- Plasma display panel (PDP)
- Liquid crystal display (LCD)
 - High-Performance Addressing display (HPA)
 - Thin-film transistor display (TFT)
- Organic light-emitting diode display (OLED)
- Digital Light Processing display (DLP)
- Surface-conduction electron-emitter display (SED) (experimental)
- Field emission display (FED) (experimental)
- Laser TV (forthcoming)
- Carbon nanotubes (experimental)
- Quantum dot display (QLED)
- Interferometric modulator display (IMOD)
- Digital microshutter display (DMS)
- microLED (in development)

The multiplexed display technique is used to drive most display devices.

Three-dimensional displays

- Swept-volume display
- Laser display
- Holographic display

- Light field displays

Mechanical types

- Ticker tape (historical)
- Split-flap display (or simply flap display)
- Flip disc display (or flip dot display)
- Vane display
- Rollsign
- Tactile electronic displays are usually intended for the blind. They use electro-mechanical parts to dynamically update a tactile image (usually of text) so that the image may be felt by the fingers
 - Optacon, using metal rods instead of light in order to convey images to blind people by tactile sensation.

See also

- Comparison CRT, LCD, Plasma
- Graphical user interfaces
- History of display technology
- Human machine interface
- Input device
- Text display



References

1. Lemley, Linda. "Chapter 6: Output" (<http://uwf.edu/clemley/cgs1570w/notes/Concepts-6.htm>). *Discovering Computers*. University of West Florida Archived ([https://web.archive.org/web/20120614152622/http://uwf.edu/clemley/cgs1570w/notes/Concepts 6 htm](https://web.archive.org/web/20120614152622/http://uwf.edu/clemley/cgs1570w/notes/Concepts%206.htm)) from the original on 14 June 2012. Retrieved 3 June 2012.

2. "Accommodations For Vision Disabilities" (<http://energy.gov/cio/accommodations-vision-disabilities>). *Energy.gov*. Office of the Chief information Officer. Archived (<https://web.archive.org/web/20120609151025/http://energy.gov/cio/accommodations-vision-disabilities>) from the original on 9 June 2012. Retrieved 3 June 2012.

External links

- [Society for Information Display \(http://www.sid.org\)](http://www.sid.org) - An international professional organization dedicated to the study of display technology
 - [University of Waterloo Stratford Campus \(https://www.uwaterloo.ca/stratford-campus\)](https://www.uwaterloo.ca/stratford-campus) - A university that offers students the opportunity to display their work on the school's 3-storey Christie MicroTile wall.
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