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INTERNATIONAL STANDARD

Touch and interactive displays –
Part 1-2: Generic – Terminology and letter symbols

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Part 1-2: Generic – Terminology and letter symbols

FOREWORD

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International Standard IEC 62908-1-2 has been prepared by IEC technical committee 110: Electronic display devices.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
110/886/FDIS	110/903/RVD

Full information on the voting for the approval of this International Standard 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 the parts in the IEC 62908 series, under the general title *Touch and interactive displays,* 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- withdrawn,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.

A bilingual version of this publication may be issued at a later date.

TOUCH AND INTERACTIVE DISPLAYS –

Part 1-2: Generic – Terminology and letter symbols

1 Scope

This part of IEC 62908 provides a list of terminological entries that are frequently used in the literature related to touch and interactive displays in the IEC 62908 series. Terms for various input methods such as touch, hovering, proximity, gesture, eye tracking, and motion recognition are included. This document is applicable to touch displays, interactive displays and their components.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

3.1 Classification of terms

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

Terms for touch and interactive displays are classified as follows (see also Annex A):

– touch displays (3.2);
– components of touch displays (3.3);
– structure types of touch displays (3.4);
– sensor types of touch displays (3.5);
– input operations of touch displays (3.6);
– measurement elements of touch displays (3.7);
– measurement performances of touch displays (3.8);
– interactive displays (3.9);
– components of interactive displays (3.10);
– sensor types of interactive displays (3.11);
– input operations of interactive displays (3.12);
– actuator types of interactive displays (3.13);
– feedback operations of interactive displays (3.14); and
– measurement performances of interactive displays (3.15).

3.2 Touch displays

3.2.1
touch display
touch display module
electronic device that allows the users to input by using touch objects corresponding to the displayed information

3.3 Components of touch displays

3.3.1
touch sensor
sensor which recognizes input through touch

3.3.2
touch display panel
combination of a touch sensor module and a display panel

3.3.3
touch sensor module
touch screen panel
combination of a touch sensor and touch controller that creates an integrated module capable of sensing and processing touch

Note 1 to entry: A cover window is sometimes attached to the touch sensor.

3.3.4
test pattern cell
test sample with patterned electrodes that is made for reliability measurement

3.3.5
cover window
transparent window that covers and protects the touch screen panel and display panel

3.3.6
touch controller
integrated circuit that converts analogue input signals to digital output signals in the touch screen panel

3.3.7
receive electrode array
Rx
array of electrodes used for receiving the electrical signal

3.3.8
transmit electrode array
Tx
array of electrodes with changing voltage used for transmitting the electrical signal

3.4 Structure types of touch displays

3.4.1
add-on type
out-cell type
structure that has touch sensors which are separately fabricated and attached to the display panel

3.4.2
in-cell type
structure that has touch sensors which are integrated inside the display panel

3.4.3
on-cell type
structure that has touch sensors which are integrated on the outside of the display panel

3.4.4
hybrid-cell type
structure that has touch sensors which are both inside and outside the display panel

3.5 Sensor types of touch displays

3.5.1
capacitive touch sensor
sensor for detecting the change of capacitance

3.5.2
resistive touch sensor
sensor for detecting the change of resistance

3.5.3
optical touch sensor
sensor that senses the change of light intensity by using light emitter and detector pairs arranged around the perimeter of the touch screen

3.5.4
surface acoustic wave touch sensor
sensor for detecting the change of surface acoustic wave which is generated by the touch input operations of the touch displays

3.6 Input operations of touch displays

3.6.1
touch event
event of detecting the coordinate of the physical contact with a touch sensor

3.6.2
hovering
detection which responds to the non-physical touch of a human body or an object which is suspended over the touch sensor

3.6.3
pressure touch
touch putting pressure on the touch sensor which recognizes the changes in pressure

3.7 Measurement elements of touch displays

3.7.1
touch test bar
artificial bar that is applied as touch input on the touch screen panel

3.8 Measurement performances of touch displays

3.8.1
false touch
phenomenon where touch coordinates are incorrectly reported

3.8.2
adjacent touch distance
minimum distance between two separate touch points which the touch screen panel can report as being distinct from one another

3.8.3
maximum hover distance
greatest distance between the hovering input object and the touch screen panel surface for which the object position can be reported

3.8.4
minimum sensing size
smallest diameter of the test bar for which touch data can be reported

3.8.5
touch accuracy
degree which shows how close a measured value is to the targeted (true) value

Note 1 to entry: Unit: mm.

3.8.6
touch jitter
deviation of the reported coordinates from the touch screen panel when a stationary touch is applied

3.8.7
touch latency
delay time from actual touch to reported touch in idle/doze mode

3.8.8
touch linearity
linearity of sensed touch points when a linear dragging touch is applied

3.8.9
touch precision
touch repeatability
degree which shows how close the measured values are to each other with subsequent touches in the same location

3.8.10
touch reporting time
interval time of the touch signal from the touch sensor to the touch controller

3.8.11
move latency
delay time between the actual touch position change and the recognized position change

3.8.12
touch report rate
frequency of touch reports

3.8.13
touch resolution
density (or number per unit length) of distinctly reportable points

3.9 Interactive displays

3.9.1
interactive display
electronic display device that allows the users to interact with the device by touching or applying other non-physical inputs and gives interactive feedback to the users

3.10 Components of interactive displays

3.10.1
interactive display module
combination of interactive screen panel, interactive input sensor, interactive feedback actuator, interactive touch controller, surface cover, and connector that creates a fully integrated module capable of sensing and processing inputs

3.10.2
interactive input sensor
sensor that is connected to the interactive touch controller and recognizes the touch event and interactive inputs

3.10.3
wirelessly input sensor
sensor that wirelessly communicates with the interactive touch controller and recognizes the touch and other interactive inputs

3.10.4
surface input sensor
sensor that is integrated with the display and recognises touch and hovering inputs

3.10.5
optical input sensor
sensor that is connected to the display and recognises proximity and gesture inputs

3.10.6
tactile sensor
sensor that detects the parameters of physical touch of the surface which is touched on the display

3.10.7
hovering sensor
sensor that detects the hovering of an object above the display surface

3.10.8
proximity sensor
sensor that detects the proximity of an object

3.10.9
gesture sensor
sensor that detects the human gesture which is recognized by an optical input sensor and tracking camera sensor

3.10.10
tracking camera sensor
sensor that tracks the movement of objects in space where the camera can recognize the object

3.10.11
interactive feedback actuator
feedback actuator that is integrated with the display and responds to touch and interactive input

3.11 Sensor types of interactive displays

3.11.1
bio-signal input sensor
sensor that detects the signal of human body as input

EXAMPLE Body heat.

3.12 Input operations of interactive displays

3.12.1
finger gesture
interactive input of human gesture that is taken by a combination of finger actions such as finger bending, finger swiping, finger twisting, and finger crossing

3.12.2
palm gesture
interactive input of human gesture that is taken by a combination of palm actions such as palm swiping, palm twisting, and palm fist

3.12.3
arm gesture
interactive input of human gesture that is taken by a combination of arm actions such as arm bending, arm swiping, and arm twisting

3.12.4
gesture recognition
input recognition by interpreting human gestures including finger gesture, palm gesture, and arm gesture

3.12.5
three-dimensional model gesture recognition
gesture recognition that is interpreted by a three-dimensional volumetric modelling of human gesture

3.12.6
skeletal gesture recognition
gesture recognition that is interpreted by a skeletal modelling of human gesture

3.12.7
appearance gesture recognition
gesture recognition that is interpreted by a binary silhouette and contour modelling of human gesture

3.12.8
motion recognition
input recognition by interpreting the movement of an object that is recognized with a tracking camera sensor

3.12.9
eye tracking
interactive input that is recognized with a tracking camera sensor by measuring either the point of gaze or the motion of an eye

3.12.10
head tracking
interactive input that is recognized with a tracking camera sensor by measuring the motion of a human head

3.13 Actuator types of interactive displays

3.13.1
haptic feedback actuator
physical actuator that applies force, vibration, and motion to the user as interactive feedback

3.13.2
tactile feedback actuator
surface tactile actuator that changes surface texture as interactive feedback

3.13.3
electrical feedback actuator
electrical actuator that applies electrical stimulation to the user as interactive feedback

3.14 Feedback operations of interactive displays

3.14.1
display feedback
visual feedback which shows interactive images and videos on the interactive screen panel as response to the interactive input

3.14.2
haptic feedback
physical feedback which applies force, vibration, and motion to the user as response to the interactive input

3.14.3
surface tactile feedback
tactile feedback which changes the surface texture of the surface cover as response to the interactive input

3.14.4
electrical feedback
electrical feedback which applies electrical stimulus to the user as response to the interactive input

3.15 Measurement performances of interactive displays

3.15.1
feedback time
response time between input recognition of the interactive input sensor and interactive feedback

3.15.2
hovering range
distance range where the surface input sensor recognizes an object as hovering

3.15.3
proximity range
range of the distance where an optical sensor recognizes an object in proximity

3.15.4
gesture recognition accuracy
accuracy between the actual gesture and the recognized input gesture

3.15.5
tracking speed
maximum speed with which the tracking camera can recognize an object