G09G

**INSTRUMENTS**

G09 EDUCATION; CRYPTOGRAPHY; DISPLAY; ADVERTISING; SEALS

**G09G** ARRANGEMENTS OR CIRCUITS FOR CONTROL OF INDICATING DEVICES USING STATIC MEANS TO PRESENT VARIABLE INFORMATION (lighting in general F21; arrangements for displaying electric variables or waveforms G01R 3/00; devices or arrangements for the control of light beams G02F 1/00; indicating of time by visual means G04B 19/00, G04C 17/00, G04G 9/00; arrangements for transferring data between computers and peripheral equipment G06F 3/00; visible signalling arrangements or devices G08B 5/00; traffic control systems G08G; display, advertising, signs G09F, e.g. static indicating arrangements comprising an association of a number of separate sources or light control cells G09F 9/00; static indicating arrangements comprising integral associations of a number of light sources H01J, H01K, H01L, H05B 33/12; circuits in pulse counters for indicating the result H03K 21/18; coding, decoding or code conversion, in general H03M; reproducing a picture or pattern using electric signals representing parts thereof and produced by scanning an original H04N.)

**NOTES**

1. This subclass covers indicator consoles, i.e. arrangements or circuits for processing control signals to achieve the display, e.g. for the calling up, reception, storage, regeneration, coding, decoding, addressing of control signals.

2. This subclass does not cover the structural details of the indicating devices, such as panels or tubes per se, or assemblies of individual light sources, which are covered by the relevant subclasses, e.g. H01J, H01K, H01L, G02F, G09F, H05B.

3. Contrary to subclass H04N, in which are classified display devices capable of representing continuous brightness value scales, this subclass is limited to devices using only a discrete number of brightness values, e.g. visible/non-visible.

4. The visual effect may be produced by a luminescent screen scanned by an electron beam, directly by controlled light sources, by projection of light, from controlled light sources onto characters, symbols, or elements thereof drawn on a support, or by electric, magnetic, or acoustic control of the parameters of light rays from an independent source.

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
3/002 . . . [to project the image of a two-dimensional display, such as an array of light emitting or modulating elements or a CRT]
3/003 . . . [to produce spatial visual effects]
3/004 . . . [to give the appearance of moving signs]
3/005 . . . [forming an image using a quickly moving array of imaging elements, causing the human eye to perceive an image which has a larger resolution than the array, e.g. an image on a cylinder formed by a rotating line of LEDs parallel to the axis of rotation]
3/006 . . . [Electronic inspection or testing of displays and display drivers, e.g. of LED or LCD displays (testing individual LED’s G01R 31/2635; testing lamps G01R 31/44; testing of optical features of LCD displays G02F 1/1309)]
3/007 . . . Use of pixel shift techniques, e.g. by mechanical shift of the physical pixels or by optical shift of the perceived pixels]
3/008 . . . [forming an image on an image carrier by relative movement of a writing unit to the image carrier, e.g. on a photoconductive rotating belt, or on an electronic blackboard]
3/009 . . . [for flexible display surfaces]
3/035 . . . [for flexible display surfaces]
3/04 . . . [presentation of a single character by selection from a plurality of characters, or by composing the character by combination of individual elements, e.g. segments (using a combination of such display devices for composing words, rows or the like, in a frame with fixed character positions)]
3/045 . . . [Selecting complete characters]
3/06 . . . [using controlled light sources]
3/08 . . . [using incandescent filaments]
3/10 . . . [using gas tubes]
3/12 . . . [using electroluminescent elements]
3/14 . . . [Semiconductor devices, e.g. diodes]
3/16 . . . [by control of light from an independent source]
3/18 . . . [using liquid crystals]
3/19 . . . [using electrochromic devices]
for presentation of an assembly of a number of characters, e.g. a page, by composing the assembly by combination of individual elements arranged in a matrix (no fixed position being assigned to or needed to be assigned to the individual characters or partial characters)

[Display of colours (specific for liquid crystal displays G09G 3/3607)]

[Display of intermediate tones]

[by amplitude modulation]

[by modulation of the duration of a single pulse during which the logic level remains constant]

[by time modulation using two or more time intervals]

[using sub-frames]

[the sub-frames having all the same time duration]

[the sub-frames having non-binary weights]

[with splitting one or more sub-frames corresponding to the most significant bits into two or more sub-frames]

[with specific control of sub-frames corresponding to the least significant bits]

[the sub-frames being organized in consecutive sub-frame groups]

[using dithering]

[with addition of random noise to an image signal or to a gradation threshold]

[with use of a spatial dither pattern]

[the pattern being varied in time]

[using error diffusion]

[using error diffusion in time]

[using error diffusion in both space and time]

[by domain size control (G09G 3/3637 takes precedence)]

[by a combination of two or more gradation control methods]

[with combination of amplitude modulation and time modulation (space and time error diffusion G09G 3/2066)]

[Special arrangements for addressing the individual elements of the matrix, other than by driving respective rows and columns in combination]

[with use of a plurality of processors, each processor controlling a number of individual elements of the matrix]

[Details of a display terminals using a flat panel, the details relating to the control arrangement of the display terminal and to the interfaces thereto (suitable for both CRT and flat panel G09G 5/003; specific for a CRT G09G 1/165)]

[Details of the interface to the display terminal specific for a flat panel (suitable for both CRT and flat panel G09G 5/006; specific for a CRT G09G 1/167)]

using controlled light sources

using incandescent filaments

to give the appearance of moving signs

using luminous gas-discharge panels, e.g. plasma panels

[Display of gradations (G09G 3/288 takes precedence)]

with discharge activated by high-frequency signals specially adapted therefor

using alternating current [AC] - direct current [DC] hybrid-type panels

using DC panels

using self-scanning

using AC panels

using self-shift panels [with sequential transfer of the discharges from an input position to a further display position]

controlling the gas discharge to control a cell condition, e.g. by means of specific pulse shapes

for reset discharge, priming discharge or erase discharge occurring in a phase other than addressing

[Details of erasing]

[Details of priming]

[Details of initialising]

for address discharge

[Addressed by writing selected cells that are in an OFF state]

[Addressed by erasing selected cells that are in an ON state]

[being addressed only once per frame]

for lighting or sustain discharge

[with special waveforms to increase luminous efficiency]

(by varying the frequency of sustain pulses or the number of sustain pulses proportionally in each subfield of the whole frame]

(by introducing variations of the frequency of sustain pulses within a frame or non-proportional variations of the number of sustain pulses in each subfield]

(by increasing the total sustaining time with respect to other times in the frame]

Driving circuits for producing the waveforms applied to the driving electrodes

(using inductors for energy recovery)

using opposed discharge type panels

using surface discharge panels

(using non-standard pixel electrode arrangements]

(with more than 3 electrodes involved in the operation]

using alternate lighting of surface-type panels

using electroluminescent panels

semiconductive, e.g. using light-emitting diodes [LED]

organic, e.g. using organic light-emitting diodes [OLED]

using a passive matrix

using an active matrix
with pixel circuitry controlling the current through the light-emitting element

the current through the light-emitting element being set using a data current provided by the data driver, e.g. by using a two-transistor current mirror

the data current flowing through the driving transistor during a setting phase, e.g. by using a switch for connecting the driving transistor to the data driver

with pixel circuitry controlling the voltage across the light-emitting element

Details of drivers for scan electrodes

Details of drivers for data electrodes

in which the data driver supplies a variable data current for setting the current through, or the voltage across, the light-emitting elements

in which the data driver supplies a variable data voltage for setting the current through, or the voltage across, the light-emitting elements

by control of light from an independent source

[Control of illumination source (illumination devices structurally associated with liquid crystal cells G02F 1/1336)]

[Details of control of colour illumination sources]

[using several illumination sources separately controlled corresponding to different display panel areas, e.g. along one dimension such as lines]

(the different display panel areas being distributed in two dimensions, e.g. matrix)

[using light modulating elements actuated by an electric field and being other than liquid crystal devices and electrochromic devices (using liquid crystal devices G09G 3/36; using electrochromic devices G09G 3/38)]

[based on particles moving in a fluid or in a gas, e.g. electrophoretic devices (electrophoretic devices per se G02F 1/167)]

(with more than two electrodes controlling the modulating element)

[based on rotating particles or microelements]

[based on modulation of the reflection angle, e.g. micromirrors (micromirrors devices per se G02B 260/0833)]

[based on interferometric effect]

[based on light coupled out of a light guide, e.g. due to scattering, by contracting the light guide with external means]

[based on the deformation of a fluid drop, e.g. electrowetting]

[based on light modulating elements actuated by a magnetic field]

[based on light modulating elements actuated by a piezoelectric effect]

using liquid crystals

[with thermally addressed liquid crystals]

[for displaying colours or for displaying grey scales with a specific pixel layout, e.g. using sub-pixels (display of colours in flat matrix panels other than liquid crystal displays G09G 3/203; grey scales specific for television H04N 3/127)]

[Control of matrices with row and column drivers]

[Control of polarity reversal in general]

[with automatic refresh of the display panel using sense/write circuits]

[using a passive matrix (G09G 3/3674 - G09G 3/3696 take precedence)]

(using active addressing)

[using liquid crystals having memory effects, e.g. ferroelectric liquid crystals]

(with transmission/voltage characteristic comprising multiple loops, e.g. antiferroelectric liquid crystals)

(with intermediate tones displayed by domain size control in flat matrix panels other than liquid crystal displays having memory effects G09G 3/207)

(with use of subpixels)

(with the matrix divided into sections)

(using an active matrix (G09G 3/367 - G09G 3/3696 take precedence))

[using multistable liquid crystals, e.g. ferroelectric liquid crystals]

[Details of drivers for counter electrodes, e.g. common electrodes for pixel capacitors or supplementary storage capacitors]

[the addressing of the pixel involving the control of two or more scan electrodes or two or more data electrodes, e.g. pixel voltage dependant on signal of two data electrodes]

[using plasma-addressed liquid crystal displays]

(with the matrix divided into sections)

(with a nonlinear element in series with the liquid crystal cell, e.g. a diode, or M.I.M. element)

[Details of drivers for scan electrodes]

[suitable for active matrices only]

[suitable for passive matrices only]

[Details of drivers for data electrodes]

[suitable for active matrices only]

[suitable for passive matrices only]

[Generation of voltages supplied to electrode drivers]

[using electrochromic devices]

Control arrangements or circuits for visual indicators common to cathode-ray tube indicators and other visual indicators (image data processing or generation, in general G06T)

[Arbitration of resources in a display system, e.g. control of access to frame buffer by video controller and/or main processor]
Function-generator circuits, e.g. circle generators
videodisc player G09G 5/12
between the display unit and other display units,
adapted for television H04N
{ ; synchronisation
}
Display of right-to-left language
units, e.g. other display units, video-disc players
Intensity circuits
Cursor circuits
Intensity circuits
Synchronisation between the display unit and other units,
e.g. other display units, video-disc players
Display of multiple viewpoints
Display of right-to-left language
Timing circuits for raster scan displays (specially adapted for television H04N ; ; synchronisation between the display unit and other display units, videodisc player G09G 5/12)
Function-generator circuits, e.g. circle generators
{line or curve smoothing circuits}
characterised by the display of characters or indicia
using display control signals derived from coded signals representing the characters or indicia, e.g.
with a character-code memory
{ Control of the character-code memory }
{ comprising a loadable character generator
(character generators per se G09G 5/24) }
{ Resolution modifying circuits, e.g. variable screen formats, resolution change between memory contents and display screen }
Generation of individual character patterns
{Circuits for displaying proportional spaced characters or for kerning}
{ of ideographic or arabic-like characters }
{ for modifying the character dimensions, e.g. double width, double height }
{ for enhancement of character form, e.g. smoothing }
Control of display attribute
{ with means for controlling the display position
(see provisionally G09G 5/42) }
for rolling or scrolling
{ for systems having a character code-mapped display memory }
{ for systems having a bit-mapped display memory }
characterised by the display of a graphic pattern,
e.g. using an all-points-addressable [APA] memory
{ Graphics controllers }
with conversion of CRT control signals to flat panel control signals, e.g. adapting the palette memory
Details of the operation on graphic patterns
{ Graphics controllers }
for modifying the size of the graphic pattern
for mixing or overlaying two or more graphic patterns
{ Graphics controllers }
with means for controlling the display position
Control of the bit-mapped memory
Resolution modifying circuits, e.g. variable screen formats
{ Arrangements for updating the contents of the bit-mapped memory
Arrangements specially adapted for transferring the contents of the bit-mapped memory to the screen
( G09G 5/399 takes precedence) }
Arrangements specially adapted for transferring the contents of two or more bit-mapped memories to the screen simultaneously, e.g. for mixing or overlay
{ Arrangements specially adapted for transferring the contents of two or more bit-mapped memories to the screen simultaneously, e.g. for mixing or overlay
( G09G 5/02 takes precedence) }
WARNING
Not complete. See also G09G 5/395, G09G 5/399
using two or more bit-mapped memories, the operations of which are switched in time, e.g.
ping-pong buffers
characterised by the way in which both a pattern determined by character code and another pattern are displayed simultaneously, or either pattern is displayed selectively, e.g. with character code memory and APA, i.e. all-points-addressable, memory
characterised by the display of patterns using a display memory without fixed position correspondence between the display memory contents and the display position on the screen
Details of flat display driving waveforms
Indexing scheme relating to details of a display terminal
Aspects of the constitution of display devices
Composition of display devices
Display panel composed of stacked panels
Video wall, i.e. juxtaposition of a plurality of screens to create a display screen of bigger dimensions
Structural and physical details of display devices
Matrix technologies
Integration of the drivers onto the display substrate
Details of dummy pixels or dummy lines in flat panels
Special arrangements specific to the use of low carrier mobility technology
2300/0421 . . . Structural details of the set of electrodes
2300/0426 . . . Layout of electrodes and connections
2300/043 . . . Compensation electrodes or other additional electrodes in matrix displays related to distortions or compensation signals, e.g. for modifying TFT threshold voltage in column driver
2300/0434 . . . Flat panel display in which a field is applied parallel to the display plane
2300/0439 . . . Pixel structures
2300/0443 . . . with several sub-pixels for the same colour in a pixel, not specifically used to display gradations (G09G 3/364 takes precedence)
2300/0447 . . . for multi-domain technique to improve the viewing angle in a liquid crystal display, such as multi-vertical alignment [MVA]
2300/0452 . . . Details of colour pixel setup, e.g. pixel composed of a red, blue and two green components
2300/0456 . . . with a reflective area and a transmissive area combined in one pixel, such as in transflectance pixels
2300/046 . . . with an emissive area and a light-modulating area combined in one pixel
2300/0465 . . . Improved aperture ratio, e.g. by size reduction of the pixel circuit, e.g. for improving the pixel density or the maximum displayable luminance or brightness
2300/0469 . . . Details of the physics of pixel operation
2300/0473 . . . Use of light emitting or modulating elements having two or more stable states when no power is applied
2300/0478 . . . related to liquid crystal pixels
2300/0482 . . . Use of memory effects in nematic liquid crystals
2300/0486 . . . Cholesteric liquid crystals, including chiral-nematic liquid crystals, with transitions between focal conic, planar, and homeotropic states
2300/0491 . . . Use of a bi-refringent liquid crystal, optically controlled bi-refringence [OCB] with bend and splay states, or electrically controlled bi-refringence [ECB] for controlling the color
2300/0495 . . . Use of transitions between isotropic and anisotropic phases in liquid crystals, by voltage controlled deformation of the liquid crystal molecules, as opposed to merely changing the orientation of the molecules as in, e.g. twisted-nematic [TN], vertical-aligned [VA], cholesteric, in-plane, or bi-refringent liquid crystals
2300/06 . . . Passive matrix structure, i.e. with direct application of both column and row voltages to the light emitting or modulating elements, other than LCD or OLED
2300/08 . . . Active matrix structure, i.e. with use of active elements, inclusive of non-linear two terminal elements, in the pixels together with light emitting or modulating elements
2300/0804 . . . Sub-multiplexed active matrix panel, i.e. wherein one active driving circuit is used at pixel level for multiple image producing elements
2300/0809 . . . Several active elements per pixel in active matrix panels
2300/0814 . . . used for selection purposes, e.g. logical AND for partial update
2300/0819 . . . used for counteracting undesired variations, e.g. feedback or autozeroing
2300/0823 . . . used to establish symmetry in driving, e.g. with polarity inversion
2300/0828 . . . forming a digital to analog [D/A] conversion circuit
2300/0833 . . . forming a linear amplifier or follower
2300/0838 . . . with level shifting
2300/0842 . . . forming a memory circuit, e.g. a dynamic memory with one capacitor
2300/0847 . . . being a dynamic memory without any storage capacitor, i.e. with use of parasitic capacitances as storage elements
2300/0852 . . . being a dynamic memory with more than one capacitor
2300/0857 . . . Static memory circuit, e.g. flip-flop
2300/0861 . . . with additional control of the display period without amending the charge stored in a pixel memory, e.g. by means of additional select electrodes
2300/0866 . . . by means of changes in the pixel supply voltage
2300/0871 . . . with level shifting
2300/0876 . . . Supplementary capacities in pixels having special driving circuits and electrodes instead of being connected to common electrode or ground; Use of additional capacitively coupled compensation electrodes
2300/088 . . . using a non-linear two-terminal element
2300/0885 . . . Pixel comprising a non-linear two-terminal element alone in series with each display pixel element
2300/0889 . . . Pixel comprising a non-linear two-terminal element in series with each display pixel element, the series comprising also other elements
2300/0895 . . . having more than one selection line for a two-terminal active matrix LCD, e.g. Lechner and D2R circuits

2130/00 Command of the display device
2130/02 . . . Addressing, scanning or driving the display screen or processing steps related thereto
2130/0202 . . . Addressing of scan or signal lines
2130/0205 . . . Simultaneous scanning of several lines in flat panels
2130/0208 . . . using active addressing
2130/021 . . . Double addressing, i.e. scanning two or more lines, e.g. lines 2 and 3; 4 and 5, at a time in a first field, followed by scanning two or more lines in another combination, e.g. lines 1 and 2; 3 and 4, in a second field
2130/0213 . . . controlling the sequence of the scanning lines with respect to the patterns to be displayed, e.g. to save power
2130/0216 . . . Interleaved control phases for different scan lines in the same sub-field, e.g. initialization, addressing and sustaining in plasma displays that are not simultaneous for all scan lines
2130/0218 . . . with collection of electrodes in groups for n-dimensional addressing
2130/0221 . . . with use of split matrices (G09G 3/3644 and G09G 3/3666 take precedence)
Details of driving circuits

signals of two data electrodes

data electrodes, e.g. pixel voltage dependent on
of two or more scan electrodes or two or more
than an active matrix LCD, involving the control
The addressing of the pixel, in a display other
Scrolling of light from the illumination source
over the display in combination with the scanning
of the display screen

Details of the generation of driving signals

details of an even field

Details of driving circuits arranged to drive
pixels by means of a current

scale data or to communication of data to the
drivers handling digital grey scale data, e.g. use
of D/A converters
drivers communicating data to the pixels by
means of a current
coupling
induced with use of an analog or digital ramp generator
in the column driver or in the pixel circuit
The addressing of the pixel, in a display other
than an active matrix LCD, involving the control
of two or more scan electrodes or two or more
data electrodes, e.g. pixel voltage dependent on
signals of two data electrodes

Details of driving circuits

details of drivers for scan electrodes, other
than drivers for liquid crystal, plasma or OLED
displays
Details of drivers for data electrodes, the
drivers handling digital grey scale data, e.g. use
of D/A converters
details of drivers for data electrodes, the
drivers communicating data to the pixels by
means of a current
details of drivers for data electrodes, other
than drivers for liquid crystal, plasma or OLED
displays, not related to handling digital grey
scale data or to communication of data to the
pixels by means of a current
details of driving circuits arranged to drive
both scan and data electrodes
Arrangement of scan or data electrode driver
circuits at the periphery of a panel not inherent
to a split matrix structure
Arrangement of drivers for different directions
of scanning

Details of a shift registers arranged for use in a
driving circuit

details of voltage level shifters arranged for
use in a driving circuit

details of output amplifiers or buffers arranged
for use in a driving circuit

details of sampling or holding circuits arranged
for use in a driver for data electrodes

Special arrangements with multiplexing or
demultiplexing of display data in the drivers
for data electrodes, in a pre-processing circuitry
delivering display data to said drivers or in
the matrix panel, e.g. multiplexing plural data
signals to one D/A converter or demultiplexing
the D/A converter output to multiple columns

Partial updating of the display screen
Details of flat display driving waveforms

for resetting or blanking

Waveforms for resetting a plurality of scan
lines at a time

Waveforms for resetting the whole screen at
once

Waveforms comprising zero voltage phase or
pause

Waveforms comprising a gently increasing or
decreasing portion, e.g. ramp

Special waveforms for scanning, where no circuit
details of the gate driver are given

Application of pulses of alternating polarity prior
to the drive pulse in electrophoretic displays

Details of timing specific for flat panels, other than
clock recovery

Control of display operating conditions

Improving the quality of display appearance
Compensation of DC component across the pixels
in flat panels

Crosstalk reduction, i.e. to reduce direct or
indirect influences of signals directed to a certain
pixel of the displayed image on other pixels of
said image, inclusive of influences affecting
pixels in different frames or fields or sub-images
which constitute a same image, e.g. left and right
images of a stereoscopic display

with crosstalk due to leakage current of pixel
switch in active matrix panels

Reducing feedthrough effects in active matrix
panels, i.e. voltage changes on the scan electrode
influencing the pixel voltage due to capacitive
coupling

Compensation for problems related to R-C delay
and attenuation in electrodes of matrix panels,
e.g. in gate electrodes or on-substrate video signal
electrodes

Increasing the driving margin in plasma displays

Improving the luminance or brightness uniformity
across the screen

Improving the black level

Compensation of deficiencies in the appearance
of colours

Flicker reduction other than flicker reduction
circuits used for single beam cathode-ray tubes

Improving the response speed

Reduction of after-image effects

in the context of movement of objects on the
screen or movement of the observer relative to the
screen

Reduction of sub-frame artefacts

Adjustment of the gradation levels within the
range of the gradation scale, e.g. by redistribution
or clipping
Aspects of power supply; Aspects of display operation

Details of power systems and of start or stop of display systems

Arrangements within a display terminal for setting, manually or automatically, display parameters of the display terminal

Special adaptations of display systems for operation with variable images

Arrangements of methods related to powering off a display

Arrangements or methods related to powering off a display

Generation of voltages supplied to electrode drivers in a matrix display other than LCD

Display protection

Protection against panel overheating

Handling electromagnetic interferences [EMI], covering emitted as well as received electromagnetic radiation

Fault-tolerant or redundant circuits, or circuits in which repair of defects is prepared

Dealing with defective pixels

Test circuits or failure detection circuits included in a display system, as permanent part thereof

Aspects of display data processing

Handling of images in compressed format, e.g. JPEG, MPEG

Changes in size, position or resolution of an image

Resolution change, inclusive of the use of different resolutions for different screen areas

Vertical resolution change

Horizontal resolution change

Gradation resolution change

Change or adaptation of the frame rate of the video stream

Handling or displaying different aspect ratios, or changing the aspect ratio

Zooming at least part of an image, i.e. enlarging it or shrinking it

Improvement of perceived resolution by subpixel rendering

Positioning

Vertical positioning

Horizontal positioning

Centering horizontally or vertically

Change of orientation of the displayed image, e.g. upside-down, mirrored

Colour space transformation

Monochrome to colour transformation

Mixing of images, i.e. displayed pixel being the result of an operation, e.g. adding, on the corresponding input pixels

Overlay of images, i.e. displayed pixel being the result of switching between the corresponding input pixels

wherein one of the images is motion video

Solving problems related to the presentation of information to be displayed

related to small screens

Determination of a pixel data signal depending on the signal applied in the previous frame

Solving problems of bandwidth in display systems

Parallel handling of streams of display data

Aspects of interface with display user

Detection of the display position w.r.t. other display screens

Arrangements for display data security

Aspects of the architecture of display systems
Graphics controller able to handle multiple formats, e.g. input or output formats

Display device controller operating with a plurality of display units

Use of more than one graphics processor to process data before displaying to one or more screens

Power processing, i.e. workload management for processors involved in display operations, such as CPUs or GPUs

Display system comprising arrangements, such as a coprocessor, specific for motion video images

Frame memory handling

Using a cache memory

Tiling

Using interleaving

Using unified memory architecture [UMA]

The frame memory having additional data ports, not inclusive of standard details of the output serial port of a VRAM

Updating a frame memory using a transfer of data from a source area to a destination area

Frame memory using a Synchronous Dynamic RAM [SDRAM]

Detecting light within display terminals, e.g. using a single or a plurality of photosensors

the light conveying information used for selecting or modulating the light emitting or modulating element

the light being detected by light detection means within each pixel

the light being ambient light

the light originating from the display screen

the originated light output being determined for each pixel

the light being detected by light detection means within each pixel

Calculation or use of calculated indices related to luminance levels in display data

Use of a frame buffer in a display terminal, inclusive of the display panel

Use of low voltage differential signaling [LVDS] for display data communication

Use of wireless transmission of display information

Use of optical transmission of display information

Details of the management of multiple sources of image data

Detection of presence or absence of input display information or of connection or disconnection of a corresponding information source

Keyboard-Video-Mouse [KVM] switch

Flexible displays

Electronic labels

Remotely controlled electronic signs other than labels

Biomedical applications

Automotive applications

Avionics applications

Electronic books and readers

Digital picture frames

Aspects of data communication

Networking aspects

Centralised management of display operation, e.g. in a server instead of locally

LAN communication management

Arrangements and methods specific for the display of internet documents

Exchange of auxiliary data, i.e. other than image data, between monitor and graphics controller

for monitor identification

using multiple communication channels, e.g. parallel and serial

using display data channel standard [DDC] communication

Consumer Electronics Control, i.e. control of another device by a display or vice versa

Details of image data interface between the display device controller and the data line driver circuit

Use of a protocol of communication by packets in interfaces along the display data pipeline

Use of DVI or HDMI protocol in interfaces along the display data pipeline

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