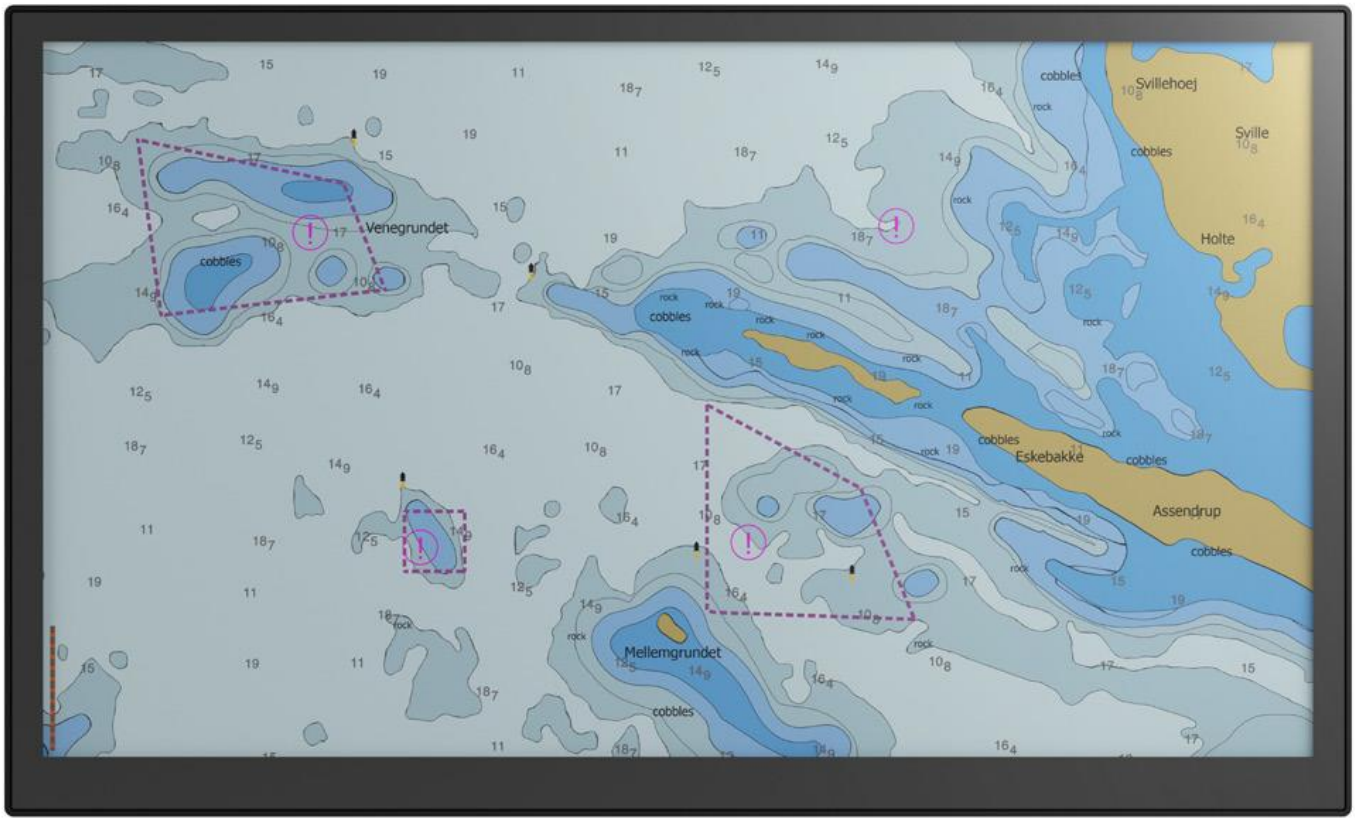
DuraMON32-55
S-Line Series

DuraMON32 S-Line
DuraMON55 S-Line

User Reference Manual



Disclaimer

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Image sticking: If the monitor is operated with static images (logo's etc.) it will inevitably lead to images sticking on the display. Image sticking can be reduced by regular operating the monitor with moving pictures that is designed for the purpose.

FCC Warning

Computing devices and peripherals generate and radiate radio frequency energy, and if not installed and used in accordance with the instructions advised by ISIC A/S, it may cause interference to radio communication.

The DuraMON32-55 S-Line series, manufactured by ISIC A/S, is designed to comply with the emerging generic EEC standards that cover applications in maritime environments.

Classification

The DuraMON is classified as "protected from the weather" according to IEC 60945 ed.4 (former class b).

Approvals

Approval according to IEC 60945: Ed. 4 2002/COR1:2008 and IACS E10 Rev. 7 Oct. 2018, Maritime navigation and radio communication equipment and systems – General requirements.

ISIC A/S is complying with the WEEE directive within the European Union, stating that electronic and electric products must be collected separately.
Products are marked according to the directive.

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Table of Contents

1 Features

Congratulations on your purchase of the DuraMON32-55 S-Line series.
This short form manual is designed to get you started working with your new DuraMON32-55 S-Line.

The DuraMON32-55 S-Line series is comprised of rugged monitors specifically designed for demanding operation environments.

The DuraMON32-55 S-Line series are tested for full compliance to marine-standards IACS E10 and IEC 60945. The monitor comes with excellent brightness levels, contrast levels, and wide viewing angles ensure a high readability and a comfortable viewing experience. For the best picture quality, always use a double shielded cable with ferrite cores, like the one supplied with the monitor.

2 x DisplayPort
2 x HDMI
Feature control support for DDC/CI VCP commands via DisplayPort interface and USB interface
Dimming control (1cd to 100%)
Anti-Reflective coated cover glass
IP56 protected front, mounted in sealed console.
USB Touch (Optional)

2 General considerations at Installation and Operation

DuraMON32-55 S-Line series are designed to work at conditions according to IEC 60945. However, keeping the temperature and vibration level at a minimum will extend the lifetime of the product. ISIC recommend operating this product at normal room temperature (20-25°C), with the lowest possible level of vibration and humidity.

2.1 Installation

To obtain the best possible operating conditions, please note the following precautions.

- Cooling.

  When mounting DuraMON32-55 S-Line series in cabinet/console, please ensure that air can flow freely around the product case to avoid any unnecessary rise in temperature. If it is not possible to have an adequate natural airflow, please ensure forced airflow inside the console.

- Sunlight

  If the product can be exposed to direct sunlight, there is a potential risk that the unit can overheat resulting in poor performance. Please take measures to prevent direct sunlight. Do also consider forced cooling on the back of the product.

Please refer to Mechanical Outline for installation

2.1.1 Mechanical Outline

DuraMON 32 S-Line:	09333-000
DuraMON 55 S-Line:	09356-000

2.1.2 Desktop/Ceiling mounting kit with tilt

DuraMON 32 S-Line:	10123-032
DuraMON 55 S-Line:	10123-055

2.1.3 Console mounting kit

DuraMON 32 S-Line:	09456-000
DuraMON 55 S-Line:	09456-001

2.1.4 Compass safe distance

Test object / condition	Minimum Compass safe distance [cm] (5.4°/H deviation or a horizontal magnetic flux of 0.094μT)	Minimum Compass safe distance [cm] (18°/H deviation or a horizontal magnetic flux of 0.313μT)
DuraMON 32 S-Line	180	115
DuraMON 55 S-Line		

2.1.5 Power Consumption

Test object / condition	Pmax [VA]
DuraMON 32 S-Line	120
DuraMON 55 S-Line	

In standby mode, the product will still consume power.
To cut off all power consumption, it is necessary to disconnect its supply power.

2.1.6 Inrush current

Test object / condition	Current[A] @ 115VAC	Current[A] @ 230VAC
DuraMON 32 S-Line	40	80
DuraMON 55 S-Line	40	80

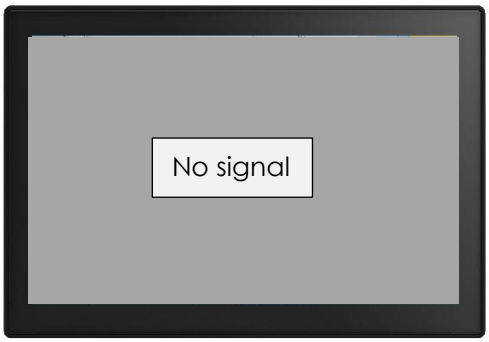
2.2 Operation

2.2.1 Warm up (ECDIS)

To obtain correct display colors and luminance, a warm-up period of minimum 30 minutes is required.

2.2.2 Power

When no input signals are detected, the screen will display "No signal" for 15 sec and enter standby mode.



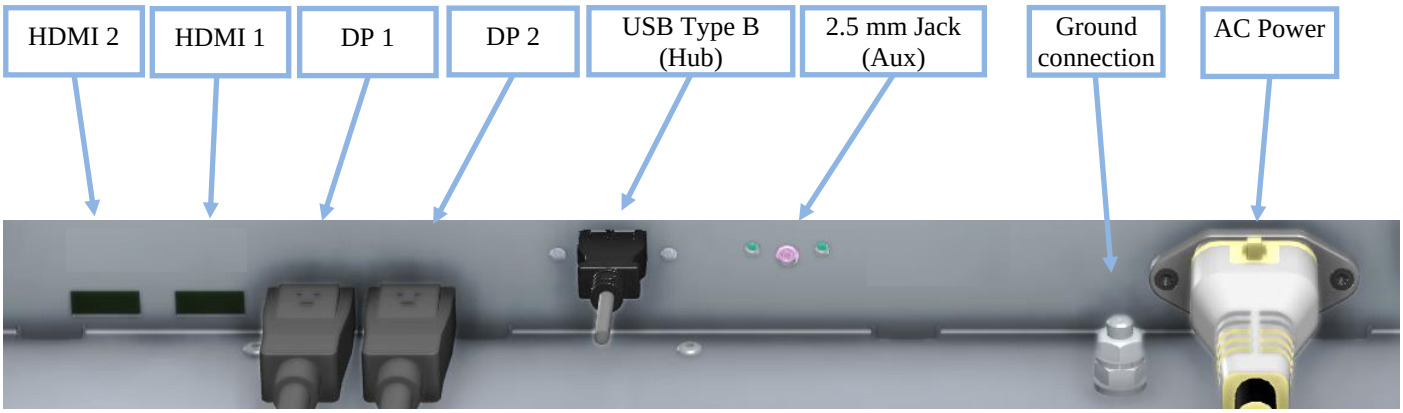
When the input signal is detected, the screen will turn on again.

3 Connections

3.1 24VDC supply

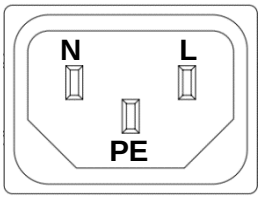
Not available for this size of monitors

3.2 110/230VAC supply



3.2.1 Models with 110/230VAC supply voltage

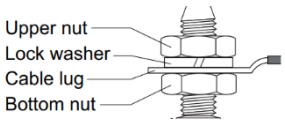
115 / 230 VAC: Nominal input AC voltage.
90 - 264 VAC: Operating AC voltage range.
47 - 63 Hz: Operating frequency range



IEC plug type C14

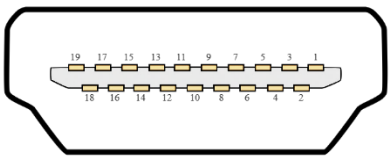
Mating connector: IEC type C13 (with optional lock)

3.3 Ground connection (Earth)



Choose an appropriate cable lug for M6
Fasten the cable lug between the bottom nut and the lock washer with the upper nut.
Note: when fastening the upper nut, it is necessary to hold the bottom nut with an open ended 10mm wrench.

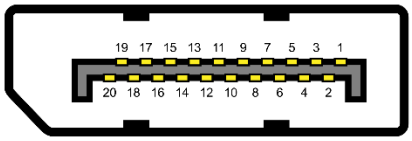
3.4 HDMI 1.4



Mating part: Male full size HDMI plug type-A with mechanical latch.

Pin	Description
1	TMDS Date 2+
2	TMDS Data 2 shield
3	TMDS Data 2-
4	TMDS Data 1+
5	TMDS Data 1 shield
6	TMDS Data 1-
7	TMDS Data 0+
8	TMDS Data 0 shield
9	TMDS Data 0-
10	TMDS Clock+
11	TMDS Clock shield
12	TMDS Clock-
13	CEC
14	HEC Data-
15	SCL (Serial Clock for DDC
16	SDA (Serial Data Line for DDC
17	DDC / CEC / HEC Ground
18	+5 V Power (50 mA max)
19	Hot Plug Detect (1.3) / HEC Data+ (1.4)

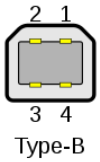
3.5 DisplayPort 1.2 (DP) receptacle



Mating part: Male full size DisplayPort connector with mechanical latch.
Note! Only use DisplayPort cables with pin 20 unconnected

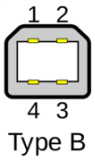
Pin	Description
1	ML_Lane 0 (p)
2	GND
3	ML_Lane 0 (n)
4	ML_Lane 1 (p)
5	GND
6	ML_Lane 1 (n)
7	ML_Lane 2 (p)
8	GND
9	ML_Lane 2 (n)
10	ML_Lane 3 (p)
11	GND
12	ML_Lane 3 (n)
13	CONFIG1
14	CONFIG 2
15	AUX CH (p)
16	GND
17	AUX CH (n)
18	Hot plug
19	Return
20	DP_PWR

3.6 USB Type B receptacle



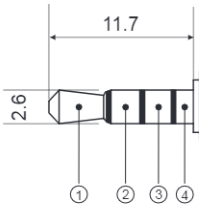
Pin	Description
1	VBUS (+5V)
2	Data-
3	Data+
4	GND

Mating part: Plug USB type B



3.7 2.5 mm jack

Mating part: 2.5 mm Jack for half duplex RS-485



Pin	Description
1	5VDC (Only for ISIC applications)
2	RS-485 A
3	RS-485 B
4	GND

4 Technical specifications

Please refer to datasheet for the purchased variant
DuraMON 32 S-Line: 09410-000
DuraMON 55 S-Line:

5 Communication Interface

DuraMON S-Line series supports 2 types of communication protocols:
DDC/CI VCP command via DisplayPort or HDMI
Virtual Serial Communication via USB interface.

5.1 Virtual COM Port

Please refer to Serial Communication Protocol 04924-002.

The type of the monitor can be queried by sending the 'TYP' command to the Virtual COM Port.

Monitor	Response from monitor
DuraMON 32 S-Line	DM32
DuraMON 55 S-Line	DM55

5.2 DDC/CI VCP Command

Please refer to DDC/CI VCP Command protocol 09370-002.

6 USB Touch

For models with multitouch:
Monitors with optional multi-PCAP touch sensor comply with Windows 8 (or newer) standard USB HID drivers. Linux operating systems might come with the HID driver as part of the Linux kernel, compatibility is not guaranteed.

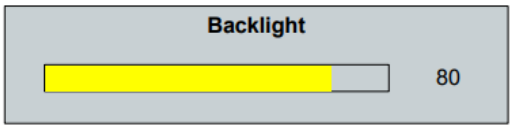
7 Buzzer

For models with Buzzer:
Buzzer can be activated by serial command, please refer to Serial Communication Protocol 04924-002.

8 Display backlight luminance (Dimming)

8.1 Backlight Luminance control

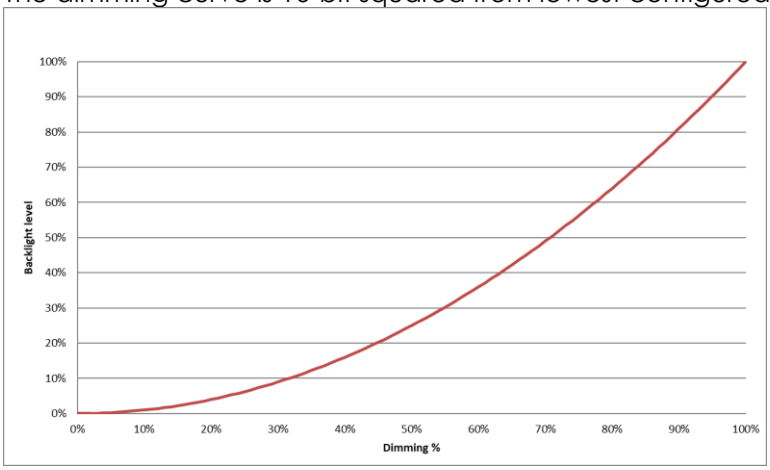
Display luminance can be controlled by Communication interfaces.



For models with front panel controls: the display backlight luminance can also be controlled by the up and down keys.

8.2 Dimming curve

The dimming curve is 16-bit squared from lowest configured value to maximum brightness for display.



9 ECDIS mode

Be aware that use of the backlight and/or brightness controls in ECDIS mode may inhibit visibility of information particularly at night!

To setup ECDIS on the system a color map must be downloaded from the product and supplied to the ECDIS application. Please refer to Serial Communication Protocol 04924-002 for details.

10 LED indicators

The LEDs are not marked on the front and are only visible when activated.
LED brightness follows the LCD backlight setting.

10.1 LED indicator behavior

10.1.1 Status LED indicating color

Orange: "Warning"

- Standby
- No signal
- Out of ECDIS mode (DAY/DUSK/NIGHT) (Only applies to ECDIS products actively in ECDIS)

Green: In ECDIS mode (DAY/DUSK/NIGHT) (Only applies to ECDIS products)

No light: OK - Normal operation

10.1.2 Power LED indicating color

Blue: Power is connected to the product.
No blue light: No power

10.2 Optional (Custom) LED indicator

10.2.1 Optional Status LED indicating color

Orange: "Warning"

- Standby
- No signal
- Out of ECDIS range (DAY/DUSK/NIGHT) (for ECDIS products only)

Green: N/A

10.2.2 Optional Status LED indicating behavior

LCD image + No light: OK - Normal operation

no LCD image + No light: No power

10.2.3 Optional Power LED indicating color

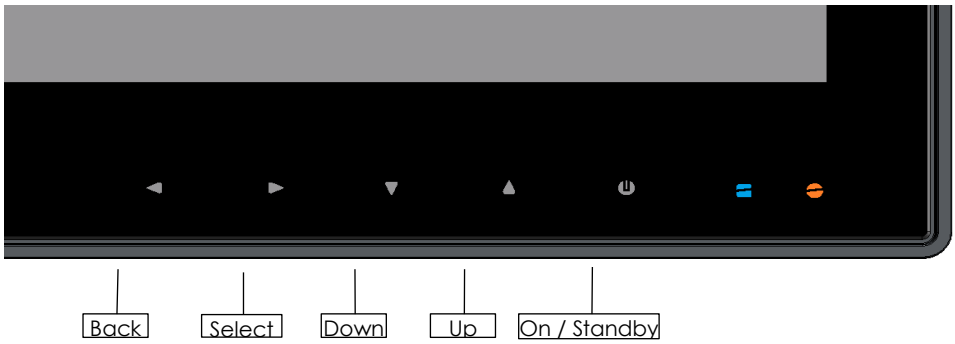
Blue: N/A

11 Front panel controls

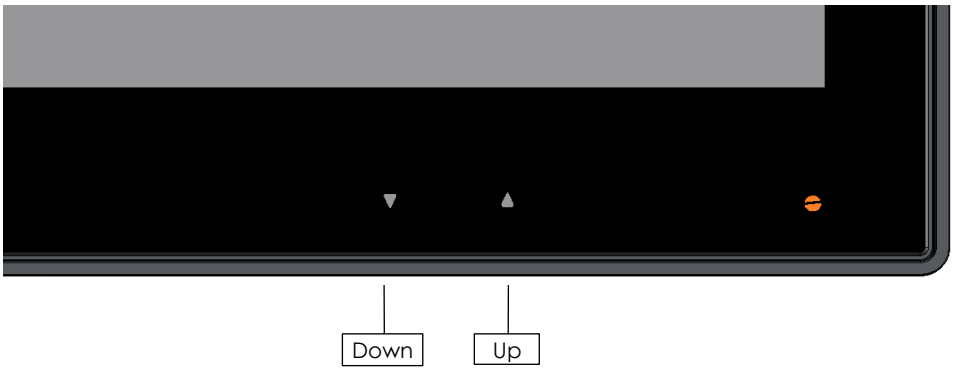
Only applies to models with front panel touch keys.

11.1 Touch key interface

The front panel is illuminated and will follow the brightness level of the monitor backlight luminance.



11.2 Optional (Custom) touch key interface



11.3 Key operation

11.3.1 General operation

Key	Normal	In OSD menu
Back/Source	Opens source menu	Navigate back/exit
Select	None	Navigate forward/select
Down	Backlight increase	Navigate down
Up	Backlight descrease	Navigate up
Power	Power on/off	Power on/off

11.3.2 On / Standby

Only applies to models with Power key:

On, press the power key to power on the monitor.

Pressing and holding the power key for 5 seconds while on will put the monitor in standby.

11.3.3 UP and DOWN:

UP and DOWN can adjust the monitors backlight luminance.

If the Advanced OSD menu is open the UP and DOWN keys are used to navigate the menu.

If ECDIS model and in an active ECDIS state, pressing UP and DOWN simultaneously will restore the backlight luminance to the calibrated level.

11.3.4 Back/Source and Select

Only applies to models with Back and Select keys:
Pressing the Back/Source and Select keys simultaneously accesses the Advanced OSD menu.
While in the Advanced OSD menu, the Select key is used to navigate into sub-menus and select items.
The Back/Source key is used to exit a sub-menu or close the Advanced OSD menu if current position is the root menu.

Pressing the Back/Source while not in the Advanced OSD menu will open the Source menu.
Navigation in the source menu is the same as in the Advanced OSD menu.

A detailed description of the Advanced OSD menu can be found in **Appendix A**.

12 Troubleshooting

Problem	Cause	Solutions
No picture on display	Backlight luminance set to minimum	Increase backlight
No picture on display	Monitor turned off	Turn on the monitor
No picture on display	No input signal present	Apply signal
No picture on display	No power cord connected	Apply power
The unit will not turn on.	Unknown	Please do not try to open the unit. Send it to ISIC A/S for repair.

13 Servicing the unit

In case the unit still fails after following the troubleshooting send the unit to ISIC for repair. There are no user serviceable parts inside and to ensure ECDIS compliance the monitor must be recalibrated at ISIC.

14 Terms, Acronyms, and abbreviations

OSD:	On Screen Display
ECDIS:	Electronic Chart Display and Information Systems
LED:	Light Emitting Diode
LCD:	Liquid Crystal Display
HDMI:	High-Definition Multimedia Interface
DP:	DisplayPort
DDC/CI:	Display Data Channel / Command Interface
VCP:	Virtual Control Panel
COM:	Communication Interface
TBD:	To Be Determined

15 ISIC info / Support

In case you have inquiries or problems with your DuraMON32-55 S-Line, you have several possibilities to get support.

Company name:	ISIC A/S
Head office:	Edwin Rahrs Vej 54 DK – 8220 Brabrand Denmark
Shipping address:	Holmstrupgaardvej 5 DK-8220 Brabrand Denmark
Telephone:	+45 70 20 70 77
Email:	isic@isic-systems.com
www:	www.isic-systems.com
VAT number:	DK 16 70 45 39
Bank Address:	Handelsbanken A/S Havneholmen 29 DK-1561 København V Denmark
Bank Code:	0892
IBAN DKK:	DK53 0892 0001 0159 69
IBAN EUR:	DK48 0892 0003 0026 19
IBAN USD:	DK26 0892 0003 0026 27
SWIFT:	HANDDKKK
Contacts:	
RFQ's:	By mail to sales@isic-systems.com
Orders:	By mail to orders@isic-systems.com
Support:	Via homepage http://www.isic.dk/ under aftersales By mail to service@isic-systems.com During office-hours (Mo-Fr: CET 0800 - 1500) at +45 70 20 70 77
Service:	Before shipment for service Request Return Material Authorization number at homepage https://isic-systems.com/after-sales/tech-support-rma/ By mail to service@isic-systems.com

16 Revision history

Rev A	April 2023	First release

17 Appendix A: Advanced OSD Menu

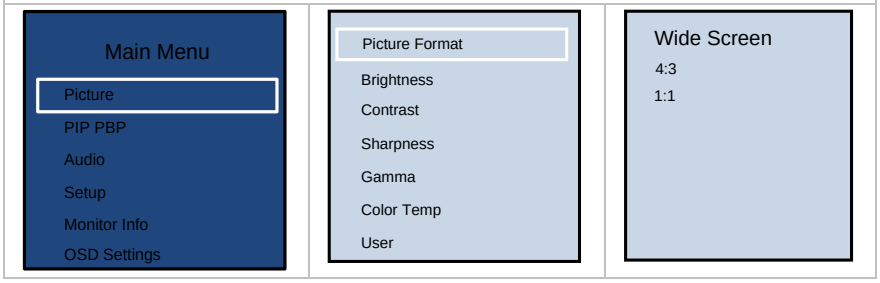
With the Advanced OSD (On Screen Display) you can modify the settings and control the special features of the DuraMON

Advanced OSD can also be operated by Communication Interfaces.

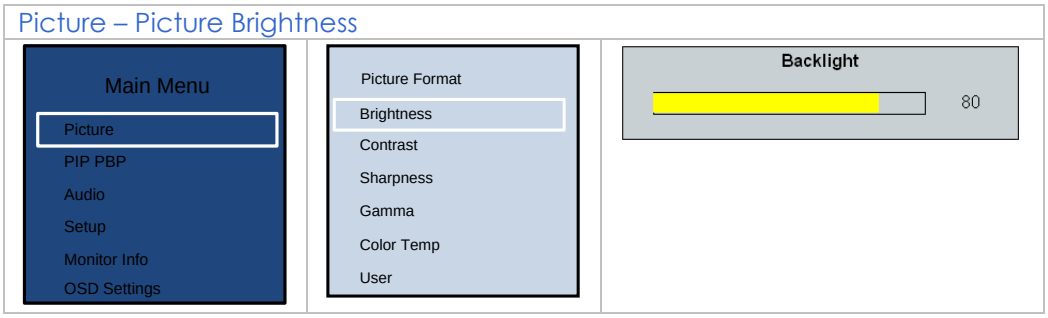
For models with front panel controls "Back" and "Select" interfaces only:
To enter the Advanced OSD, press both the "Back" and "Select" keys at the same time.
To navigate the Advanced OSD use the "Up" and "Down" keys and press "Select" to select a specific setting. To get back to the previous menu point, press the "Back" key.

17.1 Picture

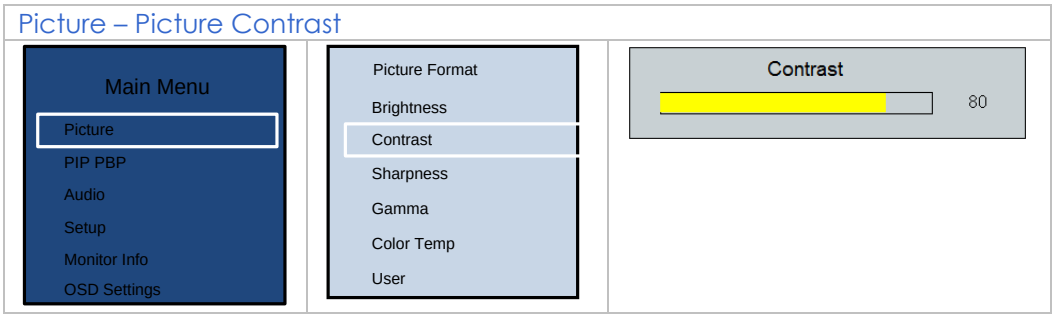
Picture – Picture format



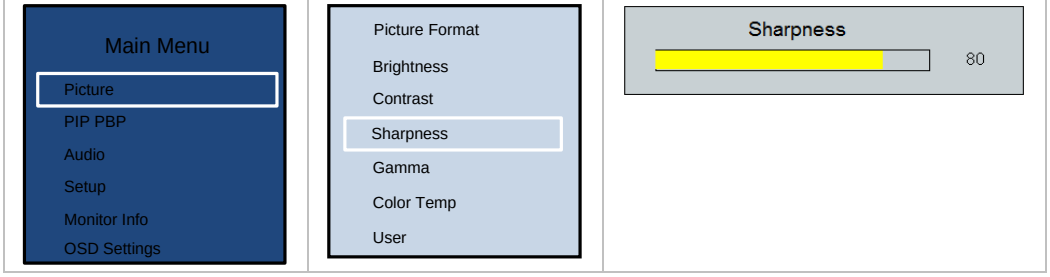
Picture – Picture Brightness



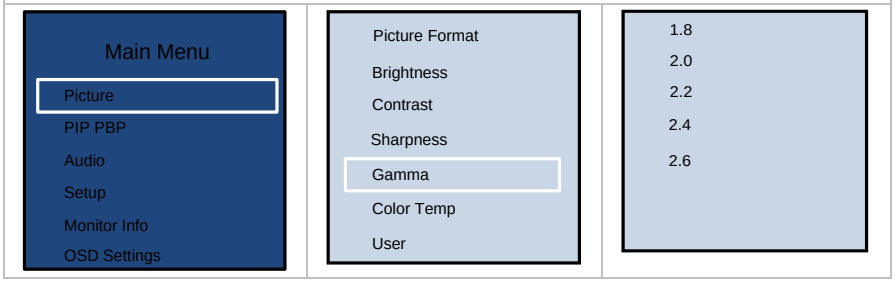
Picture – Picture Contrast



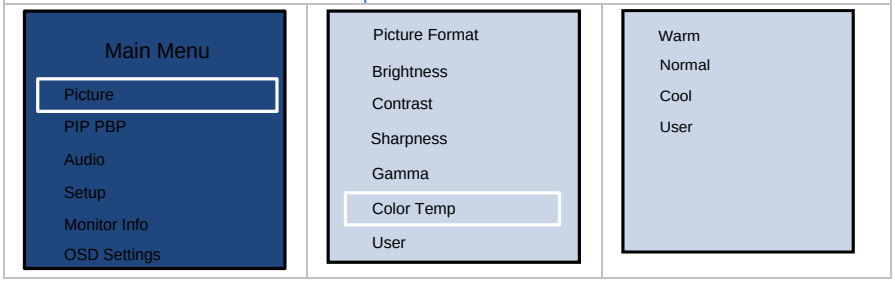
Picture – Picture Sharpness



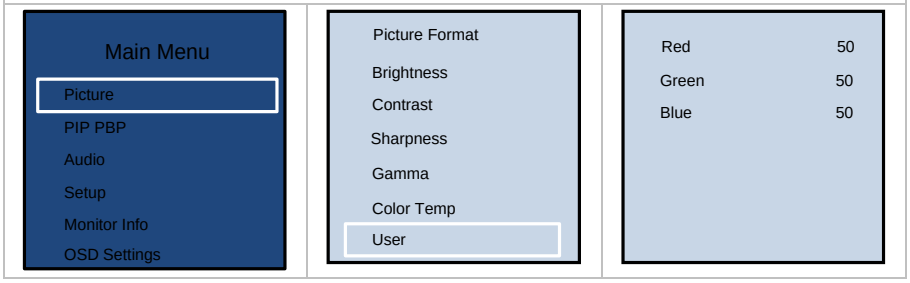
Picture – Picture Gamma



Picture – Picture Color Temp

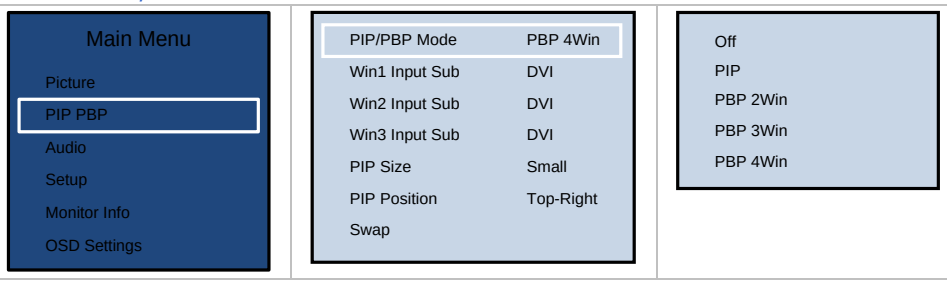


Picture – Picture User

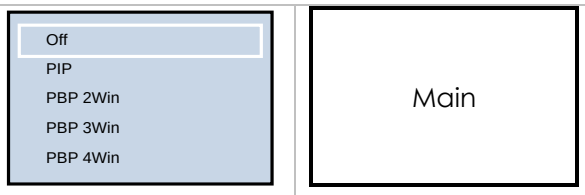


17.2 Picture in Picture / Picture by Picture

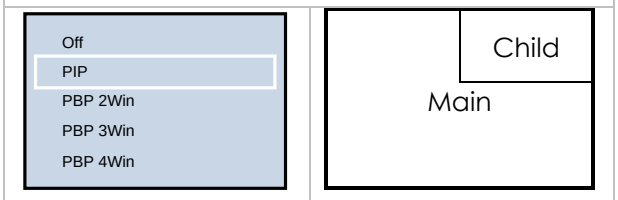
PIP PBP PIP/PBP Mode



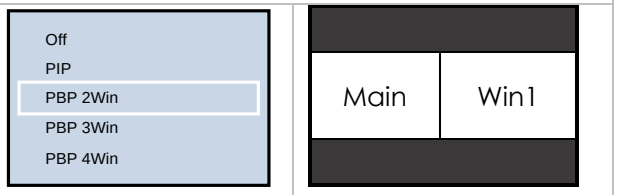
Mode - Off



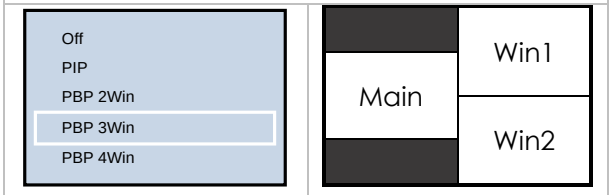
Mode - PIP



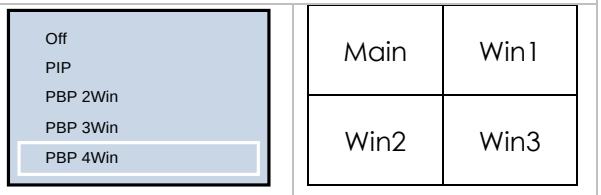
Mode – PBP 2Win



Mode – PBP 3Win

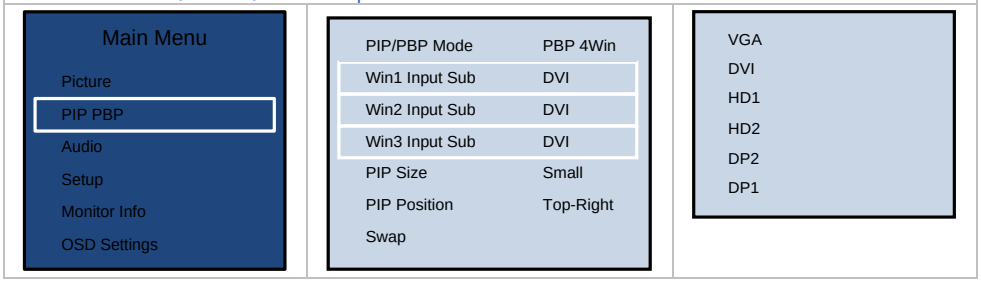


Mode – PBP 4Win



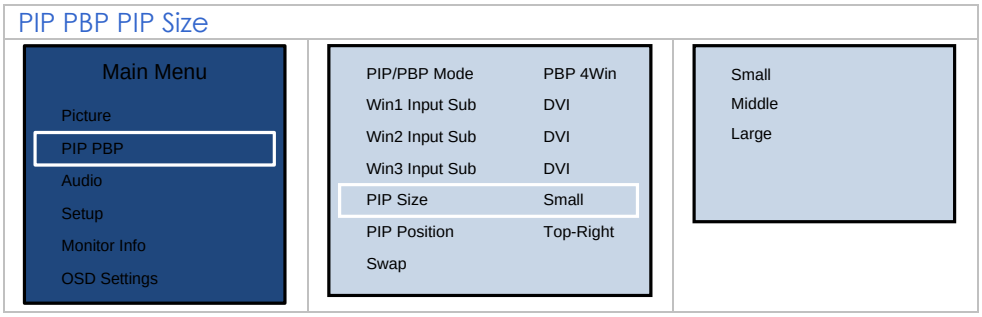
For more than one display areas it is recommended to disable “Input Scan” see section 2.3 Setup

PIP PBP Win1/Win2/Win3 Input Sub

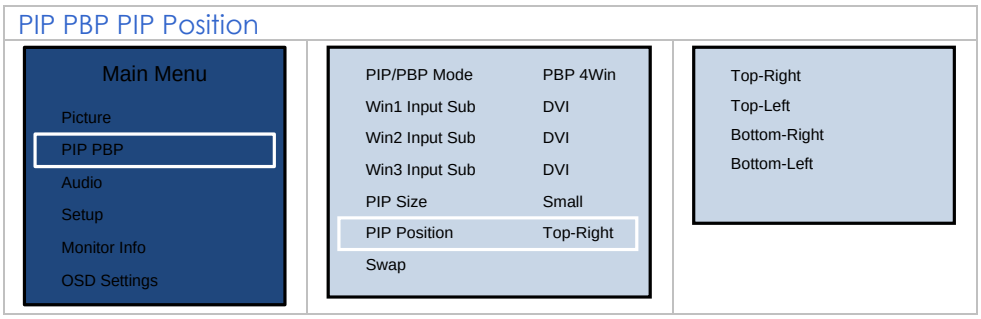


Input selection for Child/Win1, Win2, and Win3. Child and Win1 is the same menu point.

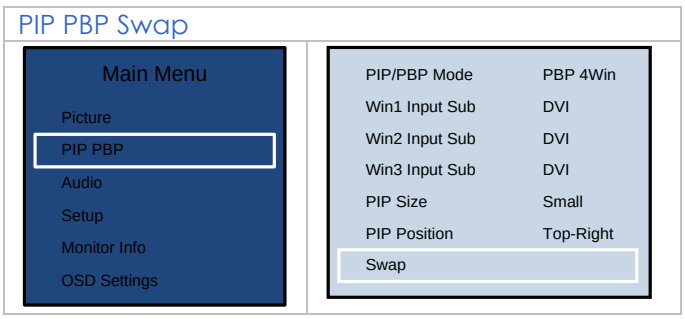
PIP PBP PIP Size



PIP PBP PIP Position

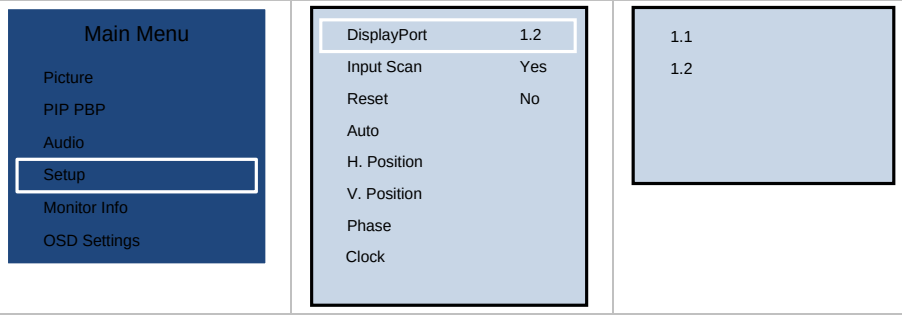


PIP PBP Swap

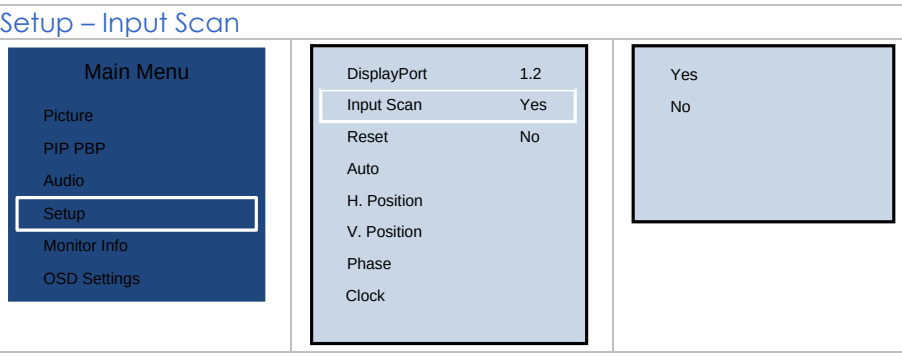


17.3 Setup

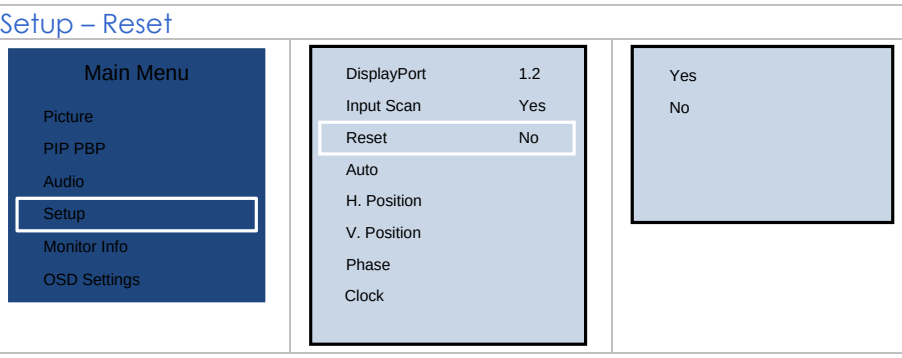
Setup - DisplayPort



Setup – Input Scan

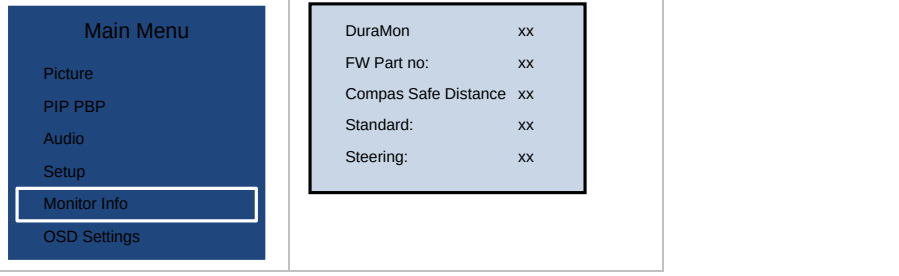


Setup – Reset



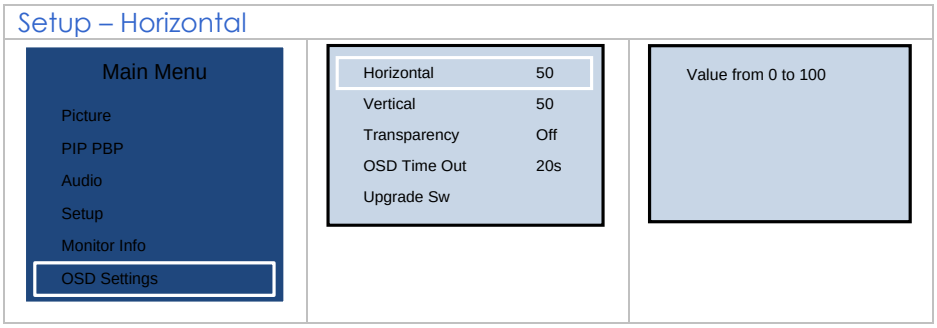
17.4 Monitor Info

Monitor Info

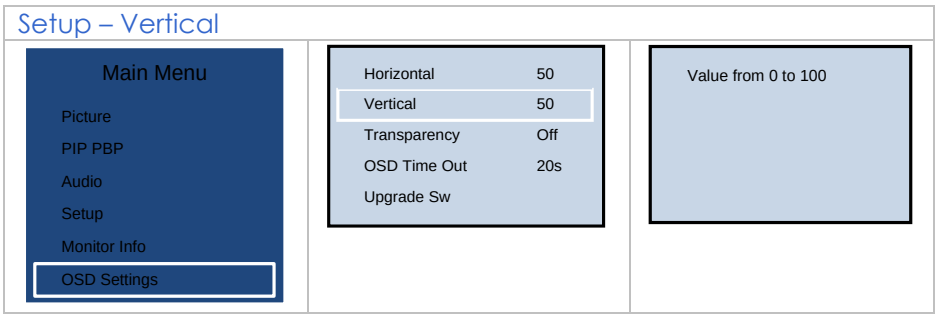


17.5 OSD Settings

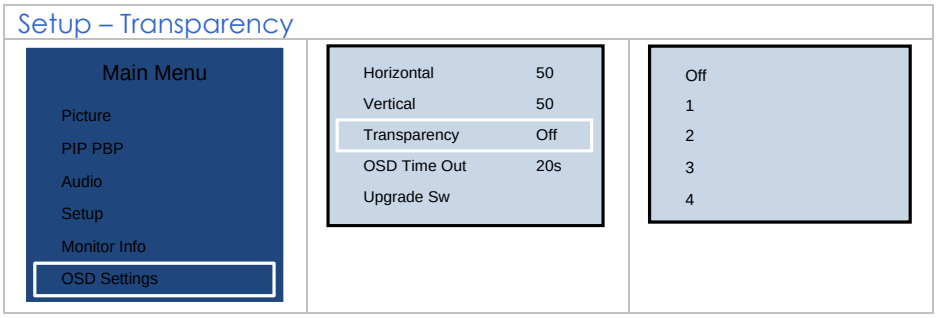
Setup – Horizontal



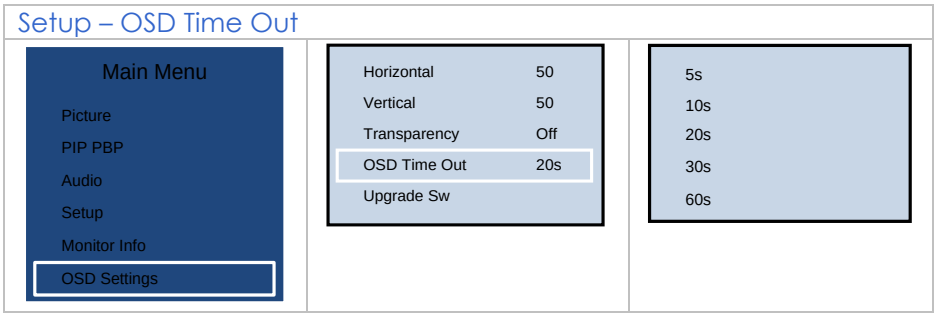
Setup – Vertical



Setup – Transparency



Setup – OSD Time Out



18 Appendix B: Pixel policy

ISO 9241-307:2008 guidelines for LCD pixel defects

Introduction

TFT displays consist of a set number of pixels. Each pixel consists of 3 sub-pixels also called dots (one red, one blue and one green). Every sub-pixel is addressed by its own transistor. As a result, the manufacturing of glass substrate is very complex.
Due to the nature of this manufacturing process, occasional defects can occur. Pixel defects or failures cannot be fixed or repaired and may occur at any stage during the service life of the TFT display.
To regulate the acceptability of defects and protect the end user, ISIC A/S complies with the ISO 9241-307:2008 standard. This standard recommends how many defects are considered acceptable in a display, before it should be replaced within the terms of the warranty.

Monitor classification

ISO 9241-307:2008

Allowed defects per type per million pixels						
Defect classes	**Pixel defects**			**Cluster defect**		
	Type 1	**Type 2**	**Type 3 total** ($2xN_{3a} + N_{3b}$)	**Type 1**	**Type 2**	**Type 3**
Class: 0	0	0	0	0	0	0
Class: I	1	1	5	0	0	0
Class: II	2	2	10	0	0	1
Class: III	5	15	100	0	0	5

ISIC TFT monitors comply with ISO 9241-307:2008 Class II.
Special agreements about other classifications can be made between ISIC A/S and the customer.

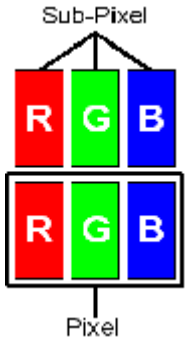
Measurement method/monitoring conditions for pixel defects

In compliance with the ISO-9241-307:2008 standard, the following conditions are observed:

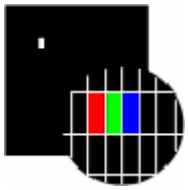
- Final check for pixel fault undertaken right after burn-in, i.e. with pre-heating of the display.
- Surrounding temperature 25°C ± 5°C
- Relative air humidity 40–70%

Pixel definition

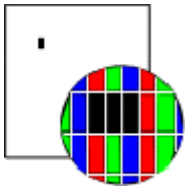
Every pixel consists of three sub-pixels/dots (red, blue, green).
Every sub-pixel has its own transistor.
The three sub-pixels/dots must be considered as one unit.



Pixel

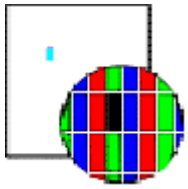


Pixel defect type 1 Pixel constantly lit



Pixel defect type 2 Pixel constantly dark

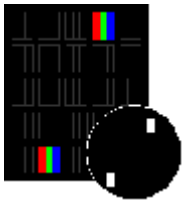
Pixel defect type 3a
Sub-pixel/dot (red, blue, green) constantly lit



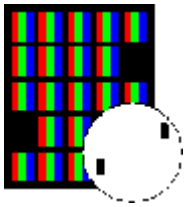
Pixel defect type 3b
Sub-pixel/dot (red, blue, green) constantly dark

Cluster

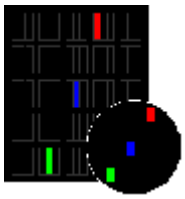
A cluster consists of 5 x 5 pixels.



Cluster pixel defect type 1
Pixels in a cluster area constantly lit



Cluster pixel defect type 2
Pixels in a cluster area constantly dark



Cluster pixel defect type 3a
Sub-pixels/dots in a cluster area constantly lit

Cluster pixel defect type 3b
Sub-pixels/dots in a cluster area constantly dark

Pixel faults accepted by ISIC A/S

The maximum number of pixel faults that is considered acceptable at different screen resolutions is shown in the table below. This is the native resolution and not the resolution as adjusted by user.

Class II

Allowable number of pixel faults in monitor applications							
Screen type	**Native resolution**	**Number of pixels**	**Pixel defect type 1**	**Pixel defect type 2**	**Pixel defect Type 3 total** ($2xN_{3a} + N_{3b}$)	**Cluster defect type 1 and 2**	**Cluster defect type 3**
WVGA	**800x480**	**384,000**	**0**	**0**	**3**	**0**	**0**
XGA	**1024x768**	**768,432**	**1**	**1**	**7**	**0**	**0**
WXGA	**1280x800**	**1,024,000**	**2**	**2**	**10**	**0**	**1**
SXGA	**1280x1024**	**1,310,720**	**2**	**2**	**13**	**0**	**1**
UXGA	**1600x1200**	**1,920,000**	**3**	**3**	**19**	**0**	**1**
FHD	**1920x1080**	**2,073,600**	**4**	**4**	**20**	**0**	**2**
WUXGA	**1920x1200**	**2,304,000**	**4**	**4**	**23**	**0**	**2**

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