User Manual

DuraPANEL 10.6”

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 (like on old CRT's).

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 DuraPANEL 10.6" manufactured by ISIC A/S, is designed to comply with the emerging generic EEC standards, that cover applications in maritime environment.

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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1 Features

Congratulations with your purchase of a DuraPANEL 10.6”. This short form manual is designed to get you started working with your new DuraPANEL 10.6”.

The DuraPANEL 10.6” is designed for the demanding operating conditions at sea.

The DuraPANEL 10.6” comes with excellent brightness and contrast levels that, together with wide viewing angles, ensure a good readability thus making it very eye-friendly. For the best picture quality, always use a double shielded display cable with ferrites.

2 General considerations on Installation and Operation

The DuraPANEL 10.6” is designed to work at conditions according to IEC 60945. However, keeping the temperature and vibration level at a minimum will extend the life time of the product. ISIC recommend operating this product at normal room temperature (20-25 °C), with the lowest level of vibration and humidity.

Installation of the DuraPANEL 10.6”

In order to obtain the best possible operating conditions, please note the following precautions.

- When installing the DuraPANEL 10.6” always use original or identical fittings.

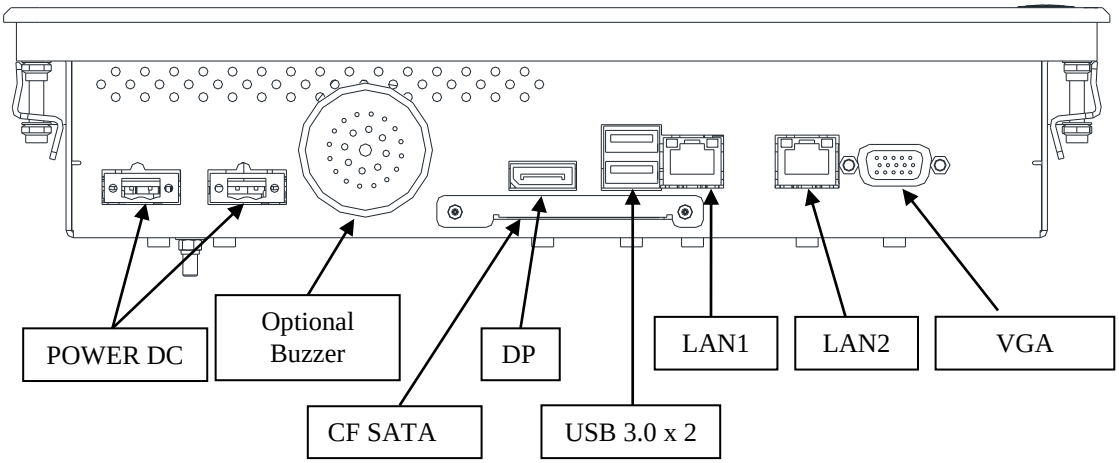
- Room for cooling.
  When designing the cabinet/console for the DuraPANEL 10.6”, please ensure that air can flow freely around the cabinet, in order to avoid any unnecessary rise in temperature. If it is not possible to have an adequate natural airflow, use a fan to force the airflow to be higher.

- Mounting positions
  To obtain adequate cooling by convection ISIC recommends that the DuraPANEL 10.6” is mounted at least 30 degrees from horizontal. If this is not possible, forced cooling must be applied directly to the unit in order not to overheat it.

- Sunlight
  Avoid direct sunlight to keep temperature low and by that improve lifetime.

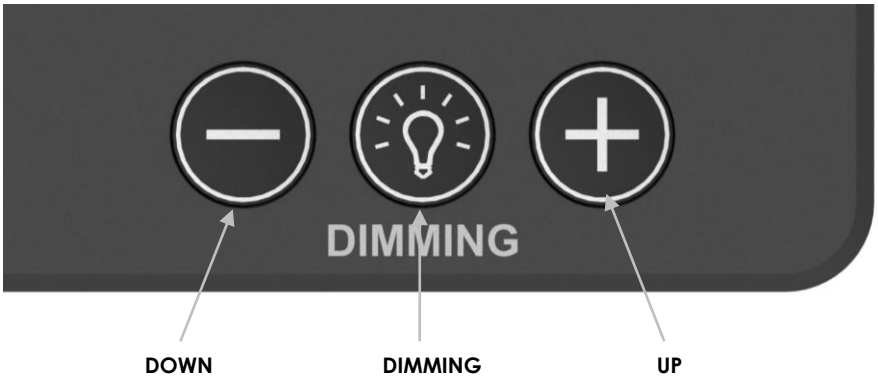
3 DuraPANEL connections

Below is a view of optional connections to the monitor.



4 DuraPANEL front panel controls

The front panel controls are illuminated and will be dimmed continuously depending on changing of backlight brightness.



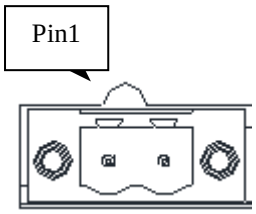
Bottoms with symbols + and - :
Used to adjust backlight by pressing + and - .

DIMMING:
This key is used to turn backlight of the display on or off.

5 Connector pin-out

The nominal input power voltage is 24V (18-36VDC). The input is galvanic isolated and protected against reverse polarity.

Mating part number: Weidmüller BLZP5.08HC/02/180F



Pin	Power in
1	0VDC
2	24VDC

6 Technical specifications DuraPANEL 10.6”

DuraPANEL - General

CPU:	**Intel® Core® Atom N2600– 1,6 GHz 2 cores, 4 threads (CPUMark 525)**
Chipset:	**Intel® NM10** **(Only Windows7 32 bit drivers available)**
Memory:	**2GB DDR3 800/1066 MHz SODIMM**
Hard Disk Drive:	**CF SATA or PCI Express Mini Card SSD**
Video:	**Intel® Graphics controller GMA 3600** *DirectX* 9C*
External Video out:	**VGA and DP ver. 1.1 video output connectors**
Ethernet:	**2 x 10/100/1000 Gbits/s Ethernet LAN on-board, (RJ45)** *Intel© 82583V*
USB:	**2 x USB 2.0 ports**
Audio:	**Built-in Buzzer, optimal frequency 3500Hz (Option)**

DuraPANEL - Front

Display size:	**10.6 inch 16:10 LCD (TFT)**
Resolution:	**1280 x 800**
Active area:	**231 x 139 mm**
Pixel Pitch:	**0.18075 mm x 0.18075 mm**
View angle:	**89° (T/B), 89° (L/R) (typical)**
Luminance:	**1000 Cd/m^2 (typical)**
Contrast ratio:	**1000:1 (typical)**
Front glass:	**Anti glare**
Touch:	**PCAP Multitouch (USB)**

DuraPANEL - Power

Standard:	**24VDC (18-36VDC)**

DuraPANEL - Environmental

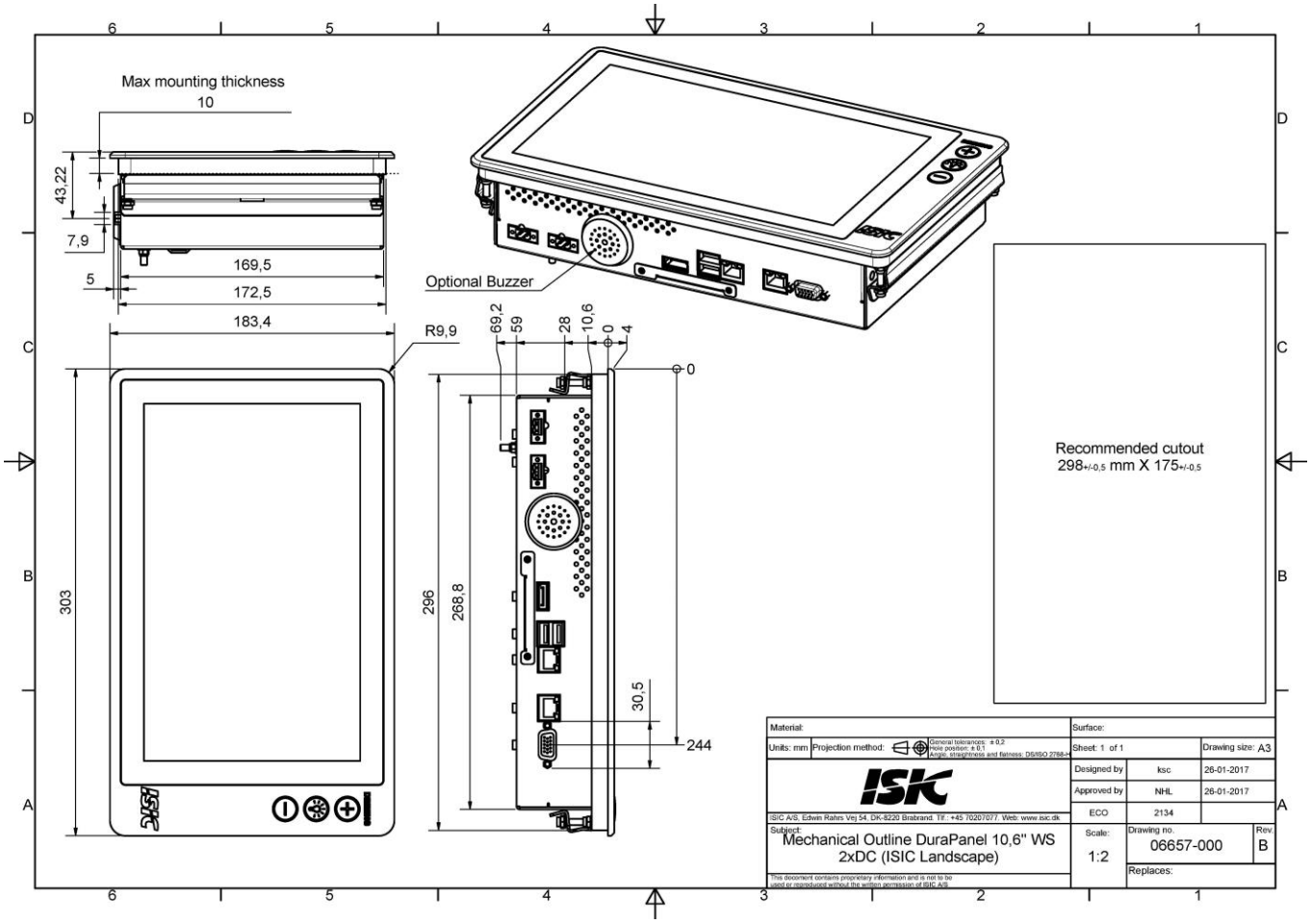
Operating Temperature:	**-15 to 55 °C**
Storage Temperature:	**-25 to 70 °C**
Relative Humidity:	**8 to 95 %**

DuraPANEL - Dimensions

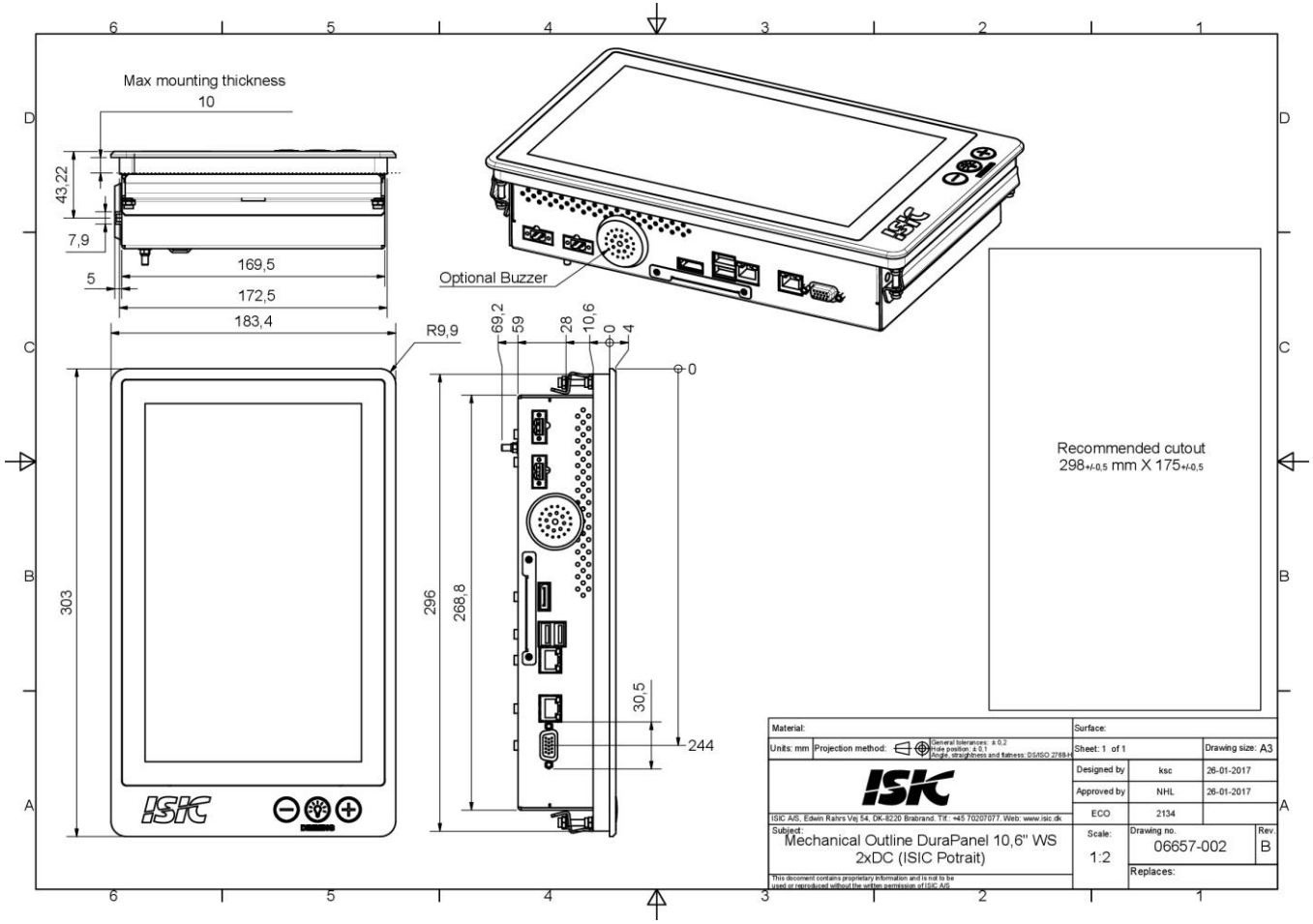
Size:	**303 (W) x 183,5 (H) x 64,5mm (D)**
Weight:	**App. 5 kg.**

7 Mechanical outline DuraPANEL 10.6”

7.1 Landscape



7.2 Portrait


Max mounting thickness
10
43,22
7,9
5
169,5
172,5
183,4
R9,9
Optional Buzzer
69,2
59
28
10,6
0
4
303
296
268,8
30,5
244
Recommended cutout
298+/-0,5 mm X 175+/-0,5
Material:
Surface:
Units: mm
Projection method:
Sheet: 1 of 1
Drawing size: A3
Designed by
ksc
26-01-2017
Approved by
NHL
26-01-2017
ECO
2134
ISIC A/S, Edwin Rahrs Vej 54, DK-8220 Brabrand. Tlf.: +45 70207077. Web: www.isic.dk
Subject:
Mechanical Outline DuraPanel 10,6" WS 2xDC (ISIC Potrait)
Scale:
1:2
Drawing no.
06657-002
Rev.
B
Replaces:

8 Buzzer

Activate buzzer by sending sinus signal to audio channel.
Optimal frequency is 3500 Hz, sound level is controlled by sound volume adjust.

9 Dura Communication protocol

9.1 Message Format

The monitor supports a data rate of 19200 bits per second. Data shall be transmitted with no parity, one start bit, and one stop bit.
The basic message format is shown below:

ATTN	ADDR		CMD		LEN	IHCHK	DATA	IDCHK

The minimum message length is 7 bytes.

9.2 Attention (ATTN)

This byte identifies the start of a message. The following three values are defined:

ATTN	Description
0x07	Command
0x06	Acknowledge
0x15	Negative Acknowledge

A remote master initiates a command using the 0x07 attention code. The monitor will reply with an acknowledge (ACK) code if the command was received successfully, or a negative acknowledge (NACK) if the command contained errors.
Note that the monitor will acknowledge messages, even if it fails to execute the actions contained within. NACKs are only issued when the message format is corrupted, e.g. invalid checksums.

9.3 Address (ADDR)

This byte is used to identify and address individual monitors. In a multi-slave configuration, the master can target each monitor individually, in which case the addressed monitor will reply with either an ACK or a NACK.
The remote master can address all monitors simultaneously using the broadcast address. In this case the monitors will not reply.

ADDR	Description
0x00::0xFE	Individual address space.
0xFF	Broadcast address.

9.4 Manufacturer ID (MAN)

This command shall be sent to the monitor to request Manufacturer ID Code. No data shall be sent with the command
The monitor will reply to this command with an ACK attention code. The DATA field will be set to an ASCII string with the value “ISIC”

Example:
Ask for the Manufacturer ID:

ATTN	ADDR		CMD		LEN	IHCHK
0x07	0x00	0x4D	0x41	0x4E	0x00	0x1C

Reply from monitor:

ATTN	ADDR		CMD		LEN	IHCHK	DATA				IDCHK
0x06	0x00	0x4D	0x41	0x4E	0x04	0x19	0x49	0x53	0x49	0x43	0xD7

9.5 Monitor Firmware Version (VER)

This command is sent to the monitor to request the Firmware Version of the embedded code. No data shall be sent with the command.
The monitor will reply to this command with an ACK attention code. The DATA field will be set to an ASCII string with the ISIC P/N and revision.
Example: 04837-000-D

9.6 Backlight Level (BRT)

This command controls the intensity of the backlight. The backlight level is sent as 1 byte in the DATA field, in the range of 0x00 to 0xFF; corresponding to minimum and maximum luminance, respectively.
If the checksum is valid, and the command completes successfully, the monitor will reply with an ACK message, with the current backlight level in the DATA field.
If the checksum was invalid, the monitor will reply with a NACK message. This requirement does not apply to broadcasted messages.

Example:
Set the Backlight Level to 0xFF:

ATTN	ADDR		CMD		LEN	IHCHK	DATA	IDCHK
0x07	0x00	0x42	0x52	0x54	0x01	0x0F	0xFF	0x00

Reply from Monitor:

ATTN	ADDR		CMD		LEN	IHCHK	DATA	IDCHK
0x06	0x00	0x42	0x52	0x54	0x01	0x10	0xFF	0x00

Power Consumption

Test object / condition	Ptyp [W]	Pmax [W]
DuraPANEL 10.6”	20W	35W

10 In rush current

Test object / condition	[A] @24VDC
DuraPANEL 10.6”	~ 100

11 Troubleshooting

Problem	Cause	Solutions
No picture on display	Backlight level set to off	Increase backlight
	Panel PC turned off	Turn on the Panel PC
	No power cord connected	Apply power
Buttons on front doesn’t work	No power cord connected	Apply power
The unit smells burned / smoke is coming from the unit	There might be something burned inside	Please do not try to open the unit. Send it to ISIC A/S for repair.

12 Servicing the unit

In case that the unit still fails after following the troubleshooting send the unit to ISIC for repair via our RMA service on our web.

13 ISIC info / Support

In case you have inquiries or problems with your DuraPanel 10.6”, you have a number of 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: Fax:	+45 70 20 70 77 +45 70 20 79 76
Mail: www:	mail@isic-systems.com www.isic-systems.com
VAT number:	DK 16 70 45 39
Bank Name/Address:	Handelsbanken A/S Havneholmen 29 DK-1561 København V Denmark
Bank Code: SWIFT: IBAN for DKK:	0892 HANDDKKK DK53 0892 0001 0159 69
IBAN for EUR:	DK48 0892 0003 0026 19
IBAN for USD:	DK26 0892 0003 0026 27
Contacts: RFQ’s:	 By fax to +45 70 20 79 76 By mail to sales@isic-systems.com
Orders:	By fax to +45 70 20 79 76 By mail to orders@isic-systems.com
Support:	Via homepage www.isic-systems.com under aftersales By mail to service@isic-systems.com During office-hours (Mo-Th: CET 0800 – 1600, Fr: CET 0800 – 1500) at +45 70 20 70 77
Service:	Before shipment for service Request Return Material Authorization number at homepage www.isic-systems.com under AFTER SALES TECH SUPPORT RMA By mail to service@isic-systems.com

14 Revision history

Rev A	January 2017	First release

15 Appendix A: 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.

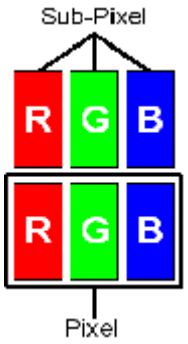
Measurement method/monitoring conditions for pixel defects

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

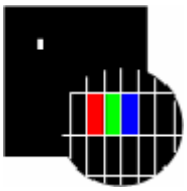
- Final check for pixel fault undertaken right after burn-in, i.e. with pre-heating of the display.
- Surrounding temperature 25ºC ± 5ºC
- Relative air humidity 40–70%

Pixel definition

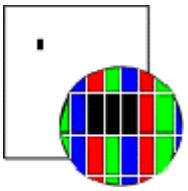
Every pixel consists of three sub-pixels/dots (red, blue, green).
Every sub-pixel has its own transistor.
The three sub-pixels/dots must be considered as one unit.



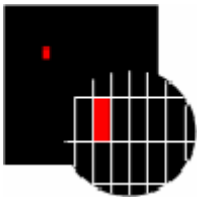
Pixel



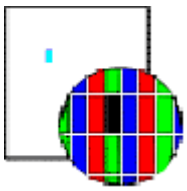
Pixel defect type 1 Pixel constantly lit



Pixel defect type 2 Pixel constantly dark



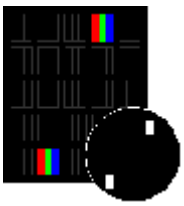
Pixel defect type 3a
Sub-pixel/dot (red, blue, green) constantly lit



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

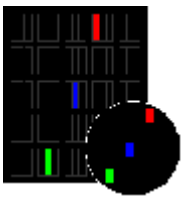
Cluster

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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