# User Manual

# DuraPANEL 8

# Disclaimer

ISIC A/S makes no representation or warranties with respect to the contents or use of this manual, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. Further, ISIC A/S reserves the right to revise this publication and to make changes to its content at any time, without obligation to notify any person or entity of such revisions or changes.
**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 8 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 8. This short form manual is designed to get you started working with your new DuraPANEL 8.

The DuraPANEL 8 is designed for the demanding operating conditions at sea.

The DuraPANEL 8 comes with excellent brightness and contrast levels that, ensure a good readability thus making it very eye-friendly.

# 2 General considerations on Installation and Operation

The DuraPANEL 8 is designed to work at demanding conditions. 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 8

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

- When installing the DuraPANEL 8 always use original or identical fittings.

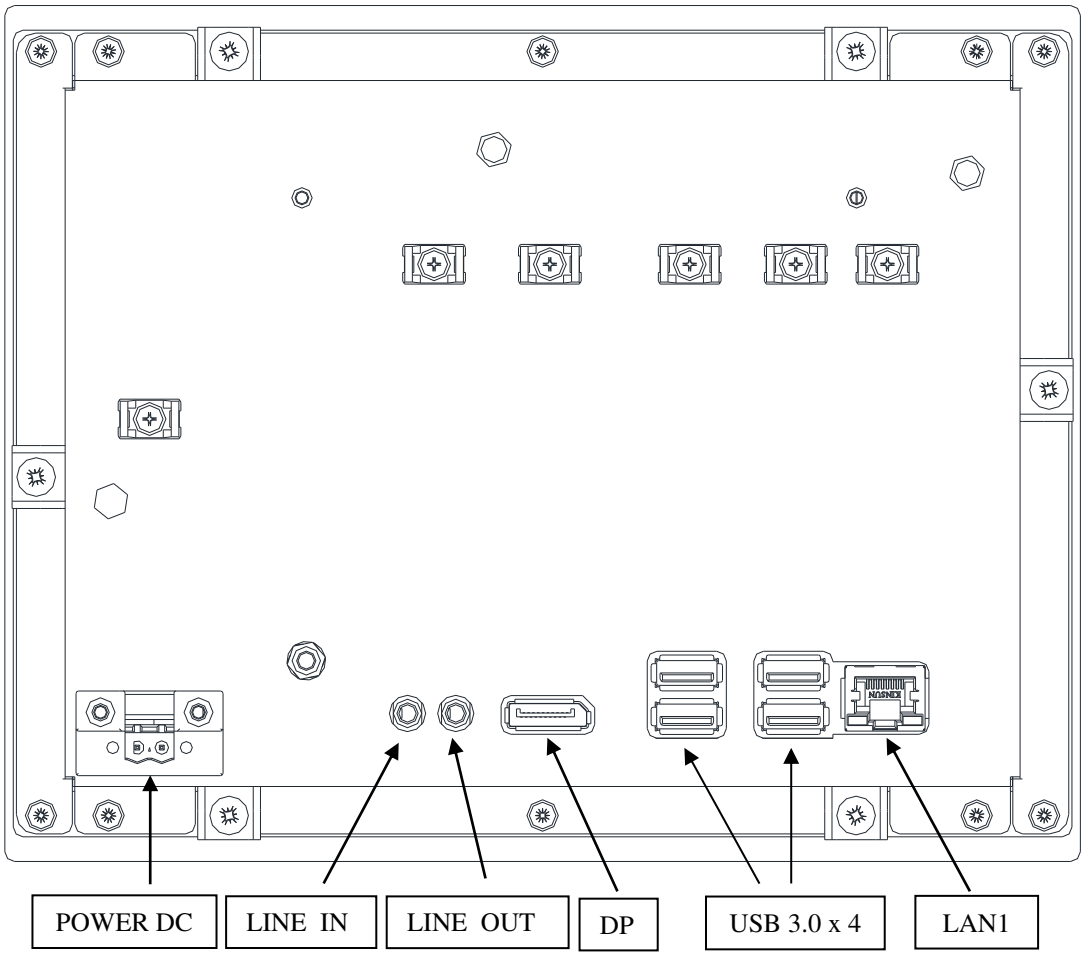
- Room for cooling.
  When designing the cabinet/console for the DuraPANEL 8, please ensure that air can flow freely around the cabinet, in order to avoid any unnecessary rise in temperature. If it is not possible to have an adequate natural airflow, use a fan to force the airflow to be higher.

- Mounting positions
  To obtain adequate cooling by convection ISIC recommends that the DuraPANEL 8 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

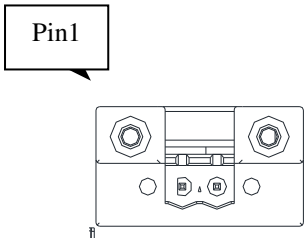
Below is a view of optional connections to the monitor.




# 4 Connector pin-out

The nominal input power voltage is 24V (18-31VDC). The input is galvanic isolated and protected against reverse polarity.

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




| Pin | Power in |
|---|---|
| 1 | 24VDC |
| 2 | 0VDC |

# 5 Technical specifications DuraPANEL 8

### DuraPANEL - General

| | |
|---|---|
| **CPU:** | **Intel® Braswell X5-E8000 – 1,04 (2,0) GHz Four cores, Four Threads** |
| **Chipset:** | **SOC** |
| **Memory:** | **4GB DDR3L 1600 MHz SODIMM**<br>*Up to 8GB DDR3L SODIMM* |
| **Hard Disk Drive:** | **80GB SSD SATA M.2** |
| **Video:** | **Intel® HD Graphics, Graphics controller on-CPU**<br>**DirectX 11.1 and OpenGL 4.2, OpenCL 1.2** |
| **External Video out:** | **1 x Display Port** |
| **Ethernet:** | **1 x 10/100/1000 Gbits/s Ethernet LAN on-board, (RJ45)** |
| **USB:** | **4 x USB 3.0** |
| **Sound** | **1 x Line-out, 1 x Line-in, 3.5mm jack** |
| **Screen Brightness** | **Brightness controlled by DDC** |

### DuraPANEL - Front

| | |
|---|---|
| **Display size:** | **8.0 inch 4:3 LCD (TFT)** |
| **Resolution:** | **1024 x 768** |
| **Active area:** | **162 x 122 mm** |
| **View angle:** | **80° (T/B), 80° (L/R) (typical)** |
| **Luminance:** | **400 Cd/m2 (typical)** |
| **Contrast ratio:** | **700:1 (typical)** |
| **Front glass:** | **Anti-reflective Hardness 6H** |
| **Protection:** | **IP20 (flush mount)** |
| **Touch:** | **PCAP Multitouch** |

### DuraPANEL - Power

| | |
|---|---|
| **Standard:** | **1 x 18-31VDC (galvanic isolated)** |

### DuraPANEL - Environmental

| | |
|---|---|
| **Operating Temperature:** | **0 to 40 °C** |
| **Storage Temperature:** | **-20 to 60 °C** |
| **Relative Humidity:** | **8 to 95 %** |

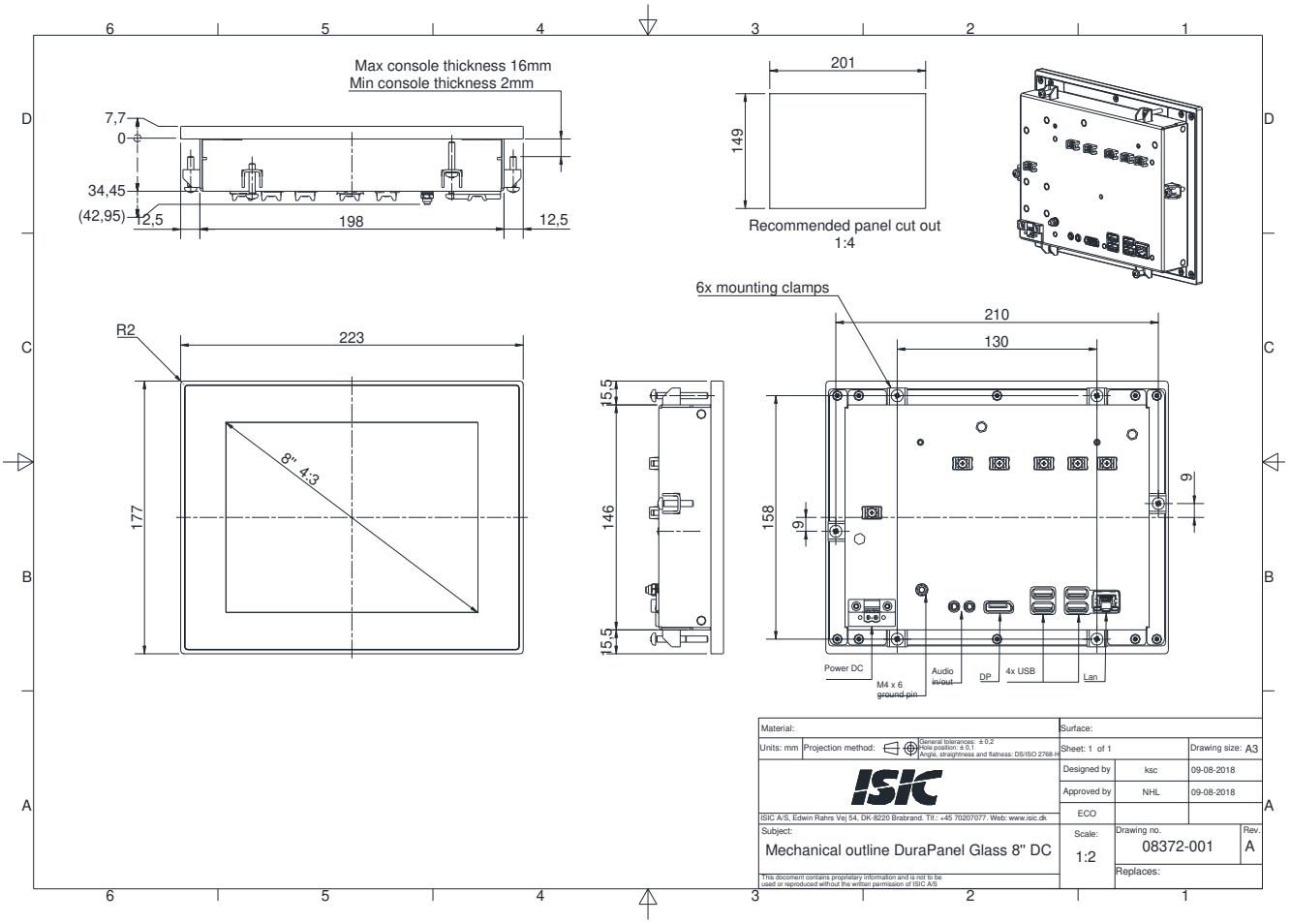
### DuraPANEL - Approvals

| | |
|---|---|
| **Approval:** | **EN 61000-6-4/A1, EN 61000-6-2:2005, EN 61000-6-1:2007, EN 61000-6-3:2007/A1, EN 55032:2012/AC:2013 (EN 55032:2015), Class B, EN 55024:2010/A1:2015, EN 55035:2015** |

### DuraPANEL - Dimensions

| | |
|---|---|
| **Size:** | **223 mm (W) x 177 mm (H) x 50.6 mm (D)** |
| **Weight:** | **App. 1.5 kg.** |

# 6 Mechanical outline DuraPANEL 8



# 7 Backlight, color … etc settings

The display of DuraPANEL 8 is detected as a Display Port monitor.
DuraPANEL 8 support DDC/CI commands for display settings like brightness, contrast, color luminance, color
temperature.

# 8 Power Consumption

| Test object / condition | Ptyp [W] | Pmax [W] |
|---|---|---|
| **DuraPANEL 8** | 15W | 20W |

# 9 In rush current

| Test object / condition | [A] @24VDC |
|---|---|
| **DuraPANEL 8** | ~ 100 |

# 10 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 |
| 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. |

# 11 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.

# 12 ISIC info / Support

In case you have inquiries or problems with your DuraPANEL 8, you have a number of possibilities to get support.

| | |
|---|---|
| Company name: | ISIC A/S |
| Head office: | Edwin Rahrs Vej 54<br>DK-8220 Brabrand<br>Denmark |
| Shipping address: | Holmstrupgaardvej 5<br>DK-8220 Brabrand<br>Denmark |
| Telephone:<br>Fax: | +45 70 20 70 77<br>+45 70 20 79 76 |
| Mail:<br>www: | mail@isic-systems.com<br>www.isic-systems.com |
| VAT number: | DK 16 70 45 39 |
| Bank Name/Address: | Handelsbanken A/S<br>Havneholmen 29<br>DK-1561 København V<br>Denmark |
| Bank Code:<br>SWIFT:<br>IBAN for DKK: | 0892<br>HANDDKKK<br>DK53 0892 0001 0159 69 |
| IBAN for EUR: | DK48 0892 0003 0026 19 |
| IBAN for USD: | DK26 0892 0003 0026 27 |
| Contacts:<br>RFQ's: | <br>By fax to +45 70 20 79 76<br>By mail to sales@isic-systems.com |
| Orders: | By fax to +45 70 20 79 76<br>By mail to orders@isic-systems.com |
| Support: | Via homepage www.isic-systems.com under aftersales<br>By mail to service@isic-systems.com<br>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<br>By mail to service@isic-systems.com |

# 13 Revision history

| | | |
|---|---|---|
| Rev A | August 2018 | First release |
| | | |
| | | |
| | | |

# 14 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.

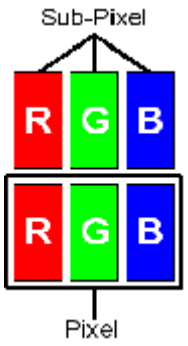
### Measurement method/monitoring conditions for pixel defects

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

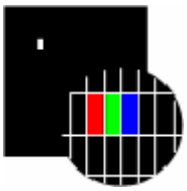
- Final check for pixel fault undertaken right after burn-in, i.e. with pre-heating of the display.
- Surrounding temperature 25ºC ± 5ºC
- Relative air humidity 40–70%

### Pixel definition

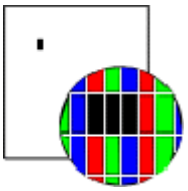
Every pixel consists of three sub-pixels/dots (red, blue, green).
Every sub-pixel has its own transistor.
The three sub-pixels/dots must be considered as one unit.



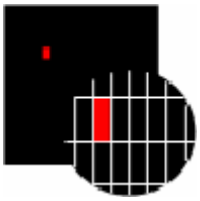
## Pixel



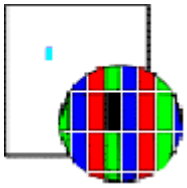
**Pixel defect type 1** Pixel constantly lit



**Pixel defect type 2** Pixel constantly dark



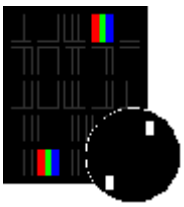
**Pixel defect type 3a**
Sub-pixel/dot (red, blue, green) constantly lit



**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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