User Manual

DuraPANEL Series

DuraPANEL 24”

DuraPANEL 26”

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

Classification

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

Approvals

Approval according to IACS E10 ed. 6 and IEC 60945 ed. 4, 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.

ISIC PN: 07354-000 rev. A

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Table of Contents

1 Features

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

The DuraPANEL series of Panel Computers are all designed for the demanding operating conditions at sea.

The DuraPANEL series are tested for full compliance to marine-standards IACS E10 and IEC 60945.

The DuraPANEL 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 DVI or VGA cable with ferrites, like the one supplied with the unit.

2 General considerations on Installation and Operation

The DuraPANEL 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

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

- When installing the DuraPANEL allways use original or identical fittings.
-
- Room for cooling.
  When designing the cabinet/console for the DuraPANEL, 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.

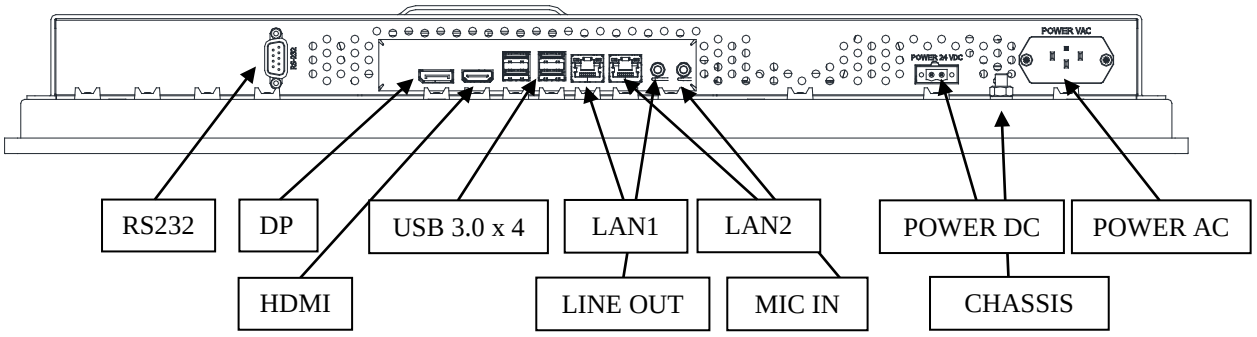
- Mounting positions
  To obtain adequate cooling by convection ISIC recommends that the DuraPANEL is mounted at least 30 degrees from horizontal. If this is not possible, forced cooling must be applied directly to the unit in order not to overheat it.

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

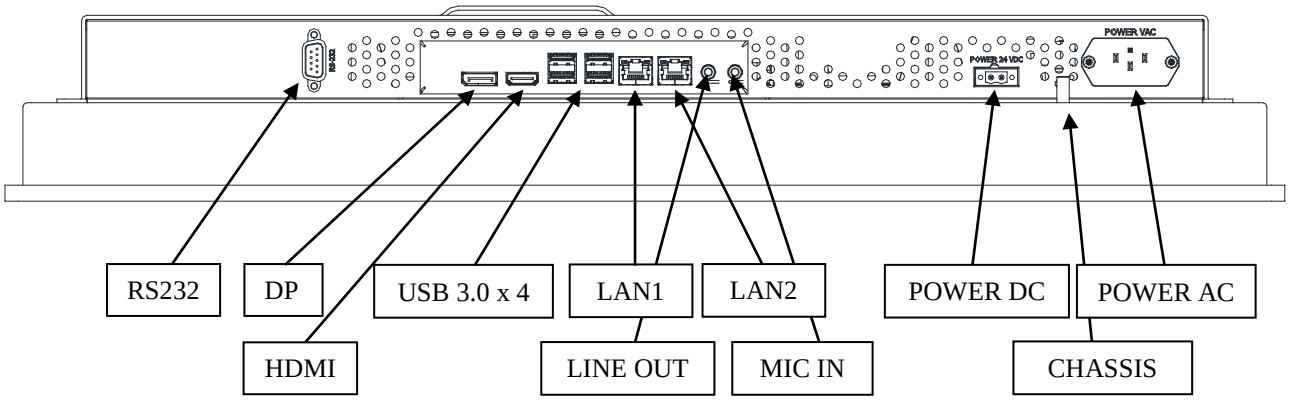
3 DuraPANEL connections

Below is a view of optional connections to the monitor. The default inputs are: power, RS-232, DVI and VGA.

3.1 DuraPANEL24 connections:



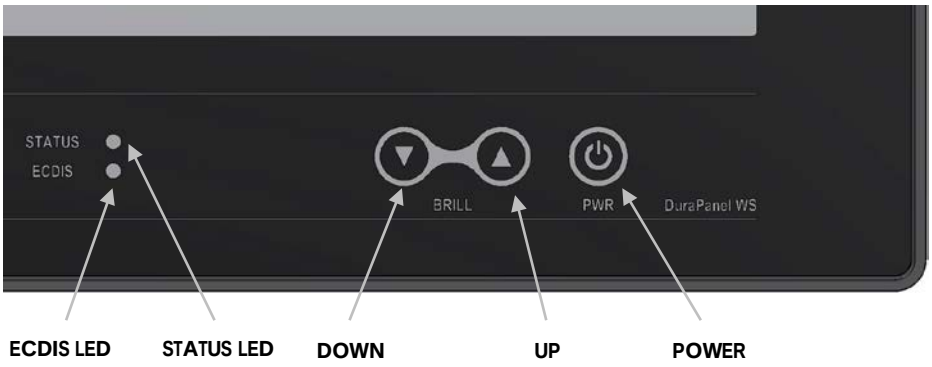
3.2 DuraPANEL26 connections:



4 DuraPANEL front panel controls (ECDIS and Radar)

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

4.1 DuraPANEL front:



STATUS:
This LED will illuminate green when the monitor is powered on and red when the monitor is powered down. The LED will blink green if no active signal is found.

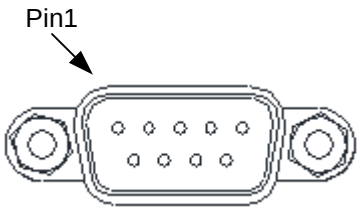
ECDIS:
When calibrated this LED will illuminate when backlight level is at calibrated setting.

BRILL:
Used to adjust backlight. Pressing UP and DOWN at the same time will restore the backlight level to the last selected ECDIS mode (day, dusk or night) by the serial link.

PWR:
This key is used to turn the product on or off. Pressing it will turn the power on, while holding it pressed for 5 seconds will turn the power off. The status light will change from green to red to indicate it's powered down.

5 Connector pin-out

5.1 RS-232



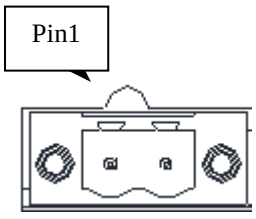
Pin	RS-232 SUB-D 9-pol male
1	-
2	DuraPANEL TX
3	DuraPANEL RX
4	-
5	GND
6	-
7	-
8	-
9	-

Mating part: SUB-D 9 pole female, Norcomp 172-E09-20201 or equivalent.

5.2 Power input DC (optional)

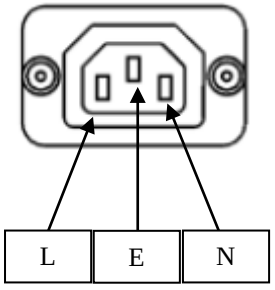
The nominal input power voltage is 24V (18-36VDC). The input is galvanic isolated and protected against reverse polarity.

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



Pin	Power in
1	0VDC
2	24VDC

5.3 Power input ac



6 Technical specifications DuraPANEL 24”

DuraPANEL - General

CPU:	**Intel® Core® i3-4330TE– 2,4 GHz 2 cores, 4 threads (CPUMark 3,224)**
	Optional Intel® Core i5-4590T 2,0 GHz 4 cores, 4 threads (CPUMark 5,758)
	Optional Intel® Core i7-4770TE 2,3 GHz 4 cores, 8 threads (CPUMark 8,800)
	Optional Intel® Celeron G1820TE 2,2 GHz 2 cores (CPUMark 2,230)
Chipset:	**Intel® Q87 Chipset**
Memory:	**4GB DDR3 1333/1600 MHz SODIMM** *Up to 16GB DDR3 SODIMM*
Hard Disk Drive:	**80GB SSD** *Optional 120 / 200 / 240… 1600 GB SSD SATA or USB / CF (option)*
Video:	**Intel® Graphics controller on-CPU** *DirectX* 11.2 and OpenGL - 4.3, OpenCL 2.0, Shader Model 5* *3 Independent display capable*
External Video out:	**HDMI and DP video output connectors**
Audio:	**Mic-in, Line-out, 2 x 3,5mm Minijack**
Ethernet:	**2 x 10/100/1000 Gbits/s Ethernet LAN on-board, (RJ45)** *1 xIntel© PHY I217LM (VPro)* *1x Intel® I210AT*
USB:	**4 x USB 3.0 ports plus 6 x USB 2.0 internally available**
COM:	**1x RS232**
Expansion Slots:	**1 x PCI Express x 4**
	1 x PCI Express half-size Mini Card Slot

DuraPANEL - Front

Display size:	**23,6 inch 16:9 LCD (TFT)**
Resolution:	**1920 x 1080**
Active area:	**521 x 293 mm**
View angle:	**89° (T/B), 89° (L/R) (typical)**
Luminance:	**250 Cd/m^2 (typical)**
Contrast ratio:	**3000:1 (typical)**
Front glass:	**Anti glare Hardness 3H**
Touch:	**Optional PCAP Multitouch**

DuraPANEL - Power

Standard:	**90-264VAC. 50-60Hz Input**
Automotive:	**24VDC (18-36VDC)** *Optional Dual power, combined AC and DC input*

DuraPANEL - Environmental

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

DuraPANEL - Approvals

CE Mark:	**EN61000-6-2**
Marine:	**IACS E10 Rev. 6 & IEC 60945 Ed. 4**
	IEC 61174 / IEC 62288 / IEC 62388
Certificates:	**MR Certificate**

DuraPANEL - Dimensions

Size:	**593 (W) x 384,1 (H) x 68mm (D)**
Weight:	**App. 12 kg.**
Bracket:	**Desk/ceiling-and wall-bracket (optional extra)**

7 Technical specifications DuraPANEL 26”

DuraPANEL - General

CPU:	**Intel® Core® i3-4330TE– 2,4 GHz 2 cores, 4 4hreads (CPUMark 3,224)**
	Optional Intel® Core i5-4590T 2,0 GHz 4 cores, 4 threads (CPUMark 5,758)
	Optional Intel® Core i7-4770TE 2,3 GHz 4 cores, 8 threads (CPUMark 8,800)
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Chipset:	**Intel® Q87 Chipset**
Memory:	**4GB DDR3 1333/1600 MHz SODIMM** *Up to 16GB DDR3 SODIMM*
Hard Disk Drive:	**80GB SSD** *Optional 120 / 200 / 240… 1600 GB SSD SATA or USB / CF (option)*
Video:	**Intel® HD Graphics controller on-CPU** *DirectX* 11.2 and OpenGL 4.3, OpenCL 2.0, Shader Model 5* *3 Independent display capable*
External Video out:	**HDMI and DP video output connectors**
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USB:	**4 x USB 3.0 ports plus 6 x USB 2.0 internally available**
COM:	**1x RS232 internally available**
Expansion Slots:	**1 x PCI Express x 4**
	1 x PCI Express half-size Mini Card Slot

DuraPANEL - Front

Display size:	**25,5 inch 16:10 LCD (TFT)**
Resolution:	**1920 x 1200**
Active area:	**550 x 343.8 mm**
View angle:	**88° (T/B), 88° (L/R) (typical)**
Luminance:	**350 Cd/m^2 (typical)**
Contrast ratio:	**1500:1 (typical)**
Front glass:	**Anti glare Hardness 3H**
Touch:	**Optional PCAP Multitouch**

DuraPANEL - Power

Standard:	**90-264VAC. 50-60Hz Input**
Automotive:	**24VDC (18-36VDC)** *Optional Dual power, combined AC and DC input*

DuraPANEL - Environmental

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

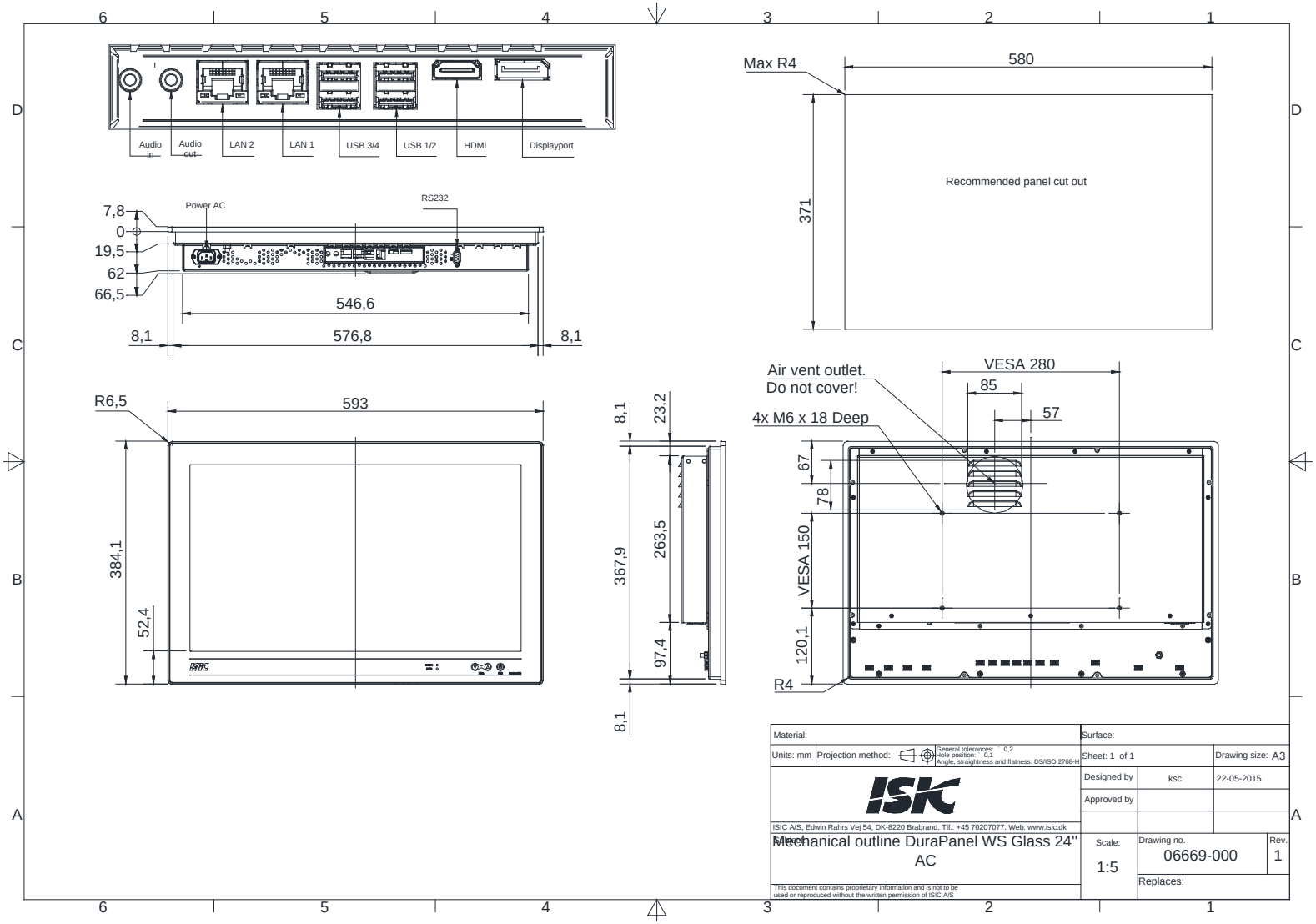
DuraPANEL - Approvals

CE Mark:	**EN61000-6-2**
Marine:	**IACS E10 Rev. 6 & IEC 60945 Ed. 4**
	IEC 61174 / IEC 62288 / IEC 62388
Certificates:	**MR Certificate**

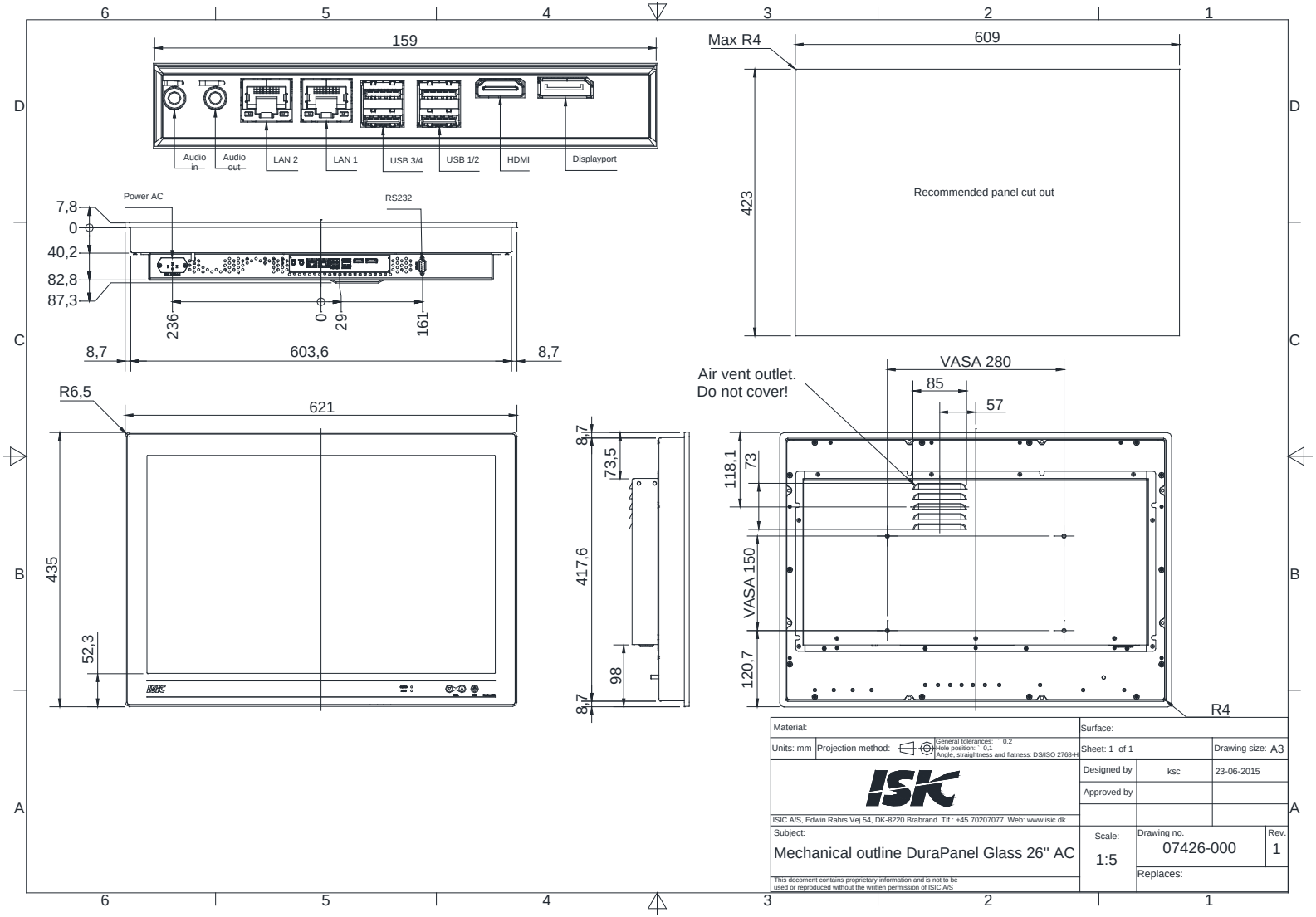
DuraPANEL - Dimensions

Size:	**621 (W) x 435 (H) x 89mm (D)**
Weight:	**App. 16 kg.**
Bracket:	**Desk/ceiling-and wall-bracket (optional extra)**

8 Mechanical outline DuraPANEL 24”



9 Mechanical outline DuraPANEL 26”



10 Dura Communication protocol

See document 04924-000 for protocol details.

11 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)
DuraPANEL 24”	205	125
DuraPANEL 26”	225	140

12 Power Consumption

Test object / condition	Ptyp [W]	Pmax [W]
DuraPANEL 24”	60W	80W
DuraPANEL 26”	65W	85W

13 In rush current

Test object / condition	[A] @24VDC	[A] @230Vac
DuraPANEL 24”	~ 100	~ 100
DuraPANEL 26”	~ 100	~ 100

14 Troubleshooting

Problem	Cause	Solutions
No picture on display	Backlight level set to minimum	Increase backlight
	Monitor turned off	Turn on the monitor
	No input signal present	Apply signal
	No power cord connected	Apply power
Buttons on front doesn't work	Unit in ECDIS mode	Press Menu + Enter to unlock the monitor
	No power cord connected	Apply power
	Keypad defect	Please do not try to open the unit. Send it to ISIC A/S for repair.
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.

15 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.

16 ISIC info / Support

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

Company name:	ISIC A/S
Head office:	Edwin Rahrs Vej 54 DK-8220 Brabrand Denmark
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Mail:	mail@isic-systems.com
www:	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:	0892
SWIFT:	HANDDKKK
IBAN for DKK:	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-Fr: CET 0800 - 1600) 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

17 Revision history

Rev A	August 2015	First release

18 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.

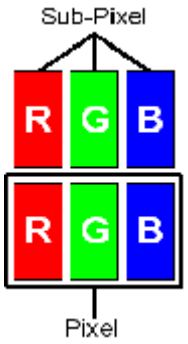
Measurement method/monitoring conditions for pixel defects

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

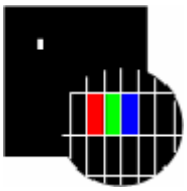
- Final check for pixel fault undertaken right after burn-in, i.e. with pre-heating of the display.
- Surrounding temperature 25ºC ± 5ºC
- Relative air humidity 40–70%

Pixel definition

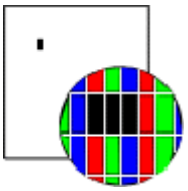
Every pixel consists of three sub-pixels/dots (red, blue, green).
Every sub-pixel has its own transistor.
The three sub-pixels/dots must be considered as one unit.



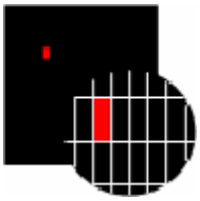
Pixel



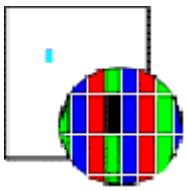
Pixel defect type 1 Pixel constantly lit



Pixel defect type 2 Pixel constantly dark



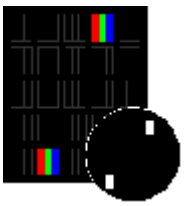
Pixel defect type 3a
Sub-pixel/dot (red, blue, green) constantly lit



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

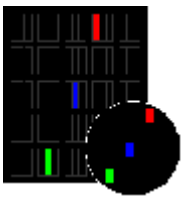
Cluster

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**

19 Appendix C: Declaration of Conformity

EC DECLARATION OF CONFORMITY

We, manufacturer

ISIC A/S
Edwin Rahrs Vej 54, DK-8220 Brabrand, Denmark

hereby certifies that the

Products:

Category:	Marine Panel Computer
Type:	DuraPanel Glass
Models:	7", 12", 24" and 26"
ISIC Part Nos.:	06607-XXX and 06612-XXX 06624-XXX and 06626-XXX

are designed, manufactured and tested in Denmark, and complies with the requirements in the following directives and standards:

2004/108/EC EMC Directive
IEC 60945:2002
IACS E10:2006

Actual inspection/test data are on file and can be subject for examination.

22 June 2015

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Bo Lander Rasmussen, CEO

03029-019 rev. A

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