

User Manual

DuraPANEL Series

DuraPANEL 24"

DuraPANEL 26"



Disclaimer

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Image sticking: If the panel 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.

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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 Display Port and/or HDMI 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

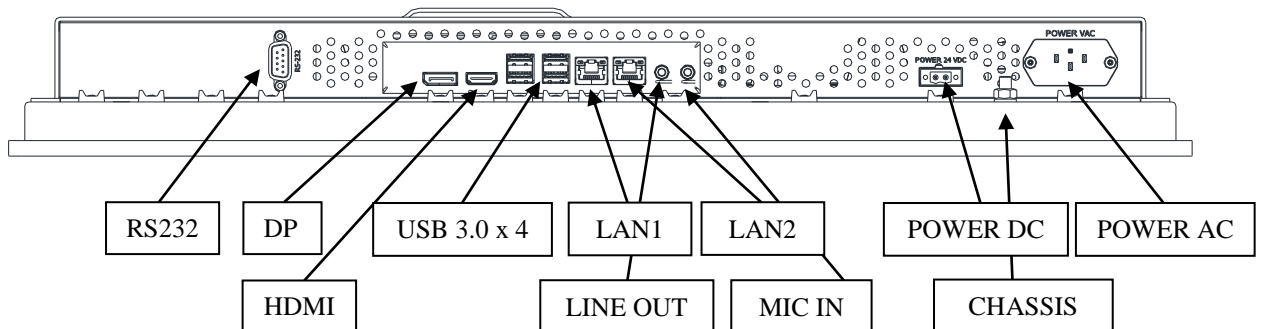
In order to obtain the best possible operating conditions, please note the following precautions.

- When installing the DuraPANEL allways use ISIC specified screws.
- 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.

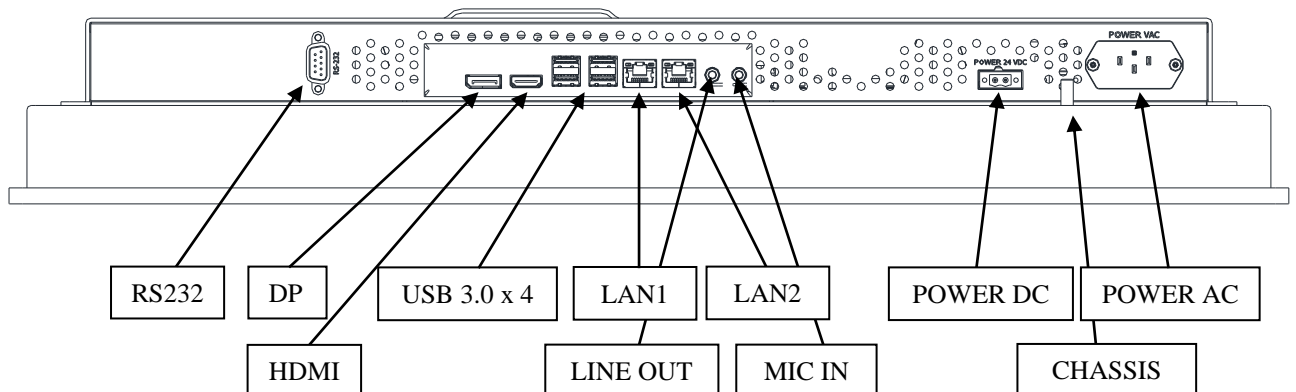
3 DuraPANEL connections

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

3.1 DuraPANEL24 connections:



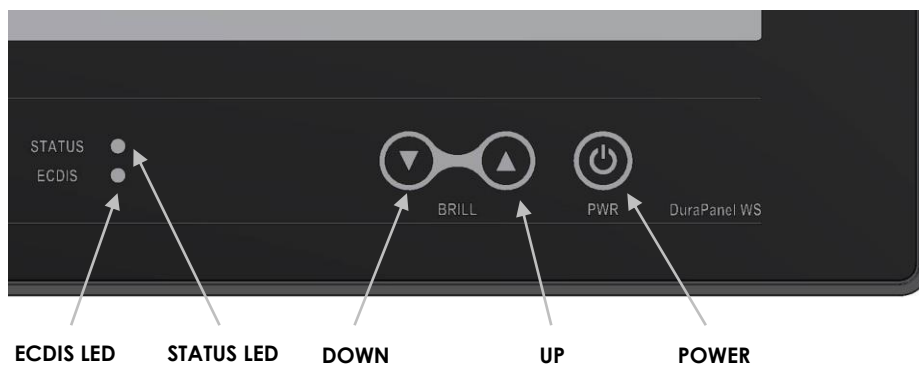
3.2 DuraPANEL26 connections:



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:

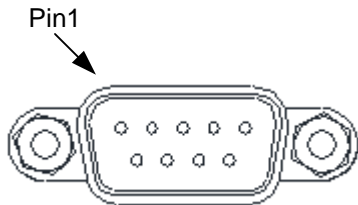
Used to adjust backlight. Pressing UP and DOWN at the same time will restore the backlight level to the last selected ECDIS mode (day, dusk or night) by the serial link.

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



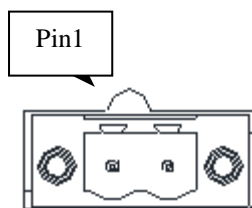
Pin	RS-232
	SUB-D 9-pol male
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

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

5.2 Power input DC (optional)

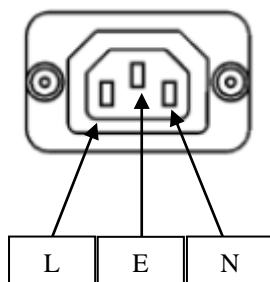
The nominal input power voltage is 24V (18-36VDC). The input is galvanic isolated and protected against reverse polarity.

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) <i>Optional Intel® Core i5-4590T 2,0 GHz 4 cores, 4 threads (CPUMark 5,758)</i> <i>Optional Intel® Core i7-4770TE 2,3 GHz 4 cores, 8 threads (CPUMark 8,800)</i> <i>Optional Intel® Celeron G1820TE 2,2 GHz 2 cores (CPUMark 2,230)</i>
Chipset:	Intel® Q87 Chipset
Memory:	4GB DDR3 1333/1600 MHz SODIMM <i>Up to 16GB DDR3 SODIMM</i>
Hard Disk Drive:	80GB SSD <i>Optional 120 / 200 / 240... 1600 GB SSD SATA or USB / CF (option)</i>
Video:	Intel® Graphics controller on-CPU <i>DirectX* 11.2 and OpenGL - 4.3, OpenCL 2.0, Shader Model 5</i> <i>3 Independent display capable</i>
External Video out:	HDMI 1.4 and DP 1.2 video output connectors
Audio:	Mic-in, Line-out, 2 x 3,5mm Mini jack
Ethernet:	2 x 10/100/1000 Gbits/s Ethernet LAN on-board, (RJ45) <i>1 x Intel® PHY I217LM (VPro)</i> <i>1 x Intel® I210AT</i>
USB:	4 x USB 3.0 ports
COM:	1x RS232

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/m² (typical)
Contrast ratio:	3000:1 (typical)
Front glass:	Anti glare
Touch:	Optional PCAP Multitouch (USB)

DuraPANEL - Power

Standard:	104-253VAC. 50-60Hz Input
Automotive:	24VDC (18-31VDC) <i>Optional Dual power, combined AC and DC input</i>

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
Radar / Navigation:	IEC 61174 ed. 4, IEC 62288 ed. 2, IEC 62388 ed. 2
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 threads (CPUMark 3,224) <i>Optional Intel® Core i5-4590T 2,0 GHz 4 cores, 4 threads (CPUMark 5,758)</i> <i>Optional Intel® Core i7-4770TE 2,3 GHz 4 cores, 8 threads (CPUMark 8,800)</i> <i>Optional Intel® Celeron G1820TE 2,2 GHz 2 cores (CPUMark 2,230)</i>
Chipset:	Intel® Q87 Chipset
Memory:	4GB DDR3 1333/1600 MHz SODIMM <i>Up to 16GB DDR3 SODIMM</i>
Hard Disk Drive:	80GB SSD <i>Optional 120 / 200 / 240... 1600 GB SSD SATA or USB / CF (option)</i>
Video:	Intel® HD Graphics controller on-CPU <i>DirectX* 11.2 and OpenGL 4.3, OpenCL 2.0, Shader Model 5</i> <i>3 Independent display capable</i>
External Video out:	HDMI 1.4 and DP 1.2 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) <i>1 x Intel® PHY I217LM (VPro)</i> <i>1 x Intel® I210AT</i>
USB:	4 x USB 3.0 ports
COM:	1x RS232 internally available

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/m² (typical)
Contrast ratio:	1500:1 (typical)
Front glass:	Anti glare
Touch:	Optional PCAP Multitouch (USB)

DuraPANEL - Power

Standard:	104-253VAC. 50-60Hz Input
Automotive:	24VDC (18-31VDC) <i>Optional Dual power, combined AC and DC input</i>

DuraPANEL - Environmental

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

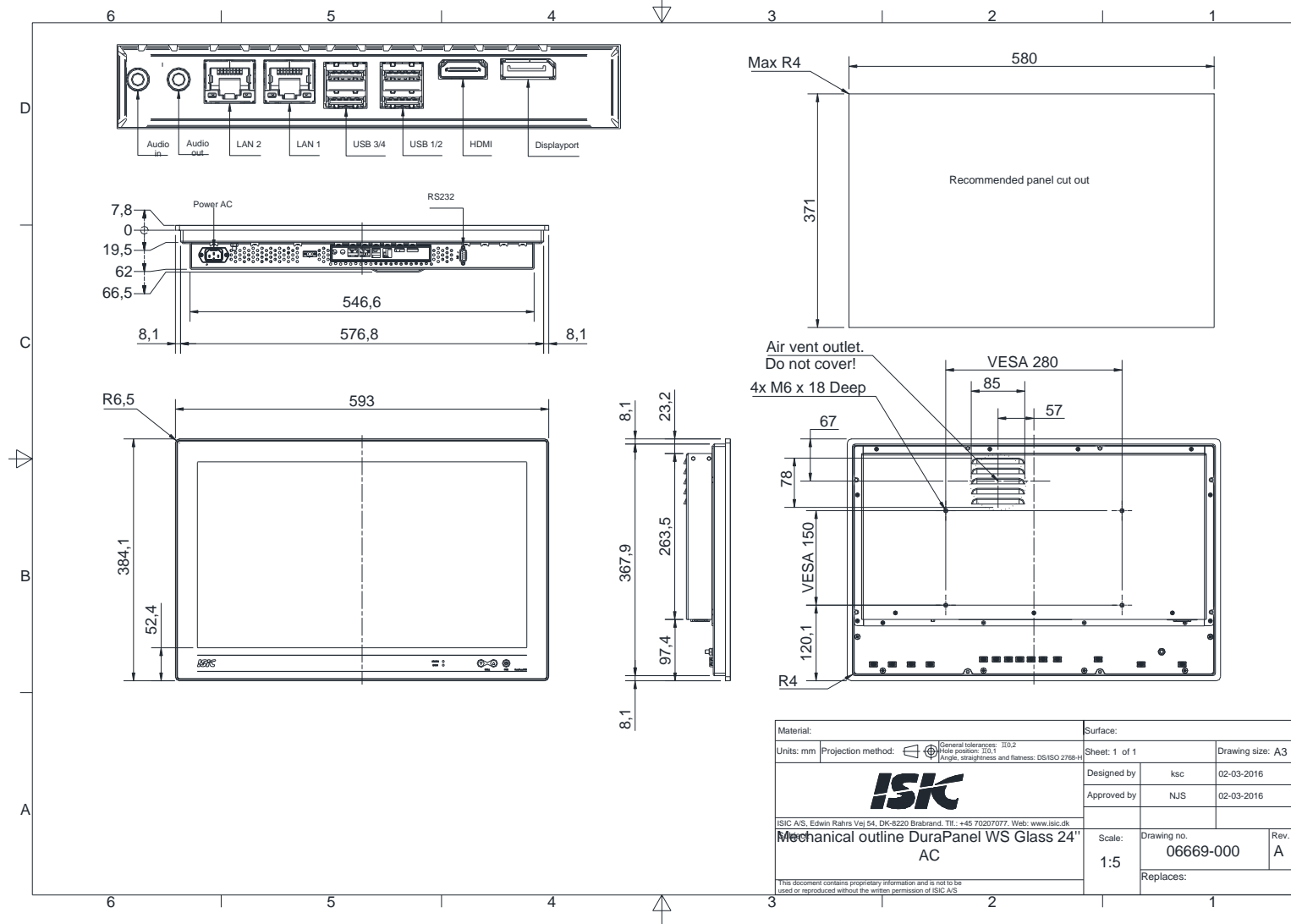
DuraPANEL - Approvals

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

DuraPANEL - Dimensions

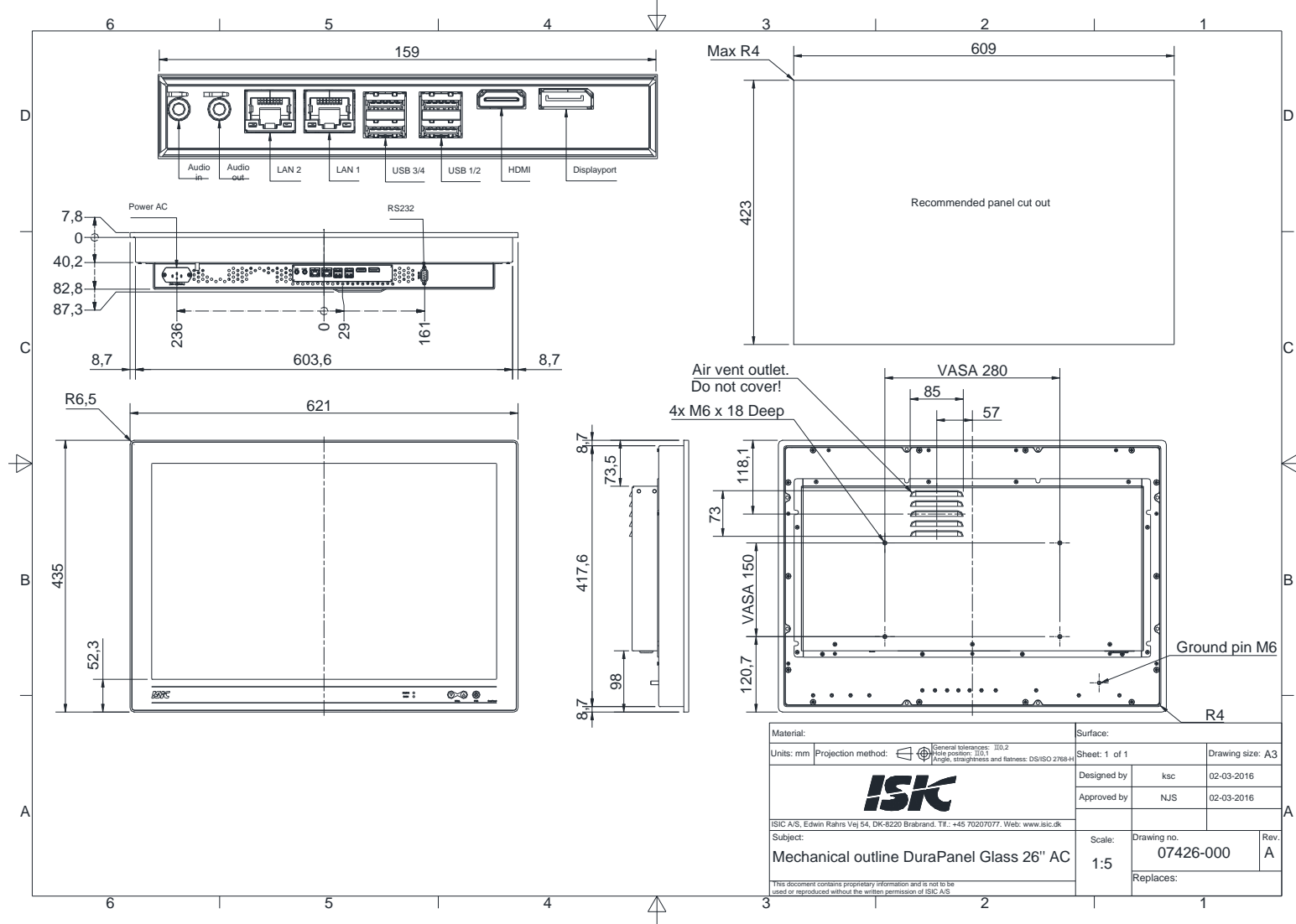
Size:	621 (W) x 435 (H) x 89mm (D)
Weight:	App. 16 kg.
Bracket:	Desk/ceiling-and wall-bracket (optional extra)

8 Mechanical outline DuraPANEL 24"



Material:		Surface:	
Units: mm	Projection method:	General tolerances: IT0,2 Hole position: IT0,1 Angle, straightness and flatness: DS/ISO 2768-H	Sheet: 1 of 1
 ISK A/S, Edwin Rahrns Vej 54, DK-8220 Brabrand, Tlf: +45 70207077, Web: www.isik.dk Mechanical outline DuraPanel WS Glass 24" AC		Designed by	ksc 02-03-2016
		Approved by	NUS 02-03-2016
Scale:		Drawing no.	Rev.
1:5		06669-000	A
This document contains proprietary information and is not to be used or reproduced without the written permission of ISIC A/S		Replaces:	

9 Mechanical outline DuraPANEL 26"



Material:	Surface:
Units: mm	Projection method: General tolerances: IT0.2 Hole position: M0.1 Angle, straightness and flatness: DS/ISO 2768-H
ISK	
ISIC A/S, Edwin Rahrs Vej 54, DK-8220 Brabrand, Tlf.: +45 70207077, Web: www.isic.dk	
Subject: Mechanical outline DuraPanel Glass 26" AC	
This document contains proprietary information and is not to be used or reproduced without the written permission of ISIC A/S	
Sheet: 1 of 1	Drawing size: A3
Designed by: ksc	02-03-2016
Approved by: NJS	02-03-2016
Scale: 1:5	Drawing no. 07426-000
	Replaces:
	Rev. A

10 Dura Communication protocol

See document 04924-001 for protocol details.

Use COM1 when communicating with the Dura Communication Protocol.

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	P _{typ} [W]	P _{max} [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
	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
	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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Telephone:	+45 70 20 70 77
Fax:	+45 70 20 79 76
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-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

17 Revision history

Rev A	August 2015	First release
Rev B	January 2017	Page 2: remove PN for manual Page 9+10: ver. On DP + HDMI; remove internal USB and internal expansion slots; add USB to touch; changed to 31VDC; changed 104-253VAC Page 15: changed office hours Page 20: removed certificate of conformance

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 ($2 \times N_{3a} + N_{3b}$)	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 $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$
- Relative air humidity 40–70%

Pixel definition

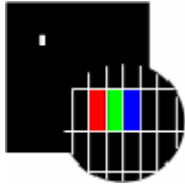
Every pixel consists of three sub-pixels/dots (red, blue, green).

Every sub-pixel has its own transistor.

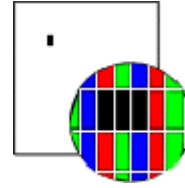
The three sub-pixels/dots must be considered as one unit.



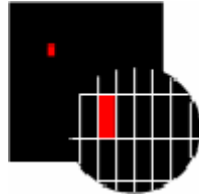
Pixel



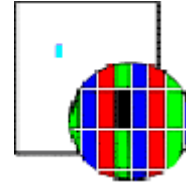
Pixel defect type 1 Pixel constantly lit



Pixel defect type 2 Pixel constantly dark



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



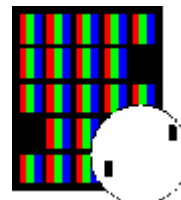
Pixel defect type 3b
Sub-pixel/dot (red, blue, green) constantly dark

Cluster

A cluster consists of 5 x 5 pixels.



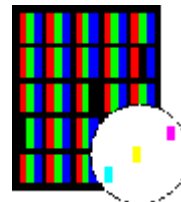
Cluster pixel defect type 1
Pixels in a cluster area constantly lit



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 ($2 \times N_{3a} + N_{3b}$)	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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