

# DuraMON GLASS 55

## 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. This is not a permanently situation and can be removed by operating the monitor with a video that is created for this 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 DuraMON 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.

ECDIS IEC 61174 ed. 4 compliant.

Radar IEC 62288 ed. 2 compliant.

Radar IEC 62388 ed. 2 compliant.



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 on your purchase of a DURAMON GLASS 55. This short form manual is designed to get you started working with your new DURAMON GLASS 55.

The DURAMON GLASS 55 monitor is made as rugged monitors especially designed for the demanding operating conditions at sea.

The DURAMON GLASS 55 is tested for full compliance to marine-standards IACS E10 and IEC 60945. The monitor 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 cable with ferrites, like the one supplied with the monitor.

Direct dimming control (1cd to100%) from UP/DOWN buttons (except ECDIS models).  
Full settings control via menu or serial link.  
IP65 protected front.

Multiple connections to cover the widest range of signal sources:

Display Port x 2  
HDMI x 2  
DVI-D  
VGA

Optional Touch Screen available, but has to be ordered with the monitor.



## 2 General considerations on Installation and Operation

The DuraMON GLASS 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 minimum of direct sunlight, vibration and humidity.

### Operation of the DURAMON GLASS 55

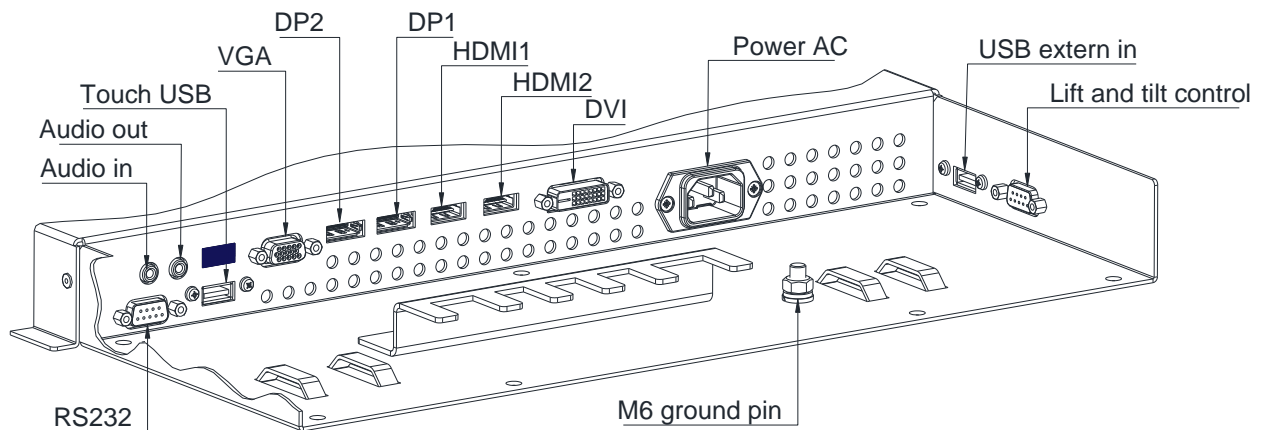
To ensure that colors and luminance on the display are correct in ECDIS applications, do not use the monitor until the warm-up period has completed.

The warm-up period is as follows:

	Day mode	Dusk mode	Night mode
DURAMON GLASS 55	30 min	30 min	30 min

## 3 DURAMON GLASS 55 connections

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



## 4 DURAMON GLASS 55 front panel controls (ECDIS and Radar)

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

### 4.1 DURAMON GLASS 55 front:



#### Power LED:

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

#### ECDIS LED:

The LED will ONLY illuminate green when the backlight level is at calibrated setting AND ONLY on an ECDIS calibrated port.

#### Touch LED:

When touch is active the touch LED lights green, if the touch is not active there is no light in touch LED.



Touch On/Off:



This button will activate or disable the touch sensor. The Touch LED will be green when the touch is active. *Be aware that it might take some seconds from enabling the touch to computer detects it.*

ON/OFF:



This key is used to turn the product on or off. Pressing it will turn the power on, while holding it pressed down for 5 seconds will turn the power off. The Power LED will change from green to red to indicate it's powered down. It is important to notice that, when powered off, the product still consumes some power. To cut off the power from the product it is necessary to unplug its power cord from the mains.

Menu:



To activate the OSD menu, press "Menu".  
See Popup Menu section for details.

Enter:



Use this to select the highlighted item in OSD menu.

UP/DOWN:



Used to adjust backlight or to navigate and adjust settings in menus. Pressing UP and DOWN together will restore the backlight level to the last selected ECDIS mode by the serial link. (See document 04924-001 for protocol details).



## 5 Serial connection pin-out

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

Mating connector 9 pin D-Sub male.

## 6 Floor stand Up/Down/Tilt connection pin-out

Pin	Function	
	SUB-D 9-pol male	
1	Tilt Down	
2	Raise Down	
3	Raise Up	
4	Tilt Up	
5	Gnd	
6	Raise Common	
7	Tilt Common	
8	NC	
9	NC	

Mating connector 9 pin D-Sub female.





# 7 Technical specifications DURAMON GLASS 55

## DuraMON GLASS I/O

<b>Video inputs:</b>	<p>1 x VGA: Up to 1920 x 1080 @ 60Hz          1 x DVI: Up to 1920 x 1080 @ 60Hz          2 x Display Port 1.2a: Up to 3840 x 2160 @ 60Hz          2 x HDMI 1.4: Up to 3840 x 2160 @ 30Hz</p> <p><b>Recommended resolution is 3840 x 2160</b></p> <p>Generally, all VESA compatible video modes are supported.</p> <p><b>External USB</b></p>
<b>Control inputs:</b>	<p>1x RS-232 – for remote control.          1x USB for touch sensor (optional).          1 x Raise up/down &amp; tilt          1x External USB</p>

## DuraMON GLASS Power Supply Options

<b>Standard:</b>	<b>90-260Vac 50-60Hz Input</b>
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## DuraMON GLASS Environmental Conditions

<b>Operating Temperature:</b>	<b>-15 to 55 °C</b>
<b>Storage Temperature:</b>	<b>-25 to 70 °C</b>
<b>Relative Humidity:</b>	<b>8 to 90 %</b>

## DuraMON GLASS Approvals

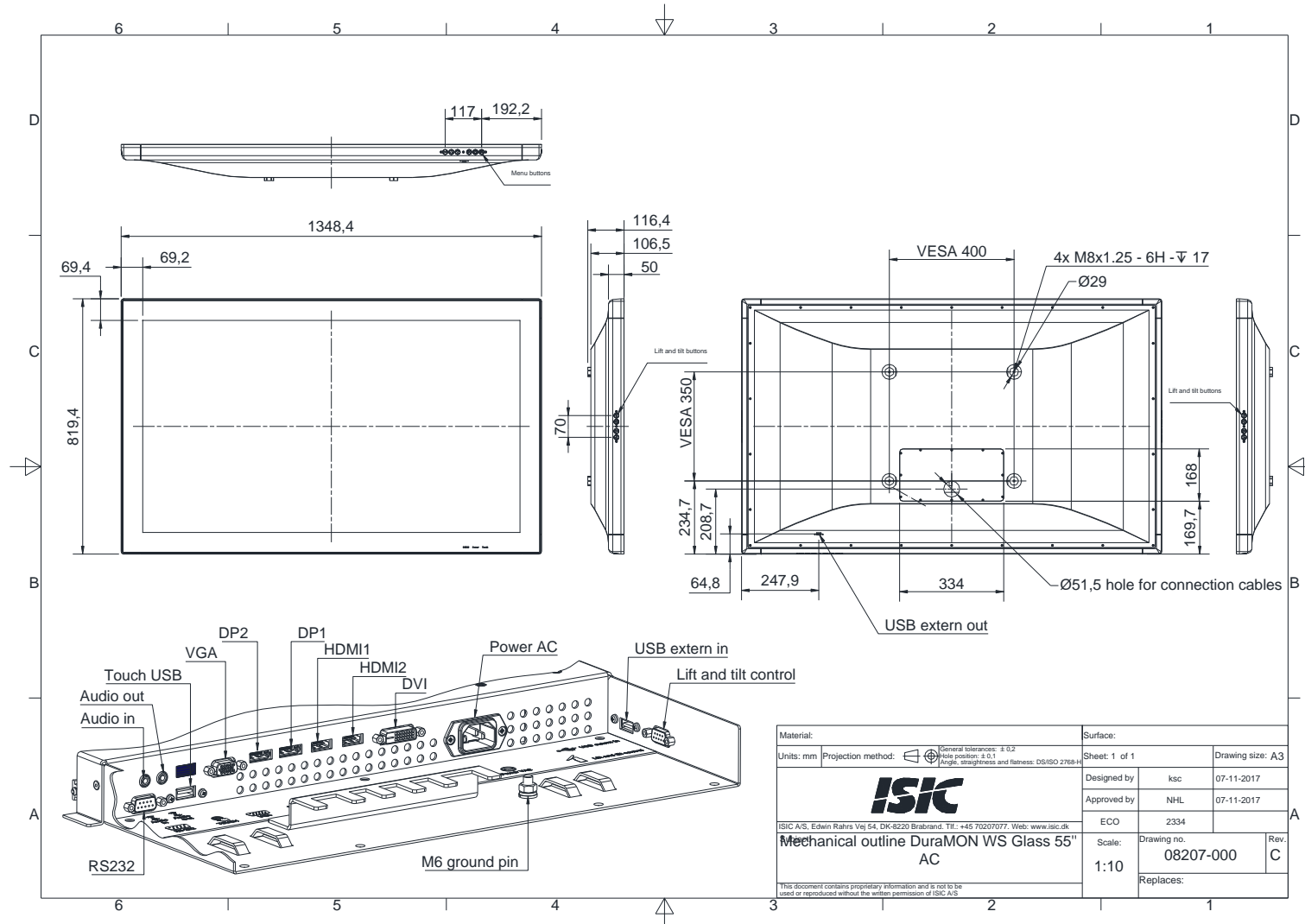
<b>Marine:</b>	<b>IEC 60945 Ed. 4, 2002-08 &amp; IACS E10 Rev. 6 Oct. 2014</b>
<b>ECDIS, Radar:</b>	<b>IEC 61174 ed. 4, IEC 62288 ed. 2, IEC 62388 ed. 2</b>
<b>Type Approvals:</b>	For marine class approvals – see <a href="http://www.isic-systems.com">www.isic-systems.com</a>

## DuraMON55 specification

<b>Resolution:</b>	<b>3840 x 2160</b>
<b>Active Area</b>	<b>1209.6mm x 680.4mm (55" diagonal)</b>
<b>Pixel Pitch:</b>	<b>0.315 mm x 0.315 mm</b>
<b>View angle:</b>	<b>89° (L/R/T/B) (typical)</b>
<b>Viewing distance:</b>	<b>1.10 m</b>
<b>Luminance:</b>	<b>450 cd/m2 (typical)</b>
<b>Contrast ratio:</b>	<b>4000:1 (typical)</b>
<b>Colors:</b>	<b>16.7 mill. (24-bit)</b>
<b>Response Time:</b>	<b>6.5 ms (GtG) (typical)</b>
<b>Protection:</b>	<b>IP65 front – IP20 rear</b>
<b>Weight:</b>	<b>75 kg</b>
<b>Dimensions (WxHxD):</b>	<b>1348,4 mm x 819,4 mm x 116,4 mm</b>



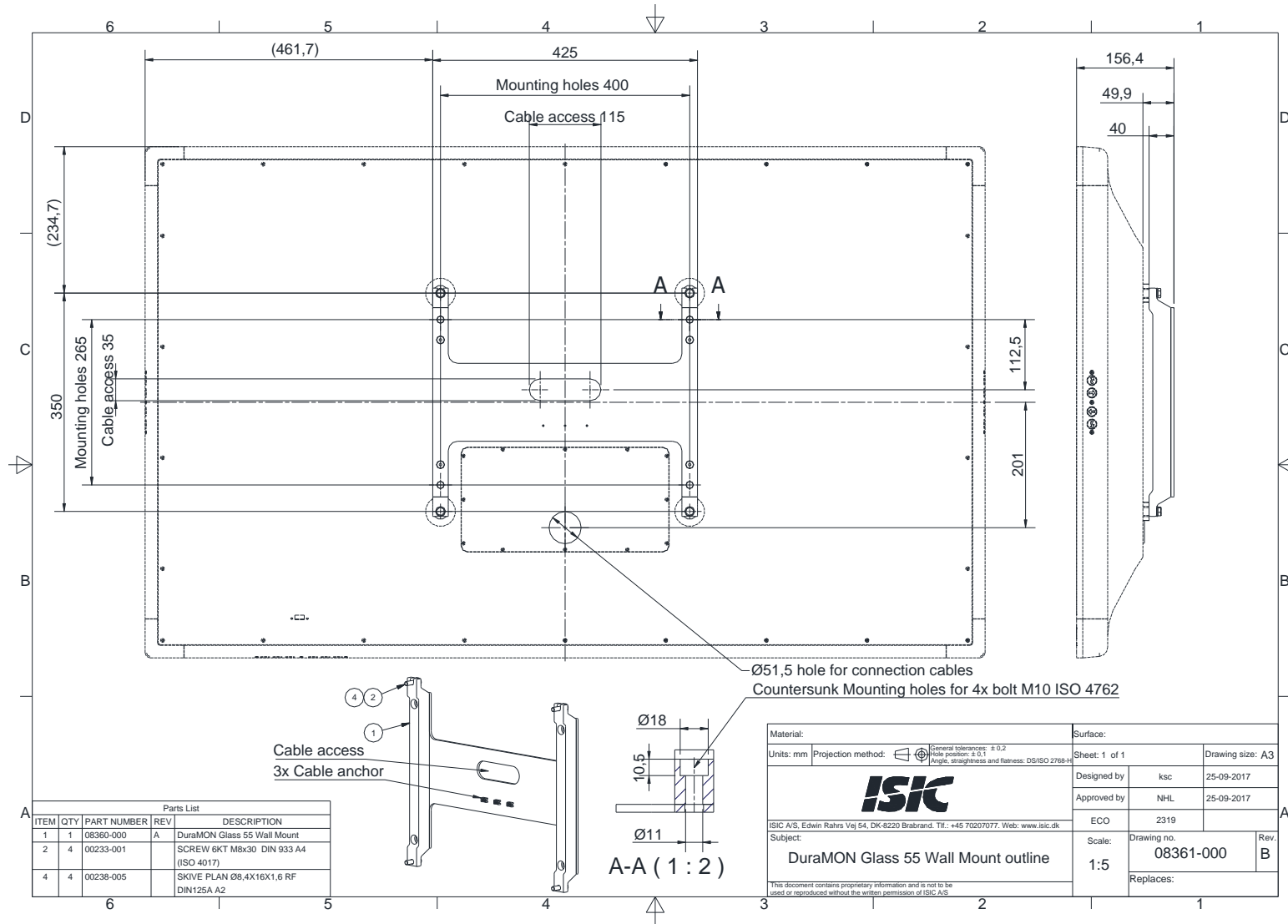
# 8 Mechanical outline DURAMON GLASS 55



Material:		Surface:	
Units: mm	Projection method:	General tolerances: $\pm 0,2$	Sheet 1 of 1
 ISIC A/S, Edwin Rahns Vej 54, DK-6220 Brabrand, Tlf.: +45 70207077, Web: www.isic.dk		Angle, straightness and flatness: DS/ISO 2768-H	Drawing size: A3
		Designed by: ksc	07-11-2017
Mechanical outline DuraMON WS Glass 55" AC		Approved by: NHL	07-11-2017
Scale: 1:10		ECO: 2334	Rev: C
This document contains proprietary information and is not to be used or reproduced without the written permission of ISIC A/S		Drawing no: 08207-000	Replaces:



# 9 Mechanical outline Wall Mount



Parts List				
ITEM	QTY	PART NUMBER	REV	DESCRIPTION
1	1	08360-000	A	DuraMON Glass 55 Wall Mount
2	4	00233-001		SCREW 6KT M8x30 DIN 933 A4 (ISO 4017)
4	4	00238-005		SKIVE PLAN Ø8,4X16X1,6 RF DIN125A A2

Material:	Surface:	
Units: mm	Projection method:	General tolerances: ± 0,2
		Hole position: ± 0,1
		(Angle, straightness and flatness: DS/ISO 2768-M)
		Sheet: 1 of 1
		Drawing size: A3
Designed by: ksc		25-09-2017
Approved by: NHL		25-09-2017
ECO: 2319		
Subject: DuraMON Glass 55 Wall Mount outline		Scale: 1:5
		Drawing no. 08361-000
		Replaces:
		Rev. B



## 10 ECDIS mode

Be aware that use of the backlight, brightness or contrast 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 monitor to the ECDIS application. Please see the Dura Serial Communication protocol for details.

## 11 Dura Serial Communication protocol

See document 04924-001 for protocol details.

The type of the product can be queried by sending the 'TYP' command, ref. the Serial Protocol Document

Monitor	Response from monitor
DuraMON GLASS 55	DuraMON GLASS 55

## 12 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 GLASS 55	560 cm	360 cm

## 13 Power Consumption

Test object / condition	Ptyp [W]	Pmax [W]
DURAMON GLASS 55	125	200

## 14 Inrush current


Test object / condition	100 [VAC]	240 [VAC]
DURAMON GLASS 55	45	108



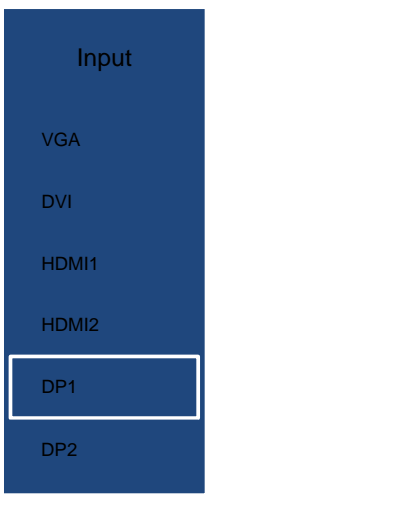
# Check OSD menu

## 1 Popup Menu

Without entering the OSD menu it is possible to adjust brightness by pressing “up” or “down” key.

Press “up” or “down”	 <p>The image shows an OSD menu titled "Backlight". It features a horizontal yellow progress bar that is approximately 80% full. To the right of the bar, the number "80" is displayed. The background of the menu is a light gray.</p>	It is now possible to adjust the backlight level by pressing either up- or down key.
----------------------	---	--

Without entering the OSD menu it is possible to select input for **display area #1** by pressing “Enter”.

Press “Enter” to activate this menu.	 <p>The image shows an OSD menu titled "Input". It lists several input options: VGA, DVI, HDMI1, HDMI2, DP1, and DP2. The DP1 option is highlighted with a white rectangular border, indicating it is the selected input.</p>	Use “up” or “down” key and then press enter to select another input channel.
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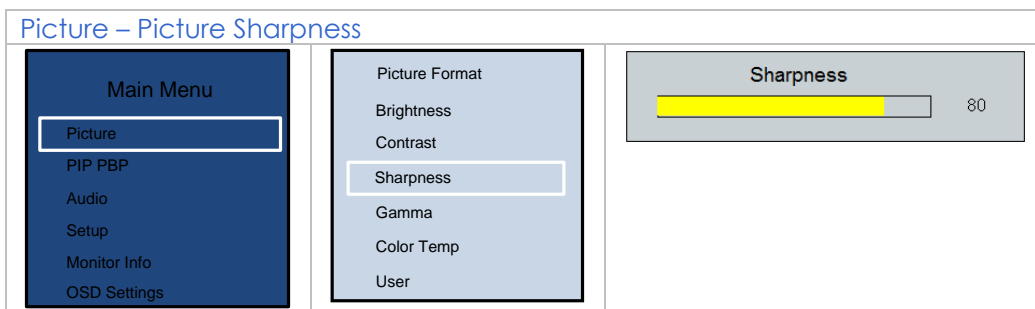
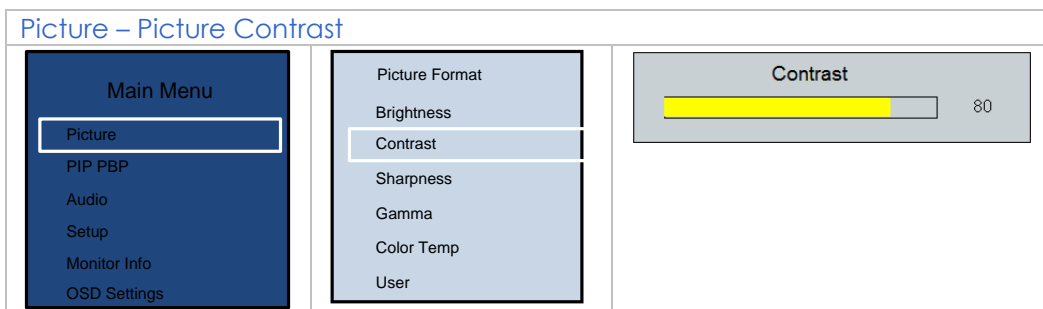
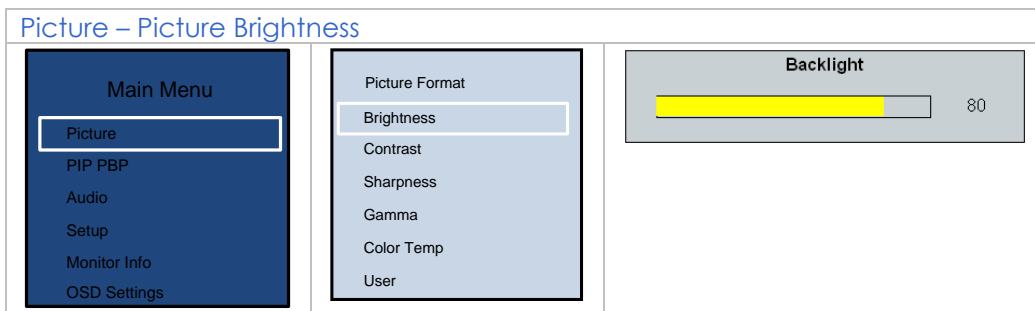
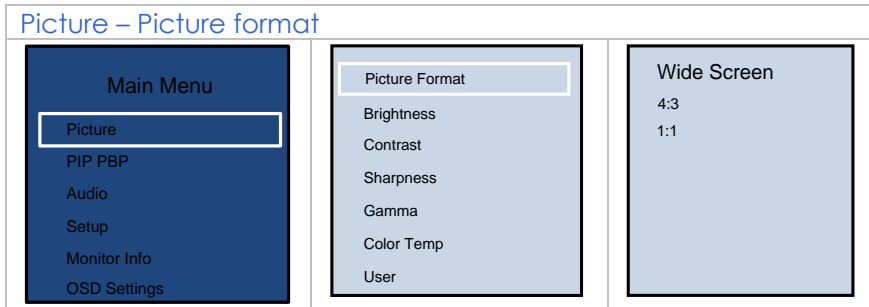
## 2 Advanced OSD

With the Advanced OSD (On Screen Display) you can modify the settings and control the special features of the DuraMON as described on the next pages.

To enter the Advanced OSD, press "MENU" button.

To navigate the Advanced OSD use the "UP" and "DOWN" buttons and press "ENTER" to select a specific setting. To get back to the previous menu point, press the "MENU" button.

### 2.1 Picture



### Picture – Picture Gamma

<p>Main Menu</p> <p>Picture</p> <p>PIP PBP</p> <p>Audio</p> <p>Setup</p> <p>Monitor Info</p> <p>OSD Settings</p>	<p>Picture Format</p> <p>Brightness</p> <p>Contrast</p> <p>Sharpness</p> <p>Gamma</p> <p>Color Temp</p> <p>User</p>	<p>1.8</p> <p>2.0</p> <p>2.2</p> <p>2.4</p> <p>2.6</p>
--	---	--

### Picture – Picture Color Temp

<p>Main Menu</p> <p>Picture</p> <p>PIP PBP</p> <p>Audio</p> <p>Setup</p> <p>Monitor Info</p> <p>OSD Settings</p>	<p>Picture Format</p> <p>Brightness</p> <p>Contrast</p> <p>Sharpness</p> <p>Gamma</p> <p>Color Temp</p> <p>User</p>	<p>Warm</p> <p>Normal</p> <p>Cool</p> <p>User</p>
--	---	---

### Picture – Picture User

<p>Main Menu</p> <p>Picture</p> <p>PIP PBP</p> <p>Audio</p> <p>Setup</p> <p>Monitor Info</p> <p>OSD Settings</p>	<p>Picture Format</p> <p>Brightness</p> <p>Contrast</p> <p>Sharpness</p> <p>Gamma</p> <p>Color Temp</p> <p>User</p>	<p>Red 50</p> <p>Green 50</p> <p>Blue 50</p>
--	---	--



## 2.2 Picture in Picture / Picture by Picture

PIP PBP PIP/PBP Mode

<b>Main Menu</b> Picture <b>PIP PBP</b> Audio Setup Monitor Info OSD Settings	PIP/PBP Mode    PBP 4Win Win1 Input Sub    DVI Win2 Input Sub    DVI Win3 Input Sub    DVI PIP Size    Small PIP Position    Top-Right Swap	Off PIP PBP 2Win PBP 3Win PBP 4Win
---	---	--

Mode - Off

Off PIP PBP 2Win PBP 3Win PBP 4Win	
--	--

Display area #1

Mode - PIP

Off <b>PIP</b> PBP 2Win PBP 3Win PBP 4Win	
---	--

Display area #1 + #2

Mode - PBP 2Win

Off PIP <b>PBP 2Win</b> PBP 3Win PBP 4Win	
---	--

Display area #1 + #2

Mode - PBP 3Win

Off PIP PBP 2Win <b>PBP 3Win</b> PBP 4Win	
---	--

Display area #1 + #2 + #3

Mode - PBP 4Win

Off PIP PBP 2Win PBP 3Win <b>PBP 4Win</b>	
---	--

Display area #1 + #2 + #3 + #4

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

<p style="text-align: center; margin: 0;"><b>Main Menu</b></p> <p style="margin: 5px 0;">Picture</p> <p style="margin: 5px 0; border: 1px solid white; padding: 2px;">PIP PBP</p> <p style="margin: 5px 0;">Audio</p> <p style="margin: 5px 0;">Setup</p> <p style="margin: 5px 0;">Monitor Info</p> <p style="margin: 5px 0;">OSD Settings</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">PIP/PBP Mode</td> <td style="padding: 2px;">PBP 4Win</td> </tr> <tr> <td style="padding: 2px;">Win1 Input Sub</td> <td style="padding: 2px; border: 1px solid white;">DVI</td> </tr> <tr> <td style="padding: 2px;">Win2 Input Sub</td> <td style="padding: 2px;">DVI</td> </tr> <tr> <td style="padding: 2px;">Win3 Input Sub</td> <td style="padding: 2px;">DVI</td> </tr> <tr> <td style="padding: 2px;">PIP Size</td> <td style="padding: 2px;">Small</td> </tr> <tr> <td style="padding: 2px;">PIP Position</td> <td style="padding: 2px;">Top-Right</td> </tr> <tr> <td style="padding: 2px;">Swap</td> <td style="padding: 2px;"></td> </tr> </table>	PIP/PBP Mode	PBP 4Win	Win1 Input Sub	DVI	Win2 Input Sub	DVI	Win3 Input Sub	DVI	PIP Size	Small	PIP Position	Top-Right	Swap		<div style="border: 1px solid black; padding: 5px; background-color: #e0e0e0;"> <p>VGA</p> <p>DVI</p> <p>HD1</p> <p>HD2</p> <p>DP2</p> <p>DP1</p> </div>
PIP/PBP Mode	PBP 4Win															
Win1 Input Sub	DVI															
Win2 Input Sub	DVI															
Win3 Input Sub	DVI															
PIP Size	Small															
PIP Position	Top-Right															
Swap																

Win1 Input Sub select input for display area #2  
 Win2 Input Sub select input for display area #3  
 Win3 Input Sub select input for display area #4

### PIP PBP PIP Size

<p style="text-align: center; margin: 0;"><b>Main Menu</b></p> <p style="margin: 5px 0;">Picture</p> <p style="margin: 5px 0; border: 1px solid white; padding: 2px;">PIP PBP</p> <p style="margin: 5px 0;">Audio</p> <p style="margin: 5px 0;">Setup</p> <p style="margin: 5px 0;">Monitor Info</p> <p style="margin: 5px 0;">OSD Settings</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">PIP/PBP Mode</td> <td style="padding: 2px;">PBP 4Win</td> </tr> <tr> <td style="padding: 2px;">Win1 Input Sub</td> <td style="padding: 2px;">DVI</td> </tr> <tr> <td style="padding: 2px;">Win2 Input Sub</td> <td style="padding: 2px;">DVI</td> </tr> <tr> <td style="padding: 2px;">Win3 Input Sub</td> <td style="padding: 2px;">DVI</td> </tr> <tr> <td style="padding: 2px; border: 1px solid white;">PIP Size</td> <td style="padding: 2px; border: 1px solid white;">Small</td> </tr> <tr> <td style="padding: 2px;">PIP Position</td> <td style="padding: 2px;">Top-Right</td> </tr> <tr> <td style="padding: 2px;">Swap</td> <td style="padding: 2px;"></td> </tr> </table>	PIP/PBP Mode	PBP 4Win	Win1 Input Sub	DVI	Win2 Input Sub	DVI	Win3 Input Sub	DVI	PIP Size	Small	PIP Position	Top-Right	Swap		<div style="border: 1px solid black; padding: 5px; background-color: #e0e0e0;"> <p>Small</p> <p>Middle</p> <p>Large</p> </div>
PIP/PBP Mode	PBP 4Win															
Win1 Input Sub	DVI															
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Win3 Input Sub	DVI															
PIP Size	Small															
PIP Position	Top-Right															
Swap																

### PIP PBP PIP Position

<p style="text-align: center; margin: 0;"><b>Main Menu</b></p> <p style="margin: 5px 0;">Picture</p> <p style="margin: 5px 0; border: 1px solid white; padding: 2px;">PIP PBP</p> <p style="margin: 5px 0;">Audio</p> <p style="margin: 5px 0;">Setup</p> <p style="margin: 5px 0;">Monitor Info</p> <p style="margin: 5px 0;">OSD Settings</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">PIP/PBP Mode</td> <td style="padding: 2px;">PBP 4Win</td> </tr> <tr> <td style="padding: 2px;">Win1 Input Sub</td> <td style="padding: 2px;">DVI</td> </tr> <tr> <td style="padding: 2px;">Win2 Input Sub</td> <td style="padding: 2px;">DVI</td> </tr> <tr> <td style="padding: 2px;">Win3 Input Sub</td> <td style="padding: 2px;">DVI</td> </tr> <tr> <td style="padding: 2px;">PIP Size</td> <td style="padding: 2px;">Small</td> </tr> <tr> <td style="padding: 2px; border: 1px solid white;">PIP Position</td> <td style="padding: 2px; border: 1px solid white;">Top-Right</td> </tr> <tr> <td style="padding: 2px;">Swap</td> <td style="padding: 2px;"></td> </tr> </table>	PIP/PBP Mode	PBP 4Win	Win1 Input Sub	DVI	Win2 Input Sub	DVI	Win3 Input Sub	DVI	PIP Size	Small	PIP Position	Top-Right	Swap		<div style="border: 1px solid black; padding: 5px; background-color: #e0e0e0;"> <p>Top-Right</p> <p>Top-Left</p> <p>Bottom-Right</p> <p>Bottom-Left</p> </div>
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PIP Size	Small															
PIP Position	Top-Right															
Swap																

### PIP PBP Swap

<p style="text-align: center; margin: 0;"><b>Main Menu</b></p> <p style="margin: 5px 0;">Picture</p> <p style="margin: 5px 0; border: 1px solid white; padding: 2px;">PIP PBP</p> <p style="margin: 5px 0;">Audio</p> <p style="margin: 5px 0;">Setup</p> <p style="margin: 5px 0;">Monitor Info</p> <p style="margin: 5px 0;">OSD Settings</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">PIP/PBP Mode</td> <td style="padding: 2px;">PBP 4Win</td> </tr> <tr> <td style="padding: 2px;">Win1 Input Sub</td> <td style="padding: 2px;">DVI</td> </tr> <tr> <td style="padding: 2px;">Win2 Input Sub</td> <td style="padding: 2px;">DVI</td> </tr> <tr> <td style="padding: 2px;">Win3 Input Sub</td> <td style="padding: 2px;">DVI</td> </tr> <tr> <td style="padding: 2px;">PIP Size</td> <td style="padding: 2px;">Small</td> </tr> <tr> <td style="padding: 2px;">PIP Position</td> <td style="padding: 2px;">Top-Right</td> </tr> <tr> <td style="padding: 2px; border: 1px solid white;">Swap</td> <td style="padding: 2px;"></td> </tr> </table>	PIP/PBP Mode	PBP 4Win	Win1 Input Sub	DVI	Win2 Input Sub	DVI	Win3 Input Sub	DVI	PIP Size	Small	PIP Position	Top-Right	Swap	
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Win1 Input Sub	DVI														
Win2 Input Sub	DVI														
Win3 Input Sub	DVI														
PIP Size	Small														
PIP Position	Top-Right														
Swap															



## 2.3 Setup

### Setup - DisplayPort

<p style="text-align: center; margin: 0;"><b>Main Menu</b></p> <p style="margin: 0;">Picture</p> <p style="margin: 0;">PIP PBP</p> <p style="margin: 0;">Audio</p> <p style="margin: 0; border: 1px solid white; padding: 2px;">Setup</p> <p style="margin: 0;">Monitor Info</p> <p style="margin: 0;">OSD Settings</p>	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-bottom: 1px solid black;">DisplayPort</td><td style="text-align: right;">1.2</td></tr> <tr><td>Input Scan</td><td style="text-align: right;">Yes</td></tr> <tr><td>Reset</td><td style="text-align: right;">No</td></tr> <tr><td>Auto</td><td></td></tr> <tr><td>H. Position</td><td></td></tr> <tr><td>V. Position</td><td></td></tr> <tr><td>Phase</td><td></td></tr> <tr><td>Clock</td><td></td></tr> </table>	DisplayPort	1.2	Input Scan	Yes	Reset	No	Auto		H. Position		V. Position		Phase		Clock		<p style="margin: 0;">1.1</p> <p style="margin: 0;">1.2</p>
DisplayPort	1.2																	
Input Scan	Yes																	
Reset	No																	
Auto																		
H. Position																		
V. Position																		
Phase																		
Clock																		

### Setup - Input Scan

<p style="text-align: center; margin: 0;"><b>Main Menu</b></p> <p style="margin: 0;">Picture</p> <p style="margin: 0;">PIP PBP</p> <p style="margin: 0;">Audio</p> <p style="margin: 0; border: 1px solid white; padding: 2px;">Setup</p> <p style="margin: 0;">Monitor Info</p> <p style="margin: 0;">OSD Settings</p>	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-bottom: 1px solid black;">DisplayPort</td><td style="text-align: right;">1.2</td></tr> <tr><td style="border-bottom: 1px solid black;">Input Scan</td><td style="text-align: right;">Yes</td></tr> <tr><td>Reset</td><td style="text-align: right;">No</td></tr> <tr><td>Auto</td><td></td></tr> <tr><td>H. Position</td><td></td></tr> <tr><td>V. Position</td><td></td></tr> <tr><td>Phase</td><td></td></tr> <tr><td>Clock</td><td></td></tr> </table>	DisplayPort	1.2	Input Scan	Yes	Reset	No	Auto		H. Position		V. Position		Phase		Clock		<p style="margin: 0;">Yes</p> <p style="margin: 0;">No</p>
DisplayPort	1.2																	
Input Scan	Yes																	
Reset	No																	
Auto																		
H. Position																		
V. Position																		
Phase																		
Clock																		

### Setup - Reset

<p style="text-align: center; margin: 0;"><b>Main Menu</b></p> <p style="margin: 0;">Picture</p> <p style="margin: 0;">PIP PBP</p> <p style="margin: 0;">Audio</p> <p style="margin: 0; border: 1px solid white; padding: 2px;">Setup</p> <p style="margin: 0;">Monitor Info</p> <p style="margin: 0;">OSD Settings</p>	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-bottom: 1px solid black;">DisplayPort</td><td style="text-align: right;">1.2</td></tr> <tr><td style="border-bottom: 1px solid black;">Input Scan</td><td style="text-align: right;">Yes</td></tr> <tr><td style="border-bottom: 1px solid black;">Reset</td><td style="text-align: right;">No</td></tr> <tr><td>Auto</td><td></td></tr> <tr><td>H. Position</td><td></td></tr> <tr><td>V. Position</td><td></td></tr> <tr><td>Phase</td><td></td></tr> <tr><td>Clock</td><td></td></tr> </table>	DisplayPort	1.2	Input Scan	Yes	Reset	No	Auto		H. Position		V. Position		Phase		Clock		<p style="margin: 0;">Yes</p> <p style="margin: 0;">No</p>
DisplayPort	1.2																	
Input Scan	Yes																	
Reset	No																	
Auto																		
H. Position																		
V. Position																		
Phase																		
Clock																		

### Setup - Auto

<p style="text-align: center; margin: 0;"><b>Main Menu</b></p> <p style="margin: 0;">Picture</p> <p style="margin: 0;">PIP PBP</p> <p style="margin: 0;">Audio</p> <p style="margin: 0; border: 1px solid white; padding: 2px;">Setup</p> <p style="margin: 0;">Monitor Info</p> <p style="margin: 0;">OSD Settings</p>	<table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-bottom: 1px solid black;">DisplayPort</td><td style="text-align: right;">1.2</td></tr> <tr><td style="border-bottom: 1px solid black;">Input Scan</td><td style="text-align: right;">Yes</td></tr> <tr><td style="border-bottom: 1px solid black;">Reset</td><td style="text-align: right;">No</td></tr> <tr><td style="border-bottom: 1px solid black;">Auto</td><td></td></tr> <tr><td>H. Position</td><td></td></tr> <tr><td>V. Position</td><td></td></tr> <tr><td>Phase</td><td></td></tr> <tr><td>Clock</td><td></td></tr> </table>	DisplayPort	1.2	Input Scan	Yes	Reset	No	Auto		H. Position		V. Position		Phase		Clock		<p style="margin: 0;">Only available for VGA</p>
DisplayPort	1.2																	
Input Scan	Yes																	
Reset	No																	
Auto																		
H. Position																		
V. Position																		
Phase																		
Clock																		



Setup – H. Position

<p>Main Menu</p> <ul style="list-style-type: none"> <li>Picture</li> <li>PIP PBP</li> <li>Audio</li> <li><b>Setup</b></li> <li>Monitor Info</li> <li>OSD Settings</li> </ul>	<table border="1"> <tr><td>DisplayPort</td><td>1.2</td></tr> <tr><td>Input Scan</td><td>Yes</td></tr> <tr><td>Reset</td><td>No</td></tr> <tr><td>Auto</td><td></td></tr> <tr><td><b>H. Position</b></td><td></td></tr> <tr><td>V. Position</td><td></td></tr> <tr><td>Phase</td><td></td></tr> <tr><td>Clock</td><td></td></tr> </table>	DisplayPort	1.2	Input Scan	Yes	Reset	No	Auto		<b>H. Position</b>		V. Position		Phase		Clock		<p>Only available for VGA</p>
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Input Scan	Yes																	
Reset	No																	
Auto																		
<b>H. Position</b>																		
V. Position																		
Phase																		
Clock																		

Setup – V. Position †

<p>Main Menu</p> <ul style="list-style-type: none"> <li>Picture</li> <li>PIP PBP</li> <li>Audio</li> <li><b>Setup</b></li> <li>Monitor Info</li> <li>OSD Settings</li> </ul>	<table border="1"> <tr><td>DisplayPort</td><td>1.2</td></tr> <tr><td>Input Scan</td><td>Yes</td></tr> <tr><td>Reset</td><td>No</td></tr> <tr><td>Auto</td><td></td></tr> <tr><td>H. Position</td><td></td></tr> <tr><td><b>V. Position</b></td><td></td></tr> <tr><td>Phase</td><td></td></tr> <tr><td>Clock</td><td></td></tr> </table>	DisplayPort	1.2	Input Scan	Yes	Reset	No	Auto		H. Position		<b>V. Position</b>		Phase		Clock		<p>Only available for VGA</p>
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Input Scan	Yes																	
Reset	No																	
Auto																		
H. Position																		
<b>V. Position</b>																		
Phase																		
Clock																		

Setup – Phase

<p>Main Menu</p> <ul style="list-style-type: none"> <li>Picture</li> <li>PIP PBP</li> <li>Audio</li> <li><b>Setup</b></li> <li>Monitor Info</li> <li>OSD Settings</li> </ul>	<table border="1"> <tr><td>DisplayPort</td><td>1.2</td></tr> <tr><td>Input Scan</td><td>Yes</td></tr> <tr><td>Reset</td><td>No</td></tr> <tr><td>Auto</td><td></td></tr> <tr><td>H. Position</td><td></td></tr> <tr><td>V. Position</td><td></td></tr> <tr><td><b>Phase</b></td><td></td></tr> <tr><td>Clock</td><td></td></tr> </table>	DisplayPort	1.2	Input Scan	Yes	Reset	No	Auto		H. Position		V. Position		<b>Phase</b>		Clock		<p>Only available for VGA</p>
DisplayPort	1.2																	
Input Scan	Yes																	
Reset	No																	
Auto																		
H. Position																		
V. Position																		
<b>Phase</b>																		
Clock																		

Setup – Clock

<p>Main Menu</p> <ul style="list-style-type: none"> <li>Picture</li> <li>PIP PBP</li> <li>Audio</li> <li><b>Setup</b></li> <li>Monitor Info</li> <li>OSD Settings</li> </ul>	<table border="1"> <tr><td>DisplayPort</td><td>1.2</td></tr> <tr><td>Input Scan</td><td>Yes</td></tr> <tr><td>Reset</td><td>No</td></tr> <tr><td>Auto</td><td></td></tr> <tr><td>H. Position</td><td></td></tr> <tr><td>V. Position</td><td></td></tr> <tr><td>Phase</td><td></td></tr> <tr><td><b>Clock</b></td><td></td></tr> </table>	DisplayPort	1.2	Input Scan	Yes	Reset	No	Auto		H. Position		V. Position		Phase		<b>Clock</b>		<p>Only available for VGA</p>
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Input Scan	Yes																	
Reset	No																	
Auto																		
H. Position																		
V. Position																		
Phase																		
<b>Clock</b>																		

## 2.4 Monitor Info

Monitor Info

<p>Main Menu</p> <ul style="list-style-type: none"> <li>Picture</li> <li>PIP PBP</li> <li>Audio</li> <li>Setup</li> <li><b>Monitor Info</b></li> <li>OSD Settings</li> </ul>	<table border="1"> <tr><td>DuraMon</td><td>xx</td></tr> <tr><td>FW Part no:</td><td>xx</td></tr> <tr><td>Compas Safe Distance</td><td>xx</td></tr> <tr><td>Standard:</td><td>xx</td></tr> <tr><td>Steering:</td><td>xx</td></tr> </table>	DuraMon	xx	FW Part no:	xx	Compas Safe Distance	xx	Standard:	xx	Steering:	xx
DuraMon	xx										
FW Part no:	xx										
Compas Safe Distance	xx										
Standard:	xx										
Steering:	xx										



## 2.5 OSD Settings

Setup – Horizontal

<p>Main Menu</p> <ul style="list-style-type: none"> <li>Picture</li> <li>PIP PBP</li> <li>Audio</li> <li>Setup</li> <li>Monitor Info</li> <li><b>OSD Settings</b></li> </ul>	Horizontal	50	Value from 0 to 100
	Vertical	50	
	Transparency	Off	
	OSD Time Out	20s	
	Upgrade Sw		

Setup – Vertical

<p>Main Menu</p> <ul style="list-style-type: none"> <li>Picture</li> <li>PIP PBP</li> <li>Audio</li> <li>Setup</li> <li>Monitor Info</li> <li><b>OSD Settings</b></li> </ul>	Horizontal	50	Value from 0 to 100
	Vertical	50	
	Transparency	Off	
	OSD Time Out	20s	
	Upgrade Sw		

Setup – Transparency

<p>Main Menu</p> <ul style="list-style-type: none"> <li>Picture</li> <li>PIP PBP</li> <li>Audio</li> <li>Setup</li> <li>Monitor Info</li> <li><b>OSD Settings</b></li> </ul>	Horizontal	50	Off 1 2 3 4
	Vertical	50	
	Transparency	Off	
	OSD Time Out	20s	
	Upgrade Sw		

Setup – OSD Time Out

<p>Main Menu</p> <ul style="list-style-type: none"> <li>Picture</li> <li>PIP PBP</li> <li>Audio</li> <li>Setup</li> <li>Monitor Info</li> <li><b>OSD Settings</b></li> </ul>	Horizontal	50	5s 10s 20s 30s 60s
	Vertical	50	
	Transparency	Off	
	OSD Time Out	20s	
	Upgrade Sw		

Setup – Upgrade SW

<p>Main Menu</p> <ul style="list-style-type: none"> <li>Picture</li> <li>PIP PBP</li> <li>Audio</li> <li>Setup</li> <li>Monitor Info</li> <li><b>OSD Settings</b></li> </ul>	Horizontal	50	On Off
	Vertical	50	
	Transparency	Off	
	OSD Time Out	20s	
	Upgrade Sw		



# 3 Touch sensor

**NOTE:** This section is only applicable on purchased monitors with touch functionality.

Please, use the provided USB cable to connect the touch sensor. Connect one side of the connector to the USB port on the back side of the monitor and the other side to the USB port on the external computer.



Push the Touch On/Off button to activate and deactivate the touch sensor.

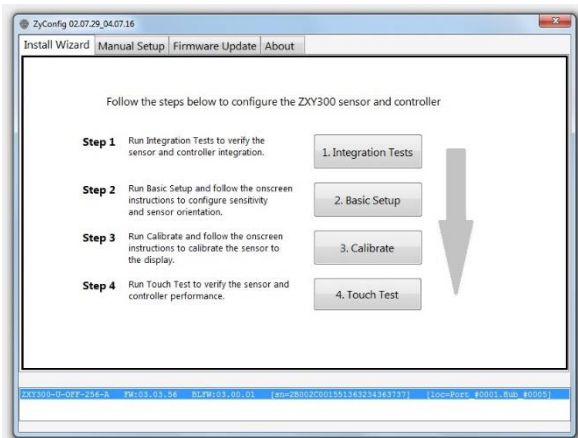
It may take a moment for the signal to appear.

The monitor is calibrated for usage in full-screen mode by default. In case of usage in PIP mode, the sensor will not function in a desired way and the monitor must be re-calibrated using the driver provided at the moment of purchase. Refer to the next section for more detailed information.

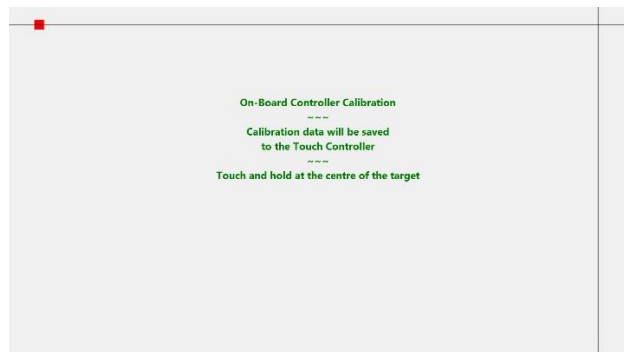
## 3.1 Calibration of the Touch sensor

For a successful calibration of the monitor, follow the steps below:

- Install the driver provided by the supplier.
- Set the PIP mode desired. (Refer to the 2.2 Picture in Picture section for more information.)
- Run and place the executed program in the part of the screen desired to being used with touch functionality and click the "Calibrate" button. (See picture 3.1.1 below)
- Follow the onscreen instructions accurately. (See picture 3.1.2 below)
- After following these steps, the touch can be used properly in the area where it has been calibrated.



Picture 3.1.1



Picture 3.1.2



## 4 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
	Keypad defect	Please do not try to open the unit. Send it to ISIC A/S for repair.
The unit will not turn on.	Unknown	Please do not try to open the unit. Send it to ISIC A/S for repair.

## 5 Servicing the unit

In case that 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 has to be recalibrated at ISIC.

## 6 Terms, Acronyms and abbreviations

Communication protocol:	Use a serial link to control various settings in the monitor
DVI-D:	Digital Visual Interface
ECDIS:	Electronic Chart Display and Information System
IP65:	International Protection Rating (dust tight and protected against water jets)
OSD:	On Screen Display
VGA:	Video Graphics Array
DP:	Display Port
HDMI:	High-Definition Multimedia Interface
PIP:	Picture In Picture
PBP:	Picture By Picture



## 7 ISIC info / Support

In case you have inquiries or problems with your DuraMON GLASS, 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: +45 70 20 70 77  
Fax: +45 70 20 79 76

Mail: 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 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](http://www.isic-systems.com) under aftersales  
By mail to [service@isic-systems.com](mailto: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 <http://www.isic-systems.com/aftersales/tech-support-rma/>  
By mail to [service@isic-systems.com](mailto:service@isic-systems.com)



## 8 Revision history

Rev A	July 2017	First release
Rev B	September	<b>Page 6</b> , Corrected button drawing <b>Page 9</b> , Mechanical outline updated <b>Page 10</b> , Mechanical outline updated
Rev C	November 2017	<b>Page 6-7</b> , ECDIS illuminates green, added symbols. <b>Page 9</b> , Changed width from 1348,5 mm to 1348,4 mm <b>Page 10</b> , Removed weight from drawing. <b>Page 12</b> , Changed TYP responds from DURAMON GLASS 55 to DuraMON Glass 55.
Rev D	May 2017	<b>Page 16</b> , Expanded PIP section <b>Page 21</b> , added Section for touch <b>Page 22</b> , Added PIP and PBP to list





## 9 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

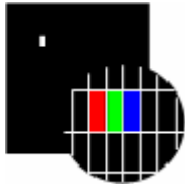
Every pixel consists of three sub-pixels/dots (red, blue, green).

Every sub-pixel has its own transistor.

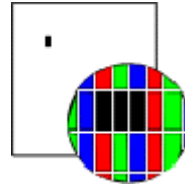
The three sub-pixels/dots must be considered as one unit.



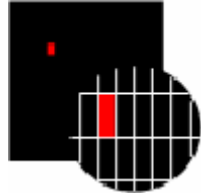
**Pixel**



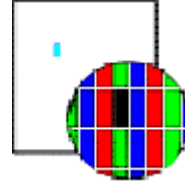
**Pixel defect type 1** Pixel constantly lit



**Pixel defect type 2** Pixel constantly dark



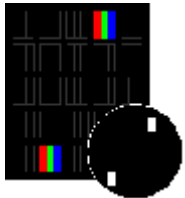
**Pixel defect type 3a**  
Sub-pixel/dot (red, blue, green) constantly lit



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

**Cluster**

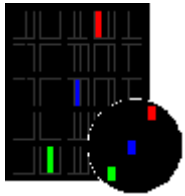
A cluster consists of 5 x 5 pixels.



**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
UHD	3840x2160	8,294,400	16	16	83	0	8





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Denmark

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Email: [service@isic-systems.com](mailto:service@isic-systems.com)

