

# DuraFLEX – DuraMON

DuraMON15

DuraMON17

DuraMON19

DuraMON20

## 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 (like on old CRT's). This is not a permanently situation and can be removed by operating the monitor with a completely black screen.

## 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 DuraFLEX 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. 5 and IEC 60945 ed. 4, Maritime navigation and radio communication equipment and systems – General requirements.



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ISIC PN: 04173-000 rev. C

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# 1 Features

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

The DuraMON series of monitors are all made as rugged monitors especially designed for the demanding operating conditions at sea.

The DuraMON series are 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 (0-100%) from UP/DOWN buttons.

Full settings control via menu or serial link.

Picture in picture function, scalable on the screen.

Anti-glare coated glass.

IP65 protection and liquid resistant front.

Multiple connections to cover the widest range of signal sources:

DVI-D (optional two)

RGB (optional two)

RGB out (optional)

S-Video (optional)

Composite (optional)

Firmware update via RS232

Resistant to most chemicals

Optional Touch Screen available, but has to be ordered with the monitor (not part of the IEC 60945 approval).

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



## 2 General considerations on Installation and Operation

The DuraMON 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 DuraMON

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

- Room for cooling.  
When designing the cabinet/console for the DuraMON, 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 DuraMON 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  
If the unit can be exposed to direct sunlight, there is a potential risk that the unit can be overheated. Please take measures to prevent direct sunlight. Do also consider forced cooling on the back of the unit.

### Operation of the DuraMON

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

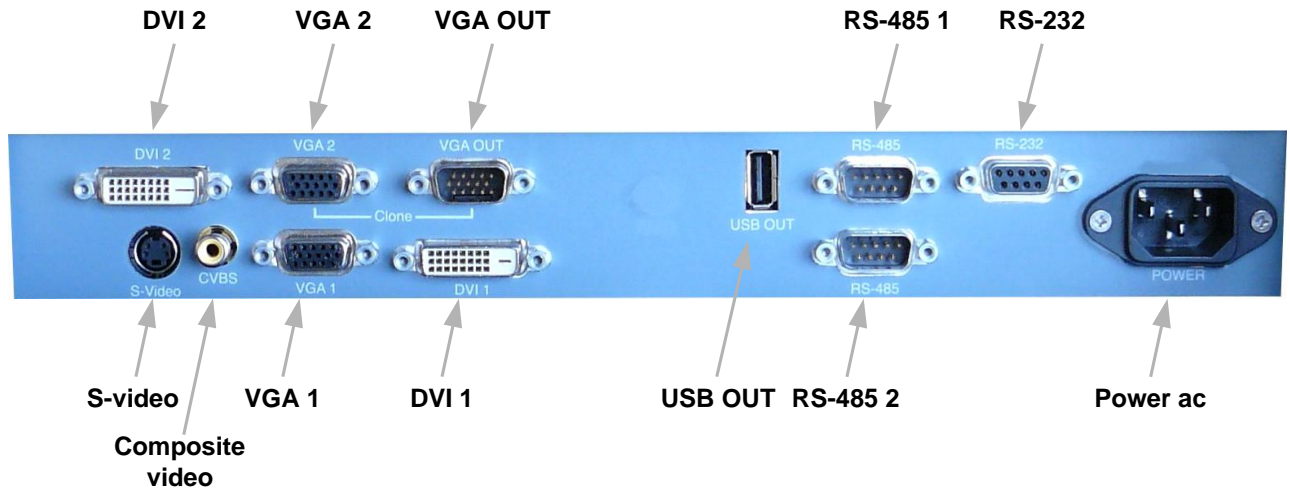
The warm-up period is as follows:

	<b>Day mode</b>	<b>Dusk mode</b>	<b>Night mode</b>
DuraMON19	2 hours	2 hours and 30 min	2 hours and 15 min
DuraMON20	1 hour and 30 min	2 hours and 45 min	3 hours



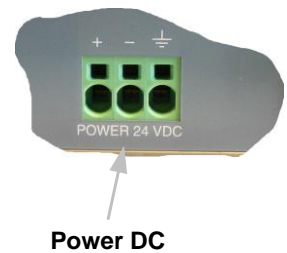
### 3 DuraMON connections

Below is a view of optional connections to the monitor. The default inputs are: power, RS-232, DVI 1 and VGA 1.



The DC power connector is a spring loaded version to give the optimal connection over time. To wire up the DC version of DuraMON simply enter a sufficient screw driver, or similar, into the upper hole to release the spring, enter the wire into the correct connection hole and remove the screw driver to unrelease the spring.

Only use multicore cables from AWG18 to AWG8 (0.75 mm<sup>2</sup> to 10 mm<sup>2</sup>)



## 4 DuraMON front panel controls

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

By opening the USB hatch on the right side of the user interface an USB access becomes available. After use simply close the hatch and the sealing is regained.



### ON/OFF:

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

If there is no active signal, the monitor will go to suspend mode until an active signal is detected. While the monitor is in suspend mode, the blue light will blink in the ON/OFF button.

### INPUT:

By pressing the INPUT key the Main Picture Channel Selection will appear. See Main Picture Channel Selection section for details.

### MENU:

Pressing this key the Popup menu will appear. See Popup Menu section for details.

### UP/DOWN:

Used to adjust backlight or to navigate and adjust settings in menus.

### ENTER:

This key is used to confirm and to enter the advanced OSD by pressing ENTER and thereafter MENU while holding ENTER pressed.





## 5 DuraMON front panel controls (ECDIS and RADAR)

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

By opening the USB hatch on the right side of the user interface an USB access becomes available. After use simply close the hatch and the sealing is regained.



### ON/OFF:

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

If there is no active signal, the monitor will go to suspend mode until an active signal is detected. While the monitor is in suspend mode, the blue light will blink in the ON/OFF button.

### INPUT:

By pressing the INPUT key the Main Picture Channel Selection will appear. See Main Picture Channel Selection section for details.

### MENU:

Pressing this key the Popup menu will appear. See Popup Menu section for details.

### 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 04924-000 for protocol details).

### ENTER:

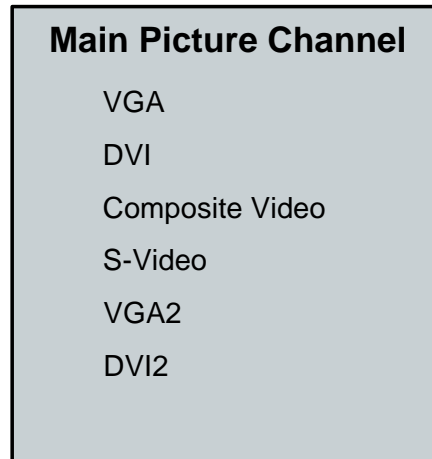
This key is used to confirm and to enter the advanced OSD by pressing ENTER and thereafter MENU while holding ENTER pressed.



## 6 Main Picture Channel Selection


Pressing the "INPUT" button once it is possible to select the Main Picture Channel by using the "UP" or "DOWN" keys and press "ENTER" afterwards.

Only the available inputs will be visible (Composite Video, S-Video, VGA2 and DVI2 are optional).

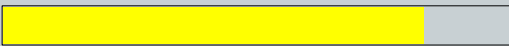
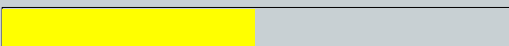


## 7 Popup Menu


Press "MENU" button once, and the Popup Menu will appear. While the Popup Menu is active, no settings sent over the serial link will be executed.

Press once on the "MENU" key	<div style="text-align: center;"> <p><b>Backlight</b></p>  </div>	It is now possible to adjust the backlight level by pressing either up- or down key.
Press twice on the "MENU" key	<div style="text-align: center;"> <p>Press ENTER to select default values</p> <p>Press MENU to exit</p> </div>	<p>It is now possible to default backlight, brightness and contrast by pressing the ENTER key.</p> <p>For ECDIS calibrated displays, the backlight level will be set to the last selected ECDIS mode by the serial link. (See 04924-000 document for details on how to change ECDIS mode over the serial link).</p> <p><i>NOTE: See advanced OSD chapter for default values.</i></p>
Press three times on the "MENU" key		Leaving Popup Menu.

If color control in the advanced menu is set to user mode the Popup Menu will include Brightness and Contrast adjustments.

Press once on the "MENU" key	<div style="text-align: center;"> <p><b>Backlight</b></p>  </div>	It is now possible to adjust the backlight level by pressing either up- or down key.
Press twice on the "MENU" key	<div style="text-align: center;"> <p><b>Brightness</b></p>  </div>	It is now possible to adjust the brightness level by pressing either the up- or down key.



<p>Press three times on the "MENU" key</p>	<p style="text-align: center;"><b>Contrast</b></p> 	<p>It is now possible to adjust the contrast level by pressing either the up- or down key.</p>
<p>Press four times on the "MENU" key</p>	<p style="text-align: center;">Press ENTER to select default values</p> <p style="text-align: center;">Press MENU to exit</p>	<p>It is now possible to default backlight, brightness and contrast by pressing the ENTER key.</p> <p>For ECDIS calibrated displays, the backlight level will be set to the last selected ECDIS mode by the serial link. (See 04924-000 document for details on how to change ECDIS mode over the serial link).</p> <p><i>NOTE: See advanced OSD chapter for default values.</i></p>
<p>Press five times on the "MENU" key</p>		<p>Leaving Popup Menu.</p>



## 8 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 keep the "ENTER" key down and at the same time press the "MENU" key.

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.



## 8.1 Input select

Input Select – Main Picture Channel	Input Select – Scan Inputs
<div data-bbox="153 349 347 618"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="153 629 347 880"> <p><b>Input Select</b></p> <ul style="list-style-type: none"> <li>Main Picture Channel</li> <li>Scan Inputs</li> <li>PIP Mode</li> <li>PIP Channel</li> <li>PIP Size</li> <li>PIP Hor. Position</li> <li>PIP Ver. Position</li> <li>Swap Main &amp; PIP</li> </ul> </div> <div data-bbox="153 891 347 1093"> <p><b>Main Picture Channel</b></p> <ul style="list-style-type: none"> <li>VGA</li> <li>DVI</li> <li>Composite Video</li> <li>S-Video</li> <li>VGA2</li> <li>DVI2</li> </ul> </div>	<div data-bbox="834 349 1029 618"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="834 629 1029 880"> <p><b>Input Select</b></p> <ul style="list-style-type: none"> <li>Main Picture Channel</li> <li>Scan Inputs</li> <li>PIP Mode</li> <li>PIP Channel</li> <li>PIP Size</li> <li>PIP Hor. Position</li> <li>PIP Ver. Position</li> <li>Swap Main &amp; PIP</li> </ul> </div> <div data-bbox="834 891 1029 1093"> <p><b>Scan Inputs</b></p> <ul style="list-style-type: none"> <li>Off</li> <li>On</li> </ul> </div>
<div data-bbox="153 1137 347 1435"> <p><b>Input Select – PIP Mode</b></p> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="153 1447 347 1697"> <p><b>Input Select</b></p> <ul style="list-style-type: none"> <li>Main Picture Channel</li> <li>Scan Inputs</li> <li>PIP Mode</li> <li>PIP Channel</li> <li>PIP Size</li> <li>PIP Hor. Position</li> <li>PIP Ver. Position</li> <li>Swap Main &amp; PIP</li> </ul> </div> <div data-bbox="153 1709 347 1910"> <p><b>PIP Mode</b></p> <ul style="list-style-type: none"> <li>Off</li> <li>Picture in Picture</li> <li>Side by Side</li> </ul> </div>	<p>The Main Picture Channel can be selected between all available inputs (Composite Video, S-Video, VGA2 and DVI2 are optional).</p> <p>Default is VGA</p> <p>When “Scan Inputs” is enabled all inputs are continuously being monitored for input signals.</p> <p>Default is on</p> <p>By enabling the PIP (Picture in Picture) function it is possible to define the PIP channel, size and position of it. It is also possible to swap between the main picture channel and PIP channel.</p> <p>Default is off</p> <p><i>It is not possible to select composite and s-video at the same time.</i></p>



## 8.2 Image Adjustments






<p><b>Image Adjustments – Auto Adjust</b></p> <div data-bbox="153 338 341 607"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li><b>Image Adjustments</b></li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="153 618 341 860"> <p><b>Image Adjustments</b></p> <ul style="list-style-type: none"> <li><b>Auto Adjust</b></li> <li>Clock</li> <li>Phase</li> <li>Bandwidth</li> <li>Hor. Position</li> <li>Ver. Position</li> </ul> </div> <div data-bbox="153 871 341 1066"> <p>Select to execute auto adj.</p> </div>	<p>Selecting auto adjust will force the system to adjust the image (clock, phase, bandwidth and position)</p>	<p><b>Image Adjustments – Clock</b></p> <div data-bbox="831 338 1019 607"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li><b>Image Adjustments</b></li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="831 618 1019 860"> <p><b>Image Adjustments</b></p> <ul style="list-style-type: none"> <li>Auto Adjust</li> <li><b>Clock</b></li> <li>Phase</li> <li>Bandwidth</li> <li>Hor. Position</li> <li>Ver. Position</li> </ul> </div> <div data-bbox="831 871 1019 1066"> <p><b>Clock</b></p> <p>1840</p>  </div>	<p>The pixel clock for the main picture channel can be selected here.</p>
<p><b>Image Adjustments – Phase</b></p> <div data-bbox="153 1140 341 1408"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li><b>Image Adjustments</b></li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="153 1420 341 1662"> <p><b>Image Adjustments</b></p> <ul style="list-style-type: none"> <li>Auto Adjust</li> <li>Clock</li> <li><b>Phase</b></li> <li>Bandwidth</li> <li>Hor. Position</li> <li>Ver. Position</li> </ul> </div> <div data-bbox="153 1673 341 1868"> <p><b>Phase</b></p> <p>4</p>  </div>	<p>The phase of the display can be set for the main picture channel.</p>	<p><b>Image Adjustments – Bandwidth</b></p> <div data-bbox="831 1140 1019 1408"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li><b>Image Adjustments</b></li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="831 1420 1019 1662"> <p><b>Image Adjustments</b></p> <ul style="list-style-type: none"> <li>Auto Adjust</li> <li>Clock</li> <li>Phase</li> <li><b>Bandwidth</b></li> <li>Hor. Position</li> <li>Ver. Position</li> </ul> </div> <div data-bbox="831 1673 1019 1868"> <p><b>Bandwidth</b></p> <p>0</p>  </div>	<p>The bandwidth of the display can be set here for the main picture channel.</p>




Image Adjustments – Hor. Position	Image Adjustments – Ver. Position
<div data-bbox="153 264 344 533"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li><b>Image Adjustments</b></li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="153 542 344 788"> <p><b>Image Adjustments</b></p> <ul style="list-style-type: none"> <li>Auto Adjust</li> <li>Clock</li> <li>Phase</li> <li>Bandwith</li> <li><b>Hor. Position</b></li> <li>Ver. Position</li> </ul> </div> <div data-bbox="153 797 344 999"> <p><b>Hor. Position</b></p> <p>112</p>  </div>	<p>The horizontal position of the picture of the main picture channel can be set here.</p>
	<div data-bbox="836 264 1027 533"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li><b>Image Adjustments</b></li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="836 542 1027 788"> <p><b>Image Adjustments</b></p> <ul style="list-style-type: none"> <li>Auto Adjust</li> <li>Clock</li> <li>Phase</li> <li>Bandwith</li> <li>Hor. Position</li> <li><b>Ver. Position</b></li> </ul> </div> <div data-bbox="836 797 1027 999"> <p><b>Ver. Position</b></p> <p>24</p>  </div>
	<p>The vertical position of the picture of the main picture channel can be set here.</p>






## 8.3 Color adjustments

Color Adjustment – Backlight	Color Adjustment – Gamma	
<div data-bbox="150 342 344 611"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li><b>Color Adjustment</b></li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="150 622 344 869"> <p><b>Color Adjustment</b></p> <ul style="list-style-type: none"> <li><b>Backlight</b></li> <li>Gamma</li> <li>Color Control</li> <li>Brightness</li> <li>Contrast</li> <li>Saturation</li> <li>Hue</li> <li>Fleshtone</li> <li>Auto Color Adjust</li> </ul> </div> <div data-bbox="150 880 344 1081"> <p><b>Backlight</b></p> <p>80</p>  </div>	<p>It is possible to set the backlight level.</p> <p>Default is 100% for non-ECDIS calibrated displays.</p> <p>For ECDIS calibrated displays, the default value is the value for the backlight level for ECDIS Day mode.</p> <p><i>Unless popups or OSD is present it is possible to press the "UP" or "DOWN" button to adjust the backlight level and then press "ENTER" afterwards.</i></p>	
<div data-bbox="150 1153 344 1422"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li><b>Color Adjustment</b></li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="150 1433 344 1680"> <p><b>Color Adjustment</b></p> <ul style="list-style-type: none"> <li>Backlight</li> <li>Gamma</li> <li><b>Color Control</b></li> <li>Brightness</li> <li>Contrast</li> <li>Saturation</li> <li>Hue</li> <li>Fleshtone</li> <li>Auto Color Adjust</li> </ul> </div> <div data-bbox="150 1691 344 1892"> <p><b>Color Control</b></p> <ul style="list-style-type: none"> <li>Native</li> <li><b>User</b></li> </ul> </div>	<div data-bbox="817 342 1011 611"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li><b>Color Adjustment</b></li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="817 622 1011 869"> <p><b>Color Adjustment</b></p> <ul style="list-style-type: none"> <li>Backlight</li> <li><b>Gamma</b></li> <li>Color Control</li> <li>Brightness</li> <li>Contrast</li> <li>Saturation</li> <li>Hue</li> <li>Fleshtone</li> <li>Auto Color Adjust</li> </ul> </div> <div data-bbox="817 880 1011 1081"> <p><b>Gamma</b></p> <ul style="list-style-type: none"> <li>Native</li> <li>2.2</li> <li>Custom</li> </ul> </div>	<p>The gamma correction for the "main picture channel" is set here. It can be set to native, 2.2 or custom defined.</p> <p>Native = The panel default curve</p> <p>2.2 = Gamma curve 2.2</p> <p>Custom = Special gamma curve that can be implemented to fit a user needs.</p> <p>Default is native.</p>



## 8.4 Adv. Color Settings

Adv. Color Settings – Color Space	Adv. Color Settings – Color Temp
<div data-bbox="153 338 347 618"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li><b>Adv. Color Settings</b></li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="153 629 347 880"> <p><b>Adv. Color Settings</b></p> <ul style="list-style-type: none"> <li><b>Color space</b></li> <li>Color temp</li> <li>Red</li> <li>Green</li> <li>Blue</li> </ul> </div> <div data-bbox="153 891 347 1093"> <p><b>Color Space</b></p> <ul style="list-style-type: none"> <li>Default</li> <li>RGB</li> <li>Yuv</li> <li>YPbPr</li> </ul> </div>	<p>Here the correct color space for the main input channel can be selected (only on RGB signal).</p> <p>Default is Default.</p> <div data-bbox="836 338 1031 618"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li><b>Adv. Color Settings</b></li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="836 629 1031 880"> <p><b>Adv. Color Settings</b></p> <ul style="list-style-type: none"> <li>Color space</li> <li><b>Color temp</b></li> <li>Red</li> <li>Green</li> <li>Blue</li> </ul> </div> <div data-bbox="836 891 1031 1093"> <p><b>Color temp</b></p> <ul style="list-style-type: none"> <li>User</li> <li>4200K</li> <li>5000K</li> <li>5400K</li> <li>6500K</li> <li>7500K</li> <li>9300K</li> </ul> </div>
<p>Adv. Color Settings – Red/Green/Blue</p> <div data-bbox="153 1167 347 1440"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li><b>Adv. Color Settings</b></li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="153 1451 347 1702"> <p><b>Adv. Color Settings</b></p> <ul style="list-style-type: none"> <li>Color space</li> <li>Color temp</li> <li><b>Red</b></li> <li>Green</li> <li>Blue</li> </ul> </div> <div data-bbox="153 1713 347 1915"> <p><b>Red</b></p> <p>255</p>  </div>	<p>The rate for Red/Green/Blue can be set here from 0 – 255.</p> <p>Default is 255/255/255</p>

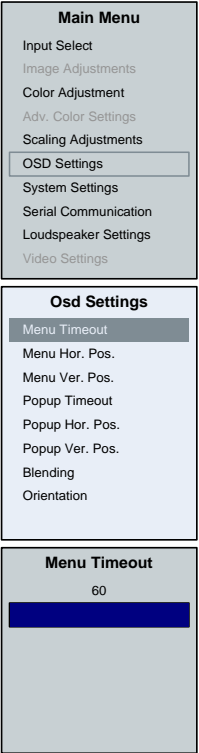
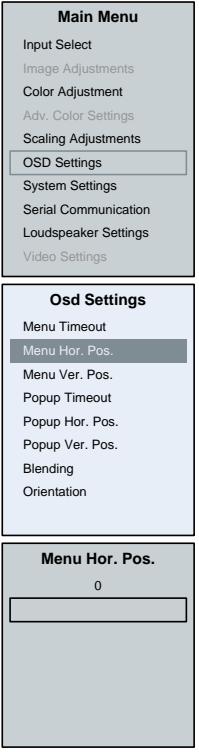
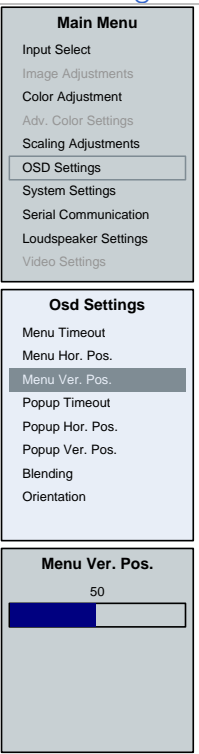
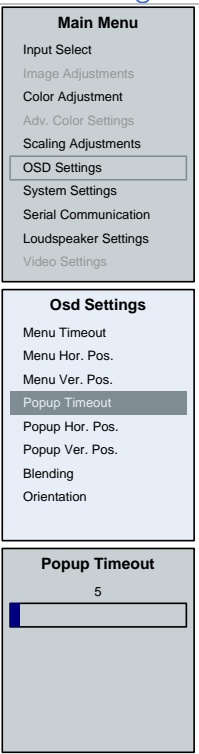


## 8.5 Scaling Adjustments

Scaling Adjustments – Scaling Mode	Scaling Adjustments – Picture Flip
<div data-bbox="156 342 347 611"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li><b>Scaling Adjustments</b></li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="156 622 347 880"> <p><b>Scaling Adjustments</b></p> <ul style="list-style-type: none"> <li><b>Scaling Mode</b></li> <li>Picture Flip</li> <li>Zoom</li> <li>Hor. Pan</li> <li>Ver. Pan</li> </ul> </div> <div data-bbox="156 891 347 1086"> <p><b>Scaling Mode</b></p> <ul style="list-style-type: none"> <li>Expand</li> <li>Stretch</li> <li>Aspect</li> <li>1:1</li> </ul> </div>	<div data-bbox="826 342 1018 611"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li><b>Scaling Adjustments</b></li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="826 622 1018 880"> <p><b>Scaling Adjustments</b></p> <ul style="list-style-type: none"> <li>Scaling Mode</li> <li><b>Picture Flip</b></li> <li>Zoom</li> <li>Hor. Pan</li> <li>Ver. Pan</li> </ul> </div> <div data-bbox="826 891 1018 1086"> <p><b>Picture Flip</b></p> <ul style="list-style-type: none"> <li>Mirror Horizontal</li> <li>Mirror Vertical</li> </ul> </div>
<div data-bbox="156 1120 347 1429"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li><b>Scaling Adjustments</b></li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="156 1440 347 1686"> <p><b>Scaling Adjustments</b></p> <ul style="list-style-type: none"> <li>Scaling Mode</li> <li>Picture Flip</li> <li><b>Zoom</b></li> <li>Hor. Pan</li> <li>Ver. Pan</li> </ul> </div> <div data-bbox="156 1697 347 1899"> <p><b>Zoom</b></p> <p>100</p>  </div>	<p data-bbox="411 1160 762 1384">It is possible to zoom the picture of the Main Picture Channel from 80 to 300. If zoom differs from 100 (no zoom) it is possible to pan both horizontally and vertically.</p> <p data-bbox="411 1417 715 1485">Default value is 100 (no zoom)</p>



## 8.6 OSD settings

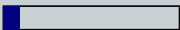
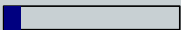
<p><b>OSD Settings – Menu Timeout</b></p>  <p>The Menu Timeout period can be set between 0 and 60 seconds in steps of 5 seconds.</p> <p>Default is 30 seconds</p>	<p><b>OSD Settings – Menu Hor. Pos.</b></p>  <p>The Horizontal Position of the OSD can be set from 0 (left margin) to 100 (right margin).</p> <p>Default is 0 (left margin).</p>
<p><b>OSD Settings – Menu Ver. Pos.</b></p>  <p>The Vertical Position of the OSD can be set from 0 (upper margin) to 100 (bottom margin).</p> <p>Default is 50 (center of the display)</p>	<p><b>OSD Settings – Popup Timeout</b></p>  <p>The Popup Menu Timeout (Easy-to-use OSD menu) period can be set between 0 and 60 seconds in steps of 1 second.</p> <p>Default is 5 seconds</p>



<p><b>OSD Settings – Popup Hor. Pos.</b></p> <div data-bbox="151 293 344 568"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li><b>OSD Settings</b></li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="151 577 344 826"> <p><b>Osd Settings</b></p> <ul style="list-style-type: none"> <li>Menu Timeout</li> <li>Menu Hor. Pos.</li> <li>Menu Ver. Pos.</li> <li>Popup Timeout</li> <li><b>Popup Hor. Pos.</b></li> <li>Popup Ver. Pos.</li> <li>Blending</li> <li>Orientation</li> </ul> </div> <div data-bbox="151 835 344 1039"> <p><b>Popup Hor. Pos.</b></p> <p>50</p>  </div>	<p>The Horizontal Position of the Popup can be set from 0 (left margin) to 100 (right margin).</p> <p>Default is 50 (center of the display)</p>	<p><b>OSD Settings – Popup Ver. Pos.</b></p> <div data-bbox="833 293 1026 568"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li><b>OSD Settings</b></li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="833 577 1026 826"> <p><b>Osd Settings</b></p> <ul style="list-style-type: none"> <li>Menu Timeout</li> <li>Menu Hor. Pos.</li> <li>Menu Ver. Pos.</li> <li>Popup Timeout</li> <li>Popup Hor. Pos.</li> <li><b>Popup Ver. Pos.</b></li> <li>Blending</li> <li>Orientation</li> </ul> </div> <div data-bbox="833 835 1026 1039"> <p><b>Popup Ver. Pos.</b></p> <p>50</p>  </div>	<p>The Vertical Position of the OSD can be set from 0 (upper margin) to 100 (bottom margin).</p> <p>Default is 50 (center of the display)</p>
<p><b>OSD Settings – Blending</b></p> <div data-bbox="151 1113 344 1386"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li><b>OSD Settings</b></li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="151 1395 344 1644"> <p><b>Osd Settings</b></p> <ul style="list-style-type: none"> <li>Menu Timeout</li> <li>Menu Hor. Pos.</li> <li>Menu Ver. Pos.</li> <li>Popup Timeout</li> <li>Popup Hor. Pos.</li> <li>Popup Ver. Pos.</li> <li><b>Blending</b></li> <li>Orientation</li> </ul> </div> <div data-bbox="151 1653 344 1856"> <p><b>Blending</b></p> <p>3</p>  </div>	<p>The transparency of both the OSD and the Popup can be selected from 0 (solid) to 15 (clear)</p> <p>Default is 2</p>	<p><b>OSD Settings – Orientation</b></p> <div data-bbox="833 1113 1026 1386"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li><b>OSD Settings</b></li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="833 1395 1026 1644"> <p><b>Osd Settings</b></p> <ul style="list-style-type: none"> <li>Menu Timeout</li> <li>Menu Hor. Pos.</li> <li>Menu Ver. Pos.</li> <li>Popup Timeout</li> <li>Popup Hor. Pos.</li> <li>Popup Ver. Pos.</li> <li>Blending</li> <li><b>Orientation</b></li> </ul> </div> <div data-bbox="833 1653 1026 1856"> <p><b>Orientation</b></p> <ul style="list-style-type: none"> <li>Mirror Horizontal</li> <li>Mirror Vertical</li> <li>Rotate 90°</li> </ul> </div>	<p>The Orientation of the OSD and Popup can be rotated and mirrored both horizontally and vertically here.</p> <p>Default is all unchecked</p>



## 8.7 System settings

System Settings – Splash Timeout	System Settings – Monitor Timeout		
<div data-bbox="151 342 347 611"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li><b>System Settings</b></li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="151 622 347 869"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li><b>Splash Timeout</b></li> <li>Monitor Timeout</li> <li>Save Settings</li> <li>Load Settings</li> <li>Reset Factory Settings</li> <li>Keypad LED min.</li> <li>Keypad LED max.</li> <li>Monitor info</li> </ul> </div> <div data-bbox="151 880 347 1081"> <p><b>Splash Timeout</b></p> <p>3</p>  </div>	<p>The time a splash menu appears (startup logo) can be varied from 0 to 60 seconds.</p> <p>Default is 3 seconds</p>	<div data-bbox="834 342 1031 611"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li><b>System Settings</b></li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="834 622 1031 869"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Splash Timeout</li> <li><b>Monitor Timeout</b></li> <li>Save Settings</li> <li>Load Settings</li> <li>Reset Factory Settings</li> <li>Keypad LED min.</li> <li>Keypad LED max.</li> <li>Monitor info</li> </ul> </div> <div data-bbox="834 880 1031 1081"> <p><b>Monitor Timeout</b></p> <p>8</p>  </div>	<p>The time before the DuraMON will enter power down mode if no input signal is available can be adjusted from 0 to 120 seconds.</p> <p>Default is 8 seconds</p>
System Settings – Save Settings	System Settings – Load Settings		
<div data-bbox="151 1160 347 1429"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li><b>System Settings</b></li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="151 1440 347 1686"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Splash Timeout</li> <li>Monitor Timeout</li> <li><b>Save Settings</b></li> <li>Load Settings</li> <li>Reset Factory Settings</li> <li>Keypad LED min.</li> <li>Keypad LED max.</li> <li>Monitor info</li> </ul> </div> <div data-bbox="151 1697 347 1899"> <p><b>Save Settings</b></p> <p>Select to save user settings</p> </div>	<p>It is possible to save the user settings.</p>	<div data-bbox="834 1160 1031 1429"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li><b>System Settings</b></li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="834 1440 1031 1686"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Splash Timeout</li> <li>Monitor Timeout</li> <li>Save Settings</li> <li><b>Load Settings</b></li> <li>Reset Factory Settings</li> <li>Keypad LED min.</li> <li>Keypad LED max.</li> <li>Monitor info</li> </ul> </div> <div data-bbox="834 1697 1031 1899"> <p><b>Load Settings</b></p> <p>Select to load user settings</p> </div>	<p>It is possible to load the user setting.</p>



<p><b>System Settings – Reset Factory Settings</b></p> <p><b>Main Menu</b>  Input Select  Image Adjustments  Color Adjustment  Adv. Color Settings  Scaling Adjustments  OSD Settings  System Settings  Serial Communication  Loudspeaker Settings  Video Settings</p> <p><b>System Settings</b>  Splash Timeout  Monitor Timeout  Save Settings  Load Settings  Reset Factory Settings  Keypad LED min.  Keypad LED max.  Monitor info</p> <p><b>Reset Factory Settings</b></p>	<p>It is possible to Reset Factory Settings and bring the DuraMON back to a known state.</p>	<p><b>System Settings – Keypad LED min.</b></p> <p><b>Main Menu</b>  Input Select  Image Adjustments  Color Adjustment  Adv. Color Settings  Scaling Adjustments  OSD Settings  System Settings  Serial Communication  Loudspeaker Settings  Video Settings</p> <p><b>System Settings</b>  Splash Timeout  Monitor Timeout  Save Settings  Load Settings  Reset Factory Settings  Keypad LED min.  Keypad LED max.  Monitor info</p> <p><b>Keypad LED min.</b>  0</p> <p>The minimum backlight value of the keypads can be adjusted from 0 to 100.   Default is 10</p>
<p><b>System Settings – Keypad LED max.</b></p> <p><b>Main Menu</b>  Input Select  Image Adjustments  Color Adjustment  Adv. Color Settings  Scaling Adjustments  OSD Settings  System Settings  Serial Communication  Loudspeaker Settings  Video Settings</p> <p><b>System Settings</b>  Splash Timeout  Menu Hor. Pos.  Save Settings  Load Settings  Reset Factory Settings  Keypad LED min.  Keypad LED max.  Monitor info</p> <p><b>Keypad LED max.</b>  100</p> <p>The maximum backlight value of the keypads can be adjusted from 0 to 100.   Default is 100</p>	<p><b>System Settings – Monitor Info</b></p> <p><b>Main Menu</b>  Input Select  Image Adjustments  Color Adjustment  Adv. Color Settings  Scaling Adjustments  OSD Settings  System Settings  Serial Communication  Loudspeaker Settings  Video Settings</p> <p><b>System Settings</b>  Splash Timeout  Menu Hor. Pos.  Save Settings  Load Settings  Reset Factory Settings  Keypad LED min.  Keypad LED max.  Monitor info</p> <p><b>Monitor info</b>  DuraMON19  OSD FW: XXXXX-XXX-X  IF FW: XXXXX-XXX-X</p> <p>The Monitor Info contains information about the Product name and firmware version.   List over current firmware version:   DuraMON15  OSD FW: 04875-000-D  IF FW: 04837-000-E   DuraMON17  OSD FW: 04876-000-D  IF FW: 04837-000-E   DuraMON19  OSD FW: 04877-000-E  IF FW: 04837-000-E   DuraMON20  OSD FW: 04878-000-E  IF FW: 04837-000-E</p>	



## 8.8 Serial Communication

Serial Com. – Monitor Address	System Settings - Interface
<div data-bbox="151 338 347 611"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li><b>Serial Communication</b></li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="151 622 347 869"> <p><b>Serial Communication</b></p> <ul style="list-style-type: none"> <li><b>Monitor Address</b></li> <li>Interface</li> <li>Duplex</li> <li>Data Format</li> <li>Register Base</li> <li>Broadcast Backlight</li> </ul> </div> <div data-bbox="151 880 347 1081"> <p><b>Monitor Address</b></p> <p>0</p> </div>	<div data-bbox="831 338 1027 611"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li><b>Serial Communication</b></li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="831 622 1027 869"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Monitor Address</li> <li><b>Interface</b></li> <li>Duplex</li> <li>Data Format</li> <li>Register Base</li> <li>Broadcast Backlight</li> </ul> </div> <div data-bbox="831 880 1027 1081"> <p><b>Interface</b></p> <ul style="list-style-type: none"> <li>Disabled</li> <li>RS232</li> <li>RS422</li> <li>RS485</li> </ul> </div>
<div data-bbox="151 1115 778 1149"> <p><b>System Settings - Duplex</b></p> </div> <div data-bbox="151 1149 347 1422"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li><b>Serial Communication</b></li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="151 1433 347 1680"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Monitor Address</li> <li>Interface</li> <li><b>Duplex</b></li> <li>Data Format</li> <li>Register Base</li> <li>Broadcast Backlight</li> </ul> </div> <div data-bbox="151 1691 347 1892"> <p><b>Duplex</b></p> <ul style="list-style-type: none"> <li>Half</li> <li>Full</li> </ul> </div>	<div data-bbox="831 1115 1444 1149"> <p><b>System Settings - Data Format</b></p> </div> <div data-bbox="831 1149 1027 1422"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li><b>Serial Communication</b></li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="831 1433 1027 1680"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Monitor Address</li> <li>Interface</li> <li>Duplex</li> <li><b>Data Format</b></li> <li>Register Base</li> <li>Broadcast Backlight</li> </ul> </div> <div data-bbox="831 1691 1027 1892"> <p><b>Data Format</b></p> <ul style="list-style-type: none"> <li>Straight</li> <li>Reverse</li> </ul> </div>





System Settings – Register Base	System Settings – Broadcast Backlight
<div data-bbox="153 297 344 571"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li><b>System Settings</b></li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="153 577 344 828"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Monitor Address</li> <li>Interface</li> <li>Duplex</li> <li>Data Format</li> <li><b>Register Base</b></li> <li>Broadcast Backlight</li> </ul> </div> <div data-bbox="153 835 344 1041"> <p><b>Register Base</b></p> <ul style="list-style-type: none"> <li>Hexadecimal</li> <li>Decimal</li> </ul> </div>	<div data-bbox="836 297 1027 571"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li><b>System Settings</b></li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="836 577 1027 828"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Monitor Address</li> <li>Interface</li> <li>Duplex</li> <li>Data Format</li> <li>Register Base</li> <li><b>Broadcast Backlight</b></li> </ul> </div> <div data-bbox="836 835 1027 1041"> <p><b>Broadcast Backlight</b></p> <ul style="list-style-type: none"> <li>Disabled</li> <li>Enabled</li> </ul> </div>

The register base can be either hexadecimal or decimal.  
Default is hexadecimal.

Having more than one DuraMON it is possible to broadcast backlight information from a master to a number of slaves connected to the RS232, RS422 or RS485 bus.  
Default is disabled.



## 8.9 Loudspeaker settings (optional)

Loudspeaker settings - Mute	Loudspeaker settings - Volume														
<div data-bbox="151 338 347 611"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li><b>Loudspeaker Settings</b></li> <li>Video Settings</li> </ul> </div> <div data-bbox="151 622 347 873"> <p><b>Serial Communication</b></p> <ul style="list-style-type: none"> <li><b>Mute</b></li> <li>Volume</li> <li>Alarm State</li> <li>Alarm Freq. 1</li> <li>Alarm Freq. 2</li> <li>Alarm Pitch</li> </ul> </div> <div data-bbox="151 884 347 1086"> <p><b>Mute</b></p> <ul style="list-style-type: none"> <li>Disabled</li> <li>Enabled</li> </ul> </div>	<div data-bbox="837 338 1034 611"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li><b>Loudspeaker Settings</b></li> <li>Video Settings</li> </ul> </div> <div data-bbox="837 622 1034 873"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Mute</li> <li><b>Volume</b></li> <li>Alarm State</li> <li>Alarm Freq. 1</li> <li>Alarm Freq. 2</li> <li>Alarm Pitch</li> </ul> </div> <div data-bbox="837 884 1034 1086"> <p><b>Volume</b></p> <p>0</p> </div>														
<div data-bbox="151 1120 778 1153">Loudspeaker settings – Alarm State</div> <div data-bbox="151 1153 347 1426"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li><b>Loudspeaker Settings</b></li> <li>Video Settings</li> </ul> </div> <div data-bbox="151 1438 347 1688"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Mute</li> <li>Volume</li> <li><b>Alarm State</b></li> <li>Alarm Freq. 1</li> <li>Alarm Freq. 2</li> <li>Alarm Pitch</li> </ul> </div> <div data-bbox="151 1700 347 1901"> <p><b>Alarm State</b></p> <ul style="list-style-type: none"> <li>Disabled</li> <li>Enabled</li> </ul> </div>	<div data-bbox="837 1120 1444 1153">Loudspeaker settings – Alarm Freq.1</div> <div data-bbox="837 1153 1034 1426"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li><b>Loudspeaker Settings</b></li> <li>Video Settings</li> </ul> </div> <div data-bbox="837 1438 1034 1688"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Mute</li> <li>Volume</li> <li>Alarm State</li> <li><b>Alarm Freq. 1</b></li> <li>Alarm Freq. 2</li> <li>Alarm Pitch</li> </ul> </div> <div data-bbox="837 1700 1034 1901"> <p><b>Alarm Freq. 1</b></p> <table border="1"> <tr><td>311 Hz</td><td>1480 Hz</td></tr> <tr><td>415 Hz</td><td>1866 Hz</td></tr> <tr><td>523 Hz</td><td>2093 Hz</td></tr> <tr><td>740 Hz</td><td>2489 Hz</td></tr> <tr><td>880 Hz</td><td>2635 Hz</td></tr> <tr><td>1046 Hz</td><td>3140 Hz</td></tr> <tr><td>1244 Hz</td><td></td></tr> </table> </div>	311 Hz	1480 Hz	415 Hz	1866 Hz	523 Hz	2093 Hz	740 Hz	2489 Hz	880 Hz	2635 Hz	1046 Hz	3140 Hz	1244 Hz	
311 Hz	1480 Hz														
415 Hz	1866 Hz														
523 Hz	2093 Hz														
740 Hz	2489 Hz														
880 Hz	2635 Hz														
1046 Hz	3140 Hz														
1244 Hz															



Loudspeaker settings – Alarm Freq. 2	Loudspeaker settings – Alarm Pitch														
<div data-bbox="153 293 347 568"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li><b>Loudspeaker Settings</b></li> <li>Video Settings</li> </ul> </div> <div data-bbox="153 577 347 831"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Mute</li> <li>Volume</li> <li>Alarm State</li> <li>Alarm Freq. 1</li> <li><b>Alarm Freq. 2</b></li> <li>Alarm Pitch</li> </ul> </div> <div data-bbox="153 840 347 1043"> <p><b>Alarm Freq. 2</b></p> <table border="0"> <tr><td>Off</td><td>1244 Hz</td></tr> <tr><td>311 Hz</td><td>1480 Hz</td></tr> <tr><td>415 Hz</td><td>1866 Hz</td></tr> <tr><td>523 Hz</td><td>2093 Hz</td></tr> <tr><td>740 Hz</td><td>2489 Hz</td></tr> <tr><td>880 Hz</td><td>2635 Hz</td></tr> <tr><td>1046 Hz</td><td>3140 Hz</td></tr> </table> </div>	Off	1244 Hz	311 Hz	1480 Hz	415 Hz	1866 Hz	523 Hz	2093 Hz	740 Hz	2489 Hz	880 Hz	2635 Hz	1046 Hz	3140 Hz	<p>The second frequency in a two tone alarm can be set to a number of frequencies.</p> <p>Default is Off.</p> <div data-bbox="839 293 1034 568"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li><b>Loudspeaker Settings</b></li> <li>Video Settings</li> </ul> </div> <div data-bbox="839 577 1034 831"> <p><b>System Settings</b></p> <ul style="list-style-type: none"> <li>Mute</li> <li>Volume</li> <li>Alarm State</li> <li>Alarm Freq. 1</li> <li>Alarm Freq. 2</li> <li><b>Alarm Pitch</b></li> </ul> </div> <div data-bbox="839 840 1034 1043"> <p><b>Alarm Pitch</b></p> <ul style="list-style-type: none"> <li>Off</li> <li>1 Hz</li> <li>2 Hz</li> <li>4 Hz</li> <li>8 Hz</li> <li>16 Hz</li> <li>32 Hz</li> </ul> </div>
Off	1244 Hz														
311 Hz	1480 Hz														
415 Hz	1866 Hz														
523 Hz	2093 Hz														
740 Hz	2489 Hz														
880 Hz	2635 Hz														
1046 Hz	3140 Hz														
	<p>The alarm pitch in a dual tone alarm can be set to a number of values. If set to 1 Hz the two frequencies chosen will toggle with 1 second.</p> <p>Default is off.</p>														



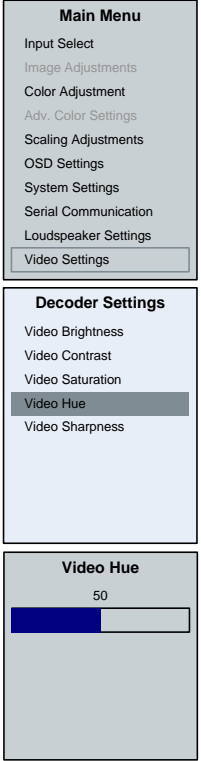
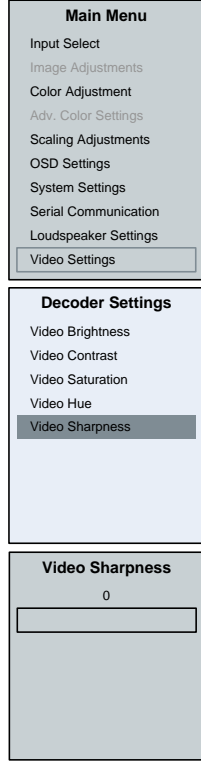
## 8.10 Video settings (optional)

Video Settings – Motion Processing	Video Settings – Sharpness		
<div data-bbox="153 342 352 622"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="153 629 352 887"> <p><b>Video Settings</b></p> <ul style="list-style-type: none"> <li>Motion Processing</li> <li>Sharpness</li> <li>Film Mode</li> <li>Noise Reduction</li> <li>Mpeg Processing</li> <li>Decoder Dettings</li> </ul> </div> <div data-bbox="153 896 352 1106"> <p><b>Motion Processing</b></p> <p>3</p>  </div>	<p>The type of Motion Processing is defined here. If Motion Processing is set to 0 it is switched off.</p> <p>Default value is 3</p> <p><i>The Video Settings are only available when a video source is available and selected as Main Picture Channel.</i></p>	<div data-bbox="839 342 1038 622"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="839 629 1038 887"> <p><b>Video Settings</b></p> <ul style="list-style-type: none"> <li>Motion Processing</li> <li>Sharpness</li> <li>Film Mode</li> <li>Noise Reduction</li> <li>Mpeg Processing</li> <li>Decoder Dettings</li> </ul> </div> <div data-bbox="839 896 1038 1106"> <p><b>Sharpness</b></p> <p>0</p>  </div>	<p>The Sharpness of the video signal can be selected between -15 to 29.</p> <p>Default value is 0</p> <p><i>The Video Settings are only available when a video source is available and selected as Main Picture Channel.</i></p>
Video Settings – Film Mode	Video Settings – Noise Reduction		
<div data-bbox="153 1178 352 1458"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="153 1467 352 1724"> <p><b>Video Settings</b></p> <ul style="list-style-type: none"> <li>Motion Processing</li> <li>Sharpness</li> <li>Film Mode</li> <li>Noise Reduction</li> <li>Mpeg Processing</li> <li>Decoder Dettings</li> </ul> </div> <div data-bbox="153 1733 352 1944"> <p><b>Film Mode</b></p> <ul style="list-style-type: none"> <li>Off</li> <li>On</li> </ul> </div>	<p>The Film Mode can be disabled/enabled here</p> <p>Default value is ON</p> <p><i>The Video Settings are only available when a video source is available and selected as Main Picture Channel.</i></p>	<div data-bbox="839 1178 1038 1458"> <p><b>Main Menu</b></p> <ul style="list-style-type: none"> <li>Input Select</li> <li>Image Adjustments</li> <li>Color Adjustment</li> <li>Adv. Color Settings</li> <li>Scaling Adjustments</li> <li>OSD Settings</li> <li>System Settings</li> <li>Serial Communication</li> <li>Loudspeaker Settings</li> <li>Video Settings</li> </ul> </div> <div data-bbox="839 1467 1038 1724"> <p><b>Video Settings</b></p> <ul style="list-style-type: none"> <li>Motion Processing</li> <li>Sharpness</li> <li>Film Mode</li> <li>Noise Reduction</li> <li>Mpeg Processing</li> <li>Decoder Dettings</li> </ul> </div> <div data-bbox="839 1733 1038 1944"> <p><b>Noise Reduction</b></p> <p>2</p>  </div>	<p>The Noise Reduction level can be adjusted here between 0 and 6.</p> <p>Default value is 2</p> <p><i>The Video Settings are only available when a video source is available and selected as Main Picture Channel.</i></p>



<p><b>Video Settings – Mpeg Processing</b></p>  <p><b>Main Menu</b> Input Select Image Adjustments Color Adjustment Adv. Color Settings Scaling Adjustments OSD Settings System Settings Serial Communication Loudspeaker Settings Video Settings</p>  <p><b>Video Settings</b> Motion Processing Sharpness Film Mode Noise Reduction Mpeg Processing Decoder Settings</p>  <p><b>Mpeg Processing</b> 0</p>	<p>The level of Mpeg Processing can be adjusted between 0 and 15.</p> <p>Default value is 0</p> <p><i>The Video Settings are only available when a video source is available and selected as Main Picture Channel.</i></p>
<p><b>Video Settings – Video Contrast</b></p>  <p><b>Main Menu</b> Input Select Image Adjustments Color Adjustment Adv. Color Settings Scaling Adjustments OSD Settings System Settings Serial Communication Loudspeaker Settings Video Settings</p>  <p><b>Decoder Settings</b> Video Brightness Video Contrast Video Saturation Video Hue Video Sharpness</p>  <p><b>Video Contrast</b> 50</p>	<p>The Video Contrast can be adjusted from 0 to 100.</p> <p>Default value is 50</p> <p><i>The Video Settings are only available when a video source is available and selected as Main Picture Channel.</i></p>
<p><b>Video Settings – Video Brightness</b></p>  <p><b>Main Menu</b> Input Select Image Adjustments Color Adjustment Adv. Color Settings Scaling Adjustments OSD Settings System Settings Serial Communication Loudspeaker Settings Video Settings</p>  <p><b>Decoder Settings</b> Video Brightness Video Contrast Video Saturation Video Hue Video Sharpness</p>  <p><b>Video Brightness</b> 50</p>	<p>The level of Video Brightness can be adjusted between 0 and 100.</p> <p>Default value is 50</p> <p><i>The Video Settings are only available when a video source is available and selected as Main Picture Channel.</i></p>
<p><b>Video Settings – Video Saturation</b></p>  <p><b>Main Menu</b> Input Select Image Adjustments Color Adjustment Adv. Color Settings Scaling Adjustments OSD Settings System Settings Serial Communication Loudspeaker Settings Video Settings</p>  <p><b>Decoder Settings</b> Video Brightness Video Contrast Video Saturation Video Hue Video Sharpness</p>  <p><b>Video Saturation</b> 50</p>	<p>The Video Saturation level can be adjusted from 0 to 100.</p> <p>Default value is 50</p> <p><i>The Video Settings are only available when a video source is available and selected as Main Picture Channel.</i></p>



Video Settings – Video Hue	Video Settings – Video Sharpness
 <p>The Video Hue level can be adjusted from 0 to 100.</p> <p>Default value is 50</p> <p>The Video Settings are only available when a video source is available and selected as Main Picture Channel.</p>	 <p>The Video Sharpness level can be adjusted from 0 to 100.</p> <p>Default value is 0</p> <p>The Video Settings are only available when a video source is available and selected as Main Picture Channel.</p>

## 9 Serial connection pin-out

Pin	COM1 (RS-232)	COM2 (RS-232) (Touch)	COM3 (RS-485)	COM4 (RS485)
	SUB-D 9-pol female	SUB-D 9-pol female	SUB-D 9-pol male	SUB-D 9-pol male
1			Z (TX-)	Z (TX-)
2	TX	TX	Y (TX+)	Y (TX+)
3	RX	RX		
4				
5	GND	GND	GND	GND
6			A (RX+)	A (RX+)
7		RTS	B (RX-)	B (RX-)
8		CTS		
9				

The two RS-485 connectors (COM3/4) are physically the same port giving the possibility of daisy chaining monitors. Termination resistor (120ohm) between Z/Y and A/B has to be integrated at each end of the bus on the RS-485 port.  
See document no. 04924-000 for details about wiring up more units.



# 10 Technical specifications DuraMON

## DuraMON I/O

<b>Video inputs:</b>	<b>RGB :</b>	Analogue 0.7 Vpp positive at 75Ω, Separate sync or sync on green Horizontal sync: 15-100 kHz (automatic) Vertical sync: 30-100 Hz up to 1280x1024 30-60 Hz up to 1600x1200
	<b>DVI:</b>	Generally all VESA compatible video modes are supported up to 165MHz (up to UXGA 60Hz and WUXGA 60Hz reduced blanking). Special modes supported on request.  Extra DVI, RGB (in/out), S-video, Composite video (Optional extra)
<b>Control inputs:</b>	1x RS232 + 2x RS485 – for remote control / daisy-chain. 1x RS232 – for touch.	
<b>Audio:</b>	Line in, 3.5mm jack socket	

## DuraMON Power Supply Options

<b>Standard:</b>	90-264Vac. 50-60Hz Input
<b>Optional:</b>	18-36Vdc Input

## DuraMON Environmental Conditions

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

## DuraMON Approvals

<b>CE Mark:</b>	EN61000-6-2 & EN61000-6-4
<b>Marine:</b>	IACS E10 ed. 5 & IEC 60945 Ed. 4

## Specification DuraMON 15"

<b>Resolution:</b>	1024 × 768
<b>Active Area</b>	304.128 mm x 228.096mm (15.0" diagonal)
<b>Pixel Pitch:</b>	0.297mm x 0.297mm
<b>View angle:</b>	80° (L/R/T/B) (typical)
<b>Viewing distance:</b>	1.02 m
<b>Luminance:</b>	450 cd/m <sup>2</sup> (typical)
<b>Contrast ratio:</b>	700:1 (typical)
<b>Colours:</b>	16.2 mill.
<b>Response Time:</b>	25 ms (BtB) (typical)
<b>Window:</b>	Anti glare impact resistant safety glass
<b>Protection:</b>	IP65 front – IP20 rear
<b>Touch:</b>	3M MicroTouch™ ClearTek™ II Capacitive (Optional extra)
<b>Dimensions (WxHxD):</b>	412 mm x 345 mm x 97.1 mm



Specification DuraMON 17"

<b>Resolution:</b>	1280 × 1024
<b>Active Area:</b>	337.920mm x 270,336mm (17.0" diagonal)
<b>Pixel Pitch:</b>	0.264mm x 0.264mm
<b>View angle:</b>	80° (L/R/T/B) (typical)
<b>Viewing distance:</b>	1.02 m
<b>Luminance:</b>	350 cd/m <sup>2</sup> (typical)
<b>Contrast ratio:</b>	1000:1 (typical)
<b>Colours:</b>	16.7 mill. (24-bit)
<b>Response Time:</b>	5 ms (BtB) (typical)
<b>Window:</b>	Anti glare impact resistant safety glass
<b>Protection:</b>	IP65 front – IP20 rear
<b>Touch:</b>	3M MicroTouch™ ClearTek™ II Capacitive (Optional extra)
<b>Dimensions (WxHxD):</b>	461 mm x 393 mm x 97.6mm

Specification DuraMON 19"

<b>Resolution:</b>	1280 × 1024
<b>Active Area:</b>	376.320mm x 301.056mm (19.0" diagonal)
<b>Pixel Pitch:</b>	0.294mm x 0.294mm
<b>View angle:</b>	89° (L/R/T/B) (typical)
<b>Viewing distance:</b>	1.02 m
<b>Luminance:</b>	300 cd/m <sup>2</sup> (typical)
<b>Contrast ratio:</b>	2000:1 (typical)
<b>Colours:</b>	16.7 mill. (24-bit)
<b>Response Time:</b>	20 ms (BtB) (typical)
<b>Window:</b>	Anti glare impact resistant safety glass
<b>Protection:</b>	IP65 front – IP20 rear
<b>Touch:</b>	3M MicroTouch™ ClearTek™ II Capacitive (Optional extra)
<b>Dimensions (WxHxD):</b>	494 mm x 454 mm x 97 mm

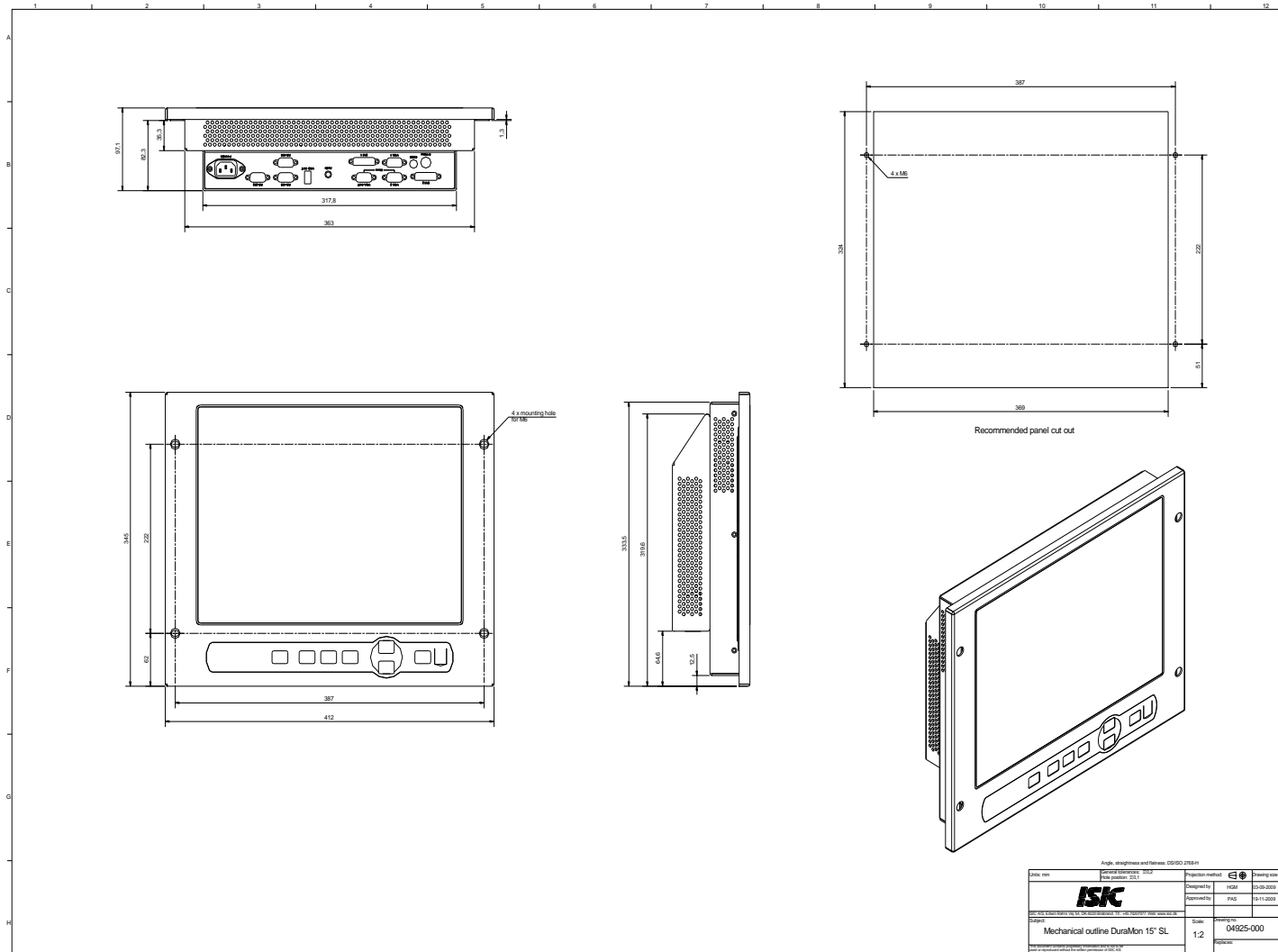
Specification DuraMON 20.1"

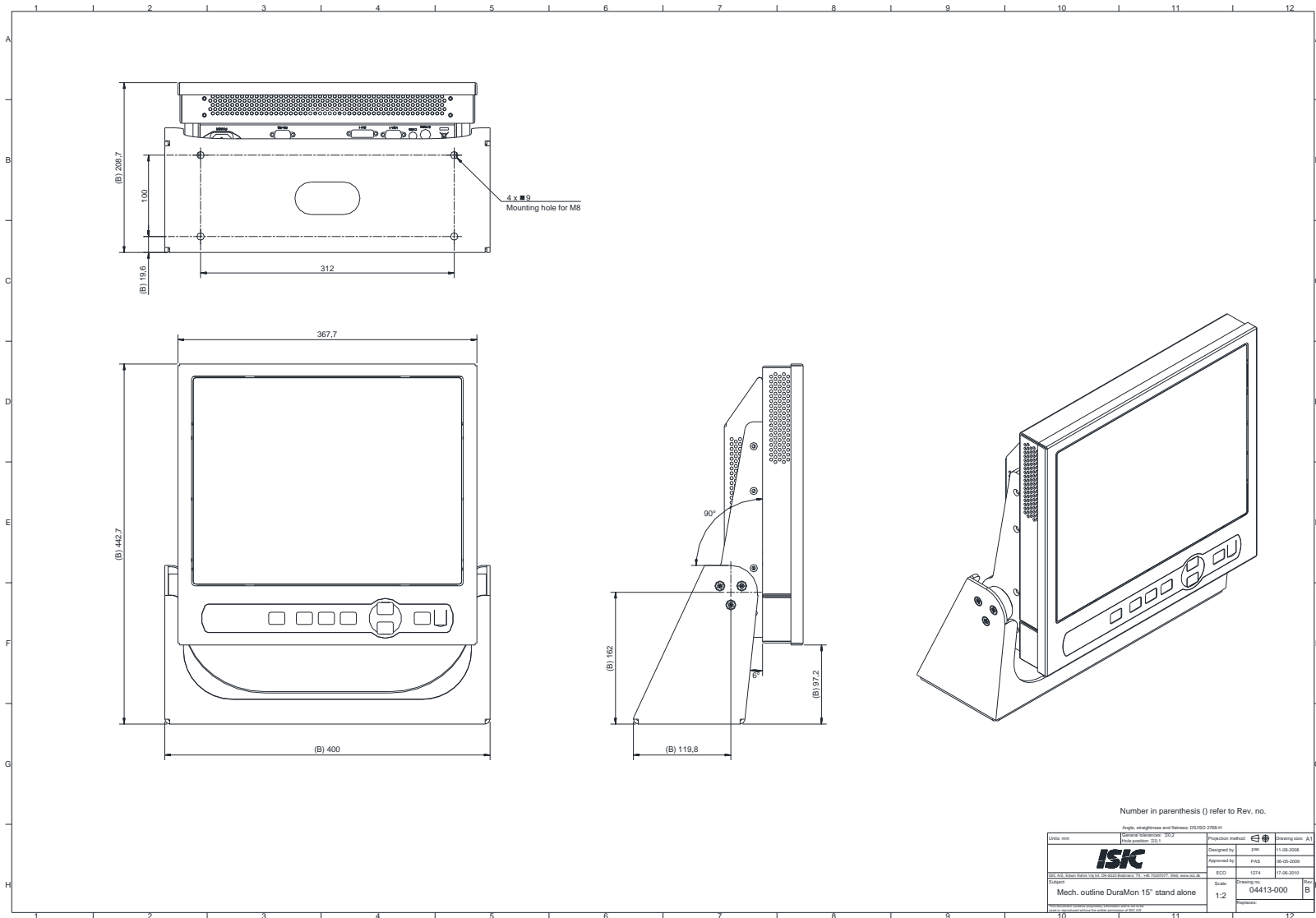
<b>Resolution:</b>	1600 × 1200
<b>Active Area:</b>	408.0mm x 306.0mm (20.1" diagonal)
<b>Pixel Pitch:</b>	0.255mm x 0.255mm
<b>View angle:</b>	88° (L/R/T/B) (typical)
<b>Viewing distance:</b>	1.02 m
<b>Luminance:</b>	250 cd/m <sup>2</sup> (typical)
<b>Contrast ratio:</b>	500:1 (typical)
<b>Colours:</b>	16.7 mill. (24-bit)
<b>Response Time:</b>	20 ms (BtB) (typical)
<b>Window:</b>	Anti glare impact resistant safety glass
<b>Protection:</b>	IP65 front – IP20 rear
<b>Touch:</b>	3M MicroTouch™ ClearTek™ II Capacitive (Optional extra)
<b>Dimensions (WxHxD):</b>	533.5 mm x 450 mm x 97.6 mm



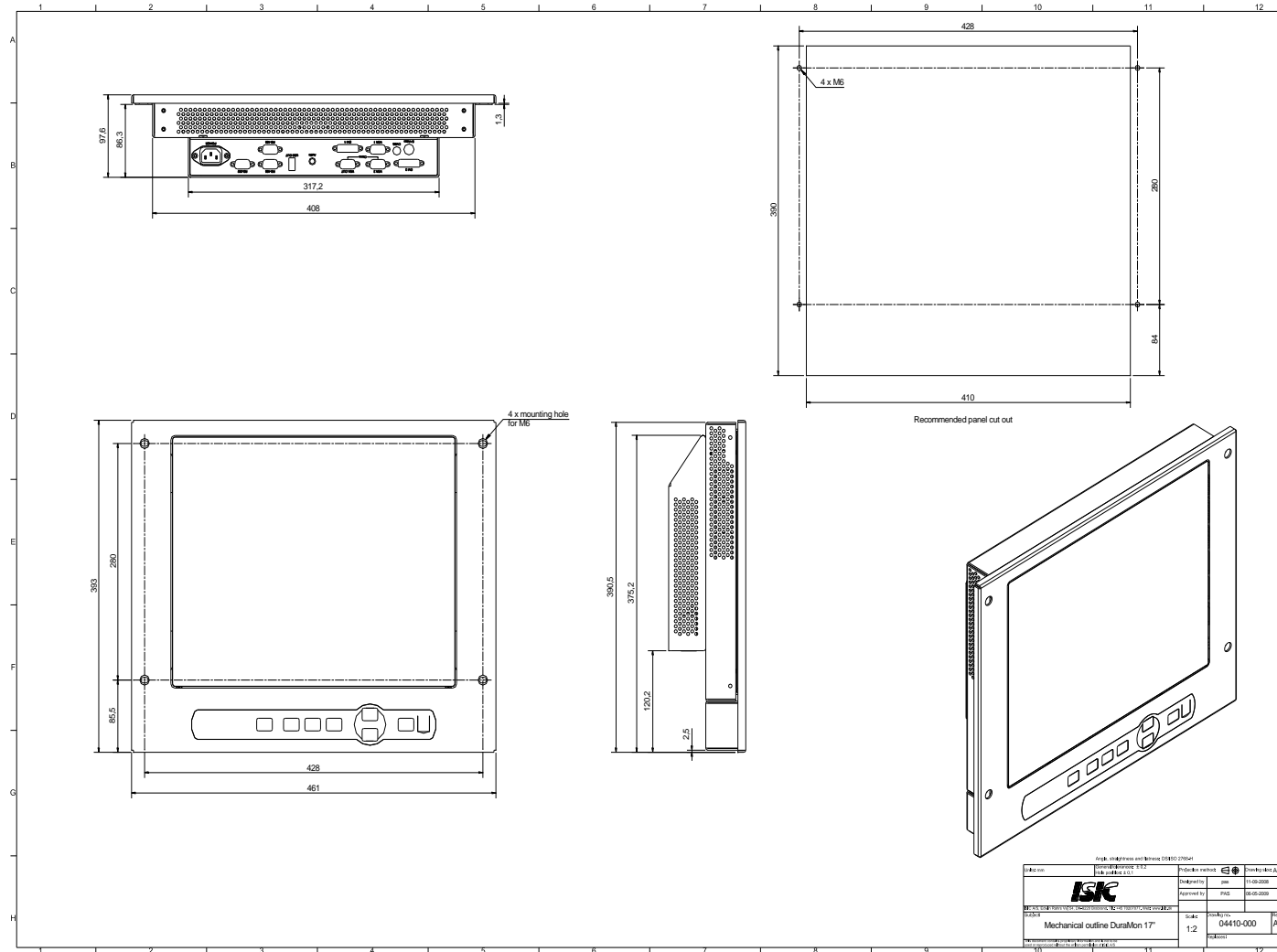


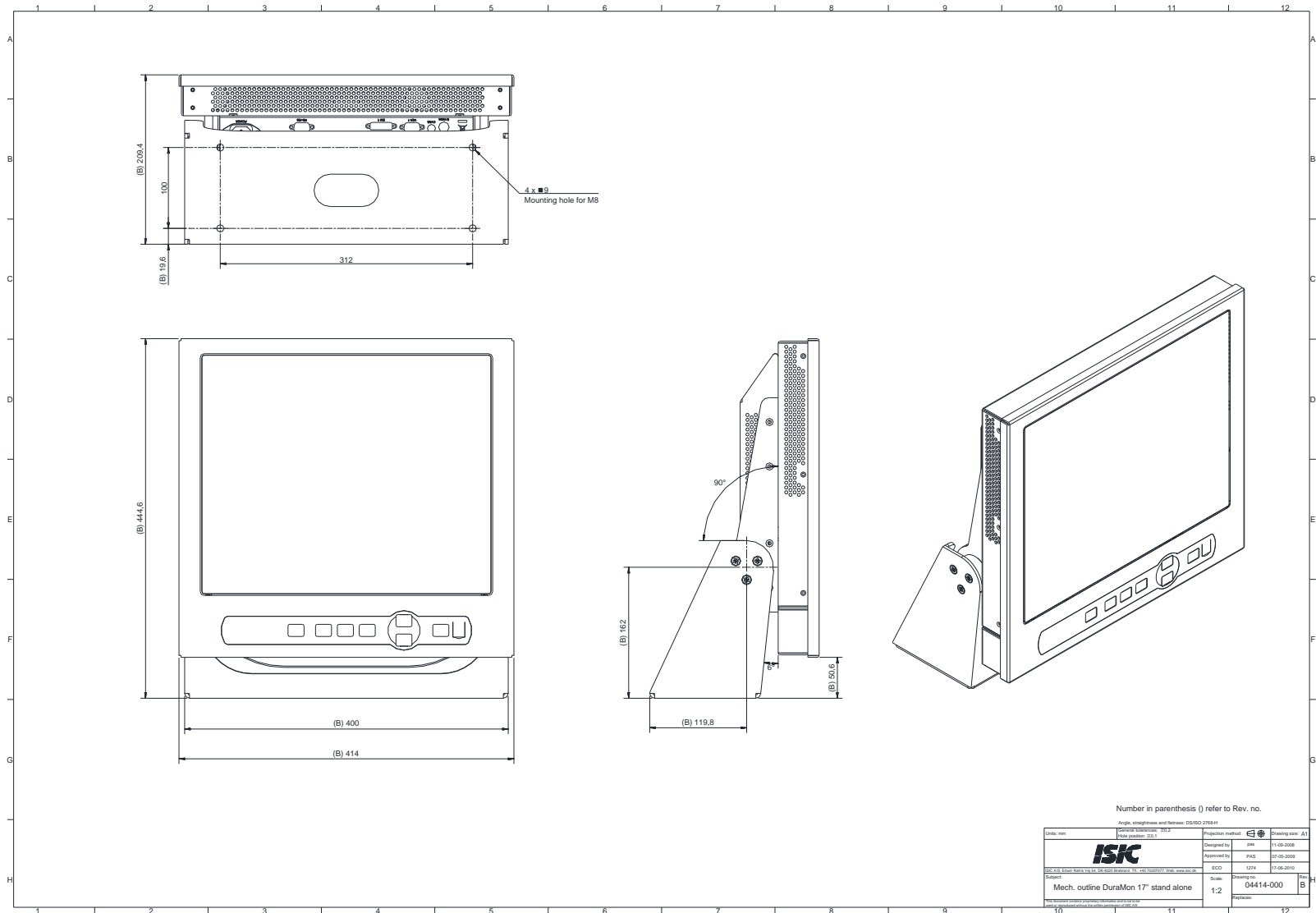
# 11 Mechanical outline DuraMON 15" build in/table stand



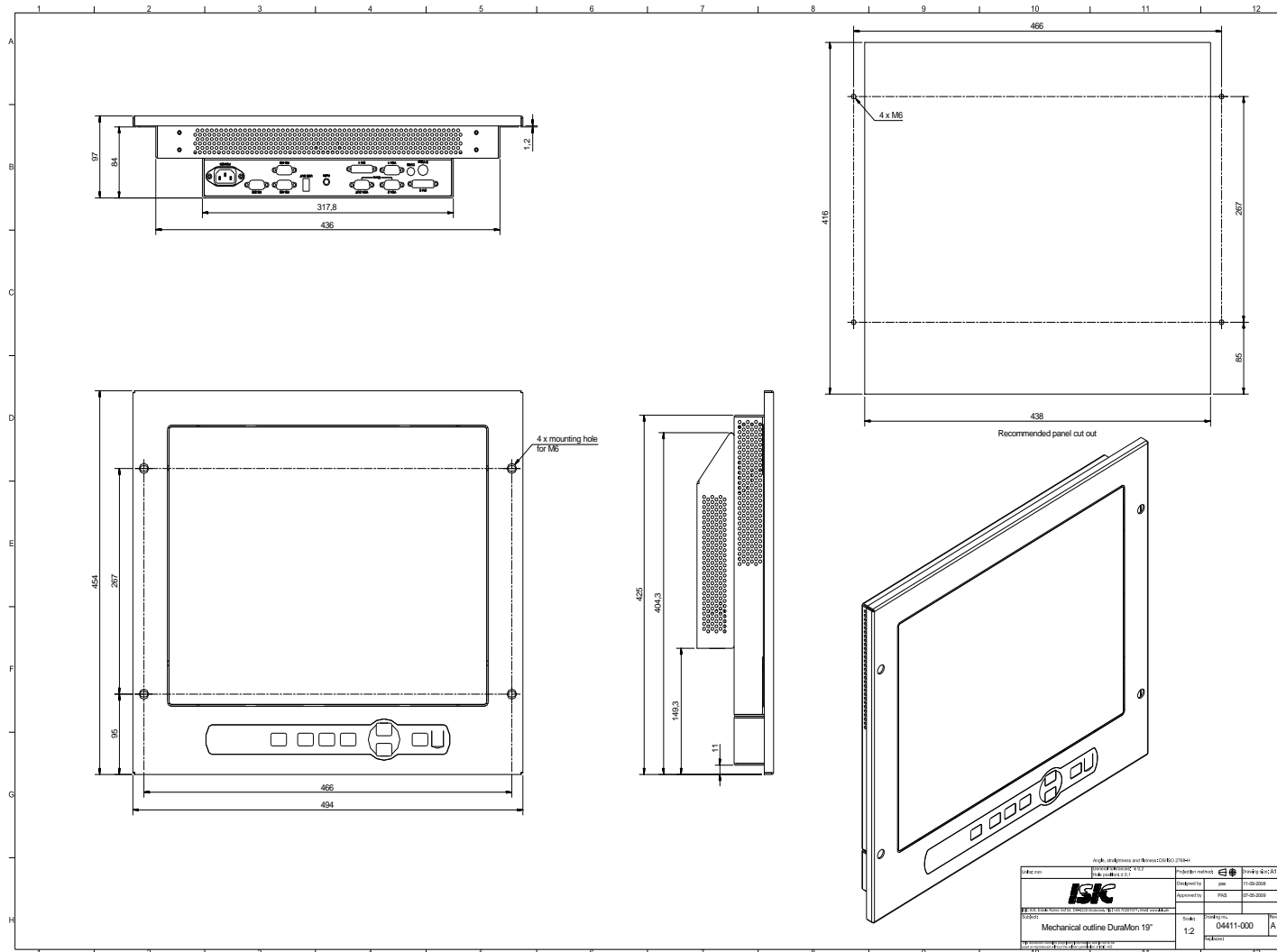


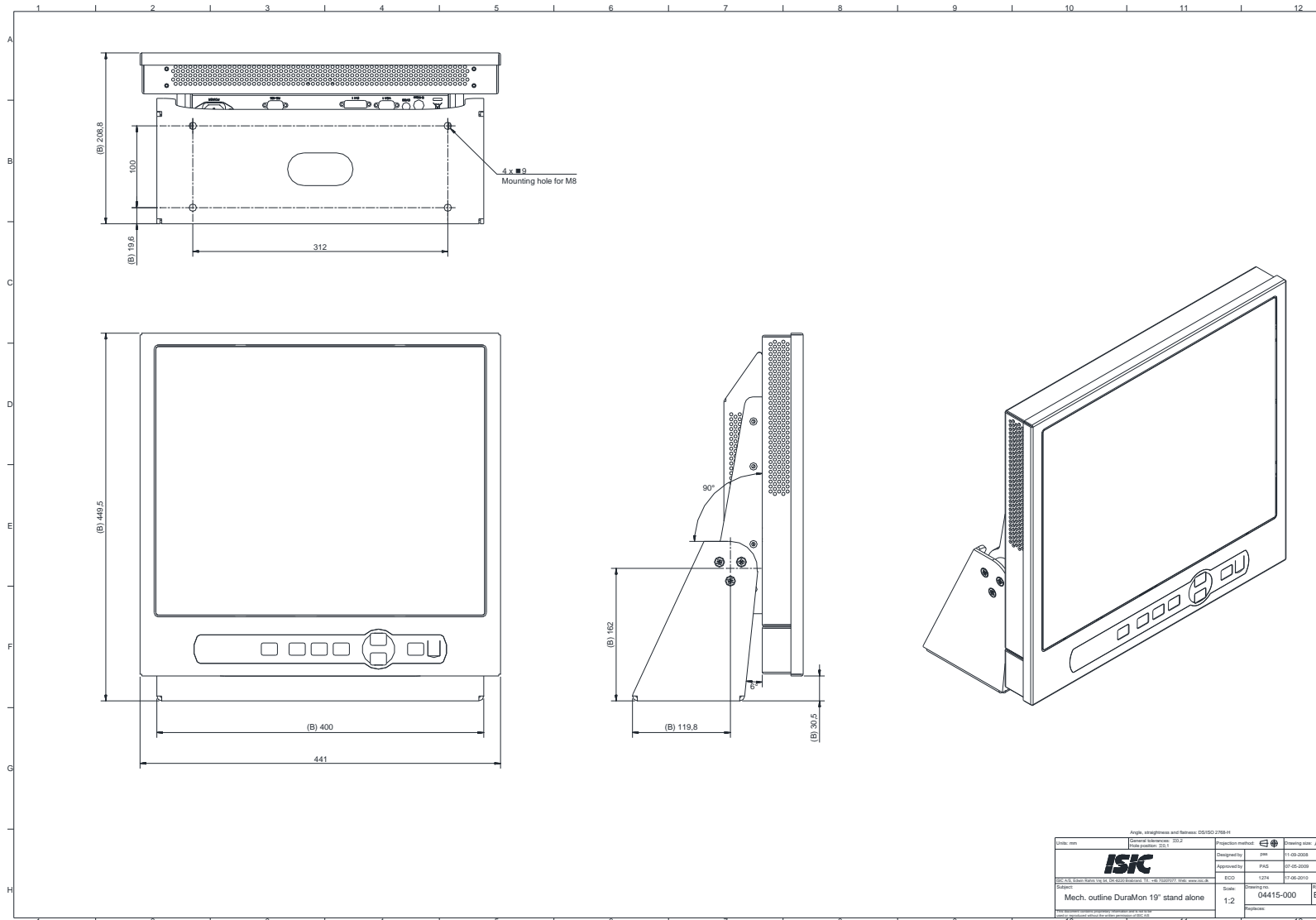
## 12 Mechanical outline DuraMON 17" build in/table stand





# 13 Mechanical outline DuraMON 19" build in/table stand

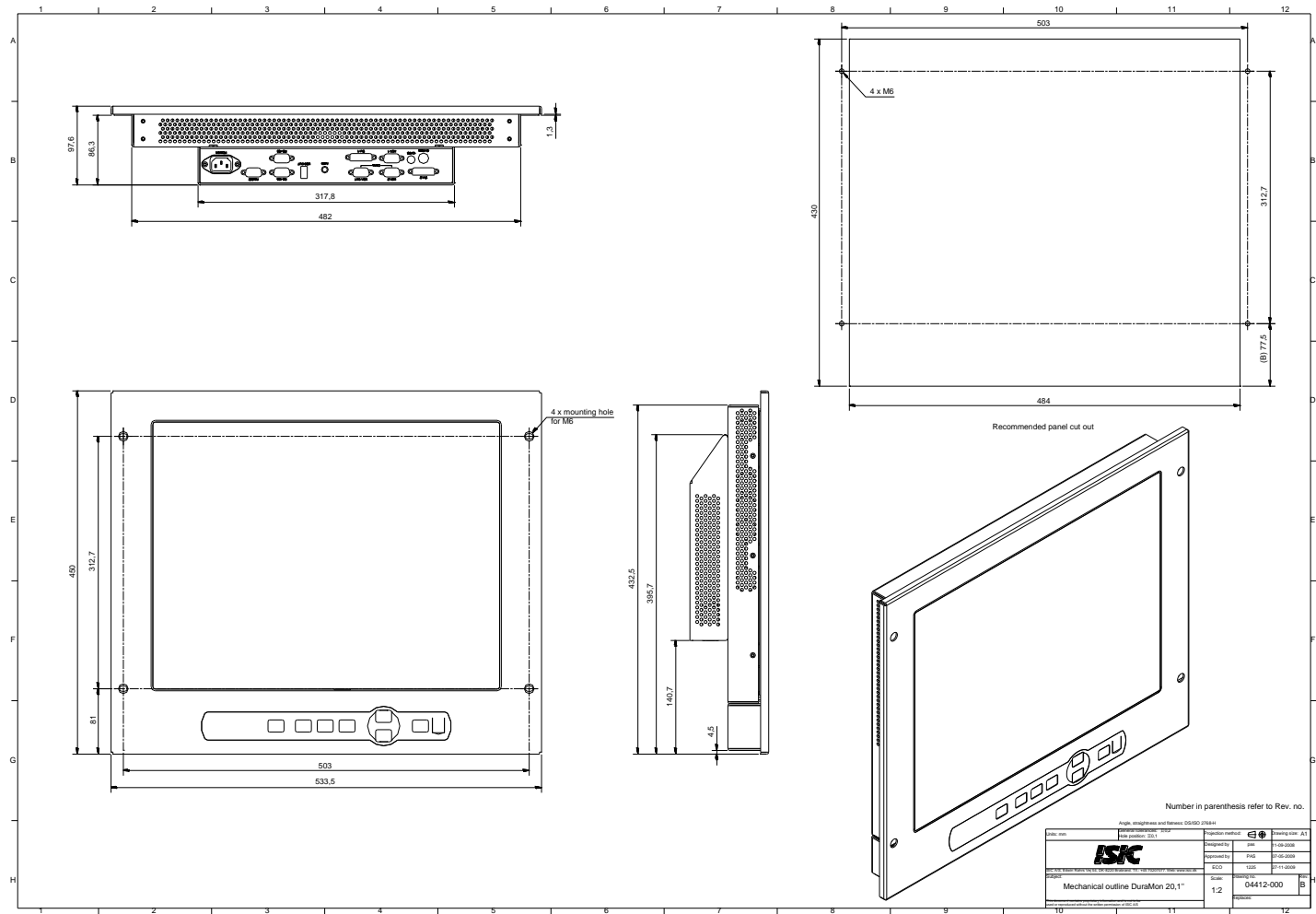


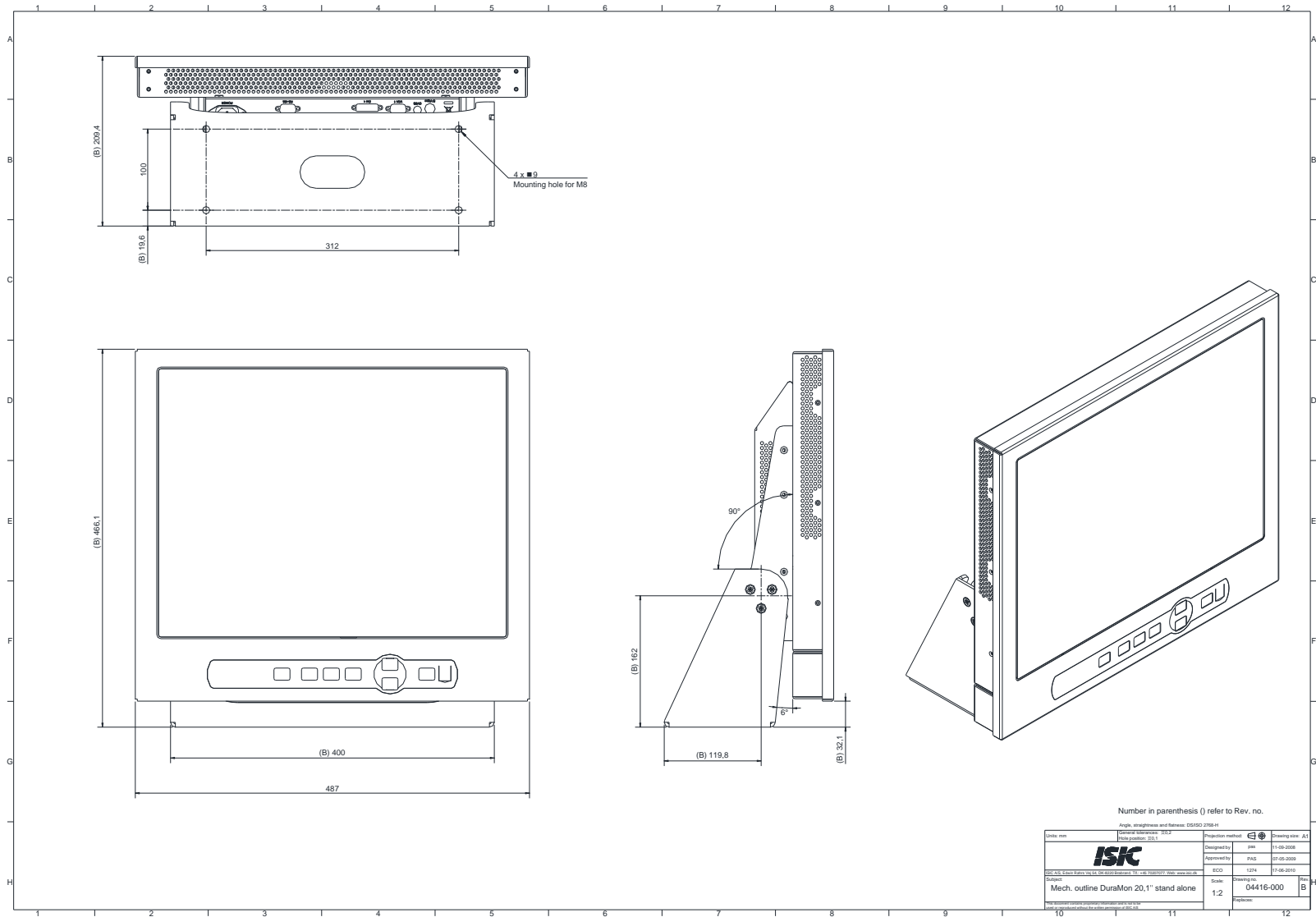


Units: mm		General conditions: ISIP ISO position: 2D/1		Projection method:	Drawing size: A1
<b>ISIC</b>		Designed by: JPM	Approved by: JPM	Scale: 1:2	Sheet: B
ISIC S.p.A. - Via S. Maria Goretti, 10 - 20133 Milano (MI) - Italy - Tel. 02/50097777 - Fax 02/50097778 - www.isic.it		Approved by: JPM	Approved by: JPM	Scale: 1:2	Sheet: B
Project: Mech. outline DuraMON 19" stand alone		Approved by: JPM	Approved by: JPM	Scale: 1:2	Sheet: B
Mech. outline DuraMON 19" stand alone		Approved by: JPM	Approved by: JPM	Scale: 1:2	Sheet: B
Mech. outline DuraMON 19" stand alone		Approved by: JPM	Approved by: JPM	Scale: 1:2	Sheet: B



# 14 Mechanical outline DuraMON 20" build in/table stand







## 15 Touch screen option

The OSD menu on the DuraMON does NOT contain any special entries with respect to the touch functions, as no features are controllable from the monitor itself. All special functions has to be controlled from the PC

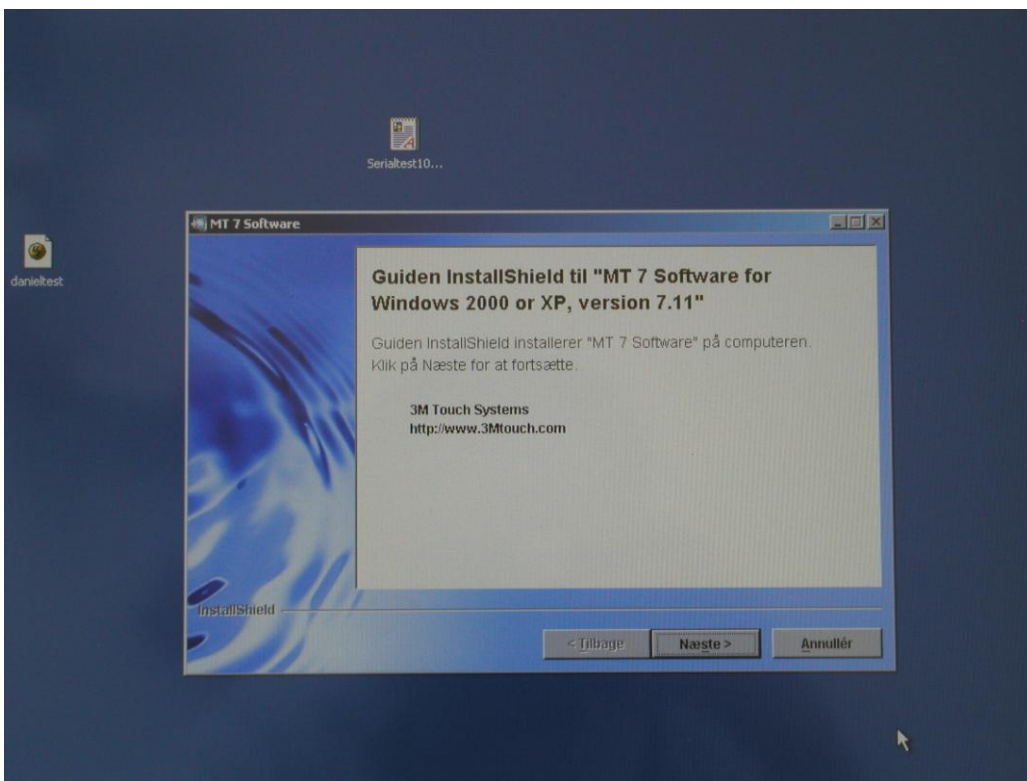
For description of special touch functions and help section, please go to the touch program folder, and select Readme or Help.

The touch screen on the monitor needs only to be connected to a PC via a RS232 serial cable.

### Touch Screen Software installation

The following instructions are based on the 3M MT7.11 driver. The driver supports Windows XP and Windows 2000.

Unzip the MT7.... File, and run setup.exe



Follow the instructions on the screen.

After having completed the installation, the touch is working immediately. No reboot is necessary.

### Uninstalling Touch Screen Software

In the Programs/MT7 Software folder, select Uninstall MT7 Software.

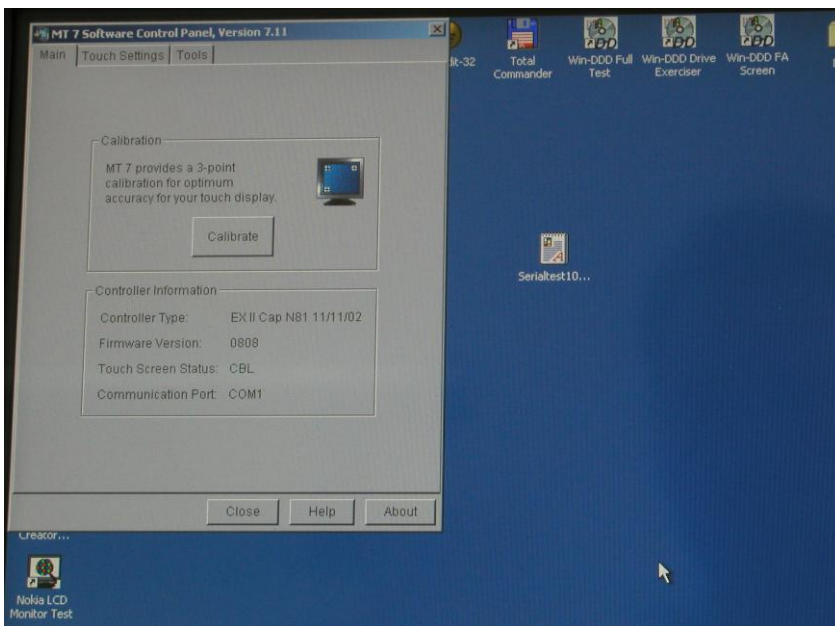


Follow the instructions.

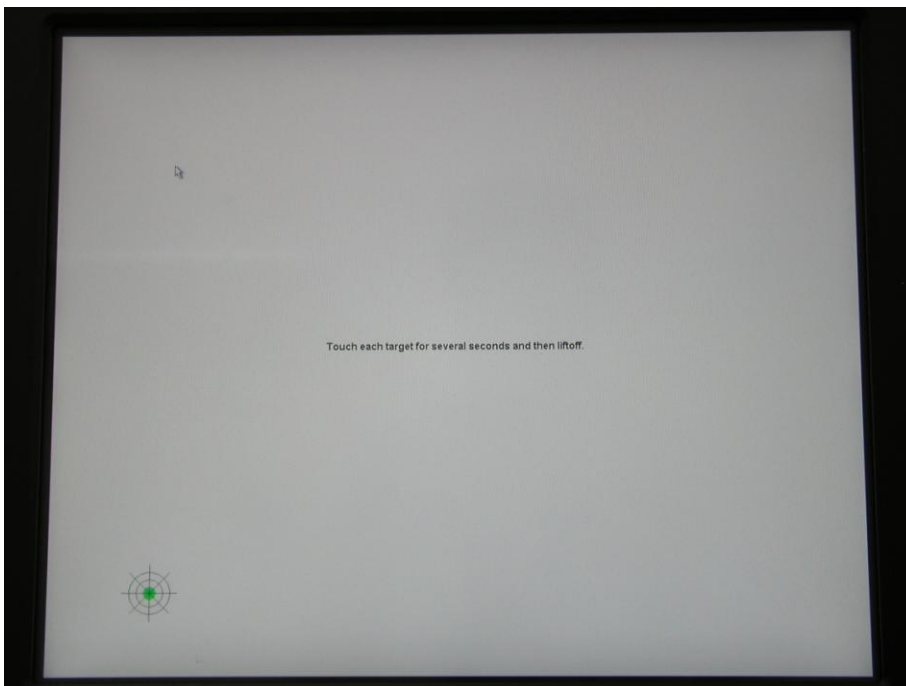
### Calibration of Touch Screen

The Touch Screen is calibrated from the factory and normally no recalibration is needed.

If a Calibration is needed, go to the Programs/MT7 Software folder  
Select the Control program



Press the Calibrate button, and place your finger at target points.



The calibration can be somewhat difficult. ISIC has no influence on this as it is related to the nature of the touch and the software.

If the calibration process was not satisfactory, please re-calibrate.

## 16 ECDIS mode

ECDIS warning:

Be aware that use of the backlight, brightness or contrast controls in ECDIS mode may inhibit visibility of information particularly at night!

See document no. 04924-000 for ECDIS protocol details.

## 17 Dura Communication protocol

See document 04924-000 for protocol details.



## 18 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 15 build in	90	50
DuraMON 15 table stand	175*	110*
DuraMON 17 build in	175	110
DuraMON 17 table stand	170	110
DuraMON 19 build in	110	60
DuraMON 19 table stand	175*	110*
DuraMON 20 build in	170	110
DuraMON 20 table stand	170	110

\*Not measured. DuraMON worst case used.

## 19 Power Consumption

Test object / condition	P <sub>typ</sub>	P <sub>max</sub>
DuraMON 15	26	35
DuraMON 17	42	50
DuraMON 19	46	50
DuraMON 20	52	70

In rush current ac:           ~ 20A<sub>max</sub> @ 115VAC  
  ~ 63A<sub>max</sub> @ 230VAC



## 20 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.

## 21 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.

## 22 Terms, Acronyms and abbreviations

Brill	Brilliance of the display (backlight level)
Communication protocol:	Use a serial link to control various settings in the monitor
DVI:	Digital Visual Interface
ECDIS:	Electronic Chart Display and Information System
IP20:	International Protection Rating (protected against objects with a size larger than 12.5mm)
IP65:	International Protection Rating (dust tight and protected against water jerks)
OSD:	On Screen Display
TBD:	To be defined
VGA:	Video Graphics Array



## 23 ISIC info / Support

In case you have inquiries or problems with your DuraMON, 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: mail@isic.dk  
www: www.isic.dk

VAT number: DK 16 70 45 39

Bank Address: Nordea Bank Danmark A/S  
Erhvervsafdelingen København Nord  
Nørgaardsvej 2  
Dk – 2800 Kgs. Lyngby  
Denmark

Bank Code: 2228  
Account number: 6877575320  
IBAN: DK36 2000 6877 5753 20  
SWIFT: NDEADKKK

Contacts:  
RFQ's: By fax to +45 70 20 79 76  
By mail to sales@isic.dk

Orders: By fax to +45 70 20 79 76  
By mail to orders@isic.dk

Support: Via homepage [www.isic.dk](http://www.isic.dk) under aftersales  
By mail to [service@isic.dk](mailto:service@isic.dk)  
During office-hours (Mo-Fr: CET 0800 - 1600) at +45 70 20 70 77

Service: Before shipment for service Request Return Material Authorisation number at  
homepage [www.isic.dk](http://www.isic.dk) under RMA  
By mail to [service@isic.dk](mailto:service@isic.dk)



## 24 Revision history

Rev A	Nov 2009	First release
Rev B	Nov 2009	20" Mechanical outline Rev B replaces Rev A. General update.
Rev C	Nov 2010	Warm-up times for the display added. Items to troubleshooting added. Servicing the unit added. Terms, Acronyms and abbreviations. Compass safe distance for DuraMON15 added. Compass safe distance for DuraMON19 added. Active area, viewing distance, response time and dimensions added under Technical specifications. RADAR/ECDIS foil added. Table stand drawings for DuraMON15, DuraMON17, DuraMON19 and DuraMON20 updated.



# 25 Appendix A: Pixel policy

## ISO 13406-2 guidelines for LCD pixel defects

### Introduction

TFT displays consist of a set number of pixels. Each pixel consists of 3 sub-pixels (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 13406-2 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

ISIC TFT monitors comply with ISO 13406-2 Class II.

Special agreements about other classifications can be made between ISIC A/S and the customer.

#### ISO 13406-2

Allowed pixel defects per type per million pixels			
Pixel defect	Type 1	Type 2	Type 3
Class: I	0	0	0
Class: II	2	2	5
Allowed cluster defects per million pixels			
Cluster defect	Type 1	Type 2	Type 3
Class: I	0	0	0
Class: II	0	0	2

### Measurement method/monitoring conditions for pixel defects

In compliance with the ISO 13406-2 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°C ± 5°C
- Relative air humidity 40–70%
- Dark room test.

### Pixel definition

Every pixel consist of three sub-pixels (red, blue, green).

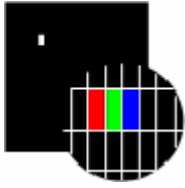
Every sub-pixel has its own transistor.

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

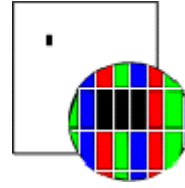




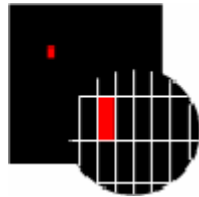
## Pixel



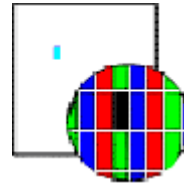
**Pixel defect type 1** Pixel constantly lit



**Pixel defect type 2** Pixel constantly dark



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



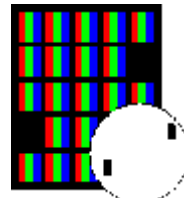
**Pixel defect type 3b**  
Sub-pixel (red, blue, green) constantly dark

## Cluster

A cluster consists of 5 x 5 pixels.



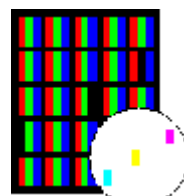
**Cluster pixel defect type 1**  
Pixels in a cluster area constantly lit



**Cluster pixel defect type 2**  
Pixels in a cluster area constantly dark



**Cluster pixel defect type 3a**  
Sub-pixels in a cluster area constantly lit



**Cluster pixel defect type 3b**  
Sub-pixels 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
XGA	1024x768	768,432	1	1	4
SXGA	1280x1024	1,310,720	2	2	6
UXGA	1600x1200	1,920,000	3	3	9
UXGA	2048x1536	3,145,728	6	6	15
Screen type	Native resolution	Number of pixels	Cluster defect type 1	Cluster defect type 2	Cluster defect type 3
XGA	1024x768	768,432	0	0	1
SXGA	1280x1024	1,310,720	0	0	2
UXGA	1600x1200	1,920,000	0	0	3
UXGA	2048x1536	3,145,728	0	0	6





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Business Hours: Monday - Friday 8.30am - 6.15pm



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DK-8220 Brabrand  
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Email: [service@isic.dk](mailto:service@isic.dk)

