BeiJer
E L E C T R O N I C S

MTe 240 / T240 Nautic

Installation Manual

English

Installation manual for MTe 240 / T240 Nautic

Foreword

The MTe Nautic Monitor series affords excellent quality displays of nautical charts or machine data. The series operates with or without touch, features non-reflective glass for easy daylight viewing and offers infinitely adjustable dimming to zero while delivering the specific functions to enable automation and navigational tasks.

Dimming can be carried out by buttons on the front, or remotely via a serial, USB or optionally via a LAN port.

Video out signal is available through VGA, DVI, USB or optionally via LAN.

With shallow depth for easy installation, the MTe 240 / T240 Nautic can be utilized in combination with the EPC Box Nautic or with third party computers. The MTe 240 / T240 Nautic is fully certified according to all major nautical classification societies.

This manual describes MTe 240 / T240 Nautic and gives instructions on installation, operation and service.

Order no: MAEN093

Contents

1 Safety Precautions

Both the installer and the owner and/or operator of the monitor must read and understand this installation manual.

1.1 Nautic Approvals and Certificates

MTe 240 / T240 Nautic is fully certified according to all major nautical classification societies. Please visit our web site for the latest information about nautic approvals and certificates.

1.2 General

- The monitor is intended for industrial use only.
- The monitor is constructed for naval applications and for indoor use according to IEC 60945.
- Read the safety precautions carefully.
- Check the delivery for transportation damage. If damage is found, notify the supplier as soon as possible.
- Do not use the monitor in an environment with high explosive hazards.
- The supplier is not responsible for modified, altered or reconstructed equipment.
- Use only parts and accessories manufactured according to specifications of the supplier.
- Read the installation and operating instructions carefully before installing, using or repairing the monitor.
- Never allow fluids, metal filings or wiring debris to enter any openings in the monitor. This may cause fire or electrical shock.
- Only qualified personnel may operate the monitor.
- The figures in this manual serves an illustrative purpose. Because of the many variables associated with any particular installation, the supplier cannot assume responsibility for actual use based on the figures.
- The supplier neither guarantees that the monitor is suitable for your particular application, nor assumes responsibility for your product design, installation or operation.

1.3   During Installation

- The monitor is designed for stationary installation on a plane surface, where the following conditions are fulfilled:
  - no high explosive risks
  - no strong magnetic fields
  - no direct sunlight
  - no large, sudden temperature changes
- Install the monitor according to the accompanying installation instructions.
- Ground the monitor according to the accompanying installation instructions.
- Only qualified personnel may install the monitor.
- Separate the high voltage, signal and supply cables.
- Make sure that the voltage and polarity of the power source is correct before connecting the monitor to the power outlet.
- Peripheral equipment must be appropriate for the application and location.
- The controlling transformer has to comply with EN60742.

1.4   During Use

- Keep the monitor clean.
- Emergency stop and other safety functions may not be controlled from the monitor.

1.5   Service and Maintenance

- Only qualified personnel should carry out repairs.
- The agreed warranty applies.
- Before carrying out any cleaning or maintenance operations, disconnect the equipment from the electrical supply.
- Replacing the battery incorrectly may result in explosion. Only use batteries recommended by the supplier.

1.6   Dismantling and Scrapping

- The monitor or parts thereof shall be recycled according to local regulations.
- The following components contain substances that might be hazardous to health and the environment: .

2   Product Naming

The naming of the monitor is constructed with a number of parameters that indicate the characteristics of each model, for example *MTe T170 E Nautic DC* according to below:

MTe	T	170	E	Nautic	AC
Monitor series	Optional touch screen	Screen size	Optional Ethernet	Main usage	Type of power supply

3 Supplied Equipment

Part	Description
CD; driver software	Driver software CD for touch screen installation etc. Includes installation manual for MTe 240 / T240 Nautic.
Power cable	Standard power cable (European or US standard) for units with 230 V AC power supply. Length: approximately 3.0 m. 24 V DC units are delivered without cable. A variety of cables are available separately.
Mounting kit	Screws, nuts etc.
Sticker	Device sticker with device name and part number. Note: Place the sticker on the front of the device when mounting, to identify device while installing and at startup.

4   Compass Safety Distance

The MTe 240 / T240 Nautic is certified according to EN 60945 for bridge applications. The tests include a compass safety distance test.

Electrical devices, such as the MTe 240 / T240 Nautic, must be kept in a safe distance to a compass in operation according to the following table:

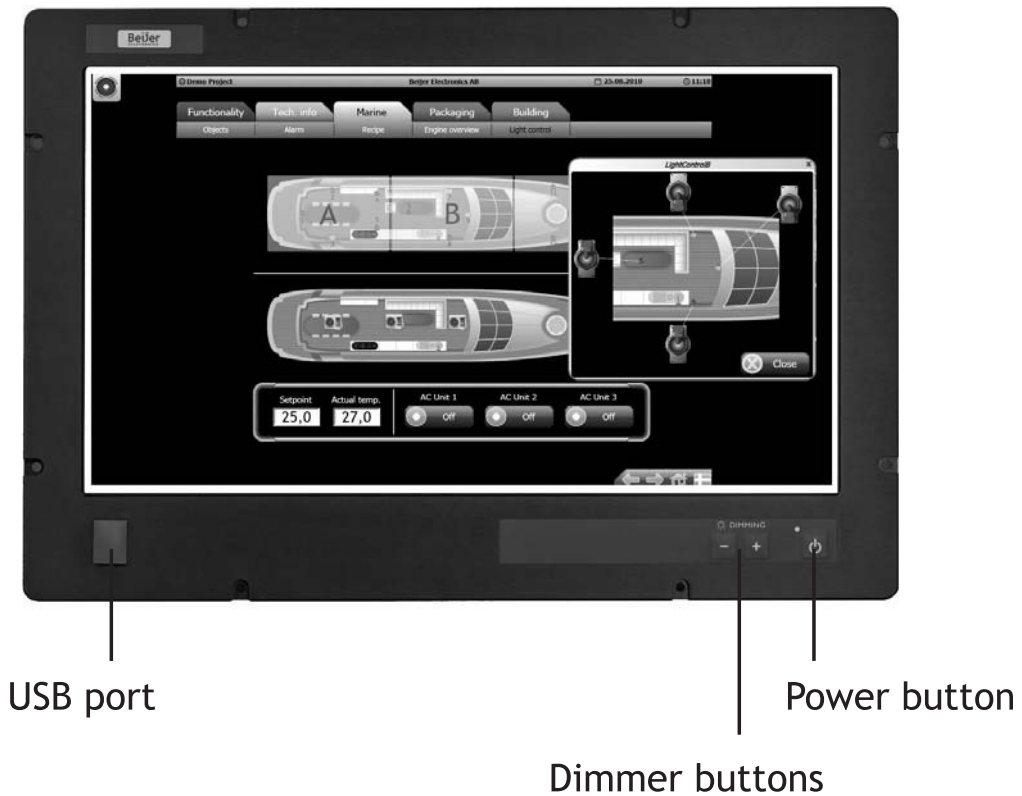| Compass type	Minimum distance to the monitor
Steering compass	TBD
Emergency compass	
Standard compass	TBD

Note:
No testing have been performed on the MTe 240 / T240 Nautic models.

5   Description of Parts

5.1   Front

The front includes a USB-port under hatch, a power button with a LED, and a set of dimmer buttons.

USB port   Power button

Dimmer buttons

5.1.1 Button Descriptions

The button functions are explained below:

Button	Instruction	Description
	Press the power button for more than one second	Turns the monitor off
	Press the power button for more than one second	Turns the monitor on
	Press - (brightness down) on the dimmer button (single step or automatic repeating after one second)	Makes the display darker
	Press + (brightness up) on the dimmer button (single step or automatic repeating after one second)	Makes the display brighter
	Press + and - simultaneously for more than one second	Turns on full brightness quickly (default - may be configured according to RBC software manual MAEN986)

5.1.2   LED Description

The power LED can assume the following statuses:

In monitors with Ethernet, the power LED can assume the following statuses:

LED	Description
Green	Normal operation
-	The monitor is turned off

In monitors without Ethernet, the power LED can assume the following statuses:

LED	Description
Green	Normal operation Signal detected - normal operation
Blinking green/orange	Resolution out of range
Orange	No input signal available
Blinking orange	No input cable or signal detected
Red	No input signal available or the screen is in energy saving mode Display refresh rate out of range
-	The EPCPPC is turned off or the screen is dimmed to 0 (lowest value, darkest possible)

5.2   Communication Ports

5.2.1   Communication Ports 230 V AC without Ethernet
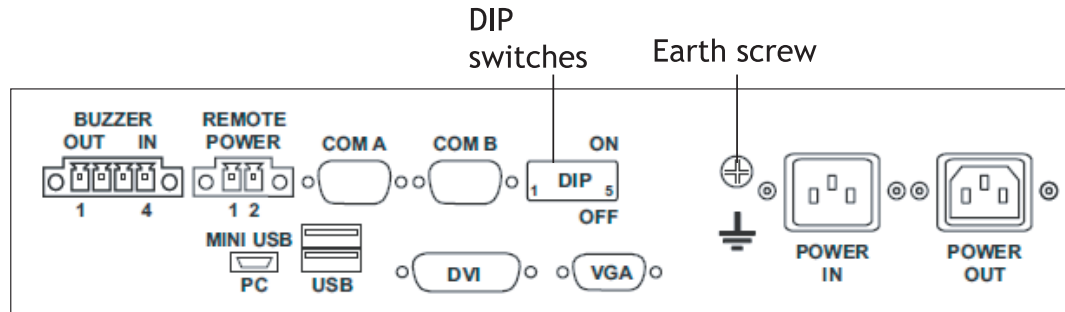
5.2.2   Communication Ports 24 V DC without Ethernet
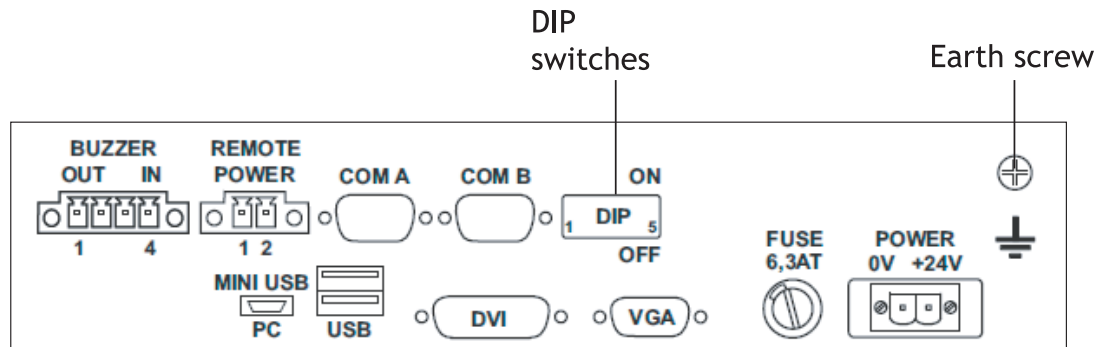
5.3   Assembly

A free space of 100 mm, for air circulation, has to be provided around the monitor, to dissipate the heat generated during operation.

The monitor is assembled with items included in the supplied mounting kit.

Note:

Possible risk of damage to the monitor!

Protection class IP65 for the front panel is only guaranteed with a perfect fitting seal.

Pay attention to the torque when fixing the front panel.

5.4   Power Supply

The MTe 240 / T240 Nautic is available with 230 V AC or 24 V DC power system.

The power supply for 24 V DC is carried out via a double-pole connector (Phoenix MST BT 2,5/2).

Note:
Check the power supply system with the relevant data on the type plate.

The monitor is certified for connection to protective grounded power supply according to EN60950.

The controlling transformer has to comply with EN60742.

5.5　Earthing System

The following items have to be observed to guarantee a safe dissipation of electronic interference:

- The monitor and switch board have to be connected to the nearest possible central earthing point.
- Make sure of a possibly low inductive connection between monitor and switch board.
- All data cables connected to the monitor have to be of the shielded type.
- The screens have to be earthed on both sides. A low ohm connection between the connected systems is essential. Avoid high equalizing currents through the cable screen due to voltage fluctuations.
- The earthing connection is to be carried out with min. 4 mm² cross section.

5.6　Buzzer In/Out

There is a buzzer integrated in the front behind the front foil. The buzzer can be activated with a Beijer Electronics RBC software command or with a buzzer-in signal. Buzzer-out is a relay contact parallel to the integrated buzzer that can be used to switch an external signal device.

The buzzer-in and -out can be connected to the 4-pin Phoenix connector:

Buzzer	Connection	Comment
Buzzer-out	Pin 1 and pin 2	NO-contact, max. load 1 A @ 24 V DC
Buzzer-in	Pin 3 + 24 V DC / pin 4 ground	

Please see the RBC software manual MAEN986x for further information.

5.7　Remote Power Out

Remote power out is a relay contact that is closed after the power button on the front side is pressed for more than one second. It is opened after the button is released. With the remote power out signal, it is possible to switch an external Beijer Electronics EPC Nautic on and off. The EPC has a corresponding ATX power remote input. To use this function, connect the double-pole Phoenix connector to the corresponding connector on the EPC.

5.8　AC Power Out

The AC power out terminal on the 230 V AC-models is internally connected to the AC power in terminal through a double-pole relay. This makes it possible to connect an external AC powered device such as a PC (max. 6 A). The AC power out is active only when the monitor is on.
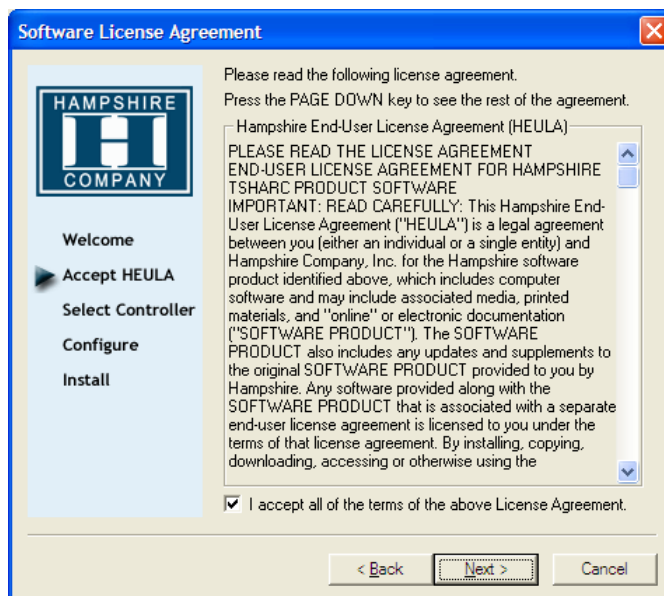
6   Operation
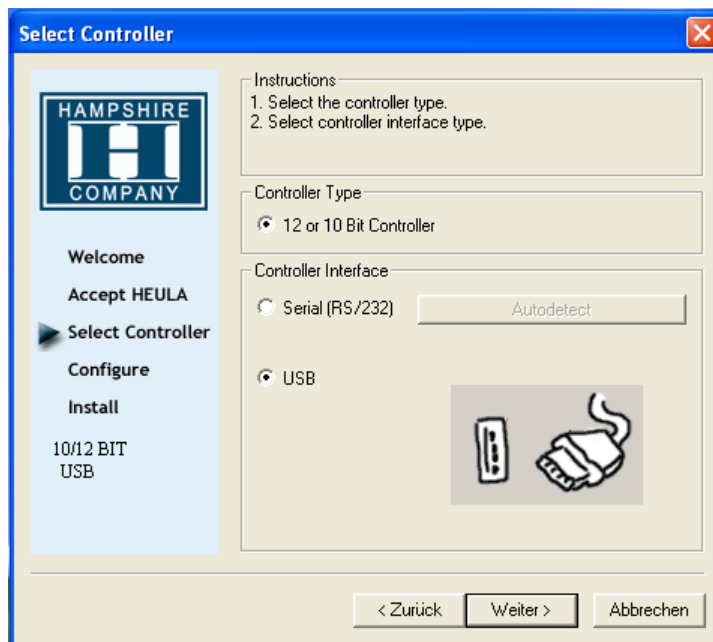
6.1   Touch Screen Installation

1. Start the touch screen installation from the driver CD under
   \MTe_Nautic_Monitors\Driver\Touch\UniWinDriver631a. Follow the
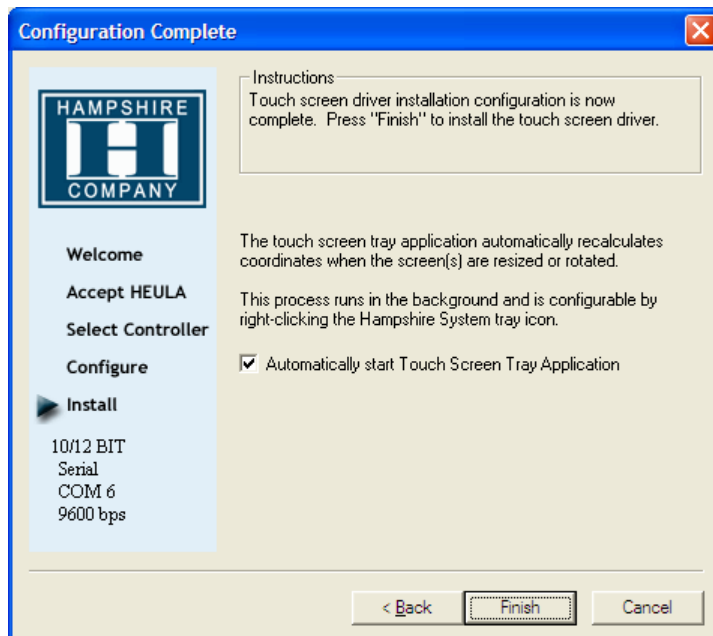   instructions on the screen and press **Next:**
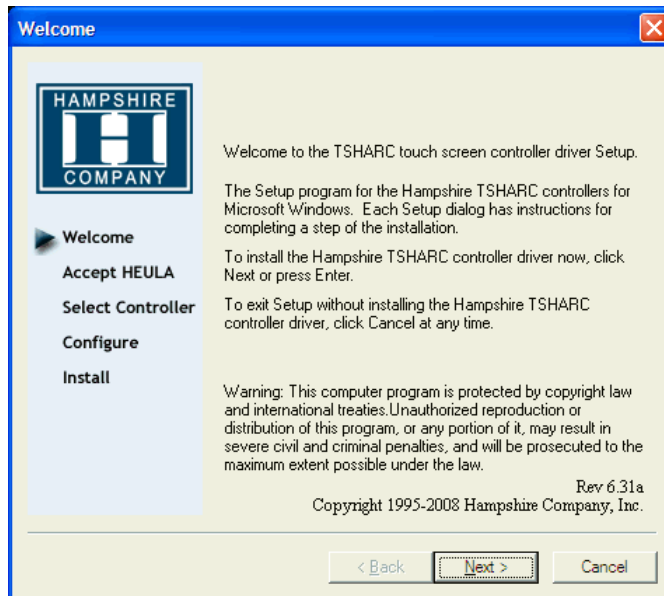
2. Accept the license agreement.

3. Select **Autodetect** or manually select the technical connection data.

4. Press **Finish** and follow the instructions for a restart.


5. After a restart of the operating system you will find *Hampshire Control Panel* among the programs.

6. Calibrate the touch screen with your finger or with a rounded pointed touch pen.

6.2   On Screen Display Menu

Note:
The On Screen Display menu is supported only for monitors without an Ethernet connection.

The On Screen Display (OSD) menu is controlled via the OSD buttons.
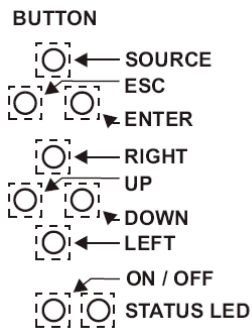
The OSD menu is opened by the **Enter** button.
The following controls are available for selection from the OSD menu:
Image, **Display** and **System**.

6.2.1   OSD Functionality

The following table describes differences in keypad functions with and without activating OSD:

Key	Function - OSD not active	Function - OSD active
POWER	Switch power on/off	Switch power on/off
LEFT	Decrease Value	Decrease Value Select Sub-menu if avaliable
RIGHT	Increase Value	Increase Value Select Sub-menu if avaliable
UP	Not used	Scroll up (Esc)
DOWN	Shortcut black level and brightness control	Scroll down (Enter)
ESCape	Not used	Escape
ENTER	Enter	Enter
SOURCE	Toggle Input Source	----

| Related information |
|---|
| *LED Description* |

6.2.2   System Messages

The following system messages may be displayed:

System message	Description
SYSTEM BOOT	The system is booting up.
USER ADJUST UGA	After toggling the input source a message is displayed which source is selected.
USER ADJUST UGA no sync	No signal could be detected after toggling the source.
USER ADJUST no video cable	No cable is connected to the selected input.
USER ADJUST UGA out of range	A valid video signal is detected but cannot be displayed because the measured parameters are out of range.
USER ADJUST Display power down	If no valid video signal can be detected the board is powered down.

6.2.3   Image Menu

Use the left, right, up and down buttons to navigate in the menu and to adjust settings.

Press **Enter** to confirm
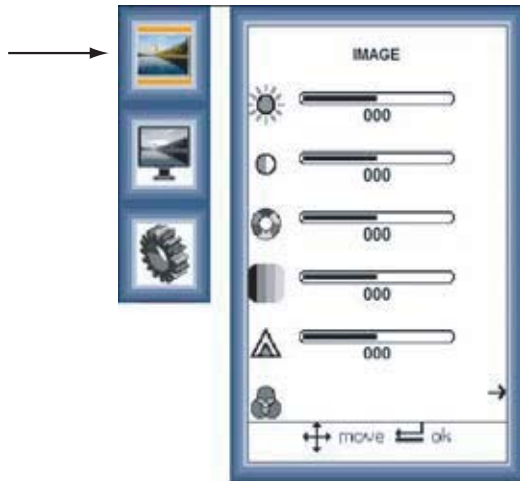
Parameter	Description
Brightness	Adjust the screen brightness.
Contrast	Adjust the contrast.
Hue	Adjust the color hue.
Saturation	Adjust the color saturation.

Parameter	Description
Sharpness	Adjust the sharpness.
Color	Color submenu.

Color Submenu

Use the left, right, up and down buttons to navigate in the menu and to adjust settings.

Press **Enter** to confirm

Parameter	Description
Auto	Available only with analog **VGA** input. Selecting this option will calibrate the **RGB-ADC**.
Color temp.	Select predefined color temperature schemes from a list or make a user-defined scheme.
Full color	Selects full color space.
sRGB	Suitable for color matching with sRGB compatible peripherals.

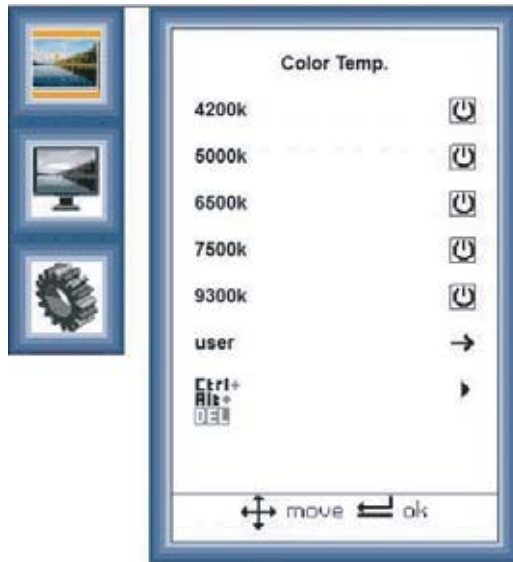## Color Temperature

Use the left, right, up and down buttons to navigate in the menu and to adjust settings.

Press **Enter** to confirm

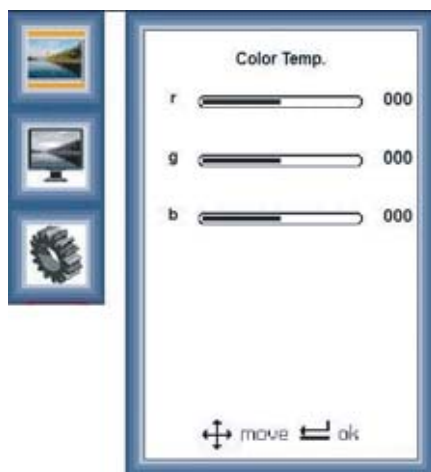User-defined settings are accessed from the **User** submenu.

Ctrl+Alt+Del: This option restores the default values.

User Submenu:

Use the left, right, up and down buttons to navigate in the menu and to adjust settings.

Press **Enter** to confirm

6.2.4   Display Menu

Use the left, right, up and down buttons to navigate in the menu and to adjust settings.

Press **Enter** to confirm
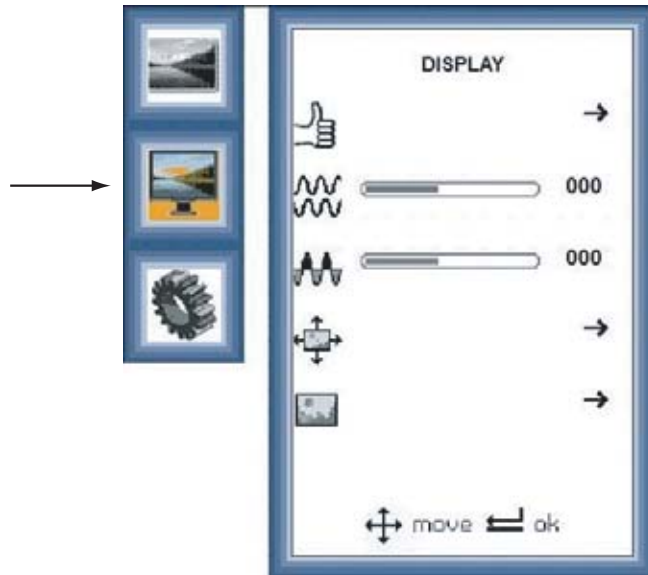
Parameter	Description
Auto Adjust 	Automatically adjustment of flickering, screen position and screen size. Only available with analog **VGA** input.
Phase 	Manual adjustment of the phase of the incoming analog VGA signal. Not available for all digital inputs.
Clock 	Manual adjustment of the clock of the incoming analog VGA signal. Not available for all digital inputs.
Position 	Adjustment of the image position.
Display Modes 	Display mode submenu.

## Display Modes Submenu

Use the left, right, up and down buttons to navigate in the menu and to adjust settings.

Press **Enter** to confirm

The following display modes can be selected within the Display Modes submenu:

Parameter	Description
Off	Default Display Mode. Reflects native display capability.
Desktop	Provides optimal balance of brightness and contrast to prevent eyestrain.
Gaming	Display mode for gaming purpose.
Multimedia	Displays scenes in clearest detail. Enhances colors and emphasizes fine detail.

6.2.5   System

Use the left, right, up and down buttons to navigate in the menu and to adjust settings.

Press **Enter** to confirm

Parameter	Description
Input	Select Input in a submenu.
OSD Settings	OSD settings submenu.
Language	Select language. The supported languages are: English, Spanish, German and French.
Factory reset	Factory reset. This setting restores the default factory settings.

Input Submenu

Use the left, right, up and down buttons to navigate in the menu and to adjust settings.

Press **Enter** to confirm

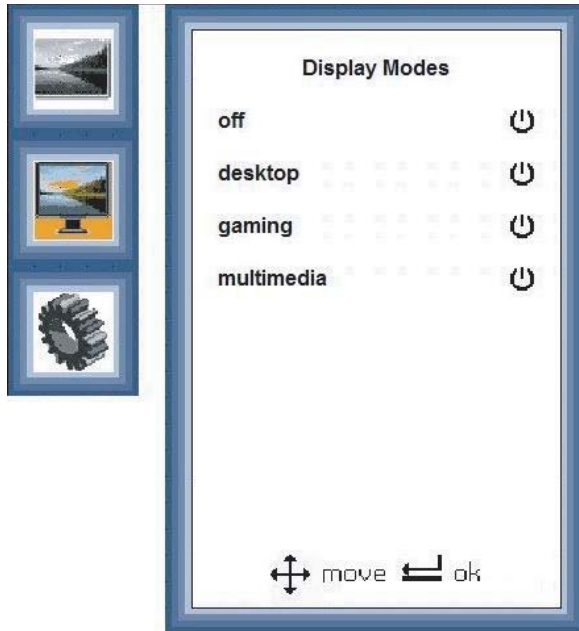| Parameter	Description
RGB	The Video signal from the onboard USB-to-Graphics adapter will be selected as input.
VGA	The connected analog VGA signal will be selected as input.
DVI	The connected DVI signal will be selected as input
Autoscan	Auto-detects an active video source.

OSD Settings Submenu

Use the left, right, up and down buttons to navigate in the menu and to adjust settings.

Press **Enter** to confirm

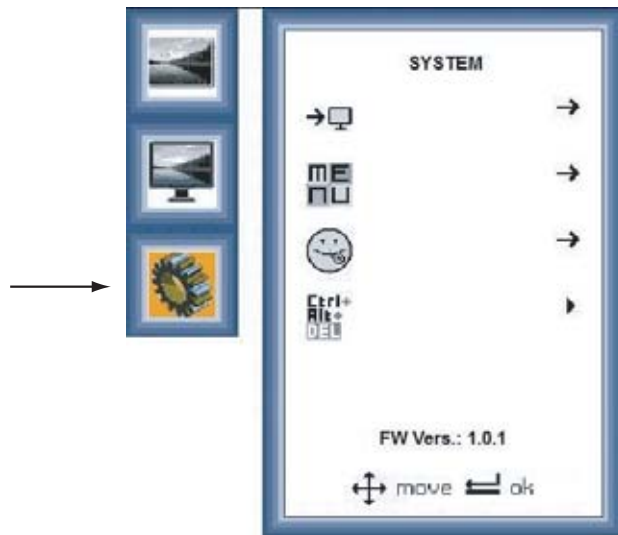| Parameter	Description
Timer	Timeout of the OSD. An interval of 3, 6 and 12 seconds can be selected.
Rotation	Rotation of the OSD. The OSD can be rotated by 90°, 180° or 270°.
Position	Adjust the position of the OSD.

6.3   USB Graphic Driver

The monitor can be configured either to mirror your primary screen, or to extend Windows. The USB to VGA driver used to control the extra screens uses little PC resource and offers a vast array of screen resolutions and color depths.

6.3.1   System Requirements

The d.client USB software can be installed on any desktop or laptop PC running one of the following operating systems:

Parameter	Description
Windows XP Home	Service Pack 2 and 3
Windows XP Professional	Service Pack 2 and 3
Windows 2000	Service Pack 4
Windows Vista Basic	Driver revision 4.3 or higher
Windows Vista Aero	Driver revision 4.3 or higher

Up to six monitors configured as d.client USB units can be connected to the PC at a time.

6.3.2   Software Installation

The following example is for Windows XP - there are some differences in terminology and user interface on Windows 2000/Vista, but the basic steps are the same. You can select to first connect the monitor to the PC, or to first install the software and then connect the monitor.

Installation of Connected Hardware

With this method, the monitor is connected prior to installing the drivers.

1. Insert the software installation CD, or if your software was downloaded, unzip it to a convenient folder.

2. Connect the monitor to the PC via USB. When the **Found New Hardware Wizard** starts, follow its instructions:

3. Select **No, not this time**.
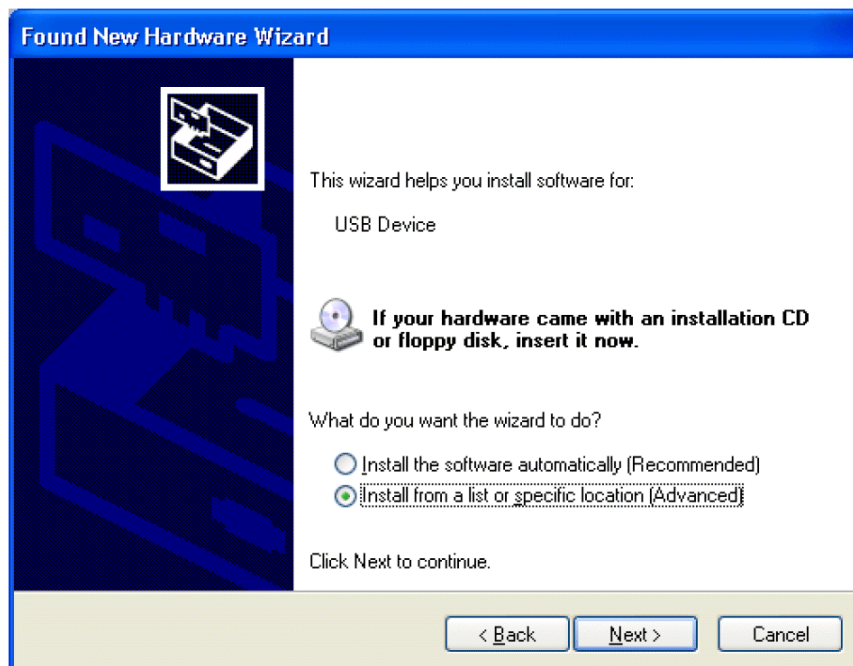
4. Select **Install from a list or a specific location (Advanced)**, and point the wizard at the software.

Installation without Connected Hardware

With this method, the drivers are installed before connecting the monitor to the PC.

1. Navigate to the d.client USB installation directory on your PC or CD and double-click on **Setup.exe** to start installing the drivers.

2. Once the drivers are installed, connect the monitor to the PC via USB. The PC will automatically detect the new USB device and start the **Found New Hardware Wizard**. Follow the instructions of the wizard:

3. Select **No, not this time**.
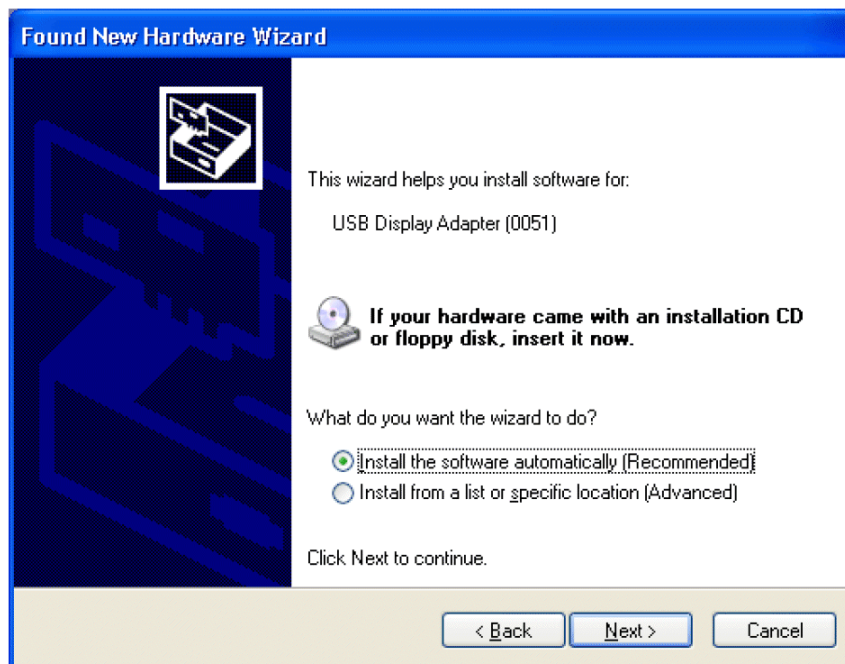
4. Select **Install the software automatically (Recommended)**.

6.3.3 Uninstalling the Graphics Software

The d.client USB software can be removed using the **Add or Remove Programs** utility in Windows control panel. In Windows Vista this is called **Programs and Features**.

1. Open **Add or Remove Programs**.

2. Locate the d.client USB entry and click **Remove**.
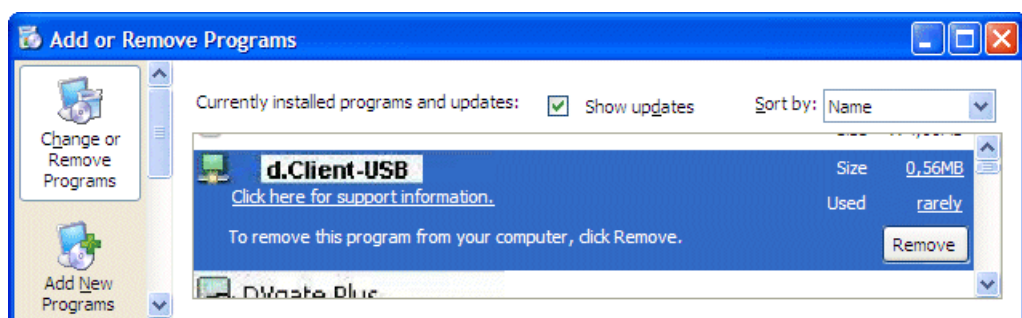
3. Click **Yes** to confirm that you want to remove it.

The software will then uninstall automatically.

6.3.4   Using the Software

The behavior of the d.client USB software is configured through Windows
Display Properties dialog box.

1. To access the **Display Properties** dialog, right-click on the desktop and select
    Properties.

2. Select the **Settings** tab.

3. Locate **d.client USB** in the **Display** drop-down list. Its mode, resolution,
    color quality and position can all be controlled from here.

Setting the Display in Extended Mode

In extended mode, the d.client USB forms part of the extended Windows desktop.

1. To set the display in this mode, check the **Extend my Windows desktop onto
    this monitor** box (marked **1** in previous figure).

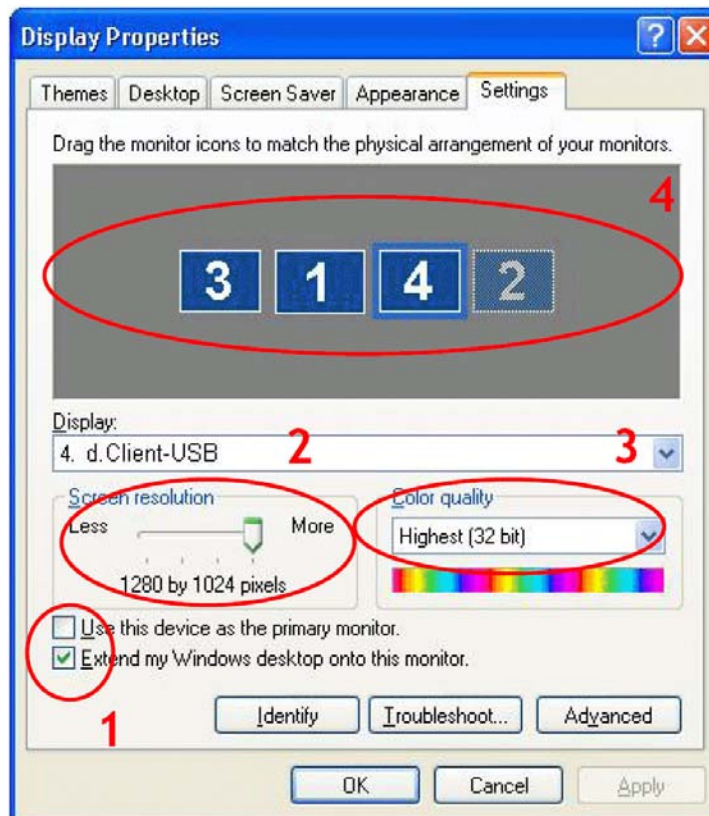2. Configure screen resolution and color quality using the appropriate controls
    (**2** and **3**), and arrange its position with respect to the other monitors on the
    extended desktop in using the drag area (**4**).

3. For more detailed mode settings, including the refresh rate, click on the
    Advanced button, then the **Adapter** tab and finally the **List all modes…**
    button. All valid combinations of resolution, color quality and refresh rate
    are listed.

Setting the Display in Mirror Mode

In mirror mode, the d.client USB simply copies what is on the main (primary) display.

1. To set the display in this mode, uncheck the **Extend my Windows desktop onto this monitor** box (marked **1** in previous figure).

The resolution, color depth and refresh rate of the primary screen are replicated on the d.client USB.

If the d.client USB display unit supports a lower resolution than the primary display, the on board scaling engine will downscale the image to the native panel resolution.

Setting the Display as the Primary Display

To make the d.client USB unit the primary display, check the **Use this device as the primary monitor** (marked **1** in previous figure). On some PCs it is necessary to disable the main display (i.e. unchecking the box marked **Extend my Windows desktop onto this monitor** for the main display) as part of the same settings change. The d.client USB display stays primary if the PC enters hibernate or suspend mode or is rebooted. If the d.client is detached, the main display becomes primary again.

6.3.5   Controlling the Display

The d.client unit can also be configured from the d.client Icon application. When devices are attached, an icon in the notification area indicates that the program is running. Clicking on it displays a menu to control attached devices:
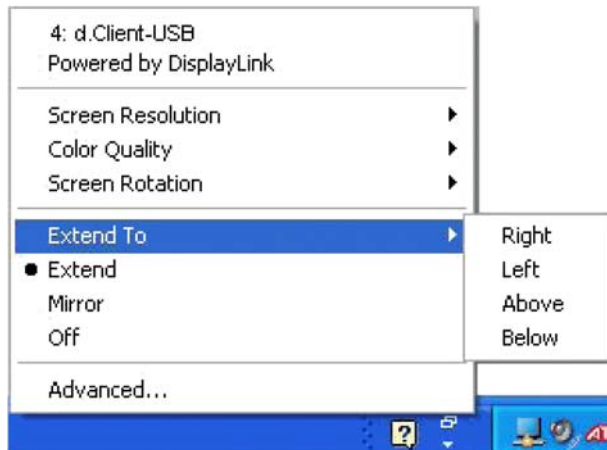
The menu contains many of the settings that can be configured via Windows Display Properties, in addition to some other settings:

Menu item	Description
Screen Rotation	Rotates Windows desktop (90, 180 or 270 degrees)
Extend To	Changes the device to extended mode, and places it to the left of/right of/above/below the primary monitor
Off	Switches the display off on an adapter
Advanced	Opens the Windows Display Properties dialog

6.3.6 General Characteristics

Standby and Hibernate, Shut Down and Restart

If the PC that the d.client USB is connected to is set in standby or hibernate mode, the display goes blank. When the PC is powered up again (and unlocked if necessary), the connected display returns to the same mode as before standby or hibernation.

If the PC is shut down, restarted and logged in to, the connected display returns to the same mode as before shutdown.

d.client USB with Multiple Users

d.client USB work with multiple users on the PC. The mode settings are saved for each user, thus allowing individual desktop configuration.

Disconnecting the d.client USB

If the d.client USB is powered off or the USB cable is removed from the PC, the display goes blank. All windows and icons move to the primary screen. On reconnection or powering up of the d.client USB, the display returns to the same mode as before disconnection.

However, windows and icons that were previously on the screen will not be moved back.

6.4 USB Server Driver

6.4.1 Software Installation

Note:
The USB Server driver is supported only for monitors with an Ethernet connection.
The default IP address of the monitor is 192.168.0.1; the default subnet mask is
255.255.255.0.

1. Navigate to the USB server installation directory *MTe_Nautic_Monitors\
   Driver\USB_Server_Driver* on your PC or CD and double-click on the USB
   Server setup file to start the installation.
   The installation starts automatically.
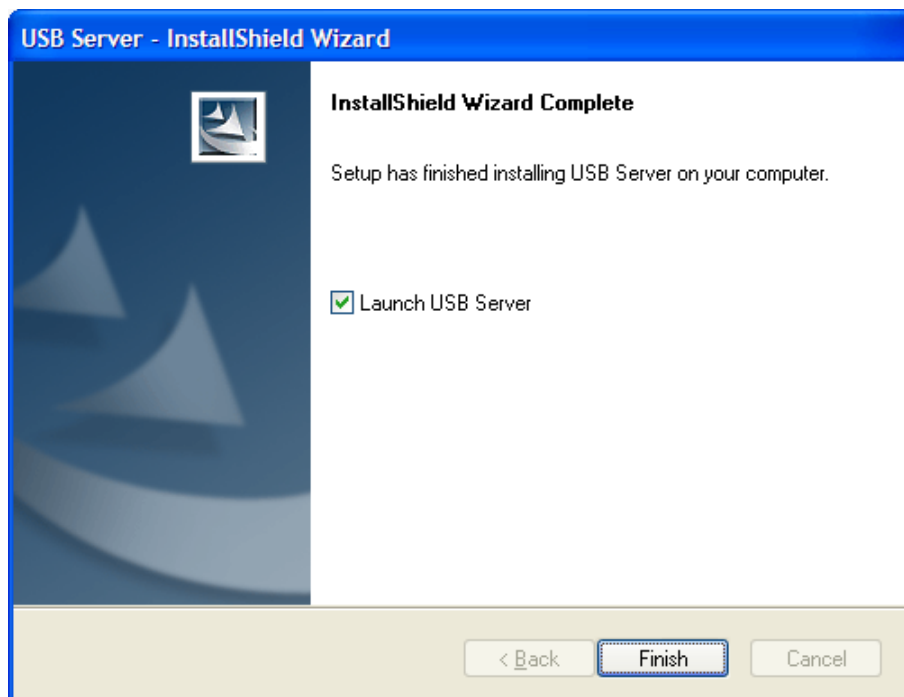
2. Click **Finish** when the installation is complete.

6.4.2 Using the Software

The USB Server program starts automatically in the background. An icon in the notification area indicates that the program is running.

If you have disabled the autostart option, double-click on the **Launch USB Server** shortcut on the desktop to start running the program in the background.

Main Menu

Right-click on the USB Server icon in the notification area and select **Open Display Solution USB Server** to display the main menu.

Status of USB Servers and Devices

The tree view displays the status of all USB servers and devices that you can access. A USB Server is either accessible or inaccessible. An inaccessible server is either disconnected from the network, powered off or suffers other technical difficulties that prevent it from being accessed by your PC. An inaccessible server will not show up on the tree view.
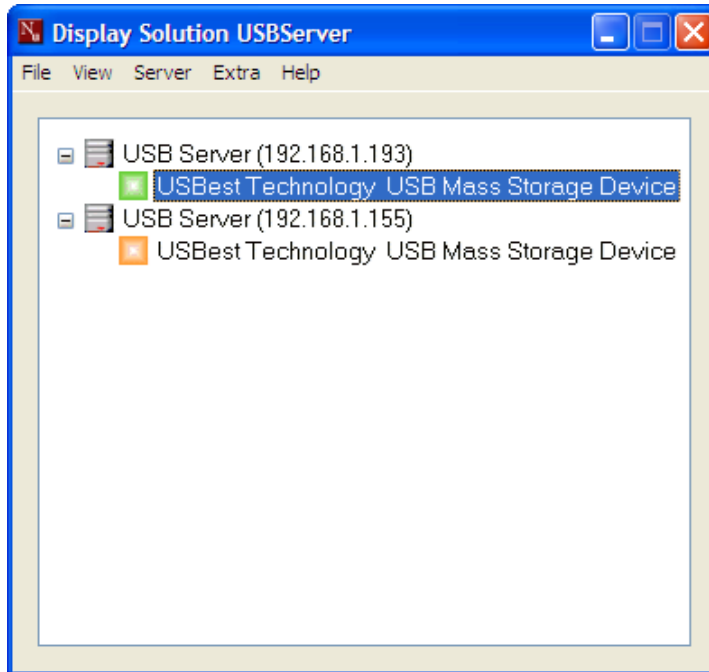

Each status is represented by an icon of different color:

Color	Status	Comment
Green	Ready	The device is unoccupied and ready for connection
Orange	Connected	Connection established
Red	Occupied by Others with Error	A problem has occurred for the device that is occupied by another user

It is also possible to see all connected devices by right-clicking on the USB Server icon in the notification area and selecting **Connect**.
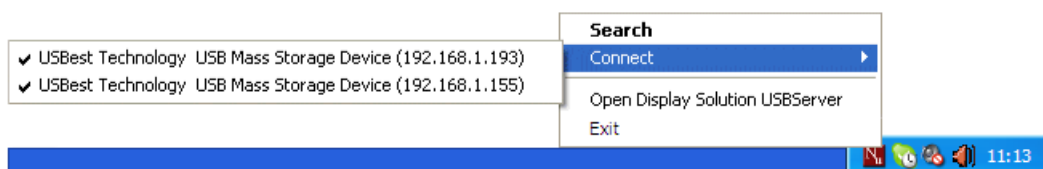
Right-clicking on a device in the tree view, and selecting **Details**, displays additional information about the selected device:
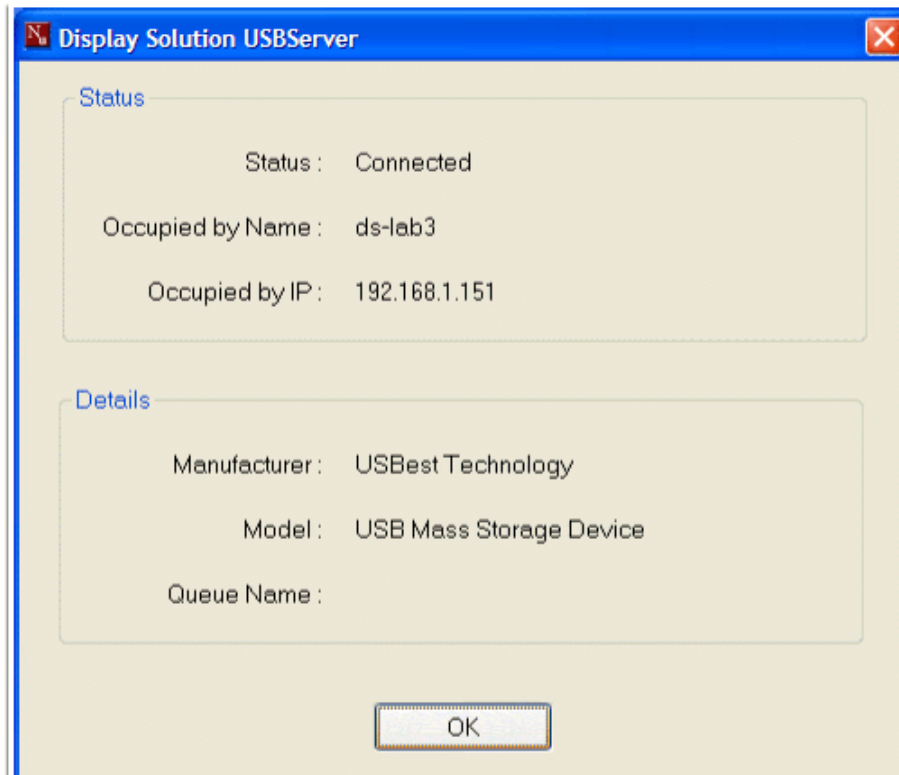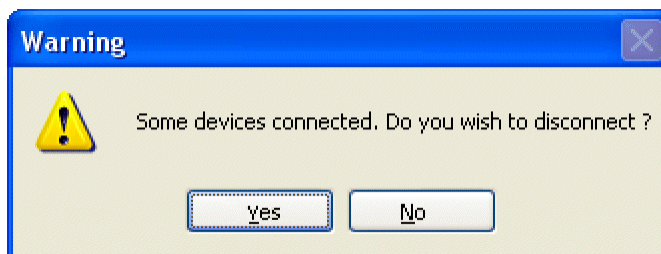

Manual Disconnect and Connect

You can disconnect or connect to a device manually, by clicking on its icon in the tree view.

Exit Program

The program is stopped by right-clicking on the USB Server icon in the notification area and selecting **Exit**.

This will shut down the server. If devices are connected, you must confirm disconnecting them.

6.5 Dimming

The monitor can be dimmed in different ways:
- Local, using the dimmer buttons on the front panel
- Remote, using the serial port, a USB port or Ethernet

Please see the RBC manual MAEN986x for further information about remote dimming.

6.6 Cable Fixing Points

When connecting interface cables such as RS232, USB, LAN or VGA, the cables must be fixed at the cable fixing points, to avoid that the cables loosen because of vibrations.
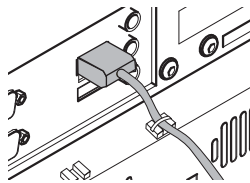
7 Technical Data

| Parameter	MTe 240 / T240 Nautic
Size, W x H x D	598 x 406 x 95 mm
Mounting depth	95 mm (195 mm including clearance)
Front panel seal	IP 65 according to DIN EN 60529
Rear panel seal	IP 20 according to DIN EN 60529
Keyboard material/ Front panel	Touch screen: Polyester on glass, 1 million finger touch operations. Overlay: Autotex F157 or F207.
Reverse side material	Powder-coated steel
Weight	13.5 kg
USB ports	1 x USB 2.0 (front side) under hatch 2 x USB 2.0 (rear side)
Graphic ports	VGA/DVI/USB
Power consumption at rated voltage	45 W
Fuse	1 AT (230 V AC) or 4 AT (24 V DC)
Power supply options	115-230 V AC ± 15%. 1 A max (switch on peak 30 A). 24 V DC ± 15%. 2.4 A max (switch on peak 12 A).
Screen size	23″ (509 mm)
Active area of display, W x H	509.76 x 286.74 mm
Pixels	1920 x 1080
Pixel pitch (RGB)	0.2655 x 0.2655 mm
Max. number of colors	16.7 million
View angle (up/down/left/ right) (typical)	80/80/85/85 °
Light intensity (typical)	210 / 240 cd/m^2 (Touch/Glass)
Contrast ratio	1000:1
Response time	5/8 ms
Display technology	TFT
Touch screen technology	Resistive
Touch screen resolution	4096 x 4096 points
Supported signal resolution	640 x 480 to 1920 x 1080
Ambient temperature	-15 ° to +55 °C
Relative ambient humidity	30 to 90% non-condensed
Storage temperature	-20 ° to +70 °C

Parameter	MTe 240 / T240 Nautic
Relative storage humidity	10 to 90 % non-condensed
Basic RBC software version	Please contact Beijer Electronics for information about current version.
Approvals and certifications	Information is available on the web site *www.beijerelectronics.com*

8   Drawings

8.1   MTe 240 / T240 Nautic Front View
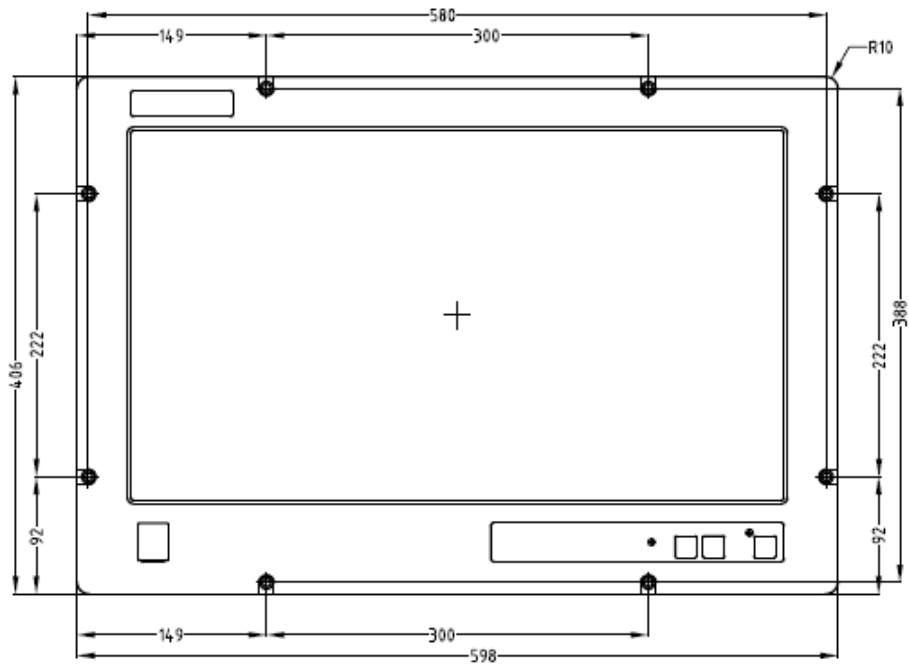
8.2   MTe 240 / T240 Nautic Cut Out Drawing
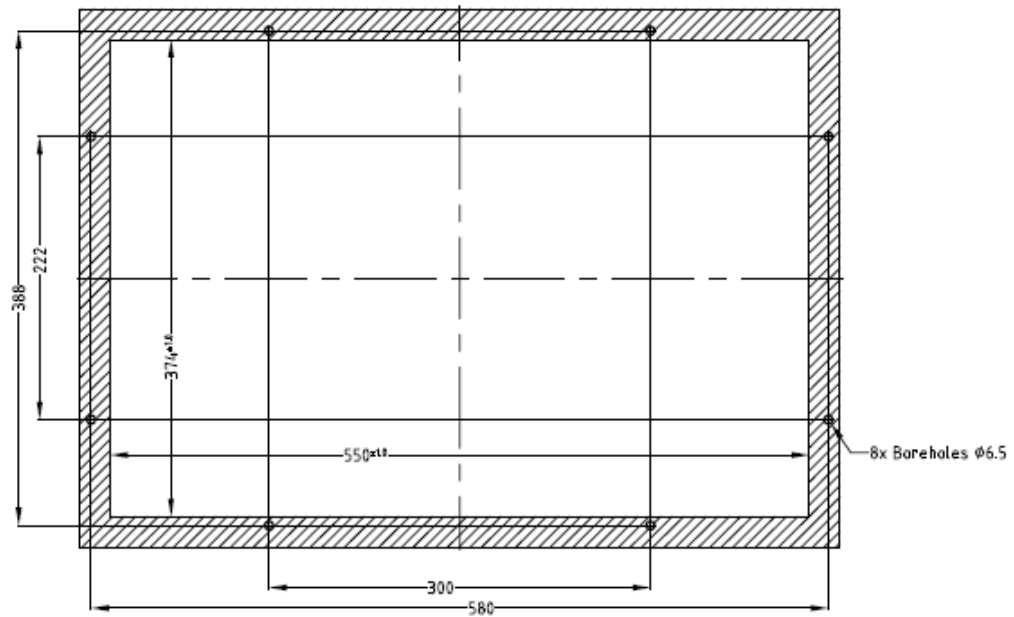
Cut out dimensions: 550,0 x 374,0 mm, tolerance +1 mm.

Space for mounting screws on all sides: 15 mm = needed space 580.0 x 404.0 mm.
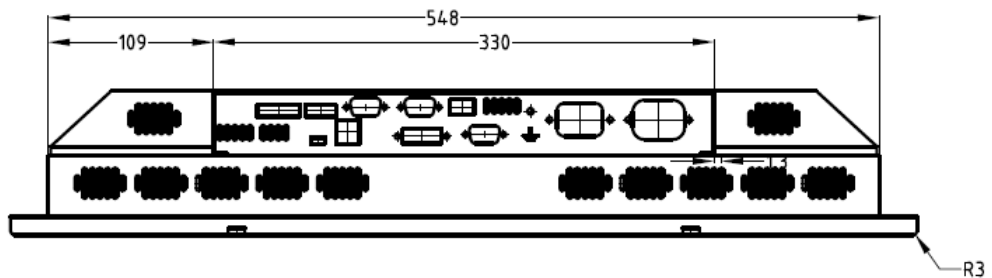
Front plate 598.0 x 406.0 mm, tolerance: ±0.2 mm.

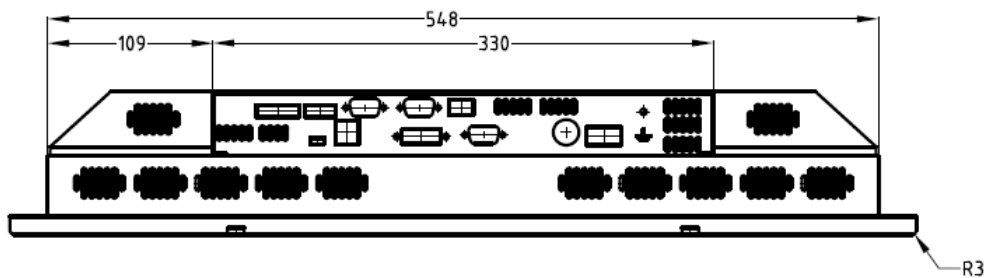Mounting method: 8 x M6x25 steel screws DIN 6912. Screws and o-ring seals are included.

Max. 10 mm thick mounting frame.

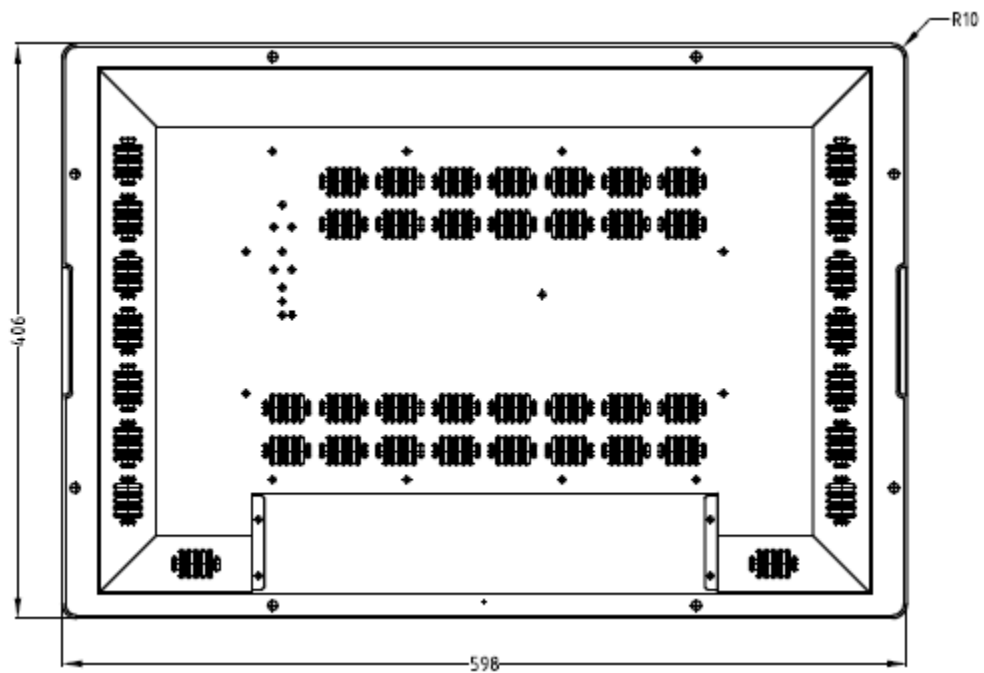## 8.3 MTe 240 / T240 Nautic Outline Drawings

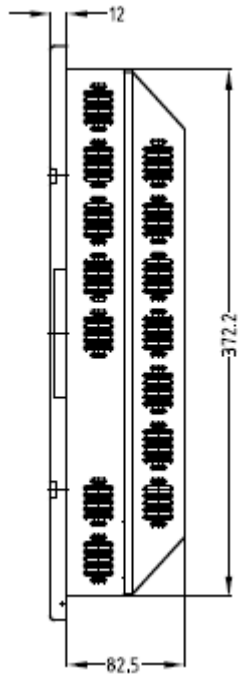### Bottom View

MTe 240 / T240 Nautic AC

MTe 240 / T240 Nautic DC

Rear View

Side View

Beijer

ELECTRONICS

Head office

Beijer Electronics AB

Box 426

201 24 Malmö, Sweden

www.beijerelectronics.com / +46 40 358600