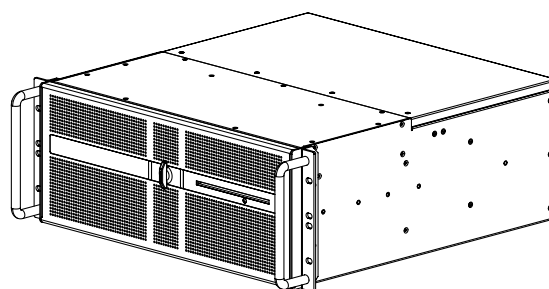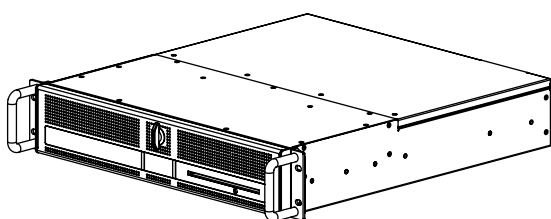# USER MANUAL

HT 216 / HT 416 - Maritime Rack Computers

HT 216 xxx-Ayyy
HT 416 xxx-Ayyy

xxx=standard or customized
yyy=configuration dependent

User Manual HT 216 / HT 416	
Updated: 02 Apr 2014	Doc Id: INB100084-1 (Rev 15)
Created: 363 Approved: 6987	

Please visit www.hatteland-display.com for the latest electronic version of this manual.

Contents

Contents

Contents of package

This product is shipped with:

Item	Description	Illustration
FS-CABLE EU	1 pcs of power cable European Type F "Schuko" to IEC. Length 1.8m	EUR TYPE F ⟷ IEC
80099	1 pcs of power cable US Type B plug to IEC. Length 1.8m	US TYPE B ⟷ IEC
MEDIA STD01	Documentation and Driver DVD for factory installed components like mainboard, IDE, network etc. Note: To use this DVD disc you will need an external USB CD/DVD drive or provide means of getting contents copied over via USB memory stick/network to the operating system. You can alternatively download the drivers from our website www.hatteland-display.com	Menu and Driver browser for Microsoft® Windows®
	1 pcs of cable relief bracket including screws.	
	Test Reports papers: 1 pcs of Product Declaration 1 pcs of Computer Checklist 1 pcs of Burn-In Test Certificate	

Package may also include: (based on accessories/options ordered)

Item	Description	Illustration
HT 00215 OPT-A1	Recovery Kit (USB Flash) For reverting back to factory/customized installations. **Note**: Only applicable for factory delivered units with HDD/SSD hardware.	
HT 00250 OPT-A1	Mounting rails kit 2 x 20 inch long ball bearing sliding rails. 19 inch Rack compatible.	
?	For computers that include 3rd party hardware; the package / accessories box may also include additional CD / HW / Information from 3rd party supplier(s).	

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General

About this manual

The manual contains electrical, mechanical and input/output signal specifications. All specifications in this manual, due to manufacturing, new revisions and approvals, are subject to change without notice. However, the last update and revision of this manual are shown both on the frontpage and also in the "Revision History" chapter at the end of the manual.

Furthermore, for third party datasheet and user manuals, please see dedicated Documentation and Driver DVD delivered with the product or contact our sales/technical/helpdesk personnel for support.

About Hatteland Display

Hatteland Display is the leading technology provider of specialized display and computer products, delivering high quality, unique and customized solutions to the international maritime, naval and industrial markets.

The company represents innovation and quality to the system integrators world wide. Effective quality assurance and investment in sophisticated in-house manufacturing methods and facilities enable us to deliver Type Approved and Mil tested products. Our customer oriented approach, technical knowledge and dedication to R&D, makes us a trusted and preferred supplier of approved solutions, which are backed up by a strong service network.

www.hatteland-display.com

You will find our website full of useful information to help you make an informed choice as to the right product for your needs. You will find detailed product descriptions and specifications for the entire range on Displays, Computers and Panel Computers, Military solutions as well as the range of supporting accessories. The site carries a wealth of information regarding our product testing and approvals in addition to company contact information for our various offices around the world, the global service centers and the technical help desk, all ensuring the best possible support wherever you, or your vessel, may be in the world.

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Computers introduction

Hatteland Display's range of type-approved computers is designed to perform in harsh environments while providing the performance and flexibility you expect. We offer rack mount and black box/standalone computer solutions for every need. Our computers are used by system integrators, boat builders and end-users and can be found on all vessel types, all over the world.

If you are looking for a high quality computer for navigation, monitoring or entertainment solutions, Hatteland Display can fulfil your high expectations at a reasonable cost.

Our computer range covers all eventualities and requirements. We offer a wide range of processor choices, HDD and power options, and solid state technology, neatly engineered within industry standard form factors such as 19" rack mount, 2U, 3U and 4U.

We continually develop our computers portfolio to make the best use of emerging computer technology so you can be sure that your Hatteland Display computer offers the power needed to run modern applications, with the flexibility to be installed wherever you want, for any marine use.

Designed to perform in harsh environments...

Note: Some of the illustrations to the right may show pending / obsolete product and design. Please visit www.hatteland-display.com for current computers available.

Winner of Red Dot awards 2009 / 2007

In 2009 the Hatteland Display HT C01 standalone computer won a prestigous Red Dot Award with Honourable Mention distinction, sucessfull detail solution.

The Design Zentrum Nordrhein Westfalen in Germany has been marking outstanding international product design with its famous and highly regarded dot since 1955. The Red Dot Product Design Award is an annual international awards scheme where products from all industries are chosen for their innovative visual and industrial design.

In 2007 the Hatteland Display Series 2 Display/Panel Computers range won the Red Dot Award for the overall design and modular backpack concept, which docks into the screen at the back, comprises either the typical display connections or a fully equipped panel computer. Even the computer backpack can operate on its own as a stand-alone computer.
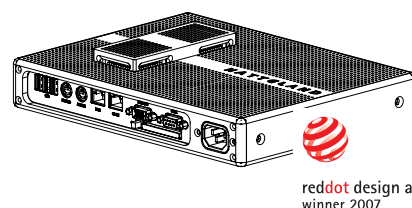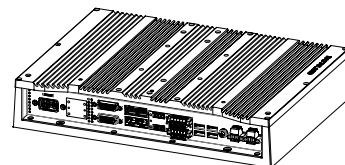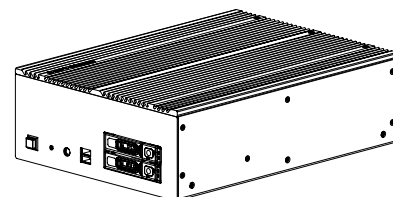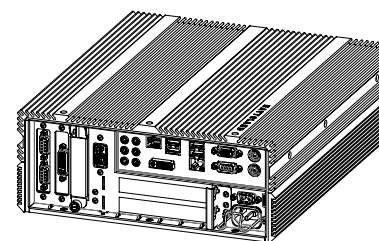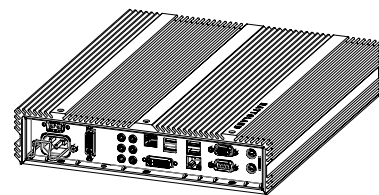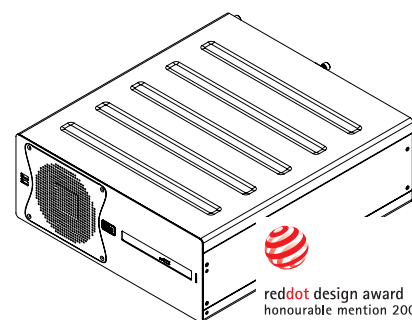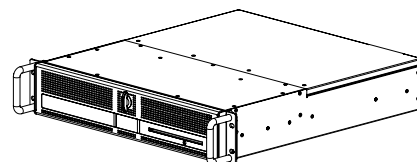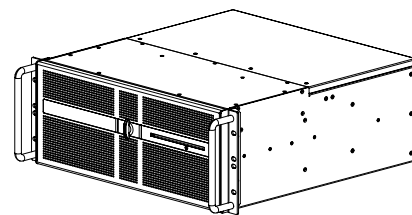
General   **9**

Exploded View HT 216
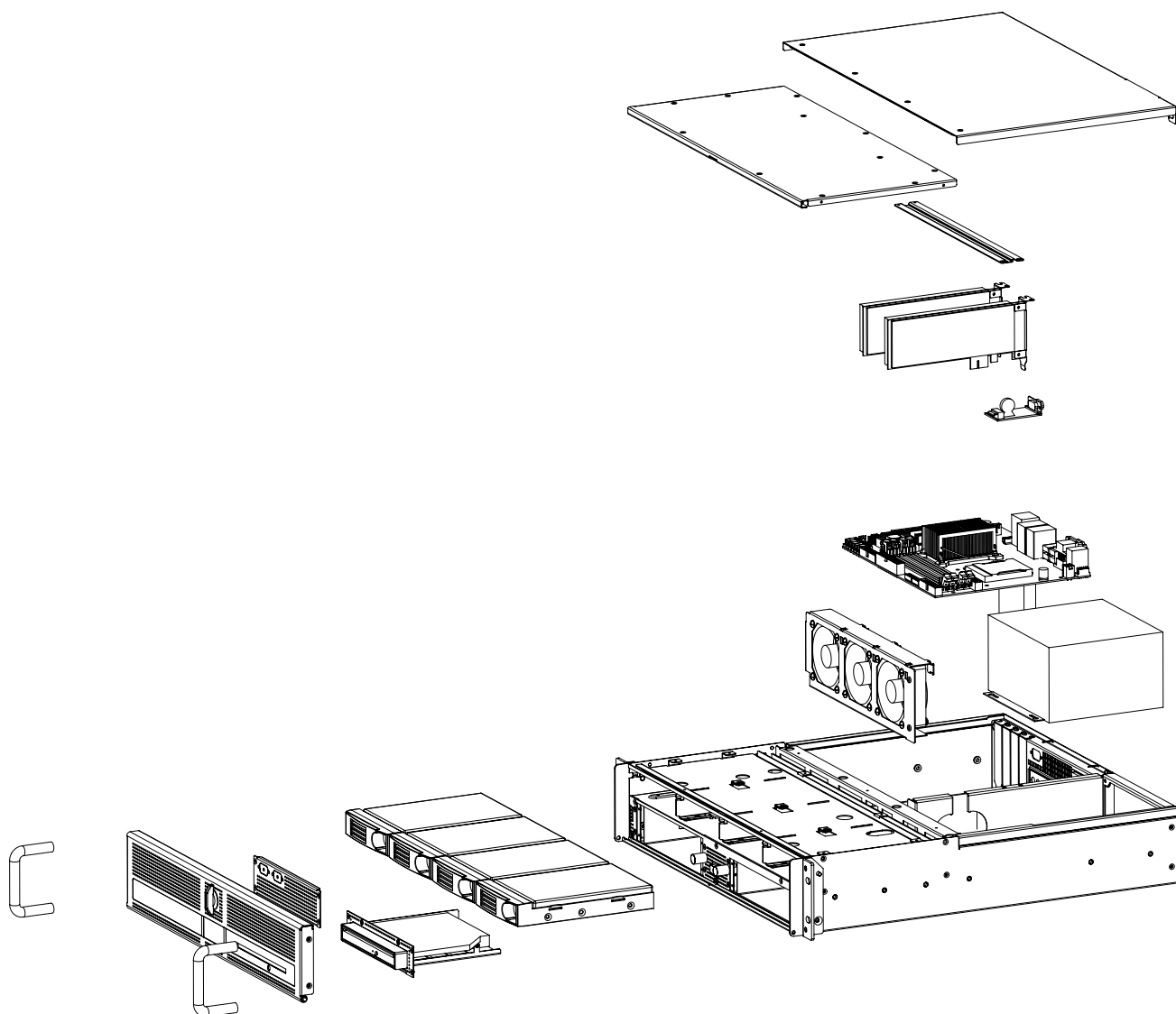
General illustration

Exploded View HT 416
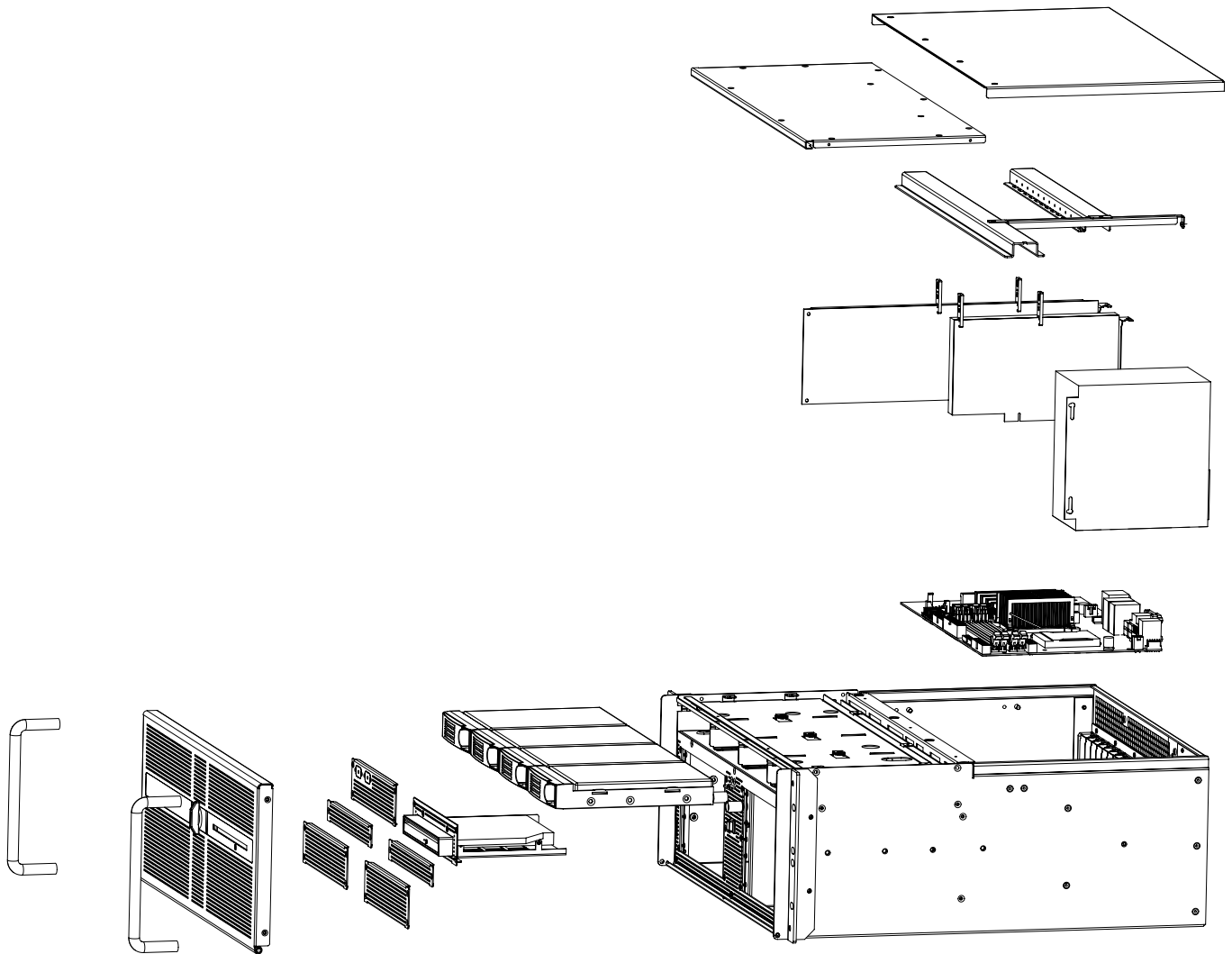
General illustration

Product Labels (Examples)

Serial Number Label Placement and Layout (external)

Note: This location also apply
for HT 416 units.

Manufacturer & Country

Product Type

Input Voltage & Power Rating

Barcode 128 (TYP+SNO)

Manufactured by Hatteland Display AS, Norway   **HATTELAND**®
Rack Mount Computer   MFR Date: 2009-17
Input: 90-264VAC; 7.0/2.5A

(TYPE - SERIAL)   HT216STDA324-0000001   CE

Manufactured Date yyyy-ww

Label Size: 6cm x 2cm
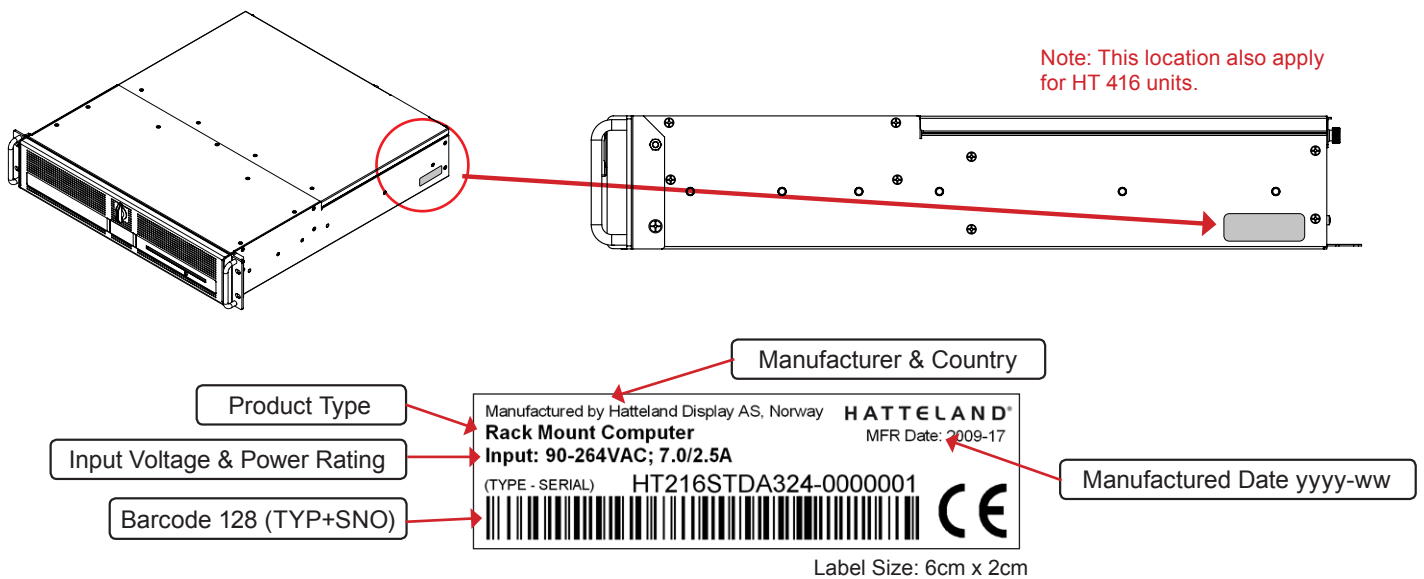
Serial Number Label Nomenclature

```
AA XXX AAA-Axxx-XXXXXX   NOMENCLATURE - A=Letters, X=Numbers
HT 216 STD-A111-000005   Example
|| ||| ||| |||| ||||||
|| ||| ||| |||| ¤-----   Serial Number, 7 digits
|| ||| ||| |¤¤¤-------   Configuration ID (for components like memory, storage etc.)
|| ||| ||| ¤----------   Power Input ID (A=90-264VAC)
|| ||| ||¤-----------   Installed Operating System ID / No Installed OS ID
|| ||| ¤¤------------   Abbreviation for Standard (ST) or reserved customer ID
|| ||¤---------------   Chassis Revision ID
|| |¤----------------   Electronics / Mainboard / Technology Revision ID
|| ¤------------------   Chassis Form Factor (2=2U, 4=4U)
¤¤-------------------   Manufacturer ID / Product Series ID
```

Revision Label

Production Code

Hardware Revision (HWcode)

2-D1A3-0201.00

(SN)0000001

Barcode 128 (SNO)
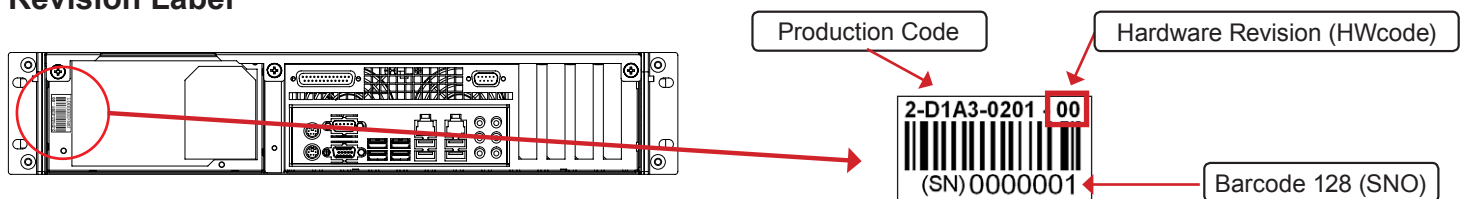
Operating System Serial Number Label Placement (external)

Label Size: 7cm x 2.8cm

Note: This location also apply
for HT 416 units.
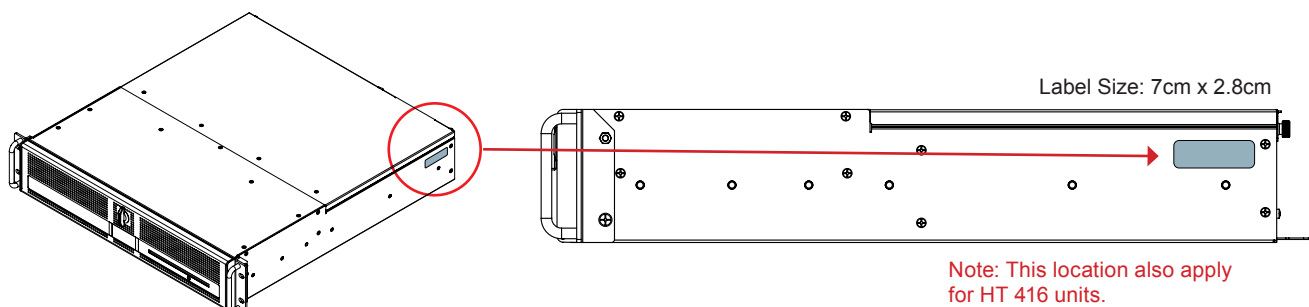
Installation

General Installation Recommendations

Installation and mounting of computers

1. Units may be intended for various methods of installation or mounting (rack mounting, panel mounting, bracket mounting, ceiling/wall mounting); for details, please see the relevant mechanical drawings.

2. Adequate ventilation is a necessary prerequisite for the life of the unit. The air inlet and outlet openings must definitely be kept clear; coverings which restrict ventilation are not permissible. The product might be without any ventilation aperatures which means pt.2 does not apply.

3. Exposure to direct sunlight can cause a considerable increase in the temperature of the unit, and might under certain circumstances lead to overtemperature. This point should already be taken into consideration when the bridge equipment is being planned (sun shades, distance from the windows, ventilation, etc.)

4. Space necessary for ventilation, for cable inlets, for the operating procedures and for maintenance, must be provided.

5. To further improve the cooling of the unit we recommend installing Cooling Fans underneath blowing upwards into the unit air inlet. This may be required in high temperature applications and also when there is reason to expect temperature problems due to non-optimal way of mounting.

6. The product should be properly grounded, a shorter and thicker cable gives better grounding. A 6mm² is recommended, but a 4mm² or even 2.5mm² can be used for this purpose.

7. Expose to heavy vibration and acoustic noise might under certain circumstances affect functionality and expected lifetime. This must be considered during system assembly and installation. Mounting position must carefully be selected to avoid any exposure of amplified vibration.

General mounting instructions

1. The useful life of the components of all Electronics Units generally decreases with increasing ambient temperature; it is therefore advisable to install such units in air-conditioned rooms. If there are no such facilities, these rooms must at least be dry, adequately ventilated and kept at a suitable temperature in order to prevent the formation of condensation inside the unit.

2. With most Electronic Units, cooling takes place via the surface of the casing. The cooling must not be impaired by partial covering of the unit or by installation of the unit in a confined cabinet.

3. In the area of the wheel house, the distance of each electronics unit from the magnetic standard compass or the magnetic steering compass must not be less than the permitted magnetic protection distance. This distance is measured from the centre of the magnetic system of the compass to the nearest point on the corresponding unit concerned. The exact distance is often mentioned in the specific product specifications.

4. Transportation damage, even if apparently insignificant at first glance, must immediately be examined and be reported to the freight carrier. The moment of setting-to-work of the equipment is too late, not only for reporting the damage but also for the supply of replacements.

5. The classification is only valid for approved mounting brackets provided by Hatteland Display. The unit shall be mounted stand-alone without any devices or loose parts placed at or nearby the unit. Any other type of mounting might require test and re-classification.

Cables

Use only high quality shielded signal cables. For RGB/DVI cables use only cables with separate coax for Red, Green and Blue.

Ferrites

On selected products, the ferrites prevent high frequency electrical noise (radio frequency interference) from exiting or entering the equipment. To verify if your product require this, please see the "Physical Overview" chapter in this manual. The ferrites are part of the contents of the package also specified in the "Contents Of Package" chapter early in this manual. **The ferrites must be mounted on specific cables to fully comply with the Type Approvals!**

The ferrites should be mounted (clipped in place on the cable as shown in illustration) as close as possible to the cable connector on the rear side of the computer product. Open up the ferrite, place the cable inside as shown in FIG1, and then gently close it until a click can be heard (FIG2).

FIG1

FIG2

To computer

To computer
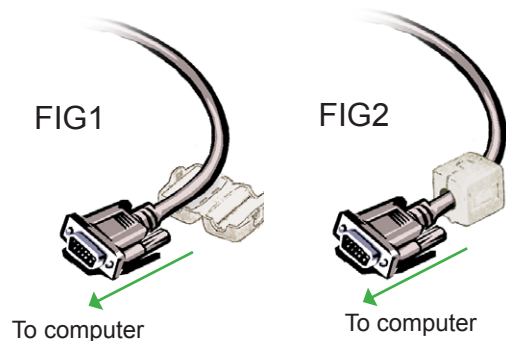
General Installation Recommendations

Sliding Rails - HT 00250 OPT-A1

Suitable for use with 19 Inch rack mounting. Load rating up to 52kg, 9.6mm slide thickness. Lock-out. Front Disconnect. Optional enclosure mounting brackets. Note: Manufactured by 3rd party. Sliding rails representation below are simplified in terms of visual appearance.

1: Pull out the rails to extend it fully
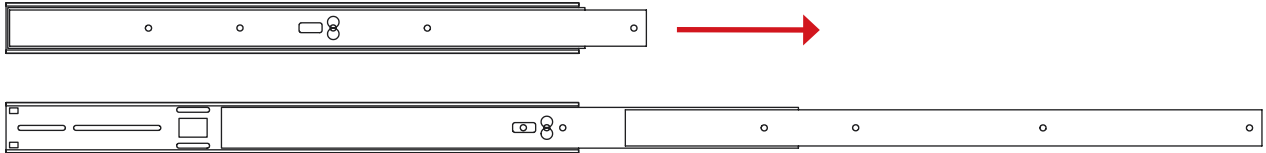
2: Note the locations of suitable mounting holes on the 2U/4U cabinet for the sliding rails
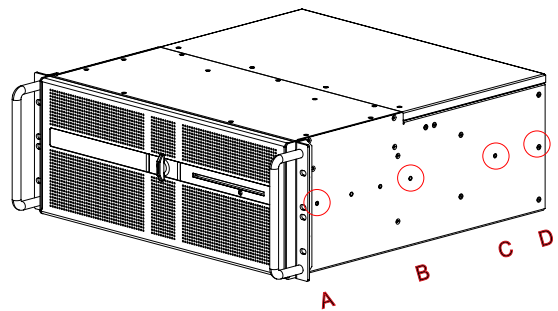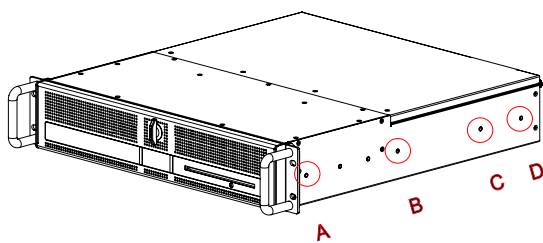
3: Mount the rails on left and right side of the 2U/4U cabinet. You may need to align the entire slide construction to discover the suitable mounting holes. M4 screws are suitable (included in kit).
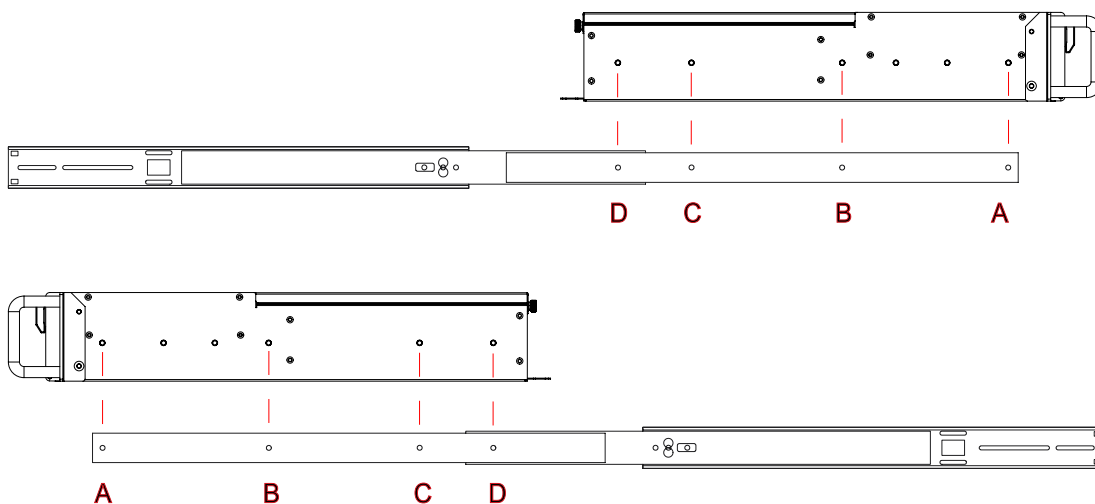
4: Mount the additional bracket kit into your 19 Inch rack if needed. Comes complete with brackets, gaskets and mounting screws.
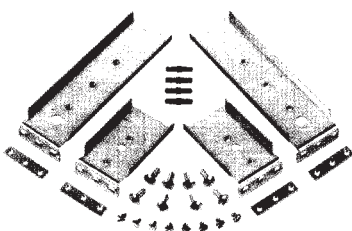
Installation   16

General Installation Recommendations

CAUTION
This unit contains electrostatic sensitive devices.
Observe precautions for handling.

Computer Upgrade Precaution Note

Users who needs to open the computer to change PCI cards, install more memory, or set internal jumpers can do so without voiding the warranty. Before opening a unit's housing to remove or touch a board, proper ESD measurements must be taken!

1. Operator should ground himself by using a wrist band.

2. The wrist band should be connected to ground via a ground cord.

3. A one megaohm resistor, installed in the wrist connection end of the ground cord, is a safety requirement.

4. Alternatively an Static-dissipative ESD work mat could be positioned at the workplace. The 3M™ 8501 Portable Field Service Kit is a good choice for this purpose.

All assisting persons who might come into contact with the endangered boards must also use the ESD equipment.

Operation

Front area - HT 216 computer

The unit's operational controls and air filter are located behind the lockable front hatch.

		Air Filter
1: Showing unit with hatch closed and front lock.	2: Press gently the front lock inwards and turn clockwise at the same time to unlock.	3: Showing unit with hatch open to reveal both user controls and air filter. See next page for details.

HDD   Reserved   Power LED   Power Button   HDD LED   Media Drive
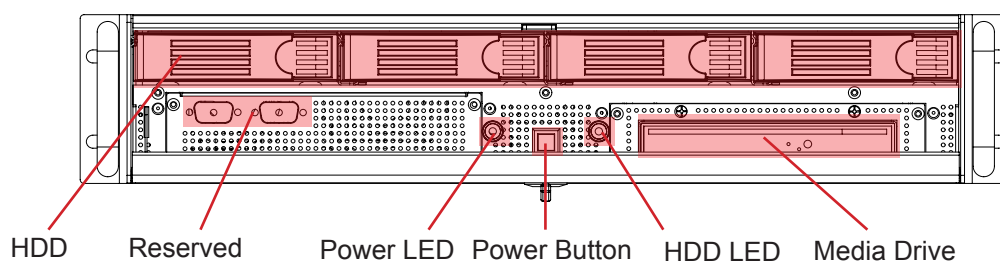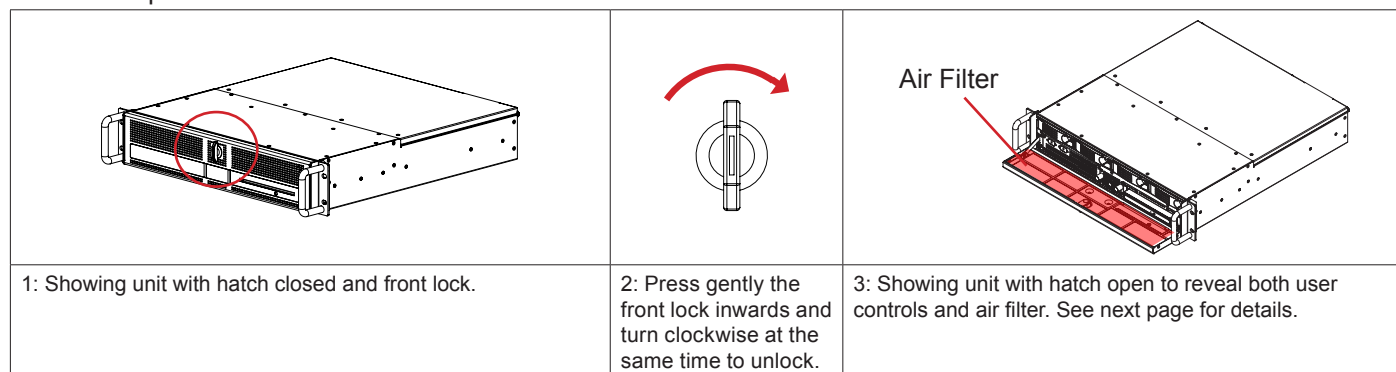
Front area - HT 416 computer

The unit's operational controls and air filter are located behind the lockable front hatch.

		Air Filter
1: Showing unit with hatch closed and front lock.	2: Press gently the front lock inwards and turn clockwise at the same time to unlock.	3: Showing unit with hatch open to reveal both user controls and air filter. See next page for details.

HDD   Reserved   Power LED   Power Button   HDD LED   Media Drive

18
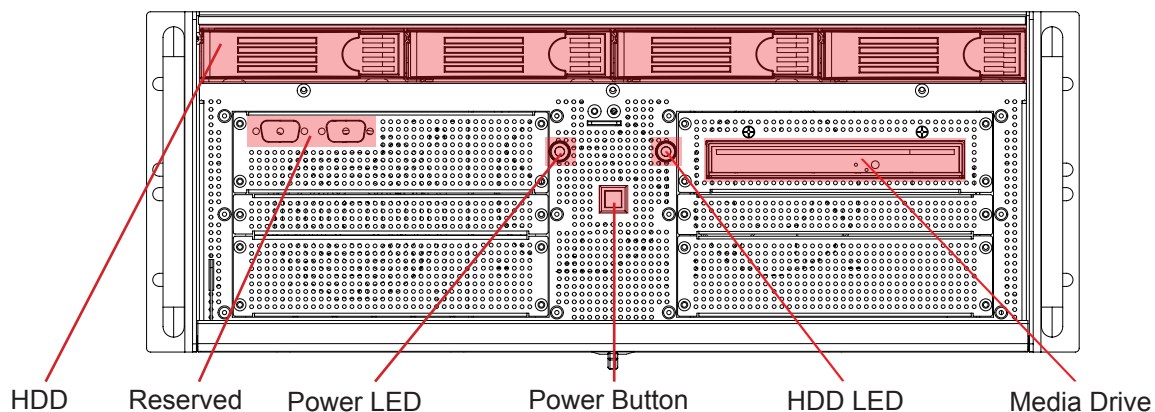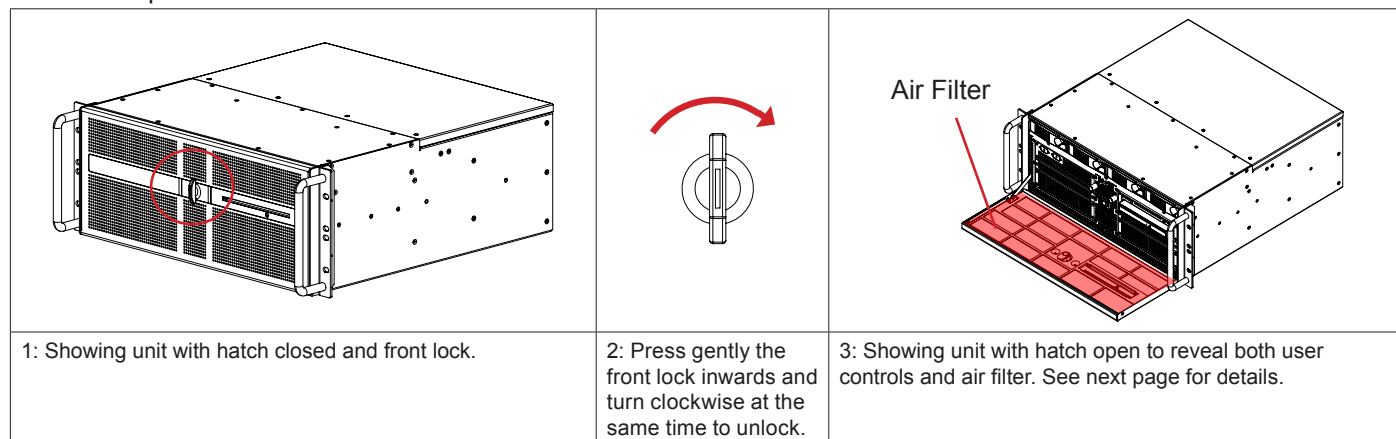
Operation

HDD TRAY 1,2,3,4:

Replaceable HDD tray bay which supports 3.5" SATA hard drives. The amount of HDD available and installed is configuration dependent. By factory default, 1 x HDD is installed. Any HDD should not be replaced or dismounted from the unit while the operating system is running and the computer unit is turned on. Doing so may cause loss of data or software crashes upon reboot.

RESERVED:

These D-SUB shaped blinded holes are reserved for future applications.

POWER LED:

The Power LED will illuminate static green when the computer unit is powered and turned on.

Power Button:

To turn ON the computer, press down button and release it immediately. The Power LED will illuminate green and any operating system installed will automatically boot. To turn OFF the computer, press down this button and hold it for 3 seconds. The operating system may require additionally tasks to be performed before computer shuts down and turns off the unit. You can also turn off the computer by using the operating system own "shut down" feature. Either to stand-by mode, hibernation or sleep is also possible from most operating systems.

HDD LED:

The HDD LED will illuminate red when there is read/write activity on any of the installed HDD in the HDD trays. When there is no HDD activity the LED will be off.
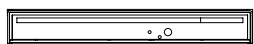
MEDIA DRIVE:

By factory default a DVD/CD-RW recorder/player is installed. The drive features an eject button, a read/write activity LED and a small hole to eject any media even if the computer unit is not powered on.

AIR FILTER:

The computer unit features an cleanable / replaceable air filter. This is located onto the front hatch as seen in the previous page. Clean this regulary (based on environmental factors) to allow the unit to continuously cool properly and to prolong the unit's lifetime and the components inside.

Physical Connections

Connector area - HT 216 computer

Note: PCI slots may provide DVI-I or other functionality not visible in the general illustration below.

PCI   PCIe X4

Power Input   LPT   Network GBLAN   COM 2   PCIe X16 (add2)   PCI

Mouse Port   Keyboard Port   COM 1   VGA RGB

USB 9,8,7,6,5,4,2,0

Center Out, Side Out, Rear Out

Mic In, Front Out, Line in
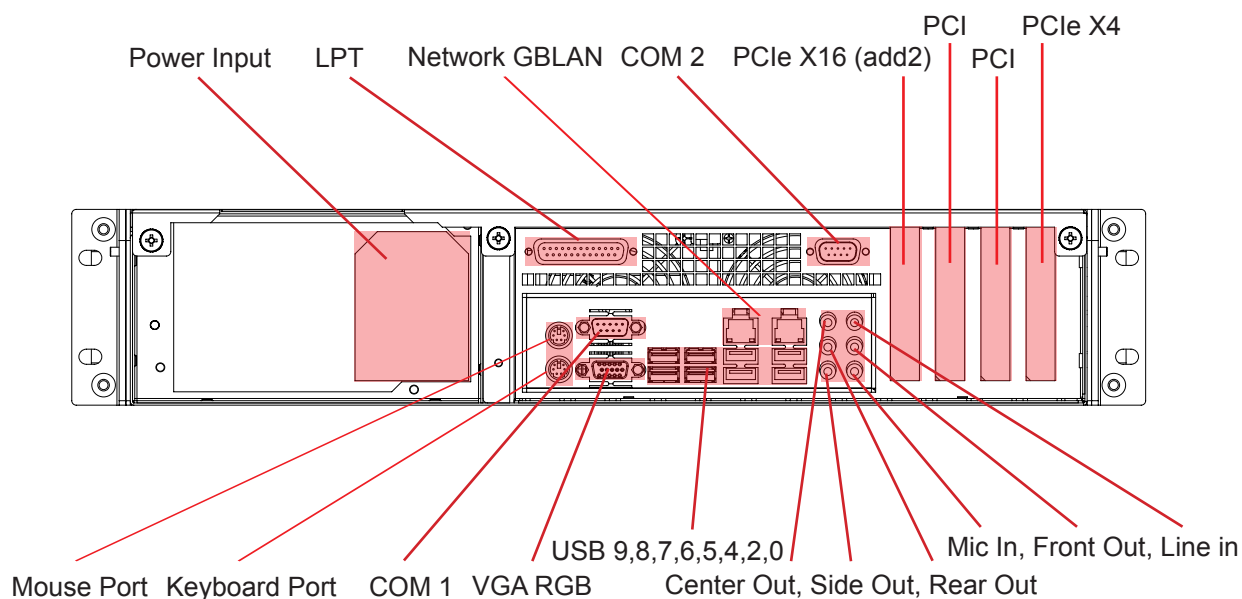
Connector area - HT 416 computer

Note: PCI slots may provide DVI-I or other functionality not visible in the general illustration below.

PCIe X16 (add2)   PCI   PCI   PCIe X4

Power Input   LPT   Network GBLAN   COM 2   PCI   PCI   PCI

Mouse Port   Keyboard Port   COM 1   VGA RGB

USB 9,8,7,6,5,4,2,0

Center Out, Side Out, Rear Out

Mic In, Front Out, Line in
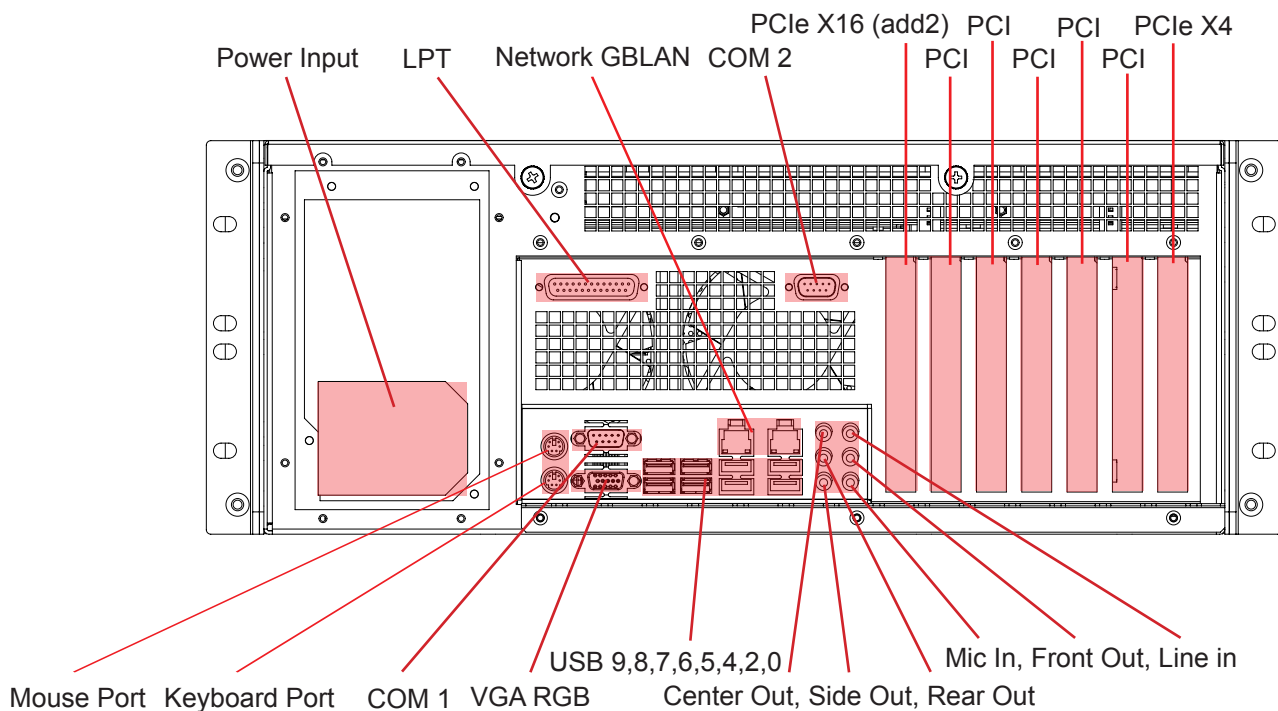
Physical Connections
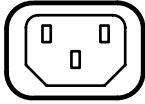
Power INPUT:
The internal AC power module supports both 115VAC/60Hz and 230/50Hz power input using a standard IEC European power plug. See specifications for more information.
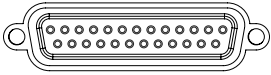
LPT1 Parallel Port INPUT/OUTPUT:
Standard LPT1 Printer/Parallel (SPP/EPP/ECP) port using a D-SUB 25P Female connector. Fasten the cable to the connector using the provided screws on the cable housing itself.

Network INPUT/OUTPUT:
Supports 10/100/1000Mbps Ethernet (LAN). Suitable for twisted pair cables CAT.5E. Make sure the network cable connector "clicks" into the RJ-45 connector.
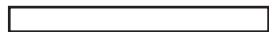
PCIe X16 (add2) Slot:
Supports Full Height and Full Length Profile card in one available slot. Cards is normally installed from factory. Please review the General Installation Recommendations chapter in this manual for more information. Additionally consult the 3rd party manual available on the attached documentation CD delivered with this unit.

PCI Rev2.3 Slots:
Supports Full Height and Full Length Profile card in two available slots. Cards is normally installed from factory. Please review the General Installation Recommendations chapter in this manual for more information. Additionally consult the 3rd party manual available on the attached documentation CD delivered with this unit.

PCIe X4 Slot:
Supports Full Height and Full Length Profile card in one available slot. Cards is normally installed from factory. Please review the General Installation Recommendations chapter in this manual for more information. Additionally consult the 3rd party manual available on the attached documentation CD delivered with this unit.

PS/2 Mouse and PS/2 Keyboard INPUTS:
Connect the PS/2 mouse cable to the PS/2 5P Connector (female).
Connect the PS/2 keyboard cable to the PS/2 5P Connector (female).

Physical Connections
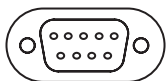
COM1 Serial Port INPUT/OUTPUT:

Supports RS-232 using D-SUB 9P male connector. Fasten the cable to the connector using the provided screws on the cable housing itself.
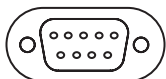
COM2 Serial Port INPUT/OUTPUT:

Supports RS-422/RS-485 (electronically isolated) using D-SUB 9P female connector. Fasten the cable to the connector using the provided screws on the cable housing itself.
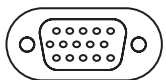
RGB OUTPUT:

Will output a signal from the computer for use with external display or monitor. Connects via a High Density D-SUB 15P Female connector. Fasten the cable to the connector using the provided screws on the cable housing itself.
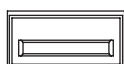
USB 9,8,7,6,5,4,2,0 INPUT/OUTPUT:

Supports any USB1.1 (12Mbps) or USB2.0 (480Mbps) compliant peripherals. Drivers for most USB devices are usually included in operating system or on separate installation CD's delivered with Third Party products. USB 1.1 devices will operate in USB 1.1 mode (12 Mbps).

Audio INPUT/OUTPUT:

All connectors are 3.5" Jack Stereo. AC'97 audio support. 7.1 channel. HD Audio. It can be configured via the operating system to act as 2-channel, 4-channel, 6-channel and 8-channel.

Port	2-channel	4-channel	6-channel	8-channel
Light Blue	Line In	Line In	Line In	Line In
Lime	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink	Mic in	Mic In	Mic In	Mic In
Gray	-	-	-	Side Speaker Out
Black	-	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out
Yellow Orange	-	-	Center/Subwoofer	Center/Subwoofer

Specifications

Specifications - HT 216

TECHNICAL DESCRIPTION

Computer Specifications: (Standard model)

External Connector Type:

Computer Specifications		External Connector Type
• System Chipset	: Intel® Q965 / ICH8D0	
• Graphics	: Integrated VGA Chipset, Supports CRT interface	1 x HD DB15F
• Graphics Resolution	: Max 2048 x 1536 @ 85Hz	
• BIOS	: AMI 8MB Flash	
• PCI Slots	: 2 x PCI Slots 32-bit, 3V and 5V Interface, Half Length and Low Profile	
• PCIe-X1 Slots	: 1 x PCIe X4, Half Length and Low Profile	
• PCIe-X16 Slots	: 1 x PCIe X16 (add2), Half Length and Low Profile (Graphic mode)	
• Media Drive	: 1 x Slim DVD-RW/CD-RW Dual Recorder/Player	
• Parallel Port (LPT)	: 1 x Bi-Directional Centronics (SPP/ECP/EPP)	1 x DB25F
• Serial Ports	: 1 x RS-232	1 x DB9M
• Serial Ports	: 1 x RS-232/RS-422/RS-485** (electrical isolated)	1 x DB9F
	** Note: Isolated RS485, currently limited to 19200baud	
• Ethernet	: 2 x 10/100/1000Mbps Gigabit LAN, Realtek RTL8111B	2 x RJ-45
• USB Ports	: 8 x USB 2.0 + 2 x internal USB2.0	8 x USB Type A
• Keyboard Port	: Standard PS/2 mini DIN connector	1 x PS/2
• Mouse Port	: Standard PS/2 mini DIN connector	1 x PS/2
• Audio	: On-board Audio Controller, AC97 Codec (7.1 channels, HD Audio) Line In, Line Out, Mic In	6 x JACKS
• Speaker	: On-board	
• Power Manager	: ACPI	

Power Specifications:

Power Supply Options:

• 115&230VAC - 50/60Hz	: HT 216 STx-Axxx model (400W - Autorange)	STD IEC
• Power Consumption - Operating	: 100W (TYP)	

Available Models:

HT 216 STD-A324 with:
1 x Intel® Core™2 Duo Desktop CPU E6400 - 2.13GHz, 1066MHz FSB, 2MB L2 Cache
2 x 1 GB installed (Dual Channel DDR2 800/667MHz SDRAM, 240-pin DIMM)
1 x 500GB or more* 3.5" SATA, 7200 RPM, 8MB Cache
1 x Microsoft® Windows® Embedded Enterprise (XP Professional Eng w/SP2c, 32bit)

HT 216 STD-A228 with:
1 x Intel® Core™2 Duo Desktop CPU E6400 - 2.13GHz, 1066MHz FSB, 2MB L2 Cache
2 x 1 GB installed (Dual Channel DDR2 800/667MHz SDRAM, 240-pin DIMM)
1 x 500GB or more* 3.5" SATA, 7200 RPM, 8MB Cache
2 x Intel® 10/100/1000Mbps Ethernet (Teaming, Low Profile) - RJ45
1 x Matrox P690 LP PCIe-X16, 128MB, Max 2048x1536 @ 85Hz with 2 x 29P DVI-I*
1 x Microsoft® Windows® Embedded Enterprise (XP Professional Eng w/SP2c, 32bit)
If 1600x1200 resolution is used, DVI signals must be set to CVT-RB (Coordinated Video Timing-Reduced Blanking) mode manually.

* Size indicated is the lowest size available/approved for current revision of data sheet. The unit will support increased disk space in future. Please contact sales for up-to-date status.

Available Accessories:

- HT 00215 OPT-A1 = 1 x Recovery Kit (USB Flash)
- HT 00250 OPT-A1 = 2 x 20" ball bearing sliding rail and mounting kit, for 19" Rack
- JH C01MF A-A = 1 x USB Cable 1m, Type A to Chassis mount receptacle

*Please see user manual/datasheet for more information

Operating System Typenumbers:

- HT 216 ST0-Axxx = No OS
- HT 216 STD-Axxx = Microsoft® Windows® Embedded Enterprise (Win XP Pro Eng w/SP2c, 32bit)
- HT 216 ST3-Axxx = Microsoft® Windows® Embedded Enterprise (Win Server 2003 Eng, 32bit)
- HT 216 ST7-Axxx = Microsoft® Windows® Embedded Enterprise (Win 7 Pro Eng, 32bit)
- HT 216 ST8-Axxx = Microsoft® Windows® Embedded Enterprise (Win Server 2008 Eng, 32bit)

For a full overview of typenumbers, please review the following link: www.hatteland-display.com/pdflink/ind100780-5.php

MECHANICAL DESCRIPTION

Physical Considerations:

- 430.00 (W) x 80.00 (H) x 460.80 (D) mm (main chassis w/o handles etc)
- 16.93" (W) x 3.46" (H) x 18.14" (D) (main chassis w/o handles etc)
- Weight: 10 kg (approx)
- Power button, power led and HDD Led in front
- Black (EP0301-4040627) Heavy-duty steel 2U Rackmount chassis
- Easy Removable air filter and lockable front hatch door
- Supports 2 x 5¼" disk bays (one slim, one full size)
- Supports 4 x 3½" disk bays
- Supports rear cable strain reliefs with grounding thread
- Suppors rear PCI card support holder, fixed to chassis
- 5 x Internal Cooling fans such as: High & Low pressure, PSU, CPU & PCI.

Environmental Considerations:

• Operating	: Temperature -15 deg. C to +55 deg. C Humidity up to 95%
• Storage	: Temperature -20 deg. C to +60 deg. C Humidity up to 95%

Safety Considerations:
Even although the test conditions for bridge units provide for a maximum operating temperature of 55°C, continuous operation of all electronic components should, if possible, take place at ambient temperatures of only 25°C. This is a necessary prerequisite for long life and low service costs.

Compass Safe Distance	: HT 216 STx-Axxx Standard: 140cm - Steering: 80cm

APPROVALS & CERTIFICATES

This product have been tested / type approved by the following classification societies:

IEC 60945 4th (EN 60945:2002)	**DNV** - Det Norske Veritas	**ABS** - American Bureau of Shipping	**IACS E-10**	**BV** - Bureau Veritas
ClassNK - Nippon Kaiji Kyokai	**GL** - Germanischer Lloyd	**LRS** - Lloyd's Register of Shipping		

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Specifications - HT 416

Note: All specifications are subject to change without prior notice!

TECHNICAL DESCRIPTION

Computer Specifications: (Standard model)

		External Connector Type:
• System Chipset	: Intel® Q965 ICH8D0	
• Graphics	: Integrated VGA Chipset, Supports CRT interface.	1 x HD DB15F
• Graphics Resolution	: Max 2048 x 1536 @ 85Hz	
• BIOS	: AMI 8MB Flash	
• PCI Slots	: 5 x PCI Slots 32-bit, 3V and 5V Interface, Full Height and Full Lenght	
• PCIe-X1 Slots	: 1 x PCIe X4, Full Height and Full Lengh	
• PCIe-X16 Slots	: 1 x PCIe X16 (add2), Full Height and Full Lengh (Graphic mode)	
• Media Drive	: 1 x Slim DVD-RW/CD-RW Dual Recorder/Player	
• Parallel Port (LPT)	: 1 x Bi-Directional Centronics (SPP/ECP/EPP)	1 x DB25F
• Serial Ports	: 1 x RS-232	1 x DB9M
• Serial Ports	: 1 x RS-232/RS-422/RS-485** (electrical isolated)	1 x DB9F
	** Note: Isolated RS485, currently limited to 19200baud	
• Ethernet	: 2 x 10/100/1000Mbps Gigabit LAN, Realtek RTL8111B	2 x RJ-45
• USB Ports	: 8 x USB 2.0 + 2 x internal USB2.0	8 x USB Type A
• Keyboard Port	: Standard PS/2 mini DIN connector	1 x PS/2
• Mouse Port	: Standard PS/2 mini DIN connector	1 x PS/2
• Audio	: On-board Audio Controller, AC97 Codec (7.1 channels, HD Audio) Line In, Line Out, Mic In	6 x JACKS
• Speaker	: On-board	
• Power Manager	: ACPI	

Power Specifications:

Power Supply Options:

• 115&230VAC - 50/60Hz	: HT 416 STx-Axxx model (400W - Autorange)	STD IEC
• Power Consumption - Operating	: 100W (TYP)	

Available Models:

HT 416 STD-A340 with:
1 x Intel® Core™2 Duo Desktop CPU E6400 - 2.13GHz, 1066MHz FSB, 2MB L2 Cache
2 x 1 GB installed (Dual Channel DDR2 800/667MHz SDRAM, 240-pin DIMM)
1 x 500GB or more* 3.5" SATA, 7200 RPM, 8MB Cache
1 x Microsoft® Windows® Embedded Enterprise (XP Professional Eng w/SP2c, 32bit)

HT 416 STD-A244 with:
1 x Intel® Core™2 Duo Desktop CPU E6400 - 2.13GHz, 1066MHz FSB, 2MB L2 Cache
2 x 1 GB installed (Dual Channel DDR2 800/667Mhz SDRAM, 240-pin DIMM)
1 x 500GB or more, 3.5" SATA, 7200 RPM, 8MB Cache
2 x Intel® 10/100/1000Mbps Ethernet (Teaming, Low Profile) - RJ45.
1 x Matrox P690 PCIe-X16, 128MB, Max 2048x1536 @ 85Hz with 2 x 29P DVI-I*
1 x Microsoft® Windows® Embedded Enterprise (XP Professional Eng w/SP2c, 32bit)
If 1600x1200 resolution is used, DVI signals must be set to CVT-RB (Coordinated Video Timing-Reduced Blanking) mode manually.

* Size indicated is the lowest size available/approved for current revision of data sheet. The unit will support increased disk space in future. Please contact sales for up-to-date status.

Available Accessories:

• HT 00215 OPT-A1 = 1 x Recovery Kit (USB Flash)
• HT 00250 OPT-A1 = 2 x 20" ball bearing sliding rail and mounting kit for 19" Rack
• JH C01MF A-A   = 1 x USB Cable 1m, Type A to Chassis mount receptacle
*Please see user manual/datasheet for more information

Operating System Typenumbers:

• HT 416 ST0-Axxx   = No OS
• HT 416 STD-Axxx = Microsoft® Windows® Embedded Enterprise (Win XP Pro Eng w/SP2c, 32bit)
• HT 416 ST3-Axxx = Microsoft® Windows® Embedded Enterprise (Win Server 2003 Eng, 32bit)
• HT 416 ST7-Axxx = Microsoft® Windows® Embedded Enterprise (Win 7 Pro Eng, 32bit)
• HT 416 ST8-Axxx = Microsoft® Windows® Embedded Enterprise (Win Server 2008 Eng, 32bit)

For a full overview of typenumbers, please review the following link: www.hatteland-display.com/pdflink/ind100780-5.php

MECHANICAL DESCRIPTION

Physical Considerations:

• 431.00 (W) x 176.50 (H) x 443.00 (D) mm (main chassis w/o handles etc)
• 16.97" (W) x 6.95" (H) x 17.44" (D) (main chassis w/o handles etc)
• Weight: 25 kg (approx)
• Power button, power led and HDD Led in front
• Black (EP0301-4040627) Heavy-duty steel 4U Rackmount chassis
• Easy Removable air filter and lockable front hatch door
• Supports 6 x 5¼" disk bays (4 x 5¼" + 2 x slim, one used for air flow)
• Supports 4 x 3½" disk bays
• Supports rear cable strain reliefs with grounding thread
• Suppors rear PCI card support holder, fixed to chassis
• 5 x Internal Cooling fans such as: High & Low pressure, PSU, CPU & PCI.

Environmental Considerations:

• Operating	: Temperature -15 deg. C to +55 deg. C Humidity up to 95%
• Storage	: Temperature -20 deg. C to +60 deg. C Humidity up to 95%

Safety Considerations:
Even although the test conditions for bridge units provide for a maximum operating temperature of 55°C, continuous operation of all electronic components should, if possible, take place at ambient temperatures of only 25°C. This is a necessary prerequisite for long life and low service costs.

Compass Safe Distance	: HT 416 STx-Axxx Standard: 135cm - Steering: 90cm

APPROVALS & CERTIFICATES

This product have been tested / type approved by the following classification societies:

IEC 60945 4th (EN 60945:2002) **DNV** - Det Norske Veritas **ABS** - American Bureau of Shipping **IACS E-10** **BV** - Bureau Veritas
ClassNK - Nippon Kaiji Kyokai **GL** - Germanischer Lloyd **LRS** - Lloyd's Register of Shipping

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Technical Drawings

Dimensions might be shown with or without decimals and indicated as mm [inches]. Tolerance on drawings is +/- 1mm. For accurate measurements, check relevant DWG file.

DIMETRIC VIEW

TOP VIEW

537,00 [21,14]

BOTTOM VIEW

54,00 [2,13]

460,80 [18,14]

22,20 [0,87]

430,00 [16,93]

BACK VIEW

66,23 [2,61]

21,78 [0,86]

0 [0,00]

108,16 [4,26]

87,84 [3,46]

67,52 [2,66]

47,20 [1,86]

0 [0,00]

465,90 [18,34] (19" RACK)

SIDE VIEW

51,00 [2,01]

FRONT VIEW

482,60 [19,00]

88,00 [3,46]

SALES DRAWING HT 216

HT 216 STD-Axxx, AC Power model shown in this drawing,
but measurements generally apply for all HT 216 xxx-Axxx models

Units: mm [inches]

HATTELAND DISPLAY®

Date:	Mechanical Design	Projection
15-04-2009	7251	

Hatteland Display AS
Åmsosen
N-5578 Nedre Vats

Size: A1 Format	Scale: 1:5
Colour code:	Revision: _
Surface treatment	

Drawing number: A001845-1

Dimensions might be shown with or without decimals and indicated as mm [inches]. Tolerance on drawings is +/- 1mm. For accurate measurements, check relevant DWG file.

DIMETRIC VIEW

TOP VIEW

527,50 [20,77]

BOTTOM VIEW

54,00 [2,13]   443,00 [17,44]   30,50 [1,20]

431,00 [16,97]

BACK VIEW

139,05 [5,47]
94,60 [3,72]
81,90 [3,22]
37,45 [1,47]
0 [0,00]

0 [0,00]
49,20 [1,94]
69,52 [2,74]
89,84 [3,54]
110,16 [4,34]
130,48 [5,14]
150,80 [5,94]
171,12 [6,74]

465,90 [18,34] (19" RACK)

SIDE VIEW

51,00 [2,01]

FRONT VIEW

482,60 [19,00]

176,50 [6,95]

SALES DRAWING HT 416

HT 416 STD-Axxx, AC Power model shown in this drawing,
but measurements generally apply for all HT 416 xxx-Axxx models

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Technical Drawings - Accessories

Dimensions might be shown with or without decimals and indicated as mm [inches]. Tolerance on drawings is +/- 1mm. For accurate measurements, check relevant DWG file.

SLIDE RAIL with marked holes (A,B,C,D)

DIMETRIC VIEW 2U

DIMETRIC VIEW 4U

LEFT SIDE VIEW

RIGHT SIDE VIEW

Units: mm [inches]

HATTELAND® DISPLAY

Date:	Mechanical Design	Projection:
06-01-2011	7261/063	
Hatteland Display AS		
Åmsosen		
N-5578 Nedre Vats		

Size: A1 Format
Scale: 1:1
Colour code: –
Surface treatment:

Approved by:
Drawing number: Based on A001845-1
Revision: 1

SALES DRAWING HT 00250 OPT-A1 - Sliding Rails Mounting 2U/4U

Note: Sliding rails representation are simplified in terms of visual appearance.
Based on 3rd party original drawn manufacturer illustration.

9,50 [0.37]
20,60 [0.81]
41,10 [1.62]
37,80 [1.49]
76,20 [3.00]
69,60 [2.74]
457,00 [17.99]
18,40 [0.72]
12,70 [0.50]
12,70 [0.50]
29,00 [1.14]
Ø4,6 (4x)
Ø4,6
387,30 [15.25]
314,30 [12.37]
164,80 [6.49]
508,00 [20.00]
9,90 [0.39]

Appendixes

Pinout Assignments - Common Connectors

Note: Not all connectors may be available on your specific product. This depends on the amount of additional hardware installed from factory, or customized solutions. These pin assignments are for the common connectors used. Connectors are seen from users Point Of View (POV).

RJ45 10/100 LAN
Use category 5 - twisted pair cable

1 2 3 4 5 6 7 8

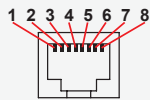| Pin 01 - TDP	Transmit Differential Pair (Positive)
Pin 02 - TDN	Transmit Differential Pair (Negative)
Pin 03 - RDP	Receive Differential Pair (Positive)
Pin 04 - NC	Not Connected
Pin 05 - NC	Not Connected
Pin 06 - RDN	Receive Differential Pair (Negative)
Pin 07 - NC	Not Connected
Pin 08 - NC	Not Connected

RJ45 10/100/1000 GBLAN

1 2 3 4 5 6 7 8

| Pin 01 - D0P	Differential Pair 0 (Positive)
Pin 02 - D0N	Differential Pair 0 (Negative)
Pin 03 - D1P	Differential Pair 1 (Positive)
Pin 04 - D2P	Differential Pair 2 (Positive)
Pin 05 - D2N	Differential Pair 2 (Negative)
Pin 06 - D1N	Differential Pair 1 (Negative)
Pin 07 - D3P	Differential Pair 3 (Positive)
Pin 08 - D3N	Differential Pair 3 (Negative)

15P HD RGB VGA

5 4 3 2 1
10 9 8 7 6
15 14 13 12 11
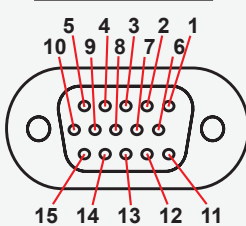
Pin 01	Red, analog
Pin 02	Green, analog
Pin 03	Blue, analog
Pin 04	Reserved for monitor ID bit 2 (grounded)
Pin 05	Digital ground
Pin 06	Analog ground red
Pin 07	Analog ground green
Pin 08	Analog ground blue
Pin 09	+5V power supply for DDC (optional)
Pin 10	Digital ground
Pin 11	Reserved for monitor ID bit 0 (grounded)
Pin 12	DDC serial data
Pin 13	Horizontal sync or composite sync, input
Pin 14	Vertical sync, input
Pin 15	DDC serial clock

9P Serial COM RS-232
This connector is commonly used for:

5 4 3 2 1
9 8 7 6
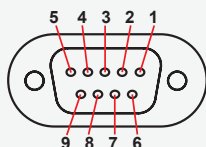
Pin 01 - DCD	Data Carry Detect
Pin 02 - SIN	Serial In or Receive Data
Pin 03 - SOUT	Serial Out or Transmit Data
Pin 04 - DTR	Data Terminal Ready
Pin 05 - GND	Ground
Pin 06 - DSR	Data Set Ready
Pin 07 - RTS	Request To Send
Pin 08 - CTS	Clear To Send
Pin 09 - RI	Ring Indicate

Note: The table above lists commonly-used RS-232 signals and pin assignments, however Serial Communication for Hatteland Display products may vary from product to product to support different end user systems. Please check additional pin assignments section in this manual for specific RS-232/RS-422/RS-485 pin assignments for your exact product.

4P USB TYPE A

Pin 2: Negative Data
Pin 4: Ground
Pin 1: VCC +5V
Pin 3: Positive Data

4P USB TYPE B

Pin 2: Negative Data
Pin 1: VCC +5V
Pin 3: Positive Data
Pin 4: Ground

5P PS/2 MOUSE

Pin 6: Not Connected
Pin 5: Mouse Clock
Pin 4: Vcc +5V
Pin 3: Ground
Pin 2: Not Connected
Pin 1: Mouse Data

5P PS/2 KEYBOARD+MOUSE Combined

Pin 6: Mouse Clock
Pin 5: Keyboard Clock
Pin 4: Vcc +5V
Pin 3: Ground
Pin 2: Mouse Data
Pin 1: Keyboard Data

5P PS/2 KEYBOARD

Pin 6: Not Connected
Pin 5: Keyboard Clock
Pin 4: Vcc +5V
Pin 3: Ground
Pin 2: Not Connected
Pin 1: Keyboard Data

5P S-VHS/S-VIDEO

Pin 4: C - Color (chrominance)
Pin 3: Y - Intensity (luminance)
Pin 2: Ground (C)
Pin 1: Ground (Y)

RCA/BNC 1P COMP. VIDEO

Pin 1: Video Signal
Ground Shield

2P DC Power Input on unit
Amphenol FCC17 D-SUB MALE

Pin 1: +24VDC
Pin 2: Ground

+ -

2P DC Power Input Housing
FCE17-E2W2SS-2N0

Pin 2: Ground
Pin 1: +24VDC

- +

Appendix   34

Pinout Assignments - Common Connectors

25P Parallel

```
        13 12 11 10 9 8 7 6 5 4 3 2 1

          25 24 23 22 21 20 19 18 17 16 15 14
```

Pin 01 - STROBE	This signal indicates to the printer that data at PD7..0 are valid.
Pin 02 - DATA0	Parallel data bus from PC board to printer. The data line are able to operate in PS/2 compatible bi-directional mode.
Pin 03 - DATA1	Same as Pin 02
Pin 04 - DATA2	Same as Pin 02
Pin 05 - DATA3	Same as Pin 02
Pin 06 - DATA4	Same as Pin 02
Pin 07 - DATA5	Same as Pin 02
Pin 08 - DATA6	Same as Pin 02
Pin 09 - DATA7	Same as Pin 02
Pin 10 - ACK	Signal from printer indicating that the printer has received the data and is ready to accept further data.
Pin 11 - BUSY	Signal from printer indicating that the printer cannot accept further data.
Pin 12 - PE	Signal from printer indicating that the printer is out of paper.
Pin 13 - SELECT	Signal from printer to indicate that the printer is selected.
Pin 14 - AUTO FEED	This active low output causes the printer to add a line feed after each line printed.
Pin 15 - ERR#	Signal from printer indicating that an error has been detected.
Pin 16 - INIT#	This active low output initialises (resets) the printer.
Pin 17 - SLIN#	Signal to select the printer sent from CPU board to printer.
Pin 18 - GND	Ground
Pin 19 - GND	Ground
Pin 20 - GND	Ground
Pin 21 - GND	Ground
Pin 22 - GND	Ground
Pin 23 - GND	Ground
Pin 24 - GND	Ground
Pin 25 - GND	Ground

24P DVI-D & DVI-I

```
        1 2 3 4 5 6 7 8   C1 C2
       9 10 11 12 13 14 15 16   C5

       17 18 19 20 21 22 23 24  C3 C4
```
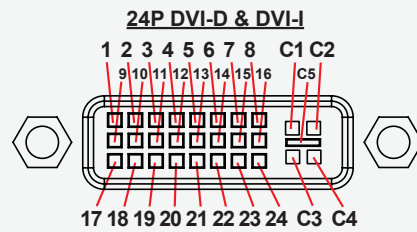
Pin 01	T.M.D.S. Data2 - (Digital - RED link 1)
Pin 02	T.M.D.S. Data2 + (Digital + RED link 1)
Pin 03	T.M.D.S. Data2/4 Shield
Pin 04	T.M.D.S. Data4 - (Digital - GREEN link 2)
Pin 05	T.M.D.S. Data4 + (Digital + GREEN link 2)
Pin 06	DDC Clock
Pin 07	DDC Data
Pin 08	Analog Vertical Sync (DVI-I only)
Pin 09	T.M.D.S. Data1 - (Digital - GREEN link 1)
Pin 10	T.M.D.S. Data1 + (Digital + GREEN link 1)
Pin 11	T.M.D.S. Data1/3 Shield
Pin 12	T.M.D.S. Data3 - (Digital - BLUE link 2)
Pin 13	T.M.D.S. Data3 + (Digital + BLUE link 2)
Pin 14	+5V Power (for standby mode)
Pin 15	Ground (for +5V and analog sync)
Pin 16	Hot Plug Detect
Pin 17	T.M.D.S. Data0 - (Digital - BLUE link 1) and digital sync.
Pin 18	T.M.D.S. Data0 + (Digital + BLUE link 1) and digital sync.
Pin 19	T.M.D.S. Data0/5 Shield
Pin 20	T.M.D.S. Data5 - (Digital - RED link 2)
Pin 21	T.M.D.S. Data5 + (Digital - RED link 2)
Pin 22	T.M.D.S. Clock Shield
Pin 23	T.M.D.S. Clock + (Digital clock + (Links 1 and 2)
Pin 24	T.M.D.S. Clock - (Digital clock - (Links 1 and 2)
Pin C1	Analog RED
Pin C2	Analog GREEN
Pin C3	Analog BLUE
Pin C4	Analog Horizontal Sync.
Pin C5	Analog Ground (return for RGB signals)

DDC = Display Data Channel /// T.M.D.S = Transition Minimized Differential Signal /// PIN C1,C2,C3,C4 = Only present on DVI-I connectors.
NOTE: Connector shows a DUAL LINK design, but some units may not support it. Only products with 1920x1200 or more in resolution require / support DUAL LINK.

Additional connector pinouts may be available in third party motherboard manuals, primarily for computers only. Please see manual/drivercd delivered with your product or own section in this user manual.

Appendix   35

Pinout Assignments - HT 216/HT 416 Additional COM Ports

The unit can be configured for RS422 / RS485 communication via a DIP switch SW1. The switches are named DIP1-8. The DIP switch is located on the communication card mounted on the motherboard which are connected to the units 9P D-SUB Comports at the rear of the unit.

ON
OFF
1 2 3 4 5 6 7 8

SW1 DIP1	TYP
OFF	RS422
ON	RS485

SW1 DIP2	MODE
OFF	Full duplex (4-wire mode)
ON	Half duplex (2-wire mode)

SW1 DIP3	Switching Signal
OFF	Timeout
ON	RTS-Signal

SW1 DIP4	Termination
OFF	Deactivated
ON	Activated

Setting SW1				Timeout	Min. Baudrate
SW1 DIP5	SW1 DIP6	SW1 DIP7	SW DIP8		
OFF	OFF	OFF	OFF	10.2ms	1200
OFF	OFF	OFF	ON	9.6ms	
OFF	OFF	ON	OFF	9.0ms	
OFF	OFF	ON	ON	8.4ms	
OFF	ON	OFF	OFF	7.8ms	
OFF	ON	OFF	ON	7.2ms	
OFF	ON	ON	OFF	6.5ms	
OFF	ON	ON	ON	5.9ms	
ON	OFF	OFF	OFF	4.8ms	2400
ON	OFF	OFF	ON	4.3ms	
ON	OFF	ON	OFF	3.7ms	
ON	OFF	ON	ON	3.1ms	
ON	ON	OFF	OFF	2.5ms	4800
ON	ON	OFF	ON	1.9ms	
ON	ON	ON	OFF	1.2ms	9600
ON	ON	ON	ON	0.6ms	19200

9P Serial COM RS422
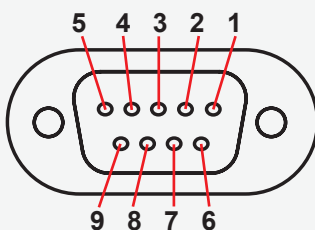
5 4 3 2 1
9 8 7 6

Pin 01 - TXD-	Transmit Data -
Pin 02 - RXD+	Receive Data +
Pin 03 - TXD+	Transmit Data +
Pin 04 - RXD-	Receive Data -
Pin 05 - GND	Ground
Pin 06 - N/C	Not Connected
Pin 07 - N/C	Not Connected
Pin 08 - N/C	Not Connected
Pin 09 - N/C	Not Connected

9P Serial COM RS485 Full Duplex
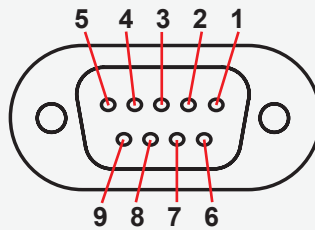
5 4 3 2 1
9 8 7 6

Pin 01 - TXD-	Transmit Data -
Pin 02 - RXD+	Receive Data +
Pin 03 - TXD+	Transmit Data +
Pin 04 - RXD-	Receive Data -
Pin 05 - GND	Ground
Pin 06 - N/C	Not Connected
Pin 07 - N/C	Not Connected
Pin 08 - N/C	Not Connected
Pin 09 - N/C	Not Connected

9P Serial COM RS485 Half Duplex

5 4 3 2 1
9 8 7 6
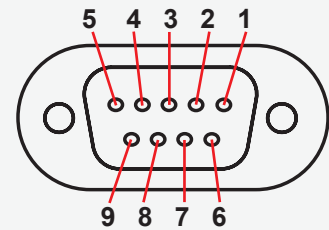
Pin 01 - Data-	Data Negative
Pin 02 - N/C	Not Connected
Pin 03 - N/C	Not Connected
Pin 04 - N/C	Not Connected
Pin 05 - GND	Ground
Pin 06 - Data+	Data Positive
Pin 07 - N/C	Not Connected
Pin 08 - N/C	Not Connected
Pin 09 - N/C	Not Connected

Appendix 36

GENERAL TROUBLE-SHOOTING

CD-ROM FAILURE OR READ/DETECTION PROBLEMS?

If the product are operated/located in a area with extreme condensation, the CD/DVD-ROM drive may not work correctly due to condensation on the read head. Keep the product on for a while until it's reached normal operating temperature, and retry accessing discs. Otherwise, consider using USB memory sticks or alternative storage devices.

NO CD-ROM AVAILABLE ON YOUR PRODUCT FOR INSTALLING DRIVERS/SOFTWARE?

Please use USB memory sticks, USB Floppy drive, USB CD-Rom Drive or alternative storage devices to transfer or install software on CD-ROM-less units. You may also download drivers from: http://www.hatteland-display.com/archive

RECOVERY/RESCUE IMAGE

The Recovery Kit (USB Flash) will attempt to restore the HDD/SSD partition back to factory default overwriting all current data available on the HDD/SSD device. The recovery image is located either on a hidden partition image located on the computer unit (HT/HM C01 with WinXP only) or it is included as a image on the USB Flash Kit for HT 216, HT 416, HT B17, HT B18, HT B21, HT B22 and HT/HM C01 (Win7 only) computer models. The recovery image file is not accessible from any operating system, only by the Recovery Kit (USB Flash) provided by Hatteland Display.

Note that all files created after first time factory boot will be DELETED!

Restore from external USB recovery image (HT 00215 OPT-A1):

1: Insert the USB Flash media into the computer usb connector.
2: Restart the computer.
3: On the first screen that appear, press "Delete" or "F2" on the keyboard (depending on BIOS model) to bring up the BIOS setup screen.
4: Select "Advanced BIOS features" or "Boot" (depending on BIOS model).
5: Set "Harddisk boot priority" to "USB HDD" as number 1
   or select "Hard Disk Drives", then modify "1 st" to "USB: ...." depending on BIOS model.
6: Press F10 and then Enter on keyboard, or "F4" to save settings (depending on BIOS model).
7: Follow the on screen instructions that will be executed from the USB Flash media, such as;

8: After the restore operation is complete, remove the USB Flash Media and restart.

9: The computer is now restored to its original factory state.

10: If rescue failed, an error message will be displayed.

HATTELAND® DISPLAY

Declaration of Conformity

We, manufacturer, **Hatteland Display AS,** Åmsosen, N-5578 Nedre Vats, Norway

declare under our sole responsibility that the
JH MMD, JH MMC, JH STD, JH MIL, HM NMD, HM MIL, HM CMD, HT STD, HD MMD, HM MMD, HT MMC, HD MMC
and HT (computers) product ranges is in conformity with the following standards in accordance with the EMC Directive.

Low Voltage Directive 2006/95/EC
EN 60950:2006/A2:2013

EMC Directive 2004/108/EC
EN 55022:2010 / AC:2011 Class A
EN 55024:2010

Signature:...
Frode Grindheim
Vice President Product Management
Nedre Vats, Norway

CE

Signature:...
Arne Kristiansen
Site Manager - Test & Commission Division
Oslo, Norway

CE MARK FIRST AFFIXED DATE (11 March 2010)

Declaration of Conformity

We, manufacturer, **Hatteland Display AS,** Åmsosen, N-5578 Nedre Vats, Norway
declare under our sole responsibility that the JH MMD, JH MMC, JH STD, JH MIL, HM NMD, HM MIL, HM CMD, HT STD,
HD MMD, HM MMD, HT MMC, HD MMC and HT (computers) product ranges is in conformity with
IEC 60945 4th (EN 60945:2002) and IACS E10 (where applicable)

HATTELAND® DISPLAY

Declaration of Conformity

We, manufacturer, **Hatteland Display AS,** Åmsosen, N-5578 Nedre Vats, Norway

declare under our sole responsibility that the products listed below comply with
FCC 47 CFR Part 15, Subpart B, Class A:

JH MMD, JH MMC, JH STD, JH MIL, HM NMD, HM MIL, HM CMD, HT STD, HD MMD,
HM MMD, HT MMC, HD MMC and HT (computers) product ranges

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial
environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the
instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to
cause harmful interference in which case the user will be required to correct the interference at his own expense.

Signature:...
Frode Grindheim
Vice President Product Management
Nedre Vats, Norway

FC

Signature:...
Arne Kristiansen
Site Manager - Test & Commission Division
Oslo, Norway

FCC MARK FIRST AFFIXED DATE (16 February 2012)

This document was last approved, reviewed and found valid on **03 Jan 2014** by the signed participants as stated above.

Return Of Goods Information

Return of goods:

(Applies not to warranty/normal service/repair of products)

Hatteland Display referenced as "manufacturer" in this document.

Before returning goods, please contact your system supplier before sending anything directly to manufacturer. When you return products after loan, test, evaulation or products subject for credit, you must ensure that all accessories received from our warehouse is returned. This applies to cables, powermodules and additional equipment except screws or similar, user manual, datasheets or other written paper documents. Furthermore, the product must not have any minor / medium or severe scratches, chemical spills or similar on the backcover, front frame or glass.

This is needed to credit the invoice 100%. Missing parts will not be subject for credit, and you will not get total credit for returned product. You will either be charged separately or the amount is withdrawn from the credit. If you decide to ship the missing items on the after hand, you will get 100% credit for that particular invoice or items received at manufacturer incoming goods control. Please contact our service/sales department if additional questions

Handling and packing units for return/credit

To prevent damage during shipping and transportation, respect the guidelines below.

Make sure you surround the product with the following material (whenever possible):

Use the original packaging from manufacturer, firm foam material, bubble wrap, lots of PadPack paper or foam chips/polyester wrapped in sealed plastic bags. Please make sure that the unit is protected with a surrounding plastic bag to prevent dust accumulation around the unit.

If you do not have the original packaging or are uncertain how to secure the unit properly, please consider seeking advice from nearby shipping or transportation offices, if in doubt!

Do not under any circumstances use loose foam chips, expanded polyester, clothes, cardboard with sharp edges/spikes, too little or nothing to secure the unit inside the box. Do not use cardboard boxes that are clearly too weak or not suitable for securing the unit properly during overseas shipment.

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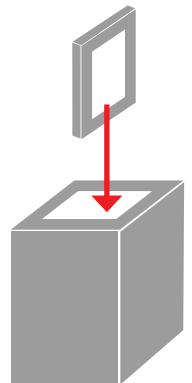
Terms Of Sale And Delivery

1) APPLICATION
The terms of sale and delivery apply for Hatteland Display.

2) PRICE
a) The price is per each, if nothing else has been stated, VAT not included. Price is based on the prices from our suppliers, current custom rates, taxes, rate of exchange and international raw material prices. We reserve ourselves the rights to adjustments in case of alternation on the above mentioned.

b) Included in the price is the supplier's standard packing. In case of re-packing/smaller quantities we reserve ourselves the right to add an additional sum for warrantable packing according to CECC 0015 (Basic inspection for protection of electrostatic sensitive devices)

3) VALIDITY
If nothing else has been stated in our quotation, the offer is valid for 30 days from the date of quotation.

4) PACKAGE QUOTATION
A package quotation means that all the components offered, must be ordered by us. If one component or more are removed from the quotation, the prices given in the package quotation are not valid.

5) TERMS OF PAYMENT
Cash on delivery or payment in advance. Net granted for companies, schools and institutions only, according to agreement. In case of too late payment 1.5% interest/month will be charged. Seller has mortage rights in the goods delivered until the purchase price, additional interests and charges have been paid in full. Accepted bill is not considered as payment until it has been honoured in full.

6) TIME OF DELIVERY
The quoted time of delivery is based on information from our suppliers. We disclaim any responsibility for the consequences of any delay or cancellation from our suppliers. Belated delivery gives not solely the right for cancellation.

7) DELIVERY POINT OF TIME
Goods are considered delivered to customer when handed over to charterer.

8) FREIGHT / PACKING / FORWARDING FEE
Hatteland Display charge NOK 50,- in forwarding fee for orders below NOK 1000,-.
Freight charge according to expenses for orders above NOK 1000,-. VAT not included.
For carriage arrangements organized by customers, a handling fee of NOK 200,- will be applied.

9) COMPLAINT
By receipt customer must check goods for obvious defects which have to be claimed within 8 days from receipt. Otherwise acceptance of complaint can not be counted on.

10) WARRANTY / SERVICES
Time of warranty is calculated from our date of shipment, and applies to the extent that we are covered by our supplier's warranty regulations. The warranty does no longer apply if:
      I) there has been encroached upon the goods without seller's consent
      II) terms of payment is not fulfilled
      III) the goods have been damaged due to unskilled treatment
      IV) components which are sensitive for static electricity have not been unpacked and treated in a secure way.
Minimum requirements: CECC 00015's standards for handling of such components. The warranty does not include fair wear and tear.

11) RESPONSIBLITY
Seller undertake to deliver faultless and functional capable goods according to existing technical specifications. Seller disclaim responsibility for any damage or loss which directly or indirectly may be caused due to failure or defect with the delivered goods, if carelessness from the seller can be limited up to the cost of the goods. The supplier's responsibility for defects with the supplied goods do not include secondary damage or loss.

Terms

12) CANCELLATION / RETURN

Binding sales contract is concluded when we have confirmed customer's purchase order. Any disagreements in our order confirmation must be reported to seller within 6 days. The agreement can not be altered without our permission, after acceptance from our supplier. If goods are wanted to be returned, a Return No must be assigned from seller. Returned goods without a Return No will not be accepted. By return of stock listed goods, 20% return fee is charged. Returned goods are shipped on customer's account and risk.

13) LOAN, RENT and DEMO

When borrowing of goods for demo/test, the date of return must be added to the document. If no date has been stated, date of return is two weeks from the date of the document. Before return, seller must be contacted for a Return No (RMA). Goods which have been sold with an agreed right of return within stated terms, shall also have a Return No. The Return No must be obtained before the stated date of return. Returned goods without a Return No, or which have not been packed in original packing, will not be accepted.

14) LIMITATIONS

If any of our suppliers claim limited delivery terms towards us, our terms of delivery will be restricted according to those.

15) SOFTWARE

Sold or borrowed software is not allowed to be copied or spread in other ways, without a written permission.

16) RE-EXPORT

Goods delivered from seller may be subject to special rules of exportation in their supplier's native country. Buyer is responsible to obtain necessary permissions for further export/re-sale.

17) QUESTION IN DISPUTE

To settle any dispute the Karmsund Herredsrett is approved the legal venue.

INSTRUCTIONS FOR THE CONSIGNEE

1) CONTROL

Control the goods immediately by receipt. Examine the quantity towards the invoice/packinglist/shipping documents. Look for outward defects on the packing which may indicate damage on or loss of contents. Control the container and the seals for any defects.

2) SECURING EVIDENCE

When defects on the goods have been found, evidence must be secured, and seller must be informed. Call the transporter and point out the defects. Add a description of the defects on the goods receipt, the forwarder's copy of the way-bill or on the driving slip.

3) RESCUE

Bound the damage. Try to restrict the damage and the loss. Seller will compensate expences incurred due to reasonable security efforts in addition to damage and loss.

4) COMPLAINT

Write immediately a complaint to the transporter or his agent. Forward immediately the complaint to the transporter or his agent, and hold the transporter responsible for the defects. The complaint must be sent at the latest:

- for carriage by sea: within 3 days
- for overland / air transportation   within 7 days

5) DOCUMENTATION

For any claims the following documentation is required, and must be forwared to the company or their agent: invoice, way-bill and/or bill of landing, and/or statement of arrival, inspection document, besides a copy of the letter of complaint to the transporter.

Notes

General Notes:

- License Terms for the installed OEM Operating System (OS) can be found on root of main boot device, (typically "C:\" partition).

- For certain computers, the on-board signal output (RGB, VGA, DVI) will be disabled if additional graphics card is installed and present in one of the PCI/PCIe slots. Please check "Physical Overview" in this manual to determine if your unit has the option for installing a additional graphics card in either PCI or PCIe slot.

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User Notes

Revision History

Please note that references to page numbers may only be valid for the latest revision.

Rev.	By	Date	Notes
0	SE JE	30 Apr 2009	Release for internal review.
1	SE JE	28 May 2009	Final release v1. Added COM port pin assignments.
2	SE JE	09 Jul 2009	Updated specifications page 22,23
3	JE SE	27 Aug 2009	Revised info about USB recovery image and specs.
4	JE SE	10 Sep 2009	Added note about HDD/SSD future sizes (page 22,23)
5	JE SE	17 Sep 2009	Revised PCI slots amount to 5 instead of 4 (page 23) Added computer introduction page (page 9)
6	JE SE	30 Oct 2009	Minor text changes in Contents of Package (page 4) Revised specifications, add ABS Type Approval and removed LRS Type Approval (page 22,23)
7	AK SE	03 Dec 2009	Added BV and Nippon to Type Approved (23,23)
8	AK SE	21 Jan 2010	Added DNV Type Approved (page 22,23)
9	JE AK SE	18 Mar 2010	Added GL Approval (page 24,25) Added MTBF value (page 24,25)
10	AnK JE SE	07 Jan 2011	Added Installation chapter for HT 00250 OPT (page 16) Revised specifications, include HT 00250 OPT (page 24,25) Added HT 00250 OPT-A1 Sliding Rails Accessory drawing (page 32)
11	JE SE	30 Mar 2011	Revised Contents of Package chapter (remove printed manual) page 5 Revised specifications, added LRS type approval and Operating System ID (page 12, 28,29)
12	JE SE	20 Jun 2011	Revised contents of package (added available accessories) page 5 Revised specifications (RS-485, 19200 baud limitation note) page 24,25 Revised Recovery Kit (USB Flash) HT 00215 OPT User Guide (page 37)
13	MM JE SE	20 Mar 2012	Revised contents of package, removed text "hidden recovery partition" notice, page 5 Revised comports (1 male/1 female), page 22,24,25 Revised trouble-shooting text to difference between locations of Recovery Image, page 37 Added FCC notice and logo, page 38
14	JE SE	02 May 2012	Changed 250GB to 500GB, page 24,25, reference to: http://www.hatteland-display.com/mails/29_2011_ecn.html
15	JE SE	02 Apr 2014	General revision throughout manual regarding minor text changes. Removed information for DC Power Input (HT 216 and HT 416 does not support DC), page 15 Revised Declaration of Conformity, page 38 Added note for "License Terms OEM OS", page 42

Revision History