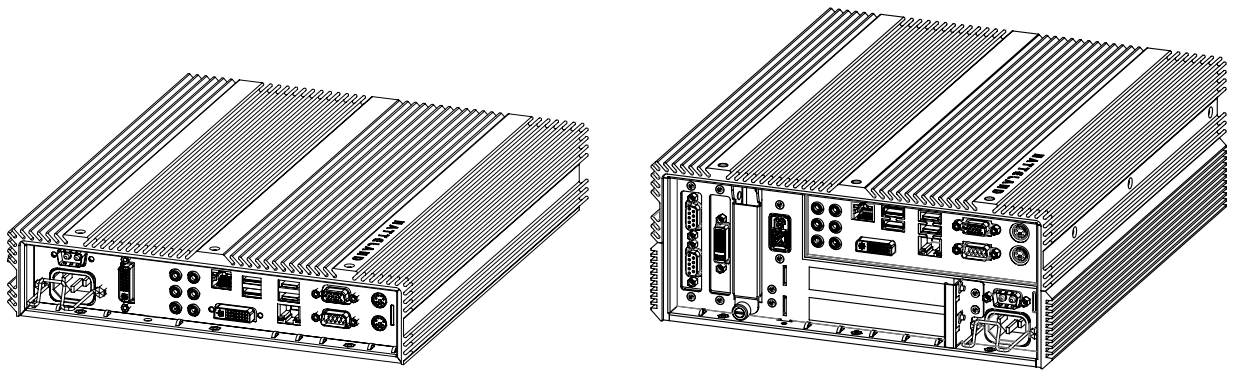


USER MANUAL



Compact Fanless Computers

HT B17 xxy-zzzz

HT B18 xxy-zzzz

xx=standard or customized

y=operating system

zzzz=configuration dependent

User Manual HT B17 / HT B18	
Updated: 21 Jun 2011	Doc Id: INB100032-5 (Rev 12)
Created: 363	
Approved: 6987	

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

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Aamsosen, N-5578 Nedre Vats, Norway

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All other product names or trademarks are properties of their respective owners !

WARNING: This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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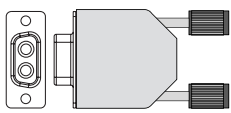
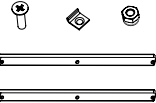
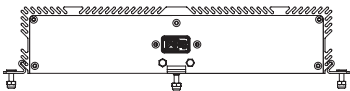
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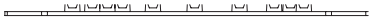
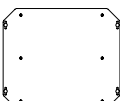
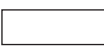
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Contents of package

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	
 80099	1 pcs of power cable US Type B plug to IEC. Length 1.8m	
 FCE17-E2W2SS-2N0 & L17DPPK09JSU (cover)	1 pcs of DC Power Input housing with internal cable screw terminal.	
 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 browser for Microsoft® Windows®
 HT 00245 OPT-A1 (B17) or HT 00246 OPT-A1 (B18)	Test Reports papers: 1 pcs of Product Declaration 1 pcs of Computer Checklist 1 pcs of BurnInTest Certificate	
 HT 00245 OPT-A1 (B17) or HT 00246 OPT-A1 (B18)	1 pcs of Mounting Bracket Kit suitable for Wall or Desktop mounting, consists of: - 8 pcs M4x16 screws - 2 pcs small brackets - 8 pcs M4 lock nuts - 2 pcs mounting brackets	

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/SDD hardware.	 Recovery Image (located on hidden partition on HDD/ SDD)
 HT 00228 OPT-A1	Mounting Bracket with cable relief, RAL 9011.	
 HT 00244 OPT-A1	Mounting Bracket RAL 9011.	
 HT 00237 OPT-A1	Mounting bracket for PCI/PCIe cards (HT B18 model only).	
	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.

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 offer be it Series 1, Series 2, Computers & 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.

Contact Information

Head office, Vats / Norway: Hatteland Display AS Åmsosen N-5578 Nedre Vats, Norway Tel: +47 4814 2200 Fax: +47 5276 5444 mail@hatteland-display.com	Sales office, Frankfurt / Germany: Hatteland Display GmbH Werner Heisenberg Strasse 12, D-63263 Neu-Isenburg, Germany Tel: +49 6102 370 954 Fax: +49 6102 370 968
Sales office, Oslo / Norway: Solbråveien 20 N-1383 Asker Norway Tel: +47 4814 2200 Fax: +47 5276 5444	Sales office, Aix-en-Provence / France: Hatteland Display SAS 31 Parc du Golf, 350, Avenue JRGG de la Lauzière - CS 90519 13593 Aix-en-Provence Cedex 3, France Tel: +33 (0)4 42 16 35 15 Fax: +33 (0)4 42 16 35 09
Sales office, San Diego / USA: Hatteland Display Inc. 11440 W. Bernardo Court, Suite 300 San Diego, CA 92127, USA Tel: +1 858 753 1959 Fax: +1 858 430 2461	

For an up-2-date list, please visit www.hatteland-display.com/locations

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.

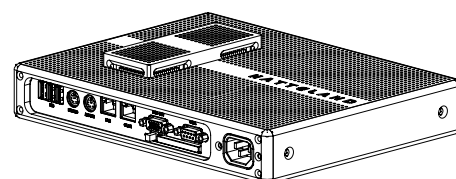
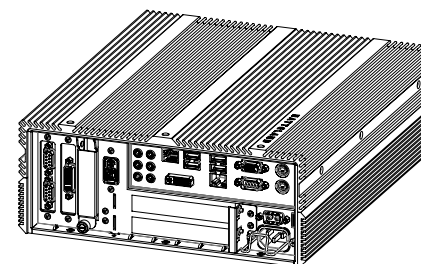
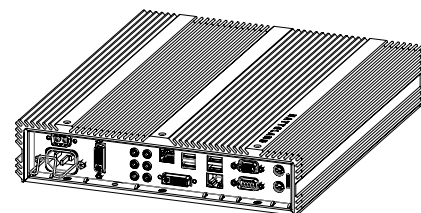
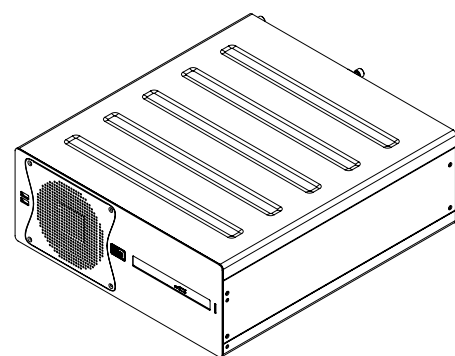
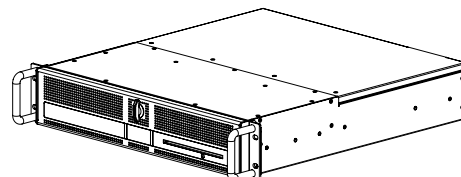
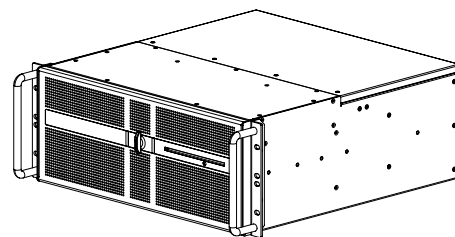
Designed to perform in harsh environments...

Winner of Red Dot awards 2009 / 2007

In 2009 the Hatteland Display HT C01 standalone computer won a prestigious Red Dot Award with Honourable Mention distinction, successful 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.



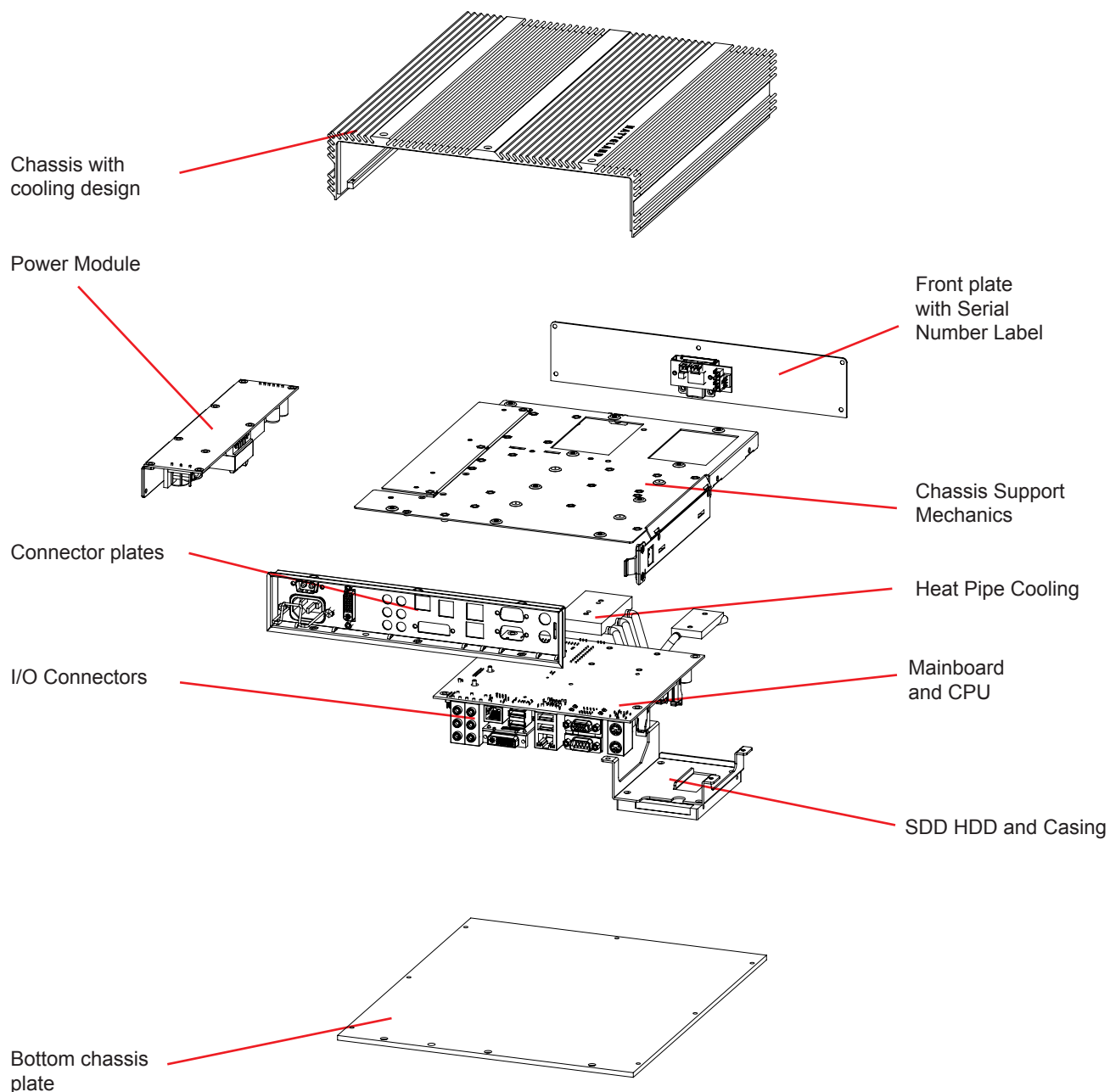
reddot design award
honourable mention 2009



reddot design award
winner 2007

Basic Construction

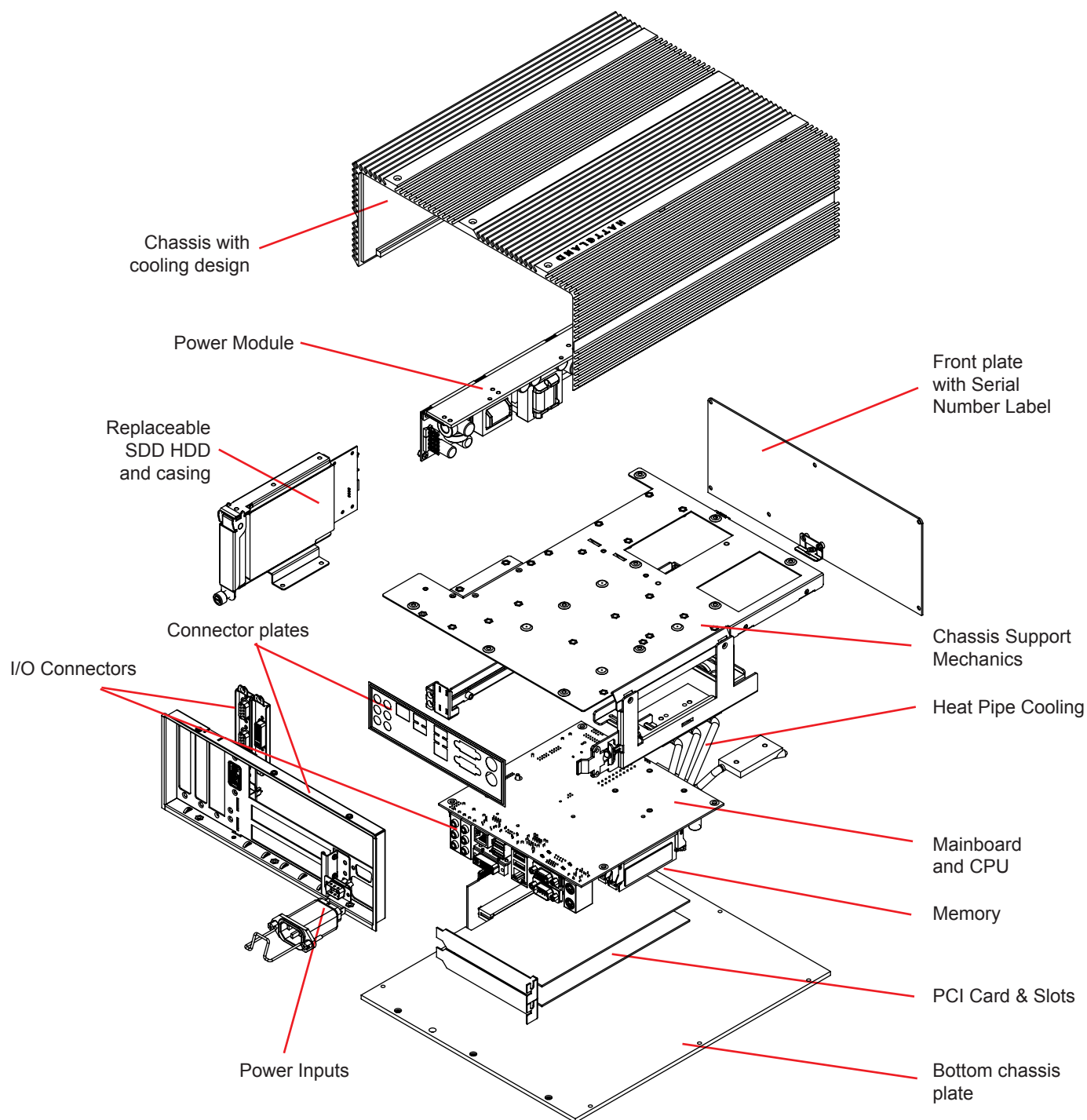
Compact Fanless Computer



Standard model, customized versions may vary

Basic Construction

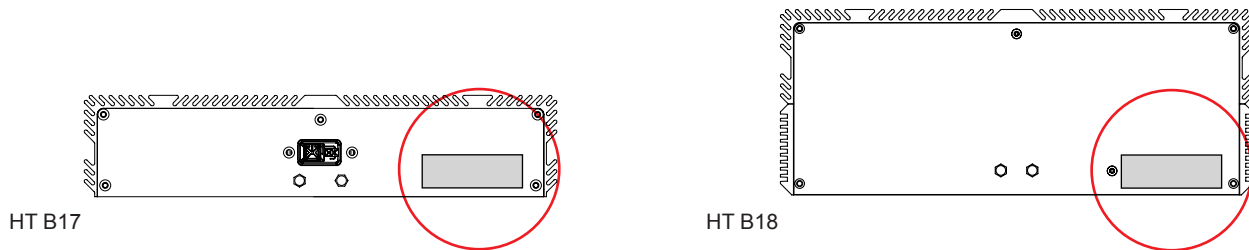
Compact Fanless Computer



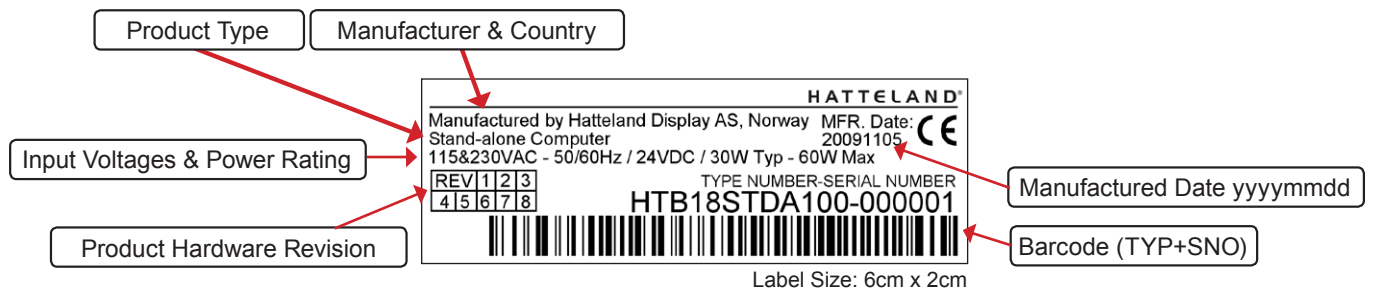
Standard model, customized versions may vary

Product Labels (Examples)

Serial Number Label Placement (external)



Serial Number Label Layout

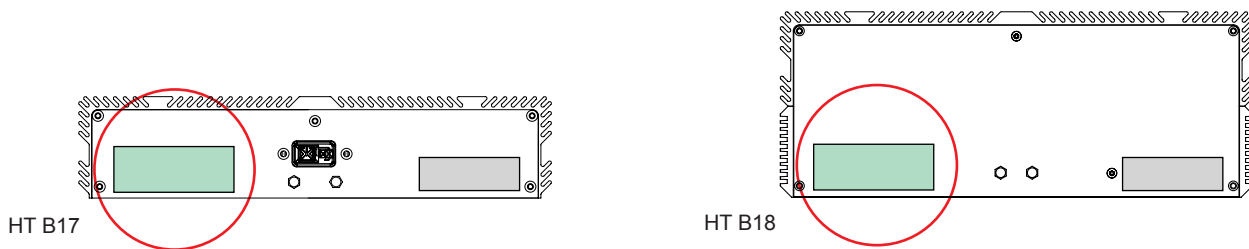


Serial Number Label Nomenclature

XX	XXY	XXX-XXXX-YYYYYY	NOMENCLATURE - X=Letters, Y=Numbers
HT	B18	STD-A100-000001	Example
			Serial Number. Due to revisions, numbers may be 1 to 7 digits
			Configuration ID (for components like memory, storage etc.)
			Power Input ID (115&230VAC - 50/60Hz + 24VDC)
			Installed Operating System ID / No Installed OS ID
			Abbreviation for Standard (ST) or reserved customer ID
			Electronics / Mainboard / Technology Revision ID
			Chassis Type ID
			Manufacturer ID / Product Series ID

Operating System Serial Number Label Placement

Label Size: 7cm x 2.8cm



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 apertures 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. For DC powered computer units proper grounding must be achieved by connecting a wire from the unit's ground (GND) screw (as indicated on the unit with a  icon) to the grounding in your installation setup.

The wire should have a cross sectional area of at least 6mm². The GND screw is located near the other I/O connectors. Please review the "Physical Overview" chapter for further help.

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.

Cables

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

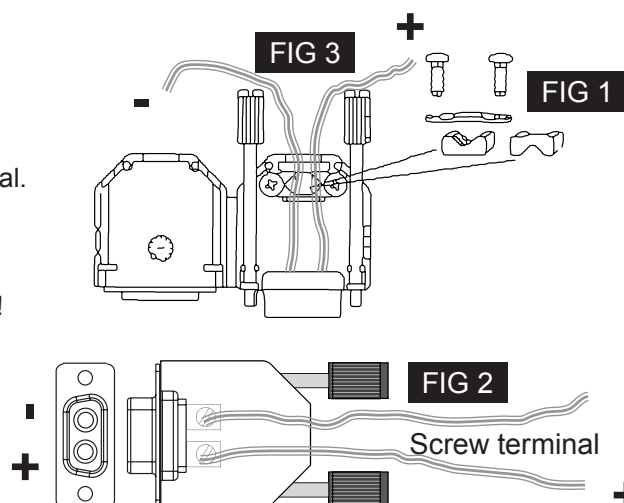
Configuring DC power input housing connector

Note: Only applicable for certain models!

For installations that require DC power input, use the provided 2-pin DC Power Input housing with internal cable screw terminal.

- 1: Open the housing
- 2: Unmount the fasteners. (FIG 1)
- 3: Mount power cables to screw terminal (FIG 2). Note polarity!
- 4: Secure the cable tightly with fasteners (FIG 3, FIG 1)
- 5: Close the housing

Note: Please check polarity before connecting any cables to the screw terminal.

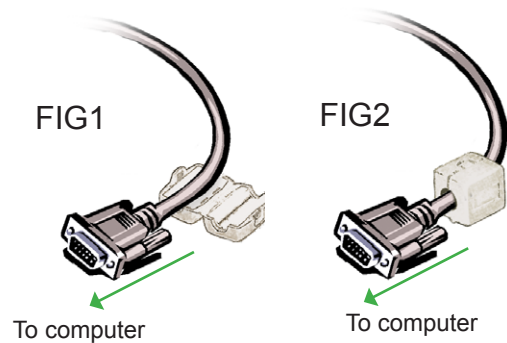


General Installation Recommendations

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 requires 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).

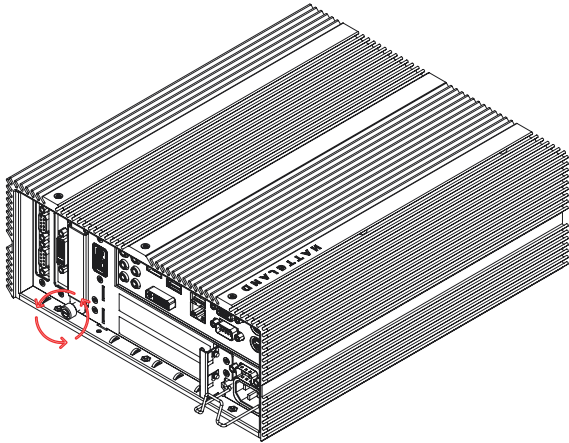


General Installation Recommendations

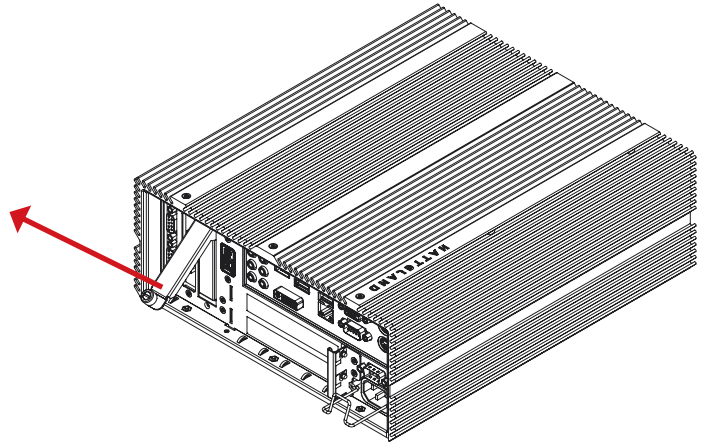
Accessible SSD (Hard Drive HDD) removal / replacement HT B18

Note: Areas of interest are marked in this section with symbols in **RED** color. Please power off and disconnect ALL cables from the computer unit before proceeding!

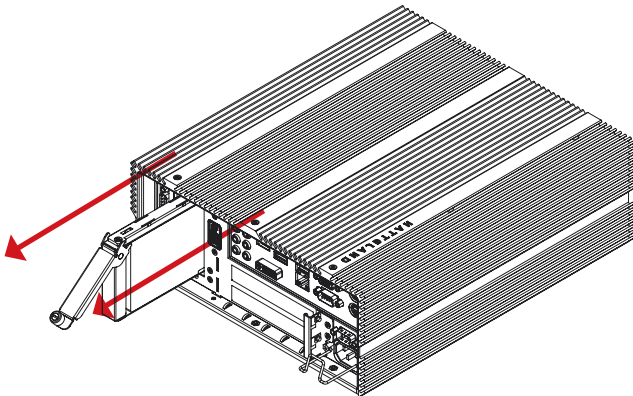
▼ 1: Unscrew 1 pcs of knob screw anti-clockwise as indicated with your fingers.



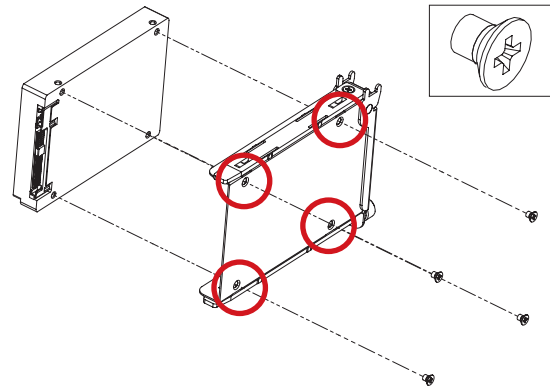
▼ 2: Lift the bracket upwards as indicated.



▼ 3: Pull out the SSD and its casing as indicated.



▼ 4: Unscrew 4 pcs x M3x4mm Phillips countersunk screws as indicated and replace or remove the SSD drive as needed.



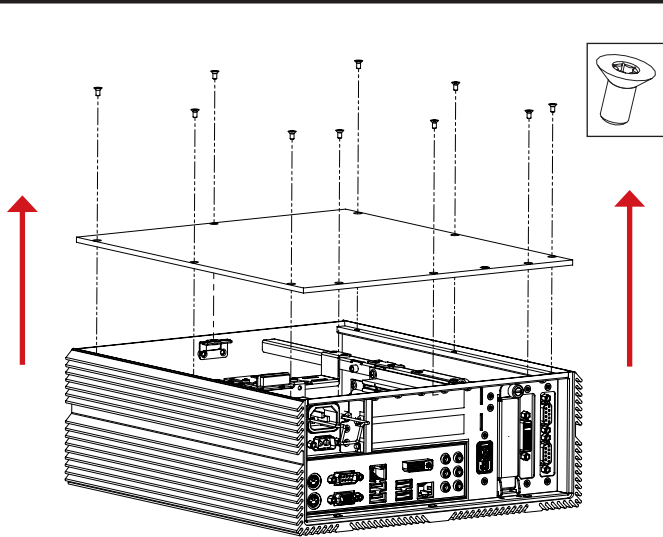
- Repeat the procedure backwards to finalize operation -

General Installation Recommendations

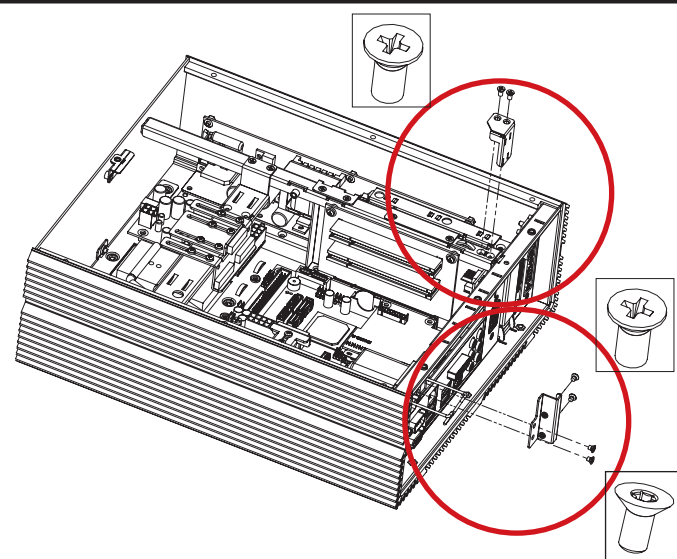
Internal PCI Cards / Brackets dismounting and mounting HT B18

Note: Areas of interest are marked in this section with symbols in **RED** color. Please power off and disconnect ALL cables from the computer unit before proceeding!

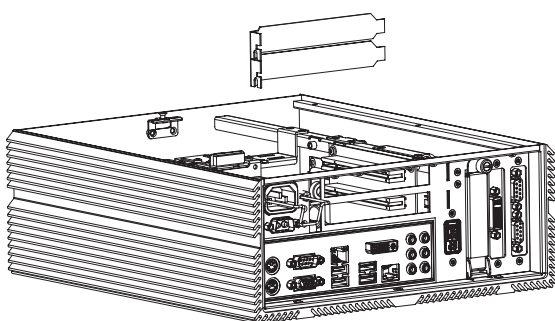
▼ 1: Unscrew the bottom cover plate (10 pcs of M3x6mm Torx countersunk screws and lift the cover up.



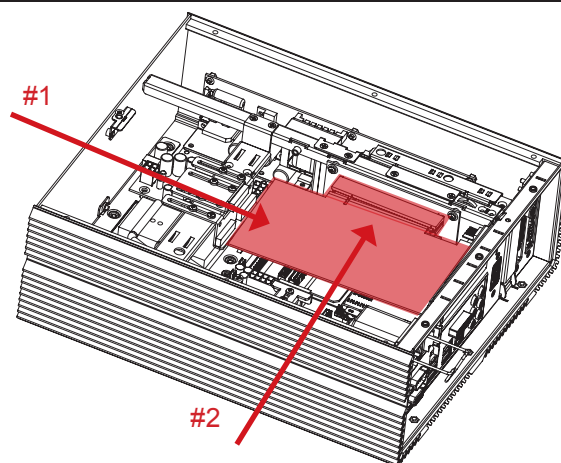
▼ 2: Unscrew 6 pcs countersunk screws and remove both the EMC Bracket (top 2 screws) and PCI Bracket holder (2 screws inside + 2 x M3x6mm Torx screws in rear) as indicated.



▼ 3: Now remove the PCI dummy bracket(s) as needed for the PCI card(s) you want to install. Only remove the respective dummy bracket for the PCI card(s) you install, otherwise dust and cooling issues might occur.



▼ 4: Position the PCI card(s) until it stops into the rear of the computer as arrow #1 indicates. Then, slide the connector area of the PCI card(s) into the PCI Slot header(s) gently until it's fully inserted as arrow #2 shows. Use a firm grip and do not bend/force the cards.



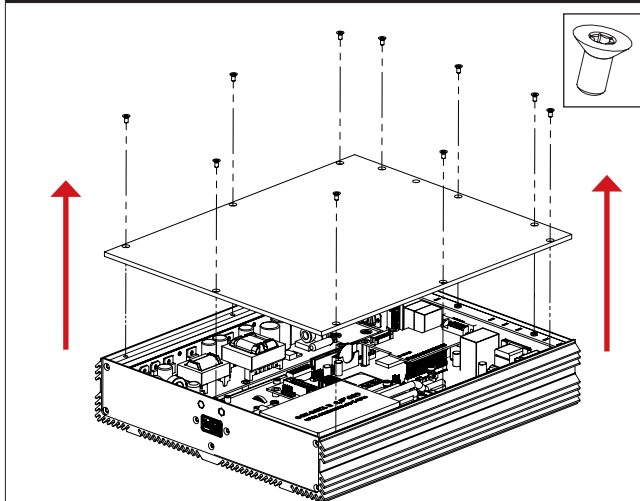
- Repeat the procedure backwards to finalize operation -

General Installation Recommendations

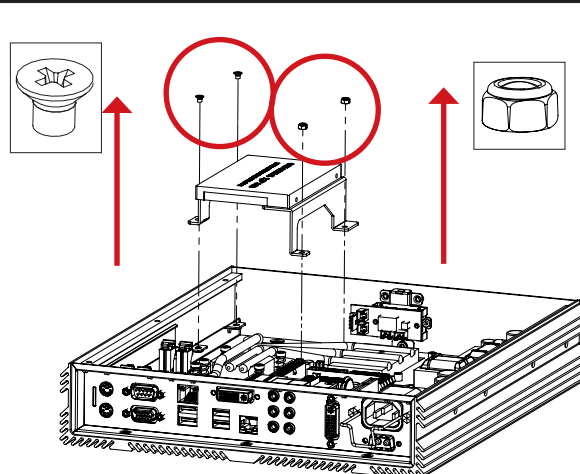
Internal SSD (Hard Drive HDD) removal / replacement HT B1x

Note: Areas of interest are marked in this section with symbols in **RED** color. Please power off and disconnect ALL cables from the computer unit before proceeding! HT B17 used as illustration in this procedure, but it is valid for both HT B17 and HT B18 computers.

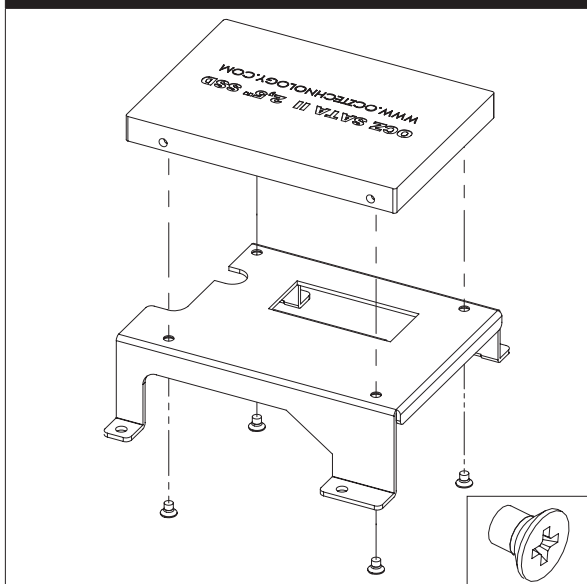
▼ 1: Unscrew the bottom cover plate (10 pcs of M3x6mm Torx countersunk screws and lift the cover up.



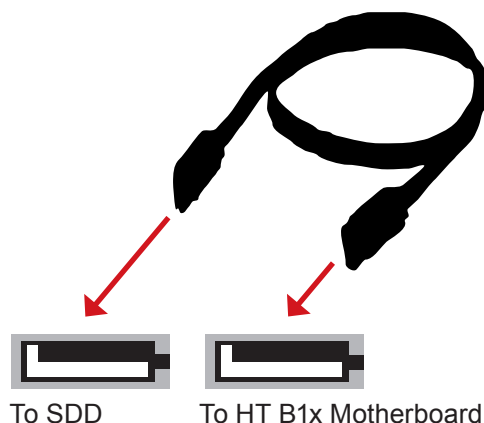
▼ 2: Unscrew 2 pcs x M3x4mm Phillips countersunk screws and 2 pcs x M3 Fastener Nut as indicated. Then lift the entire SSD Device bracket up.



▼ 3: Unscrew 4 pcs x M3x4mm Phillips countersunk screws as indicated and replace or remove the SSD drive as needed.



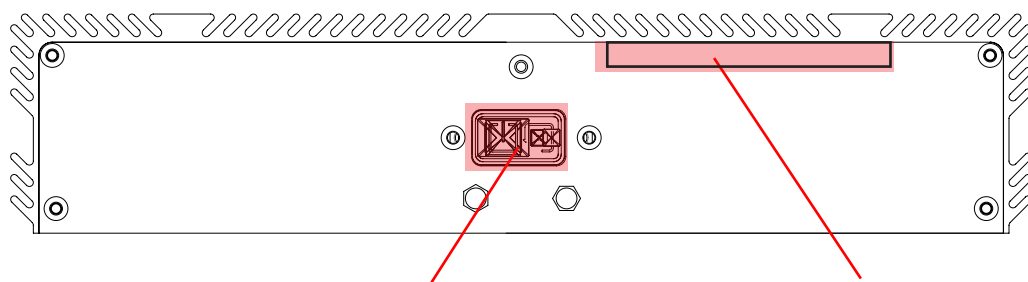
▼ 4: Connect your Serial ATA cable ~20cm (not included) to the SDD. Power Cable is already available from the internal power module.



- Repeat the procedure backwards to finalize operation -

Physical Overview - HT B17

Front area of computer



Reset Button, Power LED & Button

2.5" internal S-ATA SSD Hard Drive



Power LED & Button:

To turn ON the computer, press down button and release it immediately. The Power LED indication ring will illuminate green and the operating system will automatically boot. To turn OFF the computer, press down this button and hold it for 4 seconds. The operating system may require additionally tasks to be performed before computer shuts down and turns off the unit.



Reset Button: (Hard Reset)

To reset the computer in case of severe software failure, press this button. This reset button is a hard reset which means the operating system will NOT be warned. Using this reset method may damage files and / or operating system in worst case scenarios. Precaution should be taken when using this. To perform a safe software reset, press either the power button, or use the operating system own reset functionality if possible.

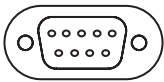
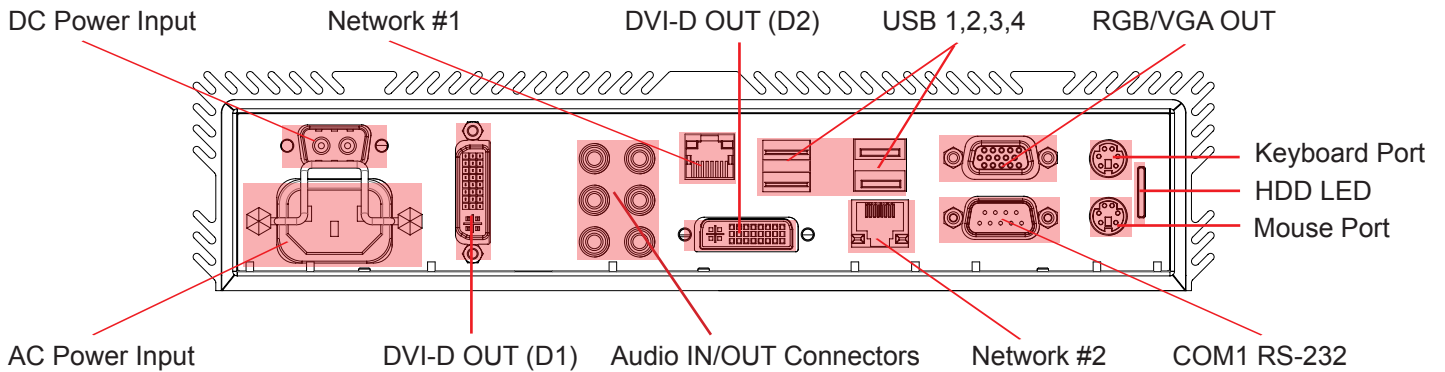


2.5" internal S-ATA SSD Hard Drive:

The B17 unit can use 1 x SSD, 2.5" as the main data storage device. The operating system and all other files will be placed on this, normally visible as drive C: This device is normally factory installed option. The storage device is located inside the unit and can not be accessed/replaced from the outside.

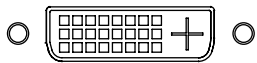
Physical Overview - HT B17

Operation/Connection area of computer



COM1 Serial Port INPUT/OUTPUT:

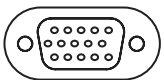
Supports RS-232 using D-SUB 9P Male connectors. Fasten the cable to the connector using the provided screws on the cable housing itself.



DVI-D OUT:

Connect your DVI cables to the DVI-D 24P Connectors (female) on the rear side of the unit. Screw the DVI cables to the connectors and make sure you don't bend any of the pins inside the cable connector when connecting.

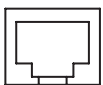
Note: You can either use 2 x DVI-D outputs or 1 x DVI-D + 1 x DB15F (RGB/VGA) simultaneously, i.e. not all 3 outputs simultaneously. Please review "Graphical Driver Installation" in the appendix chapter how to utilize this feature.



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.

Note: You can either use 2 x DVI-D outputs or 1 x DVI-D + 1 x DB15F (RGB/VGA) simultaneously, i.e. not all 3 outputs simultaneously. Please review "Graphical Driver Installation" in the appendix chapter how to utilize this feature.



Network #1 / #2 INPUT/OUTPUT:

Supports 10/100/1000Mbps Ethernet (GBLAN). Suitable for twisted pair cables CAT.5E. Make sure the network cable connector "clicks" into the RJ-45 connector.

Physical Overview - HT B17



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 or 8-channel. Please review 3rd party driver software/manual to configure the channel setup.

Light Pink / Mic In			Gray / Center / LFE Out
Light Green / Line Out			Black / Rear Surround Out
Light Blue / Line IN			Orange / Side Surround Out



USB1,2,3,4 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).



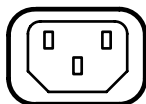
PS/2 Mouse and PS/2 Keyboard INPUTS:

Connect the PS/2 mouse cable to the PS/2 5P Connector (female) marked with MS.
Connect the PS/2 keyboard cable to the PS/2 5P Connector (female) marked with KB.



HDD LED:

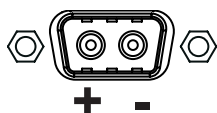
The Power LED Indication will illuminate green when HDD is reading/writing. When there is no HDD activity the LED will be off.



AC Power INPUT:

The internal AC power module supports both 115VAC/60Hz and 230/50Hz power input using a standard IEC power housing and is part of the Multipower functionality for the unit.

Physical Overview - HT B17



DC POWER INPUT:

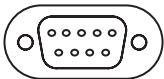
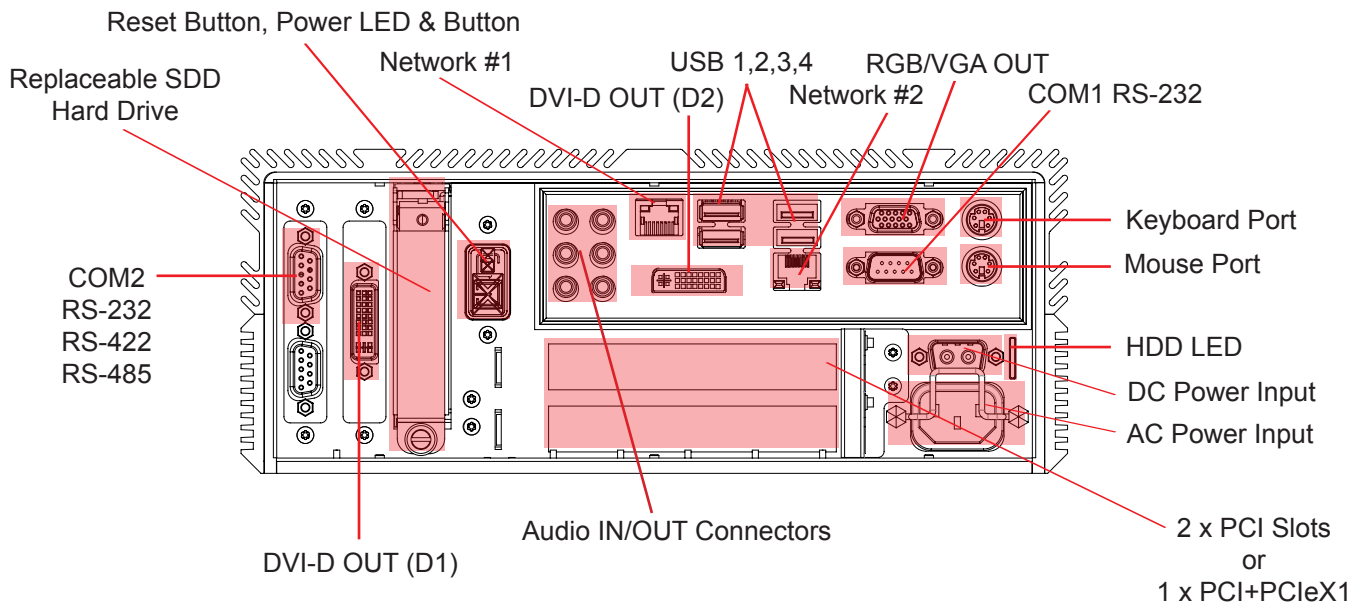
Connect your DC power cable to the 2P Amphenol FCC17 D-SUB Connector (male). Secure the cable to the hex spacers provided on the unit, and secure the other end to your power supply. The internal DC power module supports 24VDC and is part of the Multipower functionality for the unit.

Note: DC models are required / recommended to be properly grounded via the  screw located on the unit. Please review “General Installation Chapter”, pt. 6 for more information.

Multi-power note: (For units supporting AC & DC input simultaneously)

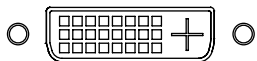
The unit has a dual input power supply which will accept both AC and DC input. If both inputs are connected, the unit will be powered by AC. If AC is disconnected it will automatically switch over to DC without affecting the operation of the unit. This makes it possible to use AC power as primary power and a 24V battery as secondary power, eliminating the need for expensive UPS systems.

Operation/Connection area of computer



COM1,2 Serial Port INPUT/OUTPUT:

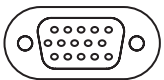
Supports RS-232 or RS-232/RS-422 or RS-485 using D-SUB 9P Male connectors. Fasten the cable to the connector using the provided screws on the cable housing itself.



DVI-D OUT:

Connect your DVI cables to the DVI-D 24P Connectors (female) on the rear side of the unit. Screw the DVI cables to the connectors and make sure you don't bend any of the pins inside the cable connector when connecting.

Note: You can either use 2 x DVI-D outputs or 1 x DVI-D + 1 x DB15F (RGB/VGA) simultaneously, i.e. not all 3 outputs simultaneously. Please review "Graphical Driver Installation" in the appendix chapter how to utilize this feature.

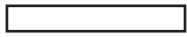


RGB OUTPUT:

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.

Note: You can either use 2 x DVI-D outputs or 1 x DVI-D + 1 x DB15F (RGB/VGA) simultaneously, i.e. not all 3 outputs simultaneously. Please review "Graphical Driver Installation" in the appendix chapter how to utilize this feature.

Physical Overview - HT B18



2.5" internal S-ATA SSD Hard Drive:

The B18 unit can use 1 x SSD, 2.5" as the main data storage device. The operating system and all other files will be placed on this, normally visible as drive C: This device is normally factory installed option. The storage device can be easily be upgraded or replaced by loosening the fasten screw and pull the slot out.



Power LED & Button:

To turn ON the computer, press down button and release it immediately. The Power LED indication ring will illuminate green and the operating system will automatically boot. To turn OFF the computer, press down this button and hold it for 4 seconds. The operating system may require additionally tasks to be performed before computer shuts down and turns off the unit.



Reset Button: (Hard Reset)

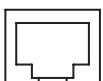
To reset the computer in case of severe software failure, press this button. This reset button is a hard reset which means the operating system will NOT be warned. Using this reset method may damage files and / or operating system in worst case scenarios. Precaution should be taken when using this. To perform a safe software reset, press either the power button, or use the operating system own reset functionality if possible.



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 or 8-channel. Please review 3rd party driver software/manual to configure the channel setup.

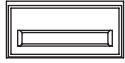
Orange / Side Surround Out			Light Blue / Line IN
Black / Rear Surround Out			Light Green / Line Out
Gray / Center / LFE Out			Light Pink / Mic In



Network #1 / #2 INPUT/OUTPUT:

Supports 10/100/1000Mbps Ethernet (GBLAN). Suitable for twisted pair cables CAT.5E. Make sure the network cable connector "clicks" into the RJ-45 connector.

Physical Overview - HT B18



USB1,2,3,4 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).



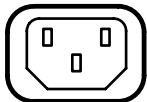
PS/2 Mouse and PS/2 Keyboard INPUTS:

Connect the PS/2 mouse cable to the PS/2 5P Connector (female) marked with MS.
Connect the PS/2 keyboard cable to the PS/2 5P Connector (female) marked with KB.



HDD LED:

The Power LED Indication will illuminate green when HDD is reading/writing. When there is no HDD activity the LED will be off.



AC Power INPUT:

The internal AC power module supports both 115VAC/60Hz and 230/50Hz power input using a standard IEC power housing and is part of the Multipower functionality for the unit.



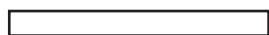
DC POWER INPUT:

Connect your DC power cable to the 2P Amphenol FCC17 D-SUB Connector (male). Secure the cable to the hex spacers provided on the unit, and secure the other end to your power supply. The internal DC power module supports 24VDC and is part of the Multipower functionality for the unit.

Note: DC models are required / recommended to be properly grounded via the  screw located on the unit. Please review "General Installation Chapter", pt. 6 for more information.

Multi-power note: (For units supporting AC & DC input simultaneously)

The unit has a dual input power supply which will accept both AC and DC input. If both inputs are connected, the unit will be powered by AC. If AC is disconnected it will automatically switch over to DC without affecting the operation of the unit. This makes it possible to use AC power as primary power and a 24V battery as secondary power, eliminating the need for expensive UPS systems.



PCI Slot #1 & #2:

Supports 2 x PCI (Full Height & Length Profile) in two available slots. PCI cards is normally installed from factory or returned to factory for upgrading if needed. The unit can also be factory configured as 1 x PCI + 1 x PCIeX1 instead.

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Specifications

Specifications - HT B17

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

TECHNICAL DESCRIPTION

Computer Specifications: (Standard model)

• Processor	: 1 x Intel® Core™2 Duo Desktop Processor P8400 - 2.26GHz, Bus Speed 1066MHz, 3MB L2 Cache
• Memory	: 2 x 1 GB installed (Dual Channel 200-pin DDR2 800MHz SO-DIMM)
• Graphics	: Intel® Graphics Media Accelerator GMA 4500MHD Integrated/Daughter Board (CH7307C)
• Graphics Res.	: Max 1600 x 1200 @ 60Hz
• System Chipset	: Intel® GM45 / ICH9 support Intel® Active Management Technology
• IO Chipset	: Winbond W83627DHG
• BIOS	: AWARD BIOS
• PCI Slots	: None
• Ethernet #1	: 1 x 10/100/1000Mbps, ICH9M Intel® 82567L
• Ethernet #2	: 1 x 10/100/1000Mbps, Intel® 82574L PCI-E Gigabit LAN Controller
• Serial Ports	: 1 x RS-232 (COM1)
• USB Ports	: 4 x USB ports - Supports 2.0 & 1.1
• Keyboard Port	: Standard PS/2 mini DIN connector
• Mouse Port	: Standard PS/2 mini DIN connector
• Audio	: ICH9M+AC97 Codec ALC888, 7.1, RCA Jack (Front Out, Line In, Mic, Center/LFE, Surround, Surround back)
• Speaker	: No
• Power Manager	: ACPI
• Watchdog Timer	: Reset: 1 sec.~255 min. and 1 sec. or 1 min./step
• H/W Status Mont.	: Temperatures, voltages & cooling fan status. Auto throttling control if CPU overheats

External Connector Type:

2 x DVI-D or 1 x DB15F + 1 x DVI-D
1 x RJ-45
1 x RJ-45
1 x DB9M
4 x USB Type A
1 x PS/2
1 x PS/2
6 x JACKS

Power Specifications:

Multi-power Supply:

- 115&230VAC - 50/60Hz + 24VDC : Model HT B17 STx-Axxx (60W) (STD IEC + 1 x 2p D-SUB (male) - Amphenol FCC17)
Note: You may connect either AC power or DC power or both. In case both sources are connected, power will be sourced from the AC input. If AC input is lost, there will be a uninterrupted switch-over to DC input.
- Power Consumption - Operating : 30W

Available Models:

HT B17 ST0-A100 with (Standard Chassis 2.26GHz 2GB RAM 30GB SDD):

1 x Intel® Core™2 Duo Desktop Processor P8400 - 2.26GHz
2 x 1GB installed (Dual Channel DDR2 800/667MHz SO-DIMM 200-pin)
1 x SSD 30GB or more* 2.5" SATA

HT B17 STD-A101 with (Standard Chassis 2.26GHz 2GB RAM 30GB SDD):

1 x Intel® Core™2 Duo Desktop Processor P8400 - 2.26GHz
2 x 1GB installed (Dual Channel DDR2 800/667MHz SO-DIMM 200-pin)
1 x SSD 30GB or more* 2.5" SATA
1 x Microsoft® Windows® Embedded Enterprise (XP Professional Eng w/SP2c, 32bit)

* 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 00244 OPT-A1 = 1 x Mounting Plate, RAL 9011
 - HT 00228 OPT-A1 = 1 x Mounting Plate with cable relief, RAL 9011
 - HT 00215 OPT-A1 = 1 x Recovery Kit (USB Image)
 - HT 00245 OPT-A1 = 1 x Mounting Bracket Kit (included with delivery)
- Please see user manual for drawings (where applicable).

Capabilities / Prepared for:

- 4GB (Dual Channel 200-pin DDR2 800MHz SO-DIMM)

Operating System Typenumbers:

- HT B17 ST0-Axxx = No OS
- HT B17 STD-Axxx = Microsoft® Windows® Embedded Enterprise (Win XP Pro Eng w/SP2c, 32bit)
- HT B17 ST3-Axxx = Microsoft® Windows® Embedded Enterprise (Win Server 2003 Eng, 32bit)
- HT B17 ST7-Axxx = Microsoft® Windows® Embedded Enterprise (Win 7 Pro Eng, 32bit)
- HT B17 ST8-Axxx = Microsoft® Windows® Embedded Enterprise (Win Server 2008 Eng, 32bit)

MECHANICAL DESCRIPTION

Physical Specifications:

- 270.00 (W) x 57.95 (H) x 310.00 (D) mm
- 10.63" (W) x 2.28" (H) x 12.20" (D)
- Weight: Approx 5 kg
- Aluminium Cooling Chassis
- Power button, power led, reset button and HDD Led

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 B17 STx-Axxx - Standard: 75cm - Steering: 45cm - MTBF (Mean Time Between Failures) = 44622 hours

APPROVALS & CERTIFICATES

These products have been tested / type approved by the following classification societies:

IEC 60945 4th (EN 60945:2002)
GL - Germanischer Lloyd

IACS E10
BV - Bureau Veritas

ClassNK - Nippon Kaiji Kyokai
ABS - American Bureau of Shipping

DNV - Det Norske Veritas
LRS - Lloyd's Register of Shipping

Specifications - HT B18

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

TECHNICAL DESCRIPTION

Computer Specifications: (Standard model)

• Processor	: 1 x Intel® Core™2 Duo Desktop Processor P8400 - 2.26GHz, Bus Speed 1066MHz, 3MB L2 Cache
• Memory	: 2 x 1GB installed (Dual Channel 200-pin DDR2 800MHz SO-DIMM)
• Graphics	: Intel® Graphics Media Accelerator GMA 4500MHD Integrated/Daughter Board (CH7307C)
• Graphics Res.	: Max 1600 x 1200 @ 60Hz
• System Chipset	: Intel® GM45 / ICH9 support Intel® Active Management Technology
• IO Chipset	: Winbond W83627DHG
• BIOS	: AWARD BIOS
• PCI Slots	: 2 x PCI Rev2.3 Slot 32-bit, 3V and 5V Interface, Full Height & Half Length (Default Configuration) Note: Please also review max power consumption in "Power Specifications" table below.
• Ethernet #1	: 1 x 10/100/1000Mbps, ICH9M Intel® 82567L
• Ethernet #2	: 1 x 10/100/1000Mbps, Intel® 82574L PCI-E Gigabit LAN Controller
• Serial Ports	: 1 x RS-232 (COM1) + 1 x RS-232/RS-422/RS-485 (COM2)
• USB Ports	: 4 x USB ports - Supports 2.0 & 1.1
• Keyboard Port	: Standard PS/2 mini DIN connector
• Mouse Port	: Standard PS/2 mini DIN connector
• Audio	: ICH9M + AC97 Codec ALC888, 7.1, RCA Jack (Front Out, Line In, Mic, Center/LFE, Surround, Surround back)
• Speaker	: No
• Power Manager	: ACPI
• Watchdog Timer	: Reset: 1 sec. ~ 255 min. and 1 sec. or 1 min./step
• H/W Status Mont.	: Temperatures, voltages & cooling fan status. Auto throttling control if CPU overheats

External Connector Type:

2 x DVI-D or 1 x DB15F + 1 x DVI-D
1 x RJ-45
1 x RJ-45
2 x DB9M
4 x USB Type A
1 x PS/2
1 x PS/2
6 x JACKS

Power Specifications:

Multi-power Supply:

• 115&230VAC - 50/60Hz + 24VDC	: Model HT B18 STx-Axxx (60W) (STD IEC + 1 x 2p D-SUB (male) - Amphenol FCC17) Note: You may connect either AC power or DC power or both. In case both sources are connected, power will be sourced from the AC input. If AC input is lost, there will be a uninterrupted switch-over to DC input.
• Power Consumption - Operating	: 30W
• Power Consumption PCI/PCIe	: Max Total Power Consumption (the sum of both slots) shall not exceed 15W.

Available Models:

HT B18 ST0-A100 with (Standard Chassis 2.26GHz 2GB RAM 30GB SDD):

1 x Intel® Core™2 Duo Desktop Processor P8400 - 2.26GHz
2 x 1GB installed (Dual Channel DDR2 800/667MHz SO-DIMM 200-pin)
1 x Replaceable SSD 30GB or more* 2.5" SATA

HT B18 STD-A101 with (Standard Chassis 2.26GHz 2GB RAM 30GB SDD):

1 x Intel® Core™2 Duo Desktop Processor P8400 - 2.26GHz
2 x 1GB installed (Dual Channel DDR2 800/667MHz SO-DIMM 200-pin)
1 x Replaceable SSD 30GB or more* 2.5" SATA
1 x Microsoft® Windows® Embedded Enterprise (XP Professional Eng w/SP2c, 32bit)

HT B18 STD-A103 with (Standard Chassis 2.26GHz 2GB RAM 30GB SDD):

1 x Intel® Core™2 Duo Desktop Processor P8400 - 2.26GHz
2 x 1GB installed (Dual Channel DDR2 800/667MHz SO-DIMM 200-pin)
1 x Replaceable SSD 30GB or more* 2.5" SATA
1 x HT 00253 OPT-A1 Serial I/O Card (4 x COM ports - Supports RS-232/422/485)
1 x Microsoft® Windows® Embedded Enterprise (XP Professional Eng w/SP2c, 32bit)

* 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.

Capabilities / Prepared for:

- 1 x PCI + 1 x PCIex1 (Both Full Height & Half Length)
- 4GB (Dual Channel 200-pin DDR2 800MHz SO-DIMM)
- HT 00253 OPT-A1 = 4 x COM isolated, incl. cable, moxa, RS232/422/485
- HT 00252 OPT-A1 = 8 x COM isolated, incl. cable, moxa, RS232/422/485

Available Accessories:

- HT 00244 OPT-A1 = 1 x Mounting Plate, RAL 9011
- HT 00228 OPT-A1 = 1 x Mounting Plate with cable relief, RAL 9011
- HT 00215 OPT-A1 = 1 x Recovery Kit (USB Flash)
- HT 00237 OPT-A1 = 1 x Mounting bracket for PCI/PCIe cards
- HT 00246 OPT-A1 = 1 x Mounting Bracket Kit (included with delivery)
- Please see user manual for drawings (where applicable).

Operating System Typenumbers:

- HT B18 ST0-Axxx = No OS
- HT B18 STD-Axxx = Microsoft® Windows® Embedded Enterprise (Win XP Pro Eng w/SP2c, 32bit)
- HT B18 ST3-Axxx = Microsoft® Windows® Embedded Enterprise (Win Server 2003 Eng, 32bit)
- HT B18 ST7-Axxx = Microsoft® Windows® Embedded Enterprise (Win 7 Pro Eng, 32bit)
- HT B18 ST8-Axxx = Microsoft® Windows® Embedded Enterprise (Win Server 2008 Eng, 32bit)

MECHANICAL DESCRIPTION

Physical Specifications:

- 270.00 (W) x 105.95 (H) x 310.00 (D) mm
- 10.63" (W) x 4.17" (H) x 12.20" (D)
- Weight: Approx 5 kg
- Aluminium Cooling Chassis
- Power button, power led, reset button and HDD Led

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 B18 STx-Axxx - Standard: 75cm - Steering: 45cm - MTBF (Mean Time Between Failures) = 44622 hours

APPROVALS & CERTIFICATES

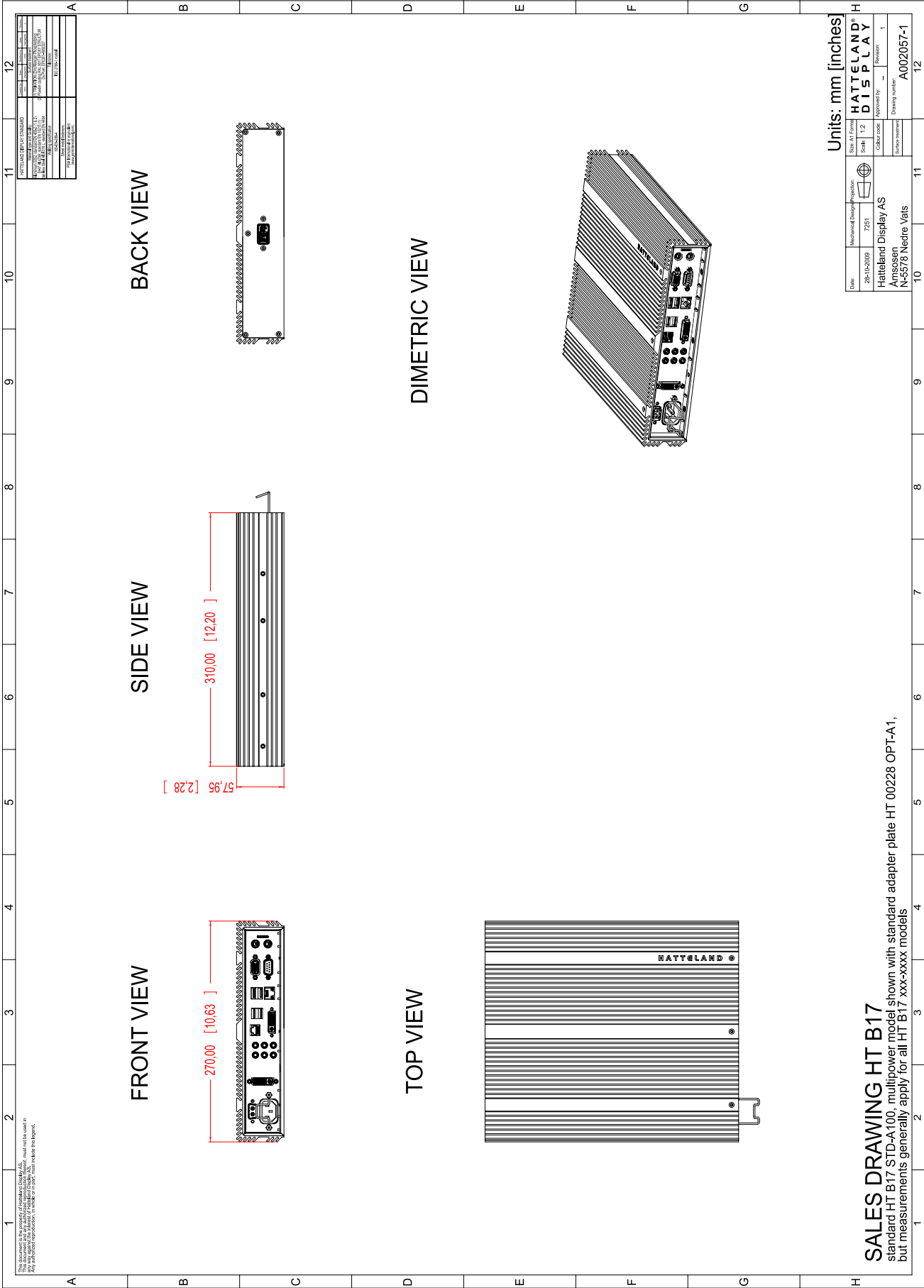
These products have been tested / type approved by the following classification societies:

IEC 60945 4th (EN 60945:2002)	IACS E10	DNV - Det Norske Veritas	EN61162	ClassNK - Nippon Kaiji Kyokai
ABS - American Bureau of Shipping	GL - Germanischer Lloyd	BV - Bureau Veritas	LRS - Lloyd's Register of Shipping	

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Technical Drawings

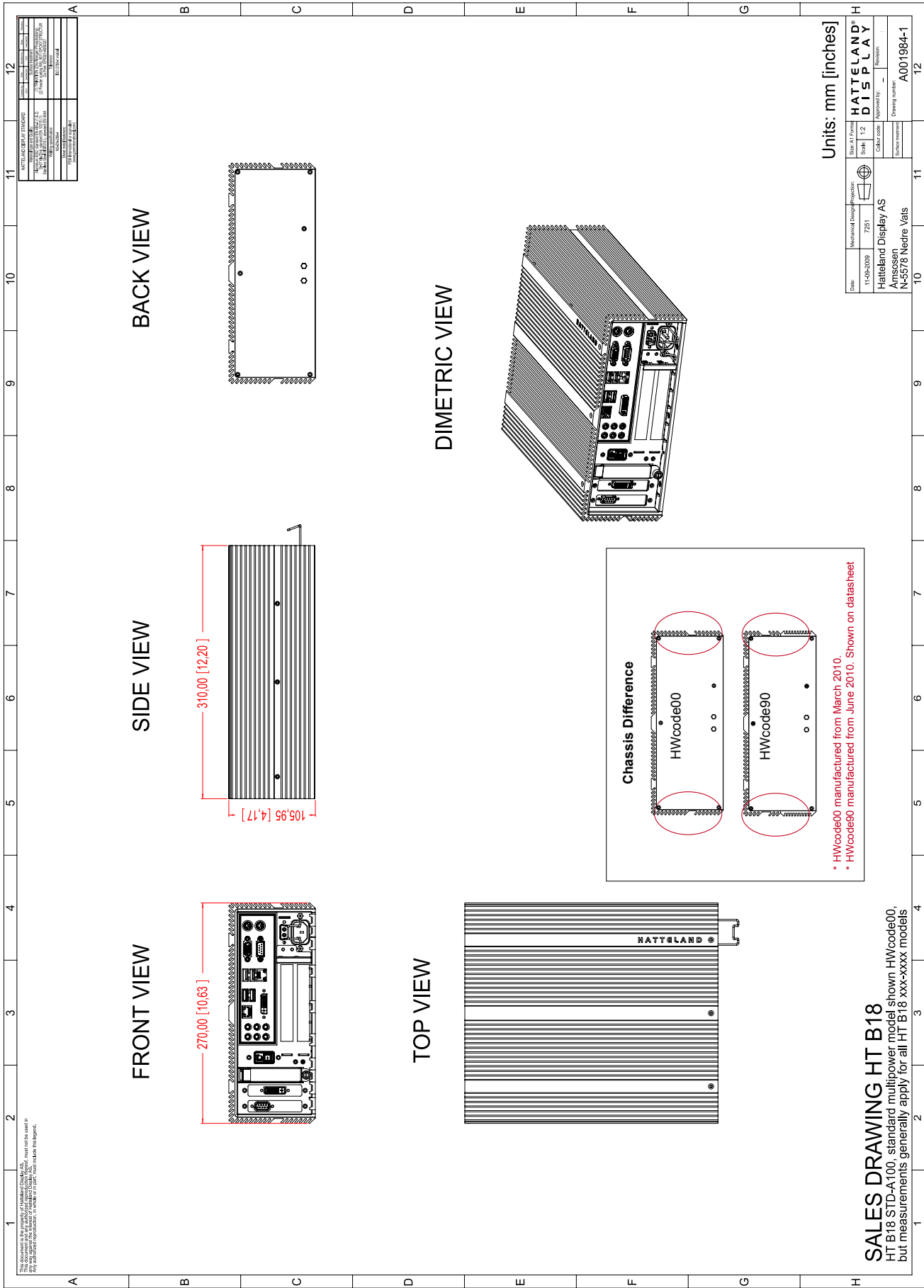
Dimensions might be shown with or without decimals and indicated as mm [inches]. Tolerance on drawings is +/- 1mm. For accurate measurements, check relevant DWG file.



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Technical Drawings - HT B18

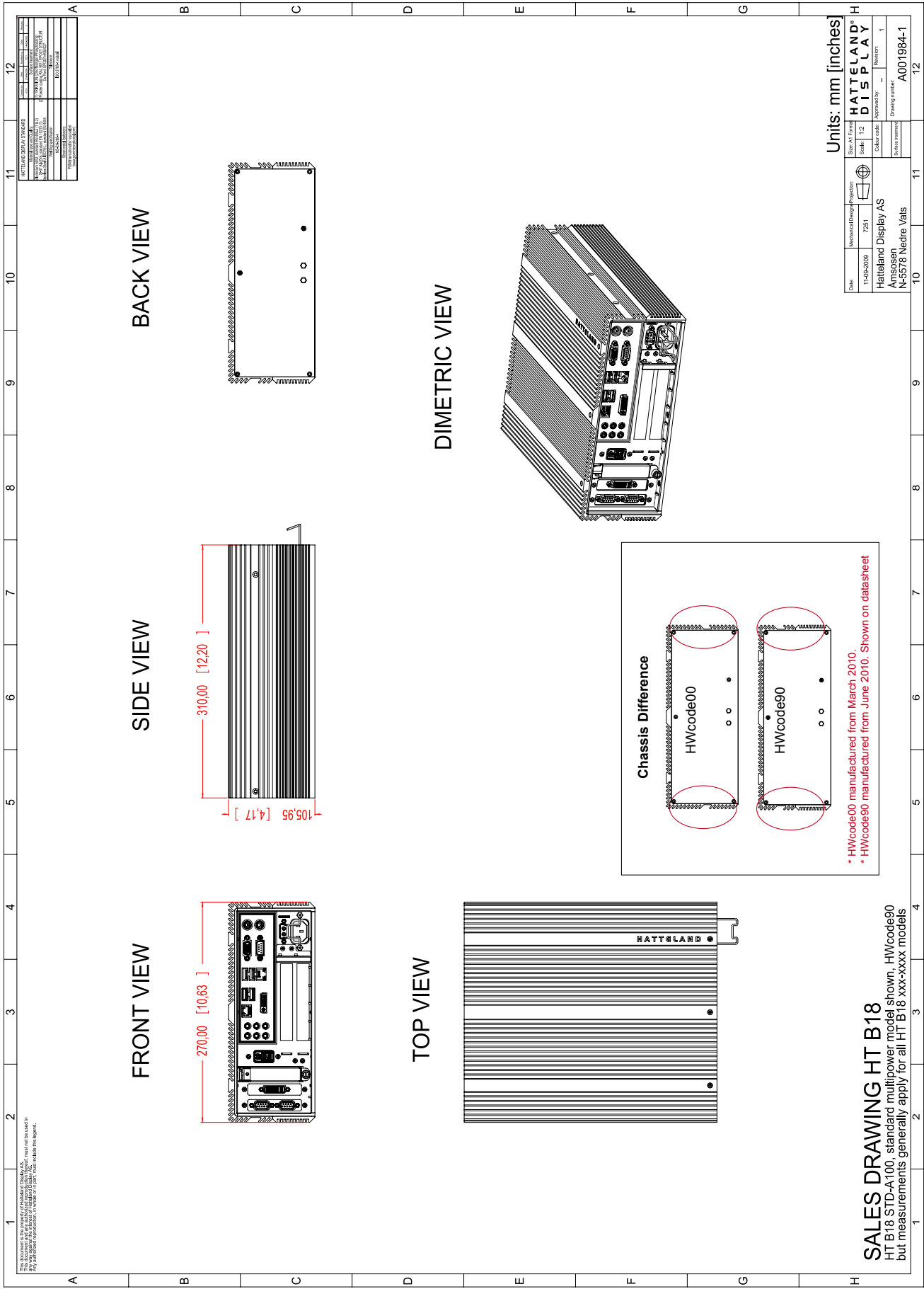
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Technical Drawings - HT B18

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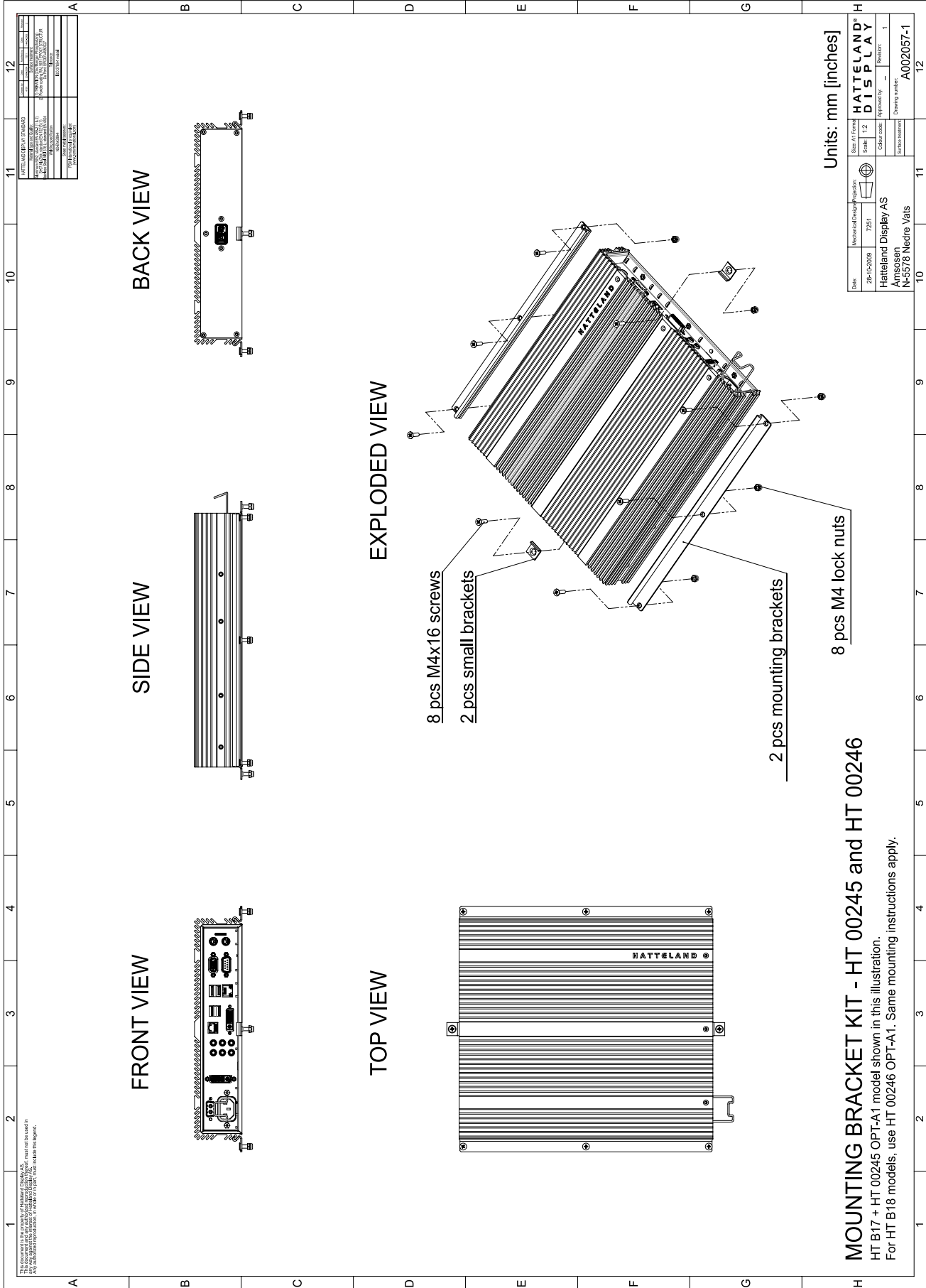
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Technical Drawings - Accessories

Technical Drawings - Mounting Bracket Kit

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for HT B17 **37** INB100032-5 (Rev 12)

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for HT B18 HWcode00 **38** INB100032-5 (Rev 12)

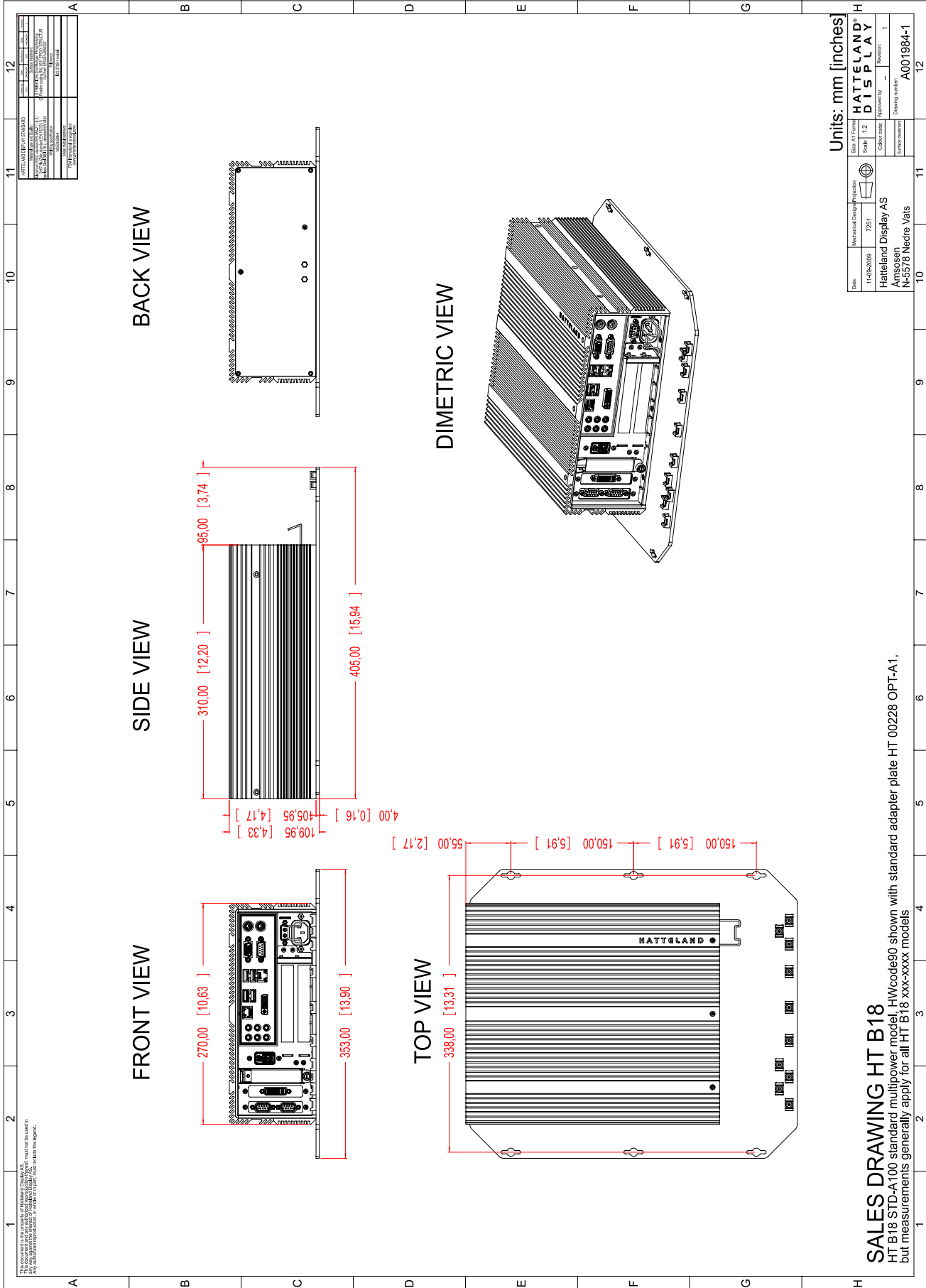
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Technical Drawings - Mounting Plate/Cable Tension Relievers

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<i>for HT B17, B18, B07, B08</i>	40	INB100032-5 (Rev 12)
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<i>for HT B17, B18, B07, B08</i>	41	INB100032-5 (Rev 12)
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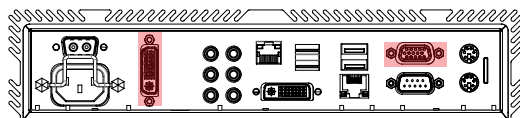
Appendixes

Software / Hardware configuration

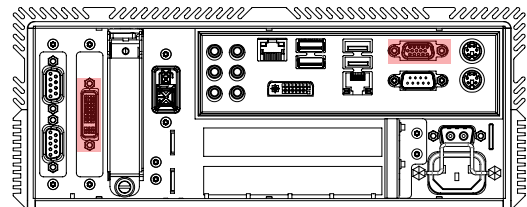
Graphical Drivers:

By factory default the unit's graphical driver have been configured to utilize 1 x RGB/VGA and 1 x DVI-D (DVI-D1). To configure the unit to utilize 2 x DVI-D instead (or revert back to factory default), please follow the procedures below.

1 x RGB/VGA + 1 x DVI-D (DVI-D1) configuration



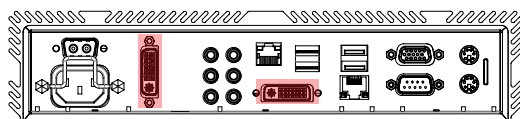
HT B17



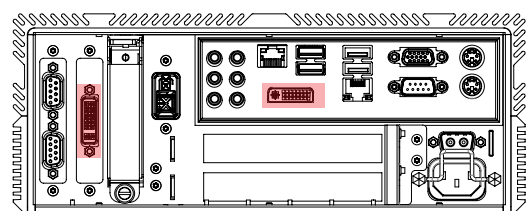
HT B18

	1: Either copy the entire driver set from the Documentation and Driver DVD onto the unit's storage device by USB or Network transfer. or download the complete driver package from www.hatteland-display.com (Support/Drivers).
	2: From the Main Menu, Choose "Computers", then HT B17 or HT B18. Choose the "DVI-D1" option and the driver will be installed. You can also navigate directly on the DVD, example: Execute "Current_Products\Computers\HTB17\menu_run.exe" and choose "DVI-D1". Execute "Current_Products\Computers\HTB18\menu_run.exe" and choose "DVI-D1".

2 x DVI-D (DVI-D2) configuration



HT B17



HT B18

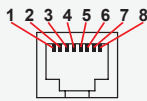
	1: Either copy the entire driver set from the Documentation and Driver DVD onto the unit's storage device by USB or Network transfer. or download the complete driver package from www.hatteland-display.com (Support/Drivers).
	2: From the Main Menu, Choose "Computers", then HT B17 or HT B18. Choose the "DVI-D2" option and the driver will be installed. You can also navigate directly on the DVD, example: Execute "Current_Products\Computers\HTB17\menu_run.exe" and choose "DVI-D2". Execute "Current_Products\Computers\HTB18\menu_run.exe" and choose "DVI-D2".

Pin 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).**

Pin Assignments - RJ45 10/100 LAN

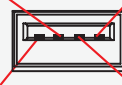
Use category 5 - twisted pair cable



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

Pin Assignments - USB TYPE A

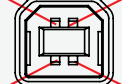
Pin 2: Negative Data Pin 4: Ground



Pin 1: VCC +5V Pin 3: Positive Data

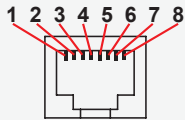
Pin Assignments - USB TYPE B

Pin 2: Negative Data Pin 1: VCC +5V



Pin 3: Positive Data Pin 4: Ground

Pin Assignments - RJ45 10/100/1000 GBLAN



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)

Pin Assignments - 5P PS/2 MOUSE

Pin 6: Not Connected Pin 5: Mouse Clock

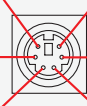


Pin 4: Vcc +5V Pin 3: Ground

Pin 2: Not Connected Pin 1: Mouse Data

Pin Ass. - 5P PS/2 KEYBOARD+MOUSE Combined

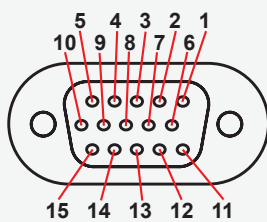
Pin 6: Mouse Clock Pin 5: Keyboard Clock



Pin 4: Vcc +5V Pin 3: Ground

Pin 2: Mouse Data Pin 1: Keyboard Data

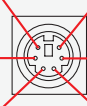
Pin Assignments - 15P HD RGB VGA



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

Pin Assignments - 5P PS/2 KEYBOARD

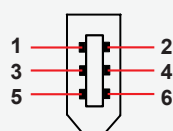
Pin 6: Not Connected Pin 5: Keyboard Clock



Pin 4: Vcc +5V Pin 3: Ground

Pin 2: Not Connected Pin 1: Keyboard Data

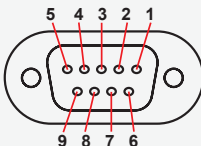
Pin Assignments - FIREWIRE IEEE-1394



Pin 01 - VCC	Power
Pin 02 - GND	Grounding for power and inner cable shield
Pin 03 - TPB-	Twisted Pair B- Receive Strobe, Transmit Data
Pin 04 - TPB+	Twisted Pair B+ Receive Strobe, Transmit Data
Pin 05 - TPA-	Twisted Pair A- Transmit Strobe, Receive Data
Pin 06 - TPA+	Twisted Pair A+ Transmit Strobe, Receive Data

Pin Assignments - 9P Serial COM RS-232

This connector is commonly used for:



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

Pin Assignments - 5P S-VHS/S-VIDEO

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



Pin 2: Ground (C) Pin 1: Ground (Y)

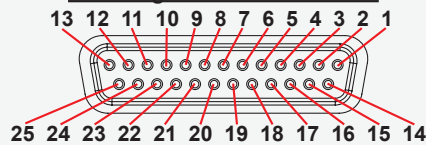
Pin Assignments - RCA/BNC 1P COMP. VIDEO



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.

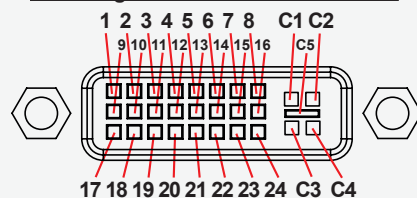
Pin Assignments - Common Connectors

Pin Assignments - 25P Parallel



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

Pin Assignments - 24P DVI-D & DVI-I



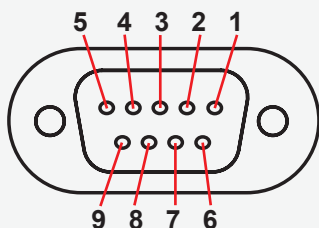
Pin 01	T.M.D.S. Data2 - (Digital - RED link 1)
Pin 02	T.M.D.S. Data2 + (Digital + RED link 1)
Pin 03	T.M.D.S. Data2/4 Shield
Pin 04	T.M.D.S. Data4 - (Digital - GREEN link 2)
Pin 05	T.M.D.S. Data4 + (Digital + GREEN link 2)
Pin 06	DDC Clock
Pin 07	DDC Data
Pin 08	Analog Vertical Sync (DVI-I only)
Pin 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.

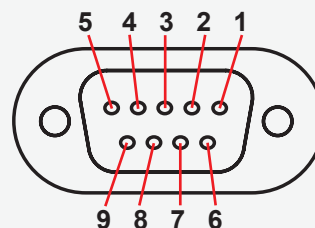
Pin Assignments - Common Connectors (Additional)

Pin Assignments - 9P Serial COM RS422



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

Pin Assignments - 9P Serial COM RS485



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

Note: These pin assignments applies for products with customer specified COM ports (pre-setup by the factory). These COM ports are set/configurable on the motherboard located inside the product. If the main cover of the product has to be unmounted and removed, the warranty will be void.

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.

RECOVERY/RESCUE IMAGE

The Recovery Kit (USB Flash) media access a hidden partition image located on factory delivered units with HDD/SDD hardware installed. This image 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;

```
Hatteland Display Backup Tool, version 1.0.1
Copyright (c) 2000 Hatteland Display and Symantec Corp.

===== Warning! =====
Restoring the hard drive image will
erase all data on the entire drive.
Proceed only if you have saved all
recoverable personal data.

Please choose an option below:
1. Continue to restore hard drive
2. Exit program
```

```
Hatteland Display Backup Tool, version 1.0.1
Copyright (c) 2000 Hatteland Display and Symantec Corp.

The provided hard drive image is only valid for HT XXX

Please choose an option below:
1. Restore hard drive
2. Exit program
```

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

```
The image integrity check was successful. Now restoring factory image...
Hatteland Display Backup Tool, version 1.0.1 status:

Drive restore was successful. Please remove the USB-drive and reboot your system
```

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

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

```
===== Warning! =====
The image integrity check failed, your system was not restored
Contact Hatteland Display Product Support Services

===== Warning! =====
A problem was encountered restoring the factory drive image.
Contact Hatteland Display Product Support Services
```

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
product ranges is in conformity with the following
standards in accordance with the EMC Directive.

Low Voltage Directive 2006/95/EC
EN 60950

EMC Directive 2004/108/EC
EN 55022 Class A
EN 55024

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

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



CE MARK FIRST AFFIXED DATE (11 March 2010)

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, evaluation 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

Approved packaging methods/materials:

(Applies to all shipments to manufacturer)

When returning goods, please make sure you surround the product with the following material, whenever possible: Original packaging from manufacturer, firm foam material, bubble wrap or lots of PadPack paper or Foam chips/polyester wrapped in sealed plastic bags. In any case, always use a solid cardboard box to surround everything.

Not approved packaging methods/materials are: Foam chips, expanded polyester, clothes, nothing, or too little, or anything that will crumble and get into the ventilation holes of products and cardboard boxes that are not suitable to secure the product during shipment.

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 mortgage 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 AS charge NOK 50,- in forwarding fee for orders below NOK 1000,-.
Freight charge according to expenses for orders above NOK 1000,-. VAT not included.

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) GUARANTEE / SERVICES

Time of guarantee is calculated from our date of shipment, and applies to the extent that we are covered by our supplier's guarantee regulations. The guarantee 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 guarantee does not include fair wear and tear.

11) RESPONSIBILITY

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 (RTK). 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 expenses 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 forwarded 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

[illegible]

Revision History

Rev.	By	Date	Notes
00_1	JE SE	29 Oct 2009	Internal review release.
01	JE SE	05 Nov 2009	First official release.
02	JE SE	08 Jan 2010	Revised contents of package, added HT 00237 and info about 3rd party hardware (page 4) Added text about ground (GND) in installation chapter (page 18,21). Added HT B17 specifications, drawings and illustrations (page 10,15,16,17,18,24,28)
03	JE SE	28 Jan 2010	Added Basic Construction illustration HT B18 (page 11) Added PCI and SSD mount/dismount procedures (page 15,16) Added Compass Safe Distance and MTBF value to specs. (page 26,27)
4	JE SE	11 Feb 2010	Added SSD internal mount/dismount procedure (page 16) Added indication of polarity for DC input power +/- (page 21,24)
5	FG GOS SE	15 Apr 2010	Added note for Multipower (page 21,22,25,28,29) Revised drawings HT 00228 OPT-A1, screws information update (page 36) Added HT 00244 OPT-A1 drawings and info (page 5,28,29,37)
6	JE BB SE	01 Jul 2010	Revised illustration (HT B18 HWcode90) page 1,9,12,16,19,20,23,42 Replaced drawings to show with no bracket (moved to appendix instead) page 32,33 Added drawings for HWcode90 HTB18 + illustrational difference HWcode00 and 90 (page 34) Added drawings with bracket (HT 00228 OPT-A1 for HTB1x models) page 37,38,39
7	AK SE	19 Aug 2010	Remove pending for ABS Type Approval, specifications page 28,29
8	JE GOS SE	02 Sep 2010	Changed text "Mounting Bracket" to "Mounting Plate" for HT 00244 and 00228 OPT throughout manual. Added drawings for Mounting Bracket Kit HT B1x (HT 00245 / 246 OPT-A1) page 5,28,29,36
9	BB AK PT SE	26 Jan 2011	Revised/updated text for Multi-power page 1,22,25,28,29 Revised Contents of Package ("Printed User Manual" removed / change text "MEDIA STD01") (Page 5) Removed (pending) for ABS, GL, DNV Type approvals (page 28,29) Revised text for "Documentation and Driver" instructions (page 44)
10	SE	23 Feb 2011	Fixed pages 17,18 (was switched around and data was missing)
11	JE SE	30 Mar 2011	Revised specifications, added LRS type approval and Operating System ID (page 12, 28,29)
12	JE SE	21 Jun 2011	Revised contents of package (HT 00215OPT) (page 5) Revised Recovery Kit (USB Flash) HT 00215 OPT User Guide (page 48)



