DATASHEET

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HATTELAND TECHNOLOGY
an EMBRON Company

Manufacturer:	**Hatteland Technology AS**
Product:	**21.5 inch Maritime Multi Computer (MMC)**
Type:	**HD 21T36 MMC-xxx-xxxxxx** Where x=configuration

Last Revised:	**16 Apr 2025**
Revision#:	**04**

21.5 inch Maritime Multi Computer - Series E

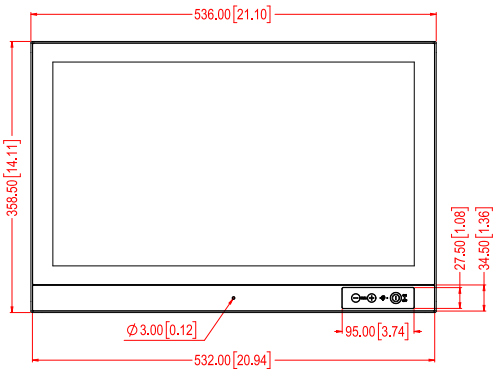
Features:

Series E is the new cost effective Panel Computers portfolio from Hatteland Technology. Designed for 10 years manufacturing, all Series E Panel Computers integrate Intel® Tiger Lake processor-based computers, high quality display technology, fan-less design and low power consumption to deliver a fast and reliable all-in-one solution for diverse maritime applications.

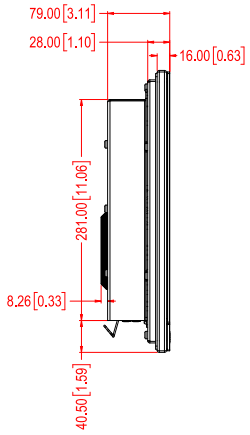
The integrated nature of Series E Panel Computers enables tangible cost savings for maritime technology and equipment manufacturers as well as systems integrators. The portfolio features a range of display sizes, new data storage technology and a number of IO options, providing full flexibility to integrate the highest quality displays in a wider range of maritime technology. Especially suited to developing new bridge solutions, Series E Panel Computers make it possible to continue improving safety and efficiency through safe navigation, while still retaining focus on quality and cost.

Series E Panel Computers also meet the same extreme quality standards as the proven Series X Panel Computer range and feature LED Backlight Technology, full dimming (0-100%) all as standard. In addition there are options such as Multi-Power (AC/DC) inputs or Single AC input, SSD and m.2 storage mediums and Multiple interface configurations. The product range can also accommodate and combine multi-touch screen and optical bonding.

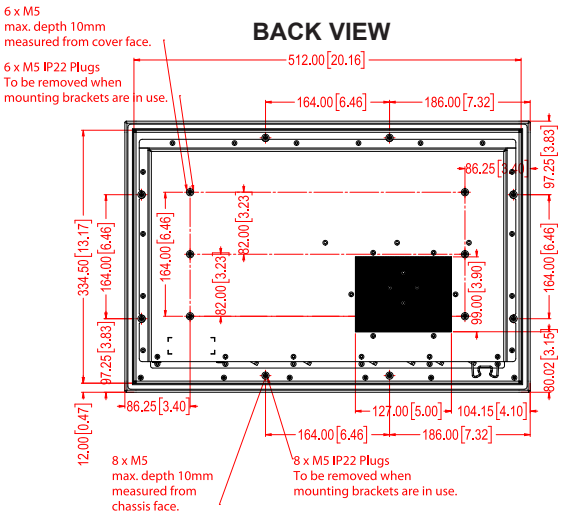
FRONT VIEW



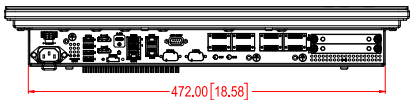
SIDE VIEW



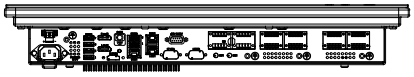
BACK VIEW



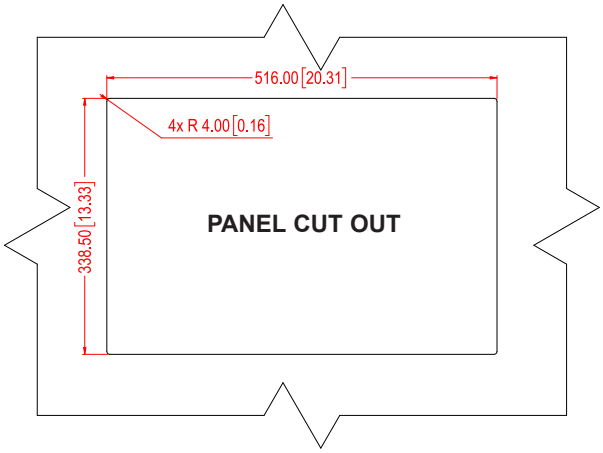
BOTTOM VIEW w/2 x Module Area + SSD Diskbays model



BOTTOM VIEW w/3 x Module Area model



TOP VIEW



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.

SPECIFICATIONS

Note: All specifications are subject to change without prior notice!
Please visit www.hattelandtechnology.com for the latest electronic version.

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TFT Technology:

- 21.5 inch TFT Liquid Crystal Display module, VA (Vertical Alignment)
- a-si TFT Active Matrix
- Widescreen, Aspect Ratio 16:9
- LED Backlight Technology

TFT Characteristics:

- Native Resolution : 1920 x 1080 (FHD)
- Pixel Pitch (RGB) : 0.24795 (H) x 0.24795 (V) mm
- Response Time : 25ms (tr+tf) (typ)
- Contrast Ratio : 3000:1 (typ)
- Light Intensity : 250 cd/m^2 (typ)
- Viewable Angle : 89 deg. (up/down/left/right) (typical)
- Active Display Area : 476.064 (H) x 267.786 (V) mm
- Max Colors : 16.77M colors (RGB 8-bit)

Computer Specifications:

- Supported OS : See table below
- CPU/Processor : See table below
- Installed Storage : 1 x SSD SATA, Type m.2. See table below
- Removable Storage : 1 or 2 x 2.5" SSD SATA
- Installed Memory : See table below
- System Chipset : Intel® SOC
- Graphics Chipset : See table below for details
- Ethernet LAN #1 : Intel® I225IT Gigabit LAN 10/100/1000Mbps. Supports Intel® Teaming
- Ethernet LAN #2 : Realtek RTL8119i Gigabit LAN 10/100/1000Mbps
- BIOS : EFI, ACPI Support. Preconfigured by factory
- Buzzer : Optional Buzzer (according to IEC60945/IACS-E10)
- Audio Chipset : Realtek HD AUDIO ALC888 (on-board)
- Speaker : None
- Power manager : AT, ACPI (S3/S4)
- WatchDog Timer : 256 Segments, 0, 1, 2...255 sec/min
- Monitoring : Temperature, Fan and voltage status
- Other features : LAN wakeup, TPM 2.0, True power on after power fail, possible to use without battery, FAN speed regulation, Secure boot support as default
- DP++ Out Max Res. : 640 x 480 to 4096 x 2304 @ 60Hz

Available Computer Configurations:

Type	Description	Specification
CPU	Intel® i7-1185G7E 1.8GHz/4.4GHz 4/8, 12MB, 15W (standard) Intel® i5-1145G7E 1.5GHz/4.1GHz 4/8, 8MB, 15W (standard) Intel® i3-1115G4E 2.2GHz/3.9GHz 2/4, 6MB, 15W * Intel® Celeron 6305E 1.8GHz 2/2, 4MB, 15W (standard) *On request (may be subject for MOQ)	
Memory RAM	DDR4-3200, Dual Channel	8GB > 64GB
Graphics Chipset	Intel® Iris® Xe Graphics 1.35Ghz, 96 exe units (for Intel® i7-1185G7E) Intel® Iris® Xe Graphics 1.30Ghz, 80 exe units (for Intel® i5-1145G7E) Intel® UHD Graphics for 11th Gen Intel® Processors 1.25Ghz,48 exe units (for i3-1115G7E) Intel® UHD Graphics 1.25Ghz,48 exe units (for Intel® Celeron 6305E)	
Storage #1	1 x SSD SATA Type m.2 internal. Enterprise 24/7, (according to JESD218 standard with JESD219 workload). Power loss protection.	240GB > 480GB
Storage #2	2 x 2.5" SSD SATA via Removable Tray	240GB > 3.84TB
OS Options	- Windows® 10 IoT Enterprise 2019 LTSC (64bit) - Windows® 10 IoT Enterprise 2021 LTSC (64bit) - Windows® 11 IoT Enterprise 2024 LTSC (64bit) - Linux	

User Controls:

On front bezel IP66, Tactile buttons:

- Power On/Off, Brightness Control (-/+), Power LED, ECDIS LED
- Buzzer (75-85dB) , Light Sensor

Power Specifications:

Power Supply Options:

- Multi-Power option : 100-240V AC - 50/60Hz + 24VDC (MMC-Mxx)
- Single AC Power Option : 100-240V AC - 50/60Hz (MMC-Axx)

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: *(see note)

- Operating AC/DC : 44W (typ) - 156W (max)
- Operating AC : 44W (typ) - 125W (max)

*Power Consumption: Numbers are specified as the unit is delivered from factory. All additional installed equipment like USB, PCIe and similar loads have to be added to power consumption. Note that total extra load have to be multiplied by 1.5 to compensate for efficiency in internal power converters. Typical power consumption varies a lot with computer load. We measure with 25% of max computer load.

Physical Dimensions:

Product Dimensions and Weight:

- W:536.00 [21.10"] x H:358.50 [14.11"] x D:87.26 [3.44"] mm [inch]

Weight: Approx. 7kg / 15.43lbs

Environmental Considerations:

- Operating Temperature : -15°C to +55°C
- Storage Temperature : -20°C to +60°C
- Humidity : Humidity up to 95% (Operating / Storage)
- IP-Rating Protection : IP66 front - IP20 rear (EN60529). IP22=option
- Compass Safe Distance : Standard: 70cm - Steering: 60cm

Lifetime Considerations:

Even though 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.

Input/Output Connectors:

Connector	Rear
• USB-C	: 1 x USB-C DP ALT mode, PD/DP (60W)
• DP++ 1.2 OUT	: 2 x DisplayPort Female (Dual-Mode DP++)
• USB2.0 (<5m)	: 4 x USB Type A (4-pin)
• USB3.0 (<3m)	: 2 x USB Type A (9-pin)
• Ethernet GBLan	: 3 x RJ-45
• Amp Audio	: 1 x DB9 Female 2W@70°C
• If SSD Trays	: 2 x 2.5" Sized Tray/Bay (Factory option)
• AC Power IN	: 1 x Std IEC inlet
• If DC Power IN	: 1 x 2-pin Terminal Block 5.08

Accessories:

- HD CMB SE1-B1 : 1 x Console Mount Kit. EN60945 Tested**
- HD TMB SE1-B1 : 1 x Table Mount Bracket. EN60945 Tested
- HD VED SX1-A1 : 1 x VESA Adapter, not EN60945 Tested
- JH C01MF A-A : 1 x USB Cable 1m, TypeA-Chassis mount receptacle
- HT 00262 OPT-A1/B1: 4 x RS-422/RS-485 isolated, USB ext. module
- HT 00263 OPT-A1/B1: 4 x RS-232 COM non-isolated, USB ext. module
- HT 00264 OPT-A1/B1: 1 x CAN isolated, 2 channel, USB ext. module [1]
- HT 00264 OPT-A2/B2: 1 x SLCAN isolated, 2 channel, USB ext. module [1]
- HT 00273 OPT-A1/B1: 4 x Digital IN/OUT isolated, USB ext. module
- HT 00277 OPT-B1 : 2 x LAN 1Gbps, SFP, USB ext. module
- VSD100779-1 : External audio cable, DB9M to open leads mono 1m
- HT 00300 MSOS : OS options: https://www.hattelandtechnology.com/os
- HD 000TR SX2-A2 : 1 x Removable Tray 2.5" Empty
- HD xxxyy SX1-z1 : 1 x Removable Tray 2.5" w/Storage Device*

*Where xxx=Size of device. yy=GB,TB. z=S (SSD) - Choose Device from table.
**Included in delivery

[1] **Note:**
Due to driver limitations, only 1 instance of this module can be connected to the same Computer/Panel Computer unit.
If Computer/Panel Computer already has SLCAN functionality built-in, connecting this external module will always fail.

Factory Options:

- Projected Capacitive Touch Screen (Multitouch, USB, Pen/Glove support)
- Optical Bonding Technology
- Multipower (AC+DC) or AC only model
- IP22 Model (Factory Mounted internal gaskets)
- Variations of SSD Storage, RAM Memory, Operating System, CPU
- Model with 1 x Diskbay with support for 2 x 2.5" and max 2 Modules
- Model with 3 x Modules, no Diskbay

Modules available (depending on base model above):
Review full configuration matrix in User Manual INB101990-1

- 1,2 or 3 x PCA200828-1: 4xCOM RS-422/485 isolated NMEA 4 channel module
- 1,2 or 3 x PCA100309-1: Dual Isolated RS-232, connector 2xDB9M module
- 1 x HTA2020002-AD1033: CAN isolated 2 channel or 2 x 4 channel module* [1]
- 1 x HTA2020002-SLCAN: CAN isolated, 2 channel, socketCAN module* [1]
- 1 x PCA100297-1: Isolated Digital IO module,4 x OUT/4 x IN*
- 1 or 2 x PCBAA21001: LAN 1Gbps, 2 x SFP module
- 1 x VSD203593-1: 2 x 3.5mm jack mic in, line out*
- 1 x VSD203592-1: 1 x Isolated RS-232, DB9M connector*
- 1 x PCA200827-1: 2 x RJ-45, PoE 12V 5,5A receiver module*
- 1 x HT EPB STD-A2: External/Remote ON/OFF power button*

*Only 1 of item can be installed

Frame Grabber options (1 x supported via M.2 (PCIe x1) slot):

- HD550N1 SDI M2: 1 x SDI IN, 1920x1080@60/50fps
- HD550N1 HDV M2: 1 x HDMI IN+1 x VGA IN, 1920x1200p@60/50fps

APPROVALS & CERTIFICATES

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

IEC 60945 4th (EN 60945:2002) **IACS E10** **EU-RO-MR** - Mutual Recognition by DNV* **ClassNK** - Nippon Kaiji Kyokai*
ABS - American Bureau of Shipping **BV -** Bureau Veritas* **CCS** - China Classification Society*