DATASHEET

HATTELAND TECHNOLOGY
an EMBRON Company

Manufacturer:	**Hatteland Technology AS**
Product:	**24.0 inch Maritime Multi Computer (MMC)**
Type:	**HD 24T21 MxC-xxx-xxxx**

Last Revised:	**09 May 2023**
Revision#:	**58**

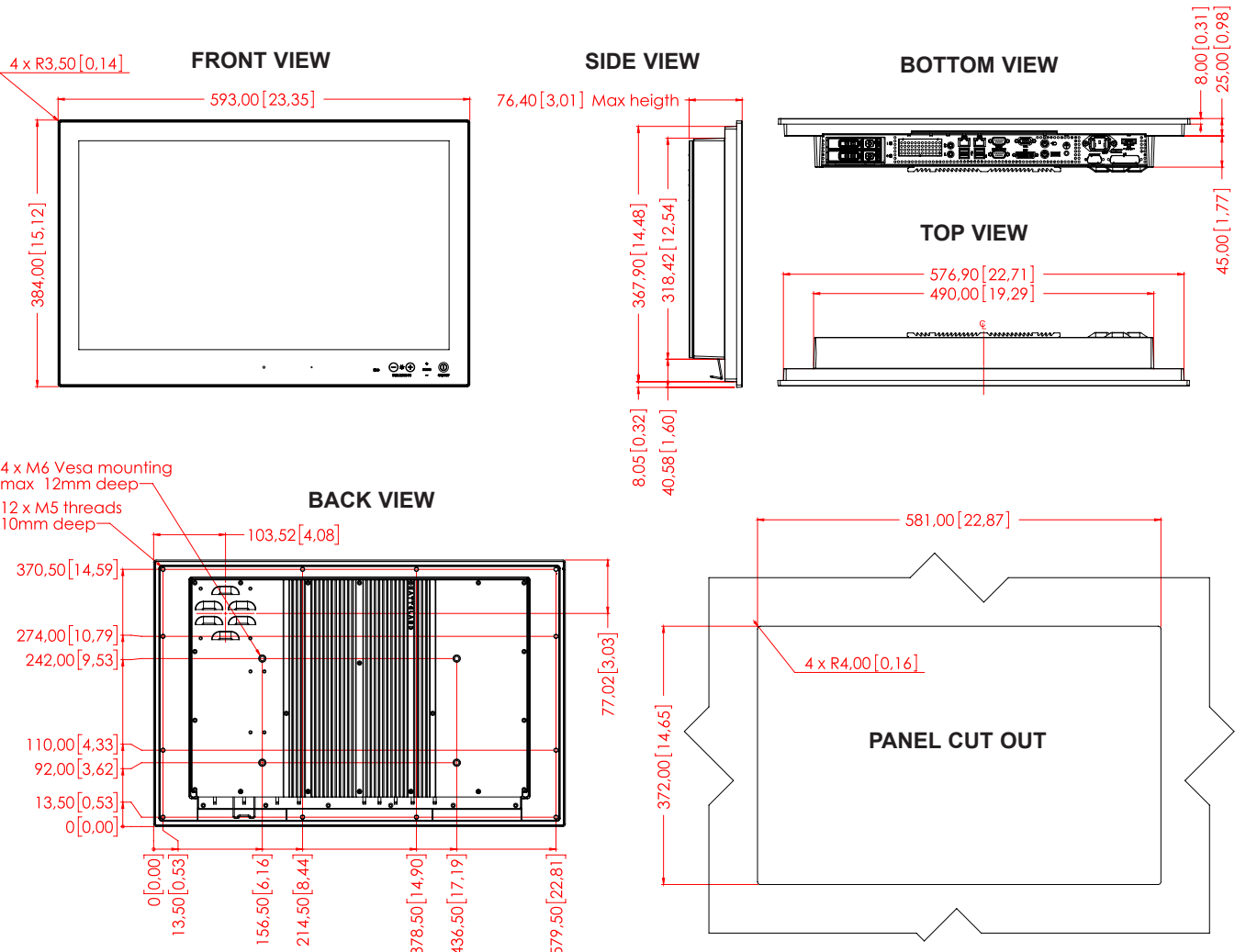## 24.0 inch Maritime Multi Computer - Series X

Features:

Series X Panel Computers offer the ultimate in performance, convenience, state of the art design and enduring quality for system integrators and boat builders. Series X products offer a range of feature sets optimized for varying requirements and applications.

The Series X Panel Computer range is a flexible all in one monitor & PC solution, designed and type approved for the professional marine segment, where reliability and long life time are key prerequisites for the industry. The product range combines state of the art display and computer technology with innovative features and options, making it all that the integrator needs for top class type-approved marine systems.

The high performance MMC Panel Computer models provide a wide choice of display size and format, along with various processor and storage options. The compact, all-in-one MMC solution is the ideal one for all ship navigation or automation installations. This range with all it's versitility and capability provides a robust and cost effective platform from which to run multiple applications and display and manage data.

Series X Panel Computer feature Glass Display Control, LED Backlight Technology, full dimming and multipower all as standard. In addition there are options such as HDD or SSD storage mediums, Multiple interface configurations and several OS options. The product range can also accomodate and combine multi-touch screen, optical bonding, sunlight readability (High Bright) and ECDIS calibration. By factory standards the 24 inch unit is ECDIS Compliant.

FRONT VIEW
4 x R3,50 [0,14]
593,00 [23,35]
384,00 [15,12]

SIDE VIEW
76,40 [3,01] Max heigth
367,90 [14,48]
318,42 [12,54]
8,05 [0,32]
40,58 [1,60]

BOTTOM VIEW
8,00 [0,31]
25,00 [0,98]
45,00 [1,77]

TOP VIEW
576,90 [22,71]
490,00 [19,29]

BACK VIEW
4 x M6 Vesa mounting max 12mm deep
12 x M5 threads 10mm deep
103,52 [4,08]
370,50 [14,59]
274,00 [10,79]
242,00 [9,53]
110,00 [4,33]
92,00 [3,62]
13,50 [0,53]
0 [0,00]
77,02 [3,03]
0 [0,00]
13,50 [0,53]
156,50 [6,16]
214,50 [8,44]
378,50 [14,90]
436,50 [17,19]
579,50 [22,81]

PANEL CUT OUT
581,00 [22,87]
4 x R4,00 [0,16]
372,00 [14,65]

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.

HATTELAND TECHNOLOGY
an EMBRON Company

TFT Technology:
- LED Backlight Technology, TFT Active-matrix
- 24.0 inch viewable image size, Widescreen, Aspect Ratio 16:9
- MVA (Multi-domain Vertical Alignment) LCD Technology, RGB vertical stripe

TFT Characteristics:
- Native Resolution : 1920 x 1080 (FHD)
- Pixel Pitch (RGB) : 0.276 (H) x 0.276 (V) mm
- Response Time : 25 ms (typical), "black" to "white"
- Contrast Ratio : 3000:1 (typical)
- Light Intensity : 300 cd/m² (typical)
- Viewable Angle : +/- 89 deg. (typical) (Up/Down/Left/Right)
- Active Display Area : 531.36 (H) x 298.89 (V) mm
- Max Colors : 16.7 millions (RGB 8-bit)

Computer Specifications:
- OS Options : None or see table below
- Storage Options : None or see table below
- CPU/Processor : See table below
- Memory Options : None or see table below
- System Chipset : Intel® BD82QM57
- Graphics Chipset : Intel® Arrandale IGD supports DVMT 5.0
  Supports Direct3D 10.1,
  OpenGL 2.1, OpenGL ES2.0 (Linux)
- Ethernet LAN #1 : Intel® 82577LM Gigabit LAN 10/100/1000Mbps
- Ethernet LAN #2 : Realtek RTL8111C Gigabit LAN 10/100/1000Mbps
- Audio Chipset : Realtek ALC892
- BIOS : UEFI AMIBIOS
- Speaker / Buzzer : No Speaker / 3500Hz Buzzer
- Watchdog Timer : 256 Segments, 0, 1, 2...255 sec/min
- Power Manager : ACPI S3/S4
- Monitoring : Temperature and voltages status
- Other Features : GPIO, LAN Wakeup, USB Boot and Wakeup
- DVI-I OUT Resolution : From 640 x 480 to 1920 x 1200 @ 60 Hz
- RGB OUT Resolution : From 640 x 480 to 2048 x 1536 @ 75 Hz

Available Computer Configurations:

Type	Description	Size/Specification
CPU	1 x Intel® Celeron® P4505, 1.86GHz, 2MB Cache, FSB 800MHz or 1 x Intel® Core™ i7-620LE, 2.0GHz, 4MB Cache, FSB 1066MHz or 1 x Intel® Core™ i5-520E, 2.40GHz, FSB 800/1066MHz, 3MB Cache	
Memory	1 x Single Channel, 204-pin DDR3 1066/800Mhz	- 2GB, 4GB (Max)
Storage	2 x 2.5" SSD SATA	- 240GB (599TBW), 480GB (945TBW) - 960GB (1750TBW)
Storage	2 x 2.5" HDD* SATA *Combination buzzer and spinning hard disk (HDD) is not possible.	- 1TB
OS Option	Embedded Enterprise (WEE): - Microsoft® Windows® Server 2003/2008/2008R2 (Eng) - Microsoft® Windows® 7 Professional/Ultimate (Eng, SP1) - Windows® 10 IoT Enterprise 2016 LTSB (64bit) openSUSE® 11.4 (Linux) Fedora™ 15 (Linux) Ubuntu® 10.04 LTS Ubuntu® 12.04 LTS See also Accessories (HT 00300 MSOS) options.	
Notes	- For Win7 OS, >1GB RAM + Review "SSD Selection Guide" in manual. - 32bit or 64bit versions available where applicable.	

Power Specifications:

Multi-power Supply:
- 100-240V AC 50/60Hz + 24 VDC   - HD 24T21 MxC-Mxx-xxxx

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 AC/DC: 50W (typ)* - 156W (max)

*Max backlight, Idle CPU load, Microsoft® Windows® 7

Physical Considerations:
- W:593.00 [23.35"] x H:384.00 [15.12"] x D:76.40 [3.01"] mm [inch]
- 4 x M6 VESA mounting 280x150mm, Max 12mm deep
- Weight: 11.2 kg / 24.6 lbs

User Controls:
Behind front bezel - Glass Display Control™ (GDC) IP66:
- Power On/Off, Brightness Control (-/+)
- Power LED, HDD/SSD LED, Mode Status Indicator (ECDIS, Service)
- Buzzer (through glass) (75-85dB), Light Sensor (behind glass)

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%
- IP-Rating : Protection: IP66 front - IP22 rear (EN60529)
- Compass Safe Distance : Standard: 115cm - Steering: 70cm

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
• Ethernet GBLan	2 x RJ-45
• Keyboard	1 x PS/2 (purple)
• Mouse	1 x PS/2 (green)
• COM RS-232	1 x DB9M non-isolated
• COM RS-422/485	1 x DB9M non-isolated
• VCOM RS-232	1 x Internal Virtual COM (Software controlled)
• USB1.1 (<10m)	1 x USB Type A
• USB2.0 (<5m)	3 x USB Type A
• DVI or RGB OUT	1 x 29P DVI-I or as RGB with adapter
• RGB OUT	1 x 15p HD D-SUB
• AC Power IN	1 x Std IEC inlet
• DC Power IN	1 x 2-pin Terminal Block 5.08
• Line OUT	1 x 3.5mm mini jack (Lime)
• Mic IN	1 x 3.5mm mini jack (Pink)
• HDD/SSD Tray	2 x 2.5" Sized Tray/Bay (1 x factory default occupied)

Available Accessories:
- HD CMB SX1-B1 : 1 x Console Mount Kit. EN60945 Tested
- HD TMB SX1-C1 : 1 x Table Mount Bracket. EN60945 Tested
  Note: Can not be combined with HDD, use SSD only.
- HD VED SX1-A1 : 1 x VESA Bracket, not EN60945 Tested
- HD 24COV SX1-A1 : 1 x UV Sun Cover
- JH C01MF A-A : 1 x USB Cable 1m, TypeA-Chassis mount receptacle
- HT 00262 OPT-A1 : 4 x RS-422/RS-485 isolated, USB ext. module
- HT 00263 OPT-A1 : 4 x RS-232 COM non-isolated, USB ext. module
- HT 00264 OPT-A1 : 1 x CAN isolated, 2 channel, USB ext. module
- HT 00264 OPT-A2 : 1 x CAN isolated, 2 channel, socketCAN USB ext. module
- HT 00273 OPT-A1 : 4 x Digital IN/OUT isolated, USB ext. module
- HT 00274 OPT-A1 : 2 x LAN 10/100Mbps, RJ45, USB ext. module
- HD 000TR SX1-A1 : 1 x Removable Front Tray 2.5" Empty
- HD xxxyy SX1-z1 : 1 x Removable Front Tray 2.5" w/Storage Device*
- HT 00300 MSOS : OS options: https://www.hattelandtechnology.com/os

  *Where xxx=080,120,300,320,001. yy=GB,TB. z=S (SSD), z=H (HDD).
  Example: HD 120GB SX1-S1 (120GB SSD SATA 2,5"). Choose Device from table.

Factory Options:
- Projected Capacitive Touch Screen (Multitouch, USB interface)
- Optical Bonding Technology
- Sunlight Readable / High Bright (includes Optical Bonding) model
- Color Calibrated models (ECDIS)
- Variations of SSD/HDD Storage, RAM Memory, Operating System
- 1 x PCA200828-1 (4xCOM RS-422/485 isolated NMEA 2 channel)*
- 1 x HTA2020002-AD1033 (1 or 2 x CAN isolated 2ch. or 4ch.)*
- 1 x HTA2020002-SLCAN (1 or 2 x CAN isolated 2 or 4 ch., socketCAN)*
- 1 x HT 00235 OPT-A1 (2W Amplified Audio out via DB9F)
- 1 x PCA100297-1 (Isolated Digital IO module,4 x Output/4 x Input)*
- 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports RJ45)*
- 1 x VSD100832-1 (LPT1 Parallel (Bi-Directional/EPP/ECP). DB25F

*Only 1 module can be installed

APPROVALS & CERTIFICATES

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

IEC 60945 4th (EN 60945:2002)
DNV - Det Norske Veritas
LRS - Lloyd's Register of Shipping

IACS E10   **IP66**
ABS - American Bureau of Shipping
EU RO MR - Mutual Recognition

ClassNK - Nippon Kaiji Kyokai
CCS - China Classification Society
KR - Korean Register of Shipping

GL - Germanischer Lloyd
BV - Bureau Veritas