

Manufacturer: **Hatteland Display AS**  
 Product: **13.3 inch Maritime Multi Computer (MMC)**  
 Type: **HD 13T21 MMC-xxx-xxxx (Intel® Atom™ CPU)**  
 x = Available configurations

Last Revised: **30 Aug 2018**  
 Revision#: **29**

## 13.3 inch Maritime Multi Computer - Series X

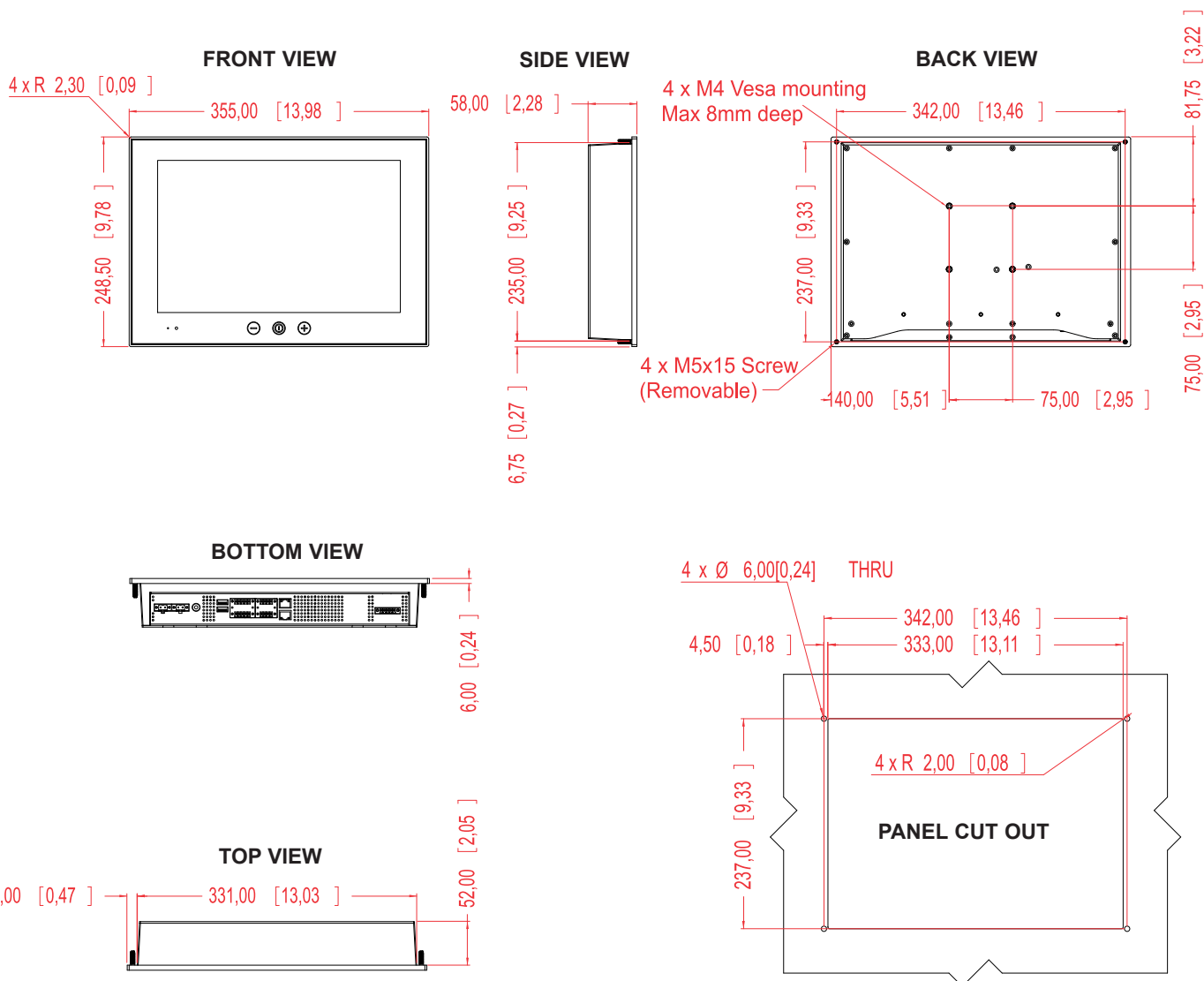
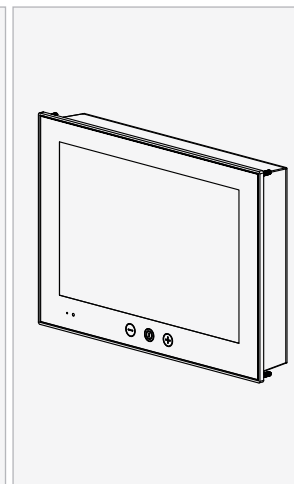
### Features:

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-pre requisites 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 versatility and capability provides a robust and cost effective platform from which to run multiple applications and display and manage data.

This model is delivered with a factory mounted Projected Capacitive Touch Screen (Multitouch, USB interface) as standard and features LED Backlight Technology.



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.

## TFT Technology:

- 13.3 inch TFT Liquid Crystal Display module, Widescreen
- Aspect Ratio 16:10, a-si TFT Active Matrix
- LED Backlight Technology

## TFT Characteristics:

- Native Resolution : 1280 x 800 (WXGA)
- Pixel Pitch (RGB) : 0.2235 (H) x 0.2235 (V) mm
- Response Time : 6/10ms (typical) (Tr/Tf)
- Contrast Ratio : 800:1 (typical)
- Light Intensity : 500 cd/m<sup>2</sup> (typical)
- Viewable Angle : 70 deg (H) 60 deg (V) (typical)
- Active Display Area : 286.08 (H) x 178.8 (V) mm
- Max Colors : 262000

## Computer Specifications:

- OS Options : None or See table below
- CPU/Processor : 1 x Intel® Atom™ N450, 1.66GHz, 512KB L2 Cache
- Storage Options : None or See table below
- Memory Options : None or See table below
- System Chipset : Intel® NM10 / ICH8M
- Graphics Chipset : Intel® GMA 3150
- BIOS : AMIBIOS
- Speaker : None
- Buzzer : Yes (according to EN60945)
- Power Manager : ACPI
- HW Status Monitor : Temperatures, voltages & cooling fan status.
- Resolution Range : From 640 x 480 to 1280 x 800

\* Native 1:1 resolution recommended is 1280 x 800 @ 60 Hz.  
\* If resolution is set above 1:1, desktop scrolling mode will be used.

## Available Computer Configurations:

Type	Description	Size/Specification
Memory	1 x 200-pin DDR2 667MHz SO-DIMM	- 1GB, 2GB
Storage	1 x SlimSATA SSD	- 32GB, 60GB
Storage	1 x 2.5" SSD SATA Multi Level (MLC)	- 80GB, 120GB, 300GB
OS Option	Embedded Enterprise (WEE): - Microsoft® Windows® Server 2003/2008/2008R2 (Eng) - Microsoft® Windows® 7 Professional/Ultimate (Eng, SP1) 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.	

- 2 x 24VDC : Model HD 13T21 MMC-Exx-xxxx  
Dual input, galvanic isolated, automatic switch between power source

## Power Consumption:

- Operating : 25W (typ) - 28W (max)

## Physical Dimensions:

- W:355.00 [13.98"] x H:248.50 [9.78"] x D:58.00 [2.28"] mm [inch]
- 4 x M4 VESA mounting 75x75mm, Max 8mm deep
- Built-in Console mounting 4 x M5x15mm screws
- Weight: 4.4kg / 9.7lbs

## User Controls:

- **Behind front bezel - Glass Display Control™ (GDC) IP66:**
- Power On/Off, Brightness Control (-/+), Light Sensor (behind glass)
- Programmable Alarm LED, Buzzer (through 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: 80cm - Steering: 45cm

## Lifetime 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.

## Input/Output Connectors:

Connector	Rear
• Primary Power 24VDC	1 x 2-pin Terminal Block 5.08
• Secondary Power 24VDC	1 x 2-pin Terminal Block 5.08
• LAN	2 x RJ45
• USB2.0 (<5m)	2 x Type A
• Solid State Relay (NO) (over current protection)	1 x 4-pin Terminal Block 3.81*
• Digital Input (isolated/protected)	1 x 4-pin Terminal Block 3.81
• COM (isolated RS-422/485)	1 x 5-pin Terminal Block 3.81
• Safety Signal Relay (NO/NC)	1 x 5-pin Terminal Block 3.81

\* IEC 60950 Compliant, 48VDC.

## Factory Mounted Options:

- Optical Bonding Technology
- Variations of SSD Storage, RAM Memory, Operating System

## Available Accessories:

- 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 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
- HT 00300 MSOS : OS options -> <http://www.hatteland-display.com/os>

Please see user manual/datasheet for more information

## Capabilities / Prepared for:

- 1 x COM RS-232/422/485 non-isolated (TBD connector)
  - 1 x VGA output, for additional / external display (15P connector)
  - 2 x CAN isolated module (2 x 4-pin Terminal Block 3.81, 2 channel)
  - 4 x COM RS-422/485 isolated NMEA Compliant (5-pin Terminal Block 3.81)
  - 4 x COM RS-232 non-isolated module (9P D-DSUB connectors)
  - 1 x Mechanical Relay (NO/NC) (1 x 5-pin Terminal Block 3.81)
  - 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports (RJ45))
- Note: Contact us for possible combinations

## Factory Defaults:

- Projected Capacitive Touch Screen (Multitouch, USB interface)

# APPROVALS & CERTIFICATES

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

**IEC 60945 4th (EN 60945:2002)**

**GL** - Germanischer Lloyd

**LRS** - Lloyd's Register of Shipping

**IACS E10**

**DNV** - Det Norske Veritas

**CCS** - China Classification Society

**IP66**

**ABS** - American Bureau of Shipping

**EU RO MR** - Mutual Recognition

**ClassNK** - Nippon Kaiji Kyokai

**BV** - Bureau Veritas