DATA SHEET

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HATTELAND® DISPLAY

Manufacturer:	**Hatteland Display AS**
Product:	**15.0 inch Maritime Multi Display (MMD)**
Type:	**HD 15T22 MMD-xxx-Fxxx**

Last Revised:	**28 Aug 2017**
Revision#:	**02**

15.0 inch Maritime Multi Display - Series X G2

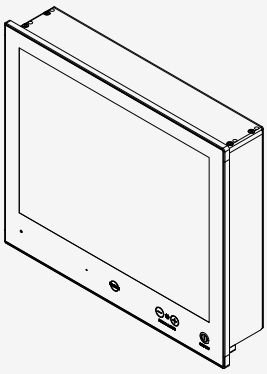
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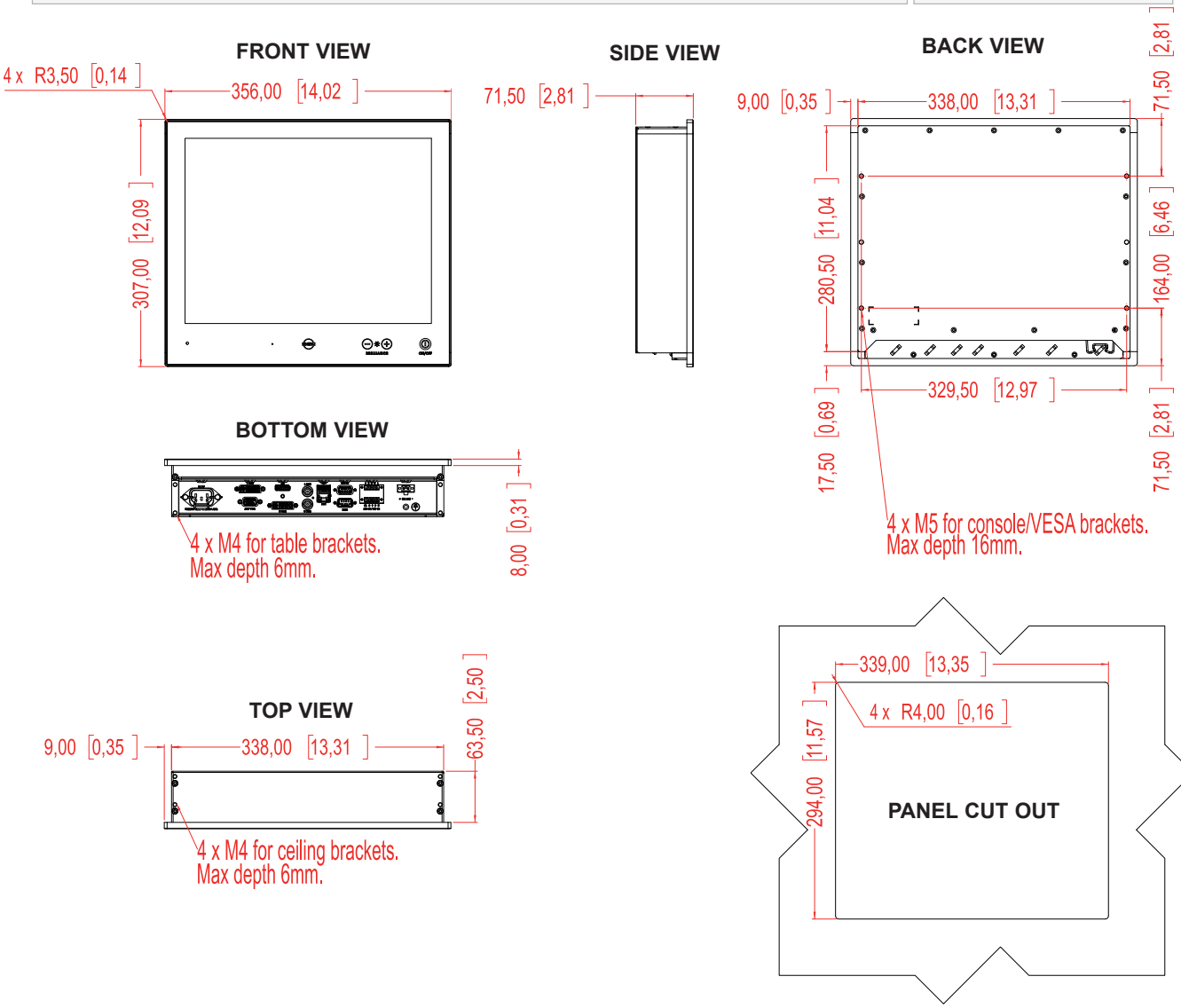
Series X Generation 2 (G2) Displays offer the ultimate in performance, convenience, state of the art design and enduring quality for system integrators and boat builders. Series X products offer a range of feature sets optimized for varying requirements and applications.

The Series X Generation 2 (G2) display range is a flexible monitor solution designed and type approved for the professional maritime segment, where reliability and long life time are key pre-requisites for the industry. The product range combines stunning design and technology with innovative features and options, making it all that the integrator needs for top class type-approved marine systems.

The multi-input MMD models provide a wide choice of display size and format for a multitude of shipboard applications, where combining data and video inputs to a single unit provides maximum flexibility. Be it for ship navigation, automation or security, this range with all it's possible options provides a robust and multipurpose platform from which to display and manage data and multiple camera or sensor videos.

Series X Generation 2 (G2) displays feature Glass Display Control™, LED Backlight Technology, full dimming and multipower as standard, and can also accomodate and combine a number of options such as multi-touch screen, optical bonding and sunlight readability (High Bright).





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.hatteland-display.com for the latest electronic version.

HATTELAND® DISPLAY

TFT Technology:

- High Quality TFT with LED Backlight Technology
- 15.0 inch viewable image size, Aspect Ratio 4:3
- TFT active-matrix liquid crystal panel

TFT Characteristics:

• Native Resolution	: 1024 x 768
• Pixel Pitch (RGB)	: 0.297 (H) x 0.297 (V) mm
• Response Time Standard	: 8ms (typical), black to white
• Response Time High Bright	: 19ms (typical), black to white
• Contrast Ratio Standard	: 1500:1 (typical)
• Contrast Ratio High Bright	: 800:1 (typical)
• Light Intensity Standard	: 400 cd/m² (typical)
• Light Intensity High Bright	: 800 cd/m² (typical)
• Viewable Angle Standard	: +/- 85 deg. (Up/Down/Left/Right) (typical)
• Viewable Angle High Bright	: +/- 80 deg. (D/L/R), +/- 60 deg. (U) (typ)
• Active Display Area	: 304.1 (H) x 228.1 (V) mm
• Max Colors	: 16.7 million

Synchronization:

- Digital separate synchronization
- Composite synchronization
- Synchronization on green
- Auto detects VGA -> XGA, interlaced and non interlaced
- Video Signal : Analog RGB 0,7Vp-p
  : Input Impedance 75 Ohm

Synchronization Range:

- Horizontal : 31.5 kHz to 91.1 kHz
- Vertical : 60 Hz* to 85 Hz

** Recommended for optimal picture quality*

Supported Signals:

Resolutions:

- VGA : 640 x 480 (including 640 x 350)
- SVGA : 800 x 600 (including 720 x 400)
- XGA : 1024 x 768*

** Recommended for optimal picture quality*

Video Signals:

- Interlaced HDTV, NTSC, PAL and SECAM video
- Composite video

Power Specifications:

Multi-power Supply:

- 115&230VAC - 50/60Hz + 24 VDC

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: 22W (max)

Physical Considerations:

- W:356.00 [14.02"] x H:307.00 [12.09"] x D:71.50 [2.81"] mm [inch]
- Weight: TBDkg / TBDlbs

Signal Terminals:

• DVI-I IN	: 2 x 29p DVI Female (or as VGA IN with adapter)*
• DP1.2 IN	: 1 x 20p DisplayPort (female)
• Comp. Video IN	: 2 x BNC Connector (female)
• SCOM RS-422/485	: 2 x 5-pin Terminal Block 3.81, non-isolated+Buzzer
• VGA OUT	: 1 x 15p HD D-SUB (female) - Clone of VGA IN**
• SCOM+Touch	: 1 x USB TYPE A Connector (female)
• Ethernet	: 1 x RJ45 Connector for Remote Control
• SCOM RS-232	: 1 x 9p D-SUB (female) non-isolated+Buzzer
• Potmeter/User	: 1 x 9p D-SUB (male) (Potentiometer IN, +5VDC OUT, BRT +/- IN)
• AC Power IN	: 1 x Std IEC Inlet
• DC Power IN	: 1 x 2-pin Terminal Block 5.08

* DVI-I Port #1 as VGA IN also acts as clone to VGA Signal Out (buffered).
**Tested at recommended resolutions. The VGA output signal (buffered) is at same resolution and sync as the VGA input. The output is working even if the display unit is turned off, but power cable/supply must be connected/provided.

User Controls:

Behind front bezel - Glass Display Control™ (GDC) IP66:

- Power On/Off, On Screen Display Menu, Brightness Control (-/+)
- Hotkeys (left/right), Mode Status Indicators (Service)
- Buzzer (through glass), Light Sensor (behind glass)

Environmental Considerations:

• Operating	: Temperature -15 deg. C to +55 deg. C
• Storage	: Temperature -30 deg. C to +70 deg. C
• Humidity	: Up to 95%
• IP Rating	: Protection: IP66 front – IP22 rear (EN60529)
• Compass Safe Dist.	: Standard: 100cm - Steering: 65cm

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.

Available Accessories:

• HD CMB SX2-A1	: 1 x Console Mount Kit. EN60945 Tested
• HD TMB SX2-A1	: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX2-A1	: 1 x VESA Adapter Kit (75/75, 100/100 & 200/100mm) Not EN60945 Tested
• JH 15TAP STD-C1	: 1 x Frame Adapter (15" Series 1 to Series X) retrofit
• HD REM SX1-A1	: 1 x External Remote Control, EN60945 Tested
• HD 15COV SX1-A1	: 1 x UV Sun Cover
• P006997-1	: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount

Please see user manual/datasheet for more information

Factory Options:

- Projected Capacitive Touch Screen (Multitouch, USB, Pen/Glove supported)
- Optical Bonding Technology
- Sunlight Readable / High Bright (includes Optical Bonding)

APPROVALS & CERTIFICATES

These products have been tested / type approved by the following classification societies (*=pending):
IEC 60945 4th (EN 60945:2002)* **IACS E10*** **EU RO MR*** - Mutual Recognition (covers DNV, BV, ABS, GL, NK and LRS certificates)