

Manufacturer: **Hatteland Technology AS**
 Product: **24.0 inch Maritime Multi Display (MMD)**
 Type: **HD 24T22 MMD-xxx-Fxxx**

Last Revised: **16 Dec 2022**
 Revision#: **33**

24.0 inch Maritime Multi Display - Series X G2

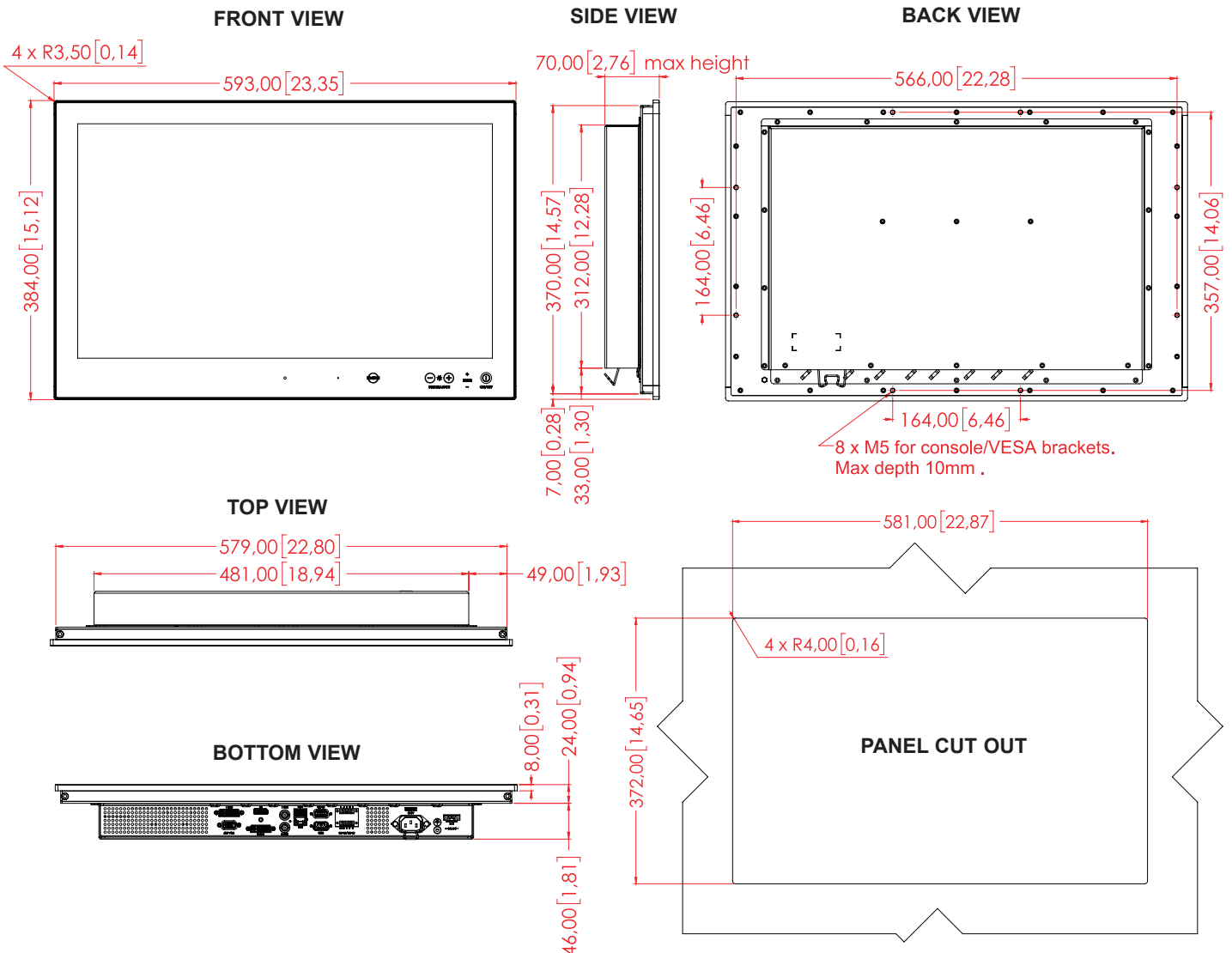
Features:

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 prerequisites 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 accommodate and combine a number of options such as multi-touch screen, optical bonding and ECDIS calibration. By factory standards the 24 inch unit is ECDIS Compliant.



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:

- 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) : 0.27675 (H) x 0.27675 (V) mm
- Response Time : 25 ms (typical), "black" to "white"
- Contrast Ratio Standard : 3000:1 (typical)
- Contrast Ratio High Bright : 2300:1 (typical)
- Light Intensity Standard : 300 cd/m² (typical)
- Light Intensity High Bright : 1000 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)

Supported Signals:

Resolutions:

- VGA : 640 x 480 (including 640 x 350)
- SVGA : 800 x 600 (including 720 x 400)
- XGA : 1024 x 768
- SXGA : 1280 x 1024
- UXGA : 1600 x 1200
- FHD : 1920 x 1080*

* Recommended for optimal picture quality

Video Signals:

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

Power Specifications:

Multi-power Supply:

- 100-240V AC - 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: 156W (max)

Physical Considerations:

Product Dimensions and Weight:

- W:593.00 [23.35"] x H:384.00 [15.12"] x D:70.00 [2.76"] mm [inch]
- Approx weight: 9.1kg / 20.0lbs

Product Carton Size and Weight (Shipping):

- L:700.00 [27.56"] x W:185.00 [7.28"] x H:585.00 [23.03"] mm [inch]
- Approx weight: 13.6kg / 29.9lbs

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
- SCOM+Touch : 1 x USB TYPE A Connector (female)
- SCOM Ethernet : 1 x RJ45 Connector
- SCOM RS-232 : 1 x 9p D-SUB (female) non-isolated+Buzzer
- VGA OUT : 1 x 15p HD D-SUB (female) - Clone of VGA IN**
- 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 can function as VGA IN for clone to VGA Signal Out (buffered).

* DVI-I Port #2 can function as VGA IN, no clone to VGA Signal out supported.

**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.

Note for DVI and VGA signal inputs:

DVI-I #1, DVI-D #1 and VGA #1 is Single Link.

DVI-I #2, DVI-D #2 and VGA #2 is Dual Link.

User Controls:

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

- Power On/Off and On Screen Display Menu (OSD)*
- Brightness Control (-/+)
- Hotkeys (left/right), Mode Status Indicators (ECDIS, Service)
- Buzzer (through glass) (75-85dB), Light Sensor (behind glass)
- *OSD Key Codes: 321=Get access to OSD, 362=Advanced Mode

Environmental Considerations:

- Operating : Temperature -15°C to +55°C
- Storage : Temperature -30°C to +70°C
- Humidity : Up to 95% (Operating / Storage)
- Shock - Vibration : 5g/11ms - 0.7g (IEC 60945 / IACS E10)
- Air Pressure Maximum Altitude : Operating: 4000m - Storage: 12912m
- Air Pressure Maximum Altitude : Operating: 3000m - Storage: 3000m (Bonded)
- IP Rating : Protection: IP66 front – IP22 rear (EN60529)
- Compass Safe Distance : Standard: 140cm - Steering: 85cm

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.

Available Accessories:

- HD CMB SX2-E1 : 1 x Console Mount Kit. EN60945 Tested
- HD TMB SX1-C1 : 1 x Table Mount Bracket. EN60945 Tested
- HD VED SX2-I1 : 1 x VESA Adapter Kit (100/100 & 200/100mm)
Not EN60945 Tested
- HD REM SX1-A1 : 1 x External Remote Control, EN60945 Tested
- HD 24COV SX1-A1 : 1 x UV Sun Cover
- P022211 : 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount
- HD CAK SX2-A1 : 1 x Front Console Mounting/Adapter Kit

Please see user manual/datasheet for more information

Factory Options:

- Projected Capacitive Touch Screen (Multitouch, USB, Pen/Glove supported)
- Optical Bonding Technology
- Color Calibrated models (ECDIS)
- Sunlight Readable / High Bright (includes Optical Bonding)
- 1 x Additional Composite Video IN (BNC) Connector

APPROVALS & CERTIFICATES

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

IEC 60945 4th (EN 60945:2002)

IACS E10

EU RO MR - Mutual Recognition by DNV

ClassNK - Nippon Kaiji Kyokai

CCS - China Classification Society

BV - Bureau Veritas

KR - Korean Register of Shipping

ABS - American Bureau of Shipping