

Manufacturer: **Hatteland Technology AS**

Product: **23.1 inch Maritime Multi Display (MMD)**

Type: **JH 23T14 MMD-MR_x-xxxx**

Last Revised:	14 Sep 2020
Revision#:	00 04

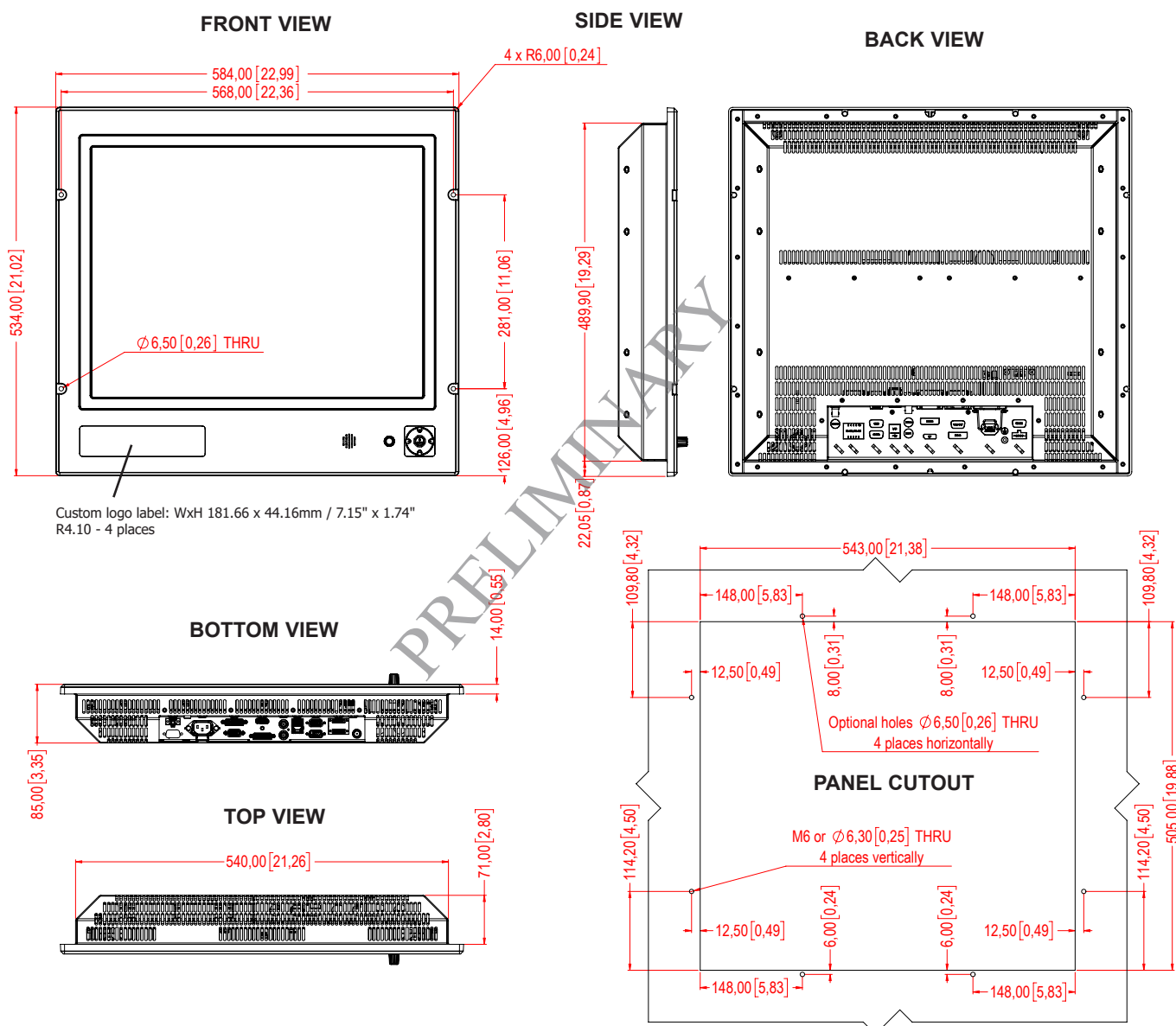
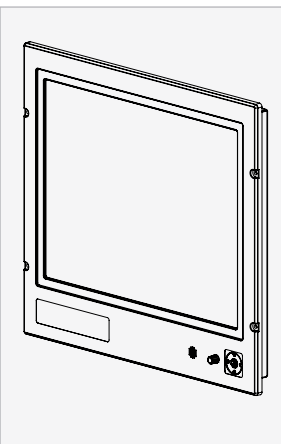
23.1 inch Maritime Multi Display (MMD) - Series 1 G2

Features:

The Series 1 Generation 2 Maritime Multi Display (MMD) models are delivered with Multi-power (AC and DC built in) ensuring that they are compatible with all power systems on vessels. The displays will automatically switch to whatever power is connected, making it highly flexible for shipbuilders and system integrators alike. The onboard connections include DVI-I, DP, Composite Video, as well as VGA out, RS-232 for touch, RS-422/485, USB Type A for SCOM, SCOM Ethernet and Potmeter/user connection for access to display settings.

The Series 1 Generation 2 MMD models are available in a wide range of display size and format, making them suitable 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 safety and security, this range with all its possible options provides a robust and versatile platform from which to display and manage multisource data from all of a vessels systems.

The Series 1 Generation 2 Maritime Multi Display (MMD) feature control buttons on the front of the monitor as well as an (optional) potentiometer knob for some models, providing fast and easy user access to the displays OSD features and settings.



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:

- High Quality TFT with LED Backlight Technology
- 23.1 inch viewable image size
- TFT active-matrix liquid crystal panel
- MVA (Multi-domain Vertical Alignment) LCD Technology

TFT Characteristics:

- Pixel Number : 1600 x 1200
- Pixel Pitch (RGB) : 0.294 (H) x 0.294 (V) mm
- Response Time : 12ms (typ) black-white-black or 8ms gray to gray
- Contrast Ratio : 600:1 (typical)
- Light Intensity : 500 cd/m2 (typical)
- Viewable Angle : +/- 85 deg. (typical) (Up/Down/Left/Right)
- Active Display Area : 470.4 (H) x 352.8 (V) mm
- Max Colors : 16.7 millions

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
- WUXGA : 1920 x 1200

* 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: 90W (max)

Physical Considerations:

- W: 584.00 [22.99] x H: 534.00 [21.02] x D: 85.00 [3.35] mm [inch]
- Weight: 13.5kg / 29.76lbs

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 : 3 x BNC Connector (female)
- SCOM RS-422/485 : 2 x 5-pin Terminal Block 3.81, non-isolated+Buzzer
- SCOM : 1 x USB TYPE A Connector (female)
- SCOM Ethernet : 1 x RJ45 Connector for Remote Control
- SCOM RS-232 : 1 x 9p D-SUB (female)
- Touch : 1 x 9p D-SUB (female)
- 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 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.

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:

On front bezel - Keypad control (IP66) xxx-xxAx models:

- Power On/Off and On Screen Display Menu (push button)
- Brightness Control (up/down - push buttons)
- Hotkeys (left/right - push buttons)
- Mode Status Red/Green Illuminated LED-Ring Indicator

On front bezel - Potmeter control (IP66) xxx-xxBx models:

- Power On/Off and On Screen Display Menu (push button)
- Brightness Control (rotary control)
- Hotkeys (left/right - push buttons)
- Mode Status Red/Green Illuminated LED-Ring Indicator
- Buzzer

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 (EN60529): IP66 front - IP20 rear
- Compass Safe Dist. : Standard: xxm - Steering: xxm **PENDING**

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:

- JH 23TBR T01-A1 = Bracket (See user manual)
- JH 23BRD STD-A1 = Mounting Bracket EN6095 Tested (See manual)
- JH MMDRO STD-A1 = Rotary Bracket (See user manual)
- JH 23TSV STD-A1 = Sun Visor (See user manual)
- JH 23VED STD-A1 = Vesa Bracket (See user manual)
- JH 23TWC STD-A1 = Water Cover (See user manual)

Factory Options:

- Capacitive Touch Screen / Optical Bonding Technology
- Color Calibrated models (ECDIS)

*Note that all 23 inch with touch screens are by factory default delivered with bonding.

APPROVALS & CERTIFICATES

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

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|---|--|-----------------------------|--------------------------|---|
| IEC 60945 4th (EN 60945:2002)* | IACS E10* | EN55024* | EN55022, Class A* | EU RO MR - Mutual Recognition* |
| DNV - Det Norske Veritas / GL - Germanischer Lloyd* | LRS - Lloyd's Register of Shipping* | | | ABS - American Bureau of Shipping* |
| CCS - China Classification Society* | KR - Korean Register of Shipping* | BV - Bureau Veritas* | | ClassNK - Nippon Kaiji Kyokai* |