

Manufacturer: **Hatteland Display AS**

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

Type: **JH 23T14 MMD-xxx-Axxx**

Last Revised: **18 Jun 2009**
Revision#: **02**

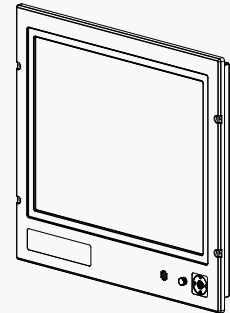
23.1 inch Maritime Multi Display (MMD) - Series 1

Features:

The Series 1 Maritime Multi Display (MMD) uses fewer cable connections than the previous generation, which increases reliability whilst reducing component costs. All models are delivered with AC power input and connections include DVI-I in, RGB out, RGB in, IEC inlet, IEC outlet and USB I/O. This 23.1" unit features LED Backlighting instead of CCFL Backlighting.

Signal input/output options can be increased upon request by using the HATTELAND® Multifunction Connector, which allows the connection of many common signal types through a single cable connection, for common signals such as; Composite Video Input, Touch Screen and Serial Communication. The Series 1 provide Picture-By-Picture (PBP) and Picture-In-Picture (PIP) functionality.

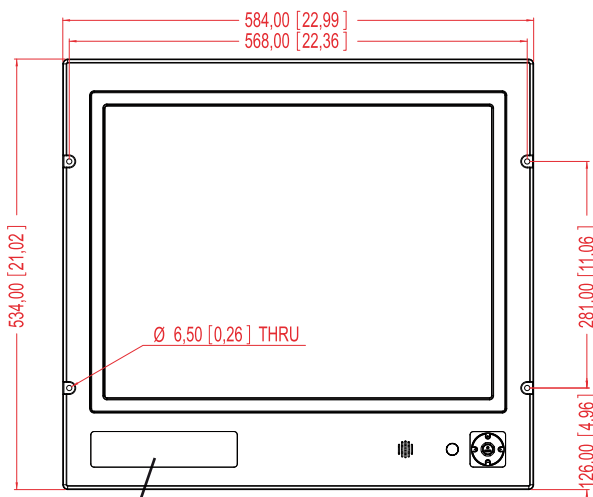
ECDIS Compliant models can be offered. Further, many models and variations can be offered with Optical Technology bonding that mitigates screen misting.



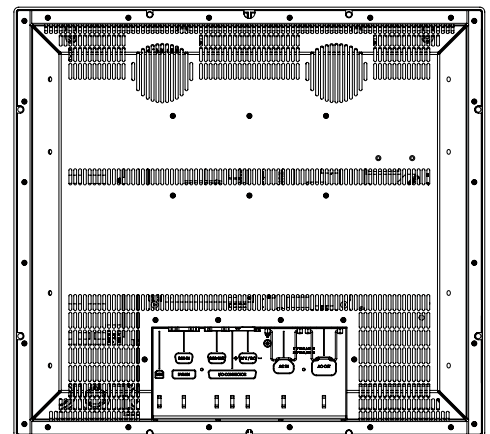
FRONT VIEW

SIDE VIEW

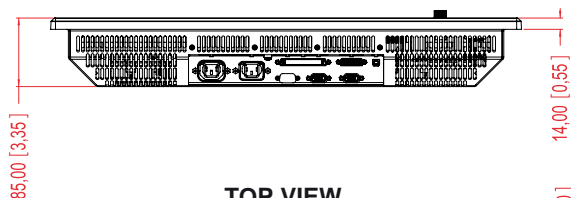
BACK VIEW



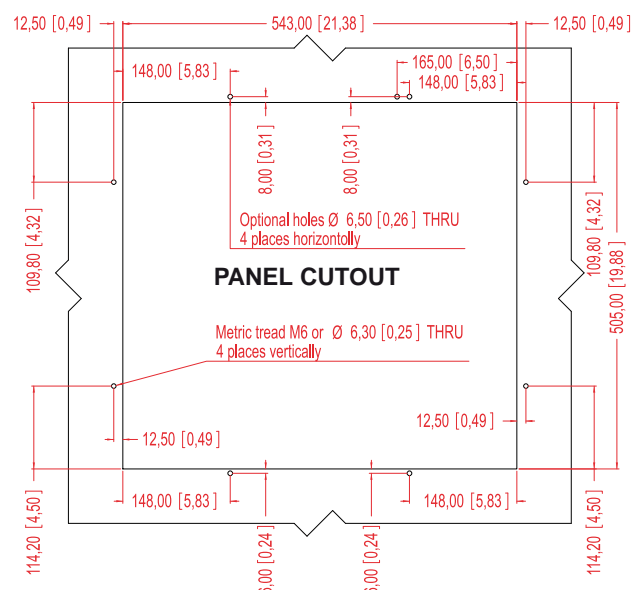
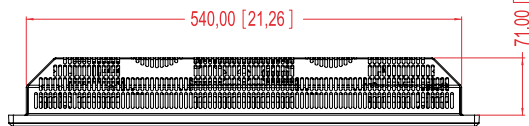
Custom logo label: WxH 181.66 x 44.16mm / 7.15" x 1.74"
R4.10 - 4 places



BOTTOM VIEW



TOP VIEW



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.

This information may not, in whole or in part, be copied, photocopied, reproduced, translated or reduced to any electronic medium or machine-readable form without the prior written consent of Hatteland Display AS. The products may not be copied or duplicated in any way.

Note: All specifications are subject to change without prior notice!

TFT Technology:

- High Quality SHARP TFT with LED Backlight
- 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

Synchronisation:

Sync Signal:

- Digital separate synchronisation
- Composite synchronisation
- Synchronisation on green.
- Auto detects VGA -> WUXGA, interlaced and non interlaced
- Video Signal : Analog RGB 0,7Vp-p
- Input Impedance 75 Ohm

Synchronisation Range:

- Horizontal : 15,0 kHz to 91,1 kHz
- Vertical : 60 Hz* to 85 Hz

* Recommended for optimum 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
- SXGA : 1280 x 1024
- UXGA : 1600 x 1200*
- WUXGA : 1920 x 1200

* Recommended for optimum picture quality. (60 Hz only)

Video Signals (with HATTELAND® Multifunction Cable):

- Interlaced NTSC and PAL/SECAM video
- Composite video

Power Specifications:

Power Supply:

- 115 & 230VAC - 50 / 60Hz - JH 23T14 MMD-Axx-xxxx

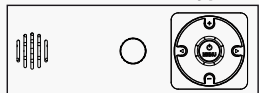
Power Consumption:

- Operating : TBD

Typical Type Numbers:

- JH 23T14 MMD-AA1-AAAA = Standard AC, Keypad Controls only
- JH 23T14 MMD-AA1-AOAC = Standard AC, Capacitive Touch Screen*
- JH 23T14 MMD-AA1-AOBA = Standard AC, Bonded, Potmeter Controls+Buzzer

Buzzer-Potmeter-Keypad



MMD-xxx-xxBx

Keypad



MMD-xxx-xxAx

- For a full overview, please review our typenumber sheet found on our website:
http://www.hatteland-display.com/pdf/misc/ind100780-1_series1redesign_typenumber_desc.pdf

*Note that all 23 inch with touch screens are by factory default delivered with bonding.
This is due to the physical size of the touch screen and to ensure stability.

Physical Considerations:

- 584 (W) x 534 (H) x 85 (D) mm - 22.99" (W) x 21.02" (H) x 3.35" (D)
- Weight: 20 kg (approx)

Signal Terminals:

- DVI-I Signal IN : 1 x 29p DVI Female (or as RGB IN with adapter)
- RGB Signal IN : 1 x 15p HD D-SUB (female)
- RGB Signal OUT : 1 x 15p HD D-SUB (female) - Clone of RGB IN**
- Multifunction : 1 x 160p D-SUB (female) - Also see table below
- USB I/O : 1 x TYPE B Conn. (female) Reserved for future use
- AC Power IN : 1 x Std IEC Inlet
- AC Power OUT : 1 x Std IEC Outlet

**Tested at recommended resolutions. The RGB output signal is at same resolution and sync as the RGB input. The output is working even if the display unit is turned off, but power cable/supply must be connected/provided.

HATTELAND® Multifunction Cable:

The factory standard cable is delivered with the following connectors.
2 Standard cables are defined. Standard cable length is 30cm.

#1	• COM1	: 1 x 9p D-SUB (female) - RS232
	• Composite Video IN	: 3 x BNC (female)
#2	• COM1	: 1 x 9p D-SUB (female) - RS232
	• Composite Video IN	: 3 x BNC (female)
	• COM Touch	: 1 x 9p D-SUB (female) - For touch screen

Customized cables are possible to support more built-in signals, like: RS-232, RS-485, RS-422/RS-485, Buzzer, ON/OFF, Touch (RS-232 or PS/2), 1 x S-Video IN, 3 x Composite Video IN, Remote External User Controls, Alternative Keypad interface (i2c) and reserved for other signals. Custom cable lengths can be manufactured.

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
- Speaker / 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 : EN60529 (IP66) (Applies for flush mount)
- Compass Safe Dist. : JH23T14MMD-xxx-xxxx - Std: TBD Steering: TBD

Safety 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:

- Cables = Custom Multifunction Cable to support more signals
- JH 23TBR T01-A1 = Bracket (Review bracket datasheet/user manual)
- JH 23BRD STD-A1 = Mounting Bracket EN6095 Tested
- JH MMDROSTD-A1 = Rotary Bracket (Review bracket datasheet/manual)
- JH 23TSV STD-A1 = Sun Visor (Review user manual)
- JH VESA 23T01-A1 = Vesa Bracket (Review user manual)
- JH 23TWC STD-B1 = Water Cover (Review user manual)

Factory Options:

- Capacitive Touch Screen / Optical Technology Bonding

TESTING/APPROVALS & CERTIFICATES

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

EN60945 4th (IEC945 4th) (Pending)

ClassNK - Nippon Kaiji Kyokai (Pending)

GL - Germanischer Lloyd (Pending)

DNV - Det Norske Veritas (Pending)

ABS - American Bureau of Shipping (Pending)

LRS - Lloyd's Register of Shipping (Pending)

BV - Bureau Veritas (Pending)