

Manufacturer: **Hatteland Display AS**

Product: **19.0 inch Maritime Multi Display (MMD) - Slim**

Type: **JH 19T14 MMD-Mxx-Sxxx**

Last Revised: **09 July 2010**
Revision#: **01**

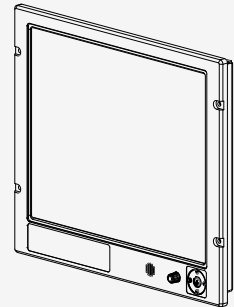
19.0 inch Maritime Multi Display (MMD) - Series 1

Features:

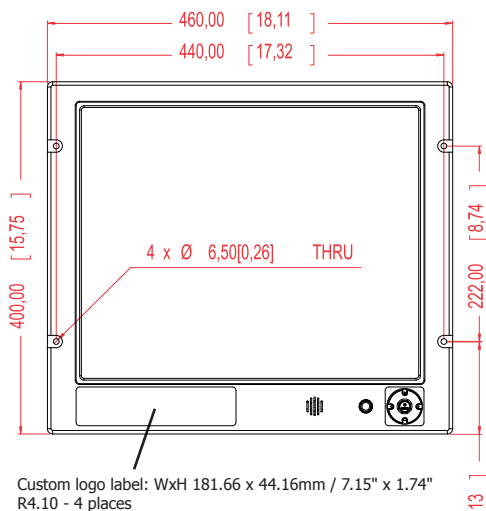
The Series 1 Maritime Multi Display (MMD) models are delivered with MultiPower (AC and DC power input built in) ensuring that they are compatible with all power systems on all vessels. It will automatically switch to whatever power is connected, making it highly flexible for shipbuilders and system integrators alike. Connections in addition include DVI-I in, RGB out, RGB in, IEC outlet and USB I/O.

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 models provide Picture-By-Picture (PBP) and Picture-In-Picture (PIP) functionality.

Further, all models and variations can be offered with Optical Technology bonding that mitigates screen misting. By factory standards the unit is ECDIS Compliant.



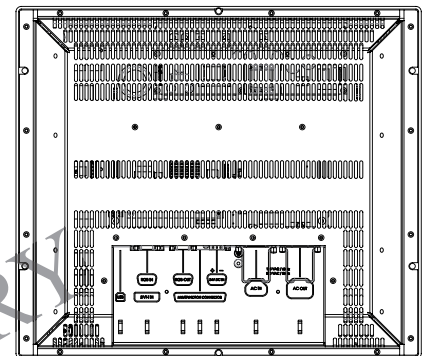
FRONT VIEW



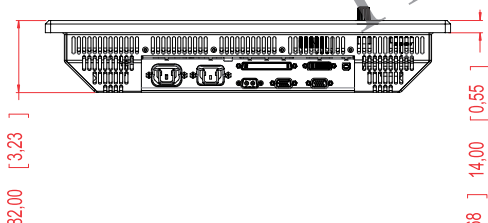
SIDE VIEW



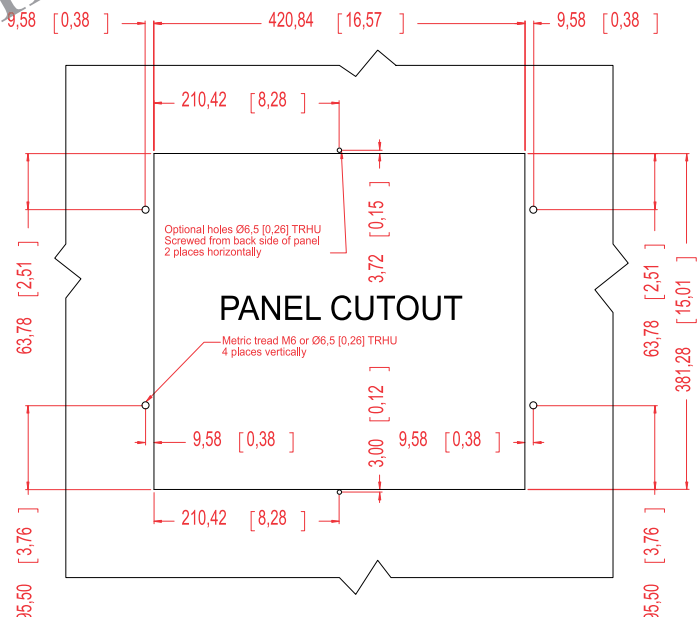
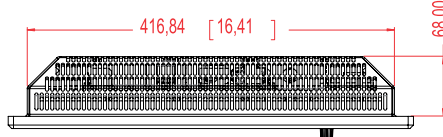
BACK VIEW



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.

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

TFT Technology:

- High Quality SHARP TFT
- 19.0 inch viewable image size
- Active Matrix, Thin Film Transistor (TFT)
- MVA Premium™ Technology

TFT Characteristics:

- Pixel Number : 1280 x 1024
- Pixel Pitch (RGB) : 0.294 (H) x 0.294 (V) mm
- Response Time : 12 ms (typical), "black" to "white"
- Contrast Ratio : 900:1 (typical)
- Light Intensity : 300 cd/m2 (typical)
- Viewable Angle : +/- 85 deg. (typical) (Up/Down/Left/Right)
- Active Display Area : 376.32 (H) x 301.056 (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:

Multipower Supply:

- 115&230VAC - 50/60Hz + 24 VDC - JH 19T14 MMD-Mxx-Sxxx

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

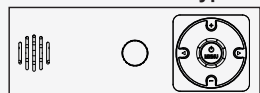
Power Consumption:

- Operating : TBD W (TYP) - TBD W (MAX)

Typical Type Numbers:

- JH 19T14 MMD-MA1-SAAA = Standard, Keypad controls only
- JH 19T14 MMD-MA1-SAAC = Standard, Capacitive Touch Screen
- JH 19T14 MMD-MA1-SOBA = Standard, Bonded, Potmeter Controls, Buzzer

Buzzer-Potmeter-Keypad



MMD-Mxx-SxBx

Keypad



MMD-Mxx-SxAx

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

Physical Considerations:

- 460 (W) x 400 (H) x 82 (D) mm / 18.11" (W) x 15.75" (H) x 3.23" (D)
- Weight: 10 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
- DC Power IN : 1 x 2p D-SUB Connector (male) - Amphenol FCC17

**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.

Standard cable length is 30cm. Art: #1=VSD100692-4 / #2=VSD100692-3

#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.: JH 19T14 MMD-Mxx-Sxxx 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:

TBD

Factory Options:

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

*Note that all 19 inch with resistive touch screens can not be combined with bonding.

TESTING / APPROVALS & CERTIFICATES

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

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

DNV - Det Norske Veritas (Pending)

CCS - China Classification Society (Pending)

ClassNK - Nippon Kaiji Kyokai (Pending)

ABS - American Bureau of Shipping (Pending)

LRS - Lloyd's Register of Shipping (pending)

GL - Germanischer Lloyd (Pending)

BV - Bureau Veritas (Pending)