

DATA SHEET

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HATTELAND[®] DISPLAY

Manufacturer: **Hatteland Display AS**
 Product: **19.0 inch Maritime Multi Display (MMD)**
 Type: **JH 19T14 MMD-xxx-Axxx**

Last Revised: **23 Sep 2016**
 Revision#: **09**

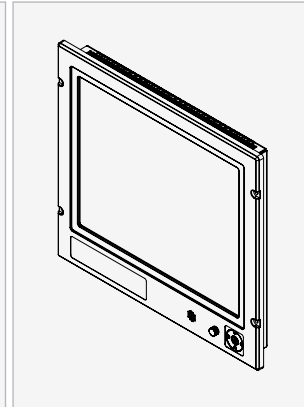
19.0 inch Maritime Multi Display (MMD) - Series 1

Features:

The Series 1 Maritime Multi Display (MMD) models are delivered with Multi-power (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 include DVI-I in, VGA out, VGA in, IEC inlet, IEC outlet and USB I/O. Signal input/output options can be increased upon request by using the 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.

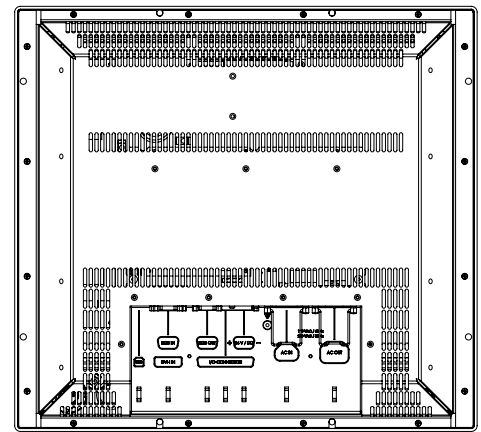
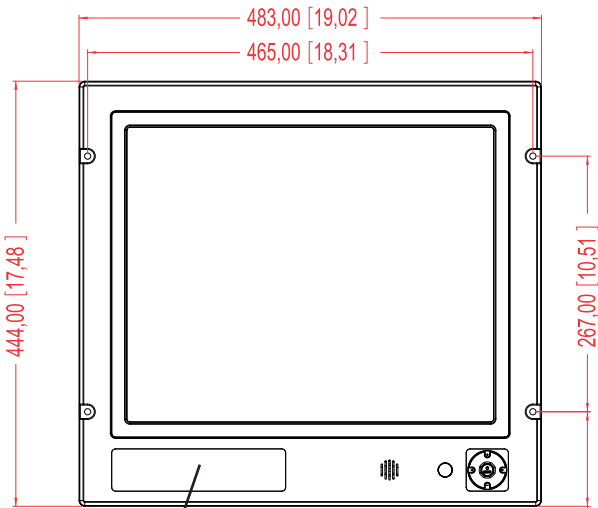
The unit features LED Backlight Technology instead of traditional CCFL Backlighting which increases the light intensity life time. Further, all models and variations can be offered with Optical Bonding Technology that mitigates screen misting. By factory standards the unit is ECDIS Compliant. Single AC model is also available.



FRONT VIEW

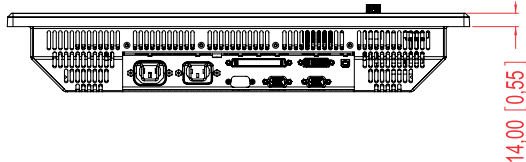
SIDE VIEW

BACK VIEW

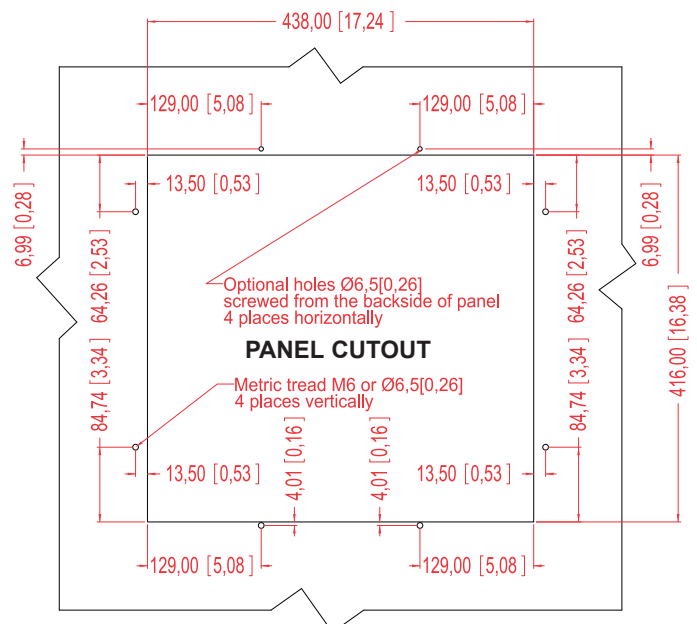


Custom logo label:
 WxH 181.66 x 44.16mm / 7.15" x 1.74"
 R4.10 - 4 places

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.

TFT Technology:

- High Quality TFT with LED Backlight Technology
- 19.0 inch viewable image size, Aspect Ratio 5:4
- TFT active-matrix liquid crystal panel
- MVA (Multi-domain Vertical Alignment) LCD Technology

TFT Characteristics:

- Native Resolution : 1280 x 1024
- Pixel Pitch (RGB) : 0.294 (H) x 0.294 (V) mm
- Response Time : 20ms (typical), "black" to "white"
- Contrast Ratio : 1500:1 (typical)
- Light Intensity Standard : 350 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 million

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 Multifunction Cable):

- Interlaced NTSC and PAL/SECAM video
- Composite video

Power Specifications:

Power Supply options:

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

*Multi-Power: 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: 50W (TYP) - 60W (MAX)

Physical Considerations:

- 483 (W) x 444 (H) x 82 (D) mm / 19.02" (W) x 17.48" (H) x 3.23" (D)
- Weight: 11.50 kg (approx)

Signal Terminals:

- DVI-I Signal IN : 1 x 29p DVI Female (or as VGA IN with adapter)
- VGA Signal IN : 1 x 15p HD D-SUB (female)
- VGA Signal OUT : 1 x 15p HD D-SUB (female) - Clone of VGA 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
- If AC Power OUT : 1 x Std IEC Outlet (5A Max)
- If DC Power IN : 1 x 2p D-SUB Connector (male) - Amphenol FCC17

**Tested at recommended resolutions. The VGA output signal 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.

Multifunction Cable:

Available factory standard cables, 30cm [11.81"] in length.

• VSD100692-1	: 1 x 9P D-SUB (female) - RS-232 (COM1)
• VSD100692-3	: 1 x 9P D-SUB (female) - RS-232 (COM1) : 1 x 9P D-SUB (female) - RS-232 (COM Touch Screen) : 3 x BNC (female) (Composite Video in)
• VSD100692-4	: 1 x 9P D-SUB (female) - RS-232 (COM1) : 3 x BNC (female) (Composite Video in)

Customized cables are possible to support more built-in signals, like: RS-485, RS-422/RS-485, Buzzer, ON/OFF, Touch (PS/2), 1 x S-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 : Protection (EN60529): IP66 front - IP20 rear
- Compass Safe Dist. : JH19T14MMD-xxx-xxxx - Std: 1.60m Steering: 1.05m

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:

- Cables = VSD100692-3, VSD100692-4 or customized cables.
 - JH MMDBR STD-A1 = Bracket
 - JH 19BRD STD-A1 = Mounting Bracket EN60945 Tested
 - JH MMDRO STD-A1 = Rotary Bracket
 - JH 19TSV STD-A1 = Sun Visor
 - JH 19VED STD-A1 = Vesa Bracket
 - JH 19TAP STD-A1 = 21" CRT Adapter frame
 - JH 19TAP STD-B1 = 21" CRT Custom Adapter frame
 - JH 19TAP STD-A2 = 20" TFT Adapter frame
 - JH 19TWC STD-B1 = Water Cover
- *Please see user manual for drawings/measurements.

Factory Options:

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

TESTING / APPROVALS & CERTIFICATES

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

IEC 60945 4th (EN 60945:2002)

ClassNK - Nippon Kaiji Kyokai

GL - Germanischer Lloyd

DNV - Det Norske Veritas

ABS - American Bureau of Shipping

BV - Bureau Veritas

CCS - China Classification Society

LRS - Lloyd's Register of Shipping

EU RO MR - Mutual Recognition