

DATA SHEET

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HATTELAND® DISPLAY

Manufacturer: **Hatteland Display AS**
 Product: **15.0 inch Maritime Multi Display (MMD)**
 Type: **JH 15T17 MMD-xxx-Axxx**

Last Revised: **23 Sep 2016**
 Revision#: **07**

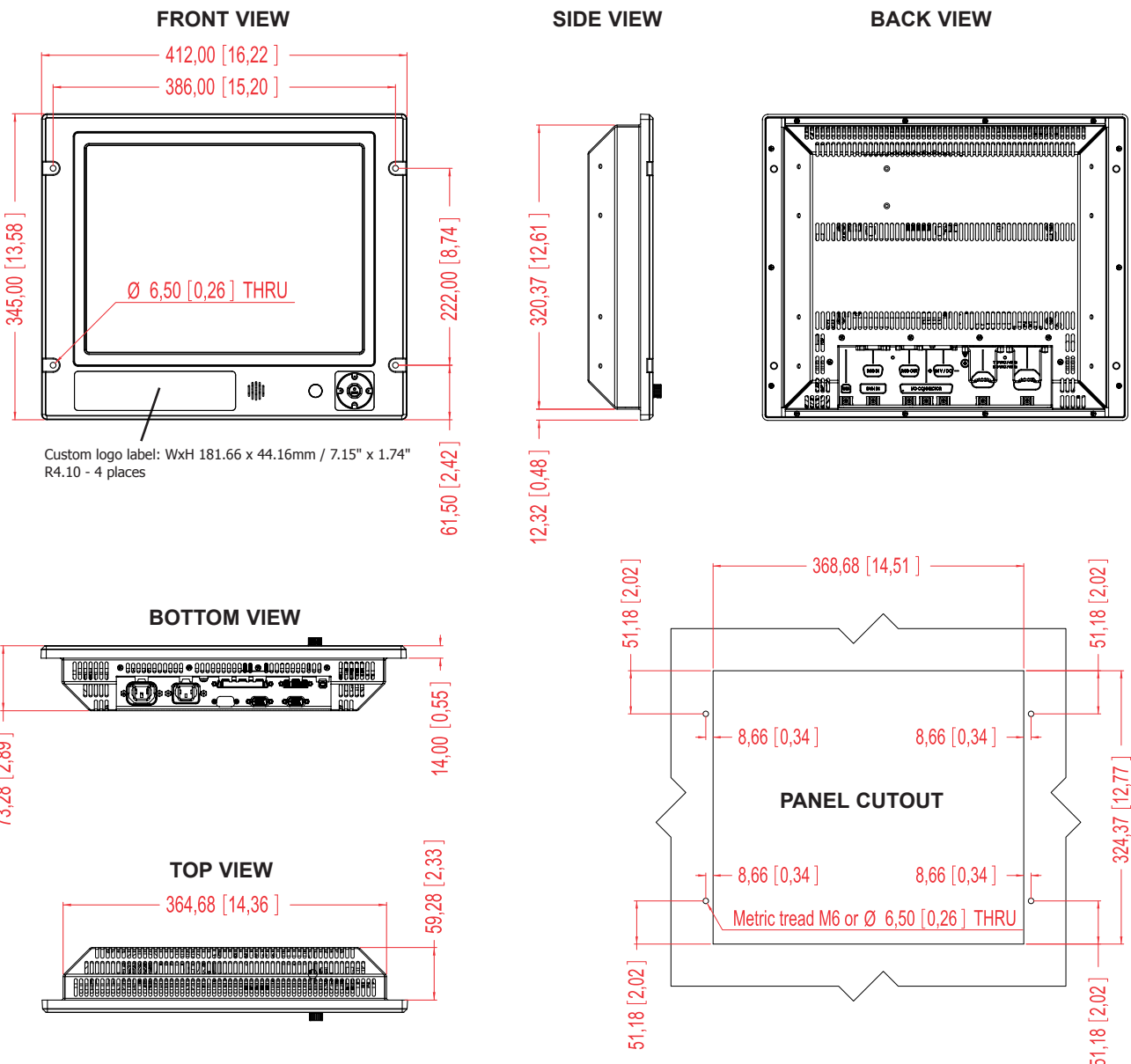
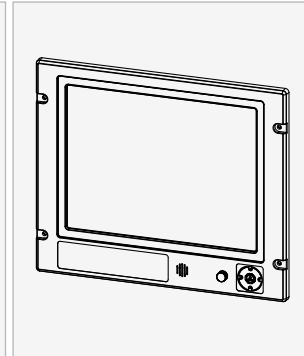
15.0 inch Maritime Multi Display (MMD) - Series 1

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 can be delivered with either AC or DC input as standard and 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 Technology bonding that mitigates screen misting.



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
- 15.0 inch viewable image size, Aspect Ratio 4:3
- TFT active-matrix liquid crystal panel

TFT Characteristics:

- Native Resolution : 1024 x 768
- Pixel Pitch (RGB) : 0.297 (H) x 0.297 (V) mm
- Response Time Standard : 8ms (typical), black to white
- Contrast Ratio Standard : 1500:1 (typical)
- Light Intensity Standard : 400 cd/m² (typical)
- Viewable Angle Standard : +/- 85 deg. (Up/Down/Left/Right) (typical)
- Active Display Area : 304.1 (H) x 228.1 (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 - JH 15T17 MMD-Axx-xxxx
- 24 VDC - JH 15T17 MMD-Dxx-xxxx

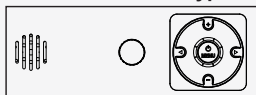
Power Consumption:

- Operating AC : TBDW (typ) - 100W (max)
- Operating DC : 21.5W (typ) - 100W (max)
- Tested w/Max Backlight, Normal Room Temperature, Test Pattern

Typical Type Numbers:

- JH 15T17 MMD-AA1-AAAA = Standard AC, Keypad controls only
- JH 15T17 MMD-DA1-AAAC = Standard DC & Capacitive Touch Screen
- JH 15T17 MMD-AA1-AOBA = Standard AC, Bonded, Potmeter Controls, Buzzer

Buzzer-Potmeter-Keypad



MMD-xxx-xxBx

Keypad



MMD-xxx-xxAx

Physical Considerations:

- 412.00 (W) x 345.00 (H) x 73.00 (D) mm
- 16.22" (W) x 13.58" (H) x 2.87" (D) inch
- Weight: 7 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
- AC Power OUT : 1 x Std IEC Outlet (5A Max)
- 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. : JH15T17MMD-xxx-xxxx Std: 130cm Steering: 100cm

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 15TBR STD-B1 = Mounting Bracket (See user manual)
- JH 15TRO STD-A1 = Rotary Bracket (See user manual)
- JH 15TSV STD-A1 = Sun Visor (See user manual)
- JH 15VED STD-A1 = Vesa Bracket (See user manual)
- JH 15TAP STD-A1 = 15" Adapter Frame to 19" Rack (See user manual)
- JH 15TAP STD-B1 = 15" Adapter Frame to 17" CRT cut out (See manual)
- JH 15TWC STD-A1 = Water Cover (See user manual)

Factory Options:

- Resistive* or Capacitive Touch Screen / Optical Bonding Technology*

*Note that all 15 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)

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