DATASHEET

HATTELAND TECHNOLOGY
an EMBRON Company

Manufacturer:	**Hatteland Technology AS**
Product:	**19.0 inch Maritime Multi Display (MMD)**
Type:	**JH 19T14 MMD-yRx-xxxx**
Description:	Where y=Power Input (A=AC, M=AC+DC), x=configuration

Last Revised:	**29 Jul 2024**
Revision#:	**21**

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

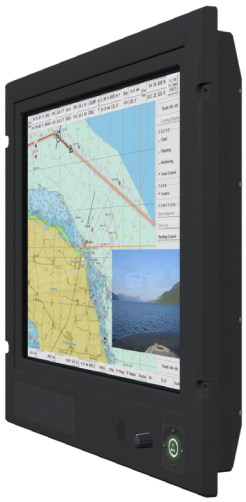
Features:

The Series 1 Generation 2 (G2) 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. In addition, a single power AC model is available. 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.

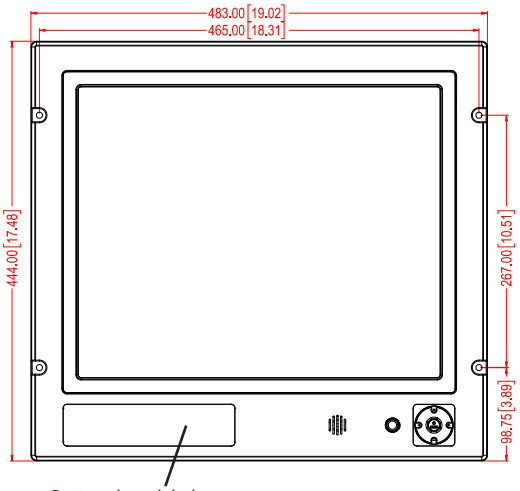
The Series 1 Generation 2 (G2) MMD models are available in a wide range of display size and format, making them suitable for a multitude of shipboard applications, where combining data and video inputs to a single unit provides maximum flexibility. Be it for ship navigation, automation or safety and security, this range with all it's possible options provides a robust and versatile platform from which to display and manage multisource data from all of a vessels systems.

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

The Series 1 Generation 2 (G2) Maritime Multi Display (MMD) feature control buttons on the front of the monitor (keypad control) as well as an potentiometer knob, providing fast and easy user access to the displays OSD features and settings. An Keypad Control only (no potmeter) model is also available.

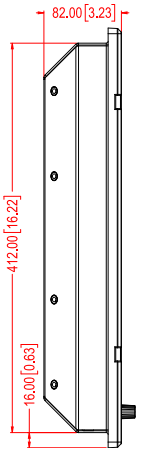


FRONT VIEW

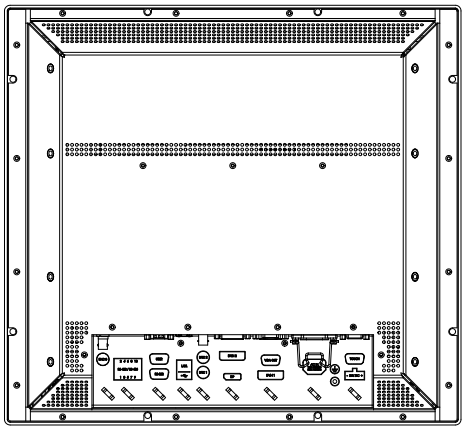


Custom logo label:
WxH 181.66 x 44.16mm / 7.15" x 1.74" - R4.10 - 4 places

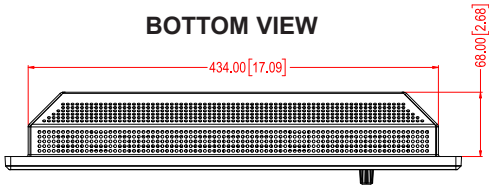
SIDE VIEW



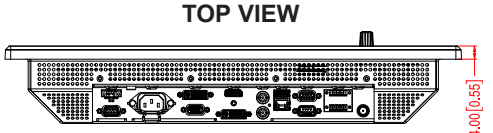
BACK VIEW

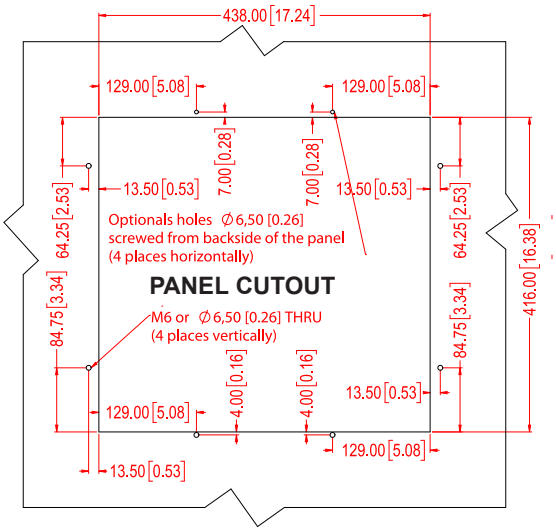


BOTTOM VIEW



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.

SPECIFICATIONS

Note: All specifications are subject to change without prior notice!
Please visit www.hattelandtechnology.com for the latest electronic version.

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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 : 35ms (typical), "black" to "white"
- Contrast Ratio : 1500:1 (typical)
- Light Intensity : 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

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*

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

Video Signals:

- Interlaced HDTV, NTSC, PAL and SECAM video
- Composite video

Power Specifications:

Power Supply Options:

- Multi-Power : 100-240V AC - 50/60Hz + 24 VDC*
- Single Power : 100-240V AC - 50/60Hz

*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: 75W (Max)

Physical Considerations:

- W:483.00 [19.02"] x H:444.00 [17.48"] x D:82.00 [3.23"] mm [inch]
- Weight: Approx. 7.6kg / 16.7lbs

Product Carton Size and Weight:

- L:690.00 [27.17"] x W:240.00 [9.45"] x H:655.00 [25.79"] mm [inch]
- Approx. 10.0 kg / 22.0 lbs

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 USB : 1 x USB TYPE A Connector (female)
- SCOM Ethernet : 1 x RJ45 Connector
- SCOM RS-232 : 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)
- If Touch Screen : 1 x 9p D-SUB (female)
- AC Power IN : 1 x Std IEC Inlet
- If 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) xRx-xxAx models:

- Power On/Off and On Screen Display Menu (OSD)*
- 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) xRx-xxBx models:

- Power On/Off and On Screen Display Menu (OSD)*
- Brightness Control (rotary control)
- Hotkeys (left/right - push buttons)
- Mode Status Red/Green Illuminated LED-Ring Indicator
- Buzzer (75-85dB)

*OSD Key Codes: 321=Get access to OSD, 362=Advanced Mode

Environmental Considerations:

• Operating	: Temperature -15°C to +55°C
• Storage	: Temperature -20°C to +60°C
• Humidity	: Up to 95% (Operating / Storage)
• Shock - Vibration	: 5g/11ms - 0.7g (IEC 60945 / IACS E10)
• Air Pressure Maximum Altitude	: Operating: 4000m - Storage: 12912m
• Air Pressure Maximum Altitude (Bonded)	: Operating: 3000m - Storage: 3000m
• IP-Rating Protection	: IP66 front - IP20 rear (EN60529).
• Compass Safe Distance	: Standard: 110cm - Steering: 70cm

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 MMDBR STD-A1	: Mounting Bracket
• HD TMB STD-A1	: Mounting Bracket EN60945 Tested
• JH MMDRO STD-A1	: Rotary Bracket
• JH 19TSV STD-A1	: Sun Visor
• JH 19VED STD-A1	: VESA Adapter 75/100mm. Not EN60945 Tested.
• 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
• HD REM SX1-A1	: External Remote Control, EN60945 Tested

Factory Options:

- Resistive* or Capacitive Touch Screen
- Color Calibrated models (ECDIS)
- Optical Bonding Technology
- Multi-Power Input Model or Single AC Power Input Model
- Keypad only or Keypad+Potmeter+Buzzer controls

**Can not be combined with Optical Bonding Technology*

APPROVALS & CERTIFICATES

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

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