

Manufacturer: **Jakob Hatteland Display AS**
 Product: **20.1 inch Military Display (MIL)**
 Type: **JH 20T04 MIL**

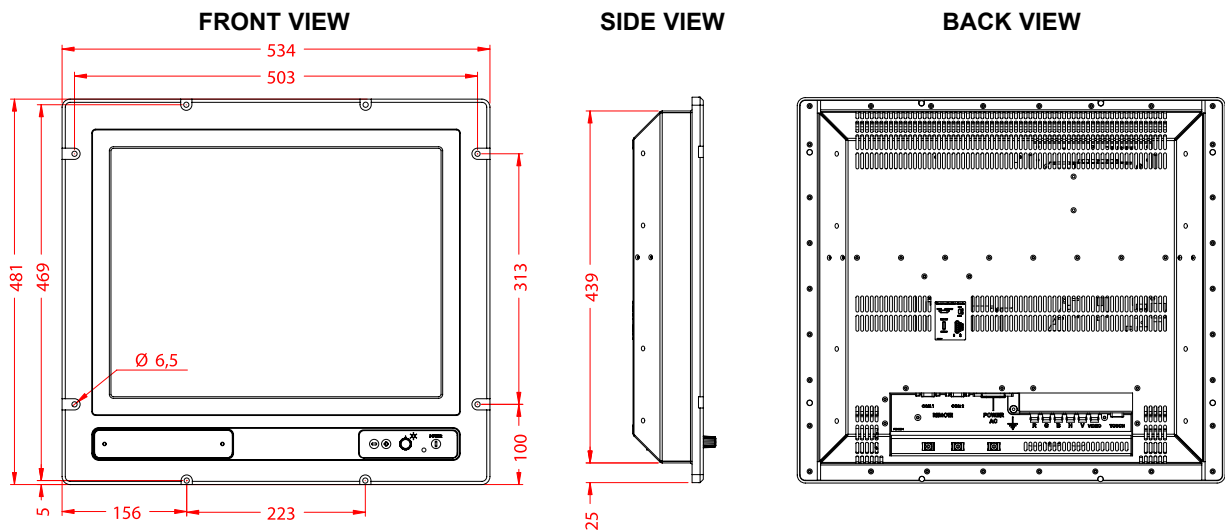
Last Revised: **03 Mar 2006**
 Revision#: **10**

20.1 inch Military Display (MIL)

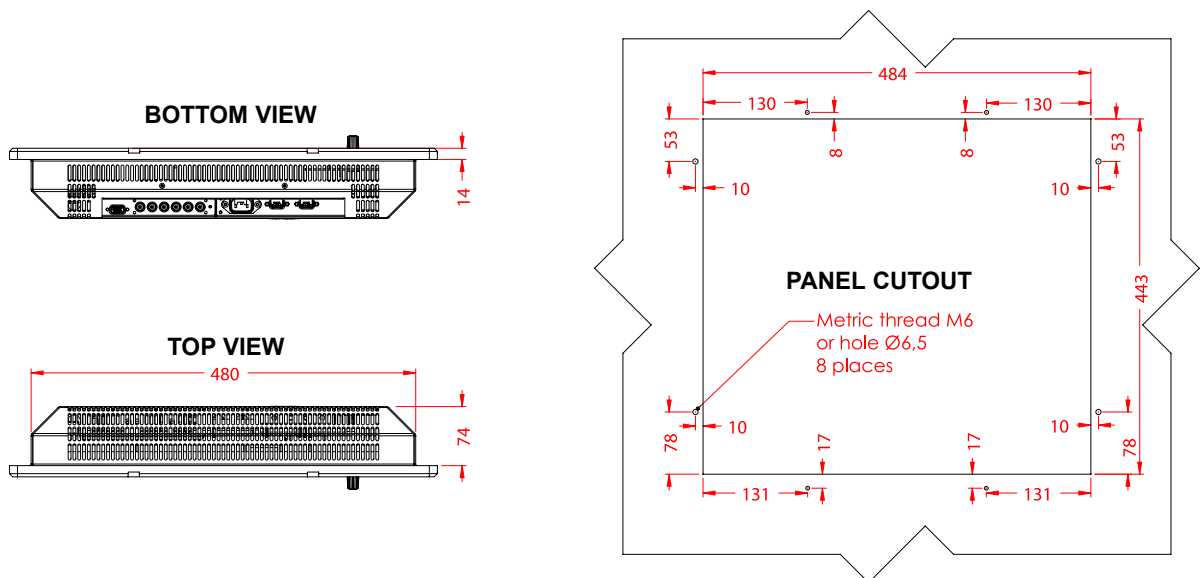
Features:

The color display described in this Data Sheet is an industrialized version of a high quality SHARP TFT based display with MVA Premium™ technology. The MIL allows you to display professional applications with clarity and enhanced color and image quality, BNC RGB input, BNC Video input and PiP (Picture in Picture) functions. The display provides you with automatic compatibility with multiple upgrading platforms and a vast array of graphics standards allowing resolution upgrades without upgrading the display.

The controller and the high light intensity in combination with the high contrast and wide backlight adjustment control, allow the product to be used in many environments. The brightness is adjustable from 0 to 100%



Revision 2: Front side mounting holes are increased to 8 pieces



Due to dimensions without decimals, the tolerance on drawings is +/- 1mm (For accurate measurements, measure in AutoCAD)

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

TECHNICAL DESCRIPTION:

TFT Technology:

- 20.1" viewable image size
- Active Matrix, Thin Film Transistor (TFT)
- MVA Premium™ technology

TFT Characteristics:

- Pixel number : 1600 x 1200
- Pixel pitch (RGB) : 0.255 (H) x 0.255 (V) mm
- Response Time : 15 ms (typical), "black" to "white"
- Contrast Ratio : 600:1 (typical)
- Light Intensity : 250 cd/m2 (typical)
- Viewable Angle : +/- 85 deg. (typical) (Up/Down/Left/Right)
- Active Display Area : 408.0 (H) x 306.0 (V) mm
- Max Colors : 16.7 millions (depending on graphics card)

Synchronisation:

- Digital separate synchronisation
- Composite synchronisation
- Synchronisation on green
- Auto detects VGA -> UXGA, interlaced and non interlaced
- Video Signal : Analog RGB 0,7Vp-p
- : Input Impedance 75 Ohm
- Horizontal : 31.469 kHz to 75 kHz
- Vertical : 56 Hz* to 75 Hz

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 *

* Recommended 60Hz for optimum picture quality. 56 Hz only in 800x600

Video Signals:

- Composite video (Interlaced NTSC and PAL/SECAM video)

Power Supply Options / Consumption:

- 115 & 230VAC - 50 / 60Hz : Model JH 20T04 MIL A1
- 24 VDC : Model JH 20T04 MIL A2
- Operating : 100 W (max)

EXTENDED TESTING (In addition to IEC 60945):

TEST	LEVEL	SPECIFICATION
Dry heat storage	70°	IEC 60068-2-2 (1974), Test Bd
Cold storage	-40°	IEC 60068-2-1 (1990), Test Ad
Resonance search	4-33 Hz @ 2g No resonance above 2	IEC 60068-2-6 (1995), Test Fc
Endurance Vibration	4-33 Hz @ +/-5mm, 2g	IEC 60068-2-6 (1995), Test Fc
Shock	50g / 11ms	IEC 60068-2-27 (1987), Test Ea
Transient Shock	2-280 Hz Designed to envelope a half sine shock pulse of 50g / 35ms	IEC 60068-2-57 (1999-11), Test Ff
Rain (drip proof)	-	MIL-STD-810F *
Salt Fog	-	MIL-STD-810F *
Vibration Testing	-	MIL-STD-167-1 *

* Console mounted.

MECHANICAL DESCRIPTION:

Physical Dimensions:

- 534 (W) x 481 (H) 73 (D)
- Weight: 15 kg (approx w/bracket)

Input Signal Terminal:

- RGB (PC) signal : 5 x BNC Connectors (RGBHV)
- Composite Video : 1 x BNC Connector
- AC Power signal : Std IEC Inlet - Model JH 20T04 MIL A1
- DC Power signal : Screw Terminal - Model JH 20T04 MIL A2

Accessories:

- Touchscreen : 1 x D-SUB 9P Connector (female)
- Remote Control : 2 x D-SUB 9P Connectors (female)

User Controls / On front bezel:

- Power On/Off (push button)
- Brightness Control
- 2 x hotkeys
- Mode Status LED

User Controls / Behind hatch:

- On Screen Display control (OSD/OSM)

Environmental Considerations:

- Operating : Temperature -15 deg. C to +55 deg. C
Humidity 30% to 90% (non condensing)
- Storage : Temperature -40 deg. C to +70 deg. C
Humidity 10% to 90% (non condensing)

Available Accessories:

- JH MMD BR = Bracket *
- JH MMDRO = Rotary Bracket *
- JH 20TSV = Sun Visor *
- JH VESA 20T03 = Vesa Bracket *
- ECDIS Version = JH 20T04 MIL E1
- Touch Screen **

* Option: Standard or custom logo and color

** Option: Factory mounted

EMI TESTING:

The unit is tested according to the following:

MIL-STD 461E, 1999
MIL-STD 462E, 1999

- CE 101 - Conducted emission, 30 Hz - 10 kHz
- CE 102 - Conducted emissions, 10 kHz - 10 Mhz
- CS 101 - Conducted susceptibility, 30 Hz - 50 kHz
- CS 114 - Conducted susceptibility, 10 kHz - 200 MHz
- CS 116 - Conducted susceptibility, damped oscillatory waves
- RE 101 - Radiated emission, H-field, 30 Hz - 100 kHz
- RE 102 - Radiated emissions, E-field, 10 kHz - 10 GHz
- RS 101 - Radiated susceptibility, H-field, 30 Hz - 100 kHz
- RS 103 - Radiated susceptibility, E-field, 2 MHz - 18 GHz

Other:

- Transient immunity, 100 ns risetime, 10 µs duration, 325 V_{PEAK}
- Supply voltage variation test, 98 -> 276 VAC, 47 -> 63.6 Hz
- Measurements of power consumption = 50W
- Measurements of inrush current = 4 A_{PEAK}

APPROVALS & CERTIFICATES

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

EN60945 3rd (IEC945 3rd)
MIL-STD 461E, 1999
MIL-STD 462E, 1999

MIL-S-901D Class I (hard-mounted) Grade A shock (Hammer Test)