HATTELAND® DISPLAY
an EMBRON Company

K-Master aft-bridge solution aboard
Fugro Symphony from Kongsberg
Maritime, Norway. Displays and Panel
Computers delivered by Hatteland Display.

Photo used with permission.

MAE LINE

PRODUCT OVERVIEW
2018-19

Maritime Type Approved Displays, Panel Computers
and Computers Commercial Marine, Naval, Super Yacht

INTRODUCTION

HATTELAND® DISPLAY
an EMBRON Company

Hatteland Display is the leading technology provider of maritime display and computer products. We deliver high quality, unique and customized solutions to the international maritime market. The company represents innovation and quality to system integrators, ship yards and boat builders worldwide. Effective quality assurance and investment in sophisticated in-house manufacturing methods and facilities enable us to deliver type approved and Mil tested products.

Hatteland Display has successfully delivered over 230,000 products to the maritime industry since 1989, where more than 30,000 units of these are Panel Computers in the last 5 years. Our customer oriented approach, technical knowledge and dedication to R&D, make us a trusted and preferred supplier of approved solutions, which are backed up by a strong service network.

As the market leader in the commercial marine segment, Hatteland Display is setting the standard in the industry. As technology evolves, we take pride in providing long term support for our products, while at the same time developing new cutting edge solutions for the future. Two of our customers had this to say:

"Dealing with ever-changing technology is always a challenge; but when you have a trusted partner with a knowledgeable and responsible team like Hatteland Display, you don't need to worry about getting into trouble".

"Hatteland Display provides high quality and innovative products supported by a very capable organization".

We take pride in being flexible and always putting our customers first. Our dedication to our customers has been recognized by the market. Another one of our customers commented on their experience:

"You can get in touch with Hatteland Display's sales managers anytime, anywhere. Whether on the road, at the office, or in an airport, your call is answered, your SMS is taken, your email is replied, and your concern is attended".

Hatteland Display's products and organization can be described through our core values: **QUALITY – KNOWLEDGE – VALUE.** We live in these values every day and aim to be a provider of Trusted Solutions to the marine market well into the future.

We hope you find the products and solutions that are illustrated in this catalogue of interest and suited for your needs. We are ready to support you if you have any questions.

Kind regards, The Hatteland Display Team

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COMPANY

COMMERCIAL

NAVAL

About EMBRON

EMBRON is a global technology group with solutions and services targeted towards the needs of today's leading technology providers.

EMBRON provides a broad portfolio of Technology Solutions, R&D and Engineering services and Manufacturing services to customers within diverse market segments including marine, offshore, defence, automotive, medical, retail, manufacturing, finance, air traffic control and transportation.

Through deep industry knowledge, EMBRON provides solutions and services that are tailored to the exact needs of each market and customer.

The main EMBRON companies are Norautron, Hatteland Display, Elektronix, GuardREC and QRTECH.

Revenues in 2017 were approx. NOK 1.4 Billion, positioning EMBRON as one of the largest IT and technology companies in Norway. EMBRON has 17 offices in 9 countries and employs around 1000 people. The company is owned 100% by JC Broch AS, which is fully owned by Jørgen Cato Broch.

See www.embrongroup.com for more information.
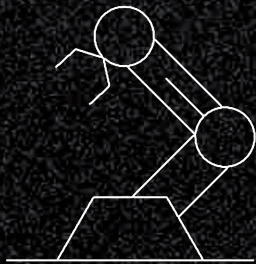
MANUFACTURING SERVICES
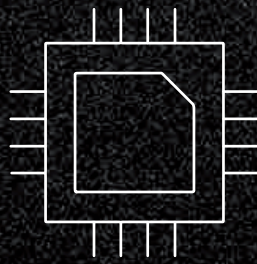
TECHNOLOGY SOLUTIONS

R&D ENGINEERING SERVICES

Dedicated - Skilled - Trusted

The EMBRON Family

Norautron

Norautron is a contract manufacturer of electronics, electromechanics and mechanics with services in development, prototyping, testing, industrialization, sourcing and manufacturing.

HATTELAND® DISPLAY

Hatteland Display is the leading global designer and manufacturer of high-end rugged displays, panel computers, and computers for all segments of the professional marine industry.

Elektronix

Elektronix is a provider of advanced technology solutions within industrial computing, security & surveillance and industrial networking ranging from standard off-the-shelf products to customized solutions & services.

guardREC

GuardREC AS is a software company providing leading recording solutions for compliance recording in financial institutions and recording solutions for Air Traffic Control (ATC) operations.

QRTECH

QRTECH is providing development services within electronics, power electronics and software for customers with demanding applications. The main industries are automotive, industrial, medtech as well as energy & building automation.
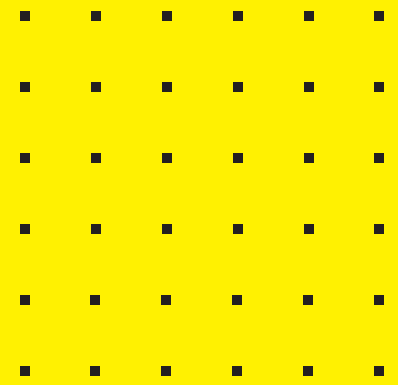
**Made for the task.
Engineered to last.**

EMBRON

HATTELAND DISPLAY ECDIS CALIBRATION

Color calibration of the display is a very important aspect of ECDIS. ECDIS represents one of the most rigorous applications in display technology for our industry.

The consequence of making an error in recognition on the display is potentially very costly, therefore it is important that ECDIS monitors match the colour characteristics specified in the relevant standards. Hatteland Display provides both computers and displays to facilitate an overall ECDIS approved installation.
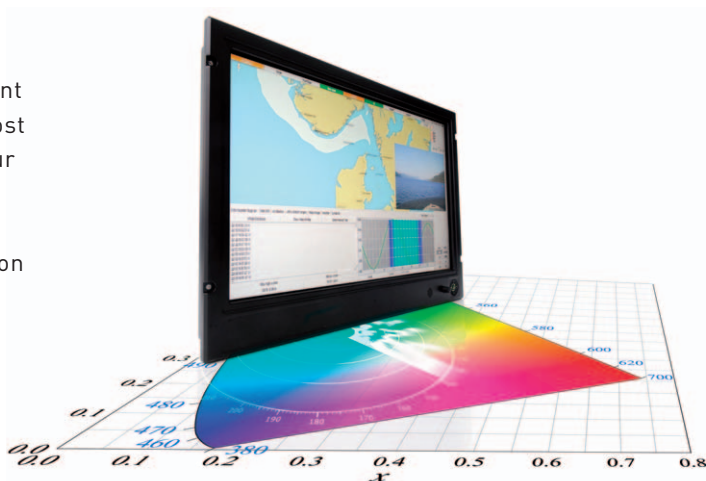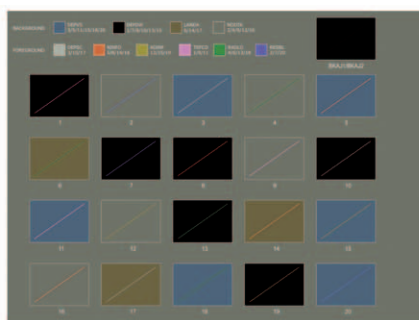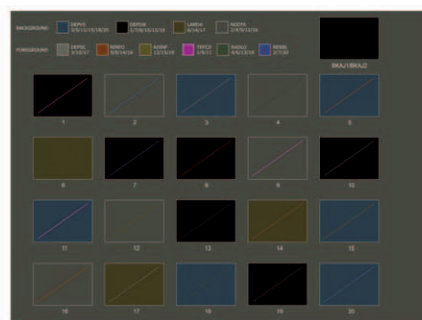
DAY   DUSK   NIGHT

WHY CHOOSE COLOR CALIBRATION BY HATTELAND DISPLAY?

- With our extensive technical knowledge and experience, we can deliver the best quality type-approved ECDIS displays fulfilling IMO requirements;

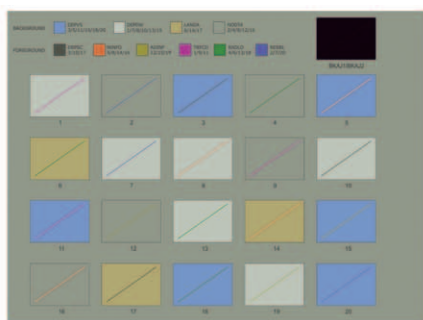- All configurations meet the requirements set in IEC 62288 2nd, IEC 62388, IEC 61174 and IEC 60945, and will pass an audit from classification society.

- Hatteland Display ECDIS calibration overcomes all problems associated with different display properties, to ensure correct matching between the standards and the actual products.

- Calibration service is supplied with detailed implementation instructions and extensive support, including complete test reports needed for type approval.

- Hatteland Display calibration is the most flexible system, and it can even be used with several types of graphic adapters at a time.

- Our solutions allow for system safety measures to be implemented, for instance to ensure that users are aware if a not approved solution is in use (Plug and play).

- Calibration for video matrix systems available as well as implementation support and test reports. Contact us for further details and information.

ENHANCED SUNLIGHT READABILITY THROUGH IN-HOUSE OPTICAL BONDING

Optical bonding greatly enhance the viewing performance, reliability and lifespan of marine displays. It is a process whereby the air gap between the front glass panel and LCD module is filled with a special proprietary compound to negate all of the problems related with marine use such as condensation, sunlight reflection, dust and overheating.

Hatteland Display is dedicated to the art of LCD optical bonding. Our highly experienced engineers pioneered and developed the process at our state-of-the-art in-house facility, allowing us to provide proprietary added value whilst ensuring the quality and integrity of our display products and technology.

TFT Panel

Bonding

Series X Glass/Bezel

or Series 1 Bezel
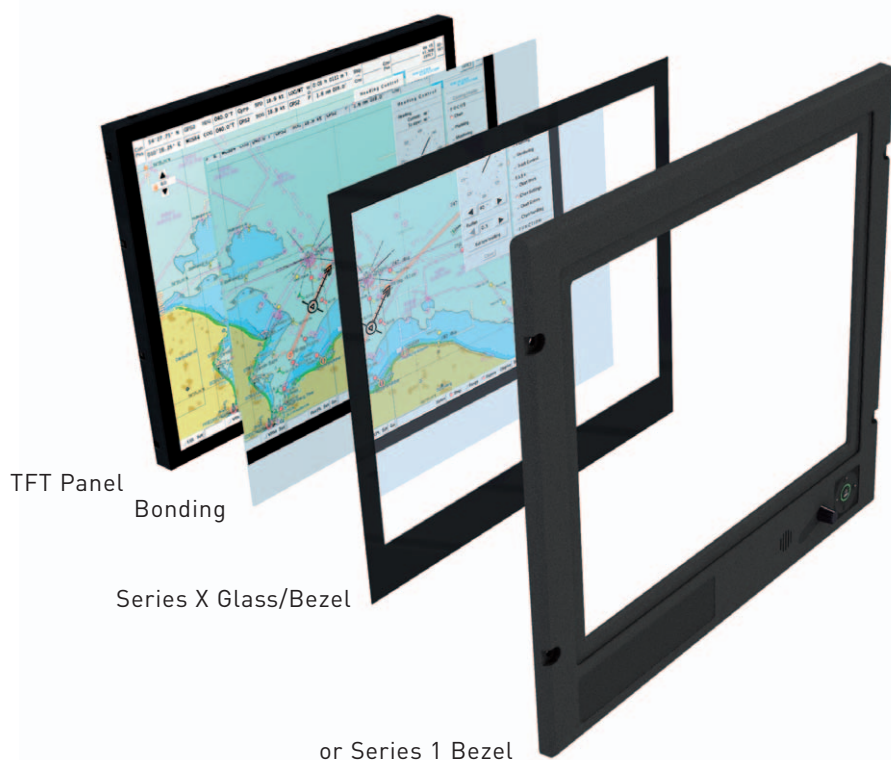
INNOVATIVE HMI

Within a system, the display provides the primary Human Machine Interface (HMI). Innovative HMI solutions open up new possibilities for the system integrator. Our products can be supplied with touch screens as an option. There are many touch screen technologies available, and we have implemented several of them in our solutions.

Main usability, performance and integration characteristics are:

Technology	Optical Performance	Gloves	Water	Durability	Multitouch	Stylus	Objects
Analog Resisitive	– –	+ +	+ +	-	-	-	– –
Surface Capacitive	+ +	– –	-	+	-	-	– –
Projected Capacitive	+ +	+	+	+ +	+ +	+ +	+ +

Series 1 can be offered with either resistive or surface capacitive touch screen in most cases, Series X is designed with projected capacitive providing multitouch support.

MULTITOUCH
Multitouch is defined as the ability to recognize two or more simultaneous touch points. Using projected capacitive technology lets us create a more intuitive form of human-device interaction. Touch-interface gestures, supported by projected capacitive sensors, can simplify the interface and provide an intuitive user experience that goes beyond the typical "button replacement" found in most simple touch interfaces.

Moving the active sensor area on the backside of the protection glass makes the system very durable and not sensitive to surface damages like dirt, scratches etc.

Glass Display Control™ (GDC):
A well implemented touch interface can be much simpler to use than a conventional mechanical button-based interface because it can show the user only those controls that are relevant to a particular operation, while all the controls in a conventional interface are always present. Our new display control solution, which we refer to as Glass Display Control™, or GDC, is based on projected switches, and have these benefits, and more;

• **Solid state** - reliable.
• **Behind the glass sensors** - don't wear out.
• **No moving parts** - nothing to break, everlasting.

GUARANTEED RELIABILITY THROUGH TESTING & TYPE APPROVALS

All Hatteland Display products are normally tested and type approved to the required standards by the major classification societies, ensuring our displays, computers and panel computers are fit for the harsh environments encountered at sea.

We also provide dedicated ECDIS calibration which enables us to deliver type approved ECDIS displays straight from the factory to you. Products are normally type approved or in application for Type Approval by the following major classification societies:

Standard:
EU-RO-MR (Recognised Organisations Mutual Recognition)
which covers;
      ABS (American Bureau of Shipping), BV (Bureau Veritas),
      ClassNK (Nippon Kaiji Kyokai), DNV (Det Norske Veritas),
      GL (Germanischer Lloyd) and LRS (Lloyd's Register of Shipping).

Optional (also covered by EU-RO-MR):
CCS   China Classification Society
KR   Korean Shipping
RS   Russian Maritime Register of Shipping

To ensure the above mentioned type approvals, the products are tested by independent institutions according to the following standards, **where applicable:**

IEC 62288 - Maritime navigation and radiocommunication equipment
      and systems - Presentation of navigation-related information
      on shipborne navigational displays.

IEC 60529 - IP protection classes.

IEC 61162 - Maritime navigation and radiocommunication equipment
      and systems - Digital interfaces.

IEC 60945 4th

IACS E10

IEC 60950 - In accordance to and the coming Safety Standard
      IEC 62368-1 in 2020.

For MIL Qualified products:
MIL-STD-461
MIL-STD-810
MIL-STD-167-1
MIL-S-901D, Grade A, Class 1
Extended IEC 60945
TEMPEST SDIP-27

TECHNICAL DEVELOPMENT

In addition to providing high quality standard technical solutions our company continues to set new standards through the introduction of new technologies and capabilities.

Optical Bonding

Developed in-house, our unique, proprietary bonding technology prevents fogging and produces the best optical quality.

Read more on page 7.
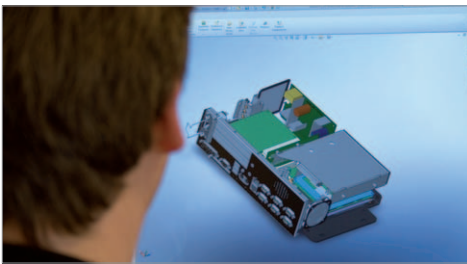
3-D Modeling and Simulation

Our engineers use state-of-the-art design tools to minimize design cycle times and integration risks.
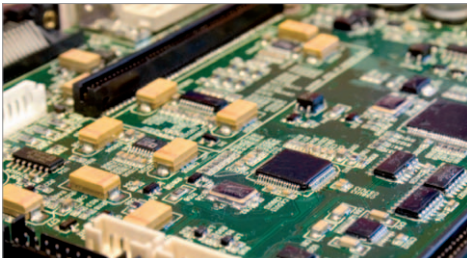
Video System Design and Integration

Our engineering staff is experienced in electronic design of critical analog and digital video circuitry.

ECDIS Solutions

Hatteland Display sets the standard for type-approved ECDIS solutions, including automated generation of color calibration tables. We are also the premier supplier of MIL-S-901D qualified ECDIS certified displays.

Read more on page 6.

TESTING AND CUSTOMIZATION

Hatteland Display works closely with systems integrators to ensure our products meet the most demanding requirements for maritime and naval applications.

Environmental Qualification Testing and Type Approval

Hatteland Display's knowledge of international shipbuilding standards and military specifications, coupled with our experience in qualification and certification of products to these standards is unsurpassed.

Test Facilities

Hatteland Display's test laboratory is capable to perform in-house Highly Accelerated Life Tests (HALT) as well as a range of tests in accordance with IEC60945 to constantly improve products' quality. Selected test equipment consists of: EMI/EMC Chamber, Climatic Chamber, Vibration Table, Heat Chambers and Thermographic Camera.

ISO-9001:2015 Approved Processes

Hatteland Display's quality system covers all functional areas and facilities to ensure the quality of our work products.

Read more on page 9.

GLASS LOGO ENGRAVING

Available for the Series X product range, we offer a high-tech factory applied logo-branding option, thanks to an in-house precision Laser Engraving process. The logo engraving is suitable for virtually any style of customer logo or slogan and is possible to apply to the back or front of the Series X glass, with or without Multi-Touch Screen. Contact our Sales Department for further details.

WORLDWIDE PRESENCE

As part of our lifecycle management we place a huge amount of emphasis on support and have built up a strong network to ensure that we can act fast when you most need us. We provide depot-level repair at all of our global service partner locations.

We use an automated customer service application to facilitate returns. Access to stock spare parts locally and the provision of training completes the basis of our commitment to extending the lifecycle of all Hatteland Display products, making sure that your critical systems are always operational.

For up-to-date service partner locations and specific contact information, please visit our dedicated link:
www.hatteland-display.com/service

Sales Office:
Lysaker, Norway
Frankfurt, Germany
Marseille, France
Aksdal, Norway (Main Office)
Vista, USA

Service Partners:
Allied eParts (China) Co. Ltd.. China
Elcome International LLC, Dubai
Elcome Integrated Systems Pvt.Ltd., India
Hatteland Display, Norway
Jason Electronics (Pte) Ltd., Singapore
JN Taylor & Co. Ltd, Australia
Radio Holland Netherlands B.V.
Radiomar Ind e Com Ltda, Brazil
Northrop Grumman Overseas Service Corp., USA
Tamot Corporation, Japan
Wheelhouse, USA
Telnav Marine Electronics, Brazil

Agents / Distributors:
Allied eParts Co. Ltd., China
EIWA Corporation, Japan
Allied eParts Pte Ltd, South Korea
Elcome Marine Services Pvt. Ltd., India
Allied eParts Pte Ltd., Singapore
JN Taylor & Co. Ltd, Australia
NIENSCHANZ-AUTOMATICA Ltd, Russia (Exclusive Distributor).

+ 36 dealers in US States: California, Florida, Hawaii, Louisiana, Maine, Maryland, Massachusetts, Michigan, New Jersey, Rhode Island, Texas, Virginia, Wisconsin, Washington.

Hatteland Display Procurement Office:
Taipei, Taiwan

AGENTS AND OFFICES

Wherever you, or your vessel, may be in the world, you can rest assure that you can always reach Hatteland Display's many offices and agents located near you and in your timezone to ensure the best possible support.

For up-to-date locations and specific contact information, please visit our dedicated link:
www.hatteland-display.com/locations

HEIGHT CM/INCH

| 6.17" | 6.54" | 9.78 | 10.71" | 12.09" | 13.82" | 15.04" / 15.12" | 16.02" / 17.13" | 20.04" |

62.
50.9 cm
43.5 cm / 43.7cm
38.2 cm / 38.4 cm
35.1 cm
30.7 cm
27.2 cm
24.8 cm
16.6 cm
15.6 cm

| 8 INCH WVGA | 8 INCH WVGA | 13 INCH WXGA | 13 INCH FHD | 12 INCH XGA | 15 INCH XGA | 17 INCH SXGA | 19 INCH SXGA | 24 INCH FHD 1080 |

NEW (under 8 INCH WVGA)
NEW (under 13 INCH FHD)

HEIGHT CM/INCH

| 13.58" | 15.75" | 17.48" | 18.94" | 21.02" |

53.4 cm
48.1 cm
44.4 cm
40.0 cm
34.5 cm

HEIGHT CM/INCH

| 15.12" | 15.71" | 17.48" | 18.94" | 20.87" |

53.0 cm
48.1 cm
44.4 cm
39.9 cm
38.4 cm

24 INCH - FHD 1080
MCOTS
Marine Display
NEW

HEIGHT CM/INCH

| 3.46" / 3.54" | 5.24" | 6.93" |

17.60 cm
13.30 cm
8.80 / 8.95 cm

HT 221
2U RACK SIZE

HT B22
COMPACT FANLESS

COMPA
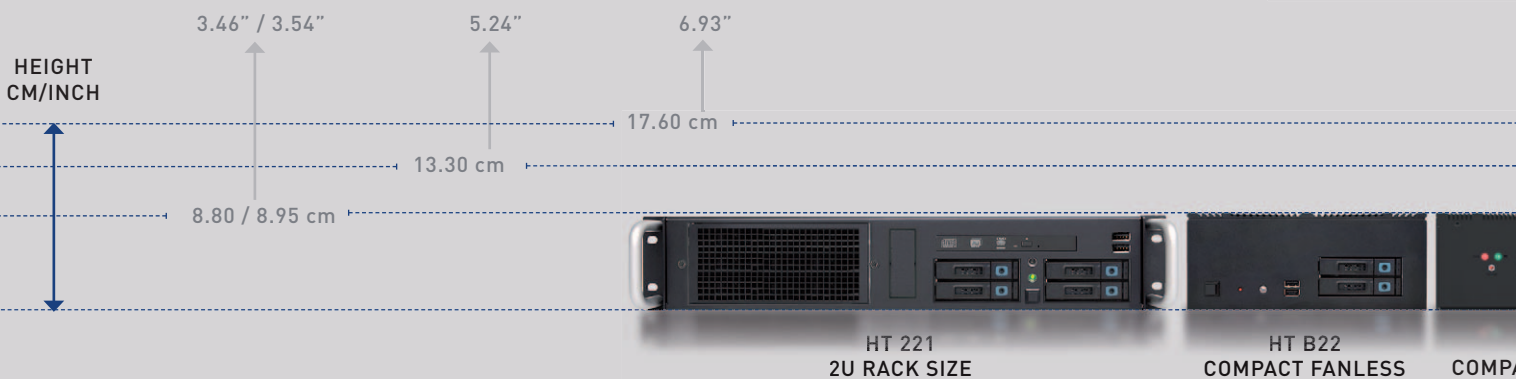
SERIES X - SERIES X G2 - MVD
Displays and Panel Computers

24.41"   32.17" / 32.48"

81.7 cm / 82.5 cm

0 cm

| 26 INCH | 27 INCH | 32 INCH | 43 INCH | 55 INCH |
| WUXGA | FHD 1080 | UHD 4K | UHD 4K | UHD 4K |

NEW (under 43 INCH)
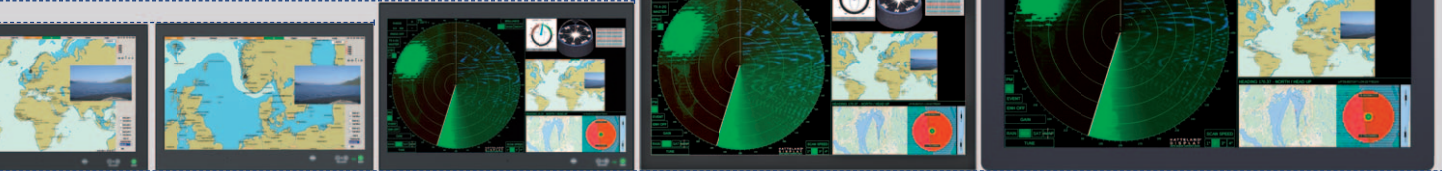
SERIES 1 - Displays

| 15 INCH - XGA | 19 INCH S - SXGA | 19 INCH - SXGA | 22 INCH - WSXGA | 20 INCH - UXGA | 23 INCH - UXGA |

MIL Qualified Displays
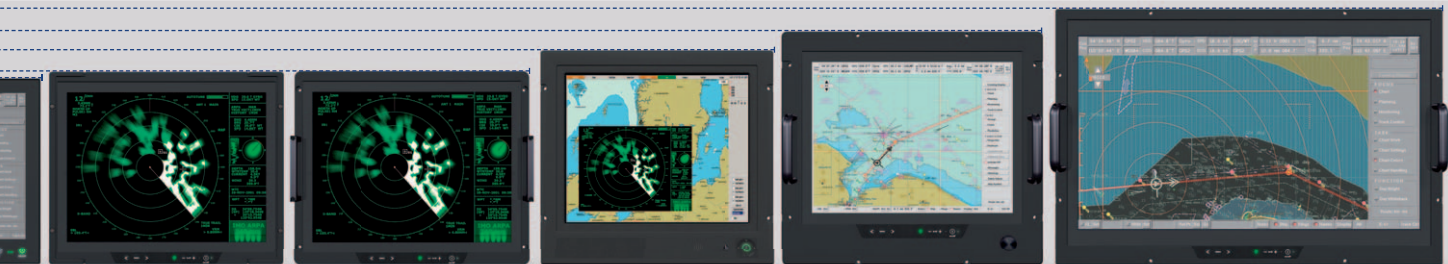
20 INCH - UXGA	20 INCH - UXGA	19 INCH - SXGA	20 INCH - UXGA	32 INCH - UHD 4K
Xtreme Rugged	Xtreme Rugged	MIL Qualified Display	Xtreme Rugged	Rugged
Marine Display	Marine Display	TEMPEST Certified	Marine Display	Marine Display
NEW	**NEW**	**NEW**	**NEW**	**NEW**

Rack, Compact and Compact Fanless Computers
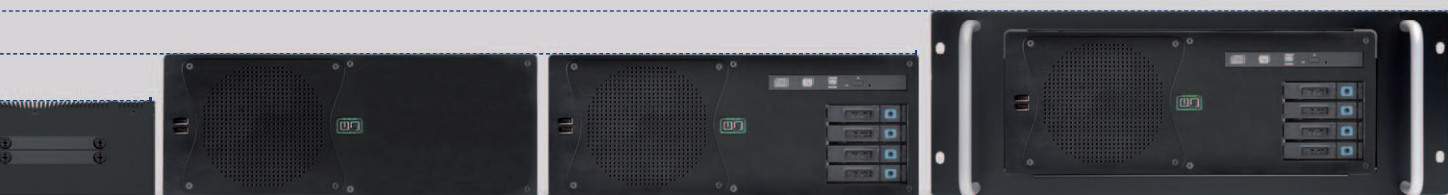
| HT B30 | HT C02 (Entry Level) | HM / HT C02 (High End/Mid Level) | HM / HT C02 with HT 00223 OPT-A1 |
| ACT FANLESS | COMPACT | COMPACT | 4U RACK SIZE KIT |

15

DISPLAYS SERIES X MVD MULTI VISION DISPLAYS

4K UHD

Hatteland Display, the leading global provider of display and computer solutions for professional maritime use introduces the innovative 55 inch Ultra High Definition product range. Integrating the cutting-edge of flat panel technology, the clarity, colour range and size of Hatteland Display's flagship Multi Vision Display system is a key enabler of safer navigation and future maritime bridge design.

The concept of a large 4K resolution Chart & Planning Table and the Floor Tilt Model was born out of a realisation that maritime display technology evolution is vital to improving the effectiveness of modern bridge systems.

As a 55 inch display, it provides the size needed to integrate system data in a single display, enabling Integrated Bridge System (IBS) and navigation technology manufacturers to combine multiple data from ship systems into a single, multi-touch enabled and user-friendly system. Crucially the 4K resolution ensures that multiple data types can be easily viewed under all conditions.

The 32 and 43 inch Series X MVD features the same 4K screen resolution as the flagship Series X 55 inch Ultra High Definition Chart & Planning table. All displays are ECDIS and Radar Compliant.

32/43/55 INCH KEY FEATURES

- 4K UHD - DISPLAYPORT (DP), HDMI, DVI & VGA INPUTS

- LED BACKLIGHT TECHNOLOGY

- FULL DIMMING 100%

- MULTI-TOUCH OPTION

- SUPERIOR OPTICAL BONDING OPTION

- GLASS DISPLAY CONTROL™

- RESOLUTION AT 3840 X 2160 (4K)

- ECDIS & RADAR COMPLIANT

- EN60945 TESTED AND TYPE APPROVED (PENDING)

32/43 INCH

DESKTOP, CONSOLE OR WALL MOUNT OPTION
Ideal for ship navigation, automation, cameras and security systems.

55 INCH

CHART & PLANNING TABLE (TILT / LIFT) AND FLOOR TILT MODEL
(both w/integrated HT C02 Computer option).

CONSOLE OR WALL MOUNT OPTION (DISPLAY)

CHART & PLANNING TABLE

0-30°
Tilt Range

Integrated HT C02 computer
in base (optional)

Minimum Height:
761.00 [29.96"] mm [inch]

Maximum Height:
1061.00 [41.77"] mm [inch]

FLOOR TILT MODEL

NEW

0-30°
Tilt Range

Integrated HT C02 computer
in base (optional)

CONSOLE & WALL MOUNT DISPLAYS ALSO AVAILABLE

4K UHD

2018: Newbuild Danish trawler "Gitte Henning" first to benefit from large-format, ultra high definition bridge display innovation from Hatteland Display !

Photos used with permission.

32 INCH
HD 32T22 MVD

TFT Technology
LED Backlight Technology, TFT Active-matrix, Widescreen, RGB Vertical Stripe, AHVA (Advanced Hyper Viewing Angles) LCD Technology

Viewable Size and Active Area
32.0 inch - 708.48 [27.89''] (H) x 398.52 [15.69''] (V) mm [inch]

Native Resolution and Pixel Pitch
3840 x 2160 (UHD, 4K) - 0.1845 (H) x 0.1845 (V) mm

Aspect Ratio and Response Time
16:9 - 12ms (typical) (G to G)

Light Intensity and Contrast Ratio
350 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
3840 x 2160 @ 60 Hz

Detectable Resolutions
VGA (640 x 350) to UHD (3840 x 2160)

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Full Dimming 0-100%, PIP (Picture In Picture)

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
Operating: 65W (typ) - 100W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Hotkeys (left/right), Mode Status Indicators (ECDIS, Service),
Buzzer (not visible), Light Sensor (not visible)

Connectors
• DVI-D Input: 1 x 24p DVI (female) - Max 3840x2160@30Hz
• VGA Input: 1 x 15p HD D-SUB (female) - Max 1920x1200@60Hz
• HDMI 2.0 Input: 1 x 19p HDMI (female) - Max 3840x2160@60Hz
• DP 1.2 Input: 1 x 20p DisplayPort (female) - Max 3840x2160@60Hz
• SCOM+Touch: 1 x USB TYPE A Connector (female)
• SCOM RS-422/485: 2 x 5-pin T. Block 3.81 non-isolated+Buzzer
• SCOM Ethernet: 1 x RJ45 Connector
• SCOM RS-232: 1 x 9p D-SUB (female) non-isolated
• User Interface: 1 x 9p D-SUB (male) - Potentiometer Analog Input, User Brightness (BRT), I2C and +5VDC & 12VDC OUT
• SW Interface: 1 x USB TYPE A (female) for Firmware Update
• AC Power IN: 1 x Std IEC Inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:758.00 [29.84''] x H:500.00 [19.69''] x D:64.00 [2.52''] mm [inch]
Weight: Approx. 17.0kg / 37.4lbs

Product Carton Size and Weight
L:860.00 [33.86''] x W:180.00 [7.09''] x H:670.00 [26.38''] mm [inch]
Weight: 23.0kg / 50.6lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB,Glove/Pen support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)

Accessories
• HD CMB SX2-E1: 1 x Console Mount Kit. EN60945 Tested
• HD TMB SX2-A2: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX2-G1: 1 x VESA Adapter. EN60945 Tested
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-30.0°C / -22.0°F to 70.0°C / 158.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 240.00 [94.49''] - Steering: 145.00 [57.09''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
EU-RO-MR - Mutual Recognition

NEW

43 INCH
HD 43T22 MVD

PRELIMINARY

TFT Technology
LED Backlight Technology, a-Si TFT Active-matrix, Widescreen, RGB Vertical Stripe

Viewable Size and Active Area
43.0 inch - 941.184 [37.05''] (H) x 529.416 [20.84''] (V) mm [inch]

Native Resolution and Pixel Pitch
3840 x 2160 (UHD, 4K) - 0.2451 (H) x 0.2451 (V) mm

Aspect Ratio and Response Time
16:9 - 8ms (typical) (G to G)

Light Intensity and Contrast Ratio
500 cd/m² (typ) - 3000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
3840 x 2160 @ 60 Hz

Detectable Resolutions
VGA (640 x 350) to UHD (3840 x 2160)

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Full Dimming 0-100%, PIP (Picture In Picture)

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
Operating: 70W (typ) - 120W (max)

User Controls and Activity
Tactile Display Controls (TDC) on front bezel:
Power LED, Mode Status Indicators LED (ECDIS, Service, Alarm),
Power On/Off button, On Screen Display control (OSD) button,
Up/Down OSD Navigation / Hotkey buttons,
+/- Brightness Control Buttons, ECDIS Button,
Hotkey for ON/OFF of Touchscreen Controller,
TDC inhibit key press mode (lock/enable function)

Connectors
• DVI-D Input: 1 x 24p DVI (female) - Max 3840x2160@30Hz
• VGA Input: 1 x 15p HD D-SUB (female) - Max 1920x1200@60Hz
• HDMI 2.0 Input: 1 x 19p HDMI (female) - Max 3840x2160@60Hz
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• SCOM Ethernet: 1 x RJ45 Connector
• SCOM RS-232: 1 x 9p D-SUB (female) non-isolated
• User Interface: 1 x 9p D-SUB (male) - Potentiometer Analog Input, User Brightness (BRT), I2C and +5VDC & 12VDC OUT
• SW Interface: 1 x USB TYPE A (female) for Firmware Update
• GDCx Interface : 1 x 15p D-SUB (male) for GDC Hardware Comm.
• AC Power IN: 1 x Std IEC Inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:1005.00 [39.57''] x H:620.00 [24.41''] x D:75.20 [2.97''] mm [inch] TBD
Weight: Approx. ~20.0kg TBD

Product Carton Size and Weight
L:xx.xx [xx.xx''] x W:xx.xx [xx.xx''] x H:xx.xx [xx.xx''] mm [inch]
Weight: TBDkg - TBDlbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB,Glove/Pen support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)

Accessories
• HD CMB SX2-E1: 1 x Console Mount Kit. EN60945 Tested
• HD TMB SX2-A2: 1 x Table Mount Bracket. EN60945 Tested (pending)
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
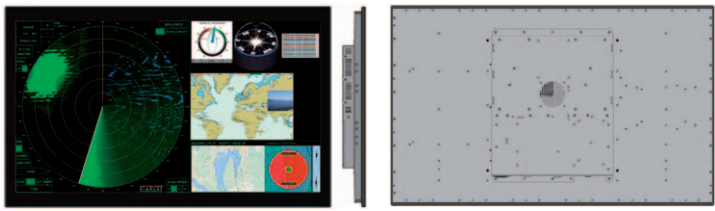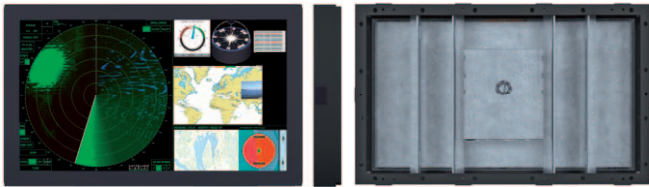-30.0°C / -22.0°F to 70.0°C / 158.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: xxx.xx [xx.xx''] - Steering: xxx.xx [xx.xx''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002)*, IACS E10*,
EU-RO-MR - Mutual Recognition*
*=pending

55 INCH
HD 55T22 MVD
Wall Mount Model

TFT Technology
LED Backlight Technology, TFT Active-matrix, Widescreen, RGB Vertical Stripe, MVA (Multi-domain Vertical Alignment) LCD Technology

Viewable Size and Active Area
55.0 inch - 1209.60 [47.62''] (H) x 680.40 [26.79''] (V) mm [inch]

Native Resolution and Pixel Pitch
3840 x 2160 (UHD) - 0.315 (H) x 0.315 (V) mm

Aspect Ratio and Response Time
16:9 - 6.5ms (typical) (G to G)

Light Intensity and Contrast Ratio
450 cd/m² (typ) - 4000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
3840 x 2160 @ 60 Hz

Detectable Resolutions
VGA (640 x 350) to UHD (3840 x 2160)

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Full Dimming 0-100%, Multitouch, Optical Bonding Technology, PIP (Picture In Picture), Wall Mounting Model

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC (24VDC Test pending)
Operating AC/DC: 145W (typ) - 220W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off (display), On Screen Display Menu,
Brightness Control (-/+), Hotkeys (left/right),
Mode Status Indicators (ECDIS, Service), Buzzer (not visible),
Light Sensor (not visible).

Connectors
• DVI-D Input: 1 x 24p DVI (female) - Max 3840x2160@30Hz
• VGA Input: 1 x 15p HD D-SUB (female) - Max 1920x1200@60Hz
• HDMI 2.0 Input: 1 x 19p HDMI (female) - Max 3840x2160@60Hz
• DP 1.2 Input: 1 x 20p DisplayPort (female) - Max 3840x2160@60Hz
• SCOM+Touch: 1 x USB TYPE A Connector (female)
• SCOM RS-422/485: 2 x 5-pin T. Block 3.81 non-isolated+Buzzer
• SCOM Ethernet: 1 x RJ45 Connector
• SCOM RS-232*: 1 x 9p D-SUB (female) non-isolated
• User Interface: 1 x 9p D-SUB (male) - Potentiometer Analog Input, User Brightness (BRT), I2C and +5VDC & 12VDC OUT
• SW Interface: 1 x USB TYPE A (female) for Firmware Update
• GDCx Interface: 1 x 15p D-SUB (male) for GDC Hardware Comm.
• AC Power IN: 1 x Std IEC Inlet
• DC Power IN: 1 x 2p D-SUB Connector (male) - Amphenol FCC17

Product Dimensions and Weight
W:1355.00 [53.35''] x H:828.00 [32.48''] x D:124.00 [4.88''] mm [inch]
Approx. 76.6kg / 168.5lbs

Product Carton Size and Weight
L:1570 [61.81''] x W:990 [38.98''] mm x H:340 [13.39''] mm [inch]
Approx. 110.0kg / 242.0lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch, USB, Pen/Glove support)
• Color Calibrated models (ECDIS)

Accessories
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-30.0°C / -22.0°F to 70.0°C / 158.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 500.00 [196.85''] - Steering: 230.00 [90.55''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
EU-RO-MR - Mutual Recognition

55 INCH
HD 55T22 MVD
Console / External Remote Model

TFT Technology
LED Backlight Technology, TFT active-matrix liquid crystal panel, Widescreen, RGB Vertical Stripe, MVA (Multi-domain Vertical Alignment) LCD Technology

Viewable Size and Active Area
55.0 inch - 1209.60 [47.62''] (H) x 680.40 [26.79''] (V) mm [inch]

Native Resolution and Pixel Pitch
3840 x 2160 (UHD) - 0.315 (H) x 0.315 (V) mm

Aspect Ratio and Response Time
16:9 - 6.5ms (typical) (G to G)

Light Intensity and Contrast Ratio
450 cd/m² (typ) - 4000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
3840 x 2160 @ 60 Hz

Detectable Resolutions
VGA (640 x 350) to UHD (3840 x 2160)

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Full Dimming 0-100%, Multi-power AC & DC, Optical Bonding Technology, PIP (Picture In Picture), Console Mount Model, External Tactile Display Controls (TDC)

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
Operating AC/DC: 145W (typ) - 220W (max)

User Controls and Activity
Tactile Display Controls (TDC):
• Power On/Off Button, Power LED, On Screen Display Menu Button,
• Brightness Control (-/+) buttons, Hotkeys (left/right) buttons
• ECDIS Indicator, Buzzer, Light Sensor

Connectors
• DVI-D Input: 1 x 24p DVI (female) - Max 3840x2160@30Hz
• VGA Input: 1 x 15p HD D-SUB (female) - Max 1920x1200@60Hz
• HDMI 2.0 Input: 1 x 19p HDMI (female) - Max 3840x2160@60Hz
• DP 1.2 Input: 1 x 20p DisplayPort (female) - Max 3840x2160@60Hz
• SCOM+Touch: 1 x USB TYPE A Connector (female)
• SCOM RS-422/485: 2 x 5-pin T. Block 3.81 non-isolated+Buzzer
• SCOM Ethernet*: 1 x RJ45 Connector
• SCOM RS-232: 1 x 9p D-SUB (female) non-isolated
• User Interface: 1 x 9p D-SUB (male) - Potentiometer Analog Input, User Brightness (BRT), I2C and +5VDC & 12VDC OUT
• SW Interface: 1 x USB TYPE A (female) for Firmware Update
• GDCx Interface: 1 x 15p D-SUB (male) for GDC Hardware Comm.
• AC Power IN: 1 x Std IEC Inlet
• DC Power IN: 1 x 2p D-SUB Connector (male) - Amphenol FCC17

Product Dimensions and Weight
W:1346.83 [53.02''] x H:817.63 [32.19''] x D:99.00 [3.90''] mm [inch]
Approx. 70.2 kg / 154.4lbs

Product Carton Size and Weight
L:1570 [61.81''] x W:990 [38.98''] mm x H:340 [13.39''] mm [inch]
TBD kg / TBD lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch, USB, Pen/Glove support)

Accessories
None

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-30.0°C / -22.0°F to 70.0°C / 158.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 500.00 [196.85''] - Steering: 230.00 [90.55''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
EU-RO-MR - Mutual Recognition

NEW

55 INCH
HD 55T22 MVD
Floor Tilt Model

TFT Technology
LED Backlight Technology, TFT Active-matrix, Widescreen, RGB Vertical Stripe, MVA (Multi-domain Vertical Alignment) LCD Technology

Viewable Size and Active Area
55.0 inch - 1209.60 [47.62''] (H) x 680.40 [26.79''] (V) mm [inch]

Native Resolution and Pixel Pitch
3840 x 2160 (UHD) - 0.315 (H) x 0.315 (V) mm

Aspect Ratio and Response Time
16:9 - 6.5ms (typical) (G to G)

Light Intensity and Contrast Ratio
450 cd/m² (typ) - 4000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
3840 x 2160 @ 60 Hz

Detectable Resolutions
VGA (640 x 350) to UHD (3840 x 2160)

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Full Dimming 0-100%, Multitouch, Optical Bonding Technology, PIP (Picture In Picture), Tilt Adjustable Floor Model, 2 x USB2.0 External

Power Specifications and Consumption
115/230VAC - 50/60Hz
Operating with HT C02 computer: TBD W (typ) - 600W (max)
Operating without HT C02 computer: TBD W (typ) - 380W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off (display), On Screen Display Menu,
Brightness Control (-/+), Hotkeys (left/right),
Mode Status Indicators (ECDIS, Service), Buzzer (not visible),
Light Sensor (not visible).

Additional Controls: Tilt buttons, Main Power ON/OFF switch

Connectors
• DVI-D Input: 1 x 24p DVI (female) - Max 3840x2160@30Hz
• VGA Input: 1 x 15p HD D-SUB (female) - Max 1920x1200@60Hz
• HDMI 2.0 Input: 1 x 19p HDMI (female) - Max 3840x2160@60Hz
• DP 1.2 Input*: 1 x 20p DisplayPort (female) - Max 3840x2160@60Hz
• SCOM+Touch*: 1 x USB TYPE A Connector (female)
• SCOM RS-422/485: 2 x 5-pin T. Block 3.81 non-isolated+Buzzer
• SCOM Ethernet: 1 x RJ45 Connector
• SCOM RS-232: 1 x 9p D-SUB (female) non-isolated
• User Interface: 1 x 9p D-SUB (male) - Potentiometer Analog Input, User Brightness (BRT), I2C and +5VDC & 12VDC OUT
• SW Interface: 1 x USB TYPE A (female) for Firmware Update
• GDCx Interface: 1 x 15p D-SUB (male) for GDC Hardware Comm.
• AC Power IN: 1 x Junction Box enclosure w/Terminal Block
* By factory default connected to internal HT C02 Compact Computer

Product Dimensions and Weight
• W:1360.68 [53.57''] x H:See below x D:See below mm [inch]
• Height from Max: 1000.16 [39.38''] to Min: 917.00 [36.10''] mm [inch]
• Depth from Max: 633.37 [24.94''] to Min: 500.00 [19.69''] mm [inch]
• Weight: Approx. 97.7kg / 214.9lbs
• Weight: Approx. 108.5kg / 238.7lbs (includes HT C02 computer)

Product Carton Size and Weight
L:1530 [60.24''] x W:670 [26.38''] x H:1100 [43.31''] mm [inch]
TBD kg / TBD lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch, USB, Pen/Glove support)
• Color Calibrated models (ECDIS)
• Factory Integrated HT C02 computer - contact Sales for details.

Accessories
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• 5240-15: 1 x Fabric Protection Top Cover, Stretch/Washable, Cotton

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 410.00 [161.42''] - Steering: 240.00 [94.49''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
EU-RO-MR - Mutual Recognition

55 INCH
HD 55T22 MVD
Chart & Planning Table

TFT Technology
LED Backlight Technology, TFT Active-matrix, Widescreen, RGB Vertical Stripe, MVA (Multi-domain Vertical Alignment) LCD Technology

Viewable Size and Active Area
55.0 inch - 1209.60 [47.62''] (H) x 680.40 [26.79''] (V) mm [inch]

Native Resolution and Pixel Pitch
3840 x 2160 (UHD) - 0.315 (H) x 0.315 (V) mm

Aspect Ratio and Response Time
16:9 - 6.5ms (typical) (G to G)

Light Intensity and Contrast Ratio
450 cd/m² (typ) - 4000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
3840 x 2160 @ 60 Hz

Detectable Resolutions
VGA (640 x 350) to UHD (3840 x 2160)

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Full Dimming 0-100%, Multitouch, Optical Bonding Technology, PIP (Picture In Picture), Adjustable Floor Stand, 2 x USB2.0 External

Power Specifications and Consumption
115/230VAC - 50/60Hz
Operating with HT C02 computer: 350W (typ) - 480W (max)
Operating without HT C02 computer: 300W (typ) - 440W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off (display), On Screen Display Menu,
Brightness Control (-/+), Hotkeys (left/right),
Mode Status Indicators (ECDIS, Service), Buzzer (not visible),
Light Sensor (not visible).

Additional Controls: Tilt and Lift buttons, Main Power ON/OFF switch

Connectors
• DVI-D Input: 1 x 24p DVI (female) - Max 3840x2160@30Hz
• VGA Input: 1 x 15p HD D-SUB (female) - Max 1920x1200@60Hz
• HDMI 2.0 Input: 1 x 19p HDMI (female) - Max 3840x2160@60Hz
• DP 1.2 Input*: 1 x 20p DisplayPort (female) - Max 3840x2160@60Hz
• SCOM+Touch*: 1 x USB TYPE A Connector (female)
• SCOM RS-422/485: 2 x 5-pin T. Block 3.81 non-isolated+Buzzer
• SCOM Ethernet: 1 x RJ45 Connector
• SCOM RS-232: 1 x 9p D-SUB (female) non-isolated
• User Interface: 1 x 9p D-SUB (male) - Potentiometer Analog Input, User Brightness (BRT), I2C and +5VDC & 12VDC OUT
• SW Interface: 1 x USB TYPE A (female) for Firmware Update
• GDCx Interface: 1 x 15p D-SUB (male) for GDC Hardware Comm.
• AC Power IN: 1 x Junction Box enclosure w/Terminal Block
* By factory default connected to internal HT C02 Compact Computer

Product Dimensions and Weight
W:1360.68 [53.57''] x H:See below x D:831.48 [32.74''] mm [inch]
Height is adjustable from 761.00 [29.96''] to 1061.00 [41.77''] mm [inch]
Approx 155kg / 341.0lbs (includes optional HT C02 computer)

Product Carton Size and Weight
L:1500 [59.06''] x W:980 [38.58''] x D:1000 [39.37''] mm [inch] - 1.47m³
215.0kg / 473.0lbs

Factory Options
• Color Calibrated models (ECDIS)
• Factory Integrated HT C02 computer - contact Sales for details.

Accessories
• HD 55CAS SX1-A1: 1 x Transport Case (60.0 kg / 132.0lbs) - 1.3m³
L:1470.00 [57.87''] x W:930.00 [36.61''] x D:1000.00 [39.37''] mm [inch]
• HD 55BAS SX1-A1 : 1 x Base Mount Plate (not for permanent mount)
W:806.00 [31.73''] x H:610.00 [24.02''] x D:10.00 [0.39''] mm [inch]
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• 5240-15: 1 x Fabric Protection Top Cover, Stretch/Washable, Cotton

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 500.00 [196.85''] - Steering: 230.00 [90.55''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
EU-RO-MR - Mutual Recognition

DISPLAYS SERIES X

As a leading manufacturer of display and computer hardware for the maritime segment, Hatteland Display continuously gauges and responds to market needs. Our commitment to develop specialized products for a multitude of onboard ship systems continues with Series X.

Their compact and sleek design allows them to be be desk mount or console integrated. The design is modular, allowing for common modules to be used in various models and combinations. Together these design features bring about a range perfectly in synch to market cost expectations – along with that, the performance and type approval always expected in all Hatteland Display products.

All sizes are available in display or panel computer formats, as well as various performance specifications to choose from. There are standard base models available which are listed in the following pages.

The modules used in Series X, are all qualified having undergone and passed our extensive test program, which includes HALT testing. This means that the products are tested well outside the requirements in EN60945 and E10.

The result is a more reliable product.
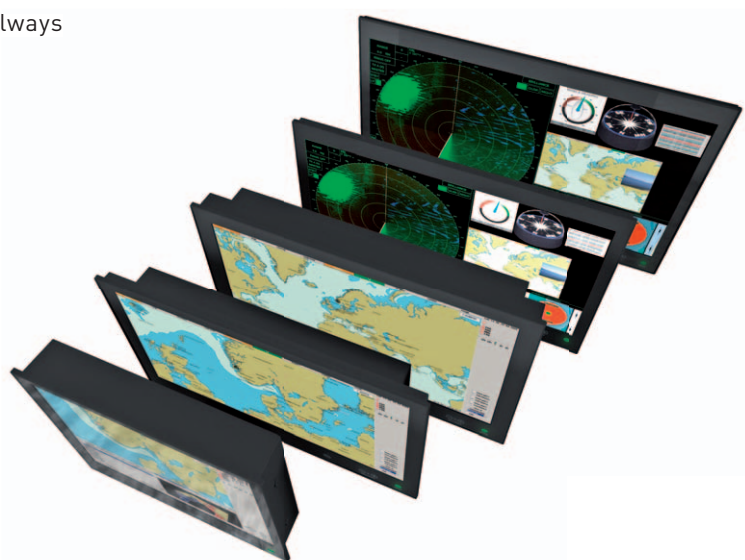
For SUNLIGHT READABLE / HIGH BRIGHT models, read more at page 60.

- MULTITOUCH
- TYPE APPROVED
- ECDIS COMPLIANT
- IP22 REAR / IP66 FRONT
- SUPERIOR BONDING TECHNOLOGY
- MODULE BASED, TAILOR-MADE SYSTEMS MADE EASY!
- SUNLIGHT READABLE / HIGH BRIGHT VERSIONS AVAILABLE
- GLASS DISPLAY CONTROL™ (GDC), SOLID STATE MENU SYSTEM
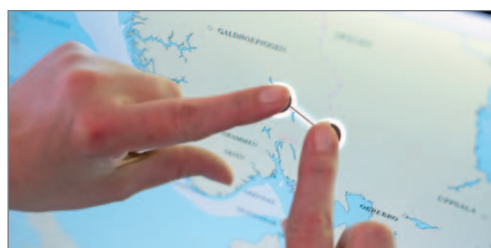
8 INCH
HD 08T21 Standard

TFT Technology
LED Backlight Technology, TTL Interface, a-si TFT Active Matrix, Widescreen

Viewable Size and Active Area
8.0 inch - 173.40 [6.83''] (H) x 104.40 [4.11''] (V) mm [inch]

Native Resolution and Pixel Pitch
800 x 480 (WVGA) - 0.2168 (H) x 0.2168 (V) mm

Aspect Ratio and Response Time
5:3 - 5/11ms (typ) (Tr/Tf)

Light Intensity and Contrast Ratio
600 cd/m² (typ) - 600:1 (typ)

View Angle / Max Colors
70 deg. (up/down) / 60 deg. (left/right) - 16.7 million

Optimal Resolution and Hz
800 x 480 @ 60 Hz

Detectable Resolutions
800 x 480

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Projected Capacitive Technology (PCTouch) MULTITOUCH, Dimmable 0-100%, Buzzer

Power Specifications and Consumption
2 x 24VDC, Galvanic Isolated, Automatic Switch <> sources
20W (typ) - 30W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, Brightness Control (-/+), Light Sensor (not visible),
Programmable Alarm LED, Buzzer (not visible)

Connectors
• DVI IN: 1 x DVI-I 29P (female) or VGA IN via Adapter
• Touchscreen: 1 x USB Type B (female). Use USB2.0 (<5m) port.
• DC Power IN: 2 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:236.00 [9.29''] x H:166.00 [6.54''] x D:51.00 [2.01''] mm [inch]
4 x M4 VESA mounting 75x75mm, Max 8mm deep
Built-in Console mounting 4 x M5x15mm screws
1.7kg / 3.7lbs

Product Carton Size and Weight
L:320.00 [12.60''] x W:180.00 [7.09''] x H:320.00 [12.60''] mm [inch]
2.5kg / 5.5lbs

Factory Options
• Optical Bonding Technology

Accessories
• HD WBK SX1-A1: 1 x Wallmount Box, not EN60945 Tested

Capabilities / Prepared for
N/A

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529)

Compass Safe Distance
Standard: 45.00 [17.72''] - Steering: 30.00 [11.81''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
NK - 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, EU-RO-MR - Mutual Recognition

SPECIFICATIONS - DISPLAYS SERIES X (GENERATION 1)

13 INCH
HD 13T21 Standard

TFT Technology
LED Backlight Technology, a-si TFT Active Matrix, Widescreen

Viewable Size and Active Area
13.3 inch - 286.08 [11.26''] (H) x 178.80 [7.04''] (V) mm [inch]

Native Resolution and Pixel Pitch
1280 x 800 (WXGA) - 0.2235 (H) x 0.2235 (V) mm

Aspect Ratio and Response Time
16:10 - 6/10ms (typ) (Tr/Tf)

Light Intensity and Contrast Ratio
500 cd/m² (typ) - 800:1 (typ)

View Angle / Max Colors
70 deg. (up/down) - 60 deg. (left/right) - 16.7 million

Optimal Resolution and Hz
1280 x 800 @ 60 Hz

Detectable Resolutions
1280 x 800

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Projected Capacitive Technology (PCTouch), MULTITOUCH,
Dimmable 0-100%, Buzzer, Compact Design, Dual 24VDC Input

Power Specifications and Consumption
2 x 24VDC, Galvanic Isolated, Automatic Switch <> sources
20W (typ) - 30W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, Brightness Control (-/+), Light Sensor (not visible),
Programmable Alarm LED, Buzzer (not visible)

Connectors
• DVI IN: 1 x DVI-I 29P (female) or VGA IN via Adapter
• Touchscreen: 1 x USB Type B (female). Use USB2.0 (<5m) port.
• DC Power IN: 2 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:355.00 [13.98''] x H:248.50 [9.78''] x D:58.00 [2.28''] mm [inch]
4 x M4 VESA mounting 75x75mm, Max 8mm deep.
Built-in Console mounting 4 x M5x15mm screws. 3.0kg / 6.6lbs

Product Carton Size and Weight
L:460.00 [18.11''] x W:200.00 [7.87''] x H:430.00 [16.93''] mm [inch]
4.3kg / 9.5lbs

Factory Options
• Optical Bonding Technology

Accessories
None

Capabilities / Prepared for
N/A

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 45.00 [17.72''] - Steering: 30.00 [11.81''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
NK - 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, EU-RO-MR - Mutual Recognition

12 INCH
HD 12T21 Standard

TFT Technology
LED Backlight Technology, TFT Active-matrix

Viewable Size and Active Area
12.1 inch - 245.76 [9.68''] (H) x 184.32 [7.26''] (V) mm [inch]

Native Resolution and Pixel Pitch
1024 x 768 (XGA) - 0.24 (H) x 0.24 (V) mm

Aspect Ratio and Response Time
4:3 - 35ms (Standard typical)

Light Intensity and Contrast Ratio
600 cd/m² (typ) - 700:1 (typ)

View Angle / Max Colors
80 deg. (left/right), 70 deg. (up/down) (typ)
16.7 million

Optimal Resolution and Hz
1024 x 768 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768*
*Recommended, native resolution
Other resolutions will be scaled full screen, unit has no scaling support.

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Dimmable 0-100%, Multi-power AC & DC

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
15W (typ) - 60W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Mode Status Indicator (Service), Buzzer (not visible),
Light Sensor (not visible)

Connectors
• DVI IN: 1 x DVI-D 24P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
• SCOM RS-232: 1 x D-SUB 9P (female) non-isolated+Buzzer
• If Touchscreen: 1 x USB Type B (female). Use USB2.0 (<5m) port.
• AC Power IN: 1 x Std. IEC Inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:314.00 [12.36''] x H:272.00 [10.71''] x D:64.50 [2.54''] mm (inch)
4 x M6 VESA mounting 280x150mm, Max 12mm deep.
3.8kg / 8.4lbs

Product Carton Size and Weight
L:460.00 [18.11''] x W:200.00 [7.87''] x H:430.00 [16.93''] mm [inch]
5.6kg / 12.3lbs

Factory Options
• Optical Bonding Technology
• Projected Capacitive Touch Screen (Multitouch, USB interface)

Accessories
• HD CMB SX1-A2: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD CMB SX1-A3: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD TMB SX1-A1: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 125.00 [49.21''] - Steering: 75.00 [29.53''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
NK - 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, EU-RO-MR - Mutual Recognition

15 INCH
HD 15T21 Standard

TFT Technology
LED Backlight Technology, TFT Active-matrix

Viewable Size and Active Area
15.0 inch - 304.10 [11.97''] (H) x 228.10 [8.98''] (V) mm [inch]

Native Resolution and Pixel Pitch
1024 x 768 (XGA) - 0.297 (H) x 0.297 (V) mm

Aspect Ratio and Response Time
4:3 - 8ms (Standard typical)

Light Intensity and Contrast Ratio
400 cd/m² (typ) - 1500:1 (typ)

View Angle / Max Colors
85 deg. (up/down/left/right) (typ)
16.7 million

Optimal Resolution and Hz
1024 x 768 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768*
*Recommended, native resolution
Other resolutions will be scaled full screen, unit has no scaling support.

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Dimmable 0-100%, Multi-power AC & DC

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
TBD W (typ) - 60W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Mode Status Indicator (Service), Buzzer (not visible),
Light Sensor (not visible)

Connectors
• DVI IN: 1 x DVI-D 24P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
• SCOM RS-232: 1 x D-SUB 9P (female) non-isolated+Buzzer
• If Touchscreen: 1 x USB Type B (female). Use USB2.0 (<5m) port.
• AC Power IN: 1 x Std. IEC inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:356.00 [14.02''] x H:307.00 [12.09''] x D:71.50 [2.81''] mm (inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep
4.8kg / 10.6lbs

Product Carton Size and Weight
L:460.00 [18.11''] x W:200.00 [7.87''] x H:430.00 [16.93''] mm [inch]
6.5kg / 14.3lbs

Factory Options
• Optical Bonding Technology
• Projected Capacitive Touch Screen (Multitouch, USB interface)

Accessories
• HD CMB SX1-A2: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD CMB SX1-A3: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD TMB SX1-A1: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• JH 15TAP STD-C1: 1 x Frame Adp. (15'' Series 1 to Series X) retrofit
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• HD 15COV SX1-A1: 1 x UV Sun Cover

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 55.00 [21.65''] - Steering: 40.00 [15.75''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
NK - 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, EU-RO-MR - Mutual Recognition

15 INCH
HD 15T22 MMD

TFT Technology
LED Backlight Technology, TFT active-matrix liquid crystal panel

Viewable Size and Active Area
15.0 inch - 304.10 [11.97''] (H) x 228.10 [8.98''] (V) mm [inch]

Native Resolution and Pixel Pitch
1024 x 768 (XGA) - 0.297 (H) x 0.297 (V) mm

Aspect Ratio and Response Time
Standard: 4:3 - 8ms (typical)
High Bright: 19ms (typical)

Light Intensity and Contrast Ratio
Standard: 400 cd/m² (typ) - 1500:1 (typ)
High Bright: 800 cd/m² (typ) - 800:1 (typ)

View Angle / Max Colors
Standard: 85 deg. (up/down/left/right) (typ)
High Bright: 80 deg. (down/left/right), 60 deg. (up) (typ)
16.7 million

Optimal Resolution and Hz
1024 x 768 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768

Composite Video Input(s)
Composite (BNC)

Supported Video Signals
Interlaced HDTV, NTSC, PAL and SECAM video, Composite Video

Product Features
Dimmable 0-100%, Multi-power AC & DC, PBP (Picture By Picture),
PIP (Picture In Picture)

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
Standard: 22W (max)
High Bright: 33W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Hotkeys (left/right), Mode Status Indicators (Service),
Buzzer (through glass), Light Sensor (behind glass)

Connectors
• 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: 2 x BNC Connector (female)
• SCOM RS-422/485: 2 x 5-pin Terminal Block 3.81, non-isolated+Buzzer
• VGA OUT: 1 x 15p HD D-SUB (female) - Clone of VGA IN
• SCOM+Touch: 1 x USB TYPE A Connector (female)
• Ethernet: 1 x RJ45 Connector for Remote Control
• SCOM RS-232: 1 x 9p D-SUB (female) non-isolated+Buzzer
• Potmeter/User: 1 x 9p D-SUB (male)
(Potentiometer IN, +5VDC OUT, BRT +/- IN)
• AC Power IN: 1 x Std IEC Inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:356.00 [14.02''] x H:307.00 [12.09''] x D:71.50 [2.81''] mm [inch]
Approx. 5.7kg / 12.5lbs

Product Carton Size and Weight
L:460.00 [18.11''] x W:200.00 [7.87''] x H:430.00 [16.93''] mm [inch]
Approx. 6.9kg / 15.2lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB, Pen/Glove support)
• Optical Bonding Technology
• Sunlight Readable / High Bright (includes Optical Bonding)

Accessories
• HD CMB SX2-A1: 1 x Console Mount Kit. EN60945 Tested (pending)
• HD TMB SX2-A1: 1 x Table Mount Bracket. EN60945 Tested (pending)
• HD VED SX2-A1:1 x VESA Adapter (75/75, 100/100 & 200/100mm)
(not EN60945 Tested)
• JH 15TAP STD-C1: 1 x Frame Adp. (15'' Series 1 to Series X) retrofit
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• HD 15COV SX1-A1: 1 x UV Sun Cover
• P006997-1: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-30.0°C / -22.0°F to +70.0°C / +158.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 100.00 [39.37''] - Steering: 65.00 [25.59''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
EU-RO-MR - Mutual Recognition

17 INCH
HD 17T21 Standard

TFT Technology
LED Backlight Technology, TFT Active-matrix

Viewable Size and Active Area
17.0 inch - 337.92 [13.30''] (H) x 270.34 [10.64''] (V) mm [inch]

Native Resolution and Pixel Pitch
1280 x 1024 (SXGA) - 0.264 (H) x 0.264 (V) mm

Aspect Ratio and Response Time
5:4 - 5ms (typ)

Light Intensity and Contrast Ratio
350 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors
80° (down/left/right), 60° (up) @ CR>10
16.7 million

Optimal Resolution and Hz
1280 x 1024 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024*
*Recommended, native resolution
Other resolutions will be scaled full screen, unit has no scaling support.

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Dimmable 0-100%, Multi-power AC & DC

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
22W (typ) - 60W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Mode Status Indicator (ECDIS, Service), Buzzer (not visible),
Light Sensor (not visible)

Connectors
• DVI IN: 1 x DVI-D 24P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
• SCOM RS-232: 1 x D-SUB 9P (female) non-isolated+Buzzer
• If Touchscreen: 1 x USB Type B (female). Use USB2.0 (<5m) port.
• AC Power IN: 1 x Std. IEC inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:390.00 [15.35''] x H:351.00 [13.82''] x D:73.50 [2.89''] mm [inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep.
5.8kg / 12.8lbs

Product Carton Size and Weight
L:530.00 [20.87''] x W:210.00 [8.27''] x H:540.00 [21.26''] mm [inch]
7.9kg / 17.4lbs

Factory Options
• Color Calibrated models (ECDIS)
• Projected Capacitive Touch Screen (Multitouch, USB interface)

Accessories
• HD CMB SX1-A2: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD CMB SX1-A3: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD TMB SX1-B1: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• HD 17COV SX1-A1: 1 x UV Sun Cover

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 80.00 [31.50''] - Steering: 50.00 [19.69''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
NK - 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, EU-RO-MR - Mutual Recognition

17 INCH
HD 17T22 MMD

TFT Technology
LED Backlight Technology,TFT active-matrix liquid crystal panel

Viewable Size and Active Area
17.0 inch - 337.92 [13.30''] (H) x 270.33 [10.64''] (V) mm [inch]

Native Resolution and Pixel Pitch
1280 x 1024 (SXGA) - 0.264 (H) x 0.264 (V) mm

Aspect Ratio and Response Time
5:4 - 5ms (typ)

Light Intensity and Contrast Ratio
Standard: 350 cd/m² (typ) - 1000:1 (typ)
High Bright: 1000 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors
80° (down/left/right), 60° (up) @ CR>10
16.7 million

Optimal Resolution and Hz
1280 x 1024 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024

Composite Video Input(s)
Composite (BNC)

Supported Video Signals
Interlaced HDTV, NTSC, PAL and SECAM video, Composite Video

Product Features
Dimmable 0-100%, Multi-power AC & DC, PBP (Picture By Picture),
PIP (Picture In Picture)

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
Standard: 34W (max)
High Bright: 44W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Hotkeys (left/right), Mode Status Indicator (ECDIS, Service),
Buzzer (through glass), Light Sensor (behind glass)

Connectors
• 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: 2 x BNC Connector (female)
• SCOM RS-422/485: 2 x 5-pin Terminal Block 3.81, non-isolated+Buzzer
• VGA OUT: 1 x 15p HD D-SUB (female) - Clone of VGA IN
• SCOM+Touch: 1 x USB TYPE A Connector (female)
• Ethernet: 1 x RJ45 Connector for Remote Control
• SCOM RS-232: 1 x 9p D-SUB (female) non-isolated+Buzzer
• Potmeter/User: 1 x 9p D-SUB (male)
(Potentiometer IN, +5VDC OUT, BRT +/- IN)
• AC Power IN: 1 x Std IEC Inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:390.00 [15.35''] x H:351.00 [13.82''] x D:71.50 [2.81''] mm [inch]
Approx. 6.2kg / 13.6lbs

Product Carton Size and Weight
L:530.00 [20.87''] x W:210.00 [8.27''] x H:540.00 [21.26''] mm [inch]
Approx. 9.1kg / 20.0lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB, Pen/Glove support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)
• Sunlight Readable / High Bright (includes Optical Bonding)

Accessories
• HD CMB SX2-A1: 1 x Console Mount Kit. EN60945 Tested (pending)
• HD TMB SX2-A1: 1 x Table Mount Bracket. EN60945 Tested (pending)
• HD VED SX2-B1: 1 x VESA Adapter (75/75, 100/100 & 200/100mm)
(not EN60945 Tested)
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• HD 17COV SX1-A1: 1 x UV Sun Cover
• P007130-1: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-30.0°C / -22.0°F to +70.0°C / +158.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 125.00 [49.21''] - Steering: 85.00 [33.46''] cm [inch]
High Bright: 100.00 [39.37''] - 70.00 [27.56''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
EU-RO-MR - Mutual Recognition

19 INCH
HD 19T21 Standard

TFT Technology
LED Backlight Technology, TFT Active-matrix,
MVA (Multi-domain Vertical Alignment) Technology

Viewable Size and Active Area
19.0 inch - 376.32 [14.82''] (H) x 301.06 [11.85''] (V) mm [inch]

Native Resolution and Pixel Pitch
1280 x 1024 (SXGA) - 0.294 (H) x 0.294 (V) mm

Aspect Ratio and Response Time
5:4 - 20ms (typ)

Light Intensity and Contrast Ratio
350 cd/m² (typ) - 1500:1 (typ)

View Angle / Max Colors
85 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1280 x 1024 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024*
*Recommended, native resolution
Other resolutions will be scaled full screen, unit has no scaling support.

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Dimmable 0-100%, Multi-power AC & DC

Power Specifications and Consumption
Multi-power 100/230VAC - 50/60Hz + 24VDC
33W (typ) - 125W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Mode Status Indicator (ECDIS, Service), Buzzer (not visible),
Light Sensor (not visible)

Connectors
• DVI IN: 1 x DVI-D 24P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
• SCOM RS-232: 1 x D-SUB 9P (female) non-isolated+Buzzer
• If Touchscreen:1 x USB Type B (female). Use USB2.0 (<5m) port.
• AC Power IN: 1 x Std. IEC inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:429.00 [16.89''] x H:382.00 [15.04''] x D:74.50 [2.93''] mm [inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep.
7.8kg / 17.2lbs

Product Carton Size and Weight
L:510.00 [20.08''] x W:195.00 [7.68''] x H:525.00 [20.67''] mm [inch]
9.7kg / 21.3lbs

Factory Options
• Optical Bonding Technology
• Color Calibrated models (ECDIS)
• Projected Capacitive Touch Screen (Multitouch, USB interface)

Accessories
• HD CMB SX1-A2: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD CMB SX1-A3: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD TMB SX1-B1: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• JH 19TAP STD-C1: 1 x Frame Adp. (19'' Series 1 to Series X) retrofit
• HD 19TAP SX1-C2: 1 x Frame Adp. (19'' Series X to Series 2) retrofit
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• HD 19COV SX1-A1: 1 x UV Sun Cover

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 125.00 [49.21''] - Steering: 75.00 [29.53''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
NK - 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, EU-RO-MR - Mutual Recognition

19 INCH
HD 19T22 MMD

TFT Technology
LED Backlight Technology, TFT Active-matrix,
MVA (Multi-domain Vertical Alignment) Technology

Viewable Size and Active Area
19.0 inch - 376.32 [14.82''] (H) x 301.06 [11.85''] (V) mm [inch]

Native Resolution and Pixel Pitch
1280 x 1024 (SXGA) - 0.294 (H) x 0.294 (V) mm

Aspect Ratio and Response Time
5:4 - 20ms (typ)

Light Intensity and Contrast Ratio
Standard: 350 cd/m² (typ) - 1500:1 (typ)
High Bright: 1000 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors
Standard: 85 deg. (up/down/left/right)
High Bright: 89 deg. (up/down/left/right)
16.7 million

Optimal Resolution and Hz
1280 x 1024 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024

Composite Video Input(s)
Composite (BNC)

Supported Video Signals
Interlaced HDTV, NTSC, PAL and SECAM video, Composite Video

Product Features
Dimmable 0-100%, Multi-power AC & DC, PBP (Picture By Picture),
PIP (Picture In Picture)

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
Standard: 35W (max)
High Bright: 57W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Hotkeys (left/right), Mode Status Indicator (ECDIS, Service),
Buzzer (through glass), Light Sensor (behind glass)

Connectors
• 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: 2 x BNC Connector (female)
• SCOM RS-422/485: 2 x 5-pin Terminal Block 3.81, non-isolated+Buzzer
• VGA OUT: 1 x 15p HD D-SUB (female) - Clone of VGA IN
• SCOM+Touch: 1 x USB TYPE A Connector (female)
• Ethernet: 1 x RJ45 Connector for Remote Control
• SCOM RS-232: 1 x 9p D-SUB (female) non-isolated+Buzzer
• Potmeter/User: 1 x 9p D-SUB (male)
(Potentiometer IN, +5VDC OUT, BRT +/- IN)
• AC Power IN: 1 x Std IEC Inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:429.00 [16.89''] x H:382.00 [15.04''] x D:71.50 [2.81''] mm [inch]
Approx. 7.5kg / 16.5lbs

Product Carton Size and Weight
L:510.00 [20.08''] x W:195.00 [7.68''] x H:525.00 [20.67''] mm [inch]
Approx. 8.6kg / 18.9lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB, Pen/Glove support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)
• Sunlight Readable / High Bright (includes Optical Bonding)

Accessories
• HD CMB SX2-A1: 1 x Console Mount Kit. EN60945 Tested (pending)
• HD TMB SX2-A1: 1 x Table Mount Bracket. EN60945 Tested (pending)
• HD VED SX2-C1:1 x VESA Adapter (75/75, 100/100 & 200/100mm)
(not EN60945 Tested)
• JH 19TAP STD-C1: 1 x Frame Adp. (19'' Series 1 to Series X) retrofit
• HD 19TAP SX2-C2: 1 x Frame Adp. (19'' Series X to Series 2) retrofit
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• HD 19COV SX1-A1: 1 x UV Sun Cover
• P007131-1: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-30.0°C / -22.0°F to +70.0°C / +158.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 90.00 [35.43''] - Steering: 45.00 [17.72''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
EU-RO-MR - Mutual Recognition

24 INCH
HD 24T21 Standard

TFT Technology
LED Backlight Technology, Widescreen, RGB vertical stripe,
MVA (Multi-domain Vertical Alignment) Technology, TFT Active-matrix

Viewable Size and Active Area
24.0 inch - 531.36 [20.92''] (H) x 298.89 [11.77''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1080 (FHD) - 0.276 (H) x 0.276 (V) mm

Aspect Ratio and Response Time
16:9 - 25ms (typ)

Light Intensity and Contrast Ratio
300 cd/m² (typ) - 3000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1920 x 1080 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024,
1600 x 1200, 1920 x 1080*, 1920 x 1200
*Recommended, native resolution
Other resolutions will be scaled full screen, unit has no scaling support.

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Dimmable 0-100%, Multi-power AC & DC

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
40W (typ) - 125W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Mode Status Indicator (ECDIS, Service), Buzzer (not visible),
Light Sensor (not visible)

Connectors
• DVI IN: 1 x DVI-D 24P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
• SCOM RS-232: 1 x D-SUB 9P (female) non-isolated+Buzzer
• If Touchscreen: 1 x USB Type B (female). Use USB2.0 (<5m) port.
• AC Power IN: 1 x Std. IEC inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:593.00 [23.35''] x H:384.00 [15.12''] x D:70.00 [2.76''] mm [inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep
10.1kg / 22.2lbs

Product Carton Size and Weight
L:700.00 [27.56''] x W:180.00 [7.09''] x H:565.00 [22.24''] mm [inch]
12.9kg / 28.4lbs

Factory Options
• Optical Bonding Technology
• Color Calibrated models (ECDIS)
• Projected Capacitive Touch Screen (Multitouch, USB interface)

Accessories
• HD CMB SX1-B1: 1 x Console Mount Kit. EN60945 Tested
• HD TMB SX1-C1: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• HD 24COV SX1-A1: 1 x UV Sun Cover

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 125.00 [49.21''] - Steering: 75.00 [29.53''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
NK - 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, EU-RO-MR - Mutual Recognition

24 INCH
HD 24T22 MMD

TFT Technology
LED Backlight Technology, Widescreen, RGB vertical stripe,
MVA (Multi-domain Vertical Alignment) Technology, TFT Active-matrix

Viewable Size and Active Area
24.0 inch - 531.36 [20.92''] (H) x 298.89 [11.77''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1080 (FHD) - 0.276 (H) x 0.276 (V) mm

Aspect Ratio and Response Time
16:9 - 25ms (typ)

Light Intensity and Contrast Ratio
Standard: 300 cd/m² (typ) - 3000:1 (typ)
High Bright: 1000 cd/m² (typ) - 3000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1920 x 1080 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024,
1600 x 1200, 1920 x 1080, 1920 x 1200

Composite Video Input(s)
Composite (BNC)

Supported Video Signals
Interlaced HDTV, NTSC, PAL and SECAM video, Composite Video

Product Features
Dimmable 0-100%, Multi-power AC & DC, PBP (Picture By Picture),
PIP (Picture In Picture)

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
Standard: 51W (max)
High Bright: 68W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Hotkeys (left/right), Mode Status Indicators (ECDIS, Service),
Buzzer (through glass), Light Sensor (behind glass)

Connectors
• 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: 2 x BNC Connector (female)
• SCOM RS-422/485: 2 x 5-pin Terminal Block 3.81, non-isolated+Buzzer
• VGA OUT: 1 x 15p HD D-SUB (female) - Clone of VGA IN
• SCOM+Touch: 1 x USB TYPE A Connector (female)
• Ethernet: 1 x RJ45 Connector for Remote Control
• SCOM RS-232: 1 x 9p D-SUB (female) non-isolated+Buzzer
• Potmeter/User: 1 x 9p D-SUB (male)
(Potentiometer IN, +5VDC OUT, BRT +/- IN)
• AC Power IN: 1 x Std IEC Inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:593.00 [23.35''] x H:384.00 [15.12''] x D:70.00 [2.76''] mm [inch]
Weight: 8.6kg / 18.9lbs

Product Carton Size and Weight
L:700.00 [27.56''] x W:180.00 [7.09''] x H:565.00 [22.24''] mm [inch]
13.6kg / 29.9lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB, Pen/Glove support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)
• Sunlight Readable / High Bright (includes Optical Bonding)

Accessories
• HD CMB SX2-E1: 1 x Console Mount Kit. EN60945 Tested
• HD TMB SX1-C1: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX2-I1: 1 x VESA Adapter (100/100 & 200/100mm)
(not EN60945 Tested)
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• HD 24COV SX1-A1: 1 x UV Sun Cover
• P007032-1: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount

Capabilities / Prepared for
See factory options

Operating Temperature
-15.0°C / 5.0°F to +55.0°C / +131.0°F, Humidity up to 95%

Storage Temperature
-30.0°C / -22.0°F to +70.0°C / +158.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 140.00 [55.12''] - Steering: 85.00 [33.46''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
EU-RO-MR - Mutual Recognition

26 INCH
HD 26T21 Standard

TFT Technology
LED Backlight Technology, TFT Active-matrix, Widescreen,
S-MVA (Multi-domain Vertical Alignment) Technology,
RGB Vertical Stripe

Viewable Size and Active Area
25.54 inch - 550.08 [21.66''] mm (H) x 343.80 [13.54''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1200 (WUXGA) - 0.2865 (H) x 0.2865 (V) mm

Aspect Ratio and Response Time
16:10 - 20ms (Tr+Tf)

Light Intensity and Contrast Ratio
350 cd/m² (typ) - 1500:1 (typ)

View Angle / Max Colors
88 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1920 x 1200 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024,
1600 x 1200, 1920 x 1080, 1920 x 1200*
*Recommended, native resolution
Other resolutions will be scaled full screen, unit has no scaling support.

Composite Video Input(s)
None

Supported Video Signals
None

Product Features
Dimmable 0-100%, Multi-power AC & DC

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
51W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Mode Status Indicator (ECDIS, Service), Buzzer (not visible),
Light Sensor (not visible)

Connectors
• DVI IN: 1 x DVI-D 24P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
• SCOM RS-232: 1 x D-SUB 9P (female) non-isolated+Buzzer
• If Touchscreen: 1 x USB Type B (female). Use USB2.0 (<5m) port.
• AC Power IN: 1 x Std. IEC inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:621.00 [24.45''] x H:435.00 [17.13''] x D:98.20 [3.86''] mm [inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep
15.9kg / 35.0lbs

Product Carton Size and Weight
L:730.00 [28.74''] x W:200.00 [7.87''] x H:560.00 [22.05''] mm [inch]
18.5kg / 40.7lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch, USB interface)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)

Accessories
• HD CMB SX1-C1: 1 x Console Mount Kit. EN60945 Tested
• HD TMB SX1-C1: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• JH 26TAP STD-A1: 1 x Frame Adapter for Series 1 Cutout (retrofit)

Capabilities / Prepared for
See Factory Options

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 125.00 [49.21''] - Steering: 80.00 [31.50''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
NK - 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, EU-RO-MR - Mutual Recognition

26 INCH
HD 26T22 MMD

TFT Technology
LED Backlight Technology, TFT Active-matrix, Widescreen, RGB Vertical Stripe, S-MVA (Multi-domain Vertical Alignment) Technology

Viewable Size and Active Area
25.54 inch - 550.08 [21.66''] mm (H) x 343.80 [13.54''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1200 (WUXGA) - 0.2865 (H) x 0.2865 (V) mm

Aspect Ratio and Response Time
16:10 - 20ms (Tr+Tf)

Light Intensity and Contrast Ratio
350 cd/m² (typ) - 1500:1 (typ)

View Angle / Max Colors
88 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1920 x 1200 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024, 1600 x 1200, 1920 x 1080, 1920 x 1200

Composite Video Input(s)
Composite (BNC)

Supported Video Signals
Interlaced HDTV, NTSC, PAL and SECAM video, Composite Video

Product Features
Dimmable 0-100%, Multi-power AC & DC, PBP (Picture By Picture), PIP (Picture In Picture)

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
59W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+), Hotkeys (left/right), Mode Status Indicators (ECDIS, Service), Buzzer (through glass), Light Sensor (behind glass)

Connectors
• 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: 2 x BNC Connector (female)
• SCOM RS-422/485: 2 x 5-pin Terminal Block 3.81, non-isolated+Buzzer
• VGA OUT: 1 x 15p HD D-SUB (female) - Clone of VGA IN
• SCOM+Touch: 1 x USB TYPE A Connector (female)
• Ethernet: 1 x RJ45 Connector for Remote Control
• SCOM RS-232: 1 x 9p D-SUB (female) non-isolated+Buzzer
• Potmeter/User: 1 x 9p D-SUB (male)
(Potentiometer IN, +5VDC OUT, BRT +/- IN)
• AC Power IN: 1 x Std IEC Inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:621.00 [24.45''] x H:435.00 [17.13''] x D:92.20 [3.62''] mm [inch]
Weight: Approx. 15.0kg / 33.0lbs

Product Carton Size and Weight
L:730.00 [28.74''] x W:200.00 [7.87''] x H:560.00 [22.05''] mm [inch]
18.2kg / 40.0lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB, Pen/Glove support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)

Accessories
• HD CMB SX2-F1: 1 x Console Mount Kit. EN60945 Tested
• HD TMB SX1-C1: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX2-J1: 1 x VESA Adapter (100/100 & 200/100mm)
(not EN60945 Tested)
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• HD 26COV SX1-A1: 1 x UV Sun Cover
• JH 26TAP STD-A1: 1 x Frame Adapter for Series 1 Cutout (retrofit)
• P007178: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount

Capabilities / Prepared for
See factory options

Operating Temperature
-15.0°C / 5.0°F to +55.0°C / +131.0°F, Humidity up to 95%

Storage Temperature
-30.0°C / -22.0°F to +70.0°C / +158.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 190.00 [74.80''] - Steering: 110.00 [43.31''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
EU-RO-MR - Mutual Recognition

27 INCH
HD 27T22 MMD

TFT Technology
LED Backlight Technology, Color Active-matrix, Widescreen,
a-SI (amorphous silicon) Thin Film Transistor (TFT)

Viewable Size and Active Area
27.0 inch - 597.6 [23.53''] mm (H) x 336.15 [13.23''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1080 (FHD) - 0.31125 (H) x 0.31125 (V) mm

Aspect Ratio and Response Time
16:9 - : 12 ms (typical) (on/off)

Light Intensity and Contrast Ratio
300 cd/m² (typ) - 3000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1920 x 1080 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024,
1600 x 1200, 1920 x 1080, 1920 x 1200

Composite Video Input(s)
Composite (BNC)

Supported Video Signals
Interlaced HDTV, NTSC, PAL and SECAM video, Composite Video

Product Features
Dimmable 0-100%, Multi-power AC & DC, PBP (Picture By Picture),
PIP (Picture In Picture)

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
44W (max)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with:
Power On/Off, On Screen Display Menu, Brightness Control (-/+),
Hotkeys (left/right), Mode Status Indicators (ECDIS, Service),
Buzzer (through glass), Light Sensor (behind glass)

Connectors
• 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: 2 x BNC Connector (female)
• SCOM RS-422/485: 2 x 5-pin Terminal Block 3.81, non-isolated+Buzzer
• VGA OUT: 1 x 15p HD D-SUB (female) - Clone of VGA IN
• SCOM+Touch: 1 x USB TYPE A Connector (female)
• Ethernet: 1 x RJ45 Connector for Remote Control
• SCOM RS-232: 1 x 9p D-SUB (female) non-isolated+Buzzer
• Potmeter/User: 1 x 9p D-SUB (male)
(Potentiometer IN, +5VDC OUT, BRT +/- IN)
• AC Power IN: 1 x Std IEC Inlet
• DC Power IN: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:650.00 [25.59''] x H:437.00 [17.20''] x D:69.50 [2.74''] mm [inch]
Approx. 12.0kg / 26.4lbs

Product Carton Size and Weight
L:765.00 [30.12''] x W:190.00 [7.48''] x H:615.00 [24.21''] mm [inch]
Approx. 13.3kg / 29.3lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB, Pen/Glove support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)

Accessories
• HD CMB SX2-E1: 1 x Console Mount Kit. EN60945 Tested
• HD TMB SX1-C1: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX2-K1: 1 x VESA Adapter (100/100 & 200/100mm)
(not EN60945 Tested)
• HD REM SX1-A1: 1 x External Remote Control, EN60945 Tested
• HD 27COV SX1-A1: 1 x UV Sun Cover
• P018743: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount

Capabilities / Prepared for
See factory options

Operating Temperature
-15.0°C / 5.0°F to +55.0°C / +131.0°F, Humidity up to 95%

Storage Temperature
-30.0°C / -22.0°F to +70.0°C / +158.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 190.00 [74.80''] - Steering: 110.00 [43.31''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10,
EU-RO-MR - Mutual Recognition

GLASS DISPLAY CONTROL™

EXTERNAL REMOTE CONTROL FOR DISPLAYS

The remote controller enables the control of Series X (Generation 1) and Series X G2 (Generation 2) including the Multi Vision Display range (MVD) by providing instant key-pad functionality over RS-485/422 bus through the Hatteland Display SCOM Protocol.

The remote controller is a console mounting module, which through its three push buttons allows user interaction for the 6 key feature sets widely used (Brightness +, Brightness -, Menu, Navigation <, Navigation > and Power ON/OFF).
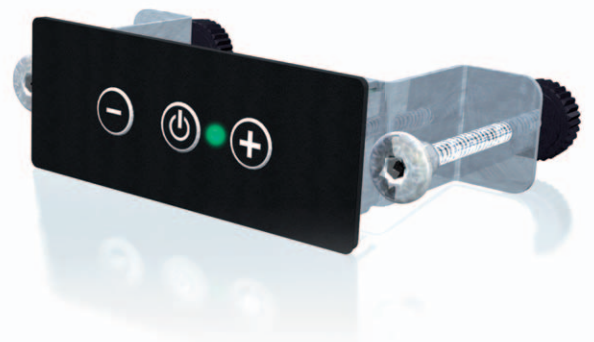
PANEL COMPUTERS SERIES E

Series E is the new cost effective Panel Computers portfolio from Hatteland Display. Designed for 10 years manufacturing, all Series E Panel Computers integrate Intel® Apollo Lake processor-based computers, high quality display technology, fan-less design and low power consumption to deliver a fast, reliable all-in-one solution for diverse maritime applications.

The integrated nature of Series E Panel Computers enables tangible cost savings for maritime technology and equipment manufacturers as well as systems integrators. The portfolio features a range of display sizes, new data storage technology and a number of IO options, providing full flexibility to integrate the highest quality displays in a wider range of maritime technology.
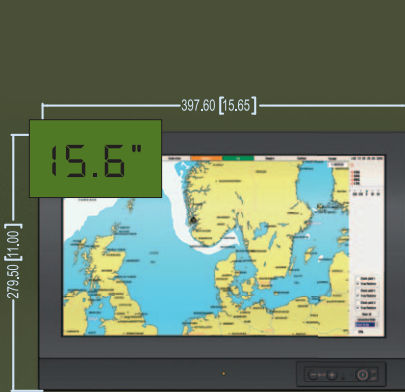
Especially suited to developing new bridge solutions, Series E Panel Computers make it possible to continue improving safety and efficiency through safe navigation, while still retaining focus on quality and cost. Ensuring that high operational continuity supports the lower lifecycle costs, Series E Panel Computers also meet the same extreme quality standards as the proven Series X Panel Computer range.

COMING
to Nor-Shipping 2019 !
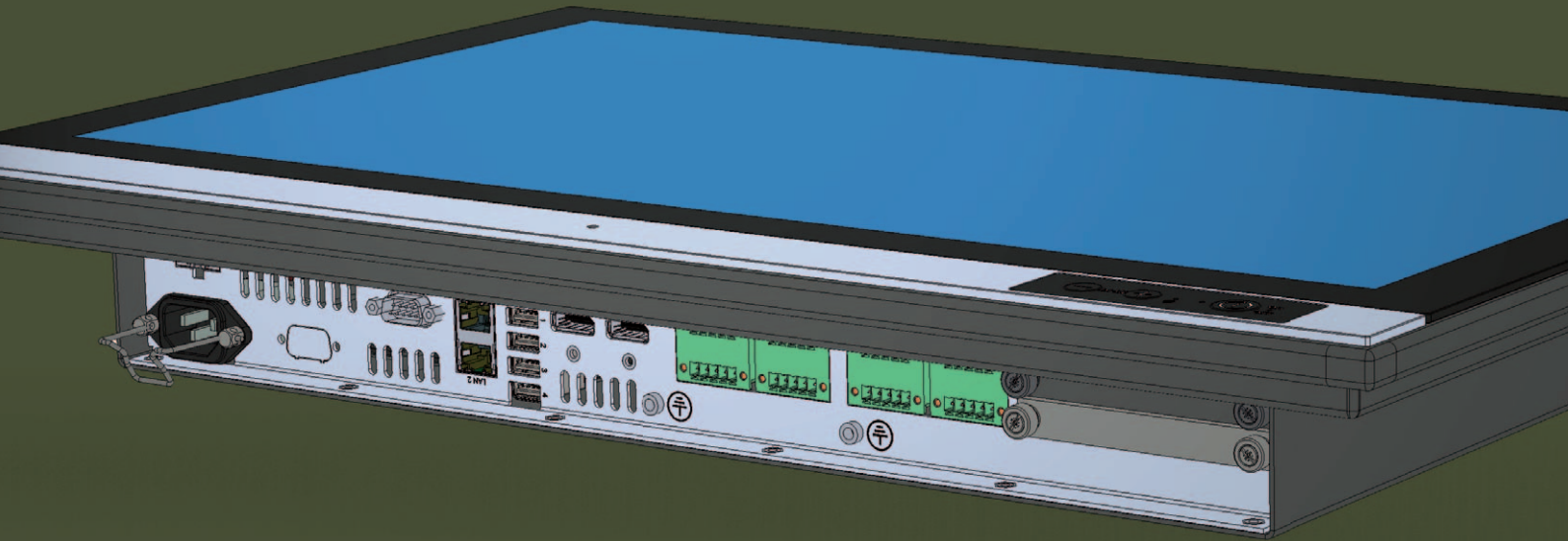
HIGHLIGHTS - SERIES E

- Low power, Wide temperature, Extended lifetime (10+ years)
- Quad core CPU 1.6/2.0 GHz
- Single and/or Dual channel RAM 1600MHz, up to 8GB
- Intel® HD Graphics 505, 173 GFLOPS (Dual precision float), MAX 2GB RAM
- Dual head graphical output 4K @ 60Hz, Direct X 12 OpenGL 4.5 OpenCL 2
- 2.5"/m.2 SATA/NVMe (Future proof) SSD
- Onboard 32GB eMMC (SSD)
- Support for wide range of HD expansion I/O modules
- AC or multipower (AC and DC 24V)
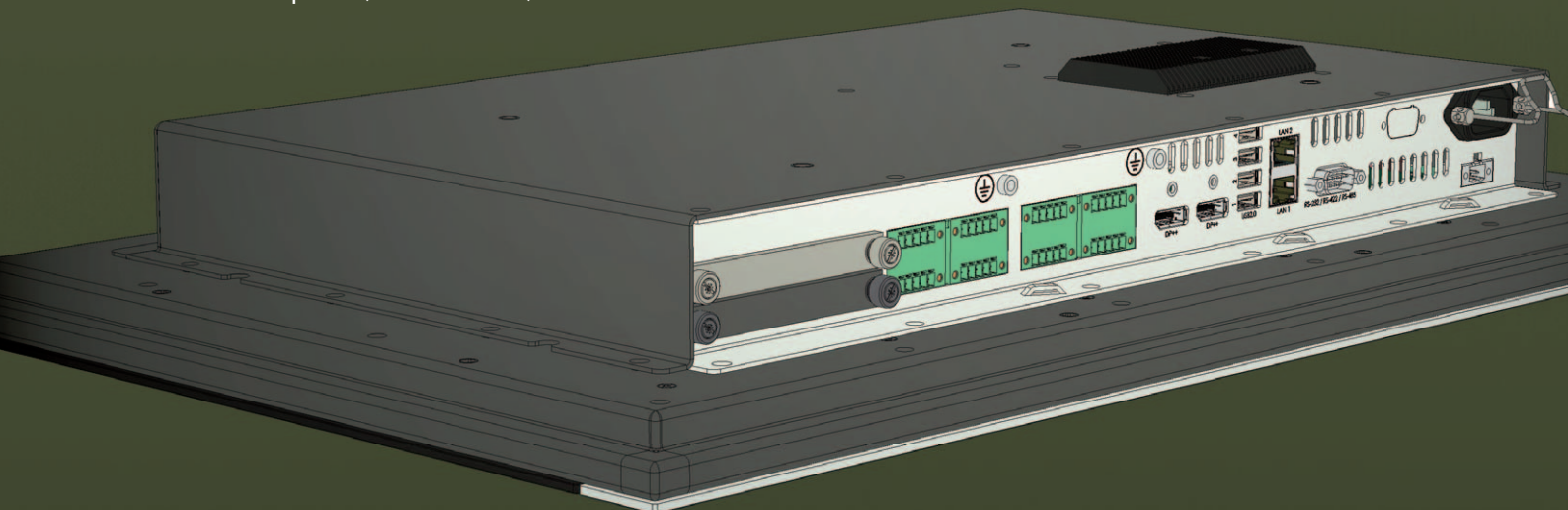
PANEL COMPUTERS SERIES X G2 (GENERATION 2)

The innovative second generation Series X Panel Computers portfolio integrates powerful Intel® Skylake processor-based computers, high quality display technology and advanced video processing, the second generation Series X G2 Panel Computers are the most powerful all-in-one computer/display solution available for maritime technology manufacturers and systems integrators available today.

The integrated nature of the second generation Series X Panel Computers also enables tangible cost savings for equipment manufacturers and systems integrators. The new Panel Computers provide the same power and picture quality as a standard display and separate PC configuration, but with lower capital expenditure (relative to purchase of separate displays and computers) and installation costs, they can be used as the basis of cost reduction programs. This makes it possible for technology integrators to continue improving vital bridge applications while still retaining focus on cost for their partners and end-customers.

The expansion of the second generation Series X portfolio to include larger Panel Computer models provides more flexibility for equipment manufacturers to utilise the most powerful computers and highest quality displays in a wider range of vessel technology, especially on the bridge.

- INTEL® QUAD CORE I5-6500TE 2.3GHZ/3.3GHZ
  OR 1 X INTEL® QUAD CORE™ I7-7700T, 2.9/3.8GHZ
  OR 1 X INTEL® DUAL CORE CELERON™ G3900TE, 2.3/2.3GHZ
- INTEL® GL82Q170 PCH SYSTEM CHIPSET
- INTEL® HD GRAPHICS CHIPSET (510/530/630)
- DIRECTX 12, OPENGL 4.4, OPENCL 2.0
- DUAL CHANNEL DDR4 RAM - MAX 32GB
- 5 X ETHERNET GBLAN PORTS
- 9 X COM ISOLATED PORTS
- 1 X DISPLAYPORT OUT (MAX 4096 X 2304@60HZ)

NEW

8 INCH
HD 08T30 MMC
RetroFit HD 07T22

TFT Technology
LED Backlight Technology, a-si TFT Active Matrix, Widescreen

Viewable Size and Active Area
8.0 inch - 176.64 [6.95''] (H) x 99.36 [3.91''] (V) mm [inch]

Native Resolution and Pixel Pitch
800 x 480 (WVGA) - 0.2208 (H) x 0.2208 (V) mm

Aspect Ratio and Response Time
5:3 - 25ms (typ) (Tr+Tf)

Light Intensity and Contrast Ratio
600 cd/m² (typ) - 500:1 (typ)

View Angle / Max Colors
85 deg. (up/down/left/right) - 16.7 million (24bit)

Optimal Resolution and Hz
800 x 480 @ 60 Hz (If resolution is above/below 1:1, desktop scrolling mode will be used)

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 480

Power Specifications and Consumption
9-32 VDC
15W (typ) - 20W (max)

Product Features
MULTITOUCH (Projected Capacitive Technology), Compact Design, Solid State Fanless Construction, No Moving Parts, API Support, Embedded light sensor, Buzzer, SCOM, AG Coated Front Glass, USB/RJ45 Dust Covers, USB Cable Support Bracket, Console Mounting Bracket Kit. Model is 100% retrofit compatible with HD 07T22 MMC

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
1 x 32GB eMMC (Default). Additional internal storage: m.2 (240GB ->)

CPU / Processor Options
1 x Intel Atom® x5-E3930 Processor, 2M Cache, up to 1.80 GHz

Memory Options
1 x 2GB (DDR3L SO-DIMM, Single Channel) or
1 x 4GB, 8GB (DDR3L SO-DIMM, Dual Channel)

System Chipset / Graphics Chipset
Intel® SOC / Intel® HD Graphics 500

BIOS / Speaker / Buzzer
AMI BIOS (supports ACPI) / Buzzer according to EN60945

Power Manager and Monitoring
RTC (0.5s/day), Battery Alarm, TPM2.0, GPIO, WakeOnLan,
Fast Boot, AT mode, USB Boot.
WatchDog Timer: 256 segments, 0, 1, 2...255 sec/min)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with 3 x Configurable buttons, Programmable Status RGB LED, Buzzer (through glass), Light Sensor (behind glass)

Connectors
• USB2.0 (<5m): 4 x Type A
• Ethernet GBLAN 10/100/1000Mbps: 2 x RJ45
• Power: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:228.80 [9.01''] x H:156.60 [6.17''] x D:75.10 [2.96''] mm [inch]
Approx. 1.7kg / 3.7lbs

Product Carton Size and Weight
L:320.00 [12.60''] x W:195.00 [7.68''] x H:265.00 [10.43''] mm [inch]
TBD kg / TBD lbs

Factory Options
• HD-IO Board with 2 x CAN (M12, NMEA2000 connector),
4 x RS422/RS485 (NMEA183), 2 x Digital IN, 2 x Digital Out,
1 x Audio (Amplified+Line In&Out) DB9F
• Optical Bonding Technology
• Variations of SSD m.2 Storage, RAM Memory, Operating System

Accessories
None

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP2x rear (EN60529) TBD

Compass Safe Distance
Standard: TBD - Steering: TBD cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002)*, IACS E10*,
EU-RO-MR - Mutual Recognition*
*=pending

Additional information:
• Optional Model : On engine -20 to 70C, 4grms, Chassis Fan,
ATEX C1D2 and UL certification

NEW

13 INCH
HD 13T30 MMC
RetroFit HD 13T21 / HD 13T22

TFT Technology
LED Backlight Technology, a-si TFT Active Matrix, Widescreen

Viewable Size and Active Area
13.3 inch - 293.76 [11.57''] (H) x 165.24 [6.51''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1080 (FHD) - 0.153 (H) x 0.153 (V) mm

Aspect Ratio and Response Time
16:9 - 25ms (typ) (Tr+Tf)

Light Intensity and Contrast Ratio
600 cd/m² (typ) - 700:1 (typ)

View Angle / Max Colors
85 deg. (up/down/left/right) - 16.7 million (24bit)

Optimal Resolution and Hz
1920 x 1080 @ 60 Hz (If resolution is above/below 1:1,
desktop scrolling mode will be used)

Detectable Resolutions
From 640 x 480 to 1920 x 1080

Power Specifications and Consumption
9-32VDC
15W (typ) - 20W (max)

Product Features
MULTITOUCH (Projected Capacitive Technology), Compact Design,
Solid State Fanless Construction, No Moving Parts, API Support,
Embedded light sensor, Buzzer, SCOM, AG Coated Front Glass,
USB/RJ45 Dust Covers, USB Cable Support Bracket, Console Mounting
Bracket Kit. Model is 100% retrofit compatible with HD 13T21/22 MMC

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
1 x 32GB eMMC (Default). Additional internal storage: m.2 (240GB ->)

CPU / Processor Options
1 x Intel Atom® x5-E3930 Processor, 2M Cache, up to 1.80 GHz

Memory Options
1 x 2GB (DDR3L SO-DIMM, Single Channel) or
1 x 4GB, 8GB (DDR3L SO-DIMM, Dual Channel)

System Chipset / Graphics Chipset
Intel® SOC / Intel® HD Graphics 500

BIOS / Speaker / Buzzer
AMI BIOS (supports ACPI) / Buzzer according to EN60945

Power Manager and Monitoring
RTC (0.5s/day), Battery Alarm, TPM2.0, GPIO, WakeOnLan,
Fast Boot, AT mode, USB Boot.
WatchDog Timer: 256 segments, 0, 1, 2...255 sec/min)

User Controls and Activity
Glass Display Control™ (GDC) IP66 with 3 x Configurable buttons,
Programmable Status RGB LED, Buzzer (through glass),
Light Sensor (behind glass)

Connectors
• USB2.0 (<5m): 4 x Type A
• Ethernet GBLAN 10/100/1000Mbps: 2 x RJ45
• Power: 1 x 2-pin Terminal Block 5.08

Product Dimensions and Weight
W:355.00 [13.98''] x H:248.50 [9.78''] x D:78.30 [3.08''] mm [inch]
2.9kg / 6.3lbs

Product Carton Size and Weight
L:445.00 [17.52''] x W:195.00 [7.68''] x H:355.00 [13.98''] mm [inch]
TBD kg / TBD lbs

Factory Options
• HD-IO Board with 2 x CAN (M12, NMEA2000 connector),
4 x RS422/RS485 (NMEA183), 2 x Digital IN, 2 x Digital Out,
1 x Audio (Amplified+Line In&Out) DB9F
• Optical Bonding Technology
• Variations of SSD m.2 Storage, RAM Memory, Operating System

Accessories
None

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP2x rear (EN60529) TBD

Compass Safe Distance
Standard: TBD - Steering: TBD cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002)*, IACS E10*,
EU-RO-MR - Mutual Recognition*
*=pending

Additional information:
• Optional Model : On engine -20 to 70C, 4grms, Chassis Fan,
ATEX C1D2 and UL certification

NEW

19 INCH
HD 19T22 MMC

TFT Technology
LED Backlight Technology, TFT Active-matrix liquid crystal panel, MVA (Multi-domain Vertical Alignment) Technology

Viewable Size and Active Area
19.0 inch - 376.32 [14.82''] (H) x 301.056 [11.85''] (V) mm [inch]

Native Resolution and Pixel Pitch
1280 x 1024 (SXGA) - 0.294 (H) x 0.294 (V) mm

Aspect Ratio and Response Time
5:4 - 20ms (typ)

Light Intensity and Contrast Ratio
350 cd/m² (typ) - 1500:1 (typ)

View Angle / Max Colors
85 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1280 x 1024 @ 60 Hz (If resolution is above/below 1:1, desktop scrolling mode will be used)

Detectable Resolutions
640 x 480 to 4096 x 2304

Power Specifications and Consumption
Multipower 100-240V AC - 50/60Hz+ 24VDC
78.4W (typ) - 93W (max+max additional load)

Product Features
Dimmable 0-100%, Buzzer, Multi-power AC & DC, GPIO, LAN Wakeup, USB Boot & Wakeup

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
Internal Storage: 1 x SSD MLC SATA, Type m.2
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
and/or
2 x 2.5' ' Removable Tray. Option: 1 or 2 can be installed of:
SSD SATA (Multi Level)
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))

CPU / Processor Options
1 x Intel® Quad Core™ i5-6500TE, 2.3/3.3GHz, 6MB Cache
or 1 x Intel® Quad Core™ i7-7700T*, 2.9/3.8GHz, 8MB Cache
or 1 x Intel® Dual Core Celeron™ G3900TE, 2.3/2.3GHz, 2MB Cache
*Supported only by Windows® 10 IoT Enterprise

Memory Options
2 x 4GB, 8GB, 16GB (260-pin, DDR4-2133, Dual Channel)
Max 32GB (2x16GB)

System Chipset / Graphics Chipset
Intel® GL82Q170 PCH /
i5-6500TE CPU: Intel® HD Graphics 530
G3900TE CPU: Intel® HD Graphics 510
i7-7700T CPU: Intel® HD Graphics 630

BIOS / Speaker / Buzzer
EFI, ACPI Support. Preconfigured by factory / Buzzer: 3500Hz
Onboard PC-Beeper

Power Manager and Monitoring
AT, ACPI (S3/S4) - Temperature, Fan and voltages status
256 Segments, 0, 1, 2...255 sec/min

User Controls and Activity
Glass Display Control™ (GDC) IP66 with: Power On/Off, Brightness Control (-/+), Power LED, Mode Status Indicators (ECDIS, HDD, Service), Buzzer (through glass), Light Sensor (behind glass)

Connectors
• Ethernet GBLan: 5 x RJ-45
• COM RS-232 & 422/485: 1 x DB9M non-isolated (RS mode in BIOS)
• USB2.0 (<5m): 2 x USB Type A (4-pin)
• USB3.0 (<3m): 2 x USB Type A (9-pin)
• DP++ 1.2 OUT: 1 x DisplayPort Female (Dual-Mode DP++)
• AC Power IN: 1 x Std IEC inlet
• Power IN: 1 x 2-pin Terminal Block 5.08
• If SSD Trays option: 2 x 2.5'' Sized Tray/Bay (Factory option)

Product Dimensions and Weight
W:429.00 [16.89''] x H:382.00 [15.04''] x D:81.50 [3.21''] mm [inch]
Approx. 8.5kg / 18.7lbs

Product Carton Size and Weight
L:510.00 [20.08''] x W:195.00 [7.68''] x H:525.00 [20.67''] mm [inch]
Approx. TBDkg / TBDlbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB,Pen/Glove support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)
• Variations of SSD Storage, RAM Memory, Operating System, CPU
• 1 x PCA100293-1: 4xCOM RS-422/485 isolated NMEA 4 channel*
• 1 x ZIA0001310-B: CAN isolated 2 channel or 2 x 4 channel*
• 1 x PCA100297-1: Isolated Digital IO module,4 x Output/4 x Input*
• 1 x PCA100298-1: LAN 10/100Mbps, 2 ports RJ45*
• 1 or 2 x PCA100309-1: Dual Isolated RS-232, 2xDB9 module*
• 1 x HT 00235 OPT-A1: 2W Amplified Audio out via DB9F
• 1 x Q170 IO: 1xNMEA RS422/485 isol.+2xDig. In&Out (Low Side switch)
*Only one Option can be factory installed at the same time.

Accessories
• JH C01MF A-A: 1 x USB Cable 1m, TypeA-Chassis mount receptacle
• HD CMB SX2-A1: 1 x Console Mount Kit. EN60945 Tested
• HD TMB SX2-A1: 1 x Table Mount Bracket. EN60945 Tested
• HD VED SX2-C1: 1 x VESA Adapter Kit (75/75, 100/100 & 200/100mm)
• JH 19TAP STD-C1: 1 x Frame Adapter (19'' Series 1 to Series X) retrofit
• HD 19TAP SX2-C2: 1 x Frame Adapter (19'' Series X to Series 2) retrofit
• HD 19COV SX1-A1: 1 x UV Sun Cover
• P007031-1: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HT 00300 MSOS: OS options -> http://www.hatteland-display.com/os
• HD 000TR SX2-A2: 1 x Removable Front Tray 2.5'' Empty
• HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5'' w/Storage Device

Capabilities / Prepared for
See Factory Options

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529). IP22=option

Compass Safe Distance
Standard: 85.00 [33.46''] - Steering: 55.00 [21.65''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
EU-RO-MR - Mutual Recognition
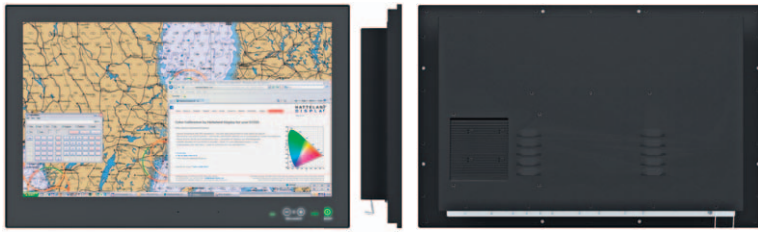
24 INCH
HD 24T22 MMC

TFT Technology
LED Backlight Technology, Widescreen, RGB vertical stripe,
MVA (Multi-domain Vertical Alignment) Technology, TFT Active-matrix

Viewable Size and Active Area
24.0 inch - 531.36 [20.92''] (H) x 298.89 [11.77''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1080 (FHD) - 0.276 (H) x 0.276 (V) mm

Aspect Ratio and Response Time
16:9 - 25ms (typ)

Light Intensity and Contrast Ratio
300 cd/m² (typ) - 3000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1920 x 1080 @ 60 Hz (If resolution is above/below 1:1, desktop scrolling mode will be used)

Detectable Resolutions
640 x 480 to 4096 x 2304

Power Specifications and Consumption
115&230VAC - 50/60Hz
or Multipower: 115&230VAC - 50/60Hz + 24VDC
88W (typ) - 106W (max)

Product Features
Dimmable 0-100%, Buzzer, Multi-power AC & DC, GPIO, LAN Wakeup, USB Boot & Wakeup

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
Internal Storage: 1 x SSD MLC SATA, Type m.2
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
and/or
2 x 2.5'' Removable Tray. Option: 1 or 2 can be installed of:
SSD SATA (Multi Level)
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))

CPU / Processor Options
1 x Intel® Quad Core™ i5-6500TE, 2.3/3.3GHz, 6MB Cache
or 1 x Intel® Quad Core™ i7-7700T*, 2.9/3.8GHz, 8MB Cache
or 1 x Intel® Dual Core Celeron™ G3900TE, 2.3/2.3GHz, 2MB Cache
*Supported only by Windows® 10 IoT Enterprise

Memory Options
2 x 4GB, 8GB, 16GB (260-pin, DDR4-2133, Dual Channel)
Max 32GB (2x16GB)

System Chipset / Graphics Chipset
Intel® GL82Q170 PCH /
i5-6500TE CPU: Intel® HD Graphics 530
G3900TE CPU: Intel® HD Graphics 510
i7-7700T CPU: Intel® HD Graphics 630

BIOS / Speaker / Buzzer
EFI, ACPI Support. Preconfigured by factory / Buzzer: 3500Hz
Onboard PC-Beeper

Power Manager and Monitoring
AT, ACPI (S3/S4) - Temperature, Fan and voltages status
256 Segments, 0, 1, 2...255 sec/min

User Controls and Activity
Glass Display Control™ (GDC) IP66 with: Power On/Off, Brightness
Control (-/+), Power LED, Mode Status Indicators (ECDIS, HDD, Service),
Buzzer (through glass), Light Sensor (behind glass)

Connectors
• Ethernet GBLan: 5 x RJ-45
• COM RS-232 & 422/485: 1 x DB9M non-isolated (RS mode in BIOS)
• USB2.0 (<5m): 2 x USB Type A (4-pin)
• USB3.0 (<3m): 2 x USB Type A (9-pin)
• DP++ 1.2 OUT: 1 x DisplayPort Female (Dual-Mode DP++)
• AC Power IN: 1 x Std IEC inlet
• If DC Power IN option: 1 x 2-pin Terminal Block 5.08 (Factory option)
• If SSD Trays option: 2 x 2.5'' Sized Tray/Bay (Factory option)

Product Dimensions and Weight
W:593.00 [23.35''] x H:384.00 [15.12''] x D:73.50 [2.89''] mm [inch]
Approx. 10.0kg / 22.0lbs

Product Carton Size and Weight
L:700.00 [27.56''] x W:180.00 [7.09''] x H:565.00 [22.24''] mm [inch]
Approx. 11.5kg / 25.3lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB,Pen/Glove support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)
• Multipower (AC+DC) or AC only model
• Model with 2 x physical 2.5'' removeable Disk Bay/Tray
• Variations of SSD Storage, RAM Memory, Operating System, CPU
• 1 or 2 x PCA100293-1: 4xCOM RS-422/485 isolated NMEA 4 channel
• 1 x ZIA0001310-B: CAN isolated 2 channel or 2 x 4 channel
• 1 x HT 00235 OPT-A1: 2W Amplified Audio out via DB9F
• 1 x PCA100297-1: Isolated Digital IO module,4 x Output/4 x Input
• 1 x PCA100298-1: LAN 10/100Mbps, 2 ports RJ45
• 1, or 2 x PCA100309-1: Dual Isolated RS-232, 2xDB9 module
• 1 x Q170 IO: 1xNMEA RS422/485 isol.+2xDig. In&Out (Low Side switch)

Accessories
• JH C01MF A-A: 1 x USB Cable 1m, TypeA-Chassis mount receptacle
• HD VED SX2-I1: 1 x VESA Adapter (100/100 & 200/100mm)
(not EN60945 Tested)
• HD TMB SX1-C1: 1 x Table Mount Bracket. EN60945 Tested
• HD CMB SX2-E1: 1 x Console Mount Kit. EN60945 Tested
• HD 24COV SX1-A1: 1 x UV Sun Cover
• P007032: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HT 00300 MSOS: OS options -> http://www.hatteland-display.com/os
• HD 000TR SX2-A2: 1 x Removable Front Tray 2.5'' Empty
• HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5'' w/Storage Device

Capabilities / Prepared for
See Factory Options

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529). IP22=option

Compass Safe Distance
Standard: 140.00 [55.12''] - Steering: 85.00 [33.46''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
EU-RO-MR - Mutual Recognition

NEW

24 INCH
HD 24T23 MMC

TFT Technology
LED Backlight Technology, Widescreen, RGB vertical stripe, MVA (Multi-domain Vertical Alignment) Technology, TFT Active-matrix

Viewable Size and Active Area
23.80 inch - 527.04 [20.75''] (H) x 296.46 [11.67''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1080 (FHD) - 0.274.5 (H) x 0.274.5 (V) mm

Aspect Ratio and Response Time
16:9 - 14ms (typ)

Light Intensity and Contrast Ratio
250 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1920 x 1080 @ 60 Hz (If resolution is above/below 1:1, desktop scrolling mode will be used)

Detectable Resolutions
640 x 480 to 4096 x 2304

Power Specifications and Consumption
115&230VAC - 50/60Hz
or Multipower: 115&230VAC - 50/60Hz + 24VDC
74W (typ) - 101W (max)

Product Features
Dimmable 0-100%, Buzzer, Multi-power AC & DC, GPIO, LAN Wakeup, USB Boot & Wakeup

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
Internal Storage: 1 x SSD MLC SATA, Type m.2
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
and/or
2 x 2.5'' Removable Tray. Option: 1 or 2 can be installed of:
SSD SATA (Multi Level)
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))

CPU / Processor Options
1 x Intel® Quad Core™ i5-6500TE, 2.3/3.3GHz, 6MB Cache
or 1 x Intel® Quad Core™ i7-7700T*, 2.9/3.8GHz, 8MB Cache
or 1 x Intel® Dual Core Celeron™ G3900TE, 2.3/2.3GHz, 2MB Cache
*Supported only by Windows® 10 IoT Enterprise

Memory Options
2 x 4GB, 8GB, 16GB (260-pin, DDR4-2133, Dual Channel)
Max 32GB (2x16GB)

System Chipset / Graphics Chipset
Intel® GL82Q170 PCH /
i5-6500TE CPU: Intel® HD Graphics 530
G3900TE CPU: Intel® HD Graphics 510
i7-7700T CPU: Intel® HD Graphics 630

BIOS / Speaker / Buzzer
EFI, ACPI Support. Preconfigured by factory / Buzzer: 3500Hz
Onboard PC-Beeper

Power Manager and Monitoring
AT, ACPI (S3/S4) - Temperature, Fan and voltages status
256 Segments, 0, 1, 2...255 sec/min

User Controls and Activity
Glass Display Control™ (GDC) IP66 with: Power On/Off, Brightness Control (-/+), Power LED, Mode Status Indicators (ECDIS, HDD, Service), Buzzer (through glass), Light Sensor (behind glass)

Connectors
• Ethernet GBLan: 5 x RJ-45
• COM RS-232 & 422/485: 1 x DB9M non-isolated (RS mode in BIOS)
• USB2.0 (<5m): 2 x USB Type A (4-pin)
• USB3.0 (<3m): 2 x USB Type A (9-pin)
• DP++ 1.2 OUT: 1 x DisplayPort Female (Dual-Mode DP++)
• AC Power IN: 1 x Std IEC inlet
• If DC Power IN option: 1 x 2-pin Terminal Block 5.08 (Factory option)
• If SSD Trays option: 2 x 2.5'' Sized Tray/Bay (Factory option)

Product Dimensions and Weight
W:593.00 [23.35''] x H:384.00 [15.12''] x D:73.50 [2.89''] mm [inch]
Approx. 10.0kg / 22.0lbs

Product Carton Size and Weight
L:700.00 [27.56''] x W:180.00 [7.09''] x H:565.00 [22.24''] mm [inch]
Approx. 11.5kg / 25.3lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB,Pen/Glove support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)
• Multipower (AC+DC) or AC only model
• Model with 2 x physical 2.5'' removeable Disk Bay/Tray
• Variations of SSD Storage, RAM Memory, Operating System, CPU
• 1 or 2 x PCA100293-1: 4xCOM RS-422/485 isolated NMEA 4 channel
• 1 x ZIA0001310-B: CAN isolated 2 channel or 2 x 4 channel
• 1 x HT 00235 OPT-A1: 2W Amplified Audio out via DB9F
• 1 x PCA100297-1: Isolated Digital IO module,4 x Output/4 x Input
• 1 x PCA100298-1: LAN 10/100Mbps, 2 ports RJ45
• 1, or 2 x PCA100309-1: Dual Isolated RS-232, 2xDB9 module
• 1 x Q170 IO: 1xNMEA RS422/485 isol.+2xDig. In&Out (Low Side switch)

Accessories
• JH C01MF A-A: 1 x USB Cable 1m, TypeA-Chassis mount receptacle
• HD VED SX2-H1: 1 x VESA Adapter (75/75, 100/100 & 200/100mm) (not EN60945 Tested)
• HD TMB SX1-C1: 1 x Table Mount Bracket. EN60945 Tested
• HD CMB SX2-E1: 1 x Console Mount Kit. EN60945 Tested
• HD 24COV SX1-A1: 1 x UV Sun Cover
• P007032: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HT 00300 MSOS: OS options -> http://www.hatteland-display.com/os
• HD 000TR SX2-A2: 1 x Removable Front Tray 2.5'' Empty
• HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5'' w/Storage Device

Capabilities / Prepared for
See Factory Options

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
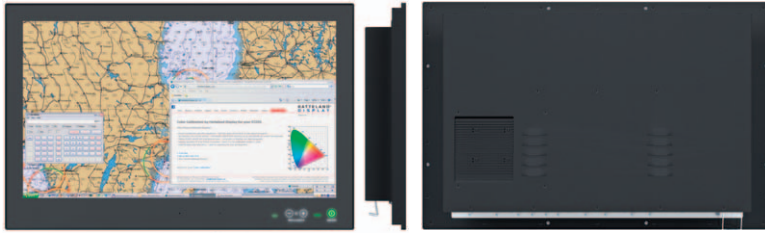-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529). IP22=option

Compass Safe Distance
Standard: 160.00 [62.99''] - Steering: 110.00 [43.31''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
EU-RO-MR - Mutual Recognition*
*=pending
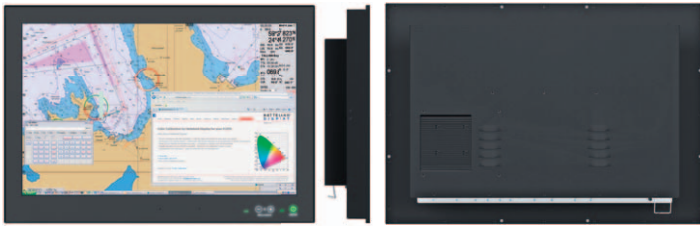
26 INCH
HD 26T22 MMC

TFT Technology
LED Backlight Technology, TFT Active-matrix, Widescreen,
S-MVA (Multi-domain Vertical Alignment) Technology,
RGB Vertical Stripe

Viewable Size and Active Area
25.54 inch - 550.08 [21.66''] mm (H) x 343.80 [13.54''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1200 (WUXGA) - 0.2865 (H) x 0.2865 (V) mm

Aspect Ratio and Response Time
16:10 - 20ms (Tr+Tf)

Light Intensity and Contrast Ratio
350 cd/m² (typ) - 1500:1 (typ)

View Angle / Max Colors
88 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1920 x 1200 @ 60 Hz (If resolution is above/below 1:1, desktop scrolling
mode will be used)

Detectable Resolutions
640 x 480 to 4096 x 2304

Power Specifications and Consumption
115&230VAC - 50/60Hz
or Multipower: 115&230VAC - 50/60Hz + 24VDC
79W (typ) - 110W (max)

Product Features
Dimmable 0-100%, Buzzer, Multi-power AC & DC, GPIO, LAN Wakeup,
USB Boot & Wakeup

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
Internal Storage: 1 x SSD MLC SATA, Type m.2
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
and/or
2 x 2.5' ' Removable Tray. Option: 1 or 2 can be installed of:
SSD SATA (Multi Level)
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))

CPU / Processor Options
1 x Intel® Quad Core™ i5-6500TE, 2.3/3.3GHz, 6MB Cache
or 1 x Intel® Quad Core™ i7-7700T*, 2.9/3.8GHz, 8MB Cache
or 1 x Intel® Dual Core Celeron™ G3900TE, 2.3/2.3GHz, 2MB Cache
*Supported only by Windows® 10 IoT Enterprise

Memory Options
2 x 4GB, 8GB, 16GB (260-pin, DDR4-2133, Dual Channel)
Max 32GB (2x16GB)

System Chipset / Graphics Chipset
Intel® GL82Q170 PCH /
i5-6500TE CPU: Intel® HD Graphics 530
G3900TE CPU: Intel® HD Graphics 510
i7-7700T CPU: Intel® HD Graphics 630

BIOS / Speaker / Buzzer
EFI, ACPI Support. Preconfigured by factory / Buzzer: 3500Hz
Onboard PC-Beeper

Power Manager and Monitoring
AT, ACPI (S3/S4) - Temperature, Fan and voltages status
256 Segments, 0, 1, 2...255 sec/min

User Controls and Activity
Glass Display Control™ (GDC) IP66 with: Power On/Off, Brightness
Control (-/+), Power LED, Mode Status Indicators (ECDIS, HDD, Service),
Buzzer (through glass), Light Sensor (behind glass)

Connectors
• Ethernet GBLan: 5 x RJ-45
• COM RS-232 & 422/485: 1 x DB9M non-isolated (RS mode in BIOS)
• USB2.0 (<5m): 2 x USB Type A (4-pin)
• USB3.0 (<3m): 2 x USB Type A (9-pin)
• DP++ 1.2 OUT: 1 x DisplayPort Female (Dual-Mode DP++)
• AC Power IN: 1 x Std IEC inlet
• If DC Power IN option: 1 x 2-pin Terminal Block 5.08 (Factory option)
• If SSD Trays option: 2 x 2.5'' Sized Tray/Bay (Factory option)

Product Dimensions and Weight
W:621.00 [24.45''] x H:435.00 [17.13''] x D:95.50 [3.76''] mm [inch]
Approx. 15.0kg / 33.0lbs

Product Carton Size and Weight
L:730.00 [28.74''] x W:200.00 [7.87''] x H:560.00 [22.05''] mm [inch]
TBD kg / TBD lbs (pending)

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB,Pen/Glove support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)
• Multipower (AC+DC) or AC only model
• Model with 2 x physical 2.5'' removeable Disk Bay/Tray
• Variations of SSD Storage, RAM Memory, Operating System, CPU
• 1 or 2 x PCA100293-1: 4xCOM RS-422/485 isolated NMEA 4 channel
• 1 x ZIA0001310-B: CAN isolated 2 channel or 2 x 4 channel
• 1 x HT 00235 OPT-A1: 2W Amplified Audio out via DB9F
• 1 x PCA100297-1: Isolated Digital IO module,4 x Output/4 x Input
• 1 x PCA100298-1: LAN 10/100Mbps, 2 ports RJ45
• 1, or 2 x PCA100309-1: Dual Isolated RS-232, 2xDB9 module
• 1 x Q170 IO: 1xNMEA RS422/485 isol.+2xDig. In&Out (Low Side switch)

Accessories
• JH C01MF A-A: 1 x USB Cable 1m, TypeA-Chassis mount receptacle
• HD VED SX2-J1: 1 x VESA Adapter (100/100 & 200/100mm)
(not EN60945 Tested)
• HD TMB SX1-C1: 1 x Table Mount Bracket. EN60945 Tested
• HD CMB SX2-F1: 1 x Console Mount Kit. EN60945 Tested
• HD 26COV SX1-A1: 1 x UV Sun Cover
• P007178: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• JH 26TAP STD-A1: 1 x Frame Adapter for Series 1 Cutout (retrofit)
• HT 00300 MSOS: OS options -> http://www.hatteland-display.com/os
• HD 000TR SX2-A2: 1 x Removable Front Tray 2.5'' Empty
• HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5'' w/Storage Device

Capabilities / Prepared for
See Factory Options

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529). IP22=option

Compass Safe Distance
Standard: 190.00 [74.80''] - Steering: 110.00 [43.31''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
EU-RO-MR - Mutual Recognition

27 INCH
HD 27T22 MMC

TFT Technology
LED Backlight Technology, Color Active Matrix, Widescreen, a-SI (amorphous silicon) Thin Film Transistor (TFT)

Viewable Size and Active Area
27.0 inch - 597.60 [23.53''] (H) x 336.15 [13.23''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1080 (FHD) - 0.31125 (H) x 0.31125 (V) mm

Aspect Ratio and Response Time
16:9 - 12ms (typ, on/off)

Light Intensity and Contrast Ratio
300 cd/m² (typ) - 3000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1920 x 1080 @ 60 Hz (If resolution is above/below 1:1, desktop scrolling mode will be used)

Detectable Resolutions
640 x 480 to 4096 x 2304

Power Specifications and Consumption
115&230VAC - 50/60Hz
or Multipower: 115&230VAC - 50/60Hz + 24VDC
72W (typ) - 84W (max)

Product Features
Dimmable 0-100%, Buzzer, Multi-power AC & DC, GPIO, LAN Wakeup, USB Boot & Wakeup

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
Internal Storage: 1 x SSD MLC SATA, Type m.2
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
and/or
2 x 2.5'' Removable Tray. Option: 1 or 2 can be installed of:
SSD SATA (Multi Level)
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))

CPU / Processor Options
1 x Intel® Quad Core™ i5-6500TE, 2.3/3.3GHz, 6MB Cache
or 1 x Intel® Quad Core™ i7-7700T*, 2.9/3.8GHz, 8MB Cache
or 1 x Intel® Dual Core Celeron™ G3900TE, 2.3/2.3GHz, 2MB Cache
*Supported only by Windows® 10 IoT Enterprise

Memory Options
2 x 4GB, 8GB, 16GB (260-pin, DDR4-2133, Dual Channel)
Max 32GB (2x16GB)

System Chipset / Graphics Chipset
Intel® GL82Q170 PCH /
i5-6500TE CPU: Intel® HD Graphics 530
G3900TE CPU: Intel® HD Graphics 510
i7-7700T CPU: Intel® HD Graphics 630

BIOS / Speaker / Buzzer
EFI, ACPI Support. Preconfigured by factory / Buzzer: 3500Hz
Onboard PC-Beeper

Power Manager and Monitoring
AT, ACPI (S3/S4) - Temperature, Fan and voltages status
256 Segments, 0, 1, 2...255 sec/min

User Controls and Activity
Glass Display Control™ (GDC) IP66 with: Power On/Off, Brightness Control (-/+), Power LED, Mode Status Indicators (ECDIS, HDD, Service), Buzzer (through glass), Light Sensor (behind glass)

Connectors
• Ethernet GBLan: 5 x RJ-45
• COM RS-232 & 422/485: 1 x DB9M non-isolated (RS mode in BIOS)
• USB2.0 (<5m): 2 x USB Type A (4-pin)
• USB3.0 (<3m): 2 x USB Type A (9-pin)
• DP++ 1.2 OUT: 1 x DisplayPort Female (Dual-Mode DP++)
• AC Power IN: 1 x Std IEC inlet
• If DC Power IN option: 1 x 2-pin Terminal Block 5.08 (Factory option)
• If SSD Trays option: 2 x 2.5'' Sized Tray/Bay (Factory option)

Product Dimensions and Weight
W:650.00 [25.59''] x H:437.00 [17.20''] x D:73.00 [2.87''] mm [inch]
Approx. 12.1kg / 26.6lbs

Product Carton Size and Weight
L:765.00 [30.12''] x W:190.00 [7.48''] x H:615.00 [24.21''] mm [inch]
Approx. 13.9kg / 30.6lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch,USB,Pen/Glove support)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)
• Multipower (AC+DC) or AC only model
• Model with 2 x physical 2.5'' removeable Disk Bay/Tray
• Variations of SSD Storage, RAM Memory, Operating System, CPU
• 1 or 2 x PCA100293-1: 4xCOM RS-422/485 isolated NMEA 4 channel
• 1 x ZIA0001310-B: CAN isolated 2 channel or 2 x 4 channel
• 1 x HT 00235 OPT-A1: 2W Amplified Audio out via DB9F
• 1 x PCA100297-1: Isolated Digital IO module,4 x Output/4 x Input
• 1 x PCA100298-1: LAN 10/100Mbps, 2 ports RJ45
• 1, or 2 x PCA100309-1: Dual Isolated RS-232, 2xDB9 module
• 1 x Q170 IO: 1xNMEA RS422/485 isol.+2xDig. In&Out (Low Side switch)

Accessories
• JH C01MF A-A: 1 x USB Cable 1m, TypeA-Chassis mount receptacle
• HD VED SX2-K1: 1 x VESA Adapter (100/100 & 200/100mm)
(not EN60945 Tested)
• HD TMB SX1-C1: 1 x Table Mount Bracket. EN60945 Tested
• HD CMB SX2-E1: 1 x Console Mount Kit. EN60945 Tested
• HD 27COV SX1-A1: 1 x UV Sun Cover
• P018743: 1 x IP66 Mount Gasket (EPDM), for Flush/Console mount
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HT 00300 MSOS: OS options -> http://www.hatteland-display.com/os
• HD 000TR SX2-A2: 1 x Removable Front Tray 2.5'' Empty
• HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5'' w/Storage Device

Capabilities / Prepared for
See Factory Options

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529). IP22=option

Compass Safe Distance
Standard: 85.00 [33.46''] - Steering: 50.00 [19.69''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
EU-RO-MR - Mutual Recognition

PANEL COMPUTERS SERIES X (GENERATION 1)

The Series X MMC range of products has been developed alongside the display versions, thus expanding the impressive footprint and impact of this Series X on the maritime market.

The considerable advances made by Hatteland Display over recent years in PC platform development is now enhancing further the panel PC offering. All Series X display sizes are available with state of the art PC technology integrated, designed and built for type approved maritime systems.

- MULTITOUCH

- TYPE APPROVED

- ECDIS COMPLIANT

- IP22 REAR / IP66 FRONT

- SUPERIOR BONDING TECHNOLOGY

- MODULE BASED, TAILOR-MADE SYSTEMS MADE EASY!

- SUNLIGHT READABLE / HIGH BRIGHT VERSIONS AVAILABLE

- GLASS DISPLAY CONTROL™ (GDC), SOLID STATE MENU SYSTEM

For SUNLIGHT READABLE / HIGH BRIGHT models, read more at page 60.
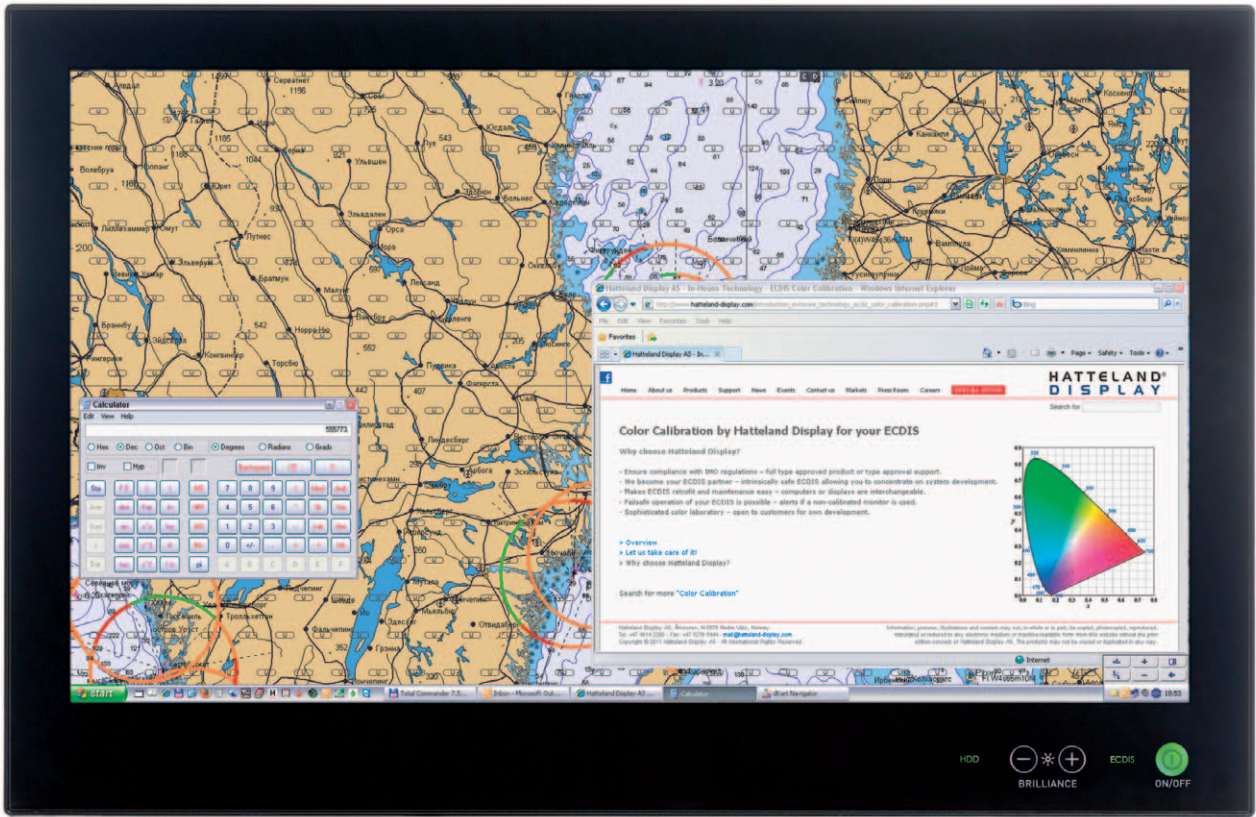
GLASS DISPLAY CONTROL™

12 INCH

HD 12T21 MMC

TFT Technology
LED Backlight Technology, TFT Active-matrix

Viewable Size and Active Area
12.1 inch - 245.76 [9.68"] (H) x 184.32 [7.26"] (V) mm [inch]

Native Resolution and Pixel Pitch
1024 x 768 (XGA) - 0.24 (H) x 0.24 (V) mm

Aspect Ratio and Response Time
4:3 - 35ms (typical)

Light Intensity and Contrast Ratio
600 cd/m² (typ) - 700:1 (typ)

View Angle / Max Colors
80 deg. (left/right), 70 deg. (up/down) (typ)
16.7 million

Optimal Resolution and Hz
1024 x 768 @ 60 Hz (If resolution is above/below 1:1,
desktop scrolling mode will be used)

Detectable Resolutions
DVI: From 640 x 480 to 1920 x 1200 @ 60 Hz
VGA: From 640 x 480 to 2048 x 1536 @ 75 Hz

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
26W (typ)* - 60W (max) - *Max Backlight, Idle CPU, Windows® 7

Product Features
Dimmable 0-100%, Buzzer, Multi-power AC & DC, GPIO, LAN Wakeup,
USB Boot & Wakeup.

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
1 x 1TB 2.5" HDD
or 1 x 2.5" SSD SATA (Multi Level):
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
or 1 x 2.5" HDD SATA Ruggedized/Automotive 320GB
*Combination buzzer and spinning hard disk (HDD) is not possible.

CPU / Processor Options
1 x Intel® Core™ i7-620LE, 2.0GHz, 4MB Cache, FSB 1066MHz
or 1 x Intel® Celeron® P4505*, 1.86GHz, 2MB Cache, FSB 800MHz
*Single Core only

Memory Options
1 x 2GB, 4GB (Single Ch. 204-pin DDR3 1066/800MHz SO-DIMM)

System Chipset / Graphics Chipset
Intel® BD82QM57 / Intel® Arrandale IGD supports DVMT 5.0

BIOS / Speaker / Buzzer
UEFI AMIBIOS / Buzzer: 3500Hz

Power Manager and Monitoring
ACPI S3/S4 - Temperature and voltages status
256 Segments, 0, 1, 2...255 sec/min

User Controls and Activity
Glass Display Control™ (GDC) IP66 with: Power On/Off,
Brightness Control (-/+), Power LED, HDD/SSD LED,
Buzzer (through glass), Mode Status Indicator (Service),
Light Sensor (behind glass)

Connectors
• Ethernet GBLAN 10/100/1000Mbps: 2 x RJ45
• Keyboard and Mouse: 1 x PS/2 (purple) + 1 x PS/2 (green)
• COM RS-232: 1 x DB9M non-isolated
• COM RS-422/485: 1 x DB9M non-isolated
• USB1.1 (<10m): 1 x USB Type A
• USB2.0 (<5m): 3 x USB Type A
• DVI / VGA OUT: 1 x 29P DVI-I or as VGA with adapter
• VGA OUT: 1 x 15P HD D-SUB
• AC Power: 1 x Std. IEC inlet
• DC Power: 1 x 2-pin Terminal Block 5.08
• Line Out+Mic In: 1 x 3.5mm mini jack + 1 x 3.5mm mini jack*
*Realtek ALC892 Chipset

Product Dimensions and Weight
W:314.00 [12.36"] x H:272.00 [10.71"] x D:70.90 [2.79"] mm [inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep. 4.9kg / 10.8lbs

Product Carton Size and Weight
L:460.00 [18.11"] x W:200.00 [7.87"] x H:430.00 [16.93"] mm [inch]
6.4kg / 14.1lbs

Factory Options
• Optical Bonding Technology
• Projected Capacitive Touch Screen (Multitouch, USB interface)
• Variations of SSD/HDD Storage, RAM Memory, Operating System
• 1 x PCA100293-1 (4xCOM RS-422/485 isolated NMEA 4 channel)*
• 1 x ZIA0001310-B (1 x CAN isolated, 2 channel)*
• 1 x HT 00235 OPT-A1 (2W Amplified Audio out via DB9F)*
• 1 x PCA100297-1 (Isolated Digital IO module, 4xOutput/4xInput)*
• 1 x PCA100294-1 (4xCOM RS-232 unisolated DB9M)*
*Only 1 module can be installed

Accessories
• HD CMB SX1-A2: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD CMB SX1-A3: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• HD TMB SX1-A1: 1 x Table Mount Bracket. EN60945 Tested*
• JH C01MF A-A: 1 x USB Cable 1m, Type A/Chassis mount receptacle
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00300 MSOS: OS options -> www.hatteland-display.com/os
*Can not be combined with HDD, use SSD only.

Capabilities / Prepared for
See Factory Options

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 40.00 [15.75"] - Steering: 20.00 [7.87"] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
NK - 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, EU-RO-MR - Mutual Recognition

15 INCH
HD 15T21 MMC

TFT Technology
LED Backlight Technology, TFT Active-matrix

Viewable Size and Active Area
15.0 inch - 304.10 [11.97''] (H) x 228.10 [8.98''] (V) mm [inch]

Native Resolution and Pixel Pitch
1024 x 768 (XGA) - 0.297 (H) x 0.297 (V) mm

Aspect Ratio and Response Time
4:3 - 8ms (typical)

Light Intensity and Contrast Ratio
400 cd/m² (typ) - 1500:1 (typ)

View Angle / Max Colors
85 deg. (up/down/left/right) (typ)
16.7 million

Optimal Resolution and Hz
1024 x 768 @ 60 Hz (If resolution is above/below 1:1, desktop scrolling mode will be used)

Detectable Resolutions
DVI: From 640 x 480 to 1920 x 1200 @ 60 Hz
VGA: From 640 x 480 to 2048 x 1536 @ 75 Hz

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
52W (typ) - 59W (max)

Product Features
Dimmable 0-100%, Buzzer, Multi-power AC & DC, GPIO, LAN Wakeup, USB Boot & Wakeup.

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
1 x 1TB 2.5'' HDD
or 1 x 2.5'' SSD SATA (Multi Level):
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
or 1 x 2.5'' HDD SATA Ruggedized/Automotive 320GB
*Combination buzzer and spinning hard disk (HDD) is not possible.

CPU / Processor Options
1 x Intel® Core™ i7-620LE, 2.0GHz, 4MB Cache, FSB 1066MHz
or 1 x Intel® Celeron® P4505*, 1.86GHz, 2MB Cache, FSB 800MHz
*Single Core only

Memory Options
1 x 2GB, 4GB (Single Ch. 204-pin DDR3 1066/800MHz SO-DIMM)

System Chipset / Graphics Chipset
Intel® BD82QM57 / Intel® Arrandale IGD supports DVMT 5.0

BIOS / Speaker / Buzzer
UEFI AMIBIOS / Buzzer: 3500Hz

Power Manager and Monitoring
ACPI S3/S4 - Temperature and voltages status
256 Segments, 0, 1, 2...255 sec/min

User Controls and Activity
Glass Display Control™ (GDC) IP66 with: Power On/Off, Brightness Control (-/+), Power LED, HDD/SSD LED, Buzzer (through glass), Mode Status Indicator (Service), Light Sensor (behind glass)

Connectors
• Ethernet GBLAN 10/100/1000Mbps: 2 x RJ45
• Keyboard and Mouse: 1 x PS/2 (purple) + 1 x PS/2 (green)
• COM RS-232: 1 x DB9M non-isolated
• COM RS-422/485: 1 x DB9M non-isolated
• USB1.1 (<10m): 1 x USB Type A
• USB2.0 (<5m): 3 x USB Type A
• DVI / VGA OUT: 1 x 29P DVI-I or as VGA with adapter
• VGA OUT: 1 x 15P HD D-SUB
• AC Power: 1 x Std. IEC inlet
• DC Power: 1 x 2-pin Terminal Block 5.08
• Line Out+Mic In: 1 x 3.5mm mini jack + 1 x 3.5mm mini jack*
*Realtek ALC892 Chipset

Product Dimensions and Weight
W:356.00 [14.02''] x H:307.00 [12.09''] x D:77.90 [3.07''] mm [inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep. 6.0kg / 13.2lbs

Product Carton Size and Weight
L:460.00 [18.11''] x W:200.00 [7.87''] x H:430.00 [16.93''] mm [inch]
7.6kg / 16.7lbs

Factory Options
• Optical Bonding Technology
• Projected Capacitive Touch Screen (Multitouch, USB interface)
• Variations of SSD/HDD Storage, RAM Memory, Operating System
• 1 x PCA100293-1 (4xCOM RS-422/485 isolated NMEA 4 channel)*
• 1 x ZIA0001310-B (1 x CAN isolated, 2 channel)*
• 1 x HT 00235 OPT-A1 (2W Amplified Audio out via DB9F)
• 1 x PCA100297-1 (Isolated Digital IO module, 4xOutput/4xInput)*
• 1 x PCA100294-1 (4xCOM RS-232 unisolated DB9M)*
• 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports (RJ45)*
*Only 1 module can be installed

Accessories
• HD CMB SX1-A2: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD CMB SX1-A3: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• HD TMB SX1-A1: 1 x Table Mount Bracket. EN60945 Tested*
• JH 15TAP STD-C1: 1 x Frame Adp. (15'' Series 1 to Series X) retrofit
• HD 15COV SX1-A1: 1 x UV Sun Cover
• JH C01MF A-A: 1 x USB Cable 1m, Type A/Chassis mount receptacle
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HT 00300 MSOS: OS options -> www.hatteland-display.com/os
*Can not be combined with HDD, use SSD only.

Capabilities / Prepared for
See Factory Options

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 55.00 [21.65''] - Steering: 40.00 [15.75''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
NK - 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, EU-RO-MR - Mutual Recognition

17 INCH
HD 17T21 MMC

TFT Technology
LED Backlight Technology, TFT Active-matrix

Viewable Size and Active Area
17.0 inch - 337.92 [13.30''] (H) x 270.34 [10.64''] (V) mm [inch]

Native Resolution and Pixel Pitch
1280 x 1024 (SXGA) - 0.264 (H) x 0.264 (V) mm

Aspect Ratio and Response Time
5:4 - 5ms (typ)

Light Intensity and Contrast Ratio
Standard: 350 cd/m² (typ) - 1000:1 (typ)
High Bright: 1000 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors
80° (down/left/right), 60° (up) @ CR>10
16.7 million

Optimal Resolution and Hz
1280 x 1024 @ 60 Hz (If resolution is above/below 1:1,
desktop scrolling mode will be used)

Detectable Resolutions
DVI: From 640 x 480 to 1920 x 1200 @ 60 Hz
VGA: From 640 x 480 to 2048 x 1536 @ 75 Hz

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
43W (typ)* - 60W (max) - *Max Backlight, Idle CPU, Windows® 7

Product Features
Dimmable 0-100%, Buzzer, Multi-power AC & DC, GPIO, LAN Wakeup,
USB Boot & Wakeup

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
2 x 2.5'' Internal. Option: 1 or 2 can be installed of:
2.5'' SSD SATA (Multi Level):
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
2.5'' HDD* SATA - 1TB
2.5'' HDD SATA Ruggedized/Automotive 320GB
*Combination buzzer and spinning hard disk (HDD) is not possible.

CPU / Processor Options
1 x Intel® Core™ i7-620LE, 2.0GHz, 4MB Cache, FSB 1066MHz
or 1 x Intel® Core™ i5-520E, 2.40GHz, FSB 800/1066MHz, 3MB Cache
or 1 x Intel® Celeron® P4505, 1.86GHz, 2MB Cache, FSB 800MHz

Memory Options
1 x 2GB, 4GB (Single Ch. 204-pin DDR3 1066/800MHz SO-DIMM)

System Chipset / Graphics Chipset
Intel® BD82QM57 / Intel® Arrandale IGD supports DVMT 5.0

BIOS / Speaker / Buzzer
UEFI AMIBIOS / Buzzer: 3500Hz

Power Manager and Monitoring
ACPI S3/S4 - Temperature and voltages status
256 Segments, 0, 1, 2...255 sec/min

User Controls and Activity
Glass Display Control™ (GDC) IP66 with: Power On/Off, Brightness
Control (-/+), Power LED, HDD/SSD LED, Buzzer (through glass),
Mode Status Indicator (ECDIS, Service), Light Sensor (behind glass)

Connectors
• Ethernet GBLAN 10/100/1000Mbps: 2 x RJ45
• Keyboard and Mouse: 1 x PS/2 (purple) + 1 x PS/2 (green)
• COM RS-232: 1 x DB9M non-isolated
• COM RS-422/485: 1 x DB9M non-isolated
• USB1.1 (<10m): 1 x USB Type A
• USB2.0 (<5m): 3 x USB Type A
• DVI / VGA OUT: 1 x 29P DVI-I or as VGA with adapter
• VGA OUT: 1 x 15P HD D-SUB
• AC Power: 1 x Std. IEC inlet
• DC Power: 1 x 2-pin Terminal Block 5.08
• Line Out+Mic In: 1 x 3.5mm mini jack + 1 x 3.5mm mini jack*
*Realtek ALC892 Chipset

Product Dimensions and Weight
W:390.00 [15.35''] x H:351.00 [13.82''] x D:79.90 [3.15''] mm [inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep. 7.5kg / 16.5lbs

Product Carton Size and Weight
L:530.00 [20.87''] x W:210.00 [8.27''] x H:540.00 [21.26''] mm [inch]
9.3kg / 20.5lbs

Factory Options
• Optical Bonding Technology
• Projected Capacitive Touch Screen (Multitouch, USB interface)
• Color Calibrated Models (ECDIS)
• Sunlight Readable / High Bright (includes Optical Bonding) model
• Variations of SSD/HDD Storage, RAM Memory, Operating System
• 1 x PCA100293-1 (4xCOM RS-422/485 isolated NMEA 4 channel)*
• 1 x ZIA0001310-B (1 x CAN isolated, 2 channel)*
• 1 x HT 00235 OPT-A1 (2W Amplified Audio out via DB9F)
• 1 x PCA100297-1 (Isolated Digital IO module, 4xOutput/4xInput)*
• 1 x PCA100294-1 (4xCOM RS-232 unisolated DB9M)*
• 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports (RJ45)*
*Only 1 module can be installed

Accessories
• HD CMB SX1-A2: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD CMB SX1-A3: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• HD TMB SX1-B1: 1 x Table Mount Bracket. EN60945 Tested*
• HD 17COV SX1-A1: 1 x UV Sun Cover
• JH C01MF A-A: 1 x USB Cable 1m, Type A/Chassis mount receptacle
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HT 00300 MSOS: OS options -> www.hatteland-display.com/os
*Can not be combined with HDD, use SSD only.

Capabilities / Prepared for
See Factory Options

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 115.00 [45.28''] - Steering: 70.00 [27.56''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
NK - 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, EU-RO-MR - Mutual Recognition

19 INCH
HD 19T21 MMC

TFT Technology
LED Backlight Technology, TFT Active-matrix,
MVA (Multi-domain Vertical Alignment) Technology

Viewable Size and Active Area
19.0 inch - 376.32 [14.82''] (H) x 301.06 [11.85''] (V) mm [inch]

Native Resolution and Pixel Pitch
1280 x 1024 (SXGA) - 0.294 (H) x 0.294 (V) mm

Aspect Ratio and Response Time
5:4 - 20ms (typ)

Light Intensity and Contrast Ratio
Standard: 350 cd/m² (typ) - 1500:1 (typ)
High Bright: 1000 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors
Standard: 85 deg. (up/down/left/right) - 16.7 million
High Bright: 89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1280 x 1024 @ 60 Hz (If resolution is above/below 1:1,
desktop scrolling mode will be used)

Detectable Resolutions
DVI: From 640 x 480 to 1920 x 1200 @ 60 Hz
VGA: From 640 x 480 to 2048 x 1536 @ 75 Hz

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
49W (typ)* - 125W (max) - *Max Backlight, Idle CPU, Windows® 7

Product Features
Dimmable 0-100%, Buzzer, Multi-power AC & DC, GPIO, LAN Wakeup,
USB Boot & Wakeup, High Bright models includes an EPDM sealing
gasket for IP66 console mount.

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
2 x 2.5'' Internal. Option: 1 or 2 can be installed of:
2.5'' SSD SATA (Multi Level):
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
2.5'' HDD* SATA - 1TB
2.5'' HDD SATA Ruggedized/Automotive 320GB
*Combination buzzer and spinning hard disk (HDD) is not possible.

CPU / Processor Options
1 x Intel® Core™ i7-620LE, 2.0GHz, 4MB Cache, FSB 1066MHz
or 1 x Intel® Core™ i5-520E, 2.40GHz, FSB 800/1066MHz, 3MB Cache
or 1 x Intel® Celeron® P4505, 1.86GHz, 2MB Cache, FSB 800MHz

Memory Options
1 x 2GB, 4GB (Single Ch. 204-pin DDR3 1066/800MHz SO-DIMM)

System Chipset / Graphics Chipset
Intel® BD82QM57 / Intel® Arrandale IGD supports DVMT 5.0

BIOS / Speaker / Buzzer
UEFI AMIBIOS / Buzzer: 3500Hz

Power Manager and Monitoring
ACPI S3/S4 - Temperature and voltages status
256 Segments, 0, 1, 2...255 sec/min

User Controls and Activity
Glass Display Control™ (GDC) IP66 with: Power On/Off, Brightness
Control (-/+), Power LED, HDD/SSD LED, Buzzer (through glass),
Mode Status Indicator (ECDIS, Service), Light Sensor (behind glass)

Connectors
• Ethernet GBLAN 10/100/1000Mbps: 2 x RJ45
• Keyboard and Mouse: 1 x PS/2 (purple) + 1 x PS/2 (green)
• COM RS-232: 1 x DB9M non-isolated
• COM RS-422/485: 1 x DB9M non-isolated
• USB1.1 (<10m): 1 x USB Type A
• USB2.0 (<5m): 3 x USB Type A
• DVI / VGA OUT: 1 x 29P DVI-I or as VGA with adapter
• VGA OUT: 1 x 15P HD D-SUB
• AC Power: 1 x Std. IEC inlet
• DC Power: 1 x 2-pin Terminal Block 5.08
• Line Out+Mic In: 1 x 3.5mm mini jack + 1 x 3.5mm mini jack*
*Realtek ALC892 Chipset

Product Dimensions and Weight
W:429.00 [16.89''] x H:382.00 [15.04''] x D:80.90 [3.19''] mm [inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep. 8.6kg / 18.9lbs

Product Carton Size and Weight
L:510.00 [20.08''] x W:195.00 [7.68''] x H:525.00 [20.67''] mm [inch]
10.4kg / 22.9lbs

Factory Options
• Optical Bonding Technology
• Projected Capacitive Touch Screen (Multitouch, USB interface)
• Sunlight Readable / High Bright (includes Optical Bonding) model
• Color Calibrated Models (ECDIS)
• Variations of SSD/HDD Storage, RAM Memory, Operating System
• 1 x PCA100293-1 (4xCOM RS-422/485 isolated NMEA 4 channel)*
• 1 x ZIA0001310-B (1 x CAN isolated, 2 channel)*
• 1 x HT 00235 OPT-A1 (2W Amplified Audio out via DB9F)
• 1 x PCA100297-1 (Isolated Digital IO module, 4xOutput/4xInput)*
• 1 x PCA100294-1 (4xCOM RS-232 unisolated DB9M)*
• 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports (RJ45)*
*Only 1 module can be installed

Accessories
• HD CMB SX1-A2: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD CMB SX1-A3: 1xConsole Mount Kit(1-12.75mm).EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• HD TMB SX1-B1: 1 x Table Mount Bracket. EN60945 Tested*
• HD 19COV SX1-A1: 1 x UV Sun Cover
• JH 19TAP STD-C1: 1 x Frame Adp. (19'' Series 1 to Series X) retrofit
• HD 19TAP SX1-C2: 1 x Frame Adp. (19'' Series X to Series 2) retrofit
• JH C01MF A-A: 1 x USB Cable 1m, Type A/Chassis mount receptacle
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HT 00300 MSOS: OS options -> www.hatteland-display.com/os
*Can not be combined with HDD, use SSD only.

Capabilities / Prepared for
See Factory Options

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 70.00 [27.56''] - Steering: 45.00 [17.72''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
NK - 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, EU-RO-MR - Mutual Recognition
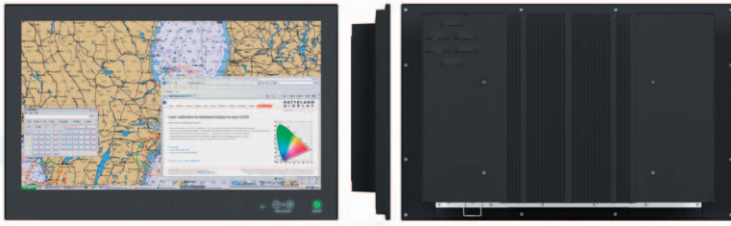
24 INCH
HD 24T21 MMC

TFT Technology
LED Backlight Technology, Widescreen, RGB vertical stripe,
MVA (Multi-domain Vertical Alignment) Technology, TFT Active-matrix

Viewable Size and Active Area
24.0 inch - 531.36 [20.92''] (H) x 298.89 [11.77''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1080 (FHD) - 0.276 (H) x 0.276 (V) mm

Aspect Ratio and Response Time
16:9 - 25ms (typ)

Light Intensity and Contrast Ratio
Standard: 300 cd/m² (typ) - 3000:1 (typ)
High Bright: 1000 cd/m² (typ) - 3000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1920 x 1080 @ 60 Hz (If resolution is above/below 1:1,
desktop scrolling mode will be used)

Detectable Resolutions
DVI: From 640 x 480 to 1920 x 1200 @ 60 Hz
VGA: From 640 x 480 to 2048 x 1536 @ 75 Hz

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
50W (typ)* - 125W (max) - *Max Backlight, Idle CPU, Windows® 7

Product Features
Dimmable 0-100%, Buzzer, Multi-power AC & DC, GPIO, LAN Wakeup,
USB Boot & Wakeup, High Bright models includes an EPDM sealing
gasket for IP66 console mount.

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
2 x 2.5'' Removable Tray. Option: 1 or 2 can be installed of:
2.5'' SSD SATA (Multi Level):
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
2.5'' HDD SATA - 1TB
2.5'' HDD SATA Ruggedized/Automotive 320GB

CPU / Processor Options
1 x Intel® Core™ i7-620LE, 2.0GHz, 4MB Cache, FSB 1066MHz
or 1 x Intel® Core™ i5-520E, 2.40GHz, FSB 800/1066MHz, 3MB Cache
or 1 x Intel® Celeron® P4505, 1.86GHz, 2MB Cache, FSB 800MHz
or 1 x AMD R464L Quad Core,2.3GHz,2 x 2MB L2 Cache,FSB 1600MHz

Memory Options
Intel: 1 x 2GB, 4GB (Single Ch. 204pin DDR3 1066/800MHz SO-DIMM)
AMD: 2 x 2GB, 4GB, 8GB (Dual Ch. 204pin DDR3 1333 MHz)

System Chipset / Graphics Chipset
Intel® BD82QM57 / Intel® Arrandale IGD supports DVMT 5.0

BIOS / Speaker / Buzzer
UEFI AMIBIOS / Buzzer: 3500Hz

Power Manager and Monitoring
ACPI S3/S4 - Temperature and voltages status
256 Segments, 0, 1, 2...255 sec/min

User Controls and Activity
Glass Display Control™ (GDC) IP66 with: Power On/Off, Brightness
Control (-/+), Power LED, HDD/SSD LED, Buzzer (through glass),
Mode Status Indicator (ECDIS, Service), Light Sensor (behind glass)

Connectors
• Ethernet GBLAN 10/100/1000Mbps: 2 x RJ45
• Keyboard and Mouse: 1 x PS/2 (purple) + 1 x PS/2 (green)
• COM RS-232: 1 x DB9M non-isolated
• COM RS-422/485: 1 x DB9M non-isolated
• USB1.1 (<10m): 1 x USB Type A
• USB2.0 (<5m): 3 x USB Type A
• DVI / VGA OUT: 1 x 29P DVI-I or as VGA with adapter
• VGA OUT: 1 x 15P HD D-SUB
• AC Power: 1 x Std. IEC inlet
• DC Power: 1 x 2-pin Terminal Block 5.08
• Line Out+Mic In: 1 x 3.5mm mini jack + 1 x 3.5mm mini jack*
*Realtek ALC892 Chipset

Product Dimensions and Weight
W:593.00 [23.35''] x H:384.00 [15.12''] x D:76.40 [3.01''] mm [inch]
4xM6 VESA mounting 280x150mm, Max 12mm deep. 11.2kg / 24.6lbs

Product Carton Size and Weight
L:700.00 [27.56''] x W:180.00 [7.09''] x H:565.00 [22.24''] mm [inch]
14.5kg / 31.9lbs

Factory Options
• Optical Bonding Technology
• Projected Capacitive Touch Screen (Multitouch, USB interface)
• Color Calibrated Models (ECDIS)
• Variations of SSD/HDD Storage, RAM Memory, Operating System
• 1 x PCA100293-1 (4xCOM RS-422/485 isolated NMEA 2 channel)*
• 1 x PCA100294-1 (4xCOM RS-232 unisolated DB9M)*
• 1 x ZIA0001310-B (1 x CAN isolated 2ch. or 2 x CAN isolated 4ch.)*
• 1 x HT 00235 OPT-A1 (2W Amplified Audio out via DB9F)
• 1 x PCA100297-1 (Isolated Digital IO module,4 x Output/4 x Input)*
• 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports RJ45)*
• 1 x VSD100832-1 (LPT1 Parallel (Bi-Directional/EPP/ECP). DB25F
*Only 1 module can be installed

Accessories
• HD CMB SX1-B1: 1 x Console Mount Kit. EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• HD TMB SX1-C1: 1 x Table Mount Bracket. EN60945 Tested*
• HD 24COV SX1-A1: 1 x UV Sun Cover
• JH C01MF A-A: 1 x USB Cable 1m, Type A/Chassis mount receptacle
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HD 000TR SX1-A1: 1 x Removable Front Tray 2.5'' Empty
• HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5'' w/Storage Device
• HT 00300 MSOS: OS options -> www.hatteland-display.com/os
*Can not be combined with HDD, use SSD only.

Capabilities / Prepared for
See Factory Options

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 115.00 [45.28''] - Steering: 70.00 [27.56''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
NK - Nippon Kaiji Kyokai, DNV - Det Norske Veritas,
ABS - American Bureau of Shipping, GL - Germanischer Lloyd,
BV - Bureau Veritas, CCS - China Classification Society,
LRS - Lloyd's Register, EU-RO-MR - Mutual Recognition
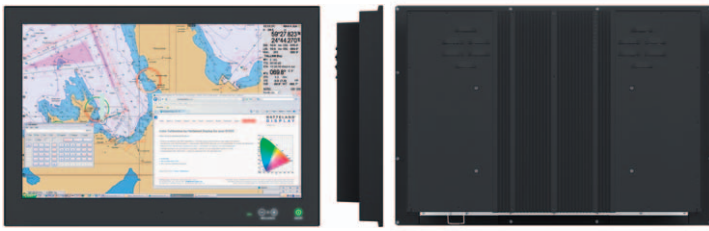
26 INCH
HD 26T21 MMC

TFT Technology
LED Backlight Technology, TFT Active-matrix, Widescreen, S-MVA (Multi-domain Vertical Alignment) Technology, RGB Vertical Stripe

Viewable Size and Active Area
25.54 inch - 550.08 [21.66''] mm (H) x 343.80 [13.54''] (V) mm [inch]

Native Resolution and Pixel Pitch
1920 x 1200 (WUXGA) - 0.2865 (H) x 0.2865 (V) mm

Aspect Ratio and Response Time
16:10 - 20ms (Tr+Tf)

Light Intensity and Contrast Ratio
350 cd/m² (typ) - 1500:1 (typ)

View Angle / Max Colors
88 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1920 x 1200 @ 60 Hz (If resolution is above/below 1:1, desktop scrolling mode will be used)

Detectable Resolutions
DVI: From 640 x 480 to 1920 x 1200 @ 60 Hz
VGA: From 640 x 480 to 2048 x 1536 @ 75 Hz

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
78W (typ) - 94W (max)

Product Features
Dimmable 0-100%, Buzzer, Multi-power AC & DC, GPIO, LAN Wakeup, USB Boot & Wakeup

Installed Operating System (OS)
None or Standard OS/Customized image, review datasheet for list.

Storage Options
2 x 2.5'' Removable Tray. Option: 1 or 2 can be installed of:
2.5'' SSD SATA (Multi Level):
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
2.5'' HDD SATA - 1TB
2.5'' HDD SATA Ruggedized/Automotive 320GB

CPU / Processor Options
1 x Intel® Core™ i7-620LE, 2.0GHz, 4MB Cache, FSB 1066MHz
or 1 x Intel® Core™ i5-520E, 2.40GHz, FSB 800/1066MHz, 3MB Cache
or 1 x Intel® Celeron® P4505, 1.86GHz, 2MB Cache, FSB 800MHz
or 1 x AMD R464L Quad Core,2.3GHz,2 x 2MB L2 Cache,FSB 1600MHz

Memory Options
Intel: 1 x 2GB, 4GB (Single Ch. 204pin DDR3 1066/800MHz SO-DIMM)
AMD: 2 x 2GB, 4GB, 8GB (Dual Ch. 204pin DDR3 1333 MHz)

System Chipset / Graphics Chipset
Intel® BD82QM57 / Intel® Arrandale IGD supports DVMT 5.0

BIOS / Speaker / Buzzer
UEFI AMIBIOS / Buzzer: 3500Hz

Power Manager and Monitoring
ACPI S3/S4 - Temperature and voltages status
256 Segments, 0, 1, 2...255 sec/min

User Controls and Activity
Glass Display Control™ (GDC) IP66 with: Power On/Off, Brightness Control (-/+), Power LED, HDD/SSD LED, Buzzer (through glass), Mode Status Indicator (ECDIS, Service), Light Sensor (behind glass)

Connectors
• Ethernet GBLAN 10/100/1000Mbps: 2 x RJ45
• Keyboard and Mouse: 1 x PS/2 (purple) + 1 x PS/2 (green)
• COM RS-232: 1 x DB9M non-isolated
• COM RS-422/485: 1 x DB9M non-isolated
• USB1.1 (<10m): 1 x USB Type A
• USB2.0 (<5m): 3 x USB Type A
• DVI / VGA OUT: 1 x 29P DVI-I or as VGA with adapter
• VGA OUT: 1 x 15P HD D-SUB
• AC Power: 1 x Std. IEC inlet
• DC Power: 1 x 2-pin Terminal Block 5.08
• Line Out+Mic In: 1 x 3.5mm mini jack + 1 x 3.5mm mini jack*
*Realtek ALC892 Chipset

Product Dimensions and Weight
W:621.00 [24.45''] x H:435.00 [17.13''] x D:97.70 [3.85''] mm [inch]
4xM6 VESA mounting 280x150mm, Max 12mm deep. 16.2kg / 35.6lbs

Product Carton Size and Weight
L:730.00 [28.74''] x W:200.00 [7.87''] x H:560.00 [22.05''] mm [inch]
18.7kg / 41.1lbs

Factory Options
• Projected Capacitive Touch Screen (Multitouch, USB interface)
• Optical Bonding Technology
• Color Calibrated Models (ECDIS)
• Variations of SSD/HDD Storage, RAM Memory, Operating System
• 1 x PCA100293-1 (4xCOM RS-422/485 isolated NMEA 2 channel)*
• 1 x PCA100294-1 (4xCOM RS-232 unisolated DB9M)*
• 1 x ZIA0001310-B (1 x CAN isolated 2ch. or 2 x CAN isolated 4ch.)*
• 1 x HT 00235 OPT-A1 (2W Amplified Audio out via DB9F)
• 1 x PCA100297-1 (Isolated Digital IO module,4 x Output/4 x Input)*
• 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports RJ45)*
• 1 x VSD100832-1 (LPT1 Parallel (Bi-Directional/EPP/ECP). DB25F
*Only 1 module can be installed

Accessories
• HD CMB SX1-C1: 1 x Console Mount Kit. EN60945 Tested
• HD VED SX1-A1: 1 x VESA Bracket, not EN60945 Tested
• HD TMB SX1-C1: 1 x Table Mount Bracket. EN60945 Tested*
• JH C01MF A-A: 1 x USB Cable 1m, Type A/Chassis mount receptacle
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HD 000TR SX1-A1: 1 x Removable Front Tray 2.5'' Empty
• JH 26TAP STD-A1: 1 x Frame Adapter for Series 1 Cutout (retrofit)
• HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5'' w/Storage Device
• HT 00300 MSOS: OS options -> www.hatteland-display.com/os
*Can not be combined with HDD, use SSD only.

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

### IP Rating
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance
Standard: 125.00 [49.21''] - Steering: 80.00 [31.50''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
NK - 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, EU-RO-MR - Mutual Recognition

SUNLIGHT READABLE / HIGH BRIGHT

Series X Displays and Panel Computers with High Bright panels were designed for direct-sunlight conditions.

This technology provides higher light intensity without producing excessive heat. The image on the display maintains its clarity and color vibrancy even under the strongest sunlight conditions.

Series X High Bright panels are combined with our enhanced optical bonding technology to dramatically reduce reflection. Perfect for outdoor navigation stations or fly-bridges.

Also suitable for indoor pilothouses with high ambient light conditions.

Particularly popular in the leisure boat markets, Hatteland Display has incorporated high bright option into the bulk of the product range and across all the backbone versions MMD and MMC.

High Bright is by factory default delivered with bonding and can be combined with Multitouch screen.

DISPLAYS SERIES 1

With our dedication to innovation, we took our de facto industry standard Series 1 displays and set about improving them. The result is the Series 1 redesign, a new generation of innovative, rugged marine displays designed for any navigation and automation application, including ECDIS.

Although the new Series 1 offers a clear improvement on performance, functionality and value, we have ensured that it adheres to the Hatteland Display ethos of Form, Fit, Function, so you can harness the many innovative features, without making changes to your existing solutions.

Series 1 displays feature 0-100% dimming, and provide unmatched sun and night vision. All sizes can benefit from Hatteland Display's sophisticated Optical Bonding, which eliminates condensation and dust, and reduces reflection by over 90%. Together with advanced anti-reflective coatings, bonding enables you to see your display in bright sunlight without the need for extensive backlighting, which can cause overheating and a shorter product life cycle.

Series 1 introduces a number of signal input/output options, which can be increased by using the Multifunction Cable. Further customized cables are available to ensure that you can interface everything you need to with the greatest of ease.

All Series 1 models are built to last and designed to be reliable in harsh environments, while providing the performance and flexibility you expect. They are perfectly suited to use aboard a wide range of vessels including commercial ships, workboats, coast guard boats and navy ships.

- TYPE APPROVED

- ECDIS COMPLIANT

- SUPERIOR BONDING TECHNOLOGY

- FORM, FIT AND FUNCTION - LONG-TERM COMMITMENT

**The proven maritime standard
for the past 18 years.**

**As engineered and provided
by Hatteland Display!**

15 INCH
JH 15T17 MMD

TFT Technology
LED Backlight Technology, TFT Active-matrix

Viewable Size and Active Area
15.0 inch - 304.10 [11.97''] (H) x 228.10 [8.98''] (V) mm [inch]

Native Resolution and Pixel Pitch
1024 x 768 (XGA) - 0.297 (H) x 0.297 (V) mm

Aspect Ratio and Response Time
4:3 - 8ms (typ)

Light Intensity and Contrast Ratio
400 cd/m² (typ) - 1500:1 (typ)

View Angle / Max Colors
85 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1024 x 768 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024,
1600 x 1200, 1920 x 1200

Composite Video Input(s)
With Multifunction Cable

Supported Video Signals
SVHS & COMPOSITE Compatible

Product Features
LED Backlight Technology, PBP (Picture By Picture),
PIP (Picture In Picture), Multifunction Connector,
Hotkey Functionality, Dimmable 0-100%

Power Specifications and Consumption
115/230VAC - 50/60Hz or 24 VDC
Operating AC: TBDW (typ) - 100W (max)
Operating DC: 21.5W (typ) - 100W (max)
Tested w/Max Backlight, Normal Room Temperature, Test Pattern

User Controls and Activity
Power On/Off + On Screen Display Menu (push button)
Brightness Control
Hotkeys (left/right - push buttons)
Mode Status Illuminated LED-Ring Indicator

Connectors
• DVI IN: 1 x DVI-I 29P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• VGA OUT: 1 x HD D-SUB 15P (female)
• Multifunction: 1 x D-SUB 160P (female)
• USB: 1 x Type B (female)
• AC Power IN: 1 x Std. IEC inlet
• AC Power OUT: 1 x Std. IEC outlet (5A max)
• If DC Power IN: 1 x 2P D-SUB (male) Amphenol FCC17

Product Dimensions and Weight
W:412.00 [16.22''] x H:345.00 [13.58''] x D:73.28 [2.89''] mm [inch]
Approx 7kg / 15lbs

Product Carton Size and Weight
L:530.00 [20.87''] x W:460.00 [18.11''] x H:200.00 [7.87''] mm [inch]
8.0kg / 17.6lbs

Factory Options
• 24 VDC Power Solution
• Resistive or Capacitive Touchscreen
• Keypad only or Keypad+Potmeter+Buzzer controls
• Optical Bonding Technology
• Speaker / Buzzer

Accessories
Bracket (tilt up/down), Rotary Bracket (left/right), VESA Bracket,
Sun Visor, Water Cover, 19'' Rack Adapter Frame,
17'' CRT Adapter Frame.
Multifunction Cable Options:
1 x RS-232 COM or 1 x RS-232 COM + 3 x BNC Video In or
1 x RS-232 COM + 3 x BNC Video In + 1 x COM Touch

Capabilities / Prepared for
N/A

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529)

Compass Safe Distance
Standard: 130.00 [51.18''] - Steering: 100.00 [39.37''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IP66, NK - Nippon Kaiji Kyokai,
GL - Germanischer Lloyd, DNV - Det Norske Veritas,
ABS - American Bureau of Shipping, BV - Bureau Veritas,
LRS - Lloyd's Register, CCS - China Classification Society,
EU-RO-MR - Mutual Recognition

19 INCH
JH 19T14 MMD
Slim Frame

TFT Technology
LED Backlight Technology, TFT Active-matrix,
MVA (Multi-domain Vertical Alignment) LCD Technology

Viewable Size and Active Area
19.0 inch - 376.32 [14.82''] (H) x 301.05 [11.85''] (V) mm [inch]

Native Resolution and Pixel Pitch
1280 x 1024 (SXGA) - 0.294 (H) x 0.294 (V) mm

Aspect Ratio and Response Time
5:4 - 20ms (typ)

Light Intensity and Contrast Ratio
350 cd/m² (typ) - 1500:1 (typ)

View Angle / Max Colors
85 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1280 x 1024 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024,
1600 x 1200, 1920 x1200

Composite Video Input(s)
With Multifunction Cable

Supported Video Signals
SVHS & COMPOSITE Compatible

Product Features
LED Backlight Technology, Multi-power AC & DC,
PBP (Picture By Picture), PIP (Picture In Picture),
Multifunction Connector, Hotkey Functionality, Dimmable 0-100%

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24 VDC - 50W (typ) - 60W (max)

User Controls and Activity
Power On/Off + On Screen Display Menu (push button)
Brightness Control
Hotkeys (left/right - push buttons)
Mode Status Illuminated LED-Ring Indicator

Connectors
• DVI IN: 1 x DVI-I 29P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• VGA OUT: 1 x HD D-SUB 15P (female)
• Multifunction: 1 x D-SUB 160P (female)
• USB: 1 x Type B (female)
• 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 (male) Amphenol FCC17

Product Dimensions and Weight
W:460.00 [18.11''] x H:400.00 [15.75''] x D:82.00 [3.23''] mm [inch]
Approx 7.0kg / 15.4lbs

Product Carton Size and Weight
L:600.00 [23.62''] x W:560.00 [22.05''] x H:220.00 [8.66''] mm [inch]
10.0kg / 22.0lbs

Factory Options
• Resistive or Capacitive Touchscreen
• Keypad only or Keypad+Potmeter+Buzzer controls
• Optical Bonding Technology
• Speaker / Buzzer
• Color Calibrated models (ECDIS)

Accessories
Bracket (tilt up/down), Rotary Bracket (left/right), Sun Visor,
VESA Bracket, 19'' Rack Adapter Frame, Water Cover.
Multifunction Cable Options:
1 x RS-232 COM or 1 x RS-232 COM + 3 x BNC Video In or
1 x RS-232 COM + 3 x BNC Video In + 1 x COM Touch

Capabilities / Prepared for
N/A

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529)

Compass Safe Distance
Standard: 65.00 [25.59''] - Steering: 35.00 [13.78''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IP66, NK - Nippon Kaiji Kyokai,
GL - Germanischer Lloyd, DNV - Det Norske Veritas,
ABS - American Bureau of Shipping, BV - Bureau Veritas,
LRS - Lloyd's Register, CCS - China Classification Society,
EU-RO-MR - Mutual Recognition

19 INCH
JH 19T14 MMD

TFT Technology
LED Backlight Technology, TFT Active-matrix,
MVA (Multi-domain Vertical Alignment) LCD Technology

Viewable Size and Active Area
19.0 inch - 376.32 [14.82''] (H) x 301.05 [11.85''] (V) mm [inch]

Native Resolution and Pixel Pitch
1280 x 1024 (SXGA) - 0.294 (H) x 0.294 (V) mm

Aspect Ratio and Response Time
5:4 - 20ms (typ)

Light Intensity and Contrast Ratio
350 cd/m² (typ) - 1500:1 (typ)

View Angle / Max Colors
85 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1280 x 1024 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024,
1600 x 1200, 1920 x1200

Composite Video Input(s)
With Multifunction Cable

Supported Video Signals
SVHS & COMPOSITE Compatible

Product Features
LED Backlight Technology, PBP (Picture By Picture),
PIP (Picture In Picture), Multifunction Connector,
Multi-power AC & DC, Hotkey Functionality, Dimmable 0-100%

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24 VDC
or Single-power 115/230VAC - 50/60Hz
50W (typ) - 60W (max)

User Controls and Activity
Power On/Off + On Screen Display Menu (push button)
Brightness Control
Hotkeys (left/right - push buttons)
Mode Status Illuminated LED-Ring Indicator

Connectors
• DVI IN: 1 x DVI-I 29P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• VGA OUT: 1 x HD D-SUB 15P (female)
• Multifunction: 1 x D-SUB 160P (female)
• USB: 1 x Type B (female)
• 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 (male) Amphenol FCC17

Product Dimensions and Weight
W:483.00 [19.02''] x H:444.00 [17.48''] x D:82.00 [3.23''] mm [inch]
Approx 9.0kg / 19.8lbs

Product Carton Size and Weight
L:600.00 [23.62''] x W:560.00 [22.05''] x H:220.00 [8.66''] mm [inch]
10.0kg / 22.0lbs

Factory Options
• Resistive or Capacitive Touchscreen
• Keypad only or Keypad+Potmeter+Buzzer controls
• Optical Bonding Technology
• Speaker / Buzzer
• Color Calibrated models (ECDIS)

Accessories
• 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
Multifunction Cable Options:
1 x RS-232 COM or 1 x RS-232 COM + 3 x BNC Video In or
1 x RS-232 COM + 3 x BNC Video In + 1 x COM Touch

Capabilities / Prepared for
N/A

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529)

Compass Safe Distance
Standard: 160.00 [62.99''] - Steering: 105.00 [41.34''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IP66, NK - Nippon Kaiji Kyokai
GL - Germanischer Lloyd, DNV - Det Norske Veritas,
ABS - American Bureau of Shipping, BV - Bureau Veritas,
LRS - Lloyd's Register, CCS - China Classification Society,
EU-RO-MR - Mutual Recognition

20 INCH
JH 20T17 MMD

TFT Technology
LED Backlight Technology, RGB Vertical Stripe,
a-Si TFT (Thin Film Transistor) Active Matrix

Viewable Size and Active Area
20.1 inch - 408.00 [16.06''] (H) x 306.00 [12.05''] (V) mm [inch]

Native Resolution and Pixel Pitch
1600 x 1200 (UXGA) - 0.255 (H) x 0.255 (V) mm

Aspect Ratio and Response Time
4:3 - 20ms (typ)

Light Intensity and Contrast Ratio
260 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors
85 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1600 x 1200 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024,
1600 x 1200, 1920 x 1200

Composite Video Input(s)
With Multifunction Cable

Supported Video Signals
SVHS & COMPOSITE Compatible

Product Features
PBP (Picture By Picture), PIP (Picture In Picture),
Multifunction Connector, Hotkey Functionality, Dimmable 0-100%

Power Specifications and Consumption
115/230VAC - 50/60Hz or 24 VDC - 100W (max)

User Controls and Activity
Power On/Off + On Screen Display Menu (push button)
Brightness Control
Hotkeys (left/right - push buttons)
Mode Status Illuminated LED-Ring Indicator

Connectors
• DVI IN: 1 x DVI-I 29P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• VGA OUT: 1 x HD D-SUB 15P (female)
• Multifunction: 1 x D-SUB 160P (female)
• USB: 1 x Type B (female)
• AC Power IN: 1 x Std. IEC inlet
• AC Power OUT: 1 x Std. IEC outlet (5A max)
• If DC Power IN: 1 x 2P D-SUB (male) Amphenol FCC17

Product Dimensions and Weight
W:534.00 [21.02''] x H:481.00 [18.94''] x D:87.00 [3.43''] mm [inch]
Approx 15kg / 33lbs

Product Carton Size and Weight
L:700.00 [27.56''] x W:660.00 [25.98''] x H:220.00 [8.66''] mm [inch]
15.5kg / 34.1lbs

Factory Options
• 24 VDC Power Solution
• Resistive or Capacitive Touchscreen
• Keypad only or Keypad+Potmeter+Buzzer controls
• Optical Bonding Technology
• Speaker / Buzzer
• Color Calibrated models (ECDIS)

Accessories
Bracket (tilt up/down), Rotary Bracket (left/right), Sun Visor, VESA
Bracket, Water Cover.
Multifunction Cable Options:
1 x RS-232 COM or 1 x RS-232 COM + 3 x BNC Video In or
1 x RS-232 COM + 3 x BNC Video In + 1 x COM Touch

Capabilities / Prepared for
N/A

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529)

Compass Safe Distance
Standard: 75.00 [29.53''] - Steering: 35.00 [13.78''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, IP66,
EU-RO-MR - Mutual Recognition

22 INCH
JH 22T11 MMD

TFT Technology
Active Matrix, Thin Film Transistor (TFT), RGB Vertical Stripe

Viewable Size and Active Area
22.0 inch - 473.76 [18.65''] (H) x 296.10 [11.66''] (V) mm [inch]

Native Resolution and Pixel Pitch
1680 x 1050 (WSXGA) - 0.282 (H) x 0.282 (V) mm

Aspect Ratio and Response Time
16:10 - 20ms (typ)

Light Intensity and Contrast Ratio
300 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors
89 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1680 x 1050 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024, 1600 x 1200, 1680 x 1050

Composite Video Input(s)
With Multifunction Cable

Supported Video Signals
SVHS & COMPOSITE Compatible

Product Features
PBP (Picture By Picture), PIP (Picture In Picture), Dimmable 0-100%
Multi-power AC & DC, Multifunction Connector, Hotkey Functionality

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24 VDC
or Single-power 115/230VAC - 50/60Hz
85W (typ) - 100W (max)

User Controls and Activity
Power On/Off + On Screen Display Menu (push button)
Brightness Control
Hotkeys (left/right - push buttons)
Mode Status Illuminated LED-Ring Indicator

Connectors
• DVI IN: 1 x DVI-I 29P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• VGA OUT: 1 x HD D-SUB 15P (female)
• Multifunction: 1 x D-SUB 160P (female)
• USB: 1 x Type B (female)
• AC Power IN: 1 x Std. IEC inlet
• AC Power OUT: 1 x Std. IEC outlet (5A max)
• If DC Power IN: 1 x 2P D-SUB (male) Amphenol FCC17

Product Dimensions and Weight
W:572.50 [22.54''] x H.444.00 [17.48''] x D:82.00 [3.23''] mm [inch]
Approx 14.50kg / 31.9lbs

Product Carton Size and Weight
L:700.00 [27.56''] x W:660.00 [25.98''] x H:220.00 [8.66''] mm [inch]
16.0kg / 35.2lbs

Factory Options
• Capacitive Touchscreen (requires Optical Bonding Technology)
• Optical Bonding Technology
• Color Calibrated models (ECDIS)
• Keypad only or Keypad+Potmeter+Buzzer controls

Accessories
Bracket (tilt up/down), EN60945 Tested Bracket (tilt up/down), Rotary Bracket (left/right), Sun Visor, VESA Bracket.
Multifunction Cable Options:
1 x RS-232 COM or 1 x RS-232 COM + 3 x BNC Video In or
1 x RS-232 COM + 3 x BNC Video In + 1 x COM Touch

Capabilities / Prepared for
N/A

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529)

Compass Safe Distance
Standard: 160.00 [62.99''] - Steering: 90.00 [35.43''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IP66, NK - Nippon Kaiji Kyokai,
GL - Germanischer Lloyd, DNV - Det Norske Veritas,
ABS - American Bureau of Shipping, BV - Bureau Veritas,
LRS - Lloyd's Register, CCS - China Classification Society,
EU-RO-MR - Mutual Recognition

23 INCH
JH 23T14 MMD

TFT Technology
LED Backlight Technology, Thin Film Transistor (TFT) Active Matrix, MVA (Multi-domain Vertical Alignment) LCD Technology

Viewable Size and Active Area
23.1 inch - 470.40 [18.52''] (H) x 352.80 [13.89''] (V) mm [inch]

Native Resolution and Pixel Pitch
1600 x 1200 (UXGA) - 0.294 (H) x 0.294 (V) mm

Aspect Ratio and Response Time
4:3 - 12ms (typ)

Light Intensity and Contrast Ratio
400 cd/m² (typ) - 600:1 (typ)

View Angle / Max Colors
85 deg. (up/down/left/right) - 16.7 million

Optimal Resolution and Hz
1600 x 1200 @ 60 Hz

Detectable Resolutions
640 x 350, 640 x 480, 720 x 400, 800 x 600, 1024 x 768, 1280 x 1024, 1600 x 1200, 1920 x 1200

Composite Video Input(s)
With Multifunction Cable

Supported Video Signals
SVHS & COMPOSITE Compatible

Product Features
LED Backlight Technology, Multi-power AC & DC, PBP (Picture By Picture), PIP (Picture In Picture), Multifunction Connector, Hotkey Functionality, Dimmable 0-100%

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24 VDC
95W (typ) - 125W (max)

User Controls and Activity
Power On/Off + On Screen Display Menu (push button)
Brightness Control
Hotkeys (left/right - push buttons)
Mode Status Illuminated LED-Ring Indicator

Connectors
• DVI IN: 1 x DVI-I 29P (female)
• VGA IN: 1 x HD D-SUB 15P (female)
• VGA OUT: 1 x HD D-SUB 15P (female)
• Multifunction: 1 x D-SUB 160P (female)
• USB: 1 x Type B (female)
• AC Power IN: 1 x Std. IEC inlet
• AC Power OUT: 1 x Std. IEC outlet (5A max)
• DC Power IN: 1 x 2P DSUB (male) Amphenol FCC17

Product Dimensions and Weight
W:584.00 [22.99''] x H:534.00 [21.02''] x D:85.00 [3.35''] mm [inch]
Approx 18kg / 40lbs

Product Carton Size and Weight
L:700.00 [27.56''] x W:660.00 [25.98''] x H:220.00 [8.66''] mm [inch]
19.0kg / 41.8lbs

Factory Options
• Capacitive Touchscreen
• Keypad only or Keypad+Potmeter+Buzzer controls
• Optical Bonding Technology
• Speaker / Buzzer
• Color Calibrated models (ECDIS)

Accessories
EN60945 Tested Bracket (tilt up/down), Bracket (tilt up/down), Rotary Bracket (left/right), Sun Visor, VESA Bracket, Water Cover.
Multifunction Cable Options:
1 x RS-232 COM or 1 x RS-232 COM + 3 x BNC Video In or
1 x RS-232 COM + 3 x BNC Video In + 1 x COM Touch

Capabilities / Prepared for
N/A

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating
Protection: IP66 front - IP20 rear (EN60529)

Compass Safe Distance
Standard: 160.00 [62.99''] - Steering: 105.00 [41.34''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IP66, NK - Nippon Kaiji Kyokai,
GL - Germanischer Lloyd, DNV - Det Norske Veritas,
ABS - American Bureau of Shipping, BV - Bureau Veritas,
LRS - Lloyd's Register, CCS - China Classification Society,
EU-RO-MR - Mutual Recognition

COMPUTERS

Hatteland Display's range of type-approved marine computers is designed to perform in harsh environments while providing the performance and flexibility you expect.

We offer rack mount and black box / standalone computer solutions for every need. Our computers are used by system integrators, boat builders and end-users and can be found on all vessel types, all over the world. If you are looking for a high quality marine computer for navigation, monitoring or entertainment solutions, Hatteland Display can fulfil your high expectations at a reasonable cost.

Our computer range covers all eventualities and requirements. We offer a wide range of processor choices, SSD, HDD storage and power options, and solid state technology, neatly engineered within industry standard form factors such as 19 inch rack mount, 2U, 3U and 4U.

We continually develop our marine computers portfolio to make the best use of emerging computer technology so you can be sure that your Hatteland Display computer offers the power needed to run modern applications*, with the flexibility to be installed wherever you want, for any marine use.

EXTREME FLEXIBILITY !
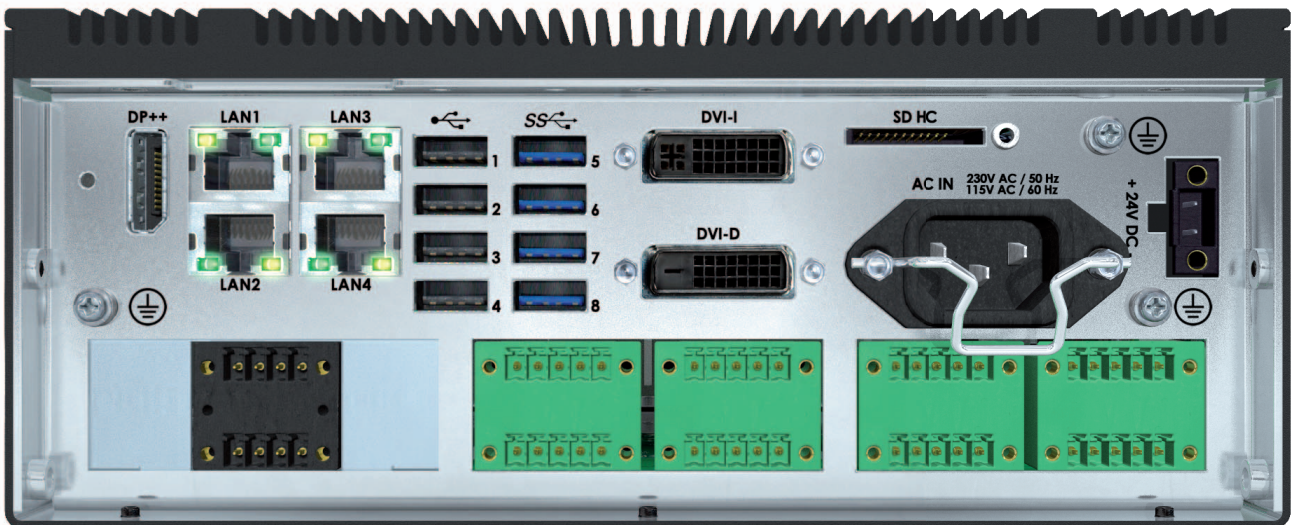
The new HT B30 Compact Fanless Solid State solution. "State Of The Art" computer that offers the widest range of options even in the smallest form factor possible!
Example: 4 x Digital IN+OUT, 8 x NMEA COM, 4 x Gigabit LAN, 8 x USB, Triple Head Graphics Outputs, Multi-power (AC+DC) and even more.

*Supported factory installed Operating Systems delievered with Hatteland Display Panel Computers and Computers:

Embedded Enterprise (WEE):	Linux:
- Windows® 10 IoT Enterprise 2016 LTSB (64bit) - Microsoft® Windows® 7 Professional SP1 32/64bit - Microsoft® Windows® 7 Ultimate SP1 32/64bit - Microsoft® Windows® Server 2008R2 64bit - Microsoft® Windows® Server 2012 64bit - Microsoft® Windows® Server 2012R2 64bit	For Apollo Lake: use kernel 4.10 or later For Skylake: use kernel 4.4 or later Kernel is defined by main system chipset.

Product names and trademarks are properties of their respective owners.
List above does not apply to all products. Check relevant Data Sheet from Hatteland Display to find actual supported Operating Systems.
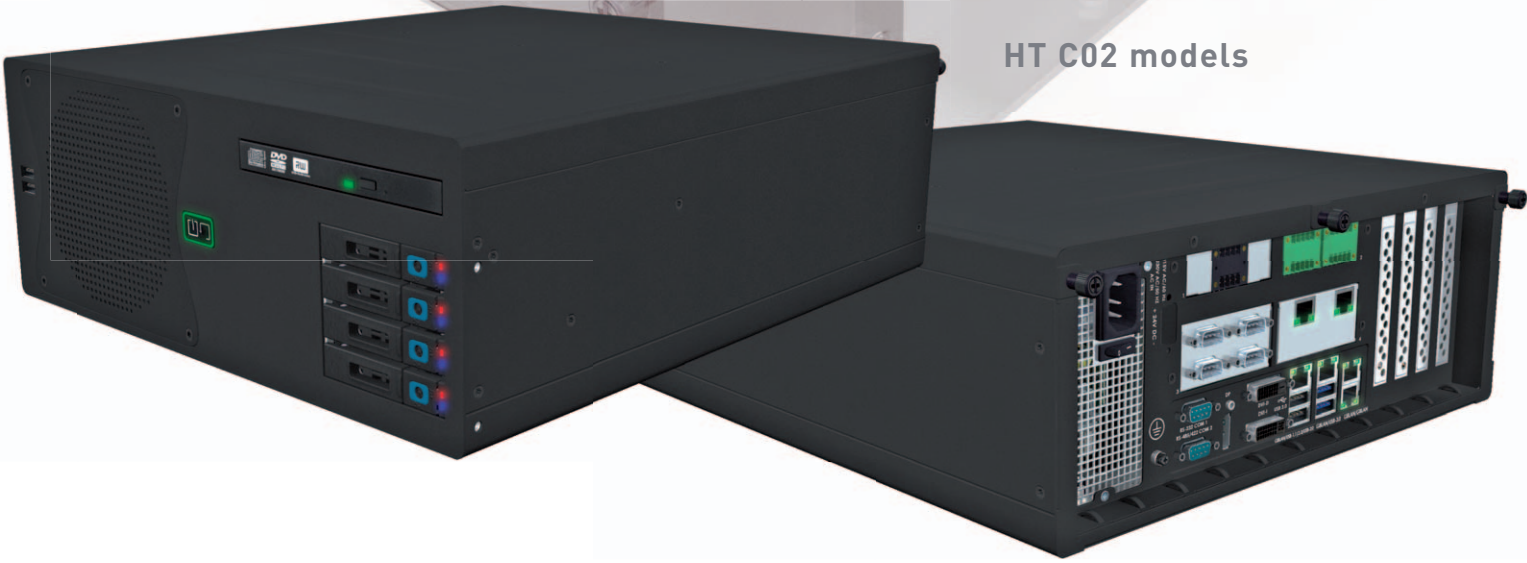
HT B30

SHORT DEPTH MODEL
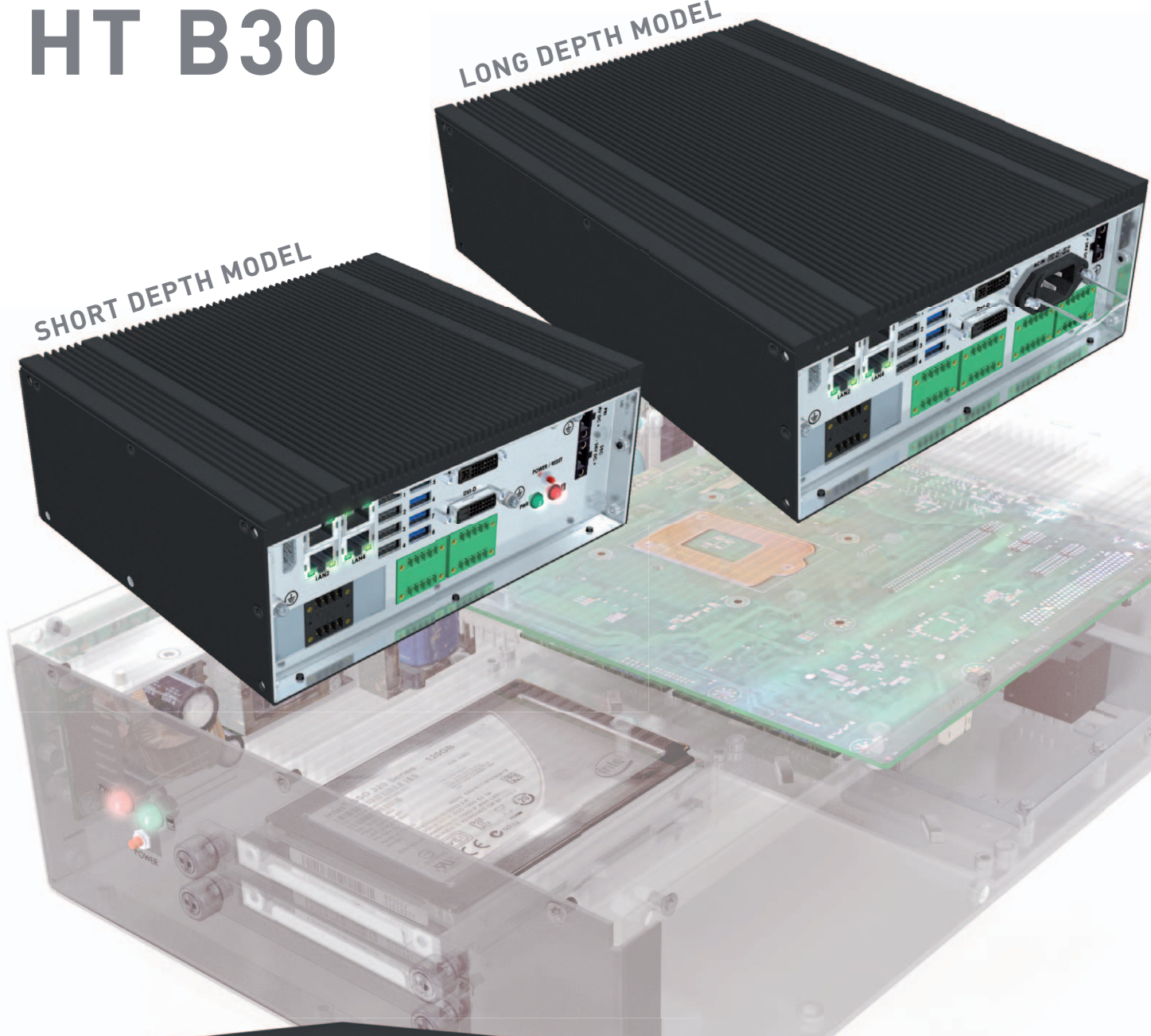
LONG DEPTH MODEL

HT C02 models

All our computers are delivered with mounting brackets as standard...
Designed to perform in harsh environments...

FANLESS
HT B30K
Short Depth Model

Installed Operating System Options
None or Standard OS/Customized image, review datasheet for list.

Storage Options
1 x SSD Type m.2 SATA:
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))

Processor / CPU and FSB Speed Options
1 x Intel® Core™ i5-6300U, 2.4GHz / 3GHz 2/4 @15W, 403 GFLOPS
or 1 x Intel® Core™ i7-6600U, 2.6GHz / 3.4GHz 2/4 @15W, 403 GFLOPS
or 1 x Intel® Celeron® 3955U, 2.0GHz 2/2 @15W, 173 GFLOPS

Memory Options
Dual Channel, DDR4 SO-DIMM, 2 slots available
2x4GB (Standard), 2x8GB, 2x16GB (Max)

System and Graphics Chipset / Connectors
System: Integrated in 6th Generation Intel® Core™ U-series processor
Graphics: Intel® HD Graphics 520 (510 for G3955U CPU),
Supports: OpenGL 4.4, DirectX 12.0, OpenCL 2.0. 3 independent
displays possible (1 x DVI-I + 1 DVI-D + 1 x DP++ 1.2)

Max Resolution / Max Hz
DP: 4096 x 2304@60Hz - DVI-I/D: 1920 x 1200@60Hz

BIOS
ACPI support

PCI Slots / PCIe Slots
None

Media Drive(s)
1 x SDHC (SDcard) slot

LPT / Parallel Port
None

Serial Port(s)
None or Options:
1 or 2 x RS-232 COM Serial Ports DB9M, isolated
1 or 2 x RS-422/485 NMEA Isolated (PCA100293-1, 5-pin T. Block 3.81)

Ethernet Port(s)
2 x RJ-45 10/100/1000Mbps Gigabit LAN (Intel, Teaming Support)
2 x RJ-45 10/100/1000Mbps Gigabit LAN (Realtek, Teaming Support)

USB Port(s)
4 x USB2.0 Type A (<5m) + 4 x USB3.0 Type A (<3m)

Keyboard and Mouse Ports
None or Option: 1 x PS/2 Keyboard + 1 x PS/2 Mouse

Audio Ports
None or via Factory Option VSD203134-1

Speaker / Buzzer
None

Power Manager and Monitoring
ACPI S3/S4 - Temperatures, voltages, Battery load status Alarm &
cooling fan status. Auto throttling control if CPU overheats
RTC: > 0.2s/day* (requires calibration)
Watchdog Timer: 256 Segments, 0, 1, 2...255 sec/min
Battery: Normal operational conditions: life time >5 year, worst case
conditions(@70C, 24/7): life time >2 year

Power Specifications and Consumption
Dual 24VDC input, 24V nom., Galvanic isolated: 2 x 2-pin T. Block 5.08
Operating AC+DC: 43W (typ)* - 50W (max) - *At 25% load
Max Allowed External USB load = 10W.

Digital I/O Connectors
None or option:
1 x HT 00268 OPT-A1 (4 x Digital Input/Output isolated) module

Key Features
Short Depth Model, HDD-Free Solution possible with SSD, Fanless,
no moving parts, Aluminium Cooling Chassis w/no apertures, AC Power
or Dual DC Power, Compact Form Factor, Includes Mounting Bracket,
Flexibility of storage and support wide range of integrated interface
modules

Product Dimensions and Weight
W:220.00 [8.66''] x H:89.00 [3.50''] x D:192.00 [7.56''] mm [inch]
2.5kg / 5.5lbs

Product Carton Size and Weight
L:560.00 [22.05''] x W:250.00 [9.84''] x H:480.00 [18.90''] mm [inch]
TBD kg / TBD lbs

User Controls / Activity
Combined Power/Reset Button, Power LED, Activity LED SSD

Factory Options
• 1 or 2 x PCA100293-1 (4xCOM RS-422/485 isolated NMEA 4 channel)
• 1 x ZIA0001310-B (1 x CAN isolated, 2 channel) module
• 1 x PCA100297-1 (4 x Digital Input/Output isolated) module
• 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports (RJ45) module
• 1 x VSD203134-1 (2W Amplified Audio out via DB9F)
• 1, 2 or 3 x PCA100309-1: Dual Isolated RS-232, 2xDB9M module
• TPM2.0 (Trusted Platform Module)
• Variations of Storage Devices, RAM Memory and Operating System
* Contact us for possible combinations. Review separate datasheet

Accessories
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HT 00228 OPT-A1: 1 x Mounting Plate with cable relief, RAL9011
• HT MBK STD-A2: 1 x Mounting Bracket Kit - included with delivery
• HT RET STD-A1: 1 x Cable Retainer/Relief Kit - included with delivery
• HT RMK STD-A1: 1 x 2U Rack Mount Kit, RAL9011
• HT RMK STD-H1: 1 x 2U Rack Mount Kit w/Handles, RAL9011
• HT SRK STD-A1: 1 x 3U 19'' Slide Rack Mount Kit (2 x side-by-side)
• HT 00224 OPT-A1: 2 x 20'' ball bearing sliding rail kit for 19'' Rack*
• HT 00225 OPT-A1: 2 x 26'' ball bearing sliding rail kit for 19'' Rack*
• JH C01MF A-A: 1 x USB Cable 1m, Type A/Chassis mount receptacle
• HT 00300 MSOS: OS options -> http://www.hatteland-display.com/os
* Must be combined with HT SRK STD-A1

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

Compass Safe Distance
Standard: 30.00 [11.81''] - Steering: 25.00 [9.84''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, EN55024,
EN55022,Class A, EU-RO-MR - Mutual Recognition

FANLESS
HT B30G
Long Depth Model

Installed Operating System Options
None or Standard OS/Customized image, review datasheet for list.

Storage Options
2 x 2.5'' Removable Front Tray and 1 x Internal Storage options:
1 or 2 x 2.5'' SSD SATA (Multi Level - MLC):
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
1 x SSD Type m.2 SATA:
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))

Processor / CPU and FSB Speed Options
1 x Intel® Core™ i5-6300U, 2.4GHz / 3GHz 2/4 @15W, 403 GFLOPS
or 1 x Intel® Core™ i7-6600U, 2.6GHz / 3.4GHz 2/4 @15W, 403 GFLOPS
or 1 x Intel® Celeron® 3955U, 2.0GHz 2/2 @15W, 173 GFLOPS

Memory Options
Dual Channel, DDR4 SO-DIMM, 2 slots available
2x4GB (Standard), 2x8GB, 2x16GB (Max)

System and Graphics Chipset / Connectors
System: Integrated in 6th Generation Intel® Core™ U-series processor
Graphics: Intel® HD Graphics 520 (510 for G3955U CPU),
Supports: OpenGL 4.4, DirectX 12.0, OpenCL 2.0. 3 independent
displays possible (1 x DVI-I + 1 DVI-D + 1 x DP++ 1.2)

Max Resolution / Max Hz
DP: 4096 x 2304@60Hz - DVI-I/D: 1920 x 1200@60Hz

BIOS
ACPI support

PCI Slots / PCIe Slots
None

Media Drive(s)
1 x SDHC (SDcard) slot

LPT / Parallel Port
None

Serial Port(s)
None or Options:
1 or 2 x RS-232 COM Serial Ports DB9M, isolated
1 or 2 x RS-422/485 NMEA Isolated (PCA100293-1, 5-pin T. Block 3.81)

Ethernet Port(s)
2 x RJ-45 10/100/1000Mbps Gigabit LAN (Intel, Teaming Support)
2 x RJ-45 10/100/1000Mbps Gigabit LAN (Realtek, Teaming Support)

USB Port(s)
4 x USB2.0 Type A (<5m) + 4 x USB3.0 Type A (<3m)

Keyboard and Mouse Ports
None or Option: 1 x PS/2 Keyboard + 1 x PS/2 Mouse

Audio Ports
None or via Factory Option VSD203134-1

Speaker / Buzzer
None

Power Manager and Monitoring
ACPI S3/S4 - Temperatures, voltages, Battery load status Alarm &
cooling fan status. Auto throttling control if CPU overheats
RTC: > 0.2s/day* (requires calibration)
Watchdog Timer: 256 Segments, 0, 1, 2...255 sec/min
Battery: Normal operational conditions: life time >5 year, worst case
conditions(@70C, 24/7): life time >2 year

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
Multipower: 1 x Std IEC inlet (AC) + 1 x 2-pin Terminal Block 5.08 (DC)
Operating AC+DC: 39W (typ)* - 50W (max) - *At 25% load
Max Allowed External USB load = 10W.

Digital I/O Connectors
None or option:
1 x HT 00268 OPT-A1 (4 x Digital Input/Output isolated) module

Key Features
Long Depth Model, HDD-Free Solution possible with SSD, Fanless,
no moving parts, Aluminium Cooling Chassis w/no apertures, Multi-
power AC & DC, Compact Form Factor, 2 x 2.5'' sized removable
storage devices in front. Includes Mounting Bracket, Flexibility of
storage and support wide range of integrated interface modules

Product Dimensions and Weight
W:220.00 [8.66''] x H:89.00 [3.50''] x D:300.00 [11.81''] mm [inch]
3.7kg / 8.1lbs

Product Carton Size and Weight
L:560.00 [22.05''] x W:250.00 [9.84''] x H:480.00 [18.90''] mm [inch]
TBD kg / TBD lbs

User Controls / Activity
Combined Power/Reset Button, Power LED, Activity LED SSD

Factory Options
• 1 or 2 x PCA100293-1 (4xCOM RS-422/485 isolated NMEA 4 channel)
• 1 x ZIA0001310-B (1 x CAN isolated, 2 channel) module
• 1 x PCA100297-1 (4 x Digital Input/Output isolated) module
• 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports (RJ45) module
• 1 x VSD203134-1 (2W Amplified Audio out via DB9F)
• 1, 2 or 3 x PCA100309-1: Dual Isolated RS-232, 2xDB9M module
• TPM2.0 (Trusted Platform Module)
• Variations of Storage Devices, RAM Memory and Operating System
* Contact us for possible combinations. Review separate datasheet

Accessories
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HT 00228 OPT-A1: 1 x Mounting Plate with cable relief, RAL9011
• HT MBK STD-A2: 1 x Mounting Bracket Kit - included with delivery
• HT RET STD-A1: 1 x Cable Retainer/Relief Kit - included with delivery
• HT RMK STD-A1: 1 x 2U Rack Mount Kit, RAL9011
• HT RMK STD-H1: 1 x 2U Rack Mount Kit w/Handles, RAL9011
• HT SRK STD-A1: 1 x 3U 19'' Slide Rack Mount Kit (2 x side-by-side)
• HT 00224 OPT-A1: 2 x 20'' ball bearing sliding rail kit for 19'' Rack*
• HT 00225 OPT-A1: 2 x 26'' ball bearing sliding rail kit for 19'' Rack*
• JH C01MF A-A: 1 x USB Cable 1m, Type A/Chassis mount receptacle
• HD 000TR SX2-A2: 1 x Removable Front Tray 2.5'' Empty
• HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5'' w/Storage Device
• HT 00300 MSOS: OS options -> http://www.hatteland-display.com/os
* Must be combined with HT SRK STD-A1

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

Compass Safe Distance
Standard: 25.00 [9.84''] - Steering: 15.00 [5.91''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, EN55024,
EN55022,Class A, EU-RO-MR - Mutual Recognition

FANLESS
HT B22
Compact

Installed Operating System Options
None or Standard OS/Customized image, review datasheet for list.
Note: Microsoft® Windows® XP supported.

Storage Options
2 x 2.5'' Removable Front Tray. Option: 1 or 2 can be installed of:
2.5'' SSD SATA (Multi Level - MLC):
150GB(412TBW),240GB(599TBW),480GB(945TBW),960GB(1750TBW)
2.5'' HDD SATA 1TB
2.5'' HDD SATA Ruggedized/Automotive 320GB

Processor / CPU and FSB Speed Options
Dual Core Technology:
1 x Intel® Core™ i5-520E, 2.40GHz, FSB: 800/1066MHz, 3MB Cache
or 1 x Intel® Core™ i7-620LE, 2.0GHz, FSB: 1066MHz, 4MB Cache
or 1 x Intel® Celeron® P4505, 1.86GHz, FSB: 800MHz, 2MB Cache

Memory Options
1x 2GB, 4GB (max) Single 200pin ECC DDR3 800/1066MHz SO-DIMM

System and Graphics Chipset / Connectors
Intel® BD82QM57 + Intel® Arrandale IGD, DVMT 5.0, OpenGL 2.1,
DirectX 10.0, OpenCL (not supported), HW Decoder: Intel® CVT HD
1 x DVI-I 24P + 1 x HD DB15F

Max Resolution / Max Hz
VGA: 2048 x 1536 @ 75 Hz. DVI: 1920 x 1200 @ 60 Hz

BIOS
UEFI AMIBIOS

PCI Slots / PCIe Slots
None

Media Drive(s)
None

LPT / Parallel Port
None or option:
1 x HT 00272 OPT-A1 (Parallel Port LPT, DB25F, Bi-Dir. ECP/EPP)

Serial Port(s)
1 x DB9M RS-232 + 1 x DB9M RS-422/RS-485
+ 4 x RS-422/485 NMEA Isolated (PCA100293-1, 5-pin T. Block 3.81)

Ethernet Port(s)
1 x RJ-45 10/100/1000Mbps Gigabit LAN (Intel® 82577LM)
1 x RJ-45 10/100/1000Mbps Gigabit LAN (Realtek RTL8111C)

USB Port(s)
2 x USB2.0 Type A Front (<5m) + 3 x USB2.0 Type A Rear (<5m)
1 x USB1.1 Type A Rear (<10m)

Keyboard and Mouse Ports
1 x PS/2 Keyboard + 1 x PS/2 Mouse

Audio Ports
2 x 3.5mm mini jack (Realtek ALC892, 5.1 channel), Line Out+Mic-in
or + Option: 1 x HT 00271 OPT-A1 (2W Amplified Audio out via DB9F)

Speaker / Buzzer
None

Power Manager and Monitoring
ACPI S3/S4 - Temperatures, voltages & cooling fan status.
Auto throttling control if CPU overheats
Watchdog Timer: 256 Segments, 0, 1, 2...255 sec/min

Power Specifications and Consumption
Multi-power 115/230VAC - 50/60Hz + 24VDC
1 x Std IEC inlet (AC) + 1 x 2-pin Terminal Block 5.08 (DC)
Operating: 42W (typ)* - 60W (max) - *At 25% load

Digital I/O Connectors
None or option:
1 x PCA100297-1 (4 x Digital Input/Output isolated)

Key Features
Heat Pipe Cooling Technology, Interchangeable CPU,
HDD-Free Solution possible with SSD, Fanless, no moving parts,
Aluminium Cooling Chassis w/no apertures, Multi-power AC & DC,
Compact Form Factor, Includes Mounting Bracket

Product Dimensions and Weight
W:220.00 [8.66''] x H:89.85 [3.54''] x D:300.00 [11.81''] mm [inch]
5.3kg / 11.7lbs

Product Carton Size and Weight
L:560.00 [22.05''] x W:250.00 [9.84''] x H:480.00 [18.90''] mm [inch]
7.6kg / 16.7lbs

User Controls / Activity
Power Button, Reset Button, Power LED, Activity LED HDD/SSD trays

Factory Options
• 1 x PCA100293-1 (4 x COM RS-422/485 isolated NMEA 4 channel)
• 1 x ZIA0001310-B (1 x CAN isolated, 2 channel)
• 1 x PCA100297-1 (Isolated Digital IO module, 4 x IN + 4 x OUT)
• 1 x HT 00271 OPT-A1 (2W Amplified Audio out via DB9F)
• 1 x HT 00272 OPT-A1 (Parallel Port LPT, DB25F, Bi-Dir. ECP/EPP)
• 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports (RJ45)
• 1 or 2 x PCA100309-1: Dual Isolated RS-232, 2xDB9 module
• Variations of SSD/HDD Storage, RAM Memory, Operating System
* Contact us for possible combinations. Review separate datasheet.

Accessories
• HT 00270 OPT-A1: 1 x Mounting Bracket Kit - included with delivery
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HT 00228 OPT-A1: 1 x Mounting Plate with cable relief, RAL 9011
• JH C01MF A-A: 1 x USB Cable 1m, Type A/Chassis mount receptacle
• HD 000TR SX1-A1: 1 x Removable Front Tray 2.5'' Empty
• HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5'' w/Storage Device
• HT 00300 MSOS: OS options -> www.hatteland-display.com/os

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-30.0°C / -22.0°F to +70.0°C / +158.0°F, Humidity up to 95%

Compass Safe Distance
Standard: 135.00 [53.15''] - Steering: 85.00 [33.46''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002),IACS E10,EN55024,EN55022,Class A,
MIL-STD-810F Shock 30G/11ms, 50G/30ms.
EU-RO-MR - Mutual Recognition

2U SIZE
HT 221
19" Rack Standard

Installed Operating System Options
None or Standard OS/Customized image, review datasheet for list.

Storage Options
4 x 2.5'' Removable Front Tray. Option: 1,2,3 or 4 can be installed of:
2.5'' SSD SATA (Multi Level - MLC):
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
2.5'' HDD SATA 1TB
2.5'' HDD SATA Ruggedized/Automotive 320GB

Processor / CPU and FSB Speed Options
1 x Intel® Core™ i5-4570S, Quad Core 2.9GHz, 6MB Cache
or 1 x Intel® Core™ i7-4770S, Quad Core 3.1/3.9GHz, 8MB Cache
or 1 x Intel® Core™ i3-4330, Dual Core 3.5GHz, 4MB Cache
All CPU's has 1600Mhz Front Side Bus (FSB)

Memory Options
2 x 2GB, 4GB, 8GB (Dual Ch. 204-pin DDR3 1600 SODIMM)
Max 16GB RAM possible

System and Graphics Chipset / Connectors
Intel® Q87 / Intel® HD 4600 Graphics integrated, OpenCL 1.2,
Direct3D 11.1 w/Shader Model 5.0, OpenGL 4.2/3.3 (Linux).
1 x 29P (female) DVI-I + 1 x 24P (female) DVI-D +1 x DP (DisplayPort)

Max Resolution / Max Hz
Max 1920 x 1200 @ 60Hz for DVI-I/VGA/DVI-D
Max 3840 x 2160 (4K UHD) @ 30Hz for DP (DisplayPort)

BIOS
AMI BIOS. On-board BIOS Speaker.

PCI Slots / PCIe Slots
1 x PCI2.3, 3V/5V Interface, 1 x PCIe x16 + 1 x PCIe x4 + 1 x PCIe x1
All slots are Half/Low Profile & Half Length

Media Drive(s)
1 x DVD-RW/CD-RW Dual Recorder/Player

LPT / Parallel Port
None

Serial Port(s)
1 x DB9M RS-232 + 1 x DB9M RS-422/RS-485

Ethernet Port(s)
2 x RJ45 10/100/1000Mbps - Intel® I217/I210 w/ Intel® Teaming
2 x RJ45 10/100/1000Mbps - Realtek 8111E

USB Port(s)
2 x USB2.0 (<5m) ports in front + 2 x USB3.0 (<3m) ports in rear
1 x USB2.0 (<5m) + 1 x USB1.1 (<10m) / USB2.0 (<5m) ports in rear

Keyboard and Mouse Ports
None or option:
1 x VSD100920-1 (2 x PS/2 5pin mini (Keyboard + Mouse inputs)

Audio Ports
None or option:
1 x VSD100944-1 (Realtek ALC892-CG HD Audio, 5.1 channel)

Speaker / Buzzer
None

Power Manager and Monitoring
ACPI - Temperature, voltage, cooling fans with auto throttle.
Watchdog Timer, reset: 1 sec~255 min & 1 sec. or 1 min/step

Power Specifications and Consumption
1 x Std IEC inlet: 115/230VAC - 50/60Hz (330W)
Operating 70W (typ)

Digital I/O Connectors
None or option PCA100297-1 (DIO module)

Key Features
Black (EP0301-4040627) Heavy-duty steel 2U Rackmount chassis
with handles, Easy Removable Front Air Filter, Supports rear cable
strain relief bracket kit (included) with grounding thread, Supports
rear PCI card support holder fixed to chassis, 2 x Internal Cooling
fans in front (80x80mm)

Product Dimensions and Weight
W:430.00 [16.93''] x H:80.00 [3.46''] x D:460.80 [18.14''] mm [inch]
2U Rack size in height. Approx 10kg / 22lbs

Product Carton Size and Weight
L:630.00 [24.80''] x W:580.00 [22.83''] x H:200.00 [7.87''] mm [inch]
30.0kg / 66.0lbs

User Controls / Activity
Front: Power On/Off Push Button,Reset Button,Power/HDD/SSD LED

Factory Options
• M9140-E512LAF: Matrox®9140 LP, PCIe x16, 4xDVI-I, 512MB
• CP114EL-I: COMCard,PCIe,1xDB44F/4xDB9M isolat.,RS232/422/485
• i350F2BLK: Intel® Server Adp. I350-F2,FiberLAN (2xLC Fiber Optic)
• ZIA0001310-B: CAN isolated, 2 channel
• PCA100297-1: Digital IO Isolated, 4 IN + 4 OUT
• PCA100293-1: COM RS-422/485 isolated NMEA 4 channel
• PCA100293-2: COM RS-422/485 isolated NMEA 4 channel External
• PCA100298-1: LAN 10/100Mbps, 2 ports (RJ45)
• VSD100944-1: 2W Amplified Audio Mono/Stereo (1xDB9F+2x3.5mm)
• VSD100920-1: 2 x PS/2 5pin mini (Keyboard + Mouse inputs)
• VSD100922-1: Additional USB ports: 2 x USB2.0
• 82976: Additional USB ports: 2 x USB3.0
• SX-118A: 1 x Parallel Port LPT,DB25F,Bi-Dir. ECP/EPP,PCIe x1 card
• Variations of Storage, RAM Memory and Operating System
For all Factory Mounted Options Combinations, review User Manual.

Accessories
• 1282219-KD: 2x20'' ball bearing rail & mount kit,19'' Rack
• 1282220-KD: 2x26'' ball bearing rail & mount kit,19'' Rack
• JH C01MF A-A: 1 x USB Cable 1m, Type A-Chassis mount receptacle
• HT 00300 MSOS: OS options -> www.hatteland-display.com/os
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HD 000TR SX1-A1: 1 x Removable Front Tray 2.5'' Empty
• HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5'' w/Storage Device
• H732S10Q20-0005100 = 1 x Replacement Front Air Filter

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

Compass Safe Distance
Standard: 200.00 [78.74''] - Steering: 130.00 [51.18''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, EN61162,
EU RO MR - Mutual Recognition

COMPACT
HT C02
High-End / Mid Level

Installed Operating System Options
None or Standard OS/Customized image, review datasheet for list.

Storage Options
4 x 2.5'' Removable Front Tray. Option: 1,2,3 or 4 can be installed of:
2.5'' SSD SATA (Multi Level - MLC):
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
2.5'' HDD SATA 1TB
2.5'' HDD SATA Ruggedized/Automotive 320GB

Processor / CPU and FSB Speed Options
1 x Intel® Core™ i5-4570S, Quad Core 2.9GHz, 6MB Cache
or 1 x Intel® Core™ i7-4770S, Quad Core 3.1GHz, 8MB Cache
or 1 x Intel® Core™ i3-4330, Dual Core 3.5GHz, 4MB Cache

Memory Options
2 x 2GB, 4GB, 8GB (Dual Ch. 204-pin DDR3 1600 SODIMM)
Max 16GB RAM possible

System and Graphics Chipset / Connectors
Intel® Q87 / Intel® HD 4600 Graphics integrated,
DirectX Support 11.2/12, Shader Model 5.0, OpenCL 1.2,
OpenGL Support 4.3 / 4.5/linux), Graphics Video Max Memory 2GB.
1 x 29P (female) DVI-I + 1 x 24P (female) DVI-D +1 x DP (DisplayPort)

Max Resolution / Max Hz
Max 1920 x 1200 @ 60Hz for DVI-I/VGA/DVI-D
Max 3840 x 2160 (4K UHD) @ 60Hz for DP (DisplayPort)

BIOS
AMI BIOS. On-board BIOS Speaker.

PCI Slots / PCIe Slots
1 x PCI2.3, 3V/5V Interface, 1 x PCIe x16 + 1 x PCIe x4 + 1 x PCIe x1
All slots are Full Height & Full Length profile

Media Drive(s)
1 x DVD-RW/CD-RW Dual Recorder/Player

LPT / Parallel Port
None

Serial Port(s)
1 x DB9M RS-232 + 1 x DB9M RS-422/RS-485

Ethernet Port(s)
2 x RJ45 10/100/1000Mbps - Intel® I217/I210 w/ Intel® Teaming
2 x RJ45 10/100/1000Mbps - Realtek 8111E

USB Port(s)
2 x USB2.0 (<5m) ports in front + 2 x USB3.0 (<3m) ports in rear
1 x USB2.0 (<5m) + 1 x USB1.1 (<10m) / USB2.0 (<5m) ports in rear

Keyboard and Mouse Ports
None or option:
1 x VSD100896-1: 2 x PS/2 5pin mini (Keyboard + Mouse inputs)

Audio Ports
None or option:
1 x VSD100897-1: Audio 2W Amplified (1xDB9F+3x3.5mm Jack)
Line-in,Line-Out,Mic

Speaker / Buzzer
None

Power Manager and Monitoring
ACPI - Temperature, voltage, cooling fans with auto throttle.
Watchdog Timer, reset: 1 sec~255 min & 1 sec. or 1 min/step

Power Specifications and Consumption
100-240V AC - 50/60Hz (PSU MAX AC330W)
or 24VDC (PSU MAX DC 220W)
Operating 70W (typ)
If AC Power IN: 1 x Std IEC inlet
If DC Power IN: 1 x 2p DSUB (male) Amphenol FCC17

Digital I/O Connectors
None or option:
1 x PCA100297-1: Digital IO Isolated, 4 IN + 4 OUT

Key Features
High Performance, Easy Removable Front Air Filter, Internal Cooling
fan in front (120x120mm),Service friendly,Includes mounting brackets

Product Dimensions and Weight
W:345.00 [13.58''] x H:133.00 [5.24''] x D:390.00 [15.35''] mm [inch]
3U Rack size in height. Approx 9kg / 19.8lbs

Product Carton Size and Weight
L:560.00 [22.05''] x W:240.00 [9.45''] x H:480.00 [18.90''] mm [inch]
Approx. 12kg / 26.4lbs

User Controls / Activity
Front: Power On/Off Push Button,Reset Button,Power/HDD/SSD LED

Factory Options
• M9140-E512LAF: Matrox®9140 LP, PCIe x16, 4xDVI-I, 512MB
• C680-E4GBF: Matrox®C680 FH/HL, PCIe x16, 6xDP, 4GB
• CP114EL-I: COMCard,PCIe,1xDB44F/4xDB9M isolat.,RS232/422/485
• VSD100897-1: Audio 2W Amp. 1xDB9F+3x3.5mm Jack
• i350F2BLK: Intel® Server Adp. I350-F2,FiberLAN (2xLC Fiber Optic)
• i350F4BLK: Intel® Server Adp. I350-F4,FiberLAN (4xLC Fiber Optic)
• PCA100294-1: COM un-isolated RS-232 via DB9M, 4 channel)
• PCA100298-1: LAN 10/100Mbps, 2 ports (RJ45)
• PCA100297-1: Digital IO Isolated, 4 IN + 4 OUT
• ZIA0001310-B: CAN isolated, 2 channel
• PCA100293-1: COM RS-422/485 isolated NMEA 4 channel
• VSD100896-1: 2 x PS/2 5pin mini (Keyboard + Mouse inputs)
• VSD100898-1: Additional USB ports: 2 x USB3.0+2 x USB2.0)
• SX-118A: 1 x Parallel Port LPT,DB25F,Bi-Dir. ECP/EPP,PCIe x1 card
• PCA100309-1: Dual Isolated RS-232 (RS232-2i), 2xDB9 module
• Variations of Storage, RAM Memory and Operating System
For all Factory Mounted Options Combinations, review User Manual.

Accessories
• HT 00225 OPT-A1: 2 x 26'' ball bearing rail & mounting kit, 19'' Rack
• HT 00224 OPT-A1: 2 x 20'' ball bearing rail & mounting kit, 19'' Rack
• HT 00223 OPT-A1: 1 x 4U 19'' Rack Case Kit(for HT 00224/00225)
• HT 00226 OPT-A1: 2 x Mounting Bracket, 4mm SECC+Zinc Plating
• JH C01MF A-A: 1 x USB Cable 1m, Type A-Chassis mount receptacle
• HT 00300 MSOS: OS options -> www.hatteland-display.com/os
• H733S30Q20-SP000-0: 1 x Replacement Front Air Filter w/4 screws
• HT 00273 OPT-A1: 4 x Digital IN/OUT isolated, USB ext. module
• HT 00262 OPT-A1: 4 x RS-422/RS-485 isolated, USB ext. module
• HT 00263 OPT-A1: 4 x RS-232 COM non-isolated, USB ext. module
• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HD 000TR SX1-A1: 1 x Removable Front Tray 2.5'' Empty
• HD xxxyy SX1-z1: 1 x Removable Front Tray 2.5'' w/Storage Device
• HT 00275 OPT-A1: 1 x PCI Mount Kit EN60945, Low Profile (LP)*
• HT 00229 OPT-A1: 1 x PCI Mount Kit,Half Height to Full Height*
• Delock 62638: 1 x miniDP to DP adapter for C680-E2GBF
*Any length of PCI Card supported.

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%
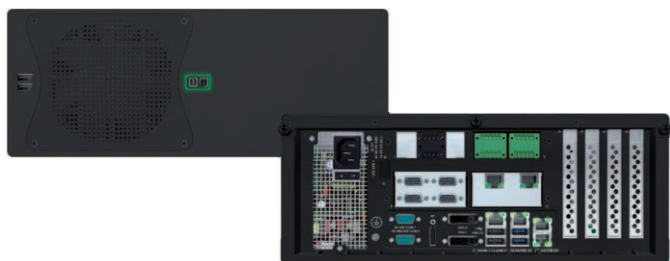
Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

Compass Safe Distance
Standard: 140.00 [55.12''] - Steering: 90.00 [35.43''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, EN61162,
EU RO MR - Mutual Recognition

COMPACT
HT C02
Entry Level

Installed Operating System Options
None or Standard OS/Customized image, review datasheet for list.

Storage Options
2 x internal 2.5'' devices possible. Option: 1 or 2 can be installed of:
2.5'' SSD SATA (Multi Level - MLC):
(150GB (412TBW),240GB (599TBW),480GB (945TBW),960GB (1750TBW))
2.5'' HDD SATA 1TB
2.5'' HDD SATA Ruggedized/Automotive 320GB

Processor / CPU and FSB Speed Options
1 x Intel® Core™ i3-4330, Dual Core 3.5GHz, 4MB Cache

Memory Options
2 x 2GB, 4GB, 8GB (Dual Ch. 204-pin DDR3 1600 SODIMM)
Max 16GB RAM possible

System and Graphics Chipset / Connectors
Intel® Q87 / Intel® HD 4600 Graphics integrated,
DirectX Support 11.2/12, Shader Model 5.0, OpenCL 1.2,
OpenGL Support 4.3 / 4.5/linux), Graphics Video Max Memory 2GB.
1 x 29P (female) DVI-I + 1 x 24P (female) DVI-D +1 x DP (DisplayPort)

Max Resolution / Max Hz
Max 1920 x 1200 @ 60Hz for DVI-I/VGA/DVI-D
Max 3840 x 2160 (4K UHD) @ 60Hz for DP (DisplayPort)

BIOS
AMI BIOS. On-board BIOS Speaker.

PCI Slots / PCIe Slots
1 x PCI2.3, 3V/5V Interface, 1 x PCIe x16 + 1 x PCIe x4 + 1 x PCIe x1
All slots are Full Height & Full Length profile

Media Drive(s)
None

LPT / Parallel Port
None

Serial Port(s)
1 x DB9M RS-232 + 1 x DB9M RS-422/RS-485

Ethernet Port(s)
2 x RJ45 10/100/1000Mbps - Intel® I217/I210 w/ Intel® Teaming
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VSD100896-1: 2 x PS/2 5pin mini (Keyboard + Mouse inputs)**

Audio Ports
None or option:
1 x VSD100897-1: Audio 2W Amplified (1xDB9F+3x3.5mm Jack)
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or 24VDC (PSU MAX DC 220W)
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11kg / 24lbs

User Controls / Activity
Front: Power On/Off Push Button,Reset Button,Power/HDD LED

Factory Options
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• CP114EL-I: COMCard,PCIe,1xDB44F/4xDB9M isolat.,RS232/422/485
• VSD100897-1: Audio 2W Amp. 1xDB9F+3x3.5mm Jack
• i350F2BLK: Intel® Server Adp. I350-F2,FiberLAN (2xLC Fiber Optic)
• i350F4BLK: Intel® Server Adp. I350-F4,FiberLAN (4xLC Fiber Optic)
• PCA100294-1: COM un-isolated RS-232 via DB9M, 4 channel)
• PCA100298-1: LAN 10/100Mbps, 2 ports (RJ45)
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• HT 00264 OPT-A1: 1 x CAN isolated, 2 channel, USB ext. module
• HT 00274 OPT-A1: 2 x LAN 10/100Mbps, RJ45, USB ext. module
• HT 00275 OPT-A1: 1 x PCI Mount Kit EN60945, Low Profile (LP)*
• HT 00229 OPT-A1: 1 x PCI Mount Kit,Half Height to Full Height*
• Delock 62638: 1 x miniDP to DP adapter for C680-E2GBF
*Any length of PCI Card supported.

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%

Storage Temperature
-20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

Compass Safe Distance
Standard: 140.00 [55.12''] - Steering: 90.00 [35.43''] cm [inch]

Type Approval, Testing and Certificates
IEC 60945 4th (EN 60945:2002), IACS E10, EN61162,
EU RO MR - Mutual Recognition

ADD MORE FUNCTIONALITY!

Hatteland Displays IO module series concept for marine applications adds more functionality to your Maritime Multi Computers and Maritime Stand-Alone computers. They are available as regular factory options for the entire range of Series X Maritime Multi Displays, Maritime Multi Computers and as well as the latest Maritime Stand-Alone computers.

EXTERNAL VERSION
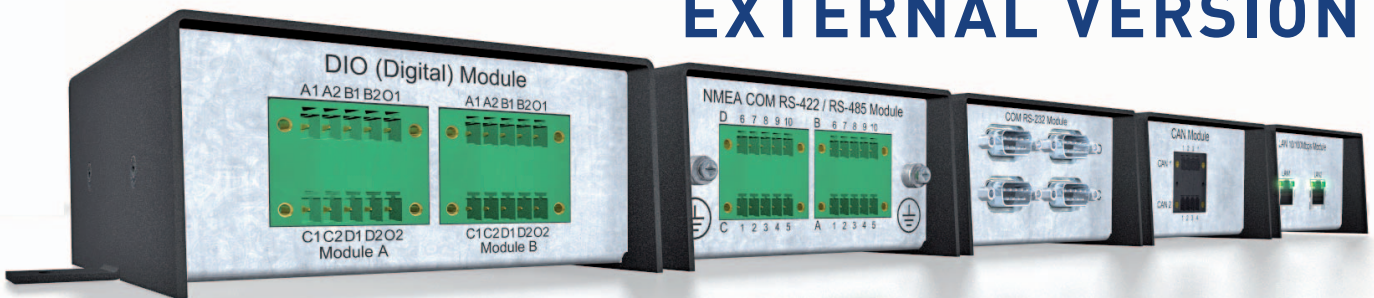
The external version provides flexibility for new installations and easy upgrade of already installed systems. In fact, any Hatteland Display product that has a USB2.0 port can take advantage of these External Modules for both legacy, obsoleted, current and future products as long as the software and firmware supports the Operating System. (note: CAN module is only supported for Series X and newer computers). Fully compatible with all Hatteland Display latest generation products.

## INTERNAL VERSION

CONNECT BY SECURE STANDARDS

All modules interfaces by using Terminal Block type connectors as listed below (included in delivery, where applicable):

| 2-pin MSTB 2,5/ 2-STF-5,08 BK	4-pin MC 1,5/ 5-STF-3,81	4-pin BCZ 3.81/04/180F SN BK BX	5-pin MC 1,5/ 5-STF-3,81	Secure cables with Screw Terminals

Suitable cable housing with strain relief (included in delivery, where applicable):

KGG-MSTB 2,5/ 2 (2-pin) KGG-MC 1,5/ 5 (5-pin)	BCZ 3.81 AH04 BK BX (4-pin) BCZ 3.81 AH05 BK BX (5-pin)

Product are delivered with 600.00 [23.62] mm [inch] USB Cable(s) (Type A) for connectivity towards Panel Computer or Computer. In addition, the appropriate amount of Terminal Block type connectors and Cable Housings. For DSUB and LAN based External Modules, no cables are delivered with the product.
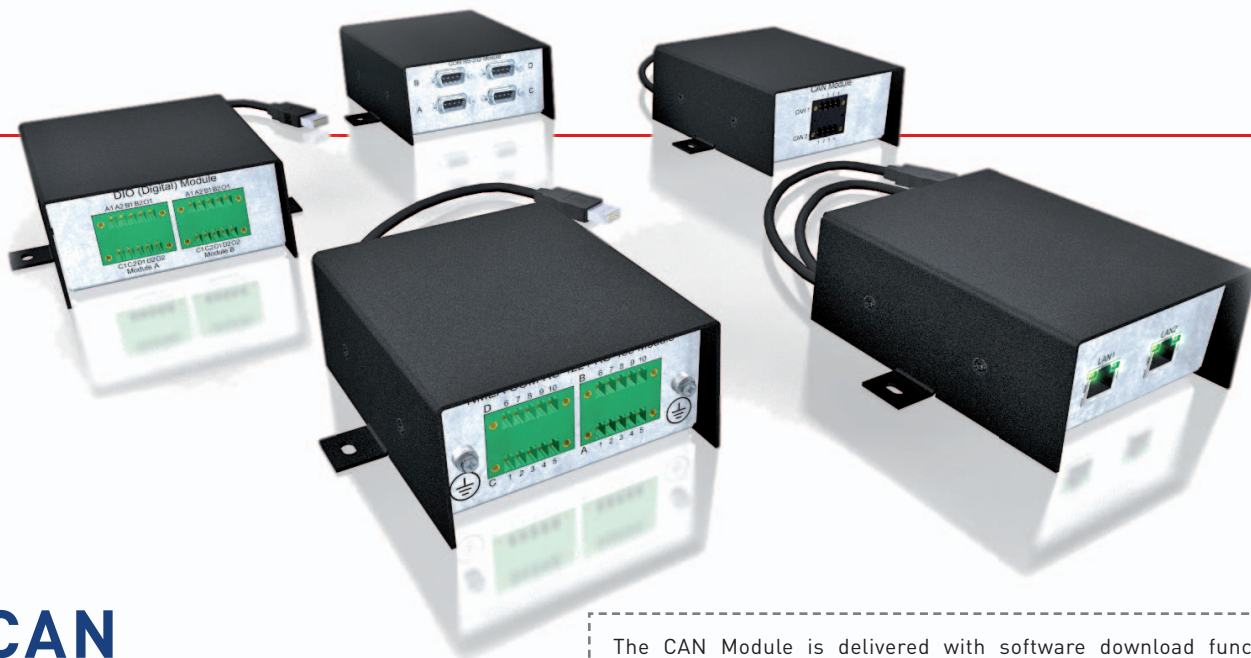
CAN
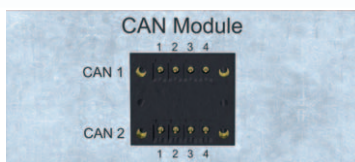
The CAN Module is delivered with software download functions and standard API, SAE J2534, which allow the user to add their own functions, such as real time critical functions, and high level CAN protocol. The CAN Module can operate as a standalone unit, which can be configured to operate independent of application software and hardware. Withstands marine requirements, General and open architecture that will allow the end customer to modify and handle the source code, General CAN interface support, NMEA2000, J1939 and CANOpen.

NMEA / COM 2/4
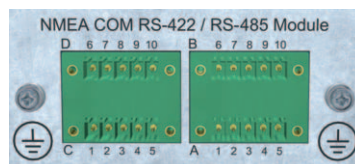
The NMEA COM Module (isolated) provide the system with quad independent COM channels (RS-422 / RS-485) and is fully tested and approved for ECDIS, IEC 61162-1/2 (NMEA 0183). Outputs are short circuits protected. Inputs are protected.

The COM (RS232-4i) Module (non-isolated) provide the system with quad independent COM channels (RS-232), while the COM (RS232-2i) provides dual isolated COM channels.
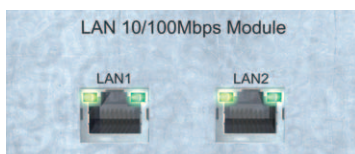
Both Modules: Application software access the COM channels as standard COM devices, i.e. in the normal case is there no requirements for additional software development.

DIGITAL IO
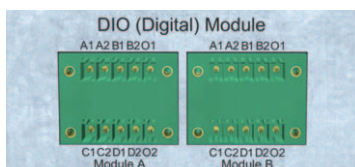
The DIO Module provides system integrators with an integrated control solution that reduces development time and enhances the performance of automation control systems such as (Low power / Relay control, Medium power buzzer, Indicator lamps and Electrical motors) as some typical examples. The DIO Module has 4 isolated digital outputs and 4 isolated digital inputs (independent).

LAN

The LAN (USB->Ethernet) Module provide the system with dual independent Ethernet ports (10/100Mbps).

Application software access the ethernet channels as standard ethernet devices, i.e. in the normal case is there no requirements for additional software development.

- All modules has support for Microsoft® Windows® as well as a selected choice of Linux operating systems.
- All modules are IEC 60945 4th (EN 60945:2002) and IACS E10 approved.
- All modules are available as internally mounted card or as External Cased Module, USB connectivity.
- Internal Modules are supported on Series X Displays and Panel Computers (where applicable), as well as for Computers.

MIL QUALIFIED PRODUCTS

Displays and computers are the critical link between the combat operator and today's mission-critical systems. As the leading international supplier of rugged marine displays, computers and panel computers, Hatteland Display understands the importance of product quality, reliability and performance. With over twenty years experience, Hatteland Display has established sophisticated design techniques, meticulous manufacturing processes, stringent testing programs and world-class quality control systems that reduce risk and total cost of ownership for our customers.

Whether your need is for COTS or custom product solutions, Hatteland Display is dedicated to becoming a dependable link in your supply chain and logistics support network.

Through continual expansion and improvement of our development and manufacturing facilities as well as our global support network, customers worldwide have gained confidence in the quality and value of our products and solutions, and also in our ability to deliver and support them over the entire product lifecycle. Our knowledge of the unique design, testing and life-cycle management issues of displays and computers for naval vessels has enabled us to develop high quality Naval products, which can be found in navigation, automation and C4i solutions aboard everything from aircraft carriers and destroyers to patrol boats and submarines.

We also provide dedicated ECDIS calibration which enables us to deliver type approved ECDIS displays straight from the factory to you.

RAISING THE STANDARDS

Hatteland Display naval products are tested according to MIL-STD-461, MIL-STD-810, MIL-STD-167-1 and MIL-S-901D, Grade A, Class 1, in addition to extended IEC 60945. We have Type Approval from all major marine classification societies, ensuring our marine displays, computers and panel computers are fit for the harsh environments encountered on missions at sea.

MIL-STD-461
MIL-STD-810
MIL-STD-167-1
MIL-S-901D, Grade A, Class 1

Extended IEC 60945

TEMPEST SDIP-27

TEMPEST certified by the Norwegian National Security Authority

Meeting the Demand.
Qualified for shock,
vibration and EMI...

COTS OR CUSTOM SOLUTIONS

Hatteland Display has a proven track record of providing dependable solutions to systems integrators and Navies around the world, which is a reflection of our product quality, value and the trust which our customers put into our solutions.

In addition to our extensive portfolio of standard (COTS) products, Hatteland Display delivers custom and badged product solutions to some of the largest and best-known system providers in the industry. Our ability to provide tailored solutions and support high-volume production runs has led to lasting relationships with our customers.

Product innovation and flexible manufacturing are key to Hatteland Display's leadership strategy. We have made substantial investments in state-of-the-art design tools, environmental test equipment, manufacturing and quality systems and are recognized for providing the highest quality and best value in the Naval and Defense market.

PAST PERFORMANCE - NAVIES

Our products are in applications for navigation, automation and C4i on a wide range of military vessel types, including Aircraft Carriers, Destroyers, Frigates, Mine Hunters, Patrol Boats and Submarines.

With this much experience you can be sure that Hatteland Display is a strong link in the naval supply chain.

**Navies, among others,
currently supplied by Hatteland Display:**
Belgian, Canadian, Chilean, Danish, Dutch, French, German, Greek, Indian, Italian, Japanese MSDF, Korean, Malaysian, Mexican, Norwegian, Polish, Royal Australian, Royal Navy (UK), Royal Navy of Oman, Singapore, South African, Spanish, Swedish, Turkish, UAE and US.

**Coastguards, among others,
currently supplied by Hatteland Display:**
Germany, Japan, Jamaica, Netherlands, Norway and US.

**Reference programs, among others,
currently supplied by Hatteland Display:**
FREMM, BAM, Barraccuda, MIL-GEM, SOGIM, AWD, LCS, DEEPWATER, LHD/LHA, DDG/CG and LSD/LPD.

OVERVIEW PRODUCTS

These products are designed with features demanded by systems integrators and naval users. They can be delivered, with or without capacitive touchscreens and multi-touch, installed in a console or rack-mounted, and be ordered with foldable or fixed (detachable) handles. Additionally, all models can benefit from a unique optical bonding process for enhanced viewing clarity and longer life, in addition to ECDIS calibration. Selected models can be delivered with Potmeter Knob whilst other models features Tactile Display Controls (TDC). If size and "space-on-screen" matters, the ultimate high-end 4K, UHD rugged display size enables 4 x 1920x1080 signals on the screen at the same time.

FRONT HANDLES

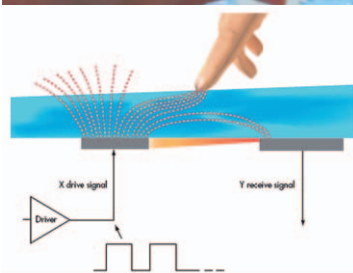Fixed or Detachable   Foldable

TACTILE DISPLAY CONTROLS

FRONT POTMETER

RACK-MOUNT

TOUCHSCREEN

Multitouch or Capacitve Touchscreen

BONDING & ECDIS

Air Gap   No Air Gap

THE MIL QUALIFIED DISPLAY FLEET

20 inch
HM 20T22 XRD-MAx-30Vx

20 inch
HM 20T22 XRD-MAx-20Vx

20 inch
HM 20T22 XRD-MAx-10xx

MIL-STD-461

MIL-STD-167-1

MIL-STD-810

TEMPEST SDIP-27

MIL-S-901D, GRADE A, CLASS 1

4K UHD

24 inch
HM 24T22 CMD

19 inch
HM 19T14 MMD

24 inch
HM 24T2x RMD

32 inch
HM 32T22 RMD

EXTENDED IEC 60945

EN60945 4TH

Contact your Sales Representative at Hatteland Display or directly to;

Brede Qvigstad
Sales Director – Head of Naval & Defence
brede.qvigstad@hatteland-display.com
TEL: +47 9060 9025 (Lysaker, Norway)

HM C02

Compact

Rugged

Naval

Computer returns...

4U, 19 INCH

Rack Adapter accessory

Sliding Rails 20 or 26 inch

for 4U accessory

RUGGED
HM C02
Compact

Installed Operating System Options
None or Standard OS/Customized image, review datasheet for list.

Storage Options
2 x 2.5'' 240GB (219TBW) SSD SATA, Multi Level (MLC) installed internally

Processor / CPU and FSB Speed Options
1 x Intel® Core™ i7-4770S, Quad Core 3.1/3.9GHz, 8MB Cache

Memory Options
2 x 8GB (Dual Ch. 204-pin DDR3 1600 SODIMM), Total 16GB installed

System and Graphics Chipset / Connectors
Intel® Q87 / Intel® HD 4600 Graphics integrated,
DirectX Support 11.2/12, Shader Model 5.0, OpenCL 1.2,
OpenGL Support 4.3 / 4.5/linux), Graphics Video Max Memory 2GB
1 x 29P (female) DVI-I + 1 x 24P (female) DVI-D +1 x DP (DisplayPort)

Max Resolution / Max Hz
Max 2560 x 1600 @ 60Hz for DVI-I/VGA, DVI-D
Max 3840 x 2160 (4K UHD) @ 60Hz for DP (DisplayPort)

BIOS
AMI BIOS. On-board BIOS Speaker.

PCI Slots / PCIe Slots
1 x PCI2.3, 3V/5V Interface, 1 x PCIe x16 + 1 x PCIe x4 + 1 x PCIe x1
All slots are Full Height & Full Length profile

Media Drive(s)
None

LPT / Parallel Port
None

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2 x RJ45 10/100/1000Mbps - Intel® I217/I210 w/ Intel® Teaming
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Keyboard and Mouse Ports
None

Audio Ports
Via Factory Default option: VS100897-1 (PCI Bracket)
1 x 1 x DB9F (2W Amplified)
+ 3 x 3.5mm Jacks (LINE IN/LINE OUT/MIC IN)
Realtek ALC892-CG HD Audio, 5.1 channel

Speaker / Buzzer
None

Power Manager and Monitoring
ACPI - Temperature, voltage, cooling fans with auto throttle.
Watchdog Timer, reset: 1 sec~255 min & 1 sec. or 1 min/step

Power Specifications and Consumption
115/230VAC - 50/60Hz + 24VDC / Operating 50W (Typ) - 65W (Max)
AC Power IN: 1 x Std IEC inlet
DC Power IN: 1 x 2-pin Terminal Block 5.08
AC: 115VAC@50/60Hz, 230VAC@50/60Hz, range & duration according
to IEC60945 (92VAC - 276VAC, 45Hz - 66Hz).
DC: 24VDC nom., range & duration according to IEC60945 (18-32VDC).

Digital I/O Connectors
None

Key Features
High Performance, Multi-power, Easy Removable Front Air Filter,
Internal Cooling fan in front (120x120mm), Service friendly,
Includes mounting brackets

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• HT 00275 OPT-A1: 1 x PCI Mount Kit EN60945, Low Profile (LP)*
• HT 00229 OPT-A1: 1 x PCI Mount Kit,Half Height to Full Height
• HT 00300 MSOS: OS options -> www.hatteland-display.com/os
*Any length of PCI Card supported.

Capabilities / Prepared for
None

Operating Temperature
-15.0°C / 5.0°F to 55.0°C / 131.0°F, Humidity up to 95%
DNV Temperature Class B 70.0°C / 158.0°F for 16 hours

Storage Temperature
-30.0°C / -22.0°F to 70.0°C / 158.0°F, Humidity up to 95%

Compass Safe Distance
Standard: 140.00 [55.12''] - Steering: 90.00 [35.43''] cm [inch]

Type Approval, Testing and Certificates
MIL-STD-167-1A Vibration, MIL-STD-810F&G Shock 30G 11ms,
MIL-STD-810F&G Shock 50G 11ms, MIL-STD-810F&G Shock 50G 30ms,
EMI Testing: MIL-STD-461E and 461F Naval Limits, CE 101 (AC only),
CE 102, RE 101, RE 102*, CS 101, CS 114, CS 116, RS 101, RS 103
IEC 60945 4th (EN 60945:2002), EN61162, IACS E10,
EU-RO-MR - Mutual Recognition

MTBF: 20177 hours.

** Exception: 3 x 3.5mm Jack (Line-Out, Line-In, Mic-In), complies to
RE102 when 3 x 3.5mm Jack disconnected.

ACCESSORIES

High quality build accessories suitable for our wide range of products across all markets. Please check data sheets respectively for Series 1 and Series X products as they may not be interchangeable between eachother.
A = Series X Displays / Multi Vision Displays, **B** = Series X Panel Computers, **C** = Series 1 Displays, **D** = Computers,
E = MIL Qualified Displays, **F** = Series X Generation 2 (G2) Displays, **G** = Series X Generation 2 (G2) Panel Computers

Mounting Brackets - Desktop, ceiling, console, wall, rack or cabinet mounting brackets and plates.

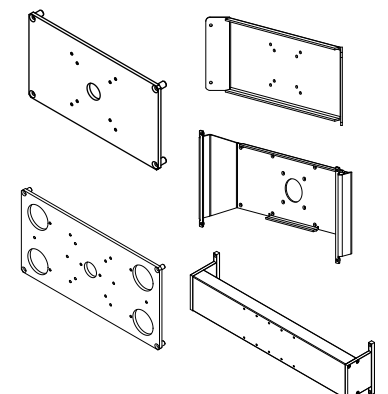| TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
HD CMB SX1-A2	Console / Panel Mounting Bracket Kit (key hole). 1.0-12.75mm	12, 15, 17, 19 inch	AB
HD CMB SX1-A3	Console / Panel Mounting Bracket Kit (key hole). 1.0-12.75mm + Features longer screws for easier mounting.	12, 15, 17, 19 inch	AB
HD CMB SX1-B1	Console / Panel Mounting Bracket Kit.	24, 27, 32 inch	AB
HD CMB SX1-C1	Console / Panel Mounting Bracket Kit.	26 inch	AB
HD CMB SX2-A1	Console / Panel Mounting Bracket Kit.	15, 17, 19 inch	FG
HD CMB SX2-E1	Console / Panel Mounting Bracket Kit.	24, 27, 32 inch	AFG
HD CMB SX2-F1	Console / Panel Mounting Bracket Kit.	26 inch	FG
HD TMB SX1-A1	Table Mounting Bracket. EN60945 Tested.	12, 15 inch	AB
HD TMB SX1-B1	Table Mounting Bracket. EN60945 Tested.	17, 19 inch	AB
HD TMB SX1-C1	Table Mounting Bracket. EN60945 Tested.	24, 26,27 inch	ABFG
HD TMB SX2-A1	Table Mounting Bracket. EN60945 Tested.	15, 17, 19 inch	FG
HD TMB SX2-A2	Table Mounting Bracket. EN60945 Tested.	32 inch	A
HD WBK SX1-A1	Wall Mount Box Kit	8 inch	AB
HT 00226 OPT-A1	Desktop/Wall/Ceiling/Cabinet for Computers.	HT C02, HM C02	D
HT 00228 OPT-A1	Desktop/Wall/Ceiling/Cabinet for Computers. With Cable Reliefs.	HT B17, HT B18, HT B22, HT B30	D
HT 00270 OPT-A1	Bracket Kit Desktop/Wall/Ceiling/Cabinet for Computers.	HT B22	D
HT MBK STD-A1	Mounting Brackets Kit - Long Depth Model	HT B30G	D
HT MBK STD-A2	Mounting Brackets Kit - Short Depth Model	HT B30K	D
HT RMK STD-A1	Rack Mount Kit	HT B30	D
HT RMK STD-H1	Rack Mount Kit w/Handles	HT B30	D
HT SRK STD-A1	19" Rack Mount Kit	HT B30	D
JH 15TBR STD-B1	Desktop/Ceiling Bracket for Displays.	15 inch	C
JH MMDBR STD-A1	Desktop/Ceiling Bracket for Displays.	19, 20 inch	CE
JH 19TBR STD-B1	Desktop/Ceiling Bracket for Displays.	19 inch Slim	C
JH 19BRD STD-A1	Desktop/Ceiling Bracket for Displays. EN60945 Tested.	19 inch	CE
JH 22TBR STD-A1	Desktop/Ceiling Bracket for Displays.	22 inch	C
JH 22BRD STD-A1	Desktop/Ceiling Bracket for Displays. EN60945 Tested.	22 inch	C
JH 23TBR T01-A1	Desktop/Ceiling Bracket for Displays.	23 inch	C
JH 23BRD STD-A1	Desktop/Ceiling Bracket for Displays. EN60945 Tested.	23 inch	C
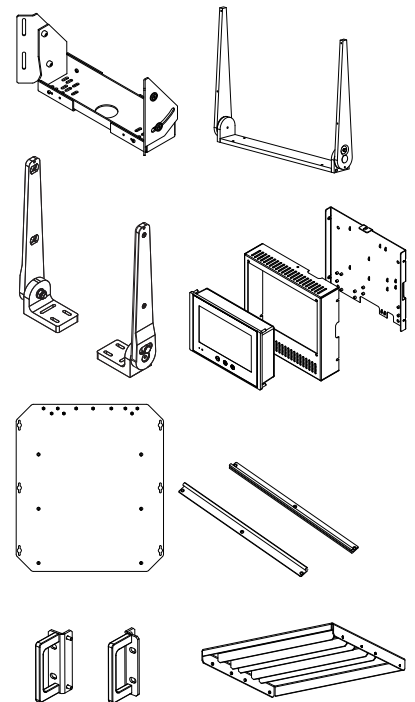
Rotary Brackets - For use with Mounting Brackets.

TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
JH 15TRO STD-A1	Suitable for Displays.	15 inch	C
JH MMDRO STD-A1	Suitable for Displays.	19, 20, 22, 23, 26 inch	CE
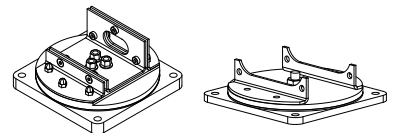
## VESA Adapters - For Wall or Ceiling mounting, compatible with several VESA sizes.

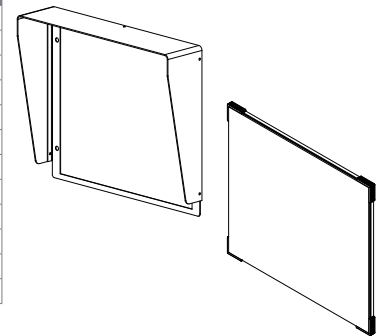| TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
HD VED SX1-A1	Suitable for Displays and Panel Computers.	12, 15, 17, 19, 24, 26 inch	AB
HD VED SX2-A1	Suitable for Displays and Panel Computers.	15 inch	F
HD VED SX2-B1	Suitable for Displays and Panel Computers.	17 inch	F
HD VED SX2-C1	Suitable for Displays and Panel Computers.	19 inch	FG
HD VED SX2-I1	Suitable for Displays and Panel Computers.	24 inch	FG
HD VED SX2-J1	Suitable for Displays and Panel Computers.	26 inch	FG
HD VED SX2-K1	Suitable for Displays and Panel Computers.	27 inch	FG
HD VED SX2-G1	Suitable for Displays.	32 inch	A
JH 15VED STD-A1	Suitable for Displays.	15 inch	C
JH 19VED STD-A1	Suitable for Displays.	19 inch	CE
JH 19VED STD-B1	Suitable for Displays.	19 inch Slim	C
JH 20VED STD-A1	Suitable for Displays.	20 inch	CE
JH 22VED STD-A1	Suitable for Displays.	22 inch	C
JH 23VED STD-A1	Suitable for Displays.	23 inch	C

Water Covers - For top of product. IP22 Rated.

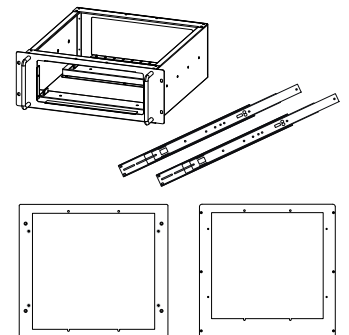| TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
JH 15TWC STD-A1	Suitable for Displays.	15 inch	C
JH 19TWC STD-B1	Suitable for Displays.	19 inch	CE
JH 19TWC STD-C1	Suitable for Displays.	19 inch Slim	C
JH 20TWC STD-B1	Suitable for Displays.	20 inch	CE
JH 23TWC STD-A1	Suitable for Displays.	23 inch	C
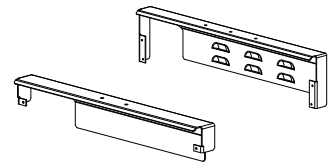
Sun Visors & Sun Covers - For preventing glare and reflections from strong light sources. Sun Covers to protect the front glass.

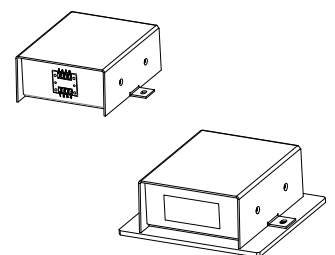| TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
JH 15TSV STD-A1	Suitable for Displays.	15 inch	C
JH 19TSV STD-A1	Suitable for Displays.	19 inch	CE
JH 19TSV STD-B1	Suitable for Displays.	19 inch Slim	C
JH 20TSV STD-B1	Suitable for Displays.	20 inch	CE
JH 22TSV STD-A1	Suitable for Displays.	22 inch	C
JH 23TSV STD-A1	Suitable for Displays.	23 inch	C
HD 15COV SX1-A1	UV Sun Front Cover. Suitable for Displays/Panel Computers	15 inch	ABFG
HD 17COV SX1-A1	UV Sun Front Cover. Suitable for Displays/Panel Computers	17 inch	ABFG
HD 19COV SX1-A1	UV Sun Front Cover. Suitable for Displays/Panel Computers	19 inch	ABFG
HD 24COV SX1-A1	UV Sun Front Cover. Suitable for Displays/Panel Computers	24 inch	ABFG
HD 26COV SX1-A1	UV Sun Front Cover. Suitable for Displays/Panel Computers	26 inch	ABFG
HD 27COV SX1-A1	UV Sun Front Cover. Suitable for Displays/Panel Computers	27 inch	FG

Cutout, Frame and Chassis Adapters - 19 Inch Rack adapters, Hatteland Display compatible Panel Cut Out adapters, Computer Chassis Rack Adapter, Sliding Rails and CRT adapters suitable for retrofit installations.

| TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
1282219-KD	2 x 20 inch long ball bearing sliding rails for 19 inch Rack.	HT 221	D
1282220-KD	2 x 26 inch long ball bearing sliding rails for 19 inch Rack.	HT 221	D
HT 00223 OPT-A1	Adapt unit to 19 inch Rack 4U size.	HT C02, HM C02	D
HT 00224 OPT-A1	2 x 20 inch long ball bearing sliding rails for 19 inch Rack.	HT C02, HM C02, HT B30	D
HT 00225 OPT-A1	2 x 26 inch long ball bearing sliding rails for 19 inch Rack.	HT C02, HM C02, HT B30	D
JH 15TAP STD-A1	Frame Adapter, 19 Inch Rack. For Displays.	15 inch	C
JH 15TAP STD-B1	Frame Adapter, 17 Inch CRT Cut Out Area. or Displays.	15 inch	C
JH 15TAP STD-C1	Frame Adapter, 15 inch Series X to fit 15 inch Series 1 Cutout. Can also be combined with JH 19TAP STD-C1 (below) to allow 19" Rack Cabinet Compability.	15 inch	ABFG
JH 17TAP STD-A1	Frame Adapter, 19 Inch Rack. For Displays.	19 inch Slim	C
JH 19TAP STD-A1	Frame Adapter, 21 Inch CRT Cut Out Area. For Displays.	19 inch	CE
JH 19TAP STD-A2	Frame Adapter, 20 Inch TFT Cut Out Area. For Displays.	19 inch	CE
JH 19TAP STD-B1	Frame Adapter, 21 Inch CRT Cut Out Area (custom). For Displays.	19 inch	CE
JH 19TAP STD-C1	Frame Adapter, 19 inch Series X to fit 19 inch Series 1 Cutout. 19" Rack Cabinet Compatible, mounting holes 6U. Entire height: 10U	19 inch	ABFG
HD 19TAP SX1-C2	Frame Adapter, 19 inch Series X to fit 19 inch Series 2 Console Cutout	19 inch	AB
HD 19TAP SX2-C2	Frame Adapter, 19 inch Series X to fit 19 inch Series 2 Console Cutout	19 inch	FG
JH 26TAP STD-A1	Frame Adapter, 26 inch Series X to fit 26 inch Series 1 Cutout	26 inch	ABFG

Peripherals - External Modules (USB)

TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
HT 00262 OPT-A1	External Module - 4 x NMEA RS-422/RS-485 isolated, 5-pin Terminal Block 3.81 Connectors, USB Interfaced.	All Panel Computers and Computers	BDG
HT 00263 OPT-A1	External Module - 4 x RS-232 COM, DB-9 Male Connectors, USB Interfaced.	All Panel Computers and Computers	BDG
HT 00264 OPT-A1	External Module - 1 x CAN isolated, 4-pin Terminal Block 3.81 Connecors, USB Interfaced.	All Panel Computers and Computers	BDG
HT 00273 OPT-A1	External Module - Isolated Digital IO, 4 x Output + 4 x Input, Terminal Block 3.81 Connectors, USB Interfaced.	All Panel Computers and Computers	BDG
HT 00274 OPT-A1	2 x LAN 10/100Mbps RJ-45. For Computers and Panel Computers.	All Panel Computers and Computers	BDG

Cables and Miscellaneous

TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
5240-15	Fabric Protection Top Cover	55 inch Chart & Planning Table	A
HD REM SX1-A1	External Remote Controller via SCOM, 5-pin Terminal Block 3.81 connector. For Displays.	12, 15, 17, 19, 24, 26, 27, 32, 55 inch	AF
HT 00229 OPT-A1	Mounting Brackets PCI Kit, for secure mounting PCI/PCIe cards.	HT C02, HM C02	D
HT RET STD-A1	Cable Retainer/Relief Kit	HT B30	D
JH C01MF A-A	USB Cable 1m. Type A plug to Chassis mount Type A receptacle. For Computers and Panel Computers.	All Panel Computers and Computers	BDG
VSD100692-1	Multifunction Cable with 1 x COM for Displays.	15, 19, 20, 22, 23 inch	CE
VSD100692-3	Multifunction Cable with 1 x COM, 1 x COM Touch and 3 x Composite Video (BNC) for Displays.	15, 19, 20, 22, 23 inch	CE
VSD100692-4	Multifunction Cable with 1 x COM and 3 x Composite Video (BNC) for Displays.	15, 19, 20, 22, 23 inch	CE
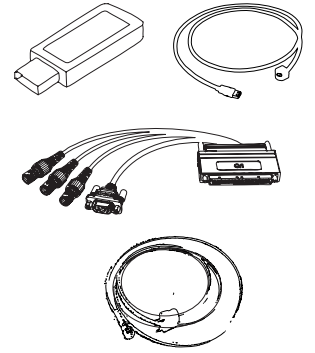
To get an up-to-date list of complete list of accessories, please visit:
www.hatteland-display.com/accessories

OTHER MARKETS

Hatteland Display can offer standard or tailored solutions for industrial, automotive, ground transport, medical, air traffic control, fire and security applications and more...

Please contact us at **lars.skjelbred-eriksen@hatteland-display.com** for more information!

A leading global player for recording solutions for Air Traffic Control (ATC) / Bank & Finance

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To get an up-to-date list of our locations, please visit:
www.hatteland-display.com/locations

Why you should select products from Hatteland Display

Quality

- Preferred supplier to leading integrators based on rated product quality

- Global service network supported by dedicated in-house service department

- Exclusively use industrial embedded components in our products

- Close partnership with DNV for trusted type approvals

- Take a partnership approach towards our customers and suppliers

Knowledge

- World's largest supplier of maritime display and computer solutions to the commercial fleet

- Proven reliability with over 230,000 maritime products fielded for over 25 years

- Highly skilled R&D organization focused on leading edge technologies

- Significant expertise with ECDIS calibration and approvals

- In-house manufacturing and optical bonding in state of the art facilities

- Training programs for customers and partners

Value

- Products designed for reduced life cycle cost

- Long term support and life cycle management

- Broad range of type-approved, off-the-shelf products

- Able to cost effectively customized solutions also for low volume products

- Flexible, responsive organization focused on customers needs – Customer first attitude

Quality - Knowledge - Value