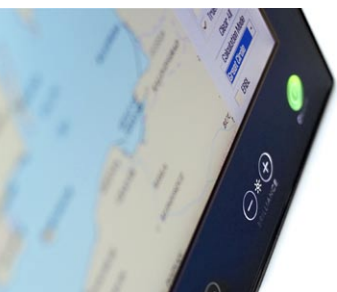




PRODUCT OVERVIEW

Displays, Panel Computers and Computers 2015/2016



INTRODUCTION

**HATTELAND®
DISPLAY**



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 200,000 products to the maritime industry since 1989. 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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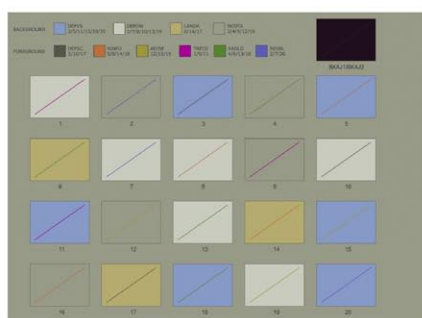
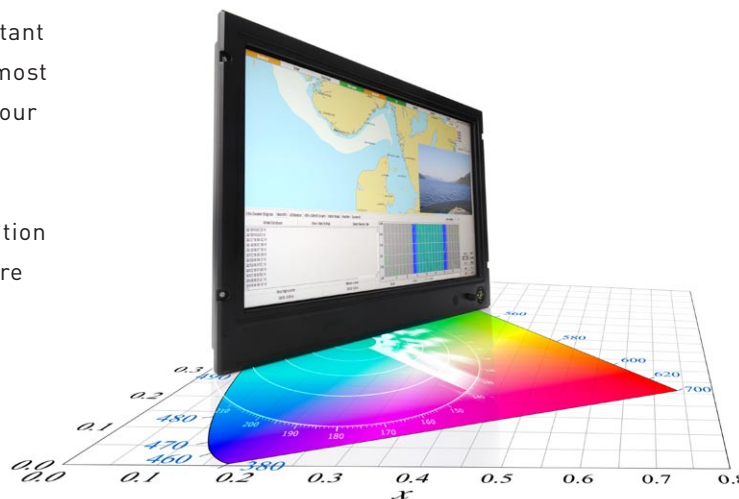
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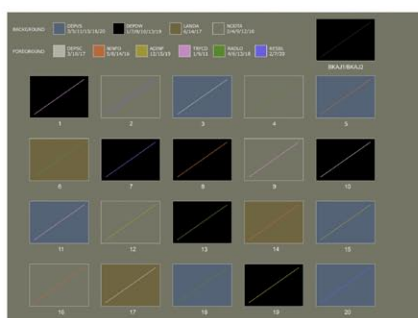
HATTELAND DISPLAY ECDIS CALIBRATION

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.

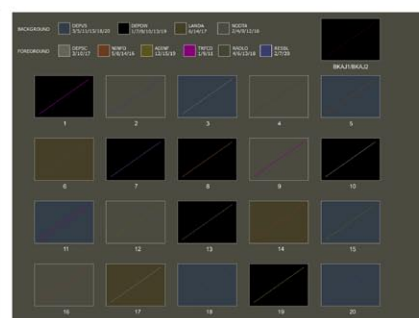
The consequence of making an error in recognition on the display is potentially very costly, therefore it is important that ECDIS monitors match the colour characteristics specified in the relevant standards. Hatteland Display provides both computers and displays to facilitate an overall ECDIS approved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



DAY



DUSK



NIGHT

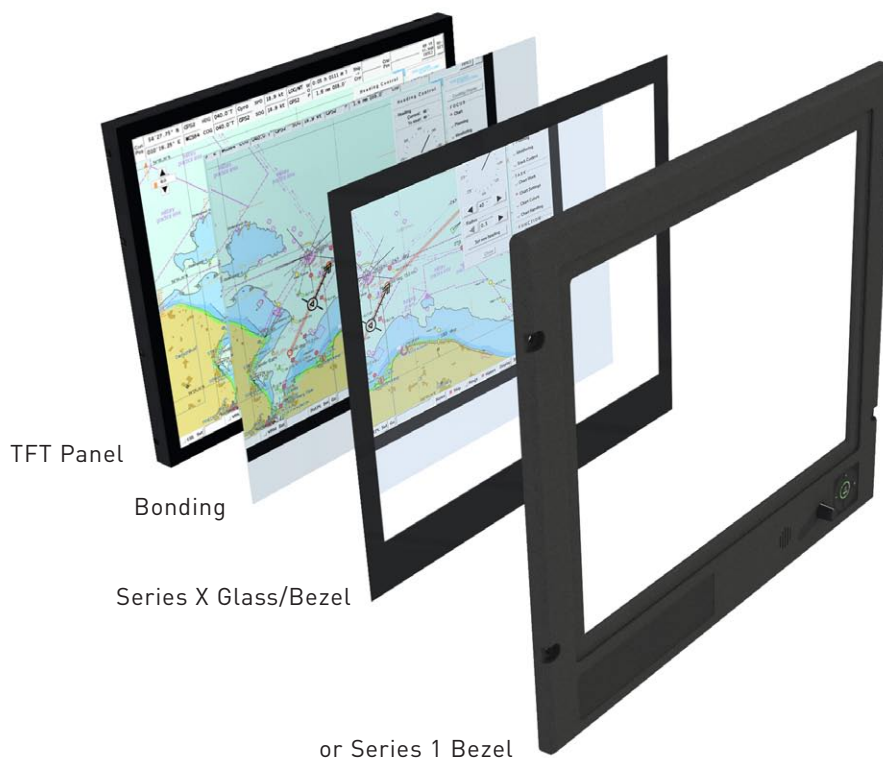
WHY CHOOSE COLOR CALIBRATION BY HATTELAND DISPLAY?

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

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. It is the only such in-house facility of its kind at a marine display manufacturer, and it allows us to provide proprietary added value whilst ensuring the quality and integrity of our display products and technology.



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	Stable Calibration	Gloves	Water	Durability	Price	Multitouch	Frameless Design
Analog Resistive	--	+	++	++	-	++	-	-
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-R0-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:

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**:

EN61174 - (IEC1174) Bundesamt für Seeschifffahrt und Hydrographie (BSH)

EN60529 - IP protection classes.

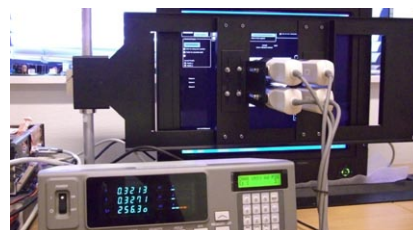
EN61162 - (IEC1174) Maritime navigation and radio communication equipment and systems.

EN60945 4th

IACS E10

For MIL Qualified products:

MIL-STD-461E
MIL-STD-810F
MIL-STD-167-1
MIL-S-901D, Grade A, Class 1
Extended IEC 60945
TEMPEST SDIP-27



TECHNICAL DEVELOPMENT

Hatteland Display works closely with systems integrators to ensure our products meet the most demanding requirements for maritime and naval applications. 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 5.



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.



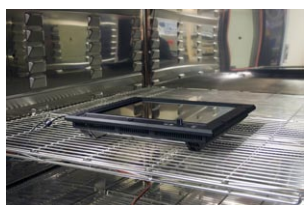
ECDIS Solutions

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 4



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 Displays test laboratory performs in-house IEC60945 (partial) testing and Highly Accelerated Life Testing (HALT) to constantly improve the product quality. Some of the selected test equipment: Climatic Chamber, Vibrator, Heat Chamber and Thermo Graphic Camera.



ISO-9001:2008 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 7.

HATTELAND®
DISPLAY



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.

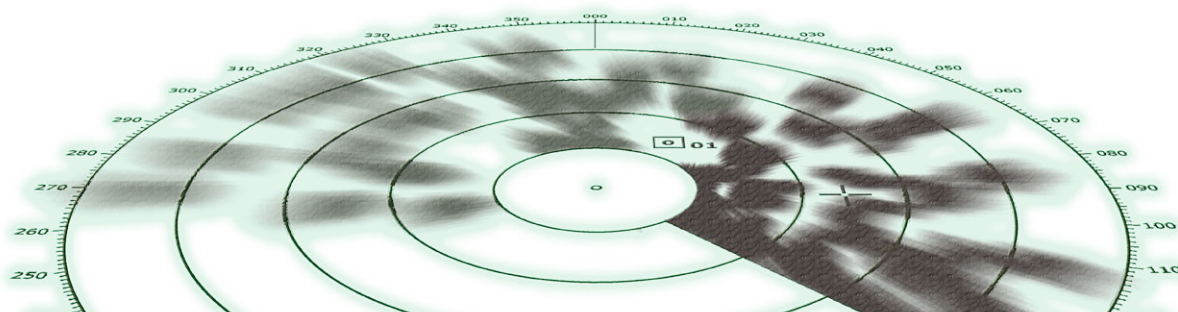
We use an automated customer service application to facilitate returns. Access to stock spare parts locally and the provision of training completes the basis of our commitment to extending the lifecycle of all Hatteland Display products, making sure that your critical systems are always operational.

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

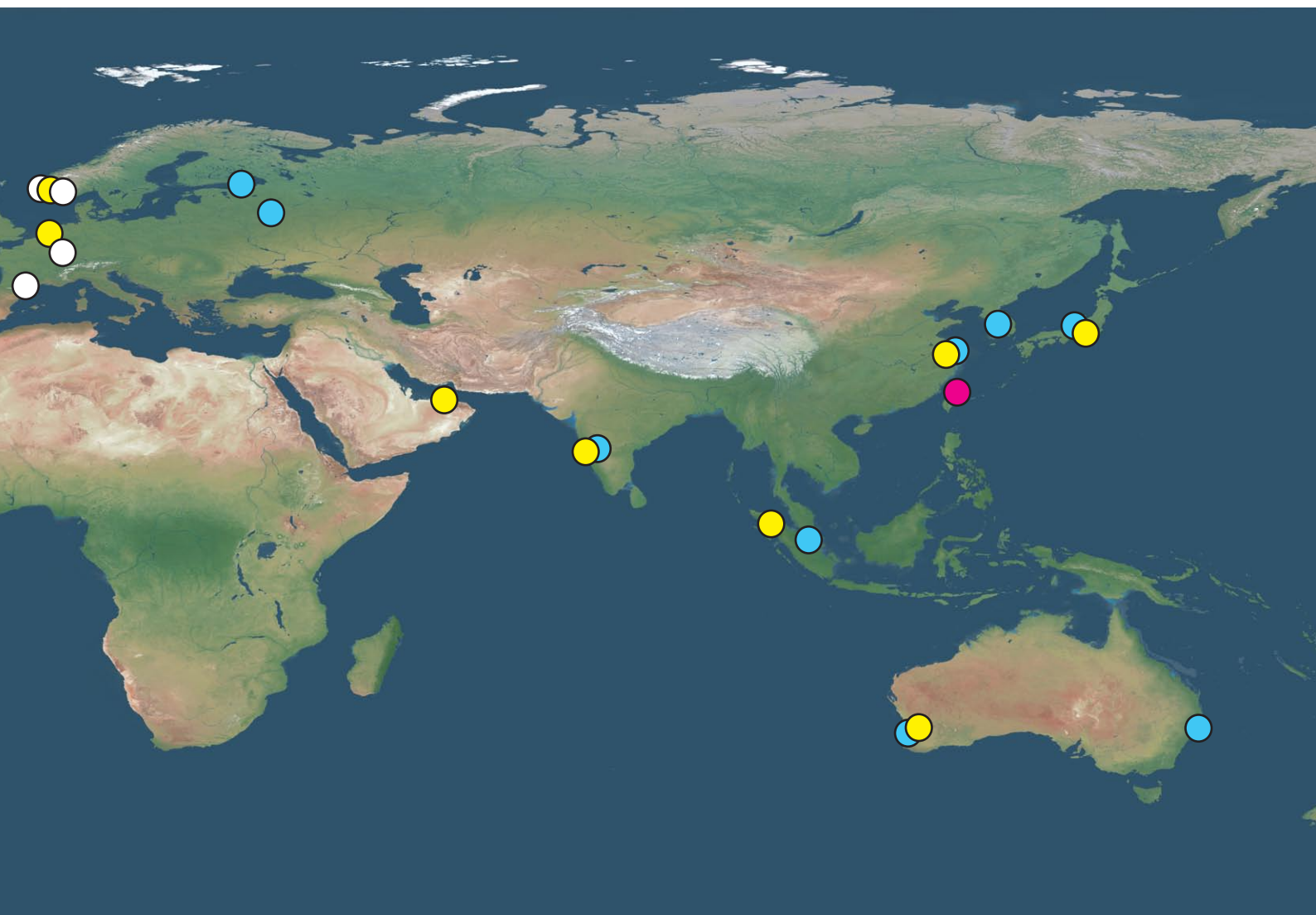
- 
- Sales Office:**
 - Asker, Norway
 - Frankfurt, Germany
 - Aix-En-Provence, France
 - Nedre Vats, Norway
 - Vista, USA
 - Service Partners:**
 - Allied eParts (China) Co. Ltd., China
 - Elcome International LLC, Dubai
 - Elcome Integrated Systems Pvt.Ltd., India
 - Hatteland Display, Norway
 - Jason Electronics (Pte) Ltd., Singapore
 - JN Taylor & Co. Ltd, Australia
 - Imtech Marine Netherlands BV
 - Radiomar Ind e Com Ltda, Brazil
 - Northrop Grumman Overseas Service Corp., USA
 - Tamot Corporation, Japan
 - Wheelhouse, USA
 - Agents / Distributors:**
 - Allied eParts (China) Co. Ltd., China
 - Elcome Marine Services Pvt. Ltd., India
 - ElWA Corporation, Japan
 - e-MARINE Co., Ltd., Korea
 - Jason Electronics (Pte) Ltd, Indonesia, Malaysia, Singapore, Thailand
 - JN Taylor & Co. Ltd, Australia (east and west coast)
 - NIENSCHANZ-AUTOMATICA Ltd., Russia (Exclusive Distributor)
 - + 35 dealers in US States: California, Florida, Hawaii, Louisiana, Maine, Maryland, Massachusetts, Michigan, New Jersey, Rhode Island, Texas, Virginia, Wisconsin and Washington.
 - Hatteland Display Procurement Office:**
 - Taipei, Taiwan

AGENTS AND OFFICES

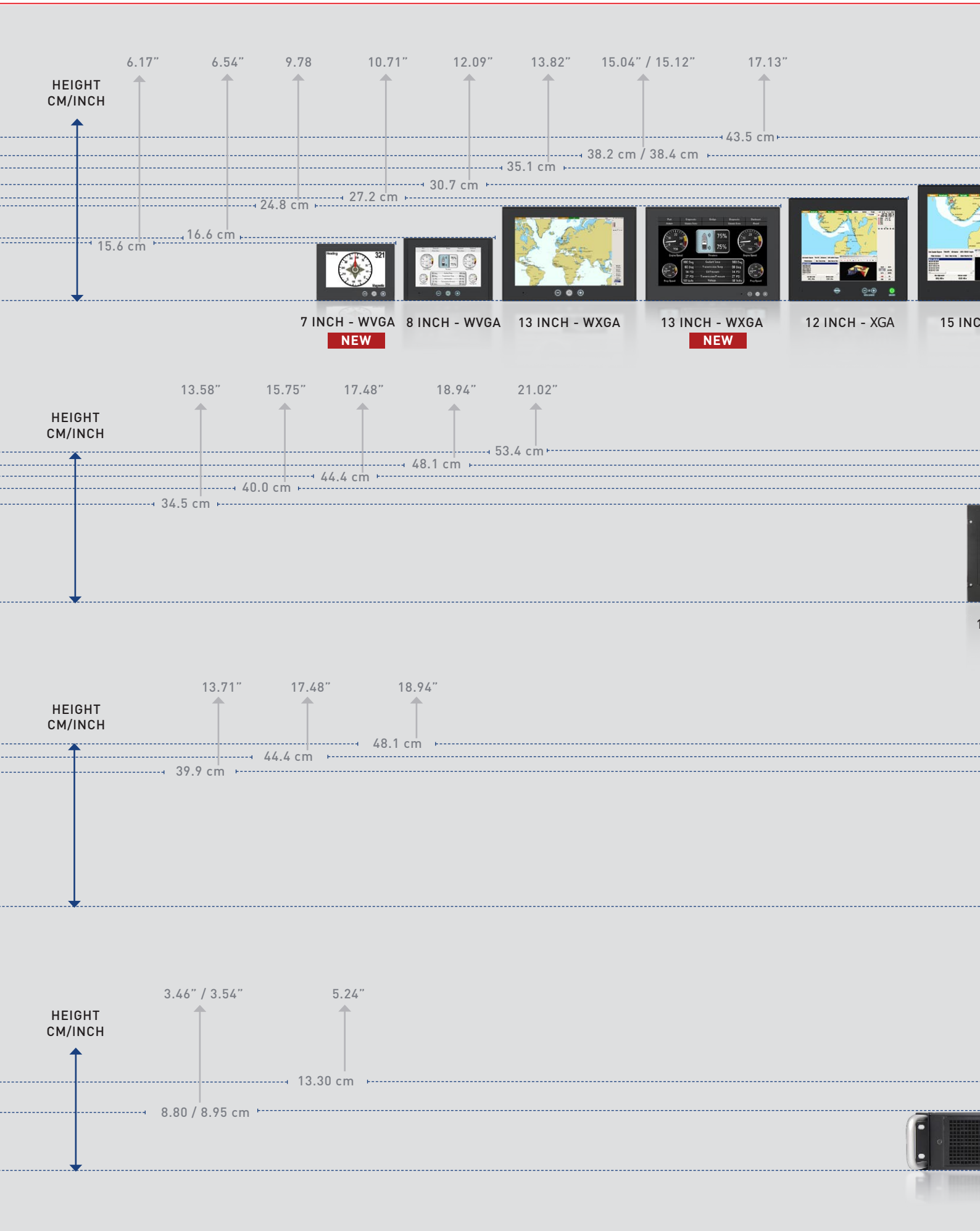
Wherever you, or your vessel, may be in the world, you can rest assure that you can always reach Hatteland Display's many offices and agents located near you and in your timezone to ensure the best possible support.



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



PRODUCT SIZE COMPARISON



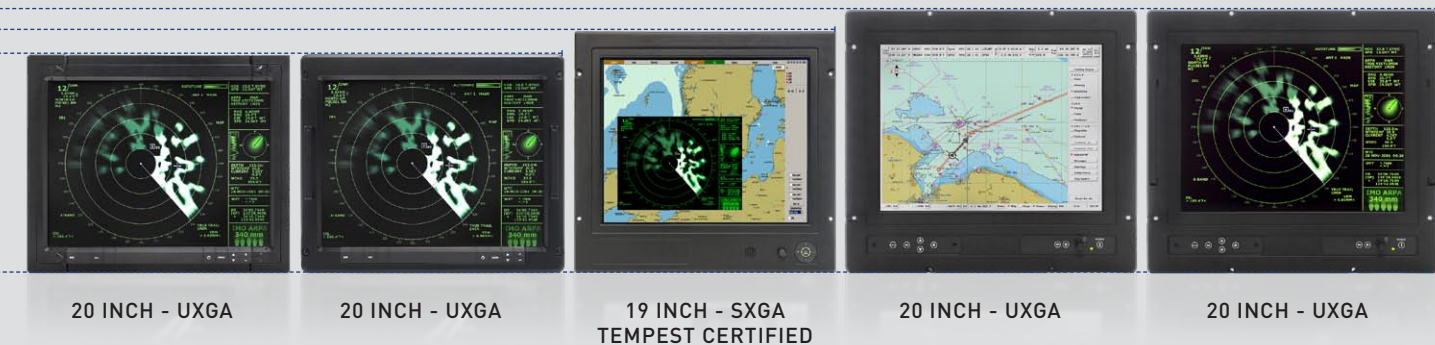
SERIES X - Displays and Panel Computers



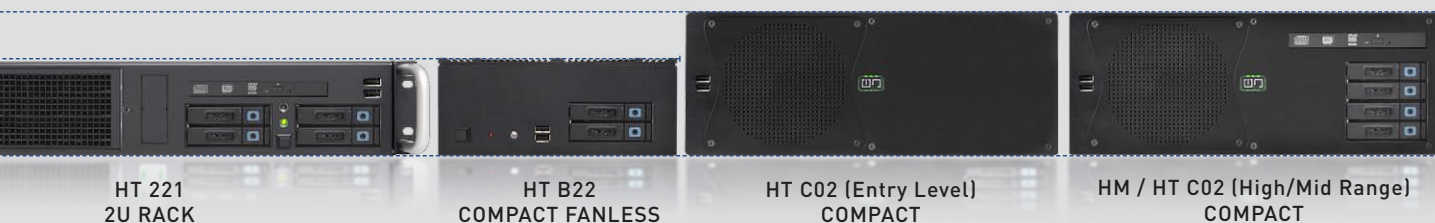
SERIES 1 - Displays and Panel Computers



MIL Qualified Displays



Rack, Compact and Compact Fanless Computers



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.

With cast aluminium, compact (IP22) and sleek by design chassis, the units from this new range can 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.

High Bright

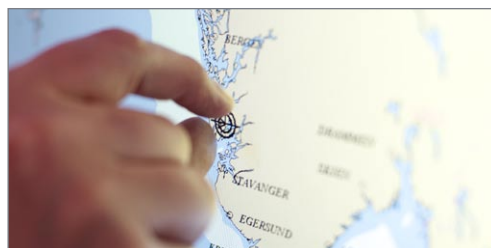
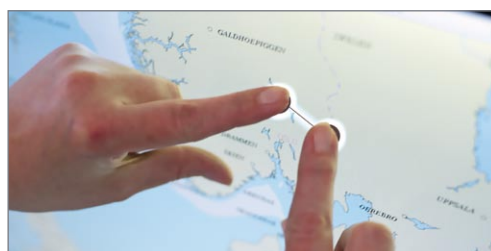
For SUNLIGHT READABLE / HIGH BRIGHT models, read more at page 30.

- 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

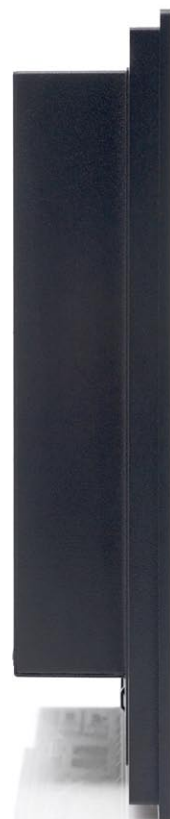
All sizes are available in display or panel computer formats, as well as various performance specifications to choose from. There are standard base models available which are listed in the following pages.

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.



GLASS DISPLAY CONTROL™





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

Standard: 600 cd/m² (typ) - 600:1 (typ)

View Angle / Max Colors

70 deg. (up/down) / 60 deg. (left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

24 kHz to 81 kHz (H) - 50 Hz to 75 Hz (V)

Optimal Resolution and Hz

800 x 480 @ 60 Hz

Detectable Resolutions

800 x 480

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 RGB 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
TBD kg / TBD lbs

Product Carton Size and Weight

TBD

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 - 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



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

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

24 kHz to 81 kHz (H) - 50 Hz to 75 Hz (V)

Optimal Resolution and Hz

1280 x 800 @ 60 Hz

Detectable Resolutions

1280 x 800

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 RGB 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

TBD

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 MMD

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] / 19ms [High Bright typical]

Light Intensity and Contrast Ratio

Standard: 600 cd/m² [typ] - 700:1 [typ]
High Bright: 1000 cd/m² [typ] - 600:1 [typ]

View Angle / Max Colors

Standard: 80 deg. (left/right), 70 deg. (up/down) [typ]
High Bright: 80 deg. (down/left/right), 60 deg. (up) [typ]
16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

Video Input(s)

Composite Video

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), High Bright models includes an EPDM sealing gasket for IP66 console mount.

Power Specifications and Consumption

115/230VAC - 50/60Hz or 12-24VDC [14VDC nominal]
Standard: 21W [typ] - 60W [max]
High Bright: 29W [typ] - 60W [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 (Service),
Buzzer (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 2 x DVI-D 24P (female)
- RGB IN: 2 x HD D-SUB 15P (female)
- Composite Video IN: 3 x BNC (female)
- SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
- RGB OUT: 1 x HD D-SUB 15P (female)
- If Touchscreen: 1 x USB Type A (female). Use USB2.0 (<5m) port.
- Ethernet: 1 x RJ45 (female) for Remote Control
- SCOM RS-232: 1 x D-SUB 9P (female) non-isolated
- Potmeter: 1 x D-SUB 9P (male),
- [Potentiometer IN, +5VDC OUT, BRT +/- IN]
- If AC Power IN: 1 x Std. IEC Inlet
- If 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

TBD

Factory Options

- Optical Bonding Technology
- Single 12-24VDC Power Input
- Sunlight Readable / High Bright (includes Optical Bonding)
- Projected Capacitive Touch Screen (Multitouch, USB interface)

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit(3-12mm).EN60945 Tested
- 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

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



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

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

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 (-/+),
Hotkeys (left/right), Mode Status Indicator (Service),
Buzzer (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 1 x DVI-D 24P (female)
- RGB 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
- 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.
3.7kg / 8.1lbs

Product Carton Size and Weight

TBD

Factory Options

- Optical Bonding Technology
- Projected Capacitive Touch Screen (Multitouch, USB interface)

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit(3-12mm).EN60945 Tested
- 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

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-R0-MR - Mutual Recognition



15 INCH

HD 15T21 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 [Standard typical] / 19ms [High Bright typical]

Light Intensity and Contrast Ratio

Standard: 400 cd/m² [typ] - 700:1 [typ]
High Bright: 1000 cd/m² [typ] - 800:1 [typ]

View Angle / Max Colors

Standard: 80 deg. [up/down/left/right] [typ]
High Bright: 80 deg. [down/left/right], 60 deg. [up] [typ]
16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

Video Input(s)

Composite Video

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), High Bright models includes an EPDM sealing gasket for IP66 console mount.

Power Specifications and Consumption

Multi-power 115/230VAC - 50/60Hz + 24VDC
Standard: 22W [typ] - 60W [max]
High Bright: 34W [typ] - 60W [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 (Service),
Buzzer (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 2 x DVI-D 24P (female)
- RGB IN: 2 x HD D-SUB 15P (female)
- Composite Video IN: 3 x BNC (female)
- SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
- RGB OUT: 1 x HD D-SUB 15P (female)
- If Touchscreen: 1 x USB Type A (female). Use USB2.0 (<5m) port.
- Ethernet: 1 x RJ45 (female) for Remote Control
- SCOM RS-232: 1 x D-SUB 9P (female) non-isolated
- Potmeter: 1 x D-SUB 9P (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]
4 x M6 VESA mounting 280x150mm, Max 12mm deep.
4.9kg / 10.8lbs

Product Carton Size and Weight

TBD

Factory Options

- Optical Bonding Technology
- Projected Capacitive Touch Screen (Multitouch, USB interface)
- Sunlight Readable / High Bright (includes Optical Bonding)

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit(3-12mm).EN60945 Tested
- 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

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) - 700:1 (typ)

View Angle / Max Colors

80 deg. (up/down/left/right) (typ)
16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz (H) - 60 Hz to 85 Hz (V)

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

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 (-/+),
Hotkeys (left/right), Mode Status Indicator (Service),
Buzzer (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 1 x DVI-D 24P (female)
- RGB 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
- 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
TBD kg / TBD lbs

Product Carton Size and Weight

TBD

Factory Options

- Optical Bonding Technology
- Projected Capacitive Touch Screen (Multitouch, USB interface)

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit(3-12mm).EN60945 Tested
- 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

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



17 INCH

HD 17T21 MMD

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 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

Video Input(s)

Composite Video

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
32W [typ] - 60W [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 (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 2 x DVI-D 24P (female)
- RGB IN: 2 x HD D-SUB 15P (female)
- Composite Video IN: 3 x BNC (female)
- SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
- RGB OUT: 1 x HD D-SUB 15P (female)
- If Touchscreen: 1 x USB Type A (female). Use USB2.0 (<5m) port.
- Ethernet: 1 x RJ45 (female) for Remote Control
- SCOM RS-232: 1 x D-SUB 9P (female) non-isolated
- Potmeter: 1 x D-SUB 9P (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:73.50 [2.89"] mm [inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep.
6.2kg / 13.6lbs

Product Carton Size and Weight

L:510.00 [20.08"] x W:195.00 [7.68"] x H:525.00 [20.67"] mm [inch]
8.4kg / 18.5lbs

Factory Options

- Optical Bonding Technology
- Color Calibrated models (ECDIS)
- Projected Capacitive Touch Screen (Multitouch, USB interface)
- Sunlight Readable / High Bright (includes Optical Bonding)

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit(3-12mm).EN60945 Tested
- 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

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



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 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

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 (-/+),
Hotkeys (left/right), Mode Status Indicator (ECDIS, Service),
Buzzer (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 1 x DVI-D 24P (female)
- RGB 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
- 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:510.00 [20.08"] x W:195.00 [7.68"] x H:525.00 [20.67"] mm [inch]
TBD kg / lbs

Factory Options

- Color Calibrated models (ECDIS)
- Projected Capacitive Touch Screen (Multitouch, USB interface)

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit(3-12mm).EN60945 Tested
- 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

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



19 INCH

HD 19T21 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

300 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors

89 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

Video Input(s)

Composite Video

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
42W (typ) - 125W (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 (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 2 x DVI-D 24P (female)
- RGB IN: 2 x HD D-SUB 15P (female)
- Composite Video IN: 3 x BNC (female)
- SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
- RGB OUT: 1 x HD D-SUB 15P (female)
- If Touchscreen: 1 x USB Type A (female). Use USB2.0 (<5m) port.
- Ethernet: 1 x RJ45 (female) for Remote Control
- SCOM RS-232: 1 x D-SUB 9P (female) non-isolated
- Potmeter: 1 x D-SUB 9P (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:74.50 [2.93"] mm [inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep.
8.2kg / 18.0lbs

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)
- Sunlight Readable / High Bright (includes Optical Bonding)

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit(3-12mm).EN60945 Tested
- 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

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 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

300 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors

89 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

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
33W (typ) - 125W (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 (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 1 x DVI-D 24P (female)
- RGB 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
- 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]
9.4kg / 20.7lbs

Factory Options

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

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit(3-12mm).EN60945 Tested
- 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

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 24T21 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

300 cd/m² (typ) - 3000:1 (typ)

View Angle / Max Colors

89 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz (H) - 60 Hz to 85 Hz (V)

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

Video Input(s)

Composite Video

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
49W (typ) - 125W (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 (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 2 x DVI-D 24P (female)
- RGB IN: 2 x HD D-SUB 15P (female)
- Composite Video IN: 3 x BNC (female)
- SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
- RGB OUT: 1 x HD D-SUB 15P (female)
- If Touchscreen: 1 x USB Type A (female). Use USB2.0 (<5m) port.
- Ethernet: 1 x RJ45 (female) for Remote Control
- SCOM RS-232: 1 x D-SUB 9P (female) non-isolated
- Potmeter: 1 x D-SUB 9P (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]
4 x M6 VESA mounting 280x150mm, Max 12mm deep.
11.0kg / 24.2lbs

Product Carton Size and Weight

L:700.00 [27.56"] x W:180.00 [7.09"] x H:565.00 [22.24"] mm [inch]
13.9kg / 30.6lbs

Factory Options

- Optical Bonding Technology
- Color Calibrated models (ECDIS)
- Projected Capacitive Touch Screen (Multitouch, USB interface)
- Sunlight Readable / High Bright (includes Optical Bonding)

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

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: 70.00 [27.56"] - Steering: 45.00 [17.72"] 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 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

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz (H) - 60 Hz to 85 Hz (V)

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

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 (-/+),
Hotkeys (left/right), Mode Status Indicator (ECDIS, Service),
Buzzer (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 1 x DVI-D 24P (female)
- RGB 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
- 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
11.0kg / 24.2lbs

Product Carton Size and Weight

L:700.00 [27.56"] x W:180.00 [7.09"] x H:565.00 [22.24"] mm [inch]
13.9kg / 30.6lbs

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

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



26 INCH

HD 26T21 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

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz (H) - 60 Hz to 85 Hz (V)

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

Video Input(s)

Composite Video

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
Operating AC/DC: 60W (typ) - 85W (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 (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 2 x DVI-D 24P (female)
- RGB IN: 2 x HD D-SUB 15P (female)
- Composite Video IN: 3 x BNC (female)
- SCOM RS-422/485: 1 x 5-pin Term. Block 3.81, non-isolated+Buzzer
- RGB OUT: 1 x HD D-SUB 15P (female)
- If Touchscreen: 1 x USB Type A (female). Use USB2.0 (<5m) port.
- Ethernet: 1 x RJ45 (female) for Remote Control
- SCOM RS-232: 1 x D-SUB 9P (female) non-isolated
- Potmeter: 1 x D-SUB 9P (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:98.20 [3.86"] mm [inch]
4 x M6 VESA mounting 280x150mm, Max 12mm deep.
14.8kg / 32.6lbs

Product Carton Size and Weight

TBD

Factory Options

- Projected Capacitive Touch Screen (Multitouch, USB interface)
- Capacitive Touch Screen w/Cosmetic aluminum front frame (-FxxC)
- 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

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: 130.00 [51.18"] - Steering: 70.00 [27.56"] 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 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

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

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) - 125W (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 (not visible), Light Sensor (not visible)

Connectors

- DVI IN: 1 x DVI-D 24P (female)
- RGB 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
- 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
TBD kg / TBD lbs

Product Carton Size and Weight

TBD

Factory Options

- Projected Capacitive Touch Screen (Multitouch, USB interface)
- Capacitive Touch Screen w/Cosmetic aluminum front frame (-FxxC)
- 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

Capabilities / Prepared for

- Capacitive Touch Screen w/Cosmetic aluminum front frame (-FxxC)

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-R0-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 also able to be combined with the bonding and Multitouch options.



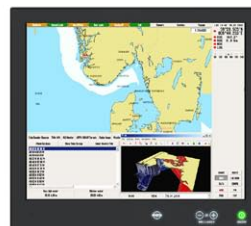
12 inch



15 inch



17 inch



19 inch



24 inch



High Bright

PANEL COMPUTERS SERIES X

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



NEW

For High Performance Graphic needs!

Already delivering in our 24" and 26" Series X Panel Computers as factory option, the AMD platform (R-464, R-series) delivers high performance graphics, ideal for demanding applications often found in ECDIS software or high end Video applications such as found in security and surveillance systems at sea.

AMD Radeon™ HD 7660G supports full DirectX® 11, Shader Model 5, OpenCL™ 1.1 and OpenGL 4.2.

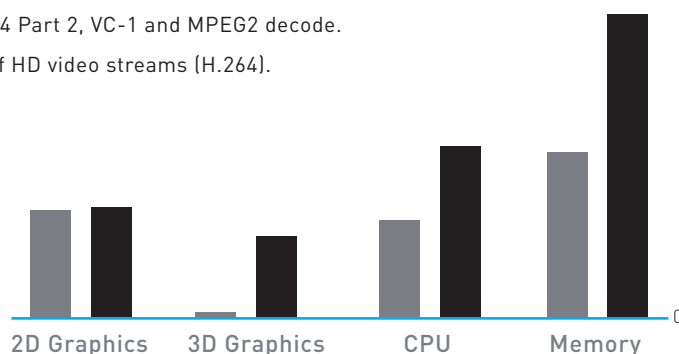
- 2D Acceleration with highly-optimized 128-bit engine, capable of processing multiple pixels per clock.
- UVD 3.2 dedicated hardware video decoder supporting H.264, MPEG4 Part 2, VC-1 and MPEG2 decode.
- VCE (Video Compression Engine) 1.0, Hardware assisted encoding of HD video streams (H.264).

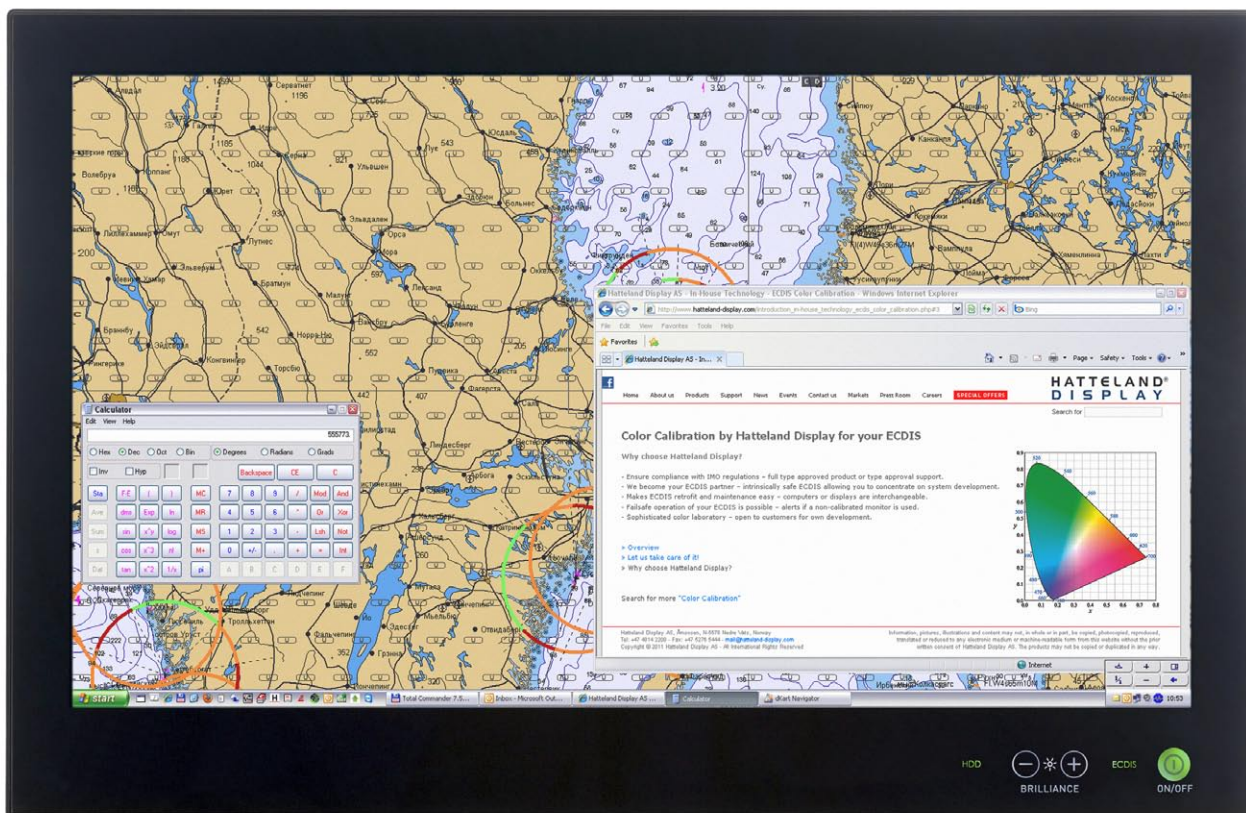
Standard 24 Inch Panel Computer:

with Intel® i7 CPU/System/Graphics On-Board Chipsets.
Example shows 32bit Operating System and 2GB RAM.

Standard 24 Inch Panel Computer:

with AMD® R-464 CPU/System/Graphics On-Board Chipsets.
Example shows 64bit Operating System and 8GB RAM.



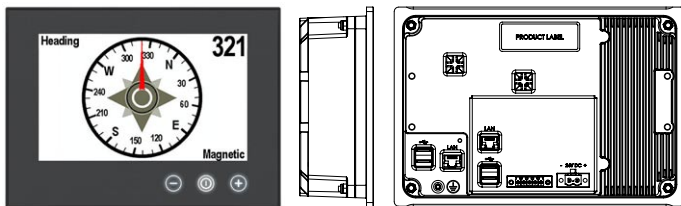


GLASS DISPLAY CONTROL™

High Bright

For SUNLIGHT READABLE / HIGH BRIGHT models,
read more at page 30.





7 INCH

HD 07T22 MMC

Intel® Atom™ CPU

TFT Technology

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

Viewable Size and Active Area

7.0 inch - 152.40 [5.98"] [H] x 91.44 [3.60"] [V] mm [inch]

Native Resolution and Pixel Pitch

800 x 480 (WVGA) - 0.0635 [H] x 0.1905 [V] mm

Aspect Ratio and Response Time

5:3 - 20ms [typ] [Tr/Tf] TBD

Light Intensity and Contrast Ratio

Standard: 600 cd/m² [typ] - 600:1 [typ] TBD

View Angle / Max Colors

70 deg. (left/right) , 50 deg. (up), 60 deg. (down) - 262000 (18bit)

Synchronization Range

Horizontal: 24 kHz to 81 kHz - Vertical: 50 Hz to 75 Hz TBD

Optimal Resolution and Hz

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

Detectable Resolutions

From 640x480 @ 60 Hz to 800x480 @ 75 Hz* TBD

Power Specifications and Consumption

12-24VDC (nominal)
13W [typ] - 36W (max)

Product Features

MULTITOUCH (Projected Capacitive Technology), Compact Design, Dimmable 0-100%, Buzzer, GPIO, WakeOnLan, Fast Boot, AT mode, USB Boot

Installed Operating System (OS)

None or Standard OS/Customized image, review datasheet for list.

Storage Options

1 x SSD mSATA, Multi Level, 8GB, 32GB, 64GB, 128GB

CPU / Processor Options

1 x Intel® Atom™ N2600 Dual Core, 1.6GHz

Memory Options

1 x 1GB, 2GB (Single Channel w/o ECC, SO-DIMM)

System Chipset / Graphics Chipset

Intel® NM10, CG82NM10 PCH / Intel® GMA 3600

BIOS / Speaker / Buzzer

AMIBIOS / None / Buzzer according to EN60945

Power Manager and Monitoring

ACPI. WatchDog: : Yes (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

- Ethernet GBLAN 10*/100Mbps: 1 x RJ45
 - Ethernet GBLAN 10/100/1000Mbps: 1 x RJ45
 - USB2.0 (<5m): 4 x Type A
 - COM2 (isolated RS-422/485): 1 x 5-pin Terminal Block 3.81
 - Power 9-32VDC: 1 x 2-pin Terminal Block 5.08
- *Type Approved

Product Dimensions and Weight

W:228.90 [9.01"] x H:156.60 [6.17"] x D:58.10 [2.29"] mm [inch]
1.7kg / 3.7lbs

Product Carton Size and Weight

TBD

Factory Options

- 2 x CAN Isolated module (2x4pin Terminal Block 3.81, 2 channels)
- 2 x DO Isolated (Digital Output) - TBD
- 5 x DI Isolated (Digital Input + 1 x Keyswitch Config) TBD
- Optical Bonding Technology
- Variations of SSD Storage, RAM Memory, Operating System

Accessories

TBD

Capabilities / Prepared for

TBD

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: TBD - Steering: TBD cm [inch]

Type Approval, Testing and Certificates

IEC 60945 4th [EN 60945:2002]*, IACS E10*, EU RO MR* - Mutual Recognition (covers DNV, BV, ABS, GL, NK and LRS certificates), * = pending

PRELIMINARY



8 INCH

HD 08T21 MMC

Intel® Atom™ CPU

TFT Technology

LED Backlight Technology, 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

Standard: 600 cd/m² [typ] - 600:1 [typ]

View Angle / Max Colors

70 deg. (up/down) , 60 deg. (left/right) - 262000

Synchronization Range

Horizontal: 24 kHz to 81 kHz - Vertical: 50 Hz to 75 Hz

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

2 x 24VDC, Galvanic Isolated, Automatic Switch <> sources
20W [typ] - 30W [max]

Product Features

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

Installed Operating System (OS)

None or Standard OS/Customized image, review datasheet for list.

Storage Options

1 x 2.5" Half Slim SSD SATA (Multi Level), 16GB, 60GB

CPU / Processor Options

1 x Intel® Atom™ N450, 1.66GHz, 512KB L2 Cache

Memory Options

1 x 1GB, 2GB (DDR2 667MHz SO-DIMM)

System Chipset / Graphics Chipset

Intel® NM10, ICH8M / Intel® GMA 3150

BIOS / Speaker / Buzzer

AMIBIOS / None / Buzzer according to EN60945

Power Manager and Monitoring

ACPI - Temperature, voltages and cooling fan status

User Controls and Activity

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

Connectors

- Ethernet GBLAN 10/100/1000Mbps: 2 x RJ45
- USB2.0 (<5m): 2 x Type A
- Solid State Relay [NO] (cur. protection): 1 x 4-pin Term. Block 3.81*
- Digital Input (isolated/protected): 1 x 4-pin Terminal Block 3.81
- COM (isolated RS-422/485): 1 x 5-pin Terminal Block 3.81
- Safety Signal Relay [NO/NC]: 1 x 5-pin Terminal Block 3.81
- Primary Power 24VDC: 1 x 2-pin Terminal Block 5.08
- Secondary Power 24VDC: 1 x 2-pin Terminal Block 5.08

*[IEC 60950 Compliant, 48VDC]

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. 1.9kg / 4.2lbs

Product Carton Size and Weight

TBD

Factory Options

- Optical Bonding Technology
- Variations of SSD Storage, RAM Memory, Operating System

Accessories

- 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

Capabilities / Prepared for

- 1 x VGA output, for additional / external display (15P connector)
- 2 x CAN isolated module (2 x 4-pin Terminal Block 3.81, 2 channel)
- 1 x Mechanical Relay [NO/NC] (1 x 5-pin Terminal Block 3.81)

Note: Contact us for possible combinations

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: 25.00 [9.84"] 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



13 INCH

HD 13T21 MMC

Intel® Atom™ CPU

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) - 262000

Synchronization Range

Horizontal: 24 kHz to 81 kHz - Vertical: 50 Hz to 75 Hz

Optimal Resolution and Hz

1280 x 800 @ 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 600, 1024 x 768, 1280 x 800

Power Specifications and Consumption

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

Product Features

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

Installed Operating System (OS)

None or Standard OS/Customized image, review datasheet for list.

Storage Options

1 x 2.5" SSD SATA (Multi Level), 80GB, 120GB, 300GB
or 1 x slimSATA, 16GB

CPU / Processor Options

1 x Intel® Atom™ N450, 1.66GHz, 512KB L2 Cache

Memory Options

1 x 1GB, 2GB (DDR2 667MHz SO-DIMM)

System Chipset / Graphics Chipset

Intel® NM10, ICH8M / Intel® GMA 3150

BIOS / Speaker / Buzzer

AMIBIOS / None / Buzzer according to EN60945

Power Manager and Monitoring

ACPI - Temperature, voltages and cooling fan status

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

- Ethernet GBLAN 10/100/1000Mbps: 2 x RJ45
- USB2.0 (<5m): 2 x Type A
- Solid State Relay (NO) (cur. protection): 1 x 4-pin Term. Block 3.81*
- Digital Input (isolated/protected): 1 x 4-pin Terminal Block 3.81
- COM (isolated RS-422/485): 1 x 5-pin Terminal Block 3.81
- Safety Signal Relay (NO/NC): 1 x 5-pin Terminal Block 3.81
- Primary Power 24VDC: 1 x 2-pin Terminal Block 5.08
- Secondary Power 24VDC: 1 x 2-pin Terminal Block 5.08

*[IEC 60950 Compliant, 48VDC]

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. 4.4kg / 9.7lbs

Product Carton Size and Weight

TBD

Factory Options

- Optical Bonding Technology
- Variations of SSD Storage, RAM Memory, Operating System

Accessories

- 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

Capabilities / Prepared for

- 1 x COM RS-232/422/485 non-isolated (TBD connector)
- 1 x VGA output, for additional / external display (15P connector)
- 2 x CAN isolated module (2 x 4-pin Terminal Block 3.81, 2 channel)
- 4 x COM RS-422/485 isolated NMEA Compliant (5-pin T. Block 3.81)
- 4 x COM RS-232 non-isolated module (9P D-DSUB connectors)
- 1 x Mechanical Relay (NO/NC) (1 x 5-pin Terminal Block 3.81)
- 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports (RJ45)

Note: Contact us for possible combinations

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

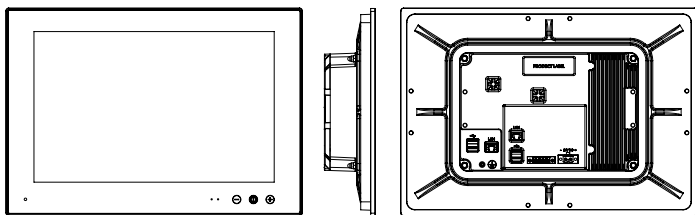
Protection: IP66 front - IP22 rear (EN60529)

Compass Safe Distance

Standard: 80.00 [31.50"] - Steering: 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 (pending)



13 INCH

HD 13T22 MMC

Intel® Atom™ CPU

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) - 262000

Synchronization Range

Horizontal: 24 kHz to 81 kHz - Vertical: 50 Hz to 75 Hz

Optimal Resolution and Hz

1280 x 800 @ 60 Hz (If resolution is above/below 1:1, desktop scrolling mode will be used)

Detectable Resolutions

From 640 x 480 to 1280 x 800

Power Specifications and Consumption

12-24VDC (nominal)
13W (typ) - 36W (max)

Product Features

MULTITOUCH (Projected Capacitive Technology), Compact Design, Dimmable 0-100%, Buzzer, GPIO, WakeOnLan, Fast Boot, AT mode, USB Boot

Installed Operating System (OS)

None or Standard OS/Customized image, review datasheet for list.

Storage Options

1 x SSD mSATA, Multi Level, 8GB, 32GB, 64GB, 128GB

CPU / Processor Options

1 x Intel® Atom™ N2600 Dual Core, 1.6GHz

Memory Options

1 x 1GB, 2GB (Single Channel w/o ECC, SO-DIMM)

System Chipset / Graphics Chipset

Intel® NM10, CG82NM10 PCH / Intel® GMA 3600

BIOS / Speaker / Buzzer

AMIBIOS / None / Buzzer according to EN60945

Power Manager and Monitoring

ACPI. WatchDog: : Yes (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

- Ethernet GBLAN 10*/100Mbps: 1 x RJ45
 - Ethernet GBLAN 10/100/1000Mbps: 1 x RJ45
 - USB2.0 (<5m): 4 x Type A
 - COM2 (isolated RS-422/485): 1 x 5-pin Terminal Block 3.81
 - Power 9-32VDC: 1 x 2-pin Terminal Block 5.08
- *Type Approved

Product Dimensions and Weight

W:355.00 [13.98"] x H:248.50 [9.78"] x D:66.31 [2.60"] mm [inch]
2.9kg / 6.3lbs

Product Carton Size and Weight

TBD

Factory Options

- 2 x CAN Isolated module (2x4pin Terminal Block 3.81, 2 channels)
- 2 x DO Isolated (Digital Output) - TBD
- 5 x DI Isolated (Digital Input + 1 x Keypress Config) TBD
- Optical Bonding Technology
- Variations of SSD Storage, RAM Memory, Operating System

Accessories

TBD

Capabilities / Prepared for

TBD

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: TBD - Steering: TBD cm [inch]

Type Approval, Testing and Certificates

IEC 60945 4th (EN 60945:2002)*, IACS E10*,
EU RO MR* - Mutual Recognition (covers DNV, BV, ABS, GL, NK and LRS certificates), * = pending

PRELIMINARY



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

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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
RGB: 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] - 80GB, 120GB, 300GB
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 DVM 5.0

BIOS / Speaker / Buzzer

UEFI AMIBIOS / No Speaker / 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 [-/+], Hotkeys (left/right), Power LED, HDD/SSD LED, Mode Status Indicator (Service), Buzzer, Light Sensor [not visible]

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 / RGB OUT: 1 x 29P DVI-I or as RGB with adapter
- RGB 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

TBD

Factory Options

- Optical Bonding Technology
- Projected Capacitive Touch Screen [Multitouch, USB interface]
- Variations of SSD/HDD Storage, RAM Memory, Operating System
- 1 x HT 00235 OPT-A1 [2W Amplified Audio out via DB9F]

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit[3-12mm].EN60945 Tested
- 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) - 700:1 (typ)

View Angle / Max Colors

80 deg. (up/down/left/right) (typ)
16.7 million

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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
RGB: From 640 x 480 to 2048 x 1536 @ 75 Hz

Power Specifications and Consumption

Multi-power 115/230VAC - 50/60Hz + 24VDC
TBD W (typ) - 60W (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) - 80GB, 120GB, 300GB
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 DVM 5.0

BIOS / Speaker / Buzzer

UEFI AMIBIOS / No Speaker / 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 (-/+), Hotkeys (left/right), Power LED, HDD/SSD LED, Mode Status Indicator (Service), Buzzer, Light Sensor (not visible)

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 / RGB OUT: 1 x 29P DVI-I or as RGB with adapter
- RGB 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

TBD

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 HT 00254 OPT-A1 (1 x CAN isolated, 2 channel)*
- 1 x HT 00235 OPT-A1 (2W Amplified Audio out via DB9F)*
- 1 x HT 00268 OPT-A1 (Isolated Digital IO module, 4xOutput/4xInput)*
- 1 x PCA100298-1 (LAN 10/100Mbps, 2 ports (RJ45))*

*Only 1 module can be installed

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit(3-12mm).EN60945 Tested
- 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
- 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-R0-MR - Mutual Recognition

SPECIFICATIONS - PANEL COMPUTERS SERIES X



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 deg. (up/down/left/right) - 16.7 million

Synchronization Range

31.5 kHz to 91.1 kHz (H) - 60 Hz to 85 Hz (V)

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

RGB: 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, 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

1 x 1TB 2.5" HDD

or 2 x 2.5" SSD SATA (Multi Level) - 80GB, 120GB, 300GB

or 2 x 2.5" HDD* SATA - 1TB

or 2 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® 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 DVM 5.0

BIOS / Speaker / Buzzer

UEFI AMIBIOS / No Speaker / 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 [-/+], Hotkeys (left/right), Power LED, HDD/SSD LED, Mode Status Indicator (ECDIS, Service), Buzzer, Light Sensor (not visible)

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 / RGB OUT: 1 x 29P DVI-I or as RGB with adapter
 - RGB 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:510.00 [20.08"] x W:195.00 [7.68"] x H:525.00 [20.67"] 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 HT 00254 OPT-A1 [1 x CAN isolated, 2 channel]*
 - 1 x HT 00235 OPT-A1 [2W Amplified Audio out via DB9F]
 - 1 x HT 00268 OPT-A1 [Isolated Digital IO module, 4xOutput/4xInput]*
 - 1 x PCA100298-1 [LAN 10/100Mbps, 2 ports (RJ45)*
- *Only 1 module can be installed

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit(3-12mm).EN60945 Tested
 - 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*
 - 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 MS05: 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: 300 cd/m² (typ) - 1000:1 (typ)
High Bright: 800 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors

89 deg. (up/down/left/right) - 16.7 million

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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
RGB: 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

1 x 1TB 2.5" HDD
or 2 x 2.5" SSD SATA (Multi Level) - 80GB, 120GB, 300GB
or 2 x 2.5" HDD* SATA - 1TB
or 2 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® 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 / No Speaker / 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 (-/+), Hotkeys (left/right), Power LED, HDD/SSD LED, Mode Status Indicator (ECDIS, Service), Buzzer, Light Sensor (not visible)

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 / RGB OUT: 1 x 29P DVI-I or as RGB with adapter
- RGB 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 HT 00254 OPT-A1 [1 x CAN isolated, 2 channel]*
- 1 x HT 00235 OPT-A1 [2W Amplified Audio out via DB9F]
- 1 x HT 00268 OPT-A1 [Isolated Digital IO module, 4xOutput/4xInput]*
- 1 x PCA100298-1 [LAN 10/100Mbps, 2 ports (RJ45)*

*Only 1 module can be installed

Accessories

- HD CMB SX1-A1: 1xConsole Mount Kit(3-12mm).EN60945 Tested
- 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*
- JH 19TAP STD-C1: 1 x Frame Adp. [19" Series 1 to Series X] 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

Synchronization Range

31.5 kHz to 91.1 kHz (H) - 60 Hz to 85 Hz (V)

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
RGB: 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

1 x 1TB 2.5" HDD
or 2 x 2.5" SSD SATA (Multi Level) - 80GB, 120GB, 300GB
or 2 x 2.5" HDD SATA - 1TB
or 2 x 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, 16GB [Dual Ch. 204pin DDR3 1333 MHz]

System Chipset / Graphics Chipset

Intel® BD82QM57 / Intel® Arrandale IGD supports DVM 5.0

BIOS / Speaker / Buzzer

UEFI AMIBIOS / No Speaker / 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 (-/+), Hotkeys (left/right), Power LED, HDD/SSD LED, Mode Status Indicator (ECDIS, Service), Buzzer, Light Sensor (not visible)

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 / RGB OUT: 1 x 29P DVI-I or as RGB with adapter
- RGB 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 4 channel]*
- 1 x HT 00254 OPT-A1 [1 x CAN isolated, 2 channel]*
- 1 x HT 00235 OPT-A1 [2W Amplified Audio out via DB9F]
- 1 x HT 00268 OPT-A1 [Isolated Digital IO module, 4xOutput/4xInput]*
- 1 x PCA100298-1 [LAN 10/100Mbps, 2 ports (RJ45)*

*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*
- 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 MS05: 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

Synchronization Range

31.5 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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
RGB: From 640 x 480 to 2048 x 1536 @ 75 Hz

Power Specifications and Consumption

Multi-power 115/230VAC - 50/60Hz + 24VDC
TBD W [typ] - 125W [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 2 x 2.5" SSD SATA (Multi Level) - 80GB,120GB,300GB
or 2 x 2.5" HDD SATA - 1TB
or 2 x 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, 16GB (Dual Ch. 204pin DDR3 1333 MHz)

System Chipset / Graphics Chipset

Intel® BD82QM57 / Intel® Arrandale IGD supports DVM 5.0

BIOS / Speaker / Buzzer

UEFI AMIBIOS / No Speaker / 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 [-/+], Hotkeys (left/right), Power LED, HDD/SSD LED, Mode Status Indicator (ECDIS, Service), Buzzer, Light Sensor (not visible)

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 / RGB OUT: 1 x 29P DVI-I or as RGB with adapter
- RGB 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

TBD

Factory Options

- Projected Capacitive Touch Screen (Multitouch, USB interface)
- Capacitive Touch Screen w/Cosmetic aluminum front frame [-FxxC]
- 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 4 channel]*
- 1 x HT 00254 OPT-A1 [1 x CAN isolated, 2 channel]*
- 1 x HT 00235 OPT-A1 [2W Amplified Audio out via DB9F]
- 1 x HT 00268 OPT-A1 [Isolated Digital IO module, 4xOutput/4xInput]*
- 1 x PCA100298-1 [LAN 10/100Mbps, 2 ports (RJ45)*]

*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
- 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: 125.00 [49.21"] - Steering: 80.00 [31.50"] cm [inch]

Type Approval, Testing and Certificates

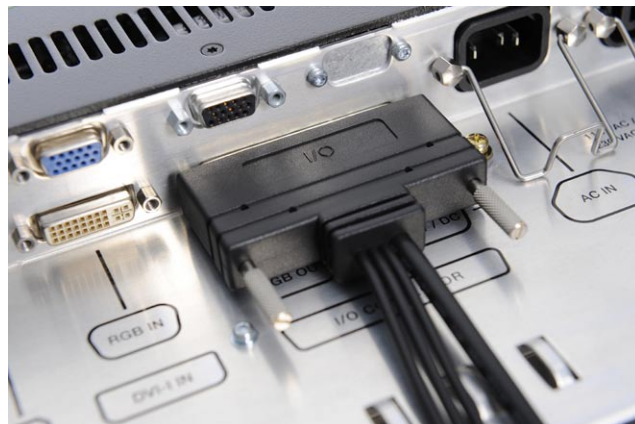
IEC 60945 4th [EN 60945:2002], IACS E10, IP66,
NK - Nippon Kaiji Kyokai, GL - Germanischer Lloyd,
DNV - Det Norske Veritas, ABS - American Bureau of Shipping,
BV - Bureau Veritas, CCS - China Classification Society,
LRS - Lloyd's Register, EU-RO-MR - Mutual Recognition

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 maritime standard...





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] - 700:1 [typ]

View Angle / Max Colors

80 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

15.0 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

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)
- RGB IN: 1 x HD D-SUB 15P (female)
- RGB 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

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

300 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors

89 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

15.0 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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 x 1200

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)
- RGB IN: 1 x HD D-SUB 15P (female)
- RGB 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 12kg / 26lbs

Product Carton Size and Weight

L:600.00 [23.62"] x W:560.00 [22.05"] x H:220.00 [8.66"] mm [inch]
12.0kg / 26.4lbs

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 MMDR0 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



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

300 cd/m² (typ) - 1000:1 (typ)

View Angle / Max Colors

89 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

15.0 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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 x 1200

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)
- RGB IN: 1 x HD D-SUB 15P (female)
- RGB 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 10kg / 22lbs

Product Carton Size and Weight

L:600.00 [23.62"] x W:560.00 [22.05"] x H:220.00 [8.66"] mm [inch]
11.0kg / 24.2lbs

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



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

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

15.0 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

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)
- RGB IN: 1 x HD D-SUB 15P (female)
- RGB 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], IP66, NK - Nippon Kaiji Kyokai, GL - Germanischer Lloyd, DNV - Det Norske Veritas, BV - Bureau Veritas, ABS - American Bureau of Shipping, LRS - Lloyd's Register, CCS - China Classification Society, 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

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

15.0 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

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)
- RGB IN: 1 x HD D-SUB 15P (female)
- RGB 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:527.50 [20.77"] x H:444.00 [17.48"] x D:82.00 [3.23"] 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]
16.0kg / 35.2lbs

Factory Options

- 24 VDC Power Solution
- Capacitive Touchscreen
- Keypad only or Keypad+Potmeter+Buzzer controls
- Optical Bonding Technology
- Speaker / Buzzer
- Color Calibrated models (ECDIS)

Accessories

Bracket (tilt up/down), EN60945 Tested 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: 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

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

15.0 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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

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)
- RGB IN: 1 x HD D-SUB 15P (female)
- RGB 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, HDD 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.



***Supported factory installed Operating Systems delivered with Hatteland Display Panel Computers and Computers:**

Embedded Enterprise (WEE):	Linux:
- Microsoft® Windows® 7 Professional SP1 32/64bit - Microsoft® Windows® 7 Ultimate SP1 32/64bit - Microsoft® Windows® Embedded 8.1 Industry Pro MultiLang 32/64bit - Microsoft® Windows® Server 2008R2 64bit - Microsoft® Windows® Server 2012 64bit - Microsoft® Windows® Server 2012R2 64bit - Microsoft® Windows® XP Professional (Eng, SP3, SP2c)* - Windows® XP Embedded Runtime* - *Windows® XP is supported by HT B22 Compact Fanless models. - Microsoft® Windows® Server 2003/2008/2008R2 (Eng) - Microsoft® Windows® 2003/2008/2008R2 (Eng)	- openSUSE® 11.4 - Fedora™ 15 - Ubuntu® 10.04 LTS - Ubuntu® 12.04 LTS

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.

NEW



All our computers are delivered with mounting brackets as standard...
Designed to perform in harsh environments...





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 (HDD/SSD) Front Tray with Available Options:
2 x 2.5" SSD SATA (Single or Multi Level) - 80GB,120GB,300GB
or 2 x 2.5" HDD SATA - 1TB
or 2 x 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 HT 00272 OPT-A1

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

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]
Approx 5kg / 11lbs

Product Carton Size and Weight

TBD

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 HT 00254 OPT-A1 (1 x CAN isolated, 2 channel)
- 1 x HT 00268 OPT-A1 (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))
- 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
- 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 (covers DNV, BV, ABS, GL, NK and
LRS certificates).



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 with 1 x 2.5" 1TB HDD SATA installed,
or 4 x 2.5" SSD SATA (Multi Level) 80GB/120GB/300GB
or 4 x 2.5" HDD SATA 1TB
or 4 x 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
All CPU's has 1600Mhz Front Side Bus (FSB)

Memory Options

2 x 2GB, 4GB, 8GB, 16GB (Dual Ch. 204-pin DDR3 1600MHz SODIMM)

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 2560 x 1600 @ 60Hz for DVI-I/VGA, DVI-D and DP (DisplayPort)

BIOS

AMI BIOS

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 TBD

Audio Ports

None or option TBD

Speaker / Buzzer

Onboard Speaker / No Buzzer

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 HT 00268 OPT-A1 (DIO module)

Key Features

Black (EP0301-4040627) Heavy-duty steel 2U Rackmount chassis with handles, Easy Removable Front Air Filter, Supports rear cable strain reliefs 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 [3.14"] 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:380.00 [14.96"] mm [inch]
30.0kg / 66.0lbs

User Controls / Activity

Front: Power On/Off Push Button, Reset Button, Power/HDD/SSD LED

Factory Options

- P69-MDDE128LPF: Matrox®P690 LFP, PCIe x16 Card, 128MB
 - P69-MDDE256LAUF: Matrox®P690 PCIe x16 Card, 256MB
 - M9140-E512LAF: Matrox®9140 PCIe x16 Card, 512MB
 - CP114UL-I: COMCard, PCI, 1xDB44F/4xDB9M isolat., RS232/422/485
 - VSD100897-1: Audio 2W Amp. 1xDB9M+3x3.5mm Jack
 - i350F2BLK: Intel® Server Adp. I350-F2, FiberLAN (2xLC Fiber Optic)
 - i350F4BLK: Intel® Server Adp. I350-F4, FiberLAN (4xLC Fiber Optic)
 - i350T2BLK: Intel® Server Adp. I350-T2, 10/100/1000Mbps (2xRJ45)
 - i350T4BLK: Intel® Server Adp. I350-T4, 10/100/1000Mbps (4xRJ45)
 - HT 00254 OPT-A1: CAN isolated, 2 channel
 - HT 00268 OPT-A1: Digital IO Isolated, 4 IN + 4 OUT
 - PCA100293-1: COM RS-422/485 isolated NMEA 4 channel
 - PCA100298-1: LAN 10/100Mbps, 2 ports (RJ45)
 - VSD100xxx-1: Audio 2W Amplified (1 x DB9M) (TBD)
 - VSD100xxx-1: Audio 3 x 3.5mm Jack) Line-in, Line-Out, Mic (TBD)
 - VSD100xxx-1: 2 x PS/2 5pin mini (Keyboard + Mouse inputs) (TBD)
 - VSD100xxx-1: Additional USB ports: 2 x USB2.0 (TBD)
 - VSD100xxx-1: Additional USB ports: 2 x USB3.0 (TBD)
 - SX-118A: 1 x Parallel Port LPT, DB25F, Bi-Dir. ECP/EPP, PCIe card
 - 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
- 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
- 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 [7.87"] - Steering: 130.00 [5.12"] cm [inch]

Type Approval, Testing and Certificates

IEC 60945 4th [EN 60945:2002]*, IACS E10*, EN61162*,
EU RO MR - Mutual Recognition (covers DNV, BV, ABS, GL, NK and LRS certificates)*, *=pending



COMPACT

HT C02H

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 with 1x2.5" 1TB HDD SATA installed,
or 4 x 2.5" SSD SATA (Multi Level) 80GB/120GB/300GB
or 4 x 2.5" HDD SATA 1TB
or 4 x 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
All CPU's has 1600Mhz Front Side Bus (FSB)

Memory Options

2 x 2GB,4GB,8GB,16GB (Dual Ch. 204-pin DDR3 1600MHz SODIMM)

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 2560 x 1600 @ 60Hz for DVI-I/VGA, DVI-D and DP (DisplayPort)

BIOS

AMI BIOS

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 VSD100898-1

Audio Ports

Via option VSD100897-1 (Realtek ALC892-CG HD Audio, 5.1 channel)

Speaker / Buzzer

Onboard Speaker / No Buzzer

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 (330W) or 24VDC (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 HT 00268 OPT-A1 (DIO module)

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 10kg / 22lbs

Product Carton Size and Weight

L:680.00 [26.77"] x W:550.00 [21.65"] x H:290.00 [11.42"] mm [inch]
22.0kg / 48.4lbs

User Controls / Activity

Front: Power On/Off Push Button,Reset Button,Power/HDD/SSD LED

Factory Options

- P69-MDDE128F: Matrox®P690 FP, PCIe x16 Card, 128MB
 - P69-MDDE128LFP: Matrox®P690 LFP, PCIe x16 Card, 128MB
 - P69-MDDE256LAUF: Matrox®P690 PCIe x16 Card, 256MB
 - M9140-E512LAF: Matrox®9140 PCIe x16 Card, 512MB
 - CP114UL-I: COMCard,PCI,1xDB44F/4xDB9M isolat.,RS232/422/485
 - CP118U-I: COMCard PCI,1xDB44F/8xDB9M isolat.,RS232/422/485
 - VSD100897-1: Audio 2W Amp. 1xDB9M+3x3.5mm Jack
 - i350F2BLK: Intel® Server Adp. I350-F2,FiberLAN (2xLC Fiber Optic)
 - i350F4BLK: Intel® Server Adp. I350-F4,FiberLAN (4xLC Fiber Optic)
 - i350T2BLK: Intel® Server Adp. I350-T2,10/100/1000Mbps (2xRJ45)
 - i350T4BLK: Intel® Server Adp. I350-T4, 10/100/1000Mbps (4xRJ45)
 - PCA100294-1: COM un-isolated RS-232 via DB9M, 4 channel)
 - PCA100298-1: LAN 10/100Mbps, 2 ports (RJ45)
 - HT 00268 OPT-A1: Digital IO Isolated, 4 IN + 4 OUT
 - HT 00254 OPT-A1: 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 card
 - 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
 - M153S30Q20-ACC0015: 1 x Replacement Front Air Filter
 - 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
 - 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*
- *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 [covers DNV, BV, ABS, GL, NK and
LRS certificates]*, *=pending



COMPACT

HT C02HI

Entry Level

Installed Operating System Options

None or Standard OS/Customized image, review datasheet for list.

Storage Options

1 x 2.5" 1TB HDD SATA installed (2 x internal 2.5" HDD SATA possible)
or 2 x 2.5" SSD SATA (Multi Level) 80GB/120GB/300GB
or 2 x 2.5" HDD SATA 1TB
or 2 x 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
CPU has 1600MHz Front Side Bus (FSB)

Memory Options

2 x 2GB, 4GB, 8GB, 16GB [Dual Ch. 204-pin DDR3 1600MHz SODIMM]

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 2560 x 1600 @ 60Hz for DVI-I/VGA, DVI-D and DP [DisplayPort]

BIOS

AMI BIOS

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
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 VSD100898-1

Audio Ports

Via option VSD100897-1 [Realtek ALC892-CG HD Audio, 5.1 channel]

Speaker / Buzzer

Onboard Speaker / No Buzzer

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 (330W) or 24VDC (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

Via option HT 00268 OPT-A1 [DIO module]

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 10kg / 22lbs

Product Carton Size and Weight

L:680.00 [26.77"] x W:550.00 [21.65"] x H:290.00 [11.42"] mm [inch]
22.0kg / 48.4lbs

User Controls / Activity

Front: Power On/Off Push Button, Reset Button, Power/HDD LED

Factory Options

- P69-MDDE128F: Matrox®P690 FP, PCIe x16 Card, 128MB
- P69-MDDE128LFP: Matrox®P690 LFP, PCIe x16 Card, 128MB
- P69-MDDE256LAUF: Matrox®P690 PCIe x16 Card, 256MB
- M9140-E512LAF: Matrox®9140 PCIe x16 Card, 512MB
- CP114UL-I: COMCard, PCI, 1xDB44F/4xDB9M isolat., RS232/422/485
- CP118U-I: COMCard PCI, 1xDB44F/8xDB9M isolat., RS232/422/485
- VSD100897-1: Audio 2W Amp. 1xDB9M+3x3.5mm Jack
- i350F2BLK: Intel® Server Adp. I350-F2, FiberLAN (2xLC Fiber Optic)
- i350F4BLK: Intel® Server Adp. I350-F4, FiberLAN (4xLC Fiber Optic)
- i350T2BLK: Intel® Server Adp. I350-T2, 10/100/1000Mbps (2xRJ45)
- i350T4BLK: Intel® Server Adp. I350-T4, 10/100/1000Mbps (4xRJ45)
- PCA100294-1: COM un-isolated RS-232 via DB9M, 4 channel
- PCA100298-1: LAN 10/100Mbps, 2 ports (RJ45)
- HT 00268 OPT-A1: Digital IO Isolated, 4 IN + 4 OUT
- HT 00254 OPT-A1: 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 card
- 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
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- 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
- 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*

*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 [covers DNV, BV, ABS, GL, NK and
LRS certificates]*, *=pending

ADD MORE FUNCTIONALITY!

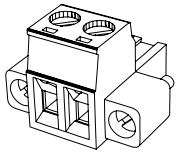
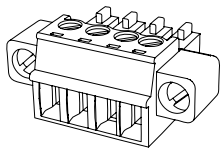
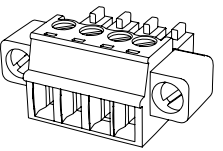
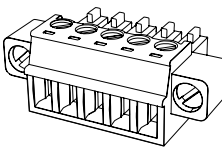
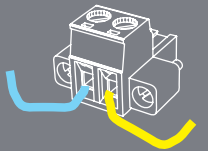
Hatteland Displays IO module series concept for marine applications adds more functionality to your Maritime Multi Computers and Maritime Stand-Alone computers. They are available as regular factory options for the entire range of Series X Maritime Multi Displays, Maritime Multi Computers and as well as the latest Maritime Stand-Alone computers.



In addition, the module concept has been taken further to a self contained and encased external USB module version. This 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, external cased modules enable system integrators to benefit from the features of these internal options as an external and easy to connect solution.

CONNECT BY SECURE STANDARDS

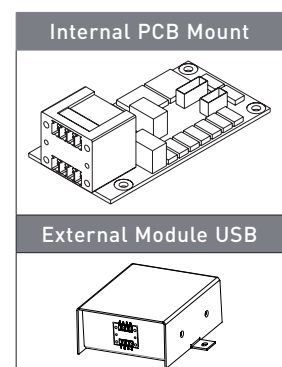
All modules interfaces by using Terminal Block type connectors from Phoenix or Weidmüller, as listed below:

				
2-pin Phoenix 1961986 MSTB 2,5/ 2-STF-5,08 BK	4-pin Phoenix 1827732 MC 1,5/ 5-STF-3,81	4-pin Weidmüller 1792970000 BCZ 3.81/04/180F SN BK BX	5-pin Phoenix 1827732 MC 1,5/ 5-STF-3,81	Secure cables with Screw Terminals

CAN MODULE

Hatteland Display's latest generation CAN module with CO-Processor (NXP LPC1756) is designed to meet NMEA2000 / J1939 / CANOpen USB to dual isolated CAN interface providing system integrators with a robust and accessible solution for adding own functionality such as real time critical functions, and supported by (API) Protocols, SAE-J2534.

This factory installed or external optional extra is delivered with the latest generation box PC solutions and with the Series X Panel PC products (Series X MMC 8, 13, 12, 15, 17, 19, 24 and 26 inch). The CAN Module can also operate as a standalone unit, and be configured to operate independent of application software and hardware, allowing the use of the module for time and safe critical operations.

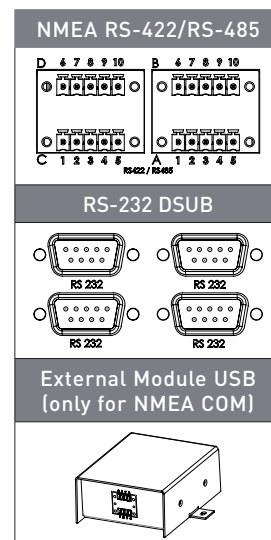


COM MODULES

Integrated into the latest generation box PC and Series X Panel PC products (Series X MMC 12, 13, 15, 17, 19, 24, and 26 inch) from Hatteland Display, the COM modules provide the system with quad independent COM channels. The module is attached to the motherboard via standard USB interface or available as external module. There are 2 types of COM modules available; RS-232 and RS-422 / RS-485, developed to operate with maritime applications on board ships.

The 4 x RS-422 / RS-485 module is fully tested and approved for ECDIS, IEC 61162-1/2 (NMEA 0183) and is an isolated module with support for Microsoft® Windows® as well as selected Linux based operating systems.

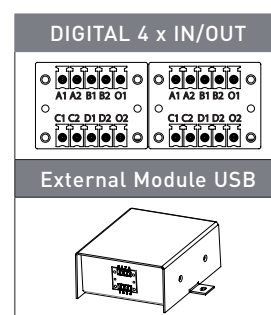
The 4 x RS-232 module is a non isolated base COM module with Microsoft® Windows® and Selected Linux support available.



DIGITAL IO MODULE

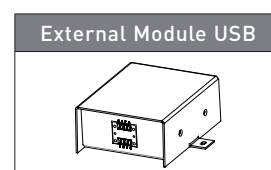
The Hatteland Display DIO module provides system integrators with an integrated control solution that reduces development time and enhances the performance of automation control systems such as (Low power/Relay control, Medium power buzzer, Indicator lamps and Electrical motors) as some typical examples.

With 4 isolated digital outputs and 4 isolated digital inputs (independent) and support for Microsoft® Windows® as well as a selection of Linux operating systems supported by Hatteland Display, this add-on option can be ordered with the latest generation box PC solutions and with the innovative Series X Panel PC products (Series X MMC 12, 13, 15, 17, 19, 24 and 26 inch). The DIO, as with all Hatteland Display products, will be IEC 60945 4th (EN 60945:2002) and IACS E10 approved.



EXTERNAL MODULES (STAND-ALONE)

Hatteland Display also offers external modules in their own casing, making them easily connectable to any Series X Panel PC or Computer. The cased module offers the same functionality as the factory integrated modules. They interface via a standard USB Type A Cable and the chassis comes with its own mounting hinges.



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-461E, MIL-STD-810F, 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-461E
MIL-STD-810F
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.

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.

With this much experience you can be sure that Hatteland Display is a strong link in the naval supply chain.

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.



SPECIFICATIONS - MIL QUALIFIED DISPLAYS



20 INCH

HM 20T07 NMD

MIL Qualified / Naval Military

TFT Technology

a-Si TFT (Thin Film Transistor) Active Matrix,
Optical Bonding Technology

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

250 cd/m² (typ) - 500:1 (typ)

View Angle / Max Colors

88 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

15.0 kHz to 75 kHz [H] - 56 Hz to 75 Hz [V]

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

Video Input(s)

None

Supported Video Signals

None

Product Features

Front Bonded, Qualified for shock, vibration & EMI, Adaptable to
19 inch racks or consoles, Fully adjustable backlight (0-100%),
Serial Communication (SCOM) Interface, Lockable handles,
Suitable for bridge or below decks

Power Specifications and Consumption

115/230VAC - 50/60/400Hz or 24/28VDC - 75W (typ) - 100W (max)
Inrush Current:
10A for 115VAC, Max. @ 25.0°C / 77.0°F
10A for 24/28VDC, Max. @ 25.0°C / 77.0°F

User Controls and Activity

BIT Function Button, INV Alarm Indicator LED,
Power On/Off Button, On Screen Display control (OSD/OSM) button,
Up/Down OSD Navigation / Hotkey Set #1 Buttons,
+/- Brightness Backlight Control, Backlight Illuminated Buttons

Connectors

- DVI IN: 1 x DVI-I 29P (female) or configurable
- as RGB IN: 1 x HD D-SUB 15P (female) via Adapter
- RGB IN: 5 x BNC J01(R)+J03(G)+J05(B)+J07(H)+J08(V)
- RGB OUT: 3 x BNC J02(R)+J04(G)+J06(B)
- If AC Power IN: 1 x Circular MIL P/N: AMP - MS27468T9F98P
- If DC Power IN: 1 x Circular MIL P/N: AMP - MS27468T15F5P
- Grounding: 1 x M4 Internal Screw Thread
- Combined Touch / SCOM+BIT Interface: 1 x D-SUB 9P (female)

Product Dimensions and Weight

W:482.00 [18.98"] x H:399.00 [15.71"] x D:95.00 [3.74"] mm [inch]
9U Rack size in height. Approx 12kg / 26lbs

Product Carton Size and Weight

L:650.00 [25.59"] x W:280.00 [11.02"] x H:600.00 [23.62"] mm [inch]
15.0kg / 33.0lbs

Factory Options

- 24/28VDC Power Input Model
- Resistive Touchscreen 8 wire
- Color Calibrated models (ECDIS)

Accessories

External 10 foot (3.0m) AC power cable NEMA (Halogen Free),
External 10 foot (3.0m) AC power cable Europe (Halogen Free),
External 10 foot (3.0m) DC power cable (Halogen Free)

Capabilities / Prepared for

N/A

Operating Temperature

AC: -15.0°C / 5.0°F to 55.0°C / 131.0°F
DC: -15.0°C / 5.0°F to 55.0°C / 131.0°F (Mil-Std 810F)

Storage Temperature

Dry Heat: 70.0°C / 158.0°F (MIL-STD-810F)
Cold: -40.0°C / -40.0°F (MIL-STD-810F)

IP Rating

N/A

Compass Safe Distance

N/A

Type Approval, Testing and Certificates

IEC 60945 4th (EN 60945:2002), IACS E10
MIL Testing Summary:
Humidity: 95% at 40.0°C / 104.0°F (MIL-STD-810F)
Shock: 60g / 11ms (IEC 60068-2-27 (1987), Test Ea)
Grade A Shock: Class 1 (hard-mounted) (MIL-S-901D)
Transient Shock: 2-280 Hz, Designed to envelope a half sine shock
pulse of 50g / 35ms (IEC 60068-2-57 (1999-11), Test Ff)
Rain (drip proof): MIL-STD-810F - Console mounted
Salt Fog: MIL-STD-810F
Vibration Testing: MIL-STD-167-1
EMI Testing: MIL-STD 461E 1999, CE 101, CE 102, CS 101,
CS 114, CS 116, RE 101, RE 102, RS 101, RS 103



20 INCH

HM 20T07 CMD

MIL Qualified / Combat Management

TFT Technology

a-Si TFT (Thin Film Transistor) Active Matrix, Optical Bonding

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

250 cd/m² (typ) - 500:1 (typ)

View Angle / Max Colors

88 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

15.0 kHz to 91 kHz [H] - 56 Hz to 75 Hz [V]

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

Video Input(s)

None

Supported Video Signals

None

Product Features

Front Bonded, Qualified for shock, vibration & EMI, Adaptable to 19 inch racks or consoles, Fully adjustable backlight (0-100%), Serial Communication (SCOM) Interface, Front mounted handles, Suitable for bridge or below decks

Power Specifications and Consumption

115/230VAC - 50/60/400Hz or 24/28VDC - 75W (typ) - 100W (max)
Inrush Current:
10A for 115VAC, Max. @ 25.0°C / 77.0°F
10A for 24/28VDC, Max. @ 25.0°C / 77.0°F

User Controls and Activity

BIT Function Button, INV Alarm Indicator LED, Power On/Off Button, On Screen Display control (OSD/OSM) button, Up/Down OSD Navigation / Hotkey Set #1 Buttons, +/- Brightness Backlight Control, Backlight Illuminated Buttons

Connectors

- DVI IN: 1 x DVI-I 29P (female) or configurable as RGB IN: 1 x HD D-SUB 15P (female) via Adapter
- RGB IN: 5 x BNC J01(R)+J03(G)+J05(B)+J07(H)+J08(V)
- RGB OUT: 3 x BNC J02(R)+J04(G)+J06(B)
- If AC Power IN: 1 x Circular MIL P/N: AMP - MS27468T9F98P
- If DC Power IN: 1 x Circular MIL P/N: AMP - MS27468T15F5P
- Grounding: 1 x M4 Internal Screw Thread
- Combined Touch / SCOM+BIT Interface: 1 x D-SUB 9P (female)

Product Dimensions and Weight

W:482.00 [18.98"] x H:399.00 [15.71"] x D:135.00 [5.31"] mm [inch]
9U Rack size in height. Approx 12kg / 26lbs

Product Carton Size and Weight

L:650.00 [25.59"] x W:280.00 [11.02"] x H:600.00 [23.62"] mm [inch]
15.0kg / 33.0lbs

Factory Options

- 24/28VDC Power Input Model
- Resistive Touchscreen 8 wire
- Color Calibrated models (ECDIS)

Accessories

External 10 foot (3.0m) AC power cable NEMA (Halogen Free),
External 10 foot (3.0m) AC power cable Europe (Halogen Free),
External 10 foot (3.0m) DC power cable (Halogen Free)

Capabilities / Prepared for

N/A

Operating Temperature

AC: -15.0°C / 5.0°F to 55.0°C / 131.0°F
DC: -15.0°C / 5.0°F to 55.0°C / 131.0°F (MIL-STD-810F)

Storage Temperature

Dry Heat: 70.0°C / 158.0°F (MIL-STD-810F)
Cold: -40.0°C / -40.0°F (MIL-STD-810F)

IP Rating

N/A

Compass Safe Distance

N/A

Type Approval, Testing and Certificates

IEC 60945 4th (EN 60945:2002)
MIL Testing Summary:
Humidity: 95% at 40.0°C / 104.0°F (Mil-Std 810F)
Shock: 60g / 11ms (IEC 60068-2-27 (1987), Test Ea)
Grade A Shock: Class 1 (hard-mounted) (MIL-S-901D)
Transient Shock: 2-280 Hz, Designed to envelope a half sine shock pulse of 50g / 35ms (IEC 60068-2-57 (1999-11), Test Ff)
Rain (drip proof): MIL-STD-810F - Console mounted
Salt Fog: MIL-STD-810F
Vibration Testing: MIL-STD-167-1
EMI Testing: MIL-STD 461E 1999, CE 101, CE 102, CS 101, CS 114, CS 116, RE 101, RE 102, RS 101, RS 103



20 INCH

HM 20T07 MIL

MIL Qualified

TFT Technology

a-Si TFT (Thin Film Transistor) Active Matrix,
Optical Bonding Technology

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

250 cd/m² (typ) - 500:1 (typ)

View Angle / Max Colors

88 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

15.0 kHz to 91 kHz [H] - 56 Hz to 75 Hz [V]

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

Video Input(s)

Composite

Supported Video Signals

COMPOSITE Compatible [NTSC/PAL/SECAM Interlaced]

Product Features

Front Bonded, Qualified for shock, vibration & EMI, Fully adjustable
backlight (0-100%), PIP (Picture-In-Picture),
Serial Communication (SCOM)

Power Specifications and Consumption

115/230VAC - 50/60Hz - 75W (typ) - 100W (max)

User Controls and Activity

Power On/Off (push button), Brightness Control Rotary Knob,
2 x hotkeys, Mode Status LED, On Screen Display control (OSD/OSM)
(behind hatch), Serial Remote Control DIP-Switch Settings (rear)

Connectors

- RGB IN: 5 x BNC Connectors (RGBHV)
- RGB OUT: 1 x HD D-SUB 15P (female)
- Composite Video IN: 1 x BNC Connector
- Serial Remote Control: 2 x D-SUB 9P (female)
- AC Power IN: 1 x Std. IEC inlet
- If Touch Screen: 1 x DB9F RS-232 communication

Product Dimensions and Weight

W:534.00 [21.02"] x H:481.00 [18.94"] x D:87.00 [3.43"] mm [inch]
Approx 14kg / 31lbs

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

- Resistive Touchscreen 8 wire
- Color Calibrated models (ECDIS)

Accessories

Bracket (tilt up/down), Rotary Bracket (left/right), VESA Bracket,
Sun Visor, Water Cover

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

Dry Heat: 70.0°C / 158.0°F (IEC 60068-2-2 (1974), Test Bd)
Cold: -40.0°C / -40.0°F (IEC 60068-2-1 (1990), Test Ad)
Humidity up to 95%

IP Rating

Protection [EN60529]: IP66 front - IP20 rear

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], NK - Nippon Kaiji Kyokai,
DNV - Det Norske Veritas, GL - Germanischer Lloyd,
BV - Bureau Veritas, LRS - Lloyd's Register,
ABS - American Bureau of Shipping,
EU-RO-MR - Mutual Recognition,
CCS - China Classification Society
MIL Testing Summary:
Shock: 50g / 30ms (IEC 60068-2-27 (1987), Test Ea)
Grade A Shock: Class 1 (hard-mounted) (MIL-S-901D)
Vibration Testing: 4-33Hz, MIL-STD-167-1 - Console Mounted
EMI Testing: MIL-STD 461E 1999, CE 101, CE 102, CS 101,
CS 114, CS 116, RE 101, RE 102, RS 101, RS 103

SPECIFICATIONS - MIL QUALIFIED DISPLAYS



20 INCH

HM 20T07 MIL-H

MIL Qualified

TFT Technology

a-Si TFT (Thin Film Transistor) Active Matrix,
Optical Bonding Technology

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

250 cd/m² (typ) - 500:1 (typ)

View Angle / Max Colors

88 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

15.0 kHz to 91 kHz [H] - 56 Hz to 75 Hz [V]

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

Video Input(s)

Composite

Supported Video Signals

COMPOSITE Compatible (NTSC/PAL/SECAM Interlaced)

Product Features

Front Bonded, Qualified for shock, vibration & EMI,
Fully adjustable backlight (0-100%), PIP (Picture-In-Picture),
Serial Communication (SCOM), Front mounted handles

Power Specifications and Consumption

115/230VAC - 50/60Hz or 24VDC input, 75W (typ) - 100W (max)

User Controls and Activity

Power On/Off (push button), Brightness Control Rotary Knob,
2 x hotkeys, Mode Status LED, On Screen Display control (OSD/OSM)
(behind hatch), Serial Remote Control DIP-Switch Settings (rear)

Connectors

- RGB IN: 5 x BNC Connectors (RGBHV)
- RGB OUT: 1 x HD D-SUB 15P (female)
- Composite Video IN: 1 x BNC Connector
- Serial Remote Control: 2 x D-SUB 9P (female)
- If AC Power IN: 1 x Std. IEC inlet
- If DC Power IN: 1 x Screw Terminal
- If Touch Screen: 1 x DB9F RS-232 communication

Product Dimensions and Weight

W:534.00 [21.02"] x H:481.00 [18.94"] x D:147.00 [4.99"] mm [inch]
Approx 14kg / 31lbs

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

- 24VDC Power Solution
- Resistive Touchscreen 8 wire
- Color Calibrated models (ECDIS)

Accessories

Bracket (tilt up/down), Rotary Bracket (left/right), VESA Bracket,
Sun Visor, Water Cover

Capabilities / Prepared for

N/A

Operating Temperature

-15.0°C / 5.0°F to 55.0°C / 131.0°F

Storage Temperature

Dry Heat: 70.0°C / 158.0°F (IEC 60068-2-2 (1974), Test Bd)
Cold: -40.0°C / -40.0°F (IEC 60068-2-1 (1990), Test Ad)
Humidity up to 95%

IP Rating

Protection (EN60529): IP66 front - IP20 rear

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), NK - Nippon Kaiji Kyokai,
DNV - Det Norske Veritas, GL - Germanischer Lloyd,
BV - Bureau Veritas, LRS - Lloyd's Register,
ABS - American Bureau of Shipping,
EU-RO-MR - Mutual Recognition,
CCS - China Classification Society
MIL Testing Summary:
Shock: 50g / 30ms (IEC 60068-2-27 (1987), Test Ea)
Grade A Shock: Class 1 (hard-mounted) (MIL-S-901D)
Vibration Testing: 4-33Hz, MIL-STD-167-1 - Console Mounted
EMI Testing: MIL-STD 461E 1999, CE 101, CE 102, CS 101,
CS 114, CS 116, RE 101, RE 102, RS 101, RS 103

SPECIFICATIONS - MIL QUALIFIED DISPLAYS



19 INCH

HM 19T14 MMD

MIL Qualified / TEMPEST Certified

TFT Technology

Active Matrix, Thin Film Transistor (TFT), MVA Premium™ Technology, Optical Bonding 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 - 12ms [typ]

Light Intensity and Contrast Ratio

300 cd/m² [typ] - 900:1 [typ]

View Angle / Max Colors

85 deg. (up/down/left/right) - 16.7 million

Synchronization Signal Auto-detect

Digital Separate Sync., Composite Sync., Sync. On Green

Synchronization Range

15.0 kHz to 91.1 kHz [H] - 60 Hz to 85 Hz [V]

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 x 1200

Video Input(s)

With HATTELAND® Multifunction Cable

Supported Video Signals

SVHS & COMPOSITE Compatible

Product Features

TEMPEST Certified, Front Bonded, PBP (Picture By Picture), PIP (Picture In Picture), HATTELAND® Multifunction Connector, Hotkey Functionality, Dimmable 0-100%, Buzzer

Power Specifications and Consumption

115/230VAC - 50/60Hz - 100W (max)

User Controls and Activity

Power On/Off + On Screen Display Menu (push button), Brightness Control (rotary), Hotkeys (left/right - push buttons), Mode Status Illuminated LED-Ring Indicator, Buzzer

Connectors

- DVI IN: 1 x DVI-I 29P (female)
- RGB IN: 1 x HD D-SUB 15P (female)
- RGB OUT: 1 x HD D-SUB 15P (female)
- Multifunction: 1 x D-SUB 160P (female)
- USB: 1 x Type B (female) - (Not in use/ Not connected)
- AC Power IN: 1 x Std. IEC inlet
- AC Power OUT: 1 x Std. IEC outlet
- SCOM RS-232: 1 x DB9F
- Composite Video IN: 3 x BNC

Product Dimensions and Weight

W:483.00 [19.02"] x H:444.00 [17.48"] x D:82.00 [3.23"] mm [inch]
Approx 12kg / 26lbs

Product Carton Size and Weight

L:600.00 [23.62"] x W:560.00 [22.05"] x H:220.00 [8.66"] mm [inch]
12.0kg / 26.4lbs

Factory Options

- Color Calibrated models (ECDIS)

Accessories

- VSD100692-x: Custom Multifunction Cable to support input signals; RS-232, RS-485, RS-422/485, Buzzer, ON/OFF, 1 x S-Video IN, 3 x Composite Video IN, Remote External User Controls.
- 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

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

Dry Heat: -20.0°C / -4.0°F to 60.0°C / 140.0°F, Humidity up to 95%

IP Rating

Protection [EN60529]: IP66 front - IP20 rear

Compass Safe Distance

Standard: 160.00 [62.99"] - Steering: 105.00 [41.34"] cm [inch]

Type Approval, Testing and Certificates

TEMPEST SDIP-27 Level B, IEC 60945 4th [EN 60945:2002], NK - Nippon Kaiji Kyokai, GL - Germanischer Lloyd, DNV - Det Norske Veritas, ABS - American Bureau of Shipping, BV - Bureau Veritas



TEMPEST certified
by the Norwegian
National Security
Authority

HM C01

Compact
Rugged
Naval
Computer...



4U, 19 INCH
Rack Adapter accessory



Sliding Rails 20 or 26 inch
for 4U accessory

RUGGED

HM C01

Compact



Installed Operating System Options

None or Microsoft® Windows® Embedded Enterprise (32bit: XP Pro / Win Server 2003 / Win 7 Pro / Win Server 2008)

Storage Options

2 x 250GB 2.5" SATA Automotive HDD, 5400RPM, 8MB Buffer

Processor / CPU and FSB Speed Options

1 x Intel® Core™2 Duo E8400, 3.0GHz, 1333MHz FSB, 6MB L2

Memory Options

4 x 1GB Dual Channel DDR2 800/667MHz, SDRAM, 240-pin DIMM

System and Graphics Chipset / Connectors

Intel® Q35, ICH9DO / Intel® GMA 3100 integrated with 1 x HD DB15F (female) RGB/VGA OUT and 1 x 29P (female) DVI-I

Max Resolution / Max Hz

2048 x 1536 / 75Hz

BIOS

Award

PCI Slots / PCIe Slots

2 x PCI2.3, 3V/5V Interface + 1 x PCIe x16 (add2) + 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

1 x DB25F Bi-Directional Centronics with ECP/EPP mode

Serial Port(s)

2 x DB9M RS-232

Ethernet Port(s)

2 x RJ45 10/100/1000Mbps - Intel® 82566DM, Intel® AMT
2 x RJ45 10/100/1000Mbps - Realtek RTL 8168C(P)8111C

USB Port(s)

8 x USB2.0/1.1 Type A [rear] + 2 x USB2.0/1.1 Type A [front]

Keyboard and Mouse Ports

1 x PS/2 Keyboard + 1 x PS/2 Mouse

Audio Ports

3 x 3.5mm Jacks (LINE IN/LINE OUT/MIC IN) or option (+1 x DB9F)
Realtek ALC888 7.1 channel, HD Audio

Speaker / Buzzer

No Speaker / No Buzzer

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 (330W) or 24VDC (220W)
If AC Power IN: 1 x Std IEC inlet
If DC Power IN: 1 x 2p DSUB (male) Amphenol FCC17
Operating 70W [typ]

Digital I/O Connectors

None

Key Features

High Performance, Replaceable Air Filter in front, Service friendly, AC or DC power input, 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 10kg / 22lbs

Product Carton Size and Weight

L:680.00 [26.77"] x W:550.00 [21.65"] x H:290.00 [11.42"] mm [inch]
22.0kg / 48.4lbs

User Controls / Activity

On/Off Push Button, Reset Button, Power LED / HDD LED

Factory Options

None

Accessories

- HT 00225 OPT-A1: 2 x 26" ball bearing rail/mount kit for 19" Rack
- HT 00224 OPT-A1: 2 x 20" ball bearing rail/mount kit for 19" Rack
- HT 00229 OPT-A1: 1 x Mounting Bracket PCI Kit HT C01
- HT 00223 OPT-A1: 1 x 4U 19" Rack Case Kit (for HT 00224/00225)
- JH C01MF A-A: 1 x USB Cable 1m, Type A/Chassis mount receptacle
- HT 00226 OPT-A1: 2 x Bracket, 4mm SECC+Zinc Plating, RAL9011
- HT 00235 OPT-A1: 2W Amplified Audio out via 1 x DB9F
- HT 00300 MSOS: OS options -> www.hatteland-display.com/os

Capabilities / Prepared for

- Up to 8GB DDR2 800/667MHz SDRAM, 240-pin DIMM

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 2 hours

Storage Temperature

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

Compass Safe Distance

Standard: 150.00 [59.06"] - Steering: 95.00 [35.63"] cm [inch]

Type Approval, Testing and Certificates

MIL-STD-167-1 Vibration, MIL-STD-810F Shock 50G 30ms,
IEC 60945 4th [EN 60945:2002], EN61162, IACS E10,
NK - Nippon Kaiji Kyokai, GL - Germanischer Lloyd,
DNV - Det Norske Veritas, ABS - American Bureau of Shipping,
BV - Bureau Veritas, LRS - Lloyd's Register,
EU-RO-MR - Mutual Recognition
EMI Testing: MIL-STD-461E Naval Limits, CE 101, CE 102, RE 101,
RE 102 [AC: front ok, rear deviate 5dB@190MHz], CS 101, CS 114,
CS 116, RS 101, RS 103, IEC 60945 4th [EN 60945:2002]

OTHER MARKETS

**HATTELAND®
DISPLAY**

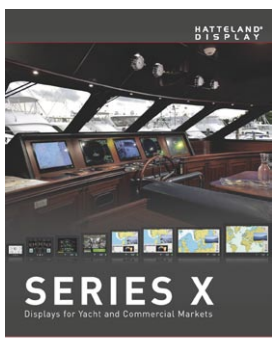
Hatteland Display offers standard or tailored solutions for industrial, automotive, ground transport, medical, air traffic control, fire and security applications and more...

Please contact us at lse@hatteland-display.com for more information!



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 Color Calibration by Hatteland Display Available as A4, US paper format or as PDF online	 Series X - Bi-fold Leaflet Available as US paper format or as PDF online	 Optical Bonding Technical Description Available as PDF online	 Visions Magazine Issue Bi-annual or for selected Tradeshows Available as A4 (or PDF online only)
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ACCESSORIES

High quality build accessories suitable for our wide range of Display, Panel Computer and Computer products across all markets. Suitable for Maritime Multi Display (MMD), Maritime Multi Computer (MMC), MIL Qualified (MIL) products and Computers (where applicable). Please check data sheets respectively for Series 1 and Series X products as they may not be interchangeable between each other.

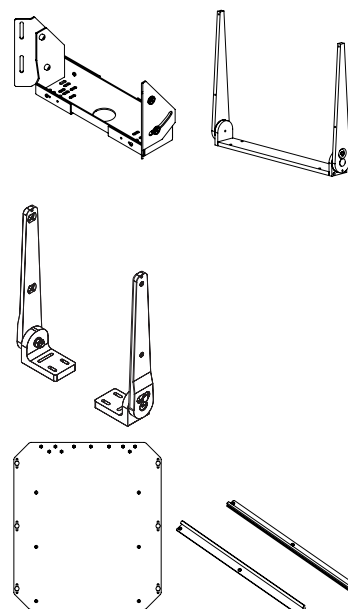
Series **ID** explanations:

A = Series X Displays, **B** = Series X Panel Computers

C = Series 1 Displays, **E** = Computers, **F** = MIL Qualified Displays

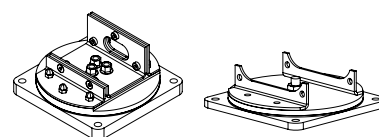
Mounting Brackets - Desktop, ceiling, console, wall, rack or cabinet mounting brackets and plates.

TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
HD CMB SX1-A1	Console / Panel Mounting Bracket Kit (key hole). 3.0-12.00mm	12, 15, 17, 19 inch	AB
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 + longer screws	12, 15, 17, 19 inch	AB
HD TMB SX1-B1	Table Mounting Bracket. EN60945 Tested.	24 inch	AB
HD TMB SX1-C1	Table Mounting Bracket. EN60945 Tested.	26 inch	AB
HD TMB SX1-A1	Table Mounting Bracket. EN60945 Tested.	12, 15 inch	AB
HD CMB SX1-B1	Console / Panel Mounting Bracket Kit.	24 inch	AB
HD CMB SX1-C1	Console / Panel Mounting Bracket Kit.	26 inch	AB
HT 00226 OPT-A1	Desktop/Wall/Ceiling/Cabinet for Computers.	HT C02, HM C01	E
HT 00228 OPT-A1	Desktop/Wall/Ceiling/Cabinet for Computers. With Cable Reliefs.	HT B17, HT B18, HT B22	E
HT 00244 OPT-A1	Desktop/Wall/Ceiling/Cabinet for Computers.	HT B17, HT B18	E
HT 00245 OPT-A1	Bracket Kit Desktop/Wall/Ceiling/Cabinet for Computers.	HT B17	E
HT 00246 OPT-A1	Bracket Kit Desktop/Wall/Ceiling/Cabinet for Computers.	HT B18	E
HT 00270 OPT-A1	Bracket Kit Desktop/Wall/Ceiling/Cabinet for Computers.	HT B22	E
JH MMDBR STD-A1	Desktop/Ceiling Bracket for Displays.	19, 20 inch	CF
JH 15TBR STD-B1	Desktop/Ceiling Bracket for Displays.	15 inch	C
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	CF
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



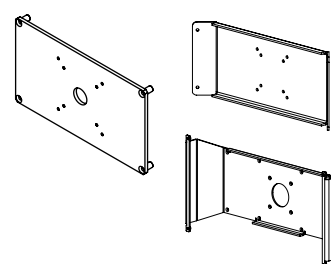
Rotary Brackets - For use with Mounting Brackets.

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	CF



VESA Brackets - For Wall or Ceiling mounting, compatible with VESA 75/100mm standards.

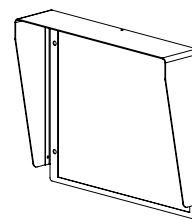
TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
HD VED SX1-A1	Suitable for Displays and Panel Computers.	12, 15, 17, 19, 24, 26 inch	AB
JH 15VED STD-A1	Suitable for Displays.	15 inch	C
JH 19VED STD-A1	Suitable for Displays.	19 inch	CF
JH 19VED STD-B1	Suitable for Displays.	19 inch Slim	C
JH 20VED STD-A1	Suitable for Displays.	20 inch	CF
JH 22VED STD-A1	Suitable for Displays.	22 inch	C
JH 23VED STD-A1	Suitable for Displays.	23 inch	C



ACCESSORIES

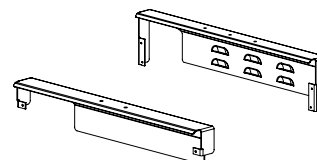
Sun Visors - For preventing glare and reflections from strong light sources.

TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
JH 15TSV STD-A1	Suitable for Displays.	15 inch	C
JH 19TSV STD-A1	Suitable for Displays.	19 inch	CF
JH 19TSV STD-B1	Suitable for Displays.	19 inch Slim	C
JH 20TSV STD-B1	Suitable for Displays.	20 inch	CF
JH 22TSV STD-A1	Suitable for Displays.	22 inch	C
JH 23TSV STD-A1	Suitable for Displays.	23 inch	C



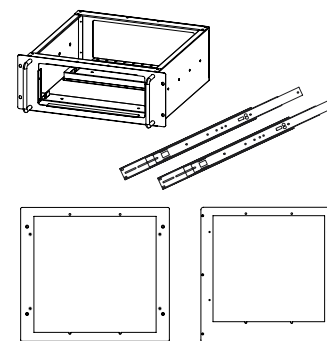
Water Covers - For top of product. IP22 Rated.

TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
JH 15TWC STD-A1	Suitable for Displays.	15 inch	C
JH 19TWC STD-B1	Suitable for Displays.	19 inch	CF
JH 19TWC STD-C1	Suitable for Displays.	19 inch Slim	C
JH 20TWC STD-B1	Suitable for Displays.	20 inch	CF
JH 22TWC STD-A1	Suitable for Displays.	22 inch	C
JH 23TWC STD-A1	Suitable for Displays.	23 inch	C



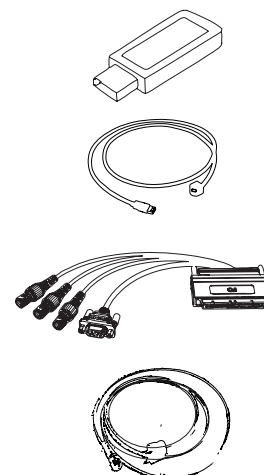
Cutout, Frame and Chassis Adapters - 19 Inch Rack adapters, Hatteland Display compatible Panel Cut Out adapters, Computer Chassis Rack Adapter, Sliding Rails and CRT adapters suitable for retrofit installations.

TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
HT 00223 OPT-A1	Adapt unit to 19 inch Rack 4U size.	HT C02, HM C01	E
HT 00224 OPT-A1	2 x 20 inch long ball bearing sliding rails for 19 inch Rack.	HT C02, HM C01, HT 221	E
HT 00225 OPT-A1	2 x 26 inch long ball bearing sliding rails for 19 inch Rack.	HT C02, HM C01, HT 221	E
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.	15 inch	AB
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	CF
JH 19TAP STD-A2	Frame Adapter, 20 Inch TFT Cut Out Area. For Displays.	19 inch	CF
JH 19TAP STD-B1	Frame Adapter, 21 Inch CRT Cut Out Area (custom). For Displays.	19 inch	CF
JH 19TAP STD-C1	Frame Adapter, 19 inch Series X to fit 19 inch Series 1 Cutout.	19 inch	AB
JH 26TAP STD-A1	Frame Adapter, 26 inch Series X to fit 26 inch Series 1 Cutout.	26 inch	AB



Cables and Miscellaneous - These accessories adds even more value to our wide range of display, panel computer and computer products.

TYPENUMBER	DESCRIPTION	SUITABLE FOR	ID
HD REM SX1-A1	External Remote Controller via SCOM, 5-pin Terminal Block 3.81 connector. For Displays.	12, 15, 17, 19, 24, 25 inch	A
HT 00229 OPT-A1	For secure mounting of PCI/PCIe cards.	HM C01	E
HT 00237 OPT-A1	For secure mounting of PCI/PCIe cards.	HT B18	E
HT 00262 OPT-A1	External Module - 4 x NMEA RS-422/RS-485 isolated, 5-pin Terminal Block 3.81 Connectors, USB Interfaced	12, 13, 15, 17, 19, 24, 26 inch, HT B22, HT C02, HT 221	BE
HT 00263 OPT-A2	External Module - 4 x RS-232 COM, DB-9 Male Connectors, USB Interfaced	12, 13, 15, 17, 19, 24, 26 inch, HT B22, HT C02, HT 221	BE
HT 00264 OPT-A1	External Module - 1 x CAN isolated, 4-pin Terminal Block 3.81 Connectors, USB Interfaced	8, 12, 13, 15, 17, 19, 24, 26 inch, HT B22, HT C02, HT 221	BE
HT 00273 OPT-A1	External Module - Isolated Digital IO, 4 x Output + 4 x Input, Terminal Block 3.81 Connectors, USB Interfaced	12, 13, 15, 17, 19, 24, 26 inch, HT B22, HT C02, HT 221	BE
HT 00274 OPT-A1	2 x LAN 10/100Mbps RJ-45. For Computers and Panel Computers.	8,12,12,13,15,17,19,24,26 inch, HT B22, HT C02, HT 221	BE
JH C01MF A-A	USB Cable 1m. Type A plug to Chassis mount Type A receptacle. For Computers and Panel Computers.	8,12,12,13,15,17,19,24,26 inch, HT B18, HM C01, HT B22, HT C02, HT 221	BE
VSD100692-1	Multifunction Cable with 1 x COM for Displays.	15, 19, 20, 22, 23 inch	CF
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	CF
VSD100692-4	Multifunction Cable with 1 x COM and 3 x Composite Video (BNC) for Displays.	15, 19, 20, 22, 23 inch	CF
VSD100694-1	External 10-foot (3.0m) AC power cable NEMA (Halogen Free).	20 inch	F
VSD100695-1	External 10 foot (3.0m) AC power cable Europe (Halogen Free).	20 inch	F
VSD100696-1	External 10 foot (3.0m) DC power cable (Halogen Free).	20 inch	F



To get an up-to-date list of our accessories, please visit: www.hatteland-display.com/accessories

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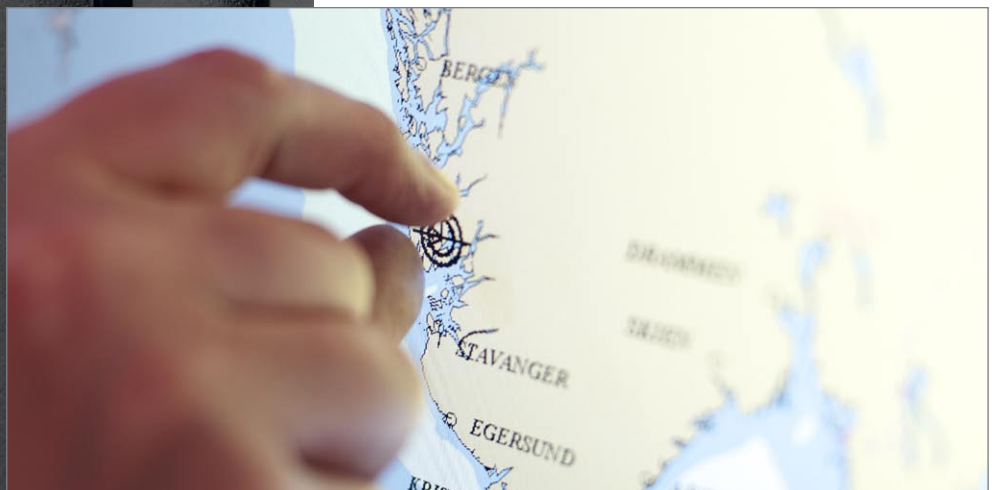
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To get an up-to-date list of our locations, please visit:
www.hatteland-display.com/locations



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 200,000 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

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Quality - Knowledge - Value