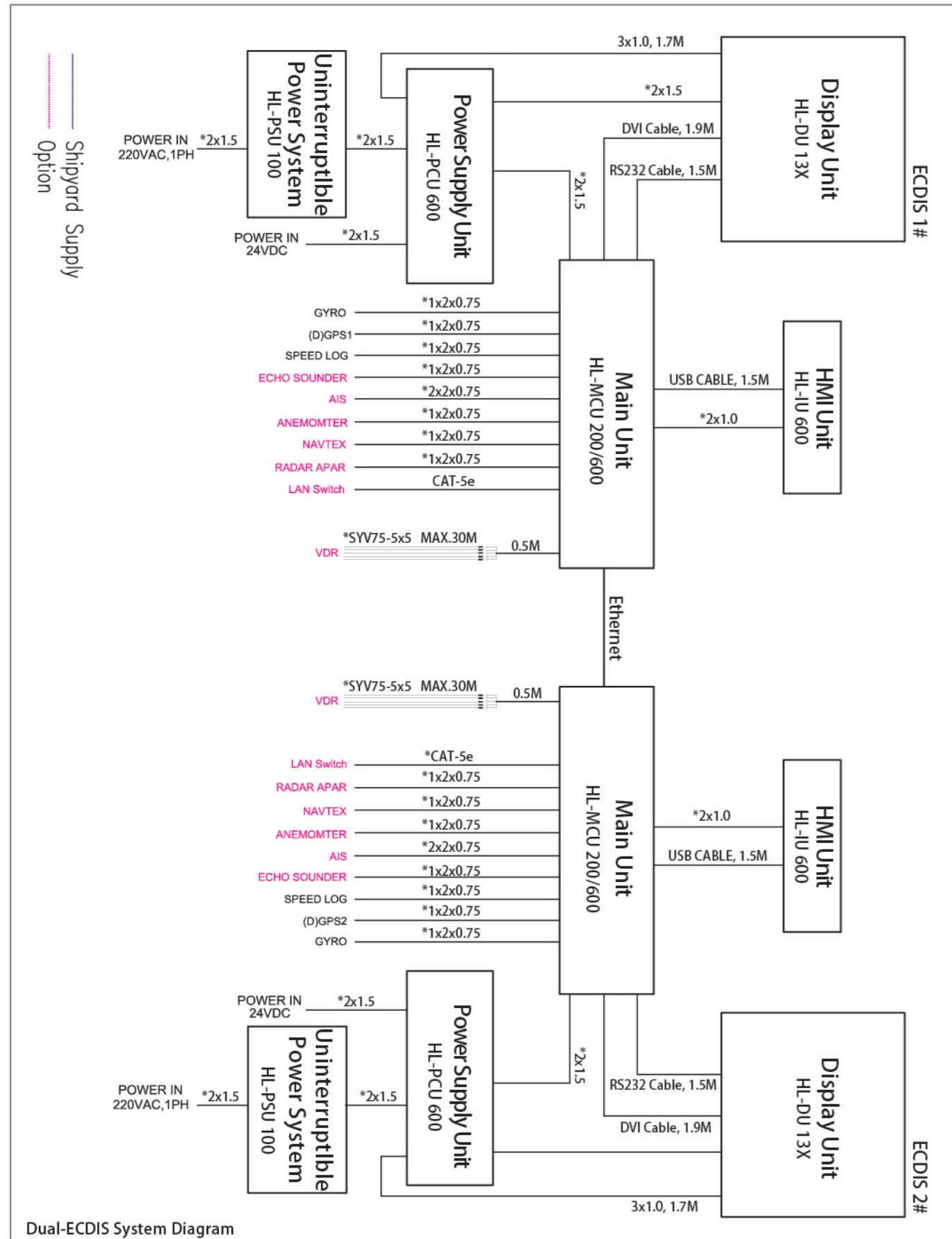


**[Configuration]**



Dual-ECDIS System Diagram

**Standard Configuration**

- Processor Unit
- Display Unit (24")
- Keyboard with pointing device
- ECDIS Dongle
- DOCUMENTS

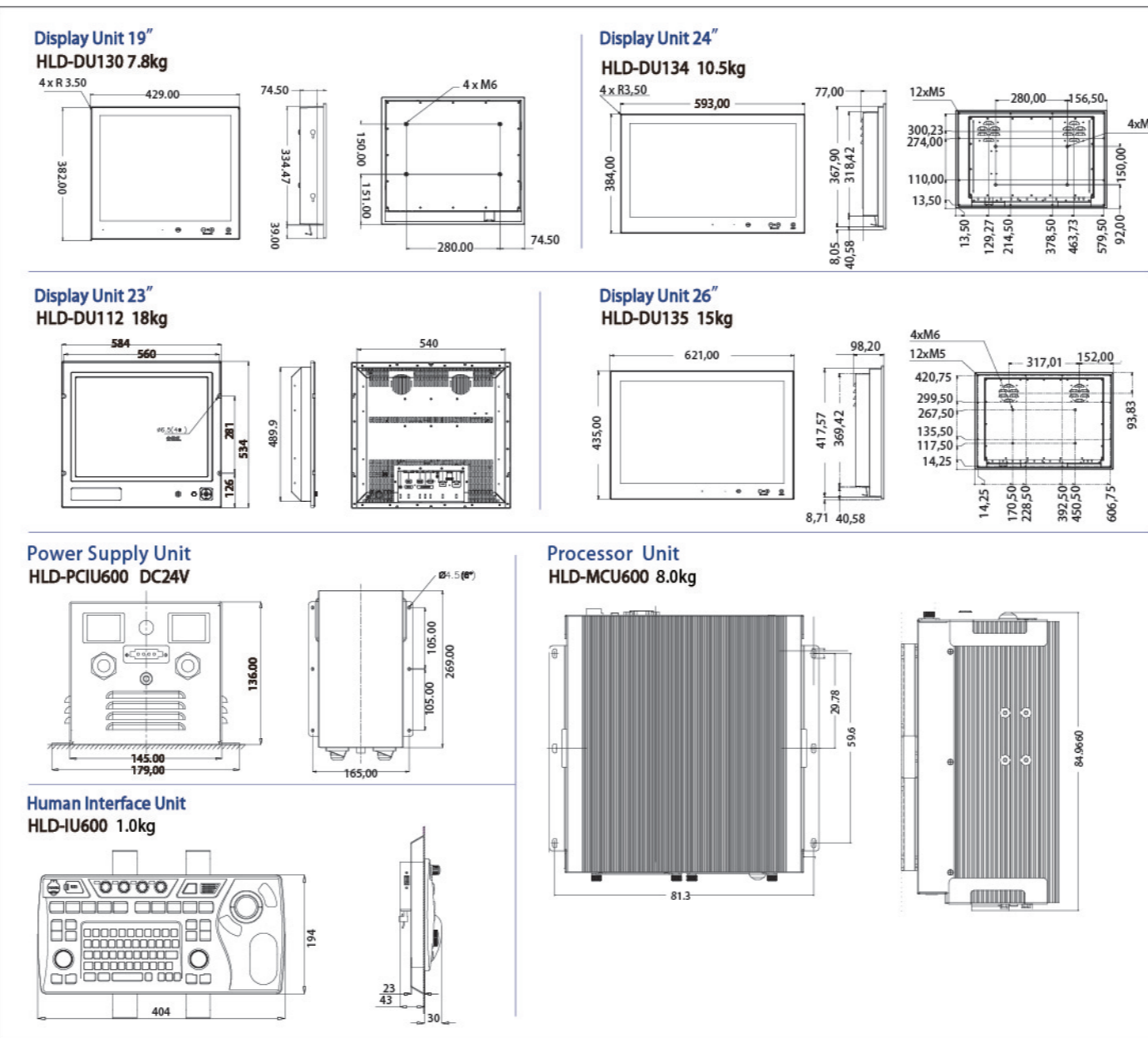
**Optional**

- Power Supply Unit
- Stand Console
- Desktop Console
- Serial Data Interface
- Display Unit

- HLD-MCU 600
- HLD-DU 134
- HLD-IU 600
- ECDIS 100 (M)
- HLD-PCU 600
- HLD-SM 200
- HLD-DM 200
- HLD-SPS 100
- HLD-DU 131
- HLD-DU 130
- HLD-DU 133
- HLD-DU 112
- HLD-DU 132
- HLD-DU 135

- U-DISK
- DVD ROM
- USB CABLE
- REMOTE POWER ON/OFF
- Uninterruptible PSU
- Radar Image Acquisition Card
- TCS (TRACK CONTROL SYSTEM) INTERFACE
- LAN SWITCH AND CABLE
- 24"
- 19"
- 19"
- 23.1"
- 26"
- 26"

**[Dimensional Drawings]**



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China Classification Society (CCS) type approval  
 EU MED B + D Type Approval

OF POSSIBLE POSITION  
 (70% PROBABILITY)

AREA OF POSSIBLE  
 STORM-FORCE WINDS  
 (T OR MORE)

**ECDIS**

ELECTRONIC CHART DISPLAY INFORMATION SYSTEM

**HLD-ECDIS 100**



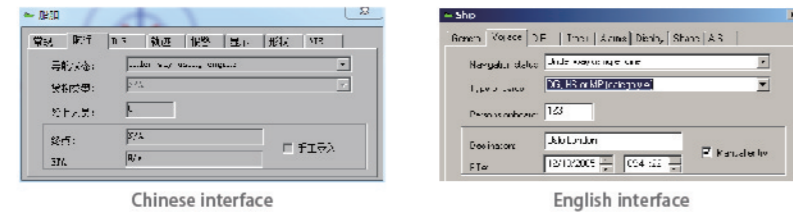
Beijing Highlander Digital Technology Co., Ltd.



HLD-ECDIS100 is developed in co-operation with foreign technology. HLD-ECDIS 100 fully meets IMO performance standard Res A.694(17), Res A.817(19), MSC 64(67), MSC 86(70), MSC 191(79), MSC 232(82), HSC 2000 Code 13 and SOLAS V/18 & V/19 for safety of navigation. The ECDIS had achieved type approval from China Classification Society (CCS) and Det Norske Veritas (DNV) of Norway. The ECDIS is proven after been used for more than ten years of the European market, meeting its major tasks for route planning and route monitoring. Value added functions such as online chart data updating, radar image overlay, track control, navtex, route optimization with weather and current data inputs, English and Chinese Language menu is standard delivery of the ECDIS. Duplication with dual or triple ECDIS to meet paperless navigation can be easily achieved by the simple networking set-up. The planned routes and monitoring functions are duplicated by the backup ECDIS and task is automatically transferred upon the failure of the main ECDIS.

**[Features]**

**Chinese/ English Language Menu**  
Choice of English & Chinese Language Menu provides operators who are proficient in either language with ease of operation.

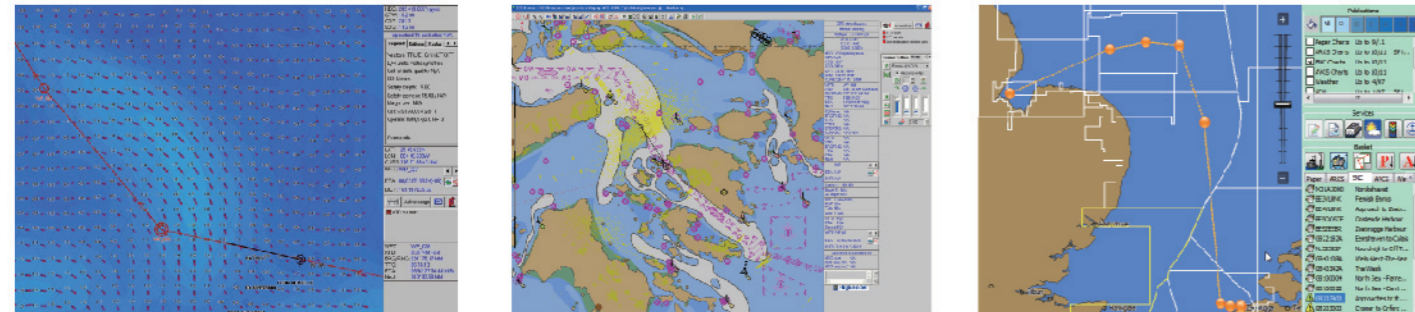


**Tracking control System**  
An approved Track Control System is achieved in combination with Highlander SC 200 Autopilot. Track Control is approved under Cat B & C Track Control System. The cross track error is keep within the limits as stipulated in IEC 62045 Standards for all kinds of vessels. With track control system, fuel optimization and safety of navigation is further enhanced.

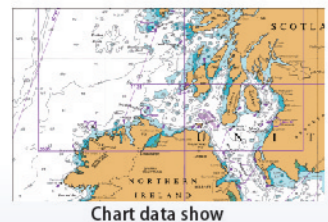
**Voyage decision support**  
With the safety of navigation as the most important criteria, the ECDIS route planning function optimizes the route, reduces fuel consumption, and sailing time in combination with navigation data such as speed information from speedlog, weather and current flow information sensors.

**Radar Image Overlay function**  
HLD-ECDIS 100 can be overlay the radar image from Highlander HLD-Radar 800 series ARPA radars using networking. The ECDIS can also overlay radar images of other radar makes with the installation of a Radar Image Acquisition Board. The Radar Image Acquisition Board can be easily interface with most radar currently in the market.

**Chart data Management**  
The chart data management function allows the user to purchase charts or updates online in real time or via memory storage devices. Online purchase can be easily done via the marine data services. Based on the destination route information, simple plot on the marine data service platform, the application automatically calculates the number of required charts, checks for the charts which were purchased earlier and stored in the library, outputs the list of purchase required. Delivery of the chart is via internet connection using the vessel's satellite communication system. The application is a one-stop service for the ship owners.

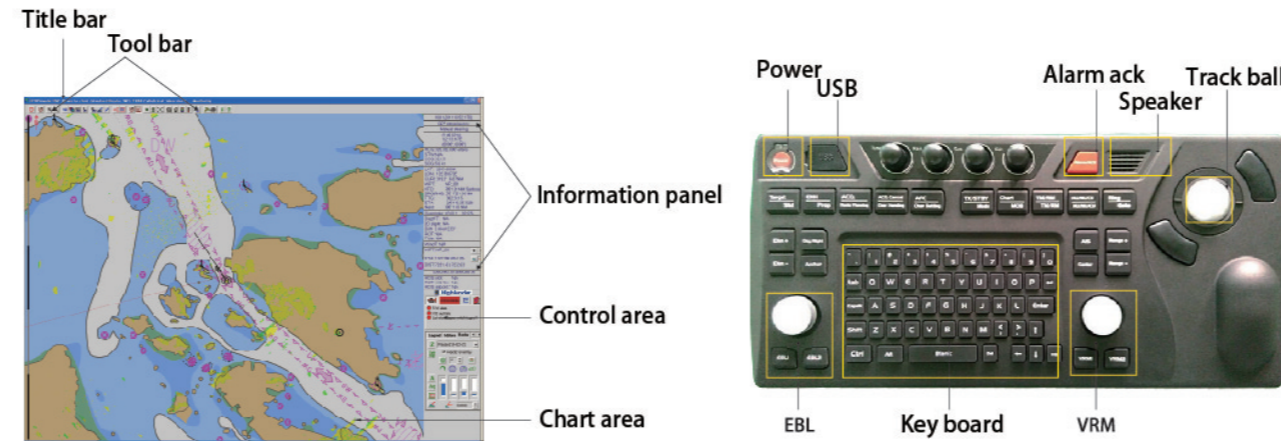


**Chart data display**  
Support IHO S-57, S-63 ENC, ARCS and Vector Chart formats, fully compatible with C-MAP CM93 chart.



**Friendly Human-machine interface**

Friendly Human-Machine Interface utilize the familiar windows GUI for ease of operation and training of new operators. ECDIS Display incorporates either 19", 20", 23", 24" or 26" High Resolution daylight TFT LCD Monitors



**[Functions]**

**Basic functions**

- **Chart Presentation Mode:** Course up; North up; Relative & True Motion
- **Route Planning Task:** Calculation of route distance, time to arrival, next arrival waypoint
- **Chart Data Correction:** Accepts official chart data update automatically or via user's download, with automatic or manual correction.
- **Position Fix & Navigation:** Receives and process navigational sensors data, providing consistent reference position, track, heading, speed, etc, with various land reference for position fixing.
- **Voyage information Acquisition:** Acquires information including the description on objects and navigational conditions such as meteorological, tide, and the Ocean current.
- **Radar image overlay:** Radar images can be overlay on the chart display for navigation and collision avoidance function. Correlation between moving and fixed target allows the navigator to assess collision risk, making collision avoidance decisions and taking corrective actions to prevent collision.
- **Route Monitoring:** automatic monitoring the vessel's movement against the planned route, raising alert whenever critical or dangerous or off track conditions are encountered. Detection of dangerous sea passages, reef, grounding and other environmental conditions for prevention of collision and grounding.
- **Voyage recording:** ECDIS records latest 12 hours track information (include time, position, heading, speed, chart source, software version) at every 1 minute interval which can be played back for audit or training purpose.



**Additional Features**

- **Navtex:** Capability to present NAVTEX information with graphical symbols on chart
- **Conning display:** Capability to present Navigation Information as Conning station

**[Technical Specifications]**

**System Specifications**

- **DISPLAY UNIT:** 7 TYPES FROM 19 INCH TO 26 INCH, High Resolution
- **OPERATION SYSTEM:** WINDOW XP(EN)
- **INTERFACE**
  - Input A:** IEC 61162
  - INTERFACE:** EPFS, COMPASS, SDME
  - OPTIONAL:** AIS, ARPA, ECHO SOUNDER, Anemometer, NAVTEX, Others
  - Input B:** USB or LAN
  - Output A:** LAN, VDR
  - INPUT/OUTPUT:** INS /ALARM MANAGER /BACKUP ECDIS /TCS

- **POWER SUPPLY UNIT:** 115-230VAC AND 24VDC INPUT, 300W
- **UPS:** 115-230VAC INPUT, 1KVA
- **ENVIRONMENT:** IEC 60945 STANDARDS
- **TEMP:** 15°C TO +55°C (ALL UNITS)

**Technical parameters of Processor Unit**

- **Processor:** Intel Core i5520ME processor, 3 MB L2 cache
- **Memory:** 2 GB DDR3 memory, up to 4 GB
- **HDD:** SSD 128GB
- **dimension (LxWxH):** 320x 300x 171mm
- **Working temperature:** -15 ~ 55 °C
- **Storage temperature:** -20 ~ 60 °C
- **Power supply:** 18~30VDC IN
- **Consumption:** <100W
- **EMC/EMI:** IEC 60945
- **Weight (about):** 8kg

**Human Interface**

- **Power supply:** 5V DC
- **Installation:** Desk / Flush Mout
- **Weight(about):** 1kg
- **EMC/EMI:** IEC60945

**Technical Specifications for Display Unit**

Model	HLD-DU112	HLD-DU130	HLD-DU131	HLD-DU132	HLD-DU 133	HLD-DU 134	HLD-DU 135	
<b>Manufacturers</b>	JH 23T14 MMD	HD19T21-MMD	HD24T21-MMD	HD26T21-MMD	HD26T21-MMD	HD24T21 STD	HD26T21 STD	
<b>Part Number</b>	Hatteland	Hatteland	Hatteland	Hatteland	Hatteland	Hatteland	Hatteland	
<b>Type approval</b>	CCS/DNV	CCS/DNV	CCS/DNV	CCS/DNV	CCS	CCS	CCS	
<b>Display Unit</b>	<b>Size</b>	23.1"	19"	24"	26"	19"	24"	
	<b>Resolution</b>	1600×1200	1280×1024	1920×1080	1920×1080	1280×1024	1920×1080	
	<b>Frame Dimension</b>	584×534×85	483×382×74.5	593×384×70	621×435×98.2	483×382×74.5	593×384×70	621×435×98.2
	<b>Weight</b>	18	7.8kg	10.5kg	15kg	7.8kg	10.5 kg	15kg
<b>Signal input</b>	DVI-I/VGA							
<b>Environment</b>	<b>Working temperature</b>	-15~55°C						
	<b>Relative humidity</b>	0~95%						
	<b>Anti vibration</b>	5Hz~500Hz / 1G / 3 Axis						
	<b>IP</b>	IP66(Front) IP20(Behind)	IP66(Front) IP22(Behind)	IP66(Front) IP22(Behind)	IP66(Front) IP22(Behind)	IP66(Front) IP20(Behind)	IP66(Front) IP22(Behind)	IP66(Front) IP22(Behind)
	<b>Shock</b>	15G (11ms duration)						
<b>Power supply</b>	115/230V AC and 24V DC							
<b>Consumption</b>	95W (TYP) - 125W (MAX)	33W (TYP) - 125W (MAX)	40W (TYP) - 125W (MAX)	125W (MAX)	50W (TYP)-60W (MAX)	40W (TYP)-125W (MAX)	125W (MAX)	