

HM-5818 specification

Standard	HM-5818
	IEC 60945, IEC61174 (ECDIS) , IEC 60529 (IP20) , IEC 61162-1, IEC 61162-2, IEC 62288,2014, IMO A.694 (17) , IMO MSC.232(82), IHO S-52, IHO S-57, IHO S-63, IHO S-64, CCS GD 22 Guide for the acceptance test of electrical and electronic products. CCS GD 06 Guide for inspection of electronic chart display and information system (ECDIS). International Maritime Organization navigation safety sub committee NO.266 circular. <electronic chart display and information system software maintenance>
Operation System	Linux
Software Language	English, Chinese
Electronic Nautical Chart	IHO S-57 Ed 3.1 Vector Chart (Support IHO S-63 Data Protection Scheme). It support the official S-57 / S-63 electronic chart which is distributed by the UK hydrographic office (UKHO) , the China's maritime bureau and so on. And it also support the Yangtze river hydrographic electronic navigation chart database.
Chart Installation	Install Base/Update S-57/S-63 ENC packages from USB.
Manual Update	Add/Modify/Delete objects on the SENCs. Manual updates can be distinguished from automatic updates on the screen on demand.
Object Information	Select objects on the charts with cursor, and query informations associated(Texts, pictures, and symbol explanations).
ECIDS Chart 1	The system provides a demonstration chart for new users to learn and familiarize themselves with the S-57 electronic chart and corresponding symbols.
Planed Route	Rhumb line/Greate circle line, generates wheel-over-line according to configuration.
Route Detection	Detects the following objects which specific planned route crosses, Navigational hazards. Areas for which special conditions exist. Safety contours. Any object of above deteted will be highlighted to mariners.
Route Monitoring	Route monitoring detects the following conditions for own ship, Cross track error. Navigational hazards. Areas for which special conditions exist. Safety contours. Indication or warning will be given to mariners if any condition of above happens.
Color Palette	Day/Dusk/Night
Display Mode	3 display categories are predefined-Base/Standard/Other. Each category can be customized by mariners to show or suppress some informations of chart.
Text Display Setting	Provides switch options like import text, light description, Seabed nature, place name etc. Allows mariner to show or suppress some texts of chart.
User's Note	Information (i) or warning(!) label could be marked at specific position.
User's Object	Mariners' concerned point/line/area could be drawn on the chart.
MOB	When emergency(like MOB) happening, MOB button on the screen can be clicked to record the position of own ship.
Own Ship Positioning	Support primary/secondary position source. Last valid position or LOP can be used as start position for dead rocking.
Voyage Record	Voyage records for last 3 months (position, time, course, speed). Records for last 12 hours are detailed, includes informations of referenced ENCS.
Alarm	Alarm or warning for route monitoring, sensor failure, ENC, CPA etc. will be given according to configured priority. Mariners can view and confirm alarms which they received.
Measure Tool	EBL/EBRL/VRM
AIS Target	● AIS target query and monitoring.
	● Condition setting(CLASS A/B, range, CPA) for activated or sleeping AIS targets to filter unconcerned ones.
	● Past track for AIS target.
	● CPA/TCPA alarm.
Sensor	Support NMEA0813 input device like GPS, AIS, echo sounder, gyro, log and so on.
Operation Unit	
Operation Unit (Optional)	Size, 343mm x 105mm, IP65 Static waterproof dustproof explosion-proof, Stainless steel metal industrial keyboard, built-in industrial-grade IMG PCB, embedded instalation.

Display Unit	
Model	HM-5818(19")
Display Resolution	1280 x 1024
Aspect Ratio	4:3
Screen Brightness	450cd/m²
Screen Size	19 inch (376mm×301mm)
Viewing Angle	Horizontal, 150°      Vertical, 140°
Contrast Ratio	800:1
Model	HM-5818(24")
Display Resolution	1920 ×1080
Aspect Ratio	16:9
Screen Brightness	1000cd/m²
Screen Size	24 inch (531mm×299mm)
Viewing Angle	Horizontal, 170°      Vertical, 160°
Contrast Ratio	1000:1
Model	HM-5818(26")
Display Resolution	1920 ×1200
Aspect Ratio	16:10
Screen Brightness	600cd/m²
Screen Size	518mm×324mm
Viewing Angle	Horizontal, 178°      Vertical, 178°
Contrast Ratio	1000:1
Processor	
CPU	Intel Haswell/Broadwell U series 15W
Memory	DDR3-1066 MT/S    4GB
SSD	SATA 480G
Audio	Audio ALC 662 HD Around a track+the microphone
I/O	6 PIN
Ethernet	1000Mbps
Power	AC 220V & AC 110V
Power Consumption	17W or less (220 VDC)
Compass Input Port	Support
Log Device Input Port	Support
GNSS Port	Support 2 ports,
ARPA Input Port from Radar	Support
AIS Input Port	Support
Video Output Port	VGA , HDMI
USB	4 ports, USB 2.0 type A
LAN Port	LAN1, LAN2
Wi-Fi	802.11b/g/n
4G Module	LTE/GSM, Internal antenna, and support to connect external antenna
Environmental	
Operation Temperature	-15℃~+55℃
Storage Temperature	-20℃~+70℃
Language Switch	English, Chinese
Manual	English, Chinese
User Operation	Menu operation/double click/zoom by roller
Workstation	Split device



ECDIS  
Electronic Chart Display and Information System  
HM-5818



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# Electronic Chart Display and Information System

## Product Descriptions

The implementation and appliance of ECDIS have a lot of advantages. According to the optimization of time, velocity and other parameters, simplify the route planning. Considering the draught of the ship, and combining it with the danger zone or special attention areas, the safety factor of route planning can be much improved.

HM-5818(19"/24"/26") Electronic Chart Display and Information System (ECDIS) consist of host and display, there are different size of display, 19 inch, 24 inch and 26 inch, users can select according to their actual need. The ECDIS includes functions of electronic chart display and management, multiple methods for route design, route detection, navigation monitoring, etc.



## ECDIS Main Unit

- ◆ Pieces of industrial-grade computer
- ◆ Mixer Haswell Intel core CPU
- ◆ Memory: 4GB DDR3-1066 mt/S
- ◆ SSD: 32 GB
- ◆ Intel 1000M ethernet
- ◆ Signal input: optical coupling isolation



## System Configuration



1

**User Interface**  
Simple, clear user interface, visually appealing and intuitive to use.

2

**Convenient Signal Connection**  
Using NMEA0183 connection, simply connect with different navigation devices.

3

**Chart Format**  
IHO S-57 Ed 3.0 vector chart. (IHO S-63 ENC data protection scheme)

4

**Intuitive Route Planning and Navigation Monitoring**  
It offers a variety of ways route planning, route monitoring detection and navigation.



## User Interface

Center ship position

Course-up/Head-Up /North-Up

Relative motion/True motion

Zoom out

Zoom in

Distance measurement

Electronic bearing line/Variable Range Marker

Display mode(daytime,dusk,night)

System setting

AIS Display Setting

Chart standard display

Alarm record

Signal detection

Software version

MOB

Power off

Measuring the distance and azimuth between two or more points.

VRM/EBL-ship centred

VRM/EBL-freely movable

### Time Display

local time	2016-11-07
time zone +8	18:03:07

### Data

HDG	212.9°	GYRO
STW	N/A	LOG
COG	212.9°	GPS1
SOG	66.30kn	ESA
DPT	N/A	
POSN	24°17.947'N	
GPS1	118°24.796'E	
WGS 84		

Data Sources

### Cursor-related Information

Cursor	24°13.599'N
Direction	243.8°
Distance	9.85nm

### Display Scale

Display scale	1:320000
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### Navigation Monitoring

Display basic information of route monitoring.

RouteMonitor	
Route name	Route003
Plan speed	2.06kn
Plan direction	128.6°
Save distance	0.10nm
Yaw distance	-0.02nm
Yaw angle	-20.9°
Crt monitory pnt	1
DTW	18.58nm
TTG	00d 09h 02m
Plan turn radius	0.10nm
Plan turn rate	0.33°/s
Next monitory p	2

### Standard legend

Legend	
Depth Units	
Height Units	
Sounding Datum	Lowest as
Vertical Datum	Mean high
Horizontal Datum	Mean lower low
Edition Date	
Update Date	
Safety Contour	
Safety Depth	
Safety Num	
Update Num	
Chart scale	
Quality of data	zone
Projection	
Presentation lib	
Var	34.9

## Update Software Online

Build in 1000Mbps Ethernet, 4G and WIFI module to support update software online.

## Electronic Chart Installation

As a manager of S-63 data protection solution, International Hydrographic Organization (IHO) provides self-signed SA certificate (in X509 format) for verifying if S-63 data packets of electronic charts come from data service providers of electronic charts authorized by IHO.

Xinuo ECDIS is compatible with multiple electronic charts by different data services providers. Unit licensing and product catalog are classified according to the data service providers.



Chart manage

Chart cell

China Maritime Safety Administration (MSA)

China Maritime Safety Administration (MSA)

UK United Kingdom Hydrographic Office (UKH)

PHIMAR European PMC Coordinating Centre

User perm

SA certificate

Cell name	Overview	Chart number	Release date	Update date	Type	Initial exchange set		
CHN10001	Overview	1:3000000	1	0	2010-06-28	2010-06-28	S-57	Install cell
CHN10002	Overview	1:3000000	1	0	2010-06-22	2010-06-22	S-57	Uninstall
CHN10003	Overview	1:3000000	1	0	2010-06-28	2010-06-28	S-57	View
CHN10004	Overview	1:3000000	1	0	2010-06-23	2010-06-23	S-57	
CHN10005	General	1:700000	1	0	2010-05-28	2010-05-28	S-57	
CHN10006	General	1:3000000	1	0	2010-06-23	2010-06-23	S-57	

SA certificate list	SA certificate content
Version	V1
Serial num	11 22 53 70
Signature algorithm	sha1RSA
Signature hash algorithm	sha1
Issuer	IHO S-63 Scheme Administrator, Inc.
Valid from	2013-02-06 12:00:00
Valid to	2033-02-06 12:00:00
User	IHO S-63 Scheme Administrator, Inc.
Public key parameters	pk: PC A6 82 CE 12 CA BA 26 1F 96 3F 14 E3 2B AS 37 29 F2 4F 15 B0 71 0C 49 D3 3B 2B E5 C7 64 10 02 56 4D B9 59 95 B1 5C F8 80 DE D5 4E 35 48 6F 6B 2B 8B 59 7B 15 A2 62 69 7D 79 C4 F4 92 6B 37 76 1C C8 9E 97 7C 9B 7E F8
Fingerprint algorithm	sha1

If the SA certificate valid, detailed information of the certificate will be show in its dialog box: "The SA certificate (public key) has been installed, the certificate will expire on March 3, 2033, or due to security reasons IHO redistribute the failure."

## Route Planning

### Create New Route

User can add new route. On "route planning" menu, user can check or edit all parameters of way points on the route, include total numbers, name, coordinate, distance of off-route, etc. Also, user can check whether danger or special area is on the route after planning a route by "detection" tab on the menu.

### Monitoring Route

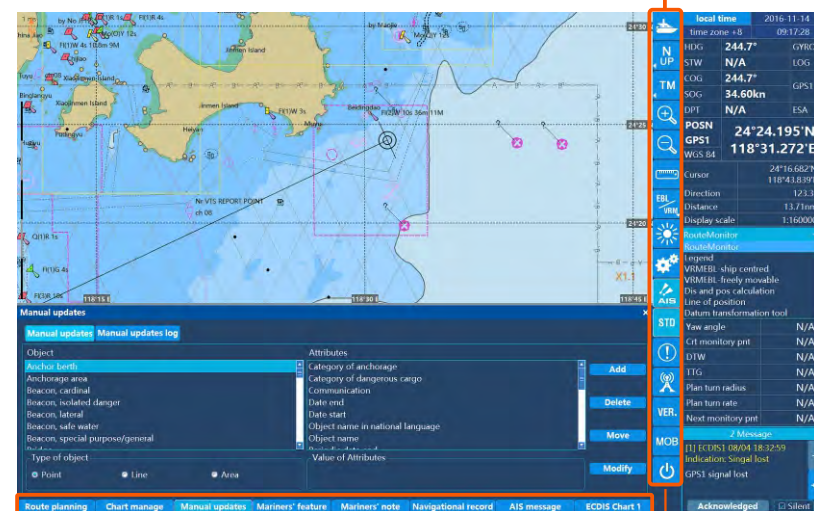
To monitor plan route, alarm will prompt when the ship sails on the voyage of the hazards and off course, the safety water depth etc. All of the sailing information can be check on the right side window, including course name, speed, heading, yaw Angle, distance to the next turning point steering radius, Angle, estimated sailing time and other information.

### Route Plan

For the voyage number of one navigation route, Input the departure time and arrival time, the system will count the speed and arrival time of every waypoint.

## Trace Record

ECDIS can record the complete navigation track, save the record in every minutes for previous 12 hours. And record every 4 hours for previous 3 months most.



Menu bar

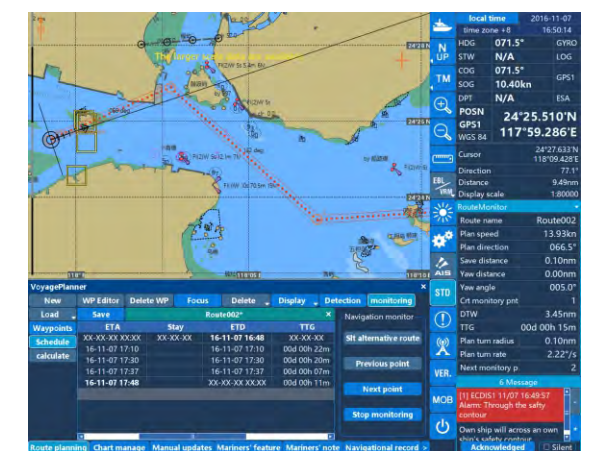
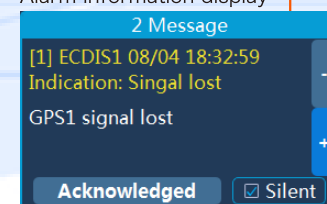
Shortcuts

Lock Route  
Completely displayed in the chart center at the largest scale.



Mariner's Feature

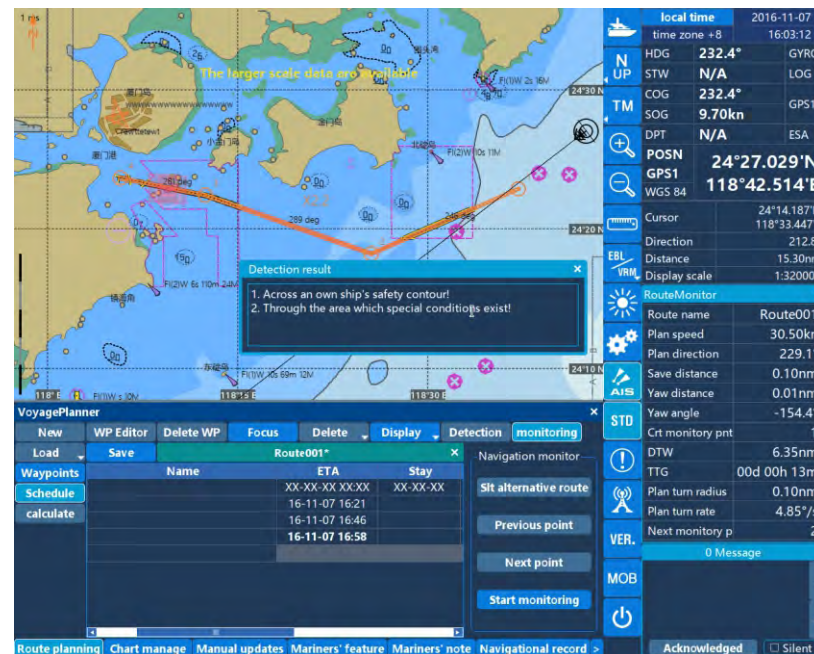
Alarm information display





## Highlight Checking Route

After route planning , user can evaluates the safety by checking all objects in chart according to the preset distance to the route.



Close to the dangerous object, such as fixed or floating ship assistant or independent dangerous object.



Close to restricted navigation area or other special area.



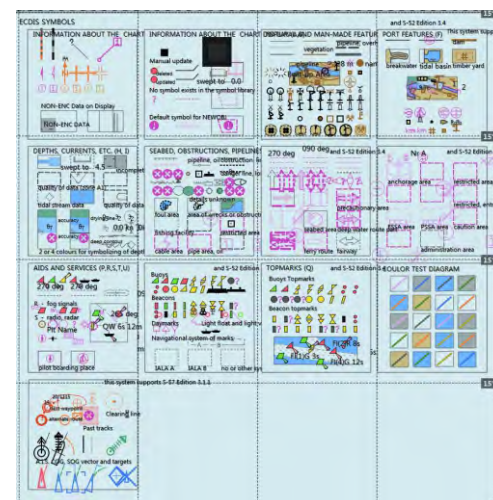
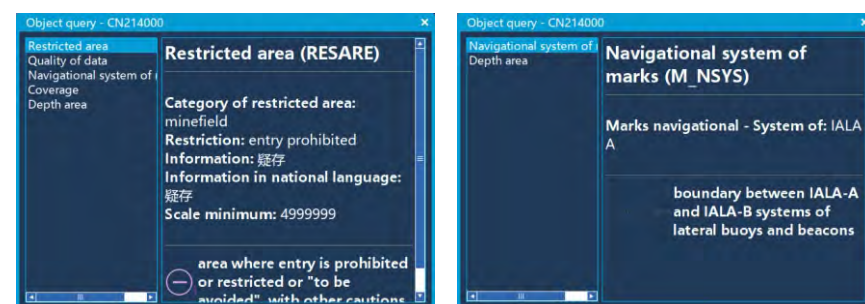
Across to the safety isobath.



If the ship route matches above cases, software will highlight the relevant object in red or yellow according to the dangerous degree to remind the user to revise the route to make sure the navigation safety.

## ECDIS Chart 1

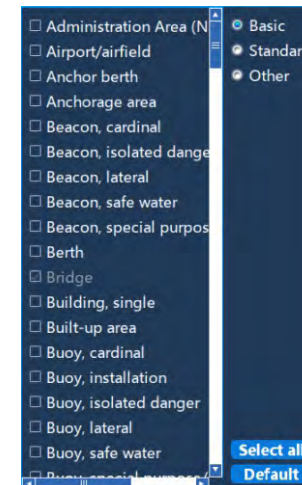
ECDIS Chart 1 is used for users to recognize and be familiar with the chart object. The user can get details of chart object by clicking the object.



## Chart Display Mode

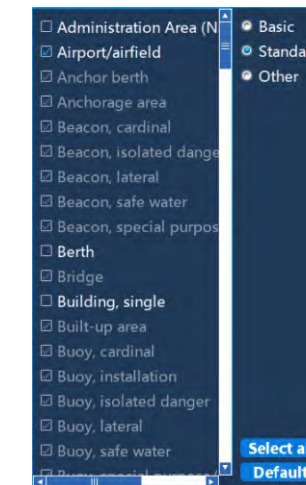
### Basic display mode

Only basic chart information is displayed based on the basic display of ECDIS, but User can customize the display



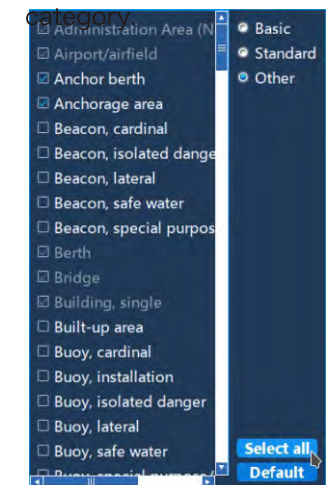
### Standard display

Based on the basic display and add the display of some important targets. User can customize the display category.



### Other display

Based on the standard display and the basic display, the unit includes other display modes. User can customize the display



## AIS target

AIS list includes all AIS ships in the vicinity is summarized. User can visually see the AIS ship MMSI, ship name, distance, speed, location, approach time, approach distance and other information. And can get the location of each AIS ship and other information on the chart directly.

### AIS CPA

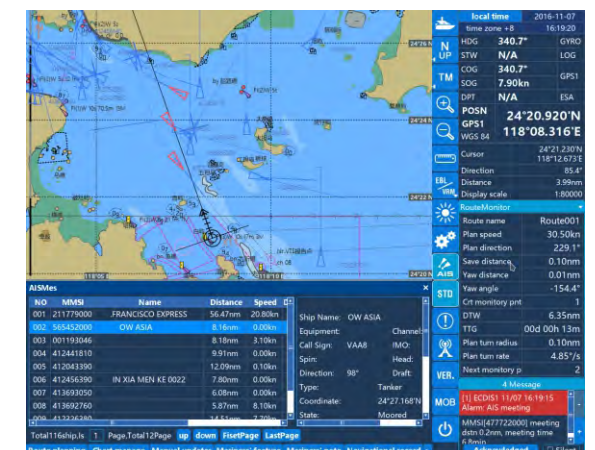
The approach alarm will be given in case that the distance for the other ship to approach the own-ship within the set time to approach is lower than the set distance to approach.

### Filter the sleeping AIS target

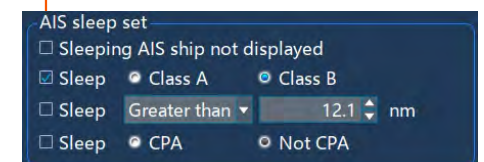
The target sleep condition can be set to filter out AIS targets that are not of interest.

The following three filter conditions are available:

1. CLASS A / B
2. The distance between the target and the ship
3. Approach



AIS sleep target

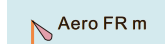
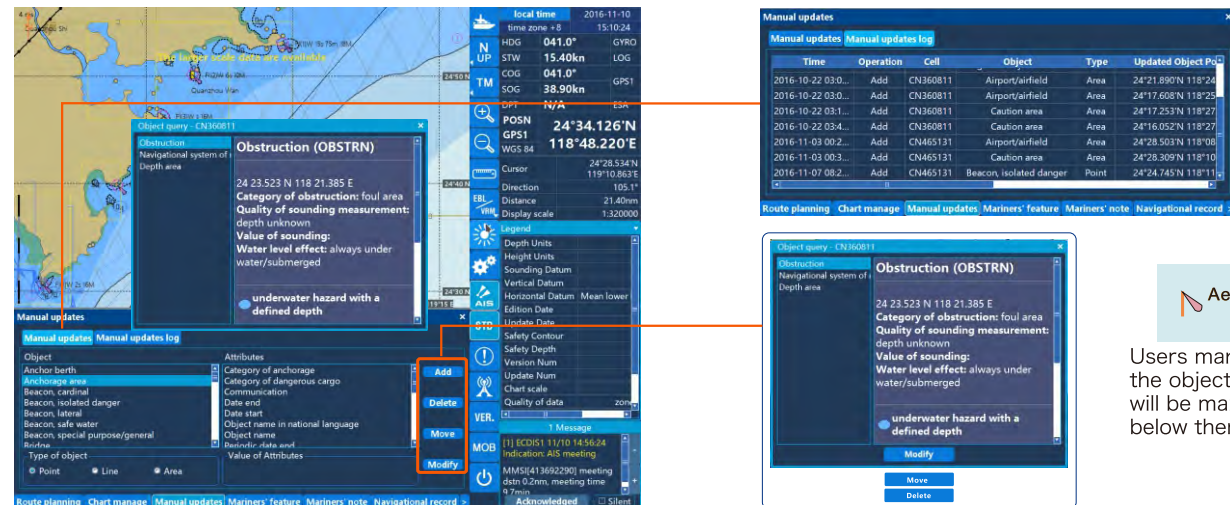






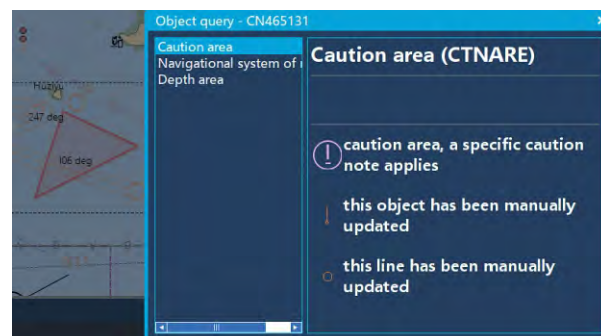
## Manual Update

Nautical personnel can use non-integrated updates in the manual entry display. The system updates manually through point objects, simple line objects, and area objects such as the routing scheme and the navigation area. For manual updates, the system automatically checks for updates and related indications and alarms like the integrated ENC update. Not only can add, delete, move, modify and other operations, and each operation time, type, chart units, objects and other information will be saved to the manual update log inside.

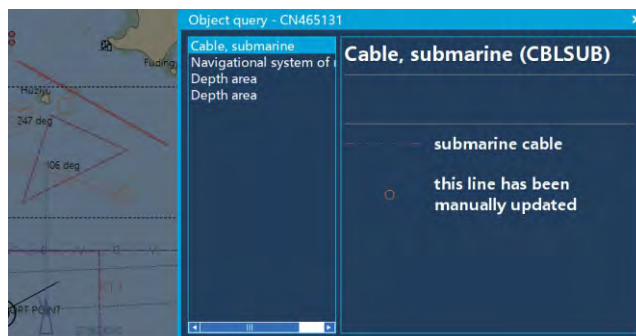


Users manually update the object. The objects will be marked orange below them.

### Add area



### Add line



## ECDIS Training

In order to make sure all the user can operate the ECDIS under safety and efficient, it is necessary to have a training. ECDIS implementation on board is an investment that benefits from the many advantages ECDIS offers and the shipowner, such as reducing the time spent on chart management and voyage planning, as well as achieving greater security through proper setup and operation of ECDIS, thus significantly reducing stranding risks. Training should be provided in a variety of forms, and the crew should receive general training to fully understand the ECDIS concept, the ECDIS management rules and the impact on bridge operation, and specific types of ECDIS training, which would help the operator to become familiar with the specific ship Contained ECDIS.

The operation of the training which is organized by XINUO include: on-site installation, commissioning, ECDIS operation, chart operations, hardware maintenance and so on. the trainees should participate in an assessment after passing the examination and will be issued a training certificate, obtain a certificate before boarding operation ECDIS.

The training program is as follows:

- System description
- Be familiar with the menu structure
- Route planning
- Manual Update
- Crew object
- Navigation records
- Load and update charts and licenses
- Update the software
- Hardware maintenance



## ECDIS After-sales Service

It is also true that the proper working conditions are present and the failure of the equipment in the voyage may adversely affect the safety and efficiency of the ship at sea. Usually, there are two main reasons for device failure: a defect in the device itself, and improper installation and setup of the device. XINUO will conduct an overall inspection on the product before it being installed and have a thorough test on the product before it being delivered to the vessel.





## »» ECDIS Color Platte



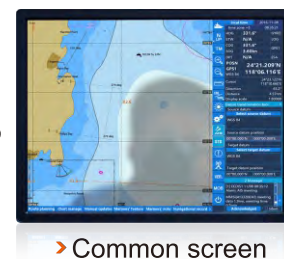
## »» Anti dazzle, Highlighting, Wide viewing angles

### Anti Apparent Fatigue Clear and Comfortable

- Anti dazzle
- Anti flash point
- Anti reflection



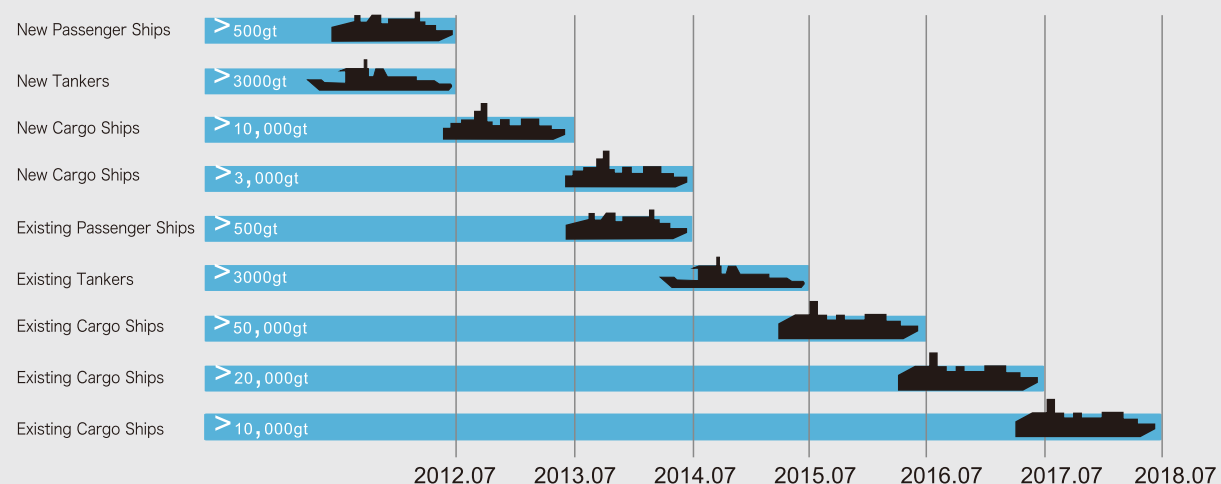
VS



## »» ECDIS Installation Timetable

At the NAV-54 meeting in 2008, the International Maritime Organization (IMO) enforce all international vessels over 3,000 gross ton (passenger ships over 500 gross ton) to install ECDIS. The as shown in the diagram below. A new equipment will be required to install an ECDIS, as well as suitable backup arrangements. The backup can be another type of approved ECDIS or the official latest paper chart.

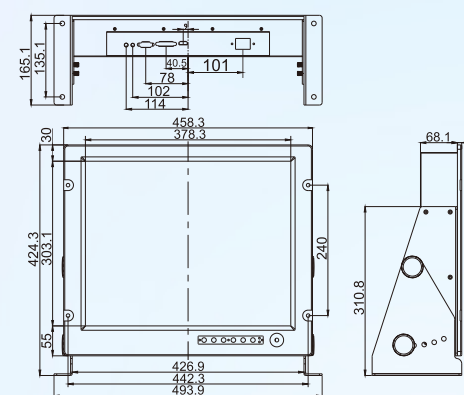
According to different ship type and size, below table shows the effective date of the specification for each ship type:



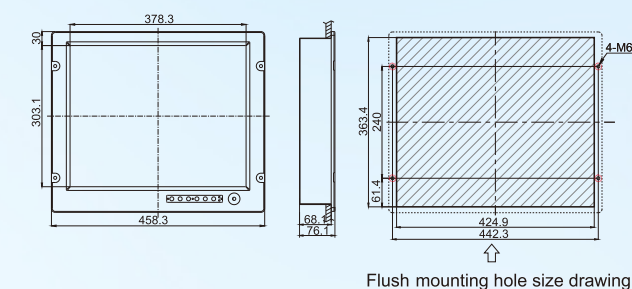
## Display Unit Installation Dimensions (Unit: mm)

19" 24" 26"

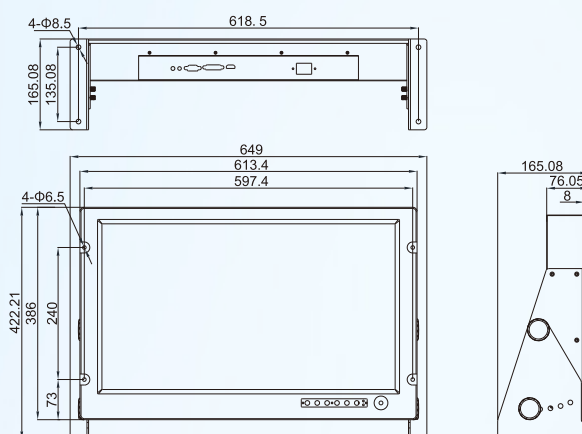
### »» 19 inch Counter Mounting:



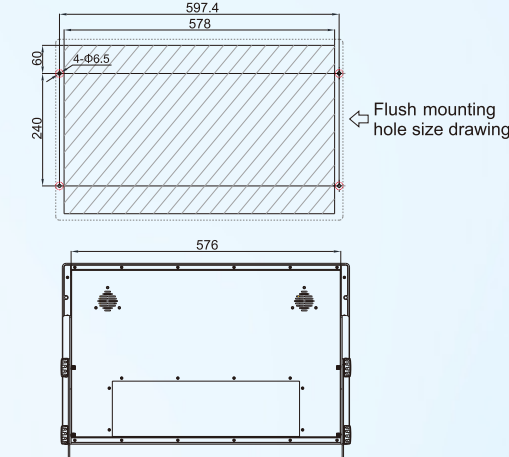
### Flush Mounting:



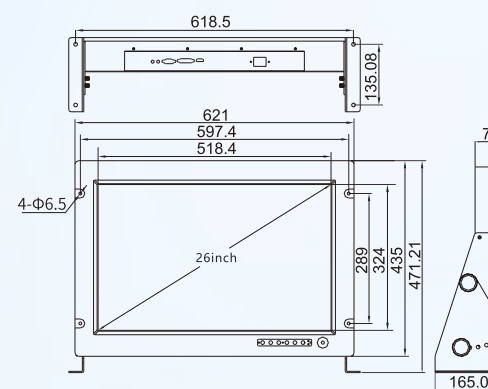
### »» 24 inch Counter Mounting:



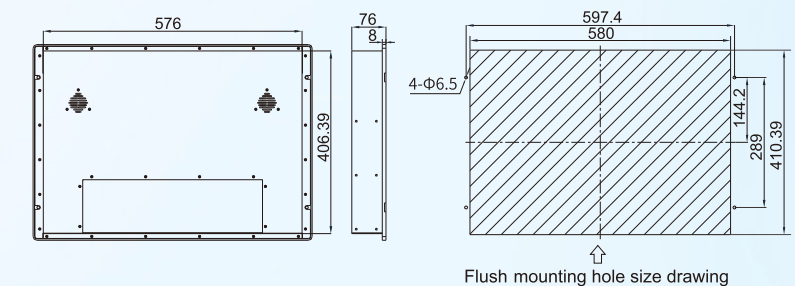
### Flush Mounting:



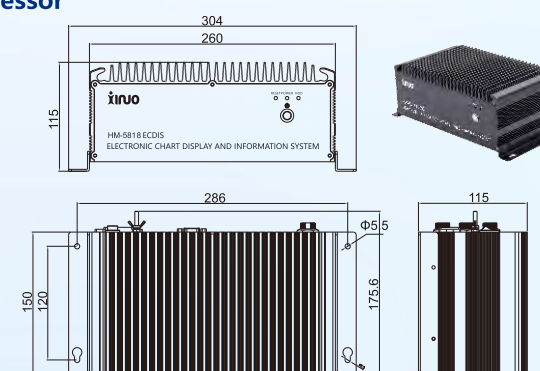
### »» 26 inch Counter Mounting:



### Flush Mounting:



### Processor



### Operation Unit

