



WEBSITE

HEAD OFFICE

6-19, Namhangseo-ro, Yeongdo-gu, Busan, 49050 Korea
Tel : +82-51-414-7891~7 Fax : +82-51-413-2604

CHORYANG OFFICE

MRC Bldg. 7-12, Jungang-daero 236beon-gil, Dong-gu, Busan, 48732 Korea

NOKSAN FACTORY

28, Noksansandan 289-ro, Gangseo-gu, Busan, 46754, Korea

MARINCOM CHEONGHAK OFFICE

21 Cheonghak-ro 6 beon-gil, Yeongdo-gu, Busan, 49017, Korea

ECDIS

Electronic Chart Display & Information System

MNS-100E Series



*Integrated Marine
Solutions Provider*

About ECDIS MNS-100E Series

ELECTRONIC CHART DISPLAY & INFORMATION SYSTEM

- Enables the navigator to plan the voyage and monitor the route, easier and faster, for safe navigation of the vessel at sea
- Uses various types of data from multiple sources including the GPS and AIS, then displays the images on the electronic navigational chart
- Reads information about specified areas and triggers alerts when the ship enters a hazardous area where the risk of collision or grounding is higher

MNS-100E Series at a Glance

The MNS-100E series offers powerful route planning and route monitoring capabilities as well as support for electronic navigation charts



Accuracy

Provides accurate and reliable navigation information, helping to ensure the safe and efficient passage of the ship

Improved Situational Awareness

Real-time data on ship position, speed, and course, along with other navigational information, provides a comprehensive view of the ship's surroundings

Enhanced Efficiency

Helps the navigators optimize the ship's route and performance so that time and fuel consumption can be reduced

Safety

Provides alerts and warnings if the ship is in danger of grounding or colliding with another vessel, helping to ensure safe navigation

Compliance

Fully compliant with MED regulations: DNV and the Republic of Korea government certified

Integration

Integrates with other shipboard systems, such as the Automatic Identification System (AIS) and the radar system, to provide a comprehensive view of the status of the ship, route, and the sea



USER INTERFACE

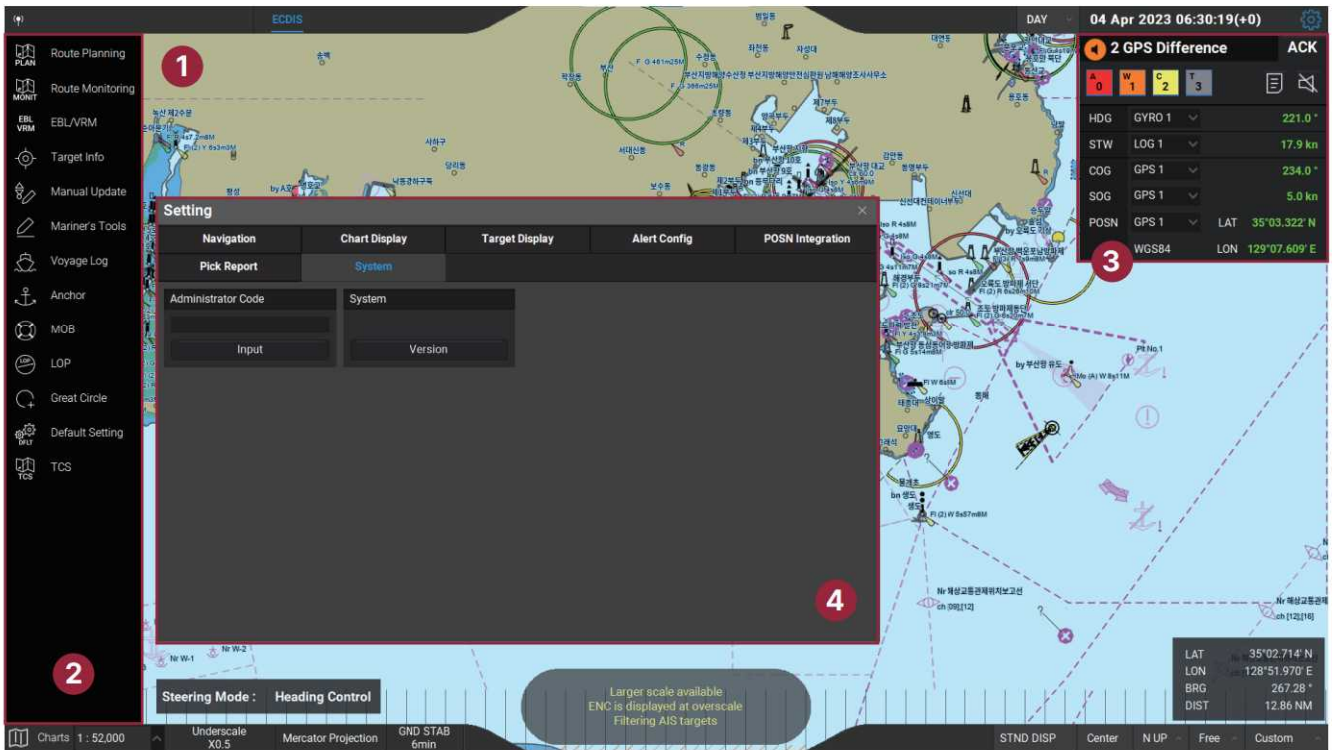
- The MNS-100E Series provides an intuitive GUI that lets navigators easily utilize the system
- User interface ensures important data will be displayed in a fixed position on the screen
- Always displays the menu bar on the left and the critical vessel data on the right

ROUTE PLANNING

- Integrated route planning and monitoring function which the navigator can use to place waypoints, either graphically on the chart or numerically on the table, and analyze the route
- Provides waypoint information such as distance between each waypoint on the route, estimated time for the next waypoint, and estimated total voyage time
- Track Control System (TCS): Automatically controls the ship's course and provides alerts such as route departure warnings and route interference warnings to avoid collision

DISPLAY

- Corresponds to electronic navigational charts satisfying IHO S-57, S-63, and S-101
- 27-inch display providing visibility with wide viewing angles

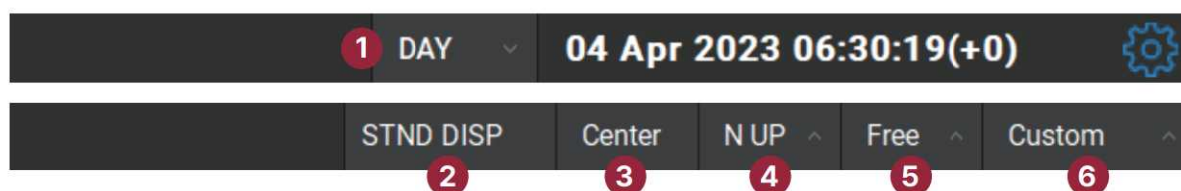


MAIN SCREEN · MAIN INFORMATION WINDOW

No.	Description
① Chart	Displays digital chart and navigational information on screen
② Function List	List of various functions available: Route Planning, Route Monitoring, EBL/VRM, Target Information, Manual Update, Mariner's Tools, Voyage Log, Anchor, MOB, LOP, Great Circle, Default Setting, and TCS(Optional)
③ Main Information Window	Real-time information of ownship, including alerts, heading, speed through water, course over ground, speed over ground, and GPS position
④ Setting	Option settings for ECDIS operation

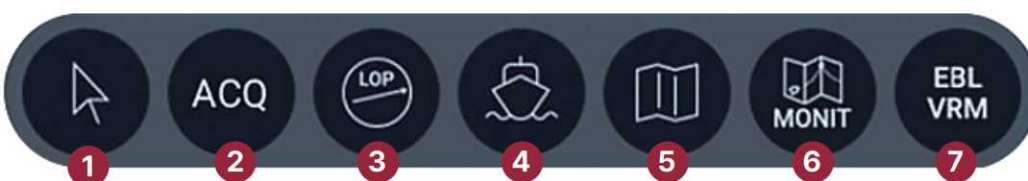
No.	Description
Time	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">04 Apr 2023 06:30:19(+0)</div> <div style="margin-left: 10px;">⚙️</div> </div> Current Time in Universal Time Coordinated (UTC)
Alerts	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> <div style="display: flex; justify-content: space-between;"> 2 GPS Difference ACK </div> <div style="display: flex; justify-content: space-around; font-size: 8px;"> A 0 W 1 C 2 T 3 </div> </div> <div style="margin-left: 10px;"> Alert Information : [A]larm, [W]arning, [C]aution, [T]otal Alert Count, Alert List, Alert Silence </div> </div>
HDG	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> HDG GYRO 1 ▾ 221.0° </div> <div style="margin-left: 10px;">Heading</div> </div>
STW	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> STW LOG 1 ▾ 17.9 kn </div> <div style="margin-left: 10px;">Speed Through Water</div> </div>
COG	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> COG GPS 1 ▾ 234.0° </div> <div style="margin-left: 10px;">Course Over Ground</div> </div>
SOG	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> SOG GPS 1 ▾ 5.0 kn </div> <div style="margin-left: 10px;">Speed Over Ground</div> </div>
POSN	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px;"> POSN GPS 1 ▾ LAT 35°03.322' N WGS84 LON 129°07.609' E </div> <div style="margin-left: 10px;">Position (Latitude and Longitude)</div> </div>

TOOLBAR



No. & Name	Description
① Brightness	Brightness mode : Day / Night / Dusk
② Standard Display	Standard display single operation button : Return display setting to default
③ Ownship Center	Return the center of the screen to ownship center
④ Orientation	Chart display orientation : North Up / Course Up / Head Up
⑤ Motion	Motion mode : True Motion / Relative Motion / Free Motion
⑥ Object Display	Choose objects displayed : Base / Standard / All Other / Custom

CURSOR MENU



No. & Name	Description
① Panning	Move display
② ACQ	Display acquired target information
③ LOP	Line of Position information
④ Voyage Log	Display voyage log
⑤ Pick Report	Look up information on a selected point, line, or area of the chart
⑥ MONIT	Route Monitoring
⑦ EBL/VRM	Displays EBL / VRM : - EBL : Electronic Bearing Line - VRM : Variable Range Marker

SYSTEM SPECIFICATION

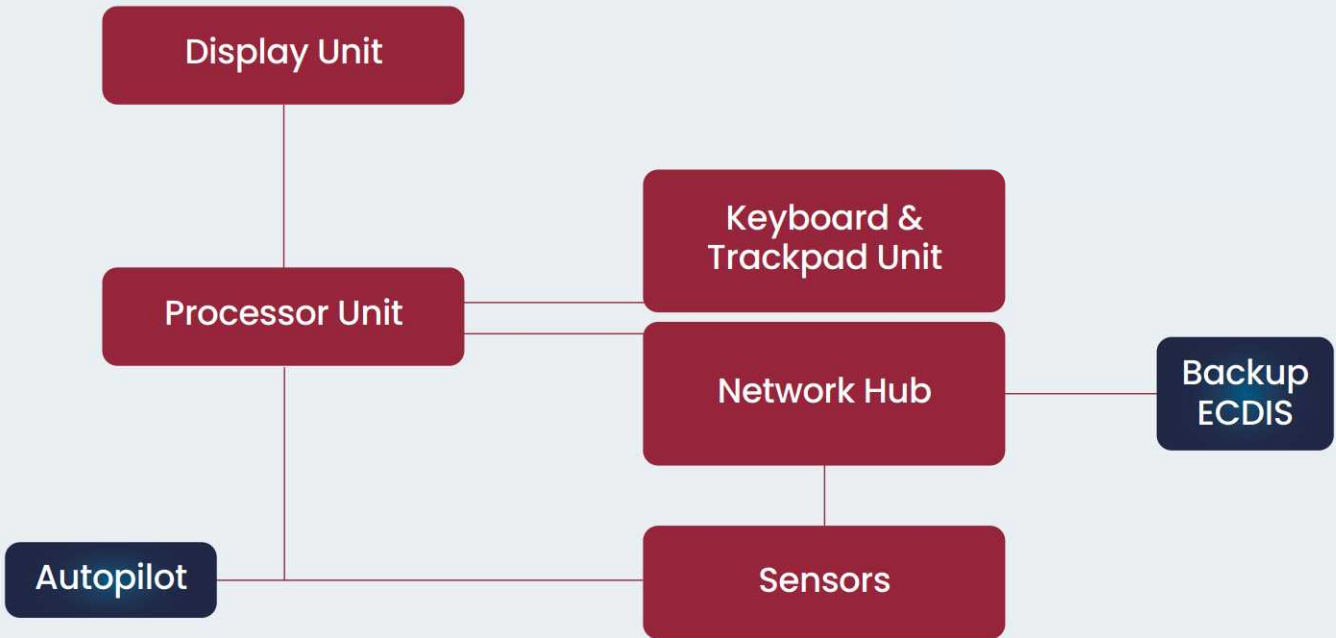
Component	Specification	
MCU MPU-500	CPU	Intel® Corei7-8700
	RAM	DDR4 16 GB installed, 32 GB Max
	SSD	1 TB SSD installed
	Ethernet	4 × 10/100/1000Mbps, RJ45
	GPU	NVIDIA GTX 1650
	OS	Microsoft® Windows® 10 Pro, 64bit
	Power Supply	100 - 240V AC, 50/60 Hz
	Power Consumption	70 - 115W (Operating), 240W max
	Weight	6.3 - 9.0 kg
DISPLAY MDU-270	Size	27-inch
	Pixel Number	1920 × 1080
	Pixel Pitch (RGB)	0.31125 (H) x 0.31125 (V) mm
	Response Time	12 ms (typical), on/off
	Contrast Ratio	3000:1 (typical)
	Light Intensity	300 cd/m2 (typical)
	Viewable Angle	+/- 89 deg. (typical) (Up/Down/Left/Right)
	Active Display Area	597.6 (H) x 336.15 (V) mm
	Max Color	16.7 millions
	Power Supply	100-240V AC - 50/60 Hz + 24V DC
	Power Consumption	40W (Max)
	Dimensions (mm)	650 (W) x 437 (H) x 69.5 (D)
	Weight	11.0kg

INTERCONNECTED EQUIPMENT INTERFACE SPECIFICATION

Equipment Category	Equipment Name	Interface	Data Type	Input	Output
Positioning Sensors	DGPS	IEC 61162-1/2/450	Position, Time, Speed	GLL, GGA, RMC GNS, VTG, ZDA	-
	Gyro Compass	IEC 61162-1/2/450	Heading Angle, Rate of Turn	HDT, THS, HCR, ROT	-
Sea Surveying Sensor	EM-Log	IEC 61162-1/2/450	Water Speed	VBW, VHW	-
	Echo Sounder	IEC 61162-1/2/450	Sea Depth	DBT	-
	Anemometer	IEC 61162-1/2/450	Wind Direction / Speed	MWV	-
	Doppler SONAR Current Indicator	IEC 61162-1/2/450	Set and Drift	VDR	-
RADAR	RADAR	IEC 61162-1/2/450	ARPA Target	TTD, TTM	-
AIS	AIS	IEC 61162-1/2/450	AIS Target	VDO, VDM	VSD
BAM Interface	BAM	IEC 61162-1/2/450	Alert Information	ACN, HBT	ALC, ALF ARC, HBT
BNWAS Interface	BNWAS	IEC 61162-1/2	General Event Message	-	EVE
VDR Interface	VDR	IEC 61162-450	Display, Display Source Information	-	-
INS Interface	NSR	IEC 61162-1/2/450	Navigational Status Report	NSR	-
Track Control Interface	HCS (YDK, Tykyo Keiki)	IEC 61162-1/2	Heading & Track Control	HTD, RSA, ROR, ZDL, XDR	HTC, XTE, VTG, VBW
Route Transfer	Backup ECDIS	IEC 61162-450	Report Route Transfer	RRT	RRT



SYSTEM BLOCK DIAGRAM



REGULATIONS

The MNS-100E series is certified with:

- EU MED (Marine Equipment Directive) Certification
- Republic of Korea Government Type Approval

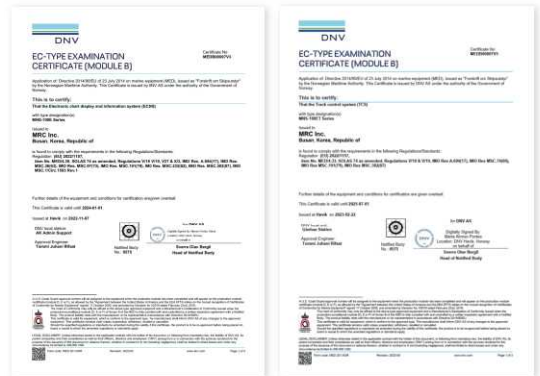
The MNS-100E series also conforms to:

- IMO Resolution MSC.191(79) for voyage information display
- IMO Resolution MSC.232(82) for performance standards

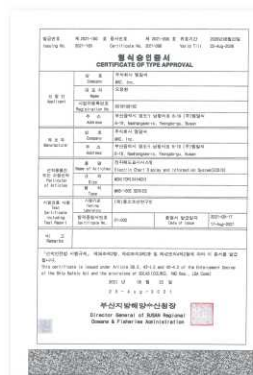
The MED type approval certification and other standards are as below :

- EU MED 96/98/EC.A.1/4.30
- IMO Res.A.694 (17)
- IMO Res.MSC.191 (79)
- IMO Res.MSC.232 (82)
- IHO S-52 PresLib ed.4.0.3
- IHO S-57 ed.3.1
- IHO S-63 v.1.2.0
- IEC 62065 Ed.2.0
- IEC 61162-1 Ed.5.0
- IEC 61162-2 Ed.1.0
- IEC 61162-450 Ed.2.0
- IEC 61174 Ed.4.0
- IEC 62923-1 Ed.1.0
- IEC 62923-2 Ed.1.0
- IEC 62288 Ed.3.0

CERTIFICATES

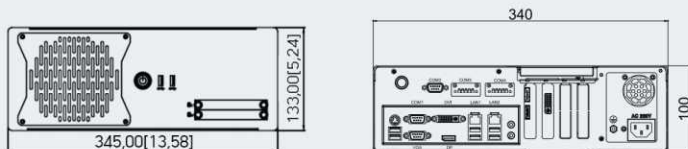


DNV MED Certificate (ECDIS, TCS)



Republic of Korea Government Type Approval (ECDIS)

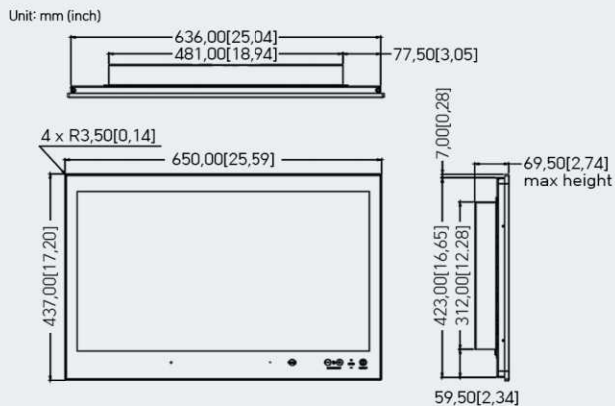
• MAIN CONTROL UNIT



Dimensions

Width	345 mm
Height	133 mm
Case Depth	392.3 mm
Max Depth	433.6 mm

• DISPLAY UNIT



Dimensions

Width	650 mm
Height	437 mm
Case Depth	10 mm
Max Depth	69.5 mm

• CONNECTION DIAGRAM

