FURUNO

ECDIS

Electronic Chart Display and Information System

Model **FMD-3005**

www.furuno.com

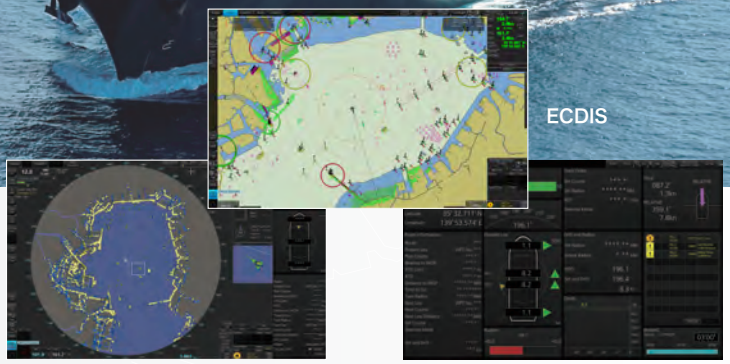
ECDIS

Electronic Chart Display and Information System

Multifunction display capability, featuring ECDIS, Conning Information Display, Radar/Chart Radar* and Alert Management System**

* Radar sensor needs to be integrated in the network.

** Radar and Alert Management System display capabilities are to be implemented as software upgrade. (option)



ECDIS

Radar

Conning display

Compatible cartography

- **IHO/S-57 Edition 3 vector chart** (IHO S-63 data protection scheme)
  - Admiralty Vector Chart Service by UKHO
  - C-MAP CAES
  - Jeppesen Primar ECDIS Service
- **ARCS raster chart**
- **C-MAP Professional+***

*C-MAP Professional+ is a private chart, hence not construed as replacement for paper chart.

Compatibility with Admiralty Information Overlay (AIO) for further navigation safety

Additional AIO layer includes all Admiralty Temporary and Preliminary Notices to Mariners as well as additional ENC Preliminary Notices to Mariners, i.e., reported navigational hazards that have been incorporated into paper chart but have yet to be included in ENCs. The service is free of charge as part of Admiralty Vector Chart Service (AVCS) by UKHO.

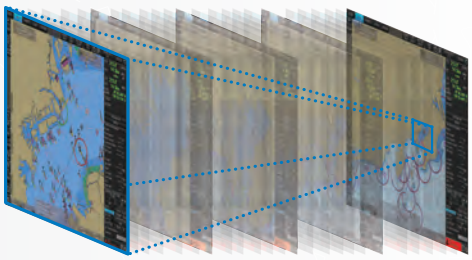
Electronic Navigational Chart

Raster Navigational Chart

Autopilots with Track Control System(TCS) standards can maintain course lines on the route created by ECDIS.

The Autopilots that can be connected to this ECDIS conform to the following TCS standards: IEC 62065 ED.2.0 ; FAP-3000, PR-9000, PT-900, NP-5400

Instantaneous chart redraw delivered by FURUNO's advanced chart drawing engine, making redraw latency a thing of the past



Based on nautical chart information and superimposed navigational information on the screen, it is possible to determine planned routes accurately and quickly.

Detailed changes can be made easily, and navigation monitoring by displaying data from various sensors is supported.

AIO data layer displayed

Place the cursor on the AIO object and right-click to open the contextual menu. Select "Object INFO" to open the chart object window.

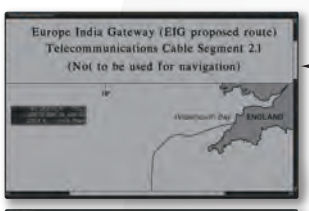
Interface with FAR-2xx8 series Radar and FAR-2xx7 series Radar for Radar overlay, target track info, route and waypoint exchange via Ethernet

* Software update on FAR-21x7/FAR-28x7 series might be necessary depending on the program number.

Complies with the following IMO and IEC regulations:

- IMO A.694(17)
- IMO MSC.191(79)
- IMO MSC.232(82)
- IMO MSC.302(87)
- IEC 60945 Ed. 4
- IEC 61162-1 Ed. 5
- IEC 61162-2 Ed. 1
- IEC 61162-450 Ed. 2
- IEC 61174 Ed. 4
- IEC 62288 Ed. 3
- IEC 62923-1/-2

Chart object window



On the chart object window, select the AIO object and click "OK" to view the details.

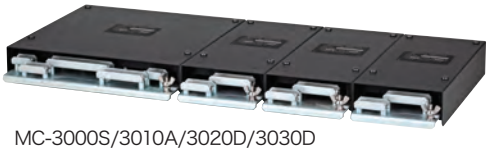
The full text of the Notice to Mariners as well as associated diagrams can be displayed subsequently.

27" wide LCD monitor (model: MU-270W) selectable

- Easy switching of the screen between DVI1 and DVI2 with a locally supplied switching box
- Automatic switching the signal source from DVI1 to DVI2, when the DVI1 signal fails

Compatible with multi-function display

Smooth chart drawing and Intuitive operation.



MC-3000S/3010A/3020D/3030D

▶Ease of installation and maintenance thanks to simplified cabling in the sensor-to-ECDIS/Radar interface delivered by common sensor adapter

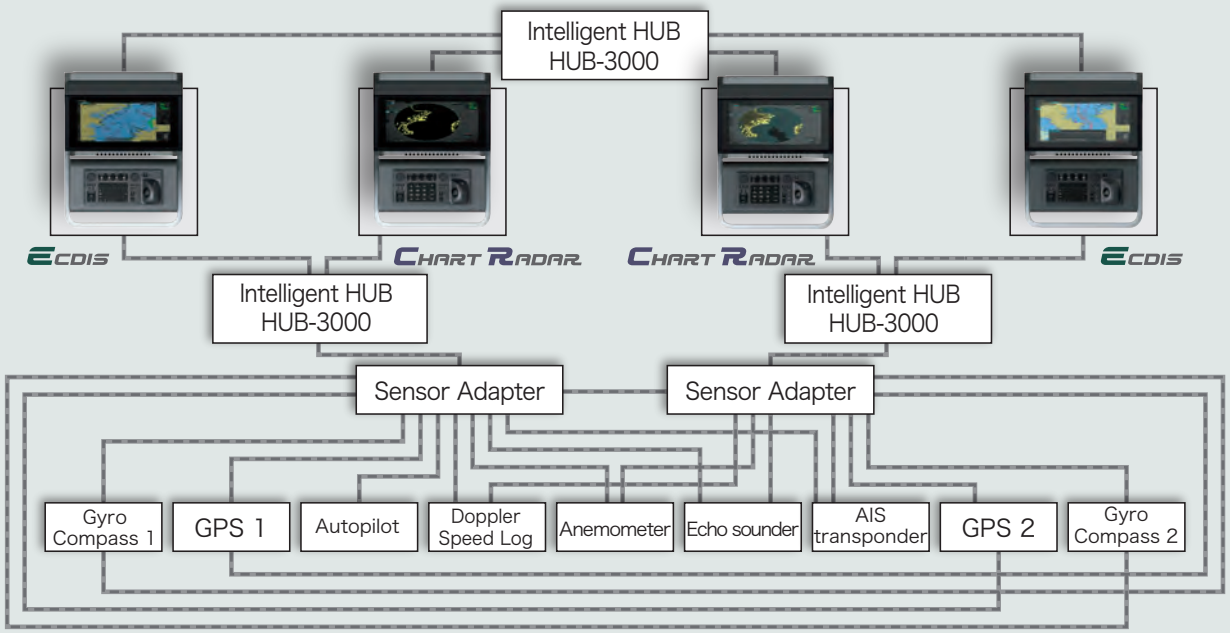
The sensor adapters act as central medium to gather all the sensor data and collectively feed it to ECDIS and Chart Radar in the system. Since the sensor adapters can be extended to cover all the sensors within the system, individual cablings in the sensor-to-ECDIS/Radar interface can be greatly reduced.

Navigation sensors can be directly interfaced with the ECDIS processor's 8 serial I/O ports.
Sensor adapters are required under the following conditions:

- The sensor data is to be shared amongst multiple networked ECDIS and Radar systems,
- The number of sensors interfaced is more than the number of the ports the processor has (8 serial I/O ports, 1 digital IN and 6 digital OUT), and/or
- The networked sensors include analog sensors.

In order to integrate onboard sensors into the navigation network, the sensor adapter may be interfaced with the inteligent hub HUB-3000 from which distribution of the sensor data throughout the network is possible.
Alternatively, multiple sensor adapters may be interfaced via Ethernet to integrate onboard sensors for use in the shipboard network.

Sample system configuration
Model: FMD-3005



Use of a new user interface system enables PC manipulation

ECDIS Control Units

The operator control of the FMD-3005 can be done with the ECDIS Control Unit RCU-024 or the Trackball Control Unit RCU-026. All functions of the ECDIS can be accessed by using the trackball, scrollwheel and left/right clicking.

ECDIS Control Unit RCU-024

Trackball Control Unit RCU-026

1. Press "EBL 1" and "EBL 2" to activate/deactivate respective EBL; and rotate the encoder to adjust active EBL.
2. Rotate to adjust brilliance level of the FURUNO monitor; and press to select display palette.
3. Rotate to adjust radar gain on the radar overlay.
4. Press "VRM 1" and "VRM 2" to activate/deactivate respective VRM; and rotate the rotary encoder to adjust active VRM.
5. For acknowledgement of alerts generated.
6. Rotate to select items within the InstantAccess bar™; and press to confirm the selection of the item.

InstantAccessBar™

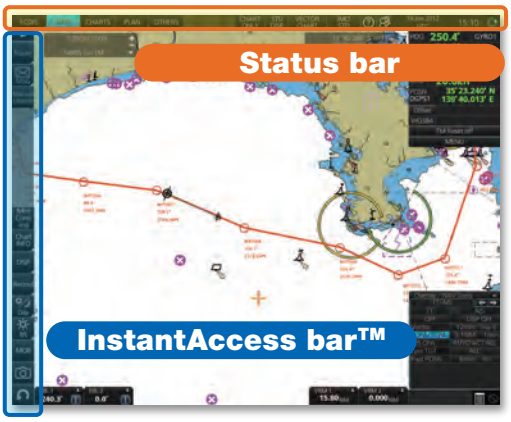
7. Full QWERTY keyboard for easy entery of route, event and waypoint names.
8. Following functions are assigned for each key:
   UNDO: to undo the last operation
   RANGE: to select chart scale
9. Following functions are assigned for each key:
   VIEW/HIDE: to show/hide the I.A. bar and route information window
   ACQ/ACT: to activate selected active AIS target
   TARGET DATA: to display the detailed target data for selected TT/AIS
   TARGET CANCEL: to sleep the selected active AIS target
10. USB port for charts update, import/export, WP/routes, user setting.
11. Trackball Module
    Trackball module consists of four parts, each of which has the following functions:
    trackball: to move the cursor and select an object
    left-click: to perform/confirm the action related the selected object
    right-click: to display contextual menu while a cursor is on the display area, and to cancel action done on the selected object
    scrollwheel: to select menu items

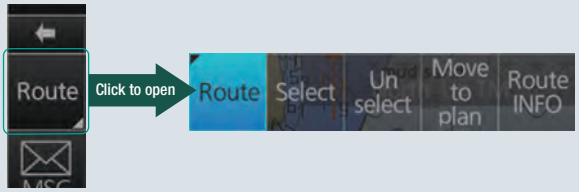
Contextual Menu

Right-clicking on the screen will open the contextual menu containing all the available actions related to the position of the cursor, i.e., chart object, data box, etc., hence providing quick access to tasks required.

Task-based user interface realized by combination of Status bar and InstantAccess bar™ providing quick access to the needed tasks/functions

The user interface of the FMD-3005 centers on carefully organized operational tools: Status bar and InstantAccess bar™.
The Status bar at the top of the screen contains information about the operating status, i.e., MFD operating mode, the ECDIS operation modes, etc. InstantAccess bar™ at the left-hand side of the screen contains all the tasks (functions/actions) corresponding to the ECDIS operation mode currently selected. These operational tools deliver straightforward, task-based operation by which the operator can quickly perform navigational task without having to go deeper into an intricate menu tree.





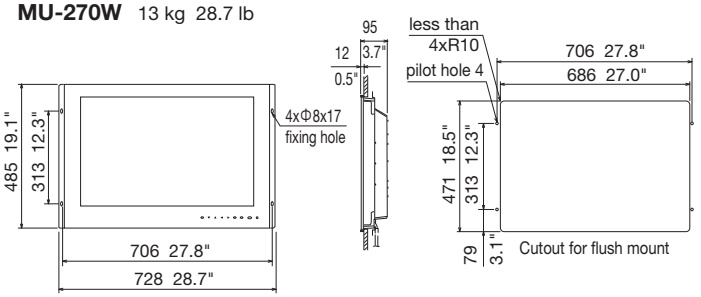
Drop-down menu to facilitate streamlined operation

◢ on buttons in the Status bar and InstantAccess bar™ indicate that there are hidden options of actions/tasks to be performed in the sub-layer, which can be initiated by left-clicking the buttons.
This way, the operator can quickly gain access to the related tasks.

and consistent operation

Monitor Unit

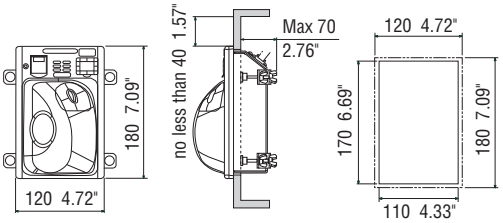
MU-270W 13 kg 28.7 lb



Trackball Control Unit

RCU-026

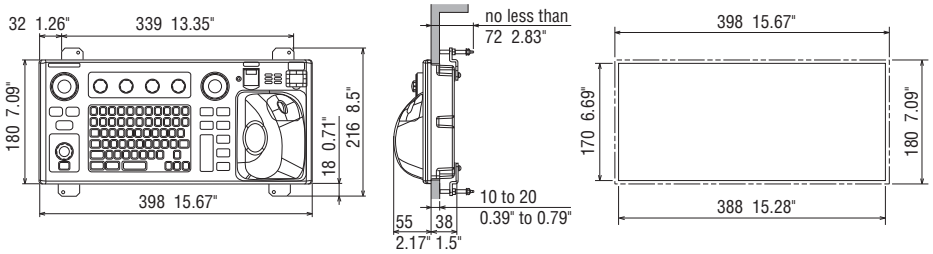
1.5 kg 3.3 lb



ECDIS Control Unit

RCU-024

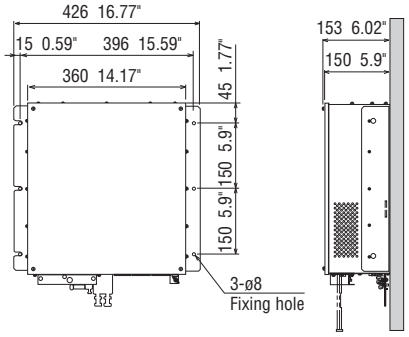
3.3 kg 7.3 lb



Processor Unit

EC-3005

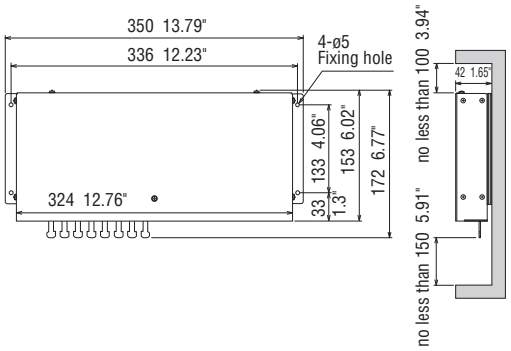
14 kg 30.9 lb



Intelligent Hub

HUB-3000

1.5 kg 3.31 lb

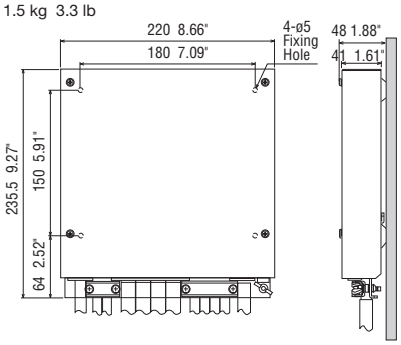


Sensor Adapter

Serial

MC-3000S

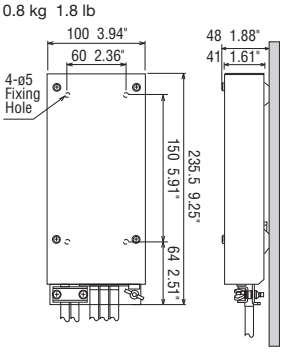
1.5 kg 3.3 lb



Analog

MC-3010A

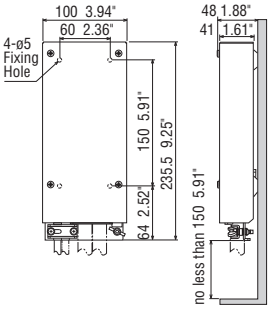
0.8 kg 1.8 lb



Digital In

MC-3020D

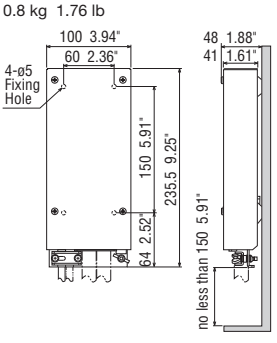
0.8 kg 1.76 lb



Digital Out

MC-3030D

0.8 kg 1.76 lb



SPECIFICATIONS

Product Name		ELECTRONIC CHART DISPLAY AND INFORMATION SYSTEM
Standards		IMO A.694(17), IMO MSC.191(79), IMO MSC.232(82), IMO MSC.302(87)
Monitor Unit		WUXGA (Selectable from 27"/19" Furuno monitor)
Chart Materials		IMO/IHO S57 edition-3 ENC vectorized material (IHO S-63 ENC data protection scheme), ARCS rasterized material, C-MAP CAES and CM-93/3 vectorized materials
Display Modes	True Motion	North-up, Course-up
	Relative Motion	North-up, Course-up, Route-up, Heading-up
Data Presentation	Own Ship	Own ship's mark/trip and numeral position in lat/lon, speed and course
	Target Tracking (TT: ARPA, AIS)	Range, bearing, speed, course, CPA/TCPA Target information from AIS (AIS Object information from AIS transponder)
	Cursor	EBL, VRM, parallel index lines
Alarm Information		Waypoint, route monitoring and several alarms Navigation by result from external position sensor
Position Calculation		Dead reckoning with gyro and log Data from gyro, log, and position sensors to be fed to mathmatical filter to generate highly accurate position and speed
Navigation Planning		Planning by rhumb line, great circle, Chart alarm, SAR composition, Optimize
Route Monitoring		Off-track display, waypoint arrival alarm, shallow depth alarm
User Chart Creation		100,000 points max. (amount of 5 files max.)
MOB (Man Overboard)		Position, and other data at time of man overboard can be recorded and displayed upon pressing the MOB button on the screen
Interface	DVI	2 ports DVI-D (Video signal from DVI No.1 and No.2 is identical) 1port DVI-D or analog RGB (conning display or VDR selectable)
	LAN	3 ports, Ethernet 1000 Base-T (1 port is for FAR-3xxx only)
	USB	4 ports, USB 2.0 type-A
	COM	2 ports, RS-232C/RS-485 for brilliance control
	Serial I/O	8 ports, IEC61162-1/2 (4 ports), IEC61162-1 (4 ports) Sentences: (IN) ABK, ACN, ALC, ALF, ALR, ARC, CUR, DBT, DPT, DTM, ETL, GGA, GLL, GNS, HBT, HCR, HDT, HTD, MTW, MWV, NRX, NSR, OSD, PRC, RMC, ROR, ROT, RPM, RRT, RSA, THS, TLB, TRC, TRD, TTD, TTM, VBW, VDM, VDO, VDR, VHW, VTG, XDR, XTE, ZDA (OUT) ABM, ACK, ACN, ALC, ALF, ALR, ARC, BBM, DDC, EVE, HBT, HTC, OSD, RRT, RTE, VBW, VDR, VSD, WPL, XTE
	Digital IN	1 port, ACK signal input
	Contact Closure	6 ports: 1 port for system fail, 1 port for power fail, 2 ports open and 2 ports close

SENSOR ADAPTER

Control and Serial Input	LAN	1 port, Ethernet 100 Base-TX
	Serial	8 ports, IEC 61162-1/2 (4 ports), IEC 61162-1 (4 ports)
	Contact Closure	1 port for power fail, normal close or normal open
Analog Input		3 ports/unit, -10 to +10V or 0 to 10V, 4 to 20 mA, selectable
Digital Input		8 ports/unit, normal close or open, selectable
Digital output		8 ports/unit, normal close or open, selectable

POWER SUPPLY

Processor Unit	100-115/220-230 VAC, 1 phase, 50/60 Hz
Sensor Adapter	24 VDC, 1.4 A
Monitor Unit	100-230 VAC, 1 phase, 50/60 Hz

ENVIRONMENTAL CONDITION

Ambient Temperature	-15˚C to +55˚C	
Relative Humidity	93 % or less at 40˚C	
Degree of Protection	Processor Unit Sensor Adapter Intelligent HUB	IP20 (IP22: option)
	Control Unit	IP22
Vibration	IEC 60945 Ed. 4	

EQUIPMENT LIST

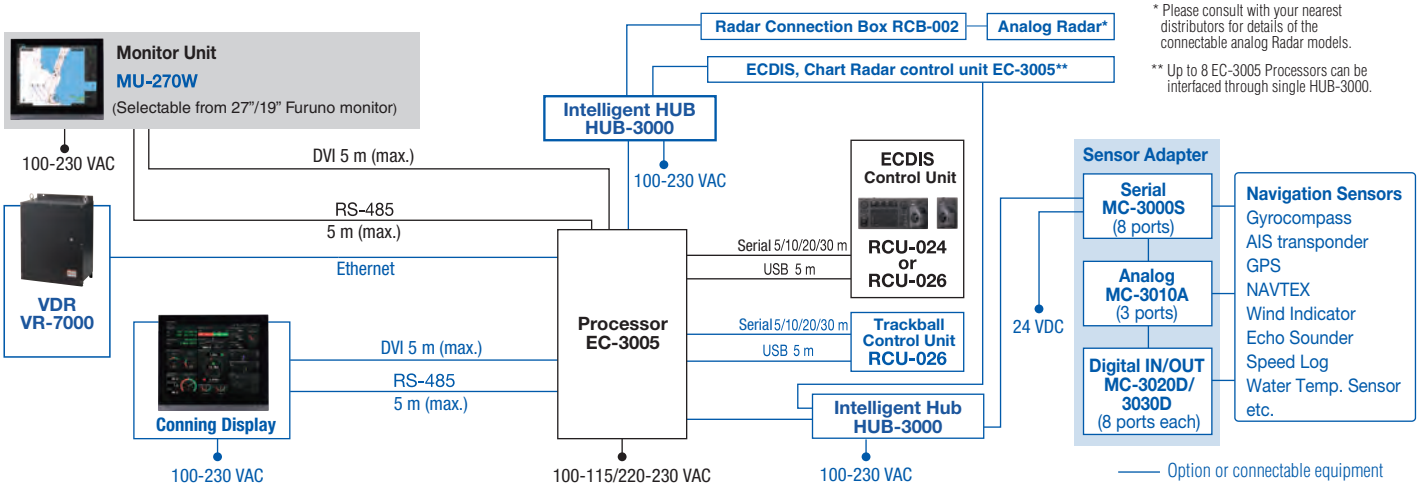
Standard

1	Processor Unit EC-3005	1 unit
2	ECDIS Control Unit RCU-024 or Trackball Control Unit RCU-026 (specify when ordering)	1 unit
3	Standard Spare Parts and Installation Materials	1 set

Option

1	Monitor Unit MU-270W	1 unit
2	Sensor Adapter: MC-3000S Control Serial MC-3010A Analog MC-3020D Digital IN MC-3030D Digital OUT	1 set
3	Trackball Control Unit RCU-026	1 unit
4	Intelligent Hub HUB-3000	1 unit
5	AC/DC Power Supply Unit PR-241	1 unit
6	Installation Materials	1 set

INTERCONNECTION DIAGRAM



* Please consult with your nearest distributors for details of the connectable analog Radar models.

** Up to 8 EC-3005 Processors can be interfaced through single HUB-3000.

Beware of similar products

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

FURUNO ELECTRIC CO., LTD.
www.furuno.com

Find your local contact point

C-2506LB
Catalogue No. CA000002704