

# GET READY.



All your fleet needs. All in one place.



[ECDISPLUS.com](http://ECDISPLUS.com)

  
**KELVIN  
HUGHES**

# Navigating the revolution.

## Electronic navigation is a reality

Electronic navigation used to be about the future. Now it's about today. The art and science of navigation is undergoing its greatest transformation since the introduction of radar.

Over the next decade, the world's merchant shipping fleet will begin the transition away from paper charts towards the use of electronic chart data. Life for mariners – and for the industry as a whole – will never be the same again.

## What is electronic navigation?

At its simplest, electronic navigation means the use of an Electronic Chart Display and Information System (ECDIS) loaded with official Electronic Navigation Charts (ENCs) used either for primary navigation or for enhanced situational awareness.

At its heart, ECDIS consists of a database of ENCs, together with the hardware and software needed to display the chart data as well as the ship's course, speed and position. ECDIS and ENCs have been shown to improve navigational safety and reduce the risk of groundings.

But this is just a glimpse of what electronic navigation can ultimately deliver. Integrated into a modern bridge system, ECDIS has the power to deliver huge operational efficiencies through reduced workload, improved planning and better voyage management.



## Many questions. One answer. Kelvin Hughes.

With this much power potential on tap, it's clear that successfully fitting ECDIS to meet International Maritime Organization (IMO) requirements and operating it in a safe and efficient manner means finding the answers to many questions.

As the world leader in the design and supply of navigation equipment and the largest supplier of nautical chart data, Kelvin Hughes is uniquely placed to support your switch to electronic navigation.

## 10 questions to ask your ECDIS provider...

**What does the IMO ECDIS mandate mean for my fleet?**

**What ECDIS hardware do I need onboard?**

**Why buy equipment and data from the same company?**

**Who can provide global installation and support for my vessels?**

**Who is the best chart provider for my ECDIS requirements?**

**How can I keep my chart data up-to-date?**

**Electronic coverage keeps changing – how will I keep the charts up-to-date?**

**Managing my chart outfit is a real burden – who can I trust to do it for me?**

**Where can I get officially recognised and approved training for my crews?**

**What will my flag state require as an ECDIS backup?**

# All your fleet needs. All in one place.

The move towards mandatory ECDIS means there is no shortage of companies selling hardware and software. Many of these providers claim to be able to offer all the tools you need to make the switch to electronic navigation. But can they?

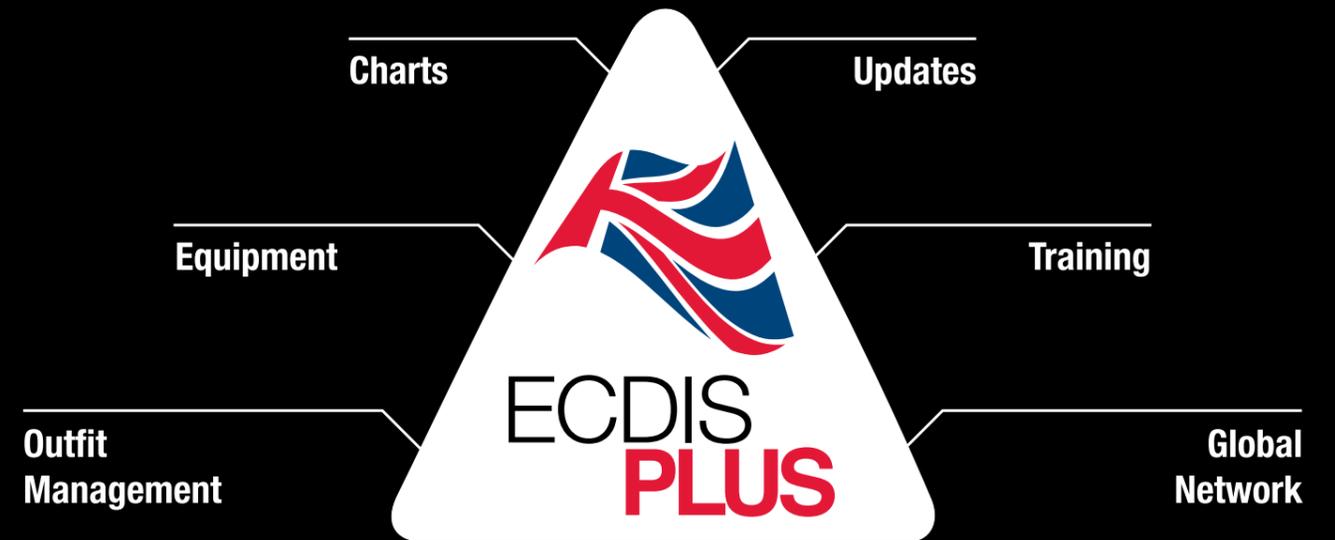
Kelvin Hughes is the only provider of every single component needed to make ECDIS work and help your fleet and your company make the leap from paper to electronic navigation.

ECDIS<sup>PLUS</sup> from Kelvin Hughes is a unique package. It provides a turnkey ECDIS solution to meet all your fleet needs, all in one place.

ECDIS<sup>PLUS</sup> includes hardware supply and installation, initial electronic and paper chart data supply, licence management, ChartCo updates and an IMO approved training package, all backed up with support from Kelvin Hughes' global service network.

ECDIS<sup>PLUS</sup> can be tailored to individual customer requirements and can range from the supply of single piece of ECDIS hardware through to a complete package.

No other provider can give you everything you need for electronic navigation.



## Charts

ECDIS<sup>PLUS</sup> offers complete flexibility to choose between data providers. Your choice of official ENC's can be pre-filled into the system and kept updated.

## Equipment

ECDIS<sup>PLUS</sup> is centred around a multifunctional hardware platform designed to be the heart of your digital navigation operations. Kelvin Hughes also provides your ECDIS back-up solution, be that electronic or paper.

## Outfit Management

Keeping chart data compliant requires a management system that keeps track of chart licences and keeps your ships sailing.

## Updates

ENC data must be updated to be official. ECDIS<sup>PLUS</sup> uses the industry-leading ChartCo service to provide updates to paper and electronic charts, as well as access to news and weather services.

## Training

ECDIS<sup>PLUS</sup> includes the IMO approved model course and bespoke courses from the leading independent providers to fulfil your company's training requirements.

## Global Network

Deploying ECDIS<sup>PLUS</sup> requires worldwide capability from your service partner – for installation, maintenance and support. A service level only Kelvin Hughes can deliver.

# ECDIS on one platform.



## EQUIPMENT

MantaDigital™ is the latest product from Kelvin Hughes' ECDIS development programme. Designed for simplicity and ease of use, MantaDigital™ provides the operator with an unrivalled decision-support tool for enhanced safety and efficiency, as well as offering an array of additional features.

### Multi-function philosophy

MantaDigital™ ECDIS has been designed to provide multi-function core to ECDIS-assisted navigation, operating as a platform for Radar, Chart Radar, ECDIS and Conning Display options and fully compatible with the Kelvin Hughes product range.

The user interface has been designed for intuitive ease of use and features a new simplified menu structure within a familiar hardware layout. MantaDigital™ can be supplied as a simple retrofit or in a fully integrated navigation system, with numerous display size and mounting options.

A range of tools is included to ease the task of electronic navigation, blending new functionality with traditional means of route planning. New features include manual fixing, which can be used to plot the vessel's position and keep you sailing in the event of a sensor failure.



MantaDigital™ TM26" Pedestal ECDIS



### Market-leading functionality

MantaDigital™ provides a continuous display of your ship's navigation parameters with heading, track and route on the chart as well as continuous monitoring of position against planned track.

Look-ahead is performed on the underlying chart data against preset safety parameters and standard safety settings include warnings for charted hazards.

To aid close quarter manoeuvring on large chart scales, MantaDigital™ will display the vessel graphically on the chart along with a prediction of position up to six minutes in advance to give the navigator the best possible situational awareness.

Integrated alarm management alerts the navigator if safety parameters are contravened, or if there is a failure of any ancillary system. Alarms and warnings can also be transferred to officers' cabins or to the general alarm system.

Routes can be planned using drag-and-drop to define waypoints, with channel widths, turn radius and planned speeds input for each leg. The route is then audited against the safety parameters before it can be activated.

Extensive tools are provided which simplify the organisation and management of chart data and licence permits, thanks to a direct interface to ChartCo's update service.

### Unbeatable flexibility

Beyond front-line navigation, MantaDigital™ is designed to provide all the benefits of ECDIS from a single source.

As an aid to situational awareness, MantaDigital™ can interlay radar and ENC chart data, providing the navigator with instant appraisal of collision and grounding risks, as well as an integrity check on the status of position fixing aids.

The Conning Display option provides a centralised real-time view of navigation parameters with a head-up inset chart and a depth graphic. This mode can be configured to suit a ship's individual sensors and parameters and can be used as an ECDIS backup.

With the addition of an optional software module, MantaDigital™ can provide fully Type Approved track control. Used in this mode, the autopilot receives steering instructions from the ECDIS based on the preset parameters, with the data also transferred to the radar.

# More than ECDIS.



## GLOBAL SUPPORT

In the run-up to the deadline for mandatory carriage of ECDIS, it is important to remember that a successful adoption of electronic navigation calls for a partner with a deep commitment to the shipping industry. Whether contracting for a newbuilding installation, retrofit or after-sales service, you need a provider with a track record and a strategy.

Kelvin Hughes is able to offer a complete installation and commissioning service around the globe. Installation and support is provided through over 100 authorised service centres worldwide.

ECDIS<sup>PLUS</sup> comprises several standard packages which run from stand-alone commissioning to a complete installation with cable laying, physical mounting of the hardware, commissioning and disposal of redundant equipment. Packages are available at fixed, pre-agreed prices to ECDIS<sup>PLUS</sup> customers, to enable accurate budgeting.

In service, ECDIS also calls for a dependable support partner. For after-sales, Kelvin Hughes can provide global service and support packages, with standard and extended warranties available on all equipment sales.



## TRAINING

The mandate of ECDIS creates a huge training challenge for the shipping industry. Most owners will choose to go beyond the baseline requirements of the recently updated IMO STW Convention, but they must choose their provider carefully.

The shift from paper to digital demands a detailed appreciation, not just of equipment and systems, but of the methodology and mindset required.

Kelvin Hughes provides a Flag State-approved course based on IMO requirements, which teaches the navigator how to get the most out of the equipment and familiarises them with using traditional navigational techniques on ECDIS.

The overall objective is not to teach navigation, but to enhance navigational safety through correct operation and a thorough understanding of the MantaDigital™ ECDIS.

The course lasts five days and can be run in the UK and other key locations around the globe. Key areas covered include electronic chart data and its display in ECDIS, the proper use of ECDIS equipment, the limitations of ECDIS and the operation of the Kelvin Hughes ECDIS.

# The right data. All the time.



## CHARTS

Official requirements for ENC's are simple: data must be sourced from an officially recognised provider and produced to International Hydrographic Office standards. The IMO performance standard draws a line under the use of unofficial data in unapproved ECDIS systems.

As the world's largest distributor of paper and digital navigation charts, Kelvin Hughes is ideally positioned to provide the official chart data that fuels ECDIS.

ECDIS<sup>PLUS</sup> can be supplied with any official ENC vector chart data, which would typically be either the Admiralty Vector Chart Service (AVCS) or the Jeppesen Primar ENC Service. Raster charts – permitted where vector charts are not available – can also be supplied.

The choice of chart supplier will depend to some extent on the vessel's trading patterns and areas of operation. Ships trading on regular routes will need a smaller outfit than tramp vessels, for example. Kelvin Hughes can assist in helping owners select which data will give them the safest and most cost-effective coverage.



## UPDATES

To a very great extent, an ECDIS is only as good as the chart data it displays. Though the ECDIS must be correctly configured, it can be considered out of compliance if chart data is not up-to-date.

Managing changes to the chart database is key to keeping the ship safe and in step with regulatory requirements. In future, such data transfer will be key to fulfilling the goal of efficient electronic navigation.

To ensure that ECDIS is both safe and efficient, Kelvin Hughes has teamed up with ChartCo to supply updates for paper and electronic charts. ChartCo is already the market leader in the provision of data to ships at sea, reaching 4,500 ships via satellite communications, email and the internet.

In addition to chart corrections and updates, the ChartCo service includes safety information such as Temporary and Preliminary Notices to Mariners, Lists of Lights, Tide Data and Radio Signals. ECDIS<sup>PLUS</sup> users can also receive additional services including weather forecasting and routing data and news publications.

# Compliance made easy.



## OUTFIT MANAGEMENT

Managing electronic charts differs significantly from the use of paper charts because ENC cells are loaded into the ECDIS before a voyage has begun, or on an ad hoc basis and activated using electronic licence keys.

Licences are normally available for 3, 6 or 12-month durations. However, the permits from different Hydrographic Offices may have differing validity periods and licences activated at different times will expire at different intervals.

To remove this headache, Kelvin Hughes pioneered the concept of Outfit Management to solve the problem of moving from paper charts to ENCs by providing remote management of the licensing process for ECDIS<sup>PLUS</sup> customers.

Outfit Management is designed to remove the burden and risks associated with keeping your vessel up-to-date and compliant with international regulations. Even before starting a voyage, the navigator knows that the required charts are loaded and available for use. The service can also manage paper publications and charts alongside digital data, ensuring that requirements for both primary navigation and back-up are always satisfied.

## MantaDigital™ ECDIS Specifications

### Screen

<b>Display Type</b>	Flat Panel TFT
<b>Pixel Resolution</b>	1920 x 1200
<b>Screen Sizes</b>	26" (660mm) 20" (510mm) (diagonal active size)
<b>Aspect Ratio</b>	16:10
<b>Display Variants</b>	Pedestal, Desktop, Console and Bridge-Wing (Internal)

### Chart Formats

<b>AVCS</b>
<b>Jeppesen Primar ENC</b>
<b>C-MAP</b>
<b>ARCS</b>

### Chart Updates

**ChartCo**  
Updating of charts is a simple point and click process and has been designed to facilitate the input of updates from the ChartCo service.

### Features

<b>TFT Display</b>	Wide screen flat panel, less volume, sharper picture and easier to mount	<b>AIS Interface</b>	The system can interface with any AIS and display up to 50 active targets
<b>ARPA Display</b>	Displays up to 50 ARPA target graphics and numerical data	<b>Vessel Prediction</b>	Graphical prediction of vessel's future position up to 6 minutes ahead
<b>Route Verification</b>	Post planning tool to check route before activation	<b>Manual Fixing</b>	Astro, Radar, Visual and electronic fixing methods
<b>Route Monitoring</b>	Continuous monitoring of vessel position with respect to planned route	<b>User Mapping</b>	Allows navigator to add graphical annotation
<b>Track Replay</b>	The vessel's track is automatically recorded and can be saved externally	<b>Event Recording</b>	User events, such as man overboard, can be annotated on the chart
<b>Range &amp; Bearing Markers</b>	Variable range marker. Electronic bearing lines and parallel index markers provided		

### Options

<b>Radar Interlay</b>	Display of radar returns "interlayed" with the chart data
<b>Remote Keyboard/ Trackerball</b>	Desktop or built-in options available
<b>Track Control</b>	Automatic control of the autopilot to maintain the vessel on the planned track
<b>Chair-mounted "Ergopod"</b>	Left and right-handed control options for chair attachment

### Interfaces

<b>NMEA-0193</b>	Log, Gyro, GPS, AIS, Autopilot
<b>Remote Keyboard</b>	Desktop or built-in options
<b>Network</b>	CAT5 Ethernet
<b>Analogue</b>	Gyro, Log, VDR, Rudder Angle

# The partner you need.

The move to electronic navigation, driven by the IMO's decision on the mandatory adoption of ECDIS, has long been on the horizon. Now the dates are set: 2012–2018.

Kelvin Hughes, along with other industry leaders has supported the IMO in its decision. Indeed, Kelvin Hughes was one of the first companies to receive Type Approval for its ECDIS in 1994. Since then it has been at the forefront of advances in technology and data availability, supporting the industry as it positions for change.

## Advanced navigation solutions

Kelvin Hughes is a world leader in the design and supply of marine navigation systems with a product range designed to provide the most advanced navigation solutions and services available. Its products include radar sensors and display technology, voyage data recorders, ECDIS units and integrated bridge systems, all developed on 'common core' principles for full compatibility.

## Choice of chart provider

Unlike many ECDIS providers Kelvin Hughes won't tie you in to its preferred official ENC provider. We think that decision is yours to make and our role is to provide you with the support and advice to choose the chart provider that suits your ships and trading patterns. You also have the freedom to change provider whenever you choose.

## The world's largest supplier of navigation charts and publications

As the world's biggest chart agent, Kelvin Hughes holds some 20,000 unique stock items, in global locations, as standard. This enables us to provide our customers with an unrivalled service, putting digital and paper chart data into the hands of the mariner, when and where he needs it.

To make sure that mariners continue to be properly supported, Kelvin Hughes has teamed up with ChartCo to provide ENC chart updates, nautical publications and related data, delivered via satellite communications, email and the internet.



## Best in class partners

Training for ECDIS requires not just conveying the skills but also an understanding of what ECDIS can and cannot do. Our training partners are highly experienced and knowledgeable in the practical education for ECDIS and use of electronic navigation data. Our courses are held to fit around your ships and schedules.

## GLOBAL SERVICE

Customer relationships are at the centre of any successful business and we pride ourselves on our ability to work in partnership with our customers and suppliers. That partnership calls for a long-term commitment to providing quality, safety and value through a global organisation.

Whichever Kelvin Hughes product you choose, our global network of service centres share these values, ensuring that you receive the same high quality service no matter where your ships are sailing, 24 hours a day, 7 days a week.



- Kelvin Hughes' Service/Sales Centres
- Kelvin Hughes' Service Agents



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