INTERMARINE ELECTRONICS S.A.

ECDIS Navigator G2 White Paper

Introduction

Intermarine Electronics has been at the forefront of marine navigation equipment production for over 22 years. Our Electronic Chart Display and Information Systems (ECDIS) are operational on various ocean-going vessels, ranging from small ferries to large ships. By selecting Intermarine as your ECDIS partner, you gain access to a complete solution supported by extensive services and expertise.

Navigator G2 Product Overview

Our latest product, the **ECDIS Navigator G2**, integrates the widely adopted G2 chart handler software, trusted by hundreds of navigation officers worldwide. The new **G2 Version 3** has been upgraded to comply with **IEC 62288 Edition 3** and is wheel-mark approved. Designed for the most challenging marine environments, the Navigator G2 balances safety, reliability, and cost-efficiency, making it one of the most powerful ECDIS solutions on the market at a competitive price.

Key Features and Advantages

Enhanced Usability: The G2 ECDIS implements the latest IMO standardization principles, enabling users to quickly locate and comprehend vital information, enhancing situational awareness.

- **Streamlined Navigation Workflow**: By standardizing the presentation of essential information, we reduce user workload, improving decision-making efficiency. Standard vocabulary, icons, patterns, and shortcuts simplify the operational process.

Advanced Technology and Performance

The Navigator G2 delivers cutting-edge performance through state-of-the-art hardware and software, designed to meet the demanding requirements of the marine and offshore industries:

- **Intel i7 Processor**: The system is powered by the Intel i7 11th generation CPU with a maximum turbo frequency of 4.7 GHz, providing robust computing performance.
- **High-Resolution Display**: A 24" LCD screen with a resolution of 1920x1200 ensures ample viewing space for detailed analysis.
- **Projective Capacitive Multi-Touch**: Featuring a tempered glass touch screen with zooming functionality, this system provides enhanced control with reduced glare and reflection, ensuring usability in all conditions.

Future-Proof and IMO Compliant
Built with future-proof hardware and software, the Navigator G2 ensures ongoing compliance with evolving IMO regulations, making it a long-term, reliable solution for your fleet.

Graphical Performance with OpenGL Rendering
The Navigator G2 leverages **OpenGL GPU graphics rendering**, enabling it to handle complex tasks simultaneously, unlike traditional CPUs. The GPU significantly

boosts rendering speed by up to 100 times, making it ideal for tasks such as 3D visualization, image processing, deep learning, and big data processing.

System Approvals and Compliance
The **Navigator G2** has obtained **Wheel Mark** approval, adhering to the latest industry regulations. We regularly update our ECDIS software to reflect new IMO and classification standards, ensuring consistent compliance.

Effortless Chart Updates and NAVTOR Compatibility
Updating charts is made simple with a one-click process, and when paired with the optional **NAVBOX**, or other IEC61162-450 external device updates are automated. In addition to chart databases, digital publications and AIO data are also synchronized, ensuring your vessel has the latest information. Full compatibility with **NAVTOR products** further enhances the ease of use.

Operating System and Recovery Features
The system operates on **Windows 10 Pro**, providing a robust platform for the ECDIS. In case of technical failures, the **One Key Recovery** feature allows users to restore all system data, programs, and settings efficiently. This functionality is secured in a hidden disk sector, ensuring no unauthorized access or accidental deletions.

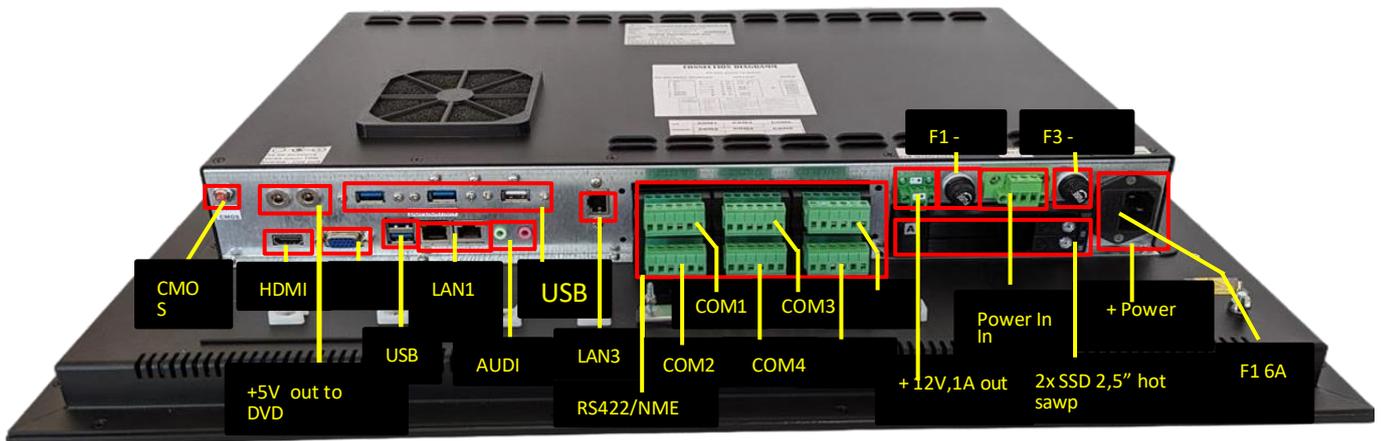**Simplified Installation and Configuration**
The **Navigator G2** offers a streamlined installation process—just connect the power supply, input the sensor data, and insert chart permits to get started. The system's "plug-and-play" design, combined with flexible installation options (tabletop, flush mounting, or ceiling), makes it ideal for retrofitting existing equipment.

Advanced Technical Specifications
The Navigator G2 boasts several advanced technical components:

- **Intel i7 11th Gen Processor**: with a turbo speed of 4.7 GHz.

- **High-Capacity SSD**: Fitted with a 240GB SSD on a hot-swap removable tray, with M.2 and MPCE support for additional storage.
- **Multiple Ports**: Includes VGA, HDMI, USB 3.2 (10 Gbps), and NMEA interfaces, offering high-speed data transfers and seamless integration with other equipment.
- **Power Supply**: A robust power system supporting both AC and optional DC inputs, with built-in protections against overvoltage, overheating, and short circuits.

Reliability and Durability

Intermarine's dedication to quality extends to the system's reliability, with the **Mean Time Between Failure (MTBF)** significantly increased through thoughtful design. Additionally, the system's design minimizes operating temperatures, which helps the CPU maintain peak performance while enhancing overall reliability and extending A noiseless, military-grade case fan and enhanced power supplies further extend the system's lifespan. The chassis has been treated with **MIL-C-5541 Type II, Class 3** for additional durability in marine environments.

Enhanced System Integration

The **Navigator G2 ECDIS** supports seamless integration with multiple systems, including the **Bridge Navigational Watch Alarm System (BNWAS)**, **NAVTEX**, and **Bridge Alarm Management (BAM)** and **Central Alarm Management (CAM)** systems. This integration ensures compliance with the latest IMO requirements while enhancing situational awareness and operational efficiency.

The system is also equipped with three LAN ports to support cluster configurations and **Voyage Data Recorder (VDR)** connectivity, further expanding its interoperability with critical shipboard systems.

Comprehensive Connectivity and Expansion Options

The Navigator G2 offers extensive connectivity and expansion capabilities, enabling operators to tailor the system to specific operational needs.

Audio and Visual Alarm Integration

To enhance situational awareness, the Navigator G2 includes two built-in speakers for

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ECDIS audio alarms. The system is fully compatible with external alarm systems, ensuring that critical alerts are immediately noticeable to bridge crew members.

Efficient Power Management

The Navigator G2 is designed with power efficiency in mind, supporting both **90-260V AC** and optional **9-36V DC** inputs, making it adaptable to a wide range of power sources. To protect against shipboard power anomalies, the system is fitted with double-fused AC/DC inputs and extensive voltage filtering, ensuring stable operation even under challenging conditions.

Optional Accessories and Configurations

To further customize the Navigator G2 for specific needs, the following optional accessories are available:

- **Wireless Trackball**: Enhances user control in dynamic bridge environments.
- **Heavy-Duty Pedestal and Console**: Designed for durability, with a tilt range of 0-60° for optimal viewing.
- **Additional Ethernet and NMEA Ports**: For expanded connectivity, operators can choose additional LAN ports or external converters to meet specific navigation and data management requirements.

Conclusion

Intermarine Electronics' **Navigator G2 ECDIS** delivers a high-performance, future-proof solution for modern maritime navigation. Designed to meet the stringent requirements of today's marine industry, it offers unparalleled reliability, integration capabilities, and ease of use. With its user-centric design, cutting-edge technology, and robust construction, the Navigator G2 stands as the ideal choice for vessel operators looking to enhance navigational safety and efficiency.

Technical Specifications - IME1024 - ECDIS NAVIGATOR VIII

SPECIFICATIONS	IME-1024(24")
DISPLAY	High definition 24" TFT display 1920x1200 with tempered Anti-reflective 5mm glass
TOUCH SCREEN	Capacitive multi-touch screen 10 points activated with figure, glove & pen
PROCESSOR	CPU **Intel i7, 11th generation** (maximum turbo speed 4,7Ghz)
MEMORY	RAM 8GB DDR4 onboard - Expandable up to 64GB
SERIAL PORTS	6 x RS232/RS422/NMEA opto-isolated fitted inside as standalone, with plugabble terminals
HDD / SSD	1 x SATA SSD/HDD 2.5" max 3TB, fitted on a removable hot swap tray. RAID 0,1
M.2	1 x M.2 support (PCIE) with high speed NVNE protocol or SATA SSD
Mini PCIE	1 x Mini PCIE
VIDEO OUTPUT	1 x VGA output resolution 1920 x1200 & 1 x DP port with resolution 4096 /3840 x 2160
USB PORTS	2 x 3.1 USB. Gen.2 port with maximum Tx 10 Gbps, 2 x USB 3.1 standard, 4 x 2.0 USB
ETHERNET	2 x LAN Gigabit network card chip Support Network wake-up and PXE- No disk startup function
AUDIO I/O	1 x audio line output port, 1xmic in port, 2 x stereo speakers

POWER SUPPLY OUTPUT 1	1 x 5 VDC 25W to supply external DVD & multi USB hub's thus protecting standard USB 5V against stress & overload.
POWER SUPPLY OUTPUT 2	1 x 12 VDC 1A Fused to supply an additional external NMEA converter
AC IN	90 - 265 VAC, 50-60 Hz 85W. An extra power supply of 350W is fitted inside
KEYBOARD	1XIME Backlit keyboard & 1xmouse
Dimensions	590mm (H)x 428mm(V)
Weight	**9.6Kg**
Chassis	Aluminum
OPERATING / STORAGE TEMP	-20 to +60 C
OPERATIONAL SYSTEM	MS Windows 10 pro 64 bit
ONE KEY RECOVERY	For back-up and restore ECDIS system in case of crash
APPROVAL	Wheel Mark Approval according to (EU) 2021/1158
OPTIONAL:	
DC IN	DC IN 9-36 VDC
ETHERNET ports	Additional 2 x LAN Gigabyte port
NMEA	Additional 8xNMEA / Ethernet or 8 x NMEA / RS422 external converter
TRACKBALL	Wireless trackball
PEDESTAL	Heavy duty pedestal providing 0 - 60 tilt
CONSOLE	Heavy duty standalone Aluminum console.

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