



Intelligent Vessel Management System



Kessler Ellis Products



KEP's 31,000ft² manufacturing facility in Eatontown, NJ

For over 50 years KEP has been the partner of choice for Industrial and Marine Automation and Control systems. Founded in 1961, KEP has consistently been the leader with innovative hardware and software that simplifies the most complex of systems. The unparalleled experience and expertise we have earned over the years ensures that we will always meet and exceed our customers' expectations.

PLC (Programmable Logic Controllers)

PLC's offer the flexibility and customization you need to manage any on board systems. One single PLC can seamlessly deliver vast amounts of critical information. While older wired relay panels and gauges require extensive wiring and space, the compact PLC is both space efficient and easily programmable. Changes in circuit design or sequence is as simple as retyping the logic, saving you considerable time and cost.



Traditional Vessel Monitoring



Analog gauges and traditional Canbus systems have been used for years to monitor a variety of sensors and power requirements. These systems typically use universal modules that are configurable with dip switches to allow system-wide software retention but are heavily dependent upon additional manufacturer and service dealer support for proper integration. Limitations with node counts and cable length due to frequency and data structure require special termination considerations that are inherently inconsistent and unreliable in the field and are the cause of many failures. Traditional Canbus systems are unfortunately limited for customization because they are restricted by proprietary protocol and predetermined choices in configuration.

With this in mind, KEP has developed the new IVMS - Intelligent Vessel Management System.

The Next Generation – KEP’s IVMS Intelligent Vessel Management Systems

IVMS



IVMS PRO



IVMS UNLIMITED



KEP’s newest Intelligent Vessel Management Systems give you complete monitoring and control of any number of sensors, electrical and electronic devices on board. The KEP IVMS system is used to manage critical assets and information in the most organized and functional way possible.

Unrestricted by proprietary wires, sensors and protocol, IVMS is easy to install and completely customizable. With three series to choose from, The KEP IVMS offers a solution for any application and budget. The systems can be used for a single dedicated function as well as manage any number of electronics and electrical systems, with the ability to gather and store large amounts of data from any number of critical assets on a boat or fleet. Whether tracking an onboard system’s performance history over time or monitoring fuel consumption, tank levels, batteries and bilges, a KEP Intelligent Vessel Management System can be set up

to provide customized measurements and alerts and even be set up to activate automated corrective action. The system’s scope is limitless, and the efficiency and cost-savings for your vessel is monumental. All KEP Marine modules are moisture resistant and have a robust construction to stand up to the harshest on-the-water conditions.

KEP Marine’s Intelligent Vessel Management systems are comprised of easy to install modules that can be seamlessly programmed, controlled and managed locally on the vessel or remotely, with varying degrees of redundancy as required by the given marine application to maximize a fail-safe system. Enhancing the reliability and efficiency of onboard systems, the KEP Marine Intelligent Vessel Management Systems provides significant decreases in equipment requirements, reduced weight, space, material costs, installation times and long-term operating costs.

The KEP IVMS Series offers you the state of the art vessel management capability to provide you real-time information and alerts that can safeguard you, your crew and your guests against potential catastrophic occurrences.

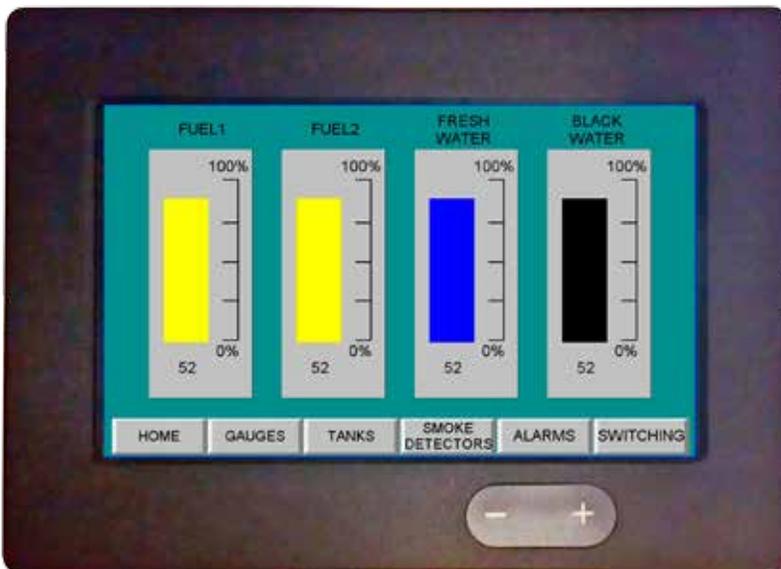
KEP IVMS



Security

All IVMS systems offer any level of customized security including:

- Door/Window Entry / Theft
- Fire / Smoke
- Loss Of Shore Power
- High Water in Bilge
- Low Voltage
- Motion Detectors
- And Many More

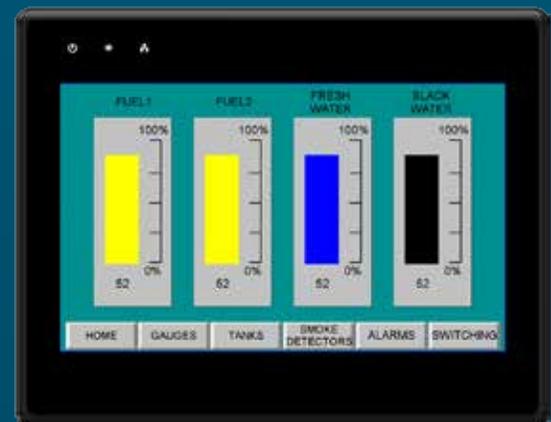


KEP IVMS – The standard IVMS package is an affordable, easy to install Intelligent Vessel Management System that allows you to simply monitor and manage the most critical information onboard with clear digital graphics. Designed specifically for commercial marine vessels, the KEP IVMS is a practical yet full featured PLC based vessel monitoring system that provides a structured graphical interface to your vessels operation with powerful user-configurable graphics. Combined with the Wago controller it is exceptionally robust and functional.

KEP IVMS is ideal for monitoring all battery levels, shore power, smoke and CO detection, tank levels including fuel, blackwater and freshwater, voltages, bilge, exhaust, and more. Control is done by the Logic Controller that is not computer dependent.

Clear easy to use pages are neatly displayed on the KEP 7" display interface. Additional displays can be added for remote viewing locations. IVMS includes One KEP Sunlight 7" touchscreen display, control panel, terminal block Kit and your choice of 16 monitoring selections. The easy to install KEP IVMS is programmable to meet your exact needs.

KEP IVMS PRO



The KEP IVMS Pro series Vessel Management System has all the same great features of the IVMS base system, but in addition includes an expanded HMI software package and additional monitoring selections that enhances the entire systems capabilities. The IVMS Pro allows for multiple station interfaces, remote viewing, full engine monitoring, and switching of electrical circuits. Fully expandable with many custom features, the IVMS Pro offers inland and offshore vessels the peace of mind that they have the very best informational monitoring and alert capabilities

A typical IVMS Pro installation will include one sunlight readable operator panel for an outdoor station and one standard operator panel for an indoor station.

KEP IVMS Unlimited



The KEP IVMS Unlimited series is the ideal system for offshore long range ships that need customizable alarm monitoring and control capabilities with the most comprehensive selection of graphics available anywhere. The IVMS Unlimited system was developed to provide our customers a modular and scalable IVMS system that provides monitoring and control of all equipment such as pumps, HVAC, generators, engines, power management systems, tanks, valves: anything you may have on board.

Operator Workstation



The Operator Work Stations (OWS's) are type-approved PC's with a solid state hard drive and Windows Embedded operating system, all to ensure a long mean time before failure. These OWS's can be controlled with a keyboard, trackball or touchscreen display.

I/O Substations

The I/O Substations are used to connect the platform sensors, actuators and serial connections to third party devices. The substation used for connecting the hard wired I/O to the LAN is the Wago PLC 750 Series. Many varying protocols are already integrated, for example J1939, NMEA 0183 and ModBus for different devices like PMS, HVAC and Fire Detection.



System Architecture

KEP IVMS infrastructure is based on a fail-safe Ethernet Network with distributed I/O. The application is installed on a single server with the ability to have multiple monitoring stations.

Operator Interface Panels can be added throughout the vessel to accommodate server redundancy and additional monitoring and control stations.



Easy Remote Capabilities



KEP IVMS Unlimited



Automatic Control Sequences

An Automatic Control Sequence can be programmed for logic control of valves, pumps and other devices. The IVMS first checks if all requirements and conditions are met, after which the system performs the sequence automatically.

Approvals

The IVMS Unlimited system is type-approved by Germanischer Lloyds classifications and by other bureaus which are done on a system specific basis. Many systems have already been delivered under LR, BV, DNV, ABS and Rina Approvals. For ABS classed vessels, the system can be designed to have a redundant Ring Topology.

Duty Alarm Panels

In addition to the OWS, the IVMS supports Graphic Duty Alarm Panels (DAP). The DAPs are usually located in the crew mess, cabins and other locations. The 6.5" touch screen contains a simplified alarm page. Engineering calling and duty alarm functions are included.

Convenient Configuration, Commissioning and Maintenance

User-friendly configuration tools allow for cost-efficient configuration, commissioning and maintenance. A graphical editor is available to create custom, user-defined mimics. The worldwide availability of type-approved Commercial Off The Shelf (COTS) components guarantees optimal life cycle cost for the end user. Spare parts can be replaced without the need for a field service engineer. Replaced components are configured automatically by the IVMS.

Options

IVMS duty alarm panel.
Remote access: Identify & solve problems and/or change settings from the office.
Conning: Display all navigation data —like heading, depth, log, weather, GPS—on a special conning page.
Remote monitoring: Transmit all data available to the IVMS to the shore via the web.
Helicopter Approach & Landing Operations: Help helicopters land safely with a CAP437 compliant mimic
CCTV: Display camera images within the IVMS.

KEP IVMS Unlimited



Features

- Modular and flexible design
- 2 x rugged solid state PC workstations
- Over 10,000 controllable measuring points

- Soft PLC based CoDeSys
- Type approved off the shelf components with worldwide spare parts accessibility.

Capabilities

- Alarm Handling and Logging
- Standby Pump Control
- Automatic Control Sequences
- Smoke Detectors, CO Detectors, High Level Bilges, Loss of AC Power, Charger Faults.
- Alarm Horn Control
- Door and Port Ajar monitoring and alarms
- Rudder Angle Indication
- Fuel transfer (High Level Float Switch as Safety Backup to level Senders)
- Grey water and Holding Pump out
- Fuel Tank levels by use of level transducers.
- Controls AC and gathers runtime information
- Gathers and scales voltages and currents by use of analog transducers
- Temperature, Pressure, Level, Load, or Condition can be monitored and controlled using the appropriate sensor tied to the controller.
- Monitoring of fuel tank levels and water tank levels. Fuel transfer control is left in the controller.
- Grey Water and Holding Tank Monitoring with pump out indication and set points
- Display of engine and Genset J1939 or 1708 data through the use of a protocol converter scaled through a controller.
- Bilge level monitoring and testing
- Active and historical alarm status
- Engine runtime trending (Graphical and Numeric)
- Battery, Alternator, AC Voltages, AC Currents, DC Voltages, DC Currents
- Ethernet Camera Display
- Vessel monitor dimming.
- Remote Monitoring and automatic callout on power loss, critical alarms, etc.
- Lighting "Mood" or Zone Selection.
- AC Set point control and monitoring
- Datalog and Trending