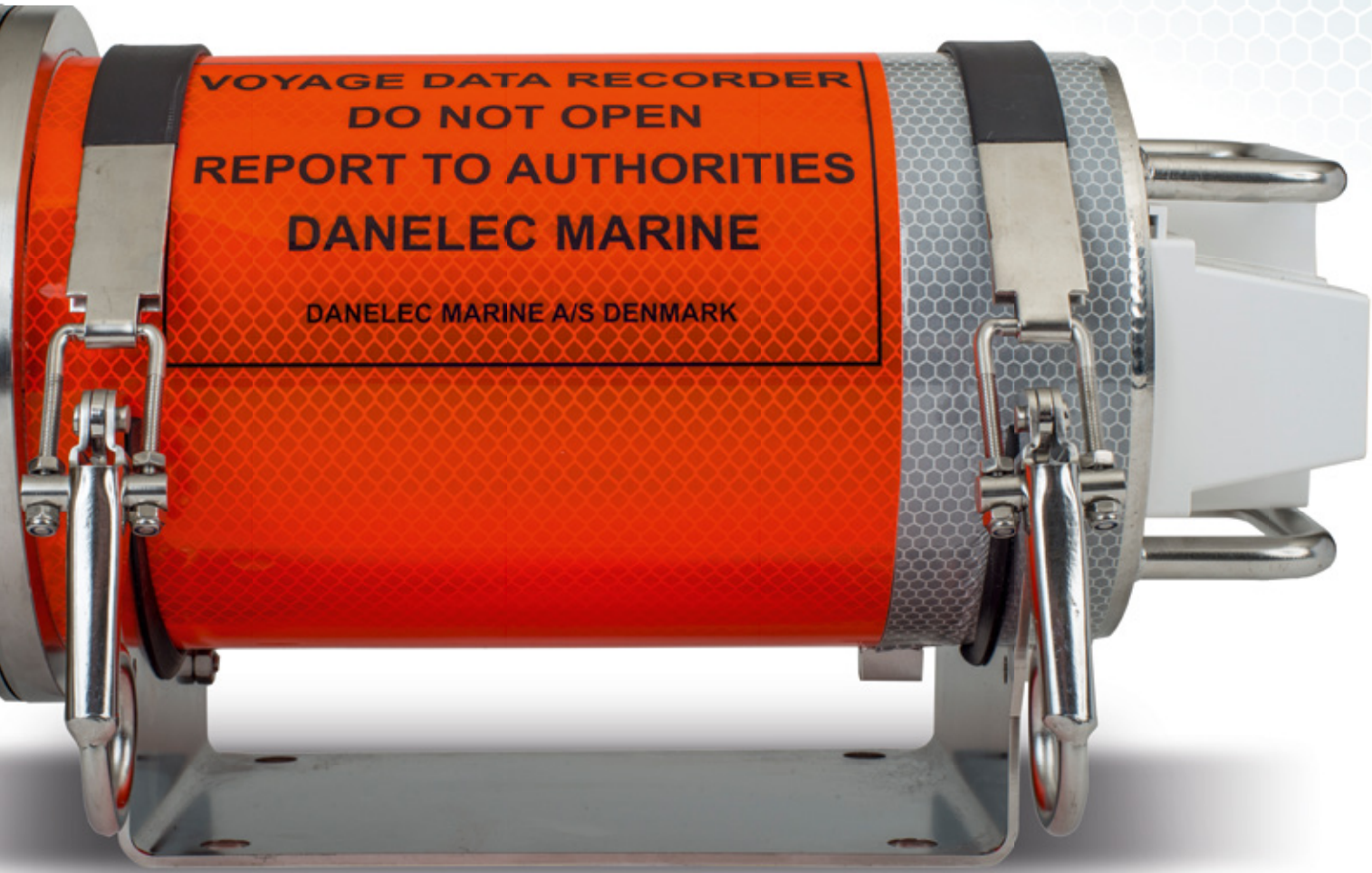
DM100 VDR

Voyage Data Recorder



Danelec systems
Solid • Safe • Simple

- *New generation VDR with break-through SWAP technology ™*
- *IMO-compliant with the 2014 VDR standards – and beyond*

Discover the Danelec difference...

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About the **New** IMO VDR Performance **Standards**

About the New IMO VDR Performance Standards

In May 2012, the Maritime Safety Committee of the International Maritime Organization (IMO) adopted a revised recommendation on performance standards for Voyage Data Recorders (VDRs), effective as of July 1, 2014. The new requirements defined in MSC 333(90) state that for VDRs installed on or after July 1, 2014 on all passenger vessels or cargo vessels of 3,000 GT and above:

- Data shall be recorded internally in the VDR for a minimum of 30 days/720 hours
- Data shall be recorded in a float-free capsule, in addition to a fixed capsule
- Data shall be recorded for a minimum of 48 hours in both capsules

Recording media

- Bridge audio shall be recorded using at least two tracks for indoor microphones
- Outdoor microphones shall be recorded on an additional separate track

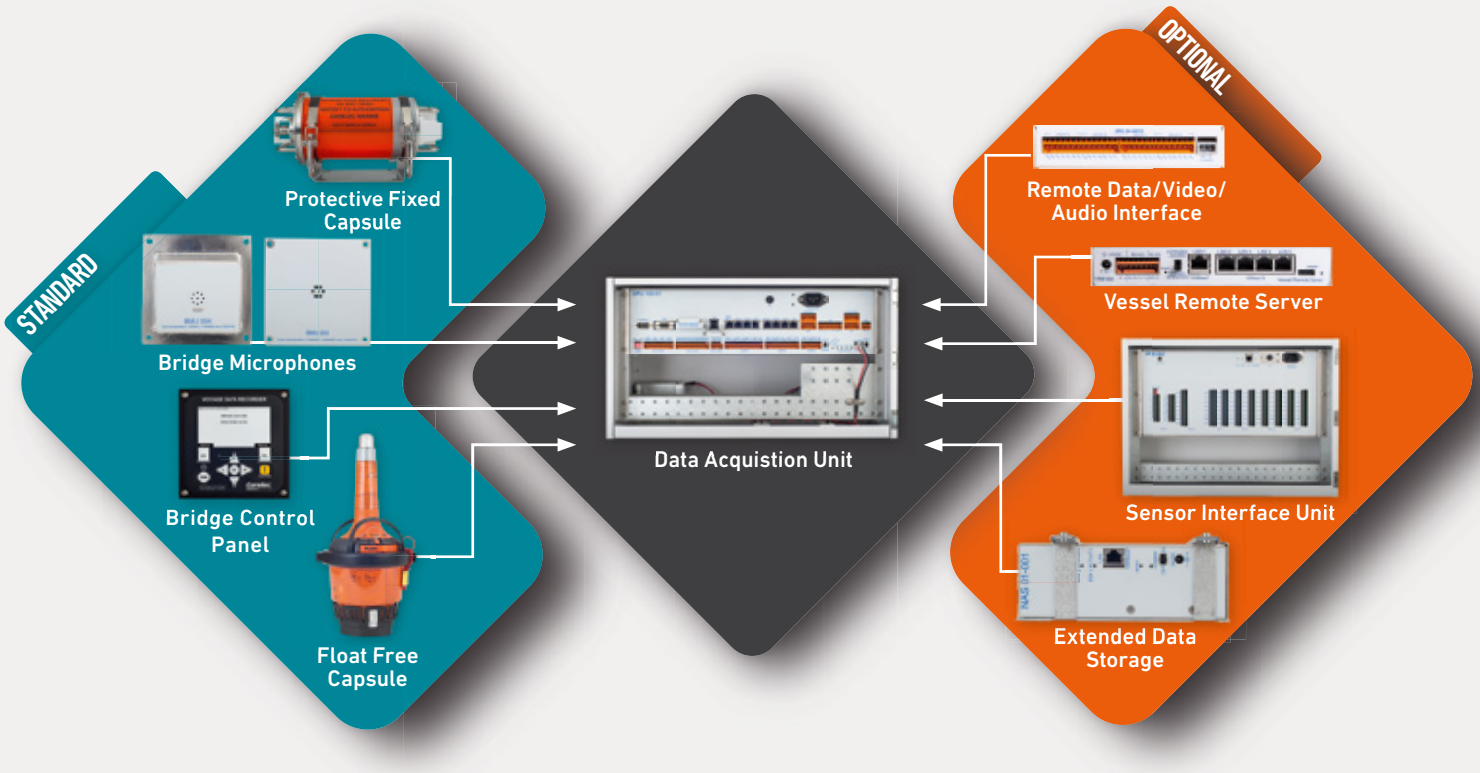
Bridge audio

- Images, charts and settings from the ECDIS shall be recorded
- Images from both radars on the vessel shall be recorded
- Data from the AIS shall be recorded
- Data from an inclinometer shall be recorded, if installed

Additional sensors

Is Your System IMO-Compliant?

All new VDRs installed after July 1, 2014 must be compliant with the new standards. Our newest generation DM100 VDR meets all requirements and performance standards of MSC.333(90) and IEC 61996-1 Ed.2. Danelec VDR systems are designed to record and store, in a secure and retrievable form, information concerning the ship's position, movement, physical status and command and control for the period leading up to and following an incident. Designed specifically for maritime application down to the last component, Danelec VDRs offer high quality and reliability in a compact and lightweight, easy-to-install solution.



VDR Explorer Playback Software

Danelec VDRs are supplied with the VDR Explorer playback software as standard. The software runs from any PC and can provide real-time monitoring and replay recorded data.

The recorded data can be presented in a large variety of both graphical and numerical ways, and is extremely easy and user friendly to operate.

- Windows based application for playback
- Intuitive user interface
- Customizable conning page
- Extract data from the VDR through a web browser via Web Extractor tool

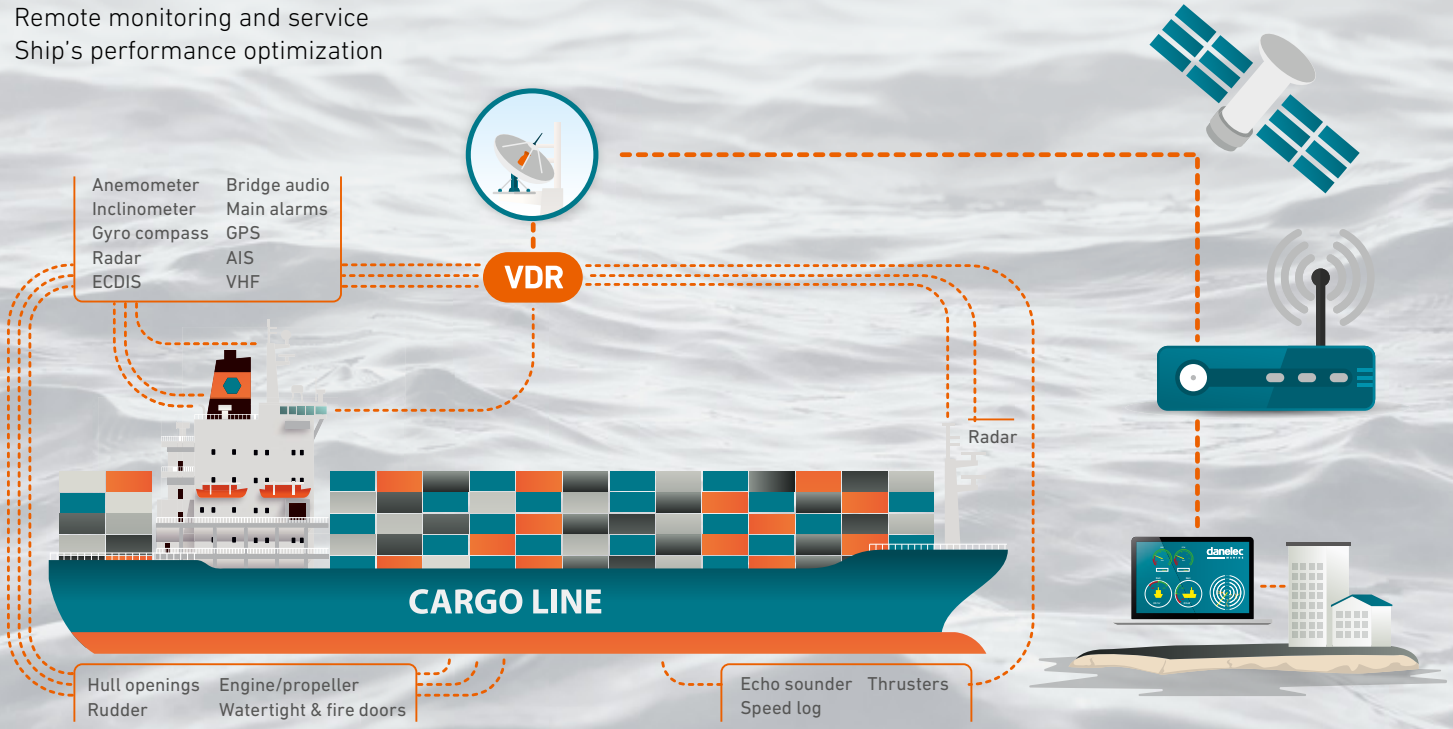


Complies with MSC.333(90) requirements for data download and playback software

DanelecConnect Remote Management Solution

DanelecConnect is a web-based remote management service available with the Danelec DM100 VDR. As a value-added interface, DanelecConnect allows selective transmission of data from the VDR via satellite to the home office without being limited by satellite capacity onboard vessels. Remote management provides a wide range of benefits concerning control, safety and optimization without the need of physical attendance to the vessel, such as:

- Enhanced safety
- Remote monitoring and service
- Ship's performance optimization



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Standard equipment

Optional equipment

STANDARD



W: 495 mm
H: 250 mm
D: 242 mm
W: 11 kg

Data Acquisition Unit

30 days of recording capacity on built-in SSD • 10 inputs for bridge audio and VHF • 12 inputs for serial data (IEC 61162-1, IEC 61162-2 and Modbus) • 7 inputs for IEC 61162-450 network data (1000BASE-T) • AC power (110-230V, 50-60Hz) • Built-in UPS with NiMh batteries

STANDARD



W: 360 mm
H: 195 mm
D: 208 mm
W: 8 kg

Protective Fixed Capsule

48 hours of recording capacity • 90 days acoustic underwater beacon • Supplied with 50 meters cable • Ethernet (100BASE-TX) interface • Powered from Data Acquisition Unit (PoE)

STANDARD



W: 236 mm
H: 553 mm
D: 214 mm
W: 4.8 kg

Float-free Capsule

48 hours of recording capacity • Supplied with 50 meters cable • Ethernet (100BASE-TX) interface • Powered from Data Acquisition Unit (PoE) • COMSAR/ COSPASS approved EPIRB

STANDARD



W: 144 mm
H: 144 mm
D: 64 mm
W: 1.1 kg

Bridge Control Panel

Interface for Operational Performance Test • Built-in graphical color TFT LCD display • Ethernet (100BASE-TX) interface • Powered from Data Acquisition Unit (PoE)

STANDARD



(Outdoor / Indoor)
W: 96 / 84 mm
H: 96 / 84 mm
D: 60 / 30 mm
W: 0.5 / 0.1 kg

Bridge Microphones

(Outdoor / Indoor)

Built-in buzzer for self-test • Built-in amplifier and filters • IP66 water resistant (outdoor only) • Powered from Data Acquisition Unit

OPTIONAL



(Compact / Modular)
W: 525 / 525 mm
H: 342 / 342 mm
D: 169 / 336 mm
W: 12 / 23 kg

Sensor Interface Unit

(Compact / Modular)

8 inputs for serial data (IEC 61162-1, IEC 61162-2 and Modbus) • 8 or 16 inputs for analog data • 64 inputs for digital data (in compact version) • 48 inputs for digital data (in modular version) • 1 free slot (in modular version) • AC power (110-230V, 50-60Hz)

OPTIONAL



W: 141 mm
H: 32 mm
D: 163 mm
W: 0.3 kg

Remote Data Interface

(Serial/Analog/Digital)

8 inputs for serial data (IEC 61162-1, IEC 61162-2 and Modbus) (in serial version) • 8 inputs for analog data (in analog version) • 24 inputs for digital data (in digital version) • Powered from Data Acquisition Unit or locally • Can be daisy chained • Can operate as standalone equipment • Support for SWAP technology™

OPTIONAL



W: 149 mm
H: 49 mm
D: 206 mm
W: 0.5 kg

Remote Video Interface

(Analog: BNC / Digital: DVI-I)

2 inputs for video recording • RGBHV (in analog version) or DVI-D / DVI-A (in digital version) • Ethernet (100BASE-TX) interface • Powered from Data Acquisition Unit (PoE)

OPTIONAL



W: 149 mm
H: 49 mm
D: 256 mm
W: 0.5 kg

Remote Audio Interface

(4 / 8 channels)

4 / 8 inputs for bridge audio and VHF • Ethernet (100BASE-TX) interface • Powered from Data Acquisition Unit (PoE)

OPTIONAL



W: 61 mm
H: 172 mm
D: 116 mm
W: 1.1 kg

Extended Data Storage

Up to 6 months of recording time • Marine approved (IEC 60945) • SSD and HDD versions • Storage capacity: 256GB, 512GB or 1TB • Ethernet (1000BASE-T) interface • AC power (110-230V, 50-60Hz) through AC adaptor

OPTIONAL



W: 180 mm
H: 30 mm
D: 100 mm
W: 0.3 kg

Vessel Remote Server

DIN rail mountable or standalone • 1 x Ethernet (1000BASE-T) port for the VDR • 4 x Ethernet (100BASE-TX) ports for the ship`s LAN networks • 12-24V DC power input • AC power (110-230V, 50-60Hz) through AC adaptor • Normal or Extended Access operating modes • Support for SWAP technology™

OPTIONAL



VDR Conversion Kit

Reduces installation time by facilitating replacement of existing equipment regardless make or model • Pre-drilled universal adaptor plates and mounting brackets • Serial, digital and analog interfaces • Existing cabling can typically be reused • Software tool for conversion of old configuration files

A Revolution in Shipboard Service

Servicing and repairing shipboard electronics can be time consuming and expensive. There are the complicated logistics of scheduling a service call and finding a properly trained technician – sometimes from a remote port. Then there is the question of whether the technicians have the correct spare parts on hand and can complete the repairs in time to meet the ship's sailing schedule.

Now there is a way to save time and money, while eliminating in-port delays, thanks to the new **S**oft**W**are **A**dvanced **P**rotection (SWAP) solution from Danelec. With SWAP technology™, all system software and configuration, as well as programming data, is automatically saved on a hot-swappable memory card that can easily be removed from the old unit and inserted into the new one. Relocating the repair from ship to shore saves hours of time in re-installing software and re-programming the unit.

The Traditional Way

In a typical service scenario, the technicians board the ship, troubleshoot the problem and determine what spares are needed to make the repair. If the parts are not available locally, they must be ordered. Depending on the system, port state control authorities may prevent the ship's departure until the repairs are made, resulting in expensive demurrage and port costs.
If the ship is allowed to sail, the spares must be delivered to its next port, requiring another expensive service call to complete the repairs.

The Danelec Way

The SWAP solution is quick and easy:

- When a Danelec-trained technician reports to the ship for a service call, he arrives with a replacement unit in hand
- The technician removes the memory card from the old unit
- He switches out the old unit with the replacement unit
- Inserts the memory card into the new unit
- Then he takes the old unit to shore for repair

The Benefits are Invaluable

SWAP technology™

- **Saves time** by enabling onboard repairs to be accomplished in a matter of hours, not days
- **Saves money** by reducing man hours for service calls
- **Protects valuable shipboard data** on a hot-swappable memory card
- **Keeps ships on schedule**, eliminating in-port delays for repairs





Danelec systems
Solid • Safe • Simple

WE PROVIDE THE MOST EFFICIENT PRODUCT AND SERVICE SOLUTION TO THE MARITIME INDUSTRY

SAFETY FIRST
Safety at sea is priority #1

OPTIMIZATION OF OPERATIONS
Enhance fleet operational efficiency

TOTAL COST OF OWNERSHIP
Maximize return on investment

SOLID

PRODUCT DESIGN

- **Dependable operation** | ***Equipment that is built to be at sea***
  Danelec products are based on an application-specific design to ensure extreme reliability. Fewer components mean fewer points of failure, resulting in the highest MTBF in the industry.

- **Future proof** | ***Never obsolete, always supported***
  We guarantee serviceability of our products during their lifetime for a minimum of 10 years. Since our products are developed in-house, we have full control over all components.



High quality Danish design
10+ years service guarantee

SAFE

SERVICE & SUPPORT

- **Immediate support anywhere** | ***There is always a service tech near your ship***
  Our extensive global network of service centers carry spare parts and provide service repairs 24/7 with 600+ factory-certified techs in 50+ countries.

- **World class service** | ***Consistent, efficient and transparent***
  Danelec eService platform™ automates and streamlines traditional manual processes, bringing unprecedented levels of consistency and efficiency to shipboard service.



24/7 worldwide service & parts
Danelec eService platform™

SIMPLE

OPERATION & MAINTENANCE

- **Information at your fingertips** | ***Capture shipboard data and put it to use***
  Our range of remote management solutions enable instant and cost-optimized access from shore to ship, so that you can harness the power of big data for informed decisions and more efficient asset management.

- **Maximize uptime** | ***Rest assured your ship sails on schedule***
  Our exclusive SWAP technology™ enables fast and easy replacement of equipment in case of failure, without reinstalling software and reconfiguring the system.



Remote management solutions
SWAP technology™

Danelec systems
Solid • Safe • Simple

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