



When Safety Matters

Consilium VDR

Voyage Data Recorders
Remember the Details

The VDR history 1996 to present

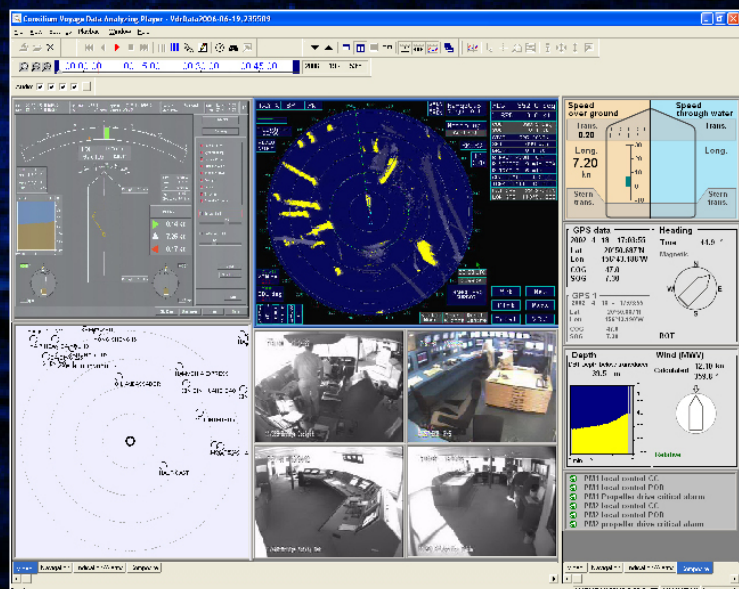
- 1996 Five VDR systems are ordered by Star Cruises
- 1997 All systems are delivered and installed
- 1997 Consilium acquires the VDR product rights
- 1999 BSH approval for Consilium VDR M1
- 2000 Second generation VDR M2 is launched
- 2001 Third generation VDR M3 is launched
- 2002 Consilium introduce their first S-VDR
- 2004 Fourth generation VDR M4 and S-VDR M4 are launched featuring "Design for Assembly", minimal moving parts, Flash and USB memory capability
- 2006 Introduction of a combination of fixed and float free capsules
- 2007 Introduction of S-VDR combined with ECDIS



Consilium systems are equipped with solid state Compact Flash and **usb** memories. With the focus on value and performance you'll find all our Voyage Data Recorders go way above the market standard.

To ensure that our **vdr** can be individually tailored to meet a specific need, it's inherent flexibility means it can easily accommodate a wide variety of customized requirements without compromising on performance or cost efficiency.

Consilium **vdr** systems meet all the relevant requirements as demanded by **imo** Standards and **eu** directives.



Consilium VDR the preferred choice for professionals

The solid construction, sophisticated technology and top quality performance make Consilium's range of vdr's one of the most popular in the maritime industry. The need for reliability, accuracy and ease-of-use make it absolutely paramount that ship owners fit the best – that's why they choose Consilium vdr's.

Key features include:

- vdr and ecdis combined solution
- Instant replay function
- The most innovative and flexible platforms on the market
- Solid state memories
- Low lifecycle cost
- Cost effective solutions with a huge data storage
- A global Service and Support network

Keeping a complete data track of a vessel's journey

As waterways become increasingly more congested so does the likelihood of an incident occurring. If ships do not have

an accurate and thorough means to record, store and retrieve all the relevant information concerning position, speed, command and control then should they be involved in an incident any subsequent inquiry could be severely hampered through a lack of available data.

By equipping vessels with a Consilium vdr a precise and comprehensive account of the vessel's status is constantly recorded and can be retrieved so in the event of an incident investigators are able to assess the facts with absolute clarity. This dramatically increases the probability of investigators determining the precise cause of an incident and also plays a significant part in helping to find ways to prevent a similar incident from occurring in the future. In the flight industry "Black Boxes", or as they are more correctly known Flight Recorders, have often proved invaluable in helping to determine what exactly happened during an incident by providing investigators with a comprehensive range of recorded data. Consilium Voyage Data Recorders perform precisely the same indispensable service for the marine industry.



Comprehensive data gathering

As you can see from the diagram the **vdr** keeps a record of the ship's overall operational status. Continually updating and storing information in real time. With the ability to store data for up to a year, the **vdr** can also be used to make comparative studies of a ship's normal operations as well as providing a record of events during an incident.

RECORDING SPECIFICATIONS

DATA TYPE	DATA SOURCE
Date and time	GPS
Ships position	GPS
Speed	Speed Log
Heading	Gyro
Bridge audio	3-7 microphones
Communications audio	Designated VHF
Radar (if COTS available)	Master radar display
AIS (mandatory if no radar)	AIS
Depth beneath keel	Echo sounder
Main alarms	IMO mandatory alarms
Rudder Order & Response	Steering/autopilot
Engine/Thruster	
Order & Response	Engine telegraph
Hull openings	
Door indicator	
Watertight and	
Fire doors status	Door indicator
Acc. and hull stresses	IMO mandatory hull stress sys.
Wind speed and direction	Wind indicator

Advanced features and functions

ECDIS – Electronic Chart Display and Information System. Consilium **vdr**'s offer a combined hardware solution for efficient use of resources and space. **hw** fully prepared or expandable to run the high performance Consilium Selesmar **ecdis**. Upgrade of already installed **m4** possible.

Instant Replay Function. Consilium **vdr**'s make it possible to replay data live via the vessel's computer system. Systems can also be linked to shore based system via satellite.

PBB – Portable Back-up Box. A cost effective "plug and play" lightweight (1.2 kg) **pbb** server with the capacity to store up to 1 year of recorded data. The external memory can be installed together with the mandatory capsule variants.

Remote Control Panel. Flat mounted design with 32 characters **led** for system status information. The display constantly monitors and indicates the system status, back-ups and alarms. The remote display is also equipped with the Incident Back-up feature.

Incident Back-up. During an incident it is possible to save **vdr** data on a **usb** memory stick.

USB. Consilium equips all **vdr** systems with **usb** memory sticks as standard.

FRM - Final Recording Media. Consilium makes it possible to combine the advantages of installing a float free capsule together with a fixed capsule. The system has been designed to manage up to 3 different memories in parallel with the **pbb**. **VDAP** - Voyage Date Analyzing Player. A highly efficient and user friendly tool for replay and analysis of recorded data for investigation purposes. The software can display both graphics and histograms and each window can display up to 4 different default views and also features a split window mode.



Purpose of Voyage Data Recorder

According to **imo**, the purpose of a Voyage Data Recorder is to maintain a store, in a secure and retrievable form, of information concerning the position, movement physical status, command and control of a vessel over the period leading up

to, and following, an incident having an impact thereon. This information is for use during any subsequent investigation to identify the cause(s) of the incident.



VDR Technical specification

M4 Main Unit

Environm. conditions	IEC 60945 protected equipment
Record period	min 12 hrs, stored securely
NMEA 0183 INPUT	16 channels (IEC 61162-1 & IEC 61162-2 HS, 38400 bit/s) NMEA
NMEA 0183 OUTPUT	4 channels (IEC 61162-1)
Audio channels	4 channels with up to 12 microphones with self test
VHF	2 channels, 775 mV. Line input (0 dBu)
Radar	Display up to 1600x1200 resolution Refresh rates up to 85 Hz Can be configured for a capture interval as short as 5 seconds.
Data export features	USB data output for standard USB2.0 memory stick
Speed Log interface	2 channels, galvanic isolated: 12 – 48 V DC, 100 – 20000p/nm Updating frequency: 1,1 Hz
Digital input	Galvanic isolated
Relay outputs	Max voltage: 125 V AC, 60 V DC Max current: 1A
RS-485	Baud rate: max 115200 bit/s

Power Supply Unit

Environm. conditions	IEC 60945 protected equipment
PSU	2 hrs of continuous recording at power failure
System Voltage	115 - 230V AC
Power Consumption	< 400 VA max
Weight	18,4 kg

Remote Control Panel SD4-6

Environm. conditions	IEC 60945 protected equipment
Incident Back-up	Stores recorded data on a USB memory stick.
32 characters display	Text messages and status information.
Dimmer	Continuously adjustable
Alarm mute	Acknowledge alarms and errors

Microphone AM1

Environm. conditions	IEC 60945 protected equipment
Loudspeaker	Standard automatic self testing sequence
Housing for outdoor use	IP66 classed

VDR Final Recording Media

Compliant to IEC 61996	
Record period	min 12 hrs (optional up to 8 GB memory)
Penetration	250 kg/100 mm probe at 3 m
Fire protection	60 minutes at 1100°C 10 hours at 260°C
Impact	IEC 68-2-27, 50 g, 11 ms, and half sine shock
Immersion	6000 meters depth for 30 days

Data Acquisition (Analogue / Digital)

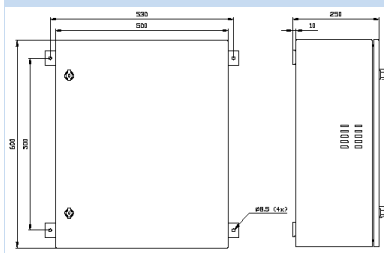
SixNet modules	
Flexible decentralised solution	
Environm. conditions	IEC 60945 protected equipment
Ethernet gateway	1024 separated inputs on each Gateway
Analogue	+/- 10V DC, 8 inputs on each module 4 – 20 mA, 8 inputs on each module
Digital	16 inputs on each module

Data Acquisition Unit

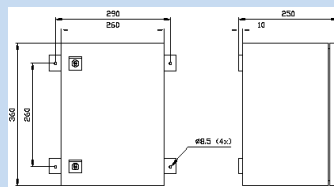
Centralised Analogue / Digital Unit	
Including 6 PCB holders Digital and Analogue PCB	
Analogue	+/- 10V DC, 4 inputs on each PCB 4 – 20 mA, 4 inputs on each PCB
Digital	24 inputs on each PCB

Options/Additional

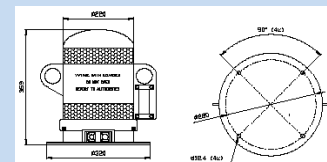
Ethernet LAN port, TCP/IP and FTP data transfer to export additional extra data storage ("PBB Server min 250-400GB) up to a year of data	
Instant Live Replay Function	
ECDIS and VDR combined solution	
"VDAP". A highly efficient and user friendly tool	
CCTV Cameras	Up to 4 separate cameras
Radar	Up to 4 separate Radar, ECDIS or Conning display's Frame rate down to every 5 second



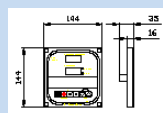
Main unit (Weight 30 kg)



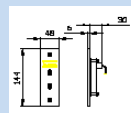
Data Acquisition Unit (Weight 11 kg)



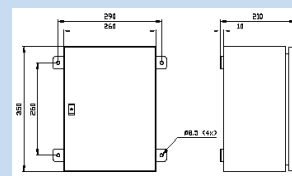
Final Recording Media



Remote Control
SD4-6 Panel



Microphone



Power Supply Unit (Weight 18.4 kg)

Global Service Network

Consilium Navigation is represented in more than 50 countries and has a presence in the most frequently used ports around the world. Customers are able to obtain spare parts or conduct servicing via the network of subsidiaries and agents. So no matter where they are they are never far from a Consilium expert.

After sales support you can rely on Consilium prides itself on providing customers with the benefit of a highly trained and resourceful after sales team. Each member of the team is fully experienced so customers have the added assurance of knowing that when they buy from Consilium complete customer satisfaction is an essential part of the deal.

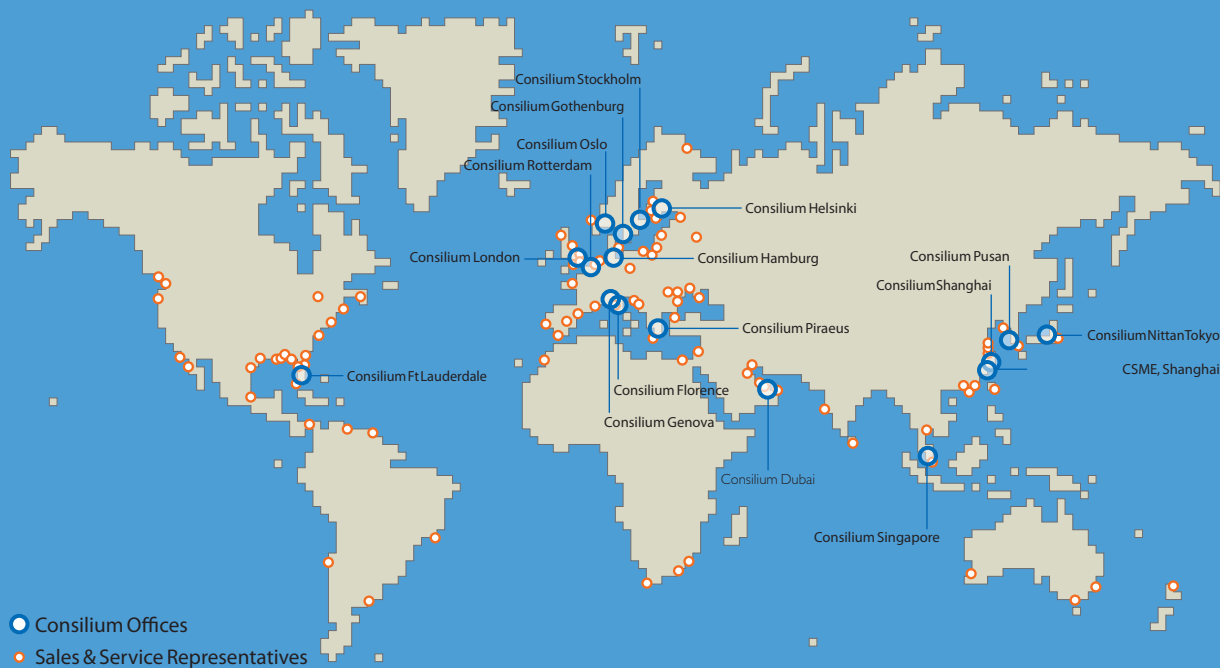
Training on demand

To help customer to get the most out of our equipment Consilium offers educational courses and training seminars from their global network of offices. So should a customer have a special requirement Consilium representatives can help arrange and conduct specific seminars where attendees can discover everything there is to know about a particular product and its functions.

Annual Performance Test

All VDR systems, including sensors, will be subjected to an annual performance test in compliance with IMO MSC.163(78) and IEC PAS 61996-2. The test is conducted by an approved service supplier to verify the accuracy, duration and recoverability of the recorded data. In addition, inspections will be conducted to determine the condition of all protective enclosures and devices fitted to aid location.

Global Service and Support



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