

STANDARD FEATURES

- Solid-state memory devices (for program and data) for all essential (IMO-required) VDR functions.
- Extended recording of all data on internal hard drive is standard.
 - 30 days* of all video, audio and digital data
 - up to 6 overwrite-protected 12-hr data sets can be saved on the internal hard drive
- Distributed single cable Ethernet & power technology reduces cabling and related costs by locating interface modules close to sensors.
- Modular system components with small dimensions and minimal weight for easy transport and installation.
- Integrated USB port with flash drive offers flexible recording of current 24-hr data or download of recorded or saved 12-hr data sets selected by date and time.
- Connected to a remote PC.**
- Download and playback software is included with every system, along with free owner licenses.**

* May be less for more than IMO required data.
 ** Meets the new IMO Recommendation SN/Circ.246 and MSC.214(81), mandatory from 1 July 2008, for a data output port and download/playback software.

DATA STORAGE AND RETRIEVAL OPTIONS

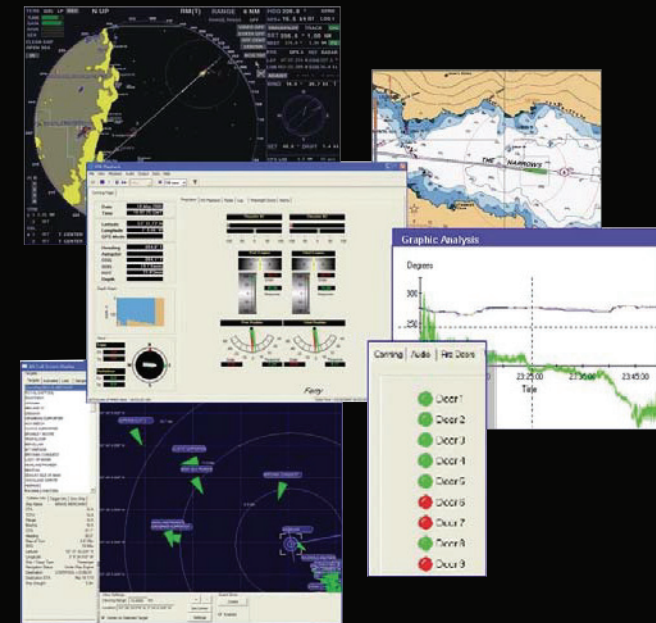
Standard data storage and retrieval functions go well beyond IMO requirements and we offer the following additional options:

- The Automatic Data Archiving Module provides for long-term archiving of the full data set, either by means of a remote PC or by a connected Remote Storage Module.
- The Multiple Video Display Capture option allows the VDR to capture and record up to three additional displays in addition to the single required main radar video.
- Remote Monitoring, Remote Data Access, and Remote Diagnostics are available via any standard communications channel, allowing for monitoring and retrieval of data from anywhere in the world.

DATA PLAYBACK AND DISPLAY OPTIONS

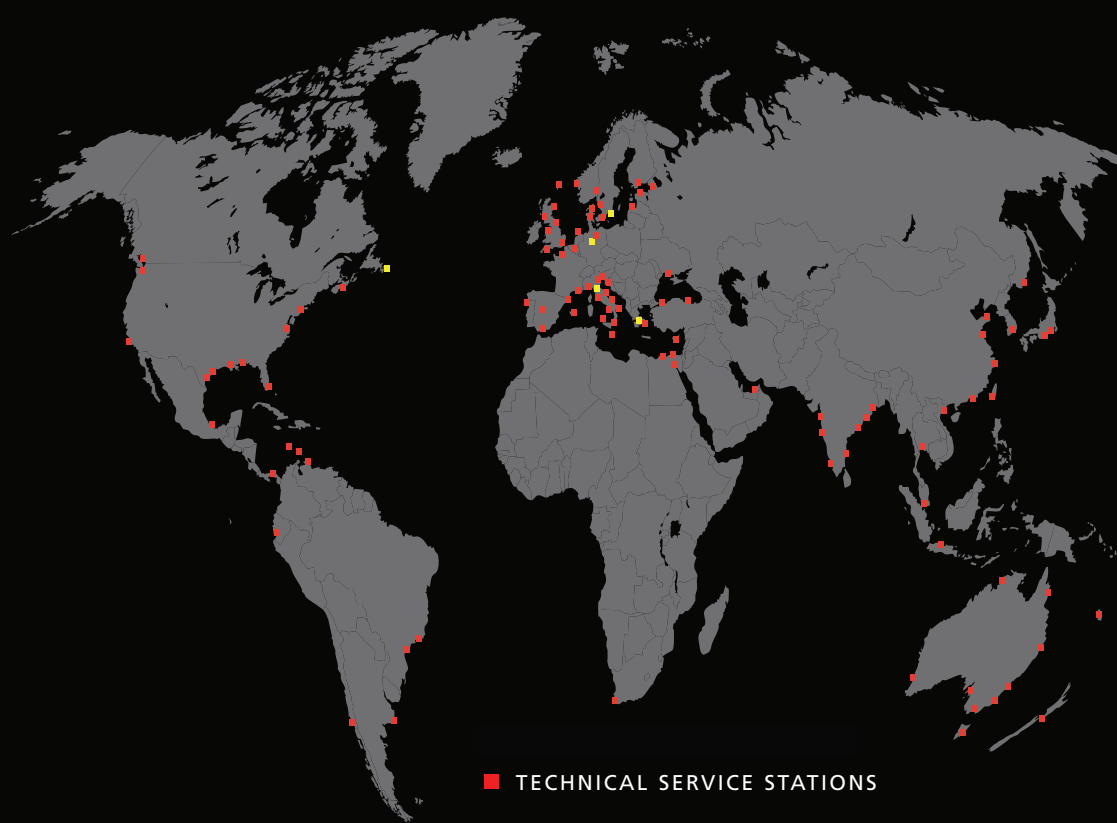
Standard playback and display features are comprehensive and we offer the following additional options:

- The Advanced Graphic Analysis Module enables long-term trend analyses, simultaneous comparisons among all data parameters and provides for extraction and transfer of the data to spreadsheets for further analyses as required.
- The Real-Time Display Module provides a conning-like real-time display of all recorded navigation data and allows for real-time display of recorded images.



GLOBAL INSTALLATION CAPABILITY - WORLDWIDE TECHNICAL SERVICE

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 Email sales@netwavesystems.com



■ TECHNICAL SERVICE STATIONS

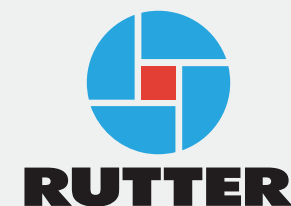


Compact Voyage Data Recorders that Deliver Performance, Reliability and Value

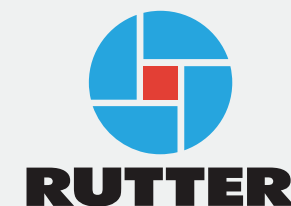
VDR-100G3/G3S



- New lightweight & compact bulkhead-mount unit
- Designed for fast, efficient, cost-effective installations
- S-VDR available with either fixed or float-free capsule
- Data output socket and playback software included

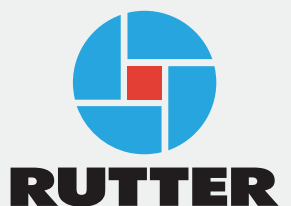


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- Compact, easily installed bulkhead-mount unit
- Solid-state memory devices for essential VDR functions
- New USB flash drive simplifies data retrieval
- Data output socket and playback software included





VDR-100G3/G3S

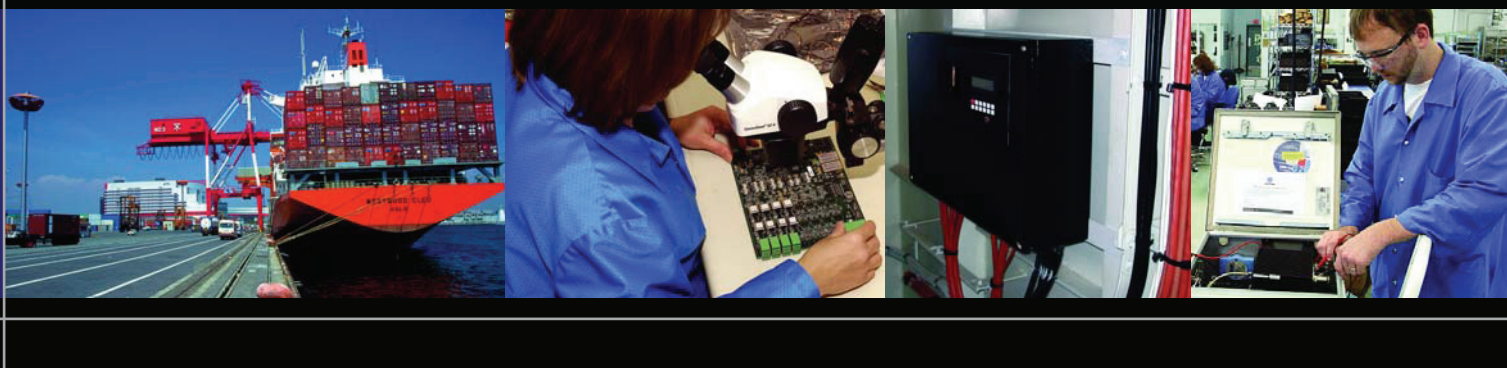
The logical evolution of a proven technology. Compact, flexible and reliable.

Rutter's new VDR-100G3/G3S is a logical progression of proven technology. Offered by the industry leader in VDR retrofits, the G3/G3S delivers value and practicality in a bulkhead mountable unit thoughtfully designed to reduce cabling costs and installation time. Proven solid-state architecture minimizes ongoing maintenance and support costs. Multi-day auto archiving comes standard with these units.

The G3/G3S's design also focuses on functionality and convenience. The Operation and Alarm Unit (OAU) is simple and intuitive and can be situated in the main unit (as shown) or remotely mounted. Download and playback software is differentiated by the rich context

provided by Rutter's proprietary clear quality audio and video playback. An integrated USB port with a high-speed flash drive captures the most recently recorded data ensuring fingertip retrieval without interrupting the primary recording mechanism.

Like its predecessor, the VDR-100G3/G3S offers a modular "fit-anywhere" design that is scalable to cost effectively meet the full range of VDR and "Simplified VDR" requirements from basic IMO compliance to the most demanding of options. Through dealers and service agents in over 100 locations, Rutter offers truly global product support and installation capability and one of the largest reference lists in the industry today.



- Global installation and service network
- Multi-day auto archiving standard
- Modular "fit-anywhere" design, reducing retrofit cost and out-of-service time
- Connection of remotely installed interface modules by single cables for Ethernet & power supply

TECHNICAL FEATURES

Data Processing Unit (DPU)

- houses Data Management Module, power supply, Power Control Module and battery back-up system
- removable Operation and Alarm Unit (OAU)
- USB flash drive in closed compartment
- compact (only 150mm x 457mm x 457mm)
- weighs only approximately 23kg

VDR Data Socket

- for connection to external PC
- standard Ethernet RJ45 socket
- suitable for remote diagnostics and data transfer

Final Recording Medium (FRM)

- fixed or float-free capsules are available
- compact lightweight designs
- easy to install
- powered by Power Control Module
- can be mounted 75m away from DPU

Remote Storage Module (Optional)

- auto data archiving for 90 plus days
- connected via USB interface
- easily connected to a PC via USB interface

Audio Input Module

- designed for efficient cable management
- up to 16 input ports for capturing any combination of microphones and radio communications channels
- additional modules can be added as required

Video Input Module

- up to 4 input ports for capturing images from the main radar display and up to 3 additional displays
- can accommodate 1600 x 1200 x 24-bit colour images
- refresh rates up to 85Hz
- can be configured for a capture interval as short as 3 seconds

NMEA Input Module

- 9 inputs are available with each module
- additional modules can be added
- for data in IEC 61162 (NMEA 0183) format
- for direct connection of AIS
- accepts the outputs from Rutter Interfaces

USB Flash Drive Data Storage

- storage of saved or previous 24-hours of data
- simple control via Operation and Alarm Unit
- USB flash drive protected inside DPU
- flexible download of 12-hour data sets selected by date and time.

Operation and Alarm Unit (OAU)

- standard integration in DPU or remote mounting (144mm x 144mm)
- indicates the system status
- allows users to perform basic system diagnostics
- simple user interface for recording and copying data
- 24 VDC Alarm output for remote alarm indication

Download/Playback Software

- plug & play with automatic display configuration
- password-protected (general playback and audio)
- multiple display capability and output to ECDIS or ECS
- extremely user-friendly with search and fast forward features

Playback/Real-Time Display with AIS

- all or selected AIS targets
- target data window
- automatic or manual display scale
- multiple windows on different scales
- CPA or TCPA calculations

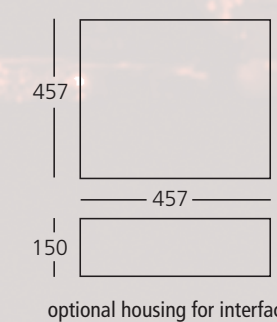
Power Supply

- standard input: 85 - 264 VAC, 47 - 63 Hz
- internal, dedicated reserve power source (UPS) for 2-hour battery-backup operation of VDR with audio recording

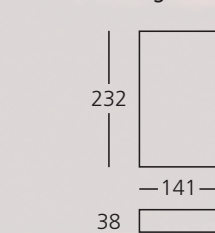
MTBF

- the VDR-100G3/G3S has a MTBF exceeding 200,000 hours

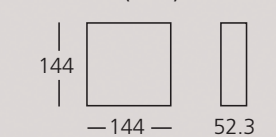
Data Processing Unit (DPU)



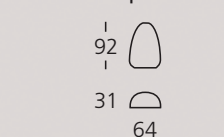
Remote Storage Module (RSM)



Operation and Alarm Unit (OAU)



Indoor and Outdoor Microphone



All dimensions are in millimetres. Products shown in approximate relative proportions. Dimensions and components subject to change without notice.

RELIABLE VOYAGE DATA RECORDERS THAT DELIVER EXCEPTIONAL VALUE

IMO regulations for fitting simplified voyage data recorder (S-VDR) on existing cargo vessels:

- cargo vessels of 20,000 gross tonnage and upwards constructed before 1 July 2002, at the first scheduled dry-docking after 1 July 2006, but no later than 1 July 2009.
- cargo vessels of 3,000 gross tonnage and upwards, but less than 20,000 gross tonnage constructed before 1 July 2002, at the first scheduled dry-docking after 1 July 2007, but no later than 1 July 2010.

Rutter Technologies provides a full family of marine-certified interfaces to accommodate all mandatory or voluntary data recording requirements for any type of ship.

DataAnalog

- 8 inputs for analogue order and response signals

DataDiscrete

- 24 inputs for status, alarm and control signals

DataGyro

- for compass signals

DataSynchro

- for 1:1 synchro signals

DataSplitter

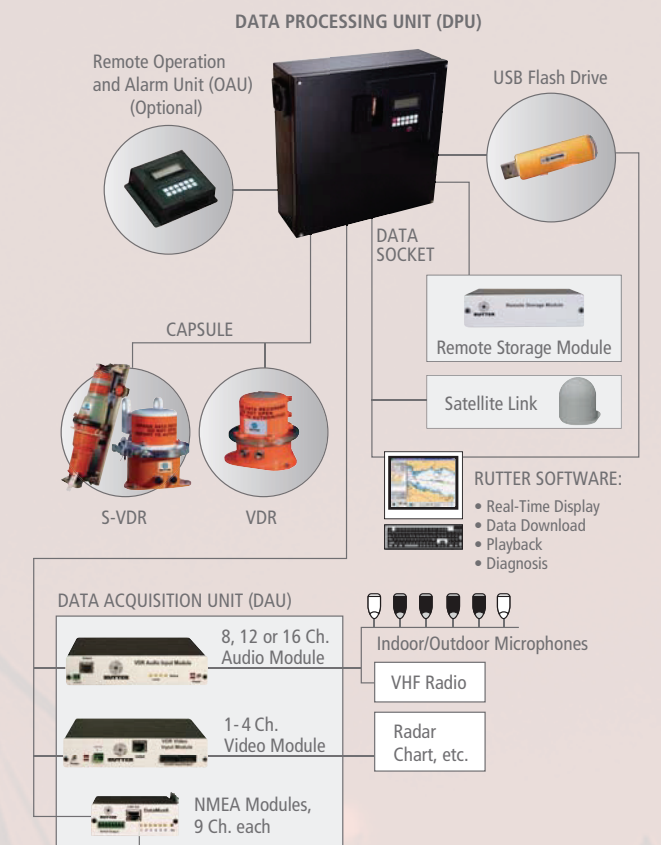
- 4 or 8 serial outputs from one serial input

DataProtocol

- programmable interface, e.g. for converting pulsed echo sounder – or speed log signals and for converting proprietary data telegrams into IEC 61162 compliant format



RUTTER'S VDR AND SIMPLIFIED VDR SYSTEM



RUTTER INTERFACES

IMO Carriage Requirement	VDR	S-VDR
Date & Time (e.g. from GPS)	●	●
Ship's Position (GPS)	●	●
Speed	●	●
Gyro Compass Heading	●	●
Audio (Bridge & Wing Microphones, VHF)	●	●
Main Radar	●	●*
AIS	*	●*
Depth Sounder	●	**
Main Alarms (ER, Fire, Rudder, etc.)	●	**
Rudder & Autopilot Order & Response	●	**
Engine & Thrusters Order & Response	●	**
Hull Openings	●	**
Watertight Doors	●	**
Fire Doors	●	**
Acceleration & Hull Stress (if fitted)	●	**
Wind Speed & Direction (if fitted)	●	**

* AIS may be connected to a VDR. For S-VDR, AIS is required if the main radar cannot be connected. The main radar must be connected to the S-VDR, if a "commercial-off-the-shelf" interface for this radar is available.

** This information must be recorded by the S-VDR if the data is provided in IEC 61162 (NMEA) format.

