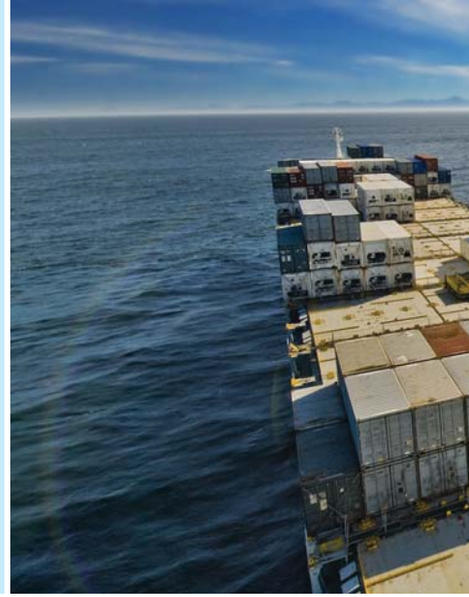
NETWAVE
NW-6000 SERIES VOYAGE DATA RECORDERS

More than 5,500 vessels rely on us...

netwave

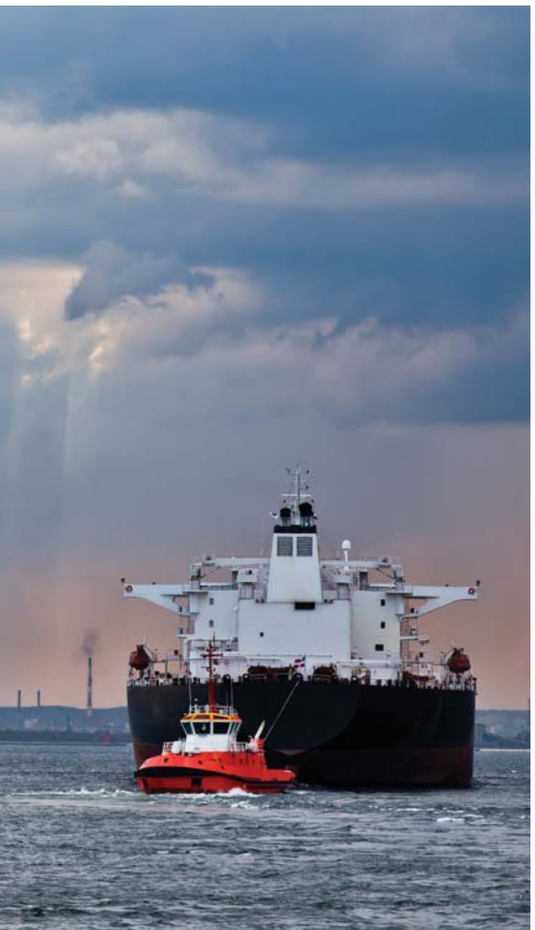
DESIGNED FOR THE MARITIME ENVIRONMENT

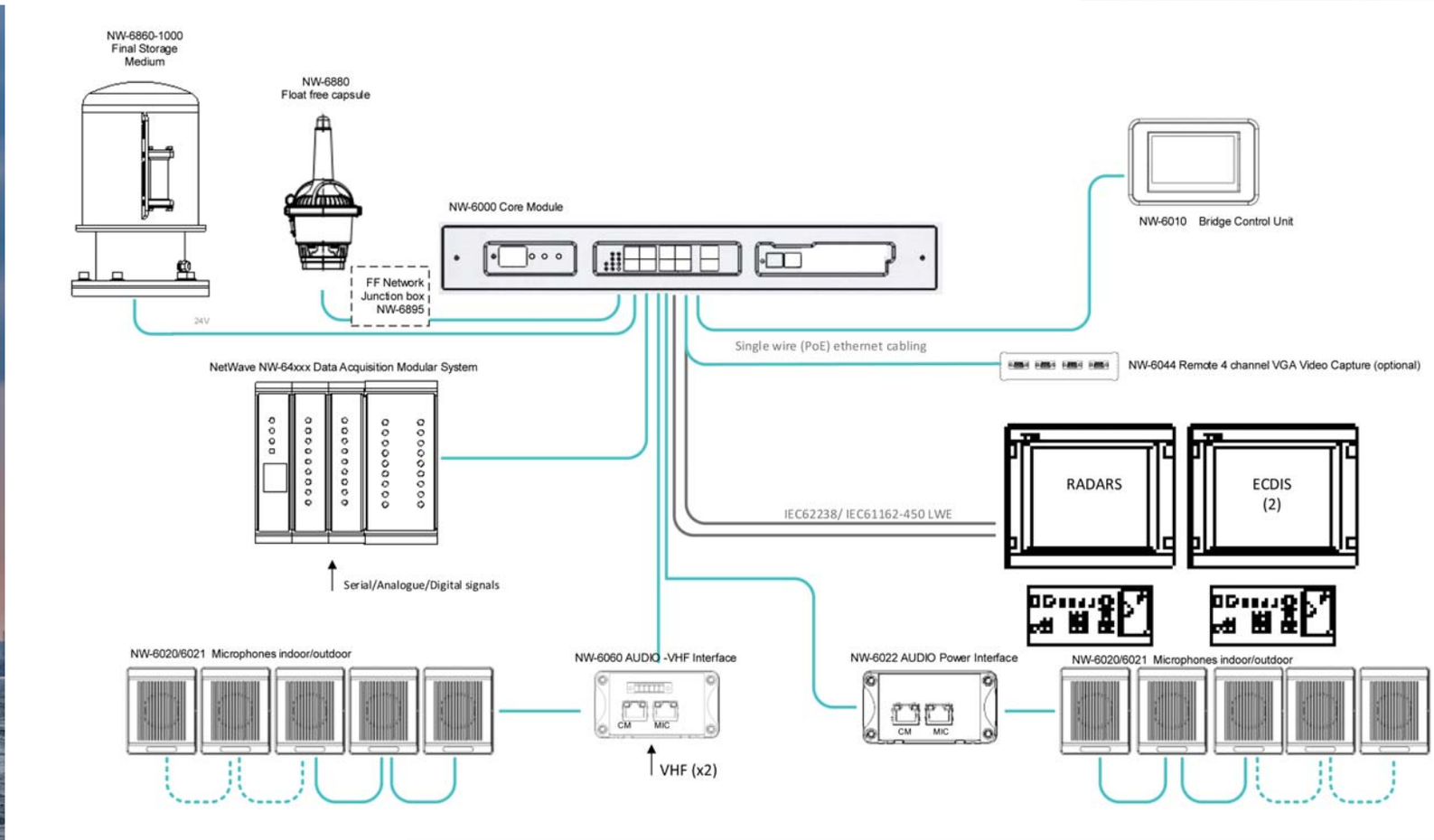
With over 5,500 vessels currently sailing with Netwave's Voyage Data Recorder solutions, the company is the most qualified VDR designer and manufacturer in the maritime industry. Netwave's VDR systems are specifically designed to provide rigidness and to overcome service issues arising in the maritime environment.



Reliable, secure and cost-effective

The Netwave VDR has a versatile design. It can be installed in a 19" rack or can be supplied in a bulkhead mounted casing. It can either be placed inside the navigation console or against any flat surface. Because of its Power-Over-Ethernet design, cable running is reduced to the minimum. The benefit is faster (and therefore more economical) installation and ease of service. Because of the special design, the Netwave VDR can easily be adapted for any type of newbuilding installations as part of IBS, or be used to replace older VDR solutions.





SYSTEM CONFIGURATION

IEC61162-450 (Lightweight Ethernet) Infrastructure

Contrary to most other systems on the market, Netwave's NW-6000 VDR system architecture is unique in the fact that the various components throughout the ship are interconnected by means of one single Ethernet cable, both Power and Data are provided over this very same single cable, eliminating the need for extensive and complex, and therefore costly, cabling requirements. Compared to other VDR systems, cabling costs are typically reduced by 50%!

The standard VDR and (S)VDR systems consist of the following components:

- NW-6860-1000 Fixed Capsule
- NW-6880 Float free Capsule
- NW-6000 Core Module
- NW-6010 Bridge Control Unit
- NW-64900 Data Acquisition Module
- 6 x NW-6020/6021 microphones
- NW-6060 VHF Interface
- NW-6022 Power Converter for Microphones
- NW-6044 Video Module

FINAL RECORDING MEDIA

NW6860-1000 Fixed Capsule for VDR & SVDR

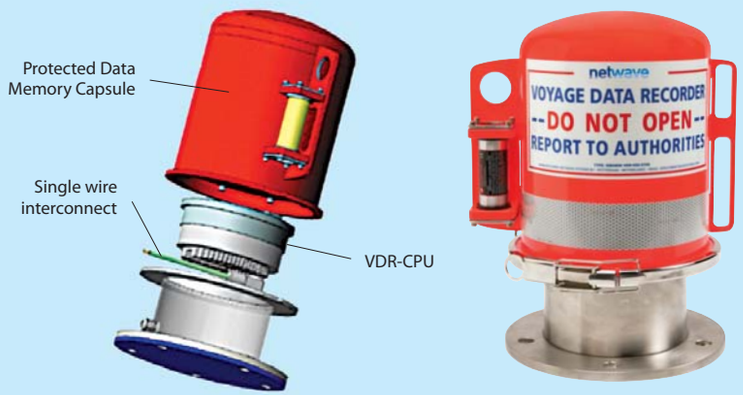
Netwave has originally developed, and is manufacturing its own 'fixed' capsules for over 10 years now. The capsule is still unique in the marketplace today in the sense that in spite of the integration of the Central Processing Unit and Data Storage Server onto a single chip within the armored stainless steel capsule, this autonomous system is run from a single Ethernet cable leading to the compass deck.

Netwave capsules are not only deployed in conjunction with a Netwave VDR system but are also the FRM of choice used by other VDR manufacturers.

Netwave's capsules are the only capsules in the market completely made from A316 grade stainless steel. As per the supply standard this 'fixed' Final Recording medium is fitted with Netwave's Underwater Locator Beacon compliant to the SAE8045AS standard.

Compliant to IMO resolution MSC 333(90) for VDR systems, IEC61996, IEC60945 and ED56/112:

- Fire resistant to 1100 °C @ 1 hour and 260 °C during 10 hours.
- Data memory pressure cylinder resistant to 20.000 PSI/600 Bar/6000 meters depth during extended periods.
- Color: RAL 3026 (Fluor red) for SOLAS compliant ships. (other RAL colors available upon request)
- Stainless steel A316 deck mount with optional welding plate delivered within standard package.
- Memory 32/64/128 GB (Protected) for incident recording. Minimum of 48 hours
- Totally Solid State, no disk drives or other moving parts.
- Dimensions:
  - W: 311 mm
  - H: 411 mm
  - W: 27,5 KG



FLOAT FREE CAPSULE

NW-6880 Float free capsule for VDR

The Tron 40 Float Free Capsule is the most reliable 'float free' capsule in the market today. To emphasize the strong position of the NW-6000 in the market, Netwave is working in a close relation with Jotron to obtain the most reliable solution for the recording in a float free capsule, connected to the Core Module via one single cable (PoE) only!

Compliant to IMO resolution MSC 333(90) for VDR systems, IEC61996, IEC60945 and ED56/112:

- Memory to record 48 hours
- PoE Interface (Power over Ethernet connection)
- Powered directly from the Core module
- Dimensions:
  - W: 240 mm
  - H: 533 mm
  - D: 218 mm
  - W: 5,4 KG

BCU

NW-6010 Bridge Control Unit

The ultimate solution to user-friendly, easy to understand operation, this unit provides direct function access as well as remote system diagnostics, enabling any crewmember to find his way around without the need for any training.

Typically mounted within the bridge console, it continuously shows crystal clear unambiguous messages about what's going on within the VDR. With its touch screen, you can select instant replay or scroll through the Menu for analysis.

- Touch Screen
- Instant Replay
- PoE
- Ethernet Port
- Full color 4.3" graphic TFT screen
- Dimensions:
  - W: 150 mm
  - H: 99 mm
  - D: 134 mm
  - W: 1,8 KG

CORE MODULE

NW-6000 Core Module

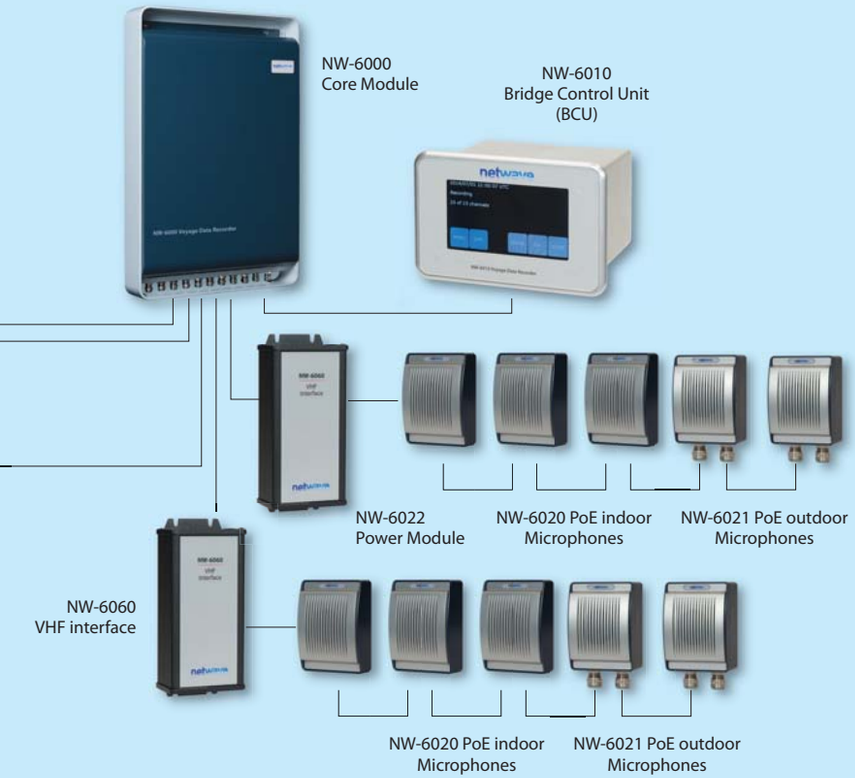
This efficient, uninterruptible power supply and network switch is designed with installation time-and-space in mind and offers scalability up to the largest vessel. It provides a high degree of plug and play interconnection.

- 220V AC (nominal) at 3 Amps
- 1/10 Gb bandwidth on 12 Ethernet ports
- PoE (on 8 of 12 ports)
- Gateway (FBB, VSAT) capabilities without additional interfacing requirements
- Fail-over, bypass, non-intrusive network device
- Integrated UPS
- 19" & bulkhead versions available
- Dimensions:
  - W: 450 mm
  - H: 484 mm
  - D: 44.5 mm
  - W: 16,5 KG incl. batteries

NW-6860-1000
Fixed Capsule

NW-6880
Float Free
Capsule

NW-64xx
Data Acquisition Unit (DAQ)



DAQ

NW-64900 Data Acquisition Unit

The NW-6410 Bus-coupler is a DIN-rail mounted interface unit which provides a gateway between the Core Module and the serial, digital and/or analogue adaptors placed adjacent to the same Bus-coupler. The Bus-coupler is connected through a backplane strip for power and data exchange to the adaptors. It also provides a primary Serial interface (up to 38K4) for connected NMEA concentrators or multipliers above 4K8.

- Interfacing with all different types of interconnections, such as:
  - NMEA (NW642xx) available in different modules/configurations: 8, 16 and 24 channels
  - Digital (NW643xx) available in different modules/configurations: 8, 16 and 24 channels
  - Analogue (NW644xx) available in different modules/configurations: 4, 8 and 12 channels
  - Any special protocol like Canbus etc.
- Scope can be adjusted by adding adaptors as per above standard adaptors
- PoE connection to the Core Module

- Dimensions:
  - W: 436 mm
  - H: 182 mm
  - D: 232 mm
  - W: 4.80 KG

MICROPHONES

NW-6020 PoE Microphones

The Netwave Microphones are PoE based. This solution enables easy daisy-chainable connections in the Wheelhouse ceiling, running only one cable to the Core Module, making fast and secure installations possible.

The Netwave PoE microphones supersede the Microphone (MSC.333(90)) regulations by recording through separate recording channels for each microphone or line-in interface.

- High Audio Quality
- Single Wire, Daisy-chainable
- Indoor (NW-6020) as well as Outdoor (NW-6021)
- PoE

- Dimensions:
  - W: 84 mm
  - H: 114 mm
  - D: 40 mm
  - W: 0,4 KG

- Dimensions external:
  - W: 84 mm
  - H: 114 mm
  - D: 57 mm
  - W: 0,5 KG

WORLD-WIDE SERVICE NETWORK

Netwave has one of the largest service networks: In over 160 ports, we have over 1000 trained engineers in more than 60 countries.

All trained engineers are capable of installing and commissioning VDR's and S-VDR's and are allowed to perform annual surveys. Because of this large network, local support is always available and at short notice.

Netwave's service agents are in most cases Certified to perform the APT test according to all major Classification Societies..

For a complete overview please visit www.netwavesystems.com

NETWAVE NW-6000 PLUS

In today's market, the Netwave NW-6000 provides the smallest footprint, the most economical installation costs and thanks to additional functionality will provide unrivalled operational value. The system will provide management tools and –data to improve transparency in the ship's overall operational performance.

Remote Monitoring

With secured passwords, NW-6000 can be monitored and managed real time from your office. With Remote Monitoring service, the owner/manager will receive fault diagnosis, status reports, operational performance data and download:

- NMEA data and Log Files
- Periodic reports
- Without interference of the crew

Fixed Capsule

Netwave has developed its own Fixed Capsule, completely controlling the design of this vital unit. With our own capsule with integrated storage server and network drive, Netwave Systems has proven to be the expert on VDR and S-VDR.

Camera Monitoring

The NW-6000 has the possibility to record video from camera's; which can be placed in key locations on the vessel. It will provide additional information on the situation on board in any circumstance the vessel is in. This will allow the ship management to have full access of data, in combination with live streaming camera recordings.

Live Replay

Optionally, the NW-6000 has the possibility to integrate with various IBS solutions. With this integration, the bridge crew will have access to instant replay of various VDR recordings.

Netwave Systems BV

Blauw-roodlaan 100
2718 SJ Zoetermeer
The Netherlands

T +31 (0)88 - 11 81 500
E sales@netwavesystems.com
I www.netwavesystems.com

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NW-6000 SPECIFICATION SHEET

Unit	Type number	Dimensions (mm) (h x d x w)	weight	Specifications	
Core module	NW-6000	484 x 450 x 45	16,5 kg (incl batteries)	- PSU (110 – 220 VAC, 50 – 60 Hz) / 105 Watt - Built-in UPS - 10 port switch (8 x PoE, 2 x Non-PoE) - CPU unit with min. 30 days storage	
Bulkhead mount frame and cover	NW-6900	744 x 464 x 115	11 kg (excl core module)	Bulkhead mount with prepared internal wiring and external RJ45 connector bank	
Bridge control unit	NW-6010	99 x 134 x 150	1,8 kg	- Powered from Core module thru PoE - 4" touch colour screen - Panel mounted with frame (IP20)	
Microphone (internal)	NW-6020	114 x 40 x 84	0,4 kg	- Powered thru PoE - bulkhead mounted (IP20) - LED identification light	
Microphone (external)	NW-6021	114 x 57 x 84	0,5 kg	- Powered thru PoE - bulkhead mounted (IP67) - LED identification light	
Microphone connection box	NW-6022	180 x 47 x 87	0,5 kg	- For connecting microphones - Powered thru PoE - bulkhead mounted (IP67)	
VHF interface	NW-6060	180 x 47 x 87	0,5 kg	- Powered thru PoE - 2 line-in - Interface for microphones - bulkhead mounted (IP20)	
Hardened FRM	NW-6860	411 x 311	27,5 kg	- Powered thru PoE from core module - Incl. 25 mtr maritime CAT-6 cable - deck mounted protective capsule for 48 hours (IP68) - with Under water locator beacon (90 days)	
Float Free FRM	NW-6880	533 x 218 x 240	5,4 kg	- Powered thru PoE from core module - Incl. 2 mtr maritime CAT-6 cable - bulkhead mounted in protective cover for 48 hours storage (IP67)	
Interface module	NW-64900	182 x 232 x 436	2 ~3 kg (subject to 1 – 7 module interfaces)	- Powered thru PoE from core module - DIN rail mounted interface - for NMEA (bd upto 9600) (multiple 8 port) - for digital sensors (multiple 8 port) - for analogue sensors (multiple 4 port) - Additional 24 VDC power input/output	
Video interface	NW-6044	38 x 240 x 184	1 kg	- For non-networked video - 4 channels video - Bulkhead/DIN rail mounting - 24 VDC / 12 watt	

- Netwave Systems recommends maritime CAT-6 ethernet cable for connecting all units to the core module switch.
- Complete system runs from 110 – 230 VAC (50 – 60 Hz) through core module.
- Power consumption 105 watt (max)