Headway® VDR

Comply with the latest standard IMO MSC333（90）

HEADWAY TECHNOLOGY CO., LTD.

Company Profile

Qingdao Headway Technology Co., Ltd. is a high-tech enterprise that takes technological innovation as the purpose, specializes in professional R&D, production and sales of high-tech marine accessories and provides worldwide professional after-sales service.

Since its foundation, Headway has planned the development vision to be a "Professional Manufacturing and Service Provider of High-tech Marine Equipment". Over the past decade, Headway staff have created and innovated satisfying products for customers by virtue of their own wisdoms and efforts, always maintained a high level of enthusiasm for customers, partners and new technologies, sought for self-improvement, helped customers to achieve their goals, and promoted the social progress on the forging-ahead road. Adhering to dedication and innovation entrepreneurial spirits, Headway sailed through wind and waves to make progress continuously, attracted a large number of upright, honest, and unremitting high-quality talents with courage in meeting the challenges by dint of its mature management and perfect systems, and determined to install the high-tech marine equipments made in China onboard every vessel of the world.

Headquartered in Qingdao, China, Headway has set up an independent R&D center and production base in Qingdao Hi-tech Park, established one subsidiary company in Shanghai, and branch offices Guangzhou, Shenzhen, Dalian, Zhoushan, Shanhaiguan, Nantong, Huangdao and other cities, established more than 120 service stations in 56 countries and areas around the world, and formed a unique complete and large-scale global service system.

OceanGuard® Ballast Water Management System (BWMS) is a high-tech marine product independently developed and produced by Headway, during the past few years, OceanGuard® BWMS has obtained more than ten type approvals including ABS, BV, CCS, DNV-GL, LR, Liberian, NK, RINA, RS and USCG-AMS. Furthermore, OceanGuard® BWMS passed all land-based tests in May, 2015 applying CMFDA methodology. Which make it the very first to pass the test in Asia and the fastest to finish all tests worldwide. Enhanced by its advantage of AEOP technology, compact design, ultra-low power consumption and high effectiveness, OceanGuard® BWMS has become one of the most famous and popular brand in market. Voyage Data Recorder, another mature product that Headway owns completely independent intellectual property right, was successfully applied to the ships around the world with its high technology, stable performance and approvals of world authoritative Classification Societies. The Electronic Chart Display and Information System (ECDIS) and Bridge Navigation Watch Alarm System (BNWAS) have entered the batch production stage. The company will continue to uphold the scientific and technological innovation spirit to launch a range of products, including Exhausted Gas Cleaning System, Radar, Automatic Pilot, CCTV, GPS, Speed Log, Echo Sounder, Gyro Compass, etc.

From initial development till now, Headway endured great hardships in pioneer work, overcame all obstacles, went through many tries and tests, actively absorbed industry experience, and accumulated powerful strengths by virtue of constantly creative technologies and gradually mature and sound management. Surviving from severe competition, Headway will stand out to make its contribution to marine equipments industry in China.

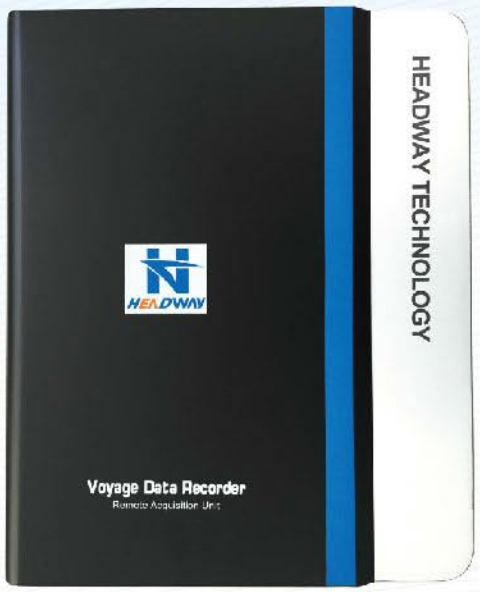
Headway® VDR&S-VDR Components

❶ Main Cabinet Unit

- Highly integrated design, all functions are realized in a single chip, which greatly simplifies the complexity of the circuit board, and improves the stability
- Dual-core ARM processor, ensures high speed and efficient data processing
- Designed to be connected by two radars (both main and aided radars) and two ECDIS (both main and aided ECDIS)
- Can be connected by a fixed recording medium (fixed PDC) and the float recording medium (float-free PDC) at the same time
- Data of 30 days' can be recorded in the Main Cabinet Unit, and 48 hours' data can be recorded in the fixed PDC and float-free PDC
- Low power consumption of only 20 W, with small size and flexible installation as well as anti-seismic design
- The main and supplementary power supply work with 110V/220V 50Hz/60Hz without any manual configuration. The control panel ensures that the machine can continue to work with supplementary power of 24V when the main power supply fails.
- After the ship loses its emergency power, the battery will supply the power and go on to record audio data for over 2 hours. The maintenance-free batteries can be used for 3 years.
- AC input range: 110V/220V 50Hz/60Hz
- The DC input range: 24V

❷ Remote Acquisition Unit

- As to the device without standard digital interface, the editable signal gathering module can be installed at the scene to obtain necessary digit and analog data.



❸ Remote Alarm Unit

- It conducts round-the-clock monitor of the VDR with acoustic and light alarm indications, the liquid display will enable you to more easily get rid of faults. The emergency backup function is able to record 30 days data for later inspection.

❹ Microphone

- It has an embedded design, elegant outer appearance, easy to install with self-inspection function in order to avoid the failure of audio signals gathering due to the damage of microphone. Its in-built amplifying function enables the transmission of high-fidelity audio signal in a long distance.

❺ Fixed Protective Data Capsule

- The Protective Data Capsule is a special one with high technology, which can be produced by only a few manufacturers in the world. IEC61996 specifies that the final recording medium for the VDR must be installed in the capsule in accordance with the following standards:

■ Penetration: an object with a prick of 100mm diameter and a weight of 250kg falling from 3 meters above.

■ Impact: 50g semi-sine pulses for continuous 11ms.

■ Fire-resistance: 260℃ low temperature for 10 hours, and 1100℃ high temperature for 1 hour.

■ Pressure in deep sea: 30 days at 60 Mpa (6,000 meters depth) under sea and 30days dipping.

❻ Float-free Protective Data Capsule

- This multi-used float-free storage unit includes a VDR storage medium and a conventional GMDSS satellite position indicator beacon, also called EPIRB.The Float-free Storage Unit includes all the updated 48hours data. After the protective data capsule falls into water, it will keep the valid information of the VDR and automatically float on the water surface. There is no need to look for it under the water. It is more convenient to locate and salvage it through satellite.

■ Transmission of Ethernet Signal.

■ Solid storage medium of 256 GB.

■ More quickly transmission of recorded data and easier to float and detach.

■ Integral 406 MHz with 121.5MHz COSPAS/SARSA satellite beacon.

■ 7days' lifetime of battery(minimum).

■ Integral automatic pressure-release device.

■ Salvage hook to make salvage more convenient.

IEC 61996-1 ed. 1 Vs. IEC61996-1 ed. 2 - Major differences

Item	IEC 61996-1 ed. 1	IEC 61996-1 ed. 2
Headway Product	HMT-S100, HMT-100	HMT-100A
Capsule memory capa	12 Hours	48 Hours
Back up memory capacity	48 Hours	30 days
Back up memory physical properties	Easy removal. Space for 3 Incidents of 12 hours Incidents save initiated by crew	No incidents storage. Instead enough data spaces to retain the data untilAuthorities can board the vessel
Float free capsule	Not mandatory (required by some classes/flag states)	Mandatory 48 Hours memory capacity
Radar	Main radar required to be recorded	All Radar on bridge required to be recorded
ECDIS / Display	Not mandatory	All ECDIS / Display used for navigation required to be recorded
Sensor input	-	Inclinometer if fitted AIS mandatory
Bridge Alarm unit / Bridge control panel	Facilitate incident save Audible alarm	No incident save functionality No audible alarm Facilitate VDR operational performance test (OPT)

VDR recording requirements according to applicable standard

Data items to be recorded	S-VDR	Previous VDR	New VDR
Applicable standard	IEC 61996-2 ed. 2	IEC 61996-1 ed. 1	IEC 61996-1 ed. 2
Date and time	√	√	√
Ship's position, Speed, Heading	√	√	√
Bridge audio,Communication audio	√	√	√
Radar data	*	√	√
AIS	*	-	√
Echo sounder	**	√	√
Rudder order and response	**	√	√
Engine order and response	**	√	√
Hull opening (doors) status	**	√	√
Watertight and fire doors	**	√	√
Main Alarms	**	√	√
Acceleration and hull stresses	**	**	**
Wind speed and direction	**	**	**
Second Radar	-	-	√
ECDIS	-	-	√
Inclinometer	-	-	√

*
Radar must be recorded if possible using COTS equipment else AIS data must be recorded.

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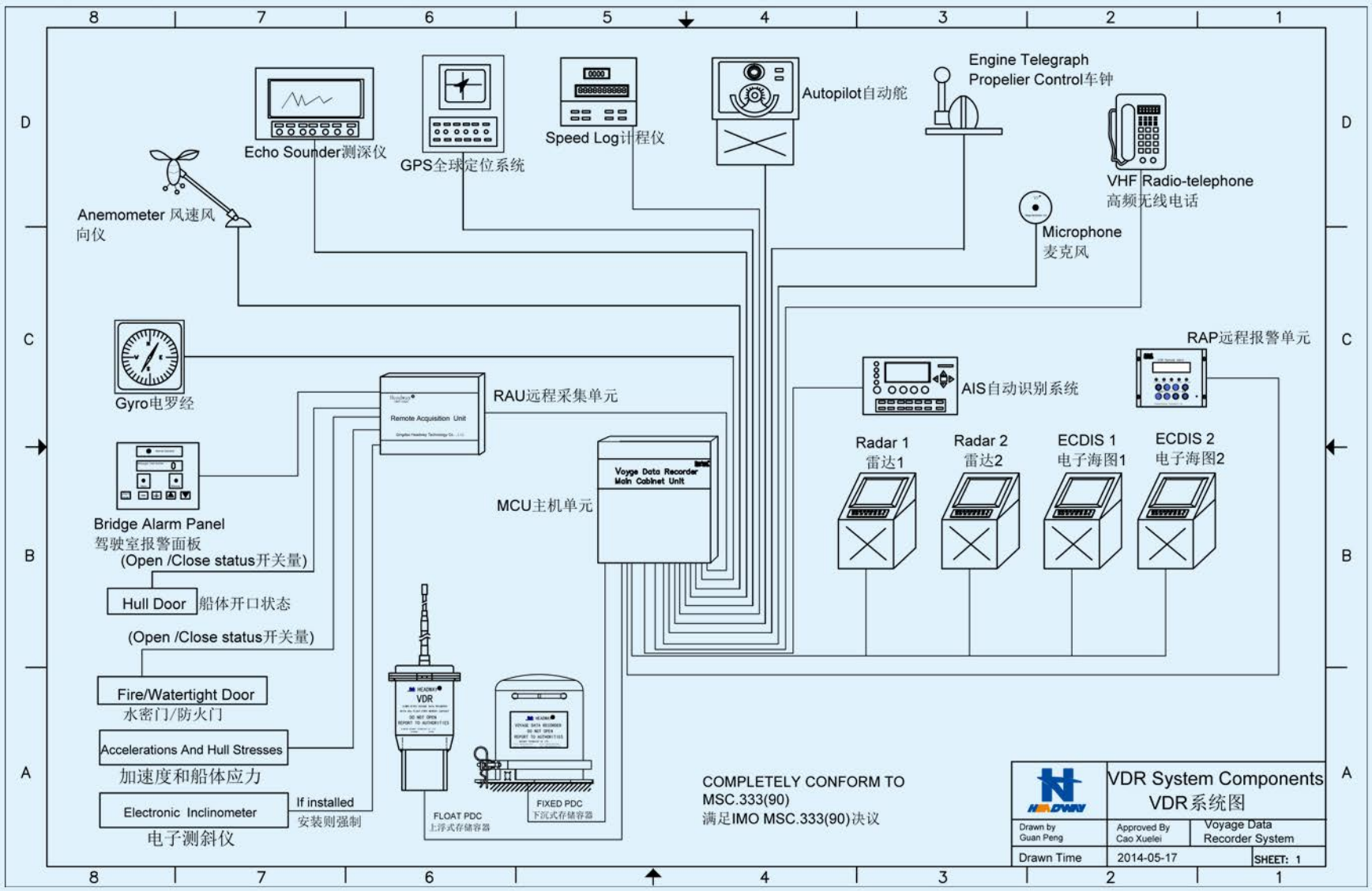
If suitable equipment is fitted i.e. equipment which transmits data using the IEC61162 format.



Headway® VDR & S-VDR System Chart

VDR-CCS Certificate

GL MODULE B Certificate

GL MODULE D Certificate

HEADWAY TECHNOLOGY CO., LTD.

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