



Company Profile

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 of "Create high-tech marine equipments and a national brand". 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 52 countries and areas around the world, and formed a unique complete and large-scale global service system.

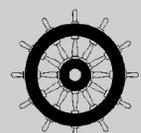
OceanGuard™ BWMS (Ballast Water Management System) is a high-tech marine product independently developed and produced by Headway, which is the first non-European brand to obtain DNV Type Approval in the world and the only BWMS owns CCS and DNV Type Approvals in the world. At present, **OceanGuard™** BWMS seized the global market quickly and with scales by dint of its high technology, compact structure, small size and low power consumption. 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, unique Vxworks operating system, and approvals of world authoritative Classification Societies. The high-power LED lighting products researched and developed by Headway always take the lead in the world, and the products are exported to Australia, Germany, South Korea and etc. The ECDIS (electronic chart display and information system) and BNWAS (bridge navigation watch alarm system) 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 radar, GPS, speed log, depth sounder, compass and 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® Voyage Data Recorder

Voyage data recorder (VDR), popular name-black box, is used for recording all kinds of navigation information. The recorded data is used for analyzing causes of major and minor incidents happened during ships' voyage.

Our Honors

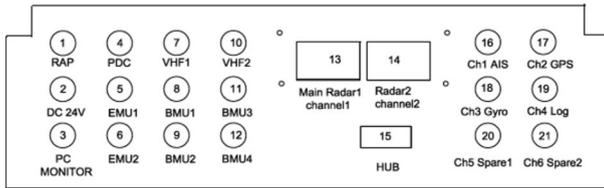
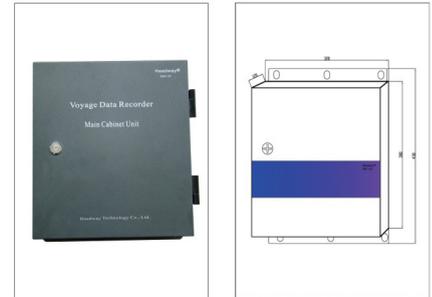


Headway® VDR&S-VDR Components

Main Cabinet

Based on the real-time embedded operating system of Vxworks, the system is more reliable, handy and adaptable to all kinds of installations on board.

With a power of 25W without any ventilation fans, the Main Cabinet Unit body is designed to be closed, no dust to enter. There are many interfaces with PNP function. It can be configured online, with easy access to debug and random real-time monitor function. It is more convenient for data of download.



The system is stable, needless of special person for check. The Main Cabinet Unit is designed to be closed and can work normally even in severe environment. With a system power of only 25W, needless of ventilation, more reliable as a result. The system's spare parts are all self-developed and manufactured, be in strong position to provide the permanent availabilities. You can enjoy these quality and inexpensive products with excellent global service network worldwide.

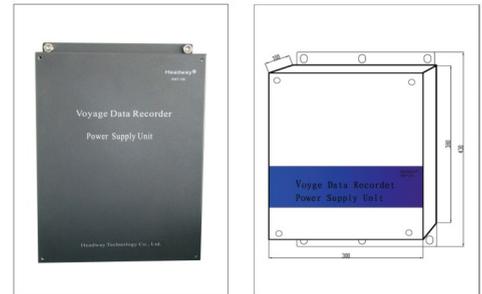
The main and supplementary power supply

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



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.

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 12 hours data for later inspection, the backup maximum can be 30 copies.



Microphone unit

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.

Replay Software

With a friendly human-machine interface, this software is easy to use and install. The online replay function can monitor the real-time operating status of the relevant devices in the bridge so as to enable the captain to know the commands given by the operators in the bridge and to send the data back to the headquarters for analysis. It is easy to download and replay the data of the PDC and to investigate the incidents and to analyze the functioning monitor. The replay function can also be a valuable tool for crew training. This software ensures complete retrieval and display of all recorded data.

Headway VDR player

Play Screen ShipInfo Help

Start Time: 09/11/2006 15:33:19 | Current Time: 09/11/2006 15:35:40 | End Time: 09/11/2006 15:45:50

Conning | Ais | Alarm/Status | Transducers | Hull Stress | **Replay from Position** | System Event | Ship Info | NMEA Source

Time & Position [GPS]

UTC	09/11/2006 15:35:40
Longitude	E 013° 13' 40"
Latitude	N 054° 07' 32"
Satellites	N/A
Quality	N/A
Reference Datum	WGS84
Local Datum	WGS84

Engine Telegraph

STOP ENGINE

Heading [Gyro]

Gyro North Up

Speed [Speed Log]

	Water	Ground
Longitudinal	16.125	16.527 (Invalid)
Transverse	-0.077	-0.276 (Invalid)

Engines/Shafts revs

	Speed (rev/min)	Propeller pitch %
Engine #1	80.0	60
Shaft #1	N/A	N/A
Shaft #2	N/A	N/A

Heading

	True	Magnetic
	224.8	N/A

Wind [ANEMOMETER]

	Speed	Angle
Relative	17.18N	224.9°
Theoretical	N/A	N/A

Digital & Analog

Digital

DC00	1	DC01	0	DC02	1	DC03	1
DC04	1	DC05	1	DC06	1	DC07	1
DC08		DC09		DC10		DC11	

Analog

AN00	2	AN01	0
AN02	1	AN03	0
AN04	1	AN05	2
AN06	1	AN07	2
AN08		AN09	

Header/Track Control

Steering Mode	Track Control
Override	Not in use
Heading-to-Steer	225.0

Rudder Order/Response

	Port	Stbrd/Single
Control/Order	0.0 (Inval)	1.0 (Invalid)
Order Response	0.0 (Inval)	1.0 (Invalid)
Feedback	1.0	1.0

Power Supply

AC BT DC

Replay from Position

Headway VDR player

Play Screen ShipInfo Help

Start Time: 09/11/2006 15:33:19 | Current Time: 09/11/2006 15:34:57 | End Time: 09/11/2006 15:45:50

Conning | Ais | Alarm/Status | Transducers | Hull Stress | Sound | Radar | System Event | Ship Info | NMEA Source

info

Show Info

Guard Zone Selected All

Hide Info

Guard Zone Selected All

Zoom & Guard Zone

01NM 01NM

Backlight

Top

Left Center Right

Bottom

AIS Message

5 9 12 14 18

19 21 22 24

MMSI : 10

Position
E '010° 01' 13"
N '053° 30' 05"

(Accuracy: High)

Navigational status: under way using engine

Heading: 90°

Speed: 1.000 Knots

Course over ground: 90°

Rate of turn 0° /min

Distance: 0.48NM

IMO No.: not available

Call Sign:

Name :

Type of ship and cargo type: 0

Length: 0; Width: 0

Electronic position fixing device: undefined

ETA : 00-00 00:00

Max present static draught: 0.00

Destination :

Altitude : 0 m

Altitude sensor: GNSS

Assigned mode flag: Station operating in autonomous and continuous mode

Communication state selector flag: SOTDMA

Source ID : 0

Destination ID : 0

Retransmit flag: no retransmission

Safety related:

Extended Class B Equipment Name:

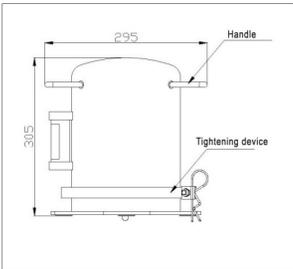
Ais Pointing at: E' 010° 01' 12" N' 053° 30' 06", Distance: 0.

Reliable Protective Data Capsule

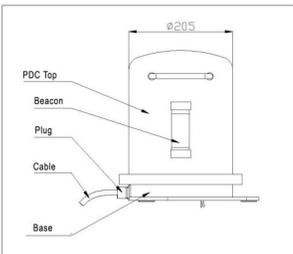


The self-developed Protective Data Capsule is more inexpensive and competitive.

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:



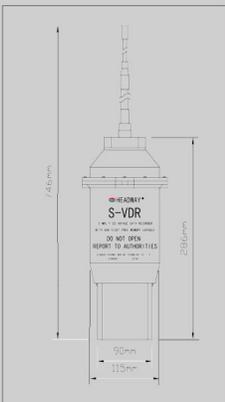
- Penetration: an object with a prick of 100mm diameter and a weight of 250kg falling from 3 meters above
- Impact: 50g semi-sine pulses for continuous 11ms.
- Fire-resistance: 260°C low temperature for 10 hours, and 1100°C high temperature for 1 hour
- Pressure in deep sea: 30 days at 60 Mpa (6,000 meters depth) under sea and 30days dipping.



Float-free Protective Data Capsule



This multi-used float-free storage unit includes an S-VDR storage medium and a conventional GMDSS satellite position indicator beacon, also called EPIRB. The Float-free Storage Unit includes all the updated 12hours data. After the protective data capsule falls into water, it will keep the valid information of the S-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 2-9 GB

Two 24W power input-lines and 4 signal-lines to make it easier to float and detach.

Integral 406 MHz with 121.5 MHz GPS satellite beacon 7 days' lifetime of battery (minimum)

Integral automatic pressure-release device

Salvage hook to make salvage more convenient

Audio Gathering Card

Our Audio Gathering Card with our independent intellectual property right is characterized with its high quality, high compression with easy and convenient usage and maintenance. Adopting the newest compressing coding and decoding technologies, this card can compress audio at a ratio of over 15 times, greatly reducing storage space as a result. It makes use of framing technology on board and keeps continuous non-interval records of audio data with high fidelity. With FPGA and DSP programming technologies, it enhances its high adaptability and extension and the easiness to upgrade. It has 6 channels to connect with 12 microphones and 2 VHF signals to meet the demands of different clients in terms of audio signals.



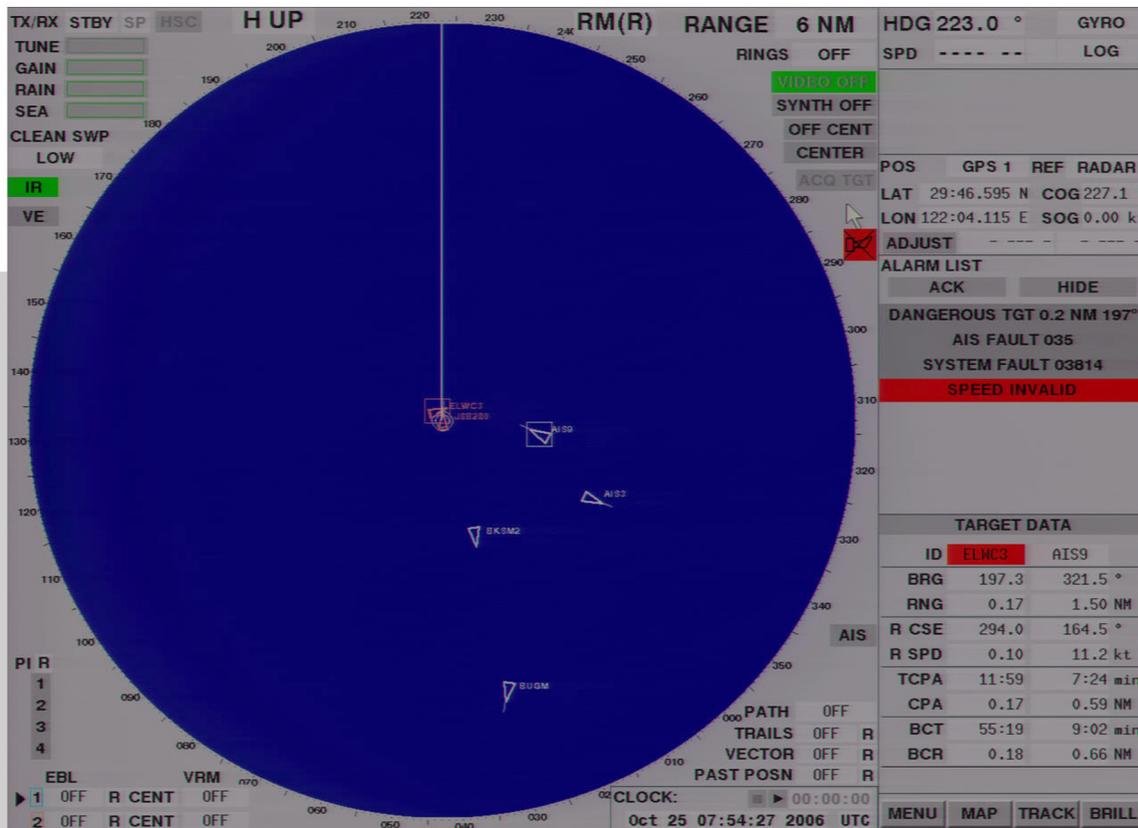
Multi-functional RGB, DVI Image Gathering Card with high resolution and definition

Headway® multi-functional RGB, DVI Image Gathering Card with high resolution & definition is based on the PCI and PC104 unibus with two RGB channels or one RGB and one DVI channel to meet the different client's demands to install in different conditions, enabling the gathering & storage of image signals of manifold resolution. Adopting FPGA and newest DSP image compression technology, through JPEG2000 lossless compression, the quality of image can be further guaranteed, at a compression ratio of over 20 times, further greatly reducing the storage capacity, bringing the result that our product will have the most competitiveness.

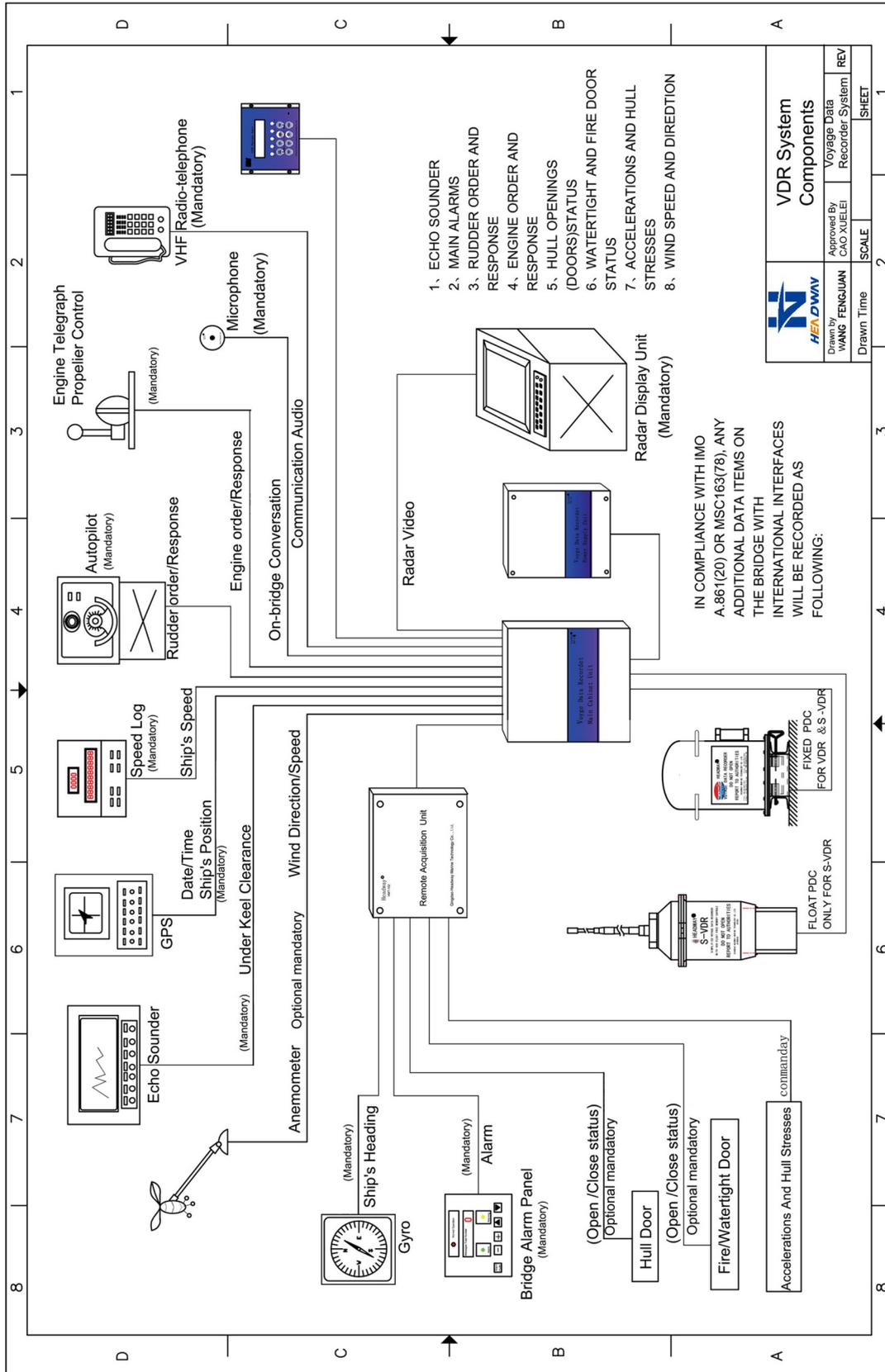


it can gather images of any resolution rate and image signals up to 1280x1024 60HZ-85HZ and 1600x1200.

A/D resolution rate: 24 Bit



Headway® VDR & S-VDR System Chart



		VDR System Components	
Drawn By	Approved By	Voyage Data Recorder System	REV
WANG FENGUAN	CAO XUELEI		
Drawn Time	SCALE		SHEET

Worldwide Service Network!



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