



INVESTIGATION AUTHORITY MANUAL

Voyage Data Recorder (VDR) / NVR-9000

&


Simplified Voyage Data Recorder (SVDR) / NVR-9000S



NOTICE


Ensuring safety of vessel is the obligatory responsibility of the navigation officer.

The use of the equipment does not relieve the user from the need to take any safety precautions or checks whether it is mandatory or otherwise in accordance to international and national rules.

SAFETY INSTRUCTIONS

 NOTICE	This notice indicates an unsafe operation which, if not avoided, could result in property damage or equipment malfunction.
---	--

 WARNING	
	High Voltages are located over many areas in the systems!
Caution during Operations: Never touch or have any body contact with active electrical circuits!	
All relevant safety regulations and safety standards must be closely observed.	

 CAUTION	
Maintenance and repairs must only be carried out by trained and qualified personal with knowledge for electrical devices.	
Observe handling regulations! Removal or insertion of a subgroup or printed wiring board with live voltage can lead to severe damage.	
Never insert fuses with other values than those stipulated!	

MODIFY RECORD

No.	Modify by	Date	Paragraph	Version	Reason
1	Q/A	2016/07/25		01	First edition
2	Q/A	2016/03/07		02	General modification
3	Q/A	2018/06/19		03	Cover modification
4	Q/A	2018/12/27		04	General modification

Table of Contents

1. Data Download	1
1.1 Backup Data from System.....	1
1.1.1 Set up the Playback Computer.....	1
1.1.2 Run the Playback Software.....	2
1.1.3 Download the Data.....	3
1.2 Backup Data from Undamaged Final Recording Medium.....	4
1.2.1 Download data from Long-Term Data Recording Unit(LRU).....	4
1.2.2 Download data from Fixed Protective Capsule(NFP-2000C).....	5
1.2.3 Download data from Float-Free Capsule(NEB-2000C-VDR).....	6
1.3 Backup Data from damaged Final Recording Medium.....	7
2. Data Playback	8
2.1 Open the Data File.....	8
2.2 Playback Operation Menu.....	9
2.2.1 Main Interface.....	10
2.2.2 Serial Data.....	11
2.2.3 Digital Data.....	12
2.2.4 Analog Data.....	14
2.2.5 Radar Image/ECDIS.....	16
2.2.6 Door Status.....	16
2.2.7 AIS.....	17

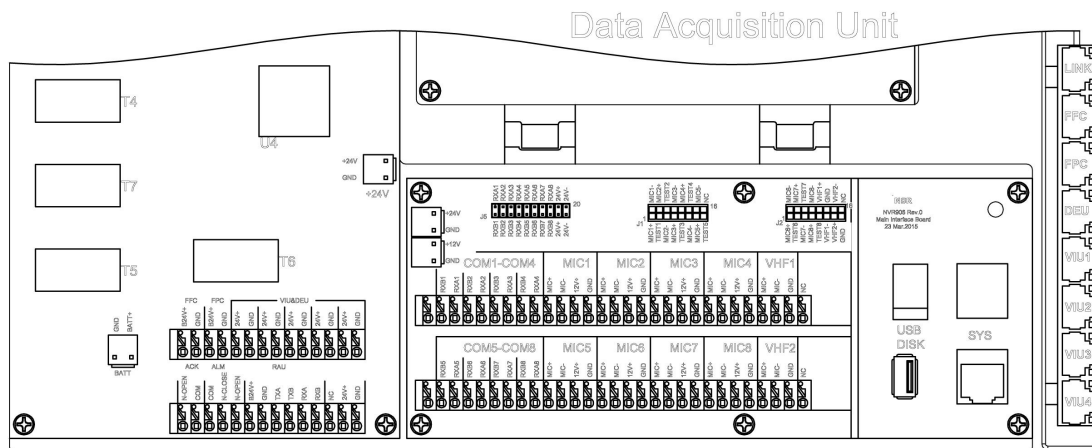
1. Data Download

1.1 Backup Data from System

NVR-9000 Playback software is supplied together with the equipment. The package which located behind the door of the Data Acquisition Unit contains:

- CD containing the playback software
- Introduction of the playback operation
- 3m length of LAN cable

Prior to installation of the playback application, ensure that the computer for playback meets the minimum requirements. Copy the software to the computer which the playback shall operate. Double click on the “NVR-9000 Playback Software” icon to start the application. If the recorded data has been copied to the computer, the data can be played back directly. If the data is not downloaded, connect the playback computer to the VDR with the LAN cable to the “DATA” Ethernet port in the Data Acquisition Unit to download the data.



1.1.1 Set up the Playback Computer

Computer requirements:

RAM: minimum 2.00GB

Hard disk: minimum 100G

Processor: Intel Core 2 or higher

OS: Windows 7/2000/XP

After connected with the VDR, set up the IP address in network configuration on computer as follows:

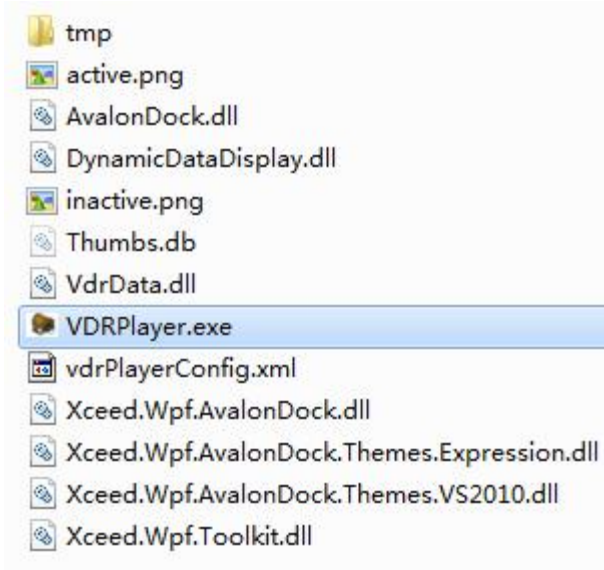
IP Address: 172.16.8.175

Subnet Mask: 255.255.0.0

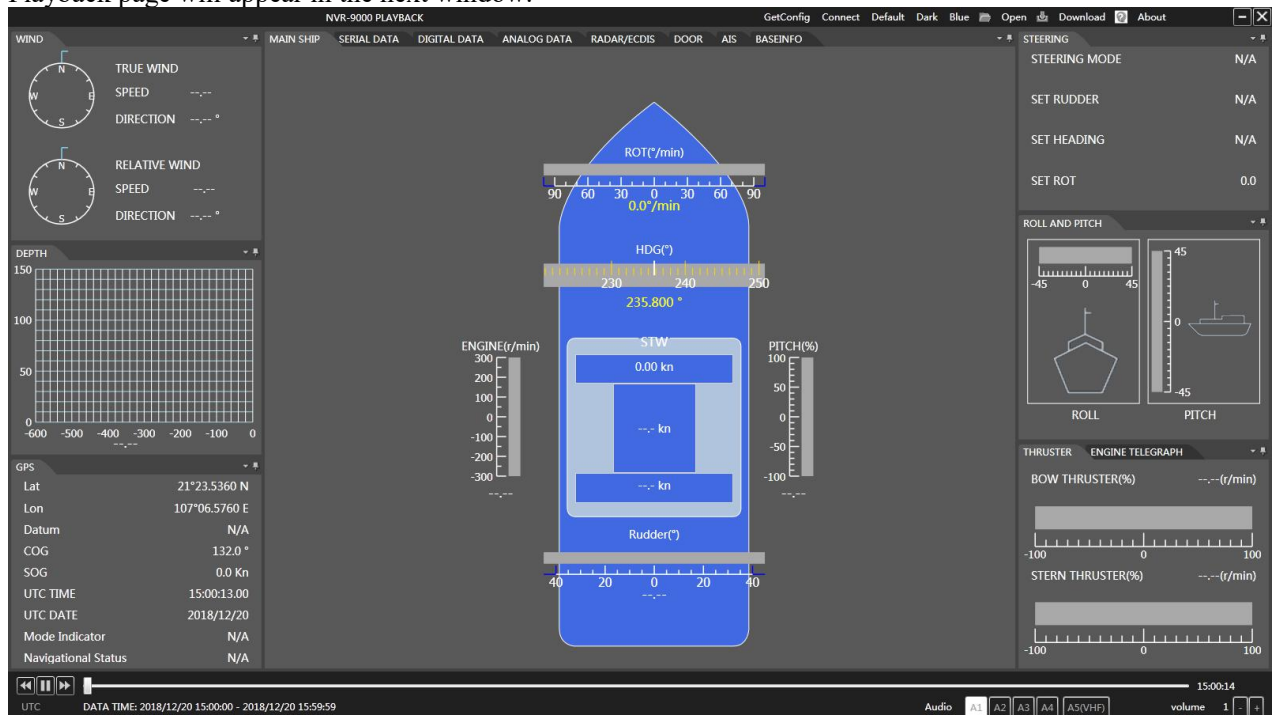
Gateway: 172.16.8.1

1.1.2 Run the Playback Software

After installation of the playback software, click on the “VDRPlayer.exe” file inside the playback software.



Playback page will appear in the next window:



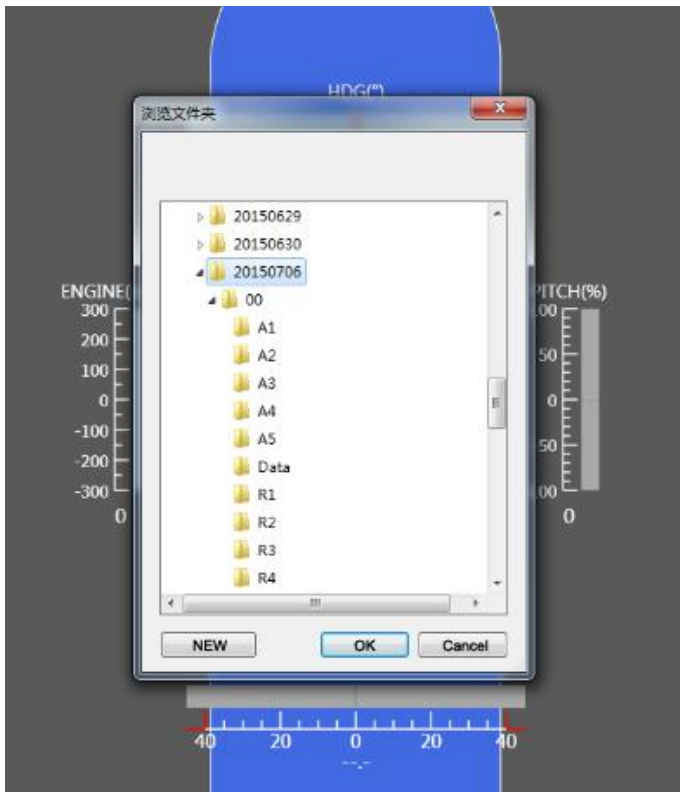
Open and Download menu are located on the top right corner of the page.

Download: Download data to the desired directory

Open: Open the data in the selected directory.

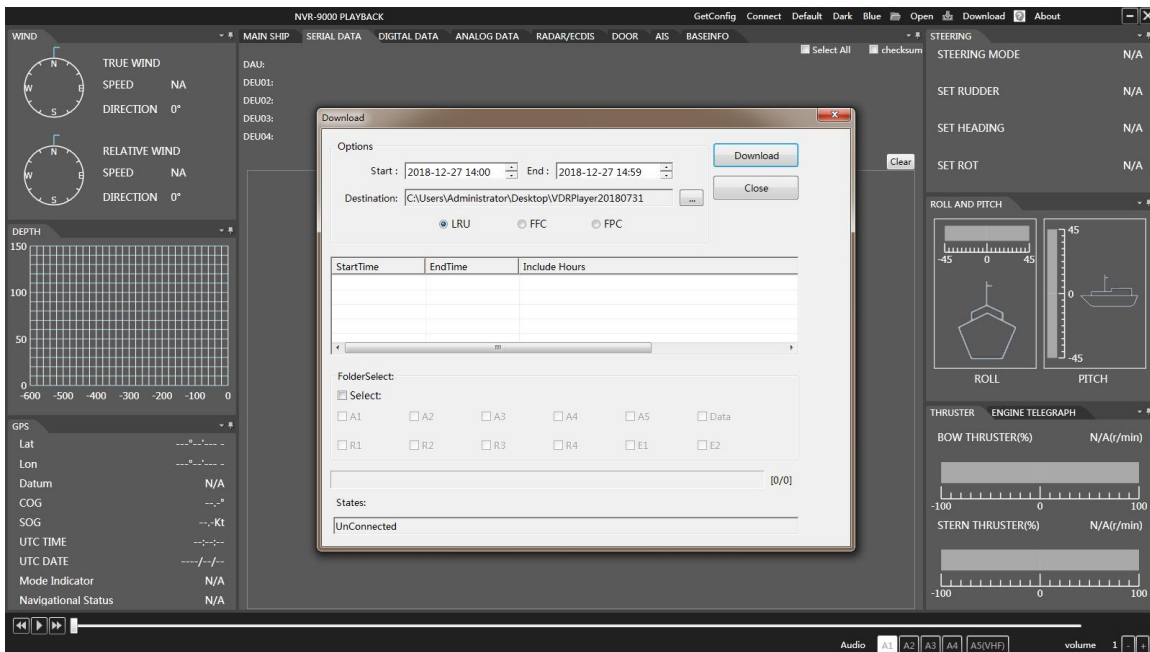
Data folder Format: YYYY/MM/DD (example: 20140718.)

It is recommended that when opening data file, not more than an hour of recorded data to be open.



1.1.3 Download the Data

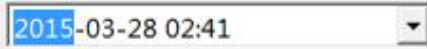
Click on the DOWNLOAD menu and the following page is displayed.



1. Set Start date and time of data to be downloaded
2. Set End date and time of data to be downloaded

3. Select Data source from:
 - Float-Free Capsule (FFC)
 - Fixed Protective Capsule (FPC) or
 - Long-term Data Recording Unit (LRU).
 It is recommended to download from Float-Free Capsule (FFC).
4. Save data in the desired file directory.

Download Procedure:

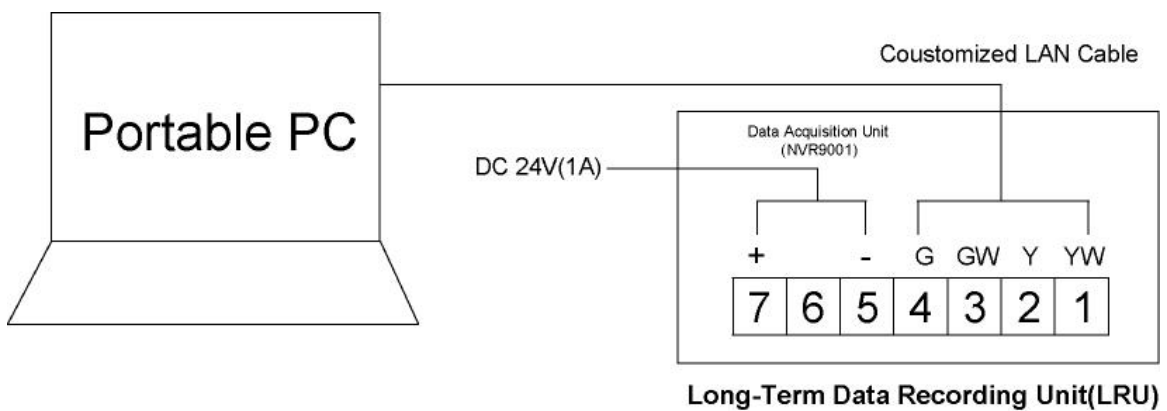
1. Enter the start and end date and time of the record to be download in the  window.
2. Select the destination file which the data is to be stored
3. Click on Download button to start the download
4. Open the data file after completion of downloading.

1.2 Backup Data from Undamaged Final Recording Medium

NVR-9000 can download the data from the final recording medium directly, if the system cannot run, investigator can download data from the undamaged final recording medium.

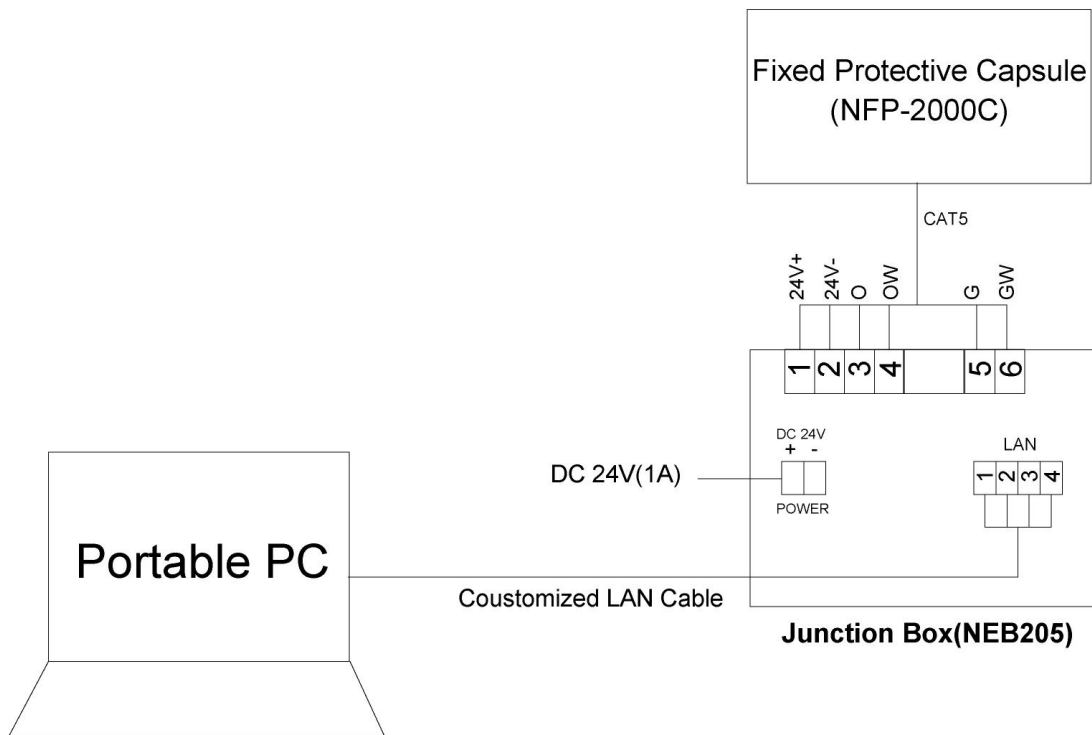
1.2.1 Download data from Long-Term Data Recording Unit(LRU)

Insert the SSD into Long-Term Data Recording Unit(LRU). Use the customized LAN cable to connect the Long-Term Data Recording Unit(LRU) and the computer, and supply DC24V to the Unit. About 1 minute later, can run the playback software to download the data, just follow the steps list in section, and don't forget to select the data source "LRU".



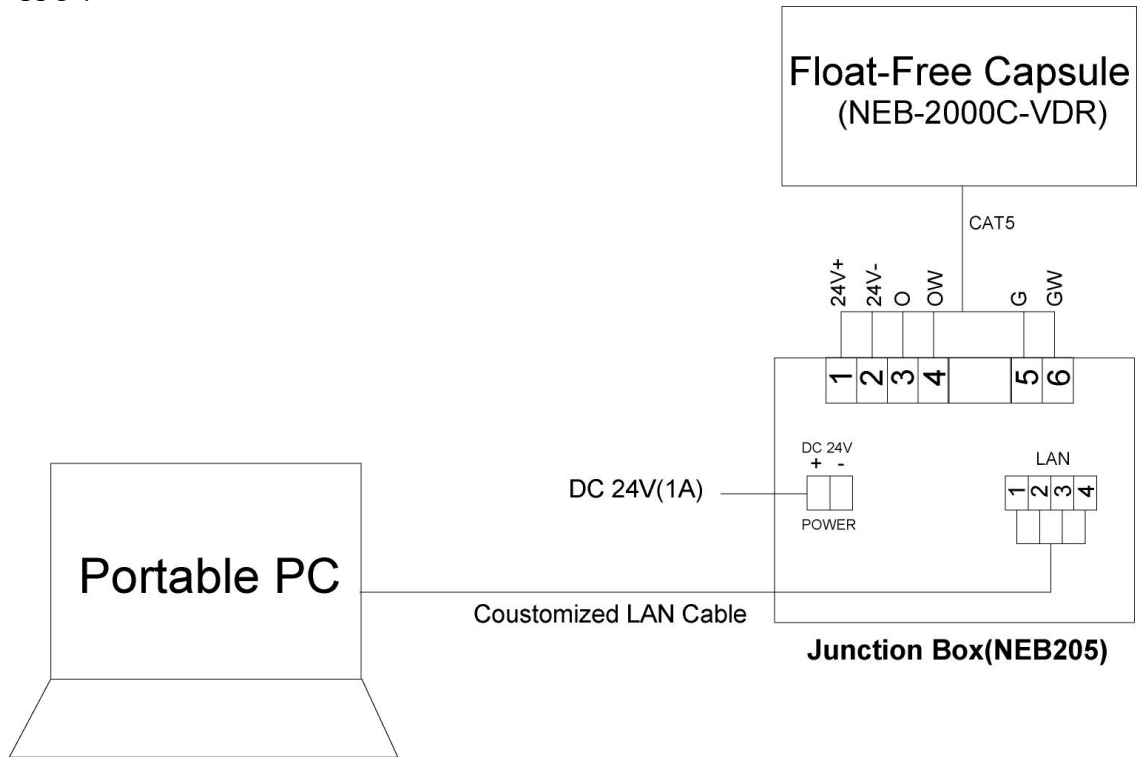
1.2.2 Download data from Fixed Protective Capsule(NFP-2000C)

Use the customized LAN cable to connect the Junction Box(NEB205) of the Fixed Protective Capsule(NFP-2000C) and the computer, and supply DC24V to the Unit. About 1 minute later, can run the playback software to download the data, just follow the steps list in section 1.1, and don't forget to select the data source "FPC".



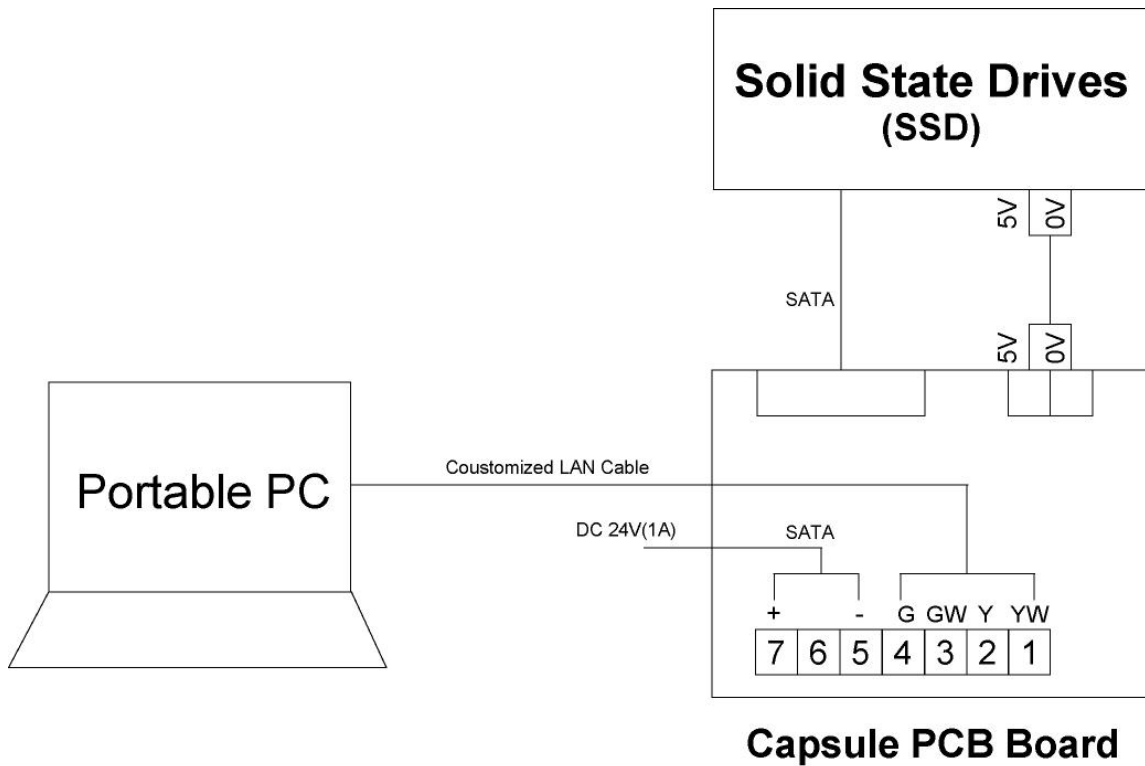
1.2.3 Download data from Float-Free Capsule(NEB-2000C-VDR)

Use the customized LAN cable to connect the Junction Box of the Float-Free Capsule and the computer, and supply DC24V to the Unit. About 1 minute later, can run the playback software to download the data, just follow the steps list in section 1.1, and don't forget to select the data source "FFC".



1.3 Backup Data from damaged Final Recording Medium

If the Final Recording Medium had damaged, investigator need to open the Medium to get the SATA solid state drives (SSD), and then contact NEW SUNRISE CO., LTD. Service to get the capsule PCB board to download the data. Connect the SSD to the capsule PCB board, and then connect the board to computer, supply DC24V to the board. About 1 minute later, can run the playback software to download the data, just follow the steps list in section 1.1, and don't forget to select correct data source.

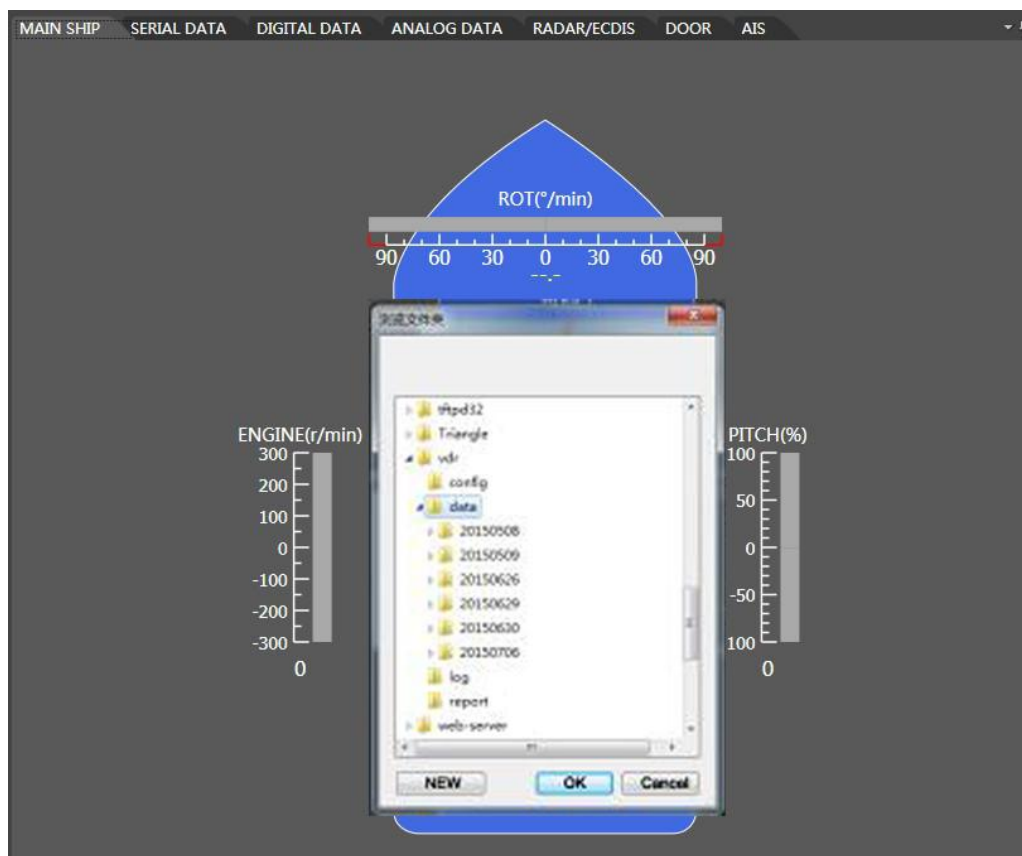


2.Data Playback





2.1 Open the Data File

NOTICE

NVR-9000 playback software will check the data CRC checksum to detect whether the data is reliable, if the storage medium has been subjected to an excessive level of heat, and the data have changed, the data cannot playback.



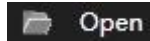
When the data had been download or saved in the destination file, playback procedure as follows:

1. Click on OPEN menu;
2. Choose the File to be playback. (File name format: YYYY/MM/DD), click on OK
3. Click on  to playback the data;
4. Click on  or  to reverse or forward the playback
5. Click on  bar to move to playback the desired time of record.
7. To playback a certain selected audio communication channel,

Click on       The highlighted channel is the selected channel for playback. Only one audio communication channel can be playback at a time.

2.2 Playback Operation Menu

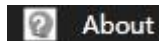
Open a data file:



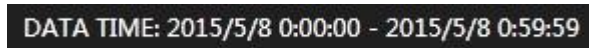
Download a data file:



Help menu:



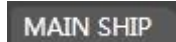
Data playback period:



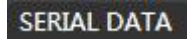
Selects Audio Channel:



Main Interface page:



IEC 61162 Serial Data:



Digital Data:



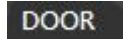
Analog Data:



Displays Radar Image/ECDIS:



Door Info:



AIS:

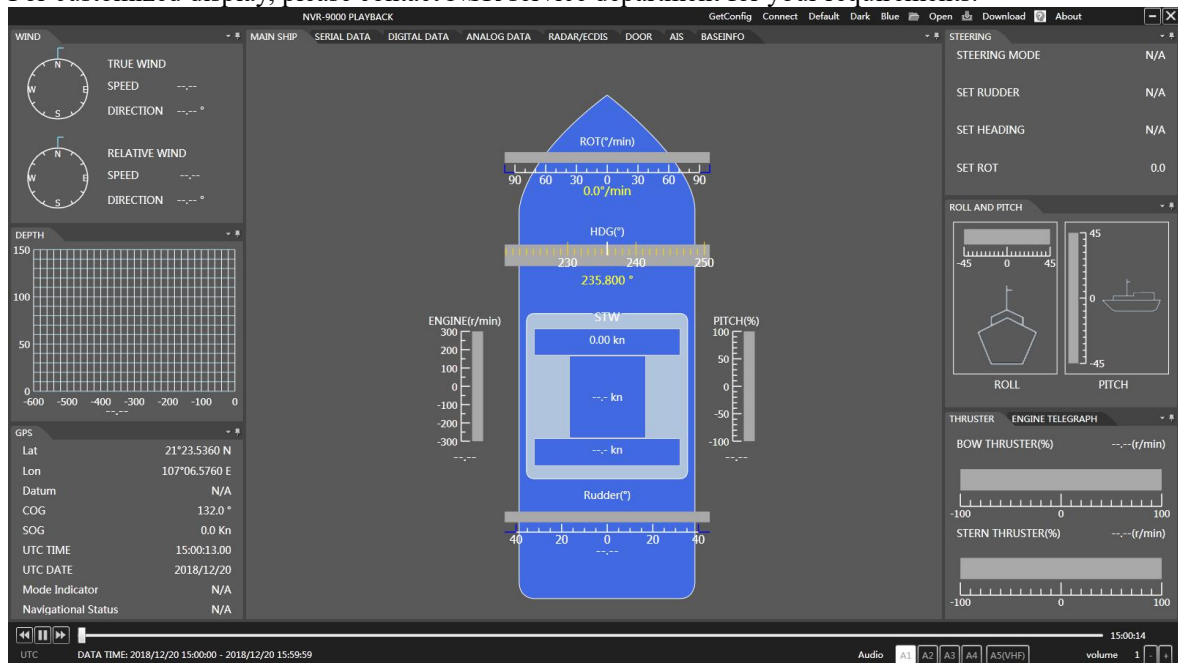


2.2.1 Main Interface

Main Interface page displays the following standard information:

- GPS
- Wind
- Depth
- Heading
- Speed
- Rudder
- Steering Order and response
- Engine Order and response
- Thruster
- Roll

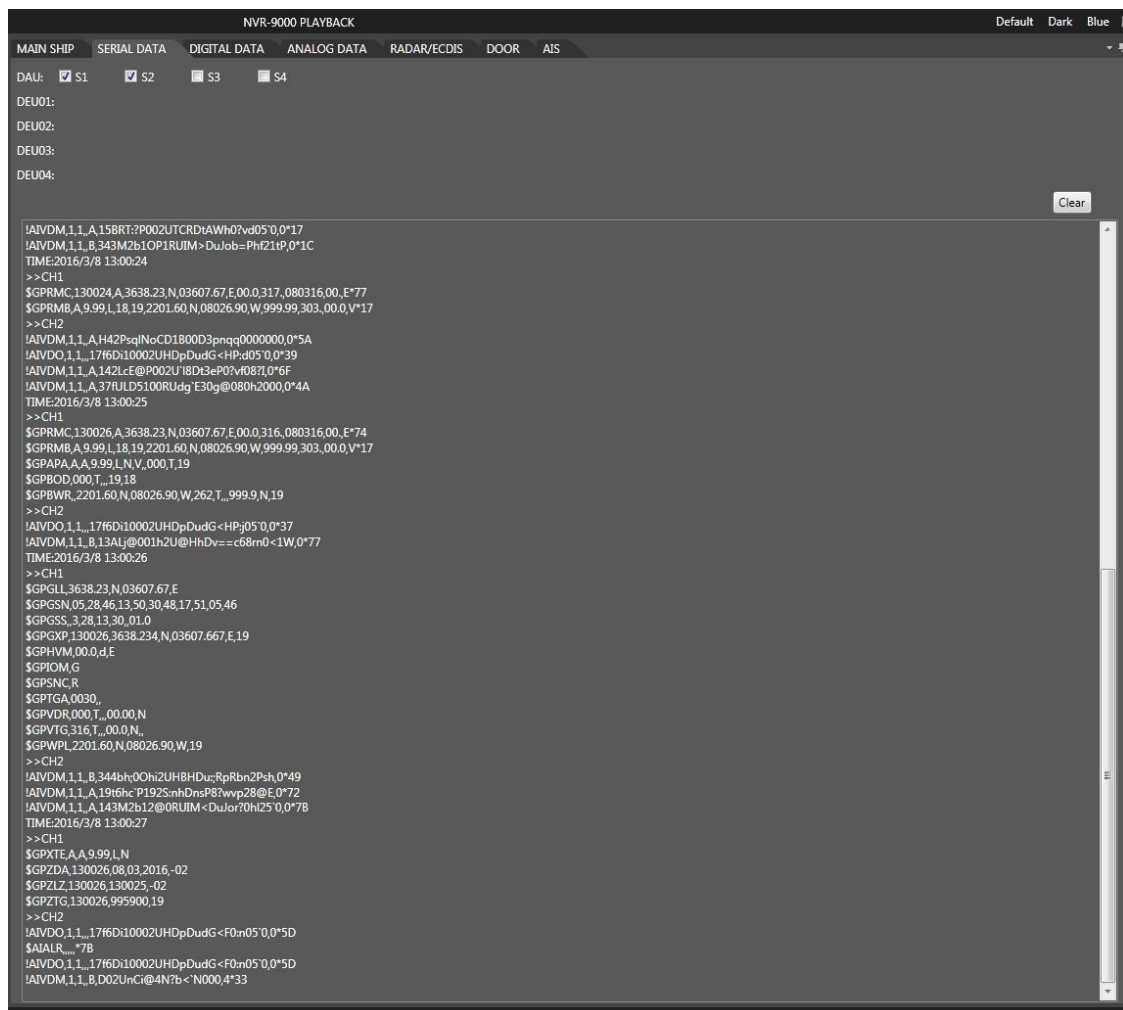
For customized display, please contact NSR service department for your requirements.



2.2.2 Serial Data

Serial Data interface page displays status of the serial channel according to the IEC61162 format in compliance with IMO requirements. Click on the desired channel to display its status during the period of playback.

	VDRPlayer
	Serial Data
DAU COM1~COM8	S1~S8
DEU1 COM1~COM16	S9~S24
DEU2 COM1~COM16	S25~S40
DEU3 COM1~COM16	S41~S56
DEU4 COM1~COM16	S57~S72

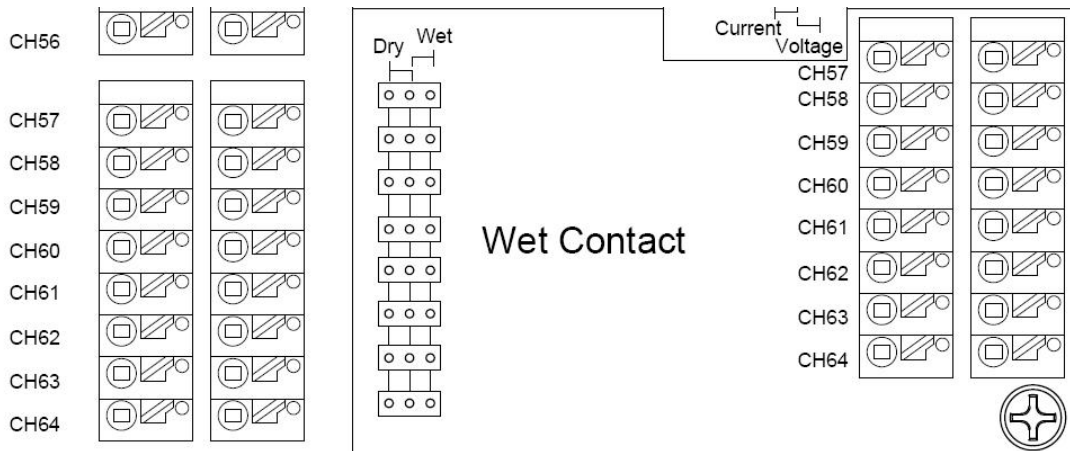


2.2.3 Digital Data

Digital Data record the change of the state, and the meaning of. The status with 0 and 1 to indicate.

Switch "1" represents the input of the closed state (dry contact) and high level (wet contacts), at this time the LED on the board next to the switch interface is bright.

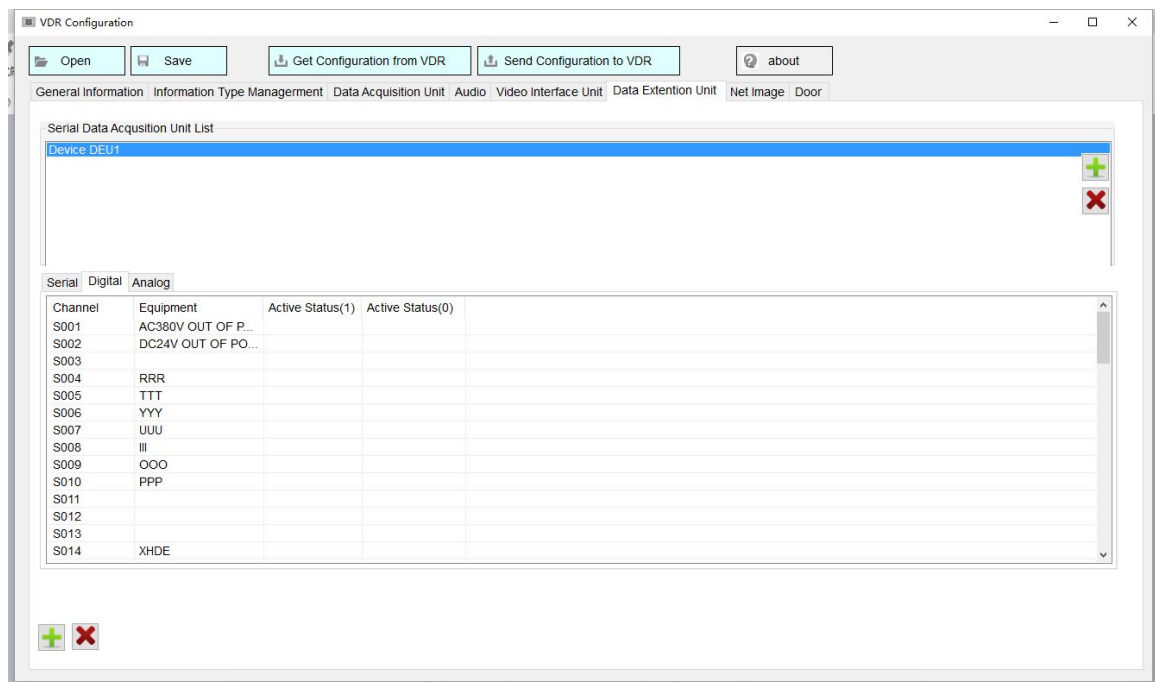
Switch "0" represents the open circuit state (dry contact) and low level (wet contact), at this time the LED on the board next to the switch interface board is off.



The CH57-CH64 switch can be configured as dry or wet contact contacts are configured, through the jumper on the circuit board is configured.

In the configuration software, Run and Stop are represented by 0 and 1 in the switch volume channel S001.

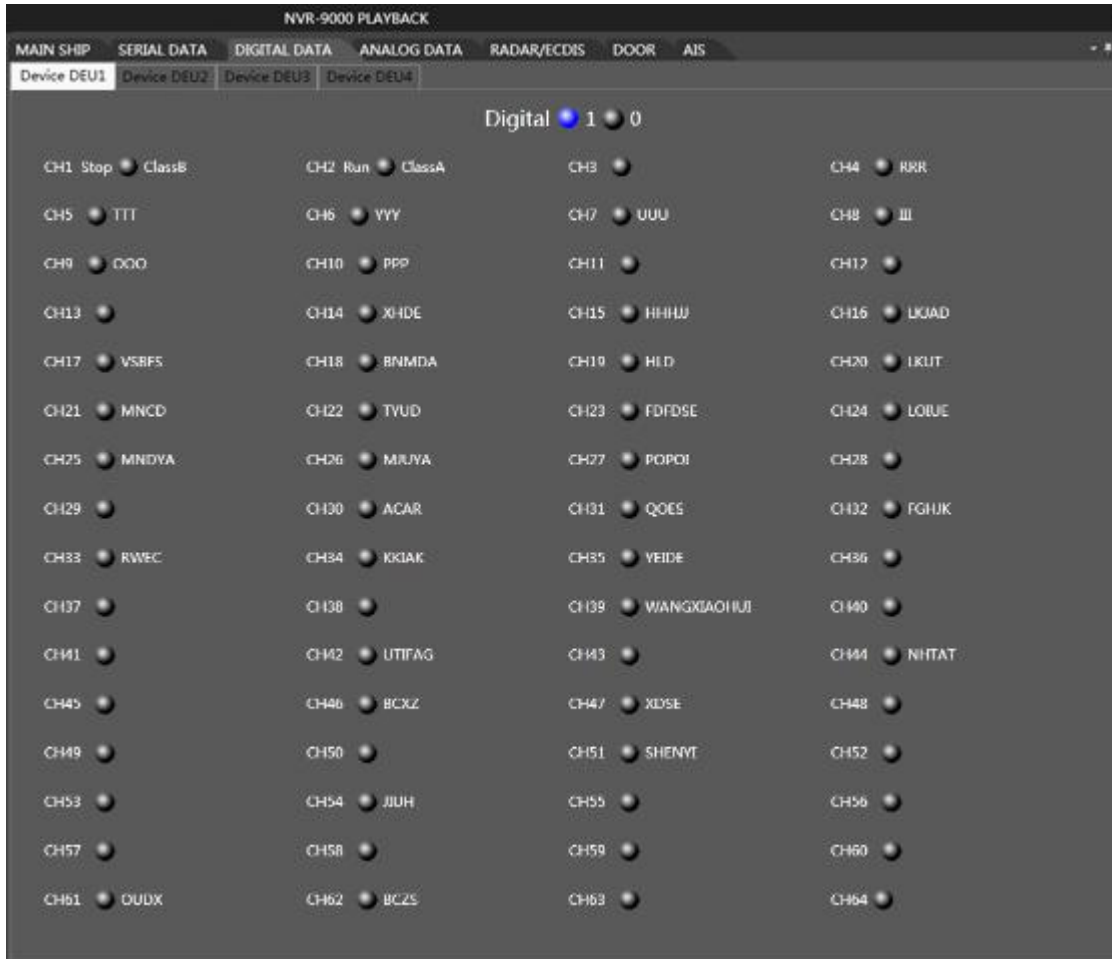
"1" and "0" represents the state, the user can customize according to the specific circumstances.



In the VDRPlayer

When CH1 is 0 displays CH1 Stop, at the same time the lights out, followed by the name of the equipment;

When CH2 is 0 displays CH1 Run, at the same time time lights out, followed by the name of the equipment.



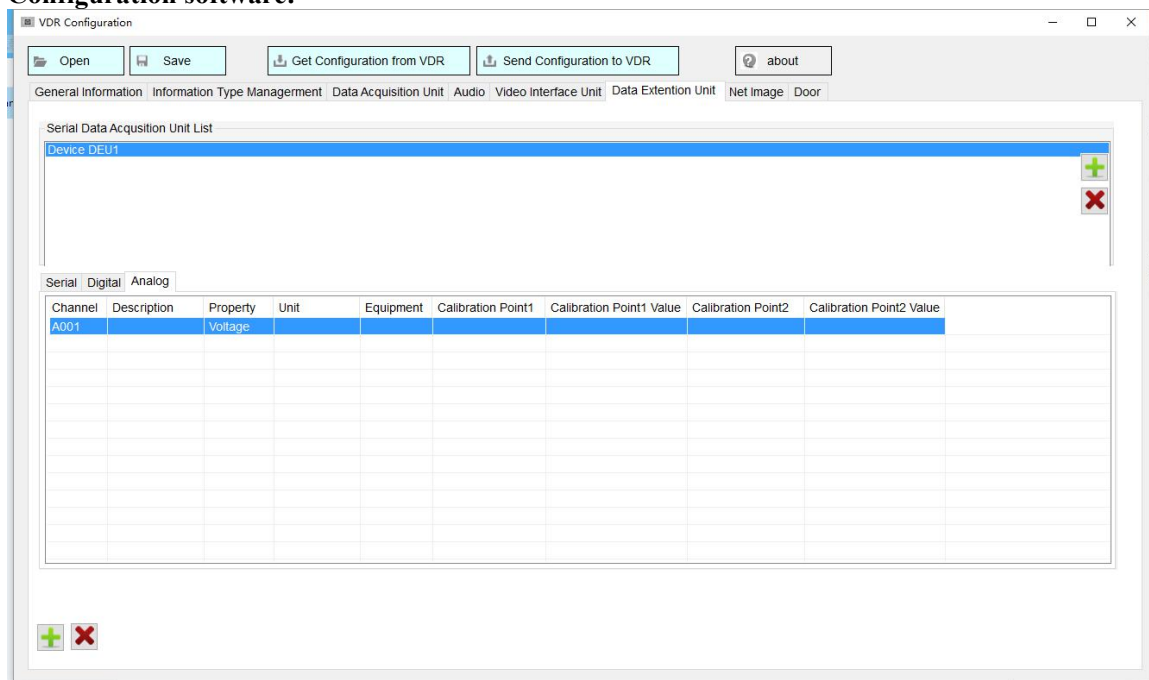
2.2.4 Analog Data

Analog Data displays status of the analog signals. Analog Data includes PointValue, property (Voltage and current), Value and Unit.



The amount of species simulated by the jumper cap to select input, can choose Current or Voltage voltage current.

Configuration software:



Below the Analog table, there are Channel, Description, Property and so on.

- **Channel:** Corresponding to the A001-A008 DEU expansion box.(Note:Because of the analog interface in the expansion enclosure is only 8, so please don't add more than 8 devices.)
- **Description:** The details of collection information are in the description item.
- **Property:** Choose current or volt in the property. Voltage(the default unit is V), current (the default unit is mA).
- **Unit:** Actual unit of equipment. Such as degree (°).
- **Equipment:** User connected device.
- **Calibration point1, Calibration point1 value, Calibration poin2, Calibration point2 value:** The purpose of analog calibration is to convert the analog quantity of the actual input to the physical quantity to be displayed.

For example:

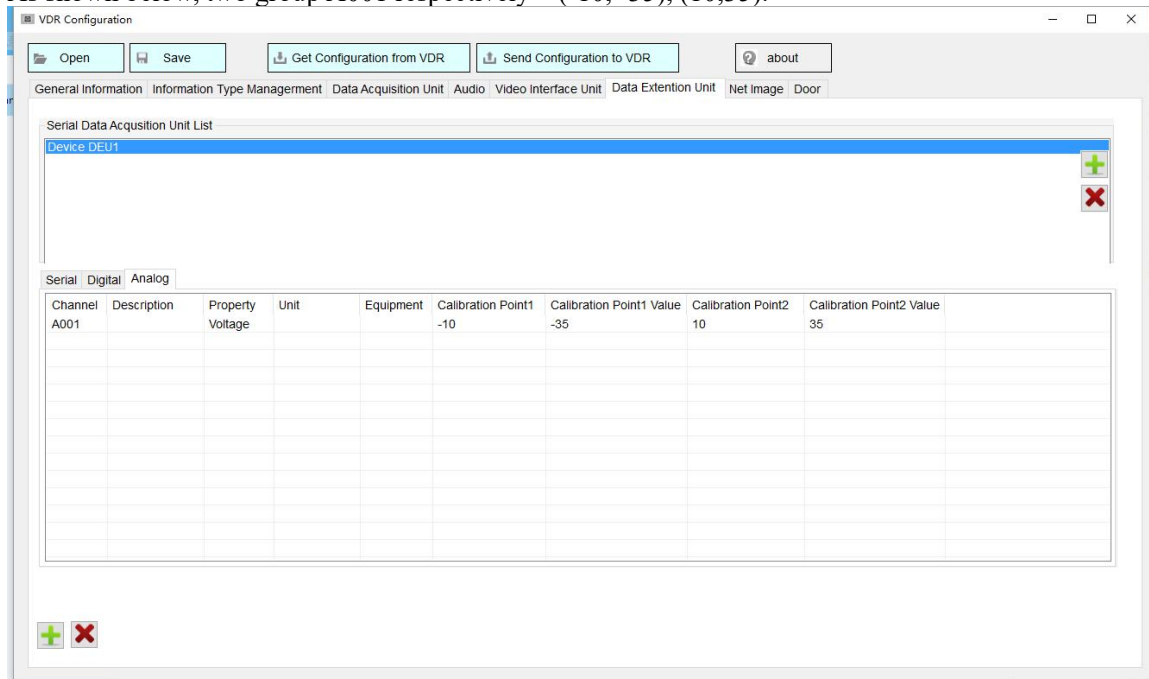
A001 analog channel input ±10V (4~20ma) analog, playback displays the rudder blade angle, -10V (4mA) corresponding to the left 35° , 10V (20mA) corresponding to the right 35°. Unit is " ° ". Input -10 in calibration point1, input -35 in calibration point1 value .

Input 10 in calibration point2, input 35 in calibration point2 value .

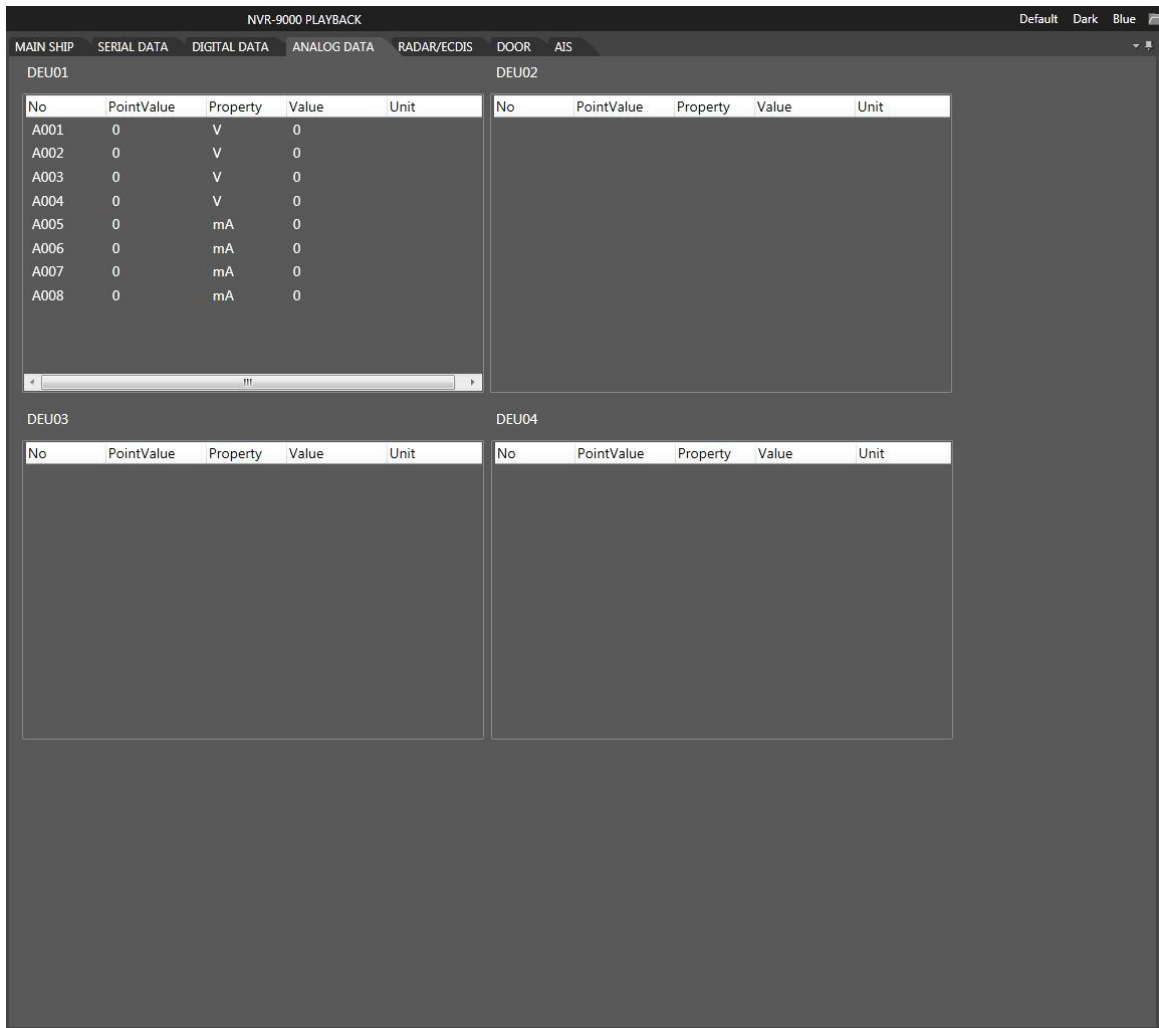
In an ideal situation, the playback interface will be in accordance with the acquisition of the value and the four points of the linear relationship between the received analog conversion to physical quantity for playback.

Note: Two sets of data must be filled to be able to correct the real analog conversion, otherwise the actual values displayed by default to 0.

As shown below, two group A001 respectively (-10, -35), (10,35).



In VDR playback software shown in Figure:



2.2.5 Radar Image/ECDIS

- **Radar Image**
Radar page displays the recorded radar image during the period of playback. Radar image from 4 different radars can be selected for playback. Only 1 radar image from the selected radar sensor is displayed at a time.
- **ECDIS Image**
ECDIS playback page displays the captured ECDIS image and information during the period of playback. Select the ECDIS equipment to display its image by clicking on ECDIS1 or ECDIS2. Only 1 ECDIS image is displayed at a time.

2.2.6 Door Status

Door page displays the information of watertight door and fire-proof door.

2.2.7 AIS

AIS messages will be listed on the page. And the relative position point on the AIS panel. When click the message or triangle, the AIS message detail will shown.

In VDR playback software shown in Figure:

