



ALPHATRON  
Marine



Voyage Data Recorder

# JCY-1900

Long term performance and reliability

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# Yōkoso, new VDR

In line with the revised Voyage Data Recorder (VDR) performance standards which came into force on 1 July 2014, JRC welcomes or as we say in Japan, yōkoso, to our fourth generation VDR model, the JCY-1900. Having been involved in VDR development from the very beginning in 2001, this latest revision in the performance standards has allowed JRC to re-think, develop and design its latest model with the standard attention to detail for performance, reliability and long term competitive cost of ownership.

Differences with previous model;

		
<i>Model</i>	<i>JCY-1900</i>	<i>JCY-1800</i>
Fixed capsule	48hrs (32GB)	12hrs (2GB)
JB/Cable/Beacon	Integrated/1: LAN/90days	External/2: LAN and power/30 days
Float free capsule	48hrs (64GB)	x
Internal storage	720hr (SS drive)	12hr (CF card)
Operation panel	7-inch color touch LCD	7-segment LED
Image recording	3 (max 6)	1 (max 2)
Microphone audio	12ch (6 tracks)	9ch (3 tracks)
VHF audio	4ch (2 tracks)	3ch (1 track)
AIS	v	x
Rolling motion <sup>1</sup>	v	x
Electronic logbook <sup>1</sup>	v	x
APT at operation panel	v	x

The new VDR performance standard MSC.333(90) has had a major impact on the event recording requirements. Prior to the new VDR regulations coming into force, a minimum of 12 hours of recording was mandatory in either a fixed or float free capsule installed onboard the vessel. After 1 July 2014, both a fixed and float free capsule are required to be installed and data must be recorded for a minimum of 48 hours in both capsules with an additional 30 days/720 hours stored within the VDR.

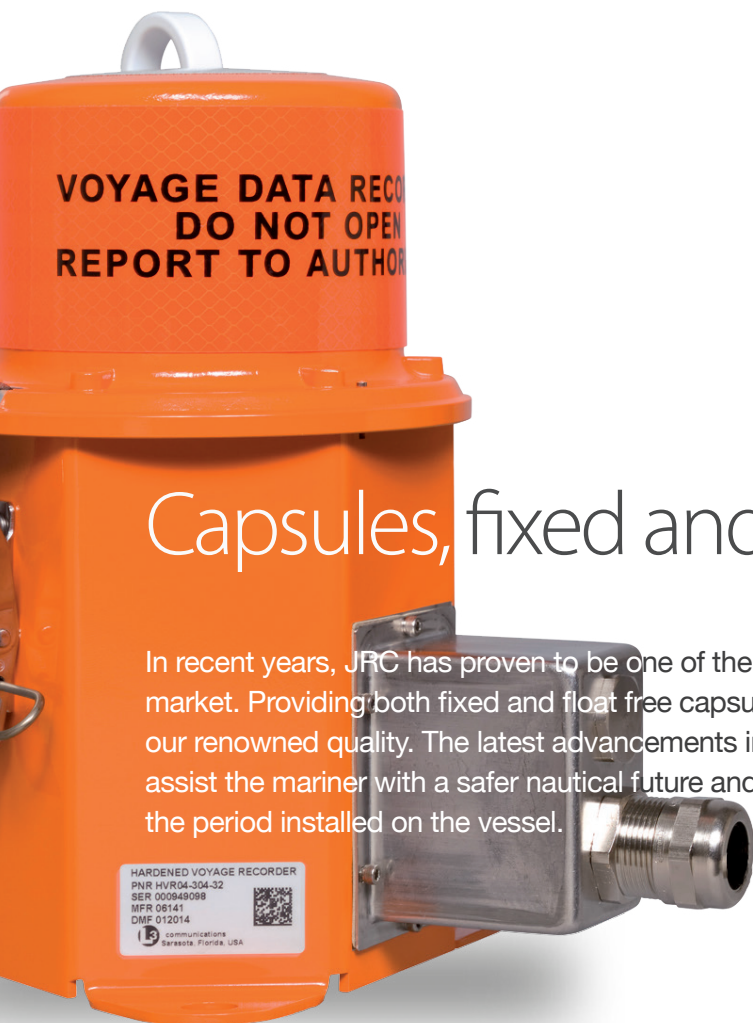
Further changes set by IMO are that both X-band and S-band radar, ECDIS display image and AIS data must be recorded, as well as an improvement of audio recording with separated tracks. If installed, an inclinometer to measure vessel's motion and/or electronic logbook, must be recorded.

1. If installed



# No new S-VDR regulation, yet a new model

While there is no new Simplified Voyage Data Recorder (S-VDR) requirement, there will also be the new JCY-1950 variant available with just one capsule, fixed or float free. JRC is a company founded on the principles of long term reliability and customer support and there are many ship owners sailing with older S-VDR makes and models that might no longer be supported. JRC views this as a duty to these owners to continue to offer an acceptable alternative solution.



## Capsules, fixed and float free

In recent years, JRC has proven to be one of the most reliable VDR system manufacturers on the market. Providing both fixed and float free capsules that are industry tested, without compromising our renowned quality. The latest advancements in technology and a highly stable platform are aimed to assist the mariner with a safer nautical future and the ship owner with a low cost of ownership during the period installed on the vessel.

# Proven black box design, hardware for mariners

The JCY-1900 is, like its predecessor, black box designed, uses our own designed and fabricated, reliable, maritized hardware, with an easy IP based format, purposely designed for our VDR. The heart of the VDR is the recording control unit, which controls and manages all sensor, audio and image interface inputs and outputs.



- Fixed and or float free capsule(s)
- Operation panel unit (7-inch display)
- X- and S-band radar, ECDIS via LAN (option RGB)
- Sensor data serial/LAN (option analog/dry contact)
- VHF and (waterproof) microphone audio
- Playback/realtime monitoring PC

Various networks are available including VDR network control for connected capsules and the operation panel, which is also used by authorities to retrieve any necessary data following an incident. In addition, the special JRC network can be connected to JRC's Multi Function Display and user network for real time monitoring.

There is also an internal UPS included as standard, which is able to power the VDR for two hours in case of power failure. During blackout only bridge audio is recorded and will automatically return to normal condition after power is restored.

  
2 hours



# System operation, on a 7-inch display

Newly designed for the JCY-1900 is the 7-inch color LCD touch display which allows full system operation. Displaying various VDR alerts with detailed information, see what sensors are connected including status, view the latest recorded image data of radar and ECDIS and playback of audio tracks recorded from microphones.

System setup on the new operation panel unit displays currently installed software version, performance test results, and even allows you to see actual operating lifetime of parts that need regular replacements. For example, knowing the status of the capsule battery and the fan in the recording control unit enables in-service replacement in a timely manner without causing downtime or interfering with the vessels' already busy and expensive schedule. The USB port on the front of the display allows copying of data from the VDR.



The 7-inch wide display has allowed JRC engineers to develop an exiting new software approach that offers simple-to-use icons, based upon JRC's experience with simple menus and dedicated functions, inspired by our innovative Multi Function Display (MFD). JRC carries forward the design and presentation elements within our own distinctive and visual style to this small operation panel, which can clearly be seen to be within the JRC family of products. Developed with our own built-in quality that ship owners, managers and maritime administrations have long relied upon from JRC.



## Playback, ideal for crew training

JRC includes intuitive playback-software that incorporates real-time monitoring functionality on the user PC. The data acquired can be displayed in both graphical and numerical format. Standard CSV (Comma Separated Values) data conversion enables easy and efficient exchange of information to shore e.g. via email. In addition, the playback-software is an ideal tool for crew training. Its ease of use and the freedom to survey a range of scenarios enhances the user's navigation skills.

Playback software supports Windows XP, Vista, 7, 8.

## Remote maintenance, closer to you than ever



The new JRC VDR has a dedicated server integrated as standard to support our JRC proprietary Remote Maintenance System (RMS) using IP-routing technology to monitor status of navigation and radio communication equipment onboard, via JRC's FB or GX Inmarsat satellite communications systems, to establish a highly secure connection data link to the vessel. This allows a cost-effective determination of the operating status, software version numbers installed, etc., of the JRC equipment onboard whilst the vessel is at sea. Being able to diagnose a problem remotely, accurately, reliably and quickly, allows the ship owner to save one of the most precious commodities, time. JRC can make preparations at the next port for the necessary repair work, dramatically increasing the return to work status, using our comprehensive and well-trained global support network.



# Built, around our MFD

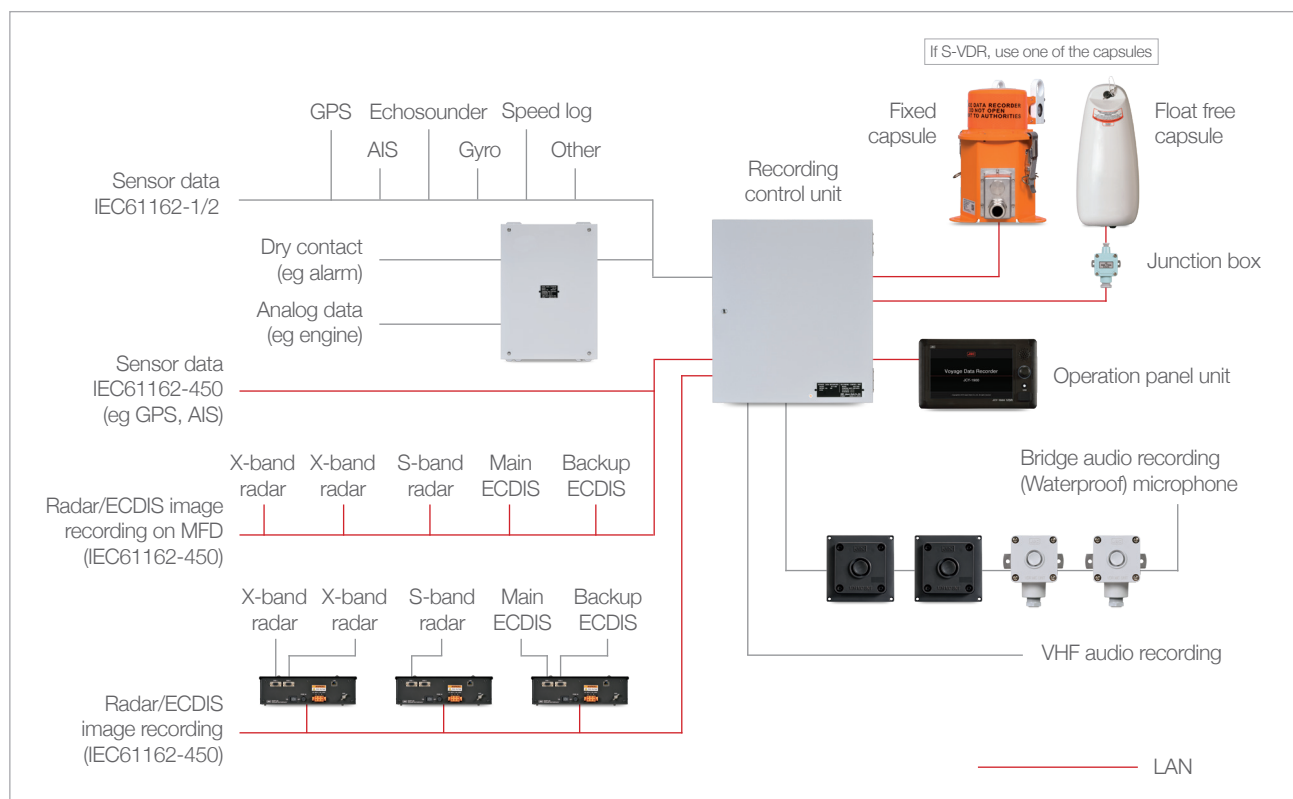
The JCY-1900 is built around our revolutionary new Multi Function Display (MFD) which functions as radar and/or ECDIS. The unit supports a LAN video input with a maximum of 6 video signals, which allows a straightforward and seamless integration of our MFD, supporting multiple radars and paperless sailing with dual ECDIS.

Naturally, connecting our previous generation radar/ECDIS equipment or other third party radar/ECDIS are also possible, although may require additional hardware.



## System diagram

The VDR can be connected to various navigation and communication equipment and sensors onboard a ship. JRC's straightforward configuration assures continuous performance of the VDR system.



# Tech Specs

Operation panel unit RoHS

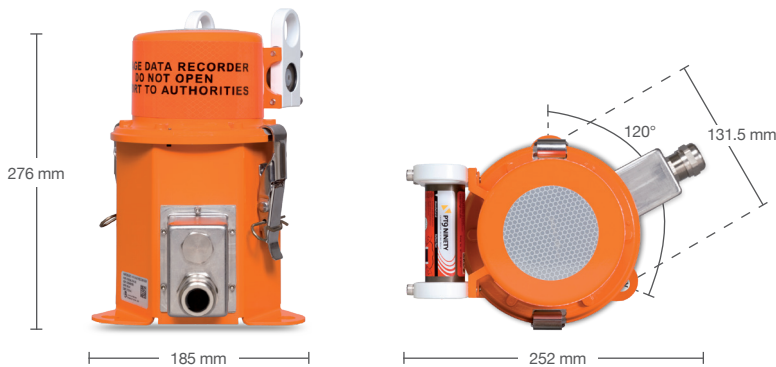
NCG-1900 Weight 800 g



7-inch LCD color display  
800 by 480 pixels  
Built in speaker  
Touch + rotate and push button  
USB (copying of data)  
Temperature: -15° to 55°C  
Power from NDV-1900

Fixed capsule

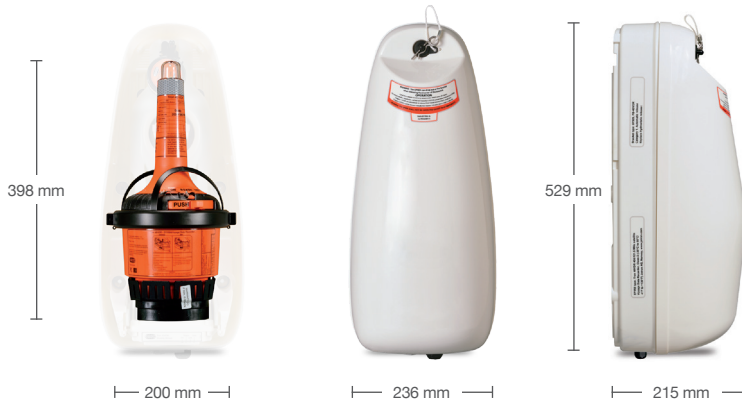
NDH-338 Weight 6.8 kg



TCP/IP protocol (IEE802.3)  
32GB SS drive (48hr record)  
Operates 90 days after activation  
Detectable 1800 to 3600m<sup>1</sup>  
37.5kHz underwater beacon  
Temperature: -25° to 55°C  
Power from NDV-1900

Float free capsule RoHS

NDH-339 Weight 5.2 kg



TCP/IP protocol (IEE802.3)  
64GB SS drive (48hr record)  
Operates 168 hr after activation  
Protected up to 10 m depth 5 min  
406/121.5MHz EPIRB frequency  
Temperature: -20° to 55°C  
Power from NDV-1900

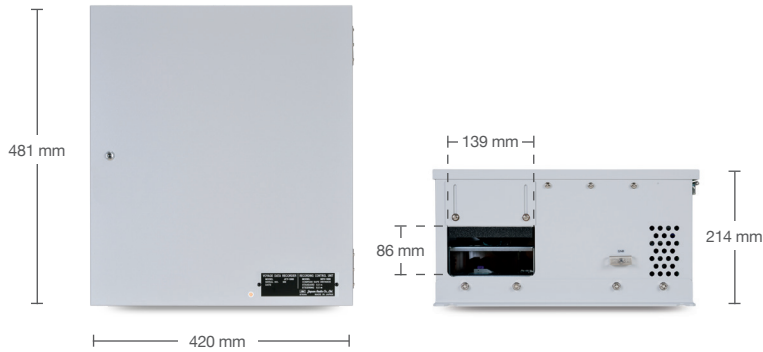
1. Depending on sea conditions



# Tech Specs

Recording control unit RoHS

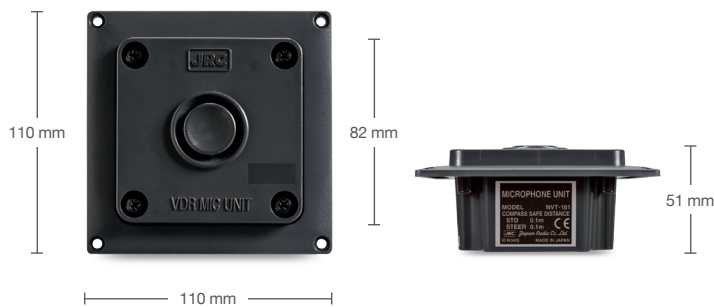
NDV-1900 Weight 22.5 kg



Up to 48 channel IEC61162  
-1 (22ch), -2 (2ch), -450 (24 sensors)  
Microphone 12 ch (6 tracks)  
VHF 4 ch (2 tracks)  
Image 6 ch (ECDIS, X & S radar)  
512GB SS drive (720hr record)  
Power 100V to 240V AC (230VA)

Microphone RoHS

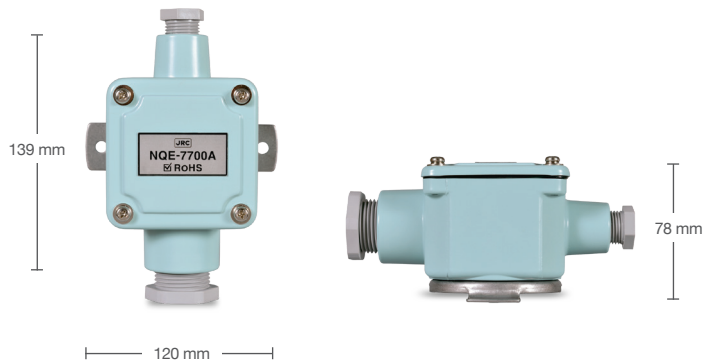
NVT-181 Weight 200 g



Flush mount installation  
Range receive radius 3.5m  
Built-in speaker for audio test  
Temperature: -15° to 55°C  
Protection rate: IP22  
Compass safety distance 0.1m  
Power from NDV-1900

Junction box RoHS

NQE-7700A Weight 600 g



Required for float free capsule  
between NDH-339 and NDV-1900  
Built-in terminal blocks  
Wall mount installation  
Temperature: -25° to 55°C  
Humidity: ≤93% noncondensing  
Protection rate: IP56

# Tech Specs

Waterproof microphone RoHS

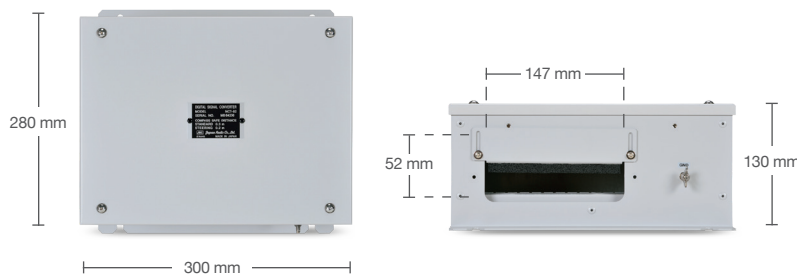
NVT-182 Weight 500 g



Wall mount installation  
Range receive radius 3.5m  
Built-in speaker for audio test  
Temperature: -25° to 55°C  
Protection rate: IP56  
Compass safety distance 0.1m  
Power from NDV-1900

Digital signal converter RoHS

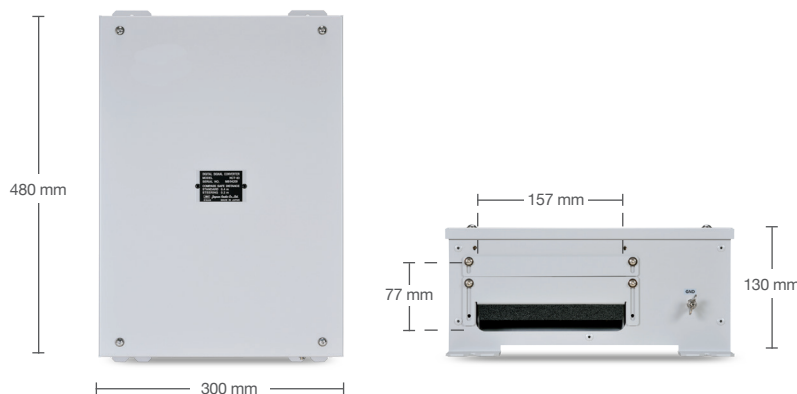
NCT-82 Weight 2.8 kg



32 channel dry contact signals  
Output to IEC61162-1  
Driving power +12V DC  
Optional analog interface board (CEF-60) may be built in to convert to serial signals  
Power 100V to 240V AC (20VA)

Digital signal converter RoHS

NCT-83 Weight 4.2 kg

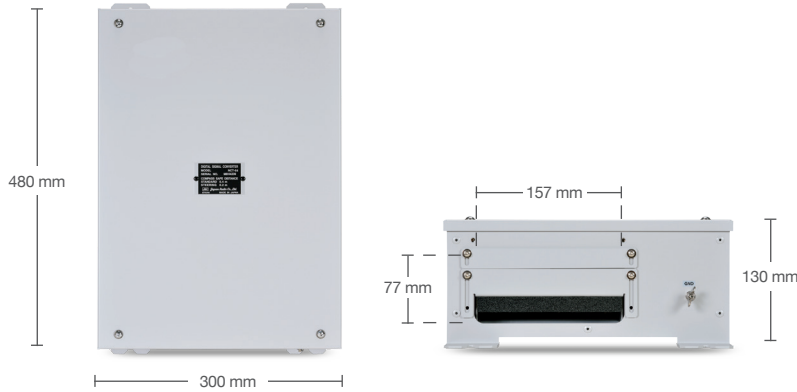


64 channel dry contact signals  
Output to IEC61162-1  
Driving power +12V DC  
Optional analog interface board (CEF-60) may be built in to convert to serial signals  
Power 100V to 240V AC (25VA)

# Tech Specs

Data acquisition unit RoHS

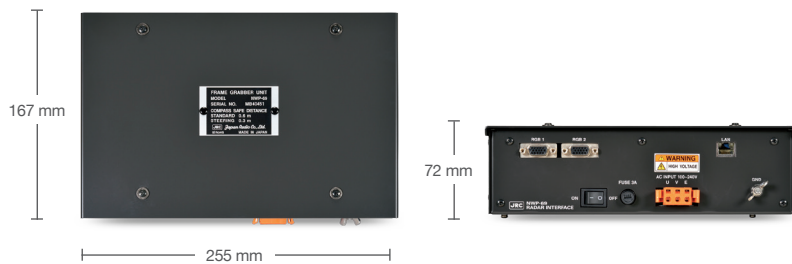
NCT-84 Weight 4.3 kg



10 serial interface to LAN:  
 IEC61162-1 (8 channels)  
 IEC61162-2 (2 channels)  
 Gyro interface (step/synchro)  
 THS out (true heading/status)  
 VBW out (ground/water speed)  
 Power 100V to 240V AC (10VA)

Frame grabber board/RGB unit RoHS

NWP-69 Weight 1.5 kg



2 video channel input  
 Analog RGB/Hs/Vs  
 Up to 1920 by 1200 pixels  
 Record interval 15sec/image  
 Output to NDV-1900 via LAN  
 Refresh rate 60 to 85 Hz  
 Power 100V to 240V AC (15VA)

## In the box

Recording control unit	NDV-1900
Operation panel unit	NCG-1900
Fixed capsule	NDH-338
Float free capsule	NDH-339
Junction box	NQE-7700A
Microphones (3x)	NVT-181
Playback software	CYC-825
Real time monitoring	CYC-826
Spare parts	

## Options

Microphone	NVT-181
Waterproof microphone	NVT-182
Digital signal convertor (32)	NCT-82
Digital signal convertor (64)	NCT-83
Data acquisition unit	NCT-84
Analog-Digital convertor	CEF-60
Frame grabber board	NWP-69

In case JCY-1950 S-VDR retrofit installation, only one of the two capsules require to be installed.





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