FURUNO

FINISHED PLAN

JAPAN MARINE UNITED
CORPORATION
SNo.5212
VOYAGE DATA RECORDER

ROYAL KALEIDO
S.NO. 5212
E661000
VDR
WITH INSTRUCTION BOOK
E065
IMO Number: 9851505
JMU Japan Marine United Corporation

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SNo. 5212

DWG. No. N8661000

VOYAGE DATA RECORDER

VR-7000

FURUNO ELECTRIC CO., LTD.

SPECIFICATIONS OF VOYAGE DATA RECORDER VR-7000

The Voyage Data Recorder (VDR) is a recording system required on certain categories of ships from 1st July 2002 by the revised SOLAS Chapter V. VR-7000 fully complies with the IMO Resolution MSC.333 (90) and IEC 61996-1 testing standard.

1 GENERAL

1.1	Recording period	
	Fixed DRU/ Float-free DRU	48 hrs
	Long term device (long-term recording medium)	720 hrs
1.2	Battery backup	More than two hours after loss of ship's mains

2 DATA COLLECTING UNIT (DCU)

2.1	CPU	Intel Celeron P4505 1.86 GHz
2.2	Long term device	
	Memory capacity	1 TB (SSD)
	Minimum data retention period	2 years after recording

3 REMOTE ALARM PANEL

3.1	Display	4.3-inch color LCD, 480 x 272 (WQVGA)
3.2	Picture color	256 colors
3.3	Brilliance	0.2 to 700 cd/m^2
3.4	Visible distance	0.5 m nominal

4 DATA RECORDING UNIT (DRU)

4.1	Fixed DRU	
	Chassis	Protective capsule (metal)
	Memory capacity	32 GB
	Minimum data retention period	2 years after recording
	Shock resistance	50G x 11 ms
	Penetration resistance	100mm diameter pin with 250 kg weight, dropped from 3 m height
	Fire resistant	1100°C for 1 hour, 260°C for 10 hours
	Submersible	6000 m (60MPa)
	Acoustic beacon	Battery life: 3 years from the date of insertion, 37.5kHz, 10ms pulse transmission, Maximum depth: 6000m Operating life: 90 days
4.2	Float-free DRU	
	Chassis	Auto-float capsule
	Memory capacity	64 GB
	Minimum data retention period	6 months after recording
	Battery	Lithium, Metal, 7.2 V/ 18 Ah (2S5P), 5 year's service life (6.5 years from the date of manufacture)
	Operating life	Minimum 168 hrs at -20°C

Release mechanism	Hydrostatic release unit (released at water depth 4 m)
Navigation device	22 channel GPS receiver
COSPAS-SARSAT Transmitter	
Antenna type	Built-in, omnidirectional
Frequency	406.037 MHz ± 2 ppm
Output power	5 W ± 2 dB
Protocols	MMSI and Serial Location Protocols
Modulation	Phase modulation 1.1 ± 1 radian
Data encoding	Bi-phase L
Bit rate	400 bps
Homing Transmitter	
Frequency	121.5 MHz
Output power	50 mW ± 3 dB
Modulation	A3X, AM sweep tone between 300 Hz and 1600 Hz
Sweep range	700 Hz (sweep rate: 2.5 Hz)
Stability	10 ppm over temperature

5 MICROPHONE

5.1	Reference signal level	0 dBm/600 ohm at 91 dBA
5.2	Frequency response	Within 12 dB at 150Hz to 6 kHz
5.3	Audio coverage	Hemisphere area of 3.5 m approx. in radius
5.4	Test beeper	3s in 12 hours period (built in)

6 INTERFACE

6.1	Data collecting unit	
	Number of port	
	LAN	6 ports, Ethernet 100Base-TX, RJ45 connector 5 ports for IEC61162-450: IP address range 172.31.16.1-254, 172.31.17.1-254, default 172.31.16.200 1 port for internal: IP address 10.0.0.100
	Bridge audio (input)	8 ch (0 dBm/600 ohm)
	VHF audio (input)	2 ch (0 dBm/600 ohm)
	Serial	IEC61162-1/2: 2 ports, IEC61162-1: 6 ports
	Serial I/O for AMS	IEC61162-1: 1 ch
	USB	1 port, USB2.0 for data extraction, User disk recording
	Alarm (output)	3 ch, contact signal, load current 30 mA System fail, Power fail, Local ACK
	Remote ACK (input)	1 ch
	Buzzer stop (input)	1 ch
	IEC61162-450 transmission group	
	Input	MISC, SATD, NAVD, VDRD, RCOM, TIME, PROP, USR1 to USR8
	Output	MISC
	Other Network Function (except IEC61162-450)	
		HTTP; *.*.*.*:80

		VR-7000 replies on PC's ARP command and ping command Live player, Maintenance viewer - UDP multicast: 239.255.0.1 Port: 20001-20004, 21001-21004, 22001-22007, 23001-23007 27001-27010, 28001-28010 - TCP: *.*.*.*, Port: 20, 21, 10106, 24001, 24004
	I/O Sentences	
	Input	All incoming
	Output	ALC, ALF, HBT
6.2	Junction box (IF-8530)	
	Serial	IEC61162-1/2: 2 ch, IEC61162-1: 6 ch
	Analog	16 ch (±10V, 4-20 mA)
	Digital (a/b)	64 ch
6.3	Video signal input	
	Video LAN converter	2 ch (DVI/RGB selectable for each) SER.NO. 100000 to 199999: RGB is not available
	RGB	VESA: VGA, SVGA, XGA, SXGA, UXGA (FAR-28x7/28x5 ser.)
	DVI	VESA: VGA to SXGA, WXGA+*, WSXGA+, UXGA, WUXGA, CEA: Full HD (FAR-28x7 ser.) *: FPGA program ver.01.03 or later and SER. NO. 200991 or later for IF-7100
	IEC 61162-450	For PNG (24 bit) or JPEG (baseline: SOF0, progressive: SOF2)

Number of channels for picture recording

Device	Video LAN converter IEC61162-450 PNG	IEC61162-450 JPEG	
		Quality ≥ 50	Quality < 50
Fixed/ float-free DRU or long term device (single)	UXGA: 2ch + full-HD: 1ch, Total 3ch	3ch	5ch
Long term device (dual)	UXGA: 2ch + full-HD: 1ch + WUXGA: 1ch, Total 4ch	4ch	6ch

Picture recording pattern Selectable for each channel (Only one/Patrol/Backup)

7 POWER SUPPLY

7.1	Data collecting unit	220 VAC: 0.7 A, 1 phase, 60 Hz
7.2	Junction box (IF-8530)	24 VDC: 0.9 A, fed from DCU

8 ENVIRONMENTAL CONDITIONS

8.1	Ambient temperature	
	Data collecting unit	-15°C to +55°C
	Fixed DRU	-25°C to +55°C
	Float-free DRU	-20°C to +55°C
	Waterproof microphone	-25°C to +55°C
	Others	-15°C to +55°C
8.2	Relative humidity	93% or less at +40°C
8.3	Degree of protection	
	Data collecting unit	IP20
	Fixed DRU	IP56 equivalent