TRIHAWK V650

Vessel Traffic Management System and Coastal radar systems

JRC

If you want an IALA V-128 Standard and Basic type of VTS, your best choice is V650!

- Multi-radar integration of up to 3 radar stations
- Medium to large scale of VTS system configuration
- Various types of radar antenna selectable
- Solid-state X-band radar available
- Linking with CCTV camera (option)
- Complied with IALA V-128 Basic and Standard
- Complied with IMO Resolution A.857(20)

JRC Japan Radio Co., Ltd.

FUNCTIONS

- Alarm Function

This VTS system is provided with various alarm functions to prevent vessel collision accidents and keep the safety and security at sea areas.
If pre-setting alarm conditions are satisfied, the alarm sound is automatically generated and inform to the operator. Pre-setting alarms are as follows;

1. Guard Zone Entry (drawn by operator)
2. Guard Line Crossing
3. Speed Limit (maximum speed, minimum speed)
4. Leaving Anchor
5. CPA/TCPA
6. Lost Target
7. System Failure, etc.

- Recording and Playback Function

The information on the Operation Display and tracking target information are automatically recorded (recording period can be selected by the user) and are able to replay on the Operation Display with a playback software. Automatic recording is functioned during the playback operation simultaneously. This function allows the status analysis to be made in event of accident occurrence and the sea area management system to be improved.

- AIS Receiver (option) / AIS Base station(option)

AIS information can be integrated on the Operation Display.If the radar target echo and the AIS target vessel are identified, those are automatically integrated and displayed on the screen with a single symbol. The VTS system can select the function of AIS base Station and send own station data to other stations.

- CCTV Camera (option)

By integrating the radar system with a CCTV (closed circuit television) camera, the system can control the camera to direct to a target echo on the radar monitor of the Operation Display. The system can also control the CCTV camera to track a target echo based on the radar track information or to automatically track a vessel which enters a security area. Therefore, the actual movement of the vessel can be monitored on the CCTV monitor using the symbol indicated on the radar monitor.

CCTV Monitor Display

- Operation Display

Up to 5 Operation Displays can be installed optionally, allowing two or more VTS operators to monitor sea water areas. By selecting optional displays, up to 3 screens can be connected to one Operation Display Unit. The 3 display screens can present 3 different displays individually or one integrated water area as a single screen, allowing flexible screen configuration.

- Network selection (option)

The network linking multiple radar stations and the surveillance center with each other can select LAN connection and the following types of link:

- Wireless LAN
- Optical fiber cable
- Microwave multiplex link

ABOUT VTS

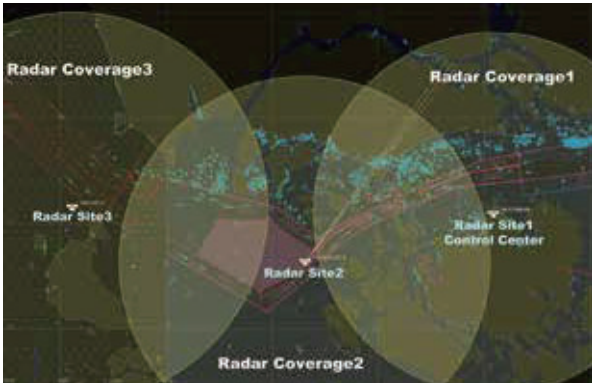
The purpose of vessel traffic service is to improve the safety and efficiency of vessel traffic and to protect the environment.One of the main functions to attain the purpose of VTS is the function of monitoring vessel movements, by which the positions and movements of a number of vessels navigating in the water areas within the multi-radar coverage can be monitored and presented on an electronic chart display screen.Using this function, the VTS operator can transmit proper messages to each vessel and accurate information to various organizations related to ports and routes.

For instance, if a vessel is sailing toward a shallow water area, the operator can foresee a risk of grounding in monitoring the VTS screen.In this case, the VTS operator can call to the vessel via the international VHF communication system (as he can recognize the vessel's name by AIS) and advise the vessel of its risk of grounding by allowing the vessel to have a chance of turning the rudder to avoid the danger of grounding.Thus, the potential impact of such grounding on the sea environment and a resulting economic loss can be prevented.
In addition to such risk of grounding, the VTS allows various alert operations to prevent vessels from various risks such as collisions of vessels, intrusion into a restricted water area, and intrusion of a suspected vessel to a guarded area.

FUNCTIONS

-Multi-radar Integration

The radar information from up to 3 radar stations can be integrated and tracked on the VTS screen.This function allows the seamless surveillance of a wider sea area.A shadow area which a single radar station cannot detect can also be monitored by the multi-radar integrated system.



-Various Types of Antenna

Each radar antenna is selectable from a lineup of 9 feet (2-unit), 9 feet (3-unit), 18 feet (3-unit) horizontal and 18 feet (3-unit) circular types, and the X-band transmitter/receiver system is available in the conventional magnetron type and the solid-state type, allowing the optimum system configuration to meet the purpose of use and the sea water coverage.

18ft Antenna

9ft Antenna

Solid State
Transmitter Receiver
(NTG-420)

- Automatic Radar Tracking

The Image Server/Tracker provides high resolution radar image processing and high tracking performance. The tracking of the target echo entering in the pre-set area or crossing the line setting by the user on the Operation Display is automatically started and the tracking of only selected target echo(es) by manual is (are) also available. The stationed buoy or rocks such as not expecting vessel are able to exclude a tracking target.

SELECTION GUIDE

BASE KIT

Radar Antenna

		Transmitter Receiver		
9ft 2unit Horizontal			25kW	Single/Dual
9ft 3unit Horizontal			SS	Single/Dual
18ft 3unit Horizontal/Circular			25kW	Single/Dual
			SS	Single/Dual

Radar Data Processor

Operation Display

Additional Operation Display

Up to four Additional Operation Display

Additional Display

Up to two Additional Display per one PC

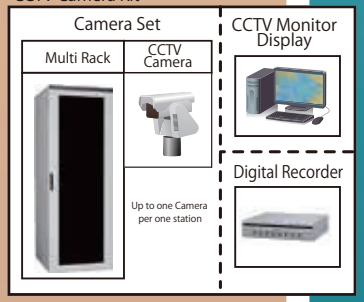
Dehydrator

OPTIONAL KIT

AIS Base Station Kit

AIS Receiver Kit

CCTV Camera Kit



NETWORK SELECTION SAMPLE

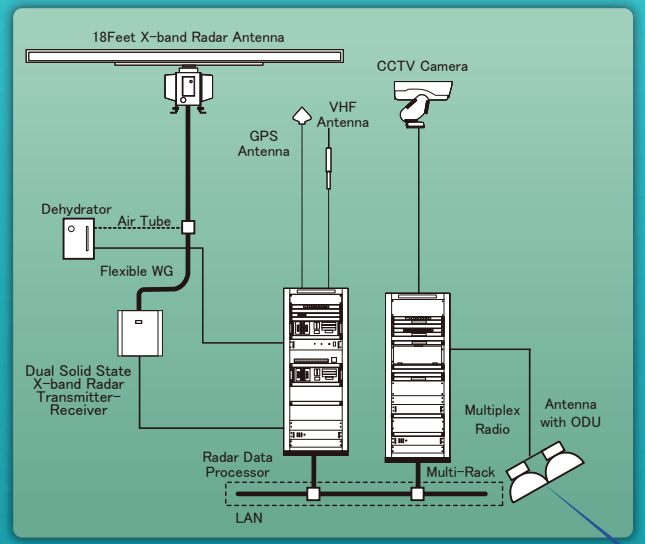
Optical fiber Cable

Wireless LAN

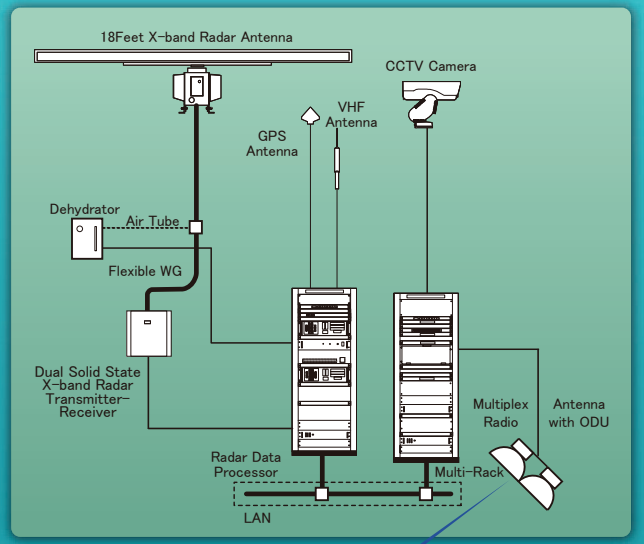
Microwave network

SYSTEM CONFIGURATION SAMPLE

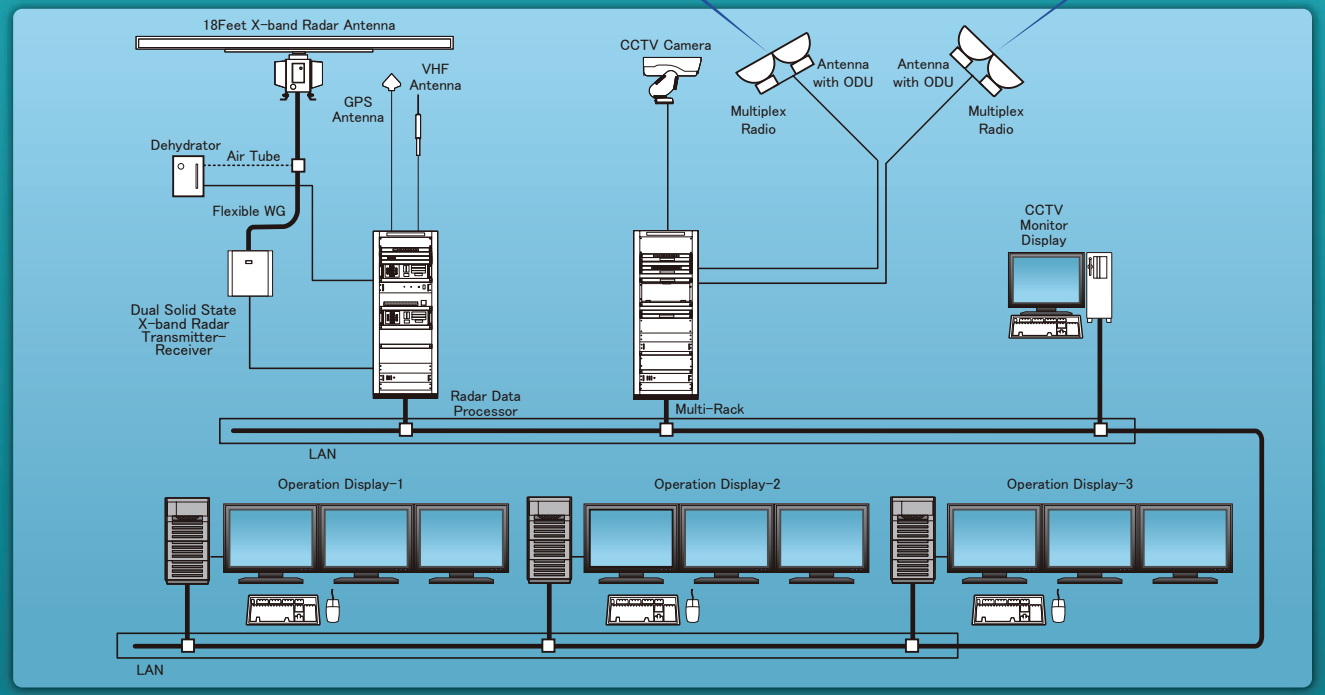
Radar Station-1



Radar Station-2



VTS Control Center



SPECIFICATION

Model		V650 Series		
Radar Antenna		NKE-326,330	NKE-339,336	NKE-351,352,353,354,355,356
Antenna length		9ft 2unit	9ft 3unit	18ft 3unit
Transmitting power		25kW(Magnetron)	25kW(Magnetron) / 200W(Solid State)	25kW(Magnetron) / 200W(Solid State)
Rotation speed		24rpm		22rpm
Polarization		Horizontal		Horizontal(NKE-353,354,355,356) /Circular(NKE-351,352)
Frequency		9410(NKE-326,339)/9740MHz(NKE-330,336)		9375(NKE-351,352,353,354) /9740MHz(NKE-355,356)
Dimension Swing Circle x Height / Weight		2825 x 536 mm/ 60kg	2825 x 536 mm/ 53kg	5330 x 634 mm/ 110kg
Installation cable		30/50/100m (between Processor and Scanners)		
Environment		Temperature: -25 to +55℃, Relative humidity: 93% at +40℃		
Radar Data Processor		NCE-5548 Max 3 radar composition		
Input Signal		radar video signal, antenna bearing signal, trigger signal		
Video adjustment Function		anti sea clutter, scan correlation, sweep integration, anti rain clutter, interference rejects		
Alarm Function		warning line & area alarm, anchor watch,high/low speed, CPA/TCPA		
Automatic Tracking		Max 300 targets per station		
LAN interface		Ethernet 100/1000BASE-TX		
Power Supply		AC100/110/120/220/230/240V		
Power consumption		2kVA or less		
Dimension (W)x(D)x(H)/Weight		600 x 700 x 1900mm/ 250kg or less		
Operation Display		NCD-2246		
OS		Windows 10 Professional		
Memory		8GB		
LAN interface		Ethernet 100/1000BASE-TX		
Presentation		radar video image, radar tracked data, alarm data, electronic chart, range mark, bearing scale, L/L line, EBL/VRM, radar control window, AIS target data etc		
Electronic Chart		ENC S63 support (Option)		
Record Period		31 days		
Record Interval		Selectable (10, 30, 60, 90, 120 seconds)		
LCD		1920 x 1200 pixel(WUXGA)		
Optional items				
Dehydrator		NZA-283		
AIS Receiver kit		NZA-270A Max 1000 targets		
	AIS Transponder	NTE-183		
	AIS Controller	NCM-983		
	Serial IP Converter	CMH-2354		
AIS Base Station kit		NZA-287A Max 1000 targets		
	AIS Base Station	JHF-308		
	VHF Antenna	SL-150		
	GPS Antenna	CCAH32ST14		
Additional Operation Display		NCD-2246 Max 4 Additional Operation Display		
Additional Display		NWZ-204 Max 2 Additional Displays per Operation Display		
CCTV Camera kit		NZA-284		
	Camera Station kit	Max 1 Camera Station per station CCTV Camera system with Multi Rack		
	CCTV Monitor Display	Max 1 CCTV Monitor Display per system		
	Digital Recorder	Max 1 Digital Recorder per system		
Others				
Network		The network linking from site to site are optionally available. The following network types are selectable: ・Wireless LAN ・Optical Fiber Cable ・Microwave Network		
Others		The others, it must be option sales such as a equipment foundation for the installation.		

*1 SS: Solid State 200W

• Specifications may be subject to change without notice.

For further information, contact:

JRC Since1915 **Japan Radio Co., Ltd.**

URL https://www.jrc.co.jp/eng/

Main Office: NAKANO CENTRAL PARK EAST
10-1, Nakano 4-chome, Nakano-ku, Tokyo
164-8570, Japan
Telephone: +81-3-6832-0981
Facsimile : +81-3-6832-1726

Overseas Branches : Athens, Manila
Liaison Offices : Taipei, Hanoi, New York
Overseas Subsidiaries : JRC Spectra Indonesia (Jakarta)
JRC do Brasil (Rio de Janeiro)

36ELS

ISO9001, ISO14001 Certified

© 2020.12