

If you want an IALA-128 standard type of VTS,  
your best choice is V650!



Complied with  
**IALA V-128**  
Basic and Standard

- 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)

## 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.

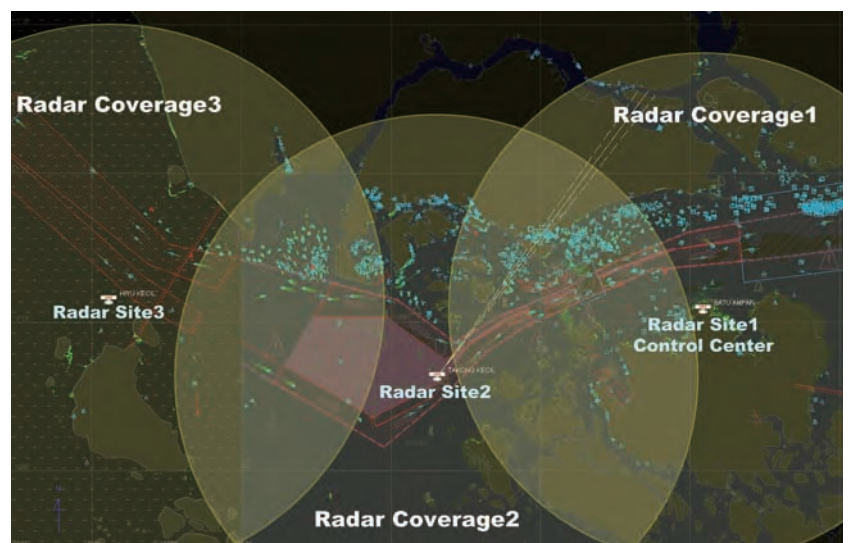
For instance, if a vessel is sailing toward a shallow water area, the operator can foresee a risk of grounding in monitoring the VTS screen. In this case, the VTS operator can call to the vessel via the international VHF communication system (as he can recognize the vessel's name by AIS) and advise the 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

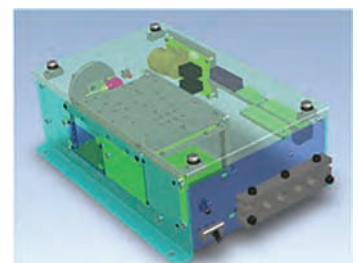
Each radar antenna is selectable from a lineup of 9-foot (2-unit), 9-foot (3-unit), 18-foot (3-unit) horizontal and 18-foot (3-unit) circular types, and the X-band transmitter/receiver system is available in the conventional magnetron type and the solid-state type, allowing the optimum system configuration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



18ft Antenna



9ft Antenna



Solid State  
Transmitter Receiver  
(NTG-403)

### - 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.

# 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)

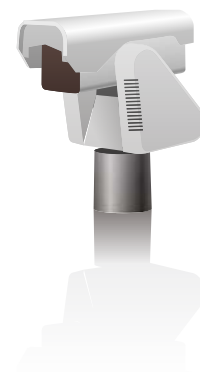
AIS information can be integrated on the Operation Display. If the radar target echo and the AIS target vessel are identified, those are automatically integrated and displayed on the screen with a single symbol. The VTS system can select the function of AIS base Station and send own station data to other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

## SELECTION GUIDE

### BASE KIT

Radar Antenna		Transmitter Receiver	
9ft 2unit	Horizontal		
9ft 3unit	Horizontal		
18ft 3unit	Horizontal/Circular		

### 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 Transponder (install in RDP rack)

#### AIS Receiver Kit

		AIS Interface (install in RDP rack)
		Serial-IP Converter (install in RDP rack)

#### CCTV Camera Kit

Camera Set		CCTV Monitor Display
Multi Rack	CCTV Camera	
Up to one Camera per one station		Digital Recorder

### NETWORK SELECTION SAMPLE

Optical fiber Cable



Wireless LAN

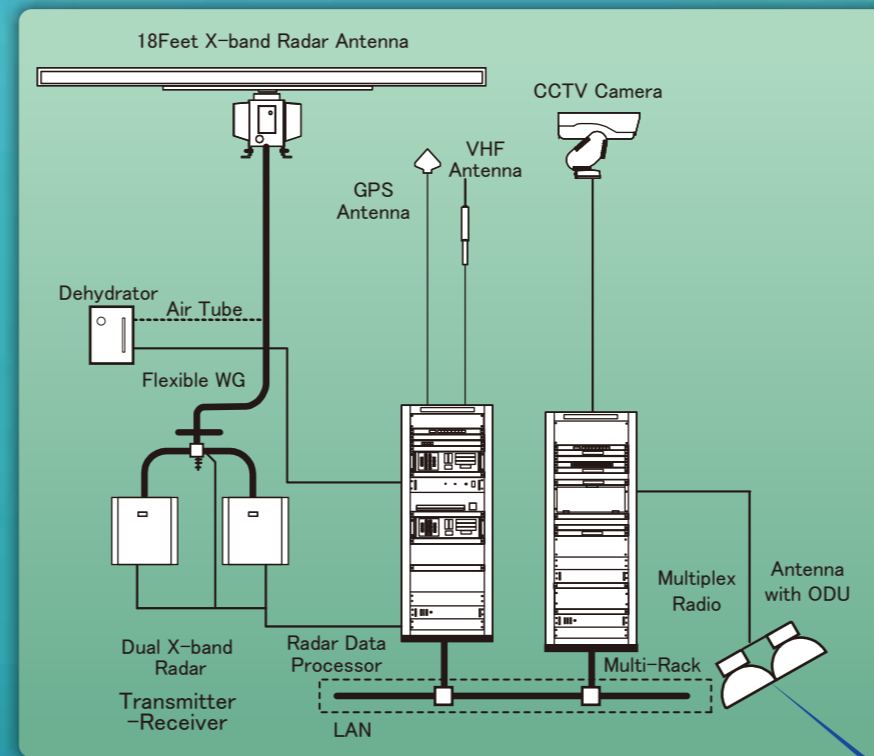


Microwave network

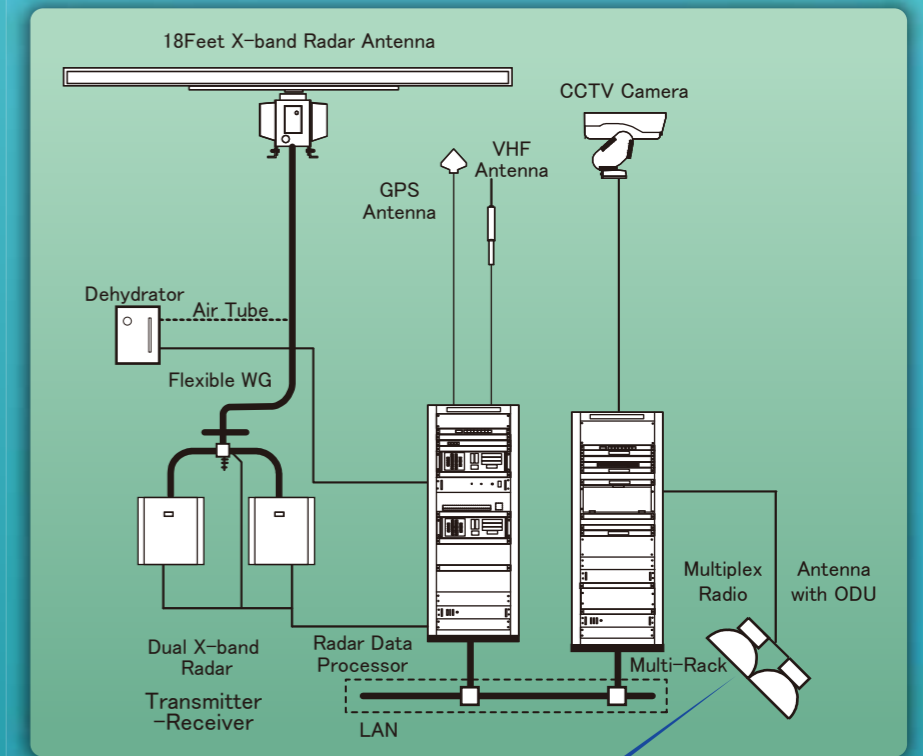


## SYSTEM CONFIGURATION SAMPLE

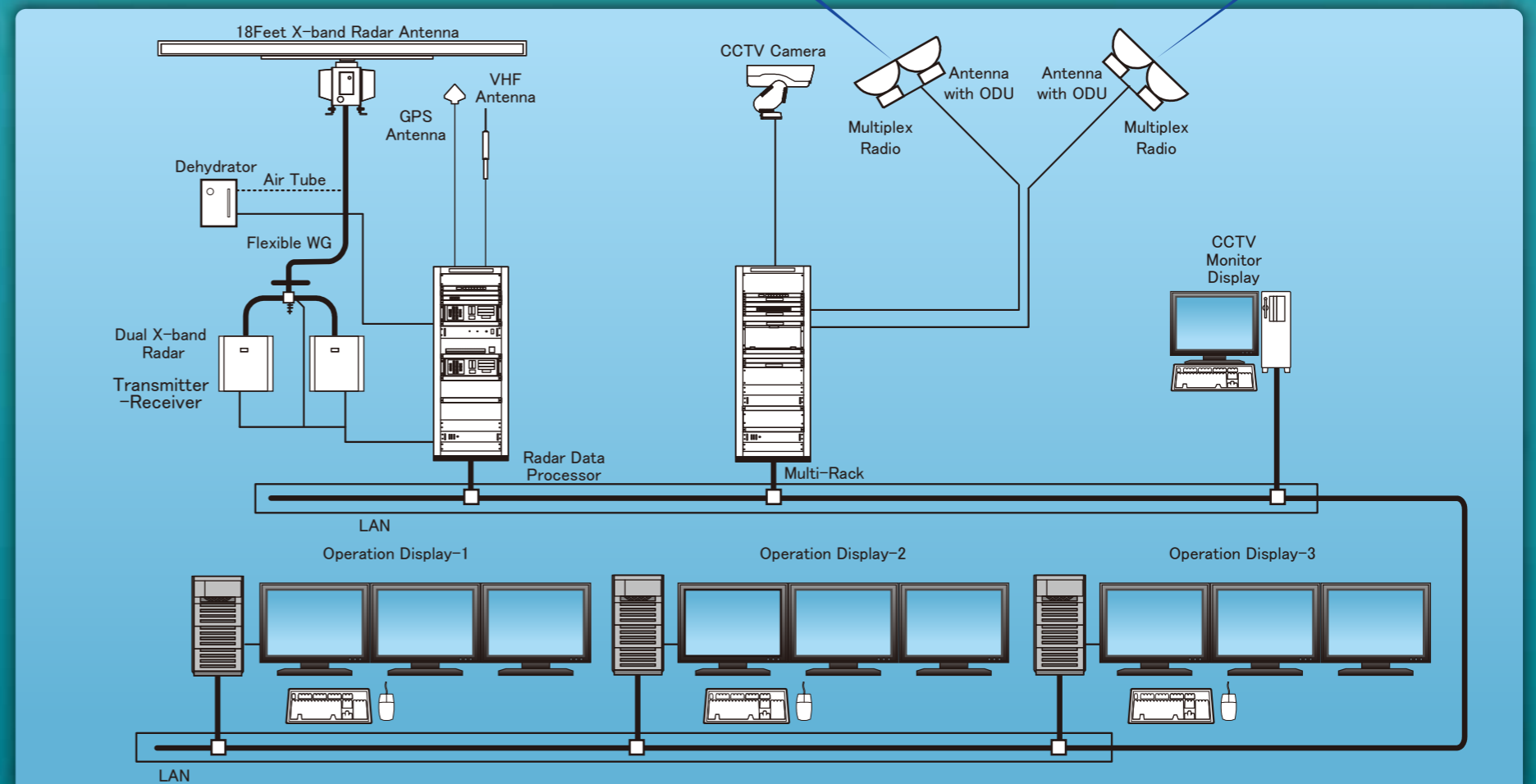
### Radar Station-1



### 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	25kW/SS <sup>*1</sup>	25kW/SS <sup>*1</sup>
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°C, Relative humidity: 93% at +40°C		
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 10/100BASE-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 XP Professional / Windows7 professional 32bit		
Memory	4GB		
LAN interface	Ethernet 10/100BASE-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(*1) 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-288 Max 1000 targets		
AIS Receiver	NTE-182BR		
AIS Interface	NCX-4282		
Serial IP Converter	CMH-2354		
AIS Base Station kit	NZA-287 Max 1000 targets		
AIS Transponder	JHF-307		
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:



**PT Djawa Baru**



Since 1915

**Japan Radio Co., Ltd.**

URL <http://www.jrc.co.jp/eng/>

**Jl. Prof. Soepomo, S.H. 45F  
Jakarta 12810, Indonesia**

**Telephone : +62 21 8298401  
Mobile (wa) : +62 852 1679 9191  
E-mail : support@djawabaru.co.id  
Web-site : http://djawabaru.co.id//**

**Main Office:** 1-1, Shimorenjaku 5-chome, Mitaka-shi,  
Tokyo 181-8510, Japan  
Telephone: +81-422-45-9890  
Facsimile: +81-422-45-9683  
E-mail: ovs-contact@jrc.co.jp

**Overseas Branches : Seattle, Amsterdam, Athens, Manila  
Liaison Offices : Taipei, Jakarta, Singapore, Hanoi,  
Hamburg, New York**