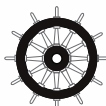


# JMA-900B series Chart radar system



Complies with IMO carriage requirements for vessels above 10,000 GT, and fully meets MSC 192(79) radar performance standards effective from 1 July 2008 contained within IEC62388.

*– the new chart radar combines the features of JRC's renowned radar systems with great chart graphics*

**23-inch high visibility display**

**Constaview™ digital signal processing**

**TEF™ multi-level target enhancement**

**Built-in high performance ECDIS mode for backup**

**Advanced LAN interfacing**



*Japan Radio Co., Ltd.*

since 1915

# JMA-900B series

## – performance features

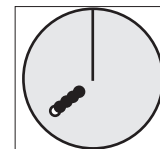
### Unique features

- The new JMA-900B chart radar combines JRC's renowned radar and highly advanced ECDIS technology, providing reliable performance and significantly improves situation awareness.

### Constaview™

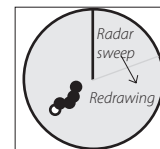
The second generation and patented Constaview™ is realised through the use of two high-speed processors (in-house Tornado™ technology). All info gathered by the radar is fully processed within a few milliseconds before displayed, generating a smooth image rotation when sailing in Head-Up mode. When changing to North-Up, the new radar image is displayed without any delay caused by the scanner rotation.

Constaview™



**True Trails**  
Constaview™ refreshes the image every 16ms. Despite heading changes trails are always true.

Conventional



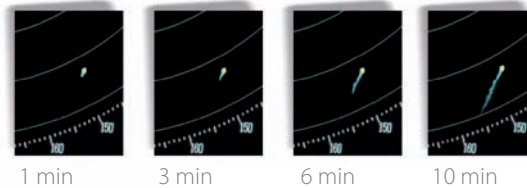
**Relative Trails**  
Traditional technology relies on several sweeps of the scanner to redraw the image. Trails are presented as relative.

#### Constaview™ in JMA-900B

Constaview™ works in radar mode. In chart-radar mode, radar images are displayed with regular intervals.

### Select a trail length

Other ship's movement and speed can be monitored from length and direction of their trails, primary serving for collision avoidance. The JMA-900B series integrate three different trail length modes, that will show a ship's course instantly.



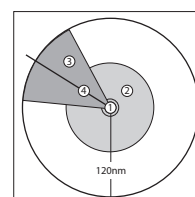
### AIS targets

The AIS is an important key device used to indicate AIS target symbol and information. These targets are very useful, as it provides the maneuvering conditions of other ships at a glance, allowing for safe and effective navigation. The name of the vessels, and

bearing, range, speed, length, heading and much more AIS target specifics from other ships are received and displayed. The AIS symbols are continuously displayed on-screen without the influence of the radar characteristics. The AIS targets are never shielded by ground, rain or cloud reflections, nor are they eliminated by adjustments of anti-sea or anti-rain clutter.



Also, it is easy to active, deactivate and switch between AIS target symbols. This simply can be done with an integrated AIS filter, prioritising the targets within a dedicated area.



1. vessels' position
2. ring area
3. sector area
4. heading line

# JMA-900B series

## – developed for maximum ease of use

### Advanced route planning

The advanced nature of JRC's new chart radar system allows route planning in different ways. Either plan your route by using the table editor, while displaying current waypoint or graphically draw your next waypoint on the chart. Editing the route is just as simple as inserting. Dedicated menus are readily available to assist the mariner in effective route planning. Not only can you save the routes, but import favourite or commonly used files, even from previous ECDIS models, using industry standard CSV format.

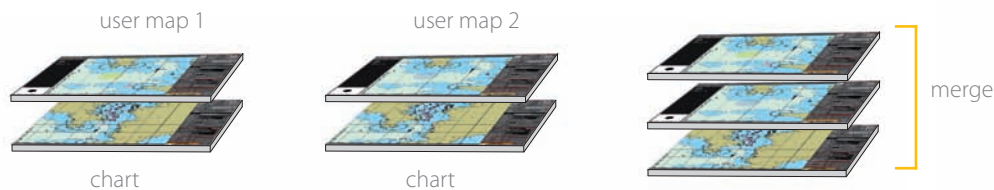
During the voyage, you can add an alternative route, which can be displayed simultaneously. You can move, insert, add and delete waypoints instantly and easily exchange the alternative route with route in progress, at your own convenience.



Route planning with table editor while displaying waypoints

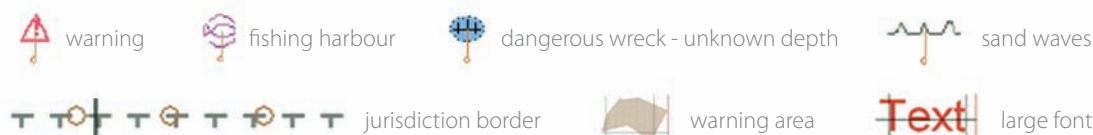
### Editing the user maps

The new JMA-900B chart radar provides a rich suite of objects which you single-handedly can enter, move, insert and add on user maps. The objects consist of symbols, lines, areas and texts. From buoys to



buildings and harbour to seabed signals, the ECDIS system has a total of over 40 categories and 30 sub-categories, which include more than 250 graphics readily available for endless possibilities.

#### A few examples

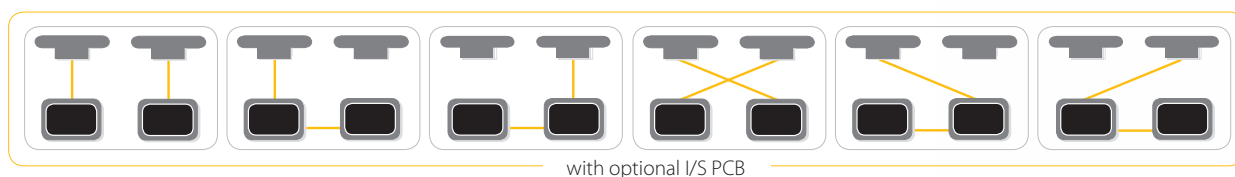


### Multi-view

Multiple and wide screen viewing is possible with the new JMA-900B. You can divide the chart screen into two sections, in which the same or different charts can be displayed. There is also a 'look-ahead' capability, especially useful in coastal areas. With the wide screen view function, an additional screen in the display area shows a segment of the chart, allows viewing at a glance.

### Interswitching

Optional interswitching to JMA-900B and JMA-9100 series radar.



JRC also produces special interswitch boxes that allow interswitching up to 8 (chart) radars.

# JMA-900B series

## – easy user interface



### New keyboard design

The new keyboard design of the JMA-900B allows you to carry out all operations simply by using the keyboard or on-screen by use of the trackball.

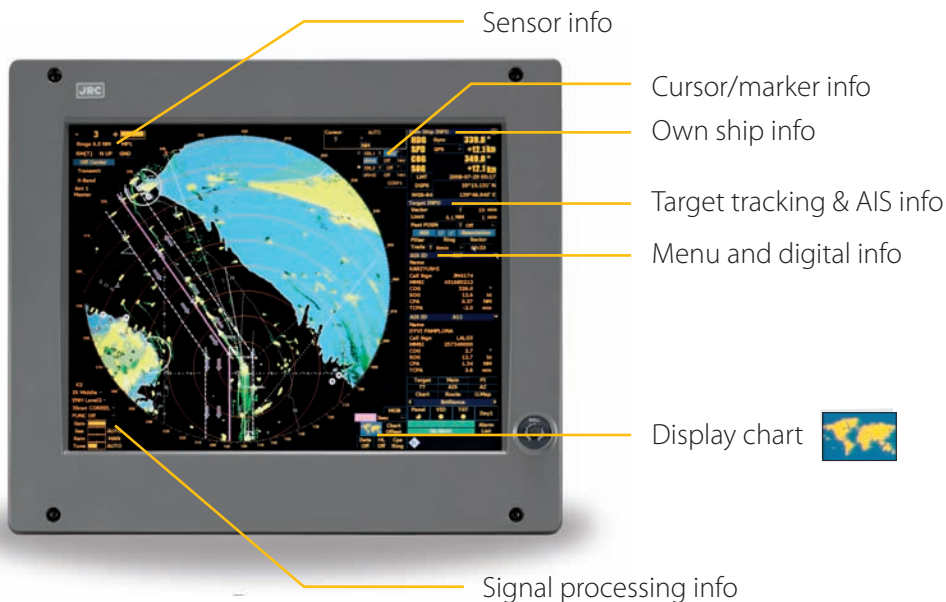
The JMA-900B keyboard is solid and responsive, which allows for precise operation. It also integrates function keys for one-touch access to EBL, VRM, GAIN, SEA and RAIN. This makes it easy to navigate through all common used tasks.

### Clear on-screen info

The JMA-900B series make your images more brilliant than ever with a sharp 23-inch high resolution LCD display.

Menu selections, via the keyboard or trackball are clearly shown on the display - allowing at a glance interpretation of the display image.

You can also select from multiple background modes in day, dusk, and night mode, and you can adjust the brilliance at your own convenience.



### JRC StarNetwork™

JRC has been providing sales and support of products since 1915. Today, JRC offers comprehensive assistance through its organisation, in partnership with a worldwide StarNetwork™ of over 270 fully trained and qualified partners and agents, assisting you 24 hours a day, 7 days a week and 365 days a year.



**JRC one-call™**

#### One number to call

With JRC you can go anywhere and if you need our support, simply call us at +81 3 3492 9201, anytime.



# JMA-900B series

## – system flexibility

### User interface

The insightful and simple menu structure can be found on both radar and ECDIS. The consistent visual appeal and intuitive usage is of great importance on the vessels bridge, especially being a working and living environment for thousand of vessels' officers on a day to day base.

### Flexible installation approach

The JMA-900B series are available in standalone and desktop version, designed for a flexible installation approach to suit your type of vessel. The desktop version consists of a processor, dedicated keyboard and high visibility LCD display, sharing the same simple configuration as it predecessor, which contributes to enhanced system configuration.

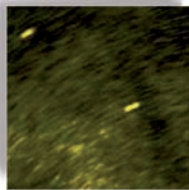


Radar

ECDIS



Saturation of noises on receiver



Wide dynamic range

### Wide dynamic range receiver

The new chart radar series integrates a wide dynamic range receiver that, compared to conventional models, dramatically improves the differentiation of noise and targets under sea clutter. The radar system overcomes different sources of unwanted signals, maintaining a constant level of clutter suppression.

### What's standard in the box?

JRC sets the highest standards for performance and flexibility. With our new JMA-900B series, you have a set of choices to select from, allowing you to 'configure' your favoured chart radar system. This makes it ideal for your preferred installation approach.

	JMA-922B-6XA	JMA-922B-9XA	JMA-923B-7XA	JMA-923B-9XA	JMA-932B-SA	JMA-933B-SA
Unit type	2		3		2	3
Transmitting power	25kW				30kW	
Frequency	X-band				S-band	
Version	Available in desktop and standalone version					
Cable type	1		2		1	3

#### Cable type 1

Scanner to display 40 m

#### Cable type 2

Scanner to display 40 m (via transceiver)  
Scanner to transceiver (waveguide) 20 m

#### Cable type 3

Scanner to display 40 m (via transceiver)  
Scanner to transceiver (HF coax cable) 30 m

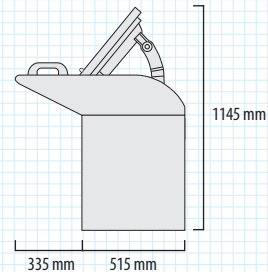
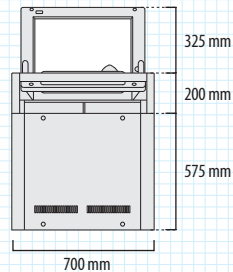
(!) The maximum length for cable (scanner to display) must not exceed 65 m

# JMA-900B series

## – dimensions and weights

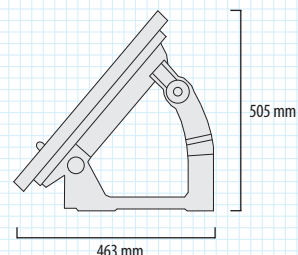
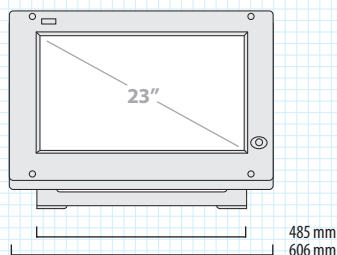
### Dimension drawings - Stand alone version

**NCD-2096** Weight 150 kg



### Dimension drawings - Display in desktop version

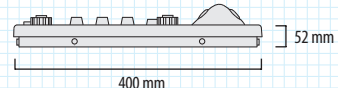
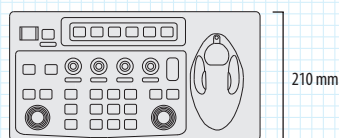
**NWZ-170-E** Weight 25 kg



cutout for panel mount height 344,5 mm, width 485 mm, depth 80 mm

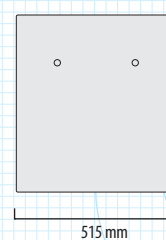
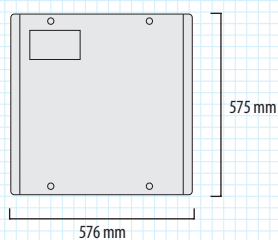
### Dimension drawings - Keyboard in desktop version

**NCE-5163-F** Weight 3,5 kg



### Dimension drawings - Processor in desktop version

**NDC-1444** Weight 85 kg

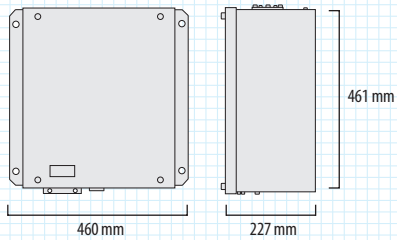


# JMA-900B series

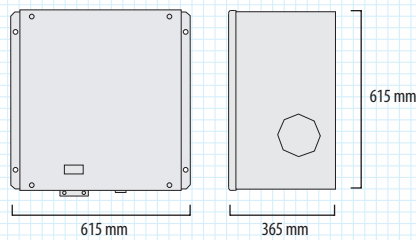
## – dimensions and weights

### Dimension drawings - Transceivers for 3-unit types

**NTG-3225** x-band Weight 15 kg

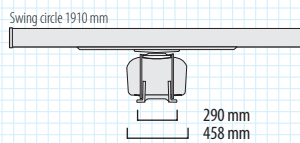


**NTG-3230** s-band Weight 33 kg

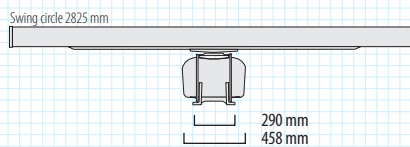


### Dimension drawings - 25kW X-band scanner

**NKE-1125-6** Weight 55 kg

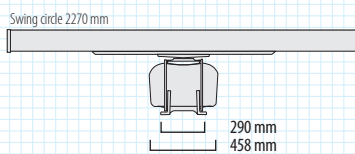


**NKE-1125-9** Weight 60 kg

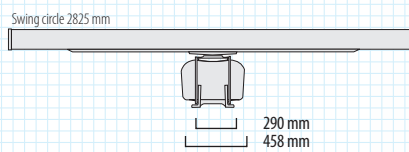


### Dimension drawings - 25kW X-band scanner

**NKE-1129-7** 3-unit type Weight 51 kg

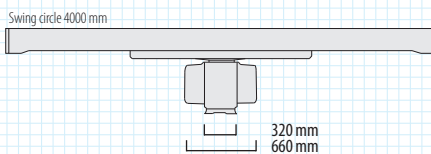


**NKE-1129-9** 3-unit type Weight 53 kg

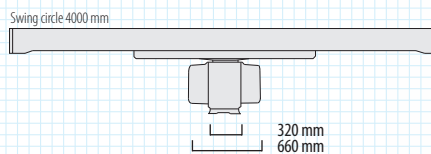


### Dimension drawings - 30kW S-band scanner

**NKE-1130** Weight 180 kg



**NKE-1139** 3-unit type Weight 150 kg



# JMA-900B series

## – specifications

Model		JMA-922B-6XA	JMA-922B-9XA	JMA-923B-7XA	JMA-923B-9XA	JMA-932B-SA	JMA-933B-SA	
IMO compliant		✓	✓	✓	✓	✓	✓	
Unit type		2-unit type			1) 3-unit type		2-unit type	2) 3-unit type
Performance monitor		NJU-85					NJU-84	
Frequency		X-band					S-band	
Display		colour raster scan PPI						
Scanners								
	Model	NKE-1125-6	NKE-1125-9	NKE-1129-7	NKE-1129-9	NKE-1130	NKE-1139	
	Antenna length	6ft.	9ft.	7ft.	9ft.	12ft.	12ft.	
	Transmitting power	25kW					30kW	
	Transmitting frequency	9410MHz ± 30MHz					3050MHz ± 20MHz	
	Beam width 3db	Hor. 1.2°, Ver. 20°	Hor. 0.8°, Ver. 20°	Hor. 1.0°, Ver. 20°	Hor. 0.8°, Ver. 20°	Hor. 1.9°, Ver. 25°	Hor. 1.9°, Ver. 25°	
	Rotation speed	24rpm					24rpm	
	Pulse width (receive freq.)	0.07µs/2250Hz, 0.2µs/2250Hz, 0.3µs/1900Hz, 0.4µs/1400Hz, 0.8µs/750Hz, 1.0µs/650Hz, 1.2µs/510Hz						
	Duplexer	circular + diode limiter						circular + TRHPL
	Range scale	0.125/0.25/0.5/0.75/1.5/3/6/12/24/48/96 NM						
	Tuning	automatic / manual						
	Ambient condition	temperature -25° to 55°C (PM: temperature -15° to 55°C), relative humidity 0% to 93% non-condensing						
	Chart radar display unit							
		LCD	1600 by 1200 pixels (UXGA)					
Effective diameter		≥ 320mm						
Bearing indication		north-up / course-up / head-up						
Presentation mode		RM display with true trails, RM display with relative trails, TM display						
Range resolution		<30 m						
Minimum detective range		<40 m						
Bearing accuracy		<1°						
Chart database		vector: ENC S-57 Ed3.0/3.1, S-63 (security scheme), C-Map Ed.3 3) raster: ARCS navigator/skipper service						
Trail indication		3 stages: short, middle, long (e.g. short: off /0.25/0.5/1/3/6/10/15-min)						
Navigation lines		20.000 points						
Off center		60% radius of PPI						
AIS targets		300 (activated + sleeping)						
ARPA tracking numbers		100						
Ambient condition	temperature -15° to 55°C, relative humidity 0% to 93% non-condensing							
Antenna cable (max length 65 m)		H-2695110056 (40 m)		H-7AWRD0003 (20 m) H-2695110056 (40 m)		H-2695110056 (40 m)	HF-20D (30 m) H-2695110056 (40 m)	
Power supply (voltage)		4) 110V AC (100V to 115V AC), 230V AC (220V to 240V AC), 50/60Hz, 1Ø						
Power consumption (at max wind load)		avg 550VA, max 1900VA				avg 600VA, max 2200VA		
Optional items								
Lightproof hood (display)		MPOL30345A						
Canvas cover (display)		MPXP33089						
Mini keyboard		MPXP33223A						
Serial interface kit		MPXP34118						
Analogue interface kit		MPXP34119						
Gyro interface kit		MPXP34120						
Interswitch		NQE-3141-4A (4 units), NQE-3141-8A (8 units)						

1) Separate transmitter receiver: NTG-3225 2) Separate transmitter receiver: NTG-3230

3) Available at ECDIS mode only 4) Specify power supply input for drive motor upon ordering

All specifications are subject to change without notification.

For further information please contact:



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