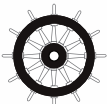

JMA-900B series Chart radar system

JRC



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

JRC

Japan Radio Co., Ltd.

JMA-900B series

– performance features

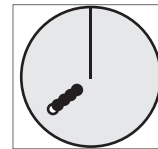
Unique features

- 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™

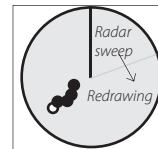
The second generation and patented Constaview™ is realised through the use of two high-speed processors (in-house Tornado™ technology). All info gathered by the radar is fully processed within a few milliseconds before displayed, generating a smooth image rotation when sailing in Head-Up mode. When changing 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.

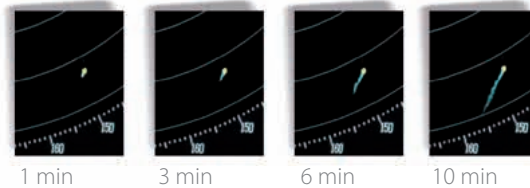
Conventional



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.

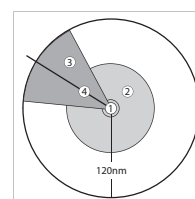
AIS targets

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

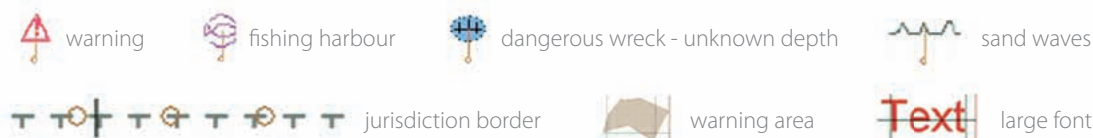
Editing the user maps

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

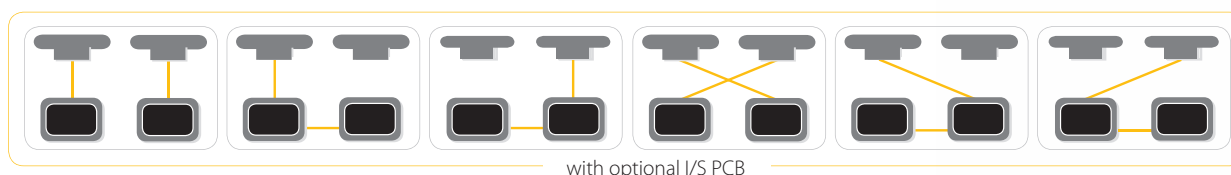


Multi-view

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.

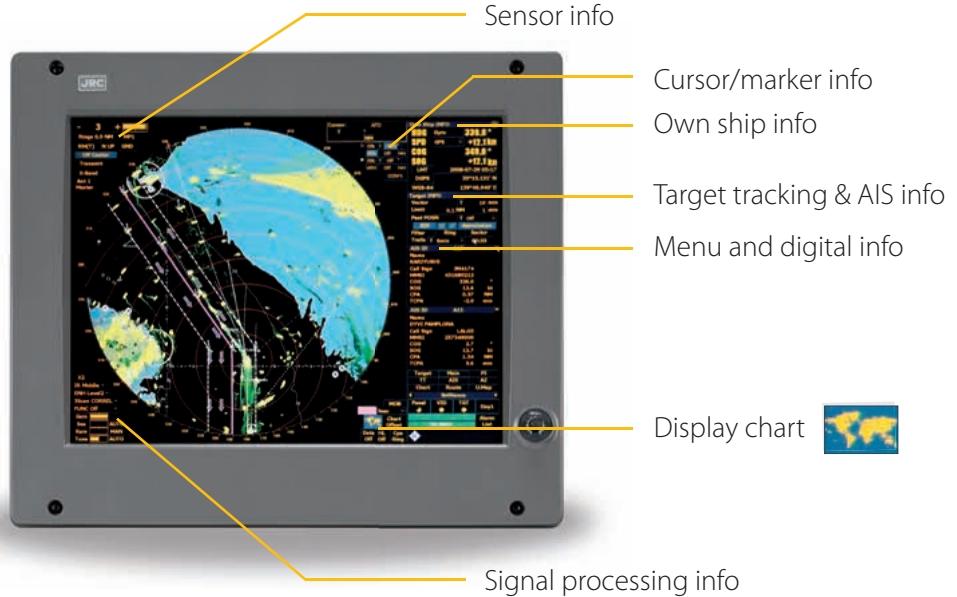
The JMA-900B keyboard is solid and responsive, which allows for precise operation. It also integrates function keys for one-touch access to EBL, VRM, GAIN, SEA and RAIN. This makes it easy to navigate through all common used tasks.

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.



JMA-900B series

– system flexibility

User interface

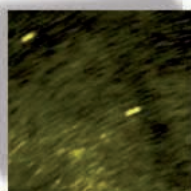
The insightful and simple menu structure can be found on both radar and ECDIS. The consistent visual appeal and intuitive usage is of great importance on the vessels bridge, especially being a working and living environment for thousand of vessels' officers on a day to day base.

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.



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, 3			1	3

Cable type 1

Scanner to display 40 m (standard)

Cable type 2

Scanner to transceiver alternative 20 m or 30 m
 Scanner to transceiver (waveguide) alternative 20 m or 30 m
 Transceiver to display 35 m (standard)

Cable type 3

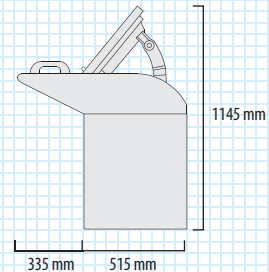
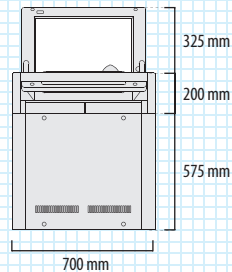
Scanner to transceiver 30 m (standard)
 Scanner to transceiver (waveguide) 30 m (standard)
 Transceiver to display 35 m (standard)

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

JMA-900B series – dimensions and mass

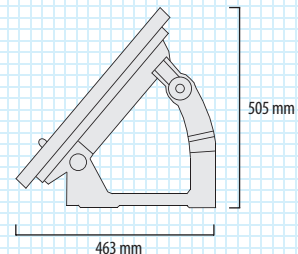
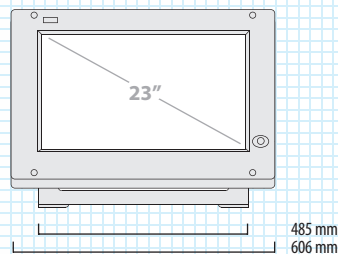
Dimension drawings - Stand alone version

NCD-2096 MASS 150 kg



Dimension drawings - Display in desktop version

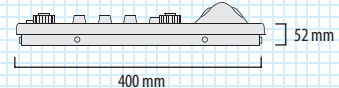
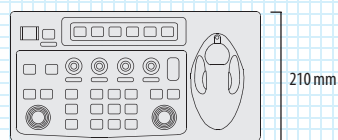
NWZ-170-E MASS 25 kg



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

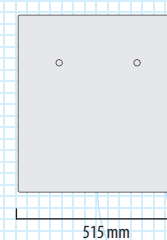
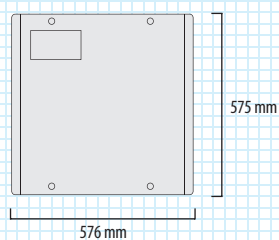
Dimension drawings - Keyboard in desktop version

NCE-5163-F MASS 3,5 kg



Dimension drawings - Processor in desktop version

NDC-1444 MASS 85 kg

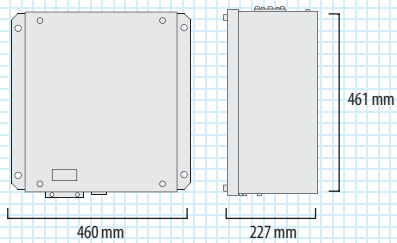


JMA-900B series

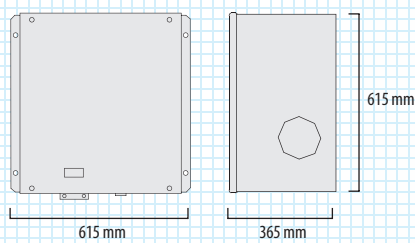
– dimensions and mass

Dimension drawings - Transceivers for 3-unit types

NTG-3225 x-band MASS 15 kg

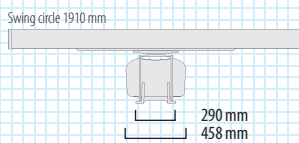


NTG-3230 s-band MASS 33 kg

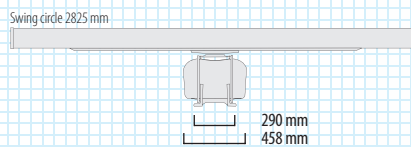


Dimension drawings - 25kW X-band scanner

NKE-1125-6 MASS 55 kg

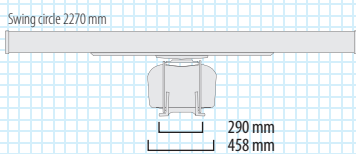


NKE-1125-9 MASS 60 kg

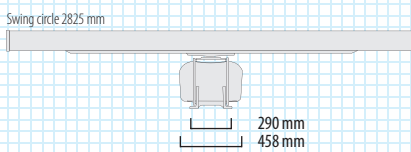


Dimension drawings - 25kW X-band scanner

NKE-1129-7 3-unit type MASS 51 kg

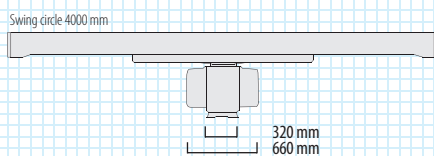


NKE-1129-9 3-unit type MASS 53 kg

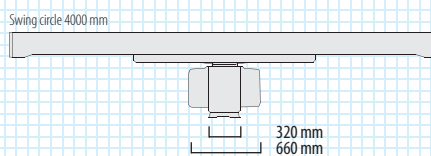


Dimension drawings - 30kW S-band scanner

NKE-1130 MASS 180 kg



NKE-1139 3-unit type MASS 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 detectable 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	H-7AWRD0003/4 (20/30 m) 5) H-2695110056		H-2695110056	HF-20D (30 m) 5) H-2695110056	
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					
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

5) Require two cables for 3-unit type (display - transceiver / transceiver - scanner)

All specifications are subject to change without notification.

• Specifications may be subject to change without notice.

For further information, contact:



Since 1915

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