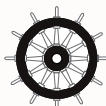


# JMA-9100 series ARPA radar



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



*– an all-new high-performance radar from JRC brings a new level of functionality to the bridge*

- 23" high visibility LCD screen**
- Constaview™ digital signal processing**
- TEF™ multi-level target enhancement**
- High speed version available**
- Wide dynamic range receiver**

# JMA-9100 series

## – performance features

### Unique features

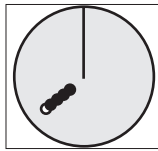
- JRC's new JMA-9100 ARPA radar series integrates the latest leading technologies and represents a significant step change in terms of reliable performance and cost-effectiveness, making it one of the most advanced radar products available today.

### Constaview™

The second generation and patented Constaview™ is realised through the use of three 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.

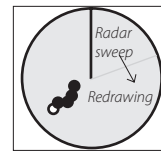
### Real time Head-Up mode

Constaview™

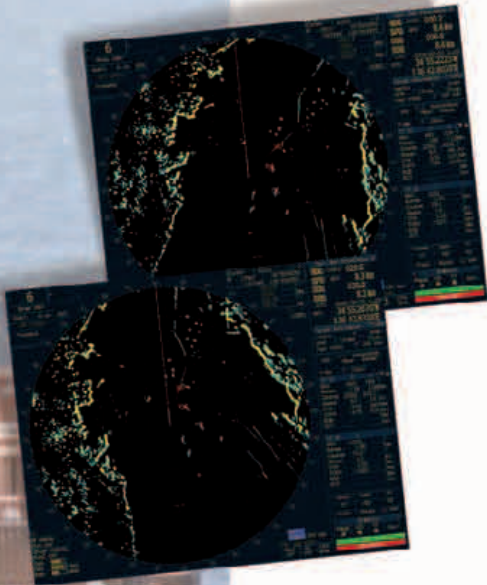


*True Trails*  
Constaview™ refreshes the image every 16mS.  
Despite heading changes trails are always true.

Conventional

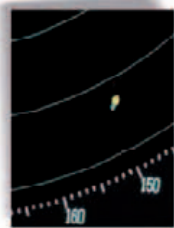


*Relative Trails*  
Traditional technology relies on several sweeps of the scanner to redraw the image. Trails are presented as relative.

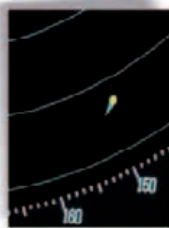


### Select a trail length

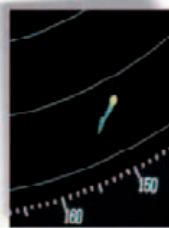
Other ship's movement and speed can be monitored from length and direction of their trails, primary serving for collision avoidance. The JMA-9100 radar series integrates three different trail length modes, that will show a ship's course instantly, a unique operational feature that allows for more flexibility. Example real-time processing:



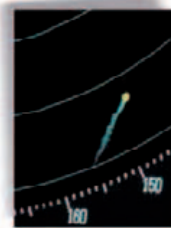
• 1 min.



• 3 min.



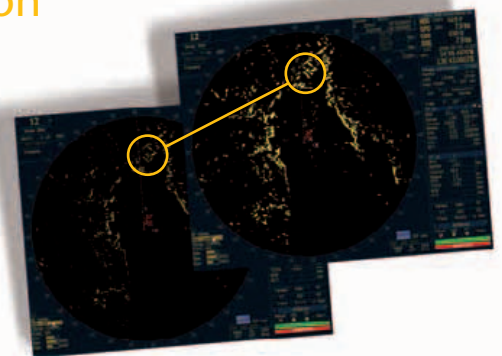
• 6 min.



• 10 min.

### Target Enhancement Function™

Developed exclusively by JRC, TEF™, allows target enhancement relative to the target size. The smaller echoes are far more enlarged than bigger echoes, giving a better on-screen separation and identification.



# JMA-9100 series

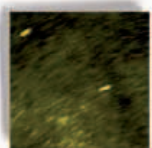
## – developed for maximum ease of use

### Flexible black box configuration

The radars are available in standalone and desktop version to suit your type of vessel. In the desktop version, the processor unit is the heart of the JMA-9100, and shares the same simple configuration as its predecessor, contributing to an enhanced system configuration. TT (Target Tracking) function module with up to 100 targets, and AIS interface are built-in.



• Saturation of noises on receiver



• Wide dynamic range

### Wide dynamic range receiver

The new JMA-9100 series integrates a wide dynamic range receiver that, compared to conventional models, significantly improves the differentiation of noise and targets under sea clutter. The radar system overcomes different sources of unwanted signals, maintaining a constant level of overall visible clutter.

### More powerful than ever

The JMA-9100 incorporates three Tornado™ processors, which are exclusively developed and designed by JRC, bringing a new level of performance and reliability to radar operation. The new Tornado™ processors, which equal the power of twelve conventional processors, and advanced system architecture make the JMA-9100 series probably the most sophisticated radar available today.

### CCRP

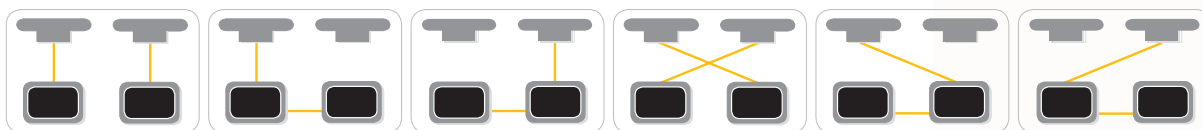
As set by IMO regulations, a Consistent Common Reference Point (CCRP) is a location on own ship, to which all horizontal measurements, such as target range, bearing, relative course/speed, closest point of approach, or time to closest point of approach are referenced.

Where multiple antennas are installed, different position offsets for each antenna in the radar system should be applied with respect to the CCRP. If you switch between scanners (up to 8 possible - option), the information displayed is generated allows for consistency and uniform output. This new feature is easily accessible from the menu.



### Interswitching

Optional interswitching up to 8 displays possible.



# JMA-9100 series

## – easy user interface

### New keyboard design

With its new case design, the keyboard of the JMA-9100 series allows you to carry out all radar operations simply by using the keyboard or on-screen by use of the trackball.



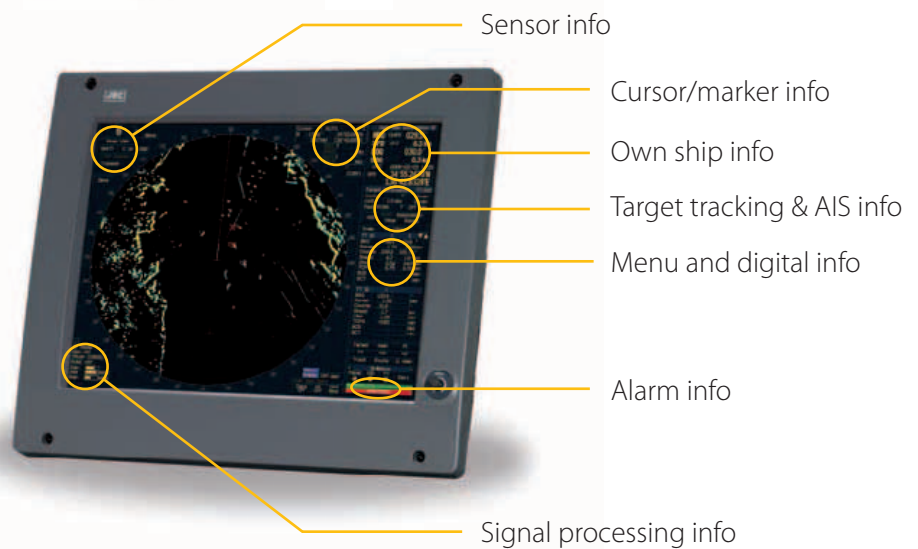
The responsive feel keys allow logical and precise operation and integrates function keys for one-touch access to EBL, VRM, GAIN, SEA and RAIN. This makes it easy to navigate through all common used tasks.

### Clear on-screen info

The JMA-9100 series make your radar images more brilliant than ever with a sharp 23" high resolution LCD screen.

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

You can also select from multiple background modes e.g. day/dusk/night and 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

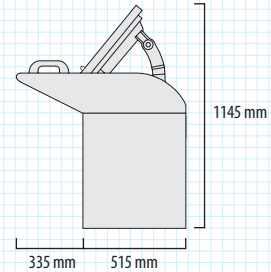
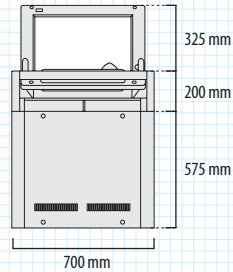
With JRC you can go anywhere and if you need our support, simply call us at +81 3 3492 9201, anytime.



# JMA-9100 series – dimensions and mass

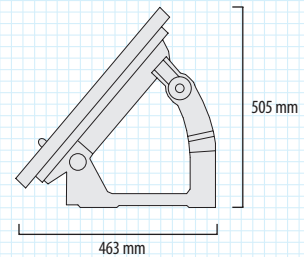
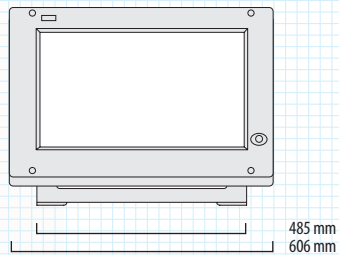
## Dimension drawings - Stand alone version

**NCD-4990** MASS 130 kg

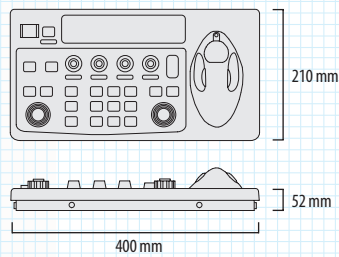


## Dimension drawings - Desktop version

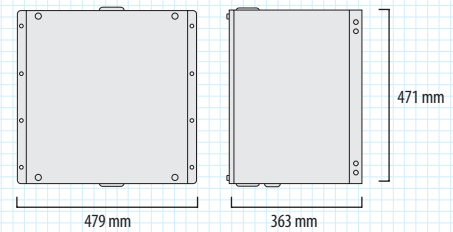
**NWZ-170** MASS 25 kg



**NCE-5163** MASS 3,5 kg

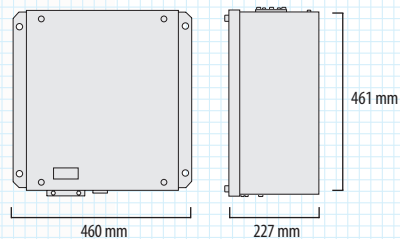


**NDC-1399-9** MASS 30 kg

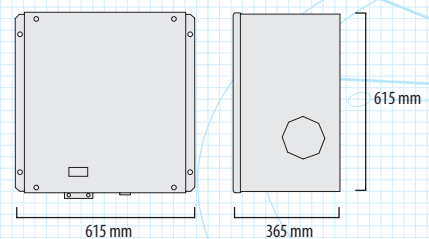


## Dimension drawings - Transceivers for 3-unit types

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



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

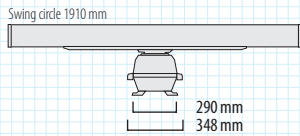


# JMA-9100 series

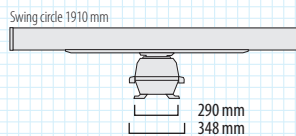
## – dimensions and mass

### Dimension drawings - 10kW X-band scanner

**NKE-2103-6** MASS 40 kg

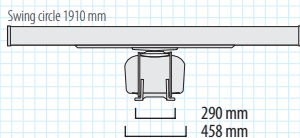


**NKE-2103-6HS** **highspeed** MASS 40 kg

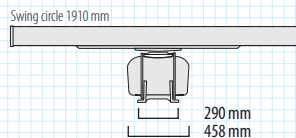


### Dimension drawings - 25kW X-band scanner

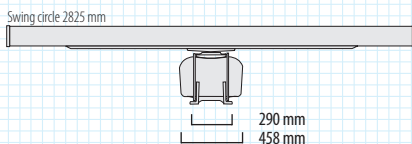
**NKE-1125-6** MASS 55 kg



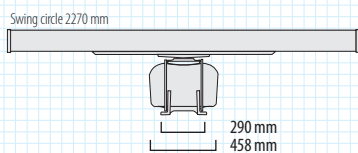
**NKE-2254-6HS** **highspeed** MASS 55 kg



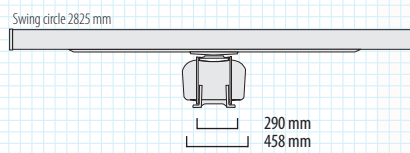
**NKE-1125-9** MASS 60 kg



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

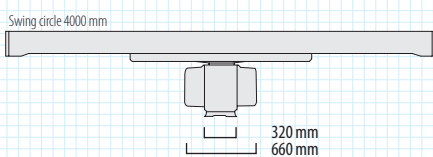


**NKE-1129-9** **3-unit type** MASS 53 kg

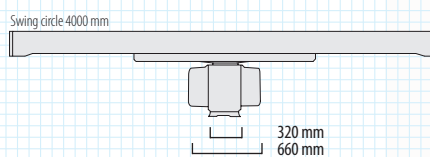


### Dimension drawings - 30kW S-band scanner

**NKE-1130** MASS 180 kg



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



# JMA-9100 series

## – specifications

Model	JMA-9110-6XA	JMA-9110-6XAH	JMA-9122-6XA	JMA-9122-9XA	JMA-9122-6XAH	JMA-9123-7XA	JMA-9123-9XA	JMA-9132-SA	JMA-9133-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								
<b>Scanners</b>									
Model	NKE-2103-6	NKE-2103-6HS	NKE-1125-6	NKE-1125-9	NKE-2254-6HS	NKE-1129-7	NKE-1129-9	NKE-1130	NKE-1139
Antenna length	6ft.	6ft.	6ft.	9ft.	6ft.	7ft.	9ft.	12ft	12ft.
Transmitting power	10kW			25kW			30kW		
Transmitting frequency	9410MHz ± 30MHz							3050MHz ± 20MHz	
Beam width 3db	Hor. 1.2°, Ver. 20°	Hor. 1.2°, Ver. 20°	Hor. 1.2°, Ver. 20°	Hor. 0.8°, Ver. 20°	Hor. 1.2°, Ver. 20°	Hor. 1.0°, Ver. 20°	Hor. 0.8°, Ver. 20°	Hor. 1.9°, Ver. 25°	Hor. 1.9°, Ver. 25°
Rotation speed	27rpm	48rpm	24rpm		48rpm	24rpm			
Pulse width (freq.)	0.08µs/2250Hz,		0.07µs/2250Hz, 0.2µs/2250Hz,						
	0.25µs/1700Hz,		0.3µs/1900Hz, 0.4µs/1400Hz,						
	0.5µs/1200Hz,						0.8µs/750Hz,		
	0.8µs/750Hz,						1.0µs/650Hz,		
	1.0µs/650Hz						1.2µs/510Hz		
Duplexer	circulator + diode limiter								circulator + TRHPL
Range scale	0.125/0.25/0.5/0.75/1.5/3/6/12/24/48/96 nm								
Motor	brushless								
Tuning	automatic / manual								
Modulator	solid state modulator circuit								
Ambient condition	temperature: -25°C +55°C (NTG-3225/NTG-3230: -15°C +55°C), relative humidity: 93% @40°C								
<b>Radar display unit</b>									
Model (stand alone)	NCD-4990								
Model (desktop)	3) NCD-4990T								
LCD	1280 x 1024 dot								
Effective diameter	≥ 320mm								
Bearing indication	north-up / course-up / head-up								
Presentation mode	RM display with true trail, RM display with relative trail, TM display								
EBL	2 (EBL1/EBL2) (center/independent) 000.0° - 359.9°, numerical indication in 4 digits								
VRM	2 (VRM1/VRM2), 0.000 - 100.0nm, numerical indication in 4 digits								
Trail indication	3 stages: short, middle, long (e.g. short: off/0.25/0.5/1/3/6/10/15-min)								
Navigation markers	20,000 points								
Off center	within 66% of radius, except 96 nm								
ARPA tracking numbers	100								
AIS target numbers	300 (sleeping + activated), 100 (activated)								
Ambient condition	temperature: -15°C +55°C, relative humidity: 93% @40°C								
Installation cable (max length 65 m)	CFQ-6912-** (** 5/10/20/30/40/50/65 m)	H-2695110056 (40 m)			CFQ-6912-** (** 5/10/20/30/ 40/50/65 m)	H-7AWRD0003/4 (20/30 m) H-2695110056 (20/30 m) H-2695110056 (35 m)	H-2695110056 (40 m)	H-7AWRD0004 H-2695110056 H-2695110056	
Power supply (voltage)	4) AC 110V (AC 100 to 115V) and/or AC 230V (AC 220 to 240V), 50/60Hz, 1Ø								
Power consumption (max wind)	avg 350VA max 1000VA	avg 350VA max 1700VA			avg 350VA max 1000VA	avg 350VA max 1700VA		avg 400VA max 2000VA	
<b>Optional items</b>									
Power control	NQE-3167								
Interswitch (built-in type: up to 2)	NQE-3141-2A								
Interswitch (box type: up to 4)	NQE-3141-4A								
Interswitch (box type: up to 8)	NQE-3141-8A								
VDR I/F	CFQ-1891								
Scanner with deicing device	n/a	n/a	NKE-1125-6D	NKE-1125-9D	NKE-2254-6HSD	NKE-1129-7D	NKE-1129-9D	NKE-1130D	NKE-1139D
AC/DC converter	NBA-5135		n/a		NBA-5135	n/a			n/a

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

3) consists of NWZ-170 (display), NDC-1399-9 (processor) and NCE-5163 (keyboard)

4) specify power supply input for drive motor for NKE-1125/1129/1130/1139 series upon ordering (NKE-2103/2254 can operate under both)

• Specifications may be subject to change without notice.

**For further information, contact:**



Since 1915

**Japan Radio Co., Ltd.**

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

**Main Office:** Nittochi Nishi-Shinjuku bldg.  
10-1, Nishi-Shinjuku 6-chome  
Shinjuku-ku, Tokyo 160-8328, Japan  
Telephone: +81-3-3348-4099  
Facsimile: +81-3-3348-4139

**Overseas Branches :** Seattle, Amsterdam, Athens  
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