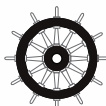


JMA-9100 series ARPA radar



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

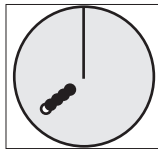
- JRC's new JMA-9100 ARPA radar series integrates the latest leading technologies and represents a significant step change in terms of reliable performance and cost-effectiveness, making it one of the most advanced radar products available today.

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.

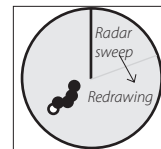
Real time Head-Up mode

Constaview™



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

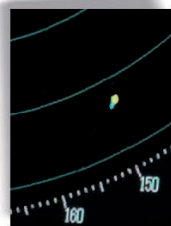
Conventional



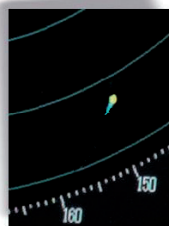
Relative Trails
Traditional technology relies on several sweeps of the scanner to redraw the image. Trails are presented as relative.

Select a trail length

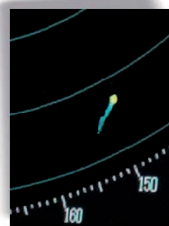
Other ship's movement and speed can be monitored from length and direction of their trails, primary serving for collision avoidance. The JMA-9100 radar series integrates three different trail length modes, that will show a ship's course instantly, a unique operational feature that allows for more flexibility.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



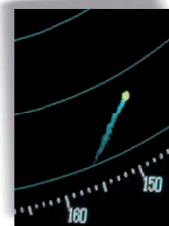
• 1 min.



• 3 min.



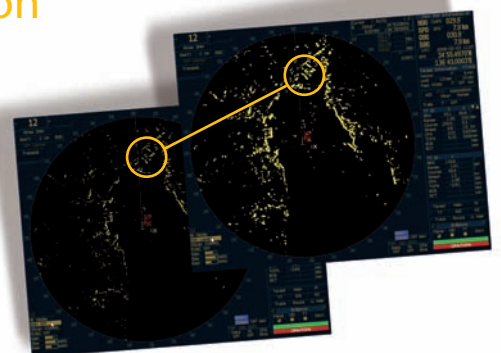
• 6 min.



• 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.

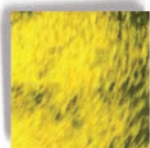


JMA-9100 series

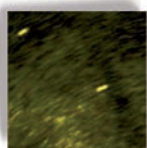
– developed for maximum ease of use

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. Optional TT (Target Tracking) function module with up to 100 targets, and or AIS interface can be 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

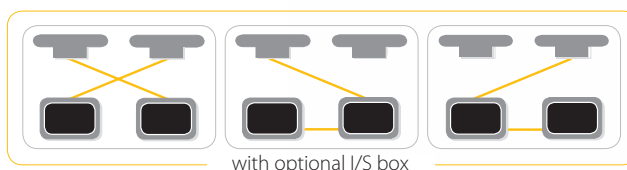
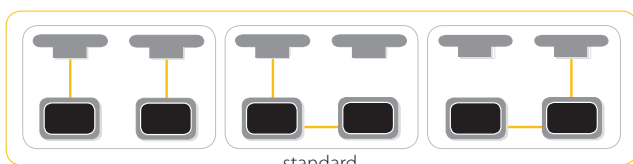
As set by IMO regulations, a Consistent Common Reference Point (CCRP) is a location on own ship, to which all horizontal measurements, such as target range, bearing, relative course/speed, closest point of approach, or time to closest point of approach are referenced.

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.



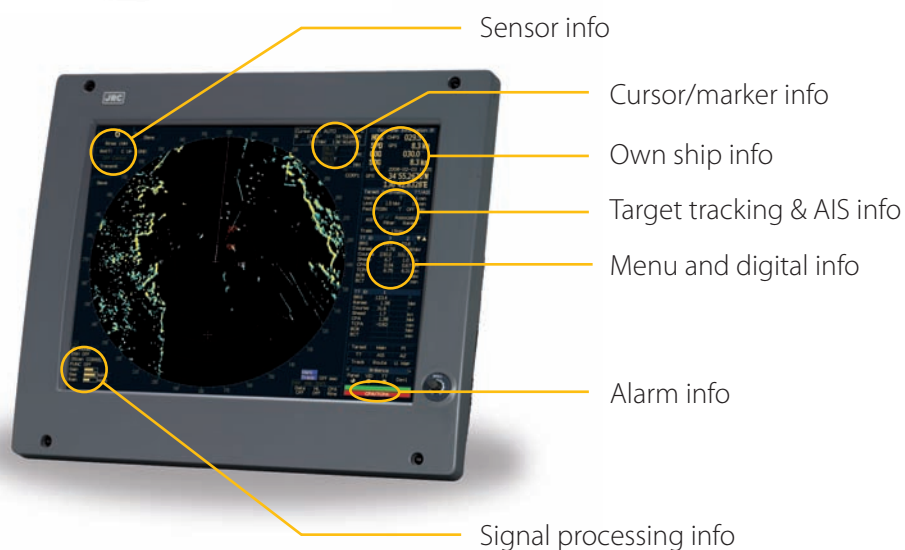
The responsive feel keys allow logical and precise operation and integrates function keys for one-touch access to EBL, VRM, GAIN, SEA and RAIN. This makes it easy to navigate through all common used tasks.

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

– system flexibility

Theme based navigation

With JRC's new radar series you don't have to settle for one constant setting throughout, integrating four navigation themes, facilitating the most optimised radar image, particularly valuable to the dynamically changing conditions. For specific areas, decide on coastal or deep-sea mode and for weather, JRC has a storm and rain mode integrated. JRC-designed themes are easy to customise, so you can adjust and set your radar image exactly as you want.



More built-in ergo-flexibility

The trackball is designed to work in perfect harmony with the operating system. One of the new features in this radar series is that you can effortlessly assign commonly used functions to the left mouse button, giving you the capability to access a preferred function without having to take your hand off the trackball. You can assign and reassign this multi-button with a range of operational features, which among others are AIS info, TT ACQ, show TT data, property, make mark.

TT = Target Tracking = ARPA

What's standard in the box?

JRC sets the highest standards for performance and flexibility. With our new JMA-9100 series, you have five key choices to select from, allowing you to 'configure' your favoured radar system – from unit type to desktop or stand alone – making it more than ideal for your preferred installation approach.

Your choices

- 2-unit or 3-unit type?
- transmitting power?
- X-band or S-band?
- conventional or high-speed¹?
- desktop or stand alone?

Models available

- 2-unit **6**
3-unit **3**
- 10kW **2**
25kW **5**
30kW **2**
- X-band **7**
S-band **2**
- conventional **7**
high-speed **2**
- **both** versions available in all 9 models

¹high-speed version not available for S-band

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
2-unit	2-unit	2-unit	2-unit	2-unit	3-unit	3-unit	2-unit	3-unit
10kW	10kW	25kW	25kW	25kW	25kW	25kW	30kW	30kW
X-band	X-band	X-band	X-band	X-band	X-band	X-band	S-band	S-band
C	HS	C	C	HS	C	C	C	C
cable type 1	cable type 1	cable type 1	cable type 1	cable type 1	cable type 2	cable type 2	cable type 1	cable type 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



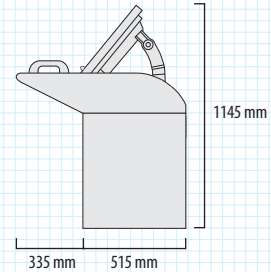
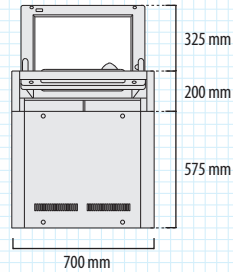
Japan Radio Co., Ltd.

JMA-9100 series

– dimensions and weights

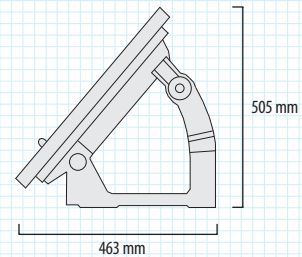
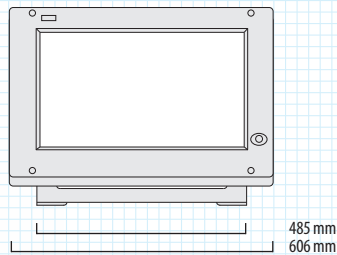
Dimension drawings - Stand alone version

NCD-4990 Weight 130 kg

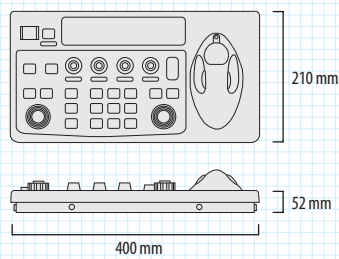


Dimension drawings - Desktop version

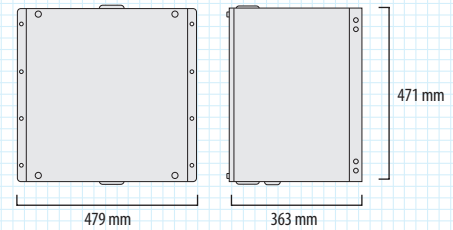
NWZ-170 Weight 25 kg



NCE-5163 Weight 3,5 kg

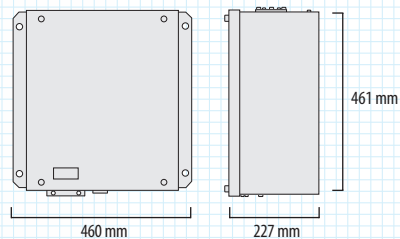


NDC-1399-9 Weight 30 kg

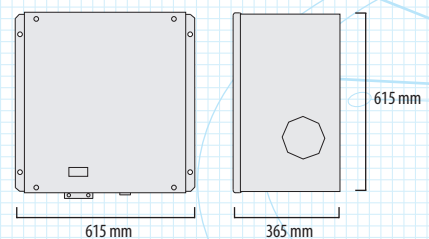


Dimension drawings - Transceivers for 3-unit types

NTG-3225 x-band Weight 15 kg



NTG-3230 s-band Weight 33 kg

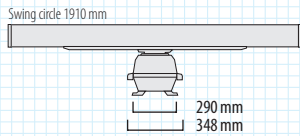


JMA-9100 series

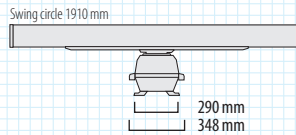
– dimensions and weights

Dimension drawings - 10kW X-band scanner

NKE-2103-6 Weight 40 kg

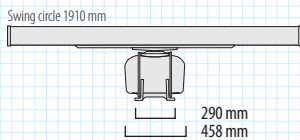


NKE-2103-6HS **highspeed** Weight 40 kg

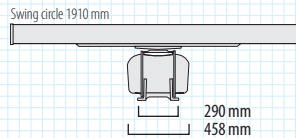


Dimension drawings - 25kW X-band scanner

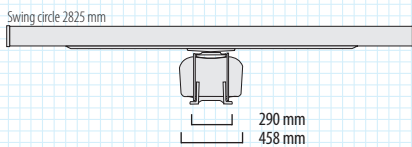
NKE-1125-6 Weight 55 kg



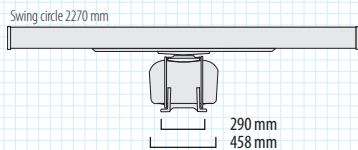
NKE-2254-6HS **highspeed** Weight 55 kg



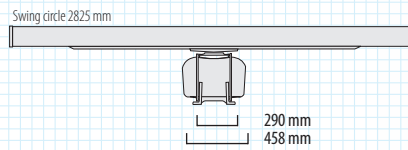
NKE-1125-9 Weight 60 kg



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

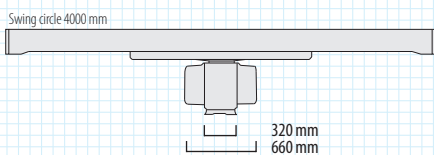


NKE-1129-9 **3-unit type** Weight 53 kg

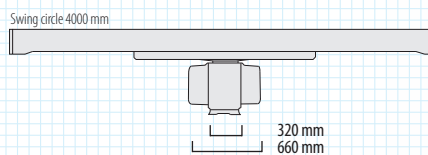


Dimension drawings - 30kW S-band scanner

NKE-1130 Weight 180 kg



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



JMA-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								
Scanners									
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								
Radar display unit									
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-6912-40 (40 m)	H-2695110056 (40 m)		CFQ-6912-40 (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) 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
Optional items									
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)

All specifications are subject to change without notification.

For further information please contact:

JRC Japan Radio Co., Ltd.