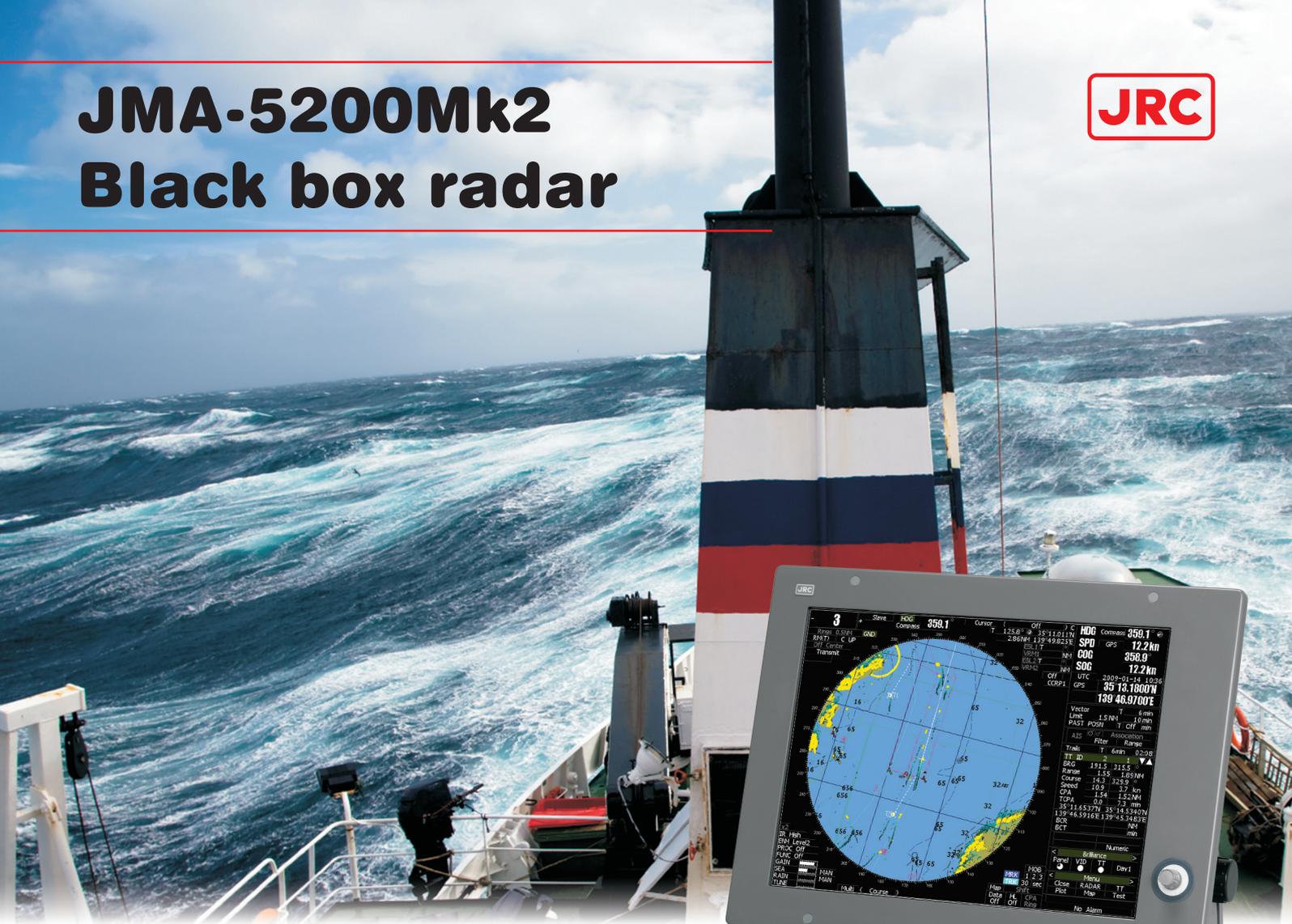


JMA-5200Mk2 Black box radar



Complies with SOLAS carriage requirements for vessels under 500 GT, and fully meets MSC 192(79) radar performance standards effective from 1 July 2008.

– JRC's new JMA-5200Mk2 runs radar images faster and more efficiently than ever before

15–inch high visibility display

Constaview™ digital signal processing

TEF™ multi-level target enhancement

High speed version available

Brushless antenna motors for extended lifetime



Japan Radio Co., Ltd.

JMA-5200Mk2 series – performance features

Unique features

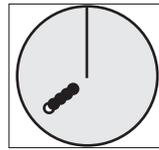
- JRC's new JMA-5200Mk2 continues the success of its predecessor, reaching a new level of performance, designed to seamlessly run radar images faster and more efficiently than even before.

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

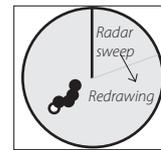
Constaview™



True Trails

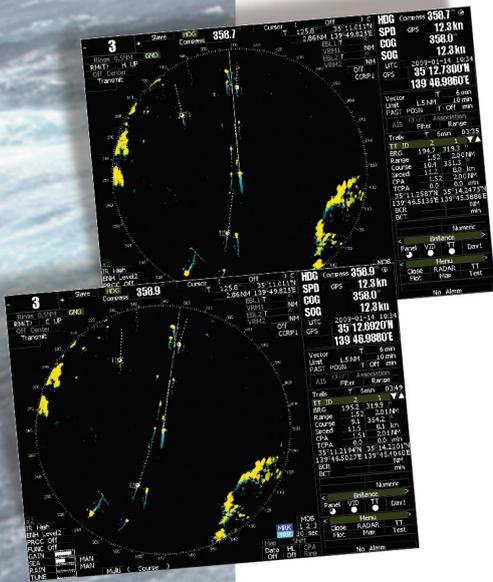
Constaview™ refreshes the image every 16ms. Despite heading changes trails are always true.

Conventional



Relative Trails

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

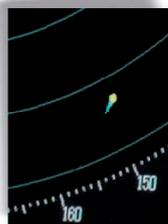


Select a trail length

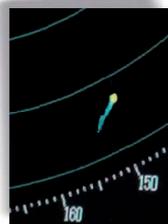
Other ship's movement and speed can be monitored from length and direction of their trails, primary serving for collision avoidance. The JMA-5200Mk2 integrates four different trail length modes, that will show a ship's course instantly, a unique operational feature that allows for more flexibility. Example real-time processing:



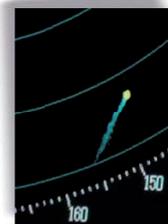
- 1 min.



- 3 min.



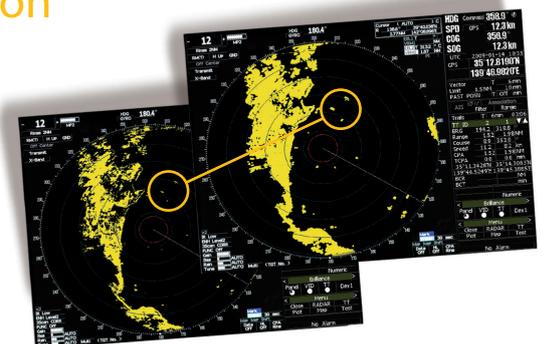
- 6 min.



- 15 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-5200Mk2 series

– developed for maximum ease of use

New keyboard design

With its new case design, the keyboard of the JMA-5200Mk2 series allows you to carry out all radar operations simply by using the keyboard or on-screen by use of the trackball.



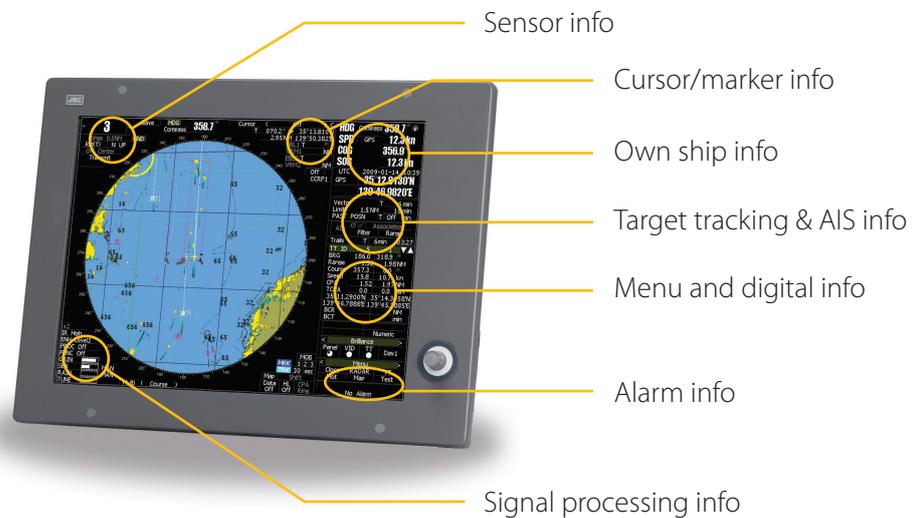
The JMA-5200Mk2 keyboard is solid and responsive, which allows for precise operation. It also integrates function keys for one-touch access to EBL, VRM, GAIN, SEA and RAIN. This makes it easy to navigate through all common used tasks.

Clear on-screen info

The JMA-5200Mk2 series make your radar images more brilliant than ever with a sharp 15-inch 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 day and night background modes 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.



fast and efficient performance

JMA-5200Mk2 series

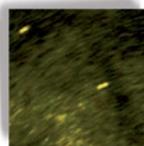
– system flexibility

Flexible black box configuration

The processor unit is the heart of the JMA-5200Mk2, and shares the same simple configuration as its predecessor, contributing to an enhanced system configuration. Optional TT (Target Tracking) function module with up to 30 targets, and or AIS interface, plotter control unit can be built in.



• Saturation of noises on receiver



• Wide dynamic range

Wide dynamic range receiver

The new JMA-5200Mk2 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 clutter suppression.

More powerful than ever

Inside the JMA-5200Mk2 are 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-5200Mk2 series probably the most sophisticated radar available today.

CCRP

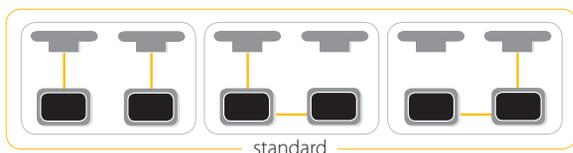
As set by IMO regulations, a Consistent Common Reference Point (CCRP) is a location on own ship, to which all horizontal measurements, such as target range, bearing, relative course/speed, closest point of approach, or time to closest point of approach are referenced.

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.



Standard interswitching

Basic L-type interswitching is standard on the JMA-5200Mk2.



What's standard in the box?

	Which cables?	Std.	Max.
1. Display ¹	Display to processor ¹	5 m	5 m
2. Scanner	Keyboard to processor	5 m	25 m
3. Keyboard	Scanner to processor ²	20 m	65 m
4. Processor	Power cable for processor	5 m	5 m
5. Cables	Power cable for display	5 m	5 m
6. Spare parts			
7. Manual (English)			

¹ not included in black box configuration

² total distance between scanner and processor must not exceed 65 m

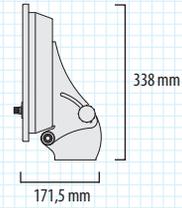
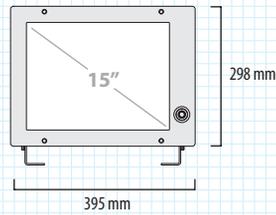


Japan Radio Co., Ltd.

JMA-5200Mk2 series – dimensions and mass

Dimension drawings - Display¹

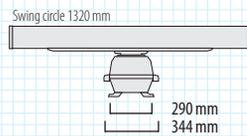
NWZ-164 Mass 5 kg



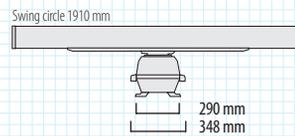
¹ shown with optional bracket, **cutout for panel mount** height 262 mm, width 368 mm, depth 150 mm

Dimension drawings - Scanners¹

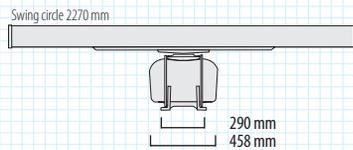
NKE-2103-4 Mass 38 kg



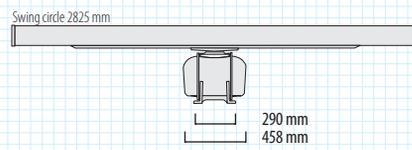
NKE-2103-6 Mass 40 kg



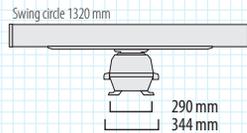
NKE-2254-7 Mass 58 kg



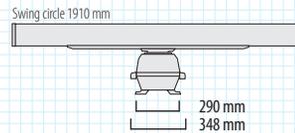
NKE-2254-9 Mass 60 kg



NKE-2103-4HS highspeed Mass 38 kg



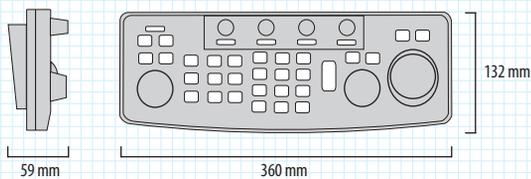
NKE-2103-6HS highspeed Mass 40 kg



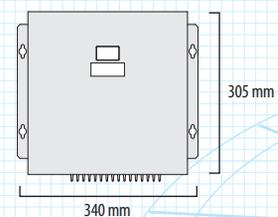
¹ all scanners have a brushless motor and comply with 40dB/dec Spurious particulars

Dimension drawings - Keyboard, Processor

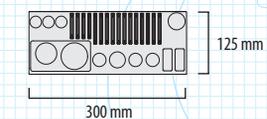
NCE-7699A Mass 1,3 kg



NDC-1460 Mass 6 kg



cutout for panel mount height 105 mm, width 340 mm, depth 20 mm



JMA-5200Mk2 series

– specifications

Model	JMA-5212-4	JMA-5212-6	JMA-5222-7	JMA-5222-9	JMA-5212-4HS	JMA-5212-6HS
IMO compliant	✓	✓	✓	✓	X	X
Display	colour raster scan PPI					
Range scale	0.125/0.25/0.5/0.75/1.5/3/6/12/24/48/96 NM					
Scanners						
Model	NKE-2103-4	NKE-2103-6	NKE-2254-7	NKE-2254-9	NKE-2103-4HS	NKE-2103-6HS
Antenna length	4ft.	6ft.	7ft.	9ft.	4ft.	6ft.
Transmitting power	10kW		25kW		10kW	
Transmitting frequency	9410MHz ± 30MHz					
Beam width 3db	Hor. 1.8°, Ver. 20°	Hor. 1.2°, Ver. 20°	Hor. 1.0°, Ver. 20°	Hor. 0.8°, Ver. 20°	Hor. 1.8°, Ver. 20°	Hor. 1.2°, Ver. 20°
Rotation speed	27rpm		24rpm		48rpm	
Pulse width (receive freq.)	0.08µs/2250Hz, 0.25µs/1700Hz, 0.5µs/1200Hz, 0.8µs/750Hz, 1.0µs/650Hz		0.07µs & 0.2µs/2250Hz, 0.4µs/1400Hz, 0.8µs/750Hz, 1.0µs/650Hz, 1.2µs/510Hz		0.08µs/2250Hz, 0.25µs/1700Hz, 0.5µs/1200Hz, 0.8µs/750Hz, 1.0µs/650Hz	
Duplexer	circular + diode limiter					
Tuning	automatic / manual					
Ambient condition	temperature -25° to 55°C, relative humidity 0% to 93% non-condensing					
Processor						
Model	NDC-1460					
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°, digital display					
VRM	2 (VRM1/VRM2), 0.000 - 97.7 NM, digital display					
Trail indication	4 stages: short, middle, long, super long (e.g. short: off/0.25/0.5/1/3/6/10/15-min and continuous)					
Display (optional on JMA-5200Mk2 series BB)						
Model	NWZ-164					
LCD	1024 by 768 pixels (XGA)					
Effective diameter	≥ 180mm					
Connection cable	5m (processor-monitor)					
Keyboard						
Model	NCE-7699A					
Connection cable	5m (processor-keyboard)					
Installation cable	CFQ-6912-20 standard L= 20m (optional up to 65m)					
Power supply (voltage)	24V DC (21.6V to 31.2V DC) 1) AC100-120/220-240V (50/60Hz, 1Ø)					
Power consumption (at max wind load)	typ.120W / max 600W		typ.200W / max 680W		typ.120W / max 600W	
Ambient condition	temperature -15° to 55°C, relative humidity 0% to 93% non-condensing (processor, display, keyboard)					
Optional items						
2) NSK unit (gyro/log interface)	NCT-4106A					
3) ATA unit (30 targets)	NCA-877A					
3) Performance monitor	NJU-85					
3) AIS interface unit	NQA-2155					
Interswitch cable	CFQ-5251 (5m) + CFQ-5351					
Plotting function board	NDB-44					
AC rectifier	NBA-5111 - AC100-120/220-240V (50/60Hz, 1Ø)					
Cable 10/15/20/30/40/50/65 m	CFQ-6912-10/15/20/30/40/50/65					

1) AC power requires rectifier NBA-5111

2) Required if no high speed NMEA available

3) Performance monitor, Target Tracking, AIS must be fitted on ships compliant to IMO.

All specifications are subject to change without notification.

For further information, contact:



Since 1915

Japan Radio Co., Ltd.

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

Main Office: Fujisawa bldg. 30-16, Ogikubo 4-chome
Suginami-ku, Tokyo 167-8540, Japan
Telephone: +81-3-6832-1816
Facsimile: +81-3-6832-1845

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