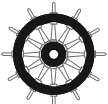


# JMA-5300Mk2 Black box radar



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

*– JRC's new and innovative JMA-5300Mk2 radar series: navigation suddenly has a new standard*

- 19" high visibility LCD screen**
- Constaview™ digital signal processing**
- TEF™ multi-level target enhancement**
- High speed version available**
- Brushless antenna motors for extended lifetime**

# JMA-5300Mk2 series – performance features

## Unique features

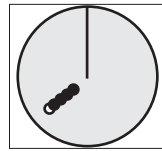
- JRC's new JMA-5300Mk2 integrates the latest leading technologies with a set of new features, that allows running radar images faster and more efficiently than ever before.

## 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

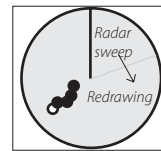
Constaview™



True Trails

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

Conventional

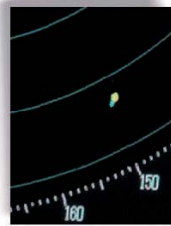


Relative Trails

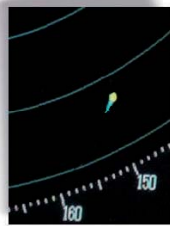
Traditional technology relies on several sweeps of the scanner to redraw the image. Trails are presented as relative.

## 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-5300Mk2 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:



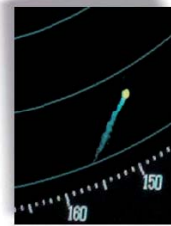
• 1 min.



• 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.



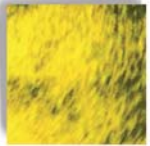


# JMA-5300Mk2 series

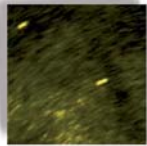
## – system flexibility

### Flexible black box configuration

The processor unit is the heart of the JMA-5300Mk2, 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, plotter control unit can be built in.



• Saturation of noises on receiver



• Wide dynamic range

### Wide dynamic range receiver

The new JMA-5300Mk2 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-5300Mk2 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-5300Mk2 series probably the most sophisticated radar available today.

### CCRP

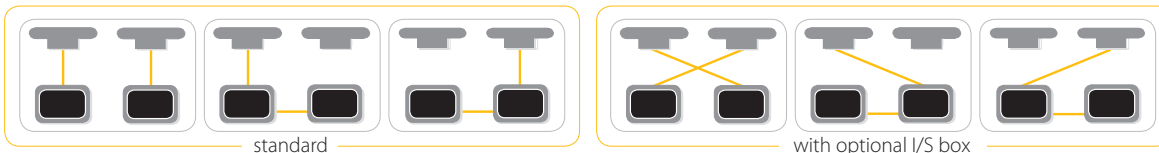
As set by IMO regulations, a Consistent Common Reference Point (CCRP) is a location on own ship, to which all horizontal measurements, such as target range, bearing, relative course/speed, closest point of approach, or time to closest point of approach are referenced.

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.



### What's standard in the box?

	Which cables?	Std.	Max.
1. Display <sup>1</sup>	Display to processor <sup>1</sup>	5 m	5 m
2. Scanner	Keyboard to processor	5 m	25 m
3. Keyboard	Scanner to display (10/25kW)	30 m	65 m <sup>2</sup>
4. Processor	Scanner to junction box (30kW)	40 m	50 m <sup>2</sup>
5. Cables	Junction box to display (30kW)	20 m	30 m <sup>2</sup>
6. Spare parts	Power cable for processor	5 m	5 m
7. Manual (English)	Power cable for display	5 m	5 m

<sup>1</sup>not included in black box configuration

<sup>2</sup>total distance between scanner and display must not exceed 65m

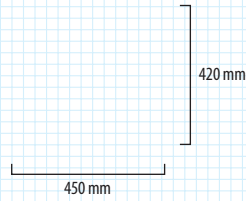


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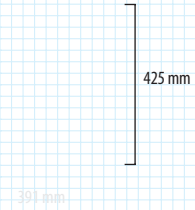
# JMA-5300Mk2 series – dimensions and weights

## Dimension drawings - Display

**NWZ-173** Weight 12,1 kg

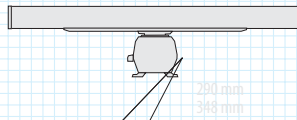


**cutout for panel mount**  
height 319,6 mm, width 416 mm, depth 80 mm



## Dimension drawings - Scanners<sup>1</sup>

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



**NKE-2103-SMS** Weight 40 kg

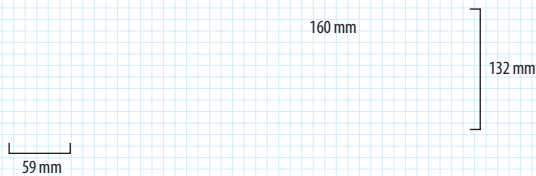
290 mm  
348 mm

290 mm  
348 mm

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

## Dimension drawings - Keyboard, Processor

**NCE-5171** Weight 1,3 kg



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

340 mm

170 mm



# JMA-5300Mk2 series

## – specifications

Model	JMA-5312-6	JMA-5312-6HS	JMA-5322-7	JMA-5322-9	JMA-5322-6HS	JMA-5332-12
IMO compliant	✓	✓	✓	✓	✓	✓
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-2103-6	NKE-2103-6HS	NKE-2254-7	NKE-2254-9	NKE-2254-6HS	NKE-1130
Antenna length	6ft.	6ft.	7ft.	9ft.	6ft.	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. 1.0°, Ver. 20°	Hor. 0.8°, Ver. 20°	Hor. 1.2°, Ver. 20°	Hor. 1.9°, Ver. 25°
Rotation speed	27rpm	48rpm	24rpm		48rpm	24rpm(60/50Hz)
Pulse width (receive freq.)	0.08µs/2250Hz, 0.25µs/1700Hz, 0.5µs/1200Hz, 0.8µs/750Hz, 1.0µs/650Hz		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					
Tuning	automatic / manual					
Ambient condition	temperature: -25°C +55°C, relative humidity: 93% @40°C					
Processor						
Model	NDC-1417					
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 - 100.2nm, 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-5300Mk2 series BB)						
Model	NWZ-173					
LCD	1280x1024dot (SXGA)					
Effective diameter	≥ 250mm					
Connection cable	5m (processor-monitor)					
Keyboard						
Model	NCE-5171					
Connection cable	5m (processor-keyboard)					
Installation cable	CFQ-6912-30 standard L= 30m (optional up to 65m)					CFQ-6912-20 (L=20m) 2695110056 (L=40m)
Power supply (voltage)	DC 21.6 - 31.2V					DC 24V(DC 21.6 - 31.2V) 1) AC 110/230V
Power consumption (at max wind load)	620W		700W		240W + 1600VA	
Ambient condition	temperature: -15°C +55°C, relative humidity: 93% @40°C (processor, display, keyboard)					
Optional items						
2) Gyro interface unit	NCT-59A built-in NDC-1417					
2) ATA unit (30 targets)	NCA-877A built-in NDC-1417					
2) ARPA unit (100 targets)	NCA-877WA built-in NDC-1417					
2) Performance monitor	NJU-85					NJU-84 (standard)
Interswitch box	NQE-3141-4A (up to 4 radars), NQE-3141-8A (up to 8 radars)					
2) AIS interface unit	NQA-2103 built-in NDC-1417					
Plotting function board	NDB-34A built-in NDC-1417					
AC rectifier	NBA-5111 - AC 100/110/120/220/230/240V					

All specifications are subject to change without notification.

For further information please contact:

**JRC** *Japan Radio Co., Ltd.*