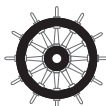


JMA-5300Mk2

Black box radar

JRC



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



Japan Radio Co., Ltd.



Marine Electronics &
Satellite Communications
www.mackaymarine.com

JMA-5300Mk2 series – performance features

Unique features

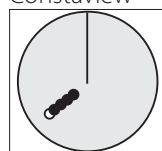
- JRC's new JMA-5300Mk2 integrates the latest leading technologies with a set of new features, that allows running radar images faster and more efficiently than ever before.

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

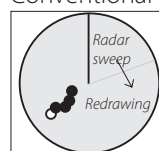
Constaview™



True Trails

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

Conventional

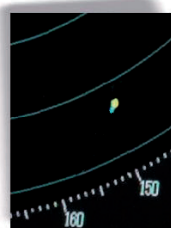


Relative Trails

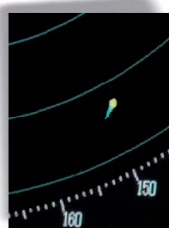
Traditional technology relies on several sweeps of the scanner to redraw the image. Trails are presented as relative.

Select a trail length

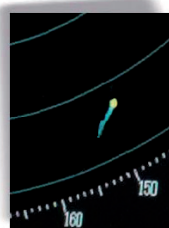
Other ship's movement and speed can be monitored from length and direction of their trails, primary serving for collision avoidance. The JMA-5300Mk2 integrates four different trail length modes, that will show a ship's course instantly, a unique operational feature that allows for more flexibility. Example real-time processing:



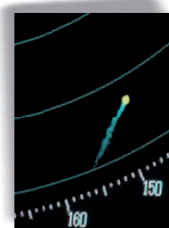
• 1 min.



• 3 min.



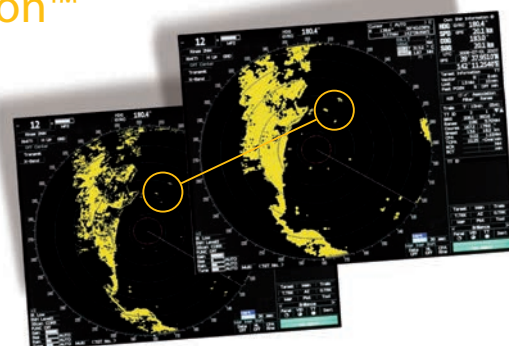
• 6 min.



• 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

– developed for maximum ease of use

New keyboard design

With its new case design, the keyboard of the JMA-5300Mk2 series allows you to carry out all radar operations simply by using the keyboard or on-screen by use of the trackball.



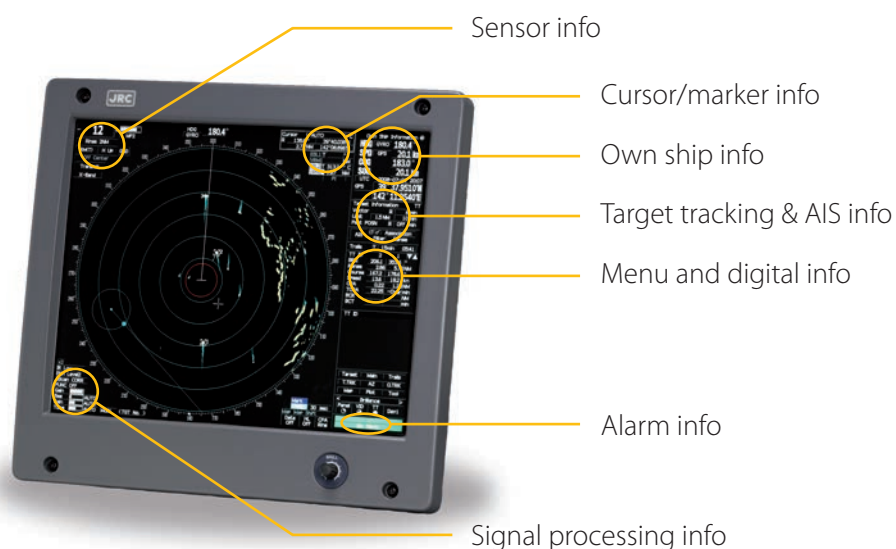
The responsive feel keys allow logical and precise operation and integrates function keys for one-touch access to EBL, VRM, GAIN, SEA and RAIN. This makes it easy to navigate through all common used tasks.

Clear on-screen info

The JMA-5300Mk2 series make your radar images more brilliant than ever with a sharp 19" high resolution LCD screen.

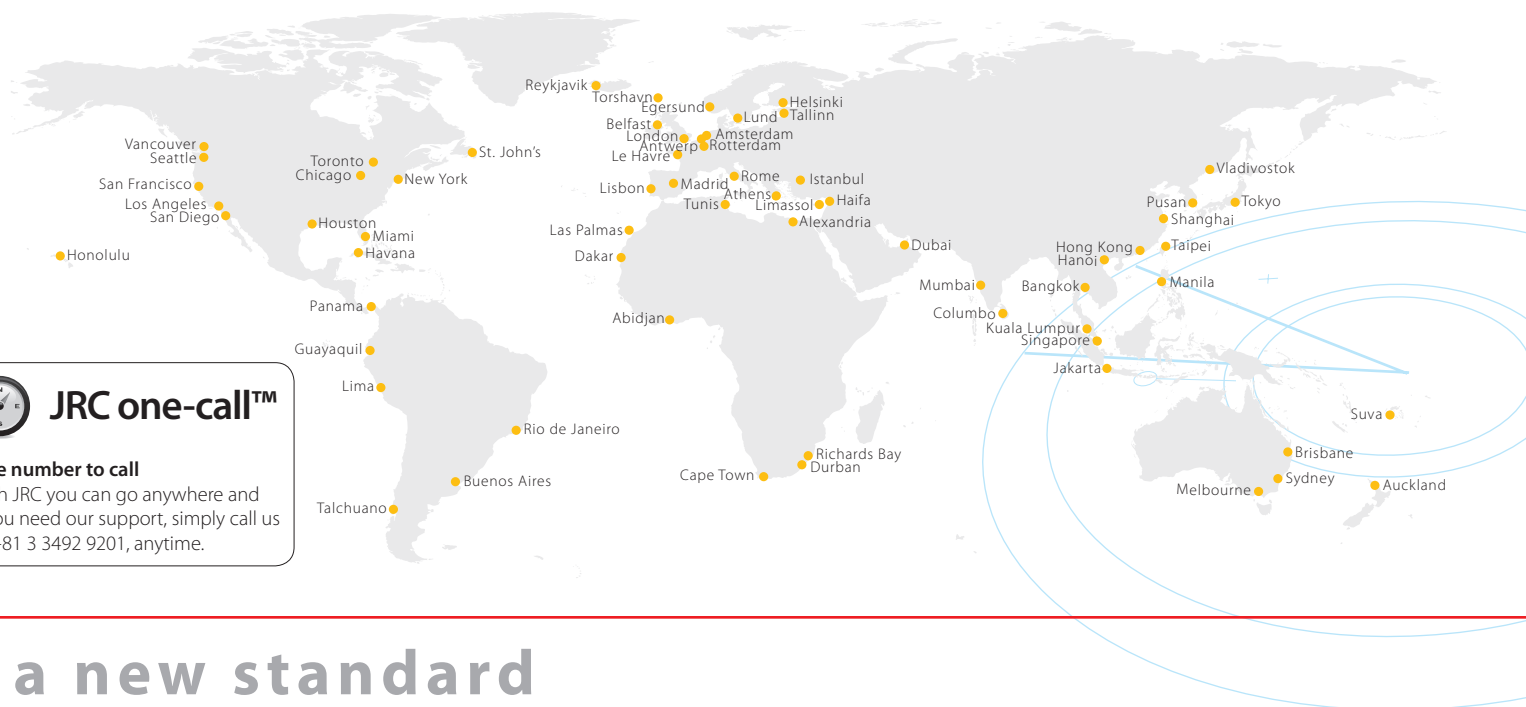
Menu selections, via the keyboard or trackball are clearly shown on the display - allowing "at a glance" interpretation of the radar image.

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.



JMA-5300Mk2 series

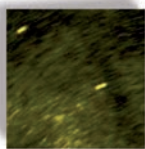
– system flexibility

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

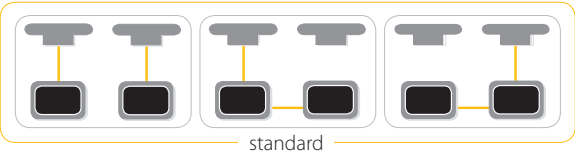
As set by IMO regulations, a Consistent Common Reference Point (CCRP) is a location on own ship, to which all horizontal measurements, such as target range, bearing, relative course/speed, closest point of approach, or time to closest point of approach are referenced.

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.

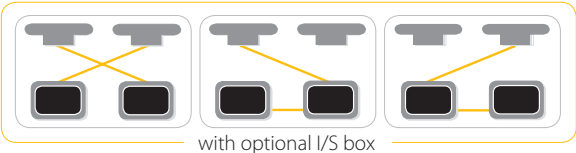


Interswitching

Optional interswitching up to 8 displays possible.



standard



with optional I/S box

What's standard in the box?

1. Display¹
2. Scanner
3. Keyboard
4. Processor
5. Cables
6. Spare parts
7. Manual (English)

Which cables?

- Display to processor¹
- Keyboard to processor
- Scanner to display (10/25kW)
- Scanner to junction box (30kW)
- Junction box to display (30kW)
- Power cable for processor
- Power cable for display

| Std. | Max. |
|------|-------------------|
| 5 m | 5 m |
| 5 m | 25 m |
| 30 m | 65 m |
| 40 m | 50 m ² |
| 20 m | 30 m ² |
| 5 m | 5 m |
| 5 m | 5 m |

¹not included in black box configuration

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



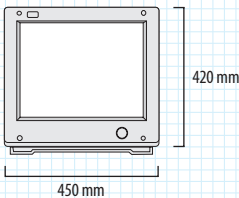
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JMA-5300Mk2 series

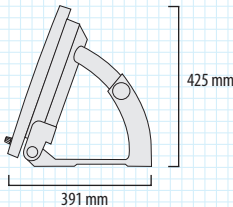
– dimensions and mass

Dimension drawings - Display

NWZ-173 Mass 12,1 kg

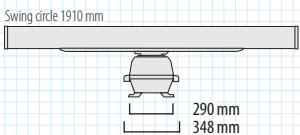


cutout for panel mount
height 319,6 mm, width 416 mm, depth 80 mm

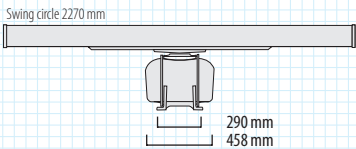


Dimension drawings - Scanners¹

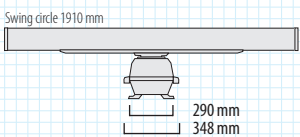
NKE-2103-6 Mass 40 kg



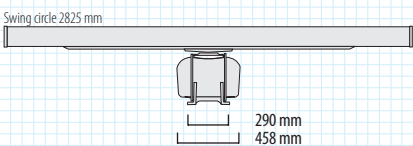
NKE-2254-7 Mass 58 kg



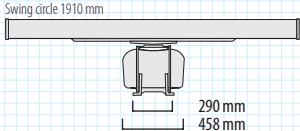
NKE-2103-6HS Mass 40 kg



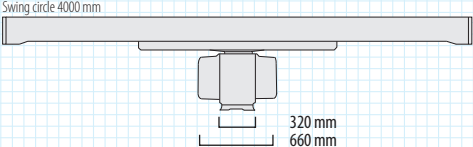
NKE-2254-9 Mass 60 kg



NKE-2254-6HS Mass 55 kg



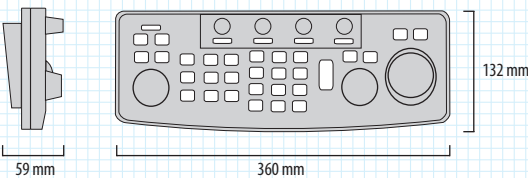
NKE-1130 Mass 180 kg



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

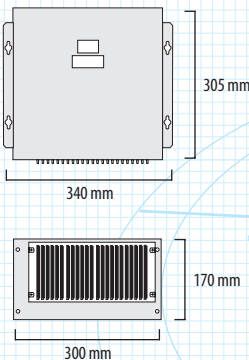
Dimension drawings - Keyboard, Processor

NCE-5171 Mass 1,3 kg



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

NDC-1417 Mass 6 kg



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, | | 0.07µs/2250Hz, 0.2µs/2250Hz, | | | 3050MHz ± 20MHz |
| | 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 | 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) | | | | | |
| 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) AC100V to 240V |
| 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 - AC100-120/220-240V (50/60Hz, 1Ø) | | | | | |

1) AC100-120/220-240V (50/60Hz, 1Ø). AC power is required for JMA-5332-12 antenna motor scanner. All specifications are subject to change without notification.
2) Performance monitor, ARPA or ATA, AIS and gyro unit must be fitted on ships compliant to IMO.

For further information, contact:



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