



ALPHATRON  
Marine



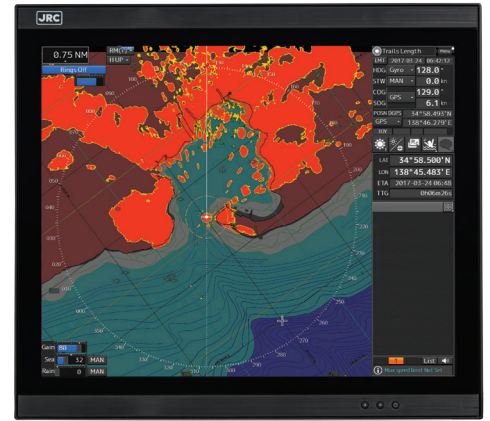
# Black box radar

High performance in a simple design

[www.jrc.am](http://www.jrc.am)

# Features

The new high performance JMR-5400 radar significantly improves short range detection and discrimination of targets presented on high brightness displays with intuitive icon-based operation. The system is running on the latest JRC-designed signal processing technology allowing radar images to effortlessly run faster and more efficiently than ever before.

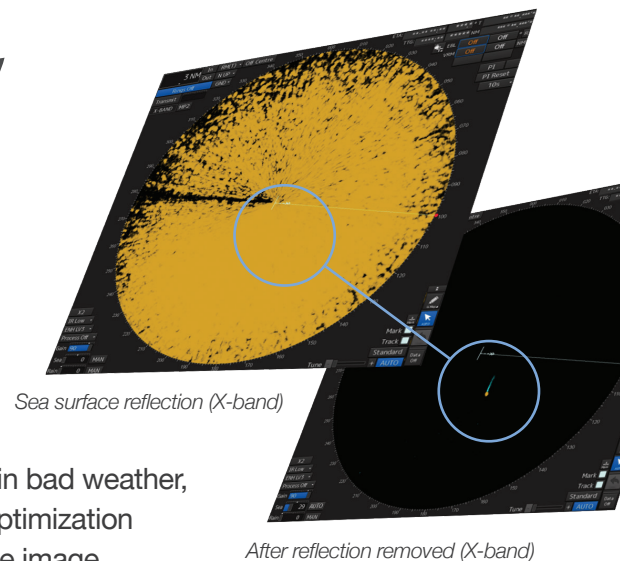


- Improved short range detection
- Black box design
- New and dedicated keyboard
- Advanced processing through ASIC
- Bright 19-inch display with 1000 candelas
- Supports C-MAP MAX and new pec charts
- Rainbow trails to improve visualization
- New 25kW X-band scanner
- High power bird detection scanner
- Proven Solid State S-band scanners

## Clearly identifies targets, even the smallest ones

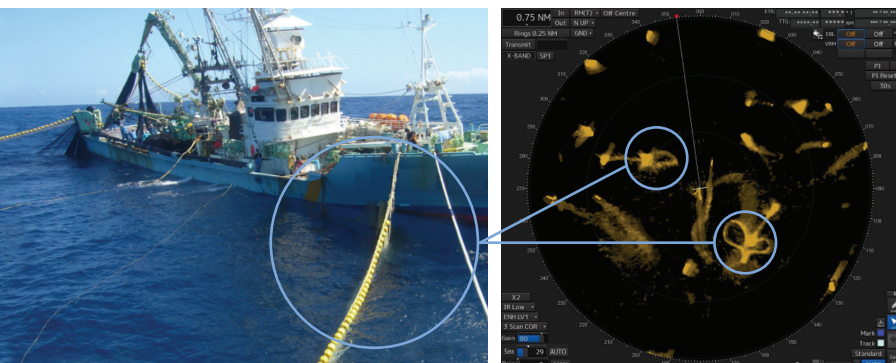
Stable long-range sensitivity and unparalleled close-range search capabilities provide indispensable support during navigation. Needless to say, the detection capability of small targets buried in sea, rain and snow reflection clutter is one of, if not, the most important performance requirement in a marine radar.

With our in-house developed radar core, we can guarantee, even in bad weather, a clear radar image with clear targets. By adding the proprietary optimization technology to the automatic clutter removal function, near distance image discrimination has reached a whole new level.



Sea surface reflection (X-band)

After reflection removed (X-band)



Fishing nets that stay afloat are visible on the radar image

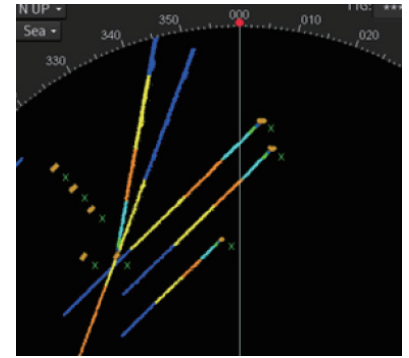
The accuracy of even fishing nets that stay afloat, even with their connected state and shape, are visible on the radar image, something which was not possible until the arrival of the new JMR-5400 radar.

For fishing vessels sailing in the close vicinity of each other, such safety aspect is of utmost importance.

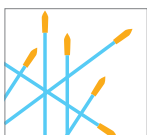
# Radar trails

JRC engineers have developed several trail functions that improve the visibility of trends of other vessels and consort of ships. The rainbow trail displays tracks in different colors every interval. You will be able to instantly grasp the place and time for each ship's trail.

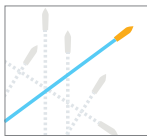
You can manage the trends of other vessels more flexibly, for example, in busy high traffic areas or when a vessel is traveling at higher speeds, overlooking fishing grounds and the situation around own ship.



Rainbow trails allows easy visualization over time



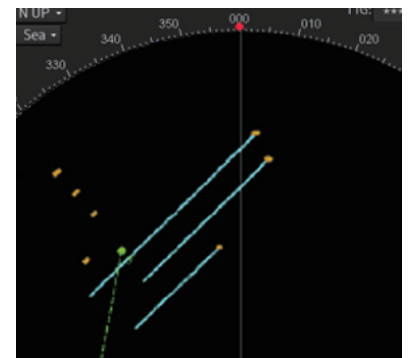
Shown



Hidden

By connecting to the TT/AIS function, you can show only the tracks you want to know. It is possible to hide specified radar trails, making it easier to see the tracks of the target you want to watch or prevent from overwriting by other tracks.

This can be useful during trawl net fishing when other vessels cast the net, providing an uncluttered radar image.



Focus on important targets and object courses by removing radar trails

# TT/AIS tracking

The new radar has the ability to display 180 AIS (optional 1000) symbols and 30 (optional 100) tracking targets with high discrimination as standard. With Application Specific Integrated Circuit (ASIC) technology integrated and a new tracking algorithm, the acquiring and tracking performance are further improved, realizing stable and accurate operation for target tracking, even inside cluttered areas.

ID	CPA(NM)	TCM(NM)	BCR(NM)	BCT(min)	COG(°)	SOG(kn)	BRG(°)	PRG(NM)	Status
6	0.58	1.42			008.8	12.7	265.3	0.59	Tracking
14	0.72	1.95	0.73	5.5	017.0	16.1	315.7	0.73	Tracking
5	0.77	45.71	0.64	27.0	008.8	14.9	318.2	1.46	Selected
4	0.42	23.88			002.8	12.2	340.1	1.45	Tracking
8	2.51	0.41			055.0	11.2	221.4	2.52	Tracking
9	2.27	-14.29			352.7	9.0	282.7	2.08	Tracking
11	0.25	42.75	0.98	29.7	008.5	11.2	355.7	1.54	Tracking
10	5.37	2.87			055.1	16.0	215.2	5.41	Tracking
15	1.48	4.60			200.4	14.1	344.2	1.58	Tracking
12	1.29	4.88			229.5	10.8	248.1	4.41	Tracking

Rearrange AIS and TT data in the order the user desires, simply by clicking on one of the items

The sortable TT/AIS list (for instance TCPA in descending order) enables operators to check which vessels possibly have the highest danger to own vessel. With ASIC integration, potential radar echoes are detected and tracked automatically in the background allowing immediate display of the image.



NKE-2255

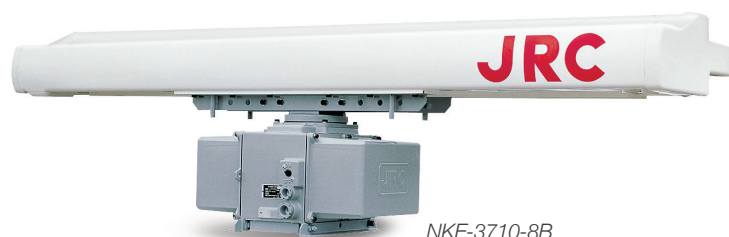
## New X-band scanner

Newly added to the lineup of the JMR-5400 is the DC-powered 25kW X-band scanner. Developed by JRC engineers, the newly tuned system cuts search times to roughly 1/4 compared to the previous generation.

The array is slimmed down and reduced in weight and available with a 7ft, 9ft or 6ft high speed array. The new streamlined design makes operation more wind resistant, reducing the load on the motor, which contributes to higher reliability usage and a longer lifetime.

## Bird watch scanner

The JMR-5400 is also available as a bird-watching version. The newly designed high sensitivity 70kW scanner complies to RED regulations.



NKE-3710-8B

The new JRC bird scanner utilizes a high output S-band scanner allowing for exceptional discrimination. The radar can detect a flock of just tens of birds at a low altitude near the vessel or a flock of hundreds of birds at a higher altitude at open sea. Such system is extremely useful for fishing vessels, providing better potential for a more profitable catch.

### Choose your scanner

A wide range of X-band and S-band scanners are available depending on installation space and required performance, all with exceptionally reliable target detection capabilities.



NKE-2632

## Solid State S-band

Included in the JMR-5400 scanner line up is the second-generation, MED approved Solid State S-band scanner, available in an 8ft and 12ft variant. The world first 8ft Solid State S-band is available in normal and high speed version.

The S-band scanner is suitable for air shipment being small and low in weight. The trusted 12ft array provides even better accuracy in target detection. Both scanners feature common parts such as TX/RX board and processor, allowing for a common design approach and efficiency in use of spare parts.





## Charts

The JMR-5400 supports C-MAP MAX and new pec charts. The radar echo is displayed on the chart and the scale is automatically adjusted to the radar range. Naturally own ship's track, TT and AIS tracking and planned route are also available on screen. Full mapping facility of the chart plotter function is optionally available through a separately sold license.

### C-MAP MAX charts



C-MAP MAX charts require SD card (own supply) to be inserted into the keyboard.

### New pec charts

New pec charts of Japan are pre-installed and can be activated through optional license.

## Processing power

The JMR-5400 is engineered for efficiency, elevating the radar to a whole new level of performance and reliability. Whether you are browsing through an alarm list, tracking 100 targets and 1000 AIS targets or switching range, whichever waypoint comes next, ASIC technology processes the most complex tasks with incredible power and speed, even if you do not need it at that moment.



## Black box design

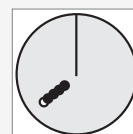
The radar processor is the heart of the JMR-5400 and share the same simple configuration as its predecessor. TT (Target Tracking), AIS and plotter functionalities are integrated as standard and are available through optional licence (purchased separately).

## Constaview

Naturally our patented real time Constaview functionality is incorporated into the new radar system, processing the radar image before being displayed, generating a smooth rotation. Even changing azimuth mode, the radar image is displayed without any delay caused by the scanner rotation.

### Real time Head-Up mode

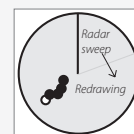
#### Constaview



#### True Trails

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

#### Conventional



#### Relative Trails

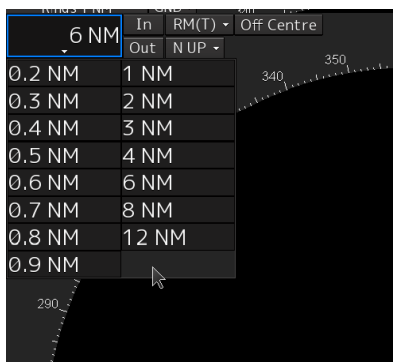
Traditional technology relies on several sweeps of the scanner to redraw the image. Trails are presented as relative.



## User interface

The vibrant interface of the JMR-5400 is derived from the JRC MFD which has been developed to deliver the most intuitive and integrated maritime bridge experience. The icon based navigation has simple menus and dedicated functions, delivering a uniform man machine interface. Switching between five day/night color schemes and 0-100 brightness steps allows you to exactly set the perfect image based on the lighting conditions on the bridge.

The operator can create a unique main menu by selecting only the items that are preferred. Other frequently used options such as TT/AIS listing, color and brightness and/or signal processing settings, can be preset in a favorite menu and directly available for quick and easy operation.



## Custom range selection

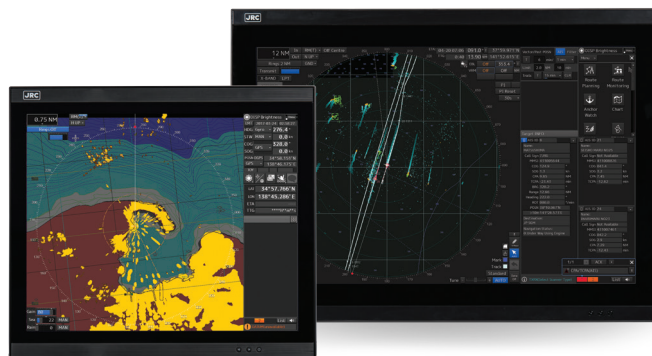
In addition to that standard range selection (usually between 0.125 to 96NM) we are introducing the customized range selection tool. This allows you to input some specific ranges, typically focused on short distance and simply delete unnecessary ranges.

## Superimposing data

The JMR-5400 is capable of placing multiple data on the radar image, such as user-created map, a chart of a coastline and buoys, own ship's trail, and other ship's trails and radar trails and tracking of objects in every display mode, including Head Up.



# Choose a display



The JMR-5400 can be connected to JRC's new 19-inch and 26-inch proprietary displays. The 19-inch version features a high brightness display with an astonishing 1000 candelas, providing excellent visibility. With the 26-inch HD widescreen monitor you can display additional information, such as target tracking, AIS and a second PPI, without losing sight of the radar image.

Size	Pixels	Resolution	Aspect ratio	IMO category	Vessel size
19-inch	1280 by 1024	SXGA	5:4	CAT2 radar 250 mm	300-9,999 GT
26-inch	1920 by 1200	WUXGA	16:10	CAT2 radar 320 mm	10,000 GT



Power  
Transmit/Standby  
Man OverBoard  
Custom dial button  
USB/SD  
Trackball

# New keyboard

A brand-new keyboard has been designed for the JMR-5400, inspired by its high-end family member (MFD). With its new case design and narrowing down the number of buttons, the keyboard allows you to carry out all radar operations simply using the keyboard or on-screen by use of the trackball.

Also, accessible through the keyboard is a USB slot for data backup and a SD card for C-Map Max charts.



# Upgrading our previous generation

Close to 30,000 of our previous generation radars have been sold. The new JMR-5400 is highly suitable to upgrade existing JMA-5200 and JMA-5300 radar models onboard vessel.



	JMA-5200(Mk1 <sup>1</sup> /Mk2)	JMA-5300(Mk1 <sup>1</sup> /Mk2)
<b>Processor</b>	Replace with NCD-1678	Replace with NCD-1678
<b>Keyboard</b>	Replace with NCE-5794	Replace with NCE-5794
<b>Display</b>	Replace with NWZ-208 or NWZ-214	Replace with NWZ-208
<b>Scanner<sup>2</sup></b>	✓	✓
<b>Cables</b>	✓	✓
<b>Power supply</b>	✓	✓
<b>Interswitch</b>	✓	✓

Besides that it is also possible to transfer data that was used, such as marks, own and other ship's trails, destination, route and so on using our conversion software (please ask at the time of purchase).

1. First generation (Mk1) scanners are not compatible with JMR-5400.

2. NKE-2254-7/9/6HS not approved with JMR-5400. New 25kW scanners are available.

## In the box

- |                      |            |
|----------------------|------------|
| • Control unit       | NCM-963-E  |
| • Processor          | NDC-1678   |
| • Keyboard           | NCE-5794   |
| • Power cable        | CFQ-5436-5 |
| • Scanner            |            |
| • Scanner cable      |            |
| • Spare parts        |            |
| • Instruction manual |            |

## Licenses

- Plotter function
- AIS/TT function

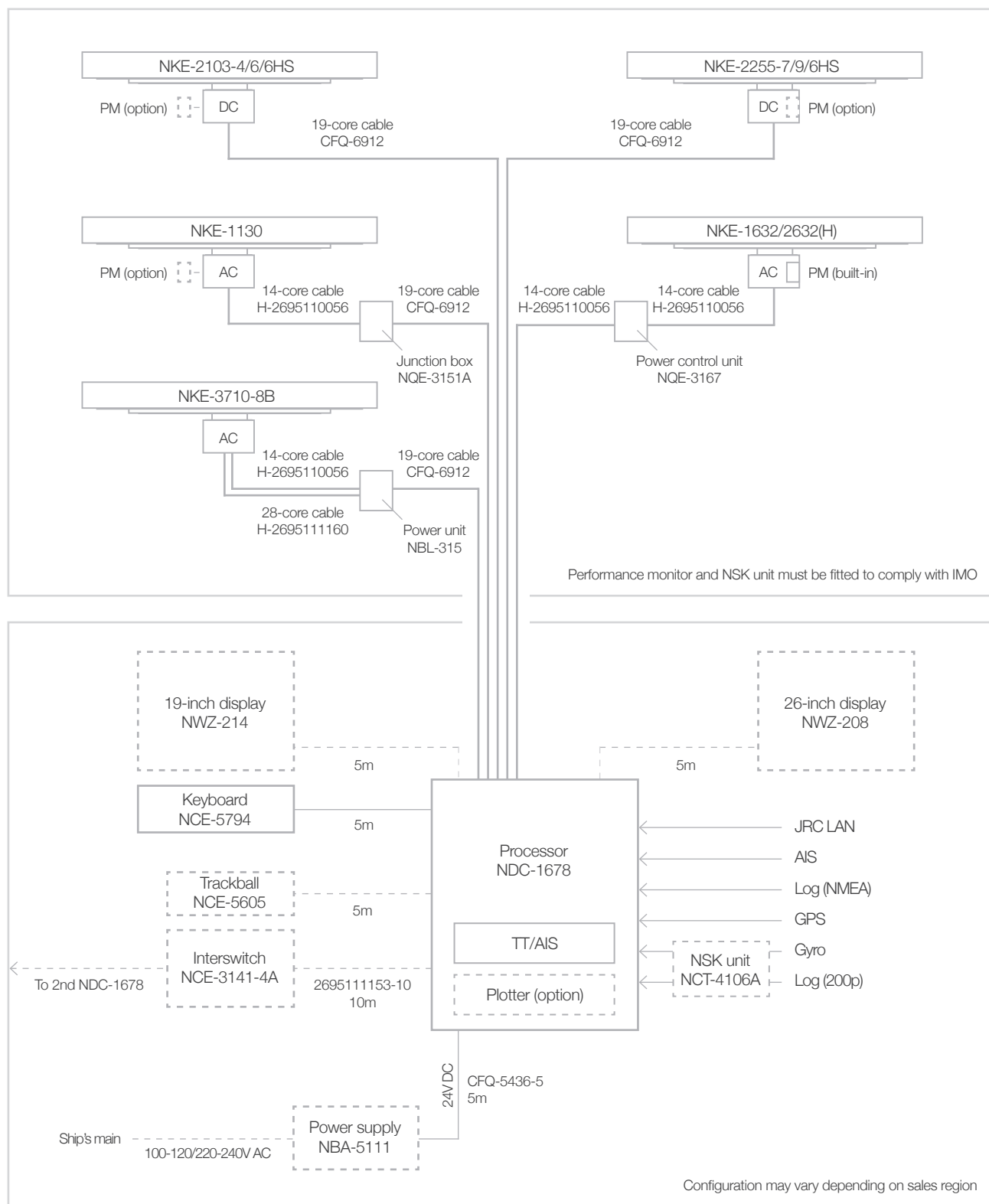
## Accessories

- |                                  |               |
|----------------------------------|---------------|
| • 19-inch display                | NWZ-214       |
| • 26-inch display                | NWZ-208       |
| • Power supply (AC/DC-DC)        | NBA-5111      |
| • Interswitch (up to 4 displays) | NQE-3141-4A   |
| • Interswitch (up to 8 displays) | NQE-3141-8A   |
| • Sensor LAN switch              | NQA-2443      |
| • Performance monitor (X-band)   | NJU-85        |
| • NSK unit                       | NCT-4106A     |
| • Trackball                      | NCE-5605      |
| • Keyboard                       | NCE-5625      |
| • Scanner cable (10 to 65m)      | CFQ-6912-XX   |
| • Data cable JRC GPS compass     | CFQ-5469      |
| • Interswitch cable (10m)        | 2695111153-10 |
| • Scanner cable (per m)          | 2695110056    |
| • Coax cable (per m)             | RG-10/UY      |



# System diagram

The JMR-5400 black box radar can be connected to various equipment and sensors onboard a ship. JRC's straightforward configuration assures continuous performance.



# Tech Specs

Processor RoHS

NDC-1678 Weight 7.1 kg (15.65 lbs)



2x DVI-D, 1x VGA (slave output as DVI-D)  
4x IEC61162-1, 3x IEC61162-2  
2x LAN, 2x dry contact  
2x operation, 3x contact  
2x JRC equipment GPS (compass)  
1x power, 1x USB  
1x radar interface

Keyboard RoHS

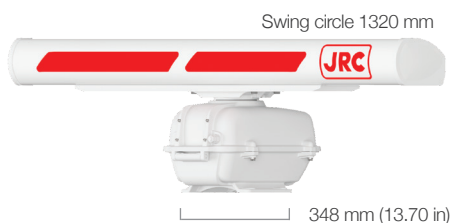
NCE-5794 Weight 2 kg (4.41 lbs)



Trackball operation  
USB/SD slot  
Dedicated user keys  
Rotate and press buttons  
System shutdown via keyboard  
Backlight  
USB powered

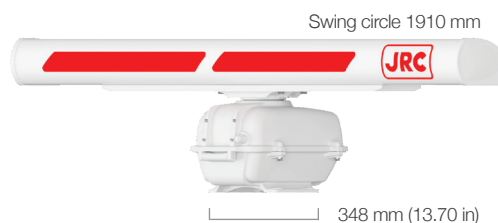
4ft | 27rpm | non IMO

NKE-2103-4 Weight 34 kg (74.96 lbs)



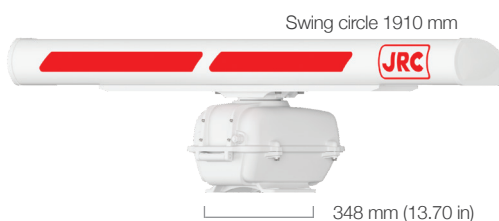
6ft | 27rpm | IMO

NKE-2103-6 Weight 36 kg (79.37 lbs)



6ft | 48rpm | IMO | HS

NKE-2103-6HS Weight 36 kg (79.37 lbs)



X-band | 10kW

# Tech Specs

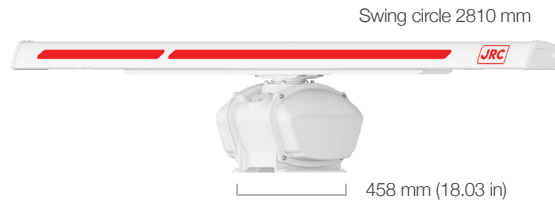
7ft | 24rpm | IMO

NKE-2255-7 Weight 52 kg (114.64 lbs)



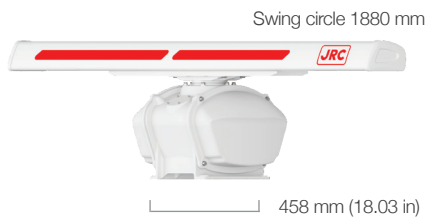
9ft | 24rpm | IMO

NKE-2255-9 Weight 55 kg (121.25 lbs)



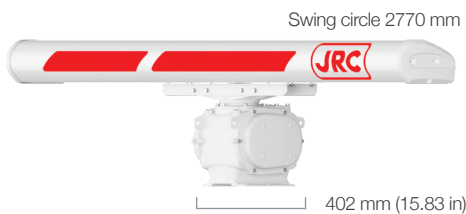
6ft | 48rpm | IMO | HS

NKE-2255-6HS Weight 50 kg (110.23 lbs)



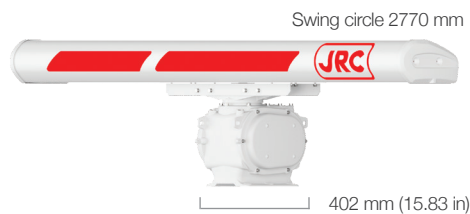
8ft | 24rpm | IMO

NKE-2632 Weight 85 kg (187.39 lbs)



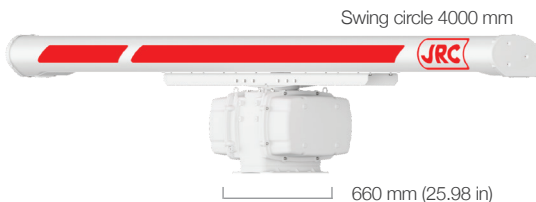
8ft | 48rpm | IMO | HS

NKE-2632-H Weight 90 kg (198.41 lbs)



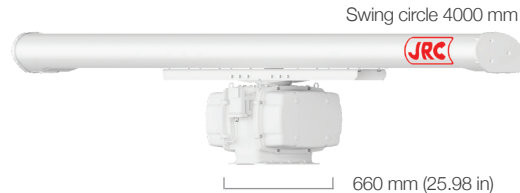
12ft | 24rpm | IMO

NKE-1632 Weight 160 kg (352.74 lbs)



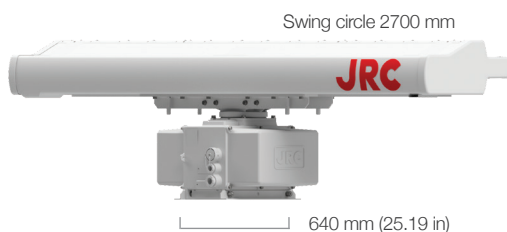
12ft | 24rpm | IMO

NKE-1130 Weight 180 kg (396.83 lbs)



8ft | 14-17rpm | non IMO **Bird watch scanner**

NKE-3710-8B Weight 98 kg (216.05 lbs)



X-band | 25kW

S-band | 250W (solid state) 30kW (magnetron)

S-band | 70kW





jrc.am

Centers of Excellence  
Houston, Rotterdam, Singapore, Tokyo