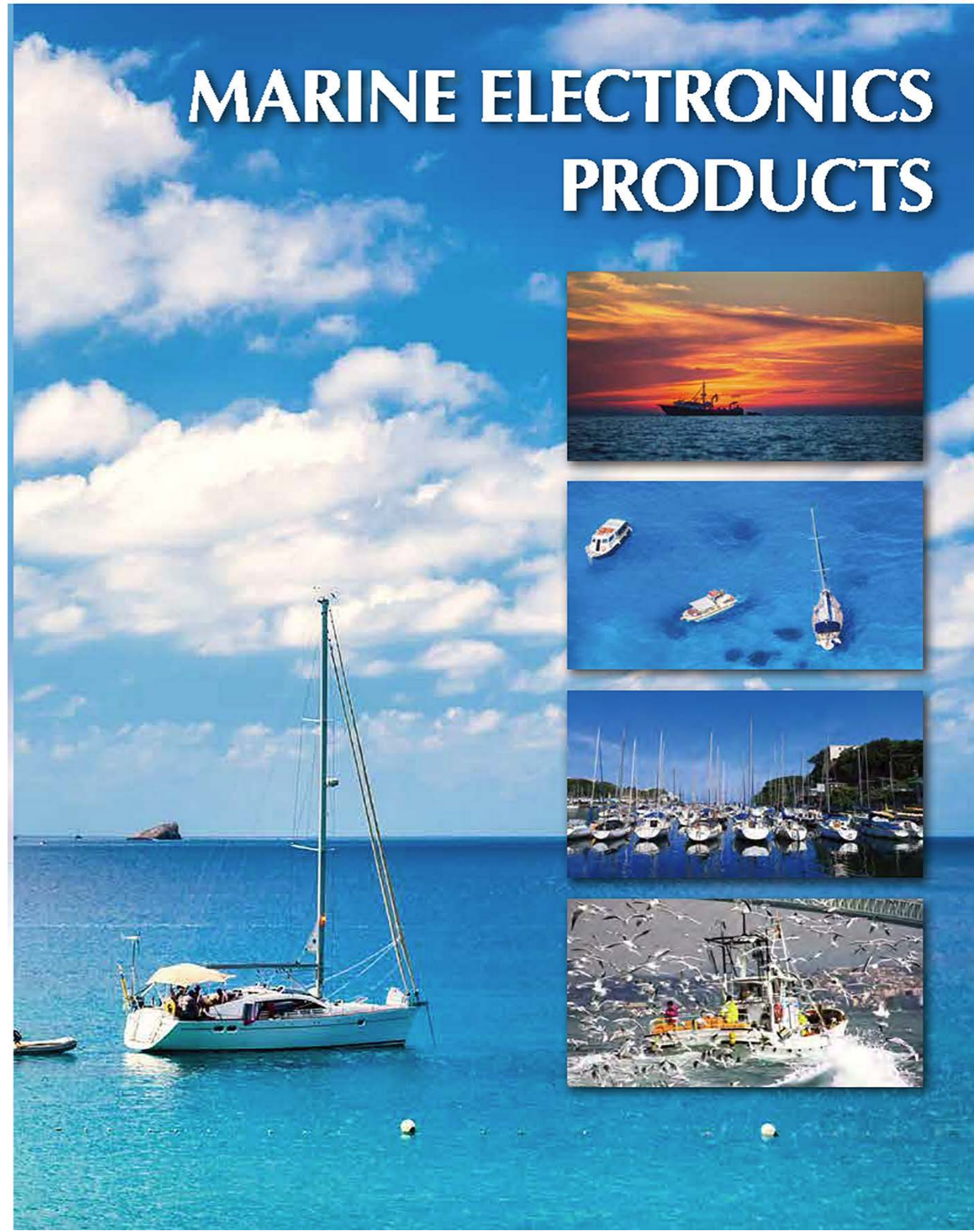


MARINE ELECTRONICS PRODUCTS



Le spécialiste des équipements électroniques

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Tél : +33 (0)5 67 77 94 44 - Fax : +33 (0)5 67 77 94 49
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INDEX

Koden opens a new door towards the future.

Koden Electronics was founded in 1947. The free and lively atmosphere generated from the dawn of the company has been passed on to the current firm. While improving reliability and quality on the basis of the ISO certificate which is an international standard of quality assurance, Koden opens a new door towards the future with the unique products as well as cultivated technology in hand.

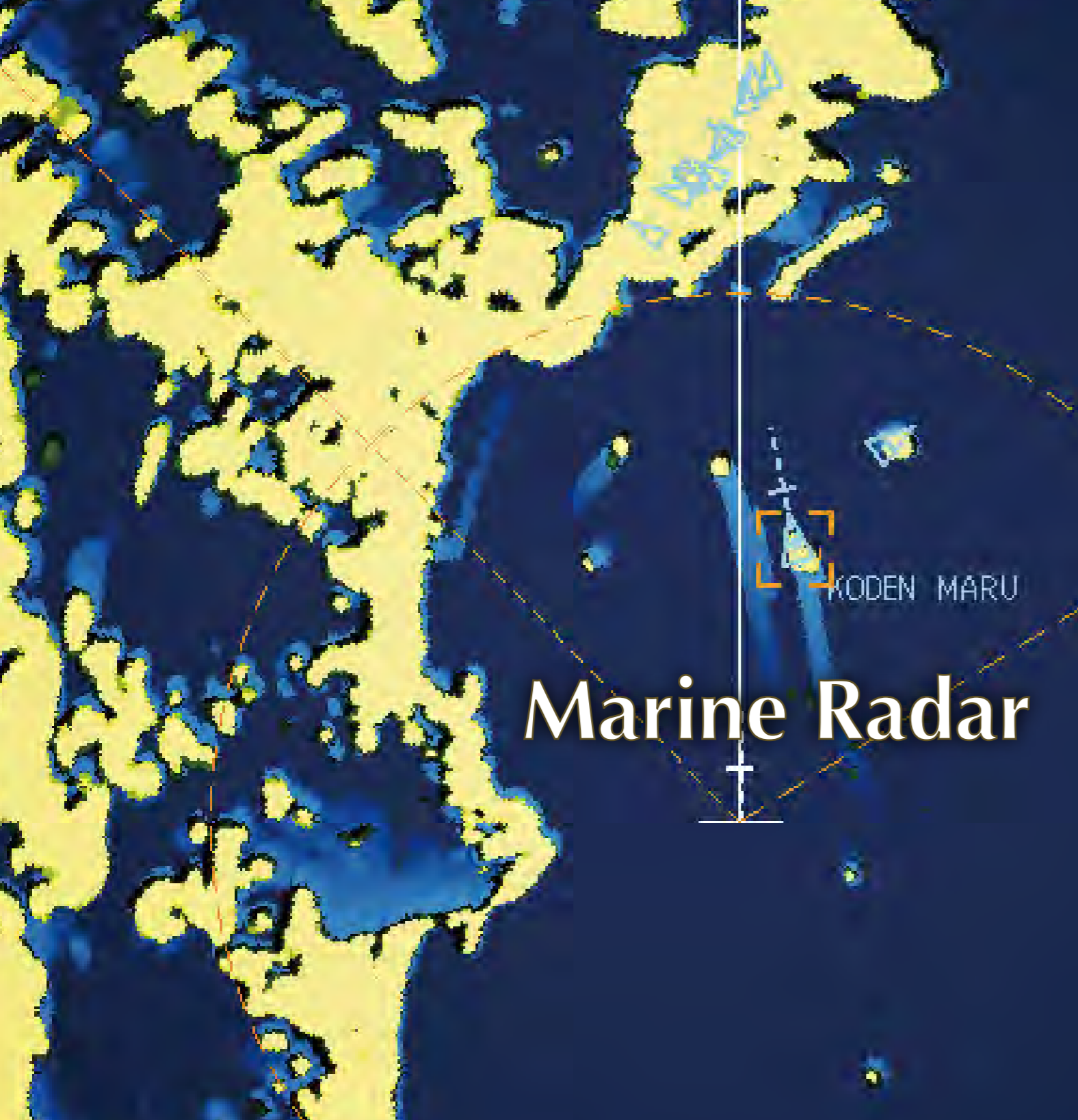
| | |
|--|----|
| Product Line up | 04 |
| Marine Radar | 06 |
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| GPS Navigator / Compass / Sensor | 19 |
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| Dimensions and Weight | 22 |
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Product Line up

| Radar | | | | | | | | | | | | |
|-------------------------------|---|---|--|---|---|---|---|---|---|---|---|---|
| Model | MDC-900 8.4 inch P9 | MDC-2000 10.4 inch P9 | MDC-5200 12.1 inch P8 | MDC-5500 15 inch P8 | | MDC-7000 Black Box P7 | MDC-7900 19 inch P7 | MDC-7000P Black Box P7 | MDC-7900P 19 inch P7 | | | |
| Specifications |  |  |  |  | |  |  |  |  | | | |
| Output power(Peak) | MDC-900 - 2 / 4 kw MDC-900A - 4kw | MDC-2000 - 4 / 6 / 12 kw MDC-2000A - 4kw | 4 / 6 / 12 / 25 kw | 4 / 6 / 12 / 25 kw | | 6 / 12 / 25 kw | 6 / 12 / 25 kw | 12 / 25 kw | 12 / 25 kw | | | |
| TT(ARPA) | 50 | 50 | 100 | 100 | | 100 | 100 | 100 | 100 | | | |
| AIS | 100 | 100 | 1000 | 1000 | | 1000 | 1000 | 900 | 900 | | | |
| C-Map Chart | - | - | ✓ | ✓ | | ✓ | ✓ | - | - | | | |
| Resolution | VGA | VGA | XGA | XGA | | (SXGA)* | SXGA | (SXGA)* | SXGA | | | |
| Video level | 8 | 8 | 16 | 16 | | 16 | 16 | 16 | 16 | | | |
| USB Trackball connection | - | - | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | | |
| Echo Sounder | | | | | | | | | | | | |
| Model | CVS-126 5.7 inch P14 | CVS-128 8.4 inch P14 | CVS-128B 8.4 inch P15 | CVS-1410/HS 10.4 inch P14 | CVS-1410B 10.4 inch P15 | | CVS-FX1 12.1 inch P15 | CVS-FX2 15 inch P15 | CVS-FX2BB Black Box P15 | CVS-702D 12.1 inch P14 | CVS-705D 15 inch P14 | CVS-707D 17 inch** P14 |
| Specifications |  |  |  |  |  | |  |  |  |  |  |  |
| (Broadband) | - | - | ✓ | - | ✓ | | ✓ | ✓ | ✓ | - | - | - |
| Fish information | ✓ | ✓ | ✓ | ✓ | ✓ | | - | - | - | - | - | - |
| Frequency presentation (Max.) | 2 | 2 | 2 | 2 | 2 | | 4 | 4 | 4 | 2 | 2 | 2 |
| Resolution | QVGA | VGA | VGA | VGA | VGA | | XGA | XGA | (XGA)* | XGA | XGA | XGA |
| Output power | 600W | 600W or 1kW | 2kW | 1kW | 2kW | | 3kW | 3kW | 3kW | 3kW or 5kW | 3kW or 5kW | 3kW or 5kW |
| | Sonar | GPS Compass | DGPS Sensor | GPS Sensor | | GPS Navigator | | Class A AIS Transceiver | | Total Navigator | | Navigational Echo Sounder |
| Model | KDS-6000BB P17 | KGC-222 P20 | KBG-3 P20 | GPS-20A P20 | | KGP-915 / KGP-920 / KGP-925 P20 | | KAT-100 P21 | | KTN-70A P21 | | CVR-010 P21 |
| |  |  |  |  | |  | |  | |  | |  |

* Display unit : Owner supplied

** For European model, please contact your nearest distributor.



MDC-7900P MDC-5200
MDC-7000P MDC-5500
MDC-7900 MDC-900
MDC-7000 MDC-2000

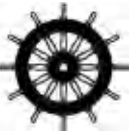
Marine Radar 19"

NEW



MDC-7900P series

NEW



MDC-7000P series

NEW




12-inch Display type
4 kW

MDC-7900 series

NEW



MDC-7000 series

| Model | 19-inch Display type | | | Black Box type | | |
|---|----------------------|-----------|-----------|----------------|-----------|-----------|
| | 6 kW | 12 kW | 25 kW | 6 kW | 12 kW | 25 kW |
| Standard model | MDC-7960 | MDC-7910 | MDC-7920 | MDC-7060 | MDC-7010 | MDC-7020 |
| CE model | MDC-7906 | MDC-7912 | MDC-7925 | MDC-7006 | MDC-7012 | MDC-7025 |
| IMO  | - | MDC-7912P | MDC-7925P | - | MDC-7012P | MDC-7025P |

Reliable Quality and Safety

MDC-7900 series provide outstanding performance and clear image by 19-inch high resolution SXGA display plus anti-reflection coating.

MDC-7000 series Black Box radars connect to any SXGA type display (owner supplied).

- ▶ Clear image with High-speed sampling in short range.
- ▶ Auto gain with simple operation.
- ▶ Improved visibility of the display by auto STC.
- ▶ Simple and easy operation by trackball unit via USB.
- ▶ Built-in AIS interface for displays targets.
MDC-7000 / 7900 series: up to 1000 targets.
MDC-7000P / 7900P series: up to 900 targets.
- ▶ Built-in TT (ARPA) tracks up to 100 targets.
- ▶ MDC-7000P / 7900P series complies with new IMO and IEC regulations.
- ▶ C-Map chart (NT MAX) can be overlaid on the radar screen for MDC-7000 / MDC-7900 series. (Chart: owner supplied)

Marine Radar 12", 15"

Marine Radar 8.4", 10.4"

NEW



MDC-5200 series

NEW



MDC-5500 series

| Model | 12-inch Display type | | | | 15-inch Display type | | | |
|----------------|----------------------|----------|----------|----------|----------------------|----------|----------|----------|
| Output Power | 4 kW | 6 kW | 12 kW | 25 kW | 4 kW | 6 kW | 12 kW | 25 kW |
| Standard model | MDC-5240 | MDC-5260 | MDC-5210 | MDC-5220 | MDC-5540 | MDC-5560 | MDC-5510 | MDC-5520 |
| CE model | MDC-5204 | MDC-5206 | MDC-5212 | MDC-5225 | MDC-5504 | MDC-5506 | MDC-5512 | MDC-5525 |

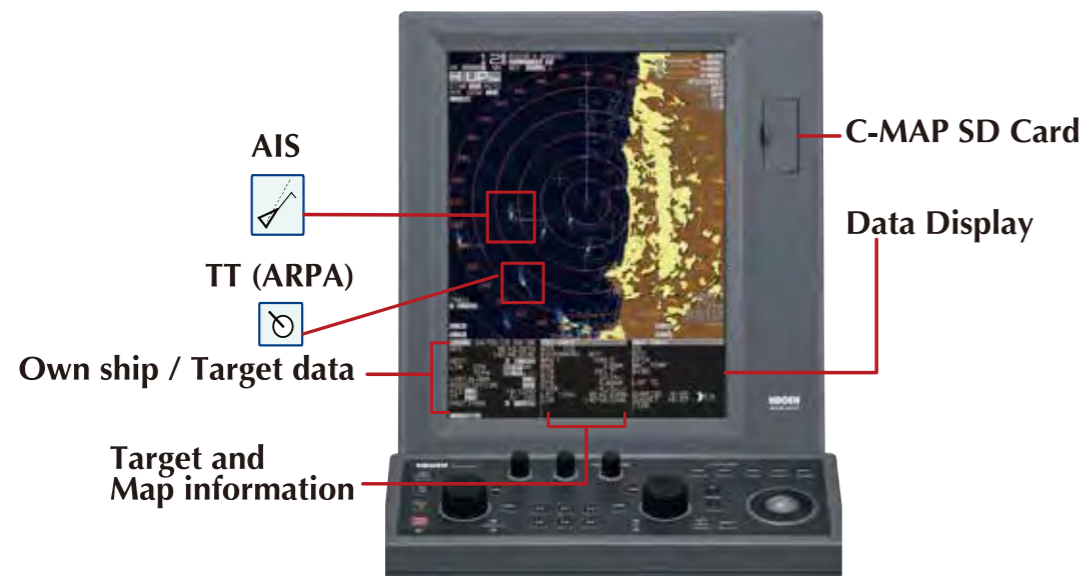


MDC-900 series
MDC-900A series



MDC-2000 series
MDC-2000A series

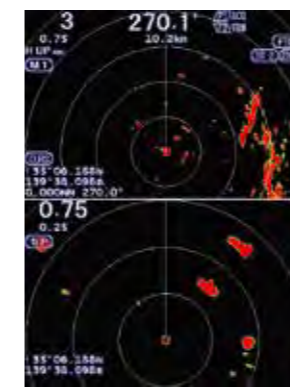
| Model | 8.4-inch Display type | | | 10.4-inch Display type | | | |
|----------------|-----------------------|----------|----------|------------------------|-----------|----------|----------|
| Output Power | 2 kW | 4 kW | 4 kW | 4 kW | 4 kW | 6 kW | 12 kW |
| Standard model | MDC-921 | MDC-941 | MDC-940 | MDC-2041 | MDC-2040 | MDC-2060 | MDC-2010 |
| CE model | - | MDC-941A | MDC-940A | MDC-2041A | MDC-2040A | - | - |



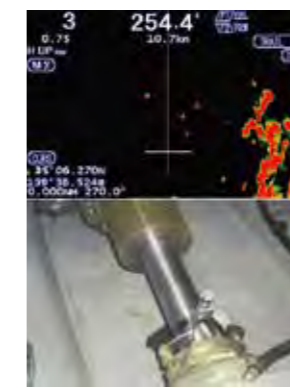
Powerful. Precise. Professional Grade.

MDC-5200 / 5500 series have superior performance and functions of large grade radars. High resolution XGA display with anti-reflection coating makes clear image.

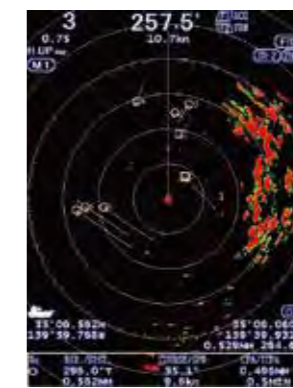
- ▶ Clear image with High-speed sampling in short range.
- ▶ Auto gain with simple operation.
- ▶ Improved visibility of the echos by auto STC.
- ▶ Simple and easy operation by trackball via USB.
- ▶ Built-in AIS interface for displays up to 1000 targets.
- ▶ Built-in TT(ARPA) tracks up to 100 targets.
- ▶ C-Map chart(NT MAX) is overlaid on the radar screen. (Chart : owner supplied)



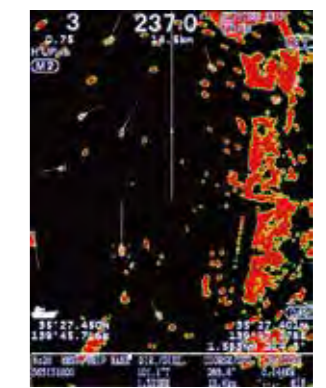
Dual range display



CCD camera input



ATA up to 50 targets as option



AIS interface up to 100 targets as option

Smart selection for safe navigation

Marine radar MDC-900 series and MDC-2000 series present performance and functions of larger professional grade radars. The series features sophisticated Hyper Digital Processing (HDP™) technology for real-time presentation and superior target discrimination.



The real-time smooth head-up presentation offers smooth movement as bearing changes. The superior target discrimination virtually eliminates unwanted noise to provide a clearer detailed image of targets and enhances the detection of smaller targets.

Also various functions on the compact body are of considerable utility for both fishing and pleasure boats.

- ▶ True Trail function clearly identifies moving targets from stationary targets like land or buoys.
- ▶ Exclusive dual range radar function lets you have split-screen display of both long and short ranges simultaneously. It is like having two radars in one.
- ▶ The LCD and acrylic sheet with Anti-Reflection coated filter are bonded directly. It increases visibility in direct sunlight and prevents condensation.
- ▶ ATA (Automatic Tracking Aid) tracks up to 50 targets (Option).
- ▶ AIS (Automatic Identification System) interface displays up to 100 AIS targets (Option).
- ▶ Accepts CCD camera input, with which you can watch above or below deck any time you are steering.





Marine Radar Antenna-Scanner

Radome for Standard Model

| | | |
|--|---|---|
| |  |  |
| Type | RB714A | RB715A |
| Specifications: | | |
| Antenna length | 1.2 feet | 2 feet |
| Output power (Peak) | 2 kW | 4 kW |
| Output frequency | 9445 ±30 MHz | 9410 ± 30 MHz |
| Horizontal beam width | 6.0° | 3.9° |
| Vertical beam width | 25° | 25° |
| Rotation | 24 rpm | 24 rpm or 48 rpm |
| IF center frequency | 60 MHz | |
| Environmental: | | |
| Operating temperature | -25°C to + 55°C | |
| Water protection | CFR-46 | IPX6 (IEC 60529) |
| Display / processor connections for marine Radar: | | |
| 8.4" color LCD: MRD-103 | MDC-921 | MDC-941 |
| 10.4" color LCD: MRD-104 | - | MDC-2041 |
| 12" color LCD: MRD-111 | - | - |
| 15" color LCD: MRD-109 | - | - |
| 19" color LCD: MRD-108 | - | - |
| Processor unit for SXGA LCD Display: MRM-108 | - | - |




Open antenna for Standard Model

| | | | | |
|--|---|---|---|---|
| |  |  |  |  |
| Type | RB716A | RB717A | RB718A | RB719A |
| Specifications: | | | | |
| Antenna length | 3, 4 or 6 feet | 4 or 6 feet | 4, 6 or 9 feet** | 6 or 9 feet** |
| Output power (Peak) | 4 kW | 6 kW | 12 kW | 25 kW |
| Output frequency | 9410 ±30 MHz | | | |
| Horizontal beam width | 3 ft: 2.5°, 4 ft: 1.8°, 6 ft: 1.2° | 4 ft: 1.8°, 6 ft: 1.2° | 4 ft: 1.8°, 6 ft: 1.2°, 9 ft: 0.8° | 6 ft: 1.2°, 9 ft: 0.8° |
| Vertical beam width | 22° | 22° | 4 ft: 22°, 6 ft: 22°, 9 ft: 25° | 6 ft: 22°, 9 ft: 25° |
| Rotation | 24 or 48 rpm | | | 24 rpm |
| IF center frequency | 60 MHz | | | |
| Environmental: | | | | |
| Operating temperature | -25°C to + 55°C | | | |
| Water protection | IPX6 (IEC 60529) | | | |
| Display / processor connections for marine Radar: | | | | |
| 8.4" color LCD: MRD-103 | MDC-940* | - | - | - |
| 10.4" color LCD: MRD-104 | MDC-2040 | MDC-2060 | MDC-2010 | - |
| 12" color LCD: MRD-111 | MDC-5240 | MDC-5260 | MDC-5210 | MDC-5220 |
| 15" color LCD: MRD-109 | MDC-5540 | MDC-5560 | MDC-5510 | MDC-5520 |
| 19" color LCD: MRD-108 | - | MDC-7960 | MDC-7910 | MDC-7920 |
| Processor unit for SXGA LCD Display: MRM-108 | - | MDC-7060 | MDC-7010 | MDC-7020 |







* 48 rpm requires for input voltage of 24 VDC or more **9ft antenna is available for MDC-5510, 5520, 7910, 7920, 7010, 7020

Radome for CE Model **NEW**

| | |
|--|---|
| |  |
| Type | RB805 |
| Specifications: | |
| Antenna length | 2 feet |
| Output power (Peak) | 4 kW |
| Output frequency | 9410 ± 30 MHz |
| Horizontal beam width | 3.9° |
| Vertical beam width | 25° |
| Rotation | 24 rpm or 48 rpm |
| IF center frequency | 60 MHz |
| Environmental: | |
| Operating temperature | -25°C to + 55°C |
| Water protection | IPX6 (IEC 60529) |
| Display / processor connections for marine Radar: | |
| 8.4" color LCD: MRD-103A | MDC-941A |
| 10.4" color LCD: MRD-104A | MDC-2041A |
| 12" color LCD: MRD-111 | - |
| 15" color LCD: MRD-109 | - |
| 19" color LCD: MRD-108 | - |
| 19" color LCD: MRD-108P | - |
| Processor unit for SXGA LCD Display: MRM-108 | - |
| Processor unit for SXGA LCD IMO Display: MRM-108P | - |

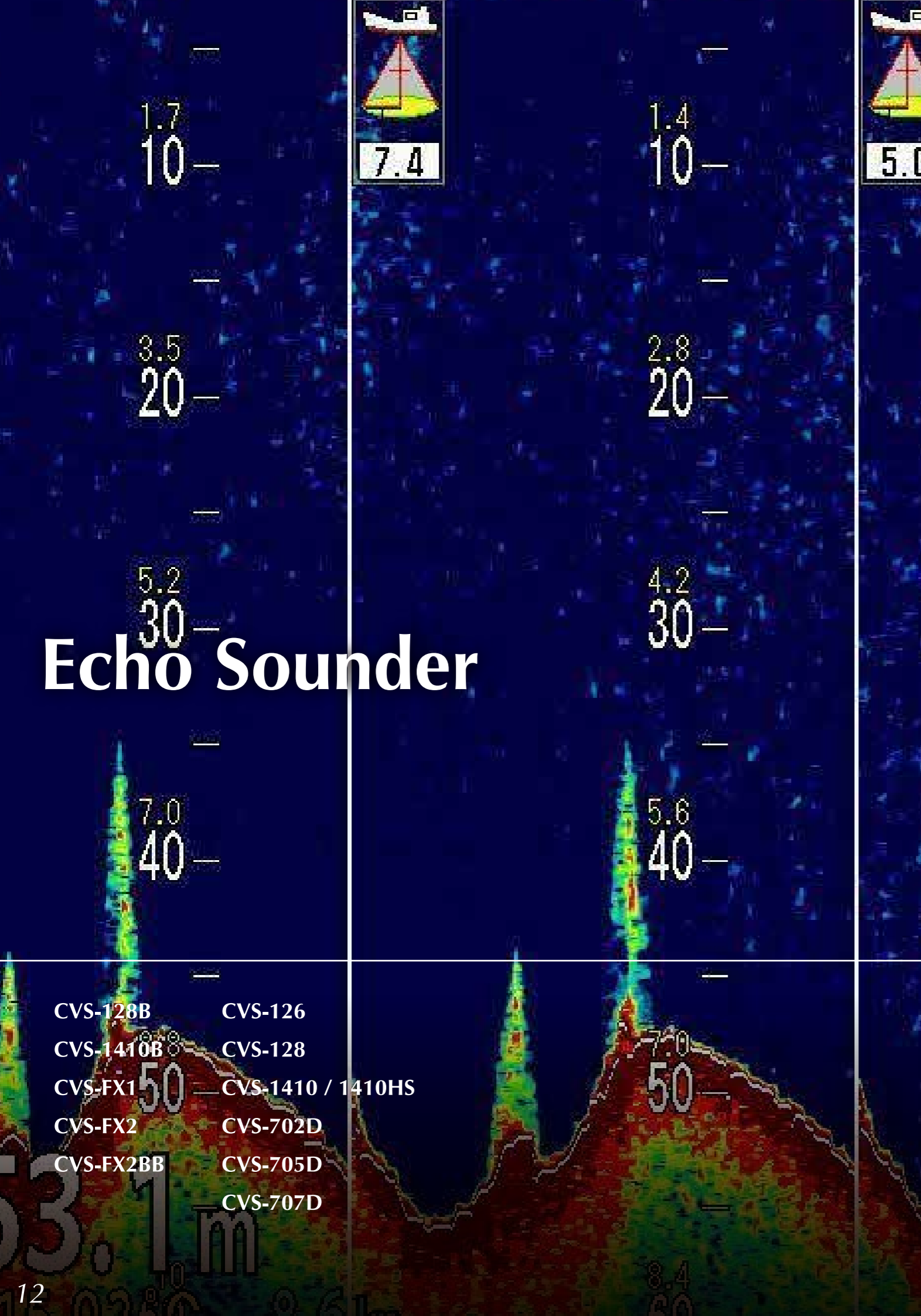


Open antenna for CE Model **NEW**

| | | | | | | |
|--|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| Type | RB806 | RB807 | RB808 | RB809 | RB808P | RB809P |
| Specifications: | | | | | | |
| Antenna length | 3, 4 or 6 feet*** | 4 or 6 feet | 4, 6 or 9 feet** | 6 or 9 feet** | 4, 6 or 9 feet** | |
| Output power (Peak) | 4 kW | 6 kW | 12 kW | 25 kW | 12 kW | 25 kW |
| Output frequency | 9410 ±30 MHz | | | | | |
| Horizontal beam width | 3 ft: 2.5°, 4 ft: 1.8°, 6 ft: 1.2° | 4 ft: 1.8°, 6 ft: 1.2° | 4 ft: 1.8°, 6 ft: 1.2°, 9 ft: 0.8° | 4 ft: 1.8°, 6 ft: 1.2°, 9 ft: 0.8° | 4 ft: 1.8°, 6 ft: 1.2°, 9 ft: 0.8° | |
| Vertical beam width | 22° | 22° | 4 ft: 22°, 6 ft: 22°, 9 ft: 25° | 4 ft: 22°, 6 ft: 22°, 9 ft: 25° | 4 ft: 22°, 6 ft: 22°, 9 ft: 25° | |
| Rotation | 24rpm or 48rpm | | 24 rpm or 42rpm | | 24 rpm | |
| IF center frequency | 60 MHz | | | | | |
| Environmental: | | | | | | |
| Operating temperature | -25°C to + 55°C | | | | | |
| Water protection | IPX6 (IEC 60529) | | | | | |
| Display / processor connections for marine Radar: | | | | | | |
| 8.4" color LCD: MRD-103A | MDC-940A* | - | - | - | - | - |
| 10.4" color LCD: MRD-104A | MDC-2040A | - | - | - | - | - |
| 12" color LCD: MRD-111 | MDC-5204 | MDC-5206 | MDC-5212 | MDC-5225 | - | - |
| 15" color LCD: MRD-109 | MDC-5504 | MDC-5506 | MDC-5512 | MDC-5525 | - | - |
| 19" color LCD: MRD-108 | - | MDC-7906 | MDC-7912 | MDC-7925 | - | - |
| 19" color LCD: MRD-108P | - | - | - | - | MDC-7912P | MDC-7925P |
| Processor unit for SXGA LCD Display: MRM-108 | - | MDC-7006 | MDC-7012 | MDC-7025 | - | - |
| Processor unit for SXGA LCD IMO Display: MRM-108P | - | - | - | - | MDC-7012P | MDC-7025P |

* 48 rpm requires for input voltage of 24 VDC or more **9ft antenna is available for MDC-5512, 5525, 7912, 7925, 7012, 7025, 7912P, 7925P, 7012P and 7025P
*** 6ft antenna is available for MDC-5204 and MDC-5504

Echo Sounder



- CVS-128B
- CVS-1410B
- CVS-FX1
- CVS-FX2
- CVS-FX2BB
- CVS-126
- CVS-128
- CVS-1410 / 1410HS
- CVS-702D
- CVS-705D
- CVS-707D

Koden Digital and Broadband technology

Wide range, wide variety of uses

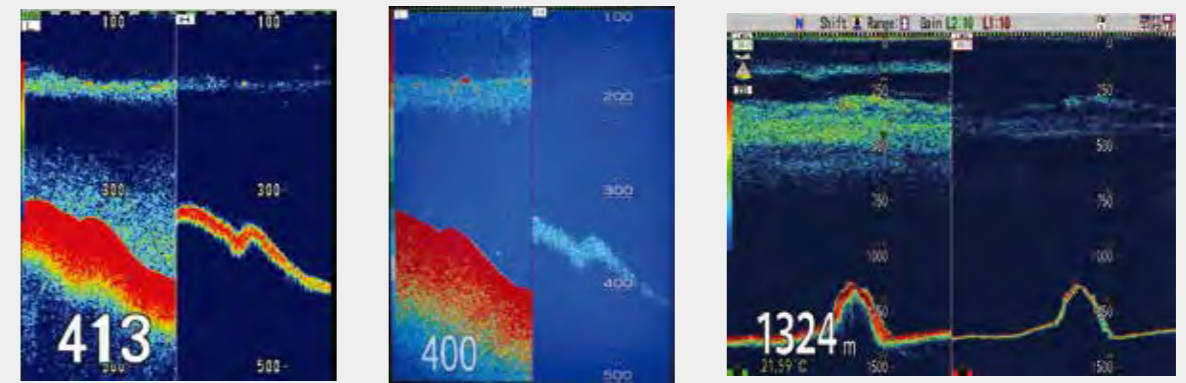
Koden offers a wide range of echo sounders which are designed for a variety of fishing styles from shallow to deep sea applications. Koden Echo Sounders have a unique signal processing system which aids in finding of weak echo of fish school in any ocean conditions.

Digital



Koden Digital Filtering (KDF™)

The Koden Digital Filtering (KDF™) feature eliminates clutter by filtering out the noise to provide a clear detailed image that enhances fish targets in shallow and deep sea.

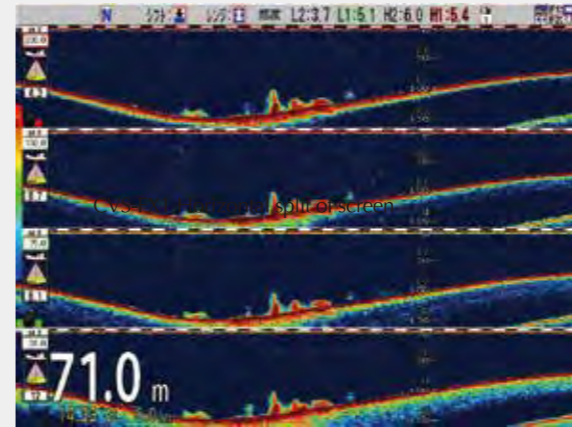


Broadband



What are broadband echo sounders?

Broadband digital echo sounders can transmit and receive over a wide range of frequency with only one transducer. In the past, available frequency for an echo sounder has been preset such as 50 kHz and 200 kHz depending on connected transducer. However, Koden broadband digital echo sounders can search from shallow to deep sea with optimized performance in a given environment, water condition or style of fishing by selecting the most suitable frequencies randomly in 0.1 kHz step. Koden CVS-FX series sounders have the ability to transmit and display four separate frequencies simultaneously for different views of seabed composition, structure, fish and their relation to one another. CVS-128B and CVS-1410B can display two separate frequencies in the same manner. This frequency adjustability also provides clear targets and eliminates interference from nearby vessels without conventional interference rejection function.



CVS-FX1 Horizontal split of screen

| | Low Frequency2 | Low Frequency1 | High Frequency2 | High Frequency1 |
|--------------|----------------|----------------|-----------------|-----------------|
| Standard | Normal | Normal | Normal | Normal |
| Echo Display | OFF | Mix | Mix | OFF |
| Frequency | 38.0kHz | 75.0kHz | 130.0kHz | 200.0kHz |
| Pulse Length | Short | Short | Short | Short |
| | Middle | Middle | Middle | Middle |
| | Long | Long | Long | Long |
| | Fix | Fix | Fix | Fix |
| Band Width | Super narrow | Super narrow | Super narrow | Super narrow |
| | Narrow | Narrow | Narrow | Narrow |
| | Middle | Middle | Middle | Middle |
| | Fix | Fix | Fix | Fix |
| Zoom Display | OFF | OFF | OFF | OFF |
| | B.T.M. | B.T.M. | B.T.M. | B.T.M. |
| | B.O. | B.O. | B.O. | B.O. |
| | Zoom | Zoom | Zoom | Zoom |
| | B.Z. | B.Z. | B.Z. | B.Z. |
| | B.F.Z. | B.F.Z. | B.F.Z. | B.F.Z. |
| Gain | Individual | | | |
| | Synchronize | | | |
| Guide | | | | |
| ENT | Enter | | | |
| Cursor | | | | |
| | SUBMENU | Return | | |
| | MENU | End | | |

CVS-FX1 Individual setting menu

Echo Sounder Digital

Echo Sounder Digital Broadband

«DIGITAL»

«Broadband»



CVS-126
5.7 inch



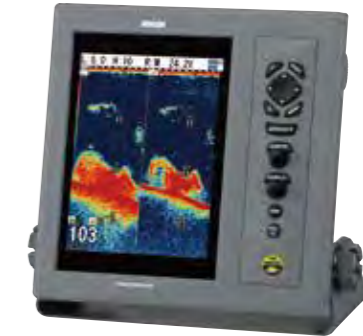
CVS-128
3.4 inch



CVS-1410 /1410HS
10.4 inch

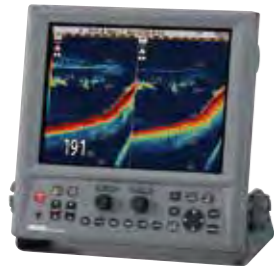


CVS-128B
3.4 inch



CVS-1410B
10.4 inch

NEW



CVS-702D
12.1 inch

NEW



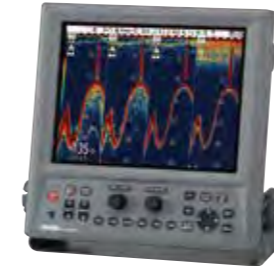
CVS-705D
15 inch

NEW

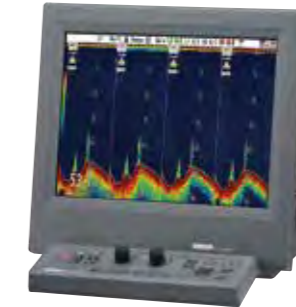


CVS-707D
17 inch

For European model, please contact your nearest distributor.



CVS-FX1
12.1 inch



CVS-FX2
15 inch



CVS-FX2BB
Black Box

Transducer



TD-500T-2B
for CVS-126 / 128



TD-500T-3B
for CVS-126 / 128



TD-501T-3B
for CVS-128



TDM-071 / 091D
for CVS-128B / 1410B



TD-501C
for CVS-128 / 1410



TDM-031D
for CVS-1410HS



TDM-052A / 062A
for CVS-FX1 / FX2 / FX2BB



TD-754
for CVS-702D / 705D / 707D



TD-756
for CVS-702D / 705D / 707D



TD-286 / 506F
for CVS-702D / 705D / 707D



TD-66
for CVS-702D / 705D / 707D



TD-284 / 404T / 504F / 504T
for CVS-702D / 705D / 707D

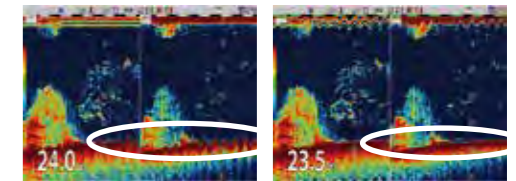
Detection area display

Know exactly the bottom area covered by the low and high frequency sound beams. This can help you target the fish directly under the boat or off to the side.



Heaving Compensation

When a vessel moves up and down due to heaving, the bottom image looks bumpy as if the bottom is waving. By using a heaving compensation, the echo sounder can display the actual bottom image by cancelling the heave factor.



Normal image

Image after Heaving Compensation

Fishing Hot Spot

With data input from external GPS sensor, it can lead you back to your favorite fishing spots or other previously saved positions in memory.



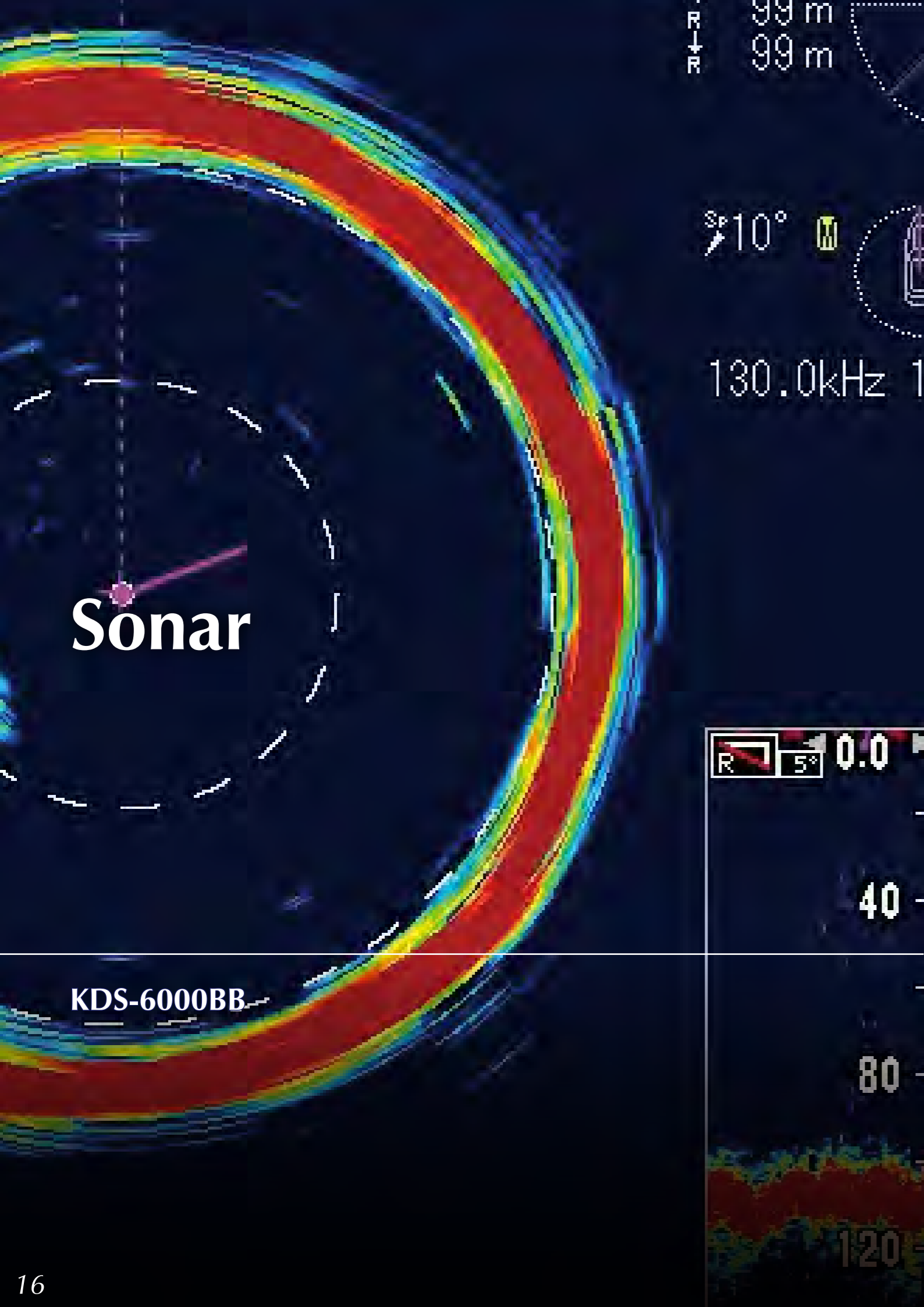
Store Image

Stores screen images in built-in memory to recall the image later by a single touch.
Up to 500 screen images : CVS-FX1, CVS-FX2 / FX2BB, CVS-702D, CVS-705D, CVS-707D
Up to 10 screen images : CVS-126, CVS-128, CVS-128B, CVS-1410 / 1410HS, CVS-1410B

Condition Memory

Up to six settings created by user can be stored in the Condition Memory (CM). The user can recall each setting quickly by simply pushing the CM keys. It is like having six echo sounders in one. (CVS-FX1, CVS-FX2 / FX2BB, CVS-702D, CVS-705D, CVS-707D)

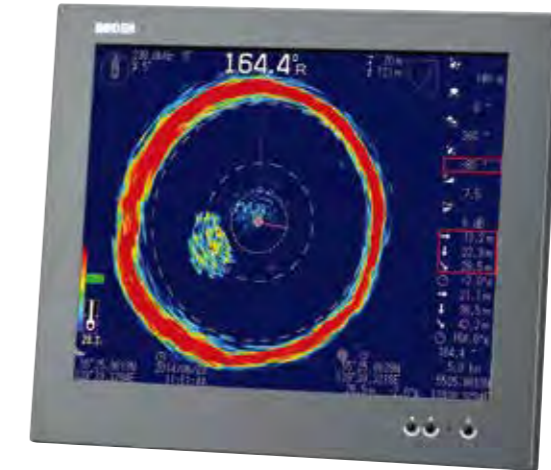




Digital BroadBand Searchlight Sonar

«Broadband»

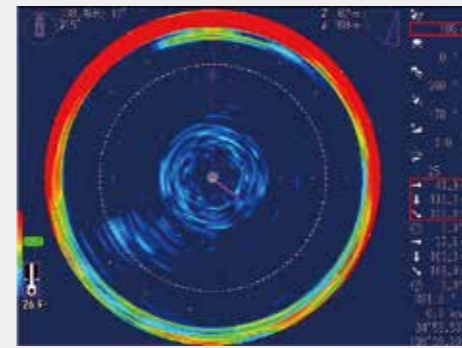
17 inch LCD Monitor(Optional)



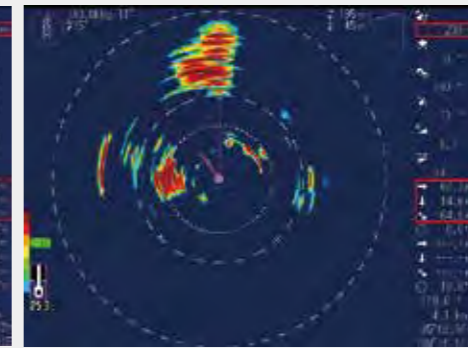
KDS-6000BB

Hull unit

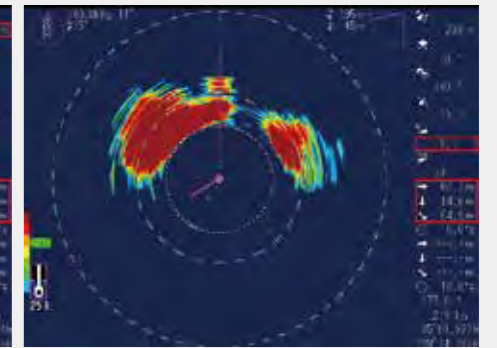
Screen image



Spear squids at the sea bottom at 130.4 kHz



Tunas attacking school of sardines at 140.0 kHz



Pilchards at 140.0 kHz

Advanced Broadband Technology

KDS-6000BB is world first Broadband searchlight sonar. With the wide band transducer equipped as standard, the most suitable output frequency can be selected in 0.1 kHz step depending on the fishing method and the target species from closer range to longer range. Selection of frequency is as easy and quick as tuning a radio.

Flexible selection of frequency enables the user to stay away from interference with the sounders on the other vessels.

- ▶ Change frequency on the go with our advanced Broadband Technology.
- ▶ Massive improvement in scan speed, making detection of fish schools much faster.
- ▶ Clearest possible images with our digital signal processing.
- ▶ All setup and user settings changed instantly by utilizing Condition Memory function.
- ▶ Black Box sonar with 17 inch LCD Monitor available (Option).

GPS Navigator / Compass / Sensor

KGP-915

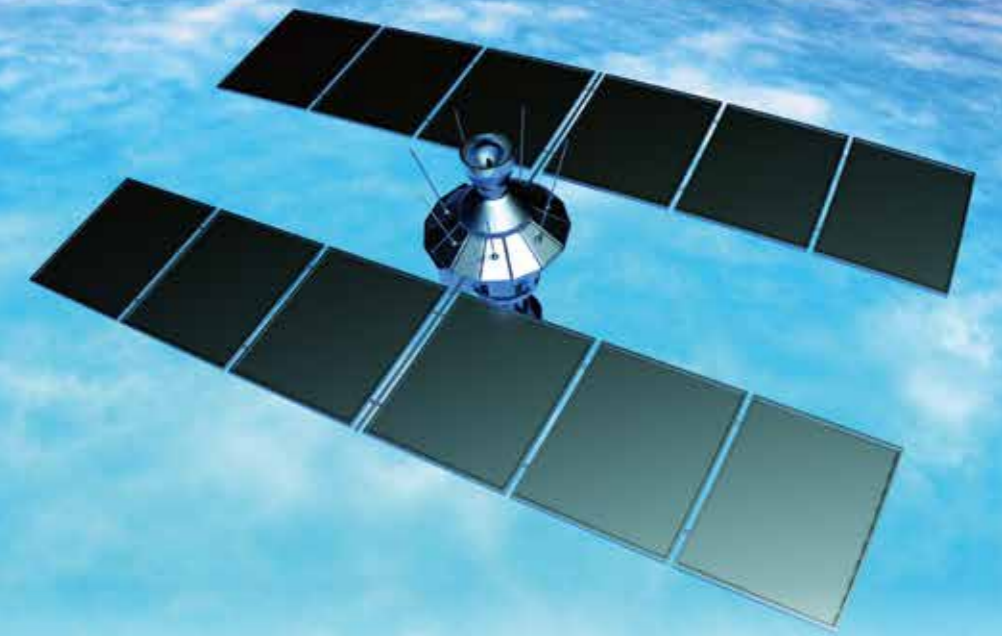
KGP-925

KGP-920

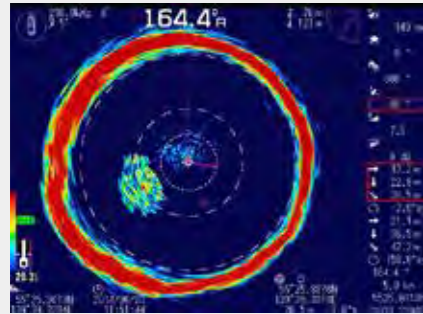
KGC-222

KBG-3

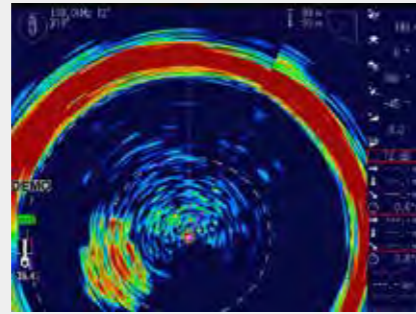
GPS-20A



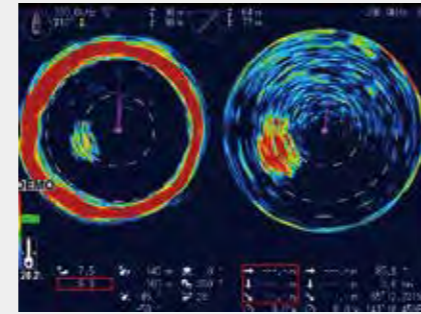
Six different presentation modes



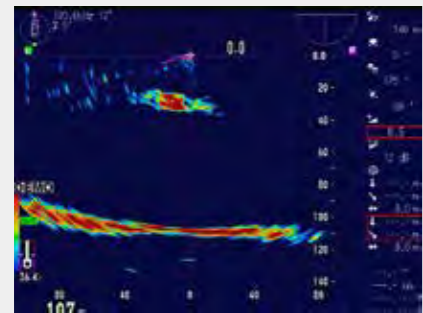
Sonar mode
Search around the ship



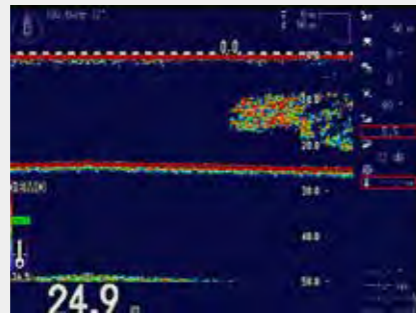
Off-center mode
Show more information of ahead



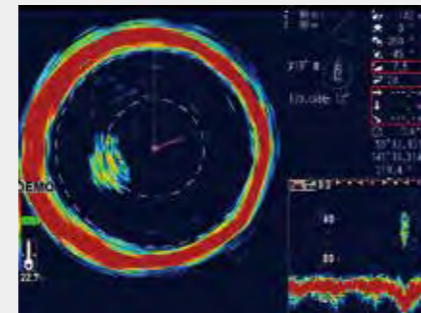
Sonar x 2 mode
Display two different frequencies



Bottom scan mode
Display reflected echo from underwater



Echo sounder mode
Display image like fishfinder



One line display mode
Show vertical Sonar image like an echo sounder image in the Sub-screen

What is the difference between the sonar and the echo sounder?

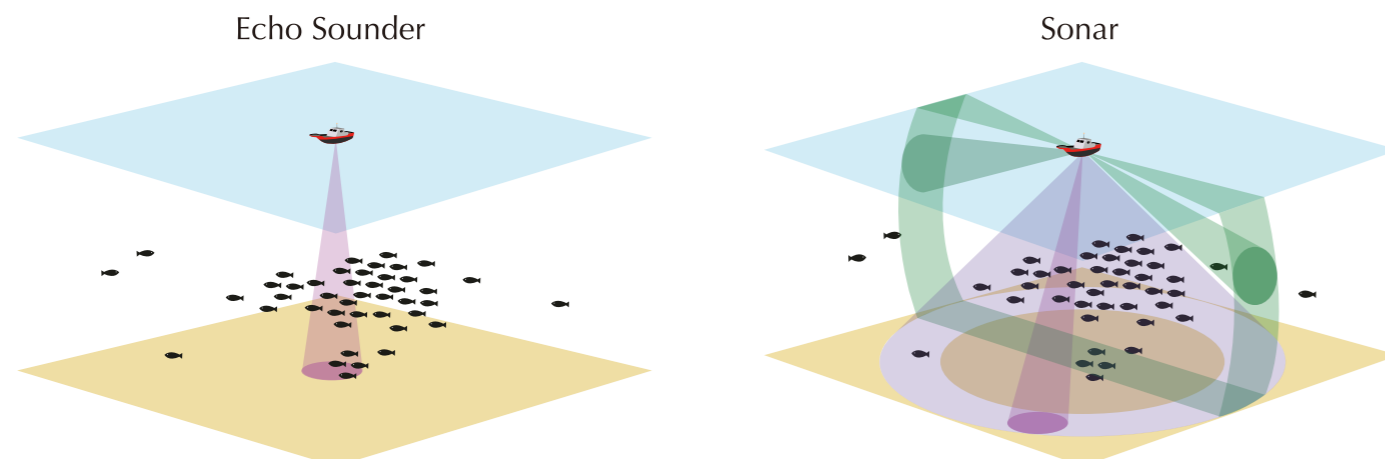
The echo sounder always detects beneath the ship with the transducer installed at bottom of the ship.

The sonar is a multi-directional echo sounder with a revolving and tilting transducer emitting and receiving ultrasonic waves in various directions.

The sonar can search 360-degree direction area automatically and the tilt angle can be adjusted from +5 to -90 degrees too.

A remarkable feature of the sonar is that the transducer can go down toward the sea bottom automatically and operator can control the transducer.

The operator can adjust the direction and tilt angle for detection as flexibly.



GPS Navigator, Compass and Sensor for highly-accurate positioning

Koden GPS products support your safe navigation in various fields of Commercial, Fishing and Pleasure. In addition to the GPS, they output accurate position or heading information to your Radar, Echo Sounder, Plotter, and Autopilot for safer and smoother navigation by the differential information from the Satellite Based Augmentation System (SBAS), WASS in the North America and EGNOS in Europe, or the Russian satellite system GLONASS (KGP-915 and KGP-925). SBAS is very effective for pinpoint fishing, harbor approaching and narrow channel running.



GPS Navigator

KGP-915 / KGP-925 / KGP-920

- ▶ Eye-friendly 4.3-inch high-resolution Color LCD (KGP-915).
- ▶ Beacon receiver built-in for a high-accuracy differential system where beacon stations are located (KGP-925 / KGP-920 option).
- ▶ IMO type approved MSC.112 [73] and IEC61108-1 ED. 2 for SOLAS carriage requirements (KGP-920).
- ▶ Can be used as a GNSS sensor of AIS (KGP-920).
- ▶ GLONASS (the Russian satellite system) compatible (KGP-915 / KGP-925).

NEW



KGP-915 (GPS / DGPS / GLONASS) **KGP-925** (GPS / GLONASS) **KGP-920** (GPS / DGPS)

GPS Compass

KGC-222

- ▶ 4.0" LCD display unit.
- ▶ Backup sensor built-in.
- ▶ Pitch / roll and heaving data output.
- ▶ 3 heading data output ports expandable to 5 ports (with optional junction box JB-35).
- ▶ SBAS (WASS / EGNOS) enabled.



KGC-222

DGPS Sensor / GPS Sensor

KBG-3 / GPS-20A

- ▶ 18 channel parallel.
- ▶ SBAS (WASS / EGNOS) enabled.
- ▶ Beacon receiver built-in for a high-accuracy differential system where beacon stations are located (KBG-3).



KBG-3



GPS-20A

Class A AIS Transceiver

KAT-100

KAT-100 is the combined Class A / Inland AIS transceiver, designed to be fitted to commercial vessels.

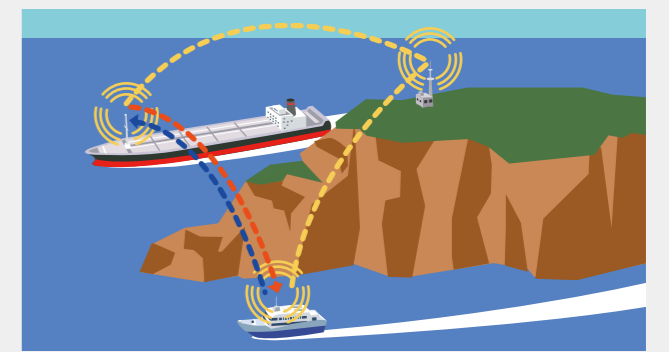
- ▶ Meets IMO Standard MSC. 74 (69) Annex 4.
- ▶ Meets FCC, USCG, IC, TC, CCNR (Inland AIS).
- ▶ High accuracy and reliability.
- ▶ Simple and easy installation.



KAT-100

What's AIS?

The marine Automatic Identification System (AIS) is the location and vessel information reporting system. It allows vessels equipped with AIS to automatically and dynamically share and regularly update their position, speed, course and other information.



Total Navigator

KTN-70A

- ▶ GPS, Plotter, AIS Receiver.
- ▶ 7-inch Wide Color LCD Display.
- ▶ Radar ATA Target Overlay.
- ▶ High Accuracy Build in Chart.
- ▶ Easy Waypoints Transfer to Radar.

NEW



KTN-70A

Navigational Echo Sounder

CVR-010

CVR-010 is a single-channel navigational echo sounder. Featuring a 5.7-inch daylight-viewing, LED backlight color LCD screen, the equipment displays the echogram.

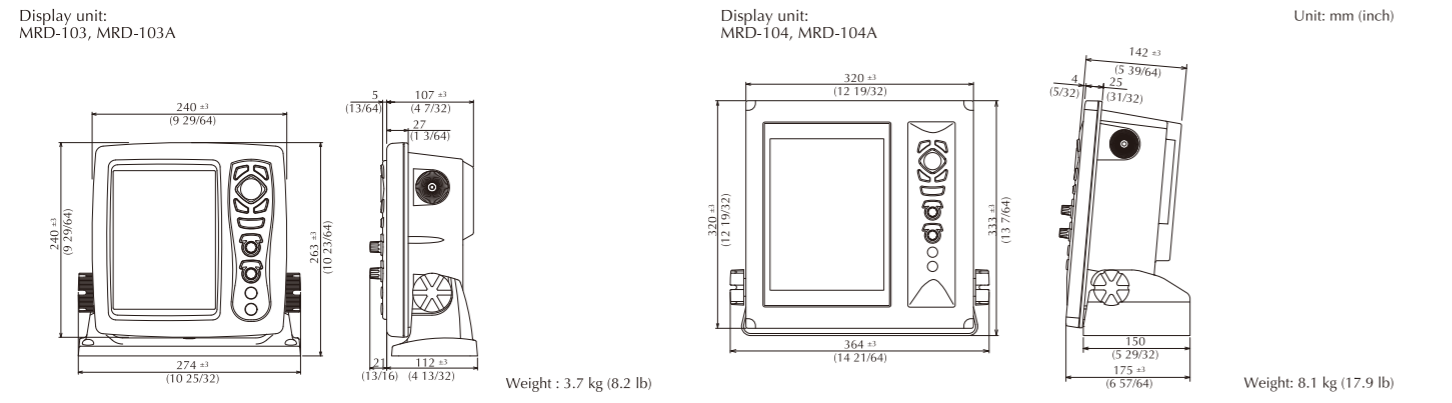
- ▶ Meets IMO Standard MSC. 74 (69) Annex 4, EU Marine Equipment Directive (MED).
- ▶ High accuracy and reliability.
- ▶ Sounding data storage for the last 12 hours.
- ▶ Password protection for keeping the menu settings.



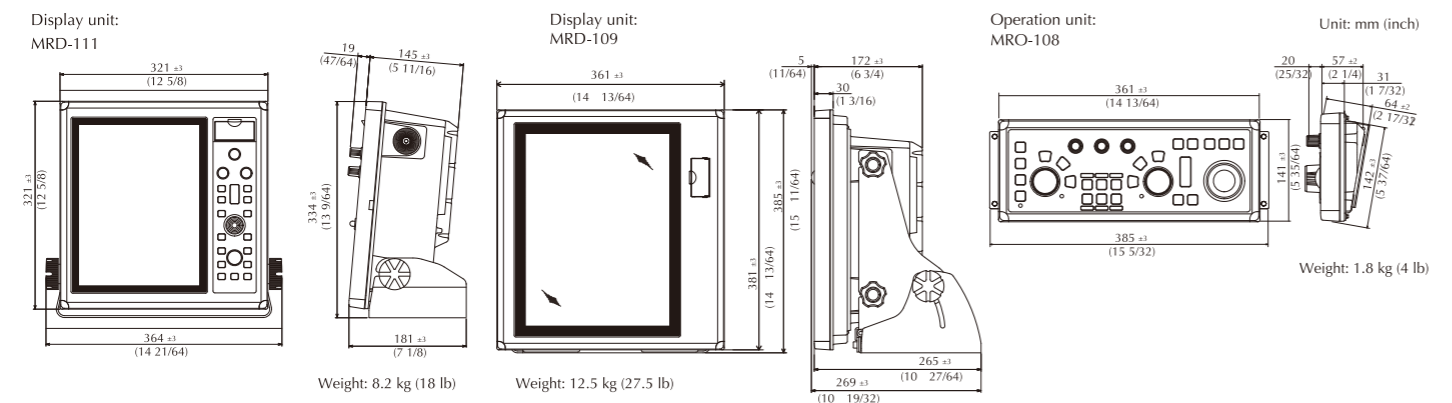
CVR-010

Dimensions and Weight

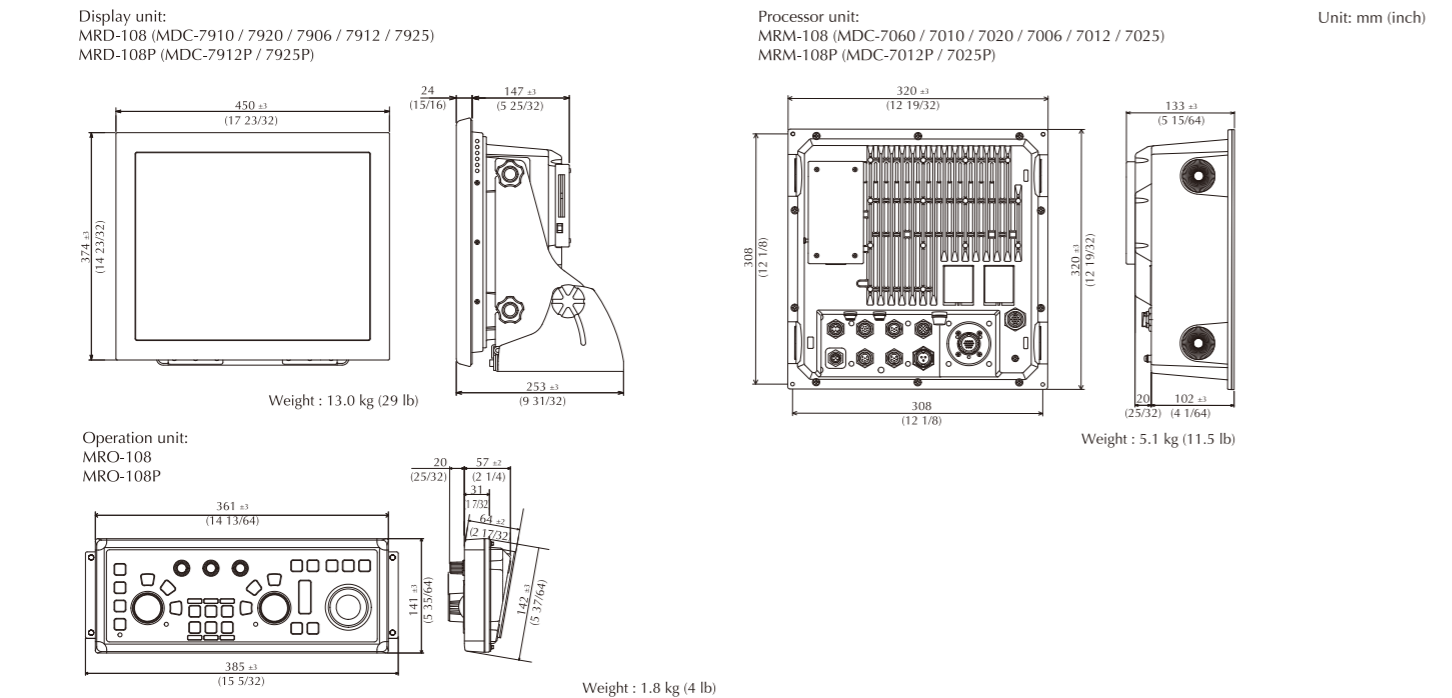
Marine Radar 8.4" MDC-900 series, 10.4" MDC-2000 series



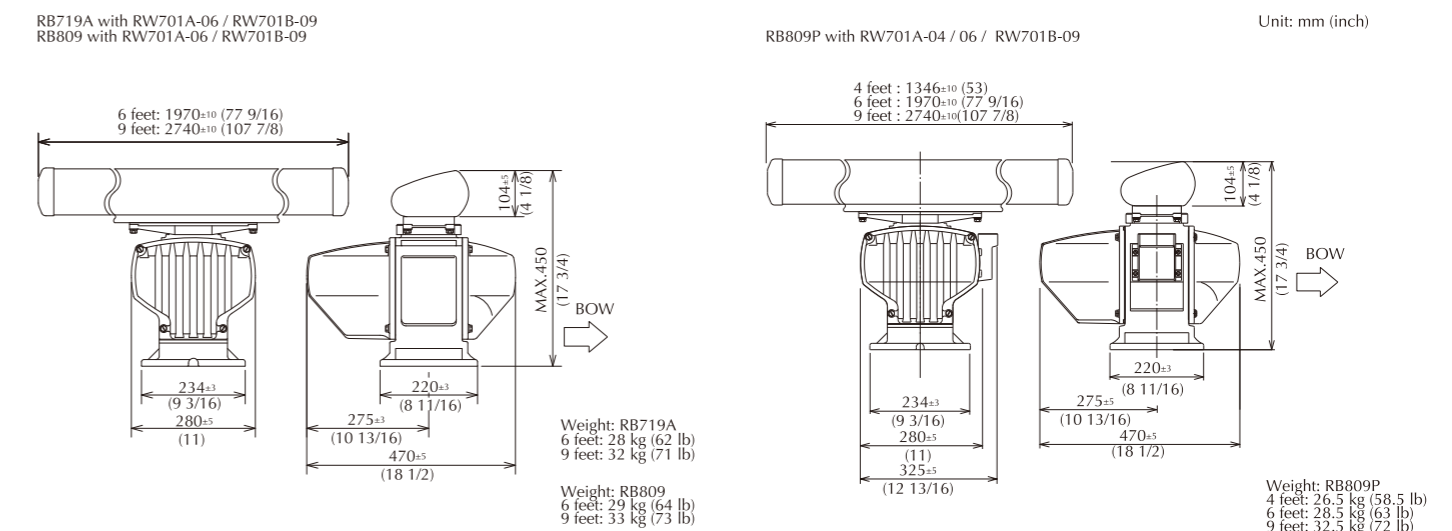
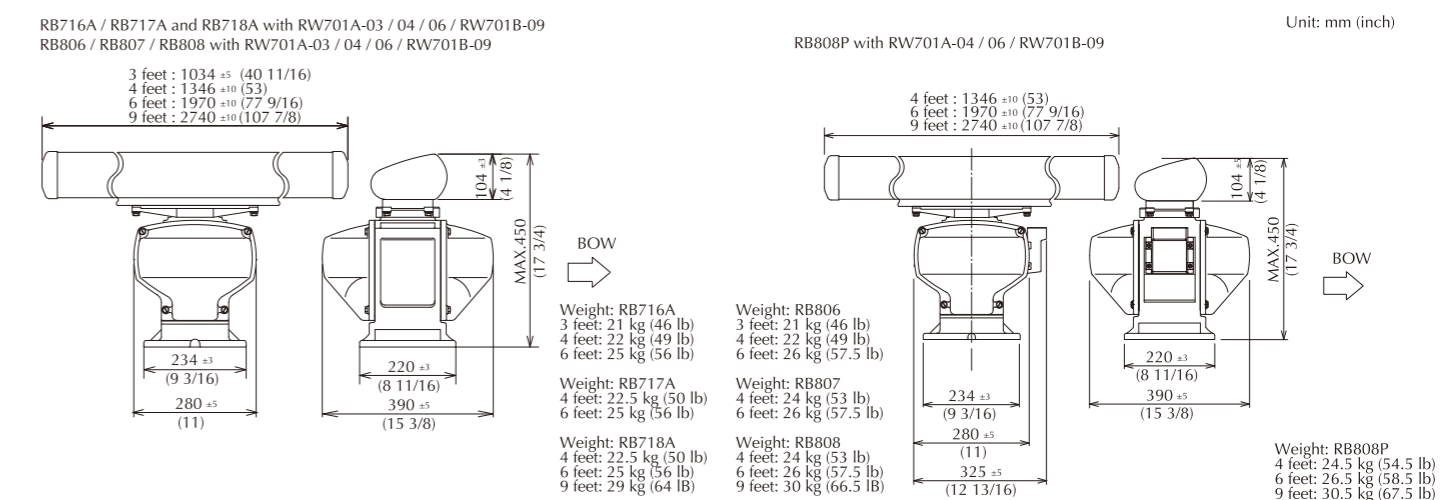
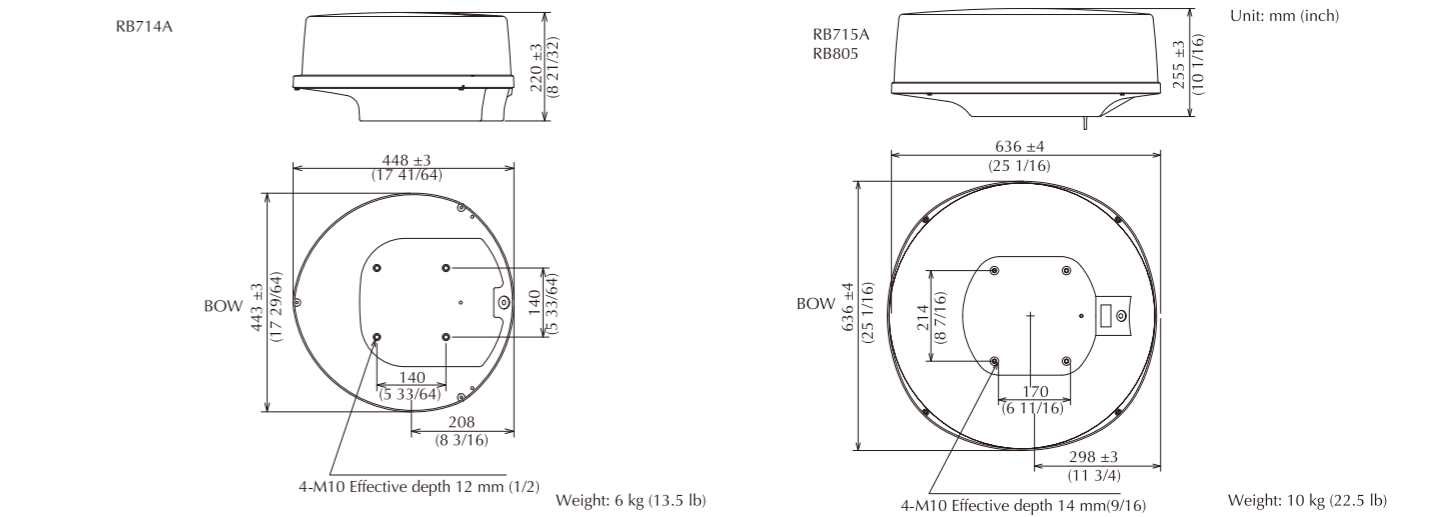
Marine Radar 12" MDC-5200 series, 15" MDC-5500 series



Marine Radar 19" MDC-7000 / 7900 / 7000P / 7900P series

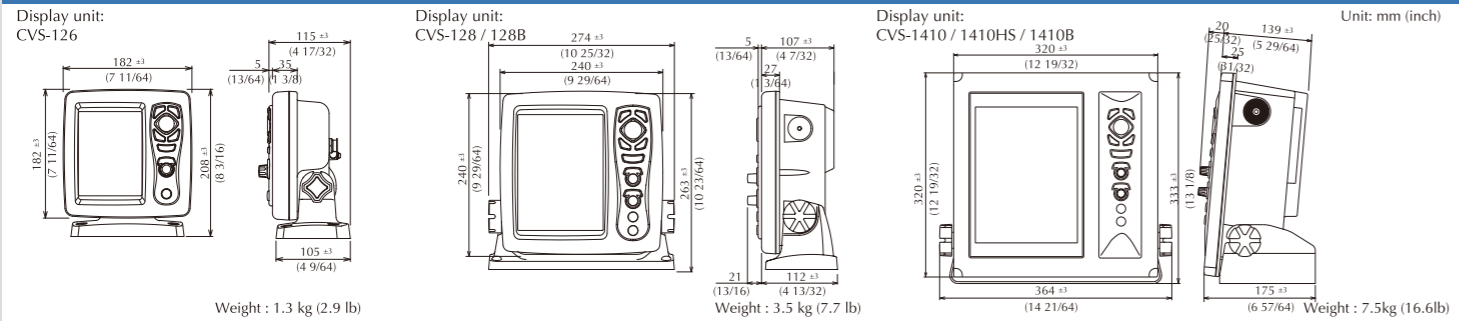


Antenna - Scanner unit

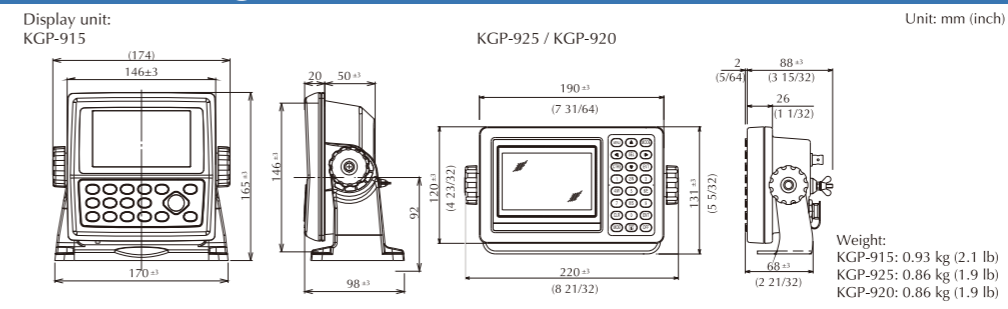


Dimensions and Weight

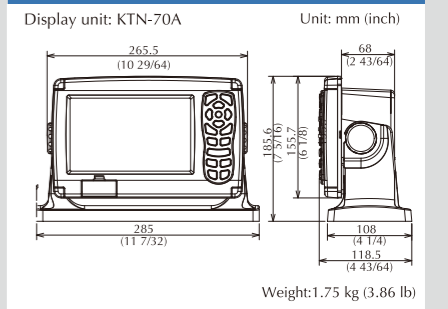
Echo Sounder CVS-126, CVS-128 / 128B, CVS-1410 / 1410HS / 1410B



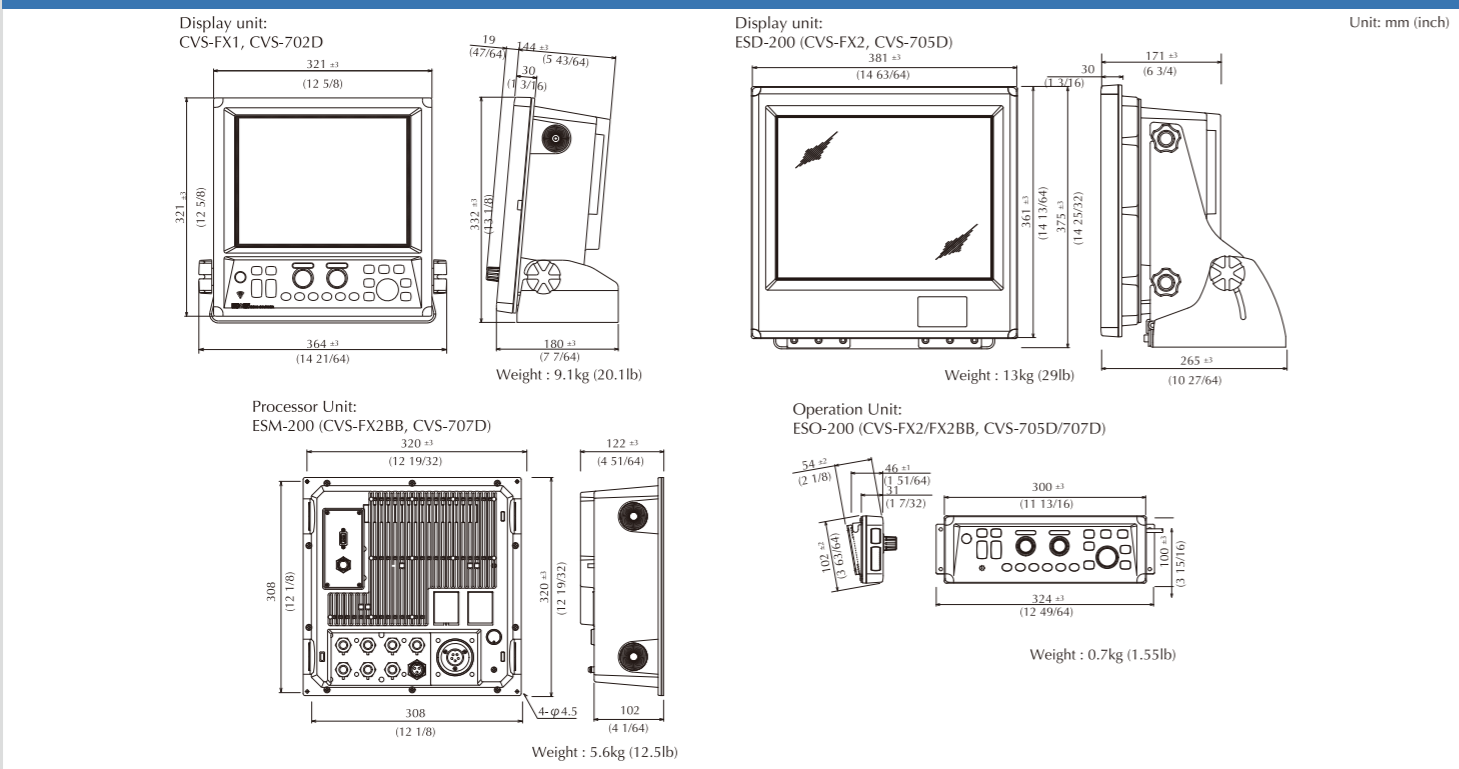
GPS Navigator KGP-915, KGP-925, KGP-920



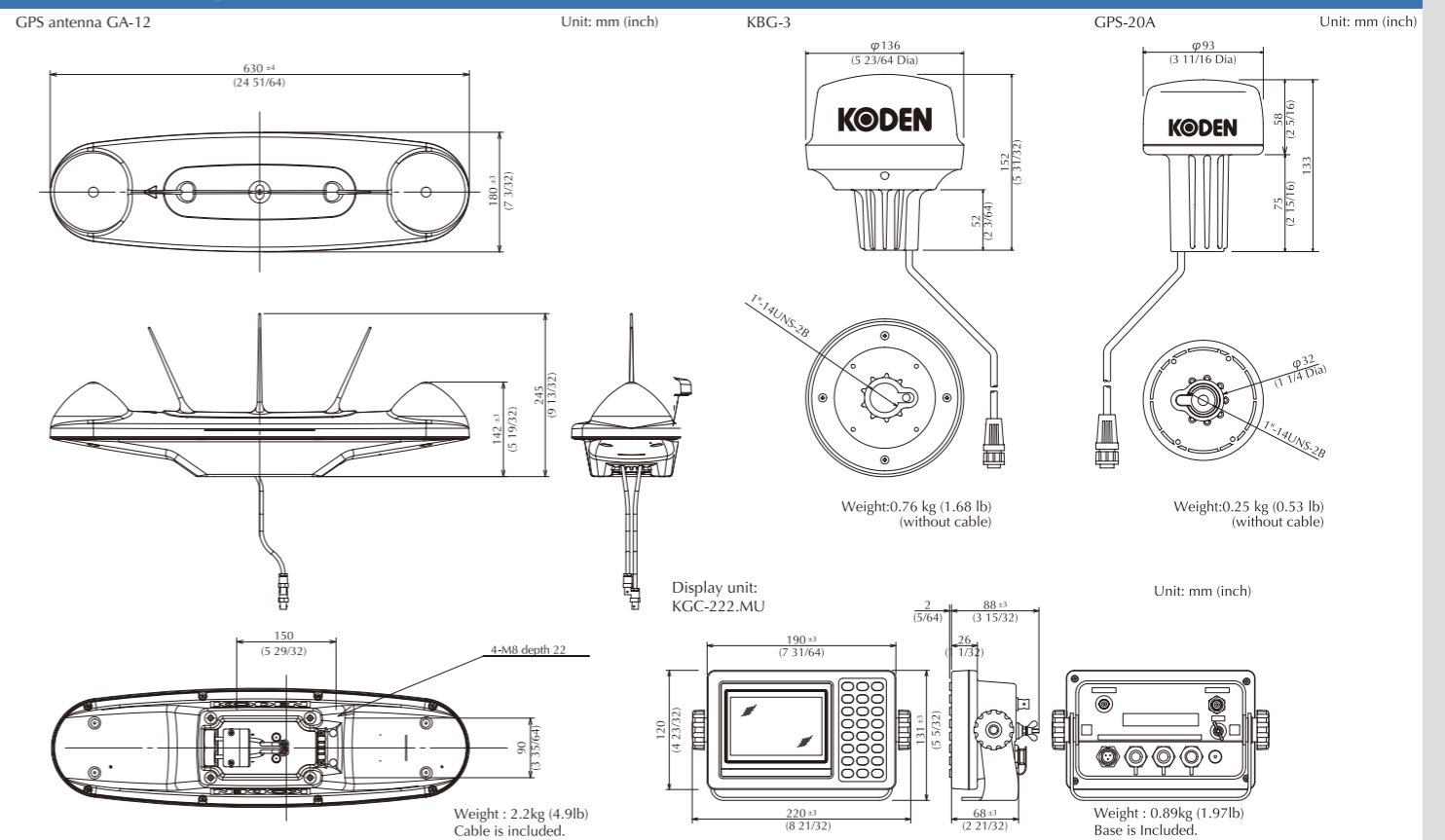
Total Navigator KTN-70A



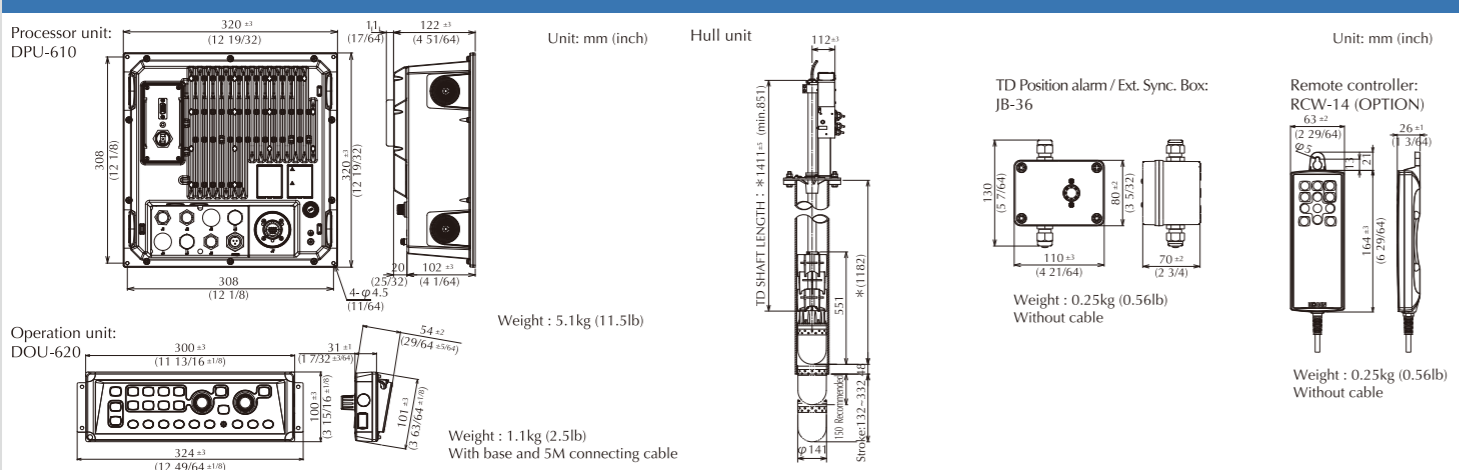
Echo Sounder CVS-FX1, CVS-FX2 / FX2BB, CVS-702D, CVS-705D, CVS-707D



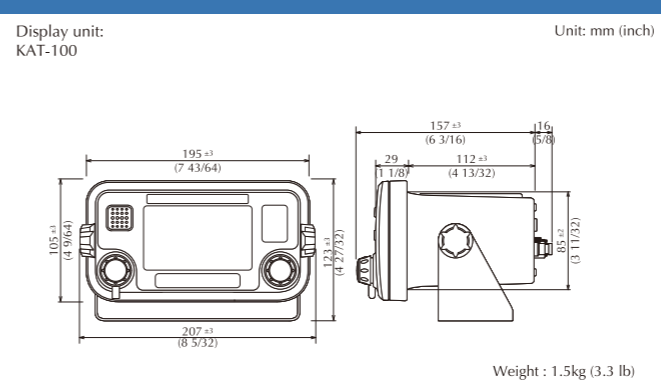
GPS Compass KGC-222, DGPS Sensor KBG-3, GPS Sensor GPS-20A



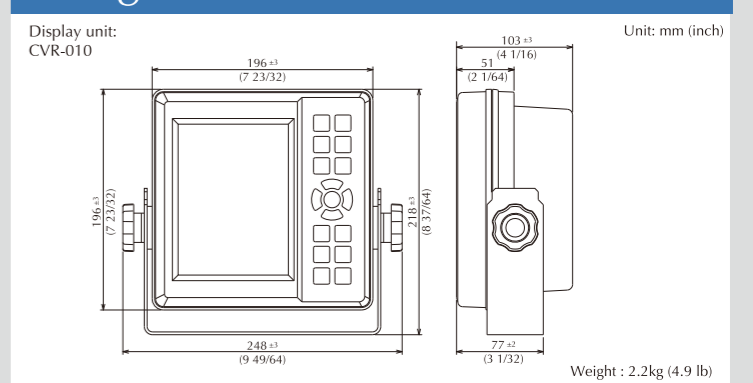
Sonar KDS-6000BB



AIS Transceiver KAT-100



Navigational Echo Sounder CVR-010



Specifications Radar

| Model | MDC-900 Series | MDC-2000 Series | MDC-5200 Series | MDC-5500 Series | MDC-7000 Series | MDC-7900 Series | MDC-7000P | MDC-7900P | |
|--|---|-----------------|-------------------------|---|---------------------------|--|------------|---|--|
| Specifications & Functions: | | | | | | | | | |
| Display Unit (Processor unit) | MRD-103 / 103A | MRD-104 / 104A | MRD-111 | MRD-109 | (MRM-108) | MRD-108 | (MRM-108P) | MRD-108P | |
| Operation unit | - | - | - | - | MRO-108 | - | - | MRO-108P | |
| Display size | 8.4" | 10.4" | 12.1" | 15" | - | 19" | - | 19" | |
| Display resolution | 480 X 640 pixels (VGA) | | 768 x 1024 pixels (XGA) | | 1280 x 1024 pixels (SXGA) | | | | |
| Effective diameter (mm) | 127.4 | 157.4 | 184 | 228 | - | 282 | - | 282 | |
| Off-centering | Max. 66% | | | | Max. 75% | | | | |
| Echo area | 2 types (Full screen, Inside of effective diameter) | | | | | | | 1 type (Inside of effective diameter) | |
| Presentation modes | Head-up, North-up (True motion)***, North-up (Relative motion)*, Course-up (True motion)***, Course-up (Relative motion)*, WPT-up** | | | Head-up, North-up (True motion)***, North-up (Relative motion)*, Course-up (True motion)***, Course-up (Relative motion)* | | | | | |
| Indication system | PPI, PPI/PPI, PPI/NAV | | | PPI | | | | | |
| Video levels | 8 | | | 16 | | | | | |
| Distance unit (VRM unit) | NM, sm, km | | | NM, sm, km, kf, ky | | | | | |
| Alarms | Echo (IN / OUT), ATA / AIS (CPA / TCPA) etc. | | | Echo (IN / OUT), TT / AIS (CPA / TCPA), Guard zone etc. | | | | | |
| Functions | Interference rejection, Target expansion, VRM, EBL (true* / relative), Parallel index, Cursor position (Lat / Lon)***, Bearing (true* / relative), Trail***, RGB Monitor output, Slave display monitor input/output, External Buzzer output, Accepts CCD camera input | | | Map overlay***, CFAR (Clutter rejection), Interference rejection, Target expansion, Process (Averaging), VRM, EBL, Parallel index, ERBL, Cursor position, Bearing (true* / relative), Trail (true / relative)*, Own ship past track*, MAP (Event mark* etc.), Analog RGB output | | Map overlay, CFAR (Clutter rejection), Interference rejection, Target expansion, Process (Averaging), VRM, EBL, Parallel index, ERBL, Cursor position, Bearing (true* / relative), Trail (true / relative)*, Own ship past track*, MAP (Event mark* etc.), Analog RGB output, Trial Manoeuvre* | | | |
| Input data format and sentences | NMEA0183 (BEC, BWC, BWR, DPT, DBT, GGA, GLL, GNS, HDG, HDM, HDT, MTW, MWD, MWV, RMA, RMB, RMC, VHW, VTG, XTE) | | | IEC61162-1 / -2 ALF, ALR, BWC, DBT, DPT, DTM, GGA, GLC, GLL, GNS, HBT, HDG, HDT, HDM, MTW, RMA, RMB, RMC, ROT, RTE, THS, TLL, VBW, VDH, VDR, VHW, VTG, WPL, XTE, ZDA | | | | | |
| Output data format and sentences | NMEA0183 (TTM, TLL) | | | IEC61162 -1 / -2 DTM, GLL, HDT, ROT, RSD, OSD, THS, TLB, TLL, TTD, TTM, VBW, VDR, VHW, VTG, ZDA | | | | | |
| NMEA ports | Total 2: input and output 2 | | | Total 3: input and output 3 | | | | | |
| AIS interface*** | 100 targets (Option) | | | 1000 targets (Standard) | | | | | |
| TT*** | 50 targets (Option) | | | 100 targets (Standard) | | | | | |
| Power supply | 10.8 to 31.2 VDC | | | 21.6 to 41.6 VDC | | | | | |
| Environmental : | | | | | | | | | |
| Operating temperature | -15°C to + 55°C (Display Unit) -25°C to + 55°C (Antenna) | | | | | | | | |
| Water Protection | IPX5 (Display Unit) CFR-46 (RB714A) IPX6 (RB715A, RB716A, RB805, RB806) | | | IPX5 (Display Unit) IPX6 (RB716A, RB717A, RB718A, RB719A) | | IPX5 (Display Unit) IP23(Operation unit) IPX6 (RB806, RB807, RB808, RB809) | | IP23 (Front panel and Operation unit) : MDC-7900 / 7900P IP23 (Operation unit) : MDC-7000 / 7000P IPX6 (RB717A, RB718A, RB719A, RB807, RB808, RB808P, RB809, RB809P) | |

| Model | MDC-921 | MDC-941 / 2041 | MDC-941A / 2041A | MDC-940 / 2040 | MDC-940A / 2040A | MDC-2060 | MDC-2010 | MDC-5240 / 5540 | MDC-5260 / 5560 | MDC-5210 / 5510 | MDC-5220 / 5520 | MDC-5204 / 5504 | MDC-5206 / 5506 | MDC-5212 / 5512 | MDC-5225 / 5525 | MDC-7060 / 7960 | MDC-7010 / 7910 | MDC-7020 / 7920 | MDC-7006 / 7906 | MDC-7012 / 7912 | MDC-7025 / 7925 | MDC-7012P / 7912P | MDC-7025P / 7925P | |
|-------------------------------|-----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|---------------|----------------|-----------------|-------------------------------|-------------------------------|-------------------------------|-----------------|-------------------------------|-------------------------------|-------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------|-------------------|---------------|
| Output power (Peak) | 2 kW | 4 kW | | | | 6 kW | 12 kW | 4 kW | 6 kW | 12 kW | 25 kW | 4 kW | 6 kW | 12 kW | 25 kW | 6 kW | 12 kW | 25 kW | 6 kW | 12 kW | 25 kW | 12 kW | 25 kW | 25 kW |
| Basic ranges | 0.0625 to 24 NM | 0.0625 to 32 NM | | | 0.0625 to 48 NM | | 0.0625 to 64NM | 0.0625 to 72NM | 0.125 to 48NM | 0.125 to 64NM | | 0.125 to 96NM | 0.125 to 48NM | 0.125 to 64NM | | 0.125 to 96NM | 0.125 to 64NM | 0.125 to 96NM | 0.125 to 64NM | | 0.125 to 96NM | 0.125 to 64NM | 0.125 to 96NM | |
| Power consumption (at 24 VDC) | 45 W or less | 55 W or less / 65 W or less | 55 W or less / 65 W or less | 70 W or less / 80 W or less | 70 W or less / 80 W or less | 110 W or less | 130 W or less | 80 W or less | 110 W or less / 130 W or less | 130 W or less / 150 W or less | 170 W or less / 200 W or less | 80 W or less | 110 W or less / 130 W or less | 130 W or less / 150 W or less | 170 W or less / 200 W or less | 130 W or less | 150 W or less | 200 W or less | 130 W or less | 150 W or less | 200 W or less | 150 W or less | 200 W or less | 200 W or less |

Antenna-scanner connections : (See page 10 - 11 for details)

| | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|--------------|------------------|-------|-----------------|--------|------------------|--------|------------------|--------|--|--------|------------------|--------|--------------|-------|------------------|-------|--|--------|--------------|--------|--|--------|----|
| 2 kW Radome antenna | RB714A | | | | | | | | | | | | | | | | | | | | | | | |
| 4 kW Radome antenna | RB715A | | RB805 | | | | | | | | | | | | | | | | | | | | | |
| 4 kW Open antenna | | | | | RB716A | | RB806 | | | | RB716A | | | | RB806 | | | | | | | | | |
| 6 kW Open antenna | | | | | | | RB717A | | | | | | RB717A | | | | | | RB717A | | | | RB807 | |
| 12 kW Open antenna | | | | | | | | | RB718A | | | | | | RB807 | | | | | | RB718A | | RB808 | |
| 25 kW Open antenna | | | | | | | | | | | RB719A | | | | | | RB808 | | | | | | RB808P | |
| Interconnecting cable length | Standard (m) | 242J160680 (10m) | | 242J58055 (10m) | | 242J159098 (10m) | | 242J159098 (15m) | | | | 242J159098 (15m) | | CW-845 (15m) | | 242J159098 (15m) | | | | CW-845 (15m) | | | | 65 |

* Requires bearing data input.
 ** Requires waypoint data input.
 *** Requires bearing data, ship's speed data and latitude / longitude data input.



Specifications EchoSounder

| Model | CVS-128B | CVS-1410B | CVS-FX1 | CVS-FX2 | CVS-FX2BB |
|--|---|---|--|-----------------------------------|---|
| Specifications & Functions: | | | | | |
| Output power (RMS) | 2 kW | | 3 kW | | 3 kW |
| Transducer | TDM-071, TDM-091D | | TDM-052A | TDM-062A | TDM-052A, TDM-062A |
| Output frequency | 38 to 75 kHz (TDM-071), 42 to 65 kHz and 130 to 210 kHz (TDM-091D) | | 38 to 75 kHz and 130 to 210 kHz | 38 to 75 kHz and 85 to 135 kHz | 38 to 75 kHz and 130 to 210 kHz, 38 to 75 kHz and 85 to 135 kHz |
| Selectable frequency range | 24 to 210 kHz 0.1kHz step | | 24 to 240 kHz 0.1kHz step | | 24 to 240 kHz 0.1kHz step |
| Display size and type | 8.4 inch color LCD | 10.4 inch color LCD | 12.1 inch color LCD | | 15 inch color LCD |
| Display resolution | 640 x 480 pixels (VGA) | | 1024 x 768 pixels (XGA) | | 1024 x 768 pixels (XGA) |
| Basic ranges | 2.5 to 1200 (m) 10 to 3600 (ft) 2.5 to 700 (fm / l. fm) (8 ranges can be set to users choice) | 2.5 to 2000 (m) 10 to 6000 (ft) 2.5 to 1100 (fm / l. fm) (8 ranges can be set to users choice) | 1 to 3000 (m) 5 to 8000 (ft) 1 to 1700 (fm) 1 to 2000 (l. fm) (8 ranges can be set to users choice) | | 1 to 3000 (m) 5 to 8000 (ft) 1 to 1700 (fm) 1 to 2000 (l. fm) (8 ranges can be set to users choice) |
| Range units | m, ft, fm, l.fm | | m, ft, fm, l.fm | | m, ft, fm, l.fm |
| Presentation modes | High frequency, Low frequency, Dual frequency, Zoom image (Bottom lock, Bottom discrimination, Bottom zoom, Zoom, Bottom follow zoom), Nav mode, Vertical split, Horizontal split A-scope can be displayed at all above modes | | High frequency, Low frequency, 1 to 4 frequency, Zoom image (Bottom lock, Bottom discrimination, Bottom zoom, Zoom, Bottom follow zoom), Nav mode, Vertical split, Horizontal split, Mix A-scope can be displayed at all above modes | | High frequency, Low frequency, 1 to 4 frequency, Zoom image (Bottom lock, Bottom discrimination, Bottom zoom, Zoom, Bottom follow zoom), Nav mode, Vertical split, Horizontal split, Mix A-scope can be displayed at all above modes |
| Presentation colors | 64 colors,16 colors, 8 colors, Monochrome | | 64 colors,16 colors, 8 colors, Monochrome | | 64 colors,16 colors, 8 colors, Monochrome |
| Alarms | Bottom, Fish, Temperature*, Speed**, Arrival***, XTE*** | | Bottom, Fish, Temperature*, Speed**, Arrival***, XTE*** | | Bottom, Fish, Temperature*, Speed**, Arrival***, XTE*** |
| Image speed | 9 steps & stop | | 12 steps & stop | | 12 steps & stop |
| Functions | Interference rejection, Color rejection, VRM, Noise reduction, White line, Draft correct, Water temperature correct, Boat speed correct, Store image (10 images), Sona-Tone™, Fishing Hot Spot, Event memory, Simple plotter, Panel illumination, Power reduction, External trigger, Fish information, Detection area display | | Interference rejection, Color rejection, VRM, Noise reduction, White line, Draft correct, Water temperature correct, Boat speed correct, Store image (500 images), Sona-Tone™, Homing, Event memory, Simple plotter, Panel illumination, Power reduction, External trigger, Detection area display, CM key, Water Temp.graph, Individual range operation, Individual shift operation, Heaving compensation | | Interference rejection, Color rejection, VRM, Noise reduction, White line, Draft correct, Water temperature correct, Boat speed correct, Store image (500 images), Sona-Tone™, Fishing Hot Spot, Event memory, Simple plotter, Panel illumination, Power reduction, External trigger, Detection area display, CM key, Water Temp.graph, Individual range operation, Individual shift operation, External memory storage (SD card, USB memory), Heaving compensation |
| Auto functions | Range, Shift, TVG | | Range, Shift, TVG, TX Power, White Line | | Range, Shift, TVG, TX Power, White Line |
| Input data format and sentences | NMEA0183 Ver.1.5 / 2.0 / 3.0 GGA, GLL, HDT, MTW, MWV, RMC, VHW, VTG, ZDA | | NMEA0183 Ver.1.5/2.0/3.0 GGA, GLL, HDT, MTW, MWV, RMC, VHW, VTG, ZDA | | NMEA0183 Ver.1.5/2.0/3.0 GGA, GLL, HDT, MTW, MWV, RMC, VHW, VTG, ZDA |
| Output data format and sentences | NMEA0183 Ver.2.0 (DBT : Ver.1.5) DBT, DPT, GGA, GLL, HDT, MTW, MWV, RMC, TLL, VHW, VTG, ZDA | | NMEA0183 Ver.2.0 (DBT : Ver.1.5) DBT, DPT, GGA, GLL, HDT, MTW, MWV, RMC, TLL, VHW, VTG, ZDA | | NMEA0183 Ver.2.0 (DBT : Ver.1.5) DBT, DPT, GGA, GLL, HDT, MTW, MWV, RMC, TLL, VHW, VTG, ZDA |
| NMEA ports | Total 1: input and output | | Total 2 : input and output | | Total 2 : input and output |
| Power supply | 10.8 to 31.2 VDC | | 10.8 to 31.2 VDC | | 21.6 to 31.2 VDC |
| Power consumption (24 VDC) | 25 W or less | 30 W or less | 60 W or less | | 70 W or less |
| Environmental: | | | | | |
| Operating temperature | -15°C to +55°C | | -15°C to +55°C | | -15°C to +55°C |
| Water protection | IPX5 | | IPX5 | | IPX5 |

* Requires data from Temp sensor
** Requires speed data from Speed sensor or GPS sensor
*** Requires data from GPS sensor

| Model | CVS-126 | CVS-128 | CVS-1410 | CVS-1410HS | CVS-702D | CVS-705D | CVS-707D |
|--|--|--|---|--------------------|---|-----------------------|---------------------------------------|
| Specifications & Functions: | | | | | | | |
| Output power (RMS) | 600 W | 600W or 1kW | 1 kW | | 3kW : 28, 40, 50, 75, 200kHz (200kHz is 1kW only) or 5kW : 28, 50, 75, 200kHz (200kHz is 1kW only) | | |
| Output frequency | 50 kHz and 200 kHz | 50 kHz and 200 kHz | 50 kHz and 200 kHz **** | 50 kHz and 200 kHz | Single, 2 frequency, Simultaneous | | |
| Display size and type | 5.7 inch color LCD | 8.4 inch color LCD | 10.4 inch color LCD | | 12.1 inch color XGA LCD | 15 inch color XGA LCD | 17 inch color XGA LCD**** |
| Display resolution | 320 x 240 pixels (QVGA) | | 640 x 480 pixels (VGA) | | 1024 x 768 pixels (XGA) | | |
| Basic ranges | 2.5 to 800 (m) 10 to 2800 (ft) 2.5 to 600 (fm / l. fm) (8 ranges can be set to users choice) | 2.5 to 1200 (m) 10 to 3600 (ft) 2.5 to 700 (fm / l. fm) (8 ranges can be set to users choice) | 2.5 to 2000 (m) 10 to 6000 (ft) 2.5 to 1100 (fm / l. fm) (8 ranges can be set to users choice) | | 1 to 3000 (m) 5 to 8000 (ft) 1 to 1700 (fm) 1 to 2000 (l. fm) (8 ranges can be set to users choice) | | |
| Range units | m, ft, fm, l.fm | | m, ft, fm, l.fm | | m, ft, fm, l.fm | | |
| Presentation modes | High frequency, Low frequency, Dual frequency, Zoom image (Bottom lock, Bottom discrimination, Bottom zoom, Zoom, Bottom follow zoom), Nav mode, Vertical split, Horizontal split, A-scope can be displayed at all above modes | | High frequency, Low frequency, 1 to 2 frequency, Zoom image (Bottom lock, Bottom discrimination, Bottom zoom, Zoom, Bottom follow zoom), Nav mode, Vertical split, Horizontal split, Mix A-scope can be displayed at all above modes | | High frequency, Low frequency, 1 to 2 frequency, Zoom image (Bottom lock, Bottom discrimination, Bottom zoom, Zoom, Bottom follow zoom), Nav mode, Vertical split, Horizontal split, Mix A-scope can be displayed at all above modes | | |
| Presentation colors | 64 colors,16 colors, 8 colors, Monochrome | | 64 colors,16 colors, 8 colors, Monochrome | | 64 colors,16 colors, 8 colors, Monochrome | | |
| Alarms | Bottom, Fish, Temperature*, Speed**, Arrival***, XTE*** | | Bottom, Fish, Temperature*, Speed**, Arrival***, XTE*** | | Bottom, Fish, Temperature*, Speed**, Arrival***, XTE*** | | |
| Image speed | 9 steps & stop | | 12 steps & stop | | 12 steps & stop | | |
| Functions | Interference rejection, Color rejection, VRM, Noise reduction, White line, Draft correct, Water temperature correct, Boat speed correct, Store image (10 images), Sona-Tone™, Fishing Hot Spot, Event memory, Simple plotter, Panel illumination, Power reduction, Fish information, Detection area display etc. | | Interference rejection, Color rejection, VRM, Noise reduction, White line, Draft correct, Water temperature correct, Boat speed correct, Store image (500 images), Sona-Tone™, Homing, Event memory, Simple plotter, Panel illumination, Power reduction, External trigger, Detection area display, CM key, Water Temp. graph, Individual range operation, Individual shift operation, Heaving compensation | | Interference rejection, Color rejection, VRM, Noise reduction, White line, Draft correct, Water temperature correct, Boat speed correct, Store image (500 images), Sona-Tone™, Homing, Event memory, Simple plotter, Panel illumination, Power reduction, External trigger, Detection area display, CM key, Water Temp. graph, Individual range operation, Individual shift operation, Heaving compensation | | |
| Auto functions | Range, Shift, TVG | | Range, Shift, TVG, TX Power, White Line | | Range, Shift, TVG, TX Power, White Line | | |
| Input data formats and sentences | NMEA0183 Ver.1.5 / 2.0 / 3.0 GGA, GLL, HDT, MTW, MWV, RMC, VHW, VTG, ZDA | | NMEA0183 Ver.1.5 / 2.0 / 3.0 GGA, GLL, HDT, MTW, MWV, RMC, VHW, VTG, ZDA | | NMEA0183 Ver.1.5 / 2.0 / 3.0 GGA, GLL, HDT, MTW, MWV, RMC, VHW, VTG, ZDA | | |
| Output data formats and sentences | NMEA0183 Ver.2.0 (DBT : Ver.1.5) DBT, DPT, GGA, GLL, HDT, MTW, MWV, RMC, TLL, VHW, VTG, ZDA | | NMEA0183 Ver.2.0 (DBT : Ver.1.5) DBT, DPT, GGA, GLL, HDT, MTW, MWV, RMC, TLL, VHW, VTG, ZDA | | NMEA0183 Ver.2.0 (DBT : Ver.1.5) DBT, DPT, GGA, GLL, HDT, MTW, MWV, RMC, TLL, VHW, VTG, ZDA | | |
| NMEA ports | Total 1 : input and output | | Total 2 : input and output | | Total 2 : input and output | | |
| Power supply | 10.8 to 31.2 VDC | | 10.8 to 31.2 VDC | | 10.8 to 31.2 VDC | 21.6 to 31.2 VDC | 21.6 to 31.2 VDC |
| Power consumption (12 VDC) | 10 W or less | 25 W or less | 30 W or less | | 60 W or less (24 VDC) | 70 W or less (24 VDC) | 50 W or less (24 VDC) without Display |
| Environmental: | | | | | | | |
| Operating temperature | -15°C to +55°C | | -15°C to +55°C | | -15°C to +55°C | | |
| Water protection | IPX5 | | IPX5 | | IPX5(Operational unit) n/a (Processor unit) | | |

* Requires data from Temp sensor
** Requires speed data from Speed sensor or GPS sensor
*** Requires data from GPS sensor
**** Installed single frequency transducer of 50 and 200 kHz can be also used. For details, please contact your nearest distributor.
***** For European model, please contact your nearest distributor.

Specifications Sonar / Class A AIS Transceiver

GPS Navigator / GPS Compass / DGPS Sensor / GPS Sensor / Total Navigator / Navigational Echo Sounder

Sonar

| | | | | | | | | | | | | | | | |
|--|---|---|-----|-----|-----|------|-----|------|------|------|------|------|------|--|--|
| Model | KDS-6000BB | | | | | | | | | | | | | | |
| Specifications & Functions: | | | | | | | | | | | | | | | |
| Output power (RMS) | 1.5 kW | | | | | | | | | | | | | | |
| Output frequency | 130 to 210 kHz (0.1 kHz step) | | | | | | | | | | | | | | |
| Tilt angle | +5° to -90° (1°step) | | | | | | | | | | | | | | |
| Beam angle | 8° to 12° | | | | | | | | | | | | | | |
| TD stroke | 150 to 380 mm (Recommended value 150 mm) | | | | | | | | | | | | | | |
| Display size and type | Any monitor with VGA resolution (Owner supplied) | | | | | | | | | | | | | | |
| Basic ranges | 10 to 1000 (m), 30 to 3000 (ft), 10 to 600 (fm), 10 to 700 (l.fm) (8 ranges can be set to users choice) | | | | | | | | | | | | | | |
| Range units | m, ft, fm, lfm | | | | | | | | | | | | | | |
| Scanning sector angles | Sonar mode | 5°step: 5°, 25°, 45°, 85°, 125°, 165°, 205°, 360° | | | | | | | | | | | | | |
| | | 10°step: 10°, 30°, 50°, 90°, 130°, 170°, 210°, 360° | | | | | | | | | | | | | |
| | | 15°step: 15°, 45°, 75°, 105°, 135°, 165°, 225°, 360° | | | | | | | | | | | | | |
| | | 20°step: 20°, 60°, 100°, 140°, 180°, 220°, 260°, 360° | | | | | | | | | | | | | |
| Bottom scan mode | Bottom scan mode | 3°step: 3°, 27°, 45°, 63°, 93°, 117°, 147°, 177° | | | | | | | | | | | | | |
| | | 5°step: 5°, 25°, 45°, 65°, 95°, 115°, 145°, 175° | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| 360° Scanning time (extracts) | Scanning range (m) | 20 | 40 | 60 | 80 | 100 | 120 | 160 | 180 | 200 | 240 | 400 | | | |
| | | Scanning time (sec.) 5° step | 6.3 | 8 | 10 | 11.8 | 14 | 15.8 | 19.5 | 21.6 | 23.5 | 27.5 | 43.3 | | |
| | | Scanning time (sec.) 10° step | 3.7 | 4.7 | 5.6 | 6.5 | 7.6 | 8.6 | 10.6 | 11.5 | 12.5 | 14.4 | 22.4 | | |
| | | Scanning time (sec.) 15° step | 3.3 | 3.7 | 4.3 | 4.9 | 5.7 | 6.4 | 7.9 | 8.2 | 8.9 | 10.3 | 15.7 | | |
| | | Scanning time (sec.) 20° step | 3.3 | 3.4 | 3.8 | 4.2 | 4.8 | 5.2 | 6.4 | 6.6 | 7.3 | 8.1 | 12.2 | | |
| Bearing center | 1°step | | | | | | | | | | | | | | |
| Presentation mode | Sonar, Off-center, Bottom scan, Echo sounder, 2 Mode Display, One line | | | | | | | | | | | | | | |
| Off-Center | Fore, Back, Left, Right | | | | | | | | | | | | | | |
| Target lock | Reverse, Horizontal, Horizontal + Vertical, Marker + Horizontal, Marker + Vertical | | | | | | | | | | | | | | |
| Presentation colors | 8 colors, 16 colors | | | | | | | | | | | | | | |
| Functions | TVG, Color rejection, Dynamic range, Compass display, Pulse width, A-scope, CM key, Frequency bandwidth, Image correction, Bearing display, TD auto up, Sonar-Tone™ | | | | | | | | | | | | | | |
| Input data format and sentences | NMEA0183 GGA, GLL, HDG, HDM, HDT, RMC, VTG, ZDA | | | | | | | | | | | | | | |
| Output data format and sentences | NMEA0183 DBT, DPT, GGA, GLL, MTW, RMC, TLL, VTG, ZDA | | | | | | | | | | | | | | |
| NMEA ports | Total 1 : input / output | | | | | | | | | | | | | | |
| Power supply | Processor unit | 10.8 to 31.2 VDC | | | | | | | | | | | | | |
| | Hull unit | 10.8 to 31.2 VDC | | | | | | | | | | | | | |
| Power consumption | Processor unit | 70 W or less (24 VDC) | | | | | | | | | | | | | |
| | Hull unit | 70 W or less (24 VDC) | | | | | | | | | | | | | |
| Environmental: | | | | | | | | | | | | | | | |
| Operating temperature | -15 °C to + 55 °C | | | | | | | | | | | | | | |
| Water protection | - | | | | | | | | | | | | | | |

Class A AIS Transceiver

| | | | | | | | | | | | | | |
|------------------------------------|---|---------------------------|--|--|--|--|--|--|--|--|--|--|--|
| Model | KAT-100 (IMO) | | | | | | | | | | | | |
| Specifications: | | | | | | | | | | | | | |
| Output power | 1 W or 12.5 W (automatic selection) | | | | | | | | | | | | |
| Display size and type | 4 inch, monochrome LCD | | | | | | | | | | | | |
| Display resolution | 248 x 128 pixels | | | | | | | | | | | | |
| TX / RX frequency | 156.025 MHz to 162.025 MHz | | | | | | | | | | | | |
| Impedance | 50Ω | | | | | | | | | | | | |
| DSC receiver | 156.525MHz(CH70), 1200bps | | | | | | | | | | | | |
| Channel bandwidth | 25 kHz | | | | | | | | | | | | |
| Presentation modes | Target list, Own vessel & Voyage data, Own dynamic data, Received messages, Alarms, Target plot | | | | | | | | | | | | |
| Alarms | Transmitter malfunction, Antenna VSWR limit, Receiver malfunction, External EFPS lost, No sensor position in use, No valid COG, No valid SOG, Heading lost or invalid, No valid ROT | | | | | | | | | | | | |
| PC | RS-232C | | | | | | | | | | | | |
| Receiver channels* | 16 channels | | | | | | | | | | | | |
| Frequency* | 1575.42MHz, L1 band | | | | | | | | | | | | |
| Sensitivity* | Acquisition -138dBm, Tracking -146dBm | | | | | | | | | | | | |
| Position fixing system* | GPS | | | | | | | | | | | | |
| Time to position fix (Cold start)* | Typically 36 seconds | | | | | | | | | | | | |
| Accuracy* | GPS 2.5m CEP / 5.0m SEP DGPS 2.0m CEP / 3.0m SEP | | | | | | | | | | | | |
| Differential GPS | RTCM SC-104, AIS message #17 | | | | | | | | | | | | |
| Input data formats and sentences | IEC61162-1/2 ABM, ACA, ACK, AIR, BBM, DTM, GBS, GGA, GLL, GNS, HDT, LRF, LRI, RMC, ROT, SSD, VBW, VSD, VTG | | | | | | | | | | | | |
| Output data formats and sentence | IEC61162-1/2 ABK, ACA, ALR, LR1, LR2, LR3, LRF, LRI, TXT, VDM, VDO | | | | | | | | | | | | |
| NMEA ports | Sensor data input ports (input) IEC61162-1/2 3ports 4800 or 38400 bps Bidirectional data ports (input / output) IEC61162-1/2 3ports 4800 or 38400 bps | | | | | | | | | | | | |
| Power supply | 10.8 to 31.2 VDC | | | | | | | | | | | | |
| Power Consumption (12 VDC) | 12W typical, 4.0A peak | | | | | | | | | | | | |
| Environmental: | | | | | | | | | | | | | |
| Operating temperature | Display unit | -15°C to +55°C | | | | | | | | | | | |
| | GPS Antenna | -30°C to +80°C | | | | | | | | | | | |
| Water protection | Display unit | IP52 | | | | | | | | | | | |
| | GPS Antenna | IEC60945 Exposed category | | | | | | | | | | | |

* Internal GPS

GPS Navigator

| | | | |
|-----------------------------------|---|---|------------------------------------|
| Model | KGP-915 | KGP-925 | KGP-920 (IMO) |
| Specifications | | | |
| Antenna type | GA-09 | MA-620G | GA-08 |
| Display size and type | 4.3 inch color LCD | 4.0" LCD | |
| Display resolution | 480 x 272 pixels | 128 x 64 pixels | |
| Receiving channel | 72 channel parallel | 32 channel parallel | 18 channel parallel |
| Instant (Event) memory | 1,000 points | 200 points (Incl. one MOB point) | |
| Waypoint memory | 10,000 points (9,000 + Event 1,000) | 200 points | |
| Route memory | 100 routes reverse trail possible | 20 routes (max.400 waypoints) reverse trail possible | |
| Alarms | Proximity, Cross track error, CDI, Anchor watch | Arrival proximity, Cross track error, CDI, Anchor watch | |
| Position data display | Latitude / longitude in increments of 0.0001 minute converted Loran C LOPs, Loran A LOPs and Decca LOPs | | |
| Differential | Ready by RTCM SC-104 format | Built-in beacon receiver | Built-in beacon receiver at option |
| Input data formats | RTCM SC104 Ver.2.0 (DGNSS), NMEA 0183* (GNSS source: External) | RTCM SC104 Ver.2.0 | |
| Output data formats and sentences | NMEA 0183 Ver.2.0 / 3.0 / 4.1 / CIF AAM, APB, BOD, BWC, DCN, DTM, GGA, GLL, GSA, GSV, MSS, RMB, RMC, RTE, VTG, WPL, XTE, ZDA | IEC 61162-1 / NMEA 0183 Ver.1.5 / CIF / SHIPMATE0183 AAM, APB, BOD, BWC, DCN, DTM, GBS, GGA, GLL, GNS, GSA, GSV, MSS, RMB, RMC, Rnn, RTE, SGR, VTG, WDC, WPL, XTE, ZDA | |
| NMEA ports | Total 2 : input and output | | |
| Power supply | 10.8 to 31.2 VDC | | |
| Power consumption (24 VDC) | 4.5 W or less | 4.0 W or less | 4.5 W or less |
| Environmental: | | | |
| Operating temperature | -15°C to +55°C (Display unit), -25°C to +55°C (Antenna unit) | | |
| Water protection | IPX4 (Display unit), IPX6 (Antenna unit) | | |

* When GPS source is selected as EXT

GPS Compass

| | | | |
|-----------------------------------|---|---|--|
| Model | KGC-222 | | |
| Specifications: | | | |
| Display size and type | 4.0" LCD | | |
| Display resolution | 128 x 64 pixels | | |
| Receiving channels | 16 channel parallel | | |
| Time to heading fix | 2 minutes (at standard hot-start time) | | |
| Heading accuracy | 1°rms | | |
| Heading resolution | 0.1°rms | | |
| Positioning accuracy | Position | GPS: 10m (2 drms, PDOP 3 or less) | |
| | Velocity | 1m / sec (rms, SA=OFF, PDOP: 3 or less) | |
| Output data level | RS-422 | | |
| Output data formats and sentences | NMEA 0183 Ver.2.0 (ATT, DTM, GGA, GLL, GSA, GSV, HDM, HDT, HVE, MSS, RMC, ROT, VTG, ZDA, PKODA, PKODG1, PKODG7, PKODG21, PKODQ) | | |
| NMEA ports | Total 3 : input / output | | |
| Power supply | 10.8 to 31.2 VDC | | |
| Power consumption (24 VDC) | 9W or less | | |
| Environmental: | | | |
| Operating temperature | -15°C to +55°C (Display unit), -25°C to +55°C (Antenna unit) | | |
| Water protection | IPX4 (Display unit), IPX6 (Antenna unit) | | |

Total Navigator

| | | | |
|--|---|--|--|
| Model | KTN-70A | | |
| Specifications & Functions: | | | |
| Display size and type | 7-inch Color LCD | | |
| Display resolution | 800 x 480 (WVGA) | | |
| Presentation modes | Plotter (Full Screen), Plotter (Exit Full Screen), Compass, NAV | | |
| Drawing | 20 blocks (500 points) | | |
| Route | 20 routes (48 waypoints) | | |
| Basic ranges | 0.01 to 200 NM / 0.02 to 400 km | | |
| Distance unit | Km / NM | | |
| Other ship track | 16 colors / 8 colors / Monochrome | | |
| Track point | 400,000(1Block:Max20,000) | | |
| Mark point / WPT | 100,000 | | |
| Input data formats & sentences | NMEA0183 Ver.1.5/2.0 HDG, HDT, GGA, GLL, GVS, MTW, MWD, MWV, RMC, TLL, TTM, VTG, ZDA, DPT | | |
| Output data Format & Sentence | NMEA0183 Ver.1.5/2.0 RMC, GGA, VTG, GLL, ZDA, XTE, APB, BOD, BWC, HDT, DPT, RMA, RMB, RTE, MTW, MWV, TLL | | |
| NMEA Port | Total 2 : input and output | | |
| Power Supply | 10.8 to 31.2 VDC | | |
| Environmental: | | | |
| Power consumption (24 VDC) | 25 W or Less | | |
| Operating temperature | -15°C to +55°C | | |
| Water protection | IPX4 | | |

DGPS Sensor / GPS sensor

| | | |
|-----------------------------------|--|---|
| Model | KBG-3 | GPS-20A |
| Specifications: | | |
| Receiving channel | 18 channel parallel | |
| Receiving frequency | Receiving frequency 1575.42 MHz ± 1 MHz | |
| Position accuracy | GPS | 10 m (2 drms, SA=OFF, PDOP≤3) |
| | DGPS(Beacon) | 5 m (2 drms, SA=OFF, PDOP≤3) |
| | SBAS | 8 m (2 drms, SA=OFF, PDOP≤3) |
| Time to position fix | Cold start | 50 seconds (typical) |
| | Warm start | 45 seconds (typical) |
| | Hot start | 25 seconds (typical) |
| Differential GPS | Receiver input | SBAS (WAAS, EGNOS, MSAS) |
| | External input | - |
| Data communication | Asynchronous data communication with RS-422 | |
| Output data formats and sentences | NMEA 0183 (GGA, GLL, VTG, RMC, ZDA, GSA, GSV, MSS) | NMEA 0183 (GGA, GLL, VTG, RMC, ZDA, GSA, GSV) |
| Input data | Parameter setting, Beacon setting | Parameter setting |
| Output data level | RS-422 | |
| Output current | 20 mA or less | 40 mA or less |
| Power supply | 10.8 to 31.2 VDC | |
| Power consumption (12 VDC) | 2.5 W or less | 1.3 W or less |
| Environmental: | | |
| Operating temperature | -25°C to +55°C | |
| Water protection | IPX6 | |

Navigational Echo Sounder

| | | | |
|--|---|------------------------------|--|
| Model | CVR-010 (IMO) | | |
| Specifications & Functions: | | | |
| Output power (RMS) | 600 W | | |
| Transducer | TGM 60-50-20L (TD-26 / 20L) | TGM 80-200-20L (TD-65 / 20L) | |
| Output frequency | 50 kHz | | |
| Display size and type | 5.7 inch color TFT LCD, LED-backlight | | |
| Display resolution | 240 x 320 pixels (QVGA) | | |
| Basic ranges | 5 to 800 (m), 2.5 to 400 (fm), 20 to 4000 (ft) | | |
| Range units | m, ft, fm | | |
| Accuracy of measurement | Better than ±2.5% of digital depth readout | | |
| Minimum detectable depth | 1 m | 0.5 m | |
| Range discrimination | 20 m range: 5 mm / m, 200 m range: 0.5 mm / m | | |
| Soundings history | Max. 12 hours | | |
| Data storage interval | At 2 seconds interval | | |
| Presentation colors | 8 colors | | |
| Alarms | Depth, Bottom-Missing, Power failure, Power removal / Shutoff | | |
| Image speed | 1 step | | |
| Functions | Noise reduction, LOG DATA, White line, VRM, Transducer location, Depth reference, Draft, Date / Time, LAT / LON * | | |
| Auto functions | Range, TVG, GAIN | | |
| Input data format and sentences | NMEA0183 (GGA, VTG, ZDA, RMC, ACK) | | |
| Output data format and sentences | NMEA0183 (DPT, PSKPDP, DBT, DBK, ALR) | | |
| NMEA ports | Total 3 : input and output | | |
| Power supply | 24 VDC (11 to 40 VDC) | | |
| Power consumption (24 VDC) | 15 W or less | | |
| Environmental: | | | |
| Operating temperature | -15°C to +55°C | | |
| Water protection | - | | |

* Requires data from GPS sensor