Catch the Ocean

With Your Reliable Partner

MARINE ELECTRONICS PRODUCTS

CATALOG
2024-2025

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⚠ Safety precaution | To ensure proper and safe use of the equipment, please carefully read and follow the instructions in the Operation Manual.

• Design and specifications are subject to change without notice. 24 / 10 Printed in Japan

KODEN
Koden Electronics Co., Ltd.

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.

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Product Line up

Radar

Specifications \ Model	MDC-900	MDC-2000	MDC-2000BB	MDC-5200	MDC-5500
	 ▶P06	 ▶P06	 ▶P06	 ▶P07	 ▶P07
	8.4inch	10.4inch	Black Box	12.1inch	15inch
Output power (Peak)	4kW	4/6/12kW	4/6/12kW	4/6/12/25kW	4/6/12/25kW
TT (ARPA)	50	50	50	100	100
AIS	100	100	100	1000	1000
C-MAP Chart	—	—	—	✓	✓
Resolution	VGA	VGA	(VGA) *1	XGA	XGA
Video level	8	8	8	16	16
USB Trackball connection	—	—	—	✓	✓

Specifications \ Model	MDC-5000	MDC-7900	MDC-7900P	MDC-7000	MDC-7000P
	 ▶P07	 ▶P08	 ▶P08	 ▶P08	 ▶P08
	Black Box	19inch	19inch	Black Box	Black Box
Output power (Peak)	4/6/12/25kW	6/12/25kW	12/25kW	6/12/25kW	12/25kW
TT (ARPA)	50	100	100	100	100
AIS	500	1000	900	1000	900
C-MAP Chart	✓	✓	✓ *3	✓	✓ *3
Resolution	(XGA) *1	SXGA	SXGA	(SXGA) *1	(SXGA) *1
Video level	16	16	16	16	16
USB Trackball connection	✓	✓	✓	✓	✓

RADARpc

▶P10

MDS-1100R

Sonar

▶P18

ESR-145

▶P19-P20

KDS-6000BB
KDS-5500BB

▶P21-P22

KDS-5000BB

Chart Plotter

▶P24

GTD-120

GNSS Compass

NEW

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KC-1400

GPS Navigator

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KGP-922

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GPS Compass

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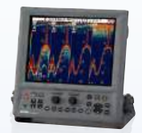
KGC-300

GPS Sensor

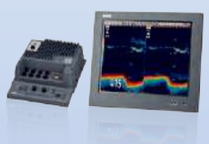
▶P27

GPS-21

Echo Sounder

Specifications \ Model	CVS-128B	CVS-1410B	CVS-1420	CVS-872D
	 ▶P14	 ▶P14	NEW  ▶P14	 ▶P15
	8.4inch	10.4inch	10.4inch	12.1inch
Broadband	✓	✓	✓	✓
Fish information	✓	✓	✓	—
Frequency presentation (Max.)	2	2	2*4	4*4
Resolution	VGA	VGA	VGA	XGA
Output power	2kW	2kW	1kW to 3kW	1kW to 3kW

Specifications \ Model	CVS-875D	CVS-877D	CVS-126	CVS-128
	 ▶P15	 ▶P15	 ▶P15	 ▶P15
	15inch	Black Box	5.7inch	8.4inch
Broadband	✓	✓	—	—
Fish information	—	—	✓	✓
Frequency presentation (Max.)	4*4	4*4	2	2
Resolution	XGA	(XGA) *1	QVGA	VGA
Output power	1kW to 3kW	1kW to 3kW	600W	600W or 1kW

Specifications \ Model	CVS-1410/HS	CVS-702D	CVS-705D	CVS-707D
	 ▶P15	 ▶P16	 ▶P16	 ▶P16
	10.4inch	12.1inch	15inch	17/19inch*2
Broadband	—	—	—	—
Fish information	✓	—	—	—
Frequency presentation (Max.)	2	2	2	2
Resolution	VGA	XGA	XGA	XGA
Output power	1kW	3kW to 5kW	3kW to 5kW	3kW to 5kW

Class A / Inland AIS Transceiver

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KAT-330

Remote Display

▶P28

KRD-10

Multi Function Display

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KSD-1100

NEW

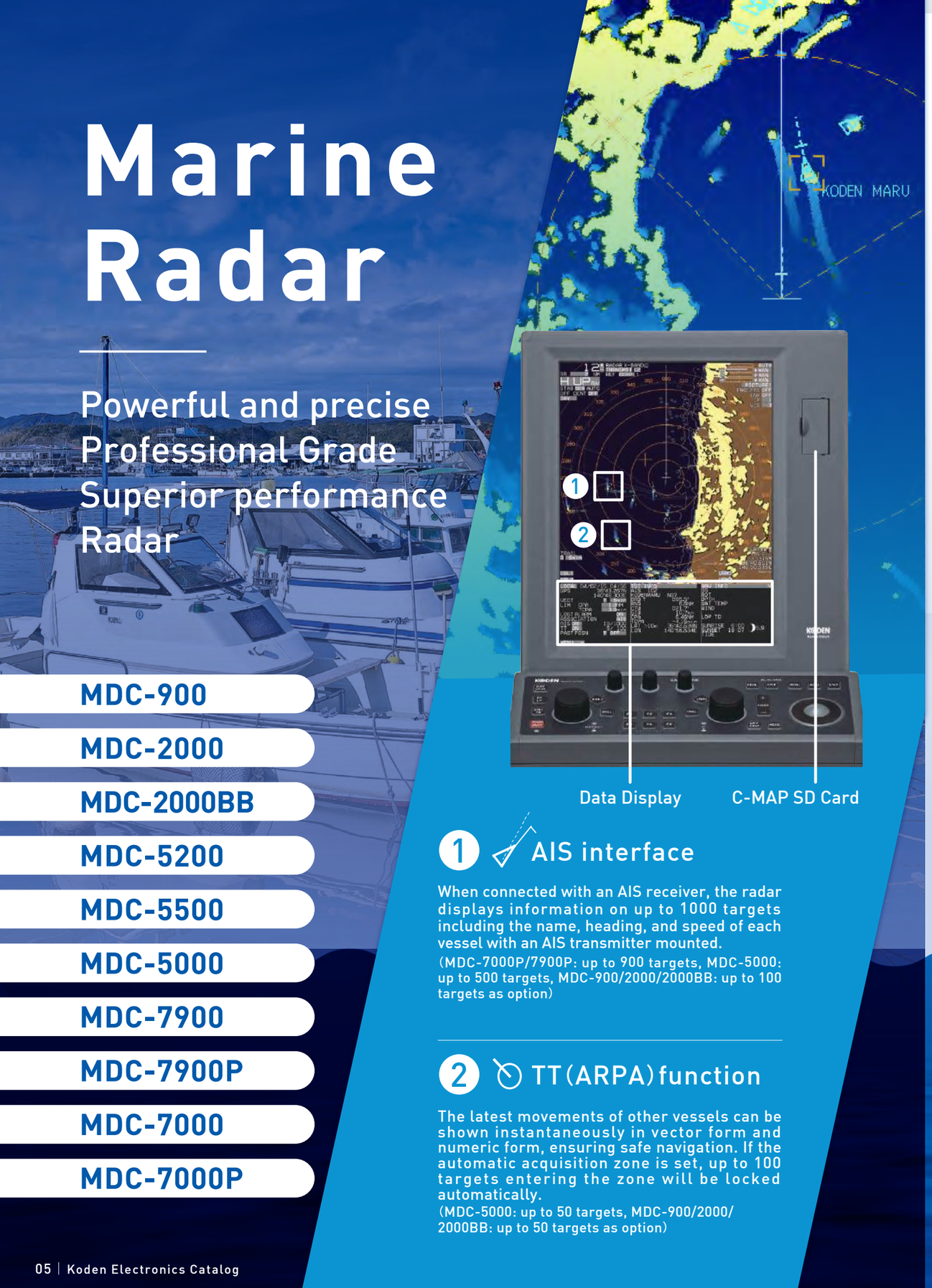
▶P30

KSD-1210

*1 LCD monitor : Owner supplied *2 For European model, please contact your nearest distributor.
*3 Non official chart data *4 Depending on the transducer to be installed

Marine Radar

Powerful and precise
Professional Grade
Superior performance
Radar



Data Display　　C-MAP SD Card

- MDC-900
- MDC-2000
- MDC-2000BB
- MDC-5200
- MDC-5500
- MDC-5000
- MDC-7900
- MDC-7900P
- MDC-7000
- MDC-7000P

1 AIS interface

When connected with an AIS receiver, the radar displays information on up to 1000 targets including the name, heading, and speed of each vessel with an AIS transmitter mounted.
(MDC-7000P/7900P: up to 900 targets, MDC-5000: up to 500 targets, MDC-900/2000/2000BB: up to 100 targets as option)

2 TT(ARPA)function

The latest movements of other vessels can be shown instantaneously in vector form and numeric form, ensuring safe navigation. If the automatic acquisition zone is set, up to 100 targets entering the zone will be locked automatically.
(MDC-5000: up to 50 targets, MDC-900/2000/2000BB: up to 50 targets as option)

8.4 inch

MDC-900series
MDC-900Aseries

10.4 inch

MDC-2000series
MDC-2000Aseries

Black Box

LCD monitor
Horizontal type /
Vertical type
(Owner supplied)

MDC-2000BB series

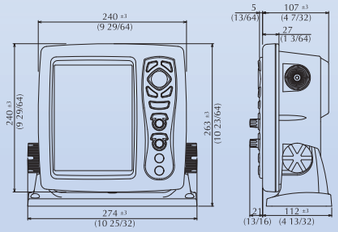
		Radome for Standard Model	Radome for CE Model		Open antenna for Standard Model			Open antenna for CE Model		
Output Power		4kW	4kW	4kW	4kW	6kW	12kW	4kW	6kW	12kW
Scanner unit		RB715A	RB804	RB805	RB716A	RB717A	RB718A	RB806	RB807	RB808
8.4" color LCD:	MRD-103	MDC-941	-	-	MDC-940*	-	-	-	-	-
	MRD-103A	-	MDC-904A	MDC-941A	-	-	-	MDC-940A*	-	-
10.4" color LCD:	MRD-104	MDC-2041	-	-	MDC-2040	MDC-2060	MDC-2010	-	-	-
	MRD-104A	-	MDC-2004A	MDC-2041A	-	-	-	MDC-2040A	MDC-2006A	MDC-2012A
Processor unit for VGA LCD Display:	MRM-112	-	MDC-2003BB	MDC-2005BB	-	MDC-2060BB	MDC-2010BB	MDC-2004BB	MDC-2006BB	MDC-2012BB

* 48 rpm requires for input voltage of 24 VDC or more

Dimensions and Weight

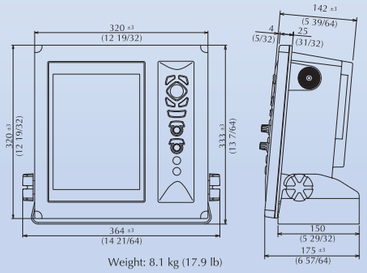
Unit: mm (inch)

Display unit:
MRD-103 / 103A: MDC-900 series



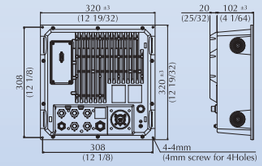
Weight : 3.4 kg (7.5 lb)

Display unit:
MRD-104 / 104A: MDC-2000 series

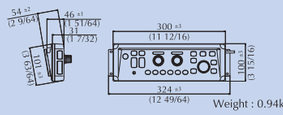


Weight: 8.1 kg (17.9 lb)

Processor unit:
MRM-112: MDC-2000BB series



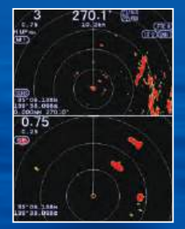
Operation unit:
MRO-112: MDC-2000BB series

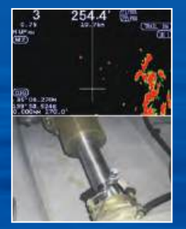


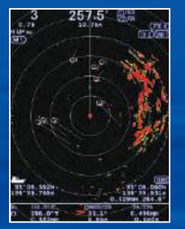
Weight : 5.1kg (11.5lb)

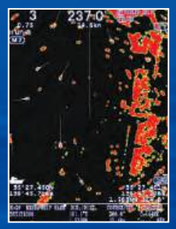
Weight : 0.94kg (2.07lb)

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.
MDC-900 (A) / 2000 (A) series: The LCD and acrylic sheet with Anti-Reflection coated filter are bonded directly. It increases visibility in direct sunlight and prevents condensation.
MDC-2000BB series: Black Box type, it can be connected with VGA type display (Owner supplied).
Accepts CCD camera input, with which you can watch above or below deck any time you are steering.


Dual range display


CCD camera input


ATA up to
50 targets as option


AIS interface up to
100 targets as option

12 inch

MDC-5200 series

15 inch

MDC-5500 series

Black Box

LCD monitor (Owner supplied)

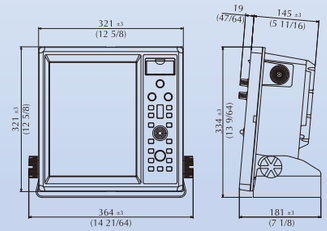
MDC-5000 series

		Radome for CE Model	Open antenna for Standard Model				Open antenna for CE Model			
Output Power		4kW	4kW	6kW	12kW	25kW	4kW	6kW	12kW	25kW
Scanner unit		RB805	RB716A	RB717A	RB718A	RB719A	RB806	RB807	RB808	RB809
12" color LCD:	MRD-111	-	MDC-5240	MDC-5260	MDC-5210	MDC-5220	MDC-5204	MDC-5206	MDC-5212	MDC-5225
15" color LCD:	MRD-109	-	MDC-5540	MDC-5560	MDC-5510	MDC-5520	MDC-5504	MDC-5506	MDC-5512	MDC-5525
Processor unit for XGA LCD Display:	MRM-110	MDC-5005	-	MDC-5060	MDC-5010	MDC-5020	MDC-5004	MDC-5006	MDC-5012	MDC-5025

Dimensions and Weight

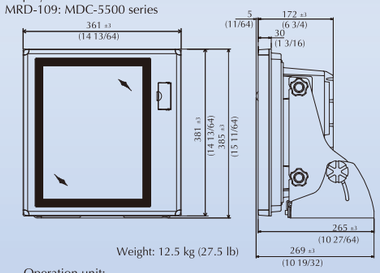
Unit: mm (inch)

Display unit:
MRD-111: MDC-5200 series



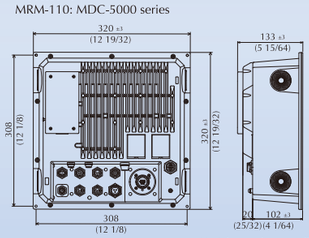
Weight: 7.9 kg (17.5 lb)

Display unit:
MRD-109: MDC-5500 series



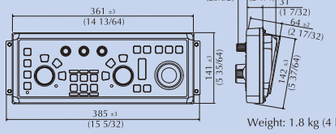
Weight: 12.5 kg (27.5 lb)

Processor unit:
MRM-110: MDC-5000 series



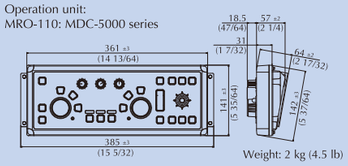
Weight: 5.1 kg (11.5 lb)

Operation unit:
MRO-108: MDC-5500 series



Weight: 1.8 kg (4 lb)

Operation unit:
MRO-110: MDC-5000 series



Weight: 2 kg (4.5 lb)

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.
Black Box type, MDC-5000 series are joined in lineup. It can be connected with XGA type display.

- Clear image with High-speed sampling in short range
- Auto gain with simple operation
- Improved visibility of the echoes by auto STC
- Simple and easy operation by trackball via USB
- C-MAP chart (NT+ / MAX) is overlaid on the radar screen (Chart : owner supplied)

19 inch

MDC-7900 series

19 inch

MDC-7900P series

Black Box

MDC-7000 series

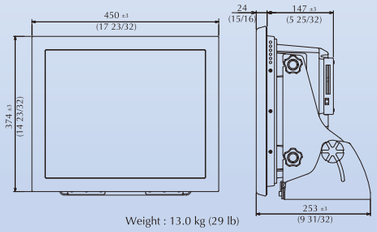
Black Box

MDC-7000P series

		Open antenna for Standard Model			Open antenna for CE Model			Open antenna for IMO Model	
Output Power		6kW	12kW	25kW	6kW	12kW	25kW	12kW	25kW
Scanner unit		RB717A	RB718A	RB719A	RB807	RB808	RB809	RB808P	RB809P
19" color LCD:	MRD-108	MDC-7960	MDC-7910	MDC-7920	MDC-7906	MDC-7912	MDC-7925	-	-
19" color LCD:	MRD-108P	-	-	-	-	-	-	MDC-7912P	MDC-7925P
Processor unit for SXGA LCD Display:	MRM-108	MDC-7060	MDC-7010	MDC-7020	MDC-7006	MDC-7012	MDC-7025	-	-
Processor unit for SXGA LCD IMO Display:	MRM-108P	-	-	-	-	-	-	MDC-7012P	MDC-7025P

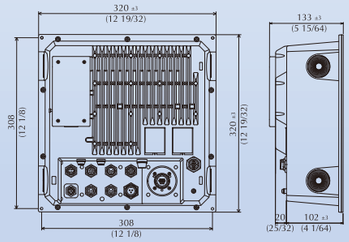
Unit: mm (inch)

Display unit:
MRD-108: MDC-7900 series
MRD-108P: MDC-7900P series



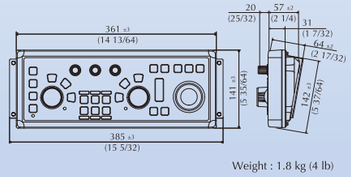
Weight : 13.0 kg (29 lb)

Processor unit:
MRM-108: MDC-7000 series
MRM-108P: MDC-7000P series



Weight : 5.1 kg (11.5 lb)

Operation unit:
MRO-108: MDC-7000/7900 series
MRO-108P: MDC-7000P/7900P series



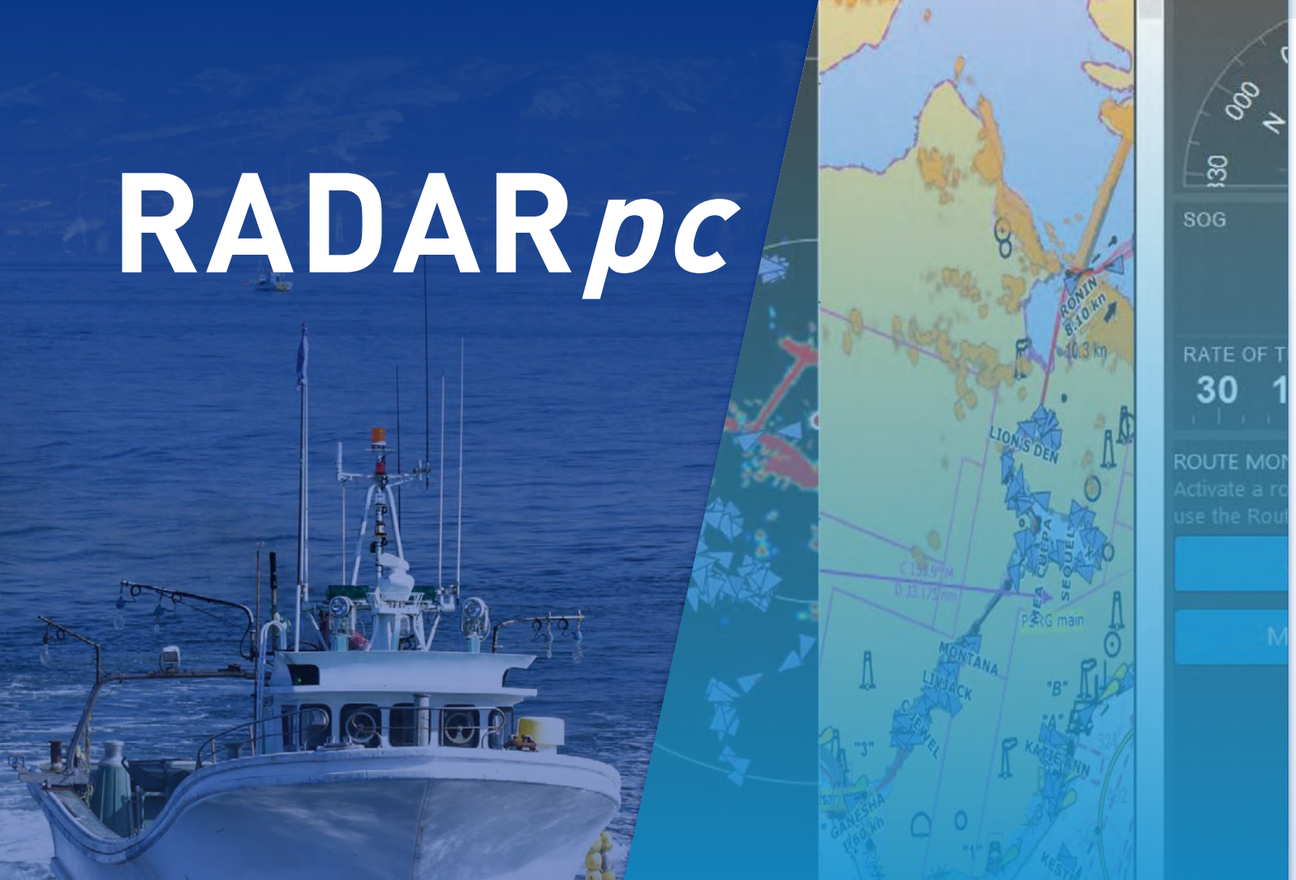
Weight : 1.8 kg (4 lb)

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).

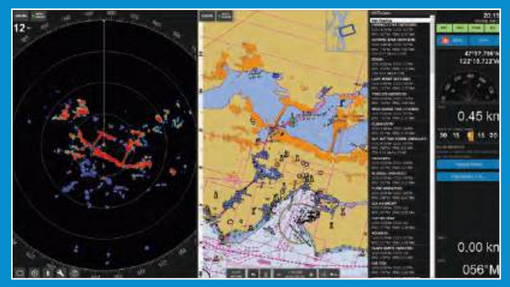
- Clear image with High-speed sampling in short range
- Auto gain with simple operation
- Improved visibility of the display by auto STC
- Simple and easy operation by trackball unit via USB
- MDC-7000P / 7900P series complies with new IMO and IEC regulations
- C-MAP chart (NT+ / MAX) can be overlaid on the radar screen (Owner supplied)
  (MDC-7000P / 7900P series: C-MAP chart data is non official data)

RADAR*pc*



MDS-1100R

Screen images



Antenna - Scanner unit

Control Box

Your computer
(Owner supplied)

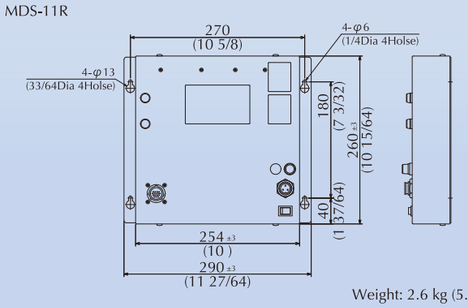
MDS-1100R series

	Radome for CE Model		Open antenna for Standard Model			Open antenna for CE Model			
Output Power	4kW	4kW	6kW	12kW	25kW	4kW	6kW	12kW	25kW
Scanner unit	RB804	RB805	RB717A	RB718A	RB719A	RB806	RB807	RB808	RB809
Control Box MDS-11R	MDS-1103R	MDS-1105R	MDS-1160R	MDS-1110R	MDS-1120R	MDS-1104R	MDS-1106R	MDS-1112R	MDS-1125R

Dimensions and Weight

Unit: mm (inch)

MDS-11R



Weight: 2.6 kg (5.8 lb)

RADAR*pc* turns your PC charting system into a full featured real-time radar system.

- **Great Range of Antenna-Scanners**
  The MDS-11R Control Box can be combined with great range of Koden Antenna - Scanners.
- **High speed data communication**
  Ethernet data communication provides interface capability with most PCs.
  Multi PC network system can be constructed.
- **Compatible with previous model MDS-5R / 6R**

Marine Radar / RADAR*pc* Ant enna- Scanner

Radome

Type	RB804	Specifications		Rotation	24rpm or 48rpm
		Antenna length	1.2feet	IF center frequency	60MHz
		Output power (Peak)	4kW	Environmental	
		Output frequency	9410±30MHz	Operating temperature	−25℃ to +55℃
		Horizontal beam width/ Vertical beam width	5.9° / 25°	Water protection	IPX6(IEC60529)

Type	RB715A/RB805	Specifications		Rotation	24rpm or 48rpm
		Antenna length	2feet	IF center frequency	60MHz
		Output power (Peak)	4kW	Environmental	
		Output frequency	9410±30MHz	Operating temperature	−25℃ to +55℃
		Horizontal beam width/ Vertical beam width	3.9° / 25°	Water protection	IPX6(IEC60529)

Open antenna

Type	RB716A/RB806	Specifications		Rotation	24rpm or 48rpm
		Antenna length	3/4feet(RB716A) 3/4/6feet(RB806)	IF center frequency	60MHz
		Output power (Peak)	4kW	Environmental	
		Output frequency	9410±30MHz	Operating temperature	−25℃ to +55℃
		Horizontal beam width/ Vertical beam width	3feet:2.5° / 22° 4feet:1.8° / 22° 6feet:1.2° / 22°	Water protection	IPX6(IEC60529)

Open antenna

Type	RB717A/RB807 RB718A/RB808	Specifications		Rotation	24rpm or 48rpm
		Antenna length	4/6feet(RB717A/RB807) 4/6/9feet(RB718A/RB808)	IF center frequency	60MHz
		Output power (Peak)	6kW (RB717A/RB807) / 12kW (RB718A/RB808)	Environmental	
		Output frequency	9410±30MHz	Operating temperature	−25℃ to +55℃
		Horizontal beam width/ Vertical beam width	4feet:1.8° /22° 6feet:1.2° /22° 9feet:0.8° /25°	Water protection	IPX6(IEC60529)

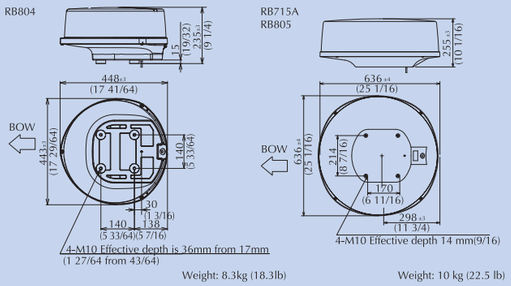
Type	RB719A/RB809	Specifications		Rotation	24rpm or 48rpm
		Antenna length	4/6/9feet	IF center frequency	60MHz
		Output power (Peak)	25kW	Environmental	
		Output frequency	9410±30MHz	Operating temperature	−25℃ to +55℃
		Horizontal beam width/ Vertical beam width	4feet:1.8° /22° 6feet:1.2° /22° 9feet:0.8° /25°	Water protection	IPX6(IEC60529)

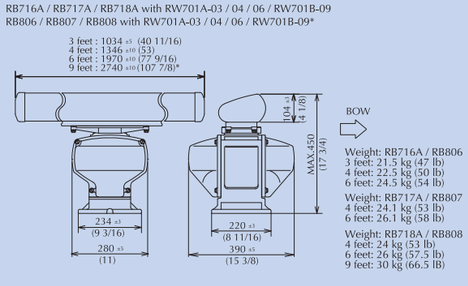
Type	RB808P	Specifications		Rotation	24rpm
		Antenna length	4/6/9feet	IF center frequency	60MHz
		Output power (Peak)	12kW	Environmental	
		Output frequency	9410±30MHz	Operating temperature	−25℃ to +55℃
		Horizontal beam width/ Vertical beam width	4feet:1.8° /22° 6feet:1.2° /22° 9feet:0.8° /25°	Water protection	IPX6(IEC60529)

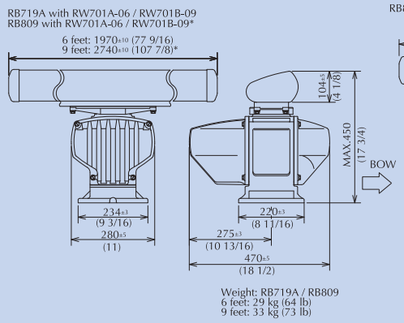
Type	RB809P	Specifications		Rotation	24rpm
		Antenna length	4/6/9feet	IF center frequency	60MHz
		Output power (Peak)	25kW	Environmental	
		Output frequency	9410±30MHz	Operating temperature	−25℃ to +55℃
		Horizontal beam width/ Vertical beam width	4feet:1.8° /22° 6feet:1.2° /22° 9feet:0.8° /25°	Water protection	IPX6(IEC60529)

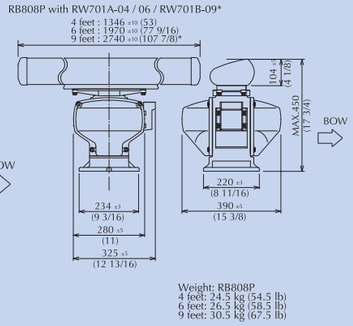
Dimensions and Weight

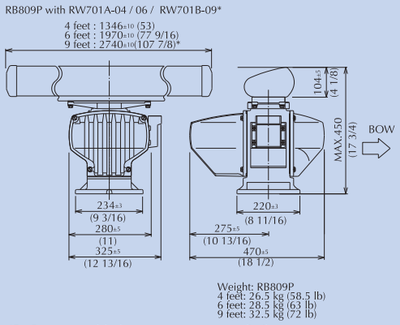
Unit: mm(inch)











Echo Sounder

Further evolution!
Digital echo sounder
for various purposes!

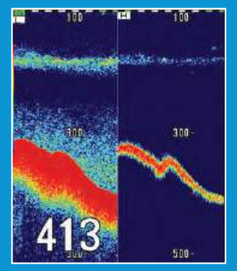
- NEW CVS-1420
- CVS-128B
- CVS-1410B
- CVS-872D
- CVS-875D
- CVS-877D
- CVS-126
- CVS-128
- CVS-1410
- CVS-1410HS
- CVS-702D
- CVS-705D
- CVS-707D

What are broadband echo sounders?

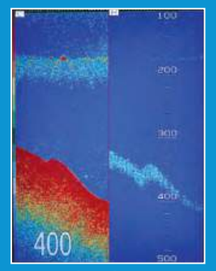
Broadband digital echo sounders can search from shallow to deep sea with optimized performance in a given environment, water condition or style of fishing by selecting the most suitable frequencies randomly in 0.1 kHz step.
This frequency adjustability also provides clear targets and eliminates interference from nearby vessels without conventional interference rejection function.

Koden Digital Filtering (KDF™)

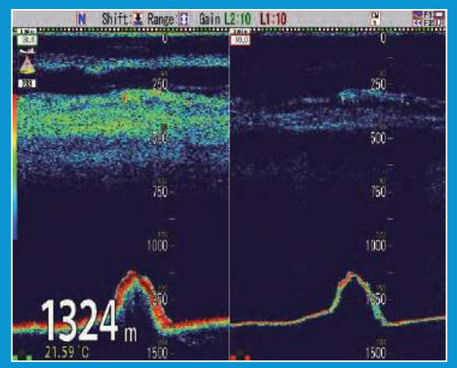
The Koden Digital Filtering (KDF™) feature eliminates clutter by filtering out the noise to provide a clear detailed image that enhances fish targets in shallow and deep sea.



Digital



Analog



Deep sea

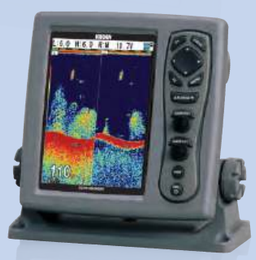
》High performance Echo Sounder with a transmission power of 1 kW to 3 kW
》Compatible Broadband type
》Bottom Hardness Display by %

10.4 inch
Two frequencies display
(3 kW)

NEW
CVS-1420
Broadband
DIGITAL

》High sensitivity Broadband Echo Sounder
》Two frequencies can be displayed

8.4 inch
Two frequencies display



CVS-128B
Broadband

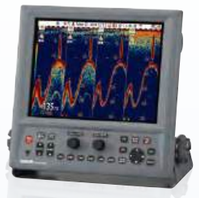
10.4 inch
Two frequencies display

CVS-1410B
Broadband

Latest technology with minimum out of pocket expense

You can exchange from your existing Echo Sounder to the latest Digital Echo Sounder CVS-128B / 1410B and keep using your existing transducers (from 24 to 210kHz) by utilizing Transducer Switching unit (JB-38).

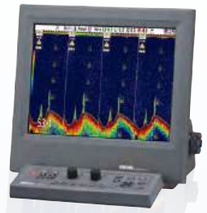
12.1 inch
Four frequencies display



CVS-872D

Broadband

15 inch
Four frequencies display



CVS-875D

Broadband

Black Box
Four frequencies display

CVS-877D

Broadband

12.1 inch
For deep water

CVS-702D

DIGITAL

15 inch
For deep water

CVS-705D

DIGITAL

17/19 inch
For deep water

For European model, please contact your nearest distributor.

CVS-707D

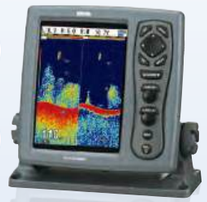
DIGITAL

5.7 inch
Standard type

CVS-126

DIGITAL

8.4 inch
Standard type



CVS-128

DIGITAL

10.4 inch
Standard type

CVS-1410/1410HS

DIGITAL

Transducer

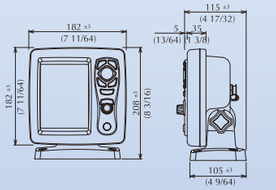
 **TD-500T-2B** for CVS-126/128	 **TD-500T-3B** for CVS-126/128	 **TD-501T-3B** for CVS-128/1420 CVS-872D/875D/877D	 **TD-501C** for CVS-128/1410/1420 CVS-872D/875D/877D	 **TDM-031D** for CVS-1410HS/1420 CVS-872D/875D/877D	 **TD-754** for CVS-1420 CVS-702D/705D/707D CVS-872D/875D/877D	 **TD-756** for CVS-702D/ 705D/707D	 **TD-286/506F** for CVS-702D/ 705D/707D	 **TD-66** for CVS-702D/705D/707D CVS-872D/875D/877D
 **TD-284A/404T/ 504F/504T** for CVS-1420/CVS-702D/705D/707D CVS-872D/875D/877D	 **150kHz 120ϕx1** for CVS-1420	 **NGM100-200-12L** for CVS-1420	 **TDM-071*/091D*** for CVS-128B/1410B/1420 CVS-872D/875D/877D	 **TDM-052A*/062A*** for CVS-1420/872D/ 875D/877D	 **TD340-K*** for CVS-1420/872D/ 875D/877D	 **TD361-K*** for CVS-1420/872D/ 875D/877D	 **TD380-K*** for CVS-1420/872D 875D/877D

*Broadband type

Dimensions and Weight

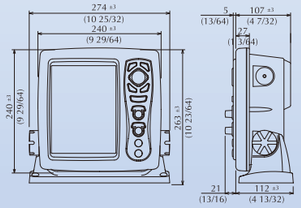
Unit: mm(inch)

Display unit:
CVS-126



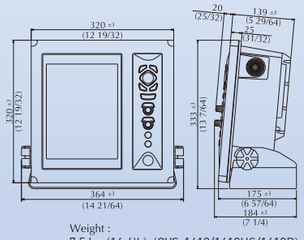
Weight : 1.3 kg (2.9 lb)

Display unit:
CVS-128 / 128B



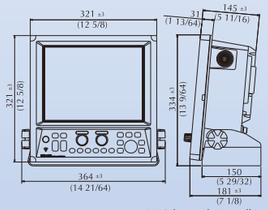
Weight : 3.5 kg (7.7 lb)

Display unit:
CVS-1410 / 1410HS / 1410B / 1420



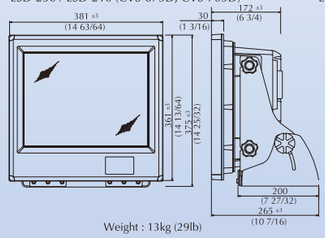
Weight :
7.5 kg (16.6lb) (CVS-1410/1410HS/1410B)
7.8 kg (17.2lb) (CVS-1420)

Display unit:
CVS-872D, CVS-702D



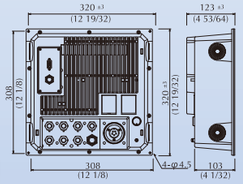
Weight : 9.1kg (20.1lb)

Display unit:
ESD-230 / ESD-210 (CVS-875D, CVS-705D)



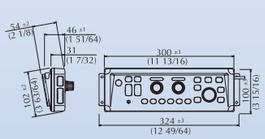
Weight : 13kg (29lb)

Processor unit:
ESM-230 / ESM-210 (CVS-877D, CVS-707D)



Weight : 5.6kg (12.5lb)

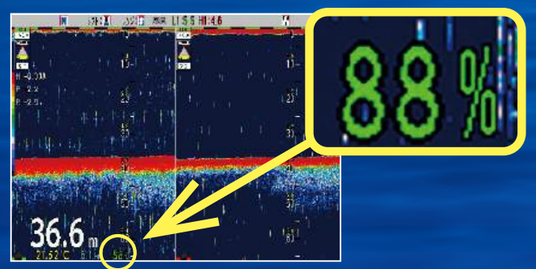
Operation unit:
ESO-200 (CVS-875D/877D, CVS-705D/707D)



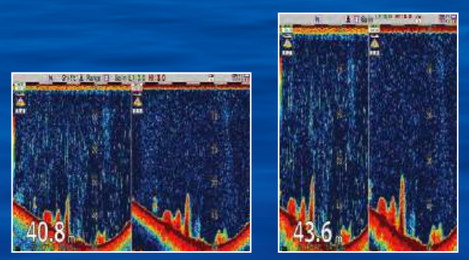
Weight : 0.7kg (1.55lb)

The features of CVS-872D/875D/877D

Bottom Hardness Display by %
(CVS-872D/875D/877D)



Horizontal / Vertical screen switching
(CVS-877D)

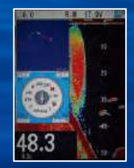


Detection area display

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.

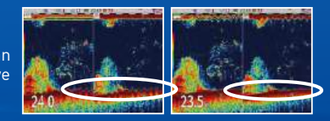
Fishing Hot Spot

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



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. (Requires a sensor to output heave sentence)



Store Image

Stores screen images in built-in memory to recall the image later by a single touch.
Up to 500 screen images : CVS-872D / 875D / 877D, CVS-702D / 705D / 707D
Up to 10 screen images : CVS-126, CVS-128 / 128B, CVS-1410 / 1410HS / 1410B / 1420

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-872D / 875D / 877D, CVS-702D / 705D / 707D)

Sonar

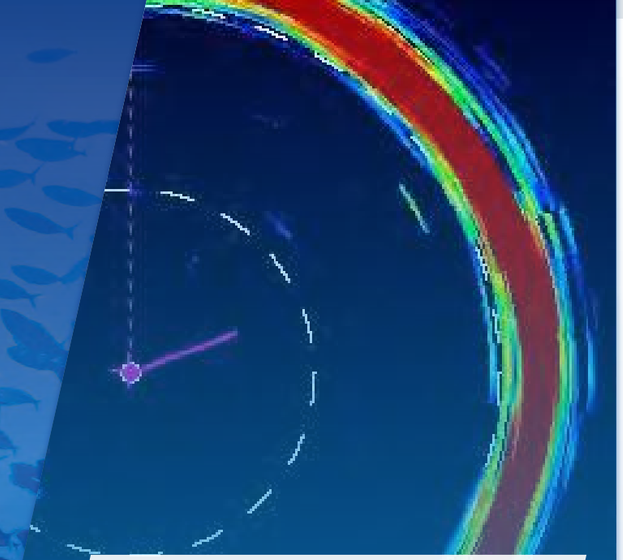
High sensitivity
over long range!
Digital soner with
resolution up
by digital control

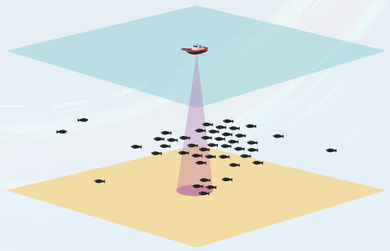
ESR-145

KDS-6000BB

KDS-5500BB

KDS-5000BB





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.

Affordable professional sonar
Compact design for easy installation

Hull unit

10.4 inch

ESR-145

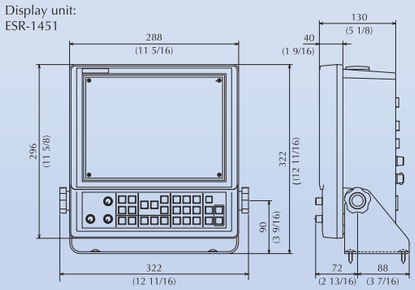
Searchlight Sonar

- Newly designed to fit small fishing boats
- Compact Hull unit for space saving installation
- Audio kit is available
- Remote controller and speaker are available as option

Dimensions and Weight

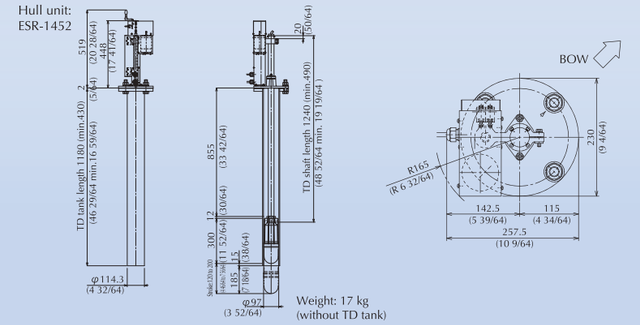
Unit: mm (inch)

Display unit:
ESR-1451



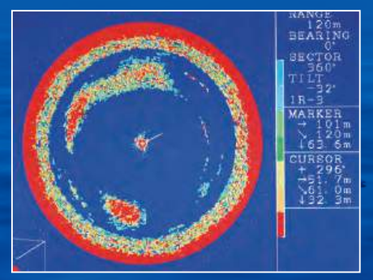
Weight: 6 kg (13.23 lb)
(with base)

Hull unit:
ESR-1452

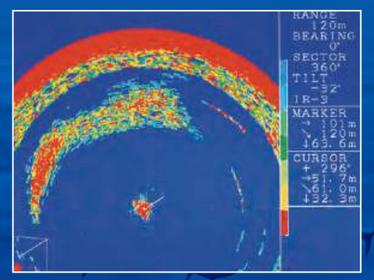


Weight: 17 kg
(without TD tank)

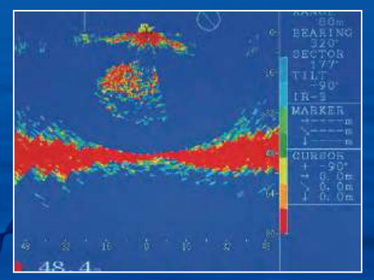
Presentation modes



Sonar mode



Off-center mode



Bottom scan mode

KDS-6000BB

Broadband Searchlight Sonar

Broadband

KDS-5500BB

Digital Searchlight Sonar

DIGITAL

17/19 inch LCD Monitor (Option)

Processor unit

Motion sensor
(AS model)

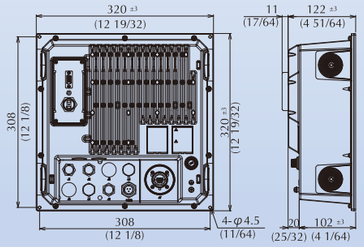
Operation unit

Short stroke Normal stroke

Hull unit

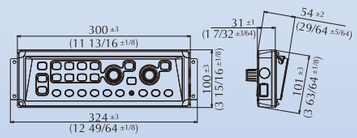
Dimensions and Weight

Processor unit:
DPU-610
(KDS-6000BB)
DPU-551
(KDS-5500BB)



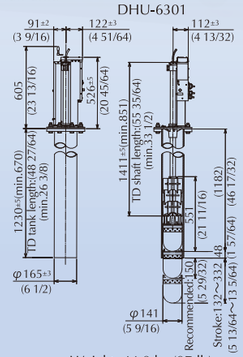
Weight : 5.1kg (11.5lb)

Operation unit:
DOU-620



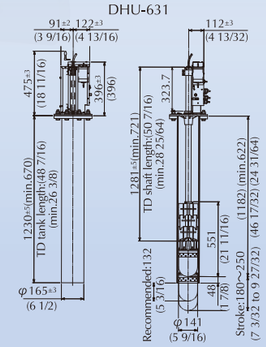
Weight : 1.1kg (2.5lb)
(with base and 5M connecting cable)

Hull unit: Normal stroke DHU-6301



Weight :44.0 kg (97 lb)

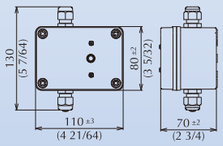
Short stroke DHU-631



Weight : 42.3 kg (93.27 lb)

Unit: mm (inch)

TD Position alarm / Ext. Sync. Box:
JB-36



Weight : 0.25kg (0.56lb)
(without cable)

Advanced Broadband Technology

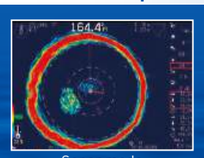
KDS-6000BB is world first Broadband searchlight sonar. With the broadband transducer equipped as standard, the most suitable output frequency can be selected in 0.1 kHz step depending on the fishing method and the target species from closer range to longer range.
Flexible frequency selection enables user to tune outside of other vessel interference frequency, providing much cleaner image.

New line-up 80 kHz / 140 kHz / 180 kHz

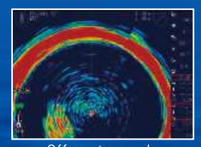
KDS-5500BB is a fixed frequency digital sonar.
Higher frequencies increase the resolution and provide detailed image expression. Lower frequencies increase sensitivity at long distances and enable detection at deeper depths. Select frequency at time of purchase.

- Massive improvement in scan speed, making detection of fish schools much faster
- All setup and user settings changed instantly by utilizing Condition Memory function
- Short stroke model available for limited space installation
- Stabilizer function to reduce the sonar image disturbance caused by the pitch and roll of the vessel. (AS model)

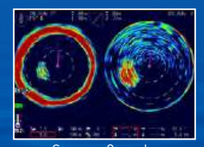
Six different presentation modes



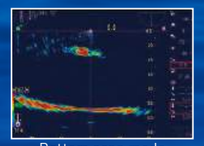
Sonar mode
Search around the ship



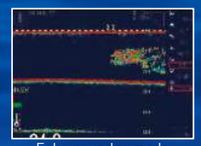
Off-center mode
Show more information of ahead



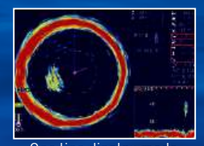
Sonar x 2 mode
Two different frequencies



Bottom scan mode
Reflected echo
from underwater and sea bottom

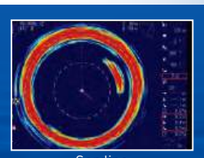


Echo sounder mode
Image like Echo sounder

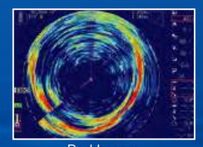


One line display mode
Show vertical Sonar image like an echo sounder image in the Sub-screen

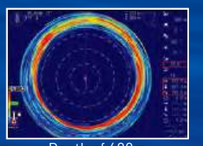
80 kHz screen images (KDS-5500BB)



Sardine



Red bream



Depth of 680m

KDS-5000BB

Digital Searchlight Sonar

((DIGITAL))

Junction box

17/19 inch LCD Monitor (Option)

Black Box

Processor unit

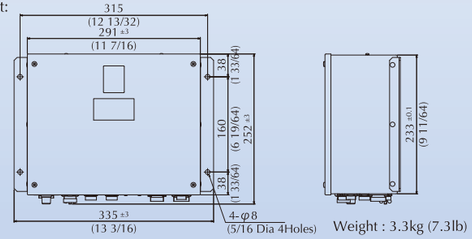
Motion sensor
(AS model)

Operation unit

Hull unit

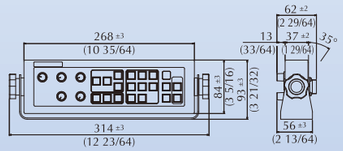
Dimensions and Weight

Processor unit:
DPU-510



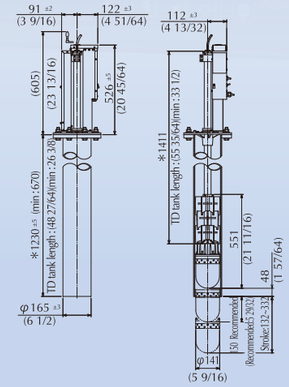
Weight : 3.3kg (7.3lb)

Operation unit:
DOU-520



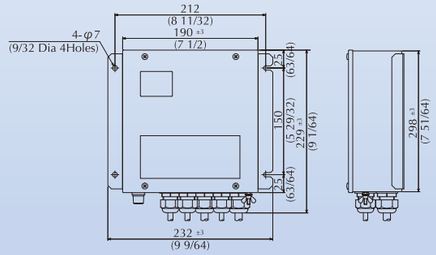
Weight : 1.1kg (2.5lb)
(with base)

Hull unit:
DHU-530



Unit: mm (inch)

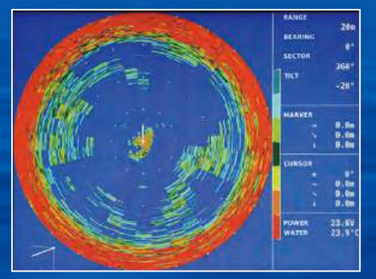
Junction box:
DJB-540



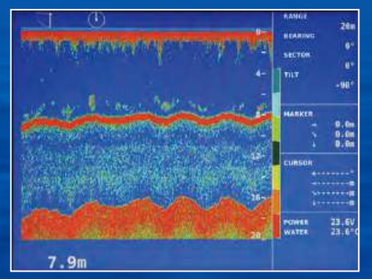
Weight : 5.2kg (11.5lb)
(with base)

- DSP technology
  (High Resolution by digital control)
- Space saving installation
- Black Box sonar connect to any XGA type display (Owner supplied)
- Easy operation
- Stabilizer function to reduce the sonar image disturbance caused by the pitch and roll of the vessel. (AS model)

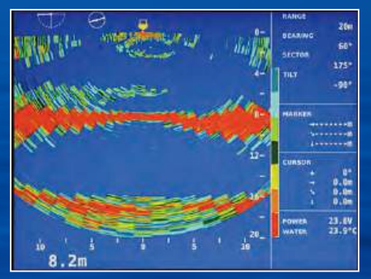
Presentation modes



Sonar mode at 180 kHz



Echo sounder mode at 180 kHz



Bottom scan mode at 180 kHz

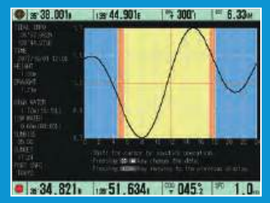
Chart Plotter

Professional plotter with impressive operability
Fully supports to improve your fishing efficiency

GTD-120

Expandable functionality is achieved when connected with Radar with ATA, AIS receiver, and etc.
Substantially increased number of records, such as marks, plots, tracks,and etc.


Quick info


Tidal information


Plotter mode


Split screen mode


Bird view mode

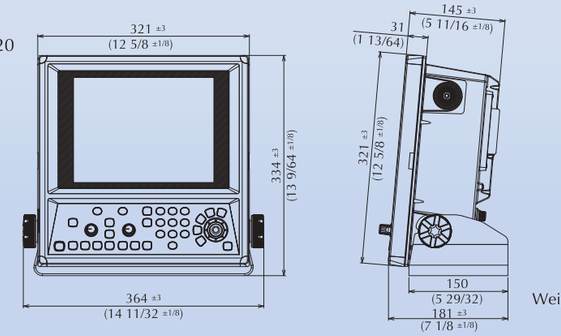
10.4 inch

GTD-120

Dimensions and Weight

Unit: mm (inch)

Display unit: GTD-120



Weight：8.0kg (17.7lb)
(with base)

- 10.4 inch High brightness LCD
- User-friendly Operation
- Various display screen such as Bird view and dual range display
- SD card capable, save user data such as marks, tracks and settings
- Various marks and greater numbers of ship's tracks
- Useful information display in the information window on the screen
- AIS display function
- C-MAP MAX chart Ready (Chart: Owner supplied)

*Stored data from previous models GTD-110 / 150 can be transferred without change.

GNSS Compass

Safe navigation with multi-GNSS compass system

NEW **KC-1400**

- Compatible with GPS / QZSS, Galileo, BeiDou, GLONASS
- Highly accurate heading, position, speed, rolling, pitching and heaving data
- SBAS (MSAS / WAAS / EGNOS) enabled
- 10,000 waypoints, 100 routes and 3,000 track points
- Built-in high-precision gyro sensor for backup
- Equipped with four data ports of NMEA0183 x 3, LAN (IEC61162-450) x 1
- 4.3-inch high-resolution Color LCD
- Equipped with numeric keypad

4.3 inch

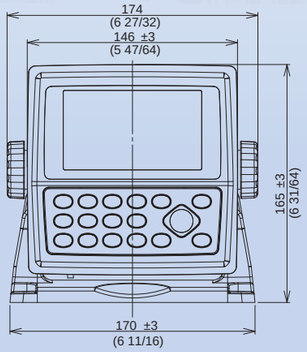
NEW

KC-1400

Dimensions and Weight

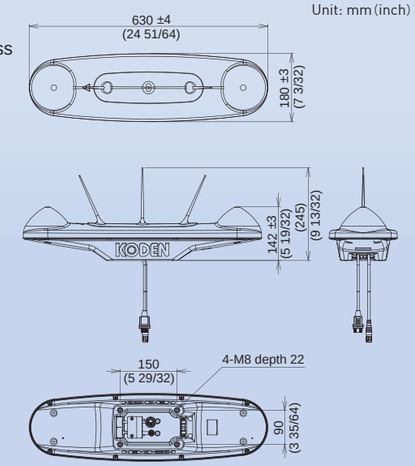
Unit: mm (inch)

Display unit
KC-14



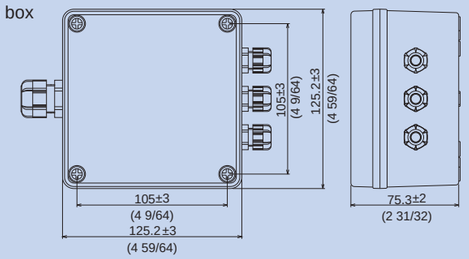
Weight : 0.89kg (1.96lb)

GNSS compass
KC-1000



Weight : 2.5kg (5.5lb)

Junction box
JB-41



Weight : 0.48kg (1.06lb)

GPS Navigator / GPS Compass / GPS Sensor / AIS Transceiver / Remote Display

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), WAAS in the North America and EGNOS in Europe, or the Russian satellite system GLONASS (KGP-915). SBAS is very effective for pinpoint fishing, harbor approaching and narrow channel running.

KGP-922

GPS Navigator
GPS / SBAS

- Meeting with IMO requirements and IEC regulations
- Eye-friendly 4.3-inch high-resolution Color LCD
- Numeric keypad mounted
- DGPS enabled by connecting an external beacon receiver (owner supplied)
- SBAS (Satellite Based Augmentation System) enabled
- Ethernet port for connection to a LAN

KGP-915

GPS Navigator
GPS / SBAS / GLONASS

- Eye-friendly 4.3-inch high-resolution Color LCD
- Numeric keypad mounted
- Waypoint memory 10,000 points
- Route memory 100 × 50 point
- GLONASS (the Russian satellite system) compatible

KGC-300

GPS Compass

- IMO certified GPS Compass (THD) and GPS Navigator
- Highly accurate heading, position and speed data
- Stable and fast tracking capability
- Aesthetically pleasing 4.3-inch high resolution Color LCD
- Backup sensor built-in ●5 heading data output ports
- SBAS (WAAS / EGNOS) enabled

GPS-21

GPS Sensor

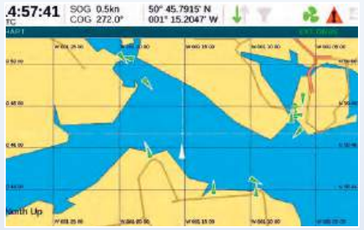
- Seamless precise positioning anywhere, anytime
- 24 channel parallel
- SBAS (WAAS / EGNOS), QZSS (L1S) enabled

KAT-330

Class A / Inland AIS Transceiver

World' s most sophisticated AIS Transceiver.

- Meets IMO Resolutions: A.694(17), MSC191(79), MSC.74(69), ITU-R M.1371-5(2014), MSC.302(87)
- Meets FCC, USCG, IC, TC, CCNR (Inland AIS)
- Chart display available by C-MAP MAX (on a Non-SOLAS or Inland vessel only)
- Simple menu display with icons
- Water and weather proof (IPX6 & IPX7)



Chart

Target List

Target Plot

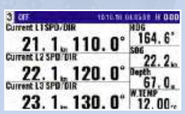
KRD-10

Remote Display

System capable of displaying wide range of NMEA Information.
GPS Compass, Weather Station, Wind Anemometer, Rudder and much more.

- Quick access Numeric Panel
- 19 display modes available to choose from
- Up to 4 ports available with connecting optional junction box
- Switchable between day mode and night mode

Compass



Current

Navigation

Plotter

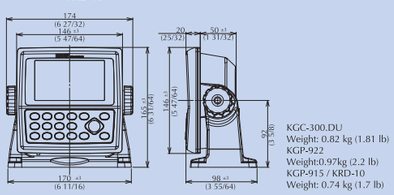
ROT

Rudder Angle

Dimensions and Weight

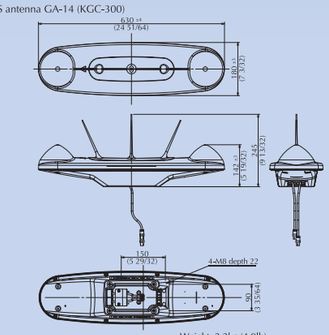
Unit: mm (inch)

Display unit: KGC-300.DU
KGP-922 / 915
KRD-10



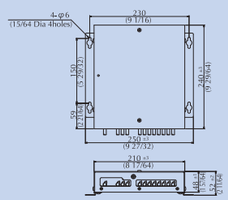
KGC-300.DU
Weight: 0.82 kg (1.81 lb)
KGP-922
Weight:0.97kg (2.2 lb)
KGP-915 / KRD-10
Weight: 0.74 kg (1.7 lb)

GPS antenna GA-14 (KGC-300)



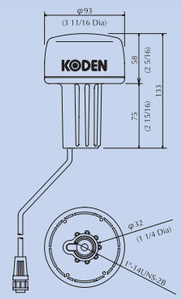
Weight: 2.2kg (4.9lb)

Processor unit: KGC-300.MU



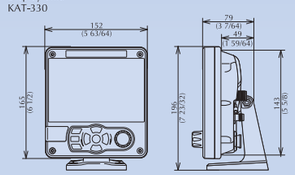
Weight : 1.2kg (2.7lb)

GPS-21



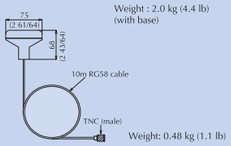
Weight:0.25 kg (0.55 lb)
(without cable)

Display unit:
KAT-330



Weight : 2.0 kg (4.4 lb)
(with base)

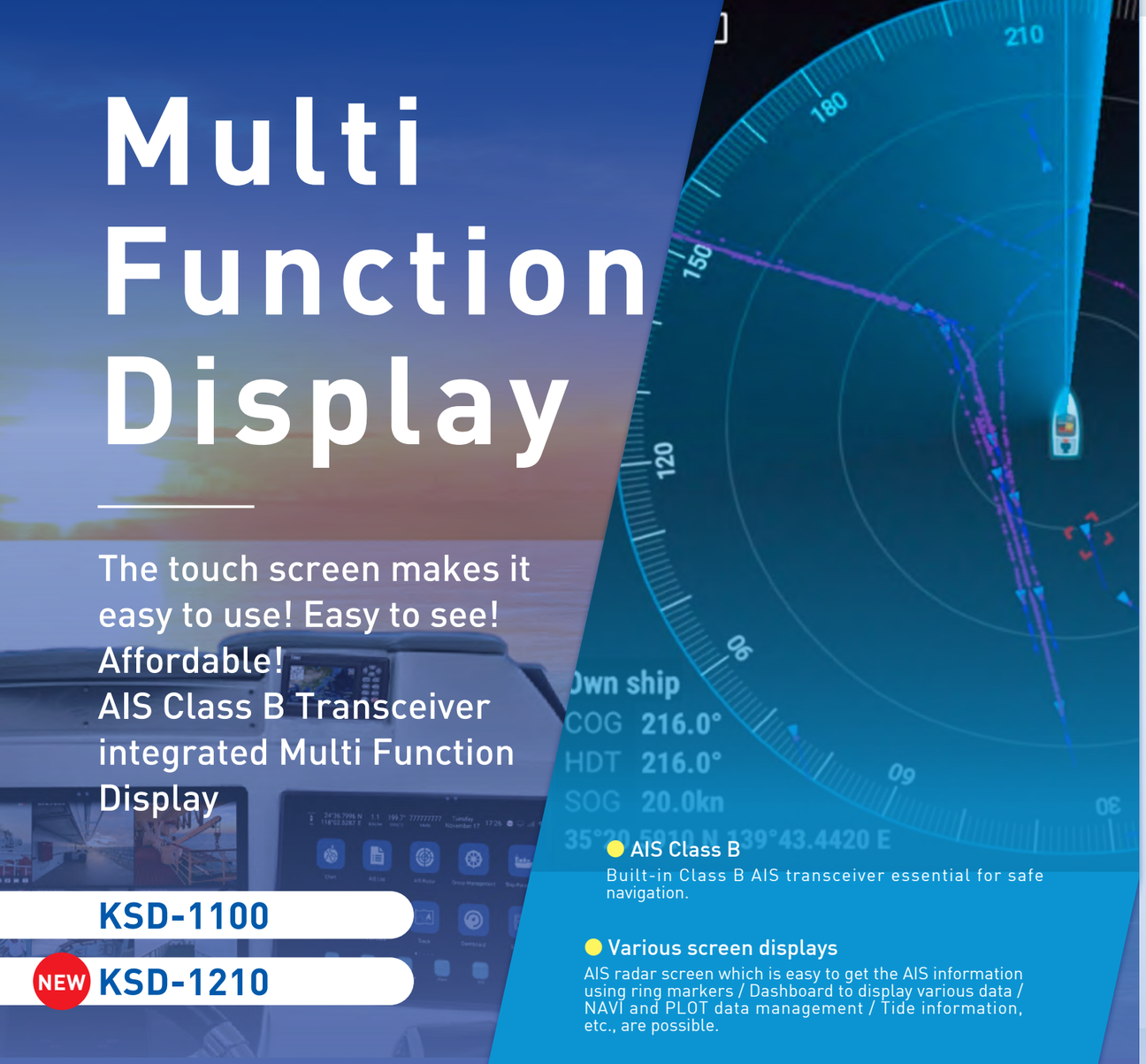
GNSS Antenna



Weight: 0.48 kg (1.1 lb)

Multi Function Display

The touch screen makes it easy to use! Easy to see! Affordable!
AIS Class B Transceiver integrated Multi Function Display



Coming Soon

KED-1000

Black Box
Navigational Echo Sounder

AIS Class B

Built-in Class B AIS transceiver essential for safe navigation.

Various screen displays

AIS radar screen which is easy to get the AIS information using ring markers / Dashboard to display various data / NAVI and PLOT data management / Tide information, etc., are possible.

Video surveillance

By installing network cameras*, it is possible to monitor onboard and outboard conditions up to four screens.

Chart display

Support variety charts of C-MAP MAX*, original chart, ENC chart* (S-57/S-63).
It also supports to overlay satellite images on the chart.

Easy operation

Easy operation with touch screen and mouse*
The KSD-1100 is equipped with an operation panel.

NMEA2000 Certified

NMEA2000 offers improved data transfer rates, ease of initial setup, and more.

*Owner supplied

10.1 inch

KSD-1100

NEW

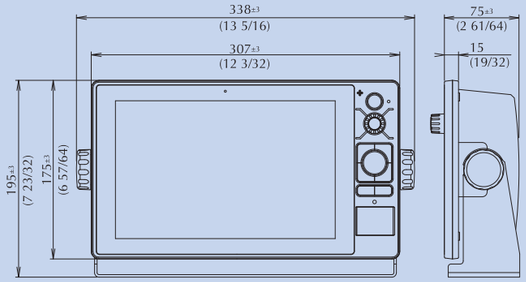
KSD-1210

21.5 inch

Dimensions and Weight

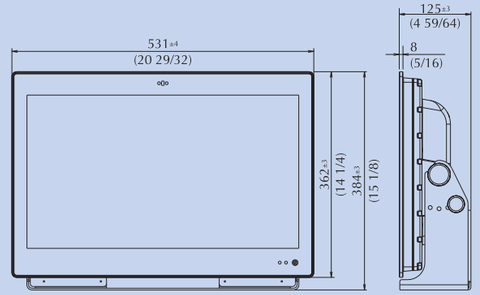
Unit: mm (inch)

Display unit: KSD-1100



Weight: 2.1 kg (4.64 lb)
(without base)

Display unit: KSD-1210



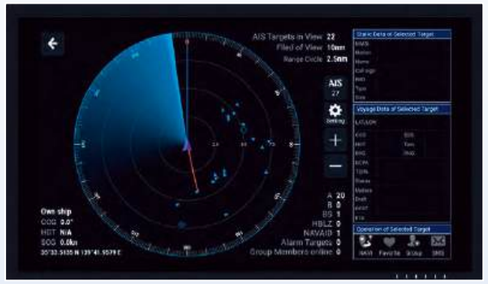
Weight: 7.4 kg (16.32 lb)
(without base)

Multi Function Display

Built-in AIS Class B Transceiver

Equipped with AIS (Automatic Identification System) Class B essential for safe navigation. The AIS target will be overlaid on chart with customer setting. AIS class B transceiver automatically transmit the own ship position, speed, course, MMSI, SMS etc.

Presentation modes



AIS Radar

AIS targets overlaid on the chart, variable range around own ship is shown by setting radius. It is for user reference easily to observe AIS targets real-time dynamic information.

AIS Group Management

AIS group management helps user to do real-time monitoring COG, SOG, HDG, moving distance and other dynamic information of each member by groups.

Chart Plotter

Compact and easy to use chart plotter.
There are three kinds of chart ; C-MAP, ENC and original chart. (C-MAP & ENC are owner supply.)

Presentation modes

Original Chart

Plot Window

C-MAP MAX

ENC

Dual monitor

You can connect to a sub-monitor to display a screen different from the main screen.

Dual screen images

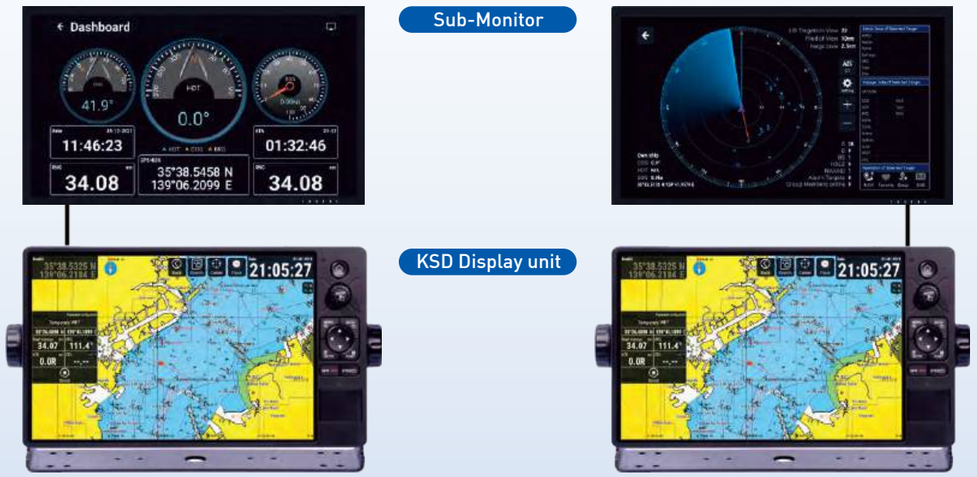


Chart plotter and Dash Board

Chart plotter and AIS Radar

Other screen images

AIS Target on Chart

Sailing Data

AIS List

Comfortable operations

Screen Operation

Panel Operation

Mouse Operation

Specifications

Radar | RADAR*pc* | Multi Function Display

Radar

Model	MDC-900 Series	MDC-2000 Series	MDC-2000BB Series	MDC-5000 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	MRM-112	MRM-110	MRD-111	MRD-109	MRM-108	MRD-108	MRM-108P	MRD-108P
Operation unit	-	-	MRO-112	MRO-110	-	MRO-108	MRO-108		MRO-108P	
Display size	8.4"	10.4"	-	-	12.1"	15"	-	19"	-	19"
Display resolution	480 × 640 pixels (VGA)			1024 × 768 pixels (XGA)	768 × 1024 pixels (XGA)		1280 × 1024 pixels (SXGA)			
Effective diameter (mm)	127.4	157.4	-	-	184	228	-	282	-	282
Off-centering	Max. 66%			Max. 75%	Max. 75%					
Echo area	2 types (Full screen, Inside of effective diameter)				2 types (Full screen, Inside of effective diameter)				1 type (Inside of effective diameter)	
Presentation modes	Head-up, North-up (True motion)*3, North-up (Relative motion)*1, Course-up (True motion)*3, Course-up (Relative motion)*, WPT-up*2			Head-up, North-up (True motion)*3, North-up (Relative motion)*1, Course-up (True motion)*3, Course-up (Relative motion)*1						
Indication system	PPI, PPI/PPI, PPI/NAV			PPI	PPI					
Video levels	8			16	16					
Range unit	NM, sm, km			NM, sm, km, kf, ky	NM, sm, km, kf, ky					
Alarms	Echo (IN / OUT), ATA / AIS (CPA / TCPA) etc.			Echo (IN / OUT), TT / AIS (CPA / TCPA), Guard zone etc.	Echo (IN / OUT), TT / AIS (CPA / TCPA), Guard zone etc.					
Functions	Interference rejection, Target expansion, VRM, EBL, Parallel index, Cursor position (Lat / Lon)*3, Trail*3, RGB Monitor output, Slave display monitor input/output, External Buzzer output, CCD camera input, Dual display			CFAR (Clutter rejection), Interference rejection, Enhance, Process (Residual image, Averaging)*3, VRM, EBL, Parallel index, Cursor position (Lat / Lon)*3, Trail (true / relative)*3, Own ship past track*3, MAP (Event mark, etc.)*3, External monitor output, Inter-switch, Chart overlay*3	CFAR (Clutter rejection), Inter ference rejection, Expansion, Process (Residual image, Averaging), VRM, EBL, Parallel index, ERBL, Cursor position, Trail (true / relative)*3, Own ship past track*3, MAP*3 (Event mark etc.), Analog RGB output, VDR output, Inter-switch, C-MAP chart*3		CFAR (Clutter rejection), Interference rejection, Expansion, Process (Residual image, Averaging), VRM, EBL, Parallel index, ERBL, Cursor position, Trail (true / relative)*3, Own ship past track*3, MAP*3 (Event mark etc.), Analog RGB output, Trial Manoeuvre*3,VDR output, Inter-switch, C-MAP chart*3(MDC-7000 / 7900), Non official chart display (C-MAP chart) (MDC-7000P / 7900P)		
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)			BWC, DBT, DPT, DTM, GBS,	NMEA0183 (4800 / 9600 / 19200 / 38400 bps) GGA, GLC, GLL, GNS, HDG, HDM, HDT, MTW, MWD, RMA, RMB, RMC, ROT, RTE, THS, VBW, VDM, VDO, VDR, VHW, VTG, WPL, XTE, ZDA				IEC61162-1 / -2 BWC, DBT, DPT, DTM, GBS, GGA, GLC, GLL, GNS, HDT, MTW, MWD, RMB, ROT, RTE, THS, VBW, VDM, VDR, VHW, VTG, WPL, XTE, ZDA	
Output data format and sentences	NMEA0183 (TTM, TLL)			NMEA0183 (4800 / 9600 / 19200 / 38400 bps) OSD, RSD, TLB, TLL, TTD, TTM					IEC61162-1 / -2 ALC, ALF, DTM, EVE, HBT, RSD, OSD, TLB, TLL, TTD, TTM	
NMEA ports	Total 2: input and output 2	Total 1: input and output 1		Total 3: input and output 3	Total 3: input and output 3				Total 5: input and output 5 (with JB-35)	
AIS interface *3	100 targets (Option)			500 targets	1000 targets				900 targets	
TT*3	50 targets (Option)			50 targets	100 targets					
Power supply	10.8 to 31.2 VDC			21.6 to 41.6 VDC	21.6 to 41.6 VDC					
Environmental										
Operating temperature	-15˚C to + 55˚C (Display unit) -25˚C to + 55˚C (Antenna unit)				-15˚C to + 55˚C (Display unit) -25˚C to + 55˚C (Antenna unit)					
Water Protection	IPX5 (Display unit): MDC-900 / 900A / 2000 / 2000A, IPX0 (Processor unit): MDC-2000BB IP23 (Operation unit): MDC-2000BB, IPX6 (Antenna-scanner unit)			IPX0 (Processor unit) IP23 (Operation unit) IPX6 (Antenna-scanner unit)	IPX5 (Display unit) IPX6 (Antenna-scanner unit)		IPX5 (Display unit) IP23(Operation unit) IPX6 (Antenna-scanner unit)	IP23 (Front panel and Operation unit): MDC-7900 / 7900P, IPX0 (Processor unit) IP23 (Operation unit): MDC-7000 / 7000P IPX6 (Antenna-scanner unit)		

Model	MDC-904A/ 2004A/2003BB	MDC-941/ 2041	MDC-941A/ 2041A/2005BB	MDC-940/ 2040	MDC-940A/ 2040A/2004BB	MDC-2060/ 2060BB	MDC-2006A/ 2006BB	MDC-2010/ 2010BB	MDC-2012A/ 2012BB	MDC-5005	MDC-5004	MDC-5060/ 5006	MDC-5010/ 5012	MDC-5020/ 5025	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)	4 kW					6 kW		12 kW		4 kW		6 kW	12 kW	25 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
Basic ranges	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 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 (24 VDC)	55 W or less/ 65 W or less/ 65 W or less	55 W or less/ 65 W or less	55 W or less/ 65 W or less/ 65 W or less	70 W or less/ 80 W or less	70 W or less/ 80 W or less/ 80 W or less	110 W or less/ 110 W or less	110 W or less/ 110 W or less	130 W or less/ 130 W or less	130 W or less/ 130 W or less	85 W or less	100 W or less	130 W or less	150 W or less	200 W or less	100 W or less	130 W or less	150 W or less	200 W or less	100 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	130 W or less	150 W or less	200 W or less	150 W or less	200 W or less
Antenna-scanner connections:																														
4 kW Radome antenna	RB804	RB715A	RB805							RB805																				
4 kW Open antenna				RB716A	RB806						RB806				RB716A				RB806											
6 kW Open antenna						RB717A	RB807					RB717A/RB807				RB717A				RB807			RB717A			RB807				
12 kW Open antenna								RB718A	RB808				RB718A / RB808				RB718A				RB808			RB718A			RB808		RB808P	
25 kW Open antenna														RB719A / RB809				RB719A				RB809				RB719A			RB809	RB809P
Interconnecting cable length Standard (m)	242J158055 (10m)			242J159098 (10m)		*4				242J158055 (10m)	*4				242J159098 (15m)				CW-845 (15m)				242J159098 (15m)			CW-845 (15m)			
length Max. length (m)	30						100	30	100	30	100				100											65				

*1 Requires bearing data input. *2 Requires waypoint data input. *3 Requires bearing data, ship's speed data and latitude / longitude data input. *4 CW-845 (15m) (RB806·807·808·809) / 242J159098 (15m) (RB717A·718A·719A)

RADAR*pc*

Model	MDS-1103R	MDS-1105R	MDS-1104R	MDS-1106R/1160R	MDS-1112R/1110R	MDS-1125R/1120R
Specifications & Functions:						
Output power (RMS)	4 kW			6 kW	12 kW	25 kW
Control box	MDS-11R					
Basic range	0.125 to 96 NM					
Range accuracy	Better than 8 m or 0.9% (at the maximum range of the scale in use)					
Bearing accuracy	Better than ±1˚					
Minimum range	Better than 25 m on 1/8 NM range					
Range discrimination	Better than 25 m					
Functions of radar image	Gain, STC,FTC, Tune, Interference rejection, Expansion, Trigger delay adjustment, Heading line adjustment					
Transfer data size Real time transfer	256 / 512 / 1024 dots / sweep (1024 / 2048 / 4096 sweeps per antenna rotation) Level: 3 / 4 bits					
Other function Preheat times output (by 5 sec step)	115 sec to 5 sec					175 sec to 5 sec
Other function Program version up	by Ethernet					
Other function Error output	SHF, System, AZI, PRF, ROM, DHCP server, Mag. current, High voltage					
Antenna-Scanner unit type	RB804	RB805	RB806	RB807/RB717A	RB808/RB718A	RB809/RB719A
Antenna length	1.2 feet (Radome)	2 feet (Radome)	3 feet/4 feet/6 feet	4 feet/6 feet	4 feet/6 feet/9 feet	4 feet/6 feet/9 feet
Antenna cable length	10 m (standard)		15 m (standard)			
Power supply	21.6 to 41.6 VDC					
Power consumption	60 W or less		70 W or less	90 W or less	110 W or less	150 W or less
Ethernet Interface						
Mode of communication	Ethernet 100base-TX / 10base-T					
TCP / IP layer Application layer	Communication command and radar image transfer					
TCP / IP layer Internet layer	ARP (Address Resolution Protocol), ICMP (Internet Control Message Protocol)					
TCP / IP layer Transport layer	UDP (User Datagram Protocol)					
Network Interface	Shielded UTP (Unshielded Twisted Pair Cable)					
Transmission speed	10 Mbps / 100 Mbps					
Output data	Radar image video by proprietary protocol					
Input data	Radar control by proprietary protocol					
Environmental						
Operating temperature	-15˚C to +55˚C (Control box) -25˚C to +55˚C (Antenna-Scanner unit)					
Water protection	IPX0 (Control box) IPX6 (Antenna unit)					

Multi Function Display

Model	KSD-1100	KSD-1210
Specifications:		
Operation System	Android 5.1 with OpenGL ES 3.0 & OpenCL 1.1	
CPU	Cortex-A17 quad core	
CPU speed	1.8 GHz 32 bit	
RAM	2 GB DDR3 1333 MHz	
Flash memory	16 GB	
Display size and type	10.1 inch capacitive multi touch screen	21.5 inch capacitive multi touch screen
Brightness	600 cd/m2 (Max)	800 cd/m2 (Max)
Display resolution	1280 × 800 (WXGA)	1920 × 1080 (1080P)
Power supply	10.8 VDC to 31.2 VDC	21.6 VDC to 31.2 VDC
Power consumption	15 W	60 W
GNSS	GPS / BDS / GPS & BDS	
GNSS	Position accuracy < 10m, 95% typical	
GNSS	Cold start time: 32 sec or less, Warm start time: 1 sec or less	
Audio power	1 W	3 W
MicroSD card slot	2 ports (Support MicroSD card 32 GB or less)	
Bluetooth	BT 4.0	
Wi-Fi	802.11 b/g/n	
Input data formats and sentences	NMEA0183 DPT, GGA, GLL, HDT, MTW, MWD, MWV, RMC, THS, VTG, ZDA NMEA2000 129025, 129026, 129029, 129033, 129539, 129540, 126992, 127250, 127258, 129038, 129040, 129041, 129793, 129794, 129809, 129810, 129795, 129797, 129801, 129802	
Output data formats and sentences	NMEA0183 APB, BOD, BWC, DPT, GGA, GLL, GSA, GSV, HDT, MTW, MWD, MWV, RMB, RMC, THS, VTG, WPL, XTE, ZDA NMEA2000 129025, 129026, 129029, 129033, 129539, 129540, 127250, 129038, 129039, 129040, 129041, 129793, 129794, 129809, 129810, 129795, 129797, 129801, 129802, 129283, 129284, 129285	
NMEA ports	Total: 4 ports Input: 2, Output: 1, Input / Output: 1 (Output: AIS fixed)	Total: 7 ports Input: 4, Output: 2 (GNSS or AIS or GNSS & AIS fixed: 1), AIS Output: 1
Audio output	1	
Alarm output	1	
LAN net work	1000 Mbps	
Environmental:		
Operating Temperature	-15˚C to +55˚ C	
Water protection	IPX4	
AIS Class B		
Frequency	156.025 to 162.025 MHz	
Bandwidth	25 kHz	
Modulation	GMSK / FM	
Number of AIS transmitter	1 channel	
Number of AIS receiver	2 channels : Channel A CH87B (161.975MHz), Channel B CH88B (162.025MHz)	
Output power	2W	
Rx sensitivity	< -107 dBm @ PER<20%	

Specifications

Echo Sounder

Model	CVS-128B	CVS-1410B	CVS-872D	CVS-875D	CVS-877D
Specifications & Functions:					
Output power (RMS)	2 kW		Refer to Table of Transducer for CVS-872D / 875D / 877D / 1420	Refer to Table of Transducer for CVS-872D / 875D / 877D / 1420	
Transducer	TDM-071, TDM-091D				
Output frequency	35 to 65 kHz (TDM-071), 42 to 65 kHz and 130 to 210 kHz (TDM-091D)				
Selectable frequency range	24 to 210 kHz 0.1kHz step				
Display size and type	8.4 inch color TFT LCD	10.4 inch color TFT LCD	12.1 inch color XGA LCD	15 inch color XGA LCD	Any monitor with XGA resolution (Owner supplied)
Display resolution	640 × 480 pixels (VGA)		1024 × 768 pixels (XGA)	1024 × 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*4, 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*4, 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*3, Arrival*3, XTE*3		Bottom, Fish, Temperature*1, Speed*2, Arrival*3, XTE*3	Bottom, Fish, Temperature*1, Speed*2, Arrival*3, XTE*3	
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 (CVS-1410B only), Fish information, Detection area display		Interference rejection, Color erase, 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, Bottom hardness display	Interference rejection, Color erase, 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, External memory storage (SD card, USB memory), Heaving compensation, Bottom hardness display, Display direction (CVS-877D only)	
Auto functions	Range, Shift, TX Power, White Line, Gain	Range, Shift, TVG, TX Power, White Line,	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, THS, VHW, VTG, ZDA		NMEA0183 Ver.1.5 / 2.0 / 3.0 GGA, GLL, HDT, MTW, MWV, MWD, RMC, THS, VHW, VTG, ZDA, HEV, HPR, PFEC,GPhve, PFEC,GPatt, PKODG,21	NMEA0183 Ver.1.5 / 2.0 / 3.0 GGA, GLL, HDT, MTW, MWV, MWD, RMC, THS, VHW, VTG, ZDA, HEV, HPR, PFEC,GPhve, PFEC,GPatt, PKODG,21	
Output data formats and sentences	NMEA0183 Ver.2.0 / 3.0 (DBT : Ver.1.5) DBT, DPT, GGA, GLL, HDT, MTW, MWV, RMC, TLL, VHW, VTG, ZDA		NMEA0183 Ver.2.0 / 3.0 (DBT : Ver.1.5) DBT, DPT, GGA, GLL, HDT, MTW, MWV, RMC, TLL, VHW, VTG, ZDA, PKODS,4, Nobeltec, Olex	NMEA0183Ver.2.0 / 3.0 (DBT : Ver.1.5) DBT, DPT, GGA, GLL, HDT, MTW, MWV, RMC, TLL, VHW, VTG, ZDA, PKODS,4, Nobeltec, Olex	
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	50 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	IPX5 (Operation unit) IPX0 (Processor unit)

*1 Requires data from Temp sensor *2 Requires speed data from Speed sensor or GPS sensor
*3 Requires data from GPS sensor *4 The number of display screen depends on Transducer.

Transducer for CVS-872D / 875D / 877D / 1420

Broadband type

Model	Output frequency	Output power (RMS)
TDM-052A	38 to 75 kHz and 130 to 210 kHz	3 kW
TDM-062A	38 to 75 kHz and 80 to 130 kHz	3 kW
TDM-091*1 / 091D	42 to 65 kHz and 130 to 210 kHz	2 kW
TDM-071	35 to 65 kHz	2 kW
TD340-K	38 to 70 kHz and 130 to 220 kHz	1 kW
TD361-K	38 to 70 kHz and 130 to 220 kHz	2 kW*3
TD380-K	38 to 70 kHz and 130 to 220 kHz	3 kW*3

selectable frequency range: 24 to 240 kHz, 0.1 kHz step / *3 High frequency: 1kW

Normal type

Model	Output frequency	Output power (RMS)
TD-284A	28 kHz	3 kW
TD-404T	40 kHz	3 kW
TD-504T / 504F	50 kHz	3 kW
TD-501C	50 / 200 kHz	1 kW
TD-501T-3B	50 / 200 kHz	1 kW
TD-754	75 kHz	3 kW
TD-66*1	200 kHz	1 kW
TDM-031D	50 / 200 kHz	2 kW
150kHz 120φx× 1*2	150 kHz	2 kW
NGM100-200-12L*2	200 kHz	2 kW

*1 CVS-872D / 875D / 877D only
*2 CVS-1420 only

Model	CVS-126	CVS-128	CVS-1410	CVS-1410HS	CVS-1420	CVS-702D	CVS-705D	CVS-707D
Specifications & Functions:								
Output power (RMS)	600 W	600W or 1kW	1 kW		Refer to Table of Transducer for CVS-872D / 875D / 877D / 1420	3kW, 5kW		
Output frequency	50 kHz and 200 kHz		50 kHz and 200 kHz			Dual Freq: 28, 40, 50, 75, 200 kHz (200 kHz is 1kW only)		
Display size and type	5.7 inch color TFT LCD	8.4 inch color TFT LCD	10.4 inch color TFT LCD			12.1 inch color XGA LCD	15 inch color XGA LCD	17 inch color XGA LCD*4
Display resolution	320 × 240 pixels (QVGA)	640 × 480 pixels (VGA)	640 × 480 pixels (VGA)			1024 × 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		
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		
Presentation colors	64 colors,16 colors, 8 colors, Monochrome					64 colors,16 colors, 8 colors, Monochrome		
Alarms	Bottom, Fish, Temperature*1, Speed*3, Arrival*3, XTE*3					Bottom, Fish, Temperature*1, Speed*2, Arrival*3, XTE*3		
Image speed	9 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 (10 images), Sona-Tone™ (CVS-1410 / 1410HS), 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, External memoly storage (SD card, USB memory) (CVS-705D / 707D only)		
Auto functions	Range, Shift, TX Power, White Line, Gain		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, THS, VHW, VTG, ZDA					NMEA0183 Ver.1.5 / 2.0 / 3.0 GGA, GLL, HDT, MTW, MWV, MWD, RMC, THS, VHW, VTG, ZDA, HEV, HPR, PFEC,GPhve, PFEC,GPatt, PKODG,21		
Output data formats and sentences	NMEA0183 Ver.2.0 / 3.0 (DBT : Ver.1.5) DBT, DPT, GGA, GLL, HDT, MTW, MWV, RMC, TLL, VHW, VTG, ZDA					NMEA0183 Ver.2.0 / 3.0 (DBT : Ver.1.5) DBT, DPT, GGA, GLL, HDT, MTW, MWV, RMC, TLL, VHW, VTG, ZDA, PKODS,4, Nobeltec, Olex		
NMEA ports	Total 1 : 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	10 W or less (12 VDC)	25 W or less (12 VDC)	30 W or less (24V DC)		50 W or less (24V DC)	60 W or less (24 VDC)	70 W or less (24 VDC)	50W or less (24 VDC) without Display
Environmental:								
Operating temperature	-15˚C to +55˚C					-15˚C to +55˚C		
Water protection	IPX5					IPX5		IPX5 (Operation unit) IPX0 (Processor unit)

*1 Requires data from Temp sensor *2 Requires speed data from Speed sensor or GPS sensor *3 Requires data from GPS sensor *4 For European model, please contact your nearest distributor.

Specifications

Sonar | AIS Transceiver | GPS Navigator | Chart Plotter | Remote Display | GPS Compass | GPS Sensor | GNSS Compass

Sonar

Model	KDS-5500BB	KDS-6000BB	KDS-5000BB	ESR-145
Specifications & Functions:				
Output power (RMS)	1.5 kW		1.5 kW	800 W
Transducer	DHU-6302-80 (AS) / 140 (AS) / 180 (AS) kHz*1	DHU-6302-BRD.B / BRD.B (AS)	-	-
Output frequency	80 kHz / 140 kHz / 180 kHz	130 to 210 kHz (0.1 kHz step)	180 kHz	220 kHz
Tilt angle	5° to -90° (1° step)		5° to -90° (1° step)	5° to -90° (1° step)
Beam angle	80 kHz : 19° / 140 kHz : 12° / 180 kHz : 10°	8° to 12°	10°	-
TD stroke	150 to 380 mm (Recommended value 150 mm)		180 to 380 mm (Recommended value 180 mm)	120 to 200 mm
Display size and type	Any monitor with VGA resolution (Owner supplied)		Any monitor with XGA resolution (Owner supplied)	10.4 inch color TFT LCD
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)		10 to 2000 (m), 20 to 6000 (ft), 10 to 2000 (fm), 10 to 2000 (l.fm) (8 ranges can be set to users choice)	0 to 10 to 300 (m), 0 to 10 to 200 (l.fm) (selectable from 20 types)
Range units	m, ft, fm, l.fm		m, ft, fm, l.fm	m, ft, fm, l.fm
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°		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°	5° step: 5°,25°,45°,85°,125°,165°,205°,360° 10° step: 10°,30°,50°,90°,130°,170°,210°,360°
Scanning sector angles — Bottom scan mode	3° step: 3°, 27°, 45°, 63°, 93°, 117°, 147°, 177° 5° step: 5°, 25°, 45°, 65°, 95°, 115°, 145°, 175°		3° step: 3°,27°,45°,63°,93°,117°,147°,177° 5° step: 5°,25°,45°,65°,95°,115°,145°,175°	3° step: 3°,27°,45°,63°,93°,117°,147°,177° 5° step: 5°,25°,45°,65°,95°,15°,145°,175°
360° Scanning time (extracts) — Scanning range (m)	20 40 60 80 100 120 160 180 200 240 400		20 40 60 80 100 120 160 180 200 240 400	10 40 80 100 160 200 300
Scanning time (sec.) 5° step	6.3 8 10 11.8 14 15.8 19.5 21.6 23.5 27.5 43.3		5.7 7.6 9.5 11.4 13.3 15.3 19.1 21.0 23.0 26.8 42.2	4.2 7.1 10.9 12.8 18.6 22.4 32.0
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		4.1 5.0 6.0 7.0 8.0 8.9 10.8 11.8 12.7 14.7 22.3	3.7 5.1 7.0 7.0 10.9 12.8 17.6
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		3.5 4.1 4.8 5.4 6.1 6.7 8.0 8.6 9.3 10.6 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		3.2 3.7 4.2 4.6 5.1 5.6 6.6 7.1 7.5 8.5 12.3	- - - - - - -
Bearing center	1° step		5° step	5° step
Presentation mode	Sonar, Off-center, Bottom scan, Echo sounder, 2 Mode Display, One line		Sonar mode + Data display, Off-center mode + Data display, Off-center on the whole screen, Bottom scan mode + Data display, Sounder Mode + Data display	Sonar mode + Data display, Off-center mode + Data display, Bottom scan mode + Data display, Echo sounder mode + Data display
Off-Center	Fore, Back, Left, Right		Fore, Back, Left, Right	Fore, Back, Left, Right
Target lock	Reverse, Horizontal, Horizontal + Vertical, Marker + Horizontal, Marker + Horizontal + Vertical		Reverse, Horizontal, Horizontal + Vertical, Marker + Horizontal	Reverse, Horizontal, Horizontal + Vertical
Presentation colors	8 colors, 16 colors		8 colors, 16 colors	8 colors
Functions	TVG , Color rejection, Dynamic range, Compass display, Pulse width, Output power control, Noise reduction, A-scope, CM key, Frequency bandwidth, Image correction, Bearing display, TD auto up, Sona-Tone™		Operation mode (3 modes), Off-center (4 changes), Train correct, Power rejection, Gain adjust, Temperature adjust, Pulse width control, TVG change, Target lock, Color change (4 types + 2 types of color palette settings), Dynamic range, Interference rejection, Color rejection, Filter (OFF/1/2), Gain control, Far gain control, External trigger synchronization, Trigger signal output, Hoist sensor lamp, Audio (optional speaker required), Stabilizer (up to 25° controllable), Transducer unit automatic retract (Navigator connect required), Full-screen gain control	Operation mode (2 x 2 types), Off-center (4 types), Train correct, Power reduction, Pulse width, TVG, Target lock, Color select (4 types + 4 types of color palette settings), Dynamic range, Interference rejection, Gain control, Threshold control, Far gain control, TD auto up, Noise reduction, Brightness control, Sensor lamp
Input data format and sentences	NMEA0183 GGA, GLL, HDG, HDM, HDT, RMC, THS, VTG, ZDA		NMEA 0183 GGA, GLL, HDG, HDT, HDM, VTG	NMEA0183 (Lat/Lon, Ship speed, Compass display, Temperature), Remote controller*2
Output data format and sentences	NMEA0183 DBT, DPT, GGA, GLL, MTW, RMC, TLL, VTG, ZDA		NMEA 0183 TLL*1, DBT, MTW (*1TTL sentence is not output without data.)	Trigger signal, VGA*2, Audio
NMEA ports	Total 1 : input / output		Total 1 : input / output	Total 1 : input
Power supply — Processor unit	10.8 to 31.2 VDC		21.6 to 31.2 VDC	21.6 to 31.2 VDC
Power supply — Hull unit	10.8 to 31.2 VDC		21.6 to 31.2 VDC	
Power consumption (24 VDC) — Processor unit	70 W or less			70 W or less
Power consumption (24 VDC) — Hull unit	70 W or less			
Environmental:				
Operating temperature	-15 °C to + 55 °C			-
Water protection	-			IPX1

*1 Select the frequency at time of purchase *2 Option

Class A / Inland AIS Transceiver

Model	KAT-330 (IMO)
Specifications:	
Output power	1 W or 12.5 W (automatic selection)
Display size and type	5 inch, color LCD with adjustable backlight
Display resolution	800 × 480 pixels
TX / RX frequency	156.025 MHz to 162.025 MHz
Impedance	50Ω
DSC receiver	DSC receiver 156.525 MHz (Channel 70)
Channel bandwidth	25 kHz
Presentation modes	Target list, Voyage data setting, Target plot, Chart*, Messages, Alerts, Own dynamic data, System settings (*The chart feature is only enabled when this Class A AIS transceiver is operating on a non-SOLAS or inland vessel.)
Alerts	TX Malfunction, RX Channel x malfunction, VHF Antenna VSWR exceeds limit, External EPFS lost, No valid COG, No valid SOG, Heading lost or invalid, No valid ROT, No sensor position in use, UTC Sync Invalid, Nav Status Incorrect, Active AIS SART, Internal / External GNSS mismatch, Heading sensor offset
Receiver channels*1	72 channels GPS and GLONASS operating modes
Frequency*1	L1 GPS band, 1575.42 MHz, L1 GLONASS band 1597.1 to 1609.5 MHz, B1 BeiDou band 1561.098MHz
Sensitivity*1	<-107 dBm for 20% PER (TDMA Transmitter / Receiver) -107 dBm@BER <10^{-2} (DSC Receiver)
Position fixing system*1	EPFS
Time to first fix (Cold start)	Typically 26 seconds
Accuracy*1	2.5 m CEP / 5.0 m SEP without differential correction 2.0 m CEP / 3.0 m SEP with SBAS or RTCM DGPS correction
Input data formats and sentences	IEC61162-1 / -2 ABM, ACA, ACK, ACN, AIR, BBM, DTM, EPV, GBS, GGA, GLL, GNS, HDT, RMC, ROT, SPW, SSA, SSD, THS, VBW, VSD, VTG, LRF, LRI
Output data formats and sentences	IEC61162-1 / -2 ABK, ACA, ACS, ALC, ALF, ALR, ARC, EPV, NAK, SSD, TRL, TXT, VDM, VDO, VER, VSD, LR1, LR2, LR3, LRF, LRI
NMEA ports	Sensor data input ports IEC61162-1 / -2 3 ports 4800 baud or 38400 baud Bi-directional data ports IEC61162-1 / -2 3 ports 4800 baud or 38400 baud
Power supply	10.8 to 31.2 VDC
Power consumption (24 VDC)	12 W or less (6.2 W (average))
Environmental:	
Operating temperature — Display unit	-15°C to +55°C
Operating temperature — GPS antenna	-40°C to +80°C
Water protection — Display unit	IPX6, IPX7
Water protection — GPS antenna	IP67

*1 Internal GNSS

GPS Navigator

Model	KGP-922 (IMO)	KGP-915
Specifications		
Antenna type	GA-09	
Display size and type	4.3 inch color LCD	
Display resolution	480 × 272 pixels	
Receiving channel	72 channel parallel	
Instant (Event) memory	1,000 points	
Waypoint memory	5,000 points (4,000 + Event 1,000)	10,000 points (9,000 + Event 1,000)
Route memory	100 routes reverse trail possible	
Alarms	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	
Input data formats and sentences	RTCM SC104 Ver.2.0 (DGPS), NMEA 0183*1 (GPS source: External)	RTCM SC104 Ver.2.0 (DGNSS) , NMEA 0183*1 (GNSS source: External)
Output data formats and sentences	NMEA 0183 Ver.2.0 / 3.0 / 4.1 / CIF AAM, APB, BOD, BWC, DCN, DTM, GGA, GLC, GLL, GSA, GSV, MSS, RMB, RMC, RTE, VTG, WPL, XTE, ZDA	
NMEA ports	Total 2 : input and output	
Power supply	10.8 to 31.2 VDC	
Power consumption (24 VDC)	6 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	IPX2 (Display unit), IPX6 (Antenna unit)	IPX4 (Display unit), IPX6 (Antenna unit)

*1 When GPS source is selected as EXT

Chart Plotter

Model	GTD-120
Specifications & Functions:	
Display size and type	10.4 inch color TFT LCD
Map mode	Mercator projection
Presentation modes	North-up, South-up, East-up, West-up, Course-up (Waypoint), Head-up
Display resolution	480×640 (VGA)
Zooming range	0.01 to 1,000 NM (or 0.02 to 2,000 km)
Effective map creation area	Below the latitude 80 degree
Plotting interval — Time	1, 2, 5, 10, 20, 30, 60, 120, 300, 600 sec
Plotting interval — Distance	0.01, 0.02, 0.05, 0.1, 0.2, 0.5, 1.0, 2.0, 5.0, 10.0 NM / km
Track color	7 colors
Position data display	Lat / Lon, Loran C LOP
Navigation data display	Own ship' s position, Own ship' s course, Own ship' s speed, Waypoint position, Waypoint bearing, Waypoint distance, POB position, POB bearing, POB distance, Cursor position, Cursor bearing, Cursor distance
Position registration	15,000 points × 6 blocks + Marked line 15,000 points (All points can be registered as waypoint)
Mark color	7 colors
Alarm	Arrival, POB, Cross track error, CPA / TCPA, Area, Drawing, Ship' s speed, Depth limit, Grounding, GPS buoy distance
Magnetic compass correction	Auto / Manual
Input data format and sentences	NMEA0183 Ver.1.5 / 2.0 / 3.0 DBS, DBT, DPT, GGA, GLL, HDG, HDT, MSK, MTW, MWD, MWV, RMC, THS, TLL, TTM, VTG, ZDA
Output data format and sentences	NMEA0183 Ver.2.0 GGA, GLL, GTD, HDT, VTG, ZDA, APB, BOD, BWC, RMB, RMC, WPL, XTE
NMEA ports	Total 5: input / output 4, input (GPS)1
Data output cycle	1sec
Power supply	10.8 to 31.2 VDC
Power consumption (24 VDC)	25W or less
Environmental:	
Temperature	-15 °C to + 55 °C
Water protection	IPX5

GPS Compass

Model	KGC-300 (IMO)
Specifications:	
Display size and type	4.3 inch color LCD
Display resolution	480 × 272 pixels
Receiving channel	16 channel parallel
Heading resolution	0.1°
Time to position fix — Cold start	50 sec (standard)
Time to position fix — Warm start	45 sec (standard)
Time to position fix — Hot start	20 sec (standard)
Accuracy — Heading	0.5° rms
Accuracy — Position	GPS: 10m 2 drms (SA: OFF, PDOP: 3 or less) DGPS: 3m 2drms (SA: OFF, PDOP: 3 or less)
Accuracy — Velocity	1 m / sec (rms, SA:OFF, PDOP: 3 or less)
Output data formats and sentences	NMEA 0183 Ver. 2.0, IEC61162-1/-2 AAM, APB, ATT, BOD, BWC, DTM, HDM, HDT, HVE, GBS, GGA,GLL, GNS, GSA, GSV, MSS, RMB, RMC, ROT, RTE, THS, VTG, WPL, XTE, ZDA, PKODA, PKODG1, PKODG7, PKODG21 (ALC, ALF ,HBT *DATA1 only)
Output data level	RS-422
Input data format	RTCM SC104 Ver2.0 (DGPS)
NMEA ports	Total 5: output
Power supply	10.8 to 31.2 VDC
Power consumption (24 VDC)	9W or less
Environmental:	
Operating temperature	-15°C to +55°C (Processor unit), -15°C to +55°C (Display unit), -25°C to +55°C (Antenna unit)
Water protection	IPX0 (Processor unit), IPX4 (Display unit), IPX6 (GPS antenna)

GPS sensor

Model	GPS-21
Specifications:	
Receiving channel	24 parallel channels
Receiving frequency	1575.42 MHz ± 1 MHz
Position accuracy — Position	GPS: 10m (2drms, SA=OFF, PDOP: 3 or less) SBAS: 7m (2drms, SA=OFF, PDOP: 3 or less)
Position accuracy — Velocity	1m/sec (rms, SA=OFF, PDOP: 3 or less)
Tracking — Velocity	972 km/h or less
Tracking — Acceleration	1 G or less
Position updata interval	1 sec
Position fixing time Cold start	35 secs (standard value)
Differential positioning RX input	SBAS (WAAS, MSAS, EGNOS) QZSS (L1S)
Output data formats and sentences	NMEA 0183 Ver.2.3 (GGA, GLL, GSA, RMC, VTG, ZDA)
Input data	Parameter settings
Output data level	RS-422
Output current	20 mA or less
Power supply	10.8 to 31.2 VDC
Power consumption (12 VCD)	0.6W or less
Environmental:	
Operating temperature	-25 to +55 ℃
Water protection	IPX6

Remote Display

Model	KRD-10
Specifications & Functions:	
Display size and type	4.3 inch color LCD
Display resolution	480 × 272 (WQVGA)
Presentetion modes	Navigation, Navigation graph, Highway, Plotter, Compass, ROT, Wind direction / Wind speed, Water temperature, Rudder angle, Distance info, General, Tide current, Weather info, Rain gauge, Custom
Track display — Display range	0.025, 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20 NM (sm, km)
Track display — Usable ground	Within 80° in latitude
Track display — Plotting interval	5, 10, 20, 30 seconds, 1 minutes, 0.01, 0.05, 0.1, 0.5, 1 NM (sm, km)
Track display — Plotting capacity	3,000 points
Position data display	Latitude / Longitude in increments of 0.0001 minutes, Converted Loran C LOPs, Converted Loran A LOPs, Converted Decca LOPs
Data display	Speed, Course, Heading, Distance / Bearing to waypoint, Cross track error, Time to go to waypoint, Total time to go and distance on route, DOP value, Present time (UTC or LTC), Navigation1, Navigation2, Navigation3, Steering, Highway, Plotter, Compass1, Compass2, ROT INFO, Rudder Angle, Distance info, Wind Direction analog, Water Temperature Graph, General1, General2, Tide Current, Weather Info, Rain Gauge, Lat/Lon, COG, SOG/STW, Rudder sensor Angle, TRIP / ODO, Current L1 SPD / DIR, Current L2 SPD / DIR, Current L3 SPD / DIR, Wind DIR / SPD, Wind Chill (REL), Wind Chill (TRUE), Heat Index, Air Pressure, Heave, Pitch, Roll, Rain Accumulation, Rain Duration, Rain Intensity Rate, Peak Rain Intensity Rate, Temperature, Humidity, Dew Point, Wind Direction (REL / TRUE), Wind Speed (REL / TRUE), Satellite status, Distance / Bearing between two points, POB display
Instant (event) memory	1000 points
Waypoint memory	10,000 points (9,000 + Event 1,000)
Route memory	100 routes reverse trail possible
Alarms	GNSS Fix, Proximity, Cross track error, CDI, Anchor watch, Water temperature, Depth
Position compensation	Latitude / Longitude, LOPs
Magnetic compensation	Auto / Manual
Parameters	Position (L / L, LOP), Language, LOP (Loran C, Loran A, Decca), Memory of waypoints and name (up to 10 letters), Selection of measuring unit (NM·kn, km·km / h, sm·mph), Temperature unit (°C, °F), Depth unit (m, fm, l.fm, ft, J.fm), Wind speed unit (kn, m / s, mph), SOG / COG / Heading / Rotation averaging (smooth) factor, Sailing mode (Great Circle, Rhumb Line)
Input data formats and sentences	NMEA 0183 Ver. 2.0 / 3.0 (DBT: Ver.1.5) (CUR, DBT, DPT, GGA, GLL, GNS, GSA, GSV, HEV, HDG, HDT, HDM, HPR, MDA, MSS, MTW, MWD, MWV,RMA, RMB, RMC, ROT, RSA, VBW, VDR, VHW, VLW, VTG, XDR, ZDA)
Output data formats and sentences	NMEA 0183 Ver.2.0 / 3.0 (AAM, APB, BOD, BWC, DCN, DPT, DTM, GGA, GLC, GLL, GSA, GSV, HEV, HDT, HDM, HPR, MSS, MTW, MWV,RMB, RMC, ROT, RTE, VHW, VTG, WPL, XTE, ZDA)
NMEA ports	Total 2: input / output (Total 4: input / output with optional Junction box)
Power supply	10.8 to 31.2 VDC
Power consumption (24 VDC)	4.5 W or less
Environmental:	
Operating temperature	-15°C to +55°C
Water protection	IPX4

GNSS Compass

Model	KC-1400		
Specifications:			
Display size and type	4.3-inch color LCD		
Display resolution	480 × 272 pixels		
Receiving channel	72 channels		
Heading resolution	0.1°		
Received signal	GPS QZSS Galileo SBAS	1575.4200 MHz	L1 C/A L1 C/A, L1 S E1 B/C L1 C/A
Received signal	BeiDou	1561.0980 MHz	B1
Received signal	GLONASS	1602.5625 MHz	L1 OF
Setting time	90 sec or less (standard)		
Accuracy — Heading	0.5° rms		
Accuracy — Position	GPS: 10m (2 drms, SA: OFF, PDOP: 3 or less) SBAS: 3m (2 drms, SA: OFF, PDOP: 3 or less)		
Accuracy — Velocity	0.1m / sec (rms, SA: OFF, PDOP: 3 or less)		
Maximum rate of turn	45°/sec or more		
Maximum role/pitch angle	30° or more		
Output data format and sentences	NMEA 0183 Ver.2.0, IEC 61162-1ed5, IEC 61162-450, AAM, APB, ATT, BOD, BWC, DTM, GBS, GGA, GLL, GNS, GSA, GSV, HDM, HDT, HVE, RMB, RMC, ROT, RTE, THS, VTG, WPL, XTE, ZDA, PKODG21, (ALC, HBT, *DATA3/4 only)		
NMEA ports	Standard: 3, Option: 5		
Power supply	10.8 to 31.2 VDC		
Power consumption (24 VDC)	12W or less		
Environmental:			
Operating temperature	-15°C to +55°C (Display unit), - 25°C to + 55°C (GNSS compass)		
Water protection	IPX4 (Display unit), IPX6 (GNSS compass)		