

ONWA®

MARINE ELECTRONICS



NEW!

KM SERIES

GPS Chart Plotter Multi-Function Display



Expandable Features
For KM-8, KM-8A, KM-8C
KM-12, KM-12A and KM-12C



K-CHART
Free detailed sea map



Support C-MAP MAX



Compatible with Navionics+



Built-in AIS Transponder
*KM-8X, KM-8A, KM-12X and KM-12A: Built-in AIS
(VHF Antenna needed)
*KM-8, KM-8C, KM-12 and KM-12C:
(KS-200A and VHF Antenna needed)



Built-in Fish Finder
*KM-8X, KM-8C, KM-12X and KM-12C:
Built-in Fish Finder
*KM-8, KM-8A, KM-12 and KM-12A:
(KM-SonarN and Transducer needed)



Built-in Radar Function
Radar Antenna Needed



Gauges
Displays Engine, Genset,
Rudder, and working condition



SD Card System
Update



Built-in
HDMI Feature
(Options)



Ethernet Port
For Radar Connection



Multiple Screen Modes
User-defined



NMEA0183
NMEA2000
ONENET (Beta Version)
NMEA Interface



KM-8
8" GPS Chart Plotter



KM-8A
8" GPS Chart Plotter with Class B+ AIS Transponder



KM-8C
8" GPS Chart Plotter with Fish Finder



KM-8X 5-in-1
8" GPS Chart Plotter with Fish Finder,
Class B+ AIS Transponder, and Radar Function
(5-in-1)



KM-12
12" GPS Chart Plotter



KM-12A
12" GPS Chart Plotter with Class B+ AIS Transponder



KM-12C
12" GPS Chart Plotter with Fish Finder



KM-12X 5-in-1
12" GPS Chart Plotter with Fish Finder,
Class B+ AIS Transponder, and Radar Function (5-in-1)

➤ DIFFERENT DISPLAY MODES



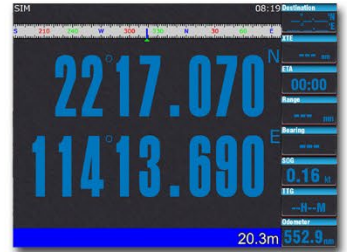
Plotter



Compass



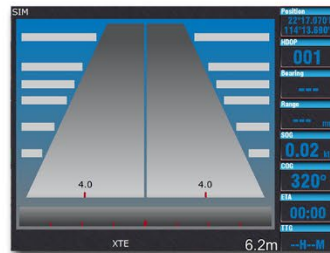
Wind



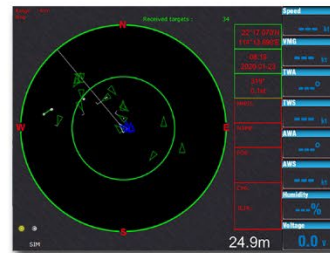
Navigation



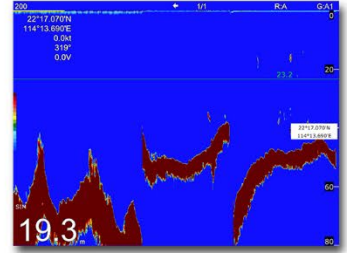
Satellite



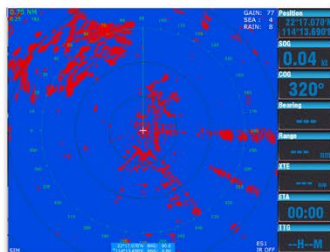
Highway



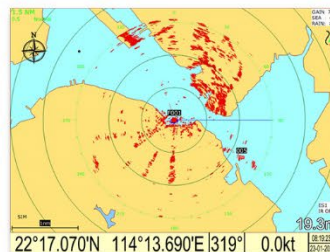
AIS
(VHF Antenna needed)



Sounder
(Transducer needed)



Radar
(Radar Antenna needed)

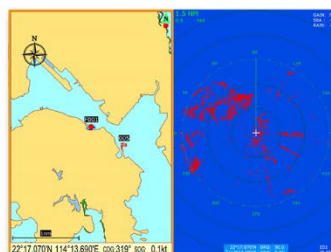


Radar Plotter Overlay



Gauges

➤ USER-DEFINED DISPLAY MODES



Dual - Portrait



Dual - Landscape



Tri - 1



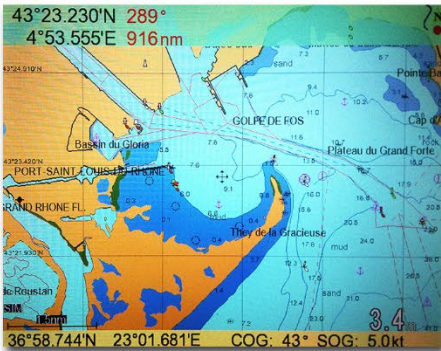
Tri - 2



Quad

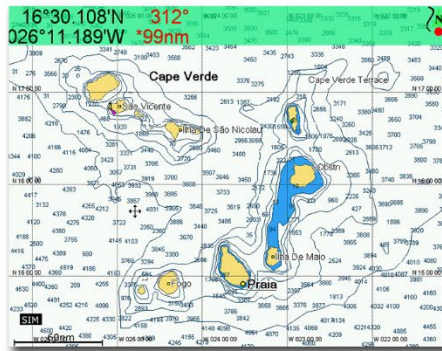
➤ GPS CHART PLOTTER

Compatible with the following mapping systems:



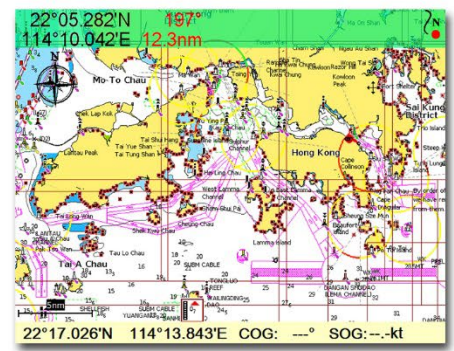
K-Chart Mapping System

ONWA Chart Plotters are compatible with K-Chart Mapping and displays worldwide Electronic Charts that users can use for FREE



C-Map Max

ONWA Chart Plotters are also compatible with C-Map Max showing Nautical Charts



Navionics+

ONWA Chart Plotters when used with Navionics+ charts shows Nautical Charts and Sonar Charts. Advance options also include: Highlight Shallow Area, Adjust Contour Density and Shallow Fishing Range

Standard
Accessory



KA-07

External GPS Antenna with 10m cable

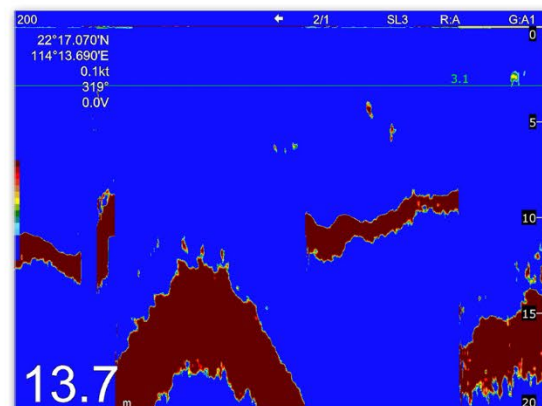
➤ BUILT-IN HD FISH FINDER

KM-8X and KM-8C, KM-12X and KM-12C: Built-in Fish Finder
KM-8 and KM-8A, KM-12 and KM-12A: KM-SonarN and Transducer needed

**Transducer required*

- Applies the most advanced Digital Fish Finder Technology
- Dual Frequency: 50 and 200kHz (alternately transmitted)
- Automatic Range and Gain adjustment depending on usage (Cruising or Fishing)

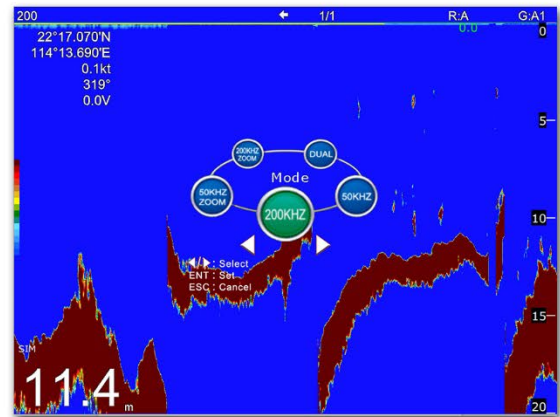
> Excellent Sea-bed Discrimination and easily identify fishes and school of fish
 > Exact depth to where the school of fish is shown for ease of fishing



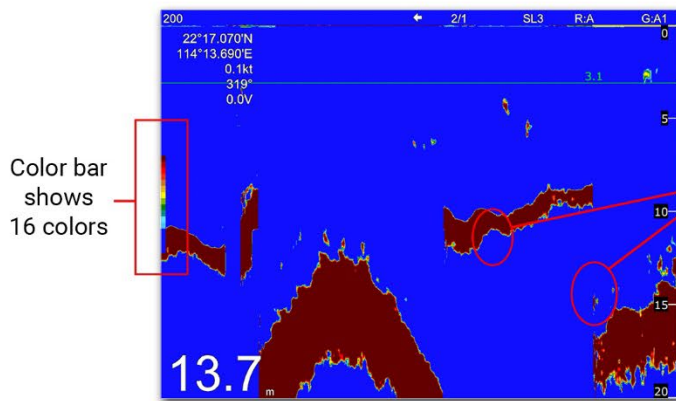
► DISPLAY MODES

DISPLAY MODES

> Selection of Display Modes depending on your needs
50 KHz, 200KHz, Dual, 50KHz/Zoom and 200KHz/Zoom

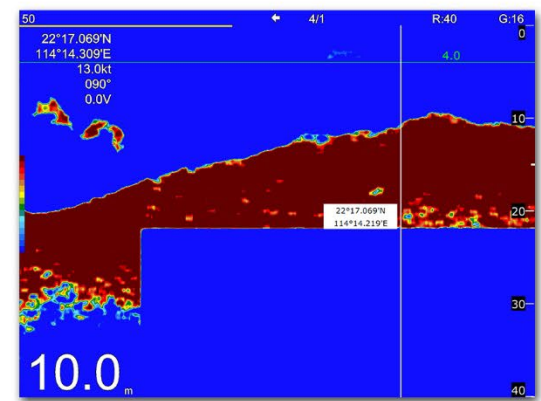


16 COLORS ACCORDING TO INTENSITY

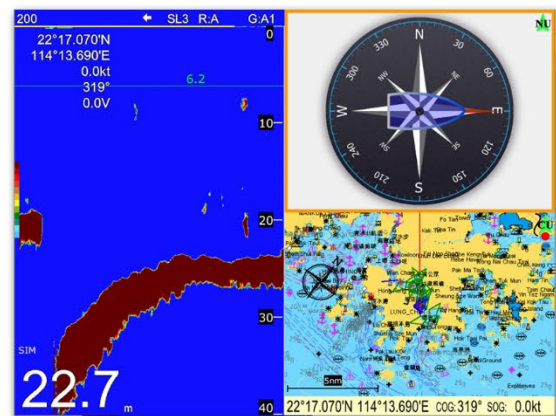
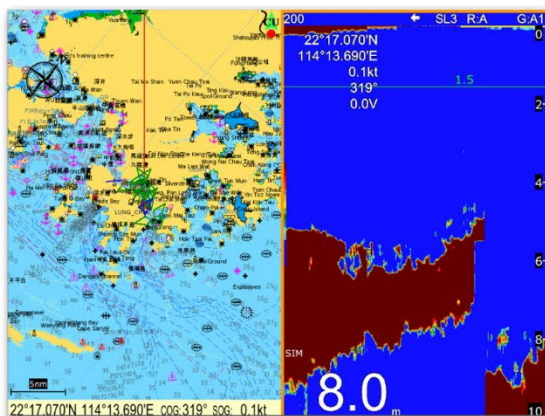


Can distinguish different strength of echoes by colors

SAVES THE POSITION OF A HISTORY ECHO IN WAYPOINT MEMORY



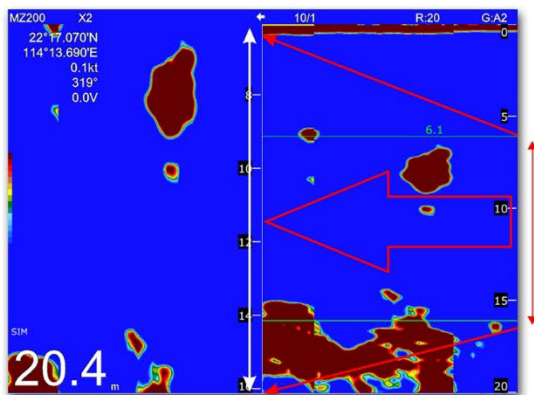
► SPLIT SCREEN OR MULTI-SCREEN WITH OTHER DISPLAY MODES



SPLIT SCREEN OR MULTI-SCREEN MODE

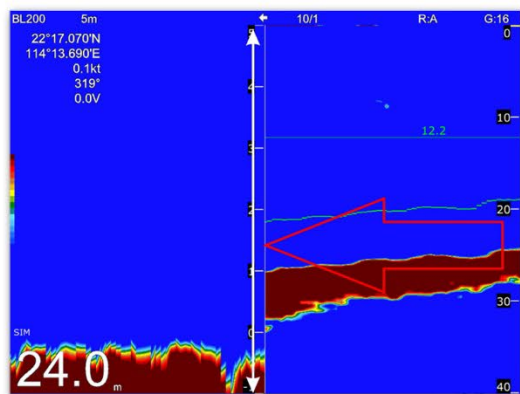
ZOOM MODES

Marker Zoom, Bottom Lock Zoom, & Bottom Zoom

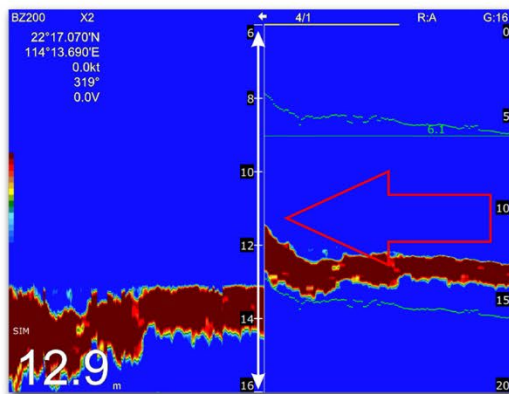


MARKER ZOOM

> The marker area is zoomed and displayed on the left side screen



BOTTOM LOCK ZOOM



BOTTOM ZOOM

► FISH, BOTTOM, AND TEMPERATURE ALARMS

*Temperature sensor required for Temperature Alarm

Fish Alarm:

Alarms when fish is seen at set range

Bottom Alarm:

Alarms when the set bottom range is reached

Temperature Alarm:

Used to warn the user when temperature reaches set temperature range

OPTIONAL ACCESSORIES

(not included in the standard set)

KTD-520_TM
Transom Mount
Transducer 600W



KM-SonarN
(For KM-8, KM-8A, KM-12, and KM-12A)
Fish Finder Black box



Bronze Transducer
Thru-hull Transducer
600W



Plastic Transducer
Thru-hull Transducer
600W



TMM40-50/200X-T
Thru-hull Transducer
1kW



KTS-10K_TM
Transom Mount
Temperature Probe



KTS-10K_TH
Thru-Hull
Temperature Probe



➤ AIS FEATURES

KM-8X and KM-8A, KM-12X and KM-12A: Built-in Class B+ AIS Transponder (VHF Antenna needed)

KM-8 and KM-8C, KM-12 and KM-12C: KS-200A and VHF Antenna needed

CLASS B+

Class B+ AIS Technology

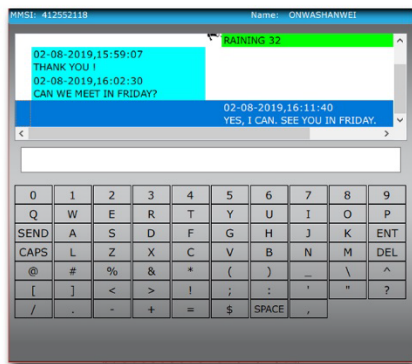
- **SOTDMA Technology** - Same technology used by Class A
- **5W Transmission Power** - Guaranteed time slot allocation
- **Increased Transmission Rate** (Based on speed) - Increases the range and AIS Satellite reception enabling Global tracking

AIS Messaging



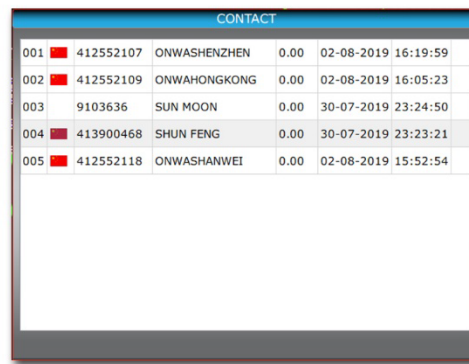
- Can send and receive composed messages between ONWA AIS plotters
- Messages can be Broadcasted or can be sent to a specific MMSI no.
- Message History and number of Unread messages can be viewed when a contact is selected
- Pop-up Box for Incoming Message Alert

NOTE: Contacts Shown are compatible ONWA AIS plotters with AIS Messaging Capability only



Chat Sample

(Speaker icon shown when sent message is sent via Broadcast)



Chat History

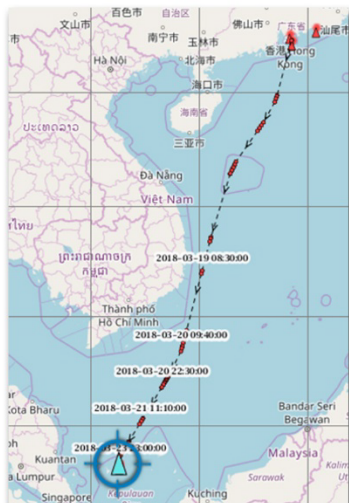
can be viewed once specific MMSI is selected

exactTrax™

exactTrax Tracking

- > Integrated with exactTrax AIS satellite tracking technology service which provides the ability to track fishing boats and small commercial vessels with AIS Class B type transceivers across the globe

NOTE: In order to use exactTrax, user must avail ExactEarth Service



ExactTrax showing position of a vessel sailing for 1 week from Hong Kong to Malaysia in multi-hour vessel track

OPTIONAL ACCESSORIES

(not included in the standard set)

KS-200A
(for KM-8, KM-8C, KM-12 and KM-12C)
Class B+ AIS Transponder
Black Box



KA-159
1.2m VHF Antenna

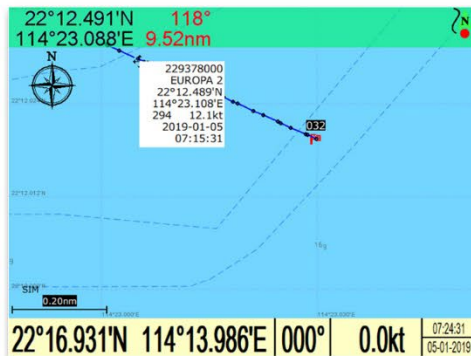
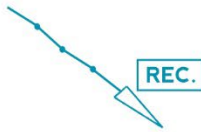


AIS Target Tracking

ONWA AIS Plotters now has the ability to record tracks of AIS Targets

> **Manual AIS saved tracks:** Record Manually selected AIS targets,
Max = 10 targets/records

- Recorded tracks can be saved as a route

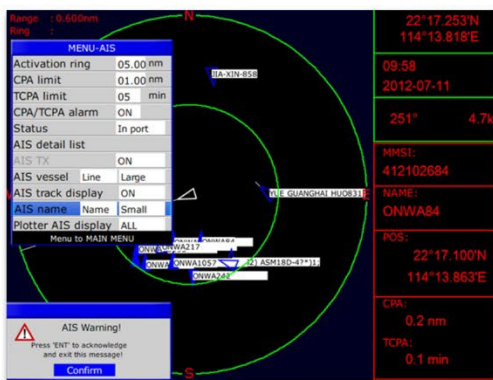


Points in the track shows the location, date, time, SOG and COG, etc.



Recorded Track saved as a route

CPA and TCPA Alarm



Alarm that helps the user to be aware of nearby vessels stating possible CPA and TCPA. The unit alarms until acknowledged

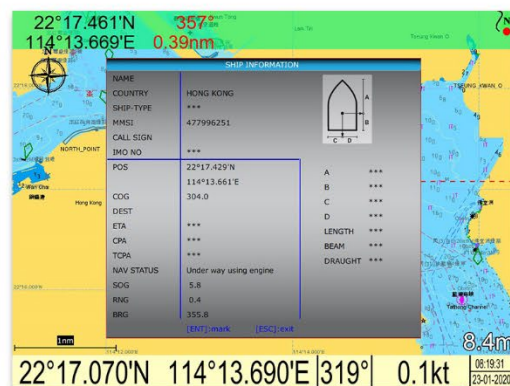
Vessel List

AIS SHIP LIST						Received targets: 41
No.	NATION	MMSI	NAME	DIST	COG	TYP
000		050000002	HOSN WANG WEI YI	21.8	0.0	NET
001		009102242		0.1	***	B
002		009103057		0.1	0.0	B
003		009010120		0.1	0.0	B
004		009102360		0.2	0.0	B
005		000000083		1.3	0.0	A
006	HONG KONG	477995063		1.4	256.9	A
007	HONG KONG	477995066		1.8	340.1	A
008	BAHAMAS	308768000		1.9	71.1	A
009	HONG KONG	477995065		1.9	204.2	A
010	CHINA	413468840		2.2	101.7	A
011	HONG KONG	477995026		2.7	128.9	A
012	HONG KONG	477995032		2.8	0.0	A
013	HONG KONG	477995028		3.4	257.1	A
014	HONG KONG	477995070		4.1	71.0	A
015	HONG KONG	477995071		4.2	319.7	A
016	HONG KONG	477995126		4.2	175.4	A
017	HONG KONG	477995029		4.3	293.7	A

Shows nearby vessels, distance to your vessel and information. Selecting a target from the list shows the vessels details

AIS Targets Overlay in the Plotter Screen

Targets are overlaid in the Plotter screen and shows nearby AIS, pointing the cursor at one target shows the MMSI number and Location, selecting the target shows the targets ship details



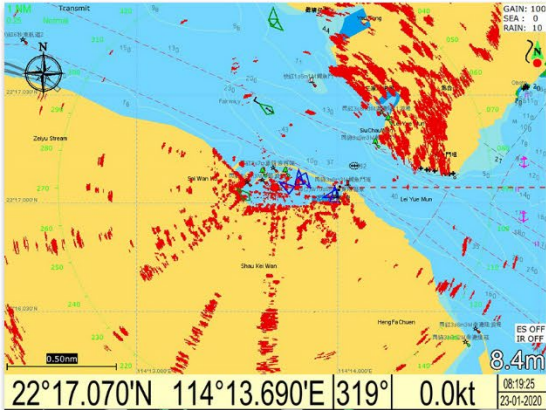
BUILT-IN RADAR FUNCTION

*Radar antenna needed

Radar Screens Screens dedicated for Radar function:

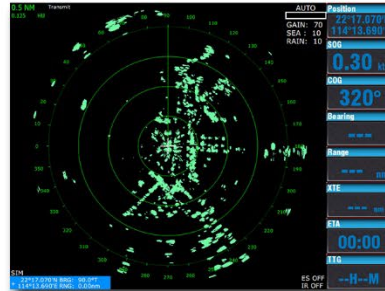
Radar Overlay

- > This added feature overlays radar targets to your plotter's screen to better interpret data
- > AIS targets can also be seen in this mode



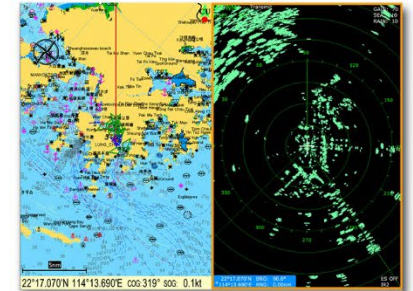
Radar

- > Dedicated radar screen mode for better target interpretation

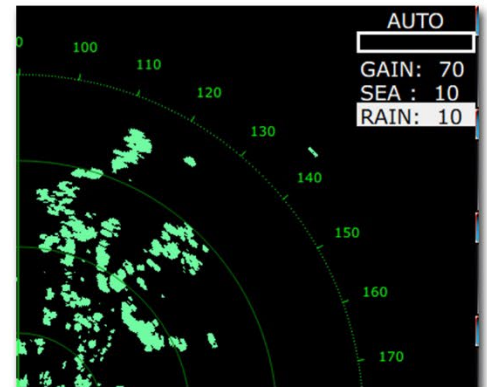
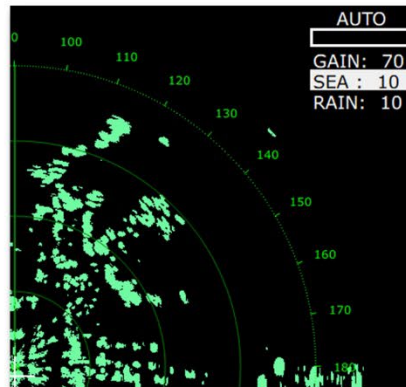
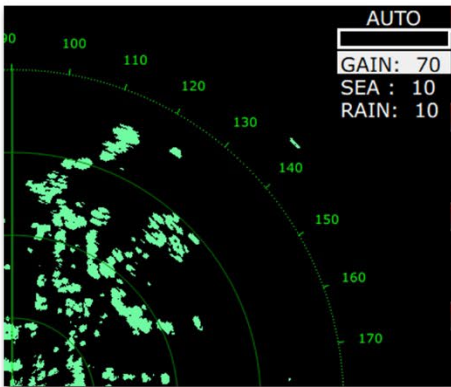


Plotter + Radar Split Screen

- > Split Screen of Plotter and Radar for ease of usage



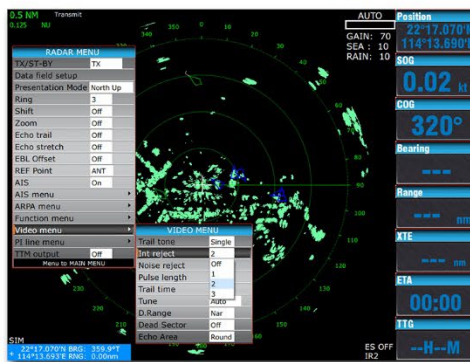
Adjust the Gain, Sea Clutter and Rain Clutter



Show AIS Targets in the Radar screen

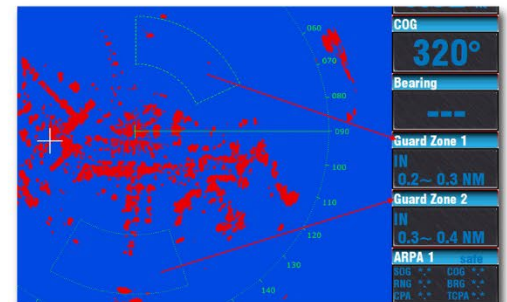


Interference Rejecter



Four levels of Interference Rejection:
IR1, IR2, IR3 and OFF for Interference
from other shipborne Radar

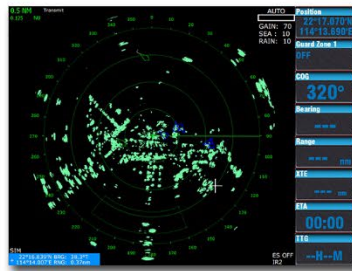
Two Guard Zones and Watchman Function



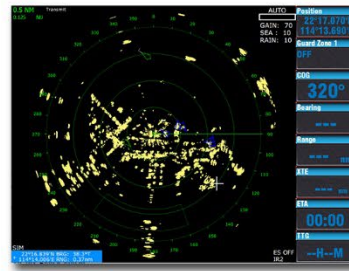
To monitor a specific area around your vessel
to look out for incoming and outgoing vessels

Echo Colors

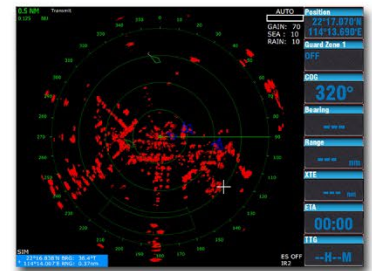
For colors depending on the user's preference



Green



Yellow



Multi

Self-Test

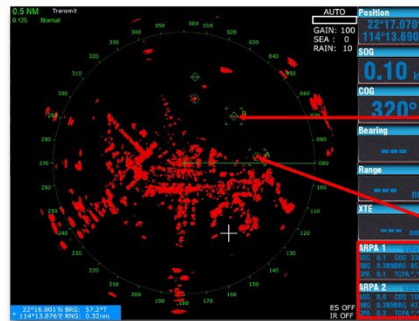
To check connection between the Display and Antenna and to check TX hours, you can check the Self-Test Status



ARPA

Automatic Radar Plotting Aid

40 Targets
2 Tracked targets information can be displayed in the databox



ARPA 2	safe
SOG 0.0	COG 100.6
RNG 0.3	NMBRG 47.0
CPA 0.3	TCPA *.*

ARPA 1	safe
SOG 0.1	COG 338.8
RNG 0.3	NMBRG 85.2
CPA 0.1	TCPA *.*

Can use any of the following antenna (*Specify when ordering)



Radome Antenna:
KRA-1007_N/KRA-1007W
(Power: 4 kW)



Radome Antenna:
KRA-1009_N
(Power: 4 kW)

RPM depends on range
Short range: 48 RPM
Medium range: 36 RPM
Long range: 24 RPM



Open-Array Antenna:
KRA-4001_N (Power: 6 kW)
KRA-3002_N (Power: 12.5 kW)
KRA-5002_N (Power: 25 kW)

Optional Accessory



KA-GC9A
Heading Sensor

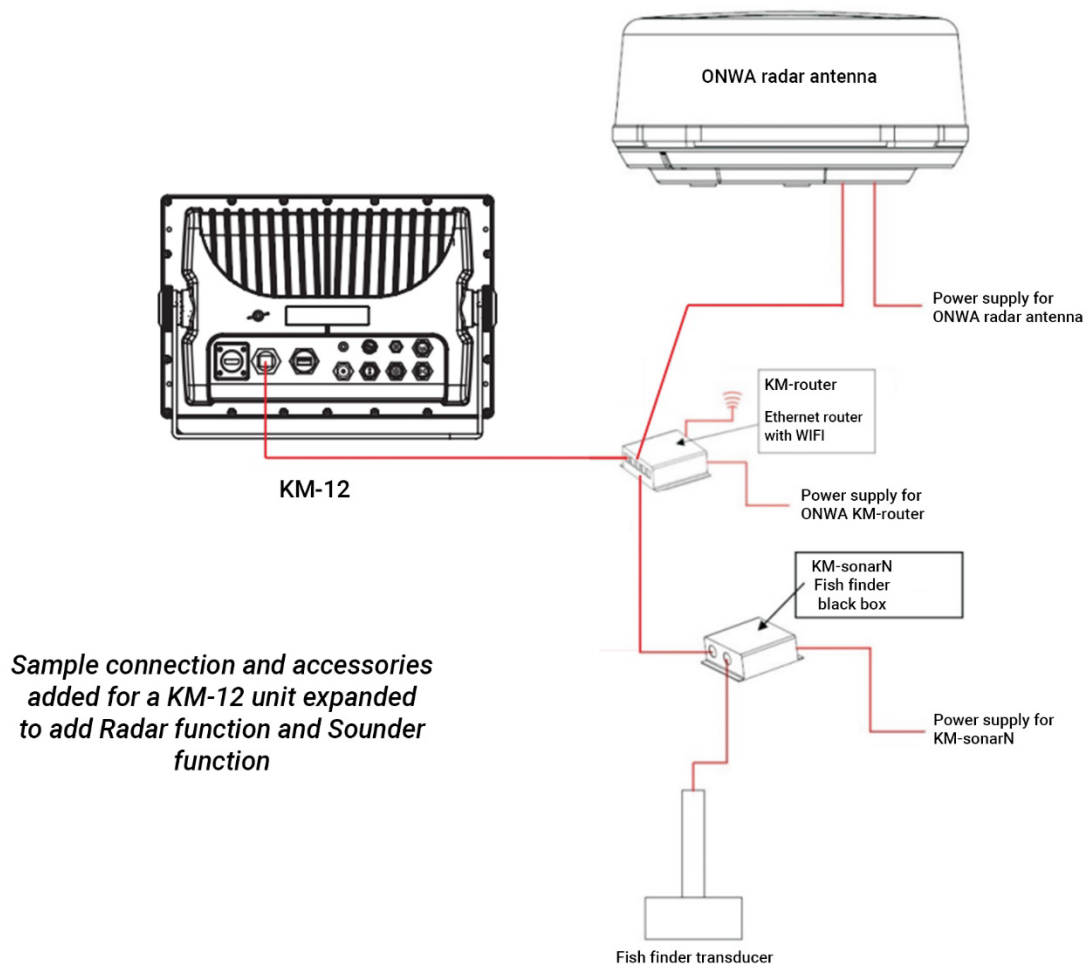


KM-Router
(For Wi-Fi Radar Antenna (KRA-1007W))
Wi-Fi and Ethernet Router

EXPANDED FEATURES

EXPANDED FEATURES SAMPLE CONNECTION

*E.g. : You bought a **NEW KM-12** which is only a **GPS Chart Plotter**.
In the future, you want to add Sounder and Radar function.
You no longer need to buy a separate unit, you just need to add accessories (**KM-SonarN, Transducer, Radar Antenna**) to enable the Sounder and Radar function.*



OTHER OPTIONS

- KM-8, KM-12:** Extended AIS, fish finder and radar functions by adding optional accessories (**KS-200A, KM-SonarN and KRA-1007_N radar antenna**)
- KM-8A, KM-12A:** Extended fish finder and radar function by adding optional accessories (**KM-SonarN and KRA-1007_N**)
- KM-8C, KM-12C:** Extended AIS and radar function by adding optional accessories (**KS-200A and KRA-1007_N**)

► SONAR SHARE AND RADAR SHARE

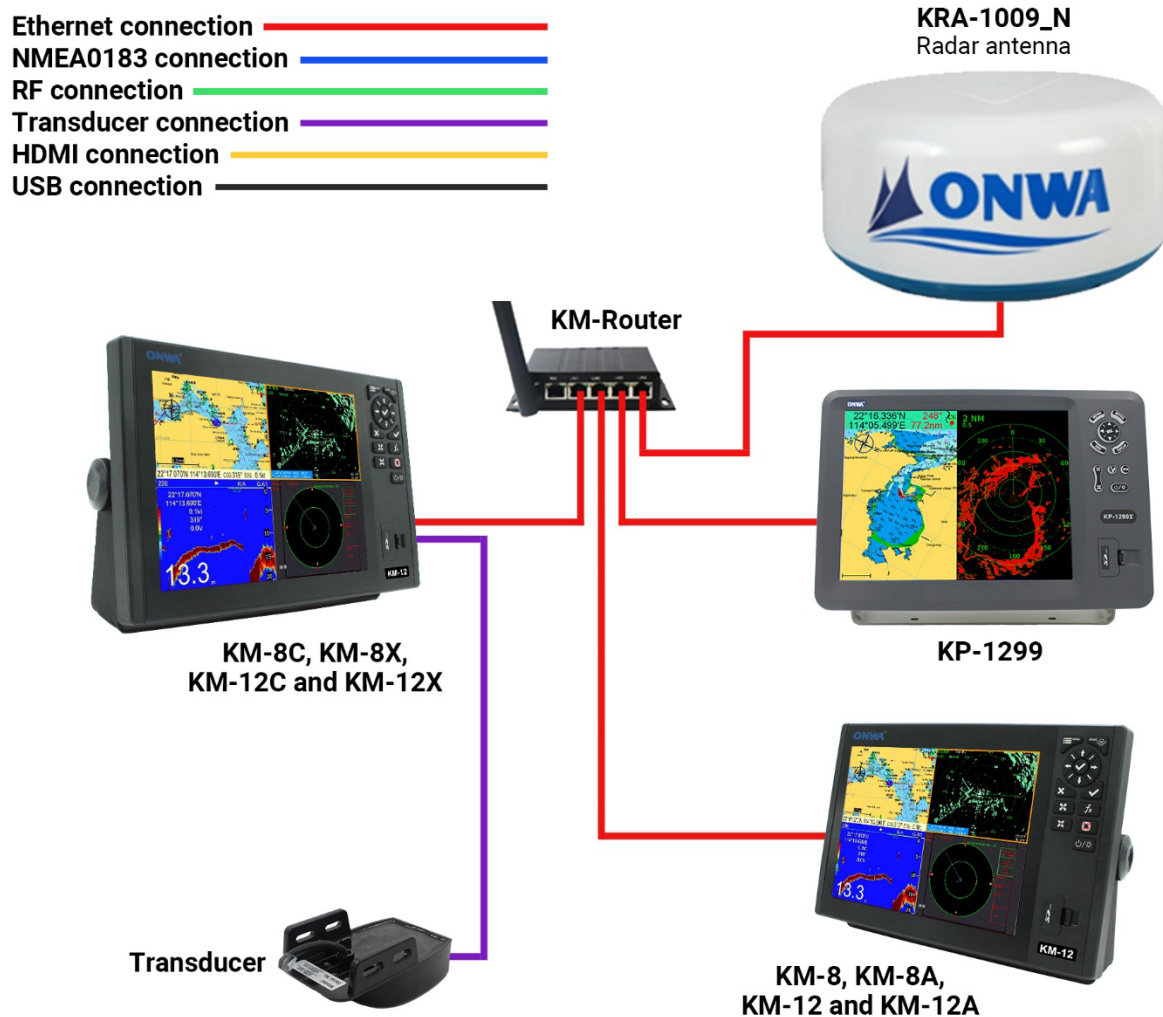
Sonar Share ► Sonar Functions are shared to **Client Units** (a **Fish Finder Server** unit is needed in the network such as KM-8C, KM-8X, KM-12C and KM-12X).

Sonar Share Settings

- KM-8C, KM-8X, KM-12C and KM-12X **can be set as Server or Client.**
- For the rest, KM-8, KM-8A, KM-12 and KM-12A can **ONLY be set as a client.**

Radar Share ► Radar functions are shared to **ALL** units in the network (*ONWA Radar Antenna must be connected to KM-Router within the network*). There is NO server or client for radar share, it shares the radar images through KM-router and **ALL** units can control the radar antenna through KM-router.

For example: By connecting one ONWA radar antenna (to KM-Router) and one fish finder server (like KM-8C, KM-8X, KM-12C and KM-12X), the sonar function and radar function can be shared with all units in the network as shown below:



The range, gain and other settings of radar and sonar can be controlled independently either from server unit or from client units.

All changes of settings from either unit in the network will sync with other units in the network.

PLOTTER CHARACTERISTICS

Waypoints/icons	12000 user waypoints with name, symbol 3 system waypoints: MOB, Start , Cursor 10 proximity waypoints
Routes	30 routes waypoint up to 170 points each, plus MOB and Track Navigation or GOTO Track modes
Tracks	8,000 points automatic track log; 10 saved tracks (up to 8000 track points each) lets you retrace your path in both directions
Alarms	XTE, Anchor drag, arrival, speed, voltage, proximity waypoint, Timer and AIS (CPA and TCPA) alarm
Drawing	1000 Drawing Marks; 2000 Drawing Lines (40 points each); 1000 Drawing Place Name; 8 Colors for Drawing
Palette	Normal Daylight exposed to sunlight Night in dark environment NOAA paperchart colors Built-in Worldwide Tide data
Tides	Lat/Lon
Position format	Worldwide
Basemap	Compatible with K-Chart 2.0, K-Chart 3.0, C-Map Max and Navionics+
External Map	Internal backup of user settings or external SD-card 5secs to 60 mins or 0.01 to 10nm 0.001 to 700nm 700 max number of AIS targets display 10 Manually saved tracks (300 points each) ONWA AIS to ONWA AIS On/off (available for C-Map only) Sunrise/Sunset Moonrise/Moonset
User data storage	
Plot Interval	
Plotting scales	
AIS	
AIS Target Tracking	
AIS Messaging	
Perspective View	
Celestial	

NMEA0183 SENTENCE SUPPORTED

INPUT: (Auto scan Baudrate)
GGA, GLL, GSA, GSV, RMC, HDG, HDM, HDT
VTG, ZDA, MTW, VWR, VWT, MWD, VPW, VHW
TLL, TTM, VDO, VDM, GNS, MTA
RMA, DBT, DPT, MWV, BWC, XTE, ZDL, WPL, AAM, APB, BOD, RMB, DSC, MDA, RPM, XDR

OUTPUT:
Baudrate : Selectable 4800, 9600, 19200, 38400
GGA, GLL, RMC, GSA, GSV, AAM, APA
APB, BOD, BWC, BWR, DBT, DPT, HDT
MTW, RMB, TLL, VTG, WPL, XTE, ZDA
ZTG, ZDL, MWD, VPW, VWR, VWT
Outputs for autopilot:
APA, APB, BOD, XTE

AIS INTERFACE (NMEA0183)

AIS Data	RS232 output VDO, VDM, GGA, GSA, GSV and VTG
AIS Input Baudrate	38,400 from GPS input port (KM-8, KM-8C, KM-12 and KM-12C)
AIS Output Baudrate	38,400 (KM_8A, KM-8X, KM-12A and KM-12X)

AIS CHARACTERISTICS

Frequency Rate	156.026 MHz~162.025 MHz
Access Scheme	SOTDMA
Channel Bandwidth	25 KHz
Modulation	GMSK
Data Rate	9,600 bps
Number of AIS Transmitter	1
Number of AIS Receiver	2
AIS Channel 1	CH 87B (161.975 MHz)
AIS Channel 2	CH 88B (162.025 MHz)
Tx Power Output	> 5 Watt (37 dBm ± 1.5 dB)
RX Sensitivity	< -123dBm @ 20% PER
RX Message Format	AIS Class A and B messages
Comply Standard	IEC-62287 IEC 62287-2 Ed.2.0:2017

EQUIPMENT LIST

Display unit	Mounting Brackets
Quick manual	Standard accessories
GPS Antenna (10m)	pack

ETHERNET PORT

ONWA Radar, KM-Router, KM-SonarN, ONENET

GPS RECEIVER CHARACTERISTICS

Receiver	50 parallel channel GNSS receiver continuously tracks and uses up to 50 satellites to compute and update your position
Acquisition time	Cold start: 29 seconds Hot start: 1 second
Update rate	1 second (KM-8A, KM-8X, KM-12A and KM-12X) 1 second or 0.1 second selectable (KM-8, KM-8C, KM-12 and KM-12C)
Accuracy	Position: 3 meters(95%) without S/A Velocity: 0.1 meter/sec without S/A Supported (All models) Supported (KM-8, KM-8C, KM-12 and KM-12C only) GPS and Beidou (KM-8A, KM-8X, KM-12A and KM-12X) Choice of 4 GNSS (KM-8, KM-8C, KM-12 and KM-12C): GPS, Beidou, GLONASS, Galileo
SBAS	Altitude: 18,000 m
QZSS	Velocity: 515 m/s
GNSS	WGS 84 & user defined (KM-8, KM-8C, KM-12 and KM-12C)
Dynamics	KA-07
Datum	
Antenna	

GPS INTERFACE (NMEA0183)

GPS Data	RS232 input/output, NMEA 0183 V3.01 and V4.11
GPS Input Baudrate	Auto Scan (4800, 9600, 19200 and 38400)
GPS Output Baudrate	Selectable among 4800, 9600, 19200 and 38400

ECHO SOUNDER

(For KM-8C, KM-8X, KM-12C and KM-12X only)

Echo Color	16 colors (including background color) according to echo intensity. The background color is selectable from blue, light blue, white and black.
Basic Range	Meters 5/10/20/40/80/150/200/300/600/1000 Feet 15/30/60/120/200/400/600/1000/2000/3000 Fathoms 3/5/10/20/40/80/100/150/300/600 Up to 1000 meters (3000 feet, 600 fathoms)
Range Shift	Times 2, 3, 4 and 6 ranges
Zoom Range	5/10 meters, 10/20 feet, 2/5 fathoms
Bottom Lock Expansion Range	Automatic adjustment of range and gain
Auto Mode	High Frequency (200K), Low Frequency (50K), Dual (200K and 50K 1/2 display on each), Zoom (200K and 50K zoom) and A-scope Display
Display Mode	Marker Zoom, Bottom Zoom and Bottom-lock Expansion
Zoom Display	Lines/TX: Freeze, 1/8, 1/4, 1/2, 1/1, 2/1, 4/1, 6/1, 8/1 and 10/1
Display Advance Speed	50 and 200kHz (alternately transmitted)
TX Frequency	600W (Up to 1kW by using High Power Transducer)
Power Output	

Pulse-Length/TX Rate

Display End Depth (m)	5	10	20	40	80	150	200	300	600	1000
Pulse Length 200K (μs)	120	220	320	520	920	1020	1020	1020	1020	1020
Pulse Length 50K (μs)	170	270	370	570	970	1070	1070	1070	1070	1070
TX Rate (pulse/min)	2000	1333	706	353	171	98	75	53	38	27
TX period (millisecond)	30	45	85	170	350	610	800	1120	1580	2200

Interference Rejecter	Rejects unwanted signals by comparing last and present echoes in strength
Alarm	Fish and Bottom alarms, Temperature alarm (sensor required)

PHYSICAL

Size	KM-8: 187mm(H) x 288mm(W) x 79mm(D) KM-12: 268mm(H) x 365mm(W) x 75mm(D)
Weight	KM-8: 2.1 kg KM-8A: 2.5 kg KM-8C: 2.1 kg KM-8X: 2.5 kg KM-12: 2.9 kg KM-12A: 3.0 kg KM-12C: 2.9 kg KM-12X: 3.0 kg
Display	12-inch Color TFT dayview LCD, 1024x768 pixels
Waterproofing	Display unit (front panel): IPX6 Antenna unit: IPX6
Temperature range	Display unit: -15°C to +55°C Antenna unit: -25°C to +70°C

POWER SUPPLY

10.5 to 30VDC	
Current drain at 12V:	1.5A (KM-8C, KM-8X, KM-12C and KM-12X) 1.0A (KM-8, KM-8A, KM-12 and KM-12A)

NMEA2000 AND ONENET SUPPORTED PGN

Description	PGN	CONTENT
GNSS	126992	System Time
	129026	COG & SOG, Rapid Update
	129540	GNSS Satellites in View
	129033	Local Time Offset
	129029	GNSS Position Data
	127250	Vessel Heading
	127258	Magnetic Variation
	129025	Position, Rapid Update PGN: 129025
	129539	GNSS DOPs
	129291	Set & Drift, Rapid Update
	129044	Datum
AIS	129810	AIS Class B "CS" Static Data Report, Part B
	129809	AIS Class B "CS" Static Data Report, Part A
	129798	AIS SAR Aircraft Position Report
	129793	AIS UTC and Date Report
	129040	AIS Class B Extended Position Report
	129039	AIS Class B Position Report
	129038	AIS Class A Position Report
	129041	AIS Aids to Navigation (AtoN) Report
	129802	AIS Safety Related Broadcast Message
	129801	AIS Addressed Safety Related Message
	129795	AIS Addressed Binary Message
	129797	AIS Binary Broadcast Message

Description	PGN	CONTENT
ENGINE	127488	Engine Parameters, Rapid Update
	127489	Engine Parameters, Dynamic
	127493	Transmission Parameters, Dynamic
Sounder	128267	Water Depth
Navigation	127237	Heading/Track Control
	129284	Navigation Data
	129283	Cross Track Error
	127245	Rudder
	127251	Rate of Turn
	128259	Sped, Water Referenced
	128275	Distance Log
Environment	130306	Wind Data
	130310	Environmental Parameters - DEPRECATED
	130311	Environmental Parameters - DEPRECATED
	130312	Temperature - DEPRECATED

RADAR FUNCTION

Compatible with full range of ONWA Radar Antenna (Supplied as an Option):

Radome Antenna:
KRA-1007_N/KRA-1007W
(Power: 4 kW)



Radome Antenna:
KRA-1009_N
(Power: 4 kW)

RPM depends on range:
Short range: 48 RPM
Medium range: 36 RPM
Long range: 24 RPM



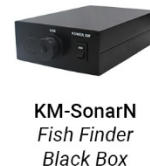
Open-Array Antenna:
KRA-4001_N (Power: 6 kW)
KRA-3002_N (Power: 12.5 kW)
KRA-5002_N (Power: 25 kW)



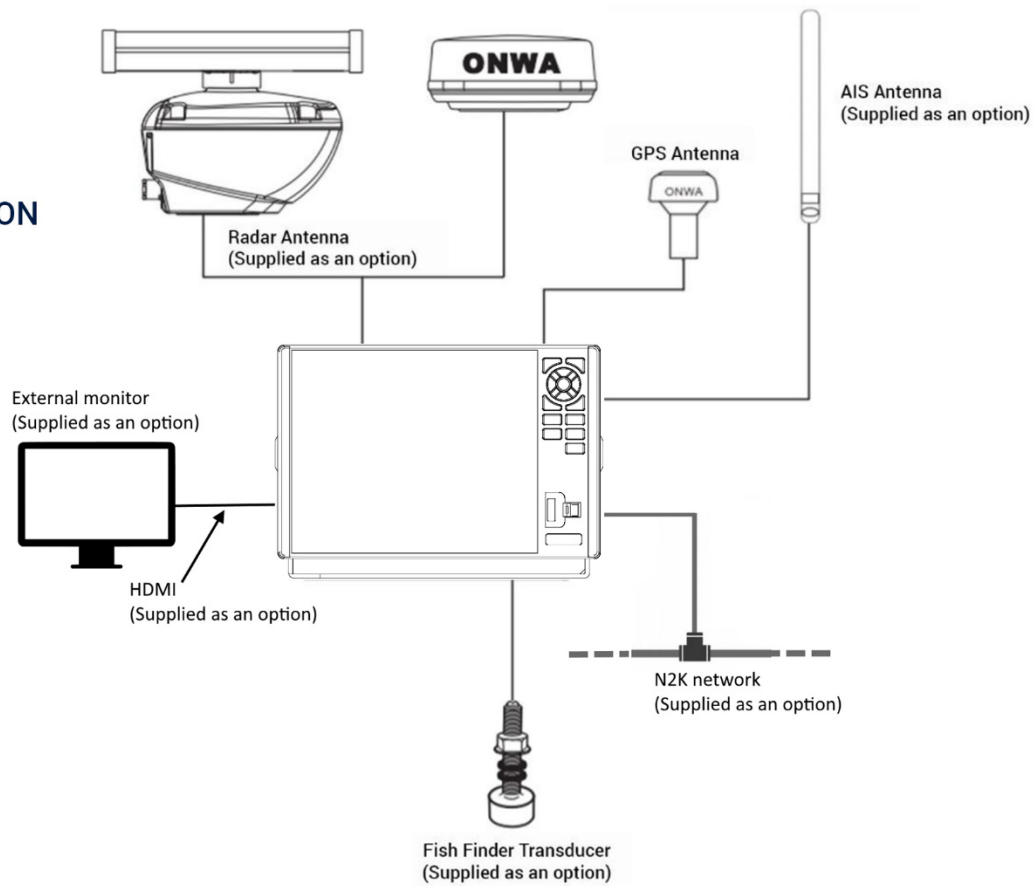
OPTIONAL ACCESSORIES

Transom Mount or Thru-Hull Transducer
Transom Mount or Thru-Hull Temperature Probe
VHF Antenna (KA-159) (For AIS communication)
Fish Finder Black Box (KM-sonarN)
Ultrasonic Weather Station/Anemometer (KW-360)
Ultrasonic Anemometer (KW-360_mini)

Radar Antenna (KRA-1007_N/KRA-1007W, KRA-1009_N, KRA-4001_N, KRA-3002_N, KRA-5002_N)
Heading Sensor (KA-GC9A)
N2K (NMEA2000) and NMEA0183 Bidirectional Converter (KC-2W)
Class B+ AIS Transponder Black Box (KS-200A)
Wi-Fi and Ethernet Router (KM-Router) (For Wi-Fi Radar Antenna KRA-1007W)

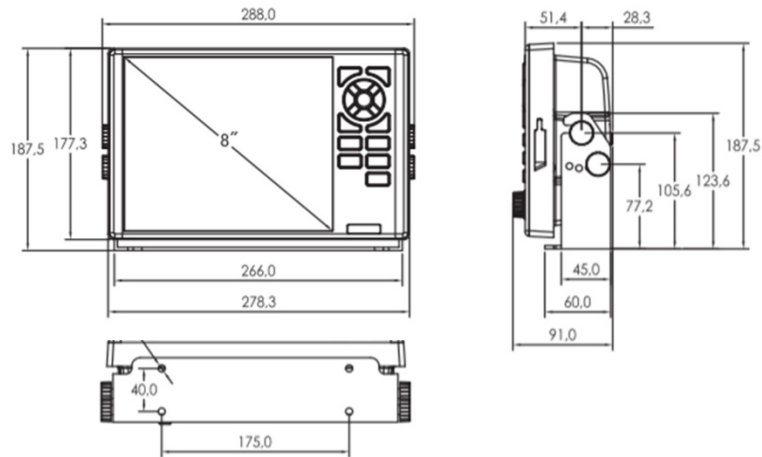


INTERCONNECTION
DIAGRAM



DISPLAY UNIT
(DIMENSIONS)

KM-8



KM-12

