

K-Astral Series Quick Installation Manual



This manual is applied to K-Astral 8(A/C/X), K-Astral 12(A/C/X)

Packing List

When you first time open the box of your plotter please confirm you have following items inside the box:

- Display Unit X 1 (including Screen Protection Cover)
- Bracket X 1
- 8 pin Power/Data Cable X 1
- Transparent Protective Cover X 1
- Quick Start Manual X 1
- Quick Installation Manual X 1
- Panel Cutout Template X 1
- EVA Mounting Template X 1
- Spare Fuse X 2
- Bracket Mounting Screws(Stainless Steel) X 4
- Panel Mounting Machine Screws(Stainless Steel) X 4
- Panel Mounting Wood Screws(Stainless Steel) X 4
- Self-tapping Screws X 4
- Hex Nuts X 4
- Washers X 4
- Bracket Locking Knob X 2

Chart Features

- Waypoints: Up to 12,000 (with symbols or names);
10 most recent displayed
- Routes: 30 routes, up to 170 points per route
- Tracks: Auto record 80,000 points; 10 track lines
(up to 8,000 points each)

- Alarms: 8 types — Cross Track Error (XTE), anchor drag, zone arrival, speed, voltage, timer, Wind Speed Alarm (AWS)
- Palette: Normal / Night / Daylight / Paper chart
- Projection: Mercator
- Position Format: Longitude / Latitude
- Maps: Worldwide Basemap
- External Maps: K-Chart / Navionics+ / C-MAP® DISCOVER™ X and REVEAL™ X
- User Data Storage: Internal memory or SD card
- Recording Interval: 1s–99h / 0.01–9.99 NM
- Chart Scale: 0.002–500 NM

NMEA0183 Sentences Supported

◆INPUT: auto scan baudrate

GGA, GLL, GSA, GSV, RMC, HDG, HDM, HDT, THS, ZDA, MTW, VWR, VWT, MWD, VDO, VDM, MTA, DBT, DPT, MWV, WPL, XDR, BOD, VTG, BWR, BWC, XTE, VWR, VPW, AAM, RMB.

◆OUTPUT Baudrate: Selectable 4800, 9600, 19200, 38400

GGA, GLL, RMC, GSA, GSV, AAM, APA, APB, BOD, BWC, BWR, DBT, DPT, HDT, MTW, RMB, VTG, WPL, XTE, ZDA, ZTG, ZDL, MWD, VPW, VWR, VWT, HDM, THS, MWV, XDR, VDO, VDM, TLL.

◆Outputs for Autopilot: APA, APB, XTE, BOD

NMEA2000&OneNet PGN Supported

Transmit &

Receive:

126992, 126993, 126996, 126998, 127237, 127238, 127245, 127250, 127251, 127252, 127257, 127258, 127488, 127489, 127493, 127506, 127508, 127513, 128006, 128007, 128008, 128259, 128267, 128275, 129025, 129026, 129029, 129033, 129038, 129039, 129040, 129041, 129044, 129283, 129284, 129285, 129291, 129539, 129540, 129793, 129794, 129795, 129797, 129798, 129801, 129802, 129808, 129809, 129810, 129811, 129812, 130306, 130310, 130311, 130312, 130578, 126208, 126464, 059392, 059904, 060160, 060416, 060928, 065240

Receive: 127497, 127498, 127505, 130314

Power Supply

Series	Input Voltage	Max Power	Rated Current at 12V
K-Astral 12	10.5–31.2 V	30 W	2.5A
K-Astral 12A/C/X	10.5–31.2 V	42 W	3.5A
K-Astral 8	10.5–31.2 V	30 W	2.5A
K-Astral 8A/C/X	10.5–31.2 V	39.6 W	3.3A

Physical Parameters

Series	Dimensions (L×W×H)	Weight	Display	Resolution	Display Area (W×H)
K-Astral 8 Series	276.1×165.9×81.9 mm (10.87×6.53×3.05 in.)	1.4 kg (3.1 lbs)	8" TFT LCD	1024×768	162.05×121.54 mm (6.38×4.79 in.)
K-Astral 12 Series	369.9×234.9×84.8 mm (14.56×9.25×3.17 in.)	2.4 kg (5.5 lbs)	12.1" TFT LCD	1024×768	245.76×184.32 mm (9.68×7.26 in.)

Environmental Ratings (8 & 12 Series):

Water Rating: Display Unit IPX6
 Operating Temperature: Display Unit -15°C to +55°C

Satellite Reception Performance

GNSS: GPS and Beidou (K-Astral 8A, K-Astral 8X, K-Astral 12A and K-Astral 12X)

Channels: 56
 Sensitivity: Acquisition: -148 dBm; Tracking: -162 dBm
 TTFF (Time to First Fix): Cold start avg. 35S; Warm start avg. 10s; Hot start avg. 1s
 Update Rate: 1 Hz or 10Hz (depends on model)
 Accuracy: Position ≤3 m(95%) without S/A;
 Speed 0.1 m/s;
 Time ±100 ns
 Dynamics: Altitude ≤18,000 m; Speed ≤515 m/s; Acceleration ≤4g
 Chart Standard: WGS 84 and others
 Antenna: Standard configuration: KA-012 with adapter
 optional KA-09 external antenna

GNSS: Choice of 4 GNSS GPS, Beidou, Galileo, GLONASS (K-Astral 8, K-Astral 8C, K-Astral 12 and K-Astral 12C)

Channels: 52
 Sensitivity: Acquisition: -148 dBm; Tracking: -162 dBm
 TTFF (Time to First Fix): Cold start avg. ≤23S; Warm start avg. ≤1s; Hot start avg. 1s
 Update Rate: Default 1 Hz, maximum 10 Hz. (depends on model)
 Accuracy: Position ≤1.5 m(CEP50) ;
 Speed 0.1 m/s;
 Time ±100 ns
 Dynamics: Altitude ≤18,000 m; Speed ≤500 m/s; Acceleration ≤2g
 Chart Standard: WGS 84 and others
 Antenna: Standard configuration: KA-012 with adapter
 optional KA-09 external antenna
 Built-in (K-Astral 8, K-Astral 8C, K-Astral 12, K-Astral 12C)

AIS Interface

Baud Rate: 38,400
 Frequency: 161.975 MHz, 162.025 MHz
 Access Scheme: SOTDMA, CSTDMA
 Channel Bandwidth: 25KHz
 Modulation: GMSK
 Data Rate: 9,600 bps
 AIS Transmitters: 1
 AIS Receivers: 2
 AIS Channel 1: CH 87B(161.975 MHz)
 AIS Channel 2: CH 88B(162.025 MHz)
 Tx Power Output: >5 Watt (37 dBm±1.5dB)
 RX Sensitivity: >112 dBm @ 20%PER
 RX Message Format: AIS Class A and B messages,
 AIS SART, AtoN, AIS station
 Complies with Standards: ITU-R M.1371-5: 2014; IEC 62287-1 Ed. 3: 2017;
 IEC 62287-2 Ed. 2: 2017

Data Interfaces

NMEA2000 network
 Gigabit Ethernet port
 RJ-45 ONWA Marine network
 6-pin XDCR (Transducer, K-Astral 8C, 12C, 8X, 12X)
 VHF (AIS antenna interface, K-Astral 8A, 12A, 8X, 12X)
 BNC (External GNSS antenna)
 HDMI Output (Optional)
 SD card slot
 8-pin Power Port (Power + NMEA 0183 network)
 WiFi Frequency: 2.4 GHz @ 17 dBm (max)
 WiFi Speed: up to 433 Mbps
 IP Camera Support: ONVIF protocol; Pelco-D pass-through supported

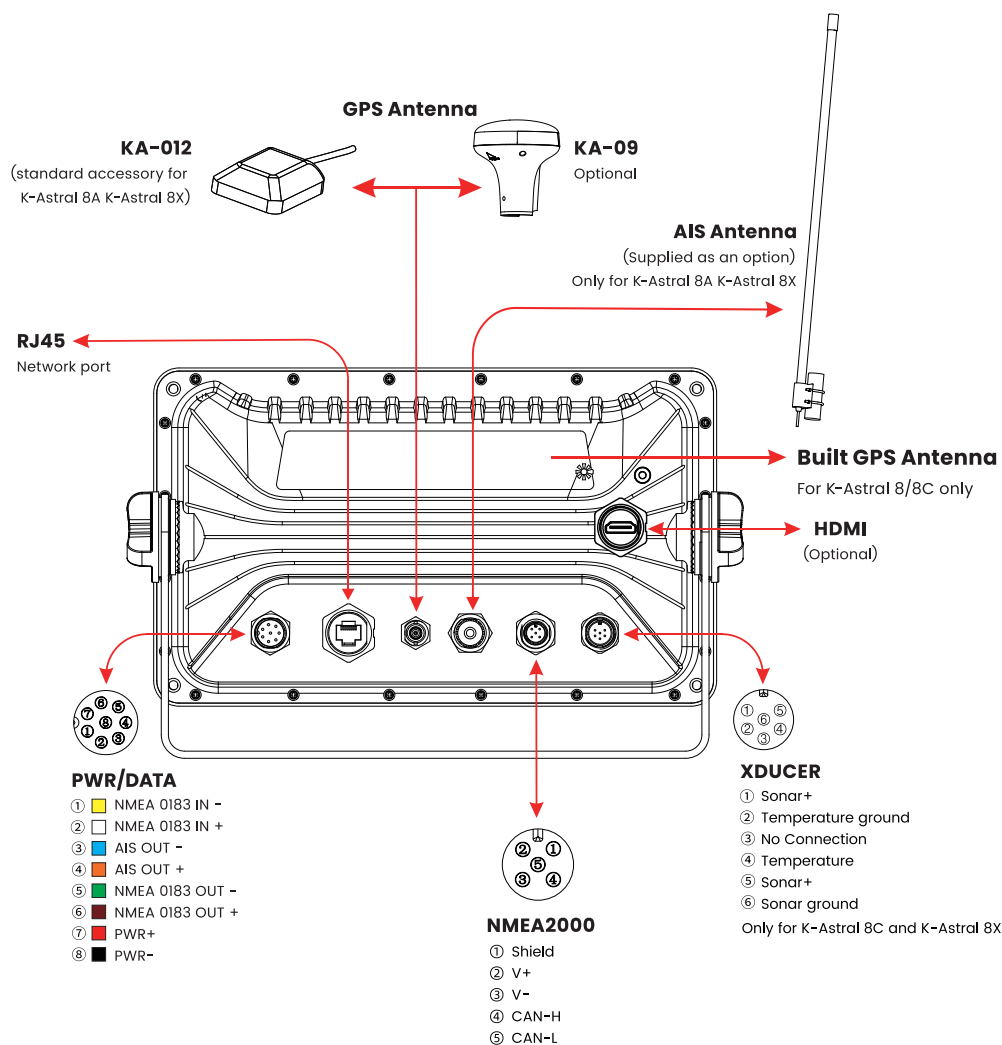
Sonar Specifications

Sonar	Frequency (subject to the transducer applied)	Measuring Range (adjustable in system menu)	Transmit Power (RMS)
Tranditional	50/200 KHz	Up to 1000m	1000 W
CHIRP	83/200/445 KHz	Up to 200m	500 W

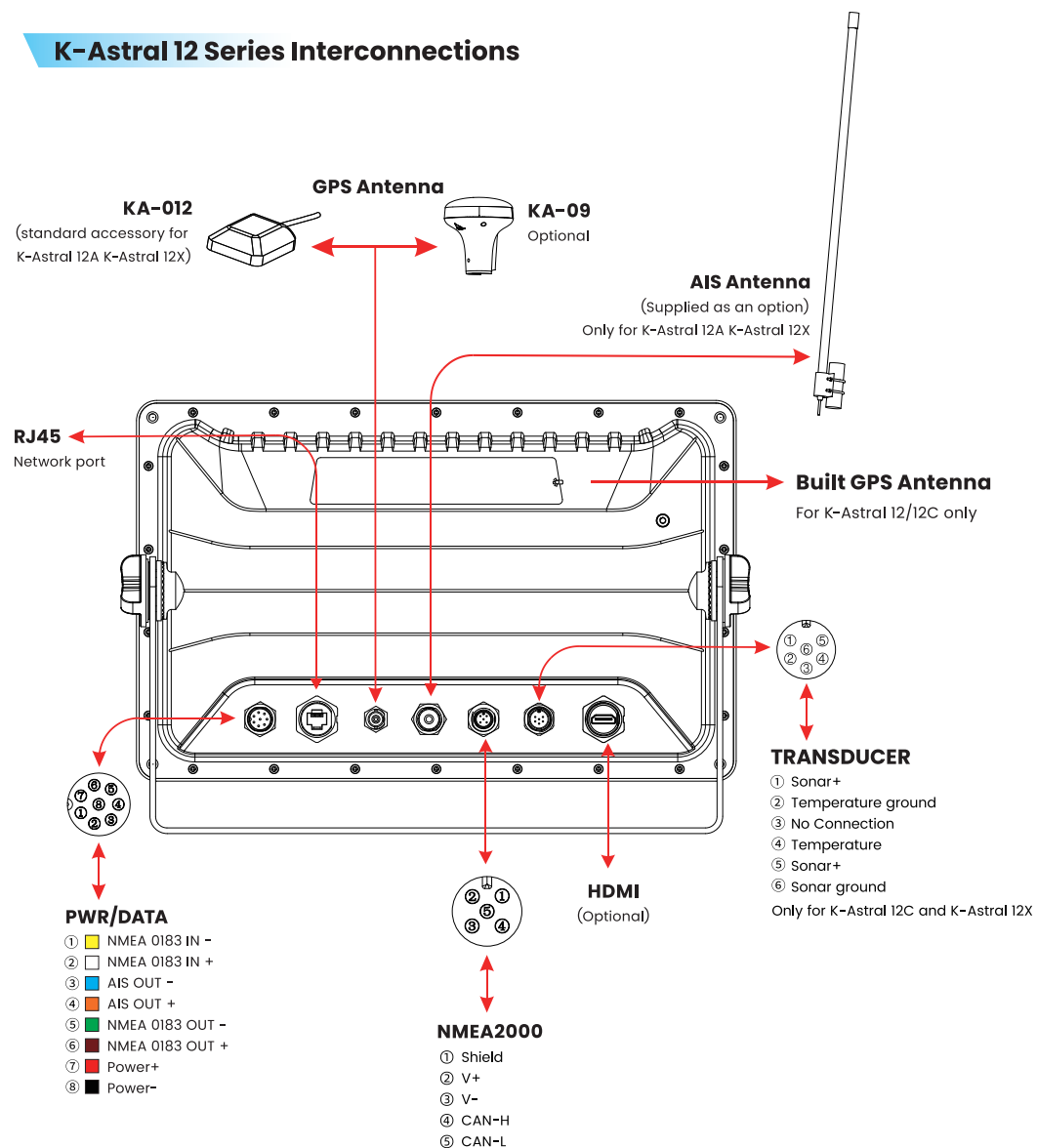
Radar Display Unit Parameters

Range scale (nm):	Range, Range interval and number of Rings: 0.125(0.0625,2), 0.25(0.125,2), 0.5(0.125,4), 0.75(0.25,3), 1(0.25,4), 1.5(0.25,6), 2(0.5,4), 3(0.5,6), 4(1,4), 6(1,6), 8(2,4), 12(2,6), 16(4,4), 24(4,6), 36(6,6)
Bearing resolution:	4°
Bearing accuracy:	Within 1°
Range discrimination:	Better than 30 m
Range ring accuracy:	0.9% or range in use or 8 m, whichever is higher
Minimum range:	Better than 25 m
Markers:	Heading line, Bearing scale, Range ring, VRM, EBL Tuning indicator, Cursor, Alarm zone, North mark (heading sensor input required)
Alphanumeric indication:	Range, Range ring interval, Pulselength, Interference rejection (IR), VRM, EBL, stand-by (sT-BY), Radar alarm, Echo stretch (Es), Range to cursor, Bearing to cursor, Echo trailing (TRAIL), Trail time, Trail elapsed time, Navigation data (navigation input required), heading (HDG, heading sensor input required)

K-Astral 8 Series Interconnections



K-Astral 12 Series Interconnections



For more details please download the full manual through the following two methods:



① Scan the QR code

<http://www.onwamarine.com>

② Visit ONWA website