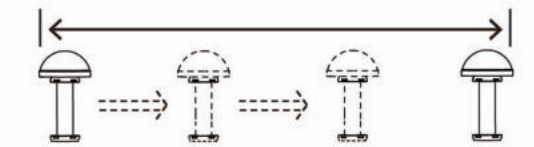


# SC9000

# Satellite Compass



Adjustable baseline  
The baseline can be **up to 5m long**



### General

Baseline length	2M/3M/4M/5M
Heading Accuracy	0.08/0.05/0.04/0.02° RMS
Attitude accuracy	Pitch/ Roll: 0.3° RMS
Cold start	<2 min
Position Accuracy	2.5 m
First Positioning time	Cold start: ≤32s Hot start: ≤1s Recapture: ≤1s
Speed measurement accuracy	GPS+BDS: 0.1m/s

### Interface

Number of ports	NMEA0183 data interface ×6 GNSS output ×2, fixed at 9600bps HDT output ×2, default 38400, adjustable HDT and GNSS output ×2, default 4800bps, adjustable AD-10 ×2 Display instrument ×1 CAN ×1 (Optional) Alarm input ×1
Data sentences	RMC, VTG, GGA, GSA, GSV, GLL, ZDA, HDT, ROT, THS

### Display unit (Optional)

Screen	5" /7"
Resolution	800*480
Display mode	Compass + data, heading mode, positioning data mode, ROT mode

### Power Supply

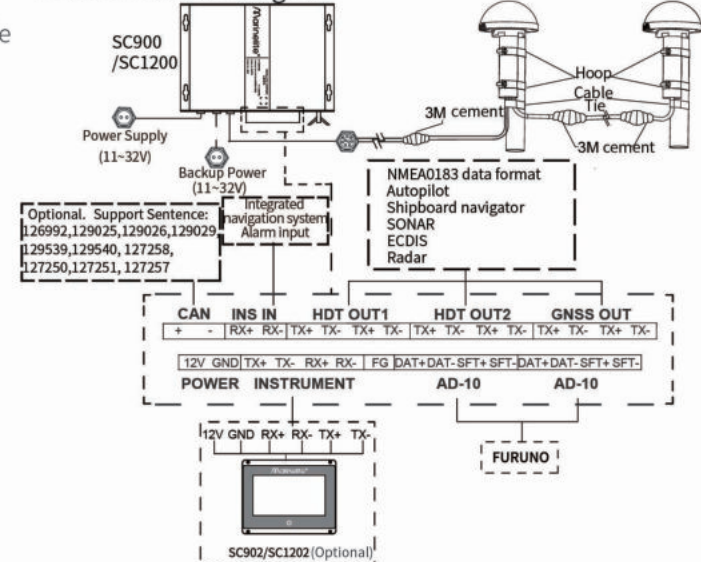
	11~32V
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### Environmental condition

Temperature	-30°C~+70°C
Degree of protection	Antenna unit IP56; Junction box IP20
Vibration	IEC60945

• Specifications may be subject to change without notice.

### Interconnection diagram



# RC42S/CP-90

# Sensor



### RC42S Rate Compass

- ▶ Electronic compass heading output, calculated according to the magnetic field;
- ▶ Compass Accuracy: 2° RMS (Pitch<40°), 2.5° RMS (Pitch<60°), 3° RMS (Pitch<80°)
- ▶ Heading Display Resolution: 0.1°
- ▶ Roll / roll range : ±90°/±360°
- ▶ Attitude parameters: after calibration ±2°;
- ▶ Interface: NMEA0183 RS422, NMEA2000
- ▶ Supply voltage: 9 VDC to 32 VDC
- ▶ Support GNSS positioning function and statement output \*

### CP-90 Heading Sensor

Compass converter, mounted on the surface of the magnetic compass, converts the signal of magnetic compass into a digital signal to be display and output;



- ▶ Compass Accuracy: 1°;
- ▶ Digital tube display heading data;
- ▶ Adjust the frequency, baud rate, magnetic declination and other settings of NMEA0183 statement output by button;
- ▶ Interface: NMEA0183 RS422, NMEA2000;
- ▶ Supply voltage: 9 VDC to 32 VDC.





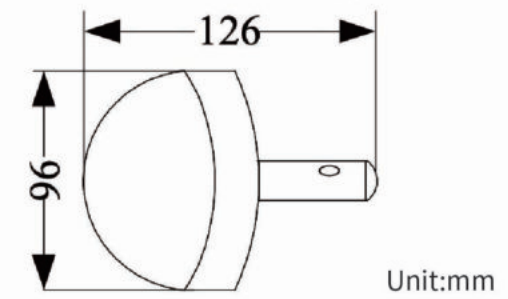
# GPS antenna

GN-90 NMEA 0183 GPS antenna

## GN-90 GPS antenna

### GN-90 NMEA 0183 GPS antenna

- ▶ High-sensitivity GPS antenna provides position information, high-sensitivity reception and enhanced position acquisition;
- ▶ Provides precise orientation even under harsh conditions;
- ▶ Speed heading stability;
- ▶ Can be connected with device which could support NMEA 0183 data input;
- ▶ Adopt waterproof shell and can be mounted on a mast or embedded installation. It can also be installed under the fiberglass deck, easy and convenient.
- ▶ Positioning mode: GPS / BEIDOU / GLONASS optional;
- ▶ Selectable NMEA output configurable for 4800, 9600, 38400 and 115200 baud.



Model	GN-90
Supply Voltage	9 VDC to 32 VDC
Supply Current	<50 mA at 12 VDC
Operating Temperature	-30°C to 55°C(-22°F to 131°F)
Storage Temperature	-30°C to 70°C(-22°F to 158°F)
GNSS Receive Type	GPS/Beidou/Glonass
SBAS	WAAS,EGNOS,MSAS,GAGAN
GNSS Receive Channel	GPS L1, BDS B1, Glonass G1
First positioning time	Cold start≤32s; Hot start≤1s; Recapture≤1s
Accuracy	2.5m
NMEA messages	GGA, GLL, RMC, VTG, GSA, GSV



# DSC VHF

The marine Class A VHF has a good intercom communication effect, built-in DSC function, has good waterproof performance, and the waterproof level reaches IP67.

## VHF9000 Class A DSC VHF

- ▶ Aquaquake Draining Function;
- ▶ Dual-watch and Tri-watch Functions;
- ▶ Priority channel scan;
- ▶ Built-in DSC function, CH70 channel dedicated receiving channel;
- ▶ Built-in weather channel to receive weather alerts;
- ▶ High and low power optional function;
- ▶ The sound quality of the call is excellent, and the dynamic feeling is clear;
- ▶ 5W speakers can be connected with high volume;
- ▶ Adjustable volume.



Touch Screen

General	
Frequency Range	TX: 156.000~162.000MHz RX: 156.000~163.450MHz
Mode	FM(16K0G3E), DSC(16K0G2B)
Frequency Stability	±10ppm (-20°C~+60°C)
Power Supply	12V -10%/+30%
Working temperature	-20°C~+60°C
Current	≤5.5A (TX)
Compass safe distance	≤5.4°/H, the safety distance is 2m or more
Antenna Impedance	50Ω
Size (L × W × H)	200×98×160mm
Unit Weight	About 1400g
Transmitter	
Output power	25W/1W
Maximum Frequency Deviation	±5kHz
Spurious Radiation	≤-36dBm
ACPR	≥70dB
Residual FM	≤-40dB
Audio distortion degree	
Audio Response	+1~-3dB
Current	≤5.5A(High power) ≤1.5A(Low power)
Input Impedance	2kΩ
Receiver	
Main channel receive sensitivity	≤-120dBm (12dB SINAD)
DSC(CH70) Receive sensitivity	≤-117dBm (1% BER)
Squelch Sensitivity	≤0.22μV
Audio power	≥4.5W (10% distortion, 4Ω)
SNR	≥40dB
Audio distortion	≤10%
Intermodulation Rejection	≥68dB
Adjacent channel selectivity	≥70dB
Rejection Spurious Response	≥70dB
GPS Data Format	NMEA0183-2.0



# VHF9000D

## Class D DSC VHF

- ▶ Available weather warning features (US mode)
- ▶ Adjustable backlit keyboard for easy nighttime use
- ▶ GPS latitude and Longitude (LL) and time display (when connected to GPS source)
- ▶ 4 button handheld microphone with built-in speaker
- ▶ With DSC automatic switch disable and DSC test function
- ▶ DSC(Digital Selective call) function in line with global DSC Class D standard
- ▶ Contact list: stores a maximum of 50 contacts
- ▶ ATIS support for Inland Waterways (European mode)
- ▶ Distress call button that automatically sends MMSI and location until a confirmation message is received
- ▶ Access all VHF channels currently available offshore (US, Canadian, international), including available weather channels (depending on model)
- ▶ Dedicated CH16/9 keys for quick access to priority (international distress) channels
- ▶ Clear channel display
- ▶ Adjustable LCD contrast Settings
- ▶ IPX7 waterproof and diving rating
- ▶ Powerful 4W external audio output
- ▶ Optional 25W or 1W transmission power
- ▶ Built-in independent CH70 receiver
- ▶ Group call and all ship call function
- ▶ Location polling information
- ▶ Optional DUAL/TRI scanning

Touch Screen



General	
Frequency Range	TX:156.025-157.425MHz,RX:156.050-163.275MHz
Mode	FM (16K0G3E) , DSC (16K0G2B)
Antenna impedance	50Ω
Channel spacing	25KHz
Frequency stability	±5ppm
Power Supply	12VDC(-10%~+30%)
Working temperature	-20°C~+55°C
Current	Standby ≤550mA (RX) , ≤6.5A @25W/2A@1W(12V DC) (TX)
Size (L × W × H)	222×98.5×161.5mm (Mounting bracket not calculated)
Receiver	
12dB SINAD Sensitivity	0.25μV(Remotely)/0.8μV(Local)
20dB SINAD Sensitivity	0.35μV
Neighborhood selectivity	≥70dB
Spurious response	≥70d
Intermodulation immunity	≥68dB
Residual noise level	≤-40dB, no noise suppression
Audio output power	2W(at 8 ohms, 10% distortion) 4W(4 ohms external speaker)
Transmitter	
The frequency error	≤1.5KHz
The output power	25W(23±2)/1W(0.8±0.2)
The largest deviation	≤5KHz
Stray & harmonic Hi/Lo	≤0.25μW
Modulation distortion@±3KHz	≤10%
SNR@±3KHz	≥40dB
Audio response@±1KHz	+1 to -3dB,6dB/octave From 300Hz to 3KHz

# SY35/SY37 Handheld VHF Radio

## SY35

### ◆Water-resistant protection

The water-resistant protection of transceiver means IP67 requirements,can be 1 meter depth in water for 30 minutes. Make sure supplied battery,microphone jack cover,antenna etc. are used and well installed before put into water.

### ◆Floats on water

- ▶ The transceiver can be floated when fell into water;
- ▶ The transceiver floats in fresh or salt water even when the supplied accessories, including battery, belt clip, antenna, are attached.
- ▶ When a third-party battery pack, belt clip, antenna, etc. are used, it may sink.

## SY37

### ◆Water-resistant and Float

The radio water-resistant protection meets IPX7 requirements. Can be 1 meter depth in water for 30 minutes. The radio can float in fresh or salt water with the standard accessories-battery, belt clip and antenna. When a third-party battery, belt clip and antenna etc. are used, the radio may sink.

### ◆Flash Alarm

The radio will float, make alarm sound and send out automatic flash alarm when drops into the water. As the LED light flashing, the radio can be easily retrieved to support the emergent rescue. This function works even the radio is powered off.

Model	SY35	SY37
General		
Frequency Range	TX: 156.000-161.450MHz RX: 156.000-163.425MHz	
Type of Emission	FM (16K0G3E)	
Frequency Stability	±10ppm	
Battery Pack	DC7.4V, 1200mAh	DC3.7V, 1500mAh
Operating Temperature Range	-20°C~+40°C	-15°C~+55°C
Dimensions (H×W×D)	146×63×42mm	140×64×35mm
Weight (With Belt Clip and Antenna)	288g	220g
waterproof level	IP67	
Explosion-proof grade	Ex ib II B T4 Gb	
Transmitter Specification		
Output Power	5W\1W	
Maximum Frequency Deviation	±5kHz	
Spurious Emissions	≤0.25uW	
Adjacent Channel Power	≥70dB	
Audio Harmonic Distortion	≤10%	
Receiver		
Receive Sensitivity	≤0.22uV	
Squelch Sensitivity	≤0.22uV	
HUM and Noise	≥40dB	
Adjacent Channel Selectivity	≥70dB	
Spurious Response	≥70dB	
Intermodulation Rejection	≥68dB	

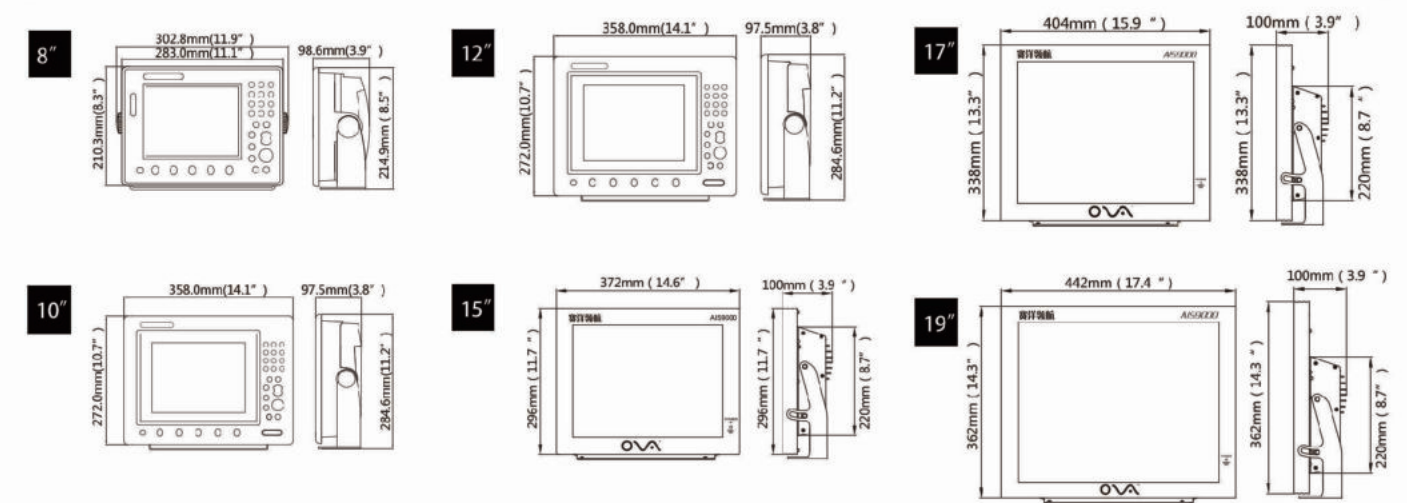




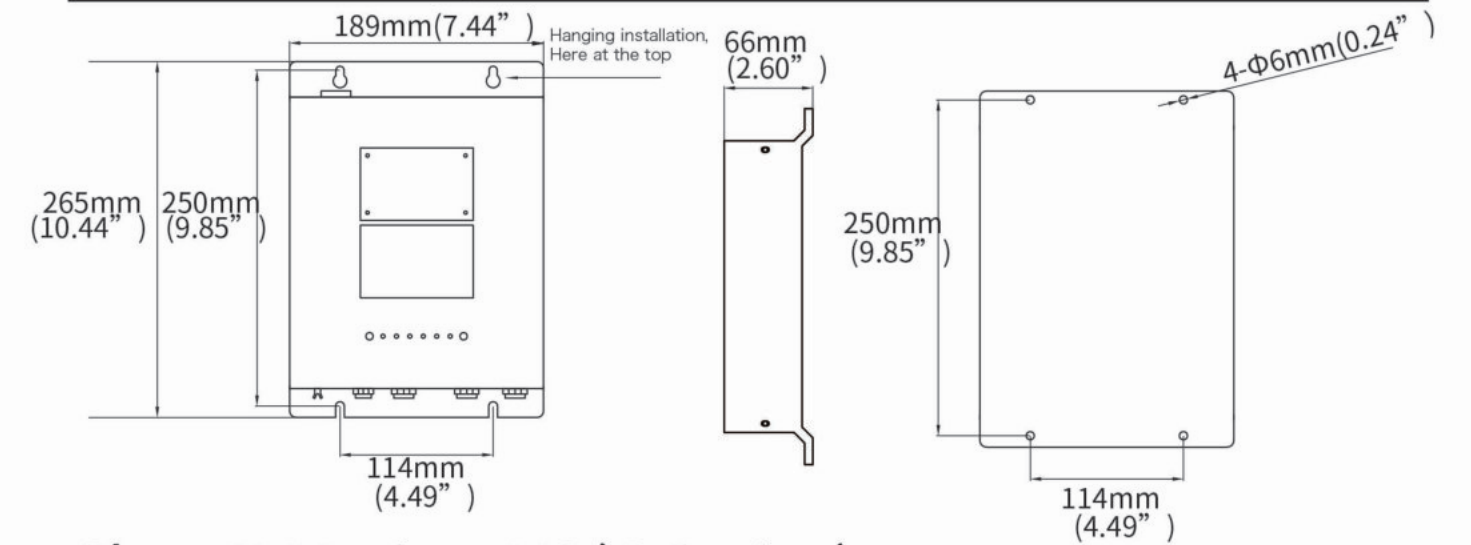
# INSTALLATION



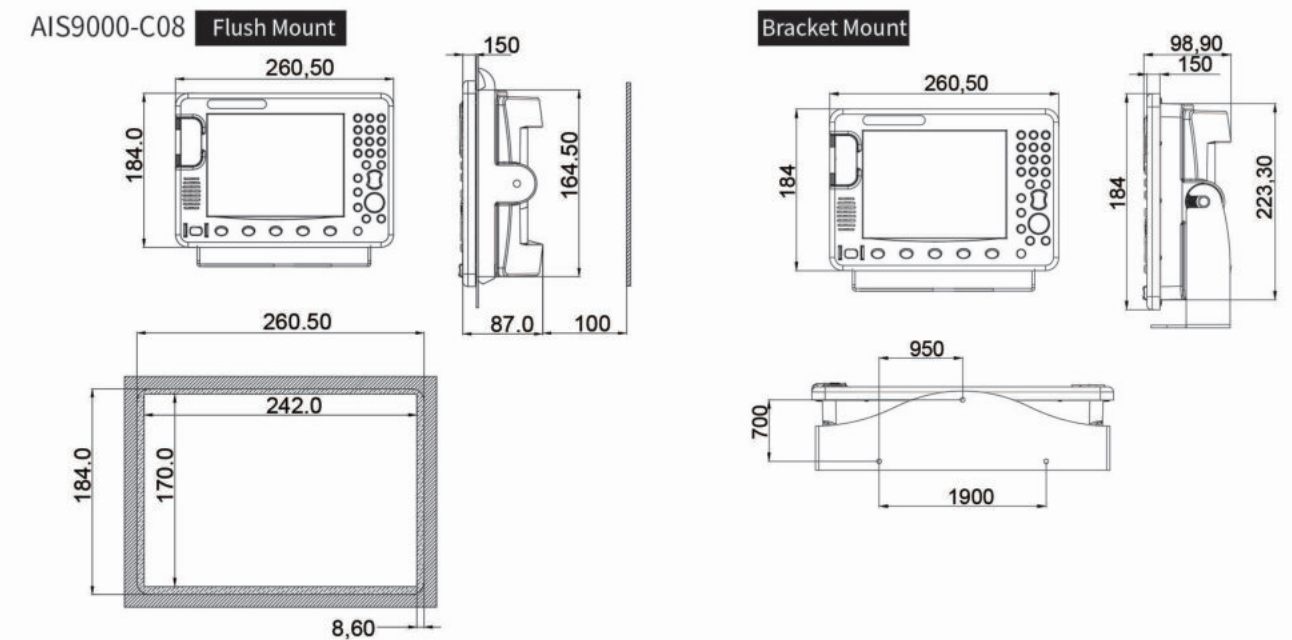
## Class B Marine AIS(AIS9000 Series)



## AIS9000 transponder



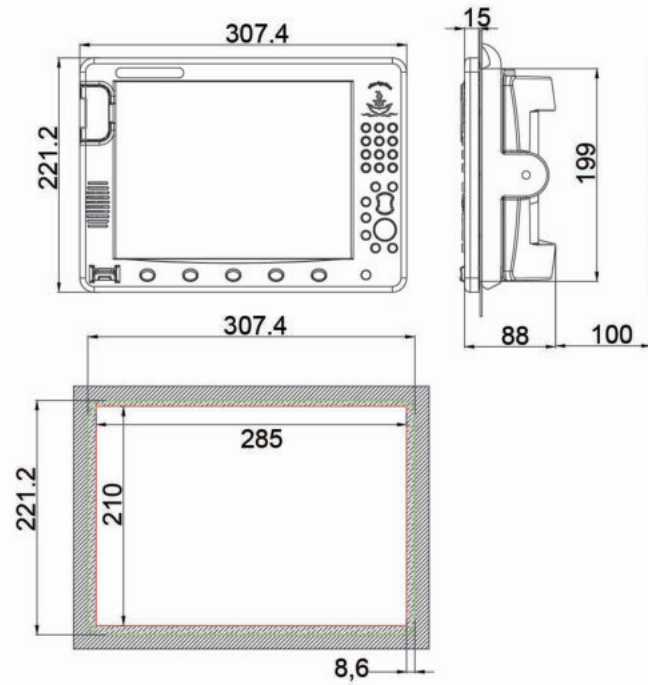
## Class B Marine AIS(C Series)



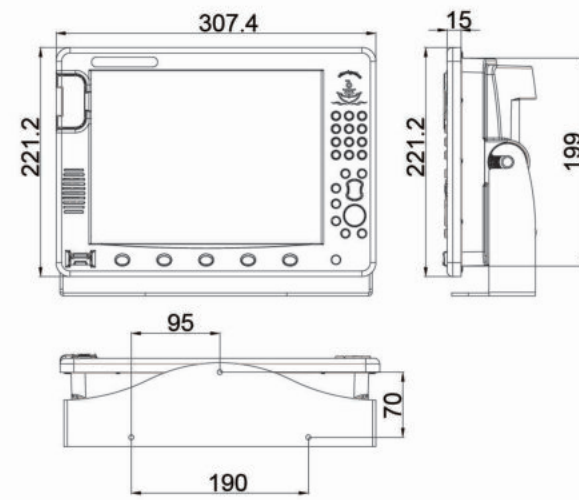


# Class B Marine AIS(C Series)

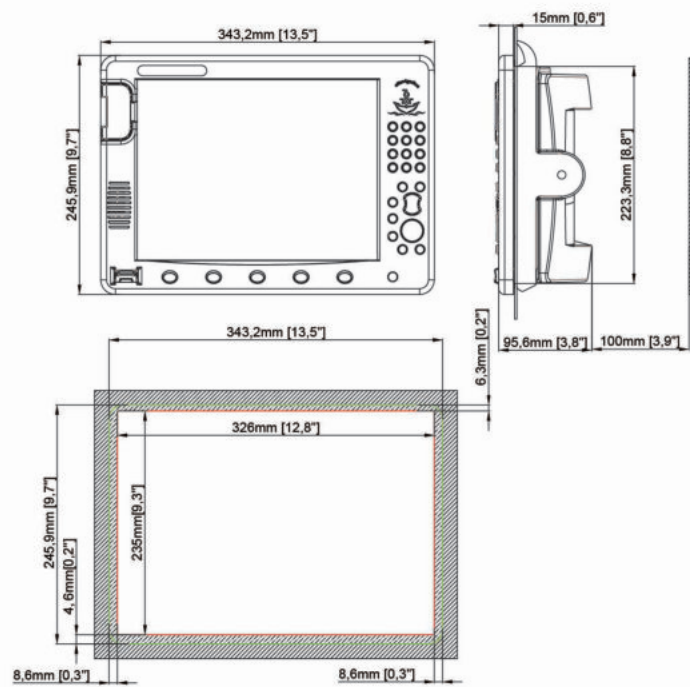
AIS9000-C10 Flush Mount



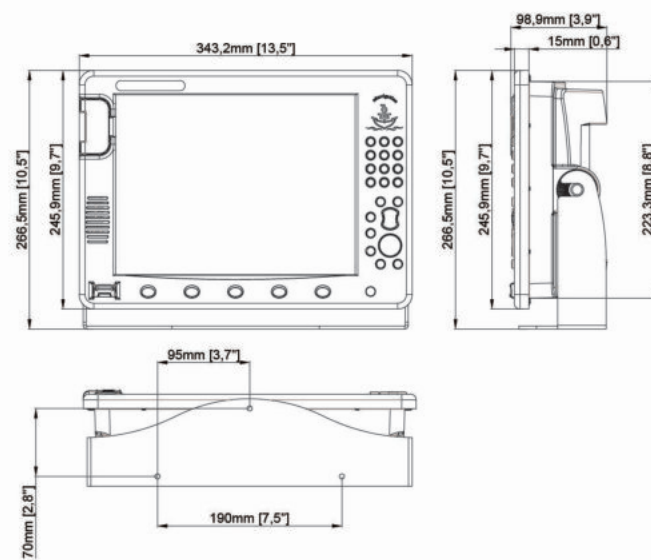
Bracket Mount



AIS9000-C12 Flush Mount

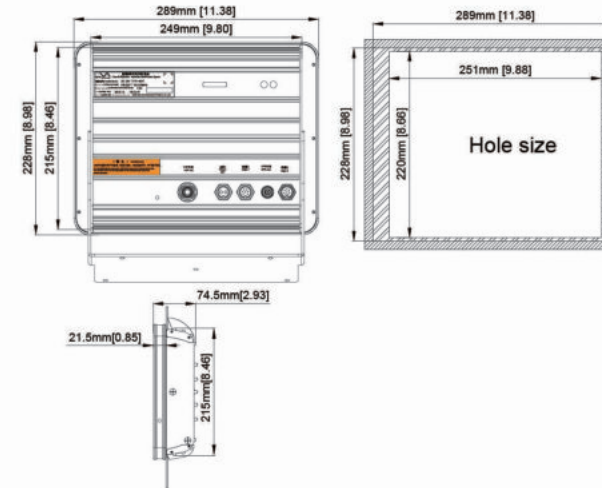


Bracket Mount

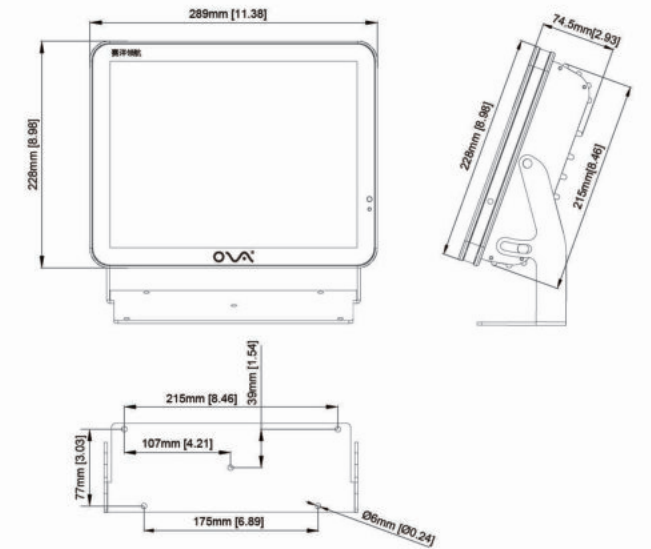


# Class B Marine AIS(I Series)

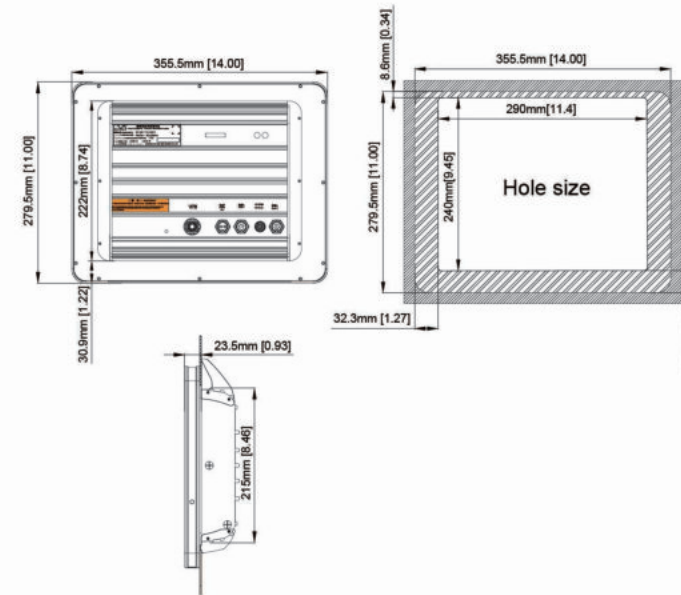
IAIS-12 Flush Mount



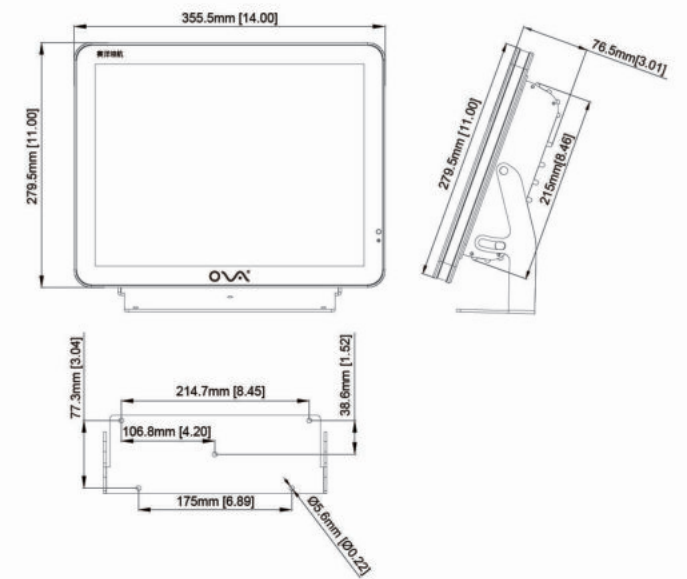
Bracket Mount



IAIS-15 Flush Mount

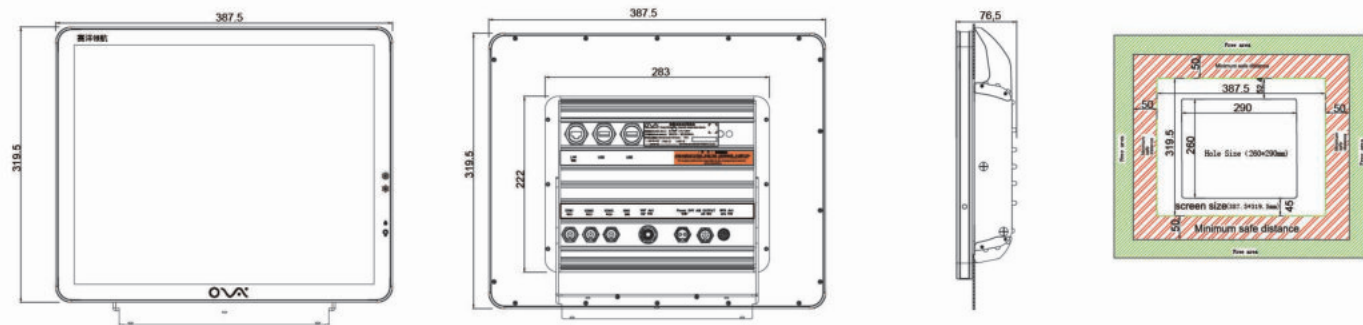


Bracket Mount

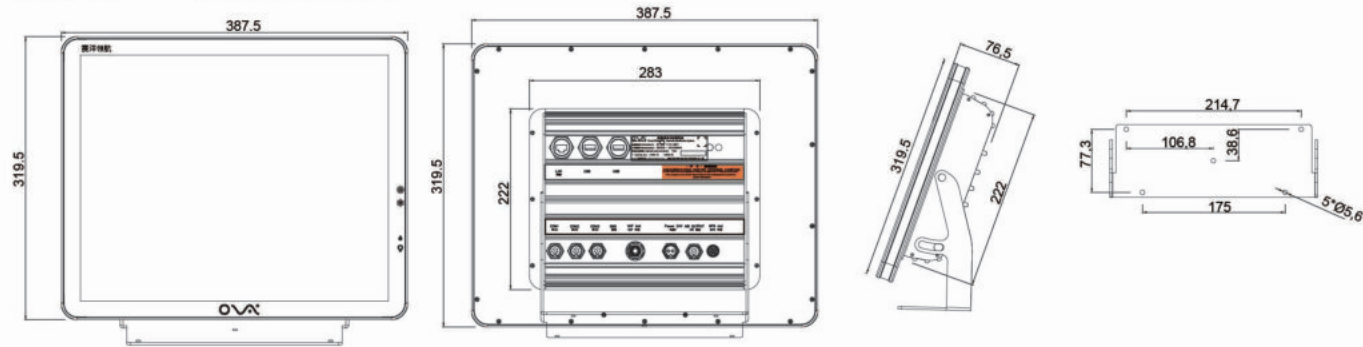


# Class B Marine AIS(I Series)

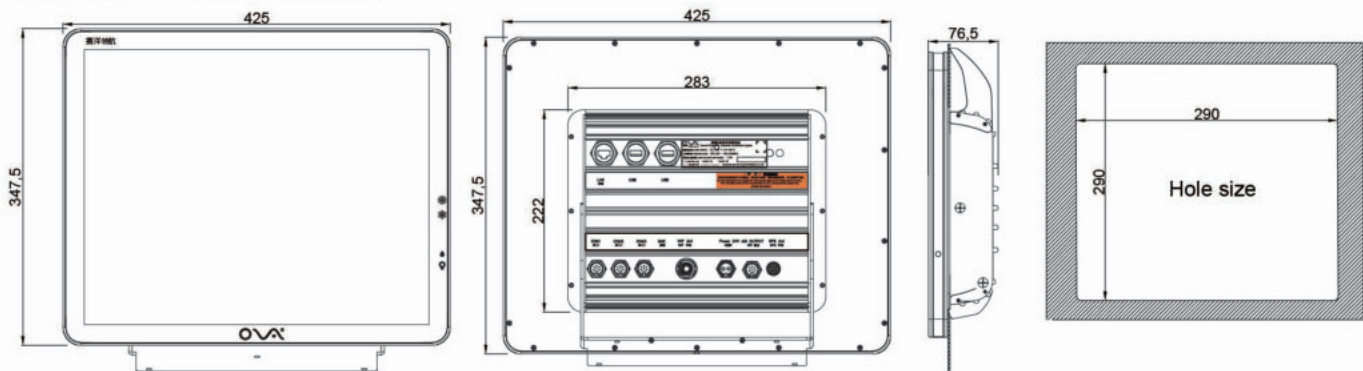
IAIS-17 **Flush Mount**



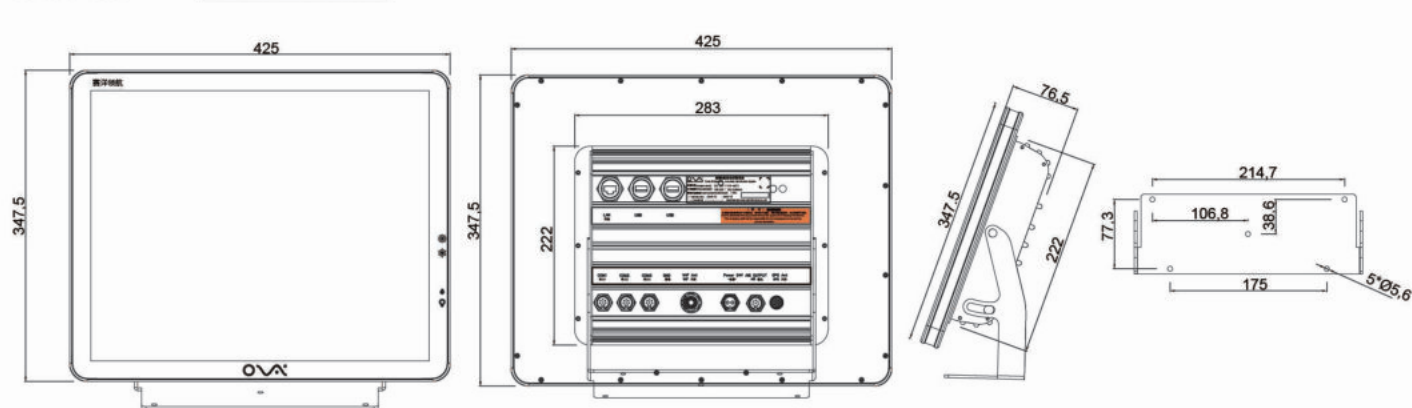
IAIS-17 **Bracket Mount**



IAIS-19 **Flush Mount**

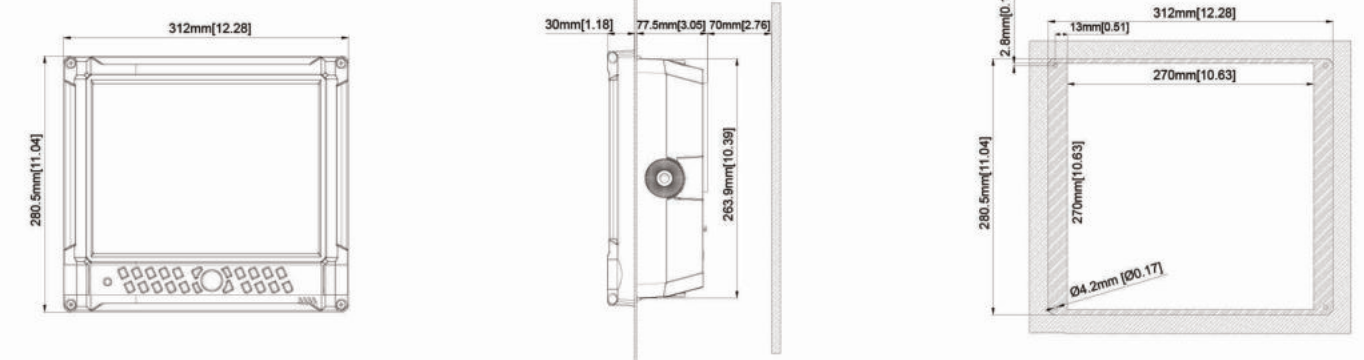


IAIS-19 **Bracket Mount**

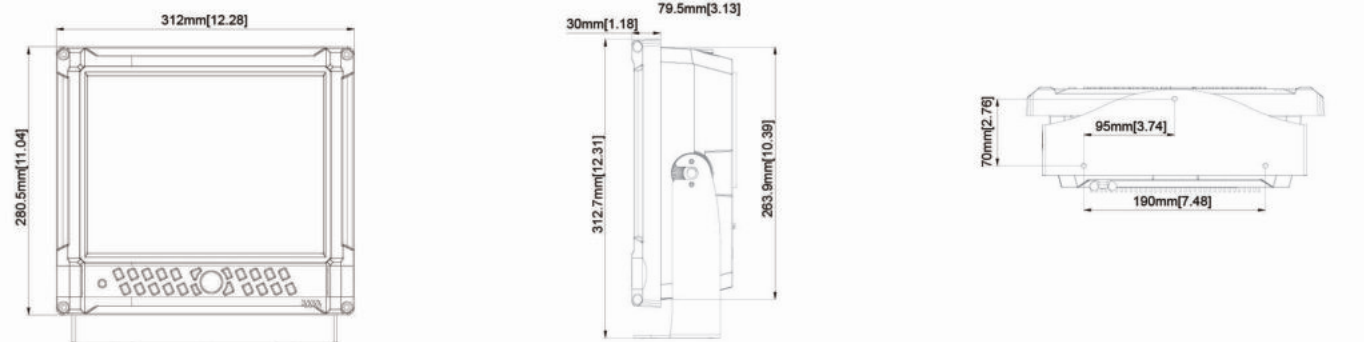


# Class B Marine AIS(X Series)

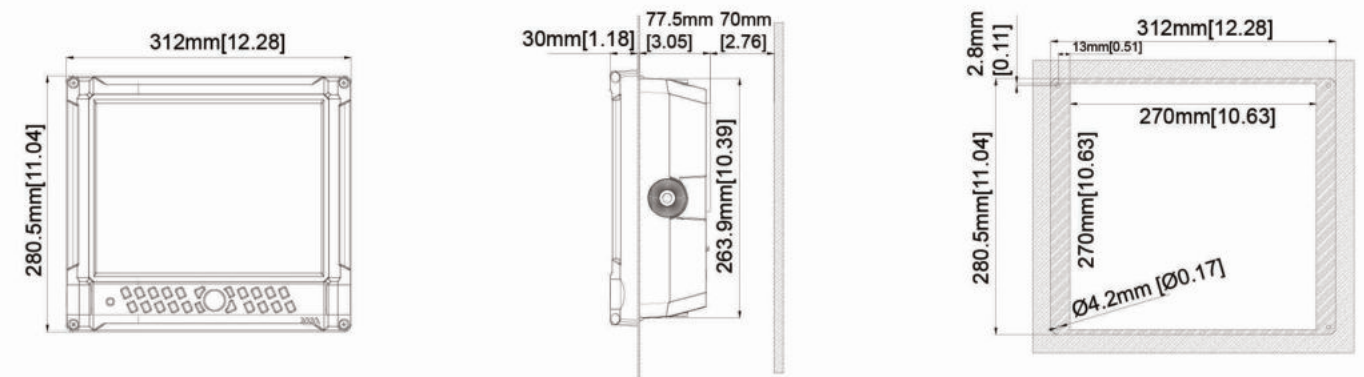
AIS9000-X10 **Flush Mount**



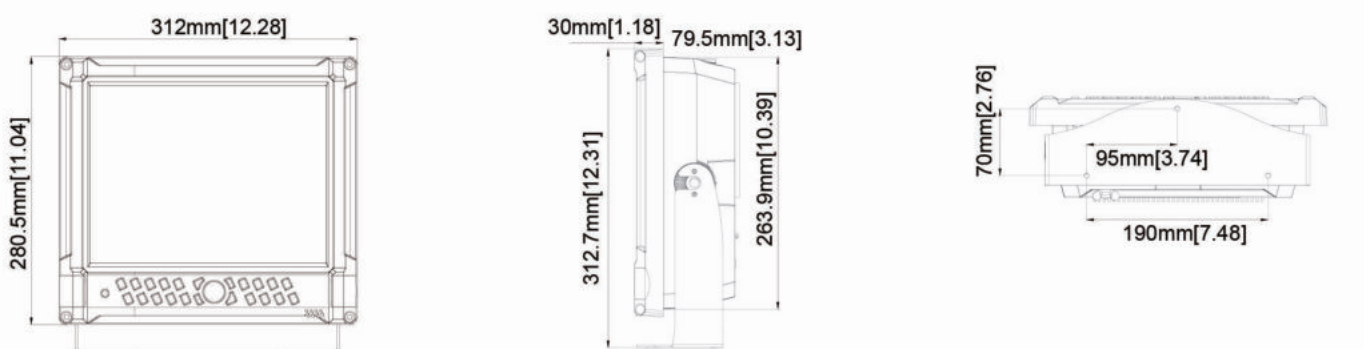
AIS9000-X10 **Bracket Mount**



AIS9000-X12 **Flush Mount**



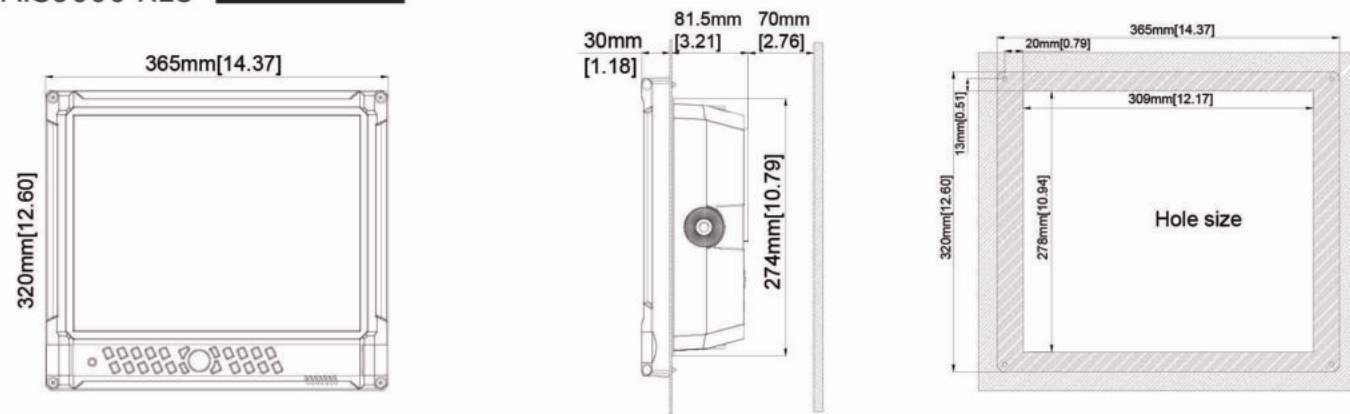
AIS9000-X12 **Bracket Mount**



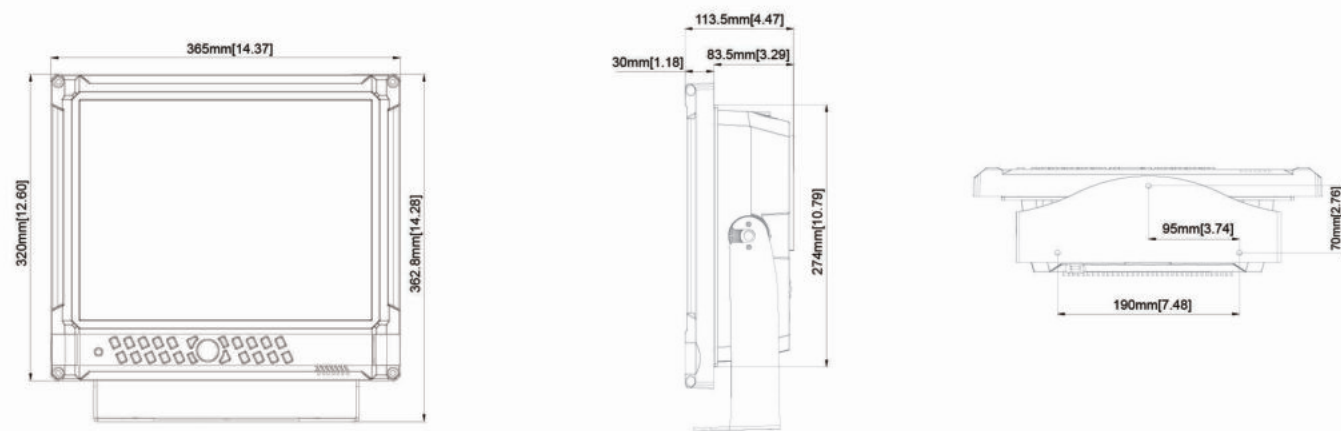


# Class B Marine AIS(X Series)

**AIS9000-X15 Flush Mount**

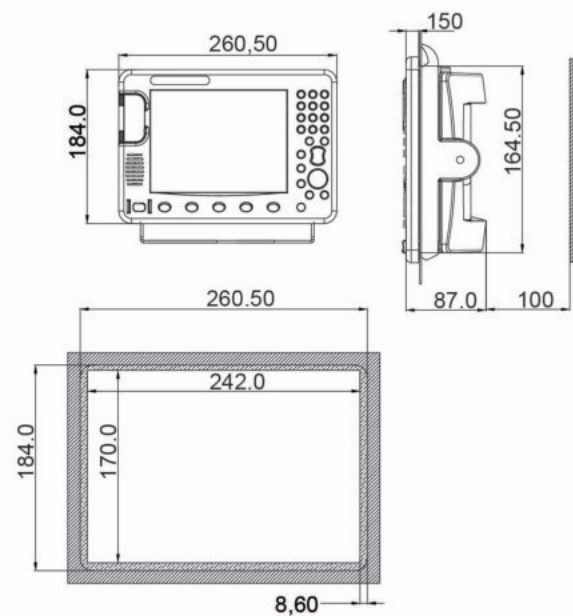


**AIS9000-X15 Bracket Mount**

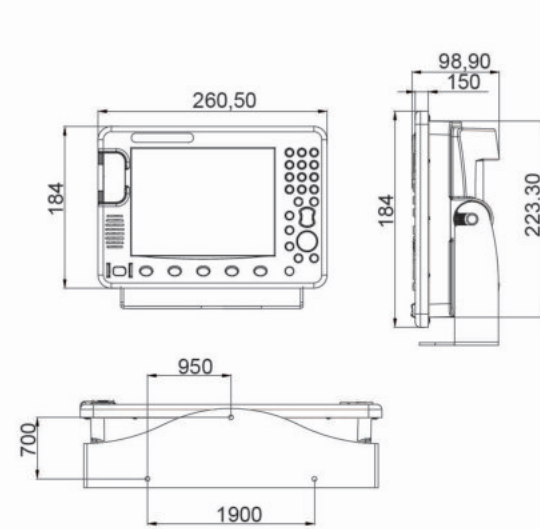


# GBS Series

**8" Flush Mount**

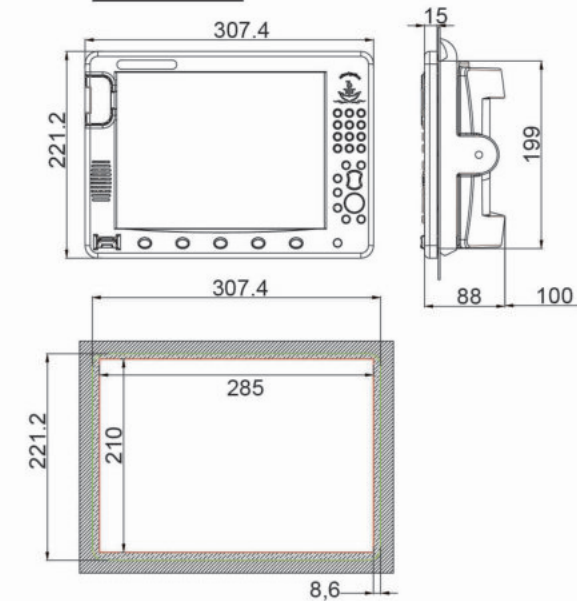


**Bracket Mount**

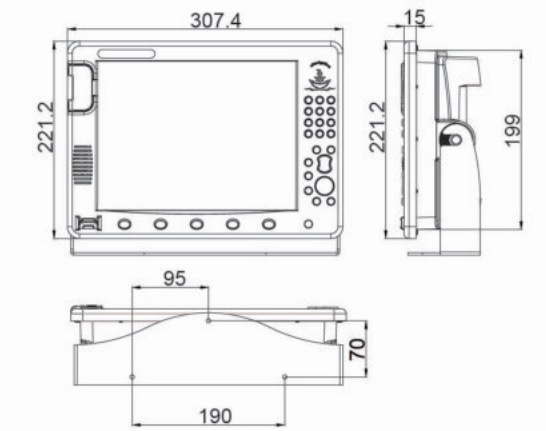


# GBS Series

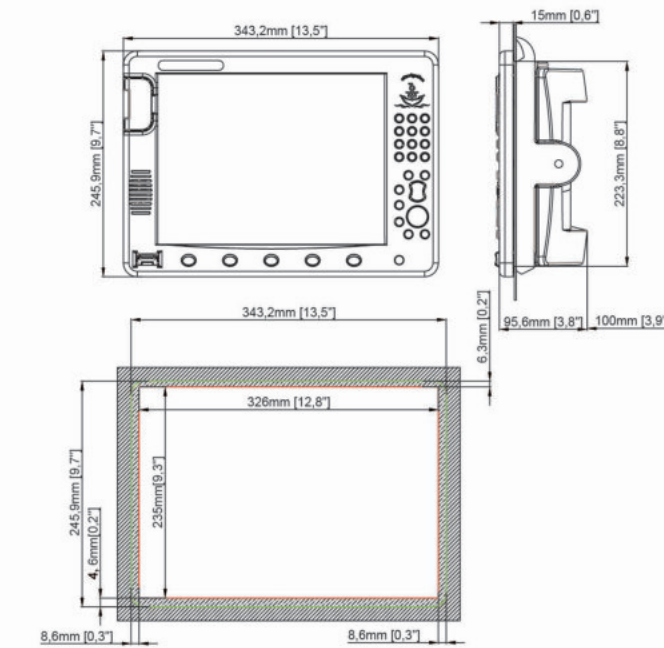
**10" Flush Mount**



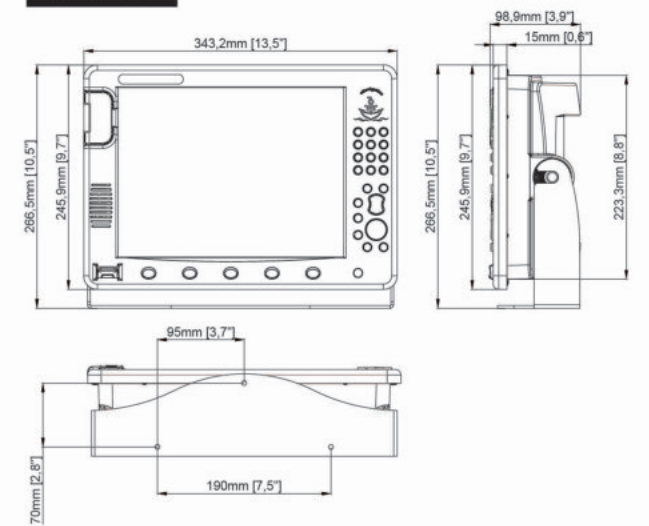
**Bracket Mount**



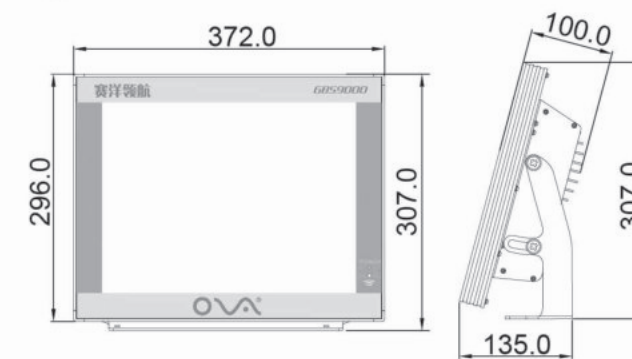
**12" Flush Mount**



**Bracket Mount**



**15"**

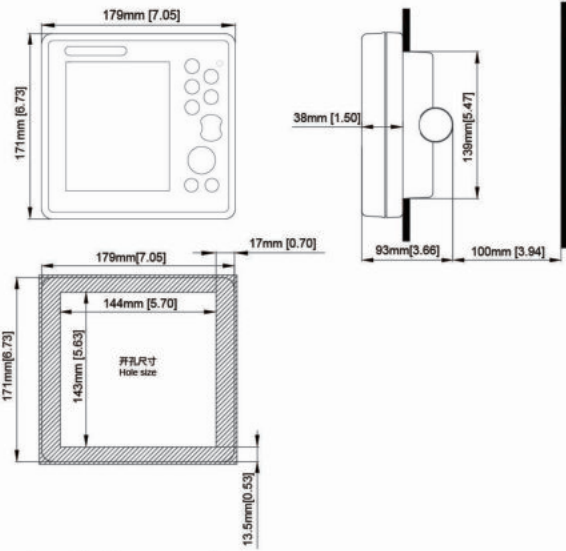


**17"**

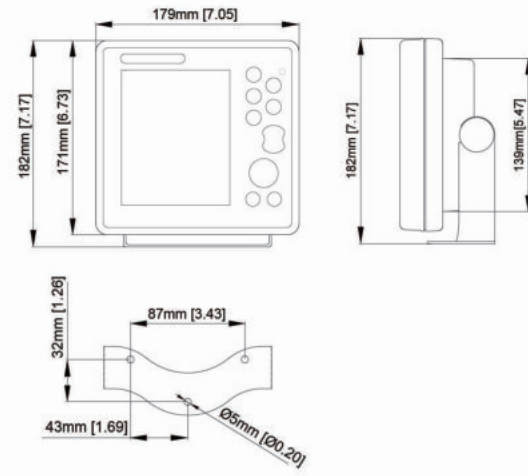


# Echo Sounder/Fish Finder

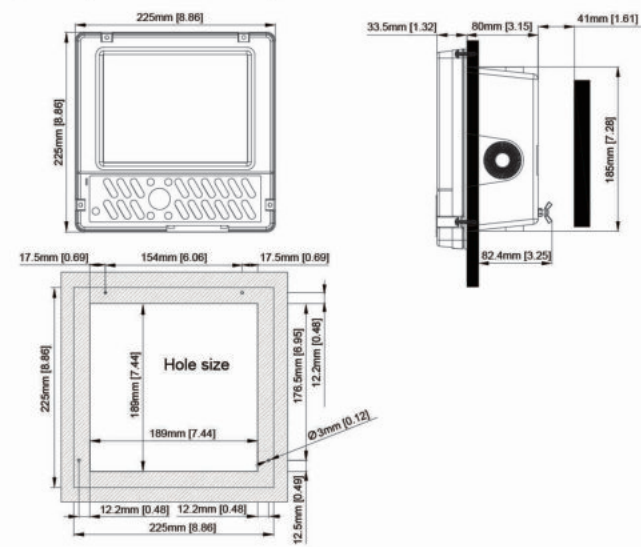
## 6" Flush Mount



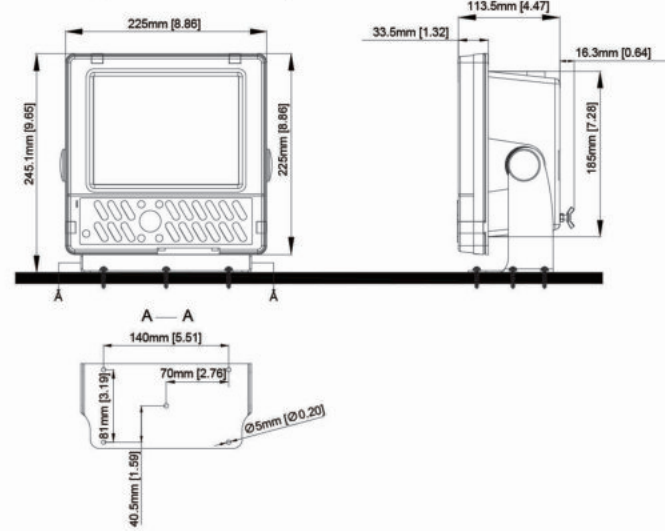
## 6" Bracket Mount



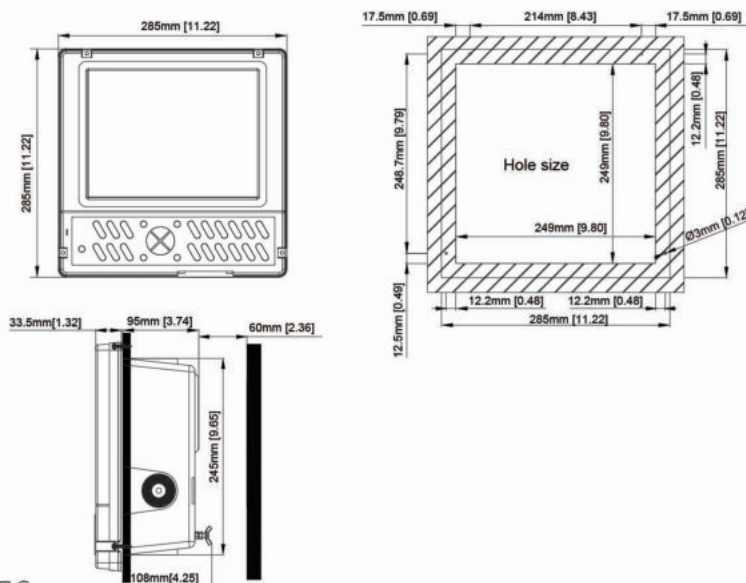
## 8" Flush Mount



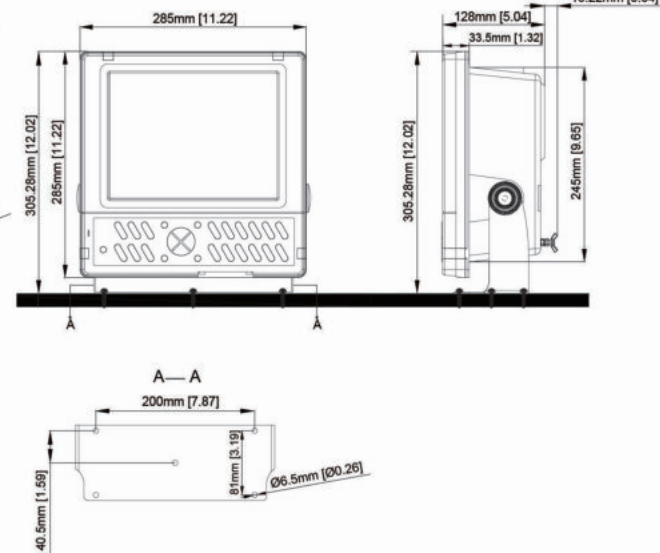
## 8" Bracket Mount



## 10" Flush Mount

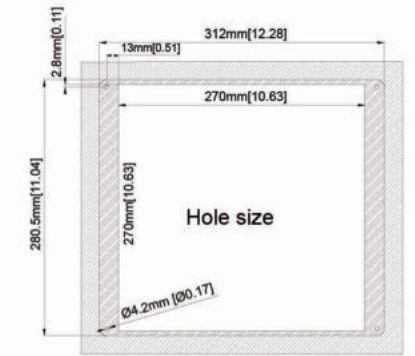
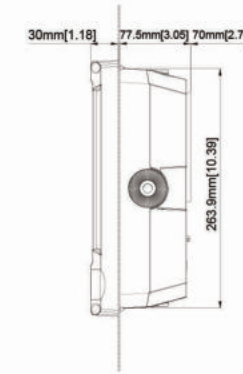
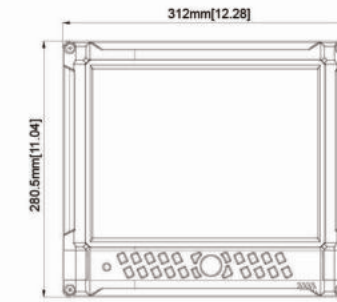


## 10" Bracket Mount

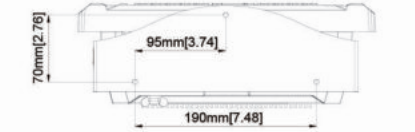
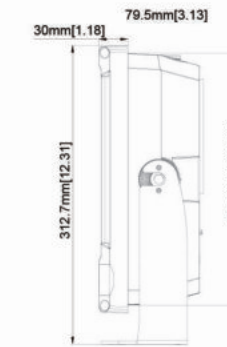
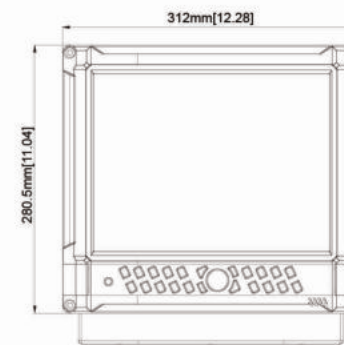


# Echo Sounder/Fish Finder

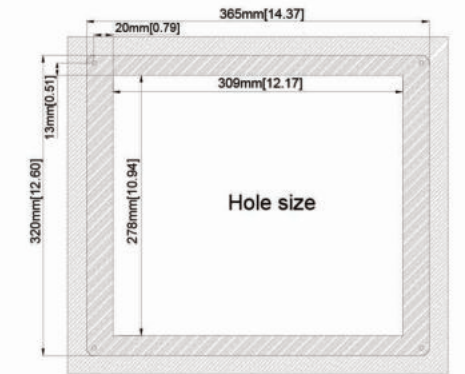
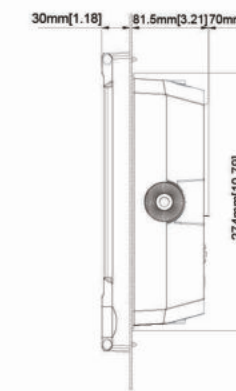
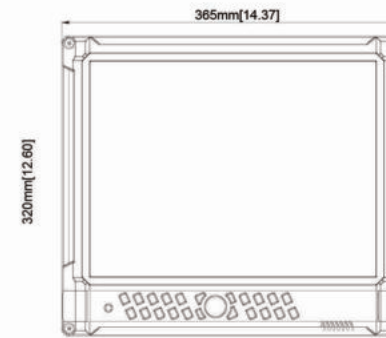
## 12" Flush Mount



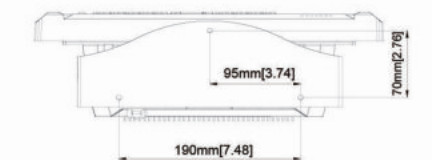
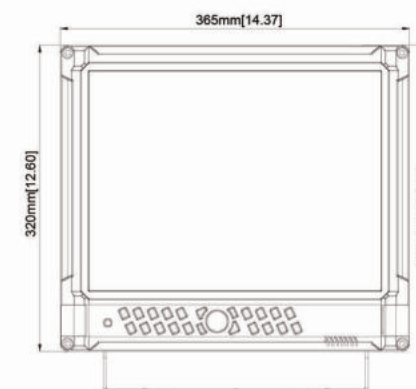
## 12" Bracket Mount



## 15" Flush Mount



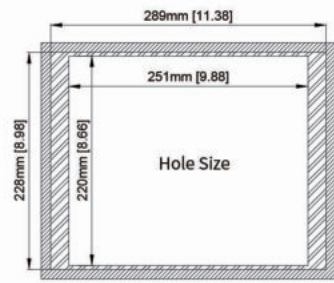
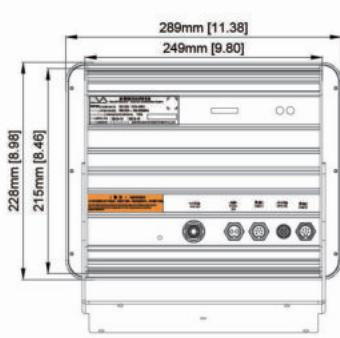
## 15" Bracket Mount



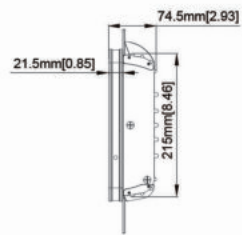
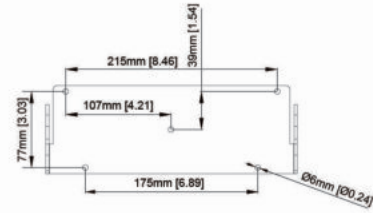
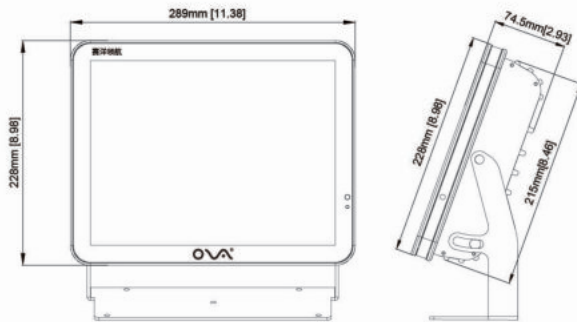


# IECS Series

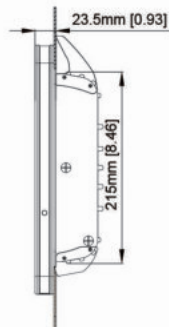
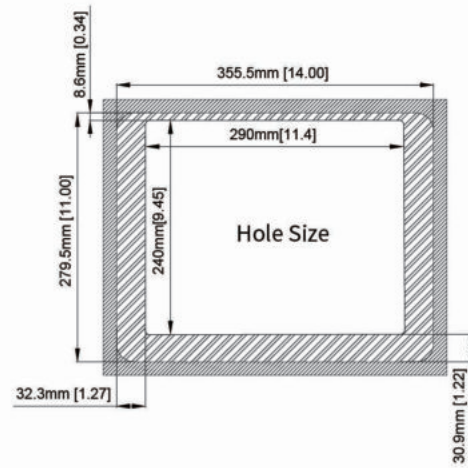
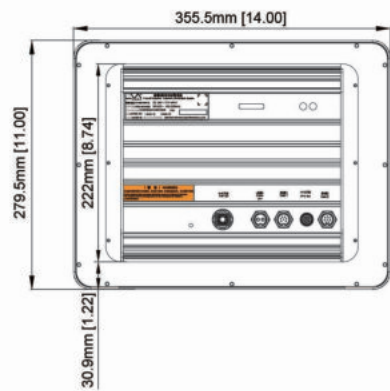
IECS-12 Flush Mount



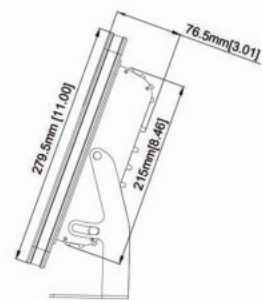
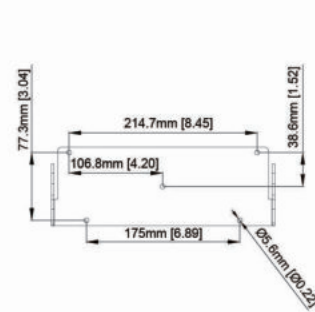
Bracket Mount



IECS-15 Flush Mount

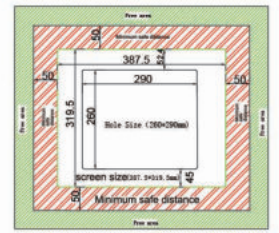
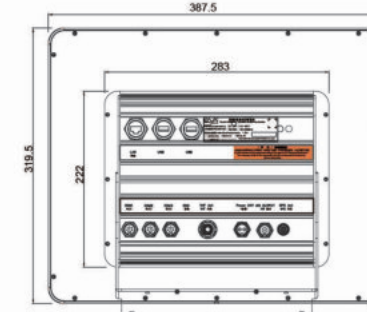
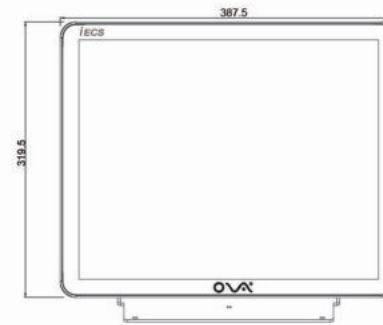


Bracket Mount

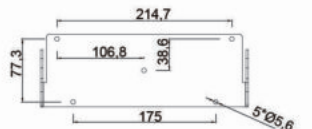
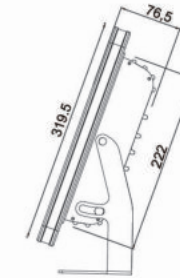
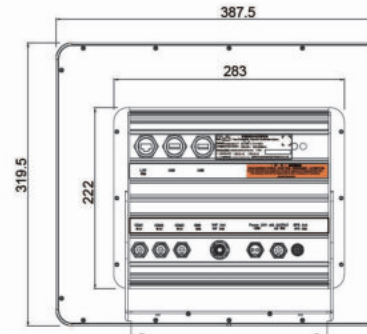
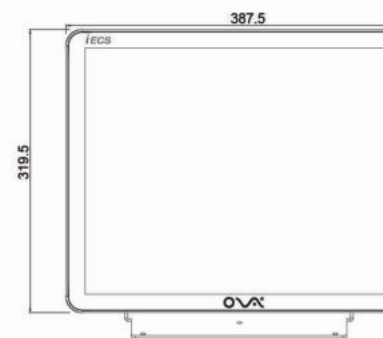


# IECS Series

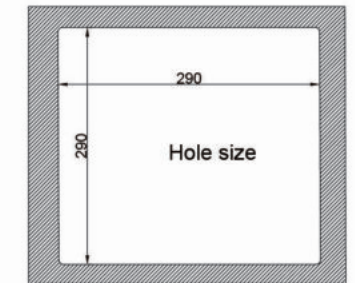
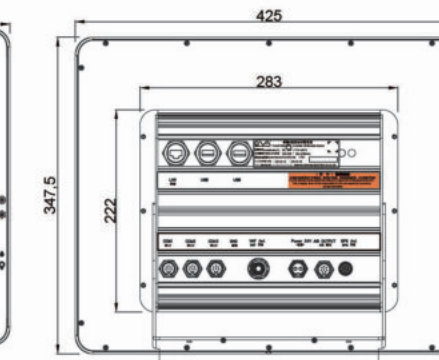
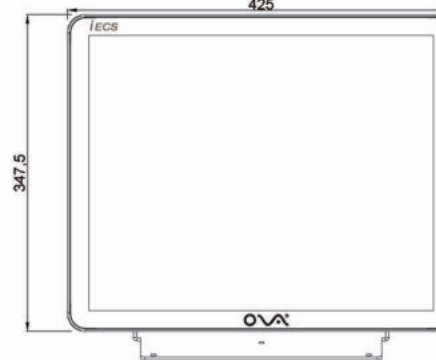
IECS-17 Flush Mount



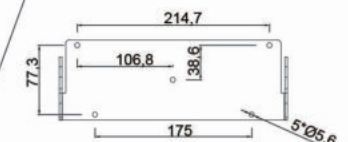
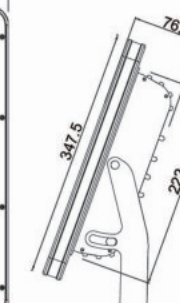
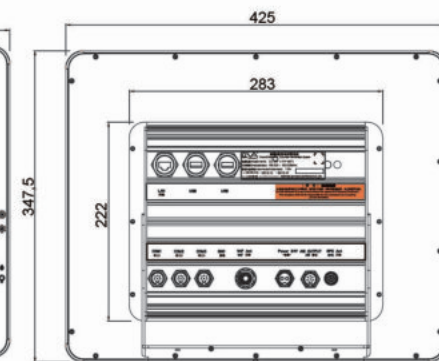
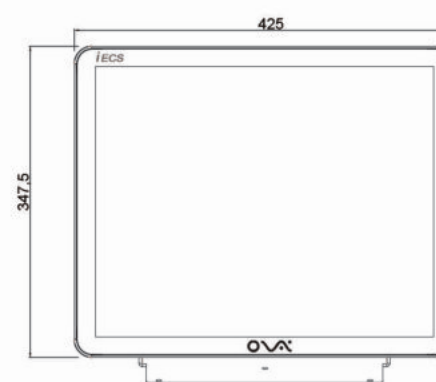
IECS-17 Bracket Mount



IECS-19 Flush Mount



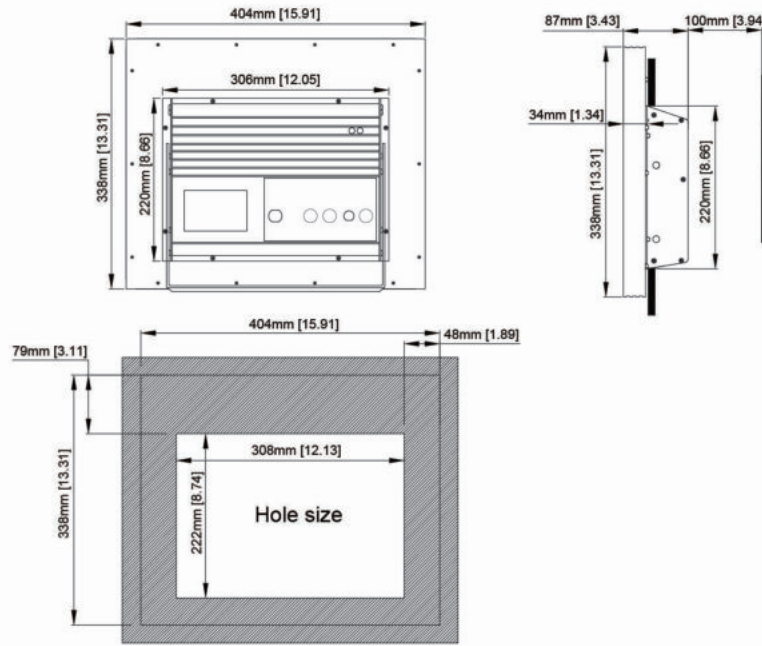
IECS-19 Bracket Mount



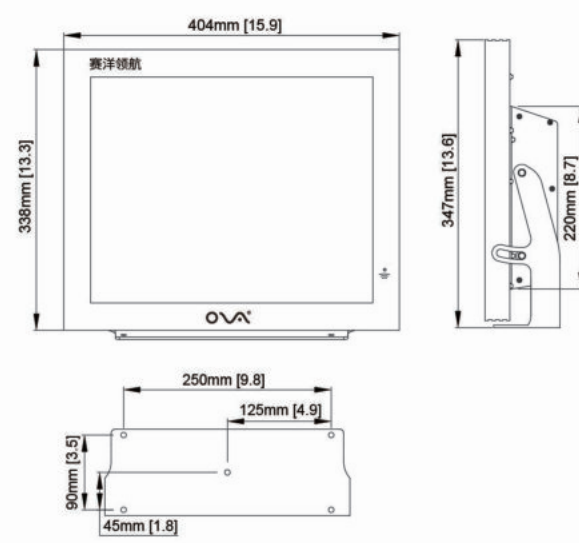


# Electronics Chart System ECS9000

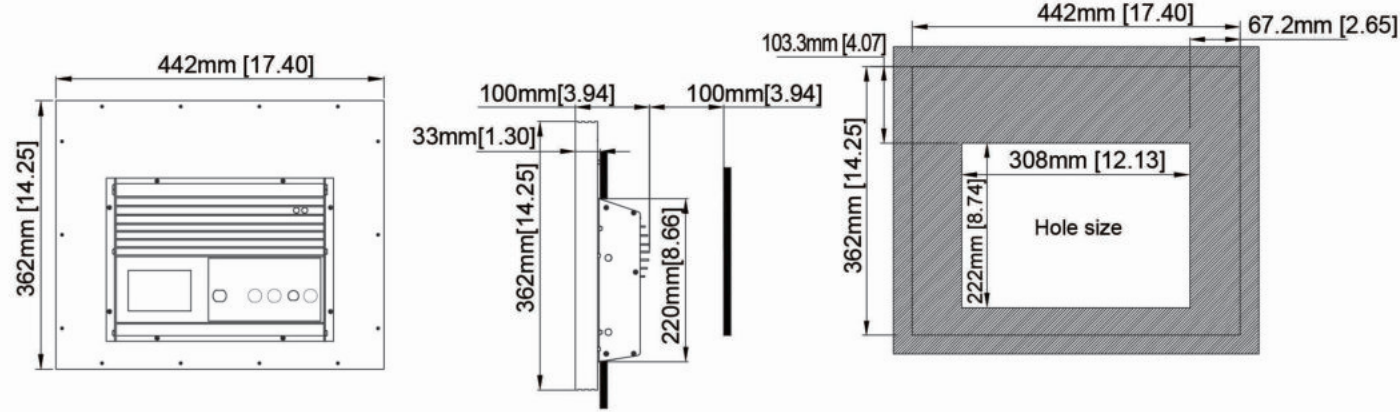
ECS9000-17 Flush Mount



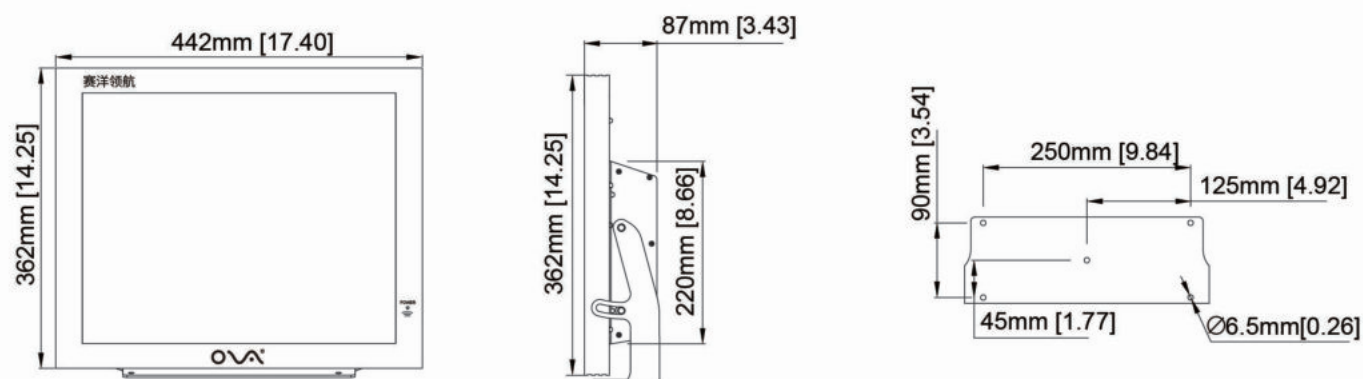
Bracket Mount



ECS9000-19 Flush Mount

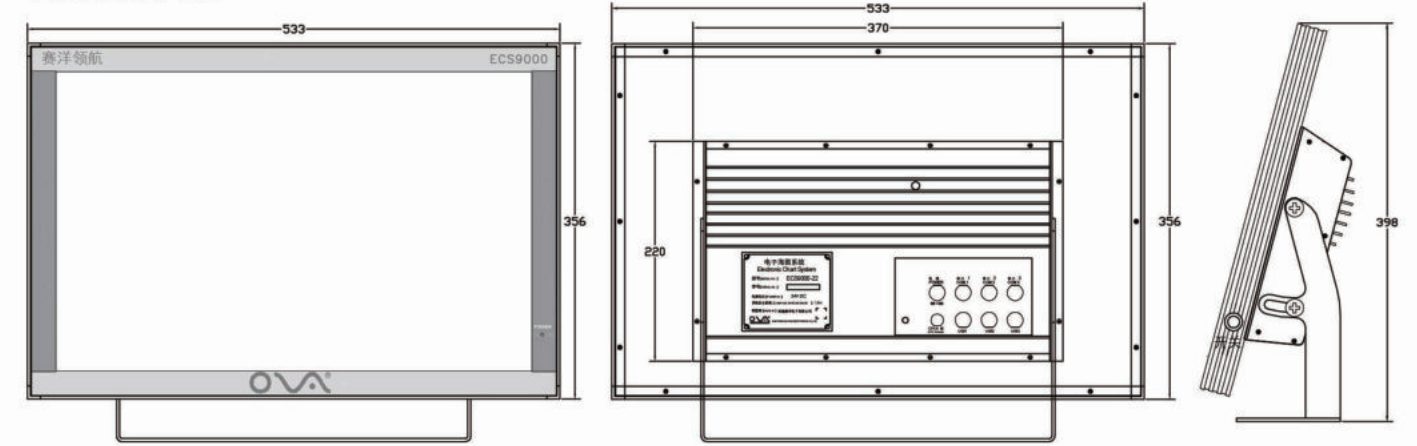


ECS9000-19 Bracket Mount

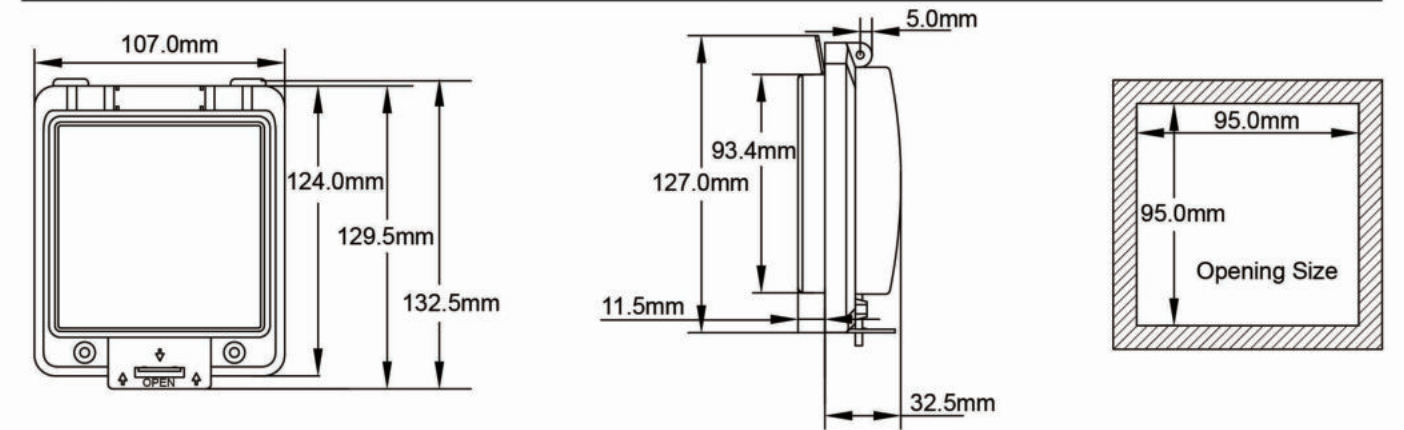


# Electronics Chart System ECS9000

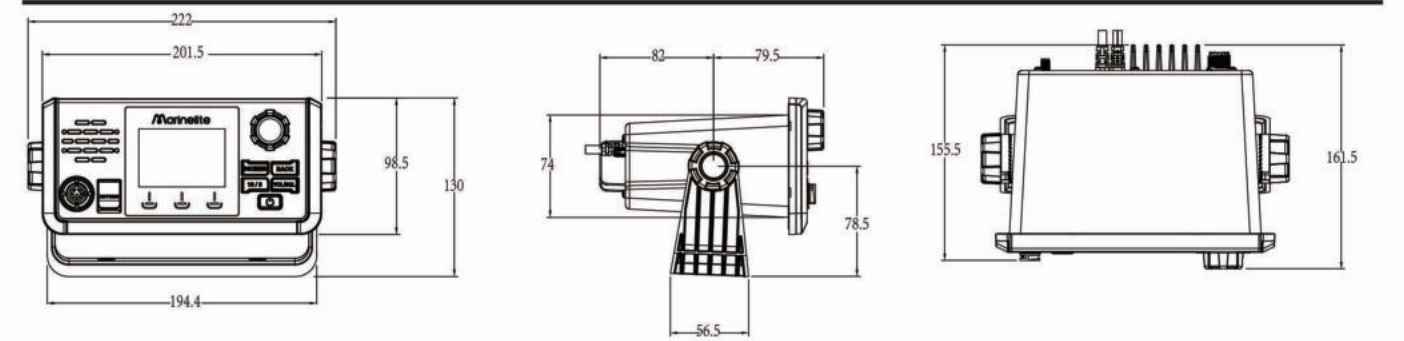
ECS9000-22



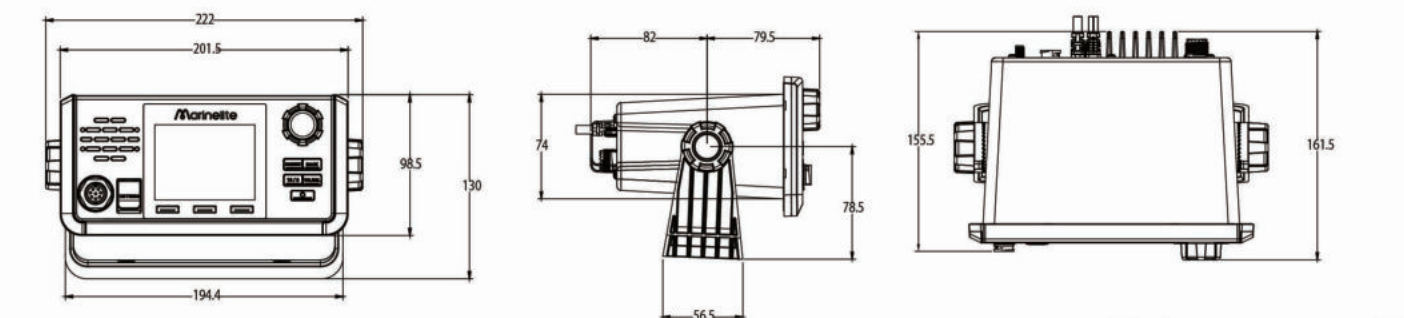
# Depth Instrument Display DI9000



# DSC VHF VHF9000D



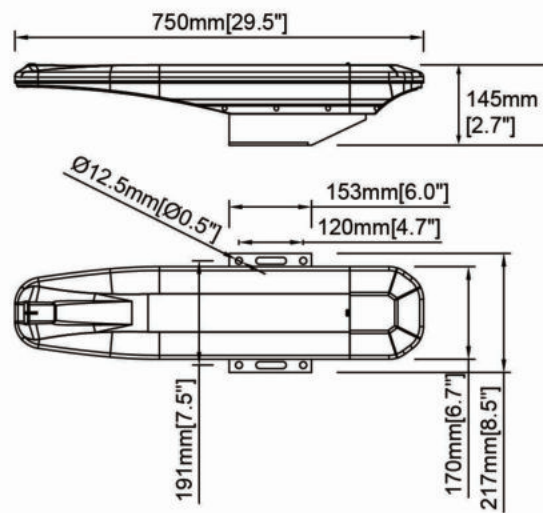
# DSC VHF VHF9000



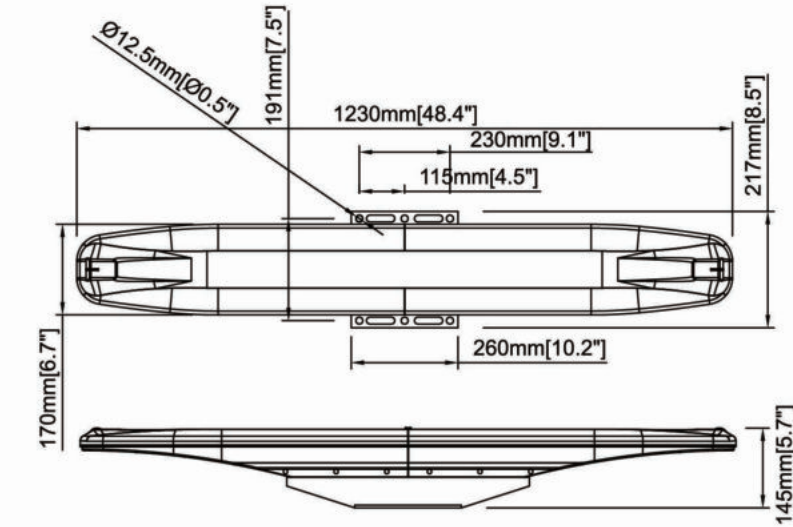


# Satellite compass

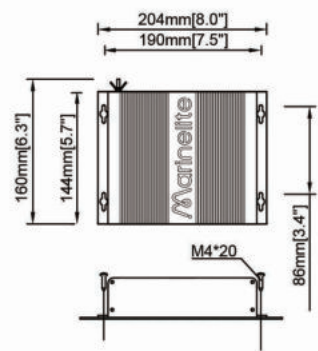
Antenna SC901



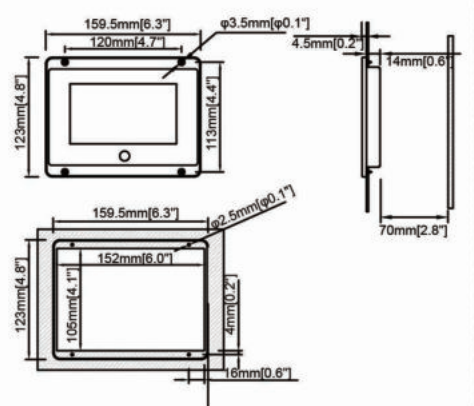
Antenna SC1201



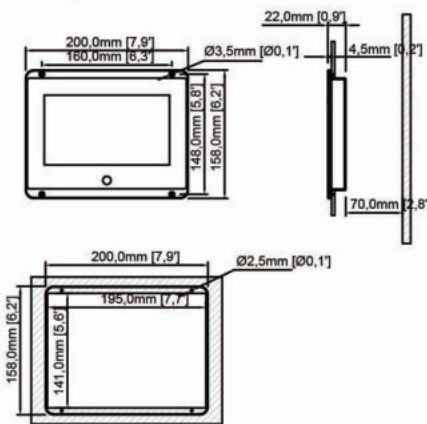
Junction Box SC1200/SC900



Display instrument SC902

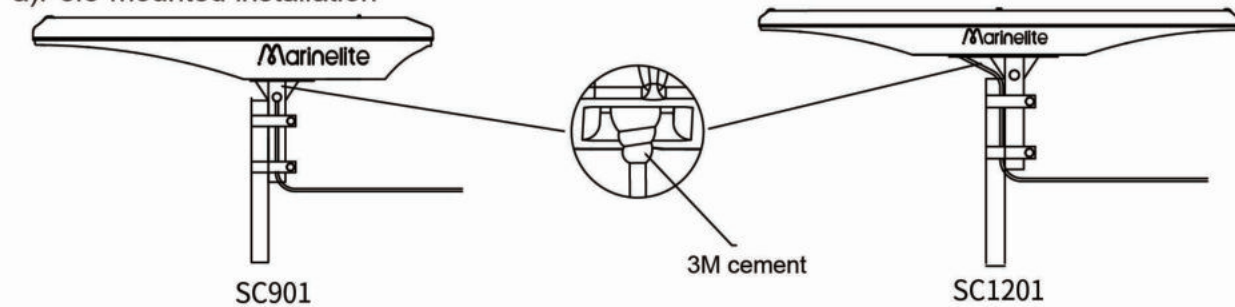


Display instrument SC1202



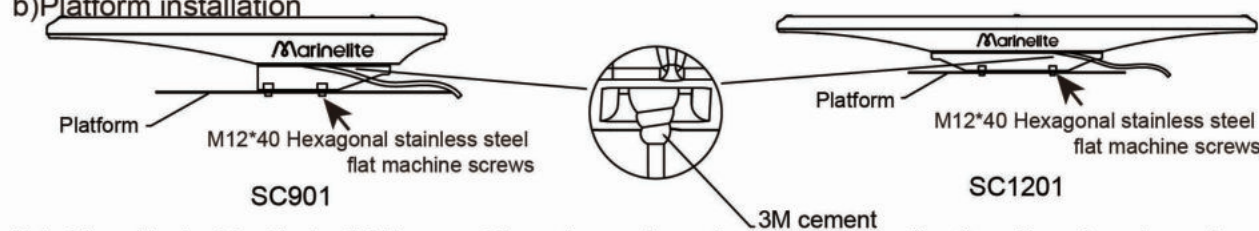
## Antenna Installation

a) Pole-mounted installation



Note: In order to ensure good connection of wiring and good waterproof effect, pls refer to above installation diagram and wrapped with 3M cement

b) Platform installation

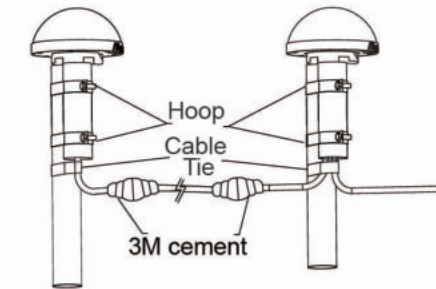


Note: The cable should not be too tight to prevent thermal expansion and contraction from pulling the cable and causing equipment damage.

# Satellite compass

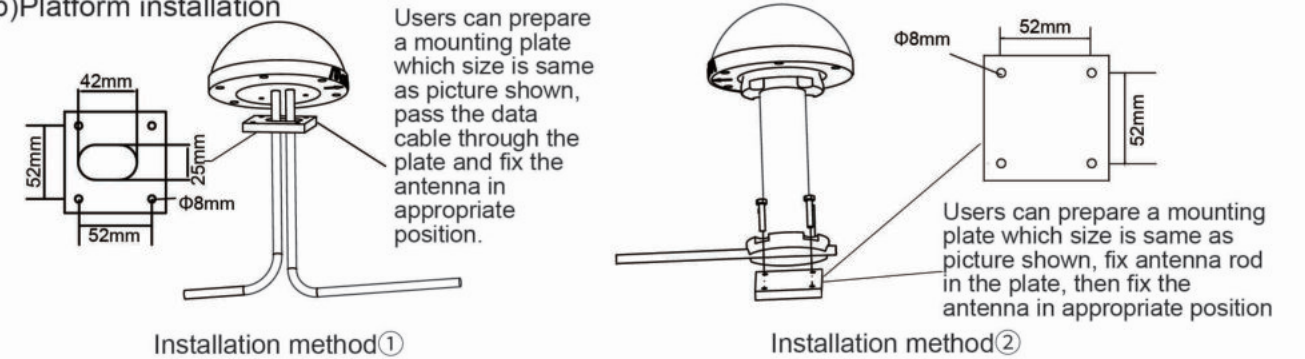
## Antenna Installation

a) Pole-mounted installation



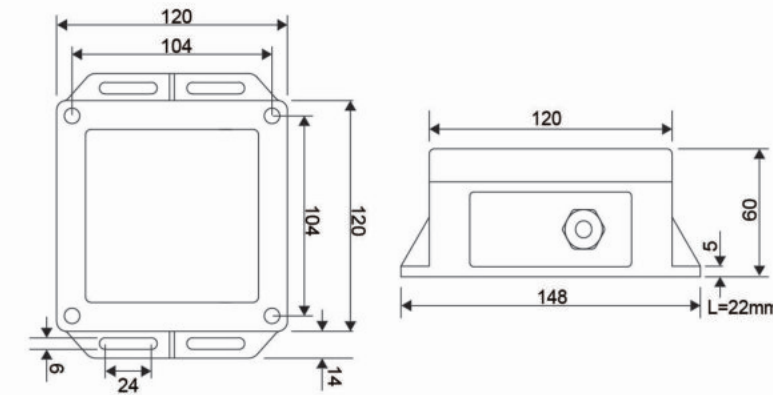
Note: In order to ensure good connection of wiring and good waterproof effect, pls refer to above installation diagram and wrapped with 3M cement

b) Platform installation



Note: The cable should not be too tight to prevent thermal expansion and contraction from pulling the cable and causing equipment damage.

# RC42S Rate compass



# CP-90 Heading sensor

