Anemometer AM706

Operation & Installation Manual

Contents

Introduction

The Marine Anemometer AM706 is a combined instrument for wind speed and direction. It can measure relative wind speed (accuracy ±5%, min 0.1m/s), relative wind direction (digital display accuracy 1 °, analog display accuracy 10 ° and output accuracy ± 1 °). GYRO (HDT) , SPEEDLOG (VBW) or GPS (RMC/VTG) data user can select relative wind mode and true wind mode.

Main unit AM706E+AM706C can be installed by the table, hanging and flush mounting methods. Sensor AM706S should be installed in the place with free wind in the ship.

System Composition

➢ Main Unit   AM706E

・Direction Display：Analog and digital display of relative (to the bow) and true wind direction

・Speed Display：Digital display of relative, true, max and average wind speed.

AM706E

➢ Main Unit   AM706C

The main unit **AM706C** receives the signal from the sensor unit, and displays:
- ・Relative wind direction
- ・Relative wind speed
- ・Maximum wind speed
- ・First and second level alarm settings

AM706C

The main unit also output the setting of the wind speed alarm to the alarm unit.

Introduction

➢ Sensor unit   AM706S

The Sensor unit **AM706S** includes three parts:
  • Wind speed sensor: A rotor with three wind cups.
  • Wind direction sensor: A wind vane to drive an absolute
      angle sensor unit.
  • Junction box: **I**t has a waterproof junction box and a
      sensor unit transmitter.

AM706S

➢ Alarm unit AM706A1&AM706A2

AM706A1 is installed in the CCR (cargo control room).

Light source: LEDs

Light form: flash

Light color: red

Sound source: buzzer

Sound form: continues

Sound decibel: 60dB～85dB(A)

AM706A1

AM706A2 is installed on the cargo deck

Light source: Super bright LEDs

Light form: rotating flash

Light color: red

Sound source: horn

Sound form: continues

Sound decibel: 110dB (A)

AM706A2

Introduction

➢ Peripheral equipment

Printer： DPU414, print date, wind speed & direction and so on

Repeater: IR761, redisplay the wind speed & direction

VDR: (vessel data recorder): record data from the main unit

Function and Operation (AM706E)

Display Layout

Wind Speed Digital Display

Wind Direction Analog Display

Wind Direction Digital Display

Operation Keyboard

Power on/off   Menu   OK   Mode

Brightness   Arrow keys   Day/Night Mode
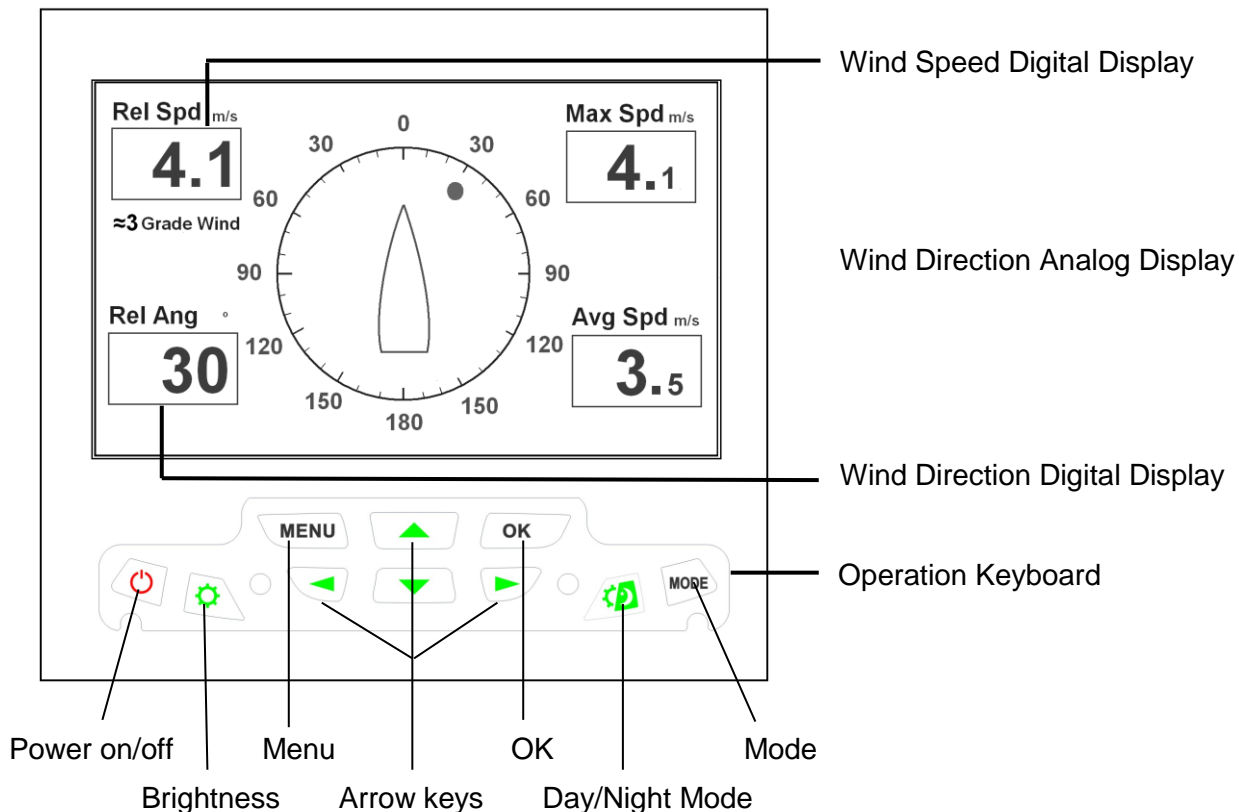
Function

Power on/off

Press the on-off key to turn on /off the system.

Brightness

In Day/Night mode, press the brightness key to adjust the screen brightness. There are 9 levels for selection.

Function and Operation (AM706E)

OK

Press [OK] key to save the settings in the menu and return to the main screen.

Day/Night Mode

Press the Day/Night mode key to switch the day mode and night mode.

MODE

Press [MODE] key to select Relative Mode（relative speed + relative angle + max speed + average speed）and True Mode（relative speed + relative angle + true speed + true Angle）.
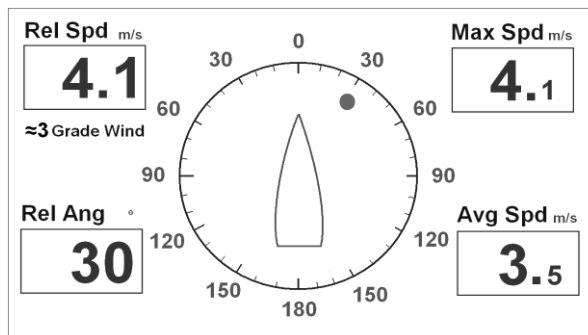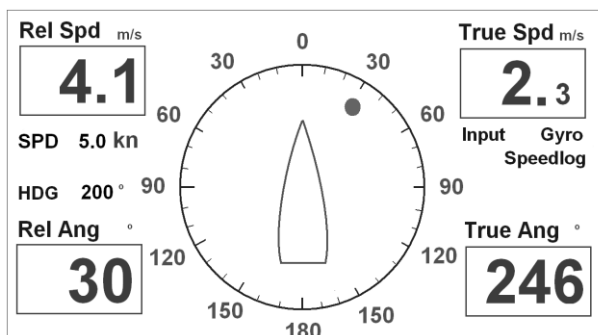
Relative Mode   True Mode

Note：The wind grade （see Appendix） can only be shown in relative mode.

The ship speed and heading can be only shown in true mode.

Function and Operation (AM706E)

Arrow Keys

In the menu mode, press up/down arrow keys to select the setting items and press left/right arrow keys to select the setting values.

MENU

Menu Explanation

Item	Range	Default
Wind Alarm	[Off 1~60m/s]	Off
Speed Unit	[m/s km/h knots]	m/s
Avg Time	[1 min 2 min 5 min 10 min]	10 min
Input Show	[Off On]	Off
Language	[English 中文]	English
Back Color	[Light-Blue Blue Black]	Light-Blue
Dig Color	[Yellow in Blue Green in Black White in Black]	Yellow in Blue
Default	[Off Reset]	Off
Send Ture	[Yes No]	No

Wind Alarm

Set the relative wind speed alarm values. When the relative wind speed is larger than the relative wind alarm value, the system will give the alarm signal after 30s with beep and speed numbers become red color and flash. Press any key to mute the beep but the relative speed numbers are still in red color

Function and Operation (AM706E)

and flash. When the relative wind speed is less than the relative wind alarm value, the relative speed numbers return to white color and not flash. Then the system will be working normally.

Press up/down arrow keys to select the item 'Wind Alarm' and press left/right arrow keys to set the wind alarm values.

Setting Range is 1~60m/s and default is Off

Speed Unit

Set the wind speed unit. Press up/down arrow keys to select the item 'Speed Unit' and press left/right arrow keys to select speed unit.

1~60m/s and default is Off

Setting Range is m/s, km/h and knots and default is m/s.

Avg Time

Set the computing period of the max speed and average speed. Press up/down arrow keys to select the item 'Avg Time' and press left/right arrow keys to set the period.

Setting Range is 1 min, 2 min, 5 min and 10 min and default is 10 min.

Function and Operation (AM706E)

Input Show

Set the input display of Gyro, Speedlog and GPS. Press up/down arrow keys to select the item 'Input Show' and press left/right arrow keys to select on and off.
Setting Range is Off and On and default is Off.

Language

Set the system language. Press up/down arrow keys to select the item 'Language' and press left/right arrow keys to select English and Chinese.
Setting Range is English and 中文 and default is English.

Back Color

Set the background color. Press up/down arrow keys to select the item 'Back Color' and press left/right arrow keys to select the colors.
Setting Range is Light-Blue, Blue and Black and default is Light-Blue.

Dig Color

Set the window and number colors. Press up/down arrow keys to select the item 'Dig Color' and press left/right arrow keys to select the colors.
Setting Range is Yellow in Blue, Green in Black and White in Black and default is Yellow in Blue.

Function and Operation (AM706E)

Default

Reset the system. Setting Range is Off and Reset, and default is Off.

Send Ture

Set the transmitted relative or true sentence. Yes is to transmit relatvie and true sentence and No is to transmit relative sentence.

Data transmission for NMEA0183

Main Unit Output --MWV

$--MWV, <u>x.x</u> , <u>a</u> , <u>x.x</u> , <u>a</u> , <u>A</u>*<u>hh</u><CR><LF>
            1   2   3   4 5 6

1) Wind angle, 0 to 359 degrees
2) Reference, R = Relative, T = Ture
3) Wind Speed
4) Wind Speed Units, K=km/h / M=m/s / N=knots
5) Status, A = Data Valid, V = Data invalid
6) Checksum

Function and Operation (AM706E)

GPS Data Input--RMC

$--RMC, hhmmss.ss,A,llll.ll,a,yyyyy.yy,a,x.x,x.x,xxxxxx,x.x,a,a*hh<CR><LF>

           1   2   3   4   5   6   7   8 9 10

1) UTC Time

2) Status, A=Data valid, V = Navigation receiver warning

3) Latitude，N or S

4) Longitude，E or W

5) Speed over ground, knots

6) Course Over Ground, degrees true

7) Date：ddmmyy

8) Magnetic Variation, degrees，E or W

9) Mode Indicator

10) Checksum

GPS Data Input--VTG

$--VTG, x.x,T , x.x,M , x.x,N , x.x,K , a*hh<CR><LF>

       1   2   3   4   5 6

1) Course over ground, degree true
2) Course over ground, degree magnetic
3) Speed over ground, knots
4) Speed over ground, km/h
5) Mode indicator，   A=Autonomous mode
                             D=Differential mode
                             E=Estimated（dead reckoning）mode
                             M=Manual input mode
                             S=Simulator mode
                             N=Data not valid
6) Checksum value

Function and Operation (AM706E)

Speedlog Data Input--VBW

$--VBW, <u>x.x</u> , <u>x.x</u> , <u>A</u> , <u>x.x</u> , <u>x.x</u> , <u>A</u> , <u>x.x</u> , <u>A</u> , <u>x.x</u> , <u>A</u>*hh<CR><LF>
            1   2   3   4   5   6   7   8   9   10 11

1) Longitudinal water speed, Knots
2) Transverse water speed, Knots
3) Status：water speed, A=data valid, V=data invalid
4) Longitudinal ground speed, Knots
5) Transverse ground speed, Knots
6) Status：ground speed, A=data valid, V=data invalid
7) Stern transverse water speed, Knots
8) Status：stern water speed, A=data valid, V=data invalid
9) Stern transverse ground speed, Knots
10) Status：stern ground speed, A=data valid, V=data invalid
11) Checksum value

Speedlog Data Input--VHW

$--VHW, <u>x.x,T</u> , <u>x.x,M</u> , <u>x.x,N</u> , <u>x.x,K</u>*hh<CR><LF>
                   1   2   3   4

     (1)   Heading, degrees True
     (2)   Heading, degrees Magnetic
     (3)   Speed, knots
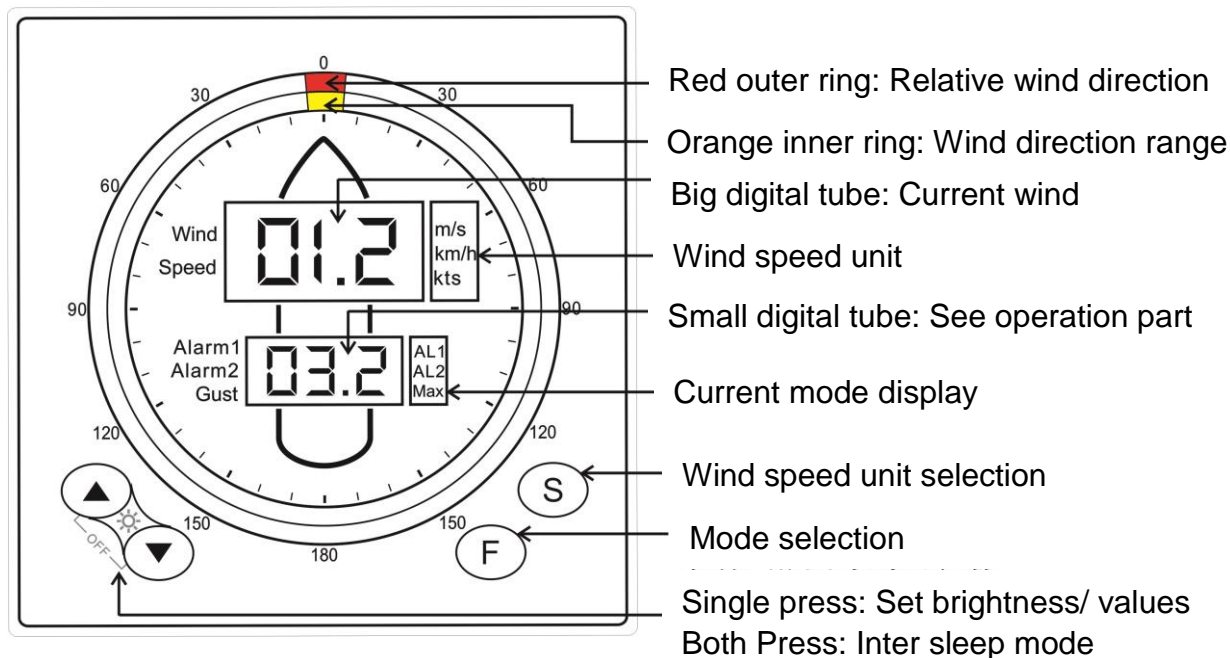   (4)   Speed, km/hr

Gyro Data Input--HDT

$--HDT, <u>x.x</u> , <u>T</u> * <u>hh</u><CR><LF>
        1   2   3

1) Heading, degree true
2) T = true
3) Checksum value

Function and Operation (AM706C)

Display Layout

Red outer ring: Relative wind direction

Orange inner ring: Wind direction range

Big digital tube: Current wind

Wind speed unit

Small digital tube: See operation part

Current mode display

Wind speed unit selection

Mode selection

Single press: Set brightness/ values
Both Press: Inter sleep mode

Alarm

Form	LED	Alarm imformation
Signal Error alarm	ERR	Shows "ERR" when the operator unit receives no signal or the signal is not a NMEA message.
	_ _ _	Shows "_ _ _" when the message is incorrect
	. . .	Shows "…." when receiving other message
Power supply Power drops alarm	PL	When one of the two power channels is lost, the buzzer will alarm and press any key to clear the alarm.
Gust mode	Flashing	When the measured wind speed exceeds the set alarm value, the digital tube will be flashing, the buzzer of the main unit and the audible and visual alarm will start to work. Press any key to remove the alarm sound.

Function and Operation (AM706C)

Input and Output

RMC input baud rate：Automatic reception of 4800、9600、19200、38400bps.

Direction and speed output: 4800bps

GPS input: NMEA0183-RMC（The data input cycle should not exceed 2 seconds）

$--RMC, <u>hhmmss.ss</u>,<u>A</u>,<u>llll.ll</u>,<u>a</u>,<u>yyyyy.yy</u>,<u>a</u>,<u>x.x</u>,<u>x.x</u>,<u>xxxxxx</u>,<u>x.x</u>,<u>a</u>,<u>a</u>*<u>hh</u><CR><LF>

1 2 3 4 5 6 7 8 9 10

1) UTC Time
2) Status, A=Data valid, V = Navigation receiver warning
3) Latitude，N or S
4) Longitude，E or W
5) Speed over ground, knots
6) Course Over Ground, degrees true
7) Date：ddmmyy
8) Magnetic Variation, degrees，E or W
9) Mode Indicator
10) Checksum

Main unit output: MWV，to repeater and VDR, etc.

**$--MWV, <u>x.x</u> , <u>a</u> , <u>x.x</u> , <u>a</u> , <u>A</u>*<u>hh</u><CR><LF>**

1 2 3 4 5 6

1) Wind angle, 0 to 359 degrees
2) Reference, R = Relative, T = Ture
3) Wind Speed
4) Wind Speed Units, K=km/h / M=m/s / N=knots
5) Status, A = Data Valid, V = Data invalid
6) Checksum

Function and Operation (AM706C)

About NMEA0183 outputs

The echo data outputs adopt NMEA0183 format complying with IEC61162-1.

Data transmission: serial asynchronous mode, Baud rate 4800, 8 digits, no parity bit, 1 stop bit.
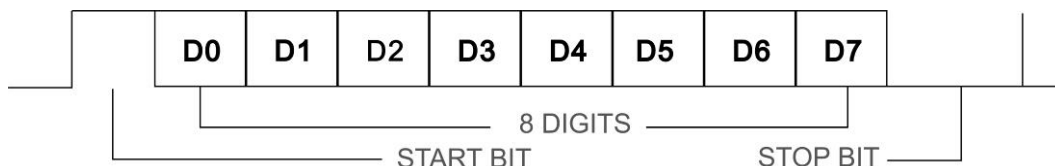
Operation

〖**Sleep mode**〗 Press [▲] and [▼] at the same time, turn the main unit into sleep mode. Press any key to remove sleep mode.
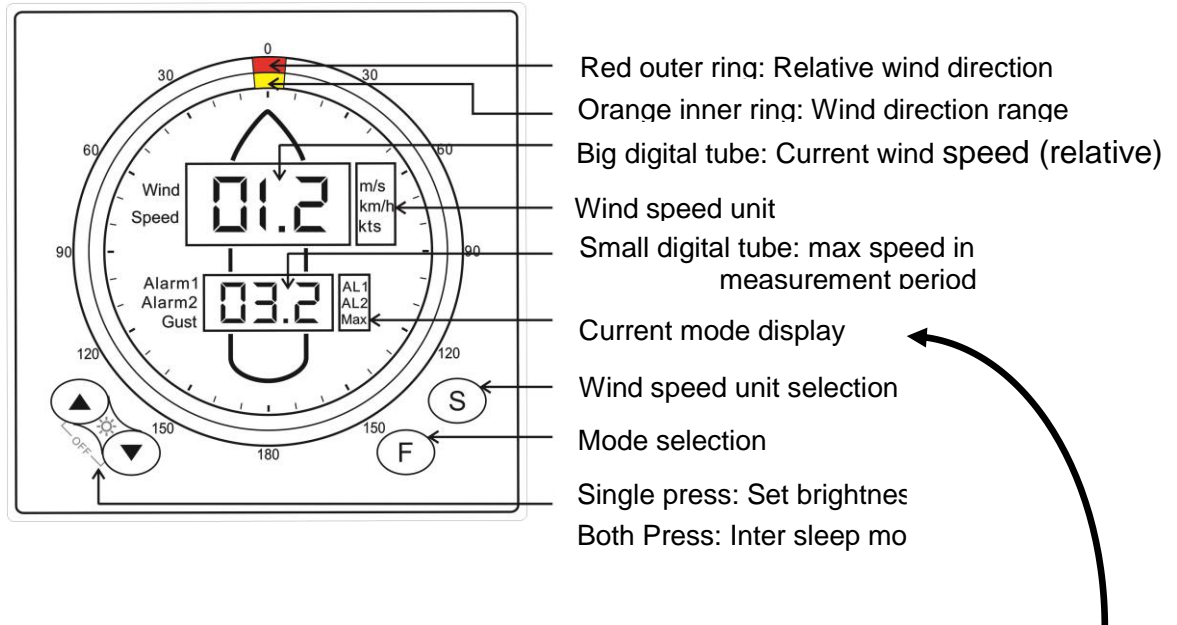
〖**Backlight**〗 Press [▲] or [▼] to set backlight of the main unit.

〖**Speed unit**〗 Press [S] on the main unit to inter the "wind speed unit selection", then press [▲] or [▼] to select the speed unit. You can choose "m/s, km/h, kts".

〖**Mode selection**〗 Press [F] on the main unit to exchange the modes, normal display mode, AL1 (the first level alarm mode), AL2 (the second level alarm mode), GST (gust setting mode) and PRE (printed time interval setting mode).

Function and Operation (AM706C)

Normal display mode

Red outer ring: Relative wind direction

Orange inner ring: Wind direction range

Big digital tube: Current wind speed (relative)

Wind speed unit

Small digital tube: max speed in measurement period

Current mode display

Wind speed unit selection

Mode selection

Single press: Set brightnes

Both Press: Inter sleep mo

The alarm settings are bellow for the current mode display (LED in the second line).

Setstate	Window Display Status	Setstate	Window Display Status
AL1 on AL2 on	AL1 AL2 MAX Light up every 5 seconds in turn	AL1 off AL2 on	AL2 MAX Light up every 5 seconds in turn
AL1 on AL2 off	AL1 MAX Light up every 5 seconds in turn	AL1 off AL2 off	MAX long bright

Function and Operation (AM706C)

Set the dividing value of wind alarm

Press [F] once on the main unit to enter the "wind alarm dividing value setting". "dId" is flashing. The first line LEDs show "dId", then press [▲] or [▼] to set the dividing value. The second line LEDs show the setting value. The dividing value here after will be referred to as "X".
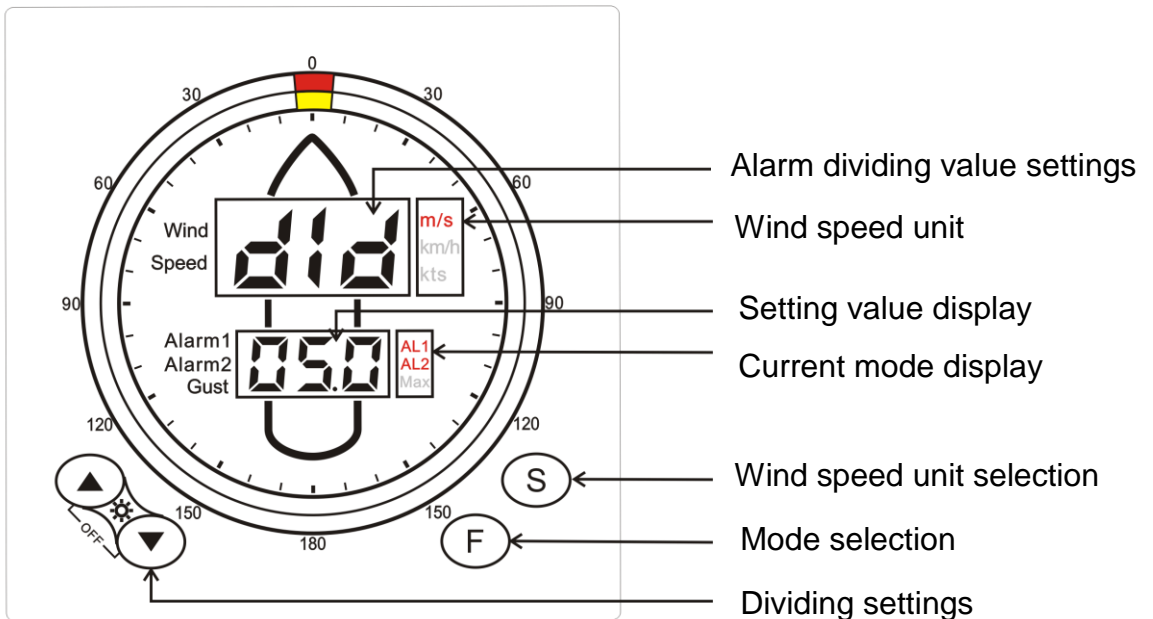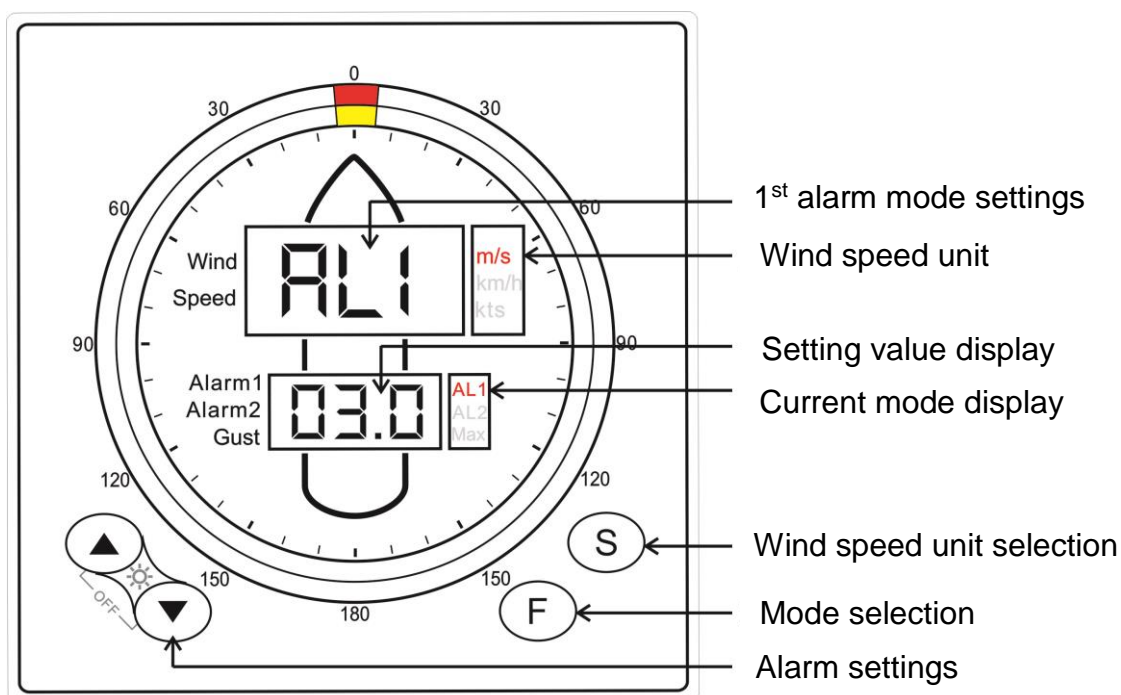

Press [S] on the main unit to to select the speed unit, m/s, km/h, kts. And press [▲] or [▼] to set the dividing value.

Unit	Set min value	Set max value	Set range	Step
m/s	3	59	AL1~AL2-1	1
km/h	10	214	AL1~AL2-2	2
Kts	5	116	AL1~AL2-1	1

Function and Operation (AM706C)

Set the first level alarm value

Press [F] twice on the main unit to enter the "1st level alarm setting". "AL1" is flashing. The first line LEDs show "AL1", then press [▲] or [▼] to set the value of the 1st level alarm. The second line LEDs show the setting value.


1st alarm mode settings
Wind speed unit
Setting value display
Current mode display
Wind speed unit selection
Mode selection
Alarm settings

Press [S] on the main unit to to select the speed unit, m/s, km/h, kts. And press [▲] or [▼] to set the value of the 1st level alarm.

Unit	Sett range	Step
m/s	OFF, 3~dld Value	1
km/h	OFF, 10~ dld Value	2
kts	OFF, 5~ dld Value	1

Function and Operation (AM706C)

Set the second level alarm value

Press [F] three times on the display to enter the "2nd level alarm setting". "AL2" is flashing. The first line LEDs show "AL2", then press [▲] or [▼] to set the value of the 2nd level alarm. The second line LEDs show the setting value.
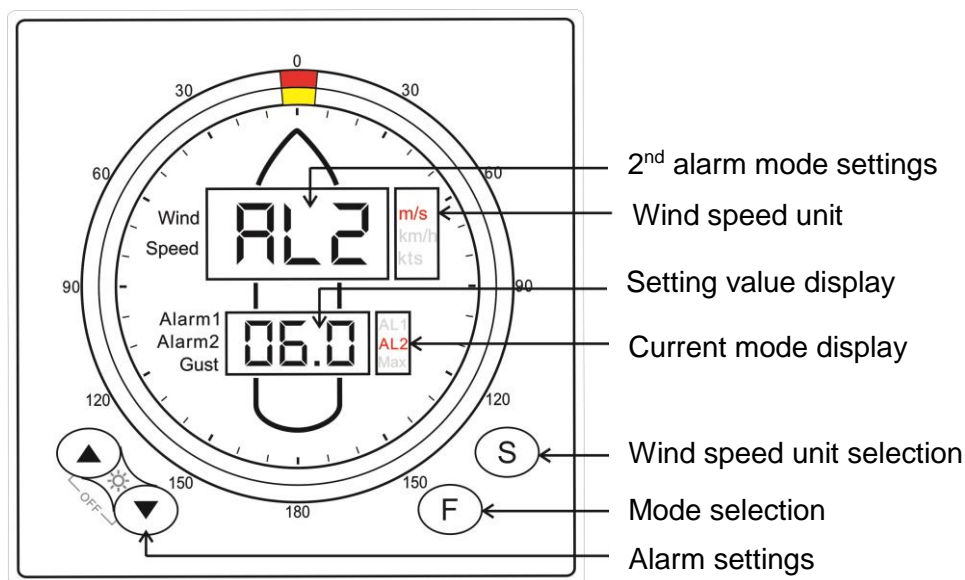
Press [S] on the main unit to to select the speed unit, m/s, km/h, kts. And press [▲] or [▼] to set the value of the 2nd level alarm.

| Unit	Sett range	Step
m/s	OFF, dId Value +1 ~60	1
km/h	OFF, dId Value +2 ~216	2
kts	OFF, dId Value +1 ~117	1

Function and Operation (AM706C)

Gust mode

When wind speed achieves or exceeds the alarm setting value for 30 seconds, the main unit AM706C will sound an alarm and the letters in first LED line will be flashing; meanwhile, the main unit will send the alarm signal (switching value) to the alarm unit. **AM706A1** (the alarm installed in the cargo control room) and **AM706A2** (the alarm installed on the cargo deck) are sounding and flashing. Press any button on AM706C to mute the alarms. After muted, the alarms' lights are still flashing. And press [F] on the main unit to inter the setting mode, and set the alarm value to "OFF".
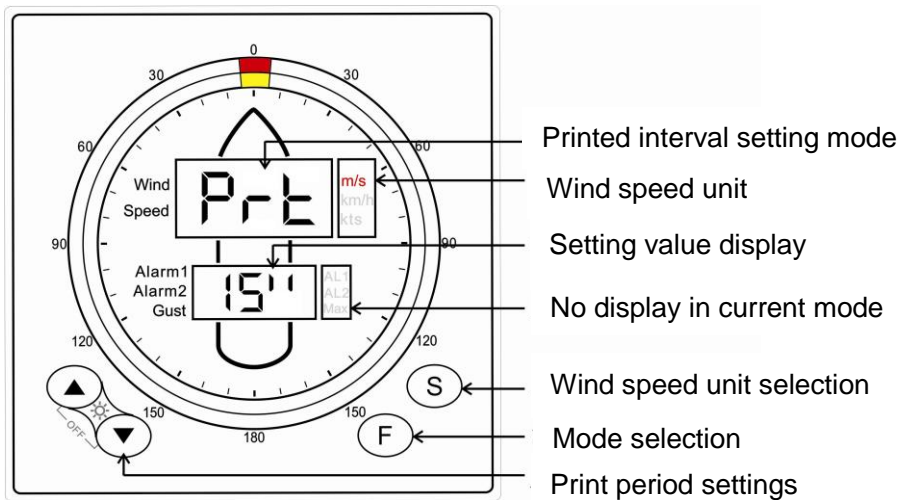
Set GST mode

Press [F] four times on the main unit to inter the "gust mode". "Max" is shining. The second line LEDs show the time interval, press [▲] or [▼] to select the interval time value. You can choose from 1 /2 /5 /10 min.
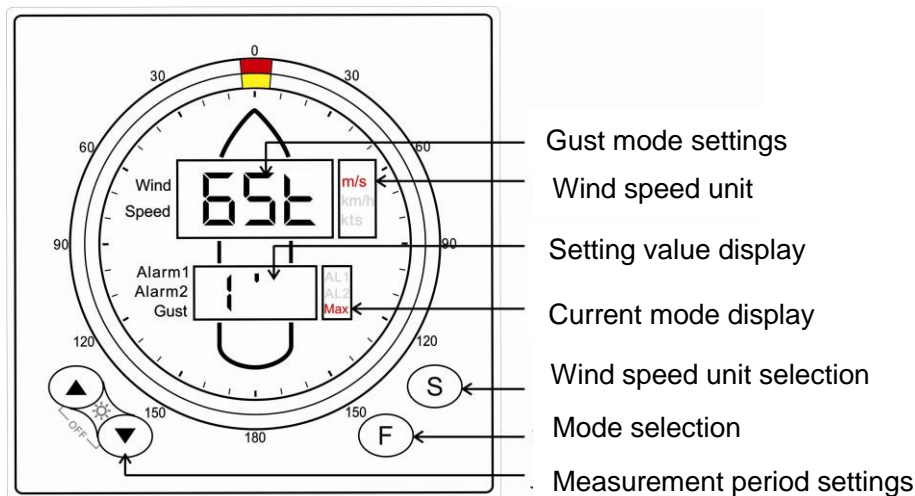
Function and Operation (AM706C)

Printed time interval

Press [F] five times on the main unit to inter the "printed time interval setting mode". The second line LEDs show the time interval, press [▲] or [▼] to select the interval time value, from OFF / 15 s / 30s / 60s / 5min / 10min / 15min / 30min.

Printed interval setting mode

Wind speed unit

Setting value display

No display in current mode

Wind speed unit selection

Mode selection

Print period settings

Specification

➢ Basic Specification

Main Unit Dimension： W188mm H166mm D65 mm (AM706E)

W202mm H196mm D64mm (AM706C)

Weight： Main Unit 2kg+2kg Sensor 10kg

Alarm unit 0.3kg (A1) + 3kg (A2)

Power Supply： 24V DC （20-32V）

Power through adapter： 110/220V 50/60Hz AC

Power： < 5W (24V DC)

NMEA Input Baud Rate： 4800bps (9600 bps for GPS data input)

Wind Output Baud Rate： 4800bps

Data Input： RS422 and NMEA0183

Standard

Sensor Dimension（AM706S）： H838mm Activity Radius 550 mm

➢ Environmental Conditions

Working Temperature：	Main Unit	-20°C～+55°C
	Sensor	-20°C～+85°C
Storage Temperature：	Main Unit	-20°C～+70°C
	Sensor	-20°C～+85°C
Humidity：	Main Unit	10%～90% RH
	Sensor	10%～100%RH
Protection：	Main unit IP 22	Sensor IP56
	AM706A1 IP54	AM706A2 IP56

Specification

➤ Technical Specification

Wind Speed Range：   0～60m/s

Wind Speed Accuracy：   ±5%（min0.1m/s）

Wind Direction Range：   0～359°

Wind Direction Accuracy：   ±1°

Min Start Speed：   ≤1.2m/s

Maintenance

Main Unit

The main unit is maintenance-free.

If doing the cleaning, use soft cloth and mild detergent, and avoid water drop.

Sensor Part

When there is ice or dirt on sensor to disturb the normal work, please clear in time.

Regularly check external mounting bolts to avoid looseness and the abrasion and ageing of cables

When the equipment breaks down, please contact our engineers of after-sale service department in time. Please do not do the service by yourself.
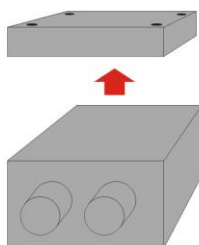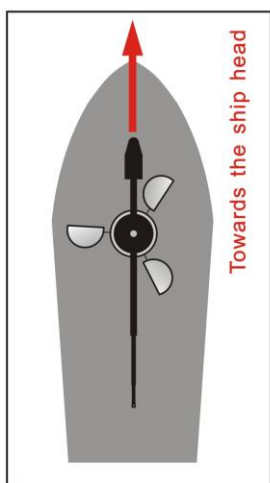
Calibration

Calibration of AM706 wind vane after finishing the installation.

Wind Direction Calibration
风向校准

1. Press any key to turn power on.
   按任意键开机。

2. Assistant goes up to hold the vane towards the ship head（Fore direction）. And open the waterproof junction box.
   请助手爬上桅杆将风向标箭头扶正指向船头（正前方），并打开防水接线盒。

Towards the ship head

3. Press button inside the waterproof junction box, the displayer shows "000". Close the box in the end.
   按下防水接线盒内的按钮，仪器显示"000"。
   最后关上防水接线盒。

Installation

Installation of Main Unit AM706E

The Main unit AM706E has three mounting methods, table, hanging and flush mounting.

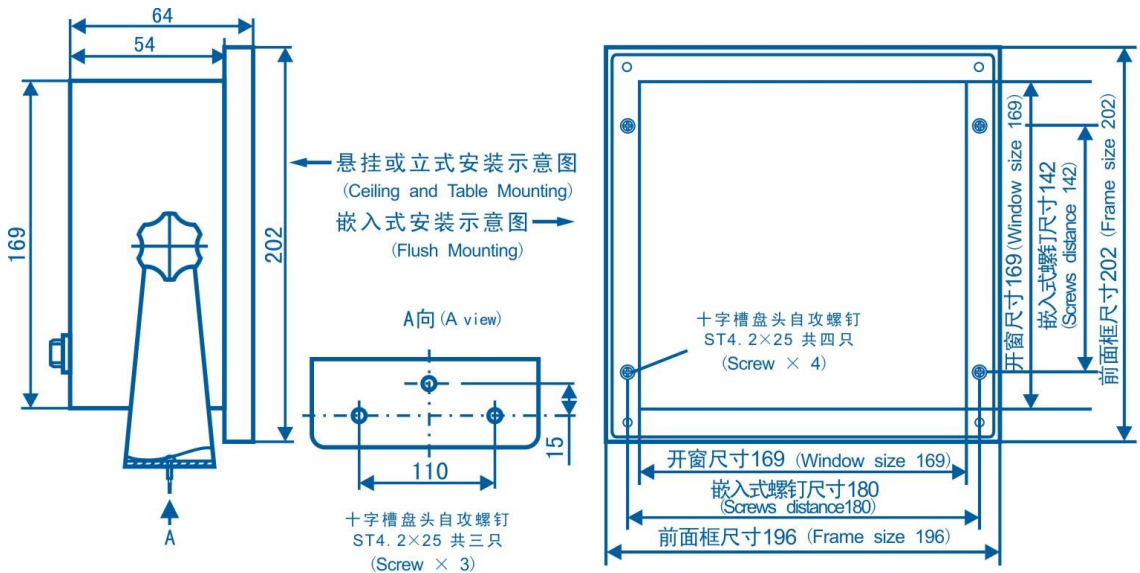The holder supplied by original factory setting is used in table and hung mounting.

For flushing mounting, embed the main unit into the bridge control panel (the dimension is shown below) and tighten the rotary knob to fix the main unit.
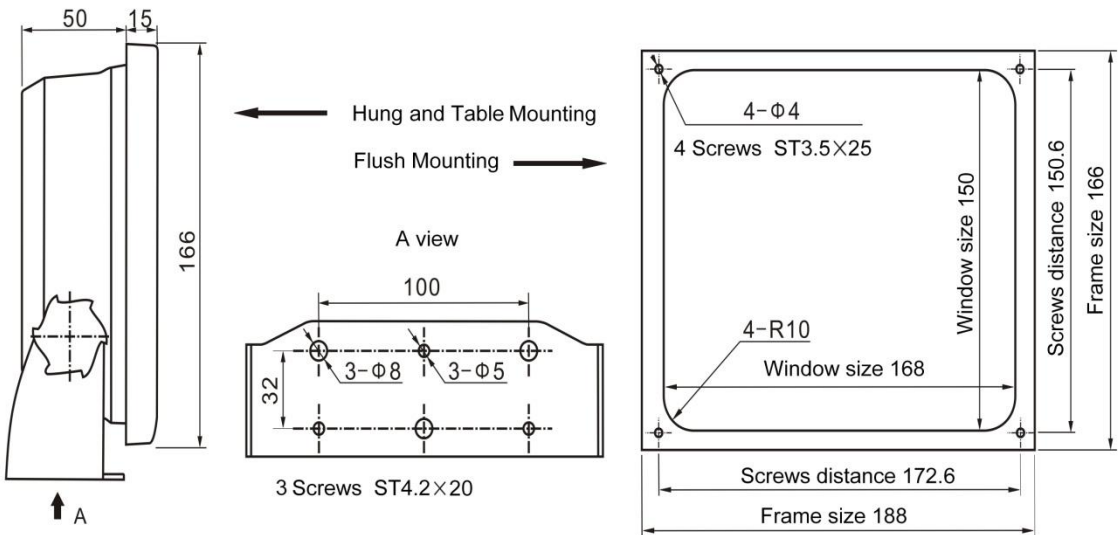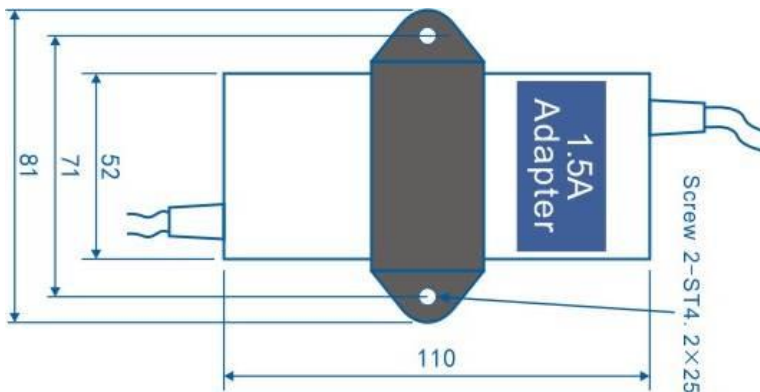
Installation

Installation of Main Unit AM706C

1. Make a cut out (169mmx169mm) in the Console.

2. Remove the mounting bracket.

3. Unscrew the 4 screws on the frame, then remove frame.

4. Put AM706C into the cut out, fix the inside 4 holes with self-tapping screws
   (ST4.2 $\times$ 25).

5. Finally put on the frame.

悬挂或立式安装示意图
(Ceiling and Table Mounting)

嵌入式安装示意图
(Flush Mounting)

A向(A view)

十字槽盘头自攻螺钉
ST4.2×25 共四只
(Screw $\times$ 4)

十字槽盘头自攻螺钉
ST4.2×25 共三只
(Screw $\times$ 3)

开窗尺寸169(Window size 169)
嵌入式螺钉尺寸142(Screws distance 142)
前面框尺寸202 (Frame size 202)

开窗尺寸169 (Window size 169)
嵌入式螺钉尺寸180(Screws distance180)
前面框尺寸196 (Frame size 196)

Power Adapter Mounting

Power adapter（GA-240150）, AC220/110V to DC24V, adapter holder and
screws. Weight：0.24kg.   Unit：mm

1.5A Adapter

Screw 2-ST4.2×25

Installation

Installation of Wind sensor AM706S

Wind Vane and Wind Cup Installation

[Wind Vane] Wind vane is installed on the top of sensor holder, successively into black seal ring, plane washer, spring washer and 2 screw nuts. The two screw nuts should be tightened and then insert the cotter.

[Wind Cup] Wind cup is installed on the bottom of sensor holder, successively into plane washer, spring washer and 2 screw nuts. The two screw nuts should be tightened and then insert the cotter.
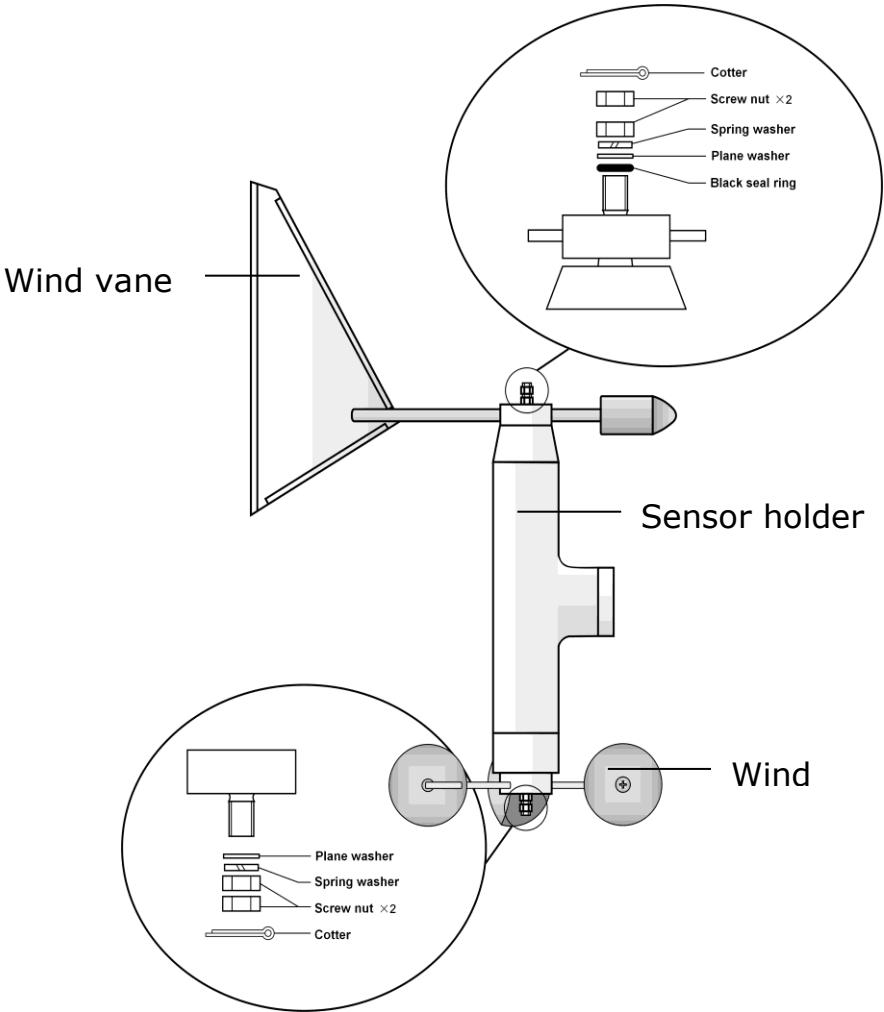
Installation

Integral Installation

[Space and location] The total height of wind sensor is 838mm. It should be horizontally installed on the ventilated place of ship and the action radius of wind indicator and wind cup is over 550mm.
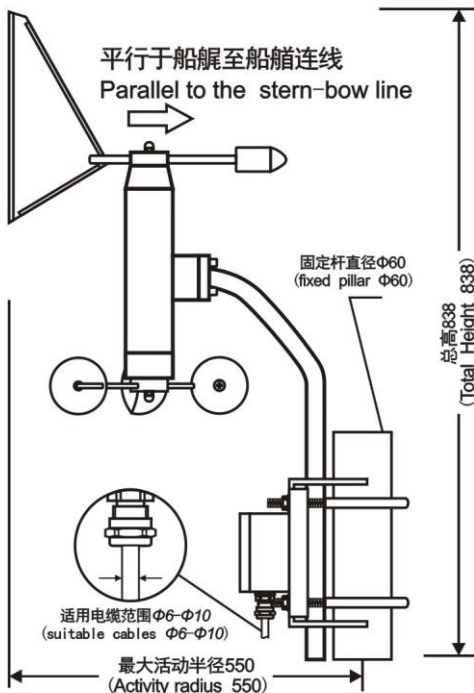
⚠️ **Please note, big Radar antenna rotation can disturb the wind measurement. Find a location away from Radar.**
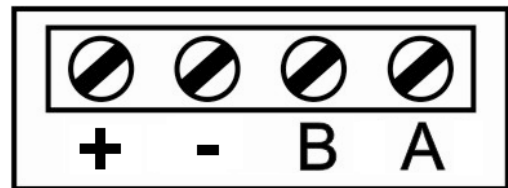
[Integral fixation] Use U-bolt in the accessory to fix wind sensor and the best option of supporting tube diameter is 60mm.

[Wiring] 4-core screened cable with external diameter 4mm~6mm is connected with 4 terminals +、-、B、A through glands of junction box. Please pay attention on wire colors and sequence in order to correctly connect the wiring terminals of back cover, 1+ 2- 3B 4A.

[Calibration] After the installation of main unit of wind sensor, do the calibration of wind direction based on Calibration.

平行于船艉至船艏连线
Parallel to the stern-bow line

固定杆直径Φ60
(fixed pillar Φ60)

总高838
(Total Height 838)

适用电缆范围Φ6-Φ10
(suitable cables Φ6-Φ10)

最大活动半径550
(Activity radius 550)

AM706S junction box terminals

+	−	B	A

DC   NMEA

AM706D back cover terminals

WIND SENSOR
1:+   3:B
2:−   4:A

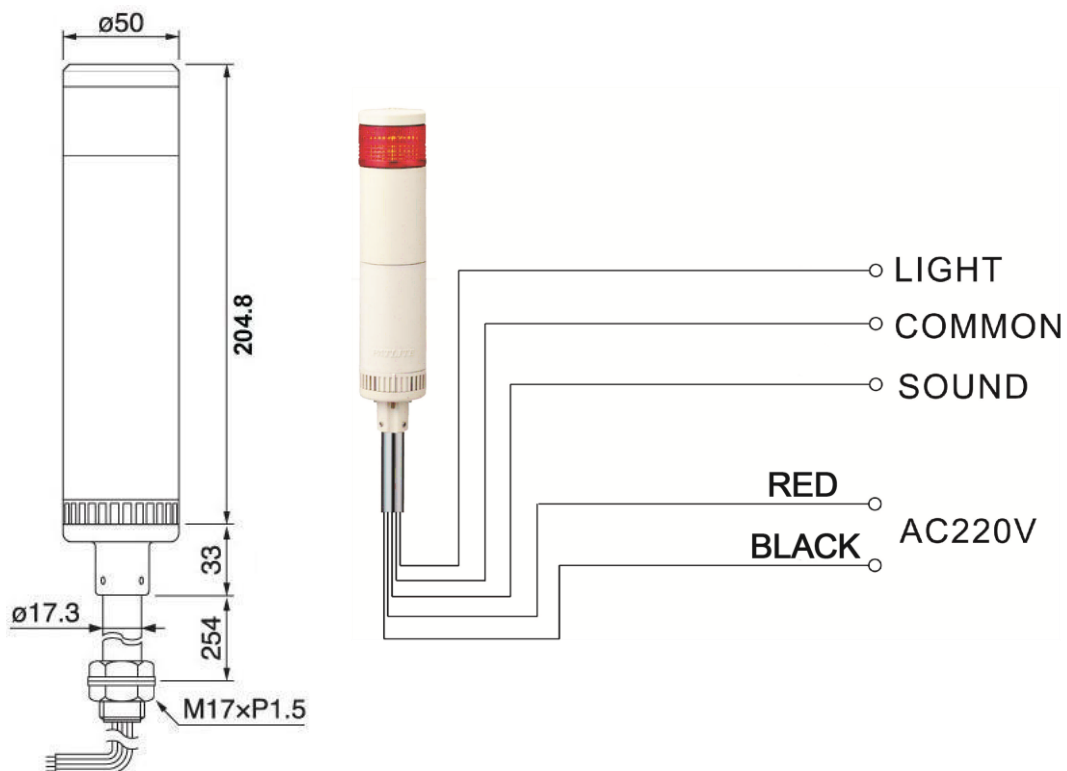# Installation

1st Alarm Unit（AM706A1）

AM706A1 can be wall mounted with bracket supplied.

Installation diagram   Wiring diagram   (unit：mm)

⚠ ATTENTION!

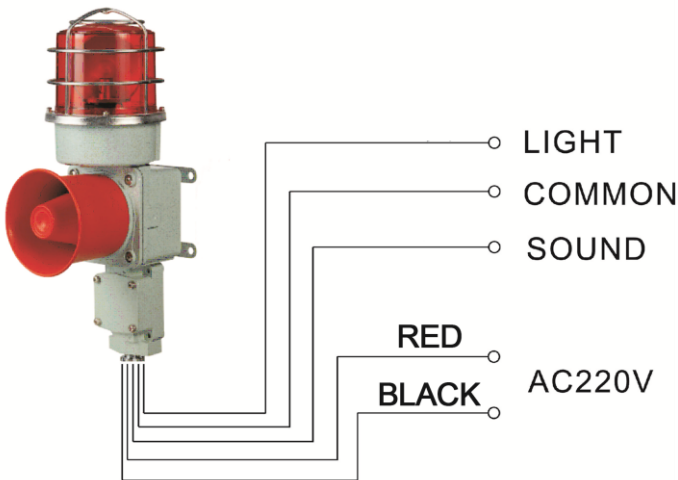**The three lines of LIGHT, COMMON, SOUND will be damaged if connected to the AC220V power supply!**
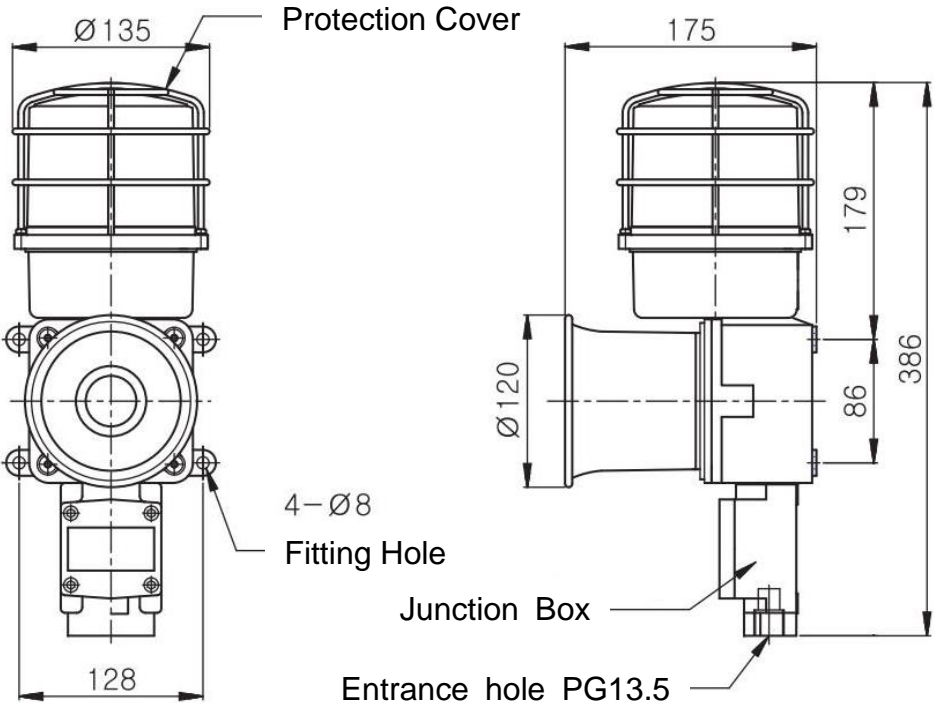
High Voltage Hazard!

High voltage is on LIGHT, COMMON, SOUND lines when alarm is connected with power.
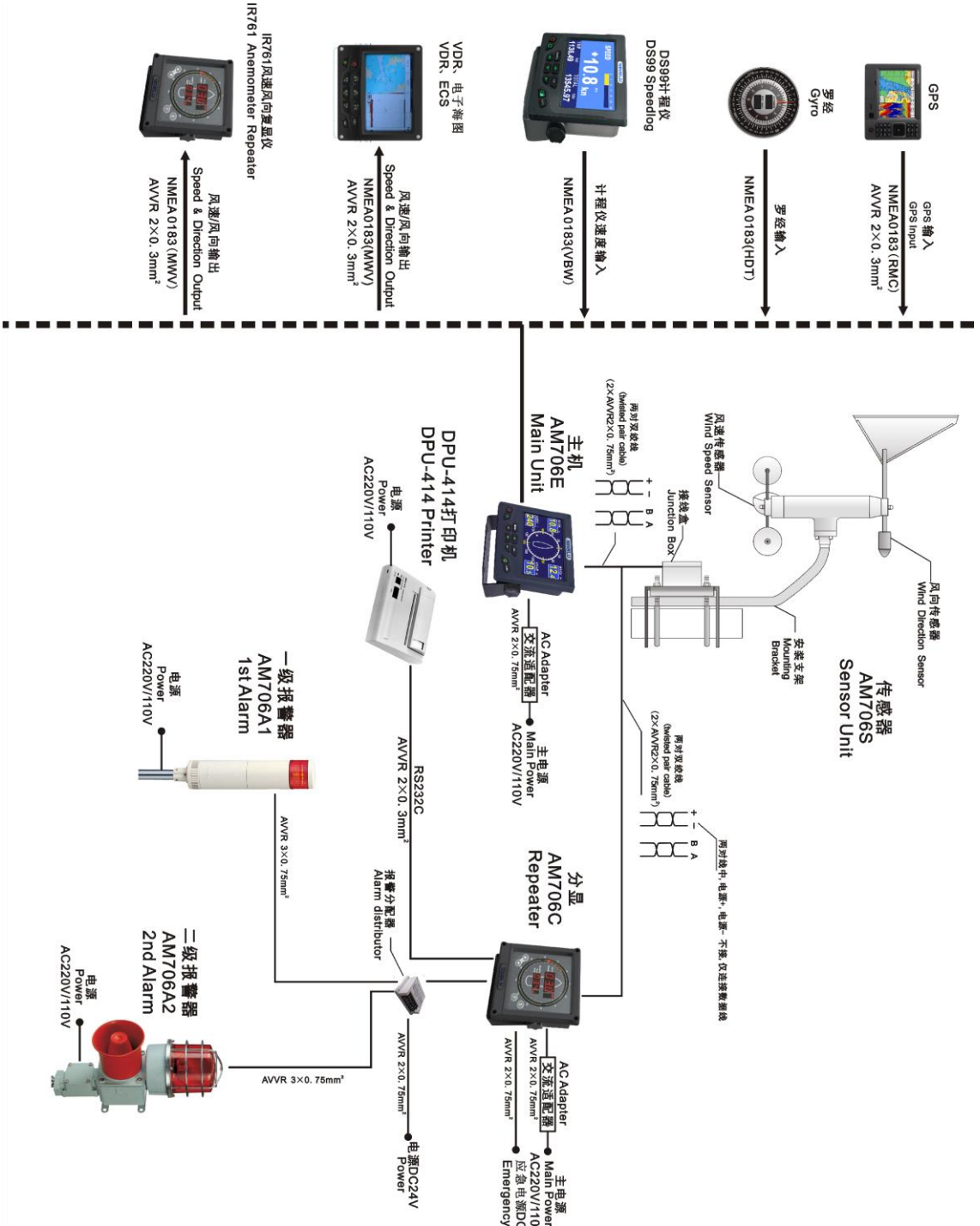
Installation

2nd Alarm unit (AM706A2)

AM706A2 can be installed on a console, panel, on the overhead, or on the bulkhead with tapping screws.　(unitmm)

Protection Cover

Ø135

175

179

Ø120

86

386

4−Ø8

Fitting Hole

Junction Box

128

Entrance hole PG13.5

LIGHT

COMMON

SOUND

RED

BLACK

AC220V

ATTENTION!
The three lines of LIGHT, COMMON, SOUND will be damaged if connected to the AC220V power supply!

Wiring Explanation

System View
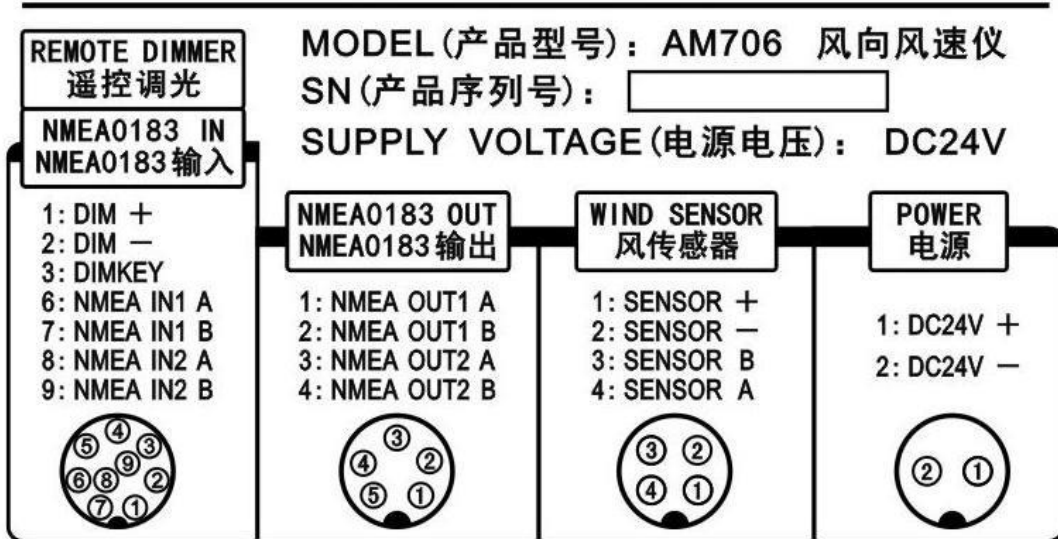
AM706E Wiring Explanation

Wiring Diagram of AM706E Back Cover

ANEMOMETER

REMOTE DIMMER
遥控调光

NMEA0183 IN
NMEA0183输入

1: DIM +
2: DIM −
3: DIMKEY
6: NMEA IN1 A
7: NMEA IN1 B
8: NMEA IN2 A
9: NMEA IN2 B

MODEL（产品型号）：AM706　风向风速仪
SN（产品序列号）：
SUPPLY VOLTAGE（电源电压）：DC24V

NMEA0183 OUT
NMEA0183输出

1: NMEA OUT1 A
2: NMEA OUT1 B
3: NMEA OUT2 A
4: NMEA OUT2 B

WIND SENSOR
风传感器

1: SENSOR +
2: SENSOR −
3: SENSOR B
4: SENSOR A
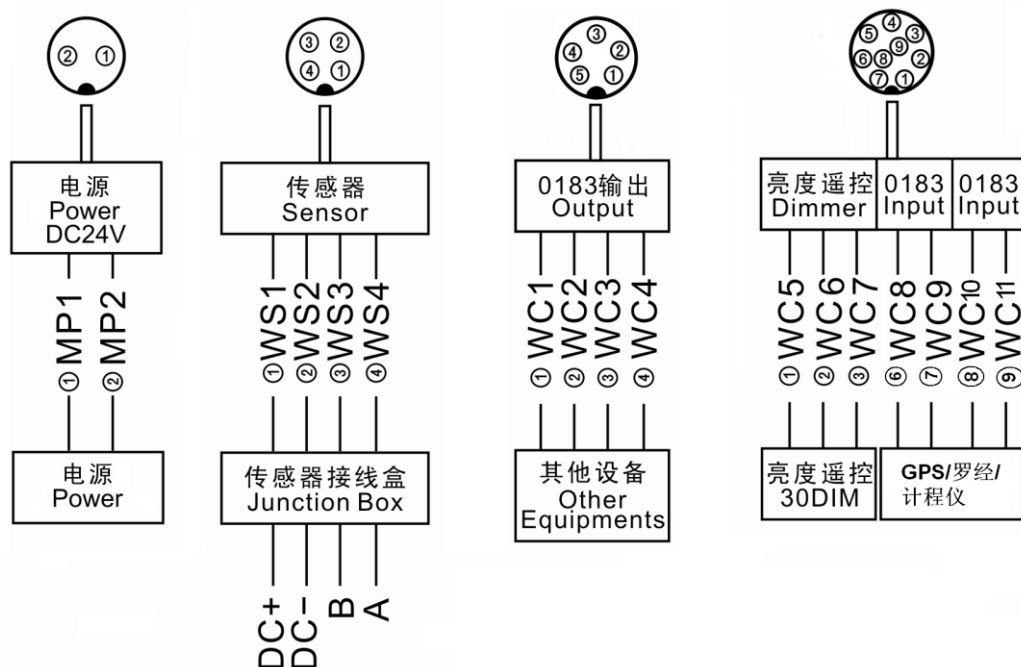
POWER
电源

1: DC24V +
2: DC24V −

AM706E Wiring Explanation

System External Wiring Diagram of AM706E

AM706E Main Unit Wiring Diagram

名称 Name	内容 Content	名称 Name	内容 Content
MP1	电源 ＋ Power ＋	WC1	NMEA 0183输出 1 A NMEA 0183 Output 1 A
MP2	电源 － Power －	WC2	NMEA 0183输出 1 B NMEA 0183 Output 1 B
WS1	传感器电源输出 ＋ Sensor power output ＋	WC3	NMEA 0183输出 2 A NMEA 0183 Output 2 A
WS2	传感器电源输出 － Sensor power output －	WC4	NMEA 0183输出 2 B NMEA 0183 Output 2 B
WS3	传感器数据输入 B Sensor data input B	WC5	亮度 ＋ DIM ＋
WS4	传感器数据输入 A Sensor data input A	WC6	亮度 － DIM －
		WC7	亮度公共线 DIMKEY
		WC8	NMEA 0183输入 1 A NMEA 0183 Input 1 A
		WC9	NMEA 0183输入 1 B NMEA 0183 Input 1 B
		WC10	NMEA 0183输入 2 A NMEA 0183 Input 2 A
		WC11	NMEA 0183输入 2 B NMEA 0183 Input 2 B

AM706C Wiring Explanation

System External Wiring Diagram of AM706C
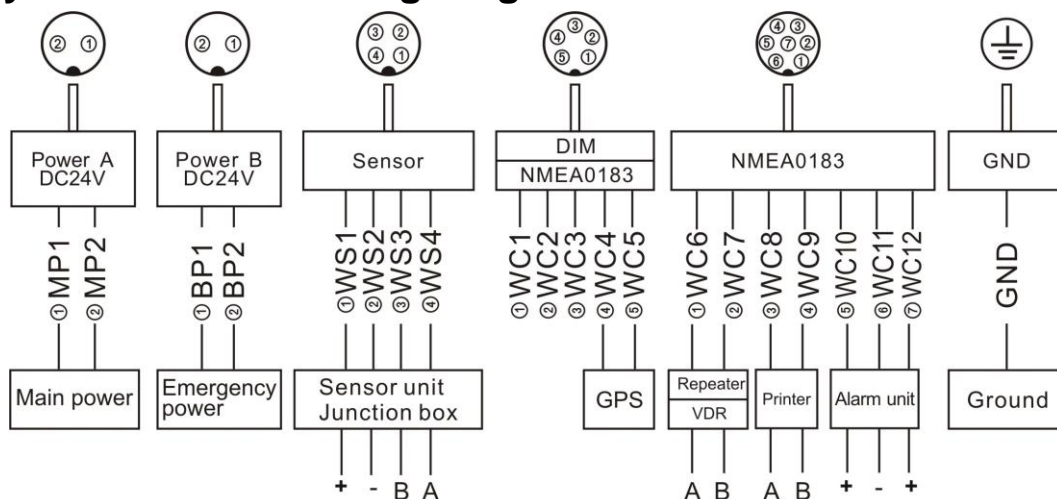
Name	Content	Name	Content
MP1 (Red)	Main power +	WC1	DIM +
MP2 (Black)	Main power -	WC2	DIM -
BP1	Emergency power +	WC3	DIMKEY
BP2	Emergency power -	WC4 (Black)	NMEA0183 Input B
WS1 (Red)	Wind sensor power output+	WC5 (Red)	NMEA0183 Input A
WS2 (Black)	Wind sensor power output-	WC6 (Red)	NMEA0183 Output A to Reapter / VDR
WS3 (White)	Wind sensor data inputB	WC7 (Black)	NMEA0183 Output B to Reapter / VDR
WS4 (Blue)	Wind sensor data inputA	WC8 (Blue)	Output to print A
GND	Ground	WC9 (White)	Output to print B
		WC10 (Orange)	Output to sound alarm +
		WC11 (Green)	Output to alarm com -
		WC12 (Yellow)	Output to light alarm+

The above colors are the colors of the cables provided by our company in the packaging accessories, which are two-core power cable, four-core sensor cable and seven-core data cable, respectively.

AM706C Wiring Explanation

The cables in the company's accessories are only for the convenience of the customer connection. The customer can be extended according to the installation needs.
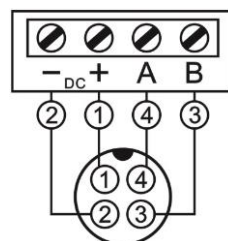
Connection of AM706C and AM706S

AM706S Sensor junction box

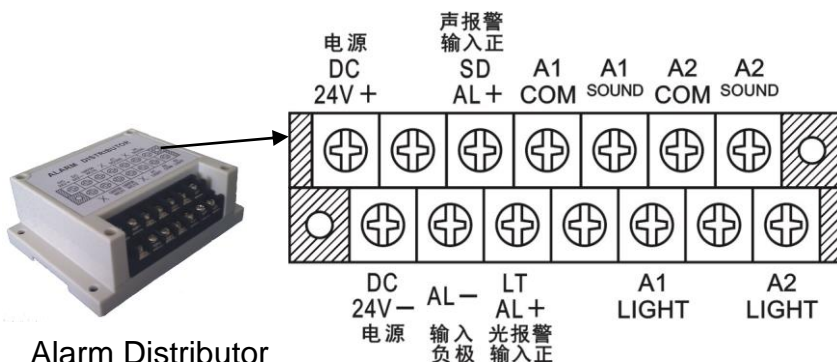### Wirings
One four-core cable is used to connect the sensor to the main unit.
Sensor power +←four-core cable RED→ ①WS1
Sensor power −←four-core cable BLACK→ ②WS2
Sensor data B ←four-core cable WHITE→ ③WS3
Sensor data A ←four-core cable BLUE→ ④WS4

AM706C
Four-connector plug

Connection of Alarm Distributor

电源
DC
24V +

声报警
输入正
SD
AL+

A1
COM

A1
SOUND

A2
COM

A2
SOUND

DC
24V −
电源

AL−
输入
负极

LT
AL+
光报警
输入正

A1
LIGHT

A2
LIGHT

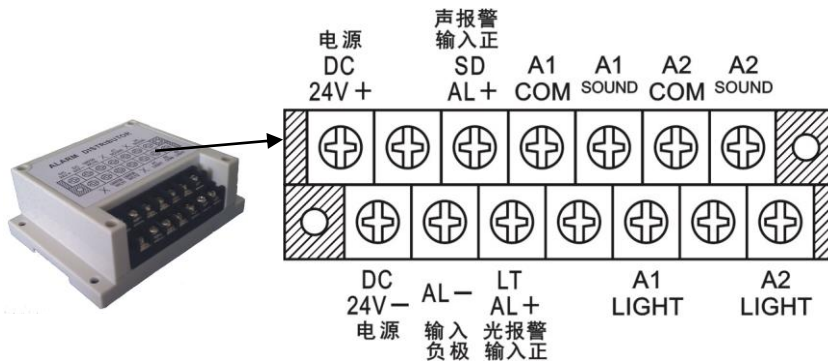Alarm Distributor

AM706C
Seven-connector plug

④ ③
⑤ ⑦ ②
⑥ ①

Wirings
One seven-core cable is used to connect the alarm distributor to the main unit.
Alarm input SD LA+ ←seven-core cable ORANGE→ ⑤WC10
Alarm input AL- ←seven-core cable GREEN→ ⑥WC11
Light Aalrm LT AL+ ←seven-core cable YELLOW→ ⑦WC12
DC24V + and DC24 − of the alarm distributor is directly connected to the power supply DC24V.

AM706C Wiring Explanation
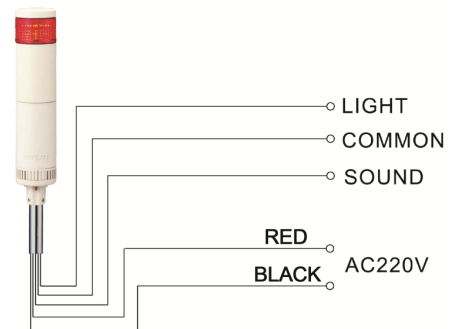
Connection of 1st alarm unit AM706A1

Wirings

Three wirings of 1st alarm unit are directly connected to the alarm distributor.
RED LIGHT →Distributor A1 LIGHT
YELLOW COMMON→Distributor A1 COM
PURPLE SOUND →Distributor A1 SOUND
Two power wirings (grey and black) of 1st alarm unit are directly connected to AC220V/110V.
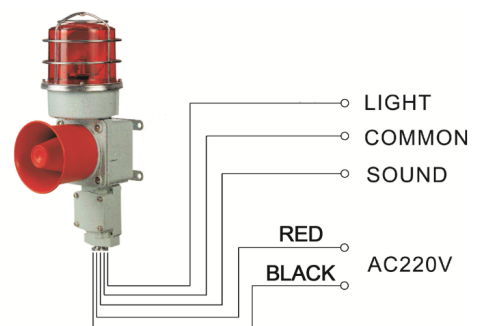
Connection of 2nd alarm unit AM706A2

Wirings

Three wirings of 2nd alarm unit are directly connected to the alarm distributor.
YELLOW LIGHT →Distributor A2 LIGHT
GREEN COMMON →Distributor A2 COM
BLUE SOUND →Distributor A2 SOUND
Two power wirings (red and black) of 2nd alarm unit are directly connected to AC220V/110V.

ATTENTION!

The three lines of LIGHT, COMMON, SOUND will be damaged if connected to the AC220V power supply!

After finish all connection, power on the system, otherwise there is a risk of electric shock.

Printer

DPU-414 Specification

Operating temperature: 0 ～ 40℃

Humidity: 30 ～ 80% RH

Weight: 580 g

Power: AC220/110V with adaptor

Current: 2A (Max)

Lifetime: 500 thousand bite

Printed mode: thermal serial dot-matrix

Thermal record paper: CX-050B a roll of paper =30m 10 rolls/group
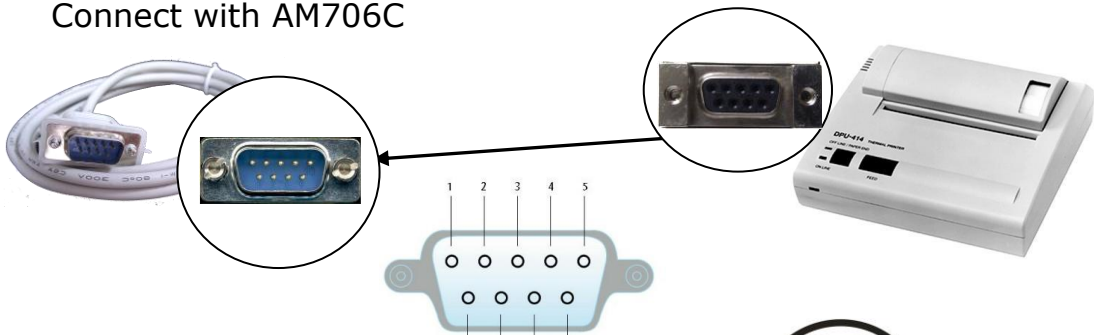
Interface: 8 bite parallel /RS-232C serial

Printed paper/content width: 112 mm/89.6 mm

DPU414

Supplementary wiring for printer DPU-414

Connect with AM706C

Pin 3 → Print A → ③WC8
Pin 5 → Print B → ④WC9

AM706C
Seven-connector plug

Printer

Printed Format

With GPS input, printed format is showing as follow:

06/12/11 15:42 28°38.7010N(S) 121°25.8340E(W) 233° 11.0 Knot(s)

   ①   ②   ③   ④   ⑤   ⑥

(1) Date/month/year

(2) Hour: minute

(3) North Latitude (South Latitude)

(4) East Longitude (West Longitude)

(5) Wind direction

(6) Wind speed

Without GPS input, printed format is showing as follow:

XX/XX/XX XX：XX XX°XX.XXXXN/S XX°XX.XXXXE/W   233° 11.0Knot(s)

   ①   ②   ③   ④   ⑤   ⑥

(1) Date/month/year

(2) Hour: minute

(3) North Latitude (South Latitude)

(4) East Longitude (West Longitude)

(5) Wind direction

(6) Wind speed

Printer

Printer setting

Dip SW-1

  1 (OFF):Input=Serial

  2 (ON):Printing Speed=High

  3 (ON):Auto Loading=ON

  4 (OFF):Auto LF=OFF

  5 (ON):Setting Command=Enable

  6 (OFF):Printing

  7 (ON):Density

  8 (ON):=100%

Dip SW-2

  1 (OFF):Printing Columns=80

  2 (ON):User Font Back-up=ON

  3 (ON):Character Select=Normal

  4 (ON):Zero=Normal

  5 (ON):International

  6 (ON):Character

  7 (ON):Set

  8 (OFF):=U.S.A.

Dip SW-3

  1 (ON):Data Length=8 bits

  2 (ON):Parity Setting=No

  3 (ON):Parity Condition=Odd

  4 (ON):Busy Control=H/W Busy

  5 (ON):Baud

  6 (OFF):Rate

  7 (OFF):Select

  8 (OFF):=4800 bps.

Repeater

The IR761 wind repeater is a combined display for wind speed and direction.

It receives NMEA0183 signal from a marine anemometer (talker), display the average, max/min wind speed on digit LEDs, and wind direction on a double LED circle. It's 144x144 Din size cabinet is suitable for table, hanging and flush mounting. The installation is the same with AM706C.

IR761 Specification

Operating temperature: 0 ～ 40℃

Humidity: 10 ～ 90% RH
Weight: 1.4kg
Protection：   IP 23
Power: DC24V
Consumption: 2W (24V)
Compass safe distance: 85 cm

IR761

Operation

〖**Sleep mode**〗 Press [▲] and [▼] at the same time, turn the main unit into sleep mode. Press any key to remove sleep mode.

〖**Brightness**〗 Press ▲ or ▼ to set brightness for display.

〖**Speed unit**〗 Press [S] to select the wind speed unit, m/s, knots, km/h, mph

〖**Interval time value**〗 Press [F] again and ▲ or▼ to select the interval time value: 1/2/5/10 min

Error Alarm

Form	explain
ERR	Shows "ERR" when the operator unit receives no signal or the signal is not a NMEA message.
_ _ _	Shows "_ _ _" when the message is incorrect
. . .	Shows "…." when receiving other message

Repeater

Connection

COLOR	SIGNAL	COLOR	SIGNAL
1 RED	NMEA IN B	6 GREEN	DIM-
2 BLACK	NMEA IN A	7 YELLOW	DIMKEY
3 BLUE	NMEA OUT A	8 GREY	SHIELD
4 WHITE	NMEA OUT B	DIM+	to DIM930
5 ORANGE	DIM+	DIM-	Brightness controller
		DIMKEY	

WIRING CONNECTING

1:NMEA IN B(RED)
2:NMEA IN A(BLK)
3:NMEA OUT A(BLU)
4:NMEA OUT B(WHI)
5:DIM + (ORN)
6:DIM − (GRN)
7:DIMKEY(YLW)
8:GND (SHIELD)

Pin 2 → NMEA0183 A → ①WC6
Pin 1 → NMEA0183 B → ②WC7

AM706C
Seven-connector plug

Appendix

Wind Grade Table

Grade	Speed（m/s）	Speed（km/h）	Grade	Speed（m/s）	Speed（km/h）
0	0.0~0.2	<1	10	24.5~28.4	89~102
1	0.3~1.5	1~5	11	28.5~32.6	103~117
2	1.6~3.3	6~11	12	32.7~36.9	118~133
3	3.4~5.4	12~19	13	37.0~41.4	134~149
4	5.5~7.9	20~28	14	41.5~46.1	150~166
5	8.0~10.7	29~38	15	46.2~50.9	167~183
6	10.8~13.8	39~49	16	51.0~56.0	184~20
7	13.9~17.1	50~61	17	56.1~61.2	202~220
8	17.2~20.7	62~74	>17	≥61.3	≥221
9	20.8~24.4	75~88			