



USER MANUAL

DIGITAL ANEMOMETER SYSTEM

AM-100

NOTICE TO USERS

- Thanks for purchasing this product AM-100 digital anemometer system.
- Please read this manual carefully to ensure proper use before installation and operation of the AM-100.
- NSR will assume no responsibility for the damage caused by improper use or modification of the product or claims of loss of profit by a third party.
- NSR reserves the right to make continuous improvements of products both in software and hardware without any prior notice.
- NSR is devoted to publishing and maintaining this user manual. As we continue to improve our products to satisfy customers' needs, the information in this document is subject to change without prior notice. NSR does not make any representations or warranties (implied or otherwise) regarding the accuracy and completeness of this document and shall in no event be liable for any loss of profit or any commercial damage, including but not limited to special, incidental, consequential, or other damage.
- The copyright of this manual is owned by the manufacturer, NEW SUNRISE CO., LTD (NSR). Prior written permission is required for copying or reproducing the manual or part of the manual.
- Please keep the manual for your future reference.

MODIFY RECORD

No.	Modify by	Date	Paragraph	Version	Reason
1	Q/A	2010/07/09		01	First edition
2	Q/A	2016/03/04	2, 3, 5.1, 5.5	02	a. System diagram revised from DC24V to AC220V. b. Photos increased
3	Q/A	2022/11/02	all	03	General modification
4	Q/A	2024/02/29	3, Appendix	04	Some modification
5	Q/A	2024/12/17	all	05	Some modification
6	Q/A	2025/04/21	all	06	Some modification
7	Q/A	2025/08/14	3, Appendix	07	Some modification

TABLE OF CONTENTS

1. GENERAL	1
2. SYSTEM CONFIGURATION	2
3. TECHNICAL SPECIFICATIONS.....	4
4. OPERATION.....	5
4.1 Direction Indicators	5
4.2 Digit Window	5
4.3 Control Buttons	5
5. INSTALLATION	6
5.1 Installation of Transmitter	6
5.2 Installation of Display Unit	6
5.3 Installation of Remote Button	6
5.4 Installation of Junction Box.....	6
5.5 Cable Connection between Units	7
APPENDIX INSTALLATION DRAWINGS	9

1. GENERAL

AM-100 digital anemometer system is specially designed for marine use. The transmitter installed on the radar mast is made of special nylon to protect it from strong winds and salty air at sea. With 72 LED indicators, both relative and true (theoretical) wind direction can be clearly displayed. For large vessels, up to four display units can be installed on the bridge and other locations on board. For easy operation, a remote button can be installed at the operator's to control the display unit.

The digital anemometer can provide six ports of RS422 wind data to various external equipment, including (S)VDR, INS, etc.

2. SYSTEM CONFIGURATION

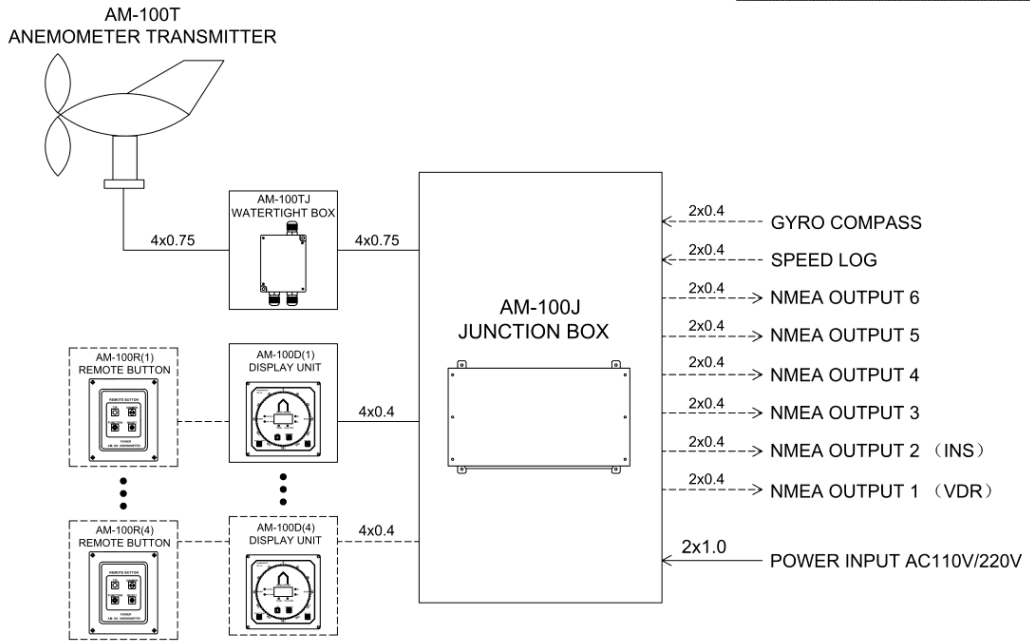
The system consists of five main parts:

- **AM-100T** Anemometer Transmitter
- **AM-100D** Display Unit
- **AM-100R** Remote Button (Optional)
- **AM-100J** Junction Box
- **AM-100TJ** Watertight box for Transmitter

Normally, one Display Unit is connected to the Junction Box, but four ports are available for maximum 4 sets of Display Units to be connected, especially for some large vessels. Each Display Unit can be connected with one Remote Button for easy operation.

AM-100 Equipment List:

No.	Item	Type	Q'ty	Part No.	Remarks	
1	Standard					
1.1	Anemometer Transmitter	AM-100T	1 pc	N992310		
1.2	Display Unit	AM-100D	1 pc			
1.3	Junction Box	AM-100J	1 pc			
1.4	Watertight Box	AM-100TJ	1pc			
1.5	Accessories:					
1.5.1	Transmitter Cable		40 m			AM-100T↔AM-100J
1.5.2	Display Cable		10 m			AM-100D↔AM-100J
1.5.3	Power Cable		2 m			AM-100J↔Power Source
1.5.4	Transmitter Installation Base		1 pc			
1.5.5	Transmitter Installation Plate		2 pcs			
1.5.6	Fitting Bolts for Transmitter		5 pcs			M10X45
1.5.7	Fitting Bolts for Display Unit		4 pcs			M4X16
1.5.8	Fitting Screws for Junction Box		4 pcs			M4X16
1.5.9	CABLE TIE (300 mm)		10 pcs			
1.5.10	CABLE TIE (100 mm)		10 pcs			
1.5.11	Vinyl Tape		1 roll		Isolation Tape	
1.5.12	Rubber Tape		1 roll			
1.5.13	User Manual		1 pc			
2	Optional					
2.1	Remote Button	AM-100R		N502313		
2.2	Additional Display Unit	AM-100D		N502312		
2.3	Additional Cables					



NOTE: ----- Optional or Yard Supplied

Fig 2.1 Block Diagram of Anemometer System

3. TECHNICAL SPECIFICATIONS

NO	ITEM	Wind Speed	Wind Direction
1	Wind Range	0~60 m/s	0~360°
2	Accuracy	±(0.5+V×5%) m/s	±5°
3	Display Capacity	Up to 4 Display Units can be connected	
4	Input Interface (see NOTE 1)	Heading data input (Compass): NMEA0183, RS422, 4800bps Speed data input (Speed Log): NMEA0183, RS422, 4800bps	
5	Output Interface (see NOTE 2)	Port Number: RS422 6 ports Output Format: NMEA0183 Baud Rate: 4800bps Output Sentence: \$WIMWV,270,R,10.0,M,A*09 \$WIMWV,226,T,13.9,M,A*05	
6	Operating Environment	Indoor -15~+55°C Outdoor -30°C~+70°C	
7	Power Supply	AC110V/220V	
8	Power Consumption	Max 12W	
9	Weight	Transmitter (AM-100T) 4.3kg Display Unit (AM-100D) 0.2kg Remote Button (AM-100R) 0.1kg Junction Box (AM-100J) 2.7kg Watertight Box (AM-100TJ) 0.2kg	
10	Compass Safe Distance	≥0.05m	
11	IP Grade	IP22 (Display Unit, Junction Box, Remote Button) IP66 (Transmitter, Watertight Box)	

NOTE 1: Input sentences are used to calculate true wind.

One of the conditions below should be satisfied:

- A. Compass HDT + Speed Log VBW
- B. Compass HDT + GNSS RMC
- C. GNSS RMC

NOTE 2: Output ports 5&6 are only for relative wind speed and direction. Sentence Description:

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

```


| | | | |
| | | | +----- 5. Status, A = data valid V= data invalid
| | | +----- 4. Wind speed units, K = km/h, M = m/s, N = knots
| | +----- 3. Wind speed
| +----- 2. Reference, R = relative, T = theoretical
+----- 1. Wind angle, 0° to 359°
    
```

4. OPERATION

4.1 Direction Indicators

There are 72 LED indicators in total. Each LED represents 5 degrees in wind direction. Among 72 LEDs, 12 LEDs are in **yellow**, representing 0, 30, 60, 120, 150, 180 degree, and the right LEDs are in **green** and the left LEDs are in **red**.

Depending on the direction in which the wind comes from, all the LEDs in the sector from 0 degree to that direction will light on.

The brightness of the LEDs can be adjusted by pressing the  button.

4.2 Digit Window

In the Digit Window, three digits can be displayed.

The displayed contents can be heading degree, wind speed, or ship speed. The change among

three values are controlled by  button.

The default value displayed is wind speed. If no button is pressed in 5 minutes, the wind speed will be displayed, no matter what the current status is.

4.3 Control Buttons

There are four control buttons, which are described below.



4 steps to adjust the brightness of all LED indicators:

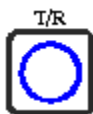
Most Bright → Bright → Dark → Darker



Continuously press the button to select the following functions:



- ① **k/n** indicator on. Either wind speed or ship speed is displayed in k/n.
- ② **m/s** indicator on. Only wind speed can be displayed in m/s.
- ③ **HEADING** indicator on. Heading data is displayed in the window.
- ④ **SHIP SPEED** indicator on. Ship speed is displayed in the window.



Change between True wind and Relative wind. Both direction and speed will be changed accordingly.



Press “RESET” to reset the display unit or switch it off. When the display unit is switched off, the LED on the button will light on.

5. INSTALLATION

5.1 Installation of Transmitter

The Transmitter should be installed in a clear space to avoid any obstacles of the wind. There is an installation base and installation plate supplied together with the Transmitter. The steel base should be welded directly or through a support pole on the radar mast. There are five long holes on the round base. The center of one of the five holes should be pointed to the ship bow. Keep the base horizontal while welding. The installation plate is to protect the Transmitter base from cracking while fastened.

There are five round holes on the Transmitter base. Fix the transmitter on the mount base with five M10X45 bolts. The long-holes on the mount base are used for the transmitter to adjust until the “N” mark on the Transmitter base points to the bow direction.

The transmitter should be grounded through the small junction box with a grounding cable.

5.2 Installation of Display Unit

The Display Unit is a flush mount type. Make a cutting area as attached drawing. Usually, the Display Unit can be installed on the bridge console or up the bridge.

5.3 Installation of Remote Button

Same as the Display Unit, the Remote Button is also a flush mount type. Make a cutting area as shown in the attached drawing.

The Remote Button is an optional part. When the Display Unit is installed up the bridge, in which case, panel operation is impossible, a Remote Button is necessary to operate the Display Unit.

5.4 Installation of Junction Box

The junction Box can be mounted on the table or wall. Enough space should be kept for cabling.

5.5 Cable Connection between Units

- Connect Transmitter to Junction Box

A watertight box is used to connect the Transmitter and Junction Box.

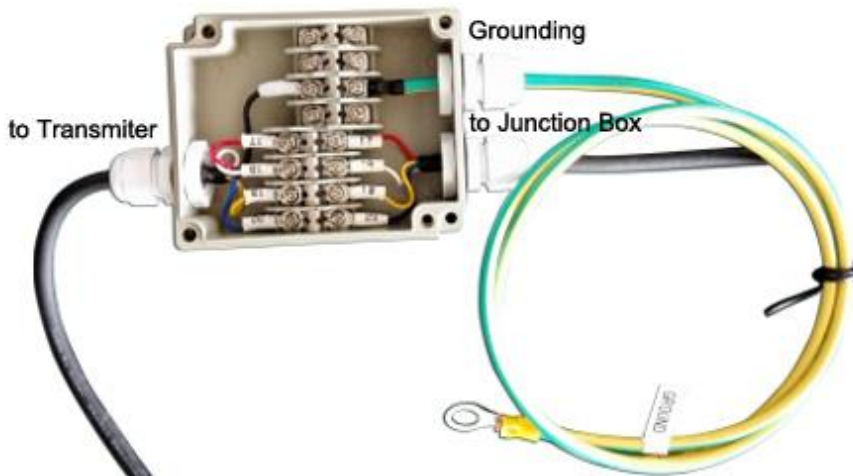


Fig 5.1 Connection between Transmitter and Junction Box

Rubber cable is recommended for outdoor environments. After the cable is connected, it is suggested to use rubber tape to wrap the cable gland for water-tight treatment.

- Connect Display Units to Junction Box

A 4-wire cable is supplied in a length of 10m for connection between AM-100D Display Unit and AM-100J Junction Box. The interface between the units is also RS422.

Max four Display Units can also be connected to the Junction Box. Each Display Unit can operate independently.

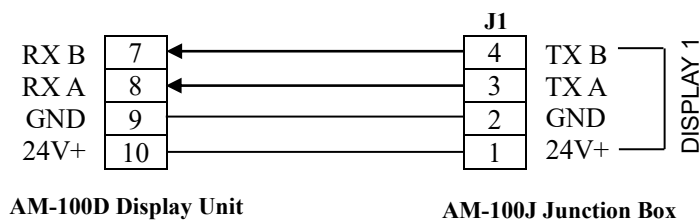


Fig 5.2 Connection between Display Unit and Junction Box

- **Connect Remote Button to Display Unit**

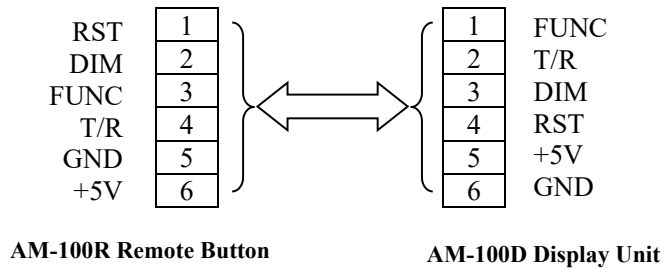


Fig 5.3 Connection between Remote Button and Display Unit

A 6-wire cable is supplied in a length of 10m for connection between AM-100D and AM-100R. The AM-100R Remote Button is an optional part of the system. All the panel operating functions can be realized through AM-100R Remote Button.

- **Connect with Compass and Speed Logger**

Heading data and Ship Speed data should be input into AM-100J Junction Box to calculate the true wind's speed and direction. Refer to the manuals of Speed Logger and Compass for connections. The input data should be in NMEA0183 format/RS422, at a baud rate of 4800bps.

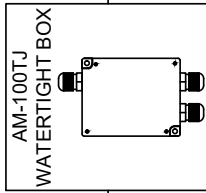
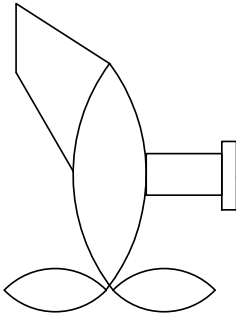
- **Connect with (S)VDR and other externals**

There are six output ports of wind data in total. The data format is NMEA0183 at a baud rate of 4800bps. The data sentence is as follows:
 \$WIMWV,180.00,R,30.5,M,A*2D

APPENDIX INSTALLATION DRAWINGS

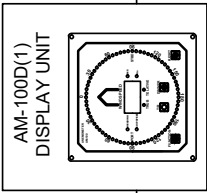
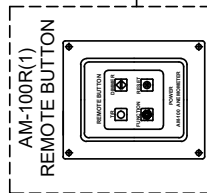
Drawing No.	Description
AM100-ID-001	AM-100 ANEMOMETER SYSTEM DIAGRAM
AM100-ID-002	AM-100 ANEMOMETER SYSTEM WIRING DIAGRAM
AM100-ID-003	AM-100T ANEMOMETER TRANSMITTER SIZE DRAWING
AM100-ID-004	AM-100TJ WATERTIGHT BOX SIZE DRAWING
AM100-ID-005	AM-100J JUNCTION BOX SIZE DRAWING
AM100-ID-006	AM-100D DISPLAY UNIT SIZE DRAWING
AM100-ID-007	AM-100R REMOTE BUTTON SIZE DRAWING

AM-100T ANEMOMETER TRANSMITTER



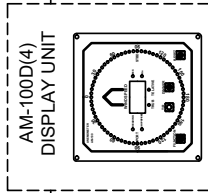
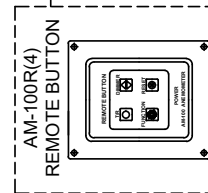
4x0.75

4x0.75

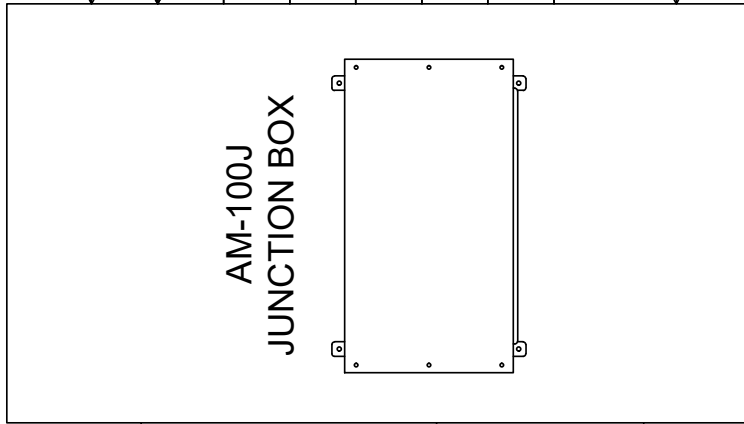


4x0.4

...



4x0.4



2x0.4

2x0.4

2x0.4

2x0.4

2x0.4

2x0.4

2x0.4

2x0.4

2x1.0

GYRO COMPASS

SPEED LOG

NMEA OUTPUT 6

NMEA OUTPUT 5

NMEA OUTPUT 4

NMEA OUTPUT 3

NMEA OUTPUT 2 (INS)

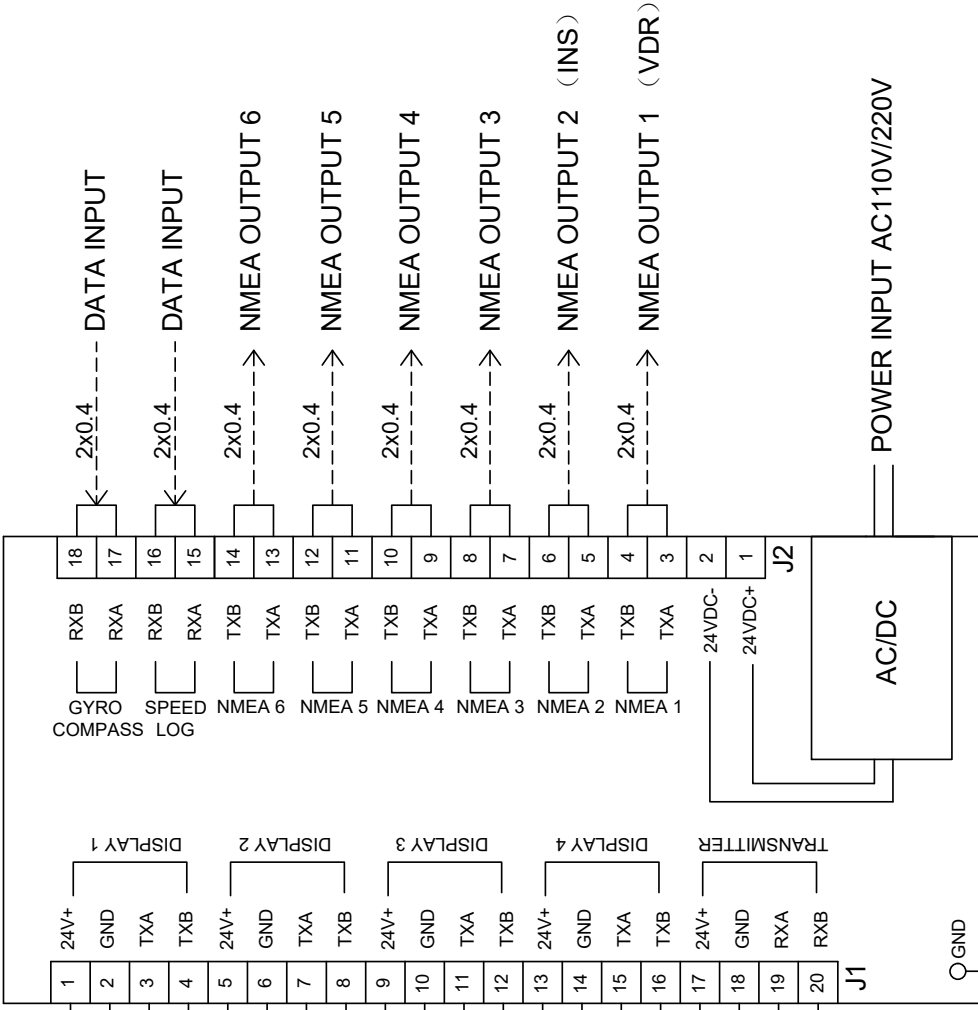
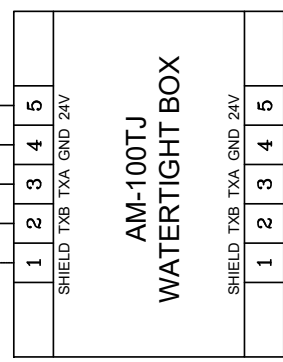
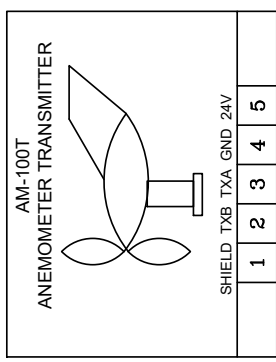
NMEA OUTPUT 1 (VDR)

POWER INPUT AC110V/220V

NO.	DATE	REVISION & DESCRIPTION	DESIGN	CHECKED

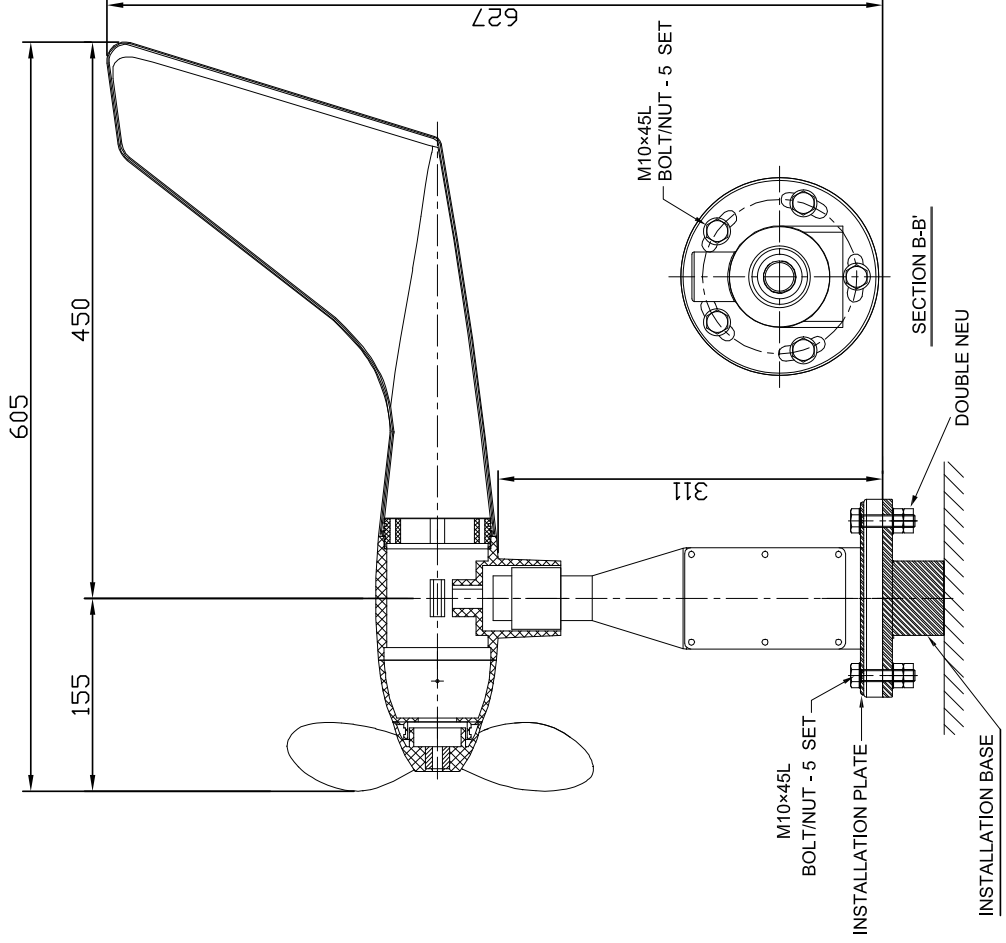
APPLICATION									
AM-100 ANEMOMETER SYSTEM DIAGRAM									
DATE	APP'D	CHK'D	REVISE	DATE	SCALE	UNIT	NO.	REV.	NO.
NEW SUNRISE CO., LTD.									
<small>AM100-ID-001</small>									

REV.	DATE	REVISION & DESCRIPTION	DESIGNED	CHECKED



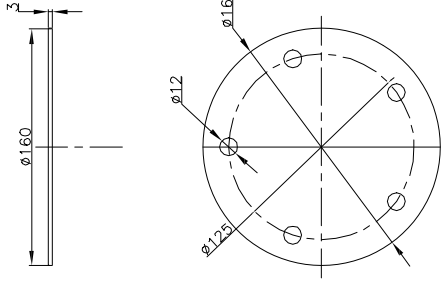
APPLICATION: AM-100 ANEMOMETER SYSTEM WIRING DIAGRAM									
DATE	REV.	BY	CHK.	APP.	DATE	REV.	BY	CHK.	APP.
					NEW SUNRISE CO., LTD.				
PART NO. AM100-ID-002									

NOTE:
 NMEA 5,6 only output relative wind angle;
 NMEA 1,2,3,4 output both relative and theoretical (when valid) wind angle.



INSTRUCTIONS

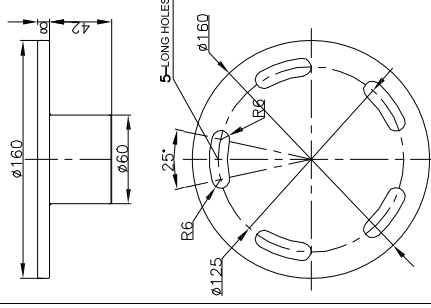
1. The plate is installed upon the transmitter base to be protected from cracking when hardly fastened.
2. Two half-circle plates make one complete circle.
3. Material: Steel A3,Zn coating.



INSTALLATION PLATE

INSTRUCTIONS

1. The Base is fixed on mast directly or with a support pole by welding.
2. The center of one of five long holes points to bow while the base is fixed.
3. While welding, the base should be kept horizontally.
4. Material: Steel A3,Zn coating.



INSTALLATION BASE

NO.

DATE

REVISION & DESCRIPTION

REVIEWER SIGNATURE

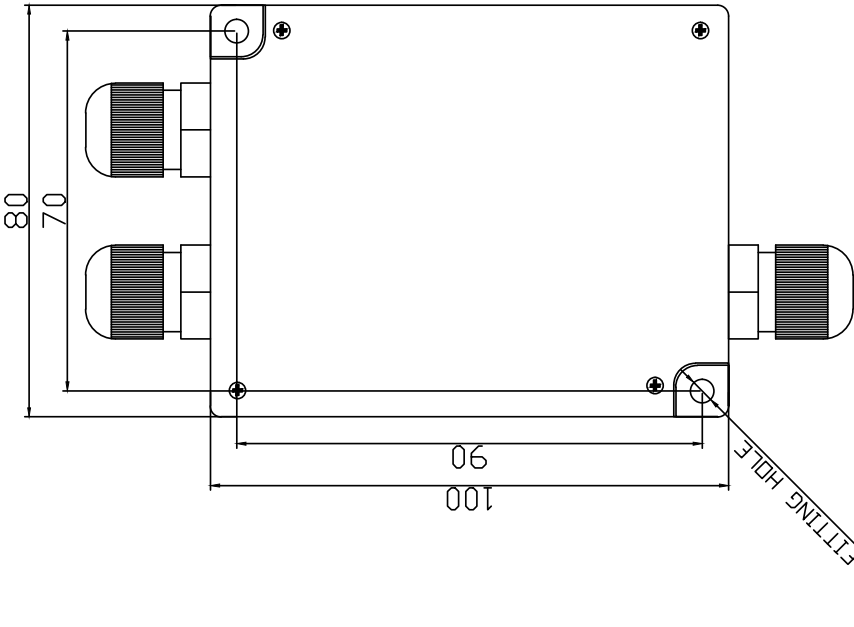
DATE

Materials:

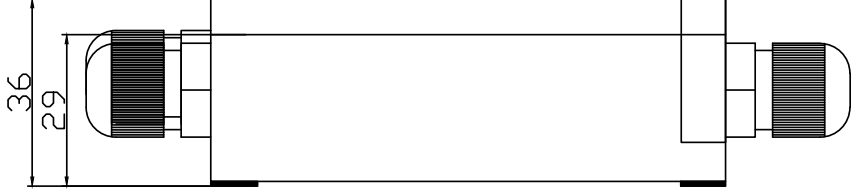
1. Wing part : PC
2. Lower part : Nylon with 30% glass
3. Installation plate/base : Steel A3,Zn coating

APPLICATION AM-100T ANEMOMETER TRANSMITTER SIZE DRAWING

DATE	APP. NO.	REV.	DATE	APP. NO.	REV.	DATE	APP. NO.	REV.
NEW SUNRISE CO., LTD.								
AM100-ID-003								



FRONT VIEW



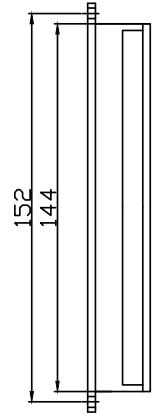
SIDE VIEW

NO.	DATE	REVISION & DESCRIPTION	REVIEWER	CHECKER
▲				

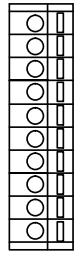
APPLICATION		AM-100TJ WATERTIGHT BOX SIZE DRAWING	
DATE	SCALE	BY	CHKD.
APPROVAL	DATE	DATE	DATE
DESIGN			
DWG. NO.			

NSR NEW SUNRISE CO., LTD.

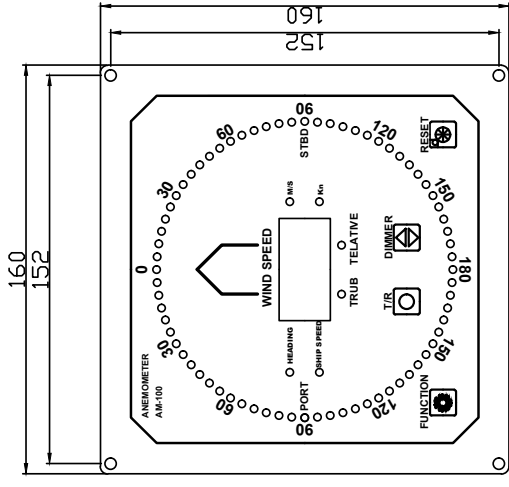
NO.	DATE	REVISION & DESCRIPTION	REVIEW	DESIGN



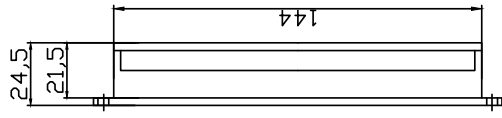
TOP VIEW



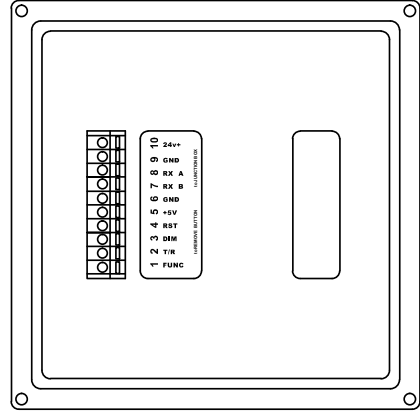
- 1 24V+
 - 2 GND
 - 3 RX A
 - 4 RX B
 - 5 GND
 - 6 +5V
 - 7 RST
 - 8 DIM
 - 9 T/R
 - 10 FUNC
- 10 REMOVE BUTTON 10 JUNCTION BOX



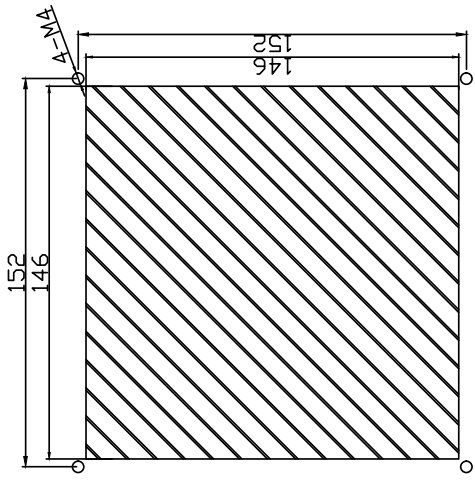
FRONT VIEW



SIDE VIEW

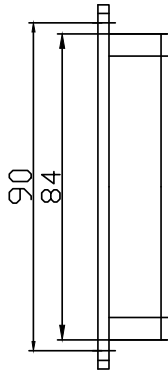


REAR VIEW

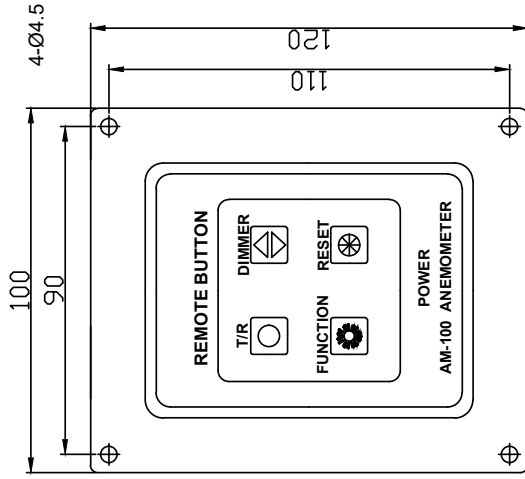


YARD AREA CUTTING SIZE

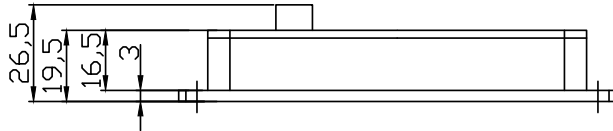
APPLICATION									
AM-100D DISPLAY UNIT SIZE DRAWING									
DATE	BY	CHKD	APP'D	DATE	BY	CHKD	APP'D	DATE	BY
NEW SUNRISE CO., LTD.									
AM100-ID-006									



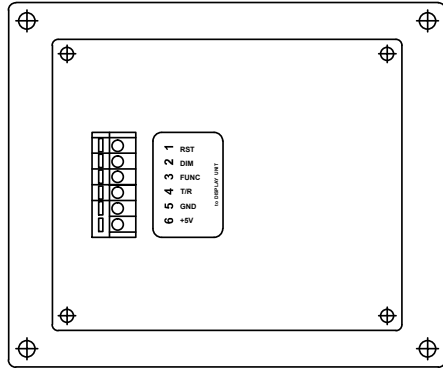
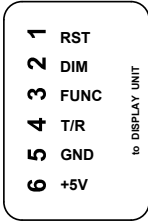
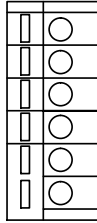
TOP VIEW



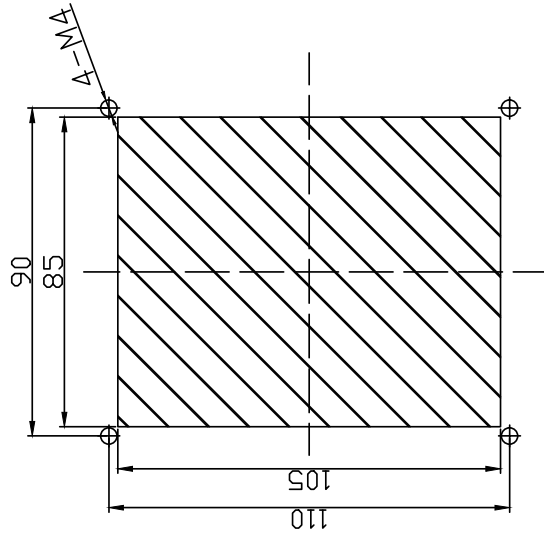
FRONT VIEW



SIDE VIEW



REAR VIEW



YARD AREA CUTTING SIZE

NO.	DATE	REVISION & DESCRIPTION	REVISION	DATE
1				

APPLICATION		AM-100R REMOTE BUTTON SIZE DRAWING			
UNIT	MM	SCALE	1:1	SHEET	1/1
DESIGNER		CHECKER		DATE	
DRAWING NO.	AM100-ID-007	NEW SUNRISE CO., LTD.			

Copyright by NEW SUNRISE CO., LTD. (NSR)

www.nsrmarine.com

info@nsrmarine.com

August, 2025