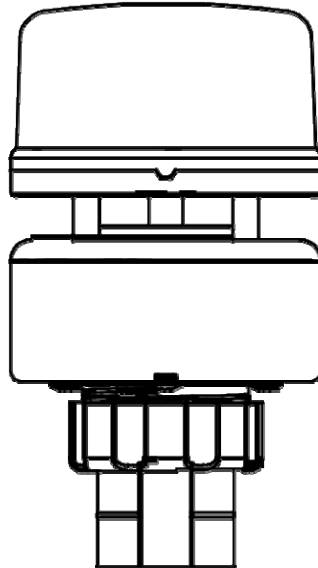


Owner's Guide & Installation Instructions
用户指南与安装说明

Weather Station[®] Instrument
Weather Station[®] 气象站仪器

Models 型号: **300WXR**
300WX
200WX
150WX
110WX
100WX



Patents Pending

Record the serial number found on the underside of the instrument.
请记录仪器底部的序列号

Serial No. 序列号 _____ Date of Purchase 购买日期 _____

38020 rev.03

10/22/12

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IMPORTANT: Please read the Owner's Guide completely before proceeding.
注意：在操作仪器前请完整阅读用户指南。

Introduction 介绍

Thank you for purchasing the ultrasonic, Weather Station Instrument. This exciting product has multiple sensors in a single unit—without any moving parts. The compact housing is waterproof with a single removable cable. Functions and features vary by model.

感谢您订购这款超声波气象站仪器。这款产品将多种传感器集成于一体——无任何可移动部件。紧凑的壳体具有防水功能,并带有一根可拆卸的电缆。功能和特性将根据不同的型号提供多样化的选择!

Features 特性

- **Waterproof housing and cable system** 防水的外壳和电缆
- **Fast response time and update rate** 快速的反应时间和更新率
- **Stable and accurate true wind and heading data in dynamic conditions**
稳定、精确的真风和动态航向数据
- **Can be programmed to compensate for an installation that is not aligned to the front of the boat/vehicle and/or level**
可以通过编程来补偿在船/车上安装造成的前方不准和不水平
- **Can be calibrated to compensate for magnetic deviation caused by ferrous metals and other electro-magnetic fields**
可以通过校准来补偿金属铁和其它电磁场造成的磁偏转
- **GPS with WAAS and EGNOS** GPS辅助卫星服务WAAS和EGNOS

Outputs & Functions 输出和功能

Table 1: Outputs & Functions
表1: 输出和功能

	300WXR	300WX	200WX	150WX	110WX	100WX
Apparent wind speed and angle 视风速度和角度	*	*	*	*	*	*
True wind speed and direction 真风风速和方向	*	*	*	*		
True wind speed relative to water 相对水面的真风风速	*	*	*	*		
Heater to keep wind channel free of ice 保持风道不结冰的加热	A	A	A	A	A	
Air temperature 气温	*	*	*	*	*	*
Apparent wind chill temperature 视风风寒温度	*	*	*	*	*	*
True wind chill temperature 真风风寒温度	*	*	*	*		
Barometric pressure 大气压力	*	*	*	*	*	*
Relative humidity 相对湿度	B	B	B	B	B	
Dew point temperature 露点温度	B	B	B	B	B	
Heat index temperature 热指数温度	B	B	B	B	B	
Rain intensity 雨强度	*					
Rain accumulation 雨量	*					
Rain event duration 雨持续时间	*					
Peak time of rain intensity 雨强度的峰值时间	*					
Magnetic compass heading 磁性罗盘指向	C	C	C	D		
Heading relative to true north 相对真北的指向	*	*	*	*		
Rate of Turn 转速	*	*	*			
Angle of pitch and roll 倾斜和摆动的角度	*	*	*	*		
Rate of pitch & roll 倾斜和摆动的速度	*	*	*			
Global Positioning System (GPS) 全球定位系统	*	*	*	*		
NMEA 0183; RS232	*	*	*	*	*	*
NMEA 0183; RS422	*	*	*	*	*	*
NMEA 2000®; CAN	*	*	*	*	*	

- A. Optional heater 可选加热
 B. Optional humidity sensor 可选湿度传感器
 C. 3-axis compass 3轴罗盘
 D. 2-axis compass 2轴罗盘

Safety Instructions 安全说明

WARNING

警告

Navigation Aid Only—The Weather Station Instrument is only an aid to navigation and should never be solely relied upon. It is not a replacement for traditional navigation aids and techniques. Only official government charts contain all the information needed for safe navigation.

只能作为导航辅助设备—这种气象站仪器只是帮助导航的辅助设备，不能单独依靠它。它不能替代传统的导航设备和技术。官方海图所包含的信息需要用可靠的导航。

Follow the safety precautions below to reduce the risk of poor product performance, property damage, personal injury, and/or death.

下面的安全措施会减少降低产品性能、财产损失、人身伤害（甚至死亡）的风险。

WARNING: Correct Installation Important

警告：正确的安装非常重要

The Weather Station Instrument must be installed and operated according to the instructions in this owners guide.

气象站仪器的安装和操作必须依照用户指南。

WARNING: Installation Safety

警告：安装必须确保安全

Always wear safety goggles and a dust mask when installing.

安装时人员需佩戴防护眼镜和防尘面具。

WARNING: Compass Safe Distance

警告：罗盘的可靠距离

The Weather Station Instrument must be a minimum of 0.3 m (1') from other standard and steering compasses.

气象站仪器与其它标准和操舵罗盘的最小距离为0.3米（1英尺）。

WARNING: Do Not Install Near Artificial Magnetic Field

警告：不要安装在人造磁场附近

The Weather Station Instrument must be a safe distance from ferrous metals and anything that can create a magnetic field to prevent interference to the magnetic compass.

为了防止对磁性罗盘的干扰，气象仪器应与铁金属和可以产生磁场的物体保持一个安全距离。

WARNING: Electrical Safety

警告：用电要安全

The power supply must be OFF before making electrical connections.

在进行电气连接前必须先切断电源。

WARNING: Voltage

警告：电压

The power supply voltage must be that specified for the model.

电源电压必须符合要求。

- WX models 9 - 40 VDC
- Models with heater (带加热) 24VDC only

WARNING: Fuse or Circuit Breaker

警告：熔断器或断路器

A safe installation requires a 0.5 amp fast-blow fuse or circuit breaker. Except, models with a heater require a 3 amp fast-blow fuse or circuit breaker.

仪器正常安装使用0.5安培快速熔断器或断路器。如果仪器带加热，就要使用3安培快速熔断器或断路器。

WARNING: Battery

警告：电池

Make power connections to a power source that is isolated from the engine start battery(s). Voltage drops may cause the instrument to lose information and/or change operating mode.

仪器连接的电源应该与马达启动电池隔离。电压的下降可能导致仪器丢失信息或改变操作模式。

WARNING: Calibrating the Compass

警告：罗盘的校准

The internal compass may need to be calibrated after the Weather Station Instrument is installed. Perform the pretest to determine if calibration is necessary.

气象站仪器安装后，可能需要对内置的罗盘进行校准。进行预测试来决定校准是否必要。

WARNING: 150WX

警告：150WX

These models incorporate a two-axis compass. Significant errors can occur in the heading when a vehicle/boat is pitching and rolling. If there is an error in the heading, there also will be a corresponding error in the true wind direction. Errors can be minimized or eliminated by using data from an external compass.

这类型号仪器包含一个两轴罗盘。当船/车俯仰和转弯时，航向会产生误差。如果航向有误差，则真风向也会产生误差。通过使用一个外部罗盘数据，可以消除或最小化误差。

The Importance of Understanding True Wind Direction 理解真风向的重要性

When the Weather Station Instrument is stationary, the direction *from which* the wind is blowing is known as the *true wind*. The Weather Station Instrument is programmed to measure the direction based upon the specific orientation of the sensor. For the Weather Station Instrument to accurately calculate the true direction of the wind, *it must be installed and oriented correctly*.

当气象站仪器是固定安装，风吹来的方向就是*真风向*。气象站仪器编程来测量方向是基于传感器的方位细节。为了仪器精确计算真风向，其必须正确安装并且指向。

Adding External Sensors 增加外部传感器

Some Weather Station Instruments can receive data from an external sensor(s). The Weather Station Instrument will automatically detect whether a sensor(s) is internal, external, or not available at all. The Weather Station Instrument gives priority to valid external-sensor data when available.

一些气象站仪器可以接收外接传感器的数据。气象站仪器会自动探测一个传感器是内部、外部或根本不可用。当外部传感器可用时，气象站仪器认为外部传感器数据优先。

- **NMEA 0183**—Simply connect the sensor(s) to a Combiner or other NMEA 0183 repeater hardware.
可简单的将传感器连接到组合器或其它NMEA0183硬件。
- **NMEA 2000®**—Connect the sensor(s) to the NMEA 2000 network.
可将传感器连接到NMEA 2000网络。

NOTE: When an external speed sensor is connected to both an NMEA 0183 device and an NMEA 2000 network, the Weather Station Instrument will use NMEA 2000 data.

注意： 当一个外部速度传感器同时连接到一个NMEA 0183设备和一个NMEA 2000网络时，气象站仪器将使用NMEA 2000数据。

Cables & Connecting / Converting Hardware 电缆&连接/转换部件

The Weather Station Instrument can be connected to a device and / or network in several ways. **You must have the correct cable and any needed converting / connecting hardware before beginning the installation.**

气象站仪器可以通过若干种方法连接到一个设备和/或网络。在安装前你必须选择正确的电缆和所需的连接/转换部件。

<i>Weather Station Cables 电缆</i>	<i>Length 长度</i>	<i>Part No. 部件号</i>
• NMEA 0183 Cable	10m	38008
• NMEA 0183 Cable (for instrument with heater)带加热	10m	38009
• NMEA 2000® Cable	6m	38010
• NMEA 2000® Cable	10m	38011

NOTE: Additional cable lengths are available.

注意： 可以额外增加电缆长度。

Connecting/Converting Hardware 连接/转换部件

• NMEA 0183 to USB Data Converter数据转换器		38012
• NMEA 0183 Combiner组合器		38013
• NMEA 2000® CAN to USB U200 Gateway网关		38014
• NMEA 0183 & NMEA 2000® Splitter分离器	15m	38015
• NMEA 0183 & NMEA 2000® Splitter分离器	30m	38016

Mounts 装配

CAUTION: Vehicles/boats traveling above 30MPH—Do not use the plastic Cable Side-exit Adaptor (part D) supplied. Purchase a stainless steel part. At high speeds, the plastic adaptor may break, causing the instrument to fall off.

注意：车/船移动速度超过30MPH—不能使用塑料电缆旁出适配器(part D)。要购买一个不锈钢部件。高速时，塑料部件会断裂，导致仪器坠落。

NOTE: The Weather Station nut has standard 1"-14 UNS or 3/4" NPT threads.

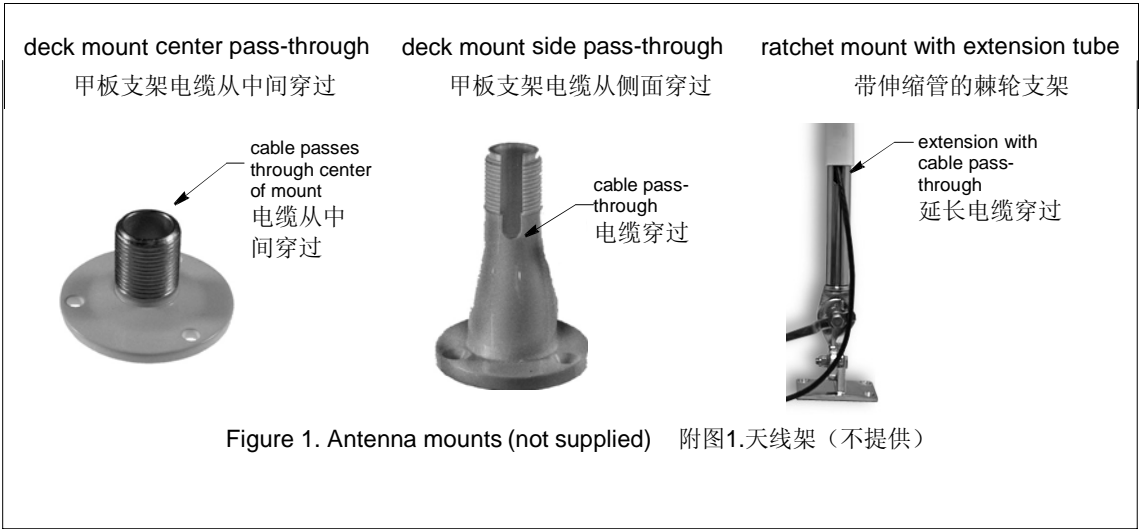
注意： 气象站螺母是标准的1"-14 UNS 或 3/4" NPT 螺纹。

Antenna mount with standard marine 1" -14 threads and pass-through for cable (see Figure 1)

标准船用1" -14螺纹的支架和中间穿过的电缆（见附图1）

Hardware to install antenna mount 用部件安装天线架

Extension tube (some installations) 伸缩管（一些安装需用）



Tools & Materials 工具&材料

Safety goggles 防护眼镜

Dust mask 防尘面具

Pencil 铅笔

Level 水平尺

Electric drill 电钻

Drill bits 钻头

Phillips screwdrivers 十字螺丝刀

Teflon pipe-thread tape (optional) 聚四氟乙烯生料带（可选）

Deck gland (some installations) 甲板密封管（一些安装需用）

Grommets (some installations) 索环（一些安装需用）

Cutting pliers (some installations) 钢丝钳（一些安装需用）

Wire strippers (some installations) 剥线钳（一些安装需用）

Heat-shrink tubing (some installations) 热缩管（一些安装需用）

Heat gun (some installations) 热风枪（一些安装需用）

Multimeter (some installations) 万用表（一些安装需用）

Cable ties (some installations) 电缆扎带（一些安装需用）

Choosing the Mounting Location 选择安装位置

For accurate readings and a reliable GPS signal, selecting the best location for the Weather Station Instrument is very important. Easy access and appearance should be secondary considerations. Since each installation is unique, the best separation distances from other equipment will vary depending on the particular equipment and how it is configured. Choose a location that balances the requirements below.

为了准确的读数和可靠的GPS信号，为气象站仪器选择最佳位置是非常重要的。容易接近和维修是次要条件。因为每个安装都是不同的，与其它设备的距离要根据其特点和配置来决定。选择位置应权衡以下要求。

- 。 The Weather Station Instrument must be mounted in "clear air"-away from obstructions in any direction that will interfere with air flowing through the unit. If there is an obstruction, be sure to mount the Weather Station Instrument at least 2m (6') away. On land, avoid roof tops, chimneys, trees, etc.

气象站仪器必须安装在一个“干净的空间”——是指要远离可能干扰空气流动方向的障碍物。如果有障碍物，应确保仪器离开至少2米（6英尺）。在陆地上，应避开房顶、烟囱、树等。

- 。 If possible, mount the Weather Station Instrument higher than any other object. Mount it a minimum of 500mm (20") above the surrounding surfaces.

如果可能，最好将气象站仪器安装地比其它物体高。最少要比周围高500mm(20")。

Note that the higher the Weather Station Instrument is mounted, the less accurate the pitch and roll readings will be.

注意当气象站仪器装在高处时，倾斜和摆动读数的精确度会降低。

- 。 To prevent interference to the the internal magnetic compass:

要防止对内部磁性罗盘的干扰：

- Mount a minimum of 0.3m (1') from other standard and steering compasses.
仪器安装时与其它标准和操舵罗盘的最小距离为0.3米（1英尺）。
- Mount away from any structures or equipment that contains ferrous metals.
仪器安装时应远离含有铁金属的建筑物和设备。
- Mount away from anything that may create a magnetic field such as magnetized materials, electric motors, electronic equipment, engines, generators, power/ignition cables, and batteries. For distances, follow the respective manufacturer's recommendations.
仪器安装时应远离任何可以产生磁场的物体，比如磁铁、电动马达、电子设备、引擎、发电机、电力/点火电缆、和电池。要根据各制造厂家的说明来确定与其的距离。

- 。 To prevent interference to the internal GPS:

要防止对内部GPS的干扰：

- It must have a clear view of the sky to receive satellite signals. Check for any obstructions such as other boats or buildings.
为了接收卫星信号，天空必须有清晰的视野。避免任何障碍物，如其它船只、建筑物。
- Mount it lower than any on-board INMARSAT communications antenna.
仪器安装时应低于船上的INMARSAT（海事卫星）通讯天线
- Mount it as far as possible from high-powered transmitting antennas to avoid mutual interference (see Figure 2).
仪器安装时应尽量远离大功率发射天线，以避免互相干扰（见附图2）。

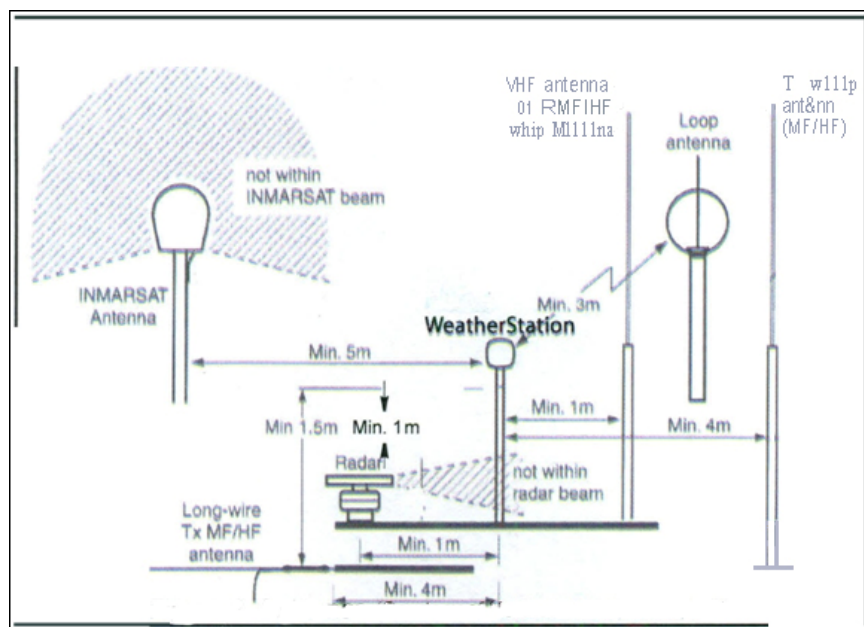


Figure 2 .Antennas (Courtesy of Northstar BNT,Acon,MA)
附图2 天线

Installing 安装

CAUTION: The reflector plate and the waterproof film found in the wind channel of the Weather Station Instrument are essential to its operation (see Figure 3). Be careful not to scratch the plate, puncture the film, or damage them in any way.

小心: 在对气象站仪器中由反射盘和防水膜构成的风道（见附图3）进行操作时，要小心不要损坏它们，比如刮花盘和将膜弄破。

CAUTION: The Weather Station Instrument must be installed upright and vertically—NOT tilted to one side. If the Weather Station Instrument is tilted from the horizontal plane, it may introduce an error in the compass and wind readings.

小心: 气象站仪器必须垂直安装—不能向一边倾斜。如果仪器的倾斜来自水平面，罗盘和风读数可能会产生误差。

CAUTION: To accurately measure the wind direction and vehicle/boat heading, the alignment indentation on the Weather Station Instrument must be pointed correctly.

小心: 为了准确测量风向和车/船航向，气象站仪器上的校正凹口指向必须正确。

- Moving vehicle/boat—the alignment indentation must point forward and be parallel to the centerline of the vehicle/boat.

移动的车/船—校正凹口必须指向前方，并且平行于车/船的中心线。

- Stationary surface—it is recommended that the alignment indentation point toward true north.

固定的平面—这里推荐校正凹口指向真北。

CAUTION: Do not tighten or align the Weather Station Instrument by rotating the upper cap. Turning may sever internal connections and void the warranty. Grasp the lower housing below the reflector plate. Hand tighten only.

小心: 不要拧气象站仪器的上部来收紧或校正仪器。拧了可能造成内部连接断开和保修失效。只能用手握紧反射盘以下的仪器下部来拧紧。

CAUTION: If you use a thread lock, use Teflon pipe-thread tape. Do not use a liquid thread lock as it may weaken the plastic, causing it to swell and crack.

小心：如果你要使用螺纹防松胶，请使用聚四氟乙烯生料带。不要使用液体螺纹防松胶，因为它会使塑料老化，导致塑料膨胀和断裂。

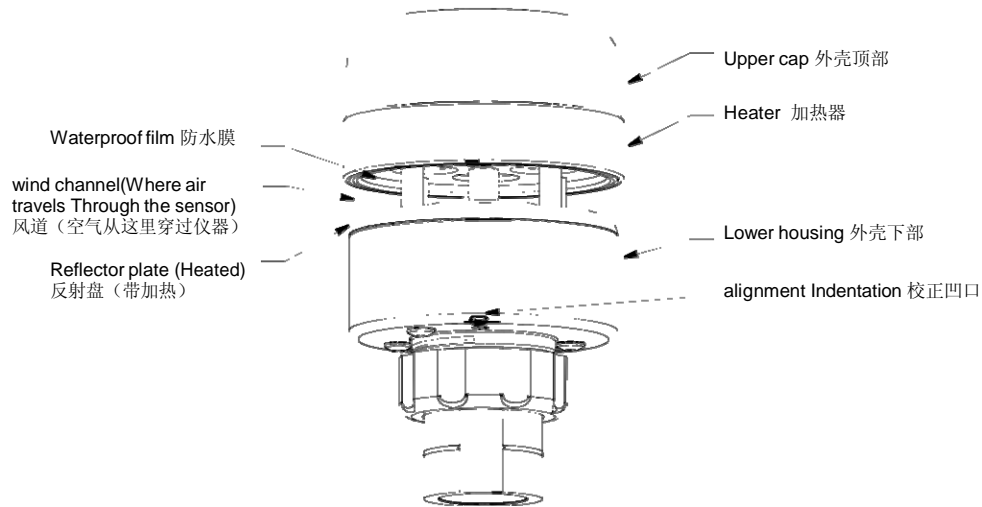


Figure 3. Weather Station Instrument (150WX with heater shown)
附图3.气象站仪器（显示为150WX带加热）

Permanent Mounting 固定装备

1. Place the mounting hardware at the selected location. Orient any cable exit in the direction that you want the cable to travel.

在选好的位置安放装备部件。将电缆出口朝向东。

2. Position the mounting hardware at a 90° angle to the mounting surface. If necessary, use shims to make the mounting surface level (see Figure 4).

将装备部件与安装平面成90°安装。如必要的话，用垫片使安装平面水平（见附图4）。

3. Mark the holes for the screws (see Figure 1). If the cable will pass through the center of the mount, also mark that hole.

将螺丝孔做标记（见附图1）。如果电缆从支架中间穿过，中间孔也要标记。

NOTE: If you are using a ratchet mount, be sure you have purchased an extension with a cable pass-through.

注意：如果你使用棘轮支架，你要确认购买了延长电缆。

4. Drill the holes for the mounting screws and the cable exit if necessary. If the cable is to be fed through a deck, install a high quality deck gland.

钻螺丝安装孔，如需要，还要钻电缆孔。如果电缆贯通甲板，需要安装高质量的甲板密封管。

5. Using purchased screws, fasten the mount in place.

使用螺丝将支架固定。

6. Screw an extension tube onto the antenna mount if desired (see Figure 4).

如果有要求，可以在天线架上装一个伸缩管（见附图4）。

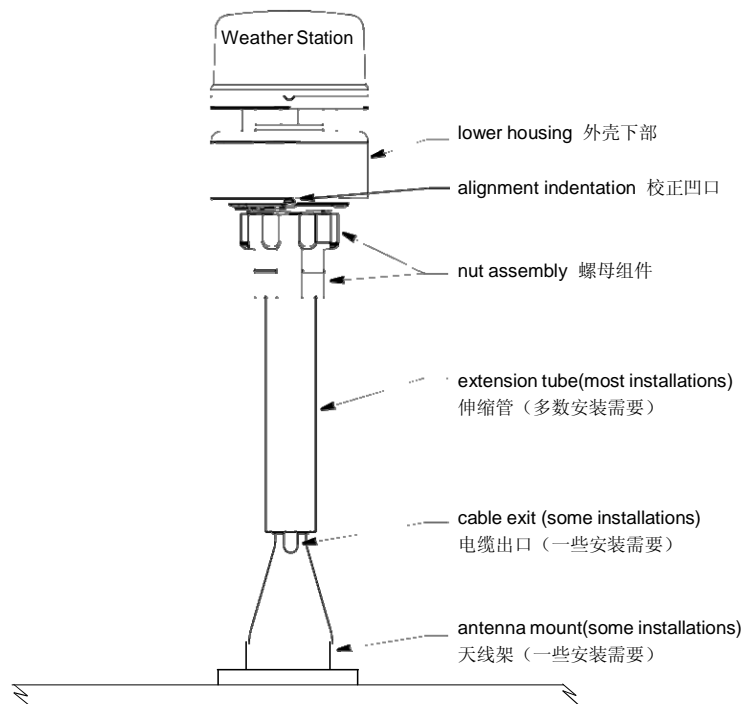


Figure 4. Installation (150WX shown)
附图4.安装（显示为150WX）

Attaching the Cable to the Weather Station Instrument 将电缆接到气象站仪器上

1. With the nut assembly on the cable near the Weather Station connector, thread the cable through the extension tube (if used), antenna mount, and the cable exit. *Be sure to leave several inches of cable extending beyond the nut assembly (see Figure 5).*

用气象站连接器连接的电缆穿过螺母组件，再穿过伸缩管（如果使用）、天线架和电缆出口。确保电缆要超过螺母组件几英寸。

2. Screw the nut assembly onto the top of the antenna mount/extension tube.

将螺母组件拧到天线架/伸缩管的顶端。

Hand tighten only. Do not over tighten.

只能用手紧。不能过紧。

NOTE: If you use a thread lock, use Teflon pipe thread tape only.

注意: 如果你要使用螺纹防松胶，请使用聚四氟乙烯生料带。

3. Remove the protective cover from the connector. (Save the cap to protect the connector, when the Weather Station Instrument is removed.) Plug the connector into the Weather Station Instrument. The alignment key on the connector fits into a notch in the base of the Weather Station Instrument.

移开连接器保护罩。（当仪器移走时，要保留顶帽来保护连接器。）将连接器插入气象站仪器。连接器上的定位栓要扎入仪器底座的凹槽中。

4. To accurately measure the wind direction, be sure to orient the alignment indentation correctly. Grasp the lower housing of the Weather Station Instrument below the reflector plate and hold it in the proper position (see Figure 4).

为了准确测量风向，要确保校正凹口朝向东。握紧气象站仪器反射盘下面的外壳下部，将他拧到适当位置（见附图4）

- Moving vehicle/boat—The alignment indentation must point forward and be parallel to the centerline of the vehicle/boat.

移动的车/船—校正凹口必须指向前方，并且平行于车/船的中心线。

- Stationary surface—It is recommended that the alignment indentation point toward true north.

固定的平面—这里推荐校正凹口指向真北。

5. Slide the captive nut upward and screw it onto the base of the Weather Station Instrument (see Figures 4 and 5). **Hand tighten only.** Do not over tighten. *Be careful not to rotate the Weather Station Instrument changing the alignment or loosen the nut assembly from the antenna mount/extension tube.*

将栓住螺母向上并且将它旋到仪器底座上（见附图4和5）。只能用手拧紧。不要过紧。要小心避免气象站仪器旋转而改变校正指向，或避免天线架/伸缩管的螺母组件松动。

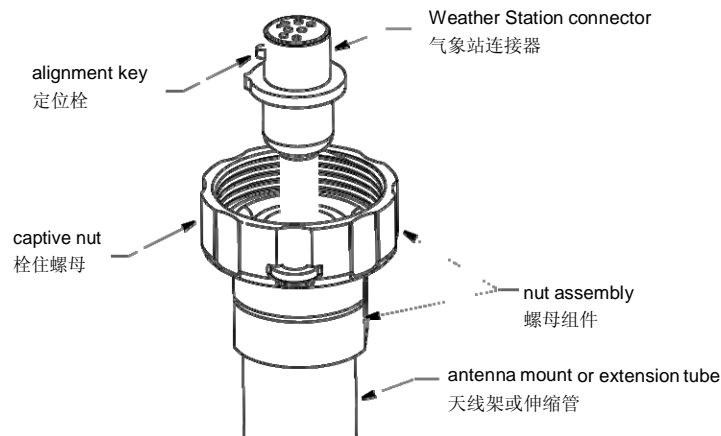


Figure 5. Attaching the cable to the Weather Station Instrument
附图5. 气象站仪器接电缆

Cable Routing & Connecting 电缆的敷设&连接

Depending on the equipment you will be using, route the Weather Station cable to a Converter, Combiner, or Splitter; an NMEA 0183 display or an NMEA 2000 network. After reading the cautions below, go to the appropriate instructions.

你要使用设备，要敷设气象站电缆到转换器、组合器、或分离器、NMEA 0183显示器或NMEA 2000网络。就要先阅读下面的警告，找到相应的说明。

WARNING: The power supply must be OFF before making electrical connections.

警告：在进行电气连接前必须先切断电源。

WARNING: The power supply voltage must be that specified for the model.

警告：电源电压必须符合要求。

300WXR	9 - 40 VDC
300WX	9 - 40 VDC
200WX	9 - 40 VDC
150WX	9 - 40 VDC
110WX	9 - 40 VDC
100WX	9 - 40 VDC
Models with heater 带加热	24VDC only

WARNING: A safe installation requires a 0.5 amp fast-blow fuse or circuit breaker. Except, models with a heater require a 3 amp fast-blow fuse or circuit breaker.

警告：仪器正常安装使用0.5安培快速熔断器或断路器。如果仪器带加热，就要使用3安培快速熔断器或断路器。

WARNING: Make power connections to a power source that is isolated from the engine start battery(s). Voltage drops may cause the instrument to lose information and/or change operating mode.

警告：仪器连接的电源应该与马达启动电池隔离。电压的下降可能导致仪器丢失信息或改变操作模式。

CAUTION: Do not remove the waterproof connector(s) to ease cable routing. Buy a cable without a connector. Instructions for wiring are supplied.

小心：不要为了敷设电缆方便而去掉防水连接器。可以买没有连接器的电缆。提供了接线说明。

CAUTION: To reduce electrical interference from other electrical wiring and any on-board equipment with strong magnetic fields such as: radar equipment, radio transmitters, engines, generators, etc., separate the cables by at least 1 m (3'). Ensure that all the cable shields are appropriately grounded.

小心：为了减少来自其它电线和船上一些有强磁场的设备（如雷达设备、无线电发射器、引擎、发电机等）的干扰，应使电缆离开其1米(3')。并确保所有电缆的屏蔽层良好接地。

CAUTION: Be careful not to tear the cable jackets when passing them through compartments, bulkheads, or walls. Use grommets to prevent chaffing.

小心：小心在穿过船舱、舱壁或墙时，不要撕破电缆外皮。使用套管来防止刮破外皮。

CAUTION: Use a multimeter to check the polarity and the connections to the power supply before applying power to the Weather Station Instrument.

小心：在气象站仪器通电前，要用万用表检查连接电源及其极性。

CAUTION: Coil any excess cable(s) and secure it with cable ties to prevent damage.

小心：将多出的电缆盘好，用扎带扎好防止损坏。

Connecting to a Converter, Combiner, or Splitter 连接到转换器、组合器、或分离器

Follow the installation instructions that are supplied with the unit.

下面的安装说明要根据不同的个体来选择。

Connecting to an NMEA 0183 Display 连接到一个NMEA 0183显示器

Route the Weather Station cable to the display. *Do not fasten the cable in place at this time.*

敷设气象站电缆到显示器。此时这里的电缆不要扎紧。

Connector on Display End 电缆连接器可以连到显示器

If your Weather Station cable has a connector on the display end, and it can be plugged into the port on your NMEA 0183 display; do so now. Coil any excess cable and secure it with cable ties to prevent damage. Fasten the cable in place.

如果你的气象站电缆末端有一个连接器，并且它可以插入你的NMEA 0183显示器端口，马上接通。将多出的电缆盘好，用扎带扎好防止损坏。这里可以扎紧电缆了。

No Connector on Display End: Wiring 电缆不能连到显示器：接线

If your Weather Station cable does not have a connector on the display end, it must be hard wired. Referring to the owner's manual that came with your display, connect the colored wires as shown in either Figure 6 or 7.

如果你的气象站电缆不能直接连到显示器，就必须进行电线驳接。参考你的显示器的手册，根据附图6或7的指示来连接彩色电线。

NOTE: If your display does not have NMEA 0183 output connections, the yellow and orange wires are not needed. Apply heat-shrink tubing to each unused wire. (Alternatively, the yellow and orange wires can be connected to an external sensor.)

注意: 如果你的显示器没有NMEA 0183输出连接, 则不需要黄色和橙色的线。将不用的线用热缩管保护。(或者也可将黄色和橙色线连接到外部传感器。)

NOTE: The display power may be wired directly to the Weather Station cable, or it may be wired separately. Models with a heater **MUST** be wired separately.

注意: 显示器的电源可以并联在气象站电缆上, 或单独接线。带加热的型号必须单独接线。

1. Allowing an extra 25 cm (10") for wiring ease, cut the cable to length.

电线松弛可以长出25 cm (10"), 剪去多余电缆。

2. Strip 60mm (2-1/2") of the outer jacket and foil shielding from the cut end of the cable (see Figure 6 or 7).

将电缆末端剥掉60mm (2-1/2")的外皮和金属箔屏蔽层(见附图6或7)。

3. Strip 10 mm (3/8") of conductor insulation from the end of each colored wire.

将每条彩色电线的末端剥掉10 mm (3/8")绝缘层。

4. Protect the cable's foil shielding from causing a short by using heat-shrink tubing around the jacket where the wires emerge from the cable. The tubing must overlap the wires a minimum of 6mm (1/4"). Shrink the tubing using a heat gun.

在电缆露出电线的位置, 用热缩管保护电缆的金属箔屏蔽层, 防止其短路。

5. Being sure the power supply is OFF; connect the wires to the display.

将电源关闭, 连接显示器的电线。

6. Fasten the cable in place.

将电缆扎紧。

7. Your installation is complete. To begin receiving data, refer to the owner's manual that came with your display.

安装完成。开始接收数据, 阅读你显示器的用户手册。

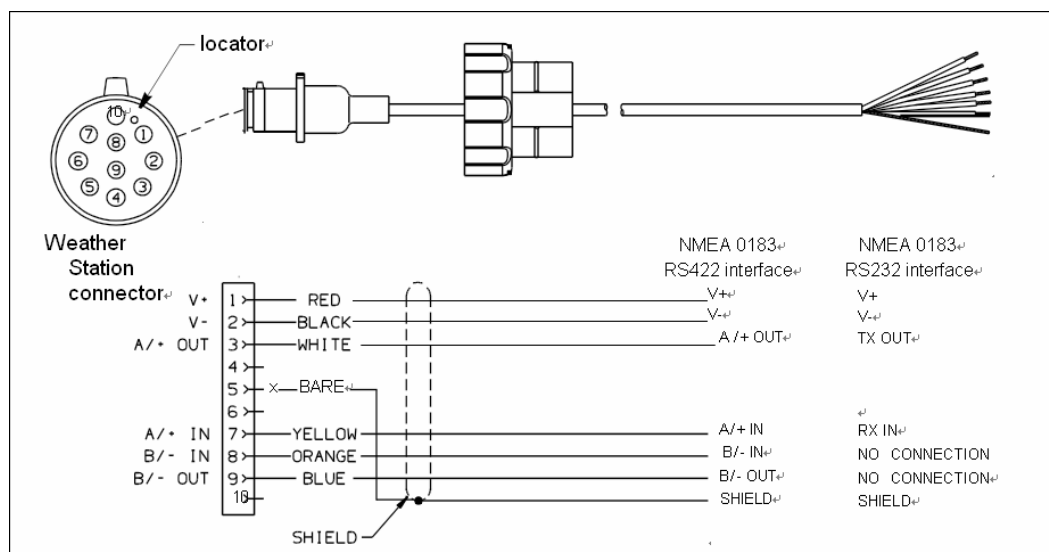


Figure 6. NMEA 0183 Weather Station Cable—no heater
附图6. NMEA 0183气象站电缆—无加热

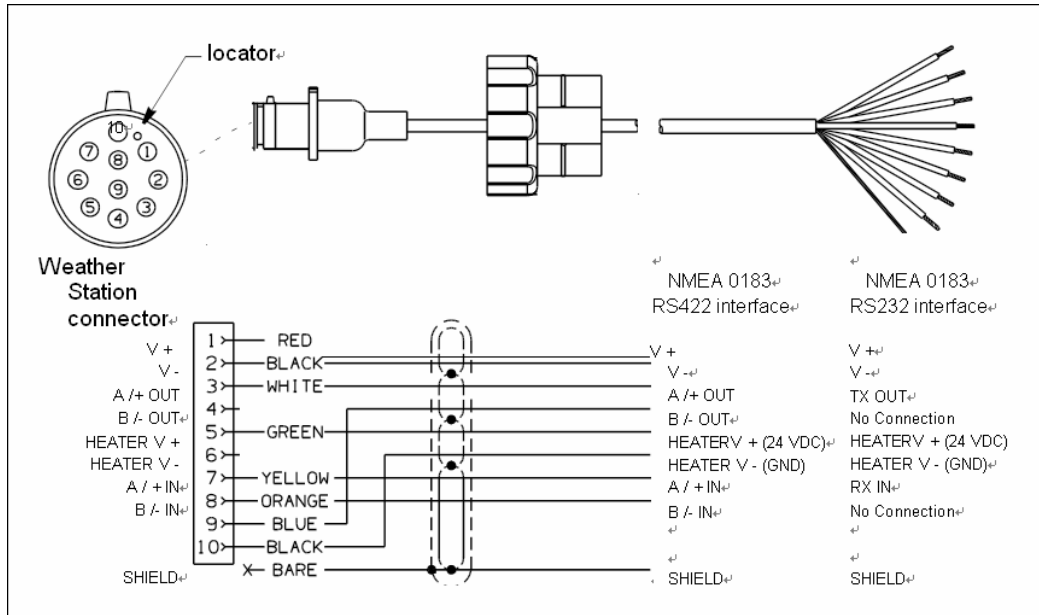


Figure 7. NMEA 0183 Weather Station Cable—with heater
附图7. NMEA 0183气象站电缆一带加热

Connecting to an NMEA 2000® Network 连接到一个NMEA 2000® 网络

CAUTION: Only two termination resistors are required on an NMEA 2000 network. More than two will degrade the bus performance.

小心: 一个NMEA 2000网络只能接两个终端电阻。超过两个就会降低线路性能。

Route the Weather Station cable to the NMEA 2000 network. Plug the NMEA 2000 connector into the network node (see Figure 8). Coil any excess cable and secure with cable ties to prevent damage.

敷设气象站电缆到NMEA 2000网络。将NMEA 2000连接器插入网络节点（见附图8）。将多出的电缆盘好，用扎带扎好防止损坏。

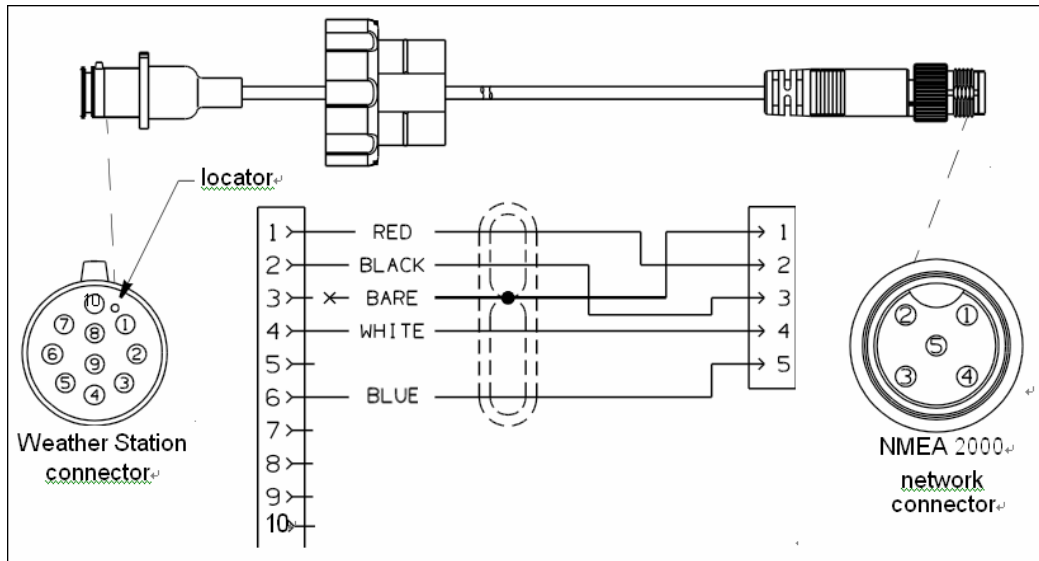


Figure 8. NMEA 2000® Weather Station Cable [6m (20') shown]
附图8. NMEA 2000®气象站电缆 [显示为6m (20')]

NOTE: Weather station cables longer than 6m (20') have a termination resistor built into the sensor connector (see Figure 9).

注意：当气象站电缆长度超过6m (20')，要在传感器连接器中接入一个终端电阻（见附图9）。

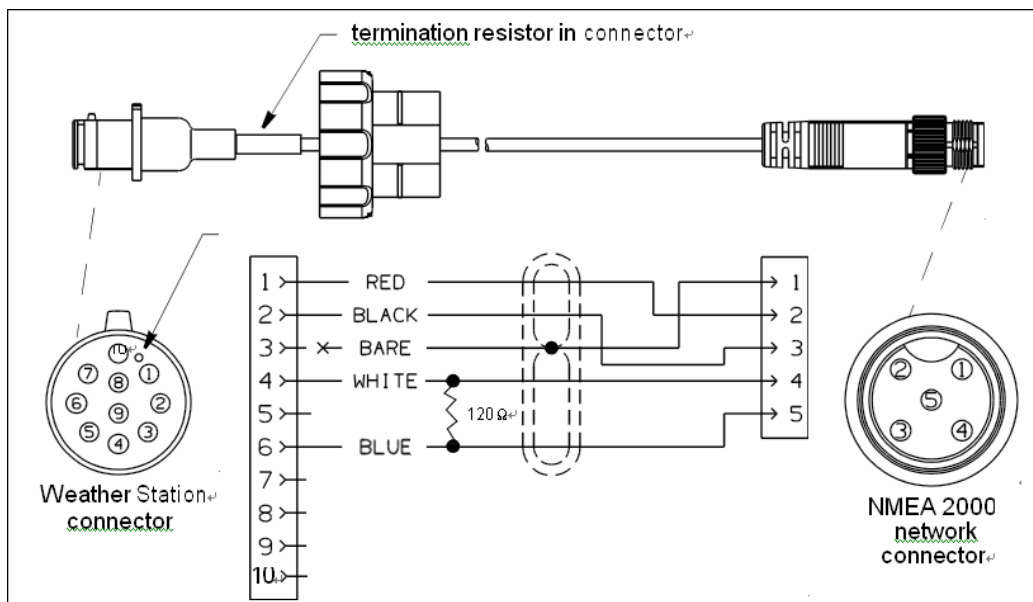


Figure 9. NMEA 2000® Weather Station Cable [10m (33') shown]

附图9 . NMEA 2000®气象站电缆[显示为10m (33')]

Calibrating the Compass 校准罗盘

WARNING: The internal compass may need to be calibrated after the instrument is installed for maximum accuracy. Perform the pretest below to determine if calibration is necessary.

警告：为了达到最大精度，仪器在安装后可能需要对内部罗盘进行校准。进行预测试来决定校准是否必要。

CAUTION: Boat—The Pretest and Auto Calibration Procedure must be done in calm seas in a 0.8 km (0.5 mile) open area away from other boats and ferrous objects such as structures and aids to navigation. Avoid congested areas and waters with strong currents as calibration will be difficult and possibly hazardous.

小心：船上进行预测试和自动校准程序，海面必须平静，距离其它船只和铁质物体（如建筑物和导航航标）大于0.8 km (0.5 mile)。应避免拥挤的环境和强烈的水流，因为会使校准很困难，还要碰运气才行。

Pretest 预测试

Go to an appropriate site.

找一个适当的地点。

- **Vehicle**—Drive to an open parking lot or field, away from other vehicles and ferrous objects.
车—把车开到一个空旷的停车场或空地，远离其它车辆和铁质物体。
- **Boat**—In calm seas, navigate to an open area of water, 0.8 km (0.5 mile) of open space away from other boats and ferrous objects.
船—在平静的水面，将船驶到一个空旷的水域，距离其它船只和铁质物体大于0.8 km (0.5 mile)。

While making a full circle, compare the Weather Station heading data to another compass. Check all headings. If the data agrees, there is no magnetic influence on the Weather Station Instrument. The compass does NOT need to be calibrated. *If the data does not agree, continue with the calibration instructions below.*

在转完整个圈过程中，将气象站航向数据和其它罗盘比较。检查所有航向。如果数据一致，说明气象站仪器上没有磁影响。这个罗盘不需要校准。如果数据不一致，继续按以下说明校准。

How to Calibrate 如何校准

Calibration can be done in one of two ways.

校准可以采用以下两种方法中的一种。

- Calibrate the compass using the WeatherCaster™ software and a PC.

使用WeatherCaster™软件和一台PC校准罗盘。

- Follow the AutoCalibration Procedure below.

使用以下AutoCalibration程序。

AutoCalibration Procedure AutoCalibration (自动校准) 程序

IMPORTANT: Calibration requires the vehicle/boat to complete 2 to 3 circles.

重要: 校准要求车/船要完成转2到3个圈。

IMPORTANT: In the event of a calibration failure, repeat the procedure.

重要: 如果校准失败，要重复程序。

1. At the site where the pretest was performed, select the display page on the NMEA Instrument that shows Heading.

在进行预测试的地点，在NMEA仪器上选择显示航向的页面。

2. Shut OFF and then turn ON the DC power that is connected to the Weather Station Instrument.

将连接气象站仪器的直流电源关闭，然后再打开。

3. Within 2 minutes of cycling power to the Weather Station Instrument, start the vehicle/boat in a slow [4.5 to 7 MPH (4 to 6 knots)] circular turn that takes about 2 to 3 minutes to complete.*

在2分钟的周期内给气象站仪器供电，开始驾驶车/船用慢速[4.5 to 7 MPH (4 to 6 knots)]转圈，大概用2到3分钟来完成。*

If the vehicle / boat completes 1.5 circles within 3 to 4.5 minutes, AutoCalibration will begin. Heading will stop being reported on any NMEA 0183 or NMEA 2000 display until the calibration is finished.

如果车/船在3到4.5分钟内完成1.5圈，AutoCalibration程序会开始。直到校准结束，NMEA 0183 或 NMEA 2000显示设备将停止报告航向。

4. Keep turning in the same circle for 1 to 2 more complete circles. *Do not change the speed or rate of turn through the circle.*

保持转同样的完整的圈1到2个。不要改变速度或转速。

5. When calibration is completed successfully, Heading will return to the display. If calibration fails, the display will flash Heading ON and OFF in 10 second intervals for 60 seconds. (Display times may vary by manufacturer.)

当校准成功完成。将会显示航向。如果校准失败，会显示闪烁（开关间隔为10秒）航向60秒。

* The optimum rate of turn is 180°/ minute: 3°/second, 30°/10 seconds, 45°/15 seconds, and 90°/30 seconds.

* 最适合的转速是180° /分钟: 3°/second, 30°/10 seconds, 45°/15 seconds, and 90°/30 seconds.

Maintenance 维护

CAUTION: Do not disassemble the Weather Station Instrument. There are no user-serviceable parts inside.

Removing the three screws holding the lower housing will damage the waterproof seal, voiding the warranty.

小心: 不要拆解气象站仪器。里面没有用户可使用的部件。拆除支撑外壳下部的三颗螺丝会破坏防水密封，也会使保修失效。

CAUTION: Do not immerse in water or pressure wash. Doing so may allow water to infiltrate the Weather Station Instrument, voiding the warranty.

小心: 不要浸入水中或用高压清洗。这样会使气象站仪器进，会使保修失效。

CAUTION: The reflector plate and the waterproof film found in the wind channel of the Weather Station Instrument are essential to its operation. The waterproof film protects the transducers, so be careful to keep it intact. Do not scratch the reflector plate or damage it in any way.

小心: 在对气象站仪器中由反射盘和防水膜构成的风道进行必要操作。防水膜用来保护传感器，所以要小心保持其完好。不要用任何方式刮花和损伤反射盘。

CAUTION: Avoid damaging the rain sensor. If the umbrella becomes chipped or cracked, readings from the sensor may be incorrect. If the umbrella does become damaged, return the Weather Station Instrument to the factory to replace the umbrella and re-calibrate the rain sensor.

小心: 避免损伤雨传感器。如果伞帽缺损或破裂，传感器的读数可能不准。如果伞帽损坏，将仪器返回厂家更换雨伞并重校准雨传感器。

IMPORTANT: Keep the wind channel free of SPIDER WEBS, insects, dirt, and other debris. Keep the temperature and humidity sensors clean.

重要: 要保持风道没有蜘蛛网、昆虫、污垢和其它碎片。保持温度和湿度传感器的清洁。

Cleaning 清洗

Since the Weather Station Instrument has no moving parts, it requires minimal maintenance. Clean with a damp cloth and mild household detergent (see Figure 10). Gently thread an alcohol wipe through the wind channel to remove spider webs and any debris.

因为气象站仪器没有可移动部件，所以它的维护量很小。用湿布和一般温和的清洁剂清洗（见附图10）。轻轻地用酒精棉球去除风道中的蜘蛛网和污垢。

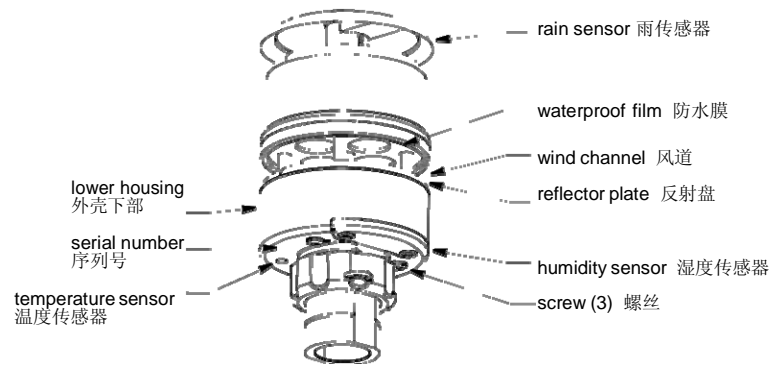


Figure 10. Maintenance (300WXR shown)

附图10. 维护（显示为300WXR）

Humidity Sensor 湿度传感器: 110WX, 150WX, 300WX, 300WXR

1. Remove the two screws from the humidity sensor or blank (see Figure 11).

拆除湿度传感器的两颗螺丝或没有（见附图11）。

2. Remove the sensor or blank.

拆除传感器或没有。

3. Push the new humidity sensor into place. Fasten it with the two screws supplied. Using a torque wrench, apply 0.25 - 0.30Nm. **Do not over tighten.**

装上新的湿度传感器。用两颗螺丝固定它。使用扭矩扳手紧螺丝（0.25 - 0.30Nm）。**不要过紧。**

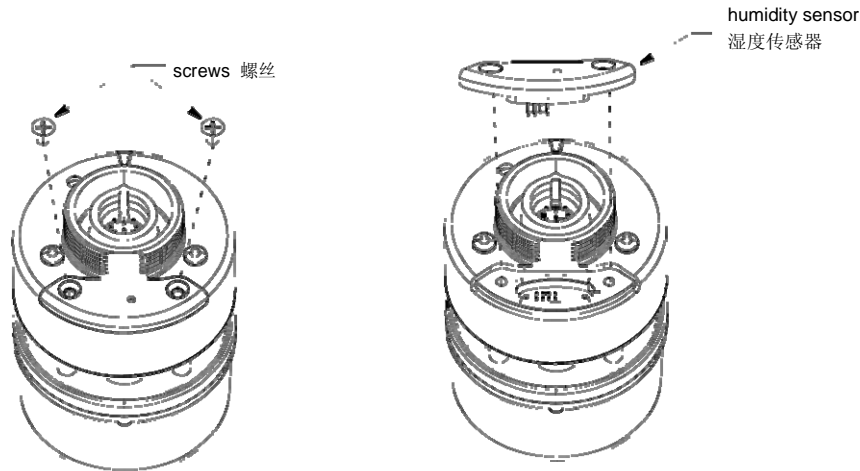


Figure 11. Replacing the humidity sensor
附图11. 更换湿度传感器

Software 软件

Software Updates 软件升级

Updated versions of both the Weather Station firmware and the WeatherCaster™ software may be released. Check the company's website. Follow the instructions in the *WeatherCaster Software Guide*.

可以升级气象站仪器固件和WeatherCaster™软件到新的版本。查看公司网站。遵从WeatherCaster™软件手册的说明。

Troubleshooting 故障处理

No Readings or Inaccurate Readings 没有读数或读数错误

- Is there power to the Weather Station Instrument?

气象站仪器供电是否正常？

- Are all the connections tight?

所有连接是否牢固？

- Is the cable-run free of kinks?

电缆敷设是否违反操作指南？

- Is the wiring correct?

接线是否正确？

- Are there any obstructions in the wind channel?

风道内是否有障碍物？

Keep it free of spider webs, insects, dirt, and other debris.

要保持风道没有蜘蛛网、昆虫、污垢和其它碎片。

Be careful not to puncture the waterproof film or scratch the reflector plate.

要小心不要刺破防水膜或刮花反射盘。

- Are the temperature and humidity sensors clean?

温度和湿度传感器是否干净？

- Is there ice on the Weather Station Instrument?

气象站仪器上是否结冰？

No GPS Fix 没有GPS定位

- Does the Weather Station Instrument have a clear view of the sky?
气象站仪器上方的天空视野是否清晰（没有遮挡）？

Wind Readings Are Too Low 风的读数太低

- Is the Weather Station Instrument mounted forward and low on the boat/vehicle's hardtop in dead air?
安装在船/车顶上的气象站仪器的前方和下方是否存在空气停滞区？
Move the instrument farther back and higher (see Figure 12).
将仪器向后和高处移（见附图12）。

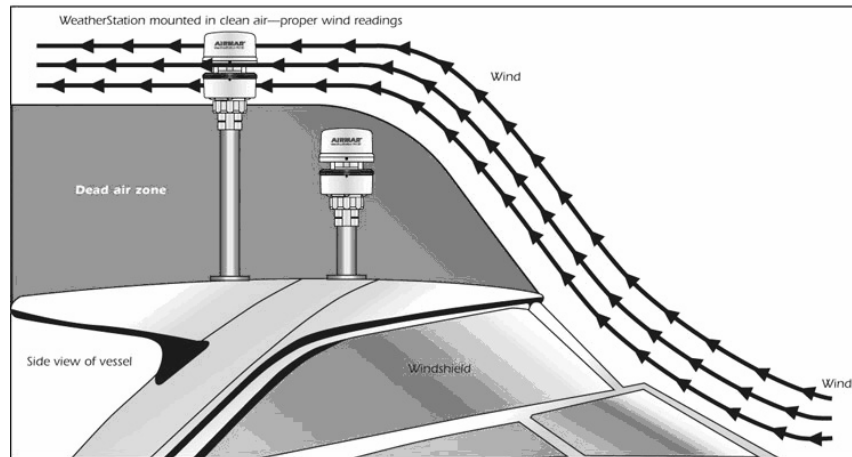


Figure 12. Boat/vehicle mounting location (boat shown)

附图12. 船/车安装位置（显示的是船）

Rain Sensor Not Working 雨传感器不工作

The rain sensor functions by detecting individual rain drops. To check whether the rain sensor is working, use a gentle spray from a nozzled garden hose. This should produce a reading which indicates that the sensor is active, but the reading will not be calibrated. The sensor is calibrated only for true raindrops falling from a cloud. Do not pour water on the sensor to check whether it is working. The sensor depends on individual drops and will not respond properly to a stream of water.

雨传感器的功能是探测单个的雨滴。检查雨传感器是否工作，要用一个淋花喷头产生温柔的水花。这时产生一个读数，说明传感器工作，但是读数可能没校准。传感器的校准只能在天上有云，真的雨滴落下时。在检查传感器是否工作时不要泼水。传感器是依靠检测单个雨滴来工作的，它不能检测一股水流。

Technical Information 技术信息

Additional Data Available from the Weather Station Instrument 气象站仪器可用的其它数据

There are parameters that the Weather Station Instrument can make available to the user. Usually, more data is available from the Weather Station Instrument than can be displayed in a reasonable format on a screen. Also, if all the data was continuously transmitted to the display, the update rate would be too slow and could not keep up with Weather Station measurements. Consequently, some parameters are transmitted while others are not, based on a pre-selected list. Note that those parameters not transmitted are, nevertheless, retained in the Weather Station Instrument. For more detailed information see the "Technical Manual" on the WeatherCaster CD.

气象站仪器可以将这些参数对用户开放。通常，气象站仪器的可用数据要比屏幕显示地多。同样，如果所有数据

连续传到显示器，刷新率会太慢并且跟不上仪器的测量速度。因此，基于一个预选列表，只传送部分参数。注意那些没有被传送的参数仍然保留在气象站仪器中。更详细的信息见WeatherCaster CD中的“Technical Manual”。

Specification 规格: NMEA 2000®

LEN is the amount of current a device draws from an NMEA 2000 network. (1 LEN = 50 mA)

LEN是一个NMEA 2000网络设计电流的总量决定的。(1 LEN = 50 mA)

NMEA 2000 Load Equivalency Number (LEN)

NMEA 2000可装载的数量 (LEN)

300WXR..... NA

300WX..... 4

200WX..... 2

150WX..... 2

110WX..... 2

Acronyms 缩写词

CD	Compact Disk 光盘
EGNOS	European Geostationary Navigation Overlay Service 欧洲静地导航覆盖服务
GPS	Global Positioning System 全球定位系统
LEN	Load Equivalency Number 装载数量
NA	Not Available 不可用
NPT	National Pipe Thread 美国螺纹标准
PC	Personal Computer 个人电脑
UNS	Unified National Standard 统一的国家标准
USB	Universal Serial Bus 通用串行总线
WAAS	Wide Area Augmentation System 广域增强系统

Glossary 术语表

Firmware 固件	The software within the Weather Station hardware 气象站硬件内含的软件
WeatherCaster™ software WeatherCaster™软件	The PC application program PC应用程序

Trademarks 商标

NMEA 2000® is a registered trademark of the National Marine Electronics Assoc.
NMEA 2000®是一个在全国海洋电子协会[美]注册的商标。