

# Weems & Plath®

*Manufacturer of Fine Nautical & Weather Instruments*

## ELECTRONIC MARINE BAROMETER



*2 Year Warranty*

# Weems & Plath®

*Manufacturer of Fine Nautical & Weather Instruments*

## INSTRUCTION MANUAL

<b>Weems &amp; Plath Company Story .....</b>	<b>1</b>
<b>Getting Started .....</b>	<b>2</b>
Box Contents .....	2
Care Instructions .....	2-3
Technical Specifications .....	3
<b>Operating Instructions .....</b>	<b>4</b>
Power Methods .....	4
Navigation Button Overview .....	5
Initial Setup .....	6
Language Settings.....	7
Time & Date Settings.....	7
Measurement Units.....	7
Pressure.....	7-8
Altitude.....	8
Temperature.....	8
Upper Screen Icon Description .....	9
Lower Screen Description .....	10
Advanced Functions Configuration .....	10
Mode Button .....	10
Backlighting .....	10
Hour, Dual, Alarm, Timer, Buzzer, Set .....	10-12
Alarm/OK Function .....	12-13
Memory Function .....	13
Zoom Function .....	13
History Function .....	13
<b>Installation .....</b>	<b>13</b>
<b>Warranty .....</b>	<b>14</b>

# WEEMS & PLATH COMPANY STORY

In May of 1919, eight years before Lindbergh's famous solo flight, three small planes set out from Naval Air Station Rockaway, NY headed for Plymouth, England in an attempt to make the first trans-Atlantic flight. Only one of them made it. Twenty-five hundred feet below on board a station tracking ship, a young navigator, Lt. Cdr. Philip Van Horn Weems, U.S. Navy, gazed up and thought there must be a safer and simpler way than using a small armada of ships as beacons for the flight.

For centuries, man had relied on the heavens, on the circling planets and the constant horizon to guide him in his travels. An accurate clock, compass, sextant and charts were the necessary tools for plotting a course, but these required time for computations and a place to spread out and study the charts. The timeworn system of celestial navigation was ill suited to the cockpit, but the airplane was here to stay. Lt. Cdr. Weems, a brilliant, inventive and determined young man knew as he tracked that first flight that navigation was his destiny, and he went on to revolutionize the field with his ideas, writings and inventions.

The challenge he undertook was complex and involved the invention of new methods and new tools. It required a horizon system independent of the sea horizon that was often not visible from the cockpit of a plane. Weems worked for years to develop a new kind of sextant and to find someone to manufacture it. When an accurate timepiece was needed, Weems invented the Second Setting Watch with its inner rotating dial. He produced the famous Weems Plotter, the more precise and easier to use plotting tool, which is still one of our most popular plotters.

All his life, Weems continued to improve the instruments and broaden the applications of his methods until they came to include radio astronomy, polar exploration and even space navigation. He published numerous articles and taught navigation at the Naval Academy in the 1920's. He went on to establish his own school in Annapolis to teach The Weems System of Navigation. Charles Lindbergh studied with Weems before attempting his trans-Atlantic flight. Admiral Byrd, a classmate of Weems at the Naval Academy, came to Weems for instruction before setting out for the North Pole, as did many others.

A century earlier, Carl Plath's company in Hamburg, Germany - C. Plath, had been manufacturing the finest commercial sextants and magnetic compasses available. C. Plath developed the first gyrocompass installed on a commercial vessel in 1913. Weems' school for navigation had become the purveyor of Weems' instruments. It was a natural development for Weems' company to become the North American source for C. Plath's fine instruments; hence the alliance of two distinguished names - Weems and Plath. The exceptional workmanship that both Philip Van Horn Weems and Carl Plath required in developing the manufacturing of precision navigation tools remains at the heart of all our products.

Weems & Plath is still located in the Chesapeake Bay town of Annapolis where it began so many years ago. We are committed to supplying the world with the finest nautical products available while maintaining the high standards of service that have distinguished Weems & Plath from its inception.

# GETTING STARTED

Thank you for purchasing the Electronic Marine Barometer #4002. This instrument is designed specifically for the mariner. It is a professional quality air pressure detector that not only shows current pressure on the large display, but also displays historical information on an expanded scale giving the viewer the capability to see pressure changes that have occurred over the last 48 hours in 30 minute increments.

The following pages contain important information to familiarize you with this multi-function device. **Please read fully before using your Electronic Marine Barometer.**

## BOX CONTENTS

- 1 Electronic Barometer (#4002)
- 1 wall mount bracket
- 2 screws (for wall or bulkhead mount)
- 4 batteries (AA)
- 1 instruction manual
- 1 12V DC connector

*Available Separately:*  
AC adapter (#4002A)



## CARE INSTRUCTIONS

Do not open the barometer to access the electronic circuits inside; this will void the warranty. Do not insert blade, rod, screwdriver or other object into the air vents; doing so could damage the device and void the warranty.

Handle the batteries carefully:

- Use only premium grade AA batteries.
- Please respect the polarity when inserting batteries.
- Do not place the batteries near a flame or source of heat.
- Batteries may leak when they have been completely discharged. To avoid damaging the device, please replace the batteries before they die. Any battery corrosion will void the warranty.
- When the LCD battery indicator shows a low battery level, replace the batteries. All stored data will be lost if the batteries are fully discharged and the screen is blank. Data and settings will remain for 10 seconds while batteries are changed. Keep device away from children.

Keep the electronic barometer in a clean and dry location. If the device becomes wet or damp, immediately dry it with a soft dry cloth. To remove salt, sand, dust and dirt, do not use chemical cleaners or detergents. Instead, wipe with a soft, slightly dampened cloth. Do not press on the screen or touch the screen with your fingers or other objects.

Avoid sudden temperature changes. Use and keep your electronic barometer at normal temperatures (between 14°F and +122°F). Rapid temperature changes (which can occur when you enter or exit a heated area on a cold day), may result in the creation of condensation inside the device. To avoid this, place the device in a bag before exposing it to such temperature changes.

Damage may occur if dropped. Keep device away from strong magnetic fields. Do not store your Electronic Barometer near equipment which generates magnetic fields. The magnetic fields produced by equipment such as radios, televisions, microwave ovens, computers or cell phones may affect the display, damage the data stored in the device's memory or the circuits inside.

**TECHNICAL SPECIFICATIONS**

**Air Pressure:**

Accuracy: +/- 0.5 mb  
Resolution: 0.1 mb  
Linearity: +/- 0.2 mb

**Temperature:**

Accuracy: +/- 0.5° to 25°C - /Resolution : 0.1°C

**Humidity:**

Accuracy: 5% - Resolution: 1%

**Clock:**

Time Display	Hour, Minutes in 12 or 24 hour Mode
Accuracy	+/- 30s per Month
Date Display	Month, Day, Year

**Dimensions:**

6.5” x 4.06” x 1.18” (165mm x 103mm x 30mm)

**Weight:**

215g (7.58oz) without batteries  
280g (9.88oz) with batteries

**Multiple Function Displays Include:**

- Audible gale warning alarm
- 2 to 48 hour history display (2, 4, 6, 12, 24, 48 hour increments)
- Temperature (°F & °C) /relative % humidity
- Dual time zones
- Regatta countdown time

# OPERATING INSTRUCTIONS



## Ports:

1. Top - Speaker out  
Non-functioning
2. Mini USB -  
For power only
3. DC 12V 0.3A  
External Power
4. ON/OFF Switch

## POWER METHODS

There are three ways to power the Electronic Barometer:

1. **Mini USB Connection** - for power only
2. **12 Volt DC Connection** - the white striped wire connects to positive (+) port on power supply
3. **Battery Operation** - 4 AA batteries (included); battery life is up to 5 months with standard use

AC adapter is available separately (item #4002A). This adapter converts DC power to AC.

**NOTE:** *Frequent use of backlighting function will diminish battery life.*

**NOTE:** *If connected to USB or 12 volt DC power source, you can leave batteries inside as a backup if the power is turned off. If the battery power is low, the Low Battery icon will switch on even if the power supply is plugged in.*

# NAVIGATION BUTTON OVERVIEW

## **MODE (orange) Button**

**Backlighting** – one brief touch of any button

**Hour** - hold 1 second

**Alarm** – hold 1 sec

**Timer** – hold 1 sec

**Buzzer** – hold 1 sec

**Set** – re-entry to initial unit setup

## **MEM (Return)Button**

Used for data entry into system's memory

Return or step backwards

## **HIST. + Button**

Allows viewer to review pressure chart history on lower screen

Used to increase values during initial set up

## **ALR. OK Button**

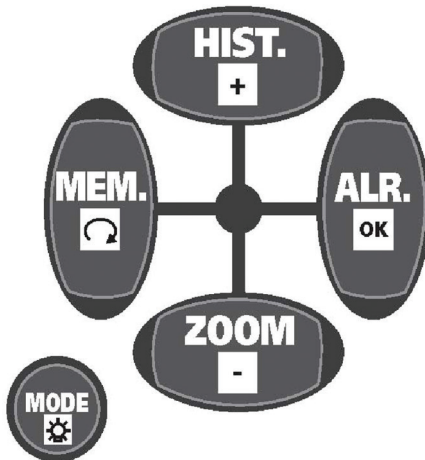
Used to activate the alarm

Or as the OK button to validate initial set up information

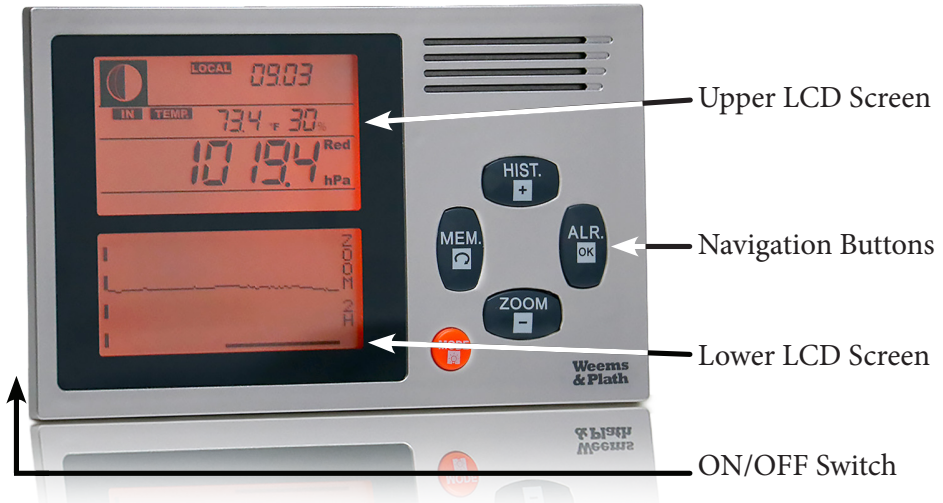
## **ZOOM – Button**

Used to change the resolution of the chart display in lower screen

Or to decrease values during initial setup



# INITIAL SETUP



1. Loosen 2 screws on back and remove mounting bracket to expose battery compartment.
2. Remove battery compartment cover and install the 4 provided AA batteries (as indicated in housing cutouts.) Replace battery cover.
3. To begin setup, turn on the device using the on/off switch on the lower left side. NOTE: When the electronic barometer is turned off, it will stop working and all data in the memory will be lost even if the batteries are in place. When device is turned on again the setup procedure must be repeated.

The setup is carried out by pressing the dual purpose navigation buttons. “+” and “-” are used to increase or decrease the values displayed on the LCD screen.

Pressing the “Return” (MEM.) icon allows you to return to the previous step. The OK button validates the information and takes you to the next step.

4. Follow the procedure below step by step. You may return to a previous step by pressing the return icon button. All data must be entered before leaving the setup mode. The lower LCD screen displays the steps that need to be taken.



## LANGUAGE SETTINGS

The Electronic Barometer can be used in the following languages: French, English, German, Dutch, Italian, Spanish and Swedish.

The initial screen on the lower LCD displays “SET” and the cursor arrow points and blinks at “Langue.” Press the OK icon button to the right of the LCD. The next screen will list languages in French. For English, move the cursor using the “+” button to “anglais.” The screen will switch to English. Press “OK.”

## TIME AND DATE SETTINGS

The arrow is now blinking at “hour.” Press “OK.” You will see the choice of setting time for “am/pm” or “24h.” Pick the time method you prefer by using the “+” or “-” buttons. Then press “OK” when the arrow cursor is pointing at the correct choice. Now set the time by pressing the “+” button to increase the value or “-” to decrease the value for hour and then minute.

The default time setting is 00h00 or 12h00am. Press “OK” each time you have arrived at the correct value. The arrow cursor will automatically move to the next task when you push “OK.”

Follow the same procedure for the date: The date setting is in the dd/mm/yyyy format. Press “+” or “-” to increase or decrease value to set the correct year, month and day.

## MEASUREMENT UNITS

Units of air pressure, altitude and temperature are adjustable.

The cursor arrow is pointing to “Units.” Press “OK” and you will see a screen with the following 3 choices: pressure, altitude and temperature.

Pressure	Altitude	Temperature
Mb	Meter	°C
InHg	Feet	°F

### • **Pressure:**

The cursor is pointing at “pressure.” Press “OK.” Now choose the unit of measure for atmospheric pressure. Your choices are: “hpa” (NOTE: Hectopascal, a metric (SI) measurement unit of pressure. The hectopascal is equivalent to millibar and commonly used to measure atmospheric pressure) or “inhg”(inches of mercury). Click “OK” once you have made your choice with the “+” or “-” button.

#### ◦ **Select Pressure:**

The pressure value can be displayed either in actual adjusted pressure or in pressure at sea level. You must decide if you want to see the actual pressure at the current elevation of the barometer or the pressure at sea level. If the altitude = 0 there is no difference between the actual and sea level.

- **Select “Adjusted” or “Sea Level:”**

When you choose “sea level,” the top screen shows “Red” at the top right of the pressure which stands for “reduced,” meaning the pressure is reduced to sea level reading.

*NOTE: If you choose to show sea level from an altitude that is above sea level, the sea level pressure will be a higher value by about 1mb for every 27.4 feet that the barometer is above sea level.*

- **Pressure Setting Adjustment/Calibration:**

To adjust the pressure value, select the “+” or “-” button to increase or decrease the value. When desired value is displayed, press “OK.” Each time you press the “+” or “-” buttons the pressure value will increase or decrease by 0.1mb to a maximum of +/- 10mb or by 0.01 InHg to a maximum of +/-0.3InHg.

To complete setup, select “Return” and then select “OK” on the main menu. You can now leave the setup mode.

You will notice that the upper screen displays all the choices you made during set up. The lower screen now displays a chart which records air pressure. If for some reason you need to change the settings, press the “Return” button and the lower screen will return to SET with the list of options from the original screen.

- **Altitude:**

The altitude screen offers meters and feet. Use the “+” and “-” button to select preference. Press “OK.”

*NOTE: There is a difference between “sea-level pressure” and what might be called “actual pressure” or “absolute pressure.” The first step in using a barometer when not at sea level is to decide what type of pressure you want to read.*

To set values for Altitude and Pressure, select “Return” button which will return you to the main menu.

Select Altitude to provide adjustment for distance above sea level. The default setting value is “0.” You can set the altitude between 0 and 3995m/13,100’. To change the altitude press the “+” and “-” buttons to raise or lower the value. Each time you press a button the value changes by 5 meters, then by 50 meters or by 15 feet and then by 150 feet. Select “OK” when finished.

*NOTE: An easy way to find your altitude is to search Google Earth on the internet. Type your address and put the cursor on your location, read the elevation in the status bar at the bottom of the page.*

- **Temperature:**

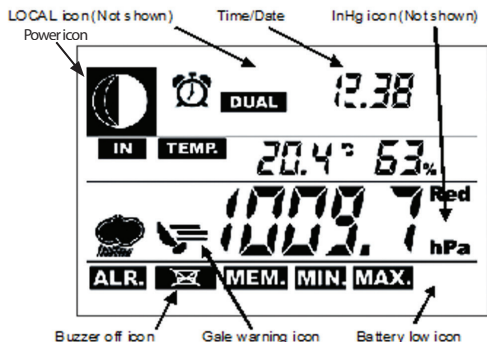
Select C (Celsius) or F (Fahrenheit) with the “+” and “-” button. Press “OK.”

## UPPER SCREEN *Upper Screen ICON Descriptions*

**Power icon** – in upper left corner, rotates continuously, pausing for 3 seconds. The icon indicates the unit is powered on and working.

**Alarm Clock icon** – displays only if alarm is set.

**Local or Dual icon** – When Local icon is displayed, the screen shifts back and forth between time and date every few seconds. The Dual Icon is displayed when you have set the clock to monitor two time zones. The display will shift between local time and the second time that you set.



**IN icon** – indicates that the displayed temperature is the indoor temperature.

**Temp display** – shows temperature in °F or °C as per initial set up.

**Hygrometer display** – shows relative humidity in percentage.

**Gale Warning icon** – appears when a drop in air pressure of 3 hPa (millibars) or greater over a period of 3 hours or less is detected. This alarm is always on. It cannot be switched off. An audio alarm will sound when the air pressure drops unless the buzzer is turned off.

**Air Pressure display** – shows air pressure in hPa (millibars) or in Hg as per initial set up.

**Red icon** – indicates “reduced” sea level pressure if actual has a different value than 0.

**ALR. icon** – is displayed if you have preset a target alarm in the Alarm Function mode. NOTE: This is unrelated to the gale warning alarm.

**Buzzer Mode Indicator icon** – The X over the top of the icon shows the buzzer is switched off. In this case all alarms are sound-free and will only be indicated by the text in the chart display (lower screen).

**MEM icon** – displays if the pressure value has been saved in the memory.

**MIN icon** – displays when HISTORY function is in use, if a pressure is the minimum value during the period.

**MAX icon** – displays when HISTORY function is in use, if a pressure is the maximum value during the period.

**Battery Low icon** – displays only when remaining energy in batteries is low. Batteries should be replaced within a few days to prevent data loss and battery leakage. This icon will show even when the USB or 12 volt power supply is in use.

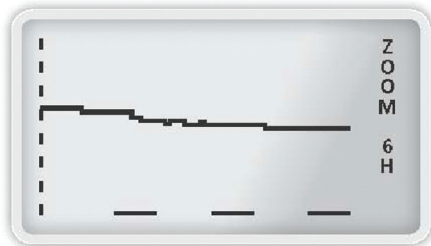
**NOTE:** *When batteries are removed you have 10 seconds to insert new ones or data will be lost.*

## LOWER SCREEN

### *Lower Screen Description*

A chart or barograph displays the most recent air pressure in 2, 4, 6, 12, 24 or 48 hour increments. Use the ZOOM/- and HIST/+ buttons to adjust the chart scale.

After initial set up is complete you can begin to configure various advanced functions with your preferences.



**NOTE:** *In general; if no button is pushed within 10 seconds, the display returns to the initial display except during setup in the SET mode.*

## ADVANCED FUNCTIONS CONFIGURATION

### **MODE button:**

**Backlighting** – Screen backlighting can be adjusted with one brief touch of the Mode button. Choose one of 3 levels of light intensity. The lower screen will display BACKLIGHT and the cursor points to “Level.” Each time you press the “+” button the lighting level will increase from 0 to 1 to 2 to 3. The number 0 turns the backlight to the off position.

**NOTE:** *Backlighting requires a great deal of energy and reduces battery life.*

Pressing and holding the MODE button will take you to other setup parameters displayed on the lower screen menu:

hour  
dual  
alarm  
timer  
buzzer  
*sensor – non functioning*  
*temp – non functioning*  
set  
*synchro – non functioning*

• **Hour** – by selecting HOUR with the “OK” button you can manually change to and from Daylight Savings Time or set a second time zone to show on the upper screen.

+1hr: adds 1 hour to the displayed time

-1hr: subtracts 1 hour from the displayed time

• **Dual:** allows you to activate a second time zone by increasing or decreasing the hour according to the time difference. The two times will be displayed alternately on the upper screen. The word “Dual” will appear next to the second time zone. The word “Local” will appear next to your current local time. To stop the Dual function, set the time difference to 0 in the menu.

• **Alarm** – to activate the alarm, select “alarm” in the menu with the “+” and “-” buttons and then “OK,” the screen displays the current time – the hour is stacked above minutes. Using the “+” or “-” buttons set the alarm time, hour

first, then minutes. Then set “OK” to confirm. The alarm clock icon will now be displayed on the upper screen. The internal alarm will sound at the time you set. To quiet alarm press any key. Turn the alarm off by returning to ‘alarm’ on the screen using the same steps as above. Now the display will say: “stop:00:00 (the alarm time you set.), ok, no.” The cursor is pointing at “OK.” If you want to turn the alarm off, press the “OK” button to confirm. You will notice that the alarm icon on the upper screen is gone. If you don’t want to turn the alarm off, select “no” with the “+” or “-” buttons. Then press “OK” to confirm.

• **Timer** – The timer is a countdown stopwatch. There are 3 types of timers. To activate timer select “timer” in the menu with the “+” and “-” buttons. Select Ok to confirm. The menu will now offer 3 choices: “Match R,” “Regatta,” “Custom T.”

◦ **Match Race Timer** – select “Match R” in menu. The screen will now display:

MATCH TIMER

Min before start

10 min

5 min

The cursor is pointing at 10 min. Press “OK” if this is correct or select 5 min with “+” and “-” buttons. The next screen will display:

MATCH TIMER

Stopwatch start

Press OK

(10 or 5) min before start

When you press “OK,” the timer will begin counting down backwards the time remaining from 10 or 5 minutes. The screen will also display the match start time. The alarm will buzz at 6 minutes, 4 minutes, and 1 minute, then every 10 seconds and finally at 10 seconds it will buzz every second before the start. “Match R” is displayed in the upper screen.

◦ **Regatta Timer** – select Regatta. The screen will display:

REGATTA TIMER

Min before start

10 min

5 min

Select either 10 min or 5 min with “+” and “-” buttons. Press “OK” to confirm. The next screen displays:

REGATTA TIMER

Stopwatch start

Press OK

(10 or 5) min before start

When you press “OK,” the timer will begin counting down backwards the time remaining from 10 or 5 minutes. The screen will also display the regatta start time. The alarm will buzz at 5 minutes, 4 minutes, and 1 minute, then every 10 seconds and finally at 10 seconds it will buzz every second before the start. “Regatta” is displayed in the upper screen when this timer is activated.

◦ **Custom Timer** – To customize your own stopwatch settings, select “Custom T” from the displayed menu. The first screen is the same as both the Match and Regatta timer, but the next screen allows you to select “number of alerts.” You can select up to 3 alerts. The next screen allows you to select the “Alert/event intervals” by utilizing the “+” and “-” buttons to select the number of minutes between alerts. The maximum delay is 9 minutes. Always press “OK” to confirm the alert intervals you desire. “Custom T” is displayed in the upper screen when this timer is activated.

◦ **Alerts** – For each alert, the buzzer will beep once for each minute remaining before the start.

During the last minute, the buzzer will emit two short beeps every 10 seconds.

During the final 10 seconds, the buzzer will emit a short beep every second – 10 short beeps

At the moment of the start, the buzzer will emit a succession of very short beeps in the first 5 seconds.

To stop the count down, press the “return” button. The screen displays: Stop? ok or no. Select ok. The displayed timer in upper screen should disappear once the timer is turned off.

• **Buzzer** – When you select buzzer you can set the volume of the “beeps.” There are 3 settings – 0, 1, 2. When set to 0 the buzzer is turned off and you will no longer hear the beeps when the buttons are pressed. The default volume setting is 2 – the loudest.

• **Set** – Selecting “set” allows you to return to initial settings to make any desired changes.

## **ALARM/OK Function:**

With this function you can set alarms for air pressure variations – either rising or falling (0.5 to 10mb in .5 increments) for set periods of time ranging 1 to 6 hours or for a target air pressure value.

### **Set Alarm:**

Press “ALR.” The dialogue box in the lower screen will read:

Pressure Alarm

Drop

Increase

Target value

Navigate the cursor by using the “+,” “-” and “OK” buttons to select the value and duration. You can also set a target value of a specific air pressure reading so that the alarm will sound when this value is reached. “ALR.” Icon will show in lower left corner of the upper screen when the alarm function is setup.

**NOTE:** *The alarm for pressure variations is based on real pressure changes even if the pressure is set to reduced “sea level pressure.”*

### **Alarm OFF:**

Press “ALR.” button. The previously recorded data will appear in the dialogue box. The cursor is set next to “OK” in the “Stop?ok, no” screen. Select ok. The alarm icon will disappear from the upper screen. The dialogue box will return to the chart mode.

### Modify alarm:

To modify an alarm, you must deactivate the alarm and set up again.

### Silence alarm:

When the alarm sounds, a message is displayed in the dialogue box showing the current alarm setting. The buzzer goes off for 3 seconds and then stops; the message continues to display. Press any button to silence the alarm.

### MEMORY function:

This function allows you to memorize and recall air pressure data. In this function, the time is always displayed. Data that has been recorded in the barometer's memory is automatically erased after 48 hours.

### ZOOM Function:

This function allows you to zoom in on the barometer chart screen to see pressure movement in 2, 4, 6, 12, 24 and 48 hour increments.

### HISTORY Function:

This function allows you to review past barometric pressure readings at any time. Press the "HIST" button. The lower chart displays and a vertical cursor on the graph allows you to see the graph values.

Time Interval	Zoom	MB Scale
1 min	2 hours	8 mb
2 min	4 hours	10 mb
3 min	6 hours	16 mb
6 min	12 hours	20 mb
12 min	24 hours	20 mb
24 min	48 hours	30 mb

## INSTALLATION

We strongly recommend that you mount the Electronic Marine Barometer to the wall using the wall mount bracket rather than setting it on a flat surface.

**NOTE:** *Install batteries before installing device on wall. Be sure to leave a space above unit to access top mounting bracket screws.*

Snap wall mount bracket on rear of barometer. See diagram below for proper positioning.



# WARRANTY

Your Electronic Marine Barometer is warranted against defects for two years. Any modifications made to the barometer will void the warranty.

## WEEMS & PLATH TWO (2) YEAR WARRANTY

Your Weems & Plath product is warranted against defects in material and workmanship for two (2) years from the date by original purchase. Retain a copy of receipt for proof of purchase. Any defect caused by misuse, accident, tampering or negligence of the user is not covered by this warranty.

**Caution:** If your product is battery operated, movement damage caused by battery leakage is not covered under warranty. A clock movement continues to pull voltage from the battery until the battery dies. Leaving a dead battery in place causes the battery to leak acid which destroys the movement. For this reason, it is important to replace the battery once a year, even if the battery is not dead at the time of replacement. If the instrument is not in use, remove the battery to reduce the possibility of costly movement damage.

### **Weems & Plath**

214 EASTERN AVE. • ANNAPOLIS, MD 21403

USA 410-263-6700 • fax 410-268-8713

e-mail: [support@weems-plath.com](mailto:support@weems-plath.com)

[www.weems-plath.com](http://www.weems-plath.com)