

ELECTRONIC MARINE BAROMETER

Weems & Plath®

214 EASTERN AVE. • ANNAPOLIS, MD 21403 • USA
410-263-6700 • fax 410-268-8713 • www.weems-plath.com
E-mail: support@weems-plath.com

CONTENTS

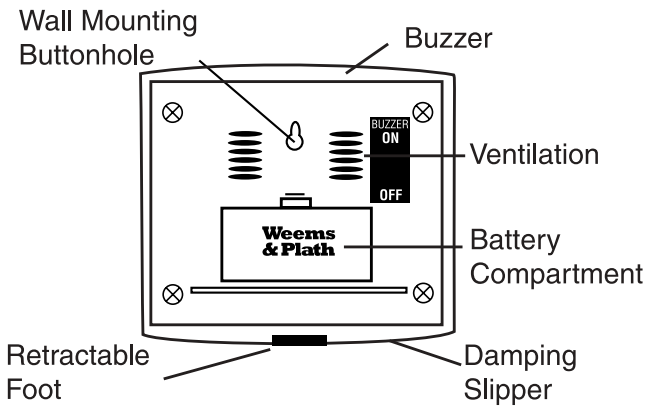
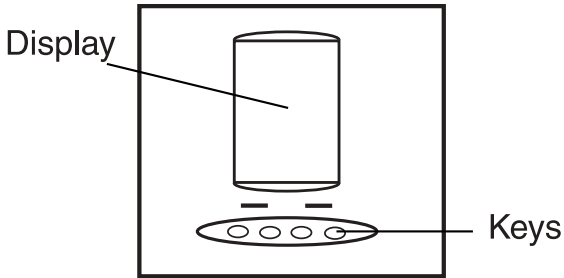
	Section
Introduction	1
Starting for the First Time	2
Changing the Batteries	3
Set-up	4
Wind Alarm System	5
Graph and Zoom Reading	6
Max/Min and History Functions	7
Memo Function	8
Barometer Alarm	9
Lighting/Display Selection	10
Low Battery Indicator	11
Altimeter Mode	12
Special Marine Wall Mounting Kit	13
Maintenance Tips	14
Warranty	15
Technical Specifications	16

The contents of this manual are subject to change without prior notification.

The manufacturer and the distributor shall not be held responsible for any damage and disorders occurring due to the use of this device by you or a third party.

These instructions are for both model #4000 and #4001. Depending on your model, the pictures in the instruction book may look slightly different than the actual barometer, however, all functions are the same.

Protect the environment and dispose of used batteries properly.

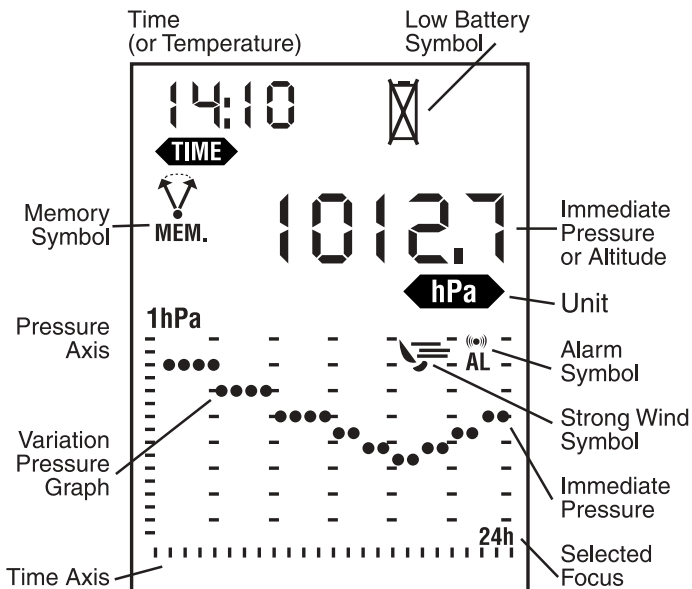


1 **INTRODUCTION**

Thank you for purchasing the Electronic Marine Barometer. We hope you will enjoy it for many years. This patented device has been developed by sailors, for sailors.

The Electronic Marine Barometer is specially designed for sailing enthusiasts, and anyone wanting to fine tune the local weather forecast. The unit is equipped with the following features:

- Air pressure display accurate to +/- 0,5 Hpa (.014 inHg).
- Pressure change graph showing past 24 hour pressure change.
- Zoom effect with a focused view of the past 6 or 12 hours.
- Time and/or indoor temperature display.
- Adjustable alarm for pressure drops or increases.
- Strong wind alarm.
- Memory:
 - Immediate recall and display of minimum and maximum pressures for the last 24 hours;
 - Hour-by-hour pressure history for last 48 hours;
 - Memo function that displays a memorized situation: time, pressure, related variation, and graph.
- Built-in light.
- Economy mode to change batteries without losing data.
- Low battery indicator.
- User selectable units of measure: C°, °F, hPa, inHg.
- Altimeter mode.
- Audible tone (BEEP) as each active key is pressed.
- Uses two 1.5V AAA (LR103) batteries. Under normal operation, battery life is greater than 6 months.
- Includes a retractable stand and wall mounting plate.



2 **STARTING FOR THE FIRST TIME**

This unit uses two 1.5V AAA (LR03) batteries.

To start the unit, follow the steps below:

- Pull down on the battery compartment cover latch (located at the top edge of the battery compartment cover). Remove the battery compartment cover.
- Remove the isolating strip from the batteries (if batteries are already inside) or insert new batteries, paying careful attention to the polarity illustration inside the battery compartment.
- Put battery cover back on, making sure it is properly latched.

The screen will display the following data:

- Time: 00.00, alternating with temperature in °C;
- Pressure in absolute value (default units will be hPa);
- Graph in 24 H mode.

Pressure and temperature readings are mobile average values. It will take at least 5 minutes for the unit to provide correct values. We suggest waiting 24 hours before calibrating the unit.

When starting, the memory is empty, as a result some functions will bear no significance until the amount of time required to get the data needed for their operation has passed.

In the same way, the result of those functions bear no significance after re-calibrating the following data : time, altitude, pressure or barometer/ altimeter mode change.

Functions concerned

Maxi or Mini 24 h pressure
48 Hour history
Adjustable Alarm
Strong wind alarm
24 Hour graph
6 or 12 Hour zoom

Time required

24 H
48 H
2 H
4 H
24 H
6 to 12 H

For instance, the value for the last 24 H maximum pressure is incorrect during the first 24 hours after the unit is started.

3 ***CHANGING THE BATTERIES***

This unit has an “economy” mode. Selecting it before changing the batteries enables your barometer to work for one minute using its back-up power. This allows you one minute to change the batteries without losing any data. Calibration, memorized data, and selected modes will all be saved. The “economy” mode will only work when the buzzer is turned “on”.

To change the batteries, follow the steps below :

- Have two 1.5V AAA (LR 03) batteries available.
- Press the MODE button four times. If the “buzzer” switch is in the “on” position, the unit will (BEEP) each time the button is pressed. You will scroll through the following functions: light, temperature display, alternating time/temperature display and [ECO]. When you see [ECO] flashing on the screen, keep the MODE key pressed for approximately 4 seconds until the unit beeps and the word [ECO] stops flashing. The LCD screen will turn off and you have one minute to change the batteries without losing any data (see § 2:STARTING).
- Once the batteries have been changed, press any key to re-start the unit.

IMPORTANT:

If you do not use the economy mode to save the memory before changing batteries, you should wait 6 minutes after removing the old batteries before installing the new ones.

If you did not proceed as above and your barometer does not start, is still off, or has incorrect data, etc,... remove the new batteries and leave the unit without batteries for 6 minutes before putting them back in.

Read this important information before setting-up your barometer:

- Your barometer will not work at elevations greater than 13,100 ft. (3,955m) above sea level.
- It is best to wait at least 5 minutes after starting the barometer before attempting to calibrate it (see § 2:STARTING). We suggest waiting 24 hours.
- Before calibrating your barometer, find the elevation of your location and the current barometric pressure. Your local radio or TV weather forecast is a good source.
- Always calibrate your barometer where you will be using it.

To set the barometer, press and hold down the SET key for approximately 4 seconds, until the hour axis flashes and the screen shows:



Immediately press the SET key once again to bypass the ALARM SETTING function and enter the barometer setting mode (the alarm setting function is detailed in § 10:BAROMETER ALARM).

Each item that can be set will show up with its abbreviation highlighted (dark background) and the actual value blinking.

It is a good idea to step through the entire sequence of things that can be set without actually making any settings. Do this by sequentially pressing the SET button.

If you happen to pause at any stage more than about 7 seconds, the device will revert to the main display and you will need to start again.

The sequence you will see is as follows (see detailed instructions below):

- # 1 Pressure unit selection (hPa highlighted and blinking)
- # 2 Altitude setting (ALT.m highlighted with a number or blank above it blinking)
- # 3 Pressure calibration (your selected unit highlighted and the current value above it blinking)
- # 4 Set Clock hours (TIME highlighted with the hours blinking)
- # 5 Set Clock minutes (TIME highlighted with the minutes blinking)
- # 6 Select temperature units (°C or °F)

Pressure Unit Selection:

- The unit flashes: [hPa]
- Pressing the + or - keys to scroll through the units as follows : hPa hectopascals (millibars) » inHg inches of Mercury » ALT.m altitude in meters, enter your selection by pressing on SET. This will take you to the next setting.
- Choosing hPa or inHg puts the unit in “Barometer” mode, and choosing ALT.m automatically sets the “Altimeter” mode.

Altitude Setting:

- The unit will flash: 0 m
- This setting can only be made in meters.
- Pressing once on the + or - will increase or decrease the altitude by 5 m.
- Pressing continuously on + or - will, after 3 seconds, change the altitude by 50 m every ½ second (with a (BEEP) when rhythm changes and flashing stops)
- Enter the altitude of your location by pressing the SET key. This will take you to the next setting.

Pressure Calibration:

- The unit will flash a “sea level” pressure using the altitude you have entered and its “absolute value” pressure.
- This pressure can differ from the pressure provided by the weather department by 1 to 3 hPa (.029 to .088 inHg).
- Pressing once on the + or - will increase or decrease by 0.1 hPa.

- Pressing continuously on + or - will, after 3 seconds, change the pressure by 1 hPa every ½ second (with a (BEEP) when pace changes and blinking stops).
- Enter the pressure of your location by pressing the SET key. This will take you to the next setting.

Time Setting:

- The unit will flash: 00
- Pressing on the + or - key will increase or decrease the time by one hour
- Pressing continuously on + or - will, after 3 seconds, change the time by 1 hour every ½ second (with a (BEEP) when pace changes and blinking stops).
- Enter the hour by pressing the SET key. This will take you to the minute setting.
- Follow the same procedure here as was done with the hour function.
- Enter the minutes by pressing the SET key. This will take you to the next setting.

Temperature Unit:

- The unit flashes °C
- You can choose °F by pressing on + or -
- The temperature cannot be calibrated, it is factory set. Accuracy is +/- 1°C (1.8°F)
- Enter your choice by pressing the SET key.

Exit the Menu:

- To exit the menu, let the last data you changed flash. Your barometer will automatically reset itself to NORMAL MODE after 7 seconds.

If you enter the set-up menu when the unit is already working, it will suggest the displayed data (units and values), if you wish to get to and change data at the end of the menu without modifying previous ones, press SET every time the unit flashes data you wish to enter.

An exclusive system of your WEEMS & PLATH Marine Barometer, the WIND ALARM, will be automatically activated if and only if the instant pressure is below 4 hPa (or more at one of the pressure averages of the last three hours). With this WIND ALARM Safety system, you can forecast (with approximately 80% accuracy) strong winds or present wind condition reinforcement.

When the WIND ALARM is activated, the unit will make a (BEEP) every three seconds for three minutes. During these three minutes, you can stop the (BEEP) by pressing on any key.

The WIND SYMBOL will flash for 60 minutes.

The WIND ALARM is an additional safety device which should not prevent you from getting the vital weather information by any available means: radio, VHF, fax, telephone.

The WIND ALARM warns you about an atmospheric pressure drop, remember that strong winds are not always preceded by pressure drops.

The WIND ALARM does not function when the unit is running in the altimeter mode.

Air pressure changes in the past hours are entered in the memory and are displayed on the screen in NORMAL MODE as a graph:

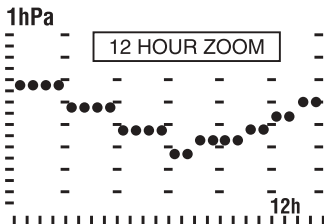
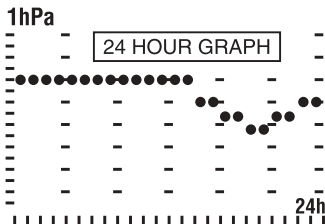
- Time on the horizontal axis.
- Pressure on the vertical axis with the following scale: 1 line = 1 hPa, even if [inHg] or [ALT. m] have been chosen for the display unit.
- Both points on the right are permanently illuminated: they show the current pressure.

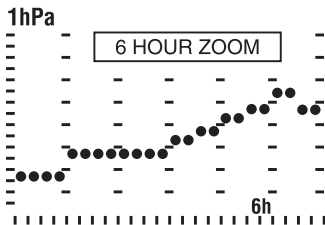
Graph display is gradual, to better visualize the pressure change over the last hours.

When graph is complete, a horizontal axis illuminates to help locate moments when the pressure was over or under present pressure.

Zoom Function

- The ZOOM function is an exclusive feature of your WEEMS & PLATH Marine Barometer. It is important because it enables you to see detailed pressure changes over the last 12 or 6 hours and to optimize your navigational decisions by visualizing changes.
- Pressing briefly on the ZOOM key will cause the hour axis to flash, the graph remains still with current scale
- Pressing several times on ZOOM key will change the scale of the time axis as follows : 24 h > 12 h > 6 h > 24 h... One (BEEP) at each zoom.
- Leave your barometer on your preferred scale. After 7 seconds, it will automatically record your preferred scale and return to NORMAL MODE.





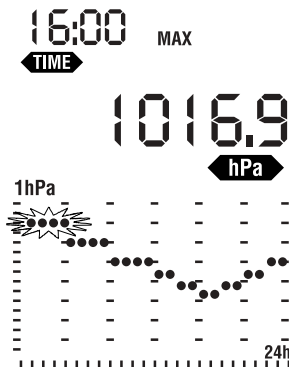
7 MAX / MIN AND HISTORY FUNCTIONS

The MAX / MIN FUNCTIONS are very useful. They enable you to have a quick general overview of the pressure (or altitude) changes by locating highs and lows, the HISTORY FUNCTION enables to accurately review the changes.

Every hour your barometer calculates the average pressure (or average altitude) of the values displayed over the last hour, for instance from 14:00 to 15:00. These values are saved for 48 hours.

Max Function

- This can be accessed by pressing the HIST key, (BEEP). The unit will then display the average maximum pressure (or altitude) of the last 24 hours with the time of that pressure with the word: [MAX]. The graph goes automatically to “ZOOM 24 H” and the segment for the maximum value will flash.
- If all memorized values are zero, the screen displays: [ERR] for the pressure and: [- - -] for the time.

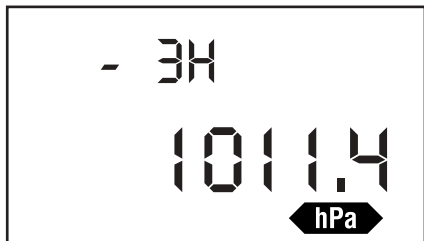


Min Function:

- The MIN FUNCTION is accessed by pressing the HIST key twice from the NORMAL MODE.
- Its operation is the same as the MAX FUNCTION.

History Function:

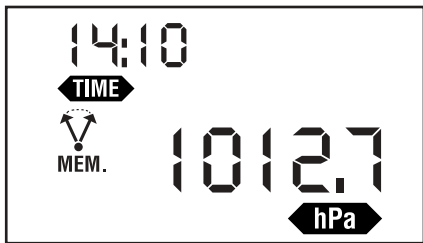
- The HISTORY FUNCTION is accessed by pressing the HIST key three times from the NORMAL MODE. The unit will show the average pressure (or altitude) of the last hour [- 1H]; the graph returns to the NORMAL MODE after several seconds.
- Each additional time the HIST key is pressed, the preceding hour will show as [-XH], and the average pressure (or altitude) of that hour will be displayed. (i.e. at 14H 10, the cursor [- 3H] means that the pressure (or altitude) shown was taken from 11H to 12H.)
- These values are saved for 48 hours.
- If the memorized value is zero, the unit will display: [ERR] as the pressure (altitude).
- Pressing and holding down on the HIST key will change the display by 1 h every $\frac{1}{2}$ second.
- To avoid having to go through the whole sequence, stop pressing the HIST button, and the will automatically return to NORMAL MODE after 7 seconds.



The memo function is an exclusive feature of your WEEMS & PLATH MARINE BAROMETER. It enables you to see a visual representation of the difference between current conditions and a “reference situation” you have previously memorized.

Memo Function/Memorizing

- Press and hold the MEM key for more than three seconds: The unit will (BEEP), time will blink, and pressure is displayed. The current pressure (or altitude) and time are memorized and become the “reference situation” used by the MEMO FUNCTION.
- The unit will automatically return to NORMAL MODE after 3 seconds.
- When the [MEM] symbol is on in NORMAL MODE, this tells you that a “reference situation” is memorized.

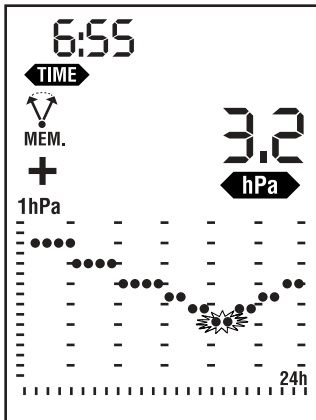


Memo/Recall Function:

You can access the comparison between the memorized “reference situation” and the current situation anytime by doing the following:

- Briefly press on the MEM key, the screen then displays the “reference situation” time, the pressure (altitude) difference between that time with a [+] or [-] under the MEM symbol. The graph then goes to ZOOM 24H and the segments for the current situation and the “reference situation” blink; (i.e. [+] under the MEM symbol means that the pressure (altitude) has increased since the reference time.)

- After 7 seconds, the unit will automatically return to NORMAL MODE. The “reference situation” is kept in memory, or you can choose to put the current readings into memory.
- If the reference time dates back more than 36 hours, or if no readings have been entered into the memory, the screen will display [- - -] instead of the time and [ERR] instead of the pressure (altitude). In this case, the [MEM] symbol is off in NORMAL MODE.



- Remember that altitude affects pressure. Any traveling with the barometer without re-calibrating will lead to incorrect values:
+ 10 m altitude = - 1,2 hPa (.03 inHg)

9 **BAROMETER ALARM**

This ALARM works only if the unit is in the BAROMETER MODE.

The ALARM on your WEEMS & PLATH Marine Barometer is a complete safety device: it will automatically warn you of a pressure variation during a 1 hour 30 minute period:

- Dropping : low pressure or trend inversion approaching.
- Increasing : high pressure ridge arriving.

Unlike the WIND ALARM, you activate the BAROMETER ALARM and set its sensitivity. Set the BAROMETER ALARM as follows:

- Press and hold the SET key for more than 3 seconds to access the SET-UP MENU.
- The unit reads [OFF], or the current alarm setting and the [AL] symbol comes on. Adjust the alarm level by pressing the + or - keys. You will see the different ALARM levels.



Alarm Level List

hPa	inHg
+ 1	+ 0.03
+ 0.5	+ 0.01
	OFF
- 0.5	- 0.01
- 1	- 0.03
- 1.5	- 0.04
- 2	- 0.06
- 3	- 0.09
- 4	- 0.12
- 5	- 0.15

- Let the alarm level you select continue to flash. The barometer will automatically come back to NORMAL MODE after 7 seconds. The [AL] symbol indicates that the ALARM is working. (i.e. level [-2 hPa] means that the ALARM will sound if the instant pressure falls 2 hPa (or more) than one of the average pressures of the last three half hours.)

When the ALARM is activated, the unit will make a (BEEP) every three seconds and the [AL] symbol will flash.

After 3 minutes, the beeping will automatically stop. During these 3 minutes, you can stop the (BEEP) by pressing on any key.

The [AL] symbol will flash for 60 minutes.

The ALARM can be stopped anytime by going to the SET UP MENU and setting to [OFF].

10 LIGHTING / DISPLAY SELECTION

In NORMAL MODE you can choose to display one of the following at the top of the screen: time, indoor temperature, or both alternating.

- Every time you press the MODE key, the display will change. When you get the display you want, let it continue to flash. After 7 seconds, the barometer will automatically set this as the NORMAL MODE display:
 - 1st pressing will show TIME DISPLAY
 - 2nd pressing will get TEMPERATURE DISPLAY
 - 3rd pressing will get ALTERNATING DISPLAY
- Pressing a 4th time will bring up the ECO MODE, if you don't want to change the batteries, pressing a 5th time will get back to TIME DISPLAY.
- The barometer has a simple light that is useful in some situations. To turn off the light, press the MODE key. The light turns itself off automatically after 10 seconds.

14:10
TIME

21.5°C
TEMP

11 **LOW BATTERY INDICATOR**

- The [low battery] symbol lights up when there is approximately two weeks of battery reserve in normal operation mode. A faded looking display is also a sign of a low battery.

12 **ALTIMETER MODE**

- By choosing the [ALT.m] mode (see Section 4 for more information), your barometer will automatically default to the “Altimeter” mode.
- The unit works from 0 to 13170 feet (3995 meters).
- The altitude is calculated in relation to the “absolute value” pressure and to “sea level” pressure, as per ICAO’s Standard (International Civil Aviation Organization).
- Accuracy of pressure calibration, temperature difference, and weather condition changes can affect the displayed altitude. Air pressure increased by 12 hPa will reduce the displayed altitude by 100 m.
- WIND ALARM SYSTEM and BAROMETER ALARM do not work when the unit is in Altimeter mode.
- Past altitudes provided by the graph, MAX/MIN and HISTORY functions are average altitudes calculated by the unit every plain hour.
- One bar on the graph, even in the altimeter mode, is always 1 hPa (8.33 m).
- The instant altitude displayed is actually an average altitude reading over 60 seconds. If traveling fast, your device will be “late”. We do not recommend using this device in any “air” sports.

13 ***“SPECIAL MARINE” WALL MOUNTING PLATE***

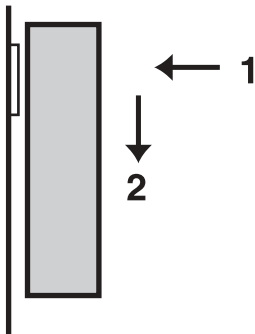
Your barometer shipped with an exclusive mounting plate. To fasten it to the wall or bulkhead of your boat, proceed as follows:

- Position the mounting plate with the mounting holes on a level horizontal plane and with the pin to the top.
- Insert the pin into the oblong opening of the barometer by pressing the barometer firmly against the side.
- Pull the barometer downward 4 or 5 mm, keeping it vertical while still pressing it firmly against the side. The barometer is now attached to the side and will not slide, even in swell or list.

To release the barometer from the mounting plate:

- Push the barometer upward, before pulling it away from the side (otherwise serious damage can occur).

For tabletop use, pull out the retractable foot.



Your WEEMS & PLATH Marine Barometer is a precision electronic device. We recommend taking the following steps to ensure that it will last for a very long time:

- Store in a clean, dry place. If it gets wet, dry immediately with a soft clean cloth.
- Do not press on the LCD screen.
- When transporting, remove the retractable stand and protect the unit with cushioned wrap.
- Do not insert blade, rod, screwdriver or any other object in the ventilation holes.
- Do not try to open or disassemble the unit, doing so voids the warranty.
- Use and store your barometer at normal temperature (- 10°C at + 60°C).
- Handle with care: dropping can cause abnormal operation and will void warranty.
- Clean your barometer with a soft, wet cloth if needed. Do not use chemicals or detergents.

15 **WARRANTY**

- The unit carries a one year warranty upon presentation of proof of purchase.
- The warranty is subject to compliance with operation conditions and maintenance instructions provided in this manual.

16 **TECHNICAL SPECIFICATIONS**

Working temperature	0°C to + 50°C (32°F to 122°F)
Storing temperature	-10°C + 60°C (14°F to 140°F)
• Pressure measurement	
Range	300 to 1100 hPa (8.86 to 32.48 in Hg)
Resolution	0,1 hPa or 0,01 inHg or 5 m
Measurement frequency	8 s
Display mobile average	120 s (60 s for the altimeter)
Linearity	+/-0,5hPa(between750 and 1100 hPa at 20°C) - +/- .01 in Hg (between 22.15 and 32.48 in Hg at 68°F)
• Temperature measurement	
Range	-10°C to 60°C (14°F to 140°F)
Resolution	0,1°C
Linearity	+/- 1°C
Measurement frequency	8 s
Display mobile average	60 s
• Time measurement	
Resolution	1 s
Accuracy	+/- 2 minutes/month
• Altitude setting	0 to 3995 m (can only be set in meters)
• Size	
Model #4000	140 x 115 x 34 mm 5.51" W x 4.53" H x 1.34" D
Model #4001	140 x 115 x 34 mm 4.12" W x 4.53" H x 1.34" D
• Weight	170 g