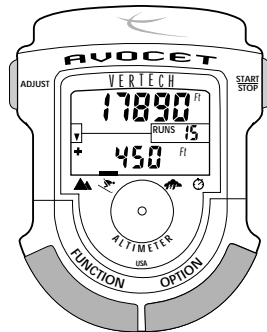


# VERTECH II

SKI AND ALPIN



## SKI FEATURES

- Records vertical feet skied
- Counts number of runs skied
- Maximum, current, and average rate of descent

## ALPIN FEATURES

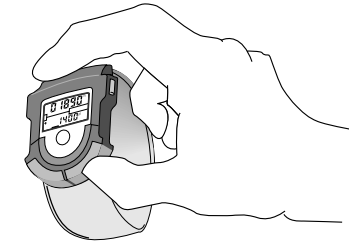
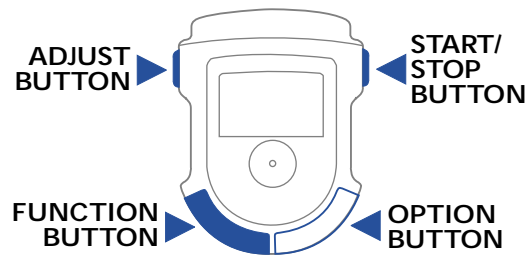
- Aircraft precision altimeter shows altitude to 5 feet
- Records vertical feet hiked or climbed
- Sea level barometer with trend and thermometer

Made in Silicon Valley, California, USA

# AVOCET

[www.avocet.com](http://www.avocet.com)

## OPERATION AND SETUP



Press function and Option Buttons inward, not downward. Brace your index finger on the contoured top of the Vertech case.

### OPERATION

**FUNCTIONS AND OPTIONS.** The flowchart below shows the way that the Vertech II displays information and the effect of pressing the Function and Option Buttons in different functions.

**FUNCTIONS.** Press the Function Button to move between the 4 primary functions Altitude/Time (A), Vertical Sports (B), Weather (C), and Stopwatch (D).

**OPTIONS OF FUNCTIONS.** Press the Option Button to display options (sub-functions) of a primary function.

**ADJUST MODE.** Enter and exit by pressing the Adjust Button when the function that you want to adjust or reset is displayed. Move to different functions within a display with the Function Button. Adjust blinking displays with the Option Button. Reset blinking displays with the Start/Stop Button.

### SETUP AND ADJUST

**ADJUST THE ALTITUDE.** In the Altitude/Time function press the Adjust Button. The altitude digits will blink. Adjust with the Option Button up or down according to the direction of the toggling arrow. Press the Adjust Button to exit.

**CHANGE BETWEEN FEET AND METERS.** In the Altitude/Time function press Adjust Button then press the Start/Stop Button to switch between feet and meters. Press the Adjust Button to exit.

**SET THE CLOCK.** Press Adjust Button when you are in Altitude/Time function. Press the Function Button to go from altitude adjust

to clock set. Adjust the Clock hour with the Option Button. Move to the minutes and seconds with the Function Button. Press the Adjust Button to exit.

**SET THE ALARM AND DATE.** Press the Adjust Button in the Date/Alarm function to make Alarm hour blink. Set hour with the Option Button. Go to minutes by pressing Function Button. Go to the Date by pressing Function Button and adjust in same manner as Clock. Exit by pressing Adjust Button.

**TURN ON THE ALARM** Press Start/Stop button when the Alarm is displayed. The alarm icon shows when alarm is on.

**START AND STOP ALTITUDE ACCUMULATION.** Altitude only accumulates when the accumulator is turned on. Press the Start/Stop button when either Daily Vertical Feet or Total Vertical Feet is displayed. The blinking arrow indicates accumulation is turned on.

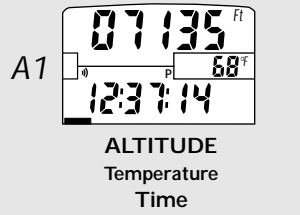
**ADJUST BAROMETER.** See "Weather" on other side. The Barometer does not change until it is adjusted.

**START AND STOP TIMERS.** Press the Start/Stop Button when the Stopwatch or Countdown Timer is displayed. The Countdown Timer is set the same way as the Alarm. See other side for Countdown Timer and Stopwatch details.

**SLEEP.** Vertechs are shipped from the factory in sleep mode. A unit can be returned to sleep mode if it will not be used for several months. See "Vertical Sports Functions" on the other side for details.

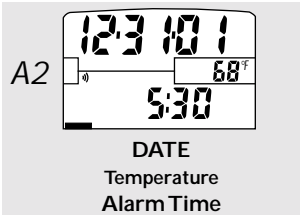
## FUNCTION FLOWCHART

### ALTITUDE/TIME



FUNCTION  
BUTTON

OPTION  
BUTTON



OPTION  
BUTTON



### VERTICAL SPORTS



FUNCTION  
BUTTON

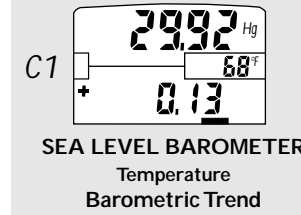
OPTION  
BUTTON



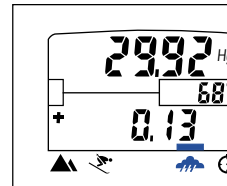
OPTION  
BUTTON



### WEATHER

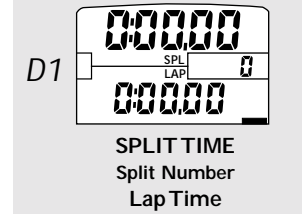


FUNCTION  
BUTTON



**FUNCTION IDENTIFICATION.** As you move from function to function, the bar at the bottom of the display will move so that it is positioned above the icon that corresponds to the function.

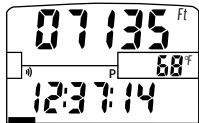
### STOPWATCH



OPTION  
BUTTON



## ▲ ALTITUDE / TIME FUNCTIONS



A1

**ALTITUDE.** The Vertech shows current altitude above or below sea level from -4,000 feet to +30,000 feet in 5 foot increments in the upper display.

**ALTITUDE OFFSET.** Weather changes produce changes in barometric pressure that cause an offset in the displayed altitude from the actual altitude. This offset is consistent at any altitude, so if you start a hike with the altitude reading 50 feet high, it will remain 50 feet high at any elevation on your hike. You can remove the offset by adjusting the altitude. When you adjust, you set the displayed altitude to the actual altitude.

**WHEN TO ADJUST ALTITUDE.** Altitude offset has no effect on other Vertech functions, so there is no need to adjust until you want to use the altitude function. Adjust at a known altitude such as at the sea side, a marked summit or pass, or a location with an altitude reference on a map such as a lake. Home or office make convenient adjustment points after learning their elevations from a topographic map. Adjust once a day when hiking or climbing or more often to increase precision.

**HOW TO ADJUST ALTITUDE.** Press the Adjust Button when in the Altitude/Time function (A1). The altitude digits blink. Change them with the Option Button. Altitude increases when the arrow on the left of the display points up, and decreases when it points down. When you reach the correct altitude, press the Adjust Button to exit.

**HOW TO ADJUST ALTITUDE.** Press the Adjust Button when in the Altitude/Time function (A1). The altitude digits blink. Change them with the Option Button. Altitude increases when the arrow on the left of the display points up, and decreases when it points down. When you reach the correct altitude, press the Adjust Button to exit.



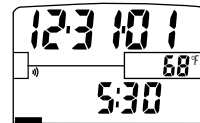
Adjust when you are at a known altitude such as sea level or at a landmark with its altitude marked on a map. Adjust the altimeter by pressing the Adjust Button when you are in the Altitude/Time function. When the altitude digits flash, adjust in the direction of the arrow with the Option Button.

**SWITCHING FROM FEET TO METERS.** To change the units displayed from feet to meters press the Adjust Button in the Altitude/Time function (A1). When the altitude digits are blinking, press the Start/Stop Button to switch from feet to meters. When you switch the units, accumulated vertical is converted to meters, vertical rates display in meters, the Thermometer is switched to Celsius, and the Sea Level Barometer displays in millibars.

**SETTING THE CLOCK.** Press the Adjust Button in the Altitude/Time function (A1). The altitude digits blink. Press the Function Button and the clock hour digits blink. Advance them with the Option Button. In the 12-hour clock "P" indicates that the hour is PM. At the correct hour press the Function Button. The minutes blink. Advance them with the Option Button. At the correct minute press the Function Button. The seconds blink. Press the Option Button to zero them. The seconds advance continually because the clock runs in the adjust display. To switch between 12 and 24 hour clock press the start / stop button in the clock adjust display. After setting the clock, press the Adjust Button to exit.



To set the clock, press the Adjust Button in the Altitude/Time function. Press the Function Button to move from altitude adjust to clock set. Set the hour with the Option Button, then move to minutes and seconds with the Function Button.



A2

**SETTING ALARM TIME.** In the Date/Alarm function (A2) press the Adjust Button. The Alarm hour digits blink. Advance them by pressing the Option Button. In 12-hour clock format a "P" above the time indicates PM. At the desired hour press the Function Button. The minute digits blink. Advance them with the Option Button. At the desired minute press Adjust Button to exit.

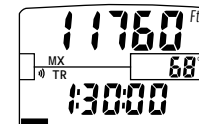
**TURNING THE ALARM ON AND OFF.** In the Date/Alarm function (A2) press the Start/Stop button to activate the Alarm. When activated the alarm symbol shows at the left of the display. To silence the alarm, press any button in any function.

**SETTING THE DATE.** The date is shown in month / day / year format. To set the date press the Adjust Button in the Date/Alarm function (A2), then press the Function Button twice. When the month digits blink advance them with the Option Button. At the correct month press the Function Button, then advance the day with the Option Button. At the correct day press the Function Button and advance the year with the Option Button. At the correct year press the Adjust Button to exit.

**RESETTING MAXIMUM ALTITUDE.** The Maximum Altitude function shows the maximum altitude reached since last reset to within 5 feet. To reset press the Adjust Button in the Maximum Altitude/Countdown Timer function (A3). The altitude digits blink. Press the Start/Stop button to reset to the current altitude. Press the Adjust Button to exit or press the Function Button to set the countdown timer.



To reset Maximum Altitude press the Adjust Button in the Maximum Altitude function. When the altitude digits blink, reset them to the current altitude with the Start/Stop button.



A3

**SETTING THE COUNTDOWN TIMER.** Press the Adjust Button in the Maximum Altitude/Countdown Timer function (A3). Press the Function Button. The hour digits blink. Advance them with the Option Button. At the desired hour press the Function Button. The minute digits blink. Advance them with the Option Button. At the desired minute press the Adjust Button to exit. Start and stop the Countdown Timer with the Start/Stop button.

**THERMOMETER.** Body heat will affect thermometer accuracy when the Vertech is worn directly against the wrist. The most accurate readings are displayed when the Vertech is worn over a jacket or when it is off the wrist.



## VERTICAL SPORTS FUNCTIONS



B1

### ACCUMULATING ALTITUDE.

There are 2 altitude accumulators that record together, and reset separately. The first one is called Daily Vertical Feet (B1) and is normally reset after a day's activity. The second one, Total Vertical Feet, (B2) is normally used to keep a long-term record over a month, season, or year.

Accumulation can be switched on or off by pressing the Start/Stop Button when either accumulator is displayed. The arrow at the left of the display blinks when the accumulator is on. Remember to turn the accumulators on before beginning your activity and off when you finish; otherwise you will record no vertical feet or will record unwanted vertical feet. Both accumulators record up to 299,995 vertical feet with 5 feet resolution.



Turn altitude accumulation on or off in the Daily Vertical or Total Vertical Feet function with the Start/Stop button. The arrow blinks when vertical feet are being accumulated.

### CHANGING THE DIRECTION OF ACCUMULATION.

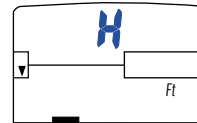
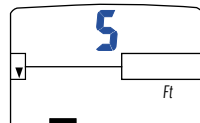
Skiers normally accumulate descent, and hikers and climbers, accumulate ascent. To choose the direction of accumulation, press the Adjust Button when Daily Vertical Feet is displayed. When Vertical Feet is blinking, press the Option Button to change the direction. The down-arrow will switch to an up-arrow or vice versa.



To change the direction of accumulation press the Adjust Button in the Daily Vertical Feet function. Then, when the accumulated altitude is blinking, press the Option Button and the arrow will change direction.

### CHANGING THE MODE BETWEEN SKI AND HIKE.

Changing the mode has two effects. It switches the vertical rates between feet per minute and feet per hour, and it activates the run counter in the ski mode (feet per minute). To switch the mode go to the Daily Vertical Feet function. Press the Adjust Button, then press the Function Button twice. A blinking "S" or "H" will appear. Press the Start/Stop Button to change the mode.



In Ski Mode rates display in feet per minute and Ski Runs are counted. In Hike mode rates display in feet per hour and Ski Runs is turned off.



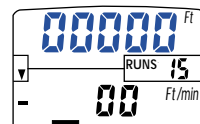
B2

### COUNTING SKI RUNS.

In the Ski Mode the middle display (B1, B2, & B3) shows the number of runs skied. A run is added after an altitude gain of 150 feet or more is followed by a 150 foot loss.

### RESETTING ACCUMULATED VERTICAL, RUNS, MAX

**RATE.** You can reset Daily Vertical Feet, Total Vertical Feet, Runs Skied, and Maximum Vertical Rate. Press the Adjust Button when you are in the function you want to reset, then press the Start/Stop Button to reset the blinking display. Use the Function Button to move from one display to another. When the Vertical Rate Timer is displayed, pressing the Adjust Button resets the timer and the rate. Runs are only shown in all "Ski" Vertical Sports functions, but can only be reset in the Daily Vertical Feet function.



To reset, first press the Adjust Button in the function you want to reset. Then press the Start/Stop Button to reset the blinking display.



B3

**VERTICAL RATE FUNCTIONS.** In Ski mode Current Vertical Rate (B1) per minute is calculated from a moving average weighted toward the most recent data. In Hike mode the Current Vertical Rate per hour comes from a moving average weighted toward the most recent data. Resolution is 50 feet per minute in

ski mode or 100 feet per hour in hike mode.

Maximum Vertical Rate (B2) records the maximum rate attained in the direction the Vertech is set to accumulate; that is, if it is set to accumulate descent, maximum rate of descent will be recorded.

The Average Vertical Rate (B3) is calculated over the period that the Vertical Rate Timer is running. The Timer and the Rate start and reset together. Resolution is 1 foot per minute in Ski mode or 1 foot per hour in hike mode.

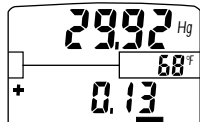
**SLEEP.** The Vertech can be put into power-saving sleep mode if it will be unused for several months. To enter Sleep, hold the Adjust Button 10 seconds in the Daily Vertical Feet function. When "SLEEP" appears, release the button immediately. If you fail to reach sleep because you did not release the button quickly enough, return to the Daily Vertical Feet function to try again. Accumulated vertical feet are retained in sleep mode, but setup information is lost. Press any button to exit Sleep.

### POINTS TO REMEMBER

1. Don't forget to turn the altitude accumulators on and off. If you don't turn them on, you won't record your vertical. If you don't turn them off when you finish, you will accumulate unwanted vertical while traveling to and from your activity.
2. Set up your Vertech to match your activity. Decide whether you want to accumulate ascent or descent and whether you want rates displayed in feet per minute (Ski mode) or feet per hour (Hike mode).
3. Ski runs are only recorded when the Vertech is in "Ski" mode.
4. When you switch between Ski and Hike modes, vertical rates are reset, but accumulated vertical feet are retained.



## WEATHER



C1

**SEA LEVEL BAROMETER.** There are two kinds of barometers; fixed location and moving location. Moving barometers are designed to be used at varying elevations. The Vertech, like aircraft altimeters, contains a moving location barometer. When you set it, you see both a barometer reading and

an altitude reading. The altitude reading changes whenever there is a change in elevation or a change in the weather, but the barometer reading does not move until the user sets it by adjusting the altitude.

**SETTING THE SEA LEVEL BAROMETER.** To find your current Sea Level Barometer, you must know your altitude. Sea Level Barometer does not change until you set it, and setting it has no effect on altitude functions. To set, press the Adjust Button in the Weather Function (C1). Both upper and lower displays blink. Use the Option Button to adjust the altitude in the lower display to your present altitude. This updates Sea Level Barometer in the upper display. A sea level barometer above 29.92 inches is generally associated with stable weather, and one below 29.92 with unstable weather. If you don't know your altitude, you can set sea level barometer from a TV weather report or by phoning a local airport to get the current barometer reading. In this case, adjust the barometer until it matches the report. The lower display then shows your current altitude. Exit by pressing the Adjust Button.



Set the Sea Level Barometer by adjusting the altitude in the lower display to match your current altitude. In this example when the altitude of 380 feet was adjusted to the actual altitude of 320 feet, the barometer was corrected from 29.92 inches of mercury to 29.86.

**BAROMETRIC TREND.** The lower display shows Barometric Trend. A plus sign (+) indicates an increasing trend, and a minus (-) sign a decreasing trend. Altitude change affects the trend, so trend information is only accurate when read at the altitude of the last trend reset. To reset the trend to zero, press the Start/Stop button.

## STOPWATCH



D1

**STOPWATCH.** Start and stop the Stopwatch (D1) by pressing the Start / Stop button. The upper display is called the Split Timer and the lower display is the Lap Timer. They will both display the same time until you create splits that are partial times for the lap. Splits and laps of up to 23:59:59 can be recorded. At

23:59:59 the display resets to zero and continues to count. Resolution is to .05 second to 29:59.95, then in seconds.



When you start the Stopwatch, Split Time (upper display) and Lap Time (lower display) record together and are identical.

**CREATING SPLITS.** Create a group of up to 32 splits by pressing the Option Button while the Stopwatch is running. Each time you press the Option Button the display will freeze the last split for viewing (6 seconds), then time for the new split will count in the upper display. The lower display will continue to accumulate the total time (Lap Time) since last reset. If you record more than 32 splits and laps and fill the memory, you can continue to use the stopwatch, but no further splits or laps will be saved.



Each time you press the Option Button with the Stopwatch running a new split is created. Its number is shown in the middle display.

**RESETTING THE LAP.** Reset the Lap Time by pressing the Adjust Button when the Stopwatch is stopped. The lap and all its splits are put into memory.



D2

**SPLIT AND LAP MEMORY.** To reach Split/Lap Memory (D2) press the Option Button when the Stopwatch is stopped. The time of the last split recorded along with the time of its associated lap will be displayed. The middle display shows the number of the split from that particular lap and the "M" memory icon to indicate that you are

in memory. Press the Option Button to scroll through the recorded splits and laps. Press the Function Button to return to the Stopwatch.



As you view a group of splits by pressing the Option Button, the Lap Time in the lower display will be the total of the current and previous splits.

**RESETTING INFORMATION IN MEMORY.** To reset all the splits and laps in memory, hold down the Adjust Button for 5 seconds while you are in the Split/Lap Memory function (D2). The Vertech will beep to indicate that everything is reset. You cannot reset times in memory individually.

**CREATING SPLITS BY STARTING AND STOPPING.** Stopping the Stopwatch (D1) puts the time shown in the Split Timer into memory. If you start again without resetting, you will create a new split in the upper display, and will keep your lap time. Reset by pressing the Adjust button.

## VERTECH II WARRANTY

### Avocet One-Year Limited Warranty

This Avocet Vertech II is warranted against defects in material and workmanship for one year after date of purchase. This warranty expires two years after the date of manufacture stamped on the back of the unit, regardless of the date of purchase. Defective products will be repaired or replaced. The warranty will not cover the battery, normal wear, damage, or loss and is void if the Vertech II is disassembled by anyone other than an authorized Avocet Service Center.

### Battery Replacement

The battery should be replaced only by an authorized Avocet Service Center. The Service Center will replace the battery, inspect and service the unit and ship it back to you.

### Processing Information

Before sending your Vertech for warranty service or battery replacement, contact Avocet at [www.avocet.com/service](http://www.avocet.com/service) or call Avocet at 510.476.1525 for current warranty and service information, including battery replacement and other service fees.

Warranty claims are to be sent to the Service Center by the owner, not by the retail store where the Vertech II was purchased. Include a description of the problem. *Only the original, dated cash register or charge card receipt will be accepted for proof of purchase date (no exceptions). If there is no proof of purchase, warranty will run one year from the date of manufacture stamped on the back of the unit.*

Send your Vertech freight prepaid to the Service Center at the address listed below. A traceable method of shipment is recommended in the event that your shipment to Avocet is lost in transit.

Avocet Service Center  
170A University Ave.  
Palo Alto, CA 94301

Customer service information is available at  
[www.avocet.com](http://www.avocet.com) or by calling 650-470-0478 ext 218

Product information is available at  
[www.avocet.com/vertech.html](http://www.avocet.com/vertech.html) or by calling 650.470.0478



P.O. Box 180, Palo Alto, CA 94302 USA

800193-01

## ALTIMETER / BAROMETER DETAILS

**HOW THE ALTIMETER WORKS.** The Avocet Vertech II measures altitude by detecting differences in air pressure and displaying this information as altitude above sea level. The Vertech works the same way an aircraft altimeter does.

### EFFECTS OF ATMOSPHERIC PRESSURE CHANGES.

A change in atmospheric pressure will make the displayed altitude different from the known altitude of a landmark. The Vertech can be adjusted so that it displays the same altitude as the landmark. Minor atmospheric pressure changes may cause the displayed altitude to vary from the actual altitude by 50 feet. With the arrival or departure of a weather front, displayed altitude can change 100 to 200 feet, and a storm can cause a change of more than 200 feet. Wind, rain, snow, and humidity do not affect altimeter readings. Atmospheric pressure changes during a day's activity can affect the accumulated vertical feet very little—usually less than 1%.

**DISPLAY UPDATES.** The Vertech disregards small vertical irregularities, and accumulation of vertical feet does not begin until there has been a 30 foot change in altitude. Altitude, vertical feet, and rate displays update frequently if there has been a change in altitude or a button has been pressed recently. During periods of inactivity, updates are less frequent.

**ADJUSTING BAROMETER OFFSET.** Barometer offset (the relation between altitude and sea level barometer) is set at the factory. To ensure barometer accuracy you can check it after a year or two and correct minor drift if necessary. To adjust offset first set the correct altitude in the barometer adjust display. Then call a local airport to get the current sea level barometer. If the reported and displayed barometers agree, no adjustment is necessary. If there is a discrepancy, note whether your barometer reads high or low and by how much. Press and hold the Adjust Button for 10 seconds. The upper digits blink. Adjust them up if your barometer reads low or down if it reads high. Adjust with the Option Button by the amount of the discrepancy previously noted. If necessary, you can adjust thermometer offset by pressing the Function Button. Press the Adjust Button to exit. Now set the correct altitude again in the barometer adjust display.

Additional information can be found at [www.avocet.com](http://www.avocet.com).

## VERTECH II SPECIFICATIONS

**Dimensions.** 1.6" wide x 2.05" high x .6" thick

**Weight.** .9 oz without band; 1.3 oz with ski band

**Display.** Triple; upper .2" high, middle .1" high, lower .15" high

**Operational Temperature Range.** 0°F to +122°F

**Water Resistance.** Water resistant to 10 feet. Detergents will permanently damage the altimeter sensor

**Patents.** U.S. Patents #5,058,427 and #5,295,085. Licensed US patent #4,694,694

**Country of Manufacture.** Made in USA

### Altitude

Current Altitude: -4,000 to over 30,000 feet in 5 foot increments

Maximum Altitude: -4,000 to over 30,000 feet in 5 foot increments

### Vertical Sports

Daily Vertical Feet: To 299,995 feet in 5 foot increments

(resettable; accumulates only when turned on)

Total Vertical Feet: To 299,995 feet in 5 foot increments

(resettable; accumulates only when turned on)

### Vertical Sports (Ski mode)

Current Vertical Rate: 0 to 7,600 ft. per min. in 50 foot per min. increments

Maximum Vertical Rate: 0 to 7,600 feet per minute in 50 foot per minute

increments; resettable

Average Vertical Rate: From 0 to 7,600 feet per minute in 1 foot per minute

increments over a period up to 18 hours; resettable

Runs: To 199 then stops; run counter is tripped by a 150 foot descent

### Vertical Sports (Hike mode)

Current Vertical Rate: 0 to 28,000 ft. per hour in 100 foot per hour increments

Maximum Vertical Rate: 0 to 28,000 feet per hour in 100 foot per hour

increments; resettable

Average Vertical Rate: From 0 to 28,000 feet per hour in 1 foot per hour

increments over a period up to 18 hours

### Weather

Sea Level Barometer: 28.84 to 31.00 inches of mercury with .01 resolution

Barometric Trend: -9.99 to +9.99 inches of mercury with .01 resolution

Temperature: 0°F to 122°F in 1° increments

### Clock

Time of Day: 12 or 24 hour format; to 1 second

Alarm: To one minute

Countdown Timer: To 23:59:00

### Stopwatch

Splits: Resolution .05 second to 29:59.95, 1 second 30:00 to 23:59:59

Laps: Resolution .05 second to 29:59.95, 1 second 30:00 to 23:59:59

Memory: Up to 32 splits

### Accessories

Vertech Alpin and Ski wrist bands are available separately. Lanyards and bicycle stem mounts are also available.

### Battery

CR2032 Lithium; approximately 3 year life