

ORIGO



- * **Granite Peak Series**
- * **Rendezous Peak Series**
- * **Traverse Peak Series**

Multi-sensor watch with
barometer, altimeter and digital compass

PWC023-03001R

CONTENTS

A. FEATURES	6
B. KEY ARRANGEMENT	7
C. MODE OPERATION	8
D. TIME	9
TIME SETTING	9
WEATHER FORECAST ICON	11
E. DIGITAL COMPASS	12
CALIBRATION	12
DECLINATION ANGLE	13
USING THE COMPASS	14
BEARING TRACKING	15
F. BAROMETER	18
SETTING THE CURRENT WEATHER	19
SETTING THE SEA LEVEL PRESSURE	19
BAROMETER PRESSURE GRAPH	20
G. ALTIMETER	22
SETTING THE REFERENCE ALTITUDE	23
USING THE ALTIMETER	23
ALTITUDE GRAPH	25
ALTIMETER LOCK	26
H. ALTIMETER DATA	27
I. CHRONOGRAPH	29
J. CHRONOGRAPH DATA	30
K. ALARM	31
L. COUNTDOWN TIMER	32
M. BATTERY REPLACEMENT	34
N. CARE OF YOUR WATCH	35

This multi-sensor watch is an accurate and reliable electronic instrument, which is designed for recreational use. The built-in sensors of this watch measure direction, altitude, barometric pressure, and temperature. Measured values are then shown on the display. Such features make this watch useful when hiking, mountain climbing, or when engaging in other such outdoor activities.

IMPORTANT NOTE:

- *The measurement functions of this watch should not be substituted for measurements that require professional or industrial precision and should not be used to acquire measurements when paragliding, flying small aircraft, skydiving, hang gliding and gyrocopter.*
- *When engaging in mountain climbing or other activities in which losing your way can create a dangerous or life-threatening situation, always be sure to use a second compass to confirm direction reading.*

A. FEATURES

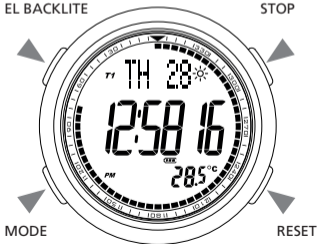
- **9 Operation Modes:** Time (Dual time), Compass, Barometer, Altimeter, Altimeter data, Chronograph, Chronograph data, Alarm, Countdown timer.
- **One touch direct access** of Digital compass and Altimeter reading on main time display for easy viewing.
- **Key lock** is the function to avoid triggering the high power consumption functions (e.g. digital compass / altimeter) by mistakes.
- **Real time weather** with weather forecast icon and temperature display on main time display.
- **Thermometer** of 0.1 degree resolution and with working range from -10C to +60C, displayed in F or C which is selectable by user.
- **Digital compass** with digital direction indication in 60 cardinal positions together with degree.
- Digital compass features with **bearing tracking lock** function for tracking purpose.
- **Declination angle adjustable** for improved navigation.
- **Barometer** of 1 mbar resolution and with working range from 300 mbar to 1100 mbar.
- **Altimeter** of 1 Foot (or 1 meter) resolution and with working range from -2296 feet (-700 meters) to 29,520 feet (9000 meters).
- **75 altimeter data memories** with date, time and altitude reading.

- 1/100 second chronograph with working range up to 24 hours with lap and split time selectable.
- 99 lap memories stored in a maximum of 99 runs.
- Run number, month, day, lap number, lap/split times, best lap time and average lap time will be stores and display.
- 2 daily alarms selectable.
- Selectable 12/24-hour display formats
- Hourly chime signal
- EL backlight can light up 3 seconds by single trigger, or can stay on until you have finished all the key operations after you activate the EL backlight (adjust mode only).

B. KEY ARRANGEMENT

ADJUST /
EL BACKLITE

START /
STOP



C. MODE OPERATION

There are 9 main operation modes in this watch (in sequence):

Mode	Description
TIME	Current time, Calendar, Current Weather, and Temperature Display
COMP	Digital Compass
BARO	Current Weather Forecast, Barometric Pressure and History
ALTI	Current Altitude, and Altitude History
ALTI DATA	Altimeter Data logbook for user recall
CHRO	Chronograph with lap and split time
CHRO DATA	Chronograph logbook for user recall
ALRM	2 Alarms
TIMR	Countdown Timer

In order to provide fast and direct access to the essential data (compass bearing + altitude), you can check the compass bearing in the time mode by pressing the START/STOP key, and check the current Altimeter in the time mode by pressing the RESET key. Both functions will resume back to time display after 10 second. Press the MODE key to cycle through different mode, or you can hold the MODE key for two seconds in any mode name display to jump back to TIME mode directly without going through all other modes.

D. TIME



The Time Mode provides the user with:

- current time (hour, minute, second), date and date of the week.
- current temperature
- current weather (by weather forecast icon)
- time zone of the time displayed

TIME SETTING

- Press and hold the ADJUST key for 2 seconds, the prompt "ADJUST" will display, and the prompt "HOLD" will flashing in the middle of the display.
- You can first select the time zone you want to adjust by pressing START/STOP key to toggle between ZONE 1 / ZONE 2. Press the MODE key to confirm.
- If you just want to switch between two time zones, you can now press the ADJUST key to exit to the Time display. You can also exit to the Time display by pressing the ADJUST key at any stage of adjustment.
- The Hour digits now flashing and ready for adjustment. Adjust the Hour by pressing either

START/STOP key (+) or RESET key (-). Press the MODE key to confirm and move into the Minute adjust mode. You can adjust again by pressing START/STOP key (+) or RESET key (-) respectively, and press MODE key to confirm.

- You can reset the Second to zero by pressing the START/STOP key. Press MODE key to confirm.
- Similar to Hour and Minute adjustment, you can adjust the Year, Month and Day by the same method. Press MODE key to confirm.
- You can now select the 12 / 24 hour display format by pressing the START/STOP key to toggle. Press MODE key to confirm. If the 12 hours clock is chosen either AM/PM will appear.
- You can also select the unit display for Temperature ($^{\circ}\text{C}$ / $^{\circ}\text{F}$) and Altitude (M / FT) by pressing the START/STOP key to toggle. Press MODE key to confirm.
- You can select to turn ON/ OFF the key tone by toggle the START/STOP key. Press MODE key to confirm.
- Apart from the normal time setting, you can also lock the keys to avoid any triggers by accidents to the high power consumption functions such as digital compass, EL back light, altimeter in the TIME mode. To lock the keys, simply press the START/STOP key and then press the RESET key within half second. The display will show "KEY LOCKED". Repeat the same procedures if you want to unlock the key.

- To have a correct ambient temperature reading, please take off the watch from the contact of skin for over 20 minutes.

WEATHER FORECAST ICON

A weather display icon will display the present weather forecast, which is an estimate of weather condition for the next several hours.

The weather conditions are estimated based on the changes on the barometric reading. To get an accurate weather display, it is recommended to adjust local weather condition when you arrived a new place and start a new hike. Detail will be explained on "Setting the current weather".

E. DIGITAL COMPASS



The built-in bearing sensor of this watch detects magnetic north and indicates one of the 16 directions on the display. Direction readings are performed in the Digital Compass mode.

CALIBRATION



It is highly recommended calibrating the compass before using the compass for the first time and every time leaving for a hike where the compass will be used. It is also recommended to recalibrate the compass if the compass has been exposed to any electromagnetic fields like loudspeaker. It should be done when the digital compass is subject to close proximity of magnetic sources, extreme cold weather, every time the battery is replaced. You can also calibrate the bearing sensor if you suspect the direction reading is incorrect.

To calibrate the bearing sensor:

1. Press and hold the START/STOP key for 2 seconds when in the compass mode. Text "CAL" and "HOLD" will appear. The calibration will start automatically after 2 seconds.
2. Slowly rotate the unit clockwise one complete rotations in a level position for approx. 30 second.
3. After 30 second, it will jump to the declination angle adjustment display. You can bypass the declination angle adjustment and end the calibration by pressing the MODE key. Text "CAL END" will appear.

DECLINATION ANGLE



The digital compass allows the user to compensate the different between true north and magnetic north. This process is accomplished by adjusting the declination, resulting in the user obtain correct compass reading.

You can refer to the declination angle on the chart below to do the adjustment.

- E 00 degree will show on the display.
- You can adjust the declination angle by pressing START/STOP key to increase and RESET key to

decrease. The range is from W 30 degree to E 30 degree.

- Press the ADJUST key to confirm the adjustment. Text "CAL END" will appear.

USING THE COMPASS

There has two ways to enter the Digital Compass mode:

1. While in the time mode, press the START/STOP key to enter the Digital Compass mode directly (the digital compass display will automatically return to time display after 10 seconds), or
2. Press the mode key once to enter the Digital Compass mode (The bearing sensor will be function for 90 second, and will stay in the compass mode. You can activate the digital compass again by pressing the START/STOP key again).

To take a direction reading:

- Point the 12 o'clock position of the watch in the direction you want to measure. Press either START/STOP key or mode key to enter the Digital Compass measurement operation.
- The direction that the 12 o'clock position of the watch is pointing appears on the display. The direction value that appears on the display represents the clockwise angle formed between magnetic north (which is 0 degrees) and the displayed direction.

- Also, four pointers appear along the cardinal segment to indicate magnetic north, south, east, and west. Magnetic north will be show by 5 segments.
- After the first reading is obtained, the watch continuous to take direction readings automatically each 1 second, for up to 90 second.

Note that taking a measurement while the watch is not horizontal (in relation to the horizon) can result in large measurement error. The digital compass will also display the text "DISTORT" if you are taking measurement in an abnormal magnetic field. Move away from the source of strong magnetism and try again.

BEARING TRACKING



The user can select to change from the cardinal point mode to the bearing track function and utilize the bearing lock function in this mode for tracking purpose.

- Press and hold the ADJUST button at the Compass mode for 2 second to enter the Bearing tracking sub mode.

- The top roll of display will show "BEARING", and the middle roll will display "OFF". You can toggle between ON/OFF by pressing the START/STOP key. Press MODE key to confirm.
- The actual bearing in degree will begin to flash in middle, and the top roll will show "SET LOCAL". Turn the digital compass to the desired direction. Lock the bearing displayed by pressing the START/STOP key. The locked bearing will be displayed on the top roll of display. The actual bearing in degree will still flashing in the middle of the display. Press MODE key to confirm.
- Adjust the locked bearing, if necessary by pressing the START/STOP key (+) or RESET key (-). Or you can press the MODE key to confirm your locked bearing.
- The bearing lock is now activated. The top row displayed the locked degree, and the middle row display the different between the locked bearing and the angle you turn. The cardinal segment will also show the amount of turn you did graphically (either clockwise / anti-clockwise)
- To resume to normal digital compass function, press and hold the ADJUST button at the Compass mode for 2 second to enter the Bearing tracking sub mode, then switch OFF the bearing lock function by toggle the START/STOP key. Press MODE key to confirm. If the user does not press any button for 1 minute in the setup mode, the display will automatically exit setup.

City	Declination Angle
Anchorage	22 E
Atlanta	4 W
Bombay	1 W
Boston	16 W
Calgary	18 E
Chicago	3 W
Denver	10 E
Jerusalem	3 E
London	4 W
Little Rock	3 E
Livingston, MT	14 E
Munich	1 E
New York City	14 W
Orlando	5 W
Oslo	2 W
Paris	2 W
Rio De Janeiro	21 W
San Francisco	15 E
Seattle	19 E
Shanghai	5 W
Toronto	11 W
Vancouver	20 E
Washington DC	10 W
Waterbury, CT	14 W

Remarks: To avoid the interference create by EL backlight, it is recommended to position the compass watch to your desired direction BEFORE turn on the EL backlight. The compass bearing reading will lock at the direction BEFORE turn on the EL backlight. It will update the reading after the EL backlight is turn off.

F. BAROMETER



The Barometer mode provides you with:

- Barometric pressure reading of current air pressure in mbar, range 300 to 1100 mbar, and a resolution of 1 mbar;
- Weather forecast (in graphical icon) which gives you a simple + direct understanding of weather changes for the next few hours;
- Barometric pressure graph, which present the history of pressure changes in the atmosphere for the past 30 hours. By monitoring these changes you can predict the weather with reasonable accuracy.

The weather forecast graphical icon has the following options:

The change of the weather forecast icon is determine by the rising or falling of barometric pressure with reasonable accuracy. To achieve the best accuracy, you are required to set the current weather conditions before you start the journey.

SETTING THE CURRENT WEATHER



sunny



sunny
with clouds



cloudy



chance of
precipitation /
rainy

- Press and hold the ADJUST key for 2 second in the Barometer mode. Prompt "ADJUST" will show at the top row and prompt "HOLD" will be flashing in the middle of the display.
- Prompt "SET CURR" will scroll along the top row, and the weather forecast icon will flash. You can input the current weather by press the START/STOP key to toggle between 4 different weather forecast icons.
- Press MODE key to confirm. Now the weather forecast will change to your selected icon.

SETTING THE SEA LEVEL PRESSURE



- After setting current weather, prompt " SEA LEVEL " will display on the top of the display.

- The current pressure reading will start flashing. Adjust the sea level pressure by pressing either START/STOP key (+) or RESET key (-). Press the MODE key to confirm.

BAROMETRIC PRESSURE GRAPH

After setting the sea level pressure, the barometric pressure graph (top row of the display) will be refreshed. It shows the barometric readings for the past 30 hours. The flashing point on the right of the display is the point of the newest measurement. Note that pressure graph readings are relative to the newest measurement point. One dot above the newest point is plus 1 mbar, while one dot below is minus 1 mbar.



Note that if there are sudden changes in weather, altitude or temperature, the graph line of past measurements may run off the top or bottom of the

display. The entire graph will become visible once barometric conditions stabilize.

The graph will scroll continuously and the barometer automatically takes measurements every hour, even when other functions are being used, and the data will always be valid. You can also perform a barometric pressure measurement at any time by entering into the barometer mode.

NOTE:

- The pressure sensors built into this watch measure changes in air pressure, which you can then apply to your own weather predictions. It is not intended for use as a precision instrument in official weather prediction or reporting applications.
- Sudden temperature changes can affect pressure sensor readings.

G. ALTIMETER



The Altimeter mode is using a pressure sensor to detect the current air pressure, and used to estimate the current altitude. You can select both Feet and Meter as the display unit of altitude. An altitude graph in the top of the display is use to present the history of the altitude change for 8 hours. You can also record up to 75 altitude points in the watch (including time and date) for your future reference.

Since the altitude is converted from the air pressure reading, altitude readings for the same location may vary if air pressure changes. It is recommended to do a simple calibration to a reference altitude before you start hiking, so that the altimeter can provide higher accuracy of altitude though out the journey.

SETTING THE REFERENCE ALTITUDE



- Press and hold the ADJUST key for 2 second in the Altimeter mode. Prompt "CAL" will show at the top row and prompt "HOLD" will be flashing in the middle of the display.
- The existing altitude will start flashing. Toggle the correct unit that matches with the reference altitude. Adjust the digit by pressing either START/STOP key (+) or RESET key (-). Press the MODE key to confirm.

USING THE ALTIMETER

After you set the reference altitude, the watch adjust its air pressure to altitude conversion calculation accordingly. The altitude is now updated and the altitude graph is refreshed. The current time and the current weather forecast icon will also appear on the altimeter mode display.

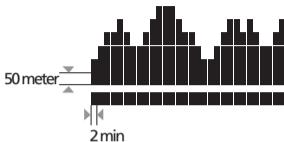
- The measurement range for altitude is from -2296 feet (-700 meters) to 29,520 feet (9000 meters).

- The measured altitude may be a negative value in cases where there is a reference altitude value set or because of certain atmospheric conditions.
- The displayed altitude value changes to ----- meters (or feet) if a measured altitude fall outside the measurement range. The altitude value will be displayed again as soon as the measured altitude is within the allowable range.



- You can change the unit of measurement for the displayed altitude values between meter (m) and feet (ft) by toggle the RESET key.
- You can also record the altitude at any point of your journey, which can be recall in the Altimeter Data mode. To record the altitude, press and hold the START/STOP key for two seconds, prompt "STORE DATA" appear on the screen, and it will display "STORED DATA" when it finish record the altitude data. Altitude, date and precise time will be recorded. A log number will also assign to this record for easy review.

ALTITUDE GRAPH



The Altitude Graph is located on the top of the display in Altimeter mode. It shows the altitude history in the past one hour. The flashing bar on the right of the display is the point of the newest measurement. Note that altitude graph readings are relative to the newest measurement point. One dot above the newest point is plus 50 meter, while one dot below is minus 50 meter.

The graph will continue to update no matter which mode you are in so the graphical data will remain accurate at anytime you view. The graph will display the past one hour of altitude informations to you, with each column segment representing an average altitude reading every 2 minutes.

ALTIMETER LOCK

Altimeter lock is a very useful feature for you to retain the altimeter in high accuracy without multiple calibrations. Imagine you start a journey to walk up a hill in the morning and you want to stay overnight in the mid of hill, the altimeter reading can change a lot overnight even if you do not go up / down the hill.

The main reason is the principle of calculating the altitude is based on the barometric change. As the pressure can change a lot overnight, so the altitude reading you have can vary from you arrive from the time you leave the base camp. The function of this feature is to lock the altimeter reading and count the change of pressure is the change of sea level pressure.

To lock the altitude reading, press the START/STOP key and the MODE key together during ALTIMETER mode. The display area will show "ALTI LOCK". The altitude reading will be locked and all the change of pressure (no matter cause by the change of weather or not) will count as the atmospheric change and only the barometer will reflect + record the change. To unlock the altimeter, simply repeat the same procedures again. The altimeter function will resume. Please note that you might found the altitude reading bounce up and down a little bit, which is normal and it will become stabilize within minutes.

H. ALTIMETER DATA

Altimeter Data record are taken independently of Altimeter mode measurement and stored directly into memory (along with the date and time of the measurement) for later recall. Apart from the memory you record manually, the Maximum Altitude and the Accumulated Altitude will also be stored for you as a reference. Each value will be updated on a continual basis for all the time spent in the altimeter mode (these values will not be updated while in other modes).

Maximum Altitude and Accumulated Altitude can be described as:

Maximum Altitude

The maximum altitude reading since the measurement was last reset. This will be a single absolute altitude measurement.

Accumulated Altitude

The total vertical rise accumulated since the unit was last reset. Every individual altitude change will be count into the sum in which NOT refer to the NET altitude increase. For example, if you walk up 100m, and walk down 100m, then walk up 100m again, the accumulated display would show 200m.

The Maximum Altitude data and Accumulated Altitude data will be shown in the Altimeter Data

mode first, and then the Altimeter Data record will be shown. Each data will display in the screen for 1 second, one after another and you can access into your Altimeter Data log book by pressing the START/STOP key. You can browse the Altimeter Data you record manually.

The Altimeter Data will be arranged according to the log number you have been assigned when you store the data. The log no. "Data 1" will be shown on the top row of display, the time of the data recorded is shown in the middle row of display, and the date will be show at the bottom row of display. The altitude will be display on the next screen. It will be displayed in an automatically alternating way within 2 second.

Press START/STOP to scroll upward through all available data, or RESET to scroll downward. The data number will be shown through all available data at each button push. Once you stop at one data page, the altitude of that data will display accordingly.

If you have used up all your memory, and want to clear the data in the logbook in order to free up memories for the new data, you can press and hold the ADJUST key to erase all the data in the memory. Prompt "CLEAR DATA" will flash, and the display will show "MAX.0" and "ALL.0".

I. CHRONOGRAPH



The Chronograph mode lets you measure elapsed time, split times and two finishes.

- The display range of the chronograph is 23 hours, 59 minutes, 59.99 seconds.
- The chronograph measurement operation continues even if you exit the chronograph mode.

To measure times with the chronograph:

- Press START/ STOP key. The lap/split time display begins with 1/100 seconds, then seconds, then minutes. If the accumulated times in a run proceed to hours, the elapsed hours appear above the primary display and replace 1/100 seconds in the secondary display.
- Press START/ STOP key. The completed lap number appears on the lower part of display. Split time appears for 5 seconds, then the display returns to the overall time. Completed lap time appears for 5 seconds, and then the display shows the elapsed time for the next lap.

- Press RESET key to stop the stopwatch. The total elapsed time appear. You can either press the START/STOP key to resume the stopwatch, or press RESET key again to set counter zero. You can also press and hold the ADJUST key for 2 seconds to store the chronograph data and cycle for the next run.

J. CHRONOGRAPH DATA



- In the chronograph data mode, the display will show the run no. and the date of the run. Press the RESET key to browse the run you want to review, and press the START / STOP key to enter into your desire run.
- You can also go through the data lap by lap by pressing the START/STOP key. After go through the lap time of each lap, it will display the total time, the best lap time and the average lap time. Run can be cleared from chronograph data mode:
 - If the user wants to erase all run data, hold the ADJUST button down for 2 seconds.
 - A flashing message of "CLEAR DATA ALL" will appear warning the user that all data is about to be erased. Continue to hold ADJUST key until the data is cleared.

K. ALARM



The alarm mode provides two standard alarms that can be individually enabled or disabled as desired. The watch will emit a 30 second audio signal when an enabled alarm is triggered by the appropriate time of day.

- Press the START / STOP key to toggle the alarm ON / OFF .
- Press the RESET key to select "ALARM 1", "ALARM 2".
- Press and hold the ADJUST key for 2 seconds. Prompt "ADJUST / HOLD" will display, then the hour digits start flashing.
- Press the START / STOP key to increase the flashing digits, RESET key to decrease the digits. Hold the button for fast scrolling.
- Press the MODE key to cycle to the next value, as well as the TIME 1/2, and the chime ON/OFF. Press the MODE key to confirm.

L. COUNTDOWN TIMER



- In the count down timer mode, the top roll is your target time you need to count down and the middle roll is your elapsed time, the bottom roll is your current time.
- Press and hold the ADJUST key for 2 seconds to adjust the count down time. Prompt " ADJUST" and "HOLD" will be displayed.
- Firstly you can adjust the hour. Press START/STOP key to increase the flashing digits. Press the RESET key to decrease the digits. Hold the button for fast scrolling.
- Press the MODE key to cycle to adjusting the minute. After adjusting the minutes, press the MODE key to cycle to adjusting the seconds. Press the MODE key to confirm the settings at any stages.
- Press the START/STOP key to start or pause the count down timer. Press the RESET key to reset the timer back to your target count down time.

Once the count down time target is completed, it will have an audio signal to remind you, but it will then start counting up. You can press the

START/ STOP key to pause the count down timer and press START/STOP key to resume the count down. After you stop the countdown timer, you can reset the timer back to your target count down time by pressing the RESET key.

M. BATTERY REPLACEMENT

There is a battery level icon below the middle row of the display. When the icon starts flashing, it indicates the battery level is low and needs to be replaced. No EL or any audio signal can be functioned once the battery icon starts flashing. You have to replace the battery immediately.

To replace the battery:

1. Insert a coin into the slot located on the battery compartment cover on the backside of the watch.
2. Turn the coin counterclockwise until it is aligned with the open position marker, or even slightly further for easy opening.
3. Remove the battery compartment cover. Ensure that the O ring and all surfaces are clean and dry. Do not stretch the O ring.
4. Remove the old battery carefully.
5. Place the new CR2032 battery into the battery compartment with the positive side facing up.
6. With the O ring in the correct position, replace the battery compartment cover and turn it clockwise with a coin until it is aligned with the closed position marker.
7. Battery replacement should be done with extreme care to ensure that the watch remains water-resistant. Careless battery replacement may void warranty.

N. CARE OF YOUR WATCH

- Never attempt to disassemble or service your watch.
- Protect your watch from extreme heat, shocks and long time exposure to direct sunlight.
- Watch can be wiped clean with a lightly moistened cloth. Apply mild soap to the area if there are stubborn stains or marks. Do not expose your watch to strong chemicals such as gasoline, clean solvents, acetone, alcohol, insect repellents, as they may damage the seal of the unit, case and finish.
- Store your watch in a dry place when you are not using it.
- Avoid allowing the watch to come into direct contact with hair liquids, colognes, sun block creams, and other toiletries, which can cause deterioration of the plastic parts of the watch. Whenever the watch comes into contact with these or other toiletries, wipe it off immediately with a dry, soft cloth.
- Do not fasten the band too tightly. You should be able to insert your finger between the band and your wrist.



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