

Contents

Package Contents

1. MAIN UNIT

Main unit 3V battery (CR2032)

2. BRACKET SET

Bracket for handlebar or stem Bracket base Twin adhesive tape Cable ties

3. SPEED TRANSMITTER SET

Speed transmitter 3V battery (CR2032) Transmitter rubber pad Cable ties Magnet set O-ring

4. CADENCE TRANSMITTER SET (for Echo-a2 only)

Cadence transmitter 3V battery (CR2032) Transmitter rubber pad Cable ties Magnet set O-ring

1. The installation of the accessories is on the separate sheet. 2. The accessories or parts are subject to change without prior notice.

Introduction

Congratulations on having chosen the cycle computer with altimeter functions from ECHOWELL. The easy operation of your new Echo-a1 or Echo-a2 will let you enjoy much fun from riding. Please read this manual carefully before using the device to get familiar with the operation logic.

The altitude calculation of this cycle computer works by measuring the atmospheric pressure. Since the weather is changing, the altitude (converted from the air pressure measurement) for the same location may be variable at different times. However, if there's no rapid weather change, the altitude differences caused by the weather are limited and can be generally accepted. Do not use this computer as a specialized device for altitude measurement.

The altitude value shown in each Echo-a1 or Echo-a2 computer is pre-calibrated by the precise instrument at the factory before shipment. However, to get accurate basis altitude, we suggest that you calibrate the current altitude data before each ride. And the calibration of altitude for your Echo-a series is quite easy. (Refer to the content about button operation.) You may obtain the altitude information from topographic maps or the Internet. If you are unaware of your basis altitude or do not care about the home altitude, you may reset the altitude to zero before riding. In this way, the cyclist can still enjoy the fun of learning the accumulated altitude gains during the trip. The altitude data can be your reference for riding over the same hills or mountains next time. There is a highly sensitive pressure sensor inside each Echo-a1 or Echo-a2 cycle computer, and there is a hole at the bottom of each main unit for measuring the pressure. You should always keep the hole clean to avoid incorrect measurement and must not poke a needle or any pointed article into it to avoid damage. The atmospheric pressure measured by the sensor will be converted into current altitude. After using your Echo-a1 or Echo-a2, you are sure to get a lot of fun from riding with it.

Using Your Computer 1.Main Unit Setup

1. Initiation of Main Unit:

- Before normal operation, initiate the main unit and select units as stated below:
 - 1-1. Push buttons A, B, C simultaneously for 3 seconds, and you'll see the auto-testing display.
 - 1-2. Press any button to quit auto-testing display, and then select units of temperature, altitude and distance.
 - 1-3. Press the C button to quit unit selection and enter General Mode.
- Timing to initiate the main unit and select units is as listed below:
 - 2-1. The first time when you use the computer
 - 2-2. When the display becomes irregular due to improper use
 - 2-3. Whenever you change the battery

2. Basic Display Modes:

After initiating the computer, selecting units, you should enter Data Setting Mode to set some basic data like wheel circumference and clock time etc. Then go to General Mode for normal operation.

Before riding, you should enter Altitude Calibration Mode to calibrate the current altitude value.

The following is the General Mode Display during riding for reference:



2. Overview of Button Operation

This computer includes three major display modes as shown below: Data Setting Mode, General Mode, and Altitude Calibration Mode. In this section, you'll learn the function of each button in each mode. The following text lets you know how to use the buttons to operate the computer step by step.

1. In Data Setting Mode:

Tips: 1. The buttons you'll use in Data Setting Mode: A, B, C.

- 2. Button for entering or quitting Data Setting Mode: C
- 3. Button for changing the value of a flickering digit: A
- 4. Button for switching to the next digit or setting: B
- Button A: 1. Press the A button to change the value of a flickering digit in a loop.
 - If you keep pushing the A button, the digit value will automatically increase.
 - Release the A button when the required value of a digit is displayed.
- Button B: 1. Press the B button to move to the next digit in a loop.
 - 2. Push the B button for 1 second to move to the next

setting.

- Button C: 1. In General Mode, press the C button to enter Data Setting Mode.
 - Data Setting Mode, press the C button to exit and return to General Mode.

Button D: No function.

How do you enter Data Setting Mode after initiating the computer? After initiating the computer by pressing the A, B, C buttons at the same time for 3 seconds, press any button to quit auto-testing display, and then select units. After unit selection, press the B button for 2 seconds to enter Data Setting Mode.

2. In General Mode:

- Tips: 1. The buttons you'll use in General Mode: A, B, C, D
 - 2. Button for changing the function display: A
 - 3. Button for resetting the trip data: A (3's)
 - 4. Button for entering Data Setting Mode: C
 - 5. Buttons for entering Altitude Calibration Mode: A+B (3's)

Button A: 1. Press the A button to move to the next function display.

- Press the A button for 3 seconds, and you will reset the following data:
 AVG SPD, MAX SPD, DST, RTM, ALT, MAX ALT, AVG RPM, MAX RPM.
 (AVG RPM and MAX RPM are for Echo-a2 only.)
- Button B: 1. Press the B button to turn on the EL backlight.
 - The following function is for Echo-a2 only: Press the B button for 1 second, and the temperature will be displayed.
- Button C: Press the C button, and you'll enter Data Setting Mode.
- Buttons A+B: Push both buttons for 3 seconds, and you'll enter

Altitude Calibration Mode.

Button D: Press the D button to switch to Bike 1 or Bike 2.

3. In Altitude Calibration Mode:

Tips: 1.The buttons you'll use in Altitude Calibration Mode: A, B. 2.Buttons for entering or quitting Altitude Calibration Mode: A+B (3's) 3.Buttons for quickly resetting the current altitude to zero: A+B (1's)

- Buttons A+B: 1. In General Mode, push A and B buttons for 3 seconds to enter Altitude Calibration Mode.
 - In this mode, press A and B buttons at the same time briefly, and the current altitude value will return to zero. It's convenient for quick setting.
 - Push A and B buttons for 3 seconds to quit this mode and return to General Mode.
 - Button A: 1. Press the A button to change the plus sign to minus, or change the minus sign to plus.
 - Press the A button to change the value of a flickering digit during setting.
 - Button B: Press the B button to move to the next digit in a loop during setting.

About Altitude Calibration:

- 1. If you are aware of your home altitude or basis altitude before riding, you can directly adjust the current altitude data after you enter this mode.
- 2. If you do not know your basis altitude before riding or if you do not care about the altitude of the starting point, you may return the current altitude value to zero in the calibration mode by pressing both A and B buttons at the same time briefly. In this way, the rider will still enjoy the fun of learning the accumulated altitude gains during each ride.

3. Wheel Circumference Measurement

To set the wheel circumference before riding, you should measure the wheel circumference by yourself or just refer to the Wheel Circumference Table as shown below:



How do you measure the wheel circumference yourself?

Roll the wheel until the valve stem is closest to the ground and mark the corresponding spot on the floor as the first point. Next, roll the wheel forward until the valve stem is closest to the ground once again. Mark the corresponding spot on the floor as the second point. Then measure the distance between both points, using the unit of millimeter. The distance equals your wheel circumference.

- The default value of wheel circumference for Bike 1 is 2155mm; that for Bike 2 is 2050mm. Enter the correct wheel circumference into the computer in Data Setting Mode.
- Refer to pages 13 and 14 about basic setting to set your wheel circumference.

4. Basic Setting & Operation

Tip for Data Setting :

- Press the A button to change the value of a flickering digit. Press the B button to move to the next digit in a loop.
- Press and hold the B button for 1 second to move to the next setting when the current setting is finished.
- 3. If the computer is idle during Data Setting Mode for 20 seconds, it'll automatically return to General Mode.









5. General Display

The display of General Mode looks different in different phrases as shown below:



- Put the main unit onto the bracket, and the main unit will automatically start measuring the speed and cadence.
- The main unit will automatically enter Sleep Mode in 15 minutes once it doesn't receive any signals from the bike.
- Only current time is displayed when the computer is in Sleep Mode (Power-Saving Mode.)
- Press the A or B button to wake it up, and it'll show the previous display and resume measuring.
- 5. When the main unit is on the bracket, you cannot enter Data Setting Mode or switch between Bike 1 and Bike 2.

6. Battery Replacement



- When the low battery indicator is shown on the display, replace the battery with a new one A.S.A.P.
- The positive (+) pole of the CR2032 battery must face the battery cap.
- 3. Press buttons A, B, C for 3 seconds to initiate the main unit.

Attention: When there's the low battery symbol on the screen, we suggest that you replace the battery with a new one A.S.A.P. Otherwise, the altitude measurement result may be incorrect, and the new data may be lost.

7. General Mode Display

When you are riding with the computer, some functions will not be displayed on the screen. These functions like T.AL, ODO, mBAR, DST/D are displayed only when you stop riding.



8. About Altitude Calibration



Tip for Quick Altitude Calibration

- Press both A and B buttons for 1 second, and the current altitude value will return to zero.
- Press the A button to set the value of a digit, and press the B button to move to the next digit.
- 3. <u>Attention:</u> Calibrate the current altitude only when there're no speed signals.

9. Temperature Display The following operation is for Echo-a2 only:



10. Bike 1 /Bike 2 Selection

Bike 1 and Bike 2 have their separate data in the computer.



11. Data Reset



- Press and hold the A button for 3 seconds to reset data of DST, RTM, MAX, AVG, ALT, MAX-ALT, MAX-RPM, AVG-RPM (for Echo-a2 only)
- The following data are stored in memory and cannot be reset: Unit, Cmm1 (Circumference 1), Cmm2, ODO 1, ODO 2, T.RT1, T.RT2, T.AL1, T.AL2.
- 3. Reset data for Bike 1 and data for Bike 2 respectively.

12. EL Backlight



13. Sleep Mode



Press the A or B button to wake it up.

Functions

The display of the computer can be divided into three sections – upper, middle, and lower display.

In General Mode, the LCD display of your computer is as below: The current altitude is always shown on the upper display, and it's easy to calibrate it when necessary. For Echo-a1 users, current speed and temperature are always shown on the middle display. For Echo-a2 users, current speed and current RPM are always shown on the middle display. And most functions are shown on the lower display- you may press the A button to view each function display.

Regarding the functions marked with *** listed below, the data can be reset to zero by the reset operation. (When in General Mode, press the A button for 3 seconds to reset the computer.)

ALTI Current Altitude

- 1. The current altitude is always displayed on the upper display.
- To get accurate basis altitude, the cyclist should calibrate the altitude before each ride.
- The measurement is based on the principle that atmospheric pressure decreases as elevation increases.
- The altitude is measured by means of the atmospheric pressure, so it's weather-dependent.
- You may obtain the altitude data from a topographic map or the Internet.
- 6. The altitude of the altimeter is pre-calibrated by the precise instrument at the factory before shipment.

Current Speed

- 1. The current speed is always shown on the middle display during riding.
- 2. The speed data are updated per second.
- For Bike 1, when you do not ride the bike for more than 4 seconds, the speed data will be reset to zero.

For Bike 2, when you do not ride the bike for more than 2 seconds, the speed data will be reset to zero.

* MAX Max. Speed

- With this function, the computer will record the maximum speed you reach during riding.
- Whenever you reset the computer or change the battery, the max. speed record will be cleared.

*AVG Average Speed

- With this function, the computer will display your average speed during riding.
- Whenever you reset the computer or change the battery, the average speed record will be cleared.
- 3. It'll display "0.0" if the riding time is below 6 seconds.
- It's updated every second on condition that the riding time is over 6 seconds.
- The computer will automatically reset the following data to zero once the RTM is over 100 hours or the DST is over 1000KM (or miles):

RTM (riding time), DST (trip distance), AVG (average speed.)

*DST Trip Distance

- 1. DST refers to the accumulated distance during a trip.
- Whenever you reset the computer or change the battery, the trip distance record will be cleared.

*RTM Riding Time

- 1. RTM refers to the accumulated riding time of a trip.
- Whenever you reset the computer or change the battery, the trip distance record will be cleared.
- 3.The computer automatically starts measuring the riding time upon receipt of wheel signals. If you are riding your Bike 1, whenever you stop, the computer will continue to count the riding time for 4 more seconds to make sure there're no more

wheel signals. If you are riding your Bike 2, the computer will count the riding time for 2 more seconds for the same reason. Regarding the riding time it over counts, the computer will automatically deduct it and show the correct riding time.

RPM Current Cadence (for Echo-a2 only)

- 1. RPM (Revolutions Per Minute) is a measure of rotational speed. It's updated every second.
- The current RPM (cadence) is always shown on the middle display.
- For Bike 1, if you do not turn the crank for over 4 seconds, the current RPM will be reset to zero.

For Bike 2, if you do not turn the crank for over 2 seconds, the current RPM will be reset to zero.

*MAX. RPM Maximum Cadence (for Echo-a2 only)

- With this function, the computer will record your maximum cadence during riding.
- Whenever you reset the computer or change the battery, the max. RPM record for a trip will be cleared.

*AVG RPM Average Cadence (for Echo a2 only)

- With this function, the computer will display the average cadence during riding. It's updated per second.
- Whenever you reset the computer or change the battery, the average cadence record will be cleared.

♦ ♥ Pace Arrow

- The pace arrow shows the comparison between the current speed and average speed.
- 2. If the current speed is above or equal to the average speed, the upward arrow (↑) will flash on the display.
- On the contrary, if the current speed is below the average speed, the downward arrow (♥) will flicker.

*ALT Accumulated Altitude Gains (During a Trip)

- With this function, it displays the accumulated altitude gains during a trip.
- When you ride over uphill paths, the altimeter will accumulate the altitude gains. However, when you ride over downhill paths, the computer will not deduct the altitude loss. The altimeter always accumulates your altitude gains only.

3. <u>Attention:</u> The altitude gains are accumulated during riding only.

*MAX. ALT Maximum Altitude (During a Trip)

- With this function, the computer displays the maximum altitude you reach during a trip.
- The max. altitude record will be cleared after you reset the computer or change the battery.

SCAN Auto-Scan

- 1. To start this function, press the A button for times until the scan icon is displayed.
- When the SCAN icon is flashing, each function display in the lower screen will be shown in a loop. In the loop, each function will be displayed on the screen for 5 seconds.
- 3. You may disable the auto-scan function by pressing the A button again.

DST/D Distance/ Day

- With the DST/D function, the computer accumulates the distance of your riding in one day.
- 2. The DST/D data will be automatically cleared at 12:00:00 a.m. (or 0:00:00) per day.

mBAR Millibar (Barometer)

1. The altimeter is essentially a barometer, and millibar is a unit of atmospheric pressure.

(e.g. Standard atmospheric pressure at sea level is about 1013 millibars.)

- The altimeter converts the millibar value of atmospheric pressure into the current altitude.
- 3. Attention:

There is a hole at the bottom of the main unit for measuring the air pressure. The hole for measurement should be always kept clean. Besides, do not poke anything into the hole to avoid damage.

ODO Odometer

- With this function, the computer accumulates the total distance of the bike you ride.
- 2. The odometer data cannot be cleared by the reset operation.

ODO (1) + (2) Total Odometer (Bike 1 + Bike 2)

- With this function, the computer accumulates the total distance of the two bikes you ride.
- The sum of ODO 1 and ODO 2 equals ODO (1) (2). (i.e. total distance of bikes 1 and 2)
- 3. The total odometer data cannot be cleared by the reset operation.

T. RT Total Riding Time

- With this function, the computer accumulates the total riding time of a bike.
- The total riding time data cannot be cleared by the reset operation.

T.RT (1)+(2) Total Riding Time (Bike 1 + Bike 2)

- With this function, the computer accumulates the total riding time of the two bikes you ride.
- 2. The sum of T.RT 1 and T.RT 2 equals T.RT (1) (2). (i.e. total riding time of bikes 1 and 2)
- 3. The accumulated total riding time of Bike 1 and Bike 2 cannot be cleared by the reset operation.

T.AL Total Accumulated Altitude Gains

- It displays the total accumulated altitude gains during all previous trips.
- The accumulated altitude gains cannot be cleared by the reset operation.

T.AL (1)+(2) Total Accumulated Altitude Gains (Bike 1 + Bike 2)

- It displays the total altitude gains accumulated during all previous trips of the two bikes you ride.
- 2. The sum of T.AL 1 and T.AL 2 equals T.AL (1) (2). (i.e. total accumulated altitude gains of bikes 1 and 2)
- The accumulated altitude gains cannot be cleared by the reset operation.

A/P Clock Time: 12H/24H Alternative

- When the user sets the clock time in Data Setting Mode, there are two formats for option-- 12H and 24H.
- 12H means 12 hours. In this format, A refers to AM; P refers to PM. 24H means 24 hours.
- When in the sleep mode, only the clock time will be displayed on the screen.

^oC/ ^oF Current Temperature

- In General Mode, the current temperature is always shown on the middle display of Echo-a1.
- If you are the Echo-a2 user, press the B button for 1 second and you'll view the current temperature.

Low Battery Indicator

- When the low-battery indicator appears on the display, it's time to get a new battery.
- 2. Replace the battery with a new one A.S.A.P. when the symbol **(LOW)** blinks on the display. Otherwise, the new data of some functions will not be stored into the computer.
- If you do not change the battery in a few hours, the computer may still work for a few days. The data will be displayed as usual, but the new data will not be stored before the battery is changed.
- 4. To save battery power, there's no EL backlight when the low-battery symbol is blinking.

Technical Specifications

Symbol	Function	Range
KM/H	Current Speed	0-199.9 km/h (0-120.0m/h)
🛈 AVG	Average Speed for Bike 1	0-199.9 km/h (0-120.0m/h)
2 AVG	Average Speed for Bike 2	0-199.9 km/h (0-120.0m/h)
1 MAX	Maximum Speed for Bike 1	0-199.9 km/h (0-120.0m/h)
2) MAX	Maximum Speed for Bike 2	0-199.9 km/h (0-120.0m/h)
++	Pace Arrow	Compared with average speed
1 DST	Trip Distance for Bike 1	0-999.99 km/mile
2) DST	Trip Distance for Bike 2	0-999.99 km/mile
000	Odometer for Bike 1	0-999999km/mile
2 0D0	Odometer for Bike 2	0-999999km/mile
12	Total Odometer (Bike 1 + Bike 2)	0-19999999km/mile

151/1 () (2)	Distance Per Day	0-999.99 km/mile
1 RTM	Riding Time for Bike 1	0H:00M:00S-99H:59M:59S
27 RTM	Riding Time for Bike 2	0H:00M:00S-99H:59M:59S
① T.RT	Total Riding Time for Bike 1	0H:00M:-9999H:59M
2 T.RT	Total Riding Time for Bike 2	0H:00M:-9999H:59M
O Ø LRI	Total Riding Time (Bike 1 + Bike 2)	0H:00M-19999H:59M

m ft	Current Altitude	-500m - 8000m (-1640ft - 26240ft) UNIT:1m/3ft
11A CO	Accumulated Altitude Gains for Bike 1	0-99999m (0-99999ft)
Ø ALT	Accumulated Altitude Gains for Bike 2	0-99999m (0-99999ft)
() Max alt	Maximum Altitude for Bike 1	-500m - 8000m (-1640ft - 26240ft)
(2) Max Alt	Maximum Altitude for Bike 2	-500m - 8000m (-1640ft - 26240ft)
1.AL	Total Accumulated Altitude Gains for Bike 1	0-999999m (0-999999ft)
27 T.AL	Total Accumulated Altitude Gains for Bike 2	0-999999m (0-999999ft)
(1) (2) T.AL	Total Accumulated Altitude Gains (Bike 1+ Bike 2)	0-19999999m (0-9999999ft)
mBAR	Barometer	300 - 1100 mbar
	Unit Selection	Meter/feet, °C/°F, kilometer/mile
°C °F	Current Temperature	-10°C ~ 60°C (14°F ~ 140°C)

0	Circumference for Bike 1	0-3999mm (default: 2155mm)
2	Circumference for Bike 2	0-3999mm (default: 2050mm)
BAP	12/24H Clock	1H:00M:00S-12H:59M:59S, 0H:00M:00S-23H:59M:59S
SCAN	Auto-Scan	Automatically shifted to the next per 5 seconds
LOW	Low Battery Indicator	
•	EL Back-light	Light for 3 seconds after each press
	LCD Brightness	Levels 1 - 4

* The following RPM (cadence) functions are for Echo-a2 only:

RPM	Current RPM	0-199RPM
1 MAX RPM	Maximum RPM for Bike 1	0-199RPM
27 MAX RPM	Maximum RPM for Bike 2	0-199RPM
1 AVG RPM	Average RPM for Bike 1	0-199RPM
(27) AVG RPM	Average RPM for Bike 2	0-199RPM

General Specifications

Operating Temperature Storage Temperature:	0°C - 50°C (32°F - 122 °F) -10°C - 60°C (14°F - 140°F)	
Sensor & Transmitter:	No-contact magnet sensor with wireless transmitter	
Suitable Fork Sizes:	12 mm - 50 mm (0.5" - 2.0")	
Battery Operating Life:		
CR2032 in Main Unit	About one year (based on the average riding time of 1.5 hours per day)	
CR2032 in Speed Transmitter	Around 24000 km (15000 miles)	
CR2032 in RPM Transmitter	Around 600 hours	
Dimensions & Weight (Main Unit): 46 x 57.3 x 19.7 mm, 37.15 g		

The specifications and design are subject to change without prior notice.

Precautions

- Watch the road. Don't pay much attention to your cycle computer functions during riding to avoid accidents.
- Don't expose the main unit to direct sunlight for a long time while you're not riding with it.
- 3. Never disassemble the device or the accessories.
- 4. Don't poke a needle or any pointed article into the hole on the bottom of the main unit. To poke anything into the hole may damage the pressure sensor inside the device.
- Check the positions of the sensor and magnet, and check the gap between both parts regularly. Make sure they are always in normal condition.
- Use a dry or slightly damp cloth to clean the computer when necessary. Do not use thinner, alcohol or benzine to clean the product.
- Do not operate the computer under water though it's waterproof. Note there are sensitive components inside the main unit.
- Be alert to the sudden weather change during long-distance riding to avoid danger. And sudden change in temperature may cause a temporary incorrect altitude display.

Trouble Shooting

Problem	Check the following:	Solutions
No display	1.Is the battery dead? 2.Is the battery installation correct?	 Replace the battery with a new one. Make sure the positive pole of the battery faces the battery cap.
Speed not displayed or wrong displayed	 Is the computer in the setting mode? Are the magnet and the sensor in the correct position? Is the gap between both parts correct? Is the wheel circumference setting correct? Is the sensing distance between the main unit and the sensor too long? Is the battery for the sensor nearly exhausted? Is there any strong interference source nearby? 	 Refer to the setting procedures to finish the setting. Refer to the installation manual and correct the positions and gap. Refer to "Wheel Circumference Measurement and Setting" and enter a correct value. Refer to the installation manual and adjust the distance between the main unit and the sensor or adjust the angle of the sensor. Replace the battery with a new one. Stay away from the strong interference source.
Irregular Display		Refer to "Main Unit Setup" and initiate the computer again.

LCD is black.	Did you expose the main unit to the direct sunlight for a long time when it was not in use?	Put the main unit in the shade to let it return to normal state.
Display is slow.	Is the temperature below 0°C (32°F)?	The computer will return to normal state when the temperature rises.
Low-battery symbol is blinking.		Replace the battery in the main unit with a new one.
Altitude not displayed or wrong displayed	 Did you calibrate the altitude before riding? Is the hole for measuring the air pressure on the bottom of the main unit clean? 	 Refer to "Overview of Button Operation" and calibrate the altitude before each ride. Always keep the hole for measuring the air pressure clean. Do not poke anything into the hole to avoid damage.