## 1. INTRODUCTION

### WARNING

● This bike computer is not a medical instrument. It is only an auxiliary tool designed to provide heart rate information for training. Please consult a doctor before starting any training program. We recommend you check under a doctor's supervision if possible.
● Please dispose of the used batteries according to local regulations
● Keep the batteries and accessories away from children

## 2. FEATURES

● 2 bike system
● Current Speed (0-99.9 km/h Or M /hr)
● Average Speed (0-99.9 km/h Or M /hr)
● Max. Speed (0-99.9 km/h Or M /hr)
● Trip Distance (Up to 999.99 KM Or M)
● Auto Trip Timer ( 9 : 59 : 59)
● Service reminder for bike 1 & 2
● Speed Comparator
● Speed Tendency
● Odometer save function for bike 1 & 2
● Total Distance for Bike 1 + Bike 2
● Current Altitude
● Maximum Altitude
● Total Gain
● Max Slope Uphill/Downhill
● Current Cadence
● Average Cadence
● Maximum Cadence
● Current Heart Rate
● Average Heart Rate
● Max. Heart Rate
● Min. Heart Rate
● Heart Rate Zone Alert
● Calories counter
● Fat burnt
● Digital Clock with 12 / 24 format          ● KM / M Selection
● Temperature with C / F selection          ● Auto start / stop
● Auto Wake-up(Max/Min)          ● Auto power off

## 3. GETTING PREPARED

This computer has 3 Menus, the Bike, Altimeter, HRM. The main screen has 3 rows :
Top row shows current altitude and current heart rate
2nd row shows current speed, bike number, speed trend and tendency 3rd row is the sub functions
Press Button B to toggle between the three menus.
Press Button A to toggle through various sub -features of each menu.

Button A    Button B    Current Altitude & Heart Rate    Current Speed    Sub-Feature

Fig. 1
Release

### THE BIKE
#### WHEEL SIZE FACTOR

The wheel size factor is the distance the wheel turns in one revolution in millimeter. It is determined by the following formula: Wheel diameter (mm) X3.1416

For quick reference, you may use the wheel size factor chart below.

| Tire size | L (mm) | Tire size | L (mm) | Tire size | L (mm) |
|---|---|---|---|---|---|
| 12 x 1.75 | 935 | 26 x 1.000 | 1913 | 700 x 20C | 1938 |
| 14 x 1.50 | 1020 | 26 x 1.50 | 1952 | 650 x 23C | 1944 |
| 14 x 1.75 | 1055 | 26 x 1.25 | 1953 | 650 x 35A | 1982 |
| 16 x 1.50 | 1185 | 26 x 1-1/8 | 1970 | 650 x 38A | 2125 |
| 16 x 1.75 | 1195 | 26 x 1-3/8 | 2068 | 650 x 38B | 2105 |
| 18 x 1.50 | 1340 | 26 x 1-1/2 | 2100 | 700 x 18C | 2070 |
| 18 x 1.75 | 1350 | 26 x 1.40 | 2005 | 700 x 19C | 2080 |
| 20 x 1.25 | 1450 | 26 x 1.50 | 2010 | 700 x 20C | 2086 |
| 20 x 1.75 | 1515 | 26 x 1.75 | 2023 | 700 x 23C | 2096 |
| 22 x 1-3/8 | 1770 | 26 x 1.95 | 2050 | 700 x 25C | 2105 |
| 24 x 1.00 | 1753 | 26 x 2.00 | 2055 | 700 x 28C | 2136 |
| 24 x 1 | 1785 | 26 x 2.10 | 2068 | 700 x 30C | 2170 |
| 24 x 3/4 Tubular | 1795 | 26 x 2.125 | 2070 | 700 x 32C | 2155 |
| 24 x 1-1/8 | 1795 | 26 x 2.35 | 2083 | 700C Tubular | 2130 |
| 24 x 1-1/4 | 1905 | 24 x 3/8 | 2105 | 700 x 35C | 2168 |
| 24 x 1.75 | 1890 | 27 x 1 | 2145 | 700 x 38C | 2180 |
| 26 x 1-3/8 | 1925 | 27 x 1-1/8 | 2155 | 700 x 40C | 2200 |
| 26 x 1-3/8 | 2068 | 27 x 1-1/4 | 2161 | 28 x 1.5 | 2250 |
| 26 x 1-3/8 | 2073 | 27 x 1-3/8 | 2169 | 28 x 2.3 | 2325 |

For most accurate value, please follow steps below:
1. Start by inflating the tire with proper pressure
2. Facing the tire valve to the ground and mark a spot on the ground (right below the valve)
3. With the rider's weight on the bike, roll one full rotation in a straight line (so roll until the valve face the ground again)
4. Measure the distance in millimeter.This value is your wheel size factor.

Fig. 2    Distance in millimeter in one revolution

### SERVICE REMINDER

It automatically tracks distance travelled and reminds you to service your bike according to the distance entered.
When the preset distance is reached, SERVICE will be displayed at the bottom field and 🕐 or ⊘ will be flashing.
Press button A to ignore this reminder.

ATTENTION !! Refer to the appendix for installation reference.

### THE HRM
#### MAXIMUM HEART RATE (MHR)

Although you are advised to consult a training specialist, MHR is usually determined by the following formula:
MHR= 220- age
e.g. Age: 20
MHR: 220- 20= 200

#### HEART RATE ZONE

| AGE | — 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 |
|---|---|---|---|---|---|---|---|---|---|---|
| Zone 3 PERFORMANCE 90-95% MHR | 190 185 180 175 171 166 161 156 152 147 |||||||||||
|  | 180 175 170 166 162 158 153 148 144 140 |||||||||||
|  | 171 166 162 157 153 149 145 140 137 132 |||||||||||
| Zone 2 FITNESS 65-80% MHR | 160 156 152 148 144 140 136 132 128 124 |||||||||||
|  | 146 142 139 135 132 128 124 121 118 115 |||||||||||
|  | 130 126 123 120 117 113 110 107 104 100 |||||||||||
| Zone 1 HEALTH 50-65% MHR | 130 126 123 120 117 113 110 107 104 100 |||||||||||
|  | †0 †0 †0 †0 †0 †0 †0 †0 †0 †0 |||||||||||
|  | 100 97 95 92 90 87 85 82 80 77 |||||||||||

**ZONE 1 – Health (50 to 65% of the MHR)**
This is the minimum exercise level in which you could get cardiovascular benefits and improve health. This zone is ideal for beginners or people who are over-trained and need a break. It is also good for people who want to lose weight with long training sessions.

**ZONE 2- Fitness (65 to 80% of the MHR)**
Exercising in this zone can improve your cardiovascular endurance, flexibility, muscular strength, and muscular endurance. Your stored body fat is also burnt substantially that this zone is therefore also referred as weight management zone.

**ZONE 3- Performance (80 to 95% of the MHR)**
Training in this zone could improve your performance levels. You can increase your body's ability to tolerate and deal with lactic acid for a longer period of time. This zone is very hard and your muscles are fired, your breath is heavy and you are fatigued. You can't stay in this zone for a long time.

## 4. GETTING STARTED

### SETUP MODE

You can go to the setup mode by either:
a) Inserting the battery (if not installed)
b) Holding both A and B buttons and press B again for reset.

Press B button to adjust the value and the A button to enter and confirm the setting.

Bike 1 wheel size factor input    Bike 2 wheel size factor input    KM or M selection    Age input    KG or LB selection

Weight input    HRM training zone setting    12 or 24 format selection    Clock setting    Bike 1 service reminder setting

Bike 2 service reminder setting    C/F selection    Home screen

## 5. OPERATING THE COMPUTER

### SCROLLING THROUGH MENUS AND SUB-FEATURES

BIKE mode    Clock    ODO    Total ODO    Trip DST    Max Speed

ALTI mode    Altitude    Max Altitude    Total Gain    Slope    Average Slope

CAD mode    Cadence    Max Cadence    Average Cadence    Max Scan

HRM mode    Heart rate    Max Heart rate    Min Heart rate    Average Heart rate    Heart rate Zone

### THE BIKE MODE:

**CLOCK**
It shows the current time.
Hold the A button to reset the clock. Press the B button to adjust the value and confirm with the A button.

**MAXIMUM SPEED (MXS)**
It measures maximum speed reached.

**ODO (TOTODO-1)**
It measures distance accumulated for bike 1 or bike 2

**AVERAGE SPEED (AVS)**
It measures average speed.

**ODO (TOTALODO)**
It measures distance accumulated for bike 1 plus bike 2

**TRIP TIME (TM)**
It measures the time of each ride.

**TRIP DISTANCE (DST)**
It measures distance traveled on each ride

**TEMPERATURE (TEMP)**
It measures current temperature.
Hold the A button to change the temperature unit if needed. Press the B button to select and confirm with the A button.

**CALORIES BURNED (CAL)**
It measures calories burned.

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## 5. OPERATING THE COMPUTER

**FAT BURNT (FAT)**
It measures fat burned in grams.

**SCAN**
It sets the computer to cycle through all features automatically while you ride
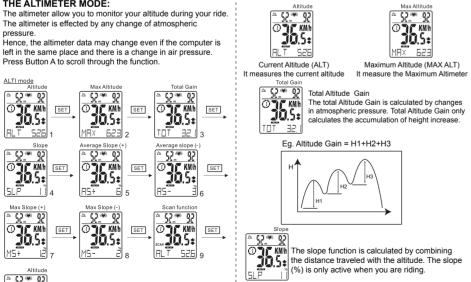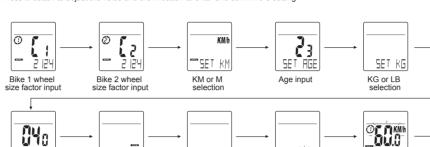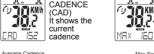
**SPEED TENDENCY**
Notice the 🕐 or ⊘ in the upper left hand corner of the middle display field. The icon is animated to spin when the wheel sensor is properly functioning and when you start your ride. It will appear to spin fast to indicate acceleration and appear to spin slow to indicate deceleration.

**SPEED COMPARATOR ( ◢/ ◣ )**
Notice the ◢/ ◣ icon located in the lower right hand corner of the middle display field. The icon appears when you are riding faster than your average speed. ▲ ◣ indicates you are riding slower than your average speed.

### THE ALTIMETER MODE:

The altimeter allow you to monitor your altitude during your ride. The altimeter is effected by any change of atmospheric pressure.
Hence, the altimeter data may change even if the computer is left in the same place and there is a change in air pressure.
Press Button A to scroll through the function.

ALTI mode    Altitude    Max Altitude    Total Gain

**Current Altitude (ALT)**
It measures the current altitude

**Maximum Altitude (MAX ALT)**
It measure the Maximum Altimeter

**Total Altitude Gain**
The total Altitude Gain is calculated by changes in atmospheric pressure. Total Altitude Gain only calculates the accumulation of height increase.

Eg. Altitude Gain = H1+H2+H3

Slope    Average Slope (+)    Average slope (-)

Max Slope (+)    Max Slope (-)    Scan function

Altitude

The slope function is calculated by combining the distance traveled with the altitude. The slope (%) is only active when you are riding.

**Average slope (-)**
It calculate the average slope uphill

**Maximum Slope Uphill (MS+)**
It calculate the maximum slope uphill

**Maximum Slope downhill (MS+)**
It calculate the maximum slope downhill

**Scan Function (Scan)**
It set the cycle computer to automatically scan through the altimeter Function automatically while you ride.

**Average Slope Uphill (AS+)**
It calculate the average slope uphill

**Set Altimeter**
In current Altimeter mode , hold Button A until SET ALTI appear and release the button, the altimeter meter will reset to zero and the digit blinks, set the current altitude by pressing button B and confirm by button A.

**Reset Other function**
To rest Max, Total Gain, Average Slope, Max Slope. Go to the mode that you want to reset, hold button A until the digit reset to zero
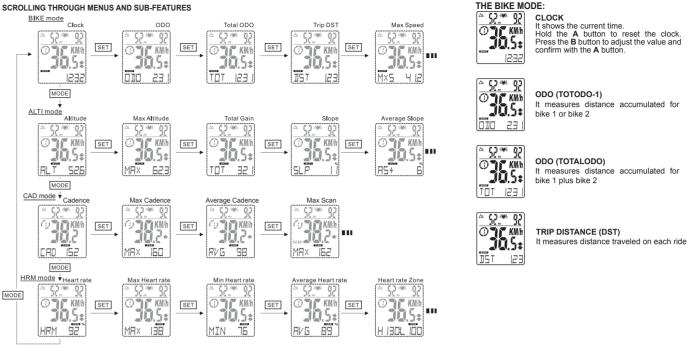
### THE CADENCE MODE:

**CURRENT CADENCE (CAD)**
It shows the current cadence

**MAXIMUM CADENCE (MAX CAD)**
It measures maximum cadence reached.

**AVERAGE CADENCE (AVG CAD)**
It measures minimum cadence.

**SCAN**
It sets the computer to cycle through all features automatically while you ride.

### THE HEART RATE MODE:

**Current Heart Rate (HRM)**
It shows the current heart rate

**Max Heart Rate (MAX HR)**
It measures the max heart rate

**Min Heart Rate (MIN HR)**
It measures the Min Heart Rate

**Average Heart Rate (AVG HR)**
It measures Average Heart Rate

**HEART RATE ZONE(ZONE)**
It indicates the heart rate zone you set. Press button A to reset the heart rate zone. Press button B to adjust the value and confirm by button A.

**Scan function**
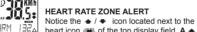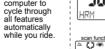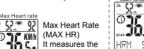
**HEART RATE ZONE ALERT**
Notice the ◢/ ◣ icon located next to the heart icon ♥ of the top display field. A ◢ indicates that your current heart rate is over the heart rate zone. A ◣ indicates yourcurrent heart rate is below selected heart rate zone.

**Scan Function (Scan)**
It set the cycle computer to automatically scan through the HRM Function automatically while you ride.

**Reset Other function**
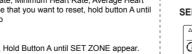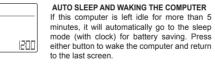To rest Max Heart Rate, Minimum Heart Rate, Average Heart Rate. Go to the mode that you want to reset, hold button A until the digit reset to zero

**Set New Zone**
Go to Zone function, Hold Button A until SET ZONE appear. Repeat the zone setting procedure in the GETTING START section to set new zone.

### AUTO SLEEP AND WAKING THE COMPUTER

If this computer is left idle for more than 5 minutes, it will automatically go to the sleep mode (with clock) for battery saving. Press either button to wake the computer and return to the last screen.

### LOW BATTERY WARNING OF THE COMPUTER ( ▭ )

Notice the icon ▭ located in between KM/h and ◢/ ◣ . It indicates low battery of the computer head.

### LOW BATTERY WARNING OF THE BELT AND SENSOR

Notice TX LOBAT displayed at the bottom field. It indicates low battery of either the chest belt or the speed sensor. Press button A to ignore this warning.

### SELECTING BIKE 1 OR 2

Press Button A and B simultaneously and release quickly

All trip data will be reset after the change.

### TROUBLE SHOOTING

| No speed reading | Improper magnet and sensor alignment | Check magnet and sensor alignment |
|---|---|---|
|  | Dead battery of sensor | Replace the battery. Reset the computer and the sensor. |
| No HR reading | HR sensor not attached to your body securely | Adjust the chest strap to ensure good contact with your body |
|  | Dry skin | Replace the battery |
|  | Dead battery of sensor | Moisten the conductive pads with water or ECG-gel |
|  | Dirty conductive pads | Clean the electrode pad with soft cloth dampening with diluted natural detergent. |
| Improper and abnormal reading | Interference | Keep the unit away from any source of interference (e.g. CRT monitor and wireless devices) |
|  | Wrong wheel size factor | Reset the computer and the sensor |
| Irregular reading | Ambient temperature |  |
|  | Weak temperature Interference | Reset the computer and the sensor |
| Incorrect Altimeter reading | | 1) Reset Altimeter to zero (air pressure change) 2) Check/Replace Battery |

### Auto Wake-Up
In order to save battery, the unit will go to sleep if no input received for 5 minutes.

**Manual Wake-Up**
The user can wake up the computer by pressing any button.

**Auto Wake-Up**
The user can wake up the computer by simply riding the bike without pressing any button within 2 hours after sleep - the unit will wake up within 10 second. More than 2 hours after sleep - the unit will wake up within 1 minute.

The normal function of the product may be disturbed by Strong Electro Magnetic interference. If so, simply reset the product to resume normal operation by following the instruction manual. In case the function could not resume, please use the product in other location.

"Caution: Risk of explosion if battery is replaced by an incorrect type: Dispose of used batteries according to the instructions."

APA ®

**INSTRUCTION MANUAL CYCLE COMPUTER**

Art No.: MCX438-MB-EL-APA