CATEYE
VELO 9 / VELO 7

CYCLOCOMPUTER
CC-VL820 / CC-VL520

Before using the computer, please thoroughly read this manual and keep it for future reference.

Warning / Caution

- Do not concentrate on the computer while riding.
  Ride safely!
- Install the magnet, sensor, and bracket securely.
  Check these periodically.
- If a child swallows a battery, consult a doctor immediately.
- Do not leave the computer in direct sunlight for a long period of time.
- Do not disassemble the computer.
- Do not drop the computer to avoid malfunction or damage.
- When cleaning the computer, bracket and sensor, do not use thinners, benzene, or alcohol.
- Risk of explosion if battery is replaced by an incorrect type.
  Dispose of used batteries according to local regulations.
- LCD screen may be distorted when viewed through polarized sunglass lenses.

Maintenance

- To clean the computer or accessories, use diluted neutral detergent on a soft cloth, and wipe it off with a dry cloth.
- If the gaps between the buttons and the unit get clogged with mud or sand, wash them away with water.

Replacing the battery

When the display becomes dim, replace the battery. Install a new lithium battery (CR2032) with the (+) side facing upward.

* After replacing the battery, be sure to set the unit again according to the procedure specified in "Preparing the computer" (page 3).
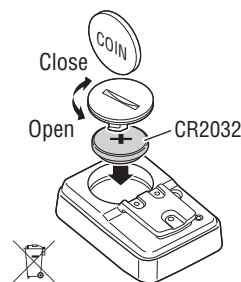
Troubleshooting

No display.

Is battery in the computer run down?

Replace with new batteries according to the procedure specified in the section "Replacing the battery".

Incorrect data appear.

Follow the procedure described "Preparing the computer" (page 3).

Current speed does not appear.
(First, short-circuit the contact of the computer a few times with a piece of metal. If current speed appears, the computer is working fine and the cause should be attributed to the bracket or the sensor.)

Is the wire broken?

Even if the outside of the wire looks normal, there could be damage. Replace the bracket sensor kit with a new one.

Is the clearance between the sensor and the magnet too large?
Are the magnet's center and the sensor's marking line aligned?

Re-adjust the positions of the magnet and the sensor.
(The clearance should be less than 5 mm.)

Is there anything sticking on the contact of the computer or the bracket?

Clean the contact with a cloth.

Specification

Battery / Battery life	Lithium battery (CR2032) x 1 / Approx. 3 year
* The factory-loaded battery life might be shorter than the above-mentioned specification.	
Controller	4 bit, 1-chip microcomputer (Crystal controlled oscillator)
Display	Liquid crystal display
Sensor	No contact magnetic sensor
Tire size to be selected	26", 700c, 27", 16", 18", 20", 22" and 24", or tire circumference of 100 cm - 299 cm (initial value: 26 inch)
Working temperature	32 °F - 104 °F (0 °C - 40 °C) (This product will not display appropriately when exceeding the Working Temperature range. Slow response or black LCD at lower or higher temperature may happen respectively.)
Dimensions/weight	2-3/16" x 1-15/32" x 5/32" (55.5 x 37.5 x 18.5 mm) / 1.06 oz (30 g)

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

Limited warranty

2-Year: Computer only
(Accessories/Bracket sensor and Battery Consumption excluded)
CatEye cycle computers are warranted to be free of defects from materials and workmanship for a period of two years from original purchase. If the product fails to work during normal use, CatEye will repair or replace the defect at no charge. Service must be performed by CatEye or an authorized retailer. To return the product, pack it carefully and enclose the warranty certificate (proof of purchase) with instruction for repair. Please write or type your name and address clearly on the warranty certificate. Insurance, handling and transportation charges to CatEye shall be borne by person desiring service. For UK and REPUBLIC OF IRELAND consumers, please return to the place of purchase. This does not affect your statutory rights.

Please register your CatEye product on the website.
http://www.cateye.com/en/support/regist/

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CATEYE AMERICA, INC.
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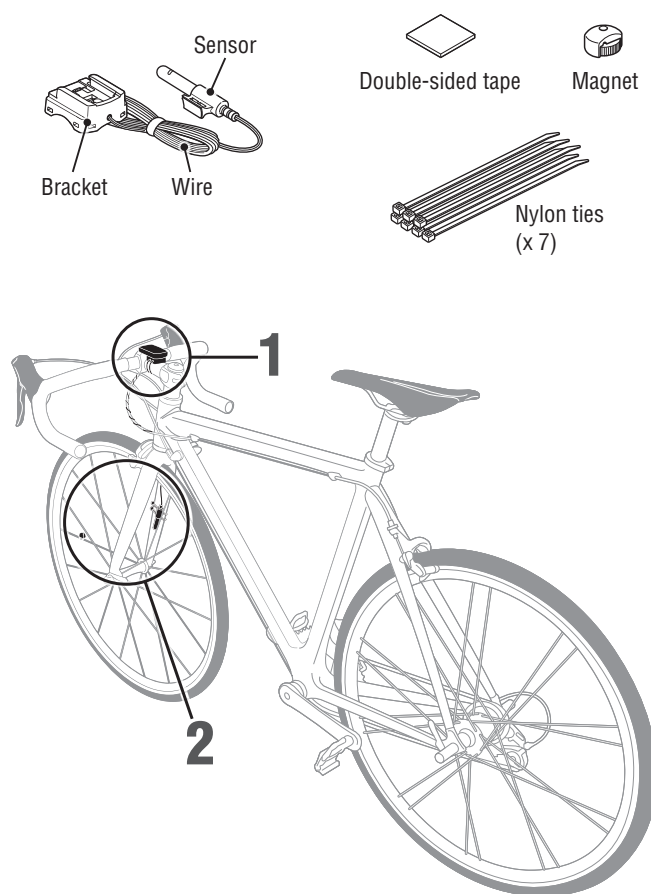Fax : 303.473.0006   E-mail : service@cateye.com

Spare accessories

Standard accessories

1603390	**1603391**	**1699691N**	**1665150**
			CR2032
Parts kit	Bracket sensor kit	Wheel magnet	Lithium battery

Optional accessories

1603491

 Heavy duty bracket sensor kit

Sensor

Double-sided tape   Magnet

Bracket   Wire

Nylon ties (x 7)

1

2

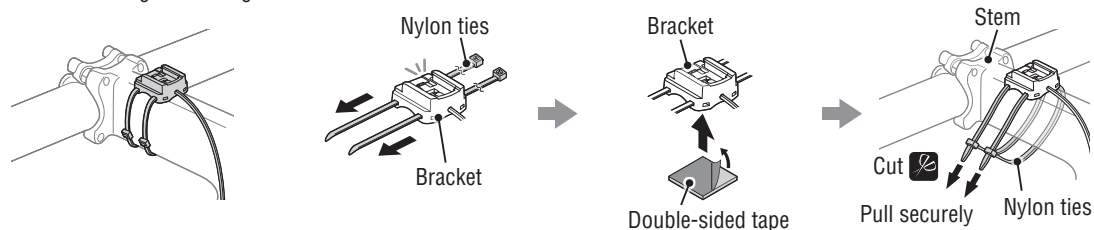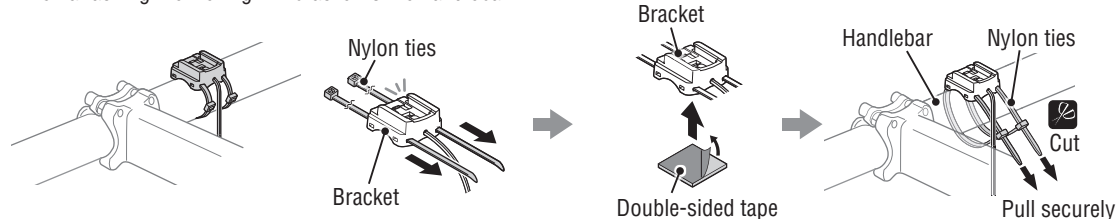## 1 Attach the bracket to the stem or handlebar

The FlexTight™ bracket can be attached to either the stem or the handlebar, depending on how the bracket fits into the bracket band.
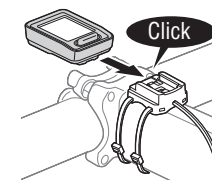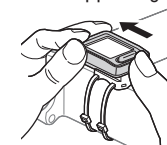
When attaching the FlexTight™ bracket to the stem

Nylon ties   Bracket   Stem

Bracket

Double-sided tape

Cut
Pull securely   Nylon ties

When attaching the FlexTight™ bracket to the handlebar

Nylon ties   Bracket   Handlebar   Nylon ties

Bracket

Cut

Double-sided tape   Pull securely

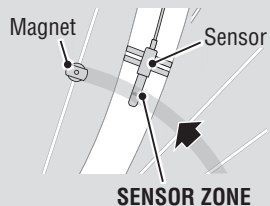### Remove/Install the computer

Click

While supporting it by hand,

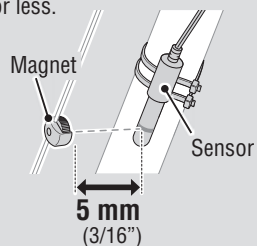Push it out as if lifting the front up

2 Install the sensor and magnet

Spoke
Magnet

To the **SENSOR ZONE**

* The magnet may be installed anywhere on the spoke if the above installation conditions are satisfied.

Magnet

Sensor

SENSOR ZONE

Sensor   Cut
Pull securely
Nylon ties

3 Route the wire

OK

NO!

Nylon ties
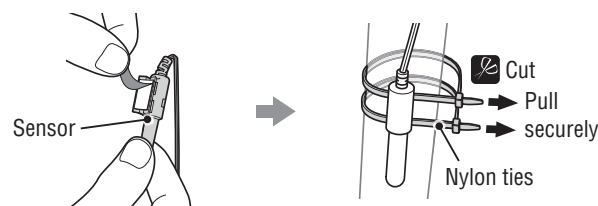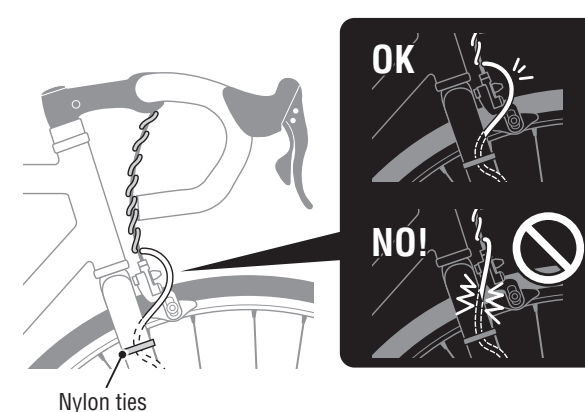
Caution:
Adjust the wire length so that it may not be pulled when the handle is operated.

⚙ Install the sensor and magnet

A
The magnet passes through the sensor zone.

Magnet   Sensor

SENSOR ZONE

B
The clearance between the sensor and magnet is 5 mm (3/16") or less.

Magnet

Sensor

5 mm
(3/16")

Perform the clear all data operation as shown below, when you use the unit for the first time or restore the unit to the condition checked at the factory.

1 Clear all data (initialization)
Press the **AC** button on the back of the computer.

AC
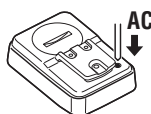
2 Select the speed unit
Select "**km/h**" or "**mph**".

km/h ↔ mph	Register the setting	km/h
MODE	**SET**	

3 Set the tire size
Set the tire size by either one of the following methods.

Simple setting (select from the tire size)

Pressing the **MODE** button changes **26" → 700c → 27" → 205[] → 16" → 18" → 20" → 22" → 24" → 26"** in order. Select the tire size (inch) of your bicycle, and then press the **SET** button.

* Generally, the tire size is indicated on the side of the tire.

km/h
26"

Switching size	Register the setting	Press and hold to the **MODE** button with "**205[]**" displayed to change to the wheel size entry screen.
MODE	**SET**	**MODE**

Detailed setting (enter the numeric value of the tire circumference)

* Entering the tire circumference ensures more accurate measurements.

❶ With **205[]** displayed on the screen, press and hold the **MODE** button.

❷ Pressing the **MODE** button increases the numeric value flashing, whereas pressing and holding the **MODE** button moves the digit. Enter any value of the circumference in cm, and then press the **SET** button.

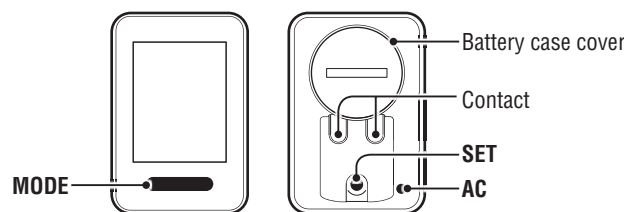* Use "Tire circumference reference table" as a guide.

km/h
205[]

Increase the value	Move digits (Press & hold)	Register the setting
MODE	**MODE**	**SET**

MODE — Battery case cover — Contact — **SET** — **AC**
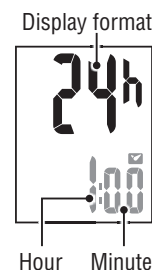
4 Set the Clock
Pressing and holding the **MODE** button switches the display to "Display format", "Hour", and "Minute" in order.

12h ↔ 24h, or increases the value	Switch the screen or move digits
MODE	**MODE**

Display format
24h
1:00
Hour   Minute

5 Press the SET button to complete setting
Press the **SET** button with the current clock displayed. Then, the unit setting is completed, and the unit changes to the Measuring screen.

Register the setting (Finish)
SET

Operation test

After installed, check that the computer displays the speed by turning the front wheel. When it is not displayed, check the installation conditions Ⓐ and Ⓑ again (page 2).

0.0 km/h → 8.1 km/h

Tire circumference

You can find the tire circumference (L) of your tire size in the chart below, or actually measure the tire circumference (L) of your bicycle.

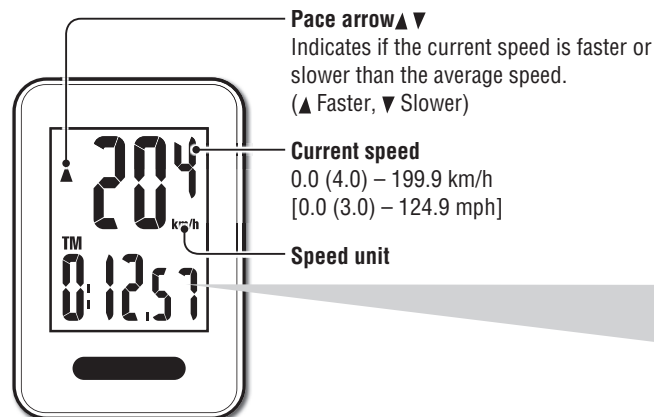- **How to measure the tire circumference (L)**
  For the most accurate measurement, do a wheel roll out. With the tires under proper pressure, place the valve stem at the bottom. Mark the spot on the floor and with the rider's weight on the bike, roll exactly one wheel revolution in a straight line (until the valve comes around again to the bottom). Mark where the valve stem is and measure the distance.

  L cm

- **Tire circumference reference table**
  * Generally, the tire size or ETRTO is indicated on the side of the tire.

ETRTO	Tire size	L (cm)	ETRTO	Tire size	L (cm)
40-254	14x1.50	102	37-590	26x1-3/8	207
47-254	14x1.75	110	37-584	26x1-1/2	210
40-305	16x1.50	119		650C Tubular 26x7/8	192
47-305	16x1.75	120			
54-305	16x2.00	125	20-571	650x20C	194
28-349	16x1-1/8	129	23-571	650x23C	194
37-349	16x1-3/8	130	25-571	650x25C 26x1(571)	195
32-369	17x1-1/4 (369)	134			
40-355	18x1.50	134	40-590	650x38A	213
47-355	18x1.75	135	40-584	650x38B	211
32-406	20x1.25	145	25-630	27x1(630)	215
35-406	20x1.35	146	28-630	27x1-1/8	216
40-406	20x1.50	149	32-630	27x1-1/4	216
47-406	20x1.75	152	37-630	27x1-3/8	217
50-406	20x1.95	157	40-584	27.5x1.50	208
28-451	20x1-1/8	155	50-584	27.5x1.95	209
37-451	20x1-3/8	1625	54-584	27.5x2.1	215
37-501	22x1-3/8	177	57-584	27.5x2.25	218
40-501	22x1-1/2	179	18-622	700x18C	207
47-507	24x1.75	189	19-622	700x19C	208
50-507	24x2.00	193	20-622	700x20C	209
54-507	24x2.125	197	23-622	700x23C	210
25-520	24x1(520)	175	25-622	700x25C	211
	24x3/4 Tubular	179	28-622	700x28C	214
28-540	24x1-1/8	180	30-622	700x30C	215
32-540	24x1-1/4	191	32-622	700x32C	216
25-559	26x1(559)	191		700C Tubular	213
32-559	26x1.25	195	35-622	700x35C	217
37-559	26x1.40	201	38-622	700x38C	218
40-559	26x1.50	201	40-622	700x40C	220
47-559	26x1.75	202	42-622	700x42C	222
50-559	26x1.95	205	44-622	700x44C	224
54-559	26x2.10	207	45-622	700x45C	224
57-559	26x2.125	207	47-622	700x47C	227
58-559	26x2.35	208	54-622	29x2.1	229
75-559	26x3.00	217	56-622	29x2.2	230
28-590	26x1-1/8	197	60-622	29x2.3	233

Pace arrow▲▼
Indicates if the current speed is faster or slower than the average speed.
(▲ Faster, ▼ Slower)

Current speed
0.0 (4.0) – 199.9 km/h
[0.0 (3.0) – 124.9 mph]

Speed unit

Starting/Stopping measurement

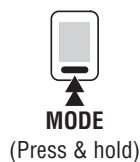Measurements start automatically when the bicycle is in motion.
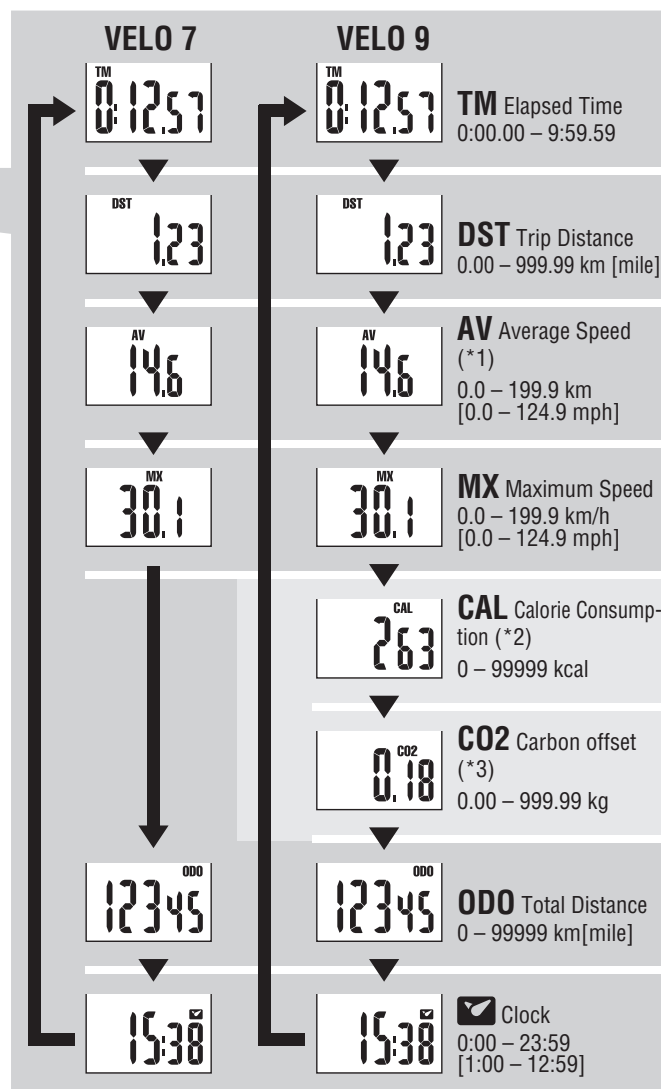During measurement, **km/h** or **mph** flashes.

START	STOP
Start measurement	Stop measurement
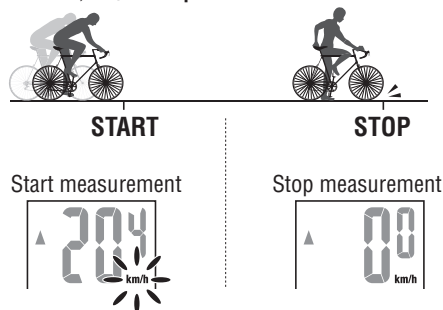
Resetting data

Pressing and holding **MODE** on the measuring screen returns the measurement data to 0.

* The total distance (**ODO**) is not reset.

MODE
(Press & hold)

Switching computer function

Pressing the **MODE** button switches the measurement data at the bottom in the order shown in the following figure.

| VELO 7	VELO 9	
8:12.57	**8:12.57**	**TM** Elapsed Time 0:00.00 – 9:59.59
1.23	**1.23**	**DST** Trip Distance 0.00 – 999.99 km [mile]
14.6	**14.6**	**AV** Average Speed (*1) 0.0 – 199.9 km [0.0 – 124.9 mph]
30.1	**30.1**	**MX** Maximum Speed 0.0 – 199.9 km/h [0.0 – 124.9 mph]
	2.63	**CAL** Calorie Consumption (*2) 0 – 99999 kcal
	0.18	**CO2** Carbon offset (*3) 0.00 – 999.99 kg
12345	**12345**	**ODO** Total Distance 0 – 99999 km[mile]
15:38	**15:38**	✉ Clock 0:00 – 23:59 [1:00 – 12:59]

*1 : When **TM** exceeds about 27 hours, or **DST** exceeds 999.99 km, **.E** will appear.
Reset the data.
*2, *3 : To be displayed only with VL820.

Power-saving function

If the computer has not received a signal for 10 minutes, power-saving screen will activate and only the clock will be displayed. When the computer receives a sensor signal, the measuring screen reappears.

Measuring screen	Power-saving screen
▲ **20.4** km/h TM **8:12.57**	● 10 minutes → ← or **MODE**	**15:38**
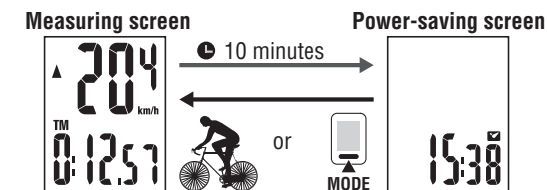
Calorie Consumption (VL820) *2

This computer measures the calorie consumption by integrating the value calculated from the speed in every second. Check it as a reference value.

Speed	10 km/h [mph]	20 km/h [mph]	30 km/h [mph]
Kcal per hour	67.3 kcal [155.2 kcal]	244.5 kcal [768.2 kcal]	641.6 kcal [2297.2 kcal]

How to calculate the Carbon offset (VL820) *3

The Carbon offset are calculated as follows.
Trip distance (km) x 0.15 = Carbon offset (kg)

* This factor of 0.15 is determined by applying the average value of the overall gasoline-powered passenger cars in 2008 to the equation of the "Carbon offset from 1 km drive of a gasoline-powered car" described on the website of the Ministry of Land, Infrastructure and Transport and Tourism.

How to change tire size

Display the Total Distance (**ODO**) and press the **SET** button to change the tire size.
The setting method is the same as for "Preparing the computer-3" (page 3).

SET

km/h
26"

How to set clock

In the clock mode, press **SET** button on the back, and the display enters clock setting mode.
The setting method is the same as for "Preparing the computer-4" (page 3).

SET

24h
1:00