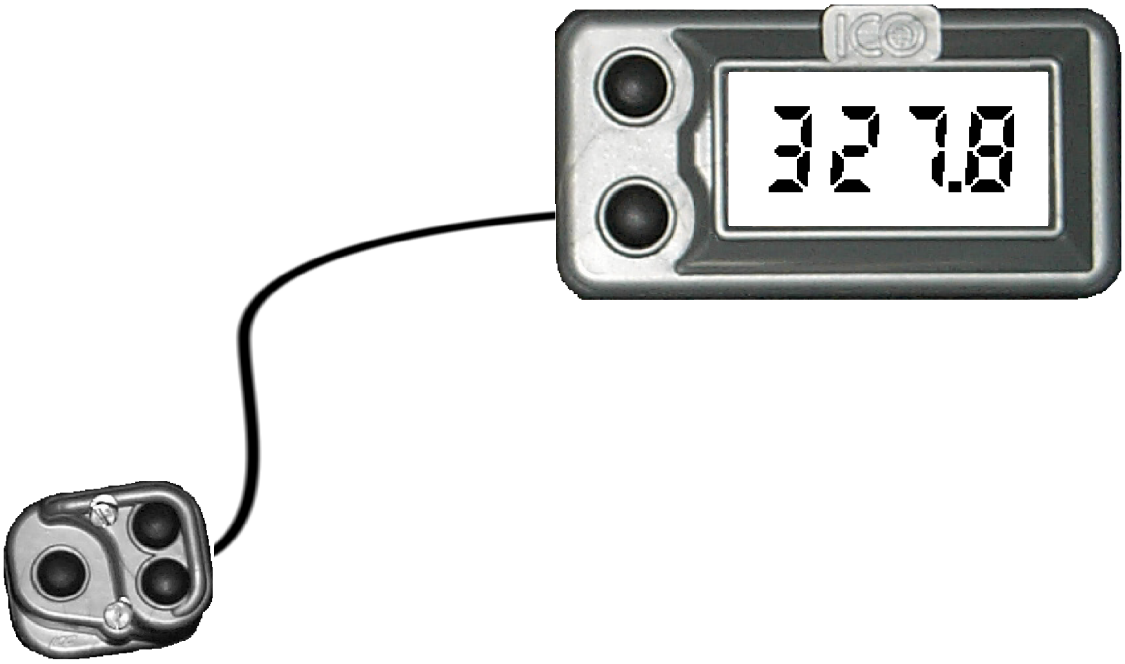
Rallye (Red color case)

and

VR Light (Silver color case)



ICO Racing

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Contents

Introduction

Setup functions

Functions in a race

VR only

Installation

Overview of operation

Both instruments share the same functions. The primary difference is that the VR Light can be connected to the motorcycle's 12 volt battery, which is needed to power the display backlighting which is inside the VR Light.

There are two basic modes - Edit mode and Race mode.

Edit mode is used to setup wheel circumference, setup Clock, setup Automatic Calibration, view and zero trip distance, and to view full distance. Once the motorcycle moves .01 km it is in Race mode and Edit mode cannot be accessed.

Race mode has these primary displays:
* Distance
* Current Speed
* Clock time (if enabled in Edit)

Race mode also allows access to Peak Speed, which is the highest Speed reached during a ride.

New Functions

Several new functions, which our previous models did not have, have been included:

* Edit mode

* Clock display can be hidden from the Race mode display rotation.

* Clock (if enabled) runs while the instrument is Shut OFF.

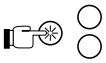
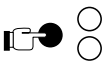
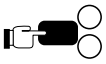
* Automatic Calibration can adjust the wheel circumference to match the roadbook.

* Full time sensor indicator

Button Symbols

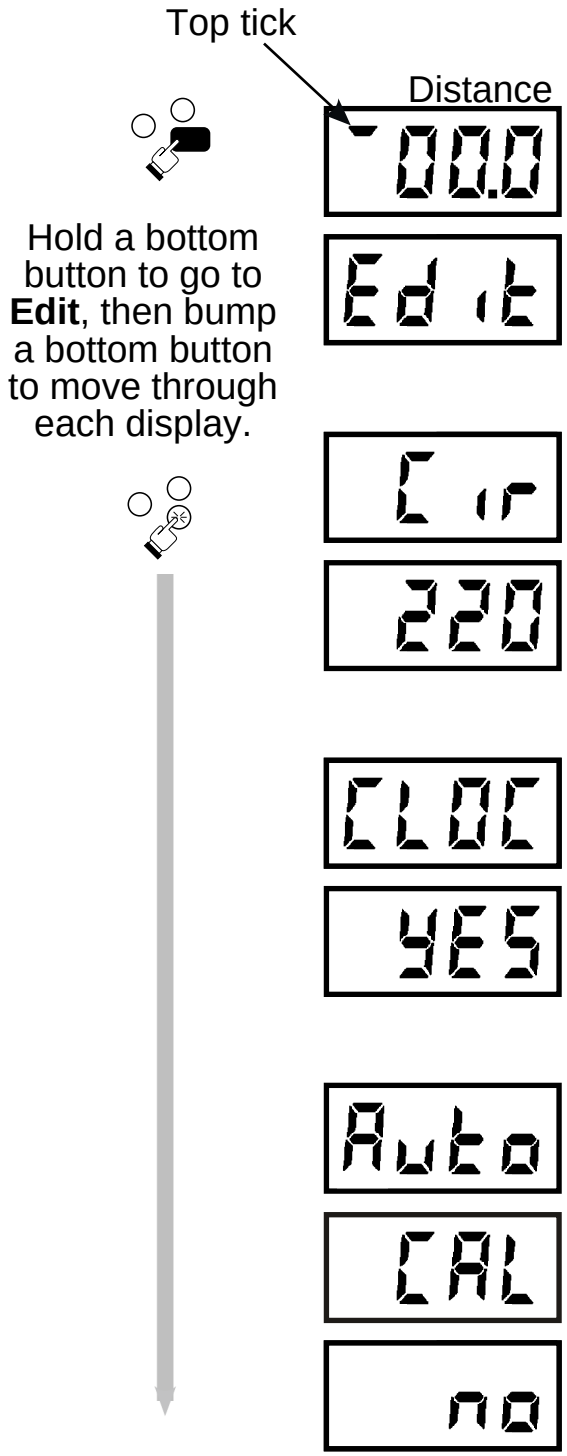
Below are the symbols we use in this manual to illustrate button actions.

Bump of a button is a quick press, short hold is a little longer, while a long hold you keep holding until the display changes.

Thumbswitch			Instrument head buttons	
Bump middle on thumbswitch		=	Bump both on head	
Bump bottom on thumbswitch		=	Bump bottom on head	
Bump top on thumbswitch		=	Bump top on head	
Short hold middle on thumbswitch		=	Short hold both on head	
Short hold bottom on thumbswitch		=	Short hold bottom on head	
Short hold top on thumbswitch		=	Short hold top on head	
Long hold middle on thumbswitch		=	Long hold both on head	
Long hold bottom on thumbswitch		=	Long hold bottom on head	
Short hold top on thumbswitch		=	Long hold top on head	

Edit

After the instrument is turned on, but before you have begun a ride, access to **Edit** is enabled. In **Edit** the wheel circumference can be viewed or adjusted, the Clock display turned on or off, Automatic calibration on or off, **trip** distance can be viewed or cleared, and **FULL** distance can be view.



(Continued on next page)

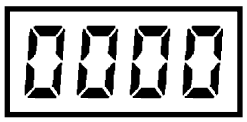
Edit

(continued from previous page)

Bump a bottom button to move through each display.

Automatic calibration is set to **no** (OFF)
See Page 16 for more information.

Bump a bottom button to go to **trip** distance.



This is the distance the motorcycle has travelled since the last time this number was cleared. See page 9 on how to clear this number.

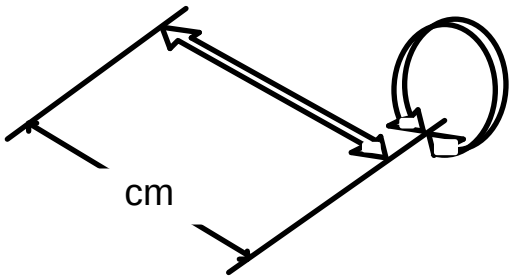
Bump either bottom button to go to **FULL** distance. This is the total distance on the instrument and it cannot be cleared, and it will scroll to show 5 digits up to 65,535 km. This distance is retained even if all batteries are removed and the motorcycle's 12 volt battery is disconnected.

Distance

Bump a bottom to go to Distance, ready to run in a race.

Set Wheel Circumference

The wheel size used by the instrument to calculate distance can be adjusted to match your front tire circumference. Place a mark on your tire and a corresponding mark on the floor. Roll the wheel one revolution, then place a second mark on the floor. This is your actual wheel size. For our example we will adjust the instrument to a wheel size of 215 cm.



Top tick

Distance

While the tick is on at the top left of the Distance display hold either bottom button to go to **Edit.**

Continue to HOLD while **Edit** scrolls across the display.

Circumference

Release once **Cir** is displayed.

Bump a bottom to go to the circumference.

Centimeters

This is the wheel circumference used the instrument for distance calculation.

(continued on next page)

Set Wheel Circumference

Centimeters

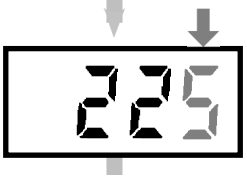
(continued from previous page)

While at this display bumping a top button will enable changing the number.

Bump Top

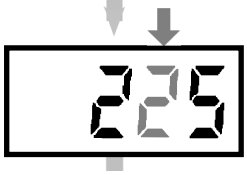
The 0 is now flashing. Bumping a top button increments that digit by 1.

Bump a top 5 times



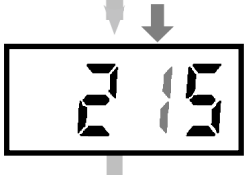
5 is now flashing. Bump a bottom button to move to the next digit.

Bump a bottom 1 time



2 is now flashing. Bump a top until 1 is displayed.

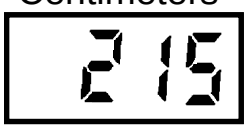
Bump a top 9 times



1 is flashing. Holding a bottom will stop the flashing and enter 215 as the new wheel circumference.

HOLD a bottom to stop flashing

Centimeters



215 will be now be used by the instrument for distance calculation. See page 14 for more details on automatic wheel calibration.

Clock display show/hide

While in **Edit** bump to **CLOC**, then bump once more to view **YES** or **no**. To change this setting bump a top button.

Bump a bottom button to go to **YES**.

YES is the current setting. The Clock will be displayed while in Race mode.

Bump a top button to go to select **YES** or **no**.

n (no) is now flashing. Bump a bottom to move between **Y** & **n.**

HOLD a bottom while **Y** is flashing to select **YES**

HOLD a bottom while **n** is flashing to select **no**

The Clock will be displayed while in Race mode

The Clock will NOT be displayed while in Race mode

Auto CAL on/off

While in **Edit** bump to **Auto CAL**, then bump once more to view **YES** or **no**. To change this setting bump a top button. See Page 16 for more information on Automatic Calibration.

Bump a bottom button to go to **no**.

no is the current setting. The wheel circumference used in the race will not change.

Bump a top button to go to select **YES** or **no**.

n (no) is now flashing. Bump a bottom to move between **Y** & **n.**

HOLD a bottom while **Y** is flashing to select **YES**

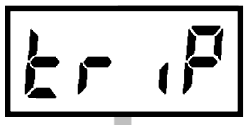
HOLD a bottom while **n** is flashing to select **no**

The instrument will change the wheel circumference after each distance adjustment.

The wheel circumference used in the race will not change.

Zero trip distance

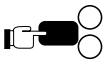
While in **Edit** bump to **trip,** then bump once more to view the distance.



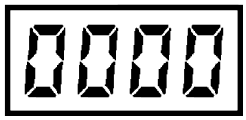
trip distance measures how far you have ridden since the last time this number was cleared in **Edit**. It does not clear automatically.

Bump a bottom button to go to **trip** distance.

0348 km

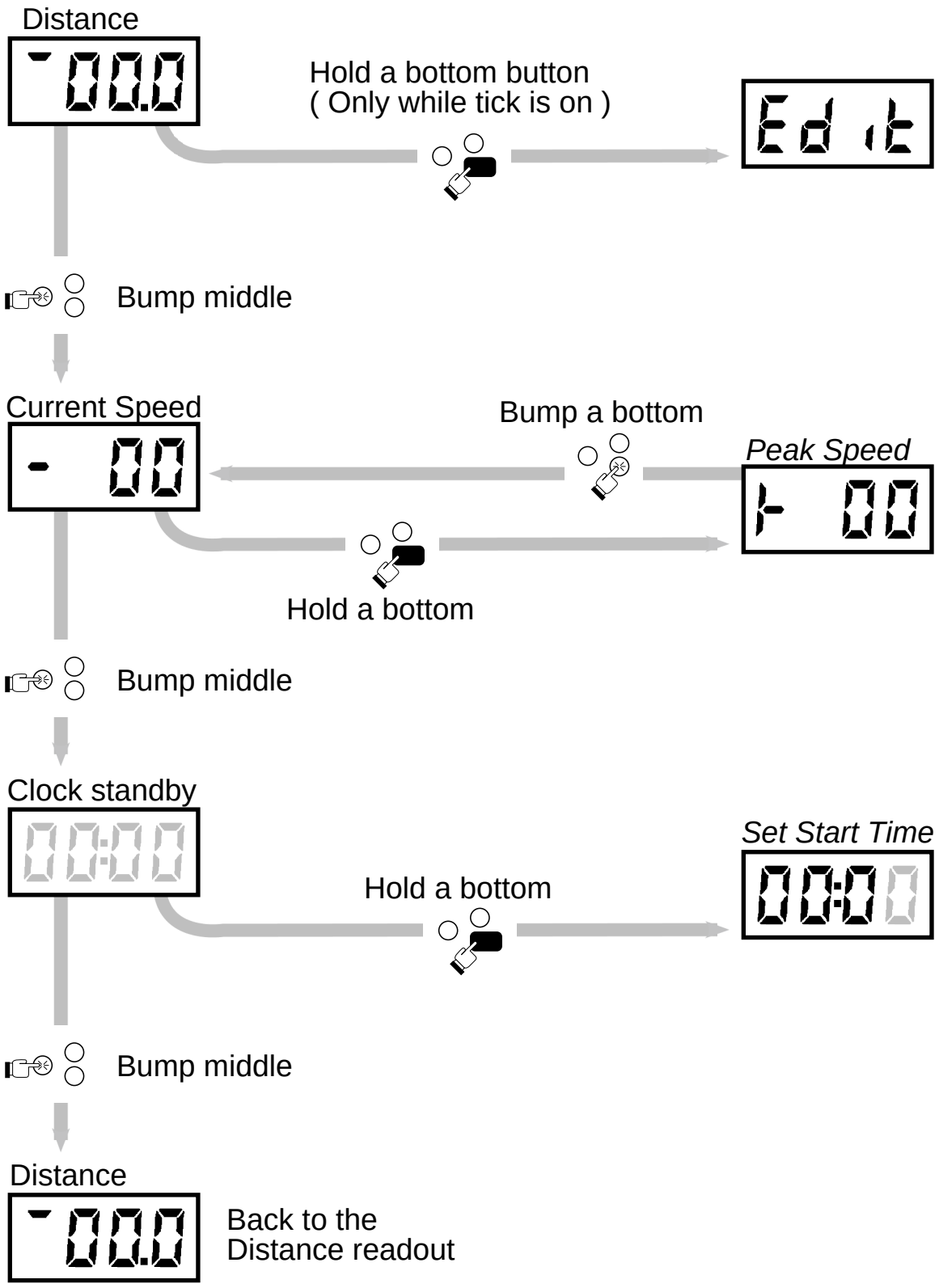


HOLD the middle button to zero the number.



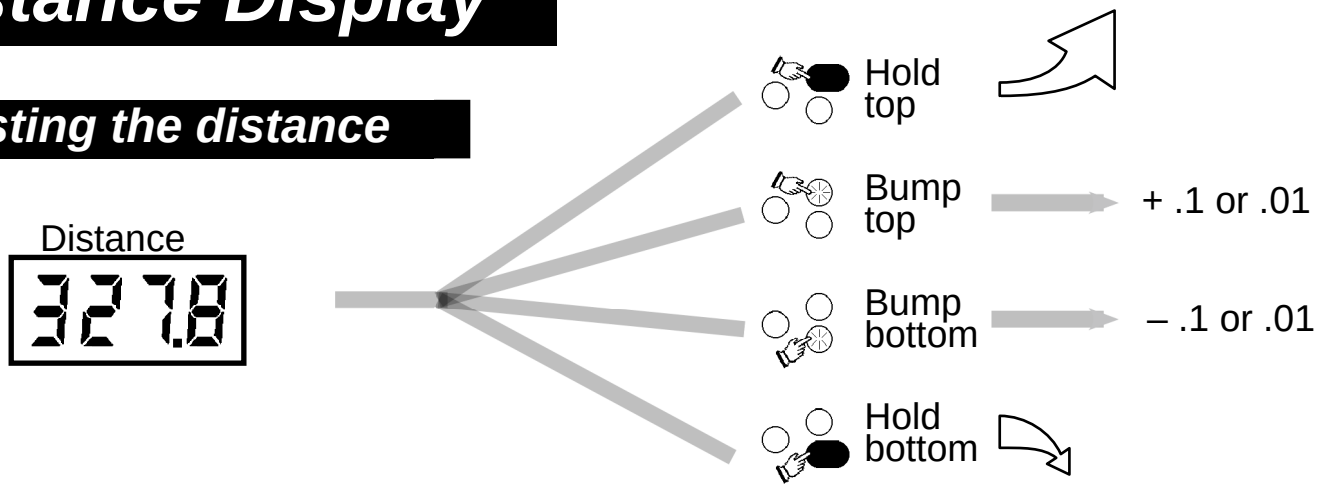
The instrument will measure distance during each ride until **trip** distance is again zeroed.

Moving through the race displays

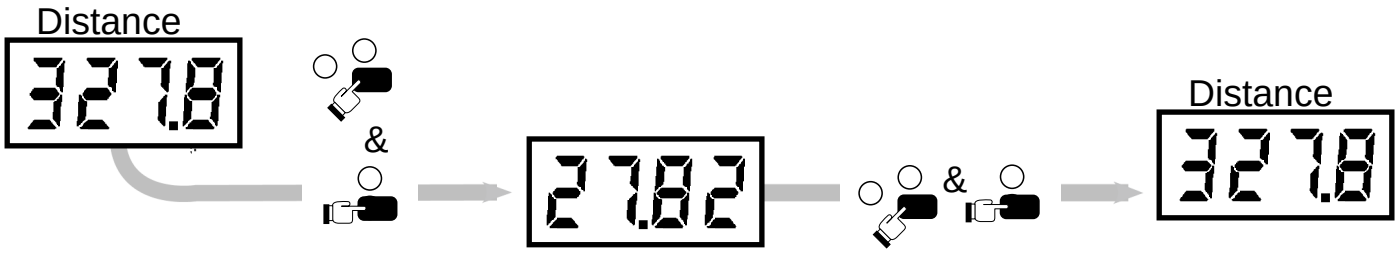


Distance Display

Adjusting the distance



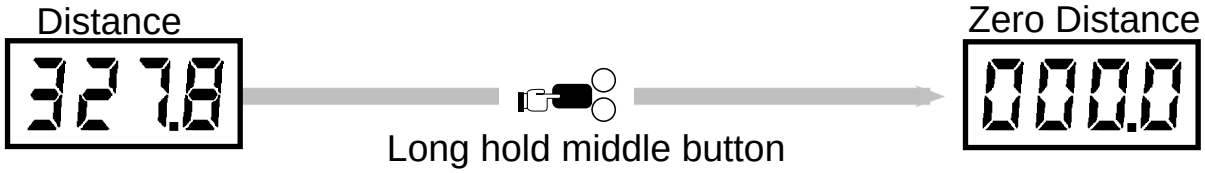
Moving the decimal point



Hold BOTH bottom buttons at the same time until the decimal stops flashing.

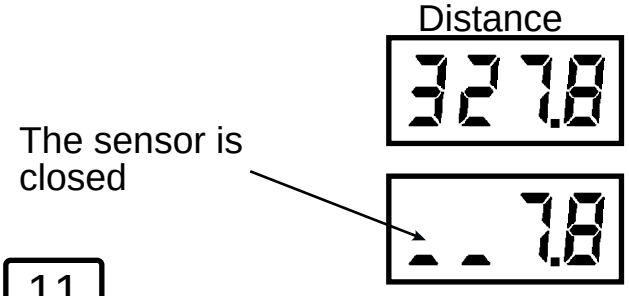
Repeat to move decimal back.

Zeroing the distance



Long hold middle button

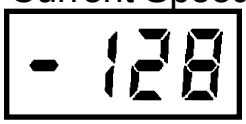
Sensor operation indicator



Each time the wheel sensor closes while at the Distance display, the 2 left digits are blanked and the lower ticks are on. This provides a means of checking sensor operation at any time during a ride. This is only visible at very low speeds, so it will not be distracting in a race.

Speed Display

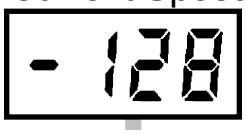
Current Speed



You can also view the Peak Speed reached during a run and you can reset the Peak Speed readout to zero.

View Peak Speed

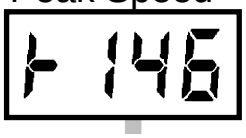
Current Speed



While at Current Speed display holding a bottom button will change the display to Peak Speed.

Hold a bottom button

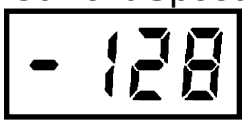
Peak Speed



This is the maximum KPH reached since the beginning of the ride or since the number was zeroed.

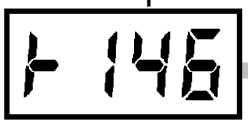
Bump a bottom button to go to Current Speed

Current Speed

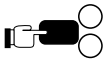


Zeroing Peak Speed

Peak Speed



Hold middle



Zero Peak Speed

NOTE: The Peak Speed reading is automatically cleared at the beginning of each ride.

Clock Display

Clock display

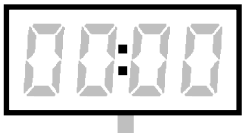
If the Clock display is enabled (See page 7) it will be available during a race. It the display is flashing the Clock has not been set.

NOTE: The clock will run continuously as long as the unit is powered by the CR2032 Lithium batteries or the 12 volt motor-cycle battery, even while the instrument is Shut OFF.

Set Clock Time

Our example: 08:15

Clock display



At the Clock Display HOLD the bottom button to adjust the numbers.

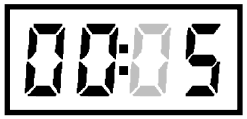
HOLD a bottom button

The right digit is now flashing. Bump a top button 5 times to adjust the digit to 5.

Bump a top 5 times

The 5 is now flashing. Bump a bottom to move to the next digit.

Bump a bottom to move to the left



The 0 is now flashing.

(Continued on next page)

Set Clock Time

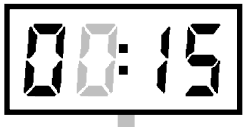
(continued from previous page)

0 is flashing. Bump a top to change digit to 1.

Bump a top button

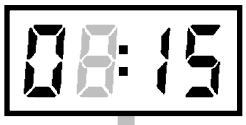
Bump a bottom to move to the next digit.

Bump a bottom button



0 is now flashing. Bump a top 8 times to change the digit to 8.

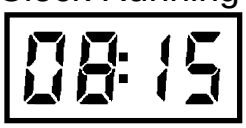
Bump a top 8 times



8:15 is the desired time. Hold a bottom to start the Clock at 8:15.

Hold a bottom button

Clock Running



The Clock is now running.

Shut OFF & Turn ON

any of the 3 run modes

While at any of the 3 Race modes holding both buttons on the instrument head will Shut OFF the instrument.

Hold both buttons on the instrument head to Shut OFF.

Bump any button to Turn ON

Distance

Since the instrument was manually Shut OFF it will display zero when Turned ON.

Automatic Shut OFF

Off

Bump any button to Turn ON

After 2 hours of no button activity or no wheel movement, the instrument will automatically Shut OFF.

NOTE: Upon turn ON after an automatic Shut OFF, the Distance at the time of the Shut OFF will be displayed. From there operation can be resumed from that distance, or the distance can be zeroed.

Automatic wheel calibration

If Automatic Calibration is ON (See Page 8) each time an adjustment to the distance is performed (other than Zeroing the distance) the instrument will do an automatic adjustment to the wheel circumference it uses to measure the distance travelled.

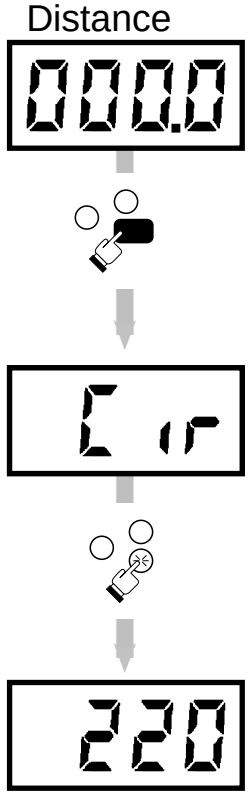
NOTE: This calculation has many safeguards which prevent the instrument from making an unusual adjustment. It has been proven in 15 years of USA Enduros.

If you get lost, then return to the course and make an adjustment, the instrument WILL NOT calculate a new wheel circumference. It will ignore the adjustment and use the same wheel circumference as before the adjustment.

At the start of each day's ride the instrument does not use the Automatic Calibration wheel circumference from the previous ride. It will use the wheel circumference set in **Edit** (See page 5) until a manual distance adjustment is performed along the course. It then begins adjusting to that day's course.

Manual wheel calibration

If Automatic Calibration is OFF the rider will have direct access to the wheel circumference in **Edit** after each time he zeros the distance (See page 11)



Hold either bottom until "Cir" is displayed, then release. Bump a bottom button to go to wheel circumference.

While the wheel circumference is displayed bump a top button to change the circumference, or bump a bottom to go back to the Distance display.

If the instrument distance is consistently less than the roadbook then increase the circumference.

If it is running ahead of the roadbook then decrease the circumference.

Avoid making any large adjustment.

EXAMPLE: After 50.0km the instrument reads 52.5km, which is roughly 5% error. Decrease the wheel circumference by 11cm to 209cm.

Display backlighting (VR only)

A VR that is properly connected to the motorcycle's 12V battery will illuminate the display continuously while it is ON. While ON it will draw only 25 milliamps of power. When the VR is OFF the backlighting goes off and the instrument draws only 30 microamps (.030 milli amps)

Battery message (VR only)

If the wires to the motorcycle's battery become disconnected on a VR then the display backlighting goes off and a **bAtt** message is displayed upon Shut OFF or Turn ON.

The instrument will continue operation using the internal lithium batteries.

bAtt flashes upon Turn ON or Shut OFF.

Battery Installation

Two **CR 2032 Lithium 3.0V** batteries are used.

On the non-VR these are the only source of power, while on the VR they are for backup purposes to maintain operation if the wires to the motorcycle's battery become disconnected.

In either instruments they should provide approximately 200 hours of ON time.

Installing batteries

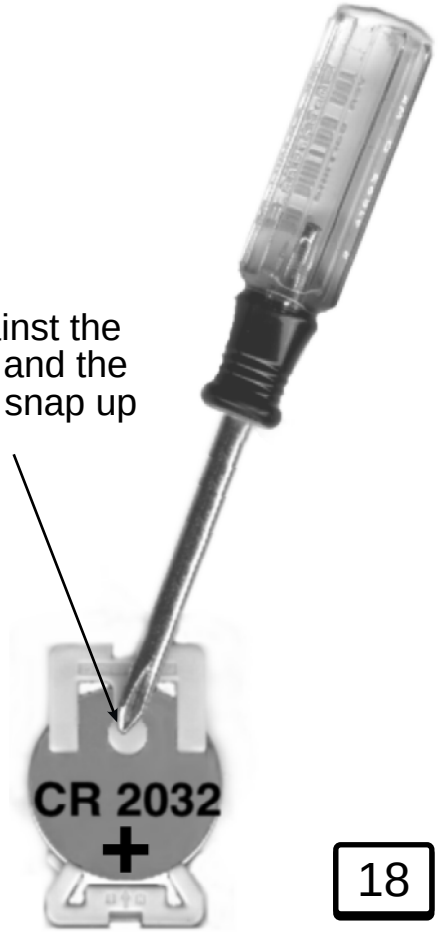
To install the batteries push into the holder, then press down with a finger. Note that the "+" faces up.

Positive side faces up

Removing batteries

To remove the lithium batteries use a screwdriver as shown to press against the round, center tab on the battery holder. The battery will snap up and allow easy removal.

Press against the center tab and the battery will snap up



DO NOT PREY AGAINST THE BATTERY HOLDER, IT WILL CAUSE DAMAGE!

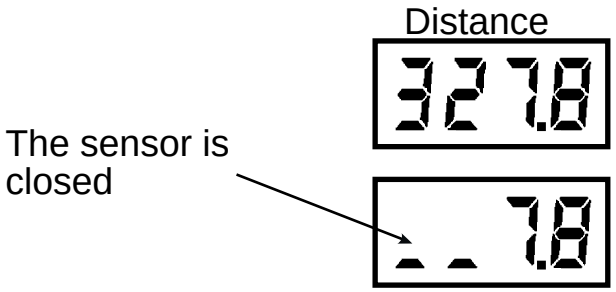
Hookup to 12 volt battery

Hook the RED wire to the battery's plus side and the BLACK wire to the negative side.

There is polarity protection to prevent damage to the instrument in case the wires are reversed, but the VR circuit will not work if the wires are reversed.

Attempt to avoid routing the wires directly against the ignition coil and spark plug wiring.

Sensor setup



Each time the wheel sensor closes while at the Distance display, the 2 left digits are blanked and the lower ticks are on. This provides a means of checking sensor operation at any time during a ride. This is only visible at very low speeds, so it will not be distracting in a race.