

A large, stylized red graphic that resembles a flame or a stylized eye, positioned behind the text. It has a thick, curved shape with a pointed tip at the top right and a circular opening in the center.

**Blackburn®**

**NEURO**

ADVANCED CYCLING ELECTRONICS  
**ENGLISH**



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## INTRODUCTION

Congratulations on your purchase of a new Blackburn Neuro Cyclometer. Blackburn Cyclometers with UHF Digital Transmission are among the most advanced cyclometers available. Designed to meet the needs of elite cyclists, these products feature multiple channel, 2.4GHz digitally encoded data transmission making interference and cross talk a thing of the past. Blackburn has gone to great expense to assure these are the finest and most reliable cyclometers you can buy. We are so sure of this, each unit we make is covered by a limited LIFETIME WARRANTY against any defects in materials or workmanship. (See Page 54 for a complete description of the Bell Sports Limited Warranty.) Your new Neuro unit is filled with new and unique features designed to enhance your riding and racing experience. Of special note are the new Interval Training Program, 5 Zone Heart Rate System and Blackburn's exclusive Race Display Option.

This manual is an integral part of your Blackburn cyclometer. We have organized it to guide you through the setup, installation and operation follow in a logical sequence. When starting out it is best to start at the beginning of this manual and go through all sections in sequence. This will assure all setup and installation steps are done in the proper sequence. After you are fully familiar with all of the features and functions of your Blackburn cyclometer, put this manual in a safe location for future reference.

## WARNINGS AND CAUTIONS



**▲ WARNING TO PEOPLE THAT WEAR PACEMAKERS**—Persons who have a pace maker, defibrillator or other similar device use this product at their own risk. We strongly recommend that you consult your physician or cardiologist before using this product or embarking on an exercise program.

**▲ WARNING**—Blackburn cyclometers and heart rate monitors are training and fitness tools. Before beginning any exercise program, consult your doctor to discuss your exercise plans.

**▲ WARNING**—Blackburn cyclometers featuring an altimeter sensor are NOT designed to be used as a PRIMARY altitude instrument for flying, skydiving, hang gliding or other sports where sudden major changes in altitude may occur or when there is a need for industrial precision.

**▲ WARNING**—Do not divert your attention from the road ahead to operate your cyclometer at any time. We also strongly suggest you wear a Bell or Giro helmet any time you ride your bike.

**CAUTION**—Blackburn cyclometers are sophisticated electronic instruments. Blackburn recommends this unit only be installed by a qualified Blackburn retailer. Failure to read the instructions may result in damaged caused by improper installation and may void the warranty. If you are unsure about how to properly perform any aspect of the assembly, installation or operation of your Blackburn cyclometer, please contact your local Blackburn retailer.

**CAUTION**—This unit is designed to be water resistant under normal riding conditions. It should not be immersed in water. It should not be left attached to the bike if the bike is being transported on an automobile.



## CARE AND MAINTENANCE

Blackburn cyclometers contain many delicate electronic components which may be damaged by excessive exposure to heat, shock or general abuse. Treated with care, your cyclometer is capable of delivering many years of reliable service. Improper care and handling, or damage caused by abuse or neglect, will void your Blackburn Warranty.

**NEVER**—Leave your computer in your car on hot days.

**NEVER**—Store your Blackburn cyclometer in a plastic or other non-breathable container.

**NEVER**—Leave your Blackburn cyclometer on your bike while transporting it by automobile.

## FCC & CE WARNINGS



**CE**—The CE logo is used to mark compliance with the European Union

Directives 89/336/EEC and 99/5/EEC

**FCC**—This device complies with Part 15 of the FCC limits for class B digital devices subject to the two following conditions:

1. This device cannot cause harmful interference
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment generates uses and can radiate radio frequency energy and if not installed or used in accordance with the instructions, may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular instance. If this equipment does cause harmful interference to other equipment, try to correct the problem by moving or reorienting the equipment.

If you cannot correct the problem by the method above, consult an authorized Bell Sports dealer or other qualified service technician. Repairs should be performed only by qualified and authorized Bell Sports technicians. Unauthorized repairs will void the products warranty.

This product has been tested and found to comply with FCC standards for home or office use.

**FCC WARNING:** Changes or modifications not expressly approved by Bell Sports, Inc. may void your authority to operate this device under FCC Regulations





## HOW THIS PRODUCT WORKS

Your new Blackburn Neuro cyclometer is equipped with an Ultra-High Frequency (UHF) Digital transmission system for speed, distance, cadence and heart rate which operates on a frequency of 2.4GHz. This new transmission system offers significant performance advantages over previous generations of wireless cyclometers.

With this new system, information is sent to the receiver unit in the computer head in digitally encoded data packets. These data packets are identified by unique individual identifier codes making for cross communication (cross-talk) between adjacent units and electromagnetic interference (EMI) virtually impossible.

Another major advantage of this new system is greatly improved transmission range. Because digital encoding virtually eliminates interference and cross talk, we can make the new digital system operate at significantly greater ranges. While the range of most wireless cyclometers is measured in inches, our new UHF digital system is measured in feet. The increased range will result in dramatically improved performance on installations which have traditionally proven troublesome such as large bikes, tandems and recumbents.

**AUTO START/STOP**—Unlike wired units, wireless computers are incapable of having a true automatic start/stop system because there is no hard wired circuit to close and activate the computer. Because of this, wireless cyclometers must, at some point, turn off their radio system in order to conserve battery life. Your Blackburn wireless computer is programmed with the most sophisticated Start/Stop algorithm available in a cyclometer.

## HOW THIS PRODUCT WORKS



### WIRELESS HEART RATE MONITORS (NEURO 5.0 AND 6.0 MODELS ONLY)

All Blackburn Neuro models are capable of monitoring heart rate using our new 2.4GH UHF digital transmission system. If your Neuro unit was not supplied with a heart rate transmitter one may be purchased from your Blackburn retailer. Utilizing our new 2.4GHz UHF digital transmission system. By utilizing UHF digital technology we have been able to dramatically improve the reliability and performance of the heart rate system in this product as compared to traditional heart rate systems. While the UHF digital technology used in this new heart rate system dramatically improves its performance over traditional low frequency systems, it should be noted there are conditions which may cause the system to generate false readings. To avoid the potential for false readings. Please note the following:

1. The chest strap should be worn as tightly as possible without being uncomfortable. If the chest strap is not tight enough, movement between it and your body can cause false signals to be generated, which may be seen as heart beats by the cyclometer. This is especially true during high impact activities, such as running.
2. Although extremely rare, environmental factors may interfere with the ability of the cyclometer to receive a signal from the transmitter. This is especially true if the product is being used in close proximity to other products operating on the same 2.4GHz transmission frequency. The system is designed with redundancy to help reduce the possibility of interference effecting the accuracy of the unit.
3. While riding, the flow of air over your body may cause your jersey or shirt to flutter and tap against the heart rate transmitter. This tapping can result in false signals being generated causing inaccurate readings. Try wearing the transmitter backward so that the transmitter and electrodes are against your back with the elastic strap across the front of your chest. Wearing snug jerseys or a tight base layer will also help to reduce this problem from occurring.



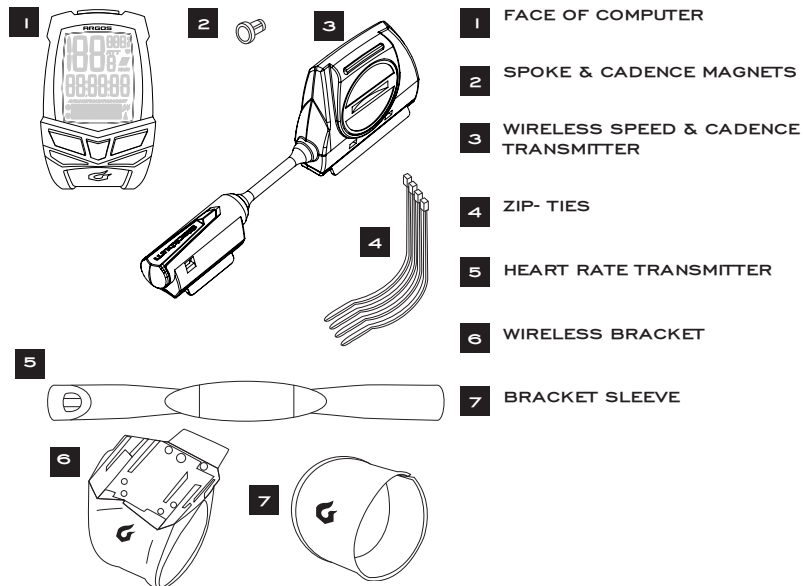
## HOW THIS PRODUCT WORKS

### PRESSURE SENSING ALTIMETERS (NEURO 6.0 MODEL ONLY)

Some Blackburn cyclometers come equipped with a highly sensitive pressure sensing altimeter module. This altimeter is capable of measuring changes in altitude of as little as 1' or 0.5m. The altimeter system in the Neuro units is also programmed to display your instantaneous % grade. Because the altimeter system in the Blackburn cyclometer relies on Barometric Pressure for its measurements, it is critical that you regularly calibrate the unit to a known altitude. You may notice the altitude at the end of a ride may be slightly different than what it was at the start, even though you started and stopped from the same location. This is caused by small pressure changes in the atmosphere which occur continually over time. Generally these small changes will have only a minor effect on the overall accuracy of the unit. However, the arrival or departure of a weather front can change the current altitude display by several hundred feet or more.

To simplify the calibration process the Blackburn Neuro allows you to store your home altitude to memory and calibrate the unit to this altitude at any time using a **PRESS & HOLD** of the OPTION key while in the CURRENT ALTITUDE screen (See Page 55 for more altimeter information).

## PARTS OF YOUR BLACKBURN NEURO CYCLOMETER



- 1 FACE OF COMPUTER
- 2 SPOKE & CADENCE MAGNETS
- 3 WIRELESS SPEED & CADENCE TRANSMITTER
- 4 ZIP-TIES
- 5 HEART RATE TRANSMITTER
- 6 WIRELESS BRACKET
- 7 BRACKET SLEEVE



## RESETTING THE COMPUTER TO ITS DEFAULT SETTINGS

Two “hidden” keys are located on the bottom of the computer each with specific functions. Use a toothpick or other small pointed object to press these keys and initiate their functions.

**PAIRING KEY**—Located to the lower right of the battery door.

This key is used to initiate the **PAIRING SEQUENCE** which allows you to digitally match transmitters to the computer head. Detailed instructions for the **PAIRING SEQUENCE** is found on Pages 21-24 of this manual

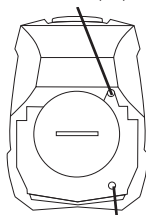
**ALL CLEAR KEY (AC)**—Located to the upper right of the battery door.

This key is used to reset the units microprocessor to its default programming values. Resetting the unit to its default values will **CLEAR ALL MEMORIES** including Total Time and Total Distance Memories as well as all Heart Rate and Bicycle related settings.

**DO NOT** use the AC key unless you are sure you want to clear all stored information.

**NOTE:** Using the AC key does not clear Paired Transmitter information from the memory, this information is permanently held in a separate memory.

ALL CLEAR KEY (AC)



PAIRING KEY

## SHIPPING AND SLEEP MODES



**SHIPPING MODE**—Your new Blackburn Neuro computer comes to the dealer in **SHIPPING MODE**. In this mode the LCD display is totally blank. This is done to extend the battery life. Press any key to wake the unit up and advance to the default display mode.

**NOTE:** It is possible the unit may not be received in **SHIPPING MODE** if it has been previously activated. This should not have an adverse impact on the life of the battery.

**SLEEP MODE**—When the receiver circuit of the computer unit shuts down, the unit goes into its **SLEEP MODE**. In **SLEEP MODE** the display will show the current Time of Day, Chronograph (RT or TT) and Units (Miles or Kilometers) settings. In **SLEEP MODE** the SPD, CAD and HR icons indicate which types of transmitters are currently paired with the computer unit.





## CHANGING THE BATTERY IN THE BLACKBURN NEURO CYCLOMETER

Blackburn Neuro computers are powered by a CR2032 3v Lithium Battery. Under normal conditions, this battery should last for approximately 300-350 hours depending on the quality of the battery.

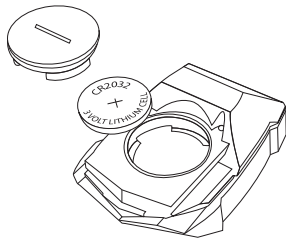
### REPLACING THE COMPUTER BATTERY

1. Using a coin, turn the battery door counter clockwise until the door comes free.
2. Take care not to damage the O-ring seal for the battery compartment and carefully remove the old battery.
3. Place a new battery in the battery compartment with the positive (+) side toward the battery door. Be extremely careful not to bend the battery contact when inserting a new battery.
4. Place the battery door over the opening and tighten it down by using a coin and turning in a clockwise direction.
5. If the O-ring has been damaged, replace it before reinstalling the battery door. Battery door and O-ring kits are available as replacement parts from your Blackburn Retailer.

**CAUTION**—Extreme care should be taken when replacing the battery to ensure the unit remains fully water resistant. Failure to properly replace the battery and correctly seal the unit may cause the unit to become damaged and may void the warranty.

**CAUTION**—Excessive use of the backlight system will result in shortened battery life.

**ALWAYS**—Check the batteries if you are experiencing problems with your computer. Most problems experienced with the operation of this unit are the result of dead or dying batteries. Even supposedly “NEW” batteries may be dead as a result of age or improper storage.



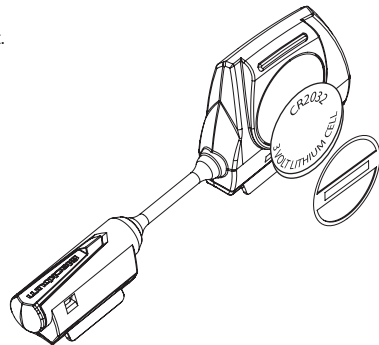
## CHANGING THE BATTERY IN THE WIRELESS SPEED & CADENCE TRANSMITTER



The Wireless Speed & Cadence Transmitter uses a CR 2032 3v Lithium battery. Under normal conditions, you can expect to get about 1100-1450 hours of Speed & Cadence Transmitter use from a fresh battery.

1. Using a coin, turn the battery door counter clockwise until the door comes free.
2. Take care not to damage the O-ring seal for the battery compartment and carefully remove the old battery.
3. Place a new battery in the battery compartment with the positive (+) side toward the battery door. Be extremely careful not to bend the battery contact when inserting a new battery.
4. Place the battery door over the opening and tighten it down by using a coin and turning in a clockwise direction.
5. If the O-ring has been damaged, replace it before reinstalling the battery door. Battery door and O-ring kits are available as replacement parts from your Blackburn Retailer.

**NOTE:** Extreme care should be taken when replacing the battery to ensure the unit remains fully water resistant. Failure to properly replace the battery and correctly seal the unit may cause the unit to become damaged and may void the warranty.





## CHANGING THE BATTERY IN THE HEART RATE TRANSMITTER

Blackburn Neuro cyclometers with Heart Rate feature a wireless heart rate transmitter, powered by a CR2032 3v Lithium battery. Under normal conditions you can expect to get approximately 750 hours of heart rate transmitter use with a fresh battery.

1. Using a coin, turn the battery door counter clockwise until the door comes free.
2. Take care not to damage the O-ring seal for the battery compartment and carefully remove the old battery.
3. Place a new battery in the battery compartment with the positive (+) side toward the battery door. Be extremely careful not to bend the battery contact when inserting a new battery.
4. Place the battery door over the opening and tighten it down by using a coin and turning in a clockwise direction.
5. If the O-ring has been damaged, replace it before reinstalling the battery door. Most jewelers and cyclometer shops should have replacement O-ring seals. Battery door and O-ring kits are available as replacement parts from your Blackburn Retailer.

**NOTE:** Extreme care should be taken when replacing the battery to ensure the unit remains fully water resistant. Failure to properly replace the battery and correctly seal the unit may cause the unit to become damaged and may void the warranty.

**NOTE:** All Neuro units are capable of displaying heart rate information from Blackburn Digital heart rate transmitters. Neuro 5.0 and 6.0 units are supplied from the factory with heart rate transmitters. The Neuro 4.0 unit can be upgraded to heart rate functionality with the additional purchase of a Blackburn Digital heart rate transmitter from your Blackburn dealer.

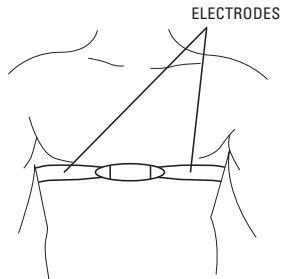
## WEARING THE HEART RATE TRANSMITTER



To ensure a proper heart rate display, the chest transmitter must be properly adjusted. Snap the plastic tabs at the end of the elastic belt into the holes at the end of the transmitter, and adjust the strap so that the transmitter fits tightly below the pectoral muscles, as shown in the drawing.

**NOTE:** Users with significant chest hair may have a problem obtaining contact between the transmitter electrodes and their skin, resulting in poor performance. It may be necessary for these individuals to shave the area of their chest beneath the transmitter.

**NOTE:** In dry and cold climates it may take a few minutes for a layer of perspiration to form between the cheststrap and the skin. Moistening the electrodes with saliva or ECG conductive gel can speed up this process.





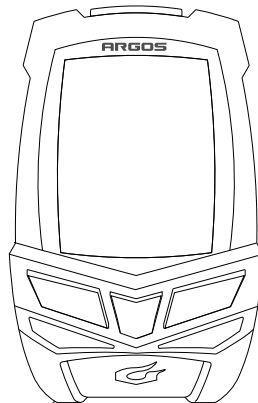
## KEYS AND THEIR FUNCTIONS

### QUICK PRESS VS. PRESS & HOLD

There are two key actions used to program and operate the Neuro computer.

**QUICK PRESS**—The key is pressed quickly and then immediately released. This is the most common key action and is used for most operations. Throughout this manual, **QUICK PRESS** will be indicated in **BLUE**.

**PRESS & HOLD**—The key is pressed and held for a period of 2-seconds until the desired action takes place. This key action is generally used to enter a programming sequence or to clear information from the display. Throughout this manual, **PRESS & HOLD** will be indicated in **RED**.



## KEYS AND THEIR FUNCTIONS



### MULTIPLE KEY FUNCTIONS

- **PRESS & HOLD** MODE and OPTION to change between Bike 1 and Bike 2 settings
- **PRESS & HOLD** MODE, START/STOP and OPTION to enter RACE DISPLAY mode.



## KEYS AND THEIR FUNCTIONS

### UPPER DISPLAY/EL KEY

#### Primary Function

- **PRESS & HOLD** to Change the Upper Display Window view. The upper window is capable of displaying Current Cadence, Current Heart Rate or Heart Rate Training Level.

#### Secondary Function

- **QUICK PRESS** to Activate the UltraNightGlow™ display light.

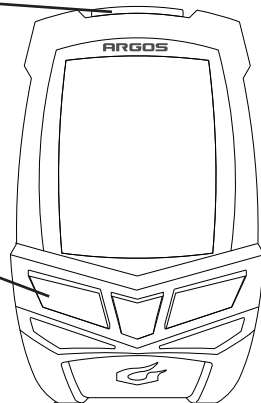
### OPTION KEY

#### Primary Function

- **QUICK PRESS** to change between OPTIONS within MODES

#### Secondary Functions

- **QUICK PRESS** to Change a Variable in a Setting Sequence Upward. HOLD for FAST ADVANCE
- **PRESS & HOLD** in Main Altimeter Display to calibrate to stored home altitude.
- **PRESS & HOLD** in any screen except Altimeter to enter LINK Sequence.



## KEYS AND THEIR FUNCTIONS



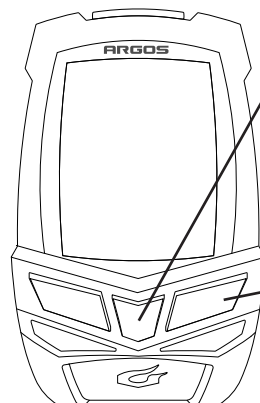
### START/STOP KEY

#### Primary Function

- **QUICK PRESS** to Start/Stop TT Chronograph.
- **QUICK PRESS** to Start and Stop LAP/INTERVAL Chronograph.
- **PRESS & HOLD** in DST MODE to Clear ALL Ride Data.

#### Secondary Functions

- **QUICK PRESS** to Change a Variable in a Setting Sequence Downward. HOLD for FAST ADVANCE.
- **PRESS & HOLD** to Clear Maximum Speed or Maximum Cadence.



### MODE KEY

#### Primary Function

- **QUICK PRESS** to change between MODES.

#### Secondary Functions

- **PRESS & HOLD** to Enter Setting Sequences.
- **QUICK PRESS** to Select a Variable in a Setting Sequence.



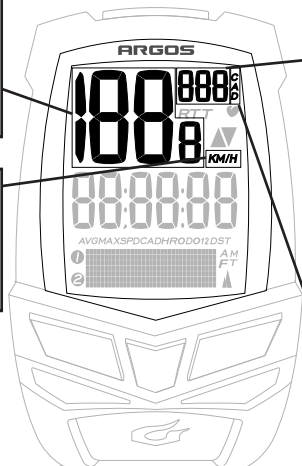
## SECTIONS OF LCD DISPLAY

### SPEED WINDOW

Current Speed is always visible in the upper left corner of the LCD display except in Race Mode.

### KM/H AND M/H

These icons indicate if the unit is programmed to display speed and distance in Miles or Kilometers.



### UPPER DATA WINDOW

The Upper Data Window located at the top right corner of the LCD Display is one of the unique features of Blackburn Neuro computers. You can choose to display Current Cadence, Current Heart Rate, Heart Rate Training Level or leave this window blank.

### CAD

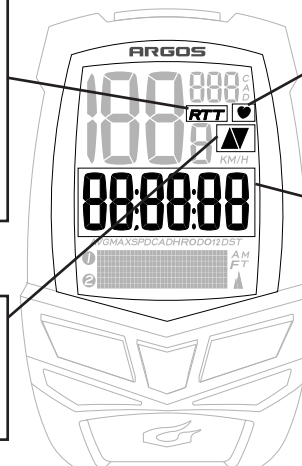
This icon indicates Cadence is currently being shown in the Upper Data Window.

### RT/TT

These icons indicate if the primary chronograph is programmed to display Ride Time (RT) with the chronograph starting and stopping with the turning of the wheel. Or Total Time (TT) with the chronograph running continually.

### COMPARISON ARROWS

These arrows will indicate if your current speed is above, below or equal to your current average speed.



## SECTIONS OF LCD DISPLAY



### HEART RATE SYMBOL

This icon indicates Heart Rate or Heart Rate Training Level is currently being shown in the Upper Data Window.

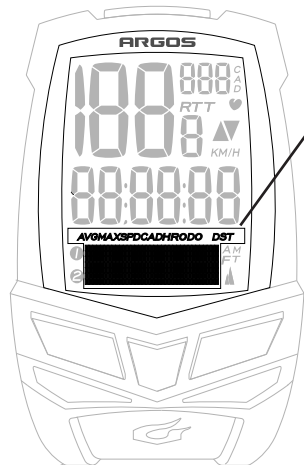
### CHRONOGRAPH WINDOW

The center line of the LCD display shows the primary chronograph for the unit. The center line always shows the primary chronograph with two exceptions. **1.** When viewing Heart Rate Dynamic Memory in the Lower Data Window, time accumulated in each heart rate zone will be displayed in the Chronograph Window. **2.** When performing an interval workout using the Interval Chronograph the time for each Work and Rest Session is displayed in the Chronograph Window.





## SECTIONS OF LCD DISPLAY



### LOWER DATA WINDOW

The Lower Data Window shows a wide range of secondary functions. This window is controlled by the MODE and OPTION keys. Pressing the MODE key scrolls through the following primary information groups. Pressing the OPTION key scrolls through secondary information in each primary information group:

Speed Information

Distance Information

LAP/INTERVAL Chronograph Information

Cadence Information (If Active)

Heart Rate Information

Altitude Information

Time of Day (If Active—See Page 31 for more detail on the operation of the Lower Data Window using the MODE and OPTION keys.)

The Icon Line above the Lower Data Window indicates which function you are currently viewing.

In Sleep Mode, the Icon Line also indicates which transmitters are currently paired (SPD, CAD, HR) to the receiver.

## SECTIONS OF LCD DISPLAY



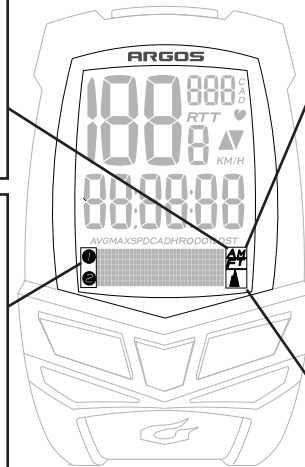
### AM

This icon is located to the right of the Lower Data Window and indicates when the 12-hr clock is showing AM time. PM and 24-hr clock time are indicated by the lack of any icon.

### BIKE 1/BIKE 2

To the left of the Lower Data Window are the Bike 1 and Bike 2 Icons. To manually change between Bike 1 and Bike 2 settings, **PRESS & HOLD** both the MODE and OPTION key to change the Bike Settings at any time.

**NOTE:** Once you have paired separate Transmitters for Bike 1 and Bike 2, the computer unit will automatically recognize each transmitter and configure the computer accordingly.



### FT / M

These icons indicate if altitude is being shown in Feet (FT) or Meters (M).

**NOTE:** The altimeter setting is independent of the Miles/Kilometers settings. You may choose to display speed in Miles per Hour and Altitude in Meters.

### ALTIMETER (NEURO 6.0 ONLY)

To the right of the Lower Data Line there is a mountain icon which is active when altimeter functions are being displayed.



## BIKE ONE/BIKE TWO SETTING

Blackburn Neuro Computers allow you to program two separate bike functions. Most functions are totally independent. For example, you can program Bike One for Ride Time in Miles and Bike Two for Total Time in Kilometers.

### CHANGE BIKE 1/BIKE 2 SETTING

To manually change the Bike 1/Bike 2 setting, **PRESS & HOLD** both the MODE and OPTION keys at the same time. When Bike 1-2 icon changes, release the keys.

Once you have paired separate Speed/Cadence transmitters for Bike 1 and Bike 2 to the system (Pages 24-27) there is no need to manually change between Bike 1 and Bike 2 settings in normal operation. This process will be performed automatically once the system LINKS with a Speed/Cadence transmitter.

## PAIRING TRANSMITTERS TO THE COMPUTER UNIT



Each Speed/Cadence and Heart Rate transmitter is programmed with its own unique signal which must be stored in the memory of the computer unit. This process is called **PAIRING**. We have tried to make the pairing process as automated as possible. With a little planning all transmitters can be paired simply and easily. Before beginning the pairing process please have the following items easily accessible:

1. Computer Head Unit
2. Bike 1 Speed and Cadence Transmitter
3. Wheel Magnet
4. Heart Rate Transmitter (Heart Rate units only)
5. Bike 2 Speed and Cadence Transmitter if you are planning on setting up a second bike.

Please wear the heart rate transmitter and make sure the electrodes are moistened to assure good skin contact.

**CAUTION**—Do not attempt the pairing process for the Blackburn Neuro cyclometer with other Blackburn Neuro units in use near by. Please allow at least 15 feet of distance between units during the pairing process. Failure to do this may result in the wrong transmitters being paired to the receiver.



## PAIRING TRANSMITTERS TO THE COMPUTER UNIT

### STEP BY STEP — PAIRING THE SPEED/CADENCE TRANSMITTER

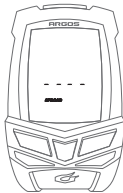
1. Make sure Bike 1 is selected. If Bike 2 is showing on the display, change the display to Bike 1 using a 2-second **PRESS & HOLD** of the MODE and OPTION keys. If you are planning on using the system with two different bikes you will need to purchase a second speed/cadence transmitter for use on Bike 2 and repeat the pairing process starting in the Bike 2 setting. Bike 1 Speed and Cadence must be paired **BEFORE** the system will allow you to pair a heart rate or second bike transmitter. (Complete second bike kits are available from your Blackburn Retailer)
2. On the back of the computer unit, depress the small hidden PAIRING key using a small pointed object. The display of the unit will clear with PAIR showing in the Lower Data Line and your Bike selection to left.
3. Select PAIR with a **QUICK PRESS** of the MODE key.
4. SPD/CAD will automatically appear in the Lower Data Line and 4-dashes will begin flashing in the Chronograph Window indicating the unit is searching for the Bike 1 Speed/Cadence Transmitter.



STEP 2



STEP 3



STEP 4

## PAIRING TRANSMITTERS TO THE COMPUTER UNIT



### STEP BY STEP — PAIRING TRANSMITTERS THE SPEED/CADENCE TRANSMITTER (CONTINUED)

5. Pass the Wheel Magnet back and forth past the Speed sensor portion of the Speed/Cadence Transmitter for several seconds. When the system has paired with and stored the Speed/Cadence Transmitter information to memory, the Lower Data Line will show DONE along with the SPD and CAD Icons above it for a period of 5-seconds, before advancing automatically to the pairing sequence for the Heart Rate Transmitter.
6. If the Pairing sequences is not successful, the Lower Data Window will flash FAIL along with the SPD/CAD Icons above it for a period of 5-seconds and automatically restart the pairing sequence for the Speed Transmitter.

**NOTE:** the unit will cycle through 3 FAIL sequences and abort the pairing sequence.

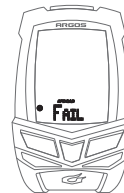
7. This will continue until the unit recognizes and stores a Speed Transmitter or the user aborts the process by a **QUICK PRESS** of the OPTION key.

**NOTE:** You **MUST** complete the Speed/Cadence pairing sequence for Bike 1 in order to advance to the Heart Rate Transmitter pairing sequence.

**NOTE:** If you intend to PAIR heart rate, you, **MUST** be wearing Heart Rate Transmitter.



STEP 5



STEP 6



## PAIRING TRANSMITTERS TO THE COMPUTER UNIT

### STEP BY STEP — PAIRING TRANSMITTERS TO THE HEART RATE TRANSMITTER (CONTINUED)

8. Once the system has paired with and stored the Speed/Cadence Sensor information to memory it will advance automatically to the pairing sequence for Heart Rate.
9. If you are wearing the Heart Rate Transmitter the pairing should be automatic as with the Speed and Cadence Transmitters. Once the system has paired with and stored the Heart Rate Transmitter information to memory it will automatically advance back to the Primary Display Screen.

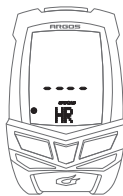
**NOTE:** When a Heart Rate Transmitter has been paired to the system, it can be used for both Bike 1 and Bike 2 settings.

10. If your Blackburn Neuro cyclometer system DOES NOT include a Heart Rate Transmitter simply **QUICK PRESS** the OPTION key to skip the Heart Rate Transmitter pairing process and exit to the Primary Display Screen.

11. If you wish to configure the unit for a second bike, select Bike 2 and repeat steps 1-7 above.

**NOTE:** All Blackburn Neuro cyclometers are heart rate compatible. If your unit was not supplied with a Heart Rate Transmitter system you may upgrade your unit to full heart rate functionality simply by purchasing a compatible Heart Rate Transmitter from your Blackburn dealer.

**NOTE:** At any point during the Pairing Sequence a **QUICK PRESS** of the Pairing Key will exit the sequence.



STEP 8

## INSTALLING THE COMPUTER ON YOUR BIKE



### INSTALLING THE WIRELESS SPEED & CADENCE TRANSMITTER

Once the transmitter has been paired to the computer you are ready to install it on your bike. It is possible to install the Speed/Cadence transmitter first and then perform the pairing sequences but this is not recommended for reasons of simplicity.

The speed and cadence transmitter system is made up of two parts; the Speed Transmitter/Sensor and the Cadence Sensor which are attached to each other by a short wire. Attach the Cadence Sensor first followed by the Speed Sensor and Transmitter in the following manner.

1. Attach the cadence sensor portion of the system to the LEFT chainstay where the crank arm passes the stay using the zip-ties provided. Snug up the zip-ties but do not fully tighten them. We recommend the cadence sensor be mounted toward the TOP of the chainstay (see illustration on following page).

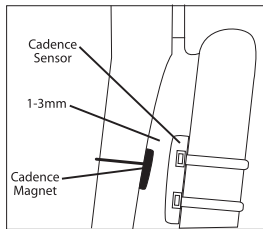
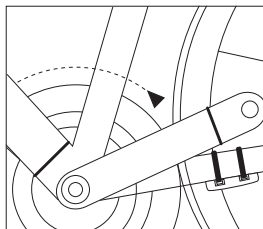
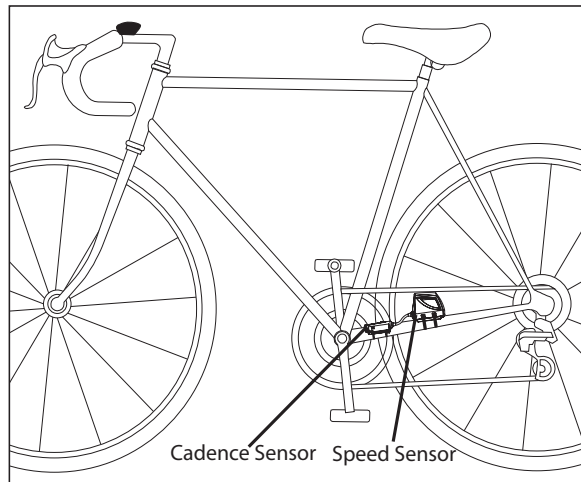
**NOTE:** The wire exiting the Cadence Sensor should be pointing toward the REAR of the bike.

2. Very loosely attach the cadence magnet to the back side of the LEFT crank arm using the zip-tie provided (to allow for adding spacers, if necessary). The cadence magnet should be attached as closely to the pedal spindle as possible.
3. Adjust and position the sensor and magnet so they pass within 1-3mm of each other. Fully tighten the zip-ties once you have everything properly aligned.
4. Attach the transmitter body to the TOP of the LEFT chainstay (see illustration on following page) using the zip-ties provided so that the wire between the transmitter and cadence sensor is straight but not under a lot of tension. Snug up the zip-ties, but do not fully tighten them.
5. Attach the spoke magnet to a spoke on the same side of the wheel as the sensor. Tighten the magnet enough to hold it in place but loose enough so that it is still movable.
6. Adjust the position of the sensor and magnet so they are in proper alignment as shown (see illustration on following page) The magnet should pass by the sensor adjacent to the indicator line at a distance of 1-3mm.
7. Once everything is in alignment, fully tighten the spoke magnet in place and tighten the zip-ties.



## INSTALLING THE COMPUTER ON YOUR BIKE

### INSTALLING THE WIRELESS SPEED & CADENCE TRANSMITTER



## INSTALLING THE COMPUTER ON YOUR BIKE



### INSTALLING THE WIRELESS SPEED & CADENCE TRANSMITTER

**⚠ WARNING**—Speed/Cadence Sensor mounting **MUST NOT** interfere with spokes or rear wheel.

**⚠ WARNING**—If Speed/Cadence Sensor interferes with rear wheel or spokes while riding, stop riding immediately and remount sensor as directed in owner's manual. Do not ride bike if Speed/Cadence sensor still interferes with rear wheel or spokes.

### INSTALLING THE WIRELESS HANDLEBAR BRACKET

Attach the wireless handlebar bracket to the handlebars. Tighten the mounting screw enough so the bracket will not easily rotate on the handlebars. Do not over tighten the mounting screw or you may damage the bracket.

**NOTE:** There are two molded plastic shims supplied with the Neuro computer brackets. The **THIN** shim allows the bracket to fit Oversized 31.8 mm handlebars. The **THICK** shim allows the bracket to fit standard 26.0mm handlebars.

**NOTE:** There is a wide variety of smaller handlebar diameters which are available. If the thick shim does not make the bracket tight enough, cut a section of the thin spacer to use as a shim to fill up the additional space as necessary.

**NOTE:** If you have odd shaped handlebars which will not fit a standard round mounting system, a stem mount adaptor shoe is available from your Blackburn Dealer.



## INSTALLING THE COMPUTER ON YOUR BIKE

### ATTACHING THE COMPUTER HEAD TO THE HANDLEBAR BRACKET AND TESTING

When the bracket is completely installed on the bike slide the Neuro computer unit into the bracket. The computer should LOCK into the bracket with an AUDIBLE "CLICK". If you do not hear a click or if the Neuro computer body is not flush with the back edge of the bracket the computer is not locked in place and may come out.

Once everything is assembled perform the LINK sequence shown on Pages 27-28 and turn the crank to make sure speed and cadence are being displayed on the screen. If you are not receiving one or both pieces of information, check the magnet and sensor alignment and make sure the magnets are passing the proper point on the sensor and that they are within 1-3mm. If they are closer to 3mm than to 1mm try reducing the gap and test the system again. If you are still having problems getting display readings, repeat the Pairing and Link sequences for the transmitter.

## LINKING TRANSMITTERS TO COMPUTER FOR USE



When you start the system needs to establish a LINK between the transmitters you are using and the computer unit on your bike before it can begin receiving data.

### LINK FROM SLEEP MODE

Any time the computer is activated out of SLEEP MODE, the LINK sequence starts automatically and runs for a period of 10-12 Seconds, with LINK appearing in the Lower Data Line and 4-dashes flashing in the Chronograph Window. Begin your ride within that time period and the system will automatically LINK with all available paired transmitters and the display will automatically advance to the primary display screen as soon as the pairings have been made. If you do not start riding within the 10-12 second period the unit will go back into SLEEP MODE in order to conserve battery life. If this happens, simply restart the LINK sequence by pressing any key.



**NOTE:** If you have a paired heart rate transmitter but are choosing NOT to use the heart rate system on a particular ride, start riding for a short distance so the system can LINK with the speed and cadence transmitter. If the system does not recognise a heart rate transmitter by the end of the LINK sequence it will simply advance out of the link mode and the Heart Rate displays will not appear on screen. If you wish to LINK a Heart Rate Transmitter to the system AFTER it has recognized and linked with a SPEED/CADENCE transmitter; OR if you wish to change Bikes while the system is active, follow the steps on the following page for LINKING a transmitter from active mode.

**NOTE:** When in Sleep Mode, the icon line above the Lower Data Window will indicate which types of transmitters are currently paired to the system—SPD—CAD—HR

## LINKING TRANSMITTERS TO COMPUTER FOR USE

### LINK FROM ACTIVE MODE

If you need to enter the LINK sequence while the computer is active (Not from Sleep Mode). **PRESS & HOLD** the OPTION key in any screen EXCEPT ALTIMETER for a period of approximately 3-seconds and the system will automatically enter the LINK sequence as described previously. LINK from Active Mode will usually be used under these conditions:

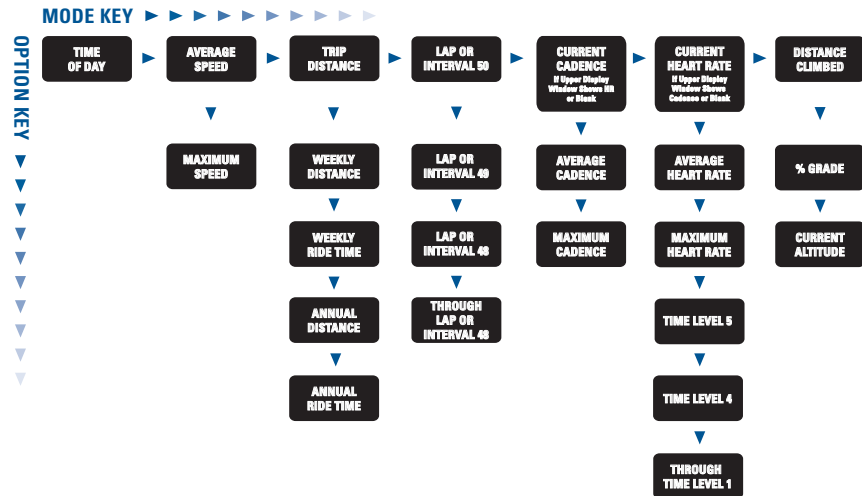
1. If you wish to LINK a paired heart rate transmitter when the unit is already fully operational.
2. If you wish to move your computer between Bike 1 and Bike 2 while the unit is fully operational.
3. If the LINK has been lost due to inactivity prior to the unit going into SLEEP MODE .

## AUTOMATIC BIKE RECOGNITION

Once you have paired separate transmitters for Bike 1 and Bike 2, your Blackburn Neuro will automatically recognize which bike it is mounted on during the LINK process and configure itself accordingly.

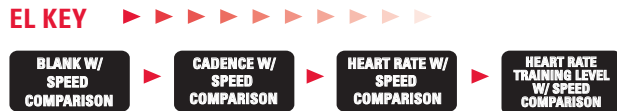
## MODE AND OPTION FLOW SEQUENCES

This diagram shows the information which is displayed in the Lower Data Window in response to **QUICK PRESSES** of the MODE and OPTION keys.



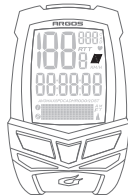
### UPPER DATA WINDOW FLOW SEQUENCES

This diagram shows the information which is displayed in the Upper Data Window. You may choose to show Blank, Cadence, Heart Rate or Training Level (1-5) in this line.



### AVERAGE SPEED COMPARISON

Just below the Upper Data Window are two arrows: the Comparison Arrows function as a Speed Comparator indicating if you current speed is above ( ▲ ), below ( ▼ ) or equal (no arrow) to your current average speed.



AVERAGE SPEED  
COMPARISON ARROWS

## STEP BY STEP—CHANGING THE UPPER DATA WINDOW INFORMATION

1. By Default the Upper Data Window is Blank (no display data) when you install a new battery.
2. To change the Upper Data Window **PRESS & HOLD** the Upper Display/EL key for approximately 2-seconds until the value changes.
3. Release the key and repeat step #2 until the information you want is showing.

**NOTE:** If Heart Rate or Cadence is displayed in the Upper Data Window, it is not shown in the Heart Rate or Cadence sequences of the Lower Data Window.

**NOTE:** Heart Rate information will only be able to be accessed if you have PAIRED AND LINKED a heart rate transmitter to the system.





## PROGRAM WHEEL SIZE, UNITS AND CHRONOGRAPH

Blackburn Neuro Computers use the rolling circumference of your wheel and tire combination to determine speed and distance. The more accurate this setting, the more accurate your ride information will be. However, variations of less than 30mm from the actual circumference will have very little impact on the overall accuracy of the unit.

### PRESET WHEEL SIZES

For easy setup, Blackburn Neuro Computers come with 11 of the most popular wheel/tire sizes pre-programmed into the unit. Simply select the size of your tire as you scroll through the list in the programming sequence and you are done.

The following are the pre-set wheel sizes programmed into the unit. Follow the steps on Page 33 to enter a preset wheel size into the Neuro unit.

PRESET WHEEL SIZES	WHEEL CIRCUMFERENCE
700 x 23c	2096MM
700 x 20c	2086MM
700 x 25c	2105MM
700 x 28c	2136MM
700 x 32c	2155MM
700 x 38c	2180MM
650 x 20c	1945MM
650 x 23c	1990MM
26 x 1.9	2050MM
26 x 2.0	2055MM
26 x 2.1	2068MM

## PROGRAM WHEEL SIZE, UNITS AND CHRONOGRAPH



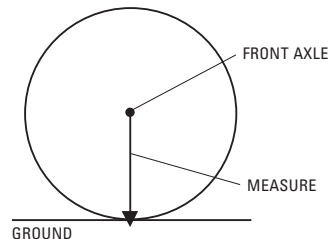
### MEASURED WHEEL SIZE

If your wheel/tire size is not one of the pre-programmed sizes, or if you desire absolute accuracy, you may enter an exact wheel circumference into the system. Use one of the two following methods for measuring the circumference of your wheel/tire combination.

### MEASURING WHEEL SIZE USING RADIUS METHOD

The wheel radius method is quick, easy and very accurate.

1. With your bike standing vertically on a flat surface, measure the distance in millimeters from the center of the front axle or quick release to the floor. If your measurement is in inches, multiply by 25.4 to convert to millimeters.
2. Multiply the measurement in millimeters by 6.28 and enter the resulting number into your computer using the steps on Page 35.



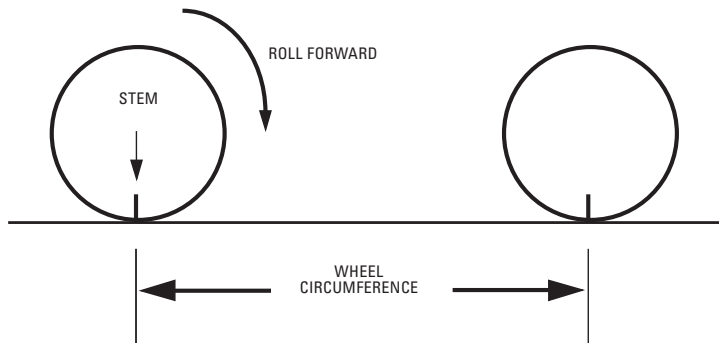


## PROGRAM WHEEL SIZE, UNITS AND CHRONOGRAPH

### MEASURING WHEEL SIZE USING ROLLOUT METHOD

The roll-out method is the most accurate method for determining the circumference of your wheel/tire combination.

1. On a flat open surface make a mark on your tire and the floor exactly where they meet.
2. Roll your bike forward one full revolution of the front wheel and mark the point on the floor where the revolution is complete. For maximum accuracy be sitting on the bike while someone rolls you and the bike forward.
3. Measure the distance from the first mark to the second in millimeters and enter the resulting number into your computer using the steps on Page 35.



## PROGRAM WHEEL SIZE, UNITS AND CHRONOGRAPH



### STEP BY STEP—ENTER A PRE-PROGRAMMED WHEEL SIZE

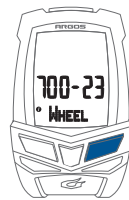
1. From Sleep Mode, press any key twice to bypass the LINK Sequence. You may also program the unit after the unit has completed the LINK sequence and is active.
2. Choose Bike 1 or Bike 2. (Page 21)
3. Starting in the Distance (DST) screen of the Lower Display Window.
4. **PRESS & HOLD** the MODE key for approximately 2- seconds.
5. **QUICK PRESS** the OPTION or START/STOP keys to scroll through the 11 pre-programmed wheel sizes. "WHEEL" will be shown in the lower line of the display with the pre-programmed wheel size shown in the center line of the display.
6. Select your choice using a **QUICK PRESS** of the MODE key and advance to the SET Speed and Distance units display (Page 36).



STEPS 3 & 4



STEP 5



STEP 6



## PROGRAM WHEEL SIZE, UNITS AND CHRONOGRAPH

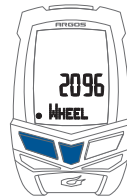
### STEP BY STEP—ENTER AN EXACT WHEEL SIZE

1. From SLEEP MODE, press any key twice to bypass LINK Mode.
2. Choose Bike 1 or Bike 2. (Page 29)
3. Starting in the Distance (DST) screen of the Lower Display Window.
4. **PRESS & HOLD** the MODE key for approximately 2- seconds.
5. **QUICK PRESS** the OPTION or START/STOP keys until the display shows 2096 flashing in the center line of the display.
6. **QUICK PRESS** the MODE key once. The ones (right) digit will begin to flash.
7. Adjust the digit using **QUICK PRESSES** of the OPTION and START/STOP keys and enter your choice into memory using a **QUICK PRESS** of the MODE key.
8. Repeat until all digits are entered
9. A final **QUICK PRESS** of the MODE key will exit the Wheel Size setting sequence and advance to the SET Speed and Distance units Display (Page 36).

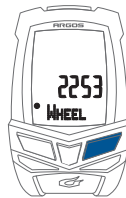
**NOTE:** Before you can program most computer settings, the primary chronograph must be cleared to zero using a 2-second **PRESS & HOLD** of the S/S key while in the Ride Distance (DST) screen.



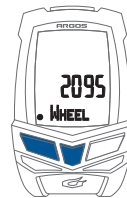
STEPS 3 & 4



STEP 5



STEP 6



STEP 7



STEPS 8 & 9

## PROGRAM WHEEL SIZE, UNITS AND CHRONOGRAPH



### STEP BY STEP—ENTER AN EXACT WHEEL SIZE



## PROGRAM WHEEL SIZE, UNITS AND CHRONOGRAPH

### STEP BY STEP—SET SPEED AND DISTANCE UNITS

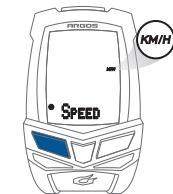
1. Upon entering the SET Speed and Distance units display, M/H (Miles per Hour) or KM/H (Kilometers per Hour) will flash in the upper right hand corner of the display.
2. **QUICK PRESS** the OPTION key to cycle between M/H and KM/H settings.
3. Select your choice using a **QUICK PRESS** of the MODE key and advance to the SET Chronograph function display.

### STEP BY STEP—SET CHRONOGRAPH FUNCTION

1. Upon entering the SET Chronograph function display, RT (Ride Time) or TT (Total Time) will flash in the upper right hand corner of the display.
2. **QUICK PRESS** the OPTION key to cycle between RT and TT (Total Time) settings.
3. Select your choice using a **QUICK PRESS** of the MODE key and exit the setting sequence.

**RIDE TIME (RT)**—When RT is selected the Neuro's Chronograph will start and stop with the motion of the wheel. This setting tracks the actual time you are riding your bike.

**TOTAL TIME (TT)**—When TT is selected the Neuro's Chronograph will initially start with the first rotation of the wheel. However, it will continue to run from that point, until the timing is stopped, using a **QUICK PRESS** of the START/STOP key.



STEPS 1 & 2  
(SPEED/DISTANCE)



STEPS 1 & 2  
(CHRONOGRAPH)

## ODOMETERS, WEEKLY AND ANNUAL RIDE TIME



In addition to tracking data for individual rides, your new Blackburn Neuro cyclometer comes with a highly-advanced long term ride memory system which tracks your weekly and yearly ride time and distance. Tracking for weekly ride time and distance starts automatically at 12:00 (0000h) each Monday morning. This is automatic and cannot be changed so if you wish to see what your mileage and ride time for the preceding week has been you must check it prior to Midnight Sunday night.

Annual mileage and ride time are tracked on a continual basis starting each time the battery is changed or the AC key is pressed. If you wish to retain your cumulative mileage following a battery change or system reset, it may be programmed into the unit as outlined below. Annual ride time cannot be reprogrammed.

Weekly and yearly ride time and distance are unique to an individual Bike 1 or Bike 2 setting. In either Bike 1 or Bike 2, you may view the Weekly and Annual distance and time for the alternate bike by **PRESSING & HOLDING** both the MODE and OPTION keys down. The alternate Bike information will be displayed for as long as you continue to hold the keys. When you release the keys the display will return to its original configuration

**NOTE:** Make sure you write down your mileage for each Odometer prior to removing the battery if you wish to reprogram the odometers.

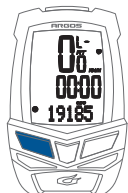
**NOTE:** Weekly and annual memories do not update with information from the most current ride until it has been cleared from the display using a 2-second **PRESS & HOLD** of the Start/Stop key.

**NOTE:** Because of limitations on the amount of information which can be shown on the display, Weekly and Annual time and distance memories only display in whole miles and do not update to the next mile or hour until a whole unit has accumulated. Thus, 999.99 miles or 9h59m will be shown on the display as 999miles and 9 hours until they roll over to 1000miles and 10hours.



## ODOMETERS, WEEKLY AND ANNUAL RIDE TIME

### ODOMETERS, WEEKLY AND ANNUAL RIDE TIME DISPLAYS



ODOMETER



ANNUAL RIDE TIME



WEEKLY DISTANCE



WEEKLY RIDE TIME

NOTE: **PRESS & HOLD** MODE and OPTION to view data for alternate bike.

## ODOMETERS, WEEKLY AND ANNUAL RIDE TIME

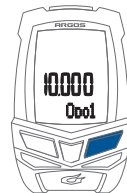


### STEP BY STEP—SETTING THE PROGRAMMABLE ODOMETERS

1. From Sleep Mode, press any key twice to bypass the LINK Sequence. You may also program the unit after the unit has completed the LINK sequence and is active.
2. Starting in the Odometer screen in either Bike 1 or Bike 2.
3. **PRESS & HOLD** the MODE key for approximately 2-seconds.
4. ODO 1 will appear in the Lower Data Window with "00,000" in the Center Display Line.
5. Adjust the Odometer 1 setting using **QUICK PRESSES** of the OPTION and START/STOP keys. Fast advance using a **PRESS & HOLD**.
6. When Odo 1 is set to the desired value, **QUICK PRESS** the MODE key to enter the value and Advance to setting Odo 2.
7. Repeat steps 3 and 4.
8. **QUICK PRESS** the MODE key to enter the Odo 2 value and exit the setting sequence.



STEPS 4 &amp; 5



STEPS 6 &amp; 8



## PROGRAM TIME OF DAY

Blackburn Neuro Computers are equipped with a clock which shows time of day in either 12 or 24 hour formats. There is also a programming option which allows you to turn the clock off so it does not show up in the normal operation sequence, reducing the number of key strokes needed to move through the displays.

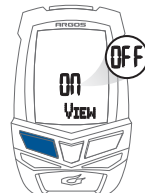
### STEP BY STEP—SETTING THE TIME OF DAY

1. From Sleep Mode, press any key twice to bypass the LINK Sequence. You may also program the unit after the unit has completed the LINK sequence and is active.
2. Starting in the Time of Day display in the Lower Data Window if Time of Day is Active; or Starting in the Average or Maximum Speed displays if Time of Day is Inactive.
3. **PRESS & HOLD** the MODE key for approximately 2-seconds.
4. VIEW will appear in the Lower Data Window with ON or OFF in the Center Display Line.
5. Select ON or OFF using **QUICK PRESSES** of the OPTION key. **QUICK PRESS** the MODE key to enter the value and advance to 12/24 Hour setting.
  - a. Select ON if you wish Time of Day to be part of the display sequence in the Lower Display Window.
  - b. Select OFF if you do not wish to view Time of Day on the display.
6. Repeat steps 3 and 4 to Hours, Minutes, Year, Month and Date and **QUICK PRESS** the MODE key to exit the Time of Day programming sequence.

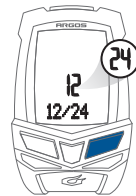
**NOTE:** Before you can program most computer settings, the primary chronograph must be cleared to zero using a 2-second **PRESS & HOLD** of the S/S key while in the Ride Distance (DST) screen.



STEPS 1 & 2



STEPS 3 & 4



STEP 5



STEP 6

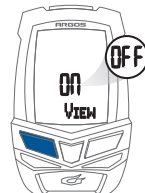
## PROGRAM TIME OF DAY



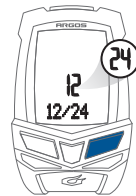
### STEP BY STEP—SETTING THE TIME OF DAY



STEPS 1 & 2



STEPS 3 & 4



STEP 5



STEP 6



## PROGRAM HEART RATE LEVELS

The Blackburn Neuro models with Heart Rate, feature an extremely advanced 5 level memory and display system. With the Neuro' heart rate system 5 contiguous training levels may be programmed in 1 beat per minute increments. This makes the Neuro compatible with almost every contemporary heart rate training system. Once programmed, the Neuro heart rate system will track the amount of time you have spent in each of your 5 levels as well as displaying your heart rate and current training level on the display in real time. The heart rate system will also track your average and maximum heart rates for your entire workout.

The system is designed to allow you to easily program your 5 training levels with a minimum of key-strokes. The upper limit of Level 5 and the lower limit of Level 1 are automatically established by the functional limits of the unit at 240 and 30 beats respectively. The remainder of the level ranges are established by programming the upper and lower limits of Levels 4 and 2 into the unit.

**NOTE:** You will need to enter your ranges into the Neuro unit using Beats per Minute. The default values for the upper and lower limits are set at 180/160 beats/minute and 140/120 beats/minute respectively. If you do not know your actual training zones or how to properly calculate them please consult a professional coach or cardiologist.

## PROGRAM HEART RATE LEVELS



### STEP BY STEP—SETTING THE HEART RATE ZONE

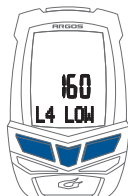
1. From Sleep Mode, press any key twice to bypass the LINK Sequence. You may also program the unit after the unit has completed the LINK sequence for Heart Rate and is active.
2. Starting in the Heart Rate Display in the Lower Data Window.
3. **PRESS & HOLD** the MODE key for approximately 2-seconds
4. L4 HI will appear in the Lower Data Window with 180 in the Center Display Line, indicating the upper heart rate limit of Training Level 4.
5. Adjust the value for the upper limit of level 4 using **QUICK PRESSES** of the OPTION and START/STOP keys. **QUICK PRESS** the MODE key to enter the value and advance to Lower Limit setting for Training Level 4.
6. Adjust the value for the lower limit of level 4 using **QUICK PRESSES** of the OPTION and START/STOP keys. **QUICK PRESS** the MODE key to enter the value and advance to Upper Limit setting for Training Level 2.
7. Repeat step 4 to Adjust and Set the Upper and Lower limits for Training Level 2. **QUICK PRESS** the MODE key to exit the Heart Rate Training Level programming sequence.
8. To review the ranges for your 5 Heart Rate Levels, use the OPTION key to scroll through the secondary heart rate displays. The range for each zone will be displayed to the right hand side of the Lower Display Window with the Level number to the left.



## PROGRAM HEART RATE LEVELS



STEPS 3 &amp; 4



STEP 5



STEP 6



STEP 7

## OPERATING THE HEART MONITOR



Once you are wearing a properly paired heart rate transmitter and have performed the LINK sequence, the operation of the Heart Rate Monitor system is automatic. When a heart rate display is selected in the Upper or Lower Data Window your heart rate reading will display automatically. In the Upper Data Window, you may choose to view either Cadence, Current Heart Rate or Current Training Level. In the Lower Data Window, if you are viewing current heart rate, the current Training Level will be displayed to the left of your heart rate.







## OPERATING THE HEART MONITOR

### REVIEW HEART RATE DYNAMIC MEMORY

The Neuro units are equipped with an exclusive feature called DYNAMIC MEMORY™. Unlike most heart rate monitor systems which only allow you to review your heart rate memory information after your workout is completed, the DYNAMIC MEMORY™ system of the Blackburn Neuro units allow you to review all aspects of your workout in real time as you are riding. This unique feature will help you to get the most out of your workouts.

In the Heart Rate Display, use **QUICK PRESSES** of the OPTION key to scroll through the following information:

1. Average Heart Rate and Training Level—The cumulative average heart rate for your entire ride along with its corresponding heart rate level.
2. Maximum Heart Rate and Training Level—The current highest heart rate you have achieved during your ride along with its corresponding heart rate level.
3. Time in Training Levels 1-5--These displays show the time which has accumulated in each level displayed in the Chronograph Window. The Training Level (L1-L5) will be indicated in the Lower Data Window along with its range in Beats per Minute.

**NOTE:** When the CHRONOGRAPH DISPLAY is showing time accumulated in each zone, the RT/TT Chronograph display is temporarily hidden, but remains working in the background.

**NOTE:** If you have not PAIRED and LINKED a heart rate transmitter to the system all heart rate functions are hidden in the operational modes.

## PROGRAM ALTIMETER



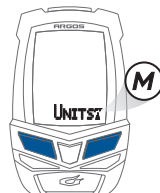
The Neuro 6.0 is equipped with an extremely sensitive pressure sensing altimeter with a resolution of 1' or 0.5m. The altimeter system will display your current altitude, your distance climbed and your current % Grade. The Neuro 6.0 is also equipped with a home altitude memory which allows quick and easy one-key calibration at your home location.

### STEP BY STEP—CALIBRATE AND STORE HOME ALTITUDE TO MEMORY

1. From Sleep Mode, press any key twice to bypass the LINK Sequence. You may also program the unit after the unit has completed the LINK sequence and is active.
2. Starting in the Altitude Display in the Lower Data Window.
3. **PRESS & HOLD** the MODE key for approximately 2-seconds.
4. UNITS will appear in the Lower Data Window with the Feet (FT) or Meter (M) Icon flashing to the right.
5. Choose FT (Feet) or M (Meters) using **QUICK PRESSES** of the OPTION key. **QUICK PRESS** the MODE key to enter the value and advance to adjusting the Current Altitude.



STEPS 2 & 3



STEPS 4 & 5



## PROGRAM ALTIMETER

### STEP BY STEP—CALIBRATE AND STORE HOME ALTITUDE TO MEMORY (CONTINUED)

6. Adjust the Current Altitude up and down using **QUICK PRESSES** of the OPTION and START/STOP keys.
7. When you have adjusted the Current Altitude to the desired value you have two options.
  - 7a. **CALIBRATE THE CURRENT ALTITUDE WITHOUT STORING IT**—To do this **QUICK PRESS** the MODE key. The display will revert to the main display screen, with the corrected altitude reading in the Lower Data Window.
  - 7b. **CALIBRATE THE CURRENT ALTITUDE AND STORE IT AS YOUR HOME ALTITUDE**—To do this **PRESS & HOLD** the MODE key for approximately 2-seconds. STORED will appear in the Lower Data Window for approximately 1-second. The display will then revert to the main display screen, with the corrected altitude reading in the Lower Data Window AND the value will be stored in the unit's memory as your Home Altitude. Once you have stored a Home Altitude value you will be able to quickly calibrate the unit to that value in a single step.



STEPS 6 & 7

## PROGRAM ALTIMETER



### STEP BY STEP—CALIBRATE THE NEURO TO THE STORED HOME ALTITUDE VALUE

1. Starting in the Altitude Display in the Lower Data Window.
2. **PRESS & HOLD** the OPTION key for 2-seconds.
3. The altitude will automatically change to the stored Home Altitude value.

**NOTE:** It is important for your computer to be calibrated as closely as possible to your actual starting altitude. If your altimeter is calibrated to an altitude significantly different from your actual starting altitude, your distance climbed and % grade readings may be inaccurate.

**NOTE:** You may notice on some days, due to changes in local barometric pressure, that your ending altitude is different from your starting altitude. This is a normal response to pressure changes over time. These changes, because they happen so slowly will not generally be recorded in your distance climbed reading.

**NOTE:** The Neuro 6.0 calculates % grade using distance and the changes in altitude measured by the altimeter. The grade display is updated once every 2-4 seconds using the distance and altimeter data from the previous 20-seconds. Because of this it is normal for the % Grade indication to lag behind the actual changes, especially if quickly transitioning from one slope to another.



STEP 2



## OPERATING THE RIDE TIME AND TOTAL TIME CHRONOGRAPHS

All data acquisition is controlled by the primary Ride Time or Total Time Chronograph. Ride data such as Average and Maximum values and Memory Information are only tracked if the primary chronograph is running. At any time, clearing the Ride Time or Total Time chronograph will also clear ALL data and memory values.

**NOTE:** Before you can program most computer settings, the primary chronograph must be cleared to zero using a 2-second **PRESS & HOLD** of the S/S key while in the Ride Distance (DST) screen.

### STARTING AND STOPPING THE RIDE TIME CHRONOGRAPH

The operation of the Ride Time Chronograph is totally automatic and is controlled by speed input. If the unit is receiving a speed input, the Ride Time Chronograph will run, if the speed stops, the Ride Time Chronograph will stop.

### STARTING AND STOPPING THE TOTAL TIME CHRONOGRAPH

From an initial reading of zero, the Total Time Chronograph starts automatically as soon as it sees a speed input or is manually started using a **QUICK PRESS** of the START/STOP key. Once it has started the Total Time Chronograph will continue to run until it is Stopped using a **QUICK PRESS** of the START/STOP key.

**NOTE:** When you are in the LAP/INTERVAL Chronograph display, the Start/Stop key is dedicated to that function. If you wish to STOP or START the Total Time Chronograph, you CANNOT be in the LAP/INTERVAL Chronograph display.

**NOTE:** CALCULATING AVERAGES—Regardless of whether you use the RT or TT chronographs, your average speed, cadence and heart rate for the ride are ONLY calculated while you are actually riding. Average Heart Rate is calculated any time the unit is receiving a heart rate reading. In ALL cases, readings of ZERO are not counted by the averaging algorithms.

## STARTING STOPPING AND CLEARING THE CHRONOGRAPH AND MEMORY



### CLEARING ALL RIDE DATA

To clear the chronograph and all data and memories to zero **PRESS & HOLD** the START/STOP key for approximately 2-seconds in the Ride Distance (DST) screen until the chronograph line shows all zeros.

### CLEARING MAXIMUM SPEED AND MAXIMUM CADENCE ONLY



The Neuro computers allow you to clear the Maximum Speed and Cadence values independently of all other information. This feature is helpful if you are doing sprint workouts and wish to review your maximum values for each sprint. To clear Maximum Speed and Maximum Cadence, **PRESS & HOLD** the START/STOP key while in either of these two displays.



## OPERATING THE LAP CHRONOGRAPH/ INTERVAL CHRONOGRAPH SYSTEM

Blackburn Neuro cyclometers come with a second, independent and highly sophisticated chronograph system which is capable of being programmed to track individual laps or to prompt the user through an interval workout. The system automatically tracks multiple ride metrics for up to 50 individual laps or intervals. You must choose which secondary chronograph system you will use before the start of your ride which may be reviewed either during or after your ride using our exclusive DYNAMIC MEMORY™ system.

### STEP BY STEP—PROGRAMMING THE LAP/INTERVAL CHRONOGRAPH

1. Advance to the Lap Chronograph / Interval Chronograph display in the Lower Data Window using **QUICK PRESSES** of the MODE key. The Lap/Interval Chronograph follows the Distance Screen in the Lower Display Window sequence.

**NOTE:** The default setting for the system is the Lap Chronograph display, however the Interval Chronograph display may appear in the Lower Data Window if it has previously been programmed.

2. **PRESS & HOLD** the MODE key for approximately 2-seconds until the display clears and LAP STP or INT STP appears in the Lower Data Window.
3. Choose Lap Chronograph (LAP STP) or Interval Chronograph (INT STP) using **QUICK PRESSES** of the OPTION or START/STOP keys.
4. Enter your choice using a **QUICK PRESS** of the MODE key.
5. If you have chosen the Lap Chronograph the display will automatically change back to the default display setting with Lap 1 appearing in the Lower Data Window. At this point you are ready to ride and use the Lap Chronograph system. See next section on Starting and Stopping the Lap Chronograph.



STEP 1



STEP 2

## OPERATING THE LAP CHRONOGRAPH/ INTERVAL CHRONOGRAPH SYSTEM



### STEP BY STEP—PROGRAMMING THE LAP/INTERVAL CHRONOGRAPH (CONTINUED)

6. If you have chosen the Interval Chronograph with a **QUICK PRESS** of the MODE key, the display will advance to the Interval Chronograph programming sequence.
7. The word WORK will appear in the Lower Data Window with 0:05 seconds appearing in the Center Display window. Adjust the Work period of time up or down using **QUICK PRESSES** of the OPTION and START/STOP keys (Hold the keys down to fast advance the setting).
8. When you have adjusted the WORK time to the value you desire, enter your choice using a **QUICK PRESS** of the MODE key.
9. Repeat steps 7 and 8 to program the REST time period for your interval workout.

**NOTE:** Work and Rest periods of time may be programmed for periods of time from a minimum of 5 seconds to a maximum of 30 minutes. The resolution for programming intervals is 5 seconds. This means you may program intervals for 5, 10, 15 20....seconds but not for times such as 16, 23, 37 seconds.

**NOTE:** During the operation of the unit, you may change the settings for your WORK and REST segments as often as you wish. This will allow you to perform intervals of varying duration.

**NOTE:** Changing the units setting from Lap Chronograph to Interval Chronograph or visa versa automatically clears any information stored in their memories.



STEP 7



STEP 9



## OPERATING THE LAP CHRONOGRAPH/ INTERVAL CHRONOGRAPH SYSTEM

### STARTING AND STOPPING THE LAP CHRONOGRAPH

1. Starting in the LAP Chronograph screen you will see LAP 1 and 0:00:00 alternating on the display every second. The LAP Chronograph screen follows the Distance/Odometer screens in the MODE sequence
2. **QUICK PRESS** the START/STOP key to begin timing LAP 1.
3. Stop timing LAP 1 and automatically advance to LAP 2 by **QUICK PRESSING** the START/STOP key again. You will see LAP 2 and 0:00:00 alternating on the display every second.
4. **QUICK PRESS** the START/STOP key to begin timing LAP 2.
5. Repeat for each additional LAP up to #50.

**NOTE:** When in the LAP Chronograph display, the START/STOP key cannot be used to START or STOP the Total Time Chronograph.

**NOTE:** The maximum time for any LAP is 9h 59m 59s. When the time limit for any lap is reached the LAP Chronograph will stop timing and wait for further action from the user.

## OPERATING THE LAP CHRONOGRAPH/ INTERVAL CHRONOGRAPH SYSTEM



### STARTING AND STOPPING THE INTERVAL CHRONOGRAPH

1. The operation of the Interval Chronograph system is slightly different than that of the Lap Chronograph system. Rather than showing both the Interval number and time in the Lower Display Window like the Lap Chronograph, the Interval Chronograph shows the time for your Interval in the Center Data Window with the Interval Work or Rest indication in the Lower Display Window. This was done to make the Interval Time larger and easier to read during the interval workout and because we felt the user would not have a need for their RT/TT information during the middle of an interval workout.

**NOTE:** During an interval workout you may change the Lower Data Window to display any ride information you wish. As long as the Interval Chronograph is running, your interval time will be displayed in the Center Display Line regardless of what is showing in the Lower Display Line. To the top and bottom at the far left side of the Center Display Line are two square boxes. The top box being active indicates you are timing a Work segment, the bottom box indicates a Rest segment.

**NOTE:** The Center Display line will not change to display the Interval Time information until the Interval Chronograph system is activated by a **QUICK PRESS** of the START/STOP key. When not actively timing the Interval Chronograph system will show INT (Interval) and the number of the next interval waiting to be timed showing in the Lower Data Window. If you wish to check your current settings for the Interval Chronograph you will need to enter the setting sequence to review them.



STEP 1



## OPERATING THE LAP CHRONOGRAPH/ INTERVAL CHRONOGRAPH SYSTEM

### STARTING AND STOPPING THE INTERVAL CHRONOGRAPH (CONTINUED)

- From the Interval Chronograph display **QUICK PRESS** the START/STOP key to initiate the timing of the WORK portion of Interval 1 (WORK 1), counting down from the programmed value. From this point forward, if nothing else is done the Interval Chronograph system will function automatically guiding you through your interval workout until you stop the system with a **QUICK PRESS** of the START/STOP key.
- If during an Interval workout you wish to terminate the workout, simply **QUICK PRESS** the START/STOP key while timing either the WORK or REST portion of any Interval. When you do this, the segment currently being timed will be terminated, all data to that point will be stored and the system will automatically advance to the start of the WORK segment for the next interval in sequence and wait. For example, if you are timing the WORK segment of Interval 5 (WORK 5) which is programmed to be 5 minutes long and you **QUICK PRESS** the START/STOP key to terminate the interval at 3:30 all related information up to that point will be stored and the system will automatically advance WORK 6 and wait for a subsequent **QUICK PRESS** of the START/STOP key to begin the interval timing sequence once again.

You may enter the Interval Chronograph programming sequence as many times as you wish and change the Work/Rest timer settings. In this way you can perform different types of intervals during the same workout.



STEP 2



STEP 3

## OPERATING THE LAP CHRONOGRAPH/ INTERVAL CHRONOGRAPH SYSTEM



### REVIEWING THE LAP CHRONOGRAPH MEMORY

- Once you have finished timing a LAP you may review it and the stored information for the segment.
- From the LAP Chronograph display, **QUICK PRESS** the OPTION key to advance through the stored LAPs starting with the most recently timed LAP.
- When you advance to a stored LAP, the Lower Data Window will show the LAP #, followed by the following information scrolling automatically at 2-second intervals: LAP Time, LAP Distance, LAP Average Speed, LAP Average Heart Rate and LAP Distance Climbed.

### AUTOMATIC AT 2-SECOND INTERVALS





## OPERATING THE LAP CHRONOGRAPH/ INTERVAL CHRONOGRAPH SYSTEM

### REVIEWING THE INTERVAL CHRONOGRAPH MEMORY

Once you have finished timing an interval session and stopped the Interval Chronograph, you may go back and review the stored data in the same manner as with the Lap Chronograph.

1. Using **QUICK PRESSES** of the OPTION key scroll through the stored intervals starting with the most recently timed interval.
2. Only data from the WORK portion of each Interval is stored in memory. No information related to the REST portion is stored.
3. The stored information is identical to that tracked in the Lap Chronograph memory, with ONE IMPORTANT DIFFERENCE.
4. Rather than tracking Average Heart Rate, the Interval Chronograph system stored you LAST heart rate for the WORK section of each Interval. We did this because the LAST heart rate gives you a better indication of the actual intensity of the interval than average heart rate.

### AUTOMATIC AT 2-SECOND INTERVALS



### CLEARING LAP/INTERVAL CHRONOGRAPH MEMORY

The LAP/INTERVAL Chronograph Memory is automatically cleared to zero and LAP 1 any time you clear the Ride Time or Total Time Chronograph to zero.

## OPERATING RACE DISPLAY SYSTEM



### OPERATING THE RACE DISPLAY OPTION

The new Blackburn Neuro cyclometers are equipped with an exclusive feature designed to meet the needs of racing cyclists. Many cyclists while racing would prefer to have a limited amount of information available on display to avoid distractions and allow them to concentrate on the race. However, they still wish to be able to store and review all the data from an event after it has been completed. For these riders, we created the Blackburn Race Display. When activated, the race display shuts off the active display of all of the Neuro's ride data EXCEPT for the RT/TT Chronograph and the Lap Chronograph. No other functions appear on the display, however all ride metrics including distance, heart rate, cadence and altimeter functions are tracked in the background for later review.

1. To activate the Race Display option, simply **PRESS & HOLD** all three of the main keys (MODE, OPTION & START/STOP) at the same time for a period of approximately 2-seconds. The display will clear and only RT or TT. M/H or K/H and the Lap Chronograph will appear on the display. (Two new Drawings)
2. When in the Race Display mode the START/STOP key is dedicated to the function of the Lap Chronograph. If the computer is programmed for Total Time mode, you must exit the Race Display option to Stop the TT chronograph once it has started.

To simply and easily Exit the Race Display at any time, **QUICK PRESS** either the MODE or OPTION keys. You may enter and exit the Race Display system as often as you wish during a ride.



STEP 1



## OPERATING THE BACKLIGHT SYSTEM

The Neuro units are equipped with Blackburn's exclusive UltraNightglow™ electroluminescent backlight system for use when operating the unit in low light conditions.

When activated, the UltraNightglow™ system automatically remains lit for a period of 10-seconds. Pressing any key while the UltraNightglow™ system is activated, automatically resets the timer for an additional 5-seconds. This feature allows you to view several functions without having to reach up and re-activate the system.

**CAUTION**—The backlight system places a high load on the battery in the computer. Excessive use of the backlight system WILL result in shortened battery life.

To activate the UltraNightglow™ backlight system, **QUICK PRESS** the Upper Display/EL key.

## TECHNICAL DATA



### BATTERIES

Computer Battery—CR 2032 3v Lithium

Wireless Transmitter Battery—CR 2032 3v Lithium

Heart Rate Transmitter Battery—CR 2032 3v Lithium

### FUNCTIONS AND OPERATIONAL RANGES

#### Bike Functions

Speed—0—199.9 Miles or Kilometers/Hr—0.1 Mi or Km/Hr

Average Speed—same

Maximum Speed—same

Trip Distance—0—999.99 Miles or Kilometers—0.01 Mi or Km

Bike 1—0—99,999 Miles or Kilometers—1.0 Mi or Km

Bike 2—same

Weekly Ride Time—0—99hours—1.0 hours

Annual Ride Time—0—999hours—1.0hours

Cadence—0—250 rpm—1rpm

Average Cadence—same

Maximum Cadence—same

#### Chronograph Functions

Ride Time Chronograph—0—99h59m59s—1.0 Sec

Total Time Chronograph—same

#### LAP Chronograph Functions

LAP Time—50 LAPs—0—9h59m59s each—1.0 Sec

LAP Distance—0—999.99 Miles or Kilometers—0.01 Mi or Km

LAP Average Speed—0—199.9 Miles or Kilometers/Hr—0.1 Mi or Km/Hr

LAP Average Cadence—0—250rpm—1rpm

LAP Average Heart Rate—30—240BPM—1BPM

LAP Distance Climbed—0—999,999Ft or Mt—5' or 3m





## TECHNICAL DATA

### FUNCTIONS AND OPERATIONAL RANGES (CONTINUED)

#### INTERVAL Chronograph Function

INTERVAL Time—25 Intervals—0:05—30:00 for both work and rest—5.0 second programming resolution.  
 INTERVAL Distance—0—999.99 Miles or Kilometers—0.01 Mi or Km  
 INTERVAL Average Speed—0—199.9 Miles or Kilometers/Hr—0.1 Mi or Km/Hr  
 INTERVAL Average Cadence—0—250rpm—1rpm  
 INTERVAL Final Heart Rate—30—240BPM—1BPM  
 INTERVAL Distance Climbed—0—999,999Ft or M—5' or 3m

#### Heart Rate Functions

Current Heart Rate—30-240BPM—1BPM  
 Average Heart Rate—same  
 Maximum Heart Rate—same  
 Target Heart Rate Zone  
 Target Heart Rate Zone Memory

#### Altimeter Functions

Current Altitude—1,250 to 30,180Ft or -381 to 9,200M-3' or 1m  
 Total Distance Climbed—0-999,999Ft or M—5' or 3m  
 Current % Grade—60 to +60%—1%

#### Other Functions

Auto Start/Stop  
 12/24 Time of Day  
 11 Pre-programmed Wheel Sizes  
 Backlight

## WARRANTY AND REPAIR



### BELL SPORTS/BLACKBURN ELECTRONICS LIMITED LIFETIME WARRANTY FOR THE UNITED STATES AND CANADA

BELL SPORTS INC. hereby warrants, to the original purchaser, this product to be free from defects in material and/or workmanship for the life of the product. The obligations of Bell Sports under this warranty are limited to the repair or replacement of such part or parts of the unit which are found by Bell Sports' inspection to be defective in said materials and/or workmanship. Bell Sports reserves the right, at its sole option to repair your product by installing either new or completely reconditioned and inspected components or to replace it with an identical or similar unit of comparable value.

The above Limited Lifetime Warranty is subject to the following restrictions:

- Bell Sports will not be responsible for damage or failure caused by abuse, neglect, service performed by unqualified persons or entities, or normal wear and tear.
- This warranty is void if the product was not originally purchased from an authorized Bell Sports retail outlet.
- Under no conditions are batteries covered under the product warranty.
- Postage or freight required to return a product for service is the sole responsibility of the purchaser. Return postage or freight will be paid by Bell Sports.
- The above warranty is expressly in lieu of any other warranties, including implied warranty of merchantability and/or fitness for a particular purpose. Bell Sports is not liable for any Special, Consequential or Incidental damages.
- This warranty gives you, as purchaser, certain and specific legal rights. You may also have other rights depending on individual state laws.

For specific directions on how to return your Bell Sports Electronics product for warranty repair or general service please go to:

[www.blackburndesign.com/support.html](http://www.blackburndesign.com/support.html) or call

Bell Sports Customer Service at 800.456.2355 / 217.893.9300 8am-5pm Central Time



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