

BionX INTELLIGENT BIKE - USER GUIDE

Model : P-250, PL-250, P-350, PL-350

Congratulations on your purchase of the BionX intelligent energy management system, one of the best systems on the market! Adaptable, powerful, light and regenerative it will provide you with a bionic sensation...

Please take a few minutes to read this booklet; it will guide you through the distinctive features, functions, easy care and easy use of your BionX intelligent system.

We are convinced that this product will bring you immense satisfaction and riding pleasure for many years to come.

On your handlebars, ready, ride...

Sincerely,

Jean-Yves Dubé
President BionX



PHILOSOPHY

1. BionX believes a bicycle should remain a bicycle. Our system simply adds distinctive features to it in order to increase the cyclist's riding experience.
2. BionX believes that weight is a crucial element. Every ounce we can subtract is worth an ounce of gold. This is why we have focused our energy in developing the most light-weight system on the market.
3. With its discreet look and light weight, we are convinced that the BionX system will become an essential tool for everyday living, just like air conditioning is in a vehicle.

In this spirit, a bicycle equipped with a BionX system shall be used as any regular bicycle. Our intelligent system combined with your regular speed changes will help you increase your riding experience.



The goal of your BionX system is to allow you to work smart and exercise without exhausting yourself (assistance mode) or, to the opposite, to train all year long (generative mode).

The BionX system will assist you in proportion to your effort; it reads every pedalling effort and adds assistance according to the selected mode: 25 %, 50 %, 100 % or 200% of your effort.



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HOW TO GET THE MOST OUT OF YOUR RIDE

Seat post adjustment

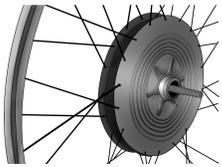
A good leg extension will allow you to get better riding efficiency. Therefore your seat post should be adjusted so that your knee is only slightly bent (10 degrees) when your pedal is completely down.

The choice to spend the energy of a walk in all situations

The BionX system was developed so that riders can, if they want, ride at 20 to 25 kph whilst only spending the energy of a 4-5 kph walk, i.e. approximately 40 to 60 watts depending on their weight.

The recommended RPM is +/- 60, i.e. one pedal rotation per second, which is approximately the same sequence as a walker.

THE **BionX** SYSTEM



Motor-wheel/generator

Description:	250 watts	350 watts
Nominal Power:	250 Watts	350 Watts
Peak Power:	450 Watts	650 Watts
Nominal Torque :	7 N.m	9 N.m
Maximum Torque :	25 N.m	32 N.m
Weight :	3,5 kg (7,7 lb)	4,15 kg (9,14lb)



Batteries

	24V NiMH	24V Li-ion	36V Li-ion
Voltage :	24Volts	24Volts	24Volts
AMPS:	8 Ah NiMH	9.6 Ah Li-ion	9.6 Ah Li-ion
Weight :	4,1 kg (9 lb)	2,8 kg (6,3 lb)	3,7 kg (8,2 lb)
Lifespan:	+/- 500 cycles (complete charges)		
Installation in 5 seconds			
Supplied with a safety lock			



	36V NiMH
Voltage:	36Volts
AMPS:	8 Ah NiMH
Weight	6,1 kg (14 lb)
Lifespan:	+/- 500 cycles
Supplied in a trunk bag	

SLIDING THE BATTERY IN/OUT

Insertion

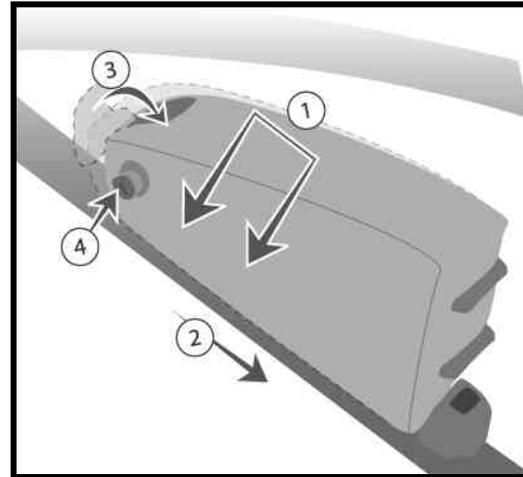
Install on the battery holder ①.

Gently slide down ②.

Push on the battery lever to complete the battery connection ③. Push on the lock (without the key) until you hear a "click" ④.

Removing

Insert the key in the lock, turn the key whilst pushing on the battery lever. The lock will pop out. Pull the battery lever and remove the battery from the battery holder.



THE **BionX** SYSTEM



Command Console

The console is equipped with a two-mode microprocessor: Assistance - Generation.

The thumb throttle allows to get power-assist from the motor whether you pedal or not. The throttle¹ is included with the P-350 and PL-350 models whereas it is offered as an option on the P-250 and PL-250 models.

¹Availability can vary to respect specific country regulations.

The charger

NiMH Charger
24V: 1.8 Amp/h
36V: 2 Amp/h

Li-ion Charger
24V: 2 Amp/h
36V: 2 Amp/h

**WARNING: Always make sure you use the right charger
(each battery type has its own charger)**

4 SYSTEMS COMPARATIVE CHART

Series	Motor 250 watts	Motor 350 watts	Battery 24 Volts NiMH	Battery 24 Volts Li-ion	Battery 36 Volts NiMH	Battery36 Volts Li-ion	Command Console	Throttle
P-250	X		X				X	Optional
PL-250	X			X			X	Optional
P-350		X			X		X	X
PL-350		X				X	X	X

Assistance	For a given condition, compensates your effort by:		Notes/situations
	250 watts	350 watts	
1	25 %	35 %	Flat ground
2	50 %	75 %	slopes, Front wind ; cancels the bike's weight
3	100 %	150 %	Steep hill, Strong head wind
4	200 %	300 %	Very steepy road
Generation			
-1	Recharge		Downhill or Back wind; recharge on flat ground
-2	Recharge		Fitness mode – less aggressive; recharge on flat ground
-3	Recharge		Fitness Mode aggressive
-4	Recharge		Fitness Mode Difficult
Generative brake	Recharge		Steep downhill or braking

TABLE 1

ASSISTANCE

Four assistance levels compensate the cyclist's effort by 25%, 50%, 100% or 200%, allowing him/her to ride faster while giving the same effort (or to ride at the same speed with less effort). To select the assistance mode, simply press **A+** to increase from level 1 to 4 and then **G-** to reduce from 4 to 1.

The assistance will be proportional to the rider's effort.

Table 1 shows an example of assistance modes to select depending on the situation.

ASSISTANCE/SAFETY

To insure a smooth departure, the assistance will only start when the bicycle rides at 3 kph or more.

Assistance levels are approximate. They vary depending on the cyclist's weight, weather conditions and pedalling effort.

The motor assistance will gradually reduce while approaching the set maximum speed and will completely stop upon reaching this speed in order to follow the regulation.

Canada and USA : 32 kph (19 mph)
Europe : 25 kph (15 mph)

THROTTLE

When the throttle is activated, the system by-passes the assistance level selected on the command console and provides power-assist, independently of your pedalling effort. However we still recommend to continue pedalling when the throttle is activated, at least at a walking pace.

GENERATION

In position G1 through G4, the motor becomes a generator, allowing to restore energy in the battery. For better result, we recommend to recharge the battery in G1 or G2 modes while keeping a riding speed of at least 20 kph (12 mph).

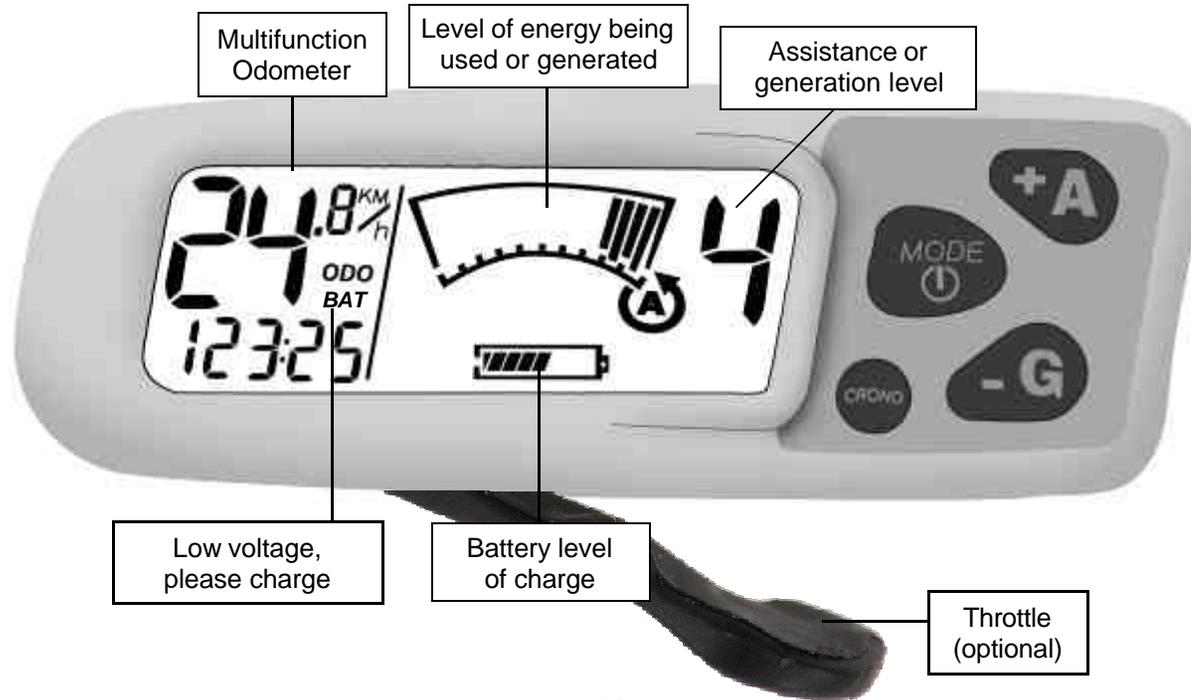
The motor also becomes a generator when using the rear brake. Please note that the generative mode does not replace the existing brakes, but increases considerably the braking quality and will help you slow down when needed. It activates as soon as the rear handbrake is activated.

Fitness Machine with BionX Cardio

Use the four generative modes to simulate slopes: Your bicycle will become a fitness machine.

The higher the level (G1 to G4) the more effort the system will be demanding.

COMMAND CONSOLE FEATURES



COMMAND CONSOLE FEATURES

On-Off Switch

Press on 

Note : the console automatically switches off after 10 minutes of inactivity.

Backlit LCD

Press on  for 2 seconds to turn the backlit on / off.

LCD Contrast

- Press on both  and  simultaneously to increase contrast.
 - Press on both  and  simultaneously to decrease contrast.
-

COMMAND CONSOLE FEATURES

Assistance 1-2-3-4

When riding at assistance 0, the system is not activated. You are riding a conventional bicycle.

- To activate assistance, press on  to go from 0 to 1.
- Press again on  to increase assistance or press on  to decrease it.

Motor 250 watts

1 = 25%

2 = 50%

3 = 100%

4 = 200%

Motor 350 watts

35 %

75 %

150 %

300 %

Generation 1-2-3-4

- To activate generation, press on  to go from 0 to 1.
- Press again on  to increase generation or on  to decrease it.

COMMAND CONSOLE FEATURES

Shortcut to pass directly from one mode to the other

If you already are on assistance mode and wish to pass directly to the generative mode, simply maintain  pushed during a few seconds.

AND

The same way, if you are on generative mode, maintain  pushed during a few seconds to come back to the assistance mode.

Distance, odometer, chronometer, average speed

- Press on  to switch displays.
- Maintain  pushed during 2 seconds to refresh the chrono and distance to zero.
- Both chrono and distance have to be refreshed individually.
- They cumulate when the wheel turns.

Choosing a PIN number

- Press on both  and  simultaneously during 2 seconds. 4 zeros will appear, the first one is blinking.
- Press on  to go from 1 to 9 and on  to go from 9 to 1.
- When the right digit is displayed, press on  to have the next zero blink.
- When the fourth digit is chosen, press on  to finalize the programming of your PIN number.

COMMAND CONSOLE FEATURES

How to arm the alarm system

Maintain both  and  simultaneously pushed. The blinking lock will be displayed.

From that moment on, if the bicycle is being moved for more than 1/4 wheel rotation, the battery will emit a sound and the BionX will switch to the maximum generative mode (level 4)

How to disarm the alarm system

- Press on any button, 4 zeros will appear, the first one is blinking.

- Select your PIN number by pressing  (1 to 9) and  (9 to 1) and press  to pass to the next digit.

- When the fourth digit is selected, press on , the motor-wheel is unlocked.

NOTE : If you have not selected your PIN number yet, the default PIN number is 0000.

PROGRAMMING MENU

Please follow below procedure to access any programming menu.

- 1) Hold both **CRONO** and **MODE** down for a few seconds until four zeros appear at the bottom left corner of the screen. The first zero is blinking.
- 2) Press on **+A** to go from 1 to 9 and on **-G** to go from 9 to 1.
When the correct digit is displayed, press on **MODE** to pass to the next digit.
- 3) When the fourth digit is chosen, press on **MODE** to access the selected programming menu.

MENU 2001 : kph or mph

When you access this menu, press on **+A** or **-G** to change the unit. Once the right unit is selected, press on **MODE** to go back to the regular display.

MENU 2004 : Time programming

Follow steps 2) and 3) to enter the time.

MENU 2005 : Wheel size

Follow steps 2) and 3) to change the wheel size (in mm)

The wheel sizes are pre-programmed as follows:

Wheel Diameter	Corresponding Circumference (mm)
18 inches	1436
20 inches	1596
24 inches (507 mm)	1915
26 inches	2075
27 inches	2156
700 mm	2199
28 inches	2234

MAINTENANCE OF YOUR SYSTEM

Spokes tension

We recommend that you visit your bike dealer to inspect the spokes tension after 2 to 3 weeks of use (and/or 300 km 200 miles).

Motor

Made of permanent magnets (brushless), the BionX motor does not require any maintenance

Connections

When your BionX battery is not on your bike, please make sure the battery connection located on the bicycle frame is well protected from dust and water. If you notice any sign of corrosion, simply clean with a smooth brush.

LONG-TERM STORAGE OF BATTERY

When storing your BionX battery for more than 2 months, you should:

NiMH	Lithium Ion
<ul style="list-style-type: none"> - Fully charge your battery before storing it - Store battery pack in a dry area with low humidity. - It is recommended to store a NiMH battery pack between 0 and 20 degrees Celcius. - Keep away from extreme temperature changes. - Make sure the battery never freezes. - Recharge every two months. 	<ul style="list-style-type: none"> - It is recommended that Li-ion battery packs (battery cells) are charged between 70% and 80% before a long storage period. - Store in a 5°C to 25°C area. - The most preferable storage temperature is 20°C. - Avoid a long period of storage when temperature reaches 45°C or higher. - Do not store a battery pack where atmosphere temperature reaches - 20°C or below. - Avoid direct exposure to sun rays and heat when storing a battery pack (battery cells) in a warehouse. - Do not store a battery pack where atmosphere temperature reaches 45°C or higher. - Store in a dry area with low humidity.
<div style="border: 1px solid black; padding: 5px;">  <p>Long-Term Storage Please store the battery fully charged and recharge at least every two months.</p> </div>	<ul style="list-style-type: none"> - Keep away from extreme temperature changes. - Prevent a battery pack from having dew condensation (to prevent rust). - Never leave a battery uncharged for a long period of time (two months or more)

HOW TO CHARGE YOUR BATTERY

We strongly recommend to always charge your battery after a ride (if level of charge is less than a half).

Recharge at ambient temperature.
Avoid warm locations.

You can either remove the battery or connect the battery directly on your bicycle.

Then plug the battery pack cord into a standard wall outlet (110 Volts or 220 Volts).

A fully discharged battery can be recharged in approximately 3 to 4 hours.

Always turn off your system before plugging the charger or before removing the battery to recharge. Never turn on/off the system while the battery is charging.

Let the battery get back to room temperature (20 °C) before recharging it.

NOTE : Since the battery does not have a memory, it is not necessary to completely discharge the battery before charging it again.

CHARGING WITH THE BIONX CHARGER



Keep the charger away from children's reach. Use the BionX charger **ONLY**. Never use the charger for other purposes. Do not charge the battery right in the sun.

CHARGING NIMH 36V BATTERY. (P-350) It is recommended to open the trunk bag when charging the 36V NiMH battery. This will allow the battery to ventilate and keep it cooler, which will help recharge and enhance a longer lifespan.

DISTANCE VS BATTERY

Table 2 will guide you and give you an idea of potential distances that you can travel on one battery charge according to a use in ideal conditions. Distances will vary depending on road conditions, riding surface, cyclist's weight and assistance need. The following averages are based on a 68 kg cyclist riding on a flat surface, in a windless environment.

ASSISTANCE	APPROXIMATE DISTANCE TRAVELLED ON ONE BATTERY CHARGE	APPROXIMATE DISTANCE TRAVELLED ON ONE BATTERY CHARGE
	P-250	PL-250
Mode 1 : 25 %	70 km	80 km
Mode 2 : 50 %	45 km	50 km
Mode 3 : 100 %	35 km	40 km
Mode 4 : 200 %	25 km	30 km
pedalling without assistance	unlimited (no motor use)	unlimited (no motor use)

ASSISTANCE	APPROXIMATE DISTANCE TRAVELLED ON ONE BATTERY CHARGE	APPROXIMATE DISTANCE TRAVELLED ON ONE BATTERY CHARGE
	P-350	PL-350
Mode 1 : 35 %	75 km	90 km
Mode 2 : 75 %	50 km	60 km
Mode 3 : 150 %	40 km	45 km
Mode 4 : 300 %	30 km	35 km
pedalling without assistance	unlimited (no motor use)	unlimited (no motor use)

TABLE 2

BEFORE ANY RIDE

- Make sure the connections are all adequately plugged in;
- Look for a full battery charge level on your LCD command console. If this is not the case, please refer to the "how to charge the battery" section (page 20);
- Always make sure your battery is well fastened to the frame and locked.

FLAT TIRE

Simply disconnect both connectors that are covered with a neoprene (rubber girdle) near the rear wheel. You can remove the BionX wheel like any conventional wheel. In case of problem, please see your retailer.

WARNING : Before plugging or unplugging the motor, double-check that your system is turned OFF. (controller is off)

HOW TO BRING THE BEST OUT OF YOUR BIONX SYSTEM

Use the assistance levels according to your needs. Always remember that your BionX is still a bicycle and should be used as such.

Look for opportunities to use the recharge modes. If you are going downhill or riding with a back wind, it is sensible to put the bike in recharge mode by pressing the **G-** button or by braking.

TROUBLESHOOTING SECTION

The motor is always on generative mode.

If the "G" keeps being displayed on your controller and you are unable to select any other assistance level, the magnetic switch underneath the brake lever is probably too far away from the magnet. Bring it closer and the "G" will disappear. If you are unable to bring it closer, please unplug the sensor's connection and contact your dealer.

If the throttle does not provide power-assist

Press on both "Mode" and "G" simultaneously. You will see a countdown on the display.

During this countdown, press on the throttle and then release.

The charger light keeps flashing and never switches to solid red.

The inside battery temperature is either too low or too high. Let the battery rest and cool down in a cool area (20C) and replug it later. If the problem persists after several hours, please contact your dealer.

The charging light is turning green after only 10 minutes of charging.

Please make sure that the system is OFF before you plug the charger or before you remove the battery to recharge it.

Do not turn the system ON/OFF while the battery is charging

If you follow both above indications and the problem is still not solved, please contact your dealer.

The display does not show full after a complete recharge

Please make sure that you are following all charging instructions (page 20).

Let the battery cool down for several hours and try to recharge it again.

If the problem persists, please contact your dealer.

The screen is not legible

Check the contrast LCD adjustment (page 13)

WARRANTY

The system components are guaranteed two (2) years against all manufacturing defaults, except for the battery, consumable good, that is guaranteed one (1) year.

HOW TO CONTACT US

Please feel free to contact us if you have any questions or comments.

BionX

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