



PNEUMATIC TUBE INSTALLATION GUIDE

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I. INTRODUCTION

A correct installation is required for your counting equipment to function properly: please read this guide carefully before starting the installation of your Eco-counter.

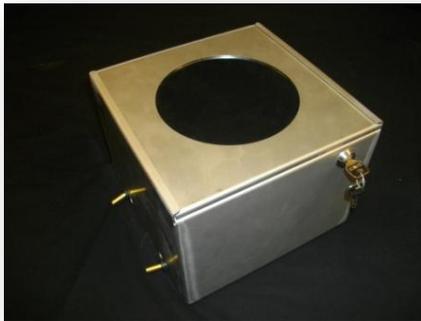
Your Eco-Counter has been tested to be resistant under various environmental conditions (e.g., high levels of moisture, extreme temperature variations, etc).

However, we remind you that it remains a measuring system and should always be handled with care.

II. ITEMS DELIVERED

▪ THE COUNTING SYSTEM :

- A stainless steel box ¹



Including



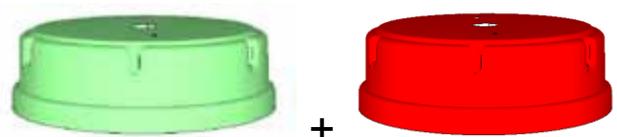
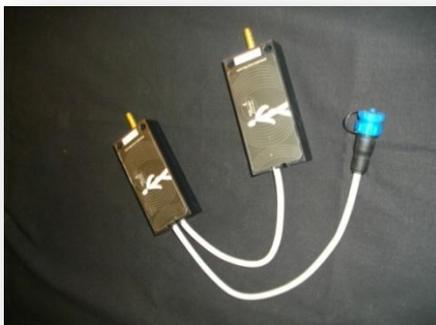
An Eco-Combo Bluetooth (blue)² for manual data collection



Or

An Eco-Combo GSM (green)³ plus battery for automatic data collection

- A transducer



¹ If you have ordered an Eco-Combo Bluetooth, your stainless steel box differs in shape from the picture from here and is not delivered with keys. If you have ordered an Eco-Combo GSM, your stainless steel box is automatically delivered with keys.

² Depending on whether you ordered a counting system with or without GSM modem

³ Depending on whether you ordered a counting system with or without GSM modem

2 pneumatic tubes equipped with a special insert for dampening signal rebounds



- 2 nails per pneumatic tube
- Fasteners
- Mini serflex clamps



A chain and a padlock to secure the stainless steel box to a post on the side of the installation site (e.g., lamppost, stop sign, fire hydrant, etc.)



▪ TO RETRIEVE YOUR DATA

A magnetic key



A Netbook⁴



▪ TO ANALYSE YOUR DATA

A username and a password for the Eco-Visio online platform.

▪ FOR YOUR RECORDS

A warranty certificate with your counter's serial number.

⁴ Optional if you have ordered an Eco-Combo GSM

III. OPERATION OF YOUR SYSTEM

TYPE OF SYSTEM	OPERATION	INSTALLATION SITE	CONFIGURATION
Unidirectional systems for bikes	Used to count only bikes on greenways or segregated lanes without direction recognition	Greenways or segregated lanes	Two Pneumatic TUBEs are laid over the road perpendicular to the traffic flow with a distance of 30 cm (12 in) between the tubes
Bidirectional systems for bikes	Used to count only bikes on greenways or segregated lanes with direction recognition	Greenways or segregated lanes	Two Pneumatic TUBEs are laid over the road perpendicular to the traffic flow with a distance of 30 cm (12 in) between the tubes
Multi Systems	<p>Used to count:</p> <ul style="list-style-type: none"> - Only bicycles on roads with mixed traffic (e.g., buses, automobiles, motorcycles, etc.) – with direction recognition. <p>Or</p> <ul style="list-style-type: none"> - Bikes and other vehicles on roads with mixed traffic – without direction recognition. 	Roads with mixed traffic	Two Pneumatic TUBEs are laid over the road perpendicular to the traffic flow with a distance of 30 cm (12 in) between the tubes

IV. INSTALLATION OF YOUR SYSTEM

A. EQUIPMENT NEEDED

- A drill with a 6 mm Ø drillbit
- A hammer
- A marker or a piece of chalk
- Optional: four 10 mm diameter anchors (chemical anchors, for example). This is to attach the stainless steel box to the ground instead of using the chain to lock it to a nearby post.
- To test the system: a cycle or a car (according to your type of counting system) and the Netbook plus the Eco-Link software guide. If you do not have a Netbook (or a Pocket PC with a data retrieval Software), you will need a second person to test the system.

B.PROCEDURE

01. CHOOSE THE INSTALLATION SITE

- Install the counter according to your installation site: shared road or greenway / segregated bike lane. Refer to **section III. Operation of your System**, page 6.
- Choose a major axis of travel.
- Install the Pneumatic TUBE(s) where there is a continuous flow of traffic. You want to avoid installing the equipment in an area where bicycles or motorized vehicles will stop, accelerate or slow down on the TUBEs (e.g., avoid installing the Pneumatic TUBEs near parking areas, bus stops, areas with heavy congestion, loading zones, etc.).
- Avoid installing the Pneumatic TUBE(s) in an area where there is a curve or turn in the road / bike path.
- Choose an area where the surface is flat.
- Install the Pneumatic TUBE(s) perpendicular to the flow of traffic.

INSTALLATION EXAMPLES:

Example 1: Installation on a Shared Roadway



Example 2: Installation on a Greenway or Segregated Bike Lane



02. MARK THE POSITION WHERE THE TUBES WILL BE FIXED

Mark a position on the ground where you will hammer the nails.



TYPE OF SYSTEM	CONFIGURATION
Unidirectional systems for bikes	Two Pneumatic TUBEs are laid over the road perpendicular to the traffic flow with a distance of 30 cm (12 in) between the tubes
Bidirectional systems for bikes	Two Pneumatic TUBEs are laid over the road perpendicular to the traffic flow with a distance of 30 cm (12 in) between the tubes
MULTI Systems	Two Pneumatic TUBEs are laid over the road perpendicular to the traffic flow with a distance of 30 cm (12 in) between the tubes

03. DRILL THE FIXING HOLES - optional step for soft soils



Pre-drill the points marked in step 2 to a depth of 5 cm (2 in).

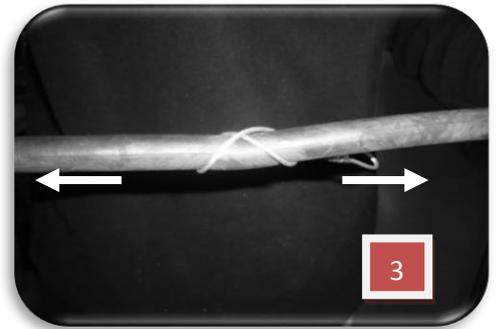
If the ground is soft, this step is not necessary.

04. PREPARE THE PNEUMATIC TUBE(S)



1. Insert the nails in the holes previously drilled or knock in the nails (if the ground is soft) - the nails must remain one or two centimeters above ground level.

2. Thread a fastener on one of the ends of the pneumatic tube(s) and then proceed to fix the fastener on the pneumatic tube:



3. Proceed the same way at the other end of the Pneumatic TUBE.

05. FIX ONE END OF THE PNEUMATIC TUBE



1. Place one of the two fasteners on the nail the furthest away from the counter.
2. Hammer in the nail to secure the TUBE to the ground.

06. TIGHTEN THE PNEUMATIC TUBE



Tighten the pneumatic tube of about 15% towards the stainless steel box. There should be little lateral movement in the TUBE(s) and they should snap back to their original position very rapidly if displaced.

07. FIX THE OTHER END OF THE PNEUMATIC TUBE

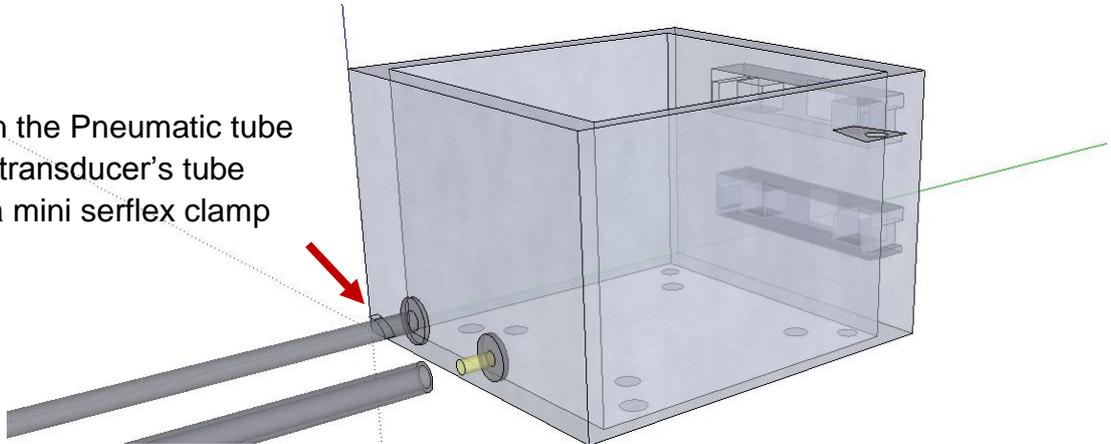


Fix the other end of the pneumatic tube near the stainless steel box as indicated in step 4.

08. MAKE THE CONNECTIONS

1. Insert the Pneumatic TUBE on the transducer's tube and tighten the pneumatic tube on the transducer's tube using a mini serflex clamp.
2. If you have two Pneumatic TUBEs, proceed the same way for the second tube.

Tighten the Pneumatic tube on the transducer's tube using a mini serflex clamp



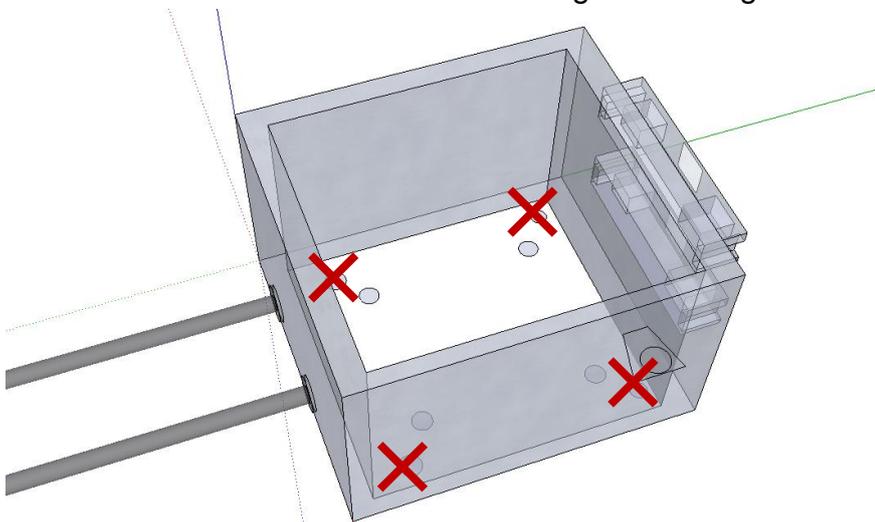
Each transducer presents an indication of directions IN and OUT.

- The direction going from IN towards OUT is identified as IN.
- The direction going from OUT towards IN is identified as OUT.

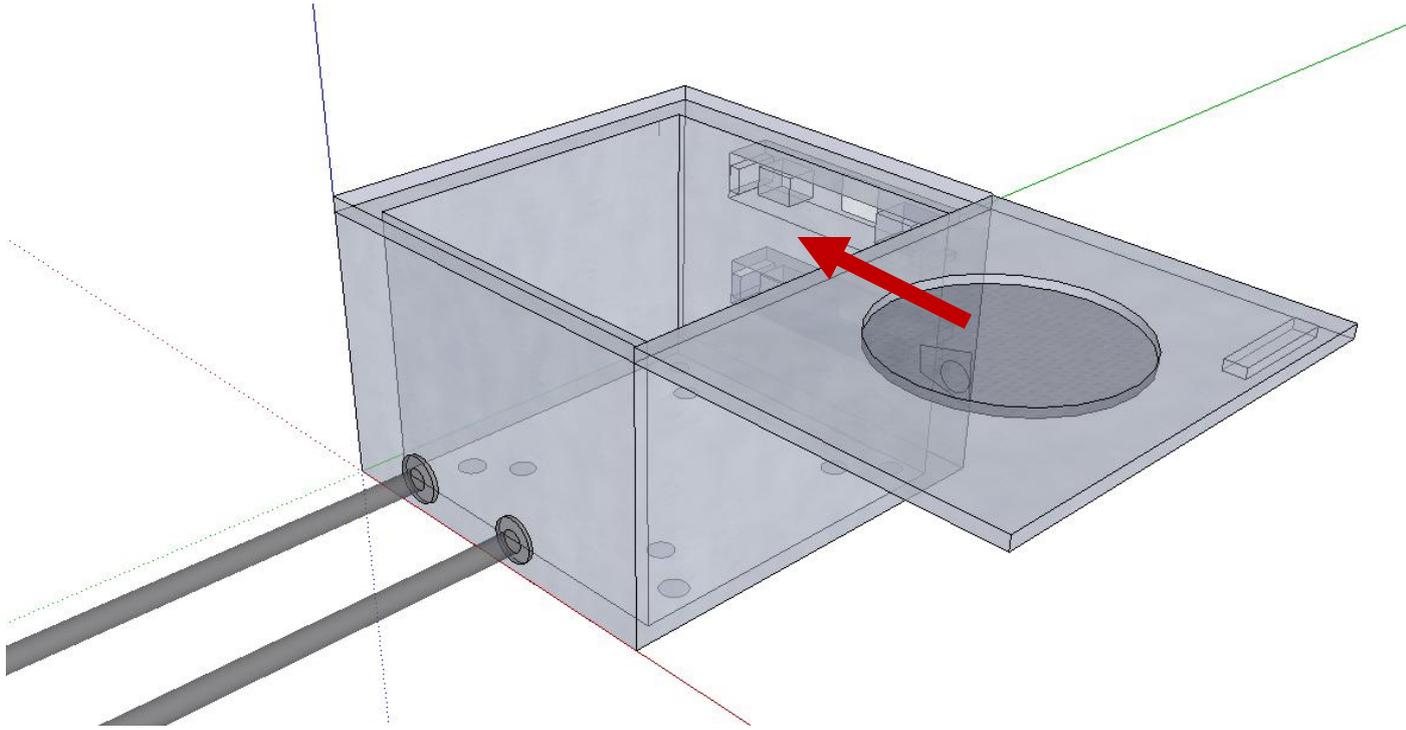
09. FIX THE STAINLESS STEEL BOX ON THE CURB OR NEAR THE EDGE OF THE PATH

a. OPTION 1 - FIXATION TO THE GROUND

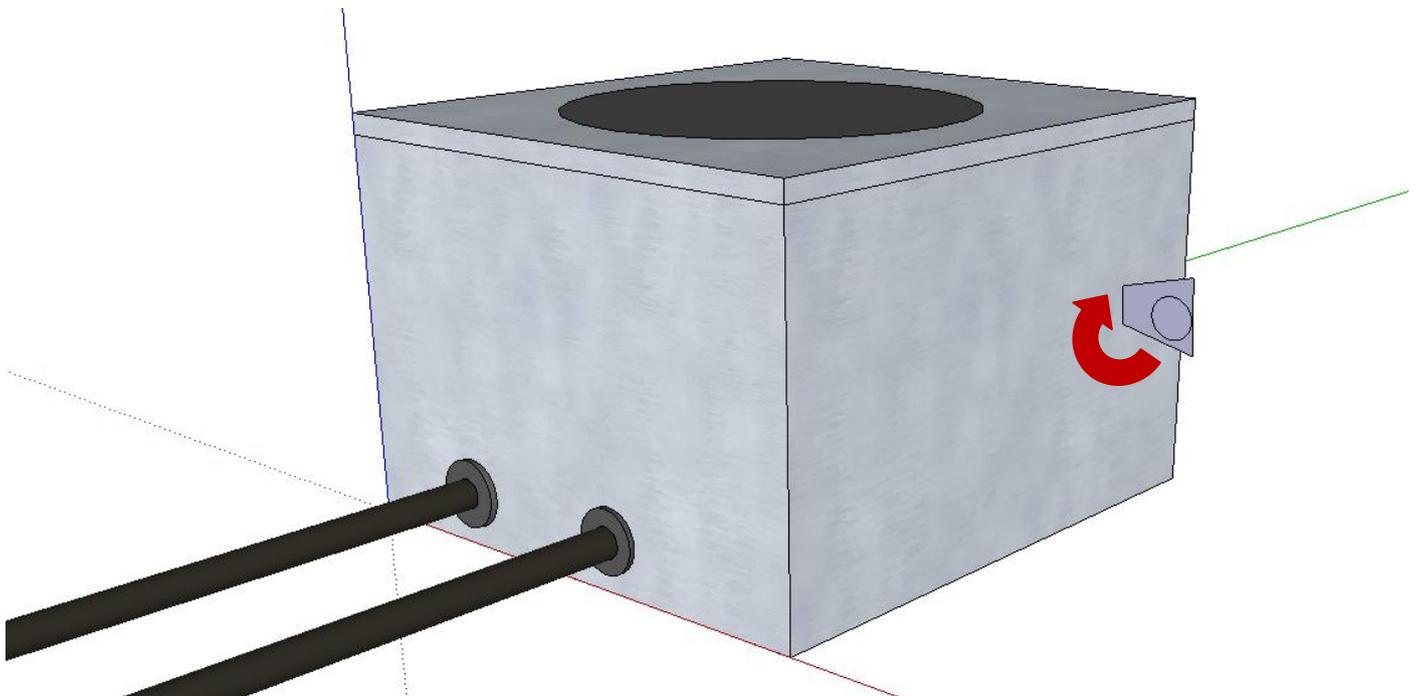
1. Screw the stainless steel box to the ground using anchors.



2. Shut the stainless steel box.



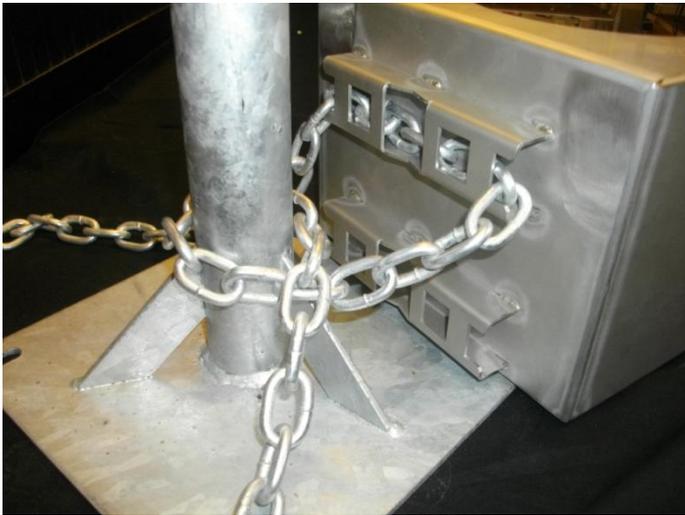
3. Lock the stainless steel box securely using the keys supplied. **Take the keys with you to prevent risks of vandalism or theft.**



b. OPTION 2 – FIXATION ON A POST

The fixation must be done at ground level.

1. Insert the chain in the upper fixing device and wind it around the post.



2. Insert the chain in the lower fixing device and wind it around the post.



Ensure that the stainless steel box is in close proximity to the pole by tightening the chain. You do not want the stainless steel box to move easily.

3. Padlock the chain and take the keys with you in order to prevent risks of vandalism and theft.



10. TEST THE COUNTING SYSTEM

1. Ride over the TUBE(s) with a bike or car (depending on your system) and check that the Eco-Combo registered a count using Eco-Link (or Eco-Pocket). If you don't know how to check on Eco-Link, refer to the Eco-Link software guide.

If you have no Netbook (or Pocket PC with a data retrieval software), check that the Eco-Combo's activation zone flashes green each time you ride over the TUBEs. The flash has a longer duration in the IN direction than in the OUT direction.

You will need two people to perform this test.

2. If you are not accurately detected, adjust the settings following the instructions in section "**11. Adjusting The Settings**".

If you installed a Multi System, you must imperatively set your counting system. Your counting system can be used to count only bikes with direction recognition or to count bikes and motorised vehicles. You must set the counting system following section "11. Adjusting the settings".

11. ADJUSTING THE SETTINGS

When delivered each counting system is adjusted to the correct default settings applicable for all counting systems except the multi counter. If you noticed detection problems while testing the counting system, you can adjust the settings using Eco-link. Please refer to the Eco-link Software Guide for the detailed procedure.

If you have a Multi system, a decision must be made if you want to use it as a bike detection system or as a bike and motorized vehicle detection system.

TYPE OF SYSTEM	SETTINGS TO APPLY																														
Unidirectional systems for bikes	No additional settings necessary																														
Bidirectional systems for bikes	<p data-bbox="521 485 882 517">- Setting the sensibility:</p> <table border="1" data-bbox="551 555 1778 912"> <thead> <tr> <th data-bbox="551 555 936 625">SENSIBILITY</th> <th data-bbox="936 555 1778 625">APPLICATION CRITERIA</th> </tr> </thead> <tbody> <tr> <td data-bbox="551 628 936 683">-2</td> <td data-bbox="936 628 1778 683">Shared lane. Very severe criteria</td> </tr> <tr> <td data-bbox="551 686 936 740">-1</td> <td data-bbox="936 686 1778 740">Shared lane. Standard criteria</td> </tr> <tr> <td data-bbox="551 743 936 798">0</td> <td data-bbox="936 743 1778 798">Shared lane. Overlapping bicycles accepted</td> </tr> <tr> <td data-bbox="551 801 936 855">1</td> <td data-bbox="936 801 1778 855">Standard bikeway</td> </tr> <tr> <td data-bbox="551 858 936 912">2</td> <td data-bbox="936 858 1778 912">Bikeway with dense traffic</td> </tr> </tbody> </table> <p data-bbox="521 951 1308 983">- Setting the acceptable maximum speed for bicycles:</p> <table border="1" data-bbox="551 995 1980 1366"> <thead> <tr> <th data-bbox="551 995 936 1072">TEMPORIZATION</th> <th data-bbox="936 995 1980 1072">ACCEPTABLE MAXIMUM SPEED</th> </tr> </thead> <tbody> <tr> <td data-bbox="551 1075 936 1117">-10/-9</td> <td data-bbox="936 1075 1980 1117">43 km/h</td> </tr> <tr> <td data-bbox="551 1120 936 1161">-8/-7</td> <td data-bbox="936 1120 1980 1161">36 km/h</td> </tr> <tr> <td data-bbox="551 1165 936 1206">-6/-5</td> <td data-bbox="936 1165 1980 1206">31 km/h</td> </tr> <tr> <td data-bbox="551 1209 936 1251">-4/-3</td> <td data-bbox="936 1209 1980 1251">27 km/h</td> </tr> <tr> <td data-bbox="551 1254 936 1295">-2/-1</td> <td data-bbox="936 1254 1980 1295">24 km/h</td> </tr> <tr> <td data-bbox="551 1299 936 1340">0/+1</td> <td data-bbox="936 1299 1980 1340">22 km/h</td> </tr> <tr> <td data-bbox="551 1343 936 1385">+2/+3</td> <td data-bbox="936 1343 1980 1385">20 km/h</td> </tr> <tr> <td data-bbox="551 1388 936 1430">+4/+5</td> <td data-bbox="936 1388 1980 1430">18 km/h</td> </tr> </tbody> </table>	SENSIBILITY	APPLICATION CRITERIA	-2	Shared lane. Very severe criteria	-1	Shared lane. Standard criteria	0	Shared lane. Overlapping bicycles accepted	1	Standard bikeway	2	Bikeway with dense traffic	TEMPORIZATION	ACCEPTABLE MAXIMUM SPEED	-10/-9	43 km/h	-8/-7	36 km/h	-6/-5	31 km/h	-4/-3	27 km/h	-2/-1	24 km/h	0/+1	22 km/h	+2/+3	20 km/h	+4/+5	18 km/h
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Multi Systems (bicycles / other user types (cars, two motorized wheels))

- Setting the sensibility:

SENSIBILITY	APPLICATION CRITERIA
-2	Shared lane. Very severe criteria
-1	Shared lane. Standard criteria
0	Shared lane. Overlapping bicycles accepted
1	Standard bikeway
2	Bikeway with dense traffic

- Setting the acceptable maximum speed for bicycles and setting the system's operation: your system can be used as a multi system identifying the type of traffic (bikes or motorized vehicles) or as a detection system for bicycles only (with direction recognition).

TEMPORIZATION	MAX. SPEED OF A BICYCLE	TRAFFIC A	TRAFFIC B
-10/-9	43 km/h	BICYCLE IN	BICYCLE OUT
-8/-7	43 km/h	BICYCLE	OTHER ⁵
-6/-5	31 km/h	BICYCLE IN	BICYCLE OUT
-4/-3	31 km/h	BICYCLE	OTHER
-2/-1	24 km/h	BICYCLE IN	BICYCLE OUT
0/+1	24 km/h	BICYCLE	OTHER
+2/+3	20 km/h	BICYCLE IN	BICYCLE OUT
+4/+5	20 km/h	BICYCLE	OTHER

- * The vehicles traveling beyond the maximum speed of a bicycle defined in the settings are counted as "other".

⁵ The vehicles running beyond the maximum speed accepted for bicycles defined in the settings are counted as "other".

CUSTOMER SERVICE

HARDWARE

The entire system is warranted for **2 years** from the date printed on the warranty certificate (the warranty certificate is delivered with your product).

In the rare case that there is a problem with a part of your system, the product must be returned with the 'After-sales return sheet'. Please contact us in order to obtain the 'After-sales return sheet'.

The logger serial number (see the warranty certificate delivered with the product) must be reported on this 'after-sales return sheet'.

The warranty cannot be implemented in the case of mishandling, incorrect installation (by someone other than Eco-Counter), or any other reason listed in the warranty certificate.

If the product can be repaired, a quote will be submitted to the customer prior to repair.

The damaged product as a result of mishandling or wrong use will be either replaced or repaired according to the sales parts price list used at the time of the request.

SOFTWARE

Problems related to the use of the software can be dealt with remotely.

Please do not hesitate to contact the Customer Service for assistance:

Eco-counter Customer Service

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Fax: +33 (0)2.96.48.69.60

E-mail: support@eco-counter.com



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