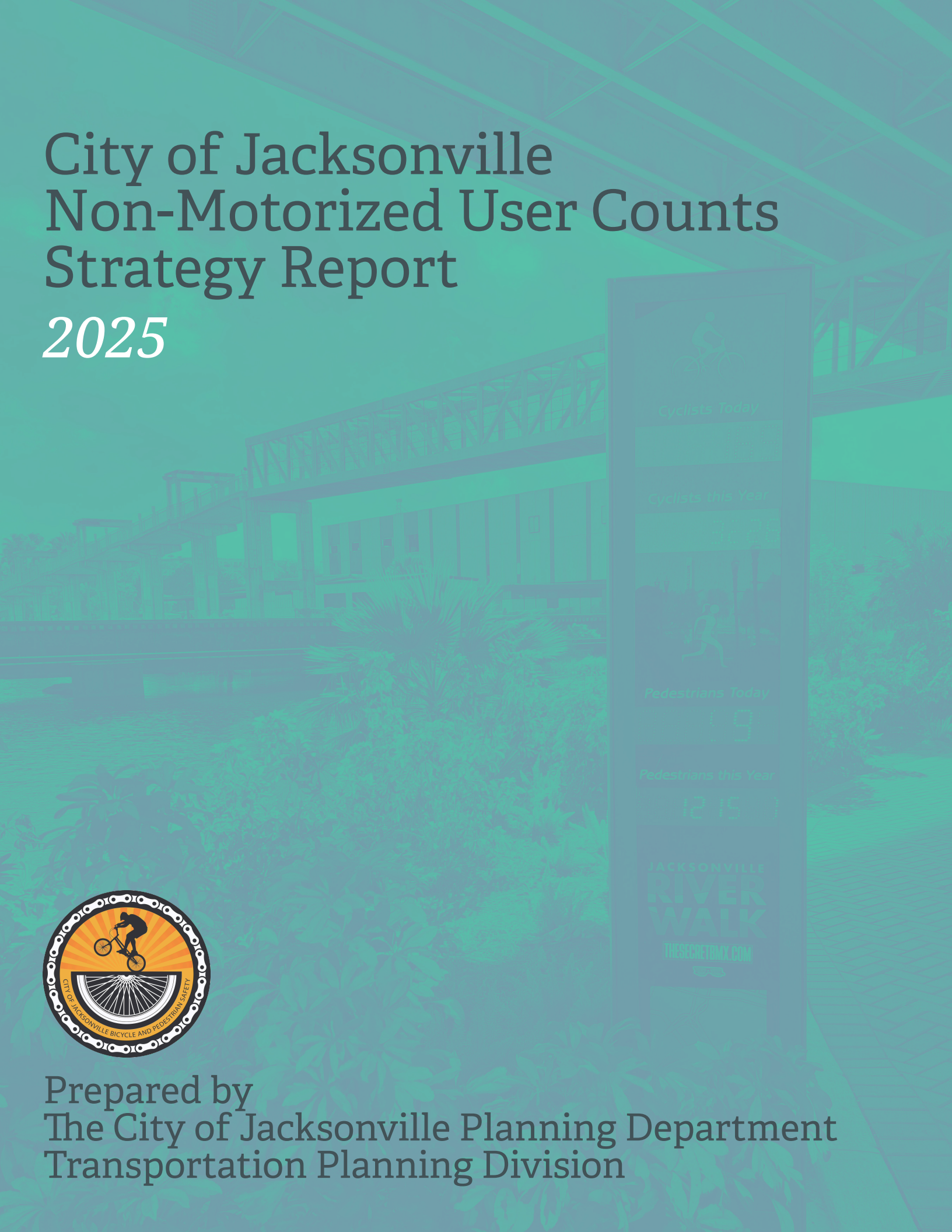
City of Jacksonville Non-Motorized User Counts Strategy Report

2025



Prepared by
The City of Jacksonville Planning Department
Transportation Planning Division

Executive Summary

This Non-Motorized User Counts Strategy Report outlines a comprehensive plan for the City of Jacksonville to collect, analyze, and utilize bicycle and pedestrian count data to enhance active transportation planning, prioritize safety improvements, and justify infrastructure investments.

The strategy integrates best practices from the National Association of City Transportation Officials' (NACTO) Making Bikes Count, Eco-Counter's 7 Tips for Effective Pedestrian and Bicycle Count Data Analysis, and the Transportation Research and Education Center's (TREC) Guide to Bicycle & Pedestrian Count Programs. It emphasizes standardized data collection, collaboration with the Florida Department of Transportation's (FDOT) Statewide Non-Motorized Traffic Monitoring Program, and the use of count data to demonstrate demand for non-motorized infrastructure.

Jacksonville's partnership with FDOT has led to permanent counters at high-traffic locations like the Fuller Warren Pedestrian Bridge, Baldwin Trail, and S-Line Trail, based on substantial temporary count data, with many of these counters monitored through FDOT's interactive, public-facing Non-motorized User Counts Dashboard, a valuable clearinghouse for data.

The report includes an inventory of current counting hardware and an appendix detailing the hardware installation process. Implementing a strategic non-motorized user count program is critical to demonstrate demand for bicycle and pedestrian facilities, as Jacksonville has historically faced infrastructure funding challenges, contributing to gaps in the bicycle and sidewalk networks on both locally and state-owned routes.

This funding challenge likely plays a role in Jacksonville's ranking as the 15th most dangerous metropolitan area in the United States for pedestrians and the third most dangerous for cyclists.

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1. Introduction

Non-motorized transportation, including walking and bicycling, is vital to Jacksonville's multimodal transportation system. As the largest metropolitan area by land area in the United States, Jacksonville faces challenges in allocating sufficient funding for non-motorized infrastructure, often resulting in sidewalk gaps on both locally owned/maintained and state-owned routes.

Accurate bicycle and pedestrian count data are essential for understanding usage patterns, evaluating infrastructure performance, and justifying investments in safety and connectivity. These funding challenges likely contribute to the city's ranking as the 15th most dangerous metropolitan area for pedestrians and the third most dangerous for cyclists (Dangerous by Design, 2022).

A strategic non-motorized user count program is critical to demonstrate demand for bicycle and pedestrian facilities, advocate for expanded infrastructure, and address safety and equity concerns.

The City of Jacksonville collaborates closely with FDOT's Statewide Non-Motorized Traffic Monitoring Program, which reviews temporary count data and, when warranted, installs permanent counters to support long-term monitoring. Data from many of these permanent counters, which replaced the city's temporary counters, are accessible through FDOT's Non-motorized User Counts Dashboard, a valuable clearinghouse for public-facing, interactive data.

(https://www.fdot.gov/planning/statistics/nonmotorized)

1.1 Goals of the Strategy:

- Establish a consistent, scalable non-motorized count program to demonstrate demand.
- Collect high-quality data to inform planning, design, and policy decisions.
- Justify investments in bicycle and pedestrian infrastructure to address historical underinvestment.
- Enhance safety by identifying high-risk areas and prioritizing improvements.
- Promote equity by capturing data on underrepresented user groups.

2. Non-Motorized Count Program Framework

The count program combines manual and automated methods, aligning with national best practices and FDOT protocols. It includes site selection, equipment choices, data collection protocols, and analysis methods to address the city's safety and infrastructure gaps.

2.1 Site Selection

Sites are chosen to capture representative data across Jacksonville's diverse environments, in coordination with FDOT, the Jacksonville Transportation Authority (JTA), and the North Florida Transportation Planning Organization (TPO). Criteria prioritize areas with demonstrated need due to infrastructure conditions and safety concerns:

- Facility Type: Urban bike lanes, shared-use paths, sidewalks, and trails.
- Geographic Diversity: Downtown, residential, commercial, and underserved areas.
- Project Relevance: Locations near proposed or completed projects for before-and-after analysis.
- Safety Analysis Needs: High-crash corridors identified in crash data, reflecting Jacksonville's dangerous rankings for pedestrians and cyclists (see also COJ's Vision Zero Action Plan High-Injury Networks or "HINs").
- Shared Accessibility Considerations: Areas with historically underinvested infrastructure and sidewalk gaps to capture usage by low-income or minority communities.

Recommended Initial Sites (Not Ranked):

Fuller Warren Shared Use Path
Location: San Marco side, at the bicycle-pedestrian bridge along the Fuller Warren Bridge (Interstate 95).
Description: A critical shared-use path connecting Riverside and San Marco to Downtown and beyond.
Connectivity: Core-2-Coast Trail, Emerald Trail (Artist Walk segment).
Details: West side is equipped with an FDOT-installed permanent counter, monitored via FDOT's dashboard. Starting point for the Core-2-Coast Trail, linking Downtown to the Beaches, and part of the Emerald Trail. High usage on west side (83,000 users in first three months) supports investments in safety and connectivity enhancements, such as improved signage or lighting.

S-Line Rail Trail
Location: From Myrtle Avenue near State Street (Springfield) to Norwood Plaza (Brentwood), including a 1.3-mile unfinished segment from 12th Street and Boulevard to East 21st Street.
Description: A 4.8-mile paved multi-use path serving historic neighborhoods.
Connectivity: Emerald Trail.
Details: Integral to the Emerald Trail, connecting Springfield and Durkeeville. Equipped with an FDOT-installed permanent counter, monitored via FDOT's dashboard. Completion of the unfinished segment will enhance connectivity to Downtown and the Hogan Street Cycle Track, addressing equity and safety needs.

Hogan Street Cycle Track
Location: From Hogans Creek at 1st Street to the Northbank Riverwalk, Downtown Jacksonville.
Description: A planned two-way cycle track to improve cyclist safety and access in Downtown.
Connectivity: Emerald Trail, Vision Zero quick-build project.
Details: Part of the Emerald Trail, transitioning from a shared-use street near Florida State College at Jacksonville (FSCJ) to a protected cycle track. Construction is expected to start in summer 2026, complementing pedestrian improvements on nearby Laura Street and supporting Vision Zero safety goals.

Laura Street
Location: Downtown Jacksonville, a key pedestrian corridor.
Description: A high-traffic pedestrian corridor with incomplete sidewalks and accessibility challenges.
Connectivity: Vision Zero quick-build project, Emerald Trail (via Hogan Street).
Details: Prioritized for Vision Zero quick-build projects, such as temporary crosswalks or pedestrian refuge islands, to enhance safety near the Jacksonville Regional Transportation Center and FSCJ. Temporary counters can justify permanent infrastructure to address sidewalk gaps, aligning with Jacksonville's pedestrian safety challenges.

St. Nicholas Neighborhood
Location: Southeast of Downtown Jacksonville, near the St. Johns River.
Description: A historic neighborhood with sidewalk gaps and high non-motorized travel demand.
Connectivity: Core-2-Coast Trail.
Details: Part of the Core-2-Coast Trail's alignment, connecting Downtown to the Beaches. Supports safe access to schools, parks, and transit stops. Temporary FDOT counters can demonstrate demand for sidewalk and bike lane improvements, addressing connectivity and safety needs.

University Boulevard
Location: Arlington, near the University of North Florida (UNF) and Kernan Boulevard.
Description: A major arterial road with frequent pedestrian and cyclist crashes and sidewalk gaps.
Connectivity: Core-2-Coast Trail, SUN Trail, Vision Zero quick-build project.
Details: Aligns with the Core-2-Coast Trail and proposed SUN Trail routes (per FDOT SUN Trail Network: https://www.arcgis.com/apps/Viewer/index.html?appid=0acc2915532d4cd48aec5ad16265f68f). Prioritized for Vision Zero quick-build projects, such as temporary bike lanes or crosswalks, to enhance safety for students and residents. Data collection is critical for infrastructure upgrades.

Recommended Initial Sites (Continued):

Normandy Boulevard
Location: Westside of Jacksonville, an underserved area.
Description: A high-crash corridor with significant pedestrian infrastructure gaps.
Connectivity: Vision Zero quick-build project, potential Emerald Trail (Westside Connector).
Details: Targeted for Vision Zero quick-build interventions, including pedestrian refuge islands or rapid-deployment sidewalks, to address safety and equity concerns. Potential connectivity to the Emerald Trail enhances regional access. Temporary counters can support funding advocacy.

Beaches Communities: Atlantic Beach, Neptune Beach, and Jacksonville Beach
Location: Eastern terminus of the Core-2-Coast Trail in the Beaches communities, along the Timucuan Trail.
Description: A coastal area with high recreational and commuter cycling demand.
Connectivity: Core-2-Coast Trail, SUN Trail, East Coast Greenway.
Details: Part of the Core-2-Coast Trail and proposed as a SUN Trail alignment for regional connectivity (per FDOT SUN Trail map). Integrates with the East Coast Greenway.

St. Johns Avenue
Location: Riverside/Avondale, a historic high-traffic corridor.
Description: A corridor identified for protected bike lane enhancements to improve cyclist safety.
Connectivity: Vision Zero quick-build project, Core-2-Coast Trail, Emerald Trail (via Fuller Warren).
Details: Part of Vision Zero efforts, with quick-build bike lane separators or bollards to enhance safety. Connects to the Fuller Warren Shared Use Path and the Emerald Trail's Artist Walk. Addresses Jacksonville's cyclist safety ranking and supports multimodal connectivity.

Southbank Riverwalk
Location: Along the St. Johns River, Southbank of Downtown Jacksonville.
Description: A popular shared-use path for pedestrians and cyclists.
Connectivity: SUN Trail, Core-2-Coast Trail (via Nira Street Loop), Vision Zero quick-build project.
Details: Proposed as a SUN Trail alignment and connects to the Core-2-Coast Trail. Vision Zero enhancements, such as improved lighting or wayfinding signage, align with safety goals. High usage supports the need for FDOT temporary counters to justify permanent monitoring.

Baldwin Rail Trail
Location: From Baldwin (Center Street) to Imeson Road, Westside Jacksonville.
Description: A 15-mile paved recreational trail serving cyclists and pedestrians.
Connectivity: SUN Trail.
Details: Equipped with an FDOT-installed permanent counter, monitored via FDOT's dashboard. Proposed for SUN Trail extensions to connect with regional trails, enhancing access to conservation lands. Addresses equity by serving Westside residents, though not directly part of Core-2-Coast or Emerald Trail.

Park Street
Location: From LaVilla to Five Points and Riverside.
Description: A multimodal corridor undergoing a road diet to enhance bike and pedestrian access.
Connectivity: Emerald Trail (Model Mile), Vision Zero quick-build project.
Details: Part of the Emerald Trail's Model Mile segment, with quick-build bike lanes and pedestrian paths. Expected completion in summer 2025, it connects to the Fuller Warren Shared Use Path and St. Johns Avenue, addressing safety and connectivity in a high-use area.

2.2 Data Collection Methods

The program uses manual, automated, and crowdsourced methods, with FDOT reviewing temporary counts to assess the need for permanent counters, particularly in areas with high demand and safety risks.

Manual Counts:

- Conducted by trained staff/volunteers during peak (7-9 AM, 4-6 PM) and off-peak (12-2 PM) periods, following National Bicycle and Pedestrian Documentation Project (NBPD) protocols.
- Capture user type, gender, age, helmet use, and direction to highlight demand.
- Minimum 8-hour counts, extended to a week when possible.

Automated Counts:

- Permanent Counters: Installed by FDOT at high-traffic sites (e.g., Fuller Warren Pedestrian Bridge, Baldwin Trail, S-Line Trail) based on substantial temporary count data from city counters. Many of these are monitored through FDOT's Non-Motorized User Counts Dashboard, providing interactive, public-facing data.
- Portable Counters: Deployed at rotating sites for spatial coverage, utilizing current inventory (see Section 2.5).
- Technologies (primarily for mobile counters): Pneumatic tubes (98.1% accuracy), pyroelectric sensors (Eco-Counter Pyro-Box Evo), ZELT loops, and CITIX AI Evo for multimodal areas.
- Regular calibration and cross-referencing with manual counts ensure accuracy.
- Crowdsourced Data: Strava data adjusted with TxDOT's seasonal factors to estimate network-wide patterns, highlighting latent demand in underinvested areas.

2.2.1 Special Use Cases for Temporary Counters

The City's Public Works Department and Parks Department may request the Planning Department to deploy temporary non-motorized user counters to document before-and-after conditions for infrastructure projects, ensuring data-driven evaluation of project impacts. Additionally, these counters will be frequently used to support quick-build demonstration projects implemented throughout 2025-2026, funded by the 2024 Safe Streets and Roads for All (SS4A) discretionary grant awarded to Jacksonville to enhance safety and connectivity (USDOT, 2024).

2.3 Data Collection Schedule

- Permanent Counts: Continuous at 5-10 key locations, including FDOT-installed counters accessible via the FDOT dashboard.
- Short-Duration Counts: Quarterly at 20-30 rotating sites, submitted to FDOT Transportation Data and Analytics Office for review.
- Manual Counts: Annual at 50 sites, aligned with recommended NBPD count days.
- Special Project Counts: Before-and-after counts for infrastructure projects to demonstrate impact, including SS4A-funded quick-build projects.

2.4 Equipment and Budget

Estimated Investment (2025-2030):

- 5 additional permanent counters: ~$45,000.
- 10 additional portable counters: ~$15,000.
- Software (Eco-Visio): ~$5,000/year.
- Training/coordination: ~$3,000.
- Total: $88,000 (FY25-30, supplementing current inventory).

Funding Sources: FHWA grants, FDOT Bicycle and Pedestrian Program funds, Jacksonville TPO grants, local budgets, and SS4A grant funds.

2.5 Current Hardware Inventory

The City of Jacksonville maintains the following equipment* for non-motorized user counts, managed through Eco-Counter systems (and stored internally at T:\Bike-Ped\User Counts).

Data is accessible via the Eco-Visio dashboard (https://www.eco-visio.net/v5/login/#). Additional equipment details at: www.eco-counter.com.

- Data Retrieval Keys: 8
- Portable Bike Counters: 4
- Mobile Multi Counters: 4 (Serial Numbers: YSI20093711, YSI20093712, XMH22094134, XMH22094135).
- Eco Display Classic Model: 1 (Serial Number: Y2H23046108; located at Corkscrew Park).
- Band-It Value Straps: 2 new boxes, 3-4 used straps.
- Tubing: 6-8 rolls (full box, various lengths).
- Miscellaneous Tools: 1 box (attaching, locking, and other accessories).

*This inventory supports short-duration counts, including those for SS4A-funded projects, and will be supplemented to meet program goals, ensuring robust data collection to address underinvestment and safety challenges. Installation processes for this hardware are detailed in Appendix A.

3. Data Analysis and Quality Control

Data analysis follows Eco-Counter and TREC guidelines, with FDOT collaboration ensuring alignment with statewide standards to support safety and infrastructure advocacy.

3.1 Analysis Methods

- Temporal Trends: Permanent counter data (e.g., Fuller Warren Bridge, accessible via FDOT dashboard) identify daily, weekly, and seasonal patterns to show demand.
- Spatial Variations: Map short-duration counts (using portable counters) to highlight demand and network gaps, particularly in areas with sidewalk gaps.
- Weather Adjustments: Cross-reference with weather data to isolate impacts.
- Demographic Insights: Manual counts inform equitable planning for underrepresented groups.
- Exposure Analysis: Combine counts with crash data to identify high-risk areas, addressing Jacksonville's dangerous rankings for pedestrians and cyclists.

3.2 Quality Control

- Regular calibration of current inventory (e.g., Mobile Multi Counters, portable bike counters).
- Data stored in Traffic Monitoring Guide (TMG) format for compatibility with FDOT and national databases.
- TREC's BikePed Portal checks flag outliers.

3.3 Data Storage and Sharing

Central Repository: Jacksonville Bicycle and Pedestrian Count Exchange (TBD), complemented by FDOT's Non-Motorized User Counts Dashboard as a public-facing clearinghouse.
Public Access: Interactive dashboard (ArcGIS/Eco-Visio) and FDOT dashboard to demonstrate demand.
State and National Integration: Share data with FDOT's Statewide Non-Motorized Traffic Monitoring Program and NBPD/Bike-Ped PORTAL.
COJ Internal: Data will be archived within Planning Department and as per Florida public records requirements.

4. Using Data to Demonstrate Demand and Justify Investment

4.1 Demonstrating Demand

High non-motorized user counts at FDOT-monitored sites (e.g., Fuller Warren Pedestrian Bridge, Baldwin Rail Trail, S-Line Trail, via FDOT dashboard) comprise supportive data to justify investment in sidewalks, trails, and other non-motorized infrastructure to address connectivity needs.

- Manual counts highlight usage by underrepresented groups, supporting inclusive infrastructure in underinvested areas.
- Before-and-after studies (e.g., Fuller Warren Bridge, monitored via FDOT dashboard) show project success and increased demand.
- Low counts in areas with poor infrastructure (e.g., Normandy Boulevard) paired with crowdsourced data indicate latent demand for better facilities.

Additional Bicycle Parking Recommendation: Additional bicycle parking should be installed in areas with high bicycle activity, as evidenced by count data, to address one of the most cited barriers to cycling, as evidenced by a statistically significant bicycle opinion survey from the ~8-million population Dallas-Fort Worth area where respondents cited "lack of secure bicycle parking" as the second highest reason for biking less than they desired (NCTCOG, 2017, p. 18).

4.2 Safety Improvements

- Non-motorized user data informs interventions like raised crosswalks to protect vulnerable road users, reducing crash risks, particularly for SS4A-funded quick-build projects.
- Non-motorized user data in-tandem with exposure analysis using FDOT crash data prioritizes high-risk areas (e.g., University Boulevard), addressing Jacksonville's high pedestrian and cyclist danger rankings.
- High pedestrian counts on Laura Street support Vision Zero / Complete Streets funding for wider sidewalks and crosswalks.

4.3 Funding and Policy Advocacy

- Count data, including FDOT dashboard data, strengthens FHWA/FDOT grant applications, as well as SS4A grant implementation, to fund infrastructure addressing underinvestment.
- High counts demonstrate economic/health benefits, supporting Jacksonville's Vision Zero Action Plan and and Mobility Plan.
- Visualizations (e.g., heatmaps via FDOT dashboard) build public support for budget allocations to improve safety and connectivity.

4.4 Shared Access for all Communities

- Counts in underserved areas (e.g., Westside) justify investments in connectivity to schools, jobs, and transit, addressing sidewalk gaps.
- Data on user types inform accessible designs (e.g., wider paths, tactile paving) to serve diverse populations.

5. Implementation Plan

Year 1 (2025-2026):
- Secure funding to supplement current inventory with additional counters, leveraging SS4A grant funds.
- Train staff/volunteers on NBPD, FDOT protocols, and hardware installation (per Appendix A and B).
- Install permanent counters at 5 sites; conduct short-duration counts at 20 sites using portable counters, prioritizing high-crash and underinvested areas, including SS4A project sites.
- Develop a Non-Motorized Count Exchange and public dashboard, aligning with FDOT's Non-Motorized User Counts Dashboard.
- Submit data to FDOT and NBPD.

Year 2 (2026-2027):
- Expand to 10 permanent counters (with FDOT review) and 30 short-duration sites.
- Conduct before-and-after counts for 2 projects, including SS4A-funded quick-build projects, using Mobile Multi Counters to evaluate safety and usage impacts.
- Produce demand/safety/equity report for FDOT and TPO, highlighting underinvestment and crash risks, using FDOT dashboard data.
- Apply for additional grants using count data.

Year 3 (2027-2028):
- Scale to 15 permanent counters and 50 short-duration sites.
- Integrate data into Mobility Plan and Vision Zero to address pedestrian and cyclist safety rankings.
- Host public workshop to share findings, including FDOT dashboard visualizations, and gather input on priority projects, including SS4A outcomes.

Year 4 and beyond (2028-2030):
- Ongoing monitoring and investment to support the non-motorized user counts program.

6. Challenges and Mitigation Strategies

Challenge: Limited budget for additional equipment.
Mitigation: Leverage FDOT/FHWA grants, SS4A funds, use current inventory efficiently, partner with universities, and recruit volunteers.

Challenge: Data accuracy with existing hardware.
Mitigation: Calibrate Mobile Multi Counters and portable bike counters regularly, cross-reference with manual counts, implement TREC quality checks.

Challenge: Engaging underserved communities in underinvested areas.
Mitigation: Partner with community organizations for site selection and outreach, especially for SS4A project areas.

Challenge: Scaling data to address citywide gaps.
Mitigation: Use crowdsourced data and FDOT-approved seasonal adjustments.

7. Conclusion

Jacksonville's Non-Motorized User Counts Strategy, supported by a robust hardware inventory, detailed installation processes (Appendix A), and partnership with FDOT's Statewide Non-Motorized Traffic Monitoring Program, provides a data-driven framework to enhance active transportation.

By leveraging temporary counts to justify permanent counters (e.g., Fuller Warren Pedestrian Bridge, Baldwin Trail, S-Line Trail), many of which are monitored through FDOT's Non-motorized User Counts Dashboard—a great clearinghouse for interactive, public-facing data—and aligning with national best practices, Jacksonville can demonstrate demand for bicycle and pedestrian facilities, address historical underinvestment in non-motorized facilities, and improve safety.

The strategy supports citywide initiatives, including SS4A-funded quick-build projects, and is critical to reversing the city's rankings as the 15th most dangerous metropolitan area for pedestrians and third most dangerous for cyclists, fostering a safer, more equitable, and connected transportation network.

8. References

- Eco-Counter. 7 Tips for Effective Pedestrian and Bicycle Count Data Analysis.
- National Bicycle and Pedestrian Documentation Project.
- NACTO. Making Bikes Count: Effective Data Collection, Metrics, & Storytelling.
- TREC. Guide to Bicycle & Pedestrian Count Programs.
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9. Appendix A: Hardware Installation Process for Bicycle and Pedestrian User Counters

This appendix outlines the installation process for the City of Jacksonville's current hardware inventory (as of 02/13/2023), including Portable Bike Counters, Mobile Multi Counters, and the Eco Display Classic Model. The process is based on Eco-Counter guidelines (www.eco-counter.com) and tailored to ensure accurate data collection and equipment security, with data from permanent counters often shared via FDOT's Non-motorized User Counts Dashboard.

Pre-Installation Preparation

- Site Selection: Confirm the site meets criteria (e.g., high-traffic, high-crash, or underinvested areas, including SS4A project sites). Coordinate with FDOT and Jacksonville TPO for alignment with regional goals and potential inclusion in the FDOT dashboard.
- Equipment Check: Verify inventory availability (4 Portable Bike Counters, 4 Mobile Multi Counters, 1 Eco Display Classic Model). Inspect equipment for damage and ensure batteries are charged.
- Tool Kit: Gather miscellaneous tools (1 box), Band-It Value Straps (2 new boxes, 3-4 used), and tubing (6-8 rolls). Include locking mechanisms for security.
- Permits and Permissions: Obtain necessary permits for installation on public rights-of-way, especially for state-owned routes or SS4A project sites. Notify property owners for private land access.
- Safety Gear: Equip staff with high-visibility vests, gloves, and traffic cones for safe installation.

Installation Process for Portable Bike Counters (Pneumatic Tube-Based)

- Site Setup: Select a flat, stable road surface perpendicular to bicycle traffic (e.g., bike lane or shared-use path, including SS4A quick-build sites). Avoid curves or intersections to ensure accurate counts.
- Tube Installation:
- Lay pneumatic tubing (from 6-8 rolls) across the path, ensuring it is taut and flush with the ground.
- Secure tubing to the road using Band-It Value Straps and nails or adhesive, depending on surface type (asphalt, concrete).
- For one counter with pre-attached tubing, verify tubing integrity before deployment.
- Counter Placement: Position the Portable Bike Counter (1 of 4) in a secure, weather-resistant location (e.g., locked to a pole or hidden in vegetation). Use locking mechanisms from the tool kit.
- Calibration: Connect the counter to tubing and perform a test count by crossing the tubes. Ensure the counter registers each pass accurately.
- Data Retrieval Setup: Assign a Data Retrieval Key (1 of 4) to the counter for periodic data collection. Record the counter's serial number and location in the Eco-Visio dashboard.

Installation Process for Mobile Multi Counters (Pyroelectric Sensors)

- Site Setup: Choose a location with clear sightlines for pedestrian or multimodal traffic (e.g., sidewalks, shared-use paths, SS4A project areas). Avoid obstructions like trees or signs.
- Mounting:
- Attach the Mobile Multi Counter (1 of 4, e.g., YSI20093711) to a pole, post, or other stable structure using Band-It Value Straps or mounting brackets from the tool kit.
- Position the sensor at a height of 1-1.5 meters to capture pedestrian and cyclist movements accurately.
- For the counter at Emmett Reed Community Center, verify its mounting stability before redeployment.
- Power and Calibration: Ensure the counter's battery is charged or connect to a power source if available. Conduct a test by walking/cycling past the sensor to confirm detection. Adjust sensor angle if needed.
- Data Retrieval Setup: Pair the counter with a Data Retrieval Key and log its serial number and location in Eco-Visio. Schedule data downloads based on count duration (e.g., weekly for short-term counts).

Installation Process for Eco Display Classic Model

- Site Setup: The Eco Display Classic Model (Y2H23046108) is currently installed at Corkscrew Park. For new or relocated installations, select a high-visibility location on a shared-use path or trail (including SS4A sites) to display real-time counts to users.
- Mounting:
- Secure the display to a sturdy pole or post using Band-It Value Straps or mounting hardware from the tool kit.
- **Position the display at eye level (1.5-2 meters) for readability, facing the primary direction of user traffic.
- Sensor Integration: Connect the display to a nearby counter (e.g., Mobile Multi Counter) via wired or wireless connection, following Eco-Counter specifications. Ensure the counter is installed per Section 3 above.
- Power Supply: Verify the display's solar panel or battery is functional. Test the display to confirm it shows accurate counts.
- Data Logging: Link the display's counter to Eco-Visio using a Data Retrieval Key. Record the display's serial number and location.

Post-Installation Steps

- Quality Check: Conduct manual counts at the site to validate automated counter data, especially for SS4A before-and-after studies. Compare results to flag any discrepancies.
- Security Measures: Lock counters to fixed objects using cables or padlocks from the tool kit. Conceal portable counters to deter theft.
- Maintenance Schedule: Inspect equipment biweekly for damage, debris, or tampering. Clean sensors and tubing as needed. Replace batteries or tubing (from 6-8 rolls) if worn.
- Data Collection: Use Data Retrieval Keys to download data to Eco-Visio at regular intervals (e.g., weekly for portable counters, monthly for permanent). Store data at T:\Bike-Ped\User Counts. For FDOT-installed permanent counters, verify data is uploaded to the Nonmotorized User Counts Dashboard.
- Documentation: Update the Eco-Visio dashboard with installation details, including site coordinates, counter type, and installation date. Share data with FDOT for review and potential inclusion in the FDOT dashboard.

Safety and Environmental Considerations

- Traffic Safety: Install during low-traffic periods and use traffic cones to protect staff, especially for SS4A quick-build sites. Coordinate with Jacksonville's Public Works for road closures if needed.
- • Weather Protection: Ensure counters are weather-resistant and tubing is secured to withstand rain or wind. Avoid flood-prone areas.
- Community Notification: Inform nearby residents or businesses of installations, particularly for SS4A projects, to minimize disruption and gain support.

De-installation Process (For Portable Counters)

- Removal: Carefully remove tubing, straps, and counters using tools from the tool kit. Store tubing and straps for reuse.
- Site Cleanup: Clear any debris or adhesive residue to restore the site.
- Equipment Storage: Clean and store counters, tubing, and straps at T:\Bike-Ped\User Counts. Update inventory records to reflect equipment availability.

This installation process ensures reliable data collection, equipment security, and alignment with Jacksonville's non-motorized count program goals, including support for SS4A-funded projects. Staff training on these procedures is included in the Year 1 implementation plan (Section 5).

9. Appendix B: Official Eco-Counter Guidance Documents

The following pages contain guidance documents officially published by Eco-Counter (www.eco-counter.com)

ENGLISH

COUNTING PEOPLE, ANALYSING DATA

SOFTWARE GUIDE

ECO-LINK V4r1

CONTENTS

I. INTRODUCTION

Eco-Link is a software installed on a laptop or tablet which enables users to interact with Eco-Counters. Eco-Link allows users to:

- Retrieve data from an Eco-Counter
- Transfer data to Eco-Visio online software
- Set the Eco-Counters settings

Eco-Link is compatible with:

- Laptops: Laptops with a Microsoft Bluetooth stack.
- Tablets: Windows 8 tablets with Bluetooth.

II. INITIALIZING AN ECO-COUNTER

If the serial number of your Eco-Counter starts with X or Y, the Initialization process will erase all the data stored in the Eco-Counter.

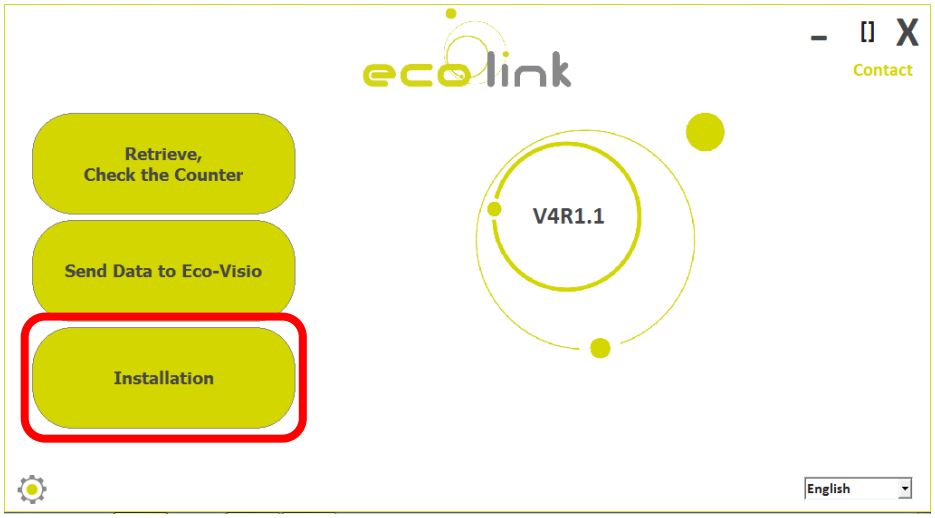
If you don't want the data to be erased, retrieve the counter first by following the instructions in the ***Retrieving data*** section, page 13.

Initialize your Eco-Counter:

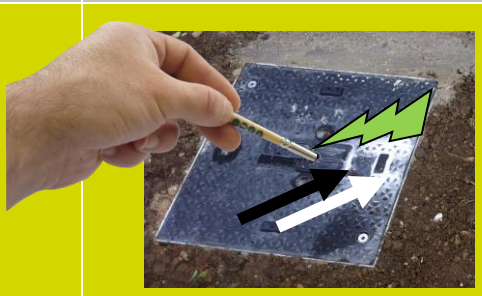
- On its installation date in order to have all of the connected sensors detected by the Eco-Combo logger.
- If you change one of the sensors for a sensor of a different type.

Proceed as follows to initialize your counter:

1. Start Eco-Link and click on ***Installation***.



2. Wake up your Eco-Counter by waving the magnetic key over the activation zone.

Eco-Combo under Rainbird Manhole	Eco-Combo under B125 Manhole
 x 1	 x 1
PYRO-Box with Bluetooth link	Urban Post
 x 1	 x 1
Eco-Counter with Infrared Link[1]	PYRO-Box with Infrared Link
 x 1	 x 1

[1] An Eco-Blue is required to connect to Eco-Counters having an infrared link if no Infrared port is available on the Netbook PC or tablet.

3. Click on the ***Search*** button.

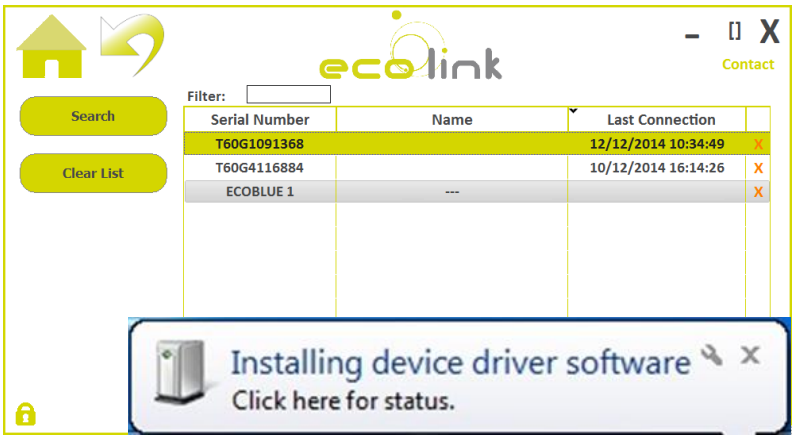
The counters detected by Eco-Link appear in column ***Serial Number***.

4. Click on the serial number of the Eco-Counter you need to initialize and click then on the ***Connect*** button.

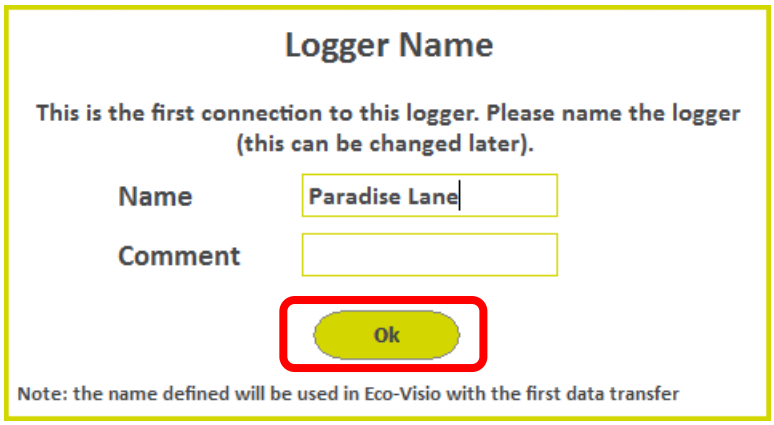
   If you have an Eco-Counter with infrared link, click on ***Ecoblue***.

- You might be asked to enter a PIN code. If so, enter the PIN code ***0000***.

- A message will appear indicating a Bluetooth connection. Click on the message to authorize the connection.



5. Give your counter a name and add a short commentary if desired. Click ***Ok***.

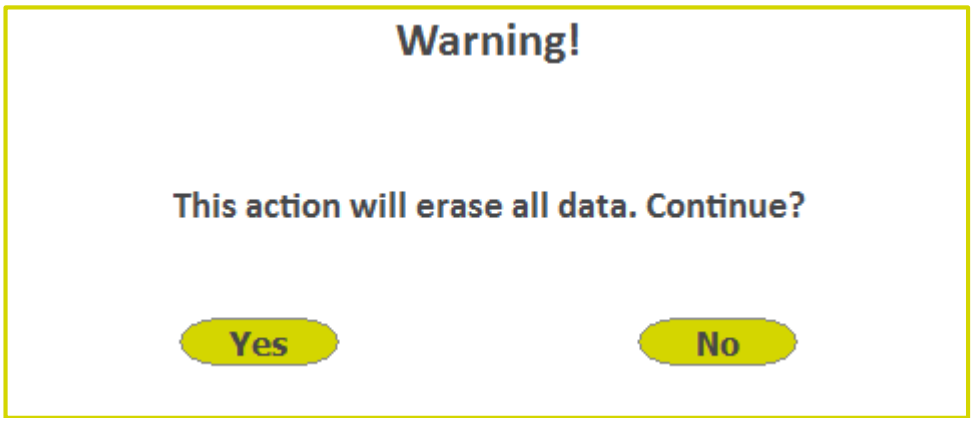


A tab named ***Installation*** will appear.

6. Follow the instructions on the ***Installation*** tab.

4

If the serial number of your Eco-Counter starts with X or Y, an automatic warning appears when you click on ***Counter Installation and Pairing***, saying that the Initialization process will erase all the data stored in the Eco-Counter.

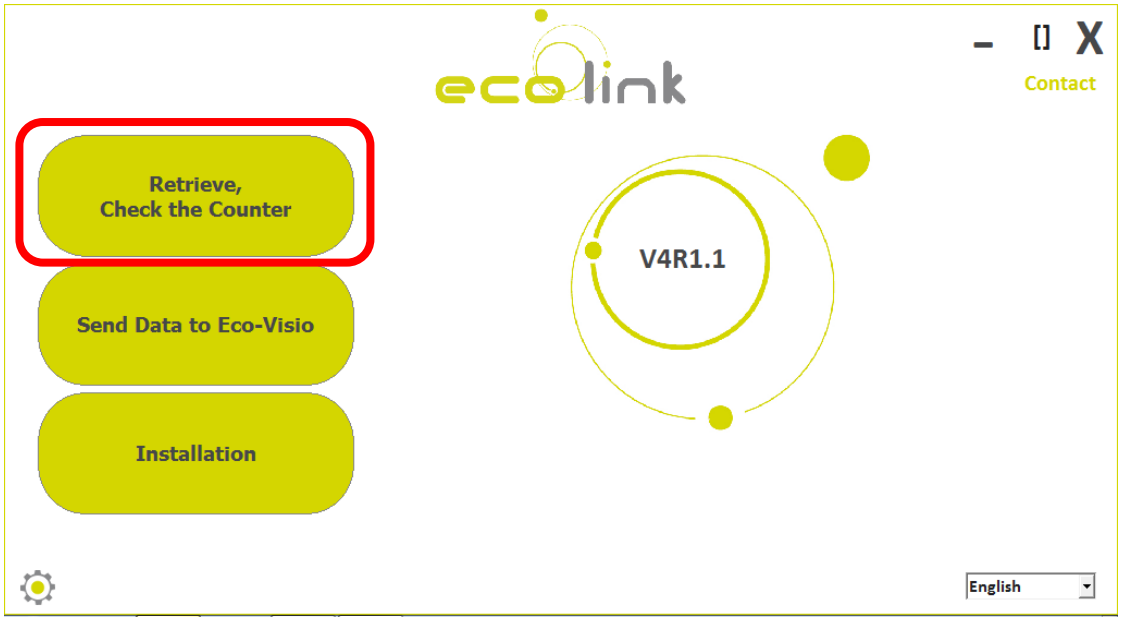


- Click on ***No*** if you want to retrieve the previous data before initializing.
- Click on ***Yes*** to continue if you don't need to save the previous data before initializing.

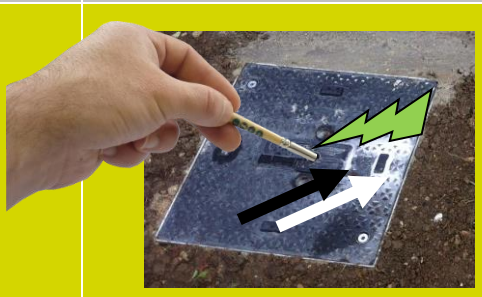
7. Simulate several passages on the sensors and check that those passages are detected using the ***Main*** tab - the counts should increase each time a passage is detected.

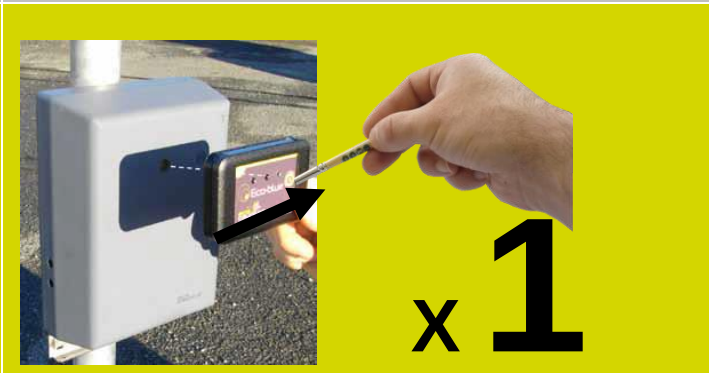
III. CONNECTING TO AN ECO-COUNTER

1. On the Eco-Link main page, click on the button ***Retrieve, Check the counter***.



2. Wake up your Eco-Counter by waving the magnetic key over the activation zone.

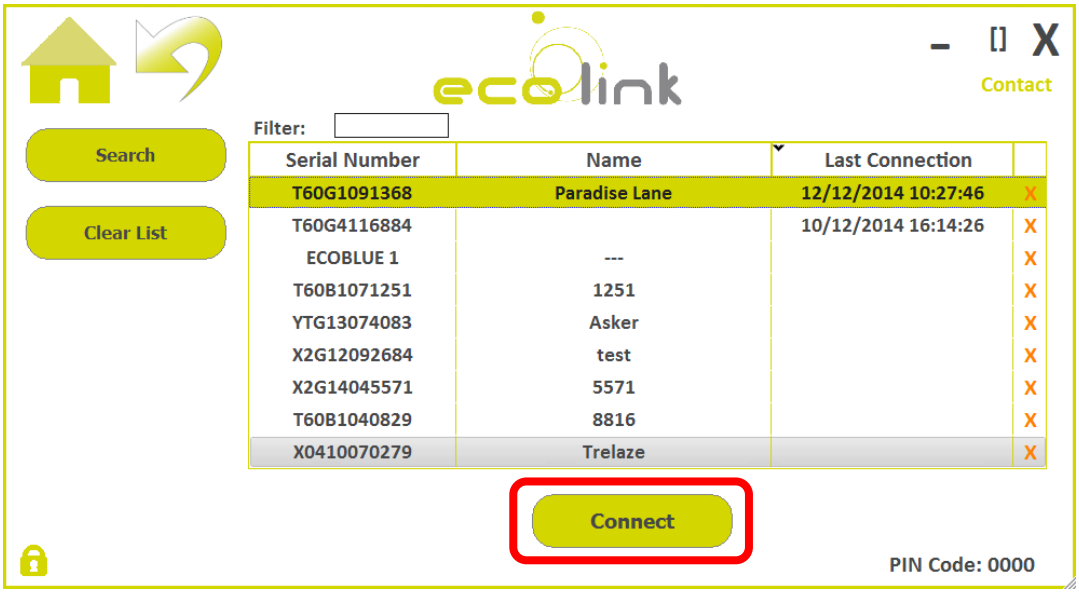
Eco-Combo under Rainbird Manhole	Eco-Combo under B125 Manhole
 x 1	 x 1
PYRO-Box with Bluetooth link	**Urban Post**
 x 1	 x 1

Eco-Counter with Infrared Link[2]	PYRO-Box with Infrared Link
	

3. Click on the ***Search*** button.

The counters detected by Eco-Link appear in column ***Serial Number***.

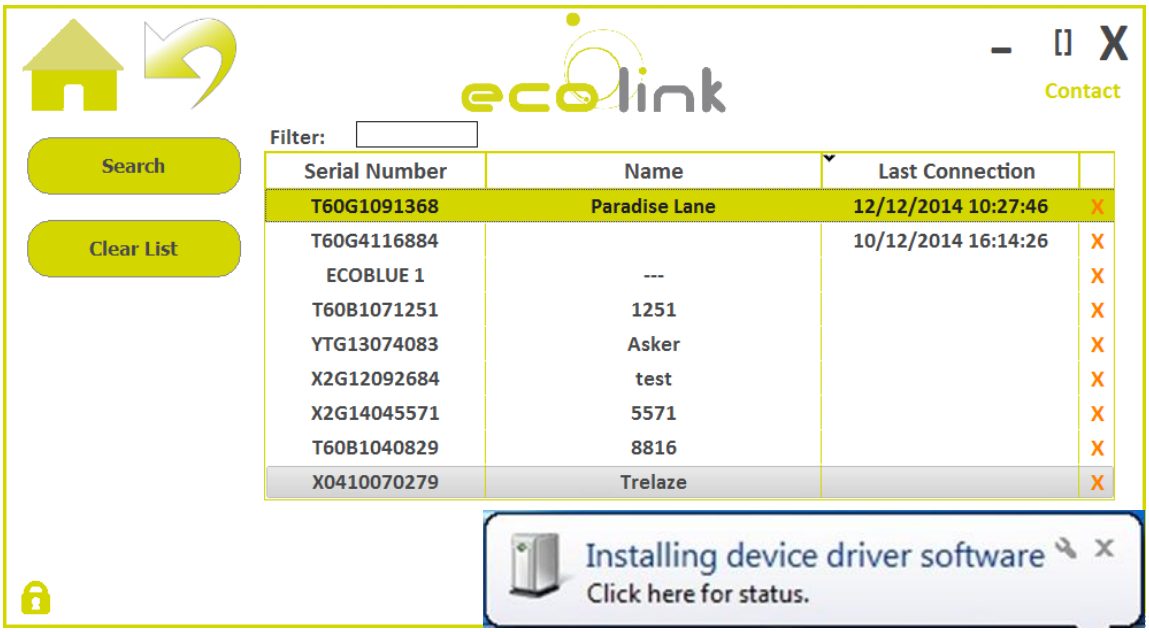
4. Click on the serial number of the Eco-Counter and click then on the ***Connect*** button. If you have an Eco-Counter with infrared link, click on ***Ecoblue***.



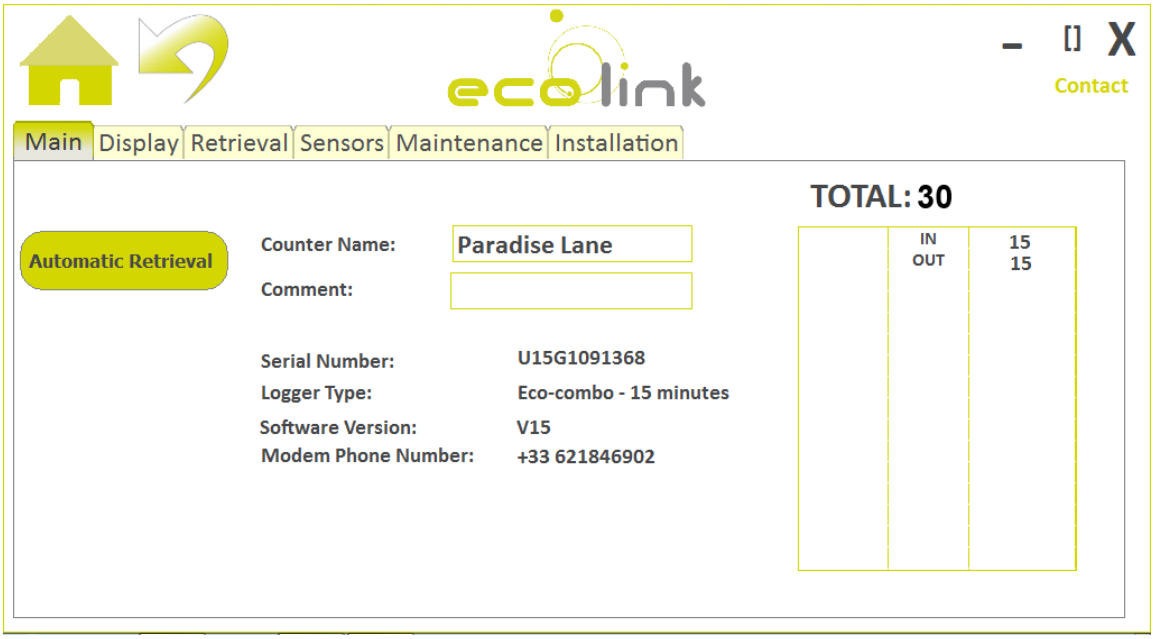
[2] An Eco-Blue is required to connect to Eco-Counters having an infrared link if no Infrared port is available on the Netbook PC or tablet.

- You might be asked to enter a PIN code. If so, enter the PIN code ***0000***.

- A message will appear indicating a Bluetooth connection. Click on the message to authorize the connection.



A new window comes up. You are now connected to the counter.



IV. SETTING THE TIME OF A COUNTER

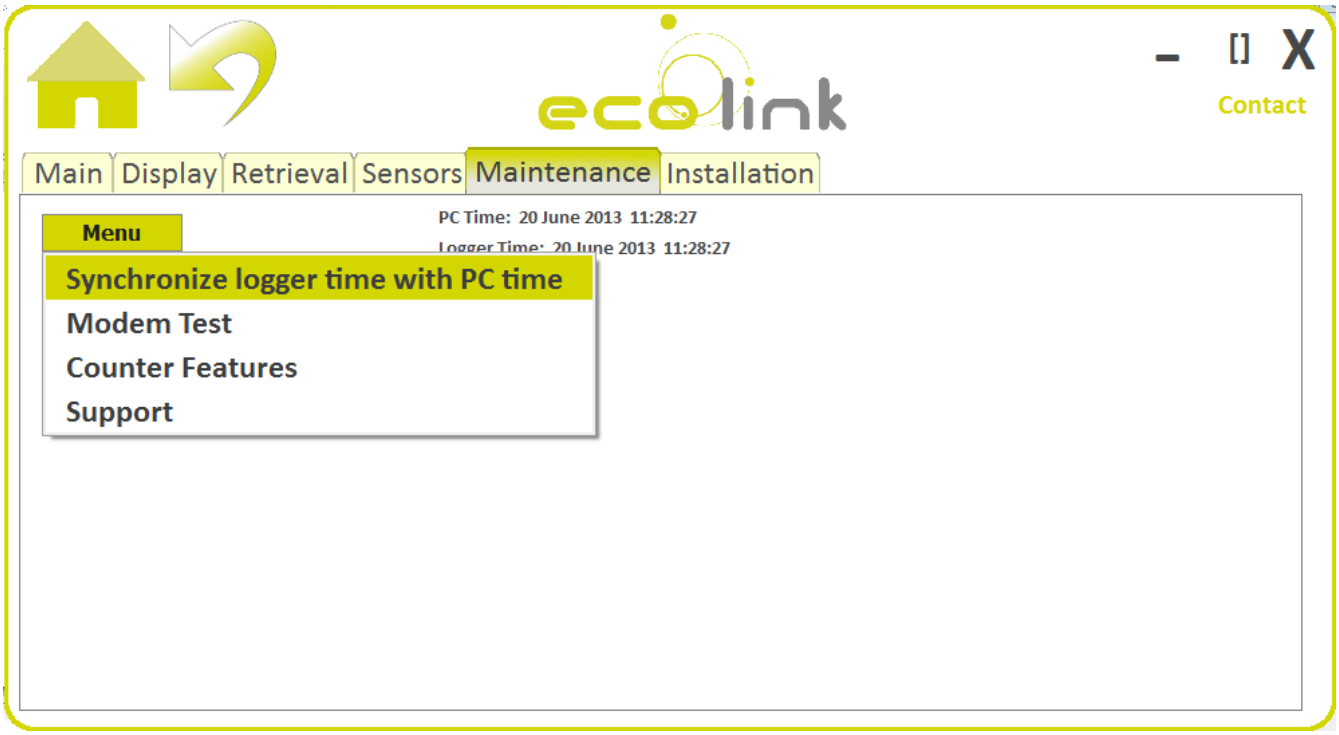
Use this function in the following cases:

- Your counter is installed in another time zone
- Your counter time doesn't match your PC time

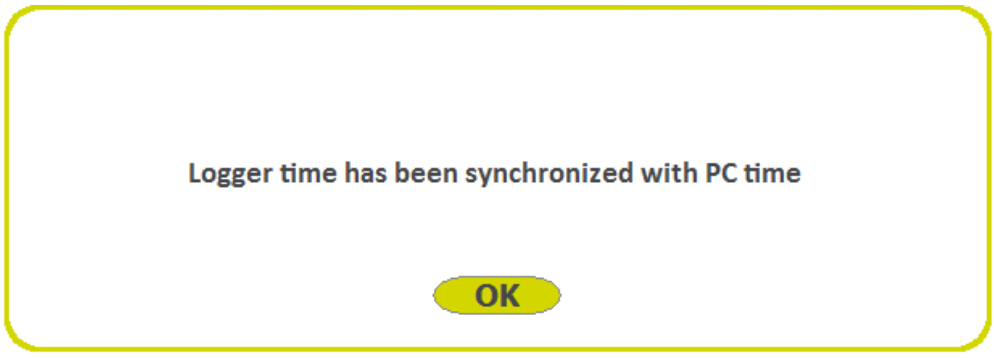
Check that the counter time is synchronized with the PC time before each data retrieval.
Setting the counter time guarantees correct data retrieval.

1. Connect to the counter by following the ***Connecting to an Eco-Counter*** section (page 9).

2. Open the ***Maintenance*** tab and click on the ***Menu*** Button > ***Synchronize logger time with PC time***.



3. The next window comes up. Click on ***Ok*** to close it.



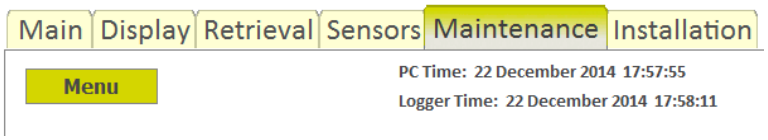
The counter time is now synchronized with the PC time.

V. RETRIEVING DATA

A. Retrieving the Data Recorded since the Last Data Retrieval

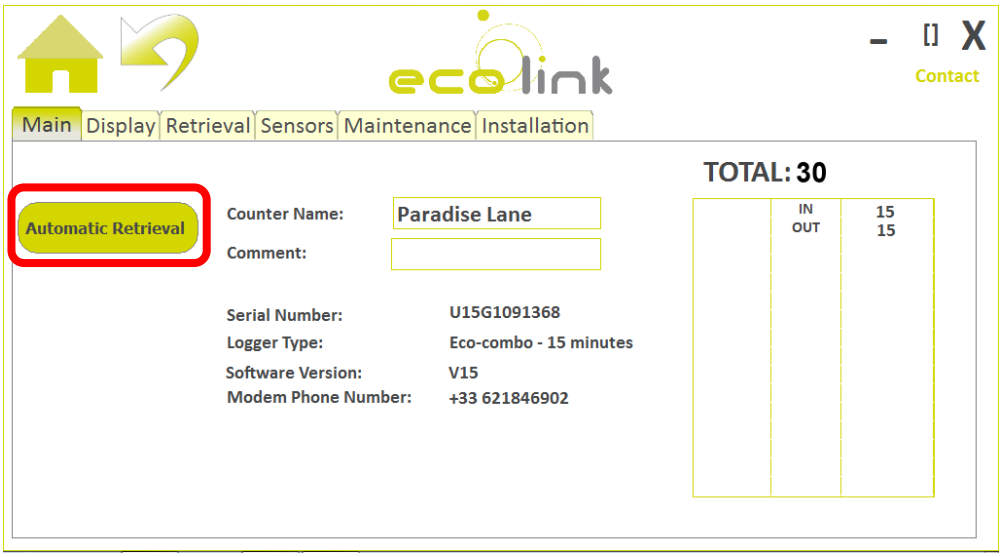
1. Connect to the counter by following the ***Connecting to an Eco-Counter*** section (page 9).

2. Open the ***Maintenance*** tab and check that the counter time is synchronized with the PC time.

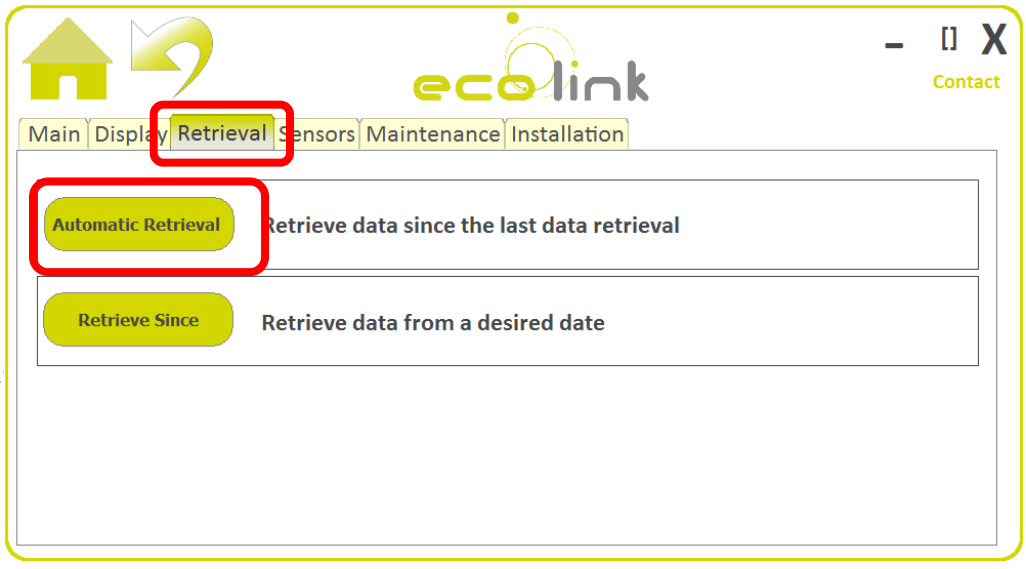


   If not, set the time of the counter by following the ***Setting the time of a counter*** section, page 12.

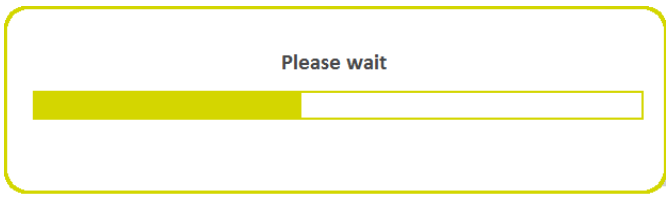
3. Click on ***Automatic retrieval***, or open the ***Retrieval*** tab and then click on ***Automatic retrieval.***



OR

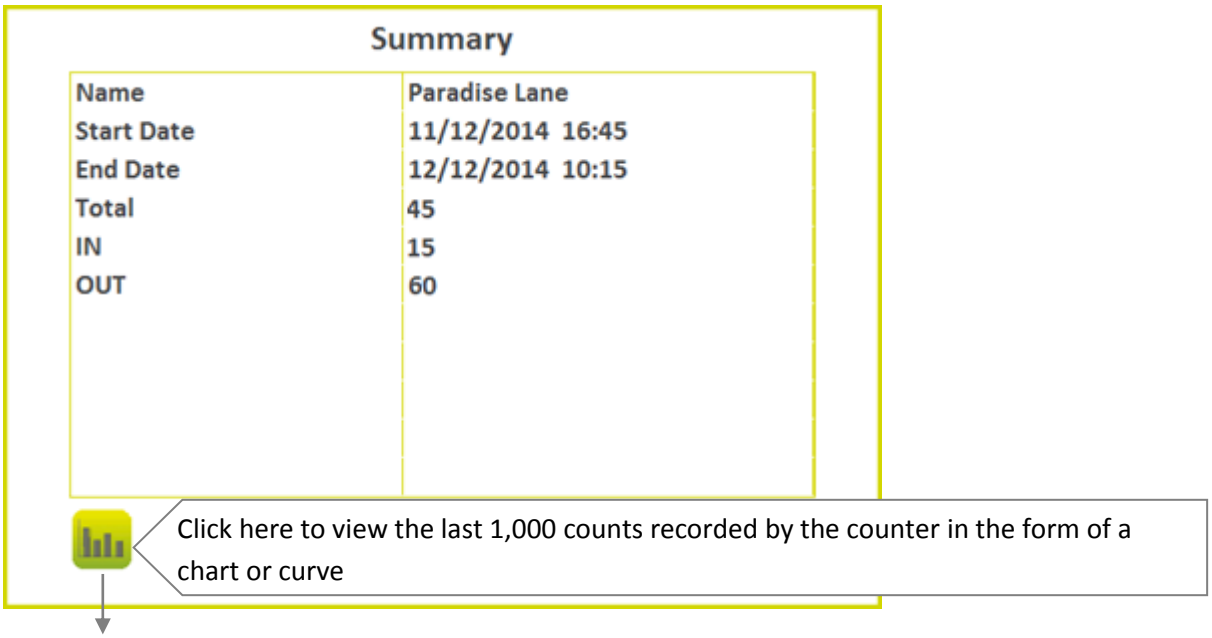


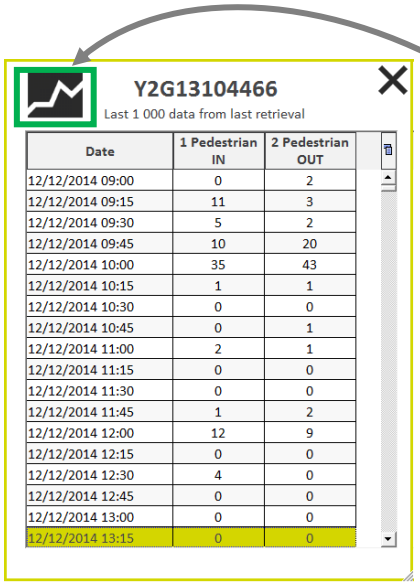
A progress bar comes up. Wait till the progress bar is closed.

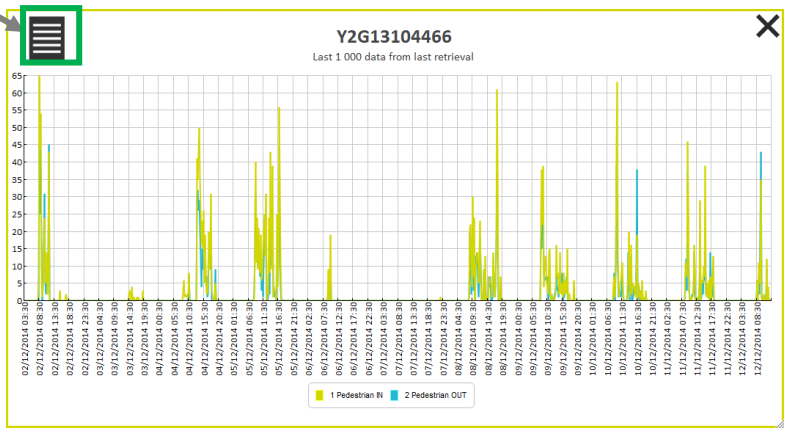


A summary of the retrieved data comes up once the retrieval is complete.

The summary gives a brief overview of the retrieved data: retrieved period and values recorded over this period.







When should I use this type of data retrieval?

Each time an automatic retrieval is made (see the ***Retrieving the Data Recorded since the Last Data Retrieval*** section, page 13), the counter stores the date of the retrieval in memory, so that the next time you retrieve the data, only the data recorded by the logger after this retrieval is collected.

Example:

- On January the 1st, I make an automatic retrieval > The counter stores the date and hour of this retrieval in memory.
- On February the 1st, I make an automatic retrieval > Eco-Link retrieves the data recorded by the logger between January the 1st and February the 1st.

If several persons retrieve the data using different laptops or tablets, retrieving the data prior to the last data retrieval can be useful.

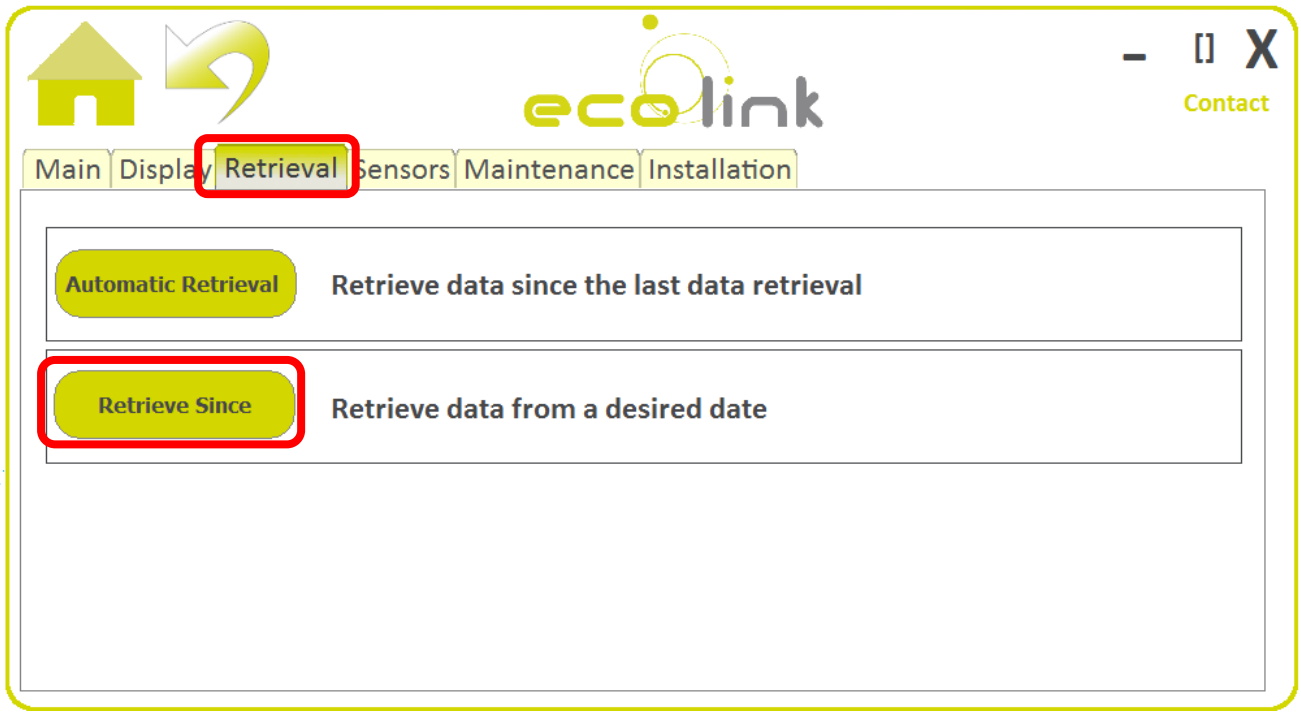
Example:

- On June 30th, someone made an automatic data retrieval, but forgot to transfer the data to Eco-visio.
- On July 31st, you make another automatic retrieval and send the data to Eco-Visio, but the data before June 30th is missing > make a ***Retrieve since*** and select a date prior to June 30th. Eco-link will retrieve the missing data.

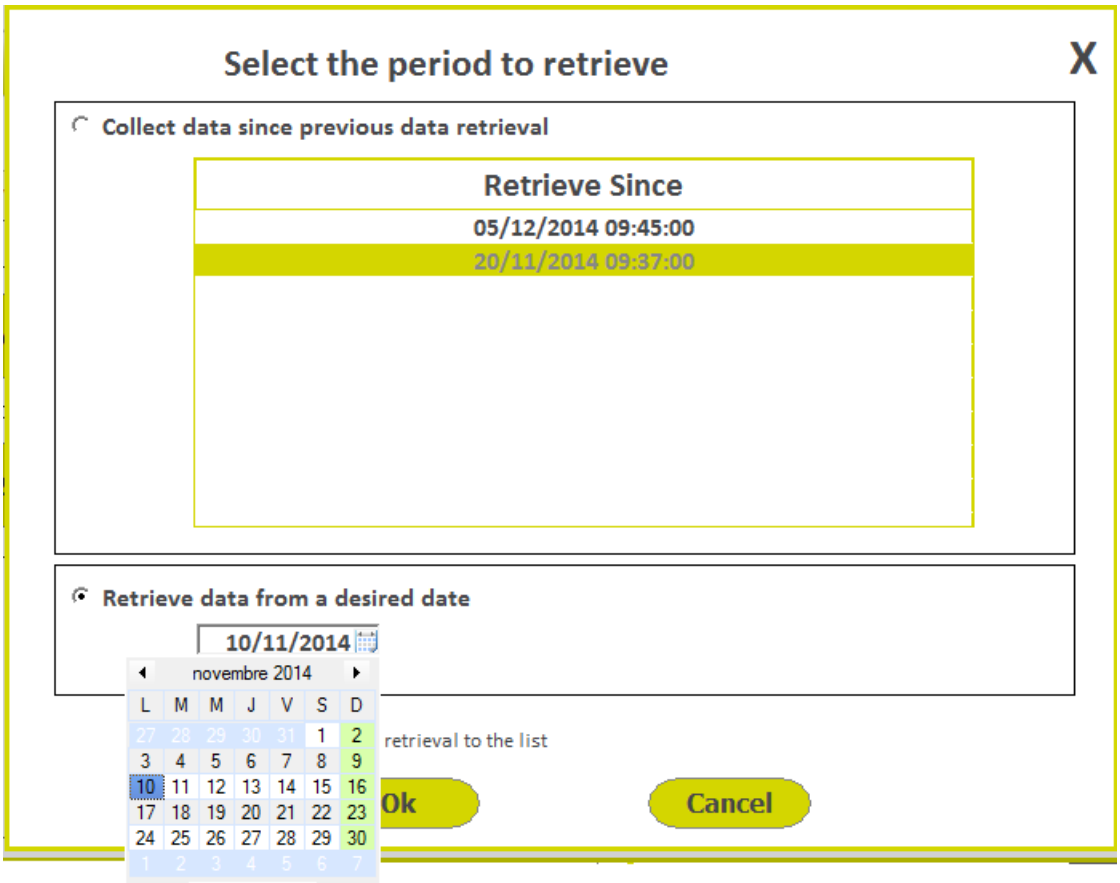
- Counters with a serial number starting with a letter other than X or Y, and with 60 minutes data recording interval: if the last data retrieval was longer than to 21 months ago, all of the data will not be recovered.
- Counters with a serial number starting with a letter other than X or Y, and with 15 minutes data recording interval: if the last data retrieval was longer than 330 days ago, all data will not be recovered.
- Counters with a serial number starting with the letter X or Y: if the last data retrieval was longer than two years ago, all data will not be recovered.

How can I make this type of data retrieval?

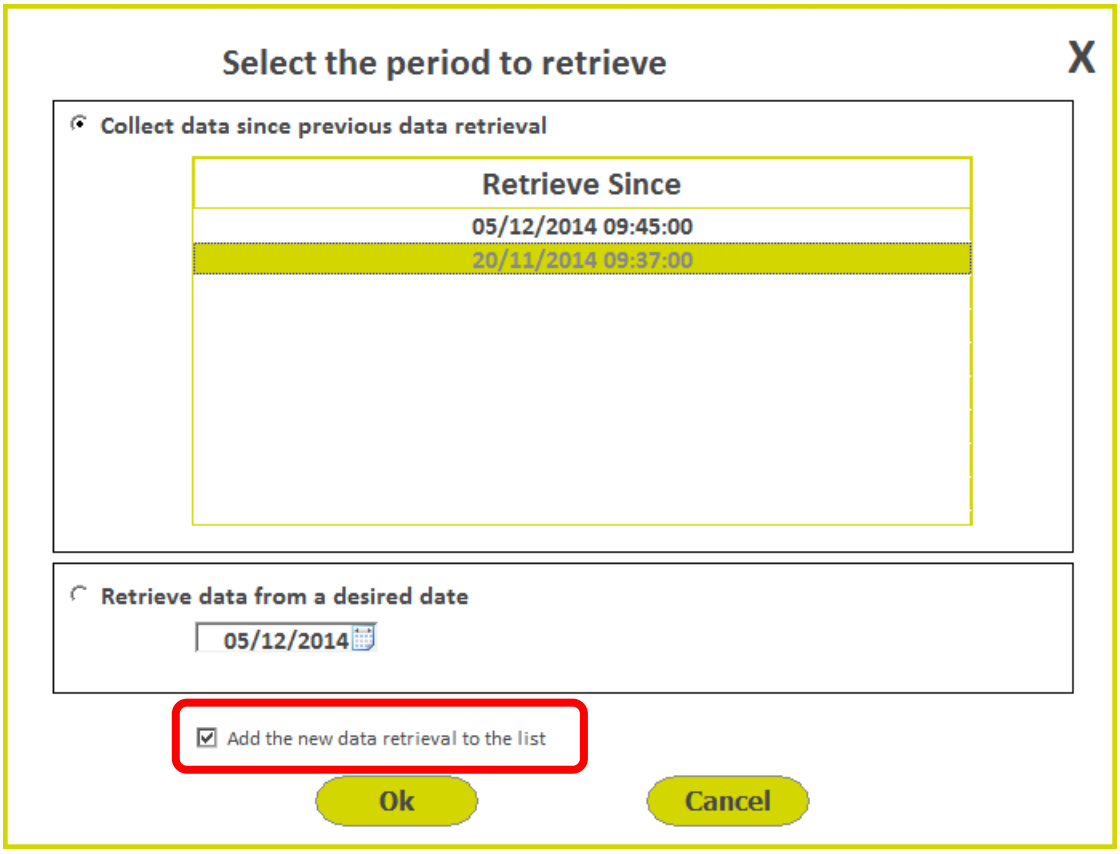
1. Connect to the counter by following the ***Connecting to an Eco-Counter*** section (page 9).
2. Open the ***Retrieval*** tab and click on ***Retrieve Since***.



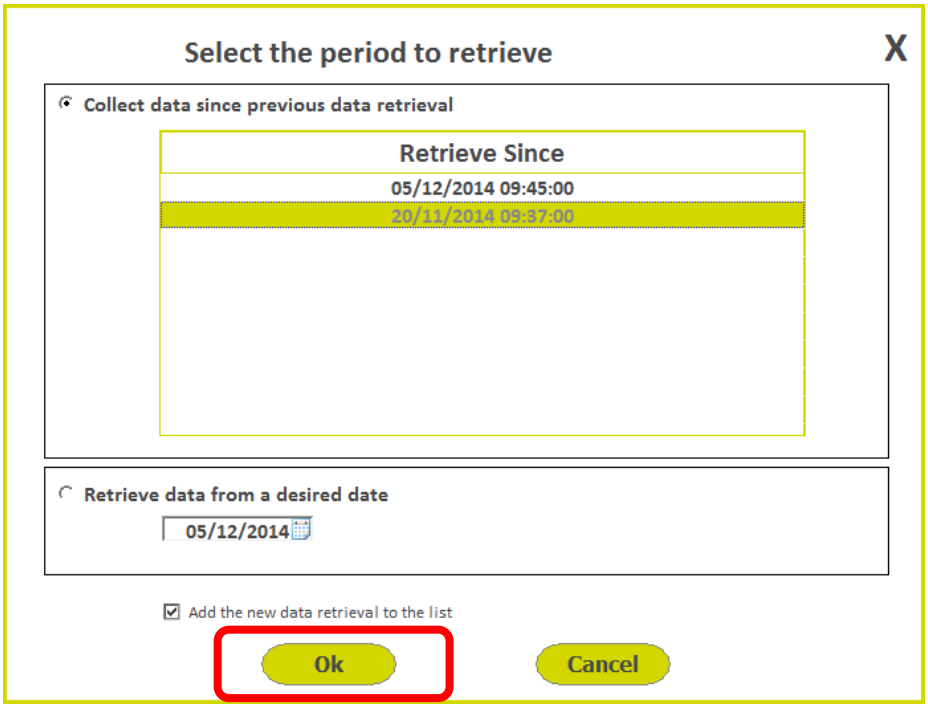
3. Select a date of data retrieval or a date in the calendar.



4. Untick the box ***Add the new data retrieval to the list*** if you don't want the Eco-Combo logger to save the date and hour of this retrieval > The next time you will make an automatic retrieval, the data recorded since the previous data retrieval will be retrieved.

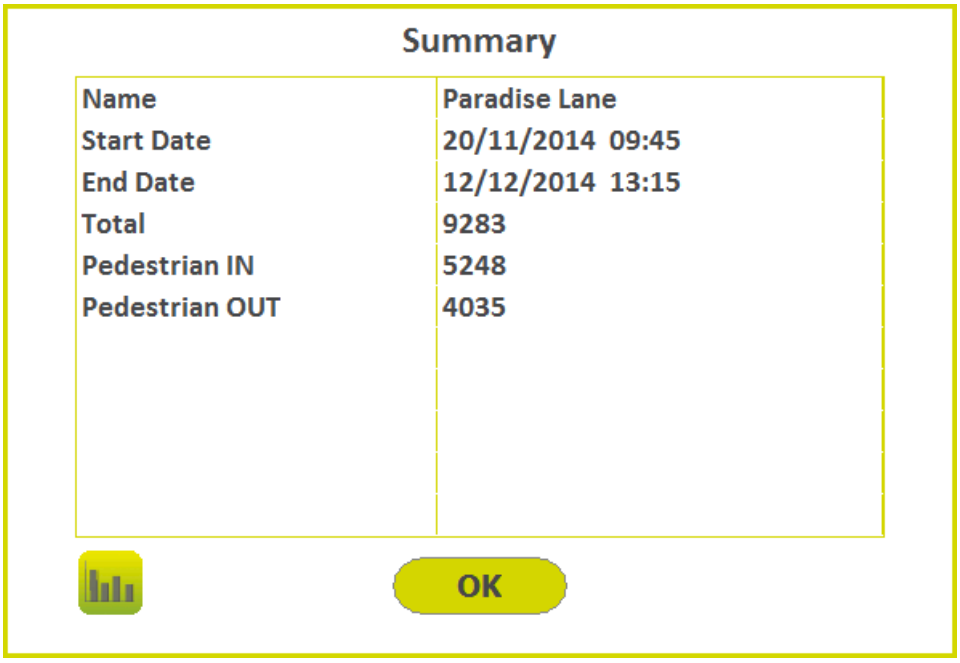


5. Click on **OK.**



A summary of the retrieved data comes up once the retrieval is complete.

The summary gives a brief overview of the retrieved data: retrieved period and values recorded over this period. Click on **Ok** to close the summary.



The data recorded since the date selected in step 3 has been saved on your laptop or tablet.

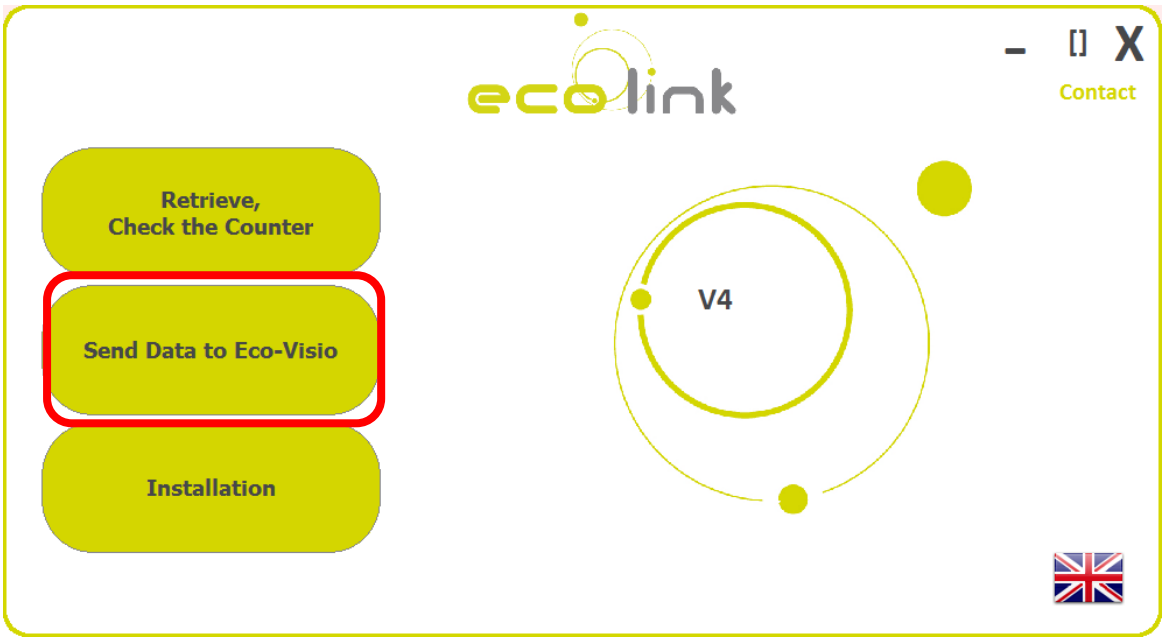
VI. TRANSFERRING DATA TO ECO-VISIO

An Internet connection is necessary to transfer data to Eco-Visio.

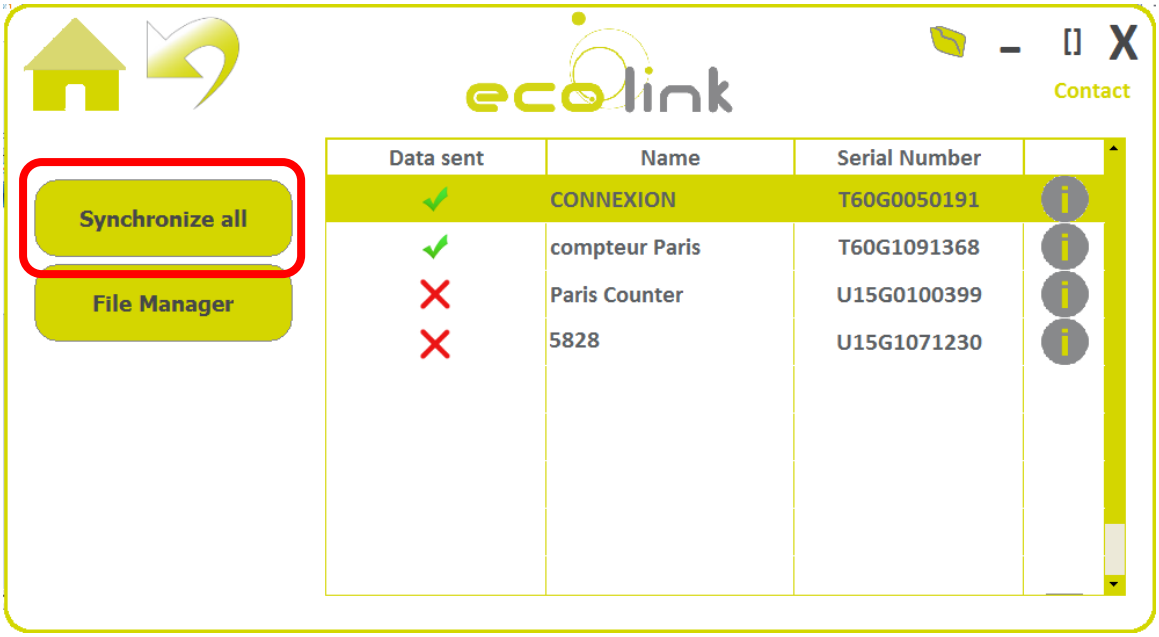
A. Transferring Data to Eco-Visio

You have just retrieved the data and want to analyse it in Eco-Visio. Proceed as follows to transfer the data to Eco-Visio:

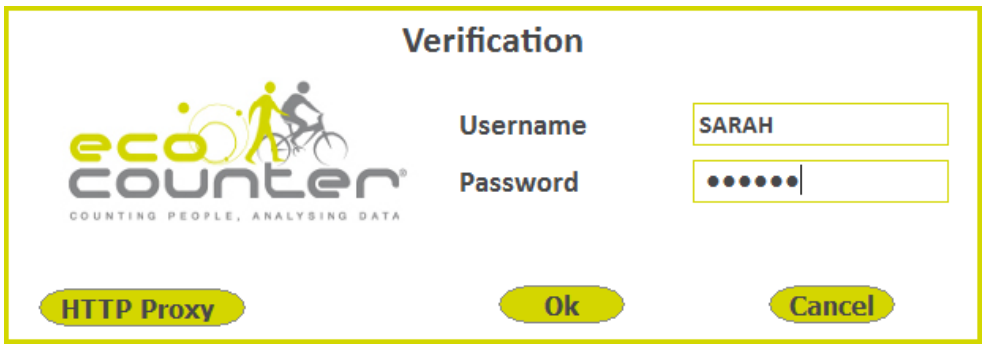
1. On the Eco-Link main page, click on ***Send data to Eco-Visio***.



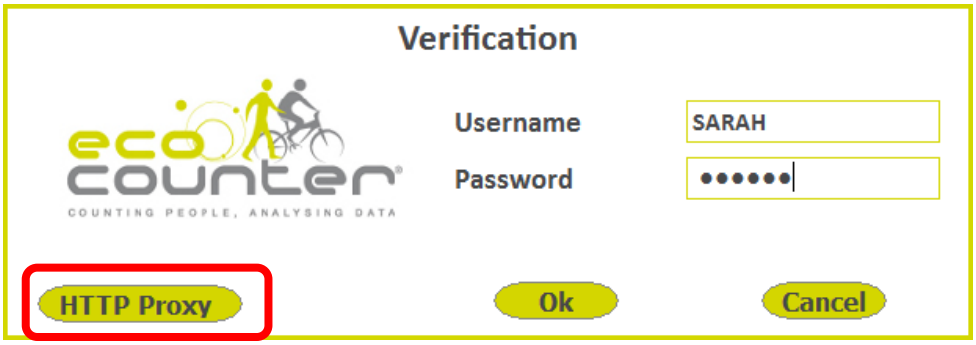
2. Click on ***Synchronise all***.



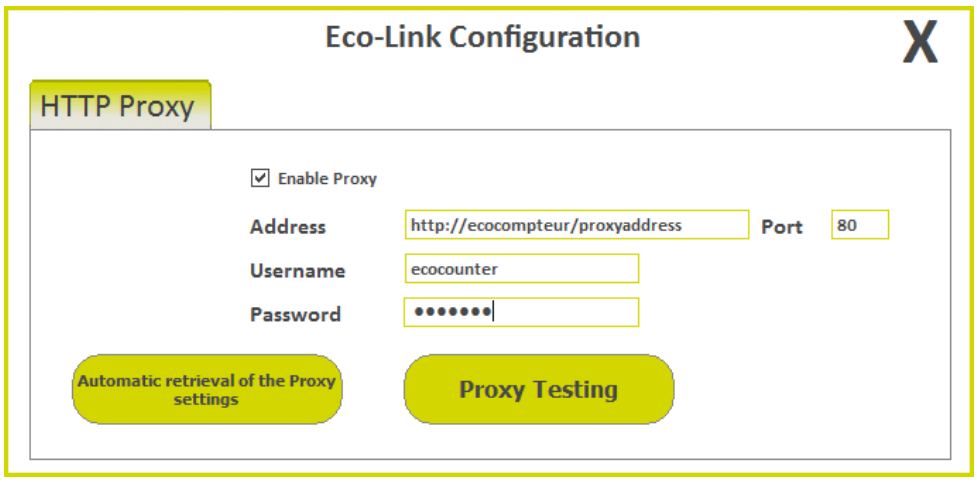
3. Enter your login and password for Eco-Visio.



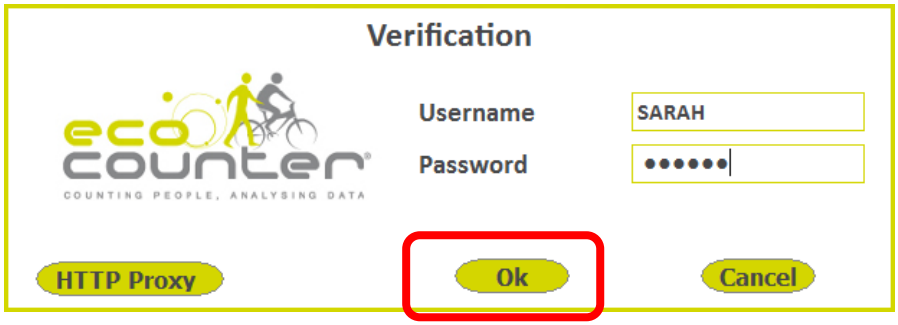
- Click on ***HTTP Proxy*** if your network is protected by a Proxy.



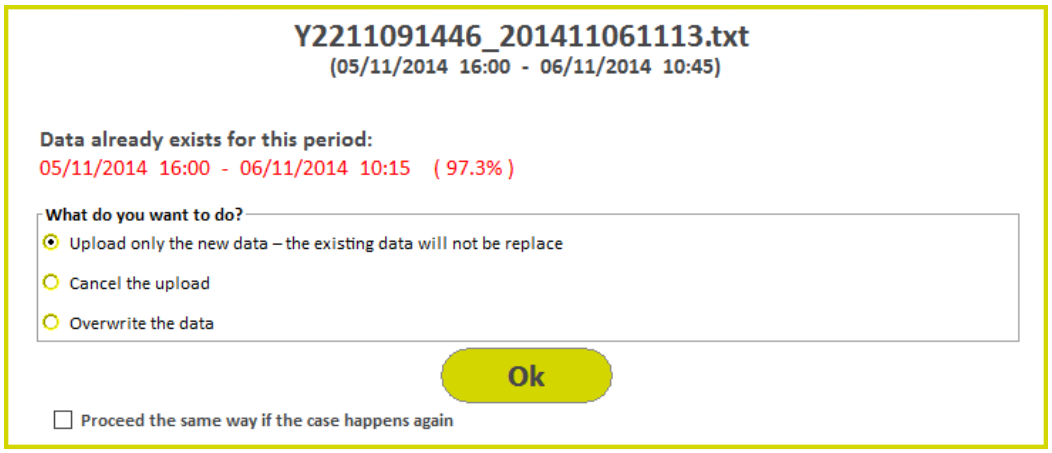
- Fill in the fields and click on ***Proxy testing*** to make sure that the proxy settings are correct.



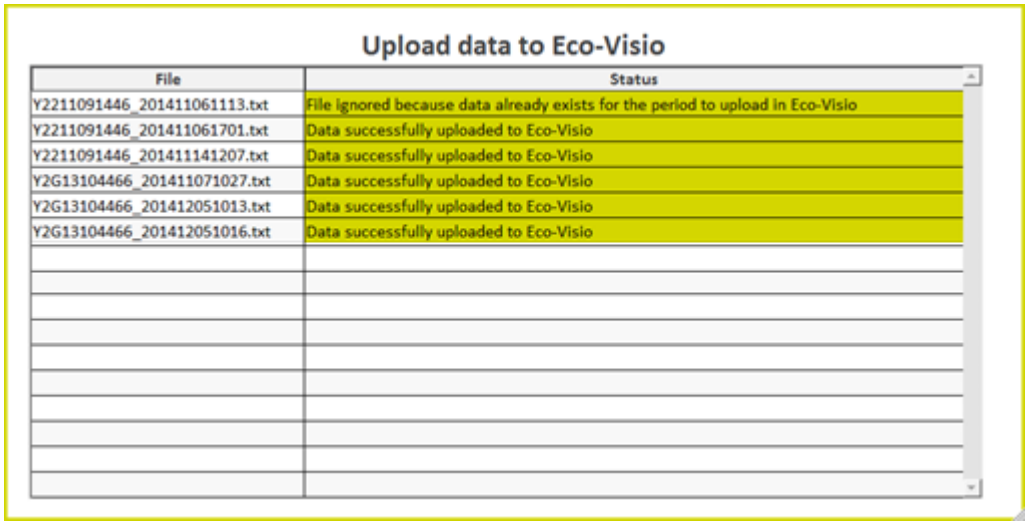
4. Click on ***Ok*** to transfer the data to Eco-Visio.



If data already exists in Eco-Visio for the period to upload, a new window opens asking you what to do. Select the appropriate action and click on ***Ok***.



A new window opens showing the status of each transfer.

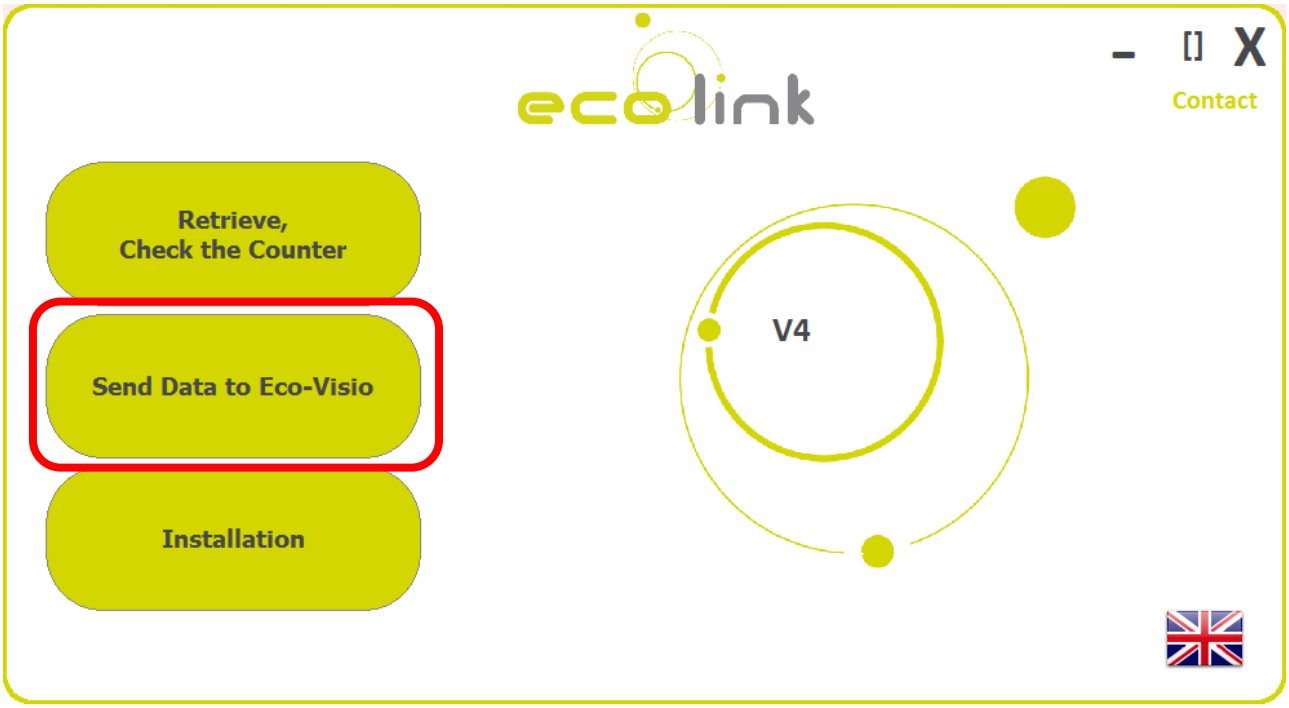


A tick in column ***Data sent*** also indicates if the transfer was made successfully.

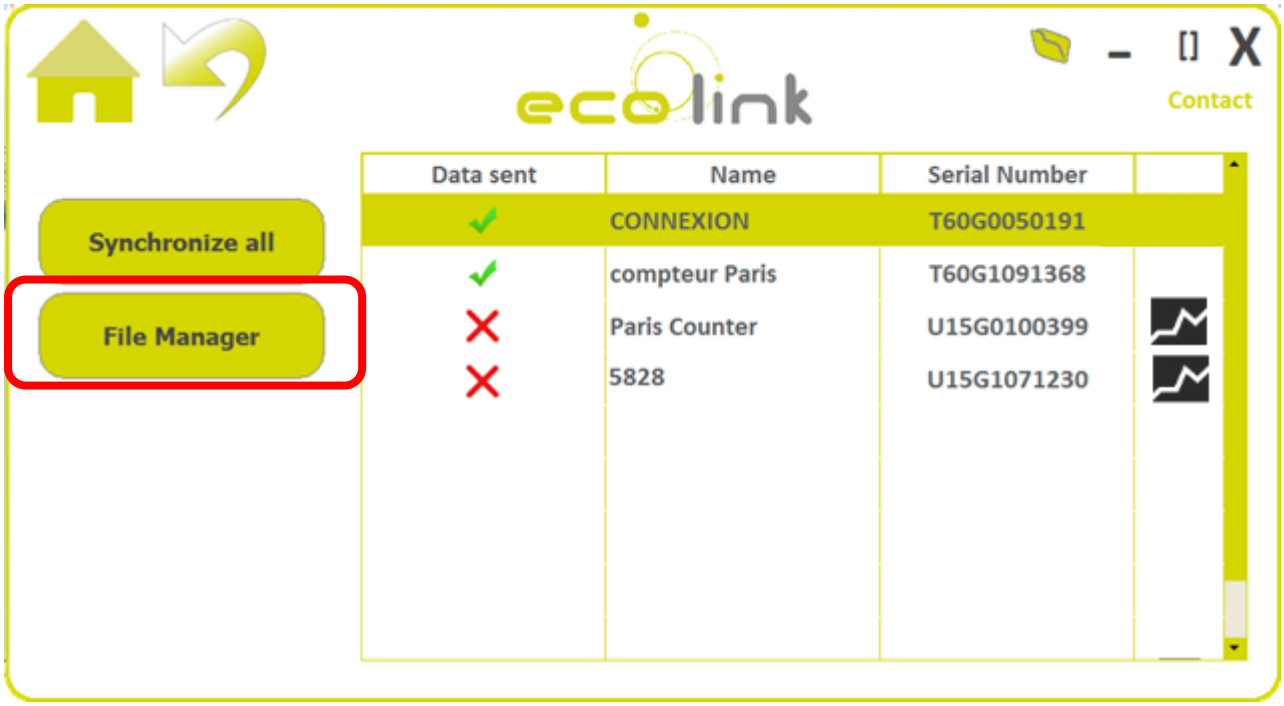
B. Transferring Only the Desired Data to Eco-Visio

This function can be useful if you want to transfer the data of a unique counter to Eco-Visio, or in the rare case that a data transfer would have failed with the ***Synchronise All*** function.

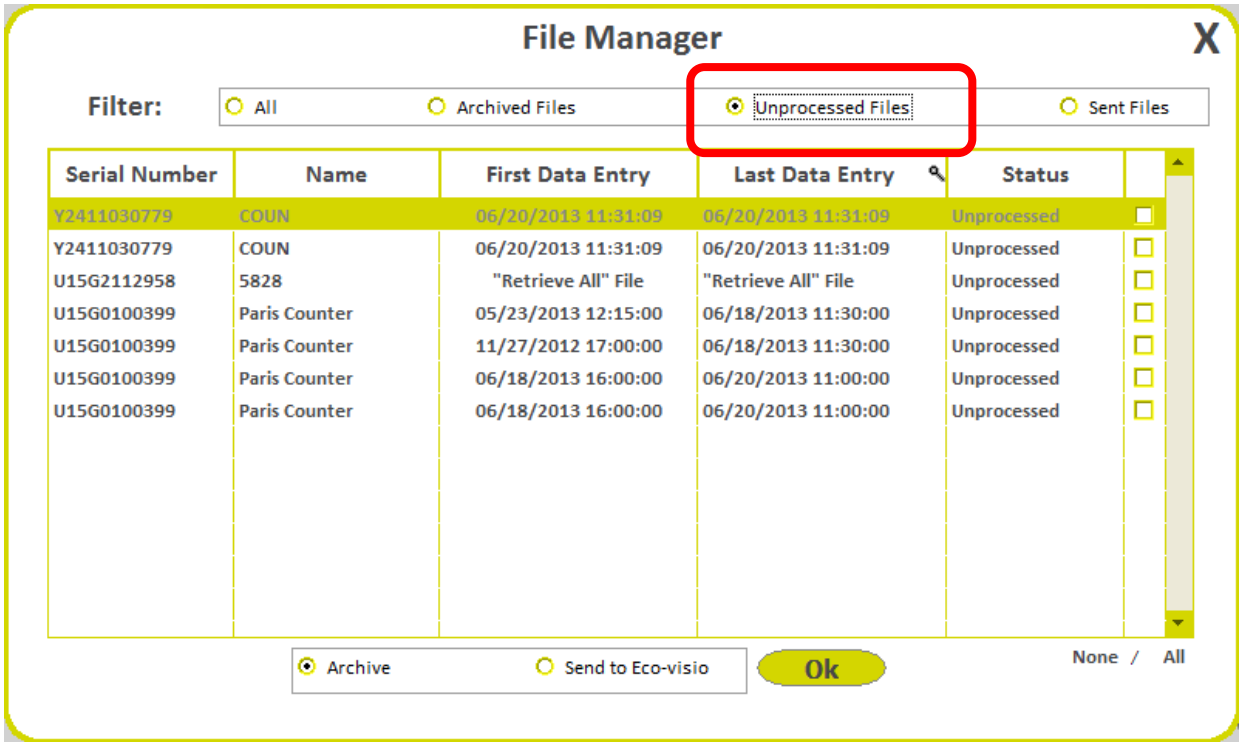
1. On the Eco-Link main page, click on ***Send data to Eco-Visio***.



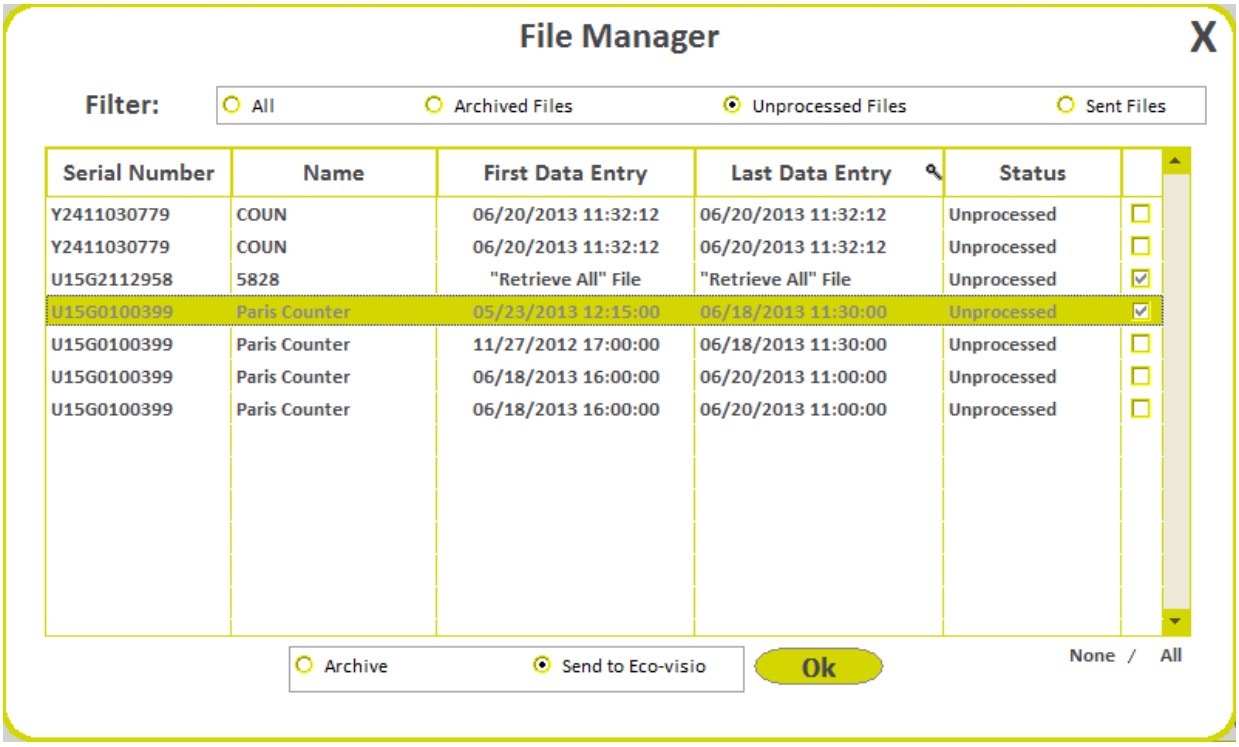
2. Click on ***File Manager***.



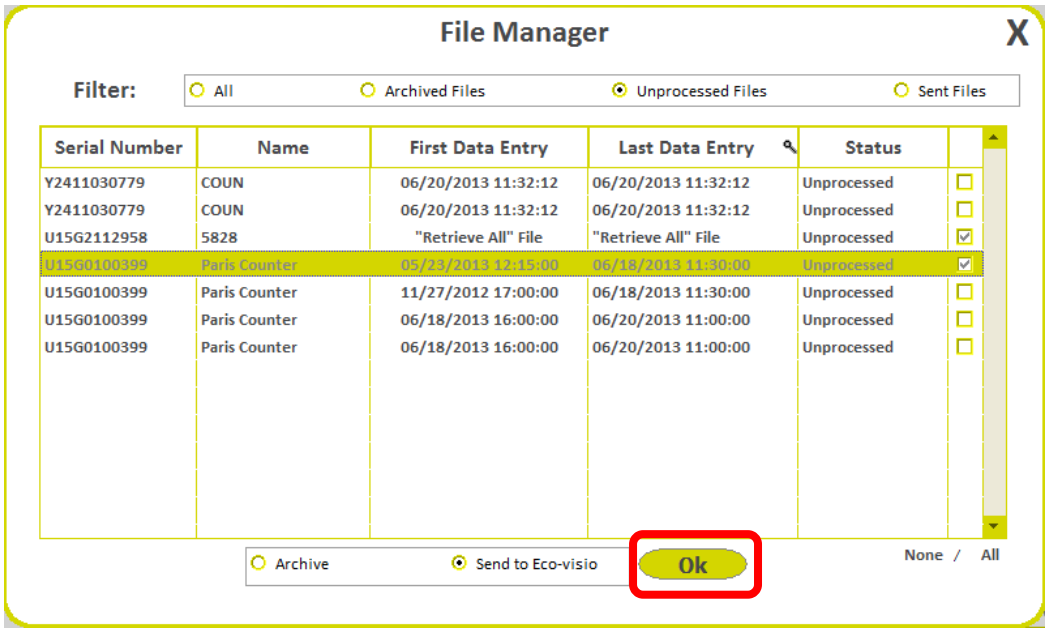
3. Tick the box ***Unprocessed Files***.



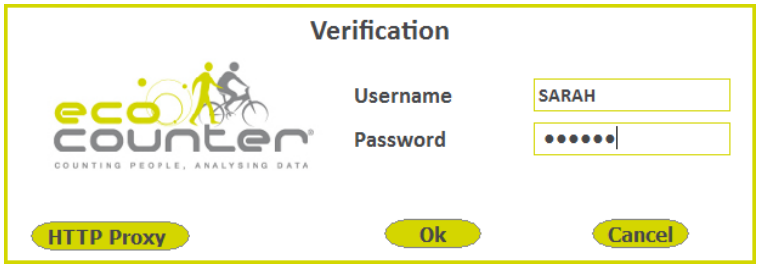
4. Tick the box of the data retrieval(s) you wish to transfer to Eco-Visio, and then tick the box ***Send to Eco-Visio***.



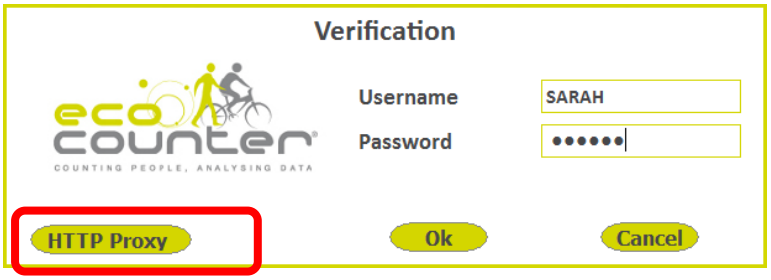
5. Click on ***Ok*** to transfer the data.



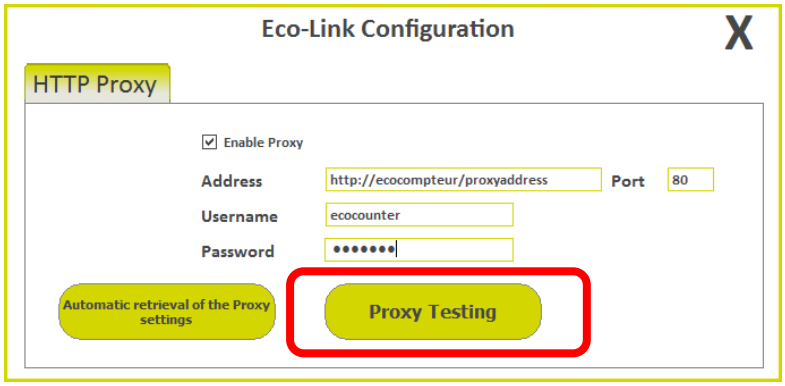
6. Enter your login and password for Eco-Visio.



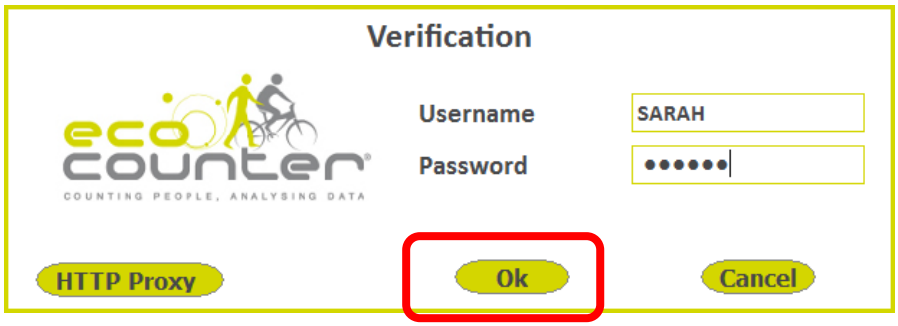
- Click on ***HTTP Proxy*** if your network is protected by a Proxy.



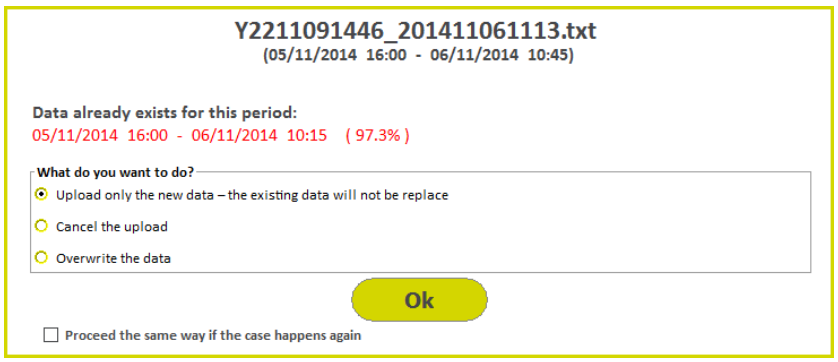
- Fill in the fields and click on ***Proxy testing*** to make sure the proxy settings are correct.



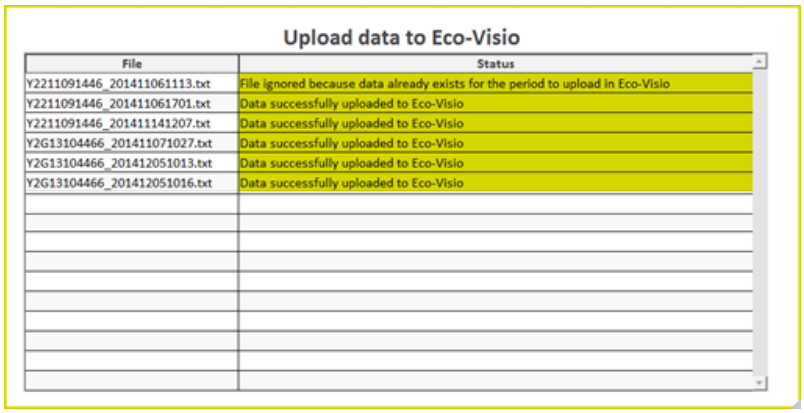
7. Click on ***Ok*** to transfer the data to Eco-Visio.



If data already exists in Eco-Visio for the period to upload, a new window opens asking you what to do. Select the appropriate action and click on ***Ok***.

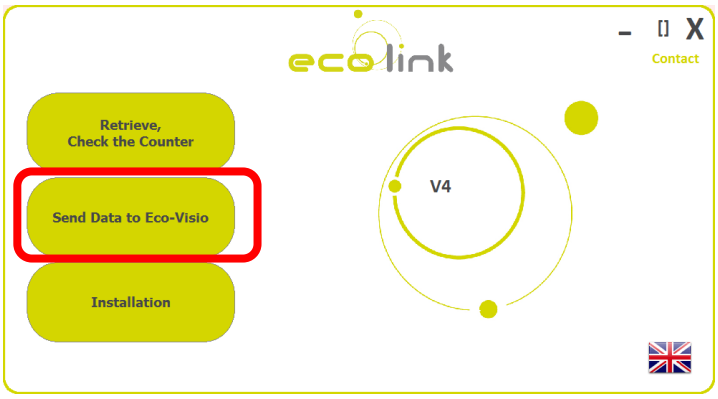


A new window opens showing the status of each transfer.

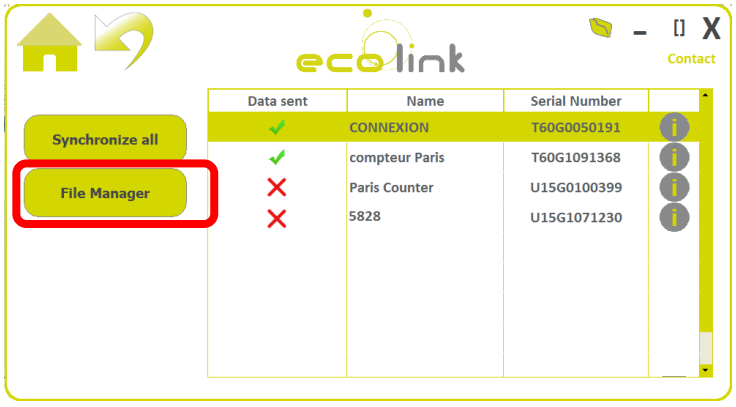


VII. SEEING THE SATE OF THE DATA TRANSFERS

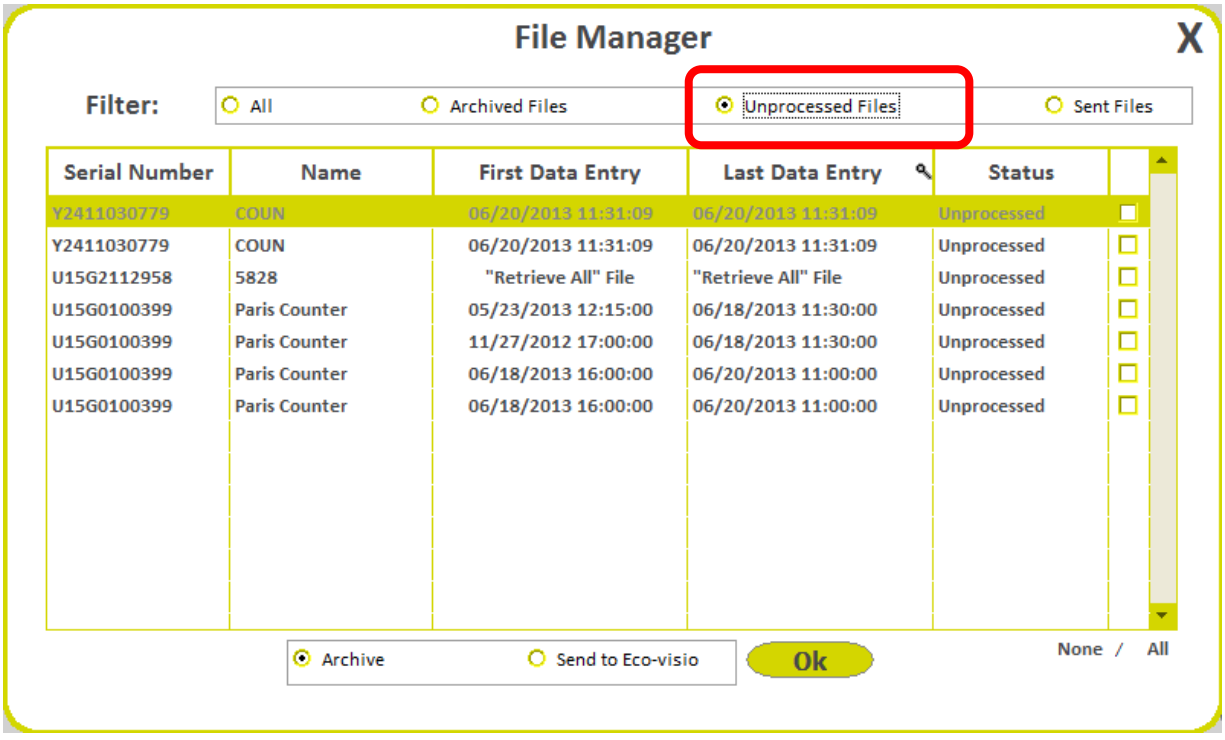
1. On the Eco-Link main page, click on ***Send Data to Eco-Visio***.



2. Click on ***File Manager***.

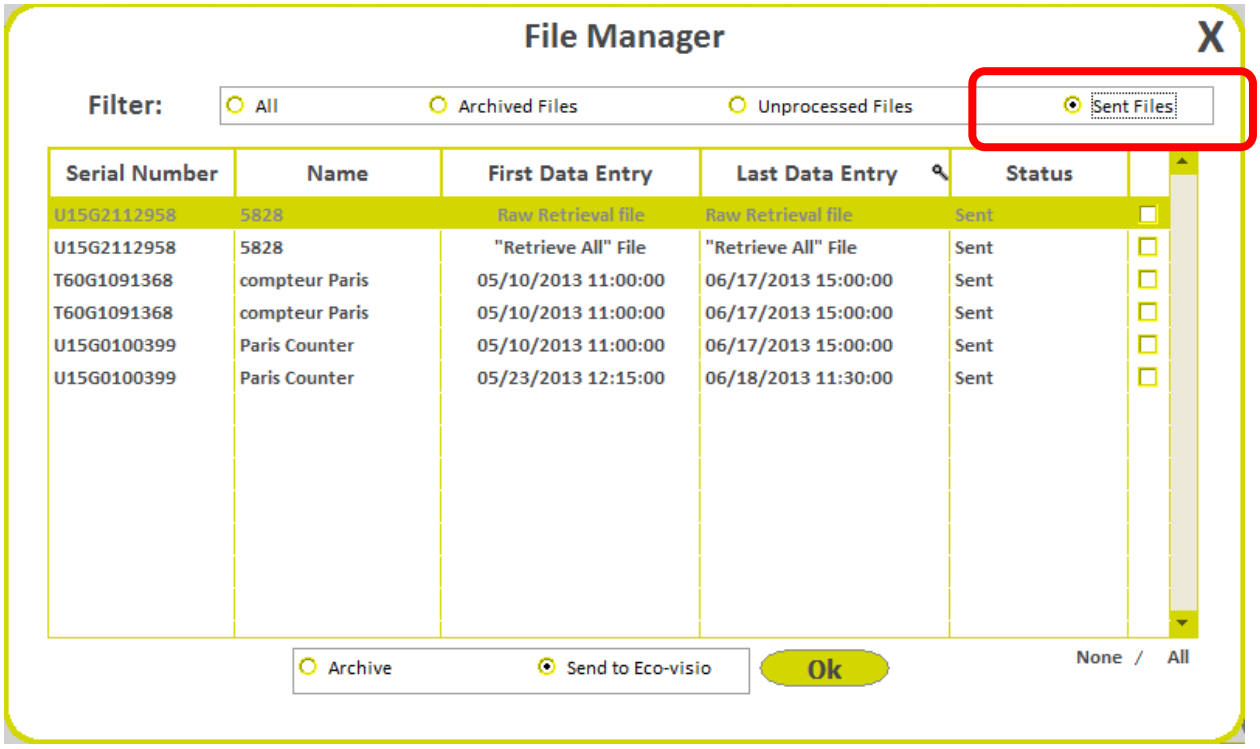


3. Tick the box ***Unprocessed Files*** to see all the files which have not been transferred to Eco-Visio.
   All the files which have not been transferred to Eco-Visio appear in the tab.



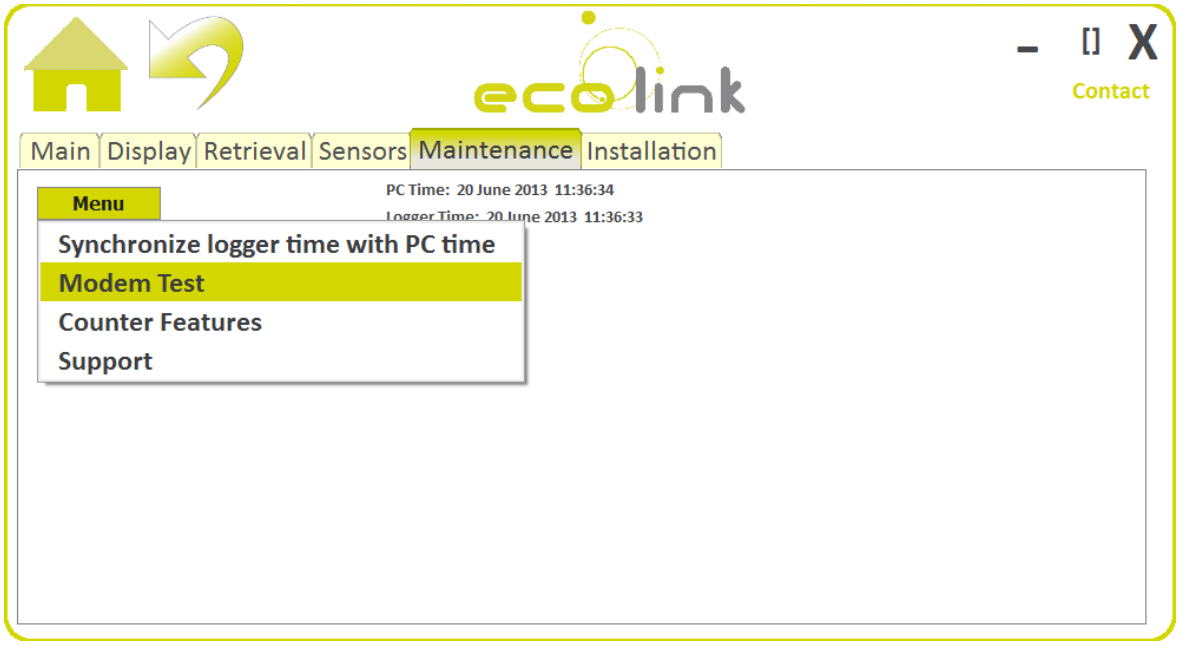
Refer to the section ***transferring Only the Desired Data to Eco-Visio*** (page 22) to learn how to send unprocessed files to Eco-Visio.

- Tick the box ***Sent Files*** to see all the files which have been transferred to Eco-Visio.

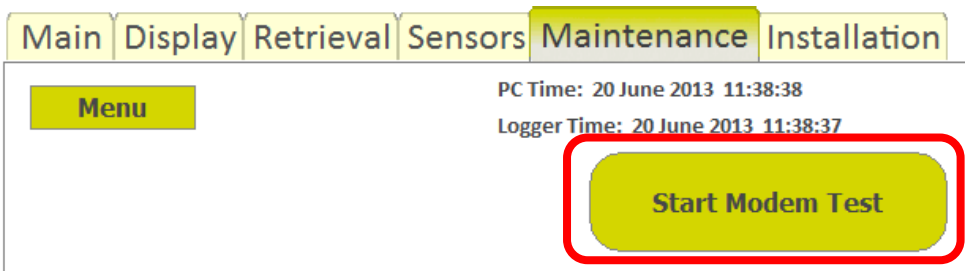


VIII. TESTING A GSM MODEM

1. Connect to the counter by following the ***Connecting to an Eco-Counter*** section (page 9).
2. In the Maintenance tab, click the ***Menu*** button > ***Modem Test***.



3. Click on ***Start Modem Test***.



The modem test is made of four steps. If everything goes well, you reaches the fourth step, and Eco-Link indicates that the modem test was successfull.

If the modem test stops before reaching step four, click on ***Stop Modem Test***, and make the modem test again after having made th necessary verifications on your Eco-Counter.

IX. MODIFYING THE SENSORS SETTINGS

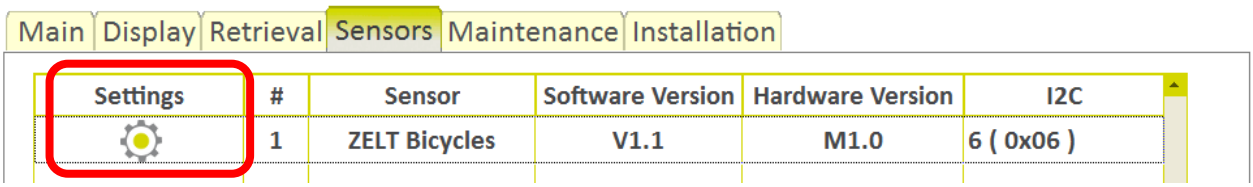
The settings have been set by Eco-Counter according to the indications given with regard to the installation site.

If you have seen counting problems, you can however adjust the sensors' settings by proceeding as follows:

1. Connect to the counter by following the ***Connecting to an Eco-Counter*** section (page 9).13).

2. Open the ***Sensors*** tab.

3. Click on the gear icon under the column ***Settings***.



4. Adjust the settings.

5. Make verifications of counts in order to check that the selected settings are suitable. Refer to the below section to make verifications of counts.

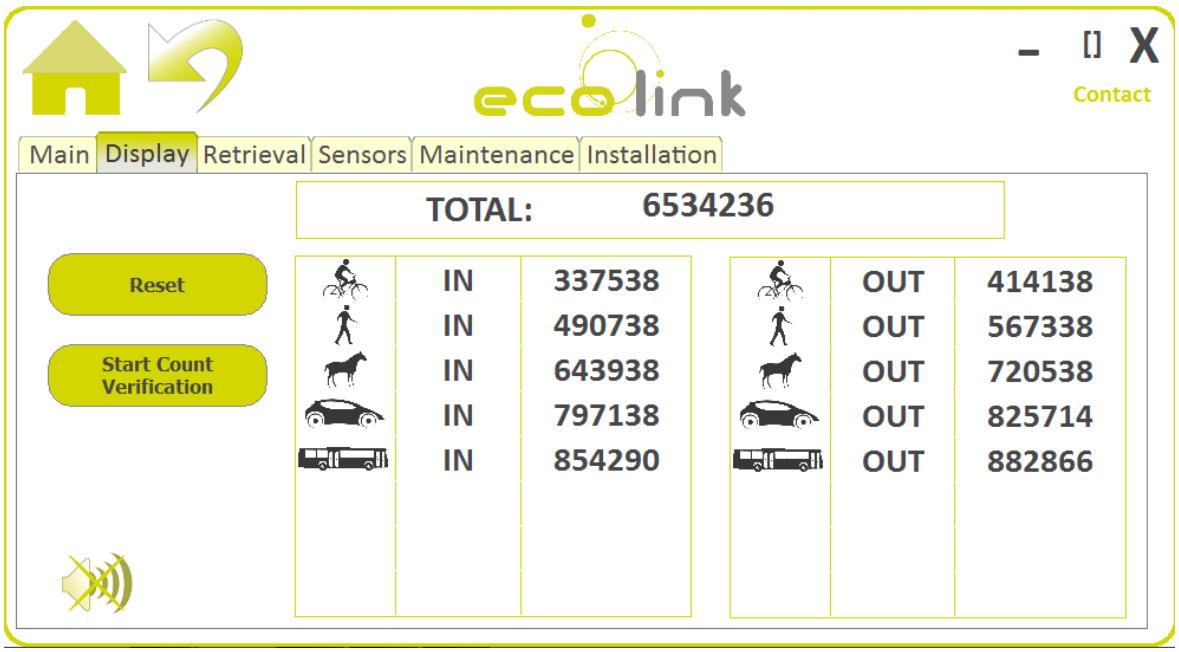
X. MAKING VERIFICATIONS OF COUNTS

Making verifications of counts enables to check the counts' precision in real-time.

Proceed as follows to check the counts precision:

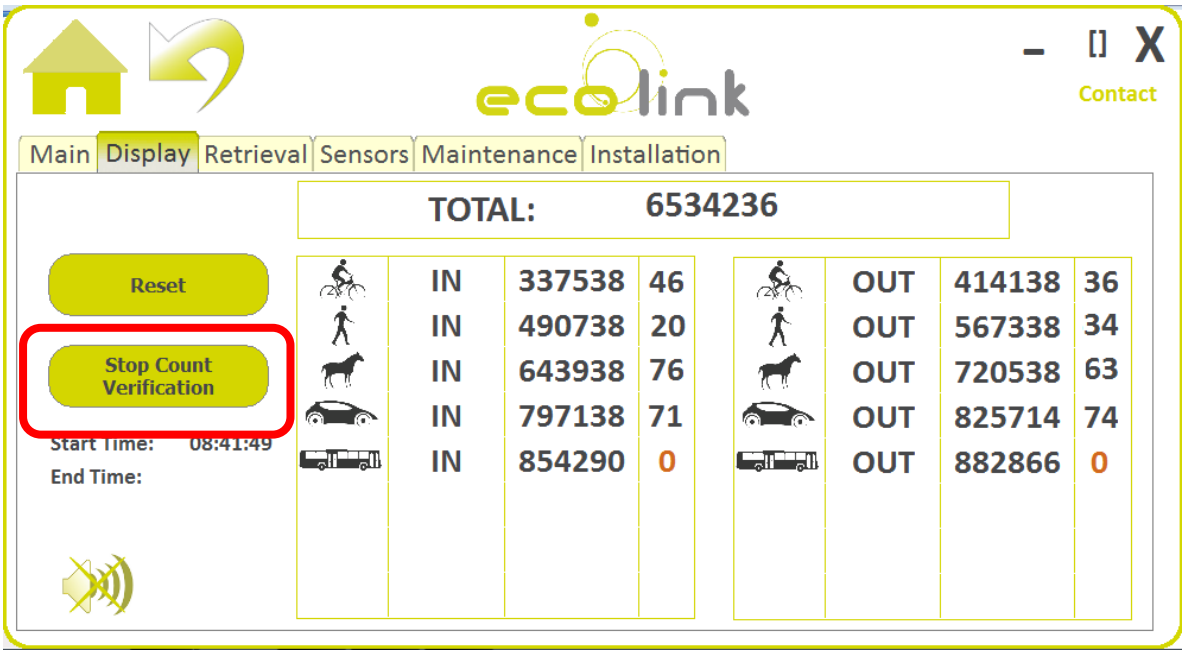
1. Connect to the counter by following the ***Connecting to an Eco-Counter*** section (page 9).

2. In the ***Display*** tab, click on ***Start Count Verification***.



3. Simulate passages on the sensors.

4. Click on ***Stop Count Verification*** once the verification session is over.



Click on the volume control  in order to hear a bip at each passage. The bip is longer in direction IN than OUT.

XI. REINITIALIZING THE DISPLAY

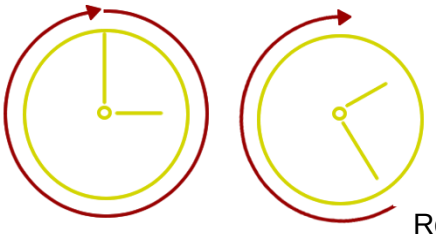
Reinitializing the display for the counting data generates a reset of the sensors on counters having a serial number starting with X or Y.

The passages detected in the current hour or quarter-hour (depending if the logger records data every 60 or 15 minutes) will be lost.

The data stored in the logger will not be erased.

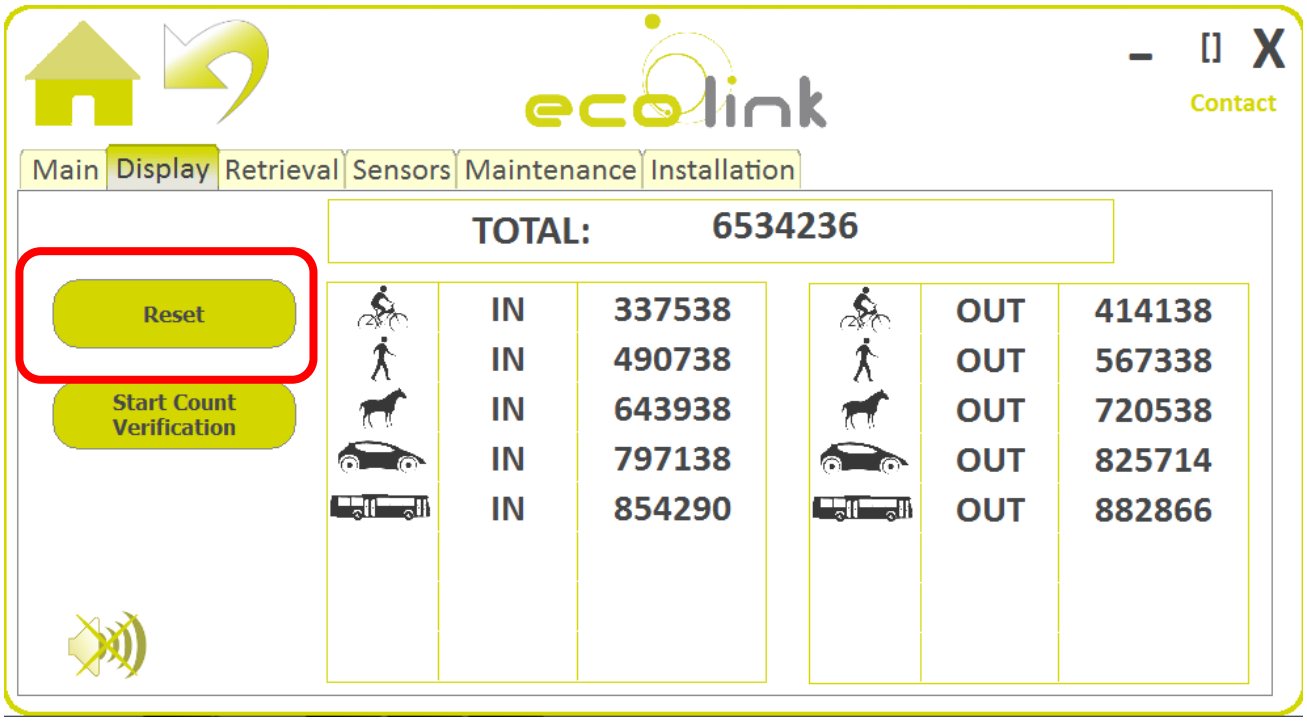
Example: At 15:00 pm, the logger records the passages recorded between 14:00 and 15:00 pm.

If a Reset is done at 14:25 pm, the logger will not save the passages detected between 14:00 and 14:25 pm.



Reset

- Click on ***Reset*** to reinitialize the display.



If the serial number of your counter starts with X or Y, reinitializing the display for the counting data also generates a reset of the sensors.

XII. CLEANING THE SEARCH LIST

A. By Erasing the Counters Manually

Eco-Link keeps each counter with which Eco-Link has already been connected in the search list.

Removing counters manually can be useful if your search list is overloaded, and if there are counters with which you no longer need to interact at the moment.

Removing counters from the search list enables to free the search list from unused counters. It is possible to add again counters removed from the list: to do so, just wake up the counter previously removed from the list by using the magnetic key, and click then on the ***Search*** button. The counter will add again to the search list.

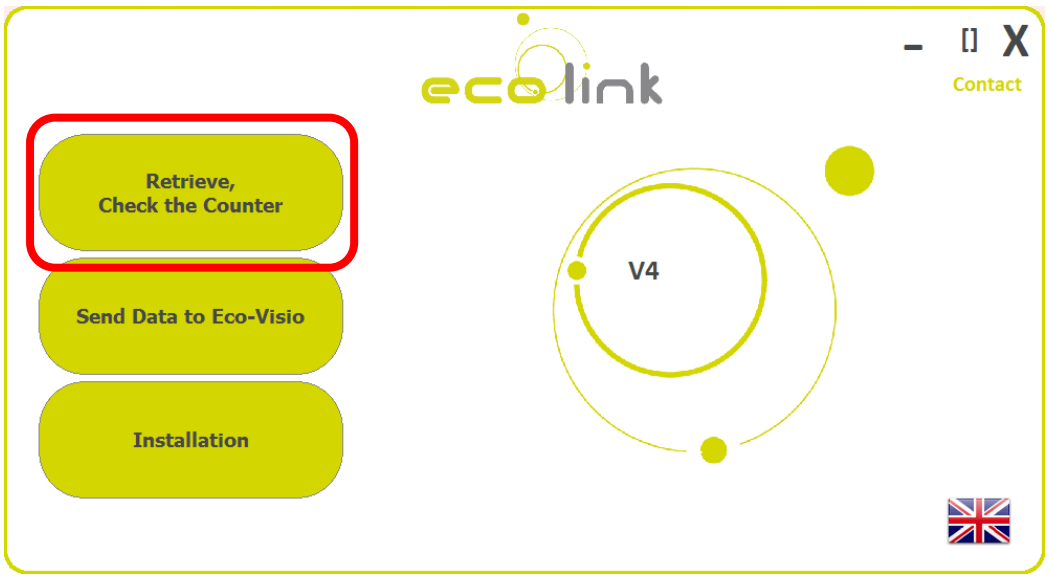
- Click on the cross located in front of the counters with which you don't need to interact for the moment in order to remove them from the search list.

On this example, we have decided to remove the Eco-Blue bluetooth device appearing at the top of the list because we have two Eco-Blue and this one is no longer used for the moment.

B. By Removing Automatically Undetected Counters

Eco-Link keeps each counter with which Eco-Link has already been connected in the search list. Removing automatically counters from the list enables to free the search list from all of the counters which are not detected by the Netbook PC.

1. On the Eco-Link main page, click on the button ***Retrieve, Check the counter***.



2. Click on the ***Clear List*** button.

All of the counters which are not detected by Eco-Link at the present moment are removed from the search list.

XIII. DISCONNECTING FROM AN ECO-COUNTER

Disconnect your Eco-Counter after each use by using the opposite button  .

This will spare the Eco-Counter's internal battery.

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).

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

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.

SOFTWARE

Problems related to software can be dealt with remotely. Please do not hesitate to contact Customer Service for assistance:

ECO-COUNTER CUSTOMER SERVICE

Tel: +33.(0)2.96.48.48.83
Fax: +33.(0)2.96.48.69.60
Email: support@eco-counter.com

COUNTING PEOPLE, ANALYSING DATA

MEEL - 1/16/2015

COUNTING PEOPLE, ANALYSING DATA

PNEUMATIC TUBE

INSTALLATION GUIDE

CONTENTS

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 :

- Stainless steel box

Including

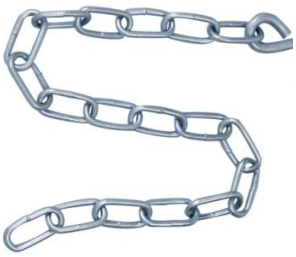
Eco-Combo

+

Battery Pack[1]

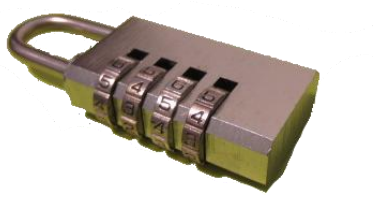
- Transducer

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



[1] Depending on whether you ordered a counting system with or without active GSM modem

- Padlock



- 2 nails per Pneumatic TUBE
- Fasteners
- Mini serflex clamps

- Pneumatic TUBEs:

➢ For shared roads: 2 Pneumatic TUBEs equipped with a special insert for dampening signal rebounds.

➢ For greenways: 2 mini-tubes and 2 shock absorbers

Mini-tube

Shock absorber

TO RETRIEVE YOUR DATA

A magnetic key

A Netbook[4]

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 with active GSM modem

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	Used to count: ▪ Only bicycles on roads with mixed traffic (e.g., buses, automobiles, motorcycles, etc.) – with direction recognition. Or ▪ 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

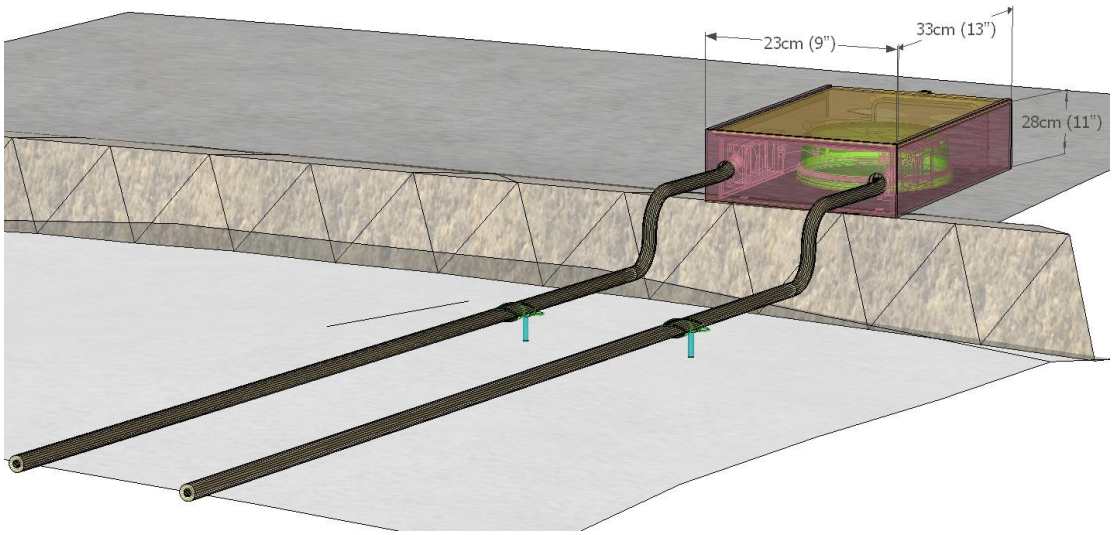
IV. INSTALLATION OF YOUR SYSTEM

A. EQUIPMENT NEEDED

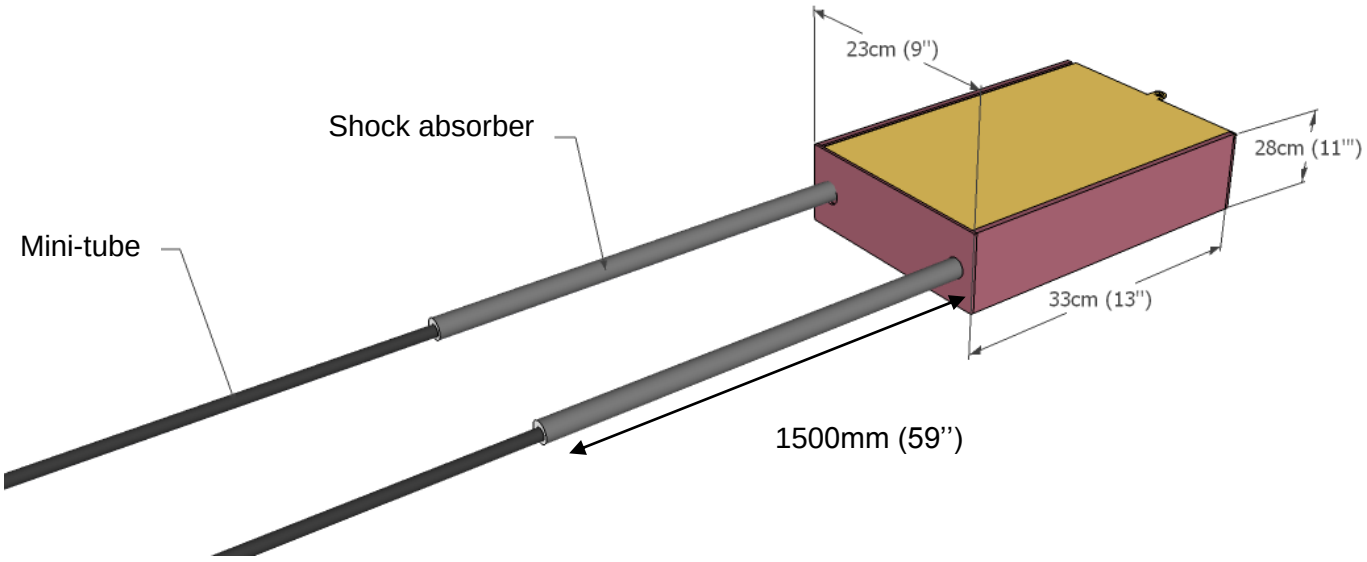
- A drill with a 6 mm Ø drillbit
- A hammer
- A marker or a piece of chalk
- Optional: four 10 mm diameter anchors (chemical anchors, for example). This is to attach the stainless steel box to the ground instead of using the chain to lock it to a nearby post.
- To test the system: a cycle or a car (according 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.INSTALLATION DIAGRAMS

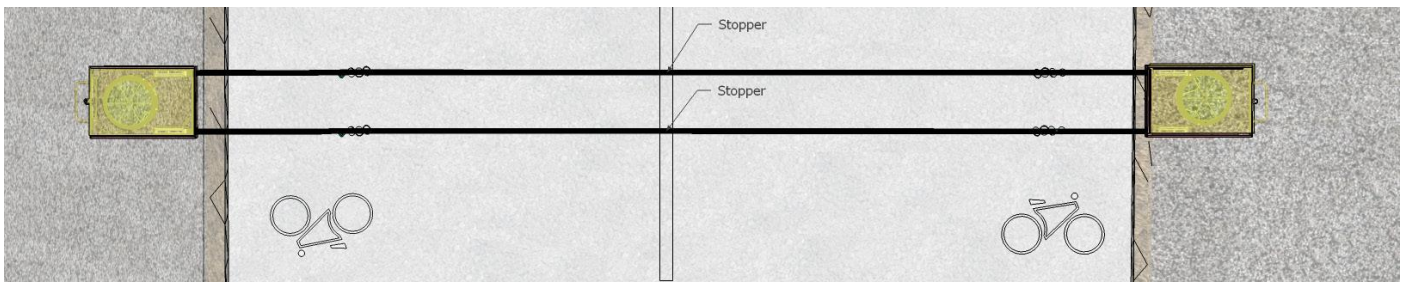
- TUBES Selective



- TUBES Greenways



- Bidirectional Pneumatic TUBES counting system on a shared road with bicycle lane on each sides of the road



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.

Example 1: Installation on a Shared Roadway

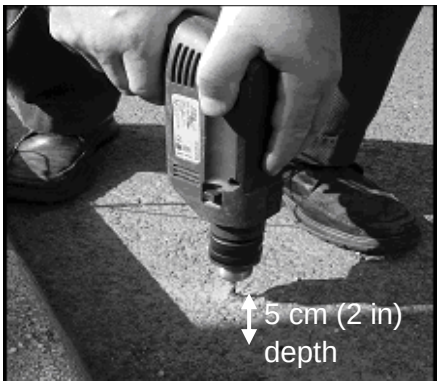
Example 2: Installation on a Greenway or Segregated Bike Lane

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



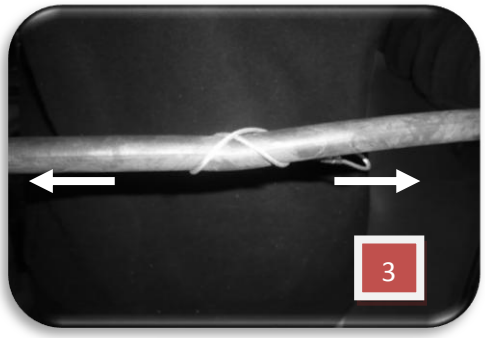
Pre-drill the points marked in step 2 to a depth of 5 cm (2 in).

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

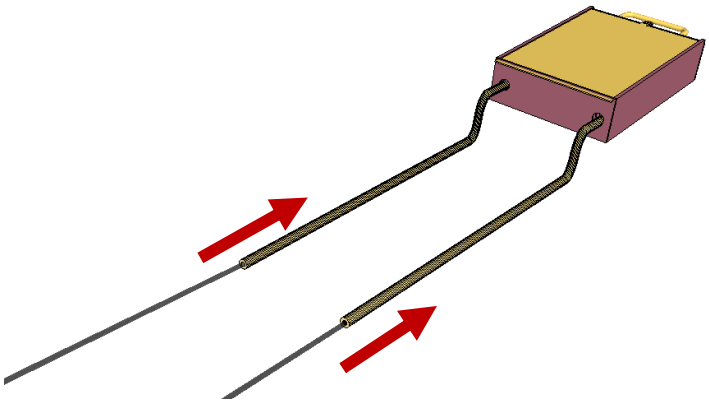
Tighten the Pneumatic TUBE of about 15% towards the stainless steel box. There should be little lateral movement in the TUBE(s) and they should snap back to their original position very rapidly if displaced.

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.

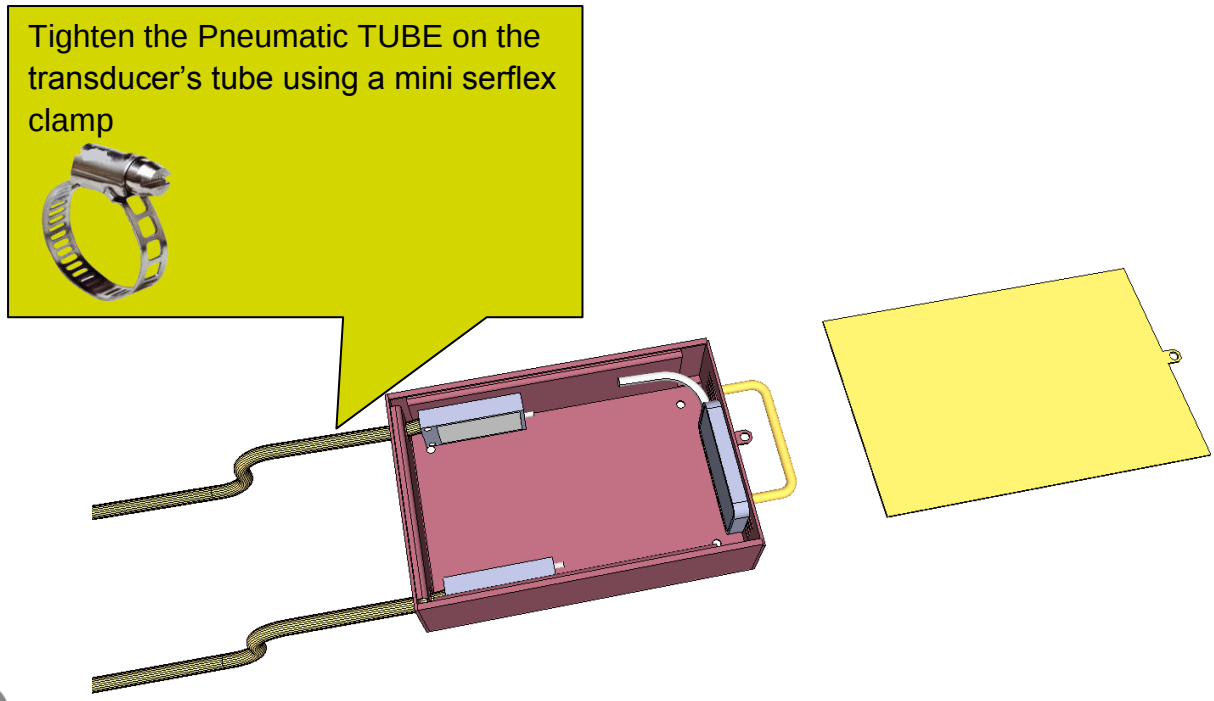
08. MAKE THE CONNECTIONS

1. If you have mini-tubes, plug the shock absorbers to the mini-tubes.



2. Insert the Pneumatic TUBE or shock absorber on the transducer's tube and tighten the Pneumatic TUBE or shock absorber on the transducer's tube using a mini serflex clamp.

   If you have two Pneumatic TUBEs, proceed the same way for the second TUBE.



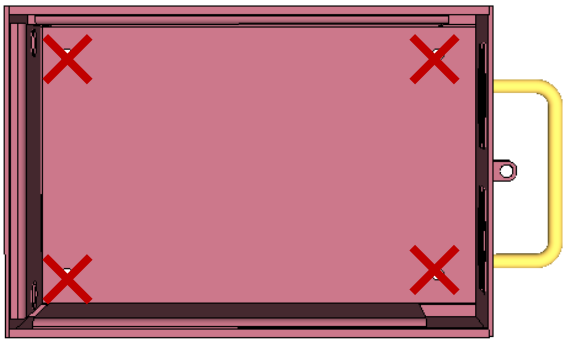
Each transducer presents an indication of directions IN and OUT.

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

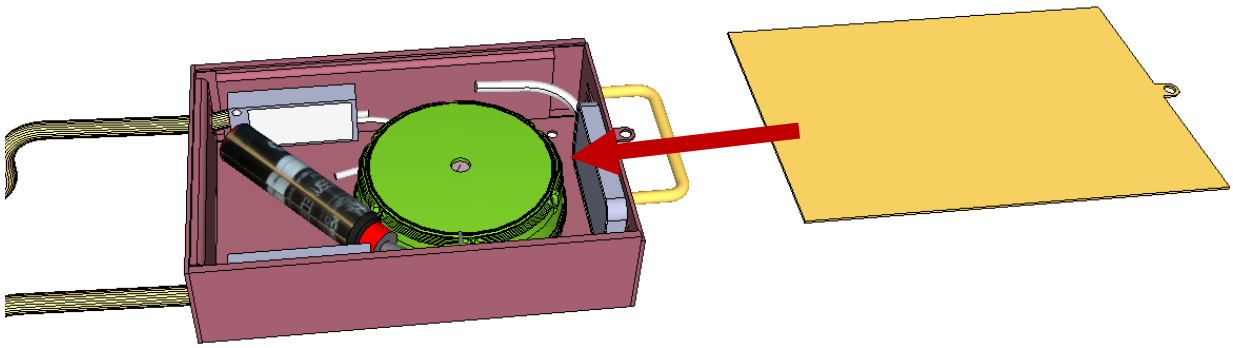
09. FIX THE STAINLESS STEEL BOX ON THE CURB OR NEAR THE EDGE OF THE PATH

a. OPTION 1 - FIXATION TO THE GROUND

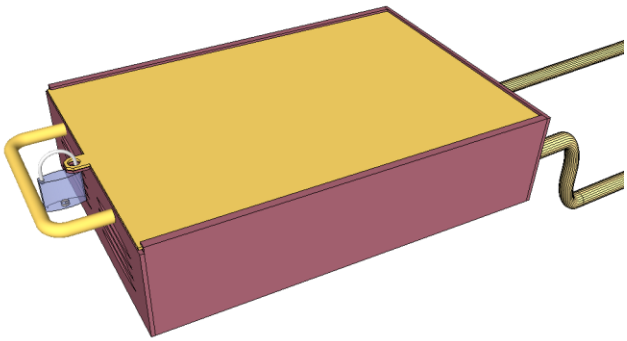
1. Screw the stainless steel box to the ground using anchors.



2. Shut the stainless steel box.



3. Padlock the stainless steel box.



b. OPTION 2 – FIXATION ON A POST

The fixation must be done at ground level.

- Wind the chain around the post, and padlock the chain and the stainless steel box.

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. Asjusting 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.

<table>
<tr><th>TYPE OF SYSTEM</th><th>SETTINGS TO APPLY</th></tr>
<tr><td>Unidirectional systems for bikes</td><td>No additional settings necessary</td></tr>
<tr><td>Bidirectional systems for bikes</td><td>

Setting the sensibility:

<table>
<tr><th>SENSIBILITY</th><th>APPLICATION CRITERIA</th></tr>
<tr><td>-2</td><td>Shared lane. Very severe criteria</td></tr>
<tr><td>-1</td><td>Shared lane. Standard criteria</td></tr>
<tr><td>0</td><td>Shared lane. Overlapping bicycles accepted</td></tr>
<tr><td>1</td><td>Standard bikeway</td></tr>
<tr><td>2</td><td>Bikeway with dense traffic</td></tr>
</table>

Setting the acceptable maximum speed for bicycles:

<table>
<tr><th>TEMPORIZATION</th><th>ACCEPTABLE MAXIMUM SPEED</th></tr>
<tr><td>-10/-9</td><td>43 km/h</td></tr>
<tr><td>-8/-7</td><td>36 km/h</td></tr>
<tr><td>-6/-5</td><td>31 km/h</td></tr>
<tr><td>-4/-3</td><td>27 km/h</td></tr>
<tr><td>-2/-1</td><td>24 km/h</td></tr>
<tr><td>0/+1</td><td>22 km/h</td></tr>
<tr><td>+2/+3</td><td>20 km/h</td></tr>
<tr><td>+4/+5</td><td>18 km/h</td></tr>
</table>
</td></tr>
</table>

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

Tel: +33 (0)2.96.48.48.83
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E-mail: support@eco-counter.com

COUNTING PEOPLE, ANALYSING DATA

MIENPN - 23/05/2013

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Web: www.eco-counter.com

REPLACEMENT OF A LOGGER

eco link ANDROID

30mn

FOLLOW THIS LINK TO A VIDEO OF LOGGER REPLACEMENT

1. Before swapping the Logger, confirm the counter is currently operational:

Vandalism
ex: pierced pyro lenses

Download Eco-Link Android using the QR code.

Connect to the counter using the Eco-Link Android app and retrieve the data. Verify that the system is counting accurately using the data display page of Eco-Link Android.

PYRO: Check the condition of the PYRO sensor (no signs of vandalism).

Retrieve the data from the original counter with the Eco-Link Android app.

If the count test fails, call customer service.

Eco-Link android

2. Check the cables of all components

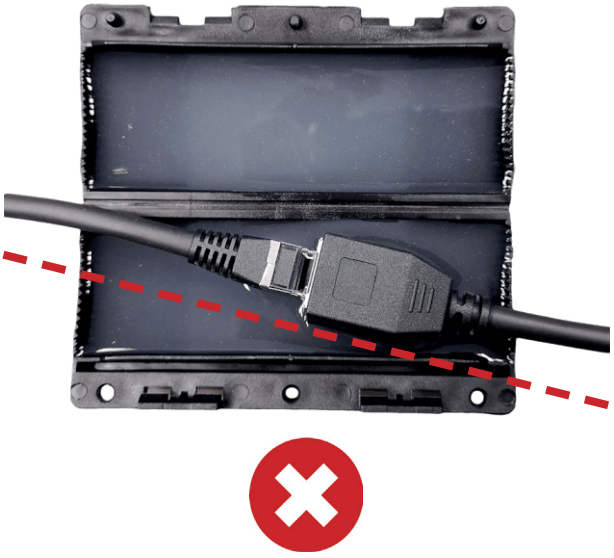
The cable must not be damaged (open sheath, torn) or show signs of corrosion or oxidation on the connector.

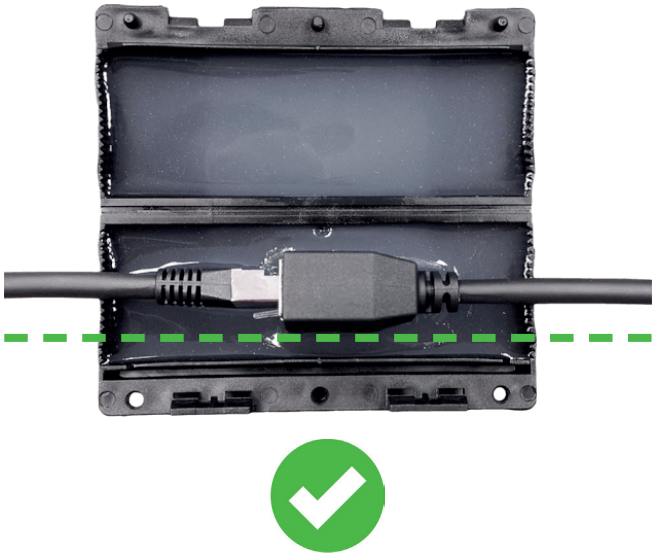
If the cable is damaged, call customer service.

3. Raygel and battery

Open the Raygel on the cable from the original Eco-Combo Logger.
Inspect the connector for damage or corrosion. If there is no visible damage, plug the connector from the sensor into the new Eco-Combo logger and seal the connection inside a new Raygel.

FOLLOW THIS LINK TO A VIDEO ON HOW TO OPEN THE RAYGEL



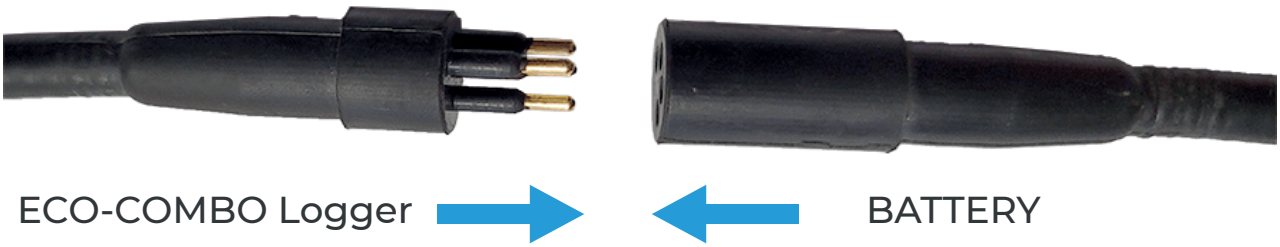


ONLY USE ONE RAYGEL PER CONNECTION !

Each connection must be protected by a Raygel.

DO NOT REUSE RAYGELS!

DON'T FORGET TO PLUG IN THE BATTERY!



THE BATTERY CONNECTOR DOESN'T NEED RAYGEL.

4. Securing the Eco-Combo logger to the lid of the manhole

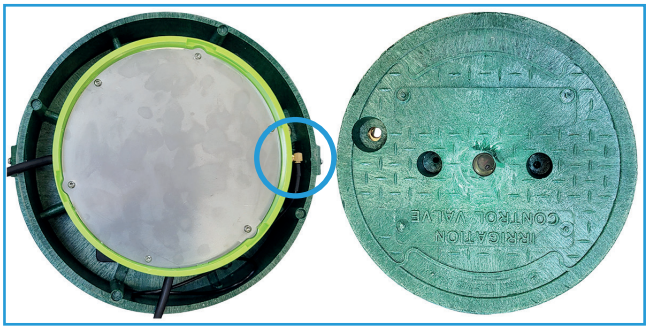
Make sure to use screws Ø 4 X 25 mm (5/32 x 1 inches).
Using another type of screws may damage the electronic components inside the Eco-Combo logger.

Make sure to use the pre-drilled holes in the top of the logger..
Drilling new holes in the Eco-Combo logger will damage the electronic components inside.

1. Remove the protective film from the antenna.

2. Stick the antenna in the space provided on the inside of the manhole lid.

3. Locate the pre-drilled holes on the logger and on the lid.



4. Align the antenna connector with the lug on the lid (the Eco-Combo's holes will align with the holes on the lid).

5. Screw the Eco-Combo logger to the lid.

Do not use an electric drill !

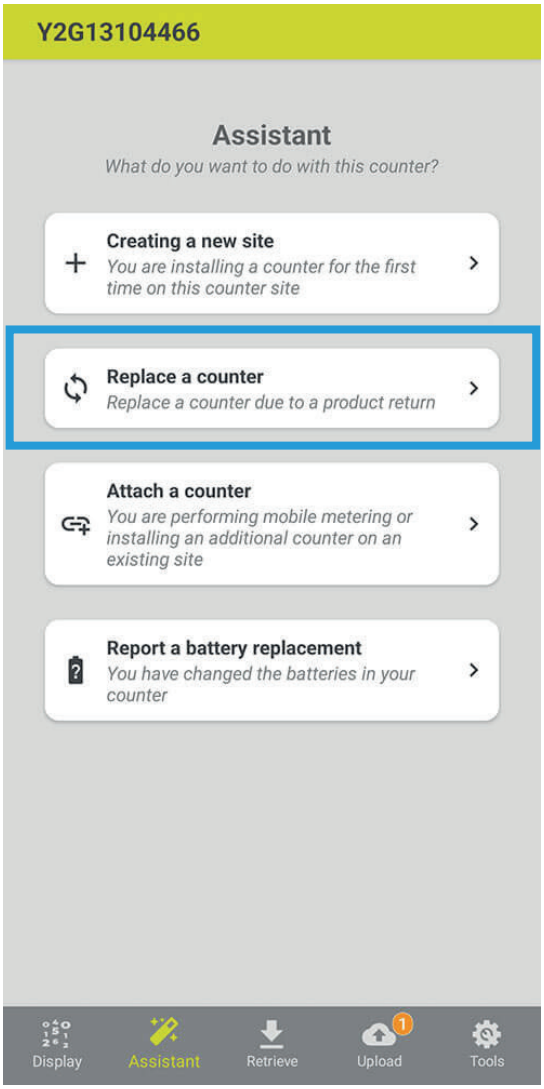
⚠ **Do not overtighten screws!** ⚠

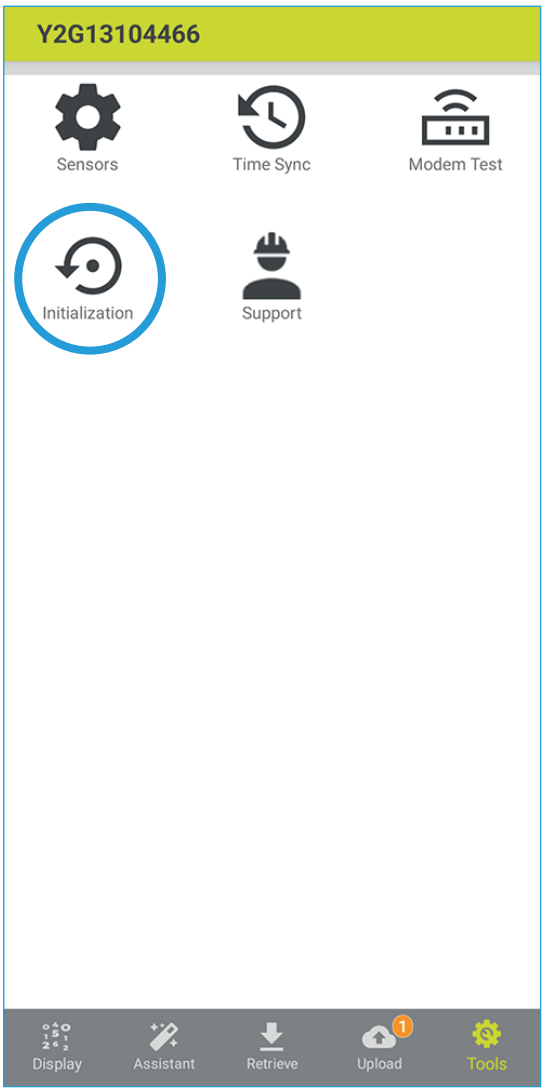
5. Complete the process with the Eco-Link Android Assistant

The Eco-Link android app allows you to view your data and much more:

The Assistant automatically manages the association of the new logger with the existing counting site, modem test, battery database, and the cellular contract database.

The new Logger must be paired with the sensors to ensure correct counts are made – this is done using the Initialization steps in the app, accessible from the Tools tab.





Use the installation wizard to replace the counter, then initialize the counter and verify the count data.

Customer Service

Europe / World

Tel: +33. (0)2.96.48.48.83

Email: support@eco-counter.com

North America

Toll Free: 1-866-518-4404
Phone: 1-514-849-9779
Email: help@eco-counter.com

ENGLISH

MOBILE MULTI – INSTALLATION & USER GUIDE

Serial numbers starting with XM or YM

CONTENTS

WARNINGS

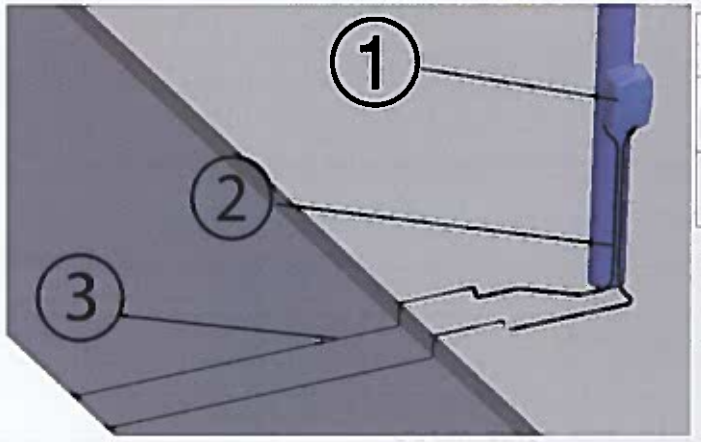
Attention: Fire, explosion and burn hazard.

Do not short circuit, crush, disassemble, heat above 100 °C (212 °F) or incinerate the components of your Eco-Counter counting system.

We remind you that your Eco-Counter remains a measuring system, and therefore it should always be handled with care.

COUNTING SYSTEM INFORMATION

GENERAL OVERVIEW

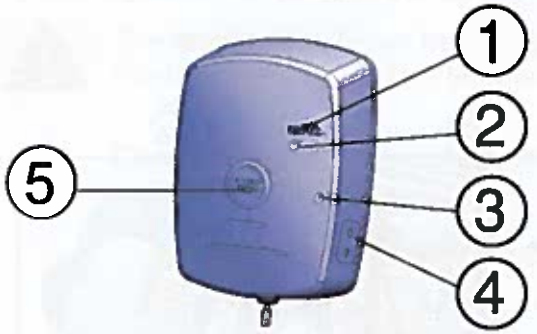


1	PYRO-Box
2	Shock Absorber
3	Pneumatic TUBE

Example of a "MULTI" configuration with "Mini-TUBEs"
See the section « Configurations », page 5. to learn more about the possible configurations.

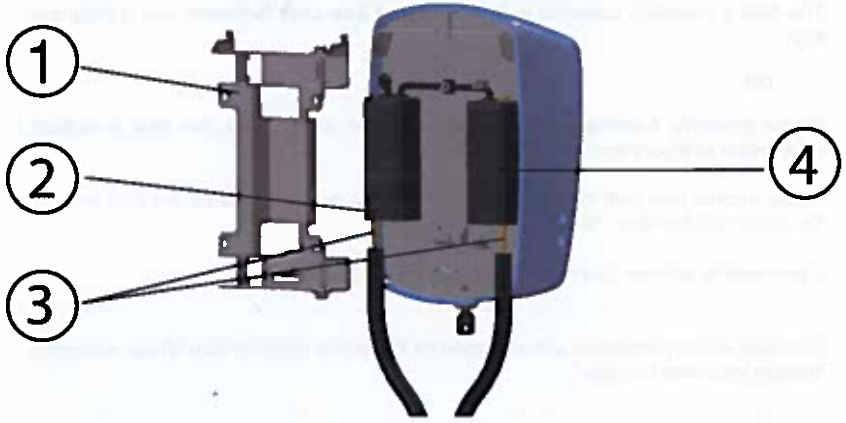
COMPONENTS

PYRO-Box - Front view



1	LED allowing to visualize the counting system's activity.
2	Wake-up zone used to put the PYRO-Box in its connection-ready state.
3	Only to be used under the guidance of Customer Service.
4	Holes for the lenses of the PYRO Sensor. There are holes on both sides of the PYRO-Box, to point the PYRO Sensor either direction as required.
5	Only to be used under the guidance of Customer Service.

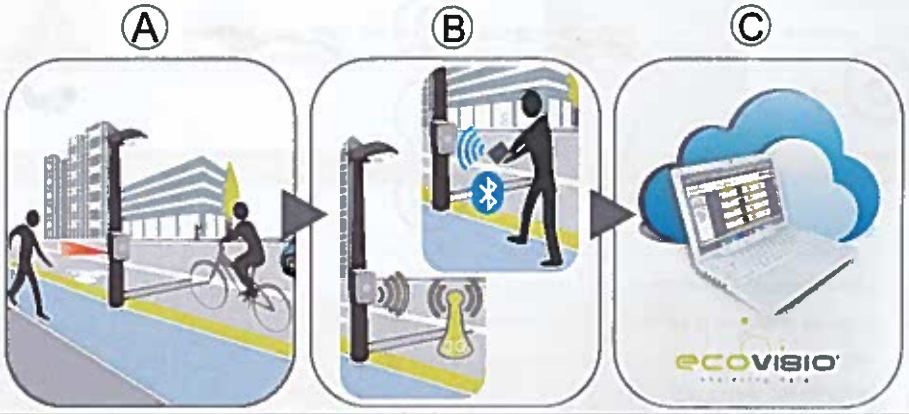
PYRO-Box - Back view



1	Mounting plate
2	"OUT" TUBE Transducer
3	Tubing of the TUBE transducers
4	"IN" TUBE Transducer

The Mobile MULTI counts and classifies pedestrians and cyclists while extracting directional data.

Operating Principles:



A	The sensor detects someone passing and sends a signal to the **PYRO-Box**, which records a count.
B	The data is manually collected in-field using the **Eco-Link Software** and a magnetic key **OR** If your system's Automatic Transmission function is activated, the data is directly transmitted to **Eco-Visio** via GPRS/3G. *If your system was sent from the factory with this function activated, the third letter of the serial number is an "H".* *If you wish to activate this function, please contact Eco-Counter.*
C	The data is then processed and analyzed on the online platform **Eco-Visio**, accessed through your web browser.

The Mobile MULTI can be configured for different site modes described in this section.

Once the system is installed, the following must be verified in Eco-Link:

- **The proper counting mode.**
- **The proper setting for the TUBE Sensor.**

These two steps are required for proper operation.

COUNTING MODE	"PEDESTRIAN" MODE *Pedestrian monitoring only* *Direction recognition*	"BICYCLE" MODE *Bicycle monitoring only* *Direction recognition*	"MULTI" MODE *Pedestrian AND bicycle monitoring* *User classification and direction recognition*	"INDEPENDENT" MODE *Counts pedestrians on a sidewalk while counting bicycles on the nearby bike lane.* *User classification and direction recognition*
Mini-TUBEs Ø 9 mm (0.35") L 6 m (20') + **Shock absorbers** Ø 15 mm (0.5") L 150 cm (60")	**Risk of material damage! Install your Mini-TUBEs on a dedicated bicycle lane or greenway only.**			
				
Selective TUBEs Ø 15 mm (0.5") L 9 m (30')		 Motorized vehicles are ignored from the counts **Warning! If there are high volumes of bicycle and/or motor vehicle traffic then traffic must travel in one direction only.**	 **Improper configuration** **The PYRO Sensor must not be pointed at motorized vehicles**	 Motorized vehicles are ignored from the counts **Warning! If there are high volumes of traffic on the shared lane then traffic must travel in one direction only.**

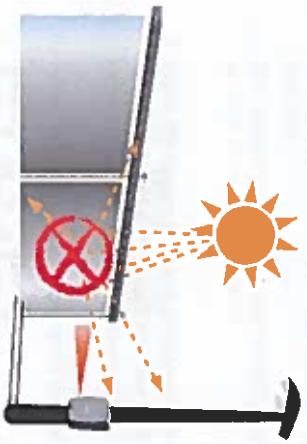
Note that you can use Selective TUBEs instead of Mini-TUBEs.

INSTALLATION

CHOOSING THE INSTALLATION SITE

FOR THE PYRO-BOX, AVOID:

- **Heat sources** in front or next to the PYRO Sensor
  - *Radiator*
  - *Surface exposed to sunlight*



- **Motor vehicles** in front of the PYRO Sensor

This will cause counting issues

- **Moving objects or vegetation** in front of the PYRO Sensor
  - *Door*
  - *Bushes, branches, etc.*

- **Window or reflective surface** in front of the PYRO Sensor
  - *Point the PYRO Sensor at a non-metallic and non-reflective flat surface*

- Locations where traffic flow is **congested**
  - *Rest spots, information posters, steep surfaces, etc.*

- Locations where **undesired objects** could be counted
  - *Animals, cars, undesired pedestrians or cyclists*

- Paths **wider than 4 meters (15')**
  - *The PYRO Sensor has a range of 4 meters (15'). Beyond 4 meters, detection performance is no longer guaranteed.*

Verify Network Coverage

(Automatic Transmission Equipped Counters Only)

- Counting systems with the Automatic Transmission Feature activated: select a location with **sufficient cellular network coverage**.

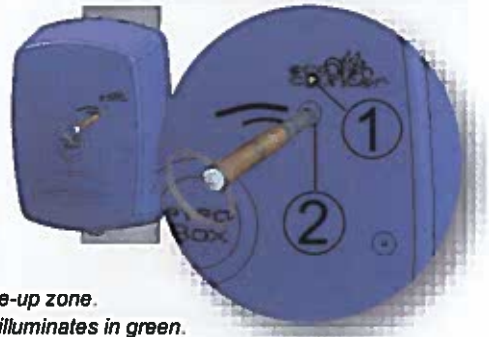
Proceed as follows to verify the network coverage:

1. *Wave the magnetic key over the **wake-up zone** (2) of the PYRO-Box.*

   *When waving the magnetic key, the **LED** (1) illuminates in green.*

   Then the LED flashes blue at regular intervals.

   This allows you to wake your PYRO-Box up from power-saving mode.



2. *Wave the magnetic key 6 times over the wake-up zone.*
   *When waving the magnetic key, the **LED** (1) illuminates in green.*
   After waving the magnetic key six times, the LED illuminates blue with regular flashes.

3. *When the LED is solid blue, go to the following webpage:*

*If you do not have a mobile device with Internet connection, follow the instructions in the section **"Automatic data transmission"**, page 28, to verify the network coverage.*

FOR THE TUBES, AVOID:

• **Non-rigid** ground surface (e.g. snow, grass, mud, etc.)	*The pulses will not be strong enough to trigger counts.*
• Areas where there will be more than one centimeter (1/2") of snow covering the TUBE	*The pulses will not be strong enough to trigger counts.*
• Places where cyclists or motorized vehicles stop (e.g. before an intersection) or accelerate	*The system expects users to travel at constant speed for the algorithm to work.*
• **Congested or very slow traffic**	*Speed is an important discrimination criterion, and false positives will happen if motorized vehicles or bicycles travel too slowly.*
• Areas where there is a curve or turn in the road/bike path	*The TUBEs must be installed perpendicular to the flow of traffic for accurate detection.*
• Areas where the ground surface is not flat	*There must be no gap between the TUBE and the ground surface for accurate detection.*

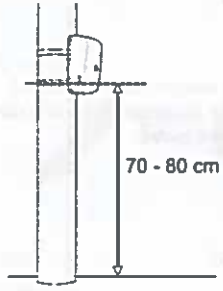
INSTALLATION INSTRUCTIONS

• Longevity:

- Mini-TUBEs: Install the Mini-TUBEs for periods of less than three months.
- Selective TUBEs: Selective TUBEs can withstand around 250,000 car passages.

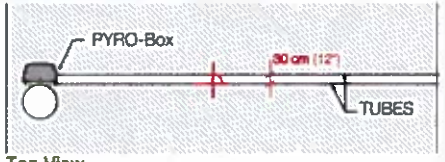
• Height of the lower hole: Between 70 cm and 80 cm (27.5" - 31.5") from the ground.

Installing the PYRO Sensor at a different height may cause counting issues.



• Distance between the TUBEs: 30 cm (12")

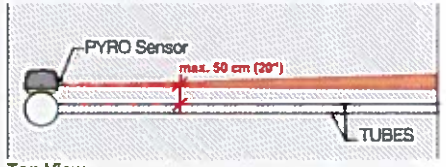
A higher or lower distance may cause counting issues.



Top View

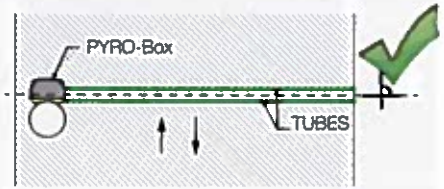
• Max. gap between the PYRO Sensor and the TUBEs: 50 cm (20")

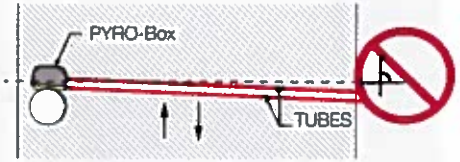
A gap of more than 50 cm (20") may cause counting issues.
Align the TUBEs with the PYRO Sensor.



Top View

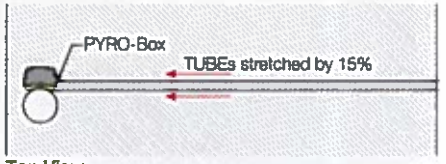
• PYRO Sensor and TUBEs perpendicular to the flow of traffic





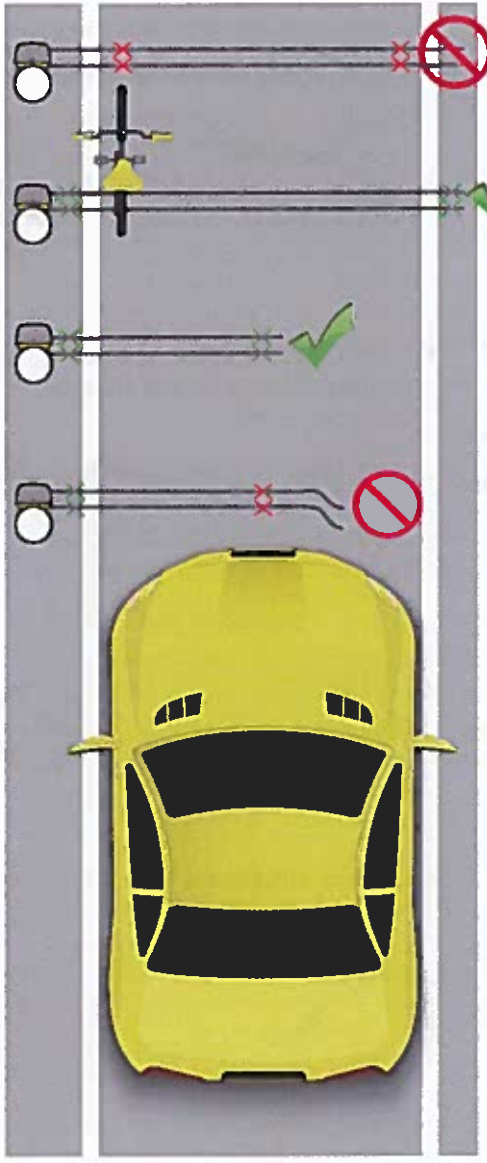
• TUBEs stretched by 15% towards the PYRO-Box

This is the optimal tension for proper detection.



Top View

- **The nails are away from the path of travel.**
  Users must not go over the nails.



→ *Bicycles and cars would be going over the nails.*

→ *The nails are away from the path of travel.*

→ *The nails are away from the path of travel.*

→ *The nails are away from the path of travel BUT the fasteners are too far away from end piece.*

REQUIRED EQUIPMENT

eco link Eco-Link software

List of compatible devices with Eco-Link:

- *Laptop:* ***Connect to Eco-Visio online software and download the Eco-Link software from the "Downloads" interface.***
  Compatibility: Windows XP and more - Bluetooth connectivity required.

- *Android-based tablet or smartphone* :

Download Eco-Link via the Google Play Store.

PYRO-BOX

TUBES

Always use Pneumatic TUBEs supplied by Eco-Counter.

Using Pneumatic TUBEs other than those delivered by Eco-Counter may cause the system to malfunction.

Only for asphalt or equivalent: Drill with a 6 mm Ø drill bit (1/4") (optional if you install the system in a soft soil)

- **Selective TUBEs**: Road tape

E.g. Polyken 860 PE/Butyl "Road Tape"

- **Mini-TUBEs**: Insulate adhesive tape to secure the fasteners in place on the TUBEs

E.g. Pro Flex Patch & Shield Tape

PROCEDURE

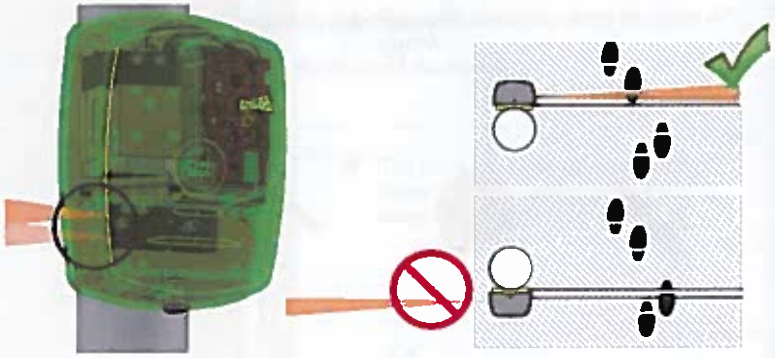
1. INSTALLING THE PYRO-BOX

Risk of bodily harm!

Wearing protective gloves and protective glasses is recommended during installation!

ATTENTION! **Facing the PYRO-Box, the standard factory configuration places the PYRO Sensor on the left side.**

Make sure that the PYRO sensor faces the TUBEs.



ACCEPTABLE DIAMETER OF THE POST

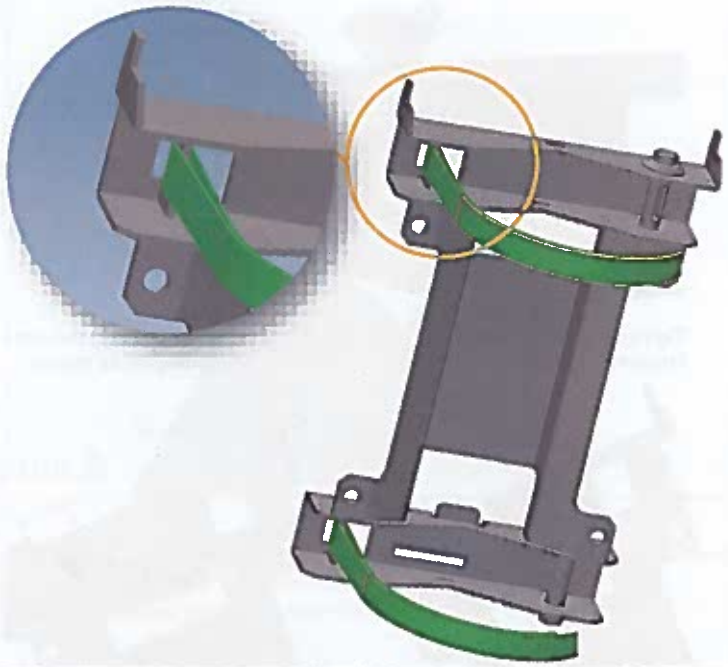
a. **Minimum** acceptable diameter: 50 mm (2")

b. **Maximum** acceptable diameter: 200 mm (8")

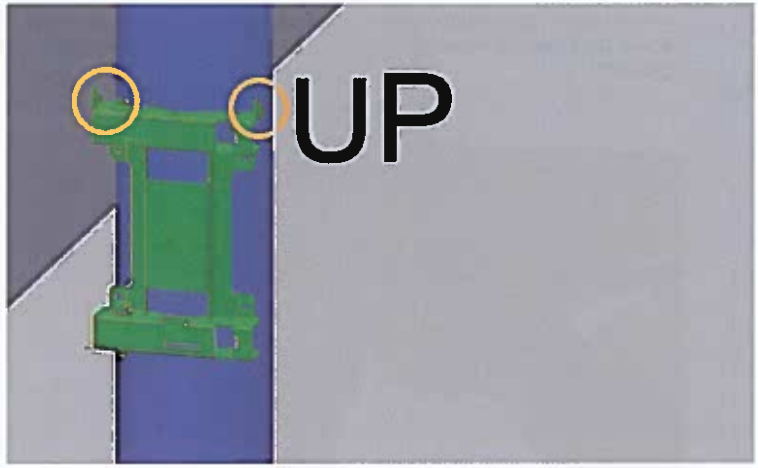
1 Fold the provided bands in half.

Make sure that the crease is in the exact center.

2 Feed the bands through the left side of the mounting plate as shown below:

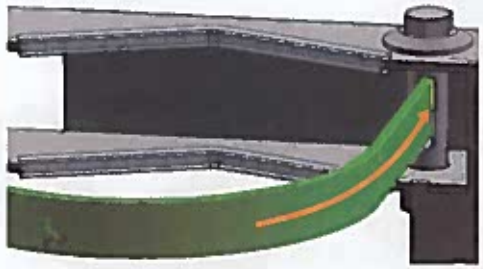


3 Offer the mounting plate up to the bracket in the following position:

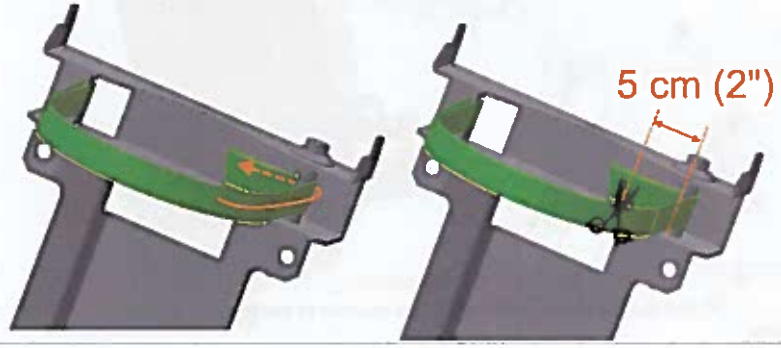


4

Put the upper banding around the post and insert the two ends into the slot on tensioning bolt as shown.

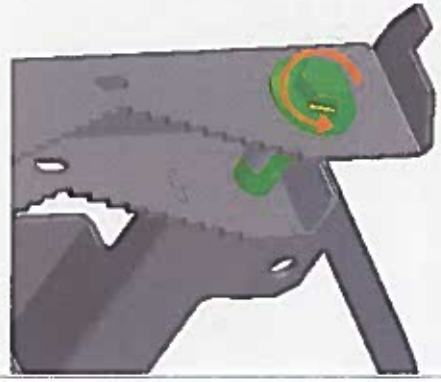


Tighten the band around the post by pulling the excess through the slot on the tensioning bolt, as shown. Then, cut the excess banding off as shown:



5

Turn the upper bolt counter-clockwise using the 10-mm open-end wrench until the band is **partially tightened**, then hold that wrench in place while the bottom bolt is tightened.



6

While holding the upper 10-mm open-end wrench in place, turn the 13-mm open-end wrench counter-clockwise on the bottom bolt to further tighten the band.

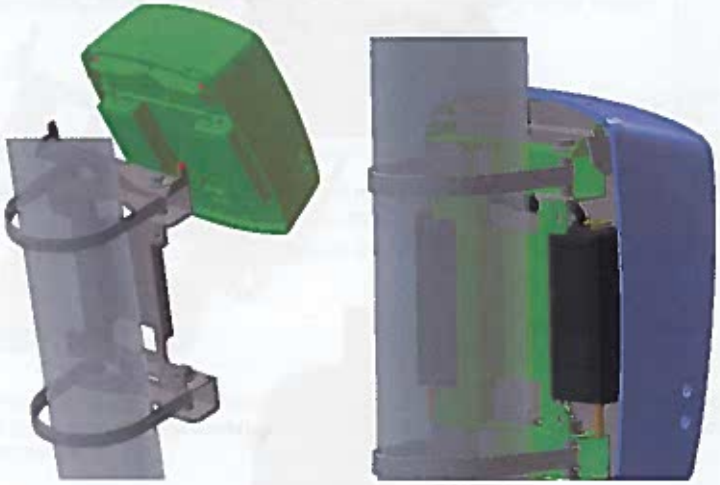
7

If you use the counting system in "Pedestrian" counting mode, close the tubing of the TUBE transducers using the supplied caps.

The caps protect the transducers from dirt.

1 Unlock the security latch for your PYRO-Box.

2 Affix the PYRO-Box to the mounting plate as shown.



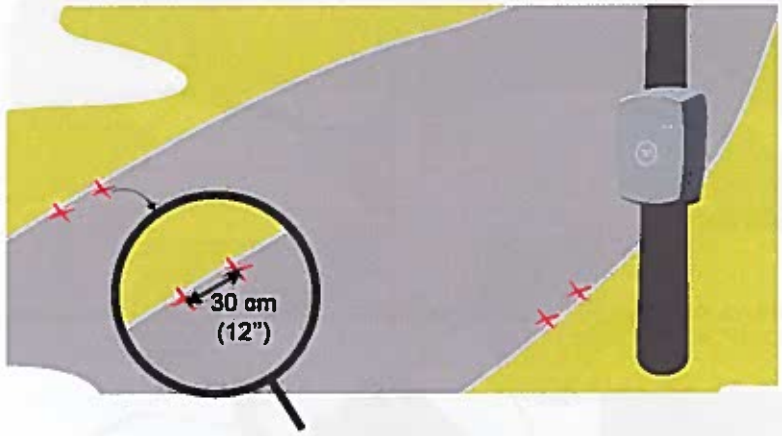
3 Make sure that the PYRO-Box is securely fastened.

4 Lock the security latch for your PYRO-Box.

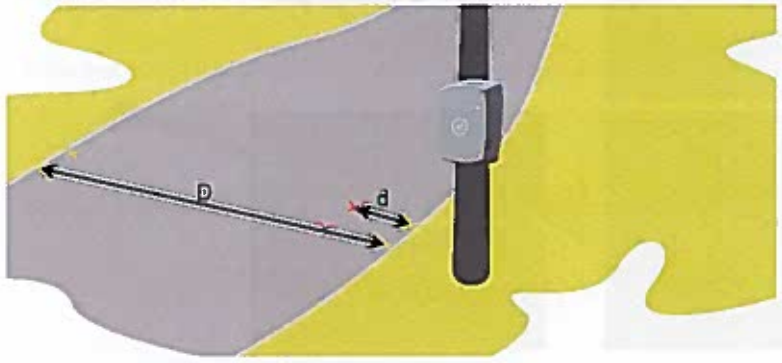
2.1. MARKING THE POSITION WHERE THE TUBES WILL BE FIXED

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

Attention! Follow the installation instructions on page 11.



b. Likewise, mark a position as shown below:



d = 15 % D

D (in meters)	D (in feet)	d (in meters)	d (in inches)
7	23'	1	39 ½"
6	19.5'	0.9	35
5	16'	0.75	29 ½"
4	13'	0.6	23 ½"

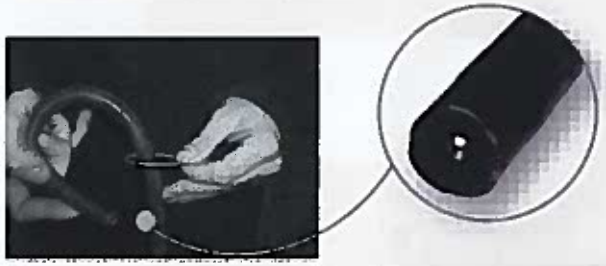
2.2. DRILLING THE FIXING HOLES

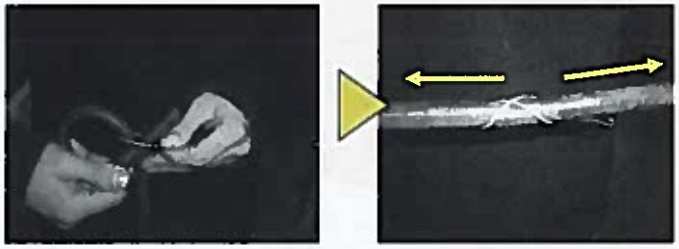
- Asphalt or equivalent: Pre-drill the points marked in step 1 to a depth of 2 cm (¾").

2.3. PREPARING THE PNEUMATIC TUBES

SELECTIVE TUBES

- Thread a fastener on the closed end of the Pneumatic TUBE and then proceed as shown to affix the fastener to the Pneumatic TUBE:



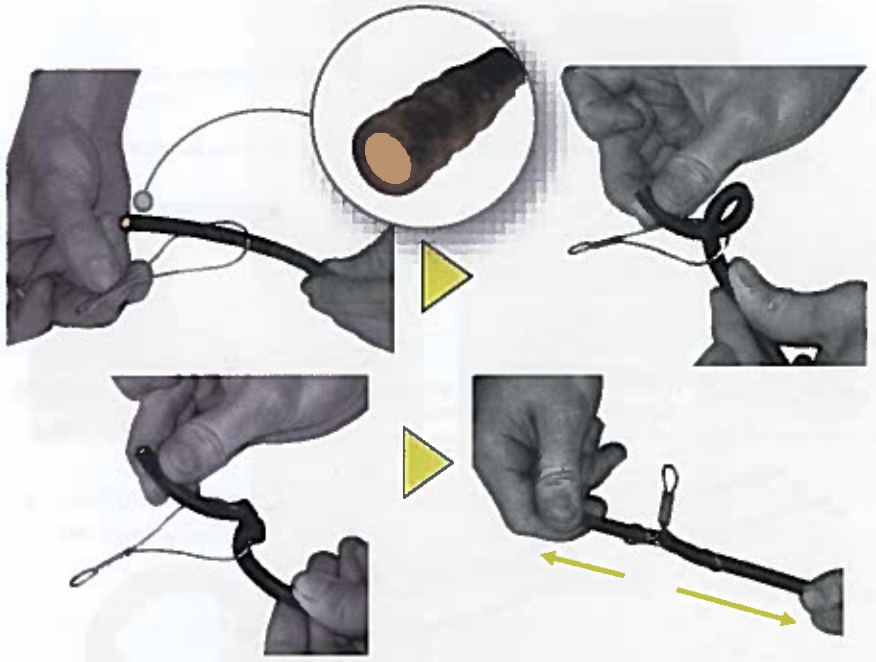


If the plug, as shown above, is no longer attached, simply knot the end of the TUBE.

The end of the TUBE must be closed. If not, this will cause the system to malfunction.

MINI-TUBES

- Thread a fastener on the closed end of the Mini-TUBE and then proceed as shown to affix the fastener to the Mini-TUBE:



If the plug, as shown above, is no longer attached, simply knot the end of the TUBE.

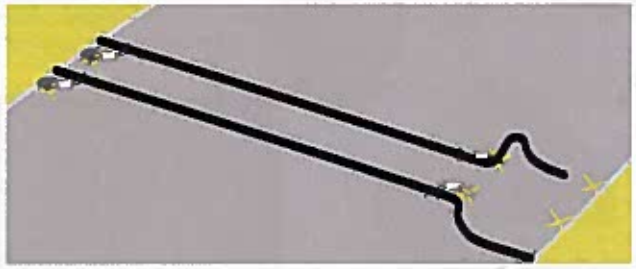
The end of the TUBE must be closed. If not, this will cause the system to malfunction.

2.4. ANCHORING THE CLOSED END OF THE PNEUMATIC TUBE

- Feed the nail through the fastener and hammer the assembly into the ground to secure the TUBE.

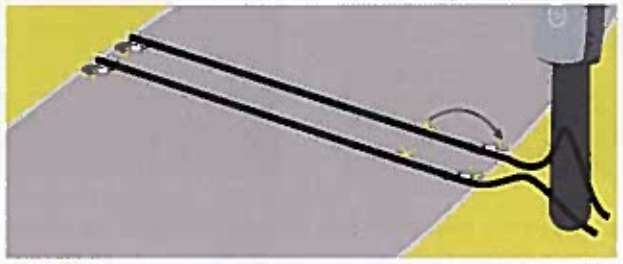
2.5. TENSIONING THE PNEUMATIC TUBE

a. Lay the Pneumatic TUBE over the road and affix a second fastener to the pneumatic TUBE while aligning it with the point marked at a distance equivalent to the width - 15 %.



b. Stretch the Pneumatic TUBE towards the PYRO-Box and hammer in the fastener.

There should be little lateral movement in the TUBEs and they should snap back to their original position very rapidly if displaced.



The Selective TUBE is equipped with an integrated material that filters out signal rebounds, so it is very important that you do not cut the TUBE to fit the counting site. Instead, lay the surplus TUBE on the shoulder.

2.6. ADDING ROAD TAPE

MINI-TUBES

a. Mini-TUBEs are very thin and the fastener will tend to slide on the TUBE if not secured with adhesive tape.

Wrap insulating adhesive tape around the two fasteners to secure them in place.

b. Mini-TUBEs: connect the shock absorbers to the TUBEs.

The shock absorber is a 150 cm (60") long TUBE with a diameter of 15 mm (0.5").

Shock absorber

SELECTIVE TUBES

a. Before installing tape, make sure that the surface is dry.

b. Sweep away dirt/dust/gravel.

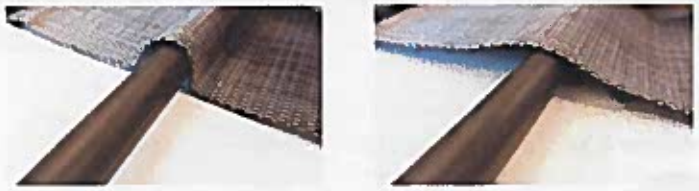
c. Add squares of road tape approximately 12.5 cm (5") long over each fastener to fully cover them. This will improve their longevity.

d. Press tape down firmly.

e. Add road tape over the TUBEs every 70 to 90 cm (2' to 3'). This will help to secure the TUBEs in place.

When applying the tape, make sure it follows the lines of the TUBE to maximize the surface area of the TUBE and street surface that the tape adheres to.

GOOD BAD



3. MAKING THE CONNECTIONS

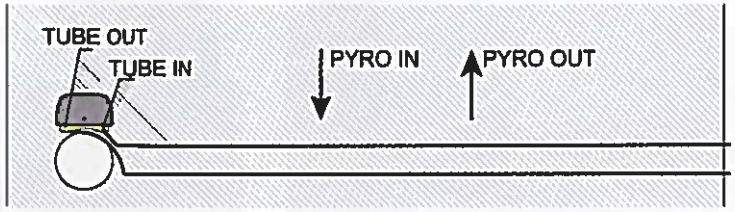
a.

Mini-TUBEs	Selective TUBEs
- If you have Mini-TUBEs, connect the shock absorbers to the transducers.	- Attach the Pneumatic TUBEs to the transducers, as shown.

Attention! Make sure to orientate IN and OUT direction senses in the same way as on the PYRO sensor.

- For a count in the "IN" direction, the bicycle must touch first the "IN" TUBE.
- For a count in the "OUT" direction, the bicycle must touch first the "OUT" TUBE.

Orientation of IN and OUT direction senses on the PYRO and TUBE Sensors:

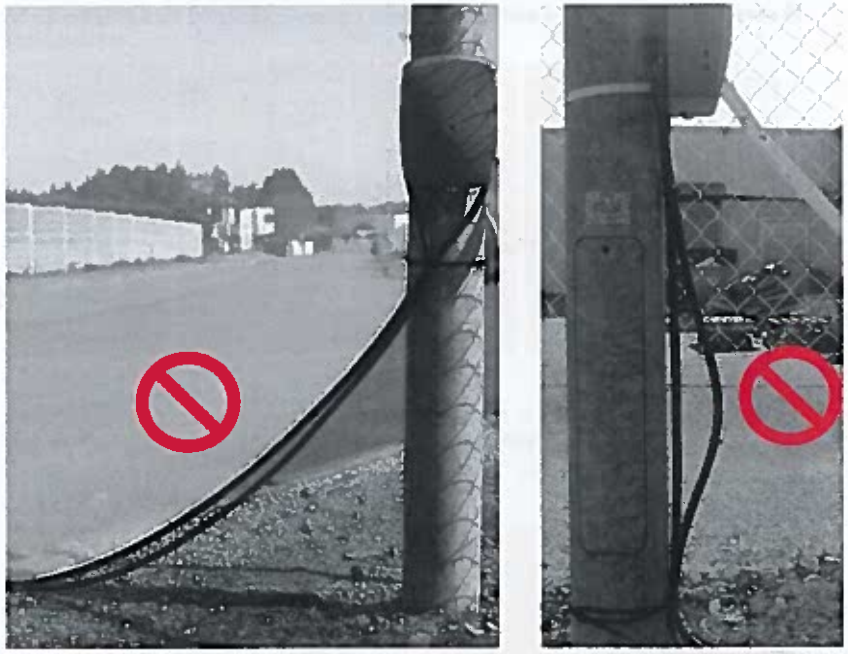


b. Tighten the TUBEs on the tubing of the transducers using tightening collars.

c. Secure the TUBEs to the post without pinching them.
If the TUBE is pinched, pulses are not transmitted to the PYRO-Box. In this case, no count is triggered.

Avoid:

The use of metall fasteners may damage the TUBE.
+
The TUBE is pinched. No count will be triggered.



The TUBE can easily be pulled out. There must be no gap between the TUBE and the post.

4. ADJUSTING THE SETTINGS

a. Select the proper counting mode using Eco-Link:

- "Pedestrian" Mode
- "Bicycle" Mode
- "MULTI" Mode
  OR
- " Independent" Mode

"PEDESTRIAN" MODE: **Risk of material damage!** Protect the tubing of the transducers with the caps supplied.

This will protect the tubing from dirt.

b. Select the proper setting for the TUBEs.

5. TESTING THE SYSTEM

PEDESTRIAN DETECTION

This verification must be made for "Pedestrian", "MULTI" or "Independent" modes.

a. Wait at least five minutes before checking the counting function.

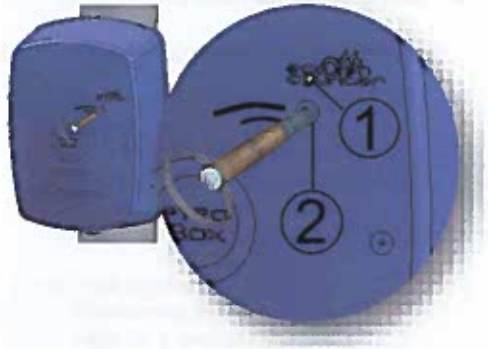
The PYRO Sensor needs to adapt to its surroundings (light, temperature, etc.).

b. Wave the magnetic key over the **wake-up zone** (2) of the PYRO-Box.

When waving the magnetic key, the **LED** (1) illuminates in green.

Then the **LED** flashes blue at regular intervals.

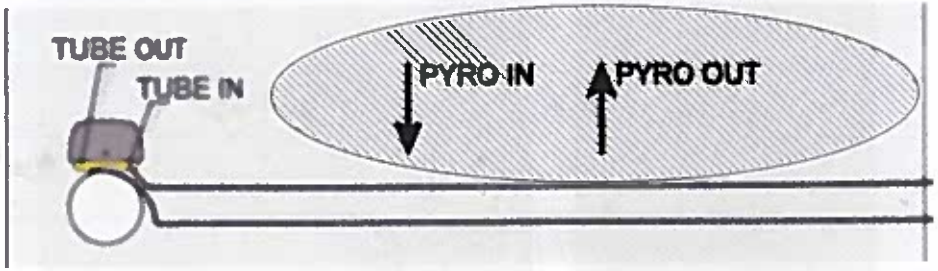
This allows you to wake your PYRO-Box up from power-saving mode.



c. Simulate passages in front of the PYRO Sensor and verify the counts on Eco-Link.

Follow the instructions in the section ***Making Verifications of Counts*** in the Eco-Link software guide, if necessary.

IN and OUT direction senses are affected as follows by default:



BICYCLE DETECTION

This verification must be made for "Bicycle", "MULTI" or "Independent" modes.

- Follow steps b and c in the previous section.

  Ride over the TUBEs with a bicycle to perform the tests.

AUTOMATIC DATA TRANSMISSION

a. If the LED is switched off, wave the magnetic key once over the wake-up zone.

b. Start Eco-Link and make a modem test.

Follow the section ***Testing a modem*** in the Eco-Link software guide if necessary.

USE INSTRUCTIONS

VIEWING THE DATA

- **If you have a system with the Automatic Transmission Feature activated:**

Activate the counting site in our online software, **Eco-Visio**.

Follow the instructions in the document ***Eco-Visio: Quick Start Guide*** to proceed.

The data is sent automatically once a day by 3G communication.

- **Systems with Manual Data Collection:**

a. Retrieve the data using Eco-Link before leaving the installation site.

b. Transfer data to Eco-Visio online software.

Follow the instructions in the document ***Eco-Visio: Quick Start Guide*** to proceed.

MAINTAINING THE COUNTING SYSTEM

INSTRUCTIONS

PYRO-BOX

- The internal battery can provide up to ten (10) years of battery life depending on usage profile. Return the PYRO-Box to Eco-Counter for an internal battery replacement and service.
- Replace the modem battery every two (2) years.
  Order a battery Ref. **1701**.
- PYRO-Box with manual data collection: Retrieve the data preferably once a month and each time you move the system to a new counting site.

Maximum time between data retrievals: 18 months.
After 18 months, the data erases.

- Clean the lenses of the PYRO Sensor and the outside of the PYRO-Box with a soft damp cloth.
- Ensure that the holes the PYRO sensor is facing out of are not obstructed.

Tips!

- *Update the battery gauge in your online Eco-Visio account.*

This allows you to check the battery level at any moment.

- *If your system's Automatic Transmission function is activated, set Eco-Alerts in Eco-Visio to alert you by e-mail in the event of null data, over-counting, etc.*

TUBES

- Check up on the TUBEs at least once per week:

  ➔ Make sure that they snap back to their original position very rapidly if displaced.

  ➔ If not, tighten the TUBEs again. See ***Tensioning the Pneumatic TUBE***, page 22, if necessary.

➔ Make sure that the nails are still in place: If the nails pop out, replace them with longer nails.

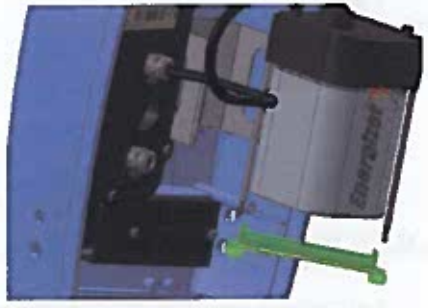
➔ Replace the TUBEs if they are damaged or punctured.

➔ Selective TUBEs: Check tape and re-tape if necessary.

- Always use Mini-TUBEs with shock absorbers. Using Mini-TUBEs without shock absorbers causes the system to overcount.

REPLACING THE MODEM BATTERY

a. Unscrew the battery support bar to free the battery from its bracket.



b. Write the date of the next battery replacement on the new battery.

c. Check the operation of the modem. See "***Automatic data transmission***", page 28.

CUSTOMER SERVICE

HARDWARE

The entire system is guaranteed for **2 years** starting 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 in your system, the product must be returned with the Product Return Sheet. Please contact us to receive this sheet.

The logger serial number (please see the warranty certificate delivered with the product) must be identified on the Product 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.

Any product damaged as a result of mishandling or improper use will be either replaced or repaired according to the 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 Customer Service for assistance:

Europe / World

Tel: +33 (0)2.96.48.48.83

Fax: +33 (0)2.96.48.69.60

Email: support@eco-counter.com

North America

Toll Free: 1-866-518-4404

Phone: 1-514-849-9779

Email: help@eco-counter.com

Mobile MULTI - Installation Guide - 26/09/2017-ENG

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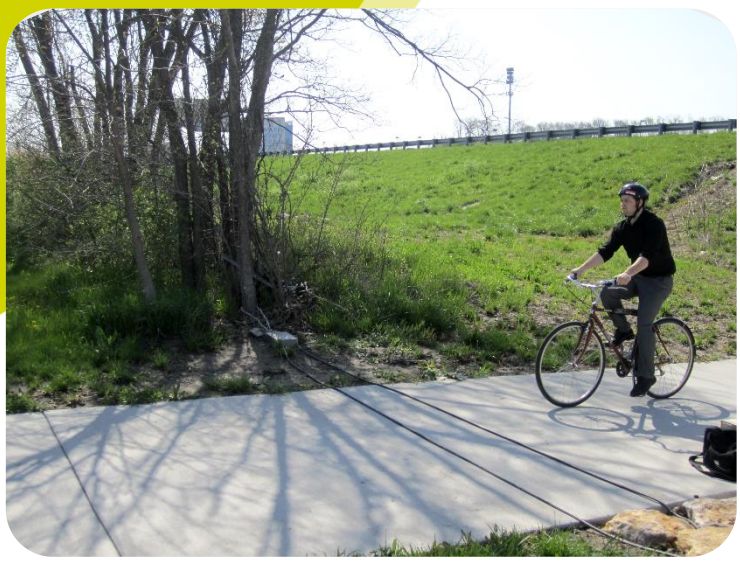
Toll Free: 1-866-518-4404 | Direct: 1-514-849-9779

eco-counter@eco-counter.com | www.eco-counter.com

INSTALLATION GUIDE

PNEUMATIC TUBE

Serial numbers starting with X or Y



eco counter

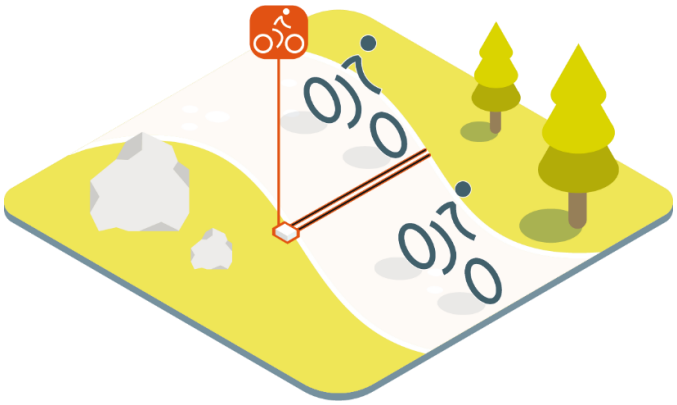
Contents

Introduction

Thank you for purchasing this Eco-Counter counting system! We hope that you will enjoy using it and that the data will be helpful to you for many years to come.

Your Pneumatic TUBEs system has been designed for temporary counting of bicycles on shared roads or dedicated bicycle lanes or greenways.

If your system is bidirectional, it also detects cyclists' direction of travel.

Roads in Mixed Traffic	Dedicated Bicycle Lanes and Greenways
If you install the system on a road in mixed traffic, you must use Selective TUBEs. Your Selective TUBEs count only bicycles while ignoring motorized vehicles (scooters, motorbikes, cars and buses). A material is integrated into the TUBEs that helps to eliminate signal rebounds that may be generated by a fast car or truck. Your Selective TUBEs can withstand the passage from up to 250,000 vehicles.	If you install the system on a dedicated bicycle lane or greenway, you must use Mini-TUBEs. Your Mini-TUBEs are very thin (∅ 9 mm (0.35'')) to maximize cyclist comfort. **Your Mini-TUBEs are designed to be used on dedicated bicycle lanes and greenways only** and for periods of up to three months.
	

Warnings

DANGER

Fire, explosion and burn hazard.

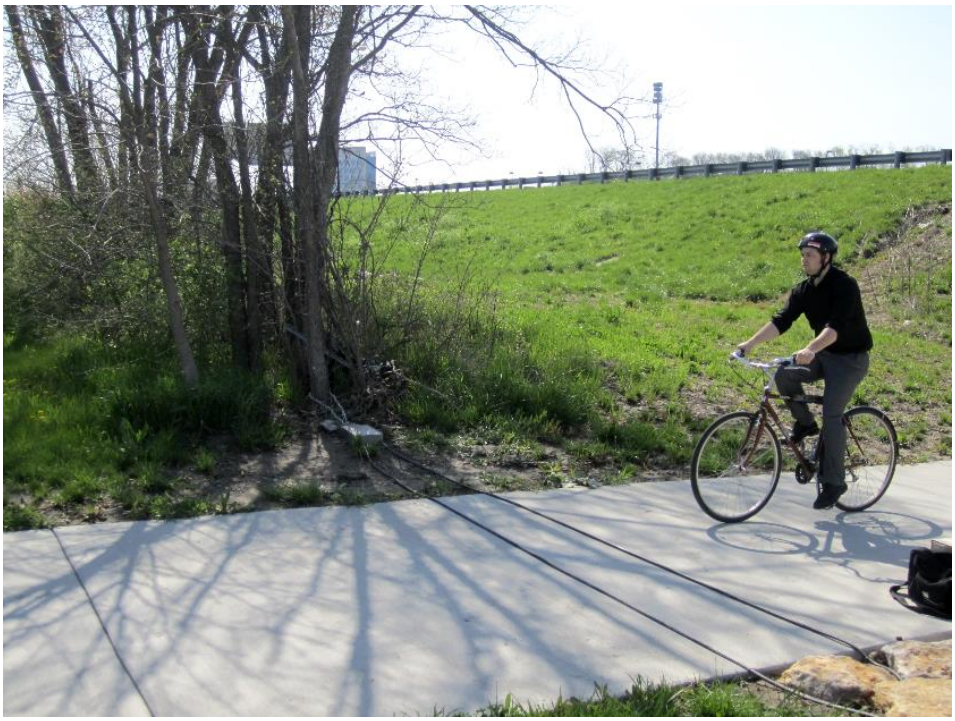
Do not short circuit, crush, disassemble, heat above 100 °C (212 °F) or incinerate the components of your Eco-Counter counting system.

NOTICE

Your Eco-Counter counting system is a measuring system: Always handle it with care.

Preparing for the Installation

Example of a Completed System



Pneumatic TUBE system installed on a bicycle lane.

The stainless steel box is secured to a tree using the chain supplied.

Delivered Equipment

- **Counting System**

Eco-Combo Logger	Transducer
	

Systems equipped with an active data transmission option:	Systems with manual data collection:
Battery pack 	Cap 

- **TUBEs:**

Installation on a shared road:	Installation on a greenway or segregated bike lane:
2 Selective TUBEs 	2 Mini-TUBEs and two shock absorbers  *Mini-TUBE* *Ø 9 mm (0.35'')*  *Shock absorber* *15 mm (0.5'')*

- **Additional Hardware**

Stainless steel box	Chain to secure the stainless steel box at the installation site	Padlock	Waterproof RayGel
			
2 Fasteners per TUBE 2 Nails per TUBE	Mini-TUBE: Pattern to show you how to close the Far end of the Mini-TUBE	Magnetic key	
			

Required Equipment

NOTICE **Always use Pneumatic TUBEs supplied by Eco-Counter. Using Pneumatic TUBEs other than those delivered by Eco-Counter may cause the system to malfunction.**

- To secure the work site: Traffic cones and hazard signs
- To protect yourself: Reflective safety vest, protective glasses and gloves
- To install the TUBEs:
  - Marker or a piece of chalk
  - Tape measure
  - Hammer
  - Drill with a 6 mm Ø drill bit (1/4'') (optional if you install the system in a soft soil)

  Recommended:

  - Selective TUBEs: Scissors and road tape (e.g. Polyken 860 PE/Butyl "Road Tape")
  - Mini-TUBEs: Scissors and insulating adhesive tape to secure the fasteners in place on the TUBEs (e.g. Pro Flex Patch & Shield Tape)

- To attach the stainless steel box to the ground instead of using the chain to lock it to a nearby post:

  Four 8 x 100 mm (5/16 x 4’’) lag screws + dowels

- To adjust the settings: Eco-Link software.

  List of compatible devices with Eco-Link:

  Laptop: The laptop must be equipped with Bluetooth connectivity.

  Bluetooth compatibility test: https://www.eco-visio.net/Download/bluetooth-test-en.exe

  Eco-Link: https://www.eco-visio.net/Download/ecolink.zip

  Tablet or Smartphone: Must be an Android-based device.

  Download Eco-Link via the Google Play Store.

- To test the system: Bicycle

Installation Site

- **Mini-TUBEs: Choose >**
  - A physically separated bikeway or greenway

    OR

  - A roadway used by very few cars.

- **Selective TUBEs: Choose >**
  - A roadway on which cars travel in one direction only.

    OR

  - A two-way road used by very few cars.

    Install Selective TUBEs on a two-way street with high volumes of motorized traffic only if you have specifically ordered Pneumatic TUBEs to be installed on this type of site.

    In this case, a stopper in the middle of your TUBEs makes it possible to register the counts separately on each side of the road.

    See the "***Special configuration***" diagram on page 11.

    OR

- **A physically separated bikeway or greenway.**

  Note that we recommend using Mini-TUBEs on physically separated bikeways.

  Mini-TUBEs are very thin (∅ 9 mm (0.35'')) to maximize cyclist comfort.

- If using automatic data transmission, select a location with sufficient cellular network coverage.

  Follow the instructions in ***Appendix A***, page 27, to learn how to verify the cellular network coverage on site.

Do not use TUBEs in the following conditions:

- Non-rigid ground surface (e.g. snow, grass, mud, etc.): The pulses will not be strong enough to trigger counts.
- Areas where there will be more than one centimeter (1/2'') of snow covering the TUBE: The pulses will not be strong enough to trigger counts.

- Places where cyclists or motorized vehicles stop (e.g. before an intersection) or accelerate: The system expects users to travel at constant speed for the algorithm to work.
- Congested or very slow traffic. Speed is an important discrimination criterion, and false positives will happen if motorized vehicles or bicycles travel too slowly.
- Areas where there is a curve or turn in the road/bike path: The TUBEs must be installed perpendicular to the flow of traffic for accurate detection.
- Areas where the ground surface is not flat: There must be no gap between the TUBE and the ground surface for accurate detection.
- Areas where cars will park on the TUBEs. This will cause counting issues and damages to the TUBEs.

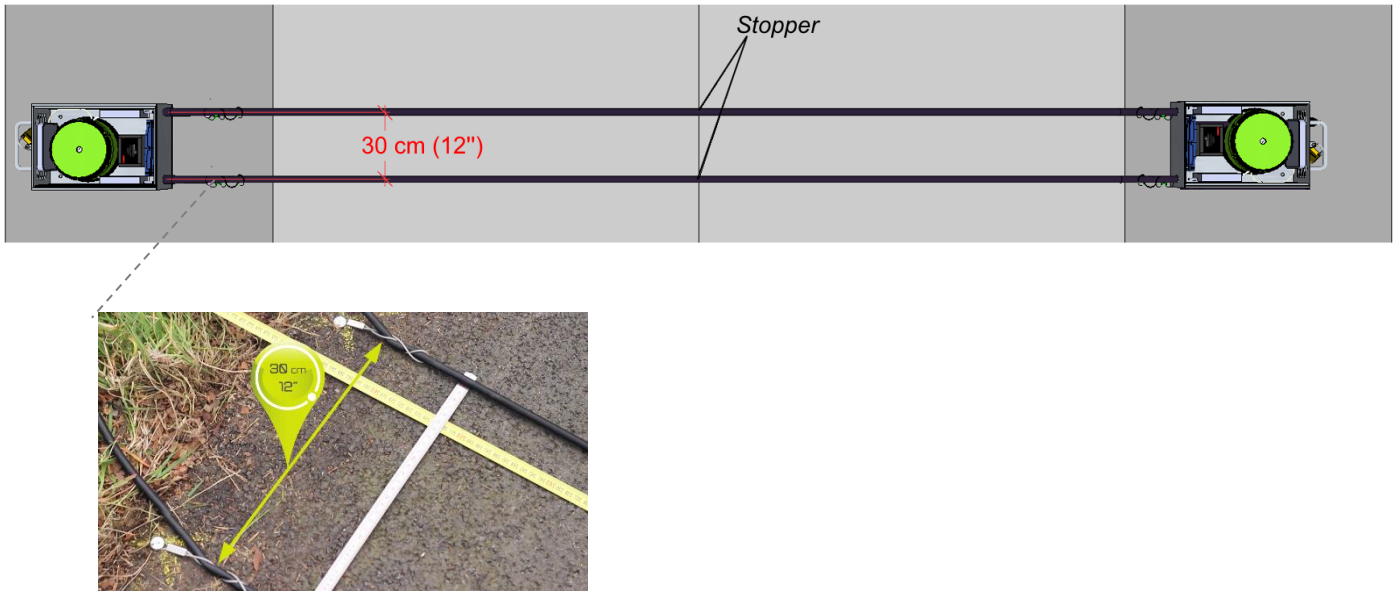
Installation Instructions

Layout

Installation on a Shared Roadway - Selective TUBEs

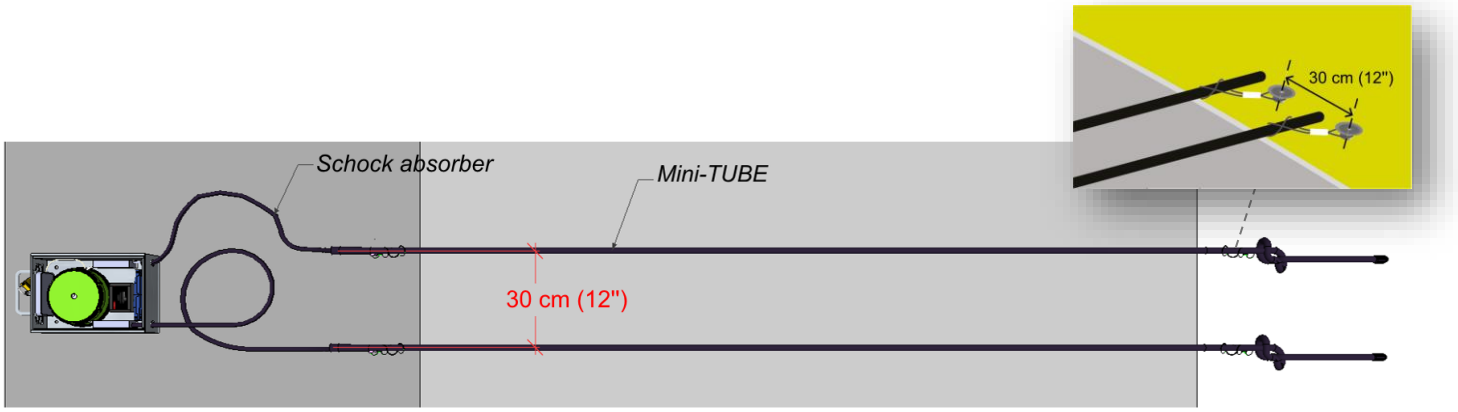
Standard Configuration

Special Configuration - Shared Roads with a Bike Lane on Each Side of the Road



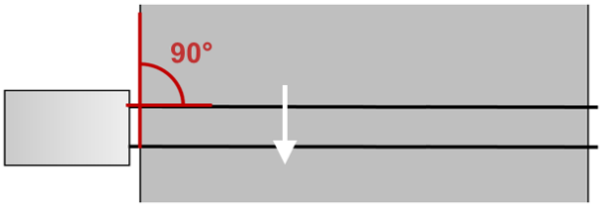
For this configuration, a stopper in the middle of the TUBE makes it possible to register the counts separately on each side of the road. The location of the stopper is identified by colored tape.

Installation on a Greenway or Segregated Bike Lane - Mini-TUBEs

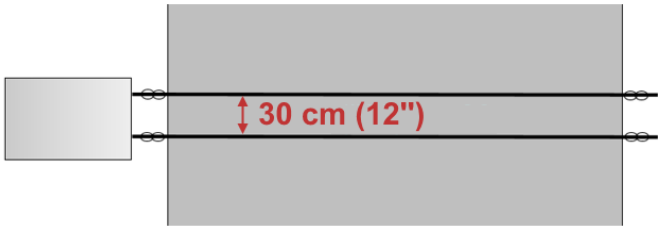


Installation instructions

- Lay the Pneumatic TUBEs over the road perpendicular to the flow of traffic.

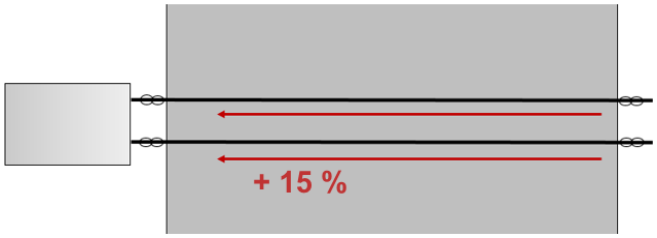


- Lay the Pneumatic TUBEs over the road with a distance of 30 cm (12'') between the TUBEs.

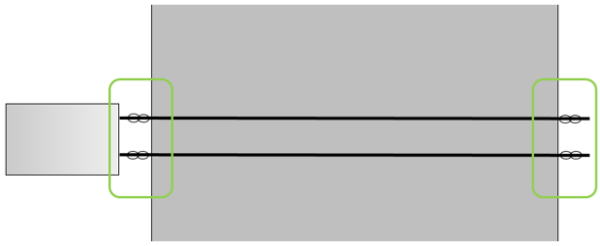


- Tension the Pneumatic TUBEs by anchoring them in the roadway and then stretching them by approximately 15%.

  This means that a four-meter length TUBE will cover a width of 460cm (181'').

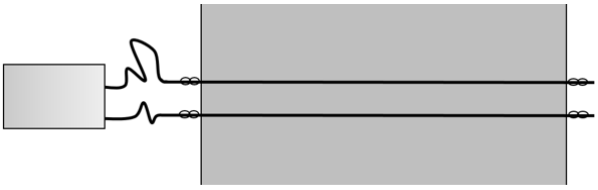


- Where possible, place the nails away from the path of travel so that bicycles do not ride over them.



- Selective TUBEs: An integrated material filters out signal rebounds, so it is very important that you do not cut the TUBE to fit the counting site.

  Instead, lay the surplus TUBE near the stainless steel box.



- Mini-TUBEs: You can lay the surplus TUBE that is not used near the stainless steel box. If you want to cut the Mini-TUBE, make sure the far end of the tube is still plugged.

Far end of the Mini-TUBE

If the plug, as shown above, is no longer attached, simply knot the end of the Mini-TUBE.

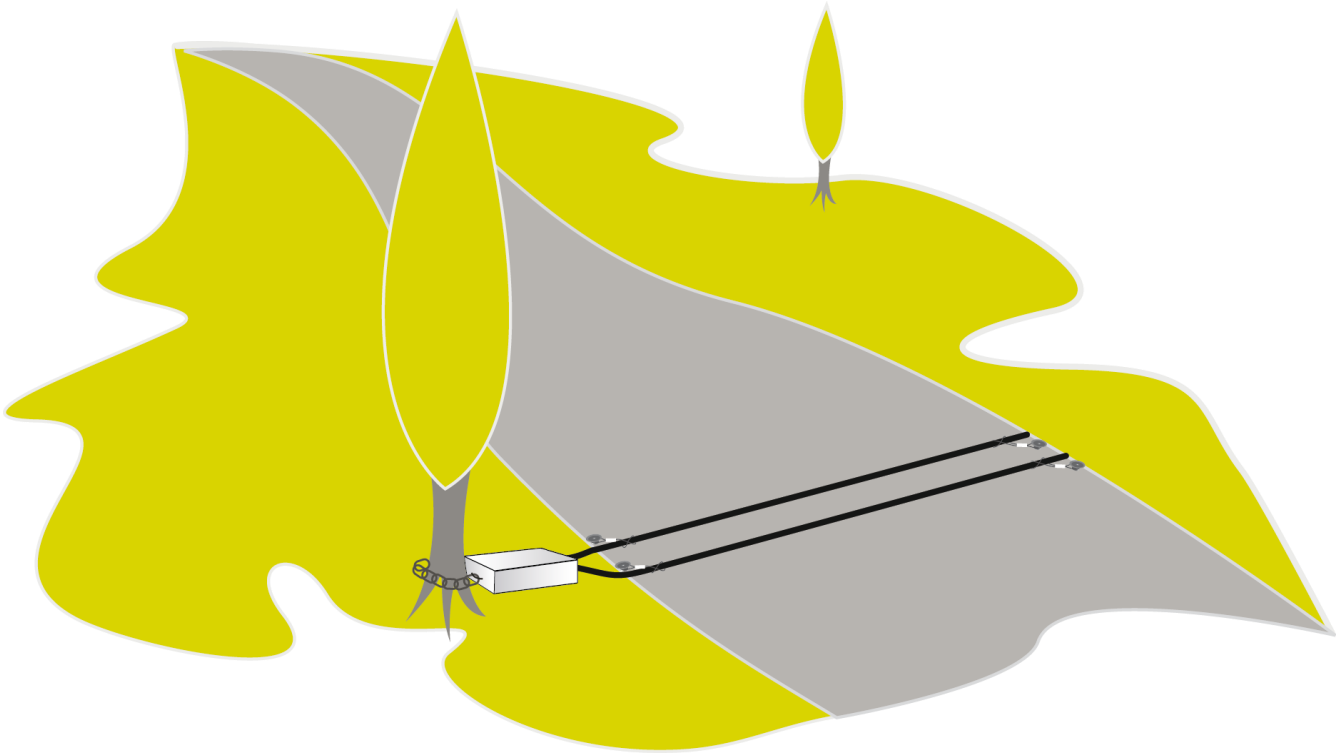
- Secure the stainless steel box on the side of the installation site, at a place where it will not be an obstacle for pedestrians walking by.

- Mini-TUBEs: Install the Mini-TUBEs for periods of less than three months.

  Selective TUBEs: Selective TUBEs can withstand around 250,000 car passages.

Installing the System

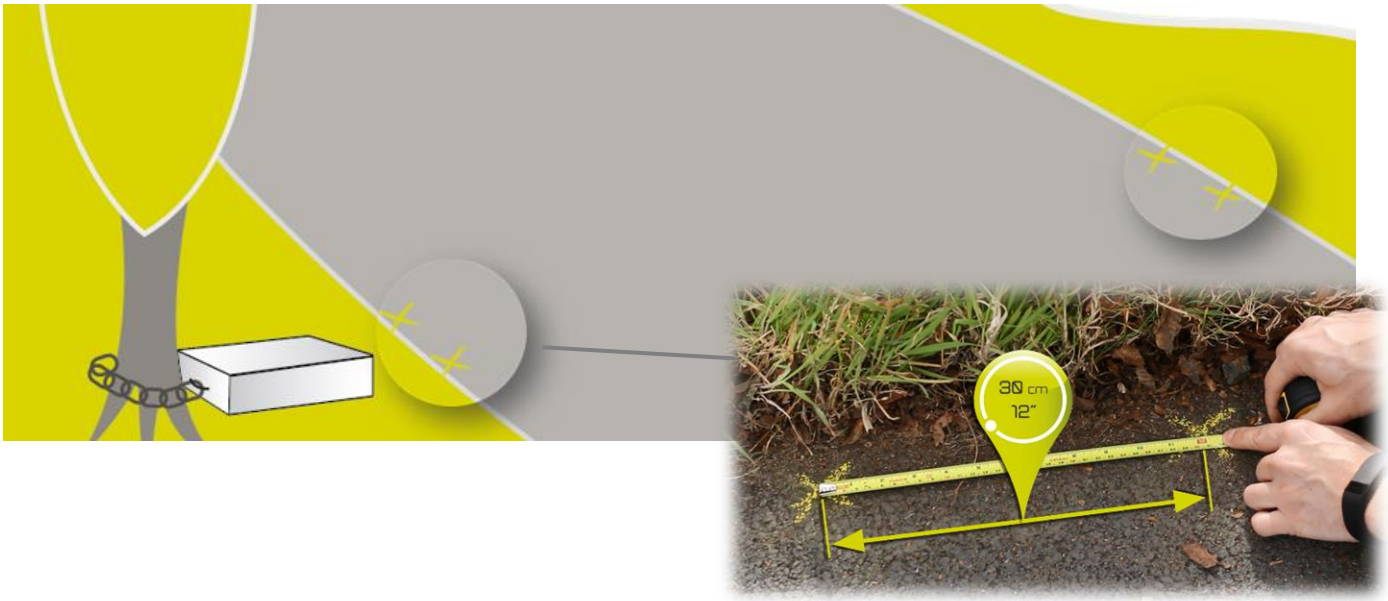
Final Result



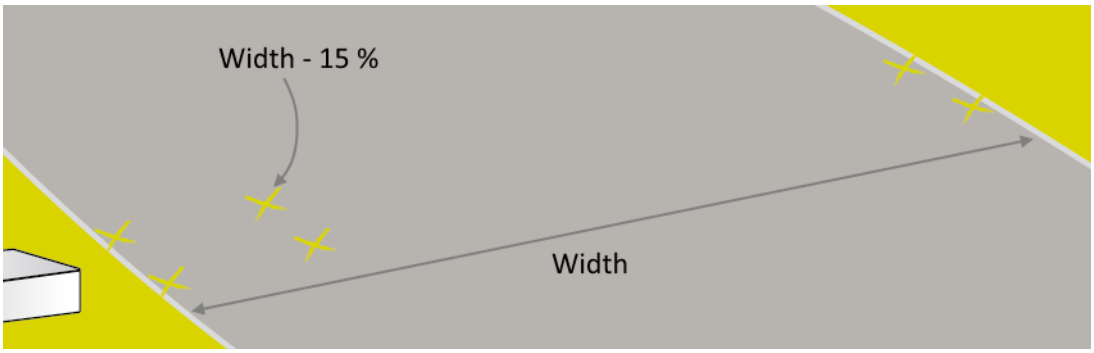
Procedure

1. Mark the Position where the TUBEs will be Fixed

- Mark a position on the ground where you will hammer the nails while following the installation instructions (see page 11).



- Mark also a position as shown:



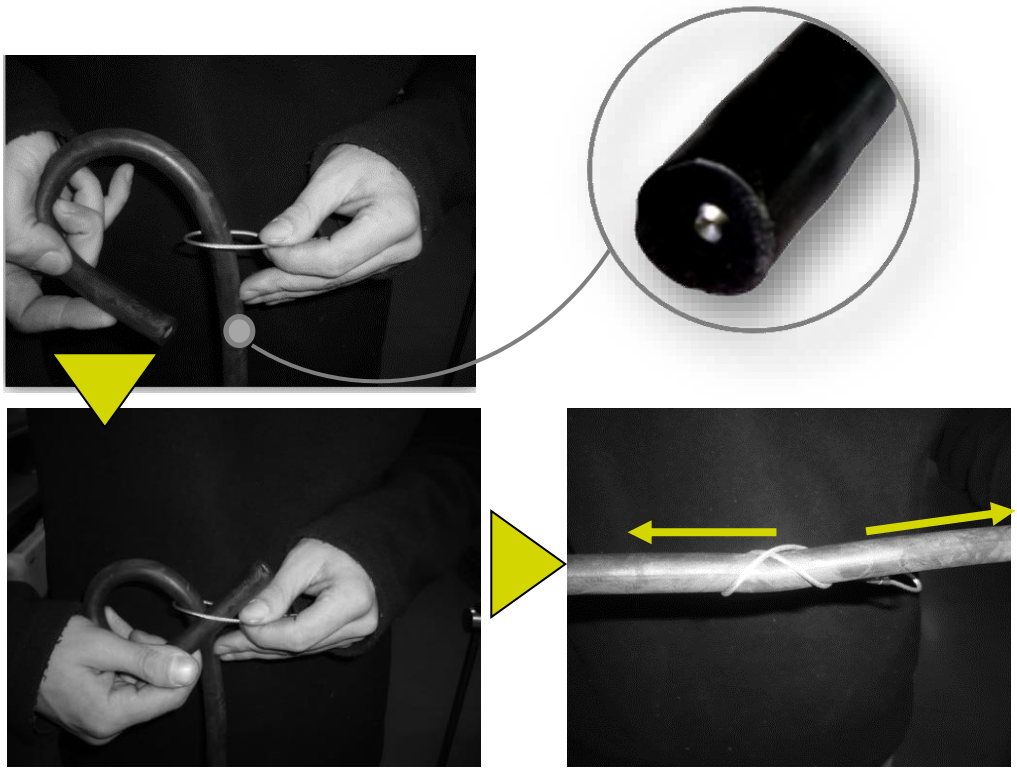
2. Drill the Fixing Holes

Asphalt or equivalent: Pre-drill the points marked in step 1 to a depth of 2 cm (½'').

3. Prepare the Pneumatic TUBEs

Selective TUBEs

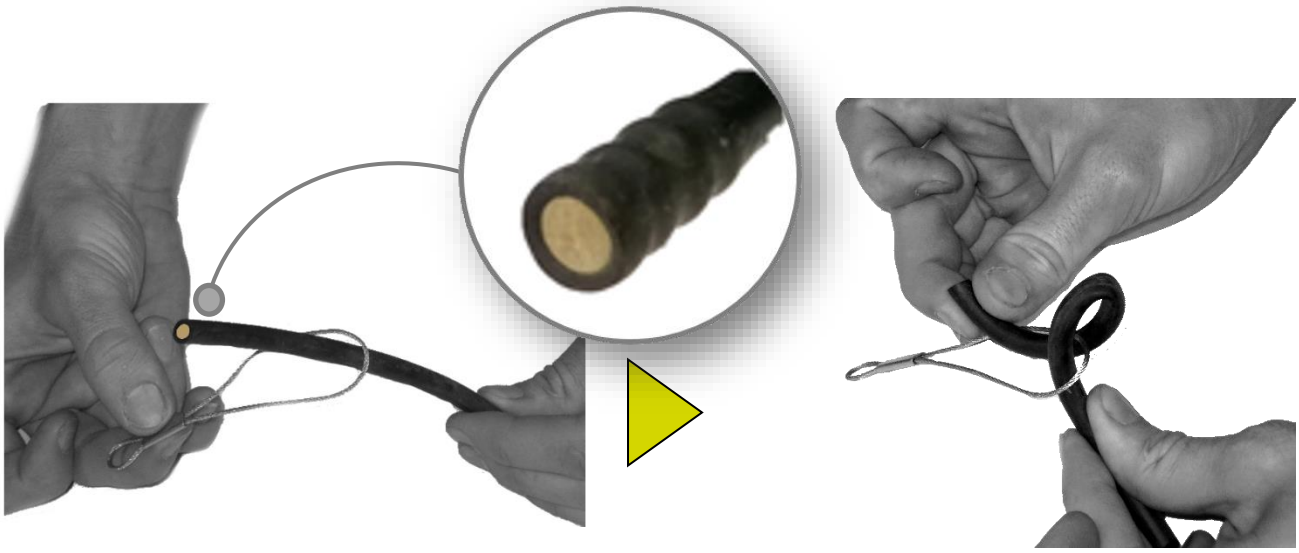
Thread a fastener on the closed end of the Pneumatic TUBE and then proceed as shown to affix the fastener to the Pneumatic TUBE:

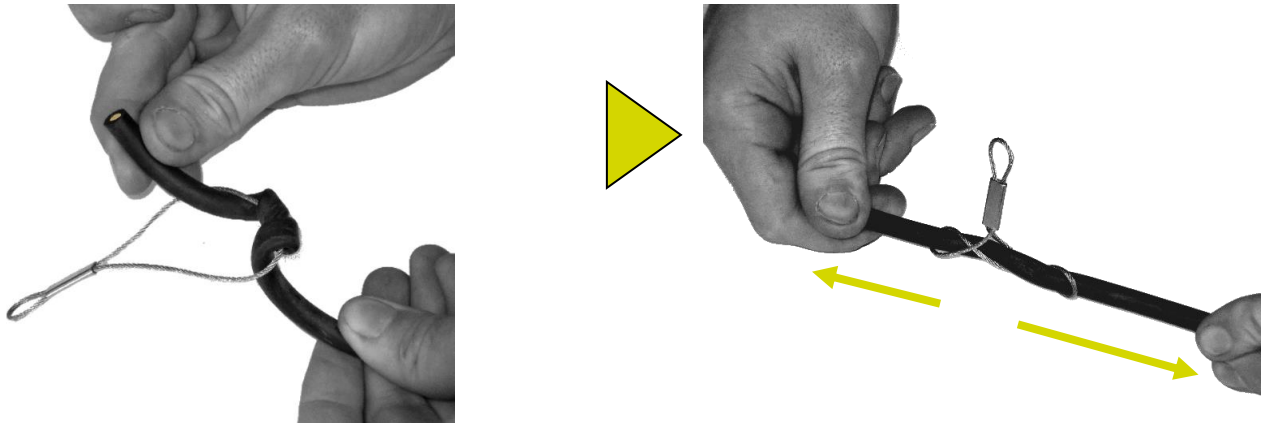


Mini-TUBEs

1. Thread a fastener on the closed end of the Mini-TUBE and then proceed as shown to affix the fastener to the Pneumatic TUBE.

   Keep enough slack after the fastener to knot the end of the Mini-TUBE.

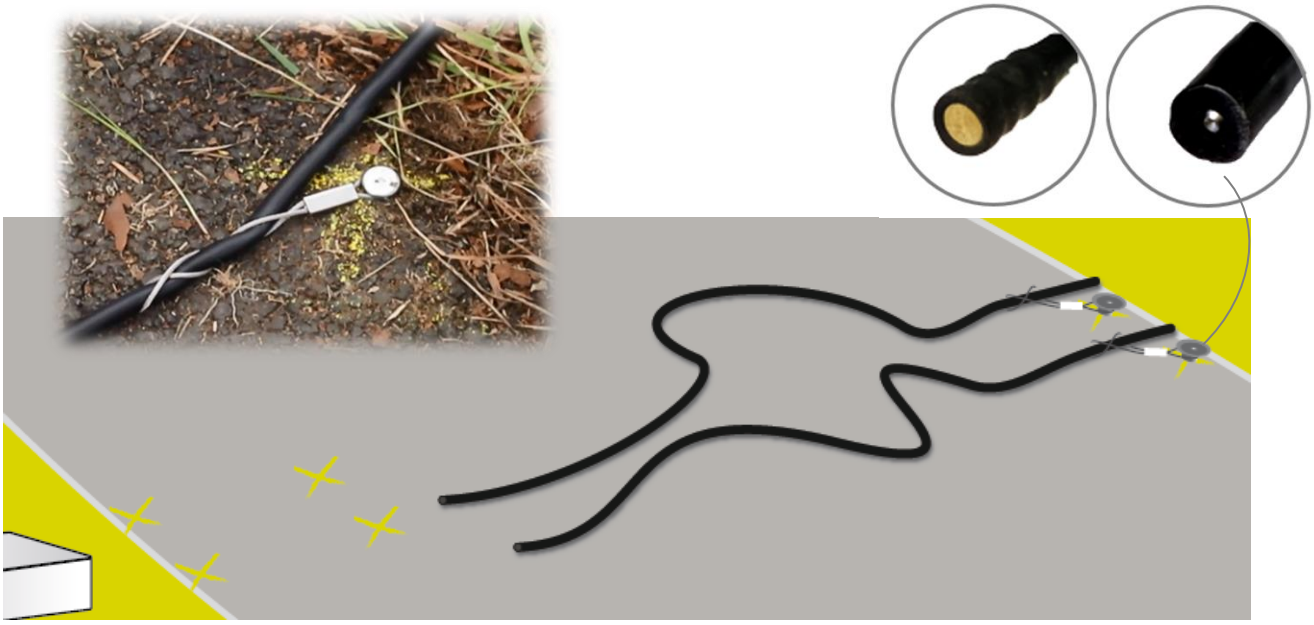




2. Knot the end of the Mini-TUBE. Refer to the pattern that was delivered with your system to do so.

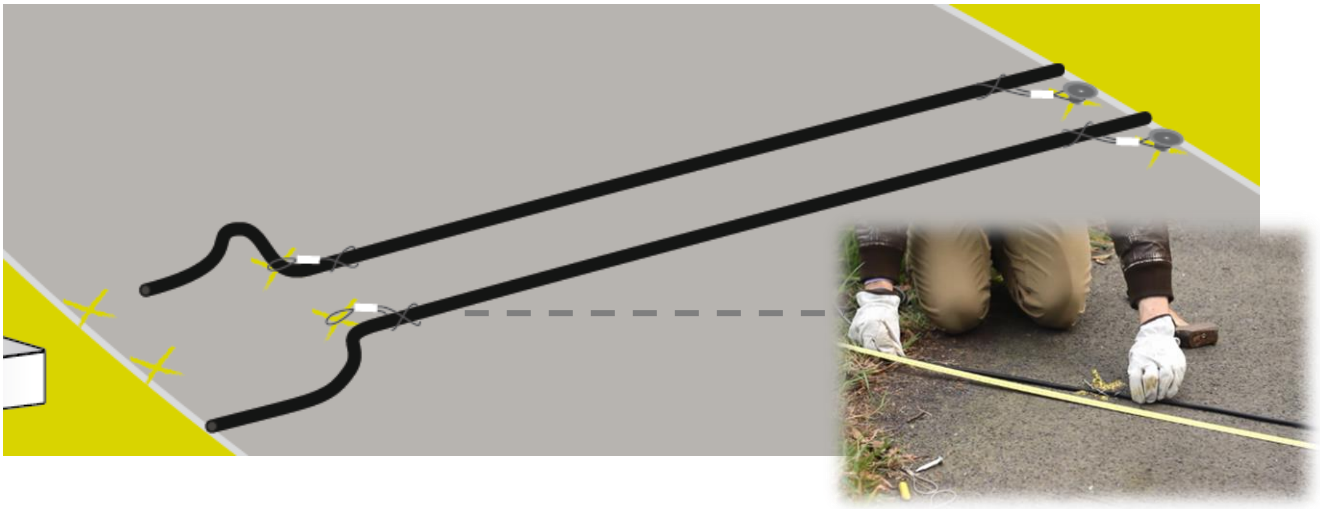
4. Anchor the Closed End of the Pneumatic TUBE

Feed the nail through the fastener and hammer the assembly into the ground to secure the TUBE.



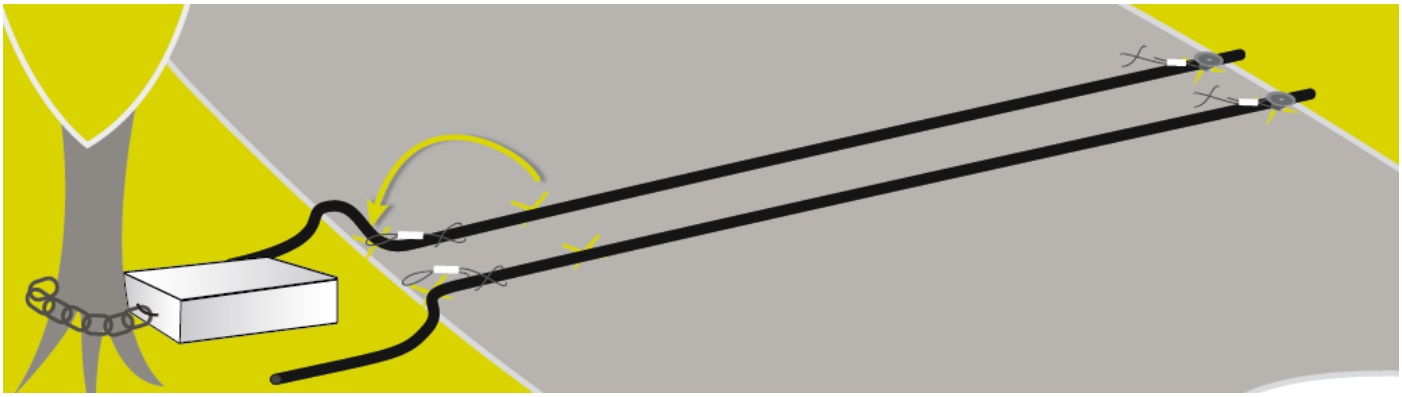
5. Tension the Pneumatic TUBE

1. Lay the Pneumatic TUBE over the road and affix a second fastener to the pneumatic TUBE while aligning it with the point marked at a distance equivalent to the width - 15 %.



2. Tension the Pneumatic TUBE towards the stainless steel box and hammer in the fastener.

   There should be little lateral movement in the TUBEs and they should snap back to their original position very rapidly if displaced.



3. **Recommended -** Mini-TUBEs: Wrap insulating adhesive tape around the two fasteners to secure them in place.

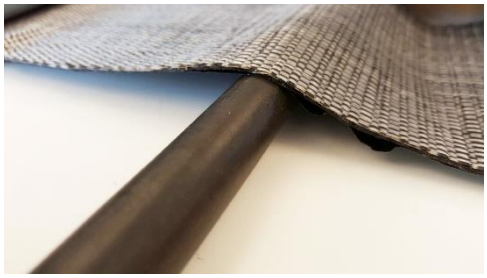
4. **Do not cut off the part of TUBE that is not used. Lay the surplus TUBE near the stainless steel box.**

6. Recommended - Selective TUBEs: Add Road Tape

1. Before installing tape, make sure that the surface is dry.
2. Sweep away dirt/dust/gravel.
3. Add squares of road tape - approximately 12.5 cm (5in) long - over each fastener to fully cover them. This will improve their longevity.
4. Press tape down firmly.
5. Add road tape over the TUBEs every 70 to 90 cm (2 to 3 feet). This will help to secure the TUBEs in place.




When applying the tape, make sure it follows the lines of the TUBE to maximize the surface area of the TUBE and street surface that the tape adheres to.

GOOD	BAD
	

7. Make the Connections

1. If you have Mini-TUBEs, connect the shock absorbers to the TUBEs.

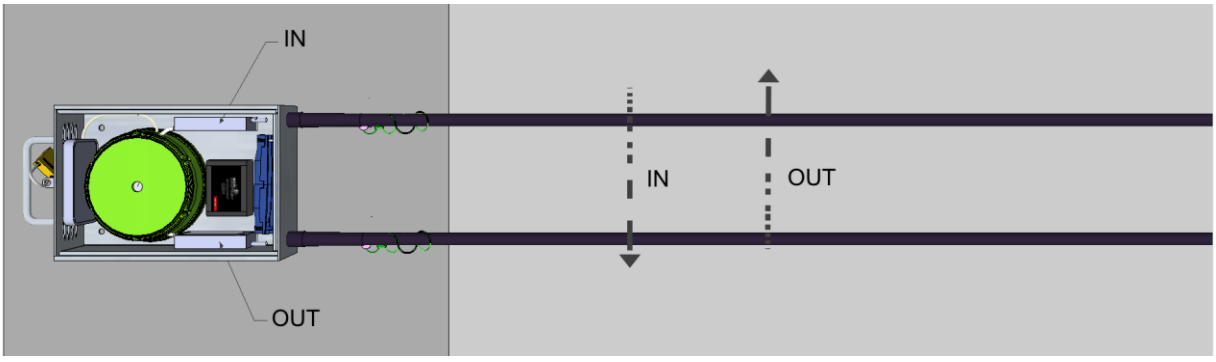
2. Attach the Pneumatic TUBE (Selective installation) or shock absorber (Mini-TUBE installation) to the transducers in the system, as shown.

3. On systems with direction recognition, each transducer presents an indication of directions IN and OUT.

   Identify and record the IN and OUT to establish what direction of travel your results will correspond to in Eco-Visio.

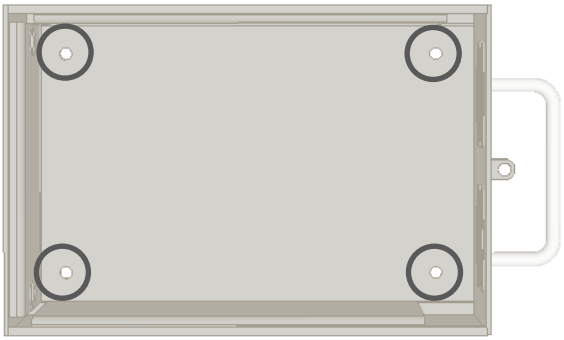
   - The direction going from IN towards OUT is identified as IN.
   - The direction going from OUT towards IN is identified as OUT.

The principle is illustrated in the diagram below:



8. Fix the Stainless Steel Box on the Curb or near the Edge of the Path

1. Screw the stainless steel box to the ground using anchors OR secure it using the chain supplied.



2. Slide the stainless steel lid onto the box and then padlock the latch and chain together.

Adjusting the Settings

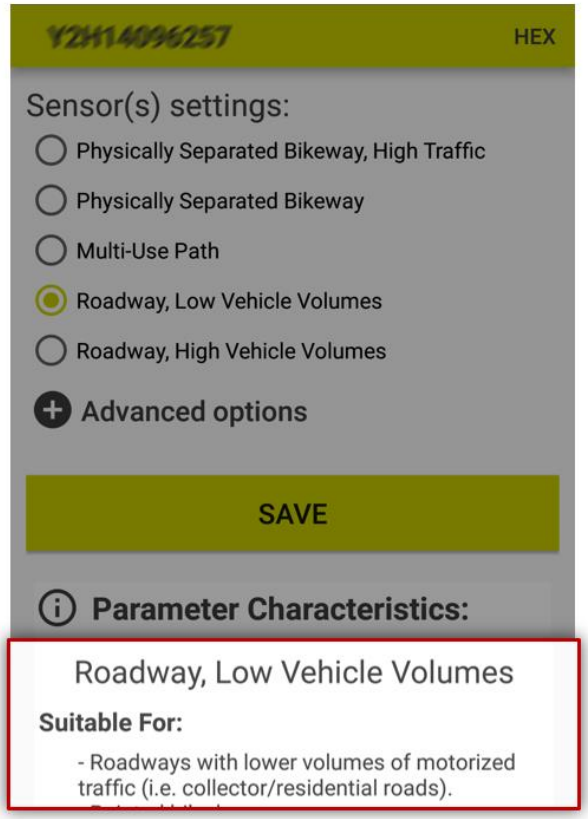
When delivered your counting system is adjusted to the default setting “Roadway, Low Vehicle Volumes”.

- **Select the proper setting according to the installation site.**

  Follow the indications in the Eco-Link software to do so.

- Refer to the Eco-Link software guide to learn how to modify the settings.

Make sure to read the indications given in Eco-Link carefully to be sure to select the proper setting.



- Settings «Physically separated bikeway, high traffic» and «Physically separated bikeway»: **If used for another type of site, these settings will cause counting issues.**
- **Do not use the setting « Physically separated bikeway, high traffic» if there are many groups of cyclists closely following each other (less than 2 meters (79’’)).**
- When in doubt, please contact Eco-Counter. Contact information is listed at the end of this guide.

Testing the System

Counting Function

Without Eco-Link

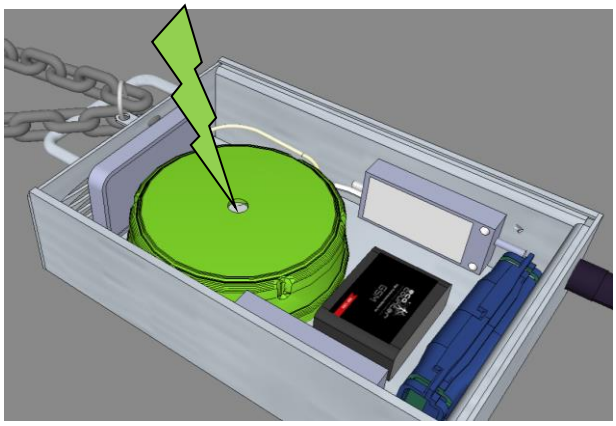
The following section is only relevant if you do not use the software Eco-Link.

1. Wake-up your Eco-Combo logger by waving the magnetic key over the activation zone.

While waving the magnetic key, the activation zone lights up green.

The activation zone will start flashing blue at regular intervals.

2. Simulate several passages on the sensor and check that the activation zone of the Eco-Combo logger flashes green at each passage.



3. If you noticed detection problems while testing the counting system, contact Customer Service for assistance.

With Eco-Link

1. If the activation zone of your Eco-Combo logger is off, follow step 1 in the section ***Counting function, Without Eco-Link***, page 23.
2. Start Eco-Link.
3. Check the counts' precision in real-time on Eco-Link.

   Follow the instructions in section "***Verifying counts***" in the Eco-Link software guide.

Automatic Transmission Feature

If your Pneumatic TUBE system is equipped with an active Automatic Transmission feature, it automatically sends the data once-per-day to the online software Eco-Visio.

How do I know if the Automatic Transmission feature is active?

All systems are equipped with the capability to transmit data automatically to our online platform Eco-Visio however, depending on how your device was ordered, the function may not be activated.

You can determine if your device was sent from the factory with this function activated by looking at the warranty certificate or the label on the side of the unit. There should be a phone number indicated if it was sent activated. If the phone number is absent, your device's Automatic Transmission function has not yet been activated.

If you wish to activate this function, or have questions about the device's current operation, please contact Eco-Counter.

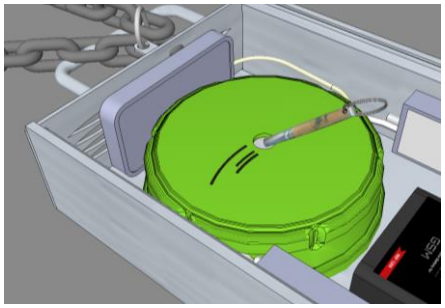
Perform a modem test to check Automatic Transmission Feature by proceeding as follows:

1. If the activation zone of your Eco-Combo logger is off, follow step 1 in the section ***Counting function, Without Eco-Link***, page 23.

2. If you have the Eco-Link software, follow the section ***Testing a modem***, in the Eco-Link software guide.

   If you do not have the Eco-Link software, proceed as follows:

- Wave the magnetic key six times over the activation zone.



After waving the magnetic key, the Eco-Combo logger shows the following light signals:

a) Blue wake-up zone, 3 flashes	Modem trying to connect to the network.
b) Blue wake-up zone, 2 flashes	Modem connected to the network.
c) Blue wake-up zone, 1 flash	Modem connected to the server storing the data files.
d) Steady blue light in wake-up zone	Data file transmitted to the server storing the data files.

Analysing Your Data

Counters Equipped with an Active Automatic Transmission Feature

Activate the counting site in our online software, Eco-Visio, on the installation date.

Follow the instructions in the document ***Eco-Visio: Quick Start Guide*** to activate your counter.

Counters with Manual Data Collection

1. Retrieve the data using Eco-Link before leaving the installation site by following the instructions in the Eco-Link software guide.

2. Send the data to the online software Eco-Visio by following the instructions in the Eco-Link software guide.

Care and Use Instructions

- **Check up on the TUBEs at least once per week:**
  - Make sure that they snap back to their original position very rapidly if displaced.
    If not, tighten the TUBEs again. See ***Tension the Pneumatic TUBE***, page 17, if necessary.
  - Make sure that the nails are still in place: If the nails pop out, replace them with longer nails.
  - Replace the TUBEs if they are damaged or punctured.
  - Check tape and re-tape if necessary.
- **Always use Pneumatic TUBEs supplied by Eco-Counter.**

  Using Pneumatic TUBEs other than those delivered by Eco-Counter may cause the system to malfunction.
- If your RayGel junction box has one or more of the following characteristics, replace it:
  - The gel is dirty
  - The color of the gel has changed
  - The texture of the gel has changed.
- Always use Mini-TUBEs with shock absorbers. Using Mini-TUBEs without shock absorbers causes the system to overcount.
- Do not install Mini-TUBEs on roads in mixed traffic, otherwise your Pneumatic TUBEs system won't count properly.
- You can install Selective TUBEs on a physically separated bikeway or greenway, but in this case, make sure to adjust the setting to successfully using your Pneumatic TUBEs system on this type of site.

Appendix A - Verifying the Cellular Network Coverage

Required Equipment

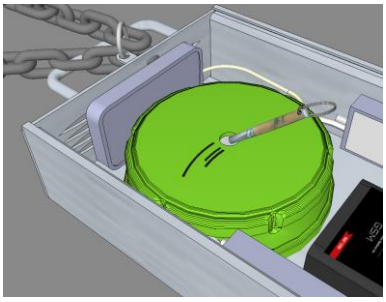
	
Magnetic key	Mobile device with Internet connection

If you do not have a mobile device with Internet connection, you can check the level of GPRS coverage using the Eco-Link software.

Refer to the section ***Testing the Counter > Automatic Data Transmission***, page 24, to learn how to proceed.

Procedure

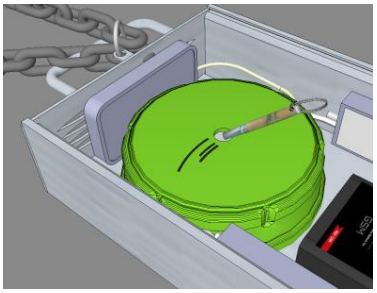
1. Wake-up your Eco-Combo logger by waving the magnetic key over the activation zone.



x 1

While waving the magnetic key, the activation zone lights up green. It then flashes blue at regular interval when the Eco-Combo logger is awake.

2. Wave the magnetic key six times over the activation zone.



x 6

After waving the magnetic key, the Eco-Combo logger shows the following light signals:

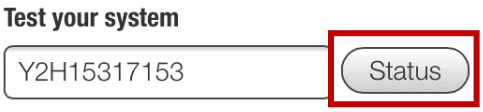
a) Blue activation zone, 3 flashes
b) Blue activation zone, 2 flashes
c) Blue activation zone, 1 flash
d) Solid blue light in activation zone

3. When the activation zone is solid blue, go to the following webpage: http://eco-counter.net/status/

web

4. Type in the serial number of your Eco-Combo logger.

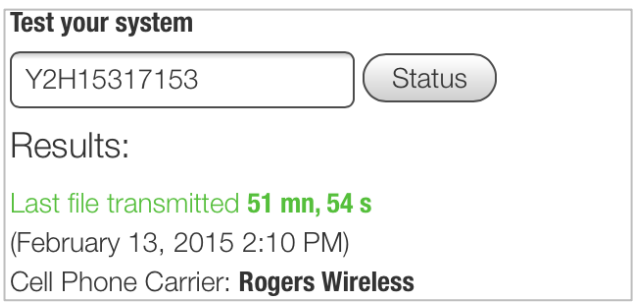
5. Click on Status.



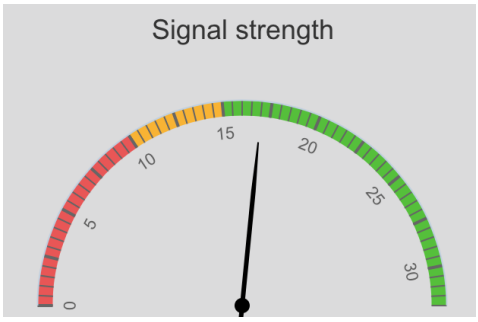
The webpage gives you:

The date and time when the counter communicated for the last time.

Make sure that the date and time matches with the time when you waved the magnetic key six times over the activation zone.



The quality of the coverage.



- If the indicator is the red zone, the counter may not be able to send data regularly or at all. You may wish to install the counter at a different location.

If the date and time doesn’t match, proceed as follows:

a) Leave the magnetic key over the activation zone until it switches off.
b) Repeat the procedure again.

- If the indicator is in the orange zone, the counter may have difficulty sending data on a daily basis.

Customer Service

Hardware

The entire system is guaranteed for 2 years starting 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 in your system, the product must be returned with the Product Return Sheet. Please contact us to receive this sheet. The logger serial number (please see the warranty certificate delivered with the product) must be identified on the Product 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. Any product damaged as a result of mishandling or improper use will be either replaced or repaired according to the 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 Customer Service for assistance:

Europe / World	North America
Tel: +33. (0)2.96.48.48.83 Fax: +33. (0)2.96.48.69.60 Email: support@eco-counter.com	Toll Free: 1-866-518-4404 Phone: 1-514-849-9779 Email: help@eco-counter.com

Europe / World

4 rue Charles Bourseul | 22300 Lannion, France

Tel: +33 2 96 48 48 81 | Fax: +33 2 96 48 69 60

North America

604-3981 St. Laurent Blvd. | Montreal, QC H2W 1Y5 | Canada

Direct: 1-514-849-9779 | Toll Free: 1-866-518-4404

eco-counter@eco-counter.com | www.eco-counter.com

PNEUMATIC TUBE

INSTALLATION GUIDE

(Short Version)

TUBES – Installation Requirements

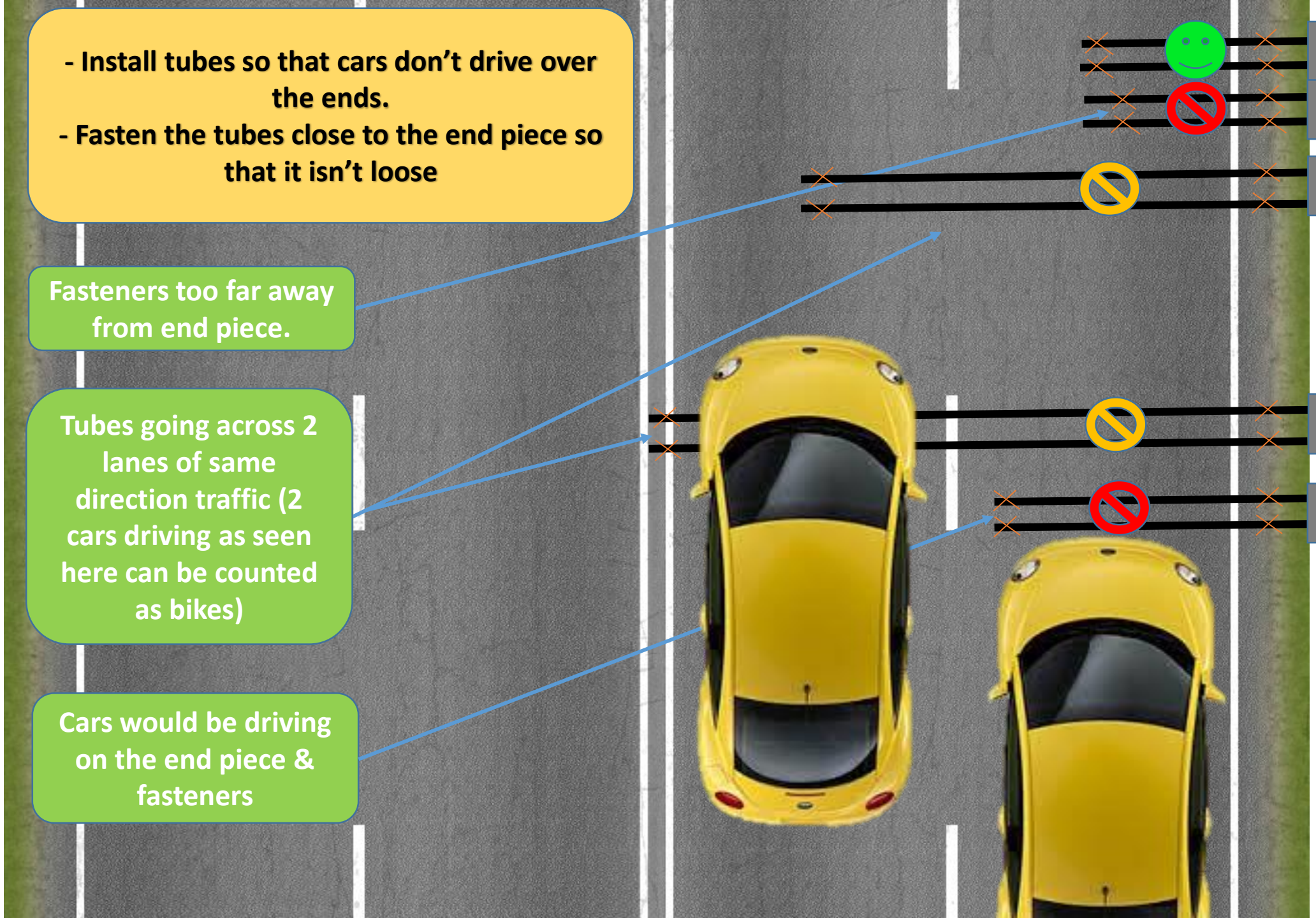
DO CHOOSE

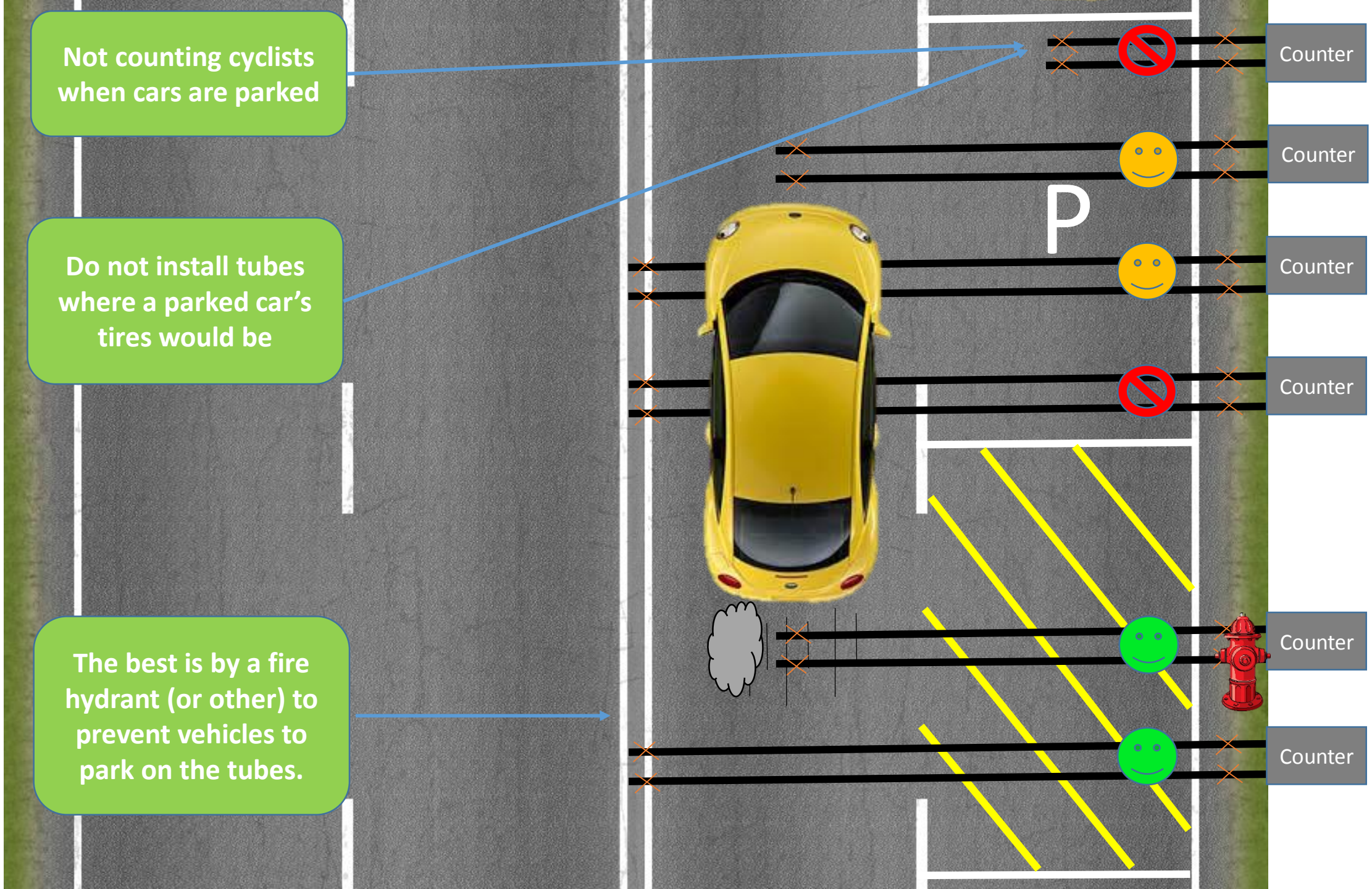
- Areas where traffic flows well
- A flat area
- A straight section with Tubes installed perpendicular to the road

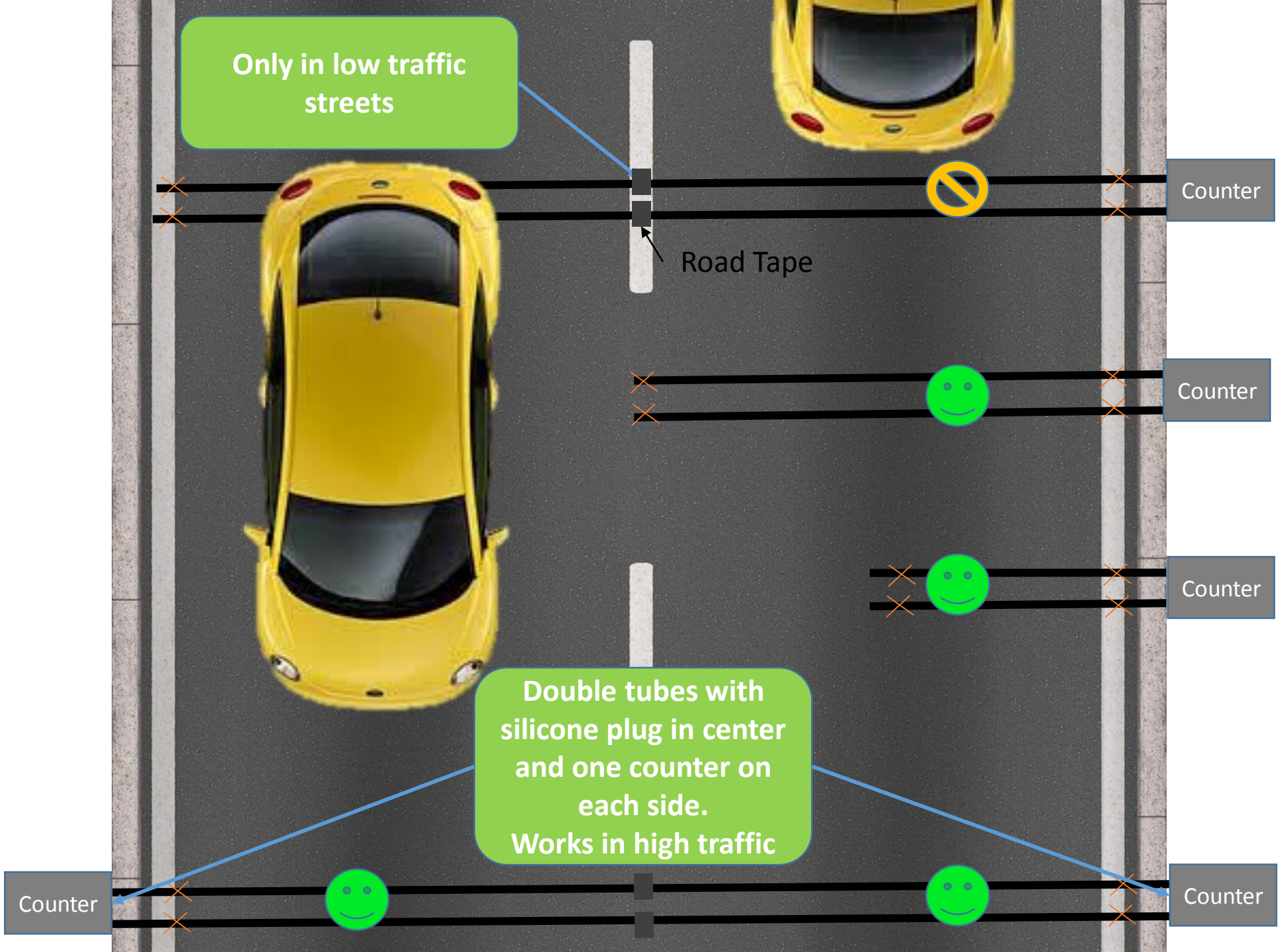
TUBES – Installation Requirements

AVOID

- Areas where bicycles or motorized vehicles will stop on the Tubes (bus stops, areas with heavy congestion, loading zones, etc).
- Areas where there is a curve or turn in the road or where people are turning.
- Configuration where two cars can be on the tubes at the same time
- Cars parking on the tubes


- Install tubes so that cars don't drive over the ends.
- Fasten the tubes close to the end piece so that it isn't loose
Fasteners too far away from end piece.
Tubes going across 2 lanes of same direction traffic (2 cars driving as seen here can be counted as bikes)
Cars would be driving on the end piece & fasteners
Counter
Counter
Counter
Counter
Counter


Not counting cyclists when cars are parked
Do not install tubes where a parked car's tires would be
The best is by a fire hydrant (or other) to prevent vehicles to park on the tubes.
P
Counter
Counter
Counter
Counter
Counter
Counter


Only in low traffic streets
Road Tape
Counter
Counter
Counter
Double tubes with silicone plug in center and one counter on each side.
Works in high traffic
Counter
Counter