chambers
ELECTRONICS

RBX with Data Logger in Protective Housing

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Instructions:
RBX RadioBeam People Counter with Data Logger in Protective Housing

INSTALLING THE COUNTER

Choose a position for the counter where people will normally pass in single file, for example, on a narrow part of the path, up a gradient etc. The sides of the units must face each other across the path. If the path is less than three metres wide, then put the counters at 45 degrees across the path so that the counter can "see" a gap between people walking together. If there is a wall on one side, then put the transmitter on that side.

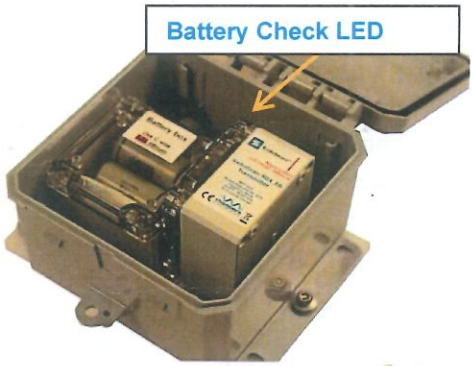
Position the transmitter and receiver 110 cm above the path level up to 6m apart and make sure that there is a clear line of sight between the receiver and the transmitter.

Logger

1. Before installing the counter, the logger must be setup as shown in the logger instructions (see page 5).

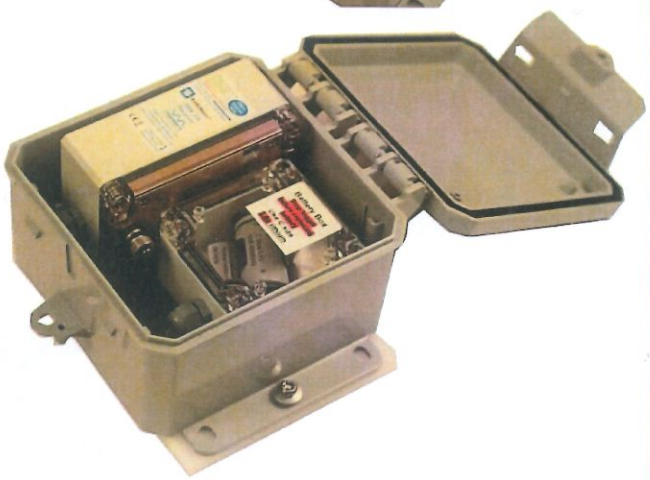
Installing the Transmitter

1. Position the transmitter opposite the proposed receiver location with the lid hinge facing upwards. The RadioBeam passes through the side of the unit, not the face of the lid (see Figure 1).
2. Ensure the orange LED indicator flashes once every 4 seconds, indicating that the battery is OK.
3. Secure the transmitter in place at a height of 110cm from the top of the box to the ground.
4. Firmly secure the lid.



Installing the Receiver

1. Open the unit.
2. Check the logger LED (blue) is flashing, if it is not the logger has to be setup.
3. Position the receiver opposite the transmitter at a distance of no more than 6 metres apart with the lid hinge facing upwards.
4. Place the magnet in position over the "place magnet here" position and look at the LED response through the inspection window as indicated on the label.
5. The LED will go green for 2 seconds to indicate the battery is OK and will then start flashing red to indicate the signal strength received from the transmitter.
6. With the magnet still held in position, move the unit up and down and left and right to find the mid position where the red LED flashes at its maximum rate, which must be at least 2 flashes per second.
7. The receiver should be at approximately the same height as the transmitter (see previous section).
8. Secure the receiver in place then re-check that the LED flash rate is more than 2 flashes per second, and then remove the magnet.
9. Firmly secure the lid.



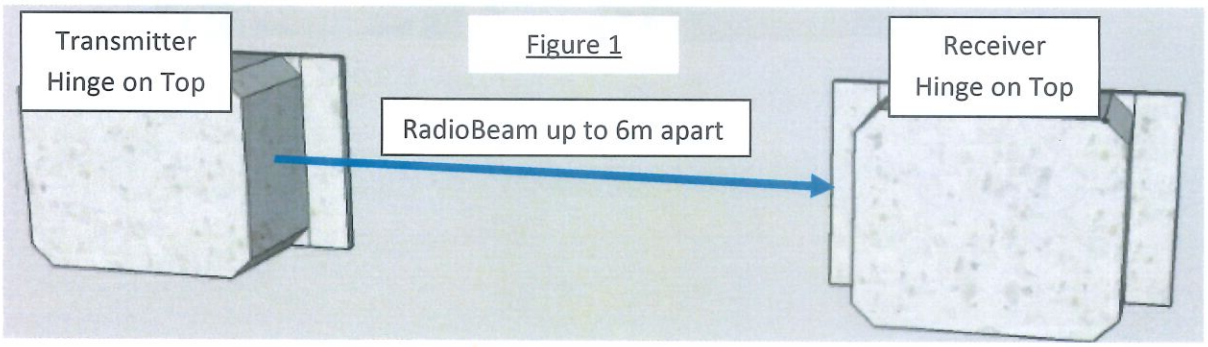


Figure 1

Checking the Counter

It is recommended to perform all checks during the monthly download of data from the counter.

Transmitter

1. Open the lid and ensure the indicator LED is flashing automatically once every 4 seconds. If it is not; replace the battery (see below, Changing the Batteries).

Receiver

1. Open the lid and place the magnet in position over the "place magnet here" label.
2. Check that the LED comes on green for 2 seconds. If it does not, replace the battery.
3. Continue holding the magnet in place and check that the red LED is flashing. If it is not flashing check the alignment of the units and check that there is nothing in the way that is stopping the beam passing between the 2 units.
4. Check that the logger LED (blue) is flashing once every 4 seconds. If it is not, the logger has to be setup.
5. Replace the lid.

Overview of Counter

The RadioBeam people counter is the most advanced and reliable outdoor counter on the market today. It will operate under all weather conditions and will give accurate counts. The counter consists of a radio transmitter and receiver and operates by detecting the change in radio signal as a person passes between them. The transmitter and receiver can be set up to 6 metres apart. The counter has very low battery consumption and the 3 C size 3.6-volt lithium batteries will last for up to 7 years. The unit is very easy to set up, as there is no cable between the two units. The RadioBeam counter is supplied with an internal data logger. The units are housed in robust reinforced polycarbonate housing that gives security and waterproofing to IP68.

Changing the Batteries

To preserve the life of your counter, this should only be done in dry conditions.

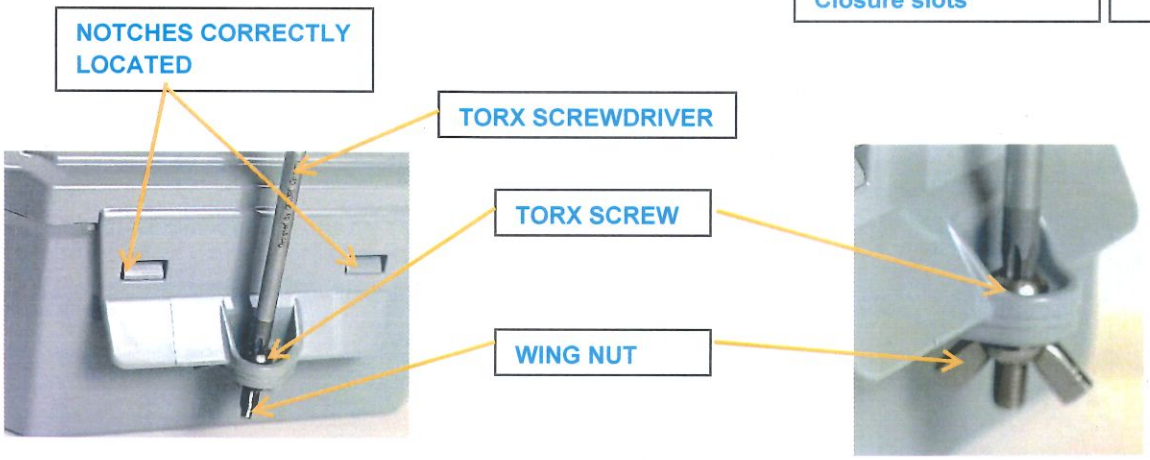
1. Unscrew the battery box lid with a Philips screwdriver.
2. Replace the batteries ensuring that they are orientated the correct way. Use 3.6v C size lithium batteries only.
3. Replace the lid on the battery box.
4. Check the battery indicator is flashing automatically once every 4 seconds. If it does not, then double check the battery type and orientation.

Receiver

Transmitter

Closing the Housing

1. Press down firmly on the box until the notches on the side click into the slots on the closure mechanism.
2. If the notches do not engage correctly due to misalignment, then open the lid fully before trying to close it again.
3. Lock the box by putting the Torx screw through the hole and screwing into the wing nut as shown below.



Opening the Housing

1. Remove the Torx screw with the screwdriver.
2. Pull up the flap so that the notches disengage from the slots (see diagram above).

Logger instructions

Software

The unit is supplied with Tinytag Explorer software which is used to set up the logger and download the stored data and install the USB download lead. **Please note the software should be installed before the USB lead is connected.**

The software provides a 'tool bar' which can be used to access common menu options. Moving the mouse over the menu options or tool buttons will display a hint about that option in the status bar at the bottom left of the window, as well directly at your cursor.

Note: When loggers are programmed, they store the current time and date from the PC, it is therefore important to keep your PC's clock set accurately.

Launching the Logger

1. Unscrew the logger cap (see below) and push in the 3-pin USB download lead making sure that the slot on the plug aligns with the notch on the socket. Do not force it in as this means the plug is not correctly aligned.

2. Plug the download lead into.your laptop.
3. Go to ***Options***, then ***Units Preferences.***
4. Change ***Number/Time*** to /hour.

5. To set up a logger and start it logging select ***Launch*** from the Logger menu, or click  icon on the tool bar. A dialogue box will appear showing the various possible logger settings (see below). Note – Click the "+" sign beside the subheading to access the relevant fields as follows:

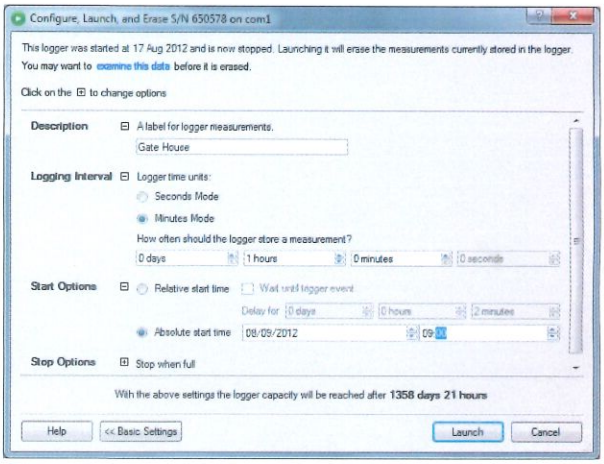
Description
Enter a title for the data up to 24 characters long. This is typically the name of the site where the logger is being used.

Logging interval
Logger time units should be set to **Minutes Mode.**

How often should the logger store a measurement?

Set this to 1 hour.

At the bottom of this screen the total time that the logger can store data for will be shown.



Starting Options

We recommend that an **Absolute start time** is used so click this box and fill in the start date and time. You should set the logger to start at a specific launch time on the hour i.e., 06.00 on the required date, as this helps to ensure easy analysis of your data.

Note: If this option is used the blue logger LED will flash once every 6 seconds after the Launch button has been pressed until the logger start time. It will then flash once every 3 seconds when logging data.

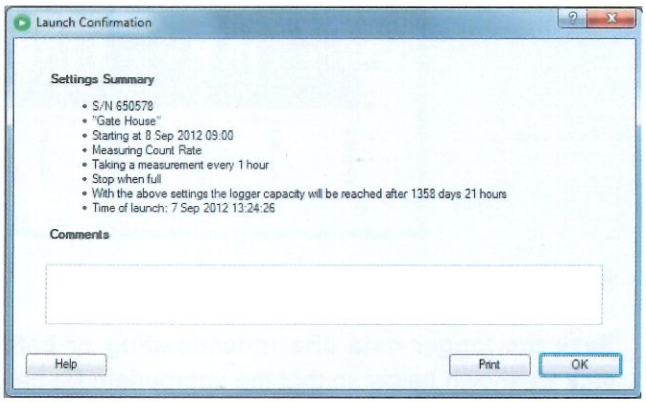
NB: Make sure that the "Wait until trigger event" box is NOT ticked.

Stop Options: - Not required

Press the **Launch** button (at the bottom of the window) to start the logger.
Do not disconnect until the program has finished this sequence.

Launch confirmation screen

When the **Launch** button is pressed a launch confirmation screen appears which gives all the details of the launch parameters (see right). This information can be printed out along with any additional information which the user inputs in the ***Comments*** section. If an error is found in the launch parameters, the logger will have to be relaunched using the green arrow "Launch" button found in the **Logger** menu (redo above steps)



Note: Make sure that the blue LED is flashing before you leave the logger in the counter, (see section below).

Logger LED Indicators

Blue LED

- 1 flash every 6 seconds indicates that the unit is waiting for a delayed start
- 1 flash every 3 seconds indicates that the unit is logging.

Quick Start: Once you have set up the logger initially, when you come to relaunch, you need only change the Absolute Start Time. All other settings should remain the same.

Downloading Data from Logger

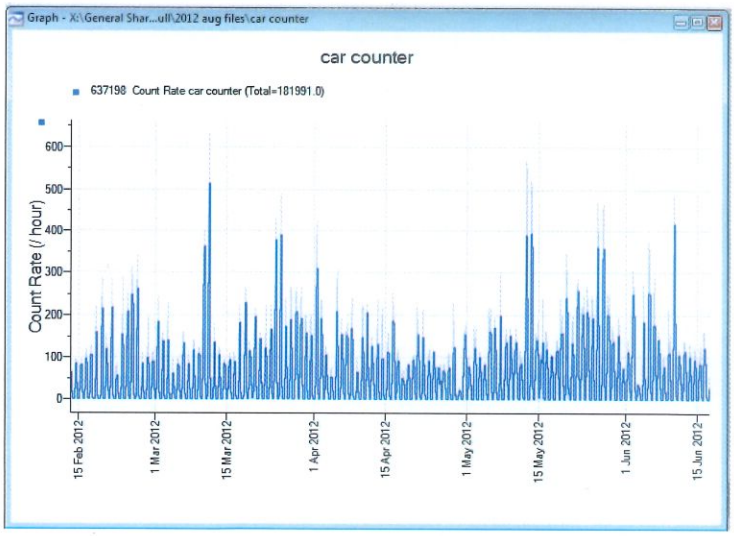
1. Connect the USB download lead from the PC to the receiver.
2. Select ***Get Data*** from the ***Logger*** menu or click  on the toolbar.

Battery check

During download, the battery in the receiver will be checked and if it is too low, a pop-up will be displayed. If this happens the battery will have to be changed before the download is completed.

Data graph display

The time taken to download a logger will depend on how much data it contains. Downloading a logger will automatically open a default plot window showing a graph of the measurements made during the entire deployment (see below). The total count during the period displayed on the graph is shown above the graph.



Saving Data

Save the logger data after downloading or before re-launching the logger. We recommend a reverse date as shown below so that the appropriate file can be easily found, (e.g., ***site name*** 2012_01_25).

Re-Launching the Logger

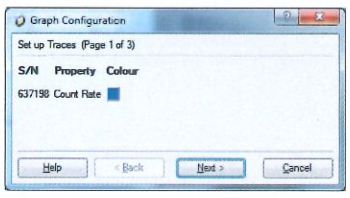
After saving the data, the logger must be set up as described above. The only thing you will need to change is the Absolute Start Time. All other settings should remain the same. After changing this press the Launch button.

Looking at the Data

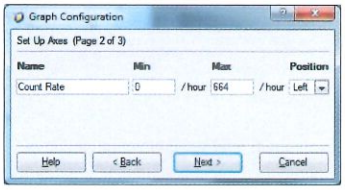
The graph can be "zoomed in" to any required period by using the mouse and drawing a square around the area of interest while holding the right-hand mouse button down.

This can also be done on a date/time basis by using the **Graph Configuration** option. This is available on the View menu of the toolbar. There are 3 steps to take:

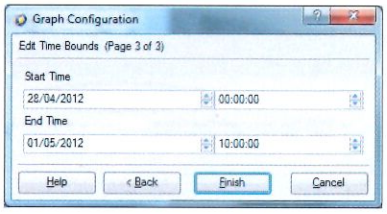
Step 1: There is no data entry here, click next



Step 2: Enter desired min/max axes to display, click next

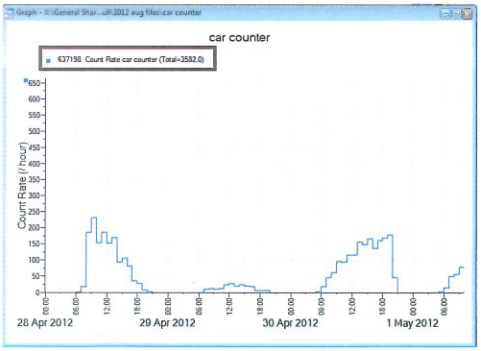


Step 3: Enter desired date and time, click finish



Total Count

Note that at the top of the screen under the graph heading (see right), the total count is shown. If the graph is zoomed in on a specific period, this total will change to show the total counts for period on view (see left, now Total = 3582.0)



Viewing Data

Select **Table of Readings Options** from the **Options** menu,

or click  on the toolbar.

A table will be displayed in the window which ties in with the zoomed area on the graph (see right).

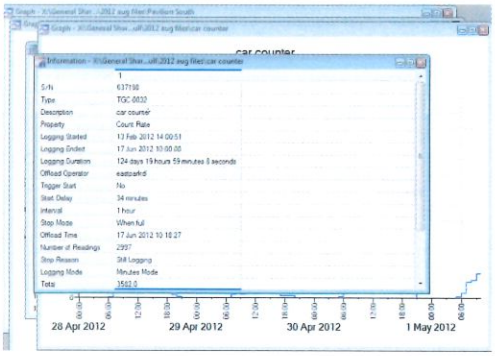
Table of Readings - X:\General Shar...ull\2012 aug files

	Time	1
S/N		637198
Type		TGC-0032
Description		car counter
Property		Count Rate
1	28 Apr 2012 00:00	0.0 / hour
2	28 Apr 2012 01:00	0.0 / hour
3	28 Apr 2012 02:00	0.0 / hour
4	28 Apr 2012 03:00	0.0 / hour
5	28 Apr 2012 04:00	0.0 / hour
6	28 Apr 2012 05:00	0.0 / hour
7	28 Apr 2012 06:00	0.0 / hour
8	28 Apr 2012 07:00	1.0 / hour
9	28 Apr 2012 08:00	18.0 / hour
10	28 Apr 2012 09:00	186.0 / hour
11	28 Apr 2012 10:00	232.0 / hour

Data Statistics

Clicking on the **Open Information View**  on the tool bar shows information on the zoomed log period.

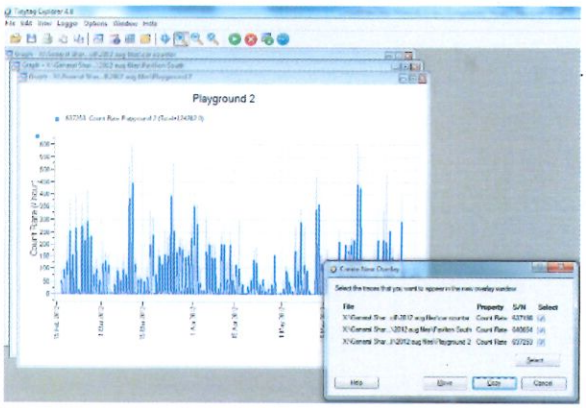
From this file you can see the maximum number per hour, total number counted in the time period of the graph, as well as other data such as start time etc.



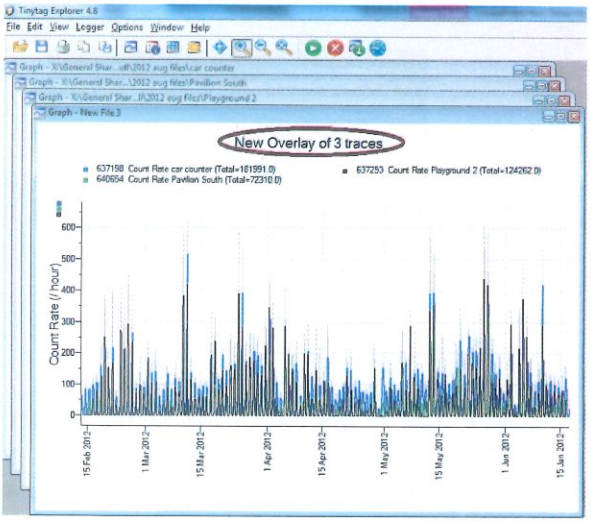
Combining Data from Multiple Counters

The software allows you to combine your data from various counters into one graph. To do this:

1. Open the separate .ttd data file for each counter. You will have several graphs cascaded on your screen.
2. Click on **View**, and then **Create New Overlay** (see right).
3. Select each of your files (tick box next to file name).
4. Click **Copy**.



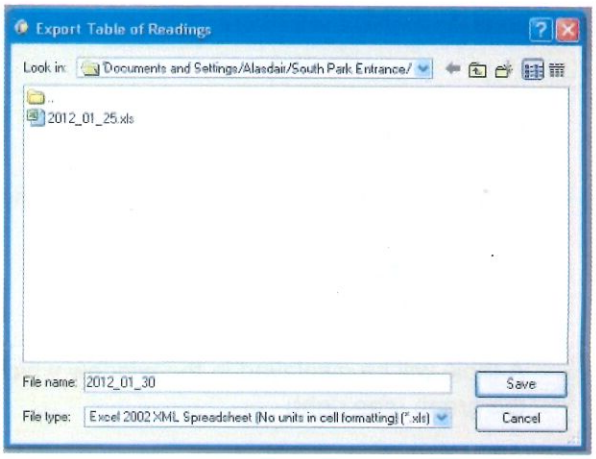
The combined data graph will be created in the window for you (see left). It can be manipulated in the same way a single graph of data can – i.e., "zoomed in", converted to a table of counts, or converted to a table of information.



Exporting data to Excel speadsheet

The saved data can be exported from Tinytag explorer to an Excel spreadsheet as follows: -

1. Open a saved data file in Tinytag explorer.
2. Go to **View** menu: **Table of readings.**
3. Go to **File** menu: **Export - all cells.**
4. Change **File type** to **Excel 2002 XML Spreadsheet (No units in cell formatting) (*xls)**.
5. Choose a **File name** and save the new file in a suitable location.
6. Now open the saved file in Excel.



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