

# LTL-XL RSC

Road Sensor Control Software for Retroreflectometer LTL - XL



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## **LTL-XL RSC program**

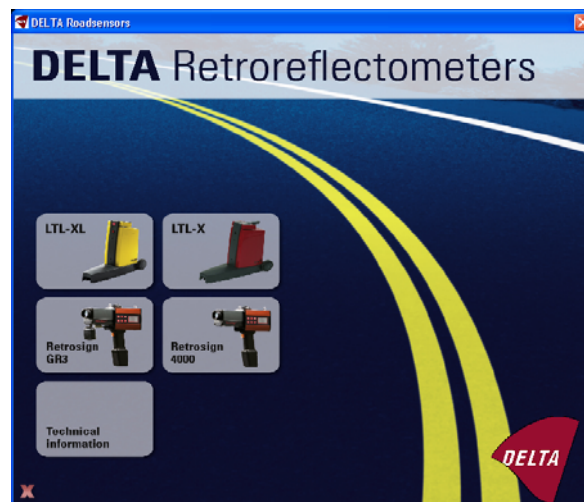
The Road Sensor Control program, LTL-XL RSC, is intended for managing your work with the LTL-XL. LTL-XL RSC provides you with log management facility

### **Requirements**

The program will run on computers with Windows 2000 or higher installed. Communication takes place via USB.

### **Installation**

Insert the LTL-XL CD-ROM into your CD-ROM drive. The PC will automatically start the program. If this does not happen browse to the CD and click on Autorun.exe.



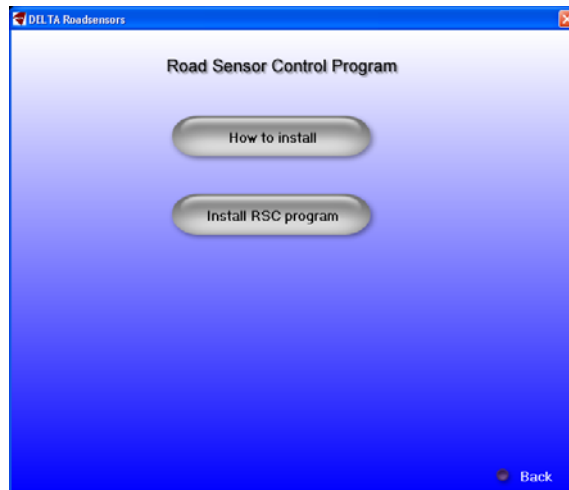
Now click on LTL-XL logo. You will see the following page:



First time you want to use LTL-XL you have to install the RSC program. To do this click on "Install RSC program". The program will install itself by pressing next at the first picture.

## Connecting the LTL-XL to the PC

Connect the LTL-XL to the PC USB port and turn on the instrument. Click on “How to install” to get a description of the installation process.



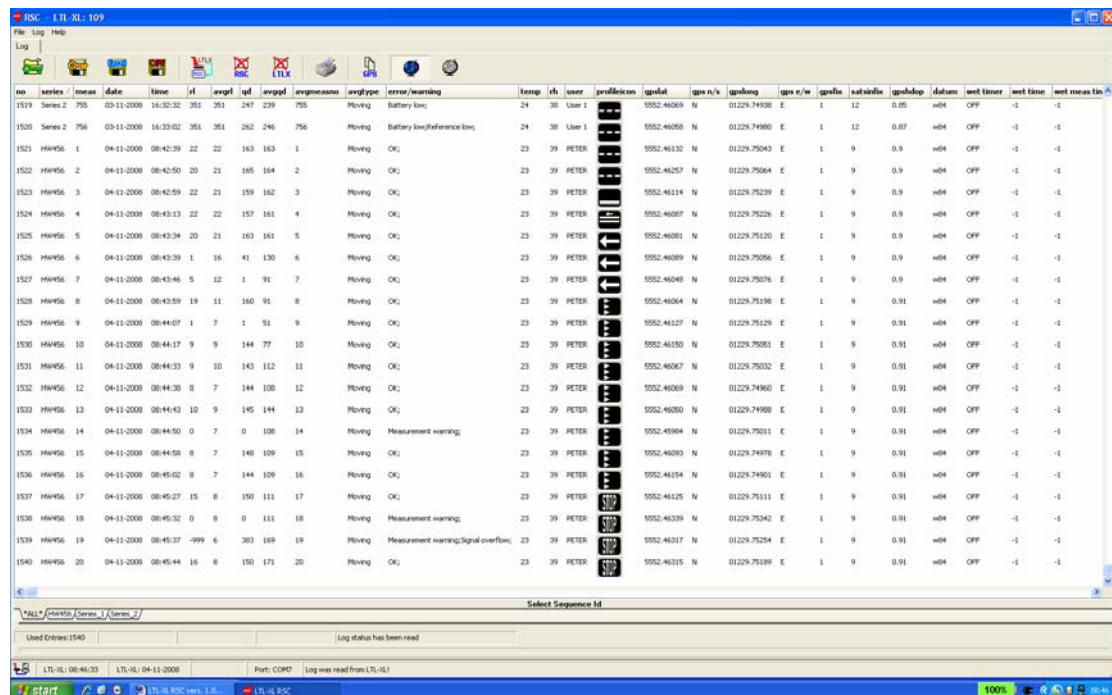
The install program will place a short cut icon to the program on the desktop

## Start up of the RSC program

Click on the RSC icon on the desktop

## LTL-XL RSC LAYOUT

When opening the LTL-XL RSC you will see the following picture



Starting from the top you will be able to locate the following information

### Log pane

In the Log pane you can read the data stored in the LTL-XL Log.

By selecting the Read Log button  the whole Log content will be downloaded from the LTL-XL.

In the Log pane you see a row of tool buttons:



From left to right, the toolbar holds the following buttons:

- Open protected file
- Save protected file
- Save Excel file
- Save CSV file
- Download Log from LTL-X into Log page
- Clear LTLXL RSC Log page
- Clear LTL-XL Log
- Print Log page
- Copy the GPS position of the selected row to clipboard.
- Show GPS relevant data
- Export to Google Earth

## Data displayed in Log pane

At the top of the Log data table you see the various data that has been logged by the LTL-XL and transferred to the Log pane. You will find the following data starting from left:

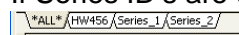
no	series	meas	date	time	rl	avgrl	qd	avgqd	avgmeasno	avgtype	error/warning
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- The number of the individual measurements
- The Series ID of the road
- The number of the individual measurement for a given Series ID
- Date of the measurement
- Time of the measurement
- The RL value
- The average value of the RL measurements for the given Series ID
- The Qd value
- The average value of the Qd measurements for the given Series ID
- The type of average (fixed or moving) chosen
- Errors or warning registered

temp	rh	user	profileicon	gpslat	gps n/s	gpslong	gps e/w	gpsfix	satsinfix	gpshdop	datum	wet timer	wet time	wet meas tin
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- Temperature
- Relative humidity
- User name
- The road marking icon chosen
- Four columns with GPS location data
- Information on GPS fix
- Number of satellites access when measurement was taken
- GPS data quality measure (HDPD< 1.0 is excellent)
- GPS Datum information
- Three columns related to the use of the wet timer

## Series ID list

If Series ID's are used during measuring the log page will contain several tabs  named with the Series ID plus one showing all the data. The tabs will act like a filter showing only the respective data. The selected tab will become the active log page.

## Log status bar

The Connect Status Icon shows if a LTL-XL is connected or not. When no LTL-XL is connected, this icon will be gray.

	LTL-XL: 08:46:33	LTL-XL: 04-11-2008	Port: COM7	Log was read from LTL-XL!
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The time and date field is continuously updated from the LTL-XL. If the LTL-XL is disconnected or turned off, the time and date will disappear. The time will be shown in the format corresponding to your current regional Windows settings.

The active communication port is also shown in the status bar and finally, status information, informing you about the status of your actions.

## LOG PANE TOOL BUTTONS

**Note:** the user can change uploaded log data at any time by double clicking the cell where data is going to be changed. These changes are reflected in both Excel and CSV files; however, the protected file will always contain the original data.

### Loading a Protected file

You can open a Protected file by pressing this button.















A Protected file is an encrypted log file, having the extension RSC. The purpose of the Protected file is to secure your work. By saving or forwarding a Protected file, you can document that your work has not been manipulated. Encrypted Protected files can only be loaded and used in the LTL-XL RSC program.











### Saving a Protected file

When the log has been read, you may want to save it in a Protected file-format. Even if you edit the Log page, and manipulate the data, the original data is retained, and you can save it at any time.

### Saving an Excel file

The active log page may be saved as an Excel file at any time. The Excel file will, however not contain any graphical presentation, i.e. Road Markings. Graphical information's will be shown as a number. The "translation list" is found below

1	img/N7.png	
2	img/N9.png	
3	img/N3.png	
4	img/N5.png	
5	img/N1.png	
6	img/N16.png	
7	img/N8.png	
8	img/N10.png	
9	img/N4.png	
10	img/N6.png	
11	img/N2.png	
12	img/N12.png	
13	img/straight.png	
14	img/lArrow.png	

15	img/rArrow.png	
16	img/lCombi.png	
17	img/rCombi.png	
18	img/crossWalk3.png	
19	img/sharksTheeth.png	
20	img/stopBar.png	
21	img/RxR.png	
22	img/stop.png	
23	img/only.png	
24	img/school.png	

### Saving a CSV file

You may save the active log page as a Comma Separated file. This ensures that you can export log data to almost any other application.

### Clear LTL-XL RSC Log pages

The Clear Page button lets you clear the Log pages on your computer.

### Clear LTL-XL Log

The Clear Log button lets you clear the Log in the LTL-XL. When this is done, **all log data in the LTL-XL will be lost.**

### Print Log

The Print Log button lets you print the contents of the active log page.

### Show GPS Position

When you press this button, the GPS information will be displayed in the Log page. If you choose to save the Log page as a protected file, the information will be preserved, even if the GPS position is hidden.


### Export GPS data to Google Earth

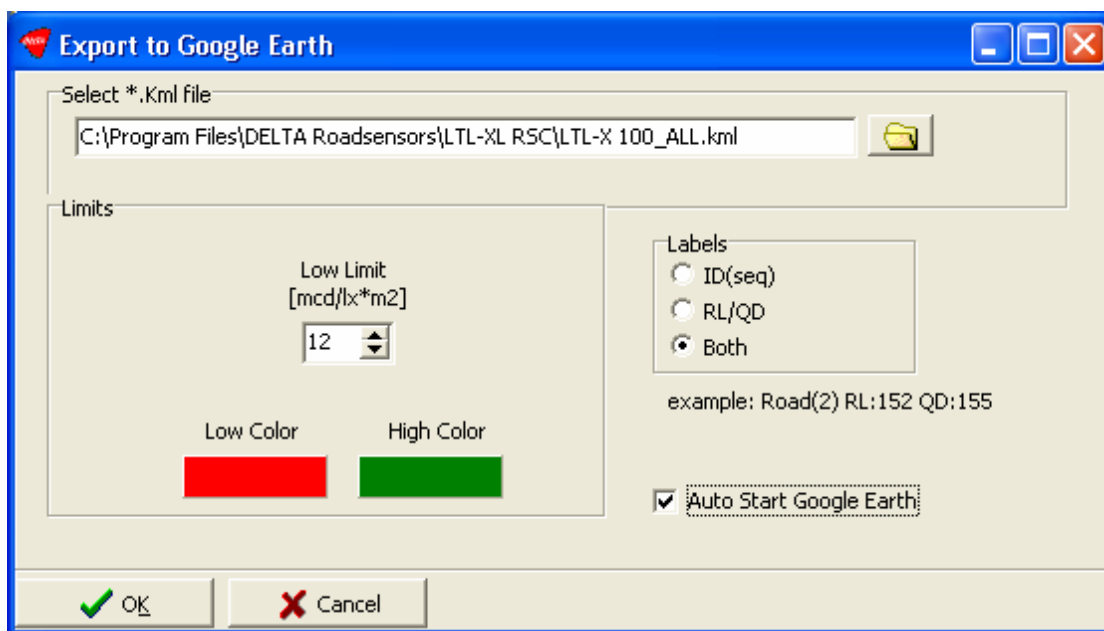
You can export log data containing GPS positions to Google Earth.

Before exporting data you must select the data lines to be shown. If no data are selected the program will automatically select all data lines. Data can be selected by using the regular windows way:

shift + left mouse click selects a group.

ctrl + left mouse click selects / deselects single entries.

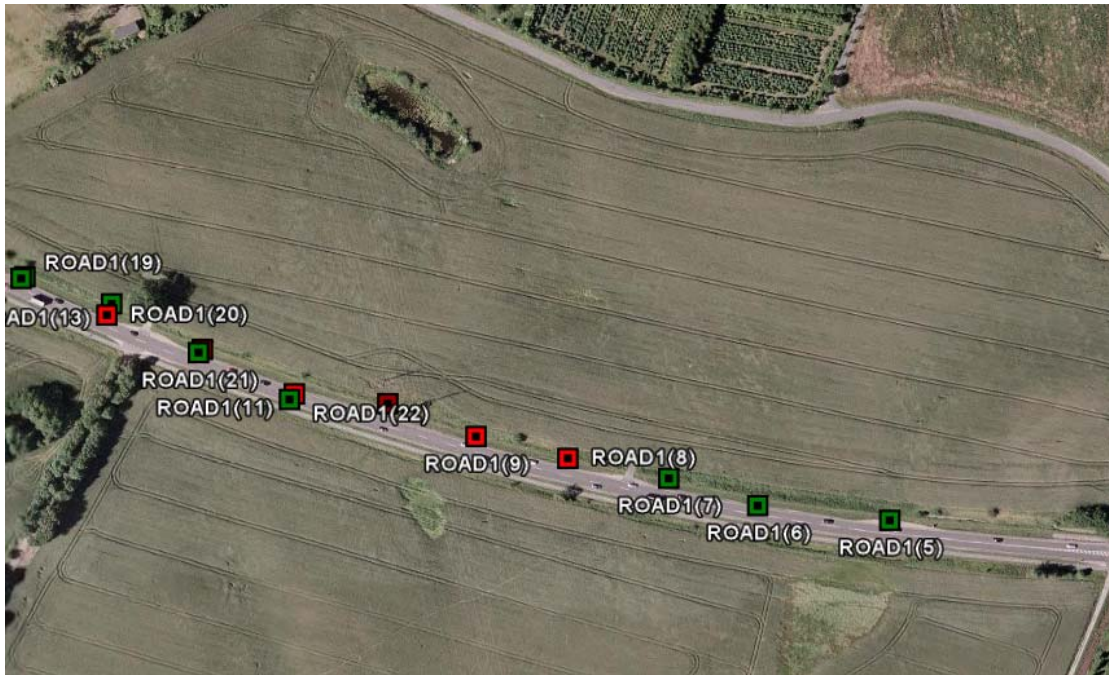
When you press this button , a new window will open to setup the parameters for the export.



If log data represents downloaded data (not data from a protected file) the file name will be a combination of the instrument (LTL-XL), the serial number (e.g. 515) and the selected Series ID. The extension must be .kml.

In the *Limits* section you can enter a value controlling the appearance of the data shown in Google Earth (GE). RL values less than the value in the low limit box will be shown with the low color. RL values higher will be shown with the high color. This feature is not available presently for Qd.

In the *Labels* section you can decide the appearance of the text shown on the measurements shown on the screen. In the example below ID(seq) are shown. Tick *Auto start Google Earth* and Google Earth will start automatic when OK is pressed and the position of the measurements (from the .kml file) will be shown.



The text shown with the data point in GE is the Series ID and sequence number for the RL measurements. If you click on a data point in GE a box will pop up showing the further information about the measurement e.g. the RL value.



**Note:**

Google Earth must be installed on your PC to view the kml data file.

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**Errors and Warnings**

When a measurement is taken, a warning text is generated if a problem arises and saved in the log together with the measurement. The relevant warning text will be displayed in the LTL-XL RSC.

## GPS signal

The quality of the GPS signal is indicated by two sets of data

- “satsinfix”
- “gpsdhop”

“satsinfix” shows the number of satellites present for location establishment during measurement. The more satellites present the better quality.

“gpsdhop” shows the uncertainty of the GPS signal. A DHOP value  $<1$  shows a high quality. DHOP signals between 1 and 5 shows an acceptable signal and DHOP values  $>5$  a week signal.