User Manual
ViaPPS Recorder

Document number

USR100247

Rev	Date	Author	Approved	ECO No	Pages
5.0	23. april 2007	Aslak Myklatun	-	-	15
5.2	13. feb. 2008	Aslak Myklatun			15
5.3	26. feb.2010	Aslak Myklatun			17
5.4	24. May.2012	Helge Flåthen			16

Contents

Figures

1 Change history

1.1 Version 5.0

This is the first version.

1.2 Version 5.2

Changes made for this version:

1. New algorithms for calculation of IRI and MPD
2. Possible to add comments for a measurement
3. Sorting of measurements in measurements overview
4. More sensors added

1.3 Version 5.3

Changes made for this version:

1. Calculation of rut depth and rut area according to the CEN standard 13036.
2. Calculation of MPD is moved from the desktop computer to the SBC.
3. Improved calculation of crossfall, curve radius and length profile.
4. Removed support for temperature sensor.
5. Measurement of road lane width.
6. Minor adjustments to the user interface:
    a. Removed the menu
    b. Added speed to the main application window
    c. Removed the temperature (sensor is not present). Combined speed and distance travelled under one tab.

1.4 Version 5.4

English version of this user manual.

2 Manual description

2.1 Mouse operations

The following expressions are used througout this manual for mouse operations:

Expression	What to do
Left click on *nnn*	Press the left mouse button while the mouse pointer is placed on *nnn*. The program shows what nnn is for the given task.
Double click on *nnn*	Press the left mouse button twice while the mouse pointer is placed on *nnn*. The program shows what nnn is for the given task.
Right click on *nnn*	Press the right mouse button while the mouse pointer is placed on *nnn*. The program shows what nnn is for the given task.
Roll	Roll the wheel of the mouse either up or down.
Drag	Keep the left mouse button pressed while moving the mouse

2.2 Abbreviations

Uttrykk	Description
clipboard	Resembles the windows *clipboard.* This is a way of transferring information within a windows program or from one windows program to another. The *clipboard* stores the information to be transferred.
SBC	Single Board Computer
ViaPPS	Via Pavement Profiler Scanner

3 ViaPPS Recorder

The application is used for operating the ViaPPS (Via Pavement Profile Scanner).

3.1 Main application window

The main application window shows the required information for road profile and texture. The main window does only display the information necessary and everything is shown clearly and with high readability.

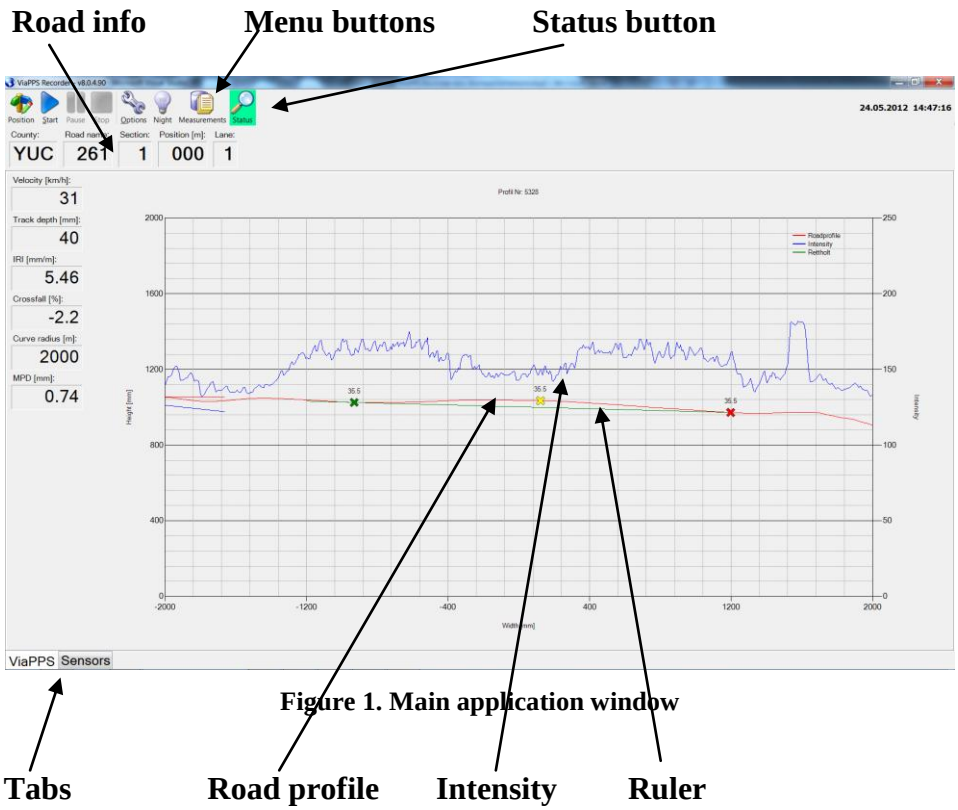

Figure 1. Main application window

The button-menu contains buttons for all main operations.

Road information is displayed in a separate area below the button-menu. The information includes: county, road name, road section, position, road lane.

This area also shows the current mode of the program. The following modes are defined:

- Recording – green background color as showed above.
- Pause – orange background color
- Normal – gray background color

The information mentioned is common for all tabs shown in the bottom left corner of the main window. The ViaPPS tab holds key information on recording of road profile and texture.

The red line of the diagram shows measured cross profile. Blue line shows the road surface reflection (intensity). New asphalt has the lowest reflection, since it is almost black. Green line shows the chosen ruler.

Current key values for the ongoing measurement are shown at the left side of the main window.

3.1.1 Selecting view alternatives, profile filters and calculation methods

How and what is presented in the diagram can be setup by using the context menu. The context menu is shown by right clicking the diagram, the menu is shown below:

Copy to clipboard is used to put a formatted tex ton the clipboard. The text contains data for the displayed profile.

The next group selects what data and merkers to include in the chart

In this group the user can select line width, flip the X- and Y-axis and scale the axis

This group can be used for setting colors for the displayed chart.

Here one can select which filters to use for the profile charts.

The last group selects the calculation methods used.

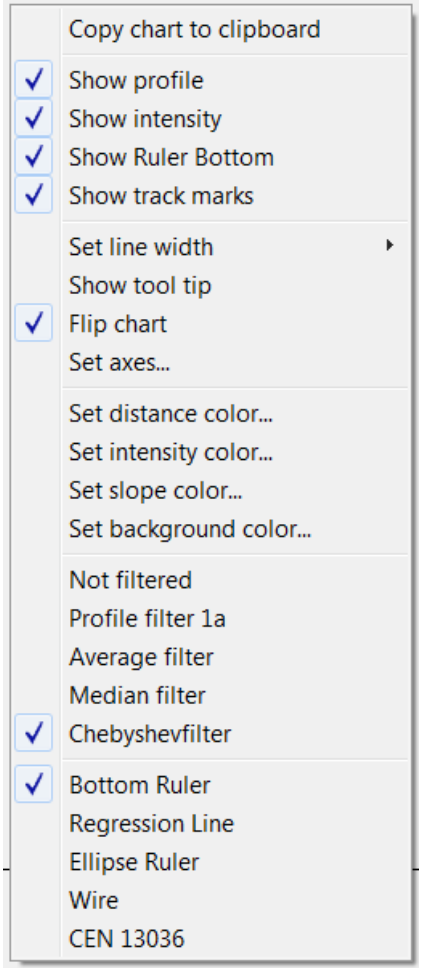

Figure 2. Context menu

3.2 Sensor window

The Sensor window shows speed information. The information showed is reset by pressing the *Reset*-button.

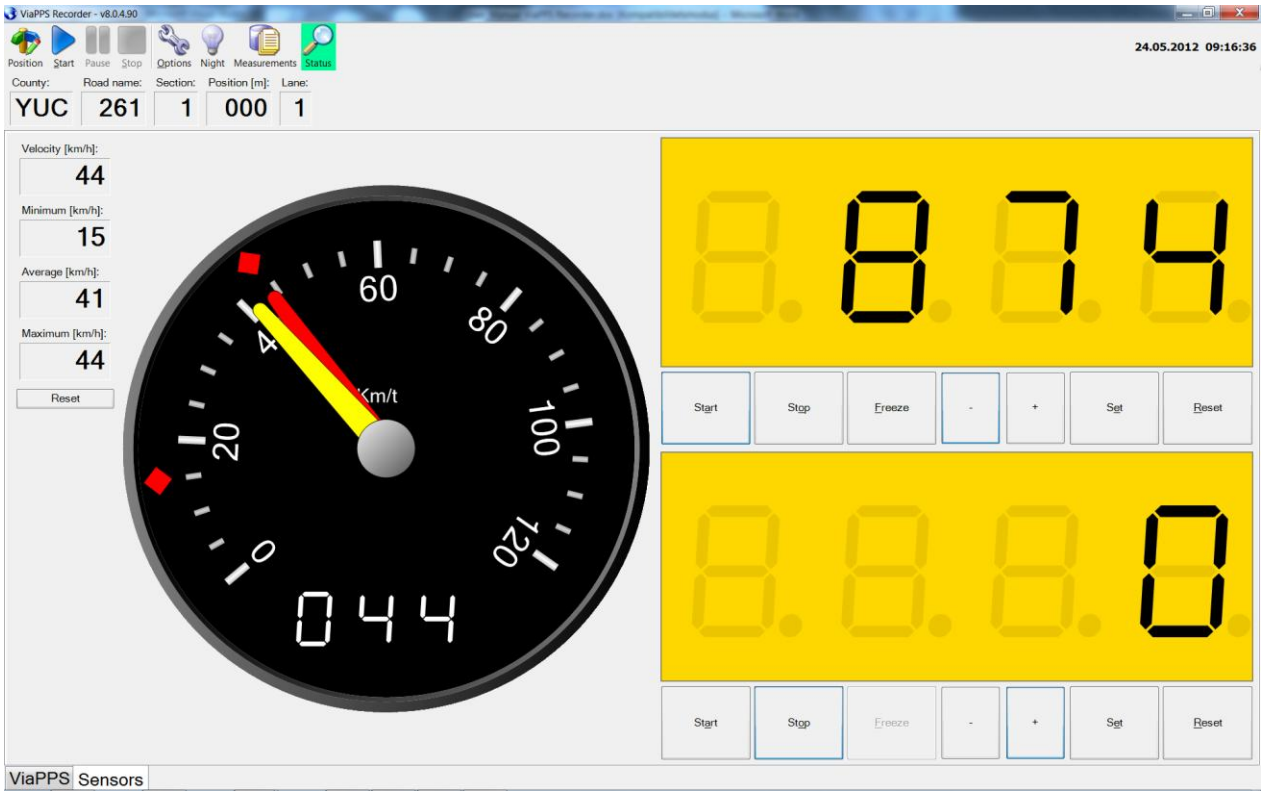

Figure 3. Sensor information – Speed and trip counters

The trip counters show the distance travelled. During a recording the topmost trip counter shows the distance travelled since the recording was started.

3.3 Functions

3.3.1 Start recording

This function can be invoked by pressing the ***S*** –button or by clicking the ***Start*** button. A start position must be set for the Start button to become available.

The position is set by clicking the ***Position*** button. The dialog below is used for selecting the start position:

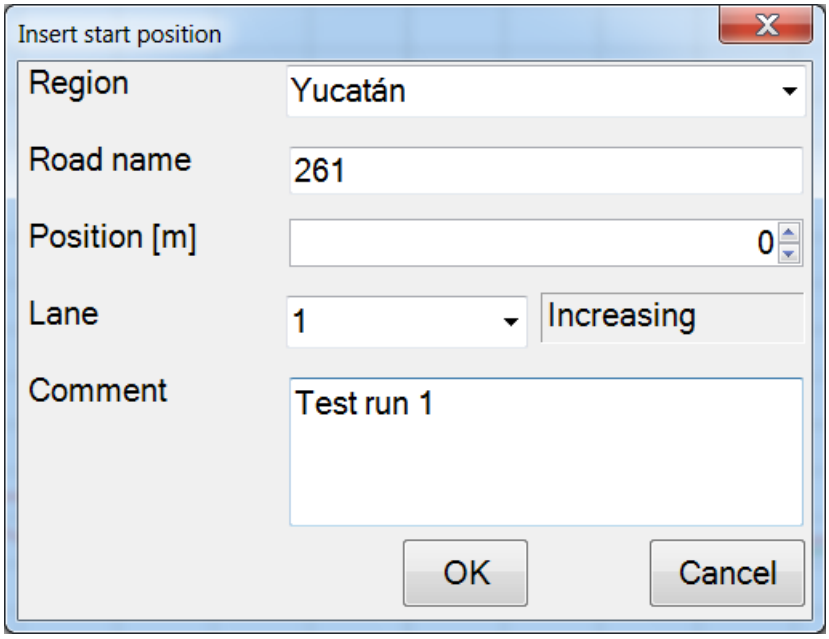

Figure 4. Set start position

Fill in the input fields and press the OK-button. Note! The available regions can be edited in the Roadnet settings file.

All settings made can be done when parked off the road to be measured. The ***Start***-button can then be pressed when the vehicle is driven to the actual road start position.

The main window charts and the information at the left side of the application window are updated during the recording.

3.3.2 Pause recording

The ongoing recording can be paused by pressing the <Space bar> on the keyboard. Pause is switched off by pressing the <Space bar> again.

This function comes handy when traffic stops or a deviation for some reason is necessary.
A paused recording is indicated by a orange background color for the road information.

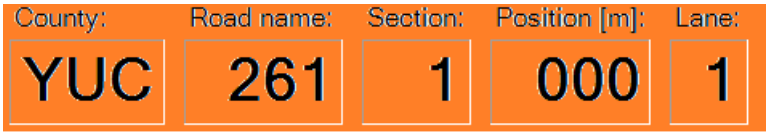

Figure 5. Paused recording indicated by orange background

3.3.3 Stop recording

This function is invoked by pressing the **S** key or by clicking the **Stop** menu button.

The dialog window to the right is displayed after end of recording is done. Observe the hard disk usage to avoid the disk from running full. No longer needed measurements should be deleted.

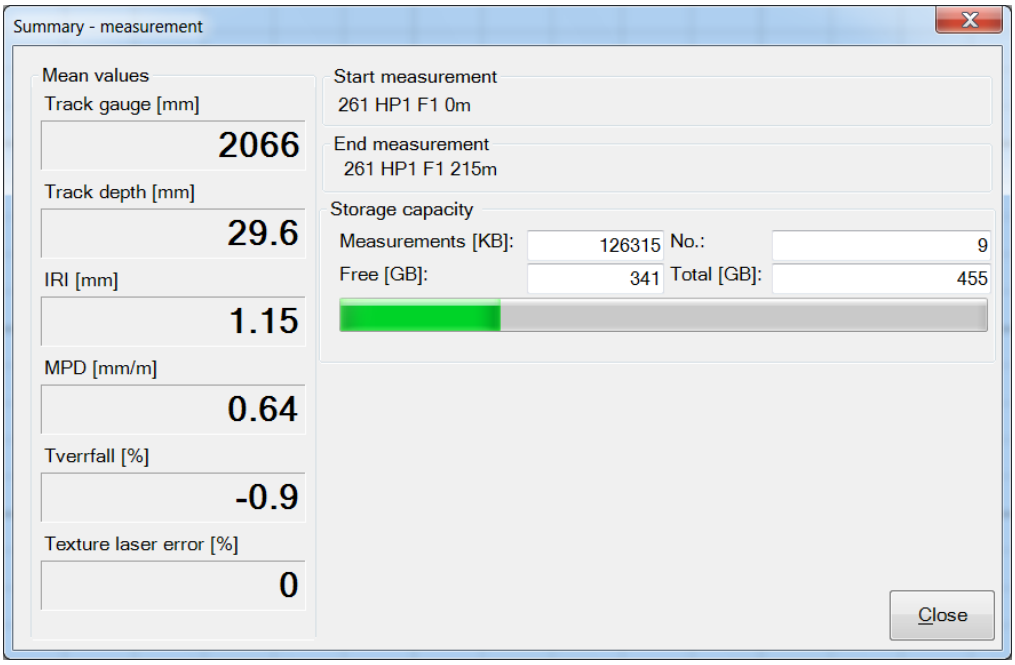

Figure 6. Summary for ended measurement

3.3.4 View measurements

The window below is displayed when the ***Measurements*** menu button is pressed.

Use this function to view recorded measurements. No longer needed measurements can be removed by selecting one or more listed measurements and clicking the ***Delete*** button. Multiple measurements can be selected simultaneously by holding down the ***Shift*** key while clicking on the measurements in the list.

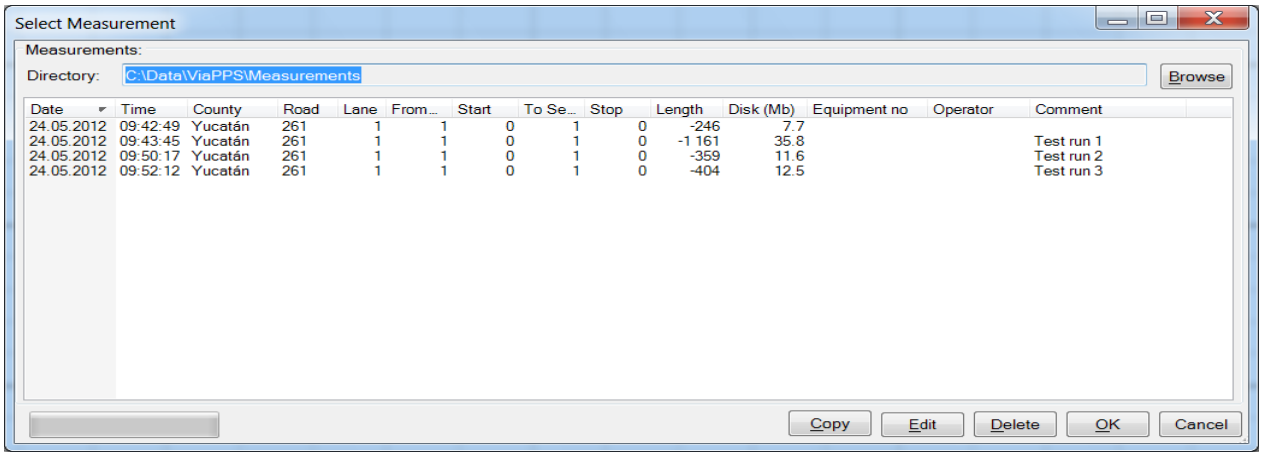

Figure 7. View measurements

Use the Browse button if the wanted measurements are located in another directory.

Measurements are copied to an external hard drive by using the ***Copy*** button. Destination directory is selected in the displayed dialog. Progress for the ongoing copy is showed at the bottom left corner of the ***Select Measurements*** window.

Comments for a measurement can be edited by pressing the ***Edit*** button. The following window is displayed:

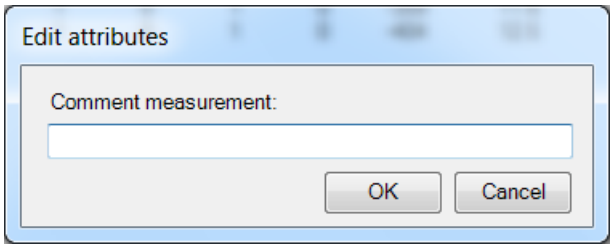

Figure 8. Edit measurement comment

3.3.5 System and sensor status

This function is invoked by pressing the ***Status*** menu button.

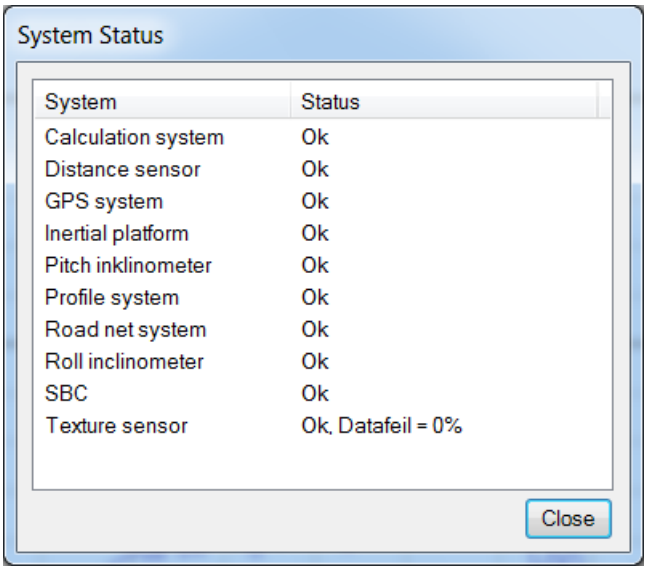

Figure 9. System status

The status dialog shows the current status for all sensors and sub-systems. ViaPPS recorder monitors all sensors/sub-systems for any problems that indicates that a recording should not be started. Minor errors show the **Status** menu button with yellow background color. The Status menu button is displayed in red when a critical error has occurred. Make sure that the **Status** menu button is green when starting a measurement and during a measurement.

3.3.6 Night palette

When driving after dark the bright light from the computer screen can reduce the vision required for safe driving. The application window background color will become darker by clicking the **Night** menu button. The daylight palette is selected by pressing the **Day** menu button again.

What colors to use can be selected by pressing the **Options** menu button and select **Palette**.

3.3.7 Copying chart data to the clipboard

This function copies the last chart profile to the clipboard in CSV format:

X-Value;Y-Value;Intensity
-1687,10846138837;1053,42622297459;142
-1680,91734621983;1049,96770324636;141
….
-1671,88433811626;1049,91072285292;142
-1660,84383870564;1052,30884106833;140

The data can easily be pasted into Excel for charting. The data is filtered using the selected filter.

3.4 Options

This function is selected by using the menu button ***Options*** .

This dialog gives access to various setup alternatives for the ViaPPS Recorder. E.g. system calibration is performed through this dialog.

This dialog also provides some tools for system maintenance and debugging in case of errors.

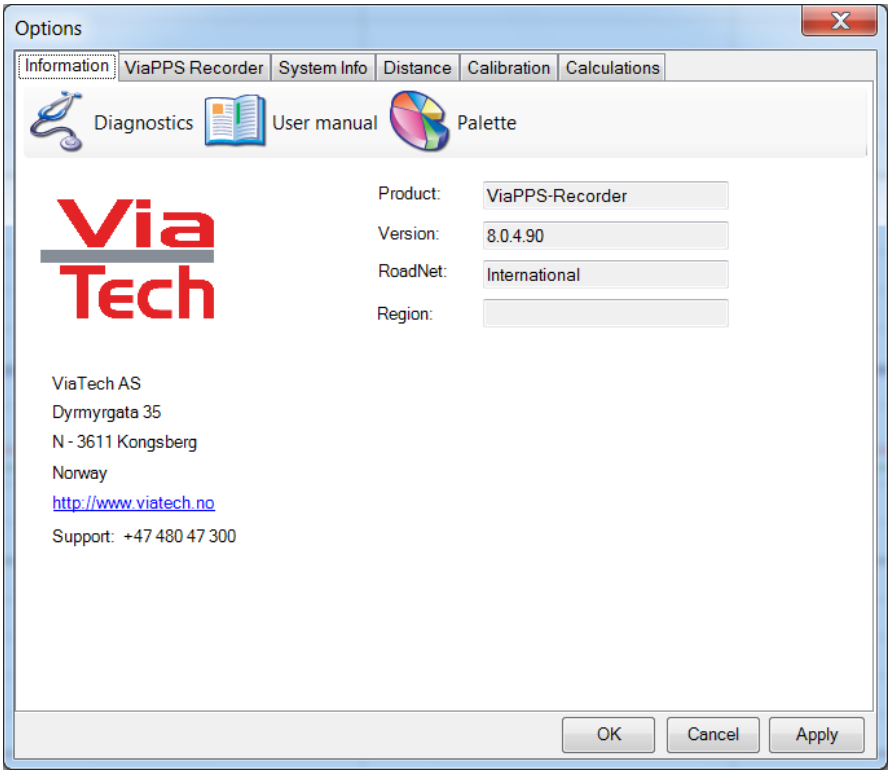

Figure 10. Information

3.4.1 Information

Displays the version number. This number shall always be referred when reporting errors.

3.4.1.1 User manual

The User manual is displayed using Acrobat Reader when the **User manual** button is selected.

3.4.1.2 Palette

Changing the color palette for day/night vision can be done by pressing the **Palette** button. The following dialog is displayed:

Select the Day/Night palette to be changed at the top of the window, then choose the colors to use. The selected colors are used when the dialog is closed.

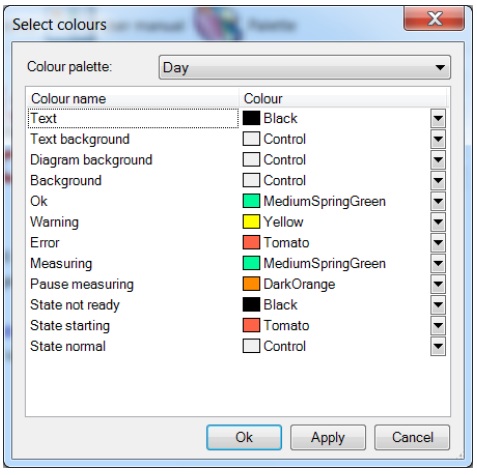

Figure 11. Altering the color palette

3.4.1.3 Diagnostics

The Diagnostics dialog is a tool for system tuning/setup and for finding system errors. It is normally used by Viatech personell only.

3.4.2 ViaPPS Recorder

Where to store measurements and what language to use fir the application cen be selected under the ViaPPS Recorder tab.

Simulation mode is used for demonstration purposes only.

Om ønskelig kan en stoppe lagring av data under en gitt minimumshastighet.

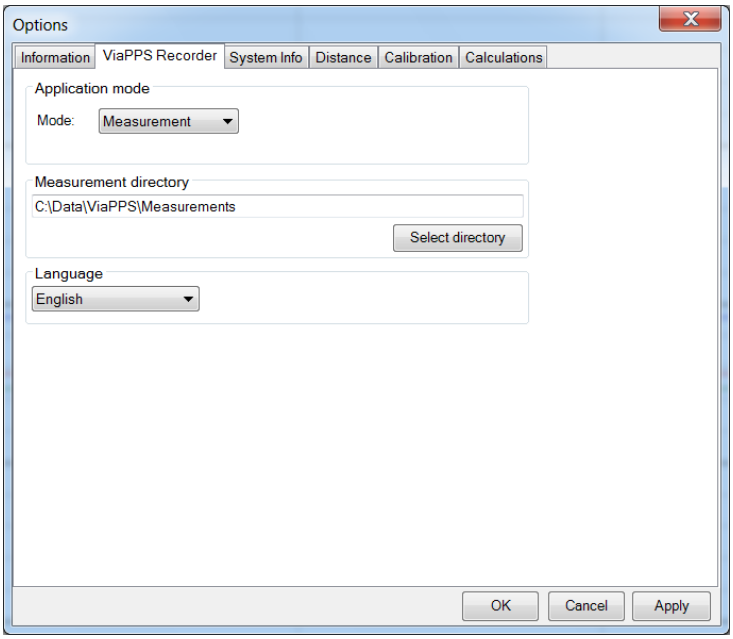

Figure 12. Options - ViaPPS Recorder

3.4.3 System information

System specific information can be entered under this tab.

The information is stored together with the measurements.

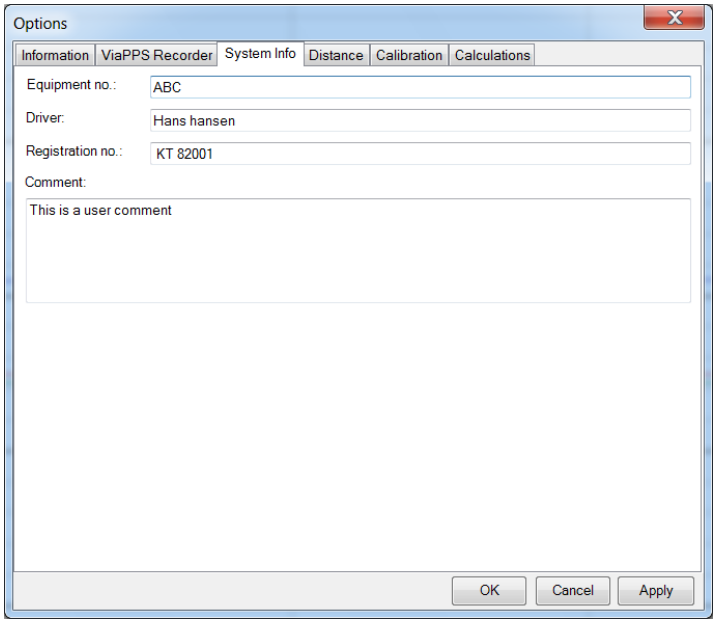

Figure 13. Options – System information

3.4.4 Distance

This tab is used for distance calibration.

Calibration is done by driving a known distance. This known distance is entered in the **Distance (m):** textbox.

Position the vehicle at the start position and press the ***Start*** button. The tacho pulses counted is shown in the **Pulse count:** field.

Stop the vehicle at the known end point and press the **Stop** button. A calibration factor for pulses per. meter is calculated and shown in the ***Calculation factor:*** field.

Press the ***Apply*** button next to the newly calculated factor to activate it.

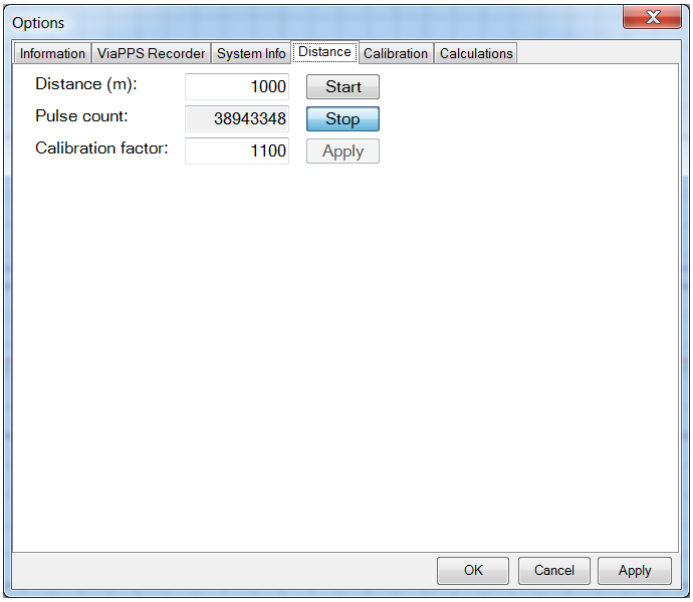

Figure 14. Options - Distance

3.4.5 Calibration

PPS System calibration and crossfall calibration is done using the Calibration tab of the Options dialog.

The calibration procedure for the PPS System/inertial unit and the crossfall can be viewed by pressing the ***Procedure…*** buttons.

In short, the PPS system calibration is done by performing a measurement of a specified driving pattern as described in the procedure.

The calibration measurement is selected by using the ***Select measurement…*** button. After the selection, press the ***Perform calibration…*** button.

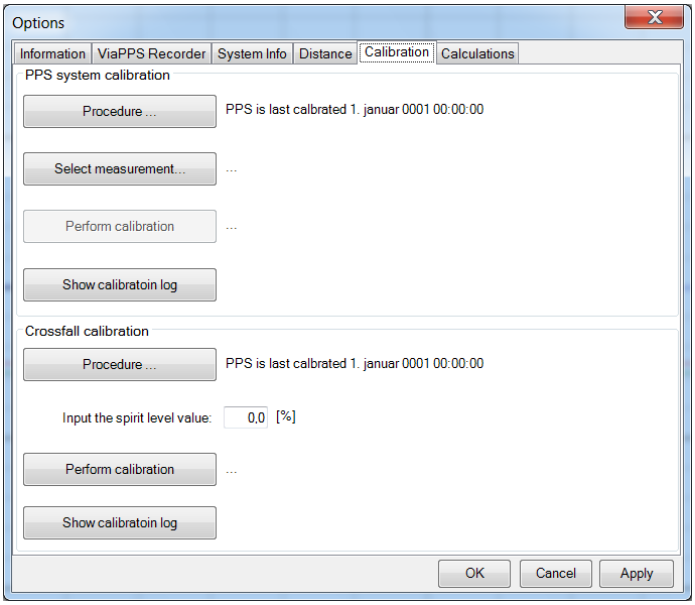

Figure 1. Options - Calibration

Refer to the procedure for the crossfall calibration.

The result of the calibration is displayed next to the ***Procedure…*** buttons. Repeat the calibration if the calibration fails.

3.4.6 Calculations

This tab makes it possible to adjust the lengths of the ruler used.

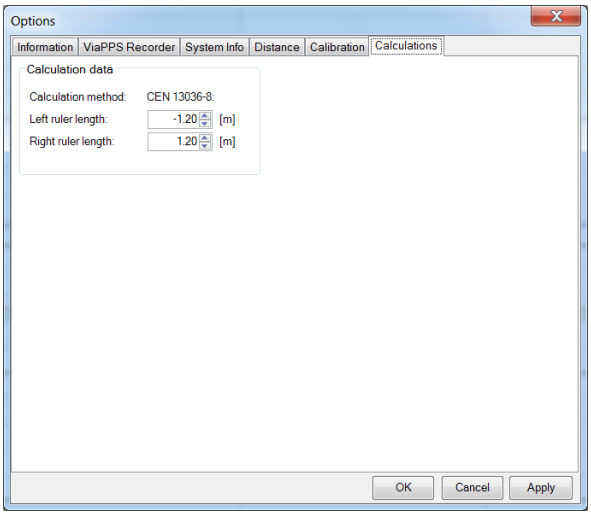

Figure 15. Options - Calculations