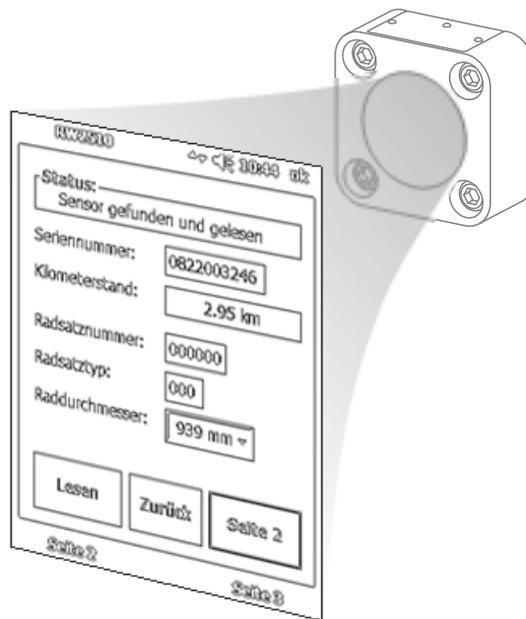


# RW2510

Read and write application for  
GEL 2510 odometers

## Operating Instructions



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Doc. no. D-02B-2510RW

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# 1 General

## 1.1 About these instructions

These operating instructions form part of the RW2510 user software and describe how to use it properly.

- ▶ Read the operating instructions carefully before use and observe.
- ▶ Keep the operating instructions for the entire period in which you use the software.
- ▶ As proprietor/using company, ensure that these operating instructions are accessible to the operating personnel at all times.
- ▶ Pass the operating instructions on to any succeeding owner or user of the software.
- ▶ Include all supplements received from the manufacturer.

## 1.2 Target group

The operating instructions are intended for persons already familiar with the function and mode of operation of the GEL 2510 odometer (see Operating Manual no. D-02B-2510).

Familiarity with Windows-based operating systems is required for use of the RW2510 user software as described below. The user manual included with the handheld PC provides suitable information. Please also note the information given there on the following items:

- Battery power
- Memory
- Data backup and restoration

**Configuration** of the odometer is permissible only by the owner of the vehicle or other authorized person.

## 1.3 Symbols, markings and notes

The following symbols, markings and notes are used in this description to ensure quick recognition of certain information:

Symbol	Description
<b>▲WARNING</b>	Possible impending danger; failure to observe can result in serious or fatal injury
<b>NOTICE</b>	Indicates important information for avoiding damage to equipment and maintaining proper operation.
▶	Required work step
→ <a href="#">page 5</a>	Cross-reference to a place in this manual
Times New Roman	Windows-specific menu items and control elements are displayed in this font
Courier	File names appear in this font

## 1.4 Designated use

**▲WARNING** Ensure that data transmission with the handheld PC is accomplished only **outside of explosion hazard areas**. The odometer itself may be used in such areas.

RW2510 is a Windows user software application for reading, processing and writing data in conjunction with the GEL 2510 electronic odometer.

Basically, the software runs on handheld PCs with WindowsMobile™ 5.0 Microsoft® operating system or higher, which have an RFID hardware extension. It is factory-installed on a Recon™ handheld PC and sold together with it.

The data is transmitted inductively and encrypted using the RFID protocol. The data is stored in the odometer, where it is protected against power failure. It consists of

- factory-programmed identification data
- configuration data to be specified by the owner and
- regularly-updated operating data such as mileage and temperature alarms.

**NOTICE** The standard handheld PC, provided as an option, is factory-equipped with an RFID data transmission module (plug-in card with coil cover). Remove this module only in the event of a malfunction to avoid damaging the sensitive internal wiring (→ [page 16](#)).

## 1.5 Revisions

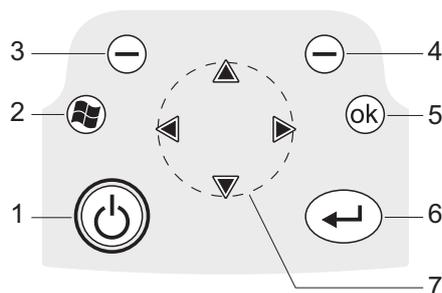
Date	Version	What's new?
2009-12-18	1.0	First edition

## 2 Operation

The program is basically operated by pressing specific buttons on the touchscreen of the handheld PC. Some functions can, however, be performed with certain keys on the handheld PC.

**NOTICE** All information on specific (hardware) keys refer to the Recon™ handheld PC, on which RW2510 has been preinstalled. Application windows shown in this manual may differ in minor detail from those on the device used.

### Handheld PC keys - standard factory settings



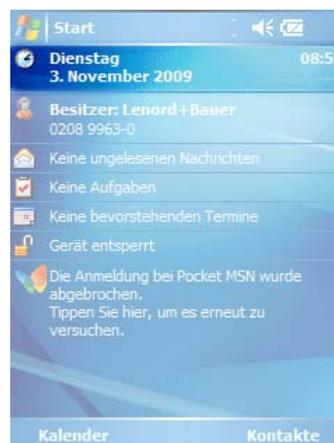
- 1 On/Off button  
If the display is not illuminated when you switch on, hold the button down a little longer.
- 2 Windows Start menu
- 3 Windows: Start/access RW2510  
RW2510: no function
- 4 Windows: context menu  
RW2510: Info screen (from Start page only)
- 5 Close active window or screen and quit program (Back- or Escape)
- 6 Enter/Return key, enable selected entry or press active button
- 7 Cursor keys

### 2.1 Start

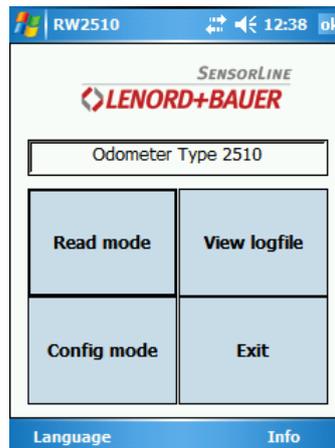
- ▶ To switch the handheld PC on: Press button

**NOTICE** It is important that the date and time on the system are correct for logging the read and write procedures in the odometer.

- ▶ For this reason, check whether the date in the system and the time on the handheld PC are set correctly; if necessary, correct the settings.



- ▶ Start the application by pressing the left  $\ominus$  button on the handheld PC or by tapping the RW2510 entry in the file explorer.



The program's Start screen has two buttons in the bottom row:

- **Language**  
for switching from German to English and vice versa
- **Info**  
for display of program information (quit with [ok])

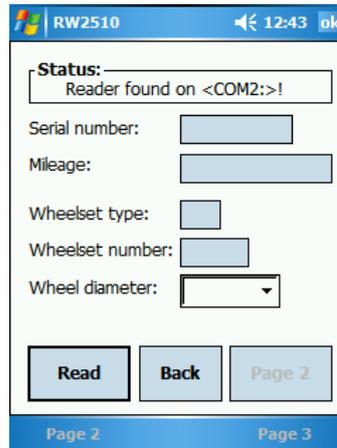
The following functions can be called with the other Start screen buttons:

- **Read mode**  
For reading data out of odometer. This data is displayed on several screen pages.
- **View logfile**  
All (successful) read procedures are logged and saved as individual datasets in a text file in the program directory (RW2510\_LogFile.txt). This function permits these datasets to be viewed. The last dataset is always shown first. The file can be scrolled with the scrollbar on the right side of the window.
- **Config mode**  
**NOTICE** Use of this function is limited to the vehicle owner or other authorized person!  
This item allows configuration of the odometer. After reading out the existing data, some parameters can be changed and written back.
- **Exit**  
Close RW2510 application.  
Alternatives: Press  $\odot$  key or tap the ok icon in the headline

## 2.2 Read mode

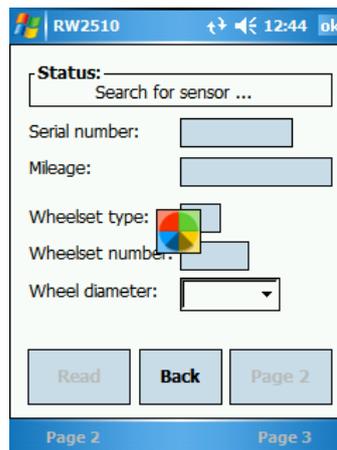
- ▶ Tap the Read mode button (the process is triggered as soon as the button is released).

The system then searches for the connected RFID reader (hardware extension) and displays the result in the Status field:



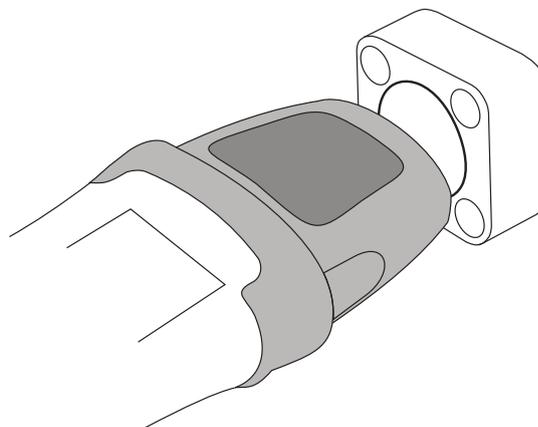
- ▶ Tap the Read button in the (empty) data screen displayed.

An acoustic signal indicates that the handheld PC is now trying to establish a connection with the odometer (Status: Search for sensor ...):

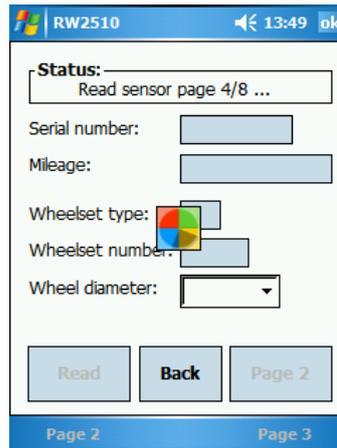


The search routine is limited to approx. 30 seconds and then the process is aborted. (You can intentionally abort searching by tapping the Status field.)

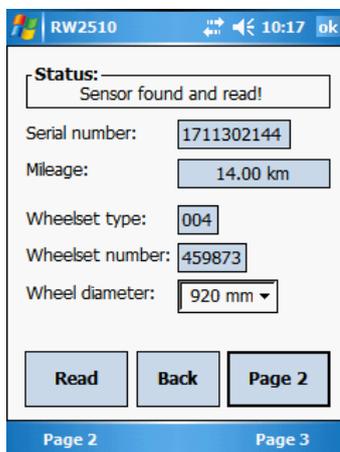
- ▶ Hold the handheld PC with the coil cover a maximum distance of 3 cm from the odometer.



After correct alignment, the acoustic signal stops and data transmission is started:



The progress is displayed in the Status field. Successful termination of the read process is confirmed by a brief acoustic signal and a corresponding message in the Status field. The first of three data screen pages is displayed:



#### Buttons:

- Read = Start new read process
- Back = Quit read function and switch to Start screen (on first data screen page); go back to screen page shown before (from second page)
- Page 2/3 = Show next data screen page
- Page 2, Page 3 = Call desired data screen page directly (on first page only)

The following table shows the parameters which can be read out.

Parameter	Explanation
-----------	-------------

#### *Page 1*

Serial number	Odometer serial number according to ID plate
Mileage	Figure currently saved in odometer (calculated from wheel revolutions displayed and specific wheel diameter setting for wheelset)
Wheelset type	Figure programmed by vehicle owner, determined by the wheelset design
Wheelset number	ID number programmed by vehicle owner
Wheel diameter	Value configured for the wheelset (cannot be changed here!); this is used to calculate the mileage (in km) from the counter reading recorded

#### *Page 2*

VKM	Odometer owner's ID number programmed at factory (according to ERA-OTIF)
-----	--

Parameter	Explanation
Wagon number	Standardised ID data (UIC); optional information
Last read on at	Date of previous read process stored in odometer Mileage
Reconfigured on at	Date of last write process saved in odometer Mileage
Temp. > 70/85°C (Yes/No)	Status display for temperature of 70 °C and/or 85 °C previously exceeded

Page 3

Counter status	Measured number of wheel revolutions (U) to date
Memory cycles	Number of mileage storage processes executed to date
Resolution DZ	Operating mode set in configuration mode: Standard = Normal operation Test = Higher resolution for short test tracks; after a distance of approx. 11 km, it switches over automatically to Standard
Resolution PWRP	
Chip ID	ID number of RFID chip used in odometer
Firmware version	Status of the currently installed odometer firmware

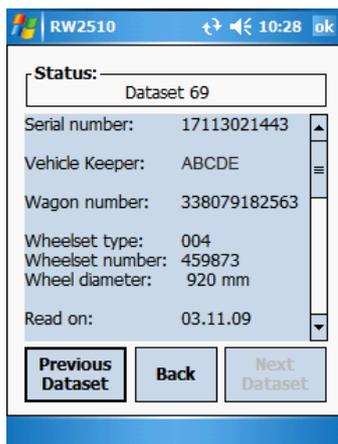
- ▶ Quit function by tapping the Back button. Alternatively: Press  key (possibly several times).

## 2.3 View logfile

This allows display of datasets saved automatically during readout in the Read mode menu. The associated file `RW2510_LogFile.txt` is located in the handheld PC's main directory.

- ▶ Tap the View logfile button.

The dataset for the last readout process is displayed (number in Status field). The window may be moved towards the end or beginning of the dataset, using the slide control.



### Buttons:

- Previous Dataset = Display dataset from older readout (lower number)
- Back = Close display function and switch to Start screen
- Next Dataset = Display dataset from more recent readout (higher number)

The individual entries in the log file are described in Section 2.2 (Read mode). Differing and additional entries are listed below:

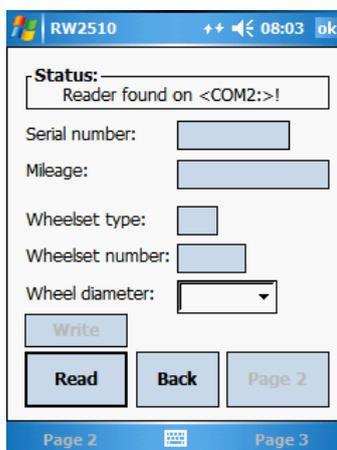
Parameter	Explanation
Read on/at	Date and time of last readout process in read and configuration mode saved in odometer
Resolution DZ	Factory-specified resolution in revolutions (U) and km; 1 U = test mode
Resolution PWRP	
Reconfiguration on/at/at	Date of last write process saved in odometer with number of revolutions (U) and mileage

## 2.4 Config mode

### NOTICE

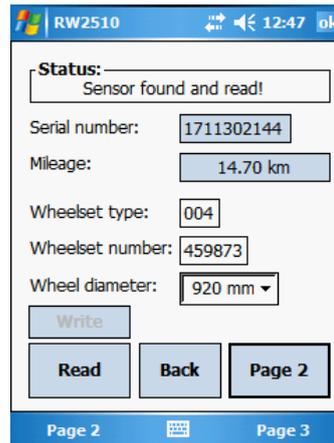
Use of this function is limited to the vehicle owner or other authorized person!

- ▶ Tap the Config mode button.



Display and functions are basically the same as in the menu item Read mode (→ [page 10](#)).

- ▶ Tap the button in the (empty) data entry box displayed: Read and hold the handheld PC against the odometer.



After reading out the data, it is possible to either configure a new odometer or reconfigure an odometer already in operation. For this purpose, some of the parameters displayed in this mode can be changed. The associated data fields have a white background (such as `Wheelset version` in the illustration above).

### Changeable parameters

Parameter	Explanation
-----------	-------------

#### Page 1

Wheelset version	Value determined by the wheelset version (e.g. from the wheelset ID plate)
Wheelset number	ID number (e.g., from the wheelset ID plate)
Wheel diameter	Entering the correct figure is important for internal mileage calculation (choice of 800... 1000 mm in steps of 1 mm).

#### Page 2

Wagon number	ID data matching the UIC specification (optional information)
Temperature > 70°C	Reset triggering state (display: Yes) → No
Temperature > 85°C	Display of triggering state (display: yes), <b>cannot</b> be reset by user; in such cases it is necessary for the manufacturer to inspect the odometer

#### Page 3

Resolution DZ	Converting from standard to test mode and vice versa Standard = Normal operation Test = Higher resolution for short test tracks; after a distance of approx 11 km, the odometer switches over automatically to Standard
Resolution PWRP	

- ▶ Tap the desired parameter field.
- ▶ Open the on-screen keyboard to enter any numbers necessary: Tap the icon in the centre of the bottom row of the window. To select numbers from a list, tap the arrow to the right of the value.

- ▶ Type in the desired number or select the desired value from the list in a selection field.

Before a new value can be entered or changed, the corresponding values in the entry field must be deleted (occurs automatically if the value is highlighted in full, as is the case when the field is selected using the cursor keys).

The screenshot shows the RW2510 configuration interface. At the top, it displays 'RW2510', signal strength, a speaker icon, the time '15:09', and an 'ok' button. The main area contains several input fields: 'VKM:' with 'ABCDE', 'Wagon number:' with '3380', '7918', '256', and '3', 'Last read on:' with '03.11.09', 'at:' with '0000000014 km', 'Reconfigured on:' with '03.11.09', 'at:' with '0000000014 km', and 'Temp. > 70/85°C:' with two 'No' dropdown menus. At the bottom, there are 'Back' and 'Page 3' buttons.

- ▶ If required, specify other parameters as described above.

As soon as a field is changed, a corresponding message appears in the Status field on the first data screen page and the Write button is enabled.

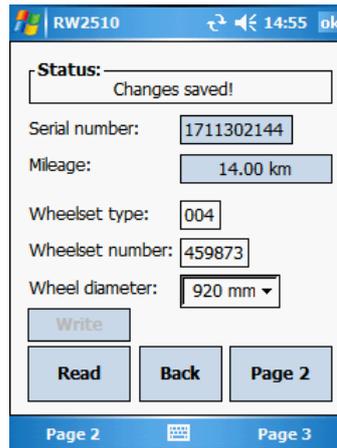
The screenshot shows the RW2510 configuration interface. At the top, it displays 'RW2510', signal strength, a speaker icon, the time '07:56', and an 'ok' button. The main area contains a 'Status:' field with the message 'Changes not saved!'. Below it are input fields: 'Serial number:' with '1711302144', 'Mileage:' with '0.00 km', 'Wheelset type:' with '004', 'Wheelset number:' with '459873', and 'Wheel diameter:' with '923 mm'. At the bottom, there are 'Write', 'Read', 'Back', and 'Page 2' buttons. The footer shows 'Page 2' and 'Page 3'.

- ▶ Tap the Write button to transfer the data to the odometer.

The process can be aborted with the Back button.

- ▶ Hold the handheld PC against the odometer.

Successful conclusion is acknowledged in the Status field. The process can be repeated in the event of an error or after abortion.



The screenshot shows a configuration screen for the RW2510 device. At the top, the status bar displays 'RW2510', a refresh icon, a back arrow, the time '14:55', and an 'ok' button. Below this, a 'Status:' box contains the message 'Changes saved!'. The main area contains several input fields: 'Serial number:' with the value '1711302144', 'Mileage:' with '14.00 km', 'Wheelset type:' with '004', 'Wheelset number:' with '459873', and 'Wheel diameter:' with a dropdown menu set to '920 mm'. Below these fields are three buttons: 'Write', 'Read', and 'Back'. At the bottom of the screen, there are two page indicators: 'Page 2' on the left and 'Page 3' on the right, with a keyboard icon in between.

- ▶ **Recommendation:** Check whether the data has been entered correctly in the odometer. For this purpose, start a new read process by tapping the Read button.

After successful configuration,

- ▶ quit the function with the Back button.

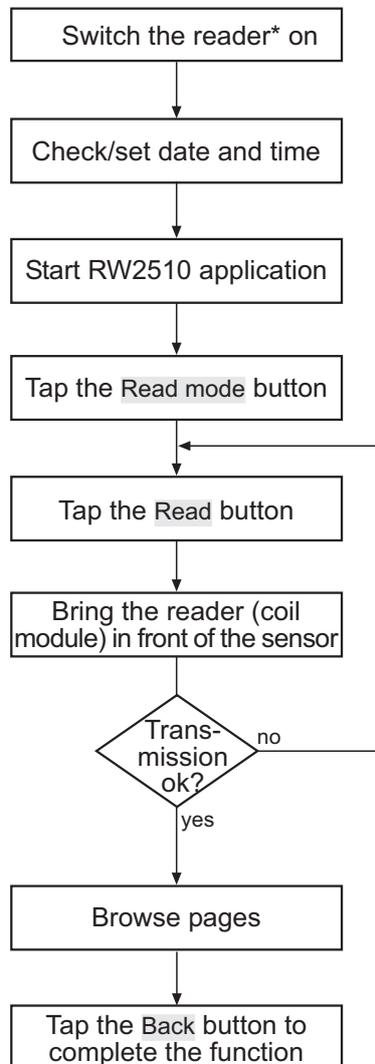
### 3 Trouble-shooting

Malfunction	Possible causes	Remedy
Data acceptance fault in RFID reader	Inserted plug-in card faulty	<p>Replace card with coil cover (both parts firmly connected by cable):</p> <ul style="list-style-type: none"> <li>▶ Remove coil cover: Turn one locking screw on each side to the release position using the flat end of the stylus, and pull cover off carefully, just far enough to access the plug-in card</li> <li>▶ Pull card out and replace</li> <li>▶ Carefully replace and lock coil cover</li> </ul>
No RFID reader found	Operating system error in reader	<p>Reset:</p> <ul style="list-style-type: none"> <li>▶ Depress "ON" button for a few seconds (follow instructions on screen)</li> </ul>
	Inserted plug-in card loose in reader	<ul style="list-style-type: none"> <li>▶ Remove coil cover (see above)</li> <li>▶ Pull card out momentarily and reinsert</li> <li>▶ Carefully replace and lock coil cover</li> </ul>
	Button pressed too quickly after starting the program	Return to main menu and actuate desired button again
Error code 0x01 while reading out odometer.	Distance between reader and odometer too great or reader incorrectly aligned	Repeat transmission process at correct distance and at right angle to odometer or as close a possible to a right angle.
Error code 0x02 while writing to odometer (also while reading, because of saving readout date)		

## 4 Appendix: Use

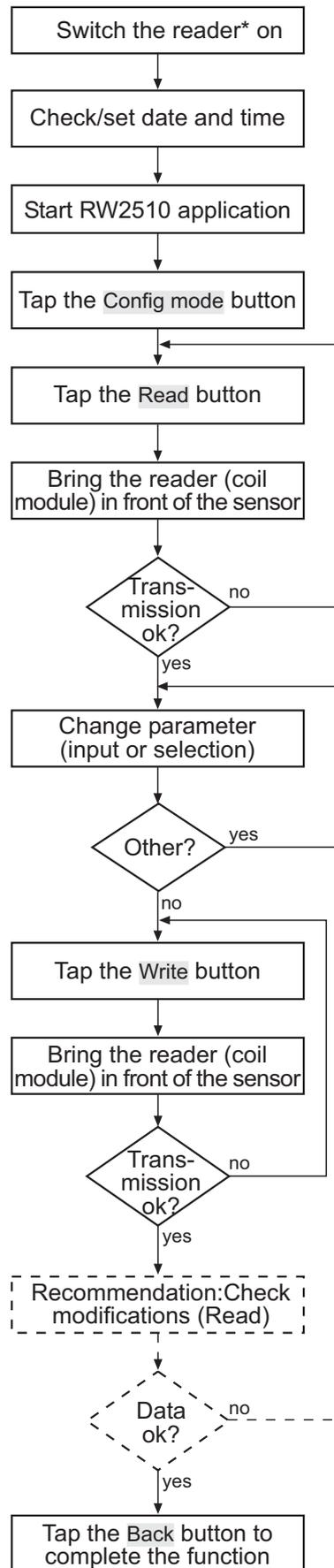
The two most important RW2510 functions are shown below in a summary chart.

### 4.1 Read operating data



\* Reader = handheld PC

## 4.2 Configure odometer



\* Reader = handheld PC