Set:

- Codimex E1 - Electronic caliper
- Smartphone
- Application „SLT-caliper"

User manual
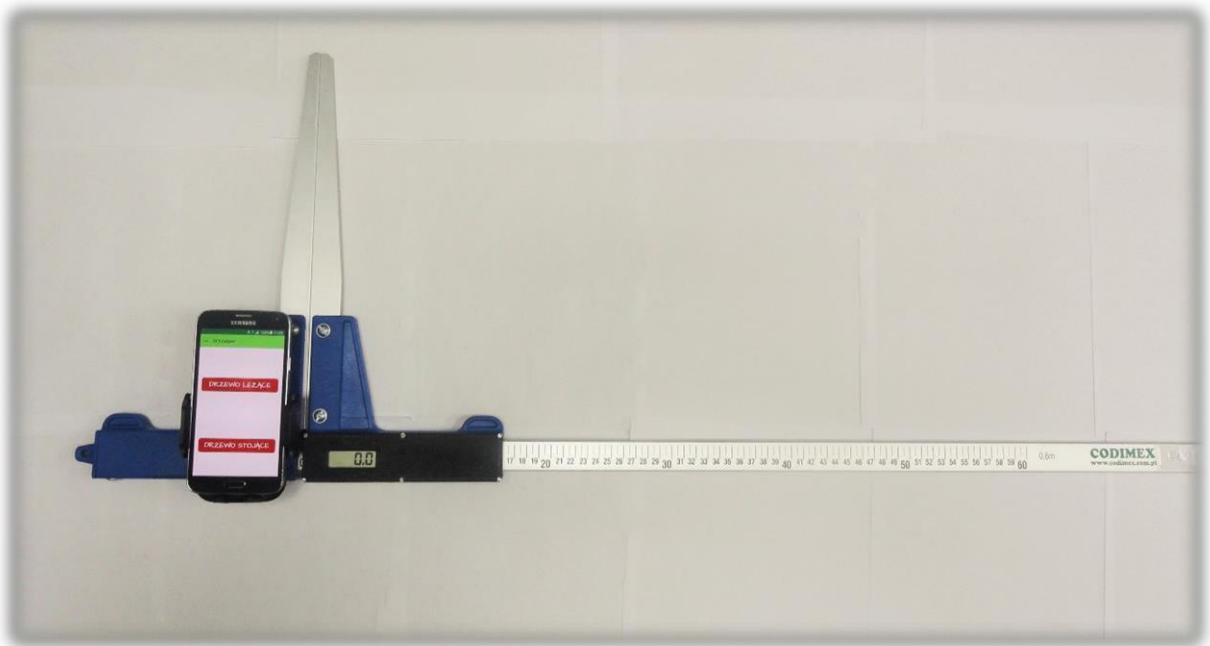
CODIMEX

Contents page

1. Introduction

Set is used to measure diameter at breast height standing trees, and the diameter of the lying tree.

Components of the kit:

1. Electronic caliper – Codimex E1

2. Smartphone or tablet (owned by user)

3. Application „SLT-caliper"

The manufacturer provides:

1. Electronic caliper – Codimex E1

1. Application „SLT-caliper"

On client request we deliver any smartphone (Android OS.) for an additional fee.

The electronic caliper CODIMEX E1 performs the measurements, which are send to the application "SLT-caliper" via Bluetooth. The application can be installed on any device working with Android system.

In the application user can configure and edit following elements of measurement;
- base of species;
- base of assortments;
- location of the surface;
- units of measurements.

Data from the measurements are saved in the smartphone memory and can be exported as a CSV file. Export files from your smartphone can be made by sending via Bluetooth or e-mail, or copy directly through the USB cable to your computer.

2. Electronic caliper Codimex E1

2.1 Technical specifications

Measurement resolution	0,5 cm or 0,1 cm or 0,1 inches
Resolution of internal device	0,01 cm
The total measurement error	< 1 mm
The speed of movement of movable jaw relative to a caliper beam	< 1 m/s
Display	LCD 3,5 digit segment „LOBAT" digit height 10 mm
The time of display update	from 0.2 to 1 sec (implicitly 0.5 s)
Battery indication	glowing symbol "lobata" - voltage battery below 3,1V flashing "lobata" - voltage battery below 3.0V automatically turn off the instrument - voltage battery below 2,9V
Keyboard	Membrane keypad with metal domes the "ON / OFF" and the "▶"
Acoustic signaling	buzzer
Wireless communication	Bluetooth 3.0 (class 1) in SPP mode
Transmission parameters	115200 bps, 8 bits, no parity, 1 stop bit
Power supply	built-in rechargeable lithium-ion battery 3.6V / 0,96Ah
Power consumption of the batery	<40 mA on device <0.01 mA for off device
Time between recharges	> 15h (at a temperature above 0 ° C)
Recharge time	< 5h
Charging socket	microUSB type B
The power supply for charging	external stabilized 5V / 2A
Operating temperature	from 253K to 323K (from -20°C to +50°C)
Relative humidity	20÷80%

2.2 Meaning of the buttons

ON/OFF	- If the device is off, pressing this button for approximately one second causes the power supply and turning on caliper, - Pressing the key for 2 seconds will generate a double beep and power off the device,
►	– sending, by the Bluetooth actual result of the measurements,

2.3 Method of measurement

The measurement is done by moving the lower jaw along the beam. The value of measurement is displayed on caliper screen and by pressing the key ► is sent to the application "SLT-caliper" using Bluetooth connection.
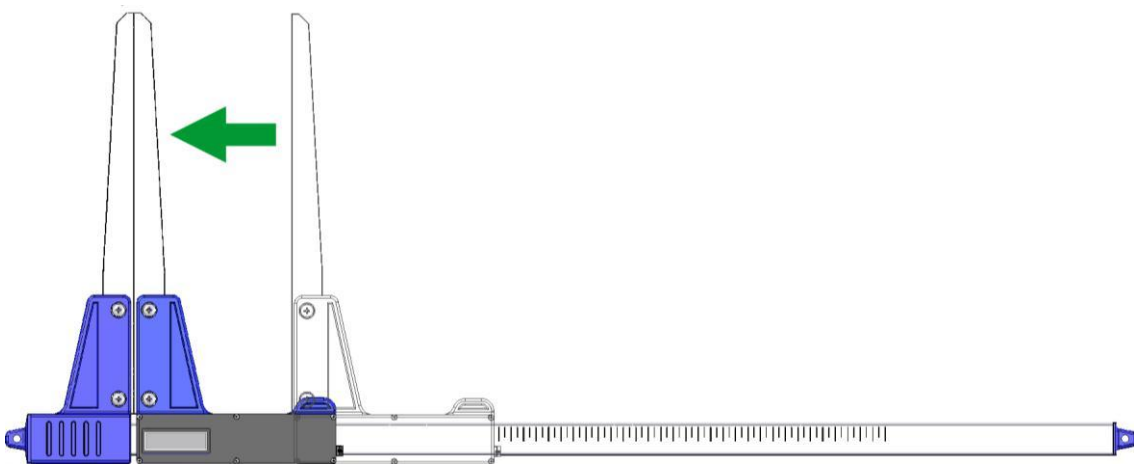
2.4 Caliper exploitation

Pressing the ON / OFF button for about 1 second causes the power supply and turning on the calliper. If the calliper was turned on with open jaws, the display shows the inscription "**CAL**".

To prepare electronic calliper to work, the jaws must be shorted. Shorted calliper jaws (causing reset the meter) is always signalized by short beep. After the above steps calliper is ready to work.

If the display automatically shows "**Er.b**" means failure of the Bluetooth module and service assistance is required.

During normal work calliper shows on the display the current measurement result (in centimetres or inches).

WARNING! The speed of movement of the movable jaw on the beam should be not over 1 m/sec.

Buttons meaning

Pressing button is always signalled by a short, single beep.

ON/OFF – Pressing this button for about 2 seconds will generate a double beep and a turn on/off calliper.

► – Sending measurement result to your smartphone or tablet. If the result was sent (smartphone confirmed receiving information, or work is without confirming) then display inscription fleshes for 3 seconds. If your smartphone has not confirmed receiving information, calliper generates a double beep and display for 3 seconds inscription "**Err**". If there is no communication with the smartphone, it generates a double beep and displays for 3 seconds inscription "**Er.b**".

2.5 Charging batteries

Charging the battery may take place at ambient temperatures from 0 ° C to + 40 ° C with the calliper power off. The charging process is signalled by a single LED (green) located next to the charging connector.

Meaning LED signals during charging process:

– **ON** – battery is charging normally,

– **FLASHES –** battery is damaged,

– **OFF –** Charging completed.

WARNING! The symbol "LOBAT" on the display means the state of battery close to discharge. Flashing symbol "LOBAT" on the display indicates the status of battery discharge. The battery must be charge until the green LED (next to the charging connector) turns off. During charging the green LED light is on permanently. Flashing of this LED indicates a fault in the battery.

3. Smartphone or tablet

Application "SLT-caliper" is supported by smartphones and tablets running on Android operation system

Minimum requirements:

- Android: 4.0.3
- Processor: 1 core, 1 GHZ

Recommended requirements:

- Android: 4.4.X
- Processor: 4 cores 1.0 GHz or 2 cores 1.4 GHz
- RAM memory: 512MB

Smartphone or tablet can be mounted as follow:

- In the holder on the calliper

- In the belt with cover

- In the case on the arm

Holder mounting instruction on calliper

Part of the holder is bolted to stable jaw of calliper by screw.
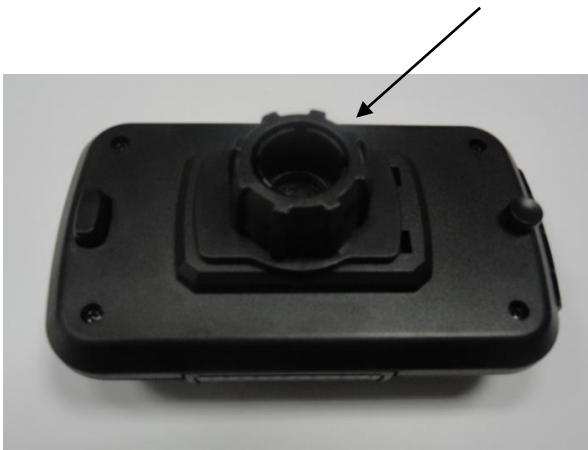
The holder should be placed as on the picture. Next move to the left plastic nut to unscrew almost to the end.

Prepared holder put on a circular element. Set the desired position and tighten the nut to the right to stabilize the handle.

4. Application „SLT-caliper"

4.1 Application installation, connection devices

Installation file "SLT-caliper" is included on pendrive and you can download the demo version from www.codimex.com.pl next page "Wood measuring devices" and then "Electronic caliper Codimex E1"

Demo version allows to make 20 measurements without registering a licensed key. Below is a guide to download a file from a website and copied to the smartphone memory (also from pendrive) and install.

Manual of download file from web page

1. Go to the web page http://codimex.com.pl/about_us_eng, next section „Wood measuring devices" and then "Electronic caliper Codimex E1".

2. Scroll down page until you find the icon with the signature „To download application SLT-caliper.apk" (marked with a red circle on the picture). Click on the icon.

Now download a free trial version SLT-caliper and see the advantages of its operation.
In the trial version you can make 20 measurements.

To download - SLT-caliper.apk

To download - User manual of application SLT-caliper
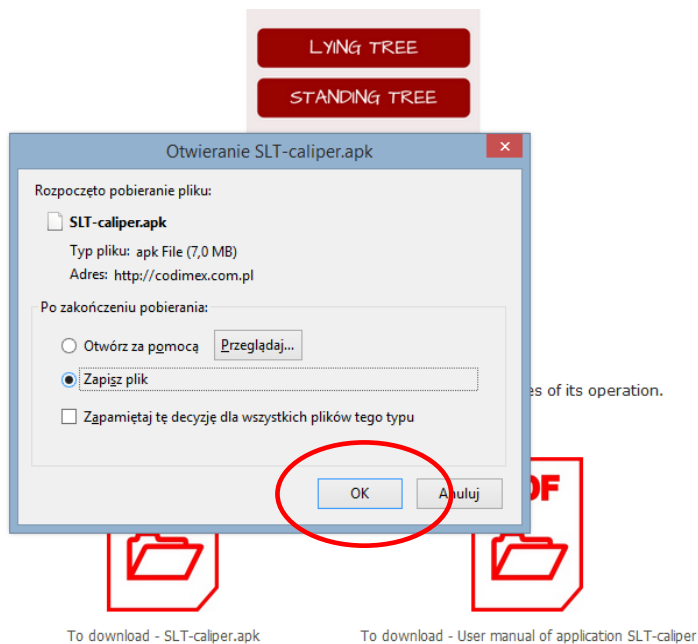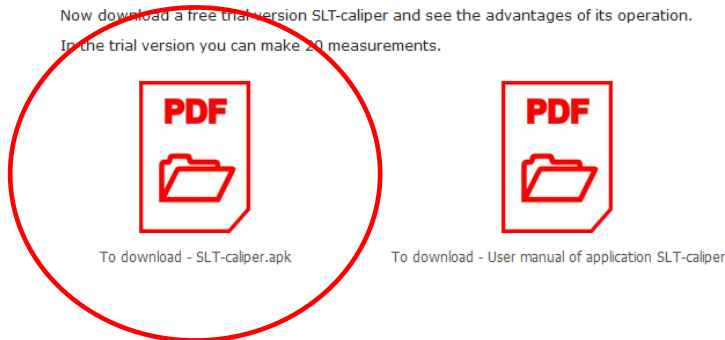
3. In the next window, click "OK". If browser does not allow to choose location, the file is automatically saved in the folder "Downloads". If possible to choose location, save file in place easy to find, e.g. desktop.

Otwieranie SLT-caliper.apk

Rozpoczęto pobieranie pliku:

SLT-caliper.apk
    Typ pliku: apk File (7,0 MB)
    Adres: http://codimex.com.pl

Po zakończeniu pobierania:

○ Otwórz za pomocą   Przeglądaj...
● Zapisz plik
☐ Zapamiętaj tę decyzję dla wszystkich plików tego typu

OK   Anuluj

To download - SLT-caliper.apk

To download - User manual of application SLT-caliper
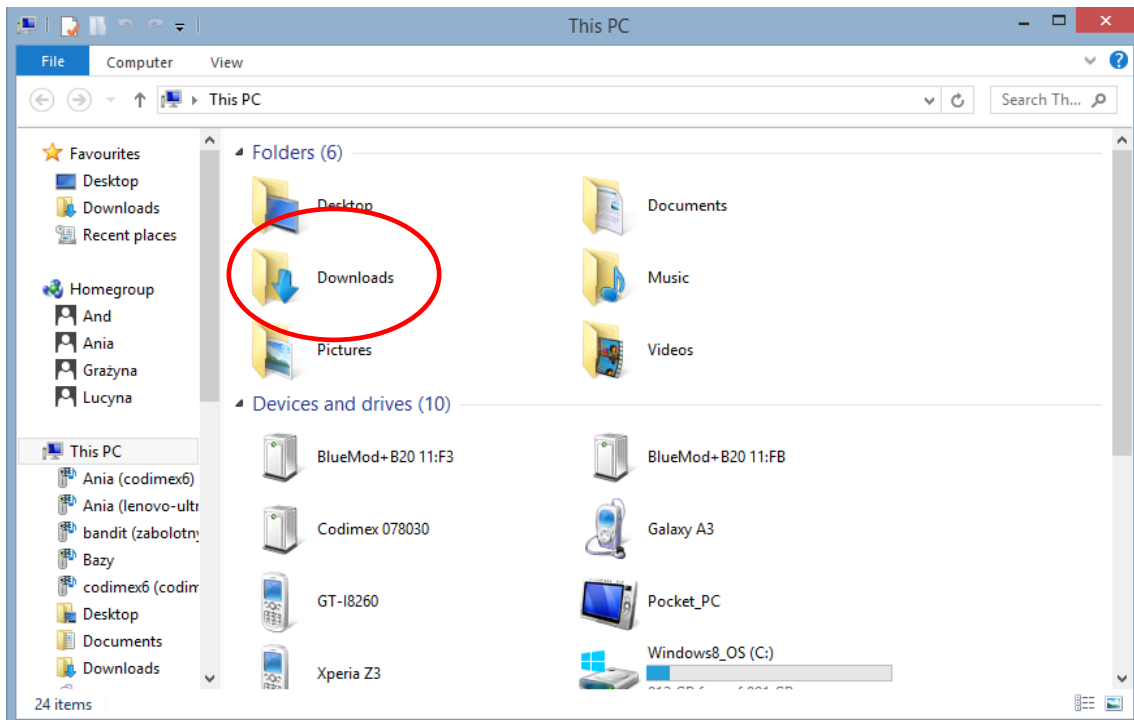
4. To enter the „Downloads" folder, open the icon "My Computer" on the desktop
and then folder "Downloads".
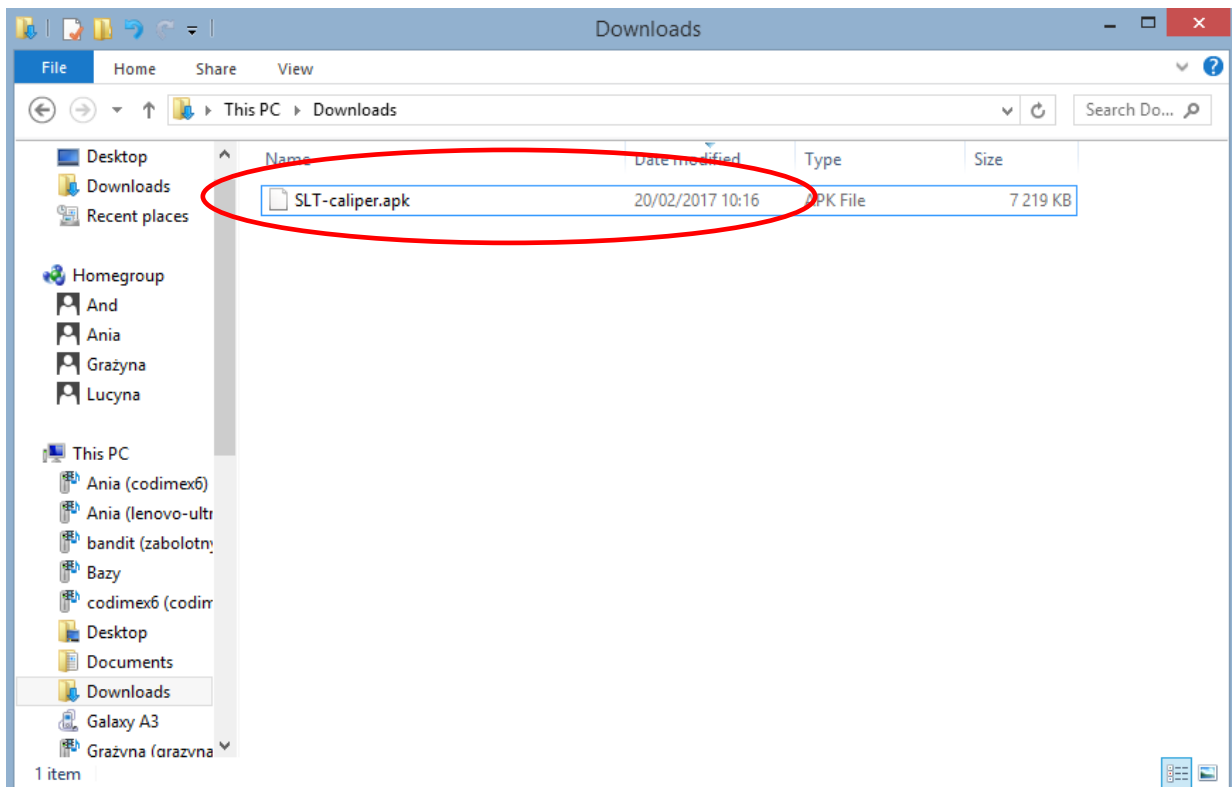
5. In folder „Downloads" find file „SLT-caliper.apk".

Manual of copy files and install applications in the smartphone memory
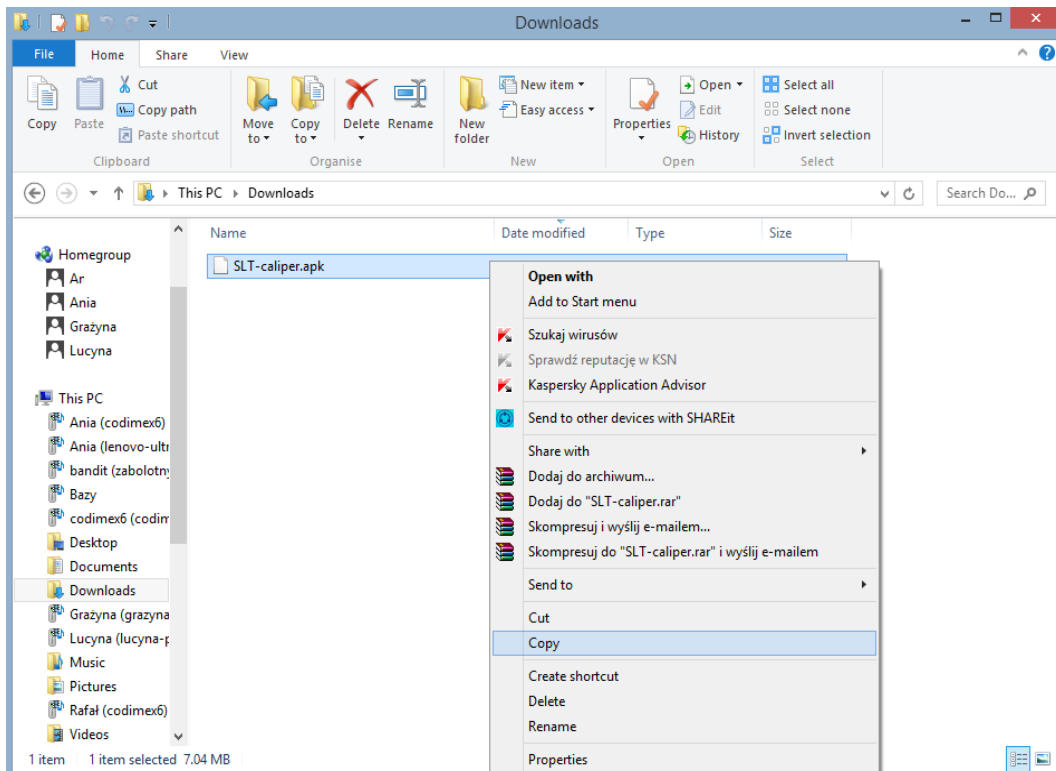
The file downloaded from the website.

1. Open the folder with downloaded file (according to the instructions given earlier). Copy the file and close the window. Next steps from step 3
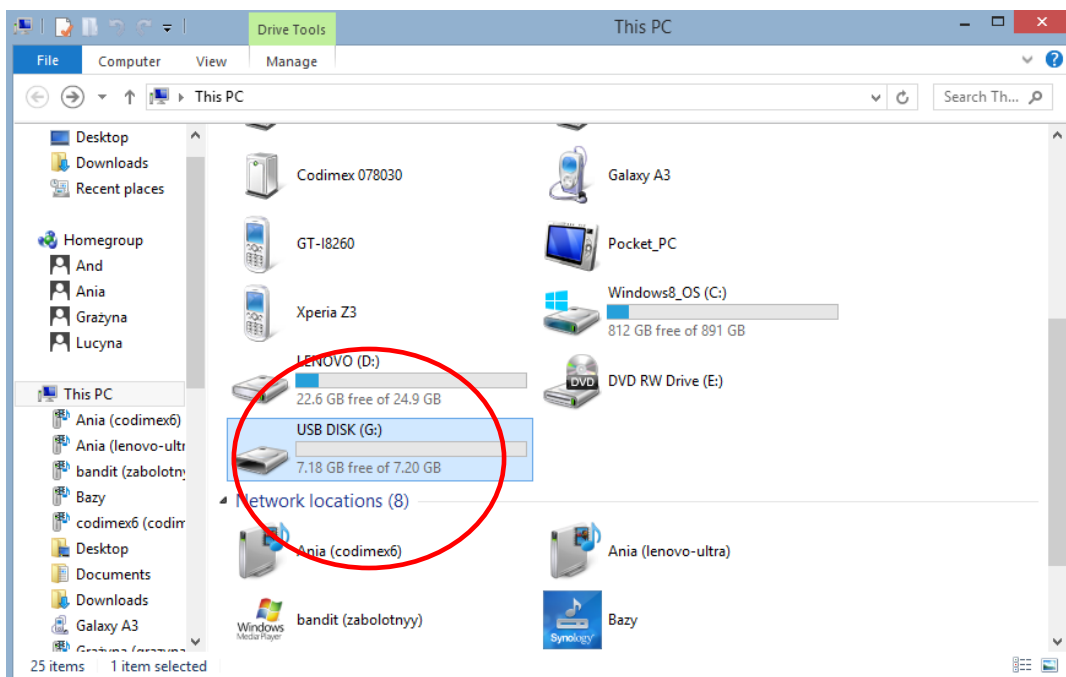
File on USB

1. On the desktop enter icon "My PC". Once opened, locate the USB icon, open it.
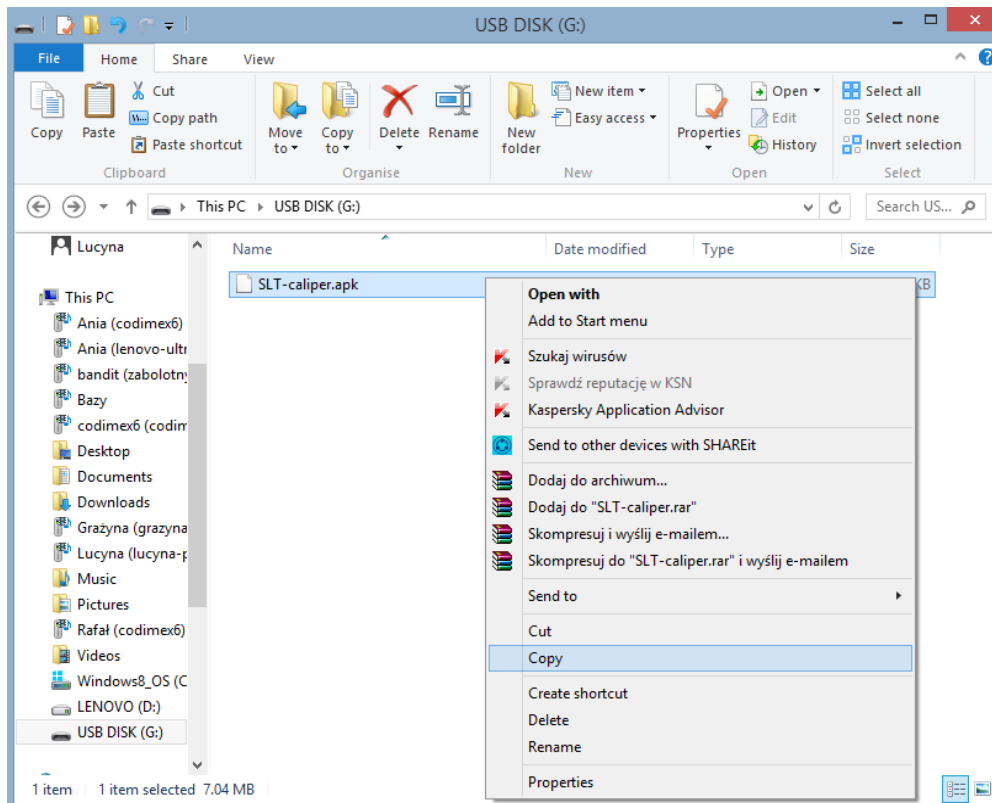
File on USB

2. In USB folder, find file "SLT-caliper.apk". Copy it, close the window.
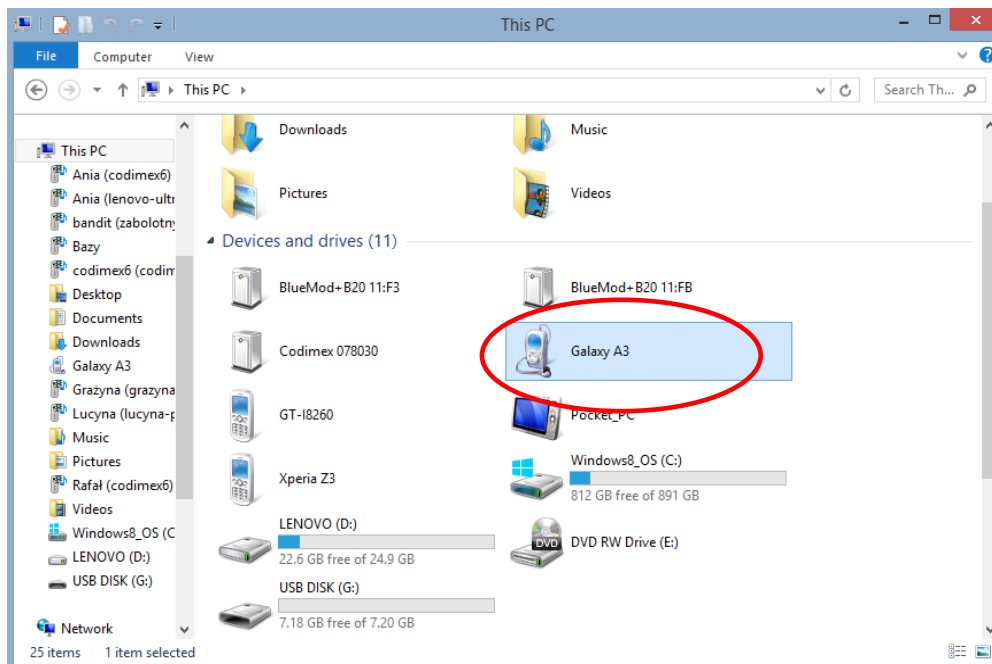
3. Connect smartphone to computer.

- Open on the desktop "My Computer."

- In "My Computer" folder find name of smartphone.

- Open the icon of smartphone.
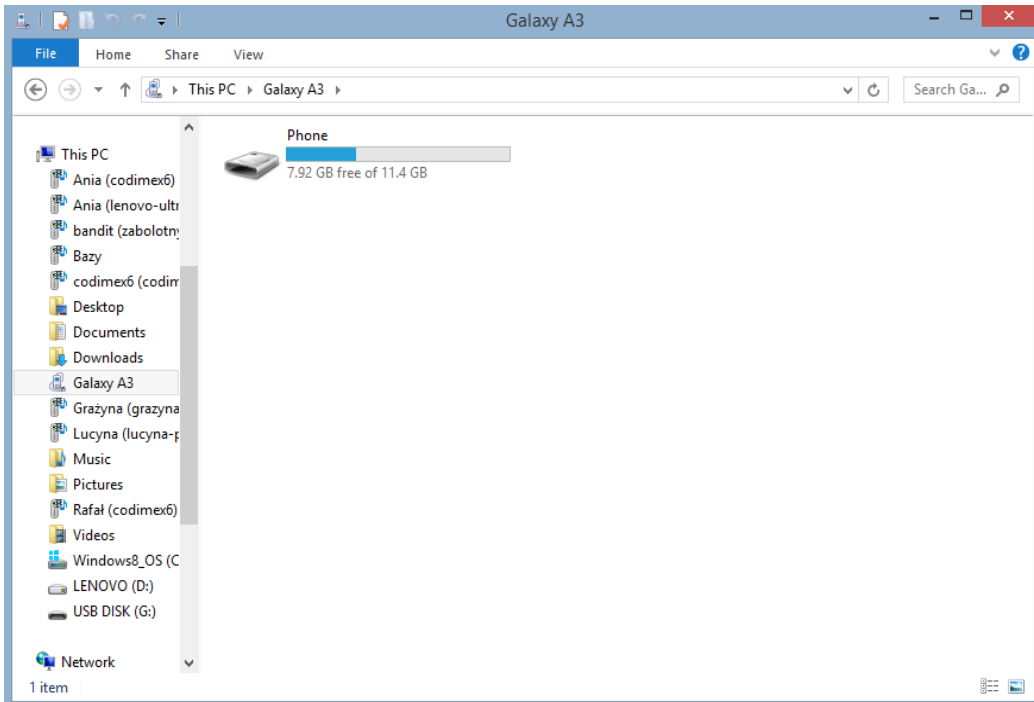
4. Enter the smartphone, open the icon "Phone"
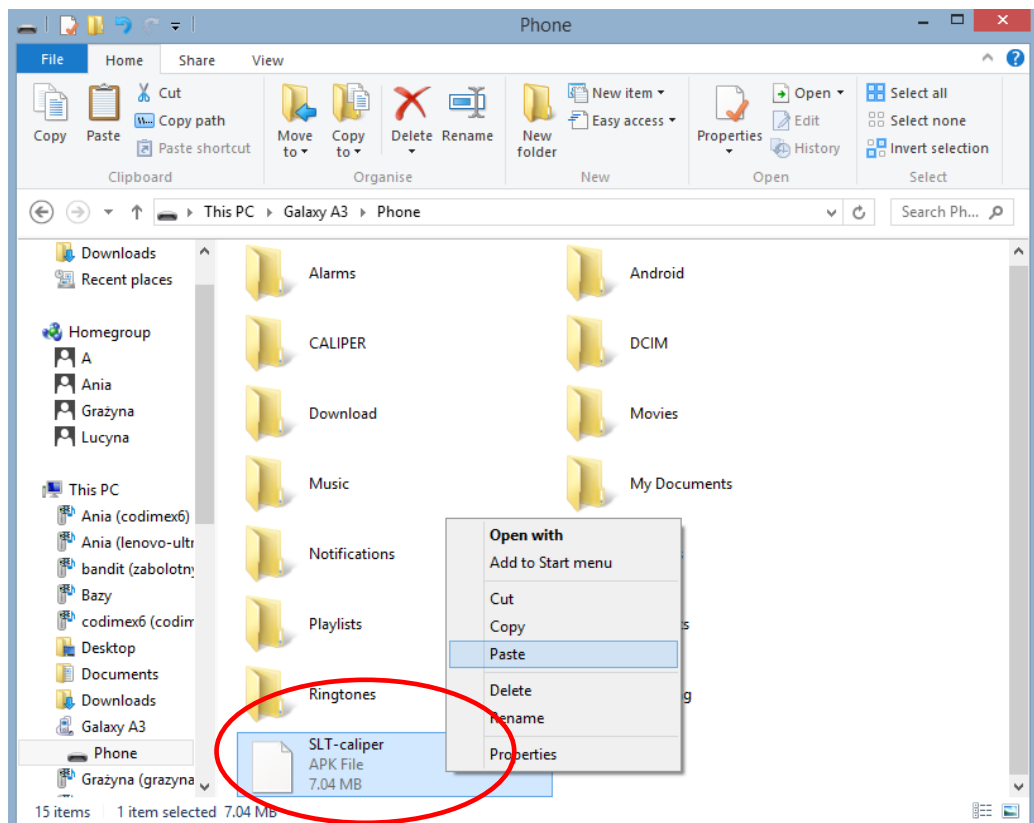
5. In the folder "Phone" paste installation file. Close the folder and disconnect the smartphone from the computer. Next steps on smartphone.

6. In main menu find the icon "My Files" and click on it
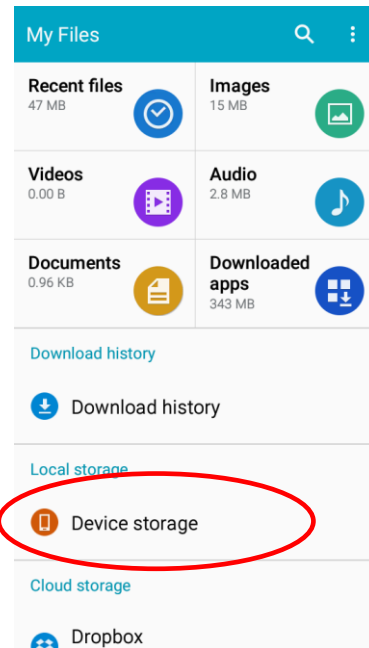
7. Click on „Device storage"
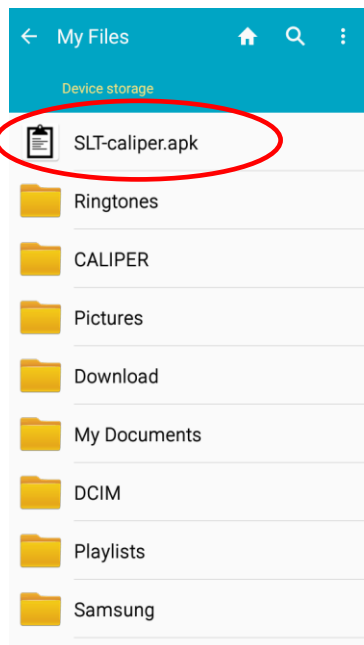
8. Find and click on icon „SLT-caliper.apk"
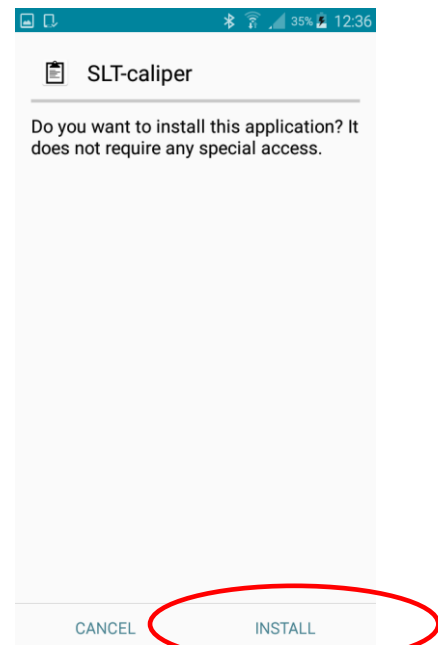
9. Click „INSTALL"
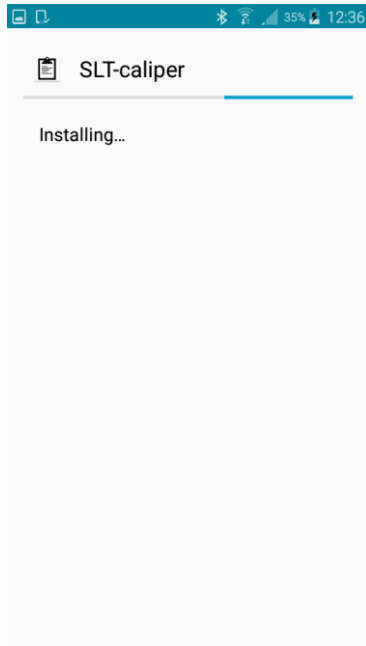
10. Automatic installation
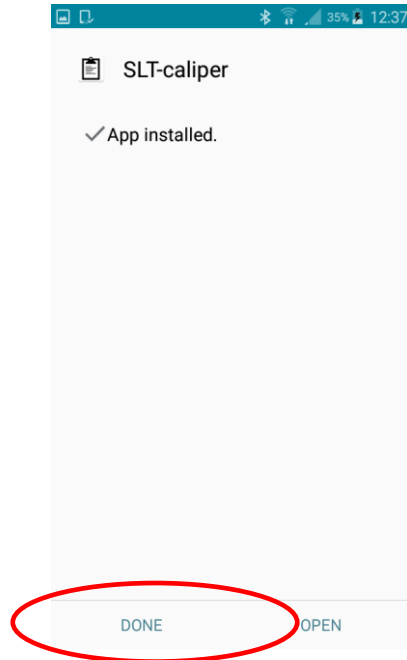
11. Installed application. Click "DONE"

After installing the application, go to the main menu of your smartphone

Instruction to connect smartphone with caliper

In order to connect the electronic caliper with smartphone using Bluetooth as the first turn on electronic caliper Codimex E1 and then perform the following steps:
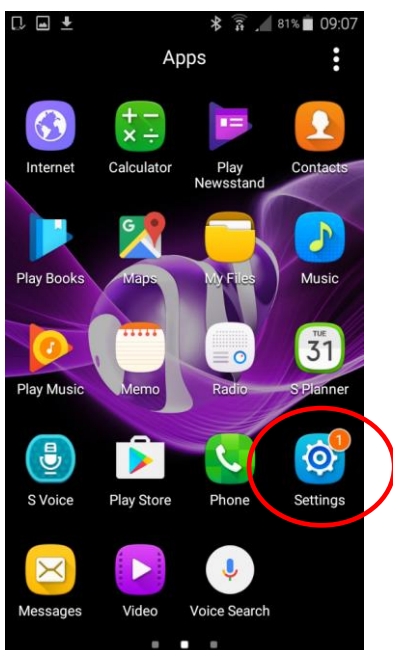
1. Click „Settings"
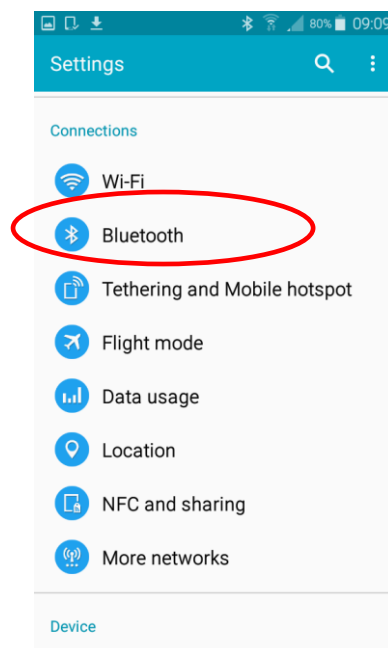
2. Click „Bluetooth"
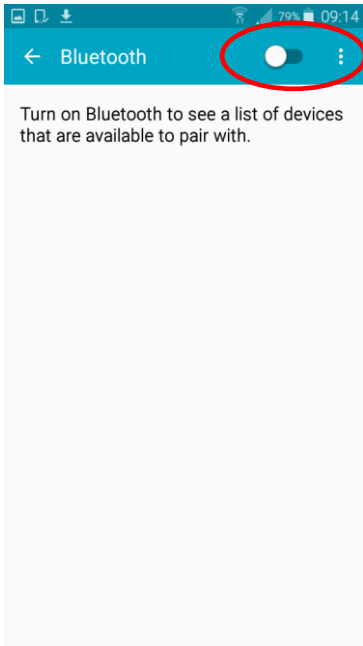
3. Turn on Bluetooth
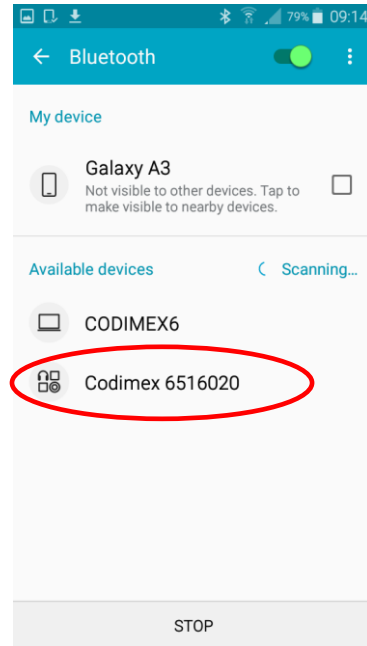
4. Caliper should be found under the name "CODIMEX" and the individual serial number. Click on the name.
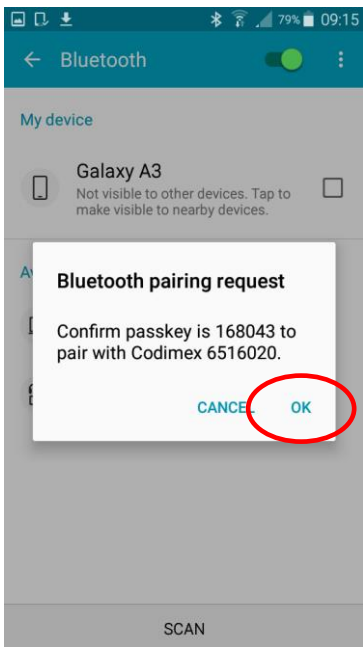
5. Accept a Bluetooth connection
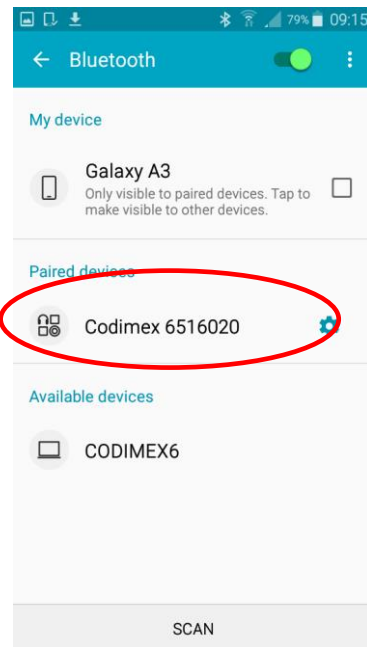
6. Caliper added to the list of connected devices

Warning! Android in not the same for all devices. Some devices may require additional selection options "switch to be visible to other devices in the vicinity," and there may be graphic differences.

4.2 Start in application
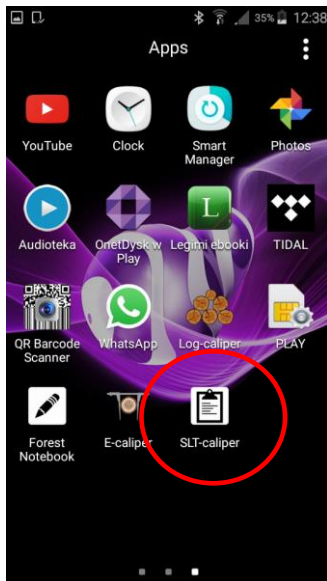
Application icon "SLT-caliper" find in the device menu, and then click to open the program.

When you turn on application first time, will get a brief introduction information. Please read it and move screens to the left or use circled arrow. In the last window, click icon to proceed to registration/login.
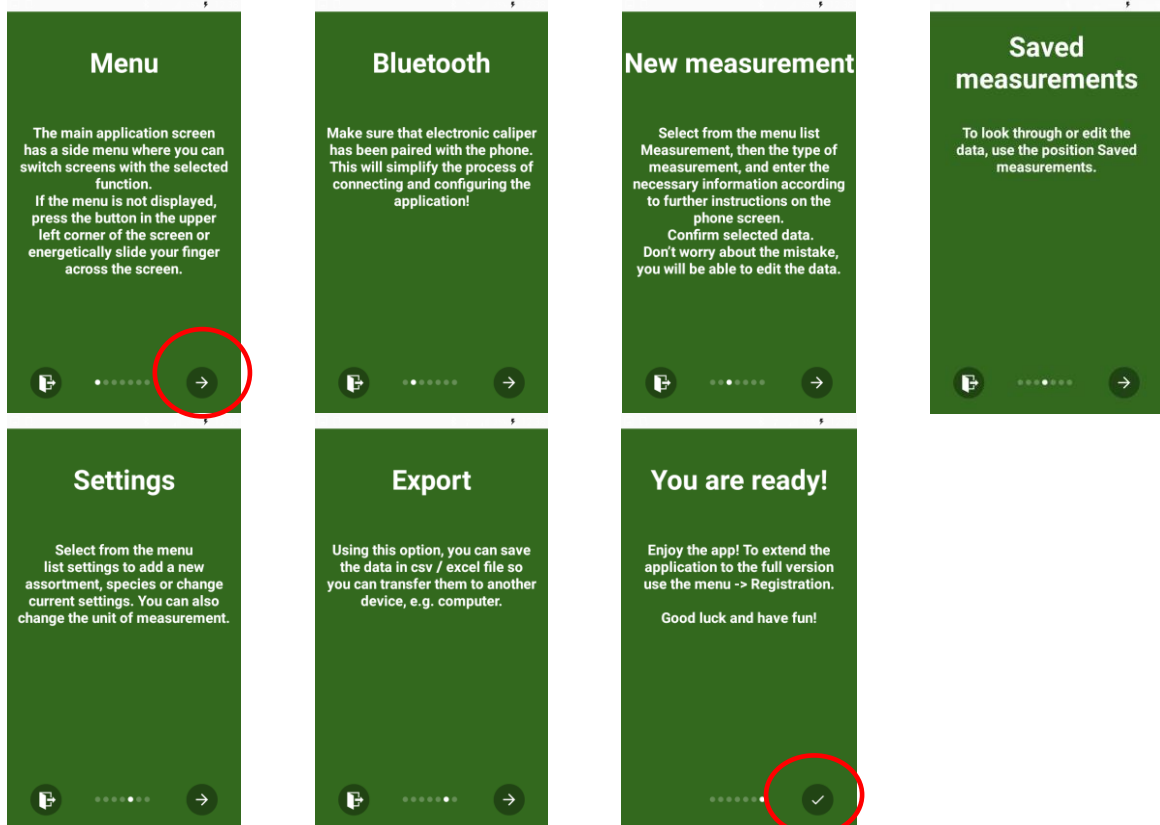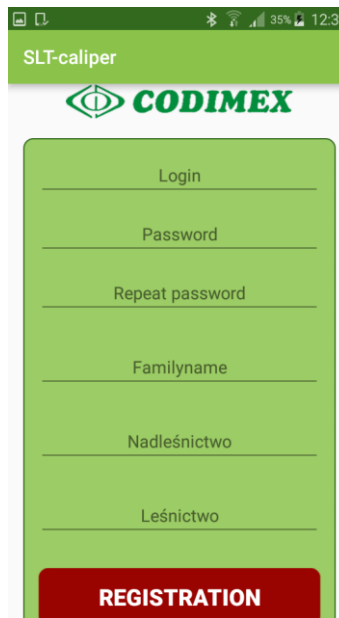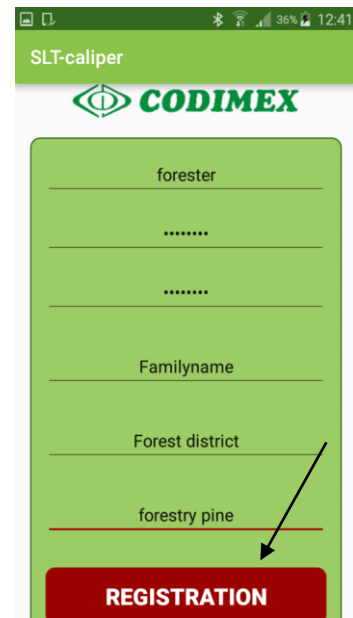
4.2.1 User registration

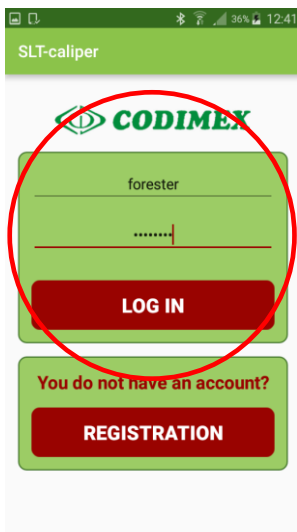After read the introduction information, should to register a user. The registration process is described below.
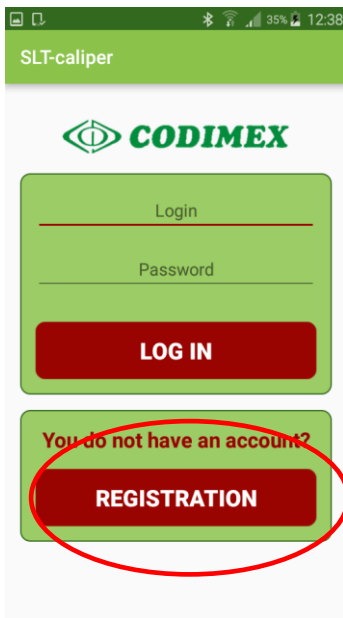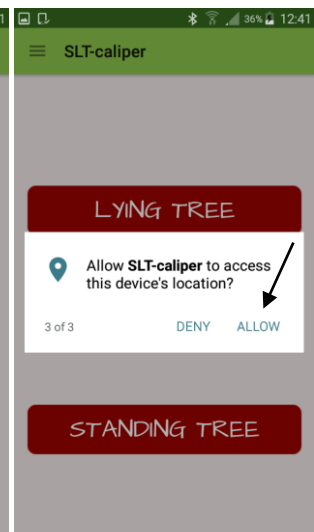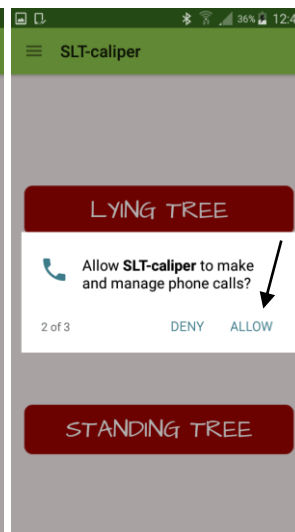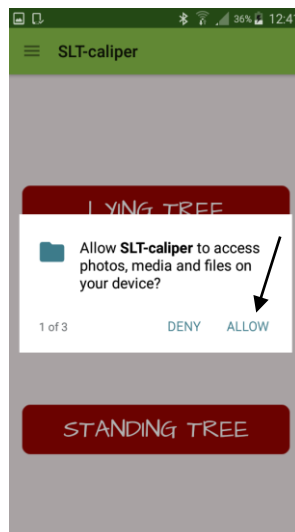

1. Click „REGISTRATION"

2. Complete the empty fields of user data

3. Example of filled data. To finish click "REGISTRATION"

4. Enter login and password, used during registration

5. In each of the next window click "Allow"
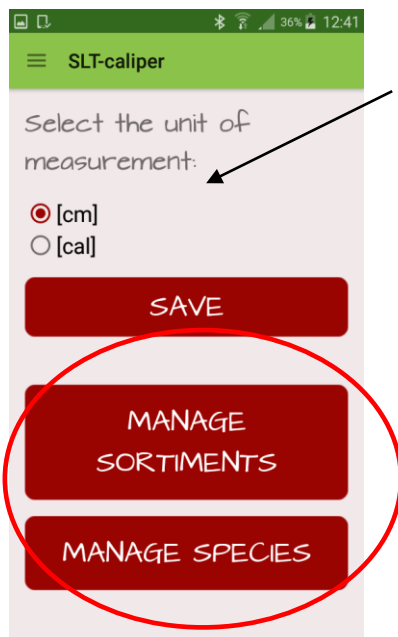
4.2.2 Preparing for measurement

Please go to the settings and specify the units of measure, assortments and species, which will be measured. User must check available assortments and species. In application are only examples. If need other or more can add new. If some are useless can delete. To do this follow these steps:
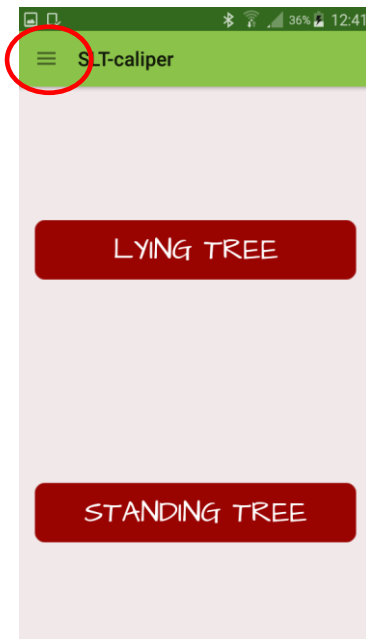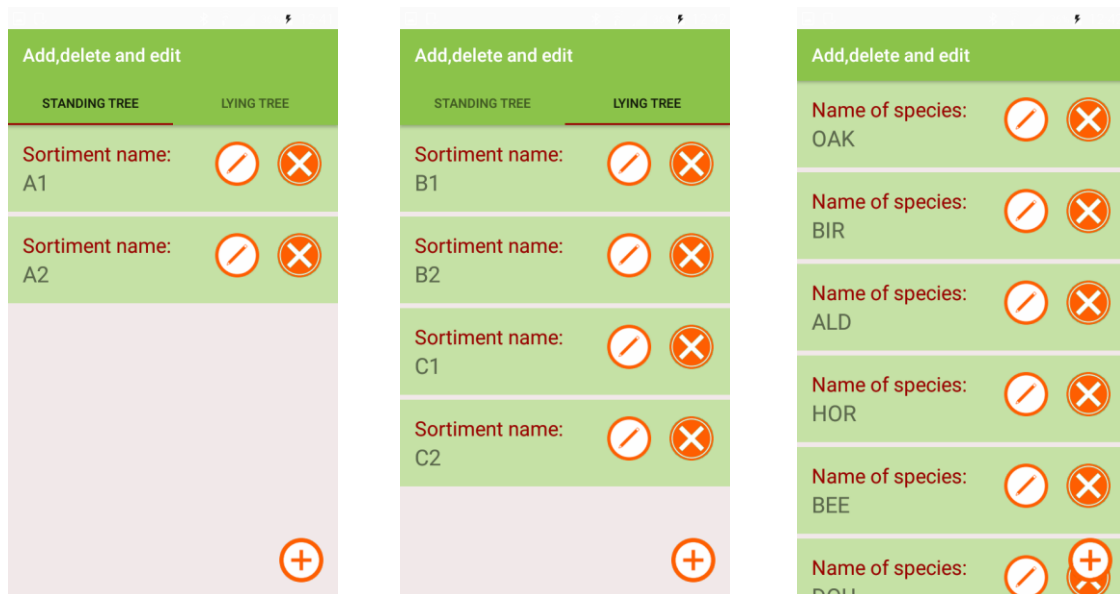

1. Enter to side menu
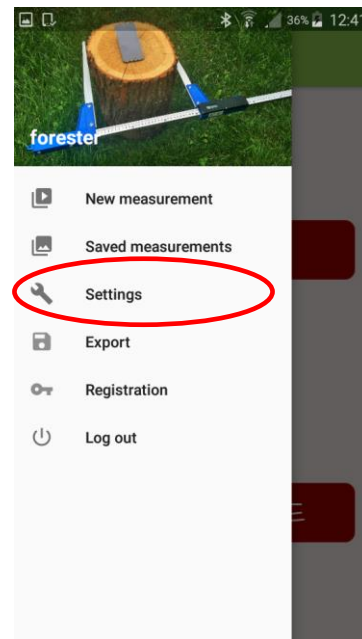
2. Enter to the tab "Settings"

3. Select unit of measure, click "SAVE".

Add name of assortments (full name or shortcuts), click section "MANAGE SORTIMENTS"

Add name of the species, (full name or shortcuts), click „MANAGE SPECIES"

4. To add a new assortment / species use the symbol ⊕

To delete an existing assortment / species use the symbol ⊗

To edit an existing assortment / species use the symbol ⊘

To return to the previous window in the application use the button „back" on your smartphone.
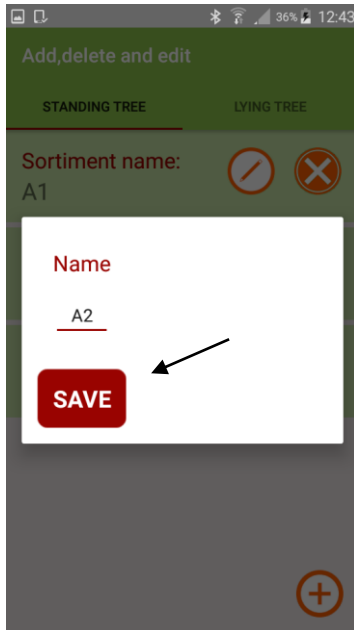
Adding new assortments / species

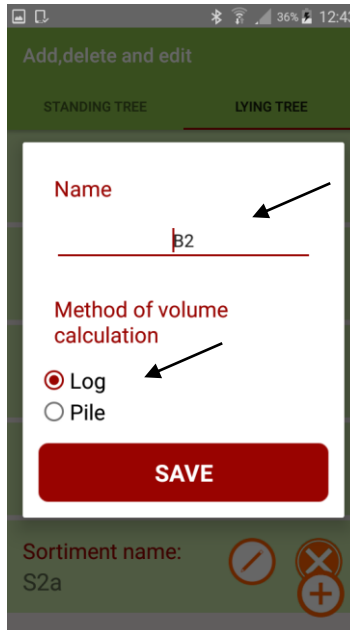| Measurement of standing trees | Measurement of lying tree | Species |

Name of species and assortments enter from the keyboard of your smartphone. In the tree lying method must also specify method of volume calculation. After typing the name, click "ADD" Added assortments and species will be stored in the application memory.
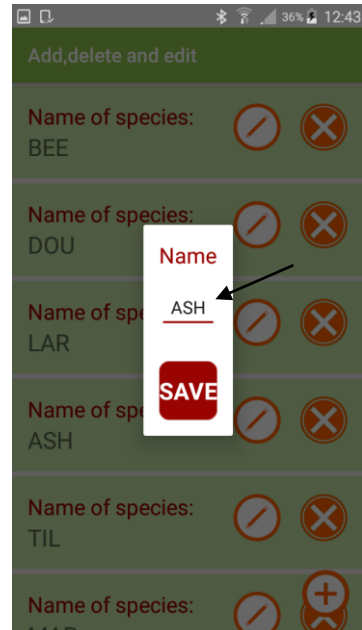
Edit existing assortments / species

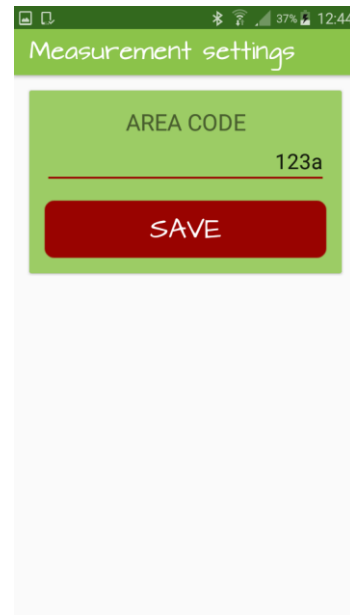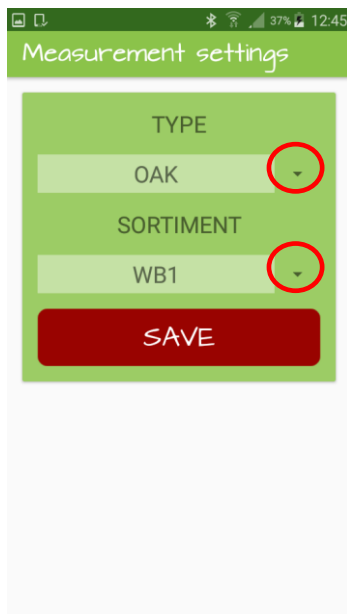| Measurement of standing trees | Measurement of lying tree | Species |

During edition of assortments of standing tree and species, user can change them name. For lying assortments user can also change method of volume calculation. Data entering from smartphone keyboard. When data has been changed, click "save".
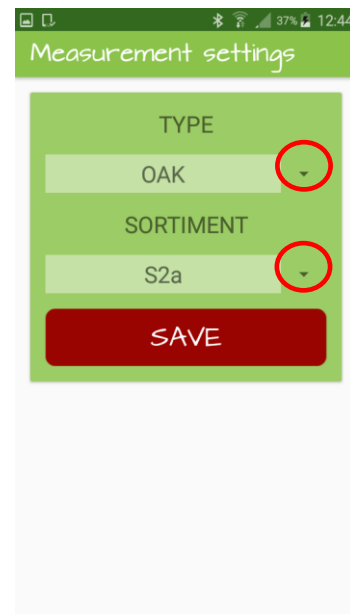
4.3 Measurements

Before taking measurements, specify the following attributes:

1. Select the method of measurement

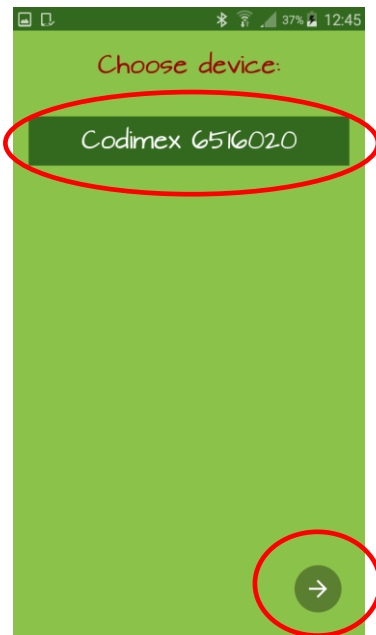2. Specify forest address, click „SAVE"

Measurement of standing trees

Measurement of lying tree

3. Select the species and assortment. Use circled symbols to show lists

4. Select the name of caliper, which was previously connected via Bluetooth (regardless of measurement method)

If want to enter data without connection to caliper, click the circled arrow
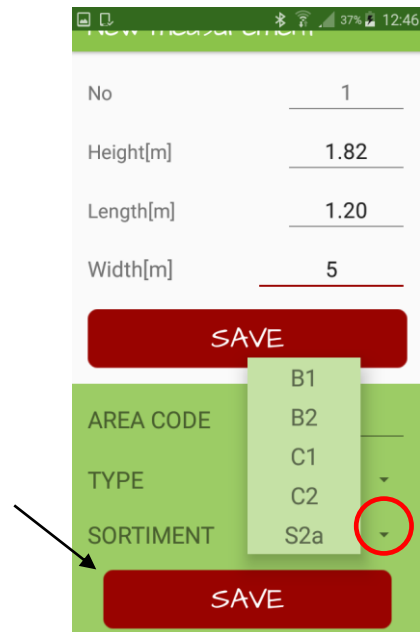
Entering the measurements

To send a result of the measurement from caliper to the smartphone, should press once „send button" on caliper. To save a measurement or add another new, click „SAVE" or again press once „send button", with new result off measurement. If the devices are not connected, or we entering dimensions in wood stack method, then use keyboard from smartphone screen.

Measurement of standing trees

Measurement of lying tree (pile)
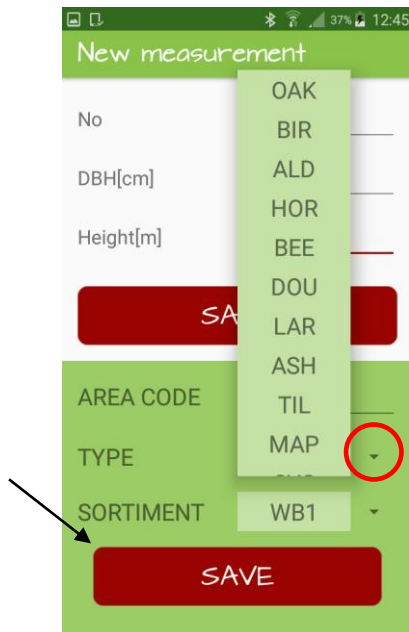
Measurement of standing trees

Measurement of lying tree

To change species or assortments during the measurement open the list (using circled symbol). Choose new from the available assortments / species. After selecting click "SAVE" to continue measurements.
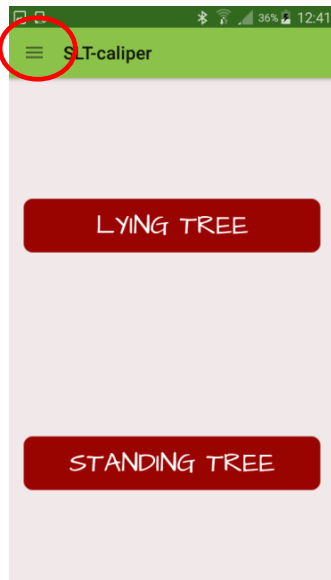
Ending the measurements / change the measurement method

To change the measurement method during work, or exit the program must after last stored measurement click the "back button" on your smartphone.

The most common symbol of the button is: . Single-click to exit to the main menu of application, double-clicking the button to exit from the application.

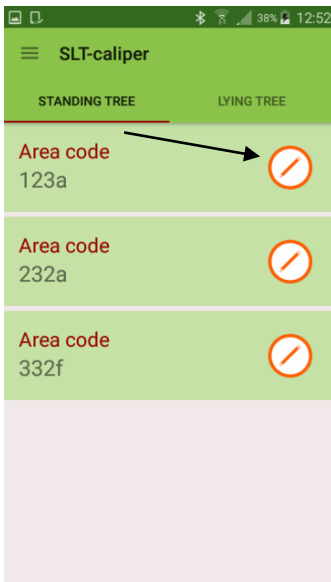## 4.3.1 Summary, edition, deleting measurements

To verify recorded data, edit incorrect measurement (e.g. change diameter at breast height, diameter, height, species) or completely delete the measurements, follow these steps.
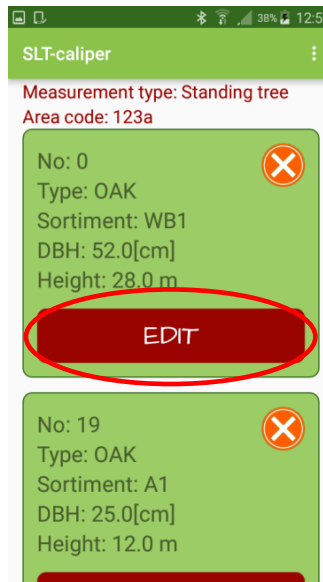

1. Enter to side menu
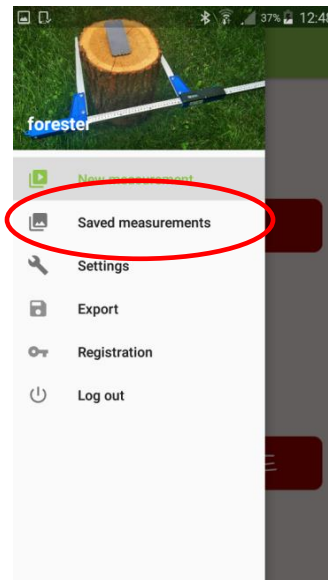
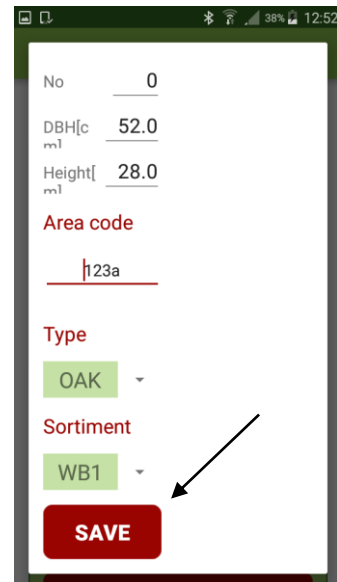2. Enter to "Saved measurements"

3. Select forest address, which want to check, edit or delete.
Click symbol ⊘

4. Find the measure. To edit, click "EDIT". to delete click symbol ❌

5. Edit: Change the required data. When You have changed, click "SAVE"

Warning! To delete the entire forest address, remove all measurements which are saved in it. To refresh the list of forest addresses, you must exit and re-enter section „saved measurements"

4.4 Export data

The application "SLT-caliper" allows to export data from all forest addresses into a one file (with the distinction between the method of measurement) and export from particular forest address. To perform the export data, follow the steps:

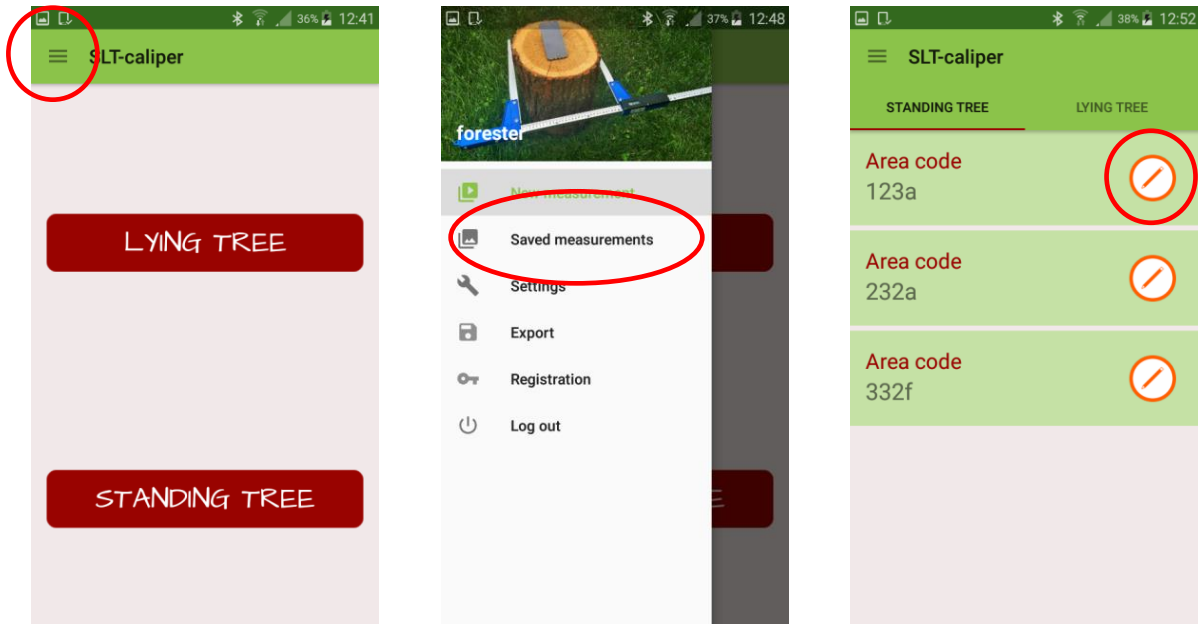**Manual of export data disaggregated on methods of measurement**
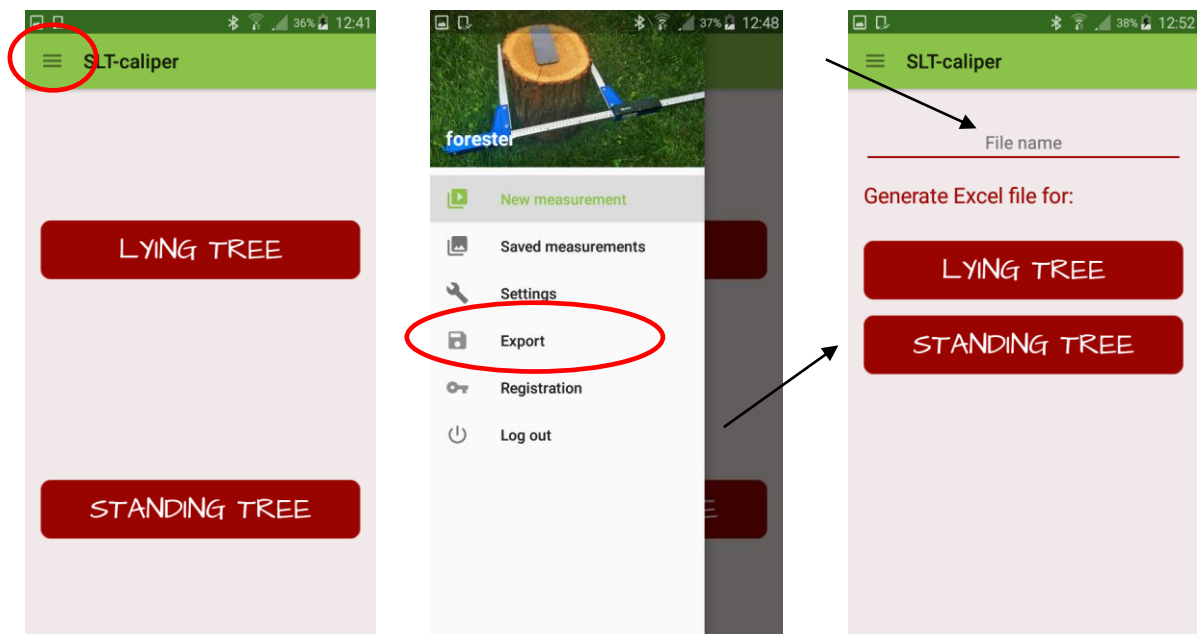
1. Enter to side menu   2. Enter to „Export"   3. Enter the name of the file (free user choice). Then click on method, from which want to export data.
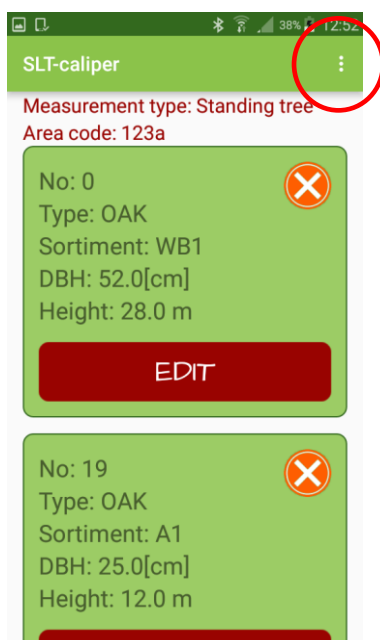
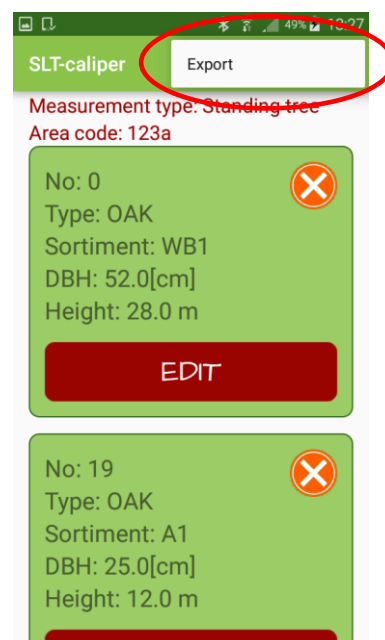# Manual of export data from individual forest address

1. Enter to side menu

2. Enter to „Saved measures"

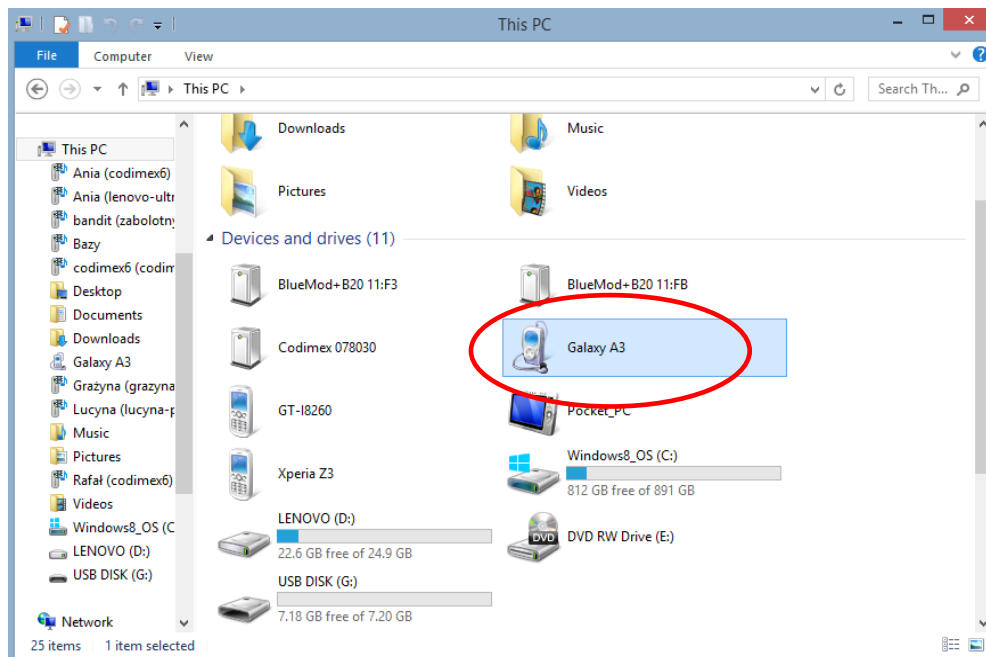3. Select forest address from which want to export data, press circled button
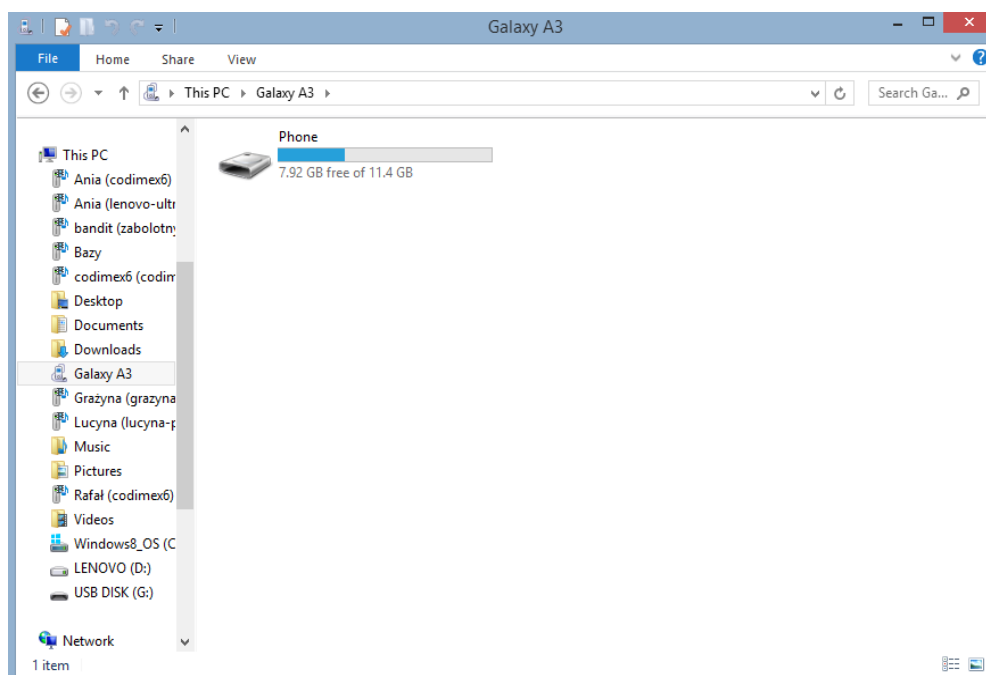

4. Click circled symbol

5. Click „Export"
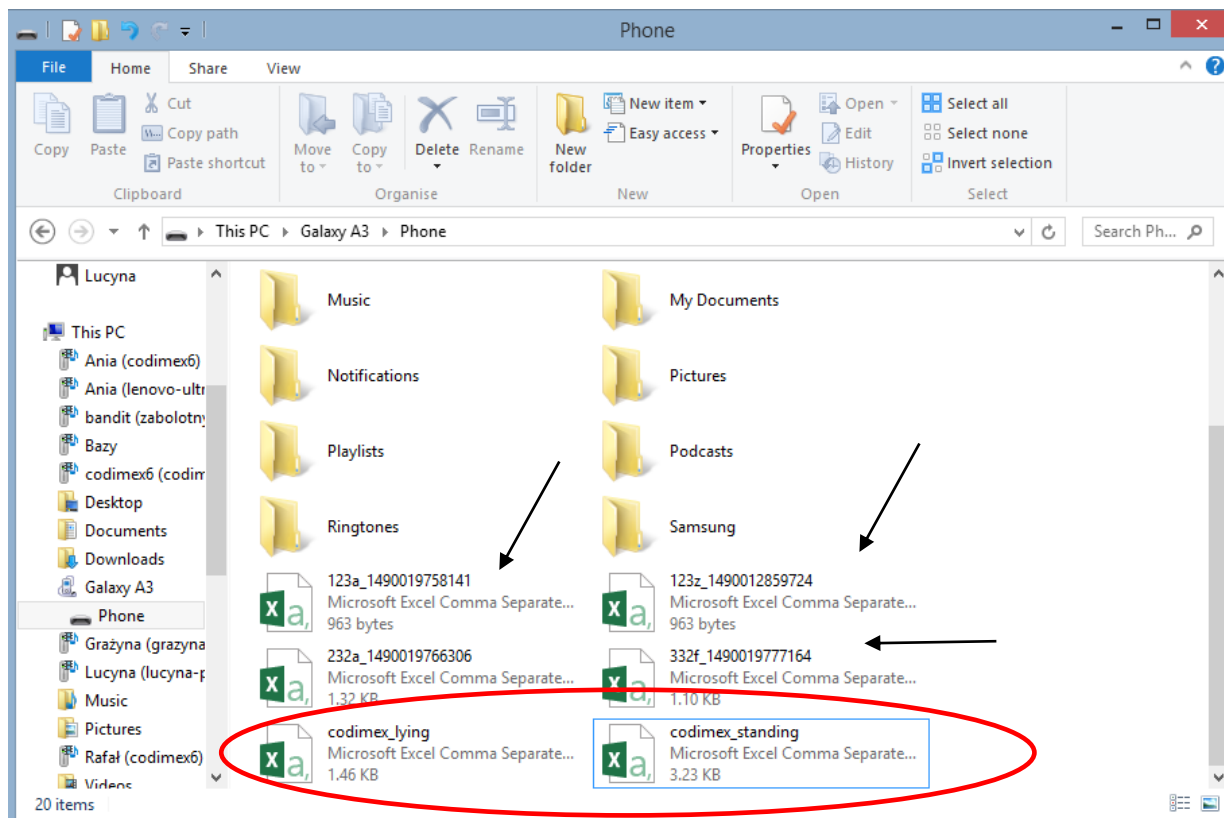
4.4.1 Location exported files

To locate and copy the exported files follow the steps:

1. Connect smartphone to computer.

- Open on the desktop "My Computer."

- In "My Computer" folder find name of smartphone.

- Open the icon of smartphone.

2. Enter the smartphone, open the icon "Phone"

3. Find and copy the exported files.

Exported files with the differences between the method of measurement are named "codimex_", and the second part is a name that has been given during export process in application. Here names "lying", "standing" (circled files).

Files exported from individual addresses have the same name as forest address from which they were exported and the second part is an automatic individual number (pointed by arrows).

The exported files copy and paste in the selected location on a user's computer.

All files that have been copied to a user computer can be deleted from the smartphone memory.

4.5 Activating full version
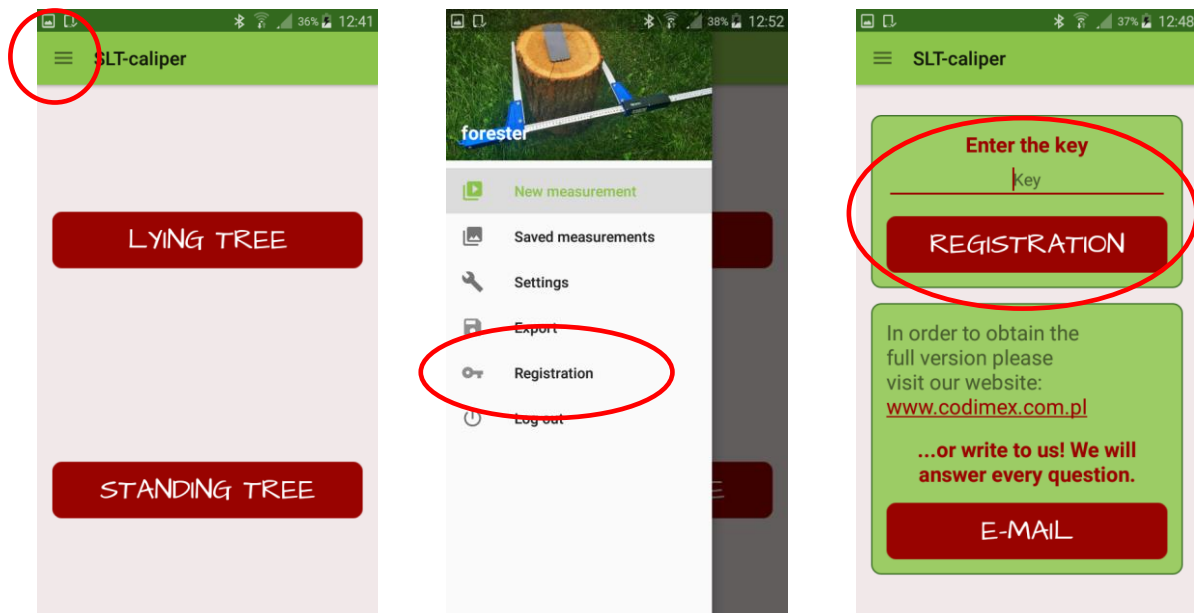
1. Enter to side menu   2. Enter to "Registration""   3. Enter the license key,
                                                              click "REGISTER"

The license key is located on the supplied pendrive in a file named "licensed_key.txt."
It can also be obtained by calling the company CODIMEX on number +48228619445
or e-mail codimex@codimex.com.pl.

A license key is assigned to only one device – there is no possibility to register
application on multiple devices using the same key.
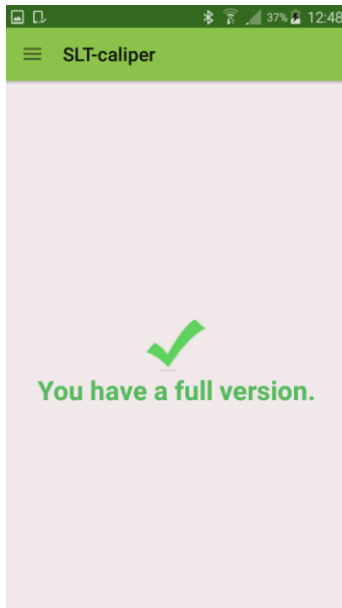
4. License Key verified correctly. From this point You have the full version of the application.

Warning! During the activation process of license key, smartphone must be connected to Internet.

For further questions please contact:

e-mail: codimex@codimex.com.pl

tel. +48228619445