

Set:

- Codimex E1-Log – Electronic caliper
- Smartphone
- Application „Log-caliper”

User manual



 **CODIMEX**

Contents page

1. Introduction	3
2. Electronic caliper Codimex E1-Log	4
2.1 Technical specifications.....	4
2.2 Meaning of the buttons.....	5
2.3 Method of measurement.....	5
2.4 Caliper exploitation.....	6
2.5 Charging batteries.....	7
3. Smartphone or tablet, accessories.....	8
3.1 Barcode scanner	10
3.2 Crayon for wood marking.....	12
4. Application „Log-caliper“.....	13
4.1 Application installation, connection devices.....	13
4.2 Start in application	24
4.1.1. Preparing for measurements.....	25
4.3 Measurements	28
4.3.1 Group method	29
4.3.2 Single method	30
4.4 Summary of measurements.....	32
4.4.1 Verification of measurements.....	32
4.4.2 Removal of measurements	35
4.5 Export data.....	37
4.5.1 Location exported files	39
4.6 Activating full version.....	41

1. Introduction

The electronic caliper Codimex E1-Log is designed for measurement of logs. It has specially designed jaws that allow to measure the diameter of the log front, without taking into account the thickness of the bark.

Components of the kit:

1. Electronic caliper – „Codimex E1-Log“
2. Smartphone or tablet (owned by user)
3. Application „Log-caliper“

The manufacturer provides:

1. Electronic caliper – „Codimex E1-Log“
1. Application „Log-caliper“

On client request for an additional fee we deliver any smartphone (Android OS.), marking crayon for wood and barcode scanner.

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

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-Log

2.1 Technical specifications

Measurement resolution	0,5 cm
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 "lobat" – voltage battery below 3,1V flashing "lobat" – 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 signalling	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 battery	<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	Micro USB 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%

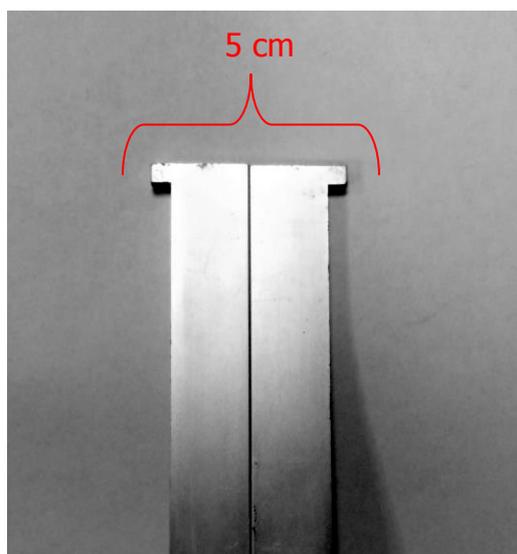
2.2 Meaning of the buttons

ON/OFF	<ul style="list-style-type: none">– 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
▶	<ul style="list-style-type: none">– sending, by the Bluetooth actual result of the measurements

2.3 Method of measurement



Measurement of the diameter is made by placing the diameter jaws in front of the log on the shortest diameter (bypassing the thickness of the bark). Then by pressing the "▶" button on the caliper the measurement is sent via Bluetooth to the "Log-caliper" application installed on your smartphone or tablet.



The shape of the jaw differs from that used in standard caliper, and has been specially shaped. Due to the fact that the closed jaw length is 5 cm, the scale on the caliper starts at 5 cm.

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 flashes 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, accessories

Application „Log-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

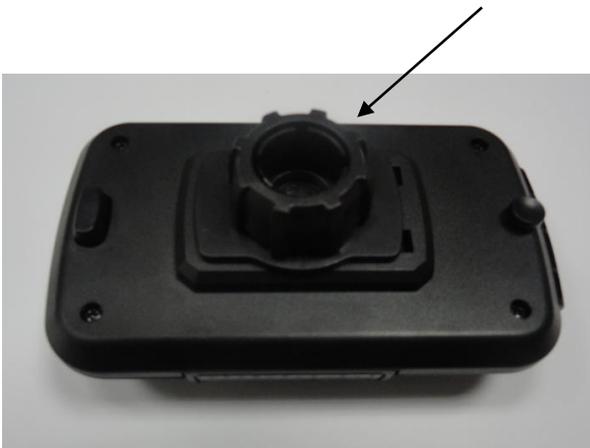


- In the case on the arm

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.

3.1 Barcode scanner



The advantage of using a barcode scanner is the ease of use, simplicity and speed of entering next numbers in single piece measurement method.



The scanner reads very well barcodes on wood marking tags produced also by Codimex company.

Manual of montage a barcode scanner on caliper



1. With the key number 8 unscrew circled nut (move left). Replace the unscrewed screw from the caliper for longer, included in kit with scanner.

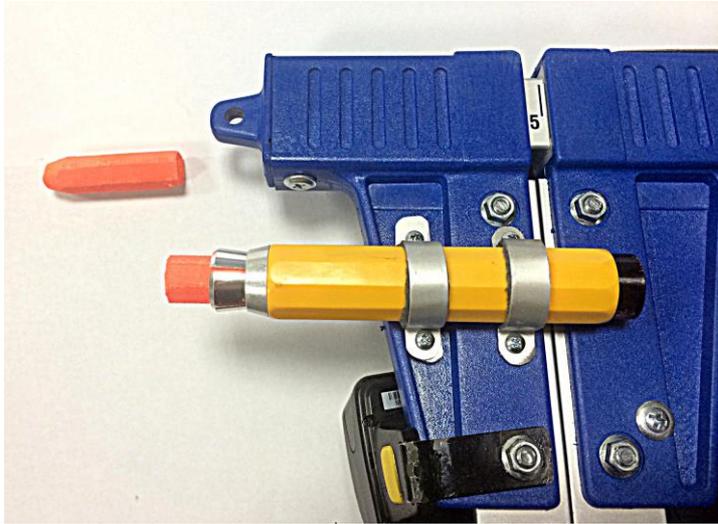


2. On the replaced screw install the scanner mounting bracket as shown in the picture (view from below). Then move nut to the right to stabilize the handle.



3. Scanner ready to use (top view)

3.2 Crayon for wood marking



A marking crayon for wood can also be installed to the upper jaw of the caliper, which after the measurement marks the log. Thanks to this the measurement will be not duplicated.

If in the set order also marking crayon for wood, mounting will be done by qualified Codimex staff. It requires drilling of additional holes in the jaws of the caliper. This ensures the correct assembly and secure warranty.

4. Application „Log-caliper“

4.1 Application installation, connection devices

Installation file „Log-caliper“ is included on pendrive and you can download the demo version from http://codimex.com.pl/about_us_eng next page "Wood measuring devices" and then "Calipers Codimex E1-Log". Demo version allows to take 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



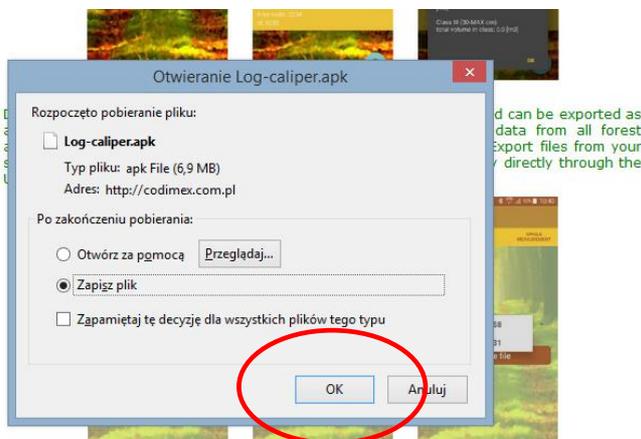
The screenshot shows the website interface for Codimex. On the left, there is a navigation menu with a 'Products' section. The 'Wood measuring devices' category is highlighted with a red circle. Below it, the 'Calipers CODIMEX E1-Log' product is also highlighted with a red circle. The main content area features a title 'Calipers CODIMEX E1-Log' and a large image of the blue electronic caliper with a smartphone attached. To the right of the image is a smartphone displaying the 'Log-caliper' app interface. Below the main image, there is a descriptive paragraph: 'The electronic caliper Codimex E1-Log is designed for measurement of logs. It has specially designed jaws that allow you to measure the diameter of the log front, without taking into account the thickness of the bark.' Below this text, there are two smaller images: one showing a close-up of the caliper's jaws with a 5 cm scale bar, and another showing the caliper's jaws from a different angle. A caption explains: 'The shape of the jaw differs from that used in standard caliper, and has been specially shaped. Due to the fact that the closed jaw length is 5 cm, the scale on the caliper starts at 5 cm.'

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

Data from the measurements are saved in the smartphone memory and can be exported as a CSV file (excel). The application "Log-caliper" allows to export data from all forest addresses into a one file and export from particular measurement. 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.

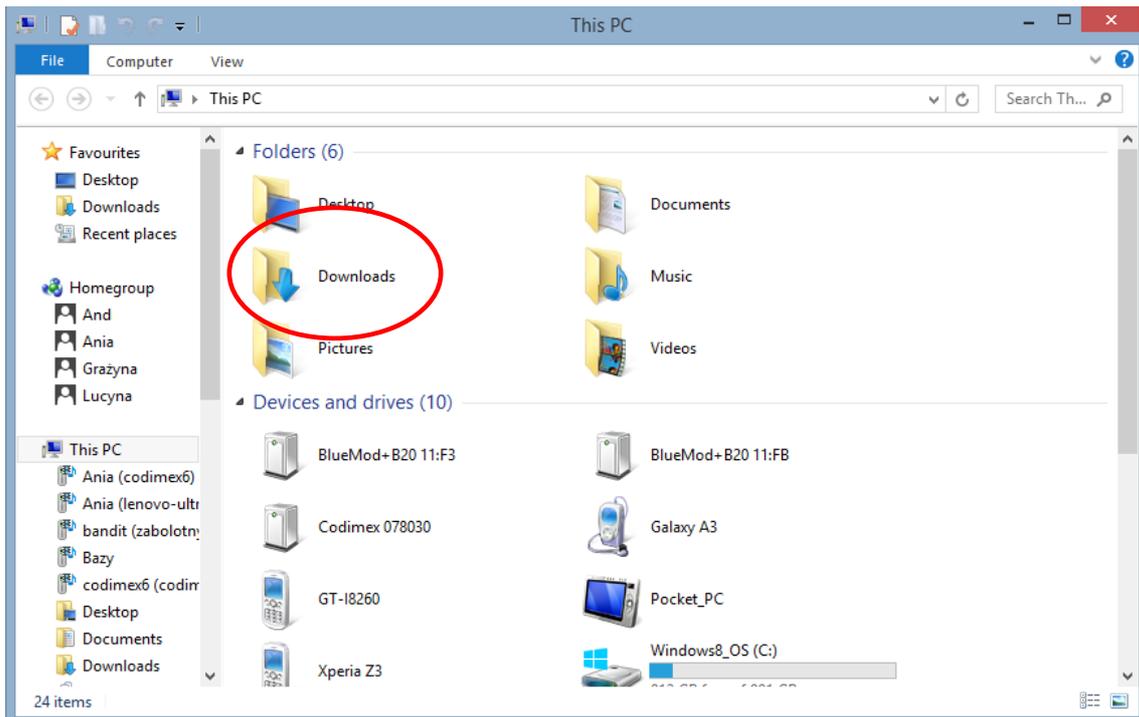


2. Scroll down page until you find the icon with the signature „Download application file Log-caliper.apk“ (marked with a red circle on the picture). Click on the icon.

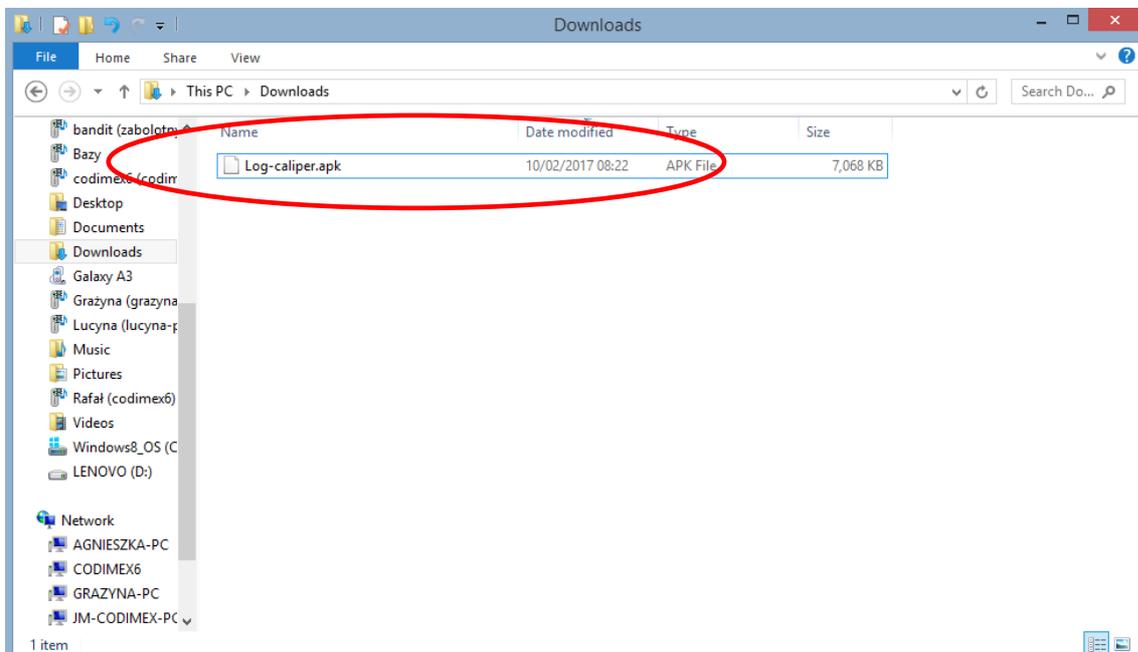


3. In the next window, click "OK". If browser does not allow to choose location, the file is automatically saved in the folder "Downloads". If possible to choose location, save file in place easy to find, e.g. desktop.



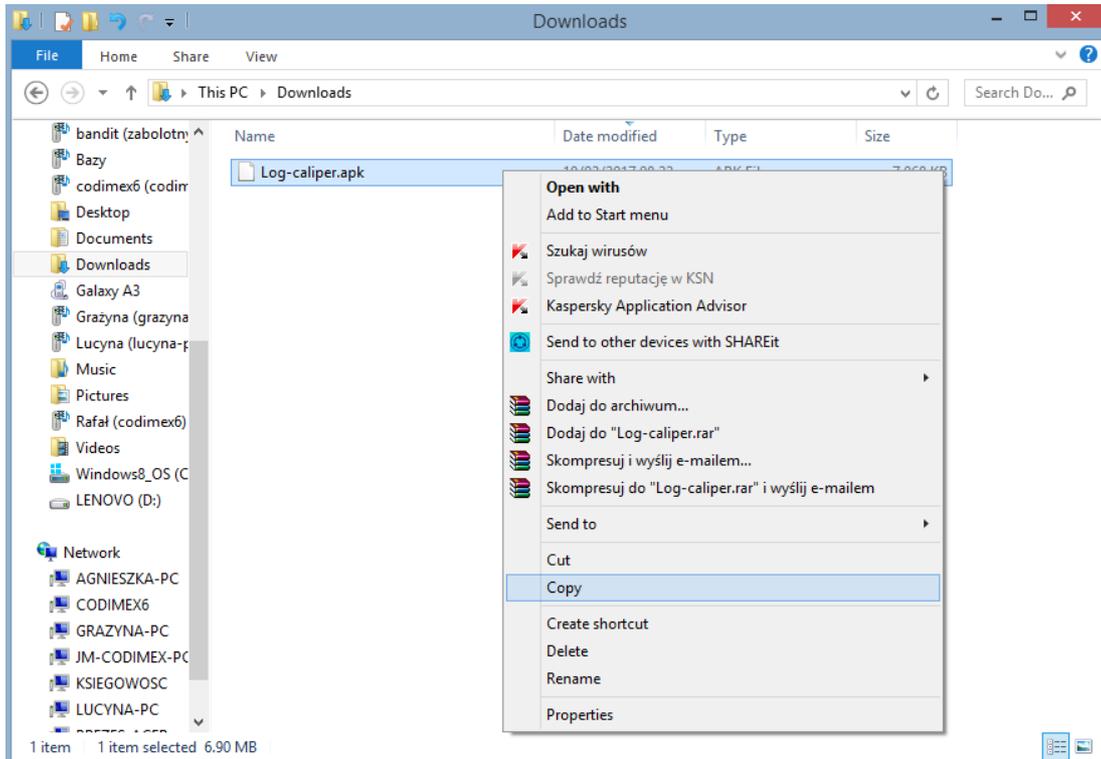


4. To enter the „Downloads” folder, open the icon "My Computer" on the desktop and then folder "Downloads".



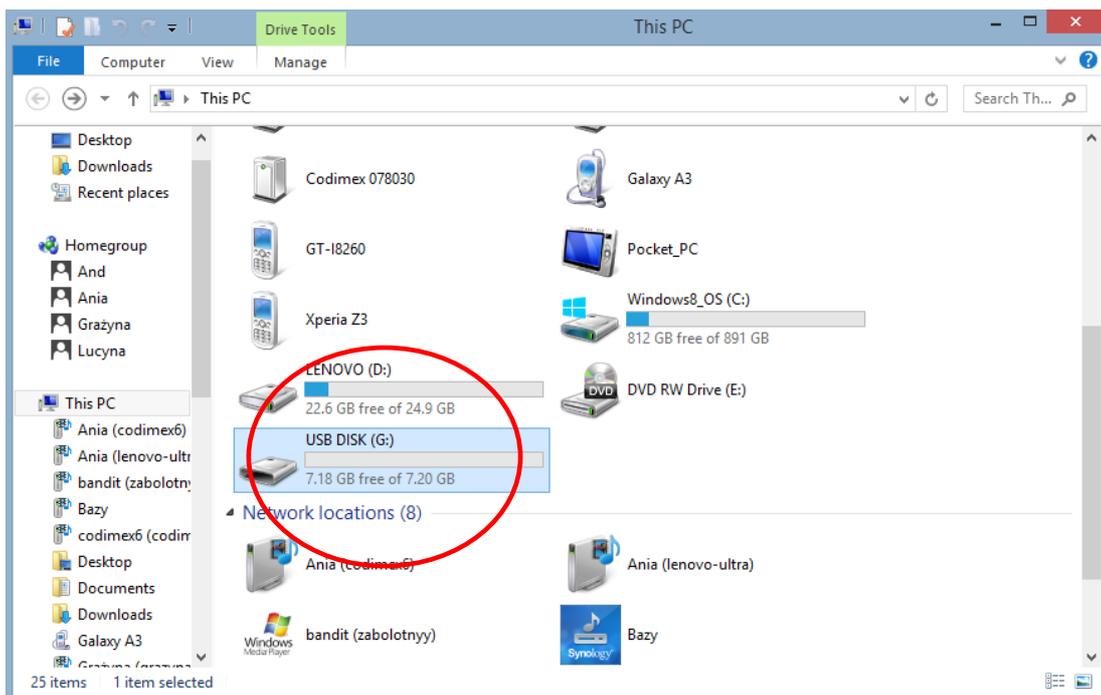
5. In folder „Downloads” find file „Log-caliper.apk”.

Manual of copy files and install applications in the smartphone memory



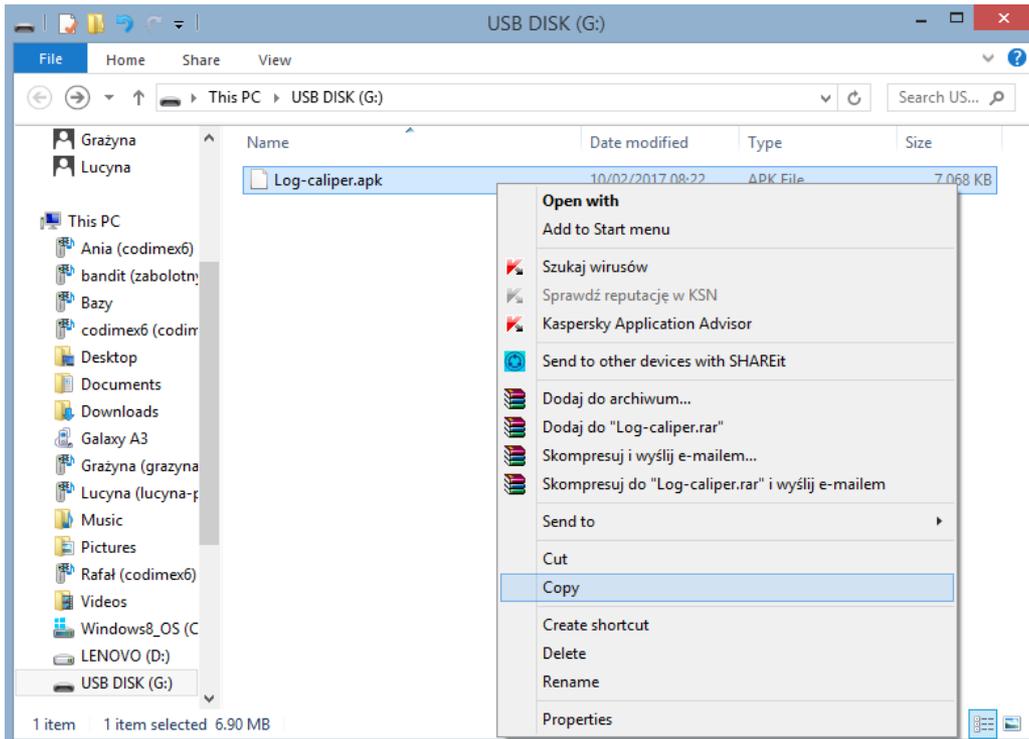
The file downloaded from the website.

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



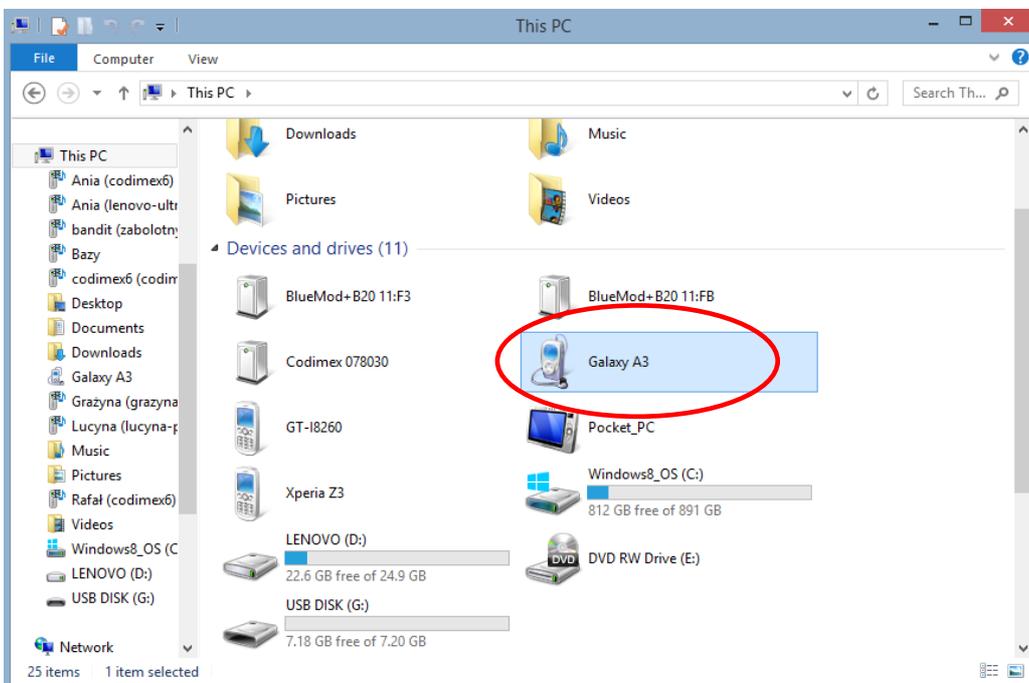
File on USB

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



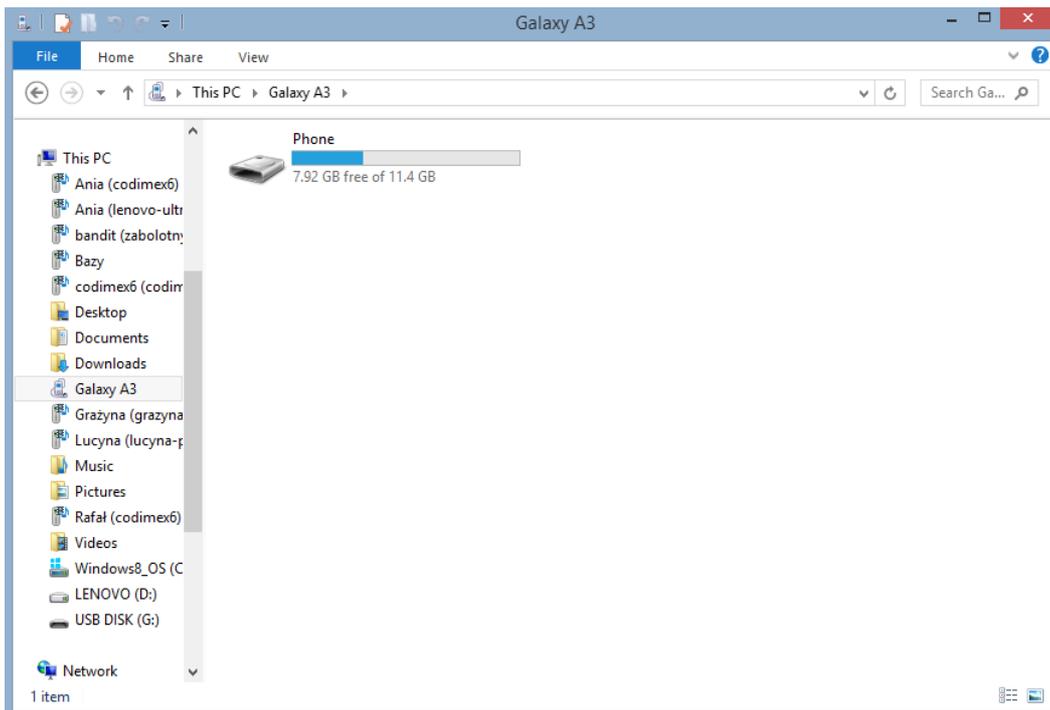
File on USB

2. In USB folder, find file "Log-caliper.apk". Copy it, close the window.

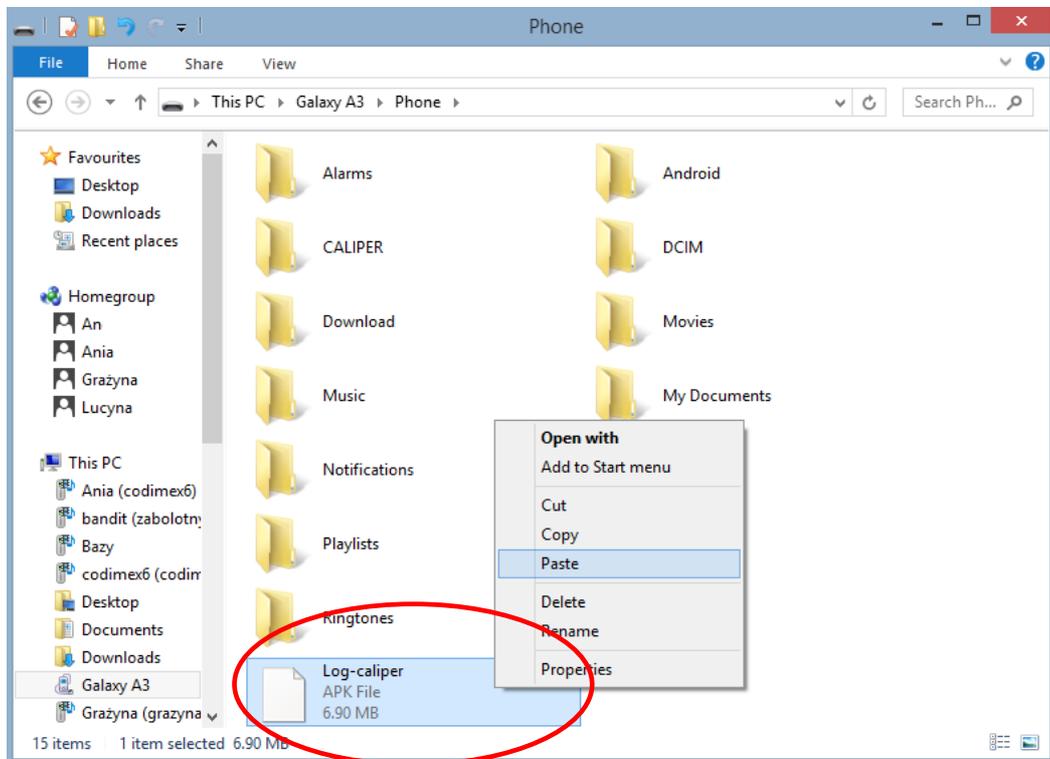


3. Connect smartphone to computer.

- Open on the desktop "My Computer."
- In "My Computer" folder find name of smartphone.
- Open the icon of smartphone.



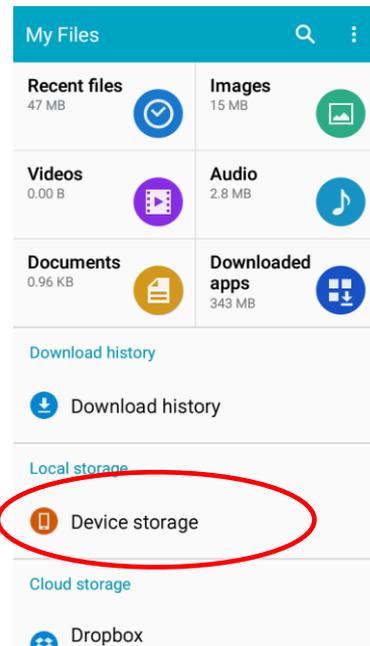
4. Enter the smartphone, open icon "Phone"



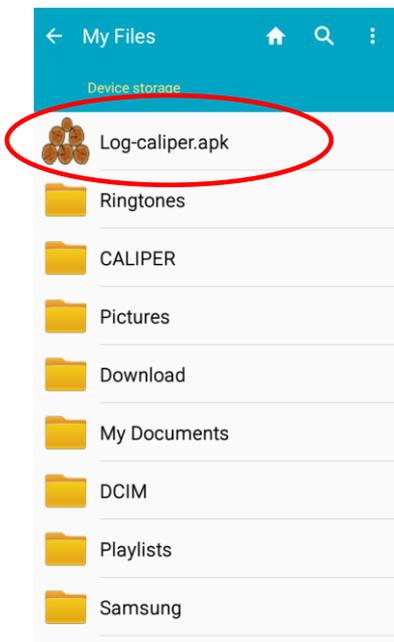
5. In the folder "Phone" paste installation file. Close the folder and disconnect the smartphone from the computer. Next steps on smartphone.



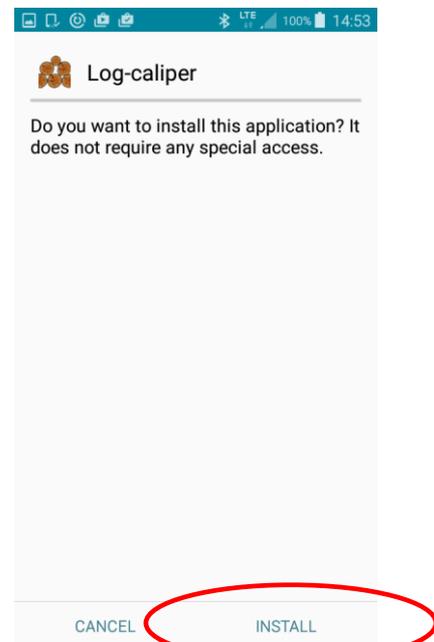
6. In main menu find the icon "My Files" and click on it



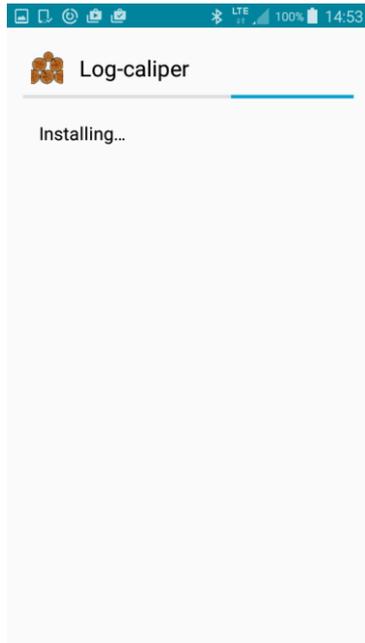
7. Click on „Device storage“



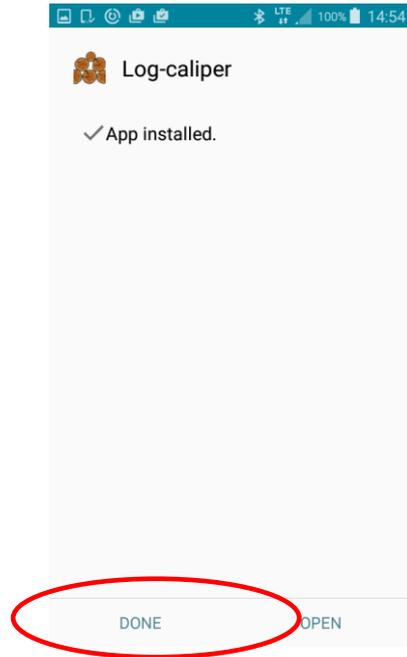
8. Find and click on icon „Log-caliper.apk“



9. Click „INSTAL“



10. Automatic installation

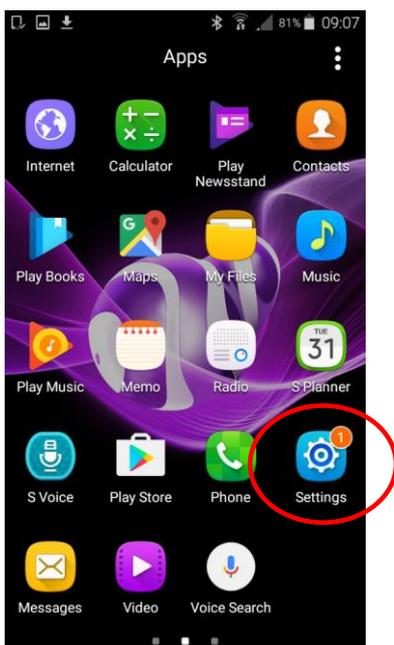


11. Installed application. Click "DONE"

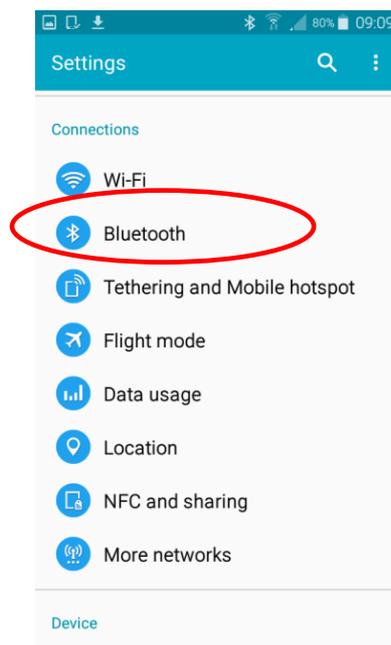
After installing the application, go to the main menu of your smartphone

Instruction to connect smartphone with caliper

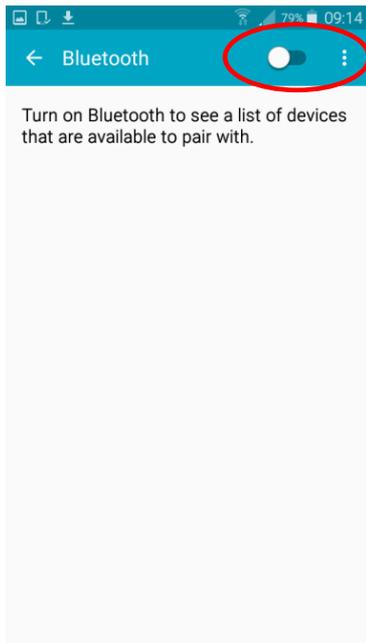
In order to connect the electronic caliper with smartphone using Bluetooth as the first turn on caliper and then perform the following steps:



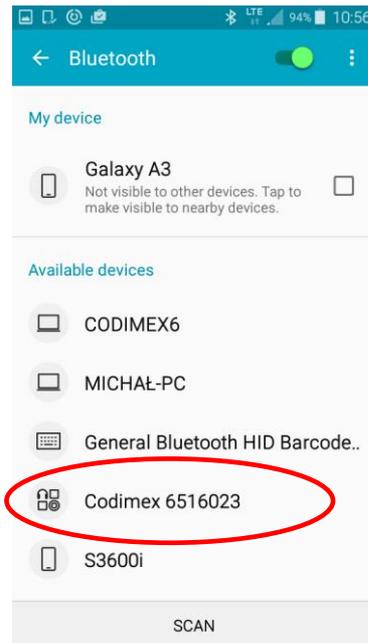
1. Click „Settings“



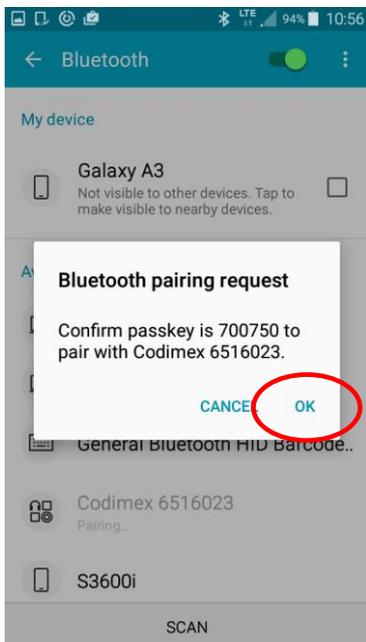
2. Click „Bluetooth“



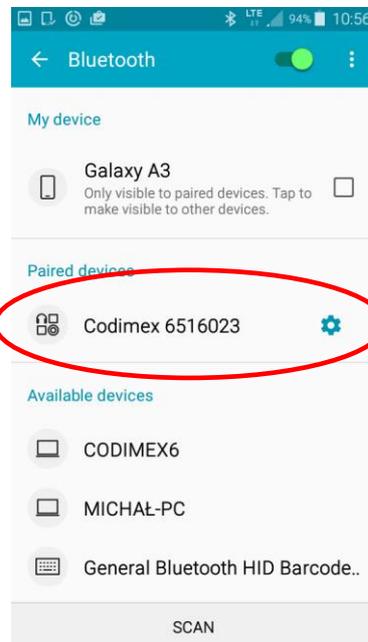
3. Turn on Bluetooth



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 is 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.

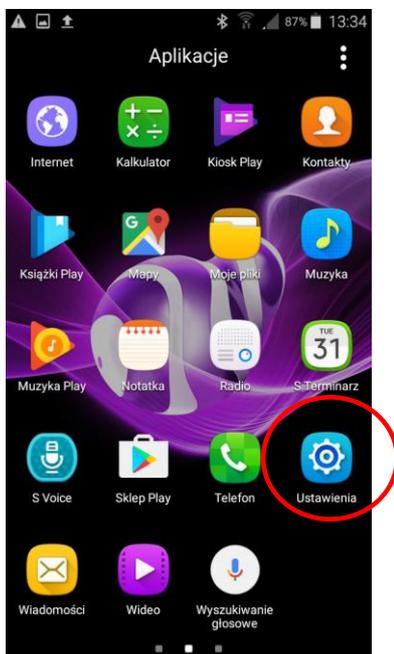
Manual to connect barcode scanner to smartphone



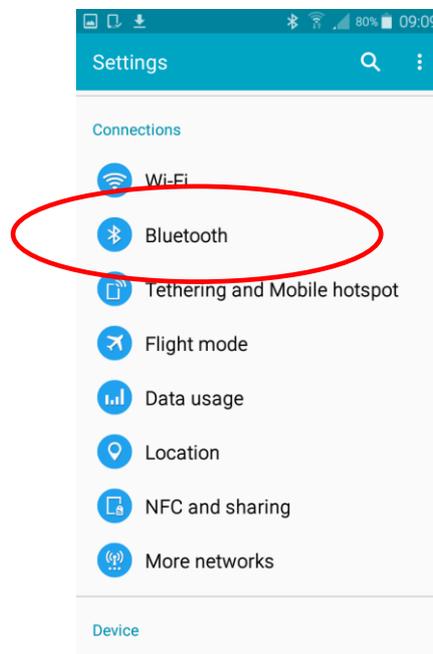
1. Turn on barcode scanner
(move in position „ON”)



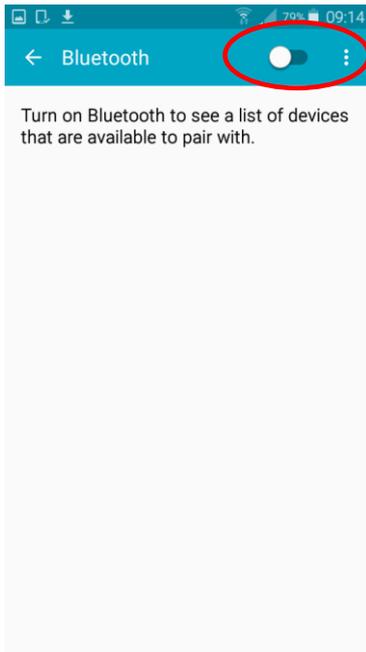
2. Circled side button press for 10
seconds



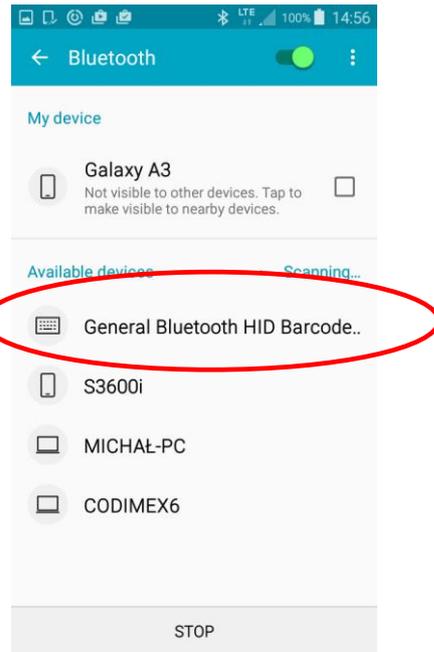
3. Go to settings in smartphone



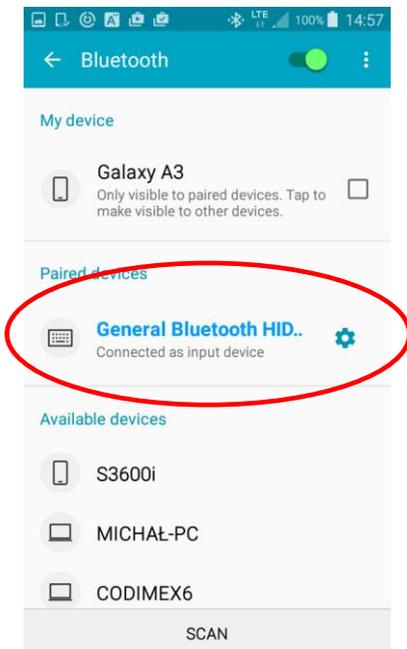
4. Open Bluetooth



5. Turn on Bluetooth

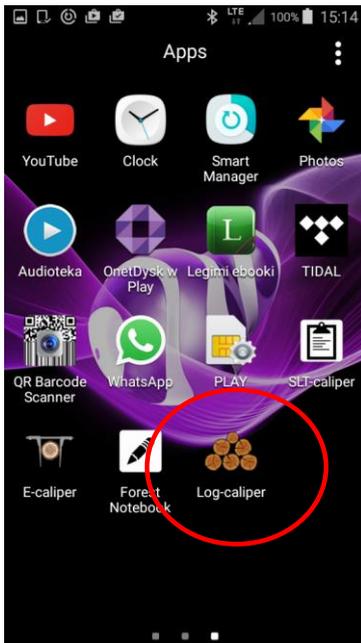


6. The scanner should be found under the name "General Bluetooth HID Barcode". Click on the name.

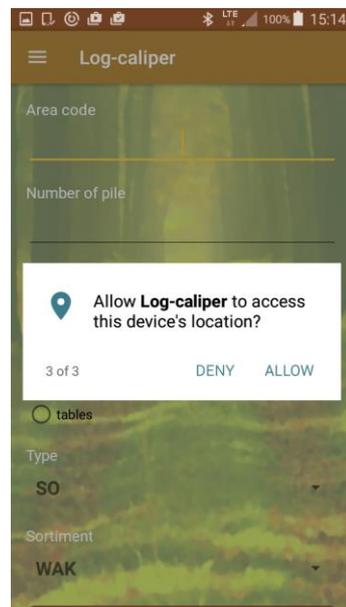
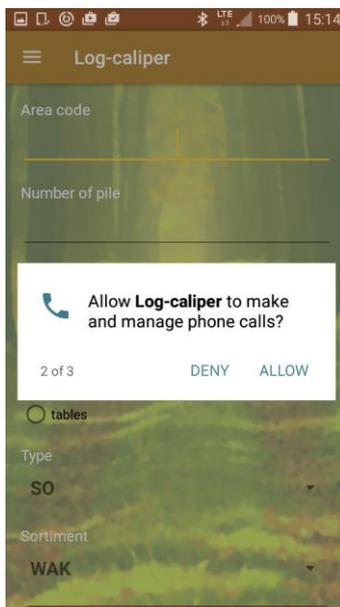
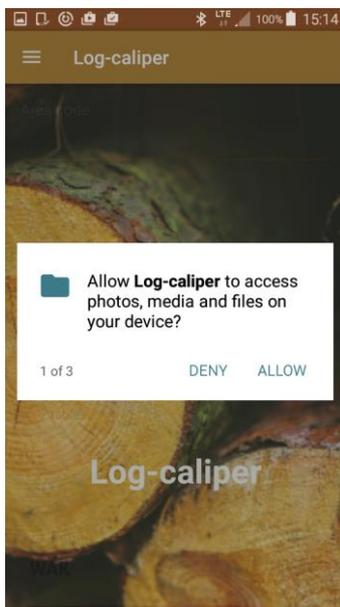


7. The scanner has been added to the list of connected devices and now is ready for work. Exit to smartphone main menu.

4.2 Start in application



Application icon "Log-caliper" find in the device menu, and then click to open the program.

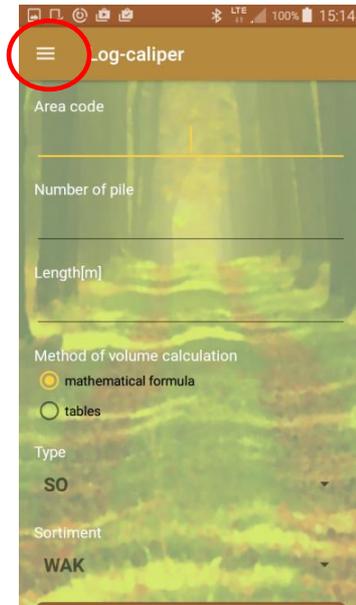


The first time turn on application Log-caliper, will see short messages about application permissions. In each window click on "ALLOW".

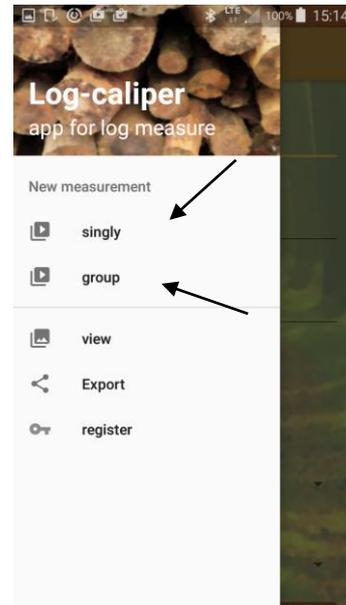
4.1.1. Preparing for measurements

Before starting work, user must select a measurement method;

- Singly
- Group



1. On the main screen click circled symbol (side menu)

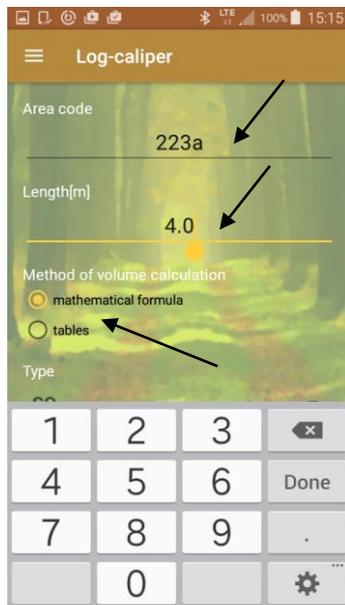


2. In side menu click measurement method (singly, group)

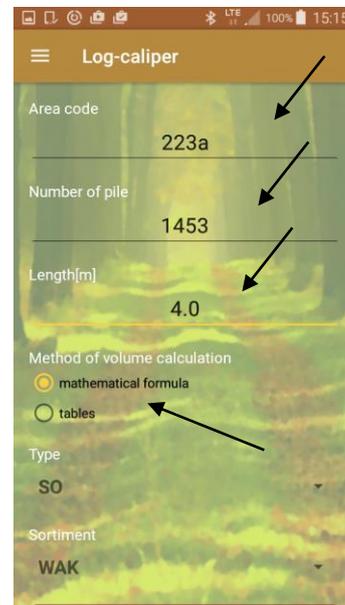
Next define the measurement parameters (use the smartphone keyboard):

- Area code
- Log length [m]
- Method of volume calculation (mathematical formula, tables)
- Type (species)
- Sortiment
- Number of pile (in group method)

3. To specify the area code, length, pile number, and the method of volume calculating click on the arrows and then enter the data. To hide the keyboard, click the „back button” on your smartphone.

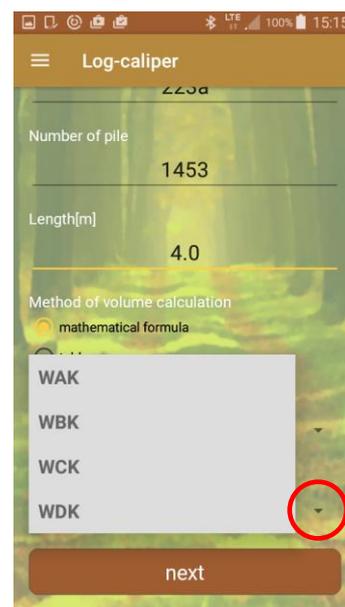
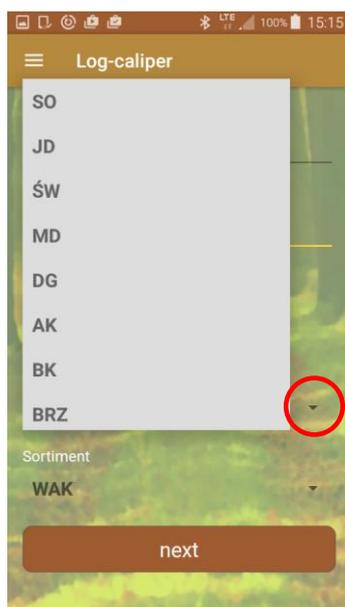


„Single” method measurement
(example data)



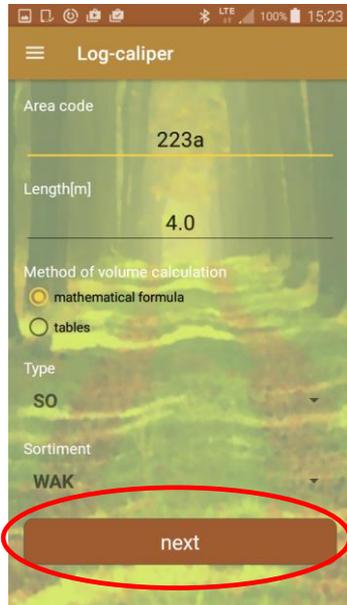
„Group” method measurement
(example data)

4. To specify the species and sortiment, click on the circles buttons and then select from the list (scrollable list, photos below)

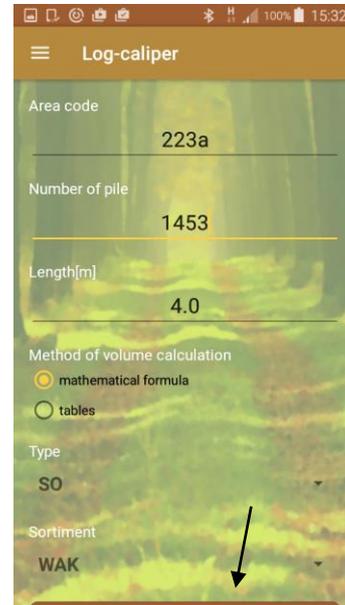


Choice of species and sortiment, regardless of method

5. When have defined all the measurement parameters, click „next" (to hide the smartphone keyboard click the „back button" on your smartphone)

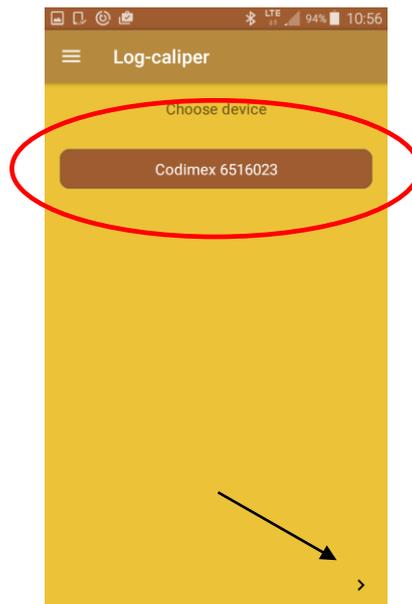


„Single" method measurement
(example data)



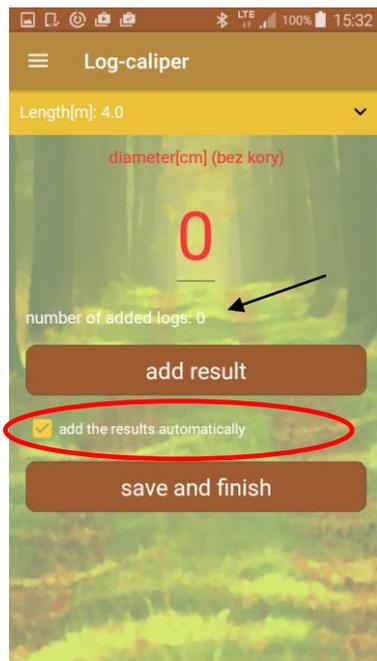
„Group" method measurement
(example data)

6. Click on the name of the electronic caliper to which you previously connected your smartphone. If you want to enter data manually, click on the arrow symbol.



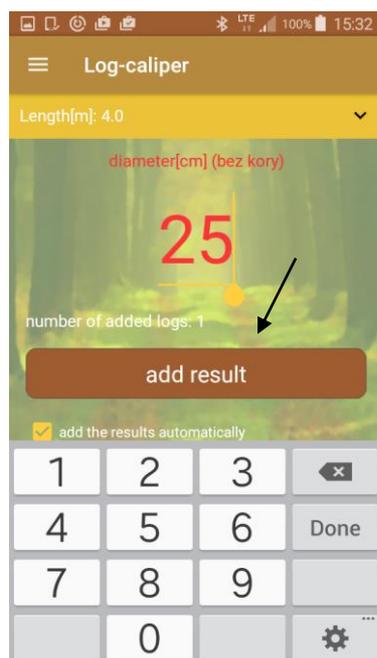
4.3 Measurements

Measurement results can be sent via the Bluetooth module from an electronic caliper or entered manually from a smartphone keyboard. The accuracy of the measurement on the caliper is 0.5 cm, but the result sent to the application is rounded down to the full value (20.5 cm → 20.0 cm).



By selecting the „add the results automatically” option, application will automatically add next received measurements sent from the electronic caliper. Deselecting this option requires from user to confirm adding a new measurement by clicking „add result” on the smartphone screen.

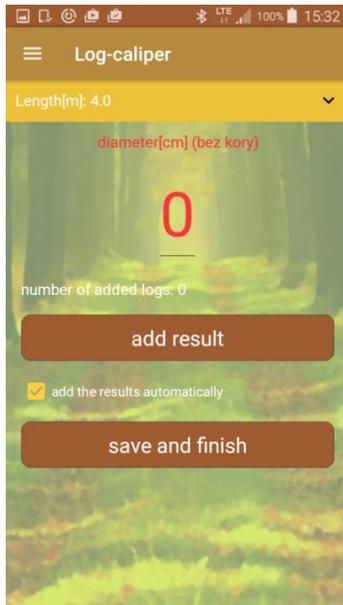
The number of logs added is displayed above the "add result" button (pointed by arrow).



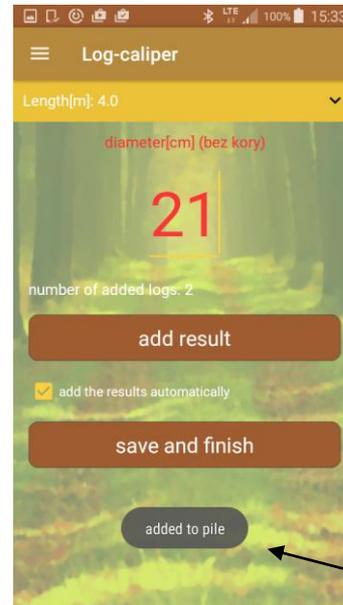
To add a measurement result from the smartphone keyboard, click on the location of the displayed measurement. When entered the value, click "add result".

4.3.1 Group method

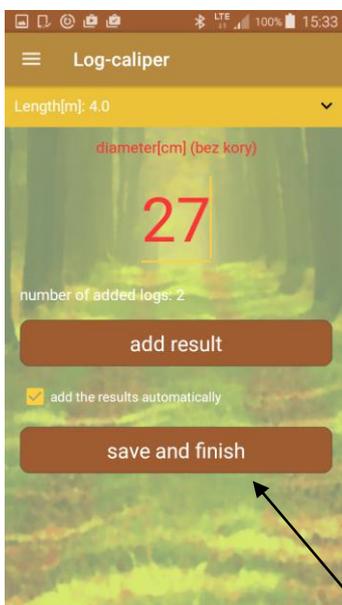
During measurement with „group” method user must only enter diameter size of particular logs. Measurement result is send via Bluetooth from electronic caliper to application. Can be also entered manually.



1. Result of measurement of front log diameter sent from caliper by pressing once button „▶”, or enter manually. After manual adding always click „add result”.



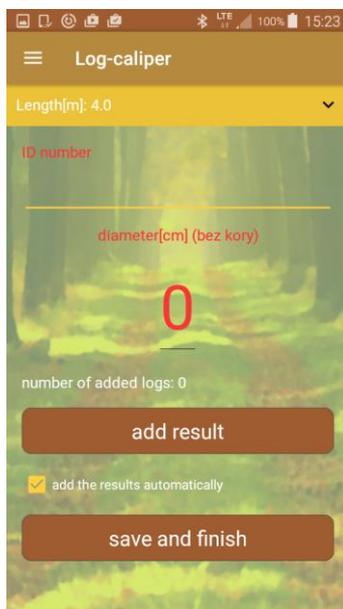
2. The value of sent measure is displayed on screen (21cm). Confirmation of adding values is displayed under the "save and finish" button for 3 seconds (added to pile!). To add another measurement repeat the operation with point. 1



In order to complete measurements and save data, click on "save and finish".

4.3.2 Single method

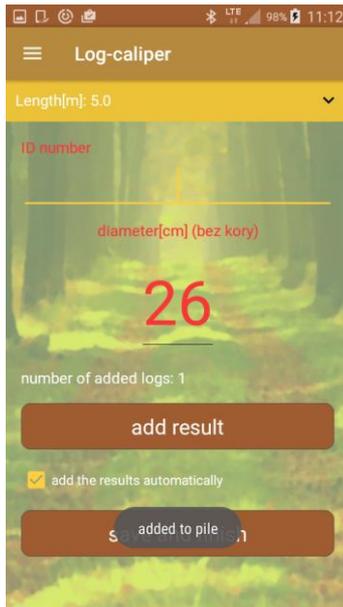
When using a „Single” method, the number of each new log must be entered before measuring the diameter. The log number can be entered manually or with a barcode scanner. To enter a number using barcode scanner, prepare it according to the instructions in chapter 4.1. Then on smartphone click on the ID number field and on the scanner press once the side key (big yellow) to scan the barcode on wood marking tag. The „Log-caliper” application is programmed so that it is impossible to save two logs of the same number into memory.



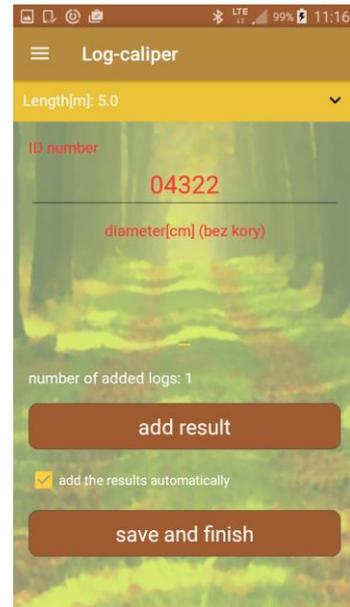
1. Main screen in „single” method measurement



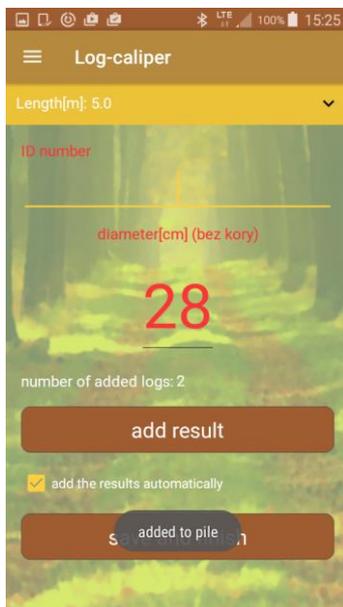
2. First enter the ID number (manually or using the scanner). Next send result of log diameter by pressing button "►" on caliper, or enter manually from smartphone keyboard. After manual adding always click „add result”



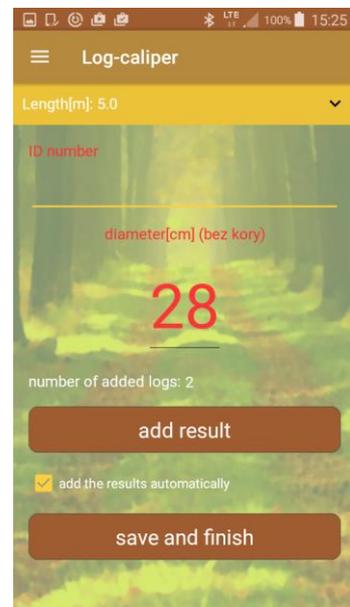
3. The added value will be displayed and the log ID number will be removed. Confirmation of adding value is displayed under the „save and finish” button for 3 seconds (added to pile!).



4. To add a new measurement should re-enter the new ID number and then send value of measurement from electronic caliper by pressing button „▶” to application, or enter manually.



5. The added value will be displayed and the log ID number will be removed. Repeat the steps to add more measurements.



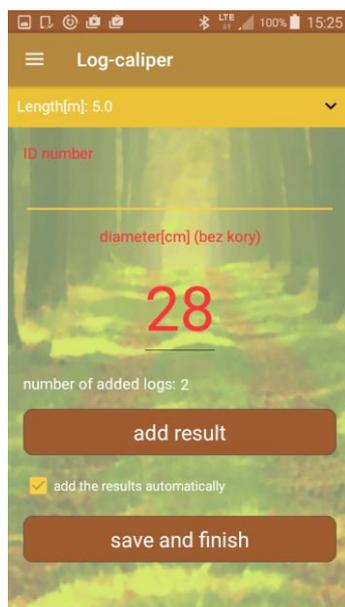
6. To end and save the measurements, click "save and finish".

4.4 Summary of measurements

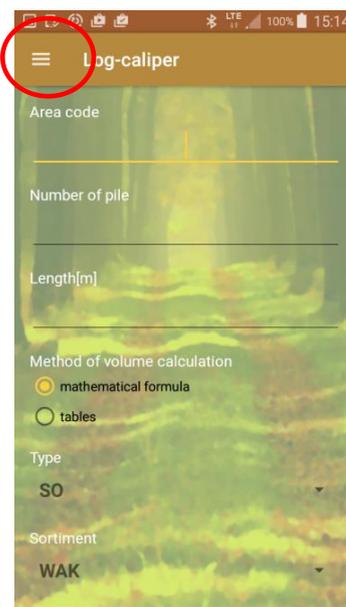
4.4.1 Verification of measurements

To verify the accuracy of the recorded measurements or to check the results of the work (the number of measured logs or the sum of volume in thickness classes), do the following:

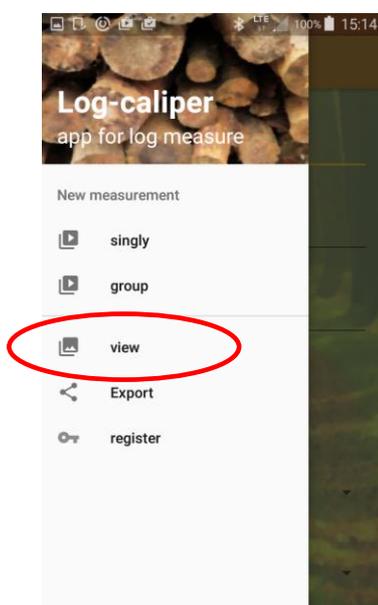
During measurements:



1. Click „save and finish” (after last measure, regardless of measure method)

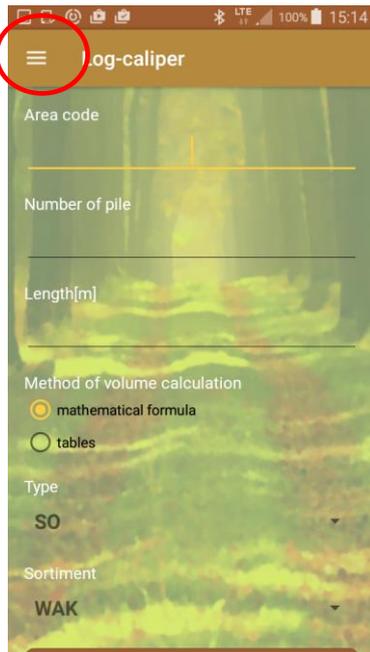


2. Go to side menu

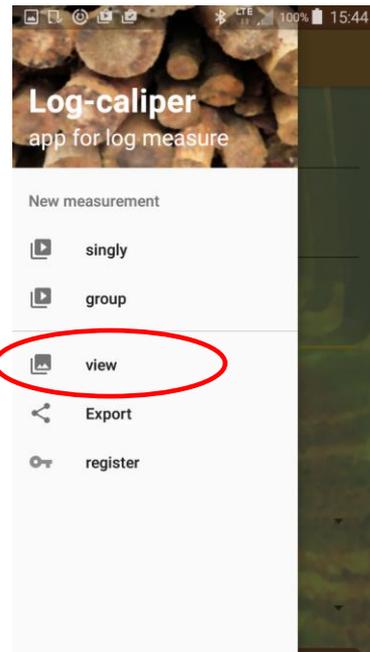


3. In side menu click tab „view” (next steps from photo no. 6)

After turned on application



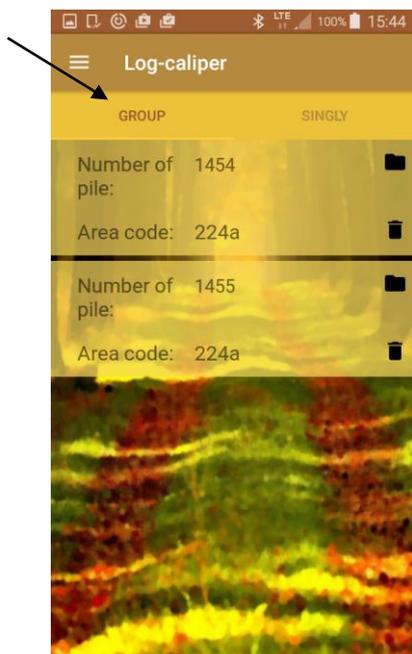
4. Go to side menu



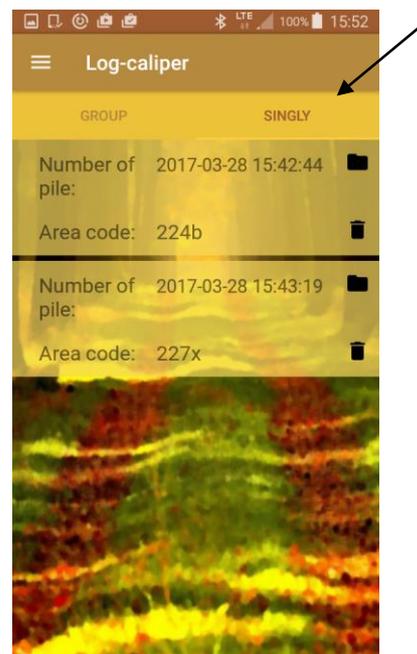
5. . In side menu click tab "view"

Next steps in „view” tab:

To change the displayed measurements (depending on the measurement method), click on one of the tabs (pointed with arrows).

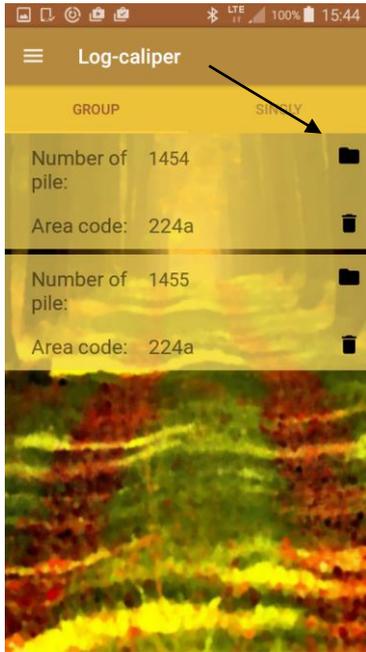


6. Saved measurements in „group” method

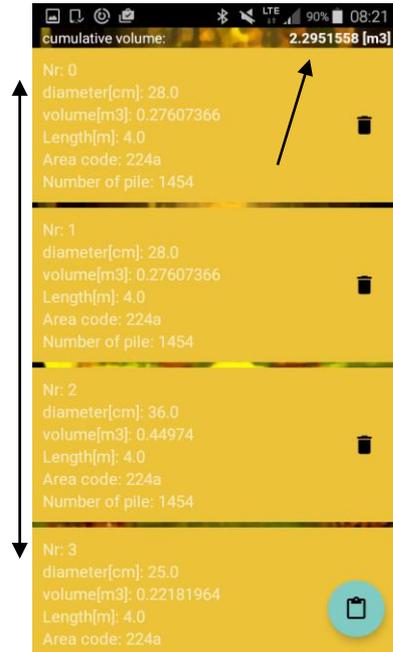


7. Saved measurements in „single” method

To verify correct of saved measurements and summary:



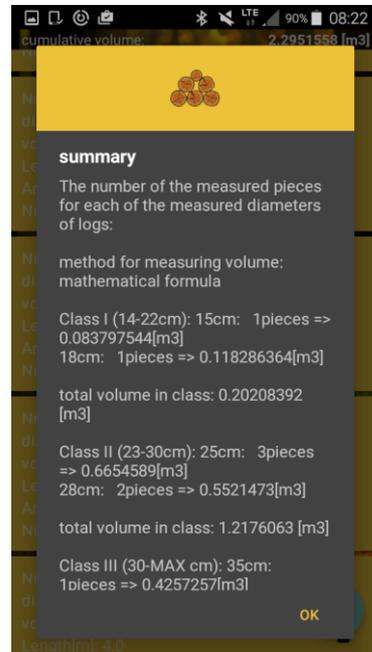
1. Click pointed symbol (regardless of method)



2. Check the saved data, total volume, (list can be scrolled)



3. Click pointed symbol (regardless of method)

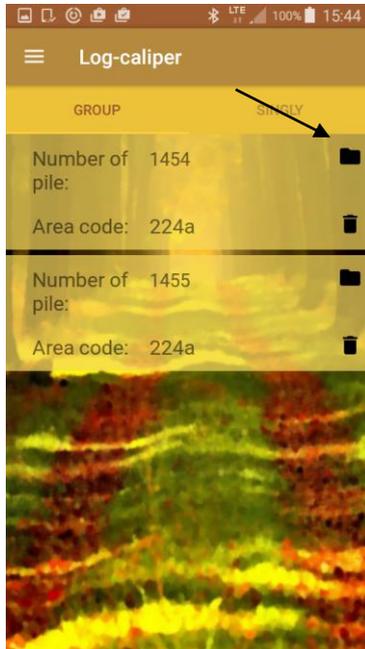


4. Check summary, (list can be scrolled). To go back click "OK"

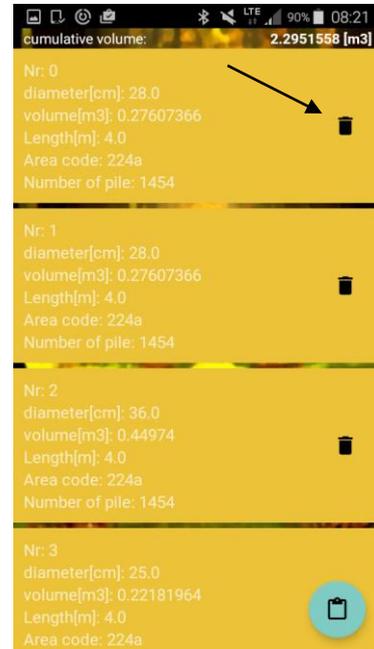
To exit the review of recorded measurements (photo 3), click the „back button” on the smartphone.

4.4.2 Removal of measurements

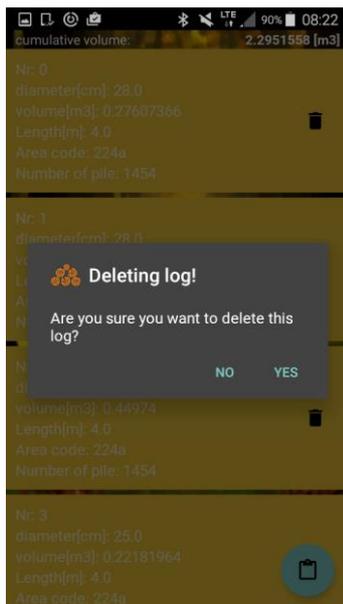
To remove wrong single measurements follow these steps:



1. Find the required pile number, click on the pointed symbol



2. Find the measurement to remove, click pointed trash symbol

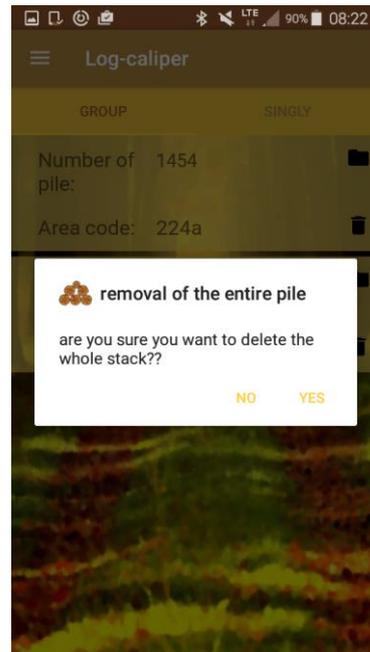


2. Confirm the deletion, click „YES“



4. Measurement removed

To remove the entire pile do the following:



1. Find the required pile number, click pointed trash symbol

2. Confirm the deletion, click „YES"



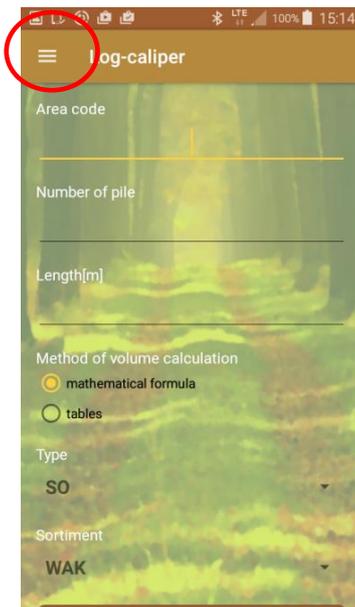
4. Measurement removed

4.5 Export data

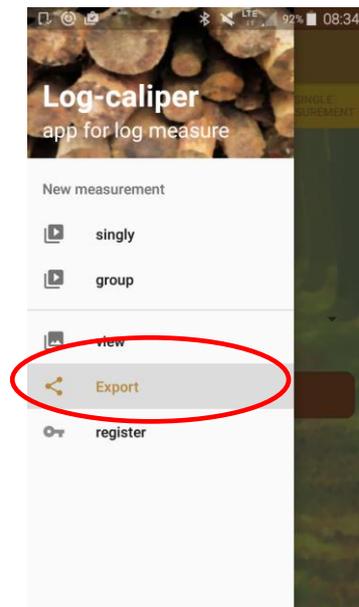
The „Log-caliper" application allows to export data in two ranges;

- No distinction between measurement methods, aggregate data;
- Differentiating between measurement methods, from individual pile numbers.

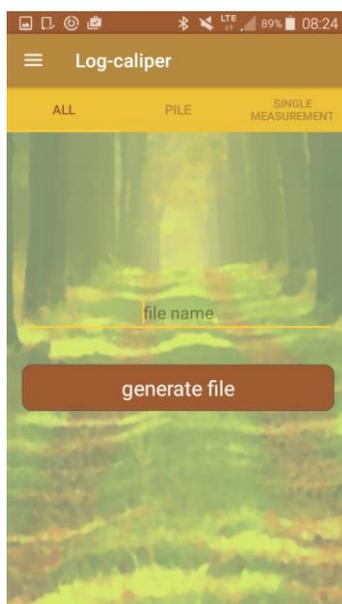
To export data without distinction to measurement methods:



1. Go to side menu



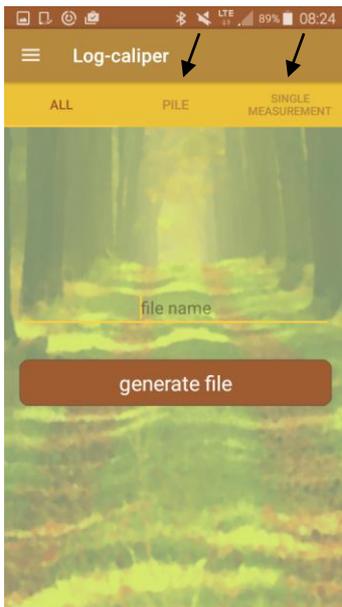
2. In side menu click tab „Export"



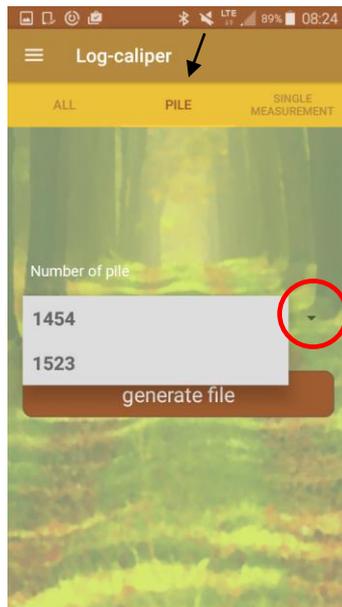
3. Enter any file name, click "generate file".

Location of the exported file described in chapter 4.5.1

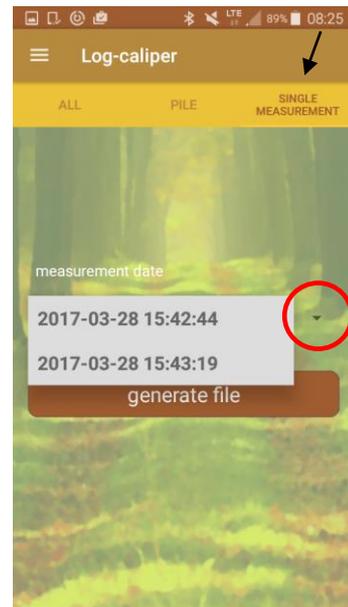
To export data from single pile numbers::



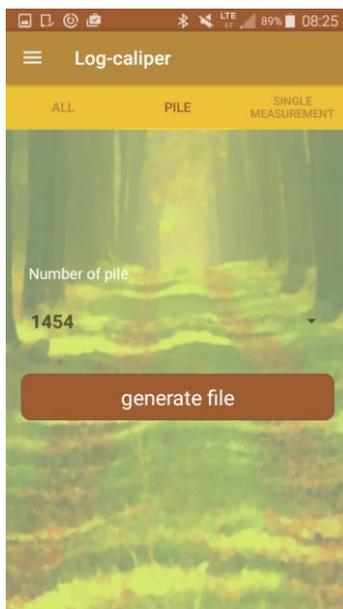
1. Select the measurement method from which you want to export the data



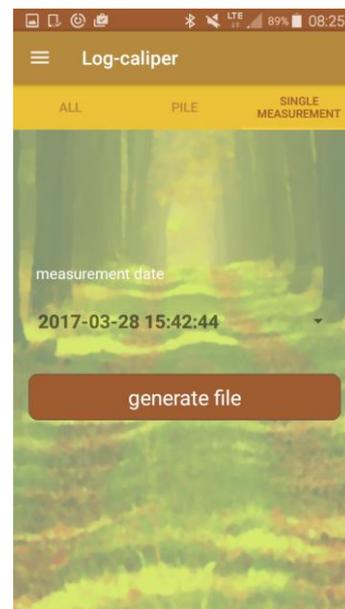
2. Click the circled symbol, select pile number to export, (group method)



3. Click the circled symbol, click date and hour of measurements (single method)



4. Click "generate file" (group method)

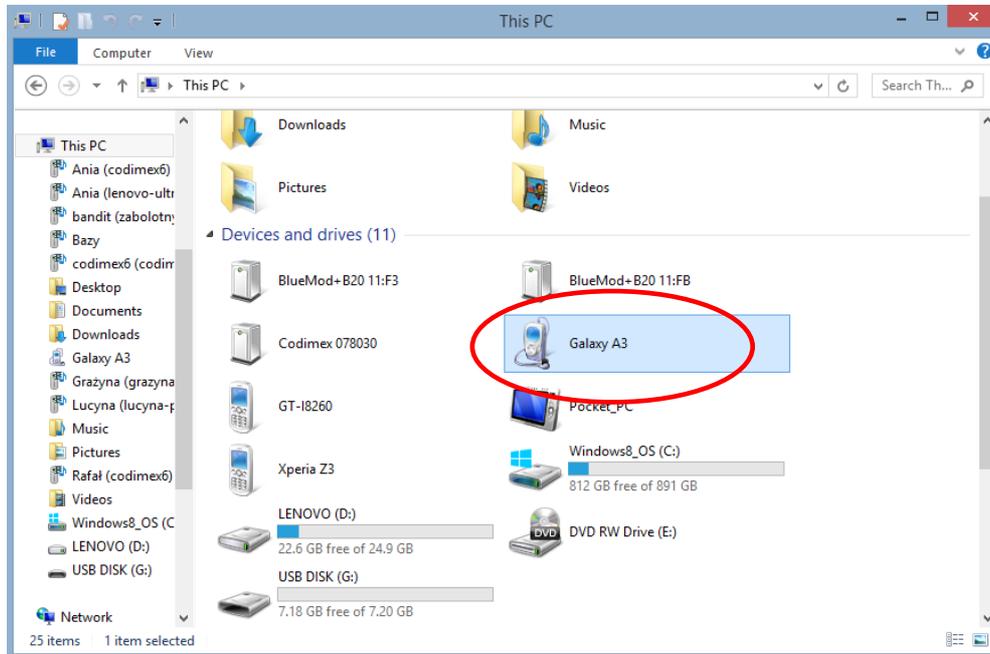


5. Click "generate file" (single method)

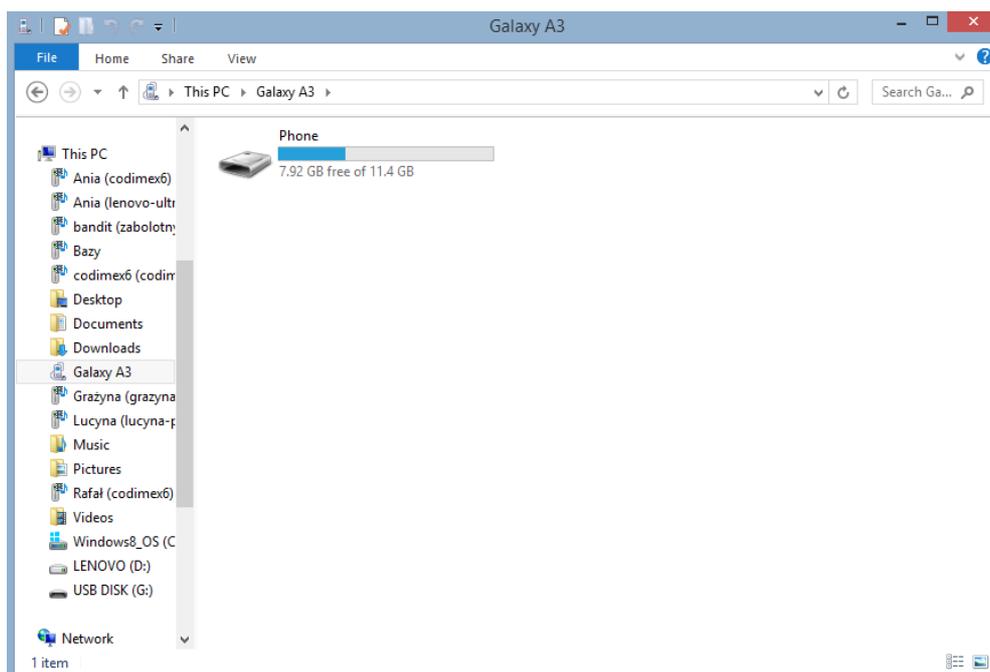
Location of the exported file described in chapter 4.5.1

4.5.1 Location exported files

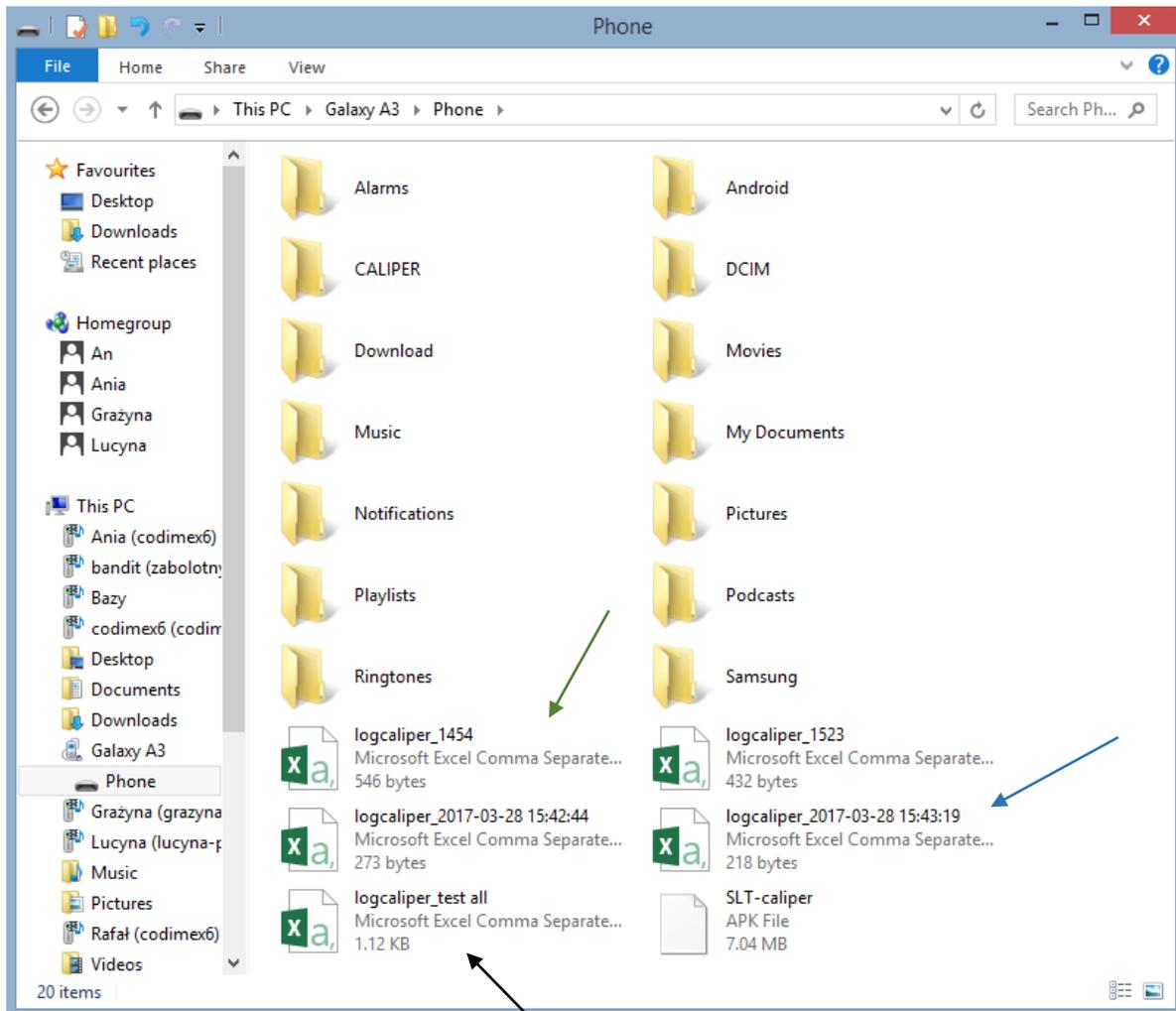
To locate and copy the exported files follow the steps:



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.

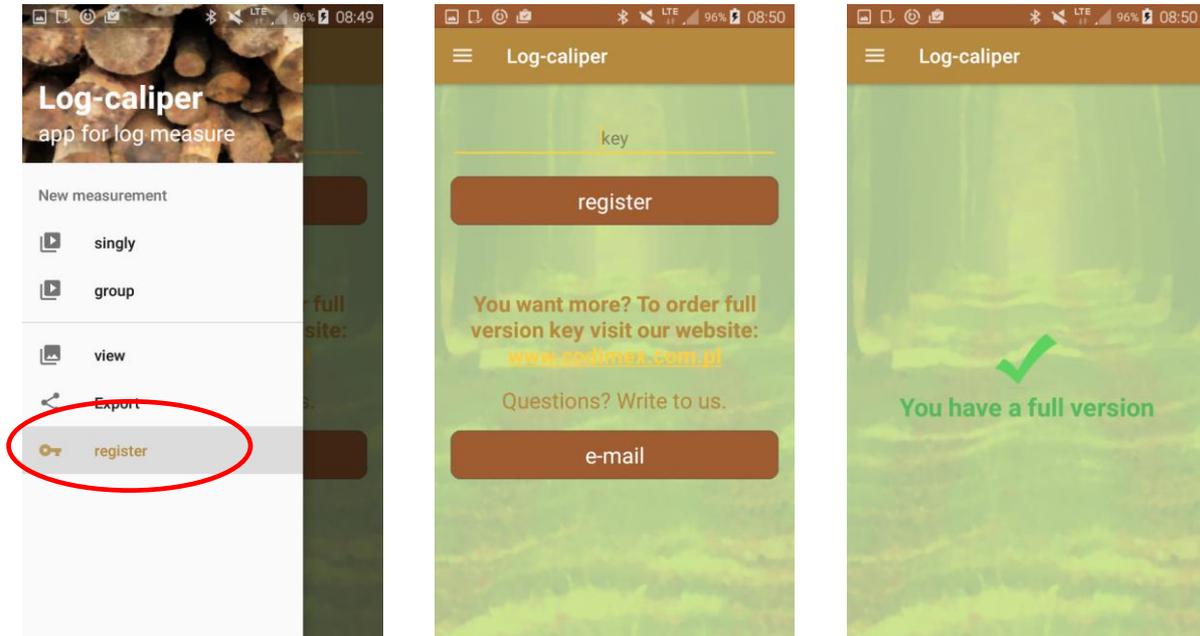
Exported files without division into measurement methods (all measurements in one file) are named "logcaliper_", and the second part is a name that has been given during export process in application. Here name „logcaliper_test all”.

The exported files with the distinction for measurement methods are named in group method "logcaliper_" and second part is ID number (here: logcaliper_1454;1523), and in „single” method also named „logcaliper_" and second part is date and hour of measurement. General second parts of names are the same as in application during export process.

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.

4.6 Activating full version



1. In side menu click „register”

2. Enter licensed key, click „register”

3. Key correct

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.

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