

WATCH ANALYZER

• USER GUIDE •

CONTENTS

PAGE 3
GENERAL INFORMATION

PAGE 4
INSTRUCTIONS
INSTALLING THE APPLICATION
WATCH POSITIONING

PAGE 5
ACTIVATION

PAGE 6
USE

PAGE 7
QUICK MEASUREMENT

PAGE 8
COLLECTION

PAGE 9
CALIBRATION

PAGE 10
FEATURES

PAGE 11
WARRANTY
MANUFACTURER'S WARRANTY
WARRANTY RESTRICTIONS
LIABILITY

GENERAL INFORMATION

WATCH ANALYZER, EXPERIENCE YOUR WATCH

Watch Analyzer is a instrument that enables you to make a full check up of your mechanical watches, made up of an Android or iOS application and a watch stand with an integrated electronic measuring system.

PACKAGE CONTENTS

- One watch stand
- One connecting cable
- One user guide with the activation code
- One carrying case

Watch Analyzer allows you to measure several of your watch's key elements:

Frequency : The number of vibrations produced by the watch's balance per hour. The higher the frequency, the more precise the balance. The vibrations made by the balance produce a watch's ticking. Frequency is measured in a/h (alternance per hour).

Rate variation : The rate performance indicates the deviation of your movement, running either too fast or slow, in seconds per day. For the record, a chronometer certified by the COSC should have an average rate of between -4 and +6 seconds per day. The rate is measured in s/d (seconds per day).

Beat error : Indication of an asymmetrical oscillation of the balance wheel. A "perfect" movement should have a beat error of 0ms, and if it doesn't, the balance wheel is oscillating further in one direction than in the other. The beat error is measured in ms (milliseconds).

Amplitude (of the balance spring): The amplitude values of today's watches are around 270° - 310°. With age, the lubricants break down and this value progressively decreases over time. The amplitude is measured in ° (degrees).

Lift angle: When listening to the sound produced by a watch, we only hear its ticking. However, the sound of a watch's beat is more complex and each "tick" is made up of three different pulses. The angle that the balance wheel travelled between the first and third noise is called the "lift angle". The lift angle is a geometric feature of a movement and is used to calculate the balance wheel's amplitude.

If you don't know the lift angle of your movement, you can find it thanks to the link below:

<http://www.lepsi.ch/lift-angle/>

INSTRUCTIONS

FIRST TIME USE :

PREPARING FOR MEASUREMENT (ONLY TO BE DONE ONCE) :

- Install the application on your tablet/smartphone.
- Calibrate your tablet/smartphone (see page 9).

START MEASURING

- Place the watch on the Watch Analyzer stand.
- Connect the stand to your mobile device using the 3.5 mm cable provided.
- Using your mobile device, click on *quick measurement* and then click *start*
- After 30 seconds, it's finished. All that's left for you to do is read the results of the measurement.

INSTALLING THE APPLICATION

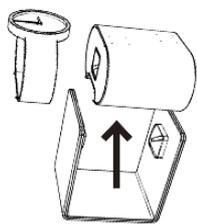
IOS INSTALLATION (IPHONE, IPAD, IPOD)

Log in to the Apple Store, search "LEPSI Watch Analyzer", and install the application.

ANDROID INTALLATION

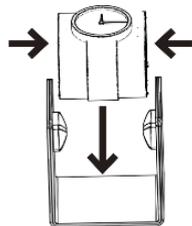
Log in to the Google Play Store, search "LEPSI Watch Analyzer", and install the application.

POSITIONING THE WATCH



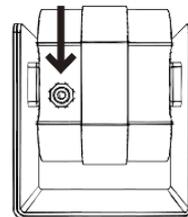
- 1 -

Take the cushion from the stand, attach the watch on the cushion



- 2 -

Squeeze the sides of the cushion to easily place it back in the stand



- 3 -

Plug the cushion to your mobile device using the 3.5mm cable provided

ACTIVATION

Before running the application, you need to activate the application on your mobile device.

TO RUN THE ACTIVATION, YOUR MOBILE DEVICE MUST BE CONNECTED TO THE INTERNET.

To activate the application you need to enter the code given with your Watch Analyzer.

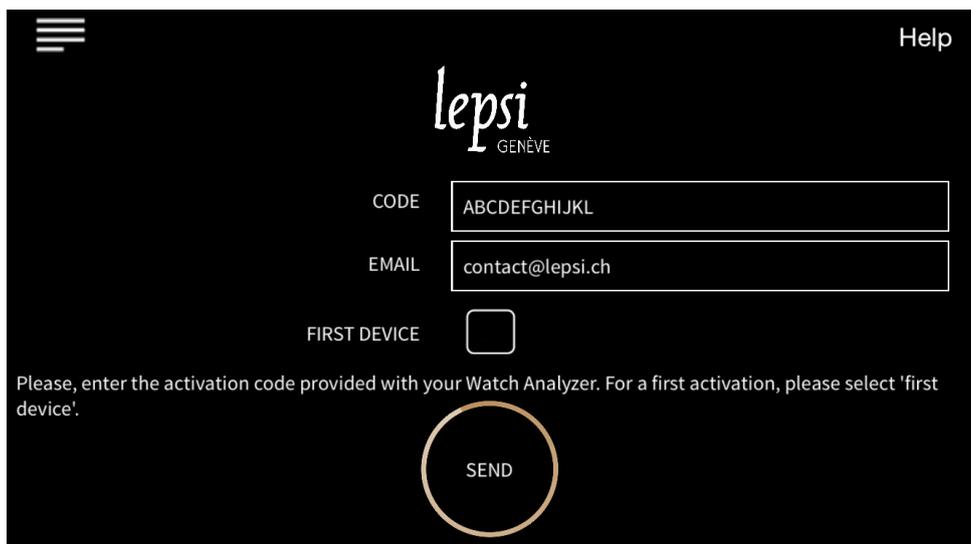
1 - FIRST DEVICE TO BE ACTIVATED

- Make sure the check button "First device" is ON.
- Enter the activation code given with your Watch Analyzer.
- Click on *Send*.
- A message box will appear : Enter and confirm your Email address. Please, make sure you enter a valid email. This address will be asked for further installation on other devices.

2 - ACTIVATION ON OTHER DEVICES

- Make sure the check button "First device" is OFF.
- Enter the activation code given with your Watch Analyzer.
- Enter the email address used for the first activation.
- Click on *Send*.

In case of troubles, you can contact us at : contact@lepsi.ch



The screenshot shows the activation interface for the 'lepsi' application. At the top left is a hamburger menu icon, and at the top right is a 'Help' link. The 'lepsi' logo is centered, with 'GENÈVE' written below it. There are two input fields: 'CODE' containing 'ABCDEFGHIJKL' and 'EMAIL' containing 'contact@lepsi.ch'. Below these is a 'FIRST DEVICE' checkbox, which is currently unchecked. At the bottom, there is a large circular 'SEND' button. A message at the bottom of the screen reads: 'Please, enter the activation code provided with your Watch Analyzer. For a first activation, please select 'first device'.'

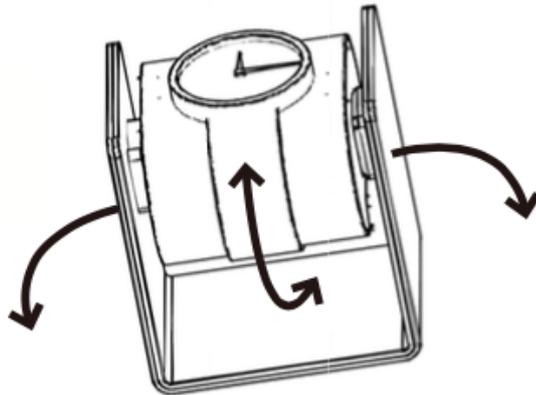
SIX MEASURING POSITIONS

THE CUSHION ROTATES 360°. FOUR NOTCHED POSITIONS ARE POSSIBLE:

- Dial on top
- Dial underneath
- Crown on left
- Crown on right

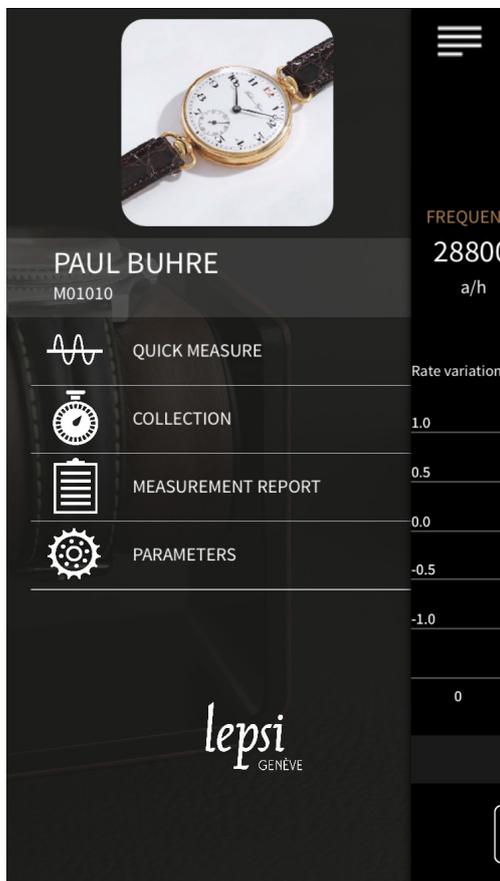
INVERTING THE STAND, TWO POSITIONS:

- Crown on top
- Crown underneath



MENU

You can access the menu with clicking on the top left icon, or with sliding your finger from left to right on the screen.



0 - YOUR WATCH

Click on your watch for a direct access to all its information.

1 - QUICK MEASUREMENT

Allows quick measurement without configuration.

2 - COLLECTION

This feature allows you to save your watches' measurement results, allowing you to keep track of your collection over time.

3 - MEASUREMENT REPORT

Create a complete report of your watch that you can print or share via email.

4 - PARAMÈTRES

Connectez votre tablette à internet et laissez le Watch Analyzer se calibrer grâce aux horloges atomiques du monde entier.

QUICK MEASUREMENT

STARTING A MEASUREMENT : Click *Start* and let the application do the rest.

STOPPING A MEASUREMENT : In the normal mode, the measurement will stop automatically. In the continual analysis mode, you need to click *Stop*.

Lift angle : The lift angle is a characteristic of a watch's calibre. This angle is used to calculate the amplitude. For most calibre this angle is around 50° and is provided by the watch manufacturer. To precisely measure the amplitude, enter the lift angle of the calibre being measured.



1 - WATCHMAKER DASHBOARD

Bring together all the important information necessary to check the accuracy of your watch:

Frequency (a/h)

Rate variation (s/d)

Beat error (ms)

Amplitude (degrees)

2 - LIFT ANGLE

Choose the right lift angle according to your watch or let 52°.

3 - DURATION

Select the desired measurement time:

10s, 30s, 45s, 60s, 120s.

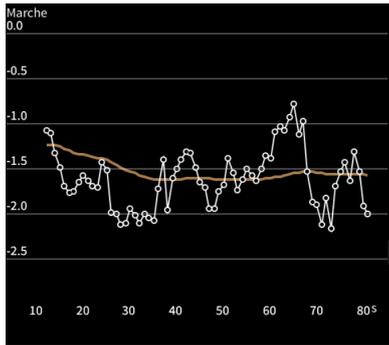
The higher the duration, the more precise the measurement.

4 - SIX MEASUREMENT POSITIONS

Watch Analyzer allows you to save the performance results in each of the 6 positions: Dial up/down, Crown left/down/right/up.

5 - START A MEASUREMENT

Click *Start*



CHART

In the *continual analysis* mode, a chart will appear that allows you to determine the rate performance of your watch in real time.

Normal curve : Average rate performance of the watch.

Dotted curve : Current rate of the last 10s, 30s, 45s, 60s and so on, according to the selected duration.

COLLECTION

Using this mode, you have the possibility of measuring your whole collection and obtaining a complete history of measurements for each watch. The purpose of this function is to detect if a malfunction occurs over time. To add a new watch, select + at the top right of the screen.

| DATE | RATE VARIA... | AMPLITUDE | BEAT ERROR |
|--------------------|---------------|-----------|------------|
| 3 août 2015 18... | -3.3 s/d | 289 ° | 0.0 ms |
| 13 juil. 2015 1... | 2.2 s/d | 268 ° | 0.6 ms |
| 13 juil. 2015 1... | -35.0 s/d | 125 ° | 6.3 ms |
| 13 juil. 2015 1... | -22.0 s/d | 149 ° | 4.6 ms |

1 - MEASURE YOUR WATCH

To measure the watch, just click on:



2 - PICTURE OF THE WATCH

Two possibilities, take a photo using your mobile device or choose an existing photo..

2 - AVERAGE RATE PERFORMANCE OF THE WATCH

Calculation of the average rate performance of the watch.

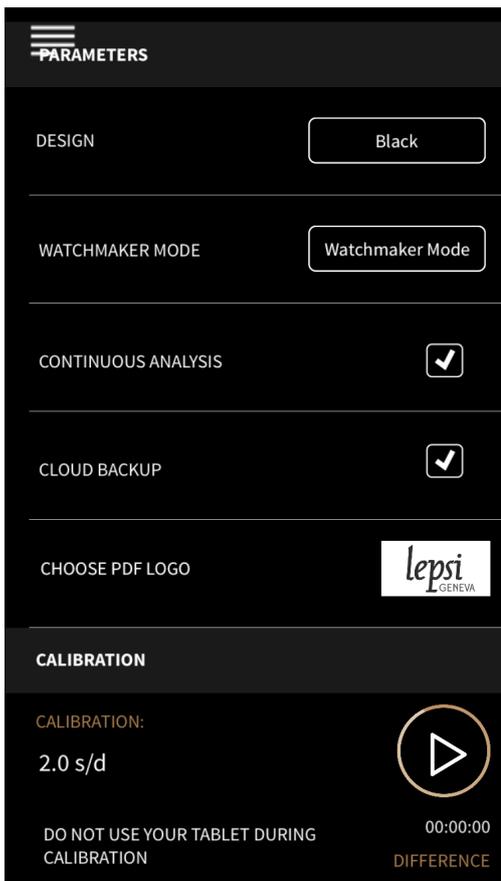
4 - CONSULT MEASUREMENT HISTORY

To see the overview of all your measurements for each orientation.

CALIBRATION

Watch Analyzer is connected to atomic clocks in order to test and calibrate its time base. This way, the Watch Analyzer guarantees exceptional measurement quality up to the highest standards of professional horologists.

To do this, simply connect your mobile device to the internet and begin the calibration by clicking *Start*.



1 - DESIGN (IOs)

Choose your favorite background color.

2 - WATCHMAKER MODE

Standard: The rate variation only is shown.

Watchmaker: All the function of the watch (rate variation, beat error, amplitude, frequency) are shown

3 - CONTINUOUS ANALYSIS

Analysis does not stop, useful for checking rate performance over a long period.

4 - CLOUD BACKUP

Save your data on our cloud when changing device.

5 - CHOOSE LOGO PDF

Choose the logo of the watch report to personalize it.

6 - CALIBRATING YOUR MOBILE DEVICE

To obtain a precise measurement, calibrating your Watch Analyzer is IMPERATIVE. Connect to the internet, start the calibration and wait 30 minutes or 3 hours (select your calibration mode). You only need to do this for first time use or if you ever reinstall the system.

FEATURES

COMPATIBILITY

iOS 8.2 and higher (iPhone, iPad, iPod touch)
Android 4.4 and higher

MEASUREMENT

Automatic vibration detection: 14,400 - 36,000 a/h
Rate performance: 0.1 s/d resolution
Amplitude: 1° resolution
Beat error: 0,1 ms resolution
Calibration via atomic clocks

WEIGHT AND DIMENSIONS

250g
73x60x80mm

CONNECTORS

4 poles - Jack 3,5 mm

MATERIALS

«U» stand: steel epoxy paint, 304L polished stainless steel
Cushion: bullhide leather
Carrying case: cotton

WARRANTY

MANUFACTURER'S WARRANTY

Watch Analyzer is guaranteed for 3 years after the purchase date against all manufacturing defects. The warranty is only valid upon presentation of proof of purchase or a valid receipt.

WARRANTY RESTRICTIONS

Damages due to normal wear and tear such as scuffs, scratches, marks, cuts, colour fading, etc. are not covered by the warranty.

Damages caused by misuse or improper use of the product such as mishandling, shock, breakage, etc. are not covered by the warranty.

Damages caused by using the product in poor environment conditions such as humid places, exposure to water, to vibrations or to sources of high heat, etc. will not be covered by the warranty.

LIABILITY

LEPSI may in no case be held responsible for harm caused by misuse of the Watch Analyzer measurement system or for damage caused to watches, goods or people.

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For more information
www.lepsi.ch