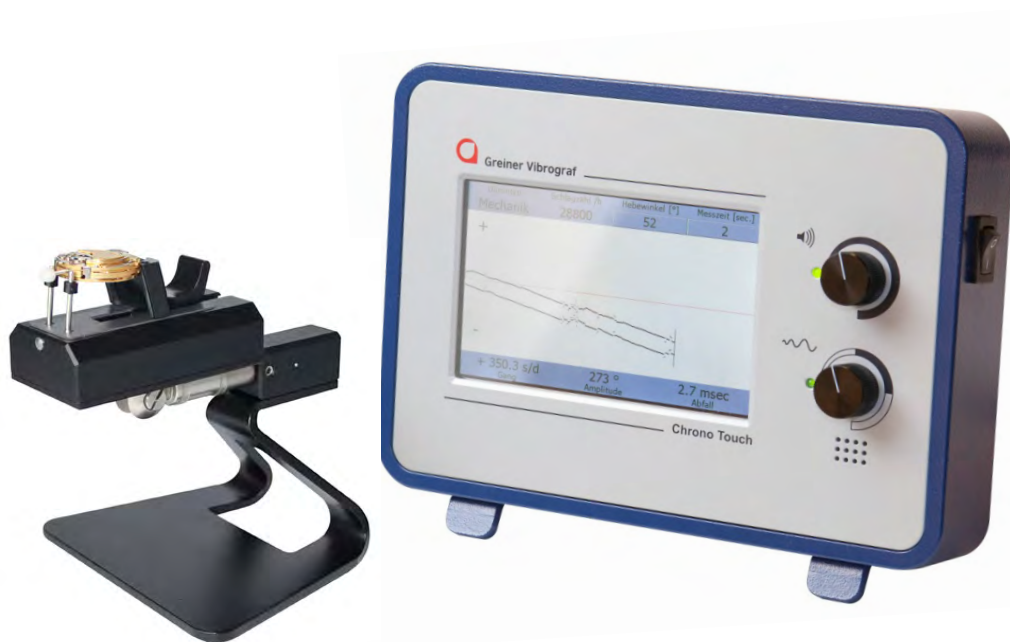


# Chrono Touch

## Operating Manual



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**1. Device description**

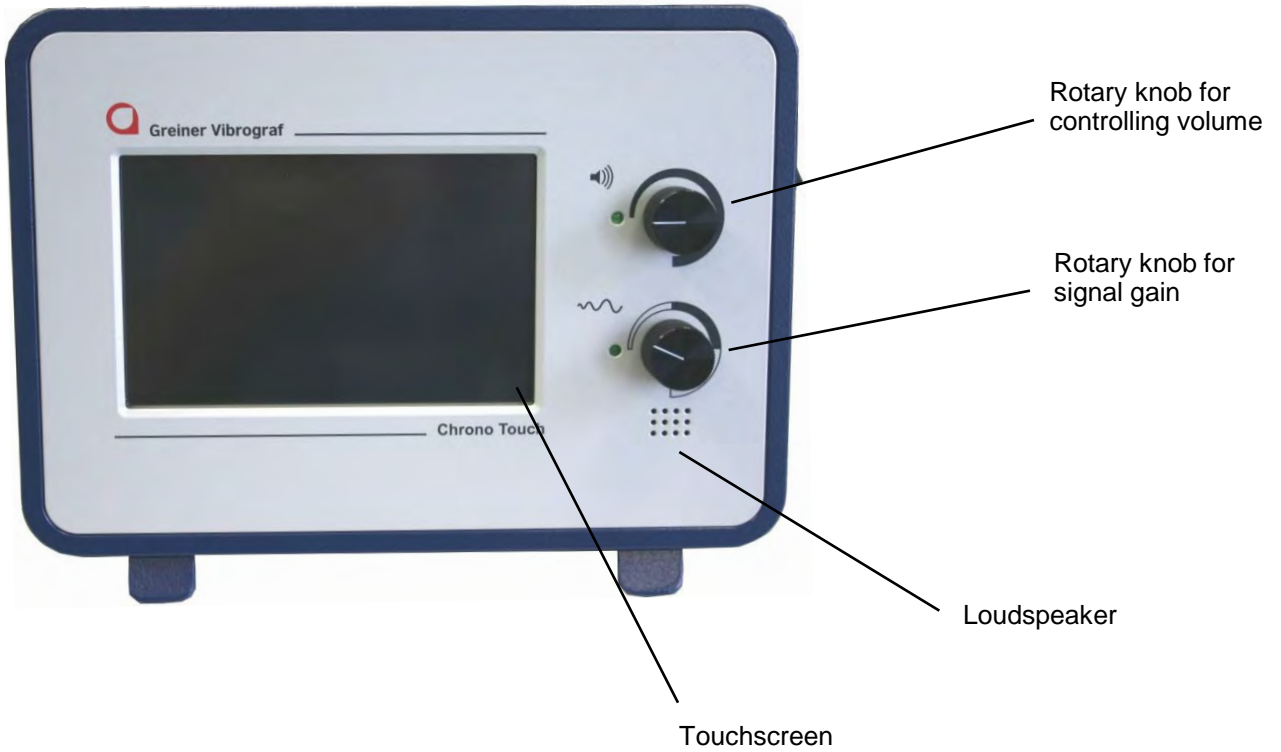
- **1.1 Front view** **Page 3**
- **1.2 Side view** **Page 3**
- **1.3 Rear view** **Page 4**
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**1.1 Front**

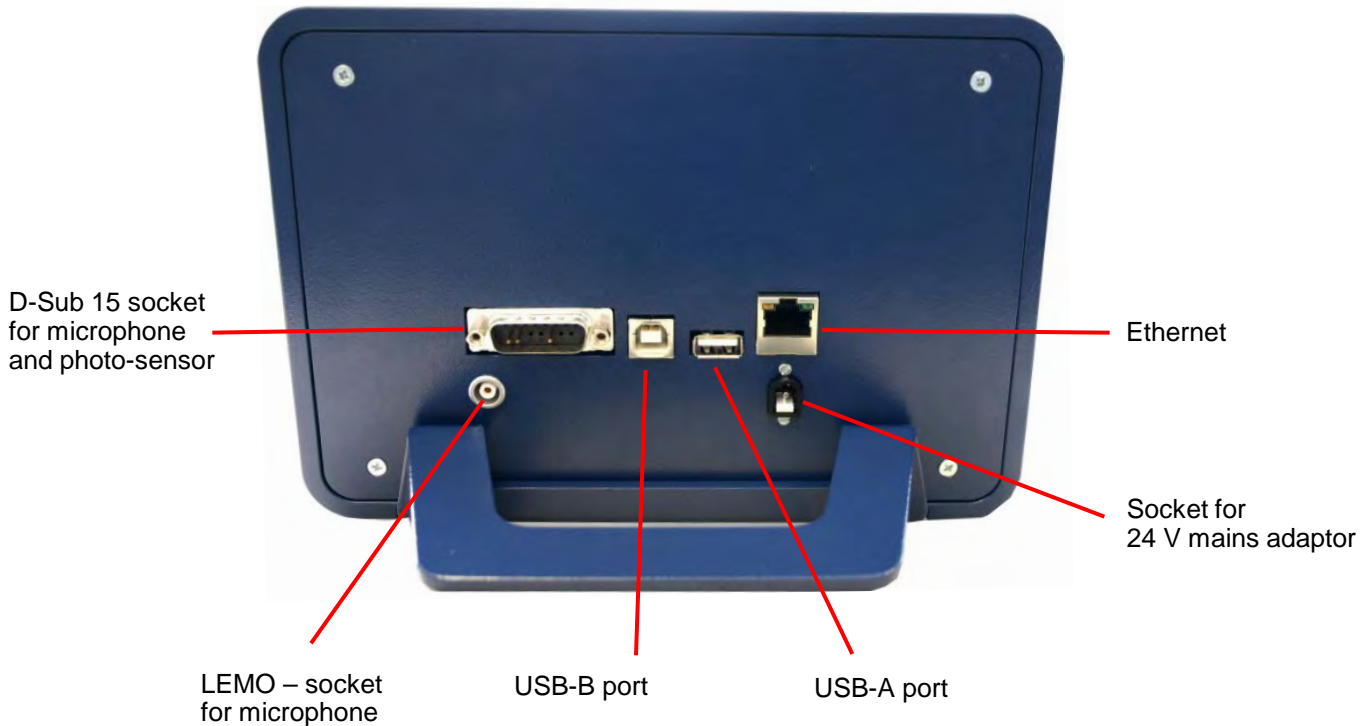


**1.2 Side view**



## DEVICE DESCRIPTION

### 1.3 Rear view



### 1.4 Accessories



#### **Microphone MP12 for mechanical watches**

The connection is made at the rear of the Chrono Touch using the LEMO socket.

The watch case or preferably the crown must be touching at least one of the sensors.



#### **Clip-on microphone for pocket watches and large clocks**

The clip-on microphone can be connected to the 15-pin connector at the rear of the Chrono Touch instead of the MP12.

## **1.5 Cleaning**



### **Before cleaning**

**Always clean the LCD monitor when switched OFF (power supply disconnected) and always make sure the user interface has cooled down first.**

### **Removing dust**

Please use exclusively microfibre cloths or special monitor cleaning cloths.

### **Cleaning the monitor with a damp cloth**

In exceptional cases, a commercially available glass cleaning agent or even better a special screen cleaner can be used for cleaning the monitor.

Never spray the screen cleaner (glass cleaner in exceptional cases) directly onto the monitor surface, but onto the cleaning cloth.

Never apply any pressure to the monitor surface when cleaning off marks and do not attempt to remove marks by scratching with your fingernail, etc.

### **Drying the monitor**

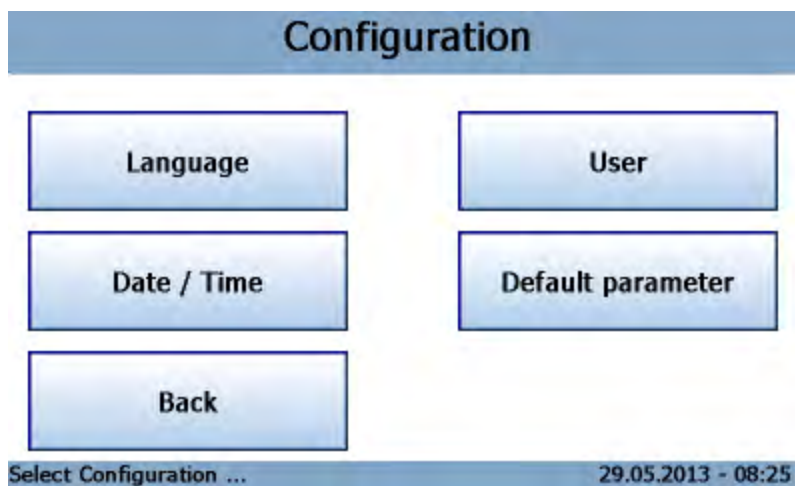
After cleaning with a damp cloth, dry off the user interface with a new microfibre cloth. Once you have finished cleaning, it is important to wait approximately 30 minutes before switching the device on again.

## 2. Commissioning

Connect the device to the power supply using the mains cable.  
Put the rocker switch at the top right-hand side of the case into the "I" position (see Fig. 1.2).

The device is now ready for operation.

The following display appears on the screen after a short time:

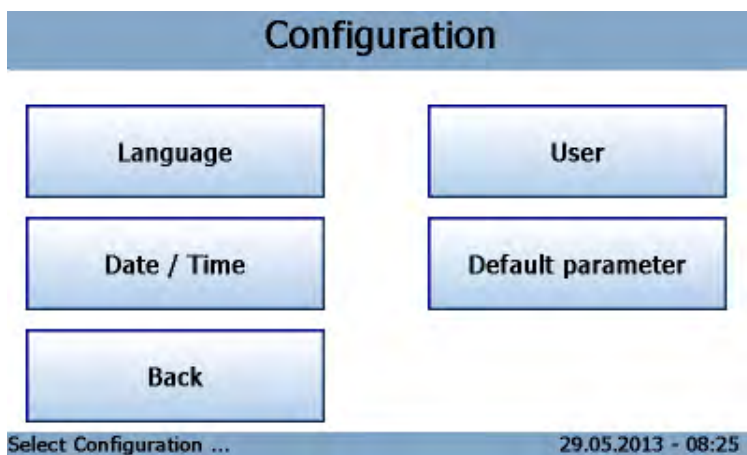


After touching the "Info" button, the following information on the current status of the device's software appears:

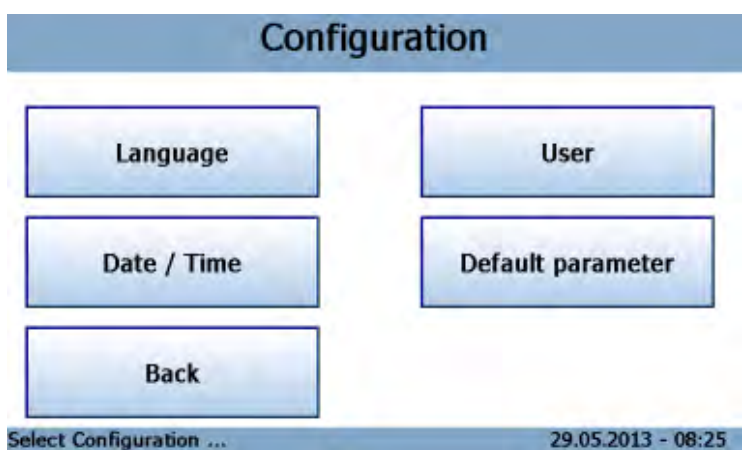


This information can prove necessary in the event of any technical queries.

After touching the "Back" button, the start screen appears again:



After touching the "Configuration" button, the following screen appears:

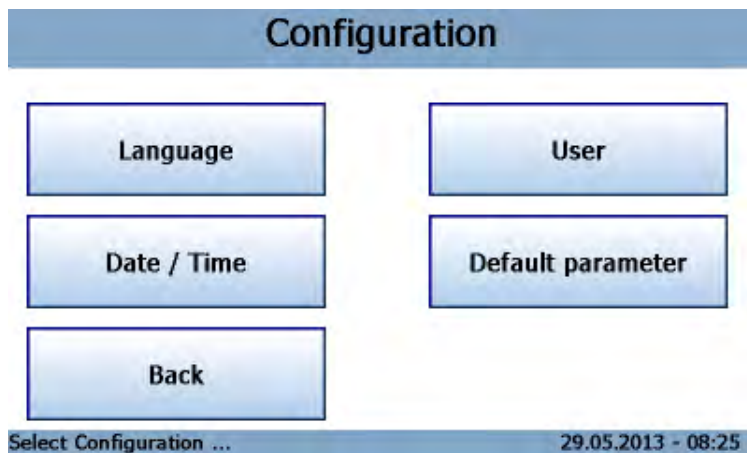


After touching the "Language" button, the following screen appears:



Select the required language and confirm by touching the relevant button. The selected language button now has a green background. By touching the "Save" button, the selected language is saved.

The following appears on the screen again:

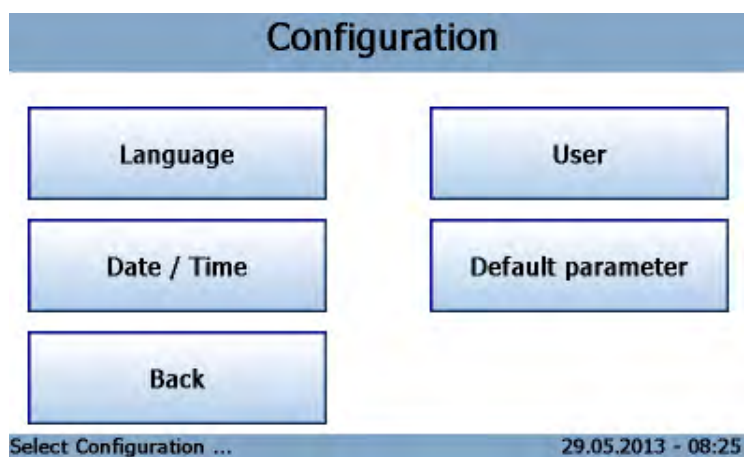


Select the Date/Time button. The following screen appears:



Modify and select the individual parameters by touching and then program into the menu by touching the "Save" button.

The following appears on the screen again:






The following screen appears when you touch the "User" button:


Each user can program and save his own address data in this box.

By touching the "Save" button, the modified user data is saved:

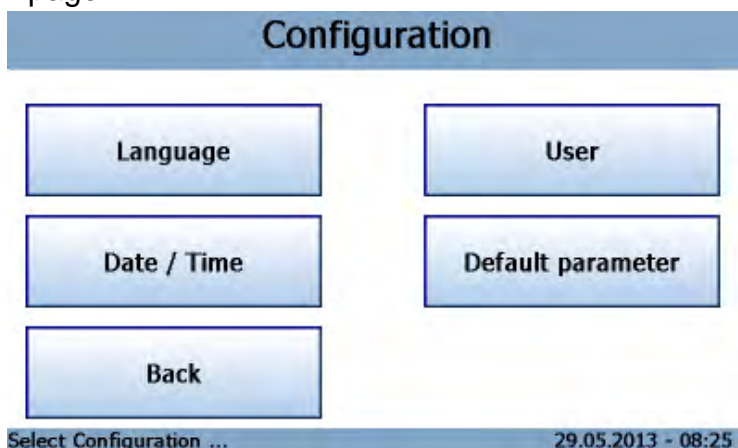
If you touch the arrow 

the following screen appears:




If a printer is connected, the programmed data can be printed out and checked. To go back touch the  button.

If you touch the "Cancel" or "Save" buttons, you are taken back to the Configuration page:

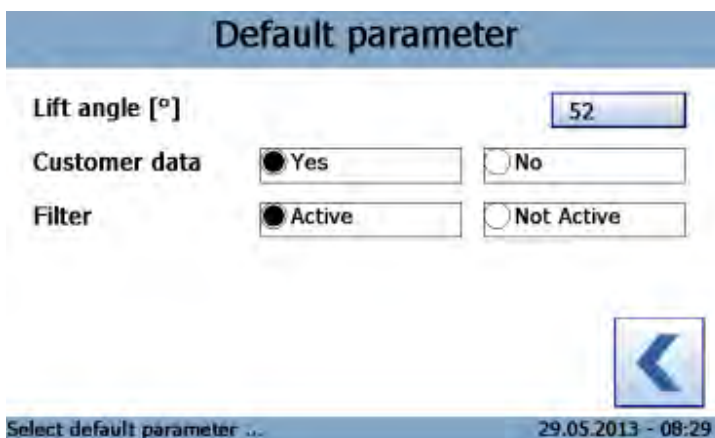



By touching the "Standard parameters" button, the following screen appears:



The user can specify and program the test program he requires himself here. The required parameter buttons are selected and touched. The selected parameters are saved to the menu with the "Save" button. If you touch the arrow 

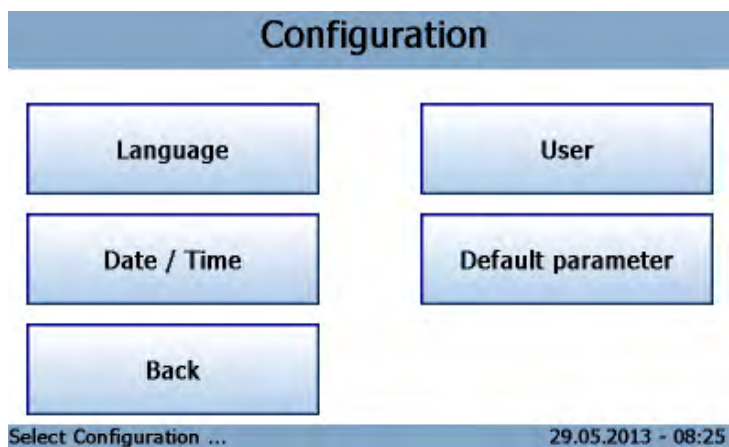
the following screen appears:



Select and program the required parameter buttons. With the  button go back to the "Standard parameters" program and save by touching the "Save" button.



Touch the "Save" or "Cancel" buttons to return to the menu:

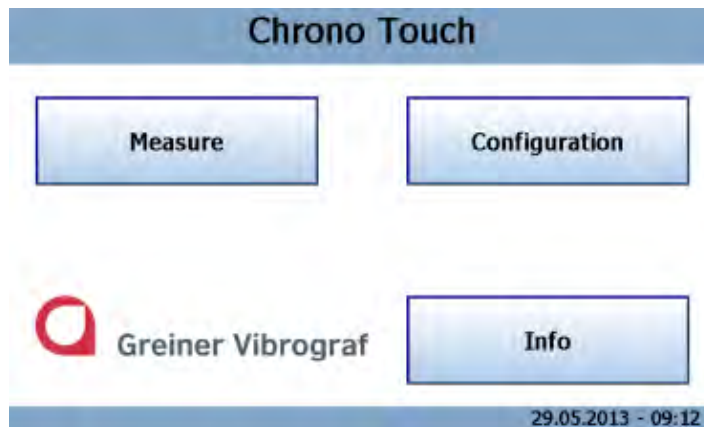


If you touch the "Back" button, you are taken back to the Start menu.

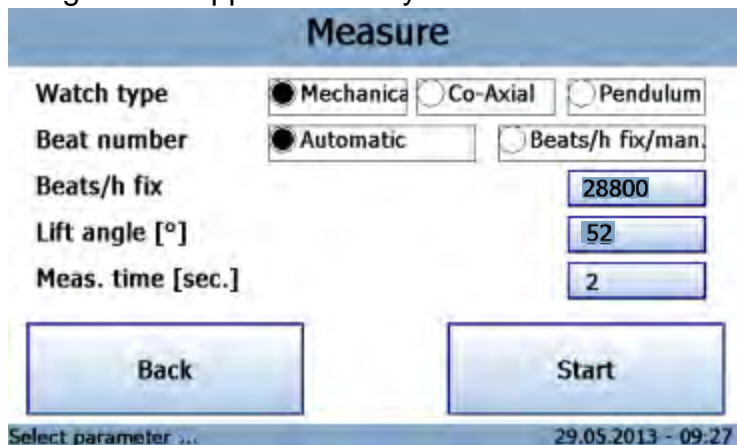
### 3. Measurement

#### 3.1 Testing mechanical watches

The following screen appears here again:

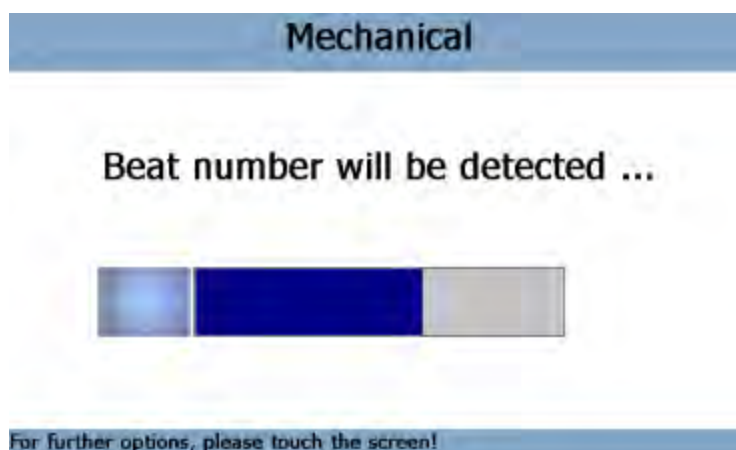


The following screen appears when you touch the "Measurement" button:

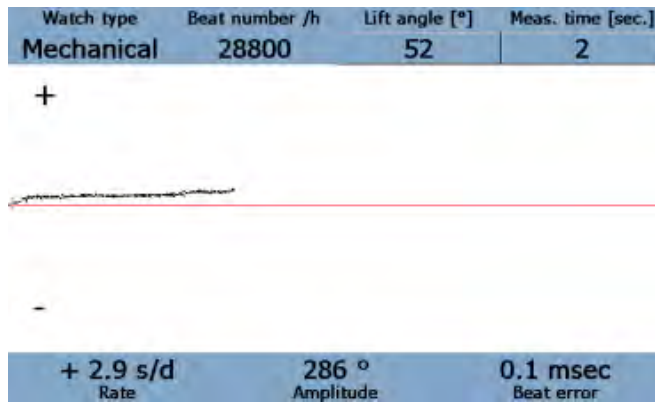


The selected and programmed values are displayed.

When you touch the "Start" button, the following screen appears:

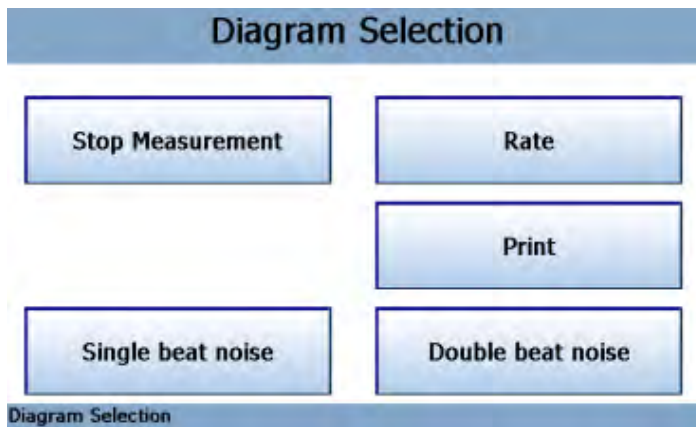


Once the values are determined, a diagram showing how the measured watch is running appears on the screen:



In the case of a mechanical watch the following values are displayed: beat number, lift angle, measurement time, rate variations, amplitude and beat error.

If you touch the screen, the following appears:

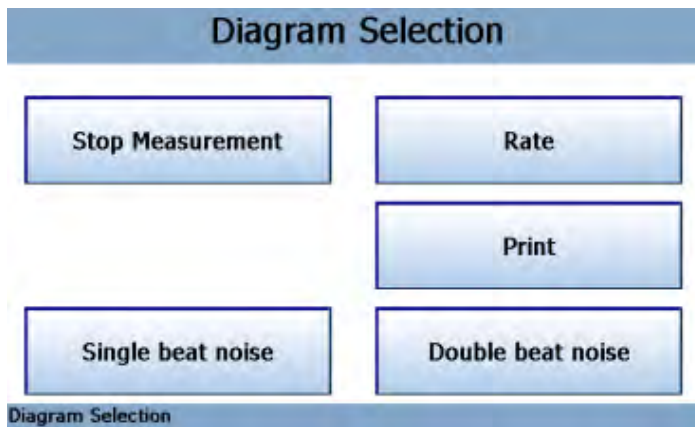


By touching the "Print" button, the following screen appears:

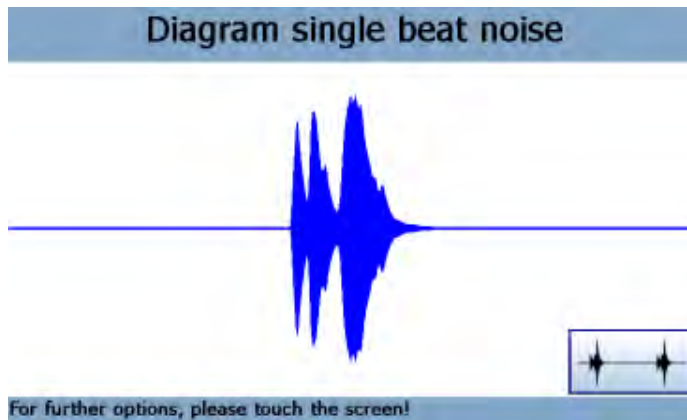


The watch data can be programmed into the "Name" and "Serial number" boxes. To do this the two boxes are touched one after the other and the data entered. Confirm and print out with "OK".

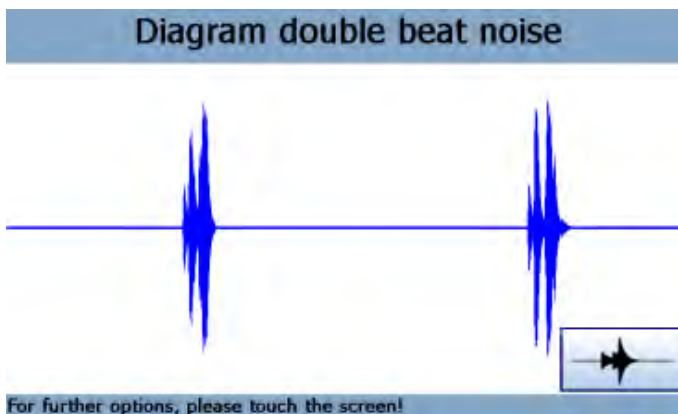
You can use the "Delete all" button to delete all the data again.



If you touch "Single beat", the following display appears on the screen:

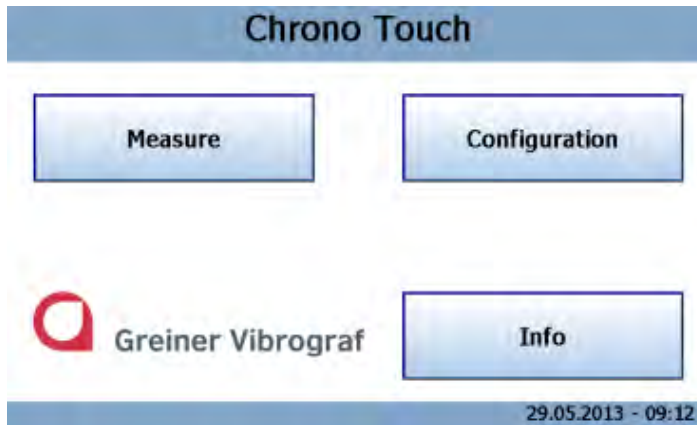


By touching the display in the bottom right-hand corner of the screen, you will go immediately to the following screen:

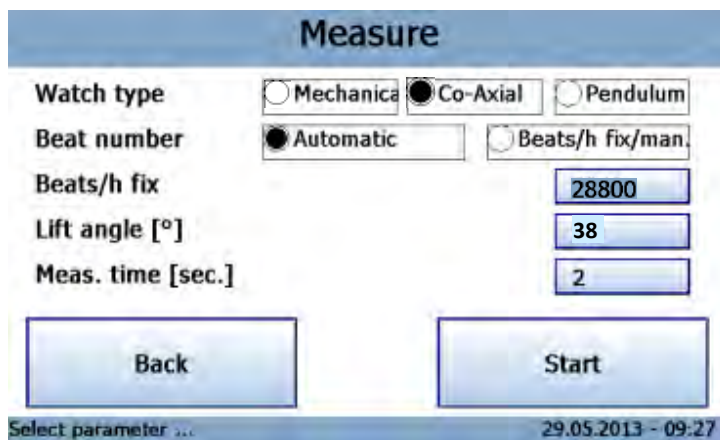


### 3.2 Testing watches with a co-axial escapement

Start via the "Chrono Touch" screen:

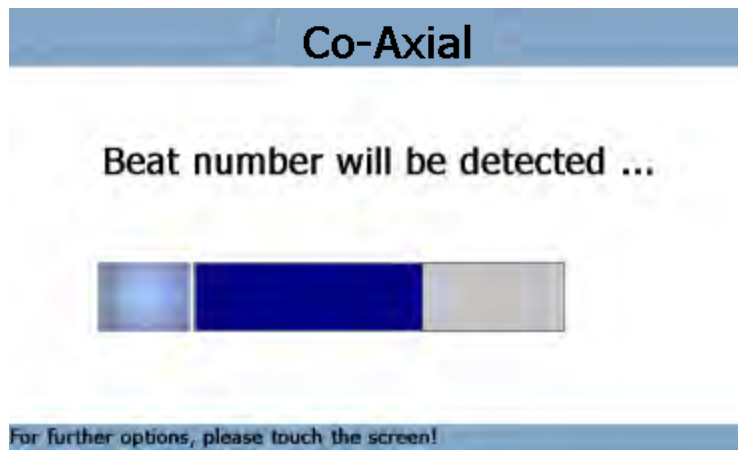


After touching the "Measurement" button, the following appears:

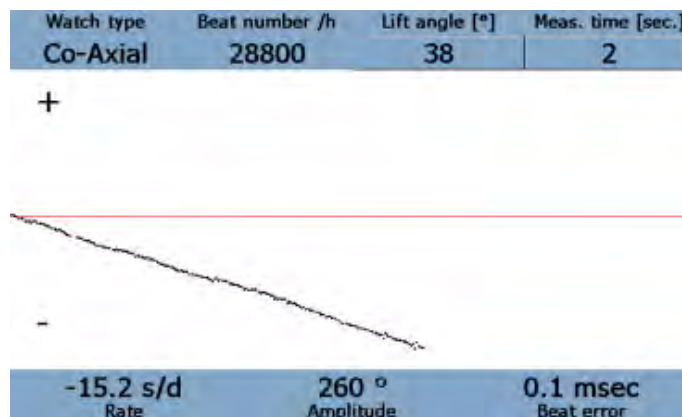


On the "Measurement" screen, select "Co-axial" as watch type.  
Enter the beat number, fixed beat number, lift angle, and measurement time.

After touching "Start", this appears on the screen:



Measurement starts and the rates are displayed:

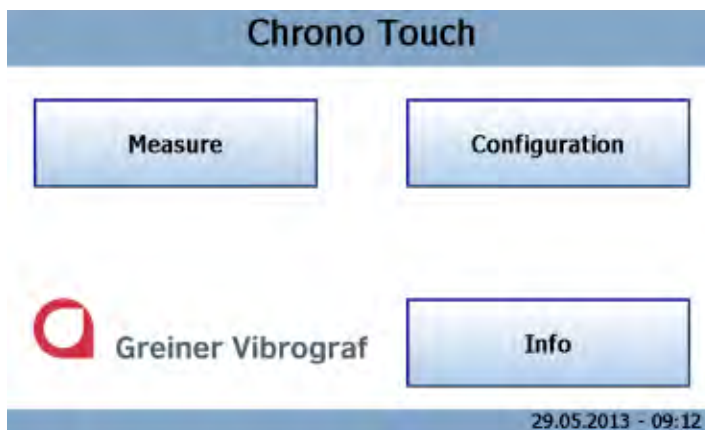


The other measurements are called up and programmed like in the "Mechanical watches" program (see pages 12 + 13)



## 3.2 Testing pendulum clocks with a clip-on microphone

Start via the "Chrono Touch" screen:

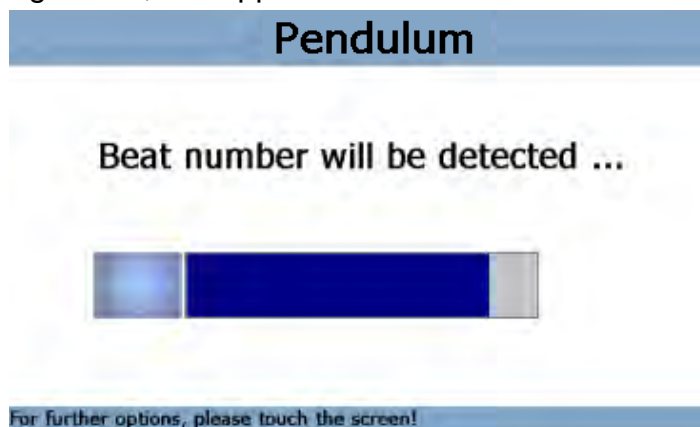


The following screen appears when you touch the "Measurement" button:

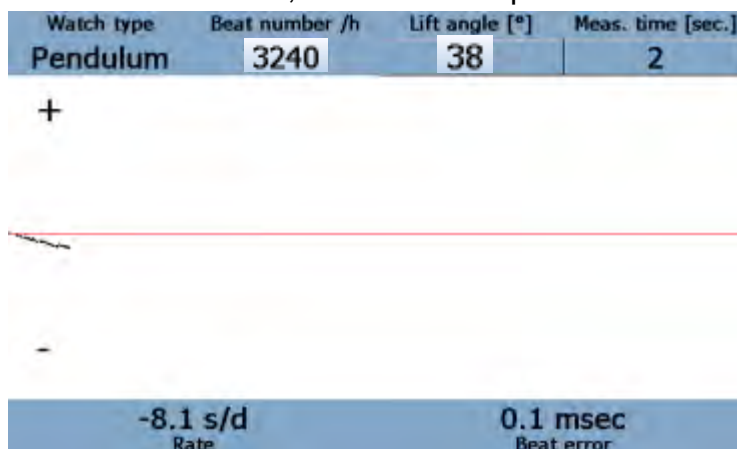


On the "Measurement" screen, touch "Pendulum" watch/clock type. Enter the beat number, fixed beat number, lift angle and measurement time ranges.

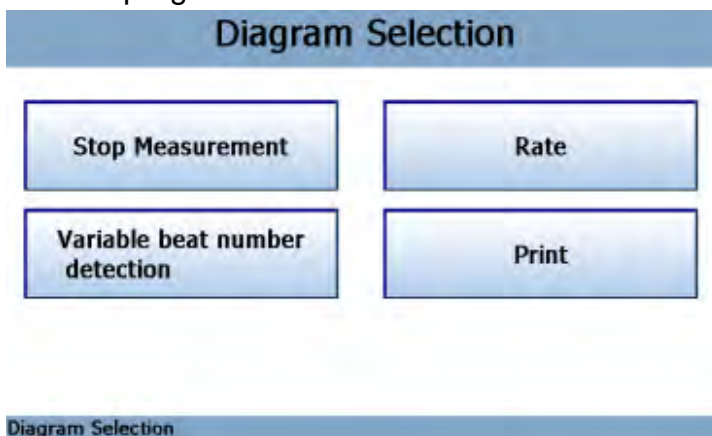
After touching "Start", this appears on the screen:



Once the values are determined, the rate of the pendulum clock appears on the screen:

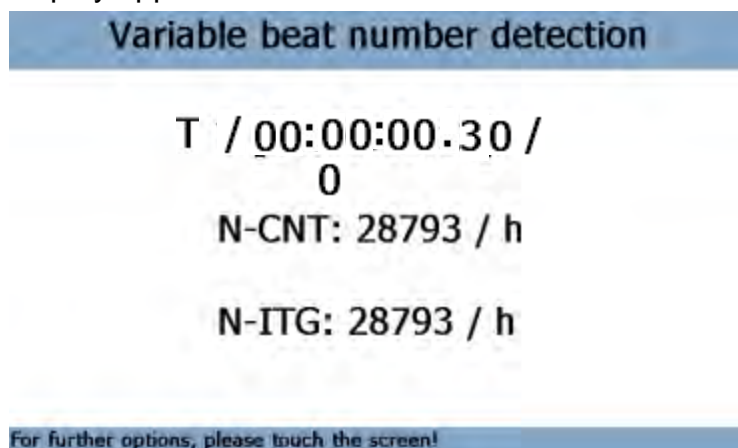


Testing pendulum clocks with an unknown beat number is carried out in the "Diagram selection" program:



Touch the "Variable beat number" button.

The following display appears on the screen:



Displayed on counter "T" is the test time elapsed.  
 In the "N-CNT" area: the currently measured beat number in beats/h is displayed.  
 In the "N-ITG" area: the integrated beat number/h determined over the entire test time is displayed.



Weight:	1.720 g.
Mains voltage:	110 V - 230 V, 60/50 Hz, automatically controlled
Power consumption:	max. 7.20 W
Power supply:	24 V +/- 5%
Accuracy of quartz crystal:	+/- 1 ppm (at 25°C)
Connections:	Ethernet (LAN), DSUB 15, 2 USB ports, Lemo socket for microphones, mains adapter,
Measurement options:	<b>Mechanical watches:</b> Beat number (automatic and manual) Rate variation Amplitude Beat error Oscilloscope display of double and single beat noise
Additional options:	Clip-on microphone