QuartzSensor

Operating instructions

Always read the instructions before commencing any work!

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LEADING SWISS PRODUCTS

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Congratulations

You have made a good choice.
By purchasing the Witschi QuartzSensor, you have chosen a testing device that combines the highest technical standards with practical ease of operation.
You will be able to use your new device for many years to come if you handle it and care for it correctly. Enjoy using your new device.

1 PRIOR TO INITIAL USE

Please read all information provided in this manual attentively. It contains important instructions on the use, safety and maintenance of your device. Keep these instructions in a safe place and pass them on to any later users.

The device may be used only for its intended purpose as outlined in this manual.

If the testing device or watches are damaged or persons are injured due to improper operation and use, the manufacturer,
Witschi Electronic Ltd. in CH-3294 Büren a.A., Switzerland accepts no responsibility.

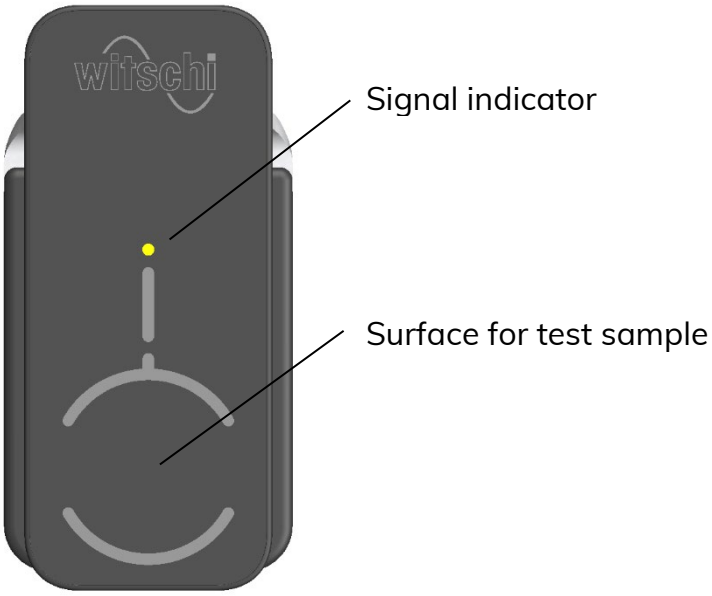
2 USAGE

The QuartzSensor is the ideal testing device for fast and efficient use in repair service, sales and watchmaking laboratories.

Ultramodern technology with extensive measuring and testing options guarantee professional troubleshooting on closed quartz watches. Thanks to largely automated measuring processes, the device offers an extraordinary level of operating convenience.

3 CONTROL ELEMENTS AND DISPLAYS

3.1 Work surface



Signal indicator
An LED on the top of the QuartzSensor indicates the signal that was recorded. The LED should flash in the same rhythm as the hand movement when testing watches with motor pulses. The LED should remain lit when testing LCD and tuning fork watches.

3.2 Rear panel

USB: Connects the QuartzSensor to a PC.
Also suitable for use during calibration of the time base.

4 START-UP

4.1 Scope of delivery

The basic hardware consists of the following components:

- 1 QuartzSensor testing device
- 1 USB cable standard A to USB type C
- 1 operating manual
- 1 USB flash drive with WiCoTRACE LITE software

4.2 Set-up location

Stray electrical and magnetic fields from electrical devices can interfere with the signal recording. Interference is particularly intense from computer terminals, fluorescent lamps, switched-mode power supply units and ultrasonic cleaning systems. The device must therefore be set up at a sufficient distance from any sources of interference like this. In the event of exposure to electromagnetic radiation, the device may no longer work properly.

5 POSITIONING THE TEST SAMPLE

The watch or the watch movement is placed on the test surface. Correct signal recording can be checked by using the LED.

Metal watch cases can have a shielding effect and thus interfere with or make it impossible to capacitively measure the oscillation frequency of the quartz.

6 MAINTENANCE

The QuartzSensor does not require any special maintenance.

Only ever use a soft cloth to clean the device and remove dirt. Never use aggressive cleaning agents or solvents.

To ensure that the accuracy of the measurements remains guaranteed, we recommend that you have the device calibrated and its function checked by our service centre every year.

For more information, please contact our customer service at our firm’s head office or one of our representatives.

7 TECHNICAL DATA

7.1 Measuring functions

Motor pulse measurement
Measurement of the rate deviation and the characteristics of the motor pulses

Motor period:	1 s to 60 s
Stabilisation time:	0 s to 60 s
Measuring period:	1 s to 960 s

Rate deviation measuring range:	±1000 s/d
Rate deviation resolution:	0.01 s/d
Rate deviation precision:	0.1% of the measured value ±0.03 s/d (in the event of annual calibration).

Pulse width measuring range:	0 ms to 20 ms
Pulse width resolution:	10 µs

Chopping-level measuring range:	0 to 100%
Chopping-level resolution:	0.01%
Chopping-level precision:	10%

Quartz frequency measurement
Measurement of the rate deviation of the quartz crystal

Rate deviation measuring range:	–300 to + 180 s/d
Rate deviation resolution:	0.01 s/d
Rate deviation precision:	0.1% of the measured value ±0.03 s/d (in the event of annual calibration).

LCD changeover frequency measurement
Measurement of the rate deviation using the frequency of the liquid crystal display

Rate deviation measuring range:	–82 to +86 s/d
Rate deviation resolution:	0.01 s/d
Rate deviation precision:	0.1% of the measured value ±0.03 s/d (in the event of annual calibration).

Tuning fork frequency measurement
Measurement of the rate deviation using the oscillation frequency of tuning forks

Rate deviation measuring range:	±1000 s/d
Rate deviation resolution:	0.01 s/d
Rate deviation precision:	0.1% of the measured value ±0.03 s/d (in the event of annual calibration).

7.2 General data

Time base
Temperature-compensated quartz time base, TCXO.

Temperature stability:	≤ ±0.0043 s/d (0.05 ppm) for 0° to 60°C
Ageing after one year:	≤ ±0.0259 s/d (0.30 ppm)

Usage temperature	5° to 40°C

Dimensions and weight

Width:	43 mm
Height:	56 mm
Depth:	102 mm excluding plug
Weight:	83 g device only
	450 g with packaging

8 EU/UKCA DECLARATION OF CONFORMITY

EG-Konformitätserklärung
Déclaration de conformité CE
Declaration of conformity

DE | FR | EN

Wir / *nous* / We:
Witschi Electronic AG
Bahnhofstrasse 26
CH-3294 Büren a.A.
Schweiz / Suisse / Switzerland

erklären in alleiniger Verantwortung, dass das Produkt
déclarons sous notre seule responsabilité que le produit
declare under our sole responsibility that the product

Bezeichnung *nom* / name:	**QuartzSensor**
Typ-Nr.:	**33.2310**
Fabrikations-Nr. *no. de série* / serial Nr.:	**1 – 10000**
Funktion *fonction* / function	**Prüfgerät für elektronische Uhren** *appareil de test pour montres électroniques* / test instrument for electronic watches
Dok-Verwaltung doc. management	Witschi Electronic AG, Roman Siegfried, Bahnhofstr. 26, CH-3294 Büren a.A.
Zertifiziertes QMS *Systèmes de QMS* Quality mgt, systems	SQS, ISO 9001:2015, Scope 19 / Reg. Nr. 12228

auf das sich diese Erklärung bezieht, mit den Bestimmungen der folgenden EG-Richtlinie(n) und Norm(en) oder normativen Dokument(en) übereinstimmt:
auquel se réfère cette déclaration, est conforme aux dispositions de la (des) directive(s) CE et à la (aux) norme(s) ou autre(s) document(s) normatif(s) suivants:
to which this declaration applies, is in conformity with the following EC-Directive(s) and standard(s) or other normative document(s):

Richtlinien / *Lignes directrices* / Guidelines

2014/30/EG	☒	Elektromagnetische Verträglichkeit / *compatibilité électromagnétique* / electromagnetic compatibility
2011/65/EU	☒	RoHS-Richtlinien / *Directives RoHS* / RoHS Directive

Fachgrundnormen / *Normes génériques* / Generic Standards

EN 61000-6-3:2021	☒	Elektromagnetische Verträglichkeit (EMV), Störaussendung für Wohn- Geschäfts und Gewerbereiche sowie Kleinbetriebe / *Compatibilité électromagnétique (CEM), Norme sur l'émission pour les environnements résidentiels, commerciaux et de l'industrie légère* / Electromagnetic compatibility (EMC), Emission standard for residential, commercial and light-industrial environments
EN 61000-6-4:2020	☒	Elektromagnetische Verträglichkeit (EMV), Störaussendung für Industriebereiche / *Compatibilité électromagnétique (CEM), Norme sur l'émission pour les environnements industriels* / Electromagnetic compatibility (EMC), Emission standard for industrial environments
EN 61000-6-1:2019	☒	Elektromagnetische Verträglichkeit (EMV), Störfestigkeit für Wohn- Geschäfts und Gewerbereiche sowie Kleinbetriebe/ *Compatibilité électromagnétique (CEM), Immunité pour les environnements résidentiels, commerciaux et de l'industrie légère* / Electromagnetic compatibility (EMC), Immunity for residential, commercial and light-industrial environments
EN 61000-6-2:2019	☐	Elektromagnetische Verträglichkeit (EMV), Störfestigkeit für Industriebereiche / *Compatibilité électromagnétique (CEM), Immunité pour les environnements industriels* / Electromagnetic compatibility (EMC), Immunity for industrial environments

Büren a.A., den 11.9.2023

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Leiter Entwicklung

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