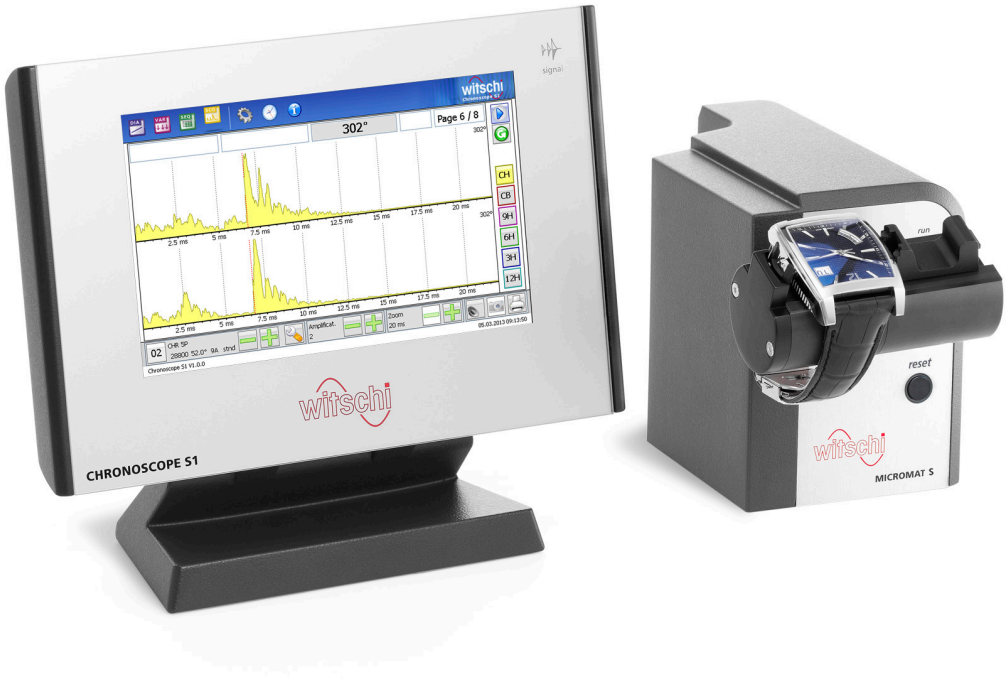
LEADING SWISS PRODUCTS

Chronoscope S1 (G2)



For testing Mechanical Watches

The Chronoscope S1 (G2) is a measuring instrument for efficient and professional tests in the repair service and quality control in the industrial area.

The operating concept is simple, comfortable and contemporary through the various touch and wiper functions on the touchscreen.

Automatic test sequences in 2 to 6 different measuring positions on the microphone Micromat S (accessory).

The new instructive TWINSCOPE mode visualizes simultaneously the beat noises of Tic and Tac.

VARIO test mode for a clear long-term representation of the quality and stability of rate accuracy, amplitude and beat error.

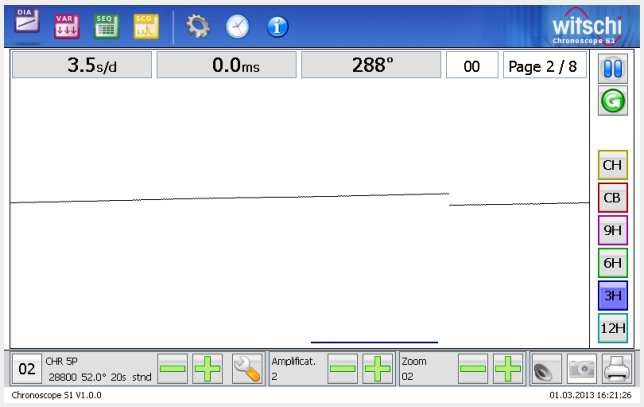
Witschi Electronic Ltd
Bahnhofstrasse 26 – CH-3294 Büren a.A. – Phone +41 (0)32 352 05 00
Fax +41 (0)32 351 32 92 – welcome@witschi.com – www.witschi.com

witschi

General Description

There are 3 different measurement modes and the graphical representation of the beat noises. Easy parameterization of the measurement programs and editing of the system parameters. Storage of up to 8 callable display pages. Applying a mouse gives smooth operation of the device if the screen is not easily accessible.

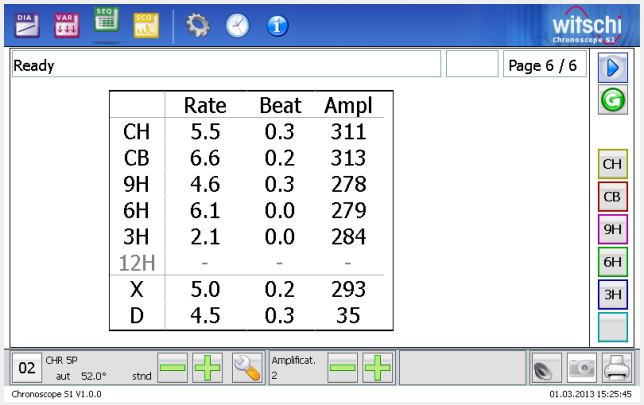
Continuous Diagram Recording



The rate deviation is recorded continuously on the screen. During the measurement rate, amplitude and beat error are displayed numerically.

After the first end of the defined measuring time, the mean values are continuously updated every 2 seconds. The evaluated diagram part is marked with the revolving bar.

Sequence Display Mode



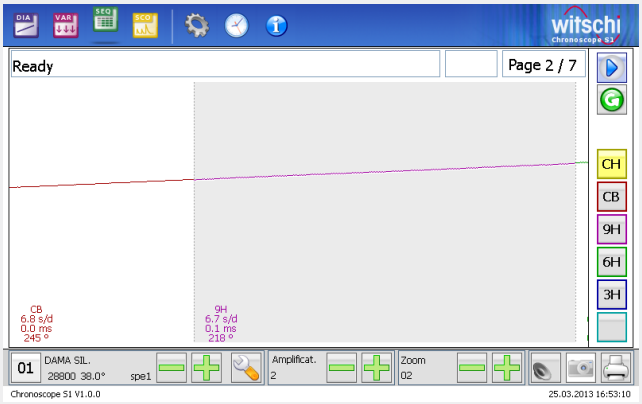
	Rate	Beat	Ampl
CH	5.5	0.3	311
CB	6.6	0.2	313
9H	4.6	0.3	278
6H	6.1	0.0	279
3H	2.1	0.0	284
12H	-	-	-
X	5.0	0.2	293
D	4.5	0.3	35

The automatic microphone Micromat S is the ideal accessory for the realisation of test sequences. When creating programs, 2 to 6 test positions can be defined including stabilisation and measuring time.

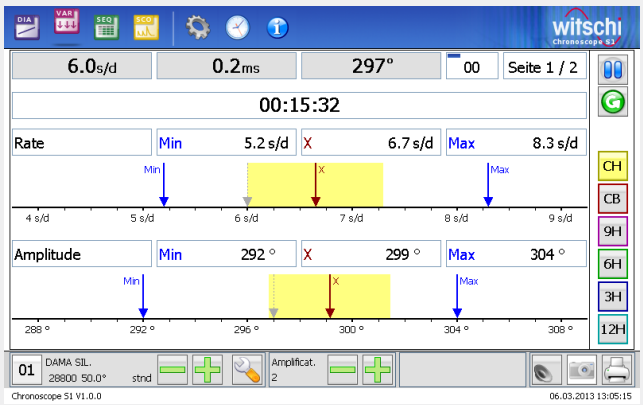
Test sequences may also be performed with the manual multi-position microphone.

This neatly structured table clearly displays the measurement results in each position as well as the average and the largest difference between all positions.

When a finger is wiped to the left or right over the touch screen, the diagrams that belong to the measurement position is displayed.



Vario Display Mode

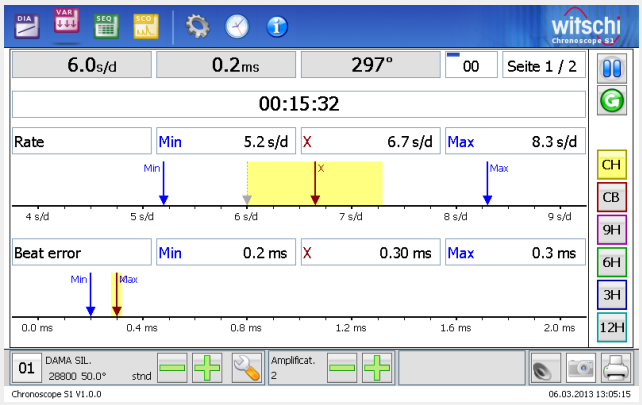


The Vario mode measures the stability rate, amplitude and beat error over a longer period. This clear display mode is an ideal complement for a rapid or prolonged control (up to 100 hours).

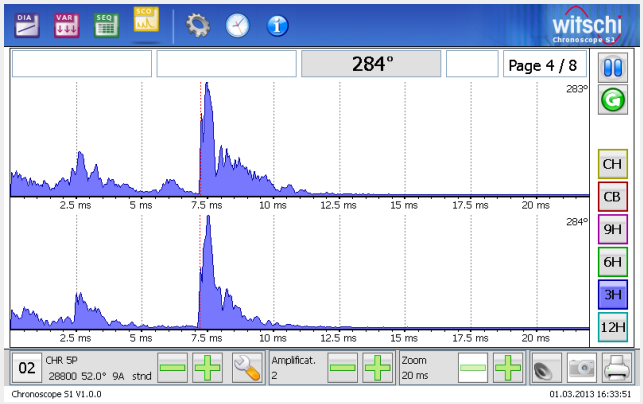
The measured values of rate, amplitude and beat error appear on the screen simultaneously.

Chronoscope S1 (G2)

When a finger is wiped to the left or right over the lower half of the screen, the result display of the amplitude changes to the result display of the beat error.



Scope Display Mode



With the Twin Scope feature the acoustic noise impacts of the watch are displayed graphically. Displaying the Tic and Tac takes place simultaneously on the screen. The display is updated continuously after each nine half oscillation. This allows a detailed analysis of the beat noise and the state of the escapement system.

The measured value of the amplitude is displayed numerically. For displaying three time ranges are selectable: 20 ms, 200 ms and 400 ms.

Additional Functions

- Definable are 30 measuring programs with individual measurement parameters and test sequence with 2-6 measuring positions.
- Depending on the test mode up to 8 callable display pages are stored
- Log printout of the numerical measurement results or of the display contents on the thermo printer, available as accessory
- Export of graphics and numerical results to PC by means of AutoPrint software (accessory)
- Real time clock. Date and time are displayed and printed in the log
- All measurement programs can be exported to a USB stick
- With the “camera function” current screen contents are saved as PNG file on a USB stick
- The Witschi GPS receiver (accessory) allows the time base of the Chronoscope S1 (G2) to be easily tested and adjusted
- High-precision time display thanks synchronisation via internet

Chronoscope S1 (G2)

Technical Data

Measurement Possibilities
Rate deviation, amplitude and beat error of mechanical watches. Diagram recording of the beat noises.

Beat Number
Automatic selection of all common beat numbers.
Manual selection of any beat number between 3'600 to 72'000 b/h and 360'000 b/h

Measuring Modes
- Standard mode for watches with the Swiss escapement
- Spe1 Mode for watches with coaxial escapement
- Spe2 Mode for watches with Robin escapement
- Spe4 Mode with specific amplitude filter for the measurement of watches with the Swiss escapement
- Spe6 Mode for Chronograph "Foudroyante"

Gain Control
Automatic. Manual control facility for watches with stray or unusual beat noises.

Display Modes
- **Diagram**
  Continuous diagram recording of the beat noise and numeric display of the test values for rate accuracy, amplitude and beat error
- **Vario**
  Rate and amplitude stability check over a longer time range, up to 100 hours.
- **Sequence**
  Stabilisation time adjustable from 2 s to 2 minutes
  Measuring time adjustable from 4 s to 10 minutes
  Measuring cycle adjustable for 2 to 6 test positions
- **Scope**
  Graphic display of the beat noises with adjustable time range: 20, 200 and 400 ms

Rate accuracy:	numerical display in s/d
Resolution:	selectable in 0.1 s/d or 0.01 s/d
Measuring range:	± 999 s/d
Accuracy:	± 0.1 s/d
Amplitude:	numerical display in degrees
Resolution:	1°. Measuring range from 80° to 360°
Accuracy:	± 0.4°
Lift angle:	adjustable from 10° to 90°.
Resolution:	0.1°
Beat error:	numerical display in milliseconds.
Resolution:	0.1 ms. Measuring range: 9.9 ms
Accuracy:	± 0.1 ms

Time scale adjustable from 1 to 16 mm/ms (zoom)

The last eight screen contents are callable

Functions
Adjustable measuring time: 2, 4, 6, 8, 10, 20, 30, 40, 50, 60, 120, 180, 240 s and automatic selection of the shortest possible measuring time

Selectable languages: English, German, French, Spanish and Italian.

Details
Time base:	pre-aged and thermo-stabilised high frequency quartz, OCXO
Stability:	± 0.004 s /d between 10° and 50° C
Aging the first year:	max. ± 0.03 s /d
Display:	capacitive touch screen with back light, 800 x 400 pixels
Acoustic check:	built in loud speaker
Casing:	plastic, anthracite coloured
Front panel:	glass
Dimensions:	225 x 191 x 85 mm (w x h x d).
Weight:	3.1 kg, microphone and mains adapter included.

Interfaces:
- 2 x USB type A for mouse and memory stick
- 1 x USB type B for firmware updates
- RS232 for thermo printer calibration system
- Ethernet
- DIN 6-pin for manual multi-position microphone or Micromat S (accessory)

Mains connection:
Universal mains adapter, 100 - 240 V~ / 50-60Hz
Output voltage: 12 VDC, 1.8 A

Accessories
Thermo printer with cutter, 100 - 240 V~	JB01-740RS232
Paper roll for 740RS232	JB01-MM60-740RS
Micromat S	23.26PK1
Clamping microphone for wall clocks	13.1820
Optoelectr. sensor for pendulum clocks	13.1620
Tripod for optoelectronic sensor	13.16.201
AutoPrint: Software for result and graphic file transmission to a PC	64.55.901PK1

Witschi Electronic Ltd
Bahnhofstrasse 26 – CH-3294 Büren a.A. – Phone +41 (0)32 352 05 00
Fax +41 (0)32 351 32 92 – welcome@witschi.com – www.witschi.com