

# Watch Expert III



## Measurement of the rate accuracy, the amplitude and the beat error of mechanical watches

The Watch Expert III is an economic measuring instrument ideally suited for testing mechanical watches. The diagram is displayed noiselessly on the new, illuminated LCD graphic display. Measured values for rate deviation, amplitude and beat error are automatically calculated and displayed numerically.

The beat number of all common watches will be automatically recognised. Appropriate measuring modes are available for watches with special escapements.

**Two novelties:** the additional display mode "VARIO" and the storage of the last 5 screen contents, which are later callable.

### Witschi Electronic Ltd

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

## Technical Data

### Measurement Possibilities

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

### Beat Error

Automatic selection of all common beat numbers. Manual selection of less common beat numbers. Manual selection of any beat number between 3'600 to 43'200 b/h. Determination of an unknown beat number.

### Measuring Modes

- **Stnd** Standard mode for watches with the Swiss escapement.
- **Spe1** Mode for watches with coaxial escapement.
- **Spe2** Mode for watches with AP escapement.
- **Spe4** Mode with specific amplitude filter.
- **Rate** Only the rate measurement occurs.

### Gain Control

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

### Display

- **Cont** Continuous diagram recording of the beat noises and display of the numeric values for the rate accuracy, amplitude and beat error.
- **Vario** Enables to examine the stability and scattering of the rate accuracy or the amplitude over a long period of time (max. 100 hours). Graphic-linear display with a measuring range of  $\pm 50$  s/d,  $\pm 10$  s/d for the rate accuracy and from  $120^\circ$  to  $320^\circ$  for the amplitude. Numerical display for the actual rate, amplitude and beat error. Indicated are also the minimum and the maximum rate deviation as well as the average values of the rate since measuring start.

Rate accuracy: numerical display in s/d. Resolution: 1 s/d with a measuring range of  $\pm 999$  s/d or 0.1 s/d with a measuring range of  $\pm 99.9$  s/d.

Amplitude: numerical display in degrees. Resolution  $1^\circ$ . Measuring range from  $70^\circ$  to  $360^\circ$ . Lift angle adjustable from  $10^\circ$  to  $90^\circ$ .

Beat error: numerical display in milliseconds. Resolution 0.1 ms. Measuring range 9.9 ms.

Diagram recording on an illuminated LCD graphic display with 256x64 dots. Time scale adjustable from 1 up to 9 mm/ms (zoom). 4 selectable tracing speeds.

In the measuring mode **Cont** (diagram recording) the last five screen contents are callable.

Recording speed: depends on the beat number, 0.56 mm per watch beat. Visible diagram length: 143 mm.

### Functions

Selectable measuring time for numerical results: 2, 4, 8, 10, 20, 30, 60 s and automatic selection of the shortest possible measuring time. Continuous renewal of the average values every 2 s over the measurement period. Display on the screen of the evaluated part of the rate measurement diagram.

Start/stop: enables to stop the current screen display and to re-start the measurement.

Acoustic check: built in loudspeaker to hear the beat noises.

RS232-interface for the connection of the Witschi thermo-printer, of a PC or the Witschi GPS receiver. Print out of the numeric results or graphic print out of the displayed diagram.

### Details

Time base: high frequency quartz time base, XO. Stability:  $\pm 0.08$  s/d between  $20^\circ$  and  $40^\circ$  C. Aging for the first year:  $\pm 0.03$  s/d.

Plastic housing, light grey. Dimensions: 250x135x101 mm (w x h x d). Weight: 2,1 kg, microphone included.

Mains connection: mains adapter for 230 V~ or 120 V~, 1.2 A.

Power consumption: 4.7 W, stand by 3.2 W.

Stand microphone movable for any test position, suitable for watch movements and watches with or without bracelet.

### Accessories

Clamping microphone for wall clocks.	Item 13.1820
Optoelectronic sensor for pendulum clocks.	Item 13.1620
Tripod for optoelectronic sensor.	Item 13.16.201
Thermo printer Witschi with graphic mode, universal mains adapter 90 V~ - 260 V~, cable and 1 paper roll.	Item JB01-MCP7810
Thermo paper, roll.	Item JB01-MM58-DPU20-N
Autoprint: PC software for result and graphic file transmission to a PC.	Item 64.55.901PK1
Witschi GPS receiver.	Item 19.91PK1 (230 V~) 19.91PK1 (120 V~)