

Analyzer Q2



Quartz Watch Test Equipment for production and laboratory

Analyzer Q2 is a device for the test and rate adjustment of modules and movements for quartz watches.

It is a stand-alone device to be used for manual or automated test stations.

By means of interfaces it can be integrated into an automatic production line - up to 2 measuring channels.

The test sequences and the measurement parameter sets are fully programmable. 15 measuring programs with up to 20 different test sequences are storable.

Along with the signal capture by means of contact pins, the capture can take place with different externally connectable signal sensors.

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Technical Data

Measuring possibilities

- Rate measurement
 - capture of the quartz frequency, motor pulses, IC's test signal.
 - Measuring range: ± 33.35 s/d
 - Measuring resolution: 0.01 s/d or 0.001 s/d, dependent on the measuring time.
 - Measuring time: 1 - 960 s
 - Trace mode
 - Relative measurement to a reference signal.
- Module power supply
 - 0 - 4 V for normal tests.
 - 0 - 8 V for programming.
- Measurement of the IC- and total consumption
 - Measuring time: 1 - 960 s or 125 - 875 ms.
 - Measuring range: 0 - 50 mA.
 - Display resolution: 1nA.
- Rate adjustment of programmable watch IC's.
- Test of the electric characteristics of the motor
 - Coil resistance, coil inductance and coil insulation.
 - Analysis of the motor current pulses (width, chopping factor and frequency) and efficiency of the motor movement.
 - Detection of missed steps.
 - Display of the motor current pulse wave.
- Pulse generator for motor and clocks buzzer tests
 - Pulse period: 0.005 - 4.5 s.
 - Chopped factor: 6.25 - 100%, in steps of 6.25%.
 - Pulse width: 0.98 - 99.99 ms, in steps of 0.01 ms.
 - Chopped frequency: 0.05 - 14.4 kHz.
 - Pulse amplitude: 0 - 4 V.
 - Pulse polarity: positive, negative or bipolar.
 - Consumption measurement.
- Watch oscillator start-up detection
- Battery voltage check
 - Measuring range: 0 - 5 V
 - Load: 2 M Ω , 2 k Ω , 100 Ω .
- Reset-by-stem mechanism control.
- Check of IC's «End Of Life» (EOL) function.
- Automatic detection of the IC type and fast real rate calculation.
- Utility functions
 - Real time clock .
 - Environmental temperature measurement.

Operating mode

The equipment might be operated in two modes.

- Laboratory: The device performs continuously a selected test. The test parameters could be changed during the measurement, i.e. supply voltage.

This mode is dedicated for analysis and non-repetitive tests.

- Automatic: A programmed test sequence is automatically performed. At the end of the test a GO / NO GO result is showed as well as the individual test results. This mode is dedicated for production tests. In order to facilitate the sequence's programming a complete pre-defined sequence is available. The user can easily adapt the test parameters in accordance with his needs. Any test sequence might be performed in step-by-step mode. The user can customize and save up to 15 automatic programs with 20 different test sequences.

Communication

Two serial RS232 ports available for the different functions.

- Print-out of the measurement protocols.
- Communication with a PC
 - Transfer of the test results to the PC for saving.
 - Download of a test sequence with parameters.
 - Download of software updates.
- Receiving the signal from a GPS receiver for calibration and internal real clock updating purposes.

Instrument and Module Carrier

- Analyzer Q2
 - Plastic casing ABS, colour: titanium.
 - Dimensions : 275x250x115 mm (w x h x d).
 - Weight: 2,9kg.
 - Mains connection: mains supply adapter, available for 230 V~ or 120 V~.
- Module Carrier QC1
 - With manual contacting system. Easy exchangeable positioning rings. For laboratory applications the flexible probes are available. For stem control a special contacting device is available.

Accessories

Remote panel with Start/Stop key, result LEDs.

Thermo printer with paper roll cutter, 100 - 260V~.

Various size of laboratory contact probes.

Caliber adapted contact probe-prints.

Witschi GPS-receiver for time base calibration.

PC-Software for code download.

PC-Software for synchronization.