CIW Quartz Watch Analyzer QWA-879

Operating Manual



Precision diagnostic instrument for testing and measuring quartz watch movements.
Intended for professional use.

Please read completely before first use and keep for future reference.

Flume Item No. 374433

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1. Safety Instructions

> **Important:** Read these instructions before first use. Failure to observe them may damage the device, the watch under test or the power adapter.

- Operate the device only with the supplied power adapter (12 V DC, 1 A). Other adapters may damage the device.
- Use the power adapter in dry indoor rooms only. Check adapter and cable for damage before each use. Never use a damaged adapter.
- Protect the device from moisture, dust and direct sunlight. Permitted operating temperature: 10 to 40 °C.
- Observe correct probe polarity during measurements (+ red, minus black).
- Do not apply excessive force to the pads or the connectors.
- Do not open the device. There are no user-serviceable parts inside. Opening the device voids the warranty.
- Unplug the power adapter when the device is not used for a longer period and before cleaning.
- The device is not a toy. Keep it away from children.

2. Intended Use

The CIW QWA-879 is used for testing and diagnosing quartz watch movements and watch batteries: frequency, rate deviation, pulses, power consumption, coil resistance, continuity and battery voltage. It is intended for watchmakers, service centres, watch manufacturers, laboratories and training institutes.

Any other use, in particular measurements on mains voltage or on equipment outside watch technology, is considered improper use.

3. Scope of Delivery

- CIW QWA-879 analyzer
- Power adapter 12 V DC, 1 A
- Test probes (red and black)
- Operating manual

Optional: MDT fixture for the Motor Drive Test.



4. Controls



Marking on device	Function
FUNCTION (L)	Selects the left-hand functions: Rate Deviation, Frequency, Line Release, Pulse, Continuity
VALUE	Sets values, e.g. checking interval, or switches between pulse pad and probes
PULSE PAD	Placement area for the watch for frequency, rate deviation and pulse tests
BATTERY PAD	Placement area for batteries in the battery test
LINE RELEASE PAD	Placement area for the watch for the Line Release function
BATT / OUTPUT LOAD	Adjusts the test voltage, or switches the battery test between with and without load
FUNCTION (R)	Selects the right-hand functions: Power Consumption, Coil Resistance, battery test 9 V / 3 V / 1.5 V
Sockets red (+) and black (minus)	Connection of the test probes

5. Start-up

Connect the adapter plug to the power socket of the device, then plug the adapter into the mains outlet. After switching on, the display shows "PLEASE WAIT". The device initialises and enters its factory-defined operating mode.

> **During initialisation:**
> - do not place any watch on the Pulse Pad or Line Release Pad,
> - do not place any battery on the Battery Pad,
> - connected probes must not touch any terminals (+ or minus),
> - do not press any buttons.
>
> Any interaction during this phase may result in incorrect initialisation, unstable readings or operating errors. Once initialisation is complete, the device is ready for use.

For accurate results: place the watch steadily during testing, keep the probes clean and ensure good contact. If readings are unstable or implausible, restart the device, allow complete initialisation and repeat the test.

6. Frequency Measurement (Frequency)

Measures the frequency of the quartz oscillator (nominally 32.768 kHz for standard quartz movements). Deviations from the nominal value may indicate oscillator instability or circuit-related issues.

Range	30 to 35 kHz
Resolution	0.1 Hz
Acceptance range	32,767 to 32,769 Hz (valid reading for standard 32.768 kHz quartz movements)
Checking intervals	10, 20, 60, 120, 240, 480 or 960 seconds (default: 60 s)

1. Place the watch on the Pulse Pad.
2. Press FUNCTION (L) and select "Frequency".
3. If required, press VALUE to set the checking interval.
4. The frequency is displayed in kHz.

7. Rate Deviation

Measures the deviation of the watch from standard time, displayed in seconds per day (s/d) or seconds per month (s/m).

Resolution	0.01 s/d
Reference accuracy	±2 ppm
Checking intervals	10, 20, 60, 120, 240, 480 or 960 seconds (default: 60 s)

1. Place the watch on the Pulse Pad.
2. Press FUNCTION (L), select "Rate Deviation" and set the checking interval with VALUE.
3. The rate deviation is displayed after the set interval.

Reference values for standard analogue quartz movements

Rate deviation	Assessment
0 to ±0.5 s/d	very low deviation
±0.5 to ±1 s/d	low deviation
±1 to ±5 s/d	may be within normal operating tolerance
above ±5 s/d	further evaluation recommended

Always refer to the tolerance specified by the movement manufacturer for the final assessment.

8. Pulse Detection (Pulse)

Detects the electrical pulses of the quartz movement and checks the function of the pulse generator and drive circuit.

A. Using the Pulse Pad (default)

1. Place the watch on the Pulse Pad.
2. Press FUNCTION (L) and select "Pulse". The device works with the Pulse Pad by default.
3. Observe the display and listen for the TIC-TOC sound.
4. A regular, uninterrupted pulse indicates proper movement operation.

B. Using the probes

1. Connect the test probes to the analyzer.
2. Press FUNCTION (L) and select "Pulse".
3. Press VALUE to switch from PULSE-PAD to PULSE-PROBE.
4. Hold the probes to the coil terminals of the movement.

Display

"TIC" (bottom) represents one pulse phase, "TOC" (top) the alternate phase. If TIC and TOC appear consistently, the pulse output is normal. If TIC or TOC is missing, this indicates a pulse irregularity or a possible fault.

9. Line Release Test

An internal motor with magnetic drive rotates the watch hands. This verifies proper gear train operation and clears minor obstructions caused by dirt or degraded lubrication.

1. Place the watch on the Line Release Pad.
2. Press FUNCTION (L), select "Line Release" and activate the function.
3. The hands rotate. The gear train should run smoothly without abnormal resistance or interruption.
4. The function runs for approx. 5 seconds, with a countdown on the display.
5. Afterwards verify the movement with the pulse test. Repeat if required.

> This function is intended for diagnosis and for releasing minor obstructions only. Avoid excessive repeated use, as it may strain the gear train over time.

10. Power Consumption and Motor Drive Test

The device provides an adjustable test voltage and measures the current consumption of the movement. This helps to identify abnormal consumption, weak movements and mechanical obstructions in the gear train. Testing at reduced voltage shows the operating limit of the movement.

Range	0.10 to 99.99 µA
Test voltage	default 1.55 V, adjustable up and down in 0.05 V steps

Measuring power consumption

1. Press FUNCTION (R), select "Power Consumption" and set the test voltage.
2. Without MDT fixture: hold the red and black probes to the movement terminals. With MDT fixture: place the movement on the fixed red and the right-hand black probe contacts.
3. The current consumption is displayed in µA.

Motor Drive Test (ACCN, optional MDT fixture only)

1. Remove the battery from the movement and secure the movement in the MDT fixture.
2. Press FUNCTION (R), select "Power Consumption" and set the voltage.
3. Place the fixed red probe on the metal body plate of the movement, and touch the two black probes to the reset contact and the battery negative contact.
4. Observe the hand movement through the mirror.

11. Coil Resistance

Measures the resistance of the coil in a quartz movement and detects open circuits, short circuits or abnormal values.

Range	0 to 9.99 kΩ

1. Press FUNCTION (R) and select "Coil Resistance".
2. Connect the probes to the sockets (+ and minus).
3. Hold the probes to the coil terminals of the movement.
4. The resistance is displayed in kΩ.

> Ensure good contact. A value significantly higher or lower than specified by the movement manufacturer may indicate a faulty coil.

12. Continuity Test

Checks whether a circuit in the watch is continuous.

1. Press FUNCTION (L) and select "Continuity".
2. Connect the probes to the sockets (+ and minus).
3. Hold the probes to the points or components to be tested.
4. The display shows the resistance. A continuous beep sounds if the circuit is not broken.

13. Battery Test

Measures the voltage of watch batteries, with or without load.

Battery voltages	1.5 V / 3 V / 9 V

1. Place the battery with the (+) side on the Battery Pad, or connect the probes to the sockets (+ and minus) and hold them to the battery.
2. Press FUNCTION (R) and select the appropriate nominal voltage.
3. Use BATT / OUTPUT LOAD to switch between measurement with load and without load.
4. The actual voltage is displayed.

Assessment with load

Nominal voltage	Load resistance	poor	weak	good
1.5 V	5.6 kΩ	below 1.1 V	1.1 to 1.3 V	1.4 to 1.55 V
3 V	15 kΩ	below 2.0 V	2.0 to 2.2 V	2.2 to 3 V
9 V	240 Ω	below 6.0 V	6.0 to 7.2 V	7.2 to 9 V

14. Accuracy and Calibration

The QWA-879 is a microcontroller-based diagnostic instrument with a stable internal reference and precision measuring electronics. Under normal operating conditions, routine calibration is not required.

As part of quality assurance, the function can be verified periodically with a reference watch or standard sample. In case of abnormal readings, restart the device. This restores the default operating parameters.

15. Care

- Unplug the power adapter before cleaning.
- Clean the housing only with a dry or slightly damp soft cloth. Do not use solvents or abrasive cleaners.
- Keep probes and pads clean to ensure proper contact.

16. Warranty and Service

The manufacturer grants a one-year warranty from the date of purchase against defects in material and workmanship. Your statutory rights against the seller remain unaffected.

The warranty does not cover damage caused by improper use or handling, an incorrect power supply or non-recommended accessories, impact, moisture, liquids or dust, unauthorised repair, modification or opening of the device, or normal wear of accessories.

Service: For questions, malfunctions or warranty claims, please contact your dealer, Rudolf Flume Technik GmbH (see section 19). Please return the device only after prior agreement and in suitable packaging.

17. Disposal



Electrical and electronic equipment and power adapters must not be disposed of with household waste. Return old devices to a municipal collection point or to your dealer. Batteries must be disposed of separately.

WEEE Reg. No. DE 39521440

18. Technical Data

Model	CIW QWA-879 (Rev. 4.1)
Power supply	12 V DC, 1 A via power adapter (SELV)
Display	high-contrast LCD
Frequency measurement	30 to 35 kHz, resolution 0.1 Hz, acceptance range 32,767 to 32,769 Hz
Rate deviation	resolution 0.01 s/d
Power consumption	0.10 to 99.99 µA
Coil resistance	0 to 9.99 kΩ
Battery test	1.5 V / 3 V / 9 V, with and without load
Housing	ABS plastic
Operating temperature	10 to 40 °C
Storage temperature	-10 to +60 °C
Dimensions (L × W × H)	220 × 135 × 75 mm
Weight	approx. 490 g

19. Manufacturer and Importer

Manufacturer

Charu Integrity Works
Shram Safalya, Thorat Building, Sr. No. 75/2
Near Railway Crossing, Sayyad Nagar, Hadapsar
Pune 411028, Maharashtra, India
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Importer and contact in the EU

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45127 Essen
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Based on the manufacturer's original operating manual (version 4.1). Subject to technical changes and errors.