rqmicro
rapid quantitative microbiology

rqmicro.COUNT

Rapid and Quantitative Microbiological Analysis

Quantify viable bacteria

- Effective process control
- Unmatched precision
- Result in 30 minutes

Quantify pathogens

E. coli, Legionella

- Fast hygiene assessment
- Highest safety standards
- Result in 2 hours

Grounded in Science, Designed for Industry

rqmicro (**r**apid **q**uantitative **micro**biology) makes fast and precise microbiological analysis available for routine use. The rqmicro.COUNT platform builds on pioneering research at ETH Zurich[1] and Eawag[2] and enables users to obtain actionable microbiological data within minutes instead of days.

For more than a century, microbiological testing has relied primarily on culture-based methods that require days to deliver results.

rqmicro.COUNT combines flow cytometry with optional immunomagnetic target-cell isolation to enable cultivation-independent analysis at the single-cell level, delivering reliable, quantitative results within minutes.

rqmicro.COUNT supports customers in water utilities, industrial water management, manufacturing quality control, and life sciences research. It provides the microbiological information needed to safeguard product and water quality, optimize processes, ensure regulatory compliance, and reduce costs and operational risk.

A portfolio of ready-to-use assays enables the quantification of intact and total microbial load as well as the specific detection of *Escherichia coli* and *Legionella*, giving users actionable data to make informed decisions with confidence.

*"**Our mission** is to empower customers with a simple, fast and precise microbiological testing solution. By transforming microbiological testing from a slow, reactive process into a fast, data-driven workflow, rqmicro enables better decisions, stronger process control, improved product and water quality, and more effective risk management across diverse industries."*

Dr. Hans-Anton Keserue,
Founder & CEO of rqmicro

[1] ETH Zurich: Swiss Federal Institute of Technology
[2] Eawag: Swiss Federal Institute of Aquatic Science and Technology

Application Areas

Microbiological analysis helps identify, monitor, and quantify microorganisms wherever they influence processes, products, or equipment. rqmicro.COUNT provides fast and precise microbial analysis across various applications, from protecting public water supply to improving manufacturing processes.

Water Utilities

✓ **Early detection of microbial changes and *E. coli* contamination for improved water quality monitoring and operational control.**

Microbial conditions can change rapidly throughout water systems, making early detection essential to ensure safe and reliable water from source to tap. Increasing water reuse introduces new opportunities while creating additional microbiological monitoring challenges.

- Source Water Monitoring
- Treatment Process Control
- Distribution System Monitoring

Industrial Water

✓ **Optimized treatment processes and reliable *Legionella* control through quantitative microbiological data.**

Complex water systems used for cooling and production processes require effective microbial control to maintain system performance, reduce operating costs, and minimize operational risks.

- Cooling Water Management
- Process Water Quality Control
- Water Treatment Optimization

Manufacturing Quality Control

✓ **Faster release decisions, improved process control and reduced contamination risks through timely microbiological insights.**

Manufacturing processes require reliable quantitative microbiological data to verify quality parameters, monitor critical thresholds and identify contamination risks before they impact supply chains.

- Product Quality Testing
- Contamination Control
- Bioprocess Monitoring

Laboratories & Research

✓ **Rapid single-cell analysis of total bacteria and targeted pathogens for advanced research and high-value testing services.**

Culture-independent analysis provides applied research and analytical laboratories with reliable microbial data, accelerating research, method development, and customer reporting.

- Rapid Microbiology Testing
- Research Applications

User Perspectives

Rapid, quantitative microbiological data enables users to make informed decisions faster, improve process control, and manage microbiological risks with confidence.

*"The rqmicro.COUNT offers a **fast and reliable microbiological monitoring solution,** essential for our water recycling tests."*

Société Monégasque des Eau
Water Utility, Monaco

*"Legionella monitoring using rapid flow-cytometry (rqmicro) delivered results within two hours and detected both culturable and viable-but-non-culturable cells, enabling **more effective control of cooling tower water systems.**"*

Liquisens BV and AGFA-Gevaert N.V.
The Netherlands

*"With rqmicro.COUNT, the **total weekly workload for bacterial quantification is reduced by 50%** compared to the previous system and we get more reliable results."*

Percitech
RAS Aquaculture, Switzerland

*"rqmicro's flow cytometry enables us to **quickly and accurately assess the microbiological quality of water.** Thanks to the short analysis time and the detailed analysis of the water's microbiological status, we can **provide our clients with early support and a sound basis for preventative measures.**"*

Hydrolab AG
Service Lab, Switzerland

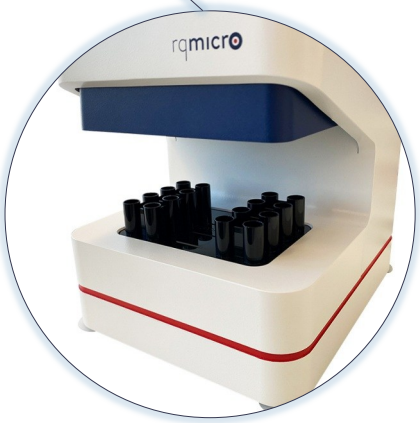
rqmicro.COUNT Instrument

Plug-and-play device

- rqmicro.COUNT is always ready for use. The instrument requires no routine cleaning or maintenance, ensuring consistent analytical performance for every measurement.
- Its sample throughput is optimized for single-site operation, mobile applications and specialized laboratories. rqmicro.COUNT processes up to 8 samples per run for intact and total cell count and *E. coli* analysis, and up to 4 samples per run for *Legionella* analysis.
- The Cloud Solution automatically synchronizes measurement data from all critical control points (CCPs), ensuring results are securely stored and immediately accessible to authorized stakeholders.

Sample processing on single-use cartridges

- Samples are analyzed in single-use cartridges, eliminating cross-contamination risks and protecting the instrument from sample -induced contamination or damage.
- The cartridge-based workflow guides users through each step of the analysis, reducing operator variability and ensuring consistent execution across users and locations.
- Each measurement uses a new detection channel, ensuring consistent optical conditions and reliable performance without cleaning or maintenance.



Flow cytometric optical system

- The optical system of rqmicro.COUNT is based on flow cytometry, enabling the detection and characterization of individual cells as they pass through a microfluidic detection channel.
- rqmicro.COUNT is the world's first cartridge-based flow cytometer designed for highly sensitive bacterial analysis, combining the performance of flow cytometry with a compact, robust workflow that requires no additional sheath fluid.
- Its patented, self-calibrating optical unit automatically aligns with the detection channel before every measurement, ensuring consistent analytical performance for laboratory, mobile and on-site applications.

Large touch screen user interface

- rqmicro.COUNT features a 10-inch capacitive touchscreen with an intuitive user interface for straightforward operation.
- A guided, program-based workflow with organization-specific predefined tags simplifies routine testing and ensures that measurement steps and analytical settings are automatically configured for each test type.
- Measurement data is automatically synchronized between the rqmicro.COUNT instrument and the Cloud Solution. Regular over-the-air software updates maintain compatibility with future test kits and continuously extend system capabilities.

rqmicro.COUNT

Accessible Flow Cytometry

rqmicro.COUNT makes the analytical power of flow cytometry available for routine microbiological testing. Automated workflows and an intuitive user interface enable quality managers, laboratory staff and process operators to perform bacterial analysis with minimal training, reducing dependence on specialized personnel while delivering consistent results.

Compact Design for Flexible Deployment

Performing measurements close to the sampling point simplifies workflows, reduces sample transport and enables microbiological testing to become part of routine operations. With its small footprint, rqmicro.COUNT can be installed wherever microbiological information is needed: in the laboratory, the production environment or utility areas.

Integrated Cloud Synchronization

Every measurement is automatically synchronized with the rqmicro Cloud Solution, ensuring microbiology data is securely stored and immediately available across users and sites. Centralized data management improves traceability, simplifies documentation and provides direct access to historical results for quality control, process monitoring and audit readiness.

Refer to the last page of the brochure for detailed technical specifications.

Test Kits

rqmicro Test Kits enable rapid, culture-independent detection and quantification of bacteria by flow cytometry. The portfolio includes kits for total and viable cell counting, *Legionella*, and *E. coli.*

Test Kit	Used for	Specifications
Total Cell Count Kit	Assessing treatment efficacy and monitoring of microbial populations in drinking water and industrial processes.	Result: # total cells / mL Limit of Detection: 100 cells / mL Working range: 300 cells - 5M cells Time to first result: 22min
Intact Cell Count Kit	Microbial monitoring, process control and quality control based on fast and precise quantification of total viable cells.	Result: # viable cells / mL Limit of Detection: 10 cells / mL Working range: 30 cells - 5M cells Time to first result: 22min
Legionella Kits	Assessing health, financial and regulatory risks from water systems based on the specific quantification of viable *Legionella spp.,* or L. *pneumophila* SG 1-15 or SG 1. Monitoring water treatment efficacy, optimizing biocide dosage, protect human health and reduce regulatory risk.	Result: # viable cells / 100 mL Limit of Detection: 50 cells / 100 mL Working range: 150 cells - 5M cells Time to first result: 1h 27min
E. coli Kits	Fast detection of fecal contamination for process control, quality control, hygiene and safety monitoring based on the specific qualitative (E. coli Detect) or quantitative (E. coli Count) detection of viable *E. coli* including the Big 6 STEC and *E. coli* O157.	Result: Yes/No (Detect Kit); # viable cells / 100 mL (Count Kit) Limit of Detection: 1 cell / 100 mL Working range: 3 cells - 5M cells Time to first result: 1h 50min

Workflow

1 — 2 — 3 — 4

Sample Preparation

Add 1mL sample to Reaction Tube

Perform filtration or dilution, if required

Reaction Time

Allow the sample to react with the staining reagents

Total Cell Count: 15-30 min
Intact Cell Count: 15-30 min
Legionella: 60 min
E. coli: 30-60 min

Measurement

Transfer the sample to the rqmicro.COUNT Cartridge.

Register the sample and start the analysis.

Results

Retrieve cell concentrations and flow cytometry plots on rqmicro.COUNT and on the Cloud Solution.

Cloud Solution

The rqmicro Cloud Solution is a Software-as-a-Service (SaaS) platform that extends the capabilities of the rqmicro.COUNT instrument. It centralizes microbiology data, streamlines routine workflows and provides secure access to measurement results.

Centralized Data Management

All measurement results are automatically synchronized from the instrument to the Cloud Solution. Authorized users can access current and historical data from any location, enabling consistent documentation, full traceability and collaboration across teams and sites.

Digital Workflows

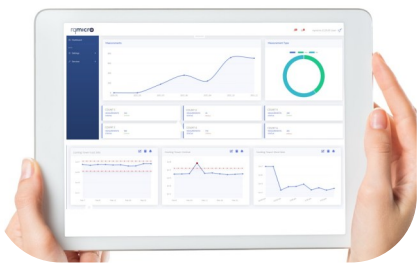
The Cloud Solution replaces manual data handling with structured digital workflows. Automated data capture and centralized record keeping simplify routine operations, reduce administrative effort and support quality management and regulatory compliance.

Advanced Flow Cytometry Analysis

For experienced users, the Cloud Solution provides advanced flow cytometry tools, including customizable electronic gating and detailed analysis of microbial sub-populations. These capabilities support process optimization and in-depth interpretation of measurement results.

Integrated Remote Support

The Cloud Solution enables secure remote support by rqmicro, allowing rapid troubleshooting, application support and software assistance without requiring on-site intervention.



Risk Management

Receive instant alerts from automated tracking of test results at Critical Control Points (CCP).

Benchmarking

Compare microbial dynamics across processes and sites to drive continuous quality improvement.

Compliance

Maintain data integrity with electronic records. Secure storage supports traceability and audit readiness.

rqmicro.COUNT Technical Specifications

ANALYTICAL SYSTEM

Measurement technology: Fluorescence-based flow cytometric analysis

Cell sorting capability: Immunomagnetic separation (IMS)

Excitation: 1 Laser at 488nm wavelength

Detection: 2 fluorescence channels, up to 10‘000 events per second

Sample volume: 200 µL up to 1 mL

Flow rate: 60 µL / min (during measurement)

USER INTERACTION & CONNECTIVITY

User interface: 10 inch capacitive LCD touch screen

Language support: English, German, Chinese

Connectivity: 2x USB, 1x Ethernet, USB dongle ready for WLAN/cellular networks

Software upgrades: Online delivery or via USB flash drive

OPERATING CONDITIONS & DIMENSIONS

Power consumption: 60 W, 12 V DC, 7.5 A , AC benchtop adapter, 100 - 240 V, 50/60 Hz

Operating environment: Temperature: 15 °C – 27 °C, non-condensing

Dimensions: B x W x H (cm): 22.5 x 23.5 x 46.5

Weight: 12.9 kg

Safety compliance: EN 61010-1

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