rqmicro
rapid quantitative microbiology

rqmicro.COUNT

Rapid and Quantitative Microbiological Analysis

Quantify viable bacteria

- Effective process control
- Unmatched precision
- Results within 30 minutes

Quantify pathogens
E. coli, Legionella

- Fast hygiene assessment
- Highest safety standards
- Results in 90 minutes

Grounded in Science, Designed for Industry

rqmicro.COUNT technology has been developed during 12 years of research and development at rqmicro (rapid quantitative microbiology) in collaboration with the Swiss Federal Institute of Technology (ETH) and the Swiss Federal Institute of Aquatic Science and Technology (Eawag).

After more than 100 years, analytical methods in water microbiology have seen little progress and are mainly based on cell cultivation. The method used by rqmicro does not require cell cultivation due to the high-performance optical system and the optional, specific isolation of target cells. As a result, the method delivers results on single-cell level within minutes instead of days.

The use of flow cytometry and immunomagnetic separation has been limited to clinical and research and development laboratories as well as academic institutions for the past 40 years. With rqmicro.COUNT, these technologies are now available for routine use in industry, in the field and in applied research groups.

rqmicro.COUNT enables operators of cooling towers, industrial and public buildings, and water treatment plants to accurately monitor the quantity of viable bacteria. In our range of available kits, we offer customers the possibility to monitor the total microbial load and also to quantify *Legionella* and *E. coli* cells specifically.

"The aim of rqmicro is to enable customers to take control over the microbiological situation in water systems. Reliable and quantitative data makes it possible to improve water management and risk control to make water safer and create value for the water industry."

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

Where We Make a Difference

At rqmicro, we are dedicated to transforming the way microbial testing is conducted across various industries.

rqmicro.COUNT provides rapid and accurate test results, helping businesses to take control of microbiology in water systems and to enhance product and process quality, safety, and efficiency.

Selected applications where rqmicro excels include:

> Microbial monitoring in food and beverage

> Cooling tower monitoring

> Recirculating aquaculture systems (RAS)

> Municipal water management

> Applied research in water microbiology

> Water safety concept for facility management

> Legionella risk management

> Rapid microbiology test services in contract labs

Benefits for companies in various industries:

✓ Enhance Quality Assurance (QA) and Quality Control (QC)

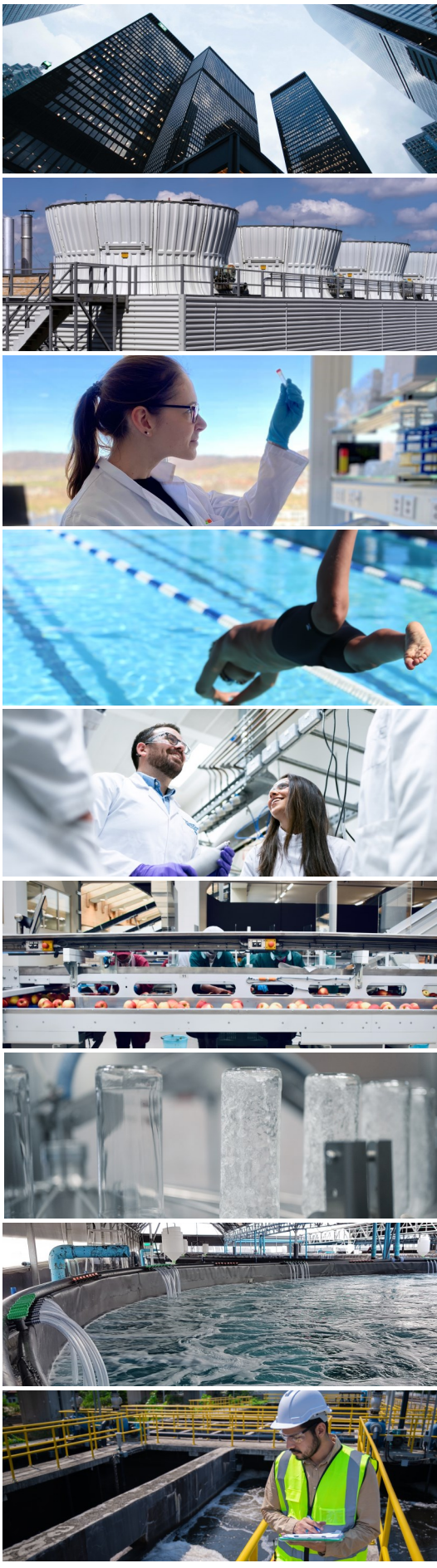
✓ Optimize water treatment and Clean-in-Place (CIP) processes

✓ Minimize health risk and financial risk from pathogens

✓ Support environmental, social, and corporate governance (ESG)

✓ Save costs related to microbial monitoring

Visit our website or contact us to discover how rqmicro can help you make a difference in your specific application.



Testimonial

"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."

Beat von Siebenthal,
Head of R&D at Percitech, Switzerland

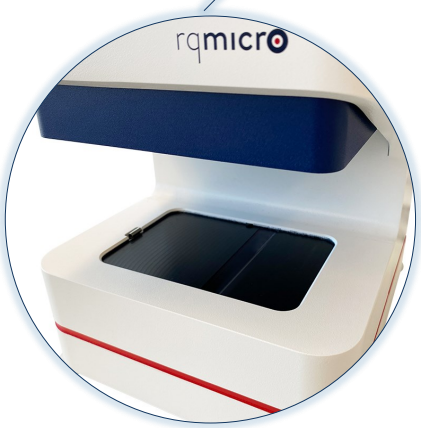
rqmicro.COUNT Instrument

Plug-and-play device

- rqmicro.COUNT is always ready to use. The instrument does not require regular cleaning or maintenance and assures consistent analytical quality for each measurement.
- Sample throughput is ideal for single sites, mobile use or specialized labs. 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 the analysis of Legionella.
- The Cloud Solution assures that results obtained at different critical control points (CCPs) are always securely stored and immediately available to all relevant stakeholders.

Sample processing on single-use cartridges

- Samples are contained in single-use cartridges during the analysis. This eliminates the risk of cross-contamination between samples and assures the hardware is never compromised.
- Users benefit from easy handling of the cartridges and receive step-by-step guidance from the instrument screen.
- Organizations benefit from flexible use of the instrument due to limited training requirements and elimination of operator bias.



Flow cytometric optical system

- The optical system in rqmicro.COUNT is based on flow cytometry which is a high-performance optical technology to analyze single cells that flow through a detection channel at a high speed.
- rqmicro.COUNT presents the world's first cartridge-based flow cytometer with high sensitivity for the analysis of bacteria.
- The patented, self-calibrating optical unit aligns with the detection channel upon each measurement and hence ensures analytical precision in mobile and on-site use.

Large touch screen user interface

- rqmicro.COUNT features a 10-inch capacitive LCD touchscreen that guides users from naming samples to inserting the cartridge and up to accessing the results.
- Users benefit from a program-based workflow and the selection of pre-defined tags at organization level. Upon selecting a test kit, the instrument adjusts all steps and analytical settings accordingly.
- Settings defined on the Cloud Solution are always available on the instrument. Regular software upgrades enhance the functionality of the instrument and ensure every instrument stays up to date.

rqmicro.COUNT

Enables better decisions

Single-cell analysis of viable bacteria generates timely and accurate microbiology data. Better insight into microbiology enables immediate response when needed, more effective hygiene measures, accurate benchmarking between processes and sites, and the implementation of reliable microbiology monitoring procedures.

Provides a comprehensive platform

rqmicro.COUNT supports unspecific bacteria tests (intact and total cell count) and the most relevant specific pathogen tests (E. coli and Legionella). The platform is ready to support more test kits in the future and enables companies to take control of microbiology in drinking water and process water systems, production processes and facilities.

Puts you in control and saves costs

rqmicro.COUNT enables quality control managers and process engineers to be in the driver seat when it comes to microbial analysis. The ability to perform unspecific bacteria tests as well as specific pathogen tests efficiently in-house in routine use, Clean-in-Place (CIP) procedures, equipment maintenance and quality inspections enables companies to improve resiliency and efficiency and cut costs related to microbial testing.

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

Test Kits

rqmicro empowers both industry professionals and scientists to benefit from flow cytometric single-cell counting of bacteria including viability assessment.

Test Kit	Used for	Specifications
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 Working range: 5 cells - 3M cells Time-to-result: 15 - 30 min
Total Cell Count Kit	Assessing treatment efficacy and monitoring of microbial populations in drinking water and industrial processes.	Result: # total cells / mL Working range: 5 cells - 3M cells Time-to-result: 15 - 30 min
Legionella Kits	Assessing health, financial and regulatory risks from water systems based on the specific quantification of *Legionella pneumophila* SG 1 and SG 1-15. Monitoring water treatment efficacy, optimizing biocide dosage, protect human health and reduce regulatory risk.	Result: # viable cells / 100 mL Working range: 80 cells - 2M cells Time-to-result: 90 min
E. coli Kits	Fast detection of fecal contamination for process control, quality control, hygiene and safety monitoring based on the specific detection of *E. coli* including the Big 6 and *E. coli* O157.	Result: # viable cells / 100 mL Working range: 1 cell - 2M cells Time-to-result: 1h 35min (LOD = 10 cells / 100mL) or 5h 45min (LOD= 1 cell/ 100mL)

What to do? Yes, it is as simple as this!

Sample acquisition

Optional sample preparation

- Concentration
- Dilution

Provide sample into single-use reaction tube

Transfer sample to cartridge and provide to instrument

Select program and start analysis

Cloud Solution

QC managers and process engineers find peace of mind in rqmicro's Cloud Solution, a software-as-a-service (SaaS) offering that complements the rqmicro.COUNT instrument. Together, they represent a comprehensive platform for microbial monitoring in any company.

Data security is a top priority. Test results are automatically stored on a secure server and remain accessible at anytime from anywhere to permitted stakeholders.

The Cloud Solution is designed to meet organizational needs, replacing manual methods with intuitive software for improved risk management and streamlined workflows.

For advanced flow cytometry users, the Cloud Solution offers powerful features including customizing electronic gates and analyzing sub-populations.

In addition, users get effortless access to remote support provided by rqmicro through the Cloud Solution.

Core benefits

Eliminate the risk of outbreaks

Automated tracking of test results at Critical Control Points (CCP) with instant alerts to relevant stakeholders.

Stay informed, react fast, and ensure quality is never compromised, therefore saving you time and money.

Benchmark processes and sites

Use the Cloud Solution to verify treatment procedures, compare processes and water systems.

Leverage rqmicro.COUNT's analytical precision to fine-tune processes across your organization using the Cloud Solution.

Show success and compliance

Stop relying on handwritten results or spreadsheets.

The Cloud Solution ensures that critical data cannot be lost, miswritten or tampered with. Prove compliance and improvement using time-stamped electronic data.

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

Physical 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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