Powerful **Imaging** & **AI** Technology for Water Quality and Treatment Optimization

BACTERIAL WATER SCANNER

REAL-TIME, CONTINUOUS, AUTOMATED, LABEL-FREE SYSTEMS FOR BACTERIAL TOTAL COUNT IN WATER



Background

Влст

VBact develops and manufactures novel powerful Imaging & AI based systems for real-time, continuous and automated bacterial and micro-particles Total Count in water.

VBact systems called "Bacterial Water Scanner" [Scanner] replace the standard method of monitoring bacteria. These standard processes are mostly manual, complex and requires days to results.

The systems offer superior solutions for water quality and safety, management of irregular / contamination events and optimization of water treatment processes.

Technology

The systems state of the art capabilities are achieved by integration of new technological concepts developed by VBact, mainly in the following fields:

- Patented "Direct Imaging" a special High Definition resolution imaging unit, inducing various properties in each cell / object
- Advanced proprietary image processing algorithms, including AI and Machine Learning
- Digitalization direct transformation of water into digital data

Available system models:

- 1. "In-Line Bacterial Water Scanner" in-line, automated monitoring of continuous water flow
- 2. "Lab Bacterial Water Scanner" for testing specific discrete water samples

Scanner offers three fundamental continuous parameters for water quality: Bacterial Total Count

Outstanding Advanatages

New standard of monitoring:

- Detects <u>ALL</u> bacteria including pathogenic bacteria: *E.coli, Coliform, Legionella, Pseudomonas* etc.
- Real-time results rapid reaction to irregular events
- Eliminates sampling gaps by continuous 24/7 monitoring
- · In-line sampling most accurate sampling method
- · Autonomous no need for operator. Automated sampling, testing, reporting, alerting
- Reagent-free cuts down the cost and logistics of using biohazard materials
- Digitalization & Big Data collect, understand, benchmark, and drive new actions and insights
- Low operational cost and various cost saving chemicals, energy, time, water, lab resources

Operational efficiencies:



Minimize Boil Alerts / Recalls - immediately detect quality gradient shifts

- Detect sudden contamination
- Sensitive water monitoring by single cell & particle analysis technology
- Internal contamination Alert unit



Detect water system vulnerabilities

- Water treatment / filtration failures
- Internal fouling
- Air pockets standing water



Validate water treatment processes

- Validate bacterial level reduction along the water system
- Optimize processes and vendors equipment i.e. filter replacement schedule, filtration type, automated chlorination reduce DBP
- Validate the cleanliness of water systems after CIP, post contamination event



Monitor irregularities

- Bacterial Level
- Duration, level and spread of irregularity
- Quality changes along seasons and climate changes



Improve water data

- Scanner provides "Big Data" +1,500 readings /day
- Digital output
- · New parameters for improved water analytics and management

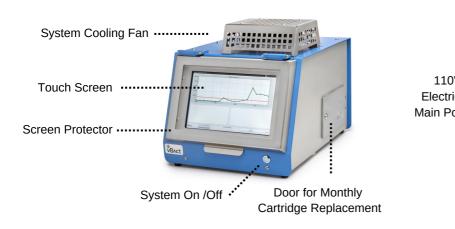


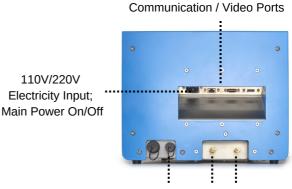
Economic efficiencies

- Less conventional testing
- Minimize human errors
- Automation
- · Environmental friendly solution no reagent and biohazard waste

Front Panel

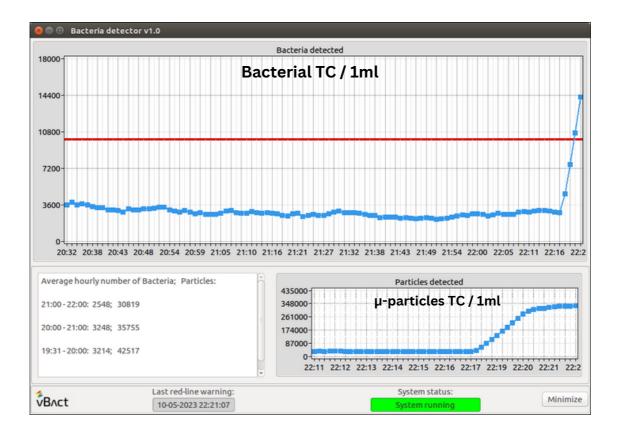
Back Panel





Washing Unit Connector Inlet / Outlet Tubes

Fully automated, continuous monitoring



The Scanner main screen - clear quantitative results

Video - contamination detection demo in real-time: https://youtu.be/lzdskBPB0i4

System dimensions / weight	45 x 33 x 28 cm / 12Kg
Sampling method	In-line analysis
Analysis time	Real-time
Cell / µ-particle Size	0.3 µm and above
Water pipe connectors - inlet / outlet	4mm / 6mm, simple bypass connection
Power input	110V / 220V AC
Data output communication	LAN, Wi-Fi, Modem Cellular
Inlet liquid temperature	10 - 60 C ⁰
Bacterial & μ -particles Limit of Detection	1 to 5x10^6 / 1 ml
Water turbidity	NTU < 5
Disposable [periodical]	VBact Cartridge - flow-cell and pre-filter unit. Periodical replacement - up to one month
Operational ambient temperature / humidity	10 - 35 Cº / 0-80%
Certification	CE, RohS

Ensuring Water Quality & Safety - Anytime, Anywhere



