SAMS2 Brochure

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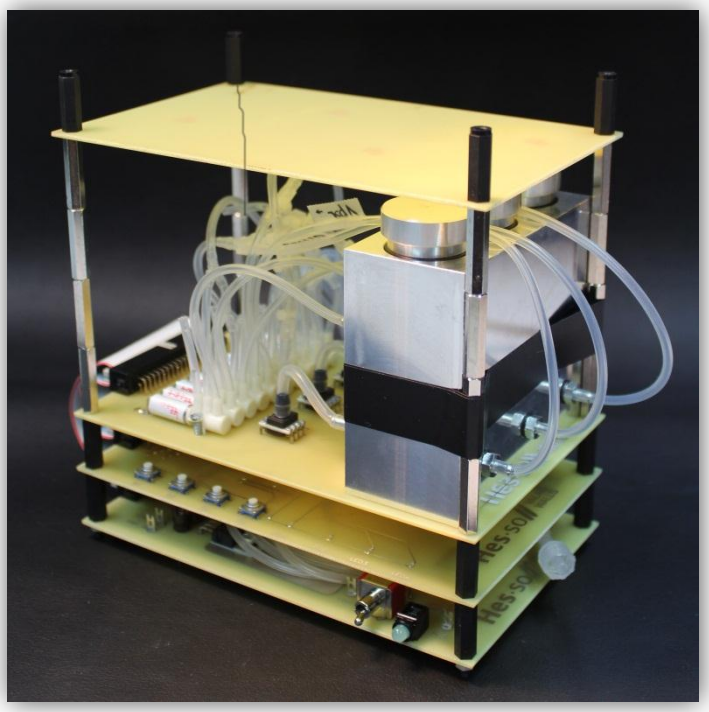
Sensor Assay Microbe Systems for PDMS

SAMS2 is a tabletop system indent to control and operate the two-layered PDMS based microfluidic chip developed at the EPFL (École Polytechnique Fédérale de Lausanne) and the UNIL (University of Lausanne).

It controls the cells and nutrient flow and allows operating the valves integrated into the PDMS. All pressures are supervised by the integrated microprocessor



Device

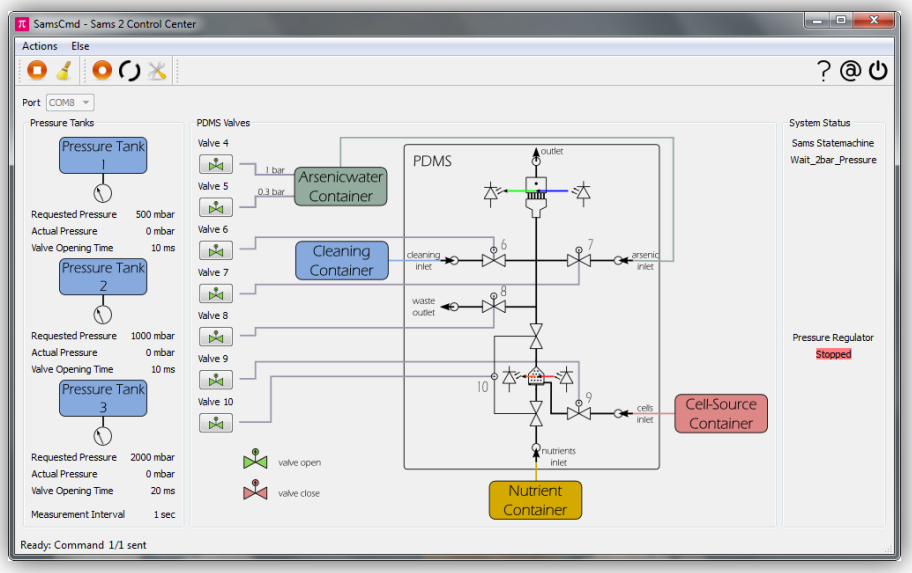
- 3 adjustable pressure chambers between 0.1 – 2 bar
- 3 liquid container for nutrient, cells as well as water sample
- 7 user controllable high speed valves to change water sample pressure or open / close channels
- Valve switching time within ~1ms
- USB connection to a computer
- Powered with a microprocessor TI MSP430
- Genetically modified E. coli producing EGFP protein in presence of arsenic

Measurements

The E. Coli bacteria can be cultivated and maintained, in the micro-chemostat integrated in the PDMS chip, for several day. With its help a continuously supply of fresh cells is provided.

Once a measurement wants to be made, the cells will be pushed into the cells trap where the measurement will be made.

Multiple measurements can be done with a single PDMS chip.



SAMS Control Center

For an ease of use a GUI was developed where the system status can be supervised as well as all valves can be controlled. This helps in the development phase of the PDMS chip

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