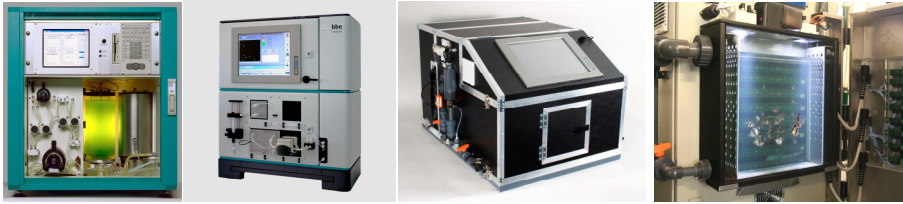


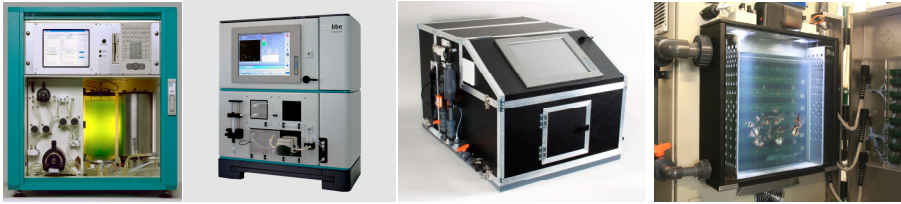
## DaphTox II:

# Real-Time Biomonitoring for Environmental Management and Drinking Water Protection



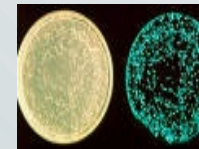
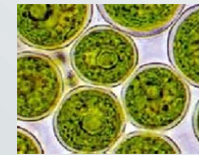
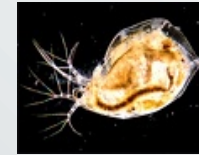
## The Use of Biomonitors

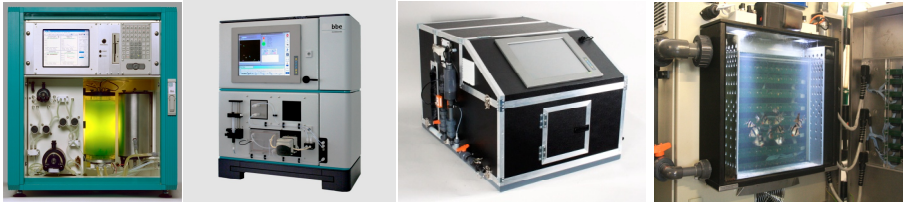
- **Environmental Assessment**
- **Water Treatment Plant Intakes**
- **Wastewater Treatment Plants**
- **Prevention of Sabotage and Terrorist Attacks**
- **Food Industry**
- **Research**
- **Chemical Industry**



## The Organisms of Biomonitorors

- daphnids
- algae
- luminescent bacteria
- mussels
- fish





## Chemical vs. Real-Time Biomonitoring

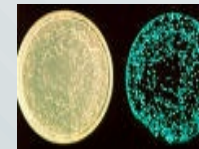
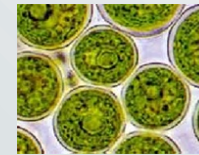
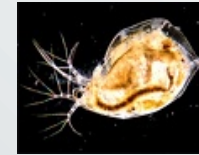
**Chemical analysis detects substances you are looking for but misses others.**

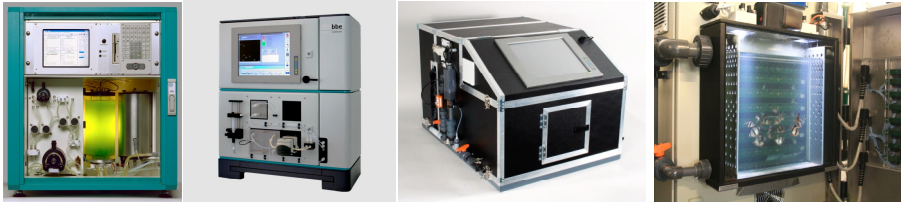
**Real-time biomonitors detect all acute toxic substances without revealing the kind of substance**

**Thus, use of biomonitors for...**

**-> fast response applications**

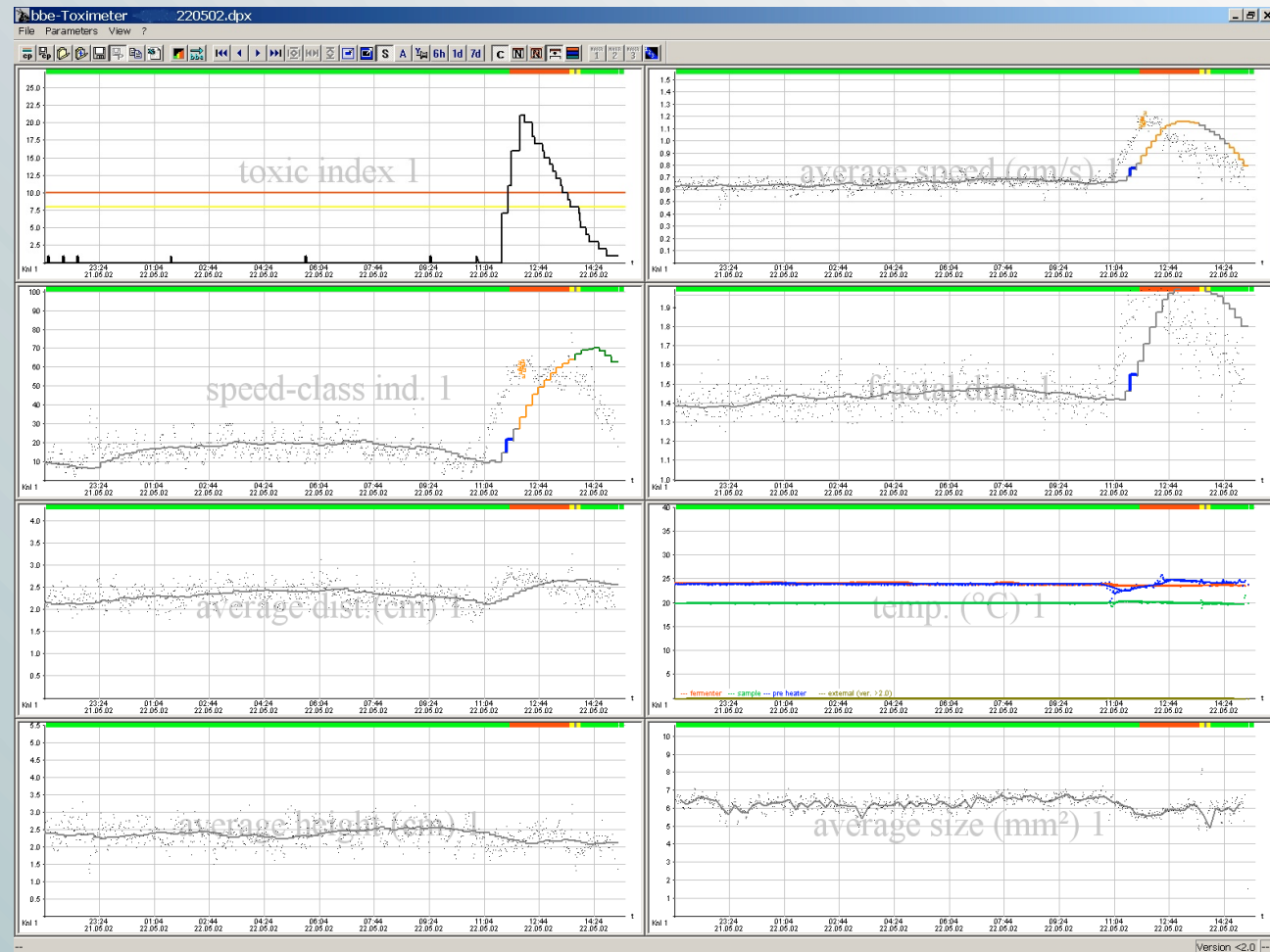
**-> sorting out the relevant samples for chemical analysis**

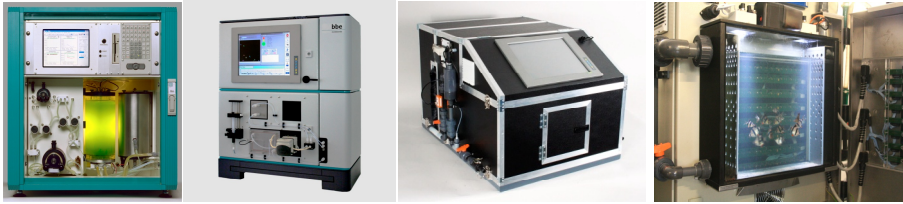




# The DaphTox II - Toxic Alarm -

Deviation in several parameters triggers a toxic alarm





## The DaphTox II

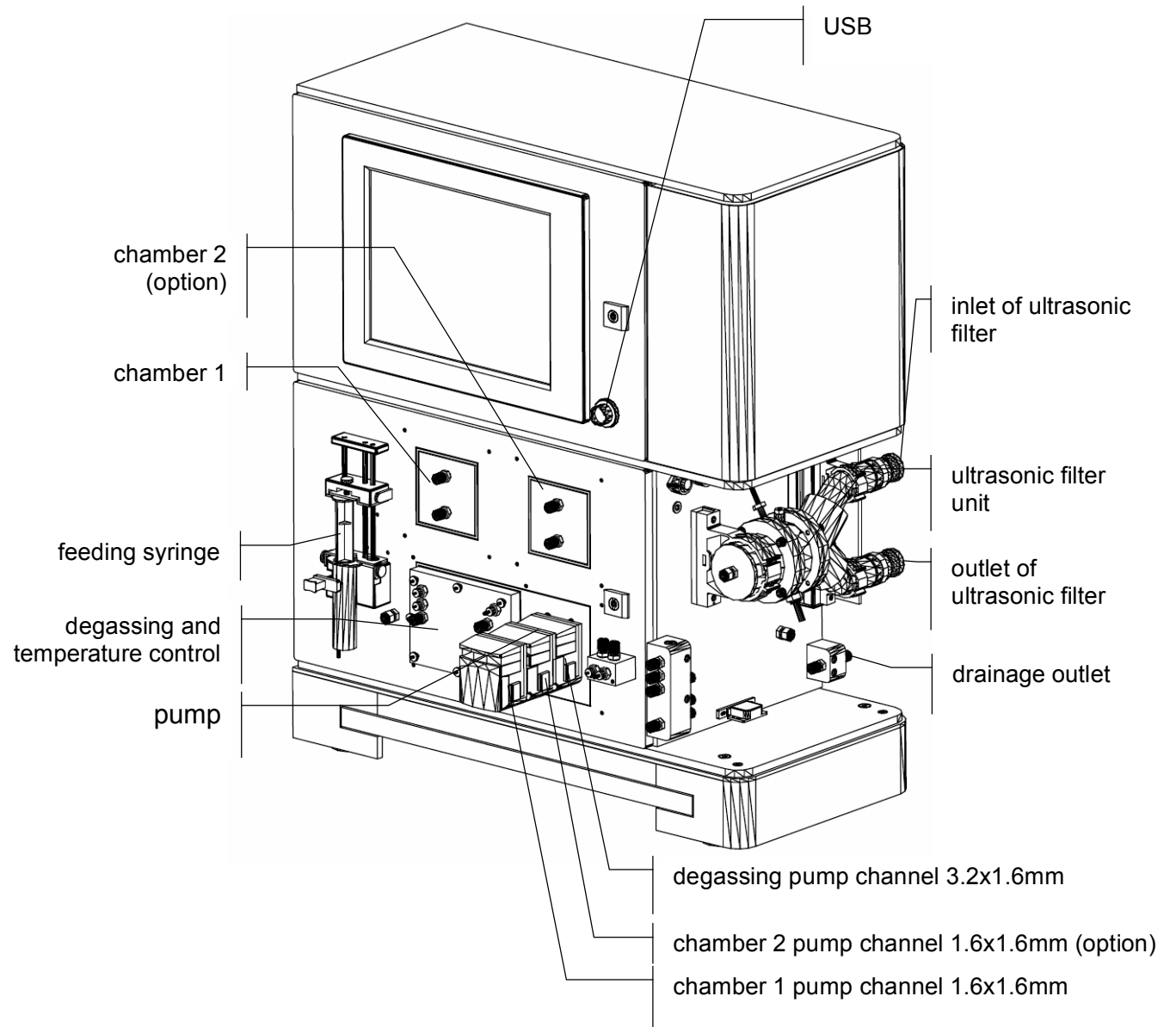
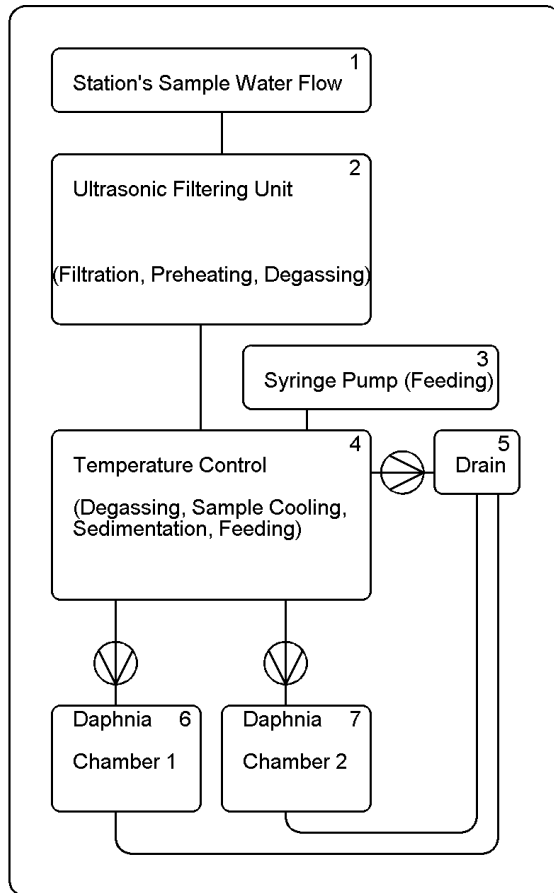
**Fast and sensitive detection of toxic substances in water**

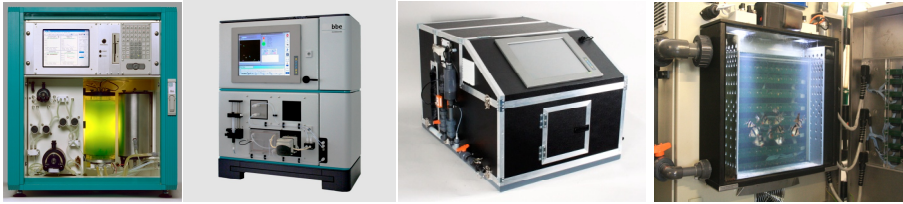
- video system surveillance of swimming behaviour
- automatic alarm evaluation system
- continuous operation
- low maintenance ultrasonic filter /degassing unit
- one- or two-chamber system
- automatic feeding with concentrated algae





# The DaphTox II



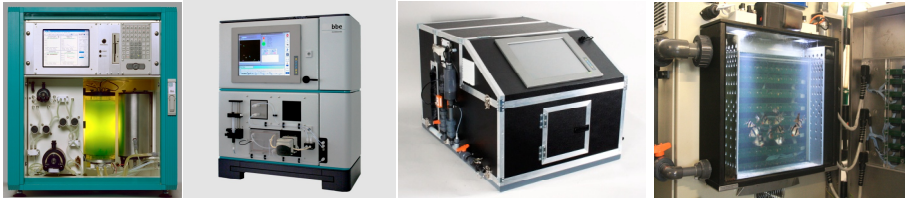


## DaphTox I versus DaphTox II: Amendments

DaphTox I	DaphTox II	Advantage
feeding of algae via continuous fermenter	injection of immobilised algae	redundant culturing efforts, time-saving, more reliable







## DaphTox I versus DaphTox II: Amendments

### DaphTox I

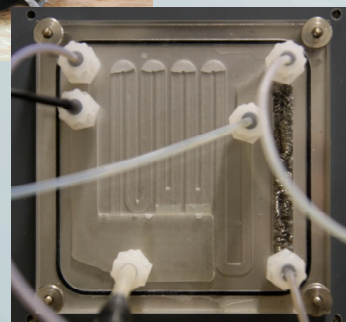
external cooling device

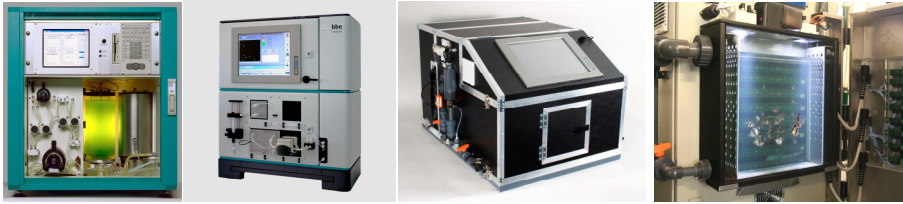
### DaphTox II

internal cooling

### Advantage

reduction of power consumption, 4000€ savings for external cooler

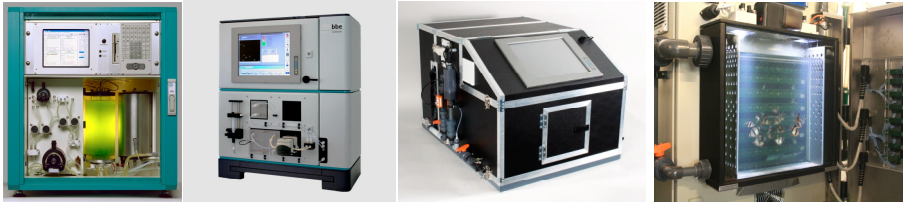




## DaphTox I versus DaphTox II: Amendments

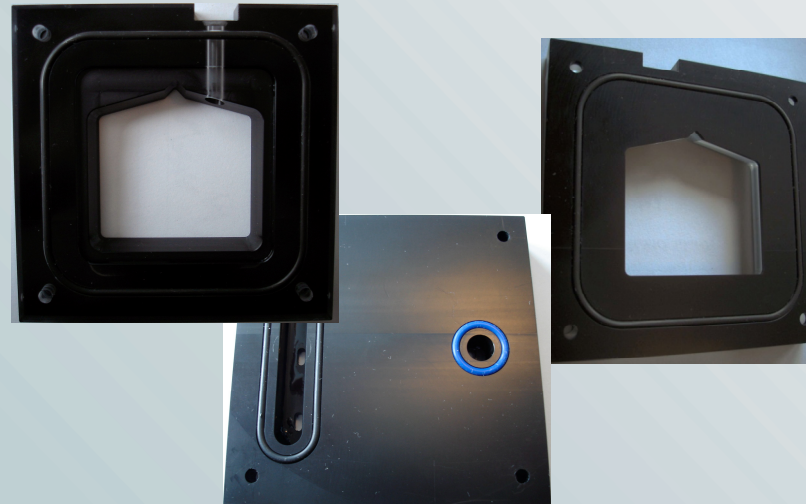
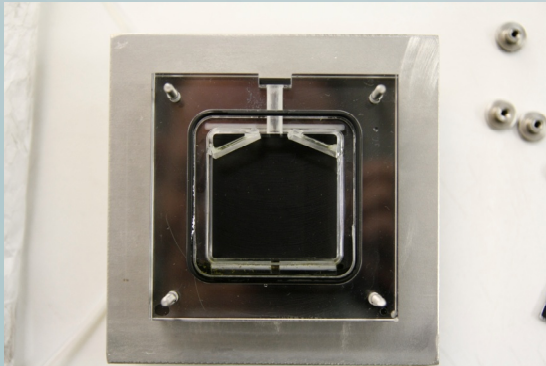
DaphTox I	DaphTox II	Advantage
crossflow filter, 20µm-100µm	ultrasonic device, down to 2µm	better filtration, fewer disturbing particles in the chamber, less maintenance, no clogging

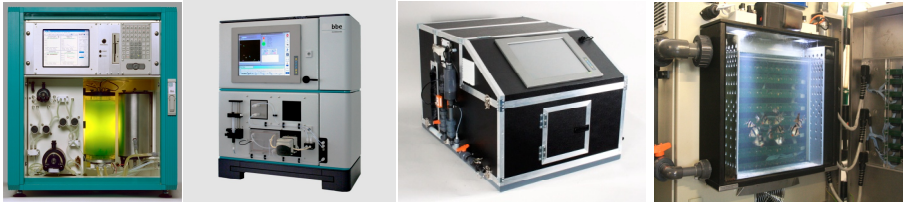




## DaphTox I versus DaphTox II: Amendments

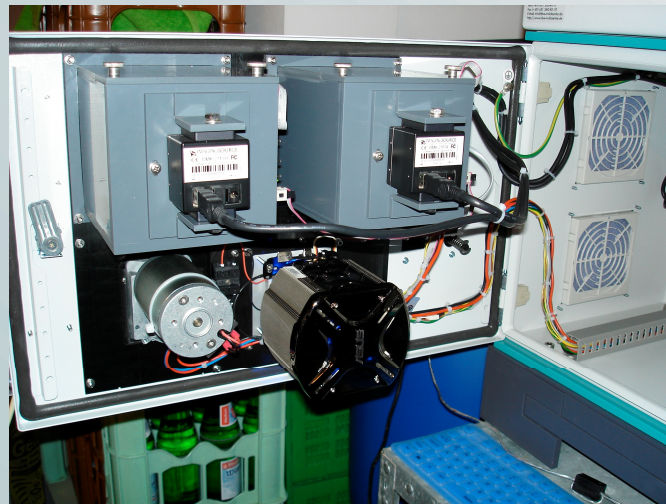
DaphTox I	DaphTox II	Advantage
downstream chamber	modified chamber	air bubbles can be pumped out of the chamber, better mixture, fewer particles in the chamber, unbreakable

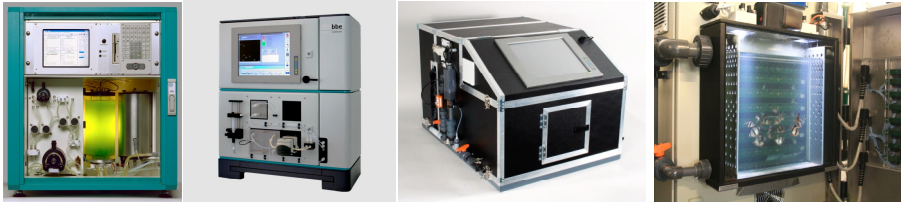




## DaphTox I versus DaphTox II: Amendments

DaphTox I	DaphTox II	Advantage
1 camera for two chambers	2 cameras for 2 chambers	resolution 8-fold greater, better recognition





# DaphTox I versus DaphTox II: Amendments

## DaphTox I

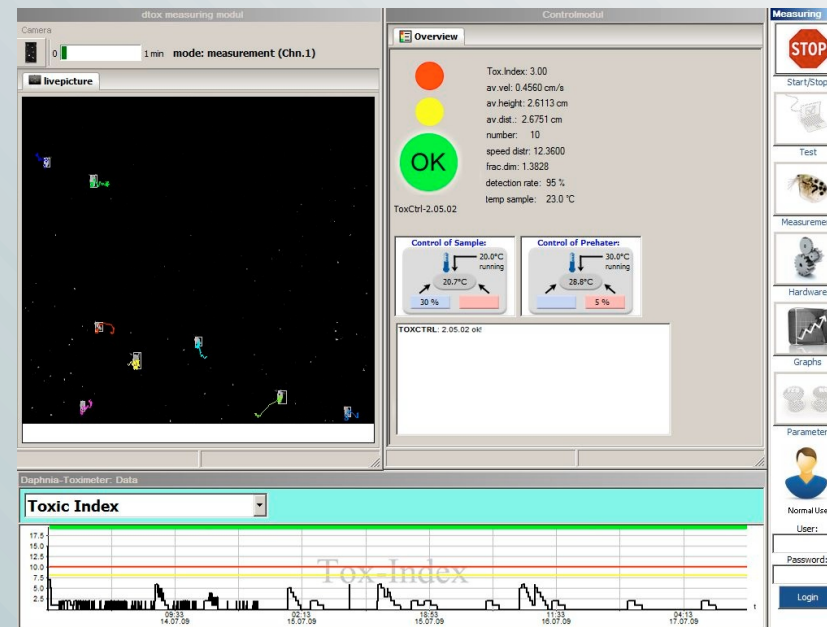
small screen / keyboard

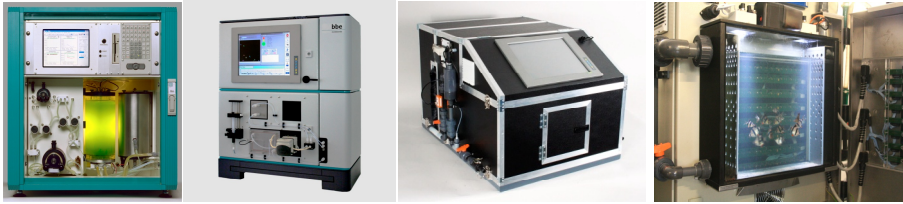
## DaphTox II

large screen / touchscreen

## Advantage

better software navigation





## DaphTox I versus DaphTox II: Amendments

DaphTox I	DaphTox II	Advantage
	<p>less tubing, which is easier to handle</p> <p>better connectors</p> <p>water spillage drawer</p> <p>.....</p>	



# DaphTox I versus DaphTox II: Amendments

**DaphTox I**

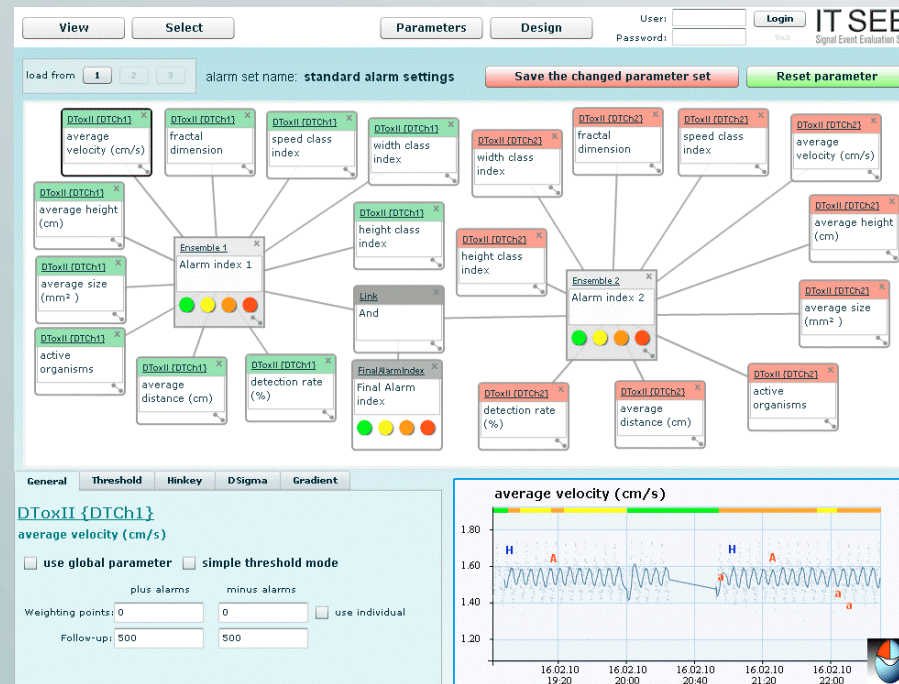
**DaphTox II**

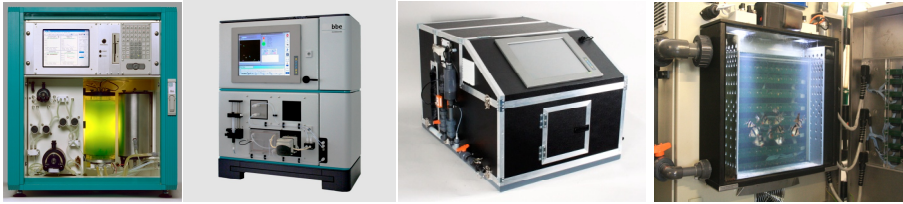
**Advantage**

Daphnia Toximeter software

DaphTox II software

new features, next oral contribution





**Many thanks for  
your attention**