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FishToximeter II

Established System for the Monitoring of Water Quality

- 24/7 observation of drinking water quality
- Autonomous fish behaviour monitoring

FishToximeter II

Online monitoring of freshwater sources with alarm verification in case of pollution

The bbe Fish Toximeter II observes continuously fish movements in a tank flown through by a water stream. Unusual behavior caused by toxic compounds is automatically analyzed. When passing customized thresholds promptly alarms are raised. The Fish toximeter II is the sensitive instrument to be used in drinking water supplies, reservoirs and rivers. The response time of fish for changes of water quality is short. The Fish Toximeter II acts as an early warning system (EWS).

The Fish Toximeter II is well-suited to the detection of willful or accidental damage to water systems such as the drinking water supply. The bbe Fish Toximeter is capable of long-term monitoring in unmanned stations.

A small group of fishes is kept in a tank. Fish as high developed organism has been approved traditionally as adequate for toxicity assessment. Substantial progress is enabled by continuous live video images recorded with a digital camera and analyzed online with advanced alarm software in real-time.
The behavior of the fish is examined and analyzed for sudden changes in different parameters and summed up for the overall "toxic index" The continuous tracking analysis of movements enables an unmatched prediction about acute toxicity in the water.

Toxicity computations and assessments are based on measurements of the following behavior parameters:

- Swimming speed
- Speed class distribution
- Swimming height
- Angle, curviness and turns
- Distance and grouping Size
- Number of living fish (mortality)

FEATURES

- Physiologically fish are closely related to human beings compared to other organisms

- low consumable costs
- User friendly
- Integrated automatic flowmeter
- Automatic feeder and aerator
- External heater for keeping the temperature suitable for fishes
- Dichlorination system for chlorinated water
- Broad range of output per request
- Easy to integrate with telecommunication system

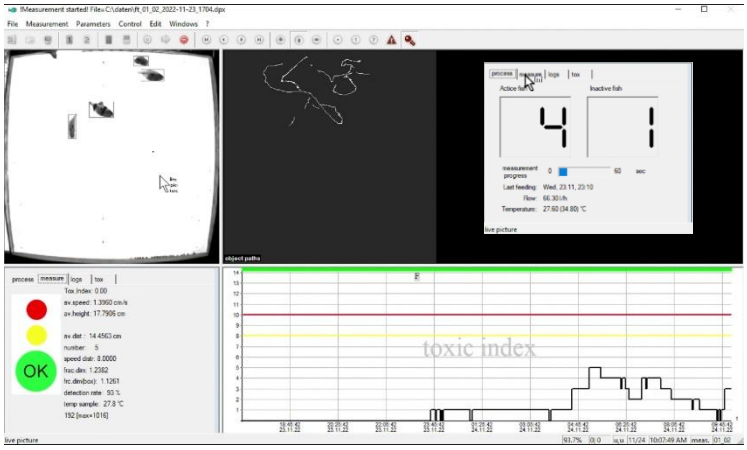
Suitable Fish species

- Fathead minnow
- Sumatra barb
- Bitterling
- Other local fish (similar size)

Fish Toximeter II

The bbe software

The integrated software recognizes significant changes in the behavioral data of the fish obtained from the observations and recording of the fish's movements. Toxic events are clearly indicated as "alarms". A statistical approach enables alarm recognition even under difficult realistic conditions such as "noise" or slow drift in the measured curve(s). The sensitivity of the alarm can be pre-defined or easily adjusted based on the specific requirements. The bbe software is an approved system and in use with all classes of bbe online toximeter since more than 20 years.



- Display of time data as graphic
- Data export to ASCII files
- Data retrieval and management
- Alarm Threshold setting

Easy to operate

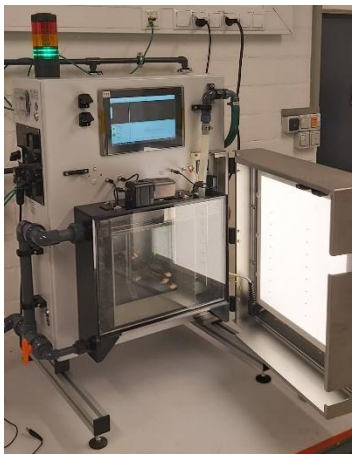
The bbe software contains all the components necessary to operate the toximeter on a Windows based PC. The comfortable touchscreen PC provides a graphic display of the measured results with live, offline viewing and an intuitive user interface. Fish tanks, tubes, connectors are conveniently situated for low maintenance. A wide space arrangement allows easy access to all inner parts of the instrument.

APPLICATIONS

- Drinking water supply network
- Water works (dam intake)
- Public building drinking water
- River, lake, and groundwater well
- Industrial and municipal water
- Drinking Water Treatment Plant

BENEFITS

- Reliable Early Alarm System
- Continuous monitoring
- Solid hardware
- Established technique
- Simple handling
- Low maintenance



Fish Toximeter II

Specifications

DESCRIPTION	VALUE
Measuring Method	LED illumination, CCD camera, real time evaluation of the toxicity indexes
Aquarium	Ca. 9 liters
Weight	65 kg
Size (H x W X D)	1158 x 842 x 600 mm
Power supply	110/230 V @50/60 Hz
Power consumption	200 W without external heater
Environment temperature	5 - 35° C (Air condition is needed)
Flow rate	50 - 100 l/h
Pressure rate	Less than 1 Bar
Protection class	IP54
Outputs	2 x 24V/1A contacts , 2 x 4-20mA
Interfaces	LAN, RS232, 3x USB
Optional Interfaces	MODBUS, Profibus,…
Number of fish	5 fishes (minimum)
Turbidity Range	Less than 40 ftu
Options (per request)	Dechlorination (with Sodium ascorbate, Sodium thiosulphate or Ascorbic acid)

Standard components

- EM flowmeter records the flow rate continuously
- Manual valve for regulating the flow rate
- Solenoid Valve (turn of the flow when alarm is triggered)
- Integrated bubbler system
- Automatic fish feeder
- Water level sensor that triggers hardware alarm when the chamber is overflowed in case the drain is clogged
- Temperature sensor for monitoring the chamber temperature

EM flowmeter

Do you have any questions? Please contact us!

Your local representative

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