

IT Signal Event Evaluation Software

The bbe IT SEES software is an alarm analyser and detector, i.e. a tool for the examination and evaluation of all kinds of sensor readings.

It is based on the established bbe Alarm Index (AI) Viewer software for biomonitors.

IT SEES

- detects significant events of multiple sensor readings in real time
- detects sudden changes in any signal
- combines event evaluation from different signals to detect alarm events while also limiting false alarms
- compensates for drift (e.g. diurnal shift in temperature).

IT ESTIMATES

- whether an alarm signal is present.

IT SEES is effective for users of simple probes to assess on-going processes in the water systems under observation.

Algorithms are made to detect changes in each observed signal.

The user can choose:

- upper and lower limits for the evaluation
- a statistical short-term evaluation as a standard deviation with or without drift elimination
- long-term evaluation

Usually, events in different signals in the same time period are necessary to indicate a reportable alarm.

An Alarm Situation

The following example (right) describes a real alarm situation and its evaluation:

The parameters for water temperature, pH, O² and conductivity were used to analyse the status of the water.

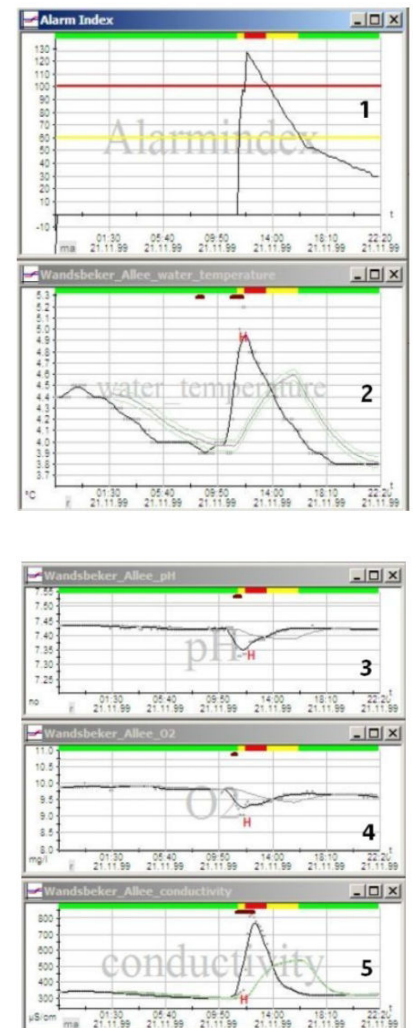
Graph 1 displays the results of the combined data evaluation (AI = Alarm Index).

Graphs 2, 3, 4 and 5 indicate sudden changes in the different parameters of the water. In this particular evaluation, the 'H' indicates an unusual change compared to previous data.



APPLICATIONS

- ▶ Link between data acquisition and alarm verification
- ▶ Monitoring stations
- ▶ Integration into higher-level systems



Screenshots of measurement parameters:
Alarm Index, temperature, pH,
O² and conductivity

bbe IT SEES

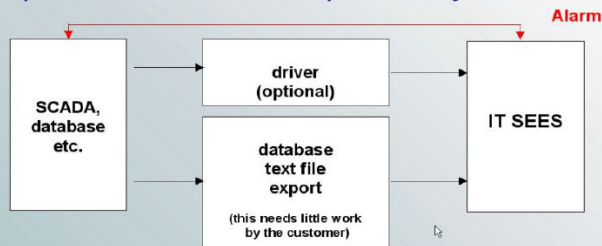
Real-Time Analysis of Multiple Sensor Readings

Composition of the Alarm Index (AI) (2)

Evaluation parameters (examples)	Sum
conductivity	40
redox potential	40
temperature	10
pH	30
oxygen	20
lower limit oxygen	30
decreased conductivity	blocks
Alarm Index Threshold = 100	

A combination of evaluation parameters is used to create the Alarm Index. Each measurement parameter adds a certain number of points (toxicity points) to the index until it exceeds the threshold of 100 when an alarm is triggered.

Incorporation of IT SEES into an Operational System



Text File Format

timestamp	pH	conductivity	redox	oxygen
dd.mm.yyyy	r.u.	µs/cm	mV	mg/l
hh:mm:ss	7.21	430	16.23	12.76

IT SEES can be easily integrated into existing operational systems.

EASE Project
 promoted by the German Federal
 Environmental Agency Berlin,
 supervised by the Hamburg
 Environmental Agency
 executed by bbe Moldaenke
 GmbH

Do you have any questions? Please contact us!

Your local representative

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