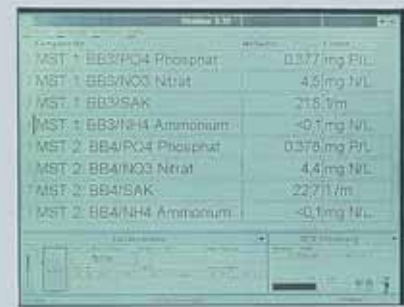
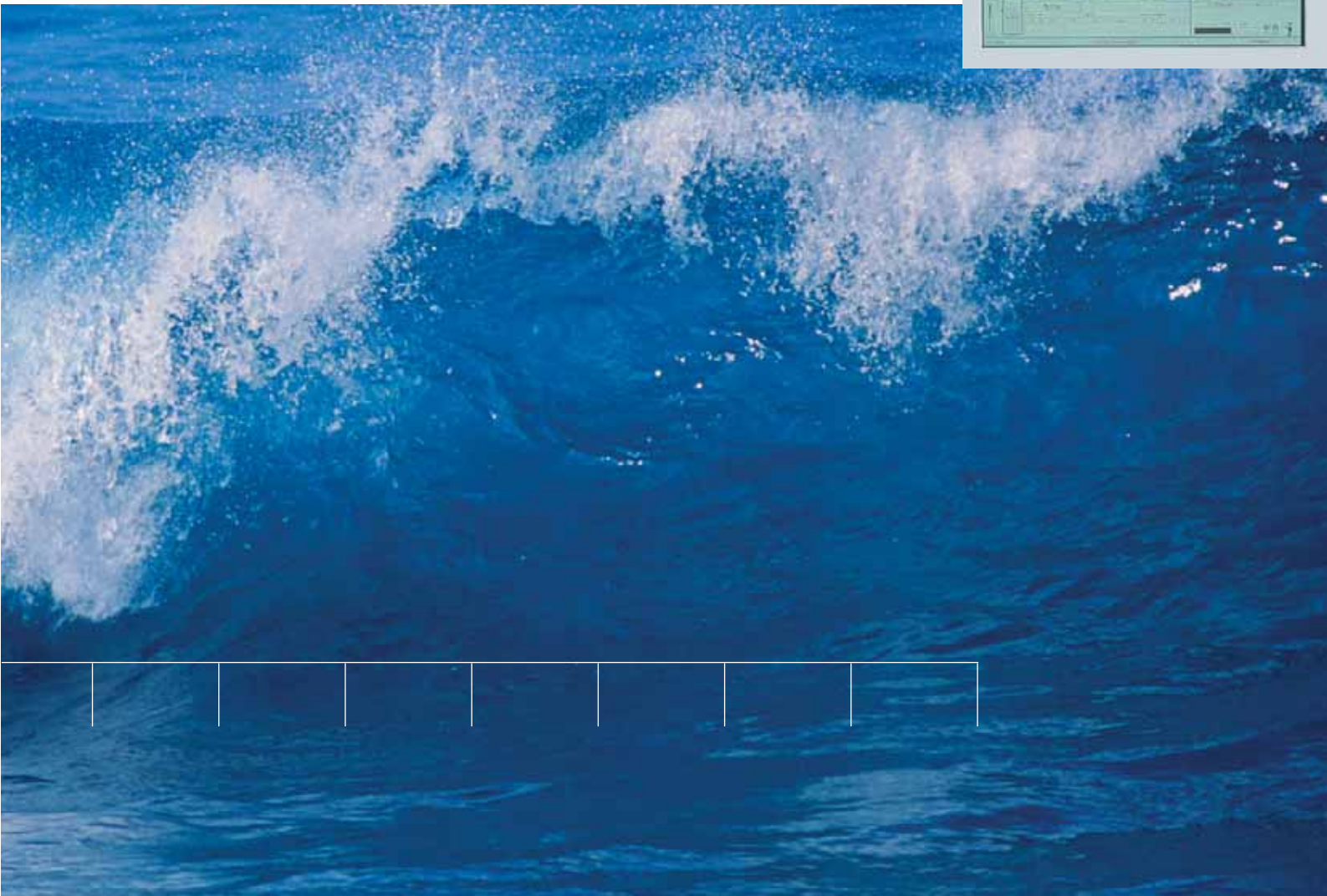


**On-line Monitors**



Parameter	Value
MST 1: BB3/P04 Phosphat	0.377 mg P/L
MST 1: BB5/NO3 Nitrat	4.5 mg N/L
MST 1: BB9/SAK	21.6 µm
MST 1: BB3/NH4 Ammonium	<0.1 mg N/L
MST 2: BB4/P04 Phosphat	0.378 mg P/L
MST 2: BB4/NO3 Nitrat	4.4 mg N/L
MST 2: BB4/SAK	22.711 µm
MST 2: BB4/NH4 Ammonium	<0.1 mg N/L



# Bran+Luebbe – your partner for analytical equipment

**Bran+Luebbe / Lightnin**

**Providing experience, technology and service in water treatment**

## **We have over 75 years' experience in on-line analysis and mixing technology**

which sets the standards in water and waste water treatment. Bran+Luebbe / Lightnin is a leader in high quality measurement and mixing equipment.

Bran+Luebbe / Lightnin is a one-stop supplier, providing complete installations for mixing, aeration and flocculation, with full measurement and control by our on-line monitors.

Continuous product development and improvement maintains our system design at the state of the art. Bran+Luebbe / Lightnin installations have a reputation for long life and efficiency, with reliable support for products of all ages.

Our experience is based on thousands of installed systems with a multitude of mixing and analyzing applications in all types of water and waste water treatment throughout the world.

## **The Bran+Luebbe On-line Monitor family**

was specially developed for long-term use in typical industrial areas, with a robust and easily maintained design based on 75 years of experience. Thousands of installations all round the world demonstrate the outstanding suitability of our on-line Monitors – from day to day and year to year.



**Decades of experience in waste water technology – the trademark of the Bran+Luebbe group**



## Process water and waste water

**Bran+Luebbe delivers custom-made installations for public and industrial treatment plants.**

Our On-line Monitors can also cope with difficult waste water such as the effluent from chemical, food and paper factories.

The compact process analyzers and the new in-line sensors combine to create an integrated measuring and control system with graphical display and easy operation. The instruments are delivered in a water-proof housing with space for reagents and accessories.

## Water treatment

**There are many different types of water and steam circulatory systems.**

Although they all have the common elements of feed water treatment, steam generation and condensation, the drive towards higher efficiency results in ever more complex systems.

Our analyzers can measure the key performance parameters at every stage of the process, from a simple pH measurement to silicate with a sub-ppb detection limit.

### Advantages of Bran+Luebbe Monitors

- **Low investment cost**
- **Low operating costs**
- **Innovative technology**
- **Space-saving design**
- **Integrated multi-stream measurement: up to 7 samples with one analyzer**



# Process and waste water

## Water analysis has never been so flexible - the DiaMon

With true Multi-Parameter analysis, one DiaMon can replace several older types of analyzer. 4 sample streams and up to 8 parameters can be analyzed simultaneously with a single instrument.

Complex measurements such as Total N and Total P are also available. DiaMon is ideal for applications varying from process optimization through to final effluent monitoring.

This low-maintenance analyzer has low reagent consumption and uses long-life components.



## Measurement and control in one system - the BlueBox

The BlueBox is a versatile instrument which sets new standards in on-line analysis and has unparalleled capacity - up to 100 sensors and actuators from different manufacturers can be controlled by one unit, with comprehensive data storage and transmission facilities.



One BlueBox acts as the heart of a decentralized analysis network which can include parameters such as conductivity, oxygen, Redox, pH, temperature and turbidity. Each parameter can be set to the required range and accuracy.

In addition to sensors, the BlueBox can also integrate more complex analyzers such as the Monitor 90 S into an analysis network, and can transmit the results on demand by email, SMS, modem or via the internet.

## Accurate and Reliable - the Monitor 90 S



Easy to use and maintain, the Monitor 90 S is a versatile on-line analyzer with over 100 documented applications which are easily adapted to specific analysis tasks. Up to 7 different sample streams can be measured by one instrument.

The Monitor 90 S is widely used to measure hardness, chlorine, ammonia, nitrate, iron, aluminium and manganese. Self-diagnostics, automatic calibration and low reagent consumption result in long intervals between routine maintenance to give low operating costs and minimum down time.

## BioMon avoid the well-known problems of high maintenance in conventional TOC and COD analyzers.

True on-line TOC analysis provides the advantages of accurate control for waste water treatment plants or chemical processes without the disadvantages of the toxic chemicals used for COD analysis. A daily analysis chart provides the user with essential information. Long-term results going back over days, weeks or months are also available to enable optimum process control.

A feature of the BioMon is the short analysis time, which allows analysis results to be used in processes running in under closed-loop control.



## Ultra modern technology - ISIS (In-line Spectroscopic Immersion Sensor)

This sensational unit is a full-range UV-visible spectrometer built into a probe which can be fully immersed in a tank, pipe or process stream and measures continuously, with high stability and almost no maintenance.

The wide range measurement of the complete spectrum from 200 - 385 nm or 190 - 720 nm coupled with powerful software opens up true multi-parameter analysis for substances such as nitrate, suspended solids, organics, DOC, COD, BTX and individual compounds such as benzene and phenol. The probe is exceptionally easy to install and operate and offers enormous cost savings.



# Examples of proven applications

Parameter*		Minimum range*	Maximum range*	Bran+Luebbe Monitor	Application
Acid	as HCl	0 – 20 g/L	0 – 100 g/L	Monitor 90 S Titrometer	Etching
Ammonium	NH <sub>4</sub> <sup>+</sup>	0 - 2,5 mg N/L	0 - 1000 mg N/L	DiaMon Monitor 90 S Ionometer Monitor 90 S Kolorimeter	Sewage treatment Leachate
Chromium	Cr <sup>6+</sup>	0 - 0,1 mg/L	0 – 5 mg/L	Monitor 90 S Kolorimeter	Tanneries Electroplating
Cobalt	Co	0 – 1 mg/L	0 – 10 mg/L	Monitor 90 S Kolorimeter	Heavy metal industry
Copper	Cu	0 – 0,03 mg/L	0 – 1 mg/L	Monitor 90 S Kolorimeter	Discharge monitoring
Conductivity		0 – 2.000 µS/cm	0 – 80.000 µS/cm	Inductive conductivity sensor	General water quality parameter
Cyanide, free or total	CN <sup>-</sup>	0 – 0,050 mg/L	0 – 3 mg/L	Monitor 90 S Kolorimeter	Electroplating Noble metals
Fluoride	F <sup>-</sup>	0 – 1 mg/L	0 – 500 mg/L	Monitor 90 S Ionometer	Final effluent
Nickel	Ni	0,01 – 0,2 mg/L	0,7 – 10 mg/L	Monitor 90 S Kolorimeter	Steel industry
Nitrate	NO <sub>3</sub> <sup>-</sup>	0 – 0,1 mg N/L	0 – 200 mg N/L	DiaMon Monitor 90 S Ionometer Monitor 90 S Kolorimeter UV-Vis spectrometer probe	Sewage treatment Surface water
Nitrite	NO <sub>2</sub> <sup>-</sup>	0 – 0,03 mg N/L	0 – 20 mg/L	DiaMon Monitor 90 S Kolorimeter	Sewage treatment
Total Nitrogen	N	0 – 5 mg/L	0 – 100 mg/L	DiaMon	Sewage treatment Surface water
Organic carbon	DOC/ TOC/TC	0 – 5 mg/L	0 – 50.000 mg/L	BioMon Monitor 90 S Ionometer	Sewage treatment Soft drinks Dairy Airports
Peracetic acid	CH <sub>3</sub> COOOH	0 – 50 mg/L	0 – 5.000 mg/L	Monitor 90 S Titrometer	Food
Phosphate	PO <sub>4</sub> <sup>3-</sup>	0 – 0,1 mg P/L	0 – 40 mg P/L	DiaMon Monitor 90 S Kolorimeter	Sewage treatment Surface water
Total Phosphorus	P	0 – 0., mg/L	0 – 40 mg/L	DiaMon Monitor 90 S Kolorimeter	Sewage treatment Surface water
Oxygen	O <sub>2</sub>	0 – 20 mg/L	0 – 20 mg/L	Clark or Electroplating sensor	Sewage treatment Aquaculture Water quality
pH		2 – 12	2 – 12	ISFET Sensor	General water quality
Phenol	C <sub>6</sub> H <sub>5</sub> OH	0 – 0,1 mg/L	0 – 100 mg/L	Monitor 90 S Kolorimeter UV-Vis spectrometer probe	Gas works Petroleum
Redox		-2.000 – 2.000 mV	-2.000 – 2.000 mV	Redox Sensor	On-line monitoring
Sulfide	S <sup>2-</sup>	0 – 1 mg/L	0 – 200 mg/L	Monitor 90 S Kolorimeter Monitor 90 S Titrometer	Gas works
Temperature		-4 – 30°C	-4 – 115°C	NTC Sensor	Sewage treatment
Turbidity		2 – 1.000 FNU	2 – 1.000 FNU	IR-LED, nephelometric	Final discharge

\* Many more parameters and ranges are available.

# Water treatment

## 50 years of success...

... lie behind the Monitor 90 S Silikometer, a specially designed monitor for silicate in boiler feed water and ultra-pure water.

This compact, robust analyzer can measure up to 7 different sample streams, making it a particularly economical and space-saving unit for large installations. It has the lowest detection limit of any analyzer available.



## Optimum performance in ultra-pure water – Monitor 90 S Natriometer

This monitor is specially designed to measure the extremely low levels of sodium in ultra-pure water. It has a detection limit of ng/L (ppt) but can also be adapted to a range extending to g/L concentrations.

The Monitor 90 S Natriometer combines high precision with proven reliability and economical operation.



## An economical display unit – Multi-Parameter Transducers (MPM) for analytical sensors



The Bran+Luebbe MPM is a low-cost, stand-alone unit for up to 6 sensors.

It can calibrate and display the results from sensors such as oxygen, temperature, conductivity, pressure, pH and turbidity, and is compatible with practically all commonly available sensors.

## The gas monitor – Monitor 90 Ecometer



The Monitor 90 Ecometer product family is used to measure gaseous inorganic chlorine, fluorine or ammonia compounds.

With a performance exceeding the strictest emission measurement requirements of the German pollution control regulations, the Ecometer is ideal for monitoring and controlling the final gas

discharge in power plants, incinerators and in the glass and ceramic industries.

# Examples of proven applications

parameter*		Minimum range*	Maximum range*	Bran+Luebbe Monitor	Application
Acid capacity	p-value m-value	0 – 0,5 mmol/L	0 – 20 mmol/L	Monitor 90 S Titrometer	Drinking water
Aluminium	Al <sup>3+</sup>	0 – 0,1 mg/L	0 – 1 mg/L	Monitor 90 S Kolorimeter	Drinking water
Ammonium	NH <sub>4</sub> <sup>+</sup>	0 – 0,1 mg/L	0 – 5 mg/L	Monitor 90 S Kolorimeter	Drinking water
Boron	H <sub>3</sub> BO <sub>3</sub>	0 – 10 g/L	0 – 20 g/L	Monitor 90 S Titrometer	Cooling water monitoring in atomic power stations
Chlorine free or total	Cl <sub>2</sub>	0 – 0,2 mg/L	0 – 3 mg/L	Monitor 90 S Kolorimeter	Drinking water
Chlorine dioxide	ClO <sub>2</sub>	0 – 0,2 mg/L	0 – 1 mg/L	Monitor 90 S Kolorimeter	Drinking water
Chloride	Cl <sup>-</sup>	0 – 0,1 mg/L	0 – 3.000 mg/L	Monitor 90 S Ionometer	Ultra-pure water Drinking water
Color	Hazen	0 – 1 mg/L	0 – 500 mg/L	Monitor 90 S Kolorimeter DiaMon UV-Vis spectrometer probe	Drinking water
Copper	Cu	0 – 0,03 mg/L	0 – 1 mg/L	Monitor 90 S Kolorimeter	Boiler water Surface water
CO <sub>2</sub>	CO <sub>2</sub>	0 – 20 mg/L	0 – 500 mg/L	Monitor 90 S Ionometer	Drinking water Mineral water
Fluoride	F <sup>-</sup>	0 – 1 mg/L	0 – 500 mg/L	Monitor 90 S Ionometer	Drinking water
Hardness	Ca <sup>2+</sup> + Mg <sup>2+</sup>	0 – 0,025 mmol/L	0 – 5 mmol/L	Monitor 90 S Titrometer	Water monitoring Drinking water
Hydrazine	N <sub>2</sub> H <sub>4</sub>	0 – 0,1 mg/L	0 – 2 mg/L	Monitor 90 S Kolorimeter	Boiler water
Iron	Fe <sup>2+/3+</sup>	0 – 0,02 mg/L	0 – 5 mg/L	Monitor 90 S Kolorimeter	Boiler water Drinking water
Manganese	Mn	0 – 0,1 mg/L	0 – 2 mg/L	Monitor 90 S Kolorimeter	Drinking water
Nitrite	NO <sub>2</sub> <sup>-</sup>	0 – 0,1 mg/L	0 – 3 mg/L	Monitor 90 S Kolorimeter	Mineral water Spring water
Oxygen	O <sub>2</sub>	0 – 20 mg/L	0 – 20 mg/L	Clark or galvanic sensor	Water preparation
pH		2 – 12	2 – 12	ISFET Sensor	Water quality
Potassium	K <sup>+</sup>	0 – 10 mg/L	0 – 100 mg/L	Monitor 90 S Ionometer	Water monitoring
Silicate	SiO <sub>2</sub>	0 – 0,005 mg/L	0 – 100 mg/L	Monitor 90 S Silikometer	Ultra-pure water monitoring Boiler water
Sodium	Na <sup>+</sup>	0 – 0,002 mg/L	0 – 1 mg/L	Monitor 90 S Natriometer	Ultra-pure water monitoring Cooling water
Peroxide	H <sub>2</sub> O <sub>2</sub>	0 – 0,1 mmol/L	0 – 40 mmol/L	Monitor 90 S Titrometer	Drinking water
Ammonia	NH <sub>3</sub>	0 – 10 mg/Nm <sup>3</sup>	0 – 100 mg/Nm <sup>3</sup>	Monitor 90 Ecometer	Emission control
HCl	HCl	0 – 15 mg/Nm <sup>3</sup>	0 – 3.000 mg/Nm <sup>3</sup>	Monitor 90 Ecometer	Emission control
HF	HF	0 – 1,5 mg/Nm <sup>3</sup>	0 – 200 mg/Nm <sup>3</sup>	Monitor 90 Ecometer	Emission control

\* Many more parameters and ranges are available.

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