

# On-line Analyzers

CONTINUOUSLY AND FULL AUTOMATIC



Based in Charlotte, North Carolina, SPX Corporation (NYSE: SPW) is a global Fortune 500 multi-industry manufacturing leader. The company's highly-specialized, engineered products and technologies serve customers in three primary strategic growth markets: infrastructure, process solutions, and diagnostic systems. Many of SPX's innovative solutions are playing a role in helping to meet rising global demand, particularly in emerging markets, for electricity, processed foods and beverages, and vehicle services. The company's products include thermal heat transfer equipment for power plants; power transformers for utility companies; process equipment for the food & beverage industry; and diagnostic tools and equipment for the vehicle service industry. For more information, please visit <http://www.spx.com/>.

For more than 75 years, Bran+Luebbe - now SPX Flow Technology - has been providing customers with high quality metering, processing and analysing equipment.

As part of the global SPX Corporation, we are one of the world's most reputable manufacturers of metering and process pumps, process systems as well as analyzing technologies. Our engineers have comprehensive process and applications knowledge across a wide range of markets. This has resulted in product innovations and developments which harness the latest technology whilst meeting the highest quality standards.

## 55 years of experience

We have over 55 years experience in on-line analysis which sets the standards in water and waste water treatment. We are a leader in high quality measurement.

Continuous product development and improvement maintains our system design at the state of the art. Our 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 analyzing applications in all types of water and waste water treatment throughout the world.

The Bran+Luebbe On-line Analyzer family was specially developed for long-term use in typical industrial areas, with a robust and easily maintained design based on 55 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.



## Process water and waste water

We deliver custom-made installations for public and industrial treatment plants.

Our On-line Analyzers 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 waterproof 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 OUR MONITORS:

- low investment costs
- low operating costs
- innovative technology
- space-saving design
- integrated multi-stream measurement with up to 6 samples with one analyzer



## Process and waste water



### FLEXIBLE - THE POWERMON S

With true Multi-Parameter analysis, one PowerMon S can replace several older types of analyzer. 6 sample streams and up to 6 parameters (NO<sub>2</sub>-N / NO<sub>3</sub>-N / NH<sub>4</sub>-N / PO<sub>4</sub>-P / SAK / CSB / Turbidity / TOC) can be analyzed simultaneously with a single instrument.

Complex measurements such as Total N and Total P are also available. PowerMon S 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 not just a very powerful system; it sets a new

standard. One BlueBox can control 100 sensors and actuators. Units from almost any manufacturer can be connected. The BlueBox's plug-and-play capability makes it compatible with all current sensors for physical, chemical and biological parameters.

A further BlueBox advantage is automatic remote data transfer. This is possible via radio, email, SMS or the internet, and extends your control capability to just about anywhere on earth. The system also controls active components. This enables complete measurement and control loop systems to be automated. Furthermore, the BlueBox can communicate with sensors over a distance of up to 1,000 meters. It is no longer necessary to leave the control room to check results.



### IN-LINE FILTRATION

„Raise it, wipe it, and replace it“.

This simple cleaning procedure is all that is needed every 2 - 6 weeks, and takes about one minute. No tubing needs to be replaced and the filter has no consumable parts. With a weight of only 4 kg, installation is easy - just dip it into the tank!



### LOWER OPERATING COSTS WITH THE POWERMON TITROMETER

This PowerMon Titrometer provides high accuracy analysis for water hardness, chlorine and acid capacity in water treatment plants and is an ideal component for inclusion in a fully automated control loop.



### CERACLEAN

CeraClean is used with the Bran+Luebbe PowerMon, delivering a continuous supply of purified sample for analysis. CeraClean removes solids, colloids and high molecular weight interfering substances from dirty samples.

## Applications

PARAMETER*		MINIMUM RANGE	MAXIMUM RANGE	ANALYZER	APPLICATION
Acid	as HCl	0 - 20 g/l	0 - 100 g/l	PowerMon Titrometer	Etching
Ammonium	NH <sub>4</sub> <sup>+</sup>	0 - 0,5 mg N/l	0 - 1000 mg N/l	PowerMon S PowerMon Ionometer PowerMon Kolorimeter	Sewage treatment Leachate
Chromium	Cr <sup>6+</sup>	0 - 0,1 mg/l	0 - 5 mg/l	PowerMon Kolorimeter	Tanneries Electroplating
Cobalt	Co	0 - 1 mg/l	0 - 10 mg/l	PowerMon Kolorimeter	Heavy metal industry
Copper	Cu <sup>2+</sup>	0 - 0,03 mg/l	0 - 1 mg/l	PowerMon 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 - 20000 mg/l	PowerMon Kolorimeter PowerMon Titrometer	Electroplating Noble metal winning
Fluoride	F <sup>-</sup>	0 - 1 mg/l	0 - 1000 mg/l	PowerMon Ionometer	Final effluent
Nickel	Ni <sup>2+</sup>	0 - 0,1 mg/l	0 - 10 mg/l	PowerMon Kolorimeter	Steel Industry
Nitrate	NO <sub>3</sub> <sup>-</sup>	0 - 0,1 mg N/l	0 - 200 mg N/l	PowerMon S PowerMon Ionometer PowerMon Kolorimeter ISIS II (inline probe)	Sewage treatment Surface water
Nitrite	NO <sub>2</sub> <sup>-</sup>	0 - 0,003 mg N/l	0 - 20 mg N/l	PowerMon S PowerMon Kolorimeter	Sewage treatment Drinking water
Total Nitrogen	N	0 - 2,5 mg/l	0 - 350 mg/l	PowerMon S TN	Sewage treatment Surface water
Organic carbon	DOC/TOC/TC	0 - 5 mg/l	0 - 50.000 mg/l	PowerMon S	Sewage treatment, Soft drinks, Dairy, Airports
Peracetic acid	CH <sub>3</sub> COOOH	0 - 50 mg/l	0 - 5.000 mg/l	PowerMon Titrometer	Food
ortho-Phosphate	PO <sub>4</sub> <sup>3+</sup>	0 - 0,025 mg P/l	0 - 40 mg P/l	PowerMon S PowerMon Kolorimeter	Sewage treatment Surface water
Total Phosphorus	P	0 - 0,5 mg P/l	0 - 40 mg P/l	PowerMon 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	PowerMon Kolorimeter	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	PowerMon Kolorimeter PowerMon 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
Zinc	Zn <sup>2+</sup>	0 - 1 mg/l	0 - 70 mg/l	PowerMon Kolorimeter	Electroplating Heavy metal industry

\* Many more parameters and ranges are available.

## Water treatment



### ACCURATE AND RELIABLE - THE POWERMON FAMILY

Easy to use and maintain, the PowerMon is a versatile on-line analyzer with over 100 documented applications which are easily adapted to specific analysis tasks. Up to 6 different sample streams can be measured by one instrument.

The PowerMon 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.



### MORE THAN 50 YEARS OF EXPERIENCE AND SUCCESS THE POWERMON SILIKOMETER

The PowerMon Silikomometer guarantees a permanent optimal water quality by the continuous supervision of the silica concentration in boiler feed water or during water treatment.

The compact and modular design can obtain up to 6 on-line measuring points in one device and enables a space-saving and economic operation.



### OPTIMUM PERFORMANCE IN ULTRA-PURE WATER - THE POWERMON NATRIOMETER

This PowerMon Natriometer 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 PowerMon Natriometer combines high precision with proven reliability and economical operation.



### LATEST TECHNOLOGY ISIS II

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 - 700 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

## Applications

PARAMETER*		MINIMUM RANGE	MAXIMUM RANGE	ANALYZER	APPLICATION
Acid capacity	p-value m-value	0 - 0,5 mmol/l	0 - 20 mmol/l	PowerMon Titrometer	Drinking water
Aluminium	Al <sup>3+</sup>	0 - 0,1 mg/l	0 - 1 mg/l	PowerMon Kolorimeter	Drinking water
Ammonium	NH <sub>4</sub> <sup>+</sup>	0 - 0,1 mg N/l	0 - 5 mg N/l	PowerMon Kolorimeter	Drinking water
Boron	BO <sub>3</sub> <sup>3-</sup>	0 - 10 g/l	0 - 20 g/l	PowerMon Titrometer	Cooling water monitoring in atomic power stations
Chlor free or total	Cl <sub>2</sub>	0 - 0,2 mg/l	0 - 30000 mg/l	PowerMon Kolorimeter PowerMon Titrometer Clark or Electroplating sensor	Drinking water
Chlorine dioxide	ClO <sub>2</sub>	0 - 0,2 mg/l	0 - 1 mg/l	PowerMon Kolorimeter	Drinking water
Chloride	Cl <sup>-</sup>	0 - 0,1 mg/l	0 - 3.000 mg/l	PowerMon Ionometer	Ultra-pure water Drinking water
Colour	Hazen	0 - 1°H	0 - 500°H	PowerMon Kolorimeter ISIS II (inline probe)	Drinking water
Copper	Cu	0 - 0,03 mg/l	0 - 1 mg/l	PowerMon Kolorimeter	Boiler water Surface water
Carbon dioxide	CO <sub>2</sub>	0 - 20 mg/l	0 - 500 mg/l	PowerMon Ionometer	Drinking water Mineral water
Fluoride	F <sup>-</sup>	0 - 1 mg/l	0 - 500 mg/l	PowerMon Ionometer	Drinking water
Hardness		0 - 0,025 mmol/l	0 - 5 mmol/l	PowerMon Titrometer	Water monitoring Drinking water
Hydrazine	N <sub>2</sub> H <sub>4</sub>	0 - 0,1 mg/l	0 - 2 mg/l	PowerMon Kolorimeter	Boiler water
Iron	Fe <sup>2+/3+</sup>	0 - 0,02 mg/l	0 - 5 mg/l	PowerMon Kolorimeter	Boiler water Drinking water
Manganese	Mn	0 - 0,1 mg/l	0 - 2 mg/l	PowerMon Kolorimeter	Drinking water
Nitrite	NO <sub>2</sub> <sup>-</sup>	0 - 0,003 mg/l	0 - 3 mg/l	PowerMon Kolorimeter	Mineral Spring water
Oxygen	O <sub>2</sub>	0 - 20 mg/l	0 - 20 mg/l	Clark- or galvanic sensor	Water preparation
Ozone	O <sub>3</sub>	0 - 0,2 mg/l	0 - 2 mg/l	PowerMon Kolorimeter	Drinking water
pH		2 - 12	2 - 12	ISFET Sensor	Water quality
Potassium	K <sup>+</sup>	0 - 10 mg/l	0 - 100 mg/l	PowerMon Ionometer	Water monitoring
Silicate	SiO <sub>2</sub>	0 - 0,005 mg/l	0 - 100 mg/l	PowerMon Silikomometer	Ultra-pure water monitoring Boiler water
Sodium	Na <sup>+</sup>	0 - 0,002 mg/l	0 - 1 mg/l	PowerMon 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	PowerMon Titrometer	Drinking water

\* Many more parameters and ranges are available.



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**CONTINUOUSLY AND FULL  
AUTOMATIC**

**THE PRODUCT RANGE: MORE EXAMPLES OF BRAN+LUEBBE PRODUCTS WITH HIGH QUALITY STANDARD, INNOVATION AND KNOW-HOW.**



**Metering Pumps**  
for universal application  
in the low to medium  
requirement range  
ProCam  
ProCam Hygienic



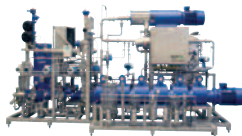
**Metering pumps**  
for all process areas  
where liquids are  
metered and mixed.  
NOVADOS



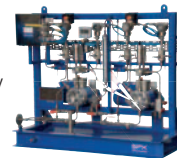
**Process pumps**  
for large flow rates and  
high operating pressures  
NOVAPLEX  
MEGANIZER  
High pressure homogenizer



**Dynamic in-line mixer**  
for gentle but intensive mixing  
PENTAX  
PENTAX Hygienic



**Process systems**  
as a complete solution for  
increased productivity and quality  
AutoBlend  
Metering and mixing systems



**Oil & Gas systems**  
to aid oil & gas  
recovery  
onshore and offshore  
Solar Panel Packages  
Chemical Injection Systems  
Flow Control Device Panels

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