WILTEN instrumenten

Wilten Instrumenten **Nieuwsbrief On-Line instrumenten**

September 2010

On-line meten: Instrumenten voor industrie, proeffabrieken en installaties op afstand

Voor productontwikkeling en kwaliteitscontrole zijn de diverse laboratoria meestal prima voorzien van allerhande apparatuur. Maar er komt een dag dat een laboratoriumproduct opgeschaald gaat worden. Eerst naar een proeffabriek, later naar een echte fabriek waar het batchgewijs of continu wordt geproduceerd. Tegelijkertijd moet de productie worden voorzien van zuivere grondstoffen en moet de afvalstroom voldoen aan de juiste wettelijke bepalingen. Daarbij moet het gehele proces worden geoptimaliseerd om economische principes.

Ter ondersteuning hiervan kan Wilten Instrumenten een serie uitstekende instrumenten leveren.

Rheomat: Viscositeitsmeters

Rheomat	RM100 i	In-line viscosimeter
	RM100 L	Industriële viscometer

Bellingham & Stanley: Refractometers

B&S	IR Sensors	In-line refractometer voor RI, Brix, milliBrix, Totaal Zuur, Alcohol, CO_2
	PRH	In-line refractometer voor RI en Brix
	RM 990	Flow-trough refractometer

Sentron: pH meters

Sentron	Online Probe	Glasvrije pH meters

ECH: Milieu-instrumenten

ECH	H2S	On-line instrument voor H_2S (SO_2, NH_3, Cl_2, CO_2)
	Biolumino	Instrument voor toxiciteit van water

Pollution: TOC instrumenten

PPM	PROTOC	TOC Analyser (Total Organic Carbon)
	PROAM	Ammonia Analyser

Particle Size Analyser / UV-VIS / IR / NIR

Vraag naar onze mogelijkheden

Wilten Instrumenten

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Rheomat on-line viscometers

Rheomat RM100-i – Industrial viscometer

Rheomat RM100-i has 15 rotation speeds, an integrated calculator and 4 - 20 mA output signal and parallel, serial and USB outputs. It works by immersion in a constant level batch. The acquisition of viscosity and temperature of the sample are making in real time.

Measuring princip	Digital Rotative Viscometer
Rotation speed	34 speeds: 0.3-0.5-0.6-1-1.5-2-2.5-3--4-5-6-10-12-20-30-40-50-60-100-200-250-300-400-500-600-700-800-900-1000-1100-1200-1300-1400-1500 rpm
Torque range	0.05 to 30 mNm
Temperature	-10 to 120 °C
Digital output	Temperature , Speed, Torque, Viscosity, 4...20 mA output
Viscosity range	From 5 to 470.10^6 mPa.s (5 to 470 Million cPoises)
Other detail	RM100i, new generation of the TVi-05 industrial viscometer owns always 4...20 mA output. It could be measured also on overflowing cell, if the level of fluid isn't constant in the tank.

Rheomat RM100-L – on-line viscometer

The new Rheomat RM100-L industrial viscometer owns 19 speeds of rotation from 5 to 1000 rpm, an integrated calculator with 4-20 mA signal and parallel, serial and USB outputs. It works directly on line, for high flow rates or through a bend cell for the low flow rates, and it uses a magnetic coupling which assures a total water tightness. The reading of the viscosity of sample is made in real time.

Measuring princip	Numeric Rotative Viscometer
Rotation speed	19 speeds: 5-6-10-12-20-30-50-60-100-200-250-300-400-500-600-700-800-900-1000 tr/mn
Torque range	0.05 to 30 mNm
Temperature	-10 to 120 °C
Digital output	Temperature , Speed, Torque, Viscosity, 4...20 mA output
Viscosity range	From 5 to 10^6 mPa.s (5 to 1 Million cPoises)
Other detail	RM100-L enables Control-Quality measurements directly on the production line. It doesn't need on-line calibration, because it works with absolute measurement.
Restriction	RM100-L should be applied where no inflammable gases are present

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Bellingham & Stanley refractometers

B&S in-tek Drink Infrared (IR) Sensor: Brix, milliBrix, Total Acid, CO2, Alcohol

The in-tek IR Series of on-line instrumentation comprise a single state-of-the-art sensor module and a self contained, water tight Sensor Control Module. Unlike traditional infrared spectrophotometers that use transmitted light, the adopted technique of Attenuated Total Reflection (ATR) requires source penetration of just a few microns to obtain accurate absorption results, allowing consolidation of all optical components in to a single stainless steel sanitary 3-A housing for direct mounting to the product line using industry standard Varinline® valve body assemblies.

On-line mounting eliminates difficult to clean bypass lines and negates the need for high maintenance pumps commonly associated with this type of measurement. Pre-determined narrow band-pass interference filters are critical to differentiate the sensor type within the series by matching the energy source to the absorption model of the chemical or product under test. The Sensor Control Module provides a simple user interface as well as connectivity to plant controllers or computers via Ethernet connection, with other industrial interface types such as multiple analogue 4-20 mA current loops, EtherNet and Profibus available as optional extras.

The in-tek Drink is a solid-state-of-the-art beverage system that combines three critical measurement parameters in to a single on-line sensor, providing the soda manufacturer with accurate real-time results without the need for a high maintenance, pump driven and difficult to clean bypass stream.

The combination of °Brix, CO_2 and Titratable Acid measurement facilitates single point analysis of sugar and artificial sweetener based product either as part of a filling machine product interface control loop or for end-point quality assurance verification when using optional PC software.

Parameter		**°Brix**	**%TA**	**%C02**	**%ABW**
Range	1	0-20 °Brix (std)	0-5 w/w	0-6 vol/vol	0-20 w/w eth/alc.
	2	0-100 °Brix/Plato	0-100 w/w	0 – 12000 ppm	0-100 w/w eth/alc.
	3	0-2000 milliBrix	USER SCALE	0 – 12000 mg/l	Mg/l or g/g
Resolution	1	0.01 °Brix/Plato	0.01 w/w	0.01 vol/vol	0.01 w/w
	2	0.1 milliBrix		1 ppm & 1 mg/l	
Accuracy	1	±0.01 °Brix/Plato	±0.005 w/w	±0.02 vol/vol	±0.02 w/w eth/alc.
	2	±1 milliBrix		±39.2 ppm & mg/l	
Repeatability	1	0.08 (8-hr) °Brix/Plato	0.008 (8-hr)	0.008 (8-hr)	0.01 (8-hr)
	2	8 (8-hr) milliBrix		40 vol & mg/l	

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B&S Process refractometer RH Series: Brix, milliBrix, Total Acid, CO2, Alcohol

The system sensor is the PRH Refractometer - a compact, fully sealed robust unit, constructed in 316 stainless steel, which can be attached to a variety of manifold types to give an assembly that is compatible with the existing process line and meets industry standards for safety and hygiene.

Materials of construction and seals are selected to have widespread product compatibility. The instrument is sealed to prevent ingress of dust and moisture. The sapphire prism and flow chamber are designed to withstand typical line pressures and rigorous cleaning conditions.

The reading scale and measuring accuracy are selected to suit the product type and required measuring performance; temperature compensation is used to counteract fluctuations in product temperature. Standard scales include Refractive Index and Brix with sugar (sucrose)-based temperature compensation, but other scales (% concentration) and temperature compensation relationships can also be used.

The instrument incorporates an LED display, which can show the reading (concentration) or product temperature and alarm condition. The instrument also monitors continuously the quality of the prism surface and alarms can be triggered by this parameter. Output signals in either digital or analogue form are available via a junction box.

The PRH Refractometer has been designed to function continuously without the need for frequent calibration. However, if necessary, in-situ calibration may be performed using a special maintenance software package. Calibration is routinely performed as part of a service, which will be required at intervals depending upon the nature of the product and installation type, but typically six-monthly.

Specifications:

Measuring range	Up to 80 ° Brix,
Accuracy	0,05 ° Brix
Temperature	Temperature compensation
Output	Analog 4-20 mA, RS-485

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B&S RFM990 Flow Model

The RFM990 Flow refractometer is a wide range Peltier temperature controlled instrument that has been specifically designed for flow applications. The instrument incorporates a special stand that elevates the instrument to an optimum angle as well as a bubble loop on specific cells, ensuring that sample is presented to the prism without entrapped air and therefore ensuring best performance in the most difficult flow configurations.

Supplied as an instrument module only, the customer can choose from a number of standard cells or for special applications, a custom design chamber may be offered at extra cost depending on viability.

Available as a five decimal place RI instrument only, customers requiring a lower level of accuracy have the option to switch the resolution.

Measurement Specifications .

Scales	Refractive Index Sugar (°Brix) User-defined	1.30 – 1.70 0-100 yes
Resolution	RI Sugar (°Brix)	0.00001 or 0.0001 0.01 or 0.1 (user selectable by software function)
Accuracy	RI Sugar (°Brix)	±0.00002 or ±0.0001 ±0.02 or ±0.1 (user selectable by software function)
Temperature Compensation		5 – 80 °C
	Sucrose (°Brix) AG Fluids User-defined	Simple coefficient (units/ °C) or polynomial function
Reading Time (s)		Minimum 4 seconds
Temperature Stability Checks		None/delay time/repeatability/Smart (independently selectable by product profile)
Measuring Temperature Range		0 °C or 10 °C below ambient whichever is the greater to 80 °C
Temperature Sensor Accuracy		± 0.03 °C
Sample Temperature Stability		± 0.05 °C

Sentron glass-free pH meters

Measuring the pH in a continuous way is the most well known process control in many applications. Breaking a glass pH electrode is obviously a hazard to the user, the sample, the consumer or the environment.

The SentrON-LINE series of rugged, non-glass pH probes are specially designed to be built into an on-line system. The high-tech ion sensitive field effect transistor (ISFET) solid state pH probe brings the advantages of being virtually unbreakable, fast measurements and dry storage, well known in the laboratory, to industrial and process systems. Due to their robustness, ISFET probes have a long lifetime under normal circumstances, which makes them relatively cheap to apply.

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ECH H_2S Analyzer

Product includes a microcontroller-unit for a quantitative determination of the released H_2S from the sewer with sensor technology at two or more selected measurement points. It serves as the basis for H_2S-adapted regulation of chemicals for water treatment in sewage systems.

The H_2S-measurement works with selective electrochemical sensors. The mobile microcontroller includes a data acquisition and data transmission tool, digital and analogue input connections for various measurands as well as digital and analogue alarm output connections (4-20mA) for controlling of dosing pumps for treatment-chemicals, valves etc.. Data can be downloaded by a secured internet transfer line at any time.
The control-algorithm includes an intelligent self-learning system of settings, which reacts immediately to local circumstances of the sewage-volume and H_2S-carriage. By evaluating those information, an optimal dosing-value will be determined automatically that will be used for the water treatment with chemicals in the sewage system.

Principle of measurement

- Online-measurement of actual H_2S-concentration in waste water supply (e.g. pump sump) and waste water drainage (sewer tunnel or pressure pipes)
- Very high sensitivity (below 0.01 ppm) with the most precision
- Selective electrochemical sensors
- Integrated rinsing steps for the certainty of a steady current sample for analysis
- Direct calibration of actual sulfide-concentration in waste water
- Automatic zero-point-compensation
- Determination of a optimal control-algorithm for dosing chemicals of the waste water (4-20 mA signal) through adaptation at the current H_2S-carriage and water volume (4-20 mA signal)
- Threshold selectivity by an authorized person

Applications

- Elimination scent annoyance from communal and industrial sewage (pressure pipes, sewer tunnels, grease separator, reduction of tension shafts, pump sumps, public streets and places)
- Prevention of the bio-corrosion at wastewater-leading buildings
- Used for communal waste-water-communities, sewage plants, waste water treatment and purification plants

Can be adapted to measure NH_3 or SO_2 in on-line systems

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ECH Biolumino

It is effective to use a biological testing for fast and precise determination of the toxicity. Toxicity testing based on the bioluminescence of algae provides quick information and is easy to use. is suitable for both continuous and discontinuous analysis.

The detection of the toxic compounds is based on the bioluminescence delayed-fluorescence-curve and happens a long time before the actual cell dies. The bioluminescence is a selective characteristic of living cells. By providing constant measurement conditions, a high reproducibility of measurements is guaranteed.

Principle of measurement

- Detectable emission of light as delayed fluorescence in the moment of transfer a healthy plant from the lightness into the darkness
- During its dark adaptation, partial reverse of the process of photosynthesis happens
- Special suitability of algae because of the easy handling allows testing of toxic pollutants in sewage
- Dependence of the light intensity of the biological activity of the algae, Decreasing of the bioluminescence in case of harmed algae
- Typical delayed fluorescence intensity-curves
- Evaluation of the peak area or the peak height
- Well-arranged software allows specific and easy evaluation
- Possibility of long-term measurements with kinetic information

Applications

- Toxicity testing of plants
- Cultivation of microalgae
- Environmental analysis
- Sewage analysis
- Chemicals testing
- Agricultural applications
- Quality management

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PROTOC ® - TOC Analyser

PROTOC® is a fast, reliable and flexible on-line analyser system designed to accurately determine TOC/TC (Total Organic Carbon) concentrations in real time. The TOC analyser comprises a wall mount analyser section typically supplied complete with a controller, providing local display and outputting signals.

- Protoc® 100
  Low cost TOC analyser with manually operated valve to calibrate/zero/clean
- Protoc® 300
  Economical automated TOC analyser for single stream analysis (MCERTS model)
- Protoc® microSpyder and Web(s)
  Economical multi-point 1-4 stream analysis with touch screen controller
- Protoc® Spyder and Web(s)
  Advanced multi-point 1-4 stream analysis with touch screen controller

PRINCIPLE OF OPERATION

PROTOC® instruments use an Ultra-Violet promoted persulphate oxidation to continuously determine the contamination of organic chemicals present in the sample. A carrier gas continuously sparges the reaction vessel liberating the resultant CO_2 gas which is delivered to an Infra-Red detection system. Inorganic carbonates can be automatically removed by sample pre-treatment using an acid sparge

CONTROL AND MONITORING OPTIONS

Various models are available offering different levels of automation. Two point automatic calibration (at zero and typically at 50% of the measuring scale), maintains accuracy and validates measurement performance. Provision of an acid wash can also enhance the self-cleaning measuring technique on the more challenging applications. Various options are also available for data display, data logging and telemetry communications. The Protoc® 300 model has been certified to meet the requirements of MCERTS (certificate SIRA MC 060077/00).

TYPICAL SPECIFICATIONS

Measuring Range:	0-5 up to 50,000 PPM (with dilution)
Repeatability:	+/- 2% or better
Enclosure:	GRP to IP65 protection
Analyser Dimensions:	620 (h) x 500 (w) x 280 (d) mm
Weight:	35 Kg
Controller Dimensions:	"Protoc® 300" has an integral controller "Micro Spyder®" 174(h) x 200(w) x 224(d) mm "Spyder®" 295(h) x 415(w) x 245(d) mm
Outputs:	Analogue 4-20mA standard (each channel)
	Various process & utility alarms (model dependent)
Power supply:	110/230VAC 50/60Hz

Also available:
PROTOC TL low level version
LABTOC : Laboratory version with autosampler

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PROAM - Ammonia Monitor

The ProAm Ammonia Monitor is a simple, compact on-line analyser designed currently to accurately determine ammoniacal-nitrogen in real-time. Other parameters which include Nitrate, Chloride and Fluoride may also be configured. The instrument comprises a wall-mount analyser section with an integral sample pump; a controlling processor interfaced by a membrane keyboard and back lit LCD. Electrical connections for power supply and signals are externally made from a separate IP65 enclosure which is typically installed adjacent to the analyser section

PRINCIPLE OF OPERATION

The ProAm analyser uses an ammonia gas sensing ProAm - Ammonia monitor, Ammonia measurement, Ammoniacal-nitrogenISE to report ammoniacal-nitrogen. Sample is delivered through large diameter tubing to a reaction vessel where a caustic / edta reagent is continuously added. The pH is elevated to liberate free-ammonia which is measured by the ion selective electrode (ISE). The sample is also temperature regulated / compensated and sparged with air to promote chemical mixing. The integral peristaltic sample pump can deliver sample directly from source or from a fast sample loop. A series of pinch valves are configured to control the passage of sample, calibration and cleaning fluids without introducing points of blockage thus improving reliability.

CONTROL AND MONITORING OPTIONS

Various options are available offering different levels of automation and communication. As standard, the instrument is supplied with an analogue output with its range determined by the selected calibration values. Four change-over contact relays (volt-free) are also available; two may be configured as limit alarms and two may be programmed to indicate various fault conditions. Alternatively, data may be transmitted to telemetry using Profibus or Modbus (other protocols are available on request). The instrument may be configured for continuous or intermittent analysis and controlled remotely using the BUS system.

TYPICAL SPECIFICATIONS

Measuring Range:	0-1 up to 500 PPM (without dilution)
Repeatability:	+/- 2% or better
Enclosure:	GRP to IP65 protection
Analyser Dimensions:	410 (h) x 370 (w) x 230 (d) mm
Weight:	16 Kg
Signals Box Dimensions:	275 (w) x 185 (h) x 180 (d) mm
Outputs:	Analogue 0/4-20mA standard
Alarms:	2 process limit & 2 utility alarms
Power supply:	100 – 240 VAC 50/60Hz

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