QUATROL.50W - Summary

- maintenance-free In-line / Online °BRIX, Extract and Alcohol measuring system for all applications in the juice and wine making industry.
- very easy operating via touch screen
- comfortable product memory, freely configurable products
- fully automatic process-survey, alarm setting and switch-off possibilities
- various data interfaces for external data transfer
- automatic quality control, DIN/ISO 900ff conformity
- compact and robust configuration of the sensors
- CO_2 independent in the range of +/- 0,5 g/l
- optional connection of CO_2-, O_2-, conductivity, pH-, turbidity- and colour-sensor
- cleaning with the cleaning of the process line (CIP)

The modular concept allows the installation of additional sensors, the adaption of the software and the connection of external PC or SPS systems. The QUATROL-system is adaptable to each plant structure and increases its capabilities with customers demand.

Technical Data

Power supply:	230 VAC / 3 Amp.
Measuring range:	BRIX: 0...30 °BRIX
	Density: 0,5...2,0 g/cm³
	CO_2: 0...7 Vol%
	Temperature: 0...30° C
	CIP until 130° C
Accuracies:	BRIX: +/- 0,01 °BRIX
	Density: +/- 0,0001 g/cm³
	Alcohol: +/- 0,05 Vol%
	CO_2: +/- 0,02 Vol%
Drift:	Drift-free
Temperature compensation:	20/20° C
Signal output:	RS 232 / 485
	4...20 mA per value
Process connections:	Varivent system
	ND10 in the mainpipe
Operating system:	WIN 2000/XP incl. remote service, Powersafe unit
User software:	QUATROL.50W by ACM

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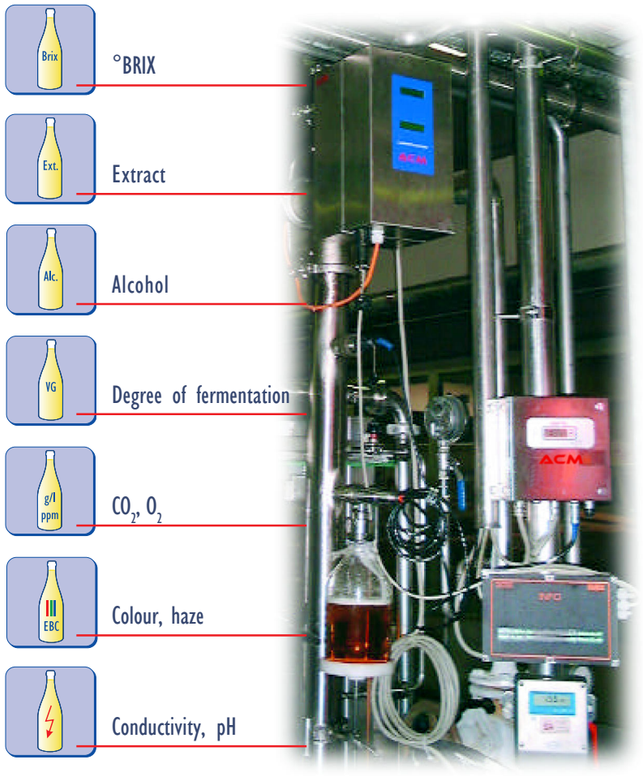
Beveragemonitorsystem QUATROL.50W

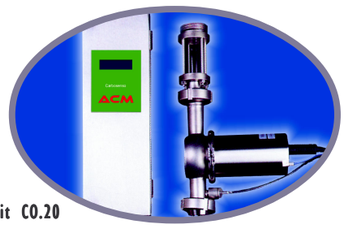


Beveragemonitorsystem QUATROL.50W

A continuous and efficient quality control is important for the beverage industry. Especially during the filling process the individual softdrink and wine parameters need to be monitored quickly, accurately and reliably. The flexible, modular and future-save system QUATROL.50W monitors the specific quality parameters of the beverage. What makes this system outstanding is the easy operating and its high accuracy.

Laserrefractometer LR.10

Caused by the varying quantity of dissolved matter in the medium, a laser beam in combination with a specially coated prism is deflected. A CCD camera detects accurately the deflection, the measuring signal is transfered into °BRIX. A fast temperature sensor reads the temperature of the sample, the BRIX value is compensated to 20° C reference temperature.



CO_2-measuring unit CO.20

The CO_2 measuring unit serves the Inline/Online CO_2 measurement in the brewery and beverage industry. The measuring principle is based on the continuous **ACM** partial pressure method; membrane system. The space after a CO_2-permeable silicone membrane, fixed in the front of the measuring chamber, is filled by diffusion CO_2 until the chamber pressure reaches the partial pressure of the dissolved CO_2 in the liquid. At de- or increasing CO_2 concentration in the liquid, the measuring chamber pressure corresponds. By using up to date microprocessor electronics, the current CO_2 value is continuously calculated from the determined pressure and temperature values and shown as the actual value in Vol%.

Densitymeter DM.31

For measuring the density the U-tube densitymeter is today's common and established method. The liquid to be measured is put into oscillation in a multiply bent pipe and the resonance frequency is measured. In addition, the influence of temperature is quickly compensated.

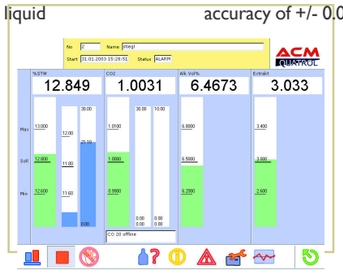
The continuous online measurement QUATROL.50B covers as wine physical parameters

- the refraction number
- the density of the liquid
- and the CO_2-value

Based on these readings a complete mathematical wine analysis according to MEBAK / Balling is carried out.
The following values are determined:

- Alcohol in Vol% and g/l,
- Extract,
- Degree of fermentation,
- Energy content in cal and kJ.

For easy reading verifying to laboratory results, measuring values are compensated to 20° C.



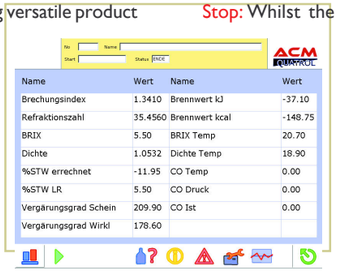
Determination of BRIX according to the Laser principle

The refraction index (BRIX value) is highly accurate measured by the combination of a laser beam and a special prism, including unique signal evaluation electronics and algorithm.
A CCD camera detects a deflection caused by concentration. The deflection is transformed into a proportional measuring signal.
A temperature sensor measures the beverage temperature and compensates the BRIX-reading to 20° C reference temperature.

All measuring signals are recorded, calculated and stored by a micro computer system.
Density is continuously measured at an accuracy of +/- 0,0001 g/cm³ .
The optional CO_2 measurement is carried out via the real Inline continuous analyser CO.20. No moving parts, robust and highly accurate, +/- 0,02 Vol%.

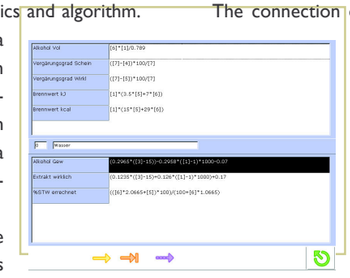
QUATROL.50W user terminal features:

The system owns a big versatile product storage, media settings with up to 200 products is possible. When a product is selected by its individual number or name, the production control process runs fully auto-matically.



Name	Wert	Name	Wert
Brechungsindex	1.3410	Brennwert kJ	-37.10
Refraktionszahl	35.4560	Brennwert kcal	-148.75
BRIX	5.50	BRIX Temp	20.70
Dichte	1.0532	Dichte Temp	18.90
%STW errechnet	-11.95	CO Temp	0.00
%STW LR	5.50	CO Druck	0.00
Vergärungsgrad Schein	209.90	CO Ist	0.00
Vergärungsgrad Wirkl	178.60		

If measuring values exceed given limits, an alarm is given.
The connection of audio-visual alarm devices and a filler switch-off is always possible.
The start-up and finishing process are monitored without problems in the Manual-mode.
A protocol printer brings transparency in the filling process.
For easy to handle system calibration, an adjustment to laboratory values can be done during production.
Simple operation is guaranteed by modern touch screen-display technology.
Operation errors are excluded.
Start: Button „START", Selection of the product number; Button „ENTER". The system starts in the Manual-mode, no alarms are set.
Automatic: Button „AUTO". After start-up the sytstem is switched to surveillance mode, On case of exceeding readings alarms are given.
Manual: Button „MANUAL". Manual operation. Avoids unnecessary alarms in case of errors.
Stop: Whilst the filling process stops, the surveillance mode is halted, no alarms are caused by production stop.
Production finish: Button „FINISH". End of surveillance.
All these events as well as additional data can be recorded by in- or external protocol printers.



QUATROL.50W is an open and modular system, growing with customers demand. CO_2, O_2, conductivity, haze and pH sensors can be connected and their readings moni-tored.
By this, QUATROL.50 represents a complete automatic quality control system according to IFS/DIN/ISO 900ff.
The QUATROL.50W system provides with all up-to-date data interfaces, to be bind into existing PC networks or PLC systems.