Anton Paar

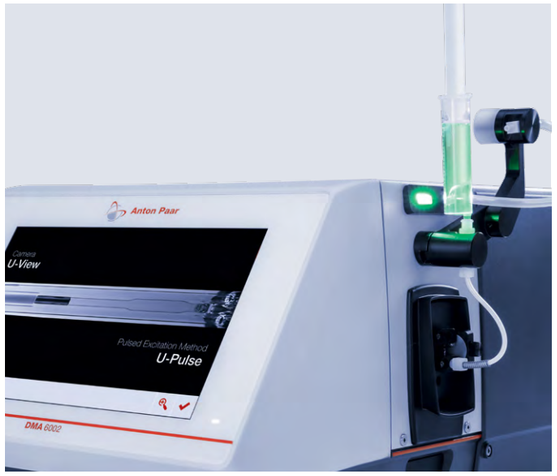
Solutions for Your Supreme Soft Drinks

Soft Drink Analysis Overview

Market-Leading Laboratory Analysis

Density measurement is crucial to ensuring the supreme quality of your soft drinks. Whether you are analyzing diet or regular soft drinks, our portfolio offers exactly what you need. Our instruments deliver market-leading analysis across the whole soft drink production process.

40+ years of application expertise
Know you are working with a partner backed by over 40 years of industry experience. Anton Paar is the trusted choice of quality control professionals and operators around the globe. Wherever you are, our decades of know-how are built into every solution – delivering reliable measurements and expert support exactly when you need it.



Perfect simplicity: 4U
One-touch measurement, automatic bubble detection, selectable industry profiles, and guided workflows – the simplicity of perfection.

1. U-Tube: Best-in-class sensors
2. U-View™: Automatic sample monitoring via camera
3. U-Dry: Simple drying of the measurement cell
4. U-Pulse: Patented Pulsed Excitation Method

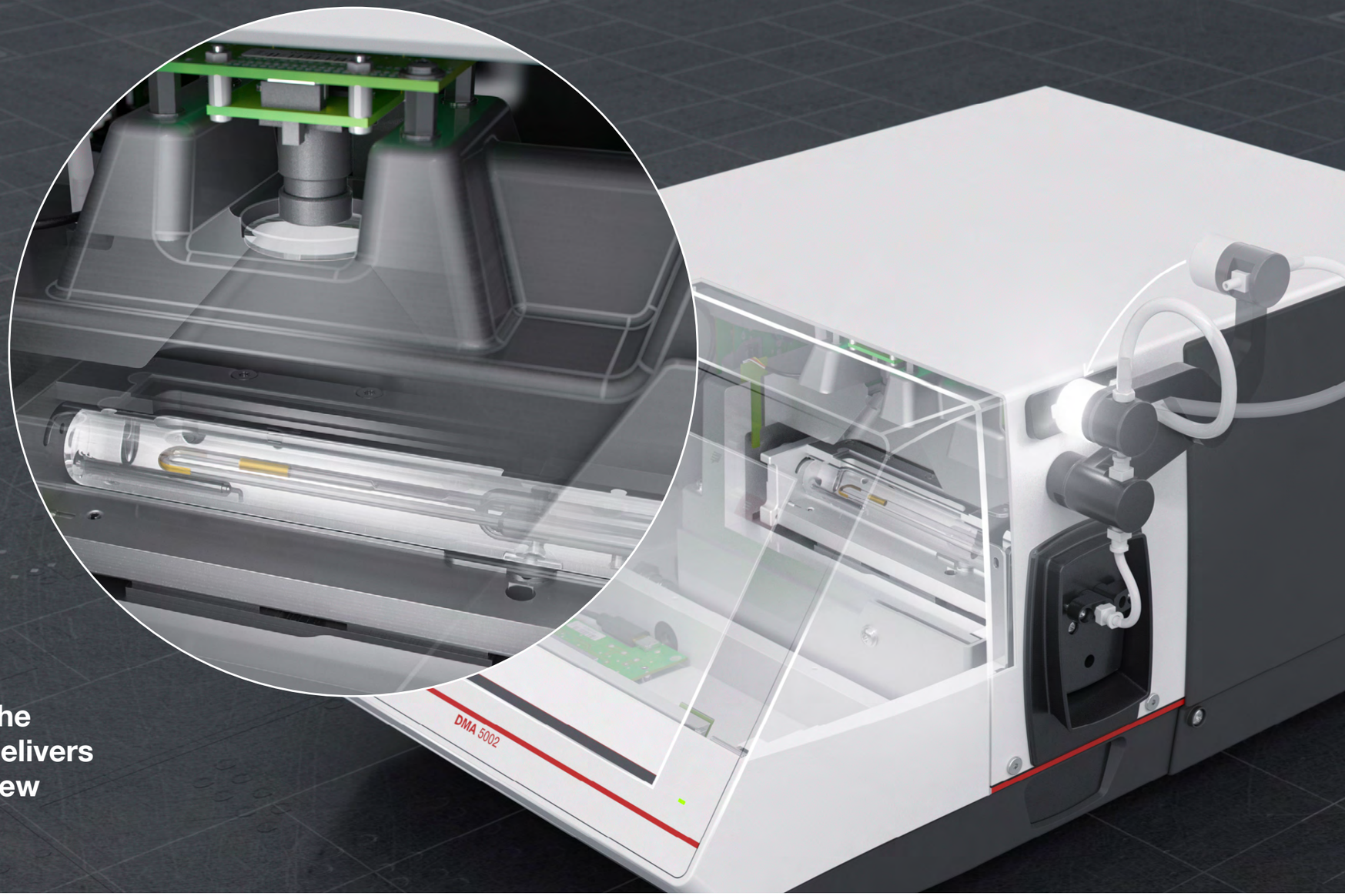
Beverage analysis from the market leader
As the market leader in beverage analysis, we deliver smart, streamlined solutions that transform quality control. Measure up to seven key parameters in just five minutes and connect up to four instruments for a fully integrated system – saving up to two hours of preparation and cleaning time every day. Whether in the lab, on the production floor, or out in the field, our handheld and modular instruments ensure fast, reliable results.

6x faster than traditional methods
Streamline your operations, reduce waste, and achieve consistent product quality with unmatched speed. Our solutions deliver results up to 6x faster than traditional methods and cut diet reference analysis time by as much as 75 %. From optimizing blending and carbonation to automating the filling and cleaning of up to 24 samples in a row, we help you take quality control to the next level.

85+ service stations and a 3-year warranty
Our instruments are famously durable, but if support is required, a global service network expert responds within 24 hours – speaking the local language. Every time a new instrument generation is launched, spare parts for predecessor instruments are guaranteed for at least 10 years.

AP Connect: Centralized data management
AP Connect enables paperless, professional data management with access from any computer on the network. It removes transfer errors, centralizes data from all instruments, and streamlines workflows through one interface. Save time and ensure compliance with efficient data flows and optional validation documentation.

Glass Oscillator Pioneers: Predicting Tomorrow



Our U-Pulse technology, based on the trusted Pulsed Excitation Method, delivers unmatched performance and sets new standards in density measurement.

Density is the acknowledged standard parameter for evaluating a soft drink's quality. It's the basis for highly accurate Brix and Diet measurement, which you can obtain with our market-leading technology. By combining sound velocity and density, you can determine the current state of the sugar inversion process, making manual inversion a thing of the past.

Accuracy: 0.000005 g/cm³

- U-Pulse technology with a re-envisioned, even-smarter algorithm
- Best-in-class accuracy, backed by FillingCheck™ and U-View™

Quick, efficient quality control

- One-touch measurement: Analysis at the push of a button
- Status light indicator: Indication of whether a measurement is running or complete
- Simplified cleaning: Reduction of cleaning effort for smoother workflows
- Faster cycle times: All features combined lead to significantly shorter measurement cycles

Live view of measuring cell with U-View™

- Check of sample filling process via a high-quality image of the glass cell on the high-resolution screen
- Verification of correct sample filling and measurements using stored images
- Printing of results with or without U-View™ pictures, or transferal to LIMS systems

Correct sample filling via FillingCheck™

- Automatic monitoring of filling quality
- Real-time error detection and automatic documentation for later verification
- Market-leading bubble detection with patented Pulsed Excitation Method

Stay compliant with industry standards

- Comply with all the standards you need to fulfill
- Easily pass audits and lab inspections

Powering Your Potential

- ✓ Syrup monitoring in the syrup room
- ✓ Syrup monitoring during soft drink production
- ✓ Final syrup blending
- ✓ Blending and carbonation
- ✓ Sugar inversion analysis
- ✓ Final quality control of soft drinks

DMA 35 Standard
Portable density meter

- Accuracy: 0.001 g/cm³
- Quick, reliable quality control during syrup production with just 2 mL of sample
- Widest viscosity range on the market
- Replacement of all glass hydrometers and pycnometers in the workplace with one device
- Fast sample processing with an RFID interface and Bluetooth® capability
- Leak- and shock-proof design
- Lightweight
- No active temperature control required

DMA 502, DMA 1002
Compact benchtop density meter

- Accuracy:
  DMA 502: Density: 0.001 g/cm³
  DMA 1002: Density: 0.0001 g/cm³
- U-Pulse, U-View™, FillingCheck™
- One-touch measurement
- Filling support via Xsample 200 or a funnel
- Conversion to more than 100 concentration tables
- Rugged, splash-proof design for the toughest conditions

DMA 4002
Modular benchtop density meter

- Accuracy:
  Density: 0.00005 g/cm³
  Sugar concentration: 0.015 °Brix
- U-Pulse, U-Dry, U-View™
- One-touch measurement
- Measurement of °Brix (sugar concentration)
- Syringe and status light
- Modular extensions available
- Full automation via Xsample series

DMA 5002
Modular benchtop density meter

- Accuracy:
  Density: 0.00001 g/cm³
  Sugar concentration: 0.01 °Brix
- U-Pulse, U-Dry, U-View™
- One-touch measurement
- Measurement of °Brix (sugar concentration)
- Measurement of % Diet
- Syringe and status light
- Modular extensions available
- Connect to TPO 5000 for sophisticated oxygen analysis
- Full automation via Xsample series

DMA 6002
Modular benchtop density meter

- Accuracy:
  Density: 0.000005 g/cm³
  Sugar concentration: <0.01 °Brix
- U-Pulse, U-Dry, U-View™
- One-touch measurement
- Measurement of °Brix (sugar concentration)
- Measurement of % Diet
- Syringe and status light
- Modular extensions available
- Connect to TPO 5000 for sophisticated oxygen analysis
- Full automation via Xsample series

DMA 6002 Sound Velocity
Combined density and sound velocity meter

- Accuracy:
  Density: 0.000005 g/cm³
  Sugar concentration: <0.01 °Brix
  Repeatability:
  Brix fresh/inv: 0.02 °Brix
- U-Pulse, U-Dry, U-View™
- One-touch measurement
- Measurement of °Brix, °Brix fresh, °Brix inverted, and the degree of inversion in one go
- Obtain the exact state of sugar inversion and set the dilution ratio
- Measurement of % Diet
- Syringe and status light
- Modular extensions available
- Full automation via Xsample series

Measurement System

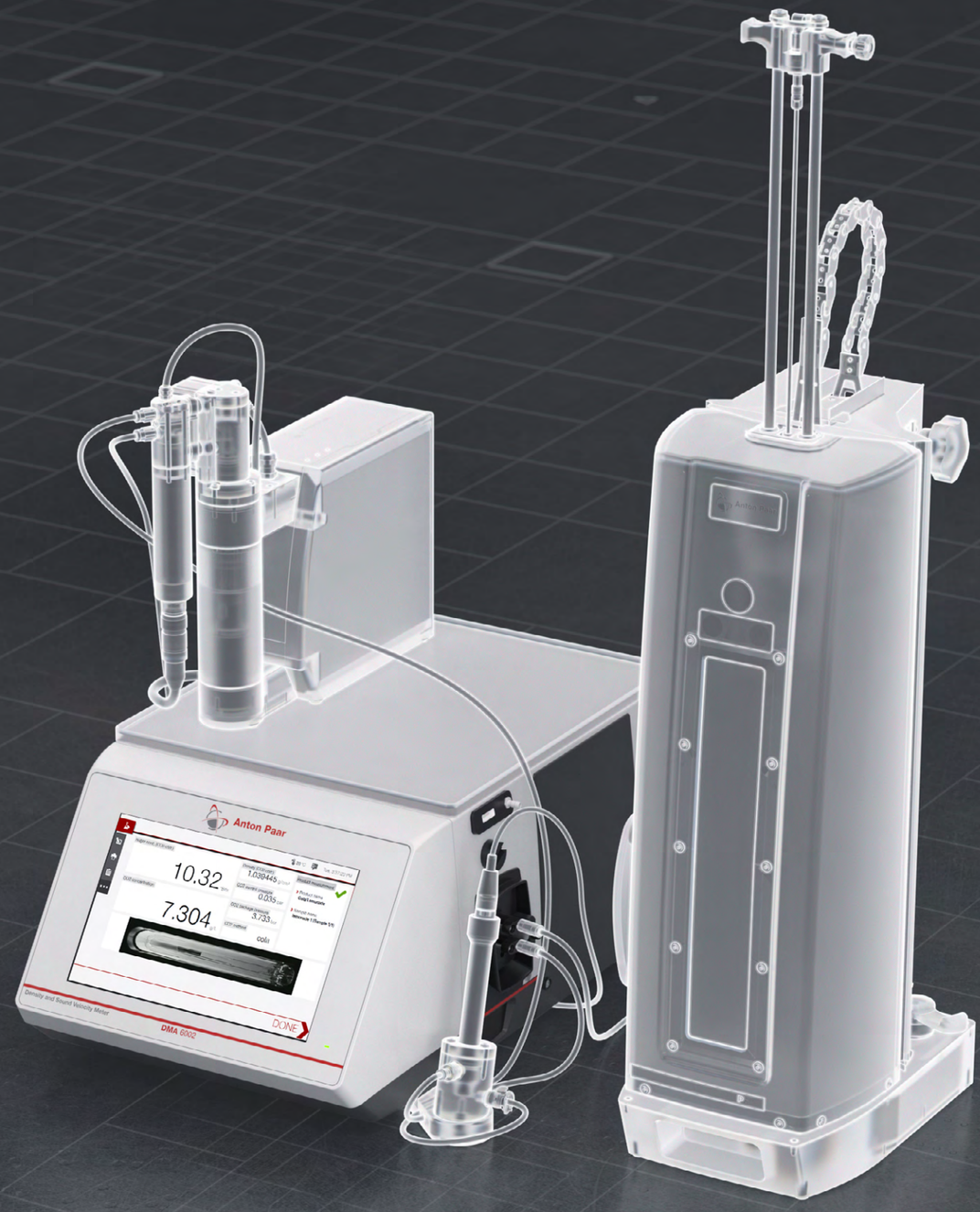
Find out more

Choose from the following options and primary instruments:

- → DMA 4002
- → DMA 5002
- → DMA 6002
- → DMA 6002 Sound Velocity

Add your documentation:

- → IQ/OQ/PQ



Sound velocity	Sample changer	Refractive index	CO_2, O_2	pH	Filling device
DMA 6002 Sound Velocity	Xsample 320	Abbemat 5001	CarboQC ME	pH 3101	PFD
	Xsample 520	Abbemat 5101	Option O_2 for CarboQC ME / 1001	pH 3201	PFD Plus
		Abbemat 5201	Option O_2 Plus for CarboQC ME / 1001		Total package oxygen
					TPO 5000

Available options

Modular Extension

Sound velocity

- DMA 6002 Sound Velocity combines density and sound velocity measurement
- Features sugar inversion analysis through dual-parameter measurement
- Enables precise monitoring and optimization of beverage composition

Single-sample changer

- Short filling times enabled by an industrial-grade peristaltic pump
- Quick replacement of the sample without intermediate cleaning
- Adjustable pump speed for optimized filling behavior
- User-independent filling of DMA ensures repeatable measuring results

Multi-sample changer

- A range of automation options available
- Suitable for syrup, intermediate products, and finished non-carbonated products
- Designed for both low and high sample throughput

Refractive index

- °Brix values are determined according to the required method
- Depending on regulations, °Brix must be reported based on density or refractive index (RI)
- Simultaneous analysis prepares users for both reporting requirements

CO_2, O_2

- Achieves repeatability of 0.005 vol. in CO_2
- Automatic filling-error detection ensures error-free operation for the density and CO_2 measuring cell
- Optional high-resolution optochemical oxygen sensor enables simultaneous determination of O_2 concentration

pH

- pH can be determined alongside other quality parameters
- pH 3101 and pH 3201 measuring modules allow selection between pressurized and non-pressurized analysis solutions
- Measurements can be performed directly from the package or from degassed samples

Filling device

- PFD Filling Device transfers the sample directly from a closed container (bottle or can) into the measuring chamber
- PFD and PFD Plus are ideal filling devices for CO_2/O_2 meters and packaged beverage measurement systems

Total package oxygen

- Measurement of total package oxygen directly out of cans, glass bottles, and PET bottles
- TPO results in as little as four minutes
- Automatic self-cleaning function and minimum maintenance
- Can be operated as a stand-alone device or embedded in a packaged beverage measurement system

Recommended Configurations

Design your Soft Drink Measurement System, one component at a time.

Analysis of soft drinks in just three to six minutes

Over seven product release parameters in one go (incl. TPO)

No degassing prior to measurements

Cleaning made easier than ever before

DMA 6002 Sound Velocity
pH 3101
Xsample 320

For syrup or non-carbonated beverages with sample changer

- Measure up to four parameters in one go in three to five minutes, 6x faster than with conventional methods
- Analyze your entire portfolio of soft drinks and ready-to-drink beverages
- Optimize your measurement processes with automated filling
- Eliminate operator influence
- Achieve unmatched precision in % Diet results

DMA 5002
CarboQC ME and Option O_2 (Plus)
pH 3201
PFD (Plus)

For relevant parameters from the finished package

- Measure up to six parameters in one go in three to six minutes
- Analyze regular and diet drinks, energy drinks, and carbonated water
- Reduce your diet reference analysis time by 75 %
- Eliminate sample preparation and operator influence
- Upgrade and increase system efficiency with modular extensions to measure dissolved O_2 and pH

DMA 6002 Sound Velocity
CarboQC ME and Option O_2 (Plus)
pH 3201
PFD (Plus)

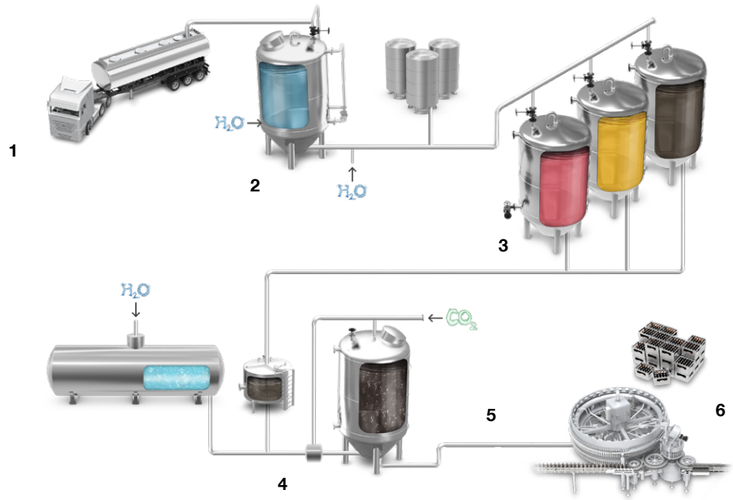
For sugar inversion from the finished package

- Measure more than seven parameters in one go in three to six minutes
- Eliminate the need for manual sugar inversion
- Analyze regular and diet soft drinks, including sugar inversion
- Combine with modules for dissolved oxygen, pH, or turbidity to complete the system for final beverage analysis

Complete Your Soft Drink Analysis

Anton Paar is the world's first full-range supplier for soft drink analysis. 25 laboratory and process instruments trace 15+ parameters from any location in the plant.

Streamlining soft drink quality control has never been so easy. Connected via the Davis 5 software, process sensors are calibrated and adjusted at the push of a button, taking lab measurements as a reference.



	Syrup monitoring	Syrup monitoring and inversion		Blending and carbonating		Final quality control
	Raw material monitoring	Sugar/sweetener dissolution monitoring | Syrup room	Raw material monitoring	Brix monitoring | Blending	Soft drink monitoring | Blending carbonation	Soft drink monitoring | Pre-filler and final package
	1	2	3	4	5	6
Elemental impurities	✓					
Color classification	✓					
Purity	✓					
Density (°Brix)	✓	✓	✓	✓	✓	✓
Density and sound velocity (Sugar inversion)		✓	✓	✓		✓
Refractive index	✓	✓	✓	✓		✓
Optical rotation (°Z)	✓					
pH				✓		✓
Dissolved CO_2					✓	✓
Dissolved O_2					✓	✓
TPO						✓
Diet concentration				✓	✓	✓
Laboratory measurement	✓	✓		✓	✓	✓
Process measurement		✓	✓	✓	✓	✓

Grow Your Business

Our soft drink analysis solutions are designed to grow with your needs. Whether you are integrating data management, upscaling analytical solutions, or implementing inline analysis in your production, we've got you covered.

Cobrix inline soft drink analyzer
The Cobrix inline sensor provides continuous measurements of °Brix, % Diet, and CO_2 during soft drink production. Connected via the Davis 5 software, it is automatically calibrated and adjusted, taking lab measurements as a reference.

ALAB automated quality control
Designed for filling lines and analysis labs, ALAB offers automated quality control for the beverage industry. ALAB 5000 Analytic analyzes bulk and packaged beverages for key physical and chemical parameters, while ALAB 5000 Torque measures the opening torque of twist-off caps. ALAB 5000 Analytic and ALAB 5000 Torque can be integrated into new or existing filling lines, or used as stand-alone solutions.

Reliable. Compliant. Qualified.

Find out more

Our well-trained and certified technicians are ready to keep your instrument running smoothly.

Maximum uptime
Regardless of how intensively you use your instrument, we help you keep your device in perfect shape and safeguard your investment. For at least 10 years after the discontinuation of a device, we'll provide you with any service and spare part that you might need.

Warranty program
We're confident in the high quality of our instruments. That's why we provide a full 3-year warranty. Just make sure to follow the relevant maintenance schedule. You can also extend your instrument's warranty beyond its expiration date.

Short response times
We know that sometimes it's urgent. That's why we provide a response to your inquiry within 24 hours. We give you straightforward help from experienced people, not from bots.

Global service network
Our large service network for customers spans 85+ locations with more than 600 certified service technicians. Wherever you're located, there's always an Anton Paar service technician nearby.

Soft Drink Measurement Systems

	For syrup or non-carbonated beverages with sample changer	For relevant parameters from the finished package	For sugar inversion from the finished package
Parameters	°Brix | % Diet | °Brix fresh | °Brix inverted | Degree of inversion | pH	°Brix | % Diet | CO_2 | O_2 | pH	°Brix | % Diet | °Brix fresh | °Brix inverted | Degree of inversion | CO_2 | O_2 | pH
Measuring range			
Density	0 g/cm³ to 3 g/cm³		
Sound velocity	1,000 m/s to 2,000 m/s	-	1,000 m/s to 2,000 m/s
Temperature	20 °C / 68 °F		
Operating pressure	Ambient	Up to 10 bar (for 0 °C to 50 °C) (145 psi)	Up to 8 bar (116 psi)
Concentration sugar actual	0 °Brix to 80 °Brix		
Concentration sugar fresh / inverted	0 °Brix to 80 °Brix	0 °Brix to 15 °Brix	
Degree of inversion	0 % to 100 %	-	0 % to 100 %
Diet concentration	0 % Diet to 200 % Diet; or 0 mL NaOH to 200 mL NaOH; or 0 g/L TA to 200 g/L TA; or 0 mg/mL H_3PO_4 to 600 mg/100 mL H_3PO_4		
CO_2 concentration	-	0 vol. to 6 vol. (0 g/L to 12 g/L) at 30 °C (86 °F) | 0 vol. to 10 vol. (0 g/L to 20 g/L) <15 °C (59 °F)	
O_2 concentration	-	0 ppm to 4 ppm	
pH value	pH 0 to pH 14		
Repeatability s.d.			
Density	0.000001 g/cm³	0.000005 g/cm³	0.000001 g/cm³
Sound velocity	0.1 m/s	-	0.1 m/s
Temperature	0.001 °C (0.002 °F)	0.01 °C (0.02 °F)	0.001 °C (0.002 °F)
Concentration sugar actual	<0.01 °Brix[1)]	0.01 °Brix	<0.01 °Brix[1)]
Concentration sugar fresh / inverted	0.02 °Brix[1)]	-	0.02 °Brix[1)]
Degree of inversion	1 %	-	1 %
Diet concentration	0.5 % Diet		
CO_2 concentration	-	0.005 vol. (0.01 g/L)	
O_2 concentration	-	2 ppb (in the range <200 ppb)	
pH value	0.02 (in the range pH 3 to pH 7)		
General information			
Power features	U-View™, FillingCheck™, ThermoBalance™, full-range viscosity correction, ultra-fast measuring mode		
Minimum amount of sample per measurement[2)]	40 mL	150 mL	
Typical sample throughput	10 to 20 samples per hour, depending on system configuration		
Internal storage	Up to 10,000 measuring values with camera images		
Communication interfaces	5 x USB, Ethernet, CAN, RS232		
Environmental conditions	(EN 61010) Indoor use only		
Ambient temperature	15 °C to 35 °C (59 °F to 95 °F)		
Air humidity	Non-condensing; 20 °C, <90 % relative humidity; 25 °C, <60 % relative humidity; 30 °C, <45 % relative humidity		

1) Up to 60 °Brix at 20 °C
2) For highly repeatable analysis of diet drinks it is recommended to use at least 200 mL of sample

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