



# CO<sub>2</sub>-MEASUREMENT

CDA-MK6



CO2MS-2



CO2MS-1



## CO<sub>2</sub> monitoring in packaged beverages

The content of CO<sub>2</sub> is one of the most important influencing quality parameters affecting taste and shelf life of beverages. A continuous monitoring of the carbon dioxide content is therefore essential to ensure a consistent quality. Essential requirements on industrial CO<sub>2</sub> measurement in bottled beverages are the optimal sample preparation and measuring procedure, repeatable results and consideration of all package influences to the beverage quality.

The continuous dynamic trend to newer and if possible less expensive packaging and package materials is especially important to be considered in modern CO<sub>2</sub> testing equipment.

Other significant requirements according to the customer needs are easy operation, low maintenance requirements, efficient workflow management and easy integration in already existing quality control systems.

The only instruments in the market most optimally fulfilling these requirements are the Steinfurth CO<sub>2</sub> testers. Where for other technology providers fulfilling of all these essential requirements in one instrument solution is not possible, the Steinfurth CO<sub>2</sub> tester additionally to its unique combination of dynamic sample preparation and direct in-package measurement also complementarily simulates the beverage tasting situation by the consumer. Its high precise and repeatable measuring results support very efficiently the most optimal monitoring and adjustment of the beverage quality in bottling process.

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## Perfect CO<sub>2</sub> monitoring in beverage bottles and cans



CPA – Compact Package Analyzer as combination of CDA-MK6, Torque Tester TMS 4000/4010 and CPA-Scale

Continuous adaptation and improvement of the Steinfurth CO<sub>2</sub> tester technology to the individual customer needs worldwide combined with maximal process efficiency are the mayor keys for the perfect instrument solution.

The unique combination of optimal sample preparation, piercing system and measuring device saves not only the simply unnecessary purchase of several single purpose instruments, but also the process time and space in laboratory and at the filling line.

Furthermore the Steinfurth CO<sub>2</sub> tester considers all kind of package influences to the beverage, which for example are completely ignored by optical, or outside of the package executed CO<sub>2</sub> measuring methods. Additional interference factors that apply when transferring the liquid for measurement outside of the package can be completely ignored due to the direct measurement in the packaged beverage. A fully automatic measurement process with extreme precise results are just basic characteristics for nearly every Steinfurth measurement device – as always in combination with the high repeatability and very easy, user independent operation.

Flexible data interfaces assure an easy integration of the Steinfurth CO<sub>2</sub> testers in the existing quality management systems. Easy adaption to all packaging and closure types complete the perfect instrument solutions „Made in Germany“.

### Benefits

- Reduced process time and costs by outsourcing of the QA from laboratory to the filling line
- Consideration of all package influences
- Combined evaluation of product and package quality
- Fully automatic, user independent measurement process
- Dynamic sample preparation (CDA)
- Perfectly adjustable to individual requirements and measurement standards & procedures
- Space-saving through All-In-One system concept (sample preparation and measurement)
- Suitable for all kind of packaging and closure types
- Very easy integration in existing quality control systems
- Very flexible documentation and PC connection possibilities
- Local service and support partner on every continent





## Steinfurth CO<sub>2</sub> Tester CDA-MK6

Automatic CO<sub>2</sub> measurement in bottles & cans



The **CDA-MK6** measures pressure and temperature simultaneously, calculates the CO<sub>2</sub> content and transfers the measuring results via data interface to the base unit. A dynamic sample preparation, low maintenance requirements and easiest calibration complement the high-precision measurement.

Customized and medium optimal measuring procedures are ex-factory programmed and executed fully automatic. The flexibly programmable control unit transfers all parameters as test protocol to the internal memory, containing in detail CO<sub>2</sub> content, pressure, temperature, date, time, current test number, and the serial number of the instrument with the specific test sample code.

The base unit's integrated color touch screen shows all essential test results as perfectly visualized quality parameters for the operator.

In combination with the barcode scanner and customized configured data interface the CDA can be very fast and automatic setup for changing samples and operators - essential for most optimal process efficiency and safety. Pre-setup for the Steinfurth CPA-concept is complementarily available in every new instrument.

### Operation:

The Steinfurth CDA works based on the physical law of Henry & Dalton. The packaged beverage is placed in the sample container and with closing of the measuring head automatically pierced. Measurement with integrated dynamic sample preparation are initiated by pressing the START button. The harmonic overhead tumbling of the sample delivers optimal physical equilibrium of the sample and assures perfect repeatability and accuracy of the measuring results. Just after the state of equilibrium is reached the CO<sub>2</sub> content is automatically calculated and stored in the memory (available as digital fingerprint of the test with all recorded parameters for transfer to the PC or directly into the network).

Technical specifications	CDA-MK 6
Application:	Beverages industry, Packaging Industry
Measuring results:	CO <sub>2</sub> , Pressure, Temperature
Package type:	Bottles (PET & Glass), Cans
Usage:	Quality control, packaging testing
Extension into CPA:	Yes (ex-works on board)
Sample preparation:	Integrated & dynamic
Duration of measuring:	approx. 5 – 10 sec
Data output:	LCD, RS 232, USB, LAN
Power supply:	115 – 230V / 50 – 60 Hz
Accuracy (pressure):	± 0.02 bar (± 0.29 psi)
Accuracy (temperature):	± 0.3 bar (± 0.54 °F)
CO2 repeatability:	± 0.05 g/l (± 0.03 vol)
Max. pressure:	10 bar (145 PSI)
Measurement:	610mm x 500mm x 640mm
Weight:	ca. 20 kg (44 lbs)



## Steinfurth CO<sub>2</sub> Tester CO2MS-2

Semi-automatic CO<sub>2</sub> measurement



The **CO2MS-2** is equipped with a high precise digital manometer which displays the equilibrium pressure at the end of the shaking process. The temperature is measured subsequently with a thermometer and the carbon dioxide content calculated or read from a customized CO<sub>2</sub>-chart.

## Steinfurth CO<sub>2</sub> Tester CO2MS-1

Semi-automatic CO<sub>2</sub> measurement



The **CO2MS-1** is equipped with a precise analogue manometer which displays the equilibrium pressure at the end of the shaking process. The temperature is measured subsequently with a thermometer and the carbon dioxide content calculated or read from a customized CO<sub>2</sub>-chart.

Technical specifications	CO <sub>2</sub> Tester CO2MS-2	CO <sub>2</sub> Tester CO2MS-1
Application:	Beverages Industry, Packaging Industry	
Measuring results:	Pressure	
Package type:	Bottles (PET & Glass), cans	
Usage:	Quality control, packaging testing	
Extension into CPA:	Not possible due to missing PC interface	
Sample preparation:	Time-controlled: 15 – 60 sec	
Measurement time:	Time-controlled: 60 – 180 sec	
Data output:	LCD	Analogue display
Power supply:	115 - 230V / 50 - 60 Hz	
Accuracy (pressure):	± 0.05 bar (± 0.73 psi)	
Accuracy (temperature):	Manually with a thermometer	
CO <sub>2</sub> repeatability:	± 0.1 g/l (± 0.5 vol)	
Max. pressure:	10 bar (145 PSI)	6 bar (standard)
Measurement:	610mm x 500mm x 640mm	
Weight:	approx. 20 kg (44 lbs)	