

# Data sheet

## CheckMate II

Headspace gas analyser for O<sub>2</sub> and CO<sub>2</sub>  
- All-in-one concept, ensuring traceability  
of modified atmosphere packages



### Introduction to the CheckMate II

The CheckMate II represents a breakthrough in headspace analysis for the food, beverage and pharmaceutical industry. With its intuitive and easy to use operator interface, the CheckMate II will rapidly become the most valued quality control tool in the production of any type of modified atmosphere product.

The CheckMate II is very simple to use: Press a button and read the result! At the same time CheckMate II makes it possible to get rid of the traditional paper logs, which are widely used in quality control processes. Due to the innovative data logging options in the CheckMate II it is possible to store all essential production data in the unit, such as production line, batch number, operator name, product identification and of course the measuring values.

The CheckMate II works by drawing a small sample of the headspace gas into the sensors. The gas is then analysed and the result is displayed on the display within a few seconds.

#### The CheckMate II is available in the following versions:

- O<sub>2</sub> analyser with either electrochemical or zirconia sensor
- O<sub>2</sub>/CO<sub>2</sub> analyser with a wide selection of CO<sub>2</sub> sensors
- O<sub>2</sub>/CO<sub>2</sub> analyser with an EC sensor

### An essential and versatile tool

The CheckMate II is a user-friendly instrument. It can be configured in numerous ways making it an essential tool for almost any type of oxygen and carbon dioxide headspace analysis.

The CheckMate II can both be used as a part of the daily quality control system as well as in research and development of new products or production processes. The automatic and user adjustable interval measurement is e.g. an essential tool in controlled atmosphere projects.

### Features

- Extremely small sample volume (Zirconia version)
- Extremely short measuring time
- Up to 500 product set-up programs for alarms and data sorting
- Bar code reader for easy product selection (optional)
- Configurable user login management, logged with data collections
- User configurable data logging fields for batch number, production line and other valuable data
- USB keyboard interface for easy data entry
- Interface for USB memory device for export of logged data and import/export of product set-up data
- Logging of more than 10,000 test results
- Configurable data transfer of measurements on RS232 and LAN
- Ready to use on delivery, no pre-calibration is needed
- Built-in alarms for high and low gas concentrations
- Built-in printer (optional)
- Documentation functions ensure both complete traceability and the need for quality management systems
- Automatic or manual test start-up
- SmartPen sampling device, needle protection (optional)
- Efficient water trap protection
- Compact, sturdy and ergonomic design
- CO<sub>2</sub> sensor available in different measuring ranges: 0 - 5%, 0 - 10%, 0 - 30%, 0 - 100%
- Water resistant power supply IP67 available for harsh environments (optional)

### Fast, sensitive and accurate

With the intelligent sample start-up and a measure time of less than 3 seconds for O<sub>2</sub> and less than 8 seconds for CO<sub>2</sub> the CheckMate II is a fast analyser. The heating time for the zirconia sensor is 10 minutes and less after periodical switch-off.

The sensitive zirconia sensor only needs a sample volume of less than 2 ml O<sub>2</sub> to give a very accurate result within +/- 1% of the reading and 4 ml CO<sub>2</sub> to give a result within +/- 2% of the full range.

## Calibrated and ready to use

The CheckMate II is delivered with a calibration certificate and only needs to be re-calibrated once a year (zirconia O<sub>2</sub> sensor type). The operator never needs to worry about compensation for air pressure or flow verification, because this is all taken care of automatically.

## Principle of operation

### Oxygen

The CheckMate II O<sub>2</sub> version is based on a zirconia or an electrochemical sensor. The zirconia sensor produces a small voltage or electromotive force (EMF) in the presence of oxygen. This EMF is directly related to the oxygen concentration of the gas being passed through the sensor, which is then shown in the display. The sensor is remarkably sturdy and stable, the readings are highly repeatable and the sensor is very fast. The zirconia sensor will not saturate in high oxygen concentrations, which means that the CheckMate II O<sub>2</sub> can be used across a broad range of applications with a measuring range from 0-100% with a high resolution - still with high speed and accuracy.

### Carbon dioxide

The CO<sub>2</sub> sensor is a self-contained non-dispersive IR sensor complete with IR source and dual wavelength filter. There are no moving parts and the sensor is very sturdy. The CO<sub>2</sub> sensor range is 0-100%. The sensor only needs calibration once a year and the reading is not influenced by humidity, ambient air pressure or temperature.

## Printing and data logging

The optional built-in printer provides a convenient record keeping tool for quality control personnel. Individual measurements can be printed. Furthermore the gas concentrations and the number of alarm levels exceeded in a particular batch can be printed. Optional setting for automatic printout after completed measurements.

The CheckMate II has up to 500 products for data logging, which are user defined and can be used to categorise the results by product type or packaging line. More than 10,000 measurements can be stored in the memory, printed or exported when convenient.

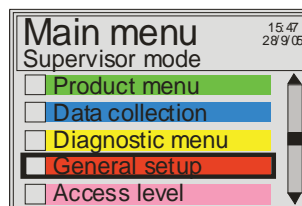
All logged data in the CheckMate II headspace analyser can also easily be transferred to a PC via LAN, RS232 or a USB memory device. This ensures an easy access to all measuring data for quality control purposes.



## Technical Specifications

Sensors	
O <sub>2</sub> sensor:	Electrochemical or zirconia sensor
CO <sub>2</sub> sensor:	Infrared, dual wavelength sensor
Sample volume	
O <sub>2</sub> sensor:	Electrochemical < 5 cc, zirconia < 2 cc
CO <sub>2</sub> sensor:	< 4 cc
Measu. range	
O <sub>2</sub> sensor:	0 - 100%
CO <sub>2</sub> sensor types:	0 - 100%, 0 - 30%, 0 - 10%, 0 - 5%
Resolution	
O <sub>2</sub> zirconia sensor:	0.1% absolute in range above 10% 0.01% absolute in range above 1% 0.001% absolute in range below 1%
O <sub>2</sub> electrochemical and CO <sub>2</sub> sensor:	0.1% absolute
Accuracy	
O <sub>2</sub> sensor:	Electrochemical: 0-5%: +/-0,1% absolute and 5-100%: +/-2% relativ Zirconia: 0-1%: +/- 0,01% absolute and >1%: max. ±1% of the reading
CO <sub>2</sub> sensor:	± 0.5% absolute and +1.5% of reading
Response time	
O <sub>2</sub> sensor:	Electrochemical < 7 secs., zirconia < 3 secs.
CO <sub>2</sub> sensor:	< 8 secs.
Heating time	
Zirconia O <sub>2</sub> and CO <sub>2</sub> sensor:	10 minutes (shorter at temporary interruptions)
Electrochemical O <sub>2</sub> sensor:	1 minute
Operation	
Display:	True colour graphic LCD Icon based smart-key menu
Alarm:	Up to 500 products, with programmable alarm for high and low levels
Mech. data	
Dimensions:	180 x 315 x 220 mm (HxWxD)
Weight:	3.7 kg
Noise level:	Less than 58dB (A-weighted) ZrO <sub>2</sub> models
Other features	
Power supply:	90-260 VAC, 50-60 Hz. Max. 40 W

## Menu set-up in colours



CheckMate II has a colour menu system. Each operation area has its own colour that continues throughout the menu system. The feature makes the gas analyser easy to operate and navigate.

Distributor: