

CheckMate

Data sheet

Head space analyser for O₂ or O₂/CO₂

- All in one concept, ensuring a perfect test result in your modified atmosphere packaging



Features

- Extremely small sample volume
- Delivered ready to use - no precalibration or setting up is needed
- Built-in alarms for high and low gas concentrations
- Oxygen measures from 0,01 to 100%
- Carbon dioxide measures from 0 to 100%
- Extremely short measuring time (below 2 secs. for O₂)
- Built-in printer (optional)
- Documentation functions ensure complete traceability, need for various certification programmes
- RS 232 data connection for exporting logged data
- 10 (80 optional) set-up programmes for alarms and data sorting
- Logging of up to 2400 test results
- Direct or subsequent export of test results to the CheckMon software for data analysis and graphical presentation of the results
- Automatic or manual test start-up
- Complete self-diagnostics
- Efficient water trap protection
- Four colour display and smart keys for easy set-up and operation
- Freeze of the highest and lowest reading
- 12 months between calibrations
- Compact and sturdy design
- Ergonomic friendly design

Introduction to the CheckMate

The CheckMate is an easy to use head space analyser that features all you need for a perfect test result. The CheckMate is designed for use with all types of modified atmosphere packages and has a sensitive O₂ and an optional CO₂ sensors. The CheckMate works by drawing a small sample of the head space gas into the sensors, the gas is then analysed and the result is displayed on the LCD display within a few seconds.

The CheckMate includes an extensive range of features a unique feature is the ability to perform an analysis on a very small sample size - down to 1,5 ml. This is very useful when testing vials or other pharmaceutical applications - making the CheckMate a strong all-round head space analyser. For test in cans and bottles the CheckMate can be integrated with the PBI-Dansensor Can Piercer.

Intelligent sample start-up

The measurement procedure is designed for easy use and is fully automatic. When the syringe is introduced into the package the built-in pump automatically starts sampling the gas ensuring an easy and faultless operation. The result is quickly shown in the built-in LCD display and stored in the memory. The results can then be exported to an external computer via the RS 232 data connection or printed on the built-in printer (optional).

Fast, sensitive and accurate

With the intelligent sample start-up and a measure time of less than 2 seconds for O₂ and less than 10 seconds for CO₂ the CheckMate is a fast analyser. The heating time for the solid state sensor is less than 10 minutes and less after periodical switch-off.

The sensitive sensors only needs a sample volume of less than 2 ml O₂ to give a very accurate result within +/- 1% of the reading and down to 5 ml CO₂ to give a result within +/- 2% of the full range.

Calibrated and ready to use

The CheckMate comes with a certificate of calibration and only needs to be re-calibrated once a year. The operator never needs to worry about compensation for air pressure or flow verification because this is all taken care of automatically.

If you wish to re-calibrate the CheckMate yourself, this is a very simple process. You simply use the automatic calibration routine available in the menu.

Principle of operation

Oxygen

The CheckMate uses a zirconia sensor. The sensor operates like a solid state battery, which produces a small voltage or electro motive force (EMF) in the presence of oxygen. This EMF is directly related to the oxygen concentration of the gas being passed into the sensor, which is then shown in the LCD display. The CheckMate sensor is remarkably sturdy and stable, the readings are high repeatable and the sensor is very fast. The sensor will not saturate in high oxygen concentrations, which means that the CheckMate can be used across a broad range of applications with concentrations from 100 ppm to 100% oxygen with high speed and accuracy.

Carbon dioxide

The CO₂ 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 CO₂ sensor range is 0-100% but is also available in other ranges. The sensor only needs calibration once a year and the reading is not influenced by humidity, ambient air pressure or temperature.

Data collection and documentation

The optional built-in printer provides a convenient record keeping tool for quality control. Individual measurements can be printed in tabular form, furthermore the oxygen concentration and tabulation of the number of alarm levels exceeded in a particular batch can be printed. You also have a record of time and data and can automatically calculate averages and other statistical data.

The CheckMate has 10 categories (80 possible) for data logging, which are user defined and can be used to categorize the results by product type or packaging line. Up to 2400 test results can be stored in the memory, printed or exported when convenient. By using the software, CheckMon especially designed for integration with the CheckMate, the test results can be logged directly or subsequently be exported to an MS access compatible database or the windows hyper terminal. CheckMon is also able to present the test results graphically.

Technical Specifications

Sensors	
O ₂ sensor	Ceramic, solid state sensor
CO ₂ sensor	Infrared, dual wavelength sensor
Sample volume	
O ₂ sensor	Less than 2 ml
CO ₂ sensor	Less than 5 ml
Measuring range	
O ₂ sensor	0,01 - 100%, auto ranging
CO ₂ sensor	0 - 30% or 0 - 100%, depending on the version
Accuracy	
O ₂ sensor	Max. ±1% of the reading in the calibrated range
CO ₂ sensor	Max. ±2% of the full range
Response time	
O ₂ sensor	Less than 2 secs.
CO ₂ sensor	Less than 5 secs.
Heating time	
O ₂ sensor	10 minutes from cold state (shorter at temporary interruptions)
Operation	
Display	4 colour graphic LCD Icon based smart-key menu
Alarm	Up to 10 (80 optional) products, with programmable alarm for high and low levels
Mechanical data	
Dimensions	180 x 300 x 220 mm (HxWxD)
Weight	4,5 kg
Other features	
Signal output	RS 232 serial port for external printer or PC
Power supply	230 VAC or 115 VAC 50-60 Hz Max. 70 VA nom. 45VA

Ordering information

Model	Description	Part no.
CheckMate O ₂	230 VAC	970186
CheckMate O ₂ /CO ₂	230 VAC	970259
CheckMate O ₂	115 VAC	970187
CheckMate O ₂ /CO ₂	115 VAC	970188
Printer to be built-in	Will be built into the CheckMate	970188
CheckMon	Software for data handling	230289
Consignment incl.:	Analyser, complete measuring kit with filters, rubber septums and special crate for transportation	

Distributor:



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