

# In-Line Oxygen Monitor MapCheck 9000



## Introduction to the MapCheck 9000

The Mapcheck 9000 is a sensitive oxygen analyzer designed for monitoring oxygen content in a variety of process control applications. The MapCheck is particularly suitable for measuring the residual oxygen in inert gas purge systems such as process ovens, soldering machines and packaging systems. The instrument works by drawing a small sample of the target gas into a special zirconium detector. The analysis is very fast and the results are displayed on the LED display within a few seconds. The MapCheck is self contained it includes everything you need to set up an oxygen monitoring system.

## In-line operation

The MapCheck has been designed for ease of use, either as a stand alone system or as a part of another control system. Gas is fed to the MapCheck with a sample hose. The sample line supplied is a 5 mm OD oxygen impermeable hose which is connected to the measurement zones of the environment to be monitored. The sample is drawn into the instrument at a constant rate by a built in sample pump. The pump can be switched manually from the front panel or by means of an external trigger. ( The unit can also function with an external system pump and there is a throttle valve for fine tuning the sample flow for optimum sensitivity ). The Oxygen concentration is displayed continuously.

## Sensitive, accurate and fast

The MapCheck is very sensitive, the detector responds in 50 mS and is sensitive down to ppb levels, yet does not saturate or lose sensitivity on exposure to high oxygen levels (100%). This makes it particularly suitable for measuring low oxygen in purged systems where the oxygen level may be high before the inert purge gas flow

## Features

- Faster accurate on line oxygen monitoring.
- Measures Oxygen 0.1ppm to 100%
- Suitable for use with most nitrogen purge type applications for monitoring residual oxygen levels..
- Self contained includes sample pump and hose.
- Built in alarms for low and high concentration
- Built in diagnostics for easy troubleshooting
- Options for measuring from several locations
- Optional analog output modules.
- Optional Windows 95 interface software.
- Includes calibration certificate valid for 12 months
- Clean, hygienic membrane keypad
- Robust industrial design ready for 7x24 work period.
- RS232 included.

is started. The system response time is typically a few seconds and depends on the flow rate and the length of hose used to connect to the measurement point.

## Microprocessor controlled

The MapCheck is a digital instrument. The user interface is a series of nested menus which are accessed by the 4 button keypad on the front panel. Various codes displayed in the LED let you know which function you are addressing. From the front panel you can set up alarm levels, view diagnostic information about the instrument, re-calibrate the instrument and set up the user options. Various codes displayed in the LED let you know which function you are addressing. Alternatively, with the optional Windows 95/98 software you can use a virtual control panel on your PC monitor.

## Calibrated and ready to use

The MapCheck comes ready calibrated, with a certificate of calibration, and only needs to be re-calibrated once a year. The instrument can be re-calibrated by the user or returned to Topac for this service. The procedure is very straightforward involving a two step process. Step one is to key in the concentration of the calibration gases to be used. Step two is to sample from the calibration gases so that the instrument can calibrate to them.

## High Sensitivity Model 9000-4

The MapCheck 9000-4 is a higher sensitivity version of the MapCheck which uses all stainless steel sample hose to ensure low leakage. The instrument requires the use of stainless steel sample hose for external connections to ensure the sensitivity in the fractional ppm region. The flow rate for the type 4 is fixed at 200 l/min.

The Type 4 system is particularly suitable for laboratory systems and clean applications.

### Spot Check Option

For some applications such as food packaging it is convenient to be able to spot check the oxygen concentration in the sealed packaged as well as monitor the gas flow to the packaging system. The Type 3 MapCheck includes a Spot Check sample hose and needle for this type of application in addition to the flow monitoring system.



### Principle of Operation

#### Oxygen

The MapCheck uses a proprietary zirconium 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. In fact the sensor has a characteristic curve that is very well defined so that if you know the voltage from the sensor you can figure out the oxygen concentration. This is done automatically by the electronics. (You can view the emf in diagnostics )

The MapCheck's oxygen sensor is remarkably robust and stable, The readings are highly repeatable, and the sensor is very fast ( the response time of the sensor is of the order of 50 msecs). Also the sensor will not saturate in the presence of high oxygen concentrations which means that the instrument can be used across a broad range of concentrations from ppms to 100 % oxygen with great speed and accuracy.

## Specifications

Sensor Type - oxygen	Ceramic / Zirconium detector
Monitoring Inputs	Single input standard Optional multiplex input
Measuring Range 9000 -1, 9000- 3	5 ppm to 100% oxygen
Measuring Range 9000 -4	0.1 ppm to 100%
Accuracy	1% of measurement
Sample flow rate 9000 -1, 9000- 3	200 - 2000 liters/min
Sample flow rate 9000 -4 type	200 l/min
Display	3.5 digit LED Auto ranging
Interface	RS232C
Dimensions	194 x 235 x 420 mm
Weight	7.5 kg
Alarm Relays	2 user defined. 48 volt 1 A 1 flow, system error alarm
Analog output options	4- 20 mA 0 - 20 mA 0 - 10 volts

## Ordering Information

Model	Description	Part No
9000 -1i	MapCheck for panel mounting	T970467
9000 -1x	MapCheck stand alone	T970469
9000 -4i	Extended Range MapCheck 0.1 ppm to 100% External stainless steel tubing required for fractional ppm range . Panel mounting	T980731
9000 -4x	Extended Range MapCheck 0.1 ppm to 100% External stainless steel tubing required for fractional ppm range . Stand alone	T980730
	<b>Options</b>	
MapMon	Windows software	T960706
MAP-I-OP	0 -20 / 4 - 20 mA	T990146
MAP - I -V	0 - 10 volts	T980253
MAP-EXP	24 Volt DC/100 mA drive for external pump	T970441
MAP3X	Multiplexer for sampling from 3 points external (your) control	T960097
MAP3I	Multiplexer for sampling from 3 points internal (MapCheck)control	T980254

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