

## CMK – Quality Assurance in the Gas Analyzing Industry

### The Microprocessor Controlled Calibration System



The micro-processor controlled calibration system CMK is used for supply of calibration gas mixtures in the laboratory or in automatic measuring stations or vehicles. It enables the automation of such routine tasks as calculation and adjustment of span gas concentrations.

The system is built modular and available in all possible applications.

Up to 4 flow modules can be controlled by the internal software. Also up to 7 gas inlets via solenoid valves.

Remote control for automatic calibration via contacts, TTL or Rs232.

#### Available options

- Ozone Generator with optical feedback
- MFC for dilution of span gas in cylinder
- Gas Phase Titration
- Permeation Oven ( Heating or Heating/Cooling)
- Up to 7 inlets for span gases
- Automatic multi point calibration up to 8 points
- Calibrate Mode for Ozone Generator

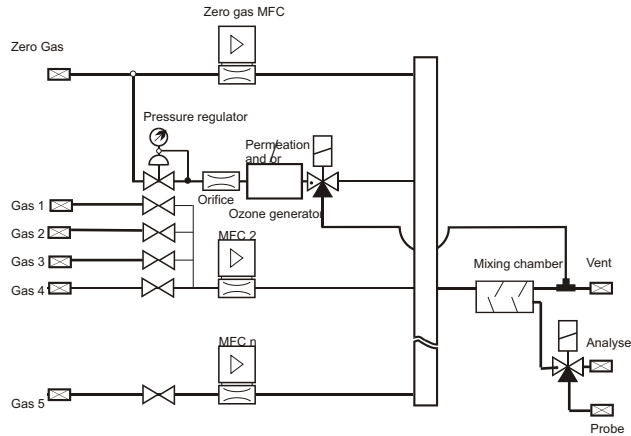
#### Micro Processor Controlled Calibration System CMK 5

The CMK5 calibration system is a modular system and can be enhanced or modified at any time. All system functions are controlled via a built-in microprocessor. The desired span gas concentrations are entered using the keyboard on the front of the unit, the setting and regulation of the gas flows takes place automatically. Automatic multipoint calibration with up to 8 span points.

The basic instrument consists of a 19" chassis with the electronics and the zero gas MFC. All other modules and options can be added to get the optimal calibration system for your purpose.

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# Calibration System CMK



The calibration system CMK consists of different modules. The basic unit contains the entire control electronics, the mass flow controller for the dilution, the inlet zero gas, and the mixing chamber. Optionally, the system can be equipped with an ozone generator and/or a permeation module, and/ or MFC. If the system is equipped with only one span gas MFC 5 external span gas inlets can be controlled by solenoid valves. In that mode only one gas solenoid can be energized at a time. The operating software is already set up for all additional modules and can be configured via parameters.

## Specifications

### BASIC SYSTEM

Accuracy MFC	$\pm 1\%$ full scale
Repeatability	$\pm 0,25\%$
Operating temperatures	0 bis 40° C
Power consumption	typ. 15 W / 50 W max.
Mechanical	19" / 4or 7 HE; LCD Display, key board on front panel
Weight	12 to 18 kg depends on number of modules

### OZONE GENERATOR

Principle	UV-source linearized and temperature stabilized, equipped with a Foto-Optical feedback circuit; Ozon output 5 to 600 ppb at 2,5 l/min (other on request, max 25ppm)
Accuracy	better $\pm 1\%$ or 2ppb
Stability ( 1 Year)	better $\pm 2$ ppb

### PERMEATION OVEN

Principle	temperature controlled permeation oven, wetted surfaces Borosilicate glass
Temperature range oven	20 to 70° C or 20 to 110° C ( Option heating/cooling with peltier elements 30-110°C standard
Accuracy Temp.	$\pm 0,05^\circ$ C

### Miscellaneous

Data transmission	RS 232, contacts, TTL, ( 8 outputs, 24 inputs)
Gas inlets/outlets	optionally up to 7 gas inlets via solenoid valves,