MKAL

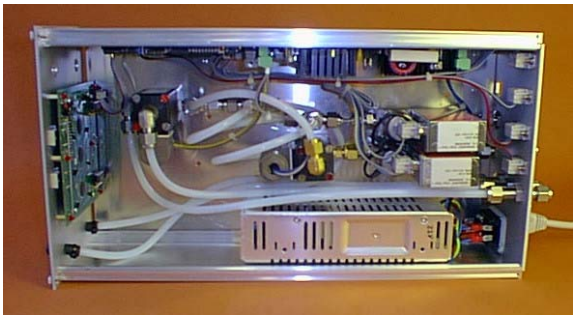
MICROPROCESSOR BASED CALIBRATOR FOR PRECISION GAS ANALYZERS

Application

- Supply of pressure-less calibration gas and complex calibration gas mixtures for:
  - laboratory
  - automatic measuring station
  - measuring vehicle

Features

- modular structure based on one electronic assembly
- manual operation via rotary switch
- remote control for automatic calibration via contacts, TTL or RS 232
- wide dynamic range
- short response time



Structure

The modular structure enables a combination of calibration gases specific to the respective application.

The following modules are existent:

- MKAL-MM Mechanical module
- MKAL-VM Dilution module
- MKAL-PM Permeation module
- MKAL-OM Ozone module
- MKAL-GPT Gas Phase Titration module

1 or 2 modules can be inserted into a 19“ modular chassis or a 19“ enclosure.

All modules can be supplied as Portable Standard in a special carrier bag.

Technical Specifications

19“ chassis 42 F, 3U
Foil Front panel with LCD-Display, 4 functional keys, rotary switch, overflow indication

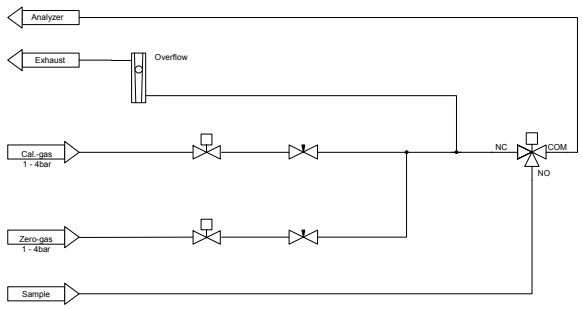
Gases
- Swagelok Connectors
- Inlet pressure: 2-4 bar abs.
- Outlet pressure: atmospheric pressure

Data transmission
- RS232 inlet /outlet with B/H-Protocol
- Control output: 24VDC
- Control input: 5-30 V, TTL, contacts

Power Requirements: 230V, 50Hz, 104W

MKAL-MM

Mechanical module to automatically switch from sample to zero-/ span-gas from gas bottles. The flow can be adjusted individually via needle valves. The gases are supplied at atmospheric pressure. The overflow is indicated.
Adjustable flow: 0 - 10l/min



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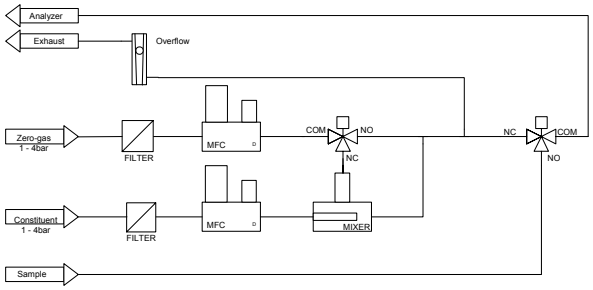
MKAL-VM

The MKAL-VM enables the dilution of an existing calibration gas at a ratio of 1:10 to 1:5000.
Application: NO,SO_2, CO, CO_2, BTX, C_mH_n

In addition to the base unit it includes:

- MFCs for zero-gas and respective constituent (2 constituents on demand)
- Mixing chamber
- Solenoid valves
- Stainless steel sinter filters 2µm



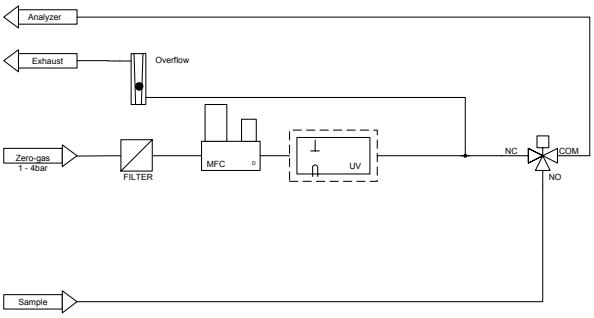
Dilution range:	1:10 to 1:5000
Flow zero-gas:	0,2 - 5l_N/min (standard)
Flow constituent:	1 - 20ml_N/min (standard)

MKAL-OM

the MKAL-OM enables the production of O_3 calibration gas with a concentration range of 30 – 1000ppb.

In addition to the base unit it includes:

- UV chamber for O_3 production
- MFC for zero-gas
- Solenoid valve
- Stainless steel sinter filter 2µm



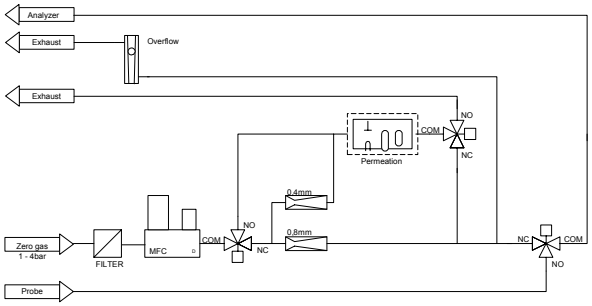
Flow zero-gas:	0,2 - 5l_N/min (standard)
Ozone concentration:	30 –300 ppb (standard)
Temp.-accuracy:	T ± 0,02°C
Stability (1 year):	better then ± 2ppb
Response time:	< 5min

MKAL-PM

The MKAL-PM enables the production of Calibration gas by permeation followed by dilution with zero air.
Application: NO_2, SO_2, H_2S, NH_3, BTX, C_mH_n, Cl_2, HCl, HF, ..

In addition to the base unit it includes:

- Permeation oven
- MFC for zero-gas
- Critical nozzles
- Solenoid valves
- Stainless steel sinter filter 2µm



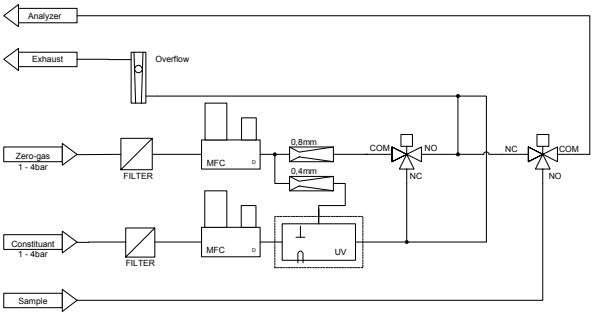
Flow zero-gas:	0,2 - 5l_N/min (standard)
Oven temperature:	50°C (standard)
Temp.-accuracy:	T ± 0,02°C
Stability (1 year):	better then ± 2ppb
Response time:	< 5min

MKAL-GPT

The MKAL–GPT enables the production of NO calibration gas by dilution, O_3 via a UV lamp and NO2 based on Gas Phase Titration.

In addition to the base unit it includes:

- MFCs for zero-gas and NO
- UV chamber for O_3 production
- GPT reaction chamber
- Solenoid valves
- Stainless steel sinter filter 2µm



Flow zero-gas:	0,2 - 5l_N/min (standard)
Flow constituent:	1 - 20ml_N/min (standard
Dilution range:	1:10 to 1:5000
Ozone concentration:	30 –300 ppb (standard)
Temp.-accuracy:	T ± 0,02°C
Stability (1 year):	better then ± 2ppb
Response time:	< 10min

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