

GasLab MKAL

PC controlled calibration gas system for quality assurance

Application

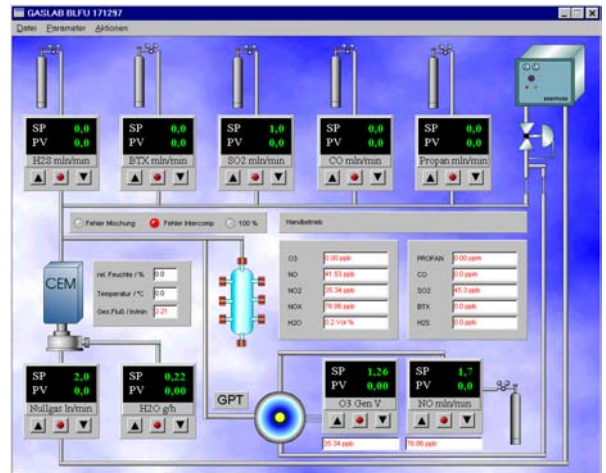
- Calibration laboratory for Immission monitoring
- Laboratories for gas analyzer development
- Performance tests of analyzers

Features

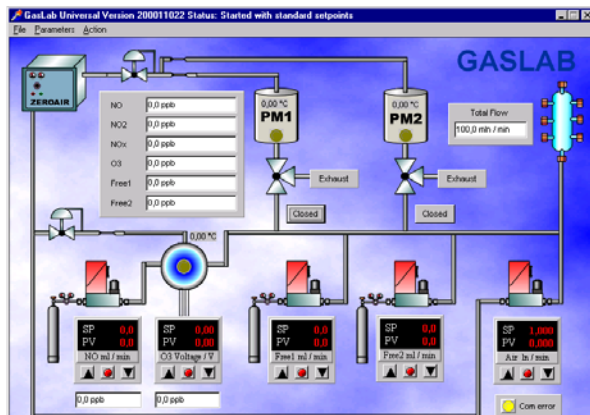
- Modular structure, expandable
- Automatic sequence of calibration programs
- Storage of all operational settings for quality assurance
- Wide dynamic range
- Short response time

Concept

- The calibration gas is produced in MKAL modules that can be combined according to the respective application.
- The Windows program GASLAB controls the modules. Complex gas mixtures in arbitrary series and concentrations are produced
- GASLAB computes the flows and concentrations using polynomial correction factors. All data is saved in Excel compatible files.
- Data from analyzers can be acquired, stored and visualized in parallel to GASLAB data.

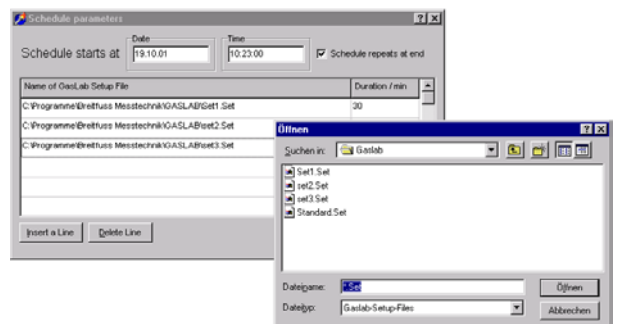


- Prediction
If settings are changed, the resulting concentrations are displayed. The settings are only realized once confirmed. Each simulated state can be assigned a file name and stored.
- Automatic sequence control
a sequence of stored states can be saved in a schedule. Those states are conducted chronologically.



Features

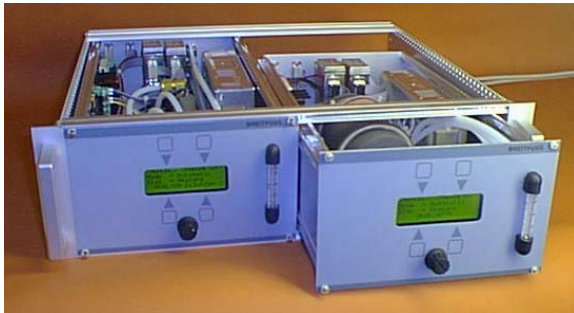
- Manual control
All components of the system are displayed in a process diagram. Each MFC has a display for Setpoint and actual value. The setpoint of any element can be adjusted arbitrary within the possible range. The resulting concentrations are calculated, displayed and stored.



- Display of actual values
The actual flow and concentration values are displayed in the process diagram.
- Storage of data
All data is saved in combination with the respective time and date. All data is available for evaluation and visualization at a later point of time. The format used for data storage is Excel compatible.

MKAL modules

- MKAL-VM
Dilution module
components: NO, SO₂, CO, CO₂, BTX, C_mH_n
- MKAL-PM
Permeation module
components: NO₂, SO₂, H₂S, NH₃, BTX, C_mH_n, Cl₂, HCl,...



- MKAL-OM
Ozone module
O₃ span gas with a concentration of 10 – 800ppb.
- MKAL-GPT
GPT module
O₃ und NO span gas by dilution with zero air
range 1:10 to 1:5000
NO₂ by gas phase titration

- MKAL-μflow
Humidification module
humidification of zero air by dosage and vaporization of water.
MKAL basis module
MFC for zero air
μflow flow controller for water 0,7 - 35g/h
Control and mixing valve, Combi-Flow-version
Vaporization unit, Type CEM 20 - 200°C
Humidity sensor
Water storage container (pressurized)

Standard range of MFCs:

(other gases and ranges on request)

- Complementary gas (dry) 0,5 - 10l_N/min
- Complementary gas (humid) 0,5 - 10l_N/min
- Constituent SO₂ 1 - 20ml_N/min
- Constituent H₂S 1 - 20ml_N/min
- Constituent CO 1 - 20ml_N/min
- Constituent C₆H₈ 1 - 20ml_N/min
- Constituent BTX 1 - 20ml_N/min
- Constituent NO 1 - 20ml_N/min
- Water 0,7 – 35g/h

Dilution range of dilution components:
approx. 1:25 to 1:20.000

Dilution range of permeation components:
approx. 1:10 to 1:200

Concept Gas Calibration Laboratory GASLAB MKAL

BREITFUSS MESSTECHNIK GmbH

