SO_2

H_2S

O_3

CO

...and many more blends of gases...

NO_2

NO

NO_x

NH_3

The multi-gas calibrator for on-site and laboratory applications

- Modular design

- Automatic multi-point calibration

- Internal reporting system

- Modern browser-based user interface

- Easy operation via touch screen
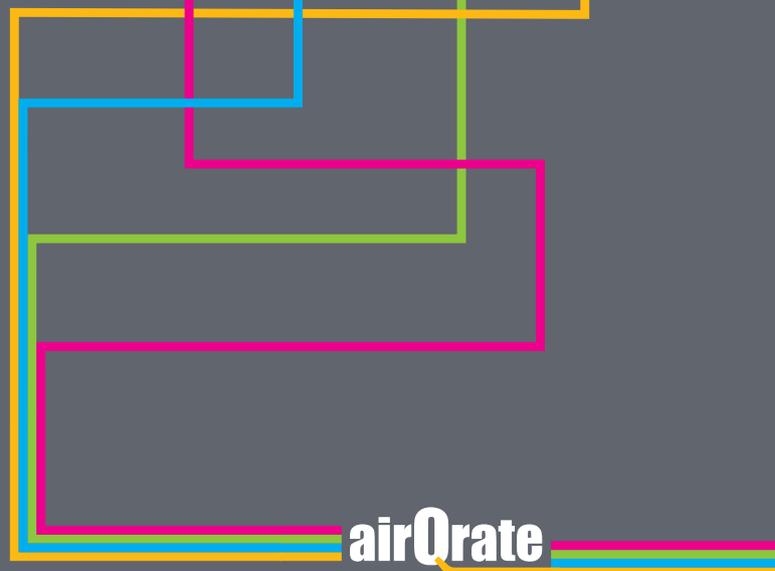
airQrate

Modular multi-point calibration system for ppm-gases and ppb-gase

Specific features for mobile use in the field

Simultaneous calibration of several gas analysers in laboratory app

Maximum precision and reproducibility

Operation control and data analysis via the Internet

Operation and system configuration via web browser

Successful through 30 years of market experience

es

plications

airOrate

If you would like to address certain test points spontaneously, you can simply enter the value via the touch screen and save it for later use.

Start the calibrations on the internal touch screen.

The calibration can be made using the „absolute mode" (internal calculation) or the „transfer mode" (after fixing the value in the calibration laboratory).
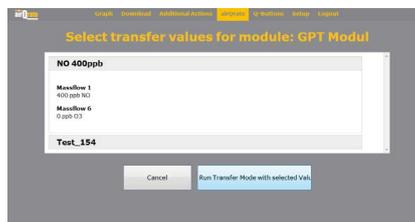
Operation and monitoring via touch screen

The user can enter all inputs necessary during calibration via the airQrate's big touch screen display. For example, start and stop calibration, select calibration programme, select one of the connected gas cylinders etc.

During the airQrate's operation, the user can view current instrument states, current gas concentrations etc. in the same display.

The internal high-precision mass flow controller can be calibrated on the spot according to a predefined procedure.

Configuration at the device

The user can perform all settings and modify the configuration necessary in connection with device hardware and general calibration assembly via the integrated touch screen display as well. This includes, for example, setting the gas cylinders, selecting the connections for gas cylinders and gas analysers, and calibrating the mass flow controllers.

The recordum „Q-Buttons" facilitate the routine operation of the airQrate. Large-scale tiles can be programmed with freely configurable functions such as starting a predefined calibration programme, calling up a transfer point, or switching to standby mode.
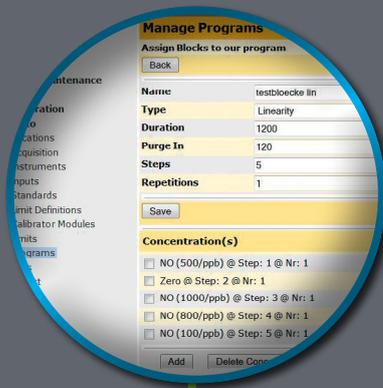
Define any calibration programme (different concentrations for different periods) or use a predefined process (e.g. lack of fit).

The airQrate is equipped with a powerful logger functionality (based on recordum airQlog). Thus, the devices' current measurement values can be recorded and analysed synchronously with the calibration system's nominal values.

Select from an extensive list the device type you would like to have calibrated und save the related data in the airQrate.

„Power user configuration" via web browser

The airQrate uses the proven recordum operation system. This means, amongst other things, the software is Linux-based, a powerful data base management system is used and the graphical user interface is processed by the internal web server. As a result, the same user interface is available for the internal touch screen, for locally connected computers, for any terminal device with a web browser of their own (e.g. tablets, smartphones as well).

More complex system settings are performed with mouse and keypad via an external computer. This might refer to setting the Internet configuration, defining automatic data downloads or sending finalised reports after completing a calibration cycle. Software can be updated via web browser as well.

The different airQrate software options require different user knowledge. Thus, the system manages different user permissions.

Available modules

- A UV lamp is used to generate a defined ozone concentration. Apart from temperature and pressure compensation the generator provides UV light control (optionally available with a photometer as well).
- Pressure compensation

Dilution module

- This module generates the necessary calibration gas concentrations by using two highly accurate mass flow controllers.

GPT modul

- During gas phase titration NO span gas is mixed in excess with ozone at which a defined part NO oxidises to NO2, e.g NO+O3 > NO2+O2
- Combined module for ozone generation and dilution for calibrating NO and ozone for examining converter efficiency

Permeation system

- The permeation oven is Teflon-coated. Defined calibration gas concentrations are generated by using permeation tubes. Up to 2 permeation ovens can be installed in an airQrate.

Internal zero air generator in the mobile version

- Zero air underneath the lid's top side
- Desiccant with indicator
- Purafil/Activated carbon
- Pump

The **airQrate multi-gas calibrator** provides precise concentrations of calibration gases such as ozone, carbon monoxide, sulphur dioxide, nitrogen oxide, nitrogen dioxide and further required gases.

The airQrate generates gases for zero calibration and span calibration. Automatic multi-point calibration is possible as well. Calibrations can be performed in transfer mode or absolute mode.

The airQrate's modular design provides a user-defined configuration of the calibrator depending on the respective task.

The dilution module and the permeation module are examples for modular components.

A total of up to 2 permeation ovens can be installed or upgraded.

The airQrate can be operated with 230 VAC in the laboratory or 12 V in the field (e.g. power supplied by a vehicle).

The internal zero air generator, the permeation ovens (up to 2) and the optional gas cylinders (2) make transporting bulky gas cylinders for a calibration on site redundant.

airQrate for laboratory and stationary applications

- 90-240 VAC for up to 4 modules
- Precision MFC
- External zero air supply (2.0 bar)
- External calibration gas inlet

Monitor:
8,4" Touchscreen (resolution 800x600)

airQrate	Stationary version
Zero air requirement	2 bar @ dilution flow rate
Dilution (Zero) air flow rate	0-5 SLPM, optional: 0-10 SLPM, 0-20 SLPM
Calibration (Span) air flow rate	0-50 ml/min, optional 0-100 ml/min, 0-200 ml/min
	Optional second calibration gas MFC for extended ranges
	Up to four dilution modules, optional each of them with 4-Port-Multiplexer (up to 16 calibration gases with second MFC 32)
Permeation flow	100 ml/min +/-20 ml/min
Permeation oven temperature	50°C
Flow measurement accuracy	+/- 1% FS
Repeatability of dilution	+/- 0.2% FS
Linearity of dilution	+/- 0.5% FS
Long term drift of dilution	<1%/year
Ozone generator	
Ozone output	100 ppb l / min– 5 ppm l / min
UV-detector for stable output	Standard
Precision (5 min avg.)	1 ppb **
Linearity	1% **
Drift	< 1 ppb/7 days
	** with built-in photometer

Front panel connectors*

- Touchscreen
- On-off switch
- USB ports
- Bypass
- Test gas out
- VGA connector
- Calibration gas inlet
- Ethernet

Back panel connectors*

- Calibration gas inlet
- Digital input
- Calibration gas outlet
- Power 230 VAC

Zero air supply (2.0 bar)   RS-232 Ports   Ethernet   12 VDC power (Cars)
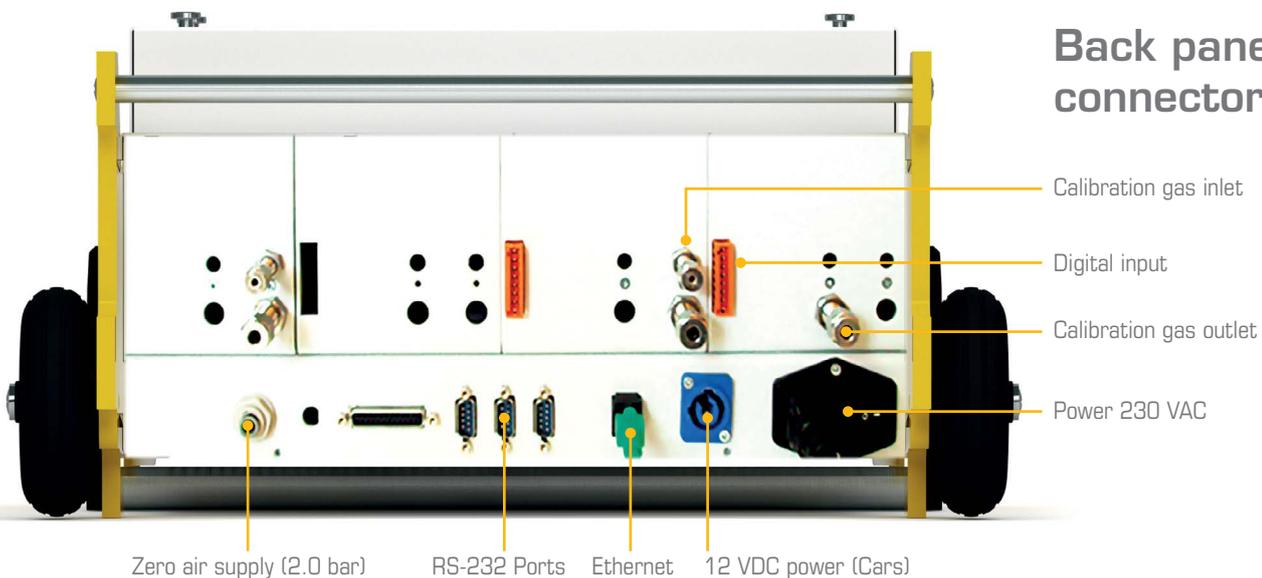
* depending on model

airQrate for mobile applications

- 12 VAC/115 VAC/230 VAC for 1 module
- Precision MFC and MFM
- Internal zero air supply
- Internal and external calibration gas cylinder and dilution
- Internal zero air pump
- GPT and ozone generation with optional internal UV-photometer

airQrate	Mobile version
Zero air requirement	Internal zero gas generation
Dilution (Zero) air flow rate	0-5 SLPM
Calibration (Span) air flow rate	0-50 ml/min, optional 0-100 ml/min, 0-200 ml/min
	Optional second calibration gas MFC for extended ranges
	One calibration module (GPT, dilution, permeation), ozone photometer optional
Permeation flow	100 ml/min +/-20 ml/min
Permeation oven temperature	50°C
Flow measurement accuracy	+/- 1% FS
Repeatability of dilution	+/- 0.2% FS
Linearity of dilution	+/- 0.5% FS
Long term drift of dilution	<1%/year
Ozone generator	
Ozone output	100 ppb l / min– 5 ppm l / min
UV-detector for stable output	Standard
Precision (5 min avg.)	2 ppb **
Linearity	1% **
Drift	< 1 ppb/7 days

** with built-in photometer

airQrate - Next generation gas calibration.
Ideal for your airpointer® or any other gas measuring system.

Please contact your local representative or fill out the contact
form on www.mlu.eu

The airQrate has been developed and is produced according to ISO 9001:2008.
recordum was founded in 2004 with 30 years of experience in environmental measurement.
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