



# LEYSPEC Residual Gas Analyzer

Experience deepest visibility

 **Leybold**



## Why use the LEYSPEC Residual Gas Analyzer?

“All-in-one” device with integrated control and display from one of the market leaders in vacuum technologies.

The LEYSPEC product family offers simple and intuitive operation with an on-board control and display unit. Simple residual gas analysis is possible without even connecting the device to a computer.

Due to the intuitive interface, the Residual Gas Analyzer (RGA) is very easy to operate. At the push of a button, you can display the partial pressures of key gases and if your process involves an additional gas, you can assign it to the spare display channel. Due to the high bake-out temperatures achievable, the RGA is ideal for use in demanding high vacuum and ultra high vacuum applications. The LEYSPEC RGA offers greatest sensitivity combined with an intuitive software that allows all basic and advanced test procedures.



# Accurate measurement

## Intuitive software:

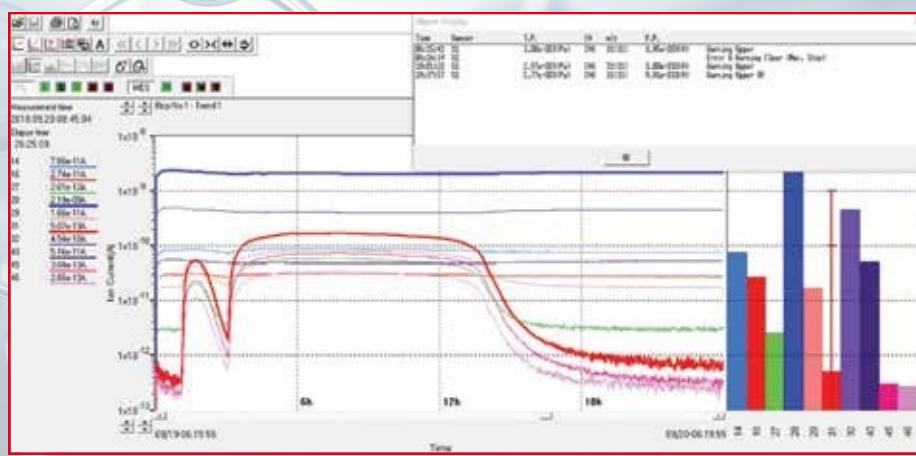
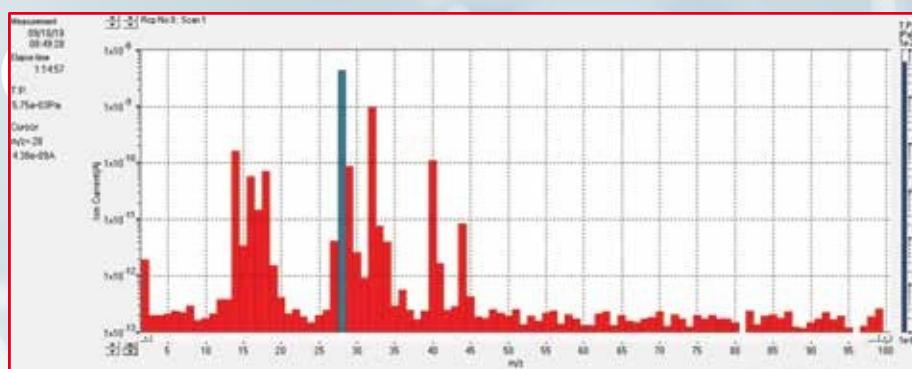
The intelligent and intuitive LEYSPEC software completes the offering. The easy user interface allows a wide range of use cases, from simple operations to complex analysis. Creating recipes is as easy as it should be: Quick and convenient. During operation the total pressure is displayed and different views can be chosen to fit the view for the purpose of the analysis. Choose between the scan mode, trend mode or analog mode.

## Highest Sensitivity:

The LEYSPEC product family offers the highest sensitivity for the most accurate residual gas analysis. This allows detecting even the smallest traces of contaminants or process gases.

## Highest bake-out:

With its high bake out temperatures of up to 300°C, the LEYSPEC ultra is perfectly suited for sophisticated high and ultra high vacuum applications. The LEYSPEC ultra range offers highest bake- out temperature so even in harsh environments reliable gas analysis can be performed.

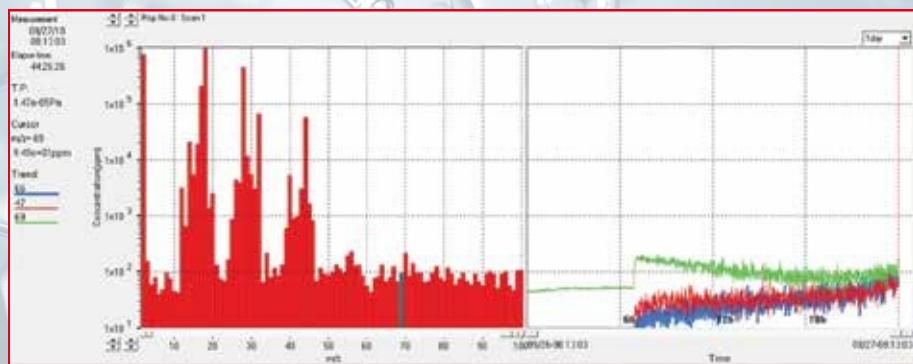


## Advanced features:

Preinstalled software functions allow many additional functionalities and test procedures such as a helium leak test or setting of warnings and error levels for selectable gases. A programmable degas function is implemented for simple process degassing after start or exposure to atmosphere. The background suppression allows focussing on the important peaks.

## Different product types:

The new LEYSPEC range offers the perfect solution for any application in mass spectrometry. Focusing on residual gas analysis the product range offers solutions for 100, 200 or 300 amu – depending on the process requirements. All products come with the integrated display for easy and quick operations as well as the LEYSPEC software for sophisticated test procedures and residual gas analysis. Compact in size and mountable in any orientation, the LEYSPEC product range is perfectly suited for different built-in situations.

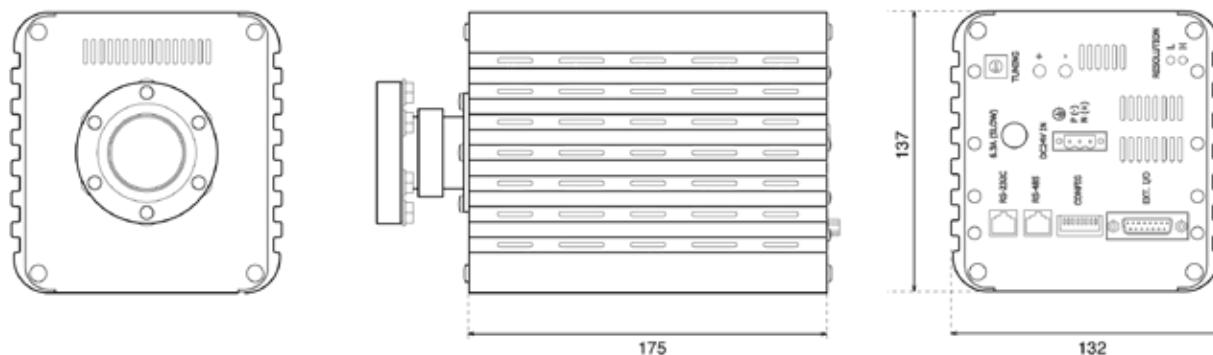


## System Integration:

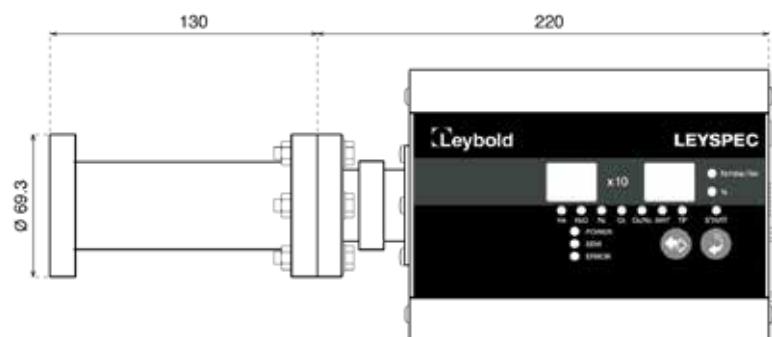
The full Ethernet protocol is available for our RGA's. Allowing you to use all available functions of the supplied software, within your own software or PLC. The protocol is available on demand thru your local Leybold sales organization.

# Dimensional drawings

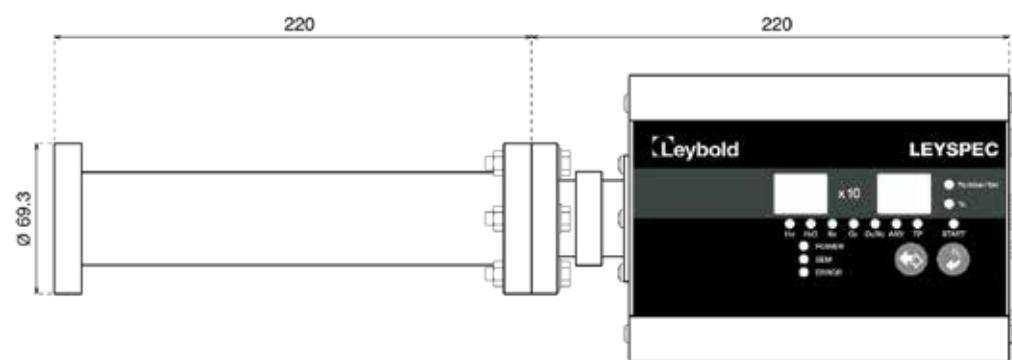
## The electronics



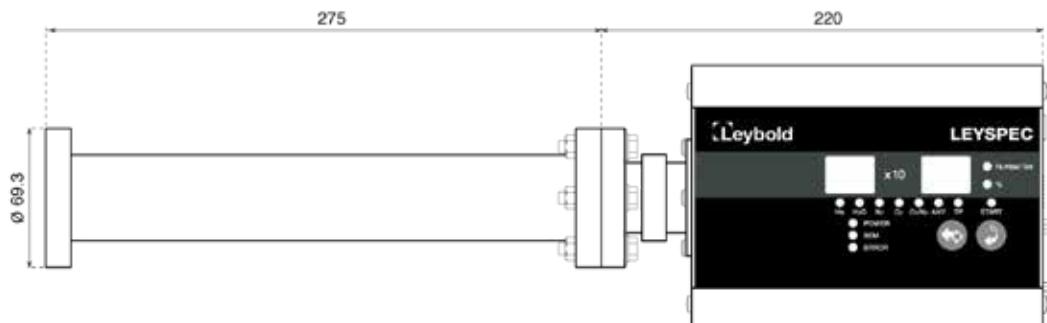
## LEYSPEC view100/200



## LEYSPEC view 100S/200S



## LEYSPEC ultra 200S/300S



# Applications

## LEYSPEC view

- Residual gas analysis in high vacuum pumping equipment
- Gas analysis in R&D, freeze drying, analytical systems and many more
- Analysis of organic materials
- Environmental tracking
- Gas impurity analysis

## LEYSPEC ultra

- Advanced range for all residual gas analysis
- For sophisticated residual gas analysis with higher sensitivity
- Reliable detection of very low partial pressures
- Suited for higher bake-out temperatures

# RGA Working Principle

## Ion beam

The measurement cell is a hot cathode ionization vacuum gauge.

Electrons are emitted from the hot filaments and accelerated toward the source via an electrical bias.

The fast moving electrons collide with the gas molecules, dislodging electrons, thus ionizing them.

Positive gas ions provide their current to the negative loaded ion collector.

Ion current is proportional to pressure. The more ions, the higher the ion current.

## Mass Filters

The quadrupole array is composed of four stainless steel rods. A direct current and high frequency voltage is applied to all rods. This creates a complex magnetic field. By varying the voltage the magnetic field is controlled.

The resulting vibration only allows ions of a specific mass to “fly” through it and reach the detection part:

- Ions with an appropriate mass to charge ratio ( $m/e$ ), will oscillate in a stable three dimensional trajectory through the poles.
- Ions of incorrect  $m/e$  will oscillate out of control and collide with the poles.

**The ions arrive in the ion collector and provide an output current which is a measure of the relative abundance of the ions getting through the filter**

**The ion current or partial pressure against the  $m/z$  ratio is displayed on the unit or in the software**

Based on the described working principle, the RGA verifies the gas purity by finding and displaying the gas composition. This allows to identify gas contaminants and perform further process and equipment control for an overall optimization of process performance and yield.

# Technical data

| Model name                                     | LEYSPEC view            |  |                     |  | LEYSPEC ultra                          |                       |  |  |
|--|-------------------------|--|---------------------|--|--|-----------------------|--|--|
|  | LEYSPEC view<br>100     | LEYSPEC view<br>100S                   | LEYSPEC view<br>200 | LEYSPEC view<br>200S                   | LEYSPEC ultra<br>200S                  | LEYSPEC ultra<br>300S |  |  |
| Mass range (amu)                               | 1-100                   | 1-100                                  | 1-200               | 1-200                                  | 1-200                                  | 1-300                 |  |  |
| Mass filter type                               | QMS                     |  |                     |  |  |                       |  |  |
| Detector type                                  | Faraday cup             | EM/Faraday cup                         | Faraday cup         | EM/Faraday cup                         | EM/Faraday cup                         |                       |  |  |
| Sensitivity (A/mbar)                           | $1 \times 10^{-5}$      | $400/1 \times 10^{-5}$                 | $1 \times 10^{-5}$  | $400/1 \times 10^{-5}$                 | $400/2.5 \times 10^{-4}$               |                       |  |  |
| Minimum detectable partial pressure (mbar)     | $1 \times 10^{-10}$     | $1 \times 10^{-14}/ 1 \times 10^{-10}$ | $1 \times 10^{-10}$ | $1 \times 10^{-14}/ 1 \times 10^{-10}$ | $1 \times 10^{-15}/ 1 \times 10^{-11}$ |                       |  |  |
| Max operating pressure (mbar)                  | $1 \times 10^{-4}$      |  |                     |  |  |                       |  |  |
| Filament material                              | Ir/Y2O3                 |  |                     |  |  |                       |  |  |
| Operating temp (°C)                            | 10 - 40                 |  |                     |  |  |                       |  |  |
| Max backing temperature with electronics (°C)  | 120                     |  |                     |  | 250                                    |                       |  |  |
| Max. backing temperature with electronics (°C) | 250                     |  |                     |  | 300                                    |                       |  |  |
| Connection flange                              | DN 40 CF                |  |                     |  |  |                       |  |  |
| Power input                                    | DC 24 V $\pm 10\%$ 50 W |  |                     |  |  |                       |  |  |
| Weight (kg)                                    | 2,6                     | 2,8                                    | 2,6                 | 2,8                                    | 3,2                                    |                       |  |  |
| IP   | 30                      |  |                     |  |  |                       |  |  |
| Communication                                  | Ethernet                |  |                     |  |  |                       |  |  |
| Software                                       | LEYSPEC software        |  |                     |  |  |                       |  |  |
| Resolution                                     | M/DeltaM= 1M(10%PH)     |  |                     |  |  |                       |  |  |

# Ordering information

| Name              | Part Number |
|-------------------|-------------|
| LEYSPEC view 100  | 220010V01   |
| LEYSPEC view 100S | 220011V01   |
| LEYSPEC view 200  | 220012V01   |
| LEYSPEC view 200S | 220013V01   |

| Name               | Part Number |
|--------------------|-------------|
| LEYSPEC ultra 200S | 220020V01   |
| LEYSPEC ultra 300S | 220021V01   |



**Leybold**

Pioneering products. Passionately applied.