

# PRA & WRA RESIDUAL GAS ANALYSERS (RGA)

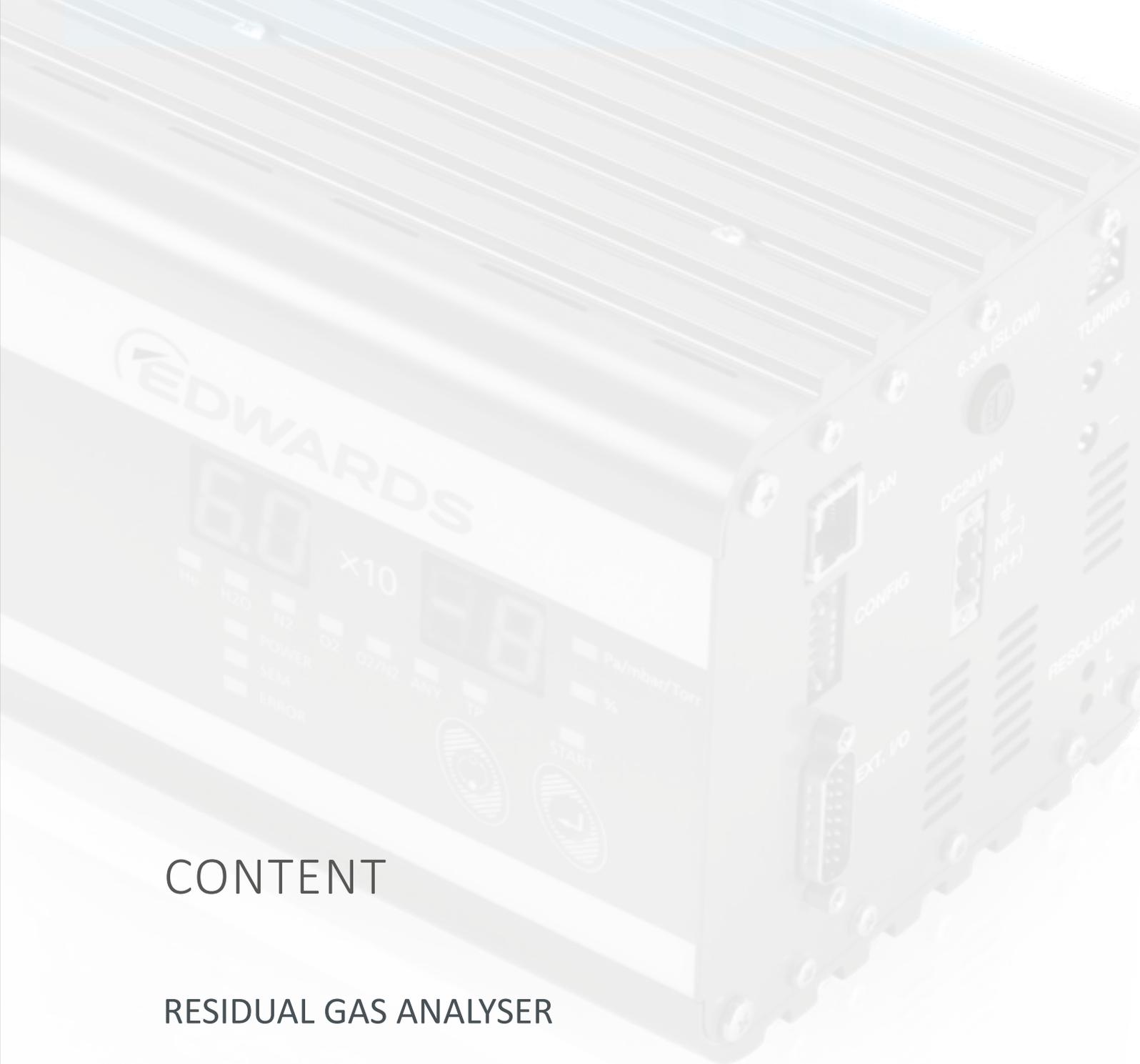




## EDWARDS THE PARTNER OF CHOICE

**Edwards is a world leader in the design, technology and manufacture of vacuum pumps with over 100 years of history and more than 80 years of manufacturing experience.**

We believe in delivering results that bring value to our customers by using our breadth of industry experience to identify and apply solutions to your problems. Using the most innovative and up-to-date modeling techniques, we can optimise the pumping configuration for customers to provide a system design giving the maximum performance in the most reliable and cost-effective way.



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# RESIDUAL GAS ANALYSER

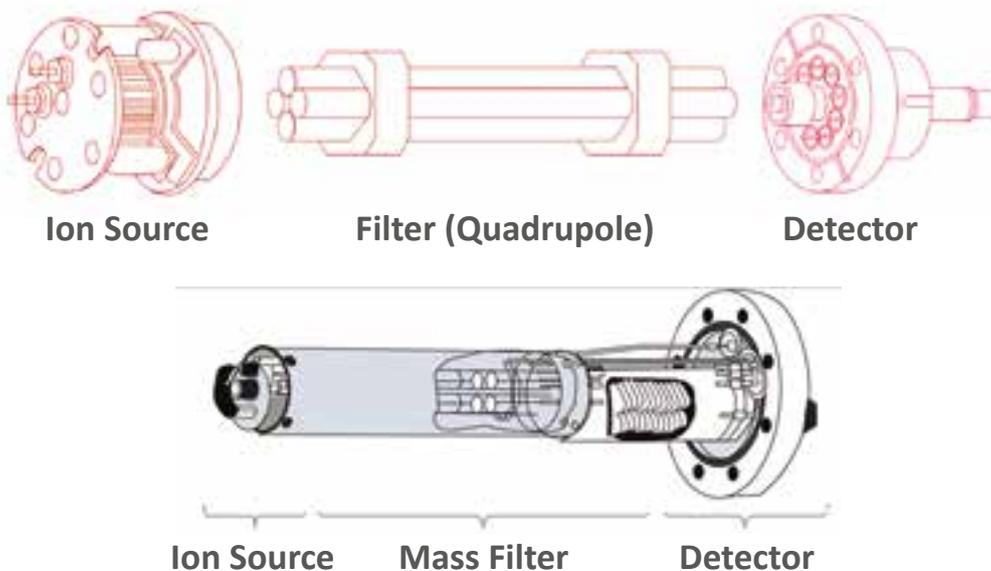
The perfect balance of high end performance and accessibility

## Description of the technology

The Edwards RGAs are quadrupole mass spectrometers with a high performance analyser tube consisting of the ion source, the quadrupole filter and the detector. Exposed to vacuum, the gas molecules are ionized by the RGA.

Dependent on the weight or mass of the molecules, the ions have a different mass to charge ratio. By varying the

voltage the RGA can measure the different masses: Only ions with the specific mass to charge ratio find their way into the detector where the ionized gas molecules are then measured. With this procedure, the RGA shows the composition of the gas in the system/chamber/process.



## Application and markets

**RGAs do analysis of gases and their composition, this is needed for:**

- Leak detection and identification
- Find and identify contaminants
- Verify gas purity
- Product/process quality assurance
- Process & equipment diagnostics and control
- Optimize process performance and yield

**Our RGAs are the perfect solution in a wide range of applications:**

- Semiconductor processes
- Thin-film and display
- Vacuum heat treatment
- Vacuum freeze drying
- Research & development
- High energy physics

## Choosing the right RGA

We offer two variants, giving you the perfect choice for your various needs.

**PRA:** Our Primary Residual Gas Analyser is the perfect solution for all “basic” applications and processes, to do quick and convenient analysis.

**WRA:** Our Wide Range Residual Gas Analyser, for advanced and more demanding processes and analysis allowing higher analyzer temperatures and bake out temperatures of up to 300°C. To match advanced needs, the WRA offers a better sensitivity to detect even the smallest traces of molecules.

The Edwards RGAs offer the unique feature of integrated display and control combined with an intelligent RGA software, that is intuitive to operate. The RGA is an extremely reliable measurement instrument, delivering great performance in all areas of residual gas analysis. Customers benefit from intelligent software functions and easy-to-create recipes. Important functions are pre-installed, which facilitates a plug-and-play. The Edwards RGAs are ready-to-go: They come with all accessories and software needed to do residual gas analysis. And if you struggle with something, we offer intensive support for the implementation of your Edwards RGA into your process and application.

### Some of the unique benefits are:

- Total pressure measurement for full process control
- Dual filament for highest reliability and up-time
- On unit display for basic measurements without a PC
- Customer replaceable parts
- Degas function
- Protection of ion source and EM



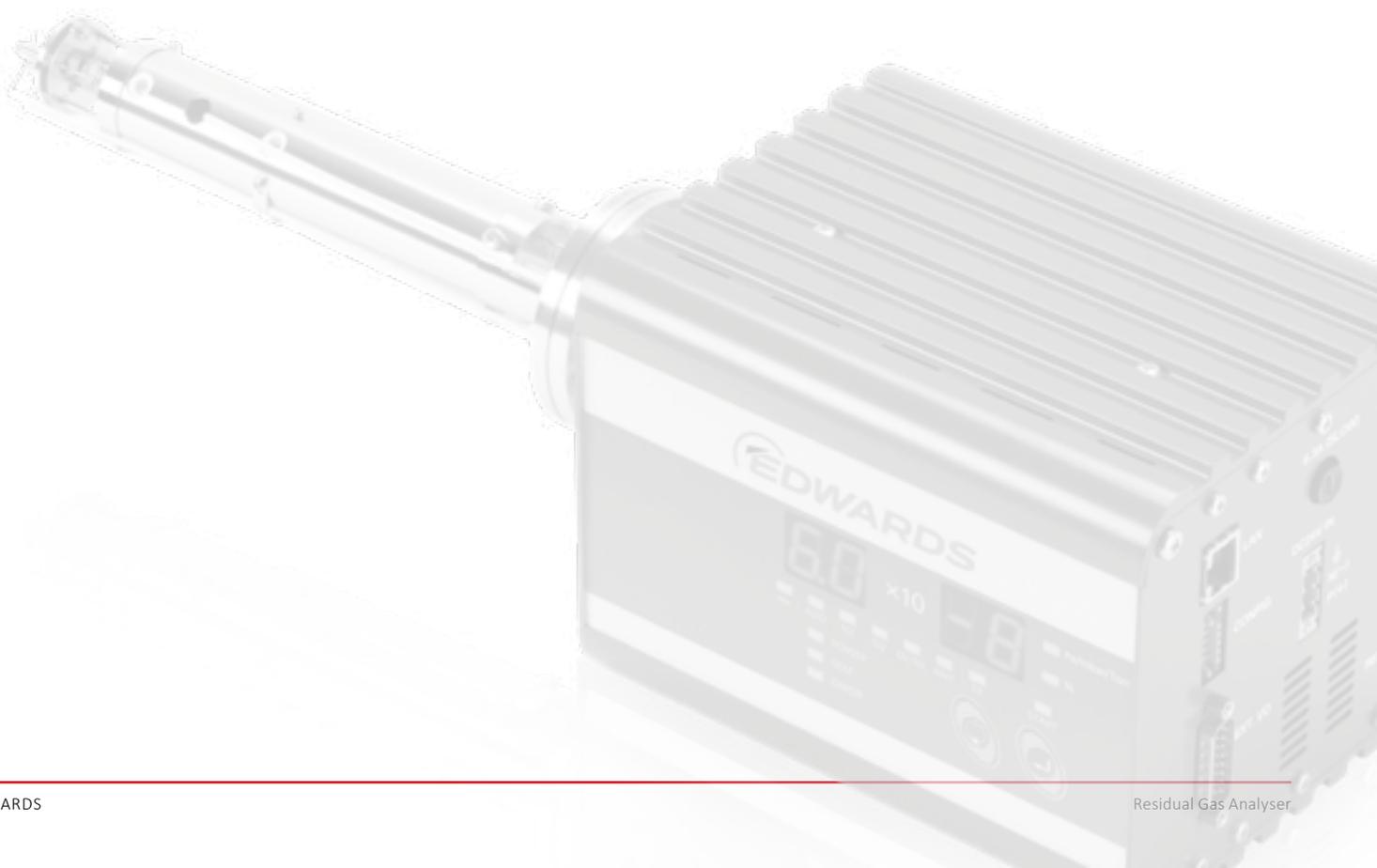
## Technical data

|  | PRA100              | PRA100S                                  | PRA200              | PRA200S                                  |
|--|---------------------|--|---------------------|--|
| Mass range (amu)                           | 1-100               | 1-100                                    | 1-200               | 1-200                                    |
| Mass filter type                           | QMS                 | QMS                                      | QMS                 | QMS                                      |
| Detector type                              | Faraday cup         | EM/Faraday Cup                           | Faraday Cup         | EM/Faraday Cup                           |
| Sensitivity (A/mbar)                       | 1x10 <sup>-5</sup>  | 400/1x10 <sup>-5</sup>                   | 1x10 <sup>-5</sup>  | 400/1x10 <sup>-5</sup>                   |
| Minimum detectable partial pressure (mbar) | 1x10 <sup>-10</sup> | 1x10 <sup>-14</sup> /1x10 <sup>-10</sup> | 1x10 <sup>-10</sup> | 1x10 <sup>-14</sup> /1x10 <sup>-10</sup> |
| Max operating pressure (mbar)              | 1x10 <sup>-4</sup>  | 1x10 <sup>-4</sup>                       | 1x10 <sup>-4</sup>  | 1x10 <sup>-4</sup>                       |
| Filament material                          | Ir/Y2O3             | Ir/Y2O3                                  | Ir/Y2O3             | Ir/Y2O3                                  |
| Operating temp (°C)                        | 40                  | 40                                       | 40                  | 40                                       |
| Max analyser temp (°C)                     | 120                 | 120                                      | 120                 | 120                                      |
| Max bake out temp (elec removed) (°C)      | 250                 | 250                                      | 250                 | 250                                      |
| Connection flange                          | DN40CF              | DN40CF                                   | DN40CF              | DN40CF                                   |
| Power input                                | DC24V +-10% 50W     | DC24V +-10% 50W                          | DC24V +-10% 50W     | DC24V +-10% 50W                          |
| Weight (kg)                                | 2.6                 | 2.84                                     | 2.6                 | 2.84                                     |
| IP   | 30                  | 30                                       | 30                  | 30                                       |
| Serial communication                       | RS232C/RS485        | RS232C/RS485                             | RS232C/RS485        | RS232C/RS485                             |
| Resolution                                 | M/DeltaM=1M(10%PH)  | M/DeltaM=1M(10%PH)                       | M/DeltaM=1M(10%PH)  | M/DeltaM=1M(10%PH)                       |

|  | WRA200S                                  | WRA300S                                  |
|--|--|--|
| Mass range (amu)                           | 1-200                                    | 1-300                                    |
| Mass filter type                           | QMS                                      | QMS                                      |
| Detector type                              | EM/Faraday Cup                           | EM/Faraday Cup                           |
| Sensitivity (A/mbar)                       | 400/2.5x10 <sup>-4</sup>                 | 400/2.5x10 <sup>-4</sup>                 |
| Minimum detectable partial pressure (mbar) | 1x10 <sup>-15</sup> /1x10 <sup>-11</sup> | 1x10 <sup>-15</sup> /1x10 <sup>-11</sup> |
| Max operating pressure (mbar)              | 1x10 <sup>-4</sup>                       | 1x10 <sup>-4</sup>                       |
| Filament material                          | Ir/Y2O3                                  | Ir/Y2O3                                  |
| Operating temp (°C)                        | 40                                       | 40                                       |
| Max analyser temp (°C)                     | 250                                      | 250                                      |
| Max bake out temp (elec removed) (°C)      | 300                                      | 300                                      |
| Connection flange                          | DN40CF                                   | DN40CF                                   |
| Power input                                | DC24V +-10% 50W                          | DC24V +-10% 50W                          |
| Weight (kg)                                | 3.21                                     | 3.21                                     |
| IP   | 30                                       | 30                                       |
| Serial communication                       | RS232C/RS485                             | RS232C/RS485                             |
| Resolution                                 | M/DeltaM=1M(10%PH)                       | M/DeltaM=1M(10%PH)                       |

## Ordering information

| Product description        | Order number |
|----------------------------|--------------|
| WRA200S                    | D05002202    |
| WRA300S                    | D05002302    |
| WRA-S analyzer tube        | D05002015    |
| WRA200S/300S filament kit  | D05002014    |
| WRA200S/300S ion source    | D05002013    |
| WRA200S/300S SEM           | D05002012    |
| PRA100                     | D05001101    |
| PRA100S                    | D05001102    |
| PRA200                     | D05001201    |
| PRA200S                    | D05001202    |
| PRA100/200 analyzer tube   | D05001016    |
| PRA100S/200S analyzer tube | D05001015    |
| PRA ion source             | D05001013    |





## GLOBAL CONTACTS

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