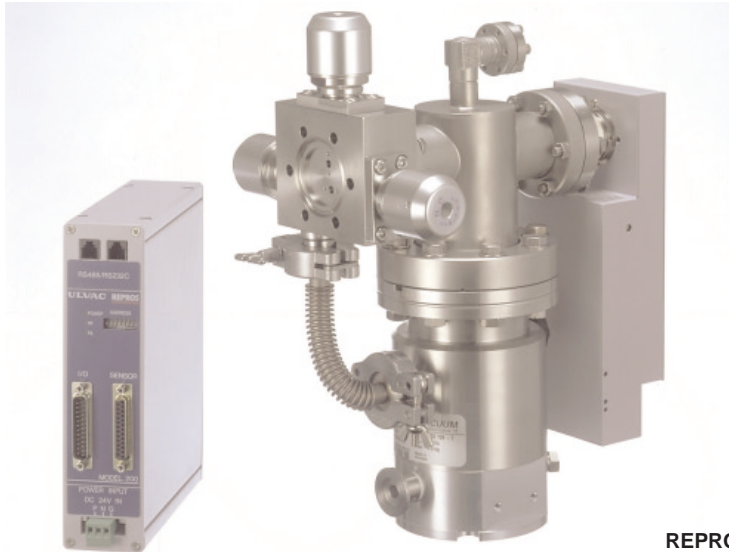


Reactive Gas Process Monitor **REPROS**



REPROS

This process monitoring system has been developed for various kinds of application such as etching, CVD, and other reactive gas processes.

A mass-filter-type gas analyzer and a differential pumping system are used to introduce and analyze gas in the process chamber.

- Superior corrosion-resistance allows stable measurements over a long period of time
 - Use of ion source with minimum thermal reaction and molecular dissociation allows accurate monitoring of the reaction in the process.
- REPROS provides a great deal of contribution to optimize etch and CVD processes in the range from R&D up to mass production.

Features

- Stable measurement of reactive processes over a long period of time
- VECC-type ion source
Closed ion source utilizing a magnetic field
Soft ionization provides less gas dissociation and higher sensitivity.
Decomposition and adsorption due to thermal reactions are minimized in the ionization chamber.
- Use of a compact conductance valve with 3 different gas inlet modes (patent pending)
Short distance between the process chamber and ion source allows quick-response for analysis.
- Wide pressure range from 10^{-6} to 13kPa is available.

- Compact and lightweight design for easy installation to process chamber.
- Easy control and data logging for various kinds of monitoring

Applications

For etching and CVD processes

- Monitoring reactive gases during process
- End-point monitoring for etching and cleaning processes
- Residual gas analyzing
- Leak testing
- PFC gas measurement

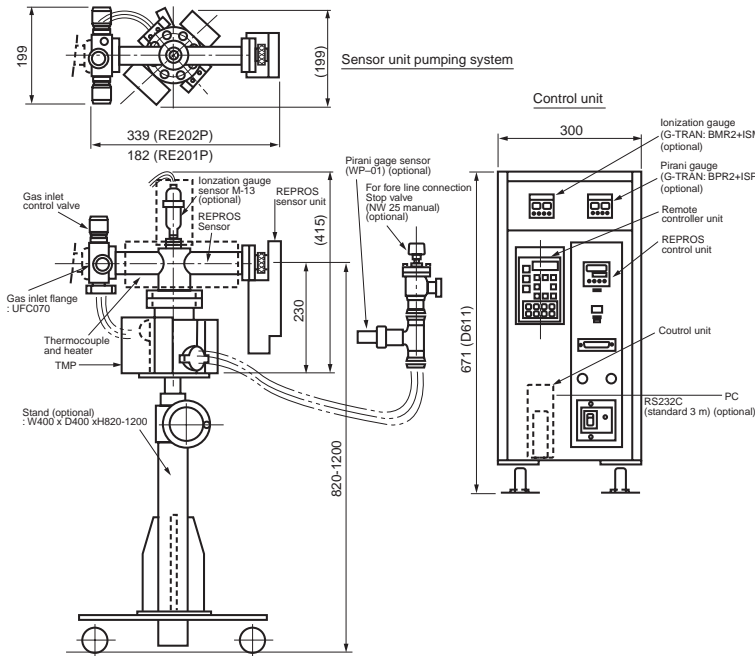
Specifications

Item	Model	REPROS		
		RE-201P	RE-202P	RE-402P
Sensor				
Measuring mass range	amu	2 - 200		1 - 400
Resolution		M/ΔM=1M (10%P.H.)		
Sensitivity (direct inlet)	A/Pa	1×10^{-7}		1×10^{-3}
Sensitivity (Orifice inlet)		1×10^{-6}		1×10^{-2}
Minimum detectable partial pressure	Pa	5×10^{-8}		1×10^{-10}
Ion source		VECC-type		
Filament		Iridium/Yttrium coated V type		
Emission current	μA	10		
Ionization voltage	eV	20 - 70		
DC amplification range	A	$1 \times 10^{-8} - 1 \times 10^{-13}$		$1 \times 10^{-5} - 1 \times 10^{-12}$
Ion detection		Faraday cup	EM tube/Faraday cup	EM tube
Bake temperature	°C	120		
Differential Pumping system				
Gas inlet valve		Conductance valve with 3 different gas inlet modes (VPC-070)		
Max. sampling pressure	kPa	13		
Differential Pumping System		With intermediate port and gas purge port		
Turbo Molecular Pump		60L/s :N ₂		
Fore Pump		Option		
Gauge		Option (Pirani Gauge, Ion Gauge)		
Utility				
Power Supply		AC100V 10A		
Compressed Air	MPa	Dry N ₂ : 0.4 - 0.7MPa		
Control Unit				
Interface		RS-232C/485		
External I/O and other		Analog input (0 - 10V) x 2 Set-point output x 2 External interlock		
Others				
Software		Qulee QCS		
Option		Stand, Baking heater, Gas inlet valve, RS232C/RS485 converter Ion gauge, Pirani Gauge, Fore Pump, Communication software (SECS/GEM), Data processing software (Origin-QCS)		

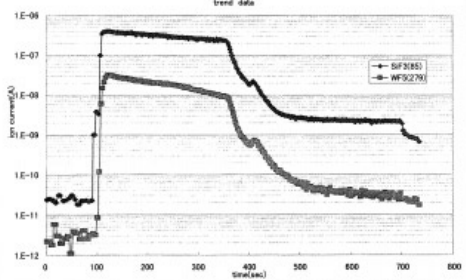
External Dimension Diagram

(unit: mm)

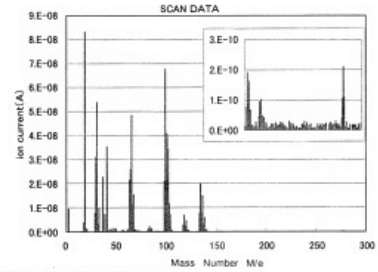
• RE-201/202P



Measuring Data Sample



* "Ion current vs. Time" measurement data as the result of monitoring a cleaning process using fluoride in a WS₂ film.



Scanning data through the deposition of WS₂ film.

System Diagram

• RE-201/202/402P

