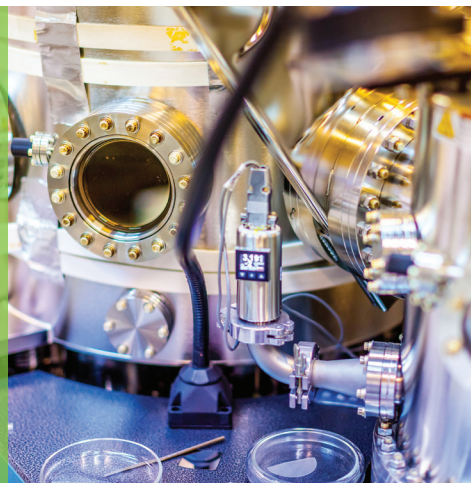


# The Agilent 4UHV ion pump controller

For ultra high vacuum

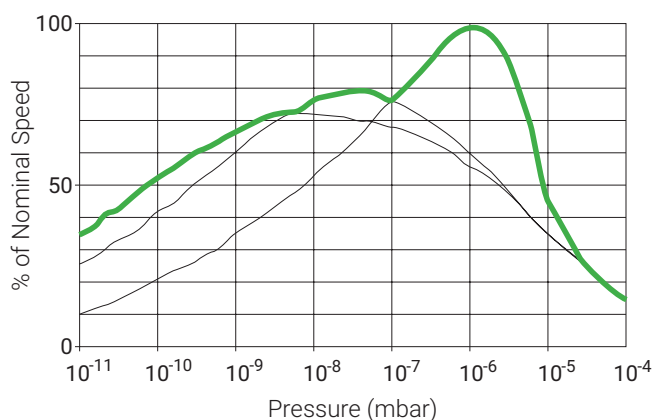


The new state-of-the-art Agilent 4UHV Ion Pump Controller operates up to four pumps simultaneously and independently. The 4UHV starts and controls ion pumps of any type (Diode, Noble Diode, StarCell) and size (from 20 to 500 l/s). A large four-line LCD display allows simultaneous reading of individual pump voltage, current and pressure. The variable voltage feature ensures optimum pumping speed and pressure reading throughout the operating pressure range. Built-in set points, remote operation and RS232/485 computer interface are standard (Profibus and Ethernet optional).

## Optimized pumping speed

The 4UHV will select the right operating voltage to optimize the pumping speed of your ion pumps. By applying High Voltage in accordance with operating pressure, pumping speed performance is improved.

This is because the energy with which the ion bombards the cathode is the nominal applied HV, reduced by the space charge effect due to the electron cloud present in the ion pump cell. Since the space charge effect is pressure related, a variable HV is applied to maintain optimum bombardment energy, resulting in the best possible pumping performance at any pressure.



Pumping speed vs pressure at different voltages



## Ion pump evolution

Since the invention of the Vaclon Pump in 1957, all of the major innovations in UHV have come from Agilent Technologies (formerly Varian Vacuum).

Learn more:

[www.agilent.com/chem/beyondspecs](http://www.agilent.com/chem/beyondspecs)

## Versatility

The 4UHV is available in different configurations, in order to independently power, control and monitor any combination of multiple pumps of different sizes, from one to four pumps, from 20 to 500 l/s. For each number of pumps to be operated several options are available: 200W for a single pump, 2 x 80 W or 2 x 200 W for two pumps, 2 x 80 + 200 W for three pumps, 4 x 80 W for four pumps.

## Intelligence

To access the unit you can use analog or RS232/485 ports. The controller uses the same protocol as our other intelligent vacuum devices (Navigator turbo pump Controller and Inverter scroll & rotary vane pumps), giving you fast, convenient access to all elements of the vacuum system. Profibus and Ethernet communications available on request, please call Agilent for details.

## Safety

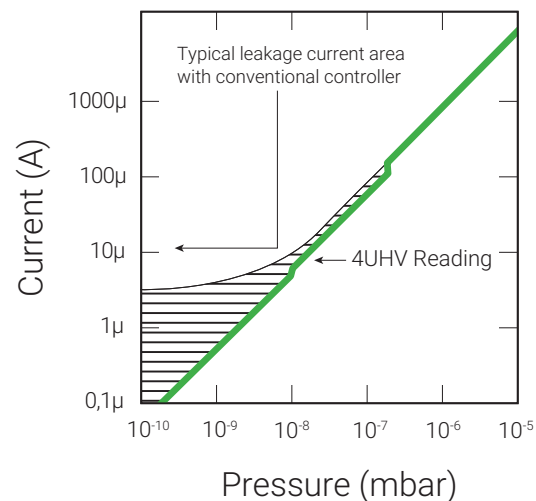
To protect you against high voltage the cable is equipped with an interlock system which immediately shuts down the high voltage when the plug is removed from the pump. The protect mode limits the current to protect the pump and the controller.

## Low noise

For SEM applications especially, the remaining AC component of the HV output was reduced to a minimum. It is much lower than in any other existing unit, eliminating the need for additional filters completely in many cases.

## Pressure reading

The 4UHV is preprogrammed to automatically convert current reading of any Vaclon Plus pump into pressure. Thanks to its ability to detect ion current as low as 10 nA, it allows pressure measurement in the 10<sup>-10</sup>-10 mbar range. To ensure reliable pressure reading down to the UHV region, the 4UHV optimizes the applied high voltage as a function of pressure. As a result, the leakage current of the ion pump is eliminated, thereby providing more accurate pressure readings.



Typical current vs pressure curve

To learn more, visit

[www.agilent.com/chem/beyondspecs](http://www.agilent.com/chem/beyondspecs)

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