

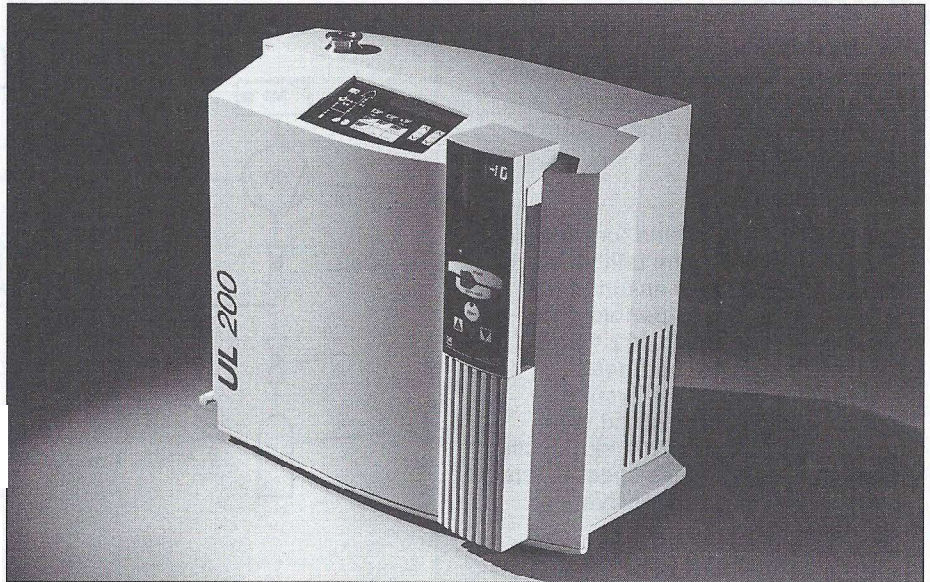
Vacuum Technology

Vacuum Process  
EngineeringMeasuring and  
Analytical Technology

LEYBOLD INFICON INC.

## ULTRATEST® UL 200 Helium Leak Detector

The ULTRATEST UL 200 portable leak detector sets the standard for speed, versatility, and ease-of-use while providing sensitivity in the  $10^{-11}$  mbar-ltr/sec range. Its robust, modular design makes servicing easy and assures reliability. With its multiple capabilities and wide range of accessories, the UL 200 can be easily adapted to virtually all applications and leak testing problems.



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### Features

Compact, portable design

Optimized system architecture for fast response

Microprocessor-controlled startup and operation for ease-of-use; reliable operation and test results; and flexibility, since no specially trained operators are needed

Reliability and accuracy of measured values through several automatic functions:

- AutoRanging—for fast, automatic range switching
- AutoZero—for automatic zero correction for suppression of background helium
- AutoTune—for automatic adjustment of the mass spectrometer to the programmed mass (2, 3, or 4)
- AutoCalibration (with optional built-in leak)—for correct quantitative display of the leak rate

Rugged handheld controller for full-function control from up to 100 ft (30 m) away

Advanced control panel interface for system setup and service diagnostics

Self-monitoring for system protection in the event of catastrophic conditions

Leak rates displayed in both digital and analog form

Operational information displayed on control panel in plain text

Pushbutton suppression of helium background for accurate results in high helium environments

Detection of masses 2, 3, and 4

Three freely selectable threshold trigger points

Acoustic and optical warnings to indicate when preset leak rate thresholds are exceeded

RS232 interface and control I/O for remote communication and operation

Chart recorder output and options control connector

Numerous accessories and options for optimal versatility

## LEYBOLD INFICON INC.

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### Description

The UL 200 is designed for fast response, ease-of-use, and versatility. The majority of the operation is carefully executed by the system's microprocessor.

### Fast Response

The UL 200's compound turbomolecular pump increases the unit's helium pumping speed, thus ensuring fast results. Its increased performance allows testing to begin at 2 mbar allowing the user to start testing sooner. In addition, the system architecture and automated valve sequencing optimizes the introduction of helium into the mass spectrometer, further enhancing responsiveness.

### Ease of Use

From the carefully thought-out user interface to the modular design, the UL 200 is a simple machine to operate and service. Its microprocessor controls and monitors the system's operation. All you do is push one button; the microprocessor does the rest.

### Sensitivity and Measurement Range

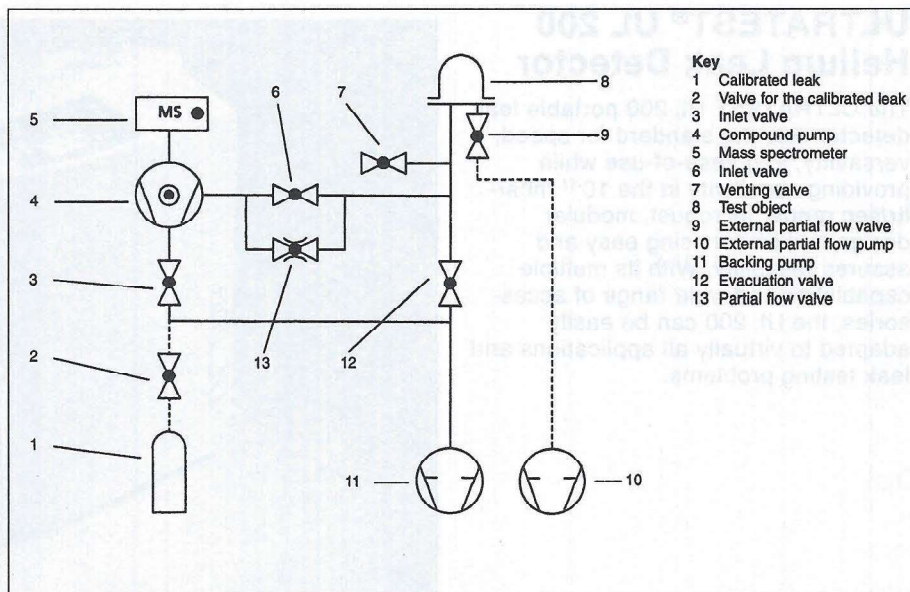
The UL 200's lowest detectable leak is  $5 \times 10^{-11}$  mbar-ltr/sec with a measurement range of 9 decades in the standard mode ( $1 \times 10^{-1}$  to  $5 \times 10^{-11}$  mbar-ltr/sec) or 10 decades in the partial-flow mode ( $1$  to  $5 \times 10^{-11}$  mbar-ltr/sec).

### Ease of Service and Reliability

The rugged UL 200 is designed for years of reliable operation. Its modular design effectively isolates the mechanical and electrical subassemblies, preventing mutual interference and facilitating easy access to all parts during maintenance.

The modular design also ensures system reliability and long service life. For example, to protect heat-sensitive circuitry, heat-generating components are thermally isolated and cooled by guided air flow. Other critical components are protected from potentially damaging external conditions, such as humidity.

The system's microprocessor continuously monitors the inlet and foreline



vacuum pressures as well as the rotation of the turbomolecular pump to ensure proper operation. If high pressure within the system is detected, the microprocessor cuts off emission and closes the inlet valve to protect the ion source filament and the turbomolecular pump from damage.

### Convenient Hand-held Controller

The UL 200's hand-held controller allows freedom to operate the unit from distances up to 100 feet away from the base unit. All functions required for reliable leak detection can be initiated from the handpiece. Leak rate or pressure is displayed on an LED bar graph with a digital readout for the exponent. The hand unit can be used with an optional headphone to let the operator hear the audible leak signal when far from the base unit.

### Versatile Control Panel

Although the UL 200's control panel is not needed for routine operation, it offers additional useful features, including the following:

- A vacuum diagram with LEDs for status indication.
- Trigger threshold LED display.

- A liquid-crystal display for providing messages from the instrument in plain text, including operational instruction as well as warning and error messages.
- A keyboard to initiate automatic calibration, to select the measurement range manually, to enter service mode, or to enter the system menu (which allows users to customize the unit to meet their needs and select special applications, including limiting system access).

### Flexible Communications

The UL 200 offers an RS232 interface, a chart recorder output, an external control I/O connector, and a Leybold options port. These various communication connections provide ultimate flexibility in accessing data and in controlling and integrating the unit.



## Helium Sniffing Probes

Two helium sniffing probes are available for the UL 200: the Industrial Sniffer and the QUICK-TEST™ QT 100 Sniffer. See page 23.

## Accessories

A number of accessories are available for the UL 200: test-port chamber, headphones, calibrated leak, orifice kit, coupling adapter, spray gun, remote-control cables, base plate, and coupling reducer set. See page 22.

## Options

The following options are available specifically for the UL 200.

### Internal Calibration Leak

The optional internal calibrated leak (TL 7) enables simple, pushbutton calibration of the UL 200. The calibrated leak, which includes its own helium reservoir, has a leak rate in the  $10^{-7}$  mbar ltr/sec range. It comes with a solenoid valve and connection fittings.

## Carrying Case

The optional carrying case holds the UL 200 and protects the instrument during transport.

## Partial Flow Pumping System

The standard UL 200 partial flow pump option incorporates a D16B (11.9 CFM) pump and a system controlled valve. This option permits quick testing of large or contaminated parts. The UL 200 controls the external valve, providing rapid evacuation, response, and clean up.

Testing can start at 100 mbar. The UL 200 automatically sequences its valves to permit detection of leaks from 1 to  $5 \times 10^{-11}$  mbar ltr/sec.

The partial flow option includes the following:

- TRIVAC® D16B rotary vane pump (110 V, 60 Hz)
- Electromagnetically operated valve with control and power cables, including plug to connect to the leak detector

- Stainless-steel flexible vacuum line, 40 in. (102 cm) long, with KF25 fittings
- Exhaust demister for D16B pump

## Partial Flow Valve

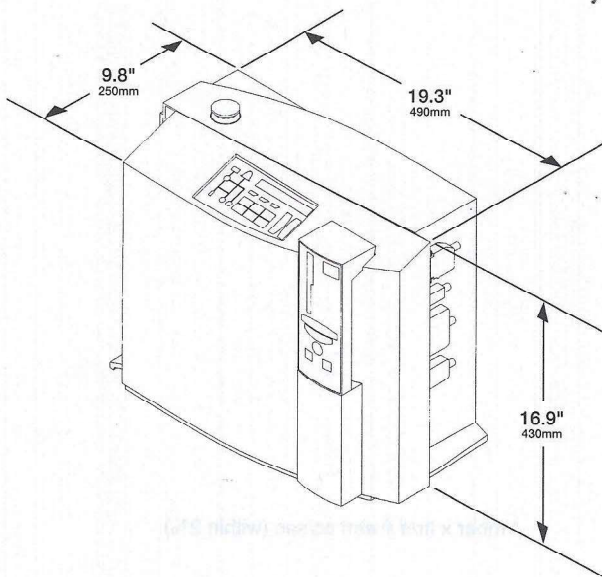
The optional partial flow valve is the same valve offered in our partial flow pumping system. It is offered separately for cases where a suitable auxiliary pump is available.

## Cart

Available in standard and cleanroom models, the optional cart is designed to accommodate the UL 200 and the partial flow pump system.

The standard cart has large pneumatic wheels and a narrow design to permit easy negotiation of narrow passageways and rough surfaces. Height of the upper shelf is 30 1/4 in. (77 cm). Width at the rear wheels is 23 in. (58 cm).

The clean room cart incorporates stainless steel construction in a narrow design configuration to permit easy negotiating of narrow passageways.



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## Technical Data

Specifications	ULTRATEST UL 200
<b>Part Number</b>	<b>14101-1</b>
Lowest Detectable Helium Leak Rate (vacuum mode) .....	$< 5 \times 10^{-11}$ mbar x ltr/s*
Lowest Detectable Helium Leak Rate (sniffer mode) .....	$< 1 \times 10^{-7}$ mbar x ltr/s*
Max. Detectable Helium Leak Rate (vacuum mode) .....	$1 \times 10^{-1}$ mbar x ltr/s*
Max. Permissible Inlet Pressure .....	2 mbar
- With Partial Flow Pump Set .....	100 mbar
Pumping Speed for Helium at the Test Connection .....	1 ltr/s
Time Constant for the Leak Rate Signal .....	$< 1$ s
Display Range for the Leak Rates .....	$1 \times 10^{-11}$ to $1 \times 10^{-1}$ mbar x ltr/s*
Time Until Ready for Operation .....	$< 3$ min
Mass Spectrometer .....	180° magn. sector field
Ion Source .....	2 cathodes; iridium
Detectable Masses .....	2, 3 and 4 amu
Chart Recorder Outputs .....	2 x 0 - 10 V lin. / log.
Relays .....	4
Test Port Connection .....	1 x DN 25 KF
Length of the Cable on the Hand Unit .....	8 m (24 feet)
Power Input .....	$\leq 380$ VA
Dimensions (L x H x D) .....	490 x 430 x 250 mm (19.3 x 16.9 x 9.8 in.)
Weight .....	33.5 kg (74 lbs.)

\* mbar x ltr/s  $\Delta$  atm cc/sec (within 2%)

Leybold Inficon products are constantly improving; therefore, specifications are subject to change without notice.