VARIAN VACUUM TECHNOLOGIES

990 dCLD II
Leak Detector

VARIAN

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The Model 990 dCLD II is an auto tune and auto calibrate component Helium Mass Spectrometer Leak Detector designed to be integrated into dedicated leak testing systems. Its ease of use, remote communications capability, and integration flexibility make it the ideal leak detector for solving demanding leak-testing applications.

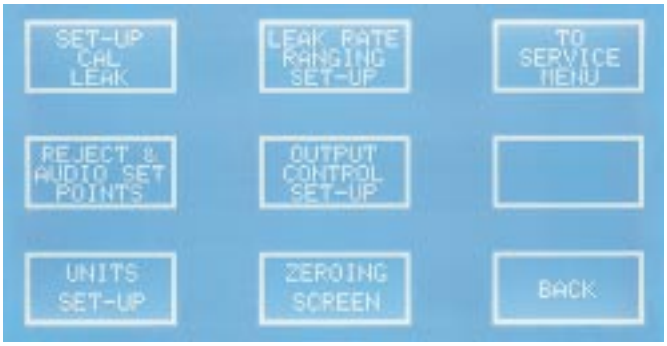
The 990 dCLD II is comprised of a 19-inch (48.3cm), rack-mountable control unit and a Turbomolecular pumped spectrometer tube assembly. The system control panel is optional, and can be mounted either on the front of the control unit or remotely. This control display provides easy set up of operating parameters, visual display of leak rate, and system status via an industrial touch panel, and may be removed during production operation. The 990 dCLD II uses Varian Vacuum Technologies' proven leak detector electronics architecture to operate the turbo spec tube assembly and provides leak rate and system status information to the operator interface.

The Leader in Leak Detection Technology

The 990 dCLD II features high test pressure tolerance, auto calibration, zeroing (3.5 decades) and "auto zero less than zero" technology which reduces system cycling times and enables faster response and clean up.

The proven spectrometer assembly utilizes an analyzer containing dual thoriated iridium filaments, vacuum gauge, preamplifier detector, calibrated leak and high vacuum pump for reliability in production systems.

The 990 dCLD II control unit operates the turbo/spectrometer tube assembly and provides leak rate and system status information to a host computer, Programmable Logic Controller (PLC) or optional front panel display, through the system inputs and outputs. The control unit can either tune to the spectrometer tube calibrated leak or an external leak.



Modular Front Control Panel

The Model 990 dCLD II Front Control Panel provides indication of the leak rate measurement and spectrometer pressure through bar graph and digital displays.

Full control of the leak detector may be accomplished via control buttons and the touch screen panel. The optional front control panel can be mounted directly onto its front face or, if desired, located remotely from the control unit. A three position key lock set is incorporated to limit operator front panel interface without a key.

Once the 990 dCLD II is set up, calibrated and put into production, control is turned over to the PLC or host computer when PARALLEL ENABLE is activated. Control remains with the PLC or host computer until that control is specifically released by deactivating PARALLEL ENABLE. During operation, you can use the front control panel to monitor leak rate, pressure, and operating parameters.

The intuitive front panel touch screen interface is optional. The front panel key lock can be used to limit operator control.

Specifications

Minimum Detectable Leak	2 x 10^{-10} to 2 x 10^{-8} atm-cc/sec
Full Scale Display	1 x 10^{-9} to 1 x 10^{-3} atm-cc/sec
Maximum Test Pressure	500 mTorr to >5 Torr
Internal Helium Response Time	< 0.5 seconds
Typical Recovery Time	< 2 seconds to recover below 20% of a 10^{-3} atm-cc/sec leak
Noise Level	< 2% of the most sensitive scale, peak-to-peak, in accordance with AVS Std. 2.1
Recommended Ambient Operating Temperature	5°C to 40 °C (41°F to 104°F) 50°C (122°F) with Optional Cooling
Power Requirements/ Voltage Range	96 VAC to 144 VAC 47 Hz to 63 Hz 176 VAC to 264 VAC 47 Hz to 63 Hz
Heat Load	350 W Typical
Maximum Current	3 A/1.5 A, 350 Watts
Fuse Rating	5 A, 250 VAC, Slo-blow
Conformance Standards	Meets applicable UL, CSA, and CE standards
Dimensions / Weight • Control Unit (including mating connectors)	19" rack, 5.25" high by 16.5" deep 48.26 cm rack, 13.33 cm by 41.91 cm 12.3 kg (27 lbs.)
• Turbo Spec Tube Assembly	19" wide by 9" high by 8" deep 48.26 cm by 13.33 cm by 11.43 cm, 7.7 kg (17 lbs.)
• Optional Display Panel (including mating connectors)	17.2" wide by 5.25" high by 4.5" deep 43.69 cm by 22.86 cm by 20.32 cm 0.2 kg (7 lbs.)

System I/O Capability

• J3 Inputs	Opto-isolated, 5 to 24 VDC 3600 Ohm resistive load
• J3 Outputs	Emitter follower with 10 Ohm series resistor, 14 mA max drive current, 24 VDC max.
• J3 Momentary Inputs	Opto-isolated, 5 to 24 VDC 3600 Ohm resistive load, requires 200 ms per min pulse width.
• J3 Analog Leak Rate Output	0 to 10 V per decade linear; 1, 2 or 3 V per decade logarithmic. Note: 3 V per decade logarithmic has limited use on the highest decade.
• J4 BCD Leak Rate Output	Emitter follower with 10 Ohm series resistor, 14 mA max drive current, 24 VDC max. Note: This output is valid only when the leak rate output pulse is low. Leak rate is updated every 50 ms.
• J6 Host Serial Port	9600 Baud, No parity, 8 Bits, 1 Stop Bit, interrupt-driven RS-232 port for connection to a host computer.

Ordering Information

Assembly		Part Number
Controller/Spec Tube/Turbo w/Calibrated Leak		
	V70 Turbo Pump	D9902000TL
	V70D Turbo Pump	D9902000DL
	V70LP Turbo Pump	D9902000LL
Spec Tube/Turbo Cable (one required)		
	1.5 Meters (5 feet)	R0623305
	3.0 Meters (10 feet)	R0623310
	4.5 Meters (15 feet)	R0623315
Calibrated Leak Cable (one required)		
	1.5 Meters (5 feet)	R0632305
	3.0 Meters (10 feet)	R0632310
	4.5 Meters (15 feet)	R0632315
Front Panel Option		R1114301
Front Panel Cable (one required with front panel option)		
	1.5 Meters (5 feet)	R0634305
	3.0 Meters (10 feet)	R0634310
	4.5 Meters (15 feet)	R0634315

AC Power Cord

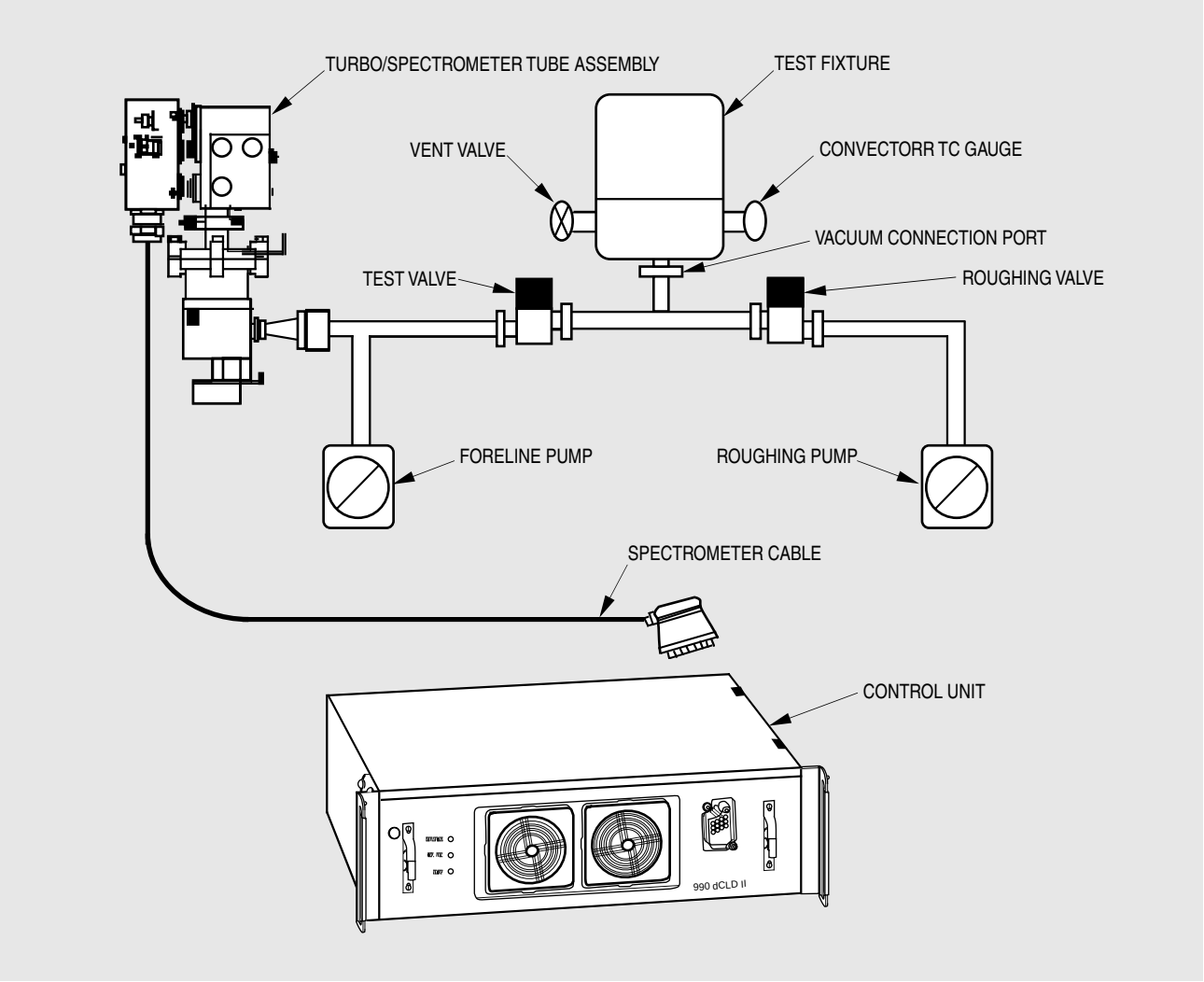
North America, 115V (included)	(656458203)	UK/Ireland	656494210
Italy	656494215	Europe	656494220
Denmark	656494225	Israel	656494230
Switzerland	656494235	Japan	656494240
India	656494245	Note: Unit is shipped with 115V power cord.	

Component Based Leak Detection

Component-based helium leak detectors have increased in popularity due to the added flexibility, speed, reduced size and cost savings they provide versus enclosed configuration models. Typical parts tested with helium mass spectrometer leak detectors during production are pressure sensors, automotive fuel and hydraulic components, airbag inflators, and air-conditioning and refrigeration coils.

The 990 dCLD II offers rapid response and high sensitivity in addition to embedded automatic calibration capability, computer interfacing, valve block interfacing, and remote diagnostics.

Application Example



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QUALITY SYSTEM ISO 9001 CERTIFIED

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