

LC-D Series Residual Gas Analyzer

Offering the most cost-effective solution for your application-specific, process monitoring needs.

Software Features

- || Ethernet Connectivity: 10/100BASE-T Ethernet - Auto-Sensing
- || Variety of operating modes including Analog and Bar, Meter, Annunciator, Tabular, Trend, and Leak Detection
- || Custom modes to combine display windows from other modes
- || Data that can be viewed in real time or saved to a file for later retrieval and comparison with current spectra
- || Auto-Tune capabilities to ensure high quality, repeatable data
- || Library Mode for comparison between collected sample spectra and stored library spectra. Facilitated by split-screen display
- || Dynamic Data Exchange (DDE) automation for limited control by Windows applications
- || Alarms: Low, Low Warning, High Warning, High

Description

The Dycor LC-D Series Residual Gas Analyzer (RGA) offers outstanding performance, yet is priced to be the most cost-effective RGA on the market. The LC-D Series instruments are constructed from materials that are compatible with Ultra High Vacuum (UHV) systems and are designed to require the very minimum in maintenance. This versatile RGA is ideally suited for use with UHV systems and equipment monitoring of semiconductor and thin film processes in the high vacuum range. Coupled with the System 200 software (which is 32-bit, multi-threaded, and designed for use with Windows XP and Vista), the LC-D provides advanced features that are associated with higher priced instruments. The LC-D Series RGA is clearly the best performing and most affordable analyzer solution for your application.

The LC-D Series RGA includes Dycor's 1-100 AMU-range open ion source analyzer head with dual filaments and Faraday cup detector, electrometer preamplifier, and RF power supply with an Ethernet port for interfacing to a PC. Options include 1-200 AMU range and 1-300 AMU range, and channel plate electron multiplier.

- || Alarms
Every data channel has low, low warning, high warning, and high alarms.
- || Auto Tune
Automatically sets RF-tune, mass position and resolution.
- || Printing
Print one, some, or all data displays.
- || Supports color printers.
- || Ethernet Connectivity
10/100BASE-T Ethernet - Auto-Sensing.

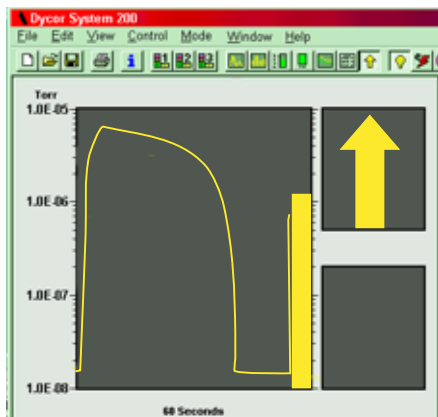
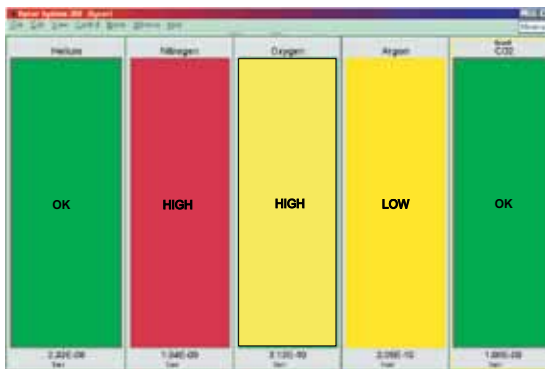
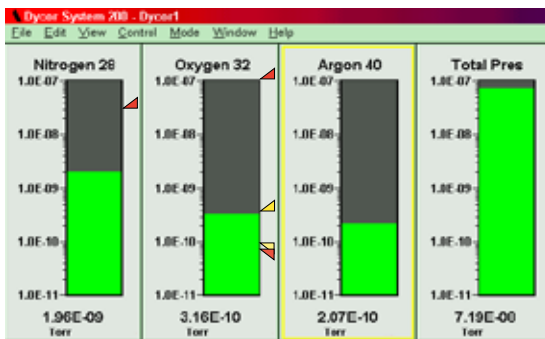
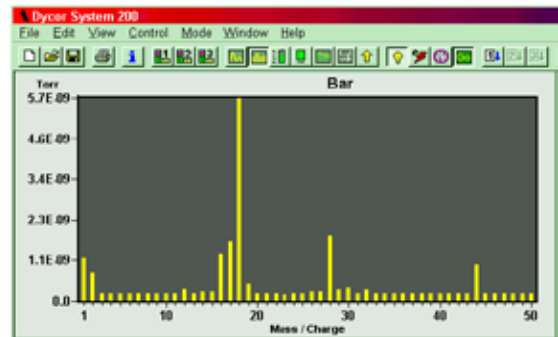
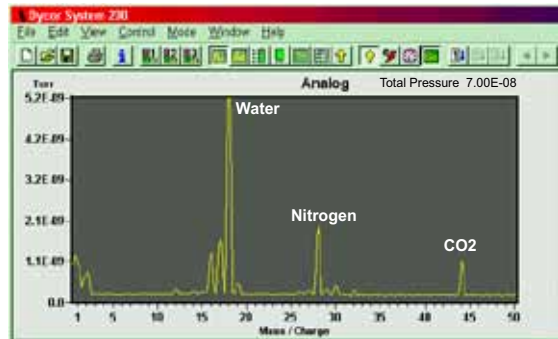


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Operating Modes

Analog and Bar Modes

Analog and Bar modes are a means of observing constituents in the background vacuum environment by scanning across a range of masses. Total pressure is displayed in the upper right-hand corner. User-defined labels can be placed in the plot area and the vertical cursor shows exact values and positions.



Meter Mode

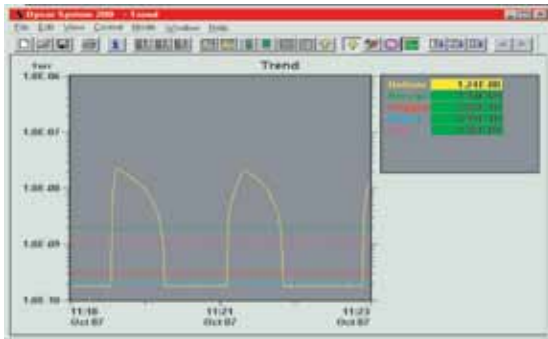
Meter mode simultaneously monitors partial pressures or total system pressure. Displayed values can be user-defined or can come directly from a device or from another display. The mass number or gas name can be displayed.

Annunciator Mode

Annunciator mode provides a Go/No Go visual of the instrument status using a color-coded display. Displayed values can be user-defined or come directly from a device or from another display.

Leak Detection Mode

Leak Detection mode checks the vacuum system for leaks when a tracer gas of known mass is applied to the vacuum system. It uses a sound board to generate a tone whose pitch changes with the level of the leak. It allows for single person leak checking. Up/down arrows show the direction of the leak (increasing/decreasing).



Trend Mode

Trend mode tracks partial pressures or total pressures over time. Vertical cursor is used to display recorded values at any position in time.

The screenshot shows four tabular windows, each displaying a list of gas pressures. The data is as follows:

Tabular 1		Tabular 2	
He	1.00E-08 Torr	Nitrogen 20	1.00E-08 Torr
Deggen 20	1.00E-08 Torr	Deggen 20	1.00E-08 Torr
Water 18	1.00E-08 Torr	Helium 2	1.00E-08 Torr
Carbon Dioxide 44	1.00E-08 Torr	Hydrogen 1	1.00E-08 Torr
Propan 20	1.00E-08 Torr		

Tabular 3		Tabular 4	
Nitrogen 20	1.00E-08 Torr		

Tabular Mode

Tabular mode displays partial pressures or total pressure in tabular format. There is no limit to the number of channels that can be displayed.

Custom Mode

Custom mode allows the user to create and save custom screens using a combination of the other display modes. An unlimited number of custom modes can be created and saved by the user.



Device Status

The Device Status window lists the quadrupole, filament, and multiplier status. It indicates whether the device is offline or has had communications errors.

The screenshot shows a 'Device Status' window with the following table:

Device	Filament	Multiplier	Status
Quad	ON	OFF	DEMO Drive

Type	Time	Source	Message
Warning	8/25/98 11:27:12 AM	Quad	# LW
Warning	8/25/98 11:27:14 AM	Quad	Deggen Huf
Warning	8/25/98 11:27:15 AM	Quad	Nitrogen HL
Warning	8/25/98 11:29:26 AM	Trend	
Warning	8/25/98 11:31:26 AM	Trend	
Warning	8/25/98 11:35:43 AM	Quad	Table
Warning	8/25/98 11:36:17 AM	Quad	Table

Log Window

The Log window shows a scrolling event log. Events logged include program start, scan on/off, filament on/off, alarm triggers. The log is saved to a file and a new file is started each time the program starts or at midnight of each day.

Specifications

Mass Range:

1 - 100 AMU standard; 1 - 200 and 1 - 300 AMU optional

Operating Pressure Range:

10⁻⁴ Torr to ultrahigh vacuum

Minimum Detectable Partial Pressure:

5 x 10⁻¹² Torr (5 x 10⁻¹⁴ Torr for electron multiplier units)

Resolution:

Adjustable to constant peak width (0.5 AMU at 10% height)

Emission Current:

0.1 to 10 mA; 50 mA to degas

Electron Energy:

30 to 150 volts to operate; 200 volts to degas

Source Sensitivity (Faraday Cup):

2 x 10⁻⁴ amps per Torr at detector (measured with nitrogen at mass 28) with peak width = 0.5 at 10% height and 1 x 10⁻³ amps emission current

Ion Energy:

1 to 10 volts

Power Requirements:

24 VDC @ 3 Amps; 110/220 VAC, 50/60 Hz adaptor available

Stability:

Mass Stability: ± 0.1 AMU after 30-minute warm-up

Peak Height: ± 2% after 30-minute warm-up

Minimum PC Requirements:

Pentium, 60 MHz processor, 16 MB RAM with

Windows 95/98, NT, XP, Vista or Windows 7

Ethernet Connectivity:

10/100BASE-T Ethernet - Auto-Sensing RJ-45 connector

Physical Dimensions:

Weight: 4.6 lb. (2.1 kg) without head
7.4 lb. (3.4 kg) with head

Width: 4.5 in. (11.4 cm)

Length: 9.0 in. (22.9 cm)

Height: 5.25 in. (13.3 cm)



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