Alltech 3300 ELSD

GRACE

sensitive

Most sensitive ELSD available

simple

Easiest to use and maintain

small

Integrates easily with any HPLC

Grace Davison Discovery Sciences™

Brochure #531

From the Leader in Evaporative Light Scattering Detection

GEN

Contact your Alltech office or distributor for current or local prices.

Leading the Way in ELSD Technology for More than 20 Years

No one has more experience designing and manufacturing ELSDs than Alltech, now a part of Grace. Our customers' needs continue to drive the evolution of our ELSD design and development programs.

2006
3300 ELSD*
*patent pending

ELSD Advantages

Universal

- Have confidence you're seeing everything in your sample
- Improve quantitative measurements
- Estimate purity more accurately

Sensitive

- Detection limits in the low nanogram range

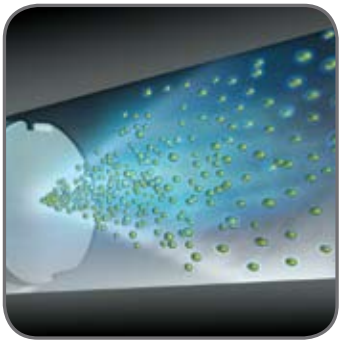
Gradient Compatible

- Maintain stable baselines during steep gradients

Alltech® ELSDs simplify analysis of difficult compounds:

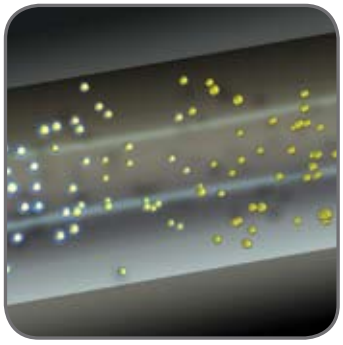
- pharmaceuticals
- impurities
- phospholipids
- fatty acids
- surfactants
- nutraceuticals
- excipients
- amino acids
- triglycerides
- polymers
- carbohydrates

ELSD Detection Process:



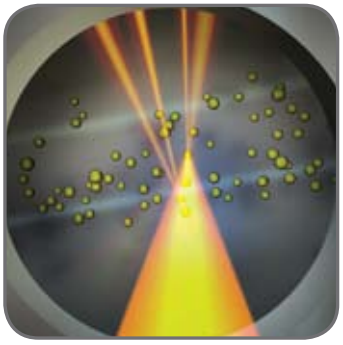
1. Nebulization

Column effluent passes through a needle and mixes with nitrogen gas to form a dispersion of droplets.



2. Evaporation

Droplets pass through a heated "drift tube" where the mobile phase evaporates, leaving a fine mist of dried sample particles in solvent vapor.



3. Detection

The sample particles pass through a cell and scatter light from a laser beam. The scattered light is detected, generating a signal.

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ELSD Advantages Over Other LC Detectors

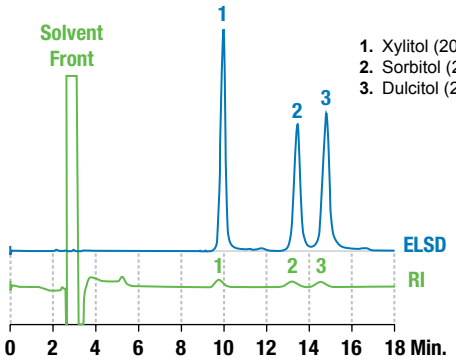
	ELSD	RI	UV	MS
Sensitivity	●	○	●	●
Gradient Capability	●	○	◒	●
Baseline Stability	●	○	◒	●
Solvent Interference	●	○	○	●
Mass Balance	●	●	○	○

CHART KEY

- Excellent: ●
- Good: ◒
- Poor: ○

ELSD improves baseline stability and detection sensitivity compared to refractive index (RI)

Sugar Alcohols



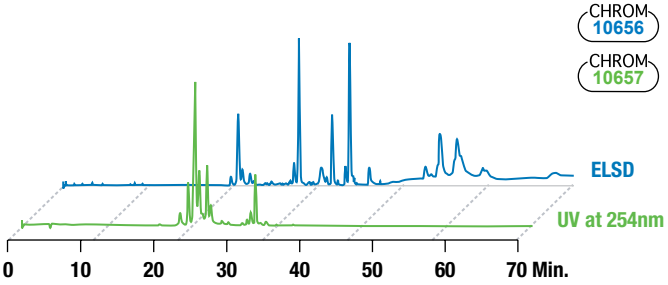
1. Xylitol (200ppm)
2. Sorbitol (200ppm)
3. Dulcitol (200ppm)

CHROM 10627
CHROM 10635

Column: Alltech® Prevail™ Carbohydrate ES, 5µm, 250 x 4.6mm, (**Part No. 35101**)
Mobile Phase: Acetonitrile:Water (79:21)
Flow Rate: 1.0 mL/min
Column Temp: 30°C

ELSD shows what may be missing from your UV chromatogram

Plant Oil Extract



CHROM 10656
CHROM 10657

Column: Alltech® Alltima™ C18, 3µm, 150 x 2.1mm, (**Part No. 43852**)
Mobile Phase: **A:** 0.1% Formic Acid **B:** Methanol
Gradient:

Time:	0	40
%B:	60	100

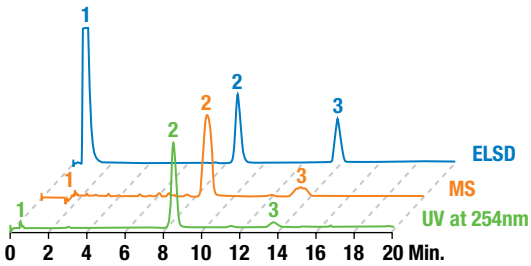
Flow Rate: 0.25 mL/min
Column Temp: 30°C

Use ELSD in parallel with UV/Vis and MS for maximum structural and concentration information

Steroid Hormone Formulation

1. Povidone (8 µg)
2. Chlormadinone Acetate (1.5 µg)
3. Mestranol (3 µg)

CHROM 10639
CHROM 10641
CHROM 10640



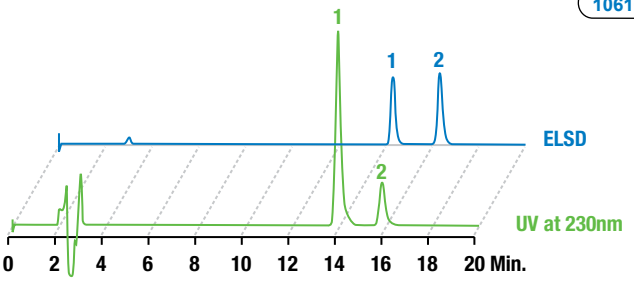
Column: Vydac® Denali® 238DE C18, 3µm, 50 x 2.1mm, (**Part No. 238DE3205**)
Mobile Phase: 0.2% Formic Acid in Acetonitrile:Water (55:45)
Flow Rate: 0.2 mL/min
Column Temp: Ambient

ELSD obtains a more accurate representation of sample mass than UV/Vis

1:1 Mixture

1. Mephobarbital (500ppm)
2. Secobarbital (500ppm)

CHROM 10617
CHROM 10616



Column: Alltech® Alltima™ HP C18 HL, 5µm, 250 x 4.6mm, (**Part No. 87698**)
Mobile Phase: Acetonitrile:Water (30:70)
Flow Rate: 1.0 mL/min
Column Temp: 45°C

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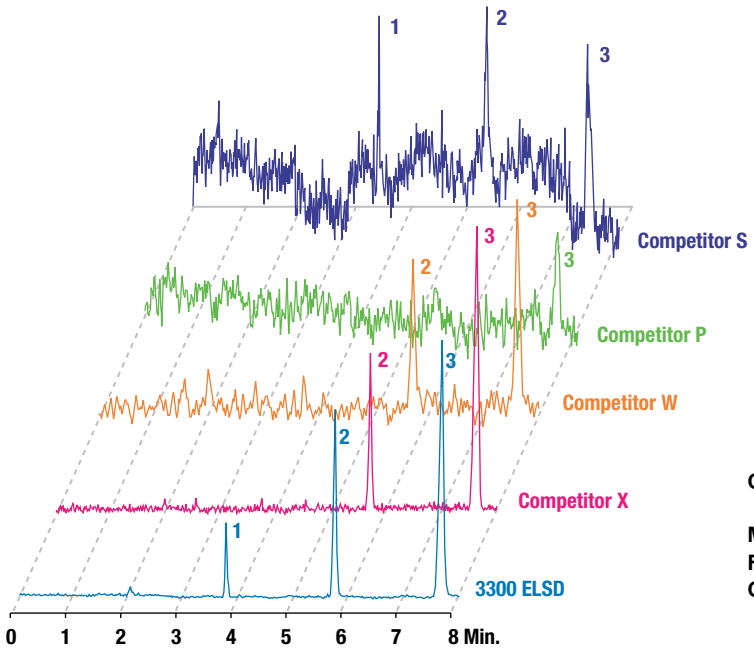
With reduced noise and greater baseline stability, the 3300 ELSD is more SENSITIVE than any other ELSD available

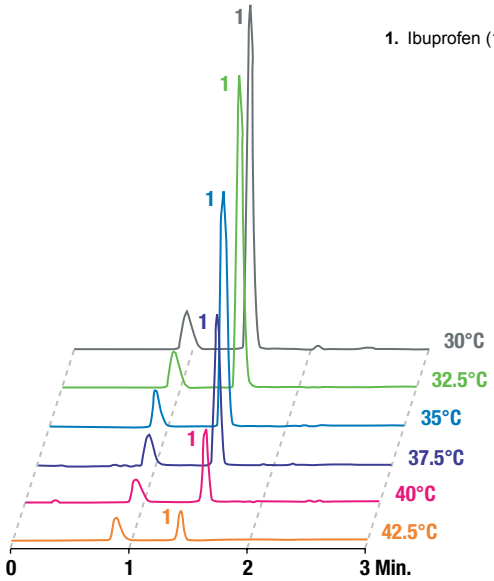


1. Methyl Paraben (200ng)
2. Propyl Paraben (200ng)
3. Butyl Paraben (200ng)

Model	Butyl Paraben Limit of Detection (LOD)
3300 ELSD	25ng
Competitor S	200ng
Competitor P	200ng
Competitor W	150ng
Competitor X	50ng

Column: Alltech® Alltima™ C18, 5µm, 250 x 4.6mm, (**Part No. 88056**)
Mobile Phase: Water:Acetonitrile (40:60)
Flow Rate: 1.0 mL/min
Column Temp: Ambient

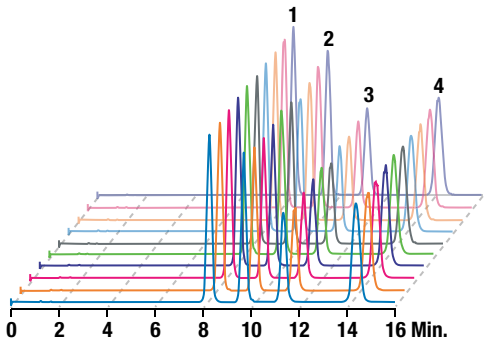
The 3300 ELSD's near ambient temperature evaporation maximizes SENSITIVITY FOR SEMI-VOLATILES



Column: Alltech® Alltima™ HP C18, 3µm, 100 x 2.1mm, (**Part No. 87669**)
Mobile Phase: Acetonitrile: 0.1%TFA in Water (80:20)
Flow Rate: 0.3 mL/min
Column Temp: Ambient

The 3300 ELSD is very REPRODUCIBLE as demonstrated by 10 identical injections of four ginkgolide components

Component	% RSD
1. Bilobalide	1.7
2. Ginkgolide C	1.3
3. Ginkgolide A	1.6
4. Ginkgolide B	1.0



Column: Alltech® Platinum™ C18, 5µm, 250 x 4.6mm, (**Part No. 32064**)
Mobile Phase: Water:Methanol:THF (65:25:10)
Flow Rate: 1.0 mL/min
Column Temp: Ambient

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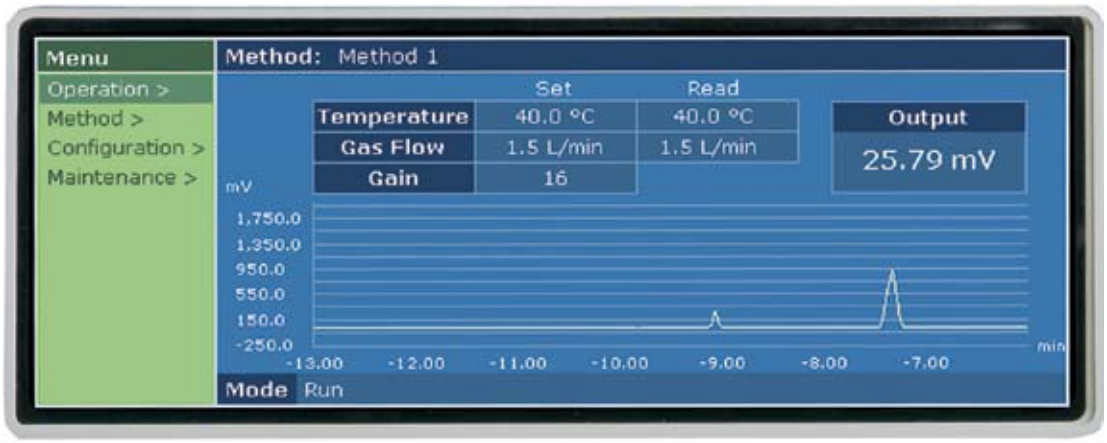
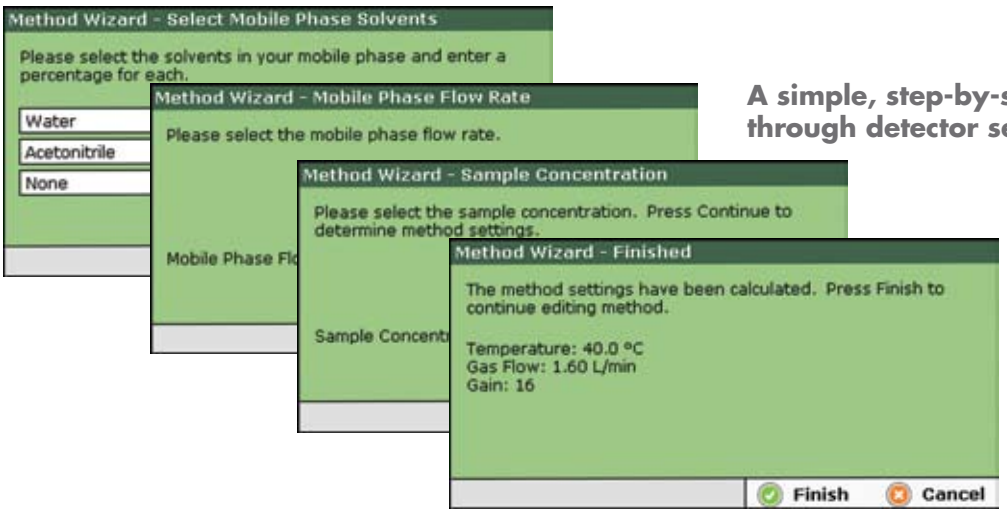
sensitive simple small

Contact your Alltech office or distributor for current or local prices.



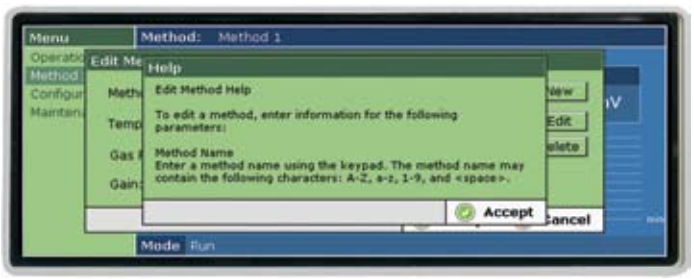
A Windows®-based user interface makes navigating through menus intuitive and easy. All critical operating parameters and a scrolling chromatogram trace are shown on the large, full color LCD.



A simple, step-by-step method wizard guides you through detector setup

Select from seven different languages for the user interface:

- English
- Español
- Francais
- Deutsch
- Italiano
- Japanese
- Chinese



An informative help function is available in each screen

Additional Features:

coming soon

- Control and collect data digitally through Agilent ChemStation and EZchrom chromatography data software
- Ensure GLP compliance with password protected screen and error log
- Store up to 100 methods for fast set up
- Save gas and extend optics lifetime by programming unit to enter stand by mode at end of run

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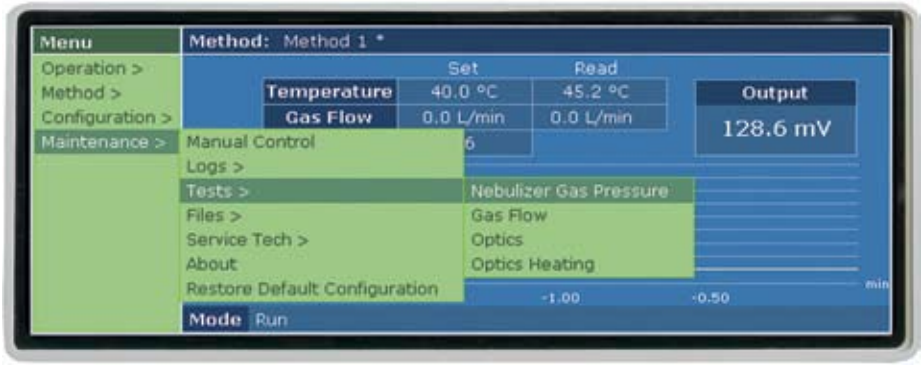
Maintenance Made Simple!

Parts requiring cleaning or service are accessible from the front

Remove the nebulizer with a simple twist and pull

Clean the drift tube easily with the included custom brush



Onboard diagnostics automate the troubleshooting process

Full IQ/OQ/PQ Protocols Included with each ELSD

We make it easy for you to integrate the ELSD into a qualified HPLC system. The 3300 ELSD is thoroughly tested before shipment and calibration and performance documents are included with each instrument. Detailed IQ/OQ/PQ procedures are included with the detector to help you perform your own qualification. We also provide the option of onsite qualification performed by one of our service engineers.

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sensitive simple small

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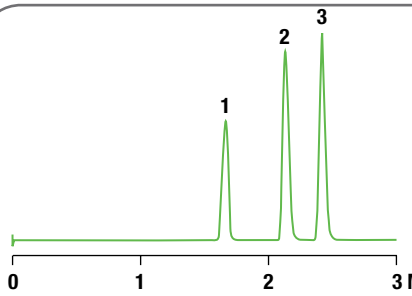
Stable Baselines with Fast, Steep Gradients



CHROM 10658

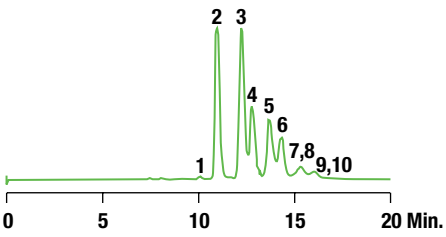
1. Acetylsalicylic Acid
2. Diphenhydramine
3. Trimipramine

Column: Alltech® Alltima™ HP C18, 3µm, 33 x 7mm, (**Part No. 87671**)
Mobile Phase: **A:** 0.1%TFA in Water **B:** 0.1% TFA in Acetonitrile
Gradient:

Time:	0	3
%B:	10	90

Flow Rate: 2.5 mL/min
Column Temp: 30°C

Use ELSD to Trigger Collection of UV Transparent Compounds in Prep Applications



CHROM 10679

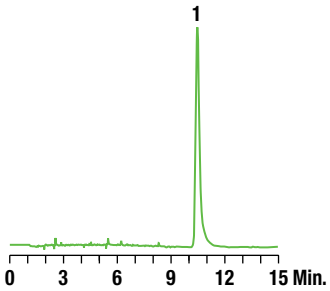
1. LLLn
2. LLL
3. LLO
4. PLL
5. LOO
6. PLO
7. PLP
8. OOO
9. SLO
10. POO

Column: Vydac® Denali® 238DE C18, 10µm, 150 x 22mm, (**Part No. 238DE102215**)
Mobile Phase: **A:** Acetonitrile **B:** Dichloromethane
Gradient:

Time:	0	10	20	21
%B:	45	50	70	45

Flow Rate: 10 mL/min
Column Temp: 25°C

Simplify Detection of Weak Absorbing Polymers



CHROM 10636

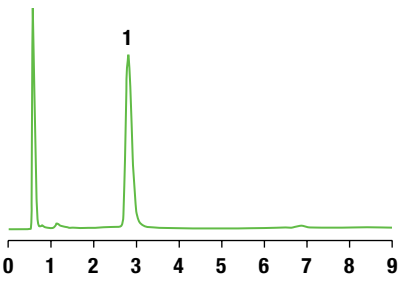
1. mPEG-SBA

Column: Alltech® ProSphere™ 300, 5µm, 150 x 4.6mm, (**Part No. 35560**)
Mobile Phase: **A:** Water **B:** Acetonitrile
Gradient:

Time:	0	3	15
%B:	30	30	80

Flow Rate: 1.0 mL/min
Column Temp: Ambient

Easily Detect Non-Chromophoric Drug Compounds



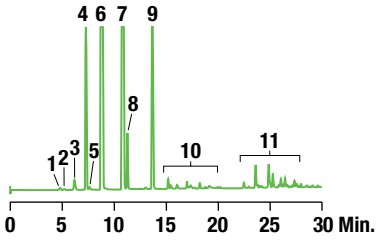
CHROM 10680

1. Spectinomycin

Column: Alltech® Alltima™ HP C18 Amide, 3µm, 50 x 4.6mm, (**Part No. 87829**)
Mobile Phase: 10mM Ammonium Carbonate:Acetonitrile (98:2)
Flow Rate: 1.0 mL/min
Column Temp: Ambient

Detect Difficult Samples without Derivatizing

Biodiesel Derived from Soy Bean Oil



CHROM 10644

1. Mono-acylglycerol (MAG)
2. MAG
3. MAG
4. Fatty Acid Methyl Ester (FAME)
5. MAG
6. FAME
7. FAME
8. MAG
9. FAME
10. Di-acylglycerol (DAG)
11. Tri-acylglycerol (TAG)

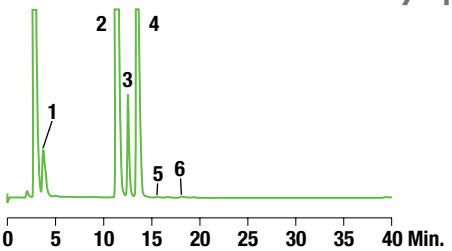
Column: Alltech® Alltima™ HP C18 HiLoad, 5µm, 250 x 4.6mm, (**Part No. 87698**)
Mobile Phase: **A:** Acetonitrile **B:** Dichloromethane
Gradient:

Time:	0	5	30	32	35
%B:	0	15	70	70	0

Flow Rate: 1.0 mL/min
Column Temp: Ambient

Improve Sensitivity for Carbohydrates

Robitussin® Flu Syrup



CHROM 10557

1. Sucralose
2. Fructose
3. Sorbitol
4. Glucose
5. Sucrose
6. Maltose

Column: Alltech® Prevail™ Carbohydrate ES, 5µm, 250 x 4.6mm, (**Part No. 35101**)
Mobile Phase: **A:** Acetonitrile **B:** Water
Gradient:

Time:	0	5	10	15	25
%B:	15	15	25	25	50

Flow Rate: 1.0 mL/min
Column Temp: Ambient

Ordering Information

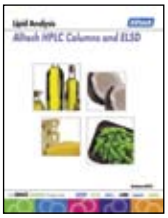
Alltech® 3300 ELSD*	
Description	**Part No.**
3300 ELSD 110V – 240V	**5135834**

*Patent Pending

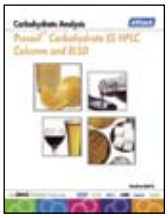
Services for the Alltech® 3300 ELSD	
Description	**Part No.**
Installation and Training	**INSTALL**
Qualification	
IQ/OQ at Customer Site	**Q330010**
PQ at Customer Site	**Q330020**
IQ/OQ/PQ at Customer Site	**Q330030**

Our dedicated applications chemists and technical support professionals are constantly adding new applications to our vast technical library. Visit www.ELSD.com to search and download applications or one of our applications brochures.

Lipids



Carbohydrates



Pharmaceuticals

Alltech® 3300 ELSD Specifications	
Light Source:	Laser diode with collimating optics, 650nm, 30mW output, class IIIB
Detector Element:	Silicon photodiode
Temperature Range:	Ambient to 120ºC in 1ºC increments
Nebulizer Gas:	Nitrogen preferred; Calibrated to 4.0L/min
Inlet Pressure:	60 – 80psig
Typical Operating Range:	1.0 – 2.0L/min
Flow Control:	Digital Mass Flow Control
Mobile Phase Flow Rate:	To 3.0mL/min
Analog Output:	1V or 10mV full scale
Communications:	*Inputs*: TTL/contact closure for auto zero, gas shutoff, start, and standby *Outputs*: Contact Closure for pump shutdown in error conditions, general events *Data Ports*: USB, RS232, Ethernet
User Interface:	Full color Microsoft Windows® based Graphical LCD with alphanumeric keypad
Power Requirements:	120/240V, 50/60Hz
Dimensions:	11.6" H x 10.3" W x 19.5" D (29.5cm H x 26.2cm W x 49.5cm D)
Weight:	30lbs (16Kg)
IEC/FDA Classification:	Class 1 Laser Product; Complies with 21 CFR Subpart J
Manufacturing Standards:	Meets all applicable safety and EMC certifications; CE, UL, and CSA certified
Warranty:	1 year parts and labor

See how the 3300 ELSD can benefit your analysis! Visit www.elsd.com and click on "Contacts". Ask about sample analysis or a product demonstration in your lab.

GRACE

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