



WASSON·ECE
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Engineered Solutions, Guaranteed Results.

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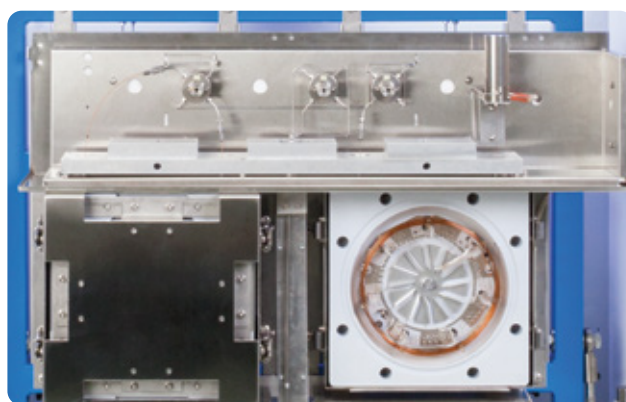
Eclipse Process Analytics

Analysis by Gas Chromatography

Eclipse Process Analyzer

Laboratory Grade Hardware

The Eclipse process gas chromatograph is the distillation of Wasson-ECE's decades of experience in laboratory and process analytics. Capable of handling simple to complex analyses, Eclipse can be configured with two micro-convection ovens (US Pat. 8,512,456) for capillary columns, up to two isothermal ovens for packed columns, several valves for control of the sample flow path, and up to four detectors. The Eclipse can also be configured with a valve-inlet-detector (VID) oven for primary chromatographic valves, inlets, and detectors; heated bridges for controlled sample transfer; and sample panel options for complex sample handling and multiplexing.



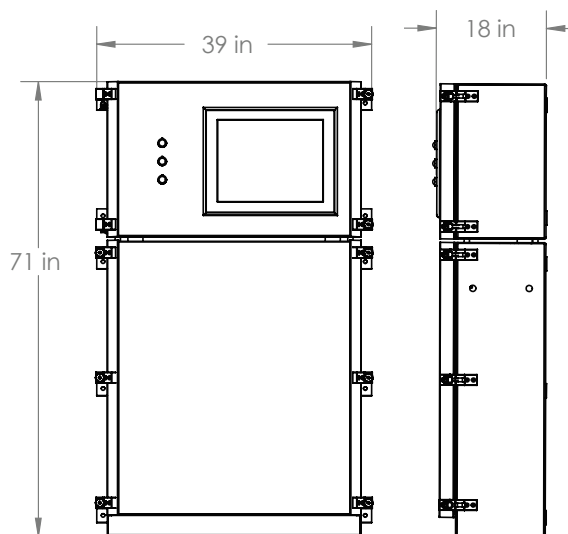
Eclipse Technology

- Capacity for up to 4 Detectors
 - MSD, VUV, PDHID, TCD and FID
- 2 Programmable Micro-Convection ovens
- 2 Isothermal ovens
- Capacity for up to 8 capillary columns
- Parallel chromatography
- Gas conservation mode
- Full electronic pressure and flow programming
- Local 19" touchscreen interface
- MODBUS RTU and TCP communication
- Wasson-ECE's chromatography data system
- Sample conditioning systems for up to 16 streams
- Designed for Class I, Division 2 and ATEX Zone 2



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Eclipse Dimensions



Wall Mount

Eclipse is wall mountable for convenience and features a nineteen-inch touchscreen interface for walk-up interaction. Instrument status, data analysis, and configuration are accessible from the front display or via remote software.

Easy to Maintain

With an enclosure rated for hazardous locations and mounted on a pivoting inner chassis, high-precision components are easily serviceable and protected from even the toughest environments.

Versions of Eclipse

Eclipse

TCD, FID, PDHID

Detailed hydrocarbon analysis from C1-C20 is now available on-line. The Eclipse base model utilizes application-specific combinations of temperature programmable and isothermal ovens directing output to several types of sensitive detectors.

Neutrino

Eclipse + MSD

Combining the separation of capillary chromatography with the identification power of an Agilent 5977C mass spectrometer, Neutrino allows users to detect and quantify components that would be impossible with other detectors. Neutrino, the world's first on-line GC/MS.

E-VUV

Eclipse + VUV

VUV Analytics has partnered exclusively with Wasson-ECE to bring the VGA vacuum ultraviolet detector to on-line applications. PIONA analysis (ASTM D8071) and characterization of aromatics in fuels (D8267) are just two examples of the power of this universal detector.



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Eclipse Performance and Hardware

Eclipse MicroConvection Oven Repeatability

A. Retention Times

	Methane	Pentane	Hexane	Heptane	Octane	Nonane	Decane	Undecane
Day 1	2.744	3.619	4.687	6.645	9.581	13.197	17.099	21.035
	2.775	3.653	4.723	6.683	9.613	13.225	17.118	21.038
	2.746	3.625	4.696	6.66	9.603	13.223	17.12	21.047
	2.747	3.626	4.697	6.663	9.604	13.223	17.118	21.049
	2.747	3.626	4.698	6.666	9.606	13.224	17.121	21.049
Day 2	2.747	3.625	4.694	6.659	9.598	13.213	17.108	21.036
	2.747	3.627	4.698	6.665	9.603	13.217	17.111	21.029
	2.745	3.624	4.694	6.662	9.601	13.215	17.106	21.033
Retention Time								
Avg.	2.750	3.628	4.698	6.663	9.601	13.217	17.113	21.040
StDev	0.010	0.010	0.011	0.010	0.009	0.009	0.008	0.008
RSD%	0.373	0.285	0.225	0.157	0.096	0.070	0.046	0.037

Data from 8 injections of Hydrocarbon blend over 2 days

B. Peak Areas

Methane	
Peak Areas	83767
	83886
	84037
	84020
	83813
	83891
Peak Area	83992
	83966
	83727
	83806
Avg.	83887
StDev	100.155
RSD%	0.119

Data from 12 injections of 5% Methane in Argon

- A. Highly reproducible hydrocarbon retention times are a function of temperature, pressure, and backpressure control.
- B. Reproducible methane peak areas are a function of split inlet performance and mass flow control.

MicroConvection Oven

Two independent MicroConvection ovens allow for precise and repeatable control of capillary column temperatures. Analyses that were unattainable with packed columns alone can now be accomplished in an automated and repeatable fashion. Wasson-ECE's MicroConvection ovens allow Eclipse to challenge the analytic performance of both traditional process and laboratory gas chromatographs.

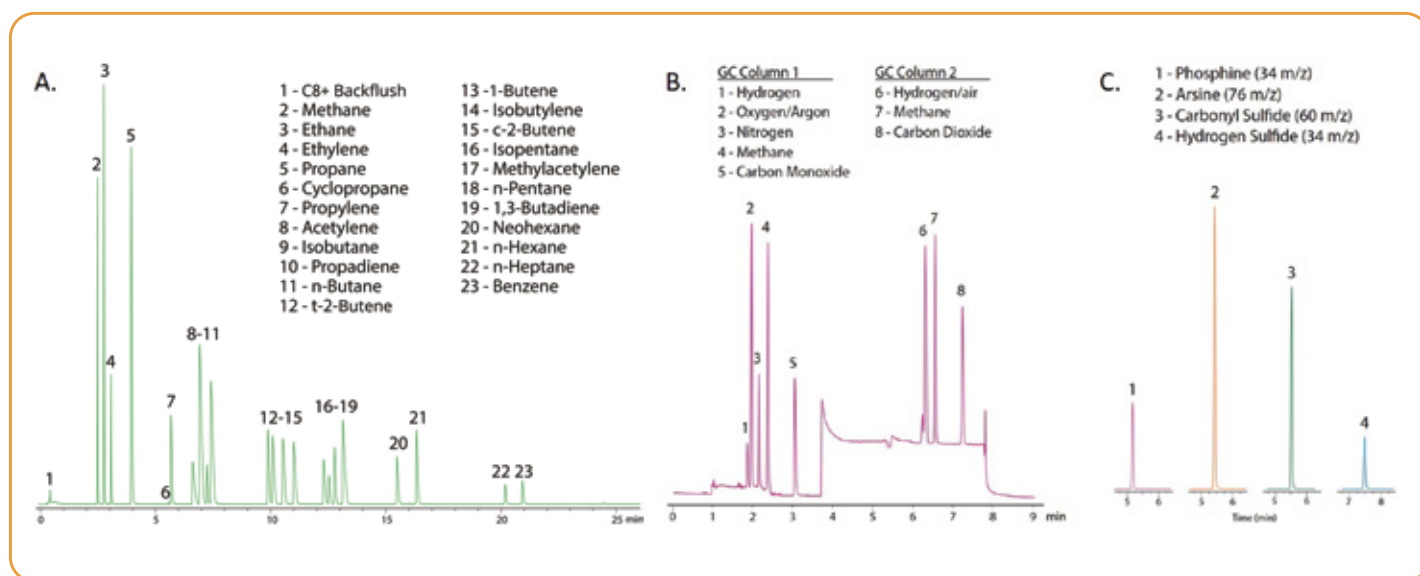


Data System

Wasson-ECE's chromatography data system (CDS) for process instrumentation was developed from the ground up for improved performance and reliability. Consistent user experience and data models across all stages of method development, installation, and unattended operation provides efficient access to the data that is crucial to process operation.

Electronics

Complete control over data paths ensures data integrity, higher precision, and faster collection speeds. Eclipse data is handled entirely by Wasson-ECE electronics and software including our FID, autonomous thermal zones, and a new chromatography data package.

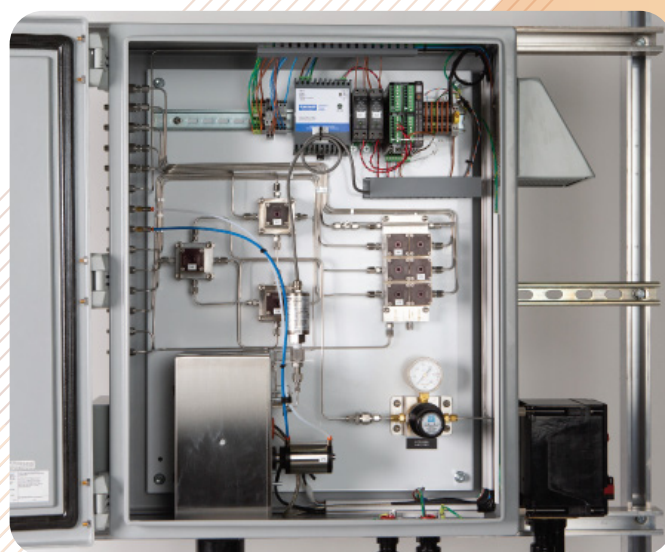


Examples of Neutrino data: A combination of FID (A), PDHID (B), and MSD (C) analyzed components eluting from 6 capillary columns.

Sample Conditioning System

The Eclipse can be integrated with an existing sample system or Wasson-ECE can design and build a custom sample conditioning system with special valves for stream selection. It can be configured with rotary injection valves for gas, liquid, or LPG phase samples. Software in the Eclipse GC selects the appropriate sample stream to analyze and actuates valves to bring the sample from the speed loop in to the sample system for the injection process.

If the injection process requires heat to vaporize the sample or to prevent condensation, then an oven is placed in the sample system to heat the necessary valves. The sample system is not pressurized and purged like the analyzer since all of the electrical components are rated for hazardous areas themselves.





Please contact us for more information

■ Corporate Headquarters

Wasson-ECE Instrumentation
101 Rome Ct
Fort Collins, CO USA 80524
sales@wasson-ece.com

■ Europe

Wasson-ECE CZ, s.r.o.
areál Big Box, hala A1
Ve Žlábku 1800/77
193 00 Praha 20
sales@wasson-ece.cz

■ Latin America

Wasson-ECE Instrumentation
sales_lam@wasson-ece.com

■ South East Asia

Wasson-ECE
South-East Asia Pte Ltd
Singapore Office
5014, Ang Mo Kio Avenue 5 #05-06
Techplace II
Singapore, 569881 Singapore
sales_asia@wasson-ece.com



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INSTRUMENTATION
Engineered Solutions, Guaranteed Results.

www.wasson-ece.com
sales@wasson-ece.com
+1-970-221-9179