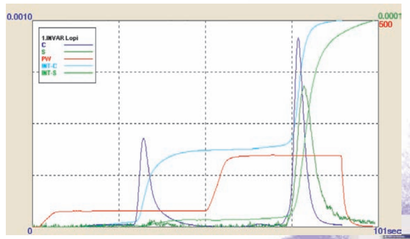
EMIA Series Carbon/Sulfur Analyzers

A World Ahead in Analyzer Technology

The HORIBA Advantage combines advanced combustion technology with a unique, patented design. HORIBA first introduced infrared gas analyzers for emission and air monitoring in 1957. Today, Jobin Yvon is the only company that offers the experience of HORIBA combustion technology and over 186 years of expertise and excellence in optics and spectroscopy. This powerful combination offers the HORIBA Advantage to users around the world. The HJY ALLIANCE program further strengthens the HORIBA Advantage through a global commitment to customer support.

The Elemental Metal Infrared Analyzer (EMIA) Series measures gases extracted during combustion in a programmable High Frequency (HF) furnace directly with no conversion. Compared to instruments using conversion and trapping, direct analysis with 4 Non-Dispersive Infrared (NDIR) detectors results in a simpler instrument with improved accuracy, less loss of gas, less reagent use and faster, easier maintenance with lower operating costs. A variety of models allow you to select the furnace system that is best suited to your target samples and applications. All models offer Windows software with onboard help and automatic self-diagnostics as standard features.

You have a choice in the matter of what elemental analyzer to purchase for your laboratory. But only HJY can provide the HORIBA Advantage…make it your choice.



Patented PCC (Plate Current Control) opens up new possibilities such as phase analysis by being able to program the temperature in up to 10 steps.

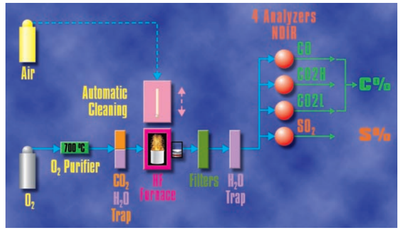
For very low concentrations, the basic combustion method without special sample preparation does not produce good results due to surface contamination. By combining the advantages of the EMIA Series induction furnace and the unique programmable temperature curve capability, it is possible to separate the concentrations from the surface and the sample itself without long and tedious sample preparation and with the simplicity and speed of a conventional HF analyzer.

The HORIBA Advantage... A matter of choice.

ALLIANCE
Excellence • Experience • Expertise

Backed by the ALLIANCE Service Program with an online spare parts catalog and user forum. Visit www.jobinyvon.com/alliance

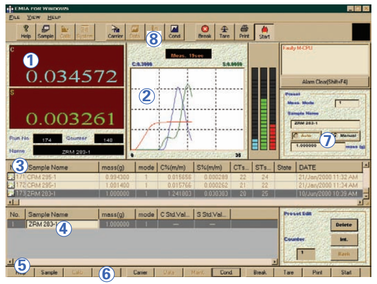
1. **Double Auto Cleaner option features two brushes to simultaneously clean the combustion tube and the cylindrical dust filter after each measurement. The dust is removed to the dust box by a difference in pressure, which avoids the need for an external vacuum cleaner.**
   - Minimizes manual maintenance
   - Improves accuracy by reducing the absorption of combustion gases by dust
2. **Cylindrical stainless steel dust filter is heated to provide stable analyses with extremely low gas absorption, especially for SO2.**
3. **Patented Programmable Temperature Control provides optimized combustion and extends the flexibility to a wide range of samples and applications.**
4. **Real-time simultaneous detection of CO/CO2/SO2 without the need for oxidizing or trapping reagents.**
   - Improves accuracy — no converter efficiency effect
   - Simpler and shorter gas circuit
   - Less reagent required
   - Quick and low-cost maintenance
   - Less possibility for leakage in the gas circuit



The HORIBA Advantage offers 4 NDIR detectors to ensure accurate measurement of all gases with no conversion or trapping and automatic cleaning after each analysis.

Simple and powerful software for every day use

EMIA for Windows software provides all the tools necessary to ensure fast and easy analysis. The well-organized and customizable features allow user configuration for a custom environment. The features are accessed from a central analysis screen to make analysis and reporting simple and efficient.



Measurement screen updates real time numerical and graphical display of analysis.

① Real time numerical analysis results display

② Real time extraction graph of each element displayed with plate current curve for furnace

③ Display of analysis results, mode, sample name and sample weight with automatic update of the next stored value upon completion of an analysis

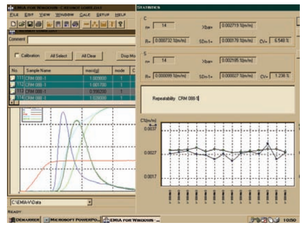
④ Sample memory stores and displays the next analyses

⑤ Comprehensive help text with onboard illustrated manual and self-diagnostics including warning and caution alarms

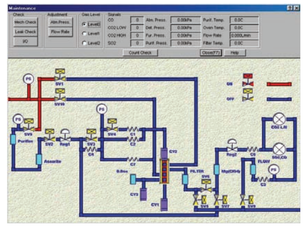
⑥ Auto calibration functions can be optimized to meet specific requirements for single and multi-point calibration

⑦ Balance interface for automatic transfer and storage of weights

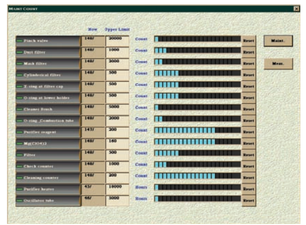
⑧ EMIA network ready software provides a variety of export formats and standard or custom reporting



Comprehensive data processing functions and graphics with SPC (Statistical Process Control) including partitioning, overlaying and subtraction, as well as section analysis.



Comprehenive Maintenance Program displays total system status and allows easy checking for leaks, mechanical problems, flow rates, temperatures and signal levels.



Counter screen displays total usage of any replacement item from O-rings to the oscillator tube and alarms at user-defined levels for each.

The HORIBA Advantage... A matter of choice.

Create the instrument that's right for you. Choose from over 15 models plus a wide range of options and automation accessories. See back page for details and specifications.

EMIA 820V Series
High performance analyzers with outstanding accuracy of less than 0.3 ppm

EMIA 320V Series
Standard performance analyzer for a wide range of applications

EMIA 220V Series
Practical analyzer ideal for production or quality control

EMIA 8100 Series
Electric Resistance Furnace Analyzers

Modular options for partial or complete automation provide unattended analysis around the clock.
Autosampler (shown), Accelerator dispenser, Automatic balance unit, Crucible stocker with pre-burning furnace and sample stocker options

Pure Metals • Precious Metals • Steel • Cast Iron • Copper • Alloys • Ores • Cement • Ceramics Carbides • Nickel • Minerals • Coal • Coke • Oxides • Oil • Ashes • Catalysts • Lime • Gypsum • Soils Rubber • Leaves • Soot • Tobacco • Waste • Sand • Titanium • Glass • And More...

HARDWARE SPECIFICATIONS

		EMIA-V Series			EMIA-8100 Series	
Models		**EMIA-820V**	**EMIA-320V**	**EMIA-220V**	**EMIA-8100H**	**EMIA-8100A**
		Simultaneous Carbon/Sulfur analysis			Simultaneous Carbon/Sulfur analysis	
		EMIA-821V	**EMIA-321V**	**EMIA-221V**	**EMIA-8110H**	**EMIA-8120A**
		Carbon analysis			Carbon analysis	
		EMIA-822V	**EMIA-322V**	**EMIA-222V**	**EMIA-8120H**	**EMIA-8120A**
		Sulfur analysis			Sulfur analysis	
Analysis principles		Infrared light absorption during combustion in Oxygen flow (high-frequency furnace method)			Infrared light absorption during combustion in Oxygen flow (tube-shaped electric resistance furnace method)	
Analysis range		Carbon: 0 to 6%; Sulfur: 0 to 1%, Up to 100% is possible by decreasing the sample weight.				
Sample mass		1.0g standard				
Precision* with combustion of a reliable steel standard sample and NOT GAS DOSE ONLY.	**Carbon**	≤ 0.3 ppm when C ≤ 20 ppm, ≤ 1 ppm or ≤ 0.5% RSD; whichever is met	≤ 2 ppm or ≤ 1.0% RSD; whichever is met	≤ 5 ppm or ≤ 1.0% RSD; whichever is met	≤ 1.5 ppm or ≤ 0.75% RSD; whichever is met	≤ 2 ppm or ≤ 1.0% RSD; whichever is met
	Sulfur	≤ 0.3 ppm when S ≤ 20 ppm, ≤ 1 ppm or ≤ 0.75% RSD; whichever is met	≤ 2 ppm or ≤ 1.5% RSD; whichever is met	≤ 5 ppm or ≤ 1.5% RSD; whichever is met	≤ 1.5 ppm or ≤ 2.0% RSD; whichever is met	≤ 1.5 ppm or ≤ 2.0% RSD; whichever is met
Sensitivity (minimum reading)		0.01ppm		0.1ppm	0.01ppm	
Analysis time		Normally 30 to 60 seconds (after start of combustion), varies according to the characteristics of the sample.				
Combustion furnace method/furnace structure		• High-frequency induction furnace method with patented combustion control function; Anode output: 2300W; frequency: 20MHz; plate current: variable up to 500mA; automatic control possible (10 slopes maximum) • Constant dust filter heating function (EMIA 820 Series only)			• Tube-shaped electric resistance furnace with temperature and Oxygen pressure increase function to increase combustion power. Operating temperature range: 400 to 1450° C • Temperature programming function with up to 10 slopes	
High-frequency furnace automatic cleaning mechanism		Built-in as standard	Option	Option	—	—
Oxygen gas purifying unit		Built-in as standard	Option	Not available	Built-in as standard	Not available
Electronic balance		Option with RS232C interface to allow automatic transfer of sample weight to computer.				
Physical data		Depth 912mm (36in) Width 580mm (23in) Height 950mm (37in) Weight 170kg (374lbs)			Depth 803mm (32in) Width 690mm (27in) Height 751mm (30in) Weight 90kg (198lbs)	

***Conditions for Precision**
- With reliable steel standard samples recommended by Horiba
- With HORIBA crucibles pre-burned at 1,000° C for at least 30 minutes
- With Oxygen carrier gas of purity greater than 99.5% and THC (Total Hydrocarbon) 1 ppm or less

EMIA-V Series/EMIA-8100 Series

SYSTEM SPECIFICATION
Data processing:
Standard PC required for operation which can be provided as an option.

External output:
EMIA-V Series:
• RS-232C
EMIA-8100 Series:
• RS-232C Analog output 0 to 2 V DC (C/S/temperature)
Leak check function: Automatic with full or partial selection possible

DATA PROCESSING SPECIFICATIONS
(Available except for EMIA-220V)
• Graphics data memory function
• Statistical processing function
• Graphics data enlargement/compression processing
• Processing of maximum of four partitions on a single screen
• Overlay processing
• Differential operation processing
• Section operation processing

REQUIRED FACILITIES
Supply voltage:
Combustion section: 200/220/240V AC (specify)
Processing section: 100/120/200/220/240V AC (specify)
Amplitude of power supply fluctuation: within ±10% of the reference voltage
Frequency: 50/60Hz

Required power:
Combustion section: 5 kVA max.
Processing section: 0.5 kVA max.
Ground: ground resistance of 10 Ω or less
Power supply line noise:
500Vp-p pulse width 1 μsec or less
Ambient enviromental requirements:
Temperature: 5 to 35°C
Humidity: 45 to 80%
Gases: Oxygen purity of 99.5% with THC of < 1 ppm at 0.3 mPa
Dry air or Nitrogen for driving the air cylinder (EMIA-V Series) and for opening/closing the combustion tube door (EMIA-8100), supply pressure 0.35 MPa

Connections:
Power supply (combustion section):
Provide a grounded 200/220/240V outlet within 15m of the main unit.
Oxygen: Provide a connector suitable for a 6/4mm diameter Teflon tube within 5m of the main unit.
Dry air or Nitrogen: Provide a connector suitable for a 6mm/4mm diameter Teflon tube within 5m of the main unit.

OPTIONS
• Gas doser
• Halogen Trap Unit
• Automatic Sampler (20 positions)
• Crucible Stocker
• Automatic Balance
• Automatic Accelerator Dispenser
• Sample Stocker (24 samples)
• RS-232C cable (3m)
• Consumable supplies

CE ISO 9001:2000 Certificate No A 25

HORIBA JOBIN YVON

(All HORIBA Jobin Yvon companies were formerly known as Jobin Yvon)

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Explore the future HORIBA

HORIBA JOBIN YVON

A World Ahead in Analyzer Technology

Carbon/Sulfur Analyzers
EMIA Series

Excellence in gas analyzers since 1957

Over 186 years of HORIBA Jobin Yvon optical experience

The expertise of HORIBA combustion technology