

ES 200 shown with scanning module.

www.spectraline.com

High Speed Imaging Spectrometer

The ES 200 can acquire spectra at 4680 Hz providing an instantaneous snapshot of the process. Continuous throughput is possible at 390 or 1320 Hz enabling capture of rapidly changing variables.

Mid Infrared Operation

The Lead Selenide array detector is sensitive to radiation between 1.3 to 4.8 microns (7692 to 2083 cm^{-1})

Zero Maintenance

The Lead Selenide array detector has a long life and an inbuilt thermoelectric cooler. It does not employ cryogenic cooling.

Rugged and Portable

The ES 200 measures 11" x 10" x 4.5" (28 x 25 x 12 cm) and weighs 15 lbs (6.8 kg). It does not use gratings or moving mirrors. In fact it has no moving optical parts and does not require alignment by the user.

Wide Operating Range

The instrument is sealed for use in adverse environments and can also be nitrogen purged. Detector performance is stabilized by active thermal management.

Convenient User Interface

The *InfraSpec* graphical user interface performs the basic data collection functions in addition to providing various data reduction, display and plotting options.

Versatile Mounting Options

Mounting provisions are available for optical table mount, tripod mount, leveling feet, hard mount or cart mount. It can be also free standing on its own feet.

Accessories & Interfaces

Accessories for laser target spotting, high resolution imaging, wavelength filtering, modules for absorption and reflectance spectroscopy, 1 & 2 dimensional scanning modules, sampling accessories such as fixed and variable path length gas and liquid flow cells are available.



1. Gas Flow Cell, 2. Filter Set, 3. Calibration Filter, 4. Power Supply, 5. Diffuse Reflectance Module, 6. Leveling Feet, 7. Tripod, 8. Flow Cell with Source, 9. Focus Tube, 10. Sample Feeder.

Specifications

Detector	256 pixel PbSe array
Pixel size	33 x 110 microns
Cooling	Thermoelectric cooler
Nominal wavelength range	1.3 to 4.8 microns (7692 - 2083 cm^{-1})
Entrance slit size	10.50.25 mm x 8 mm
F number	3.5
Acceptance angle	\pm 0.27 degrees
Spectral resolution	0.014 microns (14 nanometers)
Accuracy	0.5 % of full range
Responsivity	6e8 volts/watt
Sensor dynamic range	> 2000: 1
Frame acquisition rate	4680 / 1320 Hz
Frame sampling rate	390 / 1320 Hz
Size	11" x 10.5" x 4.5" (28 x 26.1cm)
Weight	15 lbs (6.8 kg)
Housing	Cast Aluminum, sealed
Operating range	0 - 40 deg C (32 - 104 deg F)
Output	12 bit video
Power	120 VAC, 60 Hz
Environmental	Moisture, dust, corrosion proof
Mounting	Bench, tripod, cart, slide, hard mount
Configurations	Desktop, Laptop, Data logger, Mobile
System requirements	200 MHz CPU, 64 Mb RAM, Win 9X, NT, 2000, XP
User interface	InfraSpec Windows based GUI

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Available Options and Accessories

Mechanical

- Leveling feet
- Vibration isolation mounts
- Hard carrying case
- Mobile cart with battery power and pan/tilt head
- 1, 2-axis slide mount
- Motorized slide mount
- NEMA rated housings

Optical

- Mounted filter set
- C Mount adapter
- Integrated focusing and laser aiming module
- Defocusing lens
- Attenuation filters
- 1D, 2D Scanners
- Infrared source

Electrical

- 50/100 feet data cable
- Sealed connectors
- Laptop based DAQ
- Dedicated power supply
- Battery power pack

Sampling

- Sample holders
- Fixed path length flow cells
- Variable path length flow cell
- Sample feeder
- Sampling probe
- Gas flow cells
- Diffuse reflectance module
- Specular reflectance module
- Attenuated total reflectance module

Software modules

- Pixel voltages, Intensities
- Emittance, Absorbance, Reflectance
- Temperature module
- Concentration module
- Statistical quality control
- Customized interfaces
- Motorized slide control
- Programmable data collection
- Data archival

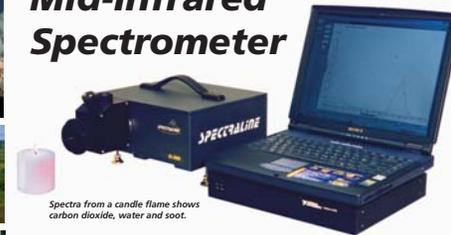


Spectraline Inc.
1291-A Cumberland Avenue
West Lafayette, IN 47906
T: 888-984-4236
F: 765-463-7004
E: info@spectraline.com

ES 200



On-line Mid-Infrared Spectrometer



Spectra from a candle flame shows carbon dioxide, water and soot.

Quality control	Coating quality inspection
Process monitoring	Surface defect detection
Combustion research	Plastic identification
Emissions monitoring	Water quality monitoring
Fire detection	Grain analysis
Temperature measurement	Glucose monitoring
Thermal Imaging	Food inspection
Gas analysis	Drug dissolution testing
Moisture measurement	Blend homogeneity

The future is here...

Combining the state-of-the-art in diode array detectors with advanced statistical algorithms in a compact, ruggedized package, the ES 200 truly represents the future of spectroscopy in process and quality control. With its unmatched speed, reliability and extended life, it answers the long felt need of the industry for continuous product monitoring enabling better quality and reduced wastage. Mid-Infrared operation provides strong signals and insensitivity to environmental influences. User supplied samples can be calibrated ahead of time and incorporated into the chemometric software of the instrument rendering tedious and repeated process calibration, a thing of the past...



ES 200 shown with variable path length flow cell

No Moving Optics!!!

The only thing that moves inside the ES 200 is light...monitoring your process as many as 390/1320 times a second! Pinned down optics, cast aluminum housing, sealed interfaces and minimal maintenance requirements enable the most challenging factory floor applications.

ES 200 Integrated Solutions:

Emission: Laser target spotting, focussing optics and scanning attachments permit a wide range of measurements.

Absorption: Infrared source, sampling probes and flow cells permit simultaneous monitoring of multiple constituents in liquids and gases.

Reflectance: Accessories permit diffuse, specular and attenuated total reflectance measurements of solids, liquids and powders.

<p>FOOD</p>	<p>COATING</p>	<p>MOBILE SYSTEM</p>
<p>PHARMACEUTICAL</p>	<p>OPTICS</p>	<p>MICRO-GRAVITY COMBUSTION</p>
<p>BIOMEDICAL</p>	<p>PETROCHEMICAL</p>	<p>POWER PLANTS</p>
<p>DAIRY</p>	<p>PROCESS</p>	<p>TURBULENT FLAME RESEARCH</p>
<p>PORTABLE SYSTEM</p>	<p>DATA LOGGER SYSTEM</p>	<p>TRANSIENT FIRE SPREAD</p>