

PRODUCT DATASHEET

# LAB 508 UV-VIS™

UV-VIS Lab / Benchtop Spectrometer



## Real-time

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## Configurable

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## High sensitivity

- Low level APHA color
- Polymers: phosgene, inhibitor concentration
- Films: thickness %T, %R
- Chlorine gas concentration
- Rare earth metals in mining tailing/metal motherload
- Solvent concentration
- Process research and development

## GUIDED WAVE 508 UV-VIS Analyzers: Process and Lab

The LAB 508 UV-VIS™ analyzer uses a diode array spectrometer to collect spectral data from liquids, gases, and polymer-based films. The spectral data are interpreted by the analyzer software to determine the composition or physical characteristics of the material, all in real-time, and in challenging process environments. Two full spectrum UV-VIS analyzers are available, process online or a bench top for offline lab measurements. A comprehensive system includes the UV-VIS analyzer, one or more UV-VIS probes, fiber optic cables, and scanning data analysis software. The LAB 508 UV-VIS analyzer provides excellent signal-to-noise ratio, wavelength stability, NIST traceable wavelength calibration, and built-in diagnostics.

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## A Complete Lab Analyzer System

The LAB 508 UV-VIS was engineered to enable calibrations developed in the lab to be moved directly to a 508 UV-VIS™ process analyzer in the field. This allows seamless and precise data transfer with high accuracy and reliability. This reliable bench top analyzer is a single channel UV-VIS (200-800 nm) spectrometer.

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## Supporting the QC Lab

The Quality Control lab is often responsible for verifying the accuracy of process analyzers by reviewing grab samples. The built-in software of the LAB 508 UV-VIS allows engineers and technicians to combine reference values with sample spectra. This data can then be quickly loaded into third-party chemometric tools such as Solo (Eigenvector), or Pirouette® for additional analysis and model maintenance. Often there is an advantage to chemometric model development or model validation if the spectrometer design used in the QC lab is identical with that used in the process. Additionally, using the same probes in the QC lab as the field allows for spare parts to be shared.

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## Pilot Plant Applications

Pilot plants often find themselves deciding between a traditional research-grade lab analyzer or a process analyzer developed for indoor field conditions. The development of the LAB 508 UV-VIS was based on our 508 UV-VIS process analyzer, however, components such as the air conditioners, not necessary in a lab environment, were removed. This results in a streamlined table-top analyzer that can also be used for pilot plant operations.

## Calibration Transfer Allows Flexible Uses

Process chemists, engineers, and researchers will appreciate the LAB 508 UV-VIS analyzer's flexibility to move from R&D testing, Pilot Plants, to full scale QC operations. In addition, the LAB 508 UV-VIS benchtop analyzer can be used for calibration development in support of a process 508 UV-VIS analyzer. A key aspect for UV-VIS spectrometric method development involves the issue of calibration transfer between analyzers. This is important if you are developing a calibration on a laboratory unit for use on a process unit.

Multivariate calibrations are often a challenge to transfer between analyzers since they can be sensitive to very small changes in spectral data. In an ideal successful calibration transfer, the two analyzers must be as close to identical as possible. Designed to optically match the performance of our full spectrum process analyzer, calibrations developed on the LAB 508 UV-VIS in the laboratory can be quickly transferred to a process 508 UV-VIS and vice-versa. The ability to effortlessly transfer calibrations between instruments reduces the cost of ownership and the cost of calibration model maintenance.

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## Smart Choice

The LAB 508 UV-VIS analyzer is compatible with all our probes and flowcells which can be used in any combination required for your analytical needs. The LAB 508 UV-VIS's ability to monitor multiple reactions or samples with high accuracy and reliability in multiple environments makes it a cost-effective smart choice.

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## Applications

- L\*a\*b\* and other color coordinates
- Solvent recovery purity
- Maleic acid in tetrahydrofuran (THF)
- Trace (ppm level) impurities in wash water; Clean-In-Place
- Polynuclear aromatics (PNA's) in middle distillates
- Phenol in cyclohexane
- Sodium hypochlorite in bleach solutions
- Aromatics in monomers
- Sorbic acid in water
- Ferrous chloride in acid
- Acetonitrile purity
- Hypochlorous acid
- Antioxidants in polymers and plastics
- Color and clarity of varnishes

## OmniLab Analysis Software

OmniLab™ is a standalone software package controlling all aspects of the LAB 508 UV-VIS analyzer. It provides full control of analyzer operations; diagnostics, data manipulation, event logging, trend graphs and alarms, calibration model security, and control of inputs and outputs. OmniLab can be customized with "add-on scripts" to meet the needs of any process installation.

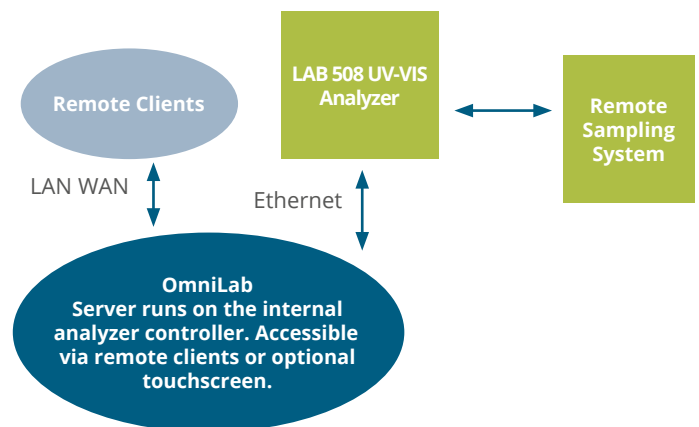
## A Comprehensive Package

Support for model formats from Solo (Eigenvector) and Pirouette (Infometrix) is available. Pre-and post-processing of spectral data is done by way of the Python™ scripting language. OmniLab supports the multiple probes available on the LAB 508 UV-VIS analyzer, each with multiple analyses. Models, probes, or the analyzer can be taken on and offline with the click of a button.

## Remote Access without Interrupting Continuous Analyzer Operations

OmniLab allows remote access over LAN/WAN.

With proper security settings you can fully operate and configure the OmniLab software and your LAB 508 UV-VIS analyzer from the plant or from any remote location. Simultaneous users can view the operations, function and "health" of your LAB 508 UV-VIS analyzer. This is extremely useful as the process engineer, laboratory technician, maintenance technician, and process supervisor can all access the analyzer remotely to accomplish their tasks. Furthermore, at your option Process Insights Service Engineers and/or Applications Specialists can review and support your system, on demand, from our service centers.



## Features

- User configurable windows to allow customized views
  - Multi-tasking
  - Pre-Configured for Easy Set-up
  - Real-time Trend Charts
  - Current Value Display
  - Powerful Python Script Language
  - Multiple Access Levels (Security)
- Built-in Reporting of Analyzer Diagnostics
- Network Accessibility, Local and Global Remote, Real-time Access
- Component and System Level Event Logging
- Solo\_Predictor or Pirouette Model Predictions (optional)

# SST Single-Sided Transmission Lab Probe

## For the QC LAB

For a complete laboratory measurement solution, our Gold Braze Sealed LAB SST™ probe was designed to work with the fiber optic-based LAB 508 UV-VIS Analyzer or other FT-NIR process spectrometers. The LAB SST probe's high optical efficiency gives rise to spectral results that duplicate online process SST probe performance. This simplifies the creation of online calibration models from lab data and ensures that QC lab checks of online analyzer performance are more accurate.

The reliable design of the LAB SST Probe is ideal for benchtop measurements in a beaker or sample jar. Alternatively, the LAB SST Probe can be used for continuous small-scale pilot plant monitoring applications. The LAB SST Probe is also optically matched to optimize results using our LAB 508 UV-VIS. Like many of our probes, it also works with other fiber-optic-based laboratory analyzers according to fiber diameter and spectral range, including other manufactured brands. Optional accessories make it easy to adapt the SST Probe to different kinds of laboratory or process installations. To allow easy insertion into lab sample containers the LAB SST Probe can be provided with a hook at the rear of the probe to retain probe with lanyard.

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## Unique Design

The LAB SST Probe has a 3/4-inch stainless steel body. This unique, compact design was built on U.S. patent #6,043,895. This provides true transmission which translates to more signal, less noise, better measurements. The LAB SST Probe's sapphire optical windows are sealed to the probe body with proprietary gold alloy brazing. An optional hook at the rear of the probe, is available, to retain the probe with a lanyard and allow easy insertion into lab sample containers.

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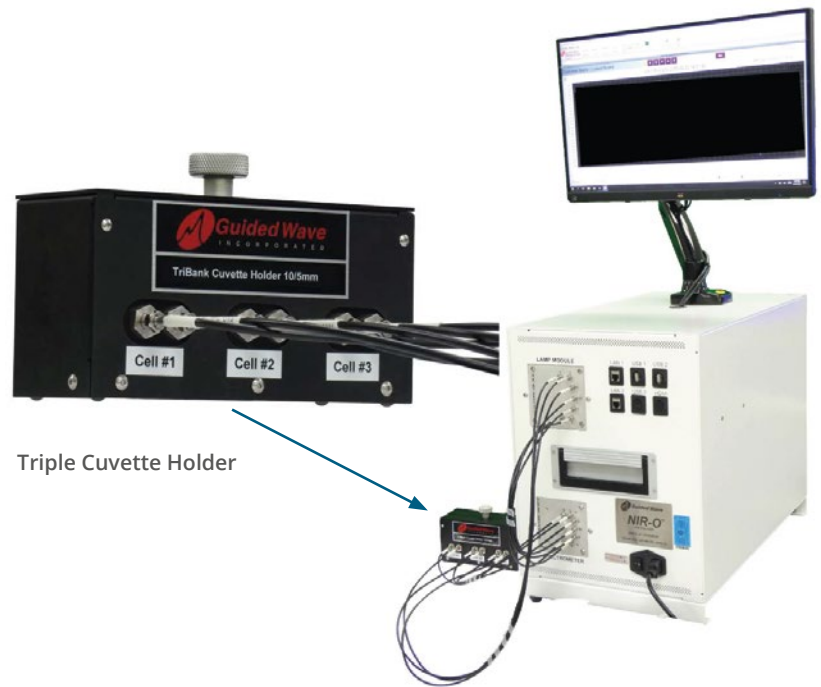
## Exceptional Light Transmission

Like our other optical probes, the LAB SST Probe provides exceptional optical performance. Typically, average transmission exceeds 30%. That means more signal, lower measurement noise, and lower limits of detection. Of course, the LAB SST Probe's optics are permanently aligned at the factory. There is no need for optical adjustments at the time of installation, nor ever any chance for misalignment or varying pathlengths. Process chemists, engineers, and researchers will appreciate the LAB SST Probe along with the LAB 508 UV-VIS's flexibility to move from R&D testing, Pilot Plants, to full-scale QC operations. The LAB SST probe along with the LAB 508 UV-VIS's ability to monitor multiple reactions or samples with high accuracy and reliability in multiple environments makes it a cost-effect smart monitoring solution.

- Corrosion-resistant construction
- Rugged and vibration resistant design
- Sealed against ambient moisture infiltration
- High optical throughput for low noise spectroscopy
- Inserted into liquid samples with temperatures up to 200°C for safety purposes (probe optics will withstand 300°C)
- Available in several standard pathlengths

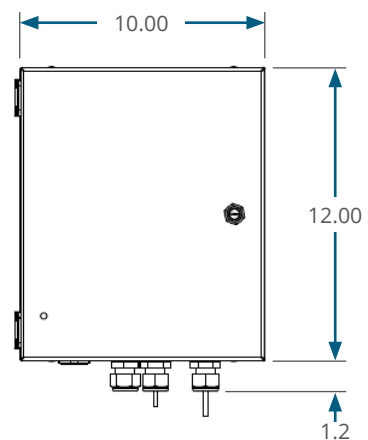
## Cuvette Holder Types

Process Insights offers two styles of cuvette holder. The first is a traditional Single Cuvette Holder with an optional removable filter holder for easy system validation. The second style is the customizable Triple Cuvette Holder. Designed as a single unit it can accept up to three cuvettes simultaneously, the Triple Cuvette Holder is made to order. At the time of quotation, the required pathlengths for each of the slots is defined. This customizable design allows the holder to be compatible with standard NIR or UV cuvettes and disposal plastic cuvettes. If HPLC vials or other vial types are required contact Process Insights for alternative options.

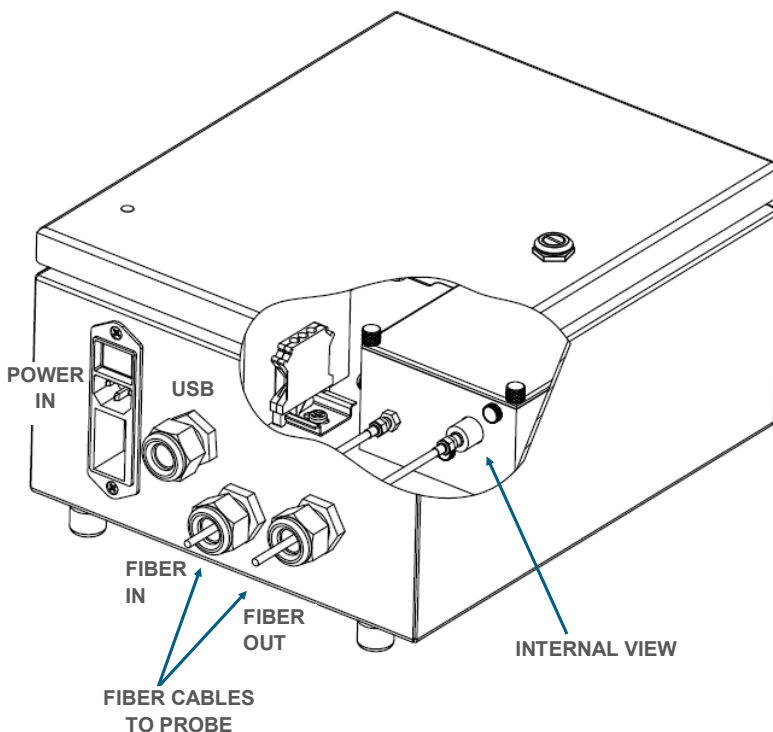
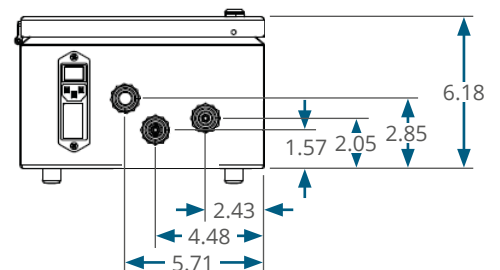


Triple Cuvette Holder

## LAB 508 UV-VIS Dimensions – Front View



## LAB 508 UV-VIS Dimensions – Bottom View



Dimensions shown in inches

## Optional Accessories

Process Insights Triple Cuvette Holder or traditional Single Cuvette Holder are optional accessories for laboratory work, calibration development or feasibility studies. Either style of cuvette holder works alongside the LAB 508 UV-VIS analyzer for collecting high quality spectral data. By using two or more cuvette holders or probes, various applications or software configurations can be tested without any sample contamination.

Specifications:	
<b>Design:</b>	Transmission Grating, High Sensitivity Diode Array
<b>Bandwidth:</b>	< 3 nm
<b>Warranty:</b>	Two (2) year limited warranty
<b>Channels:</b>	1
<b>Light Source / Life:</b>	2W pulsed Xenon Lamp, > 2 year replace 10K hour life MTBF
<b>Fiber Optic Cables:</b>	400 µm diameter ultra-low OH
<b>Fiber Optic Cable Connectors:</b>	SMA 905
<b>Model Engine:</b>	Solo (PLS_Toolbox) or Piroutte
<b>Software Required:</b>	OmniLab Process Analysis Software
<b>Wavelength Accuracy:</b>	±0.2 nm
<b>Minimum Step Size:</b>	0.5 nm
<b>Photometric Noise:</b>	<0.8 mAU @ AU, 550 nm, 1 sec
<b>Photometric Stability (Baseline):</b>	≤0.00075 AU/day rms
<b>Scan Time:</b>	2 sec
<b>RoHS Compliant:</b>	Yes
<b>Dimensions :</b>	12 in x 10 in x 6.18 in, [30.48 cm x 25.4 cm x 15.7 cm]
<b>Certifications:</b>	Upon Request
<b>Environmental:</b>	0-45°C, 0-100% Non-condensing, sun shaded and rain protected
<b>Weight:</b>	<15 pounds, [6.8 kg]
<b>Power Requirements:</b>	110/230 VAC, 50/60 Hz (325 W instrument only)

## GAIN REAL-TIME INSIGHT INTO YOUR PROCESS

Process Insights manufactures and delivers premium sensors, monitors, detectors, analyzers, instrumentation, and software that are mission-critical to keep your operations, personnel, and the environment safe – every day across the globe.

Get the most reliable, precision analytical technologies available on the market today. We will work to match your needs and budget, and provide the optimal, and most stable process analysis solution for your application.

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## CENTERS OF EXCELLENCE | PROVIDING PROVEN SOLUTIONS

Process Insights is committed to solving our customers' most complex analytical, process, and measurement challenges everyday.

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For a complete range of products, applications, systems, and service options, please contact us at: [info@process-insights.com](mailto:info@process-insights.com)

For a complete list of sales & manufacturing sites, please visit: <https://www.process-insights.com/about-us/locations/>

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REVOLUTIONIZING MEASUREMENT

**EVERYWHERE**