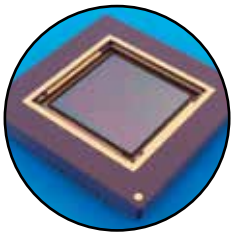
TELEDYNE LEEMAN LABS
Everywhereyoulook™

Simplicity

Reliability



Performance


# ProdigyPlus

# ProdigyPlus High Dispersion ICP Spectrometer

**All the capability you'll ever need in an ICP. From basic applications to the most complex research task, Prodigy Plus delivers results.**

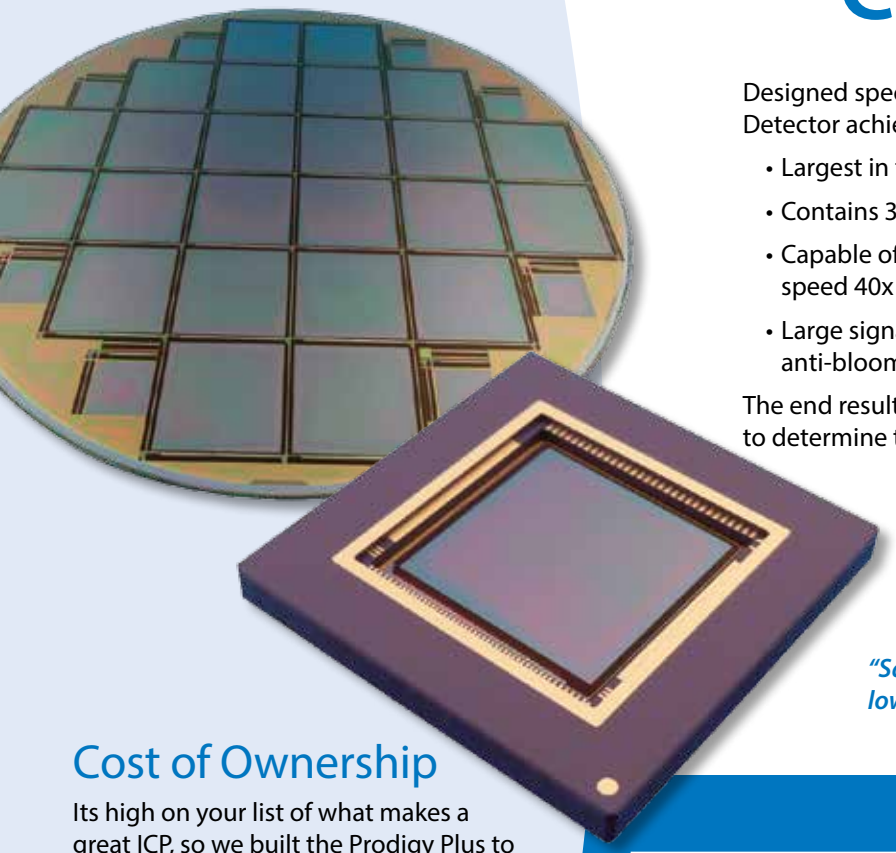
Prodigy Plus combines the latest in solid state detector technology with Leeman Labs' advanced high dispersion Echelle spectrometer to provide the most powerful ICP available today. Not only does Prodigy Plus provide superb resolution, stability and detection limits for reliable results, it was designed for a wide variety of optional features that are guaranteed to enhance the capabilities of your inorganic analysis lab.

# Advantages of the ProdigyPlus

The Prodigy Plus is the synthesis of advanced technology and user simplicity. The summation of years of refinement, the Prodigy Plus has distinct advantages over other ICPs:

- Large Format , CMOS-based , Advanced Solid-State Array Detector
- Full Wavelength Coverage from 165 – 1100 nm (134 - 1100 nm with Halogen Option)
- 800 mm, Low Stray-Light Optics
- Full Frame Imaging Captures Entire ICP Spectrum At Once
- Available in Radial, Axial and Dual View Configurations
- Application-Specific Sample Introduction Systems
- Built-in Scheduled Maintenance Monitor

# State of the Art
# CMOS Detector



Designed specifically for ICP-OES and exclusive to Leeman Labs, the CMOS Detector achieves the following technological benchmarks:

- Largest in the industry (28 mm x 28 mm)
- Contains 3.38 million pixels
- Capable of capturing the entire ICP spectrum in a single exposure at a speed 40x faster than older, less advanced devices.
- Large signals will not spill into adjacent pixels due to inherently anti-blooming design.

The end result is high sample throughput, greater linearity, and the ability to determine the concentration of any element with a single acquisition.

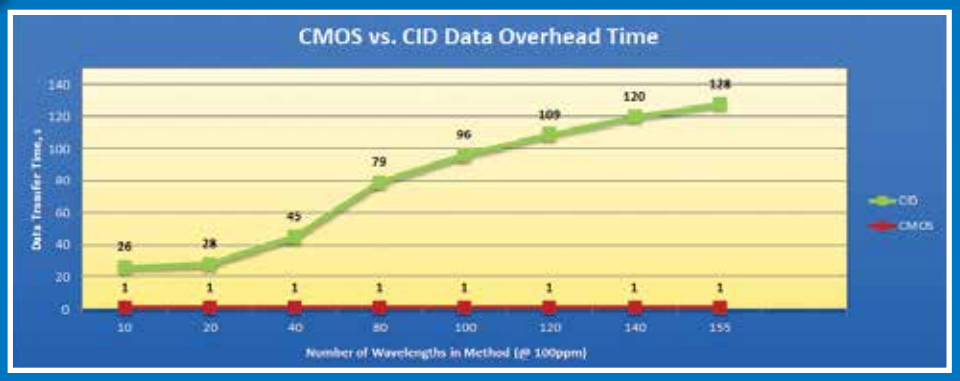
*"Savings can be attained from high sample throughput and low argon gas consumption features."*

## Cost of Ownership

Its high on your list of what makes a great ICP, so we built the Prodigy Plus to be efficient from the inside out. It begins in the heart of the ICP; its detector:

- 2 MHz data transfer speed downloads sample results in less than one second
- Advanced detector does not use "pre-shots" to sort wavelengths by intensity into various timing groups
- Large detector size allows all wavelengths to be measured with a single reading

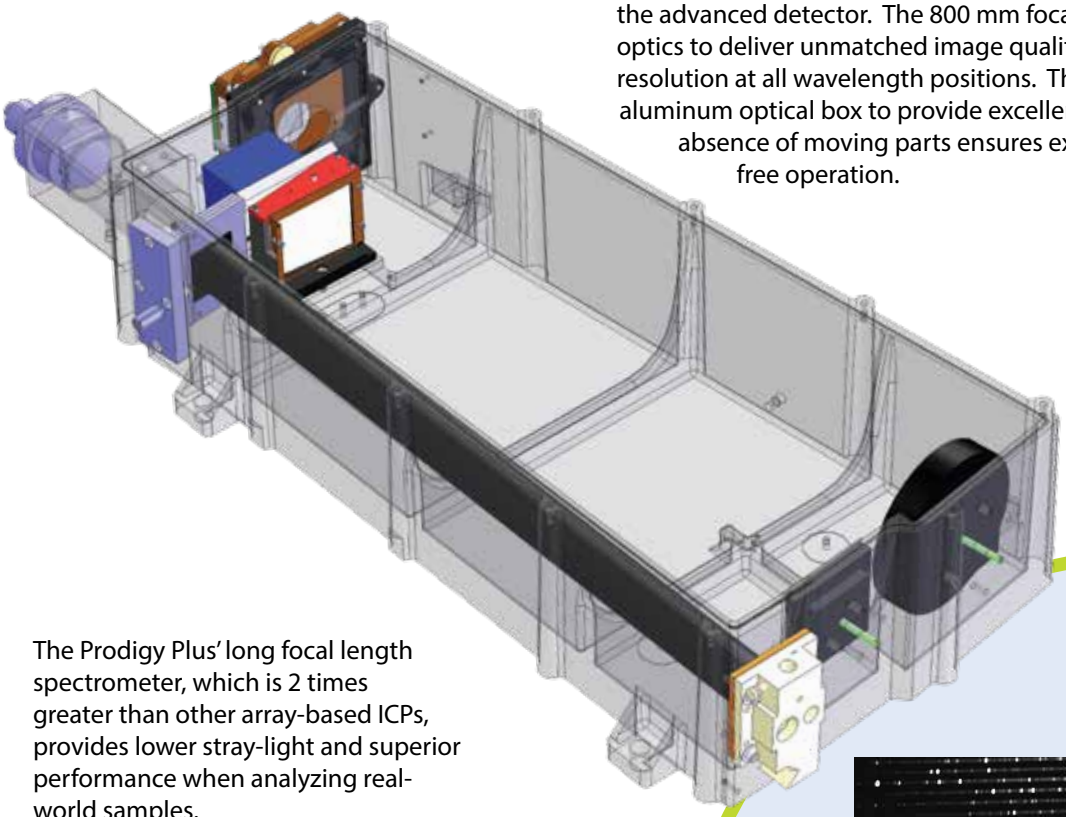
Faster detector readings result in more samples run in less time. Additional savings can be attained from low argon gas consumption features.




Compared with older detector designs, the Prodigy Plus' CMOS detector has substantially less data overhead time due to its 2 MHz read rate. By improving detector read rate, the number of wavelengths identified can be increased without affecting data readout speed or impacting sample throughput.

# High Performance
# Optical System

The time-tested Prodigy Plus optical system is a perfect complement to the advanced detector. The 800 mm focal length system uses toroidal optics to deliver unmatched image quality and insures the highest possible resolution at all wavelength positions. The simple design uses a rigid cast aluminum optical box to provide excellent analytical stability, while the absence of moving parts ensures exceptional service life and trouble free operation.



The Prodigy Plus' long focal length spectrometer, which is 2 times greater than other array-based ICPs, provides lower stray-light and superior performance when analyzing real-world samples.

The Prodigy Plus is the only system that takes advantage of the two most important features of the echelle design: **Resolution and Dispersion.**

The active area of the Prodigy Plus detector is nearly 4 times larger than older designs. The extra space allows increased distance between wavelengths (better dispersion), while the resolution is improved without the loss of a large entrance aperture to maintain excellent detection limits and signal stability.

***" If you're looking for Halogens, the standard 165 nm to 1100 nm wavelength range can be expanded to 134 - 1100 nm with a Halogen option."***

### High Performance Optical System

Designed to handle the most difficult and complex matrices analyzed by ICP-OES, the proven optical system delivers interference free analysis in virtually any sample.

### Radial, Axial or Dual View

The "right" view for any sample type or element concentration. Choose the view that best fits your need.

### CMOS Detector Designed for ICP-OES

Exclusive to Leeman Labs, the CMOS detector represents the next generation in simultaneous solid state devices for ICP-OES. At 28 mm x 28 mm, it is the largest detector available in the industry. Its 3.38 million pixels are capable of capturing the entire ICP spectrum with a single exposure.

## Report with Confidence

Prodigy Plus consistently delivers measurements with the accuracy and precision you require and your clients demand. Results are supported by instrumental condition verification, validation of calculations used and backed with tamper proof storage.

### Venting
No special venting required. No more than 100 $ft^3$/min (or 2.8 $m^3$/min) is needed regardless of plasma configuration.

### *Twist-n-Lock*, Auto-Aligning Sample Introduction System
Simplifies day-to-day operation and allows all operators, regardless of training level, to consistently obtain the highest quality results. Configurable with various sample injectors, the torch is capable of both low and high flow operation for maximum flexibility.

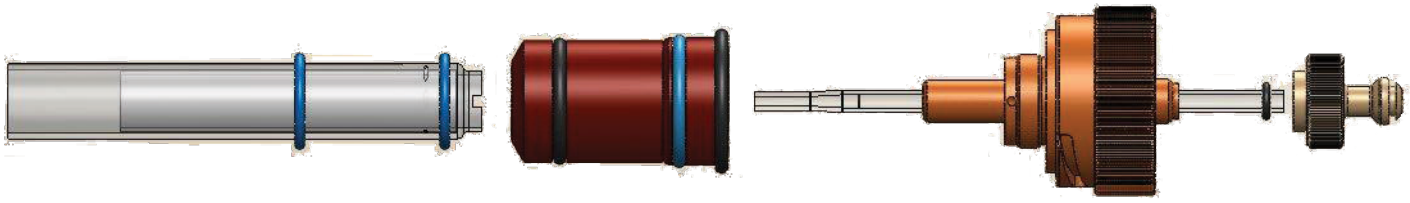

### 40.68 MHz Free Running Power Supply
Aqueous, high-solids and organic samples are easily analyzed with a powerful, rugged, field proven design.

### Axial/Dual View Air Knife
Built-in, maintenance free pump provides air flow to remove the plasma's tail thereby reducing interference without additional gas flow or external air compressor.

### 4-Channel Peristaltic Pump
Ideal for online internal standard addition, hydride generation or online sample dilution

# *Twist-Lock*, Auto-Aligning

## Sample Introduction System



Most operating issues are related to sample introduction set-up and adjustment. To remedy this, the Prodigy Plus uses Teledyne Leeman Labs' Twist-Lock sample introduction system that allows the torch to removed and reinstalled in the exact same position every time.

The system features a numerical positioning scale for precise adjustment and automatically makes leak–proof gas connections when installed. Every operator will be able to perfectly position the torch repeatedly and generate high quality results.

It's easy to configure your Prodigy Plus to handle the most difficult application with an extensive selection of sample introduction options. The Twist-Lock torch is capable of low flow operation to reduce argon consumption or high flow to achieve the best results.

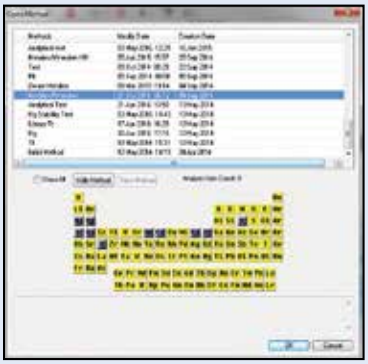
## Radial, Axial or Dual View

The Prodigy Plus' Echelle design is ideally suited to allow observation of the plasma in the radial, axial or dual view modes without the need for the complex mirror systems required by other ICPs. Fewer optical surfaces translates to more light throughput.

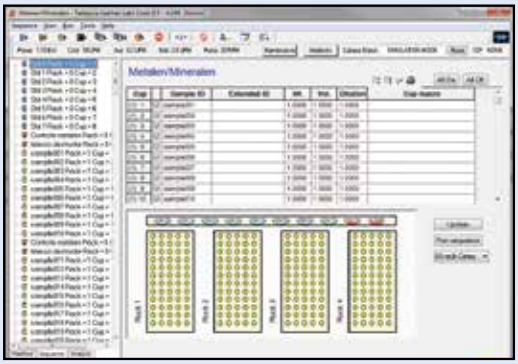
Dual View instruments combine the best features of axial and radial viewing and provide the ability to analyze virtually any sample for ultra-trace, trace and major elements without the need for multiple sample dilution.

# ProdigyPlus Software

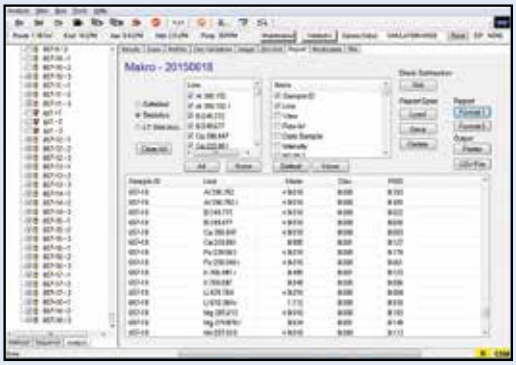
Prodigy Plus' software is designed to fully control the analytical process—from Method Development to the Final Report Generation—providing the right amount of capability and flexibility, without complexity, for every operator. All aspects of instrument operation are automated, including all plasma and sample introduction parameters, QC Controls, and system diagnostics. The computer controlled ICP source mirror in combination with the simplicity of the Twist-Lock sample introduction system takes the guess work out of torch alignment and positioning.



**Select the Method**



**Create Sequence**



**Report Data**

With the Prodigy Plus, running samples is simple:

- Select the Method
- Introduce the Sample(s) alone or via autosampler
- Analyze the samples
- Report the Data

Prodigy Plus' software also allows the user to:

- Recall and reuse previous calibration data to recalculate results by adding a new chapter to the method
- Track all changes made to a method since its creation
- Export real-time data in a customized CSV format

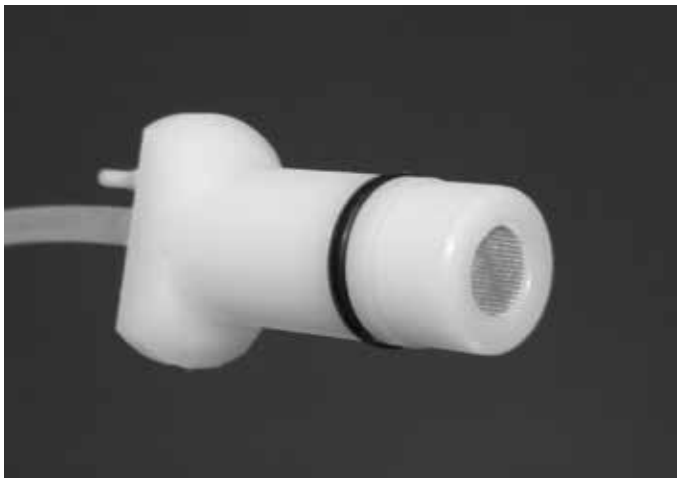
# Accessories

## Autosamplers

Everyone's day-to-day needs differ. Some labs only need to analyze a few samples per day while some must analyze hundreds. Some labs analyze the same samples types over and over while others must be prepared to analyze a very wide variety.

Teledyne Leeman Labs recognizes not all needs are the same and offers a full range of accessories and consumables designed to optimize your Prodigy Plus experience and maximize your productivity. Options include Teledyne CETAC autosamplers, application specific nebulizers, spray chambers and specialized torch assemblies.

## Nebulizers and Spraychambers



## Leeman Labs and Elemental Analysis

Our experience isn't limited to ICP-OES alone. It extends to a variety of Atomic Spectroscopy analysis techniques, with the same quality, precision, functionality and thorough engineering we've built our reputation on. If you're seeking elemental analysis for your specific application or industry, Teledyne Leeman Labs is the solution.

### DC Arc Spectrometer

Our DC Arc Spectrometers are the ultimate solution for elemental analysis of the most challenging solid samples. The DC Arc can perform elemental analysis on samples that are difficult or nearly impossible to digest, or samples in their native form without digestion.

### Mercury (Hg) Analyzers

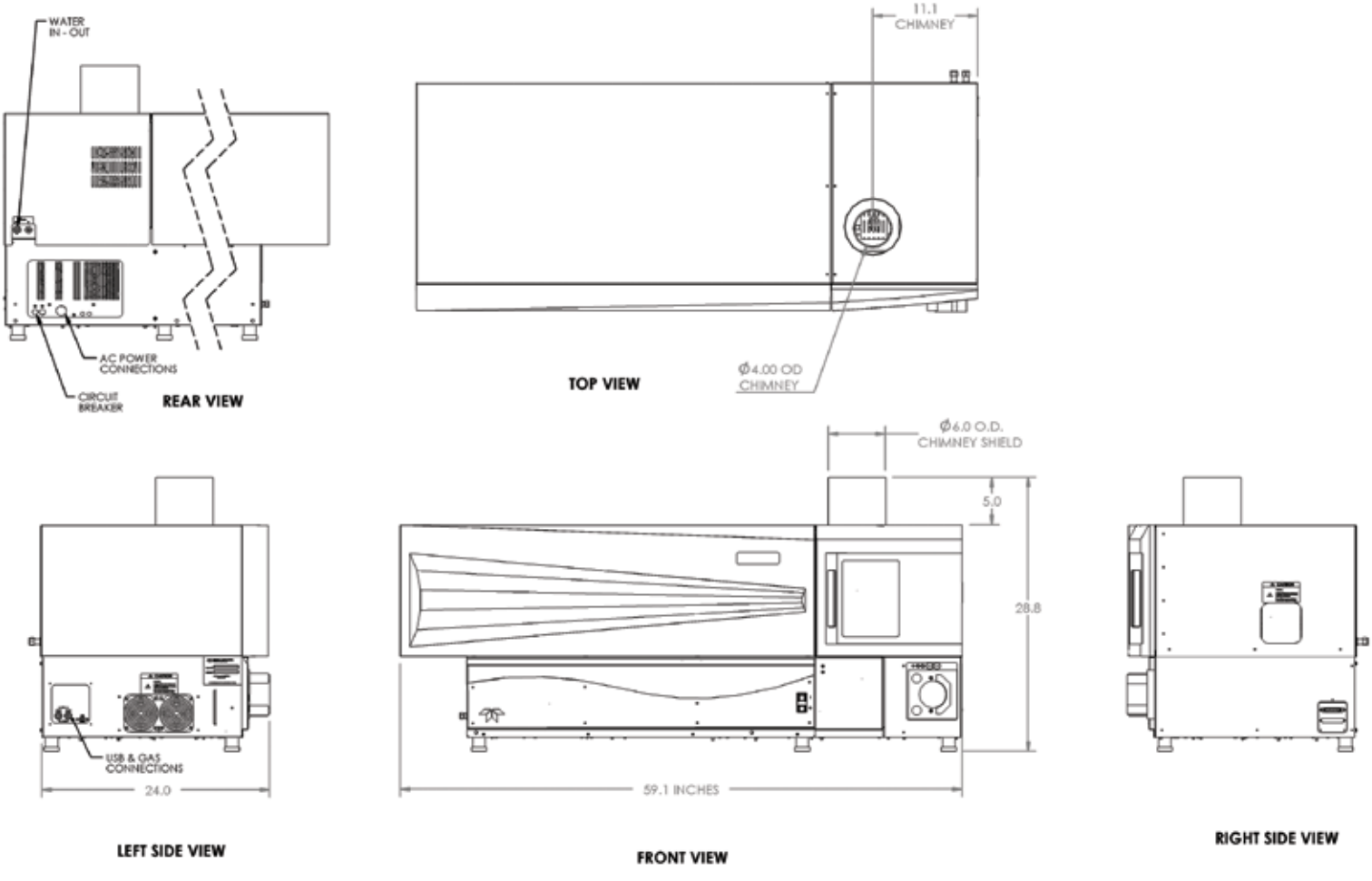
Our Mercury (Hg) Analyzers meet regulatory demands for measurement of Hg in solid, semi-solids and liquid samples accurately and efficiently.

# System Specifications

| Prodigy Plus Specifications | | | |
|---|---|---|---|
| Optical Design | High Energy Echelle | Detector Type | CMOS |
| Focal Length | 800 mm | Size | 28 mm x 28 mm |
| Wavelength Range | 165 - 1100 nm Standard<br>134 - 1100 nm Halogen Option | Number of Pixels | 3.38 million (1840 x 1840) |
| Measurement | Simultaneous | Pixel Size | 15 µm |
| | | Active Area | 100% Contiguous |

| Dimensions | |
|---|---|
| Length | 52 in (132.1 cm) |
| Depth | 22 in (55.9 cm) |
| Height | 28 in (71.1 cm) |
| Weight | 290 lbs (105 Kg) |
| Shipping Weight | 445 lb (202 Kg) |

| Site Planning Information | |
|---|---|
| AC Power | One 195-245 V, 30 A line, single phase, 50/60 Hz |
| Temperature | 15 – 30 °C (59 - 86 °F) |
| Humidity | 20 – 80 % Relative, non-condensing |



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