

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Coherent SBRC-TSM-7* at our website: ***Click HERE***



Leading Edge

Performance.

Automatically.

Innova Sabre

COHERENT

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

The High Performance Ion Laser You Don't Have To Tweak Or Tune.

Ever since Coherent introduced the first successful ion laser, it has led the industry with new products and major advances in active cavity stabilization, single-frequency performance, system reliability, and tube life.

Today, the world is changing and so are customer expectations. Now customers are asking not only for higher performance, but something equally as important in today's competitive world. They want a laser that's easy to operate and easy to maintain – so they can be more productive.

We've listened to your needs at Coherent, and we're responding with a new generation of Innova® ion lasers – the Sabre™ Series. Its fully automated features and functions, managed by Coherent's new Sentry™ System, offer a combination of extraordinary performance and productivity not found anywhere else. The Sentry system optimizes Sabre to deliver the highest laser performance from start-up to shut-down.

And what makes our new Sabre ion laser even more valuable to you is the company behind it. When you do business with Coherent, you're gaining almost 30 years of the most responsive laser service and support experience in the world.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Sabre Does Everything – Remotely.

When you consider the number of automated capabilities we've packed into Sabre, the word "everything" will seem like an understatement. For instance, Sabre can add hours of productive time to your day, because system warm-up is cut from hours to minutes. Now, you can begin work almost immediately.

Working with Sabre is easy. You can do everything from the remote module or from your computer. The clear LCD read-outs provide a wealth of system information, including output power, wavelength, system functions, and even diagnostics to alert you to minor problems. Of course, we also built Sabre so you can manually control many of its automatic functions for the unique needs of a particular project.

Automatic Wavelength Selection • When you select a wavelength from the remote module, Sabre immediately tunes the intracavity prism to the desired wavelength. Next, it optimizes the cavity alignment for maximum power. Then, it automatically calibrates the power meter to the lasing wavelength.

Automatic Mode Control • You can select any intracavity aperture through the remote module. Or if you select TEM_{00} mode, Sabre automatically uses the built-in noise detector along with the automatic aperture to obtain TEM_{00}.

Automatic 'Search-and-Tune' • This feature is a time-saver and productivity booster. Accessed from the remote, Sabre will search and acquire initial lasing activity – even from a no-lase condition – and tune the cavity to maximum power within seconds. No special tuning experience required.

At Home In The Lab Or On The Factory Floor • The intelligence built into Sabre allows it to serve equally well as a precision laboratory instrument or as a production tool on the manufacturing floor. The enhanced performance of

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Sabre lets it tackle diverse applications such as pumping modelocked titanium:sapphire lasers or performing sub-micron lithography in semiconductor processing – with speed and ease.

Enhanced Reliability • Sabre's automated features add to its reliability because the potential for human error is significantly reduced. In fact, every component of Sabre is designed and optimized for stable, long-term performance.

Easy To Own And Operate • With so many automated features, there's less to go wrong, less maintenance, and reduced service costs. Innova Series V plasma tubes deliver extended operating life by eliminating premature cathode failure. Life expectancy is stretched further with sealed-mirror tubes that prevent anode window deterioration – the second major cause of tube failures. Even optimized cooling-water from Sabre's heat exchanger helps increase tube life. So plasma tube replacement intervals are stretched by thousands of hours.

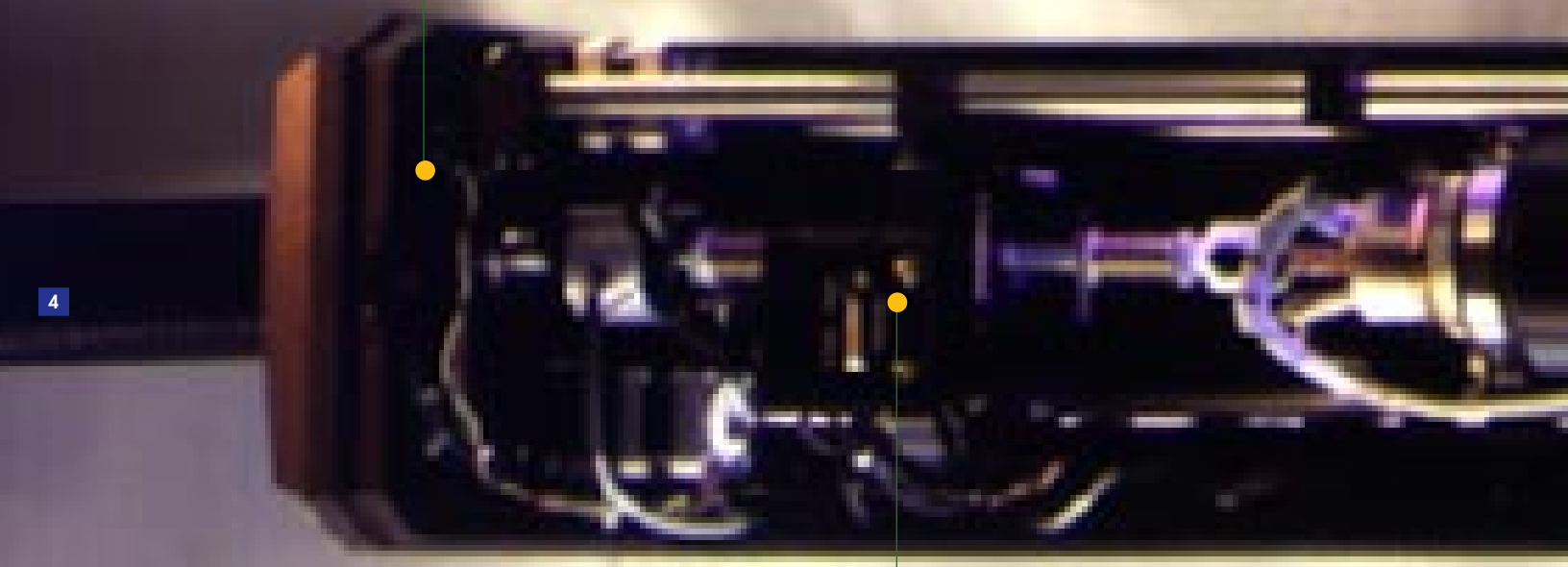


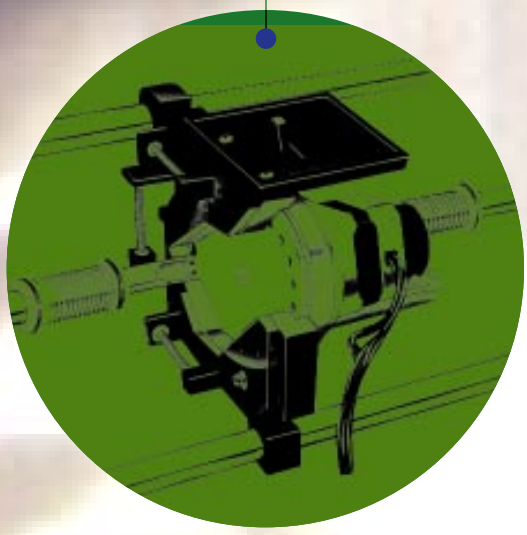
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

The Inside Story of Sabre's Unsurpassed Performance And Ease Of Use.

Automatic Mirror Positioning
Exact rear-mirror alignment is handled by two precision stepper motors and the Search-and-Tune function to acquire initial lasing, tune to different wavelengths, and peak to maximum power – all automatically.





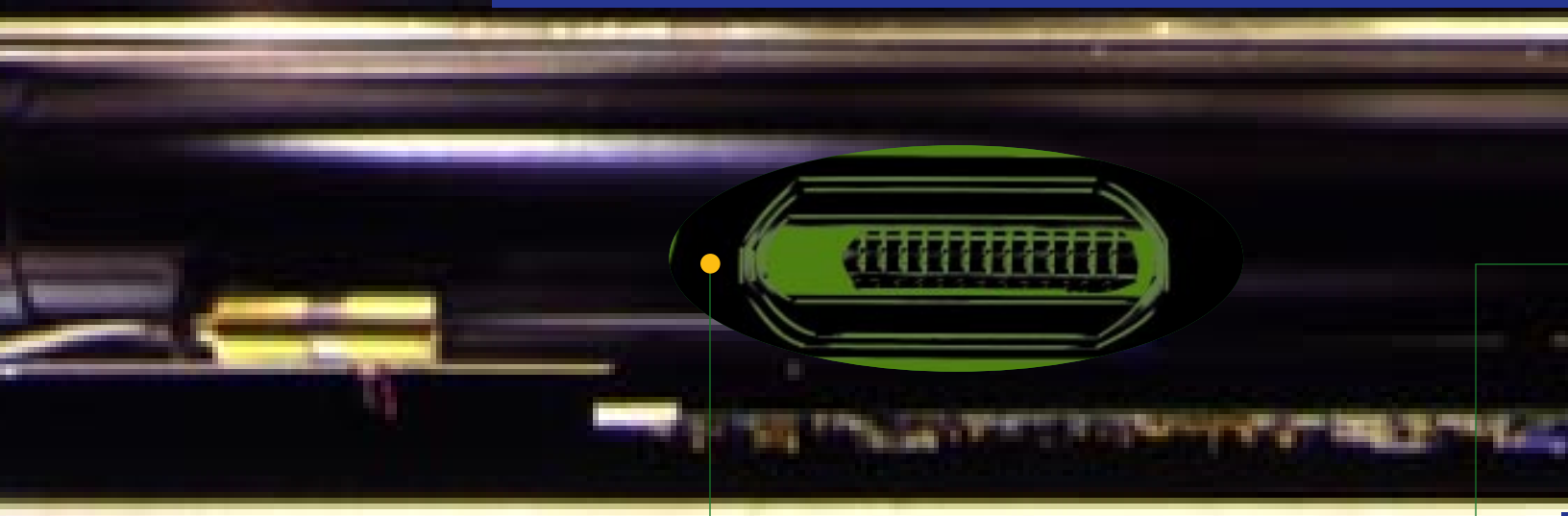


Automatic Aperture
Press a button on the remote module, and you can select from twelve intracavity apertures. For TEM_{00} mode, Sabre automatically determines and sets the required aperture.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

End-to-end, you are looking at the culmination of nearly three decades of advanced laser innovations. What makes Sabre's extraordinary performance so remarkable is how simple it is to operate and economical to run.

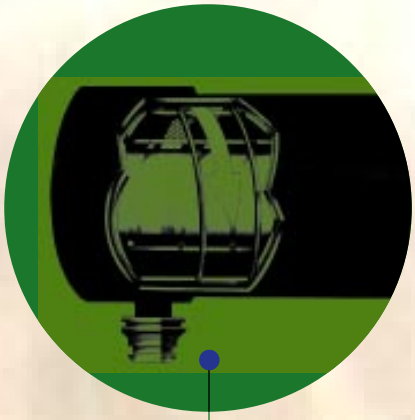
Its fully automated functions, managed by the Sentry system, put new productivity into your hands and free you from many time-consuming tasks. For example, Sabre can automatically acquire a selected wavelength and peak for maximum power without any user intervention. For single-frequency applications, cavity length is automatically adjusted



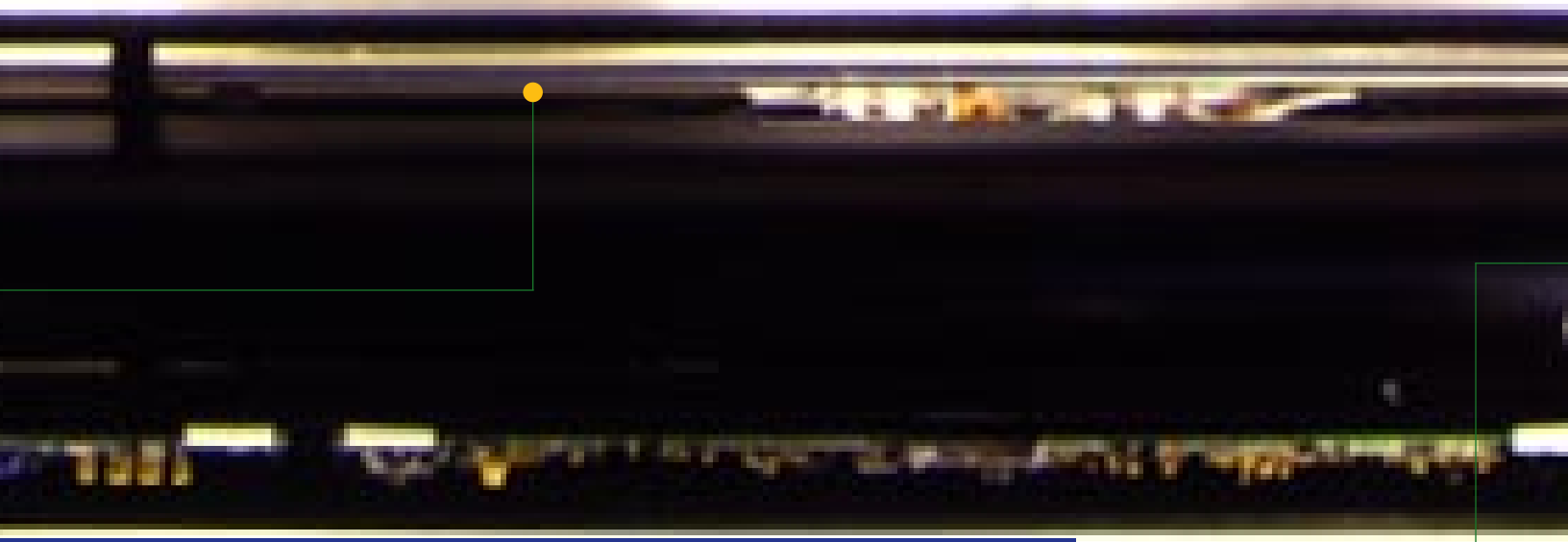
Series V Plasma Tube
Our exclusive tunable sealed-mirror technology and advanced optical coatings provide excellent beam quality and extended plasma tube lifetimes in single-line, multiline, or single-frequency operation.

SuperInvar Resonator
SuperInvar is ideal for a stable resonator structure and critical for single-frequency operation. The rods have high thermal mass, a low coefficient of expansion, and are expansion-matched for optimal cavity-length stability.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



Low-Noise Magnet
Sabre's tangential-flow cooling system minimizes vibration due to water turbulence. This significantly improves beam noise and reduces frequency jitter in single-frequency applications.



for no-waiting warm-up; 5 minutes is all it takes. Sabre automatically keeps the laser precisely aligned for maximum power, so trial-and-error tweaking is dramatically reduced. Sabre also automatically selects the proper aperture for TEM_{00} operation, eliminating the need for external beam diagnostics. Cooling-water is automatically regulated through the heat exchanger to ensure the longest lifetimes from our long-lived Series V plasma tubes. That's good news for reducing the cost of ownership.

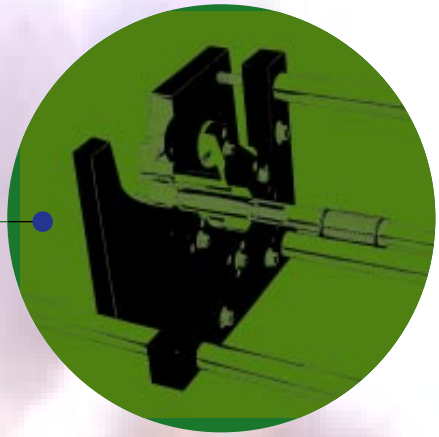
As you can see, we've gone to great lengths to make Sabre the easiest to use, highest performance ion laser in the industry.

Tunable Sealed-Mirror Tube
Our unique sealed-mirror technology and advanced optical coatings provide excellent beam quality and extended plasma tube lifetimes in single-line, multiline, or single-frequency operation.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

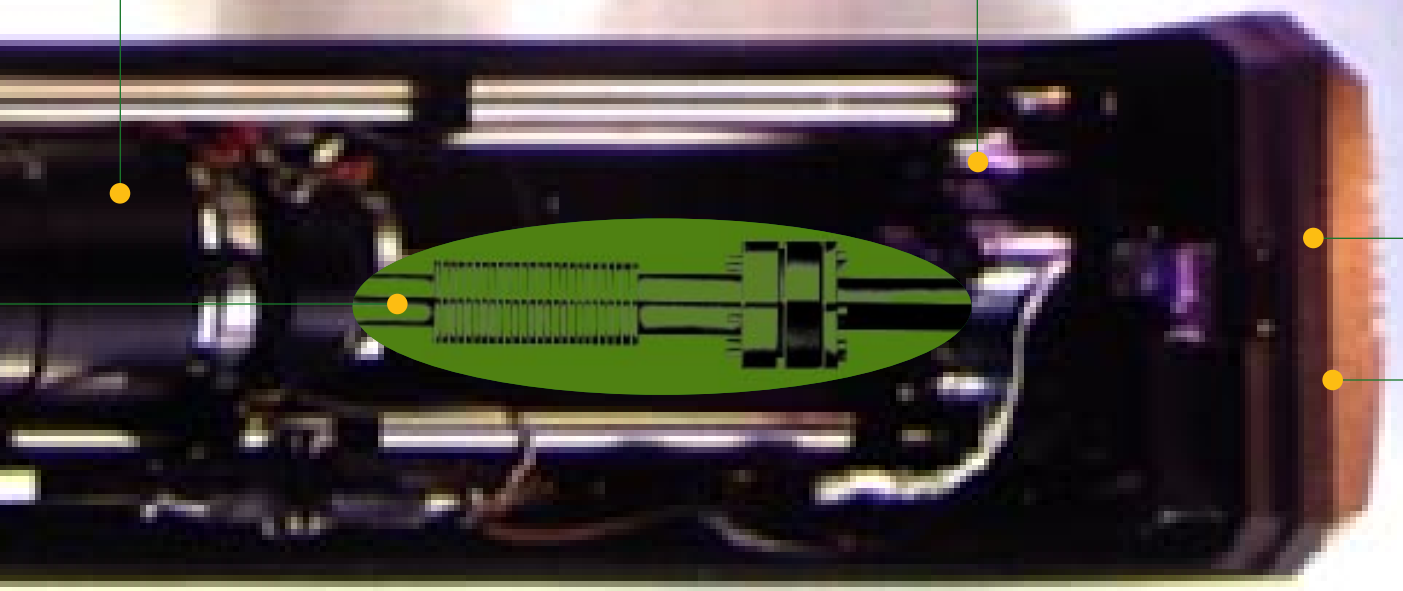
PowerTrack

With third-generation PowerTrack, four actuators automatically align the cavity, acquire optimal mode, and substantially reduce noise. This system maintains cavity length for faster warm-up and stable single-frequency operation.



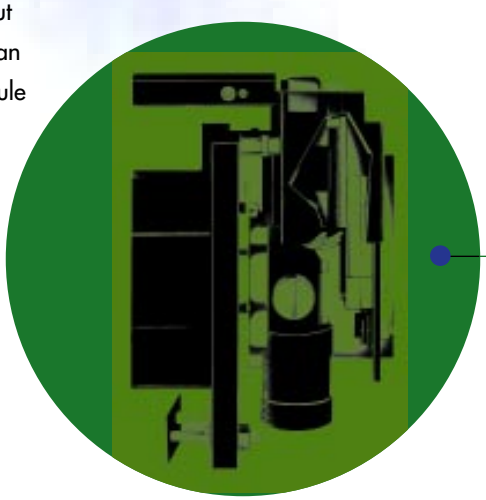
TEM_{00} Detector

By monitoring mode-beat noise, Sabre determines when higher-order transverse modes are eliminated and pure TEM_{00} mode operation is achieved.



External Shutter

Sabre's shutter safely blocks the output beam without interrupting lasing. It can be accessed through the remote module or be used as a component of your safety interlock system.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

New Productivity For Multiline Applications Is Now Within Easy Reach.

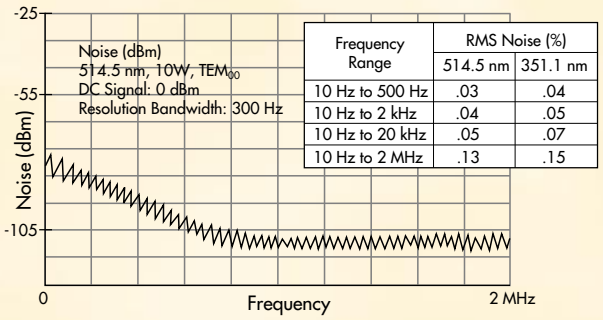
Sabre's automatic operation makes multiline and single-line set-up and control from the remote module fast and easy.

As a pump source for tunable lasers, Sabre provides excellent mode, steady output power, and rock-solid beam pointing, as well as extremely low optical noise. In fact, continuous wave and mode- locked tunable lasers, pumped by Sabre, demonstrate peak performance within minutes – performance that continues hour-after-hour with unwavering stability.

Pumping applications require both high performance and long plasma tube lifetimes. That is why Sabre offers the Innova Series V plasma tube in a tunable sealed-mirror configuration. It offers the longest plasma tube life available in any large-frame (10W-25W) ion laser, often exceeding 5,000 hours. The sealed-mirror replaces the anode window to enhance mode quality and reduce maintenance on the optics. Additionally, advanced optical coatings mean the output coupler never needs changing.

Single-Line Performance With Excellent Stability.

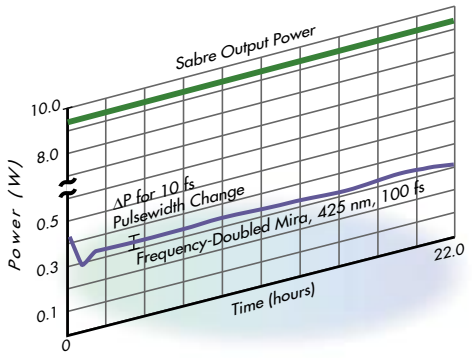
Applications such as laser-induced fluorescence, dye laser pumping, and semiconductor lithography require highly stable single-line operation. Sabre's SuperInvar resonator and temperature-compensated wavelength selector optimize all aspects of single-line performance.



Frequency Range	RMS Noise (%)	
	514.5 nm	351.1 nm
10 Hz to 500 Hz	.03	.04
10 Hz to 2 kHz	.04	.05
10 Hz to 20 kHz	.05	.07
10 Hz to 2 MHz	.13	.15

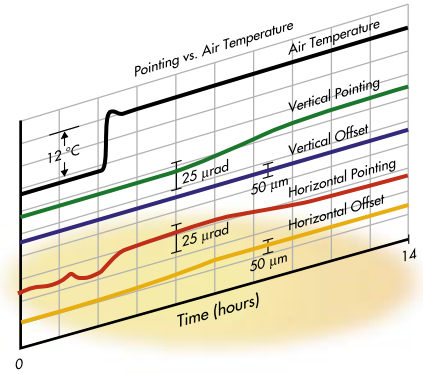
Low Noise

PowerTrack's ability to optimize cavity alignment reduces optical noise in the acoustic frequency range to a negligible level. Sabre's linear passbank, using C-MOS technology, minimizes noise up to several hundred kHz.



Mira™ Turn-on

Sabre provides an optimized pump beam with good mode and excellent beam-pointing and power stability. Restarted after being turned-off for 12 hours, a frequency-doubled Mira provides peak performance within minutes.



Stable Pointing

Changes in ambient air or cooling-water temperature can adversely affect beam position. Sabre's high thermal mass, low expansion coefficient resonator and integral heat exchanger reduce these effects to negligible levels.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



Sabre Pumping the Mira
Sabre's precision, bayonet-mount mirror holder allows quick changes between single-line and multiline operation. The motorized aperture provides full mode control, from setting individual apertures to automated TEM_{00} operation.

Changes in wavelength are easily accomplished by the push of a button on the remote control.



Changing wavelengths couldn't be any easier. Choose the desired wavelength and press the Select button.



Sabre takes the guesswork out of mode control. From the remote module, select TEM_{00}. Sabre automatically sets the appropriate intracavity aperture.

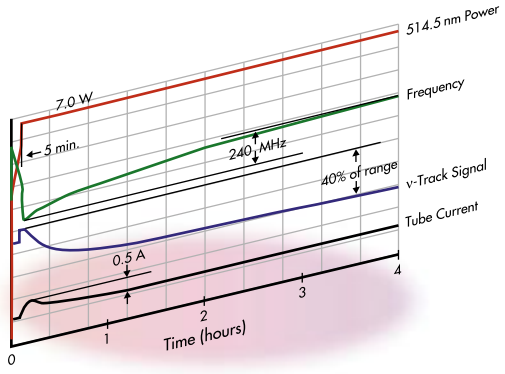
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Single-Frequency Made Quick And Easy.

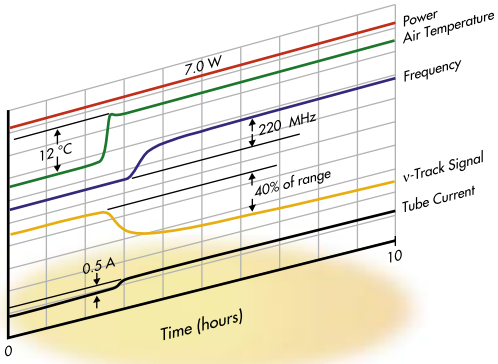
Single-frequency operation challenges the stability of a laser and, historically, the skills and patience of the user, more than any other mode of operation. With Coherent's Sentry system, however, Sabre easily handles the most demanding single-frequency applications in scientific research, in strumentation, and manufacturing.

Set-up and operation of Sabre, through the remote module or your computer, is a simple, repeatable process. ModeTune™ automatically sets the optimal etalon temperature to maximize output power. And ν-Track,™ Sabre's active cavity-length stabilization system, delivers ultrastable performance within minutes and minimizes any residual frequency drift. The result is exceptional short-term and long-term performance.

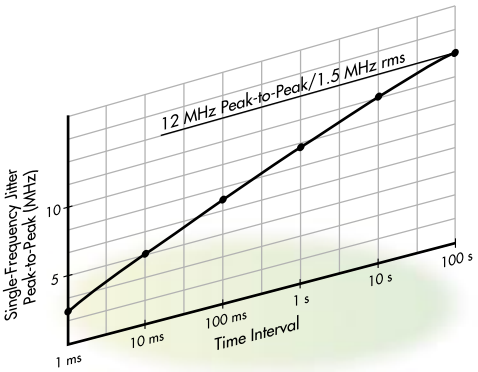
Long-term frequency stability (drift) in an ion laser is determined by temperature changes of the ambient air and cooling water. Short-term frequency stability (jitter) is determined by vibrations of the resonator, caused primarily by turbulence of the cooling water. Sabre's SuperInvar resonator, with its low coefficient of expansion and high thermal mass, significantly reduces and dampens the effect of ambient temperature changes. To minimize vibration induced by water-flow, special care was taken in the design and implementation of Sabre's new high efficiency, tangential-flow magnet. And ν-Track, by actively stabilizing the cavity length, assures fast warm-up to stable single-frequency operation.



Single-Frequency Warm-up
To maximize productivity in single-frequency applications, Sabre's Sentry system actively stabilizes cavity length, minimizing warm-up time.



Long-Term Frequency Stability
Changing environments can play havoc with lasers. But Sabre offers unmatched frequency stability whether the environment is a scientific laboratory or production floor.



Short-Term Frequency Stability
Short-term frequency jitter, caused primarily by cooling-water turbulence, has been reduced to negligible levels, using Sabre's tangential-flow water jacket.

Hologram by Dr. Hans I. Bjelkhagen of American Propylaea Corporation, and Dr. T.H. Jeong of Lake Forest College.

MasterCard is a registered trademark of MasterCard International, Inc.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

True-Color Holography
Sabre, with its excellent power and frequency stability, is ideally suited for single-frequency applications such as creating this true-color holographic image.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com



With the push of a button, Sabre's integrated CPU and powerful software make single-frequency set-up and operation easier and faster than ever before.

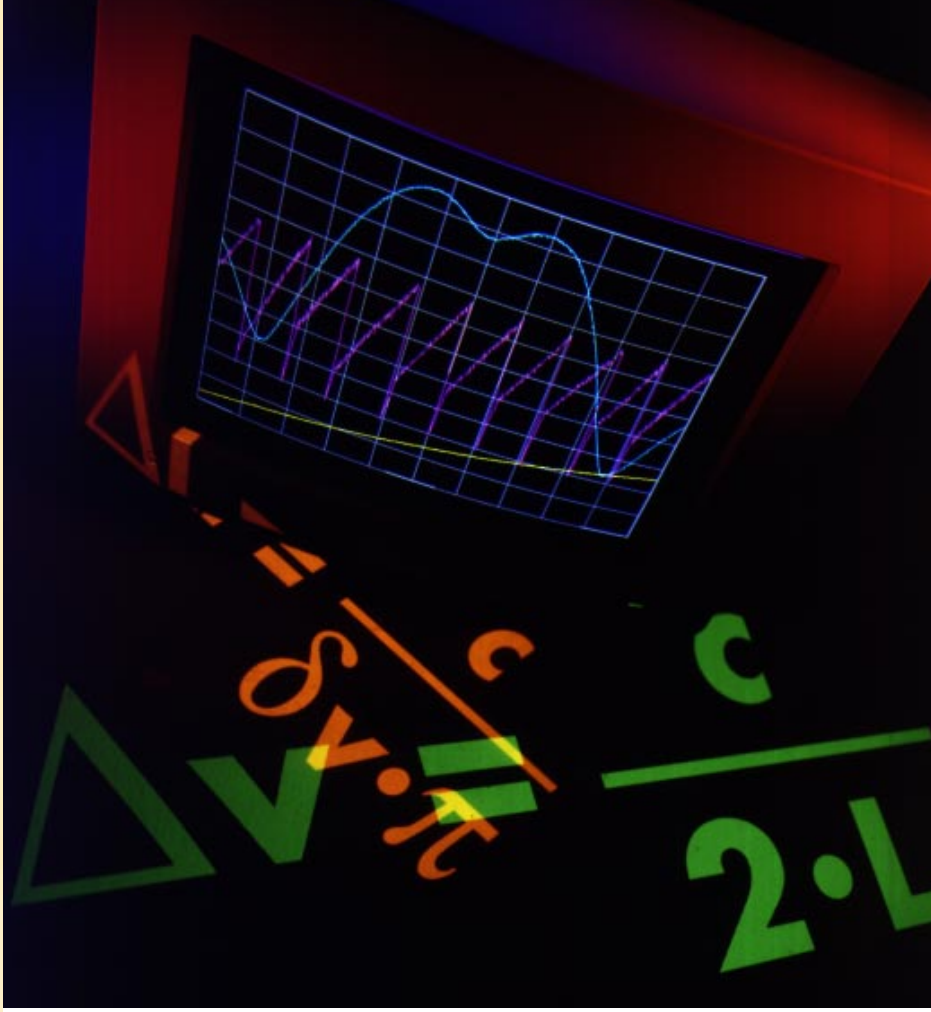
Sabre optimizes single-frequency operation. ModeTune automatically finds the optimum etalon temperature for maximum single-frequency power. And ν-Track provides fast warm-up and maintains cavity length to assure long-term stability.

If you wish to maintain an absolute frequency, Sabre can be locked to an external frequency reference.

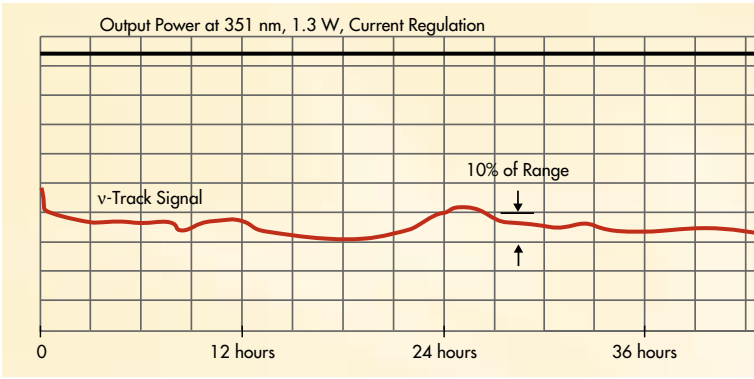
UV Performance You Can See

With Sabre's intelligent remote control, you can always see what you're doing in single-line or single-frequency UV operation. You can select each of the lines between 275 nm to 386 nm, and beconfident that Sabre will automatically handle set-up and run, flawlessly.

Now that the Innova Series V plasma tubes have tunable sealed-mirror technology, anode window degradation is a problem of the past. Sabre makes UV applications productive and reduces operating costs. And because UV lines are especially sensitive to cavity alignment, PowerTrack automatically keeps the mirrors perfectly aligned for maximum power, stability, and hands-off operation.



Ion Laser Gain
ModeTune finds the peak of the gain curve by scanning the etalon temperature while locking the cavity length to the etalon.



Single-Frequency UV Performance
Sabre provides excellent single-frequency performance, both in the visible and the ultraviolet. This 60-hour run at 351.1 nm in current regulation demonstrates power variations of <1%.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

The Power Of Sabre

A laser is only as good as its power supply. That's why, at Coherent, we put as much engineering excellence into our power supplies as our plasma tubes. Sabre's power supply uses advanced MOSFET technology for superb low-noise characteristics and high reliability. As you might expect, the compact power unit is controlled entirely from Sabre's remote module.

The power supply is a high quality, linear passbank unit that easily fits under an optical table. It is designed to comply with UL, IEC, and CDRH safety codes.

Fully Automatic Heat Exchanger

Sabre's compact self-contained heat exchanger provides high quality cooling water to the laser. All heat exchanger functions are automatic and controlled by the remote module. Flow rates, temperature, and resistivity are all displayed.

The heat exchanger controls water resistivity and hardness to prevent scale build-up, which can shorten tube lifetimes. It also prevents condensation and regulates a constant temperature to improve laser power and frequency stability of the output beam. And at day's end when Sabre is turned off, it is gradually cooled down by automatic water circulation for five minutes.

Sabre In Your Lab
Designed to be easy to use in all ways, Sabre's power supply and heat exchanger fit neatly under almost any optical table.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artetntg.com

Behind Every Sabre Is Coherent's Commitment To Responsive Service, Worldwide.

The secret of our reputation for outstanding service and support is our people. We have a dedicated group of well-trained technical specialists who can be reached by phone around the clock, around the year.

They're committed to delivering the best laser support in the world. For example, replacement plasma tubes are shipped within 48 hours of the order. Customers are encouraged to take advantage of our extended product warranties, appropriately called Productivity Plus.

We can provide every customer with on-site service and access to our application laboratories for "proof of principle" experiments and product demonstrations.

At Coherent, we know that your productivity is a measure of the success of your project. That's why we provide the responsive support and service you expect, worldwide. Because the industry's highest performance ion laser deserves the industry's highest level of support.

Coherent Innova Sabre. Leading edge performance. Automatically.

Coherent, Inc.
Laser Group
5100 Patrick Henry Drive
Santa Clara, CA 95054
Phone: 1-800-527-3786
1-408-764-4983
Fax: 1-800-362-1170
1-408-988-6838
E-mail: tech_sales@clg.com

Phone:
Japan (03) 3639 9811
Benelux (079) 621313
France (01) 6985 5145
Germany (06071) 9680
United Kingdom (0223) 424065

COHERENT

Copyright 1995. All rights reserved. MC-I021-95-15M0195

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP