

Laser refurbishment



JPSA Technician Anthony Frith works on a laser refurbishment project.

JPSA Laser offers full UV laser refurbishment services for UV Excimer lasers. Refurbishing lasers saves customers money, since the cost to replace sophisticated UV lasers can be quite high. Additionally, JPSA's refurbished lasers perform better than the product's original factory specifications through upgrades, modifications, and better quality parts and designs used in the refurbishment engineering process.

"We can refurbish the complete laser if needed," says Jeffrey P. Sercel, President. "Our

refurbishment includes everything that can go wrong with the laser, so the result is that the entire laser is like new. We also refurbish and replace modules such as tubes, valve banks, vacuum systems, pulse forming networks, and more. JPSA stocks many different types of electrodes and top quality parts. We have a cleanroom facility to assemble laser tubes and we have ceramics manufacturing capabilities to make replacement parts. "Turnaround time for laser systems can vary based upon the extent of the refurbishment and the number

of available in-stock parts. For example, tubes for some models are in stock for JIT tube exchanges. Refurbished lasers are leak-checked for 24 hours and burned in for 24 to 48 hours, over the course of a week in final test. A laser final test report is documented. Gas lifetime, power, energy and beam quality are verified.

JPSA builds UV laser systems and operates a laser job shop performing micro-machining operations and a variety of other applications in electronics packaging, medical, semiconductor, and other industries. As a result, according to Sercel, "Our in-depth knowledge of the excimer laser physics and production requirements needed to support our high-duty-cycle customers allows us to see the 'real world' results of our refurbishments. Our refurbished lasers consistently see as good or better than original factory specs." He adds, "We stock OEM parts and also make our own. We modify lasers to achieve better performance. JPSA has a strong laser engineering department that's staffed with experienced excimer laser engineers and scientists so we know how to design them; we're much more than a refurb facility."

Omron's object detection laser sensor

Omron Corp's photoelectric laser sensor provides advanced object detection, positioning and high-resolution sensing to production processes, where high precision and fast response times are vital.

The focal point and optical axis on the sensor head of the E3C-LDA can be easily adjusted for precise beam adjustment, which ensures easy set-up and very precise operation from a long distance.

Varying the focal point mechanism, the user can adjust beam diameter to suit the work-piece. This in turn improves the reliability of detection. Varying the axis alignment mechanism also enables users to adjust the direction of the beam fan to the mounting surface. This is suitable for accurate, long-distance positioning applications.

The laser sensor offers three separate laser beam types - spot beam, line beam and area

beam, with a detecting distance of up to 1,000mm. With this feature, the sensor can be located away from moving parts in a production process and still function with great precision.

Typical applications include object detection in the semiconductor industry, grease, adhesive and seal inspection, assembly oriented applications in the automotive industry, and sheet displacement inspection in the paper and packaging industries.

Technology: Optoelectronics

Nanocompasses and QD's

Nanosized versions of a magnetite compass needle have been built by Frank Osterloh, assoc. professor of chemistry at UC Davis and graduate student Jin Young Kim. Particles of magnetite (iron oxide) were strung on nanowires of lithium molybdenum selenide to create magnetic needles about 400nm long and 30 across. The structures are so small that they are effectively 1D. Because they are magnetic, they could be used in devices for measuring magnetic fields or for making patterns on surfaces, Osterloh said.

They are similar (although smaller) to structures created by some bacteria that use magnetic fields to orient themselves. Osterloh and Kim have used similar approaches to build 2D arrays of cadmium selenide nanoparticles, or 'quantum dots,' on surfaces. Arranging and stacking these in different ways changes their optical and light-emitting properties, Osterloh said. The arrays could be used as waveguides or lasers.

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Retrofit 40Gbps into 10Gbps

iolon Inc, manufacturer of tunable optical components, is chosen by StrataLight Communications as supplier of widely tunable lasers for StrataLight's OTS-4000 Optical Terminal Subsystem. iolon began delivering widely tunable lasers to StrataLight in December, '01. The current supply agreement extends to mid-'05. StrataLight's OTS-4000 is a 40 Gbps DWDM transport solution that enables carriers to retrofit 40Gbps signals into existing 10Gbps DWDM networks. iolon's widely tunable laser, with its tuning range of over 40nm, enables StrataLight's 40Gbps signals to be carried on any of 80 optical wavelengths providing carriers with a 40Gbps retrofit solution.