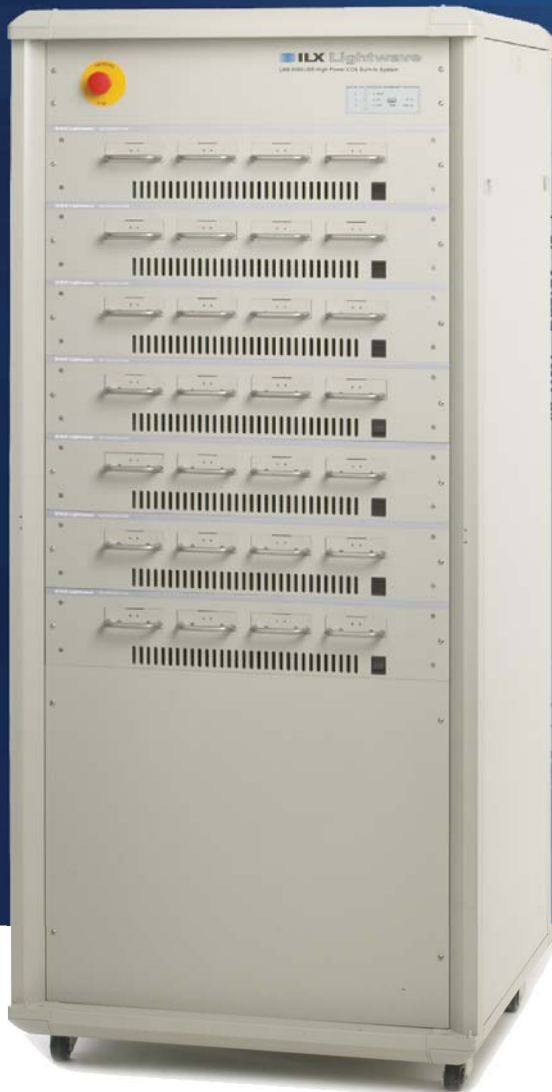


reliable

affordable

flexible

# HIGH POWER LRS-9550



## LASER DIODE LIFE-TEST AND BURN-IN SYSTEM

 **ILX Lightwave**  
Laser Diode Instrumentation & Test Systems

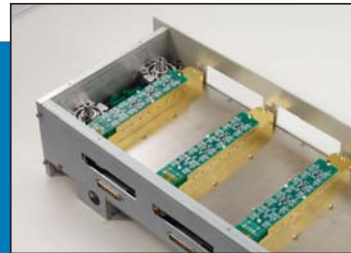
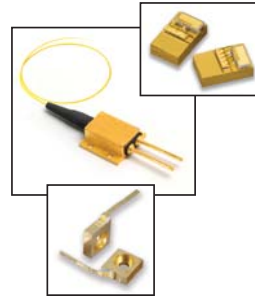
# LRS-9550

## High Power Laser Diode Life-Test and Burn-In System

Reduce your cost of test with the new LRS-9550 high power laser diode life-test and burn-in test system. With up to eight independent temperature controlled shelves supporting up to 512 high power devices per system, you will be able to run multiple independent tests, increase throughput, and lower your cost of test.

The LRS-9550's flexible design allows you to accommodate multiple package styles in the same system. The system supports ACC and LIV test modes with standard current ranges as high as 40 amps per device. Fixtures are individually temperature controlled to provide typical stabilities of better than 0.2°C from 25°C to 85°C.

The 9550's ReliaTest™ system control software enables you to get your tests up and running quickly. Multiple device types and test scenarios are easily configured without complicated programming. Careful attention to data management and fault mode handling ensures data integrity even through power black outs.



**Combine life-test, burn-in, and engineering evaluation into one cost effective platform with the LRS-9550**

## Life-Test

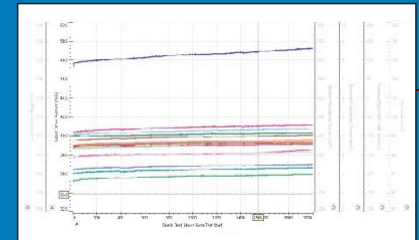
### Optical Measurement Stability of 0.2% Over 1,000 Hours Yields Accurate Aging Data

Based on proven ILX Lightwave precision laser control and measurement technology developed over the past twenty years, the LRS-9550 provides you with the long term system stability required to yield accurate and repeatable accelerated aging trend data for your devices. Improve your results with constant current (ACC) mode measurement stability of 0.2% over 1,000 hours, combined with continuous in-situ monitoring of laser voltage, and optical power throughout your life-test.

Circulating water and embedded fixture level TEC elements work together to offer you precise thermal control of your devices throughout a long-term life-test. Careful design and laser protection circuitry allow series connection of eight lasers to achieve high density and low cost. Parallel laser connection is also available when maximum channel isolation is required. Shelf level integrating sphere arrays are heat sunk to the cold plates and thermally controlled for highest stability.

The LRS-9550 system includes ILX Lightwave's ReliaTest™ software to quickly configure and run multiple device test scenarios without complicated programming. Get powerful data logging, data back up, and data review features for multiple, simultaneous tests. ReliaTest's fault handling ensures that valuable life-test data is preserved even through power black outs, brown outs, and control computer shutdowns.

Save, view, and



Long Term Aging Trend

## Burn-In

### Up to 512 Devices Per Rack and Excellent Reliability Lower Your Production Burn-In Cost

The LRS-9550 system's ACC mode series configured burn-in fixtures, combined with the highest quality materials selection and mechanical design offer you the low cost per channel and high reliability required to succeed in today's competitive high power laser diode market. Multiple levels of laser diode protection including transient suppression circuitry, normally closed shorting relays to protect lasers during power startup and power shutdown, and current/voltage limits ensure that your devices move safely through the burn-in screening process. Additionally, monitoring circuitry ensures that power systems have stabilized before current is supplied to the devices under test.

Pneumatic clamping makes device loading and unloading fast and simple. Through a proprietary cold plate design that incorporates high velocity turbulent flow through parallel mini-channels, shelf level cold plates remove up to 2600 W of heat per shelf, 20 KW per system. Fixture device thermal interfaces are nickel plated and offer high flatness for minimum thermal impedance.

The system's modular design allows you to expand in the future to accommodate more devices and multiple package styles. Servicing and calibration are made easy through rear mounted electronics and modular power supplies. Comprehensive burn-in fault monitoring includes LD open, short, temperature limit, leak, flow, and other functions critical to production environments.

## Engineering Evaluation

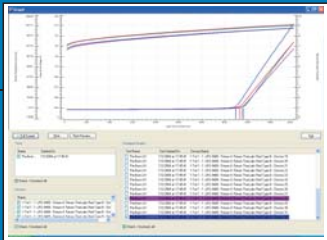
### Multiple Simultaneous Tests and Temperatures Provide Flexible Device R&D

The LRS-9550 has been designed from the ground up to give you the flexibility and accuracy required to analyze high power laser diode device performance over a wide range of operating conditions. Run LIV tests at single or multiple temperatures, determine device operating parameters such as Pop @ Iop and Vop @ Iop, and perform aging tests at multiple temperatures to determine activation energy.

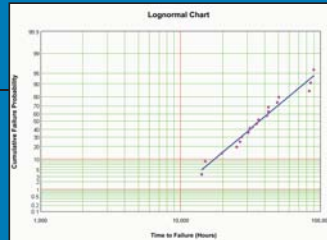
Use the powerful ReliaTest™ software to log and analyze data, or export your test data in CSV format for analysis with other software. The 9550's Windows® based system control software is designed to provide at-a-glance device status monitoring, active alarms, and event messaging, allowing you to easily monitor your tests in progress.

The shelf based modular design of the LRS-9550 lets you run multiple simultaneous tests on different package styles at different power and temperature levels. Characterize your devices over a temperature range of 25°C to 85°C. With the 9550, you can combine engineering evaluation, production burn-in, and long-term life-tests into one cost effective platform.

## graph data with our powerful ReliaTest™ software



In-Situ LIV



Cumulative Failure Probability

# Why Choose ILX Lightwave?

## Experience.

For twenty five years, ILX Lightwave has been a pioneer in laser diode instrumentation and test systems, starting with the industry's first precision laser diode current source in 1986. Since then, we have continued to grow and evolve with the expanding photonic industry, building a tradition of innovation, quality, and customer service.

## Quality.

ILX Lightwave has maintained ISO 9000 certification since 2001. Strong internal systems for problem identification and resolution have resulted in continuous improvement of our products and services. We believe that quality is not just something you build into a product; it's something you build into everything you do.

## Commitment.

ILX Lightwave's mission is to be the world leader in laser diode instrumentation and test systems. The company's Laser Diode Test Systems group is led by the President to ensure high focus.

## After Sales Support.

ILX understands the need for fast, technically accurate responses to all support requests. In addition to customer service engineers, our test system customers have direct access to ILX Lightwave application and design engineers to ensure the highest level of technical support.

# LRS-9550 Specifications

## System

|                 |     |
|-----------------|-----|
| System Capacity |     |
| 10A per device  | 512 |
| 20A per device  | 256 |

## Temperature Control

|                                   |                                                    |
|-----------------------------------|----------------------------------------------------|
| Control Type                      | TEC and circulating water with digital PID control |
| Temperature Range <sup>2</sup> °C | 25 - 85                                            |
| Multiple Temp Control             | Each shelf independent                             |
| Temperature Accuracy °C           | +/- 2.0                                            |

## Laser Control

|                        |       |          |            |
|------------------------|-------|----------|------------|
| Laser Drive Current    |       |          |            |
| Range                  | A     | 0 - 10   | 0 - 20     |
| Setpoint Accuracy      | A     | ± 0.05   | ± 0.05     |
| Stability <sup>1</sup> | of FS | ±500 ppm | ± 1000 ppm |
| Compliance Voltage     | V     | 2.5      | 2.5        |
| Control Modes          |       | ACC, LIV |            |
| Transients             |       |          |            |
| Operational            |       | <40 mA   |            |
| 1kV EFT, Surge         |       | <80 mA   |            |

## Measurement Functions

|                        |    |                             |
|------------------------|----|-----------------------------|
| Laser Voltage          |    |                             |
| Range                  | V  | 0 - 5                       |
| Accuracy               | V  | +/- 0.05                    |
| Optical Power          |    |                             |
| Detector Types         |    | Si based integrating sphere |
| Wavelength Range       | nm | 800 - 1000                  |
| Measurement Range      | W  | 0 - 20                      |
| Accuracy               |    | +/- 20%                     |
| Stability <sup>1</sup> |    | +/- 0.1% of Full Scale      |

## Laser Test Fixtures

|                        |                                       |
|------------------------|---------------------------------------|
| Devices per Fixture    |                                       |
| 10A per device         | 16                                    |
| 20A per device         | 8                                     |
| Fixtures per Shelf     | 4                                     |
| Device Types Supported | C-Block, CDC,<br>Customer Proprietary |

## System Control Computer and Supervisory Software

|                                     |                                                                                                                    |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Computer                            | Dell® Optiplex, > 2.7 GHz Pentium® Dual Core processor, 2.0 GB ram, 160 GB hard drive, CD-ROM, Ethernet interface, |
| Display                             | 17" Dell® Ultrasharp flat panel                                                                                    |
| Power Requirements, Computer        | 115/230VAC, 50/60 Hz, single phase, 6/3A autosensing > 5 minutes                                                   |
| Battery Backup Operating System     | Microsoft Windows XP Pro®                                                                                          |
| System Control Software Source Code | ReliaTest™<br>C# source code provided with system                                                                  |

## General

|                            |                                                                        |
|----------------------------|------------------------------------------------------------------------|
| Size (HxWxD) cm            | 190 x 80 x 80                                                          |
| Power Requirements         | 200-240 VAC, 50/60 Hz, three phase; 350-420 VAC, 50/60 Hz, three phase |
| Facility Water Requirement | >6 GPM at 10°C to 25°C                                                 |
| Facility Air Requirement   | 100 - 150 PSI                                                          |

### Notes

1. Stability measured over 1000 hours.
2. Temperature control range depends on total power dissipated on the fixture and facility water temperature.

In keeping with our commitment of continuing product improvement, ILX Lightwave reserves the right to change specifications without notice and without liability for such changes.