



light engines for a
BRIGHTER. GREENER. PLANET.

LUMENCOR LIGHT ENGINES: A SMART ALTERNATIVE TO ANY LAMP

Light Engines Feature Best-In-Show

1. Performance
2. Value
3. Sustainable, clean, green technology

Mercury Arc Lamps Are:

- Hazardous
- Inefficient
- Costly and time consuming to maintain
- Unreliable
- Not directly computer controllable

Are you still using traditional lamps for your microscope needs? Do you want something brighter and more stable that avoids the use of mercury and consumes less power? Lumencor light engines offer a more stable, often brighter, mercury-free alternative to the old metal halide bulbs and mercury lamps.



1. PERFORMANCE

When running a busy lab you don't have time for light source failures and maintenance. Foremost, users look for reliability and consistency of performance. Lumencor light engines offer dependable performance -essentially no maintenance- and robust optical output.

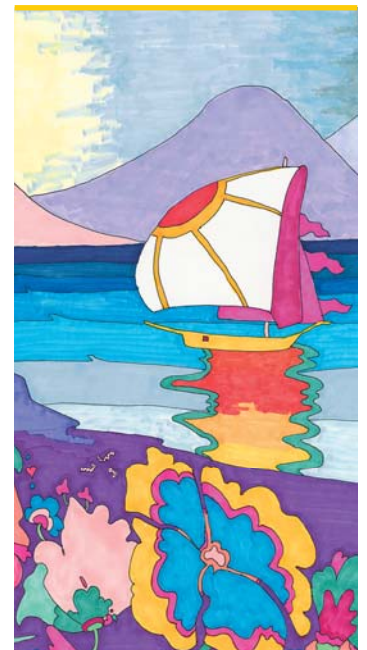
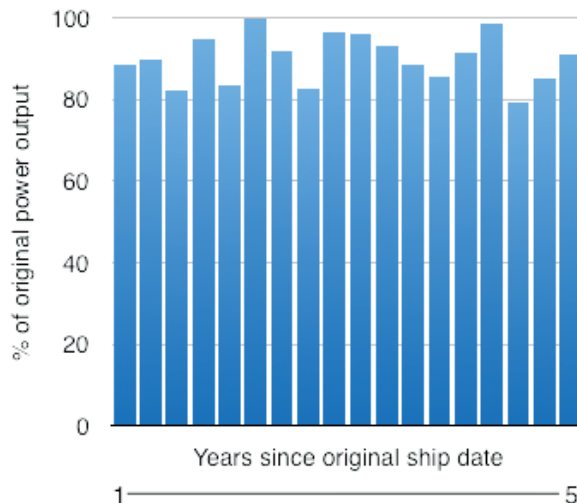


INTERNATIONAL
YEAR OF LIGHT
2015

SPECTRA X Light Engines

YEAR TO YEAR PERFORMANCE

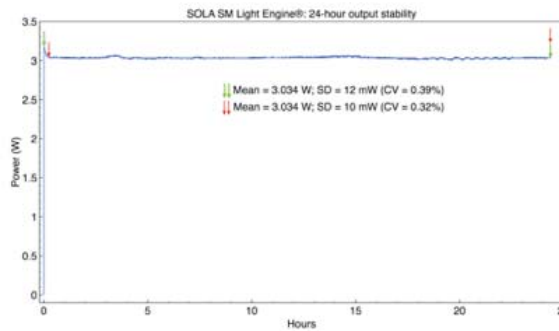
When a light engine is returned to our facility for upgrades or other service, we routinely remeasure its power output and issue a new certificate of conformance to the customer. The chart here shows remeasured total output power for 18 SPECTRA X light engines expressed as a percentage of the values recorded at the time of original ship date. In all cases, the remeasured output easily exceeds the 70% of the original level that the light engine is designed to maintain during its operational lifetime.



SOLA SM Light Engines

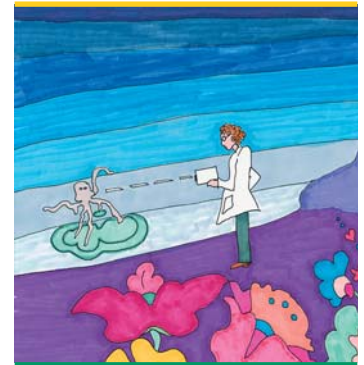
HOUR TO HOUR PERFORMANCE

The SOLA SM light engine is designed for applications where rapid on/off switching and output intensity control are not required. Output stability is critically important for consistency of data acquired during long periods of continuous operation. The plot below shows the total white light power output of a SOLA SM light engine, delivered through a 3 mm liquid light guide and measured by a thermopile detector, over 24 hours of continuous operation. The approximately 5% output power decrease in the first 12 minutes of operation (between the first green and red arrow marks) is due to thermal equilibration of the SOLA SM's five solid state light sources. Thereafter, output variations are on the order of +/-10 mW (coefficient of variance = 0.32%). Obtaining such a consistent unified output from five solid-state light sources operating in tandem requires meticulous engineering, a hallmark of all Lumencor light engines.



“Approximately one gram of mercury, the amount in a single fever thermometer, is deposited to a 20-acre lake each year from the atmosphere. This small amount, over time, can contaminate the fish in that lake.”

Source: Interstate Mercury Education and Reduction Clearinghouse (IMERC)



2. PRICE

COST OF OPERATION

the light engine is **LEAST EXPENSIVE**

Statistic	Mercury Arc Lamp	Metal Halide Lamp	Light Engine
REPLACEMENT BULBS	150	15	0
TOTAL BULB COSTS	\$22,500	\$10,500	\$0
TOTAL ENERGY COSTS (\$0.05/KWH)	\$1,600	\$1,600	\$50
TOTAL DISPOSAL COSTS (\$5/BULB)	\$750	\$75	\$0
TOTAL MANAGEMENT COSTS (15MIN @ \$10/H)	\$375	\$38	\$0
COST OF OPERATION	\$25,225	\$12,213	\$50

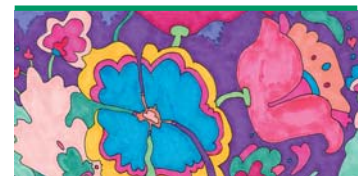
Calculations demonstrate that a single light engine lifetime can replace 15-150 mercury containing bulbs. We assume the mercury arc lamp is ignited but idle during half the time it is ON. The light engine eliminates all potential mercury hazards associated with the use of lamps on scientific equipment while providing superior performance, high data quality and significant cost savings over the time of ownership.

3. CLEAN GREEN TECHNOLOGY

MERCURY LEVELS OF BULBS V. LIGHT ENGINE

only the light engine is **MERCURY FREE**

Statistic	Mercury Arc Lamp	Metal Halide Lamp	Light Engine
BULBS	150	15	0
MERCURY/BULB (G)	0.11	0.34	0
MERCURY EMISSIONS FROM COAL (G), (0.023MG/KWH)	0.74	0.74	0
TOTAL MERCURY (G)	127	16.1	0



Please visit lumencor.com for more information about Lumencor products and applications.



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