Transforming Fly Control with LED UVA Technology

Ensystex has announced an exclusive partnership with LG Lekin to further develop its LED diodes for fly control. LG is a globally recognised leader in electronics, and the LG Lekin super-conductor division is at the forefront of LED diode technology. Of its portfolio of more than 1200 LED patents, many focus on heat dissipation – a critical factor influencing the performance and service life of LED lamps.

The partnership has seen the launch of the new Astron 9 W LED 15R-HF lamp, the world's first LED replacement lamp that can be retrofitted into existing fluorescent UV-A fly control units. The Astron 15R-HF converts any fluorescent unit that uses 15 W lamps into a high-efficiency, energy-saving LED model without rewiring. Installation is as simple as a routine lamp replacement. The lamp also rotates through 360°, ensuring correct orientation in all models.

The new Astron LED lamps utilise the latest LG technology to overcome some of the shortcomings of traditional LED lamps – UVA output and light distribution.

“Most LED diodes convert less than 80% of the electrical energy input into light, with the remainder dissipated as heat. Of the light produced, only a small proportion is emitted in the UVA spectrum,” said Ensystex regional director **Steve Broadbent**.

“LED fly control lamps are often considered less effective than traditional fluorescent lamps. A key reason for this is that most LED lamps do not produce sufficient UVA radiant output. For example, a high-performance 15 W fluorescent lamp produces 3-4 W of UVA radiant output, a level that most LED UVA lamps have historically failed to achieve.

“When selecting lamps for fly control, total electrical power input is irrelevant; the critical parameter is UVA light output,” he explained. “The LED diodes used in Ensystex’s Astron LED lamps convert more than 98% of the electrical energy input into light, with the 9 W 15R-HF lamp producing 5 W of UVA radiant output. This represents a 60% improvement over most LED fly control lamps currently available.”

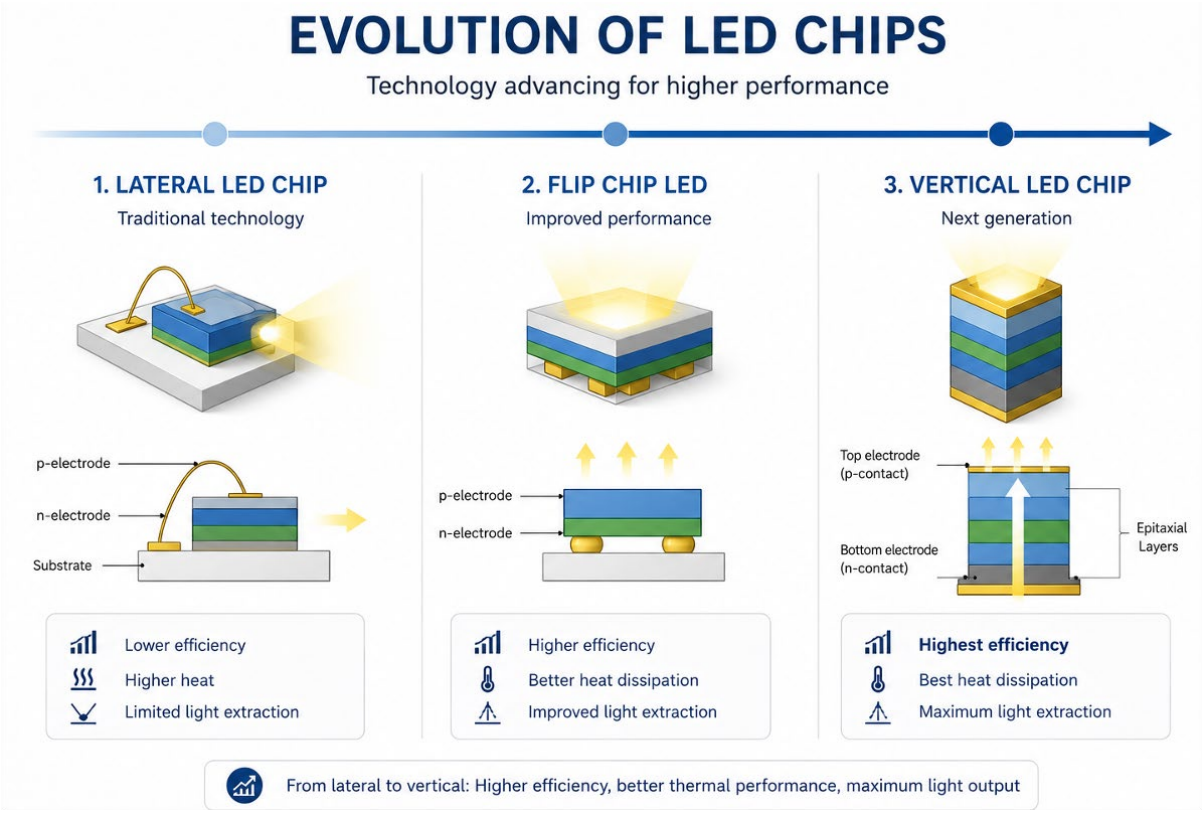
Mr Broadbent noted that light distribution is another important factor in the performance of fly units. Fluorescent lamps emit light uniformly over the entire surface of the tube, whereas LEDs are inherently point sources. Consequently, a conventional LED lamp typically appears as a series of individual points of light. Ensystex Astron lamps incorporate an exclusive German-developed diffuser that distributes light uniformly across the entire lamp surface, closely replicating the emission profile of a fluorescent lamp. A proprietary pulse algorithm generates a regulated flicker that is detectable by flies but imperceptible to humans, further enhancing attraction.

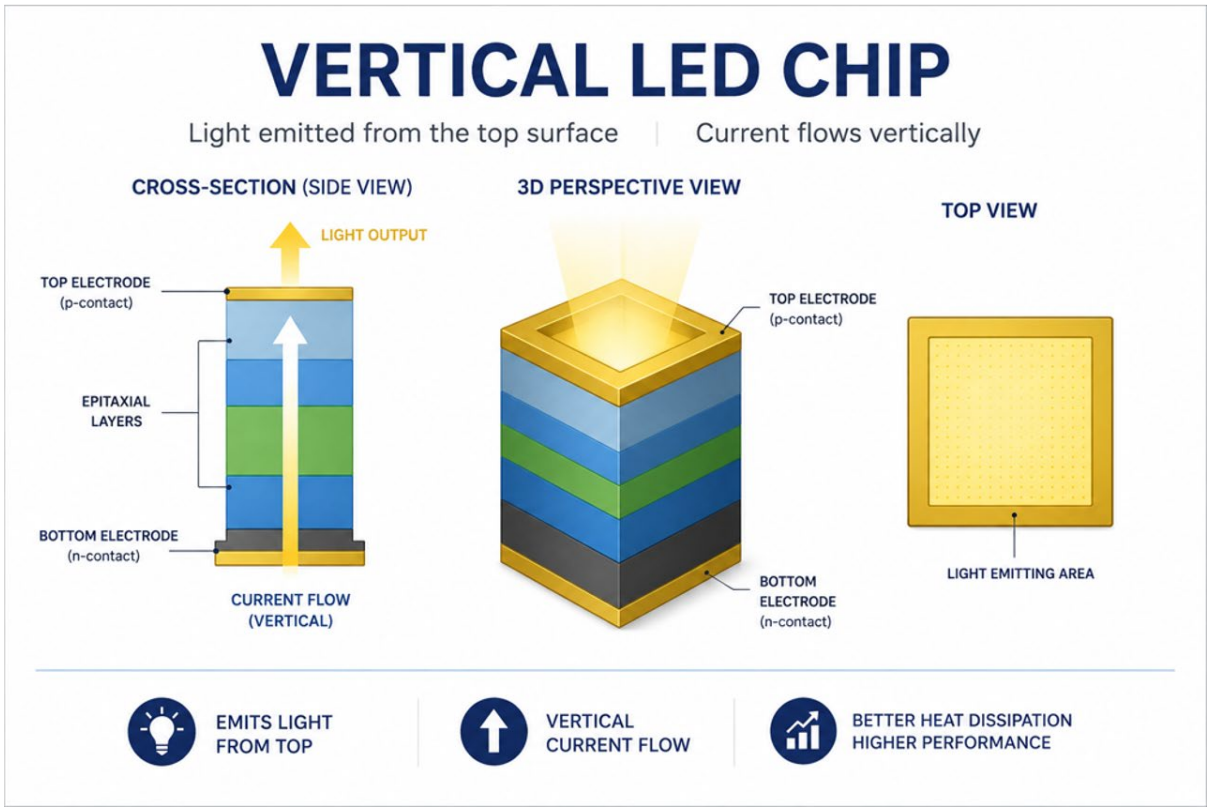
These technologies are combined with precision-engineered Japanese lenses that maximise optical efficiency, leading to high levels of fly attraction. Ensystex has it own laboratory dedicated to checking and comparing the performance of our Astron lamps to benchmark against other lamps and further enhance our lamps’ performance. This is supported by a similar facility operated by LG Lekin focused on the LED Diode performance.

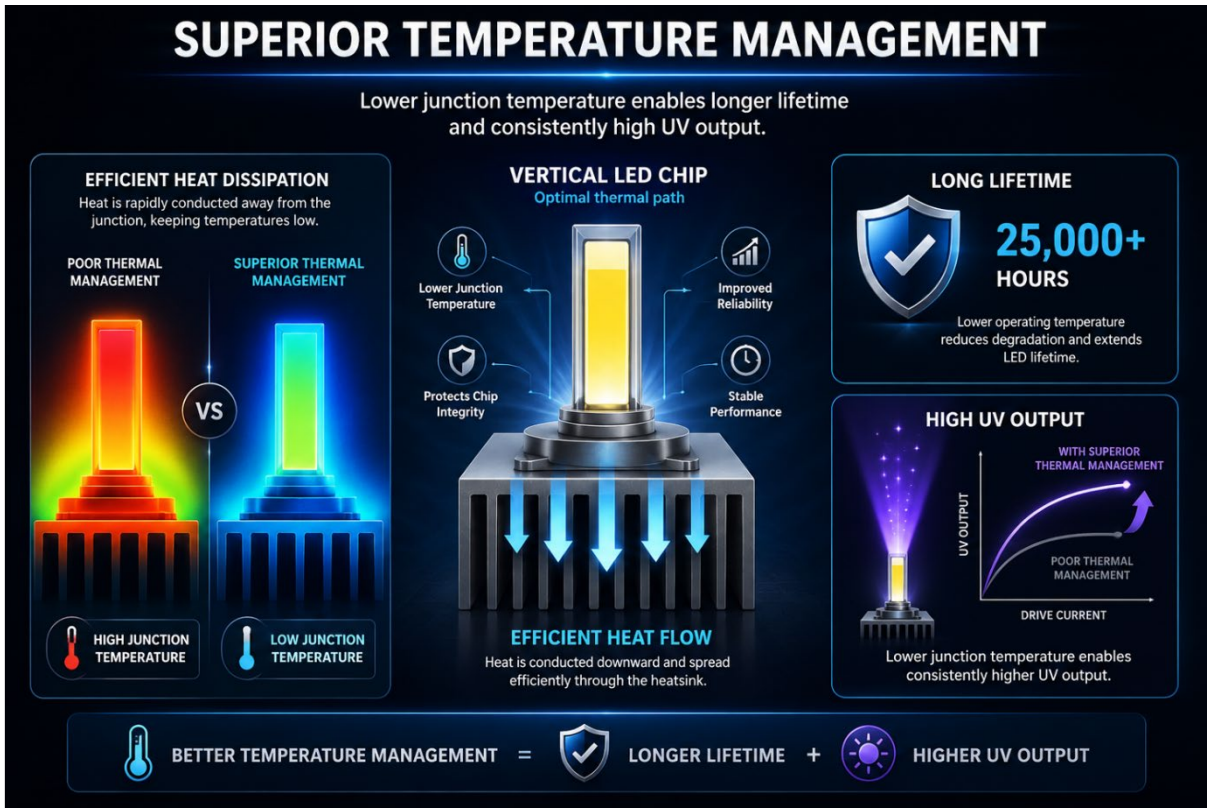
Astron LED lamps have a service life of three years, compared with one year for fluorescent lamps, reducing maintenance requirements and the volume of lamps sent to landfill. The next generation of Astron LED lamps, currently in development, is expected to extend this service life to four years.

“LED technology represents the future of fly control lighting, and Ensystex is committed to advancing its development to deliver lower energy consumption, reduced operating costs, and longer lamp life,” concluded Mr Broadbent.

END




VERTICAL LED CHIP
Light emitted from the top surface
Current flows vertically
CROSS-SECTION (SIDE VIEW)
LIGHT OUTPUT
TOP ELECTRODE
(p-contact)
EPITAXIAL
LAYERS
BOTTOM ELECTRODE
(n-contact)
CURRENT FLOW
(VERTICAL)
3D PERSPECTIVE VIEW
TOP ELECTRODE
(p-contact)
BOTTOM
ELECTRODE
(n-contact)
TOP VIEW
LIGHT EMITTING AREA
EMITS LIGHT
FROM TOP
VERTICAL
CURRENT FLOW
BETTER HEAT DISSIPATION
HIGHER PERFORMANCE


SUPERIOR TEMPERATURE MANAGEMENT
Lower junction temperature enables longer lifetime
and consistently high UV output.
EFFICIENT HEAT DISSIPATION
Heat is rapidly conducted away from the
junction, keeping temperatures low.
POOR THERMAL
MANAGEMENT
SUPERIOR THERMAL
MANAGEMENT
VS
HIGH JUNCTION
TEMPERATURE
LOW JUNCTION
TEMPERATURE
VERTICAL LED CHIP
Optimal thermal path
Lower Junction
Temperature
Improved
Reliability
Protects Chip
Integrity
Stable
Performance
EFFICIENT HEAT FLOW
Heat is conducted downward and spread
efficiently through the heatsink.
LONG LIFETIME
25,000+
HOURS
Lower operating temperature
reduces degradation and extends
LED lifetime.
HIGH UV OUTPUT
WITH SUPERIOR
THERMAL MANAGEMENT
UV OUTPUT
POOR THERMAL
MANAGEMENT
DRIVE CURRENT
Lower junction temperature enables
consistently higher UV output.
BETTER TEMPERATURE MANAGEMENT
=
LONGER LIFETIME
+
HIGHER UV OUTPUT

SUPERIOR PERFORMANCE

High UV-A Output & Precise Wavelength Emittance

HIGH UV-A OUTPUT

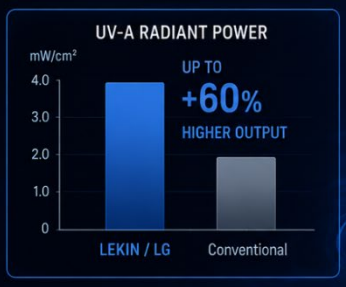
Powerful radiant intensity for maximum attraction

PRECISE WAVELENGTH EMITTANCE

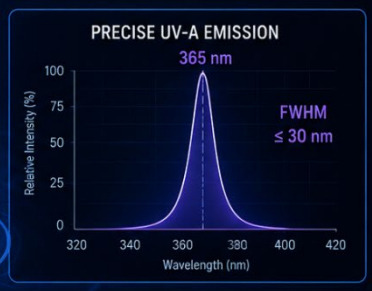
Narrow spectral emission centered at 365 nm for consistent performance



365 nm
UV-A
Optimal for Insect Attraction



* Compared to typical conventional UV-A LEDs.



STRONGER ATTRACTION

Higher UV-A intensity increases capture rates

CONSISTENT RESULTS

Stable output and wavelength for reliable performance

LONG OPERATIONAL LIFE

Advanced thermal management maintains performance over time

ENERGY EFFICIENT

High output with low power consumption