

High Mass & Street Lights

Industrial Lighting

Introducing Driver-Less LED Lights

BINAY resolves the problem of LED driver failure by eliminating the LED driver itself, with the use of our revolutionary Driver-Less Microgrid Technology for LED lighting

Commercial Lighting

Common Area Lighting

Hospital Lighting

Retail Lighting

Underground Lighting



Lower Cost



Greater Reliability



Increased Safety



Solar Power compatibility



5 Years warranty

key ADVANTAGES

- Works on existing cabling/wiring systems; no modification required to existing wiring
- Very low per-light cost at extremely high reliability (up to 300,000 hours MTBF)
- Multiple Redundancy of power to lights
- **TOUCH-FREE WARRANTY** - No maintenance required at LED light location points; any maintenance (if ever needed) at easily accessible ground-level locations

- No electrolytic capacitors used in LED lights
- Fire-Safe and Electric Shock-Safe
- Up to 20KV Surge Protection
- Hot-Swappable maintainability
- **BINAY AutoLux™** provides easy Daylight Harvesting
- **BINAY Lux Degradation Compensator** automatically compensates for normal LED light degradation over time

- Up to 95% Efficiency, with no THD or EMI issues in power lines
- **Easy Dimming to very low levels (<2%)**
- Uninterrupted Light Supply (even in case of power failure)
- Easy, cheap, and efficient upgradation to solar powered operation

TRIED AND TESTED TECHNOLOGY

Successful operational installations (over the last 10 years) in industrial plants, nuclear facilities, hospitals, 5-star hotels and several other applications

With so many advantages to the BINAY Driver-Less solution, it is costly to NOT implement this technology!



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BINAY – PROVIDING LED POWERED TECHNOLOGIES SINCE 1983

BINAY
DRIVER-LESS Modulated Injected-PLCDC Nanogrid Technology LED lighting
For high reliability In LED Lighting/Illumination Applications

BINAY's DRIVER-LESS LED Lighting provides high-reliability operation, with a 'TOUCH-FREE' Warranty of up to 5 years

BINAY DRIVER-LESS LED Lighting uses our Injected-PLCDC Modulated Injected-PLCDC Nanogrid Technology to do away with the use of LED Drivers.

While we also manufacture 230VAC driver type LED lights, with this technology, we eliminate the failure-prone LED Driver from our LED products. **This eliminates the need for any maintenance at the points of installation (where the lights are located).**

This technology has now been proven over the last several years, with several installations at various industrial and commercial organisations, such as CESC Ltd., several departments at Nuclear Fuel Complex Hyderabad, BARC Trombay, BARC Kalapakkam, IGCAR Kalapkkam, GAIL India, as well as other organisations such as Ambuja Neotia (Swissotel, Altair, and others), GKB Ltd. (Gurgaon), O2 Hotel (Calcutta), and many others.



The one major problem with LED lights of all makes is the reliability of the associated Driver circuitry in the LED light. This is an inherent problem of the current state of the technology itself, since while LEDs are rated for a life of 50,000 hours, 70,000 hours (and even 100,000 hours to L₇₀ output), the associated Driver circuitry to match such life levels has not been developed globally.

At BINAY, we have solved this problem by eliminating the Driver itself with the use of our revolutionary new DRIVER-LESS Injected-PLCDC Nanogrid Technology for PowerLED Lighting. We suggest the same for use in projects in view of the several major advantages it offers; moreover, **the system can be used on existing installations (by isolating the electrical loop of the lighting at the distribution box level).**

This is a tried and tested technology, which we have used to provide maintenance-free long-life to Swissotel Calcutta more than 9 years ago. We have since also installed the same at CESC Ltd. for use in their substations (at Cossipore Substation, Botanical Gardens Substation, and East Calcutta Substation); by the Belani Group for use at their new Woodburn Mall, Calcutta; by Ambuja Realty in their new Altair Hotel at EcoCenter, Salt Lake, Calcutta and for application in their other projects; by Brahmanand Hospital, Jamshedpur for their hospital revamp project; as well as several others. Industrial installations of our LED lights with Injected-PLCDC Technology have been done by us at Bhabha Atomic Research Centre (Trombay), Indira Gandhi Centre for Atomic Research (Kalapakkam, Tamil Nadu), Nuclear Fuel Complex (Hyderabad), GKB Opticals (Haryana), apart from several commercial and residential installations.

We are herewith attaching a short presentation of a Case Study for a project based on our PowerLED lighting commissioned with our Injected-PLCDC technology at the CESC Cossipore Substation. After the successful implementation of the above project, similar installations have been done by us at the CESC Botanical Gardens substation, and also at their East Calcutta Substation. Other installations with our LED lights based on Driver-Less Injected-PLCDC Nanogrid Technology have been done at various sites of Bhabha Atomic Research Centre countrywide.

Modulated PLCDC Nanogrid Technology provides several major advantages such as:

- 1) Increased Reliability by the elimination of failure-prone individual electronic drivers – a very big advantage when using LED lights, giving the end-user the benefit of a genuine 5-year 'touch-free' (i.e., No-Replacement) warranty.



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- 2) One of the major advantages is that the Modulated Injected-PLCDC System *isolates* the solid-state passive reliability of the LEDs (mounted in relatively inaccessible locations such as roofs and ceilings) from the active electronics (which can be mounted at a local and accessible level, offering easy maintenance access if ever required).
- 3) **Fire Safe**, as the chances of sparking (which causes fire risk) are virtually NIL at low SELV voltage ratings, and hence ideal for application at hazardous locations.
- 4) Electrocutation Safe – SELV classified operation.
- 5) Easy and cheap AUTOMATIC Dimming at night to as low as 2% with the optional implementation of a dimming facility and/or Intelligent Lighting protocols (as all Intelligence is electronic, and hence needs low voltage DC). **This enhances the power saving drastically, as major power reductions can be made automatically during night-time.**
- 6) Capital cost savings.
- 7) Localised Injected-PLCDC Bus ensures freedom from PFC and THD problems.
- 8) Easy Power Backup capability; in case of power failure, emergency backup is easily provided by a floating battery.
- 9) Low-cost redundancy – Redundancy with auxiliary power modules (while at the same time allowing cost saving).
- 10) Easy Implementation of Intelligent lighting (as entire Intelligence is electronic, hence needs low voltage Modulated DC).
- 11) **Easy and cheap upgradeability to solar-powered operation (either now or in the future without any changes to existing installation; A localised Low-Voltage DC Bus is a readymade solution for installing solar power at any point of time later, without any extra upgrade costs).** This technology thus optimizes the use of solar power, **by eliminating wastage in up-conversion and down-conversion** of voltage levels in the inverter pack and the LED driver. This enables the use of fewer solar panels, thus reducing the net cost of the solar project.
- 12) **Can be designed to be retrofittable to standard driver type LED fitting at any time.**
- 13) IOT (Internet of Things) compatible.

Particularly in offices and warehouses (both new and existing), this technology can be combined with motion-sensing dimming to provide great economies of use, combined with high reliability.

With so many advantages to a Driver-Less Injected-PLCDC solution, it would be costly to NOT implement this technology. It should ideally be planned at the design stage to give immense savings in Capital Costs, Energy Savings, and total system reliability.

This strategy was implemented by us in 2009 – hence proven over several years – in Swissotel Hotel (India's First 100% LED illuminated 5-Star Hotel) to great advantage, as at that time LED Drivers with a 5-year warranty were unheard of in India. The Coffee Shop and Banquet area of the hotel are all running on localized Injected-PLCDC Nanogrid Technology. Here, instead of using individual drivers to reduce the voltage, we use a common Injected-PLCDC Generator Power Bank which can power all the LED devices in the room with a central Modulated DC bus.

This solution has immense safety advantages, which is of great significance in western countries as well as in India. A low voltage Modulated DC bus is an intrinsically fire-safe design. Fire Safety experts will confirm this, as they actively promote low voltage appliances in all fire hazard zones. Low voltage 48V **Modulated** DC has a negligible chance of sparking (which can otherwise cause a fire).

Moreover, Low Voltage 48VDC is classified as SELV (Safe Electrical Voltage) and is thus completely safe. This is a great advantage for all kinds of commercial, residential, and industrial structures. In commercial and industrial environments, the chance of electrical accidents to service personnel is 10 times lower with a Low-Voltage PLCDC Nanogrid.

While BINAY first introduced this technology to the world in 2009, today this concept has become popular in the USA, as it can save substantial power. In 2013, a 6-storey building was commissioned in the US using this technology with LED lighting.

Modulated Injected-PLCDC Nanogrid Technology can also be coupled with our unique **Tuneable CCT Circadian Vario-White PowerLED Lights and wifi-remote systems for economical multi-area automation.**



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