ISSUE 07

AUGUST 2024

ARIHANT sparsh

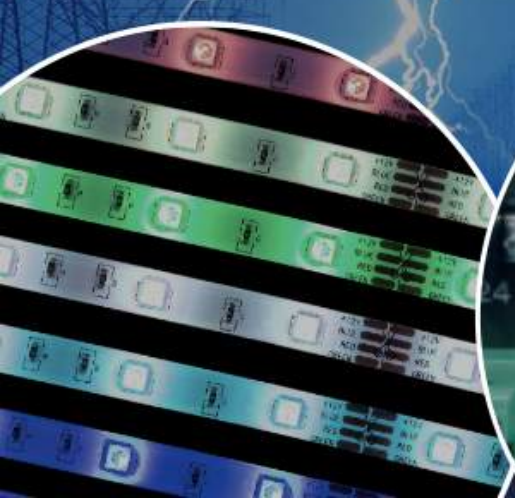
Navigating Challenges and Celebrating Success
- Arun Sharma

LED Light Market
- Sandeep Tripathi

Battery Charger cum UPS
- Manish Sharma & Shivam Gupta (R&D)

Recipe for Good Work - Life Balance
- Priyanka Patidar

Editor : Niraj Kumar Pandey



Navigating Challenges and Celebrating Success

- Arun Sharma

Best wishes for Independence day, Rakshabandhan, Janmashtami and Hariyali Teej.

By the time this issue of Sparsh is in your hand, a lot has happened in country and world in last fortnight. Paris Olympics is in its middle days . There have been some extraordinary performances by participants. Indian contingent has had mixed successes so far but its tally is expected to grow in coming days. Political scene is middle east and neighbouring countries of India are dangerously unsettling. Russia – Ukraine war does not have an end in sight, Israel's war in Gaza has percolated to Lebanon and Iran. Situation is getting complex due to behind the scenes role of USA, Nato Countries, China and North Korea. Today, whole world is a connected world. Anything happening in one corner of world has an impact on all the countries in some form or other. Supply Chains are vulnerable. For us, the message is to be ready for adverse winds.

Despite all this, markets are on roll. The sentiments in Industry post budget are fairly buoyant. Taking advantage of this environment, private companies are expanding their holdings, raising capital through issue of right shares as well as through fresh capital. It makes sense for the companies to raise funds when they are available rather than wait until they are required.

For businesses, it is important to keep reminding about adherence to fundamentals. Order book has to stay rich with clear executable orders. Fuel behind the order book is enquiry pool. This means, maximum focus in reviews have to be on these two elements, quality of order book and enquiry pool. Fortunately, we are an Indian company that too located in the most happening industrial zone of Uttar Pradesh. We can take advantage of the investor centric policies and initiatives of Central and state government and carve our success.

Lastly, let me share an interesting news about Ola Electric Mobility. Ola challenged google by developing its own stack for maps. It forced google to drop prices for google map in India. Now the company is all set to charge up the EV revolution with Made In India Batteries. It already created sort of record by commissioning world's largest 2 wheeler EV factory that is all women run set up.

LED light market

- Sandeep Tripathi

The LED light market is being driven by several key factors. One major driver is the energy efficiency of LEDs, which consume less power and have a longer lifespan than traditional lighting options. This efficiency not only helps in reducing electricity bills but also contributes to environmental conservation efforts.

Governments worldwide are supporting the adoption of LED lighting through subsidies, rebates, and regulations, further boosting the market. Technological advancements are continuously enhancing LED performance and reducing costs, making them a more attractive option for consumers.

The integration of LEDs with smart home and IoT systems is increasing their popularity. The rising demand in various sectors, including residential, commercial, and industrial applications, coupled with the growth in urbanization, is further propelling the market forward.

The LED light market is also being propelled by the growing trend toward sustainable and eco-friendly solutions. As consumers and businesses become more environmentally conscious, there is a heightened demand for energy-efficient lighting options.

LEDs offer superior durability and lower maintenance costs, which makes them a cost-effective choice in the long run. The rapid urbanization and infrastructure development,
especially in emerging economies, are creating substantial opportunities for LED lighting in new buildings and public projects.

The increasing adoption of LEDs in automotive lighting, due to their high brightness and energy efficiency, is contributing to market growth. The rise in smart city initiatives and the push for digitalization in various industries are further accelerating the adoption of LED lighting, as it aligns with the goals of energy efficiency and intelligent infrastructure. Furthermore, the expansion of the eCommerce sector is making LEDs more accessible to a broader consumer base, driving sales and market penetration.

Critical Restraints Affecting the LED Light Market

One significant barrier to the widespread adoption of LED lighting is the high initial investment required. Although LEDs offer cost savings over time through reduced energy consumption and maintenance, the upfront costs can be prohibitive for some consumers and businesses. This can slow down the transition from traditional lighting systems to LED solutions.

While LED technology has advanced considerably, there are still technical challenges that need to be addressed. Issues such as color consistency, heat dissipation, and the performance of LEDs in extreme temperatures can affect their reliability and lifespan. These technical limitations may deter some potential users from making the switch to LED lighting.

Although LEDs are generally considered environmentally friendly, their production involves certain materials that can be harmful if not properly managed. Concerns about the environmental impact of manufacturing and disposing of LEDs, especially regarding rare earth elements and other hazardous materials, can pose regulatory and reputational challenges for manufacturers.

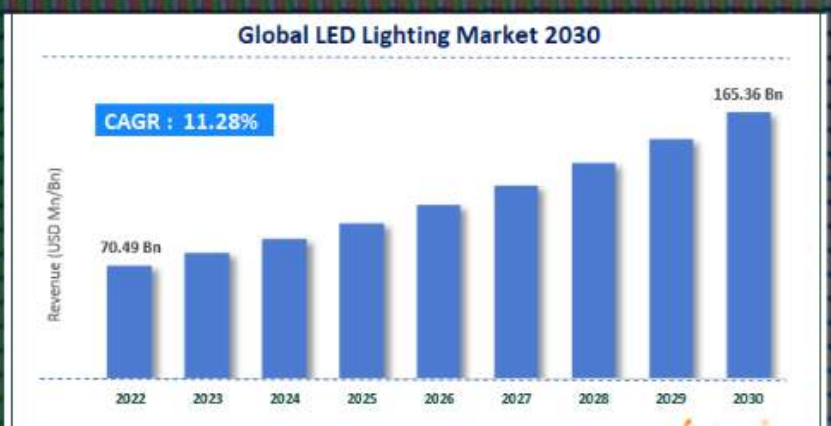
Key Market Trends Shaping the LED Light Market

The integration of LEDs with smart technology is a significant trend. Smart lighting systems, which can be controlled remotely via smartphones or automated through sensors, are gaining popularity. This trend is driven by the growing interest in smart homes and buildings, enhancing convenience and energy efficiency.

Beyond smart homes, connected lighting solutions are being implemented in smart cities and commercial buildings. These systems use IoT (Internet of Things) technology to manage and optimize lighting based on real-time data, improving energy efficiency and reducing operational costs.

With increasing awareness of environmental issues, energy-efficient and sustainable lighting solutions are in high demand. LEDs are at the forefront of this trend due to their low energy consumption and long lifespan. Companies are also focusing on developing LEDs with improved efficiency and lower environmental impact.

Continuous advancements in LED technology are enhancing performance and expanding applications. Innovations such as miniaturized LEDs, micro-LEDs, and OLEDs (organic LEDs) are opening new possibilities in lighting design and functionality, from consumer electronics to automotive lighting.



Strategic Opportunities for Investors in the LED Lighting Market

The LED light market is ripe with opportunities driven by technological advancements, sustainability initiatives, and evolving consumer preferences. The automotive industry continues to adopt LED lighting for both interior and exterior applications. Opportunities abound in developing advanced LED headlights, tail lights, and interior ambient lighting systems that enhance safety, aesthetics, and energy efficiency.

LEDs are increasingly used in health and well-being applications, such as horticultural lighting for plant growth and circadian rhythm lighting in healthcare settings. These specialized applications are benefiting from the precise control and efficiency of LED technology.

The global push towards sustainable and green building practices offers opportunities for LED lighting manufacturers. LEDs align with LEED (Leadership in Energy and Environmental Design) certification standards and other green building certifications, making them an attractive choice for new construction and renovations.

Continuous innovation in LED technology, such as the development of tunable and color-changing LEDs, presents opportunities to create new and differentiated products. This can cater to niche markets and specialized applications, further driving market growth.

LED Lamps are the Smart Investment for Long-term Savings

LED lamps are at the forefront due to their significantly lower energy consumption compared to traditional lighting sources, making them a top choice for energy-conscious consumers and businesses. With reduced carbon footprint and no hazardous materials like mercury, LED lamps align with sustainability goals, appealing to environmentally conscious markets.

The extended lifespan of LED lamps, often exceeding 25,000 hours, outshines conventional bulbs, reducing replacement frequency and maintenance costs. While initial investment might be higher, the long-term cost savings from energy efficiency and reduced maintenance make LED lamps a financially wise choice.

LED Lights are the Eco-friendly Solution for Brighter, Cleaner Outdoor Lighting
LED lights offer significant energy savings in outdoor environments, such as streets, parking lots, and outdoor facilities, where lighting is required for extended periods. LED lights provide better visibility and color rendering, improving safety and security in outdoor areas, thus gaining favor in urban planning and infrastructure projects.

LED lights produce less light pollution and emit lower levels of CO2, aligning with sustainability goals and regulations for outdoor lighting. Government initiatives, standards, and incentives promoting energy-efficient outdoor lighting solutions contribute to the growth of the LED light market in the outdoor segment.

BATTERY CHARGER CUM UPS

- Manish Sharma &
Shivam Gupta (R&D)

A battery charger consists of a rectifier circuit, power circuit, ripple monitoring, control circuit, regulator circuit, and fault detection circuit. This charger can also be used as a DC source for any electronics control system, or to charge the battery in floating mode. The developed UPS has potential application in defence or where ruggedized system is required. It's rated for 24V,3A output with 230v ac input.

A Comprehensive Overview

The main tasks of the battery charger are transferring energy from the power system to the battery, optimizing the charging rate and protection from overcharging. All the indications of battery charging will be pointed at output side through respective LED.LED indications to show different level of battery like AC input ,under voltage input , battery charged indication, battery low indication reverse polarity etc. LED indications are done by a mini micro controller which are set for different voltage levels.

OPERATIONS OF CHARGER

Constant Current (CC) charge :- Constant current (CC) charge is also considered fast charging.CC charging starts after pre-charge, once the battery has reached about 12V per unit, it is safe for the battery to handle higher charge currents. CC charging continues until the battery voltage has reached the "full" or floating voltage level, at which point, the constant voltage phase begins.

Constant voltage (CV) charge:- The constant voltage (CV) threshold for Lithium cells. The charger IC monitors the battery voltage during CC charging. Once the battery reaches the CV threshold, the charger transitions from CC to CV regulation.

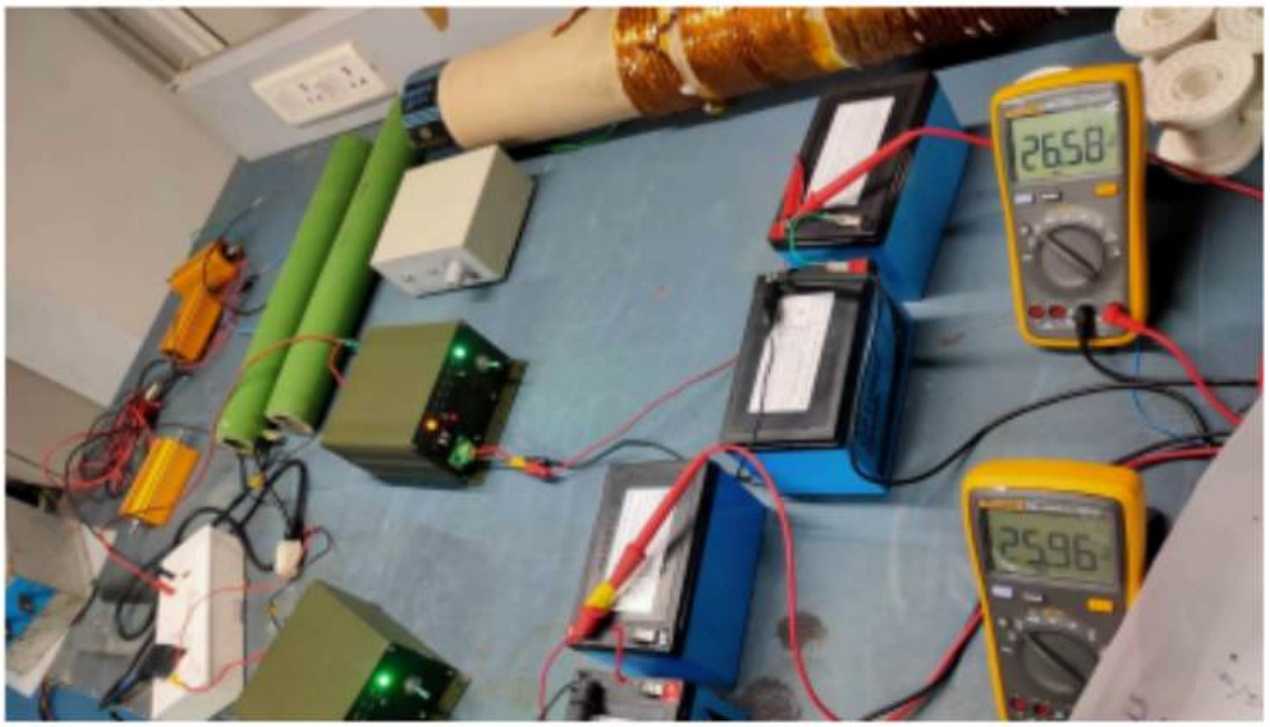
Trickle charge:- Generally, the trickle charge phase is only used when the battery voltage is below a very low level. In this state, the battery pack's internal protection IC may have previously disconnected the battery due to it being deeply discharged, or if an over-current event occurred. Although trickle charging usually lasts for a matter of seconds, the charger IC should integrate a timer that stops charging if the battery pack is not reconnected within a certain amount of time, as this indicates that the battery has been damaged.

Product Specifications:-

Input Source	Output	Ripple Volt	Battery 24V-12Ah	Efficiency
AC Nominal 240Vac	24V/3A(27V/ 1.5A for charging)	Without Load:- 150mV	Min:- 21.6	At full load 85%(AC Nominal)
DC Nominal 320Vdc	24V/3A	With load:- 180mV	Max:- 27.2	Up to 90%(DC as input)
Battery (21.6-27.2)	24V/3A	40mV		More than 90% (battery as Input)

Product Snippets:-

PS Load Testing



Battery chargingTesting

Front View

Back View

RECIPE FOR GOOD WORK - LIFE BALANCE

- PRIYANKA PATIDAR (R&D)

Healthy work-life balance refers to maintaining a harmonious relationship between your work and personal life. It involves consciously managing your time and energy to meet both professional and personal commitments while prioritizing self-care and well-being.

Over 34 per cent of women exit firms over work-life balance, while only 4 per cent of men are affected by it, findings of a study showed.

What does work life balance mean?

In an ideal world, this line of thinking goes: after work, we're able to spend time on things that nourish us as people.

Some characteristics of a healthy work-life balance may include:

Setting boundaries: This involves establishing clear boundaries between work and personal life by defining specific working hours and separating work-related tasks from personal activities.

Time management: Efficiently organizing and prioritizing tasks, ensuring that you allocate enough time for work responsibilities as well as personal pursuits, such as spending time with family, engaging in hobbies, or pursuing personal goals

Stress management: Implementing strategies to manage stress levels, such as practicing mindfulness, engaging in regular physical activity, taking breaks, and unplugging from work-related activities when needed

Flexibility: Having the ability to adapt and adjust your schedule to accommodate unforeseen circumstances or personal needs without jeopardizing work commitments.

What is an unhealthy work-life balance?

Some signs of an unhealthy work-life balance may include:

Constant overwork: Regularly working long hours, including weekends and holidays, without sufficient time for rest, relaxation, or personal activities

Neglected personal life: Sacrificing personal relationships, hobbies, and leisure activities due to excessive work demands

Burnout: Experiencing physical, mental, and emotional exhaustion due to chronic stress and work-related pressure

Lack of self-care: Failing to prioritize self-care activities, such as exercise, adequate sleep, and leisure time resulting in deteriorating physical and mental health

Strained relationships: Experiencing difficulties in maintaining healthy relationships with family, friends, and loved ones due to work-related commitments

The Benefits of a Healthy Culture

A healthy culture that prioritizes work-life balance brings numerous benefits to both employees and the organization as a whole. We tend to fall into the trap of believing that we can be productive all the time, or that an ***eight-hour day at work equates to eight hours of output***.

Enhanced Employee Retention

When employees feel supported in achieving a healthy work-life balance, they are more likely to stay with the organization for the long term. This reduces turnover rates and associated costs while fostering continuity and stability within the workforce.

Increased Employee Engagement

Employees who have a healthy work-life balance are more engaged and motivated in their roles. They experience reduced stress levels, improved job satisfaction, and higher levels of commitment to their work. This ultimately leads to increased productivity and better overall performance.

Improved Well-being

A healthy work-life balance contributes to the overall well-being of employees. It allows them to recharge, spend quality time with loved ones, pursue personal interests, and take care of their physical and mental health. This holistic approach to well-being leads to happier, healthier, and more fulfilled individuals.

THE OFFICE CHRONICLES : GLIMPSES OF EVENTS

Few Birthday Celebrations

Happy Birthday

Ruchi Tyagi	-	2 August
Manish	-	5 August
Pragati Gupta	-	6 August
Roshani Katiyar	-	6 August
Kesav Ram Gupta (Raju)	-	7 August
Imran Khan	-	8 August
Shivam Tyagi	-	9 August
Muralidaran Gnanasekaran	-	25 August
Yogendra V. Sahi	-	30 August
Nivedita	-	31 August

Shiv Singh Negi (Technical RLY)
Indrajeet Kumar (Sr. Engineer Design - R&D)
Abhimanyu Kumar (Asst. Manager Biz. Dev.)
Harsh Verma (AGM - Marketing RLY)
Akhilesh Nishad (Technician RLY)

HUMOUR

- Shivam Shrivastava

+91 0120 625 6192

Arihant Electricals, Plot No. 60, Ecotech-12, Greater Noida, U.P. - 201318

Our Socials

ARIHANT