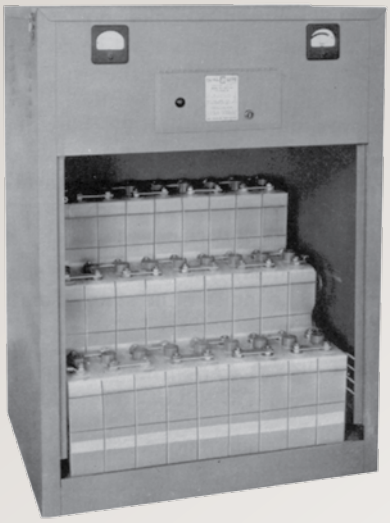
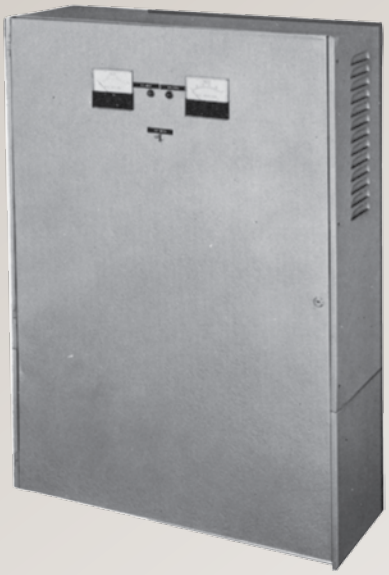
Central Lighting Inverter History

In 1940, a small firm began manufacturing exit signs incorporating dry cells that could operate in both normal AC and emergency DC mode. The patented concept of dual operation gave birth to the company's name. Originally targeting businesses only in Connecticut, the company has grown to become a nationwide life safety products supplier, creating innovative products that have shaped the industry.

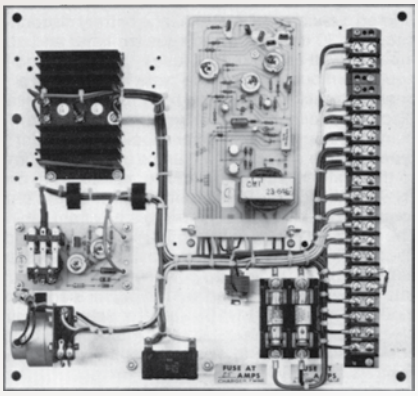
In 1942, the worst nightclub fire in history struck the Coconut Grove in Boston, Massachusetts, claiming 492 lives and injuring 166 others. This tragedy led to stricter enforcement of building and electrical codes for public structures, and the addition of safety requirements, which included emergency lighting products. Dual-Lite met these needs by adding a number of emergency lighting models to its product line — and establishing itself as an industry force.



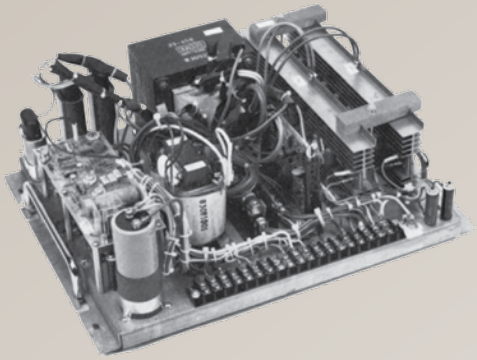
In the early 1950s, Dual-Lite added **Central DC emergency lighting systems** to its product line. Under emergency conditions, these initial central systems supplied DC battery power to an assortment of remotely mounted fixtures with various DC voltage requirements. DC systems were produced through 1992.



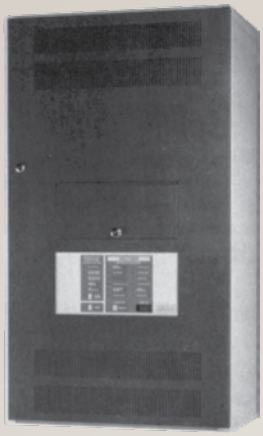
By the early 1970s, demand for DC emergency lighting fixtures and central DC systems was in decline. Newer AC central emergency systems allowed facilities to designate the same fixtures used for task and convenience lighting for emergency use. Under normal conditions, Dual-Lite's new **Series I, II and III Central AC Systems** provided utility power to the lighting loads; under emergency conditions, DC battery power was inverted to AC fixture-friendly power to these same loads. AC systems were produced through 1992.



With a myriad of 20 to 30 year old DC Systems in place in the early 1980s, Dual-Lite introduced the **DC System Charger Control Retrofit Plate**. This cost effective upgrade allowed older or damaged DC systems to be retrofitted with new modules employing then state-of-the-art components. These retrofit plates were produced through 1992.



With AC Systems reaching 10+ years old, Dual-Lite next manufactured and marketed the A**C System Retrofit Plate**. The module allowed older AC systems to utilize the latest charger/inverter technology available. Incorporating parallel power transistors and a ferroresonant output transformer with a "tank" circuit employing large AC capacitors, this module was able to breathe new life into older systems. This retrofit plate series was produced through 1992.



New and better electronic components continued to replace older mechanical designs due to improved reliability and function enhancement. In 1987, Dual-Lite incorporated the latest function and logic control solid state components into its new **Series IV Spectron® Standard and Fast Transfer AC Central Inverter Systems**. The new technology provided improved performance, expanded system status display, a simple to use control panel and first time ever self-testing/self-diagnostic circuitry in a central lighting inverter system. This system was produced through 1995.

Based on customer requests, Dual-Lite redesigned its central lighting inverter line in 1995 to incorporate a password-protected user interface panel providing a wider range of control over the system's operating parameters. Coupled with self-testing/self-diagnostic circuitry, the **Spectron® ILS (Integrated Life Safety) System** also boasted two-way communication capability via its standard RS232 communication interface, a feature available only as an option on competitive models. This series was produced through year 2000.

Up through the Spectron ILS System design, ferroresonant transformer technology provided the output wave form for most central lighting inverter designs. This design required the transformer "tank" to be continuously energized with AC input power in order to achieve non-interruptible transfer from normal utility supplied power to AC (inverted DC battery) power. The output wave form itself depended on the quality and accuracy of the transformer windings.

In 2000, Dual-Lite engineers developed a totally solid state inverter design using integrated bipolar transistors (IGBTs) eliminating the need for the ferroresonant transformer. Utilizing the IGBT design, the **Spectron® LSN (Life Safety Network) System** provided a digital continuously uniform sine wave output at a 98% efficiency rating (KW = KVA). Incorporating proven Spectron self-test/self-diagnostic circuitry, the system provided the user with continuous updates concerning its emergency-ready operating status. Stored in the system's memory and printable on demand, these tests satisfied the "written record" requirements of the Life Safety Code for monthly and yearly testing. This design continues in production today.

With available output ratings through 17.5 KW, the Spectron LSN provided reliable emergency lighting AC power in a relatively small footprint for large installations. Customers with smaller venues, such as individual retail locations in strip malls, requested a similar reliable design with lower output ratings and lower cost points.

In 2005, Dual-Lite introduced the **Synchron Central Lighting Inverter System**, with output ratings from 400 VA to 2100 VA, and without the myriad user control features and self-test/self-diagnostic circuitry of the Spectron LSN unit. This design again utilized a digital circuitry approach employing topography identical to the Spectron LSN system, but using field effect transistors (FETs) instead of IGBTs due to the lower output ratings. The Synchron series is still in production today.

Recognizing customer's needs for emergency systems with higher KW output, Dual-Lite added the **Trident® Series** three-phase units to the line in 2002. Featuring an output range of 10 through 130 KW, the Trident series' rugged construction, quiet operation, small footprint and lightweight design allowed installations in environments from computer rooms to the factory floor. The Trident series' on-line "double conversion" design provided clean, conditioned power to connected loads in both normal and emergency modes. These models are still offered today.

Like all Dual-Lite's products, the central lighting inverter reflects a tradition that began in 1940. It's Dual-Lite's "Tradition of Excellence" – in product quality, value and customer service.

It's a tradition that has guided Dual-Lite for more than half a century, regardless of the challenges the industry faced. It's a tradition that has earned Dual-Lite a reputation as a leader in life safety products – and will be followed faithfully in the future.

That future is driven by Dual-Lite's unique "listen to learn" business philosophy, which enables the company to understand its customers' needs and expectations, and quickly respond. The result is a full line of life safety products that are highly valued by Dual-Lite customers, channel partners and shareholders.

Dual-Lite will continue this successful "listen to learn" approach as it expands product offerings to meet future needs and reinforces its standing as the #1 recognized life safety products brand.

The quality and reliability of Dual-Lite central lighting inverter systems are second to none. You'll see it in our construction, components, design and engineering, all of which combine to deliver the highest level of customer satisfaction.

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