



LUMINATOR TECHNOLOGY GROUP

Celebrating

90
Years

1928-2018



Intelligence, Safety and Efficiency in Transit:
Luminator Technology Group Celebrates
90 Years of Transit Innovation

The year is 1928. The manufacturing industry is experiencing its most innovative and rapidly developing period since World War I. The transportation and airline industries are taking off thanks to inventions like Henry Ford's assembly line, and historic flights by Amelia Earhart, as the first female passenger to fly across the Atlantic. Households are undergoing a transformation like never before as vacuum cleaners, washing machines and refrigerators are common on nearly every block. An exciting time; 1928 even ushers in the first loaf-at-a-time bread slicer.

That same year an engineer with the savvy intuition to illuminate train cars formed the company that would grow to become the present-day Luminator Technology Group. With a consistent focus to provide innovative and reliable transportation solutions, that small lighting company became a global transportation leader and the industry's greatest ally in creating a trusted, technologically advanced and positive passenger experience in the bus, rail and aerospace markets.

The Comforts of Transit: From Horse Blankets to Passenger Information Displays

It all began in 1925. Albert L. Arenberg, a lighting engineer in Chicago, formed the New England Mills Company (which one year later would be renamed Harrison Wholesale Company), primarily a wholesale mail-order business selling horse blankets and auto parts. In 1928, Luminator, Inc., was formed and incorporated as a wholly

owned subsidiary of Harrison Wholesale Company. The company manufactured and mass-produced a variety of lamp styles that were distributed throughout commercial, residential and transportation industries.

Prior to the 1933 "Century of Progress" World's Fair in Chicago, Mr. Arenberg approached Mr. George Pullman, of Pullman Standard Car Manufacturing Company (a railcar manufacturer), with an idea to install his newly designed lamp fixture in the sleeper cars of the train to be exhibited. The innovative fixture was designed to put light beams precisely where they were needed for the passenger to safely navigate the small, and once-dark, space.

After the resounding feedback and success of the World's Fair exhibition, Mr. Arenberg decided to take Luminator exclusively into the transportation interior lighting segment. A lighting engineer by trade, legend has it that Mr. Arenberg was the only "salesman" to call upon Pullman, the Chicago Transit Authority, South Shore Railway, and the North Western Railway Company.

Just 10 years after Mr. Arenberg began selling horse blankets and auto parts, Luminator had transformed into a rail lighting company that would soon dominate the market. By the late 1950s, Luminator had designed and manufactured interior lighting systems for more than 75 percent of all new streamlined trains.

Mr. Arenberg and his business partners envisioned additional uses for their unique lighting fixtures that could withstand the environment of a mid-century train car. The Korean Conflict afforded



1928

Luminator, Inc. is established as a wholly-owned subsidiary of Harrison Wholesale Company. Founded by lighting engineer Albert L. Arenberg, Luminator's core focus was industrial lamp styles that were produced and widely replicated throughout the industry.



1934

The company focuses efforts on the niche market of transportation vehicle lighting. It is said company founder Albert L. Arenberg was the only salesman to call upon CTA, South Shore Railway and the North Western Railway Company.

another avenue for Luminator's techniques in controlled lighting. Airborne trailers used by the military were filled with electronic gear and dropped by parachute to forward command posts. The company developed and manufactured lights for these trailers that met strict military requirements regarding rugged construction, withstanding shock, vibration, fungus, dust, sand and corrosion.

In the years following the Korean Conflict, Luminator outgrew its Chicago facilities and in 1964 re-located its corporate headquarters and manufacturing facilities to Plano, Texas. Executives at the time noted the enthusiasm of Dallas area businessmen and developers, also citing a desirable business market and labor climate in the small town of about 11,000 residents. Half a century later, Plano remains home to the manufacturing of Luminator-brand products, as well as Twin Vision and Luminator Aerospace, and the longest tenured employee – Pam Allen, who has worked at the Plano manufacturing plant for an impressive 41 years. The global Luminator Technology Group headquarters is also located in Plano.

In the mid-1970s, Luminator was again revolutionizing the mass transit market. Luminator introduced a major advancement in passenger information technology when it developed the first electronic information monitors in North America for rail and bus applications. Luminator launched a 15-character display with six-inch high characters, which became standard for most transit authorities across the United States. By 1983, Luminator had developed flip-dot technology for the transit bus sign market. With

a unique octagon-shaped "dot," the signs provided more area for the characters resulting in better visibility, particularly at longer distances. Exhibiting technological leadership again, Luminator introduced the GTI matrix sign system – which would meet the requirements of the Americans with Disabilities Act (ADA) two years before the ADA became law. Patented-technology was introduced that would lead to simple updates to the destination sign, using a hand-carried device. The company later launched the Horizon 100 Percent LED Sign System for the transit industry, capable of remote updates via Wi-Fi; it has now become the sign of choice in transit.

A Global Collaboration

Over the decades, Luminator Technology Group has been extremely successful as both an innovator and as a collaborator. This business model ensures its worldwide customers benefit from a comprehensive "one-stop" solution from a technology provider that can connect passengers to vital travel information all while maintaining safety, security and efficiencies for the system.

Through a series of acquisitions and integrations during the past 30 years, Luminator Technology Group has expanded with aerospace and global technology offerings, opening the door for opportunities to specialize in other end-markets, including transit bus and rail agencies, the United States government and foreign military agencies.



1945

With the first sale in the aerospace industry, the company widens its focus beyond commercial and transit rail.



1949

A new lighting solution is developed for the military that requires rugged construction and protection against shock, vibration, fungus, dust, sand and corrosion. These lights are manufactured for use on airborne trailers during the Korean War.

More recent acquisitions include Axion Technologies (2014), a Canada- and Europe-based passenger communication systems company; Gorba and BMG MIS (2015), passenger information application companies based in Europe and Asia; Apollo Video Technology (2017), U.S. manufacturer of mobile video surveillance and fleet management solutions; and Thommen Searchlight (2017), a leading provider of aerospace searchlight solutions.

“It’s one thing for a company to continuously evolve to meet the demands of a specific industry, but it’s a completely different accomplishment to maintain that growth and trust in the marketplace for 90 years,” said Roderick Jones, LTG President of Mass Transit in North America. “This innovation and customer-focus is embedded in our values and culture, following Mr. Arenberg’s vision for technology advancements and U.S. manufacturing for the transportation industry.”

After 90 years in U.S. manufacturing, Luminator Technology Group is now comprised of a family of trusted, global brands dedicated to delivering innovative solutions to the mass transit and aerospace markets. With the necessity of safety and security for passengers aboard mass transit escalating, the addition of mobile video surveillance technology is evidence of the Group’s commitment to meet customer needs in an industry that requires innovation and reliable development and production of state-of-the-art products.

The Horizon 100 Percent LED Sign System, installed on Luminator’s demonstration bus – capable of remote updates via Wi-Fi.



“Our stakeholders, partners and employees, dating back to 1928, have been inspired to build one of the most sophisticated mass transit technology solution providers in the world,” said Kirk Goins, CEO of Luminator Technology Group.

The global partnerships are intentional. The strong manufacturing base throughout the Americas and across Europe and Australia ensure that Luminator Technology Group’s facilities maintain the manufacturing, testing and quality certifications required to meet the demands of the diverse global transportation industry. A product evolution that mirrors modern technological development, its successful history is rooted in signs, lighting and passenger information systems for rail car, bus, commercial and military aircraft worldwide. The past 90 years demonstrate Luminator Technology Group’s commitment to superior performance with a strong focus on quality assurance.

“We built our trusted family of brands to help us exceed customer expectations,” said Goins. “I think Mr. Arenberg would be very proud to have survived in business as long as sliced bread!”



Luminator has designed and manufactured interior lighting systems for more than 75% of all new streamlined trains.

1950s



The national headquarters of then-named "Luminator-Harrison, Inc." is relocated to Plano, Texas. The population of Plano at this time is 11,597*.

1964

* <https://tinyurl.com/y86h4s93>



Meet Pam

Pam Allen is the longest tenured LTG employee. For 41 years, nearly half the company's existence, Pam has produced products for transit buses and railcars. An estimated 400,000 items have been built by Pam over the course of her career.

Pam's colleagues and supervisors credit her success and longevity to her attitude. "She is so positive, and always has a smile on her face," said her supervisor, Debbie Lawrence. "She is very welcoming to new team members; she talks with anyone and everyone."

"Blessed and happy and smiling," Pam says of her typical workday. When asked the secret to her long career, Pam said, "Be happy every day, and smile – smile being the key word."

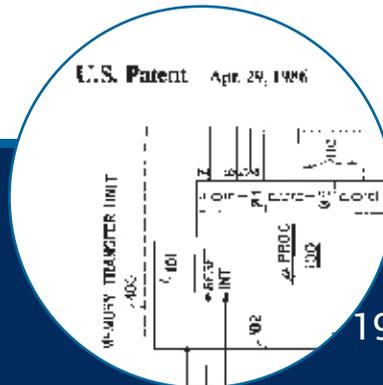
Pam embraces the challenge of working on new products and implementing new procedures, and has a great willingness to work with others. "I enjoy meeting new people, and being around my friends at work," Pam said.

The feeling is mutual. "I love working with her, and am so happy she is on our team," said Lawrence.



1970s

Revolutionizing passenger information displays, Luminator introduces the first electronic display in North America for rail and bus applications. In the next few years the industry standardizes a 15-character display with 6" characters.



1986

Flip-dot technology is the latest technology in destination signs. Luminator engineers are awarded U.S. Patent 4,586,157 for a memory transfer unit, providing easier and more reliable programming of displays.

Meet Larry

Larry Taylor began working for Luminator in 1980, when only two people were needed to support the software for Luminator products. Those engineers worked at drafting tables, designing circuit boards on sheets of Mylar with pencils, stickers and black tape.

When Larry joined the team, he initially worked on a new generation of Luminator's Flip-dot Signs.

"Messages for the Flip-dot Signs that I first worked on were stored in Erasable Programmable Read-only Memory, also known as EPROMs," said Larry.

"These devices could be erased by exposure to strong ultraviolet light. Accessible under a hinged cover, the EPROMs would be removed, erased, reprogrammed and reinstalled each time a new message was needed. Although this was a time consuming process, changing the messages in electronic Flip-dot Signs was still far easier than changing messages in the Roller-Curtain signs of the day."

Larry's work to improve the signs led to the development of a memory transfer unit, for which he and four colleagues are named as inventors on the product's U.S. Patent 4,586,157.

"We made our signs easier to reprogram with the advent of the E2PROM (Electrically-Erasable Programmable Read-only Memory)," Larry said.



"With this technology, we designed a sign that was reprogrammable on the vehicle in minutes. The sign was automatically reprogrammed by simply plugging in a carry-on unit we called the MTU, for Memory Transfer Unit." (pictured above)

"I've enjoyed being able to contribute to the development of new and innovative products," said Larry. "My long career comes from having a job where, every day, I do what I enjoy."



1999

A 100% LED sign system is released to the transit industry and becomes standard for all new bus builds.



2018

Now Luminator Technology Group, the company represents 10 brands worldwide, having acquired companies that specialize in nearly every aspect of transit and rail information, safety and lighting solutions.

LTG Solutions

Passenger Information Systems



Interior Next Stop Sign Systems



Software Management Systems

Seat Reservation Systems

Passenger Counting Systems

Video Surveillance and Security Systems



Destination Sign Systems

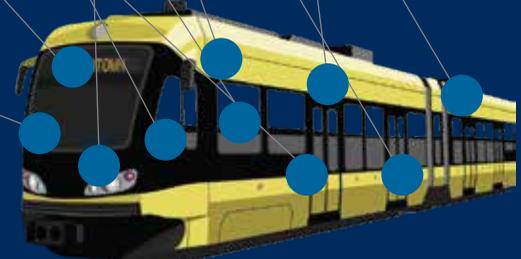
Interior and Exterior Lighting

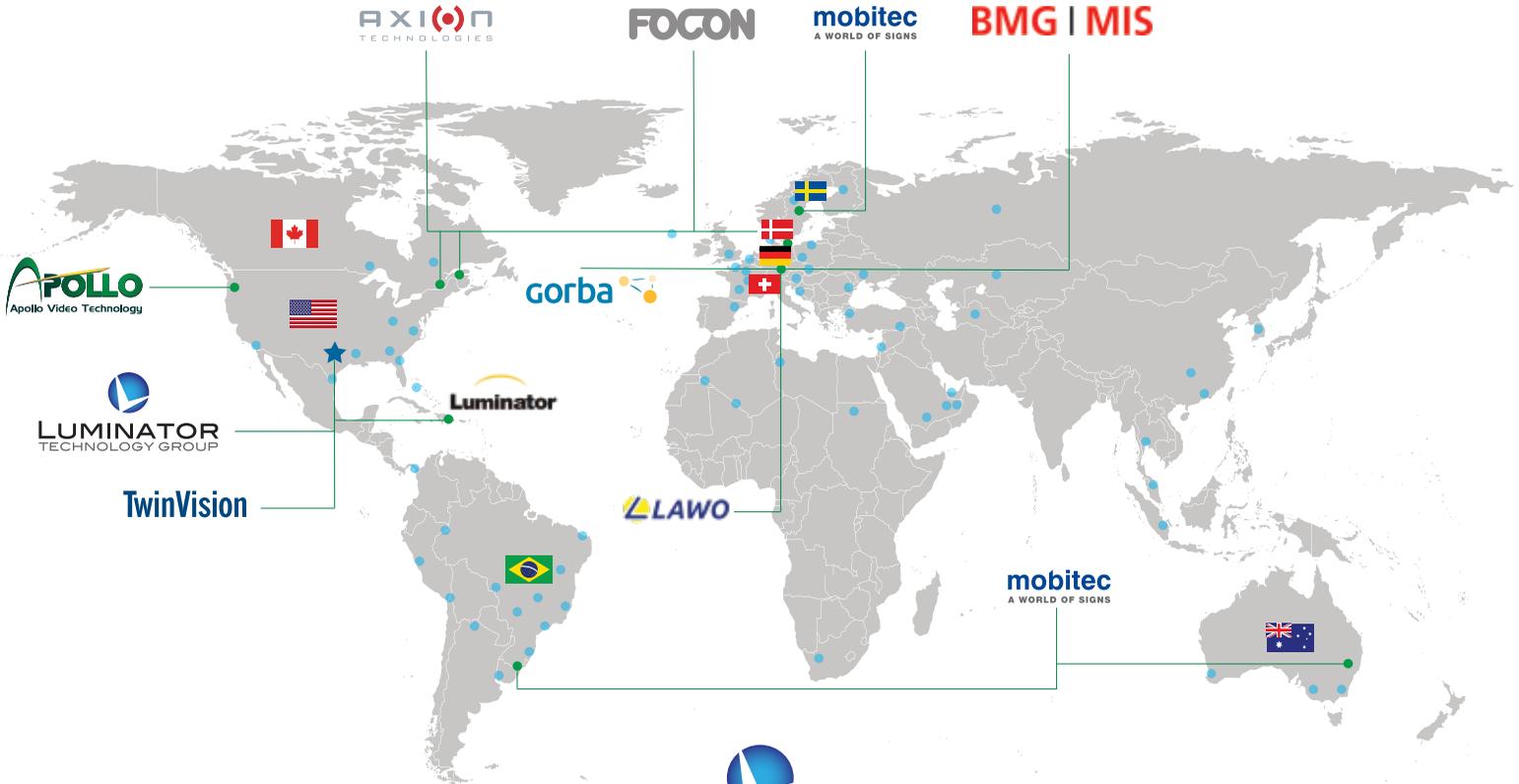
Infotainment and INFOtransit

Network and Wireless Communication

Stationary Signs

Air Diffusers





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