

वेदार्थसंग्रहः

OUR FOUNDERS



JOHN HENNINGER, CEO

John was a born entrepreneur. His involvement in the energy conservation industry began when he created an energy engineering company that soon came to focus primarily on lighting. During his time as a retrofit engineer, John envisioned a “better mouse trap”. The future of the lighting retrofit industry changed forever when John invented the Optilumen RKT series magnetic mounted linear retrofit kit. The RKT series has become the standard by which others are measured, and stands at the top of the DLC Premium ladder.

Under John's leadership and vision, Optilumen leads the way in the LED retrofit industry. Today it continues to innovate with the introduction of a number of new retrofit solutions, each in its own way as innovative and revolutionary as the original RKT. In John's own words, “Optilumen is producing, quite simply, The Best LED Retrofit Solutions on Planet Earth”.



DAVE HENNINGER, EVP

Dave Henninger was right next to his brother John in the creation and initial success of Optilumen. Dave was the driving force behind Optilumen sales and soon became the National Sales and Marketing Director. As the company grew, it was a logical step for Dave to assume the role of Executive Vice President.

With Dave's intricate knowledge of the applications and specs, he began attracting the interest of national accounts. His innate way of creating relationships and solving everyday issues in business situations makes Dave an invaluable asset to the company. Today, Dave has become a sought after speaker to a wide variety of audiences. His first-hand knowledge and experience in the design and application of LED retrofit technology is second to none. Dave truly is the “stem that keeps the watch running” at Optilumen.

“...the best LED retrofit solutions on Planet Earth...”



COMCAST TOWER
Philadelphia, PA

WHY OPTILUMEN?

1

We are a vertically integrated company. This allows us to respond to our customer's needs quickly and efficiently.

2

We are on the leading edge of LED thermal control and efficiency design.

3

We give our customers the very best products available at the lowest price possible.

4

We are USA based.

5

All R&D and design development engineering is done in the US.

WHY RETROFIT?

RKS VS. NEW FIXTURES

Our Retrofit solutions offer advantages over new fixtures in nearly all existing lighting systems.

- **Ease of installation** – complete conversion to LED using the RKS can be completed in under four (4) minutes per fixture
- **Little to no intrusion needed above the drop ceiling grid** – the entirety of the LED conversion using the RKS retrofit product takes place solely inside the existing fixture body
- **Removal and disposal of existing fixtures** – by retrofitting existing fixtures rather than replacing them with new, we are saving resources for future generations
- **Efficacy** – our driver efficiency is second to none. The power factor of both the RKS are at the top of their class

RKS VS LED TUBES

LED “plug and play” tubes have become the go-to “retrofit” solution for many contractors today. This is a poor long term choice for their customers.

- **The RKS create a complete conversion of fixture to LED** – when the retrofit is completed the customer will have a full LED system not a hybrid of LED and florescent components
- **Thermal Management** – the RKS retrofit kits are cooled conductively, and thereby operate at >50C cooler than most LED tubes
- **Efficacy** – the RKS deliver equivalent lumens while consuming less than half the energy of an array of LED tubes
- **Future Maintenance** – Optilumen has invested significant energy and resources to ensure that our products will perform well into the future, so that our customers can focus their energies and resources on running their businesses

PRICE VS. COST OF OWNERSHIP

We strive to help our customers make the best choice in their lighting upgrades. Since lighting makes up an average of forty (40) percent of the energy costs in most businesses budgets, it is extremely important to get the solution right! In most cases, the product that has the lowest upfront price tag does not deliver the lowest long term cost of ownership. For all solutions being considered, we must carefully analyze total fixture energy consumption, all aspects of the installation, maintenance and upkeep issues, as well as longevity of the product itself. When you consider all of these things you will discover that the upfront price of the product is usually a very small and insignificant part of the long term ROI. With its low price, ease of installation, unrivaled energy efficiency and extremely long life expectancy, the Optilumen LED Retrofit becomes the obvious choice in nearly all conversion projects.



BEFORE
GYMNASIUM
211 WATTS



AFTER
GYMNASIUM
80 WATTS

MARKET SIZE AND SUSTAINABILITY

1. The LED became a viable and affordable lighting solution around 2010. This makes it a very young industry. Since its birth, it has grown to over 33 billion dollars annually in gross revenue. It was named the fastest growing market segment in the US economy two years in a row. The majority of this growth and revenue is due to the retrofitting or replacing of commercial and industrial traditional florescent lighting fixtures.
2. To date, only 27% of all florescent fixtures have been replaced or retrofitted. Most of the fixtures that were made LED were done with LED tubes. While the LED tube was one of the first retrofit options, it has proven to be a less efficient and has a much shorter life than other LED retrofit products. This fact means that almost all of the 27% can be made to be even more efficient (in most cases by 50% or more) by switching to our RKS product! This simply means that by utilizing our product, the market is wide open for sales and savings!



OUR CURRENT MARKET

Our current markets are industrial and commercial retrofits. These markets are served primarily by marketing our products through traditional wholesale electrical and lighting distributors.

NEW MARKET OPPORTUNITIES

RESIDENTIAL

There are 74 million detached single dwelling homes that are occupied in the United States. The majority of these homes have at minimum 1 linear florescent fixture (bathroom, over the kitchen sink, in the basement or garage). In truth, many have multiple fixtures (5 or more). This means there are 10's of millions of florescent fixtures that are untouched.

Residential retrofitting is a huge untapped market!

Why do we say untapped? Simple. Unlike the commercial market (contractor or maintenance person) homeowners cannot walk into a wholesale electrical distributor and purchase retrofit products. These establishments sell almost exclusively to contractors or commercial industrial property owners. Homeowners need to come to places like their local hardware store to make purchases like these. In many cases, the homeowner is unaware of the incredible electric savings they will realize by installing the proper LED retrofit product in their home. Now, you can profit by exploiting this market!

UNIQUE POSITION

The local hardware store is in an incredibly advantageous position! Not only can you garner the business of the local contractor, which allows you access to the industrial and commercial lighting retrofit market such as schools, universities, manufacturing facilities, hospitals, nursing homes, and even small shop owners. You also have access to the American homeowner with their 10's of millions of florescent fixtures. The opportunity is real and extremely large!

OPTILUMEN PRODUCT SOLUTION

RKS

The RKS series retrofit kit has been inspected and approved for safety by United Laboratories (UL) and for energy saving rebate incentives by Design Light Consortium (DLC). It has been on the market since October of 2015. It earned it's full safety and rebate certification in April of 2016. In the 3 years since, it's release it has realized a failure rate of <1/10 of 1 percent! It is an incredibly stable, reliable and efficient product! It has an incredible life expectancy as tested by UL. (>200,000 hours source TM21 extrapolated life expectancy) Unlike LED tubes, which can exceed 100 degrees centigrade (this temperature will fry an egg and nearly boil water!). The RKS operates at a mere 38 degrees centigrade. (this is body temperature). LED products do not like heat. Therefore, the cooler you keep them, the longer they last and more efficient they are.

The RKS series products use more LED chip packages than needed. This may seem to be an unnecessary added cost. However, this is not the case. To achieve high efficiencies and low thermals you need to "underdrive" the LED chip. So, the added cost associated with the additional chips is small compared to the electrical and maintenance savings realized by the increased efficiency and longevity.

WE OFFER VERSATILITY & A NO TOOLS REQUIRED PRODUCT

The RKS series products come in both a 2ft version made for 2x2 and 1x2 style linear florescent fixtures and a 4ft version for 1x4 and 2x4 style for 4ft and 8ft strip lights, as well as, industrial linear high bays and low bays. The rare earth magnetic mounting system found on both the strips and the driver not only wick the heat away from the LED package and physically transfer it to the body of the fixture (conduction heat transference), it also makes installation as simple as changing the lamps or ballast! Your customers will be able to quickly, safely, and easily retrofit their florescent fixtures into long lasting incredibly energy efficient LED fixtures (under 5 minutes per fixture)!

Finally, because of this rare earth magnetic mounting system, if your customers need light somewhere, but do not have a fixture, no worries, simply attach the strips and driver to any ferrous metal surface and you have light right where you need it. We also make this product in an adhesive back solution, as well as, for non-ferrous applications.

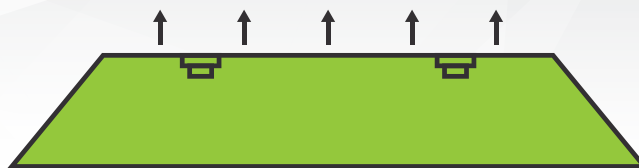
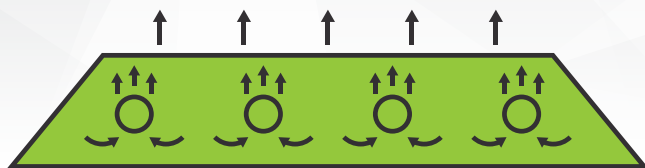
EDI COMPATIBLE



CUSTOMER FRIENDLY PACKAGING

To make the ordering process as seamless and smooth as possible, Optilumen is EDI ready!

OPTILUMEN VS. LED TUBES



LED TUBES

- Tubes cooled by convective air currents inside a closed space
- Thermal Conductivity of air = 0.024 w/mK
- Tubes have a combined cooling surface area of approximately 400 sq. in.
- Internal air temp of fixture approx. 50-60C
- LED chip Tj temp 75-100C
- LED rated lifespan 40,000-50,000 hours
- Retains problematic sockets, wiring and perhaps even ballast

OPTILUMEN MAGNETIC RETROFIT

- Heat transferred by conduction directly to fixture body, 47x faster
- Thermal conductivity of steel fixture body = 50.2 w/mK
- Connected physically and thermally to 2350 sq. in. of steel fixture body
- Internal air temp of fixture <30C
- LED chip Tj temp 36-42C
- LED rated lifespan 200,000-300,000 hours
- All new electronics and light source inside existing fixture body

	4-LAMP T8	4 LED TUBES	RKS RETRO	RKT RETRO
WATTS PER FIXTURE	118	100	40	30
ANNUAL kWh/FIXTURE	743	630	252	189
ANNUAL ELECT. COST @ .09/kWh/-	\$67	\$57	\$23	\$17
ELECTRIC COST OVER 10 YEARS	\$688.70	\$567.00	\$226.80	\$170.10
ELECTRIC SAVINGS OVER 10 YEARS	N/A	\$102.00	\$442.00	\$449.00
YEARS TO PAYBACK	N/A	7.37	1.24	1.30
ANNUAL ROI (FIRST 10 YEARS)	N/A	13.56%	58.92%	66.48%

*All costs calculated PER FIXTURE, and at typical installed prices | ** Note that LED tubes will typically need replaced before 10 years

PROGRAM SOLUTIONS

1. Stock an appropriate amount of RKS product at each location to allow customers to see and purchase products for samples and small projects.
 - Utilize existing shelf space in each location to display product in a manner that will encourage sales.
 - Display the Optilumen logo banner in the location preferably near the product.
 - Display and maintain literature stock for the customer's needs.
2. Stock 50 kits in each location and receive a ¼ pallet floor display per location free.

OUTSIDE SALES PROGRAM

Optilumen is offering a new program to the hardware store industry. We have seen very good success with a few small hardware chains in PA and FL. The program looks like this:

The hardware store, in addition to maintaining a stock of our product(s) in each location, hires 1 or several (pending the local) outside sales people. These sales people will present energy saving ideas and opportunities to other businesses, schools, and homeowners in their region. The profit margin is good and the sales are easily closed. This program will provide yet another revenue stream for your locations. If your location's choose to participate in this program Optilumen will provide the following:

1. Product and sales training videos
2. On site, in person training if desired (5 or more sales people present)
3. Optilumen's 0 down, 0 out of pocket finance program (projects over \$5000.00 including labor)

SUMMARY

It's no longer a question of *if* your customer will convert to LED, it's a matter of *when and how they will convert*. Optilumen retrofit products are the easiest and most cost effective way to convert your customer's lighting system to LED, without intrusive fixture replacement, and with efficiencies and longevity unattainable with LED tubes.

Many of the general benefits that LED lighting offers are well known:

- **Energy efficiency:** Up to 80% savings on lighting, which is typically 40-70% of electric cost
- **Reduce energy consumption** further by cutting air conditioning costs significantly
- **Maintenance Savings:** extremely long life virtually eliminates maintenance for a decade
- **No Mercury**
- **Near Zero UV emission**
- **Improve safety** and improve light levels
- **Improve the feeling of wellness** among clients and staff

In addition to these general benefits derived from a change to LED, choosing Optilumen will provide additional benefits such as:

- **Ease of installation:** 3 minute conversion can be performed by existing maintenance staff
- **Heat is removed from the fixture** and work space better than any other measure.
- **Lowest RF and THD in the industry.** Does not affect most sensitive equipment
- **Lowest installed cost solution** in the industry
- **Highest efficiency Retrofit product available,** documented by UL, DLC and others
- **Integrates with virtually all controls;** dimming, daylight harvesting, occupancy sensors etc.
- **Customization available.** Custom lengths, shapes, color temps, etc can be accommodated
- **We work with customers** to help them maximize rebates, incentives, and tax programs



www.optilumen.com

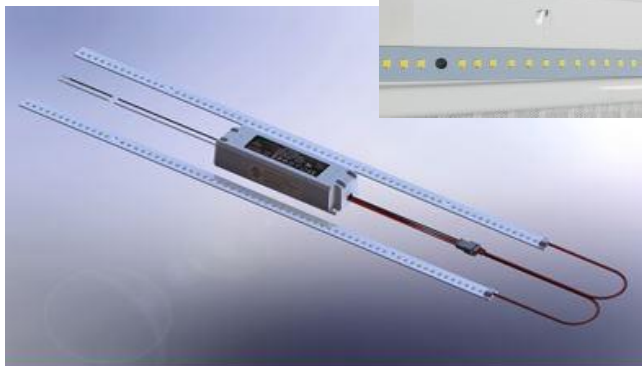


PRODUCT IDENTIFICATION

Product Family: RKS series LED Retrofit Kit

Product Description: LED Linear fluorescent retrofit kit, w/magnetic LED strips and driver¹

Product Applications: Retrofit 1' x 4', and 2' x 4' "troffers" and 4' and 8' linear fluorescent fixtures. The LED strips and the driver are magnetic backed, this universal design works in most linear fluorescent fixtures. When you consider efficiency, ease of install, incredible performance and extremely low cost, the RKS series retrofit kits outperform the competition in every way. Available in 2' & 4' variants to accommodate a variety of fixtures.



Model Number*	Nominal Power	LED Strips Qty	Listed Ambient Lumens**	DLC reported Lm/w	PRODUCT SPECIFICATIONS
RKS2220-X	20W	2 x 21"	> 2901	156	Voltage: 90-277v, 50- 60 Hz Power Factor: up to .989 Power Supplied: Quick-connect, remote driver Mounting method: Magnetic, quick-connect Dimming: Not standard, optional upgrade Luminous Efficiency: >138 lm/w Delivered CCT Available: 3500K, 4000K, 5000K * CRI (Ra): >82 nominal L70 Lifespan: >200,000 TM21 Ambient Temperature: -45C to +70C Suitable for Damp Locations Optional Accessories: Clear and frosted lenses, adhesive backing, and extended harnesses
RKS3220-X	20W	3 x 21"	> 2961	160	
RKS2230-X	30W	2 x 21"	> 4324	145	
RKS3230-X	30W	3 x 21"	> 4502	154	
RKS1420-X	20W	1 x 42"	> 2848	149	
RKS2420-X	20W	2 x 42"	> 2986	157	
RKS2430-X	30W	2 x 42"	> 4489	148	
RKS3430-X	30W	3 x 42"	> 4621	152	
RKS2440-X	40W	2 x 42"	> 5831	145	
RKS3440-X	40W	3 x 42"	> 6082	156	
RKS2450-X	50W	2 x 42"	> 6458	138	
RKS3450-X	50W	3 x 42"	> 6835	145	

¹Optilumen's magnet backed components attach themselves to the troffer/striplight body in seconds and become a physical and thermal part of the fixture, truly making the fixture an LED luminaire. The entire body of the luminaire becomes the heat sink for the strips, making them operate at an amazing 36C-42C, dramatically extending their lifespan and efficiency.

* X suffix in model number denotes CCT, ie: RKS2440-3 = 3500K, RKS2440-4 = 4000K, RKS2440-5 = 5000K

** Test results verified by UL Verification Services Inc., in accordance with DLC guidelines. Results shown are at 5000K, tested in Linear Ambient luminaire without lens. Lumen output of other CCT and/or different luminaire may have different lumen outputs.



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