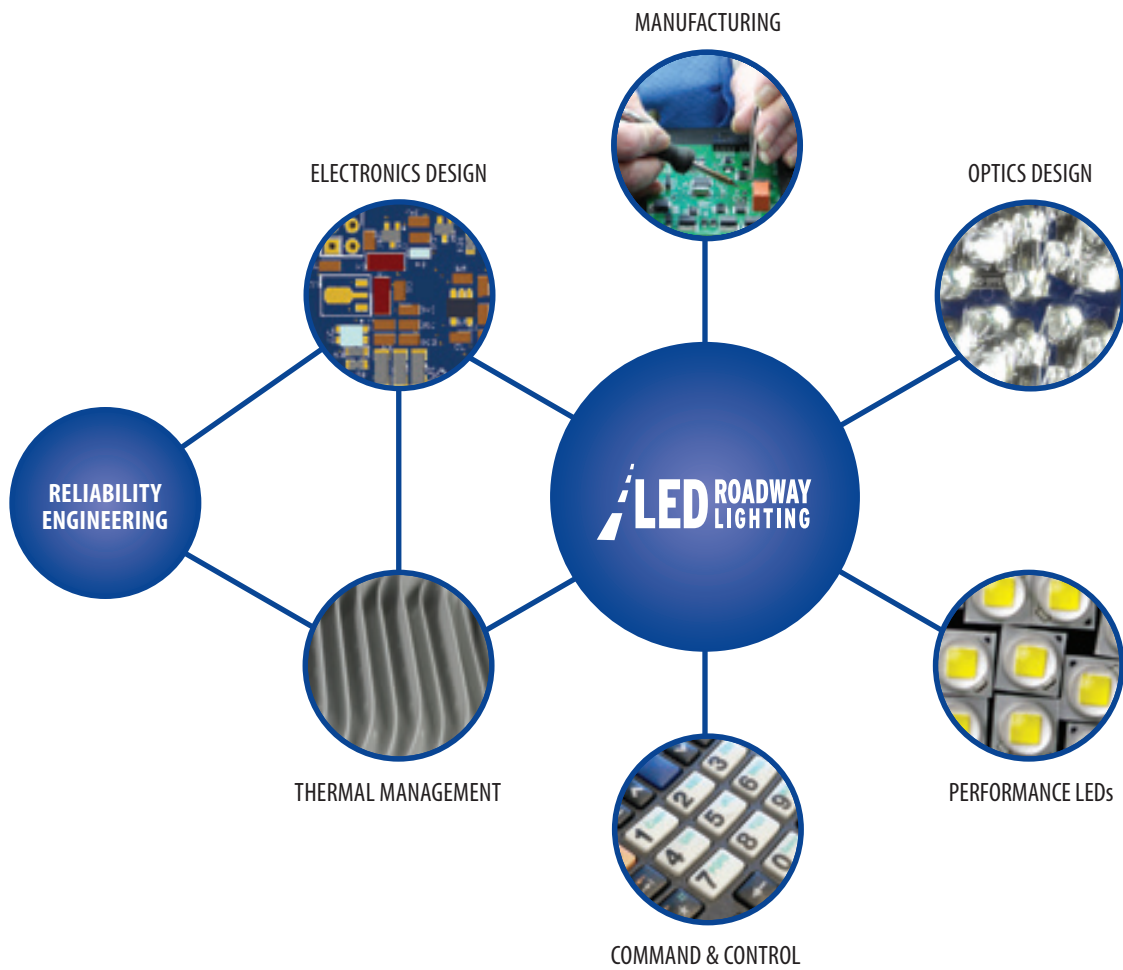


LED ROADWAY LIGHTING & CONTROL SOLUTIONS



LED ROADWAY
LIGHTING



LED ROADWAY LIGHTING LTD.



HEADQUARTERS IN HALIFAX, NOVA SCOTIA, CANADA

LED Roadway Lighting Ltd. (LRL) is a Canadian-owned and operated clean technology company that designs and manufactures LED-based street and area luminaires and control systems. We are headquartered in Halifax, Nova Scotia, with primary manufacturing located in Amherst, Nova Scotia. We also have manufacturing capabilities in the U.S.A., UK, Brazil, and Australia. Our Halifax design center is staffed by a team of experts in the areas of optics, mechanical design, power supply design, and reliability engineering. LRL products are RoHS compliant (free of lead and mercury), and provide energy savings of up to 60% with substantially reduced maintenance costs. Our luminaires are installed in more than 40 countries.

INDUSTRY LEADERSHIP

Our initial goal was to develop a commercially viable LED-based street light. We did much more than that. Drawing on decades of combined experience, we created the ground-breaking Satellite series fixtures, and pioneered the use of a purpose-built, long-life driver in a street light. We have continued to innovate and deliver new products to the market, including the NXT series of luminaires, and a full suite of networked and non-networked lighting controls. LRL prides itself on providing innovative roadway lighting solutions, with an emphasis on performance, reliability, quality, and lowest cost of ownership. Our luminaires have received industry recognition including Best in Class – Local Residential Roadway (NXT-S, 2013 Next Generation Luminaires™ Competition), and inclusion in the Illuminating Engineering Society (IES) Progress Report (NXT-S 2013, and NXT-M 2014).

SINGLE SOURCE RESPONSIBILITY

LRL's level of vertical integration is another reason to select NXT™ and Satellite™ Series luminaires. All power supplies, light engines, and electronics are designed, manufactured and tested in-house. When selecting LRL for your project, you are dealing with the manufacturer, not an integrator of third-party components.

HIGH QUALITY MANUFACTURING

Our primary manufacturing facility (located in Amherst, Nova Scotia, Canada) is ISO 9001 certified, and has been producing LED lighting products since 2003. LRL began commercial production of LED street lights in 2008. We employ lean manufacturing techniques that ensure efficient production and on-time delivery.



MANUFACTURING CAPABILITIES IN FIVE STRATEGIC INTERNATIONAL LOCATIONS: CANADA, USA, UNITED KINGDOM, AUSTRALIA, AND BRAZIL.

MANUFACTURING AND DESIGN EXCELLENCE



INNOVATION IN DESIGN

Our in-house design team has developed multiple articles of intellectual property related to the NXT™ and Satellite™ Series luminaires and control products. These innovations include our unique optics systems, our high-reliability power supplies, and our thermal management system.

RESPONSIVENESS

LED Roadway Lighting Ltd. is small enough to be flexible and responsive to customer requirements, yet large enough to support your projects now and in the future. Our in-house design and manufacturing, combined with an empowering management, supports innovation and reduced time to market.



MANUFACTURING IN AMHERST, NOVA SCOTIA, CANADA

MANUFACTURING CAPABILITIES

- State-of-the-art 55,000 ft² (5,100 m²) main facility.
- In-house design and manufacturing ensures total process control.
- Electrostatic dissipative (ESD) epoxy flooring to prevent static discharge to luminaires and components.
- Aegis Factory Logix® manufacturing operations system.
- RoHS (lead and mercury free) manufacturing process.
- High reliability soldering process incorporates nitrogen to ensure the highest quality solder joints.
- Electronics assembly (3 complete SMT lines).
- Integrating sphere and environmental testing equipment.
- Testing and inspection: lumen output, in-circuit, functional, x-ray, XRF lead-free analysis.





NXT™

DESIGNED WITH THE FUTURE IN MIND



PERFORMANCE, RELIABILITY, & UPGRADEABILITY

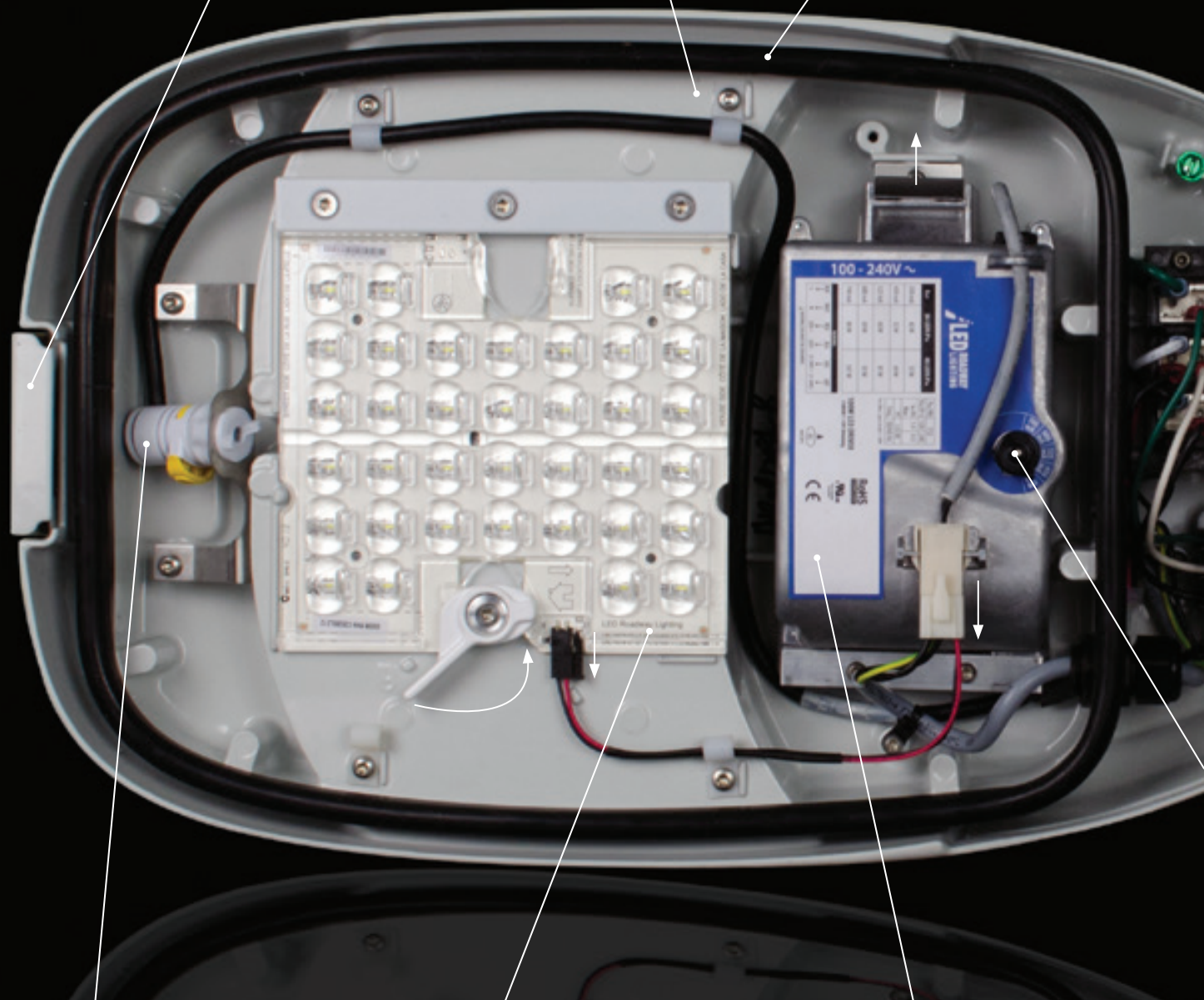
The modular design of NXT luminaires allows users to easily upgrade or replace light engines or power supplies, without tools, in less than one minute. Light engines can be replaced in the field as LED efficiencies increase in the future, allowing users to prolong the useful life of lighting infrastructure, benefit from energy savings, and reduce total life-cycle costs. NXT also gives users the ability to change optical distribution patterns and is ideal for roadway/street lighting, parking areas, and general outdoor area lighting applications. Luminaires are available in three sizes: NXT-C (12 LEDs), NXT-S (12, 24, & 36 LEDs) and NXT-M (48, 60, & 72 LEDs). The NXT-S luminaire was selected as "Best in Class – Local Residential Roadway Lighting" in the Next Generation Luminaires™ (NGL) 2013 Design Competition. The NGL Awards promote "technical innovation and recognize excellence in the design of energy-efficient LED luminaires". NXT was also selected for inclusion in the prestigious IES Progress Report, recognizing LRL's "unique and significant advancement to the art and science of lighting" (2013 and 2014).



QUICK ACCESS LATCH
Tool-less entry.

ALUMINUM BODY
Single-piece, die-cast A360 aluminum.

GASKET/SEAL
IP66 rated protection against water and dust particles.



LUMEN DEPRECIATION SENSOR
Optional accessory which monitors and reports actual LED depreciation (via Lumen IQ™ control system).

UPGRADEABLE LIGHT ENGINE
Unplug the cable connector and release the light engine using the turn latch.

UPGRADEABLE POWER SUPPLY
Unplug the cable connector and release the power supply using the clips.

NXT MODEL*	# OF LEDs	DRIVE CURRENT	COLOR TEMPERATURE (CCT)
NXT-C	12	525, 700, 850, 1050, 1250 mA	5000K (Standard), 3000K & 4000K (Optional)
NXT-S	12, 24, 36	350, 450, 525, 600, 700 mA	5000K (Standard), 3000K & 4000K (Optional)
NXT-M	48, 60, 72	350, 450, 525, 600, 700 mA	5000K (Standard), 3000K & 4000K (Optional)

* PLEASE REFER TO SPECIFICATION SHEETS FOR DETAILED PERFORMANCE DATA

INTEGRATED MOUNTING STEP

Built-in steps with 2.5° increments allow for simple tilt adjustment up to $\pm 5^\circ$.

MOUNTING OPTIONS

2-bolt fitter (standard) & optional 4-bolt fitter (NXT-S only)
1.625" - 2.375" (42 - 60 mm) O.D. Tenons
Post-top mount option available.

DURABLE FINISH

Polyester powder-coat topcoat.

GLASS LENS
IK09 rated

FIELD ADJUSTMENT SWITCH

Optional switch allows users to select 5 available drive currents (350, 450, 525, 600, & 700 mA).

UPGRADEABLE SURGE MODULE

Optional surge module which meets the requirements of ANSI C-High (10kV/10kA). Unplug the cables and release the surge module using the clips.

70%
ENERGY
SAVINGS

ASSET PAYBACK
4.2*
YEARS

HATO ROUNDABOUT, ARUBA

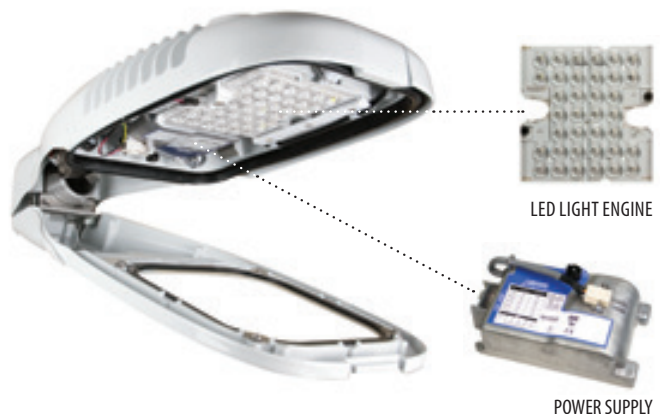
NXT SERIES CASE STUDY

Over 500 NXT-24S (27W) luminaires were recently installed throughout the island of Aruba. Eighteen NXT luminaires light-up the newly constructed Hato Roundabout located north of the city of Oranjestad.

NXT SERIES (NXT-24S @ 350 mA)	
Annual Energy Savings (Year 1)	\$39,308 (142.9 MWh)
Total Maintenance Savings (Year 1)	\$19,276
Total Maintenance Savings (20 years)	\$386,059
Total Energy Savings (20 years)	\$1,056,211 (2,858.7 MWh)
Total Life-cycle Cost Savings (20 years)	\$1,251,564
Greenhouse Gas Reduction (20 years)	1,396.5 tonnes

FUTURE-PROOFING

NXT Series luminaires are designed to allow for future, tool-less upgrades of key components (light engine and power supply). For example, light engines are easily replaced in the field to take advantage of future improvements in LED efficiency.



* ASSET PAYBACK IS BASED ON CAPITAL PAYBACK OF REPLACING 80W MERCURY VAPOR LUMINAIRES. RE-LAMP COST OF \$150 PER LUMINAIRE. RE-LAMP SCHEDULE IS 4 YEARS. ENERGY COST \$0.275 PER KWH. ANNUAL ENERGY COST INCREASE RATE (MULTIPLIER) IS 3%.

SATELLITE™

DESIGNED FOR 20 YEARS OF SAVINGS

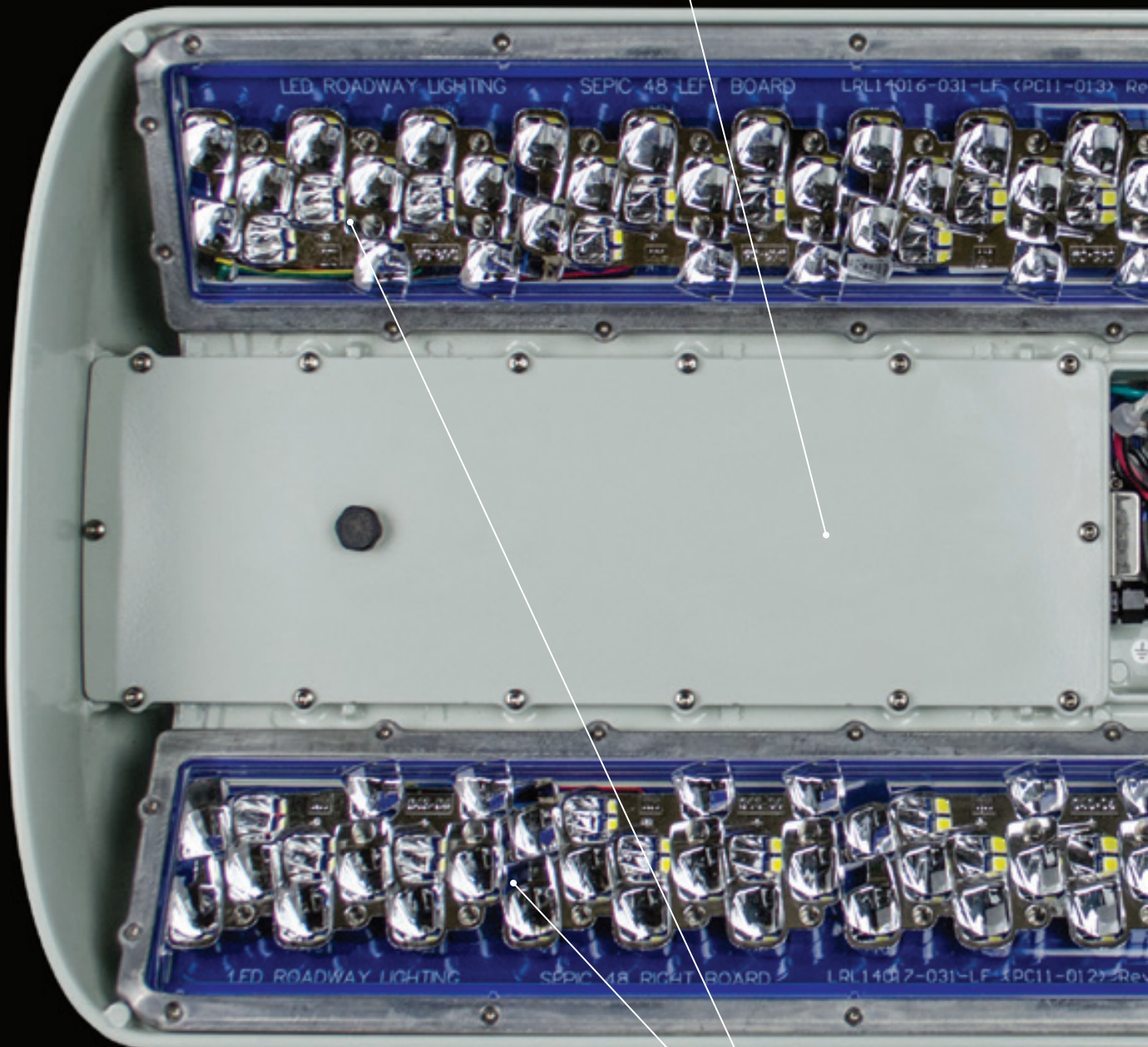


PERFORMANCE, RELIABILITY, & DURABILITY

Satellite Series luminaires are designed for maximum performance, reliability, and durability. The one-piece luminaire housing uses a patented, fin-based thermal management system which allows for maximum heat dissipation. The fin construction also prevents the accumulation of debris, and easily sheds water, snow and ice. The unique angled light engines deliver maximum target lumens, and also make Satellite an ideal choice in applications with wide pole spacing (up to 60 m / 200 ft). The power supply is designed and manufactured in-house using high reliability, specification-grade components. Satellite Series luminaires boast energy savings of up to 60%, and are ideal for all roadway applications, bridges, causeways, parking lots and perimeter lighting. Satellite is available in two sizes - SAT-S (24 & 48 LEDs) and SAT-M (72 & 96 LEDs) and is suitable for replacing existing 70-400 watt HPS/MH luminaires.



HIGH RELIABILITY POWER SUPPLY (IP66 RATED)
Designed and manufactured in-house, our 20 year design life power supplies use high reliability components.

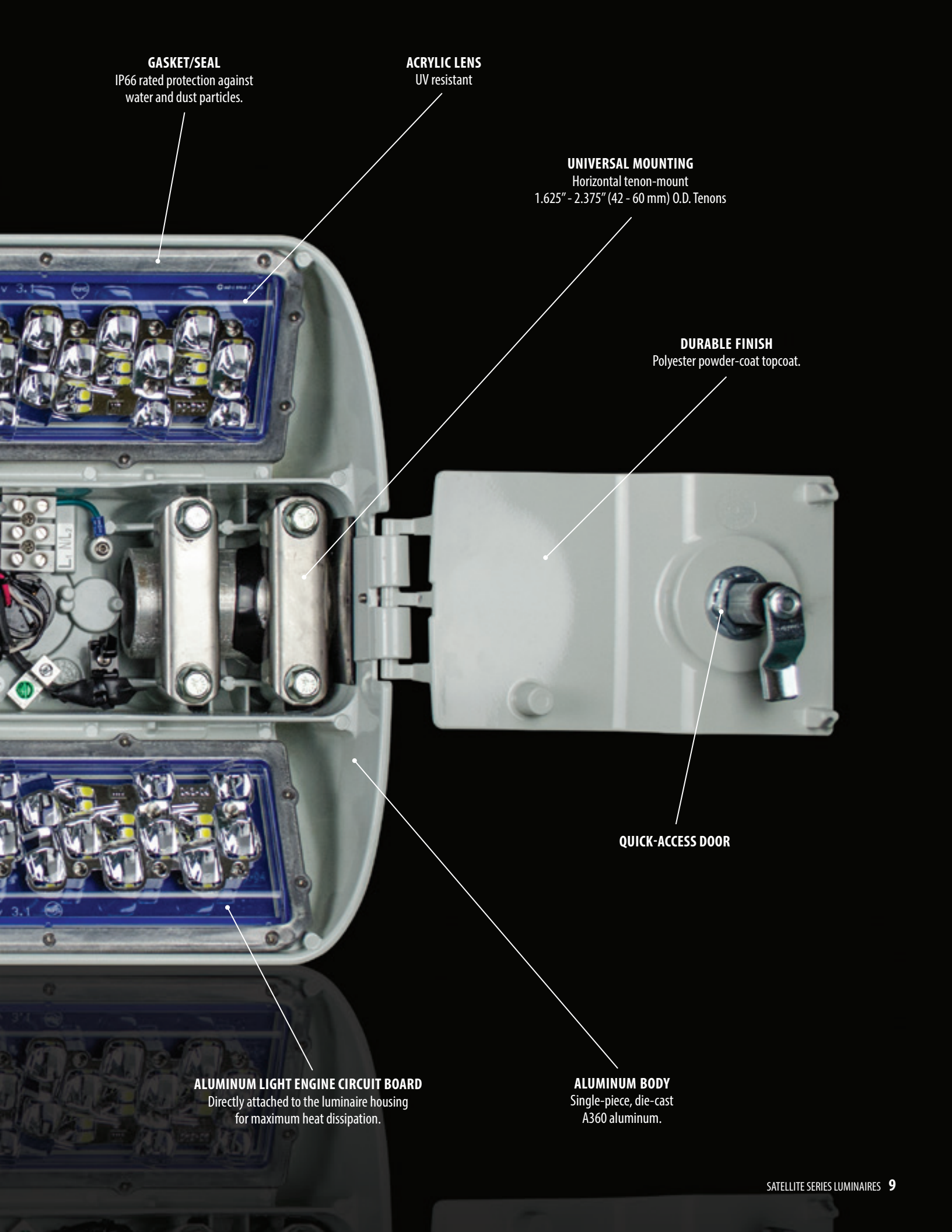


DUAL LIGHT ENGINES

Unique, angled (30 degree) light engines deliver light exactly where you need it. International Dark Sky approved.

SAT MODEL*	# OF LEDs	DRIVE CURRENT	COLOR TEMPERATURE (CCT)
SAT-S	24 & 48	280, 350, 450, 525, 600 mA	5000K (Standard), 4000K and 4500K (Optional)
SAT-M	72 & 96	280, 350, 450, 525, 600 mA	5000K (Standard), 4000K and 4500K (Optional)

* PLEASE REFER TO SPECIFICATION SHEETS FOR DETAILED PERFORMANCE DATA



GASKET/SEAL
IP66 rated protection against
water and dust particles.

ACRYLIC LENS
UV resistant

UNIVERSAL MOUNTING
Horizontal tenon-mount
1.625" - 2.375" (42 - 60 mm) O.D. Tenons

DURABLE FINISH
Polyester powder-coat topcoat.

QUICK-ACCESS DOOR

ALUMINUM LIGHT ENGINE CIRCUIT BOARD
Directly attached to the luminaire housing
for maximum heat dissipation.

ALUMINUM BODY
Single-piece, die-cast
A360 aluminum.

71%
ENERGY
SAVINGS

ASSET PAYBACK
3.5*
YEARS

ONE OF THE TOP 100 CIVIL ENGINEERING ACHIEVEMENTS IN THE WORLD IN THE LAST 100 YEARS

SATELLITE SERIES CASE STUDY

Confederation Bridge is the longest bridge in Canada and the longest bridge in the world that crosses ice-covered waters. The 12.9 kilometer (8 mile) long, 2-lane roadway, spans the salt water Northumberland Strait connecting Prince Edward Island with the mainland province of New Brunswick. The bridge environment includes salt marine conditions, ice, snow, wind and extreme vibrations from the 4,000 vehicles which cross it daily. Our Satellite Series luminaires (SAT-96M) replaced 355 High Pressure Sodium (250W) luminaires on the bridge span and approaching ramps.

EASE OF INSTALLATION

This installation took place over 15 days during harsh Canadian winter weather. An average of 25 - 30 luminaires were installed per day. Satellite Series luminaires are ideal for long pole spacing such as on bridges and require little maintenance over their 20-year design life.

SATELLITE SERIES (SAT-96M @ 280 mA)

Annual Energy Savings (Year 1)	\$42,246* (325 MWh)
Total Energy Savings (20 years)	\$1,396,925 (6,500 MWh)
Total Maintenance Savings (20 years)	\$883,708
Total Life-cycle Cost Savings (20 years)	\$1,965,038
Greenhouse Gas Reduction (20 years)	1,501 tonnes



PERFORMS WELL IN EXTREME TEMPERATURES

Our luminaires are designed and built for superior performance in extreme hot and cold climates, with an operating temperature range of -40°C to +60°C (-40°F to +140°F). Our fin-based housing design effectively dissipates heat, and sheds water, snow, ice and debris. The IP66 rated enclosure ensures protection from solid and liquid ingress.

RIGOROUS TESTING

Satellite Series luminaires have been tested and meet the highest requirements for ANSI C136.31 Roadway Luminaire Vibration (100,000 cycles at bridge or overpass frequency (5Hz-30Hz); 3G rating), ASTM B117 Salt Spray Test, and MIL-STD-810F Rain/Ice Test.

* ASSET PAYBACK IS BASED ON CAPITAL PAYBACK ABOVE THE COST OF INSTALLING A 250W HIGH PRESSURE SODIUM SYSTEM. RE-LAMP COST OF \$250 PER LUMINAIRE. RE-LAMP SCHEDULE IS 2 YEARS. ENERGY COST \$0.13 KWH. INFLATION RATE (MULTIPLIER) IS 5% (ANNUAL). PAYBACK PERIOD INCLUDES ENERGY EFFICIENT LIGHTING REBATE PROVIDED BY LOCAL UTILITY.



THE LED ROADWAY LIGHTING LTD. ADVANTAGE

- Lowest life cycle cost
- Compelling return on investment (ROI)
 - One company, one warranty
 - Award-winning products
- Long life power supplies with a 10 year OEM warranty
- Future-proof design prolongs life of street lighting infrastructure (NXT)
- Complete lighting solution: Luminaires, Wireless Controls, Smart Grid Solutions

