



Smart City Micro-Sensing Solutions for today and tomorrow.



About Us

Liveable Cities is a division of LED Roadway Lighting Ltd. that specializes in smart city technology, including luminaires, controls, software and smart city micro-sensors. Our smart street lighting and connected products are operating worldwide in over 65 countries, and we have begun deploying pilot projects of our newly developed smart city technologies while continuing to broaden our offering of smart city/grid sensor solutions. Our advanced electronics manufacturing, sensor networks and data analytics solutions help to make communities more sustainable, efficient, and resilient.

Our Products

LED Streetlights: We believe that LED streetlights should be designed with the future in mind, ready to adapt to advances in LED, network, and smart city technology. Our products' modular designs make them easy to update with technological improvements or to add smart city features in the future and are well-known throughout the world for their long life, low maintenance costs, and ability to withstand tough environments.

SmartLinx Micro-Sensing Solution: The SmartLinx Micro-Sensing Solution (SLX) is an innovative technology that can easily launch a smart city with low cost and low risk on existing public streetlights that have a NEMA receptacle. SLX network controllers are modular



and "smart ready", allowing for tool-less installation of various smart city sensors such as motion sensors, environmental sensors, ambient noise, and other smart city/grid solutions. The Liveable Cities' speed sensing solution can provide vehicle speed mapping, traffic flow analysis and traffic counting.

Controls: Liveable Cities smart city solutions connect streetlights to their owners and the smart city. The streetlights' location above the street and its access to constant power creates a unique opportunity to deploy smart sensors with a wireless connected system throughout the city. Our wireless network control provides a range of benefits, including real-time lighting controls for dimming, automatic failure alerts, billing-grade energy measurement, and asset management. Depending on the clients' needs, we can provide either a stand-alone lighting and sensor network or a variety of products that are compatible with major global smart grid network providers

Software

Our SmartLinx Smart City Platform provides users with a tool to manage their smart city applications. The software is user-friendly, scalable, and highly configurable, providing the user with intuitive control of a powerful solution to collect data and create reports.



Manufacturing

LED Roadway Lighting Ltd. and Liveable Cities are ISO 9001 certified and employ lean manufacturing techniques, enabling us to ensure efficient production, provide on-time delivery, and increase customer value. With our state-of-the-art 55,000 ft² (5,100 m²) manufacturing facility, we oversee every step of the supply chain– from the moment of product conception to the day orders are shipped to buyers – allowing us to ensure that every phase is performed with complete excellence.

Our LED Luminaires

Drawing on decades of combined experience, we have continued to innovate and deliver new products to the market, including the NXT™ and NXT-Lite™ series of luminaires, and a full suite of networked and non-networked lighting controls.

NXT™

NXT gives the right amount of light right where you need it. Available in a number of distributions with low glare, and high color contrast. NXT provides high-end street lighting at lower energy costs.

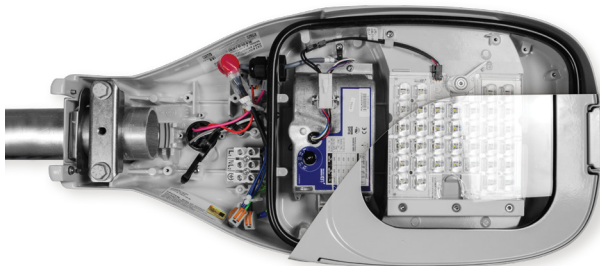
NXT-C

- 12 LEDs
- Compact sized luminaire body
- 525 - 1250 mA drive currents
- 4000K CCT (Standard)
- 3000K & 5000K CCT (Optional)



NXT-S

- 12, 24, 36 LEDs
- Small sized luminaire body
- 350 - 700 mA drive currents
- 4000K CCT (Standard)
- 3000K & 5000K CCT (Optional)



NXT-M

- 48, 60, 72 LEDs
- Medium sized luminaire body
- 350 - 700 mA drive currents
- 4000K CCT (Standard)
- 3000K & 5000K CCT (Optional)



NXT LITE™

NXT-Lite incorporates award-winning performance, reliability, and future-proof in features that utilities and municipalities have come to expect. NXT-Lite is utility-friendly and designed for roadway applications requiring up to a 400W high pressure sodium replacement.

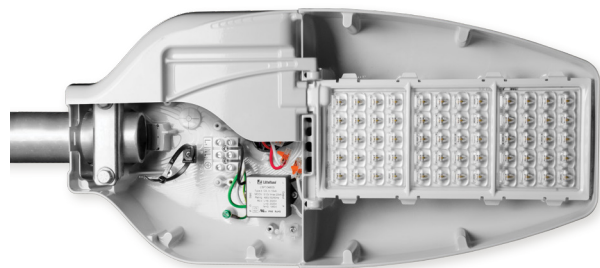
NXT-LITE-S

- 8, 16 LEDs
- Small sized luminaire body
- 175 - 1050 mA drive currents
- 4000K CCT (Standard)
- 3000K CCT (Optional)
- Small form factor design for ease of installation



NXT-LITE-M

- 60 LEDs
- Medium sized luminaire body
- 200 - 950 mA Drive Currents
- 4000K CCT (Standard)
- 3000K CCT (Optional)
- Small form factor design for ease of installation



SMARTLINX

SmartLinx Smart City Platform provides users with a tool to manage their smart city applications. The software is user-friendly and highly configurable, providing intuitive control of a powerful solution. SmartLinx is used to manage inventories of streetlights, sensors, cameras and other smart city end points.

Wireless Streetlight Control System

The deployment of a wireless control system on public streetlights offers several immediate and long-term benefits, including:

1. Carbon emission reduction & energy savings.
2. Reduce maintenance costs & enable better asset management.
3. Collect useful data and insights about grid performance & energy usage.
4. Create a foundation for additional smart city applications.

- Flexible, scalable platform
- Best total cost of ownership
- Easy to install and maintain
- Interoperable with other systems

Why Consider Wireless Controls?

Reduce Carbon Emissions & Save Energy

Substantial savings can be made when you have complete control of your lighting assets. Energy savings is achieved by adjusting light output during the night



and tailored to peaks and drops of traffic, trimming on/off times based daily sunset/sunrise schedules, and/or tuning the luminaire power to deliver constant light output over the life of the luminaire.

Improved Maintenance Costs & Asset Management

Remove the need for maintenance patrols and use the Central Management Software (CMS) to track/monitor assets and enable enhanced service levels through efficient management and maintenance of the public streetlighting infrastructure.

Collect Useful Data about Grid Performance & Energy Usage

Connected streetlights collect and report data from the grid 24/7/365. Use the data and insights generated from streetlights to provide an enhanced level of service to your customers and increase efficiencies throughout

the grid. Data from the streetlights and the Central Management Software (CMS) can be ported to other software systems to provide useful insights for grid management and operations.



Controller

Similar to LED streetlights manufactured by LED Roadway Lighting, our smart streetlight controllers are designed for a variety of harsh environments. We understand the unique environmental challenges of the region and we have designed a robust/resilient controller with unique technical features (like the cool cap design) to provide best total cost of ownership and performance. The tool-less sensor platform provides for ease of sensor deployment to enable future smart city applications for your utility and your customers.

A Foundation for Additional Smart City Applications

The network for connected streetlights can be used to deploy smart grid and smart city applications. These smart grid/city applications can be used to provide internal benefits to the utility (sub-station security monitoring) or provide new technology solutions to your customers (high accuracy vehicle, pedestrian, and bicycle counting and classification, post-incident video retrieval).



Micro-Sensor Suite

Our SmartLinx micro-sensors are an innovative technology that can easily launch a smart city with low cost and low risk on existing public streetlights that have a NEMA receptacle. The micro-sensors allow for tool-less installation of various smart city sensors.



SLX-SPEED MICRO-SENSOR *Speed Sensing*

The speed sensor provides traditional speed metrics such as:

- Average speed
- 85th percentile
- Peak Speed
- Over speeding



SLX-PARTICLE MICRO-SENSOR *Air Quality (Particulates)*

The particulate matter sensor provides measurement of airborne particulates in the following sizes:

- PM2.5
- PM10



SLX-NOISE MICRO-SENSOR *Noise Sensing (Acoustic)*

The noise sensor provides sensing and reporting of the following noise levels:

- Average LEQ
- Min and Max LEQ



SLX-VIDEO MICRO-SENSOR *Video Recording*

The video sensor records up to 14 days of continuous video locally on the device, which can be retrieved on demand in the event of an accident or incident. Signage is also available for preventative programs



SLX-AIR MICRO-SENSOR *Air Quality (Gas)*

The gas sensors can detect either:

- Nitrogen Dioxide (NO₂)
- Sulphur Dioxide (SO₂)
- Ozone (O₃)



SLX-COUNTER MICRO-SENSOR *Video Counter*

The video counter allows for video retrieval paired with video analysis services for traffic studies. Over The Air (OTA) upgrade in the future will allow for detection at the edge, with no video upload required

Plug & Play Design

Streetlights have a global, standardized NEMA socket. Our micro-sensors fit on this standard socket, which allows the sensors to connect on any streetlight globally.

