TE connectivity

HOW TWO-NODE ARCHITECTURE CAN TRANSFORM CITIES

Smart lighting systems are critical components for smart cities of the future. Two-node architecture is the foundation that makes smart lighting — and smarter cities — possible.

STREET LIGHTING EFFICIENCY AND IMPACT

Why should cities, municipalities, and utilities care about the connectivity and capabilities that smart lighting can deliver? Consider these statistics:

THE US DEPARTMENT OF ENERGY SUGGESTS THAT **LIGHTING** IS RESPONSIBLE FOR **15%** OF GLOBAL **ELECTRICITY CONSUMPTION**[1]

MANY CITIES COULD **REDUCE** COSTS UP TO **50%** BY FULLY EMBRACING **SMART CITY TECHNOLOGIES** SUCH AS SMART STREETLIGHTS, NEXT-GENERATION POWER GRIDS, AND INTELLIGENT TRAFFIC LIGHTS[2]

$5 TRILLION IN GLOBAL ANNUAL **COSTS** COULD POTENTIALLY BE **SAVED** BY ADOPTING **SMART CITY TECHNOLOGIES**[2]
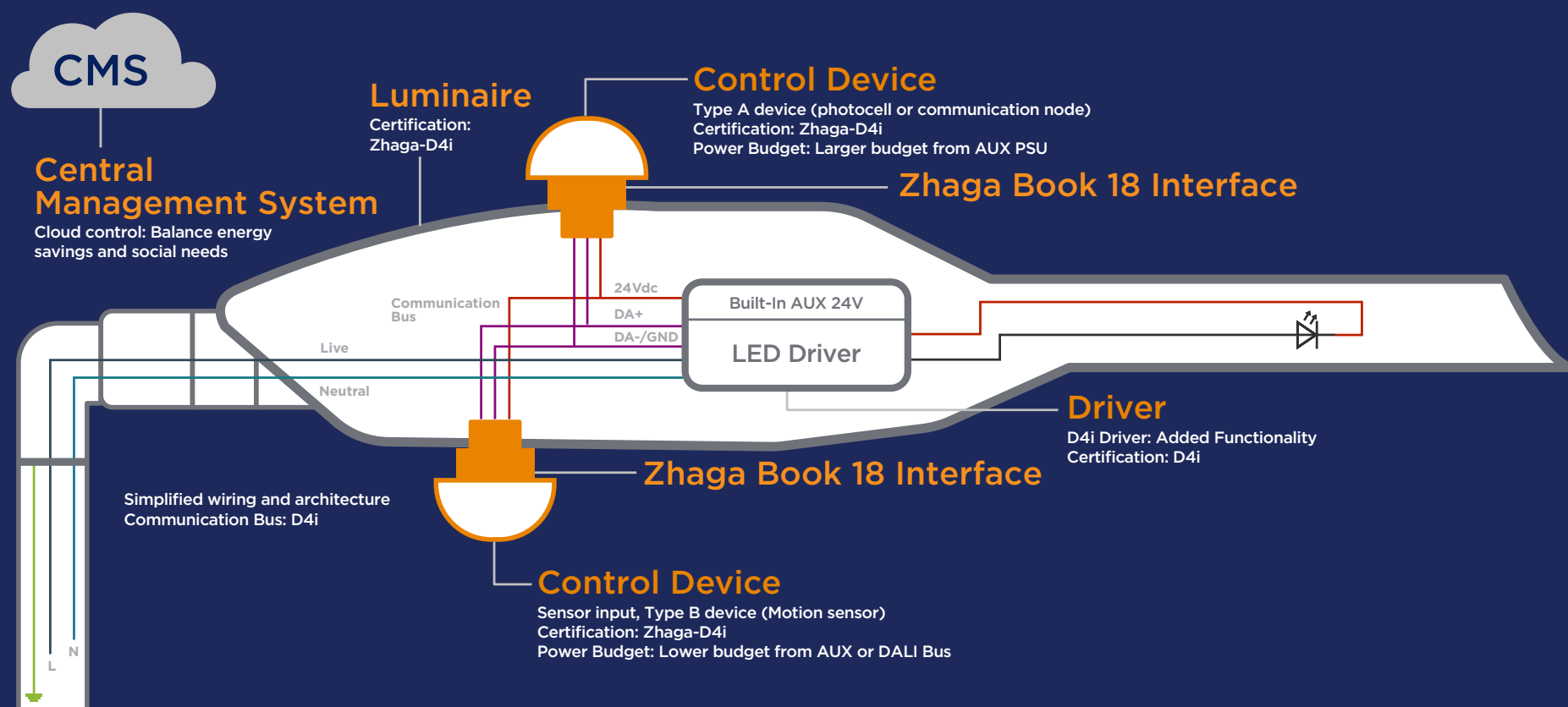
Street light systems can account for up to **60%** of a municipality's electric utility budget[3]

→ The greater control provided by the smart lighting capabilities enabled by two-node architecture — such as adaptive lighting based on motion sensing and traffic monitoring — can help reduce energy usage for cities.[3]

WHAT IS TWO-NODE ARCHITECTURE?

Two-node architecture is a streetlight design standard that allows the asset to go beyond lighting and act as the platform for smart cities. In addition to offering greater control and further energy savings, these systems can also collect and process city-wide data, helping pave the way for a smarter, more sustainable and optimized city.

CMS

Central Management System
Cloud control: Balance energy savings and social needs

Luminaire
Certification: Zhaga-D4i

Control Device
Type A device (photocell or communication node)
Certification: Zhaga-D4i
Power Budget: Larger budget from AUX PSU

Zhaga Book 18 Interface

Communication Bus
24VD
DA+
DA-/GND
Live
Neutral
Built-In AUX 24V
LED Driver

Driver
D4i Driver: Added Functionality
Certification: D4i

Zhaga Book 18 Interface

Simplified wiring and architecture
Communication Bus: D4i

Control Device
Sensor input, Type B device (Motion sensor)
Certification: Zhaga-D4i
Power Budget: Lower budget from AUX or DALI Bus

ILLUMINATING SMART CITIES:
How Two-Node Architecture Delivers Innovation

ADDED SMART FUNCTIONS
Communication and analytics from smart street lighting can provide smart sensing benefits such as pollution, air quality and traffic monitoring, parking control, and more.
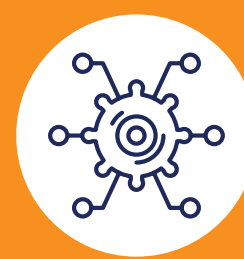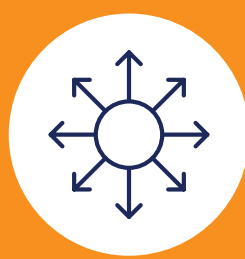
STANDARDIZED INTERFACES ENABLE INTEROPERABILITY
Zhaga standards ensure standardized interfaces that support interoperable components, which allows LED luminaires to be upgraded and serviced.

POTENTIAL NEW REVENUE STREAMS
Cities and utilities can monetize smart streetlights so they become a revenue source.

VERSATILITY FOR THE FUTURE
As more devices are developed and released, cities can plug them into lighting systems using two-node architecture for added functionality.

OPERATIONAL SAVINGS AND COST EFFICIENCIES
Smart capabilities can improve system energy efficiency and streamline operations and maintenance.

INNOVATIVE, FUTURE-READY STREET LIGHTING PRODUCTS FOR SMART CITIES

As an industry leader in the development of two-node architecture, TE Connectivity (TE) provides an extensive portfolio of flexible and reliable solutions for smart street lighting systems.
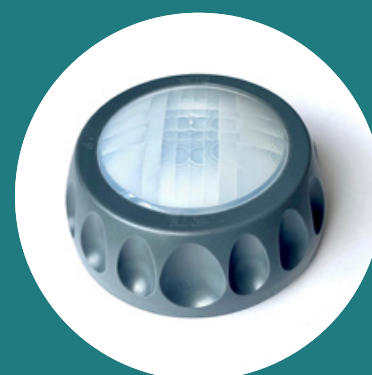
LUMAWISE ENDURANCE S2 CONNECTORS
LEARN MORE

LUMAWISE ENDURANCE N POKE-IN STREETLIGHT DIMMING RECEPTACLE
LEARN MORE

LUMAWISE ALR 11000 ZHAGA DIGITAL PHOTOCELL
LEARN MORE

LUMAWISE MOTION PROGRAMMABLE SENSOR
LEARN MORE

Learn how upgrading to two-node architecture can unlock a wide range of capabilities and lay the groundwork for more connected, efficient, and powerful smart city networks.

Connect with TE today