signify

interact



Design for sustainable smart cities

Smart lighting that does more than just illuminate



What challenges do cities face?

Density:

5 billion people globally
will live in cities by the year 2030

Sustainability:

Ensure citizen
safety and well-being

Reduce **environmental impact** of cities

Preserve **night sky**
and natural heritage

Digitalization:

The demand for smart city systems and solutions is estimated to **increase annually by 25%,** with an overall market value of approximately US $517 billion

*Source: World City Report 2022 wcr_2022.pdf (unhabitat.org)

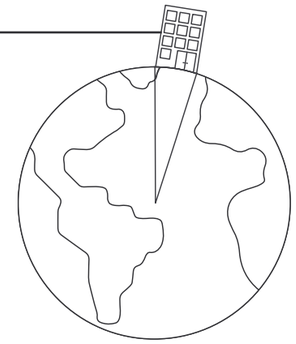
*Source: https://www.globalgoals.org/goals/11-sustainable-cities-and-communities/

Cities have a role to play

Smart cities are the key to a more sustainable future, and getting connected is the best way to optimize operations, improve the safety of citizens, and make progress toward sustainability goals.

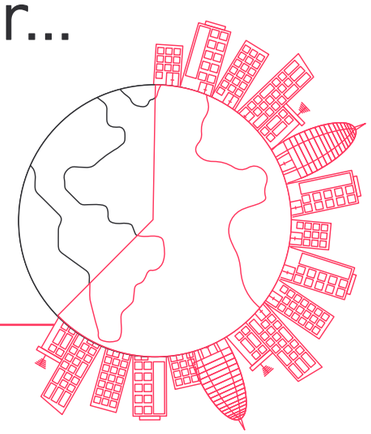
Cities are...

2%
of the world's landmass

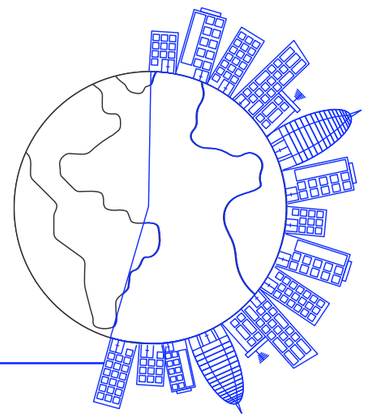


But they account for...

78%
of the world's energy use



more than
60%
of global CO_2 emissions



Smart lighting

For a more sustainable world

Smart lighting is a key pillar of smart city infrastructure, bringing concrete solutions to cities to help them face their challenges:

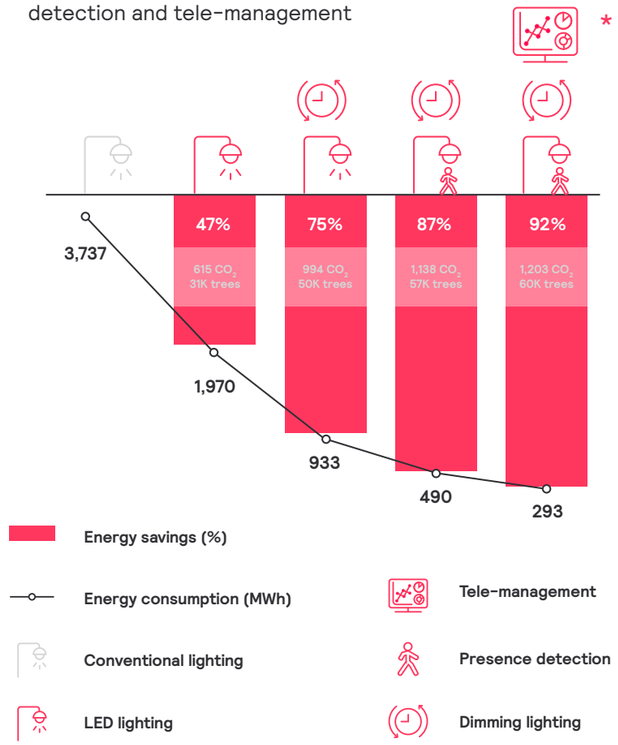
- **Well-being and safety:** better lighting reduces crime by up to 20% and road accidents by 30%*
- **Environmental impact:** installing managed and connected LED lighting increases lighting-related energy savings by more than 80% over conventional lighting, drastically reducing lighting-related CO_2 emissions
- **Operational efficiency:** save here to invest where it matters (>80% savings on electricity bills)
- **First time right:** effective maintenance can optimize up to 50% of labor and travel costs for operations

*(Source: The citywide benefits of smart & connected public lighting assessed through WCCD ISO 37120 DATA, 2017)

Savings example

A city of 100,000 inhabitants with 6,100 remaining conventional light points in public lighting applications can annually save:

- €0.7 million just by switching to LED
- €1 million by switching to LED with dimming controls
- €1.1 million by switching to LED with presence detection
- €1.2 million by switching to LED with presence detection and tele-management



There are many benefits to transforming your city into a smart city, and smart lighting and connected IoT assets can push the boundaries of what's possible. With greater control over your city's lighting infrastructure, you can optimize operations, find and resolve issues quicker, and manage light levels with ease. A smart city boasts greater levels of safety and faster response times for emergency services thanks to notifications and alerts from IoT assets.

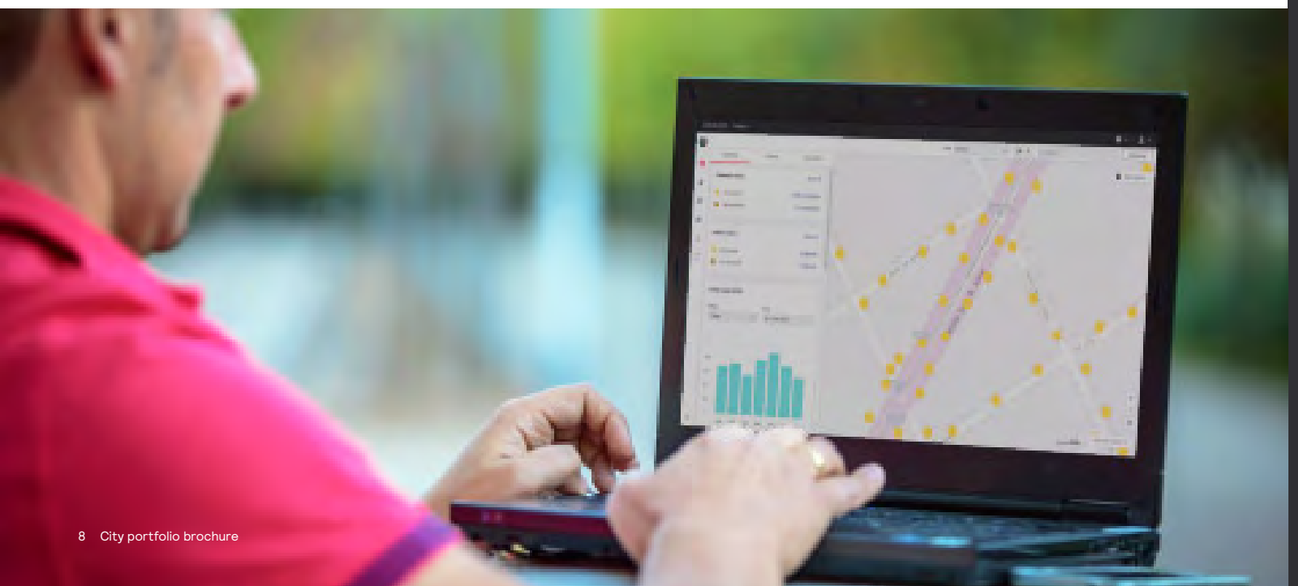
*All figures and data presented here are illustrative and based on forecasts and assumptions including scenarios with the most common switch-off and dimming profiles, presence detection settings, and tele-management functionalities. Price of electricity for municipalities = 0.335€/kWh

How can Interact help?

The most flexible and scalable connected street lighting solution on the market, Interact can manage anywhere from one light point to 300,000 and can scale beyond that.

- **Easy:** Centralized and remote management of the street lighting network.
- **Open:** Monitor and control on-grid, solar, and multi-vendor luminaires through open, RESTful APIs built for flexible smart city integration, with support for major controller technologies including cellular, RF, and cabinet-based systems.*
- **Efficient:** Manage your street light assets, optimize energy consumption, and adopt preventive maintenance.
- **Smart:** Advanced data analytics and dashboard reporting from the platform and ensing capabilities to make informed decisions about future urbanization.

Your challenges	Group management	Individual light point control (Cellular)	Individual light point control (RF mesh)	MultiSensor capabilities	Partners (Upciti)	Partners (Operations management)	Interact Dashboard
Granularity of lighting management	+	++	++	+++	+++	+++	+++
Optimize operations	+	++	++	++	/	+++	+++
Reduce luminaire downtime and citizen complaints	+	++	++	+++	/	+++	+++
Improve traffic & pedestrian safety	/	++	++	+++	+++	+++	/
Protect data against unauthorized usage	IEC62443-4-1 & ISO27001 Certifications						
Energy savings	+	++	++	+++	/	+++	+++
Sustainability	+	++	++	+++	+++	+++	+++
Urban sensor data & smart city applications	+	++	++	+++	+++	/	++



Interact is a wireless, connected lighting system that brings numerous benefits to your city:

Up to
80%
energy savings to achieve sustainability targets

With LED luminaires that you can manually or automatically adjust based on schedules, ambient light levels, motion detection, or incidents.

Connectivity and IoT

Connect IoT-capable assets to the Interact platform, monitor, and control them all remotely through a centralized dashboard.

Compatible with all major controller types and TALQ-compliant devices—helping enable open integration and future-ready scalability.*

Less than
1.0%
downtime of luminaires

Simplify with real-time fault detection and fast resolution responses before complaints are reported.

Up to
50%
of your operations can be optimized

Simplify with effective maintenance planning and in-depth knowledge of all asset information

Cleaner, healthier environments with urban sensor data

Monitor ambient temperature, ambient noise, and more, with integrated sensors.

Secure and protect data against security vulnerabilities and unauthorized usage

Certified to IEC62443-4-1. Cybersecurity certification for the product development process and ISO27001 for an effective information security management system (ISMS).

*Interoperability and integration capabilities depend on the compatibility of the third-party systems and the configuration of the Signify Interact Management System. Functionalities may vary depending on subscription and system configuration.



Interact works with open standards for a technology-agnostic solution

Prepare your city to interact openly and seamlessly

TALQ

The global Smart City protocol that enables interoperability between Central Management Software (CMS) and Outdoor Device Networks (ODN) from different vendors.

Interact is a TALQ-certified CMS and gateway.

https://www.talq-consortium.org/

FIWARE

The open source platform components to accelerate the development of smart solutions.

Interact is a FiWARE-certified bridge.

https://www.fiware.org/

API MANAGEMENT WITH INTERACT DEVELOPER PORTAL

Our Interact open portal enables 3rd party developers and product owners to view, familiarize themselves with, and test our API services quicker and easier.

https://www.developer.interact-lighting.com

aws

Amazon Web Services (AWS) is the world's most comprehensive and broadly adopted cloud. AWS is architected to be the most flexible and secure cloud computing environment available today backed by a set of cloud security tools, with over 300 security, compliance, and governance services and features including support for 143 security standards and compliance certifications.

https://aws.amazon.com/



ZD4i

Zhaga-D4i certified Signify luminaires

The Signify range of Zhaga-D4i certified luminaires gives customers a future-ready foundation that can be built on whenever they are ready to opt into new advances in technology.

Zhaga-D4i is a standardized smart interface between LED outdoor luminaires and one or two sensors or communication nodes. Its plug-and-play interoperability enables seamless IoT connectivity, and D4i drivers allow for an easy exchange of different IoT nodes or sensors on luminaires.

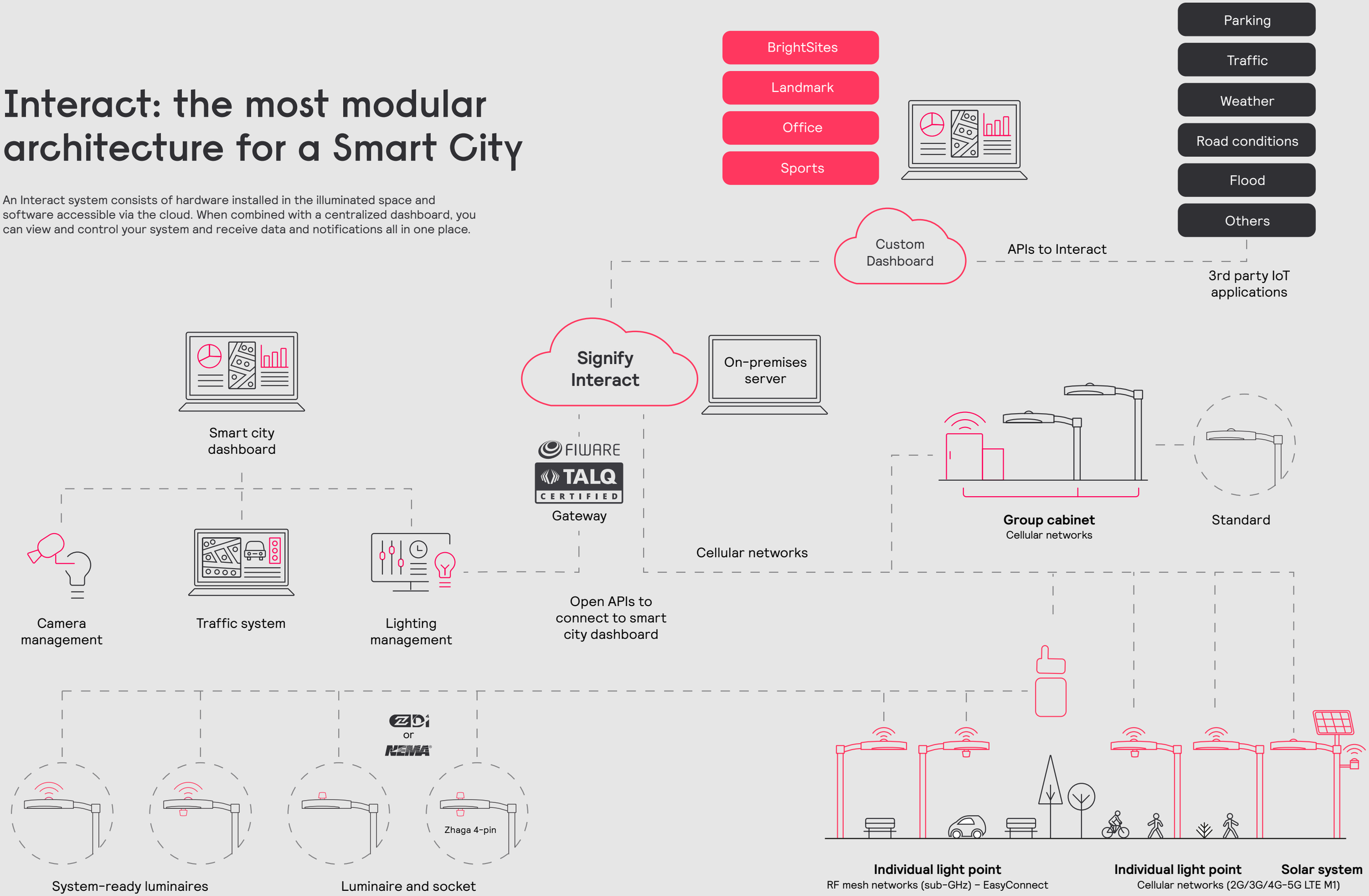
No lock-in
The Zhaga-D4i standard provides modularity among multiple certified manufacturers to ensure 100% openness

Efficient every step of the way
A standardized socket helps to keep things simple in installation, service, and maintenance of the assets

Support sustainability ambitions
Built on the principles of circularity, luminaires are upgradeable after installation

Interact: the most modular architecture for a Smart City

An Interact system consists of hardware installed in the illuminated space and software accessible via the cloud. When combined with a centralized dashboard, you can view and control your system and receive data and notifications all in one place.



Plug and play

Individual light point management with cellular architecture.

Key benefits

Plug and play:

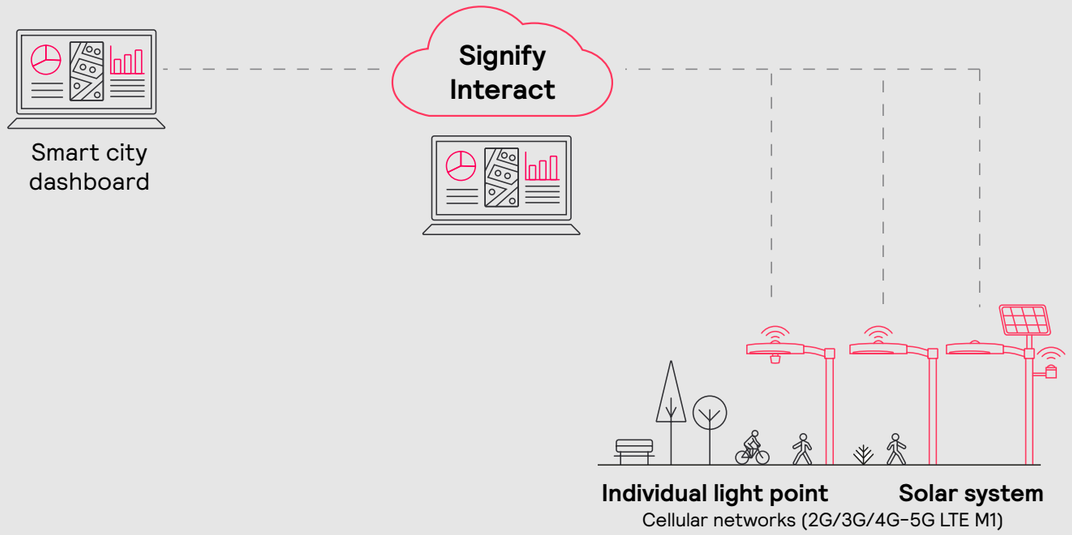
- Auto-location of the assets
- No pre-design network needed
- No project size limit

Hassle-free :

- No network maintenance
- Over-the-air updates for bug fixes or upgrades

Future ready for Smart Cities, with high data bandwidth

Real-time data and overrides



Cellular portfolio

The best of our expertise at your service.

Efficient maintenance

- Connect IoT assets with cellular 4G LTE Cat1/5G LTE-M1
- Read street light asset information with DALI part 251 memory bank 1
- Over-the-air firmware updates for bug fixes, security patches, and future feature upgrades
- Receive notifications when there is a power outage on individual light points or when hardware failures in the luminaire are detected

Energy saving

- Supports multiple switch regime options from dusk to dawn, based on ambient light or an astronomical clock with built-in photosensor and GPS

Beyond lighting

- Enable safety notifications if street light/pole is out of position with built-in tilt sensor
- Combine with Zhaga-D4i sensors on the street light, compliant with the Zhaga-D4i standard

Signify cellular outdoor light controllers

Product					
Type	LLC785X	LLC781X	LLC787X	LLC789X
Interface	Zhaga 4-pin	NEMA 5-pin	20mm conduit	Pole-mounted kit
Housing color options	Light gray, dark gray	Light gray, black	Light gray, dark gray	Dark gray
D4i compliant	Yes	Yes	No	No
Dimming	DALI	DALI / 1-10V	DALI	DALI
Drivers supported	SR/D4i driver	SR/D4i/DALI/Fixed driver	DALI driver	DALI driver
Energy metering accuracy	1% (subject to LED driver)	0.5%	2%	2%
Sensors	Photocell, GPS, Tilt	Photocell, GPS, Tilt	Photocell, GPS	Photocell, GPS
Connectivity	2G, 4G/5G (LTE-M)	2G, 4G Cat1/5G (LTE-M)	2G, 4G/5G (LTE-M)	2G, 4G/5G (LTE-M)
Power supply	24VDC with SR/D4i LED driver	120-277 VAC 120-240VAC 347-408VAC	120-240 VAC	120-240 VAC
Use with Philips outdoor multisensor	Yes	Yes	No	No

Cost-effective

Individual light point management with RF Mesh architecture.

Key benefits

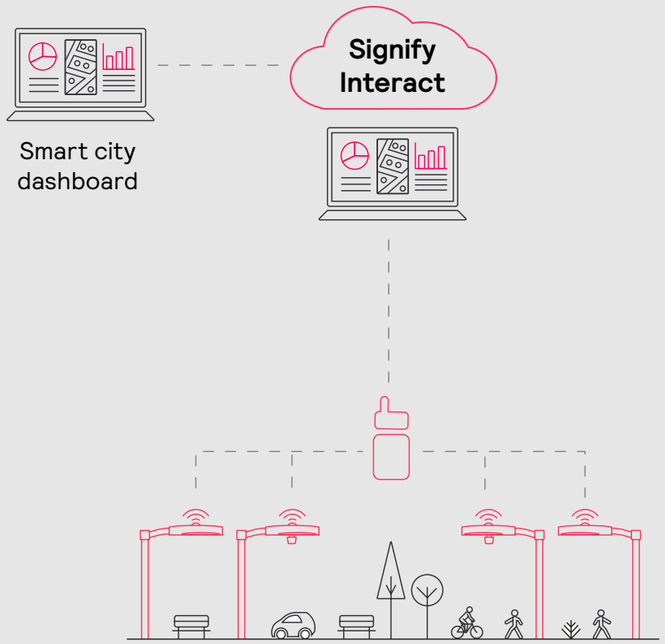
Unlicensed and reliable sub-gigahertz network :

- Self-healing network
- 3 times more line of sight vs other RF mesh solutions (2.4GHz radios)

Real-time data and overrides

Perfect for medium to high density of light points

Over-the-air updates for bug fixes or upgrades





LFC742X RF Mesh segment controller kit



RF Mesh segment controller module



Mandatory LCA 8022 mains outage module

RF mesh portfolio

The best of our expertise at your service.

Efficient maintenance

- Get 4G cellular connectivity with built-in modem in segment controller
- Get all necessary cabinet components in a single package with the segment controller kit
- Receive notifications when there is a power outage on individual light points or segment controllers, or when hardware failures in the luminaire are detected
- Receive readings of street light asset information from the DALI part 251 Memory Bank 1
- Use field tools to collect in-field asset data

Light management

- Automate lighting control using sensors or manually override scheduling
- Streamline the installation, activation, and commissioning of connected streetlights using EasyConnect

Security

- Keep connections secure with connectivity redundancy between wired data (Ethernet LAN) and 4G (LTE)
- Protect against power supply surges with surge protection modules on segment controllers

Philips RF Mesh outdoor light controllers

Product				
Type	LLC746X	LLC745X	LLC741X, LCN 73XX (RF module)	LLC747X
Interface	Zhaga 4-pin	Zhaga 4-pin	NEMA 5-pin/7-pin	20 mm conduit
Housing color options	Light gray, dark gray	Light gray, dark gray	Light gray, dark gray	Light gray, dark gray
D4i compliant	Yes	Yes	Yes	No
Dimming	DALI	DALI	DALI / 1-10V	DALI / 1-10V
Drivers supported	D4i driver	SR/D4i driver	SR/D4i/DALI/Fixed driver	DALI/Fixed driver
Energy metering accuracy	1% (subject to LED driver)	1% (subject to LED driver)	0.5%	5%
Sensors	Photocell, GPS, Tilt	Photocell, GPS, Tilt	Photocell, GPS, Tilt	Photocell, GPS
Connectivity	RF mesh 868MHz	RF mesh 868MHz	RF mesh 868/922/924MHz	RF mesh 868MHz
Power supply	24VDC with D4i LED Driver	24VDC with SR/D4i LED Driver	120-277VAC, 120-240VAC	120-240VAC
Tool for RF network design	Yes	Yes	Yes	Yes
Use with Philips Outdoor Multisensor	Yes	Yes	Yes	No

Group management

The cellular network applied to groups of light points.

Key benefits

Low CAPEX

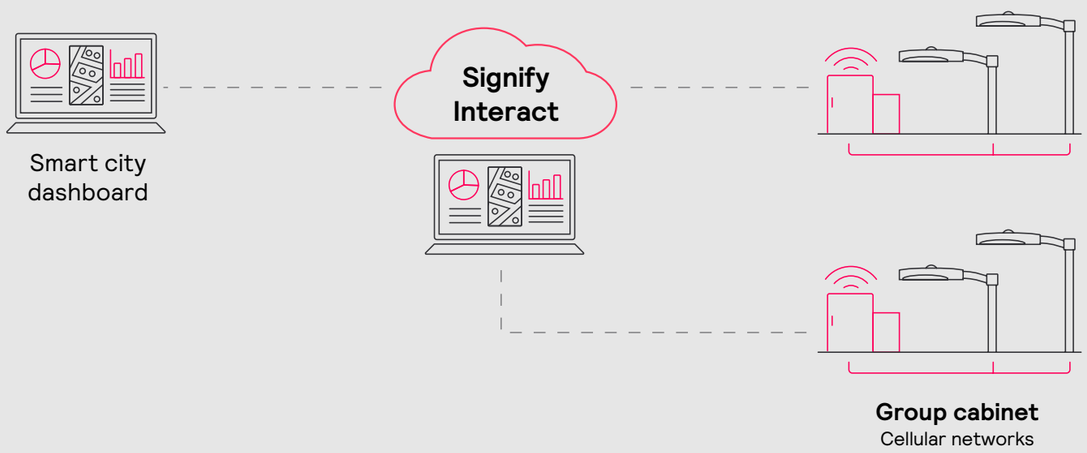
Energy saving (up to 40% more than LED only)

Local emergency override function

Hassle-free:

- **Fast & easy installation and commissioning**
- **12 programmable, preconfigured dimming levels**
- **Optimized maintenance**

Get additional alarms with detection of light failure, flashing light, day burners, and current leakage



Cabinet portfolio

The best of our expertise at your service.

Efficient maintenance

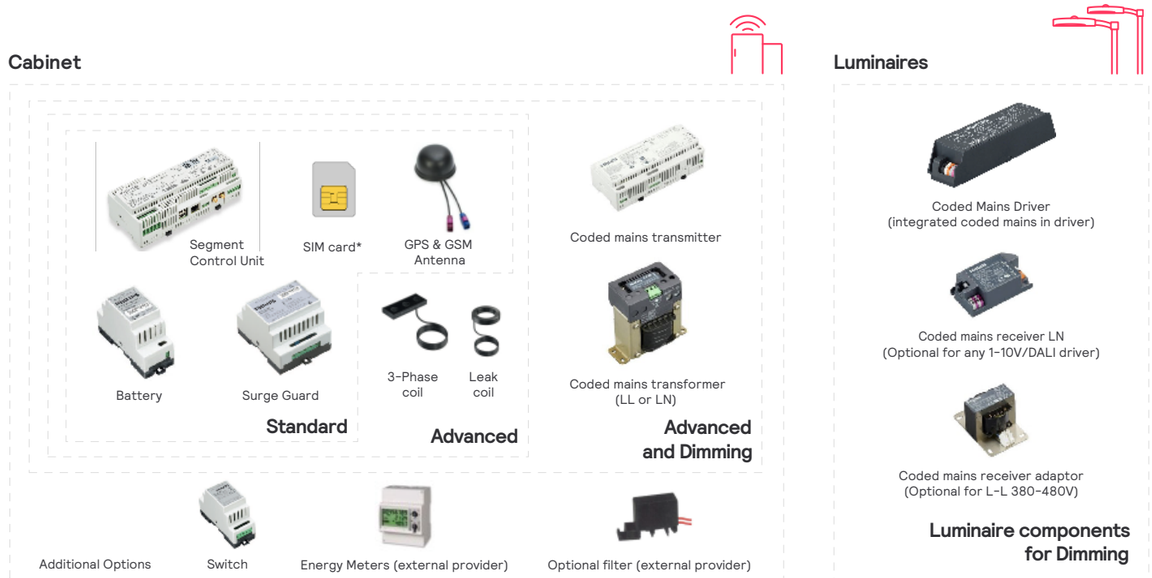
- Manage cabinets via map-based view
- Increase maintenance efficiency with real-time status feedback

Security

- Store data securely
- Over-the-air firmware updates for bug fixes, security patches, and future feature upgrades
- Optional on-premises server hosting and local data connectivity

Light management

- Accurately meter and read energy consumption and monitor voltage
- Control lights accurately with schedules and photocells
- Schedule management using photocell, calendar, and an astronomical clock
- Monitor operating current for outgoing electrical power lines to street lights



Smart and adaptive lighting with sensing

Safer, smarter, and more efficient lighting with our Philips Outdoor MultiSensor.

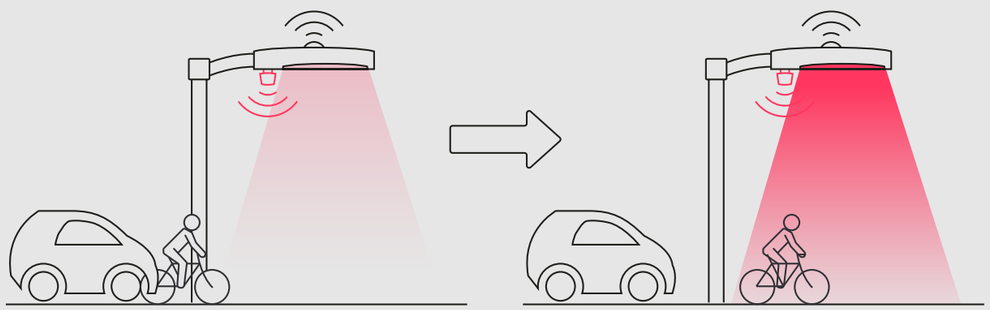
Key benefits

Plug and play with the Zhaga D4i interface

Up to 50% additional energy savings vs dimming calendar

1 sensor to adjust lighting and monitor

- Movements (cars, bikes, pedestrians)
- Safety (tilt and impact of the pole)
- Ambient noise and temperature



Outdoor MultiSensor

The best of our expertise at your service.

Efficient maintenance

- Receive alerts about lighting failures through real-time fault notifications
- With predictive maintenance, replace bulbs before they burn out
- Control and monitor assets remotely through one dashboard

Security

- Automatically trigger behaviors such as raising light levels and sending alerts to first responders
- Maintain road user safety with tilt and impact alarms in case of damage to the luminaire
- All collected data is safe and secure with Interact's robust cybersecurity

Light management

- Automate light points to react to motion and to dim/switch off when daylight levels reach a minimum threshold
- Achieve energy savings of up to 80% over conventional lighting
- Sensors collect both lighting- and non-lighting-related data

ZHAGA AWARDS SMART CITY SENSORS 2023 WINNER MOBILITY





Traffic and weather adaptive lighting

Interact empowers cities and communities to optimize streetlighting through a powerful rule engine that dynamically adjusts dimming levels according to real-time traffic and weather conditions. By integrating adaptive lighting, municipalities can ensure safety and visibility while maximizing energy savings.

With seamless configuration, users can set rules such as increasing brightness during high traffic or adverse weather and dimming lights during low-traffic periods or clear conditions. This flexibility not only supports sustainability goals but also helps create safer, more responsive, and cost-effective urban environments.

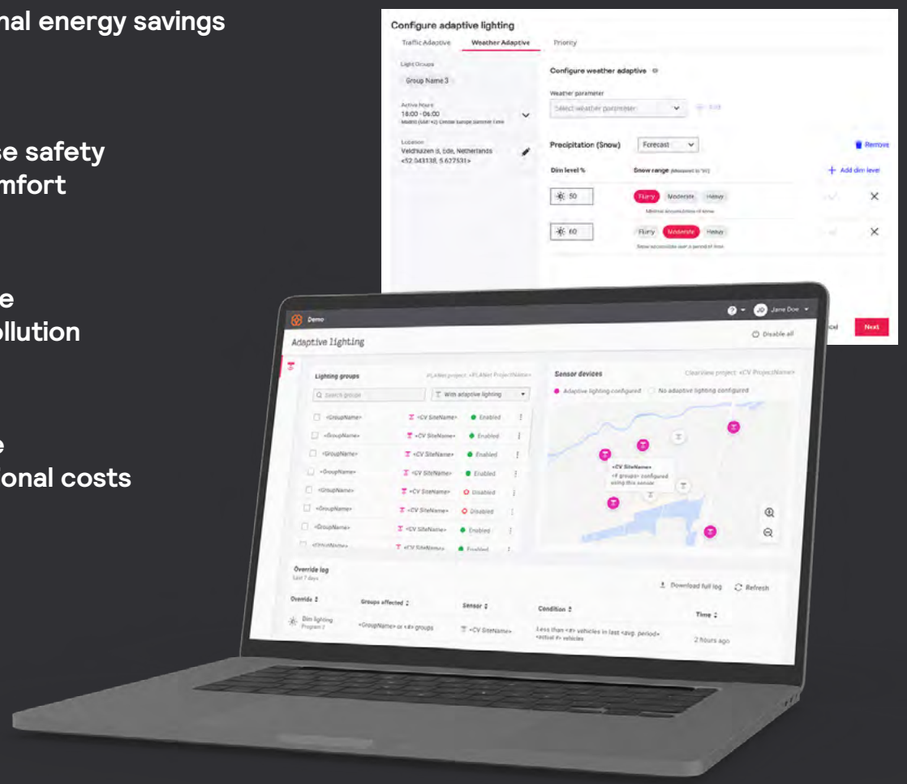
Key benefits

Additional energy savings

Increase safety and comfort

Minimize light pollution

Reduce operational costs



Connected solar

Transform outdoor lighting with Interact connected for solar luminaires

Imagine a world where city lighting is not just smart, but also sustainable and cost-effective. With Interact, you can seamlessly manage your solar-powered streetlighting systems from anywhere—centrally and remotely—unlocking powerful insights that drive efficiency and maximize business value.

Why connected solar streetlighting?

Accelerate your carbon-neutral journey

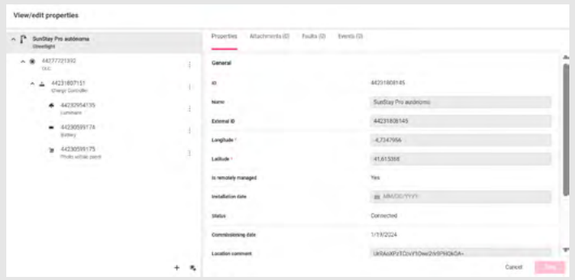
As cities and communities strive to meet ambitious carbon-neutral targets, reducing the carbon footprint of public infrastructure is more critical than ever. Interact's connected solar solutions help you align with the latest CO_2 reduction policies, making a real impact on both urban and rural environments.

Combat rising energy costs

The global energy crisis has made traditional streetlighting increasingly expensive to operate. By switching to connected solar, municipalities can dramatically cut energy expenses while maintaining safe, well-lit streets.

Break the myths—solar works everywhere

It's a common misconception that solar streetlights are costly or only effective in sunny climates. In reality, modern solar technology is efficient, affordable, and reliable—even in less sunny regions. Installation, operation, and upgrades are simpler and more cost-effective than ever before.





Light the way to a greener future—with Interact, sustainable streetlighting is within everyone's reach

User-friendly dashboard for cities

View, control, monitor, and get reports of the connected lighting assets.

Key benefits

One single dashboard to remotely control all your sites.

Manage all your assets: individual light points, cabinets, on-grid or solar systems, as well as sensors.

Maximize operational efficiency with a strong query engine, data visualization capabilities, and reports.

Assign users different levels of access and control.

High level of security with two-factor authentication.



Interact dashboard for cities

The best of our expertise at your service.

Efficient maintenance

- Get online help and detailed guidance, and easily troubleshoot
- Easily reposition street lights
- Allow full control of user management, data visibility, and more, with project configuration

Security

- Get end-to-end security designed for your needs, certified to IEC62443-4-1 and IEC/ISO27001 standards

Light management

- Manage assets across multi-vendor deployments* with a solution designed to support customers as they modernize at their own pace, simplify lighting infrastructure management, and provide a scalable foundation for smart city development
- Remotely control or manually override lighting levels to maximize energy savings and maintain safety
- Manage assets, visualize data and assets through the intuitive user interface, and get on-demand real-time property readings for each asset
- Get alerts for faults and view and analyze them to streamline operations
- Optimize your stock and reduce supply and installation complexity thanks to virtual light output

*Interoperability and integration capabilities depend on the compatibility of the third-party systems and the configuration of the Signify Interact Management System.



Features

- Wireless and remote control over one or multiple sites
- Multi-region management within a single site for different contracting vendors
- Remotely set switch regime, calendar, dim shape assignment, and programming schedule for connected street lights and group cabinets
- Support troubleshooting and resolutions with fault notifications, real-time properties, and switch logs visualization
- User interface available in over 20 languages
- Dimming by lumens based on street light configuration to optimize energy consumption
- Light-on-demand motion sensor override with Zhaga-D4i sensors
- Read and visualize street light and sensor asset data
- Supports light point commissioning and replacements from third-party systems

Luminaire portfolio

Signify has an extensive range of “connect-ready” luminaires available that have the option of fitting a socket directly upon ordering. A connected node can be added at this time or at a later stage.

Listed below are the core ranges available in different regions. There is a broad choice of other luminaires, each designed to suit a unique set of requirements, that also have the connect-ready option available. For more information, please reach out to your Signify contact.



For North America:



RoadFocus Plus



RoadForce



HighFocus Plus

For Europe:



Luma gen2
BGP713



UniStreet/LumiStreet gen2
BGP292



DigiStreet
BGP762

For growth markets and Greater China:





GreenVision Xceed Gen2
BRP38X



RoadCharm
BRP47X



RoadFlair Pro
BRP59

A brand with global reach

As of today, we have more than **3,000 customer project sites and over 3.8 million light points connected in 60+ countries.**



Here are some countries already benefitting from Interact:

Malaysia
Philippines
Thailand
Singapore
Belgium
Netherlands
Canada

Austria
Germany
Liechtenstein
Switzerland
Azerbaijan
Bulgaria

Croatia
Hungary
Lithuania
Poland
Romania
Slovakia

Czechia
Estonia
France
China
Taiwan
Portugal

Spain
Italy
Indonesia
India
Bangladesh
Nepal

Argentina
Brazil
Chile
Mexico
Peru
Uruguay

Bolivia
Saudi Arabia
United Arab Emirates
Oman
Denmark
Finland

Norway
Sweden
Australia
Ireland
United Kingdom
United States of America

Choose Signify, your leading partner in sustainability

Signify has reduced more than 70% of its absolute operational carbon footprint since 2010

- We recycle up to 90% of our manufacturing waste
- Our paper packaging for LED lamps and luminaires is saving over 500,000 kilos of plastic waste per year

We shifted to 100% renewable electricity

- Virtual power purchase agreements in US and Poland
- Solar energy in the Gulf region
- Offsetting projects with clear societal and environmental benefits, such as our own off-grid solar energy in rural India

100% renewable electricity

2.9 billion LED light points delivered

Zero waste to landfill

84% sustainable revenues

99% supplier performance

67% fewer safety incidents

We reduced the emissions of our operational footprint

Manufacturing:
46% less emissions

through LED, optimized HVAC, and process optimization

Offices:
92% less emissions

through increased office space utilization and automated building processes

Logistics:
52% less emissions

through more sea freight and increased efficiency

Business travel:
80% less emissions

through more sustainable travel

Recognized on the Climate A list for our leadership in environmental performance.

CDP DISCLOSURE INSIGHT A LIST 2022 CLIMAT

CDP SUPPLIER ENGAGEMENT LEADER 2021

Member of the DJSI World index as an industry leader.

Member of Dow Jones Sustainability Indices Powered by the S&P Global CSA

Recognized as industry leader with a low ESG risk.

SUSTAINALYTICS

Awarded the UN Climate Action Award.

Global Climate Action United Nations Climate Change

Platinum and Top 1%

PLATINUM Top 1% 2021 ecovadis Sustainability Rating

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