interact

by Ⓢignify

City

Design for sustainable smart cities

Smart lighting that does more than just illuminate

Find out more about Interact
www.interact-lighting.com/city

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)

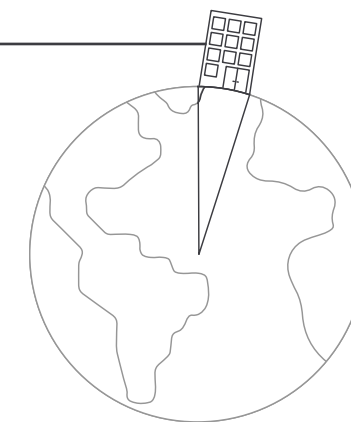*Source : https://www.globalgoals.org/goals/11-sustainable-cities-and-communities/

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.
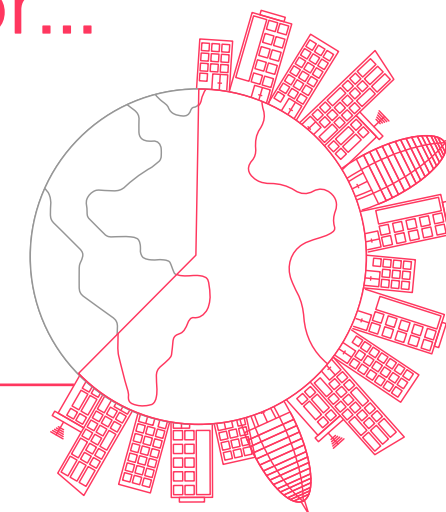
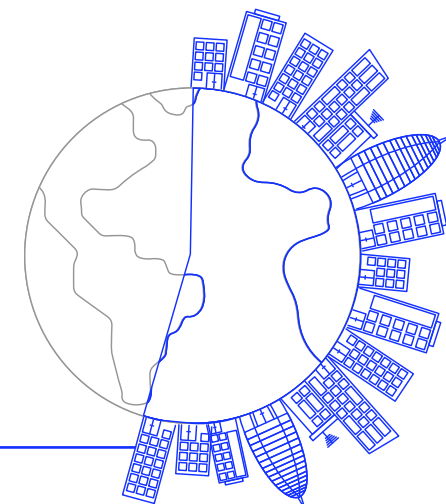## Cities are...

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:
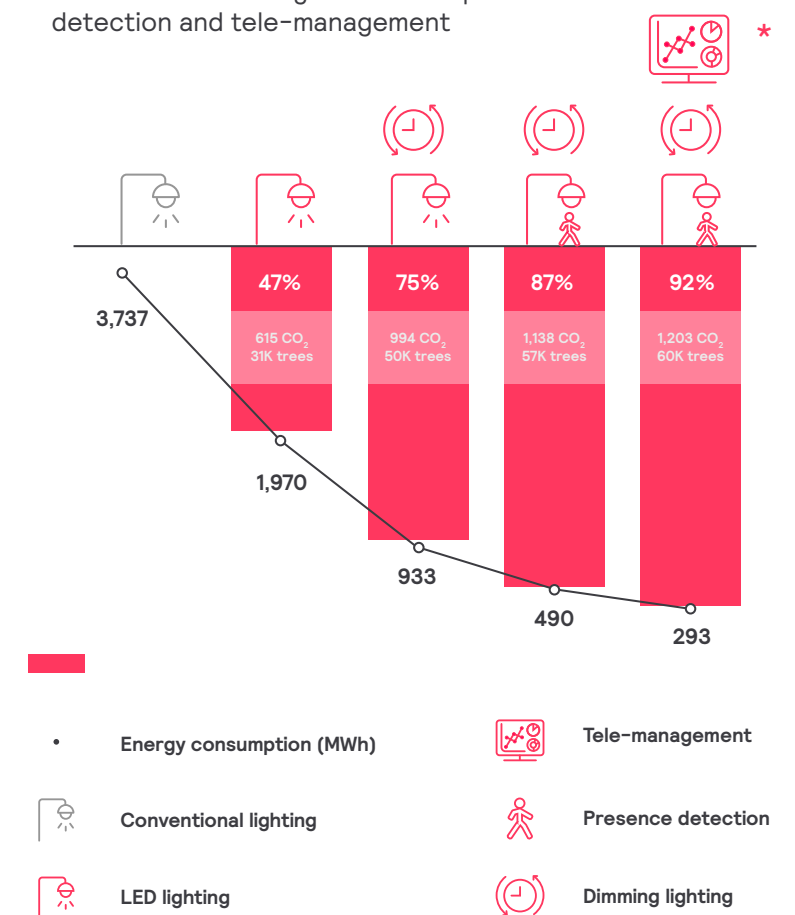
- **Well-being and safety:** better lighting reduces crime by up to 20% and road accidents by 30%*

- **Environmental impact:** installing managed and connected LED lighting increases lighting-related energy savings 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 switching to LED with presence detection

- €1.2 million switching to LED with presence detection and tele-management

	47%	75%	87%	92%
	615 CO₂ 31K trees	994 CO₂ 50K trees	1,138 CO₂ 57K trees	1,203 CO₂ 60K trees

3,737
1,970
933
490
293

- • Energy consumption (MWh)
- Tele-management
- Conventional lighting
- Presence detection
- LED lighting
- Dimming lighting

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 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 is managing cities from one light point up to 300,000 and can even scale up to more.

- **Easy:** centralized and remote management of the street lighting network.

- **Open:** monitor and control all luminaires, both on-grid and solar individual light points as well as group management cabinets. Compatible via APIs to any third party partner of Smart City, available on our developer portal.

- **Efficient:** manage your street light assets, optimize energy consumption, and step into the preventive maintenance.

- **Smart:** advanced data analytics and dashboard reporting from the platform and sensing capacities, to take educated decisions on 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 and 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.

Less than
1.0%
Downtime of luminaires

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

Up to
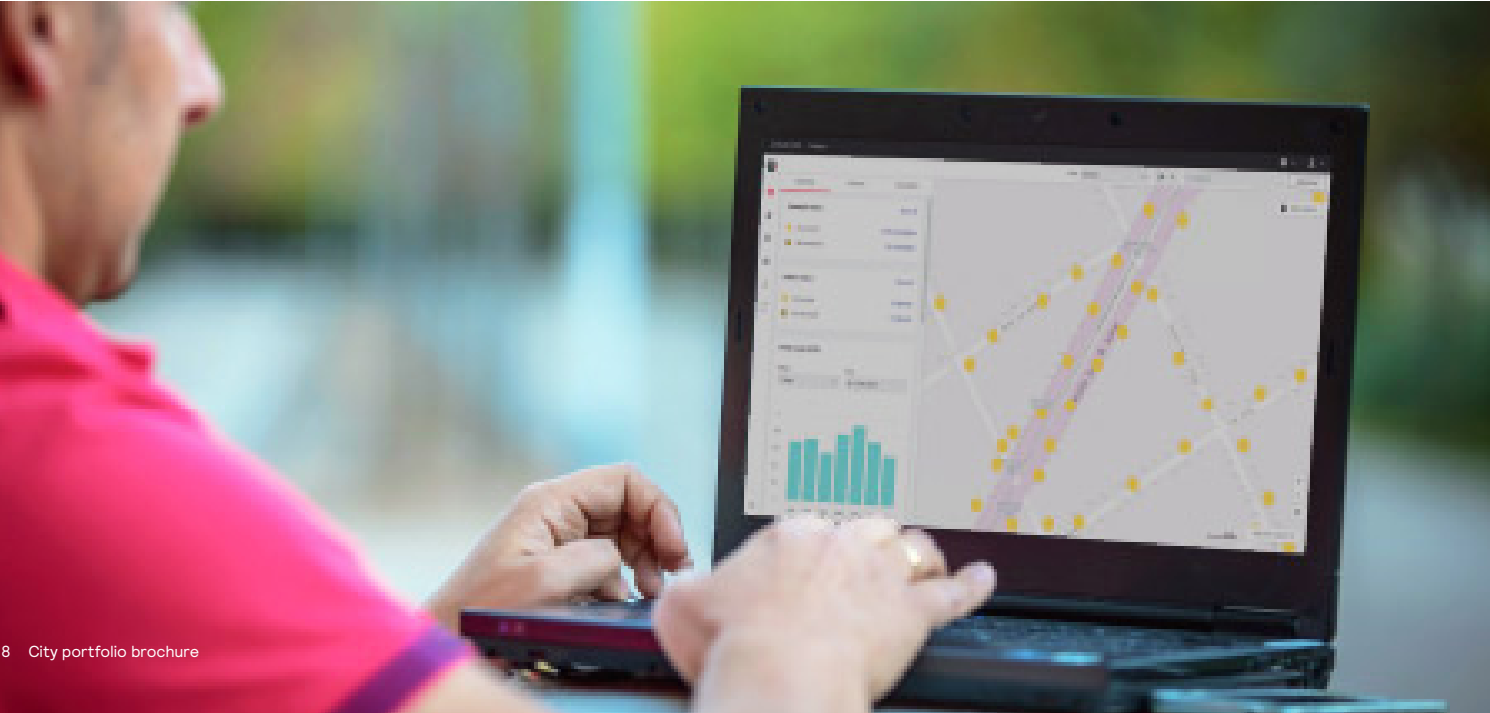# 50%
of your operations can be optimized

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 effective information security management system (ISMS).

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 bridge.

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 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/

Zhaga-D4i certified Philips luminaires

The Philips 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
Zhaga-D4i standard provides modularity among multiple certified manufacturers to ensure 100% openness
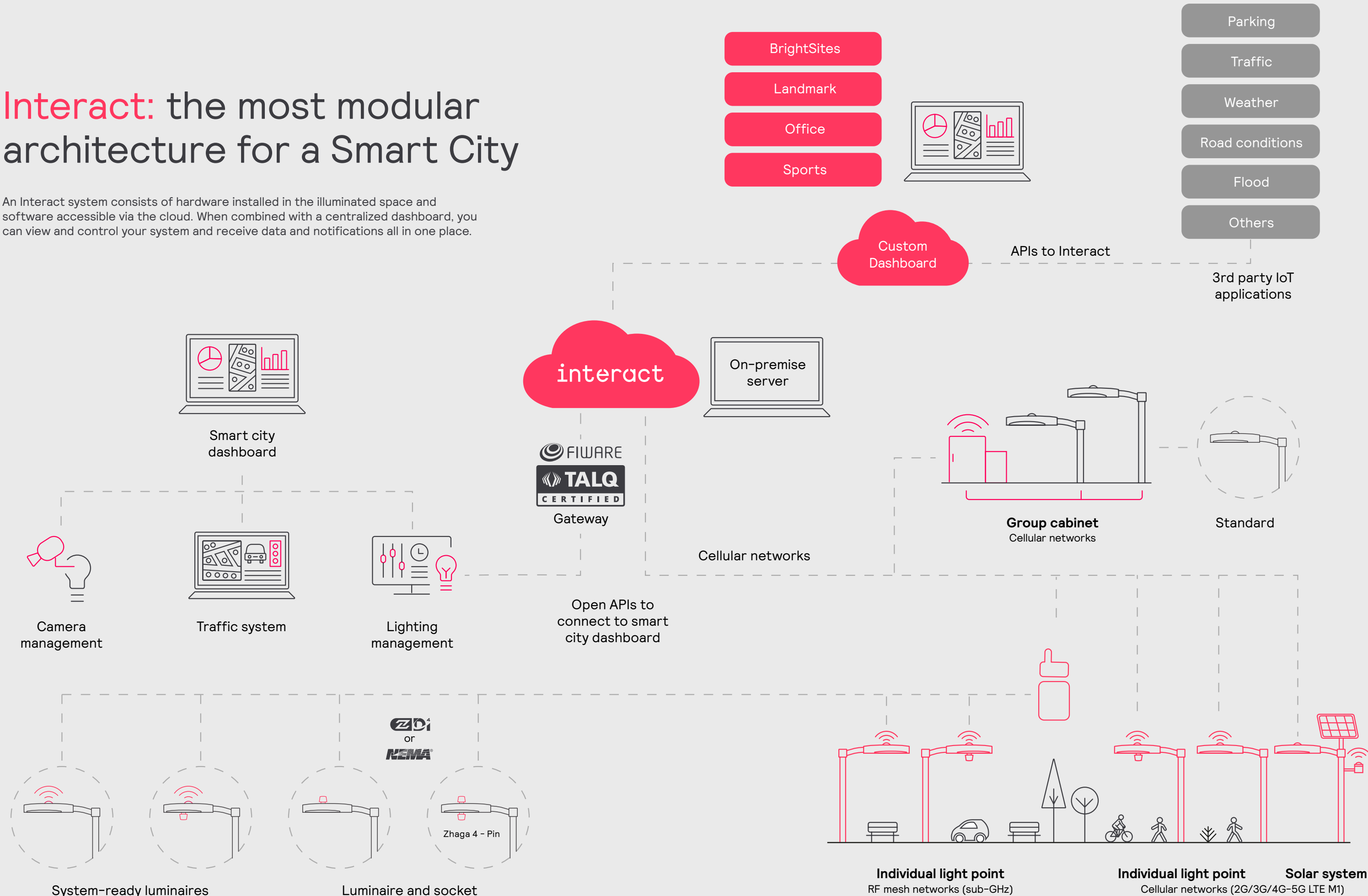
Efficient every step of the way
A standardized socket helps to keep things simple in installation, service and maintenance of the assets

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.

BrightSites

Landmark

Office

Sports

Parking

Traffic

Weather

Road conditions

Flood

Others

Custom Dashboard

APIs to Interact

3rd party IoT applications

interact

On-premise server

FIWARE

TALQ CERTIFIED

Gateway

Smart city dashboard

Camera management

Traffic system

Lighting management

Open APIs to connect to smart city dashboard

Cellular networks

Group cabinet
Cellular networks

Standard

ZHADi
or
NEMA

Zhaga 4 - Pin

System-ready luminaires

Luminaire and socket

Individual light point
RF mesh networks (sub-GHz)

Individual light point
Cellular networks (2G/3G/4G-5G LTE M1)

Solar system

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
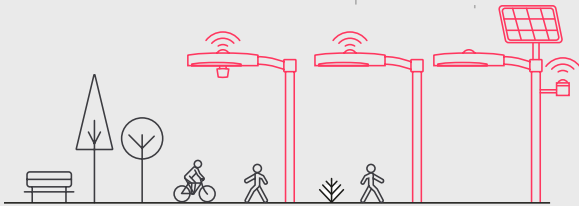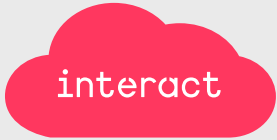- Over-the-air updates for bug fixes or upgrades

Future ready for Smart Cities, with high data bandwidth

Real time data and overrides

Smart city dashboard

interact

Individual light point   **Solar system**
Cellular networks (2G/3G/4G-5G LTE M1)

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 hardware failures in the luminaire are detected

Energy saving

- Supports multiple switch regime options from dusk to dawn, based on ambient light or 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 Zhaga-D4i standard

Philips cellular outdoor light controllers

Product	ZDi	NEMA		
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

*pending release

Cost effective

Individual light point management with RF Mesh architecture.

Key benefits

Unlicensed and reliable sub gigahertz network :
- Self-healing network
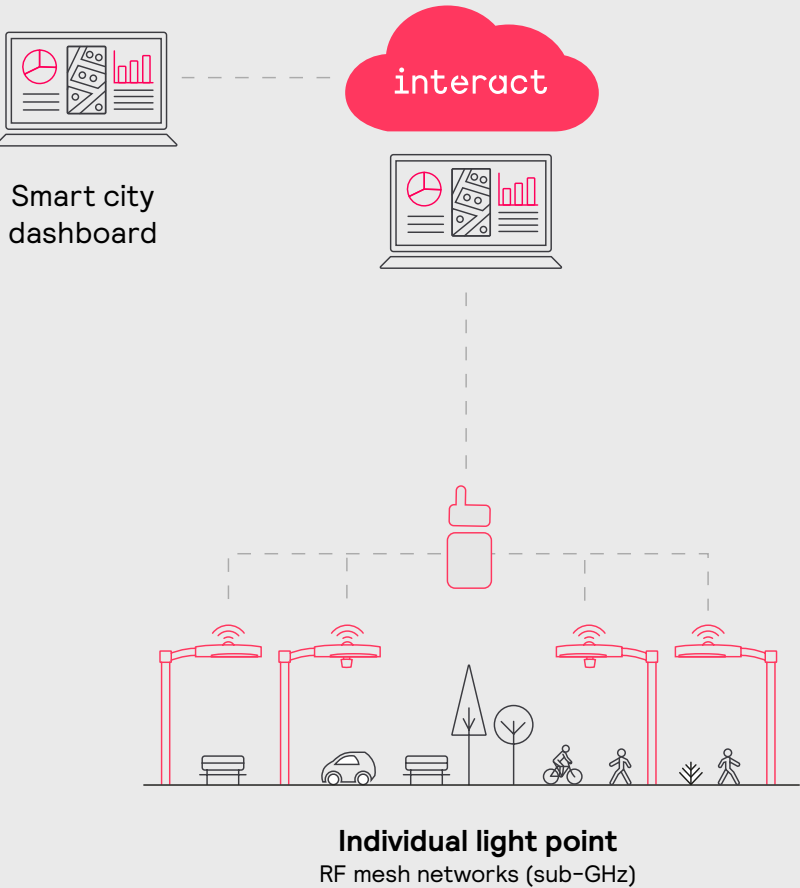- 3 times more line of sight vs other RF mesh solutions (2.4GHz radios)

Perfect for medium to high density of light points

Real time data and overrides

Over-the-air updates for bug fixes or upgrades

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 with sensor, or manually override scheduling

Security

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

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Smart city dashboard

interact

Individual light point
RF mesh networks (sub-GHz)

LFC742X RF Mesh segment controller kit

RF Mesh segment controller module

Optional for last gasp capability

Philips RF Mesh outdoor light controllers

Product	ZD	NEMA	
Type	LLC745X	LLC741X	LLC747X
Interface	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
D4i compliant	Yes	Yes	No
Dimming	DALI	DALI / 1-10V	DALI / 1-10V
Drivers supported	SR/D4i driver	SR/D4i/DALI/Fixed driver	DALI/Fixed driver
Energy metering accuracy	1% (subject to LED driver)	0.5%	5%
Sensors	Photocell, GPS, Tilt*	Photocell, GPS, Tilt*	Photocell, GPS
Connectivity	RF mesh 868MHz	RF mesh 868/922/924MHz	RF mesh 868MHz
Power supply	24VDC with SR/D4i LED Driver	120-277VAC, 120-240VAC	120-240VAC
Tool for RF network design	Yes	Yes	Yes
Use with Philips Outdoor Multisensor	Yes	Yes*	No

*pending release

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**
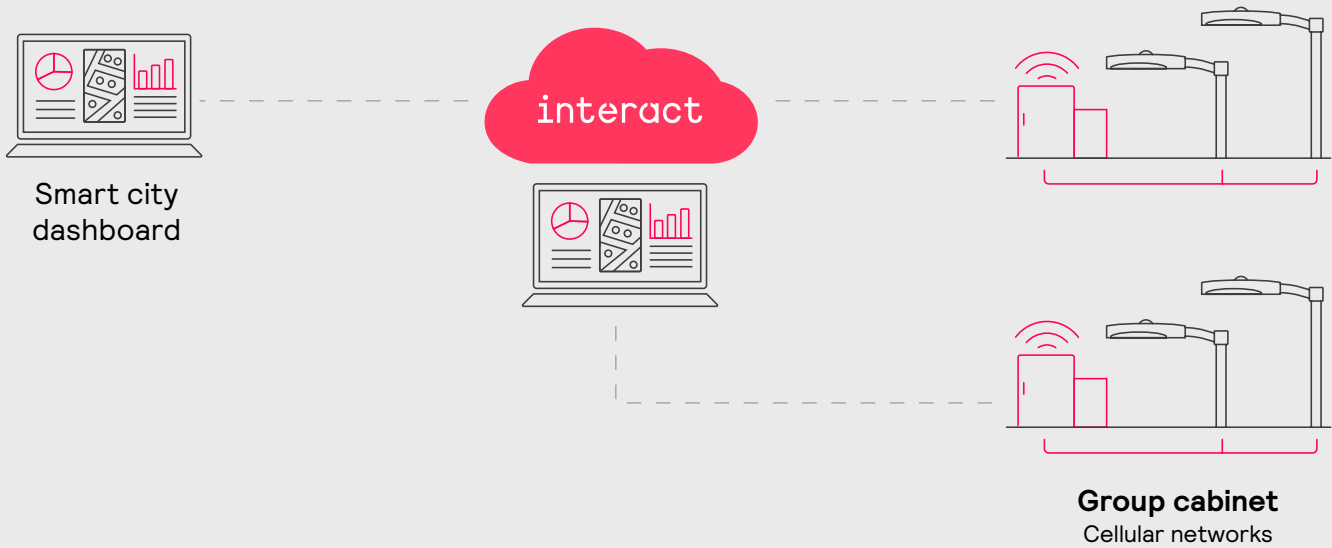- **12 programmable, preconfigured dimming levels**
- **Optimized maintenance**

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

Smart city dashboard

interact

Group cabinet
Cellular networks

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
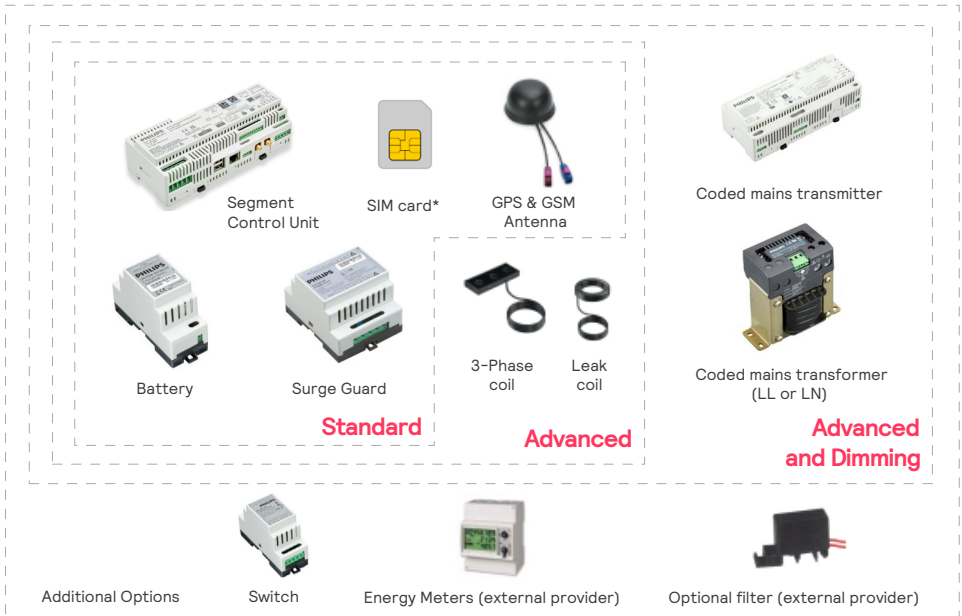
Security

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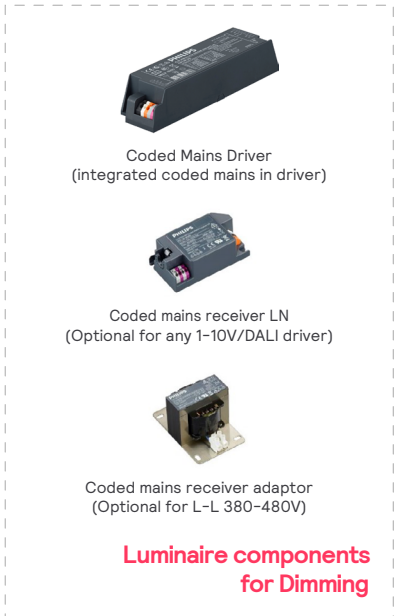- Optional on-premise server hosting and local data connectivity

Light management

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

Cabinet

Luminaires

Segment Control Unit
SIM card*
GPS & GSM Antenna
Coded mains transmitter

Battery
Surge Guard
3-Phase coil
Leak coil
Coded mains transformer (LL or LN)

Standard
Advanced
Advanced and Dimming

Additional Options
Switch
Energy Meters (external provider)
Optional filter (external provider)

Coded Mains Driver
(integrated coded mains in driver)

Coded mains receiver LN
(Optional for any 1–10V/DALI driver)

Coded mains receiver adaptor
(Optional for L-L 380-480V)

Luminaire components for Dimming

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**

Philips 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

Monitor traffic, crowd and parking with UPCITI

Simplify data collection, processing and visualization with Upciti multi-use sensor.

Key benefits

1 sensor to collect and share data
- Traffic via vehicles counting
- Crowd and flows via people counting
- Smart parking
- Presence of illegal wastes

Real-time data, and data analytics

Over-the-air updates for bug fixes or upgrades

Complies with the strictest regulations on privacy in public spaces

UPCITI

UpCiti offers sensing for traffic count, crowd detection, and parking. The sensor can help you monitor how space in your city is being used. With UpCiti, you can use insights to help ensure there is sufficient parking and public transport available, keep track of areas that may become dangerously crowded, and streamline popular commuting routes.
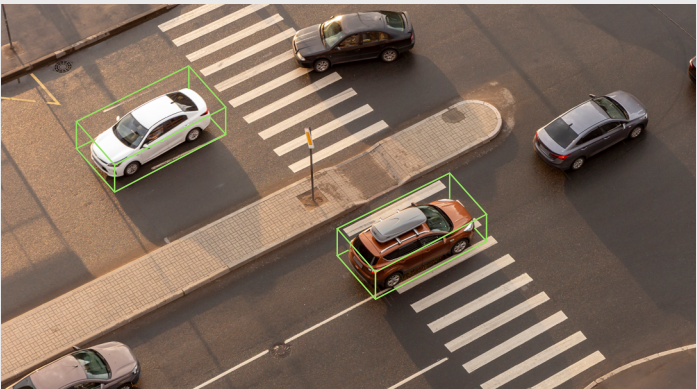
UpCiti sensor assets and associated traffic and people count as well as parking data can be visualized together with connected street lights in Interact dashboard for ease of operations management.
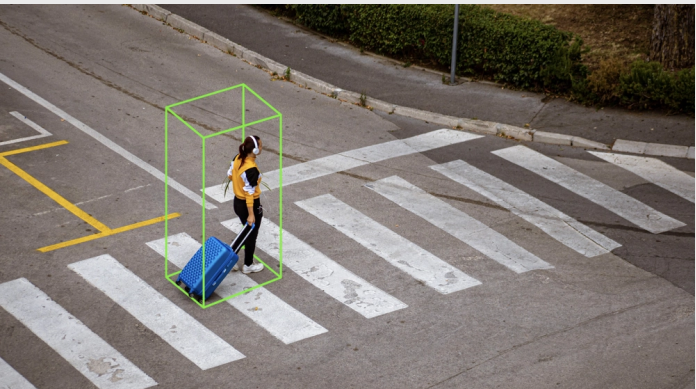
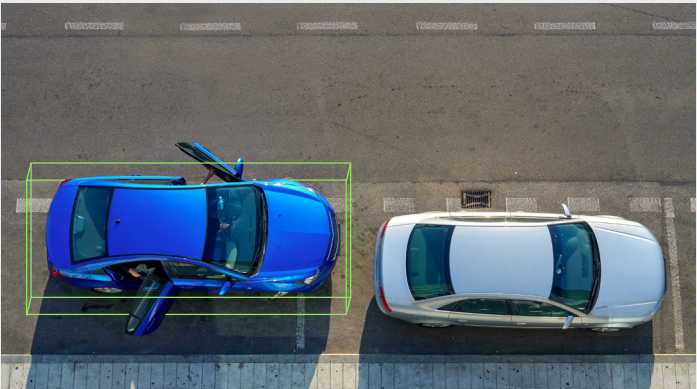# UPCITI expertise

Real-time data for 4 main use cases.

Vehicle counting

Understanding real-time traffic and its segmentation by vehicle type, improving traffic and bicycle lane planning and achieve energy savings through public lighting control.

People counting

Quantifying pedestrian flows and identifying periods of peak traffic and preferred routes to better understand city flow trends and enhance commercial attractivity.

Smart Parking

Knowing in real-time the duration of a parking spot occupancy, the availability of a delivery spot, the occupation frequency of a parking lot to take informed strategic planning decisions and streamline city center traffic.

Presence of illegal wastes

Detect the presence of illegal trash as soon as it is deposited on the road for faster pickup to maintain the city's cleanliness.

https://upciti.com/en/

User-friendly dashboard for cities

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

Key benefits

1 single dashboard to remotely control all your sites.

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

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

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
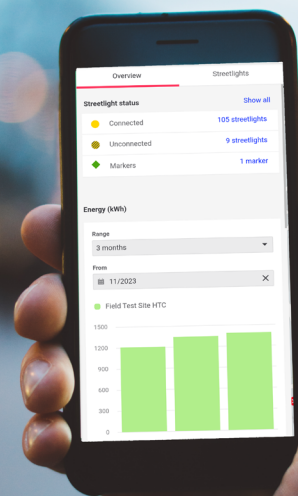
Security

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

Light management

- 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 properties read 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

iF DESIGN AWARD 2021

USER INTERFACE

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 Europe:

Luma gen2
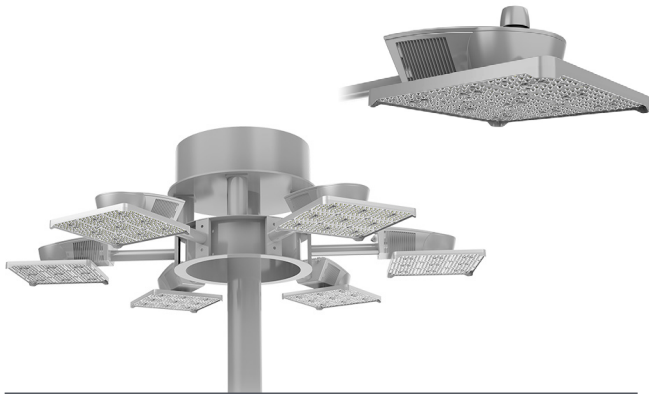BGP713

UniStreet/LumiStreet gen2
BGP292

DigiStreet
BGP762

For North America:

RoadFocus Plus

RoadForce

HighFocus Plus

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.**

Malaysia	Austria	Croatia	Czechia	Spain	Argentina	Bolivia	Norway
Philippines	Germany	Hungary	Estonia	Italy	Brazil	Saudi Arabia	Sweden
Thailand	Liechtenstein	Lithuania	France	Indonesia	Chile	United Arab Emirates	Australia
Singapore	Switzerland	Poland	China	India	Mexico	Oman	Ireland
Belgium	Azerbaijan	Romania	Taiwan	Bangladesh	Peru	Denmark	United Kingdom
Netherlands	Bulgaria	Slovakia	Portugal	Nepal	Uruguay	Finland	United States of America
Canada							

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 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, 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 ACTION
A LIST 2022
CLIMATE

CDP SUPPLIER ENGAGEMENT LEADER
2021

Member of the DJSI World index as 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 with the UN Climate Action Award.

Global Climate Action
United Nations Climate Change

Platinum and Top 1%

PLATINUM Top 1%
2021
ecovadis
Sustainability Rating

interact

by ⓢignify

Choose Signify

interact

by ⓢignify