Omniflow®

Smart Cities Solutions

Powered by sun and wind energy

www.omniflow.io

Smart IoT Platform

OMNILED 07 / 035

Smart IoT Lamppost powered by wind and solar with integrated energy storage and grid connection that enables multiple integrated applications.

With our solution its possible to transform a simple street light into a carbon neutral device that can be used for multiple IoT purposes.

The grid connected unit first uses the available renewable energy. Only if the batteries are depleted it will consume part of the energy from the grid.

With this, Omniflow systems achieve dramatic savings >90% compared with regular lighting and even >60% with standard LED.

Some projects can be done Off-Grid. Please contact us for site evaluation.

Technology

Hybrid Wind & Solar

Dimensions

Omniled 07
0.30 / 1.20 m (h x d)

Omniled 035
0.15 / 0.60 m (h x d)

Weight

Omniled 07
40 Kg

Omniled 035
10 Kg

Solar power

Omniled 07
60 W (peak)

Omniled 035
15 W (peak)

Wind power

Omniled 07
100 W (rated @11 m/s, steady)

Omniled 035
15 W (rated @11 m/s, steady)

Battery

Omniled 07
500 Wh C10 Lead Crystal

Omniled 035
172 Wh C10 Lead Crystal

Lighting power

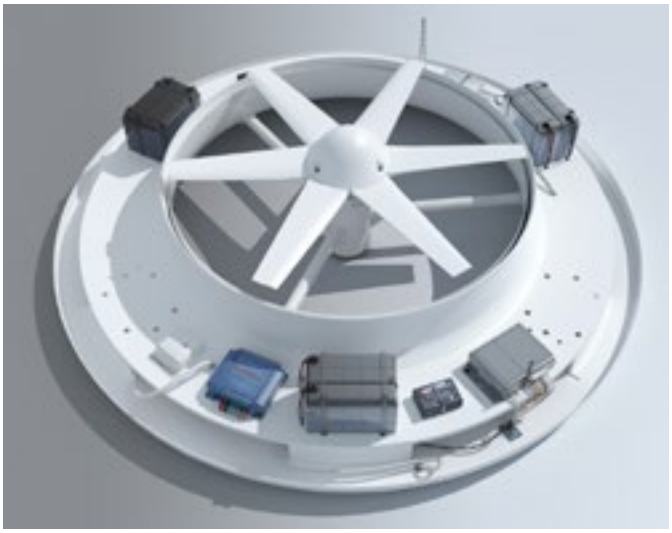
Omniled 07
30/ 45/ 60/
90/ 120/ 180

Omniled 035
12/ 24/ 48

Lumen luminance

Omniled 07
5100/ 6960/ 9300/
12630/ 18600/ 25260 lm

Omniled 035
2124/ 3684/ 7368 lm



Pole height

Omniled 035
6/ 8/ 10/ 12 m

Omniled 035
3/ 4/ 5 m

DC Controller

Omniled 07 / Omniled 035
Hybrid wind/solar regulator

Generator

Omniled 07 / Omniled 035
Direct drive iron-less start permanent magnet

Color temperature

Omniled 07 / Omniled 035
2700 - 6000 K

Control

Omniled 07 / Omniled 035
OmniConnect IoT Platform

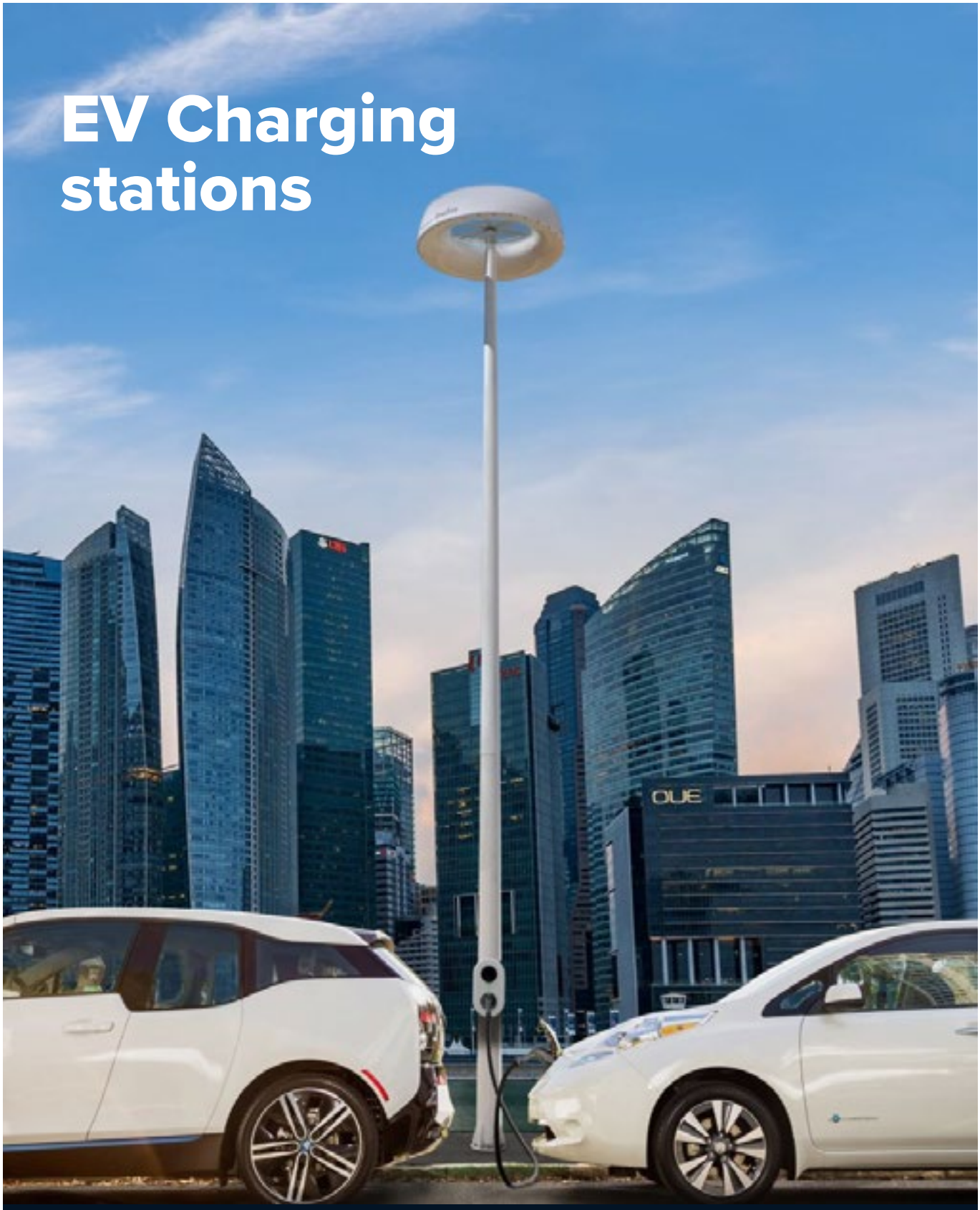
Services

Omniled 07 / Omniled 035
Wi-Fi, 4G/ 5G, Small Cell,
IP camera's and Video Analytics,
EV Charger, Edge computing

OMNICONNECT IoT Cloud based Software

OmniConnect is a cloud based software for internet-of-things (IoT) developed by Omniflow to visualize and control our systems and other devices.
Data can be transformed into valuable information that can be used to take decisions or program alarms.

EV Charging stations



The Omni Charger is designed for conductive battery charging of the BEV (Battery Electric Vehicle) or PHEV's (Plug-in Hybrid Elecric Vehicles) on board batteries at public access charging locations, where usage simplicity and functionality are important.

The Omni Charger can integrate the Omniflow systems for a more complete sustainable urban mobility solution while providing additional services like security cameras and connectivity present in Omniled.

Tech specs

Omniled 07

Models	
OMNILED Smart Hybrid	Wind & Solar generation with built in battery, optional lighting (see Smart Lighting for options)
Wind Turbine	
Generator	Permanent magnet generator – Axial flux type
Diffuser	Single-element flatback shroud
Rotor	6 blades, reinforced polyamide PAG Dimension: 0.70m diameter
Controller	12VDC Programable PWM
Noise	<28 db(A) at 25m @ 8m/s (very low)
Power	100W rated power (@11 m/s, steady)
Regulation	Turbine stops rotating when system is fully charged, wind is too high or by remote manual shutdown
Solar	
Solar Cell	n-type, monocrystalline Si, >22%Eff @STC
Controller	MPPT Solar Charge Controller
Power	60Wp, 0 degrees Optional: Aditional Mast Integrated Panels from 70Wp to 150Wp
Battery	
Battery Bank	500Wh (3x 12V 14Ah C10 Lead Crystal) Optional: Lithium Battery Pack
Charging	Initial Charging Current 4.2A14.7V/ (25°C)
Cycle Life	Typical 3,392 cycles (@40% DOD, 25°C), Max 6,000+ cycles
Smart Lighting	
Luminaire	15, 30 or 60 LED array Lens: Optical Grade PMMA 5100 lm (30W) 6960 lm (45W) 12630 lm (90W) 18600 lm (120W) 25260 lm (180W) Efficiency 170 lm/W at 350mA (30W) Efficiency 196 lm/W at 125mA (10W) Light Pattern: Type III & Type V Optional: from 2700K - 6000K Light Temperatures
Control	OmniConnect IoT Platform Remote On/Off/Dim with Timer, Time control, Auto Night/Day Operation mode defined by 3 battery voltage levels Auto DIM via integrated infrared motion sensor 2 (Two) additional functionalities independently programmed and triggered by night/day, Time or Sensors events
Lighting Spacing	Indicative spacing (simulation recommended): 35-40m (12m mast) 25-30m (8m mast) 20-25m (6m mast)
Mast	
Height	6m, 8m, 10m or 12m
Material	Galvanized Steel
Paint	C3 or C4 paint scheme (optional) Color: RAL 9010 *only use approved mast designs
Body Shell	
Material	Composite Fiberglass/Resin Transparent to radio waves
Finishing	Marine grade gel coat
Colour	RAL 9010 Optional: Other colours available by request.
Space inside	Can fit 3 (Three) objects up to: 270 x 400 x 50mm Antennas or other electronics. See Optional accessories
OmniBrain	
Energy	AI energy and functionalities management system Connection to: Wind, Solar, Battery, Sensors, LED drivers and extra functionalities.
Light functions	PWM for LED driver control 2 (Two) motion sensor control (infrared*; optical or radar) *1 (One) infrared motion sensor included
Accessory Ports	2 (Two), 12VDC/5A (Max) each
Communications	Communication link via integrated industrial 2G/ 4G modem with included Global SIM card
Built in memory	Stores 5 days hourly based vital data. Voltage (V) Current (A) Rotor Speed (RPM) Temperature (°C)

General	
Dimensions	0.3m height, 1.2m diameter
Weight	40Kg (500Wh batteries & without optionals)
Nominal Voltage	12VDC
Ingress Protection	IP55
Impact Protection	IK08
Mounting	Mounts on 80mm tube 2 (Two) crossed stainless steel M10 bolts for fixing
Transportation	Package dimensions: 1.3m x 1.3m x 0.35m Foam protected Up to 5 units stackable 20 units on 20" container 45 Units on 40" container
Approvals and Standards	CE and UKCA Marking UL/CSA Listed – UL 6142, CSA 22.2, UL 1004-1, UL 1004-4, UL1598 Eye Safety IEC 62471 Safety IEC 62471, IEC 60598, IEC/EN 60529, IEC 62031, UL 8750 CAN/CSA No. 250.13 IEC 61400-2 Small wind design, IEC 61400-11, 2005/88/EC Noise limits EMC Directive 2014/30/EU – EN 61000-3-2, EN 61000-3-3, EN55015, EN61547-1 RoHS 2011/65/EU, 2015/863/EU Low Voltage Directive (LVD) 2014/35/EU
Grid-Tie (optional)	Input Voltage: 230VAC/50Hz or 110VAC/60Hz Isolation Class: Class II Ingress Protection: IP 67
Operating conditions	Temperature: -20 to 55 °C Max wind speed: 45m/s
Protection	20A 32V fuse
Optional Accessories	IoT integration inside Body Shell for multi-application: - Wifi Ethernet Router AP - Wifi Ethernet Fiberoptic Router AP - LoRA Gateway (under consultation) - Transmission - 4G/ 5G Modem, ethernet, fiber, P2P, P2MP - Small Cell integration (under consultation) - Weather station - Environmental sensors (under consultation) - Surveillance cameras: IP modular camera (single dual or quad lens) integrated 1080p WDR Forensic Capture IP PTZ Camera (mast mounted) IP Thermal Camera (mast mounted) Video analytics: Smart parking, perimeter security, smoke and fire detection, audio processing, people counting, heat map... **only use approved accessories
Monitoring Software	Remote web management cloud based Open API for Smart City platform integration Realtime reporting and control of device subsystems and accessories AI and machine learning capability User and Administrator Level control Configuration and reading of 92 telemetry parameters Alarms settings Maintenance triggers by proprietary algorithm Single unit and group configuration Multi-unit light synchronization by Time Control function Real time unit test (Shows actual program being used by blinking code on lighting system) Day, Week, Month, Year data report
Warranty	2-year warranty, Extended EOL support option

- **ALL UNITS ARE GRID CONNECTED**
- **FOR OFF-GRID PROJECTS, SITE ENERGY EVALUATION IS NECESSARY, PLEASE CONTACT OMNIFLOW**

Tech specs

Omniled 035

Models	
OMNILED Smart Hybrid	Wind & Solar generation with built in battery, optional lighting (see Smart Lighting for options)
Wind Turbine	
Generator	Permanent magnet generator – Axial flux type
Diffuser	Single-element flatback shroud
Rotor	6 blades, reinforced polyamide PAG Dimension: 0.35m diameter
Controller	12VDC Programable PWM
Noise	<28 db(A) at 25m @ 8m/s (very low)
Power	15W peak power
Regulation	Turbine stops rotating when system is fully charged, wind is too high or by remote manual shutdown
Solar	
Solar Cell	n-type, monocrystalline Si, >22%Eff @STC
Controller	MPPT Solar Charge Controller
Power	15Wp, 0 degrees Optional: Aditional Mast Integrated Panels from 35Wp to 50Wp
Battery	
Battery Bank	172Wh (2x6V 7.2Ah C10 Lead Crystal) Optional: Lithium Battery Pack
Charging	Initial Charging Current 4.2A 14.7V/ (25°C)
Cycle Life	Typical 3,392 cycles (@40% DOD, 25°C), Max 6,000+ cycles
Smart Lighting	
Luminaire	12 LED array Lens: Optical Grade PMMA 2124 lm (12W) 3684 lm (24W) 7368 lm (48W) Efficiency 170 lm/W at 350mA (12W) Efficiency 196 lm/W at 125mA (4W) Light Pattern: Type III & Type V Optional: from 2700K - 6000K Light Temperatures
Control	OmniConnect IoT Platform Remote On/Off/Dim with Timer, Time control, Auto Night/Day Operation mode defined by 3 battery voltage levels Auto DIM via integrated infrared motion sensor 2 (Two) additional functionalities independently programmed and triggered by night/day, Time or Sensors events
Lighting Spacing	Indicative spacing (simulation recommended): 8-12m (3m mast) 10-15m (4m mast) 12-18m (5m mast)
Mast	
Height	3m, 4m or 5m
Material	Galvanized Steel
Paint	C3 or C4 paint scheme (optional) Color: RAL 9010 *only use approved mast designs
Body Shell	
Material	Composite Fiberglass/Resin Transparent to radio waves
Finishing	Marine grade gel coat
Colour	RAL 9010 Optional: Other colours available by request
Space inside	Can fit 3 (Three) objects up to: 135 x 200 x 25mm Antennas or other electronics. See Optional accessories
OmniBrain	
Energy	AI energy and functionalities management system Connection to: Wind, Solar, Battery, Sensors, LED drivers and extra functionalities.
Light functions	PWM for LED driver control 2 (Two) motion sensor control (infrared*; optical or radar) *1 (One) infrared motion sensor included
Accessory Ports	2 (Two), 12VDC/5A (Max) each
Communications	Communication link via integrated industrial 2G/ 4G modem with included Global SIM card
Built in memory	Stores 5 days hourly based vital data. Voltage (V) Current (A) Rotor Speed (RPM) Temperature (°C)

General	
Dimensions	0.15m height, 0.6m diameter
Weight	4Kg (86Wh) 6Kg (172Wh)
Nominal Voltage	12VDC
Ingress Protection	IP55
Impact Protection	IK08
Mounting	Mounts on 45mm tube Fixes with 3 self drilling screws Optional: Pole Adapter for different Diameter mounts
Transportation	Package dimensions : 0.65m x 0.65m x 0.175m Foam protected Up to 10 units stackable 295 units on 20" container 594 units on 40" container
Approvals and Standards	CE and UKCA Marking UL/CSA Listed – UL 6142, CSA 22.2, UL 1004-1, UL 1004-4, UL1598 Eye Safety IEC 62471 Safety IEC 62471, IEC 60598, IEC/EN 60529, IEC 62031, UL 8750 CAN/CSA No. 250.13 IEC 61400-2 Small wind design, IEC 61400-11, 2005/88/EC Noise limits EMC Directive 2014/30/EU – EN 61000-3-2, EN 61000-3-3, EN55015, EN61547-1 RoHS 2011/65/EU, 2015/863/EU Low Voltage Directive (LVD) 2014/35/EU
Grid-Tie (optional)	Input Voltage: 230VAC/50Hz or 110VAC/60Hz Isolation Class: Class II Ingress Protection: IP 67 Rated Power: 30-80W
Operating conditions	Temperature: -20 to 55 °C Max wind speed: 45m/s
Protection	20A 32V fuse
Optional Accessories	IoT integration inside Body Shell for multi-application: -Wifi Ethernet Router AP -Transmission - 4G/ 5G Modem, ethernet, fiber, P2P, P2MP -Environnemental sensors (under consultation) -Surveillance cameras: IP modular camera (single lens) integrated 1080p WDR Forensic Capture IP PTZ Camera (mast mounted) IP Thermal Camera (mast mounted) Video analytics: Smart parking, perimeter security, smoke and fire detection, audio processing, people counting, heat map... **only use approved accessories
Monitoring Software	Remote web management cloud based Open API for Smart City platform integration Realtime reporting and control of device subsystems and accessories AI and machine learning capability User and Administrator Level control Configuration and reading of 92 telemetry parameters Alarms settings Maintenance triggers by proprietary algorithm Single unit and group configuration Multi-unit light synchronization by Time Control function Real time unit test (Shows actual program being used by blinking code on lighting system) Day, Week, Month, Year data reports
Warranty	2-year warranty, Extended EOL support option

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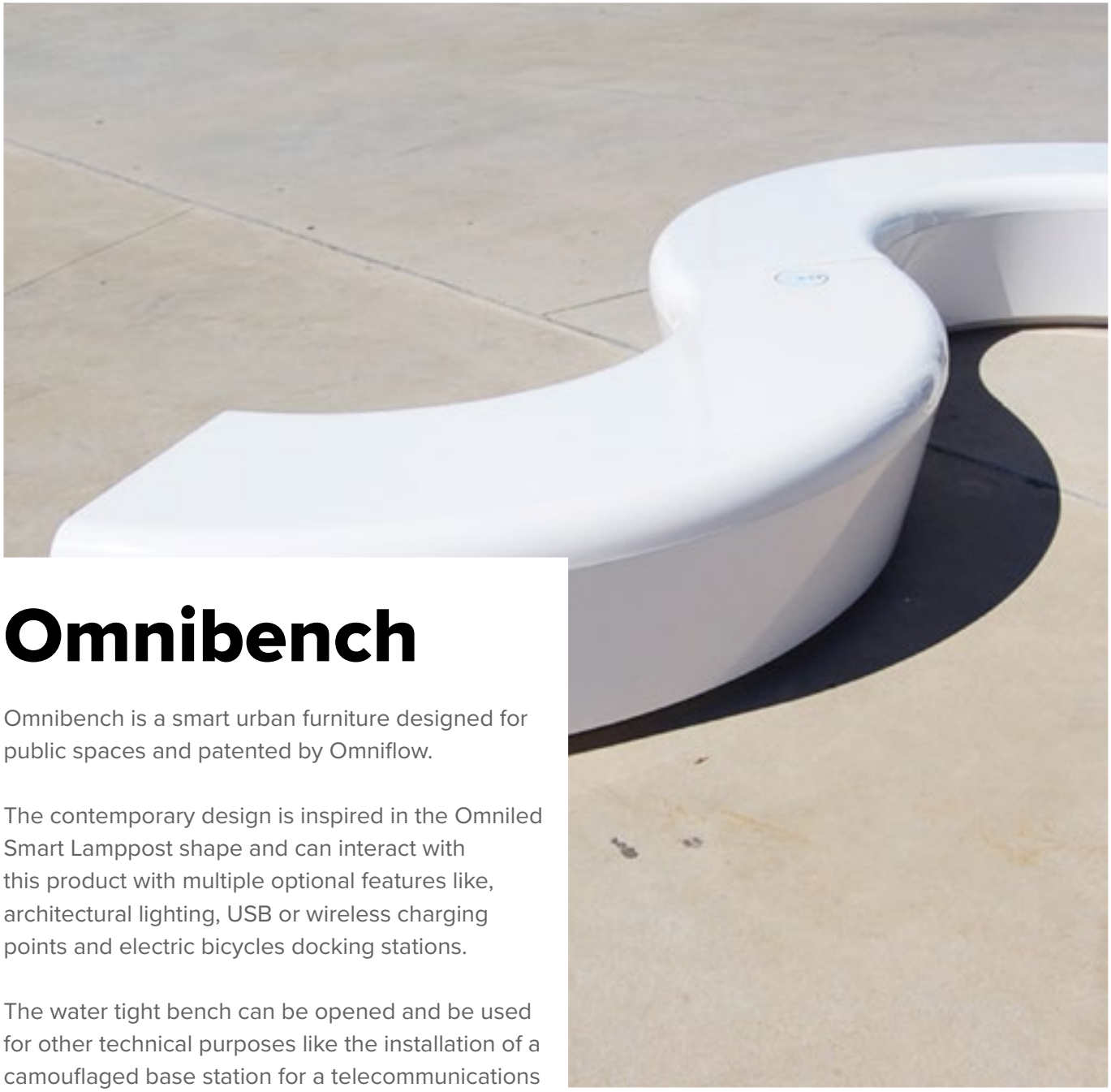


Omnibench

Omnibench is a smart urban furniture designed for public spaces and patented by Omniflow.

The contemporary design is inspired in the Omniled Smart Lamppost shape and can interact with this product with multiple optional features like, architectural lighting, USB or wireless charging points and electric bicycles docking stations.

The water tight bench can be opened and be used for other technical purposes like the installation of a camouflaged base station for a telecommunications provider or simply more batteries.

The Omnibench can be filled with sand/water or simply bolted to the ground.

Features

Modular Design
Solar Optional

IoT monitor and control

Dimensions

2.16/ 0.5 m (w x h)

Weight

50 Kg per module

Finishing

Marine grade gel coat

Color

RAL 9010

Space inside

Can fit 3 (three) objects up to:
500 x 500 mm
1.25 m (external radius)

Installation

Bolted to the ground
Filled with water
Filled with sand

Transportation

Package dimensions:
2.20 x 0.95 x 0.50 m
Up to 6 units stackable

Optional

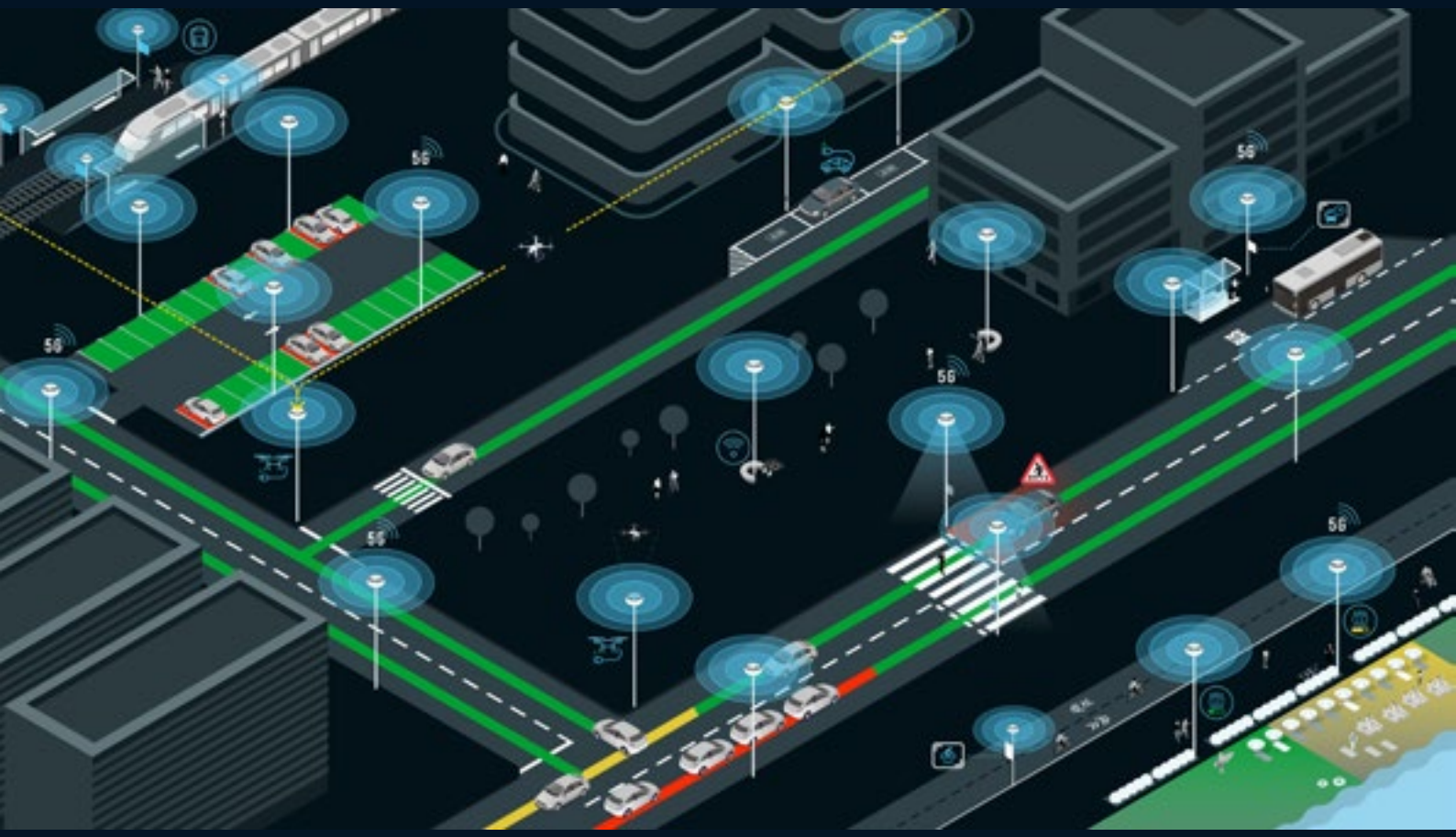
Architectural lighting
USB Charger ports
Wireless Induction Charger
Wi-Fi AP
LoRA Gateway
Small Cell Basestation

Tech specs

Omnibench

Models	
OmniBench	
Solar	Optional
Solar Cell	n-type, monocrystalline Si, >22%Eff @STC
Controller	MPPT Solar Charge Controller
Power	120Wp, 0 degrees
Battery	Optional
Battery Bank	500Wh (3x 12V 14Ah C10 Lead Crystal) Up to 2400Wh (2x 100Ah 12V C10 Lead Crystal)
Charging	Initial Charging Current 4.2A14.7V/ (25°C)
Cycle Life	Typical 3,392 cycles (@40% DOD, 25°C), Max 6,000+ cycles
Body Shell	
Material	Composite Fiberglass/Resin Transparent to radio waves
Finishing	Marine grade gel coat
Color	RAL 9010
Space inside	Can fit 3 (Three) objects up to: 500 x 400 x 300mm
General	
Dimensions	0.5m height, 2.16m maximum length
Weight	50Kg per module
Nominal Voltage	12VDC
Ingress Protection	IP55
Impact Protection	IK08
Mounting	Mounts: Bolted to the ground Fill with water Fill with sand
Transportation	Package dimensions: 2.20m x 0.95m x 0.50m Up to 6 units stackable
Optional Accessories	IoT integration inside Body Shell for multi-application: - Bottom lighting (bench) - E-Bike Charging Station - E-Scooter Charging Station - USB Charger ports - Wireless Charger - Wifi Ethernet Router AP - Wifi Ethernet Fiberoptic Router AP - LoRA Gateway (under consultation) - Transmission - 4G Modem, ethernet, fiber, P2P, P2MP - Small Cell integration (under consultation)
Warranty	2-year warranty, Extended EOL support option

Sustainable Smart City Solutions



Smart Pole

Our Smart Lamppost is powered by wind and solar with built-in battery storage. It transforms a regular street light into a sustainable smart infrastructure capable of housing multiple added value services like 5G/LTE Small Cell, public wifi, security cameras, Computer vision / analytics, EV charging, IoT sensors/ gateways, and even integrated audio for public communication.

5G base-stations (small cells)

5G or LTE small cells can be integrated within our products creating the perfect street level solution to deploy sustainable network infrastructure.
Radio and antennas can be integrated both on Omniled 07 and also on Omniflow Smart Bench.

EV Charger

Our sustainable smart luminaire powered by wind and solar with a built-in EV Charging Station is the perfect innovative product to facilitate the availability of charging points. All the elements are located inside the luminaire making it much easier to deploy using existing standard poles and power cables.

Smart Crosswalk

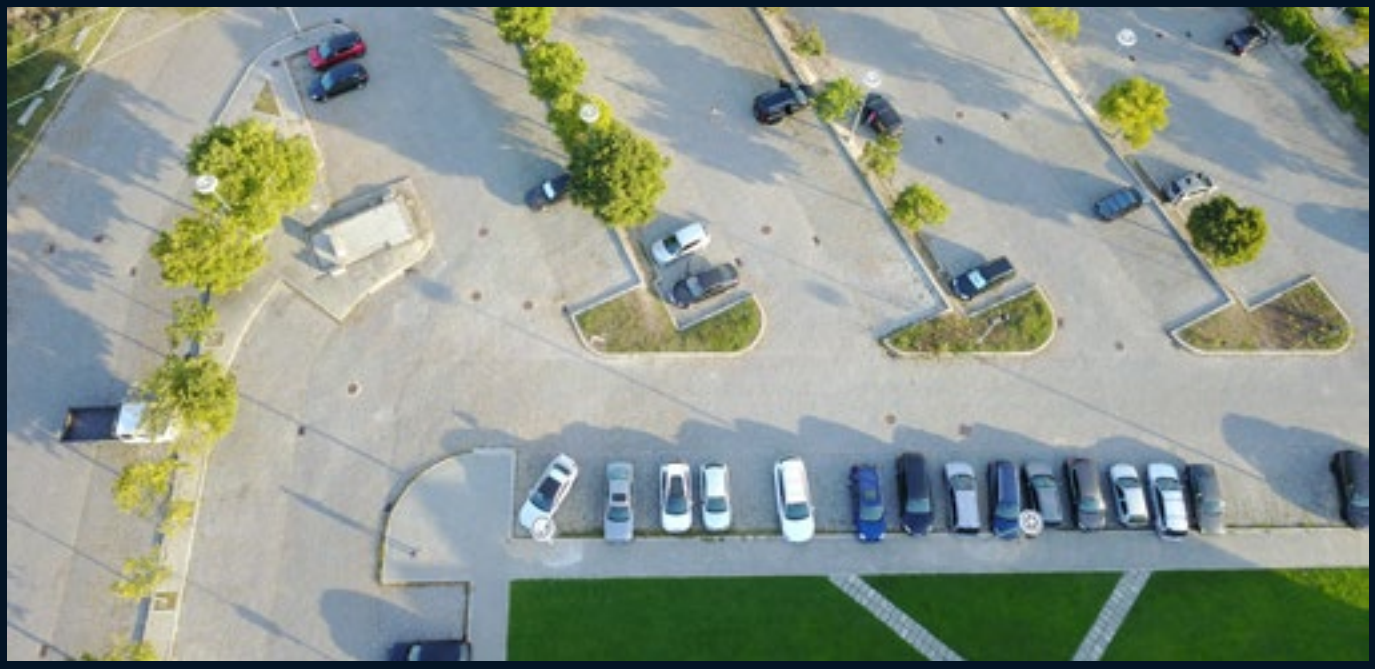
We developed an intelligent crosswalk system to address pedestrian safety concerns in high-traffic and footfall areas. We use advanced technologies such as sensors and smart signaling, to increase pedestrian safety and reduce accidents.

Bus Stop

Smart Bus Stop provides the users of public transportation of a better service experience improving safety, information, connectivity and comfort.
The pole integrates the Omniflow smart IoT pole powered by wind and solar that can host, light, information display, Wi-fi AP, Security camera and USB/wireless charging.

Smart Parking

The computer vision is capable of identifying if specific parking places are free or occupied. This information can be processed in the cloud or in the edge.
The metadata can be sent to display, app or directly to the car.



V2X

Events detected by computer vision will be transmitted C-V2X our using a RSU (road side unit) the information can be directly transmitted to the vehicles and pedestrians near the event.

Traffic Monitoring

The integrated IP cameras can be used to stream the video to a control center or video processing can be executed inside our unit to detect vehicles and events.

Edge Computing

Local processing is used to process the raw data coming from our sensors on our local computer. The system is also capable of processing low frame rate video analytics like smart parking. For more demanding applications a local GPU can be used for video analytics, data processing or content on the edge.

Micro Mobility

Our Omniled and Omnibench can be used to charge e-scooters, e-bikes or just parking.
All the electronics and control can be hosted inside of the Smart Bench solution that can also have additional solar power capability to reduce the power consumption from the grid.

Wi-fi Access Point

Public WI-FI access points can be hosted in all of Omniflow products.
Our solution is agnostic in terms of particular vendors used to provide the service.
All of our products are transparent to radio waves, so the AP can be installed inside our weather protective enclosure.

Security

Our systems can host up to 4 IP security cameras completely integrated into the shell of our Omniled solution. The integrated IP cameras can be used to stream the video to a control center or the video processing can be executed inside our unit using the camera processing capacities or edge computing.

Weather/ environmental/ IoT sensors

All this IoT sensors and gateways can be easily integrated in our units where we can offer the power, connectivity and space to host all this services.

Drone Charging/ control Hub

We can retrofit existing lamp posts with Omniflow smart pole powered by wind and solar using the existing poles and avoiding expensive and time consuming civil works.
Every Omniflow smart pole can be upgraded to host the drone charging pad and 5G, so with Omniflow you will be able to create sustainable networks and highways for autonomous drone services.

Smart lighting

Our solution achieves a power reduction of more than 90% transforming a simple street light into a carbon neutral object that can be used for multiple IoT purposes in a single infrastructure without the need of creating new ones.
We have 2 available models for smart lighting, the Omniled 07 for pole heights of 6-12m and the Omniled 035 for pole heights of 3-5m.

Rail Stations

By retrofitting old lights with highly efficient and beautifully designed Omniflow systems our customers are reaching savings of more than 90% translating into good investments and good ROI.
Information can be displayed on digital signage together with Wi-Fi, Audio and security cameras.

Parking lots

By retrofitting old lights with highly efficient and beautifully designed Omniflow systems our customers can achieve savings of more than 90% translating into good investments and good ROI.
Lights can be dimmed after closing time and motion sensor activated to help the security team to secure the perimeter.
We also normally supply in this projects Wi-Fi and security cameras that can be also used for Smart Parking.

Beach/ Crowd monitoring

Omniflow's technology analyses how busy the beach or location is and shows real-time occupancy levels on a local E-ink screen or an app so a user can make an informed decision about where to go.
Audio warnings can also be used.

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