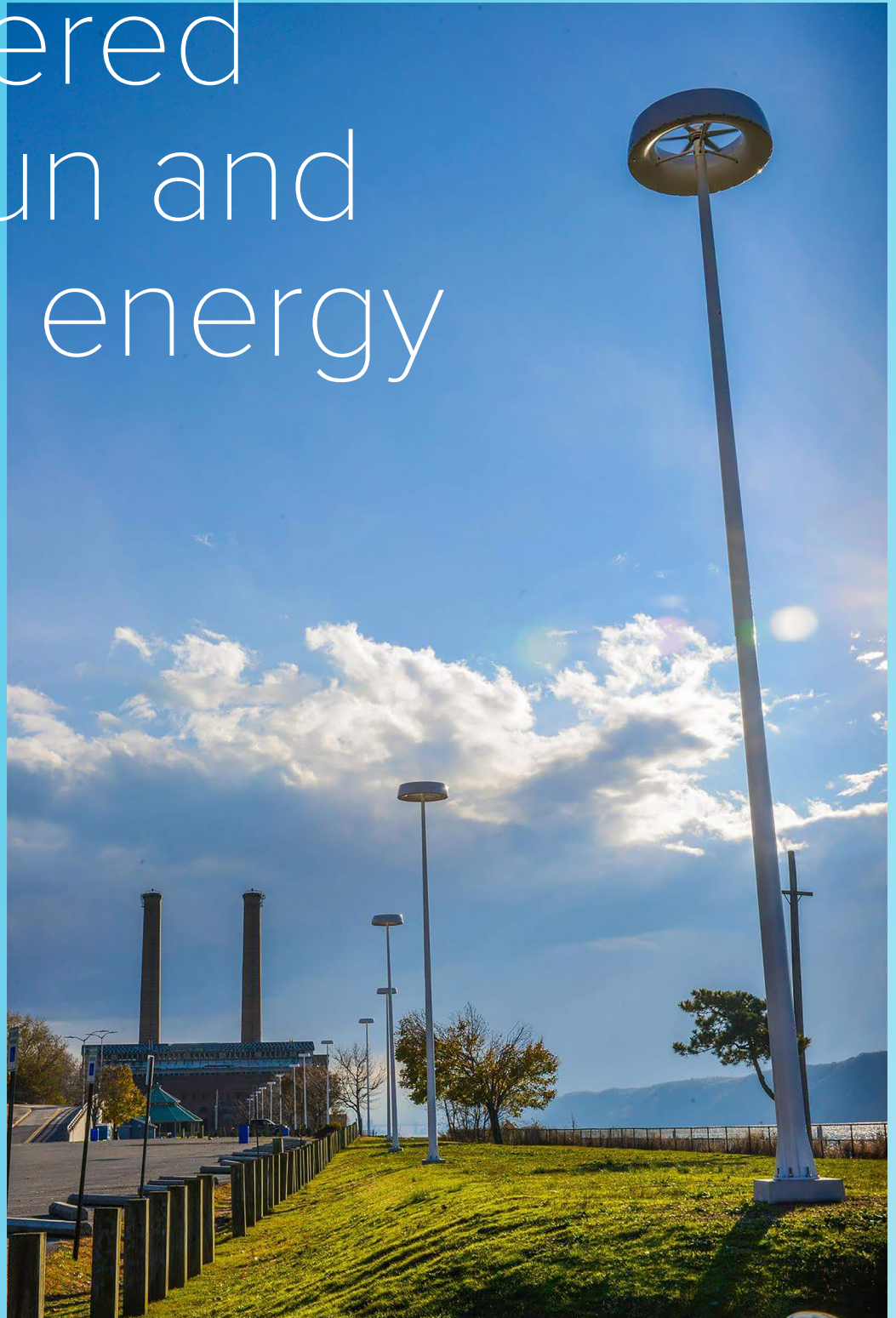


Omniflow®

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.

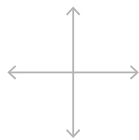
Some projects can be done Off-Grid. Please contact us for site evaluation.





Technology

Hybrid Wind & Solar



Dimensions

Omniled 07
1.20 / 0.30 m (w x h)

Omniled 035
0.60 / 0.15 m (w x h)



Weight

Omniled 07
35 Kg

Omniled 035
4 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
90 Wh C10 Lead Crystal



Lighting power

Omniled 07
30/ 90/ 180 (w/ Grid-backup)

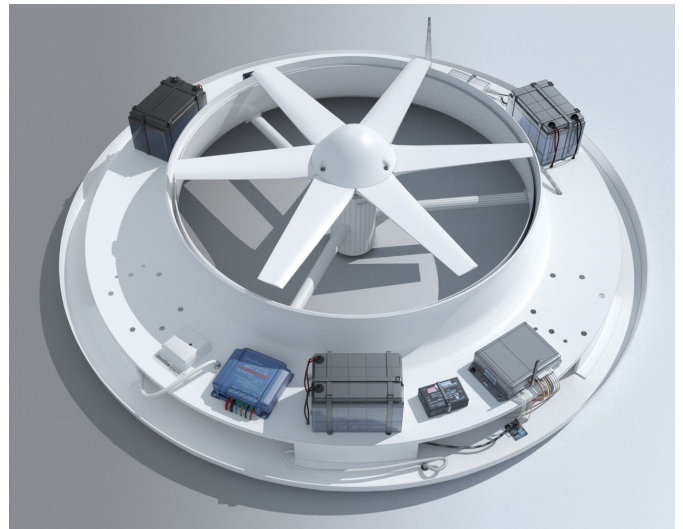
Omniled 035
12/ 24/ 36 (w/ Grid-backup)



Lumen luminance

Omniled 07
5100/ 13950/ 27900 lm

Omniled 035
1200/ 3840/ 5580 lm



Pole height

Omniled 035
6/ 8/ 12 m

Omniled 035
4/ 5/ 6 m



DC Controller

Omniled 07 / Omniled 035
Hybrid wind/solar regulator



Generator

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



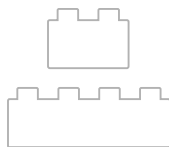
Color temperature

Omniled 07 / Omniled 035
4000 K



Control

Omniled 07 / Omniled 035
OmniConnect IoT Platform



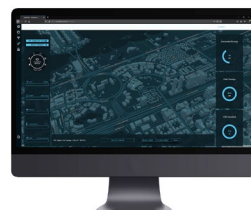
Optional

Omniled 07 / Omniled 035
Wi-Fi, 5G/LTE, small cell, IP camera's and video, analytics, USB charger, E-bike 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 make 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 Electric 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 Grid	Grid-tie unit with lighting but no generation or battery
OMNILED Smart Storage	Grid-tie unit with lighting and battery but no generation
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)
Vibration	Anti-Vibration mounts
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: 70Wp mast integrated, 90 degrees

Battery

Battery Bank	500Wh (3x 12V 14Ah C10 Lead Crystal) Optional: 1000Wh (6x 12V 14Ah C10 Lead Crystal)
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	15, 30 or 60 LED array Lens: Optical Grade PMMA 5100 lm (30W), 1968 lm (10W smart mode) 9300 lm (60W), 3655 lm (20W smart mode) – Grid Tie 18600 lm (120W), 10200 lm (60W smart mode) – Grid Tie Efficiency 170 lm/W at 350mA (30W) Efficiency 196 lm/W at 125mA (10W) 4000K light temperature Light Pattern: Type IV or Type V
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	Recommended spacing (simulation recommended): 35-40m (12m mast) 25-30m (8m mast) 20-25m (6m mast)

Mast

Height	6, 8 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
Color	RAL 9010
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 GPRS 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	35Kg (500Wh) 55Kg (1000Wh)
Nominal Voltage	12VDC
Ingress Protection	IP65
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 70 units per 40' container
Approvals and Standards	CE Marking Eye Safety IEC 62471 Standard for Safety UL 8750 CAN/CSA No. 250.13 IEC 61400-2 Small wind design 2005/88/EC – noise limits ISO 2394:1998(E) Reliability for structures EMC Directive 2014/30/EU Low Voltage Directive (LVD) 2016/95/EC
Grid-Tie (optional)	Input Voltage: 230VAC/50Hz or 110VAC/60Hz Isolation Class: Class II Ingress Protection: IP 67 Rated Power: 60W
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: - USB Charger ports - 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) - Autonomous traffic lights (under consultation) - E-Bike Charging Station - 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: Plate recognition, smart parking, perimeter security, face recognition, smoke and fire detection, audio processing, people counting, crowd monitoring, heat map... *use of some accessories may require extra solar PV or grid-backup **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

A. OMNIFLOW® IS REGISTERED TRADEMARK IN VARIOUS JURISDICTIONS

B. OMNIFLOW® PRODUCTS ARE PROTECTED BY INDUSTRIAL PATENT AND DESIGN PATENT IN VARIOUS JURISDICTIONS

Tech specs

Omniled 035

Models

OMNILED Smart Grid	Grid-tie unit with lighting but no generation or battery
OMNILED Smart Storage	Grid-tie unit with lighting and battery but no generation
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)
Vibration	Anti-Vibration mounts
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: 35Wp mast integrated, 90 degrees

Battery

Battery Bank	86Wh (2x6V 7.2Ah C10 Lead Crystal) Optional: 172Wh (2x6V 7.2Ah C10 Lead Crystal)
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 1200 lm (6W), (2W smart mode) 3700 lm (24W) – Grid Tie 8180 lm (60W) – Grid Tie Efficiency 170 lm/W at 350mA (12W) Efficiency 196 lm/W at 125mA (4W) 4000K light temperature Light Pattern: Type IV or Type V
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	Recommended spacing (simulation recommended): 10-15m (4m mast) 12-18m (5m mast) 18-22m (6m mast)

Mast

Height	3, 4 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
Color	RAL 9010
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 GPRS 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	IP65
Impact Protection	IK08
Mounting	Mounts on 50-60mm tube 2 (Two) crossed stainless steel M6 bolts for fixing
Transportation	Package dimensions : 0.65m x 0.65m x 0.175m Foam protected Up to 10 units stackable 560 units per 40' container
Approvals and Standards	CE Marking Eye Safety IEC 62471 Standard for Safety UL 8750 CAN/CSA No. 250.13 IEC 61400-2 Small wind design 2005/88/EC – noise limits ISO 2394:1998(E) Reliability for structures EMC Directive 2014/30/EU Low Voltage Directive (LVD) 2016/95/EC
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: -USB Charger ports -Wifi Ethernet Router AP -Transmission - 4G Modem, ethernet, fiber, P2P, P2MP -Environmental 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: Plate recognition, smart parking, perimeter security, face recognition, smoke and fire detection, audio processing, people counting, crowd monitoring, heat map... *use of some accessories may require extra solar PV or grid-backup **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

• ALL UNITS ARE GRID CONNECTED

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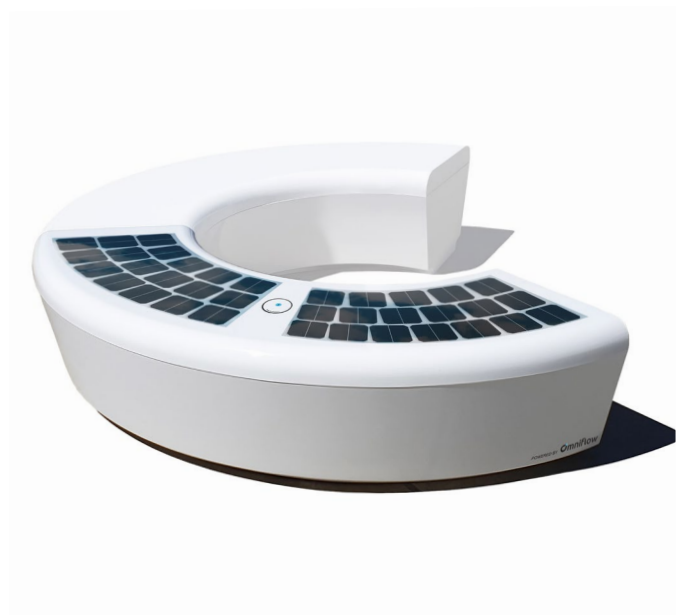
Omnibench

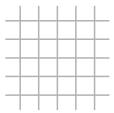
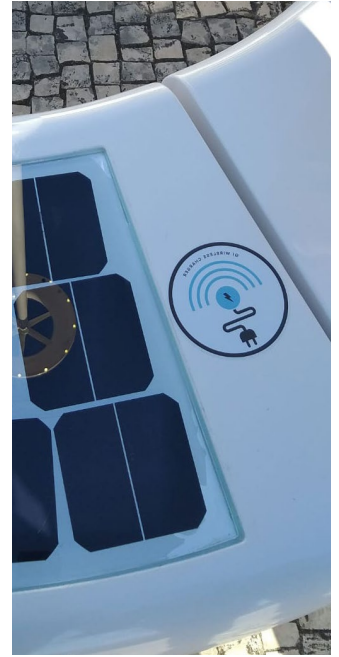
Omnibench is a smart urban furniture designed for public spaces and patented by Omniflow.

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.

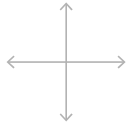




Features

Modular Design
Solar Optional

IoT monitor and control



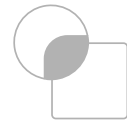
Dimensions

2.16/ 0.5 m (w x h)



Weight

50 Kg per module



Finishing

Marine grade gel coat



Color

RAL 9010



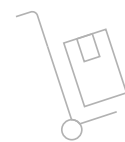
Space inside

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



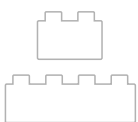
Installation

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 IP65

Impact Protection IK08

Mounting Mounts:
Bolted to the ground
Fill with water
Fill with sand

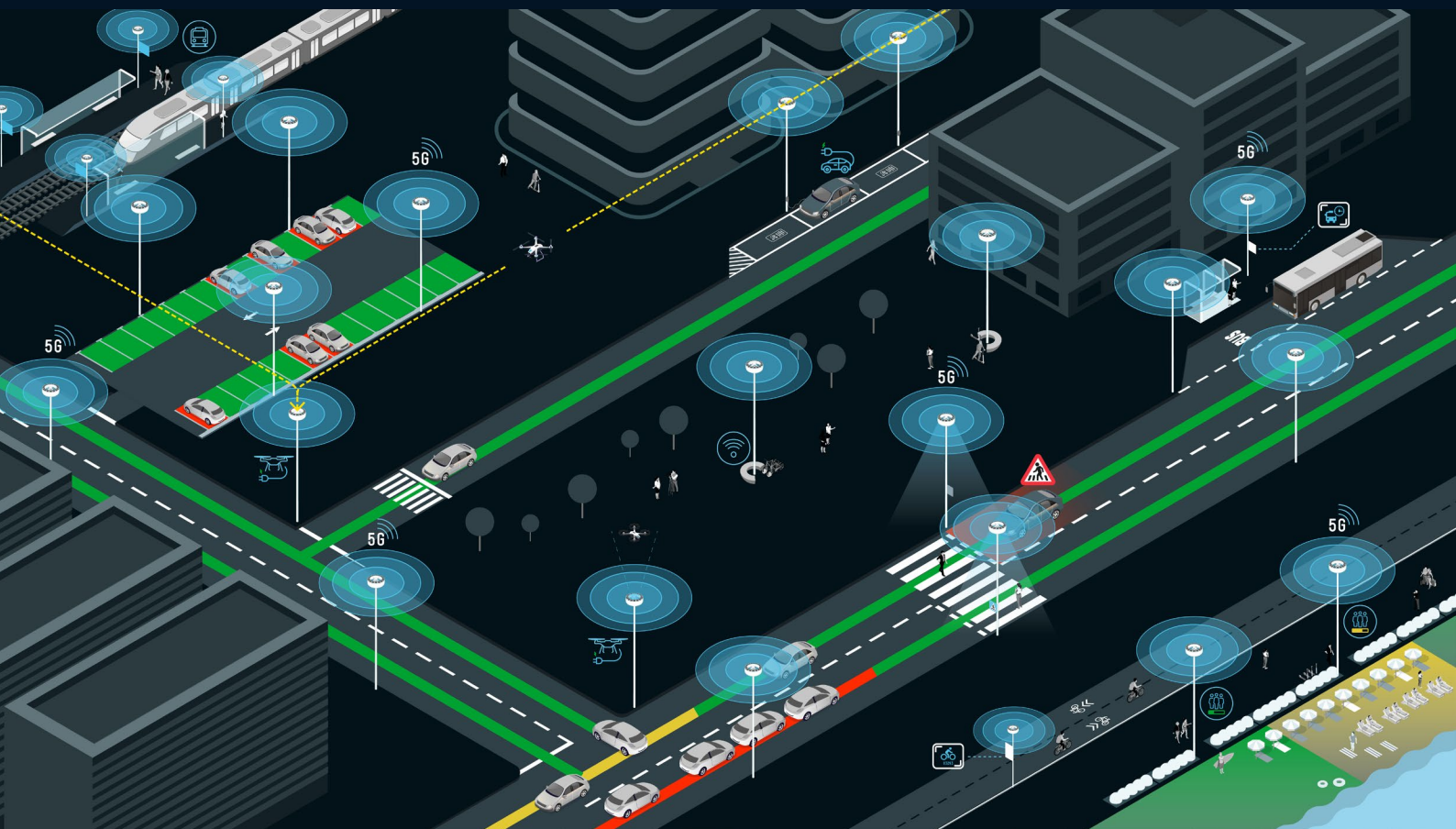
Transportation Package dimensions:
2.20m x 0.95m x 0.50m
Up to 6 units stackable

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 Omniflow solution is an integrated Smart Lamp post powered by wind and solar with integrated 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, 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 Charging stations

Our solution can be installed together with EV chargers up to 22KW. The power will come from grid connection and the connectivity and smart video analytics will be supplied by our existing connectivity.

Pedestrian Crosswalk

Smart cross walk system was developed together with Siemens to increase the safety of pedestrians in problematic areas with high traffic and foot fall

System can detect pedestrians and activate lighting, signs and V2X to make sure the driver/car are aware of pedestrian.

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 are reaching 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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