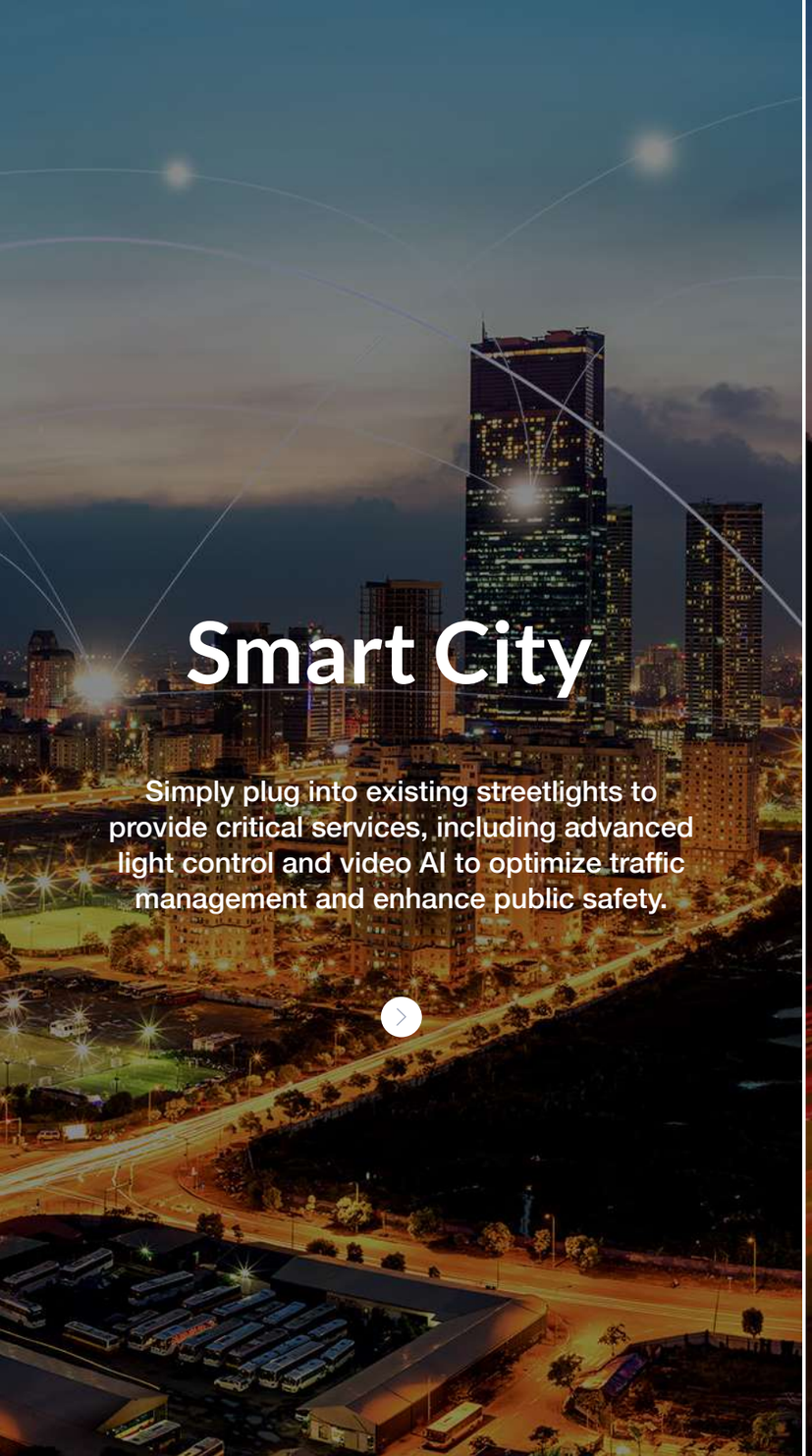

# OUR SOLUTIONS

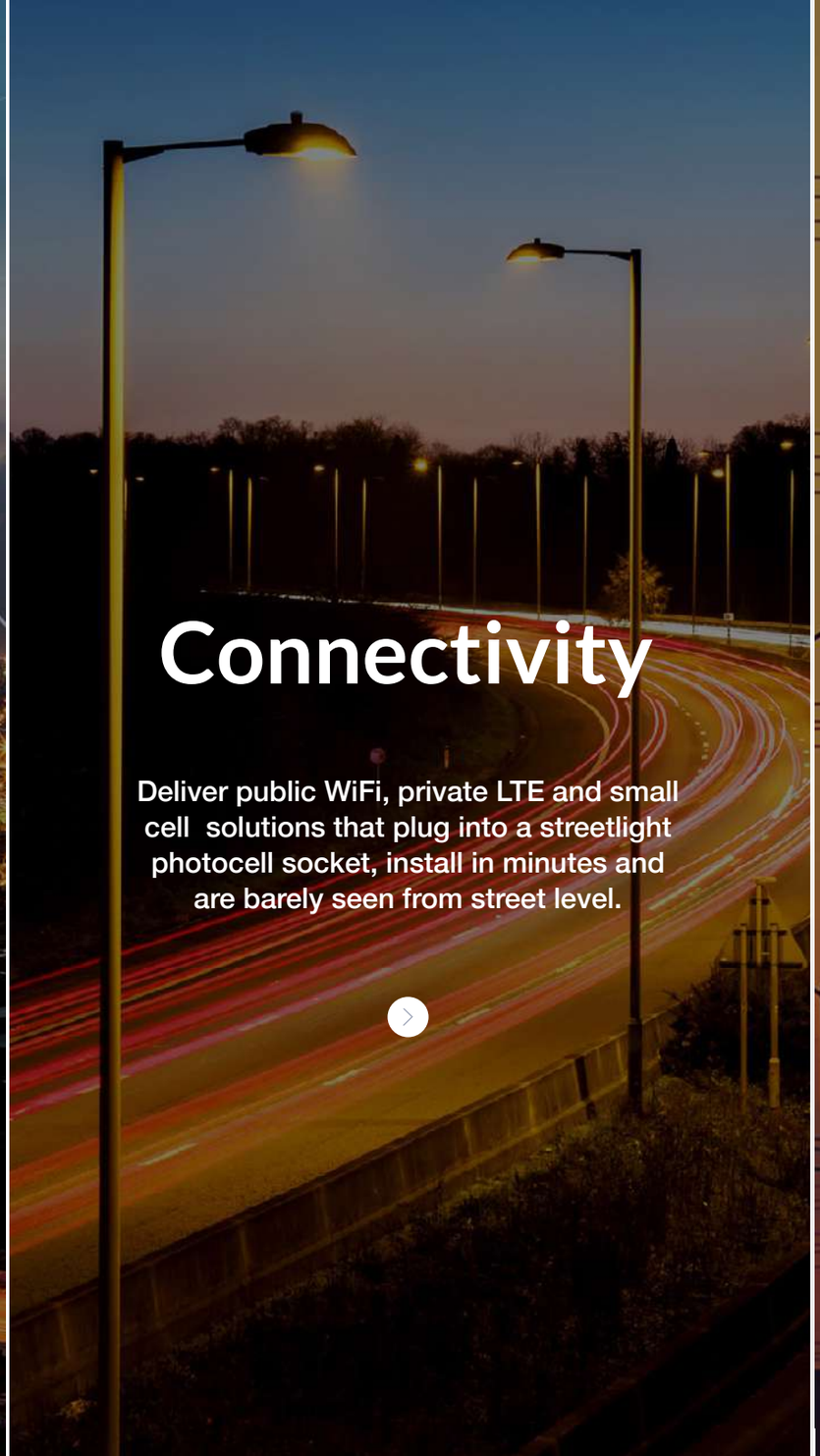
Enable the next generation 5G and IoT platforms for cities, utilities and mobile operators worldwide. Ubicquia creates innovative products that leverage existing infrastructure to make communities smarter, safer and more connected.

Watch Now



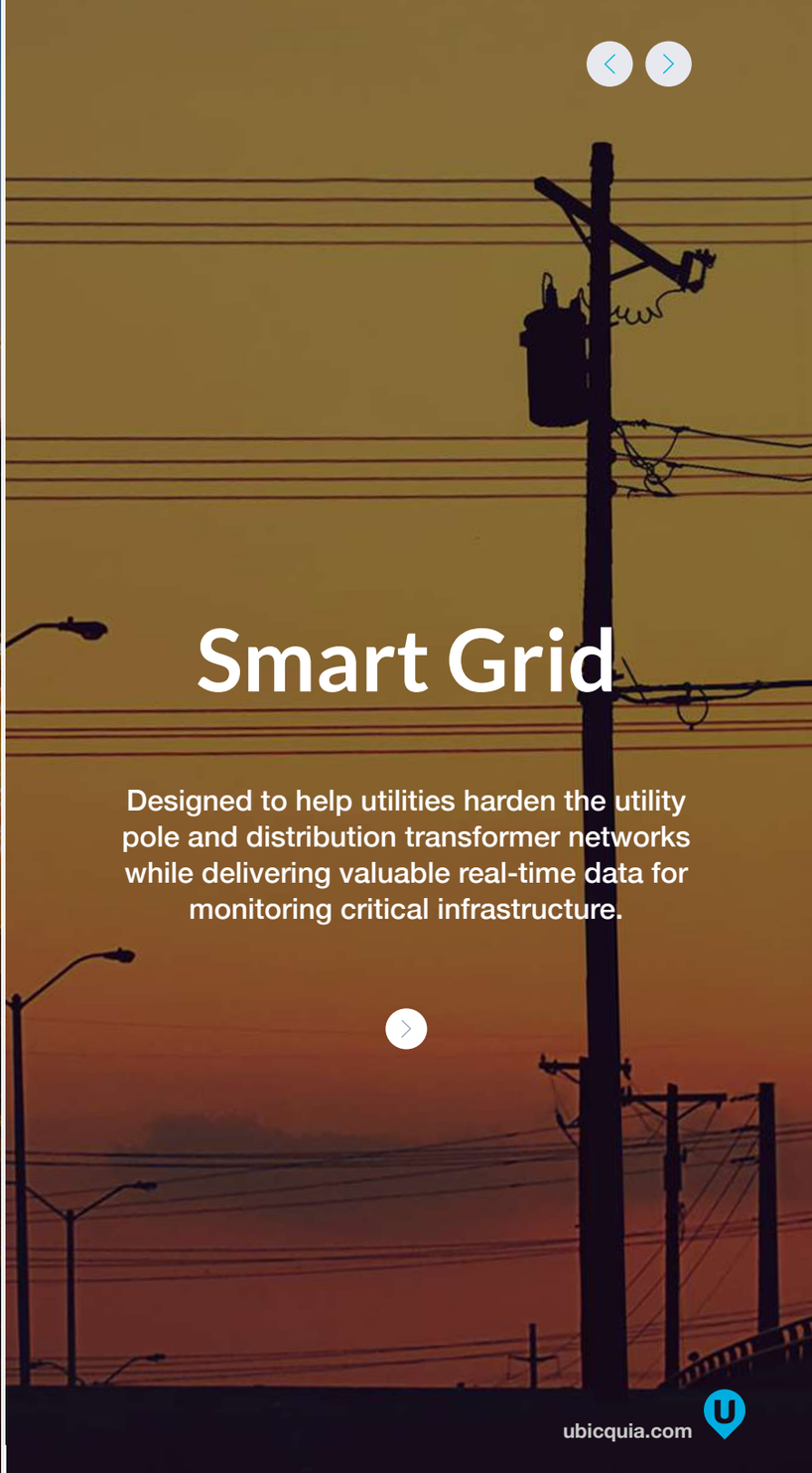
# Smart City

Simply plug into existing streetlights to provide critical services, including advanced light control and video AI to optimize traffic management and enhance public safety.



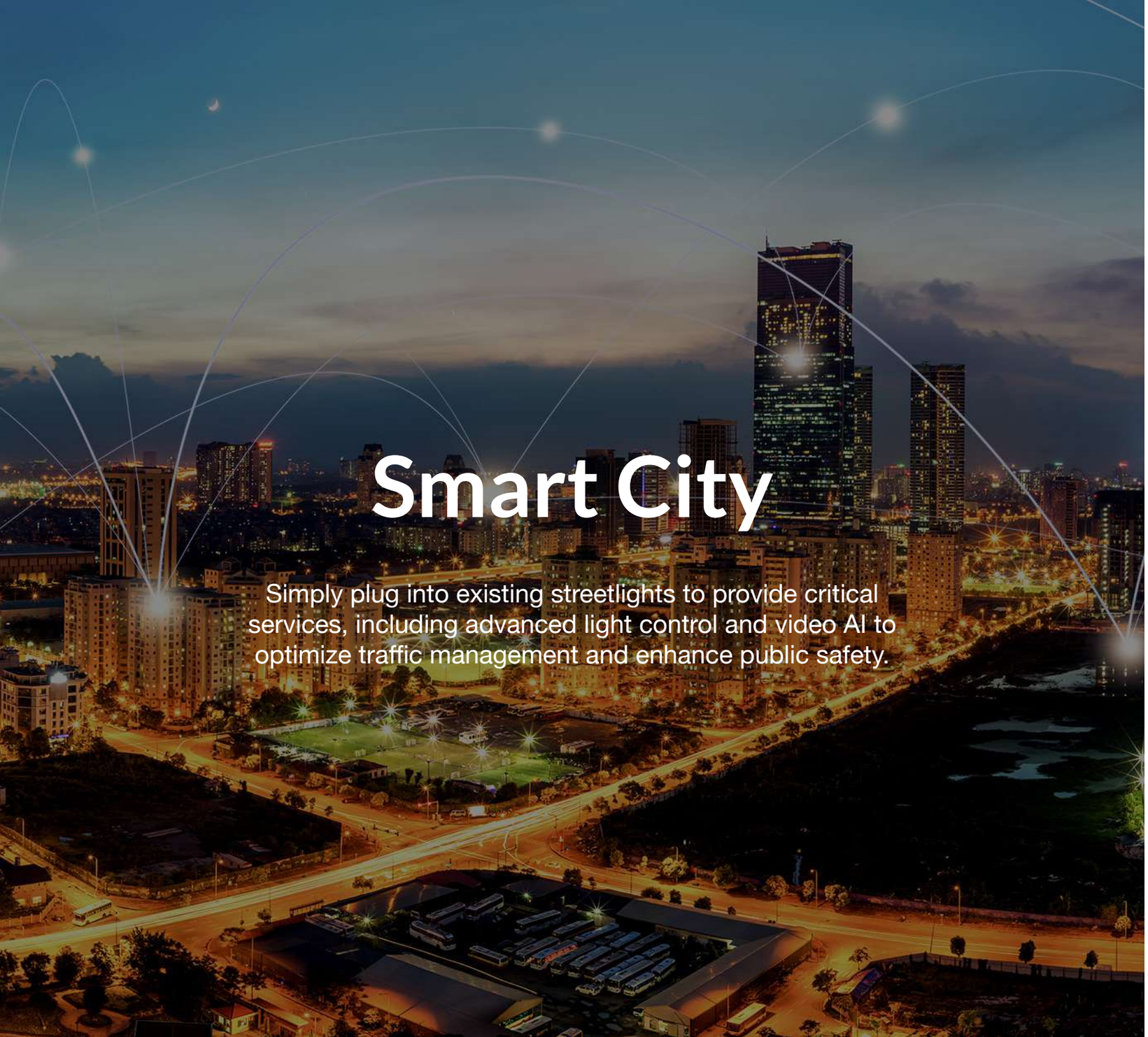
# Connectivity

Deliver public WiFi, private LTE and small cell solutions that plug into a streetlight photocell socket, install in minutes and are barely seen from street level.



# Smart Grid

Designed to help utilities harden the utility pole and distribution transformer networks while delivering valuable real-time data for monitoring critical infrastructure.



# Smart City

Simply plug into existing streetlights to provide critical services, including advanced light control and video AI to optimize traffic management and enhance public safety.

## ubicell

Streetlight Controller

## ubismart AQM+

Air Quality Sensor

## ubihub AP AI

Streetlight WiFi 6 AP/AI

# Smart Streetlight Controller

# ubicell™

**COMPATIBLE WITH 360M+ STREETLIGHTS WORLDWIDE**

ubicell

# The Next Generation in Streetlight Control

Plug and Play streetlight photocell replacement providing advanced light control, voltage detection, utility grade metering, tilt/vibration sensing and connections to smart city sensors services. UbiCell achieves energy savings and can reduce operational costs up to 50%.

Advanced Light Control, Monitoring & Metering

Sensors & Applications

**Unique Feature**

- 0-10V, DALI dimming protocols, plus new DALI-2
- Built-in GPS and celestial clock
- Monitoring of power usage and quality of line and load
- Power loss communicates last known state after outage
- LTE data communications
- High Accuracy Tilt and Vibration

# Product Highlights

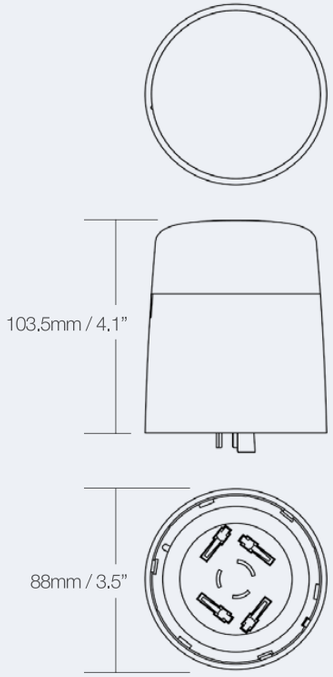
ubicell

**Integrates seamlessly with existing streetlight infrastructure**

External NEMA

Internal NEMA

Internal Wired




### Operations & Maintenance

- Advanced light control
- Utility metering
- Power loss detection
- High accuracy tilt and vibration sensor
- Impact detection

### Simplified Installation

- Installs and activates in 5 minutes
- Carrier auto-provisioning
- OTA firmware updates
- Eliminate mounted gateways

### Sensor Connectivity

- 2 wire connections for power/data
- Sensor data aggregation
- 2 way comms. for sensor calibration

### Complete Asset Management

- GPS data mapping of inventory
- Alert threshold management
- Scheduling convenience
- Photocell control enabled

### Location Based Services

- High accuracy GPS
- WiFi capabilities coming soon
- BLE beaconing capabilities

### Global/Universal Compatibility

- All LED or HID streetlights
- All 3, 5 and 7 pin streetlights
- All dimming protocols, 0-10V, DALI, DALI-2
- All voltage ranges (120V to 480V)
- LTE data communications

# Features and Benefits

ubicell™

## Color Options

- External NEMA only avaliable in gray, black, green and bronze to complement existing streetlight fixtures and align with city beautification standards.

## UbiVu

**Streetlight Control Platform**

- Secure administration via UbiVu
- View map, tile and table formats
- API connectivity option
- Alarms trigger alerts

## Features

- Single SKU 120V to 480V operation
- 0-10V, DALI, DALI-2 Dimming
- Satellite GPS and celestial clock
- Simultaneous monitoring of power usage and quality for line and load
- High accuracy tilt and vibration sensor
- Power loss and non-volatile memory
- Scheduling controls
- OTA updates in minutes
- 5-year warranty, optional 10-year warranty
- Motion detection capabilities coming soon

## Benefits

- One controller for virtually any streetlight
- Auto configures for most drivers
- Accurate GPS coordinates with sunrise/sunset offset
- Metering both sides of the circuit
- Pole and streetlight condition beyond knock down
- Last state communicated with stored data
- Global operation wherever mobile coverage is available
- Coincides with luminaire warranty
- Group nodes by tag for mass control
- Data and location visualization of node status
- Customized reports
- Power conservation through celestial scheduling

# Specifications

ubicell

## SPECIFICATIONS

| | |
|---|---|
| **Dimensions:** | 88mm diameter, Height product dependent |
| **Weight:** | 375g |
| **Lamp Interface** | LED, CF, HID and HPS |
| **Voltage Range** | 110V to 480V auto-ranging |
| **Power Supply** | 90V to 506V |
| **Lamp Power** | 1200W (1800VA) |
| **Energy Consumption** | Watt-hour resolution |
| **Lamp On/Off** | Photocell control, software programmable scheduling |
| **Dimming Controls** | Auto-select between 0-10V, DALI/DALI2 |
| **Ext. Sensor Interface** | DALI/DALI 2 |
| **Comm. Module** | LTE: Cat1, Cat M1 |
| **Location Based Services** | WiFi Mesh (Q1 2022 via OTA update), BLE beacons, and high accuracy GPS |
| **Firmware Updates:** | OTA upgrades |
| **Power Surge Protection** | 20kV/10kA-Extreme |
| **Average Power Consumption** | 1W Typical |
| **IP Ratings** | IP66 |
| **Impact Rating** | IK07 |
| **Operating Temp. Range** | -40C to + 70C |
| **Network Protocol** | IPV4 and IPV6 network compliant |
| **Impact & Tilt Detection** | 0 to 90° with 1° resolution and knock down alarm |
| **Vibration Detection** | Configurable roadway and bridge modes at 2g/3g detection (available in 2022) |

## POWER METER SPECIFICATIONS

| | |
|---|---|
| **Accuracy Verification** | Optical infrared pulse |
| **Line Voltage** | 90V to 506V (50/60Hz) |
| **Accuracy** | +/- 0.5% |
| **Power** | Active power with PF |
| **Energy Consumption** | kWh |
| **Life Cycle Tracking** | Cycle count, burn hours tracking, and fault detection |

## PROGRAMMABLE FEATURES

Customer asset management
Scheduling controls
Alert thresholds
Astronomical scheduling with adjustable offsets
Photocell thresholds
Luminaire fault detection
Voltage sag and swell detection
Tilt detection and alert
Power loss detection and alert
Network communication failure
Group devices by tag for mass control
Triac assisted relay

External NEMA

## CERTIFICATIONS & COMPLIANCES

| | |
|---|---|
| **Metrology Accuracy** | ANSI C12.20 Class 0.5 |
| **Safety** | UL 773 |
| **FCC** | Part 15, Subpart B, Class B |

## WARRANTY

5-Year Warranty, Optional 10-Year Warranty

Internal NEMA

Internal Wired

# Specifications

## UbiCell Platform

**Key features across all NLCs**

## UbiCell UG Internal Node

The UbiCell is now available in 3 different forms. All UbiCells conform to the same specifications offering the same features, but they differ in size and installation method to accommodate for various types of lighting fixtures. In addition, a combination of external antennae can be connected for several communication options as specified below.

External Antenna


**External NEMA**
- Built-In NEMA
- Built-in LTE, Wi-Fi, GPS
- Internal ALS


**Internal NEMA**
- Built-In NEMA
- External LTE, Wi-Fi, GPS
- Internal ALS


**Internal Wired**
- Hardwire
- External LTE, Wi-Fi, GPS
- External ALS

# Streetlight Air Quality Monitor+ Sensor

## Advanced Air Quality and Noise Monitor

It is designed for integration with existing utility infrastructure and Ubicquia's advanced streetlight controller platform. UbiSmart AQM+ measures, monitors and analyzes local data to track environmental trends in your city.

Keep your city's health in check, with UbiSmart Air Quality Monitoring+ that simply installs and seamlessly integrates with your existing infrastructure.

## Unique Features

- Tracks including temperature and humidity
- Data and power delivered via DALI-2

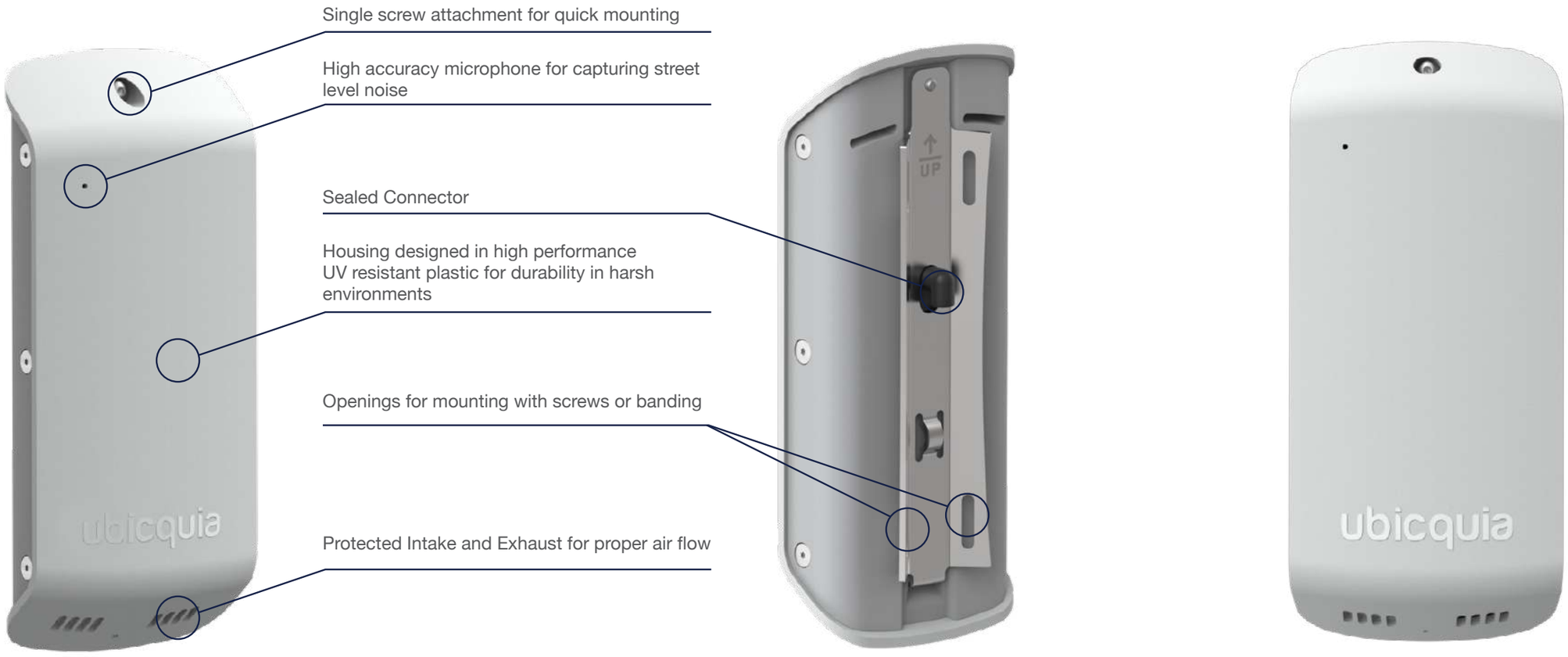
## High Accuracy Sensors

- Temperature (T)
- Pressure (P)
- Humidity (RH)
- Ozone (O3)
- Nitrogen Dioxide (NO2)
- Sulfur Dioxide (SO2)
- Carbon Monoxide (CO)
- PPM (PM1, PM2.5, PM10)
- Noise Level (dB)

Sensors & Applications

## Key Features



# Features and Benefits

ubismart AQM+

## Make your city smarter, safer and more connected

### Operations & Maintenance

- Real-time Air Quality Index
- Auto calibration
- Weather resistant enclosure
- Zero cost maintenance
- Low cost SaaS

### Simplified Installation

- Simple 4 step pole install process
- Auto-provisions on power-up
- Fits on ANY pole
- Easy to replace
- Out-of-reach on pole

### Advanced Design

- Sleek and unobtrusive design
- Rugged tamper resistant case
- Reduced water ingress
- IP44 rating

### Sensor Data

- DALI-2 power and data
- Data access via UbiVu or API
- Data easily shared with 3rd parties
- Installs in less than 15 mins

# Specifications

ubismart AQM+

## PRODUCT SUMMARY

UbiSmart AQM+ is a small sensor that measures, monitors, records, analyzes and communicates precise local air quality and environmental data. Mounted on a streetlight pole approximately 12-feet above the ground, the sensors sample the surrounding air and report the information to the ubivu customer portal or via APIs.

## SENSOR SPECIFICATION

| | Minimum | Maximum | Resolution | Accuracy |
|---|---|---|---|---|
| **Temperature (C)** | -30˚ | +70˚ | 0.01˚ | +/-0.2 |
| **Humidity (RH%)** | 0% RH | 95% RH | 1% RH | +/- 2% |
| **Pressure (Pa)** | 300 Pa | 1100 Pa | 1 Pa | +/- 0.15% |
| **$PM_{1.0}$** | 0 µg/m3 | 1000 µg/m3 | 1 µg/m3 | +/- 10% |
| **$PM_{2.5}$** | 0 µg/m3 | 1000 µg/m3 | 1 µg/m3 | +/- 10% |
| **$PM_{10}$** | 0 µg/m3 | 1000 µg/m3 | 1 µg/m3 | +/- 10% |
| **Sulfur Dioxide ($S0_2$)** | 0 ppm | 20 ppm | 0.1 ppm | +/- 5% |
| **Ozone ($O_3$)** | 0 ppm | 5 ppm | 0.01 ppm | +/- 5% |
| **Carbon Monoxide (CO)** | 0 ppm | 50 ppm | 1 ppm | +/- 20% |
| **Nitrogen Dioxide ($N0_2$)** | 0 ppm | 5 ppm | 0.1 ppm | +/- 5% |
| **Noise Level (dB)** | 30 dB | 130 dB | 1 dB | +/- 10% |

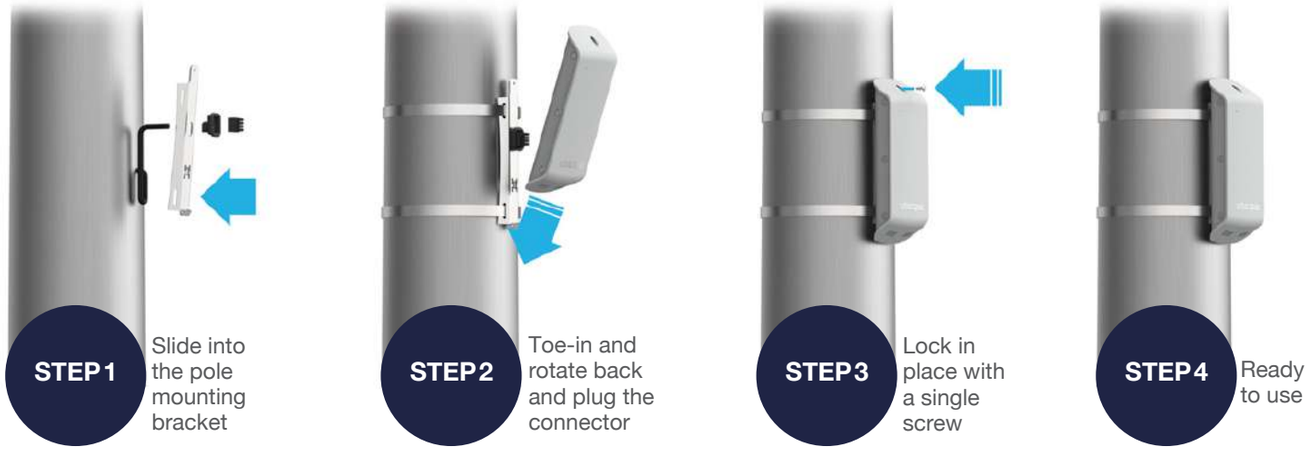
## WARRANTY

1-Year Warranty

## POWER METER SPECIFICATIONS

| | |
|---|---|
| **UbiSmart AQM+ Interface** | Digital Addressable Lighting Interface (DALI) |
| **DALI Power Supply** | 16V 70mA Max |
| **External Power Supply** | 5V 200mA Max (Optional) |
| **External Controller** | UbiCell 2.0 |
| **Power Surge Protection** | 10kV/5kA via UbiCell 2.0 |
| **Water Ingress Prevention** | Drip Loop Connection Feature and Water Tight Seals |
| **Operating Temperature Range** | -30˚C to +70˚ C |
| **Dimensions** | 197mm (L) x 82mm (W) x 32mm (D) |
| **Weight** | 267 grams |

## SIMPLE PLUG AND PLAY INSTALLATION



Industry's First Streetlight
Edge AI & WiFi 6 Access Point

# ubihub™ APAI

**COMPATIBLE WITH 360M+ STREETLIGHTS WORLDWIDE**

ubihub AP AI

# Edge AI Processing & WiFi 6 Access Point with Smart Streetlight Controller

Capture video/audio from the streetlight level to perform edge analytics that enable the next generation of IoT Smart City services worldwide coupled with high-speed wireless internet access and lighting control capabilities.

Video/Audio Edge Processing

Public WiFi

Sensors & Applications

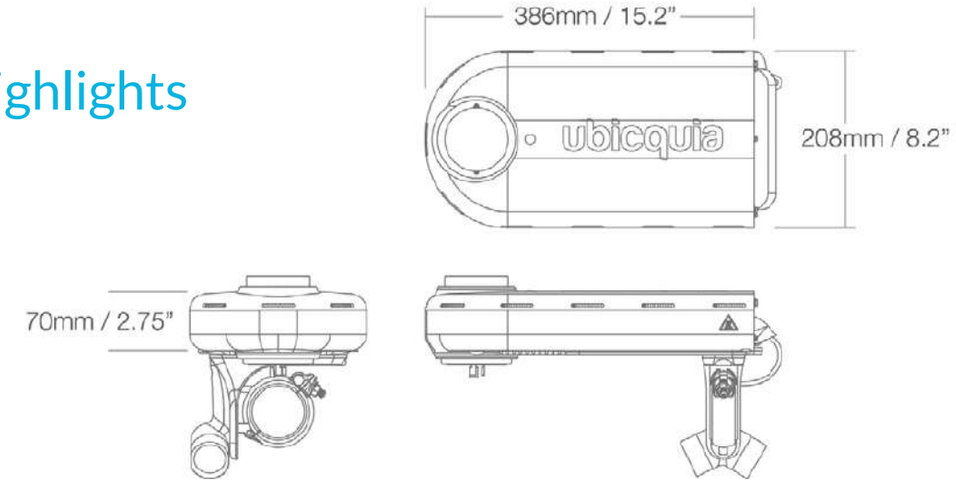
Advanced Lighting Control, Monitoring & Metering

**Unique Features**

- Qualcomm 8 core processor with neural AI engine
- Dual 4K cameras with 169° FoV
- Two 16-bit digital microphones
- Core traffic, curb management & public safety AI models and insights
- 3rd party developer support environment
- New Qualcomm WiFi 6 tri-band chipset
- Fastest wireless network performance w/ 4x throughput of existing solutions
- Integrated smart streetlight controller
- Ethernet, Fiber, and LTE backhaul options
- Up to 6Gbps bandwidth for WiFi clients
- Plug & Play, installs in minutes

# Product Highlights




ubihub APAI

**Low profile form factor for improved wind performance and low street visibility**

### Analytics
- Dual 4K cameras and dual digital microphones
- Automated set-up & configuration of AI models
- Ability to run simultaneous AI models on each view

### Applications
- PoE interface for 3rd party devices
- Open APIs for 3rd party integration
- Actionable insights and visualizations on UbiVu®

### WiFi 6 Access Point
- Tri-band: 2.4GHz, 2x5.2GHz radios
- 12 integrated omni antennas
- Up to 1024 client connections

### Mesh Network
- Dual 5GHz radios, 8x8 MU-MIMO
- Dynamic bandwidth for users and mesh
- Up to 6Gpbs throughput within meshed clusters

### Cloud Management
- OTA updates
- UbiVu® for management and reporting
- Advanced AI, WiFi and lighting controls

### Simplified Installation
- Powered through the readily available NEMA socket
- Install app available
- Installs in less than 15 minutes

## Available Edge AI Uses Cases

### Curb Planning

- Parking availability: Vehicle in/out of parking zone
- Parking enforcement: Vehicle in/out of parking zone, image on-demand

### Public Safety and Security - Vision Zero

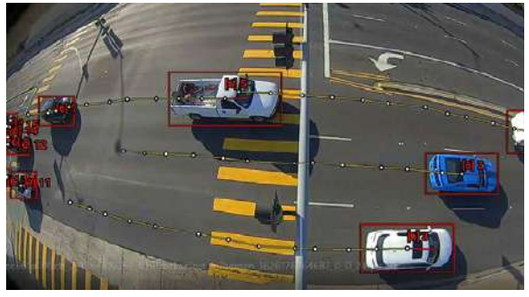
- Incident investigation: historical video/ image on-demand
- Live incident investigation: live video streaming on-demand

### Traffic Planning

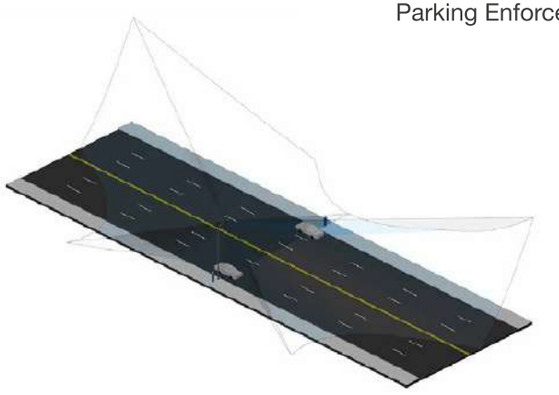
- Transportation analytics: count, direction & average speed for vehicles, bicycles & pedestrians
- Vehicle subclassification: small vehicles, large vehicles & buses

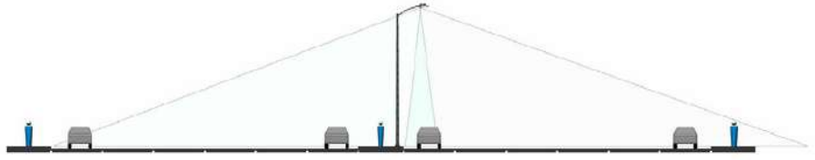
Parking Enforcement

Intersection Safety



Vehicle Traffic Detection






Bicycle Traffic Detection

# Cloud Based Management

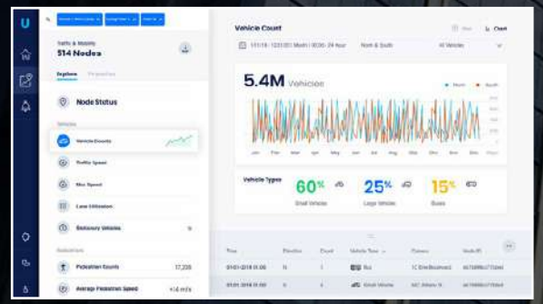
ubihub APAI

**Ubicquia's comprehensive cloud-based GUI, UbiVu, provides a rich set of capabilities for discovery, template-based provisioning, orchestration, and operational monitoring and management of assets.**

## Cloud Managed Platform

### UbiVu®

The UbiHub™ APAI devices are managed through UbiVu® which sits in the cloud. UbiVu® is the one-stop-shop integrated dashboard to manage and visualize all Ubicquia® products.

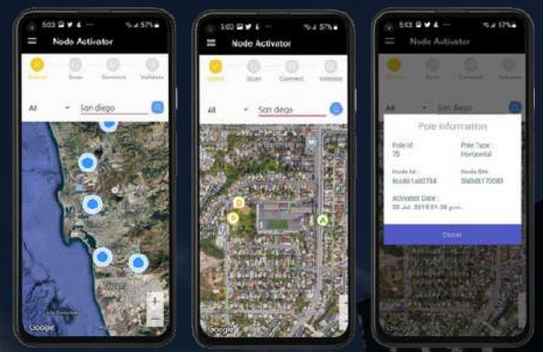




### UbiVu® Offers

- OTA firmware updates
- Reports and configuration set-up
- Remote troubleshooting
- User access management
- Overall map of deployment with hierarchical device view
- Alert setting functionality
- Overview of key performance metrics and status

### UbiHub Activator App

- Scans the device label for fast installation in minutes
- Connects to UbiVu® and registers the device
- On-site confirmation of basic UbiHub™ functionalities to limit visits to the pole




The UbiHub Activator App is available from the Google Play Store on any tablet or cellphone.

# Specifications

ubihub APAI

## EDGE ANALYTICS

**Standard storage**
512GB

**Video retention**
2160p / 15fps / 4.15Mbit/s ~ up to 5 days
1080p / 24fps / 2.61Mbit/s ~ up to 8 days
1440p / 15fps / 2.37Mbit/s ~ up to 9 days
1440p / 12fps / 1.90Mbit/s ~ up to 11 days
1080p / 15fps / 1.63Mbit/s ~ up to 13 days
540p / 24fps / 1.19Mbit/s ~ up to 18 days
720p / 15fps / 0.99Mbit/s ~ up to 22 days
540p / 15fps / 0.74Mbit/s ~ up to 29 days

**Analytics** Multiple AI models per camera
Concurrent detection engines
Object class differentiation
Auto-provisioning and configuration
Insight visualizations

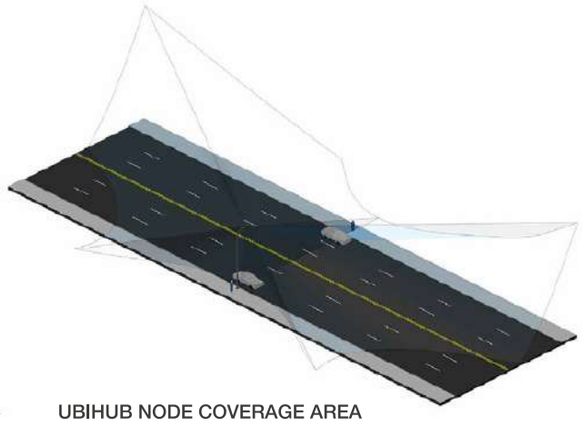
**Features** Multi-frame Noise Reduction (MFNR) with accelerated image stabilization
Ultra HD Premium video capture @ 4K (3840x2160) 60fps
Higher quality video capture with Motion Compensated Temporal Filtering (MCTF)
3D structured light active depth sensing

## CAMERAS

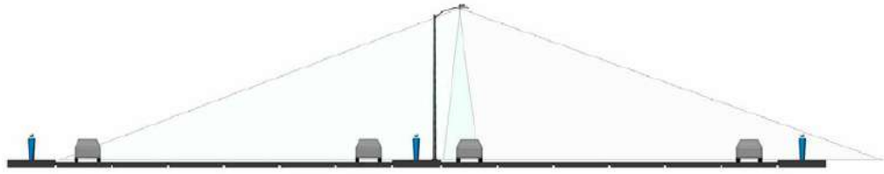
**Quantity** 2 cameras
**Focal length** 2.3mm
**FoV** 169.0°diagonal
142.2°horizontal
76.6°vertical
**Optical distortion** < -9.0%
**Relative illumination** > 40%
**R filter** 650 nm IR cut filter
**Effective pixel** 3864 (H) ×2192 (V)
**Optical format** 1/2.8”
**Pixel size** 1.45 x 1.45 µm
**Output format** 12-bit RAW data
**Video streaming resolution and frame rate**
3840x2160 / 15fps
2560x1440 / 15fps
2560x1440 / 12fps
1920x1080 / 24fps
1920x1080 / 15fps
1280x720 / 24fps
1280x720 / 15fps
960x540 / 24fps
960x540 / 15fps

**Encoding** H.264 (AVC), H.265 (HEVC)
**Focusing range** 4 m ~ infinity
**MTF performance** 0.36 < MTF30 < 1
**SNR** > 20dB (10 lux)

UBIHUB CAMERA FOV



UBIHUB NODE COVERAGE AREA



# Specifications

ubihub APAI

## WI-FI

| | |
|---|---|
| **Wi-Fi Standards** | IEEE 802.11a/b/g/n/ac/ax |
| **Supported Rates** | 802.11ax: 8.6 to 9600 Mbps<br>802.11ac: 6.5 to 6900 Mbps<br>802.11n: 6.5 to 600 Mbps<br>802.11a/g: 6.5 to 54 Mbps<br>802.11b: 6.5 to 11 Mbps |
| **Supported Channels** | 2.4GHz: 1-11<br>5GHz: 36-64, 100-144, 149-165<br>5GHz: 36-64, 100-144, 149-165 |
| **MIMO** | 2.4GHz: 4x4 SU-MIMO & MU-MIMO<br>5GHz: 8x8 SU-MIMO & 8x8 MU-MIMO |
| **Spatial Streams** | 2.4GHz: 4 for both SU-MIMO & MU-MIMO<br>5GHz: 8 for both SU-MIMO & MU-MIMO |
| **Radio Chains & Streams** | 2.4GHz: 4x4:4<br>5GHz: 8x8:8 |
| **Channelization** | |
| **Channelization** | 20, 40, 80, 160MHz |
| **Security** | WPA2-Personal<br>WPA3-Personal<br>AES, OWE<br>WIDS |
| **Other Wi-Fi Features** | Power Save, Tx Beamforming, LDPC, STBC, 802.11r/k/v<br>Hotspot<br>Captive Portal |

## RF

| | |
|---|---|
| **Antenna Type** | Passive antennas<br>4-in-1 MIMO, flexible PCB monopole type antenna optimized for WiFi 6 frequencies |
| **Antenna Gain** | Up to 6dBi |
| **Peak Transmit Power (Tx port/chain + combining gain)** | 2.4GHz: 26dBm<br>5GHz: 26dBm<br>5GHz: 26dBm |
| **Frequency bands** | ISM (2.4-2.474GHz)<br>U-NII-1 (5.17-5.25GHz)<br>U-NII-2A (5.25-5.33GHz)<br>U-NII-2C (5.49-5.725GHz)<br>U-NII-3 (5.725-5.835GHz) |

## PERFORMANCE & CAPACITY

| | |
|---|---|
| **Peak PHY Rates** | 2.4GHz: 4800Mbps<br>5GHz: 9600Mbps |
| **Client Capacity** | Up to 1024 clients per AP |
| **SSID** | Up to 14 per AP |

## NETWORKING

| | |
|---|---|
| **Mesh** | Self recovering mesh<br>Recommended 3:1 |
| **IP** | IPv4 |
| **VLAN** | 802.1Q (1 per SSID) |
| **Policy Mngt Tools** | Access Control Lists<br>Domain Control Lists<br>Rate Limiting |
| **IoT Capable** | Yes<br>PoE port |

## RADIO MNGT

| | |
|---|---|
| **Wi-Fi Channel Mngt** | Background scan based<br>Dynamic channel selection |
| **Client Density Mngt** | Adaptive band balancing<br>Client load balancing |
| **Quality of Service** | QoS-based scheduling<br>L2 Access Control List<br>Traffic shaping |

## OTHER RADIO TECHNOLOGIES

| | |
|---|---|
| **GPS** | GPS L1 C/A, Galileo E1, QZSS L1: 1575.42MHz<br>GLONASS L1: 1602.5625MHz<br>BeiDou B1: 1561.098MHz |
| **BLE** | BT 4.2, 5.0 & 5.1 |
| **Antennas** | 12 integrated for WiFi<br>2 for LTE<br>1 for GPS<br>1 for BLE |

## PHYSICAL INTERFACES

| | |
|---|---|
| **Ethernet** | 1 x 10/100/1000 Mbps port, RJ-45 |
| **Fiber** | SFP+ 10Gbps |
| **PoE** | IEEE802.3af Class 3, up to 15.4W |

# Specifications

ubihub AP AI

## PHYSICAL CHARACTERISTICS

| | |
|---|---|
| Physical Size | 386mm x 208mm x 69mm |
| Weight | 4.5kg |
| Mounting | Cobra head luminaire mount 2”, 1.5” and 1.25” arms |
| Operating Temperature | -40C to +50C |
| Operating Humidity | Up to 90% |
| Wind Survivability | Up to 241km/h (150 mi/h) |

## WARRANTY

| | |
|---|---|
| 1 year | Basic |
| Extended Warranty | Available for 2 and 3 years |

## 2.4GHZ RECEIVE SENSITIVITY (dBM)

| | | | | |
|---|---|---|---|---|
| HT20 | MCS0 -99.5 | MCS7 -83.5 | | |
| HT40 | MCS0 -97 | MCS7 -80.5 | | |
| HE20 | MCS0 -99 | MCS7 -83.5 | MCS9 -78.5 | MCS11 -72.5 |
| HE40 | MCS0 -96 | MCS7 -81 | MCS9 -75.5 | MCS11 -69.5 |

## 5GHZ RECEIVE SENSITIVITY (dBM)

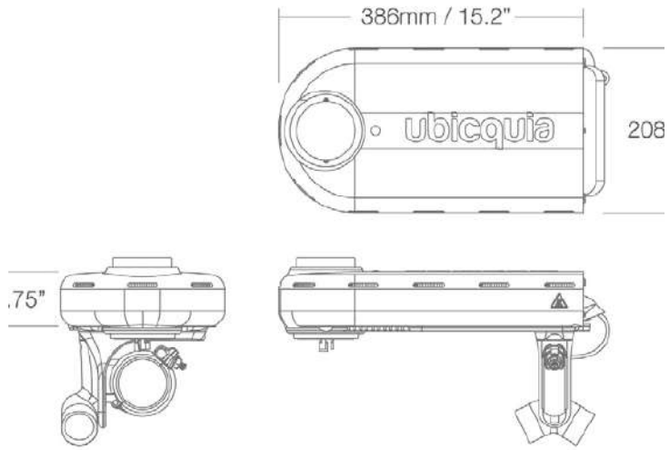
| | | | | |
|---|---|---|---|---|
| VHT20 | MCS0 -100 | MCS7 -85 | MCS8 - | MCS9 -79 |
| VHT40 | MCS0 -97.5 | MCS7 -82 | MCS8 - | MCS9 -76.5 |
| VHT80 | MCS0 -94 | MCS7 -78.5 | MCS8 - | MCS9 -72.5 |
| HE20 | MCS0 -99.5 | MCS7 -88 | MCS9 -80 | MCS11 -74 |
| HE40 | MCS0 -97 | MCS7 -82 | MCS9 -77 | MCS11 -71 |
| HE80 | MCS0 -93.5 | MCS7 -79.5 | MCS9 -74 | MCS11 -68.5 |

## 2.4GHZ TX POWER TARGET

| Rate | Pout (dBm) |
|---|---|
| MCS0, HT20 | 23 |
| MCS7, HT20 | 23 |
| MCS8, HE20 | 21 |
| MCS9, HE40 | 21 |
| MCS11, HE40 | 19 |

## 5GHZ TX POWER TARGET

| Rate | Pout (dBm) |
|---|---|
| MCS0, VHT20 | 20 |
| MCS7, VHT40, VHT80 | 20 |
| MCS9, VHT40, VHT80 | 19 |
| MCS11, HE20, HE40, HE80 | 17 |




## POWER

**WiFi max functionality Includes PoE**

**49W** Full Functionality
PoE Out (15.4W) enabled
Onboard IoT enabled
No AI board or cameras
Ethernet backhaul

**WiFi reduced functionality Excludes PoE**

**34W** PoE Out (15.4W) disabled
Onboard IoT enabled
No AI board or cameras
Ethernet backhaul

**SFP+ Backhaul Power Delta**

**+0.8W** The delta compared to an ethernet backhaul

**LTE Backhaul Power Delta**

**+1.4W** The delta compared to an ethernet backhaul

# Specifications

ubihub APAI

## LIGHTING CONTROL

| | |
|---|---|
| Lamp Interface | LED, CF & HID |
| Maximum Lamp Power | 1200W (120-480V) |
| On/Off | Photocell control, software programmable scheduling |
| Dimming Controls | 0-10V DALI, DALI2 |
| Dimming Options | 0-10V PWM, ability to hardwire an external sensor |
| External Sensor Interface | DALI/DALI2 |
| Dimming Range | 0% to 100% |
| Parameters | Customer device mngt<br>Scheduling controls<br>Alert thresholds<br>Sunrise/sunset offsets<br>Photocell thresholds<br>Luminaire fault detection<br>Tilt detection<br>Power loss after power failure<br>Network comms failure<br>Voltage sag & swell detection |

## POWER METERING

| | |
|---|---|
| Accuracy | ANSI C12.20, class 0.5 |
| Accuracy Verification | Infrared pulse |
| Line Voltage | 100V to 480V (50/60GHz) |
| Line Voltage Accuracy | +/-0.5% |
| Current Accuracy | +/-0.5% |
| Power | Active & Power factor |
| Energy Consumption | kWh |
| On/Off Cycles | Cycle count and cycle variation (fault detection) |
| Running Hour | Up to 10 years |

## CERTIFICATIONS & COMPLIANCE

| | |
|---|---|
| Safety | ETL US & Canada<br>UL 62368 |
| FCC | Part 15B, class B; Part 15C; Part 15E |
| Ingress | IP65 |
| Impact | IK07 |
| Vibration | ANSI C136.31<br>3G |


## ACOUSTIC SENSORS

| | |
|---|---|
| Quantity | 4 acoustic sensors |
| Encoding | AAC |
| Features | Omnidirectional digital microphone<br>Very low distortion / very high AOP – 135 dBSPL acoustic overload point<br>Multiple performance modes (sleep, low-power, performance [default])<br>Sensitivity matching<br>PDM single-bit output with option for stereo |
| Bandwidth | 500Hz – 7kHz |
| Frequency response | +/- 5dB |
| Distortion | < 4% typically (except isolated frequencies) |
| SNR sensitivity | < -90dBFS |

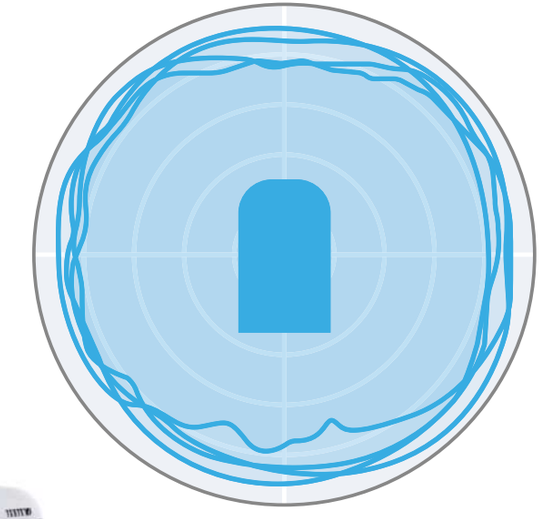
# Specifications

ubihub APAI

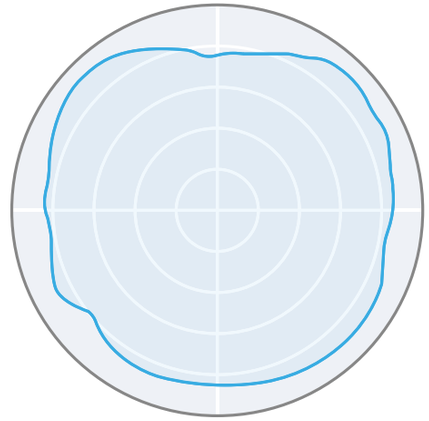
## UNIQUE ANTENNA DESIGN

UbiHub's 12 integrated antennas allow the maximum coverage possible from a WiFi and mesh offering standpoint. The antennas reduce the effect of RF interference on every device that is connected to the access point. Their high performance dual-band and omnidirectional transmission ensures real-time capability to support high device density settings.

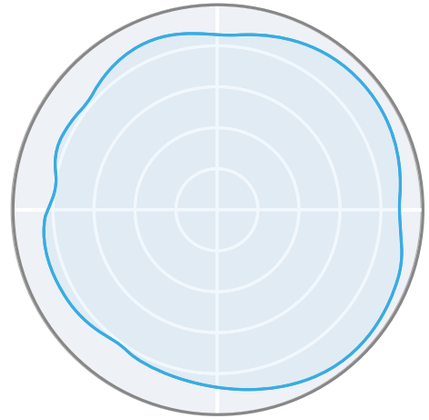
## ANTENNA PATTERNS



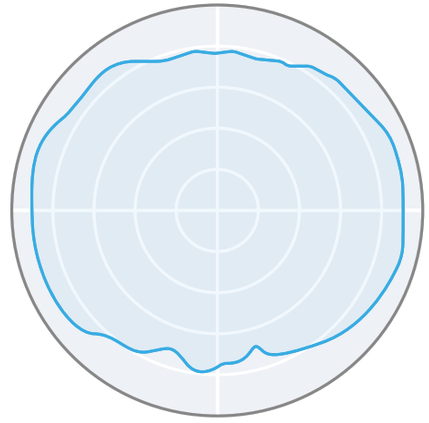
COMPOSITE PATTERN



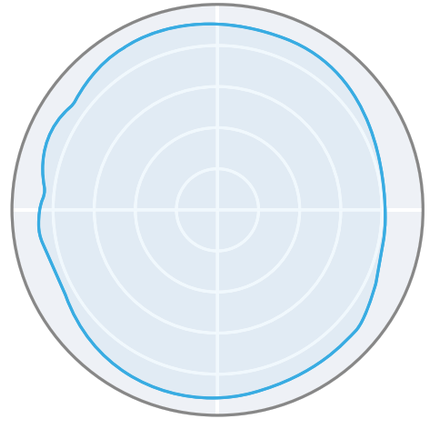
5.0 GHZ AZIMUTH



5.0 GHZ ELEVATION

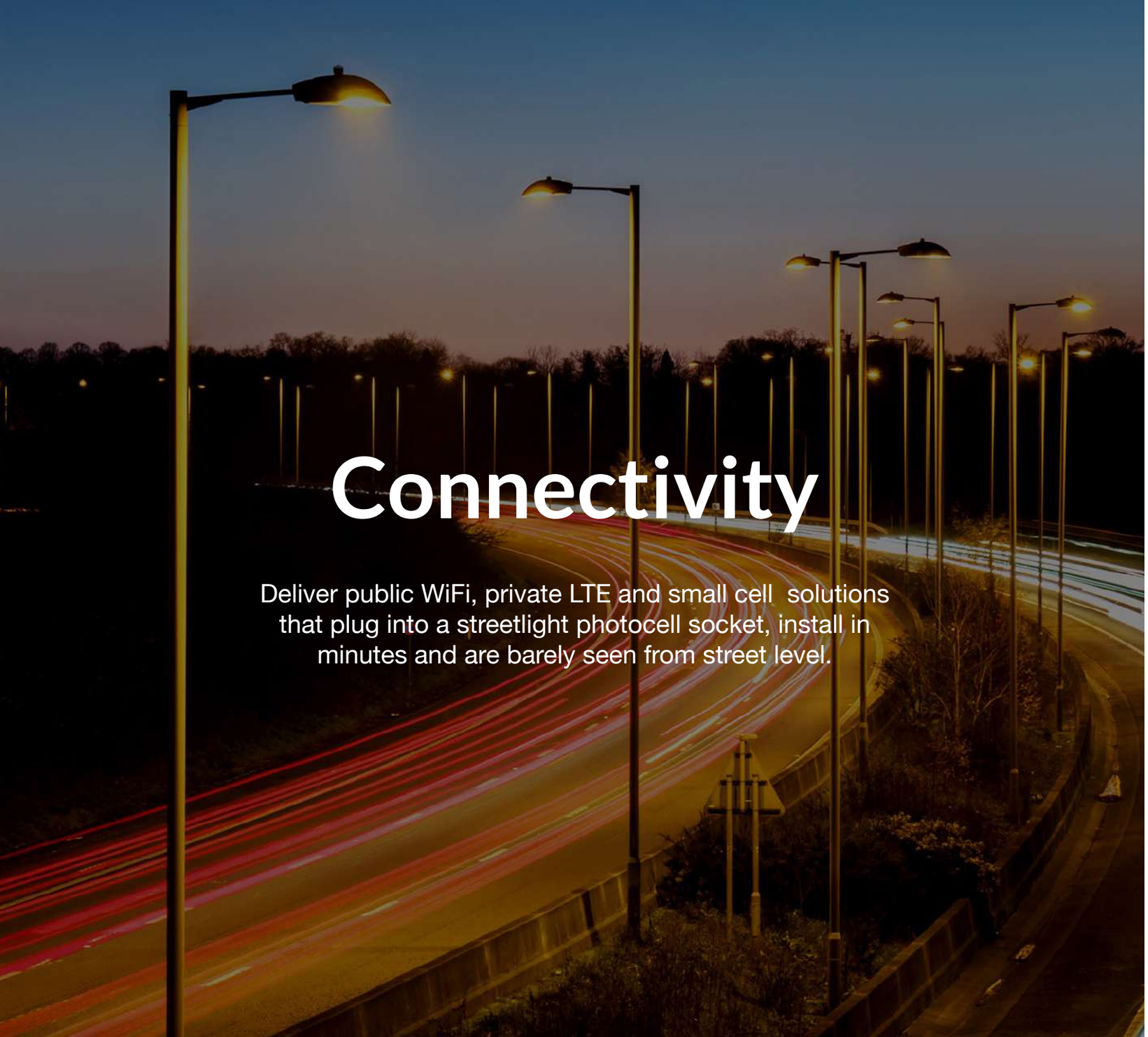


2.4 GHZ AZIMUTH



2.4 GHZ ELEVATION



# Connectivity

Deliver public WiFi, private LTE and small cell  solutions that plug into a streetlight photocell socket, install in minutes and are barely seen from street level.

## ubihub AP6

Streetlight WiFi 6 AP

Industry’s First Streetlight
WiFi 6 Access Point

# ubihub™ AP6

**COMPATIBLE WITH 360M+ STREETLIGHTS WORLDWIDE**



# WiFi 6 Access Point & Smart Streetlight Controller

Accelerating the deployment of high-speed public WiFi for cities of all sizes, UbiHub WiFi provides multiple backhaul options and cloud-based management, helping cities become smarter, safer and more connected.

**Unique Feature**

- New Qualcomm WiFi 6 tri-band chipset
- Up to 6Gbps bandwidth for clients
- Fastest wireless network performance w/ 4x throughput of existing solutions
- Integrated smart streetlight controller
- Ethernet, Fiber and DOCSIS backhaul options
- Plug & Play, installs in minutes

Advanced Light Control, Monitoring & Metering

Public WiFi

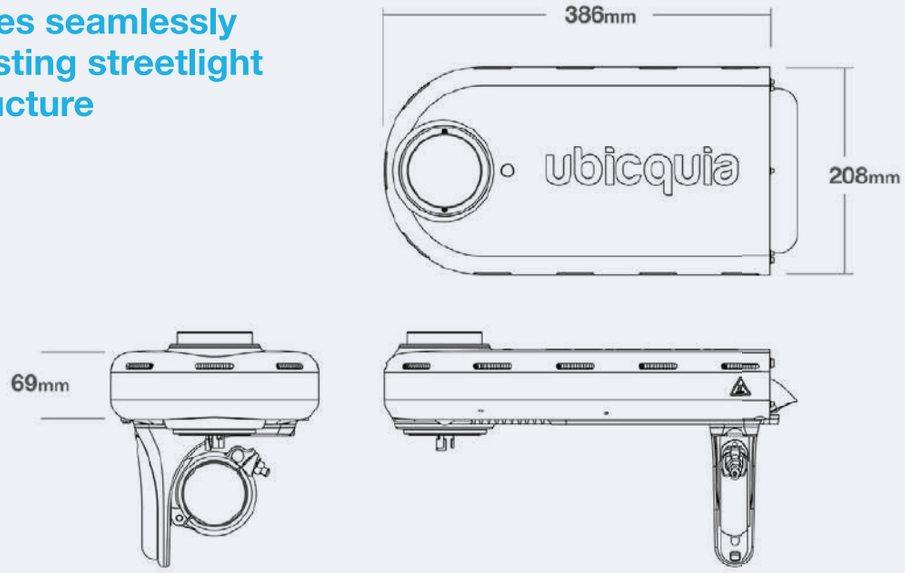
Sensors & Applications

# Product Highlights

# ubihub AP6

## Integrates seamlessly with existing streetlight infrastructure




### WiFi 6 Access Point

- Tri-band: 2.4GHz, 2x5.2GHz radios
- 12 integrated omni antennas
- Up to 1024 client connections

### Mesh Network

- Dual 5GHz radios, 8x8 MU-MIMO
- Dynamic bandwidth for users and mesh
- Up to 6Gpbs throughput within meshed clusters

### Cloud Management

- OTA updates
- UbiVu® for management and reporting
- Advanced WiFi and lighting controls

### Simplified Installation

- Powered through the readily available NEMA socket
- Install app available
- Installs in less than 15 minutes

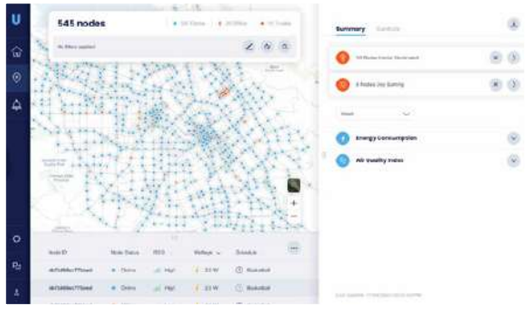
 

# Cloud Based Management


## Cloud Managed Platform

### UbiVu®

The UbiHub AP6 access points are managed by UbiVu which sits in the cloud. UbiVu is the one-stop-shop integrated dashboard to manage and visualize all Ubicquia products.



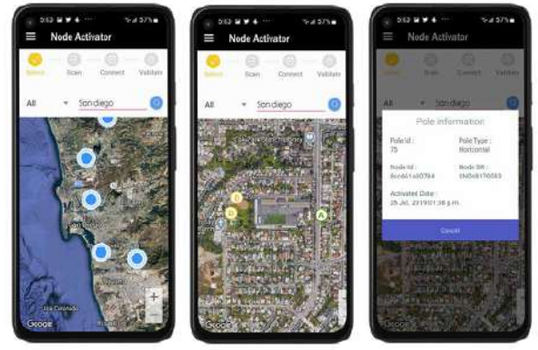

## Low profile form factor for improved wind performance and low street visibility

### UbiVu® Offers

- OTA firmware updates
- Reports and configuration set-up
- Remote troubleshooting
- User access management
- Overall map of deployment with hierarchical device view
- Alert setting functionality
- Overview of key performance metrics and status

### UbiHub Activator App

- Scans the device label for fast installation in minutes
- Connects to UbiVu and registers the device
- On-site confirmation of basic UbiHub™ functionalities to limit visits to the pole




The UbiHub Activator App is available from the Google Play Store on any tablet or cellphone

# Specifications

ubihub AP6

## WI-FI

| | |
|---|---|
| Wi-Fi Standards | IEEE 802.11a/b/g/n/ac/ax |
| Supported Rates | 802.11ax: 8.6 to 9600 Mbps<br>802.11ac: 6.5 to 6900 Mbps<br>802.11n: 6.5 to 600 Mbps<br>802.11a/g: 6.5 to 54 Mbps<br>802.11b: 6.5 to 11 Mbps |
| Supported Channels | 2.4GHz: 1-11<br>5GHz: 36-64, 100-144, 149-165<br>5GHz: 36-64, 100-144, 149-165 |
| MIMO | 2.4GHz: 4x4 SU-MIMO & MU-MIMO<br>5GHz: 8x8 SU-MIMO & 8x8 MU-MIMO |
| Spatial Streams | 2.4GHz: 4 for both SU-MIMO & MU-MIMO<br>5GHz: 8 for both SU-MIMO & MU-MIMO |
| Radio Chains & Streams | 2.4GHz: 4x4:4<br>5GHz: 8x8:8 |
| Channelization | 20, 40, 80, 160MHz |
| Security | WPA2-Personal<br>WPA3-Personal<br>AES, OWE<br>WIDS |
| Other Wi-Fi Features | Power Save, Tx Beamforming, LDPC, STBC, 802.11r/k/v<br>Hotspot<br>Captive Portal |

## RF

| | |
|---|---|
| Antenna Type | Passive antennas<br>4-in-1 MIMO, flexible PCB monopole type antenna optimized for WiFi 6 frequencies |
| Antenna Gain | Up to 6dBi |
| Peak Transmit Power (Tx port/chain + combining gain) | 2.4GHz: 26dBm<br>5GHz: 26dBm<br>5GHz: 26dBm |
| Frequency bands | ISM (2.4-2.474GHz)<br>U-NII-1 (5.17-5.25GHz)<br>U-NII-2A (5.25-5.33GHz)<br>U-NII-2C (5.49-5.725GHz)<br>U-NII-3 (5.725-5.835GHz) |

## PERFORMANCE & CAPACITY

| | |
|---|---|
| Peak PHY Rates | 2.4GHz: 4800Mbps<br>5GHz: 9600Mbps |
| Client Capacity | Up to 1024 clients per AP |
| SSID | Up to 14 per AP |

## NETWORKING

| | |
|---|---|
| Mesh | Self recovering mesh<br>Recommended 3:1 |
| IP | IPv4 |
| VLAN | 802.1Q (1 per SSID) |
| Policy Mngt Tools | Access Control Lists<br>Domain Control Lists<br>Rate Limiting |
| IoT Capable | Yes<br>PoE port |

## RADIO MNGT

| | |
|---|---|
| Wi-Fi Channel Mngt | Background scan based<br>Dynamic channel selection |
| Client Density Mngt | Adaptive band balancing<br>Client load balancing |
| Quality of Service | QoS-based scheduling<br>L2 Access Control List<br>Traffic shaping |

## OTHER RADIO TECHNOLOGIES

| | |
|---|---|
| GPS | GPS L1 C/A, Galileo E1, QZSS L1: 1575.42MHz<br>GLONASS L1: 1602.5625MHz<br>BeiDou B1: 1561.098MHz |
| BLE | BT 4.2, 5.0 & 5.1 |
| Antennas | 12 integrated for WiFi<br>2 for LTE<br>1 for GPS<br>1 for BLE |

## PHYSICAL INTERFACES

| | |
|---|---|
| Ethernet | 1 x 10/100/1000 Mbps port, RJ-45 |
| Fiber | SFP+ 10Gbps |
| PoE | IEEE802.3af Class 3, up to 15.4W |

# Specifications

ubihub AP6

## PHYSICAL CHARACTERISTICS

| | |
|---|---|
| Physical Size | 386mm x 208mm x 69mm |
| Weight | 4.5kg |
| Mounting | Cobra head luminaire mount 2”, 1.5” and 1.25” arms |
| Operating Temperature | -40C to +50C |
| Operating Humidity | Up to 90% |
| Wind Survivability | Up to 241km/h (150 mi/h) |

## WARRANTY

| | |
|---|---|
| 1 year | Basic |
| Extended Warranty | Available for 2 and 3 years |

## 2.4GHZ RECEIVE SENSITIVITY (dBM)

| | | | | |
|---|---|---|---|---|
| HT20 | MCS0 -99.5 | MCS7 -83.5 | | |
| HT40 | MCS0 -97 | MCS7 -80.5 | | |
| HE20 | MCS0 -99 | MCS7 -83.5 | MCS9 -78.5 | MCS11 -72.5 |
| HE40 | MCS0 -96 | MCS7 -81 | MCS9 -75.5 | MCS11 -69.5 |

## 5GHZ RECEIVE SENSITIVITY (dBM)

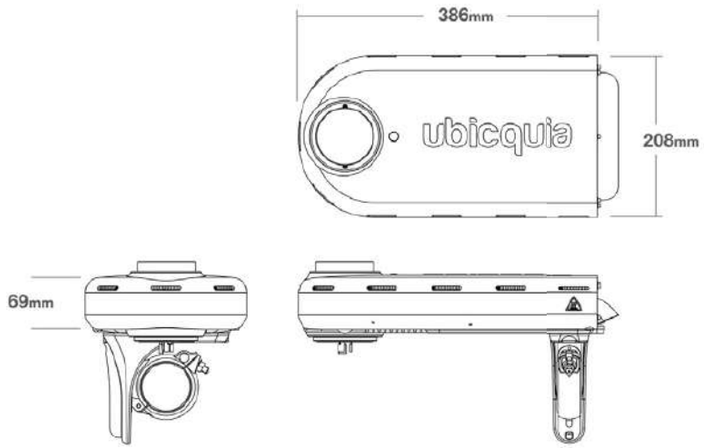
| | | | | |
|---|---|---|---|---|
| VHT20 | MCS0 -100 | MCS7 -85 | MCS8 - | MCS9 -79 |
| VHT40 | MCS0 -97.5 | MCS7 -82 | MCS8 - | MCS9 -76.5 |
| VHT80 | MCS0 -94 | MCS7 -78.5 | MCS8 - | MCS9 -72.5 |
| HE20 | MCS0 -99.5 | MCS7 -88 | MCS9 -80 | MCS11 -74 |
| HE40 | MCS0 -97 | MCS7 -82 | MCS9 -77 | MCS11 -71 |
| HE80 | MCS0 -93.5 | MCS7 -79.5 | MCS9 -74 | MCS11 -68.5 |

## 2.4GHZ TX POWER TARGET

| Rate | Pout (dBm) |
|---|---|
| MCS0, HT20 | 23 |
| MCS7, HT20 | 23 |
| MCS8, HE20 | 21 |
| MCS9, HE40 | 21 |
| MCS11, HE40 | 19 |

## 5GHZ TX POWER TARGET

| Rate | Pout (dBm) |
|---|---|
| MCS0, VHT20 | 20 |
| MCS7, VHT40, VHT80 | 20 |
| MCS9, VHT40, VHT80 | 19 |
| MCS11, HE20, HE40, HE80 | 17 |




## POWER

### WiFi max functionality Includes PoE

**49W** Full Functionality
PoE Out (15.4W) enabled
Onboard IoT enabled
No AI board or cameras
Ethernet backhaul

### WiFi reduced functionality Excludes PoE

**34W** PoE Out (15.4W) disabled
Onboard IoT enabled
No AI board or cameras
Ethernet backhaul

### SFP+ Backhaul Power Delta

**+0.8W** The delta compared to an ethernet backhaul

### LTE Backhaul Power Delta

**+1.4W** The delta compared to an ethernet backhaul

# Specifications

ubihub AP6

## LIGHTING CONTROL

| | |
|---|---|
| Lamp Interface | LED, CF & HID |
| Maximum Lamp Power | 1200W (120-480V) |
| On/Off | Photocell control, software programmable scheduling |
| Dimming Controls | 0-10V DALI, DALI2 |
| Dimming Options | 0-10V PWM, ability to hardwire an external sensor |
| External Sensor Interface | DALI/DALI2 |
| Dimming Range | 0% to 100% |
| Parameters | Customer device mngt<br>Scheduling controls<br>Alert thresholds<br>Sunrise/sunset offsets<br>Photocell thresholds<br>Luminaire fault detection<br>Tilt detection<br>Power loss after power failure<br>Network comms failure<br>Voltage sag & swell detection |

## POWER METERING

| | |
|---|---|
| Accuracy | ANSI C12.20, class 0.5 |
| Accuracy Verification | Infrared pulse |
| Line Voltage | 100V to 480V (50/60GHz) |
| Line Voltage Accuracy | +/-0.5% |
| Current Accuracy | +/-0.5% |
| Power | Active & Power factor |
| Energy Consumption | kWh |
| On/Off Cycles | Cycle count and cycle variation (fault detection) |
| Running Hour | Up to 10 years |

## CERTIFICATIONS & COMPLIANCE

| | |
|---|---|
| Safety | ETL US & Canada<br>UL 62368 |
| FCC | Part 15B, class B; Part 15C;<br>Part 15E |
| Ingress | IP65 |
| Impact | IK07 |
| Vibration | ANSI C136.31<br>3G |

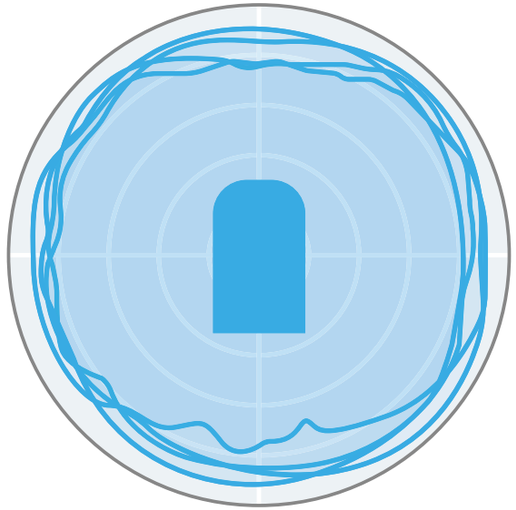
# Specifications

ubihub AP6

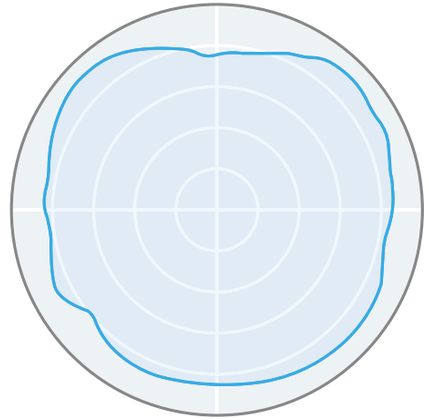
## UNIQUE ANTENNA DESIGN

UbiHub's 12 integrated antennas allow the maximum coverage possible from a WiFi and mesh offering standpoint. The antennas reduce the effect of RF interference on every device that is connected to the access point. Their high performance dual-band and omnidirectional transmission ensures real-time capability to support high device density settings.

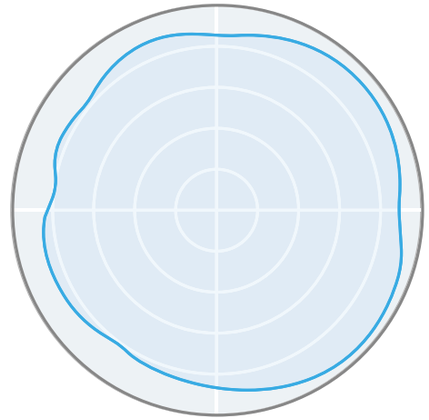
## ANTENNA PATTERNS



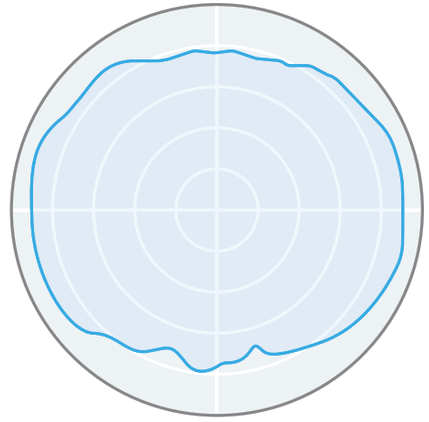
COMPOSITE PATTERN



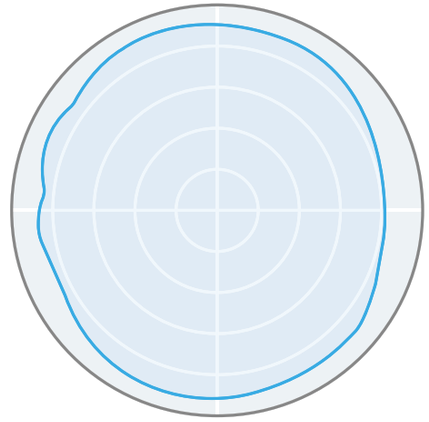
5.0 GHZ AZIMUTH



5.0 GHZ ELEVATION

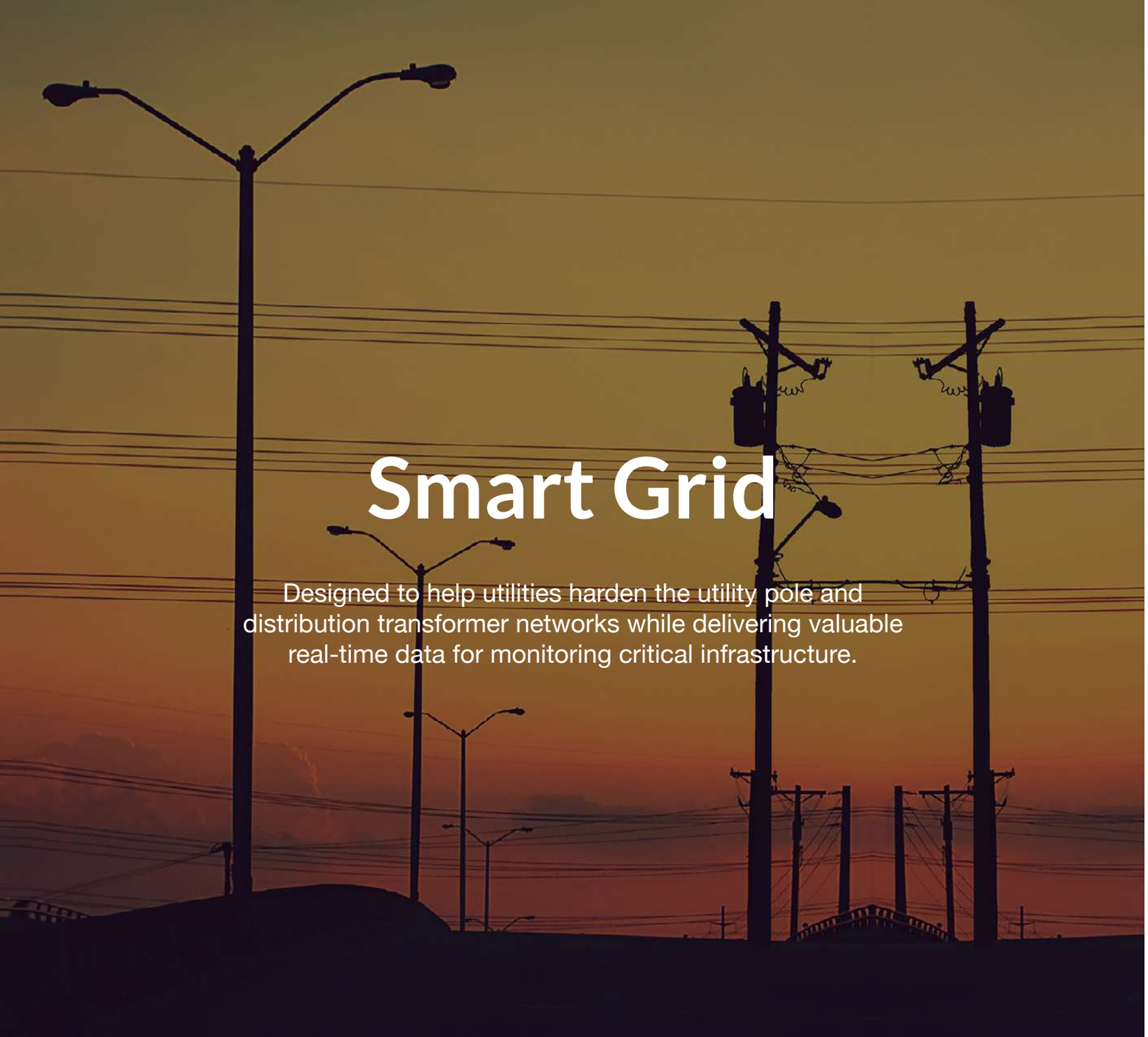


2.4 GHZ AZIMUTH



2.4 GHZ ELEVATION



# Smart Grid

Designed to help utilities harden the utility pole and distribution transformer networks while delivering valuable real-time data for monitoring critical infrastructure.

## ubigrid DTM+

Distribution Transformer Monitor +

## ubigrid TVM

Tilt Vibration Monitor

# ubigrid™ DTM+

Distribution Transformer Monitor +

# Smart Connected Monitoring Device

## Enable transformer health analytics for future failure prediction and prevention with monitoring technology

The UbiGrid DTM+ extends transformer monitoring technology to enable real-time transformer condition and health analytics for future failure prediction and prevention.

This new sensor gives you a clearer picture ofyour distribution transformers than ever before to drive down SAIDI and the economic impact of outages while reducing the O&M costs of maintaining these critical assets.

And no need to deploy another communications network, as this sensor leverages either public or private LTE networks already in place.

## Aerial Distribution Transformer Monitor Plus

Real-time monitoring and alarming of secondary side power metering plus oil level, temperature and pressure, plus pole tilt and vibration monitoring.

- Transformer Range of sizes: up to 200kVA
- Immediate commissioning: LTE backhaul
- Power metering leveraging Rogowski Coils technology
- Pressure sensor with instantaneous pressure reading
- Tilt and shock detection
- Sag/Swell voltage detection: adjustable alarm thresholds
- Power surge protection
- Location GPS latitude and longitude fix
- Bar code asset tracking of transformer nameplate
- OTA firmware updates
- Wireless Data Communication (LTE CAT-1)
- 99% performance availability uptime, cloud hosting*

*does not include scheduled maintenance

## Enables instant notifications and fleet wide assessment of transformer status

### Aerial distribution transformer monitor plus

- Monitors oil level, temperature and pressure
- Monitors power output
- Monitors transformer/pole tilt and shock

### Simplified Installation

- Non-invasive retrofits to most existing aerial transformers
- Utilizes LTE communications and installs in minutes
- Web App with APIs for integration with existing management platforms
- Data accessed by a web based panel or APIs; filtering features to triage transformer

### Range of Solution

- Up to 200kVA transformers
- 90 VAC to 506 VAC, 50/60Hz (two phase input)
- Adjustable alarm thresholds

### Asset & Notification Data

- Location GPS latitude and longitude fix
- Bar code asset tracking
- Health monitoring interval selectable; hourly to daily
- Reporting frequency individually set per transformer
- Adjustable alarms communicated with time stamp

### Data Provides Intelligence

- Communications: LTE Cloud Based
- Failure Prediction: Analytics integration with AI
- Analytics displaying expected end-of-life based on actual transformer condition
- Oil Level: Early environmental detection/ prevention
- Ambient & Oil Temp Data: Dynamic loading
- GPS Enabled: Accurate asset location
- Load Current: Current diversion & overloading

# Monitoring your assets so you don't have to

## Key Utility Use Cases

- Failed transformer O&M reduction
- Ability to remotely diagnose failure mode and dispatch appropriate crew
- Proactive maintenance (alarming) O&M reduction
- Tilted or leaking transformers identified
- Overloaded transformers (high current, rising pressure) identified prior to failure
- Proactive circuit load analysis
- Operating at or above nameplate capacity identification
- Identification of voltage/current imbalances
- Supports load analysis and growth projections
- Detection of rapidly climbing transformer load
- Condition-based maintenance for transformers nearing End-of-Life
- Remaining Life based on real time sensor measurements
- Proactive maintenance for reduced O&M expenses
- Data-Driven Transformers Fleet Expenditures (CAPEX)
- Load analysis & growth projection for proper unit sizing
- Detection of recloser and line switching operations

# Specifications

ubigrid DTM+

## PRODUCT SPECIFICATIONS

| | |
|---|---|
| **Dimensions** | 280 mm X 103 mm X 84 mm |
| **Weight** | 4lbs |
| **Power Source** | Aerial transformer terminal |
| **IP Rating** | IP66 |
| **Impact Rating** | IK07 |
| **Backhaul** | LTE Cat-1 wireless data communication |
| **GPS** | Latitude/Longitude |
| **External sensor connectivity Firmware** | N/A |
| **Updates** | OTA upgrades |
| **Security** | SSL connection to the MQTT servers |
| **Transformer Sizes Supported Voltage Measurement** | Up to 200 kVA max<br>90 – 506 VAC |
| **Current Measurement** | Up to 3000 Amps |
| **Oil Pressure Measurement** | Up to 30 psi absolute |
| **Tilt Detection** | Supported |
| **Ambient Temperature Measurement** | Supported |
| **Operating Temperature Range** | -40° C to 85° C |
| **Temperature Accuracy** | ± 3° C |
| **Power Supply** | 120V to 480V AC |
| **Average Power Consumption** | 1W typical |
| **Provisioning** | Auto Provisioning at Installation Activation |
| **Lifetime** | Up To 10 Years (Disposable, No Field Service) |
| **Certifications** | FCC, IP66, IK07, PTCRB |

## POWER METER SPECIFICATIONS

| | |
|---|---|
| **Accuracy** | +/- 5% |
| **Active Power** | Watts (+/- 5% accuracy) |

## POWER METER SPECIFICATIONS

| | |
|---|---|
| **Reactive Power** | VAR (+/- 5% accuracy) |
| **Power Factor Measurement** | 0 to 1 |
| **Line Voltage Range** | 90 – 506 VAC |
| **Line Voltage Accuracy** | +/- 5% |
| **Current Measurement Range** | 1000 Amps typical |
| **Sag & Swell** | VAC (+/- 5% accuracy) |
| **Energy Consumption** | kiloWatt Hour (kWh) |
| **Running Hour** | Up to 10 years |

## MONITORING

| **Measurement** | **Accuracy*** | **Max** |
|---|---|---|
| Mains Accuracy Voltage and Current | 2% typical | 5% at full scale |
| 2Active Power Watts | 2% typical | 5% at full scale |
| Reactive Power Variable | 2% typical | 5% at full scale |
| Power Factor Reading | 0 to 1 | |
| Sag & Swell Detection | 2% typical | 5% at full scale |
| Energy Consumption (W.h) | 2% typical | 5% at full scale |
| Temperature Accuracy | ± 3° C | |
| Oil Pressure Static/Dynamic | ± 1psi” | |

*Accuracy subject to limitation due to surrounding magnetic field

## ALERT FREQUENCY

- Alert immediately when alarms are triggered
- Statement of Health reading once daily (default)
- API option to aggregate hourly, every 12 hours, or at the end of day (configurable)

# Specifications

ubigrid DTM+

## SENSOR ALERT / REPORTING SPECIFICATIONS:

| Alert Parameters | Device Frequency of Measurement | Min | Max | Alert | Configurable Threshold |
|---|---|---|---|---|---|
| Oil Level Low | 0.5Hz | Low | Full | Full is level 4 and Low is level 0; alerts when oil is at or below level 2 | Yes |
| Oil Temperature High (Celsius) | 0.5Hz | -40C | 200C | Greater than 95C | Yes |
| Pressure Detection (PSI) (Static) | 100Hz Target | 1psi | 30psi | Pressure exceeds 18 psi fault | Yes |
| Pressure Detection (PSI) (Dynamic) | 100Hz Target | 1psi | 30psi | Pressure change greater than 3 psi over 50ms period of time | Yes |
| Internal Temperature Detection (Celsius) | 1Hz -40C | 150C | | Over temp alert at 95C Under temp alert at -10C | Yes |
| Line 1 to Line 2 Current Difference | 1Hz 0 | 1000A typical | | 90% of transformer spec | Yes |
| Line 1 to Line 2 Voltage Difference | 1Hz 0 | 600 V | | Difference is more than 10% | Yes |
| Swell Voltage Detection | Continuous | 0 | 600 | 10% above nominal voltage | Yes |
| Sag Voltage Detection | Continuous | 0 | 600 | 10% below nominal voltage | Yes |
| Tilt Detection | Continuous | -180° | +180° | 5° difference compared to reference value | Yes |
| Power Loss Detection | Continuous | | | Alert when voltage on both lines is sustained below 85V | Yes |
| Power Restored Detection | N/A | | | Alert sent when unit powered on | No |
| GPS location update | N/A | | | Power On, or Recalibrate Tilt and Location command | No |
| Network Communication Failure | Continuous | | | Store and send notification upon reconnection | |

## DATA INCLUDED IN EACH TRANSMISSION:

Firmware version

Network type

RSSI

Oil level minimum value

Oil level maximum value

Oil level average value over 1 hour

Oil temperature minimum value

Oil temperature maximum value

Oil temperature average value over 1 hour

Pressure minimum value

Pressure maximum value

Pressure average value over 1 hour

Ambient temperature minimum value

Ambient temperature maximum value

Line 1 voltage minimum value

Line 1 voltage maximum value

Line 1 voltage average value over 1 hour

Line 2 voltage minimum value

Line 2 voltage maximum value

Line 2 voltage average value over 1 hour

Line 1 current minimum value

Line 1 current maximum value

Line 1 current average value over 1 hour

Line 2 current minimum value

Line 2 current maximum value

Line 2 current average value over 1 hour

Unix epoch timestamp at the end of the health report period

## HEALTH REPORT DATA

| Frequency | Size |
|---|---|
| • 1-hour Health Report | 400 bytes max |
| • 12-hour Health Report | 4794 bytes max |
| • 24-hour Health Report | 4794 bytes max |

## PRODUCT SUMMARY

UbiGrid™ DTM+ is a smart connected monitoring device. Mounted on an aerial transformer the sensors measure, monitor, record, analyze and communicate the health of a power transformer in real time.

## WARRANTY

**10-YEAR BASIC WARRANTY**

# Intelligent Pole/Structure Monitoring

## Tilt and Vibration Monitor

The UbiGrid™ TVM enables instant notifications and fleet wide assessment of utility pole status.

This new sensor gives you a clearer picture of the condition of your T&D pole and structure assets than ever before to drive down SAIDI and the economic impact of outages while reducing the O&M costs of maintaining these critical assets.

And no need to deploy another communications network, as these sensors leverage either public or private LTE networks already in place.

**Monitoring your critical grid utility pole assets, so you don't have to.**

## Unique Features

**Pole & Structure Condition Monitoring**

- Monitors pole tilt, initial orientation and movement
- Monitors impact and vibration above a certain g level
- Location detection from on-board GPS

**Simplified Installation**

- Simple attachment to all pole types and heights
- One button and one screw installation
- LTE communications with self-provisioning

**Range of Solution**

- Retrofit for wood, metal, fiberglass & concrete poles
- Monitors vertical structures as well as crossarms
- Adjustable alarm thresholds

**Get a clearer picture of your grid poles & structures to drive down SAIDI while reducing O&M costs of maintaining these critical assets**

# Features and Benefits

ubigrid™ TVM

## Turning utility poles into smart assets that deliver data driven insights

### Installation Data
- Detailed asset tracking with GPS
- Self-provisioning with LTE communications

### Real-time Alarms and Thresholds
- Immediate threshold notifications
- Condition based maintenance
- Mandatory for revenue generating poles (Small Cells)

### Operations & Maintenance Data
- Tilt at install and effect of weather or impact
- Vibration from weather, impact, and line switching

### Data Integration and Analysis
- API into SCADA, OMS or WOMS
- Integrated with utility pole asset data

## UbiGrid™ TVM Key Utility Use Cases

**Fallen or Leaning Pole Detection**
- Remotely diagnose failure mode and dispatch appropriate crew

**Proactive Maintenance for Damaged Poles**
- Indicator of damage (impact, soil & footing erosion, storm)
- Quick response to high-risk poles

**3rd Party Pole Maintenance**
- 3rd party “revenue” poles for prioritized repair
- Small Cell/5G pole tilt that affects RF signal reach

**Monitor Utility Events Effecting Pole Condition**
- Pole movement due to ‘line galloping’ or switching ops

## Make your grid smarter, safer and more connected

# Specifications

ubigrid™ TVM

## PRODUCT SPECIFICATIONS

| | |
|---|---|
| **Dimensions** | 177mm x 79.5mm x 54mm (L x W x H) |
| **Weight** | Device 369g; Bracket 51g |
| **Power Source** | Solar Panel / Dual Rechargeable Batteries |
| **IP Rating** | IP67 |
| **Impact Rating** | IK07 |
| **Backhaul** | LTE CAT-1 |
| **External Sensor Connectivity** | N/A |
| **Firmware updates** | OTA Upgrades |
| **Security** | Messages encrypted end-to-end from sensor to cloud |
| **Mounting Height** | Recommended 10 to 25 feet above ground |
| **Attachment Options (wood, concrete, fiberglass or metal poles)** | 1 X 1 1/4" Band<br>2 X 1/2" Bands<br>2 X 1/4" Tapcons for direct attachment |
| **Provisioning** | Auto Provisioning at Installation Activation |
| **Lifetime** | Up To 10 Years (Disposable, No Field Service) FCC, |
| **Certifications** | IP67, IK07, PTCRB |

## ELECTRICAL SPECIFICATIONS

| | |
|---|---|
| **Water Ingress Prevention** | Custom Molded Silicone Seal and Liquid Silicone Barrier Applied by Automation |
| **Operating Temperature Range** | 0° C - 60° C (Temperature Is Limited by the Battery's Operating Range) |
| **Power Supply** | Two 5.4V OCV Solar Panels/Two 1100mAh Rechargeable Batteries |

## SENSORS SPECIFICATIONS

| | |
|---|---|
| **Tilt Range** | +/-90 degrees |
| **Tilt Resolution** | 1 degree |
| **Vibration Range** | up to 8g (Alert Threshold Can Configure Within This Range) |
| **Vibration Threshold Resolution** | 0.1g |

**FRONT VIEW**

**REAR VIEW**

## SENSOR ALERT / REPORTING SPECIFICATIONS

| Alert Parameters | Trigger | Frequency | Configurable Threshold |
|---|---|---|---|
| Tilt Angle Alert | > 5 degrees | On Event | Yes |
| Impact Alert | High g impact (8g) | On Event | Yes |
| Battery Health Alert | Battery health has deteriorated, both batteries | On Event | Yes |
| GPS Alert | > 100m of movement | On Event | No |
| Status Report | Daily report | Configurable; default every 24 hours | N/A |

## SENSOR ALERT / REPORTING SPECIFICATIONS

| | |
|---|---|
| **Normal Status Message Mandatory Fields** | Status report transmits information at a configurable frequency (default set to every 24 hours) |
| **Optional Fields** | Configuration version (tracks last received) |
| **Alert Status Message** | Payload flags (indicating optional fields present) |
| | Tilt Angle (in degrees) |
| | Status of Health (SOH) indicates non-alert status information such as RESET |
| | GPS data |
| | Battery level |
| | Voltage |
| | Network Status (RSSI and network type) Initial Tilt Value |
| | Firmware Version Device Configuration |
| | When the device detects an exceptional event, it shall send an alarm message immediately, outside of its normal status reporting time. Depending on the alarm type, different data is sent in the alarm status message. |

# Specifications

ubigrid™ TVM

## SENSOR ALERT / REPORTING SPECIFICATIONS

**Command Message**

The server can send the following commands to the device:

Update Firmware

Set Device Configuration

Re-calibrate Initial Tilt

Set MQTT Address

Keep Modem Active

**Device Configuration**

The following settings are configurable from the server:

Reporting frequency Impact threshold

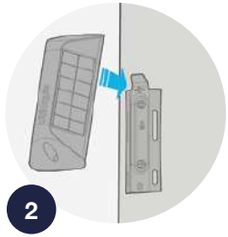
Low voltage threshold Low battery threshold Low RSSI threshold

Reporting flags (indicates which optional fields the device should report when sending in normal status reports)

## MOUNTING IMAGES

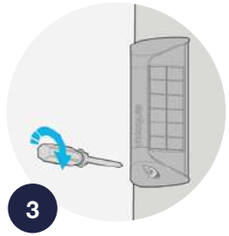
1

Bracket is mounted perpendicular to the ground



2

Press the power button ON, and slide Sensor unit from the top into Bracket...



3

Lock in place with one single screw.

## PRODUCT SUMMARY

UbiGrid TVM™ is a solar powered sensor device that measures, monitors, records, analyzes, and communicates daily status report and alerts triggered by events. Mounted on any utility structure approximately 25-feet above the ground, the sensor monitors for any incident that could affect the vertical angle and utility pole condition.

- APIs provide Statement of Health to back-end system to update pole with new device mapping and to monitor status.
- The device accelerometer runs continuously and provides information on variations in pole tilt and impact.
- Data is passed from the device directly to the Ubicquia cloud, MQTT broker, database, API server and web app.
- The reporting period is daily, unless a programmable alert threshold is triggered which sends an alert notification immediately.
- Daily report includes pole location, tilt angle, shock detection, vibration detection, battery status and life power status (low voltage), and connection status (connected).

## WARRANTY

10-Year Basic Warranty

**OPTION 1 MOUNTING**
**(Steel Bands)**

**OPTION 2 MOUNTING**
**(Tapcon Screws)**


Contact insidesales@ubicquia.com and visit ubicquia.com to learn more



ubicquia.com