Industry's First Streetlight
Edge AI Smart City Platform

ubihub® APAI

ubicquia® simply connected simply smart™

ubihub APAI

COMPATIBLE WITH 360M+ STREETLIGHTS WORLDWIDE

Smart City Platform featuring Dual 4k Cameras, Edge AI Processing, Managed Switch, Intelligent Lighting Control and PoE+ support for 3rd party cameras and sensors

UbiHub APAI leverages the existing streetlight infrastructure to accelerate the deployment of edge analytics, cameras and sensors, to help cities become smarter, safer, and more connected.

Unique Features

- Qualcomm 8 core processor with neural AI engine
- Dual 4K cameras with 169° FoV
- Two 16-bit digital microphones
- AI models for insight into into traffic, parking and public safety
- PoE + port
- Gigabit Ethernet, SFP+ (Fiber, CAT5E STP), and LTE backhaul options
- Integrated smart streetlight controller with Utility Grade metering
- Managed Switch and Managed VLANs
- Plug & Play, installs in minutes

Video/Audio Edge Processing

3rd Party Cameras

Sensors & Applications

Advanced Lighting Control, Monitoring & Metering

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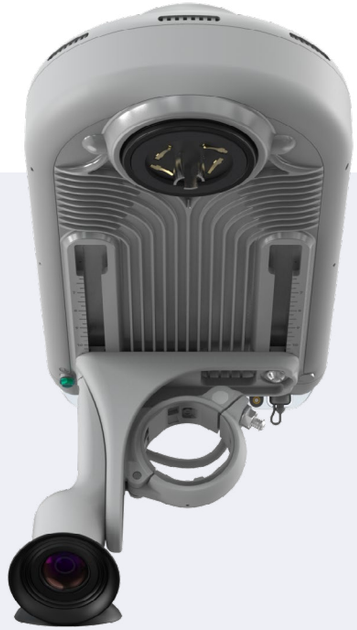
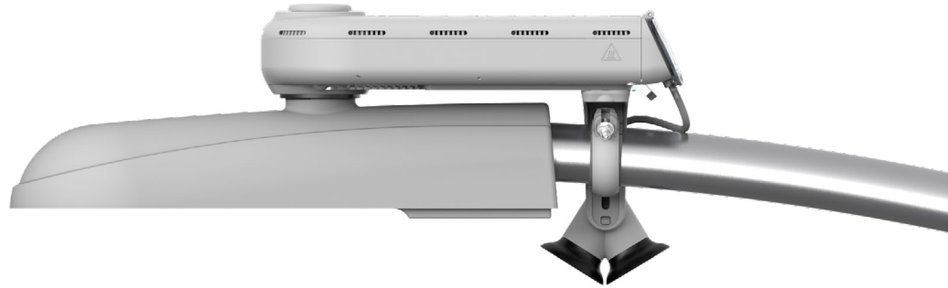


Low profile form factor for improved wind performance and low street visibility



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 + port interface supports 3rd party cameras and sensors
- Open APIs for 3rd party integration
- Actionable insights and visualizations on UbiVu®

Managed Switch and VLANs
- VPN support
- Port Fowarding
- Remote Powercycle

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

Simplified Installation
- Powered through the readily available NEMA socket
- Low profile form factor for improved wind performance and low street visibility
- Installs in less than 15 minutes

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Available Use Cases

Public Safety:

- Live video streaming
- On-demand archived video
- 3rd party camera/VMS integration
- LPR (via 3rd party integration)

Street Analytics

- Count, direction, classification: vehicles, bicycles & pedestrians
- Time/Average Speed/Direction through APIs

Curb and Parking Management

- Parking duration, vehicle count, historical trends of selected zones

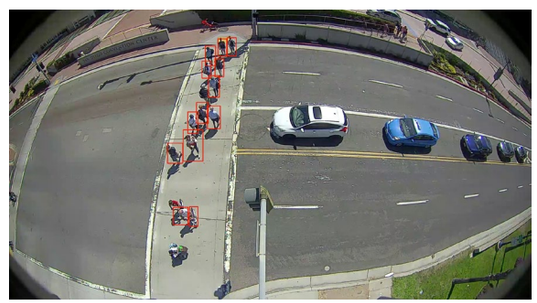
Sustainability & Resiliency

- Lighting scheduling, dimming, analytics and diagnostics
- Enables deployment of air quality and other environmental sensors

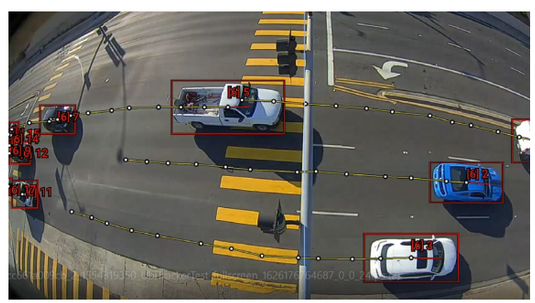
Smart Grid

- Utility Grade metering of luminaire and connected devices
- Grid and pole asset monitoring

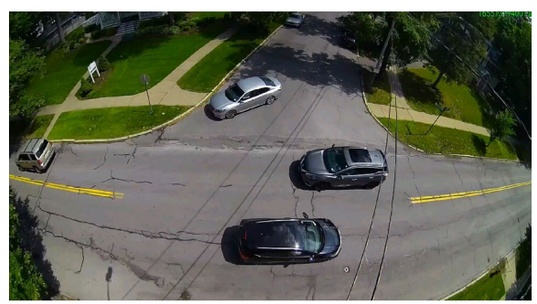
On-demand Archived Video



Street Analytics



Live Video Streaming



License Plate Recognition

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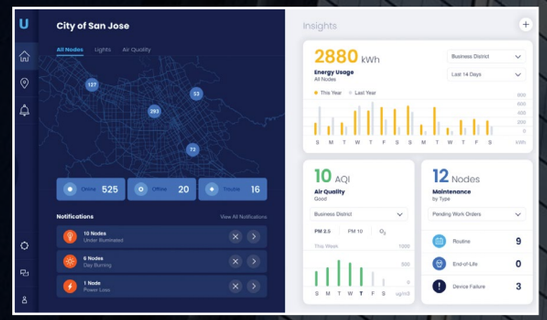
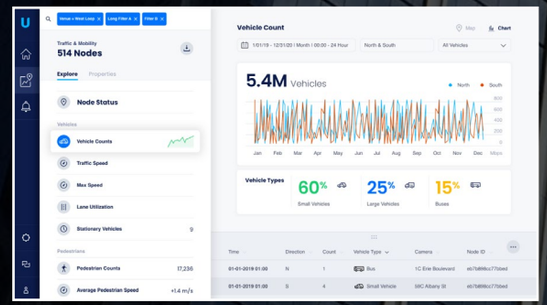
Cloud Managed Platform

UbiVu®

The UbiHub™ APAI devices are managed in UbiVu, a cloud based, integrated dashboard to manage and visualize all Ubicquia products.





UbiVu® Offers

- OTA 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

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SPECIFICATIONS

VIDEO SPECIFICATIONS

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

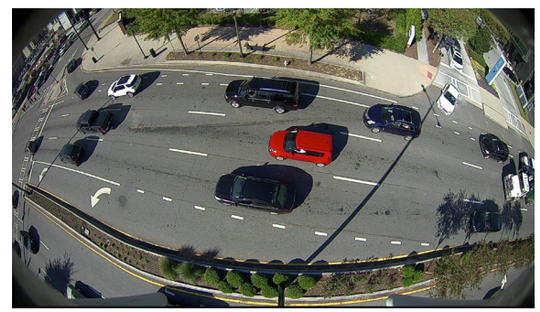
EDGE ANALYTICS

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

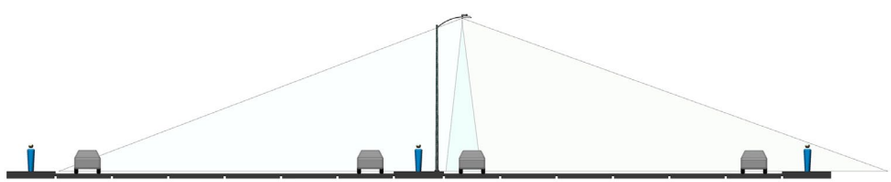
STORAGE CAPACITY

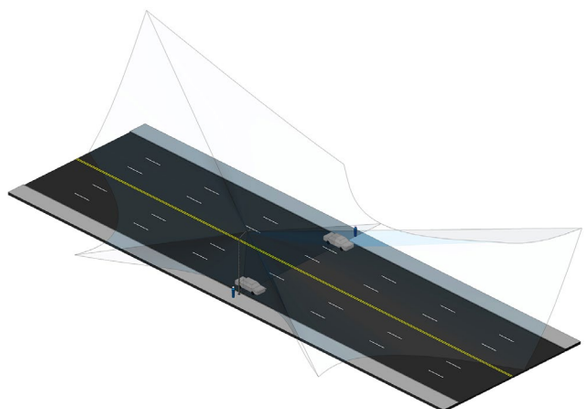
Standard storage	512GB
Video retention	2160p / 15fps / 4.15Mbit/s ~ up to 5 days 1080p / 24fps / 2.61Mbit/s ~ up to 8 days 1440p / 15fps / 2.37Mbit/s ~ up to 9 days 1440p / 12fps / 1.90Mbit/s ~ up to 11 days 1080p / 15fps / 1.63Mbit/s ~ up to 13 days 540p / 24fps / 1.19Mbit/s ~ up to 18 days 720p / 15fps / 0.99Mbit/s ~ up to 22 days 540p / 15fps / 0.74Mbit/s ~ up to 29 days

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

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SPECIFICATIONS

NETWORKING

IP	IPv4
VLAN	802.1Q
Policy Mngt Tools	Access Control Lists
IoT Capable	Yes PoE + port

RF

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

OTHER RADIO TECHNOLOGIES

GPS	GPS L1 C/A, Galileo E1, QZSS L1: 1575.42MHz GLONASS L1: 1602.5625MHz BeiDou B1: 1561.098MHz
Antennas	2 for LTE 1 for GPS 1 for BLE

PHYSICAL INTERFACES

Ethernet	1 x 1Gbps port, RJ-45
Fiber	SFP+ port 10Gbps Fiber
PoE + port	1 x 1Gbps IEEE802.3af (802.3at Type 2) Class 4, up to 30W

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SPECIFICATIONS

PHYSICAL CHARACTERISTICS

Physical Size	430mm x 208mm x 69mm (16.92in x 8.18in x 2.71in)
Weight	4.9kg (10.80lb)
Mounting	Cobra head luminaire mount 2”, 1.5” and 1.25” IPS arms
Operating Temperature	-40C to +50C (-40F to +122F)
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**	**MCS7**		
	-99.5	-83.5		
HT40	**MCS0**	**MCS7**		
	-97	-80.5		
HE20	**MCS0**	**MCS7**	**MCS9**	**MCS11**
	-99	-83.5	-78.5	-72.5
HE40	**MCS0**	**MCS7**	**MCS9**	**MCS11**
	-96	-81	-75.5	-69.5

5GHZ RECEIVE SENSITIVITY (dBM)

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

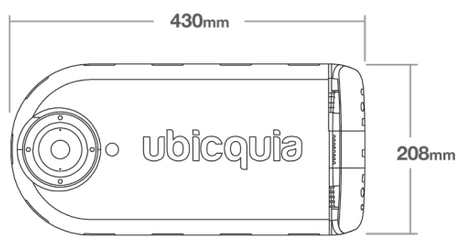
2.4GHZ TX POWER TARGET (PER CHAIN) - TARGET FOR USA*

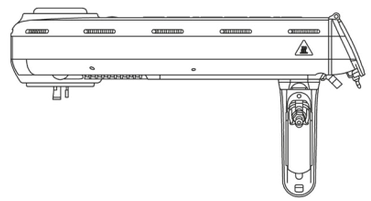
Mode	Pout (dBm)
HT20	23
HE20/40	22

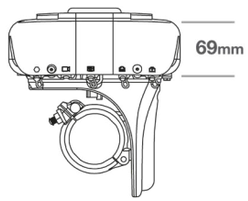
5GHZ TX POWER TARGET (PER CHAIN)

Mode	Pout (dBm)
HT20/40	15
VHT20/40/80, HE20/40/80	14

*Power target & Frequencies will vary based on country







POWER

Input Voltage	90Vac - 506Vac

UbiHub max functionality Includes PoE support (IEEE 802.3at)

70W	Full Functionality
	PoE + port Out (30W) enabled
	Onboard IoT enabled
	Ethernet backhaul

UbiHub reduced functionality Excludes PoE

40W	PoE + port Out (30W) disabled
	Onboard IoT enabled
	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

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 | 1062 V5 August 2024 | Specifications are subject to change without notice. |

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SPECIFICATIONS

LIGHTING CONTROL

Lamp Interface	LED, CF & HID
Maximum Lamp Power	1200W (1800 VA)
Power Supply	90Vac - 506Vac
Lamp On/Off	Photocell control, software programmable scheduling
Dimming Controls	Auto Select 0-10V PWM, DALI/DALI2
Power Surge Protection	20KV/10kA-Extreme
External Sensor Interface	DALI/DALI2
Dimming Range	5% to 100%
Parameters	Customer device Management Scheduling controls Alert thresholds Adjustable photocell threshold Photocell thresholds Luminaire fault detection Adjustable Tilt detection Voltage sag & swell detection

POWER METERING

Accuracy	ANSI C12.20, class 0.5
Accuracy Verification	Infrared pulse
Line Voltage	110V to 480V (50/60Hz)
Line Voltage Accuracy	+/-0.5%
Power	Active & Power factor
Energy Consumption	kWh
On/Off Cycles	Cycle count and cycle variation

CERTIFICATIONS & COMPLIANCE

Safety	ETL US & Canada UL 62368
FCC	Part 15B, class B; Part 15C; Part 15E
Ingress	IP65
Impact	IK07
Vibration	ANSI C136.31 3g

ACOUSTIC SENSORS

Quantity	2 acoustic sensors (mics)
Encoding	AAC
Features	Omnidirectional digital microphone Very low distortion / very high AOP – 135 dBSPL acoustic overload point Multiple performance modes (sleep, low-power, performance [default]) Sensitivity matching PDM single-bit output with option for stereo
Bandwidth	500Hz – 7kHz
Frequency response	+/- 5dB
Distortion	< 4% typically (except isolated frequencies)
SNR sensitivity	< -90dBFS

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