



INTRODUCING THE WAVELET

Ayyeka's Wavelet is an Industrial Internet of Things (IIoT) system, created in order to bring modularity and flexibility to the world of remote data acquisition.

The Wavelet is an ultra low-power, fully-autonomous wireless telemetry device that operates best-of-breed, third-party sensors. The sampled sensor data is collected, transmitted securely, and then stored on Ayyeka's cloud-server or a customer's on-premises server. Wavelets are remotely configurable and data can be visualized and managed via Ayyeka's web-based IIoT Platform. Data can also be integrated into SCADA and other software systems.

With its introduction to the infrastructure market, the Wavelet is becoming a dominant IIoT solution for creating cyber-secure, plug-and-play, affordable smart infrastructure networks.



SCADA & Software

From cloud-based hosting and an intuitive user-interface to secured and streamlined SCADA connectivity, the Wavelet delivers data directly where it is needed. Integrating with models, analytics, and business intelligence solutions has never been easier.



Autonomous Operation & Redundant Communication

Low-power and predictive analysis algorithms result in up to 30% extended battery life. Redundant communication concurrently supports LTE (4G), 3G, 2G, LPWAN and Bluetooth connectivity.



Rugged Design

Molded polycarbonate enclosure with IP 68 / NEMA 6P waterproofing rating allows for installation in the most corrosive and aggressive of environments, in both industrial and commercial applications.



Cyber-Security & Alerts

Wavelet Kits are embedded in every layer from the ground up with the most advanced cyber-security technology, including sensor authentication and data encryption. Receive alerts in case of an urgent event.



Reduced Cost of Ownership

As an integrated, modular, and preconfigured solution that allows for plug-and-play installation and requires minimal maintenance, Wavelet Kits deliver an attractive total cost of ownership.



Rapid Deployment & Scalability

Wavelet Kits are sensor-agnostic, utilizing various configurations of sensors and samplers. Easily installed and operating within minutes, Wavelet Kits can be used to build or extend smart networks.



Data & Software

Data Hosting	Secure Cloud or On-Premises
Cyber-Security	TLS 1.2 Protocol
Software Integration	REST API
SCADA Integration	CSV, DNP3, OPC-UA, FTP
Ayyeka IoT Platform Software	Web-based from desktop, tablet, and mobile
AyyekaGo Mobile App	iOS, Android
Data Export Options	CSV
Device Memory	8 GB
Data Communication	Two-way
Alarm Threshold	Up to 4 per data stream
Alert Notification	SMS, email, voice
System Health Check	Included

Power

Primary Power Supply	Internal Lithium Battery (field-replaceable and non-rechargeable), 3.9 V DC 3A
Internal Battery Capacity	32Ah
Operational Run Time	Up to 5+ Years*
Battery Status Notifications	Included
External Power	Solar and line power; automatic power source switching
Voltage Input	5-28VDC

Sensor Integration

Sensor Ports	3 ports; supports up to 10 sensors using cable splitters
Sensor Position	External Hard-Wired
Serial Interfaces	RS485, RS232, SDI-12
Serial Protocols	Modbus RTU, ASCII, custom
Serial Channels	Up to 16
Analog Channels	Up to 4 (4-20 mA, 0-27.5 V)
Discrete Channels	Dry contact, open collector Up to 3 total inputs (up to 2 pulse counting) 39Hz max pulse frequency Up to 1 output, max 2.8V
Sensor Power Supply Output	350mA, 12V

Connectivity

Communication Interfaces	Cellular (4G/3G/2G), LoRaWAN, Bluetooth
SIM Card(s)	Dual SIM slots
Cellular Roaming	Multi-network global SIM(s); data plan included supporting 140+ countries
Configuration & Upgrades	Remotely (over-the-air), USB PC connection
Data Transmission	Periodic, data-dependent
Antenna	External antenna support with backup internal antenna
Built-In GPS	Included

Mechanical Enclosure**

LED Indicator	Included
Dimensions (W x H x D)	13.2 cm x 16.5 cm x 7.3 cm (5.2 in. x 6.5 in. x 2.9 in.)
Weight	0.9 kg (2.0 lbs)
Enclosure Material	Polycarbonate (UL 94V-0 and UV-resistant)
Ingress Protection	IP 68 / NEMA 6P
Operating Temperature	-40°C to 80°C (-40°F to 176°F)
Storage Temperature	-40°C to 80°C (-40°F to 176°F)

Intrinsic Safety (optional)**

Approvals	USA/Canada Class I Div 1 Zone 0 ATEX Zone 0 IECEX
External Power	5-12VDC, 1.65 to 2.2A current limited
Max. Ambient Temperature	68°C (154°F)
Sensor Ports	3 Ports; cable splitters not permitted
Antenna	External antenna support only
Enclosure Material	Polycarbonate with ABS Alloy
Weight	1.0 kg (2.2 lbs)



Class I Div 1, Groups C & D
II 1G Ex ia IIB T4 Ga IP68
IECEX Certificate No. IECEX ITL 18.0003X
Tamb = -40 +68°C

*Battery lifetime depends on sensor power consumption and sampling and transmission frequency.

Complies with: Radiated emission standards (ETSI EN 301 489-1/-17 Class B and CFR 47 FCC Part 15 Subpart B Class B), Immunity per ETSI EN 301 489 1/-17 EN 61000-4-2, 3, 4, 5, 6, RoHS, Directive 2002/95/EC and **CE.

February 2019 V4 P/N 0100613