



AYYEKA

# Wavelet 4R™

Cost-Optimized  
Industrial IoT Edge Device



## Compatible

Connect any sensor to any software system

## Cost-effective

Save time and money with plug-and-play installation

## Cybersecure

Encryption, authentication and remote updates

## Comprehensive

Encompassing all required equipment and services

## DELIVERING DECISIONS FROM FIELD ASSET DATA

Ayyeka's Wavelet™ 4R is a ruggedized, battery-powered, wireless Industrial Internet of Things (IIoT) edge device. Seamlessly combined with powerful software, the Wavelet™ 4R offers continuous monitoring and situational awareness. Our end-to-end solution helps municipal and industrial operators increase efficiency, reduce downtime and failures, and improve compliance.

The Wavelet™ is designed for compatibility and interoperability to connect decision-makers with their critical assets. The device generates and securely transmits sensor data to a software platform, where it can be managed and integrated into third-party applications, such as SCADA, data analytics, and GIS.

Through creating and managing data from field assets, Ayyeka's solution transforms and adds intelligence to new and existing infrastructure networks alike.

## Data & Software

Data hosting	Cloud or on-premises
Cyber-security	TLS 1.3 protocol (AES-256)
Software integration	REST API, CSV
SCADA integration	CSV, DNP3, OPC-UA
Ayyeka IoT platform software	Web-based from desktop, tablet, and mobile
AyyekaGo mobile app	iOS, Android
Data export options	CSV, FTP
Device memory	16 MB
Data communication	Bidirectional
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), 3.9V DC 3A
Internal battery capacity	32Ah
Battery life	Up to 10 years (usage dependent)
Battery life notifications	Included
External power	6-24VDC automatic power source switching

## Sensor Inputs

Sensor ports	1 port; supports up to 4 sensors using cable splitters
Sensor connection	Wired with M12 connectors
Serial interfaces	RS485 or RS232 or SDI-12
Serial protocols	Modbus, SDI-12, ASCII Text, Custom
Serial inputs	16
Analog inputs	2 (4-20 mA, 0-24 V)
Digital inputs	2 dry contact, open drain Pulse counting: up to 2 at 39Hz max pulse frequency
Digital outputs	2 at 0V/2.8V
Sensor power supply Output	200mA, 12V or 3.6V

## Connectivity

Cellular/IoT Communication	WA4000-31 (US) - CAT-M WA4000-82 (Global) - CAT-M, NB-IoT, 2G WA4000-61-E (Global) - 4G, 3G, 2G
SIM card	Single SIM slot, 4FF
Cellular roaming	Global multi-network SIM(s); data plan included for up to 180+ countries
Configuration and upgrades	Bluetooth Low Energy (BLE), remotely (over-the-air), USB connection
Data transmission	Periodic, data-dependent
Antenna	External antenna

## Mechanical Enclosure

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	0.7kg (1.5 lbs)
Enclosure material	Polycarbonate with ABS (UL 94V-0 and UV-resistant)
Ingress protection	IP 68 / NEMA 6P
Operating temperature	-40° to +80°C (-40° to 176°F)
Storage temperature	-40° to +80°C (-40° to 176°F)

## Cybersecurity

Data in transit security	TLS 1.3
Device authentication	Hardware based
Bluetooth	ECC key exchange, AES-256 encryption
Firmware/ security updates	Full over-the-air (FOTA)
Physical access	Restricted to diagnostics only

## Certifications

Safety	EN 61010-1 2010 IEC 61010-1
FCC	FCC Part 15 Subpart B
EMC	EN 301 489-1 V2.1.1 2017 EN 301 489-7 V1.3.1 2005
Spurious emissions	EN 301 511 V12.5.1 2017
Radiated emissions	EN 301 908-1 V11.1.1 2016
IP68 / NEMA6P	EN 60529:1992+A2:2013 IEC 60529:1989/AM1:1999



All statements concerning specifications and operating conditions of the Wavelet correspond to the best information available at the time of printing. Subject to change without prior notice.