

# Wavelet

The Wavelet is a discreet, robust device that autonomously operates best-of-breed, third-party sensors, using battery, solar power, or a permanent power source. The sampled sensor data is collected, transmitted securely, and then stored on Ayyeka's cloud-server and/or a customer's on-premises server.

Data can be visualized and managed via Ayyeka's web-based graphical data management system, and integrated into SCADA and higher-level software analytic systems.

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

## Product range overview

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<b>Water and Waste Water</b>	<b>D-1</b>
<b>Environmental</b>	<b>D-4</b>
<b>Security Kit</b>	<b>D-6</b>

## Wavelet



Technical data	
Power	Military-Grade Lithium Battery / External Power source
Communication	Multi-Network Carrier: 2G, 3G, LTE
Ambient temperature (operation)	-20 C to 60 C
Analog Channels	Up to 4 (current loop ,voltage)
Serial Interfaces	RS485, SDI-12, RS232
Dimensions (W x H x D)	13.2 cm x 16.5 cm x 7.3 cm
Protection	IP 68

Wavelet	Type	Order No.	Pcs./Pkt.
	Basic	IWA0001	1

## Water Supply Kit



Technical data (Pressure sensor)	
Range	0 - 10 bar (0 - 150 psi)
Accuracy	± 0.3%
Ambient temperature (operation)	0 C to 125 C

Wavelet	Type	Order No.	Pcs./Pkt.
	Water supply Kit	IWA1-0013	1

## Reservoir & Tank Kit



Technical data (Hydrostatic Level Sensor) A	
Range	0 - 1 bar (0 - 15 psi) , 0-5, 0-10 ,0-20psi
Accuracy	≤0.5% of span
Ambient temperature (operation)	-17° C to 54° C
Housing	316L SS



Technical data (Total Chlorine Sensor) B	
Range	0 - 10 mg/L or 0 - 2 mg/L
Accuracy	0.01 mg/L for 0 - 10 mg/L or 0.001 mg/L for 0 - 2
Pressure (operation)	0 - 1 bar (0 - 15 psi)
Flow Rate (operation)	0.015 m/s - 0.06 m/s
pH Range (operation)	4 - 10

Wavelet	Type	Order No.	Pcs./Pkt.
	Reservoir & Tank Kit	IWA1-1238	1

## Water Quality Kit



Technical data (Water Quality Sensor) A	
Range	Active Chlorine: 0.01 - 2.0 mg/L (0.01 - 2.0 ppm) Conductivity: 50 - 1,000 $\mu$ Scm-1 Pressure: 0 - 10 bar (0 - 145 psi)
pH Range (operation)	5-9
Ambient temperature (operation)	0° C to 40° C
Housing	PVC/HDPE

Technical data (pH Sensor) B	
Range	0 - 14 pH
Accuracy	$\pm$ 0.02 pH
Max Pressure	11 bar
Max Flow Rate	3 m/s

Wavelet	Type	Order No.	Pcs./Pkt.
	Reservoir & Tank Kit	IWA1-1432	1

## Sewer Overflow Kit



Technical data (Level Switch) A	
Max. working pressure	10 bar (145 psi)
Max. working temperature	45° C
Housing	Single outer casing piece in blow molded Polyethylene

Technical data (Non-Contact Ultrasonic Level Sensor pH Sensor) B	
Range	0 - 7.5 m
Accuracy	0.25% of detect range
Ambient temperature (operation)	-34°C to 60°C
Housing	Ceramic, PVDF faced transducer.

Technical data (Submersible Hydrostatic Level Sensor) C	
Range	0 - 1 bar (0 - 15 psi) , 0 - 5 psi, 0 - 10 psi, and 0 - 20
Accuracy	$\leq$ 0.5% of span
Max Pressure	-17° C to 54° C
Housing	316L SS

Technical data ( Radar Level Sensor ) D	
Range	10 m Ranges of 5 m - 100 m (17 ft - 340 ft) also
Accuracy	$\pm$ 0.02 pH
Max Pressure	11 bar
Max Flow Rate	3 m/s

Wavelet	Type	Order No.	Pcs./Pkt.
	Reservoir & Tank Kit	IWA1-1238	1

## Odor Kit



Technical data (Sensor specifications)	
H <sub>2</sub> S Range	0-1000 ppm included/ 0- 2000ppm also available
Operating Range	-10° C to 40° C
Pressure Range	Atmospheric +- 10%
H <sub>2</sub> S Accuracy	1% Full scale

Wavelet	Type	Order No.	Pcs./Pkt.
	ODOR Kit	IWA1-0040	1

## Lift station Kit



Technical data (Sensor specifications)	
Range	0-1 bar (0-15psi) included,
Max. depth	Submersible up to 140 meters (450)
Temperature,	-17° C to 54° C
Accuracy	0.5% of span
Housing	316L SS

Wavelet	Type	Order No.	Pcs./Pkt.
	Life station Kit	IWA1-0012	1

## Wastewater quality Kit



Technical data (Turbidity & Temperature sensor) A	
Range	0-4000 NTU
Accuracy	<5% of reading

Technical data (Conductivity, Salinity & Temperature Sensor) B	
Range	0 - 200 Us/cm
Accuracy	+-1% of full range
Salinity Range	78ppt
TDS (KCl) Range	0-133,000ppm

Technical data (Optical dissolved Oxygen (DO) & Temperature Sensor) C	
Range	0 - 1 bar (0 - 15 psi) , 0 - 5 psi, 0 - 10 psi, and 0 - 20
Accuracy	± 0.1 mg/L (+0.1PPM) +0.1%
Water velocity	No minimum velocity

Technical data ( Radar Level Sensor ) D			
Range	PH	ORP	Temperature
	0-14Ph	+-1000mV	0° C to 50° C
Accuracy	+0.1pH	+2mV	+2mV
Resolution	0.01Ph	0.1Mv	0.01° C [0.2° F]

Technical data (TSS Sensor) E	
Range	0 to 2000ppm to 50% full scale
Resolution	0.05 of full scale
Repeatability	0.05 of full scale

Wavelet	Type	Order No.	Pcs./Pkt.
	Wastewater Quality Kit	IWA1-1711	1

## Temperature profile Kit



Technical data (Sensor specifications)	
Max. span between nodes	30m [98ft]
Min span between nodes	25cm [10in.]
Range	-2 °C to 36 °C [29 °F to 97 °F]
Accuracy	+/- 0.010° C
Resolution	0.005 °C [0.018 °F]
Time response	Ceramic, PVDF faced transducer.
Max depth of a Node	165m [540ft]

Wavelet	Type	Order No.	Pcs./Pkt.
	Temperature profile Kit	IWA1-0026	1

## Groundwater Kit



Technical data (Sensr Sensor)	
<b>Conductivity</b>	
Range	0-200mS/cm
Accuracy	+1Us/cm
Operating Pressure	0-290psi 0-20bar
<b>Water Level</b>	
Range	Up to 200m
Accuracy	+/-0.05%FS
Operating Pressure	
<b>Temperature</b>	
Range	-5° C to 50° C
Accuracy	0.1 ° C
Operating Pressure	0-290psi 0-20bar

Wavelet	Type	Order No.	Pcs./Pkt.
	Groundwater Kit	IWA1-0067	1

## Surface Water Kit



Technical data (sensor specifications)	
Range	1-20m included rangers to 70m on request
Accuracy	+/-2.0mm
Frequency	-26GHz
Max error measurement on Low End	+/-4.0mm(<1m) 0.16in.
Beam Angle	10°
Operating Temperature	-40° C to 80° C
Dimensions	Housing (HxW): 17cm x 14cm Horn (HxWxD): 8cm, 11cm x 14cm

Wavelet	Type	Order No.	Pcs./Pkt.
	Surface Water Kit	IWA1-0024	1

## Noise pollution Kit



Technical data (sensor specification)	
Range	30-100Db(A)Included
Length Frequency weighting	1m Db(A) to IEC 61672-1:2002
Time Weighting	Factory set to fast [F] IEC 61672-1:2002
Automatic Calibration	Electrostatic Actuator system with DC voltage control
Output cable	10m included, other lengths available
Weight	4,5 Kg (9.9lbs)
Factory Option	[S] IEC 61672-1:2002
Upgrade Option	Wall mounting Kit
Mount Kit	24cm x 3cm plus 2 U brackets, 4 nuts, 3 Jubilee Clips

Wavelet	Type	Order No.	Pcs./Pkt.
	Noise pollution Kit	IWA1-0059	1

## Soil Kit



Technical data (sensor specification)	
Volumetric Water Count	
Range	0 - 1 m3/m3
Resolution	0.0008 m3/m3
Accuracy	± 0.03 m3/m3
Temperature	
Range	-40° C to 50° C
Resolution	0.1° C
Accuracy	± 1° C

Wavelet	Type	Order No.	Pcs./Pkt.
	Soil Kit	IWA1-0056	1

## Security Kit



### Technical data (sensor specification)

Coverage Area	Footsteps: up to 12m(39ft) Digging : up to 20m (66ft)
Power Consumption	1mA @ 3.3V
Recommended Installation depth	Below ground level 50cm
Water proofing	IP 67 / NEMA 6 at -40° C to 85° C
Weather proof	Wind resistant, fog resistant
Seismic Sensor	High sensitivity geo-phone for vibration sensing
Operating Temperature	-40° C to 85° C
Dimensions (H x W x L)	13cm x 5 cm x 4 cm

Wavelet	Type	Order No.	Pcs./Pkt.
	Security Kit	IWA1-0063	1