CTR2-L Spec-sheet

LoRaWAN®

Industrial LoRaWAN® Operated Low Power Turbidity Sensor

- Compatible with all LoRaWAN® frequencies
- Wide range of industrial applications
- High accuracy
- Designed to meet outdoor applications
- Long-term durable performance in harsh environment
- Ultra-low power
- Pre-configured with no need of programming or hardware setting

TECHNICAL SPECIFICATION

Sensor

• Measurement principle	850 nm Diffusion IR nephelometry at 90°		
• Measure ranges	5 to 4000 NTU in 5 ranges: • 5 - 50 NTU • 5 - 200 NTU • 5 - 1000 NTU • 5-4000 NTU • AUTOMATIC	0 to 4500 mg/L Calibration: • Range 0-500 mg/L according to NFEN872 • Range >500 mg/L according to NFT901052	
• Accuracy	<5% of the reading		
• Resolution	0.01 to 1NTU-mg/L		
• Temperature compensation	Via CTN		
• Storage Temperature	-10 to +60		°C
• Operation Temperature	0 to +50		°C

Power

• Power Supply	Built-in Replaceable Lithium Battery, External Power (option)	
• Rated Voltage	3.6	V
• Battery Lifetime	50,000+ Readings and 10,000+ Transmission (More than 5 years for most applications)	

Physical

• Materials	Sensor Head: PVC, DELRIN, Quartz, PMMA, Polyamide, cable: polyurethane, Enclosure: POM	
• Max Pressure on Sensor Head	5bar	
• Weight	~850 (for 3m cable)	g
• Protection Rate	IP68 for sensor head and IP66 or IP68 and UV Protected enclosure	

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Communication

•	LoRaWAN® Version, Class	1.0.2revB, Class A (Class C on request)
•	LoRaWAN® Frequency Zone	AS923, EU868, US902-928, AU915-928 (other zones available on request)
•	LoRaWAN® Activation Type	OTA (default), ABP
•	Sampling Type	Periodic (default), Event triggered
•	Sampling Period	Configurable via downlink (default 4 hours)
•	Transmission Type	Per sample (default), Event triggered, Conditional
•	Parameter Configuration	Over-the-air via LoRaWAN® downlinks Locally via wireless connectivity
•	Firmware Update	Locally via Wireless Connectivity, Over The Air

NETWORK CONNECTION AND VISUALISATION

Network Integration

- Integratable to all main networks (Actility, Alibaba, Cisco, Digita, Everynet, Helium, Kerlink, kpn, Loriot, machine-Q, Objenious, Orange, Orbiwise, Proximus, Senet, Sens, Swisscom, TATA, The Things Network (TTN), TTI and any other network)

Visualisation And Data Management

- Ellenex white label microservice platform, and Integratable to all main IIoT platforms directly or through the api (AWS, Azure, PTC ThingWorx, Bosch IoT, Cisco Jasper & Kinetic, Sierra Numerex, MathWorks, ThingSpeak, GE Digital Predix, LandisGyr, Siemens MindSphere, Cumulocity, myDevices, Ubidots, TagoIO, ALSO AllThingsTalk, HPE IoT and any other major IoT platform).

Ellenex Platform Main Features

- Encrypted ultra-low power communication protocol
- Advanced device inventory
- Integration APIs for enterprise systems
- Multi-tenant role-based access control
- Data export and import
- White-label platform for enterprise runs on private account
- Variable alarm setting for high and low thresholds and multi-channel alerting
- Sampling and transmission interval configuration
- Transmission condition configuration
- Other configurations and customisation available on request

Encrypted & ultra-low power
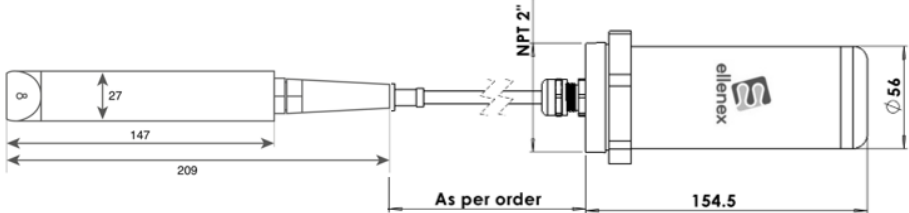
Integratable
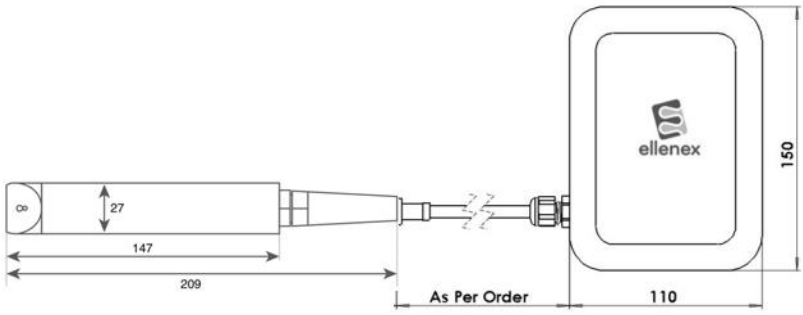
Dynamic alerting

Multi-tenant

Scalable

Composable & API first

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MODEL GUIDE

Model	Option / Schematic
C Model	 IP68 sensor head, connected to POM enclosure IP68 enclosure: with cable gland, without on/off switch, and with internal antenna IP66 enclosure: with sensor connector, on/off switch, and external antenna
E Model	 IP68 sensor head, connected to IP65 ASA enclosure with on/off switch

INDUSTRIES

- Water & Wastewater
- Agriculture & Farming
- Oil & Gas
- Marine & Oceanography
- Mining & Construction
- Environmental Monitoring

APPLICATIONS

- Bore Hole Mineral Level
- Water Resources
- Surface Water, Rivers and Catchments
- Sea Water

- Wastewater Tank
- Industrial Wastewater
- Regulatory Automated Reporting
- Drinking Water

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ORDERING CODE

CTR2-L								
	LoRaWAN Frequency Zone							
	AS (AS923)	**AUx** (AU915-928) (Sub Band x)		**EU** (EU868)	**USx** (US902-928) (Sub Band x)			
		LoRaWAN Activation						
		A (Over The Air Activation - OTAA)		**P** (Activation By Personalization - ABP)				
			Measurement Range					
			A: 5 – 50NTU	**B:** 5 – 200NTU	**C:** 5 – 1000NTU	**D:** 5 – 4000NTU	**E:** Automatic	
				Enclosure				
				C5: Cylindrical		**E5:** Rectangular		
					Cable Length			
					S: 3m		**Other** options available on request	
						Device Activation		
						S: With On/Off Switch	**X:** No Switch (Always On)	
							Antenna Option	
							E: External	**I:** Internal
								Options
								(On request)[1]
CTR2-L	**AS**	**A**	**A**	**C5**	**S**	**S**	**E**	

Sample Product Code:

- **CTR2-L-AS-A-A-C5-S-S-E**
  LoRaWAN® turbidity sensor, frequency of AS923, Over The Air Activated, measurement range of 5 – 50NTU, In cylindrical enclosure, standard cable length, with on/off switch and external antenna.

[1]) Product Options:

- **EP**: sensor with external power supply connector for 12V supply (only for E type enclosure, adaptor is not included)
- **EPB**: connector for 12V supply with internal battery backup (only for E type enclosure)
- **HG**: high-gain external antenna
- **WF**: Active WiFi module on device for communication/ firmware update through Mobile phone NFC module (only for E type enclosure)
- **HCB**: high-capacity battery (only for E type enclosure)

Integrated IoT Solutions

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