CSD2-N Spec-sheet

NB-IoT **LTE-M**

Industrial NB IoT – Cat-M1 Operated Low Power Conductivity and Salinity Sensor

- Compatible with most standard communication Protocols (UDP, LwM2M, MQTT, NIDD, etc.)
- 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

● Measure ranges conductivity	0- 200	µS/cm
	0- 2,000	µS/cm
	0- 20	mS/cm
	0- 200	mS/cm
● Accuracy:	±1 (typ.) (For more than 100 mS/cm appropriate buffer solution is required)	%FS
● Resolution:	0.01-1 according to range	
● Measurement range salinity	5-60	g/Kg
● Measurement range TDS-KCI	0-133,000	ppm
● Temperature compensation	NTC	
● Storage Temperature:	-10 to +60	℃
● Operation Temperature:	0 to +50	℃

Power

● Power Supply:	Built-in Replaceable Lithium Battery External Power (option)	
● Rated Voltage	3.6	V
● Battery Lifetime:	10,000+ Readings and 5,000+ Transmission (With UDP protocol/ More than 5 years for most of applications)	

Physical Specification

● Materials:	Sensor Head: PVC, DELRIN, stainless steel Enclosure: POM	
● Max. Pressure on Sensor Head:	5bar	
● Weight:	~900 (for 3m cable)	g
● Protection Rate:	IP68 for sensor head and IP66 or IP68 and UV protected enclosure	

CSD2-N Spec-sheet

Communication

•	Communication Standards	Cat-NB1 (NB-IoT) Cat-M1 (option of back support by GPRS)
•	Communication Bands	B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 and B39
•	Data Rates:	Cat-M1: 375Kbps (DL)/375Kbps (UL) NB-IoT: 32Kbps (DL)/70Kbps (UL)
•	TX Power:	23dBm
•	Min Receiver Sensitivity:	Cat-M1: -107dBm NB-IoT: -113dBm
•	Antenna:	Internal (Default)/ External (customised options available)
•	Optional Features:	• Attach without PDN (Packet Data Network) • Support for IPV6 • SMS communication • Mobility support (Cat-M1 only)

NETWORK CONNECTION AND VISUALISATION

Network Integration

Pre-configured or configurable to all main narrow band networks (3, A1, AT&T, China Mobile, DU, Etisalat, KPN, M1 Singapore, Optus, Orange, Proximus, Spark, Sprint, Swisscom, Telefonica, Telstra, T-Mobile, Verizon, Vodafone, 1NCE, Emnify 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, 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

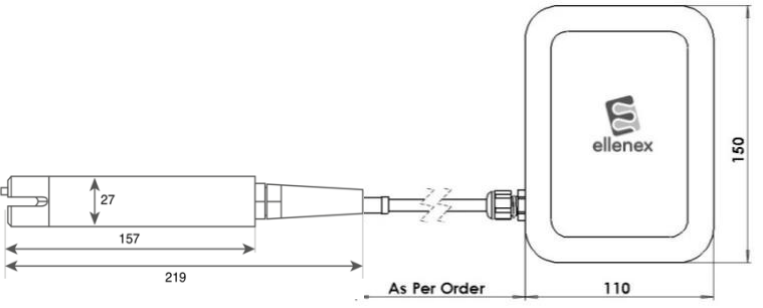|		
Encrypted & ultra-low power	Integratable	Dynamic alerting
Multi-tenant	Scalable	Composable& API first
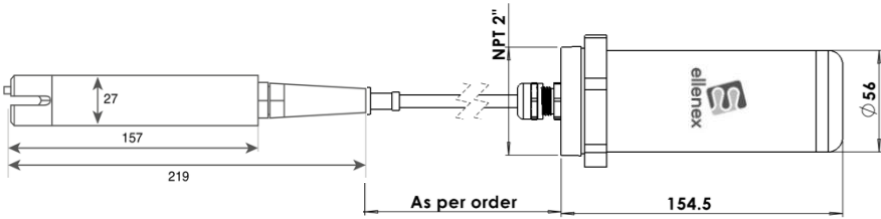
CSD2-N Spec-sheet

MODEL GUIDE

Model	Drawing:
C Model:	 **NPT 2"** 27 157 219 As per order 154.5 Ø 56 **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:	 27 157 219 As Per Order 110 150 **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 Tanks
- Industrial Wastewater
- Regulatory Automated Reporting
- Drinking Water

CSD2-N Spec-sheet

ORDERING CODE

CSD2-N							
Communication Type							
B: NB-IoT				**C:** Cat-M1			
	Measurement range						
	A: 0-200$_{\mu S/cm}$		**B**: 0-2000$_{\mu S/cm}$	**C**: 0-20$_{mS/cm}$		**D**: 0-200$_{mS/cm}$	
		Enclosure					
		C: Cylindrical		**E:** Rectangular			
			Cable Length				
			S: 3m		**Others**		
				Device Activation			
				S: On/Off switch	**X:** No switch (Always on)		
					Antenna		
					I: Internal	**E**: External	
						Options	
						(on request)[1]	
CSD2-N	B	B	C	S	S	I	

Sample Product Code:

- **CSD2-N-B-B-C-S-S-I**
  NB IoT conductivity sensor, measurement range of 0-2000$_{\mu S/cm}$, In cylindrical enclosure, standard cable length, with on/off switch and internal 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

E:sales@ellenex.com
W: www.ellenex.com