

# CDO2-N



## Industrial NB IoT – Cat-M1 Operated Low Power Optical Dissolved Oxygen 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

• Measurement Principle:	luminescent optical, approved by the ASTM - D888-05 without need of recalibration
• Measurement Range:	0 – 20 (mg/L) 0 – 20 (ppm) 0 – 200 (%)
• Accuracy:	± 0.1 (mg/L) ± 0.1 (ppm) ± 1 (%)
• Resolution:	0.01
• Water Move:	No necessary move
• Temperature Compensation:	Via NTC
• Storage Temperature: (°C)	-10 to +60

### Power

• Power Supply:	Built-in Replaceable Lithium Battery, External Power (option)
• Rated Voltage (V)	3.6
• 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: stainless steel 316L (Titanium on request) Enclosure: POM
• Max. Pressure on Sensor Head:	5bar
• Weight: (g)	~800 (for 3m cable)
• Protection Rate:	IP68 for sensor head and IP66 or IP68 and UV protected enclosure



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## 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:	<ul style="list-style-type: none"> <li>• Attach without PDN (Packet Data Network)</li> <li>• Support for IPV6</li> <li>• SMS communication</li> <li>• Mobility support (Cat-M1 only)</li> </ul>

## NETWORK CONNECTION AND VISUALIZATION

### 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)

### Visualization and Data Management

10Sorex 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, TagIO, AllThingsTalk, HPE IoT and any other major IoT platform).

### 10Sorex 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 customization available on request



Encrypted &  
ultra-low power



Integratable



Dynamic  
alerting



Multi-tenant



Scalable


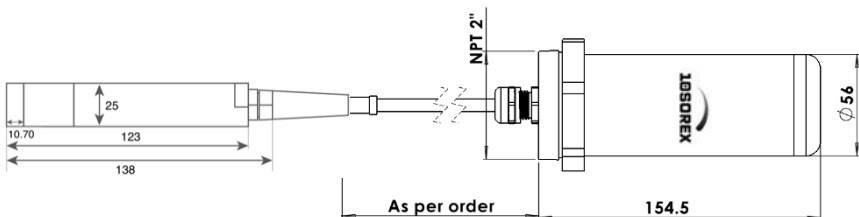

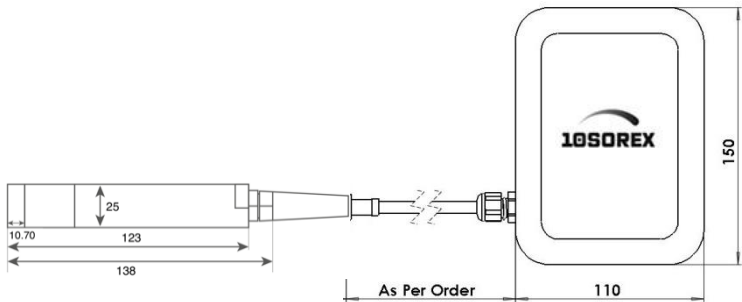


Composable&  
API first



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## MODEL GUIDE

Model	Drawing:
<b>C Model:</b> 	 <p>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</p>
<b>E Model:</b> 	 <p>IP68 sensor head, connected to IP65 ASA enclosure with on/off switch</p>

## 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



# CDO2-N

## ORDERING CODE

CDO2-N									
Communication Type									
B: NB-IoT					C: Cat-M1				
Measurement range									
S: 0 to 20 mg/L, 0 to 20 ppm, 0 to 200%									
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) <sup>1</sup>									
CDO2-N	B	S	C	S	S	I			

### Sample Product Code:

- **CDO2-N-B-S-C-S-S-I**

NB IoT dissolved oxygen sensor, measurement range of 0-200%, In cylindrical enclosure, standard cable length, with on/off switch and internal antenna.

### <sup>1</sup>) 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)

