DUC2-N Spec-sheet

NB-IoT **LTE-M**

NB IoT – Cat-M1 Corrosion Resistant Low Power Ultrasonic Distance and Level Sensor

- Compatible with most standard communication Protocols (UDP, LwM2M, MQTT, NIDD, etc.)
- Wide range of industrial applications
- High accuracy and repeatability
- Designed to meet outdoor applications
- Long-term durable performance in harsh environment
- Ultra-low power
- Suitable for liquid and solid media

TECHNICAL SPECIFICATION

Sensor

•	Range:	5,10	m
•	Accuracy: (combined linearity, hysteresis, repeatability)	±1 (typ.)	%Span
•	Resolution:	1	mm
•	Sensor Minimum Distance:	0 ~ 20cm for 5m range 0 ~ 50cm for 10m range	
•	Reading-to-reading stability:	1mm in 1m (Typ)	
•	Compensated Temperature:	-10 ~ +65	°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 (With UDP protocol/ More than 10 years for most applications)	

Physical Specification

•	Materials:	Enclosure: ASA/POM, Sensor Head: Parylene coating applied to the surface of the Aluminium transducer	
•	Weight:	~500	g
•	Protection Rate:	IP66	-

Communication

•	SIM Card Type	4FF Nano-SIM, from any Network Provider
•	Firmware Update:	Over The Air, Locally via Wireless Connectivity
•	Sampling Period:	Configurable via downlink (default 4 hours)
•	Power Consumption:	Power Saving: < 5uA, Transmission: < 220mA

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•	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 Maker, 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

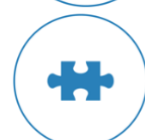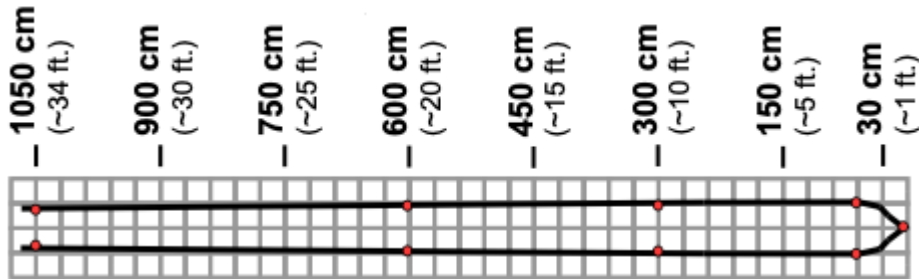|		
Encrypted & ultra-low power	Integratable	Dynamic alerting
Multi-tenant	Scalable	Composable& API first

DUC2-N Spec-sheet

Beam pattern

| 1050 cm (~34 ft.) | 900 cm (~30 ft.) | 750 cm (~25 ft.) | 600 cm (~20 ft.) | 450 cm (~15 ft.) | 300 cm (~10 ft.) | 150 cm (~5 ft.) | 30 cm (~1 ft.) |

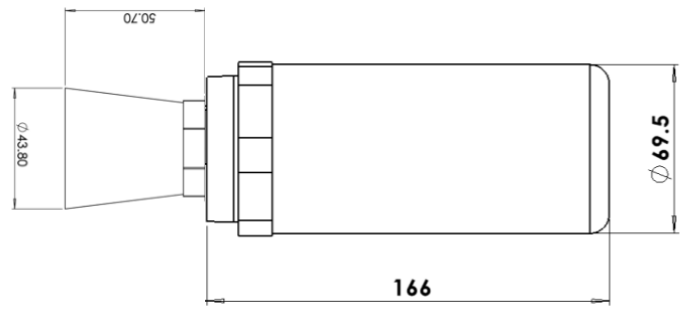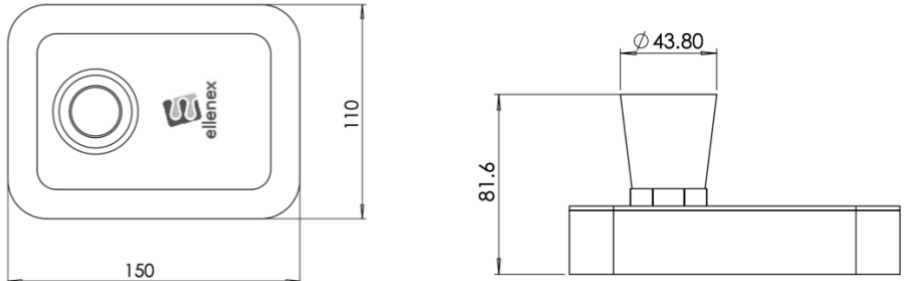**Typical beam patter for 30cm target mover left and right with the board parallel to the sensor face**

MODEL GUIDE

Model	Options:
C Model:	Cylindrical compact, POM enclosure 50.70 Ø 43.80 Ø 69.5 166
E Model:	Rectangular ASA enclosure with on/off switch 110 150 Ø 43.80 81.6

INDUSTRIES

- Water & Environment
- Agriculture & Farming
- Oil & Gas
- Marine& Oceanography
- Mining & Construction
- Smart Building & HVAC

DUC2-N Spec-sheet

APPLICATIONS

- Chemical Tanks
- Liquid Delivery Systems
- Water Resources Level
- Food industry

- Diesel Tank
- Liquid Storage
- Hydraulic Containers
- Wastewater Tank

ORDERING CODE

DUC2-N						
	Communication Type					
	B: NB-IoT		**C:** Cat-M1			
		Measurement Range				
		5, 10 meters				
			Enclosure			
			C5: Cylindrical housing, IP65	**E5:** Rectangular housing, IP65		
				Device Activation		
				S: on/off switch (Only for E Type)	**X:** No switch (always on)	
					Antenna	
					I: Internal	**E:** External
						Options
						(On request) [1]
DUC2-N	B	5m	C5	X	I	

Sample Product Code:

- **DUC2-N-B-5m-C5-X-I**
  NB-IoT ultrasonic distance sensor, range of 5m, with C5 housing (compact and IP65 rated), always on and with 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