



NB IoT - Cat-M1 Low Power Multi-point Soil Moisture, Temperature and Conductivity Sensor

- Compatible with most standard communication protocols (UDP, LwM2M, MQTT, NIDD, etc.)
- Ruggedised and maintenance-free
- High accuracy and repeatability
- Designed to meet outdoor applications
- Long-term durable performance in harsh environment
- Ultra-low power



TECHNICAL SPECIFICATION

Sensor

• Measurement principle	Measure dielectric constant properties of the soil medium and displays them as a volumetric water content (VWC%), Soil Temperature and Soil Salinity
• Accuracy	Moisture: +/- 2% @ 0% VWC to 50% VWC (with respect to dielectric) Salinity: +/- 5% @ 0-4dS/m at 10%-30% VWC Temperature: +/- 1 °C @ 25 °C (Useable salinity range: 0 to 6dS/m)
• Resolution	Moisture resolution: 0.01% Salinity resolution: 0.001dS/m Temperature resolution: 0.01 °C

Power

• Power Supply	Built-in Replaceable Lithium Battery, External Power (option)
• Rated Voltage	3.6 V
• Battery Lifetime	50,000+ readings / 10,000+ transmission (With ellenex platform and standard network quality)

Physical

• Materials	Enclosure: ASA or POM Probe: UV-stabilized ABS plastic
• Weight	~1100 g
• Protection Rate	IP66 or IP68 and UV Protected enclosure

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: < 200mA
• 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 (customized options available)
• Optional Features	• Attach without PDN (Packet Data Network) • Support for IPV6

MSS2-N Spec-sheet

- 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)

Visualization 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, 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 customization available on request



Encrypted & ultra-low power



Integratable



Dynamic alerting



Multi-tenant




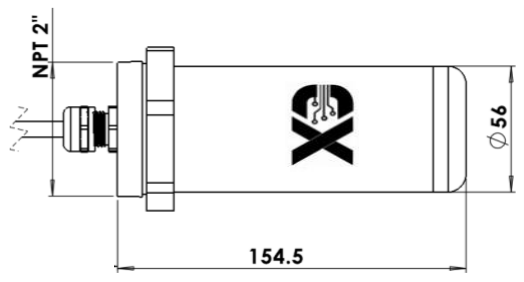

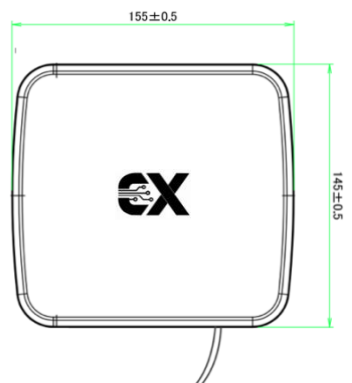
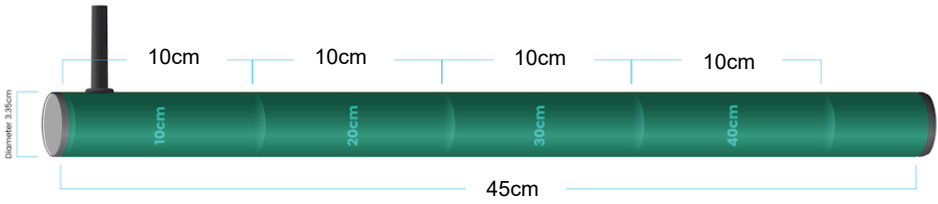
Scalable



Composable & API first

MSS2-N Spec-sheet

MODEL GUIDE

Model	Option / Schematic
C Model 	
E Model 	
Sensor Head	

INDUSTRIES



Agriculture & Farming



Water & Wastewater



City & Councils



Marine & Oceanography



Environmental Monitoring



Smart Building

MSS2-N Spec-sheet

APPLICATIONS

- Precision Irrigation Systems
- Soil Behaviour Analysis

ORDERING CODE

MSS2-N						
Communication Type						
C: LTE Cat-M1				Other options on request		
Sensor Type						
MT4: 4 level moisture and temperature sensor (total 8 data point)						
MTS4: 4 level moisture, temperature and salinity sensor (total 12 data point)						
Enclosure						
C6: Cylindrical				E6: Rectangular		
Device Activation						
S: With On/Off Switch				X: No Switch (Always On)		
Antenna Option						
I: Internal				EHG: High Gain External		
Options						
(On request)						
MSS2-N	C	MT4	C6	S	I	

Sample Product Code:

- MSS2-N-C-MT4-C5-S-I**
LTE Cat M1 Operated 4 level soil moisture and temperature sensor, with cylindrical enclosure, activated by on-off switch and internal antenna.