

# MRS2-N Spec-sheet



## NB IoT - Cat-M1 Low Power Tipping spoon rain sensor

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



## TECHNICAL SPECIFICATION

### Sensor

• Measurement principle	Tipping Spoon
• Rainfall Accuracy	Up to 250mm/hr.: $\pm 3\%$ of total or $\pm$ one tip of the spoon(0.2mm) whichever is greater
• Rain Rate Accuracy	$\pm 5\%$ for rain rates up to 250mm/hr.
• Rain Rate Resolution	0.1mm (configurable)

### Power

• Power Supply	Built-in Replaceable Lithium Battery, External Power (option)
• Rated Voltage	3.6 <span style="float: right;">V</span>
• Battery Lifetime	50,000+ readings / 10,000+ transmission (connected to ellenex platform and standard network quality)

### Physical

• Materials	Enclosure: ASA or POM Rain Collector: UV-stabilized ABS plastic
• Weight	2150 <span style="float: right;">g</span>
• 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: $< 5\mu A$ , 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	<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>

# MRS2-N Spec-sheet

## 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

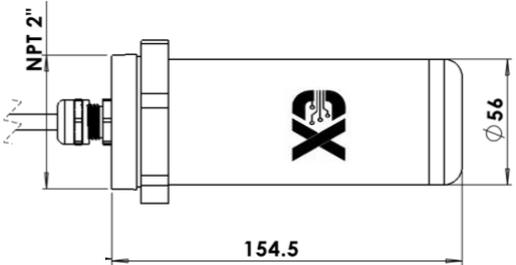


Scalable



Composable & API first

## MODEL GUIDE

Model	Option / Schematic
<p><b>C Model</b></p> 	

# MRS2-N Spec-sheet

## INDUSTRIES



Agriculture & Farming



Water & Wastewater



City & Councils



Marine & Oceanography



Environmental Monitoring



Smart Building

## APPLICATIONS

- Rain Monitoring Systems
- Weather Stations

## ORDERING CODE

<b>MRS2-N</b>							
<b>NB-IoT Communication Type</b>							
<b>B: NB-IoT</b>				<b>C: LTE Cat-M1</b>			
<b>Sensor Type</b>							
<b>TS: Tipping Spoon</b>							
<b>Enclosure</b>							
<b>C5: Cylindrical</b>							
<b>Device Activation</b>							
<b>S: With On/Off Switch</b>				<b>X: No Switch (Always On)</b>			
<b>Antenna Option</b>							
<b>I: Internal</b>				<b>EHG: High Gain External</b>			
<b>Options</b>							
(On request)							
<b>MRS2-N</b>	<b>B</b>	<b>TS</b>	<b>C5</b>	<b>S</b>	<b>I</b>		

### Sample Product Code:

- MRS2-N-B-TS-C5-S-I**  
NB IoT Operated low power tipping spoon rain sensor, with cylindrical enclosure, activated by on-off switch and internal antenna.