ENGLISH

METOS®
BY PESSL INSTRUMENTS

µMETOS NB-IoT

USER MANUAL

Version 2.1, 02-2022

Thank you for choosing an µMETOS NB-IoT weather station for monitoring your agrometeorological and other environmental parameters. The µMETOS NB-IoT has been designed to monitor data with a wide variety of sensor sets. Like all products of the METOS® family, it measures, logs and sends data to the FieldClimate platform. The users have access to data through the web and mobile applications as well as via API services which enables interface for other custom applications.

Additional services (ex. plant disease models and hyper localized weather forecasts) are available with a license fee.

µMETOS NB-IoT systems will be mainly used for:

- meteorological monitoring,
- site specific weather forecast corrected with local measurements,
- plant disease models,
- soil moisture and irrigation systems monitoring,
- hydrology and flood warning applications,
- environmental monitoring.

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YOUR µMETOS NB-IoT

The µMETOS NB-IoT consists of one plastic case containing the electronics, the battery and the internal or external antenna. It can be customized with a wide variety of sensors for soil moisture, water level, temperature, salinity and more.
In the package with the device you will also find, taped to the solar panel, a sticker with a unique serial number and the keys that grants you the option to register the product under your FieldClimate platform profile and access the measured data.

On the picture to the right:
µMETOS NB-IoT

MAIN PRODUCT VARIATIONS:

- **µMETOS BASE:** a basic µMETOS NB-IoT station with no physical sensors
- **µMETOS FROST:** base + Wet & Dry bulb temperature sensors
- **µMETOS DISEASE:** base + rain gauge, air temperature, air humidity and leaf wetness sensors
- **µMETOS ET0:** base + rain gauge, air temperature, air humidity, global radiation, wind speed sensor
- **µMETOS ET0 DISEASE:** base + rain gauge, air temperature and humidity, leaf wetness, global radiation, ultrasonic wind speed and direction sensor

Supported mobile networks:
µMETOS NB-IoT Gen. 4 comes with a Sierra Wireless HL7802 modem. The HL7802 module supports Cat-M1/NB1 worldwide networks with 2G "GPRS" fallback and is fully compliant with the 3GPP Release 13 standard. More about the supported frequencies and countries can be found at: https://www.sierrawireless.com/iot-solutions/products/hl7802/ .

Supported sensors:
List of supported sensors can be found in the extended manual, available on the metos.at/manuals website.

START-UP THE µMETOS NB-IoT

By default, the µMETOS NB-IoT weather station comes with a disconnected battery and based on your order, it can come with or without the SIM card.

To start up the μMETOS NB-IoT it requires opening the housing, optionally inserting the SIM card, checking the settings via the USB cable connected to the PC with the TeraTerm application and connecting the battery.

To use the NBIoT or Cat-M1 connectivity, you need to have a micro SIM card which is provisioned for the NBIoT/Cat-M1 network from the network provider and sufficient signal from the radio tower.

Opening the Housing
Video instruction:
https://bit.ly/3sl6xIW

Take housing off
Video instruction:
https://bit.ly/3L92rfz

Insert Sim and Turn on battery
Video instruction:
https://bit.ly/3rxnGzZ

Take out Sim and Turn off battery
Video instruction:
https://bit.ly/3B4weBj

Configuration, sensors and connectivity checkup (Running test)
Video instruction:
https://bit.ly/3AZVGbe

Full μMETOS NB-IoT user manual:
https://bit.ly/35JH9Vo
For more detailed info visit
metos.at/manuals

INSTALLING µMETOS NB-IoT

Before the final installation on the pole, it is advised that the user reads and performs items written in the startu-up section of this manual.

The µMETOS NB-IoT has to be fixed on the pole: at the bottom of the unit there is a plastic ring with a metal clamp on. Make sure that the pole is as vertical as possible by checking the bubble level on the rain gauge to ensure the right installation verticality of the pole or use a leveler.

Place the solar panel on the main plastic box. In the northern hemisphere, it should be facing south while in the southern hemisphere it will be facing north. Solar panel require direct view to the Sun, not obstructed or in dark shades to ensure good battery charge.

Rain gauge is integrated on the plastic box as depicted in the above figure µMETOS NB-IoT. Make sure the sensors are installed correctly.

USE YOUR µMETOS NB-IoT

To start using services we provide, the weather station needs to successfully communicate with our FieldClimate cloud. After the first data is delivered to the cloud, you need to register on the FieldClimate platform, which gives you access to the transmitted data in graphs or tables. FieldClimate also provides a powerful decision support system for growing your crops (plant protection, irrigation, sowing, harvesting, fertilizing).

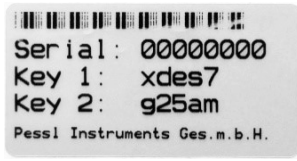
REGISTER AS A NEW USER ON FieldClimate.com

1. Open fieldclimate.com and log in as an existing user or register as a new FieldClimate user.

2. After creating a new account you will receive an email with a confirmation link with which you confirm creation of your FieldClimate profile.

ADD YOUR µMETOS DEVICE TO YOUR ACCOUNT

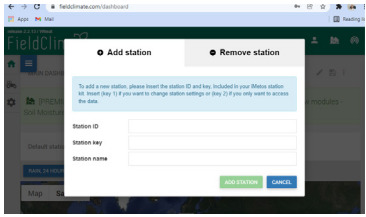
1. Locate the sticker with the device serial number and Key1 and Key2 passwords on the product.



Key 1 gives you full (admin) access and enables you to change all the settings and set up the μMETOS.

With Key 2 the user is not allowed to change the station parameters, but can access all the data.

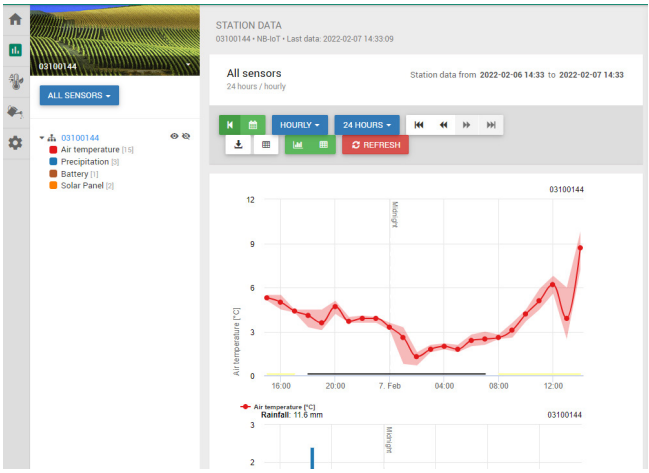
2. To add your μMETOS device, click on the icon in the top right corner User Menu > Add/Remove station. It will ask you for the Sta tion Serial number (SN) and the station key.



THE FieldClimate DASHBOARD, STATION DATA AND SETTINGS

In the **Dashboard**, the user can manage the fast access to the services of highest interest. On the top right corner, Station List allows you to choose among all the registered devices.

On the navigation bar, Station data page displays the data measured by your device. Data can be viewed in detailed graphs and tables. You can access the structured menu, which allows you to define time-series resolution and export data in a chart or table. On the left side, you can see all sensors connected to your μMETOS NB-IoT.



With the activation of licenses for high-precision localized weather forecast and plant disease models, it is possible to access all data of these additional services. To activate them, contact your local distributor or license@metos.at.

On the Station settings page you can configure your device.

Station settings > Sensors and nodes: You can define a custom name for your station and nodes connected to it. For convenient viewing of data, you can also rename each sensor and customize its color in the graph.

For further inquiries visit metos.at/fieldclimate-manual.

MAINTAINING YOUR µMETOS NB-IoT

The weather station should be checked periodically to ensure that sensors are in optimal condition. Regular maintenance is necessary for flawless operation and durability.

At the beginning of the new season, check that the station is working correctly; data must be transmitted at the set interval to FieldClimate. Keep the solar panel and sensors clean, especially the rain gauge.

Clean rain gauge ensures correct rainfall measurements. It also needs to be leveled by checking the bubble indicator and not obstructed by leaves, insects or debris that could prevent it from functioning properly. Check if the leaf wetness sensor has the appropriate filter paper intact and positioned correctly. When in doubt about the rainfall measurements, the first thing is to check the rain gauge for any debris.

When the solar panel of the µMETOS NB-IoT is exposed to the sun and gets enough sunlight it should constantly recharge the battery of the system.

Cleaning and maintenance

Video instruction:

https://bit.ly/3J9PmR8

For full user manual please visit:
https://bit.ly/35JH9Vo