



μMETOS CLIMA

USER MANUAL

Version 1.0, 02-2020



Thank you for choosing μMETOS station for monitoring your agrometeorological and other environmental needs. The μMETOS CLIMA has been designed to monitor data with a different variety of sensors. Like all products of the iMETOS family, it measures, logs and sends data to the FieldClimate cloud. The users have free access to data through web and mobile applications. Additional services (like plant disease models and hyper localized weather forecasts) are available upon a license fee. Web API is available for interface with other custom applications.

μMETOS CLIMA systems will be mainly used for:

- Agro -Meteorological monitoring.
- Site Specific weather forecast corrected with local measurements.
- Plant disease models (depending on the configuration of the equipment).
- Soil moisture and irrigation systems monitoring.
- Hydrology and flood warning applications.
- Environmental monitoring.

LPWAN DATA LOGGER FOR REMOTE AND URBAN AREAS (with LoRaWAN® or NBloT connectivity)

µMETOS CLIMA is a LPWAN (Low Power Wide Area Network) weather station that operates on LoRaWAN® or NBloT network. It can be connected to any existing LoRaWAN® or NBloT network, if present at your location. LoRaWAN or NBloT configuration can be required based on network provider configurations.

It is designed to monitor basic meteorological parameters (rain and temperature, humidity, frost, leaf wetness, solar radiation, wind speed), soil characteristics (soil moisture and soil temperature), as well as water level, water EC and pH.

µMETOS CLIMA can handle additional sensors if required. Data is permanently measured in 5-minute intervals and sent every 15 minutes to the server. All the data is synchronized in the FieldClimate platform.

YOUR µMETOS CLIMA

The µMETOS CLIMA consists of one plastic case containing the electronics, the battery and the internal or external antenna. In the package with the µMETOS you will also find, taped to the solar panel, a sticker with a unique serial number and the keys that grants you access to the data in the FieldClimate platform.

On picture:

µMETOS CLIMA ET₀ FARMING

1. Solar panel;
2. Global radiation sensor;
3. Logger and modem;
4. Battery;
5. Rain gauge;
6. Leaf wetness;
7. Temperature and relative humidity sensor with radiation shield;
8. Wind speed sensor;
9. Soil temperature.



PRODUCT VARIATIONS

Communication: All product variations use either LoRaWAN® or NBloT communication protocols.

µMETOS® CLIMA has predefine set of packages covering most of the applications for farming, frost monitoring, disease models, ET, tunnel, hydrology and more.

START-UP THE µMETOS CLIMA

1. Open the housing by un-screwing the 6 screws downside.
2. Loosen the nut from the cable gland on the battery.
3. Pull out the case cover letting the battery cable loop pass through the gland.



µMETOS CLIMA LoRa

For successful data communication, LoRa network needs to be available and covering the deployment location of the iMETOS LoRa device.

The µMETOS CLIMA LoRa needs to be provisioned on the LoRa network server (provided by the LoRa network provider) and integration between LoRa network provider and FieldClimate is needed.

All our LoRaWAN® based products are by default provisioned on our TTN LoRaWAN® network provider account. When there is a need to use different LoRaWAN® network provider this can be done easily.

There is no requirement for a SIM card. If fine tuning of the configuration is needed, the user must open the housing and connect the board to the PC via serial-to-usb cable (provided with the station). The menu description is available on the extended manual for µMETOS CLIMA LoRa (metos.at/imetos-lora-manual/#D-3). During the complete process you will get support for each step by using our ticketing system support@metos.freshdesk.com.

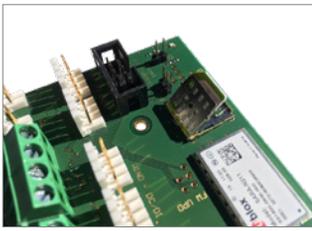
µMETOS CLIMA NBloT

To use the NBloT connectivity, you need to have a micro SIM card which is provisioned for the NBloT network from the network provider.

Unplug the battery, but keep the solar panel plugged in. To insert a SIM card:



1. Slightly push the cover down and toward the center of the µMETOS NB-loT board.
2. Cover should unlock and you can open it.



1. Insert the SIM card in correct orientation (contacts should be on the bottom side and the marking corner in the upper left position).

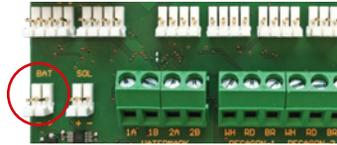


4. Close the cover and push it gently outward so the cover gets locked.

Once the SIM card is inserted, connect back all the cables to the board.

Correct MCC, MNC and APN values for your sim card provider need to be set via the terminal mode menu on Tera Term or PI Uploader.

5. Plug the battery cable into the BAT connector on the PCB (red circle).

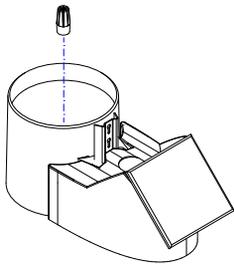


6. Close the cover to its final position.

For more detailed info visit metos.at/micrometos-clima/#D-1.

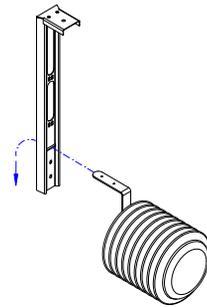
INSTALLING YOUR μ METOS

1.



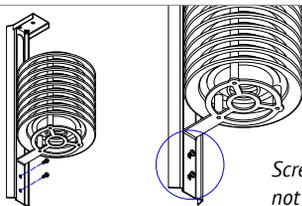
Insert the filter of the rain gauge.

2.



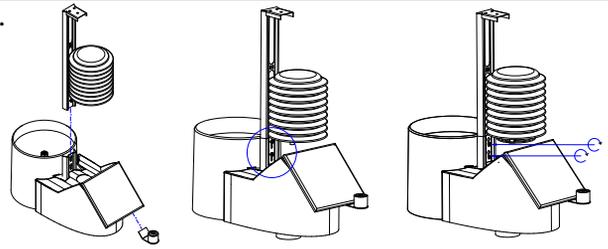
Insert the holder of the temperature and humidity sensor into the metal straight part.

3.



Screw the 2 screws (M3-6mm) – not fully in.

4.

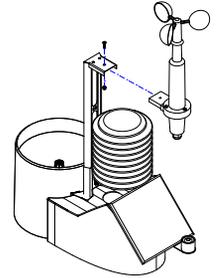


Insert the metal assembled part vertically. Enter the 2 screws in the key-hole slots and fix it with the 2 screws. Place the pyranometer sensor down the solar panel with a sticker included.

5.

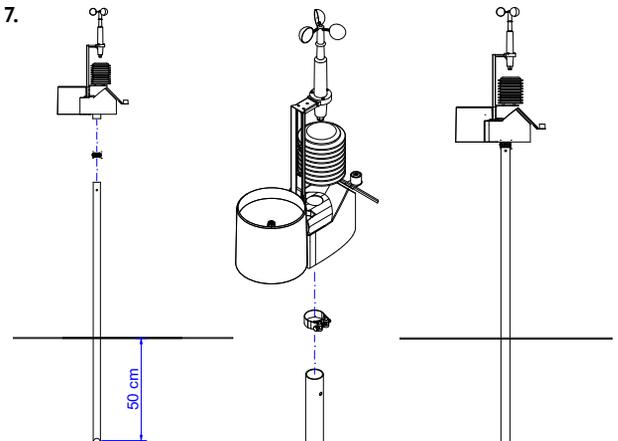
The leaf wetness sensor can be tied to a branch of the plant slightly inclined with the filter paper looking up. Mount it in a position that allows the sensor to pick up early rain and to stay wet in the shade.

6.



Install the wind speed sensor on the top holder and fix it with the screw and a self locking nut.

7.



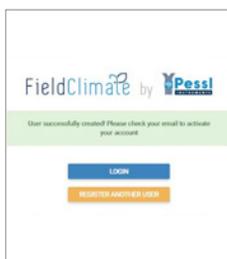
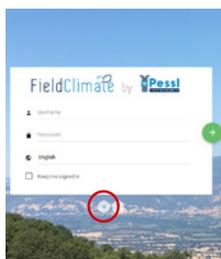
Set the mounting metal pole for at least 50 cm into the ground, keeping the pole as vertical as possible using a level. Hammer the metal pole, keeping the top protected with a piece of wood. The height of the unit should be 120cm above the ground. If mounted too close to the ground, you will have warmer temps during the day. The μ METOS has to be mounted on the pole: at the bottom of the unit there is a plastic ring with a metal clamp on it. Check the bubble level on the rain gauge to ensure the μ METOS is installed vertically of the pole.

8. The solar panel should face south in northern hemisphere while in the southern hemisphere it should point towards north.

USE YOUR μ METOS

To start using services Pessl Instruments provides, you need to register on the FieldClimate platform (see below), which will provide you access to the various sensor 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 ng.FieldClimate.com
OR DIRECTLY FROM THE APP**



1. Go to ng.fieldclimate.com/login and click the button "+".

2. Insert your personal data & e-mail.

3. Check your e-mail and click on the link to activate the user account you created.

ADD YOUR μ METOS DEVICE TO YOUR ACCOUNT

Now you can login to ng.FieldClimate.com. To add your μ METOS CLIMA device, click on the icon in the top right corner **User Menu > Add/Remove station**. It will ask you for a Station Serial number (SN) and a station key. The silver sticker, (in the figure) which came with your μ METOS CLIMA, has to be used at this point. Key 1 gives you full (admin) access and enables you to change all the settings and set up the μ METOS CLIMA (for example data transfer interval, SMS warning, etc.), with Key 2 the user is not allowed to change the station parameters, but can access all the sensor data.



Add station **Remove station**

Use the Station ID and key that came with your μ Metos station to add it to your list. Use key 1 if you want to be able to change station configuration settings or key 2 if you want read-only access.

Station ID:

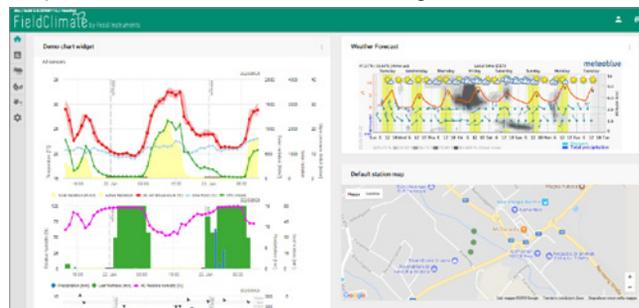
Station key:

Station name:

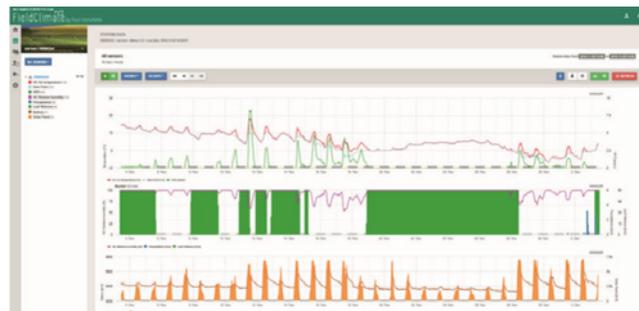
ADD STATION **CANCEL**

DASHBOARD, STATION DATA AND SETTINGS

The new **Dashboard** is designed with a widgeted structure, which allows the user to customize access to the services of highest interest. On the top right corner, **Station List** allows the user to choose among all the μ METOS/iMETOS devices and select a single one.



In the navigation bar, the **Station data** page displays the data measured by your μ METOS CLIMA station. 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 image/table format. On the left side, you can see all sensors connected to your μ METOS CLIMA (see figure below).



With the activation of licenses for site specific localized **weather forecast** and plant **disease models**, it is possible to set these services for each of your iMETOS stations. To activate them please contact your local distributor or license@metos.at.

On **Station settings** page you can configure your μ METOS.

Station settings > Configuration: Under Time zone and location, you need to provide the precise information, as weather forecast and other services require it for accuracy. Under Logging and transfer settings, you can define how your μ METOS station logs and sends data. Please note that the μ METOS station is delivered with the default factory settings (as in the figure on the next page). More options are available by clicking the "Advanced options" button.

Logging and transfer settings
Setup how your station is sending data

Logging settings

Logging interval

Scheduler

<input type="checkbox"/> 00:00	<input type="checkbox"/> 04:00	<input type="checkbox"/> 08:00	<input type="checkbox"/> 12:00	<input type="checkbox"/> 16:00	<input type="checkbox"/> 20:00
<input type="checkbox"/> 01:00	<input type="checkbox"/> 05:00	<input type="checkbox"/> 09:00	<input type="checkbox"/> 13:00	<input type="checkbox"/> 17:00	<input type="checkbox"/> 21:00
<input checked="" type="checkbox"/> 02:00	<input checked="" type="checkbox"/> 06:00	<input checked="" type="checkbox"/> 10:00	<input checked="" type="checkbox"/> 14:00	<input checked="" type="checkbox"/> 18:00	<input checked="" type="checkbox"/> 22:00
<input type="checkbox"/> 03:00	<input type="checkbox"/> 07:00	<input type="checkbox"/> 11:00	<input type="checkbox"/> 15:00	<input type="checkbox"/> 19:00	<input type="checkbox"/> 23:00

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.

MANTAINING THE μ METOS

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, also make sure it is levelled by checking the bubble indicator and not obstructed by leaves, insects or debris that could prevent it from functioning properly. Check if leaf wetness sensor has the appropriate filter paper intact and positioned correctly.

When the solar panel of the μ METOS is exposed to the sun and unit receives enough sunlight it will constantly recharge the battery for operations.

For full user manual please visit:
metos.at/manuals



Visit metos.at/terms-of-use/ to view legal information for Pessl Instruments products and services.