

LoRAIN LoRA

USER MANUAL

Version 1.1, 07-2022



Thank you for choosing a LoRAIN LoRA station for monitoring your agrometeorological conditions as part of a FieldClimate decision support system. Users are strongly recommended prior to ordering their LoRA products, to use the Order-Details-Form. This will help to set up the right parameters for the products based on desired preferences before delivery. Like other products of the METOS® family, LoRAIN LoRA measures and sends data to the FieldClimate platform via a Network Provider with the help of a Gateway. This is the default production standard. Users have free access to data through web, mobile applications and decision support systems. Users can also decide to provision their end devices with any network provider of their choice and also have the option to send the data to their own Application Server other than FieldClimate.

LoRAIN LoRA systems will be mainly used for:

- Precipitation
- Air-Temperature and Relative Humidity
- Soil volumetric water content and temperature
- Soil water tension

YOUR LoRAIN LoRA

The LoRAIN LoRA consists of one plastic casing containing the electronics, the battery and the rain gauge. It can be customized with sensors for precipitation, temperature and a sensor-package for irrigation and plant protection systems. In the package with the LoRAIN you will also find, taped to the top of the solar panel, a sticker with a unique serial number and the keys that grants you the access to the FieldClimate platform.

*On the picture to the right:
LoRAIN LoRA*



MAIN PRODUCT VARIATIONS:

- **LoRAIN LoRA rain only:** rain gauge only
- **LoRAIN LoRA:** rain gauge, air temperature, relative humidity
- **LoRAIN LoRA soil:** rain gauge + air temperature, relative humidity + Watermark™ (water tension) + PI54 VWC (Volumetric water content and soil temperature)

Supported LoRA networks:

The LoRAIN station comes equipped with the the appropriate modem depending on geographical location of deployment:

• **RN2483 Module**

The RN2483 is a fully-certified 868MHz module based on wireless LoRaWAN technology. This Module utilises a unique spread spectrum modulation within the sub-GHz band to enable long-range, low power, and high network capacity. This module supports all European Union (EU) markets.

• **RN2903 Module**

The RN2903 is a fully-certified 915 MHz module based on wireless LoRa® technology. Unlike the RN2483, this module is tailored for USA, Canada, Australia, Brazil and some countries in South America and Asia markets. (Contact PI for further clarification).

START-UP THE LoRAIN LoRA

By default, the LoRAIN station comes with a connected Supercapacitor that collects energy from the connected Solar Panel. Based on the filled Order-Details-Form, if default parameters were set, the station should already be in FieldClimate.cable connected to the PC with the TeraTerm application and connecting the battery.

For successful data communication, LoRaWAN® network coverage should be available at the deployment location of the LoRAIN device. This coverage comes from a LoRaWAN® Provider or from the user's own LoRa® Gateway. There is no need for a SIM-Card.

In situations where fine tuning of the configuration or parameter settings are needed, the client should:

1. Remove the USB-Port-cover, labelled PG9 at the bottom of the device and connect it using the USB input via a micro-USB cable connected to the PC using the PI-Service Terminal. The user will get the service menu and modem configuration scripts.
2. In situations where other services are required, open the case (after unscrewing the 6 screws at the bottom).
3. Close the cover to its final position and tighten the screws after setting of parameters.

INSTALLING LoRAIN LoRA

The LoRAIN has to be fixed to a vertical pole. Located at the back of the unit is a metal mounting frame. Unscrew the small screws, pass the pole through the hole in the frame and fix it with the long screws (to ensure a longer lasting product, use the lining disk).

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. Make sure all sensors are installed correctly.

USE YOUR LoRAIN LoRA

To start using services we provide, the station needs to be registered on the FieldClimate platform, which gives access to the data in graphs and tables. FieldClimate also provides a powerful decision support system for growing crops.

REGISTER AS A NEW USER ON *FieldClimate.com*

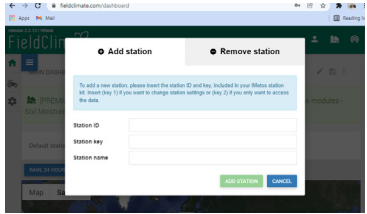
1. Open fieldclimate.com and log in as an existing user or register as a new FieldClimate user.
2. After creating a new account you will receive an email with a confirmation link with which you confirm creation of your FieldClimate profile.



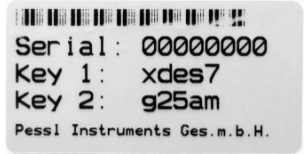
ADD YOUR LoRAIN DEVICE TO YOUR ACCOUNT

1. Login to FieldClimate.com with your credentials.

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



2. 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 LoRAIN.

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

THE FieldClimate DASHBOARD, STATION DATA AND SETTINGS

In the new **Dashboard**, the user can manage the fast access to the services of highest interest. On the top right corner, the station list allows you to choose among all registered devices. On the navigation bar, select the **data** page from 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 LoRAIN.



On the Station settings page, you can configure your LoRAIN device by navigating through **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 customise its colour in the graph.

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

MAINTAINING YOUR LoRAIN

The weather station should be checked periodically to ensure that the sensors are in optimal conditions. 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.

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.



Cleaning and maintenance

Video instruction:

<https://bit.ly/3J9PmR8>



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