

iMETOS® NB IoT



iMETOS® NB IoT is a new generation of the iMETOS weather stations, that operates on the NB IoT network. iMETOS® NB IoT can be connected to existing NB IoT network, if present at your location. Mounting in the field is done in minutes. iMETOS® NB IoT can handle various sensors. Data is permanently measured in 5-minute interval and sent every 15 minutes to the server. All the data is synchronized and shown on FieldClimate.com.



TECHNICAL SPECIFICATIONS

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|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model/Type | Processor PIC18 with NB IoT modem |
| Sensors layout | 3 fixed analogue inputs: wind speed, leaf wetness and rain gauge 5 digital inputs: automatic sensor recognition |
| Housing | UV resistant polycarbonate plastic (Protection class IP65) |
| Dimensions without sensors | 30 cm L x 16 cm W x 19 cm H |
| Weight without sensors | 1.6 kg |
| Expected range | wherever NB IoT network is available |
| Battery | 6V charging battery with solar panel |
| Measuring interval | 5 minutes (by default) |
| Logging and transmission interval | 15 min (by default) |
| Supported sensors | 1 rain gauge 0.2 mm or 1 reed watermeter, 1 leaf wetness or 1 pressure switch, 1 temperature & relative humidity, 2 Watermark sensors, 2 Decagon sensors, 2 temperature sensors (soil, water, leaf, wet bulb) and 1 DC input (global radiation, barometric pressure, water level ...) |

iMETOS® MobiLab



iMETOS® MobiLab is a mobile soil lab. It is a completely new concept which integrates soil nutrient analyses into a single microchip. After the soil samples are extracted from the field, the sample preparation is done right on the field or in the office.

The filtered sample solution is injected into a capillary type chip to which a high electric voltage is applied. Many of the dissolved chemical compounds are electrically charged and start to migrate in the electric field. Every molecule type migrates with a different speed through the liquid medium, depending on its molecule size and charge. The sample ingredients are separating and reach a detector one after another at different migration times. The concentration of each sample compound can be measured individually.

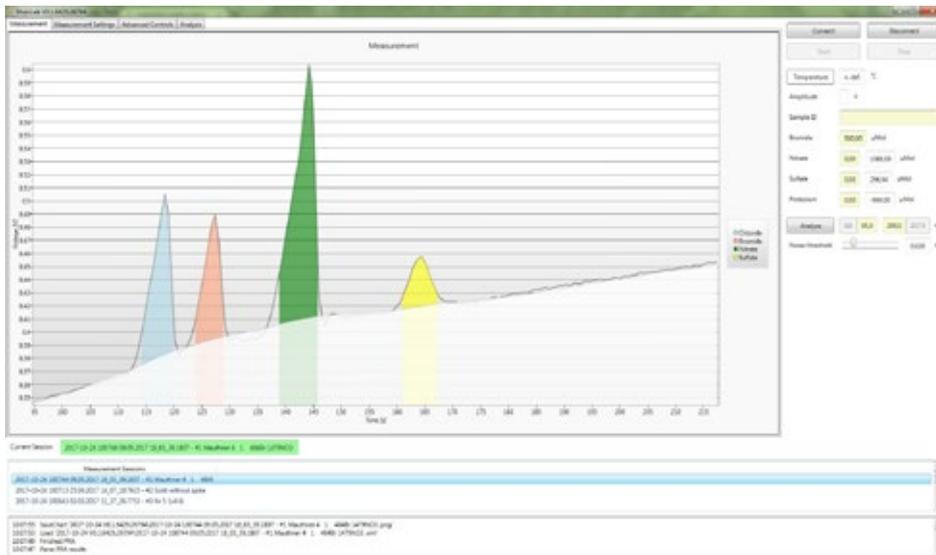
This technology also works for on-site measurements in field conditions and can be operated by users without laboratory knowledge. The measured data is related to GPS coordinates and is sent via telecommunication to our web-cloud, where it is saved and can be accessed by several users.

The possibility to transfer the data to machine-readable formats is under development, allowing the automatic site-specific variable rate application with precision farm machinery (e.g. fertilizer spreaders, sprayer etc.).

Sample analysis will be geographically referential and logged to FieldClimate.com.

TECHNICAL SPECIFICATIONS

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|------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Minimum sample volume | 0.250 ml |
| Measurement range | 5-1000 ppm; 0.01-0.5 g/kg |
| Resolution | 0.5 ppm; 1 mg/kg |
| Accuracy | For measurements of liquid concentrations (ppm): $\pm 10\%$ For measurements of soil concentrations (mg/kg): $\pm 15\%$ |
| Chip lifetime | approximately 300-500 tests but maximum 1 month after breaking the sterile packaging |
| Battery capacity | 12 hours of measuring time, 3 months in standby |



HOW TO USE iMETOS MOBILAB

1. Take soil sample.
2. Mix sample, remove stones and plant debris, and then sieve it.
3. Weigh 10 g of the sieved sample into a falcon tube.
4. Add 20 g (= 20 ml) of the extraction buffer.
5. Close the falcon tube and put it on the shaker for 30 minutes.
6. Insert chip into the iMETOS MobilLab.
7. Close the chip clamp by pushing the lever down.
8. Connect the iMETOS MobilLab to electricity and USB for data processing.
9. Now remove the falcon tube from the shaker and leave it to sediment for 20 min.
10. Transfer supernatant into a prepared Eppendorf and from there into the iMETOS MobilLab analysis slot. Push play at the program button.

