METOS®
BY PESSL INSTRUMENTS

2026

Product Portfolio

Technical Catalogue

www.metos.global

Devices

Sensors

Nested Approach to IoT Agriculture

Agriculture has changed dramatically in the last two decades and fast developing technologies will continue to have a tremendous influence on the farming practices in the years to come. IoT in agriculture is gaining importance since it helps monitor multiple on-farm assets all at once. But how does it work?

The Nested or Holistic approach means connecting many different devices/solutions that are strategically placed in fields. Pessl Instruments connects all the dots, makes it easier to control your farm and fields, so you don't have to worry about important management decisions being overlooked. This way you avoid unnecessary trips to the field, know exactly what the conditions at any given time are, make timely decision about irrigation, fertilizing, pesticide application, harvesting, and more 24/7 all year round.

For the nested approach to work, you need multiple devices to monitor multiple issues in your field and around your farm; having just one weather station cannot provide enough data to respond to everything your farm needs.

Turning Information Into Profits. www.metos.global

METOS® by Pessl Instruments -

The Revolution of Decision Making for Your Farm

No matter which crop, soil, or part of the world is in question, digital IoT agriculture solutions will reduce guess work and enable data driven decisions for:

- **improved quality of your yield,**
- **enhanced productivity of your team, and**
- **increased profit of your farm.**

At the same time they will help:

- **optimize input use (water, energy, fertilizers, chemicals, workforce),**
- **reduce the overall impact on the environment.**

Pessl Instruments has been serving growers, researchers and managers in 85 countries for more than 40 years. Customizable digital IoT agriculture hardware and software solutions cover all needs, pain points and challenges that boots on the ground face in their everyday work and we are proud to make the burden of decision making a bit lighter.

METOS IS APPLICABLE IN MULTIPLE SECTORS

AGRICULTURE · HYDROPONICS AND GREENHOUSES · LANDSCAPE (GOLF AND TURF) · CITY CLIMATE · ANIMAL WELFARE · RESEARCH · HYDROLOGY AND FLOOD WARNING · METEOROLOGY

PESSL INSTRUMENTS IN NUMBERS & FACTS

A global ecosystem with headquarters in Austria

OVER 120 EXPERTS
AI specialists, Satellite experts, Plant Pathologist, Entomologists, Modelers, Hardware and Software developers, Researchers

16 SUBSIDIARIES
Global brand with local support

In-house development and manufacturing

80.000+
Stations deployed worldwide

1 MIO +
Sensors connected

INTRODUCTION

GLOBAL INTERFACE PARTNERS

API PARTNERS

TELECOMMUNICATION PARTNERS

SENSOR PARTNERS

INPUT INDUSTRY PARTNERS

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Devices

METOS 5
iMETOS 3.3
miniMETOS
METOS VWS
Hybrid Station Extension
iSCOUT
CropView
WorkTrack & Tags
METOS TSM
Dualex
N-Pilot® 2.0

METOS 5

https://metos.global/metos5/

METOS 5 is a weather station that can utilize different connectivity options to deliver the measured sensor data to the FieldClimate Cloud. It is designed to support various different sensors for meteorological monitoring (rainfall, air temperature, relative humidity, ...), soil measurements (soil moisture, soil temperature, ...), irrigation systems monitoring (water pressure, water level, ...), etc. Thus, everything that the user needs, with the possibility for further expansion. Modularity provides its user the chance to get exactly what they need to get more yield from their fields. By default, the sensor's data is consistently logged in 15-minute intervals and sent every 60 minutes to the FieldClimate Cloud, this can be changed to fit the specific monitoring needs.

To mitigate connectivity issues in remote areas, the station saves data from the last few months in its internal storage. Once the connectivity with the FieldClimate is restored, the stored measurements are automatically retransmitted. All data is synchronized and securely stored on the FieldClimate platform, where it is fully integrated with additional Pessl Instruments services and available for further integration via the API. Some communication modules also support an external antenna for enhanced connectivity and a built-in GPS sensor for precise location tracking.

TECHNICAL SPECIFICATIONS

Housing	ABS (Protection class IP67)
Connectivity	Various, depending on the communication board
Battery	6V 4.5A/20HR charging battery
Solar panel	Dimensions: 13.5 x 13.5 cm, 1,5 Watt solar panel
Dimensions (with rain gauge)	50.6 cm L x 38.9 cm W x 22.5 cm H
Weight (with rain gauge)	2.25 kg

Product Variations

	BASE	FROST	200	250	270-MWS	280-MWS	300-MWS	280 MWS-D	300 MWS-D
Order number	*700500 (EG912) 700501 (HL7800) 700502 (HL7802) 700503 (WIFI)*	*700510 (EG912) 700511 (HL7800) 700512 (HL7802) 700513 (WIFI)*	*700520 (EG912) 700521 (HL7800) 700522 (HL7802) 700523 (WIFI)*	*700530 (EG912) 700531 (HL7800) 700532 (HL7802) 700533 (WIFI)*	*700540 (EG912) 700541 (HL7800) 700542 (HL7802) 700543 (WIFI)*	*700550 (EG912) 700551 (HL7800) 700552 (HL7802) 700553 (WIFI)*	*700560 (EG912) 700561 (HL7800) 700562 (HL7802) 700563 (WIFI)*	*700570 (EG912) 700571 (HL7800) 700572 (HL7802) 700573 (WIFI)*	*700580 (EG912) 700581 (HL7800) 700582 (HL7802) 700583 (WIFI)*
Precipitation	✗	✗	✓	✓	✓	✓	✓	✓	✓
Wet & Dry Bulb Temperature	✗	✓	✗	✗	✗	✗	✗	✗	✗
Air Temperature	✗	✗	✓	✓	✓	✓	✓	✓	✓
Leaf Wetness	✗	✗	✓	✓	✓	✗	✓	✗	✓
Global Radiation	✗	✗	✗	✓	✗	✓	✓	✓	✓
Wind Speed	✗	✗	✗	✗	✓	✓	✓	✓	✓
Wind Direction	✗	✗	✗	✗	✗	✗	✗	✓	✓
Dew Point	✗	✗	calculated	calculated	calculated	calculated	calculated	calculated	calculated
VPD	✗	✗	calculated	calculated	calculated	calculated	calculated	calculated	calculated
Delta T	✗	✗	calculated	calculated	calculated	calculated	calculated	calculated	calculated
ET_0	✗	✗	✗	✗	✗	✗	✗	calculated	calculated

FROST MONITORING INTERVALS

Sensor Temperature value*	Measurement interval [min]	Logging interval [min]	Transmission interval [min]
≥ 8 °C	5	10	60
< 8 °C & ≥ 4 °C	1	5	15
< 4 °C & ≥ –6 °C	1	5	5
< –6 °C & ≥ –8 °C	1	5	15
< –8 °C	5	10	60

* Sensor for observing the temperature values needs to be selected in the device configuration menu, default sensor Wet bulb temperature.

DEFAULT INTERVALS

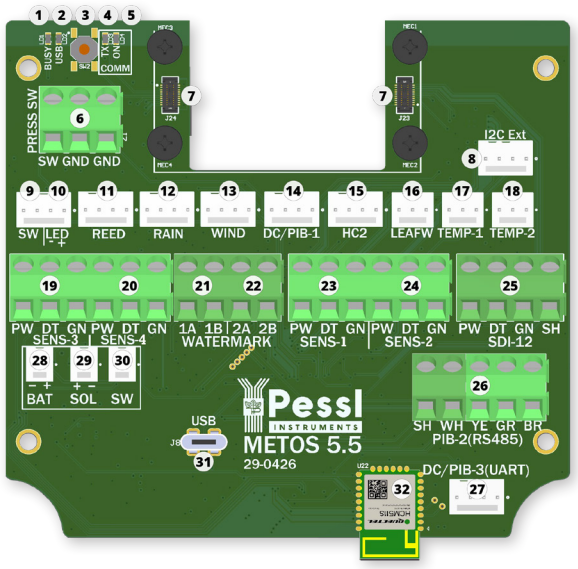
Measuring interval	Logging interval	Transmission interval
5 minutes	10 minutes	60 minutes

METOS 5

Communication and IOs

METOS 5 requires one METOS 5 Communication board for communication with the FieldClimate Cloud. There are several different METOS 5 Communication boards available, and they support different technologies: 2G, 3G, 4G, LTE, Cat-M1, NB-IoT, NTN, Wi-Fi, LoRaWAN. Select the most suitable communication technology based on your needs.

METOS 5 LoRaWAN, Wi-Fi and 4G (suitable also for 2G, 3G, 4G, NB1, NB2 and Cat-M1 networks) communication boards support external antenna options to get the best possible signal strength in very demanding locations.



More on possible other sensors connected to the inputs, their required configurations, input technical details can be found in the **METOS 5 extended manual**. List of supported sensors is a subject to change in future firmware versions.

IOs	Description
1 - BUSY	System Status LED
2 - USB	USB Status LED
3 - SW2	Connect (1 sec) / Reset (6 sec) Button
4 - TX	Transmission Status LED
5 - ON	Communication board Status LED
6 - PRESS SW	Pressure switch sensor input
	Default: PI Pressure Switch sensor.
	Communication protocol: A/D input
7 - J24 & J23	Communication board connectors
8 - I2C Ext	I2C sensor input
	Default: PI Air Temperature & Relative Humidity sensor.
9 & 10 - SW | LED	External Button with LED (optional)
11 - REED	REED sensor input
	Default: PI Water Counter sensor
	Communication protocol: Reed relay/switch input
12 - RAIN	RAIN sensor input
	Default: PI Rain Gauge sensor
	Communication protocol: Reed relay/switch input
13 - WIND	WIND sensor input
	Default: PI Wind Speed sensor.
14 - DC/PIB-1	DC/PIB-1 sensor input (Duty Cycle & PI Bus sensors)
15 - HC2	HC2 sensor input (Hygroclip)
	It supports the Hygroclip Air temperature & Relative Humidity sensor.
16 - LEAFW	LEAFW sensor input
	It supports the PI Leaf Wetness sensor.
17 - TEMP-1	Temperature sensor input
	Default: PI Air temperature sensor
	Configurable to: PI Soil temperature, PI Wet bulb, PI Dry bulb, Leaf temperature PT1000, Black body temperature PT1000, Water temperature...
18 - TEMP-2	Temperature sensor input
	Default: PI Soil temperature sensor
	Configurable to: PI Air temperature, PI Wet bulb, PI Dry bulb, Leaf temperature PT1000, Black body temperature PT1000, Water temperature...
19 - SENS-1	PI-Bus/Decagon/Meter group sensor input 1
	Default configuration: PI Bus input.
20 - SENS-2	PI-Bus/Decagon/Meter group sensor input 2
	Default configuration: PI Bus input.
21 - WATERMARK 1	WATERMARK sensor input 1
	Default: Irrometer Watermark Soil Moisture sensor
22 - WATERMARK 2	WATERMARK sensor input 2
	Default: Irrometer Watermark Soil Moisture sensor.
23 - SENS-3	PI-Bus/Decagon/Meter group sensor input 3
	Default configuration: PI Bus input.
24 - SENS-4	PI-Bus/Decagon/Meter group sensor input 4
	Default configuration: PI Bus input.
25 - SDI-12	SDI-12 sensor input
	Supports two in parallel PI Profile Probes, Sentek Drill&Drop, and TriSCAN Probes.
	Two probes will be supported in future firmware updates.
26 - PIB-2 (RS485)	PI Bus / RS485 sensor input
27 - DC/PIB-3 (UART)	DC / PI Bus / UART sensor input
	Default: PI Wind direction sensor.
28 - BAT	6 V battery input
29 - SOL	Solar panel input
30 - SW	ON/OFF switch
31 - USB	USB-C interface
32 - Bluetooth 5	Bluetooth 5 communication module

iMETOS 3.3 is a special weather station product that supports many (> 600) different sensors. It is a powerful, durable and flexible data logger for all climatic and meteorological conditions or any other type of application users can think of.

BEST USED FOR:

- Specific research projects
- Having multiple different sensors on one location
- Common agricultural needs:
    - Improving plant protection with disease models
    - Soil moisture monitoring and irrigation management
    - Frost monitoring, alarms etc.

SECTORS:

Agriculture, Animal Welfare, Research, Meteorology, Hydrology, Landscaping (Golf, Turf, Gardening), Urban Climate

iMETOS 3.3

https://metos.global/imetos33/

A powerful, durable and flexible data logger for all climatic and meteorological conditions. They offer a complete solution for environmental monitoring, disease models, water management and more. Versatile, with the possibility to configure and connect many different sensors – over 600 sensors to choose from.

TECHNICAL SPECIFICATIONS

Sensors layout	1 wind speed, 1 leaf wetness, 1 rain gauge, 1 water-meter (reed), 2 hygroclips (air temperature and relative humidity)	
	5 digital inputs: automatic sensor recognition, supporting sensor chains (max. 600 sensors)	
Extension connector	Sentek Drill & Drop or ultrasonic wind sensor or two extra chain connectors – Pessl Instruments bus cable nodes	
GPS receiver	Yes	
Memory	8 MB flash memory	
Internet connectivity	2G, 3G, 4G (LTE class 1, LTE class M)	
Alert	SMS, user configurable via website	
Dimensions without sensors	41 cm L x 13 cm W x 7 cm H	
Weight without sensors	2.2 kg	
Battery	Rechargeable 6V, 4.5Ah, Operating range: -35°C to 80°C	
Solar panel	Dimensions: 13.5 x 13.5 cm, 2 Watt solar panel	
	DEFAULT	**FROST MODE**
Measuring interval	5 minutes	5 minutes
Logging interval	15 minutes	10 minutes
Transmission interval	60 minutes	10 minutes
	iMETOS 3.3 base unit (no sensors included), internet based logger, battery 4.5Ah, solar panel, UMTS based, logger, mounting brackets	

Product Variations

	BASE	200	280-MWS	300-MWS	280-MWSD	300-MWSD
Order number	*700120 (LTE RC7620)* *700121 (CA LTE HL7688)* *700122 (US LTE HL7618RD)* *700124 (HL7802)*	*700135 (LTE RC7620)* *700136 (CA LTE HL7688)* *700137 (US LTE HL7618RD)* *700139 (HL7802)*	*700140 (LTE RC7620)* *700141 (CA LTE HL7688)* *700142 (US LTE HL7618RD)* *700144 (HL7802)*	*700150 (LTE RC7620)* *700151 (CA LTE HL7688)* *700152 (US LTE HL7618RD)* *700153 (HL7802)*	*700143 (LTE RC7620)* *700302 (CA LTE HL7688)* *700303 (US LTE HL7618RD)* *700304 (HL7802)*	*700305 (LTE RC7620)* *700306 (CA LTE HL7688)* *700307 (US LTE HL7618RD)* *700154 (HL7802)*
Precipitation	✗	✓	✓	✓	✓	✓
Air Temperature	✗	✓	✓	✓	✓	✓
Relative Humidity	✗	✓	✓	✓	✓	✓
Leaf Wetness	✗	✓	✗	✓	✗	✓
Global Radiation	✗	✗	✓	✓	✓	✓
Wind Speed	✗	✗	✓	✓	✓	✓
Wind Direction	✗	✗	✗	✗	✓	✓
Dew Point	✗	calculated	calculated	calculated	calculated	calculated
VPD	✗	calculated	calculated	calculated	calculated	calculated
Delta T	✗	calculated	calculated	calculated	calculated	calculated
ET_0	✗	✗	calculated	calculated	calculated	calculated

iMETOS 3.3 200

iMETOS 3.3 280-MWS

iMETOS 3.3 300-MWS

METOS STREMO

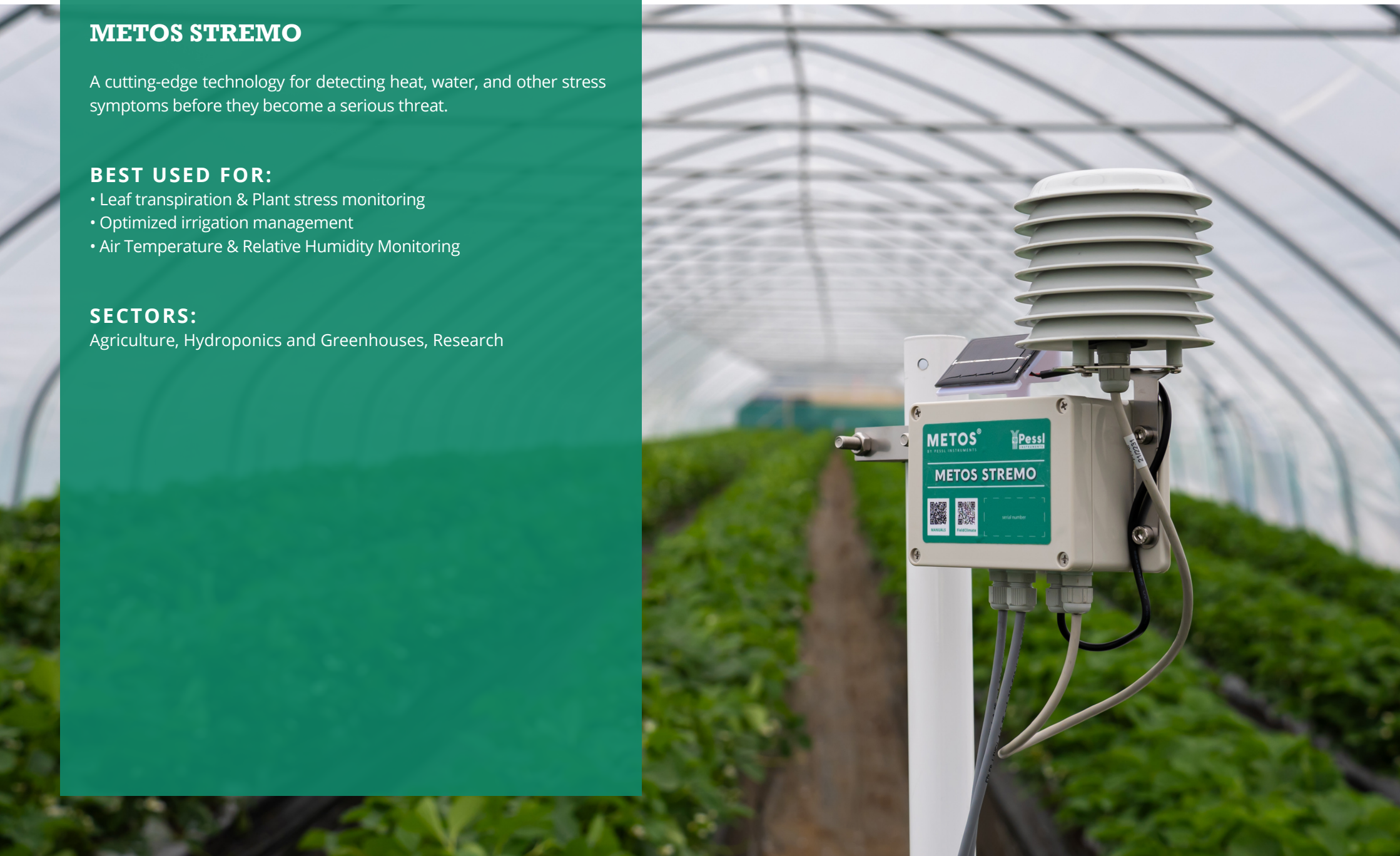
A cutting-edge technology for detecting heat, water, and other stress symptoms before they become a serious threat.

BEST USED FOR:

- Leaf transpiration & Plant stress monitoring
- Optimized irrigation management
- Air Temperature & Relative Humidity Monitoring

SECTORS:

Agriculture, Hydroponics and Greenhouses, Research



METOS STREMO

REAL-TIME PLANT STRESS MONITORING SYSTEM

METOS STREMO is a non-invasive system for monitoring plant water stress. It directly measures physiological responses at the leaf level, enabling early detection of drought and thermal stress before visual symptoms appear. Unlike traditional methods that measure soil or air, METOS STREMO measures the plant itself, tracking transpiration and irradiance directly at the leaf level.

TECHNICAL SPECIFICATIONS

Housing	UV resistant polycarbonate plastic (Protection class IP67)
Connectivity	NB-IoT NB1 / Cat-M1
Power supply	3.6V high capacity primary battery
Solar panel	Dimensions: 13.5 x 13.5 cm, 1,5 Watt solar panel
Dimensions (with rain gauge)	14.8 cm L x 11.8 cm W x 9.3 cm H
Weight (with rain gauge)	0.25 kg

Not recommended for indoor use or artificial lighting conditions.

https://metos.global/metos-stremo/

Order number: 700298 (HL7800) / 700301 (HL7802)

SYSTEM OVERVIEW

Sensors Included:

- **2× PI StremoClip Sensor:** Leaf-mounted sensors measuring leaf capacitance (transpiration, stomatal activity) and irradiance
- **Air Temperature & Relative Humidity Sensor:** Enables calculation of **Vapor Pressure Deficit (VPD)**

- **Data Platform:**
- Real-time data streaming to **FieldClimate**
- Visualization, modeling, and export via **API**

KEY FEATURES

- Direct measurement of plant physiological parameters
- Continuous, non-invasive monitoring
- Standardized across crops and environments
- Scalable from single plots to multi-site networks
- Open integration with custom analytics platforms

APPLICATIONS

- Early stress detection (drought, heat)
- Irrigation scheduling
- Crop phenotyping
- Environmental impact studies

METOS STREMO

miniMETOS

Compact, cost effective, small, quick to install, and designed for deployment where hardware needs to be hidden for aesthetic or operational reasons.

BEST USED FOR:

- Irrigation management
- Turf health monitoring

SECTORS:

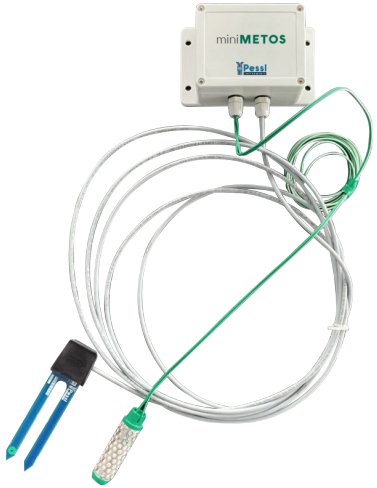
Landscape (golf, turf, gardening), Hydroponics and Greenhouses, Agriculture, City Climate

miniMETOS

https://metos.global/minimetos/

Order number: 700047 (miniMETOS), 700278 (miniMETOS Tunnel)

miniMETOS is a compact solution for irrigation and stress management, measuring soil temperature, volumetric water content (VWC), and soil moisture tension in near real time. The fully underground installation makes it ideal for areas prone to vandalism or theft. Battery-powered with a 6–12 month lifespan, it delivers soil data by depth for precise irrigation decisions. A dedicated miniMETOS Tunnel variation is available for use in tunnels and other protected cropping systems.



TECHNICAL SPECIFICATIONS

Housing	UV resistant polycarbonate plastic (Protection class IP67)
Dimensions	14.8 cm L x 11.8 cm W x 9.3 cm H
Weight	0.25 kg
Connectivity	NB-IoT NB1 / Cat-M1
Power supply	3.6V high capacity primary battery*
Measuring interval	15 minutes
Logging interval	15 minutes
Communication interval	60 minutes

	miniMETOS	miniMETOS Tunnel
SENSORS		
PI54-D	✓	✓
Watermark	✓	✗
Air & RH Sensor	✗	✓

**Battery is not included and needs to be ordered separately.*

With miniMETOS all the potential issues and stress events can be identified before they occur or become visible.

KEY FEATURES:

- Permanent measurement of the soil moisture and soil temperature at any of your locations
- Invisible, so it doesn't affect the workers and the aesthetic of location (golf course, park etc.)
- No solar panel needed as long life battery powered based on the latest power harvesting technology
- 6 to 12 months of battery life and quick installation
- Cost-effective and durable
- Prevents possible vandalism

INSTALLATION ON GOLF COURSE

Laying the cable - inserting the sensors in the main turf root zone.

Preparation of the irrigation box for the data logger.

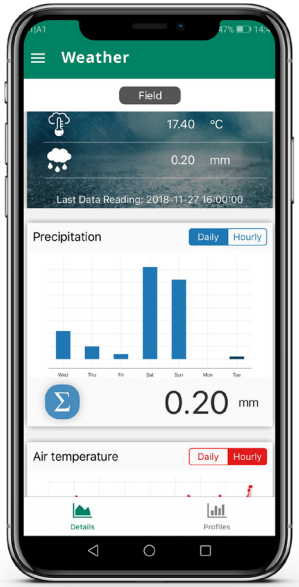
Re-installing the lawn tiles to cover the sensors. 14 days later - "invisible".

MINIMETOS

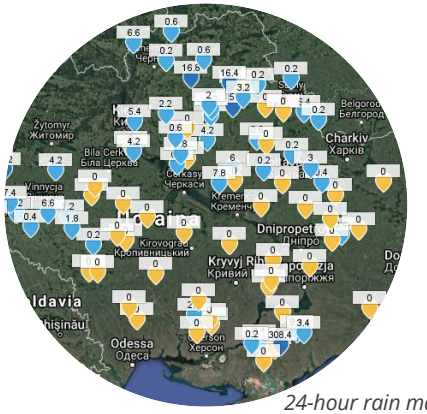
Weather Station Use

THIS IS WHAT YOU CAN DO:

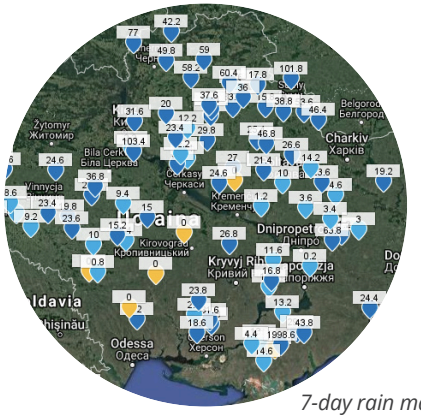
- Plan the work week based on a localized weather forecast for your operations
- Plan your work day based on the actual rain, temperature data and the daily weather forecast for your field
- Plan your spray program based on disease models and check the quality of spray work online
- Plan your irrigation based on ET-crop and predicted plant water use
- Pass data directly into your management software and and operations center via API



Precipitation shown in FieldClimate



24-hour rain map



7-day rain map

STATION USE

METOS VWS

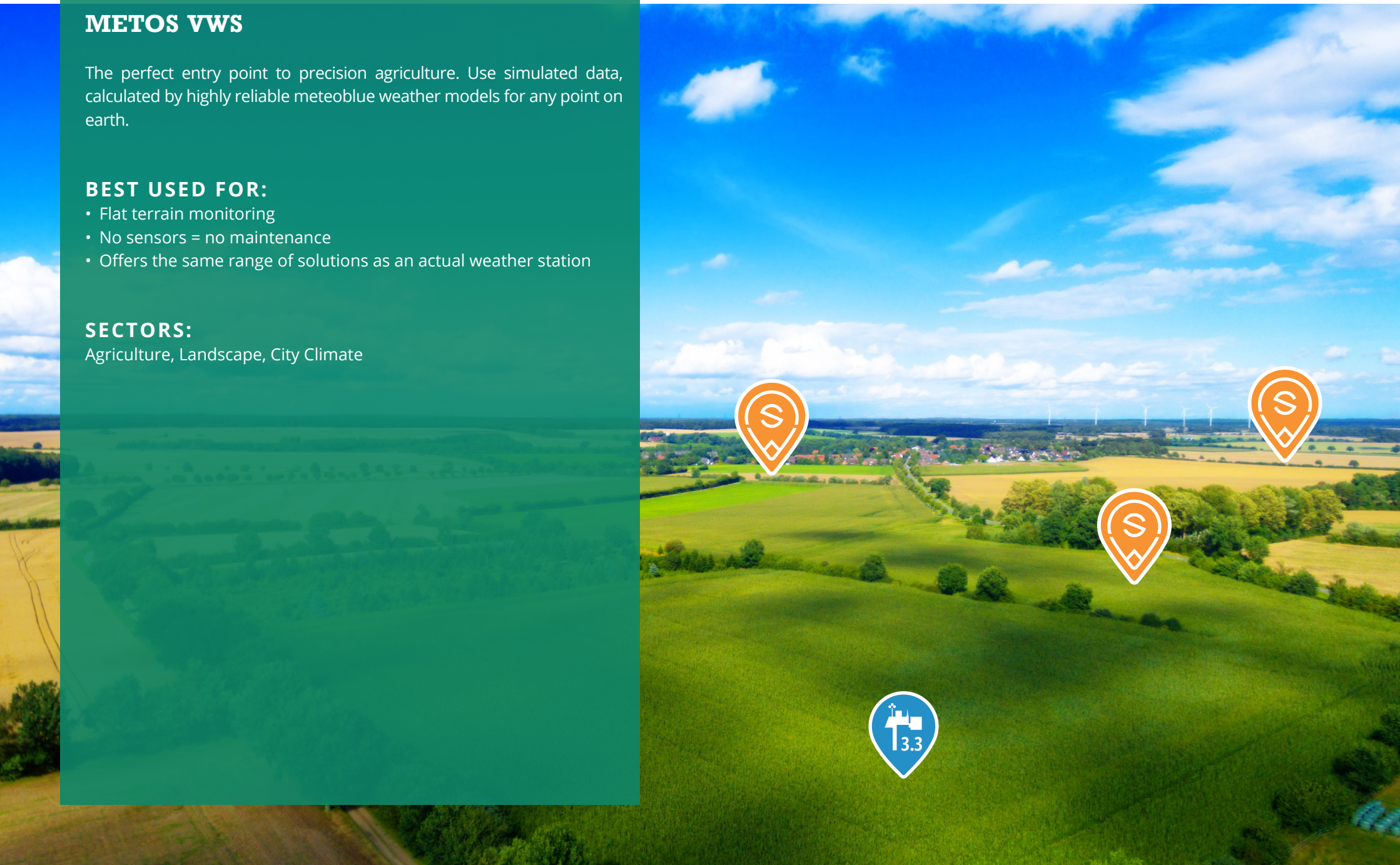
The perfect entry point to precision agriculture. Use simulated data, calculated by highly reliable meteoblue weather models for any point on earth.

BEST USED FOR:

- Flat terrain monitoring
- No sensors = no maintenance
- Offers the same range of solutions as an actual weather station

SECTORS:

Agriculture, Landscape, City Climate

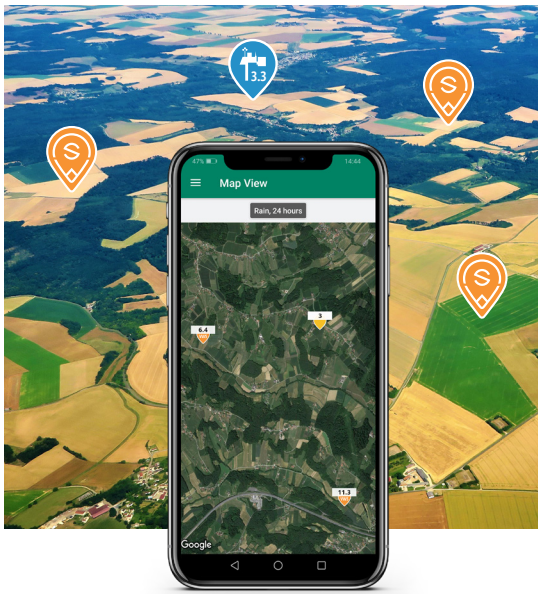


METOS VWS

https://metos.global/imetos-vws/

Order number: 800005

Virtual Stations exist for any point on the earth, for which meteoblue can derive weather data. The data is not the result from an actual METOS station measurement, but consists of simulated data, calculated by highly reliable meteoblue weather models.



In some terrains, such as flatlands, the calculated data is highly accurate with minimal discrepancies to actual values, such as temperature or precipitation. These are the regions where virtual stations prove to be a great asset.

In cases where terrain is more complex or discrepancies from the actual values, we recommend installing a METOS station.

METOS VWS vs METOS IoT STATION

	Virtual station	METOS IoT Stations
Variables	Same parameters as iMETOS 3.3 300 + soil temperature	Based on sensor set
Precision	Limited	High
Availability	Anywhere in the world	Only where the station is installed
Terrain	Not complex terrain	Any terrain
Maintenance	No maintenance	Regular hardware maintenance necessary
Suitability for high value decisions (frost, water management etc.)	Limited	High

DATA QUALITY

Air temperature	👍
Relative humidity	👍
Solar radiation	👍
Wind speed	👍
Precipitation	👍
Leaf wetness	👍
Soil temperature	👍

With actual case studies, METOS VWS is under continuous improvements.

VIEW RESULTS ON OUR WEBSITE:

MAIN FEATURES

Calculated sensor variables equal to iMETOS 3.3 300 sensor set: wind speed, solar radiation, soil temperature, air temperature, precipitation, relative humidity and leaf wetness, along with calculated values of ET_0, vapor-pressure deficit (VPD) and Delta T. All data and decision support services are accessible online through FieldClimate platform.

THE ADVANTAGES

A perfect entry into precision agriculture with no maintenance cost.

Offers the same range of solutions as an actual weather station.

Very cost effective, simple to use and activated with just a few clicks on the computer or phone.

Works as a complete decision support service - provides weather forecast, offers disease models and helps with work planning.

Hybrid Station Extension

https://metos.global/hybrid-station/

Order number: 800065

You can make your physical METOS station a “Hybrid” by extending it with virtual sensors (METOS VWS full set available). The service is available via yearly subscription. The virtual sensors will be added to the chart and table, together with the physical sensors, but properly differentiated. The possible sensors to be added are:

- Air temperature (virtual)
- Relative humidity (virtual)
- Leaf wetness (virtual)
- Precipitation (virtual)
- Wind speed avg (virtual)
- Wind speed gust (virtual)
- Wind direction (virtual)
- Global solar radiation (virtual)
- Soil temperature (virtual)

WHERE VIRTUAL DATA COMES FROM?

- Virtual sensor data quality is the same as our other product METOS VWS (Virtual Weather Station) and comes from the best available weather simulation for the specific location.
- Various weather models are incorporated, which in turn are calculated from data measured by weather stations, observation data from satellites, and a number of other data sources.
- For locations with a nearby weather station, the station’s data are automatically used to further improve the quality.
- The precipitation virtual data is updated using radar data (if available) and satellite data is used to update the data for cloud cover and global solar radiation.

KEY FEATURES

- Hybrid station is the perfect solution to expand any physical METOS station at low price
- Get access to advanced tools like Disease models, ET_0
- Virtual sensors are shown together with the physical sensors, but differentiated

Camera Products

A remote monitoring system that provides time-lapse images that monitors insect pressure (iSCOUT) and growth of your crops for stage of development, germination, disease issues and size of fruit (CropVIEW).

BEST USED FOR:

- Preventing damage on crops and fields
- Reducing the use of pesticides or insecticides
- Early detection of diseases & insect pressure
- Yield forecast of fruit crops through AI on following crop growth

SECTORS:

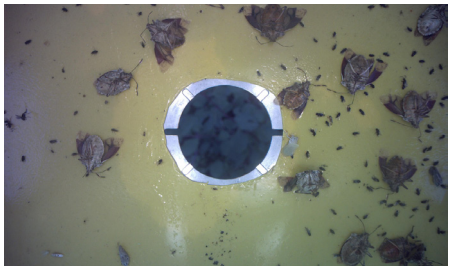
Agriculture, Animal welfare, Research, Landscape (golf, turf, gardening)

FAMILY MEMBERS: iSCOUT variations & CropVIEW variations

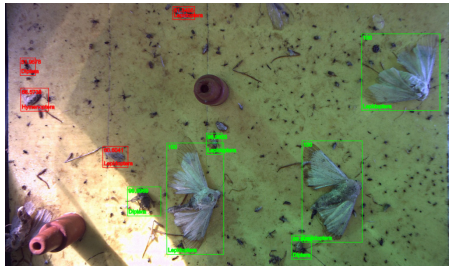
iSCOUT - AI-Based Insect Scouting

https://metos.global/iscout/

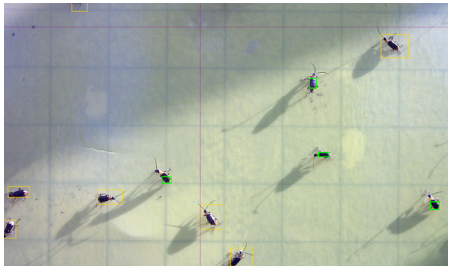
iSCOUT is a combination of hardware and software solutions for remote monitoring of different pest insects. It is an insect trap with integrated electronics and a sticky plate. Due to its low weight, it can be hung anyhwere in the field. The device is self-sufficient, as it is powered by a solar panel and a battery. 10 MP camera takes high-resolution pictures of the sticky plate within the iSCOUT trap. Images are sent via LTE communications to an online platform where they are analyzed and counted by automatic pest detection framework, using AI and self-learning algorithms. All data from camera system and AI software is displayed online, within the FieldClimate. Camera devices (iSCOUT or CropVIEW) can be connected to control unit. Every power unit can also connect the following environmental sensors: rain, temperature and relative humidity (Hygroclip) and leaf wetness.



iSCOUT Bug



iSCOUT uses automatic recognition algorithm for recognizing pests.



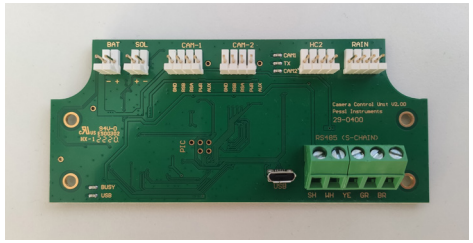
iSCOUT Color Trap

TECHNICAL SPECIFICATIONS

Memory	32 MB + 8 GB (for photos)	
Internet connectivity	LTE class 1	
GPS receiver	Yes	
Dimensions of trap housing without control unit	20 cm L x 15.5 cm W x 17 cm H	
Weight without control unit	0.93 kg	
Battery	Rechargeable 6V, 12Ah, Operating range: -35°C to 80°C	
Solar panel dimensions	17.5 x 17.5 cm, 7.2 Volt, 333 mA	
Camera	10 megapixel camera	
	CONTROL UNIT - SENSORS	**CAMERA - PHOTOS**
Measuring interval	15 min	taking photos: selected by the user (1 to max 3 times per day*)
Logging interval	30 min	
Transmission interval	60 min	after photo is taken
	Internet based monitoring device, solar panel, rechargeable battery, GPRS Logger, GPS sensor	

***Photo taking and transmission:** depending on mobile network type: max 1 photo per day when using the GPRS connectivity and max 3 photos per day when using LTE connectivity. On closed traps it should be set at night (between 23:00 - 3:00).

Camera Control unit base with interface to camera devices and opportunity to connect environmental sensors (not included). Following sensors can be connected: rain gauge, temperature, relative humidity and leaf wetness.



Control Unit Board

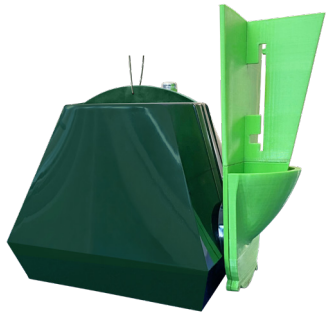
iSCOUT Variations

iSCOUT PHEROMONE

Designed to catch insects with insect-specific pheromone lures. Target species include **codling moth, European grape berry moth, tomato leafminer, and many others**. The iSCOUT Pheromone includes a metal plate for attaching sticky paper and a pheromone lure.

Order numbers: 700160 (LTE RC7620) / 700161 (CA LTE HL7688) / 700162 (US LTE HL7618RD)

iSCOUT POPILLIA ADD-ON



Developed for monitoring the invasive **Japanese Beetle**, *Popillia japonica*. This is a modification of the iSCOUT Pheromone, adding a pheromone holder and a slide mechanism that prevents beetles from escaping once caught. Requires the purchase of an iSCOUT Pheromone.

Order numbers: 600231 / 900272

iSCOUT FRUIT FLY

Suitable for trapping fruit flies, including **spotted wing drosophila, Mediterranean fruit fly, and many other species**. It features 3 mm netting over the entries to exclude larger flies (e.g., house flies). Includes a tank system for the lure and a metal plate for attaching sticky paper. The netting can be removed to catch and monitor larger flies.

Order numbers: 700172 (LTE RC7620) / 700173 (CA LTE HL7688) / 700174 (US LTE HL7618RD)

iSCOUT BUG

Built to catch **marmorated stink bugs and other bugs**. It includes a metal bottom plate with black pyramid wings and closed side entries. Bugs enter the trap from the bottom and are trapped on the plate.

Order numbers:
700164 (LTE RC7620)
700165 (CA LTE HL7688)
700166 (US LTE HL7618RD)

iSCOUT COLOR TRAP

Intended for monitoring sticky traps of different colors. The device includes a high-resolution camera and a holder for a sticky plate.

The types of insects caught depend on the color of the plate used:

- Blue: **flies, leafminers, and others**
- Yellow: **leafminers, olive fruit fly, western corn rootworm, common pollen beetle, and others**
- White: **apple sawfly, plum sawfly, plum fruit sawfly, raspberry beetle, and others**

Order numbers:
700168 (LTE RC7620)
700169 (CA LTE HL7688)
700170 (US LTE HL7618RD)

CropVIEW - AI-Based Crop & Growth Monitoring Solution

https://metos.global/cropview/

CropVIEW is an advanced agricultural information system designed to provide real-time insights into your crops and their growth. This innovative solution **captures high-resolution images of farmland, research plots, crop canopies, orchards, and more at regular intervals**. These images are automatically uploaded to FieldClimate, enabling continuous monitoring of crop quality and yield.

The high-resolution photos serve multiple purposes, such as assessing seed germination, tracking the impact of fertilizers and pesticides on crop development, and helping make informed decisions about the presence of diseases or pests that could affect profitability. What sets CropVIEW apart is its seamless and effortless operation. You can view and analyze these images daily over time with no additional effort on your part.

Operating year-round in most climatic zones, CropVIEW is powered by a rechargeable battery and a solar panel, ensuring uninterrupted service. Each power unit also supports a range of environmental sensors, including rain, temperature, relative humidity (Hygroclip), and leaf wetness.

With CropVIEW, you gain a powerful tool that not only simplifies crop monitoring but also enhances your ability to make data-driven decisions for better crop management.

Images, taken by CropVIEW.

TECHNICAL SPECIFICATIONS

Housing	Power supply and sensor support box: 41 cm L x 13 cm W x 7 cm H
GPS receiver	Yes
Weight without sensors	2.2 kg
Camera module	Stainless steel base with IP65 box 27 cm L x 17 cm W x 9 cm H, weight: 1.5 kg
Battery	Rechargeable 6V, 12Ah, Operating range: -35°C to 80°C
Solar panel dimensions	17.5 x 17.5 cm, 7.2 Volt, 333 mA
Model/Type	Cortex M4 processor module with integrated Communication model for UMTS/LTE operation
Camera and optics	MT9J003 10 Mega Pixel 2/3“ CMOS sensors - Optics DSL377A-650-F2.8 2/3“ Lens with 2.5 mm Focal length and DSL901J-650-F3.0 2/3“ Lens with12 mm Focal Length
Control Unit	Camera Control unit base with interface to camera devices and opportunity to connect environmental sensors (not included). Following sensors can be connected: Rain gauge, temperature, relative humidity and leaf wetness.

	CONTROL UNIT - SENSORS	CAMERA - PHOTOS
Measuring interval	15 min	taking photos: selected by the user (1 to max 3 times per day*)
Logging interval	30 min	
Transmission interval	60 min	after photo is taken

CropVIEW VARIATIONS:

CropVIEW Panorama

1x 10 MP wide angle lens

Order number:

700176 (LTE RC7620)

700177 (CA LTE HL7688)

700178 (US LTE HL7618RD)

CropVIEW Tele

1x 10 MP tele lens

Order number:

700180 (LTE RC7620)

700181 (CA LTE HL7688)

700182 (US LTE HL7618RD)

CropVIEW Dual

2x 10 MP lens - wide angle + tele

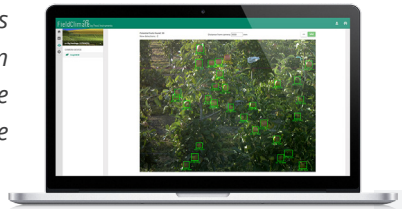
Order number:

700184 (LTE RC7620)

700185 (CA LTE HL7688)

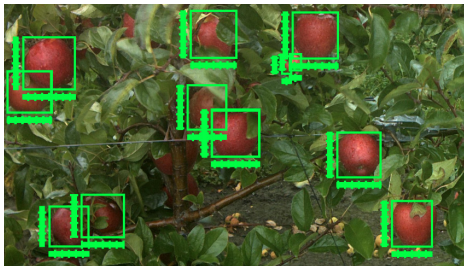
700186 (US LTE HL7618RD)

A tool in FieldClimate enables you to select specific fruits on pictures taken in your orchard or field by a zoom lense in CropVIEW. If you know the precise distance between the camera and crop, you will get a reliable measurement of fruit diameter in mm.

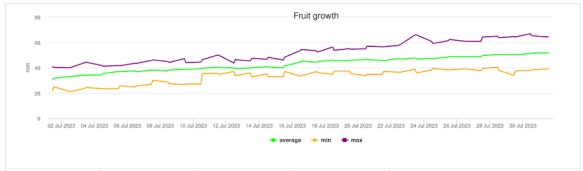


APPLE ORCHARD USE CASE

Tele lens focusing on a tree and detecting the apples automatically (CropVIEW automatic detection).



Marking auto-detected apples manually and following their growth during the season.



47844b6bd63e2					
Date/Time	Average (mm)	Min (mm)	Max (mm)	Diameter (mm)	FSI
2023-07-01 13:01:57	30.862800000000004	21.6406	40.6455	33.2706	1.3777000000000001
2023-07-01 15:01:32	31.5273	24.875300000000003	40.1854	35.6959	1.305
2023-07-02 15:01:16	33.0359	20.9481	40.0382	37.8448	1.2781
2023-07-03 13:01:40	34.090900000000005	23.8858	44.1269	34.878	1.4504
2023-07-03 15:01:40	34.0362	24.249699999999997	44.1269	35.3646	1.3618999999999999

The minimum, maximum and average diameter (in mm) of all selected fruits is shown on a graph, and the exact values in a table.

VITICULTURE USE CASE

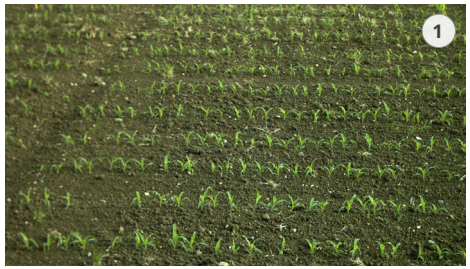
Following the growth of shoots and developing leaves.

Inflorescence of grapes is clearly seen on the photos.

SERIES OF PICTURES IN MAIZE/WHEAT USE CASE

Germination and emergence of wheat.

Different BBCH stages of wheat, for example tillering stages.



Following the uniform emergence and growth of maize daily.

With CropVIEW you receive a time lapse of your crop growth. Check the time lapse of maize growth here:

https://youtu.be/V_ZXBSD_7XQ

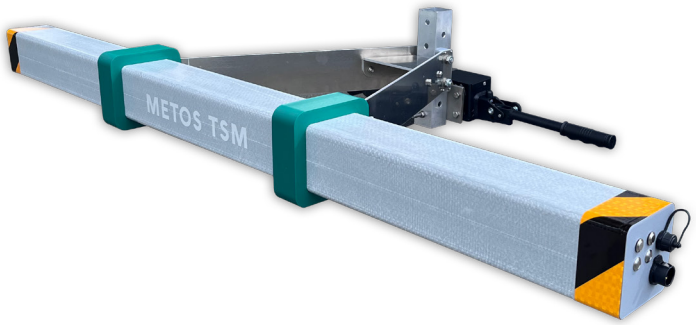
METOS TSM

https://metos.global/metos-tsm/

The METOS TSM is a lightweight and compact solution designed to provide non-contact, on-the-go soil analysis for agriculture and turf management. By mapping soil moisture within the root zone, you can optimize irrigation management, reduce resource wastage, and improve soil health—all in real-time.
Device is simultaneously measuring the signals from 4 different depths.

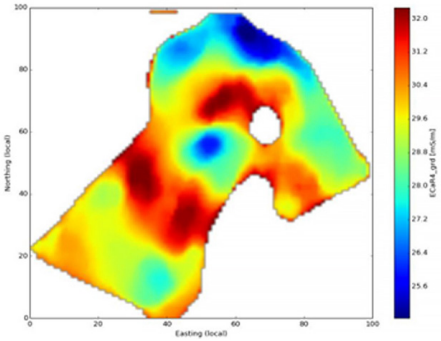
KEY FEATURES

- Soil moisture measurement
- High spatial resolution
- Compact & easily mountable design
- Ideal for both agricultural fields and turf management



TRANSMISSION AND DATA ANALYSIS

You need to create a predefined WiFi network to which METOS TSM automatically connects when it starts up. It then automatically transfers internally stored measurement data to the FieldClimate Cloud where it is analyzed and processed into different format output files which can be used in 3rd party software and visual representation of the measured data on the FieldClimate.



TECHNICAL SPECIFICATIONS

Technology	Frequency Domain Electromagnetics Induction (EMI)
Operating Frequency	9 kHz
Sampling Rate	10 Hz
Vertical Sampling	4 different depths (shorter variant with 2 depths on request)
Dimensions Main box / Full assembly	10 x 10 x 142 cm / 27 x 70 x 142 cm
Weight Main box / Full assembly	7.75 kg / 15.7kg
Material	Fiberglass, PLA, Aluminum
Connectivity	Wi-Fi
Positioning	GPS
Vehicle attachment	Ball attachment (snap fastener), two side ropes for additional stability
Power	12 V from the vehicle

WORKTRACK & TAGS

A battery-powered versatile tracking device that is easily mounted on any asset (sprayer, mower, utility vehicles, tractors, carts, ...).

BEST USED FOR:

- Detailed activity report about where, when, and how much an asset has been operational
- Optimisation and enhancement of work and workforce planning
- Knowing current position of all active machines

SECTORS:

Agriculture, Landscape (golf courses, parks), City Climate

FAMILY MEMBERS: WorkTrack, Tags

WorkTrack & Tags

https://metos.global/imetos-trackers/

With WorkTrack you have your fleet always under full control - you know exactly when your vehicles are and with using Tags, you know exactly where your other assets are.

The WorkTrack agriculture GPS tracking unit combined with the WorkTrack Tags feature allows you the capability of both fleet tracking and asset tracking, to manage your entire farm from equipment to employees.

On our FieldClimate platform, you see your vehicles and implements and have all data stored about where and which operations you have running. Together with your connected METOS weather station, you can see the application of wet or dry fertilizer or chemical as well as any farm delivery, grain transport, over-the-road trucking, seed delivery, and equipment rental on the mobile phone/iPad or desktop. WorkTrack connects all farming equipment automatically and swiftly.

WORKTRACK TECHNICAL SPECIFICATIONS

Connectivity	LTE Cat-M1/NB-IoT/GSM or 4G LTE Cat 1, GSM or GSM, Quad-band 2G network
GNSS	GPS, GLONASS, GALILEO, BEIDOU, accuracy < 3m, internal high gain GNSS antenna
Housing	UV resistant polycarbonate plastic (Protection class IP67)
Power	(+6...+30) V DC via car power plug
Dimensions	72,5 x 73 x 27 mm

TAG TECHNICAL SPECIFICATIONS

Connectivity	Bluetooth (connected to WorkTrack)
Power	600 mAh non replacable Lithium battery
Range	Up to 80 meters
Housing	IP67, two holes to screw/leash/strip

WORKTRACK

WorkTrack:

- Records a GPS position and speed every 5 seconds and transfers the data every 30 seconds to FieldClimate.
- It is activated with vibration and movement and records the first position when the super capacitor is sufficiently charged.
- The super capacitor can hold charge when connected to a permanent power source (tractor battery).
- In sleep mode the current uptake is below 100µAmp. It can empty a fully charged 75Ah battery within 750 000 hours. When it is connected to a switched-on power source the super capacitor will discharge within 24 hours after being disconnected from power.

This is what you get with WorkTrack:

- A detailed activity report about where, when, and how much the machine has been running
- Current positions of all active machines

WorkTrack used on a golf cart.

How do worktrack and tag work together?

The connection between the two is made automatically via Bluetooth, and they work together to maximize the efficiency of the workforce and complete fleet tracking. Data from both devices is transmitted to FieldClimate Cloud.

Analysers

Analysers are a group of various devices that are used to determine the current state of plant's development, to determine what the plant needs and to help with spraying application management.

BEST USED FOR:

- Measuring spray deposition efficiency
- Determinating nitrogen status of plants
- Determinating fertilization needs
- Plant spraying and protection management

SECTORS:

Agriculture, Research

Dualex - Instant, Non-Destructive Nitrogen and Chlorophyll Measurement

https://metos.global/dualex/

Order number: 700256

Dualex is a leaf-clip sensor designed to measure chlorophyll and polyphenols in plant leaves. Using patented optical technology, Dualex allows for simple, rapid, and non-destructive measurements of **chlorophyll** and **flavonols**.

ACCURATE MEASUREMENT OF CHLOROPHYLL

Chlorophyll plays a vital role in photosynthesis and overall plant development. Dualex quantifies chlorophyll by analyzing light transmitted through the leaf, delivering a measurement range of **0-150 µg/cm².**

UNIQUE LEAF-CLIP SENSOR FOR MEASURING FLAVONOLS

Flavonols are synthesized primarily in response to light exposure, making them an indicator of a plant's light interaction history. Dualex measures flavonols by analyzing their screening effect on chlorophyll fluorescence. Flavonols is provided as a relative index (in the range of 0 to 2.5).

NBI®: NITROGEN BALANCE INDEX

Chlorophyll content alone is commonly used as an indicator of plant nitrogen status. However, research shows that polyphenols - specifically flavonols - are also reliable indicators of nitrogen allocation within leaves. The Nitrogen Balance Index (NBI®) combines chlorophyll and flavonol measurements to provide a robust, single-value indicator of nitrogen status, which correlates closely with leaf nitrogen content. Unlike chlorophyll alone, NBI® is less affected by environmental factors such as leaf age or thickness, making it a more stable and accurate metric for nitrogen management.

TECHNICAL SPECIFICATIONS

Measured material	Plant leaves
Measuring system	Transmittance and screening effect on chlorophyll fluorescence
Measured parameters	**Chl: Chlorophyll content** (µg/cm²)
	Flav: Flavonols (index)
	NBI: Nitrogen Balance Index, calculated from chlorophyll and flavonols
Accuracy (NRMSE)	Chl: 2.0%; Flav: 4.1%
Repeatability (sd)	Chl: 0.37; Flav: 0.005
Reproducibility (sd of repeated means)	Chl: 0.45; Flav: 0.013
Measurement process	Automatic or manual
Measurement area	5 mm in diameter (19.6 mm²)
Sample thickness (leaf)	1 mm maximum
Measurement area access	8.5 cm maximum
Acquisition time	< 1 s
Storage capacity	10,000 multiparametric measurements
Data classification	3 levels (file, group, measurement numbers)
Light sources	5 LEDs: 1 UV-A, 1 green, 1 red, and 2 NIR (near-infrared)
User interface	LCD, sound warning
Data downloading	USB connection for data transfer
Battery	Li-ion rechargeable
Data output	.csv file
Total weight	226 g (with battery)
Size	207 x 66 x 54 mm
Positioning	Internal GPS
Languages	English, French, Spanish, German
Safety	Ring for leash
Updating	USB connection for manual firmware update
Operating temperature	5 to 45°C

N-Pilot® 2.0

https://metos.global/n-pilot/

Order number: 500171

N-Pilot® 2.0 by Pessl Instruments helps farmers optimize fertilizer use in cereals and rapeseed, enabling smarter decisions for higher yields with lower input costs. This handheld, portable reflectometer measures specific wavelengths of light in the visible and near-infrared spectrum, calculating the scientifically validated indices NDVI and GNDVI to estimate chlorophyll content and biomass.

MEASUREMENT PRINCIPLE:

N-Pilot® 2.0 measures reflectance from the crop canopy using red, green, and near-infrared wavelengths to calculate NDVI and GNDVI, providing insights into the nitrogen nutritional status of crops.

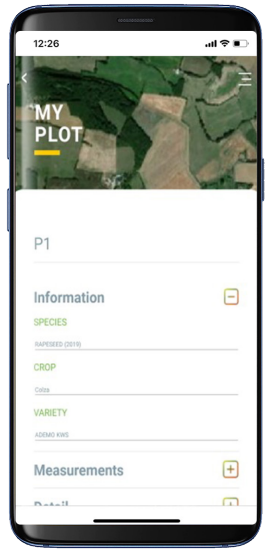
DEVICE ACTIVATION AND DATA TRANSFER:

The N-Pilot® 2.0 is activated via a simple tap of the mobile phone's NFC chip, while Bluetooth (BLE) ensures smooth and uninterrupted data transfer.

MOBILE APP: EASY MEASUREMENTS FOR IMMEDIATE RESULTS

N-Pilot® 2.0 will work with a paid mobile app, to enable quick and easy assessments of nitrogen demand across the field. Each measurement will be completed in just a few seconds while moving through the field. The app is planned to offer nitrogen fertilization recommendations for various crops.

The app will be available in a limited number of countries (subject to change): Austria, Germany, France, Hungary, Bulgaria, Romania, UK, Czech Republic, and Slovakia.



KEY FEATURES:

- Fast, reliable, and cost-effective nitrogen diagnosis
- Planned app features will provide advice on nitrogen fertilization in the field
- It helps optimize both yield and protein content
- Fee-based service (mobile app)
- Robust and autonomous device

Sensors

Precipitation
Temperature
Leaf
Light
Wind
Barometer
Soil
Water
Plant
Interfaces

Pessl Instruments Rain Gauge

Order number: 600169

The mechanic consists of a magnet, which moves past a reed switch and opens or closes the circuit. The double spoon tips left or right and does not lose any water due to a very fast switching mechanics. The resolution with a surface of 200 cm^2 is 0.2 mm, while the resolution with the 80 cm^2 is 0.5 mm. Heating for rain gauge can also be included.

TECHNICAL SPECIFICATIONS

Sensor type	Double tipping bucket rain gauge
Output	Switch signal
Switch	Reed contact, solid state
Sensitivity	1 tip per 0.2 mm or 1 tip per 0.5 mm
Collector surface	200 cm^2
Evaluation	Digital
Maximum rain	12 mm/minute
Dimensions	159.6 mm (6.28”) diameter x 160 cm (6.3”) H
Catch surface size	200 cm2 (31 square inch)
Cable length	60 cm (23.62”)
Accuracy	±5%

Protect your rain gauge from birds - add bird protection crown. Very easy to install and dismantle.

Order number: 600251

PRECIPITATION

Pessl Instrument Air Temperature & Relative Humidity Sensors

1M CABLE

Order number: 600019 (µMETOS), 600009 (LoRain), 600018 (METOS 5)

Measures air temperature and relative humidity and is used for low power consuming applications on µMETOS.

I2C Bus Considerations: I2C Bus is sensitive to the electromagnetic waves and can be distorted under certain conditions. On the contrary, Hygroclip is less sensitive.

Recommended cable length: no longer than 1 m.

TECHNICAL SPECIFICATIONS

Sensor	HYT221
Operating temperature range	-40°C to +125°C
Humidity range	0% to 100% RH
Accuracy	±0.2°C (0°C to +60°C) ±2% RH at +23°C (0% to 90% RH)
Operating voltage	2.7V to 5.5V
Digital interface	I²C, address 0x28 or alternative address
Operating voltage (limit data)	0.3 V to +6 V
Storage conditions	-20°C to +50°C

5M CABLE

Order number: 600174

Measures air temperature and relative humidity with additional calculation of virtual sensors like dew point, VPD and delta T. The sensor is used for low power consuming applications on µMETOS.

Application: when long distances up to 15 m from the main station are required i.e. in greenhouses in/out, when two or more sensors are needed.

TECHNICAL SPECIFICATIONS

Sensor	HYT221
Cable lenght	5 m
Operating temperature range	-40°C to +60°C
Humidity range	0% to 100% RH
Accuracy	±0.2°C (0°C to +60°C) ±2% RH at +23°C (0% to 90% RH)
Operating voltage	2.7V to 5.5V
Digital interface	RS485 with PI-Bus, insertable in a chain
Operating voltage (limit data)	0.3 V to +6 V
Storage conditions	-20°C to +50°C

TEMPERATURE

Pessl Instruments Wet and Dry Bulb Temperature

Order number: 600165 (IMT), 600192 (µMETOS, METOS 5)

Two highly reliable and tested PT1000 are built in a waterproof housing. One of them is covered with cotton tissue and wetted with water.

TECHNICAL SPECIFICATIONS

Sensor	PT1000
Supply voltage	4.57-7 V for chain version
Supply current	max. 200 µA
Short circuit protection	Infinite (within supply voltage range)
Short circuit supply current	max. 40 mA
Operating temperature range	-30°C to +60°C
Accuracy	0.1°C
Cable length	5 m

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TEMPERATURE

Pessl Instruments
Leaf Temperature

Order number: 600127 (IMT), 600126 (µMETOS)

IM522CD is a highly accurate leaf temperature sensor. It measures the radiated temperature around the surface of a leaf or a canopy.

TECHNICAL SPECIFICATIONS

Sensor	PT1000
Accuracy	min. 0.1°C (-30°C to +99°C)
Supply current	max. 200 µA
Short circuit protection	Infinite (within supply voltage range)
Short circuit supply current	max. 40 mA
Operating temperature range	-30°C to +99°C
Nonlinearity error	max. 0.2°C
Supply voltage sensitivity	max. 0.1°C/V
Repeatability	max. 0.2°C
Long term drift	max. 0.1°C
Output frequency	1 to 4 kHz
Duty cycle	0.320 (0°C), 0.00470°C
Evaluation	Analog
Cable length	5 m

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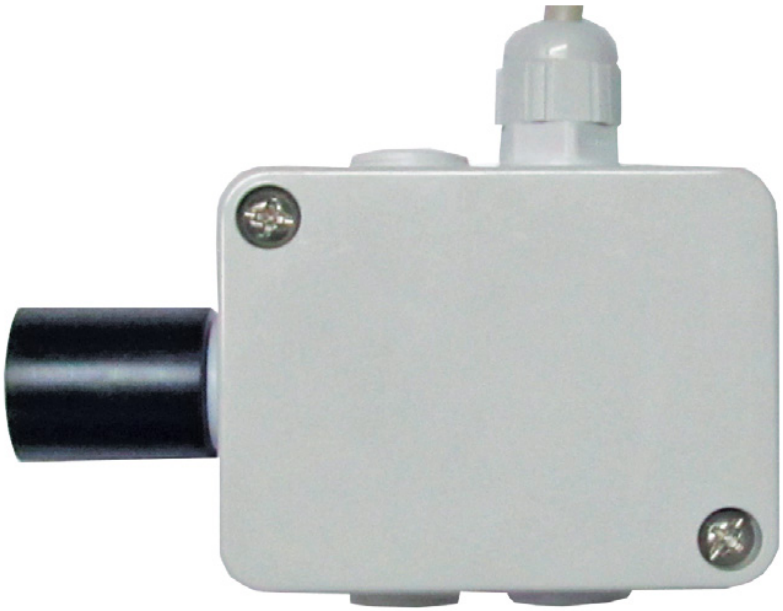
LEAF

Pessl Instruments
IR Temperature

Order number: 600131

The infrared temperature sensor infers the temperature from a portion of thermal radiation (blackbody radiation) emitted by the object being measured. It is a non-contact temperature sensor. By measuring the amount of infrared energy emitted by the object and its emissivity, the object 's temperature can be determined. Main use: canopy or leaf temperature measurements.



TECHNICAL SPECIFICATIONS

Sensor	Melexis MLX90614-BCC
Resolution	0.1°C
Interface	RS 485 PI Sensor Bus
Size	20 mm (dia) x 24 mm
Sensor housing	Weather resistant PAS
Range	-40°C to +85°C

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LEAF

Pessl Instruments
Leaf Wetness

Order number: 600015 (METOS 5 / µMETOS / IMT); 600188 (nMETOS - LoRAIN)

The leaf wetness sensor works by measuring the conductivity on a filter paper, which is held between two stainless steel electrodes in a transparent holder. The use of transparent Lucite plastic as a holder reduces the warming up of the sensor when it is exposed to direct sunlight.

TECHNICAL SPECIFICATIONS

Supply voltage	4.75-5.25 V
Supply current	max. 1500 µA
Short circuit protection	Infinite (within supply voltage range)
Dry / Wet threshold	220-390 kOhm
Output	Dry: max. 0.4 VDC Wet: min. VCC-0.4 VDC
Electronic	Totally plastic encapsulated – SMD
Dimensions	42 mm x 78 mm x 15 mm
Cable length	5 m

LEAF

PI StremoClip Sensor

Order number: 600250 (METOS 5, IMT, µMETOS)

LEAF-LEVEL MONITORING OF PLANT PHYSIOLOGY

The PI StremoClip Sensor is a lightweight, non-invasive sensor for direct measurement of plant physiological activity. It is designed to be mounted directly on the leaf surface, enabling real-time monitoring of transpiration and stomatal behavior.

PI StremoClip sensor consists of 2 clips and 1 interface box. Clips are connected to the interface box with 1 meter cable and the interface is connected to the weather station with 3 meter cable.

INTERFACE BOX TECH DATA

Protocol	PI Bus
Interface box supply voltage	5.4 V

TECHNICAL SPECIFICATIONS

Dimensions without cable	28.3 mm x 50 mm
Weight with cable and Pg7 and Pancon	28 g
Cable length	1 m
Capacitance	between 100 to 300 pF

MEASUREMENT PRINCIPLE:

- Leaf Capacitance – Indicates transpiration rate and stomatal activity
- Irradiance – Measures light exposure at the leaf surface

Data Integration:

Connects to METOS STREMO and METOS 5

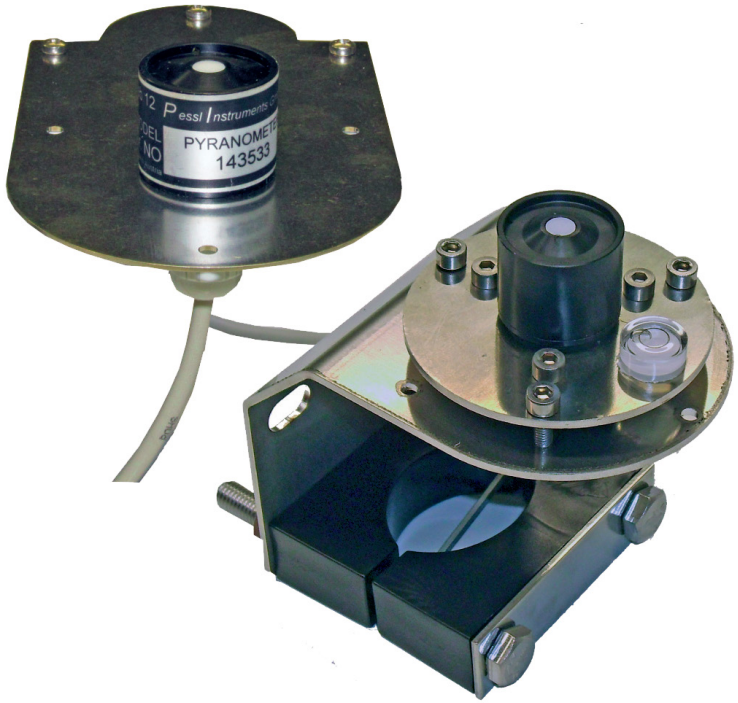
Not recommended for indoor use or artificial lighting conditions.

LEAF

Pessl Instruments Pyranometer

Order number: 600021 (µMETOS), 600035 (IMT), 600036 (METOS 5)

The IM506D Pyranometer is designed for field measurements of global solar radiation in agricultural, meteorological, and solar energy studies. In clear, unobstructed daylight, the Pessl Instruments pyranometer has favorable results compared to the first class thermopile-type pyranometers, but is priced at just a fraction of the cost.



TECHNICAL SPECIFICATIONS

Sensor	VTB1112H
Calibration	Calibration against Kipp & Zonen CMP3 under daylight. Absolute error max. 5%, typically 3%
Stability	2% drift on 2-year use
Time to measure	10 µs
Temperature dependency	0.15% per°C
Cosines correction	Sensor corrects up to 80° degrees
Azimuth	1% error over 360 degree at 45 degree elevation
Operating temperature range	-20°C to 65°C
Operating relative humidity range	0 to 100%
Sensor	Photodiode
Housing	Weatherproof PAS case with acrylic diffuser, stainless steel hardware
Size	35 mm diameter, 45 mm height
Weight	114 g
Evaluation	Pulse Wide Modulation 0-80% = 0-2000 W/m²
Spectral range	320-1100 nm

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Pessl Instruments
PAR Quantum

Order number: 600078

Photosynthetically Active Radiation (PAR) is typically measured as Photosynthetic Photon Flux Density (PPFD), which has units of quanta (photons) per unit of time per unit of surface. The units most often used are micromoles of quanta per second per square meter (µmol s-1 m-2). Plant scientists, horticulturists, ecologists, and other environmental scientists use MD507D Quantum Sensors to accurately measure this variable.

TECHNICAL SPECIFICATIONS

Sensor	EG&G VACTEC VTB1012B
Calibration	Calibration against LI-190SZ under daylight. Absolute difference max. 5%, typical 3%
Linearity	Maximum deviation of 1% up to 3000 W/m²
Stability	2% change over a 1-year period
Response time	150 ms
Temperature dependency	0.15% per°C
Cosines correction	Sensor corrects up to 80° degrees
Azimuth	1% error over 360 degrees at 45 degree elevation
Operating temperature range	-20°C to 65°C
Operating relative humidity range	0 to 100%
Sensor	Photodiode
Housing	Weatherproof PAS case with acrylic diffuser, stainless steel hardware
Size	35 mm diameter, 45 mm height
Weight	114 g
Evaluation	PWM: 0-80% duty cycle = 0-20 kJ/m²

LIGHT

Pessl Instruments
Wind Speed

Order number: 600247

PI mechanical Wind Speed Sensor is a durable, cup-type anemometer designed for dependable wind speed measurement in agricultural and outdoor environments. Its proven three-cup design ensures stable and accurate readings even in changing weather conditions, helping farmers and system integrators reliably monitor average wind speed over a defined period for irrigation control, crop protection, weather stations, and farm management systems.

TECHNICAL SPECIFICATIONS

Range	0 to 30 m/s, structural integrity up to 60 m/s
Tolerance	≤5 m/s: ±0.5 m/s >5 m/s: ±10%
Sensor	Three hemispherical 40 mm wide cups, on 12 cm diameter wheel
Turning factor	75 cm for one full rotation
Threshold	1.1 m/s
Sensor output	AC sine wave signal induced by rotating magnet on cup wheel shaft.
Output frequency	1 cycle per cup wheel revolution. 0.75 m/s per Hz
Dimensions	Height: 23 cm, Width: 11 cm
Weight	0.28 kg
Cable length	3 meters, shielded, UV and water resistant
Calibration	Precalibrated from the factory, optional manual calibration via METOS 5 terminal menu

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WIND

Pessl Instruments
Wind Direction sensor

Order number: 6000246

The Pessl Instruments Wind Direction sensor provides reliable and precise measurement of wind direction for agricultural and other outdoor applications. Its balanced wind vane design ensures stable alignment with airflow even at low wind speeds, delivering accurate directional data across the full 360° range. The sensor comes precalibrated from factory, and METOS 5 supports additional calibration by the installer on the final installation location.

TECHNICAL SPECIFICATIONS

Range	0 to 359 Degrees
Tolerance	5 Degree
Sensor	Wind vane with counterweight
Turning point	Minimum 1.1 m/s
Dimensions	Height: 27.5 cm, Width: 21.5 cm
Weight	0.40 kg
Cable length	3 meters, shielded, UV and water resistant
Calibration	Precalibrated from the factory, optional manual calibration via METOS 5 terminal menu

WIND

RM Young Wind Monitor

Order number: 600129

The wind monitor combines wind speed and wind direction. It is constructed of a four-blade helicoid propeller for highly accurate wind speed measurement with integrated wind direction sensor. It measures peak values.

TECHNICAL SPECIFICATIONS

Range	0-100 m/s (224 mph), 0- 360°
Accuracy	**Wind Speed:** ±0.3 m/s (0.6 mph) or 1% of reading
	Wind Direction: ±3 °
Operating temperature range	-50 to 50°C
Threshold	**Propeller:** 1.0 m/s (2.2 mph)
	Vane: 1.1 m/s (2.4 mph)
Signal output	**Wind speed:** magnetically induced AC voltage, 3 pulses per revolution. 1800 rpm (90 Hz) = 8.8 m/s (19.7 mph)
	Wind direction: DC voltage from conductive plastic potentiometer − resistance 10K Ω, linearity 0.25%, life expectancy − 50 million revolutions
Power Requirement	Potentiometer excitation: 15 VDC maximum
Dimensions	37 cm (14.6 in) H x 55 cm (21.7 in) L, Propeller: 18 cm (7 in) dia. Mounting: 34 mm (1.34 in) dia. (standard 1 inch pipe)
Weight	1.0 kg

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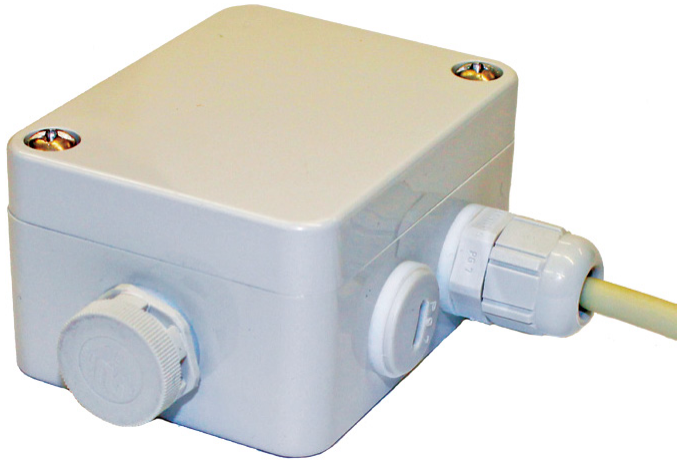
Pessl Instruments Barometer

Order number: 600157

The Pessl Instruments barometric sensor measures the “absolute air pressure” of the atmosphere on site. It is designed for application of environmental protection, where high accuracy, quick response, long term stability and reliability are required. The instrument is suitable for indoor and outdoor use. A tempered piezoceramic sensor for absolute pressure is used, characterized by its thermal and mechanical stability.



TECHNICAL SPECIFICATIONS

Working range	0-1150 mbar
Weight	ca. 50 g
Power supply	5.0 VDC (6 VDC maximum)
Zero offset	0.50 ±0.09 VDC
Power uptake	max. 20 mA
Precision	0.1% max. Thrift
Temperature range	-40°C to 125°C
Measuring type	Serial (RS 485)

BAROMETER

Pessl Instruments Soil Moisture & Soil Temperature Sensor PI54-D

Order number: 600118

The PI54-D soil moisture and soil temperature sensor has a larger volume of influence. It determines volumetric water content (VWC) by measuring the dielectric constant of the soil using capacitance technology and soil temperature. It is 10 cm long and thus measures 1 Liter of soil, while high frequency minimizes salinity and textural effects which makes PI54-D accurate in most soils.

TECHNICAL SPECIFICATIONS

Volumetric water content (VWC)	**Range:** 0–0.57 m^3/m^3 (0%–57% VWC)
	Resolution: 0.0008 m^3/m^3 (0.08% VWC) in mineral soils from 0–0.50 m^3/m^3 (0%–50% VWC)
	Accuracy: With standard calibration equation, 0.03 m^3/m^3 (3% VWC) typical in mineral soils that have solution electrical conductivity <10 dS/m NOTE: With soil-specific calibration, ±0.02 m^3/m^3 (±2% VWC) is typical in any soil.
Dimensions	16.0 cm (6.3 in) length; 3.3 cm (1.3 in) width; 0.8 cm (0.3 in) height
Prong length	10 cm (3.94 in)
Cable length	5/10 m
Supply voltage (VIN to GND)	Minimum: 3.6 VDC at 12 mA Maximum: 15 VDC at 20 mA
Measurement duration	Maximum 10 ms
Temperature accuracy	±0.3°C in the soil temperature (range -5°C to +25°C approx.)
Output	Digital

SOIL MOISTURE

PI-Profile Probe

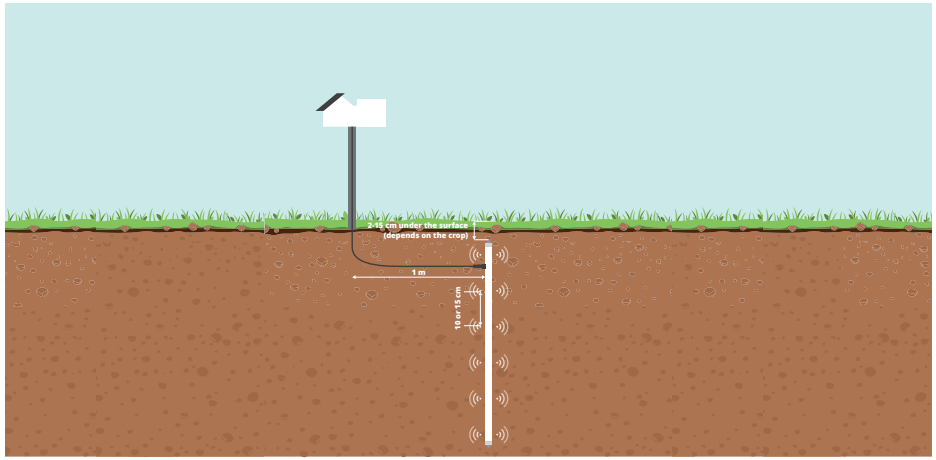
Order number - 60 cm: 600196

Order number - 90 cm: 600197

The PI-Profile Probe system is ideal for broad-acre row crops like corn, cotton, alfalfa and soybeans as well as all permanent crops. Due to its special design where the sensor and the cable are trenched below the surface there is no need for annual installation and removal of soil sensors from the field. The sensor comes with a 5-meter cable and watertight rapid connector so the In-field telemetry can be removed only during tillage, seeding or harvest and moved back in after that. Highly scalable with a low total cost of ownership; no annual installation and removal! The PI-Profile Probe is available with 60 cm and 6 sensors (every 10 cm) and with 90 cm and 6 sensors (every 15 cm) which measures soil moisture and soil temperature in the vertical profile.

TECHNICAL SPECIFICATIONS

Probe lengths	60 or 90 cm
Probe diameter	25 mm
Number of sensors	6
Separation of sensors	60 cm probe: one sensor every 10 cm 90 cm probe: one sensor every 15 cm
Soil moisture range & accuracy	0-100% (mm). Accurate to within 1% V/V.
Soil temperature range & accuracy	**Soil temperature probe reading resolution:** 0.0625°C **Soil temperature probe reading accuracy:** within 1°C in range 0°C to +64°C **General temperature range** that can be used: 0°C to 64°C
Method	FDR
Influence of salinity	Less than 1% over standard operating range
Environment	-15°C to 60°C air temperature; 0 to 90% relative air humidity
Storage	0°C to 65°C air temperature; 0 to 90% relative air humidity *Do not store in direct sunlight. Do not exposed to strong radiometric radiation (i.e. cell phone signal).*
Cable length	5 m



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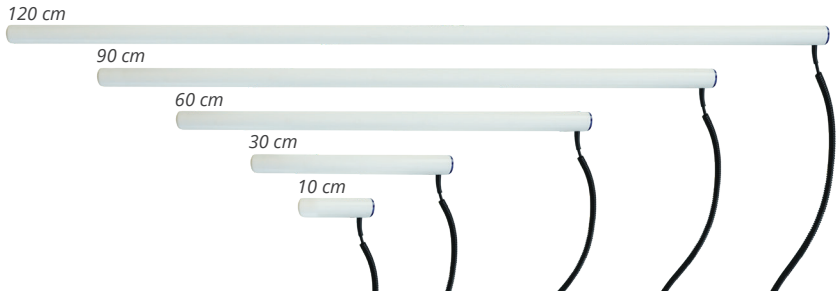
SOIL MOISTURE

Sentek Drill & Drop and TriSCAN Probe

Order number: 600098, 600099, 600100, 600101, 600102, 600103, 600104, 600105, 600106, 600107

Sentek Drill & Drop probe provides the user with great flexibility for precision monitoring of temperature, water, and salinity (Triscan) at multiple depths in a soil profile. Available in five lengths: 10 cm, 30 cm, 60 cm, 90 cm and 120 cm with sensors fixed at every 10 cm increment.

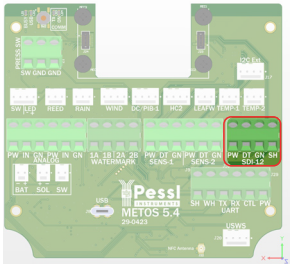


TECHNICAL SPECIFICATIONS

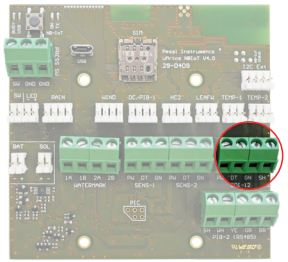
Probe lengths	10 cm (4”) / 30 cm (12”) / 60 cm (24”) / 90 cm (36”) / 120 cm (48”)
Number of sensors	1 / 3 / 6 / 9 / 12
Outer probe diameter (top-bottom)	24-24.5 mm / 28-29.5 mm / 27-29.5 mm / 26-30 mm / 24.5-29.5 mm
Moisture (VWC) range	Oven dry to saturation
Method	Capacitance based technology
Resolution	**Moisture (VWC):** 1:10000 **Salinity (Triscan) (VIC, Volumetric Ion Content):** 1:6000 **Temperature:** 0.3°C
Moisture precision	±0.03% vol.
Temperature accuracy	±2°C at 25°C
Operating temperature range	-20°C to 60°C

CONNECTION TO MOTHERBOARDS

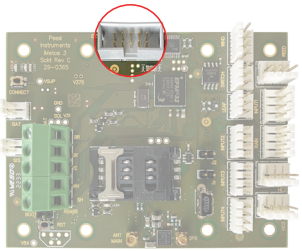
METOS 5



µMETOS



iMETOS 3.3



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SOIL MOISTURE

Irrometer Watermark Soil Moisture Sensor

Order number: 600120

The Watermark Sensor consists of two concentric electrodes buried in a special reference matrix material that is held in place by a synthetic membrane. The matrix material has been selected to reflect the maximum change of electrical resistance over the growth range of crop production, as well as to neutralize the effect of soil salinity. In operation, soil moisture is constantly being absorbed or released and the electrical resistance between the electrode's changes. This resistance is read and logged by the weather station.

The sensor is manufactured from non-corrosive materials and lasts up to three years.

TECHNICAL SPECIFICATIONS

Size	2.2 cm diameter x 5 cm length
Measuring principle	Soil water tension correlated with electrical resistance in granular matrix
Working range	0 to 200 kPa
Precision	5%
Evaluation	Analog
Cable length	3.5 m / 10 m

SOIL MOISTURE

Irrometer Tensiometer

Order number: On request

The instrument measures soil water tension (or suction). This value represents the energy a plant's root system uses to draw water from the soil. Understanding soil moisture dynamics helps the user make informed irrigation scheduling decisions, resulting in improved yield quantity and quality while reducing water, fertilizer, labor, and energy costs. Available in different lengths: 15 cm, 30 cm, 45 cm, 60 cm and 90 cm.

TECHNICAL SPECIFICATIONS

Instrument body materials	Butyrate body, ceramic tip, neoprene stopper
Weight	30 cm weights 0.439 kg. It increases 0.114 kg per 30 cm
Ceramic tip	White tip – used for most soil type
Operating suction	0-90 kPa
Operating temperature range	0 °C to 50 °C
Reservoir dimensions	**Height:** 120-130 mm including cap; **Diameter:** 51-55 mm including ca
Body tube dimensions	Length: ranges from 15 to 90 cm; Diameter: 22 m

SOIL MOISTURE

Pessl Instruments
Soil Temperature

Order number: 600159 (iMETOS 3.3), 600020 (µMETOS, ECO)

The Soil Temperature Sensor is a PT1000 in a waterproof stainless-steel housing. The sensor output is a duty-cycle signal.

TECHNICAL SPECIFICATIONS

Sensor SMT172	**Operating temperature range:** -30°C to +75°C
	Accuracy: ±0.5°C (-30°C to +75°C)
Sensor PT1000	**Operating temperature range:** -30°C to +75°C
	Accuracy: ±0.1°C (-30°C to +75°C)
Supply voltage	4.57-7 V
Supply current	max. 200 µA
Short circuit protection	infinite (within supply voltage range)
Short circuit supply current	max. 40 mA
Calibration error	max. 0.25°C (23°C)
Nonlinearity error	max. 0.2°C
Supply voltage sensitivity	max. 0. 1°C/V
Repeatability	max. 0.2°C
Long term drift	max. 0.1°C
Output frequency	1 to 4 kHz
Evaluation	Duty cycle
Cable length	5 m

SOIL TEMPERATURE

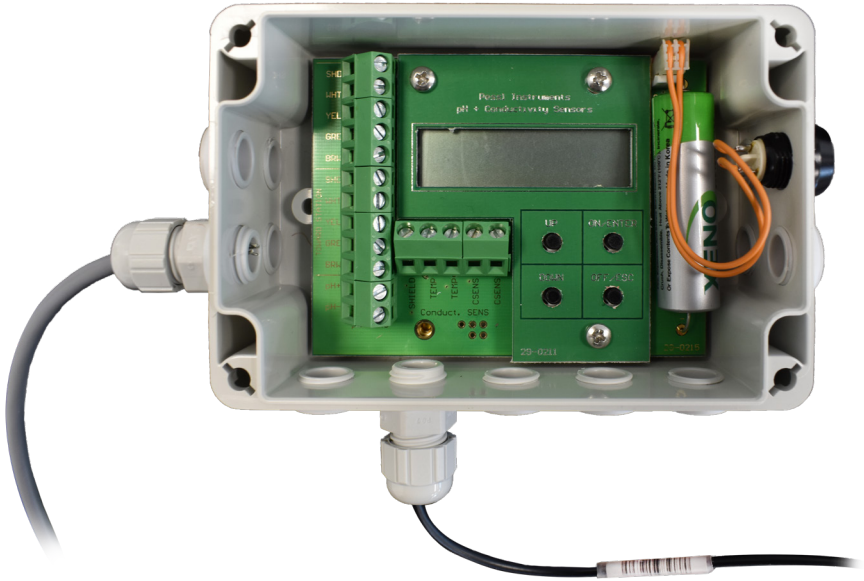
EC & pH Interface Box with Display in IP65 Box

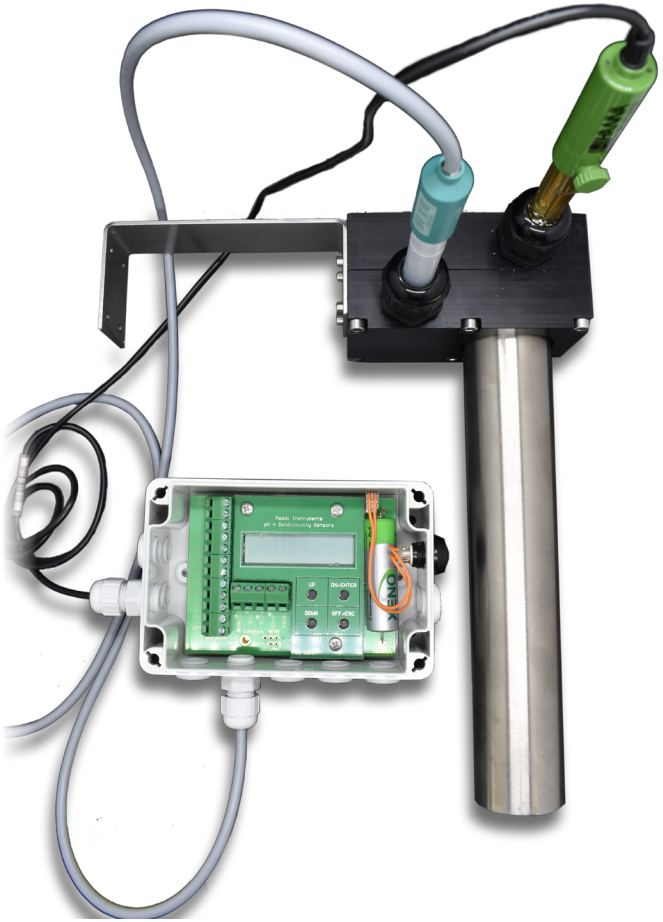
Order number: 600025

The EC500PH EC & pH Interface box is a measuring device with display in IP65 Box to be integrated into any METOS sensor chain interface for continuous EC & pH measurements in water. It is compatible with most industry standard EC & pH sensors. The actual reading can be seen on the display. With the built-in calibration mode, all sensor readings can be calibrated and checked from time to time.

TECHNICAL SPECIFICATIONS

General information	Display shows actual data by pressing the button. It works with iMETOS 3.3 and µMETOS.
Cable length	5 m standard, custom cable lengths available upon request





Connection Possibilities

- 1 EC Sensor (Part.no. EC501)
- 1 pH Sensor (Part.no. PH501)

WATER

Pessl Instruments
Pipe Pressure (WPS)

Order number: On request

This sensor enables continuous monitoring of the pressure in irrigation pipes (main pipe or sector pipes) and measures up to 10 Bar. It can be used in all types of irrigation systems (drip irrigation, sprinkler, hydroponics ...). Sensor resolution and cable length can be adjusted on request.

SECTORS: Irrigation monitoring and supervision, identification of pressure loss in the installation.

TECHNICAL SPECIFICATIONS

Range	0 to 10 Bar
Resolution	1.5 mm
Sensor	Metallux CPS 2184
Precision	0.8 mBar
Pipe connection	G1/4" BSPP thread
Material	Polyamid
Dimensions	Diameter: 3 cm, Length: 10 cm + cable
Weight	0.05 kg sensor + cable
Cable length	5 meters, shielded, UV and water resistant
Calibration	Precalibrated from the factory, optional manual calibration via METOS 5 terminal menu

WATER

Pessl Instruments Water Level Sensor

Order number: On request

The PI Water level sensor is an accurate and cost-effective submersible water level sensor that can be connected to METOS stations. Default pressure range is from 0 up to 2 Bar with a precision of 0.15 mBar. Sensor resolution and cable length can be adjusted on request. Sensor comes with a special cable which contains air ventilated tube for surface pressure compensation.

SECTORS: Depth or level measurement in wells and open waters (rivers and lakes) and ground water level measurement.

TECHNICAL SPECIFICATIONS

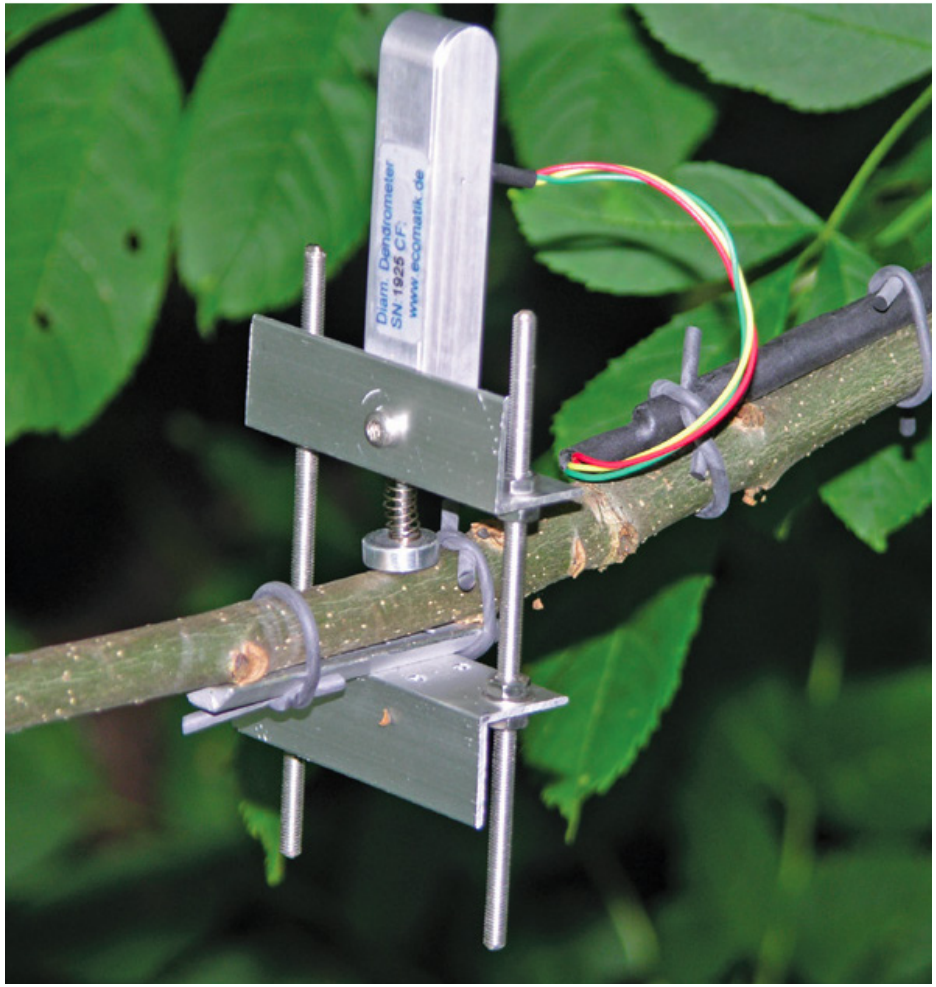
Range	0 to 2 Bar
Resolution	1 mm
Precision	0.15 mBar
Sensor	Metallux CPS 2184
Material	Stainless steel
Dimensions	Diameter: 3 cm, Length: 11 cm + cable
Weight	0.35 kg + cable
Cable length	10 meters, other lengths on request
Calibration	Precalibrated from the factory, optional manual calibration via METOS 5 terminal menu

Pessl Instruments Dendrometer

Order number: On request

Dendrometers are sensors for continuous measurement of plant growth (changes of the plant diameter). The dendrometer allows us to record the plant parameters using the same time interval as environmental parameters. The data allows the direct assignment of plant responses and stress to environmental influences.

Dendrometers are a cost-effective and useful tool for Eco physiological studies.



TECHNICAL SPECIFICATIONS

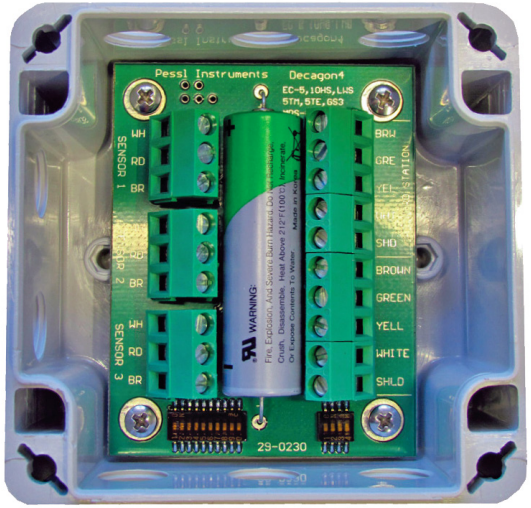
To specify plant size range	Diameter 3-30 cm
Range of the sensor	11 mm
Accuracy	±1.5 µm ±0.12% (CR1000 Logger)
Resolution	0.2-2.6 µm (dependent on used data logger)
Linearity	1%
Thermal expansion coefficient of the sensor	<0.1 µm/K
Operating temperature range	-25 to 70°C
Operating relative humidity range	0 to 100%

Chain Node Interface for 3 Pessl Instruments Sensors

Order number: 600069

This Interface enables the connection of up to 3 PI54-D sensors to a METOS weather station.

The Interface can be an External box for iMETOS 3.3 (ECH870EXT).



YOU CAN CONNECT

The following Pessl Instruments sensors:

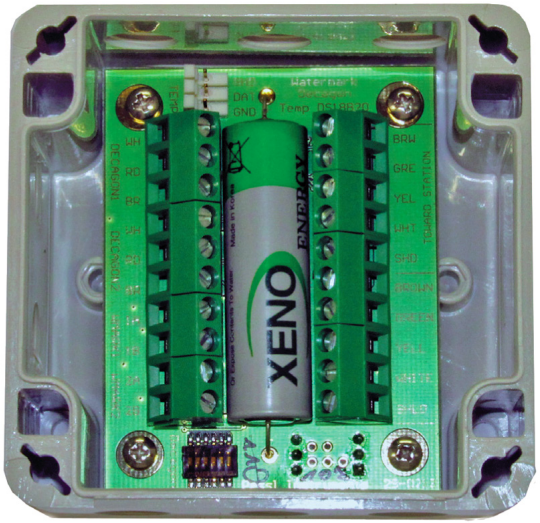
- Vacuum Tensiometer
- Water Level Sensor
- PI54-D

Chain Node Interface for 2 Pessl Instruments Sensors & 2 Watermark Sensors & 1 Soil Temperature Sensor

Order number: 600068

This Interface enables the connection of up to 5 soil sensors to a METOS weather station. It is possible to connect 2 PI54-D sensors, 2 Watermark sensors and 1 soil temperature sensor.

The Interface can be an External box for iMETOS 3.3 (ECH871EXT).



YOU CAN CONNECT:

Two pieces of the following sensor:

- Watermark sensor

One piece of the following sensor:

- Soil Temperature (WMTEMP)

Two pieces of the following Pessl Instruments sensors:

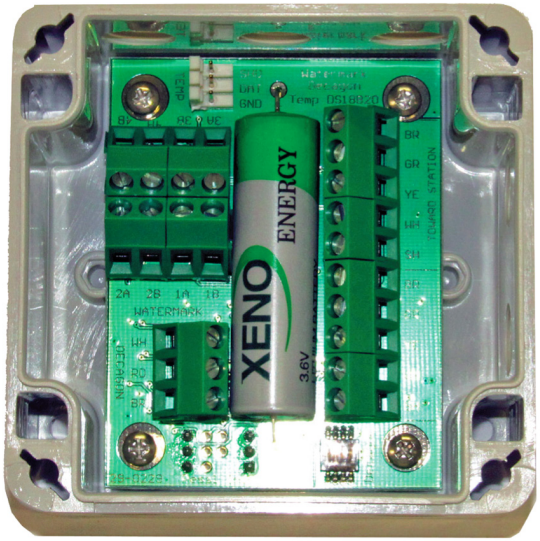
- Vacuum Tensiometer
- Water Level Sensor
- PI54-D

Chain Node Interface for 1 Pessl Instruments Sensor & 4 Watermark Sensors & 1 Soil Temperature Sensor

Order number: 600167

This Interface enables the connection of up to 6 soil sensors to a METOS weather station. It is possible to connect 1 PI54-D sensor, 4 Watermark sensors and 1 soil temperature sensor.

The Interface can be an External box for iMETOS 3.3 (ECH874EXT).



YOU CAN CONNECT:

Four pieces of the following sensor:
- Watermark sensor

One piece of the following sensor:
- Single Soil Temperature

One piece of the following Pessl Instruments sensors:
- Vacuum Tensiometer
- Water Level Sensor
- PI54-D

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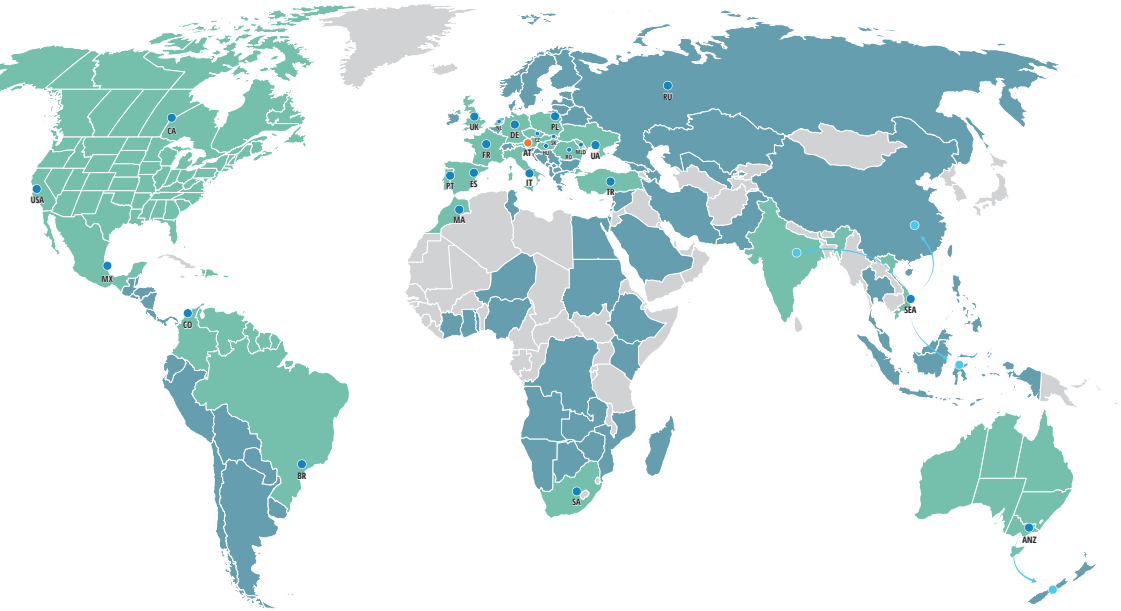

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