METOS®

LOGGERS, SENSORS & SOFTWARE

Pessl INSTRUMENTS

30 Years – Turning information into profits

Why should you choose METOS®?

What makes the METOS® product line from Pessl Instruments unique?

For more than 30 years, Pessl Instruments has been offering tools for informed decision-making. A complete range of wireless, solar powered monitoring systems under the METOS® brand, and an online platform FieldClimate.com are applicable in all climate zones and can be used in various industries and for various purposes – from agriculture to research, hydrology, meteorology, flood warning and more. Over the years, METOS® has become a global brand with local support, and we are proud to say we managed to reach out to almost every corner of the world. We believe that durable, highly precise technology and support from our trained partners worldwide are the recipe for success. The METOS® brand lasts longer, performs better, is easier to use and offers you the lowest total cost of ownership.

METOS® by Pessl Instruments offers the best solution for your needs:

AGRICULTURE	Plant Protection Warning Insect Warning with TrapV® Frost and Heat Warning Irrigation Management and Wireless Automation Greenhouse and Irrigation Automation Plant Physiology Measurement High Resolution Remote Crop Image Monitoring (RECIM Technology) with CropVIEW® Microclimatic forecast with infield rain and temperature – a subscription based service iMeteoPRO® Soil Fertility Monitoring
RESEARCH	Climate Studies Global Warming Application Studies Soil Studies
METEOROLOGY	Measurements of all relevant meteorological parameters for all climate zones
HYDROLOGY	Flood and Draught Monitoring Well and Water Level Monitoring
WIND AND SOLAR INDUSTRY	Site Evaluation Studies Permanent Monitoring
MOBILE MONITORING ON VEHICLES	Spray Drift Information Logistic Information
STORAGE MONITORING	Permanent measurements of temperature and other relevant parameters for storage monitoring
AUTOMATION	Full intelligent automation with iMETOS ICA
SOIL ANALYSES	Mobile soil nutrient laboratory METOS® NPK

Partners:

GEOSYS Growing agriculture · 365FarmNet · Sentek technologies · ONFARM GROW INFORMED · syngenta · ADAMA · BASF The Chemical Company

See full list on our website.

FieldClimate also provides APIs where specific data from our devices can be exchanged in an automatic way to serve other platforms and server environments.

Apps

FieldClimate.com

FieldClimate.com is an online platform that enables access to the data, collected by iMETOS stations and data loggers. Data is presented in an intuitive way and can be accessed directly on the online platform via FieldClimate.com or via application on a mobile device.

FieldClimate Mobile App for Android and iOS

The app is a mobile version of the FieldClimate online platform. It enables the users to access data from wherever they might be, as long as the Internet connection is available. It shows the data of all sensors connected to the station in graphs and tables.

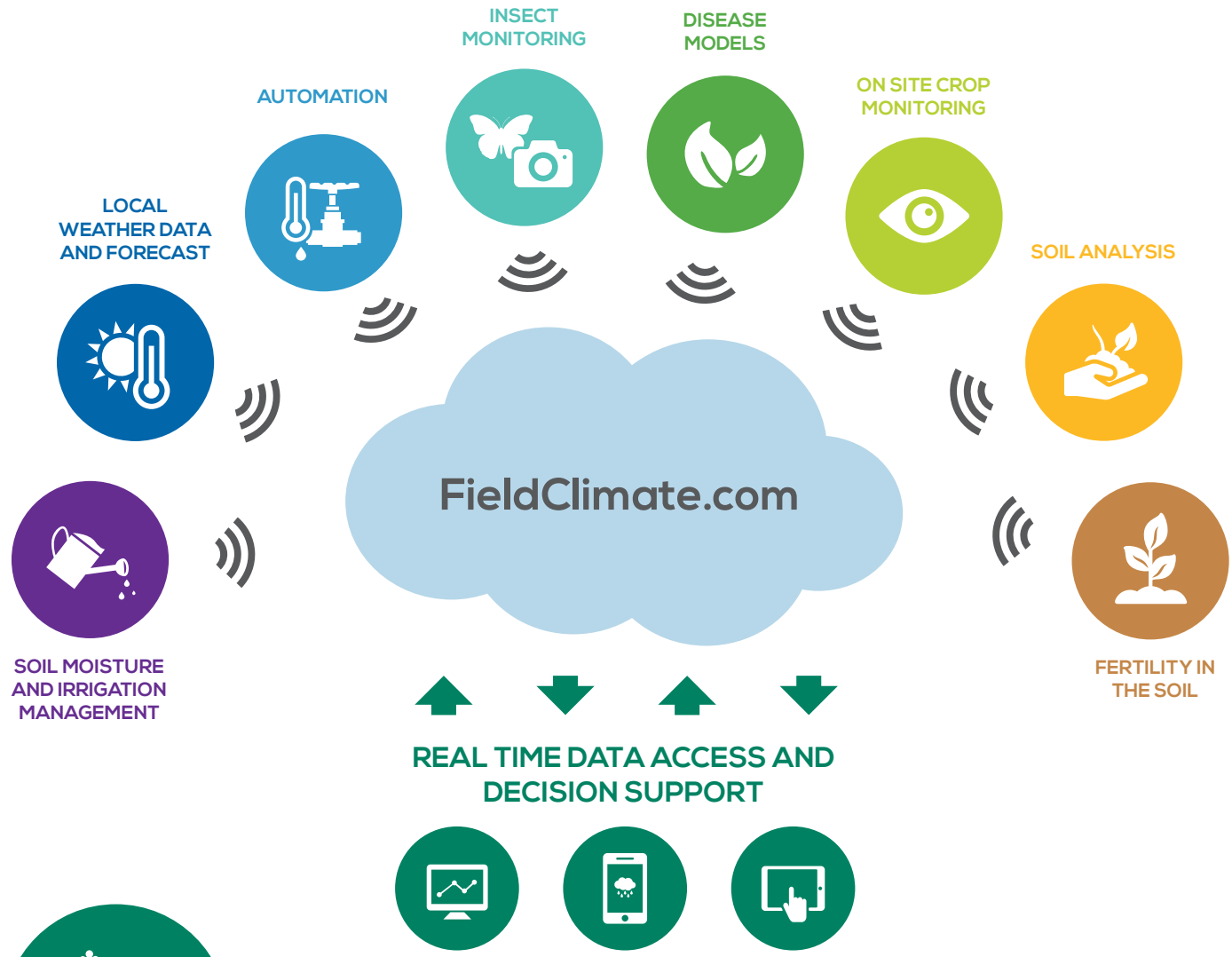
FieldAlert Mobile App for Android and iOS

FieldAlert is a subset of FieldClimate app. It only shows the data from sensors, relevant to frost management i.e. temperature, wet bulb temperature, relative humidity, dew point (also at different heights).
The app was developed for users of iMETOS stations with frost and temperature monitoring and enables easy access and fast overview of the most important data.

FieldGuard Mobile App for Android

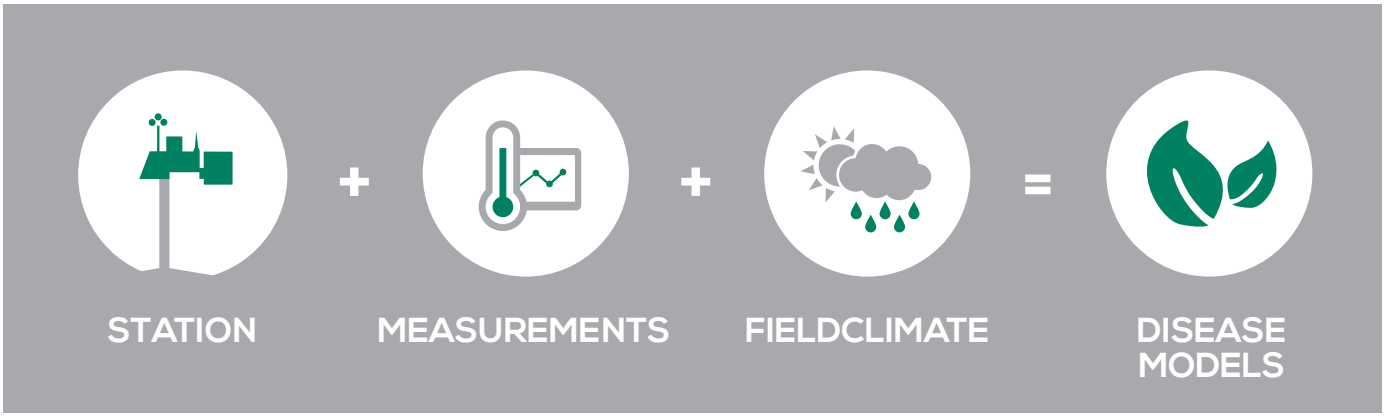
FieldGuard is a mobile app that will help you to note down field observations more efficiently and combine the obtained data with FieldClimate in terms of date, time and the precise location. It helps with documenting disease syndromes, insect damages and other observations, to which you can also add photos, simple counts, written notes and audio recordings. It helps to detect disease symptoms with geo-referenced photos, to document frost or hail damages, evaluate weed infestation and enables you to count insect catches from any mechanic trap out in the field.

Holistic Solutions for Smart Agriculture



COMPLETE SOLUTION

Disease Models



Why does the use of disease models make sense?

- Crops can be protected on time in the most critical stages of growing.
- Prevention of yield loss.
- You can spray less and only when it is necessary.
- It is easier to decide which actions need to be taken in the field and when.

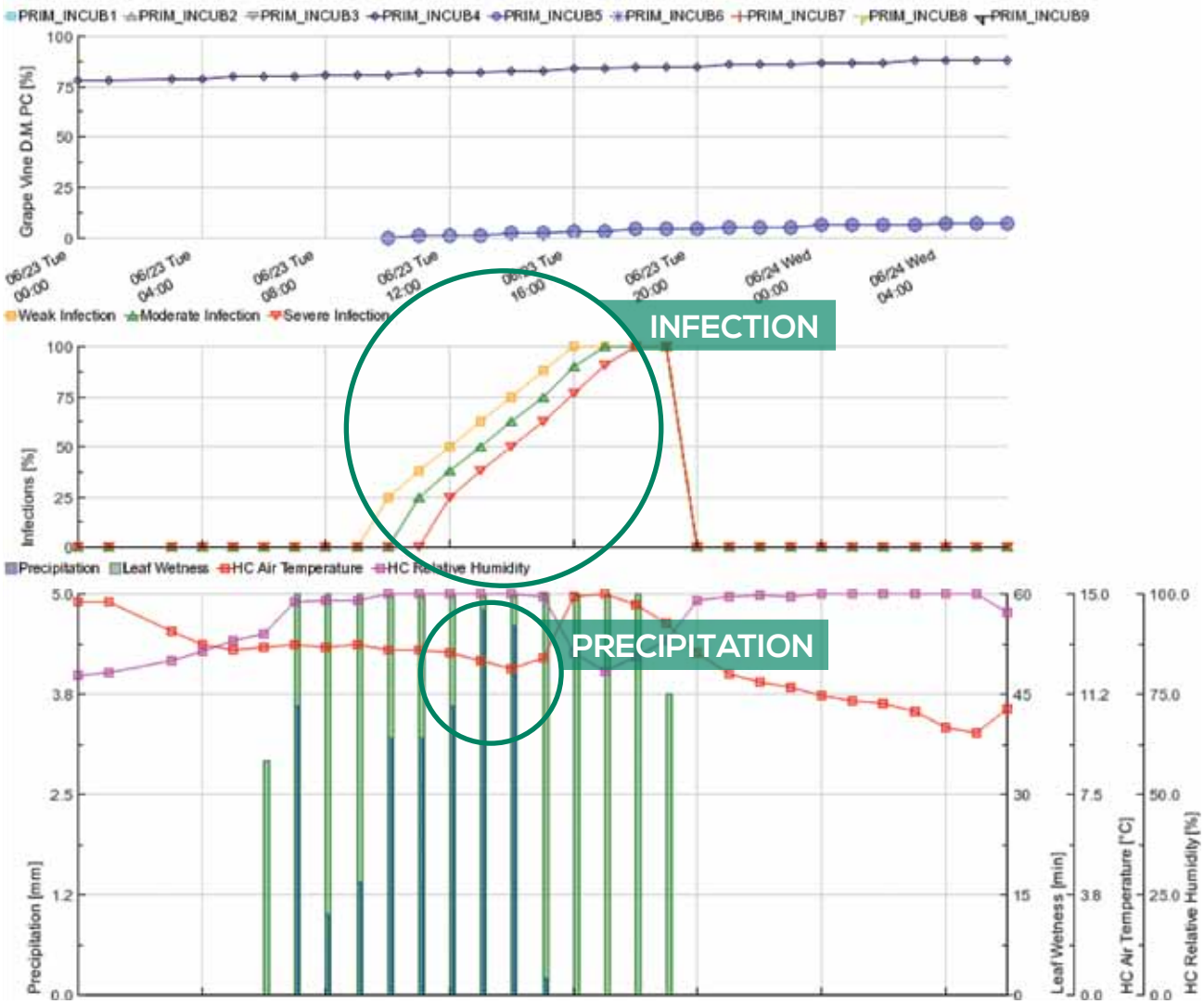
The majority of the disease models is a result of international scientific cooperation with research institutes and universities over the last 30 years. Having been used by farmers for several years in different climates and environments, they have proven their efficiency over time.

Article 4 of the Directive 2009/128/EC states:

"Member States must adopt National Action Plans to set up their quantitative objectives, targets, measures and timetables to reduce risks and impacts of pesticide use on human health and the environment and to encourage the development and introduction of integrated pest management and of alternative approaches or techniques in order to reduce dependency on the use of pesticides".

Due to climatic warming, food security, regulatory laws, as well as economical and ecological aspects, "decision support systems for plant diseases" based on climatic conditions are a basic tool in this integrated pest management strategy.

We offer more than 80 disease models for more than 35 crops.



Graph

The development of Downy Mildew disease in Grape (Viticulture)

The disease overwinters in the form of oospores. The infection from these spores occurs in the early summer in our climatic conditions. Infections based on the oospores are called primary infections and take place under long rainy and wet periods. Depending on the temperature within this period, the infection develops within 16 to 24 hours.

In the graph above, you see precipitation and a long period of leaf wetness afterwards, with temperatures between 10 and 15°C. The time period was long enough for the downy mildew pathogen to infect the grapes.

Soil moisture monitoring and decision support systems for irrigation management

Pessl Instruments offers a very wide range of OEM sensors measuring soil moisture.

- Profile probes or fork like sensors are used to measure volumetric water content (VWC) and are perfect to understand how the water from rainfall or irrigation moves along the vertical soil profile, to see which portion of the root zone is wetted and how fast and to find out if any water is lost due to deep percolation. The data is used to improve irrigation scheduling.
- Tensiometric sensors are used to measure tension (or suction) which directly indicates how the water is available for the plant and how much force the plant root system has to apply to extract the water from the soil.

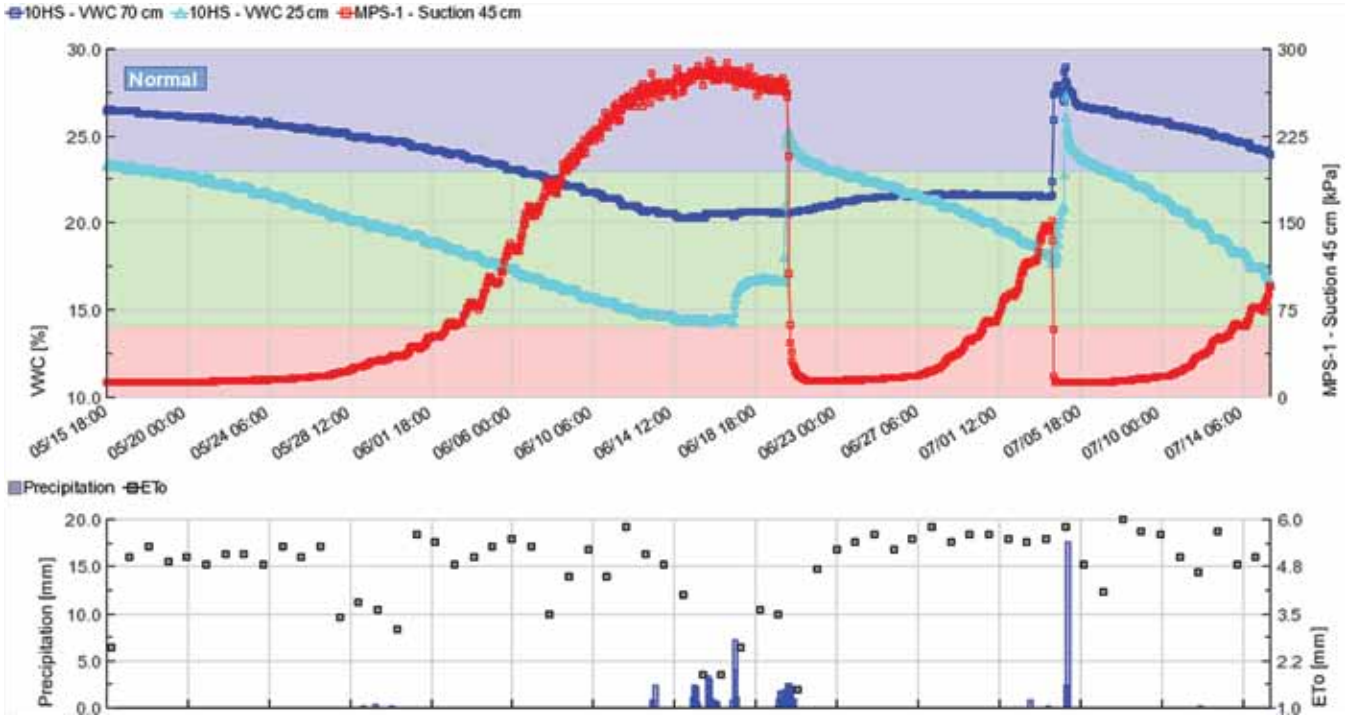
The possibility to choose different technologies and sensors and combining them, allows you to design your best soil moisture monitoring solution in function of your soil characteristics, crops, irrigation systems and field management. Specific solutions are available for potted plants and soil-less applications.

The graph shows an example of a combination of volumetric and tensiometric soil moisture measurements in a vineyard. The adult grapevines, cultivar Pinot noir, are managed with drip irrigation in regulated deficit conditions. Two VWC sensors are installed in the root zone at the depth of 25 cm (light blue) and 70 cm (blue), a tensiometric sensor is installed at the depth of 45 cm (red). The first part of the graph shows a typical drying process with day-night steps due to the plant water uptake, the increased suction indicates the onset of potential stress conditions. This dry phase is attenuated by a rain sequence with different progressive effects of wetting at the different depths. After the second drying process we can see the effect of an irrigation event, wetting directly the deeper layer. After about 16 hours follows the rainfall. The amount of rain and reference to evapotranspiration ET0 are shown in the graph at the bottom.

FieldClimate enables setting the values of 'field capacity' and 'refill point' in order to indicate the deficit conditions (red), the comfort zone (green) and the wet conditions (blue).

Some of these sensors can also measure soil temperature or bulk electrical conductivity (EC) or volumetric ion content (VIC), useful indications in particular for fertigation management.

FieldClimate also provides the Penman-Monteith (FAO-56 Method) calculation of reference evapotranspiration ET0. The calculation requires the input of air temperature and relative humidity, solar radiation and wind speed. Other solutions (IRRIMET, MYIRRIGATION) are available for calculation of crop evapotranspiration and for other information.



Example of soil moisture monitoring in vineyard (Pinot Noir - South Tyrol - Italy). The first graph reports data of volumetric water content (VWC) at two different depths and of suction. The graph on the bottom shows data of precipitation and ET0.

IRRIMET

is an application, which provides a simple water balance. The model permits to calculate the crop evapotranspiration ETc, applying to the ET0 the FAO crop coefficients kc or other personalized coefficients for different phenological stages. The water balance is calculated in function of ETc, rain and rain efficiency, type and efficiency of irrigation system and irrigation events. The application requires a station with sensors for ET0 calculation and a rain gauge.

MYIRRIGATION

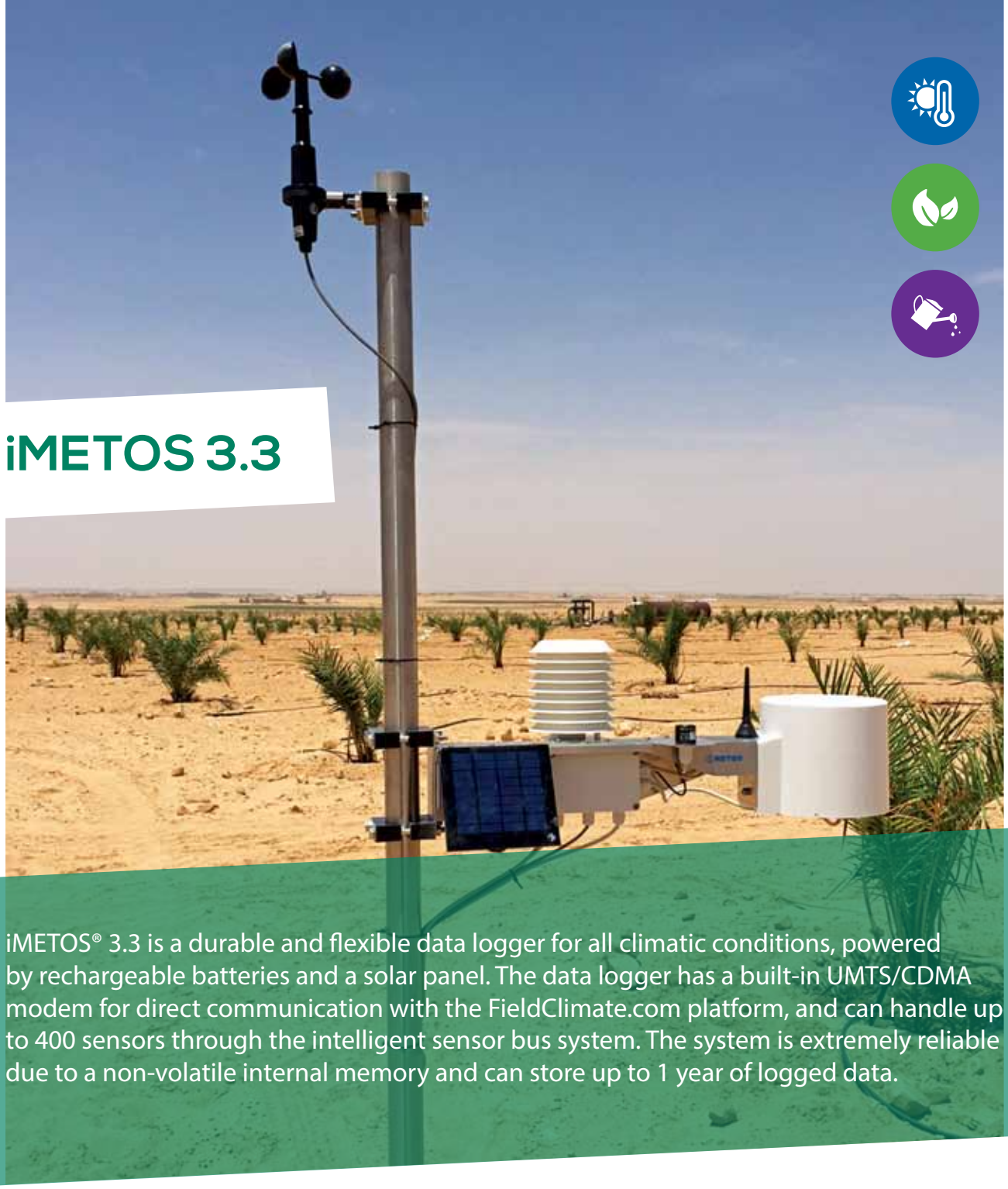
is a web based software developed by our partner Aquagri, which allows a very user-friendly interpretation of soil moisture data, with the possibility to insert crop and soil settings, helping to decide when and how much to irrigate. MYIRRIGATION also provides a very detailed water balance and is the perfect tool to be combined with the other special Aquagri services supporting the management of irrigation and fertigation.

Other special mobile apps for soil moisture monitoring and irrigation automation through the ICA solutions are coming soon.

Table of Contents

Stations and Dataloggers

Sensors

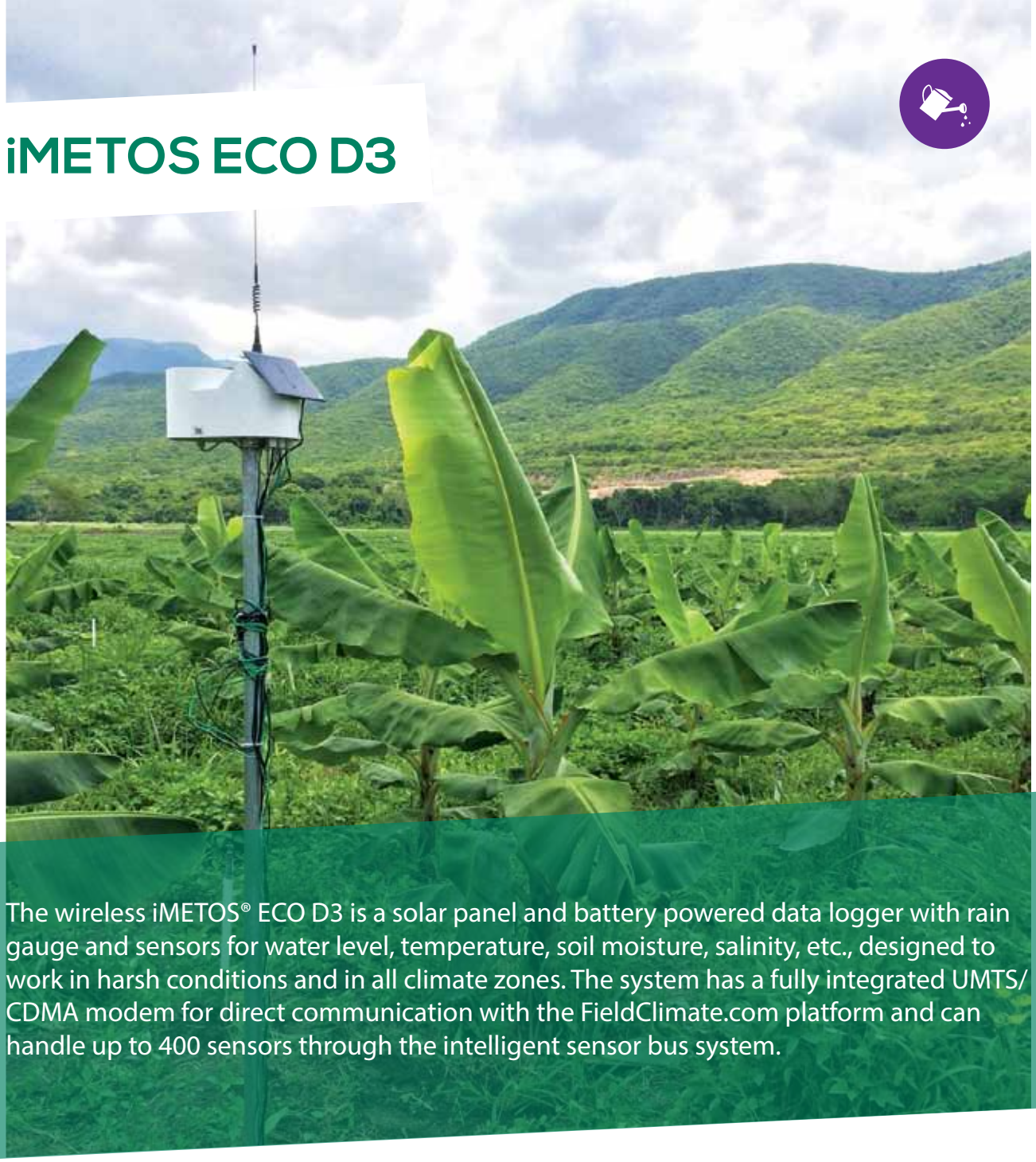


iMETOS 3.3

iMETOS® 3.3 is a durable and flexible data logger for all climatic conditions, powered by rechargeable batteries and a solar panel. The data logger has a built-in UMTS/CDMA modem for direct communication with the FieldClimate.com platform, and can handle up to 400 sensors through the intelligent sensor bus system. The system is extremely reliable due to a non-volatile internal memory and can store up to 1 year of logged data.

Sensors Layout	3 fixed analogue inputs: wind speed, leaf wetness and rain gauge 5 digital inputs: automatic sensor recognition, supporting sensor chains (max. 400 sensors).
Memory	8MB flash memory
Internet Connectivity	GSM - GPRS, EDGE, HDSPA, CDMA, UMTS, Wi-Fi, Satellite
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
Measuring interval	5 minutes
Logging interval	15 – 120 min (user selectable)
Internet contact	User selectable
Battery	6V, 4.5AH, Operating range: -35°C to 80°C
Solar panel	Dimensions: 13,5 x 13,5 cm, 1,4 Watt solar panel
Part.no. TNS30	iMETOS® 3.3 base unit (no sensors included), Internet based logger, battery 4.5AH, 1,4 Watt solar panel, UMTS based, logger, mounting brackets

iMETOS ECO D3



The wireless iMETOS® ECO D3 is a solar panel and battery powered data logger with rain gauge and sensors for water level, temperature, soil moisture, salinity, etc., designed to work in harsh conditions and in all climate zones. The system has a fully integrated UMTS/ CDMA modem for direct communication with the FieldClimate.com platform and can handle up to 400 sensors through the intelligent sensor bus system.

Sensors Layout	1 rain gauge analogue input 1 temperature/relative humidity sensor input 1 leaf wetness sensor input 1 temperature input 1 RS485 digital input - automatic sensor recognition supporting sensor chains 1 RS485 expansion input – supports 2 optional digital inputs
Memory	8 MB flash memory
Internet Connectivity	GSM - GPRS, EDGE, HDSPA, CDMA, UMTS, Wi-Fi, SATELITTE
Alert	SMS, user configurable via website
Dimensions without sensors	30 cm L x 16 cm W x 19 cm H
Weight without sensors	1,9 kg
Measuring interval	5 minutes
Logging interval	15-120min (user selectable)
Internet contact	User selectable
Battery	6V, 4.5AH, Operating range: -35° C to 80° C
Solar panel	Dimensions: 13,5 x 13,5 cm, 1,4 Watt solar panel
Part.no. iDEC15	iMETOS ®ECO „D3“ base unit (without sensors), solar panel, with main board

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iMETOS ECO D3 ICE

iMetos® ECO D3 ICE is the most accurate and affordable web based frost and stress warning system. It gives real time warning from anywhere in the world via SMS or the Internet. The web services on the FieldClimate.com platform are converting sensor data into intelligent warning and record operations.

Sensors Layout	1 rain gauge analogue input 1 temperature/relative humidity sensor input 1 leaf wetness sensor input 1 temperature input (Pt 1000) 1 wet & dry bulb temperature sensor input (Pt1000) 1 RS485 digital input - automatic sensor recognition supporting sensor chains 1 RS485 expansion input – supports 2 optional digital inputs
Memory	8MB flash memory
Internet Connectivity	GSM - GPRS, EDGE, HDSPA, CDMA, UMTS, Wi-Fi, Satellite
Alert	SMS, user configurable via website
Dimensions without sensors	30 cm L x 16 cm W x 19 cm H
Weight without sensors	1,9 kg
Measuring interval	5 minutes
Logging interval	15-120 min (user selectable)
Internet contact	User selectable
Battery	6V, 4.5AH Operating range: -35° C to 80° C
Solar panel	Dimensions: 13,5 x 13,5 cm, 1,4 Watt solar panel
Part.no. IMICE	iMETOS® ECO D3 ICE base unit (without sensors), solar panel, with mainboard

iMETOS® ICA

iMETOS® ICA 30/60 is a web based controller that uses GSM/GPRS technology to remotely operate the irrigation system or any other automation system of a farm or a residential area. The ICA 30/60 comes in an IP67 case, with a rechargeable battery and a solar panel, and can operate three (ICA 30) or six (ICA 60) DC solenoid valves. Both systems include the Pessl Instruments chain interface, allowing the connection of all sensors supported by this technology (various soil moisture sensors, temperature, dendrometers, water level sensors, water counter, pressure transducers, etc). ICA has a main switch to connect with most standard time-based irrigation controllers (Progres, TORO, Rainbird, Netafim etc.) to start irrigation/fertigation cycles intelligently, based on data and plant requirements.

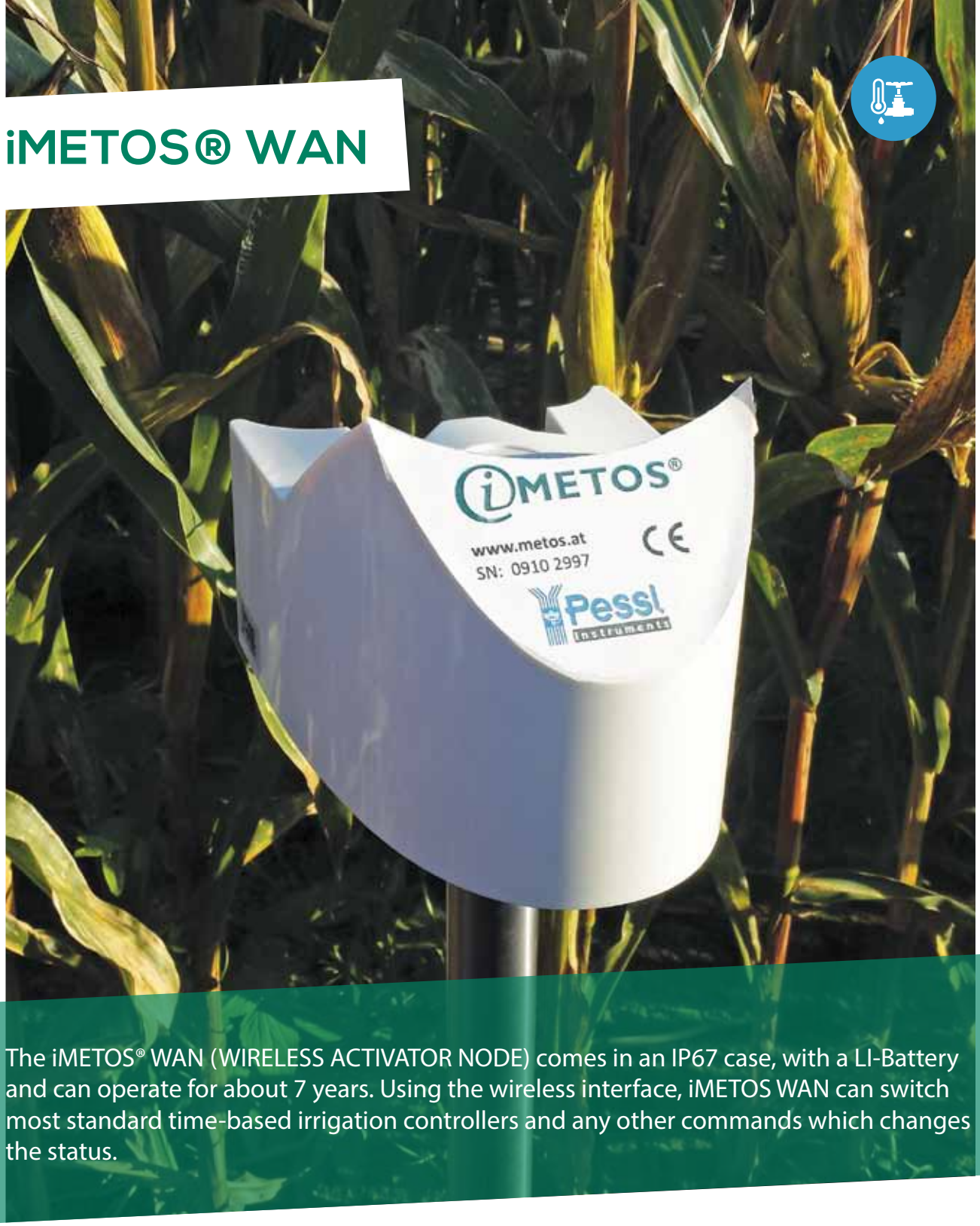
Sensors Layout	1 rain gauge analogue input 1 RS485 digital input - automatic sensor recognition supporting sensor chains 3 water meters, 1 pressure detector (ICA30) and 2 pressure detectors (ICA60)
Memory	2 MB/16 MB flash memory
Internet Connectivity	GSM - GPRS
Alert	SMS, user configurable via website
Dimensions without sensors	30 cm L x 16 cm W x 19 cm H
Weight without sensors	1,9 kg
Measuring interval	User selectable
Logging interval	User selectable
Internet contact	User selectable
Battery	6V, 4.5AH, Operating range: -35° C to 80° C
Solar panel	Dimensions: 13,5 x 13,5 cm, 1,4 Watt solar panel
Outputs	3 bi-directional Latch valves (DC) switches for 12 Volt solenoids with pulses of up to 2A on ICA30 6 bi-directional Latch valves (DC) switches for 12 Volt solenoids with pulses of up to 2A on ICA60
Part.no. ICA30	Internet Central Control for 3 DC valve with IP 65 box, 6 Volt battery and solar panel
Part.no. ICA60	Internet Central Control for 6 DC valve with IP 65 box, 6 Volt battery and solar panel

iMETOS® RADIO NODE

iMETOS® RadioNode is a small, wireless, battery powered datalogger for in-field measurement of soil moisture, temperatures, rain, flow rate, leaf wetness, relative humidity and other parameters. iMETOS® RadioNode sends all sensor readings in real time through an interactive mesh network back to our base station. From the base station the data is uploaded to the web via cellular network (GPRS, Edge, UMTS, CDMA,WiFi). All data is available through FieldClimate platform.
In case of risk situations (frost, irrigation needs etc.) user can get real time automatic alerts and warnings via SMS. To connect iMETOS® RadioNode to the iMETOS® 3.3 RF Access Point (Art.No. RFRN15) is needed.

Housing:	UV resistant polycarbonate plastic (Protection class IP67)
Dimensions without sensors	30 cm L x 16 cm W x 19 cm H
Weight without sensors	1,6 kg
Power Supply	One 3.6V Lithium Primary Cell with 19.000mAH (7 years operation)
Model/Type	Texas Instruments RF CC1120 module with integrated ultra low power sub-GHz transceiver module; integrated crystal, internal voltage regulator, build in antenna global using free ISM bands, ISM Band 915 MHz: USA, Canada, Australia, Israel etc. ISM Band 868 MHz: Europe ISM Band 433 MHz: Asia
Expected range	300 to 400 meter (1200 to 1400 ft.) at +10dBm, broad line of sight, when mounted on level ground at least 3 m (10 ft.) high and above crops, grass, brushes or foliage
Sensors supported	**RFRN09 iMETOS® Radio Node Climate** with input for rain gauge 0,2mm (0,01 inch) (Art. No. IM523) or water meters pressure switch (Art.No. PS010) or leaf wetness sensor (Art. No. IM521CD), 1 temperature and relative humidity sensor, Hygroclip (Art.No. A660611), 2 temperature sensors , 2 Watermark Sensors, 2 Decagon Sensors **RFRN12 iMETOS® Radio Node Watermark/Decagon** with input for rain gauge 0,2mm (0,01 inch) (Art.No. IM523), 1 temperature sensor (WMTEMP), 4 Watermark sensors, 4 Decagon sensors **RRRN13 iMETOS® Radio Node DD** with input for rain gauge 0,2mm (0,01 inch) (Art.No. IM523), 1 Drill&Drop Sentek probe, 2 Watermark , 2 Decagon, with solar panel and 6V, 4.5AH battery and external antenna

iMETOS® WAN



The iMETOS® WAN (WIRELESS ACTIVATOR NODE) comes in an IP67 case, with a LI-Battery and can operate for about 7 years. Using the wireless interface, iMETOS WAN can switch most standard time-based irrigation controllers and any other commands which changes the status.

Housing	UV resistant polycarbonate plastic (Protection class IP67)
Dimensions without sensors	30 cm L x 16 cm W x 19 cm H
Weight without sensors	1,5 kg
Power Supply	One 3.6V Lithium Primary Cell with 19.000mAH (7 years operation)
Model/Type	Texas Instruments RF CC1120 module with integrated ultra low power sub-GHz transceiver module; integrated crystal, internal voltage regulator, build in antenna global using free ISM bands, ISM Band 915 MHz: USA, Canada, Australia, Israel etc. ISM Band 868 MHz: Europe ISM Band 433 MHz: Asia
Expected range	300 to 400 meter (1200 to 1400 ft.) at +10dBm, broad line of sight, when mounted on level ground at least 3 m (10 ft.) high and above crops, grass, brushes or foliage.
Part.no. RFRNWAN	iMetos WIRELESS ACTIVATOR NODE

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µMETOS® Blue

µMETOS® Blue is a data logger with Bluetooth interface, powered by lithium primary cells, which will run the logger for about 7 years. It does not need special infrastructure and mounting in the field is done in minutes. µMETOS® Blue comes with memory of about 2 years of data storage and can handle various sensors. Data is permanently measured in 5-minute interval. Waving a Bluetooth-enabled smartphone (IOS, Android) over the µMETOS® activates the µMETOS® Blue mobile app and pairs the unit to download data on your mobile device. Data is transmitted to your phone in seconds, including the device number, GPS position and the date of last download. With the µMETOS® Blue mobile app an unlimited amount of data from multiple µMETOS® Blue stations can be uploaded. You can see the data directly on the mobile phone. Once your smart phone is connected to the Internet, all the data is synchronized with FieldClimate.com.

Housing	UV resistant polycarbonate plastic (Protection class IP67)
Dimensions without sensors	30 cm L x 16 cm W x 19 cm H
Weight without sensors	1,6 kg
Power Supply	One 3.6V Lithium Primary Cell with 19.000mAH (7 years operation)
Model/Type	Processor PIC18 – Bluetooth 3.0
Expected range	10 - 40 meter
Sensors supported	Rain gauge 0,2mm (0,01 inch) (Art.No. IM523) or read out of flow meters, Wind speed (Art.No. IM512CD), 1 digital input e.g. for solar radiation (Art.No. IM506D/IM5069D) or wind direction (Art.No. IM511CD), pressure switch (Art.No. PS010) or leaf wetness sensor (Art.No. IM521CD), 2 Watermark Sensors, 2 Decagon Sensors, 2 temperature sensors, 1 temperature and relative humidity sensor, Hygroclip (Art.No. A660611)
Part.no. MMBL20	µMETOS® Blue (without sensors)

T-monitor

T-monitor provides automatic real time monitoring, process control of storage rooms and silos. It can be installed any time after the storage is loaded, without disruption. Any critical change of temperature and other factors give a detailed overview of the whole storage and alerts can be immediately sent to one or more storage managers by SMS. T-monitor can also work in areas without main power supply as the system can be powered by battery or solar panel. It supports up to 400 temperature-measuring points on different nodes and hubs in one system, in combination with early warnings. Besides temperature, inside/outside temperature, relative humidity, CO2, wind speed, rainfall and movement (theft protection) can be measured.

Sensors Layout	3 fixed analogue inputs: wind speed, leaf wetness and rain gauge. 5 digital inputs: automatic sensor recognition supporting sensor chains (max. 400 sensors).
Memory	8MB flash memory
Internet Connectivity	GSM - GPRS, EDGE, HDSPA, CDMA, UMTS, Wi-Fi, Satellite
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
Measuring interval	5 minutes
Logging interval	15 – 120 min (user selectable)
Internet contact	User selectable
Battery	6V, 4.5Ah, Operating range: -35°C to 80°C
Solar panel	Dimensions: 13,5 x 13,5 cm, 1,4 Watt solar panel
Part.no. SMS30S	Silo Monitor "T-monitor" Solar

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TrapV®

TrapV® is a patented combination of hardware and software solutions for remote monitoring of different agricultural and industrial insects. The TrapV®, with its integrated electronics and sticky plate, is light enough to be hung where needed. In the field, the device is self-sufficient, being powered by a solar panel and a battery. Multiple cameras take high-resolution pictures of the sticky plate within the TrapV®. Images are sent via GPRS to the TrapV® platform where they are analyzed with automatic detection of pest. The results are then visible on web or mobile devices. Control is real-time and the collected data can be used for further analysis.

Catchable pests with TrapV®:
Adoxophyes orana (Summer fruit tortrix), Agrotis segetum (Turnip moth), Amyelois transitella (Navel orangeworm), Anarsia lineatella (Peach twig borer), Archips podana (Fruit tree tortrix moth), Autographa gamma (Silver Y moth), Cydia funebrana (Plum fruit moth), Cydia molesta (Peach moth), Cydia pomonella (Codling moth), Epiphyas postvittana (Light brown apple moth), Eupoecilia ambiguella (European grape berry moth), Helicoverpa armigera (Cotton bollworm/Corn earworm), Helicoverpa punctigera (Native budworm), Lobesia botrana (European grapevine moth), Pandemis heparana (Apple brown tortrix), Phthorimaea operculella (Potato tuber moth), Plutella xylostella (Diamondback moth), Spodoptera frugiperda (Fall armyworm), Tuta absoluta (Tomato leafminer)

Memory	4 MB
Internet Connectivity	GSM - GPRS, EDGE, HDSPA, UMTS
GPS receiver	Yes
Dimensions of electronics without trap housing	18 cm L x 13 cm W x 35 cm H
Weight	0,93 kg
Internet contact interval	Max. 4 times per day (usually once a day)
Battery type	Lithium battery
Solar panel dimensions	18 x 13 cm, 7.2 Volt, 333 mA
Camera	4 x 2 megapixel cameras
Solar panel	Dimensions: 13,5 x 13,5 cm, 1,4 Watt solar panel
Part.no.	IM-TR TrapV® - Internet based monitoring device, solar panel, rechargeable battery, GPRS Logger, Interface for 1 temp. input (no sensors incl.), 1 year web service incl., GPS sensor

CropVIEW®

CropVIEW® is an agricultural information system with RECIM® Technology (Remote Crop Image Monitoring), which periodically receives high-resolution photos of farmland, research plots, crop canopies etc. Photos are automatically uploaded on a customized Internet platform, thus allowing a constant crop quality and yield control. The high-resolution picture enables checking seeds for germination, monitoring the effect of fertilizers and pesticides on crop development, and helps deciding whether a disease or pest already threatens profitability. An innovative agricultural information system guarantees daily control of the development of plants and fruits. High-resolution images combined with local weather data (temperature, relative humidity, rainfall, sunshine duration, leaf wetness etc.) can be viewed and analysed daily over time without any additional effort. The system operates with rechargeable battery and a solar panel for year round operation in most climatic zones.

Housing	Power supply and sensor support box: 41 cm L x 13 cm W x 7 cm H
Weight without sensors	2,2 kg
Camera module	Stainless steel holder with IP65 box 27 cm L X 17 cm W X 9 cm H, weight: 1,5kg
Power Supply	6 Volt lead acid 4.5 AH battery with solar panel
Model/Type	Cortex M4 processor module with integrated Communication model for GSM/UMTS/CDMA 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
Optional Weather Sensors supported	Rain gauge 0,2mm (0,01 inch) (Art.No. IM523) Leaf wetness sensor (Art.No. IM521CD) Soil or air temperature (Art.No. IM5042) Temperature and relative humidity sensor (Art.No. A660611)

iMETEO PRO

iMeteo®PRO is the optimal integration of measured and forecasted weather data. It combines the past temperature and rainfall data on the location and runs a precise 7-day microclimatic forecast on hourly basis that can be accessed at anytime via computer or smartphone. One part is a robust solar-powered Weather Station which measures and stores temperature and rainfall on your location, and sends this data in real time via GPRS or CDMA to the Internet. The second part is the combination of the historic measured weather data with the precise forecast, which is automatically calibrated with measured data. It provides a unique platform for the most accurate planning of harvest, planting, cultivation (including disease outbreak alerts), spraying and company logistics on subscription basis.

Hardware	Data logger GPRS/EDGE with 365 days of memory, Solar panel and rechargeable battery, Rain gauge 0,2 mm resolution, Air temperature -30°C to 60°C (precision +/- 0,3°C)
Forecasted data	Air temperature, Soil temperature, Relative Humidity, Rainfall absolute in 0,2 mm resolution, including the probability of the rain, Sunshine duration, Cloud cover in three stages (low, middle and high), Wind speed and wind gust, Wind direction, Evapotranspiration in mm (ET Value), Leaf Wetness, Cloud Cover
Services	**Arable Agriculture** • Conditions for Sugar Beet and Potato Harvest • Hours to Use Combines in Small Cereals • Fertilizer and Spraying Possibilities • NoBlight • TomCast • Rust Infection • Mould Infections in Turf and Cereals **Wine and Fruit Producers** • Fertilizer and Spraying Possibilities • Fruit and Grape Harvest • NoBlight • Scab Infection • Rust Infection • Powdery Mildew Risk Periods • Flight of Moths **Animal Production** • Dairy Stress • Poultry Stress • Hay and Silage Preparation **Irrigation Farming** • Evapotranspiration corrected with crop factors for next 5 days

METOS® NPK

METOS® NPK 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 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 an individual 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 FieldClimate.com platform, where it is saved and can be accessed by several users.
The possibility to transfer of 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).

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): ±10 %
	For measurements of soil concentrations (mg / kg): ±15 %
Chip lifetime	12 hours after braking of the sterile package
Battery capacity	12 hours of measuring time, 3 months in standby
Duration of one measurement	5 minutes

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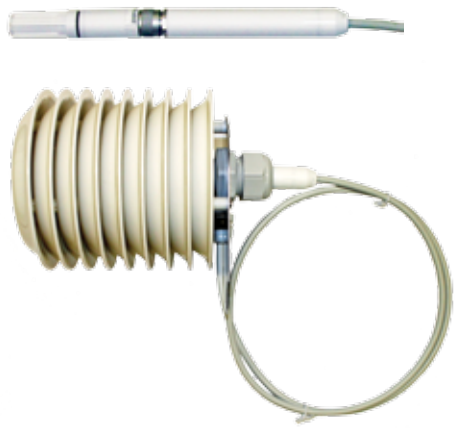
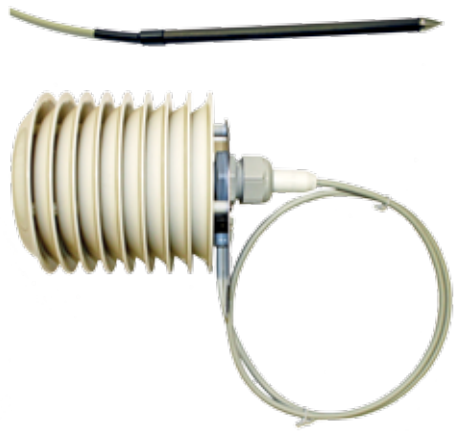
RELATIVE HUMIDITY AND AIR TEMPERATURE



Measures relative humidity, temperature and calculates dew point with outstanding accuracy and repeatability. It has an integrated data acquisition and calibration history.

Part.no. A660611

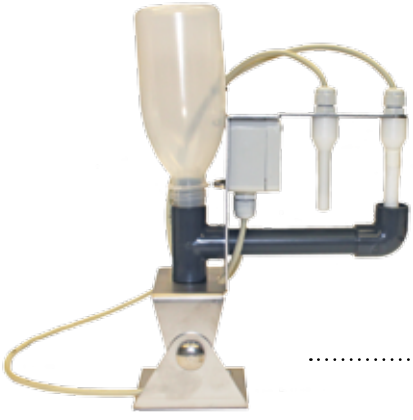
SINGLE AIR TEMPERATURE OR DUAL-PURPOSE SOIL AND AIR TEMPERATURE



The dual-purpose soil temperature and air temperature sensor are designed for measuring the soil temperature for seeding and later for air temperature inside the convection cap. The sensor can be inserted under all soil conditions and various depths without breaking and prevents a temperature bridge. It also offers multiple uses as a simple, economic and practical solution for arable farmers.

Part.no. IM5021D Single air temperature sensor
Part.no. IM5042 Soil and air temperature

WET AND DRY BULB TEMPERATURE



The highly reliable and experienced SMT 172 (or Pt1000) is built in a waterproof housing, covered by cotton tissue and wetted by water. This is the most accurate way to directly determine the dew point.

Part.no. IM505CD

IR TEMPERATURE

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 measurement from a distance. By measuring the amount of infrared energy emitted by the object and its emissivity, the object's temperature can be determined.

Part.no. IRTEMP

HEAVY DUTY MULTIPLE-TEMPERATURE PROBE

Multiple-temperature probe is a thermometer, designed for making measurements in extremely harsh conditions like temperature of waste on disposal sites, and chipped wood in storage rooms.

Part.no. MTP

RAIN GAUGE

The mechanic consists of a small magnet, which moves past a metallic 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 cm2 is 0.2 mm, while the resolution with the 80 cm2 is 0.5 mm. Heating for rain gauge can also be included.

Part.no. IM523

LAMBRECHT RAIN GAUGE

The mechanic consists of a small magnet, which moves past a metallic 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 cm2 is 0.2 mm, while the resolution with the 80 cm2 is 0.5 mm. Heating for rain gauge can also be included.

Part.no. LMP02

PYRANOMETER

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 favourable results compared to the first class thermopile-type pyranometers, but is priced at just a fraction of the cost.

Part.no. IM506D Pyranometer (Solarimeter)
Part.no. IM5069D Pyranometer (Solarimeter) with leveling plate

PAR QUANTUM

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 commonly 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.

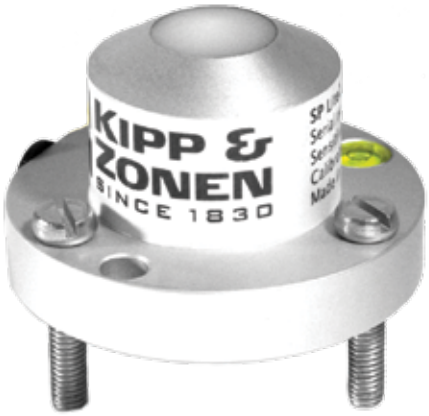
Part.no. IM507D PAR Quantum Sensor
Part.no. IM5079D PAR Quantum Sensor with leveling plate

LUX METER

Photometry or Luxmeter IM508D refers to the measurement of visible radiation (light) with a sensor having a spectral responsivity curve equal to the average human eye. The sensor is used to measure lighting conditions where the eye is the primary receiver, such as illumination of work areas, greenhouses, interior lighting etc.

Part.no. IM508D LUX or Photopic Sensor
Part.no. IM5089D LUX or Photopic Sensor with leveling plate

KIPP & ZONEN SP LITE2 PYRANOMETER



SP Lite2 is designed for routine measurements of solar radiation and can be used under all weather conditions. It measures the solar energy received from the entire hemisphere. It is ideal for measuring available energy for use in solar energy applications, plant growth, thermal convection and evapotranspiration.

Part.no. CZ-LITE

KIPP & ZONEN CMP3 PYRANOMETER

The CMP 3 pyranometer is an instrument for measuring the solar irradiance. The thermopile sensor construction measures the solar energy that is received from the total solar spectrum and the whole Hemisphere (180 degrees field). The output is expressed in W/m2. The CMP 3 pyranometer is designed for continuous indoor and outdoor use.

Part.no. CMP3

KIPP & ZONEN CMP6 PYRANOMETER

The CMP 6 pyranometer is intended for routine global solar radiation measurement research on a plane/level surface. Fully compliant with ISO 9060:1990 specification for a First Class pyranometer, the CMP 6 features a sixty-four-thermocouple junction (series connected) sensing element. The sensing element is coated with highly stable carbon based non-organic coating, which delivers excellent spectral absorption and long-term stability. It is reliable in all weather conditions.

Part.no. CMP6

KIPP & ZONEN CMA6 ALBEDOMETER

The CMA albedometers are double pyranometers that measure both global and reflected solar irradiance in one instrument. CMA albedometers are suitable for measuring global radiation and/or albedo over many different types of surface. The upper pyranometer measures incoming global solar radiation and the lower sensor measures solar radiation reflected from the surface below. CMA 6 is constructed from two CMP 6 pyranometer sensors.

Part.no. CMA6

HUKSEFLUX LP02 HEAT FLUX PLATE

LP02 serves to measure the heat that flows through the object on which it is incorporated or in which it is mounted. The actual sensor in LP02 is a thermopile. It measures the differential temperature across the ceramics-plastic composite body of LP02. Working completely passively, LP02 generates a small output voltage proportional to the local heat flux.

Part.no. LP02

WIND DIRECTION

IM511CD is a vane type digital wind direction sensor for accurate measurements in all weather conditions. It calculates average wind direction in the specific time period.

Part.no. IM511CD

WIND SPEED

IM512CD is a cup type anemometer for low cost and long term, accurate wind measurements for all kinds of use. It calculates average wind speed in the specific time period.

Part.no. IM512CD

WIND MONITOR

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.

Part.no. 05103L
Part.no. 05103-45 Alpine version

RM YOUNG ULTRASONIC WIND SENSOR

RM Young Ultrasonic wind sensor is a precise and maintenance-free sensor for measurements of wind velocity and wind direction. In contrast to the traditional „cups and vanes", it is designed without moving parts. It offers high performance and low power consumption in a compact size and is ideal for the most demanding wind sensing applications.

Part.no. 86000

DECAGON ULTRASONIC WIND SENSOR

The DS-2 is a research-grade two-dimensional sonic wind sensor, built specifically for agricultural, forestry, and environmental research applications. A lower wind speed threshold makes it especially well suited for measuring wind within plant canopies, where wind speeds are often below the threshold of a cup wind sensor.

Part.no. DS-2

DENDROMETER

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, therefore, allows the direct assignment of plant responses and stress to environmental influences. Dendrometers are a cost-effective and useful tool for ecophysiological studies.

Part.no. DN502

SAP FLOW

The well-known Granier sap flow sensor, i.e. thermal dissipation probe (Granier, 1985) uses heat as a tracer of sap flow. Due to its simplicity, reliability and affordability, the Granier technique is used all over the world. The SF-L Sap Flow Sensor considerably enhances accuracy and reliability in sap flow measurements, through continuous correction of natural temperature gradients of the sapwood. In contrast to the original Granier technique, SF-L sensor provides a very stable and more accurate value between the heated needle and the sapwood ambient temperature.

Part.no. SF-L

LEAF TEMPERATURE

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

Part.no. IM522CD

LEAF WETNESS

The leaf wetness sensor works by measuring the conductivity in a filter paper. The filter paper 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.

Part.no. IM521CD

DECAGON LEAF WETNESS

Decagon LWS is designed to detect wetness (presence and duration) and ice formation.

Part.no. LWN530

ULTRASONIC SNOW DEPTH SENSOR

Ultrasonic snow depth sensor is used for non-contact measurement of snow-depth in extreme conditions with ultrasonic sensors. The sensor is characterized by its high level of operating reliability, low energy consumption and ease of use in the field.

Part.no. USH8

SOIL TEMPERATURE

The Soil Temperature Sensor is a SMT 172 in a waterproof stainless steel housing. The sensor output is a duty-cycle signal.

Part.no. IM5041D

MULTIPLE SOIL TEMPERATURE

SAR19/SAR19M provide soil temperature measurement from several centimeters to 15-meter deep by using the Pessl Instruments sensor BUS. The distance between the sensors can be chosen according the application, but only up to 10 sensors can be attached to one sensor chain.

Part.no. SAR19

SINGLE SOIL TEMPERATURE

WMTEMP is a soil temperature sensor usually used with watermark sensors on iMETOS ECO D3.

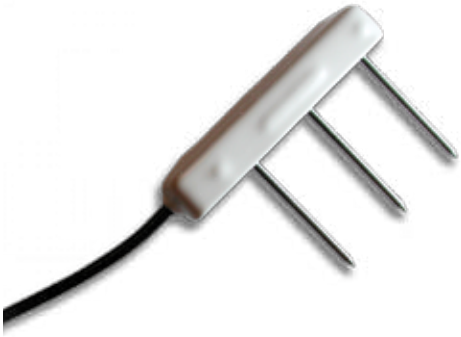
Part.no. WMTEMP

VOLUMETRIC WATER CONTENT SENSOR

The GS1 is a ruggedized version of of the Decagon basic soil moisture sensor. It accurately measures volumetric water content in soil or soilless media. It distinguishes itself by longer lifetime, better soil-sensor contact and easier installation.

Part.no. ECH-GS1

SOIL MOISTURE SENSOR



The Decagon GS3 sensor measures soil moisture, soil temperature and EC. The sensor has been optimized for use in soilless substrates, leaving it a wider range of EC measurement and an increased temperature range. The steel needles not only slice through the substrates for perfect contact, but also improve the sensor's ability to measure EC in porous substrates such as peat or perlite. The sensor also works well in mineral soils. Its 70 MHz frequency minimizes salinity and textural effects, making it accurate in most soil or soilless media. Stainless steel needles have an extended surface area to optimize EC measurements, while minimizing substrate disturbance during insertion.

Part.no. ECH-GS3

DECAGON EC-5 SOIL MOISTURE SENSOR

The EC-5 is a basic, reliable and low cost soil moisture sensor. The EC-5 determines volumetric water content (VWC) by measuring the dielectric constant of the media using capacitance/frequency domain technology. Its 70 MHz frequency minimizes salinity and textural effects, making this sensor accurate in almost any soil or soilless media. It is just 5 cm long, and has a 0.3 L measurement volume.

Part.no. ECH500

DECAGON MPS-2 DIELECTRIC WATER POTENTIAL

The MPS-2 is a maintenance-free soil water potential and temperature sensor. It measures a wide range of soil water potentials (-10 to -500 kPa) without user maintenance.

Part.no. ECH511

DECAGON 10HS SOIL MOISTURE SENSOR

The 10HS soil moisture sensor has a larger volume of influence. Being 10 cm long, the 10HS measures 1 liter of soil. The 10HS determines volumetric water content (VWC) by measuring the dielectric constant of the soil using capacitance/frequency domain technology. Using a 70 MHz frequency minimizes salinity and textural effects, making the 10HS accurate in most soils. Factory calibrations can be used in most typical soils with a saturation extract EC of 10 dS/m.

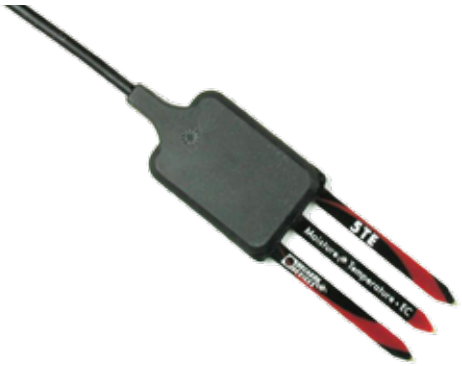
Part.no. ECH510

DECAGON 5TM SOIL MOISTURE SENSOR

Temperature integrated with soil moisture: The 5TM delivers temperature, measured by an onboard thermistor, along with accurate volumetric water content. The small size makes it easy to install. It is perfect for in field installations.

Part.no. ECH5TM

DECAGON 5TE SOIL MOISTURE SENSOR



Soil moisture, temperature, and electrical conductivity: The 5TE lets you monitor bulk electrical conductivity (EC), in addition to volumetric water content (VWC) and soil temperature. Monitoring salt levels can be as important as monitoring soil moisture in water-limited areas. The 5TE allows you to measure salt levels through bulk electrical conductivity.

Part.no. ECH5TE

DECAGON MPS-6 DIELECTRIC WATER POTENTIAL SENSOR

The MPS-6 is a matrix water potential sensor that provides long term, maintenance-free soil water potential and temperature readings at any depth without sensitivity to salts. The range of the MPS-6 goes from field capacity to air dry (-9 to -100,000 kPa). Lab and field tests indicate that it can make accurate measurements of water potentials at least as dry as permanent wilting point.

Part.no. ECH512

TENSIOMETRIC SOIL MOISTURE SENSOR – WATERMARK

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 electrodes changes. This resistance is read by the weather station. The sensor is manufactured from non-corrosive materials and lasts up to three years.

Part.no. MD510SM

SENTEK DRILL&DROP PROBE

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

Part.no. SE600 Temperature, soil moisture
Part.no. SE600S Temp, soil moisture, salinity

TENSIOMETER

The instrument measures soil water tension in centibars (cbar) or kilopascals (kPa). This value represents the energy a plant's root system uses to draw water from the soil. Understanding soil moisture activity helps the user make informed irrigation scheduling decisions, resulting in improved yield 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.

Part.no. TNS103

SOIL MOISTURE STEPSYSTEMS SENSOR

The 100SMT is an accurate soil moisture probe for monitoring volumetric water content and soil temperature. The oscillation frequency is related to the dielectric permittivity of the surrounding medium. The relation between the permittivity and the soil moisture depends on the soil type and the soil temperature, therefore all dielectric measurement techniques require a material and temperature dependent calibration for highest precision.

Part.no. 100SMT

ECHO CHAIN INTERFACE FOR 3 DECAGON SENSORS

Three pieces of the following Decagon Sensors can be attached:

- GS1 Soil Moisture Sensor (ECHGS1)
- GS3 Soil Moisture Sensor (GS3)
- EC-5 Soil Moisture Sensor (ECH500)
- 10HS Soil Moisture Sensor (ECH510)
- 5TM Soil Moisture Sensor (ECH-5TM)
- 5TE Soil Moisture Sensor (ECH-5TE)
- MPS-2 Dielectric Water Potential (ECH511), MPS-6 (ECH512)
- Decagon Leaf Wetness Sensor (LWN530)

Part.no. ECH870EXT
Part.no. ECH870INT Internal, only for ECO D3 (only one pc. possible per station)

ECHO CHAIN INTERFACE FOR 2 DECAGON SENSORS & 2 WATERMARK SENSORS & 1 SOIL TEMPERATURE SENSOR

Two pieces of the following Decagon Sensors can be attached:
- GS1 Soil Moisture Sensor (ECH-GS1)
- GS3 Soil Moisture Sensor (ECH-GS3)
- EC-5 Soil Moisture Sensor (ECH500)
- 10HS Soil Moisture Sensor (ECH510)
- 5TM Soil Moisture Sensor (ECH-5TM)
- 5TE Soil Moisture Sensor (ECH-5TE)
- MPS-2 Water Potential (ECH511), MPS-6 (ECH512)
- Decagon Leaf Wetness Sensor (LWN530)
- Two pieces of the following Sensor:
- Soil Moisture Sensor Type Watermark (MD510SM)

One piece of the following Sensor:
- Soil Temperature (WMTEMP)

Part.no. ECH871EXT
Part.no. ECH871INT Internal, only for ECO D3 (only one pc. possible per station)

ECHO CHAIN INTERFACE FOR 1 DECAGON SENSOR & 4 WATERMARK SENSORS & 1 SOIL TEMPERATURE SENSOR

One piece of the following Decagon Sensors can be attached:
- GS1 Soil Moisture Sensor (ECH-GS1)
- GS3 Soil Moisture Sensor (ECH-GS3)
- EC-5 Soil Moisture Sensor (ECH500)
- 10HS Soil Moisture Sensor (ECH510)
- 5TM Soil Moisture Sensor (ECH-5TM)
- 5TE Soil Moisture Sensor (ECH-5TE)
- MPS-2 Dielectric Water Potential (ECH511)
- Decagon Leaf Wetness Sensor (LWN530)

Four pieces of the following sensor:
- Soil Moisture Sensor Type Watermark (MD510SM)

One piece of the following sensor:
- Soil Temperature (WMTEMP)

Part.no. ECH874EXT
Part.no. ECH874INT Internal, only for ECO D3 (only one pc. possible per station)

WATERMARK BUS FOR 3 WATERMARK SENSORS AND 1 SOIL TEMPERATURE SENSOR

Three pieces of the following sensor can be attached:
- Soil Moisture Sensor Type Watermark (MD510SM)

One piece of the following sensor:
- Soil Temperature (WMTEMP)

Part.no. WM-BUS
Part.no. WM-BUSINT Internal, only for ECO D3 (only one pc. possible per station)

TENSIOMETER INTERFACE WITH 4 TENSIOMETER CONNECTORS

Four pieces of following sensor can be attached:
- Tensiometer sensor head with pressure transducer (TNS101)

Part.no. TNS100

NOISE SENSOR

The Pessl Instruments sound level noise sentry is a high-performance sound level meter integrated in the iMETOS data logger. It includes a precision MEMS microphone and accurately records date/time of sound levels. Its very small size allows it to be mounted wherever needed or embedded within the monitored equipment. It is used in the building industry and in animal behavior monitoring.

Part.no. NS100

BAROMETER

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

Part.no. MD514D

EC & pH INTERFACE BOX WITH DISPLAY IN IP65 BOX

The EC500PH EC & PH Interfacebox is a measuring device with display in IP65 Box to be integrated into any iMETOS sensor chain interface for continuous EC & PH measurements in water. The outstanding design allows the use of the majority industry standard EC & PH sensors. On the display, the actual reading can be seen. With the built in calibration mode, all sensor readings can be calibrated and checked from time to time.

Part.no. EC500PH

pH SENSOR

The pH sensor is a reliable and cost-effective sensor for measuring the pH value of various aqueous solutions. The pH scale covers values between 0 and 14. Acids have pH values towards 0; caustic solutions have pH values towards 14.

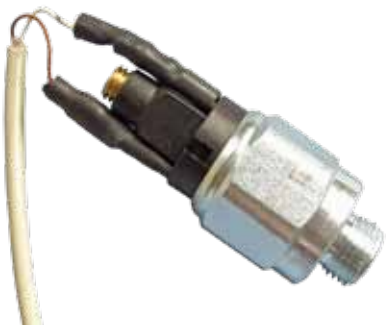
Part.no. PH501

ELECTRICAL CONDUCTIVITY

The conductivity sensor provides a complete self-contained measurement. The sensor utilizes a reliable and robust sensor for conductivity measurement and a thermistor for temperature measurement. The sensor is ideal for use in hydrographical and environmental water monitoring, in agriculture and industrial applications. The durable design ensures suitability for the harshest environment applications.

Part.no. EC501

PRESSURE SWITCH



Simple and robust construction and adjustable switching point through headless screw make pressure switch suitable for use with compressed air, hydraulic oil, oil emulsions and water. It is adjustable form 1 to 10 bar or 0.2 to 2 bar. The main purpose of this sensor is to control/check the correct performance of the irrigation system.

Part.no. PS010

WATER LEVEL SENSOR

The LMP305 is an accurate but cost effective stainless steel submersible water level sensor that can be connected to iMETOS stations with the precision of +/-3 % within the measurement ranges. Sensor has an integrated Barometric sensor module to increase the precision. Pressure (Measuring) ranges: 0 mWC up to 5 mWC (other distances on request). Water level special cable is also available.
Applications: Depth or level measurement in wells and open waters (rivers and lakes) and ground water level measurement.

Part.no. LMP305

WATER LEVEL SENSOR

The LMP306 is a highly accurate stainless steel submersible water level sensor that can be connected to iMETOS stations with the precision of +/-0,5% within the measurement ranges. The sensor has an integrated barometric sensor module to increase the precision. Pressure (Measuring) ranges: 0 mWC up to 5 mWC (other distances are available on request). Water level special cable is also available.
Applications: Depth or level measurement in wells and open waters (rivers and lakes) and ground water level measurement.

Part.no. LMP306

WATER LEVEL, CONDUCTIVITY, TEMPERATURE DECAGON

The Decagon CTD-10 sensor is a low cost, accurate tool for monitoring of water level, electrical conductivity, and temperature in both ground water and surface water. The sensor utilizes a vented pressure transducer to obtain accurate water level measurements from 0 to 10 m while removing the effects of barometric pressure. With a range of 0 to 120 dS/m, the CTD sensor has the ability to make accurate electrical conductivity measurements in a broad range of applications.

Part.no. CTD-10

WATER LEVEL KELLER SENSOR SUBMERSIBLE PRESSURE TRANSDUCER EVAPORATION GAUGE

ET-250 is a highly accurate stainless steel submersible water level sensor used for Class A Evaporation pans to be connected to iMETOS stations. Highest precision is reached with Keller sensor technology, water temperature compensation and integrated barometric sensor module. Due to its innovative design, most mechanical Class A pans can be retrofitted with automatic ET measurements. It measures with 0.2% accuracy.

Part.no. ET-250

VEGAPULS 61

The VEGAPULS 61 is a radar sensor for continuous level measurement of liquids under simple process conditions. It is an economical solution through its simple and versatile mounting possibilities. The encapsulated antenna system ensures a maintenance-free operation.

Part.no. VEGA

ULTRASONIC WATER LEVEL SENSOR

The GXUS is an ultrasonic sensor that uses sound waves to measure water level. Environmental conditions, such as smoke, dust and rain have very small affect on its detection performance.

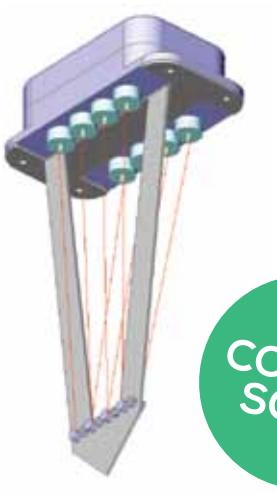
Part.no. GXUS

CO2 SENSOR

CO2 sensors, with patented auto-calibration for climate technology and building management are based on a 2-source, 2-beam process. This technology offers long-term stability, ensured by the tested and trusted NDIR CO2 measurement cell. The miniature design of CO2 sensor is ideally suited for applications in the environmental fields indoor as well as outdoor.

Part.no. CO2

FERTIMETRO



COMING SOON

Fertimeter estimates soil fertility as a function of the progressive weakening of buried cotton and silk threads by in situ microbial action. It is a personal soil lab on a stick.

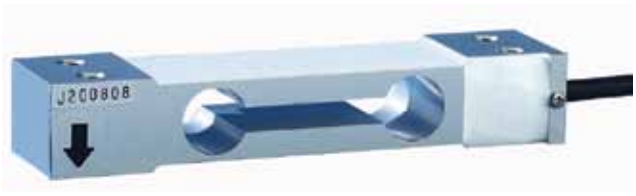
Part.no. FTM

CROPSPEC - CROP CANOPY SENSOR

Topcon´s CropSpec is a real-time integrated crop monitoring device, developed in cooperation with Yara International. The sensor is mounted inside the crop canopy on the iMETOS 3.3. and permanently measures plant reflectance to determine chlorophyl content, which is closely related to the nitrogen concentration in the leaf. This non-destructive, non-contact method provides accurate, stable readings and repeatable values.

Part.no. C-SPEC

REMOTE WEIGHING SCALE RWC20



The RWC20 is an automatic weighing scale build to measure a wide range of loads. The load cells are very precise and completely waterproof and can withstand all climatic conditions in harsh environments.

One of the many possible applications of the RWC20 is to measure the honey production remotely in real time, based also on other factors like temperature, radiation, relative humidity, wind and rainfall. Another application is to measure the average weight gain of chickens in stables, combined with the climatic conditions in the stable. The design of the RWC20 guarantees a long life span in tough applications indoors or outdoors.

Part.no. SCALE

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