MeteoAG™ IoT

BARANI
meteo innovations

MeteoAG wireless agricultural sensor node
Compatible with most existing agricultural sensors, giving you the freedom to measure anywhere with proven agricultural sensors.

Supports most agricultural and hydrology sensors

Solar powered, wireless data robust & impact resistant

Part of the MeteoHelix agro-weather station sets

Experience has shown that only **simple-to-use** and simple-to-configure devices are practical in agriculture.

Modularity of BARANI DESIGN weather and agro sensors allows you to **install sensors where you need them** most, not limited by weather station placement.

Reuse your existing sensors and connect them to MeteoAG for ease of use and data reliability. Compatibility with your existing agricultural sensors is a key feature to retain data continuity for critical decition making.

Seven sensor inputs with up to 7 different sensor types in 3 groups give you the flexibility to measure in one location with multiple sensors and at multiple heights and ground depths.

Available in SigFox and LoRaWAN. NB-IoT coming soon.

Simple to install
Connect the sensors, turn the selector switch to your sensor type, and enjoy your data without worrying about individual configurations.

Maintenance free
With its long battery life and oversize solar pannel, you can be sure that your data will keep flowing even under a thick coating of dirt.

Solar powered and long-battery life
8+ month battery life and toughness to survive in all measurement environments including long winters and summer droughts.

Easy sensor & soil calibration
Data traceability is assured by the application of soil calibration equations, sensor calibrations, and settings on a timeline in the allMeteo® web portal which keeps track of all your actions, changes and relevant documentation.

View, access & export live data in real time
allMeteo® web portal enables easy regional view of your data including data export, API data access and real-time view. It also offers the ability to manage your fleet of sensors & weather stations.
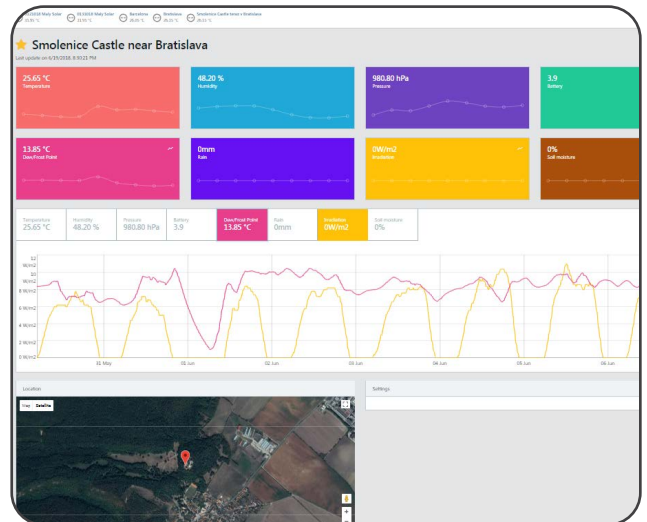
allMeteo® portal for data display and configuration is included. MeteoSDI is plug-&-play and per request, it can interface with any other 3rd party cloud or software platform.

MeteoAG wireless agricultural multi-sensor node is designed primarily for soil moisture, soil temperature and soil water tension sensors. I supports leaf wetness sensors, snow temperature sensors, frost sensor sensors, heat flux sensors and more.

Currently supported sensors by the MeteoAG sensor node include the following sensors and types and customers may request addtional sensor options to be supported.

Sensor Type	Max number of sensors of this type	Max number of sensors of this type	Max number of sensors of this type
Soil Moisture sensors	7x soil water tension: Irrometer Watermark 200SS	7x soil volumetric water content (VWC): METER 10HS	Reserved for future customer request
Temperature sensors	7x temperature: 10k thermistor with (±0.1 °C accuracy from 0 °C to 55 °C)	7x temperature: 10k thermistor with (±0.1 °C accuracy from 0 °C to 55 °C)	Reserved for future customer request
Leaf wetness & other sensors	7x leaf wetness: METER Phytos 31	1x soil heat flux: Hukseflux HFP01SC with 0-3V converter	Reserved for future customer request

ROBUST and easy to use for everyone

MeteoAG™ IoT

![BARANI meteo innovations logo]

Electrical specifications of sensor	
Wireless communication	Available versions: Sigfox. (LoRaWAN, NB-IoT coming soon)
Power & supply voltage	Built in solar panel with internal Li-Ion battery for 8+ months of operation without sun
Power on/off	On/off switch located inside wireless module
External connections	7 water tight IP67 cable glands (M12) compatible with sensor cable diameters Ø 3 - Ø 6.5 mm
Environmental rating of sensor		
Operating temperature & humidity	-33 °C to +65 °C (Cold weather battery version from -40 °C to +65 °C are available for low temperature sensor applications)	0 % to 100 % RH
IP – Protection rating	IP67W (DIN 40050) Watertight	
General specifications		
Dimensions	Length = 200 mm, Width = 200 mm, Height = 60 mm	
Weight (mass)	700 grams (including stainless steel mounts)	

## Benefits of MeteoAG Node with MeteoHelix® Weather Station

Total agro-meteorological solution takes advantage of the BARANI DESIGN agricultural sensor modularity to let you locate sensors where you need them, not limited by the location of your weather station.

Modular agricultural weather station sets may include any or multiple of the following independently mounted wireless sensors:

- MeteoAG sensor node with agricultural sensors
- MeteoHelix® weather station
- MeteoWind® wireless wind sensor
- SDI12-IoT sensor node with agricultural sensors
- MeteoRain® 200 rain gauge
- MeteoRain® IoT wireless rain gauge
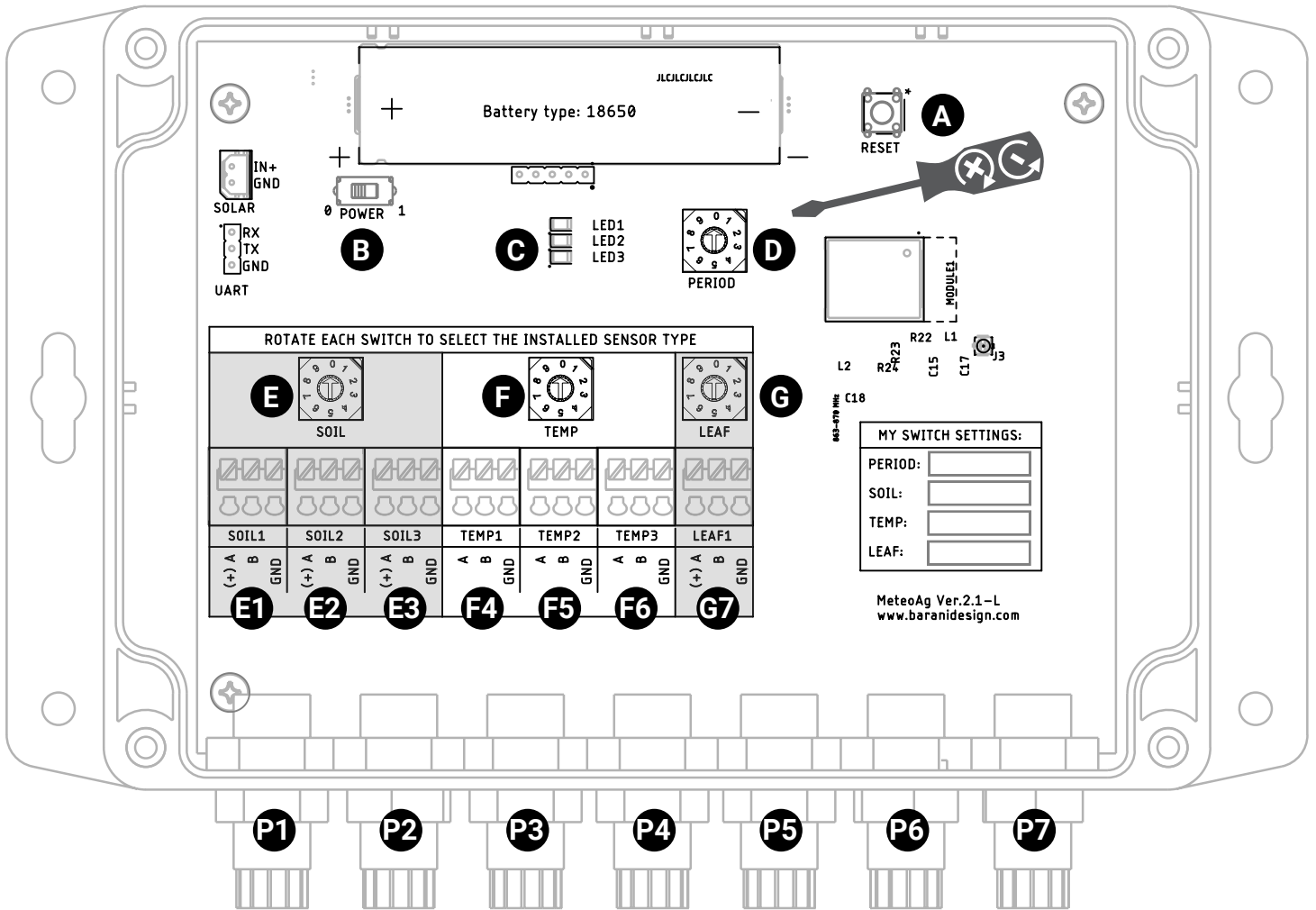

MeteoAG IoT Node
Wireless agricultural sensor node
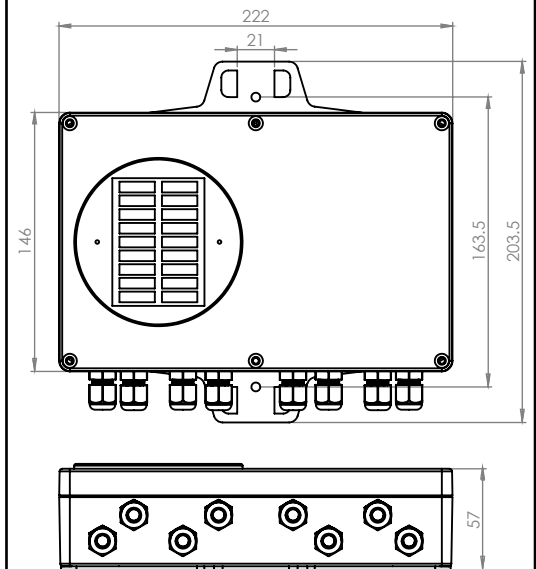
For SDI-12 agricultural sensors, the SDI12 IoT Node is available separately on special request

Reach your gold standard of measurement with BARANI DESIGN ISO:9001 quality

MeteoAG™ IoT

Battery type: 18650

A — RESET*

SOLAR — IN+ / GND

B — 0 POWER 1

UART — RX / TX / GND

C — LED1 / LED2 / LED3

D — PERIOD

MODULE1

R22 L1 — J3
R23 — R24 — L2 — C15 C17
863-870 MHz — C18

ROTATE EACH SWITCH TO SELECT THE INSTALLED SENSOR TYPE

E — SOIL
F — TEMP
G — LEAF

SOIL1 (E1) / SOIL2 (E2) / SOIL3 (E3) / TEMP1 (F4) / TEMP2 (F5) / TEMP3 (F6) / LEAF1 (G7)
(+) A / B / GND

MY SWITCH SETTINGS:

PERIOD:
SOIL:
TEMP:
LEAF:

MeteoAg Ver.2.1−L
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P1 P2 P3 P4 P5 P6 P7

A Reset push button

B On/Off switch

C Indicator lights: LED1 = XXXXXXX

D Sending/measuring time interval selector:

Measure interval	Sending/Averaging/Logging interval			
	1 min	**5 min**	**10 min**	**30 min**
10 s	0	2	**4** (default)	
1 min	1	3	5	7
10 min			6	8
30 min				9

Default setting = 4. Sigfox can only use 10 & 30 minute sending interval. 1-minute sending interval can only be used on the highest data rate with LoRaWAN.

E Soil moisture sensor group selector

F Temperature sensor group selector

G Leaf wetness sensor

E1 - **G7** Soil sensor wire terminals (7x)

P# Cable glands: Ø 3 - 6.5 mm (Ø ⅛ - ¼") cable

Configuration procedure

User can install various sensors and turning the associated rotary switch to the proper sensor type position. **All sensors in a group must be of the same type.**

Rotary Switch	Rotary switch setting	Meas. method:
E Soil moisture sensor group	0 = WaterMark SS200 (kPa)	0-3 VDC, Vcc=3V
	1 = 10HS (VWC in %)	0-3 VDC, Vcc=3V
	2 = EC-5	0-3 VDC, Vcc=3V
	3-5 = reserved for future use	
	6 = PHYTOS 31 leaf wetness	0-3 VDC, Vcc=3V
	7 = Copy setting from Temperature sensor group	
F Temperature sensor group	0 = 5K NTC Thermistor (°C)	0-3 VDC, Vcc=3V
	1 = 10K NTC Thermistor (°C)	0-3 VDC, Vcc=3V
	2 = 10HS (VWC in %)	0-3 VDC, Vcc=3V
	3-6 = reserved for future use	
	7 = Copy setting from Soil sensor group	
G Leaf wetness sensor group	0 = PHYTOS 31 leaf wetness	0-3 VDC, Vcc=3V
	1 = 10HS	0-3 VDC, Vcc=3V
	2 = 5K NTC Thermistor (°C)	0-3 VDC, Vcc=3V
	3 = 10K NTC Thermistor (°C)	0-3 VDC, Vcc=3V
	4-5 = reserved for future use	
	6 = HFP01SC soil heat flux	0-3 VDC, Vcc=3V
	7 = Copy setting from Temperature sensor group	