WIRELESS MICRO-WEATHER STATION
WMO PRECISION MICRO-CLIMATE MEASUREMENT

Freedom to measure anywhere with WMO accuracy

WMO precision for temperature and humidity

Wireless & solar powered Robust & impact resistant

Professional WMO precision

Temperature, humidity, dew point, frost point and rain measurement.

Stable long-term accuracy

3-in-1 sensor tip housed inside the helical MeteoShield® Pro offers long-term stability and low uncertainty of measurement.

Accurate in all climates & weather

Housed in a MeteoShield® Pro for accurate measurement in all weather conditions and a high level of protection to the sensors.

Easy calibration procedure

Traceability is assured by a removable sensor tip which is interchangeable and can be easily calibrated with a calibration adapter or replaced.

View & export live weather data

allMeteo® Web portal enables easy world-wide view of your weather station data including data export, API data access and live data view. It also offers the ability to manage your fleet of weather stations.

MeteoHelix® micro weather stations

Exceeding WMO accuracy standards has never been so easy and affordable.

Designed for measurement precision and ease of use, MeteoHelix® IoT weather stations offer professional research grade accuracy meeting World Meteorological Organization (WMO) standards.

Unique measurement properties of the patented double-helix design make this weather station highly **resistant to long-term sensor drift** and sensor measurement errors from the sun and other environmental factors.

This helical micro-weather station is the perfect choice for climate research in tough measurement environments.

Available in Sigfox, Helium and LoRaWAN.

allMeteo® portal for data display and configuration.

Type	Accuracy	Stability	Resolution	Measuring range	Operating range	Response*	Meets WMO
Temperature	±0.2 °C (typical)	<0.02 °C per year	0.1 °C	-45 °C...105 °C	-40 °C...65 °C (battery limitation)	5-30 s	yes
Relative humidity	±1.5 % RH @ 25 °C hysteresis ±1 %	<0.3 %vRH per year	0.2 % RH	0...100 % RH	0...100 % RH	8-40 s	yes
Dew point / Frost point	(calculated)	-	0.1 °C	-45 °C...105 °C	-40 °C...65 °C (battery limitation)	8-40 s	yes
Solar irradiation	5 % of daily total	-0.6 % per year	2 W/m²	0...2000 W/m²	-40 °C...65 °C (battery limitation)	< 1 s	no
Atmospheric pressure	±1.0 hPa @25°C (750 - 1100hPa)	-1 hPa per year	0.04 hPa (mbar)	300...1100 hPa	300...1300 hPa	0.1 s	no
Rain (optional reed switch input)	Rain gauge dependent	Rain gauge dependent	0.1...0.5 mm Rain gauge dependent	0...255 pulses per 10 minutes	Rain gauge dependent	Rain rates up to 600 mm/hr	yes

Sampling rate is 10 seconds per WMO requirements.
* τ63 % sensor response time listed is with a filter cap. Response time with filter cap will vary based on cap porosity, material and fluid (air) flow.
In applications where sensors are used in wet, dirty and dusty environments, we recommend regular inspection of filter cap cleanliness to maintain long term accuracy.
Inspection interval should be determined by application and user experience in their application environment.

All-weather measurement accuracy meeting WMO standards

PRECISE FOR THE PROFESSIONAL, EASY TO USE FOR EVERYONE

Impact resistant, mechanically strong, simple to install. Designed with open data standards.

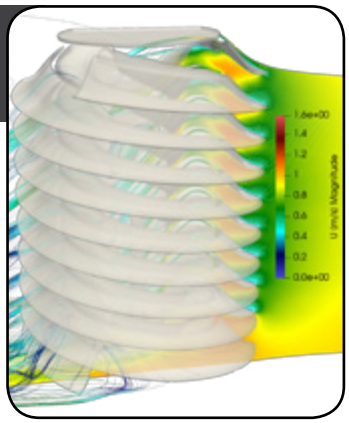
www.freedperscientific.com sales@freedperscientific.com +263 712 139 906

Electrical specifications of sensor		
Wireless communication	Available versions: Sigfox, Helium and LoRaWAN	
Supply voltage	Solar powered with internal Li-ion battery for 4+ months of operation without sun	
Power on/off	Magnetically activated on/off switch located in sensor head	
External connections	4 m cable interface for pulse output rain gauge sensors	
Environmental rating of sensor		
Operating temperature & humidity	-33 °C to +65 °C (-43 °C to +65 °C special order)	0 % to 100 % RH
IP – Protection rating	IP65W (DIN 40050) protected from dust and weather	
General specifications		
Dimensions	Diameter = 170 mm, Height = 226 mm	
Weight (mass)	1.2 kg (2.0 kg including stainless steel holder)	

Highest levels of total measurement accuracy & lowest uncertainty in outdoor air temperature & humidity measurement per WMO standards.

A weather station inside the revolutionary MeteoShield® Pro^{Gen3}

Naturally ventilated helical solar shield/screen. **Double-Helix shape eliminates** temperature errors from solar radiation more effectively than conventional multi-plate shields while offering unsurpassed **protection from the sun, dirt, rain, snow, sand & dust**. Double-helix increases clean air flow and rejects dirt particles away from the sensor, while keeping sensors cleaner than traditional multi-plate and fan aspirated shields.



MeteoAG™ sensor node (expansion module) Designed for soil moisture sensors, leaf wetness sensors, soil temperature sensors, snow temperature sensors, near ground frost sensor sensors, and more.	
3 x	Soil water tension sensors
3 x	Volumetric water content (VWC) sensors
3 x	Temperature sensors (ground or frost)
1x	Leaf wetness sensor
Output	Sigfox, Helium and LoRaWAN
GPS automatic positioning sensor coming soon	

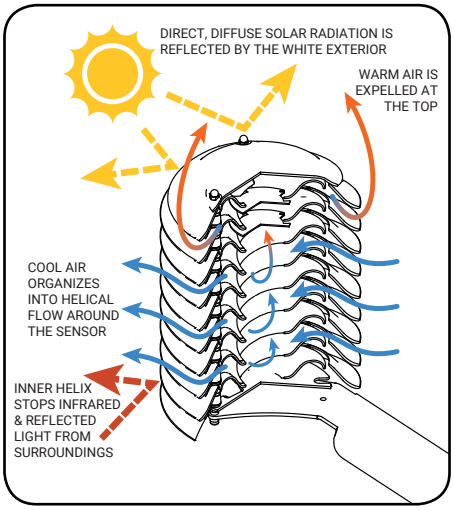
Benefits of the MeteoShield's double-helix shape

Helical radiation shield shape ventilates better than multi-plate radiation shields while maintaining better temperature sensor protection from dirt, sand, dust, rain, snow and ice.

BENEFITS:

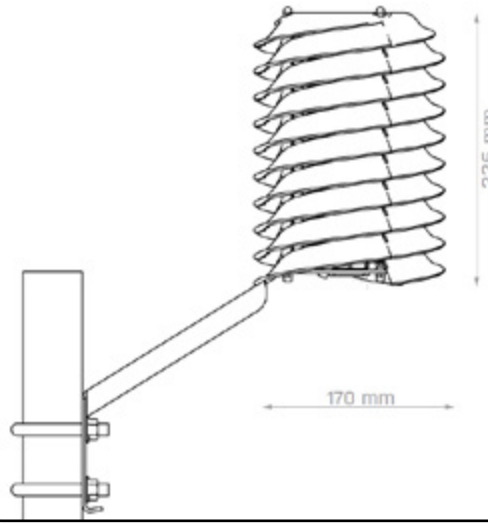
- Extending sensor life
- Long-term measurement stability

MeteoHelix® IoT Pro performs better than many fan-aspirated radiation shields, especially in high-reflectivity environments, such as over snow, water, pavement or in cities in Smart-City applications.



MeteoHelix® IoT Pro

The professional micro-weather station



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