



ATMOS-41 ALL-IN-ONE WEATHER STATION

METER

ATMOS-41 weather station packages 12 weather sensors into a single, compact device for atmospheric conditions. It was designed for continuous deployment in harsh climates, such as Africa, which means there are no moving parts to fail. Installation and maintenance have been simplified to the maximum because there's never any mechanical wear. No oiling or replacing bearings. Just reliability you can continue to count on.



Weather station sensors-empowered

Most all-in-one weather stations give you the option to measure solar radiation or precipitation, but not both. ATMOS-41 weather station provides both measurements in one device, so you never have to compromise.

No moving parts

Plus, ATMOS-41 research weather station is accurate. Unlike any other weather station, specialized pins made of real gold measure every single drop of rain. The 0.017 mm resolution means it can accurately measure small rainfall and even heavy dew events that other rain gauges miss. And, no moving parts means ATMOS-41 anemometer is accurate at low wind speeds. It even has an accelerometer, so you'll always know the sensor is level and you're getting accurate data.

Features

- Research weather station measures 12 weather variables including: air temperature, Relative humidity, vapor pressure, barometric pressure, wind speed, gust and direction, solar radiation, precipitation, lightning strike counter and distance
- Easy installation
- No moving parts
- All weather station data transmitted over a single wire
- Digital SDI-12 communication
- Connect to ZL6 for data capture and management
- Designed for continuous deployment in harsh climates
- No louvered radiation shield to attract bugs
- Accurate at low wind speeds because no moving parts will cause friction or fail
- Detects fine-scale wind speed variations with 0.01 m/s resolution
- Integrated weather station accelerometer detects if sensor is off-level
- Integrated spring acts as a rain gauge filter to keep out large particles but still allow enough water flow
- Optional bird deterrent fits perfectly on the weather station funnel



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Specifications

MEASUREMENT SPECIFICATIONS

Relative Humidity (RH)	Range: 0-100% RH (0.00-1.00) Resolution: 0.1% RH Accuracy: Varies with temperature and humidity, $\pm 3\%$ RH typical.
Vapor Pressure	Range: 0-47 kPa Resolution: 0.01 kPa Accuracy: Varies with temperature and humidity, ± 0.2 kPa typical below 40°C.
Barometric Pressure	Range: 50-110 kPa Resolution: 0.01 kPa Accuracy: ± 0.1 kPa from -10 to 50°C, ± 0.5 kPa from -40 to 60°C
Horizontal Wind Speed	Range: 0-30 m/s Resolution: 0.01 m/s Accuracy: the greater of 0.3 m/s or 3% of measurement
Wind Gust	Range: 0-30 m/s Resolution: 0.01 m/s Accuracy: the greater of 0.3 m/s or 3% of measurement
Wind Direction	Range: 0-359° Resolution: 1° Accuracy: $\pm 5^\circ$
Tilt	Range: -90 to 90° Resolution: 0.1° Accuracy: $\pm 1^\circ$
Solar Radiation	Range: 0-1750 W/m ² Resolution: 1 W/m ² Accuracy: $\pm 3\%$ of measurement typical
Precipitation	Range: 0-400 mm/h Resolution: 0.017 mm Accuracy: $\pm 5\%$ of measurement from 0 to 50 mm/h
Humidity Sensor Temperature	Range: -40 to 50°C Resolution: 0.1°C Accuracy: $\pm 1^\circ\text{C}$
Air Temperature	Range: -50 to 60°C Resolution: 0.1°C Accuracy: $\pm 0.6^\circ\text{C}$
Lightning Strike Count	Range: 0-65,535 strikes Resolution: 1 strike Accuracy: variable with distance, >25% detection at <10 km typical
Lightning Average Distance	Range: 0-40 km Resolution: 3 km Accuracy: variable



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COMMUNICATION SPECIFICATIONS

Output	SDI-12 communication
Data logger compatibility	METER data loggers (ZL6,EM60) or any data acquisition systems capable of switched 3.6-15.0 VDC excitation and SDI-12 communication.

PHYSICAL SPECIFICATIONS

Dimensions	Diameter: 10 cm Height: 28 cm
Cable length	5 m (standard) 75 m (maximum custom cable length)
Connector types	3.5-mm stereo plug connector or stripped and tinned wires
Operating temperature range	Minimum: -50°C Maximum: 60°C Note: Barometric pressure and relative humidity sensors operate accurately at a minimum of -40°C

ELECTRICAL AND TIMING CHARACTERISTICS

Supply voltage (VCC to GND)	Minimum: 3.6 VDC continuous Maximum: 15 VDC continuous Note: ATMOS-41 weather station must be continuously powered in order to work properly. Note: For ATMOS-41 weather station to meet digital logic levels specified by SDI-12, it must be excited at 3.9 VDC or greater.
Measurement duration	Typical: 110 ms Maximum: 3000 ms
COMPLIANCE (CE Mark)	Manufactured under ISO 9001:2015 EM ISO/IEC 17050:2010

