



METER



ATMOS 41

THE WEATHER STATION PROBLEM

The all-new ATMOS 41 weather station is the first affordable all-in-one weather station that fulfills all your weather monitoring needs but doesn't restrain you when you want to do more. ATMOS 41 weather data (e.g., humidity, temperature, or atmospheric pressure) are transmitted over a single wire. That means you don't have to use all of the ports on your data logger just for weather measurements. And, if you are using the ATMOS 41 weather station with our ZL6 data loggers, you have the flexibility to add any of our other sensors, like soil moisture.

FEATURE SUMMARY

- 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

SPECS

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| Solar Radiation | Range: 0 – 1750 W/m ² Resolution: 1 W/m ² Accuracy: ± 5% of measurement typical |
| Precipitation | Range: 0 – 400 mm/h Resolution: 0.017 mm Accuracy: ± 5% of measurement from 0 to 50 mm/h |
| Relative Humidity (RH) | Range: 0 – 100 % RH (0.00 - 1.00) Resolution: 0.1% RH Accuracy: Varies with temperature and humidity, ±1.5% RH typical. See specification chart. Hysteresis: ±0.80% RH, typical RH Long-term Drift: ±0.25% RH/year, typical |
| Air Temperature | Range: –50 to 60 °C Resolution: 0.10 °C Accuracy: ±0.60 °C |
| Humidity Sensor Temperature | Range: –40 to 50 °C Resolution: 0.10 °C Accuracy: ± 1.0 °C |
| Vapor Pressure | Range: 0 – 47 kPa Resolution: 0.01 kPa Accuracy: Varies with temperature and humidity, ±0.2 kPa typical below 40 °C. See specification chart. |
| Barometric Pressure | Range: 1 – 120 kPa Resolution: 0.01 kPa Accuracy: ±0.05 kPa at 25 °C Equilibration: <10 ms Long-term Drift: < 0.1 kPa/year, typical |
| 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: ±5 ° |
| Tilt | Range: –90° to 90° Resolution: 0.1° Accuracy: ±1 ° |
| Lightning Strike Count | Range: 0 - 65,535 strikes Resolution: 1 strike Accuracy: Variable with distance, >25% detection at <10km typical |
| Lightning Average Distance | Range: 0 – 40 km Resolution: 3 km Accuracy: Variable |
| Output | SDI-12 communication |
| Data Logger Compatibility | METER ZL6 and EM60 data loggers or any data acquisition systems capable of switched 3.6- to 15.0-VDC excitation and SDI-12 communication |
| Dimensions | Diameter: 10.0 cm (3.9 in) Height: 28 cm (11.0 in), includes rain gauge filter |

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| Operating Temperature Range | Minimum: -50 °C Typical: NA Maximum: 60 °C NOTE: Barometric pressure and relative humidity sensors operate accurately at a minimum of -40 °C |
| Cable Length | 5 m (standard) 75 m (maximum custom cable length for additional cost) NOTE: Contact Customer Support if a nonstandard cable length is needed. |
| Cable Diameter | 0.165 ±0.004 in (4.20 ±0.10 mm), with minimum jacket of 0.030 in (0.76 mm) |
| Connector Types | Stereo plug connector or stripped and tinned wires |
| Stereo Plug Connector Diameter | 3.5-mm |
| Conductor Gauge | 22-AWG / 24-AWG drain wire |
| Supply Voltage (VCC to GND) | Minimum: 3.6 VDC continuous Typical: NA Maximum: 15.0 VDC continuous NOTE: The ATMOS 41 weather station must be continuously powered in order to work properly NOTE: For the ATMOS 41 weather station to meet digital logic levels specified by SDI-12, it must be excited at 3.9 VDC or greater. |
| Digital Input Voltage (Logic High) | Minimum: 2.8 V Typical: 3.0 V Maximum: 5.5 V |
| Digital Input Voltage (Logic Low) | Minimum: -0.3 V Typical: 0.0 V Maximum: 0.8 V |
| Digital Output Voltage (Logic High) | Minimum: NA Typical: 3.6 V Maximum: NA NOTE: For the ATMOS 41 weather station to meet digital logic levels specified by SDI-12, it must be excited at 3.9 VDC or greater. |
| Power Line Slew Rate | Minimum: 1.0 V/ms |
| Current Drain (During Measurement) | Minimum: 0.2 mA Typical: 8.0 mA Maximum: 33.0 mA |
| Current Drain (While Asleep) | Minimum: 0.2 mA Typical: 0.3 mA Maximum: 0.4 mA |
| Power Up Time (SDI Ready)—other commands | Minimum: NA Typical: 800 ms Maximum: NA |
| Power Up Time (SDI Ready)—aRx! commands | Minimum: NA Typical: 10 s Maximum: NA |
| Measurement Duration | Minimum: NA Typical: 110 ms Maximum: 3000 ms |
| Pyranometer Spectral Response | See graph in specification chart |
| Compliance | EM ISO/IEC 17050:2010 (CE Mark) |
| GSA | View GSA details |