



**METER**

## ATMOS 41 ALL-IN-ONE WEATHER STATION

### SENSOR DESCRIPTION

The ATMOS 41 All-in-One Weather Station is designed for continuous monitoring of environmental variables, including all standard weather measurements (see [Measurement Specifications](#)). All sensors are integrated into a single unit, requiring minimal installation effort. Ultra-low power consumption and a robust, no moving parts design that prevents errors because of wear or fouling make the ATMOS 41 ideal for long-term, remote installations.

### APPLICATIONS

- Weather monitoring
- Microenvironment monitoring
- Spatially distributed environmental monitoring
- Crop weather monitoring
- Fire danger monitoring/mapping
- Weather networks

### ADVANTAGES

- Robust, no moving parts design
- Small form factor
- Integrated design for easy installation
- Low-input voltage requirements
- Low-power design supports battery-operated data loggers
- Supports the SDI-12 three-wire interface
- Tilt sensor informs user of out-of-level conditions
- No configuration necessary
- Measures all standard weather variables (plus several others)

### PURPOSE OF THIS GUIDE

METER Group provides the information in this integrator's guide to help ATMOS 41 All-in-One Weather Station customers establish communication between these sensors and their data acquisition equipment or field data loggers. Customers using data loggers that support SDI-12 sensor communications should consult the data logger user manual. METER sensors are fully integrated into the METER system of plug-and-play sensors, cellular-enabled data loggers, and data analysis software.

### COMPATIBLE FIRMWARE VERSIONS

This guide is compatible with firmware versions 4.67 or newer.

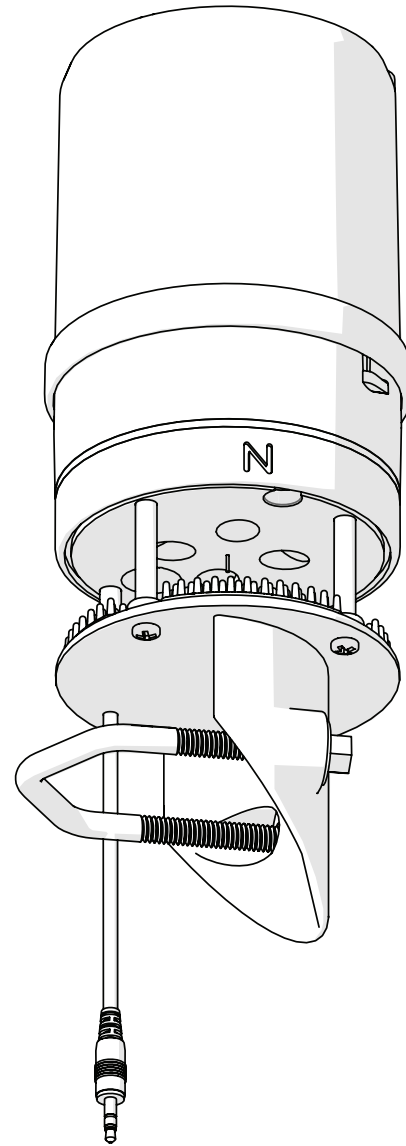


Figure 1 ATMOS 41 All-in-One Weather Station

## SPECIFICATIONS

### MEASUREMENT SPECIFICATIONS

<b>Solar Radiation</b>		<b>Barometric Pressure</b>	
Range:	0–1750 W/m <sup>2</sup>	Range	50–110 kPa
Resolution:	1 W/m <sup>2</sup>	Resolution	0.01 kPa
Accuracy:	±5% of measurement typical	Accuracy	±0.1 kPa
<b>Precipitation</b>		<b>Horizontal Wind Speed</b>	
Range:	0–400 mm/h	Range:	0–30 m/s
Resolution:	0.017 mm	Resolution:	0.01 m/s
Accuracy:	±5% of measurement from 0 to 50 mm/h	Accuracy:	The greater of 0.3 m/s or 3% of measurement
<b>Vapor Pressure</b>		<b>Wind Gust</b>	
Range	0–47 kPa	Range:	0–30 m/s
Resolution	0.01 kPa	Resolution:	0.01 m/s
Accuracy	Varies with temperature and humidity, ±0.2 kPa typical below 40 °C	Accuracy:	The greater of 0.3 m/s or 3% of measurement
<b>Relative Humidity</b>		<b>Wind Direction</b>	
Range	0–100%	Range:	0–359°
Resolution	0.1%	Resolution:	1°
Accuracy	Varies with temperature and humidity, ±3% RH typical	Accuracy:	±5°
<b>Air Temperature</b>		<b>Tilt</b>	
Range	–50 to 60 °C	Range:	–90 to 90°
Resolution	0.1 °C	Resolution:	0.1°
Accuracy	±0.6 °C	Accuracy:	±1°
<b>Humidity Sensor Temperature</b>		<b>Lightning Strike Count</b>	
Range	–40 to 50 °C	Range:	0–65535 strikes
Resolution	0.1 °C	Resolution:	1 strike
Accuracy	±1.0 °C	Accuracy:	Variable with distance, >25% detection at <10 km typical
		<b>Lightning Average Distance</b>	
		Range:	0–40 km
		Resolution:	3 km
		Accuracy:	Variable

### PHYSICAL SPECIFICATIONS

<b>Dimensions</b>		<b>Cable Length</b>	
Diameter	10 cm (3.94 in)	5 m (standard)	
Height	34 cm (13.38 in), includes rain gauge filter	75 m (maximum custom cable length)	
<b>Operating Temperature Range</b>		<b>Connector Types</b>	
Minimum	–50 °C	3.5-mm stereo plug connector or stripped and tinned wires	
Typical	NA		
Maximum	60 °C		

## ELECTRICAL AND TIMING CHARACTERISTICS

<b>Supply Voltage (VCC to GND)</b>		<b>Current Drain (while asleep)</b>	
Minimum	3.6 VDC continuous	Minimum	0.2 mA
Typical	NA	Typical	0.3 mA
Maximum	15.0 VDC continuous	Maximum	0.4 mA
<b>Digital Input Voltage (logic high)</b>		<b>Power Up Time (SDI Ready)—aRx! Commands</b>	
Minimum	2.8 V	Minimum	NA
Typical	3.0 V	Typical	10 s
Maximum	5.5 V	Maximum	NA
<b>Digital Input Voltage (logic low)</b>		<b>Power Up Time (SDI Ready)—Other Commands</b>	
Minimum	-0.3 V	Minimum	NA
Typical	0.0 V	Typical	800 ms
Maximum	0.8 V	Maximum	NA
<b>Digital Output Voltage (logic high)</b>		<b>Measurement Duration</b>	
Minimum	NA	Minimum	NA
Typical	3.6 V	Typical	110 ms
Maximum	NA	Maximum	3000 ms
<b>Power Line Slew Rate</b>		<b>COMPLIANCE</b>	
Minimum	1.0 V/ms	Manufactured under ISO 9001:2015	
Typical	NA	EM ISO/IEC 17050:2010 (CE Mark)	
Maximum	NA		
<b>Current Drain (during measurement)</b>			
Minimum	0.2 mA		
Typical	8.0 mA		
Maximum	33.0 mA		