



Weather Station with Data logger



Brand: METER Group, Inc.

Model: ATMOS 41W

ATMOS 41W

WIRELESS MICROCLIMATE MONITORING STATION OF ATMOS 41W

Most all-in-one remote weather stations datalogger claim to be wireless, but they actually include a cable that connects to telemetry in a bulky enclosure. Add to that a big solar panel and a giant battery, and things start to get expensive. We believe that getting your data shouldn't be complicated or expensive. And we believe that wireless should really be wireless. That's why we created the ATMOS 41W.

Meet the World's Easiest Wireless Weather Station The ATMOS 41W all-in-one remote weather station is one of the few truly wireless weather stations in the world and is the most affordable research station in its class. It is rugged, reliable and easy to use. All telemetry is included in an integrated cellular module.

But that's not even the best part. There's nothing on the market that's easier to set up. Throw it in a backpack, carry it to your site, secure it to a north-facing pole, and walk away. That's how easy it is to start streaming real-time data directly to the cloud.

The ATMOS 41W datalogger remote weather station measures 10 environmental variables including solar radiation, precipitation, air temperature (min, max, average), barometric pressure, vapor pressure, relative humidity, wind speed, wind direction, max wind gust, and tilt. It takes our ultra-reliable ATMOS technology to the next level with dual rainfall measurement for increased accuracy and extended range, making it one of the most robust rain gauges on the market. It combines a drop counter and tipping scoop to ensure accurate measurements, and is the only rain gauge available that can TECHNICAL measure electrical conductivity.



IMAGES





ATMOS 41W

Characteristics

Forget complicated and expensive. If you need an all-in-one, truly wireless, remote weather station that is incredibly easy to install, low maintenance, and can withstand harsh weather conditions, we've got you covered.

ATMOS 41W makes scientific-grade precision easy and affordable, so you can discover more

We designed the ATMOS 41W to work right out of the box without having to worry about managing a cellular provider or connection, and it requires no programming. It's a true IoT wireless instrument. Put it on a stand and it literally sends data to the cloud. What if there's an interruption in the data stream? No problem. It has a built-in logger that stores your data, so you have a backup. Get a continuous 15- minute stream of high-quality measurements in near real-time. Use ZENTRA Cloud to view, share, and manage your data from anywhere in the world, on any device.

The ATMOS 41W remote weather station was specifically designed for remote areas with harsh weather conditions, so it is rugged, durable, requires very little maintenance, and runs entirely on solar power, saving you countless trips to your site. An innovative tilt sensor signals an out-of-level condition and no setup is necessary. It is perfect for micro-environment monitoring, spatially distributed environmental measurements, crop climate monitoring, fire hazard applications, climate networks, and more.

- A true wireless weather station ideal for long-term remote installations
- Amazing installation in 10 minutes
- All sensors and cellular communications integrated into a single, small form factor
- View, share and manage data remotely with ZETRA Cloud
- Robust design prevents errors due to wear or incrustations
- Integrated sensor leveling mechanism
- Improved wind speed accuracy
- Improved rain funnel filter reduces clogging
- Higher solar radiation measurement resolution at 0.1 W/m² for compliance with standards
- The sampling interval for solar radiation, water vapor, air temperature and wind measurements was reduced to 3 s to comply with standards.
- Highest and lowest instantaneous temperature measurement output for each measurement interval (Tmax, Tmin.) for compliance with standards
- Extended air temperature range (-63 to +60 °C) to meet standards
- Thermistor calibrated to reliably achieve +/- 0.2°C at 25°C for temperature sensor accuracy
- Added a tilting spin for dual rain measurement
- Addition of electrical conductivity measurement for rain.

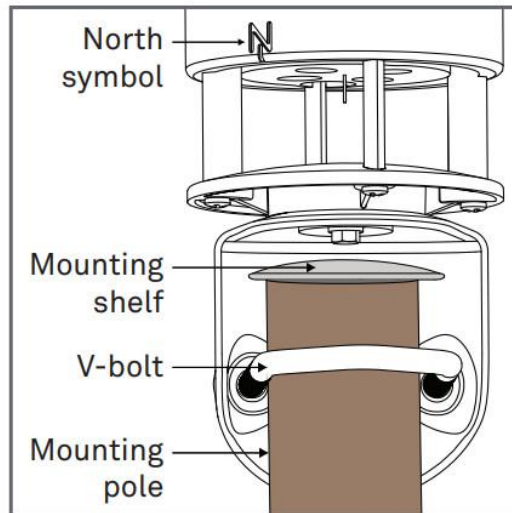


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Field installation


A. Mount ATMOS 41W

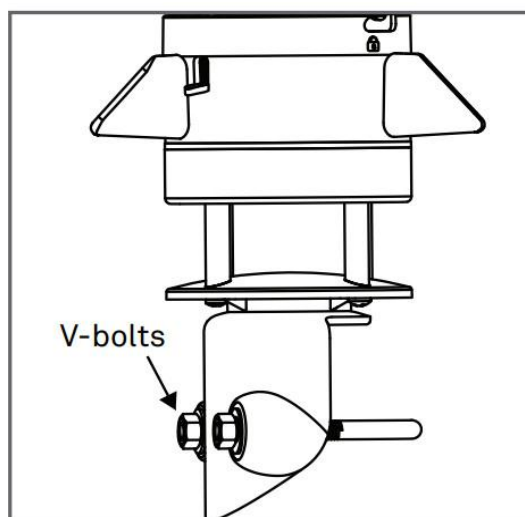
Towards True North Place the top of the pole under the mounting shelf. The ATMOS 41W should be set up with the N stamped on the instrument facing true north (not magnetic north).



B. Mount and secure the device

Tighten the V-bolt nuts by hand until tight and then tighten with the 13mm wrench (included).

 **CAUTION** Do not overtighten the bolt.

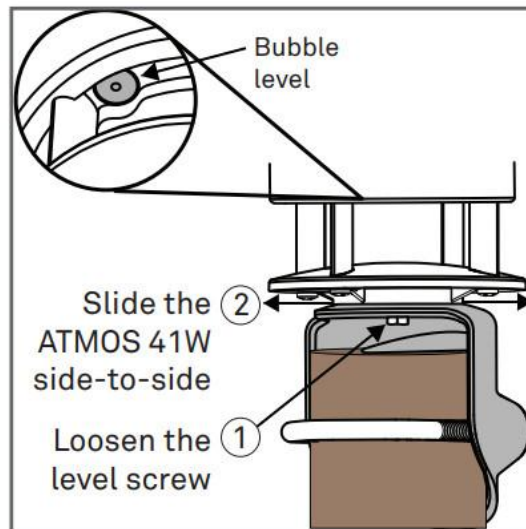


ATMOS 41W

C. Level the device

Use the bubble level underneath the ATMOS 41W.

The angle of the weather station can be adjusted by loosening the leveling screw attached to the bottom with the 8mm wrench (included), moving the weather station from side to side as needed to level it, and then re-tightening the screw.



D. Recheck Communication and Cellular Signal

Use ZENTRA Utility Mobile to review instant measurements and verify that the sensor is performing as expected.

Press Test in ZENTRA Utility

Mobile to check the quality of the cellular signal before finalizing the installation.

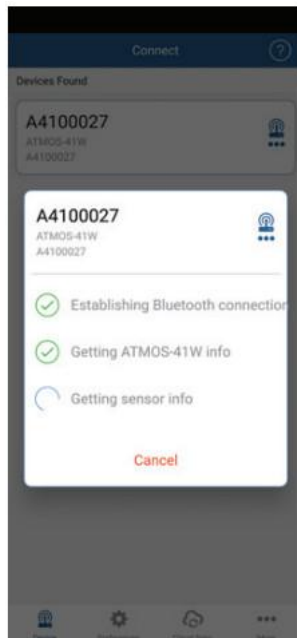
The ATMOS 41W is now installed and data should be available after the first charge.



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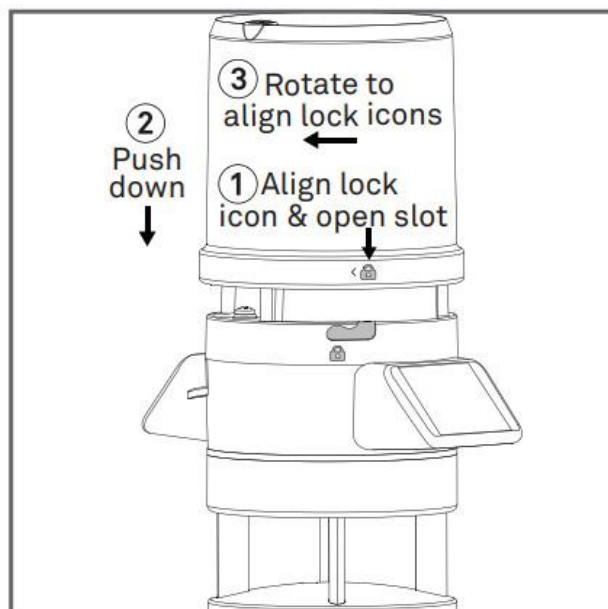
E. Connect the ATMOS 41W

On the Connect screen in the app.
Select the desired device to connect to.
The Bluetooth connection will be established and ATMOS 41W and sensor information will be retrieved.



F. Replace the rain funnel

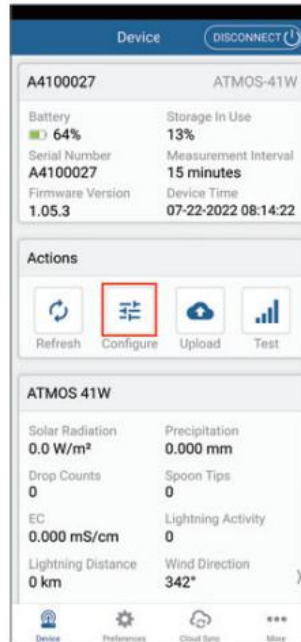
Align the locks, push down and turn the rain funnel clockwise until it locks.
NOTE: Make sure the cable and connector do not touch the internal spring and are not pinched before closing.



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G. Configure ATMOS 41W

Select Configure.
Review the mobile data upload settings and sensor measurement interval.
Make changes if desired.
Save changes.



H. Check Readings

Select Refresh in the app to display a list of readings.
Verify that these readings are within the expected ranges.
The ATMOS 41W is now ready for use.





TECHNICAL SPECIFICATIONS

WORKING CONDITIONS	
Charging Frequency	Charge every hour (default)
Measurement interval	5 min to 12 h (average or accumulation of most frequent sensor readings) (Section 2.2.7 of the ATMOS 41W User Manual)
Timing	Sync automatically and on demand; GPS, cellular or software
Solar radiation	Range: 0-1750 W/m ² Resolution: 1 W/m ² Accuracy: ±5% of typical measurement
Solar radiation	Range: 0-100% RH (0.00-1.00) Resolution: 0.1% RH Accuracy: The measurement accuracy of the sensor is variable over a range of relative humidity
Air Temperature	Range: -63 to 60 °C Resolution: 0.1 °C. Sensor accuracy: ±0.2°C at 25°C Measurement accuracy: ±0.6°C from -20 to 50°C
Humidity sensor temperature	Range: -63 to 80 °C Resolution: 0.10 °C Accuracy: ±0.2 °C
Barometric Pressure	Range: 1-120 kPa Resolution: 0.01kPa Accuracy: ±0.05 kPa at 25 °C ±0.1 kPa from -10 to 50 °C +0.5 kPa below -10 °C and above 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 the measurement
Wind Direction	Range: 0°-359.9° Resolution: 0.1° Accuracy: +5°
Inclination	Range: 0° to 180° Resolution: 0.1° Accuracy: +1°
Precipitation	Range: 0-2000mm/h Resolution: 0.017 mm Accuracy: ±5% of measurement from 0 to 1,000 mm/h
Electrical conductivity	Range: 0-3 mS/cm Resolution: 0.017 mm Accuracy: The greater of 0.005 mS/cm or 15% of the measurement



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TECHNICAL SPECIFICATIONS

COMMUNICATION SPECIFICATIONS	
Internet downloads	SSL/TLS encryption
Cellular communication	ATMOS 41W
Integrated Cellular Module	GSM850 / GSM 1900 WCDMA Band II / WCDMA Band V
Brand: u-blox AG	LTE Band 2 / Band 4 / Band 5 / Band 7 / Band 8 / Band 12 /
Model: LARA-R6001D	Band 13 / Band 26 / Band 28 / Band 38 / Band 40 / Band 41
TAC GSMA: 35350072	Power Out Max.: GSM850: 33.5 dBm GSM1900: 30.5 dBm WCDMA Band II: 24 dBm WCDMA Band V: 24 dBm LTE Band 2: 24 dBm LTE Band 4: 24 dBm LTE Band 5: 24 dBm LTE Band 7: 23.5 dBm LTE Band 8: 24 dBm LTE Band 12: 24 dBm LTE Band 13: 24 dBm LTE Band 26: 24 dBm LTE Band 28: 24 dBm LTE Band 38: 24 dBm LTE Band 40: 24 dBm LTE Band 41: 24 dBm Up Link Modulations: GMSK/8PSK/QPSK/16QAM
Bluetooth 5.2: Support	2.4 GHz: 2400-2480 MHz
Bluetooth low energy protocol	Out Power max.: 4 dBm Up Link Modulations: GSK
GPS Communication	Type: Integrated 56-channel GPS/QZSS receiver Update: Daily (automatic) and on demand (manual) Accuracy: +4 m, with good view of the sky



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TECHNICAL SPECIFICATIONS

PHYSICAL SPECIFICATIONS	
Dimensions	Width: 16.5 cm (6.5 inches) Height: 31.8 cm (12.5 inches)
Type of memory	Non-volatile flash, full data retention on power loss
Storage data	8 MB (more than 100,000 records)
Battery capacity	6 AA NiMH or alkaline batteries
Duration of the battery	Alkaline: 7 months typical for hourly charges or 4 months with 15 minute data update NiMH: 3+ years with unobstructed view of the sun. Charges via solar energy collection

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