

Tempest^o

Frequently Asked Questions

What is the wireless range of the Tempest?

The Tempest communicates with the HUB via sub-GHz telemetry radios and can maintain a connection up to 300 meters (1000 ft+) in unobstructed, clear line of sight. The HUB connects to your WiFi network and may be placed in any convenient location in your home with reasonable proximity to your router (similar to any other WiFi connected devices wireless connected devices).

How frequently are measurements reported by the sensors?

All values are reported on a one-minute average cycle. Lightning events and rain start events are reported instantaneously, upon detection. Instantaneous wind speed & direction are reported every three seconds.

Can I see my weather station online?

Yes. You can see your own weather station via our Android and iOS apps or via our website at <https://tempestwx.com>. You also get a personal weather web page that you can share with friends and family, who can use any connected device to view data from your Tempest. iPad? Yes. iPhone? Yes. Android phone or tablet? Yes. Computer? Yes. Anything with a browser!

Do I need WiFi?

The most commonly purchased system utilizes WiFi to enable full performance. Most people place their Tempest at home and connect to a home WiFi network. Doing this will enable consistent weather data to flow into our servers and allow remote data access, and the network-based AI forecasting. Our HUB also broadcasts data locally over UDP and BLE, allowing you to access the raw data without internet connection.

How does the sonic anemometer work?

Tempest measures wind speed and direction based on the time of flight of sonic pulses between pairs of transducers located on the underside of the roof over the gap near the top of the device. This technology allows for a high degree of accuracy, especially in variable wind conditions. See Kickstarter main page for a diagram.

How does the haptic rain sensor work?

Tempest uses a patent-pending haptic rain sensor in the top of the device. Tempest measures and counts each falling raindrop. This allows Tempest to report the instant rain begins falling, the current intensity, and the total rain accumulation over time. Accuracy compares to a tipping bucket, but without malfunctions caused by accumulating leaves or debris.

How does Tempest detect lightning?

Tempest detects cloud-to-ground AND cloud-to-cloud activity thru an embedded lightning sensor which detects electrical transmissions from lightning activity up to 40km (approx. 25 miles) away and gives an estimate of distance. The sensor algorithm is smart enough to reject man-made signals, such as microwave ovens and motors.

How durable is Tempest?

The Tempest enclosure is made from a marine-grade, UV-resistant plastic produced to last for many years. The shape of Tempest is designed to keep water out, but just in case water does get in (whether through condensation or extreme conditions), the circuit boards and sensitive parts within Tempest are hermetically sealed with a urethane overmold to provide 100% water protection.

Do I need to download the app to use the WeatherFlow devices?

Yes, the Tempest app is required to setup and configure the smart weather devices. The app also serves as your daily weather data viewer. Once set up, you can also view your data through our [web app](#), as well as other integrated weather apps.

Is the Tempest mobile app free?

Absolutely! The Tempest app is available on iOS or Android.

Will the devices work with any smartphone or tablet?

Most of them. WeatherFlow devices are compatible with all iOS 9.0+ and Android 4.3+ devices with Bluetooth Low Energy support for direct connection to the devices. If the device is connected to your home WiFi network, your data is pushed automatically to the cloud. Then anyone / any connected device can view the data via the WeatherFlow app or a variety of integrated weather and smart home apps.

How do I mount my Tempest?

Tempest comes equipped with two mounting base options. One is designed to mount the Tempest on top of a standard 1" pole (our customers commonly use 1" PVC pipe, or the galvanized 'fence top rail' found at HomeDepot). The second mount is a flat base with both a standard 1/4-20 thread (common camera tripod standard) as well as a simple keyhole slot to attach to a screw head.

What size pole do I need to mount the Tempest?

The Tempest is designed to fit on top of a pole with an outer diameter of 1.25 inches or 1.32 inches (31.75mm or 33.53 mm). The specific standard is known as "NPS 1" in the US or "NB 1" in the UK. In most of the rest of the world it's also known as "DN 25." It should be a very common pole size everywhere. In the US it's sold at DIY stores in various materials—simply ask for a "one inch" pole.

Where should I put my Tempest?

The Tempest sensor device should be placed in full sun with the cleanest unobstructed wind fetch you can manage at your location. Typically best results are achieved when the device is mounted at 10ft above surface obstructions. That said, it's your house, your weather. Wherever you site the device, it will measure the exact conditions right there. Don't worry about meeting WMO standards!

Does it work with Weather Underground?

Yes. You can publish your weather station data directly to Weather Underground.

Can I use this on a boat or other moving object?

Tempest is designed to work at a fixed location on a stable mount. It is not designed to work on a boat or moving platform.

Is Tempest totally wireless?

Yes. Tempest is solar powered (charges onboard lithium titanate battery) and communicates to our indoor hub via long range radio telemetry. The typical range is up to 1000ft (300m) from your Tempest and the Hub, depending on obstacles between them.

Will the temperature sensor read correctly if placed in the sun?

Yes! Over four years of design and testing we have perfected our view of the ideal passive radiation shield. Tempest retains a compact design while creatively utilizing space and flow to closely match results from both aspirated and bulky radiation shields without adjustment more than 99% of the time. Even in hot, still conditions Tempest can correct measurements based on wind speed and solar irradiance in order to provide an accurate temperature in ALL conditions. We have proven in real world testing that we consistently provide an accurate temperature reading within one tenth of a degree.

Will solar power work in Alaska?

Yes! There is less daylight in the Alaskan winter but this is counteracted by the vertically oriented solar panels, which are advantageous for a lower angle of the sun. Just a handful of daylight hours will charge the onboard lithium titanate battery with enough juice for a few weeks of operation, even with zero additional sunlight.

What kind of battery does Tempest use?

Tempest uses a Lithium Titanate (LTO) rechargeable battery which has 10X more battery life (in terms of cycles) than a comparable Lithium Iron Phosphate (LFP) battery. LTO batteries were developed mainly for the electric vehicle market and have a life of ~20,000 full cycles and many many more partial cycles. (Even if the battery experienced a full discharge and charge cycle every day, it would still last more than 50 years!) LTO also has a wider temperature operating range (LTO batteries will continue to charge down to -30°C vs 0°C for LFP batteries) and is simply overall safer and better. The battery component is hermetically sealed to the PCB to protect it from moisture or exposure.

Does Tempest measure snowfall?

This system does not measure snow, but it does shed snow well -- we apply a special super hydrophobic coating to the anemometer parts.

What happens if the power goes out or the internet goes down?

The initial Tempest system shipping in March utilizes external power and a standard WiFi connection. You will need a back-up power supply to ensure that both remain in operation during a power outage. If your internet goes down you will need to switch the WiFi connectivity to cellular data device. We will offer a Hub in the future that can utilize the cellular network directly and,

combined with either a small back-up power battery or the remote Hub solar enclosure, it will function without power or home internet.

What is your return/warranty policy?

Unconditional Return Policy - Tempest comes with a 60 day money back guarantee, no questions asked.

Better Forecast Guarantee - Tempest guarantees an improved weather forecast for your location. If you aren't blown away, simply return it within 8 months of use.

Two Year Warranty - We stand behind all hardware components. If something stops working in the first two years, we'll replace it.

Ten Year Extended Warranty - If your Tempest fails at anytime, we will replace it with the latest technology at a greatly reduced cost.

Do I need a dedicated display for the Tempest?

Nope! Unlike technology offered by others, you can easily and instantly view your Tempest data on your smartphone, tablet, laptop, computer or virtually any device with a web browser. You can also ask Siri, Amazon Alexa, or Google Assistant for your data. If you want a full-time display, you can repurpose an unused tablet or iPad and run the app in "full screen" mode that is designed to serve as a full time display.

Does Tempest integrate with Apple devices?

Of course! Tempest integrates with the Apple ecosystem in a number of ways. Besides the Tempest app, which runs on any iPhone or iPad running iOS 9.0 or newer, there are also Tempest apps for Apple Watch and Apple TV. Tempest also works with Siri, so you can check the weather using voice commands.

