



St. Augustine Orchid Society

www.staugorchidsociety.org

Temperature and Humidity Monitors

by Sue Bottom, sbottom15@hotmail.com

Orchid books discuss orchids that grow in three different temperature ranges, based on the winter nighttime temperatures:

- ✦ The cool growers, with nights between 50 and 55°F. Unfortunately, many of the orchids that enjoy cool conditions in winter also enjoy cool summers, so we generally cannot grow these types of orchids here in Florida without making special accommodations.
- ✦ The intermediate growers, with nights between 55 and 60°F. This is a typical range for growing cattleyas, although many oncidinae, dendrobiums, vandaceous and other types of orchids also enjoy intermediate temperatures.
- ✦ The warm growers, with nights between 60 and 65°F. This higher nighttime winter temperature is necessary for the best growth and flowering of many phalaenopsis, bulbophyllums and other orchids from low elevation, warm climates.



*Taylor Model 5458
Max Min Thermometer*

The simplest and most foolproof way to monitor temperatures in your growing area is to use a max-min thermometer. This is a mercury filled thermometer with a U tube, which will register the current temperature, as well as the lowest and highest temperatures experienced since the last reset. Some have a button reset, others use a magnet to reset the temperature. The mercury travels in a U tube inside the thermometer, rising to the maximum in the channel to the right during the day, and dropping to the minimum in the channel to the left at night. Taylor Scientific has a model 5458 for about \$20.

You'll find yourself resetting these thermometer often during the hottest days of the summer and coolest nights of the winter, as you try to protect your orchids from temperature extremes. You can position them in different areas of your growing area to find the microclimates most suitable for growing different varieties of orchids. They work consistently and they don't require batteries that seem to always fail on the coldest night.

Of course, mercury thermometers don't have all the bells and whistles that some of the digital devices offer, like remote monitoring, alarms and phone notifications. I have a box of failed temperature and humidity monitors, but this year discovered one that seems to work really well: a Govee H5179 thermometer/hygrometer combination that measures both temperature and humidity. This is a battery powered sensor that communicates to your phone via a 2.4 GHz WiFi connection using the Govee Home app, for either Android or Apple devices. You can get the instantaneous readings on your phone using their Widget, as well as view the data from the last hour, day, week, month or year on your phone. You can check the temperature in your growing area whether you're sitting in front of the TV at home or up in the mountains of North Carolina. You can set high and low temperature alarms, so a notification is sent to your phone in the event temperatures are outside of your preset acceptable range. Another nice feature is the low battery



*Govee Model H5179
Temperature and Humidity
Sensor*



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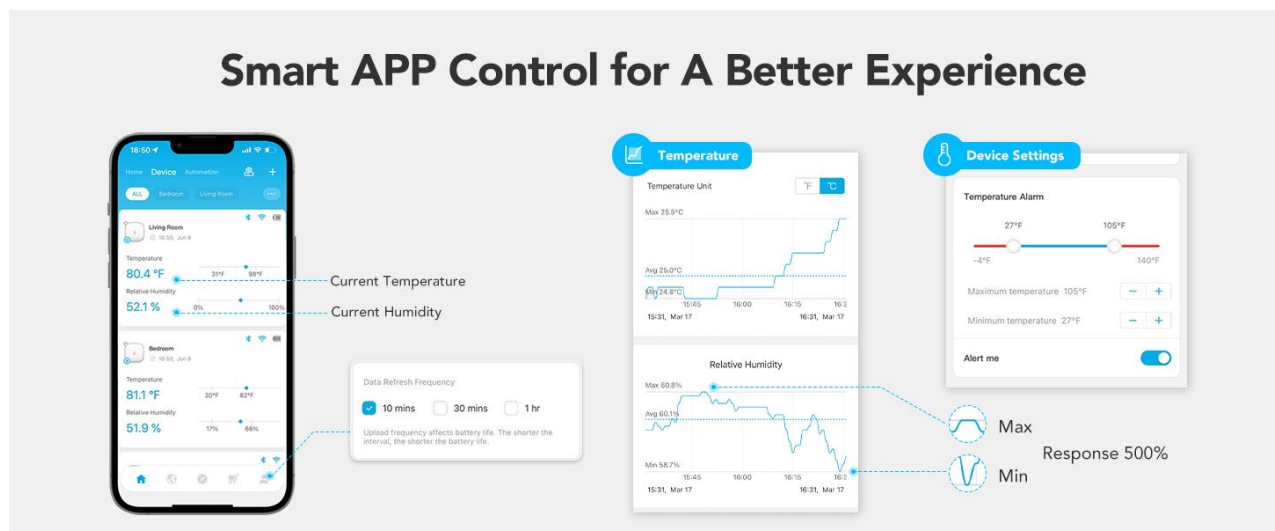
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warning light, to let you know it's time to switch out the three AAA batteries. I also have the earlier models 5075 and 5100 that have lesser functionality and range, but the 5179 model is the only one I would buy today.

The temperature information is critical, but this sensor also gives you humidity information and calculates the dew point and vapor pressure deficit. Relative humidity is a familiar term describing the amount of water vapor in the air compared to how much it can hold. Warmer air has a greater water holding capacity than colder air. Our orchids are comfortable in the same humidity range we enjoy, somewhere in the 40 to 70% range. Low humidity air dries out our skin and our plants leaves, so pots dry out much more quickly. Moderate humidity levels are desirable. Too high humidity favors the growth of rots, molds and fungal infections.

Though humidity is a useful and familiar measure, there is a more precise way to express the driving force of water loss from the leaf, vapor pressure deficit. Vapor pressure deficit (VPD) is a measure of the evaporative forces at the leaf surface. A low VPD indicates the air is near saturation so the transpiration rate is negligible. A high VPD means the air is drier, and the moisture gradient between the leaf and the atmosphere encourages a higher transpiration rate.



The Govee Phone App

If you are interested in having remote sensors in your growing area to keep you apprised of the temperature and vapor pressure deficit, try the Govee H5179 sensors, available on Amazon for around \$35. As long as you have a suitable WiFi network, your phone will give you constant feedback of the temperature and humidity around your orchids.