

AEROPERFECT MU-9000X USB Aircraft Angle Measuring System

From Bell Electronic Technologies

Let's face it; when it's time for a new model's first flight, we all get a bit excited. Unfortunately, it can be very tempting to cut corners and rush those last few steps before the model is really ready. Not properly establishing the balance point and setting the control-surface deflections can make or break that first flight.

A last-minute balance check on the fingers and the old "That looks about right" glance at the control surfaces often ends badly. I can't tell you how many times I have seen someone at the field with a new model just go through the motions right before that first crash. It is worth taking an extra few minutes to make sure that everything is good to go, and the proper tools can make the job easy and accurate.

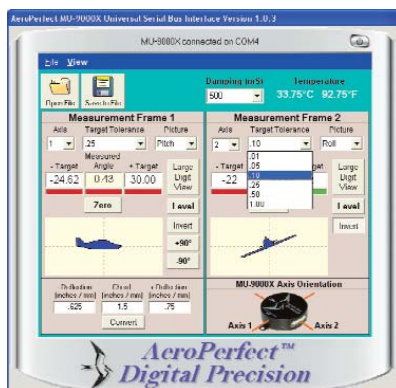
The remarkable AeroPerfect MU-9000X angle measuring system indicates to .01 degree (yes, one one-hundredth) and interfaces with your computer via its USB cable. The included software gives you full control of the device and how it measures, displays and even saves the data. The software is easy to install without a hitch and is very intuitive to use. The only fault I found with the interface was minor: you can't "tab" between cells while entering data, and you have to move the cursor with the mouse.

IN USE

The sensor has a 2¹/₄x3-inch padded base that makes it easy to attach to most models. The kit includes two spring clamps and a second padded plastic piece so that you won't scratch your model.

One of the great advantages of having a digital indicator is that you can instantly zero it at any initial angle so that you are measuring relative angles instead of absolutes. This is especially handy with tapered control surfaces. Simply center the surface by referencing the fixed wing, stabilizer, or fin, and then clamp the sensor into place and zero the display. You don't even need to level the fuselage datum line before measuring.

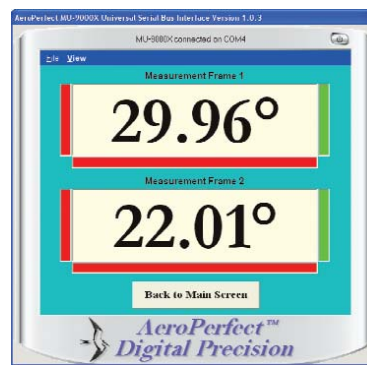
The software lets you designate a target tolerance range for the deflection. When you are within the desired range of the target angle, the red indicator "light" turns green. This tolerance applies both above and below the actual angle, so a 1-degree target tolerance



The target-tolerance pull-down menu lets you decide how accurate you want to be.



Sometimes, you get lucky! The green lights tell me that I am within my set target tolerance. The numbers show me I am well within them! Note the calculator on the bottom of the left side of the screen. I've set it for 5/8-inch down deflection and 3/4-inch up with a 1.5-inch control-surface chord. The calculator determined the actual angles and automatically entered them as the targets in frame 1.



Selecting "Large digit view" on the main screen gives this display, which is perfect for monitoring the angles when you are farther from the screen.

gives a 2-degree window. This feature lets you work with the level of precision you want and need and not to some predetermined "best" setting.

Construction manuals often recommend control-surface deflections in linear dimensions measured at the wide point of the control surface. The AeroPerfect software includes a simple conversion calculator to determine the angular deflection. Just enter the desired negative and positive linear deflections along with the max chord of the control surface. When you click the "calculate" button, the angular measurements are determined and loaded into the ± target windows for axis 1. No complex math is required—just the ability to use a ruler and enter a few numbers on a screen.

If you don't have a computer in your shop or you want to check the numbers at the field, the optional AP3 digital display will interface with the 6-foot USB cable on the MU-9000X sensor.

CONCLUSION

The MU-9000X was a great aid when I matched control throws on several recent ARFs and set up my latest project—a scratch-built 1/4-scale SG-38 vintage glider. There is no question that I'll use this tool regularly. ☺

Links

Bell Electronic Technologies, www.aeroperfect.com, (530) 467-3777

Kondor Model Products, www.kmp.ca, (888) 968-7251

For more information, please see our source guide on page 121.