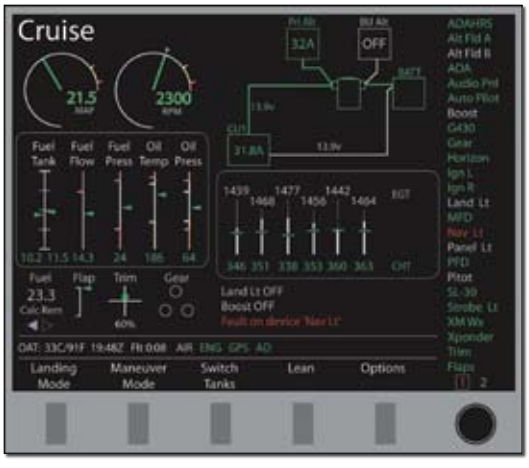
BY MARC COOK

Volts and amps, *ones and zeroes.*

Marc Ausman's company, Vertical Power, has been developing a product for Experimental aircraft that could perform two pretty amazing feats: dramatically reduce the wiring complexity of an electrical system and give it unprecedented smarts.

The underlying notion is that the automotive world is full of sophisticated components that manage the ever more complex systems in our cars. Things like solid-state current limiters and microprocessor circuit control are the standard, not individual switches, fuses and circuit breakers. Ausman has incorporated these concepts into a unified system with two principal components: an EFIS-like screen and a remote electrical module. The screen has the smarts and the box has the brawn.

The remote box is mounted under the panel or somewhere on the human side of the firewall. Power wiring to all components goes straight to this box—that includes the avionics, subsystems like landing gear and flap motors, battery contactor, and so on. This, by itself, is not a new idea; there are power-distribution boxes available now.



Vertical Power's prototype display, in the Cruise mode.

But they don't have the overlying computer control that promises to be the feature to tip the balance. The genius behind Ausman's product is that the control head will have access to a tremendous amount of data, including all engine parameters (from an outboard engine monitor), aircraft position (from GPS) and attitude/airspeed (from an EFIS). Using this information, the box can be programmed to manage the electrical load contextually.

Let's take it a step at a time. During the startup phase, you'll want to know about battery voltage, so that's a primary display. During the start itself, you're more interested in engine rpm and oil pressure, so these gauges are redrawn large. Moreover, the unit is smart enough to begin powering up the avionics once it's been established that the engine has started and the alternator has come on line, which the device will do automatically and in a controlled fashion, not just a flip-switch rush in. For each phase of flight, the device will determine what should be on and what should be off, and make those adjustments for the pilot. (Any of these can be overridden and the matrix of what is on and when is determined by the builder.)

Rather than think about which systems should be on or off, the pilot merely chooses the flight mode and lets the Vertical Power box do the rest. The potential is staggering. Landing gear motors could be locked out on the ground, flaps can be automatically deployed according to a power/airspeed schedule (and milked up to an appropriate setting during a go-around), each circuit can be monitored not just for an over-current (tripped) condition but to see if they're pulling the expected current; no more wondering if your landing light has burned out. There is much more to the unit than I can cover here. But the premise is mighty enticing. Every time I look at the bundle of wires under my panel, I'll be thinking of this box.

Ausman expects the system to be launched at Oshkosh 2007 and start at around $3000.

Our Man Dan

Frequent contributor Dan Checkoway, in addition to flying the heck out of his Van's RV-7, is in the news this month. For starters, his acclaimed Build Your Skills: Metal series is now up on our website as a standalone feature. Downloading the entire 11-part series costs $19.95. But that's not all. Dan has launched a new website called Weathermeister. Think of it as your own personal dispatch office, gathering weather data from a variety of sources and presenting them in a logical, concise fashion. I've been a fan of his weather site since it was a free component of his www.rvproject.com venture, but this new service absolutely rocks. There remains a free section, but the advanced features start at $4.95 a month (discounted to $49.95 for a year), a pittance for this great service. ✚

Marc Cook has been in aviation journalism for 19 years and in magazine work for 25. He is a 3800-hour instrument-rated, multi-engine pilot with experience in nearly 150 types. He's completed two kit aircraft, an Aero Designs Pulsar XP and a Glastar Sportsman 2+2.

Photos: Courtesy Vertical Power