

What's New in Avionics 2005

BY DALE SMITH

From tiny electric back-up instruments to global communications equipment, there's something here that every pilot's just gotta have.

We pilots are a curious lot. No matter what we have we've always got our eyes open for something different. Maybe it's bigger or faster or newer. But no matter the reason, we're all always looking for "what's next." And in the rapidly changing world of avionics and aircraft electronics that can be a daunting task.

Take this year's AEA Convention in Dallas for example: there were over 150 companies represented on the show floor and each one had something that someone, whether he or she be a pilot, avionics shop owner, technician, or just curious bystander, would have found a dozen reasons to buy right then and there.

Well, again this year, the editors of this very *Pilot's Guide to Avionics*, have taken upon themselves to bring you the top "Editor's Picks" in avionics and electronics. And to help you maximize your shopping time, the winners have been broken down into three categories: Pilot Stuff, Cabin Stuff, and Just Cool Stuff.

After a flood of letters and emails from last year's readers, the editors would again like to take this opportunity to state that while the purchase and use of

any of the following products will bring new levels of fun, capabilities, comfort and safety to your flying, they take no responsibility for any fiscal damage said purchases may cause to your bank account.

PILOT STUFF

Aspen Avionics

No pilot can argue the safety of a TAWS system and the benefits of a color moving map display. The only problem is size and cost—well, Aspen Avionics has a solution no pilot can pass up – their new AT300 Hazard Awareness Display unit. Designed as a drop-in replacement for a standard 3-inch VSI, the AT300 offers advanced multi-function display capabilities including TAWS and a GPS-based moving map to every pilot.

The 2.5 inch sunlight-readable display shows GPS navigation data from the aircraft's GPS



Aspen Avionics' AT300

overlaid on a TAWS-like color moving map generated from an internal terrain and obstacle database. The TAWS-like moving terrain map is generated via sophisticated software algorithms that render a detailed display of hazardous terrain and/or man-made obstacles along the aircraft's flight path.

And because it has a built-in vertical speed indicator, the AT300 lets you replace your stand-alone VSI with a true multi-function display without requiring any panel modifications. The unit is also software upgradable so as other capabilities like datalinked weather become available, system updates are fast and inexpensive.

The AT300 features full continental U.S. terrain coverage and also includes the capability to display GPS navigation route line, waypoint, and other navigation data as appropriate. Suggest list price is \$3,995 plus installation. For more information: (505) 856-5034 or visit www.aspenavionics.com.

Avidyne

Avidyne continues to refine and add capabilities to its already impressive list of advanced avionics offerings. Highlighting their

most recent product announcements was the introduction of the latest 2.0 System Software upgrade for their popular EX500 MFD. Among its new capabilities, the 2.0 software adds major highways and rivers to the base map display and TIS Traffic Interface when installed with the GTX330 transponder. Additionally, the upgrade adds new display pages for "Nearest to Present Location" and "Nearest to Destination."

The 2.0 upgrade also makes the MX500 MultiLink and XM Satellite Radio "ready." Avidyne's MultiLink is the first certified multi-channel datalink solution for general aviation aircraft. The system provides coverage in Canada and in the Caribbean, along with providing access to Avidyne's FlightCenter Services, including two-way text messaging and flight tracking capabilities. Cost for the 2.0 Software upgrade is \$500. The company said all EX500s currently shipping already have the upgraded software.

Avidyne has also introduced the capability to interface the EX5000 MFD with the popular Bendix/King RDR-2000 to display live weather on top of the map function. The system also supports the Vertical Profile function of the RDR-2000. By replacing a stand-alone radar display with the EX5000 MFD, pilots get sig-



Avidyne's EX500 MFD

nificantly more situational awareness from valuable panel space. For more information: (781) 402-7400 or visit www.avidyne.com.

Castleberry Instruments

With the introduction of the new 2060A all-electric backup attitude indicator, Castleberry Instruments and Sporty's Pilot Shop have made a major advancement in making your 'all-electric' panel a reality. Built by Castleberry solely for and available exclusively through Sporty's, the 2060A 3 1/8 inch attitude indicator has been designed to replace your traditional turn coordinator with an all-electric unit providing an increased amount of safety and reliability.

The 2060A is all-metal construction with no plastic parts. It includes an inclinometer and is backlit for easy viewing at night. Available in both 14 and 28 volt



Castleberry Instruments' 2060A

models the unit is easily retrofitable into most aircraft types. Sporty's backs it with a full two-year warranty. Suggested price \$1,595 plus installation. For more information: (800) 776-7897 or visit www.sportys.com.

Garmin

Garmin recently added to their product catalog with the roll-out of two new products: the GDL 69/69A datalink receiver and the iQue 3600a the "Palm

Pilot for real pilots." The GDL 69 provides datalinked graphical and textural weather for the Garmin 430 and 530, as well as the MX 20 MFD. Data uplink services are provided through XM Satellite's WX Weather Service. The system provides seamless, near real-time coverage at any latitude across the continental United States. The high-resolution graphics display NEXRAD, textural METARs data, along with current lightning, winds aloft, echo tops, TFRs and more.

Another newcomer to the Garmin stable is the iQue 3600a handheld combination GPS/PDA. Highlighting the 3600a is a unique yoke-mounted aviation cradle that provides a set of dedicated function keys for quick, accurate access to functions such as Direct-To, Nearest Airport, Menus, and more. The unit features an easy-to-read full-color 3.8 inch full-color display, which provides detailed Sectional chart style overviews of surface features, nav aids, SUAs, and obstacles.

The unit also offers "Terrain" mode with TAWS-like warnings and "pop-up" alerts when proximity conflicts loom ahead. In keeping with Garmin's commitment to versatility, the iQue 3600a can also operate the optional MapSource CD letting the unit move seamlessly from plane to car. It also features Palm OS organizer functions. Suggested

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Garmin's GDL 69/69A

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price for the iQue 3600a is \$1099. For more information: (913) 397-8200 or visit www.garmin.com.

Innovative Solutions & Support

Innovative Solutions & Support recently introduced two new offerings for the corporate jet set—a new 6 inch by 8 inch flat panel PFD/MFD unit and a new Integrated Air Data Display Unit (IADDU).

The integrated flat panel displays represent, as the company puts it “a breakthrough in performance and cost.” Using commercial display processors and a patented glass treatment process, ISS has created an incredibly bright and sharp display that provides amazing image quality at all normal viewing locations.

Currently the company is certifying the display in the Beech 1900 and King Air 200/300 series and they expect to have certification in Learjets, Falcons and Citation types soon after.

The new IADDU is unique in that the unit combines the analog interface into the standard ADDU, eliminating one-piece of a complex RVSM installation. The unit provides a dedicated display of Baro and Static Source Error Corrected altitude, altimeter setting number, and selected altitude, in combination with an electromechanical pointer move-



Innovative Solutions & Support's flat panel PFD/MFD unit

ment. The LCD has high-intensity backlighting for daytime use and low-level white lighting for nighttime viewing. The unit can also provide analog outputs to the autopilot, including altitude hold and altitude preselect error output. For more information: (610) 646-9800 or visit www.innovative-ss.com.

Mid-Continent Instruments

Mid-Continent, the big name in little instruments, recently introduced its hot new 4200 Series 2-inch electric attitude indicator. Designed to be a “safer” alternative to unreliable vacuum units, the all-electric 4200 is perfect for use as a standby artificial horizon



Mid-Continent's 4200 attitude indicator

in both fixed-wing and helicopter applications.

Like all Mid-Continent products, the 4200 features the most advanced design, components, and manufacturing available to create a highly reliable instrument. The MTBF of the 4200 is 2,500 hours. The electrically powered unit is the ideal 10-32 volt replacement for use in either 14 or 28-volt aircraft installations.

It also features anti-reflective glass, which enhances visibility and reduces fatigue. To match existing instruments and EFIS displays, the 4200 can be ordered with either a ‘Traditional’ or ‘Delta’ aircraft symbol. Suggested list price is \$3,839 plus installation. For more infor-

mation: (316) 630-0101 or visit www.lifesaverygro.com.

Paperless Cockpit

Paperless Cockpit has taken the next great step in bridging the gap between the quality of printed information and the efficiency and flexibility of electronic displays by introducing their new E-Board C3 with “revolutionary” Light-Pipe Technology.

The Light-Pipe Technology delivers an astounding 400-to-1-contrast ratio. Plus, the system provides pilots with precise brightness adjustments—down to zero NITs, so they can easily read the displays in bright sunlight or in a darkened cabin without compromising their night vision.

While the highlight of the C3 may be the display, pilots will also benefit from a unit that stays cool even after hours of operation at maximum brightness. Like other Paperless Cockpit products, the C3 connects to their line of FlightServe EFBs via a single, rugged aerospace connector carrying video, power, and touch-screen controls.

Speaking of the FlightServe EFB, the company has also introduced the FlightServe C3, Class 2 and Class 3 Electronic Flight Bag. Featuring a 1.6 GHz processor with Centrino technology,



Paperless Cockpit E-Board C3

the C3 EFB provides flight crews with unmatched performance and capabilities including the simultaneous support of multiple remote cockpit displays, wired or wireless display capability, two on-board RS-232 Serial Ports, a 50,000 hr MTBF, and more.

While the E-Board C3 and FlightServe C3 can be purchased separately, the company offers a complete package including these units along with the E-Board mount and a data loader. For more information: (901) 751-2687 or visit www.paperlesscockpit.com.

PS Engineering

PS Engineering continued to push the in-flight entertainment envelope with the introduction of their new PMA8000-SR aircraft audio selector with a built in SIRIUS Satellite Radio receiver. According to the company, this is more than just a pumped-up audio panel—it's a "complete audio system."

The PMA8000-SR includes all current audio panel functions including split mode, DuTel dedicated cellular telephone interface, a six-place high-fidelity stereo amplifier, IntelliVOX intercom with dual independent music inputs, a marker beacon receiver, and the built-in SIRIUS receiver providing over 120 channels of in-flight entertainment options.

The PMA8000-SR also features dual entertainment inputs allowing the passengers to listen to SIRIUS entertainment programming, while at the same time the crew can catch up with the latest news. The PMA8000-SR incorporates a "SoftMute" capability that automatically mutes the music when there is a radio call and then smoothly restores the music level. The full-



PS Engineering's PMA8000-SR

duplex TEL mode allows the pilot access to a cellular or satellite telephone.

The system also includes a full-function infrared remote controller so the rear seat passengers can control their audio entertainment selections without bothering the flight crew. For ease of installation, the PMA8000-SR is pin retrofit compatible with the Garmin GMA340. Suggest list price is \$2,590 plus installation. For more information: (865) 988-9800 or visit www.ps-engineering.com.

Sandel Avionics

Sandel has caught every pilot's attention with their new SN3500, 3-ATI EHSI. With its nine-square-inch display, the SN3500 raises the bar in display technology by delivering highly readable 180-degree viewability from any cockpit location. With its patented LCD projection system, the SN3500 also accommodates polarized sunglasses without any information loss.

Created to match the functionality of the most advanced systems, the SN3500 provides a wide array of capabilities making it ideal for almost any high-performance piston, light turbine and helicopter configuration. The unit features a built-in smart I/O module that supports both digital



Sandel's SN3500

and analog avionics making the SN3500 a true drop-in replacement for a wide range of legacy displays.

The standard SN3500 provides a full-color moving map display supporting GPS-supplied waypoints, heading, bearing pointers for VOR and ADF, DME display and marker beacons. The unit also features one-touch toggling between the 360-degree compass and 70-degree ARC views. Sandel is planning on adding TCAS, datalinked weather and Class C TAWS capabilities soon. Suggested list price is \$9,950 plus installation. For more information: (760) 727-4900 or visit www.sandel.com.

Sandia Aerospace

Who says good things don't come in small packages? If you're flying with Garmin 430s or 530s in your airplane, Sandia's new SAC 735 Air Data Computer is something you'll really want to add to your avionics list. The SAC 735 is the first unit available to deliver full air data computing capabilities to the 430/530 families.

When integrated to a Garmin 430 or 530, pilots will be able to display real-time wind information with an on-screen arrow showing wind direction and velocity. The SAC 735 will also provide inputs to display density altitude, Baro correction, and more. Pilots will also love the fact that this capable unit can deliver a real-time fuel page with fuel flow for single and twin-engine aircraft, to help you better manage your engine performance and fuel use. And with the price of gas, the unit could literally pay for itself in added fuel efficiency.

In technical terms, the SAC

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735 provides dual RS232 Air Data Outputs, Pressure Altitude, Altitude In-flight Monitoring, ARINC 429 Air Data Outputs, Gillham Grey Code, and more. Suggested list price is \$2,495 plus installation. For more information: (505) 341-2930 or visit www.sandiaaerospace.com.



Sandia Aerospace SAC 735 Air Data Computer

CABIN STUFF

AirCell

AirCell is answering the call for advanced cabin communications with their new Axxess airborne telecommunications system. This new-generation system enables Iridium Satcom, complete PBX functionality and a high-speed data expansion port. The Axxess system is also the first to support third-party Wi-Fi capabilities, permitting passengers to use their own Wi-Fi compatible wireless phones, laptops, and PDAs while in-flight.

Flexibility is the hallmark of the Axxess SmartPhone system. It creates a “smart cabin”—a dynamic wired or wireless envi-



AirCell's Axxess System

ronment in the cockpit and cabin that lets you select the off-aircraft network, or networks, that best fit your needs. And because Axxess is a true PBX system, it provides full calling capabilities including call routing, conference calling, call waiting, call queue, and voice mail to the cockpit and cabin.

According to the company, another advantage of Axxess over prior systems is it will stay current for years to come. With the ability to handle up to four Iridium channels for voice and one Inmarsat high-speed data channel, the system is designed to be easily upgraded as networks and capabilities change. It offers multiple upgrade paths for adding channels of future voice/data/graphical applications. For more information: (888) 328-0200 or (303) 379-0271 or visit www.aircell.com.

Ellipse Direct

DIRECTV is everywhere and now, thanks to Ellipse Direct, it can be in your airplane for a price that's a lot lower than you imagined. At the heart of this new capability is an “evolutionary” new satellite antenna design that looks like a tiny AWACS dome. That antenna and its combination of faster, easier installation and improved signal delivery are what separate Ellipse Direct from every other satellite TV system on the market.

And according to the company, thanks to their compact, fuse-



lage-mounted antenna, the size of the aircraft hardly makes a difference. Ellipse Direct can offer DIRECTV programming on virtually any business class aircraft from Gulfstreams, to King Airs and everything in between—it's even available to single engine turboprops like the Pilatus PC-12 and Cessna Caravan.

While the new antenna may look like something off of the Starship Enterprise it is a combination of well-proven phased array and state-of-the-art digital technologies. It uses a mechanical steering system that can change heading at a rate of 40° per second so it can acquire and track the satellite without the need for input from the aircraft's GPS or navigation systems—a big feature that simplifies the installation process. Suggested price is under \$100,000 plus installation. For more information: (702) 361-0958 or visit www.ellipsedirect.com.

EMS Satcom

EMS Satcom has taken a large stride in the simplification of “office-in-the-sky” equipment installations with the introduction of their new eNfusion CNX high-speed data networking device. The CNX eliminates the expense and inconvenience of purchasing and integrating different hardware components, which saves you and your installation shop time and money.

Lightweight and purpose-built for corporate aviation, the CNX meets the demanding certification requirements of advanced avionics while delivering exceptional cabin communications capabilities to passengers. The single CNS box provides wireless connectivity, inverse multiplexing, router functions, data compres-

sion/acceleration and IP telephony—all these capabilities with zero integration problems.

Aside from being an installer's dream come true, the CNX delivers all the wireless functionality your high-use passengers want. It supports multi-channel HSD configurations, Inmarsat Swift 64 services, including MPDS and future Inmarsat Swift Broadband services. For fast web access, the CNX supports easy configuration using Web Browser interface and "Connection Wizards." The unit is also wired for Ethernet connectivity for up to eight devices.

The flexible CNX provides users with other expanded capabilities by improving packet management, which allows faster data transmissions. For wireless security, the CNX also supports NAT, Firewall, and VPN. For more information: (800) 600-9759 or (613) 727-1034 or visit www.emssatcom.com.



eNfusion CNX

Honeywell

Honeywell has dialed-up a winner with their new AirSat II Satellite Communications system that will keep business jet passengers and crewmembers connected anywhere they travel via the Iridium LLC satellite communications network. Lighter, more compact, and easier to install than conventional satellite telephone systems, Honeywell's new AirSat II is a true enhancement in airborne communications.

To provide passengers with a total cabin communications solution, the new AirSat II sys-



Honeywell's
AirSat II

tem delivers full dual-channel capabilities for simultaneous voice and data connectivity. On the voice side, passengers and crew will enjoy simple and reliable telephone connections at substantially lower rates than traditional satellite communications systems, as well as, popular features like voice mail, call forwarding, and worldwide messaging.

On the data side, the AirSat II handles both direct and dial-up Internet access at the same reasonable rates as the voice connections. A direct connection provides data throughput at up to 10 kbps.

The AirSat II also interfaces with other communications systems on-board the aircraft including the cabin telephone unit with the CEPT E1 or analog interfaces allowing additional options for off-aircraft transceivers. Additionally, it can be connected to the cockpit audio system so the flight crew can make or receive calls. For more information: (941) 360-6100 or visit www.honeywell.com.

J2 Inc.

Everyone wants RVSM and everyone knows RVSM installations are complex and expensive. Well, J2 Inc. has introduced the new 24471 compact Digital Air Data Computer designed to bring RVSM accuracy and expanded interface capabilities to a wide range of business, regional and commercial aircraft at a lower



J2 Inc.'s 24471 Digital
Air Data Computer

cost. With its compact size and advanced functionality, the 24471 has the flexibility to be mounted anywhere and the capability to replace single or dual analog air data boxes.

Designed to retrofit with the new-generation flat panel displays, the 24471 requires no additional RVSM recertification. Included in the kit is an Aircraft Type Specification Module, which configures the aircraft to the DADC for specifics, i.e. (SSEC), Vmo, Baro, and much more without altering DO-178B Category A software. The 24471 also features two ARINC 429 output busses with high and low speed capability, and an ARINC input bus for Baro offset and data buffering.

The 24471 is designed and manufactured to provide an MTBF in excess of 65,000 hours and accuracy tolerance for all outputs are valid over the entire operating envelope. Environmental effects are compensated by electronic and software corrections. For more information: (901) 355-7474 or visit www.j2aviation.com.

Pentar Avionics

Pentar Avionics has tossed their hat into the proverbial cabin communications product ring with their new JetLAN AR230. The AR230 is an advanced networking router that provides a simple

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Pentar's JetLAN AR230

and reliable way for passengers to share the aircraft's voice and data connections simultaneously. The unit eliminates the need for additional external networking peripherals such as switches and wireless access points.

Utilizing two separate processors, one for network functions and the other for I/O handling, the AR230 has more than enough computing power for the most demanding cabin networking applications. Interfaces are available for the addition of any current or future aircraft communication systems, including the latest in high-speed Satcoms, and Swift Broadband.

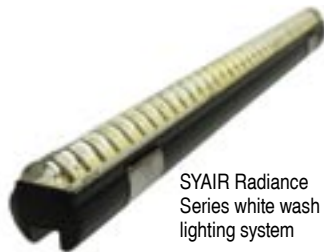
With an internal nine-port Ethernet switch, the AR230 can be used to provide any needed wired network ports to support peripherals including printers and fax machines. The built-in wireless server also enables wireless LAN through the aircraft's cabin. For more information: (425) 424-3370 or visit www.pentar.com.

SYAIR

There's nothing worse than having a beautiful interior spoiled by bad interior lighting. Well, SYAIR literally has one of the brightest new product introductions this year—the new Radiance Series white wash

cabin lighting system. Created specifically for the needs of aviation, the Radiance Series features an all-in-one light stick integrating proprietary light engine and electrical interfaces for power and logic control.

By utilizing a light engine that is constructed without traditional white LED sources, SYAIR can easily customize every aspect of the new light and guarantee the performance of the system. Additionally, since the Radiance Series is not dependent on "off-the-shelf" white LEDs, which tend to be inconsistent in coloring and operational characteristics, the company guarantees no flickering.



Available in incremental lengths from 4-inches to 60-inches, the new Radiance Series provides a very modular design approach to cabin lighting offering not only improved performance, but easier, more flexible installations. For more information: (501) 537-7000 or visit www.syairdesigns.com.

Thrane & Thrane

Global communications technology leader Thrane & Thrane has introduced the latest offering in their high-speed cabin communications family, the Aero-HSD+. The Aero-HSD+ combines the global voice, fax, and PC modem data capabilities of the Inmarsat Aero-H+ services with the new Inmarsat Swift64 aeronautical high-speed data services to



Thrane & Thrane's Aero-HSD+

provide a single-source for your cabin communications needs.

Aero-H+ provides two-channels for the voice and data, while a third is dedicated to providing global cockpit data delivery including weather updates, Unilink, CPDLC, CNS/ATM, and more. The Swift64 part of the system provides the flexibility of either the standard single channel or optional dual-channel operation so it can easily be tailored to meet your specific data handling requirements.

The built-in ISDN service gives your passengers full 56/64 kbps bandwidth making it ideal for large file transfers, live video conferencing, and other data intensive transmissions. Also, the built-in cabin telephone unit eliminates the need for an external 'switchboard' and may connect up to six standard or wireless handsets, along with two fax machines or modems. The Aero-HSD+ offers an extremely reliable alternative to VHF/HF communications and provides an added safety parameter for passengers and crew communications. For more information: 45-39-55-8800 or visit www.tt.dk.

WSI

The weather folks at WSI have taken the next step in weather and flight information delivery by introducing the InFlight 3.1 Display software upgrade. What

sets 3.1 apart is it is the only product available that can deliver WSI PIREPS into the cockpit. Using patented technology, WSI is now able to graphically depict all current pilot reports in the FAA's database. Pilots can now see reports of icing and turbulence before they encounter it. In addition, the InFlight software also provides cloud-to-ground lightning strike information.



WSI InFlight client interface rev 3.1 showing WSI PIREPS data.

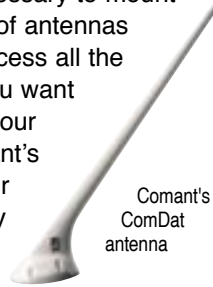
The InFlight 3.1 software enables the PIREPS to be displayed on PC devices including EFBs and PCs, as well as the Universal Avionics MFD640. Speaking of the MFD640, WSI also introduced the new DAC GVC39 Converter and Controller that allow the WSI InFlight AC200 to interface with the Universal multi-function display unit.

WSI also introduced a variety of new subscription packages including a new Canadian Subscription, which provides graphic METARS and TAFs, as well as, Environment Canada Weather Radar. In addition, the package features WSI NOWrad covering the southern Canadian boarder. For more information: (978) 983-6300 or visit www.wsi.com.

JUST COOL STUFF

Comant

The folks at Comant have come up with a solution to your space problem—your antenna space problem that is. Small aircraft just don't have all the surface area necessary to mount the collection of antennas required to access all the information you want beamed into your cockpit. Comant's solution is their ComDat family of combined communications and data antennas. Now one ComDat antenna can do the work of up to four standard antennas.



Comant's ComDat antenna

ComDat allows you to add new capabilities like XM Satellite Radio or WSI Weather Data, GPS, or Narrow Cast services without having to add additional antennas. And as an added advantage, by using patented built-in harmonic suppression filters, high-tech matching networks, and low-noise amplifiers there are never any problems with antenna co-site interference.

The Comant family of ComDat antennas is available in a wide variety of popular footprints that make it quick and easy to swap out older, single-use antennas. For more information: (714) 870-2420 or visit www.comant.com.

Panel Pro

Now that you've decided you want to add all this cool new stuff to your panel, the only thing left to do is to build that new panel. And if you've been looking for a way to cut the middleman out of

your panel fabrication process, then Panel Pro has the system for you.

The new Panel Pro 4824a is the perfect solution for small shops and even serious home-builders who need the ability to custom cut instrument panels quickly and economically. The 4824a is a unique combination of off-the-shelf hardware and custom-developed CAD software that can quickly turn CAD files into finished parts.

Panel design is easy. The 4824a comes with an extensive list of panel layouts for 14 major piston, turbine, and jet aircraft OEMs including Cessna, Beechcraft, Commander, Piper, Hawker, Citation, Jetstar, and more. There are even panels for popular homebuilts. Along with that there is a library containing templates for hundreds of popular instruments. You just click and place to build your panel. And once a drawing is completed it can be stored and reused countless times.

When your drawing is ready, the SC2b controller automatically turns your CAD files into motion. The system can cut a standard 48 inches x 24 inches panel in one set up and in around a half-hour or it can be used to fabricate a variety of other complex sheet metal parts. Suggested list price is \$14,995 (not including PC). For more information: (701) 255-7640 or visit www.bullerent.com. ■



Panel Pro 4824a