

{special report}

*Because of ongoing innovative enhancements to this technology, whatever you need you can find. Better still, you can either buy the tools or, in some cases, build them yourself.*

# HMI: The hardware and software of it

Wayne Labs, Senior Technical Editor

**W**hen it comes to human-machine interface (HMI) technology, your



*Spectrum Controls' SOI-260 is available in an intrinsically-safe model for explosive atmospheres.*

options are wide open. You can buy HMI hardware in most any form factor you want, and you can build or buy incredibly versatile HMI software for next to nothing (check out <http://pvbrowser.org>) or, at the very least, for a very reasonable price. As ARC Advisory Group (Dedham, MA; <http://www.arcweb.com>) points out in a recent study, the "pure play HMI software market remains saturated as HMI applications approach commodity status." Translation to users: The price is right!

At the hardware level, there's something for everyone—from handheld wireless devices to machine-mountable Windows CE or embedded OS-based devices to flat-panel touch screens and large computer-based HMIs. While flat-panel screens are just beginning to take hold in the consumer market, they've already gained a lot of ground on the plant floor. Reason: They take up a lot less space than CRTs, are easy to build protective cabinetry around, and are immune to electrostatic and electromagnetic fields.

In this article, we'll look at some of the newest HMI hardware and software technologies available for industrial and process applications.

## Smaller hardware for tight spaces

An HMI for a PLC doesn't have to be large and complicated. A small, character-based device often can fill the bill quite nicely. Take, for example, Spectrum Controls' SOI-260, which works with most major PLCs and provides communications for ODVA's DeviceNet, Modbus, Simatic S5, Square D SY/MAX, IDEC's FA Series, Omron's Hostlink, and TT's 405. The SOI-260 is also available in an intrinsically-safe model for use in explosive environments. This HMI provides menu screens that can be linked to provide a complete set of instructions for the operator to follow. It also supports point/access display, which



*Red Lion Controls' G303 offers up to five serial comm ports, has built-in Ethernet, and fits into panel cutouts of 6.04 x 4.44 inches.*

allows access to the entire data register table within a PLC for debugging and troubleshooting. The SOI-260LC has a 4 line x 20 character LCD with LED backlit display and a 10:1 contrast ratio. Also available is the SOI-260VF with a vacuum fluorescent display.

For those of you who need a small HMI device, hardware such as Red Lion Controls' G303 may provide the solution. These HMIs come in a panel size of 7.45 x 5.85 in. (panel cutout 6.04 x 4.44 in.). The G3 hardware platform used with built-in Crimson configuration software features ease of use, along with varied communication and computational capabilities. The G303 provides up to five serial communication ports that can be configured to communicate (at speeds up to 115 kbaud) with an extensive list of devices, including most PLCs, motion controllers, and PID controllers. It has an integrated protocol converter that provides an easy way for these devices to have integrated communication. The unit comes standard with a 10/100Base-T Ethernet port, which can be used for remote communication and web diagnostics.

Maple Systems' HMI 500 Series features panel sizes that run from 5.7 in. up to 10.4 in., with prices ranging from \$550 to \$1850, depending on size and display types. As with Red Lion, the news is in the unit's software, or often in what the HMI supports. Maple has added to its list support for Keyence's KV Series, Control Technology Corp.'s (CTC) 2200-2800 Series, Yaskawa, Siemens TI505, and more support for Allen-Bradley and CompuMotor. Updates have been made to the Allen-Bradley DF1 ControlLogix and SLC500 protocols to include floating point register support, and the CompuMotor protocol has been updated.

QSI Corp.'s QTERM-G75 is an Ethernet-enabled graphics terminal that fea-

tures a 640x480 10.4 in. color LCD, 10 Mbit/s Ethernet, touch screen with optional PS/2 keyboard connection, NEMA-4 CE-certified aluminum housing, 16 Mbytes RAM, 2 Mbytes Flash, and RS-232, -422, and -485 interfaces.

What do you get when you cross a Beckhoff Control Panel and a PC? A Panel PC. The company's entire line of aluminum-constructed Control Panel LCD monitors, which range from 6.5 to 20 in., are offered with four types of integrated PCs to create various Panel PCs. The vari-

ations available offer customers the flexibility to meet specific requirements at the right price. The Control Panel, which makes up the HMI, has options for a full membrane keyboard, function keys, keyboard ports, disk drives, mouse ports, built-in electrical push buttons, touch screen, touch pads, and customer specific data ports such as data card readers. The PCs are scalable in size and functionality from the miniature CX1000 up to the full size ATX motherboard CP6500. The CX1000 can be used as an all-in-one



*Schneider Electric's new Telemecanique® Magelis XBT-G touch screen HMI terminals come in a variety of sizes (5, 7, 10, and 12 in.). They feature a compact footprint and Ethernet connectivity. See p 54 for more on this family of HMIs.*

# Covering All Bases



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*Beckhoff's Panel PCs integrate LCD monitors from 6.5 to 20 in. with PCs.*

motion, PLC, and HMI controller running Windows CE or Windows embedded XP. The CP6300 Panel PC has a single-board computer capable of operating a PIII 850 MHz Intel processor with one available ISA/PCI slot, 128MB upgradeable SDRAM, and onboard Ethernet. The CP6400 has all the capabilities of the CP6300, but with more available slots. Finally, the CP6500 has a full size socket 370 ATX motherboard that has the most available slots and an option for a socket 478 motherboard.

Another panel-mounted PC option is Axiom's Panel 1000-370. The 10.4 in., 250 nit 640x480 screen has a NEMA 4/12-rated front bezel and a resistive touch screen. You can opt for an Intel Celeron or Pentium III processor, and the computer features an Ethernet port, parallel port, VGA port, and COMM ports. It operates in temperatures from 0 to 40°C and in humidities of 5-95% noncondensing.

### Windows CE-based HMIs

If you need a panel that can withstand outdoor use, Exor's UniOP eSOPx39 and

eTOPx39 displays use a new technology display that works in sunlight without requiring exceedingly bright backlighting. The 10.4 in. advanced Transflective display features VGA resolution, NFI touch screen, an operating temperature range from -10 to 55°C, connection to industrial bus systems and Ethernet, and availability with Windows CE or Linux.

Earlier this year, Rockwell expanded its Allen-Bradley® VersaView™ industrial computer line with the new VersaView CE™ industrial computer, combining the



*Exor's UniOp panel displays work outdoors in bright sunlight without needing hefty amounts of backlighting.*

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Microsoft Windows CE platform with rugged hardware designed specifically for industrial applications. The computer is an open platform computing solution suited to HMI, customized applications, information management, and remote terminal applications in situations where users need the flexibility to customize or use third-party software programs, but don't necessarily want the full functionality of an industrial computer. VersaView CE uses an Intel Celeron 650 MHz processor and 256 MB of both flash and RAM memory, and is available with 6.5-, 10.4-12.1- or 15-inch TFT active matrix color displays with multiple keypad and touch screen options.

Another Windows CE option is Nematron's PowerView/CE .NET-based HMIs. These HMIs include Nematron's OpenView Machine Edition/XE program-



*Rockwell's VersaView CE computers come preloaded with RSView Machine Edition runtime, and can support terminal services for thin-client operation.*

ming software, which is sold separately. Three workstations are available in the Series: 5.7 in. STN, 4096 colors, 320x240 resolution; 7.7 in. STN, 4096 colors, 640 x 480; and 12.1 in. TFT, 4096 colors, 800x600 resolution. All units feature 32 M DRAM and 16 M Flash memory, compact Flash expansion slot, Ethernet, real-time clock, 16-bit sound, 24 Vdc operation,

and NEMA 4/12 and IP65 ratings when properly mounted.

Yet another Windows CE .NET option is also a wired or wireless handheld computer. Designed for one-handed operation, the JETT•ce, from Two Technologies, features a Windows CE .NET 4.2 operating system, Intel® XScale™ Technology processor, sunlight readable dis-

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play with touch screen, and a variety of interface capabilities. The JETT•ce works in a wide range of applications.

The standard 320x240 pixel QVGA-TFT color display is sunlight readable with an LED backlight for easy viewing in high- or low-light conditions. The touch screen gives you the ability to create GUI based applications—providing unlimited possibilities for user control.

The JETT•ce comes standard with 64MB of SDRAM and 64MB of built in Compact Flash (approximately 16MB used for OS), which is expandable to 128MB. For removable data storage or I/O cards, the unit is equipped with a Compact Flash (CF) slot. Featuring a variety of interface options, the JETT•ce comes standard with one RS-232 serial port. For applications that require dual serial port capability, a second serial port configured as RS-232, RS-422 or RS-485 is available.

### HMIs with software

Eaton Corporation released the latest addition to its PanelMate® ePro family. The Cutler-Hammer PanelMate ePro XE com-



*Nematron's OpenView Machine Edition/CE programming software for PowerView/CE HMIs.*

brates the flexibility of a PC-based SCADA system and the reliability of a dedicated HMI product. This latest development builds on the existing ePro OI foundation by adding recipe/machine setup functionality, data trending, document viewing/browsing, and data historian capabilities. Designed for harsh environments typical to industrial applications, the ePro XE uses solid-state memory technology



*Two Technologies' JETT•ce handheld HMI runs on batteries or external power, and can be used as a wireless HMI.*

that is resistant to vibration and temperature extremes. Consistent with all PanelMate ePro models, the ePro XE has built-in 10/100 Mbps Base-T Ethernet. Users can share files and data between PLC and business systems, and perform quick and easy file uploads and downloads to PanelMate ePro units. Additionally, it features an expansion slot for optional proprietary network interface cards that support existing and new installations.

If you're in the market for larger touchscreen HMIs, IDEC has added two models to its HG family of HMIs. The HG3F and HG4F HMIs are full 256-color touch screens with TFT LCD screens and replaceable backlights. These new larger screens are RS-232, RS-485 or RS-422 compatible, with Ethernet and Compact Flash support. They are CE-marked, c-UL and UL Listed, meeting UL 1604 for hazardous locations and IP65 standards. The HG3F has a 10.4 in. screen, with a display of 640 x 480 pixels. The HG4F has a 12.1 screen with a display of 800 x 600 pixels. Both models weigh 6.61 lbs, and have di-

mensions of 13.7 x 10.6 x 2.8 inches. The touch screens work with all of IDEC's programmable logic controllers, and have drivers available to make them compatible with PLCs from other manufacturers. Each series also has a dedicated programming software package to suit the particular features of that interface.

Advantech's FPM-3120 and FPM-3150 TFT LCD flat panel monitors come equipped with 300 nits and 350 nits of brightness, respectively, and a rugged capacitive touch screen. The capacitive touch screen is highly suited for environments requiring sturdy, robust performance, such as industrial and vending deployments. The FPM-3120 and 3150 are equipped with direct VGA signal transmission to allow data viewing up to 160 feet away. A regular VGA control card may be used on either system, and users can upgrade the display without making changes to the existing system. On-screen display allows users to adjust images on the screen with ease. Both monitors are designed with an industrial applications in mind. The FPM-3120 is specifically designed for applications with limited installation space. The backside cut-out dimensions are the same as traditional 10 in. displays. With a new magnesium panel, mounting is easy and fits most environments perfectly. The entire chassis is stainless steel, and the front offers NEMA4/IP65. Also suited for industrial applications, the FPM-3150 offers a stainless steel chassis and a NEMA4/IP65 compliant aluminum front panel.

If you need a touch screen monitor for demanding industrial applications, 3M's MicroTouch™ ChassisTouch™ 450 FPD has National Electronic Manufacturers Association (NEMA) 4X and



*Eaton's PanelMate ePro XE is offered with color DSTN and color TFT displays.*



IDEC's HG3F and HG4F are 256 color TFT LCD screens with 10.4 and 12.1 in. screens (respectively).

Ingress Protection (IP) 66 ratings, meets 3M's shock and vibration specifications (20G, 11 ms pulse; 5-2000 Hz, 2G), and offers Near Field Imaging projected capacitive touch technology. Ideally suited for harsh environments, the 450 product can withstand high-pressure wash downs common in manufacturing environments, and the touch screen is unaffected by most surface contaminants found in factories, automation environments, utilities and mining applications. The 15-in. monitor displays 16.7 million colors at 1280x1024 and operates in temperatures from 0 to 50°C.



3M Touch Systems' Model 450 survives the shock and vibration of harsh industrial environments.

If you're looking for an industrial-strength HMI you can mount on an arm, consider Industrial Electronic Device's ARM-15 and ARM-15T models. Their rugged 14 gauge steel chassis are designed to take the daily abuse and dusty dirty environments. The front bezel is finished with a non glare flat black while the case is a semi gloss for easy

cleaning. The display has a 450 nit brightness rating and is capable of picture-in-picture support for camera inputs. The touch screen display has a splash-proof front and a plug-and-play VGA interface.

Contec's heavy duty DT20 Series of flat panel displays features analog resistive touch screens and long-life backlights that add to their suitability for use



Advantech's FPM Series offers NEMA4/IP65 ratings and bright screens.

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in harsh environments. Compact and lightweight, these displays all measure less than 2 in. deep, permitting them to be mounted in the tightest of settings. NEMA 4/12 (IP65) protected front panels are designed for use in the most rugged of applications.

Another option for harsh environments, and FM approved for hazardous areas, is Daisy Data's standard flat panel display series (4500KP and 2500KP), which now include a legendable membrane keypad. Flat panel displays are available in 12.1, 15, 18.1, and 20.1 in. sizes. Customers can choose to have a PC integrated into the enclosure, or they can order it with a Cat5 or Fiber Optic KVM extendor to provide connection to a PC at up to 400 ft (copper) or 1000 m 9fiber optic). Enclosures are available in NEMA 4/12 (painted CRS) and 4X (SS).

What about explosive atmospheres? Christensen Display Products has announced a major extension to its family of industrial flat panel monitors. Dubbed the -HZ series, most monitor configurations from 10 to 20 in. are now available listed and labeled for Class 1 Div. 2 Hazardous Location use. Customers can use these devices without cumbersome and expensive purge control systems. The line extension includes over 35 new part numbers. Both touch screen and standard versions of 10, 12, 14, 15, 18, and 20 in. monitors are included.

Dolch's SafeTTouch EX is a flame-proof, explosion-proof touch screen workstation. Certified for use in Class I, Div. I—Group D hazardous environments, the FPD computer does not require a costly, troublesome air purge system. It is constructed of case aluminum and uses Dolch's "EnhancedInfrared" touch screen technology to create a dynamic and durable interface suitable for use in extreme environments.

### Go wireless

For applications where wired isn't a possibility, check out Comark's RF 802.11B



*Daisy Data's standard flat panel display series now offers a legendable keypad. It's also FM approved for hazardous environments.*

Factory Automation workstation for applications that require a NEMA 12 enclosure (dust-proof and drip resistant).

The 8936 Series features a 15.1" Active Matrix TFT display and a ventilated enclosure constructed of epoxy-coated aluminum that meets a NEMA 12 rating. The standard features include a shatter-proof polycarbonate screen, sealed connector pathway, and an easy access drop down front panel for cable connections and filter maintenance. Options include a resistive or NFI touch screen, NEMA 12/4/4X keyboard with silicone rubber key pad and integrated Hulapoint Mouse, an 802.11B RF modem and/or CAT5E,



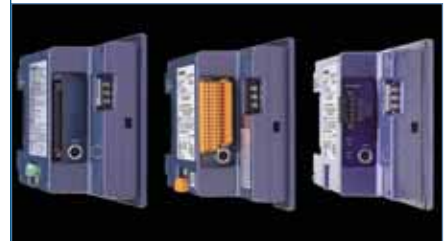
*Most Christensen Display monitor configurations from 10 to 20 inch are now available listed and labeled for Class 1 Division 2 hazardous location use.*

10/100BT NIC Ethernet connection, and flexible mounting for pedestal, wall, or pipe configurations.

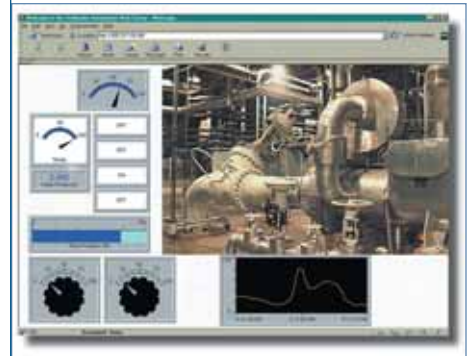
The 8936 Series standard computing platform consists of a Celeron 1.2 GHz CPU, 3 PCI slots, 1 AGP slot, a 10/100 NIC port, 3 serial, 1 parallel and 2 USB interfaces. Available options include Pentium P4, 1.8 GHz CPU, up to 512 MB DRAM, Net Boot capability, up to a 40 GB hard drive, up to 256 MB of Flash memory with a Windows NT/2000/XP operating system.

### Combine the hardware and software

According to ARC Advisory Group (Dedham, MA; [www.arcweb.com](http://www.arcweb.com)), with HMI



*Xycom's new GLC models from left to right include the Type B+, H, and D.*



*FactoryCast, which allows users to view real-time process or machine information transparently, is at the heart of Schneider Electric's web-enabled Transparent Factory®.*

software rapidly approaching commodity status, vendors are looking at ways to boost their revenues. One such way is to provide HMI software with hardware (as the PLC manufacturers have been doing) for a single box solution, or extend the functionality of HMI beyond its traditional push buttons, controls, and dialog boxes to that of MES and other higher-ended,



Owens-Illinois, Hamlet, North Carolina (right), recently added ten injection-molding machines to its facility. The electrical technician on the project, Don Hammann, designed a control system using AutomationDirect's DLO6 PLC interfaced with a 6" EZ-Touch color touch panel (left). This system controls two vacuum pumps, six material lines, and 10 feed hoppers. The system can be configured via the touch panel to run two types of material and to control which press receives the material.

full-function applications, where they can make some money.

One example of a PLC with built-in HMI software is Xycom's LT Series Graphic Logic Controller (GLC) Series. The original LogiTouch Series, released in 2001, already consisted of three different types: Type A with 32 points of I/O, built in; Type B with an interface that connects with the Pro-face brand of I/O called Flex Network; and Type C, which also has a Flex Network interface, but adds a serial port to talk to other controllers, temperature controllers or serial devices. All models of the LT Series have a 5.7 in. blue-and-white LCD with fully functional HMI features.



National Instruments LabVIEW 7 has new enhancements to make the HMI faster and easier to use.

New LT Series units consist of types B+, D and H. Type B+ is a combination of the Type A and Type B units with its built-in 32 points of I/O and Flex Network interface. Type B+ provides cost-effective built-in I/O with 16 inputs and 16 outputs (all 24 Vdc) and the ability to connect to the Flex Network line of distributed I/O. This space saving unit will also reduce the size enclosure once needed for this much equipment.

Another combined PLC/HMI is offered by AutomationDirect, which has expanded its line of EZTouch PLC touch panels to include new 8, 10 and 15-inch slim bezel units. The slim bezel panels are constructed with FDA-compliant plastic and touch screen overlay, and a ¼ in. FDA-compliant O-ring gasket. Slim-bezel EZTouch panels start at \$459 and

are available in color or monochrome versions. Certain models can also be purchased with built-in Data Highway Plus capability, and Ethernet option cards are available for use with Automa-

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tionDirect Ethernet-enabled PLCs. Also new are 10 and 15" panels with MODBUS Plus, DeviceNet, Profibus or Ethernet I/P capability.

### HMI software: More powerful, farther reaching

As was suggested by ARC's comments noted earlier, to get around the problem of commoditization, vendors that intend to be successful need to develop HMI software that can do more. One good example of this approach at work is Siemens' new SIMATIC PCS 7/90 Operator Station, which allows for the migration of existing Bailey systems to Siemens technology. With the new operator station, Bailey INFI 90 and NET 90 users can migrate to the SIMATIC PCS 7 process control system. The new operator station can replace existing Bailey operator consoles while maintaining installed controllers, I/O and field wiring. The new operator station offers predefined faceplates and graphic symbols for interaction with Bailey block types, ensuring a consistent look and feel for operators, engineers, and maintenance personnel.

Making the HMI ubiquitous is the job of Schneider's Telemecanique® FactoryCast™ module. It embeds HMI capabilities such as e-mail, the ability to store user-created web pages, data logging and mathematical computations within PLCs and other devices. The module integrates a web server that acts as a real-time PLC data server, allowing information from Modicon® Quantum®, Premium™ and micro programmable logic controllers to be displayed in the form of standard web pages in HTML format, which can be accessed from any standard Internet browser. No configuration or programming of either the PLC or PC supporting the browser is required to access these capabilities. The module can be used in an existing configuration without any modification of the resident program.

The host of new features that National Instruments has added to its Lab-



*GE Fanuc's CIMPLICITY runs on large and small hardware, and can be customized for local language operation.*

VIEW 7 all work together to provide a faster, easier-to-use HMI. For example, some of the features include more than 35 revised shipping examples to help engineers better design and optimize their systems, more than 4,000 graphics in the image navigator, integration with LabVIEW Real-Time targets and OPC devices, new interactive tools to view and manage data from multiple computers,

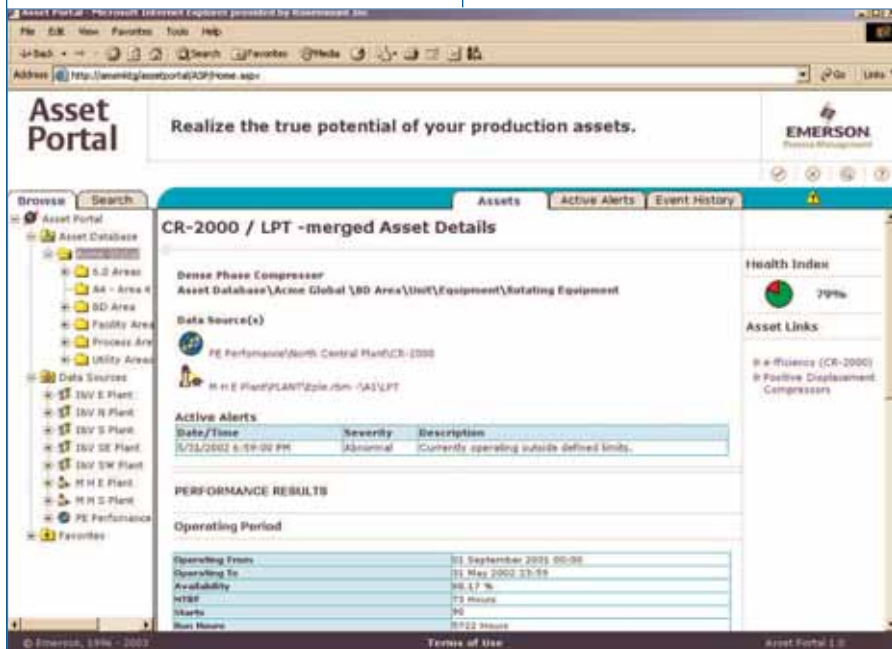
SQL 92 and ODBC 2.5 compliant database, and an enhanced historical database with faster performance. LabVIEW's Datalogging and Supervisory Control Module offers tools for designing and maintaining distributed monitoring and control systems. Development tools provide for logging data, alarms, and events; trending data and batches over time; and extracting data from the network database with standard SQL/ODBC queries.

Yokogawa has recently released the R3.01 version of its Alarm Event analysis software package. This tool categorizes event logs acquired from DCSs in terms of process requests (alarms, annunciators, etc.) and operator's actions (setting values, changing modes, etc.). By observing the balance of these alarms and events graphically, operation-related problems can be quantitatively clarified.

### Putting it all together

A few years ago, Invensys began purchasing various controls companies—hardware and software. I remember visiting one Invensys acquisition located in the midwest and asking if the company would soon be applying I/A Series technology to its hardware. I was told that this was already in the works.

Today, the concept of an all-encom-



*Emerson's Asset Portal provides a window into plantwide assets from anywhere in the world via the Web.*

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passing, underlying architecture or platform technology is paying off for Invensys. The company's new ArchestrA™ software architecture will soon form the foundation for I/A Series control systems, the Foxboro A<sup>2</sup> automation system, Wonderware software solutions, and just about every product offering under the Invensys moniker.

To extend its HMI capabilities even further, Invensys has announced an alliance with Microsoft to create intelligent business solutions that will give customers real-time visibility into their production operations. Behind this is tighter linking of Invensys' ArchestrA framework with the ongoing evolution of Microsoft's .NET initiative and its Windows Server System (more on p 56). This alliance will provide real-time collaboration among the shop or plant floor, engineering, supply chain, and enterprise applications; robust, secure, and effective integration of existing customer applications; increased uptime and asset availability for managing multiple sites, integrating with partners, and optimizing complex supply chains; and proven solutions that will be reliable, flexible, scalable, and secure.

When you need mobility on the plant floor, you can now get Wonderware InTouch HMI for Microsoft Windows XP-based tablet PCs. Tablet PCs enable users to interact with the display in a manner that is similar to writing on a tablet. The InTouch HMI has also been enhanced to support the new tablet PC features, providing additional versatility to the end user. By the end of the first quarter of 2004, Wonderware also plans to provide complete pen and annotation support for tablet operating systems in its advanced plant intelligence monitoring clients, such as ActiveFactory reporting and analysis tools.

Another HMI supplier that has built its applications around the ever-evolving Microsoft .NET technology is Iconics. Its new BizViz™ Suite includes several new products that bridge the

gap between manufacturing and corporate business information systems. At the core of BizViz Suite are its new data-mining and Web portal technologies, written to take advantage of Microsoft's .NET and SharePoint™ Portal Server. The BizViz Suite allows the bridging of industrial or corporate databases and integrates information from different data sources, including Mi-

crosoft SQL Server®, Oracle®, SAP® ERP software, and OPC information. The BizViz Suite contains four products: ReportWorX™, PortalWorX™, BridgeWorX™, and MobileHMI™.

### HMI for global reach

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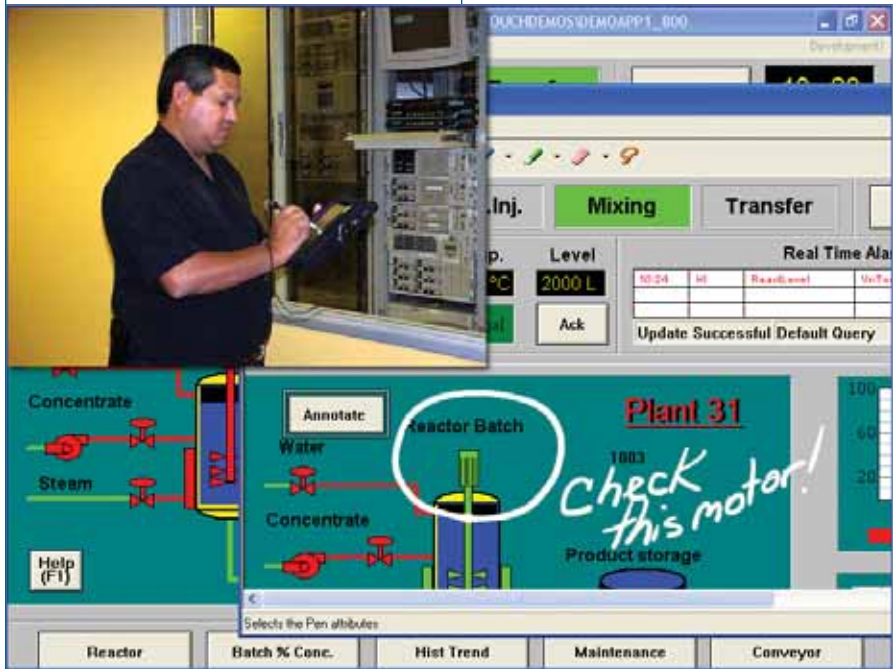
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connectivity will need to be capable of handling local languages. With the latest release of CIMPLICITY® HMI, GE Fanuc Automation Americas, Inc., an affiliate of GE Industrial Systems, delivers an array of features designed to extend both the connectivity and localization capabilities of today's global manufacturer. Featuring dynamic screen localization and connectivity enhancements to simplify exchange of data between plant floor and the enterprise, CIMPLICITY HMI 6.1 is a scalable and easy-to-use solution that allows users around the globe to quickly and easily implement this software solution and maximize the efficiency of their manufacturing processes. For global users, OEMs or system integrators that wish to customize HMI screens in their native language, CIMPLICITY HMI 6.1 delivers the ability to change the language of the screen and alarm text on the fly.

Key to HMI 6.1's connectivity enhancements is the ability to share data with Process Execution products such as CIMPLICITY Machine Edition, and Plant Intelligence products like iHistorian™, GE Fanuc's plant-wide data historian.

GE Fanuc's HMI/SCADA iFIX 3.5 software has been updated to provide manufacturers with powerful new project management, data accessibility and security features. Through this new functionality, manufacturers can reduce development time, improve enterprise connectivity and gain greater overall control of their production processes. With iFIX 3.5, users can develop, manage and alternate between multiple HMI/SCADA applications and projects from a single development station. As a result, corporations and system integrators can increase the agility, productivity, and effectiveness of their development personnel.

Sharing data among SCADA and other plant floor applications is also made easier using the iFIX Integration Toolkit. The toolkit delivers iFIX database access and development, as well as historical data access, and it now includes a .NET



Tablet PCs running tablet-based software, such as Wonderware's InTouch, make it easy for engineers and technicians to communicate problems over the plant network.

adapter to integrate with Visual Studio .NET. As a result, iFIX makes it possible for developers, system integrators and OEMs to leverage the latest software technologies available from Microsoft.

Getting process information from your HMI isn't all that you need today. An interface to your plantwide assets is

required as well. And you should have access to them anywhere in the world via the Web. Emerson Process Management's Asset Portal provides secure access to mechanical equipment, process equipment, instruments, and valves via Internet Explorer. Experts can view active alerts, as well as current and histori-

### ▶ HMI makes cutting and winding easy for German foil manufacturer

Wayne Labs, Senior Technical Editor

A recurring task in the manufacturing, processing and finishing of plastic and metal foils, papers and laminates is the cutting and winding of a long wide roll into multiple narrow and/or short rolls. Therefore, the main requirements needed for plant floor equipment are high flexibility and availability. However, this equipment must also provide the highest possible process transparency, and a convenient HMI system for reduced adjustment and process conversion times. Yet another critical requirement is the integration of the equipment's process data into enterprise networks for the analysis of process data.



The PSA GmbH (Bitburg), a young, dynamic company, has established itself as a global leader in this field in just a few years. PSA sees itself as an innovator, consistently using

cal asset details through the Asset Portal to expedite decision making. With Asset Portal, users can consolidate asset information from Emerson's Machinery Health Manager, Equipment Performance Monitor, and Intelligent Device Manager, and extend access to virtually anywhere. From a single Web browser, engineers can see data from a single facility or as a global organization. They can compare device configurations, look for trends in motor faults, and review compressor performance across the entire enterprise.

Honeywell Automation and Control Systems has made web-based technologies a key part of its new DCS, Experion PKS (Process Knowledge System). Experion PKS integrates Honeywell's HMIWeb technology, a Web-based architecture supporting integration of HMIs, application, and business data and Microsoft .NET and OPC technologies. This interface solution combines consistent and secure access, robustness, and performance with state-of-the-art, open web graphics.

HMIWeb technology offers the benefit of fully integrated data delivery using standard Internet technologies such as HTML and XML. HMIWeb technology supports casual access to process graphic

displays from either the secure Experion PKS Station environment or directly from Microsoft Internet Explorer without functionality-reducing "exports." This framework ensures seamless, third-party integration through open Web standards.

The DCS has a continuous, logic, sequential, and drive object-oriented control environment hosted on redundant controllers. System interfaces include FOUNDATION™ fieldbus, Profibus™, DeviceNet™, LON™, ControlNet™, and Interbus™. The system's DCS functionality is fully integrated with previous and current Honeywell systems, and functionality from new technologies such as the Alarm Monitoring Environment, VB scripting, and the Application Control Execution Environment is featured as well. Also included is an integrated safety system solution.

#### HMI's already so much more

HMI hardware and software offers so much more than simply a window into the process. It provides extended connectivity, project management, asset management, and additional functionality that can help optimize plant operations and lead to a very quick ROI. And there's a lot more to come. ■ ■ ■

universal automation technology offered by Siemens. Based on open specifications and available worldwide, the technology provides users greater independence from machine manufacturers—a benefit that PSA passes on to its customers.

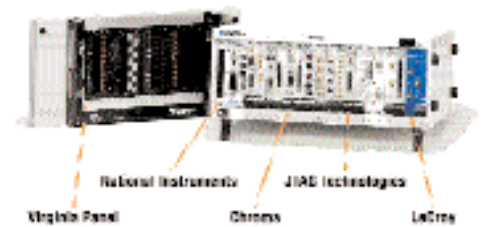
The latest development in automation technology at PSA is a combination of Siemens' SIMATIC Multi Panel MP 370 with 12 in. touchscreen, intuitive SIMATIC Pro-Tool HMI as well as a software PLC and drives on a PROFIBUS DP network. The Multi Panel with Windows CE real-time operating system, 64-Bit RISC CPU, and 12 MB of flash memory provides a fast, rugged and proven fail-safe platform for complex controller algorithms with up to 10 manipulated variables. Together with the WinAC software-based PLC and a master-slave configuration of the drives, the Multi Panel allows the track voltages at the winders to be controlled separately.

Once set up, the interface-less system works flawlessly. PSA ported the program from the previous hardware PLC to the software-based PLC without difficulty. Digital drive systems and precise control open up a wide processing window for products ranging in thickness from 5 µm to 1.5 mm.

At the onsite Multi Panel, the operator is guided through all setup procedures. From the touch screen, the operator can also make online changes to the automation process at any time, and directly influence the quality. The system meticulously documents everything, allowing the experience of the operator to be incorporated into detailed material profiles.

No hard drive and fans, a faceplate conforming to the IP65 degree of protection, and a mounting depth of only 59 mm make the MP 370 suited to application in rough industrial environments. Integrated Ethernet and USB ports provide network integration and connectivity for additional peripheral devices.

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