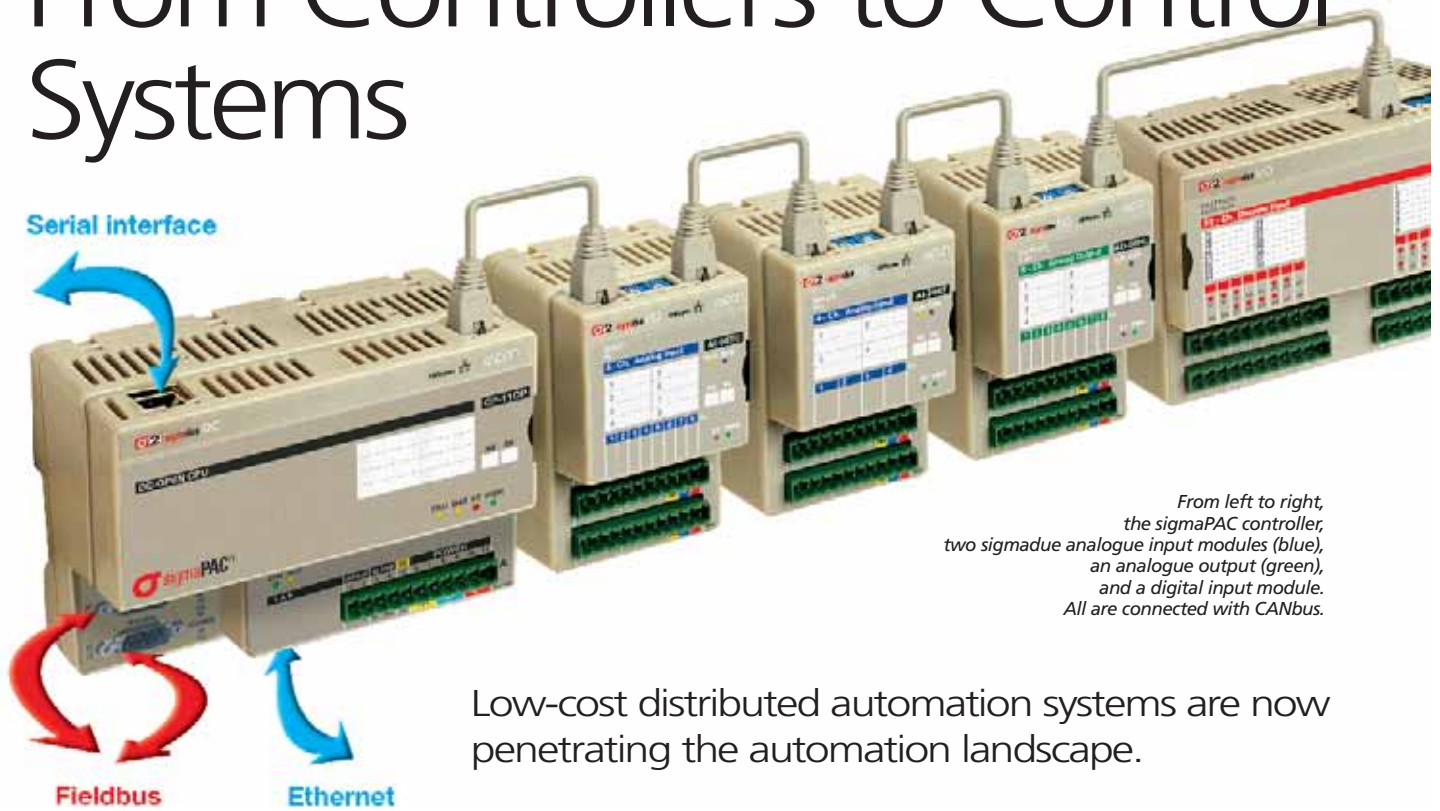


From Controllers to Control Systems



From left to right, the sigmaPAC controller, two sigmaPAC analogue input modules (blue), an analogue output (green), and a digital input module. All are connected with CANbus.

Low-cost distributed automation systems are now penetrating the automation landscape.

If you want to follow modern trends in automation, you have to look no farther than Ascon SpA (Bollate, Italy). Since it was founded in 1969, the controller company has always been on the leading edge—and sometimes, just a little bit ahead—of trends in the automation market.

Its past history now, of course, but worth mentioning the engineering-driven company introduced in 1970 its first temperature controller in a box that was considered 'miniature' 35 years ago. Following this introduction, Ascon put most of its talent into adapting the rapidly emerging microelectronics technology and making smaller and smaller controllers, packing more functions into them during the process.

Until 1995. That's when the company discovered there was more to life than just making things smaller. With decades of accumulated expertise in the controls industry, the company tried something different: building a device that would be something more than a panel instrument, in fact, a 'complete' control

solution. That's when it launched its AC Station, a panel instrument still, but with advanced multi-loop capability and a large graphical display on the front. Unlike the past, this one was a complete automation tool that could be used to provide the full control solution, and it was what Ascon's customers wanted. Since the launch, the company has sold more than 10,000 AC Stations.

The right time for change

Ascon was in a good position to create a complete solution of this type. The company was at the right place and at the right time. It had good engineers and close relationships with loyal customers in a broad range of industries and applications, from autoclaves, to boiler control, and into food and beverage companies, among others.

And for technology, it was the right time, too. New generations of microprocessors made designing intelligent instruments easier. Notebook computers replaced proprietary

programming tools. Widespread deployment of fieldbus technology made instruments easier to network. Third-party HMI, SCADA, and PLC software gave to everyone the same powerful programming tools that used to be in the hands of big automation companies like Schneider and Siemens. In fact upstarts like Beckhoff and Phoenix Contact were showing the world that you didn't necessarily have to have a PLC or DCS from one of the major companies in order to do control.

So Ascon began its transition from a company that makes controllers to a company that supplies complete control solutions.

Not to abandon its previous product lines, in 1990, it upgraded its universal controllers and panel instruments with the latest technology, calling them 'gammadue' (*due* is 'two' in Italian).

The next step, in 2003, was a big move away from the past. It was then that Ascon introduced the 'deltadue' series, and, for the first time, made a product that wouldn't be mounted in an

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◀ operator's panel. They were designed to go inside a control cabinet, or to be mounted directly on a machine. Since they didn't have the familiar LEDs or LCD displays, some referred to them as 'blind' controllers.

The new DIN rail modules of the deltague series were beginning to look like something from Wago or Phoenix Contact—with the important distinction that some of them were in fact not simply I/O modules but temperature and process controllers. Modbus is the backbone for all of the deltague modules, and a whole system of them can be networked to any popular fieldbus with the DX gateway.

The complete solution

Even as deltague was launched, Ascon had about 15 engineers working on its next big project, the sigmadue series. Sigmadue is a system of standalone remote I/O modules designed for purely fieldbus applications—in other words, fully distributed automation.

The modules use CANbus as their internal bus, and as a result are easily networked together—a strategically important choice because CANbus is so widely used, the market is already well developed. There are numerous CAN-based intelligent devices that can be networked together with the sigmadue modules and brought into the system: PCs, PLCs, motor drives, valves, pressure and temperature transmitters. CANbus has another great advantage in that the modules can be separated at great lengths from one another; so the I/O system can span large distances.

Sigmatue I/O modules have a lot of built-in intelligence. Embedded microprocessors allow them to scale data, linearise them, do signal conditioning, perform diagnostics and take care of alarms. Software allows their functions to be configured for different purposes. For example, a module can be used at the same time for status and counter inputs, and status and PWM outputs. Each I/O block is a complete standalone unit that interfaces directly to CANbus (or,



President Bruno Zecchel has recently brought on his son, Dr. Leonardo Zecchel, to be administrative director. The two are proud of the fact that over half of Ascon's employees are engineers.

optionally, Modbus), and has its own built-in terminal blocks for sensor and actuator wiring. An additional terminal block is available for easier field wiring. It 'clicks' onto the sigmadue I/O block. Network adaptors will connect an entire sigmadue system into Profibus or Ethernet.

sigmaPAC

Launched this spring, sigmaPAC is the 'programmable automation controller' that Ascon designed to be the host controller for the sigmadue system of I/O. With this controller the company joins the ranks of those who offer completely open, completely configurable distributed automation systems. Ascon calls it 'the first low-cost PAC.'

The sigmaPAC is targeted between the PLC and PC. About the same size as a microPLC, its industrial IP20 package has the necessary temperature, shock, and vibration tolerances to put it mechanically in the PLC category. Where it goes beyond the standard PLC is in the

area of computing: it can execute complex algorithms, advanced PID, floating point operations, and run dedicated analogue measurement and control routines.

It connects directly to the sigmadue I/O system through CANbus, but it also has serial, Modbus, and Ethernet ports. It connects with virtually any equipment that Ascon has ever made, and can make fieldbus connections with Profibus and DeviceNet. An integrated web server offers the opportunity of viewing and modifying process data. The main programming language is OpenPCS, InfoTeam's five-language IEC 61131-3 package.

With sigmaPAC and sigmadue, Ascon shifts gears to become an automation provider. Already it is offering software support, installation assistance, and systems integration as well as seminars, courses, and training on the automation system. If it maintains its close connection with its customers and end users, the portfolio of products it now has to offer will be difficult to surpass. ♦

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