ASIC-200 PC-Based Control Software

ASIC-200 is a flexible industrial control software package providing both application development and execution in a single unified software environment that runs on standard PC hardware. Its powerful runtime engine customizes and integrates logic, motion and process control with communications and human machine interface. This integrated approach reduces system development time and runtime costs.

ASIC-200 CONTROL FEATURES

PC-based
Based on the Windows NT operating system, ASIC-200 puts the full power of standard PC hardware in place of proprietary, function-specific hardware onto the factory floor. The same hardware can be used for development and runtime along with any Windows NT capable software. Common ISA or PC/104 adapters, depending upon your available expansion slots, can be used to add further features or communication to your control system allowing increased choice and lower component cost.

Real-time Operation
ASIC-200 running on Microsoft’s Windows NT platform provides the highest priority for your control application, ensuring the best possible performance. The program scan time is configurable by the user to meet the requirements of the application. The preemptive multitasking capability of Windows NT ensures that the program will run at the set scan regardless of other PC activity. ASIC-200 provides program scan times faster than most PLCs. It solves 100 PID loops in 0.5 msec and achieves scan rates as low as 3 msec with 64 points of local I/O. ASIC-200 uses the security features of Windows NT, and ASIC’s robust design and advanced diagnostics, to provide all the security and performance of a PLC.

Integrated Design
The unique feature of ASIC-200 is the unified development and integration of control components including logic, process and motion control. ASIC-200 provides consistent tools inside one application to create an entire system, thus avoiding the hassles associated with requiring multiple applications and coordination between them.

Customizable and Flexible
ASIC’s open architecture design easily interfaces with third party software packages, so custom application software, special I/O drivers or a favorite HMI can be seamlessly integrated. ASIC-200 provides users with the flexibility to tailor a control system to the specific requirements of any application.

Tools
ASIC-200 provides those versed in the “C” programming language the ability to write “C” functions and function blocks that can be called from an ASIC-200 application program. System integrators and OEMs can supply value-added features to specific industries or products or take

Integrated logic and motion control

Programming with editors
advantage of existing “C” applications and use them in ASIC-200’s user-friendly graphics development environment.

Known in the PLC environment as “indirect addressing”, ASIC-200 also allows the use of pointers to create powerful applications with minimal code. However, unlike the PLC environment, ASIC-200’s Runtime Engine performs bounds checking on pointer to protect data integrity and prevent unruly logic from corrupting data.

Using pointers, a controls engineer can create a single section of code that can interact with a variable number of I/O points allowing the use of the same “generic” routine over and over.

**ASIC-200 DEVELOPMENT SYSTEM**

**Stand-alone Editors**
Programming ASIC-200 follows the IEC 1131-3 international standard for PLC programming. IEC 1131-3 specifies the syntax and semantics of a unified suite of programming languages for programmable controllers. The languages available that can be used in any combination within a control application include:

- **Sequential Function Charts (SFCs)** for machine sequencing control and for control applications that have multiple operating modes, such as manual mode and automatic mode including patented enhancements and extensions to the SFC editor
- **Structured Text**, including Windows-type features such as toolbars and menu options to automatically insert statement and function code templates and full-featured text editor functions like search-and-replace and configurable printing.
- **Relay Ladder Logic** for discrete logic programs
- **Instruction List** for compact assembly language-like programming

*Note: Application programs are independent of your I/O structure. The same program can work with different I/O subsystems simply by configuring the appropriate device driver.*

ASIC-200’s menu-driven program editors provide more control over fonts, colors, screen refresh rates, symbol enumeration and memory settings. The editors also make programming easier with error navigation that locates program errors quickly and standard IEC 1131-3 functions and function block library. A “Lock Heap in Memory” option improves the determinism of your runtime performance by preventing the operating system from swapping runtime memory to the hard drive.

**Motion Control Application Development**
Install a motion controller card into a PC with ASIC-200 and the PC becomes a full-featured, multi-axis motion controller. Capabilities include contouring, circular interpolation, tool offsets and parameterized programming. Motion programming is accomplished via industry standard RS-274 G-codes or Structured Text, a comprehensive textual language. Unlike other control packages, ASIC-200 offers patented techniques (Patent No. 5,485,620) to seamlessly synchronize logic and motion control.

**Process Control**
High performance analog PID control functionality includes bumpless transfer, setpoint ramping and anti-windup.

**Open Communication**
Industry standard communication methods such as DDE, OLE v2.0 and RPC mean that ASIC-200 easily exchanges data between different applications and computers. Network support includes Ethernet, Token Ring, Modbus Plus, Data Highway Plus and serial communication using RS-232 and RS-485.

This compatibility and easy connection make real-time plant floor data available throughout your entire enterprise and simplifies sending information from remote locations to the plant floor.

**HMI**
The HMI component can run on the same
platform as the control development system. You configure the HMI with an easy-to-use, click-and-drag editor. Screens consist of configurable push buttons, indicators, dials, gauges, numeric readouts, text elements or embedded third party OLE controls. Preconfigured motion control templates such as joy panels, axis plots and axis status displays are standard.

In addition, third-party ActiveX controls can be dragged and dropped right into ASIC-200’s integrated HMI. Create your own ActiveX control in Visual Basic or Visual C, or purchase a library of third-party controls. The screen developer has full access to all the properties, methods and events available for any control placed on the HMI screen.

ASIC-200 RUNTIME ENGINE

Diagnostics and On-line monitoring
Reduce the start-up time associated with debugging control applications through ladder logic rungs and sequential flowchart blocks that highlight as they execute. ASIC-200 debugging and on-line monitoring tools trace the logic path of your control application. These tools allow you to override values and review code in cycle, step-by-step.

Bumpless On-Line Editing
ASIC on-line editing feature rivals any PLC’s on the market. There is no need to restart an SFC program if you move contacts, add symbols or rewrite logic. ASIC on-line editing remembers your location in the SFC program and the values of all variables and bumplessly activates your changes.

Smart Shutdown
ASIC-200 applications now have the ability to monitor and react to information coming from a UPS. ASIC-200’s UPS Monitor Program provides status information to the application, allowing it to set alarms and perform a graceful shutdown of the process if needed.

INTEGRATED ARCHITECTURE

Third Party Software
- Industrial HMI Software
- Visual Basic, C++ Programs
- Off-the-Shelf Spreadsheets
- ODBC-Compatible Databases

Factory Floor

Control Hardware

Development System

Runtime System

Ethernet

PLC & Device Networks

Motion Controllers

Local & Remote I/O
SPECIFICATIONS

Workstation and Control Node
Components
- Tools to design control programs and configure all PC hardware, I/O interface cards and I/O addressing
- IEC 1131-3 program editors, including RLL, ST, IL, SFC and SFC+
- On-line diagnostics and help menus
- Watch windows
- Unlimited motion axis configuration
- Unlimited I/O and communications drivers

Recommended Hardware and OS Requirements
- Microsoft® Windows NT® operating system
- 100 MHz Pentium processor (or higher)
- Minimum of 40 MB available hard disk space
- SVGA Monitor, keyboard, mouse, touch screen panel or other I/O device
- 32 MB RAM minimum

Compatible HMI Interfaces
- Built-in HMI (OLE-based)
- ASIC-200 ActiveX-enabled HMI
- Visual Basic™
- Wonderware® InTouch® HMI software
- Intellution® FIX
- GE Fanuc Cimplicity®

ASIC-200 DRIVERS
ASIC-200 applications connect to many different plant floor devices and industrial networks. (For the most current and complete list, call 440-247-9216.)

Device Drivers
- Opto 22 I/O via PCDIOxxx or PAMUX or OPTOMUX interface
- A-B Remote I/O for 1771 series, SLC-500 and Flex I/O
- GE90/30 I/O via GE PCIF interface
- GE Genius I/O via GE PCIM interface
- DeviceNet interface
- A-B KTx Remote I/O interface
- PAMUX and OPTOMUX interface
- Modicon Remote I/O for 800 series, 200 series and Quantum I/O
- Interbus-S I/O interface
- Seriplex I/O interface
- Profibus DP interface
- GE Remote I/O for GE Genius I/O Blocks and Field Control I/O
- GE Local I/O for 90/30 I/O
- Yaskawa I/O interface

Communication Drivers
- DDE I/O Tag Communications software
- ODBD server for Tag Name Database
- A-B Data Highway/Data Highway Plus interface
- GE Genius LAN interface
- Modbus Plus interface
- DLL toolkits for interface to Tag Name Database or for device driver development
- Microsoft OCX interface to tags
- Serial interface
- TCP/IP sockets

Motion Controller Drivers
- Motion Engineering DSP series
- Compumotor AT-6250/6450
- Delta Tau PMAC and PMAC II
- PMAC Motion Direct
- GALIL Motion Direct

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