AADvance™ Fault Tolerant Control Systems
Critical Control and Safety for your Personnel,
Process and the Environment
AADvance Fault Tolerant Control Systems

AADvance is the next step in automation advancement, offering you an even greater level of choice, flexibility and scalability for your safety or critical control system.

The AADvance solution is a truly distributed, scalable architecture which comprises both a hardware controller and a software environment that allows you to specify the level of safety integrity and availability you need throughout your plant. AADvance offers a high level of flexibility from small quantity I/O to large systems; non-safety to SIL 3, and fail-safe to multiple fault tolerant.

Safety First, Safety Last

Hazards and risks are an inevitable feature of any industrial plant. The protection of personnel, the process itself and the environment surrounding it, remains a significant part of the automation strategy. Safety systems to date have suffered varying degrees from compromise, usually either in performance, or in a lack of versatility.

The single greatest threat to safety remains human error and the AADvance environment helps reduce that risk. Control and update your plant-wide safety management system from a single AADvance workstation, running several projects from that station while the controllers distributed throughout the plant communicate intuitively, vastly reducing time spent updating individual terminals and the possibility of human error.
The AADvance environment has been developed to complement and integrate with PlantPAx™, our plant-wide process automation solution.

PlantPAx™ provides enterprise level data access to the entire integrated control and safety solution, from field device to historian, transforming your people, processes and technology into assets that help you achieve higher levels of business performance.

With the PlantPAx solution, AADvance addresses critical control and safety applications with high availability process control and scalable process safety. Scalability in every sense is the unique quality of AADvance technology. Choosing AADvance with any control system will increase diversity of all safety system components and limit the compromises associated with trying to make control system designs fit safety system applications.

AADvance is a result of the vast experiences our global oil and gas professionals have gained from over 40 years of providing high performance safety and critical control technology in the widest range of applications and the continued desire to offer the best-in-class solutions on the market.

The AADvance concept is built on a set of fundamental requirements:

- Cost effective for solutions up to SIL 3
- Scalable for small to large I/O systems
- Scalable redundancy, applying fault tolerance where needed
- Distributed processing power
- High performance regardless of size
- Single point configuration and system management
- Integrated data between all AADvance and Logix controllers
- Integrated HART device management
The AADvance Environment

The AADvance Network
The AADvance environment integrates multiple AADvance controllers to work as a single distributed solution. The redundant network is an intrinsic part of any solution where all of the resources can perform their desired functions seamlessly. Only AADvance certified controllers can freely interact on this network; however non safety devices are allowed to share the network infrastructure if desired.

The AADvance Workstation
The AADvance workbench is a complete design, configuration and maintenance software environment that enables you to design the complete multi controller safety strategy as a single project, then to target parts of the strategy for each controller.

The AADvance workbench supports all five of the IEC 61131 languages and produces validated code for use in Safety applications, regardless of the language used.

This leading-edge programming environment comprises of a powerful set of features including:
• Offline simulation of the entire distributed controller environment, including controller to controller communications.
• Centralized repository for archiving of application source, which provides automatic archiving whenever a change is made to a running controller.
• Collaborative programming environment, allowing controlled multiple user access to a single project.
• Online monitoring (also a collaborative environment) of applications across multiple controllers.
• Online updates of changes, including the addition of new controllers into the distributed network, new I/O bases and modules into an existing controller, allowing expansions to be implemented while a process is running.

The AADvance Control Station
Any AADvance controller is modular and easy to assemble, providing a completely flexible and scalable solution. Performance and flexibility differentiates the AADvance environment from other solutions. Rather than ‘one size fits all’, you can now choose the redundancy appropriate for them in all parts of the system, from fail-safe through to fault tolerant. Controllers are specifically selected to meet the distribution needs and to accommodate the I/O required in any individual part of the network.

The unique ability for many controllers to appear as a single system, without complicating the management of the configuration, also increases simplicity and ease of use.
Unique Features and Benefits of AADvance

- **Integrated Control and Safety**
  - CIP (EtherNet/IP) communications to Logix controllers
  - OPC DA & AE communications
  - Modbus communications

- **Scalable architecture**
  - Distributed controller architecture
  - Flexible Controller redundancy configurations
  - Flexible I/O redundancy configurations
  - Black channel communications

- **Feature Rich Hardware**
  - Comprehensive diagnostics
  - Integrated HART communications (AI & AO)
  - Flexible modular construction
  - Channel isolation
  - Single Programming Environment
  - Fuseless outputs
  - Online replaceable

- **Comprehensive Programming Environment**
  - IEC 61131 programming environment
  - Built in version control
  - Online modifications and expansion

AADvance Certification

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<thead>
<tr>
<th>Safety Integrity</th>
<th>IEC 61508, up to SIL 3</th>
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<tr>
<td>Electrical Safety</td>
<td>UL508, CSA22.2 (142-M1987), EN 60079</td>
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<td>Hazardous Area Location</td>
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OIL AND GAS RESOURCES

Maldon:
Hall Road, Maldon
Essex, CM9 4LA
UK
+44-1621-854-444

Aberdeen:
Millennium House
Campus 1
Aberdeen Science & Tech Park
Balgownie Road, Bridge of Don
Aberdeen, AB22 8GT
+44-1224-227-780

Houston:
4325 West Sam Houston Parkway North
Suite 100
Houston, Texas 77043
USA
+1-713-353-2400

Singapore:
No. 2 Corporation Road
#04-01 to 03 Corporation Place
Singapore 618494
+65-6622-4888

Abu Dhabi:
903, Bin Hamoodah Building
9th Floor
Khalifa Street
Abu Dhabi
UAE
+971-2-627-6763

Dubai:
Silvertex Middle East FZCO
PO Box 17910
Jebel Ali Free Zone
Dubai,
UAE
+971 4 883 7070

http://www.rockwellautomation.com/icstriplex/controlsystems/aadvance.html

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www.rockwellautomation.com

Power, Control and Information Solutions Headquarters

Americas: Rockwell Automation, 1201 South Second Street, Milwaukee, WI 53204-2496 USA, Tel: (1) 414.382.2000, Fax: (1) 414.382.4444
Europe/Middle East/Africa: Rockwell Automation NV, Pegasus Park, De Kleerlaan 12a, 1831 Diegem, Belgium, Tel: (32) 2 663 0600, Fax: (32) 2 663 0640
Asia Pacific: Rockwell Automation, Level 14, Coet F, Cyberport 3, 100 Cyberport Road, Hong Kong, Tel: (852) 2887 4788, Fax: (852) 2508 1846

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