

# Experion PKS OPC Implementation, Security and Troubleshooting



## Course Overview

**Course number:** EXP\_OPC010

**Course length:** 4.5 days

During the course, students will:

- Understand OPC technology and its implementation in Experion PKS.
- Configure Experion PKS components using OPC.
- Find out Experion PKS approach to present plant data using a standards-based method.
- Assimilate information from external sources in Experion PKS.
- Troubleshoot connectivity problems with Experion OPC Server.
- Configure OPC/DCOM to comply with network security policies.
- Learn how to properly secure OPC installations by configuring the firewall, Data Execution Prevention, and Access Control Lists.

The course is divided into three sections:

- During the first two days students learn how OPC works and how to troubleshoot and repair OPC connectivity problems.
- The next two days, students learn how to secure their OPC implementation by configuring Windows Authentication, Access Control Lists (ACLs), firewall, services, Demilitarized Zone (DMZ) implementation, and how to continuously monitor the health of their real-time communication system.
- The last half-day, the students engage in an open discussion forum with the instructor to discuss their current projects using the knowledge they have gained at the course.

## Course Benefits

Students will learn:

- Efficient Experion PKS OPC Server and System planning.
- OPC technology, OPC interfaces to Experion PKS, PHD, and TPS Systems.
- How to implement OPC projects and troubleshoot / maintain installed base with OPC.
- How to plan large scale OPC projects and understand limitations and/or performance bottlenecks of OPC tools.
- Honeywell's capabilities in large scale OPC data transfer projects.
- To understand security and reliability of Honeywell's OPC connectivity in both client and server mode.
- How to maintain Honeywell OPC installed base. Evaluate Honeywell OPC technology for future/upcoming projects.

## Who Should Take this Course

Those who require a deeper understanding of the scope of OPC within the Honeywell Experion PKS System. These people include:

- Automation
- Instrumentation
- Engineers
- Process Control
- IS / IT
- Project Managers
- EPC Contractors
- End Users

## Prerequisite/Skill Requirements

### Prerequisite Course(s)

- None

### Prerequisite Skills and/or Experience

- Microsoft Windows and basic computer use.
- No previous OPC experience is expected.

### Desired Skills and/or Experience

- An understanding of automation requirements.
- An understanding of Experion PKS System Architecture.
  - Preferred: EXP6000 or EXP02 courses.

## Course Topics

- **Introduction to OPC:** Students learn the fundamental concepts and vision of OPC. Students compare traditional connectivity methods to OPC and discuss the strength each method offers. All the OPC specifications are briefly discussed and the class delves into OPC Data Access (OPC DA) for real-time data access.
- **OPC Tunneling Technology:** A common communication requirement is to pass information through different Windows domains, over low bandwidth lines, WANs, firewalls, etc. Students learn the benefits and drawbacks of tunneling and discuss the appropriate use cases.
- **OPC Alarms & Events:** The OPC Alarms & Events (OPC A&E) specification is discussed in detail. Students learn when to apply this technology and how they can use it for alarm management practices in general.
- **OPC Redundancy:** Industrial applications frequently require high availability and reliability that can be easily achieved by implementing communication redundancy. The instructor differentiates between device, driver, and application redundancy, and the class learns the impact of various fail-over policies.
- **OPC Client Server Architecture:** The client/server nature of OPC enables users to architect connectivity solutions that would previously be prohibitively expensive.

Students learn how to connect different control systems to each other, and transfer data between systems in general. Microsoft Excel is also introduced here to illustrate how custom calculations can be implemented. The class will also examine Honeywell's OPC Integrator.

- **OPC Historical Data Access:** Students learn how they can use the OPC Historical Data Access (OPC HDA) specification to archive and retrieve process data. They also get an opportunity to trend data and produce reports using the OPC HDA client applications. The class will also examine Honeywell's PHD.
- **Networking:** Students learn the fundamental concepts of Ethernet networks as they apply to OPC communication. The instructor discusses OPC communication and the communication network in depth. Students will learn to recognize various network-related problems within OPC applications and discuss how these problems can impact overall operations. The instructor then sets up various problems and the students get a chance to diagnose the issues.
- **DCOM Essentials:** DCOM configuration is what delays success in most installations, and is the problem users report the most often when working with OPC applications. Students learn how DCOM works, diagnose DCOM symptoms, and manage DCOM within current operations. Then they diagnose DCOM problems and work to fix them.
- **DCOM Troubleshooting Techniques:** Students learn how to select different "Windows Users" to ensure people get access from their own Domain, other Domains, or even Workgroups. Students find out about the various OPC tools and applications they can use to debug networking and automation problems. The instructor works through a variety of hands-on exercises that are simulated versions of common problems typically encountered in process, batch and discrete manufacturing environments.
- **Securing OPC Systems:** Students apply security measures that comply with IT policies, industrial best practices, and government (SOX) regulations for cybersecurity. Students learn how to configure the Windows Firewall and the minimal required exceptions for OPC communication. They also learn the minimal set of users and groups that are necessary to include in the System Access Control Lists. This enables integrators to step away from their OPC installation with the confidence that it is properly secure.
- **Demilitarized Zone (DMZ):** Students learn the applications for a Demilitarized Zone (DMZ) and how it affects OPC installations. This is necessary to increase the level of security, as well as to comply with federal, industrial, and company security policies.

### Additional Training

To increase your knowledge and skills, there are additional courses available from Automation College.

For more information and registration, visit

[www.automationcollege.com](http://www.automationcollege.com).