

## Certified PROFIBUS Network Engineering

Become an elite Certified PROFIBUS DP/PA Network Engineer. Learn the skills to design, install, commission, and troubleshoot both PROFIBUS DP and PA networks. This course illustrates practical installation issues, goes right down to the protocol/packet level, and includes detailed information on the bus parameters.

This course meets and exceeds all the requirements of PI's Certified PROFIBUS DP/PA Network Engineers course and the certified PROFIBUS Installers course. The course ends with a written and practical test. Successful students will be certified by PROFIBUS and PROFINET International as a Certified PROFIBUS Installer and a Certified PROFIBUS Network Engineer.

Upon completion of this course, the student shall be able to:

- Design a PROFIBUS network
- Install and set up a PROFIBUS network
- Decode a PROFIBUS packet and understand how the protocol works
- Understand the basic bus parameters
- Troubleshoot common and uncommon problems.

### Course outline

- Introduction to PROFIBUS
- Overview of PROFIBUS Components
  - Basic definitions
  - Different physical layers
- PROFIBUS Design
  - Basics of DP/PA design
- PROFIBUS Advanced design
  - What else to consider
  - Proxy, gateways, and repeaters
- Installation best practice
  - How to approach the installation
  - Grounding and wiring
  - Installation best practice
- Setting up a PROFIBUS Master
  - Setting up master
  - Difference between masters
- Setting up a PA device
  - Profile standard
  - Overview of configuration software
- PROFIBUS Theory
  - OSI 7 layer model
  - Startup cycle
  - Command structure
  - Bus parameters
- Applying the theory
  - How to use the theory
- PROFIBUS Device Diagnostics
  - Diagnostics via cyclic/acyclic
  - Recommended procedures
- Troubleshooting common problems
  - Identifying common problems

### Hands-on Exercises

- Wiring
- Network design lab
- Setting up a master
- Setting up an instrument
- What a good network looks like
- What common errors look like on DP
- What common errors look like on PA
- Startup sequence
- Device Diagnostics
- Troubleshooting

### Training Equipment

- S7-1200 PROFIBUS Master or Moxel SST PROFIBUS Master
- IO-Devices include: Helmholz TB-20 IO rack, 2 PROCENTEC I/O Simulators, COMBRICK, SITRANS TH400, P+F Digital valve controller.
- ProfiTrace bus monitor
- HP-25 PROFIBUS cable tester

### Class Day Information

- Attendees must bring a laptop or tablet which can read a USB drive.
- Attendees will receive a support USB drive with an electronic version of the materials plus key PI documents.
- Students will receive a certificate of attendance and 30 verifiable professional development hours
- Certificates as a Certified PROFIBUS Network Engineer and Certified PROFIBUS Installer. The certificates are given only if the student passes the in-class written and practical test.
- Attendees will also receive a copy of *'Catching the process Fieldbus – An introduction to PROFIBUS and PROFINET'* co-written by the instructor James Powell
- Class size is limited to a maximum of 8 people (2 students per training rack).

### Course duration

This course is delivered over five days. Each day requires 7.5 hours of instruction which includes two 15 minute breaks and one 30 minute lunch break.

### Scheduled Classes

- Please contact us to arrange a training date
- On-site classes are available upon request
- Training can be done on-site, online or in a classroom in Peterborough

### Course code and Prerequisites

- Course code: C-PROFIBUS-03
- There are no prerequisites for this course. However, it is highly recommended that the student has been introduced to PROFIBUS before.

### Instructor

James Powell, P.Eng., is the principal engineer and owner of JCOM Automation Inc. He has written many articles and two books: *HART Communication Protocol – a practical guide*, and *Catching the process fieldbus – An introduction to PROFIBUS and PROFINET*. James is a certified PROFIBUS DP, PA, and PROFINET network engineer, PROFIBUS System Design Engineer and has over 20 years of experience with PROFIBUS, PROFINET, EtherNet/IP, Modbus, and HART installations.

**JCOM Automation** is a member of PROFIBUS PROFINET North America and is a certified PROFIBUS and PROFINET training center and Competence Center.

To book this course for yourself or your team, please contact JCOM Automation at [admin@jcomautomation.ca](mailto:admin@jcomautomation.ca) or +1-705-868-8745.