Control Specialists Ltd

A PI-Certified Competency and Training Center

Certified PROFIBUS System Designer

An Internationally accredited 2 ½ day course covering the optimal design of PROFIBUS automation and control systems.

The need for this course

Good quality PROFIBUS training has been widely available for installers, maintenance technicians and engineers for many years. Unfortunately, key decision makers – managers, system designers and system integrators are quite often less well trained than others who are involved in the engineering.

Many of the mistakes that can be seen in installations are traceable to fundamental decisions that were taken at the early stages of the project. For example, use of inappropriate technology for an application, lack of awareness of maintenance and fault-finding facilities, over-complex or inappropriate system architecture, design decisions based on equipment purchasing cost rather than whole life-cycle costs etc.

Who should attend?

This course is aimed at anyone who is dealing with the design, specification or procurement of modern automation and control systems at the engineering or technical level. The course is also suitable for device manufacturers, system integrators and technical sales/marketing people who want to know the best way to put systems together.Prerequisite training
The course is aimed at the professional engineer level and a basic familiarity with control system terminology and the ability to perform simple engineering calculations is assumed. Attendees must have previously attended the one-day Certified PROFIBUS Installer course.

Training facility at Endress+Hauser, Manchester

Why do I need to do the Installer course?

The Installer course deals with the basic layout and installation requirements for PROFIBUS DP and PA systems and is suitable for anyone involved with PROFIBUS at a technical level. Therefore the learning outcomes of the Certified Installer course are equally valid for system designers. However, there is a clear need for additional training and certification for system designers and engineers involved with the specification, planning and design of these systems. This additional design material is not appropriate to Installers or Maintenance staff.

Why not do the Certified Engineer course?

The Certified PROFIBUS Engineer course provides "in-depth" training in the details of the technology and its application. This System Design Course provides a different approach, showing the benefits and pitfalls of various architectures. The course covers all the things that are normally forgotten about at the design stage and shows how to design an optimised system that is reliable, maintainable, flexible for future expansion and has the minimum downtime footprint when failures inevitably occur.

What does the course cover?

The course provides a top-down approach to designing a modern automation and control system and helps managers and designers to make the

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correct decisions from the project beginning. The course is applicable to all sectors of industry from factory automation to process control. Examples and case-studies used on the course are from a wide range of industries including manufacturing, process plant water-treatment, materials handling and automated part sorting storage and retrieval.

One of the aims of the course is to cover the design of modern control systems that are maintainable and which minimise the impact of control system and network failures which will inevitably occur during the life time of the plant. The aim is to minimise the footprint of failures in terms of restricting the extent of the effects of failures and also the time to locate and repair faults.

The course also covers the use of some of the latest and most important developments to appear on the market, including new devices which provide permanent monitoring of networks and notification in the case of degradation or failure.

Course content

- **General system design requirements**
  The control system life cycle, consideration of maintenance, health checking and fault finding features. Characteristics of communication and transmission technologies. Environmental considerations and choice of appropriate devices, cables and connectors.
- **PROFIBUS network layout and design**
  PROFIBUS network architectures and their relative advantages in terms of performance, maintenance and reliability. Integrating operation, supervision and engineering information into the control system.
- **PROFIBUS profiles**
  How profiles can simplify system design, maintenance and give vendor independence. Use of profile GSD files and DTMs.
- **Hazardous areas**
  Essential requirements for hazardous areas and available design options. Design of Intrinsically safe RS485 and MBP segments.
- **High availability systems and redundancy**
  Basics of component and system reliability and application of basic reliability modelling techniques. Overview and evaluation of practical solutions for high availability PROFIBUS systems, limitations and essential needs.
- **Fibre optic, infra-red and wireless transmission**
  Basics of fibre optic transmission. Connector and cable types. Design and application of various topologies, solutions for redundant fibre optic systems. Basics and design considerations for infra-red and wireless communication.
- **Safety related systems**
  Essential requirements and design options for safety related systems.
- **Control system and network timing**
  Control system sampling and timing considerations. DP and PA cycle time and jitter estimation. The effect of gateways and couplers. Basic characteristics and applications of isochronous cycle timing.
- **Modern solutions for network monitoring**
- **Documentation and drawing standards**

The course includes case study material and practical examples on how the techniques are applied. A theory test at the end of the course ensures that the attendees understand and can apply the material covered. Successful candidates will be awarded Certified PROFIBUS System Designer status and can elect to have their name and company affiliation listed on the profibus.com web site.

Comments from previous attendees

- Excellent course, more on OPC would have been useful.
- Helped answer some of our concerns.
- Very thorough and well presented.

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- Very useful update on the new technologies that are now available and their benefits to integrators and end users.
- Lecturer's enthusiasm comes over very well to make the day highly motivating an interesting.
- Spot on!
- Very comprehensive, learned much more than I expected. All topics covered were relevant.
- Very impressed with the course and instructor. Would definitely recommend to others.

On-site delivery

The course can be cost effectively delivered on-site for between 6 and 24 people.

Booking Information – for dates, costs and booking information, please contact:

Control Specialists Ltd

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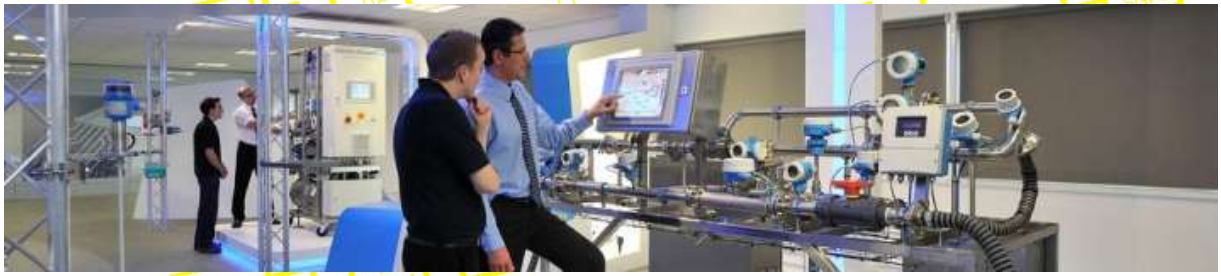
Control Specialists Ltd are a PROFIBUS and PROFINET International Training Centre (PITC) who also provide site-based support on PROFIBUS networks. They also provide training and support on PROFINET, AS-I and CAN and EMC

Peter Thomas of Control Specialists Ltd is the technical officer of PI UK and chairman of the PITC working group which, amongst other things, is responsible for defining the learning outcomes of PI-certified training courses.



Endress+Hauser training centre in Manchester