Certified PROFINET Engineer

An internationally accredited in-depth course covering PROFINET network design, commissioning, and live fault-finding.

What is PROFINET?

PROFINET is an important new Industrial Ethernet technology from the PROFIBUS and PROFINET International organisation (PI). PROFINET has become the leading Industrial Ethernet Standard in the market with a wide range of solutions for factory automation, high-speed robotics and process control.

Who should attend this course

The Certified PROFINET Engineer course is an in-depth three-day course that is suitable for a wide range of engineers working in a wide variety of industries. The course is suitable for anyone who is working at a technical level in automation and control systems. Because this is an intensive course, we require attendees to be qualified up to Certified PROFINET Installer standard. However, don't worry if you are not qualified to this level: we always run the one-day installer course immediately before the engineer course so you can take both in a single week. We always send out preliminary material that covers this topic prior to the course.

PROFINET training at Vanderlande (Heathrow Airport)

Although the course only deals with PROFINET, it is also suitable for those working with other industrial Ethernet systems since much or the technology and many of the tools and techniques taught on this course are applicable to other technologies. People in the IT world often find themselves having to deal with PROFINET systems and this course is also suitable for those with an IT background.

Course outline

This course follows the internationally agreed PI learning outcomes and covers the more in-depth analysis of PROFINET.

The course content includes:

- Basics of Ethernet, IEEE802.3, the ISO/OSI model, TCP, UDP, IP, ARP, Ping, and the Ethernet frame.
- Network Addressing: MAC Address, IP Address, Subnet Mask and subnetting.
- Network Infrastructure - switches, hubs, routers, gateways and firewalls
- Switch features for industrial applications and PROFINET.
- Monitoring Ethernet traffic with switch port mirroring or a network tap
- Network topologies and wireless.
- Network diagnostics using SNMP, DCP, DHCP and LLDP. Tools for network management.
- PROFINET installation, cables and connectors. Cable testing.
- PROFINET IO: Device types, certification requirements, conformance classes.
- Application Relations (AR's) and Communication Relations (CR's).
- Device names and name setting.
- Real Time (RT) communications, timing parameters and cycle times. Communication optimisation.
- Isochronous Real Time (IRT) communications, IEEE 1588 V2, synchronisation, IRT communication classes, cycle time, jitter and frame scheduling/bandwidth optimisation.
- Controller and device start-up sequence, fast start-up, troubleshooting.
- Read and Write services, diagnostics and alarm handling.
- Configuring a PROFINET system, GSDML files, use of PROFINET XML-Viewer.
- Integration with fieldbus using a proxy.
- Ethernet and PROFINET Frame analysis using Wireshark and other tools.
- Additional features including redundancy, I&M functions etc.,

A PI-Certified Competency and Training Center

Certified PROFINET Engineer

PROFINET training in Perth Western Australia

Practical content and equipment

PROFINET training at Unilever, Port Sunlight

Attendees work in pairs, each with their own rack of PROFINET IO devices, hand tools, cables and connectors, test tools and a with a modern laptop.

Practical work features the following hands-on exercises:

- Cable Certification.
- Setting up a network and sub-network.
- Switch configuration and setup.
- PROFINET system configuration.
- Ethernet and PROFINET frame analysis using Wireshark.
- Handling errors and alarms
- Wireless, Media Redundancy.
- Use of network management and diagnostic software.

Course assessments

The course includes both a theory test and a practical test. The tests are quite rigorous but we will provide you with all the information and practice that you need to pass the examinations. Some people may unfortunately fail to achieve a pass grade. However, we will try to provide the opportunity to retake the failed tests free of charge at a later date.

Comments from previous PROFINET course attendees

- Well thought out and presented course.
- Great course… Lots of information to take away.
- Practical exercises backed up the theory to bring it home.
- Very impressed on all aspects.

On-site delivery

The course can be cost effectively delivered on-site for between 6 and 12 people. We also offer regular open training in the UK at the Endress+Hauser training centre in Manchester (see http://www.uk.endress.com/en/events/training)

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

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

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