Training, Seminars, Workshops
Overview

Course	Order	Duration	Attendees
Introduction to CE Marking • What is it? • Learn why it is important and when to use it.	[CE-MARK](#)	1 day	4 - 20
IEC 62061 Introduction • Learn the conditions and procedures to be followed to select and calculate Safety Inegrity Levels for electrical, electronic, and programmable electronic systems • Learn how to apply the Pilz PAScal software tool to calculate SILs	[IEC-62061](#)	1 day	4 - 20
ISO 13849-1 Introduction • Learn how to calculate and apply Performance Levels to safety-related controls applications • Learn how to use the Pilz PAScal software tool to calculate and verify PLs	[ISO-13849](#)	1 day	4 - 20
ISO 13849-1 / PAScal Online Workshop • The aim of this 2 hour online course is to equip attendees with information on the scope and main design requirements EN ISO 13849-1 and to give an appreciation of how to apply their principles. • Pilz PAScal software tool is introduced.	[ISO-POV](#)	2 hours	2 - 20
Machinery Safety Design Worksop • Introduction to the OSHA regulations and consensus standards • Risk assessment and validation	[MSDW](#)	2 days	4 - 20
OSHA General Industry 10 Hour Outreach • The 10-hour General Industry Outreach Training Program is intended to provide an entry level general industry workers broad awareness on recognizing and preventing hazards on a general industry site. • The training covers a variety of safety and health hazards which a worker may encounter at a general industry site. • OSHA recommends this training as an orientation to occupational safety and health. • Workers must receive additional training on hazards specific to their job. • Training emphasizes hazard identification, avoidance, control and prevention, not OSHA	[OSHA-10HR](#)	2 days	8 - 20

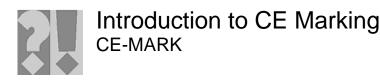| Course	Order	Duration	Attendees
standards. • Attendees receive a copy of the 748 page OSHA General Industriy Regulations book. • Attendees receive OSHA 10 Hour Course Completion Cards.			
OSHA General Industry 30 Hour Outreach • The 30-hour General Industry Outreach Training Program is intended to provide a variety of training to people with some safety responsibility. • Workers must receive additional training on hazards specific to their job. • Training emphasizes hazard identification, avoidance, control and prevention, not OSHA standards. • Attendees receive a copy of the 748 page OSHA General Industriy Regulations book. • Attendees receive OSHA 30 Hour Course Completion Cards.	OSHA-30HR	4 days	8 - 20
Pilz Motion Control Basics Workshop • Learn the basics Pilz motion control products • Hands on exercises demonstrating motion control and cam follower configuration • Brief introduction to CoDeSys programming included	PMC-BAS	3 days	4 - 8
PMI Basic Programming Workshop • An introduction to Pilz PMI-PRO graphics software	PMI-BPWS	2 days	4 - 8
PNOZ Maintenance Workshop • Gain hands-on experience in the operation and fault diagnostics for relay operation	PNOZ-SERV	½ day	4 - 12
PNOZmulti Maintenance Workshop • Learn to operate the configurable safety relay system, PNOZmulti	MULTI-SERV	½ day	4 - 8
PNOZmulti Basic Configuration Workshop • Includes MULTI-SERV maintenance workshop • Participants will be able to program and run simple control functions of a machine using Windows based PNOZmulti Configurator software	MULTI-BPWS	1 day	4 - 8

Training, Seminars, Workshops
Overview

Course	Order	Duration	Attendees
PSS WIN-PRO Troubleshooting Tutorial • Learn how to troubleshoot the PSS	PSS-WTT	½ day	4 - 8
PSS WIN-PRO Maintenance Workshop • Learn how to determine and eliminate faults with the PSS	PSS-WSRV	1 day	4 - 8
PSS WIN-PRO Basic Programming Workshop • Includes PSS WIN-PRO Maintenance Workshop, PSS-WSRV	PSS-WPWS	4 days	4 - 8
SafetyEYE Maintenance Workshop • Gain hands-on experience in the operation and fault diagnostics on the SafetyEYE vision based protective device	SEYE-SERV	2 days	4 - 8

Introduction to CE Marking
CE-MARK

Goals   This course is targeted for managers, technicians and engineers who have responsibilities for machinery and safety-related control systems intended for export to EEA member countries.
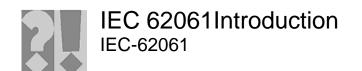
Contents   The aim of this course is to give a basic overview of the key CE marking regulations that could affect a manufacturer or supplier of machinery into the European Economic Area (EEA).

Overview:

- By the end of this module delegates will be able to decide if the regulations covered in this module will affect the equipment they have responsibility for in their work environment.

- Describe what is classed as a machine under the regulation for machinery.

- Understand what documentation will be required to show compliance to the regulations.

- Explain who has legal responsibilities under the regulations regarding machinery.

Duration   1 day   Start: 8:30 AM   End: 4:30 PM

Number of Attendees   Min.   4
Max.   10

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IEC 62061 Introduction
IEC-62061

Goals   This course is targeted for managers, technicians and engineers who have responsibilities for machinery safety-related control systems.

Contents   The aim of this one-day introductory course is to equip attendees with information on the scope and main design requirements of the standard and to provide examples of how to apply their principles.

Overview:

- EN IEC 62061
    - Standards for functional safety – Overview
    - EN 954-1 & IEC 61508
    - EN IEC 62061 Procedure
    - Safety Integrity Level (SIL)
    - Risk assessment using EN IEC 62061
    - Examples
    - Pilz PAScal Safety Calculator tool
    - Examples

Duration   1 day   Start: 8:30 AM   End: 4:30 PM

Number of Attendees   Min.   4
Max.   20

ISO 13849-1 Introduction
ISO-13849

Goals   This course is targeted for managers, technicians and engineers who have responsibilities for machinery safety-related control systems.

Contents   The aim of this one-day introductory course is to equip attendees with information on the scope and main design requirements of the standard and to provide examples of how to apply their principles.

Overview:

- EN ISO 13849-1
  - Standards for functional safety – Overview
  - EN 954-1
  - EN ISO 13849-1 Procedure
  - Performance Levels
  - Risk assessment using EN ISO 13849-1
  - Examples
  - Safety Related Software
  - Examples
  - Pilz PAScal Safety Calculator tool

Duration   1 day   Start: 8:30 AM   End: 4:30 PM

Number of   Min.   4
Attendees   Max. 20

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ISO 13849-1 / PAScal Online
ISO-PAS

Goals   This overview course is targeted for managers, technicians and engineers who have responsibilities for machinery safety-related control systems.

Contents   The aim of this 2 hour online course is to equip attendees with information on the scope and main design requirements EN ISO 13849-1 and to give an appreciation of how to apply their principles.

Pilz PAScal software tool is introduced.

Overview:

- EN ISO 13849-1
    - Standards for functional safety – Overview
    - EN 954-1
    - EN ISO 13849-1 Procedure
    - Performance Levels
    - Risk assessment using EN ISO 13849-1
    - Application example
    - Pilz PAScal software tool

Duration   2 hours

Number of Min.   4
Attendees Max.   20

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Machinery Safety Design Workshop
MSDW

Goals   The Machinery Safety Design Workshop provides participants with essential safety engineering concepts, requirements and techniques that must be considered throughout the manufacturing life cycle for any industrial equipment and/or system. Participants will have the opportunity to apply course material through performance-based activities.

Contents   The course utilizes the OSHA regulations and industry consensus standards to focus on the use of risk assessment for the application of design-in safety for manufacturing equipment and systems. The benefits of the design-in approach as well as how to handle existing systems are also covered.

Overview:

- Introduction to the OSHA regulations and consensus standards
- Risk assessment and validation
- Machining cell requirements and their application to safety-related design requirements
- Robotic cell and applications (incorporates ANSI/RIA 15.06)
- Safety control systems

Duration   2 days   Start: Day 1, 8:30 AM   End: Day 2, 4:00 PM

Number of Attendees   Min.   4
Max.   20

OSHA General Industry 10 Hour Outreach Course   OSHA-10HR

10-HOUR GENERAL INDUSTRY COURSE TOPICS	
*OSHA subpart references are provided for informational purposes; training emphasizes hazard awareness	
Mandatory - 6 hours	**Elective - 2 hours**
One Hour - Introduction to OSHA, including: OSH Act, General Duty Clause, Employer and Employee Rights and Responsibilities, Whistleblower Rights, Recordkeeping basics Inspections, Citations, and Penalties Value of Safety and Health OSHA Website and available resources OSHA 800 number **One Hour** Walking and Working Surfaces, Subpart D - including fall protection **One Hour** Exit Routes, Emergency Action Plans, Fire Prevention Plans, and Fire Protection, Subparts E & L	Choose at least two of the following elective topics: These topics must add up to at least two hours: Minimum one-half hour each Hazardous Materials, Subpart H Materials Handling, Subpart N Machine Guarding, Subpart O Introduction to Industrial Hygiene, Subpart Z Bloodborne Pathogens, Subpart Z Ergonomics Safety and Health Program
One Hour Electrical, Subpart S **One Hour** Personal Protective Equipment, Subpart I **One Hour** Hazard Communication, Subpart Z	**Optional - 2 hour** For the remaining two class hours: Any other general industry hazards or policies and/or expand on the mandatory or elective topics

- Attendees receive a copy of the 748 page OSHA General Industriy Regulations book.
- Attendees receive OSHA 10 Hour Completion Cards.

Number of   Min.   8
Attendees   Max.   20

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OSHA Outreach General Industry 30 Hour Course
OSHA-30HR

30-HOUR GENERAL INDUSTRY COURSE TOPICS	
*OSHA subpart references are provided for informational purposes; training emphasizes hazard awareness	
Mandatory - 11 hours	**Elective - 10 hours**
Two Hours - Introduction to OSHA, including: OSH Act, General Duty Clause, Employer and Employee Rights and Responsibilities, Whistleblower Rights, Recordkeeping basics Inspections, Citations, and Penalties General Safety and Health Provisions, Competent Person, Subpart C Value of Safety and Health OSHA Website, OSHA 800 number and available resources **One Hour** Walking and Working Surfaces, Subpart D - including fall protection **Two Hours** Exit Routes, Emergency Action Plans, Fire Prevention Plans, and Fire Protection, Subpart E & L **Two Hours** Electrical, Subpart S **One Hour** Personal Protective Equipment, Subpart I **Two Hours** Materials Handling, Subpart N **One Hour** Hazard Communication, Subpart Z	Choose at least five of the following elective topics: These topics must add up to at least ten hours: Minimum one-half hour each Hazardous Material (Flammable and Combustible Liquids, Spray Finishing, Compressed Gases, Dipping and Coating Operations), Subpart H Permit-Required Confined Spaces, Subpart J Lockout/Tagout, Subpart J Machine Guarding, Subpart O Welding, Cutting, and Brazing, Subpart Q Introduction to Industrial Hygiene, Subpart Z Bloodborne Pathogens, Subpart Z Ergonomics Fall Protection Safety and Health Programs Powered Industrial Vehicles
	Optional - 9 hours For the remaining nine class hours: Any other general industry hazards or policies and/or expand on the mandatory or elective topics

- Attendees receive a copy of the 748 page OSHA General Industriy Regulations book.
- Attendees receive OSHA 30 Hour Completion Cards.

Number of Attendees	Min.	8
	Max.	20

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Pilz Motion Control Basics Workshop

PMC-BAS

Goals   This course is for individuals working in the engineering, maintenance, service, and assembly departments. The participants learn to operate the Pilz motion control products. They will be able to utilize the PMC software tools for diagnostics and basic operation of Pilz servo and control products. They will use multiple diagnostic and motion control functions on practical examples.

Assumption
- Basic knowledge of electronics.
- Experience with the setup and maintenance of machinery controlled by PLCs and motion controls
- Students are required to provide their own computers and PMCTools software.

Contents   All topics are conducted with practical hands-on exercises on a PMC controller and servo drive system. (Limited programming will be covered)

Overview:
- Overview of the Pilz motion control product line
  - Controllers
  - Drives
  - Safe Motion
  - Servomotors
- Use of Pilz motion control software tools
  - PDrive
  - PEdit
  - PMotion
  - PScope
  - PTerm
- Basic introduction to CoDeSys soft PLC programming

Duration   3 days   Start: 8:30 AM   End: 4:30 PM

Number of Attendees   Min.   4
                           Max.   8

PMI Basic Programming Workshop
PMI-BPWS

Goals	This course is an introduction to Pilz' PMI-PRO graphics software. Its aim is to explain basic terminology and functions and to show the relationship between individual functions.
Assumption	• Students are required to provide their own computers and PMI-PRO software.
Contents	This basic course is a step into the technology of the PILZ PMIvisu programming using the software, PMI-PRO.

Overview:

- PMI-PRO features

- Contents of the directories that are created when PMI-PRO is installed.

- Create/Edit Project

- Available settings for configuring PMI-PRO and your project.

- Basics on the subject of drivers and variables and also details the definition of variables

- How to draw screens and set parameters for them based on a template.

- Static and dynamic elements.

- Functions and the effects they will have online

- Alarms and chronological events in both offline and online mode

- How to manage multilingual projects

- Online/Simulator Mode plus data transfer for online mode.

Duration	2 days	Start: Day 1, 8:30 AM	End: Day 2, 4:00 PM
Number of Attendees	Min. 4 Max. 8		

PNOZ Maintenance Workshop
PNOZ-SERV

Goals   This course is targeted for employees of the maintenance, service, and assembly departments. Participants will learn the requirements of the OSHA and ANSI definitions of Control Reliability and how safety relays meet these requirements. They will be able to detect and eliminate faults in a typical safety relay application.

Assumption
- Basic knowledge of electronics

Contents This basic course provides hands-on experience in the operation and fault diagnostics for safety relay applications.

Overview:

- An overview of the OSHA and ANSI requirements
- Positive guided vs. standard relay operation
- The safety relay as a practical implementation of a Control Reliable circuit
- Wiring of an E-Stop circuit
- Safety relay status indicators as a diagnostic tool
- Fault simulation and troubleshooting
- Output expansion using expansion modules or external contactors (optional)

Duration   ½ day   Start: 8:30 AM   End: 11:30 AM

Number of Attendees   Min.   4
Max. 10

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PNOZmulti Maintenance Workshop
MLTI-SERV

Goals   This course is for employees of the engineering, maintenance, service, and assembly departments. The participants learn to operate the configurable safety relay system, PNOZmulti. They will be able to detect and eliminate faults that are displayed on the PNOZmulti. They will use multiple diagnostic functions on practical examples.

Assumption
- Basic knowledge of electronics.
- Experience with the setup and maintenance of machinery controlled by PLCs
- Students are required to provide their own computers and PNOZmulti Configurator software.

Contents   All topics are conducted with practical exercises on a PNOZmulti with typical expansion modules. Specific faults are simulated with a programmed device with safety relevant switches and actuators. The attendees will determine and eliminate faults using the diagnostic functions of the PNOZmulti and the PNOZmulti Configurator tool. (No programming will be covered)

Overview:
- Hardware structure of the PNOZmulti base and expansion modules
- Program structure
- Decoding the status indicator LEDs
- Handling of the Service software
- Using the diagnostic functions
- Determine hardware and peripheral wiring faults

Duration   ½ day   Start: 8:30 AM   End: 12:00 PM

Number of Attendees   Min.   4
                           Max.   12

PNOZmulti Basic Configuration Workshop   MULTI-BPWS

Goals   The participants will be able to program and run simple control functions of a machine simulation using the Windows based PNOZmulti Configurator.

Assumption • Students are required to provide their own computers and PNOZmulti Configurator software.

Contents   This basic course is a step into the technology of the PILZ PNOZmulti programming using the PNOZmulti Configurator software.

Overview:

- This course includes the PNOZmulti Maintenance Workshop, MULTI-SERV

- Program structure

- Basic input, logic, and output functions

- Timer and Counter handling

- Creation of a project simulating a simple machine cell.

- Documentation function of the software

Duration   1 day   Start: 8:30 AM   End: 4:30 PM

Number of   Min.   4
Attendees   Max.   8

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Goals   This course is for employees of the maintenance, service, and assembly departments. The participants learn to detect and eliminate faults that are displayed on the PSS. They will use multiple diagnostic functions on practical examples.

Assumption
- Basic knowledge of electronics.
- Experience with the setup and maintenance of machinery controlled by PLCs
- Students are required to provide their own computers and PSS WIN-QLD or PSS WIN-PRO software.

Contents   All topics are conducted with practical exercises on PSS SB 3000 or PSS SB 3006 systems. Specific faults are simulated with a programmed PSS with safety relevant switches and actuators. The attendees will determine and eliminate faults using the diagnostic functions of the PSS and the service software, PSS WIN-QLD. (No programming will be covered)

Overview:
- Program block structure (OB, PB, FB, SB and DB)
- Decoding the Error Stack
- Handling of the Service software (PSS WIN-QLD)
- Using the diagnostic functions
- Determine hardware and peripheral wiring faults
- Determining SafetyBUS p faults

Duration   ½ day   Start: 8:30 AM   End: 12:00 PM

Number of Attendees   Min.   4   Max.   8

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PSS WIN-PRO Maintenance Workshop
PSS-WSRV

Goals	This course is employees of the engineering, maintenance, service, and assembly departments. The participants learn to operate the Programmable Safety System (PSS). They will be able to detect and eliminate faults that are displayed on the PSS. They will use multiple diagnostic functions on practical examples.
Assumption	• Basic knowledge of electronics. • Experience with the setup and maintenance of machinery controlled by PLCs • Students are required to provide their own computers and PSS WIN-PRO software.
Contents	All topics are conducted with intensive and practical exercises on PSS SB 3000 or PSS SB 3006 systems. Specific faults are simulated with a programmed PSS with safety relevant switches and actuators. The attendees will determine and eliminate faults using the diagnostic functions of the PSS and the service software, PSS WIN-QLD. (No major programming will be covered)

Overview:

- Hardware structure of the PSS 3000 Series

- Hardware structure of SafetyBUS p DI modules

- Hardware structure of PSSuniversal modules

- Program block structure (OB, PB, FB, SB and DB)

- Decoding the Error Stack

- Handling of the Service software (PSS WIN-QLD)

- Using the diagnostic functions

- Determine hardware and peripheral wiring faults

- Determining SafetyBUS p faults

- Change of PSS modules

Duration	1 day	Start: 8:30 AM	End: 4:30 PM

Number of Attendees	Min.	4
	Max.	8

PSS WIN-PRO Basic Programming Workshop   PSS-WPWS

Goals   The participants will be able to program and run simple control functions of a machine simulation using the Windows based programming software.

Assumption   • Students are required to provide their own computers and PSS WIN-PRO software with Transfer Line Standard Function Blocks.

Contents   This basic course is a step into the technology of the PILZ PSS programming using the software, PSS WIN-PRO.

Overview:

- This course includes the PSS WIN-PRO Maintenance Workshop, PSS-WSRV

- Program block structure (OB, PB, FB, SB and DB)

- Configuration of PSS and SafetyBUS p

- Structured programming of a PSS

- Basic operations of the LD / IL / FBD programming languages

- Block import function

- Timer and Counter handling

- User function blocks

- Creation of a programming project simulating a simple machine cell.

- Documentation function of the programming software

Duration   4 days   Start: Day 1, 8:30 AM   End: Day 4, 2:00 PM

Number of Attendees   Min. 4
Max. 8

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SafetyEYE Maintenance Workshop
SEYE-SERV

Goals   This course is for individuals working in the engineering, maintenance, service, and assembly departments. The participants learn to operate the SafetyEYE safe vision system, PSEN se. They will be able to detect and eliminate faults that are displayed on the PSS safety controller and in the SafetyEYE Configurator software. They will use multiple diagnostic functions on practical examples.

Assumption
- Basic knowledge of electronics.
- Experience with the setup and maintenance of machinery controlled by PLCs
- Students are required to provide their own computers and SafetyEYE Configurator software.

Contents   All topics are conducted with practical exercises on a SafetyEYE system with typical warning and detection zone configuration. Specific faults are simulated to demonstrate maintenance and repair procedures. The attendees will determine and eliminate faults using the 4 character display on the PSS safety controller and the SafetyEYE Configurator tool. (Limited programming will be covered)

Overview:
- Hardware structure and connections of the SafetyEYE sensor, analysis unit and PSS safety controller
- SafetyEYE principles of operation
- Decoding the status indicator on the PSS display
- Handling of the Configurator software
- Replacement of the SafetyEYE sensor, analysis unit, PSS controller, reference markers (and setup markers)

Duration   2 days   Start: 8:30 AM   End: 4:30 PM

Number of   Min.   4
Attendees   Max.   8

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