

PROPOSED IN-HOUSE TRAINING

PRACTICAL INDUSTRIAL ELECTRO-PNEUMATIC



MINISTRY OF HUMAN RESOURCES



Certificate Id
ae072f50-c797-11ed-b951-4ffdd6fe72de
Trainer Id
1636
Verify Authenticity

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ABOUT US

We offer training solutions to various organizations, matching their requirement in technical segments since 1994. We always strive to guarantee overall customer satisfaction and place utmost importance to customer feed back. Over the years we have trained more than 500 organizations and over two thousand participants in all our training modules. We have also expanded our services to cover technical training institutions and institutions of higher learning providing extensive knowledge sharing for all levels and fields of expertise in the workplace.

INTRODUCTION

This training is to provide participants with a sound understanding of the general concepts, advantages and limitations associated with Industrial Pneumatic systems used in the manufacturing industries today. It offers a practical approach to electro-pneumatic principles, including a general understanding of basic physics, components, circuit diagram. It also provides a closer look at numerous industries and their specific applications for electro-pneumatic systems as well as troubleshooting and safety regulation guidelines.



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COURSE OBJECTIVES

By the end of this course, participants will be able to :

- design and select suitable components in electro-pneumatic system
- Read and understand electro-pneumatic circuitry
- Understand the fundamentals of how to build circuit diagrams with these components
- Troubleshoot problems in a simple electro-pneumatic system
- Use simple calculation for cylinder size used with certain air pressure for an application in a system
- Consolidate the acquired knowledge, with the numerous practical hands-on exercises
- Keep up with information on the principles, operation and maintenance of electro-pneumatic systems



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COURSE CONTENT

Module 1: Introduction

- i. What is pneumatic
- ii. Applications of pneumatic
- iii. Advantages of pneumatics

Module 2 : Compressed Air

Module 3 : Pneumatic Actuators

- i. Double-acting cylinders
- ii. Single-acting cylinders
- iii. Torque / Rotary Actuators
- iv. Shuttle/Rodless cylinders
- v. End position cushioning of piston movement

Module 4 : Sizing of cylinders

- i. Relation between Force, Pressure & Piston Area
- ii. Determining the Force, Speed & Direction of a cylinder

Module 5 : Control Elements (Directional Control Valves)

- i. Valve Ports & Positions (2/2-way, 3/2-way, 4/2-way, 5/2-way, 5/3-way)
- ii. Control methods, manual & electrical
- iii. Uni-stable & bi-stable control valves



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COURSE CONTENT

Module 6: Electrical Control

- i. Logic functions with switches
- ii. Logic functions with relays
- iii. Interlock circuit
- iv. Holding, Latching, Set/Reset circuit
- v. Control of uni-stable functions using uni-stable valve
- vi. Control of bi-stable function using uni-stable valve
- vii. Control of bi-stable function with bi-stable valve

Module 7 : Control of a double-acting cylinder

- i. Pressure control by means of a uni-stable 5/2-way valve
- ii. Pressure control by means of a bi-stable 5/2-way valve
- iii. Semi-automatic cycle, manual start / automatic return
- iv. Fully automatic cycle with start/stop valve

Module 8 : Flow Control Valves

- i. Throttle (two-way flow) control valve
- ii. Non-return throttle (one-way flow) control valve
- iii. Check valve
- iv. Quick exhaust valve

Module 9 : Troubleshooting & maintenance



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WHO SHOULD ATTEND

- All staff involving the maintenance of pneumatic and electro-pneumatic control systems
- Executives
- Managers
- Support employees

METHODOLOGY

The workshop is interactive & participative with a mixture of:

- Self assessment
- Videos and activities
- Circuit simulations
- Group discussions & case studies
- Interactive lectures



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TRAINER'S PROFILE

Mr. Henry Choong has more than 20 years of solid experience in the field of industrial automation (PLC, Pneumatics, Hydraulics, Electrical, Vacuum, Sensors & DAQ etc). He is a certified trainer by Pembangunan Sumber Manusia Berhad (PSMB), and also by AB Mecman, Stockholm, Sweden.

During his employment with Jebesen & Jessen (M) Sdn Bhd and Allen Automation & Pneumatics Sdn Bhd, he had numerous project experiences in the automation industries in handling PLCs, pneumatics, hydraulics systems as well as sensor technology, both hardware and software for system integration.

Beside his practical engineering experiences, he is also actively involved in training and consultancy. Some of the organizations and institutions which he had trained and collaborated, includes SKF Bearings Industries (M) Sdn Bhd, Petronas Refinery, Malacca Industrial Skills Development Centre (MISDEC), Selangor Human Resource Development Centre (SHRDC) etc.

In addition, he constantly presents seminars updating the latest industrial technologies to institutions of higher learning. He was also in the panel for the development of NOSS in Robotic Technology, Sijil Kemahiran Malaysia (SKM) Level 4 & Level 5



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