

## Classic Control & Troubleshooting



## **Objectives**

- Understand all basics of any control panel and its complicated connections
- Able to connect any production line with classical control
- Make start stop power and control circuit for 3ph induction
  - Make reverse direction circuit for 3ph induction motor
    - Star delta motor and Dahl ender motor •
    - More than 10 other circuit with classic control
      - Sensors types & connection •

**Course Outline** 

Day 1 (Basics of electricity for any control engineer)

- Sources of electricity and standard .1
- Balance loads and un balance loads .2
  - Earth, neutral and ground .3
    - Short circuit protection .4
      - Overload protection .5
  - Cables selection and testing .6
    - Phase sequence protection .7
      - Switches types .8
      - Troubleshooting .9

Day 2 (classic control basics)

- Contactors (types & selections) .1
- Start stop power and control circuit for 3 Ø induction motor .2
  - reverse direction for 3 Ø induction motor .3
    - methods of starting of motors .4
      - soft starter .5
      - star delta motor .6
    - reverse direction for star delta motor .7

Day 3 (Practical all day)

all the previous application .1

Day 4 (practical applications)

application on timers .1

Day 5 (sensor application)

- proximity sensors .1
  - limit switches .2
  - optical sensors .3
    - temp sensors .4

## WORKSHOP STYLE

The workshop will be of five day s duration consisting of interactive learning sessions, videos, examples and role-play exercises to provide the delegates with the knowledge and experience of using the key learning issues and techniques.

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