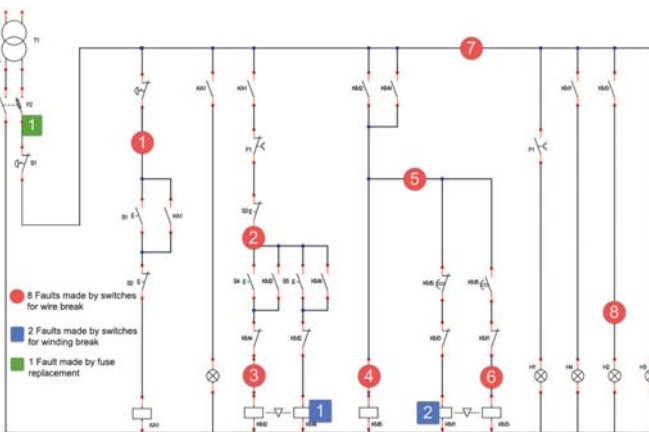


## UNIT FOR FAULT DIAGNOSTICS ON INDUSTRIAL ELECTRICAL WIRING



ref. ESSAI-DIAG

### DESCRIPTION OF THE FAULTS



- **Marked red**  
Faults 1 to 8: switch for wire break.
- **Marked blue**  
Faults 1/2: switch for winding break.  
The voltages are present on the terminals of the coil but the contactor does not stick.
- **Marked green**  
Fault 1: change of fuse with defective one.  
Supplied with the model.

ESSAI-DIAG is a model for producing faults at different points on a wiring frame. The wiring on frame represents the Star/Delta startup with double direction of rotation of an asynchronous machine. Only the control circuit is wired. Finding the faults is carried out only on the control circuit. The faults are selected by the instructor using the switches located under a rear flap of the model. The voltage of the circuit does not exceed 24VAC. Thus students can take measurements or perform tests in complete safety, regardless of the fault type. Power supply 230VAC by 3 metre lead and mains plug 2P+E. Model supplied wired and fully functional. A CD contains the teaching manual with the Student/Instructor tutorials.

### EDUCATIONAL OBJECTIVES

- To learn and understand the wiring of motor startup
- To produce an industrial wiring diagram
- To simulate the most frequent faults on an industrial installation
- To take the measurements of the different electrical values
- To analyse and interpret the results
- To find the faults on a relay installation

### TEACHING RESSOURCES STUDENT & TEACHER

#### Practical works

- Identification of the different components
- Producing the electrical diagrams
- Reading the currents and voltages in the circuit
- To find the different faults on the circuit using measuring devices

#### Composition of the model

- 1 frame on casters (two with brakes) with dimensions H1800 x 800 x 700mm
  - 1 Melamine shelf 750x400mm
  - 1 wiring frame equipped with:
    - 1 protection with two-pole fuse
    - 1 relay 4 poles 24VAC
    - 1 relay 4 poles timed 24VAC
    - 4 contactors 4 poles
    - 1 thermal relay
    - 1 PVC surface including:
      - 1 emergency stop button
      - 1 On/Off button with indicator light
      - 2 On pushbuttons
      - 1 Off pushbutton
      - 3 white indicator lights
      - 3 green indicator lights
      - 1 red indicator light
      - 1 emergency stop for the instructor.
- All the connectors of the indicator lights and pushbuttons are brought to industrial terminals flush with the surface. Thus students can very easily, using the probes, read the voltage or check if the circuit is cut.
- 1 unit closed with flap containing:
    - 10 switches for creating faults
    - 1 main switch
    - 1 RC thermal-magnetic circuit-breaker 30mA-16A
    - 1 key operated switch with indicator light for applying power to the wiring frame

