

Lab1

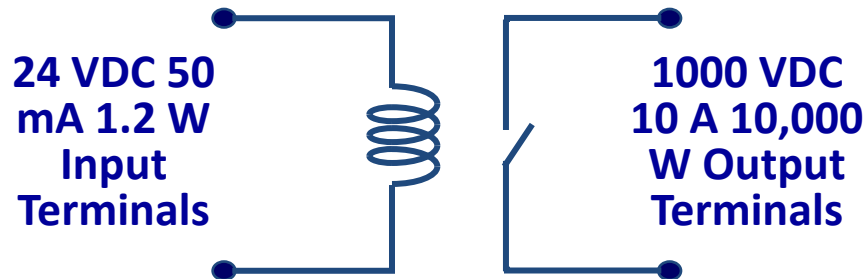
Relay Control

Concept of Relay Control

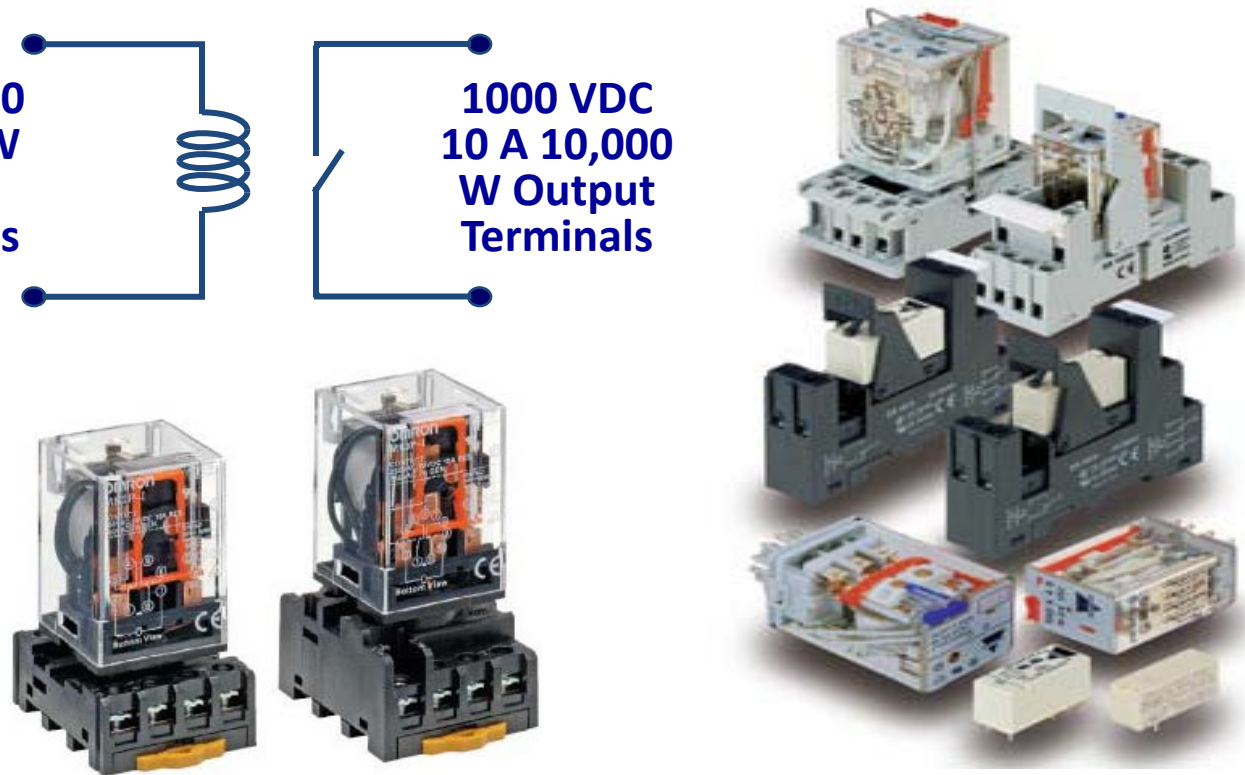
➤ Concept: Controlling very high power at the output using a very low power of control signal at the input.

✓ Input Control Coil: Very Low [Voltage, Current and Power]

Output Contact : Very High [Voltage, Current and Power] ✓

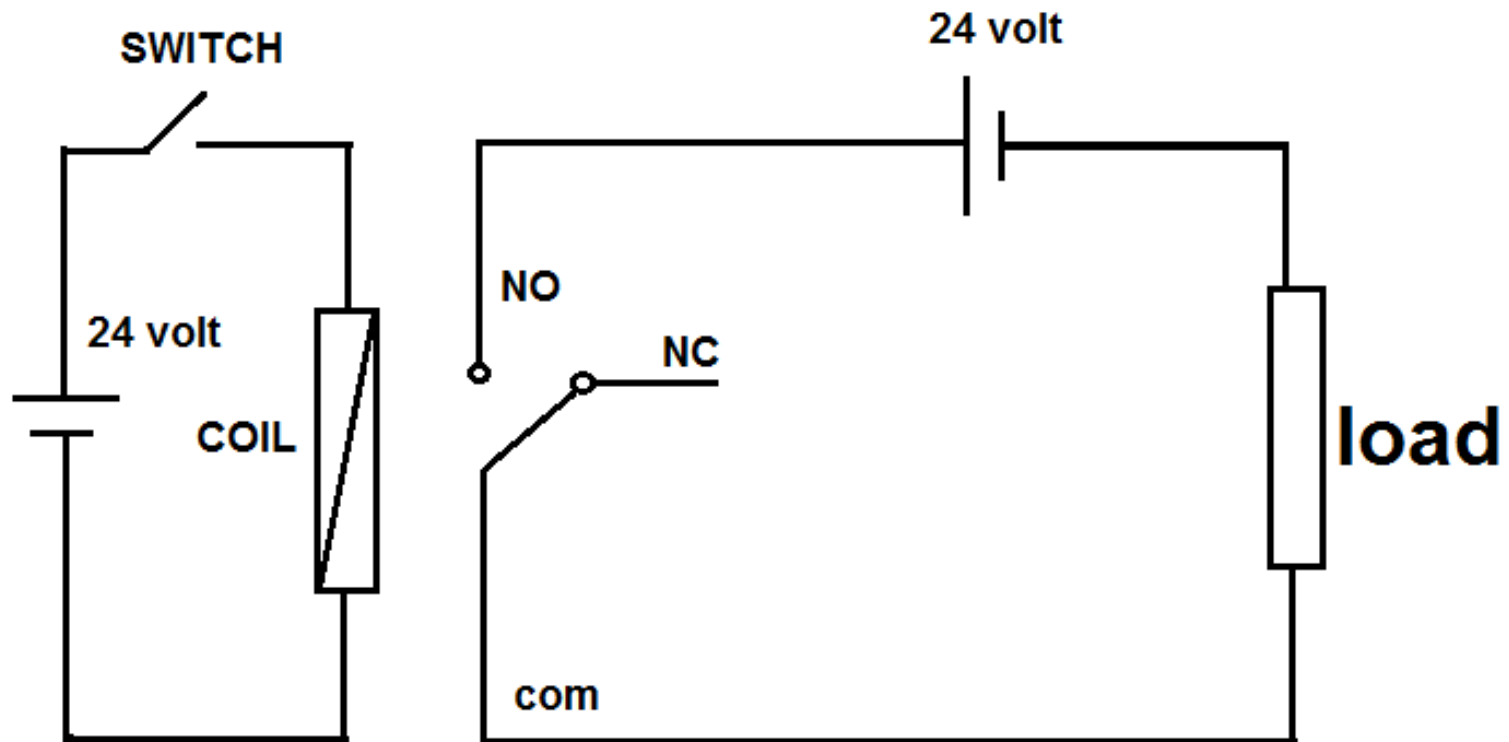


Relay & Contactor



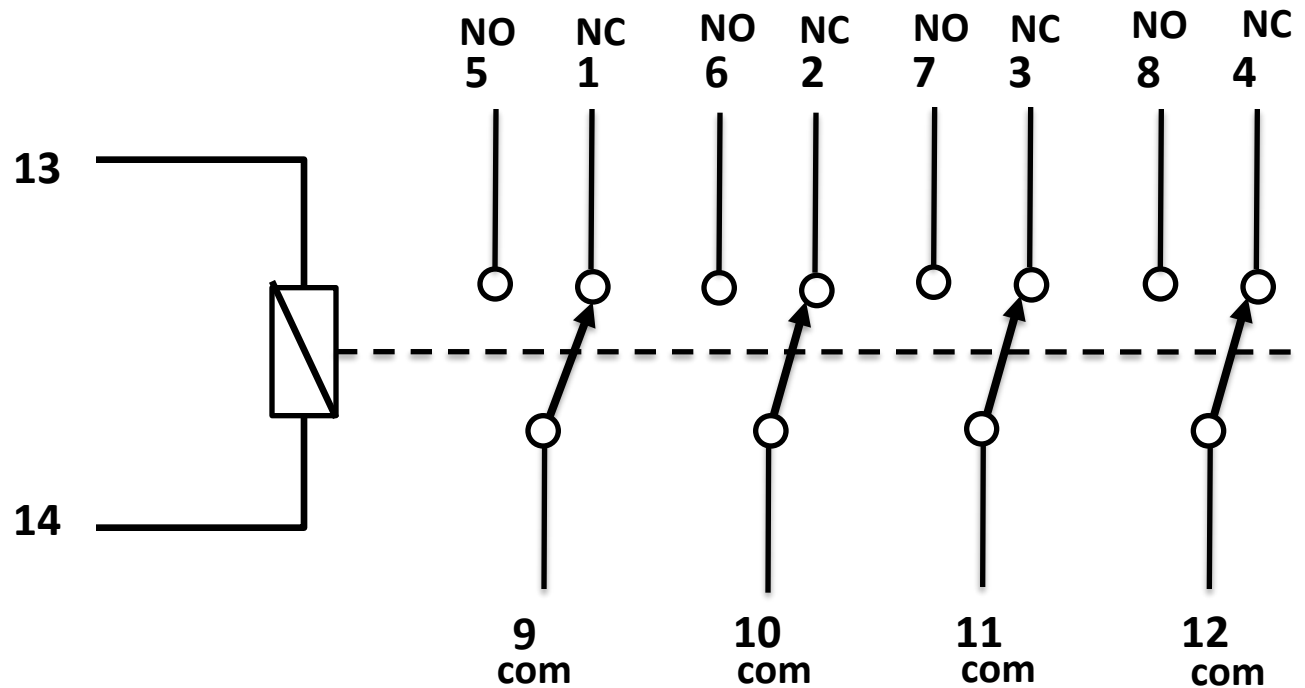
Relay Control

Relay Construction: □



Relay Control

Relay Construction: □



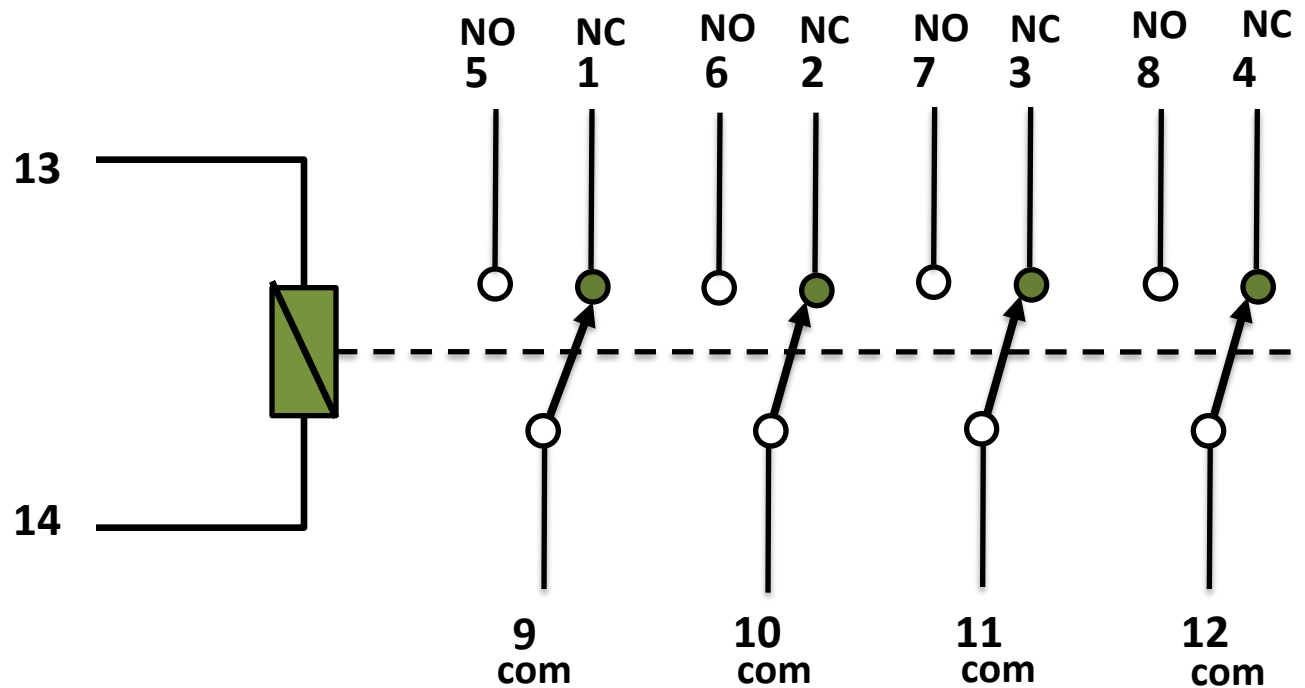
Relay & Contactor

Control Coil

Contact

Relay Control

Relay Operation: □

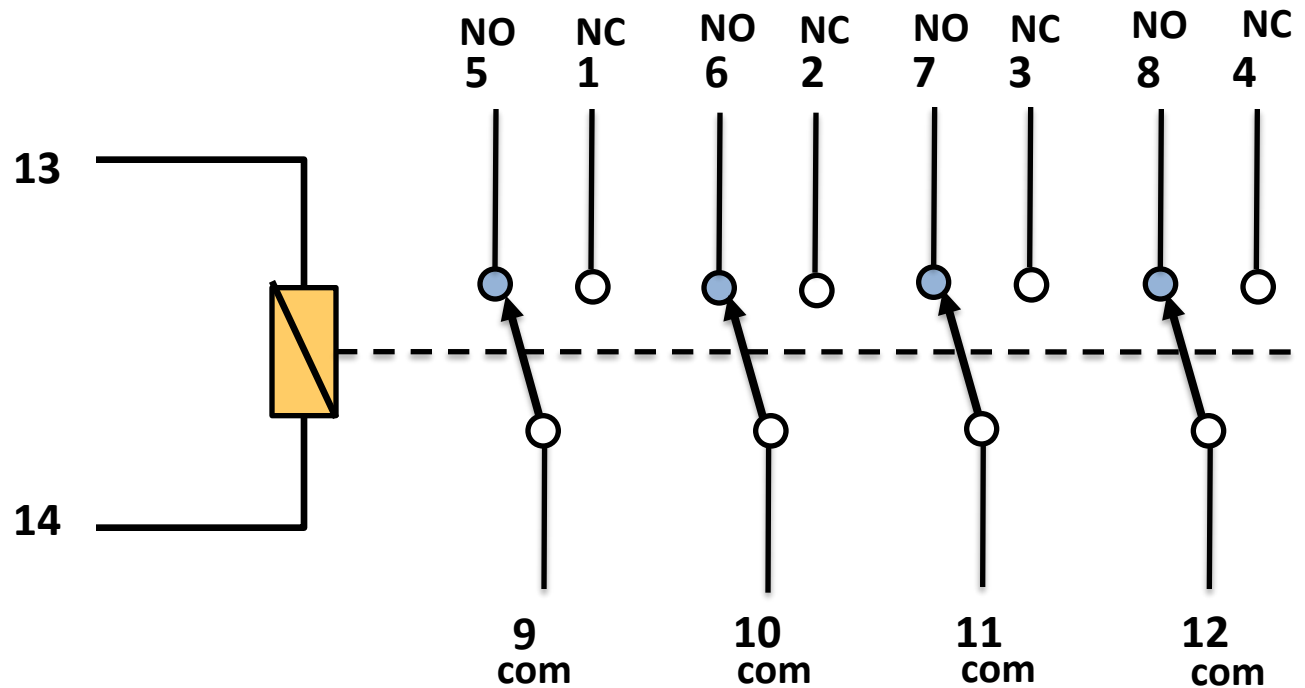


De-energized

Relay & Contactor

Relay Control

Relay Operation: □



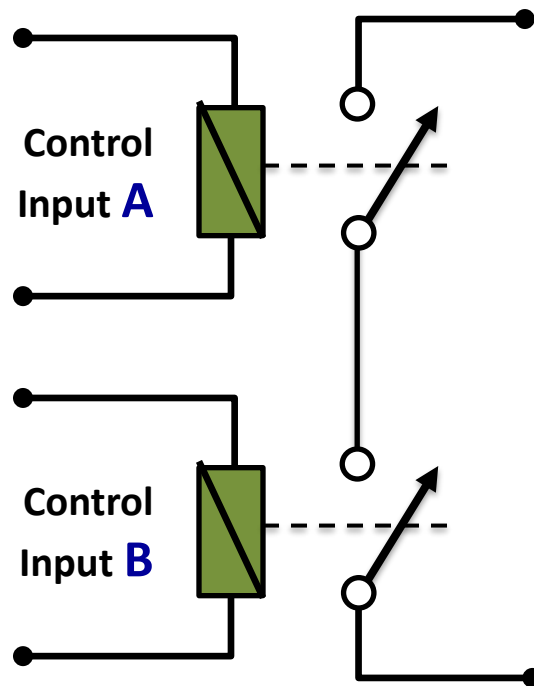
Energized

Relay & Contactor

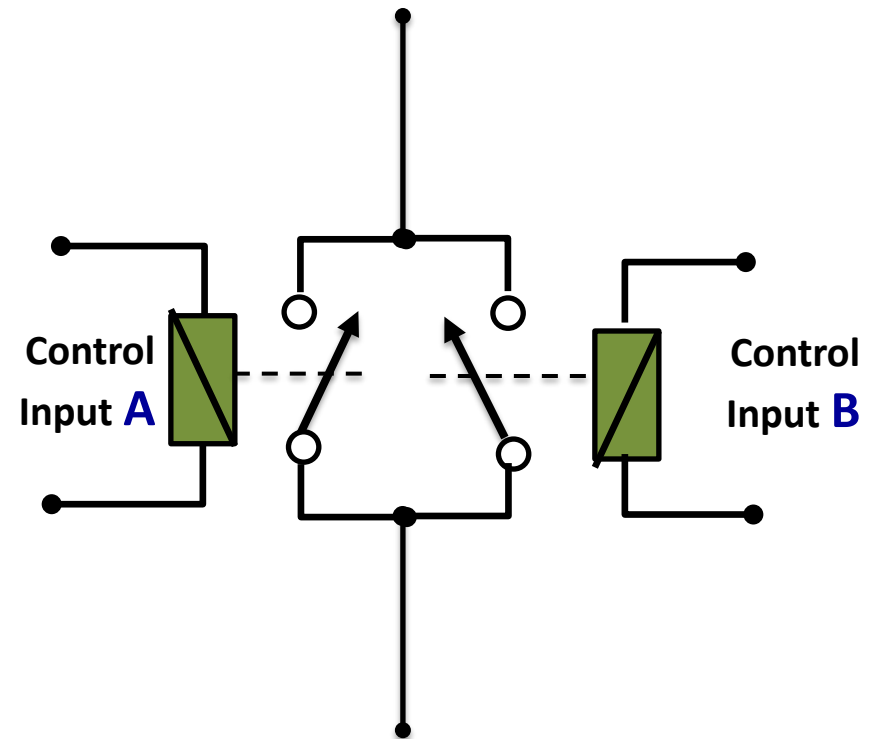
Relay Control

Relay Logic Control: □

Relay & Contactor



AND Operation

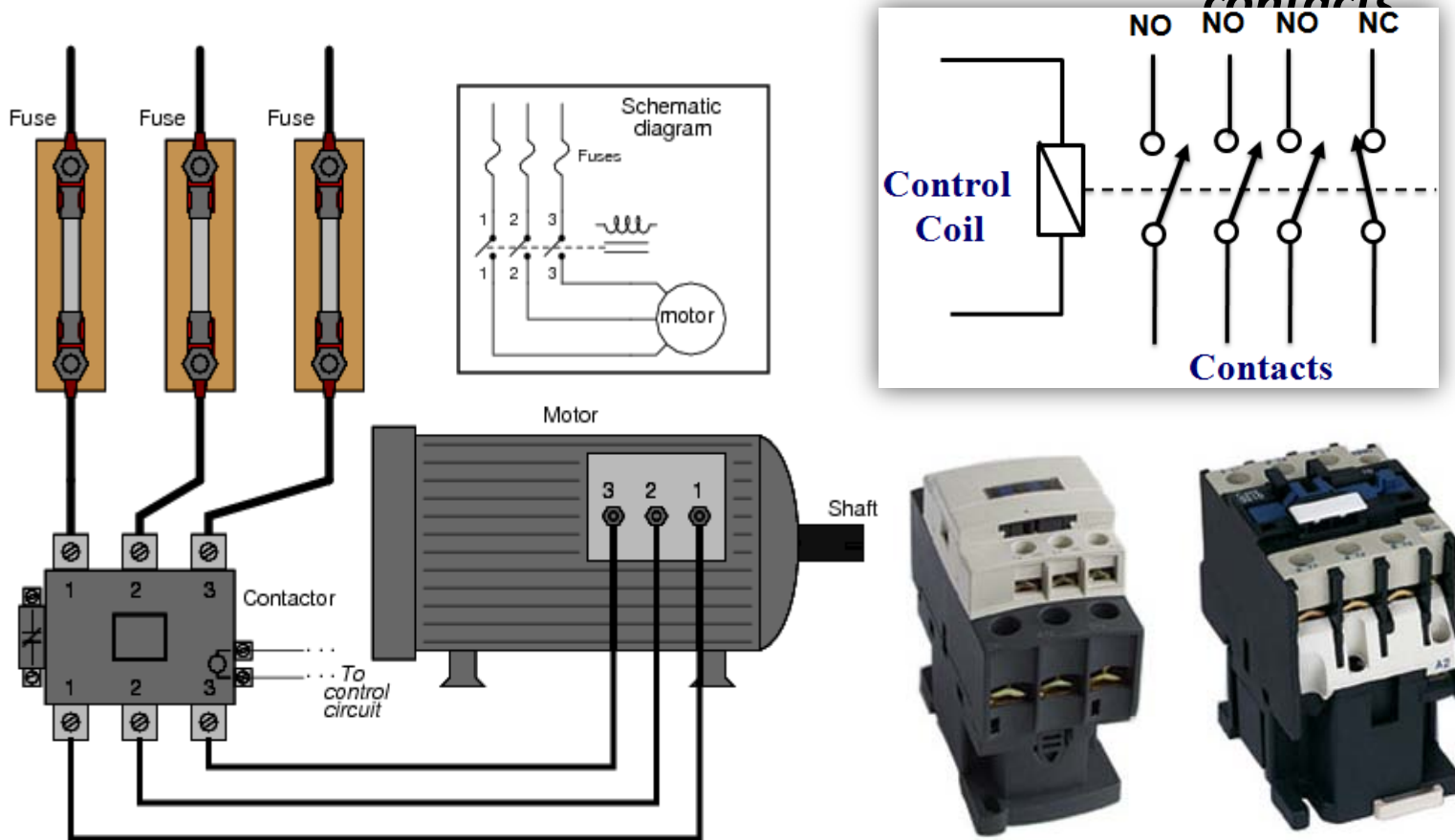


OR Operation

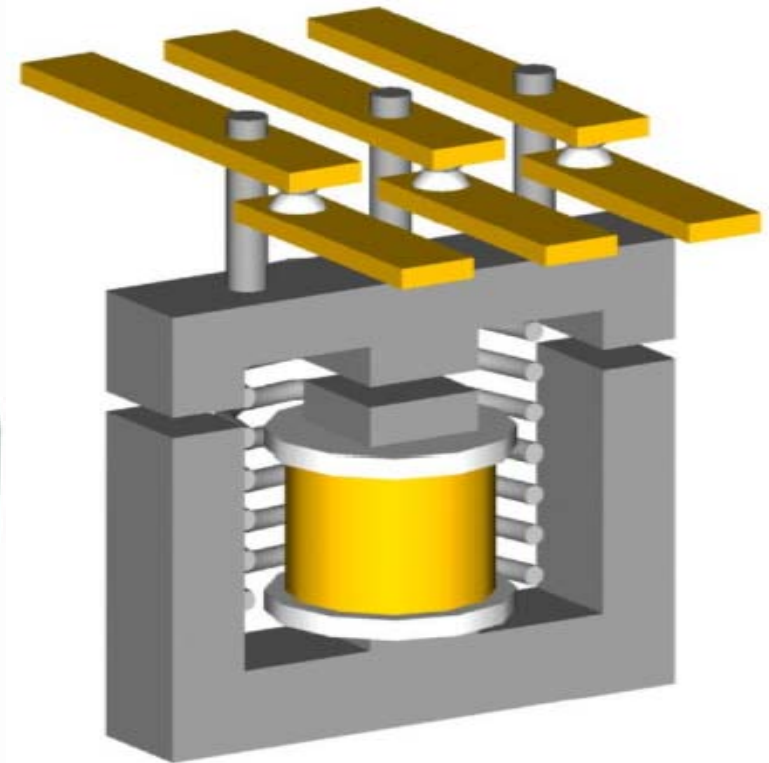
Three-Phase Contactors

When a relay is used to switch a large amount of electrical power through its contacts, it is designated by a special name: contactor. Contactors typically have multiple contacts

Relay & Contactor



Three-Phase Contactors



De-energized

Relay & Contactor

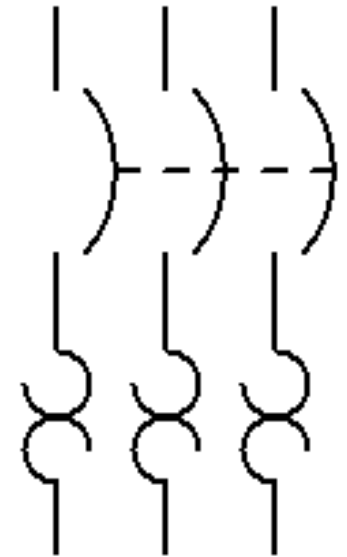
Circuit Breaker



1P



2P



Relay & Contactor



3P



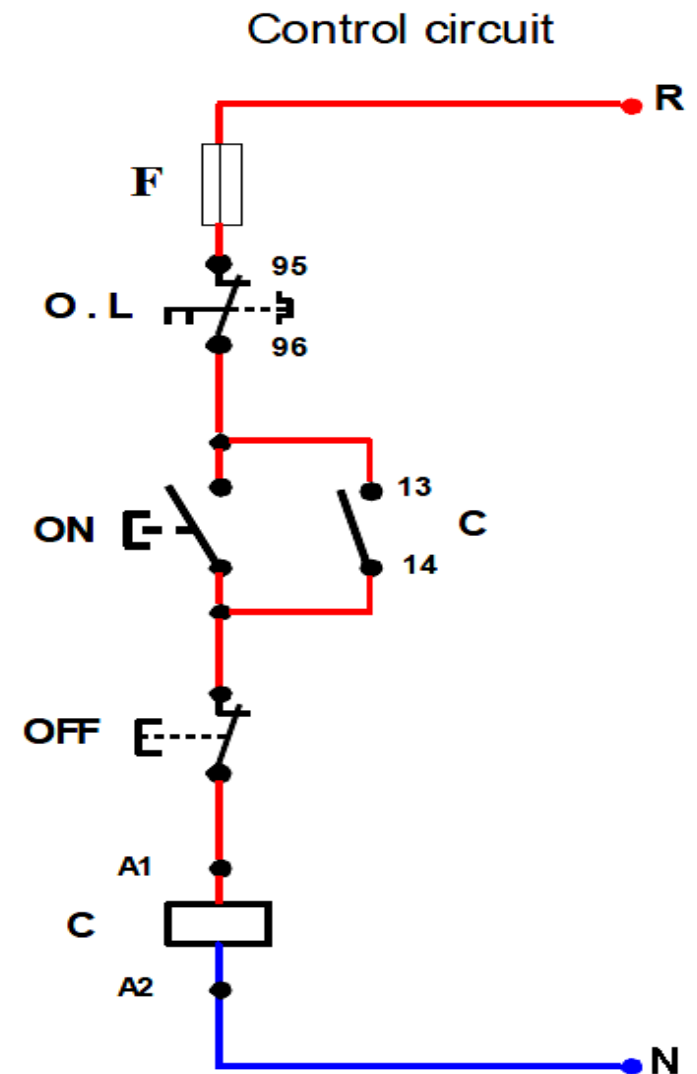
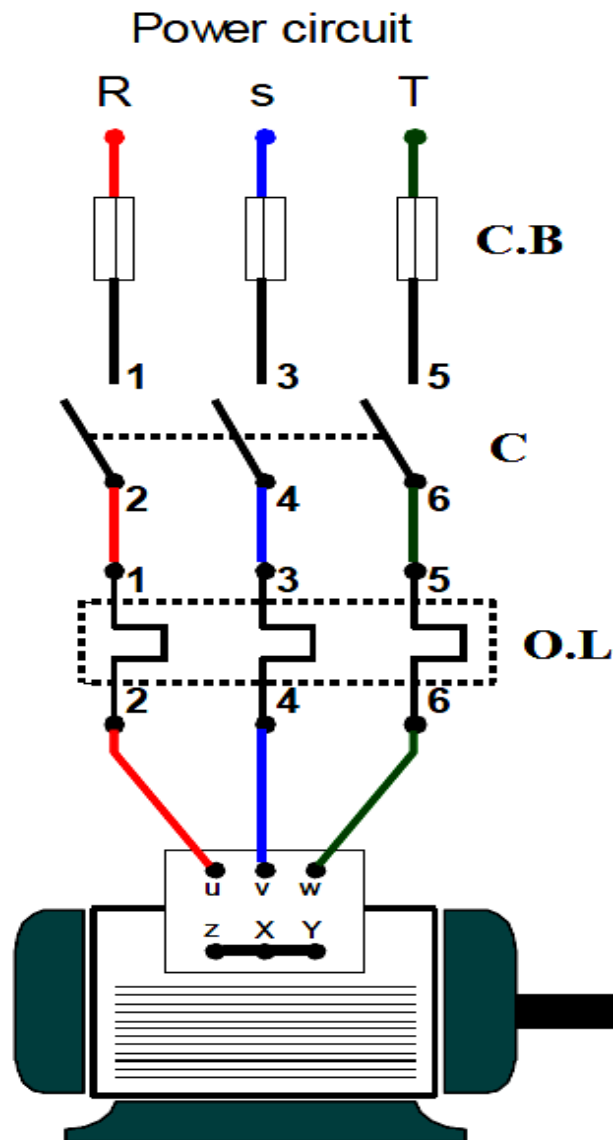
4P

Overload Relay



Relay & Contactor

Start / Stop latch of Three Phase Motor

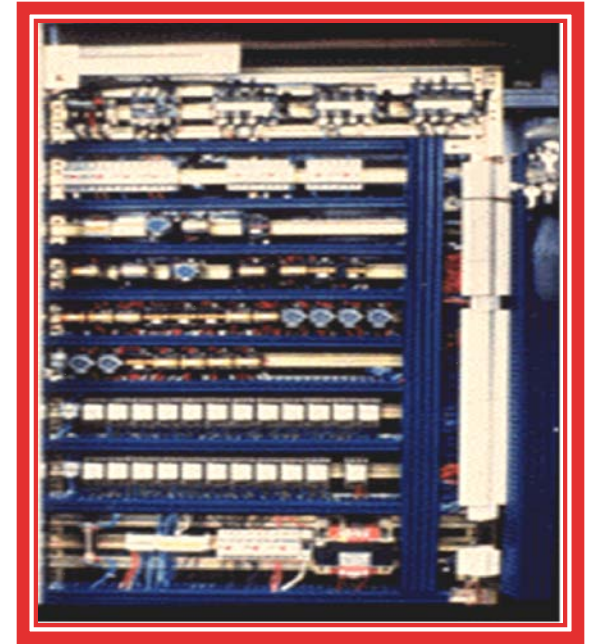


Classical Control

Classical Control

Disadvantages:

- ⚡ *Slow action.*
- ⚡ *Space required .*
- ⚡ *Fixed application.*
- ⚡ *Simple control tasks.*
- ⚡ *Large number of contacts .*
- ⚡ *Higher costs in the long run.*
- ⚡ *Difficult expansion and/ or modification*

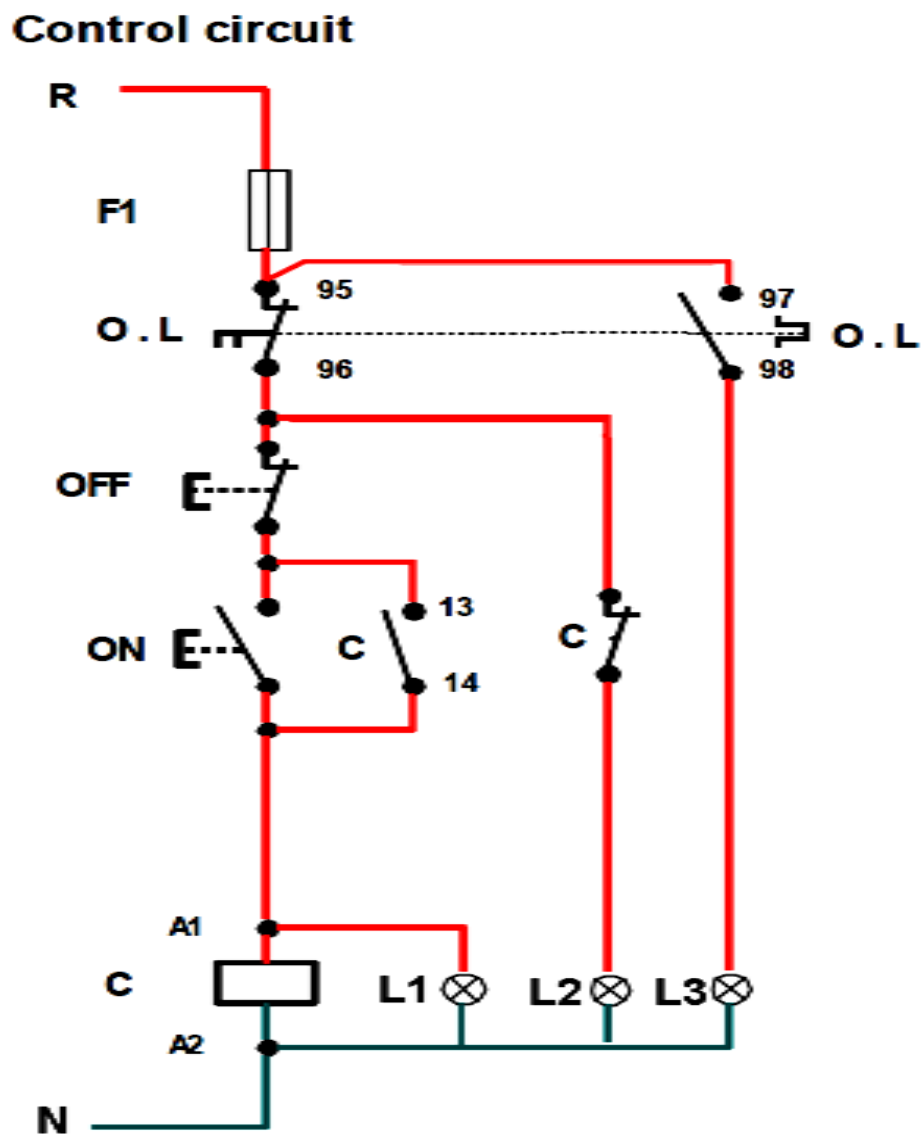
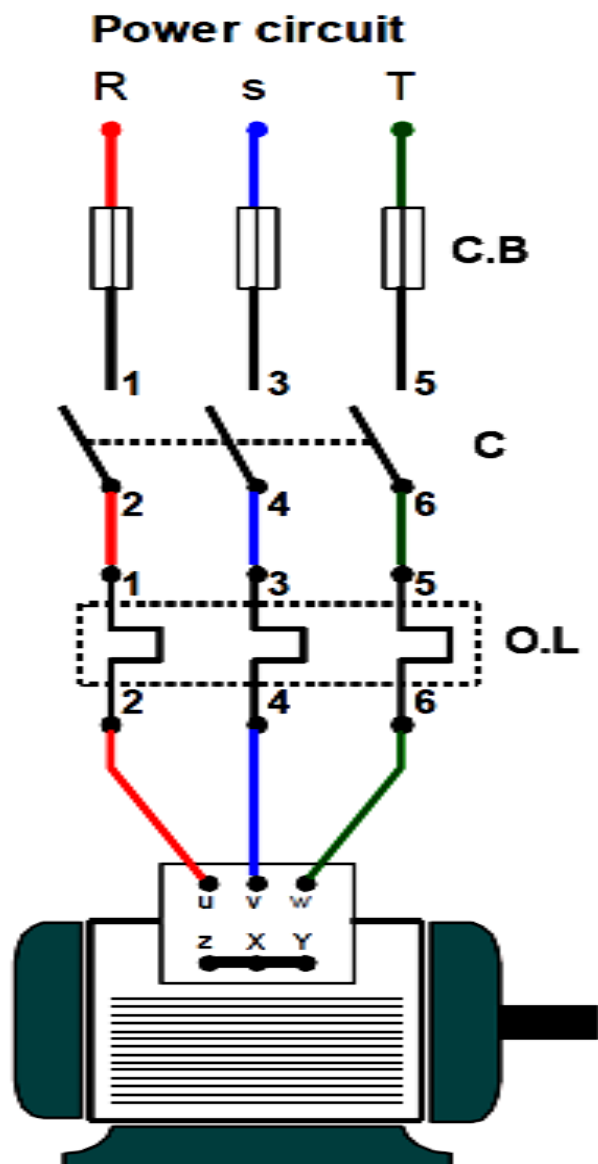


Classical Control

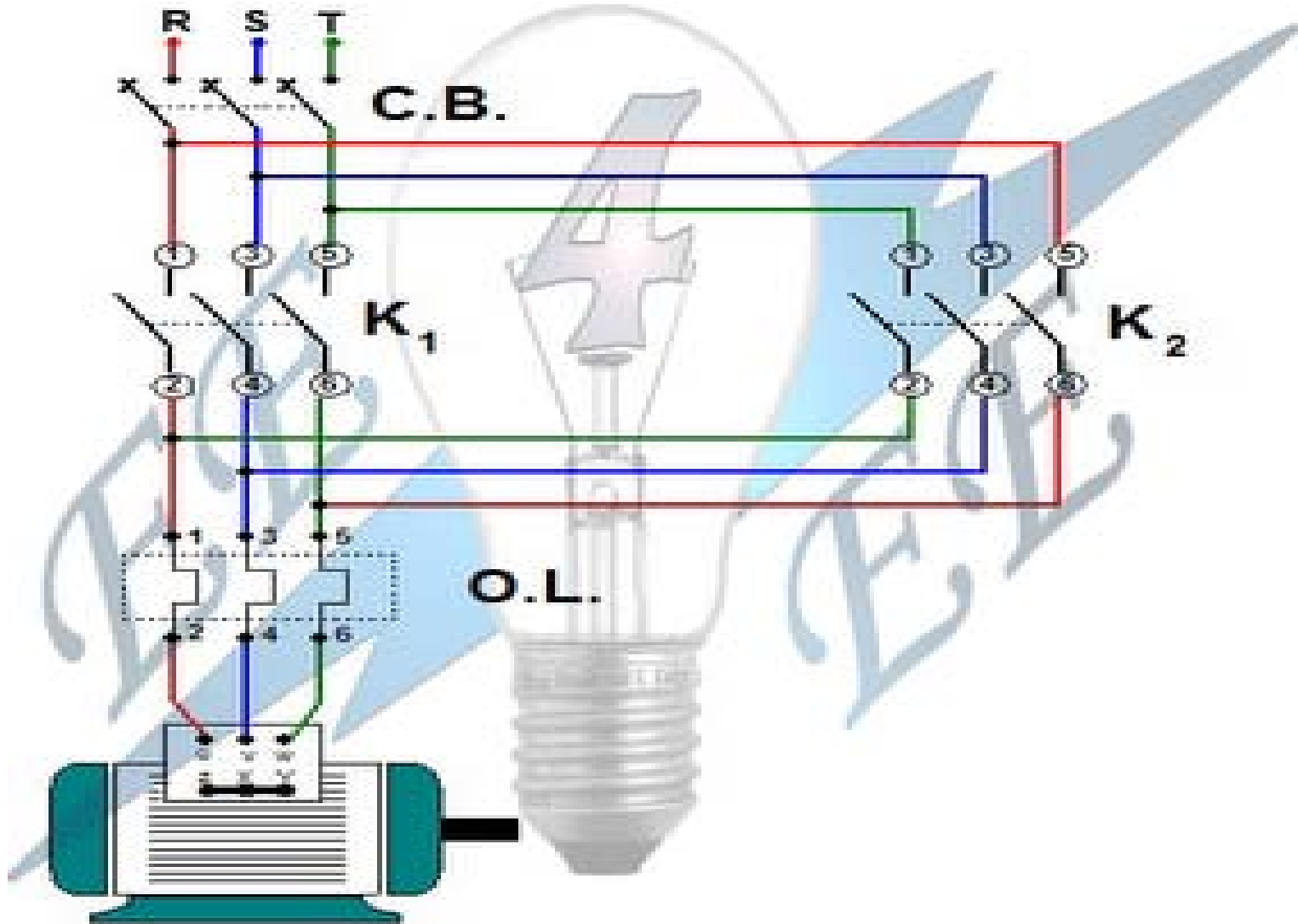
But!

Relays and contactors continue to be used as output device for another types of control systems, being ideal for the conversion of small signals to higher current / voltage driving signal.

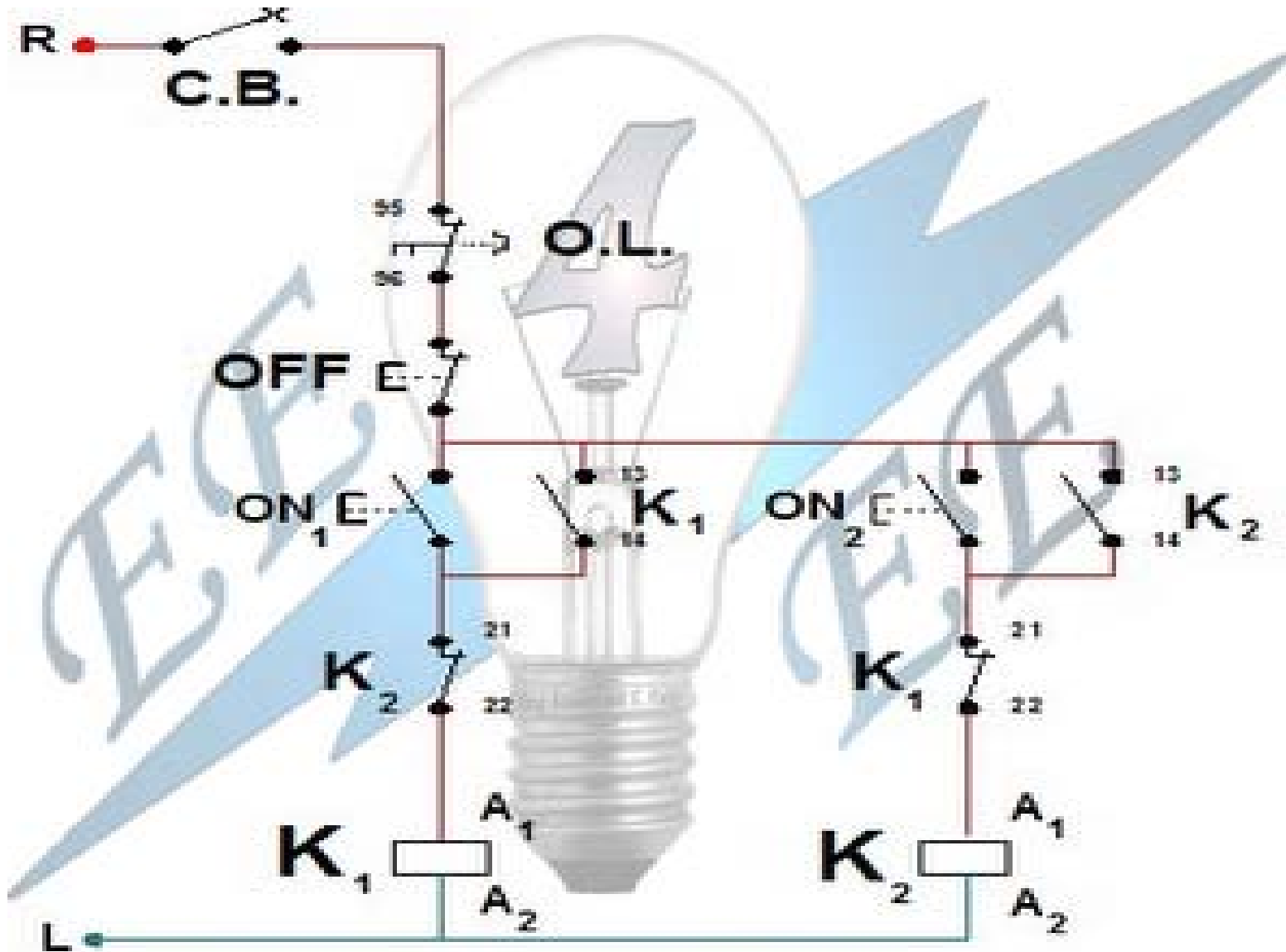
تشغيل محرك ثلاثى الأوجه يعمل ويوقف من مكان واحد مع لمبات الإشارة



دائرة القوى لمحرك يعمل فى إتجاهين ويقف من مكان واحد



دائرة التحكم لمحرك يعمل فى إتجاهين ويقف من مكان واحد



تشغيل محرك ثلاثي الأوجه بتوصيلة نجمة / دلتا

