

**Basic control circuit**  
**Sirkuitkontroldasar**

**JungfrauSwitzerland**  
**Gear train**



# Ladder Diagram

## Diagram Tangga

The components connected to the live wire are mostly switch contacts of buttons, limit switches, pressure switches, relays, timers, counters, etc. The contact components are used for ON/OFF control in the circuit,

Komponen yang terhubung ke live wire sebagian besar adalah kontak sakelar tombol, sakelar batas, sakelar tekanan, relai, timer, penghitung, dll. Komponen kontak digunakan untuk kontrol ON/OFF pada rangkaian,

>>> And the contacts can be connected in series (AND), Parallel (OR) connection; and most of the components connected to the ground wire are loads, such as solenoid valves, indicator lights, buzzers, relays, timers, counters and other components of the load coil, which are used as load output in the circuit.

dankontakdapatdihubungkansecaraseri (DAN), Paralel (ATAU); dansebagianbesarkomponen yang terhubungkekabel ground adalahbeban, sepertikatup solenoid, lampuindikator, buzzer, relay, timer, counter dankomponen lain darikumpulanbeban, yang digunakansebagai output bebandalamrangkaian.

>>>The load components can only be connected in parallel, not in series to avoid the increase of impedance and the lack of electric power and loss of performance

Komponen beban hanya dapat dihubungkan secara paralel, tidak secara seri untuk menghindari peningkatan impedansi dan kurangnya daya listrik dan hilangnya kinerja

## Contact

## Kontak

“a” contact: also known as normally open contact, abbreviated as "NO". Under normal circumstances, it is an open circuit, and it becomes a closed circuit after switching.

“a”lower case, “NO”Capital

“a”kontak: jugadikenalsebagaikontak yang biasanyaterbuka, disingkat "TIDAK". Dalamkeadaan normal, iniadalahsirkuitterbuka, danmenjadisirkuittertutupsetelahberalih.

>>>“b” Contact: also known as normally closed contact, abbreviated as "NC". Normally, it is a closed circuit (circuit), and it becomes an open circuit (open circuit) after switching.

“b”lower case, “NC”Capital

“b”Kontak: jugadikenalsebagaikontak yang biasanyatertutup, disingkat "NC". Biasanya, iniadalahsirkuitertutup (sirkuit), danmenjadisirkuitterbuka (sirkuitterbuka) setelahberalih.

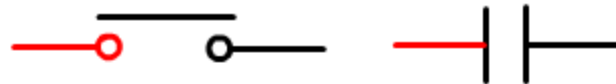
>>>“c” contact: also known as changeover contact, including a contact and b contact. Under normal conditions, the b contact is the path, and the a contact is open. After switching, the b contact is off and a is on. The point is a path. Generally speaking, there should be four contacts, but most of the c contacts are shared by the HOT line(power cord), so ordinary c contacts have only three contacts.

“c”kontak: jugadikenalsebagaikontak changeover, termasukkontakdan b kontak. Secaraumum, kontak b adalahsirkuit, dankontakaadalahsirkuitterbuka. Setelahberalih, kontak b matidan a hidup.Fokusnyaadalahpadametode.Dalamkeadaan normal, seharusnyaadaempatkontak, tetapisebagianbesarkontak c digunakanbersamaolehkabeldaya, sehinggakontak c

biasahanyamemilikitigakontak.

## Contact symbol

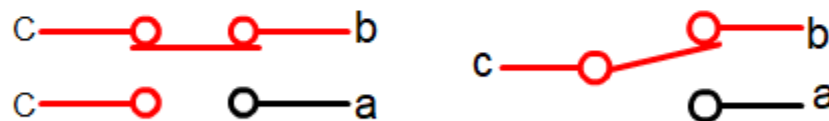
### Simbolkontak



"a" contact symbol diagram  
diagram simbol kontak "a"



"b" contact symbol diagram  
diagram simbol kontak "b"

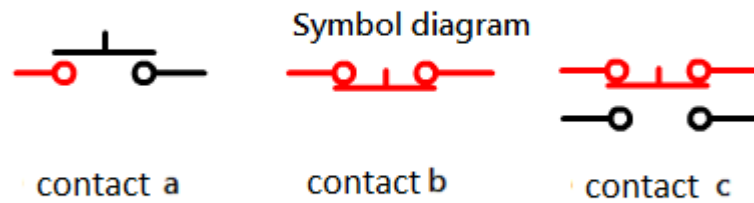
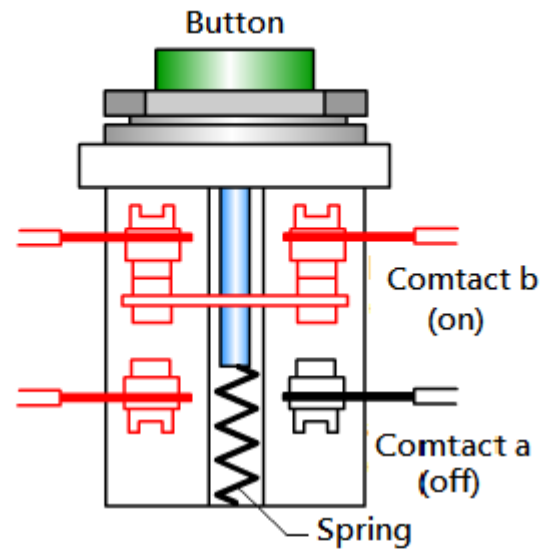


"c" contact symbol diagram  
diagram simbol kontak "c"

Switch

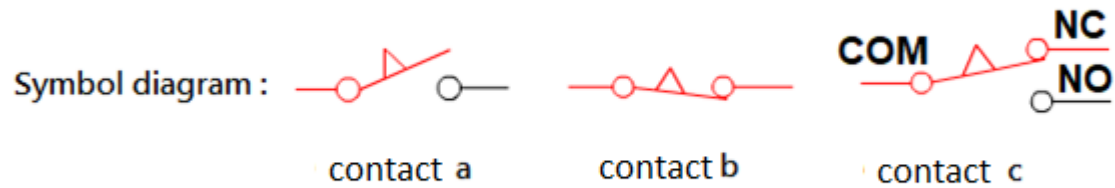
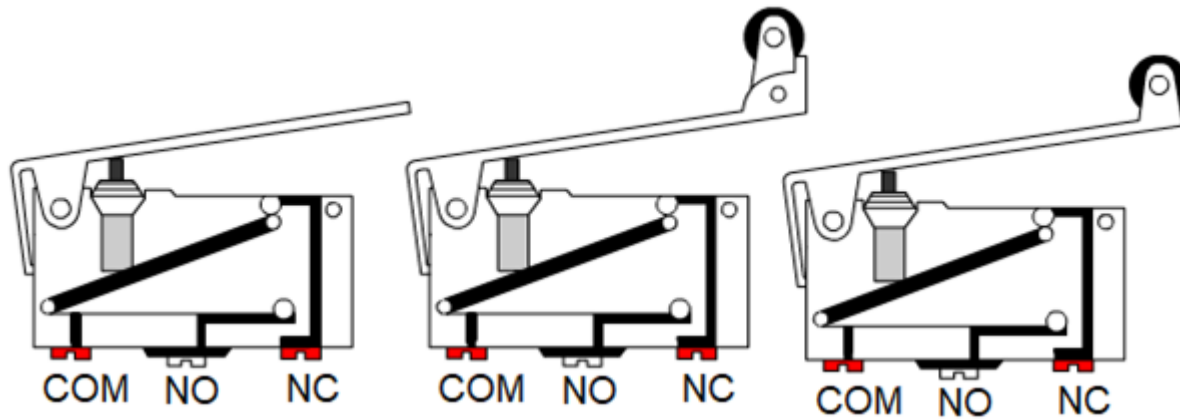


# Push button Tekantombol



PB.(Push Button)

# Limit switch Saklarbatas

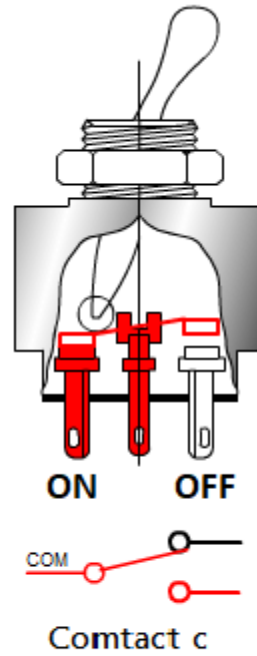


LS.(Limit Switch)

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# Toggle switch

## Sakelarsakelar

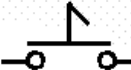


Toggle switch

# Change over switch

## Gantisakelar



Symbol diagram: 

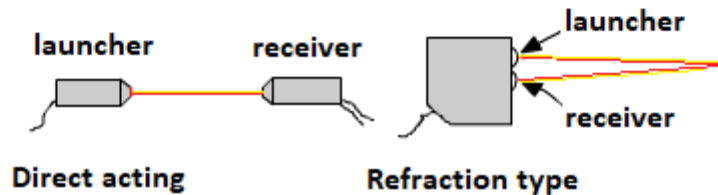
# Change over switch

## Ganti sakelar

# Proximity switch Saklarkedekatan



<a> Reed switch



<b> Photoelectric switch

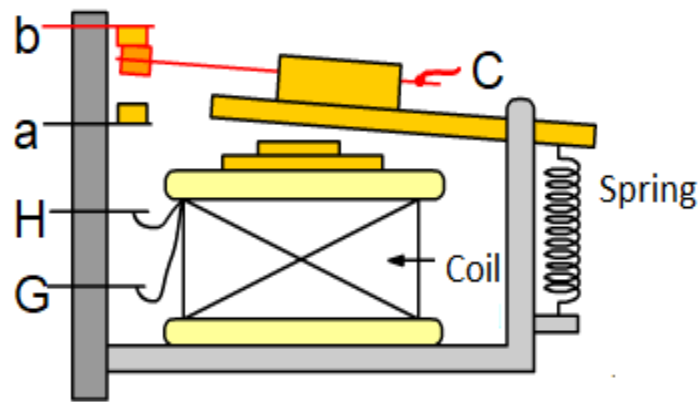


<c> SYMBOL DIAGRAM

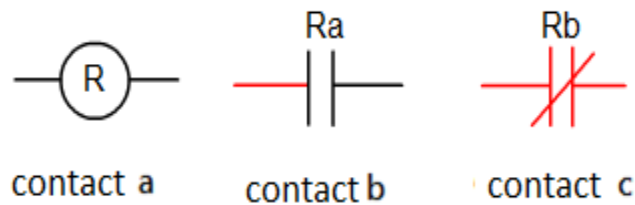
# Proximity switch Saklar kedekatan

# MEGNETIC RELAY

## RELAY MAGNETIK



SYMBOL DIAGRAM

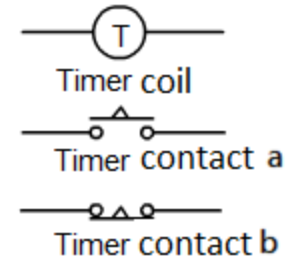
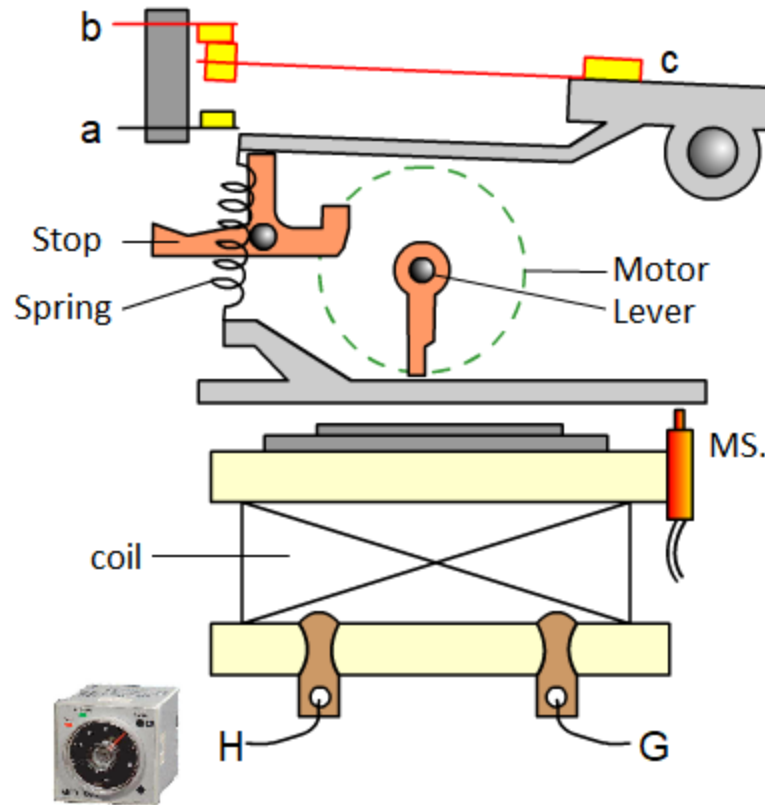


# MEGNETIC RELAY

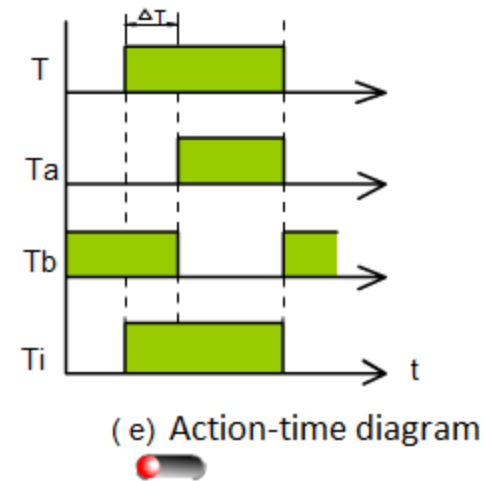
## RELAY MAGNETIK

動作指示燈內藏型  
4C接點 AC200/220V  
**OMRON**  
網路價(含稅) : 80 元

# Timer pengaturwaktu



(d) Symbol diagram

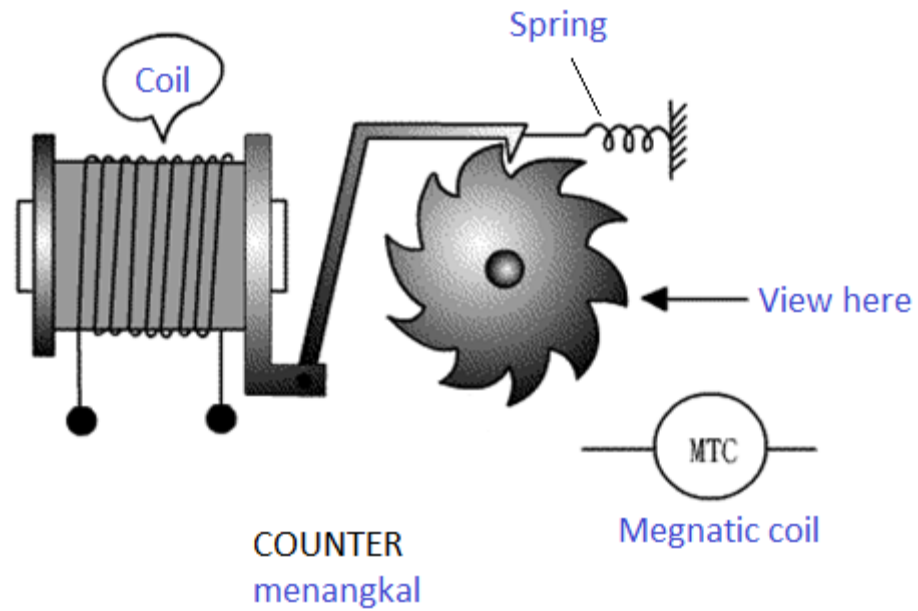


(e) Action-time diagram

## Timer PENGATUR WAKTU

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# COUNTER menangkal



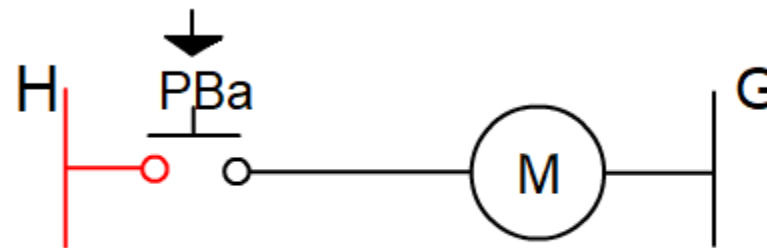
**OMRON**

網路價(含稅)：2550 元

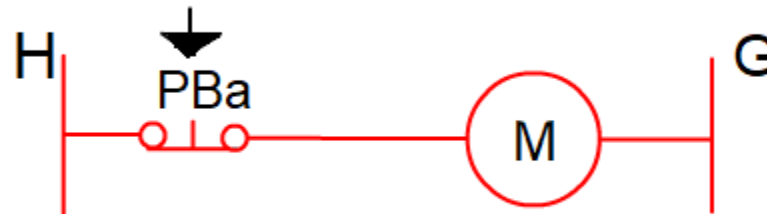


**Yes/Not** basic control circuit

**YES/NOT** [sirkuit kontrol dasar](#)



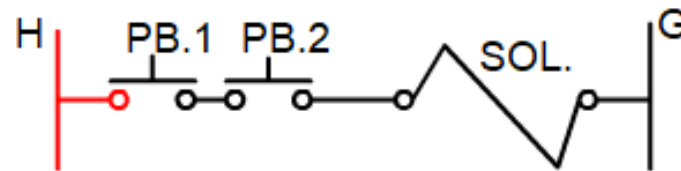
YES Circuit (Contact a , NO)



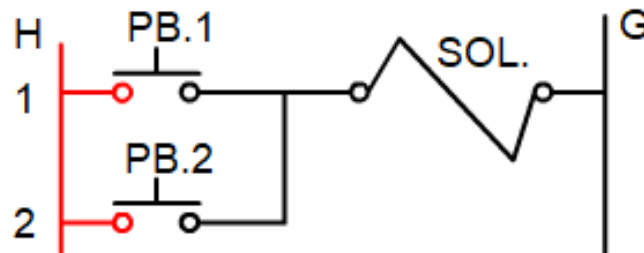
Not Circuit ( Contact b , NC)

**AND/OR** basic control circuit

**AND/OR** sirkuit kontrol dasar



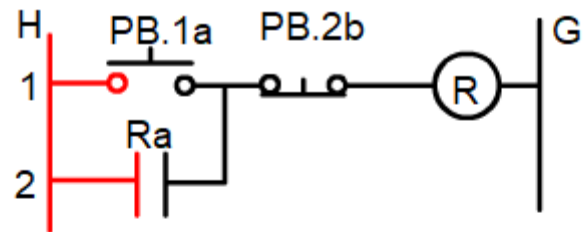
AND Circuit (Series)



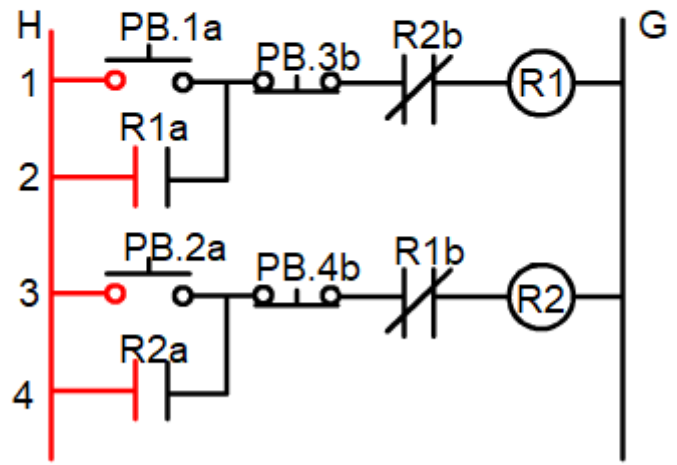
OR Circuit (parallel)

**MEM** basic control circuit

**MEM** sirkuit kontrol dasar



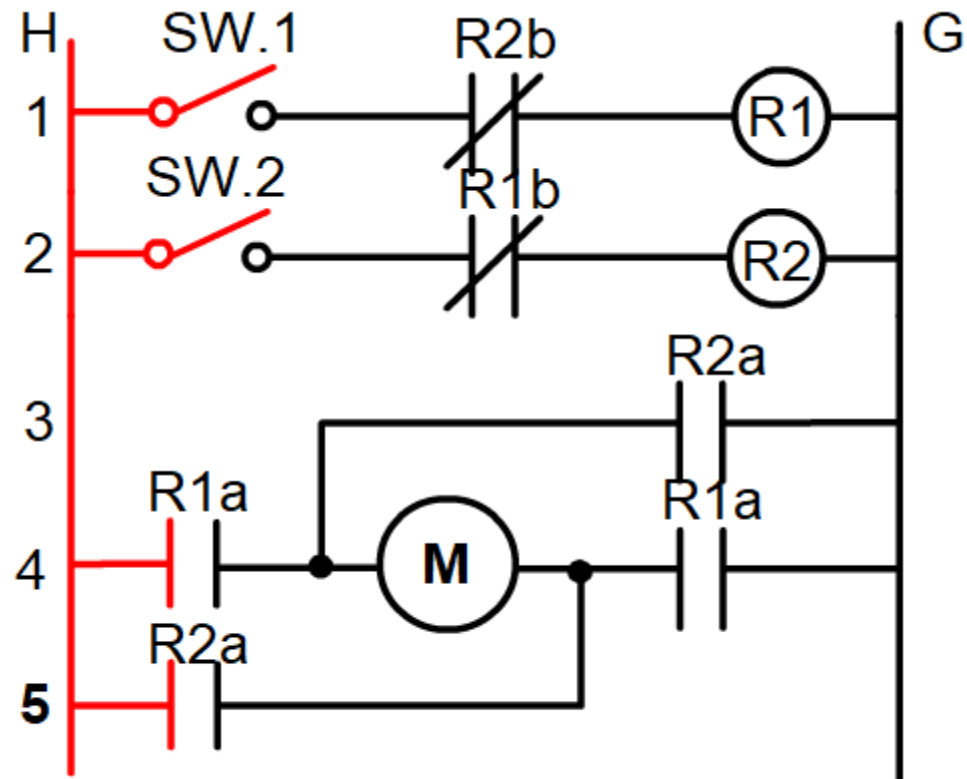
Memory circuit



Interlock circuit

## Motor Control-1

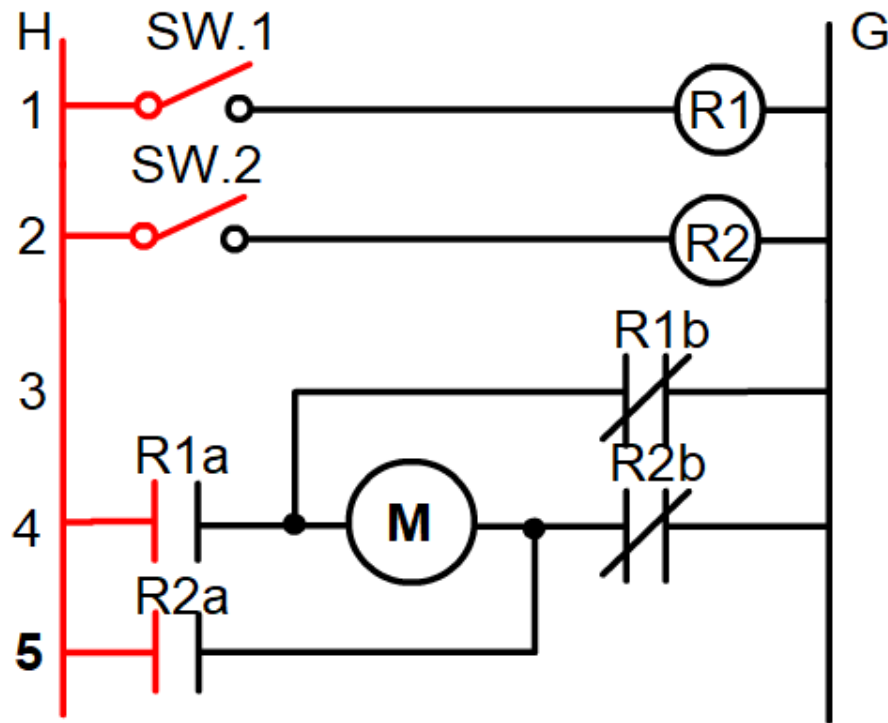
### Kontrol Motor-1



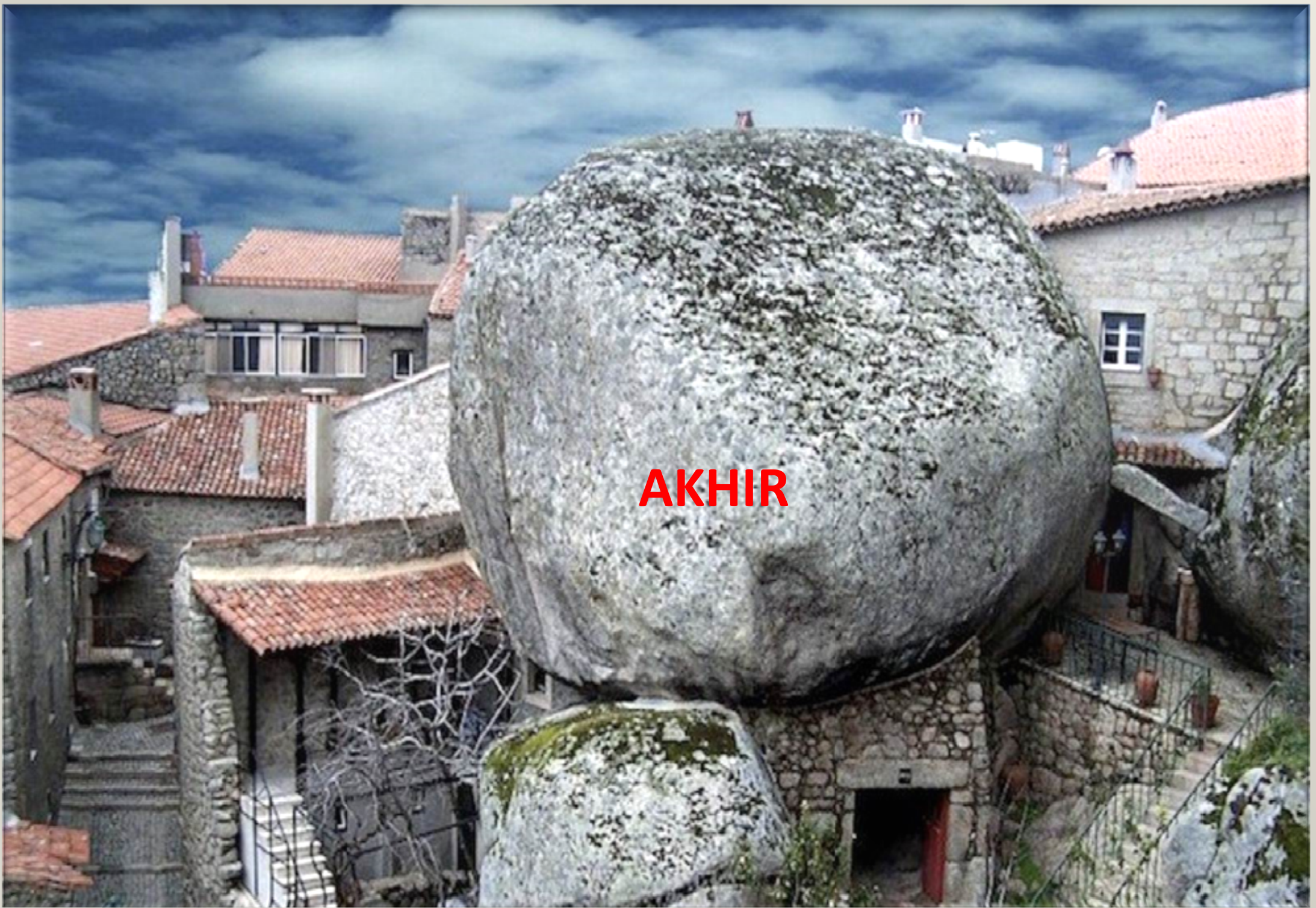
DC Motor Control circuit-1

## Motor Control-2

### Kontrol Motor-2



**DC Motor Control circuit-2**  
**(Output interlock)**



**AKHIR**