



ENDÜSTRİYEL OTOMASYON

ÖRNEKLER



UĞUR SEİM OKUL

08 NİSAN 2025

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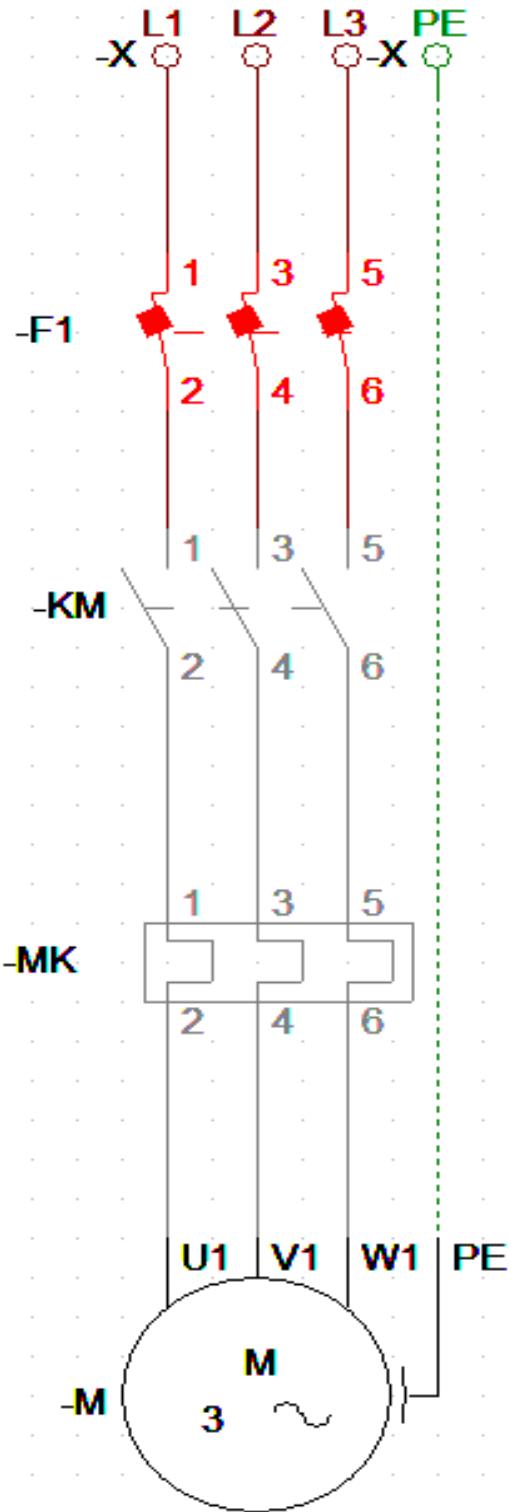
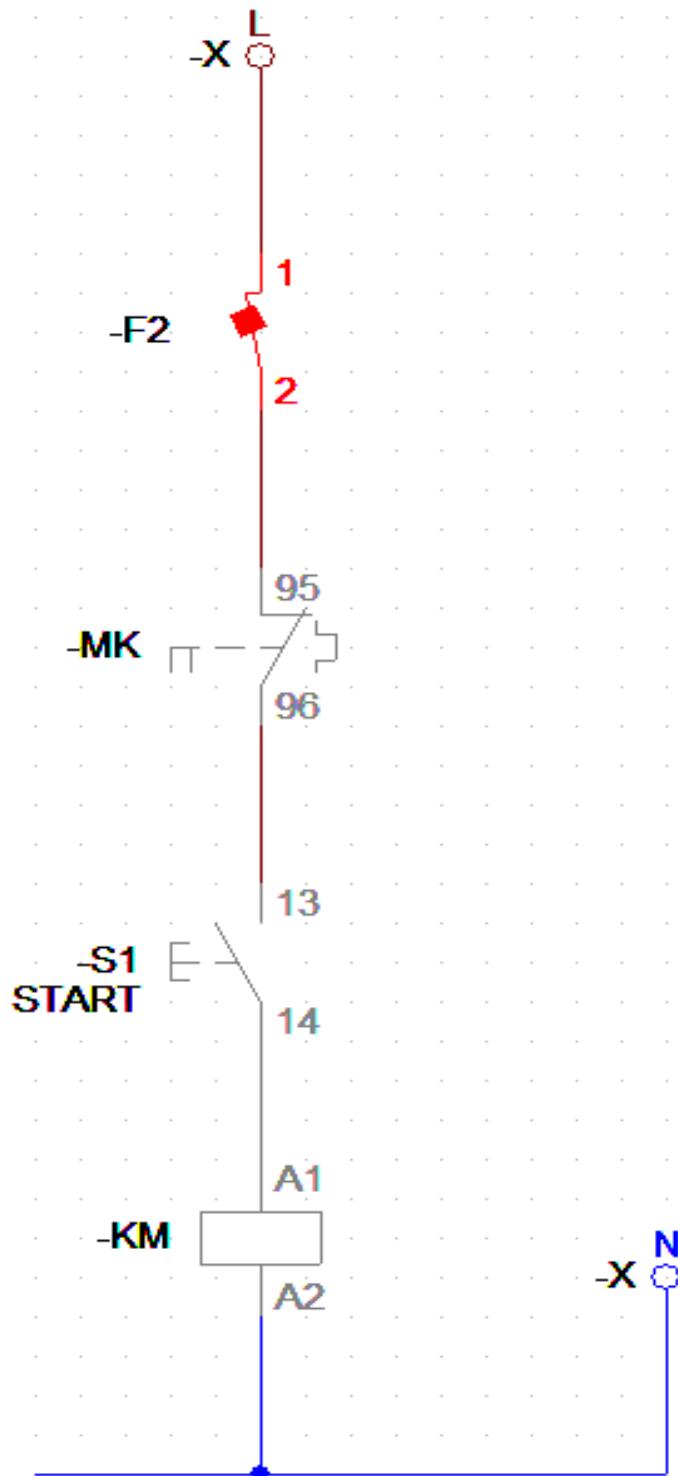
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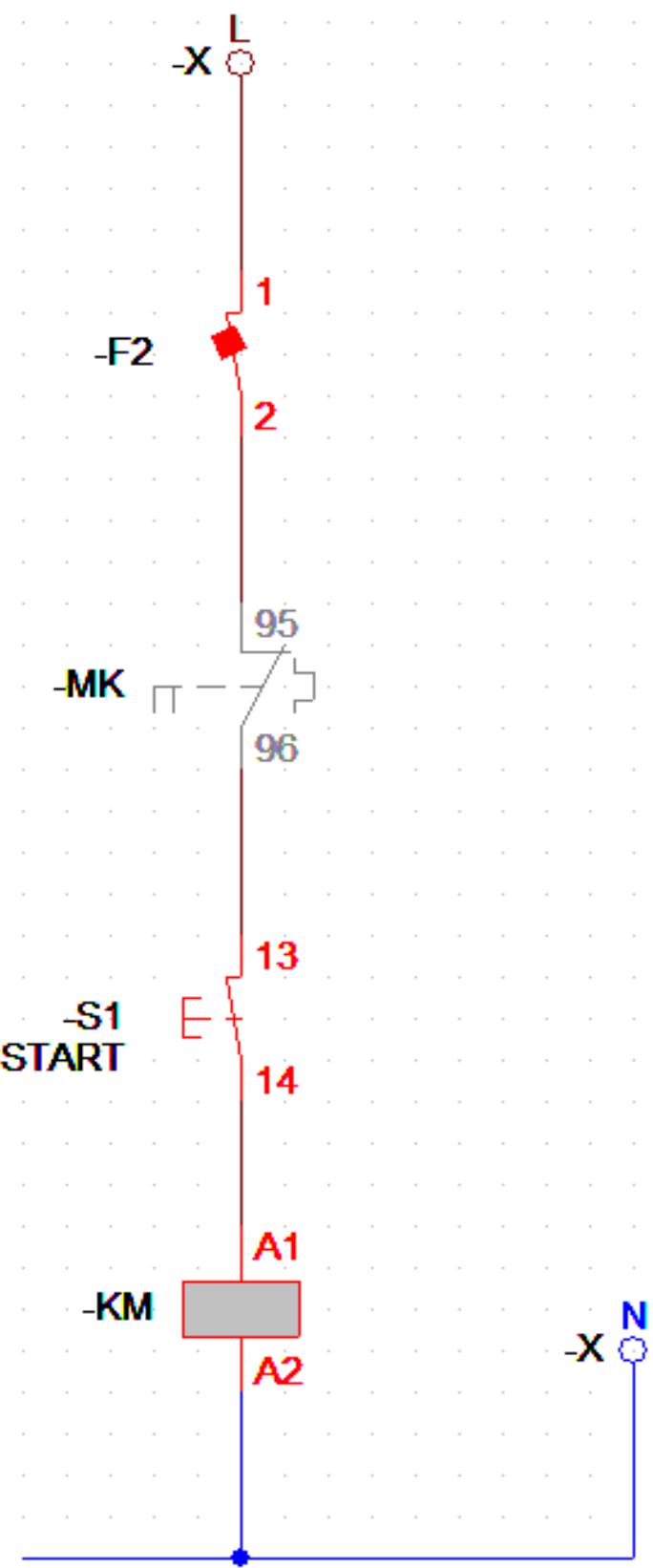
ÖRNEK 1

Kesik çalışma devresinin kumanda devresini ve güç devresini çiziniz.

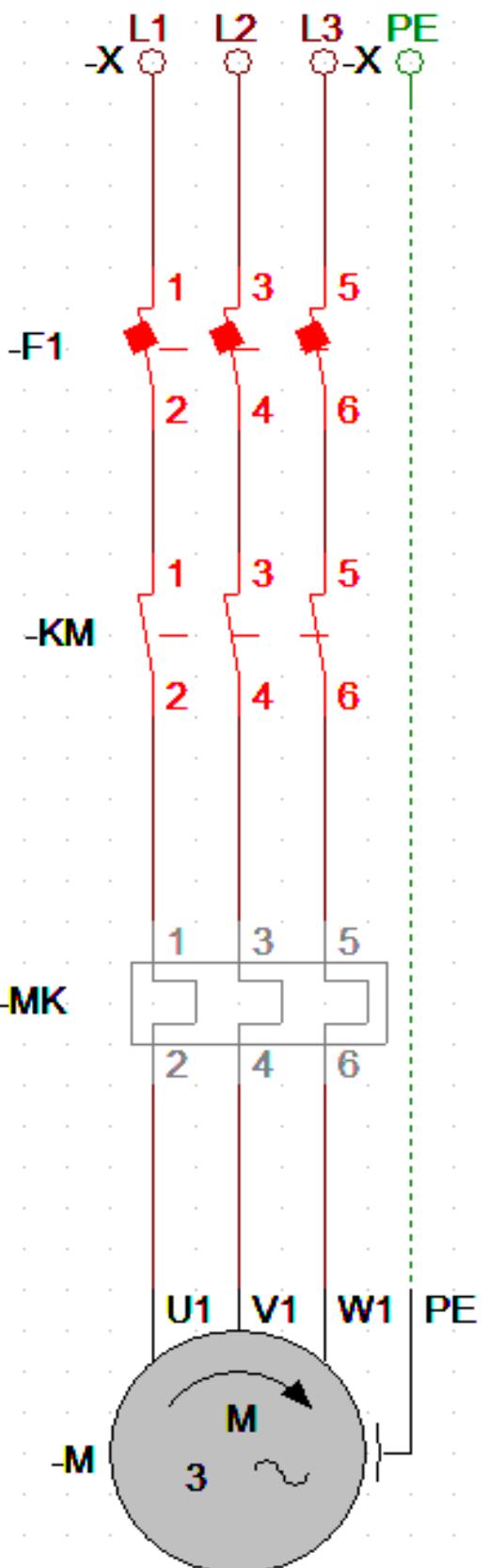
Start Butonu Pasif



Start Butonu Aktif



KUMANDA DEVRESİ

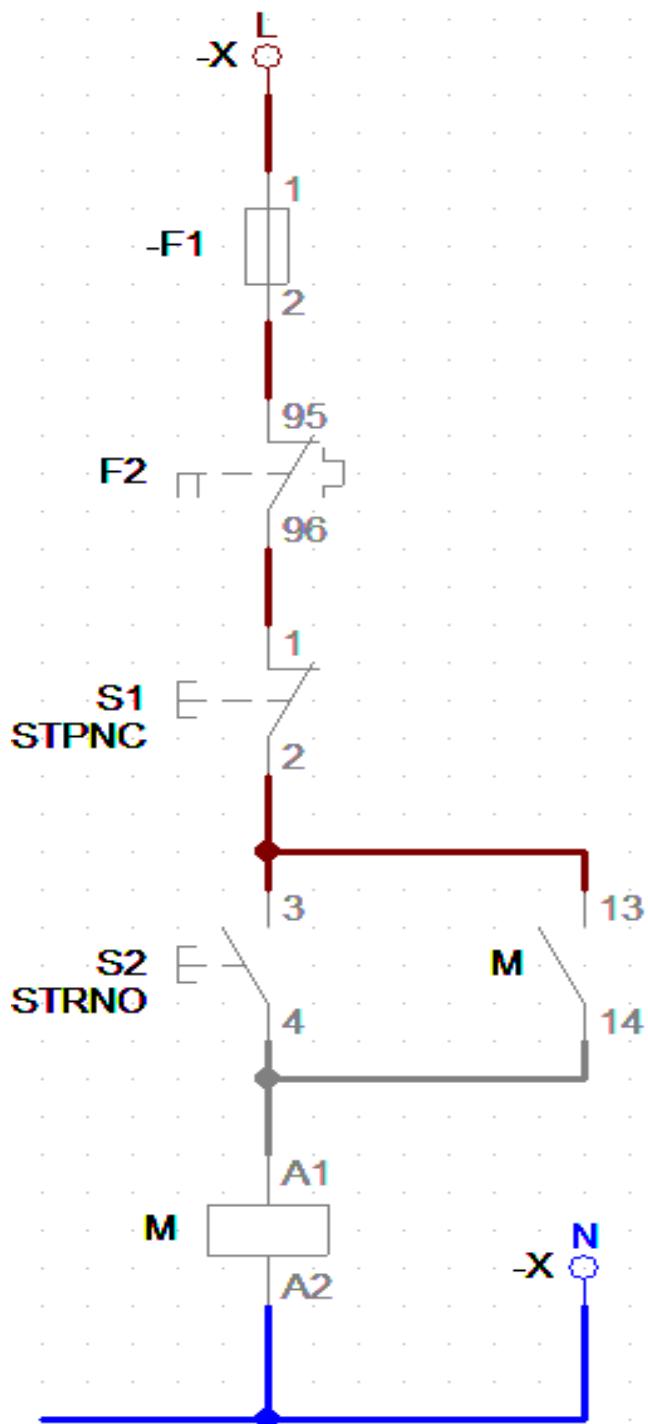


GÜÇ DEVRESİ

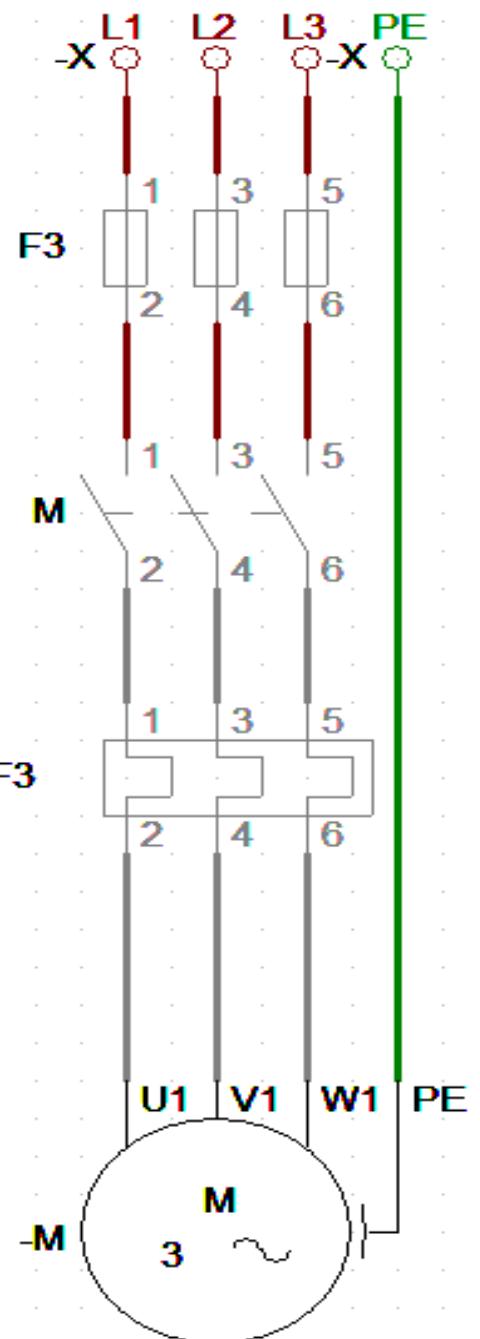
ÖRNEK 2

Sürekli çalışma devresinin kumanda devresini ve güç devresini çiziniz.

Start Butonu Pasif

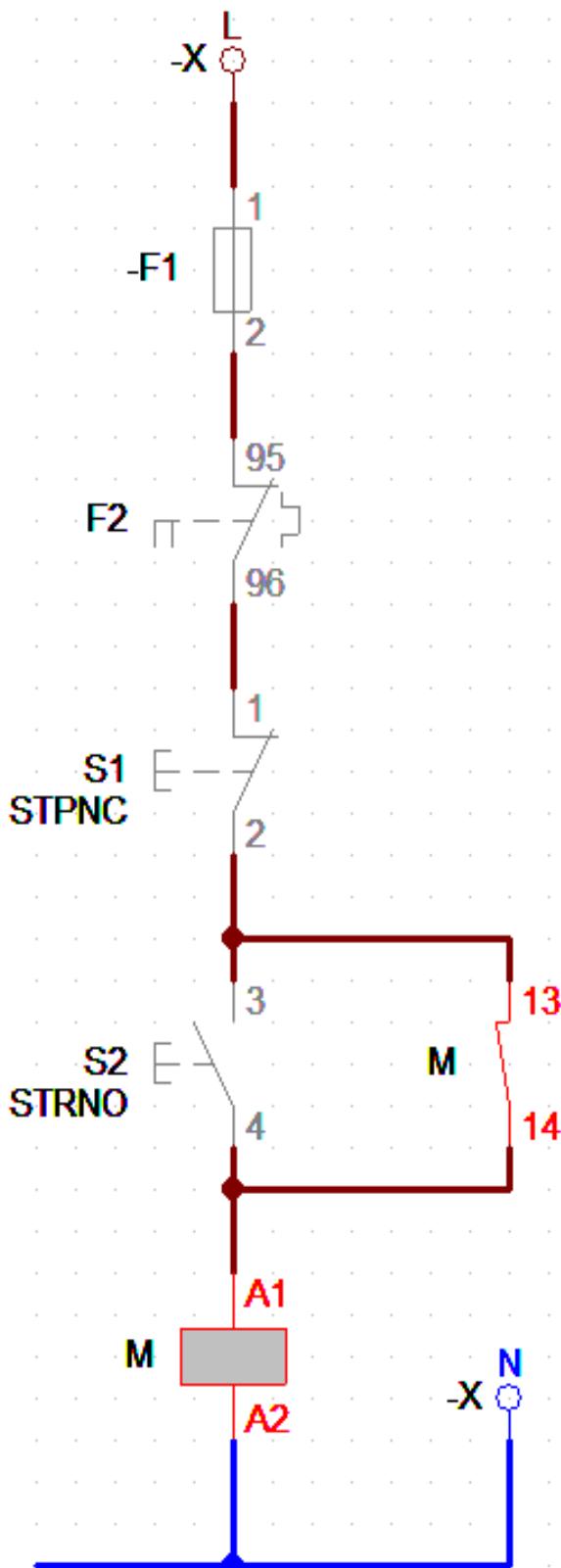


KUMANDA DEVRESİ

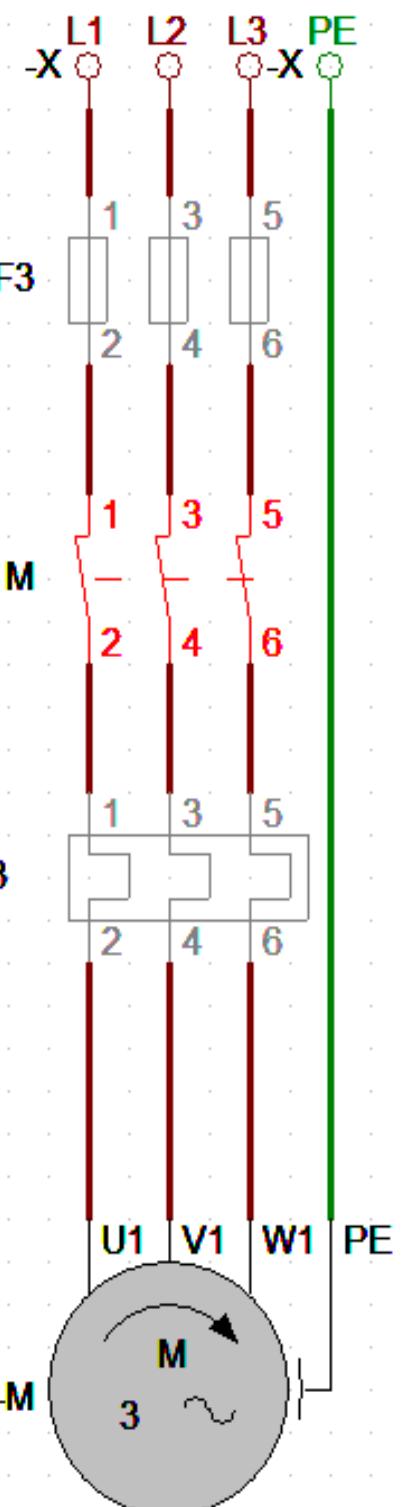


GÜÇ DEVRESİ

Start Butonu Akış



KUMANDA DEVRESİ

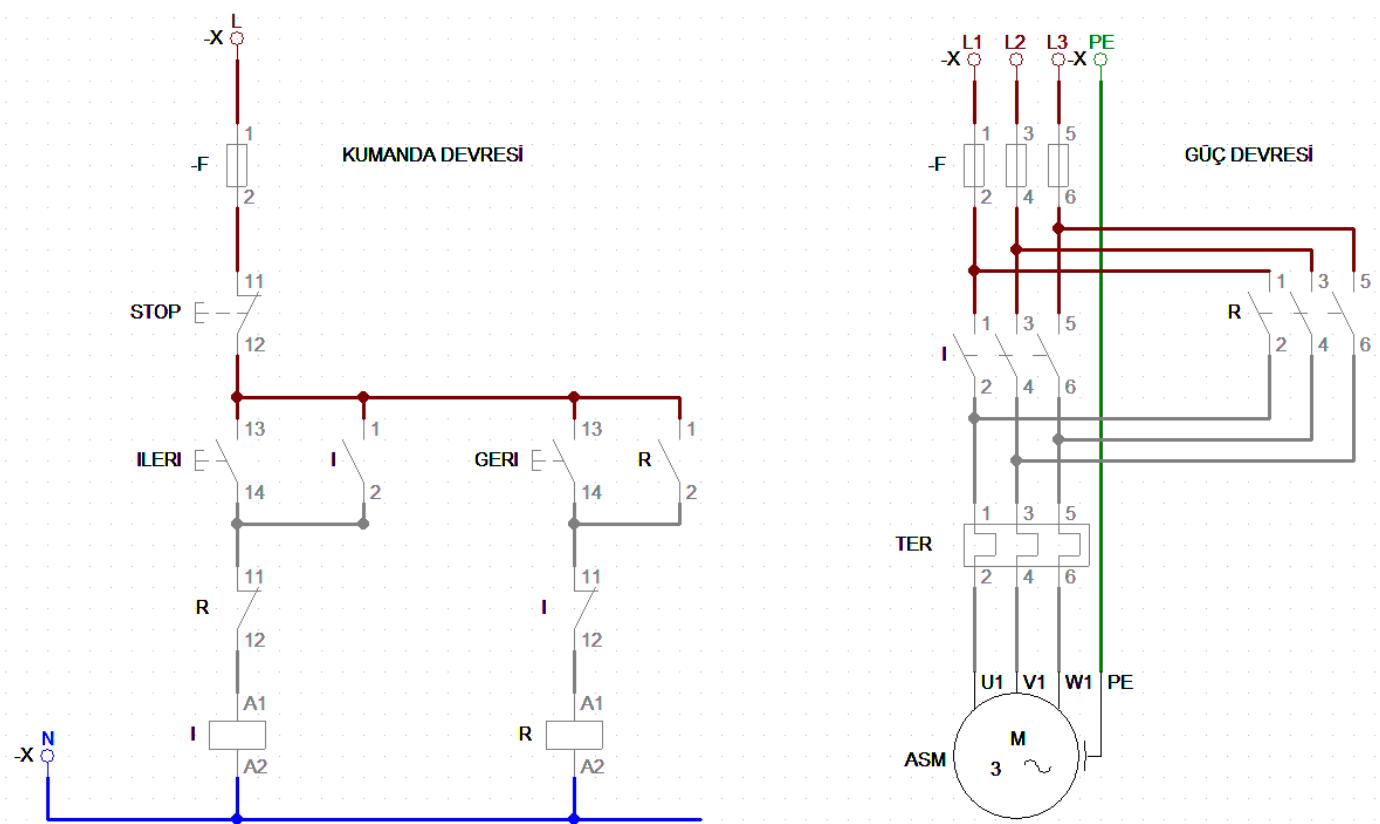


GÜÇ DEVRESİ

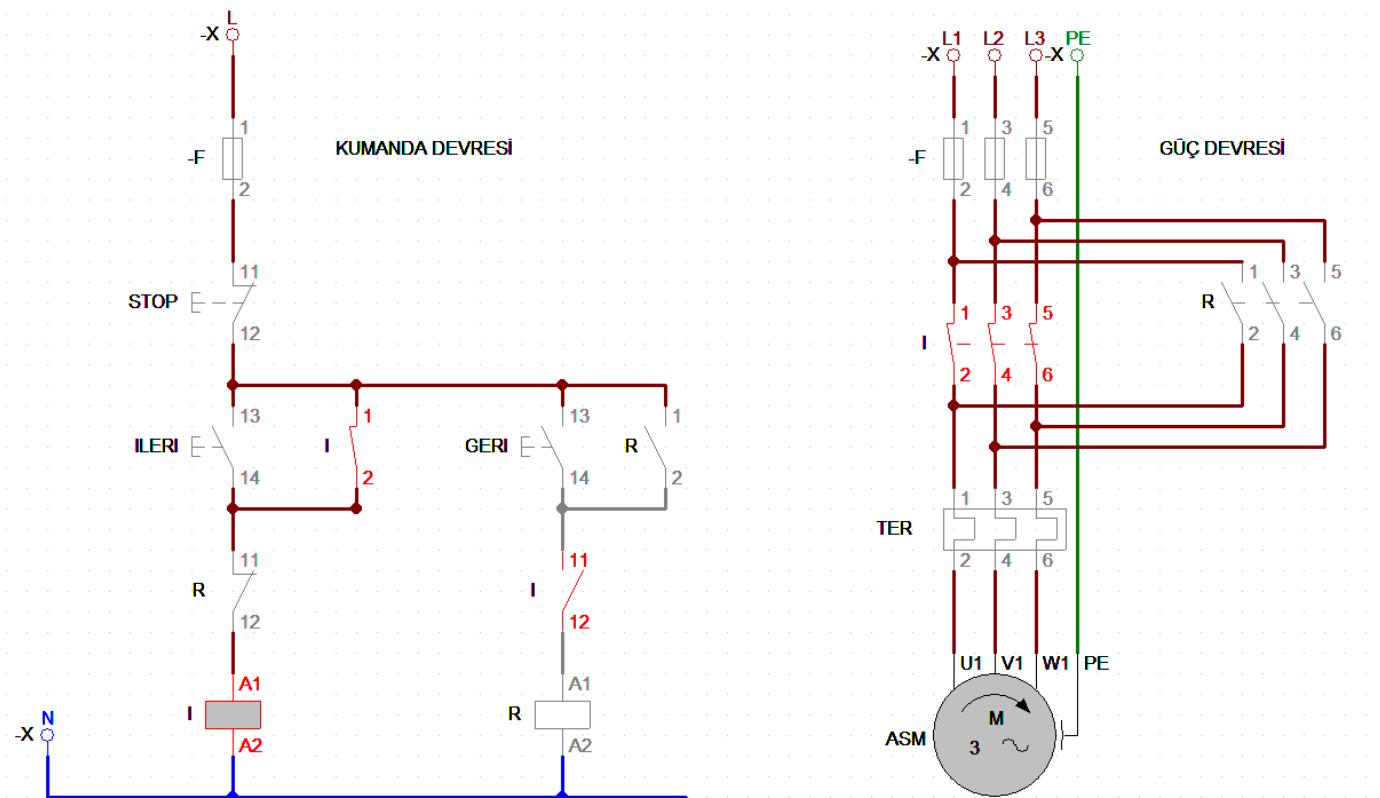
ÖRNEK 3

İleri - Geri çalışma devresinin kumanda devresini ve güç devresinin çiziniz.

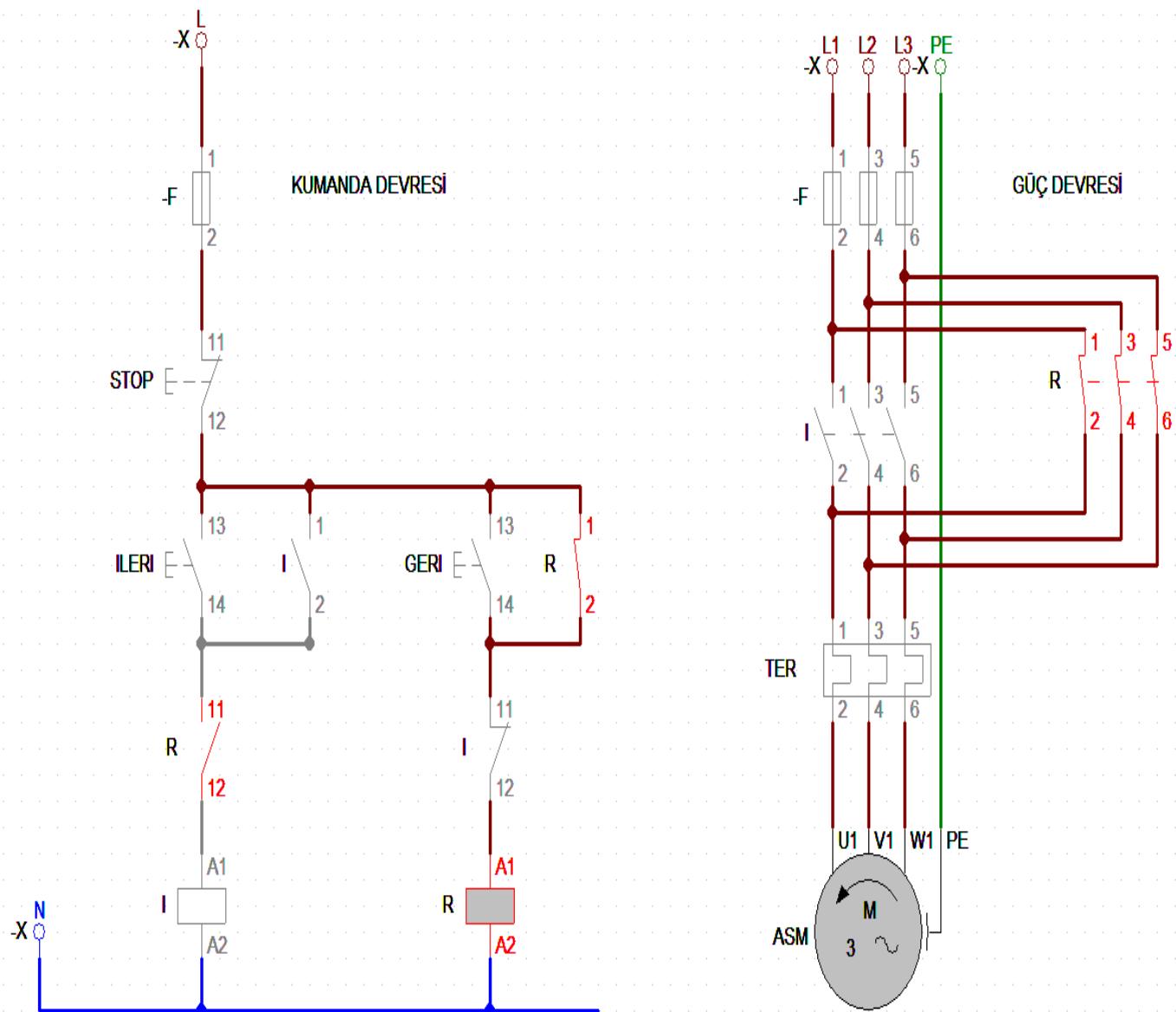
Stop Durumu



İleri Çalışma Aktif



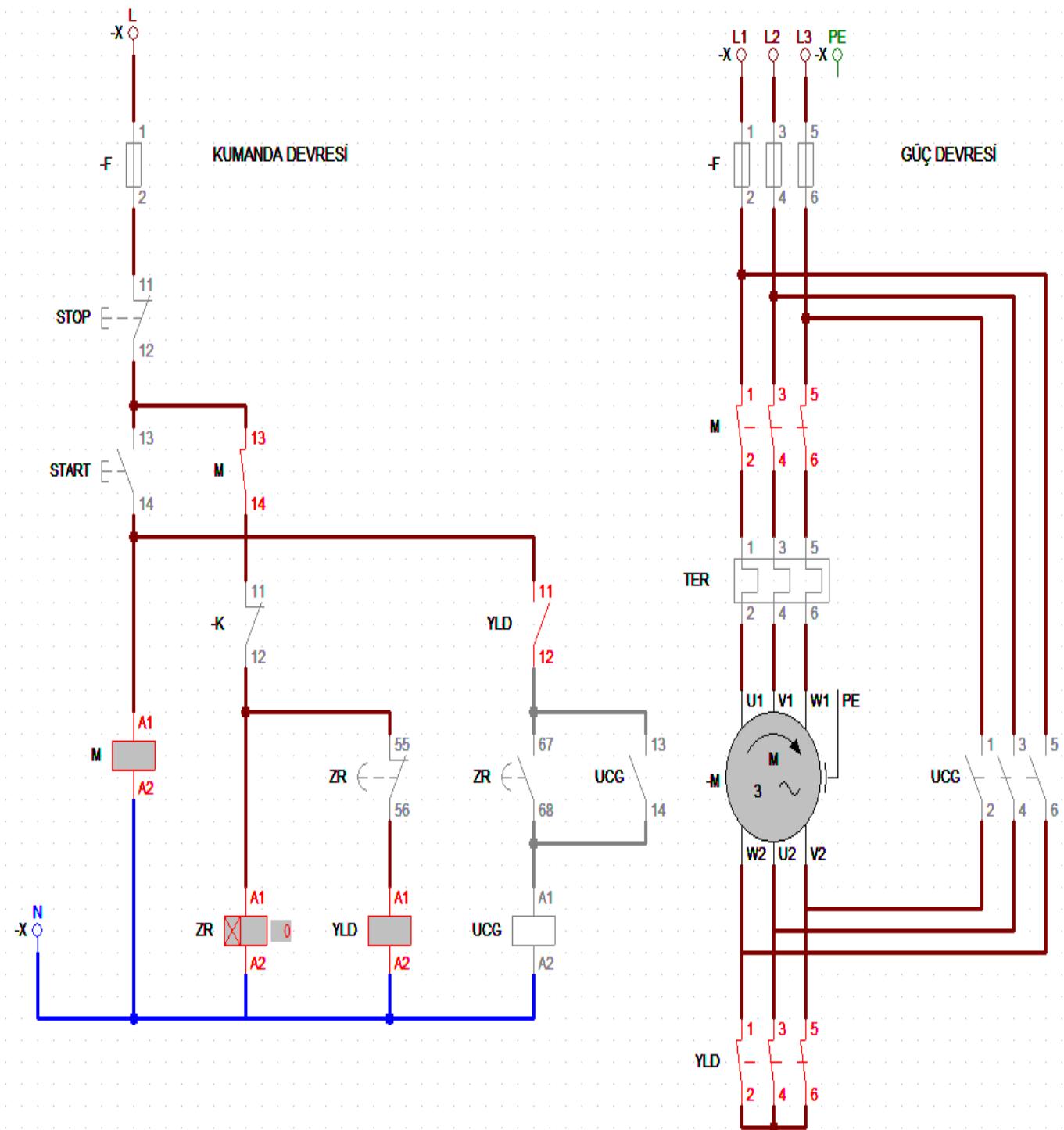
Geri Çalışma Aktif



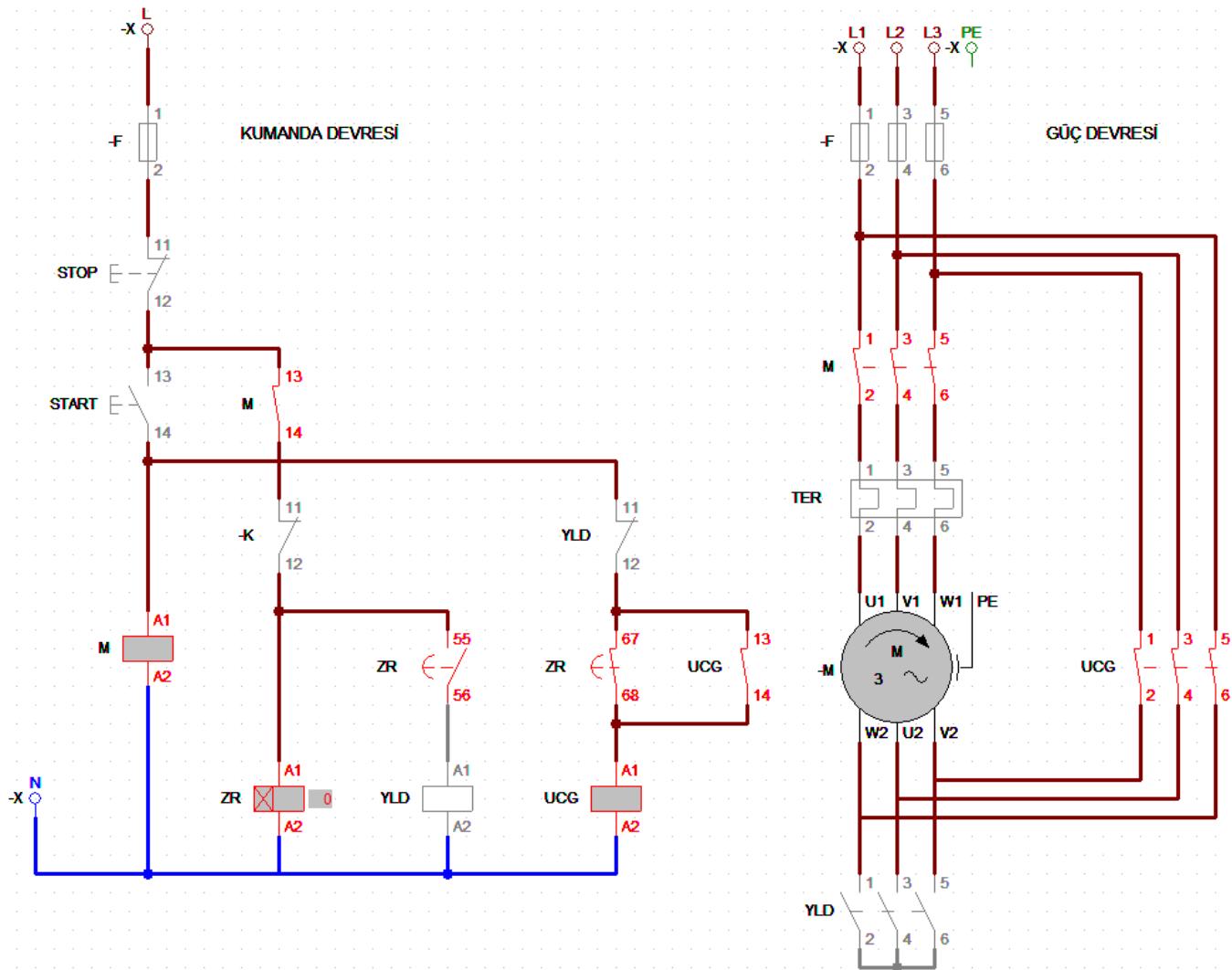
ÖRNEK 4

Yıldız – Üçgen yol verme devresinin kumanda devresini ve güç devresini çiziniz.

Yıldız Çalışma



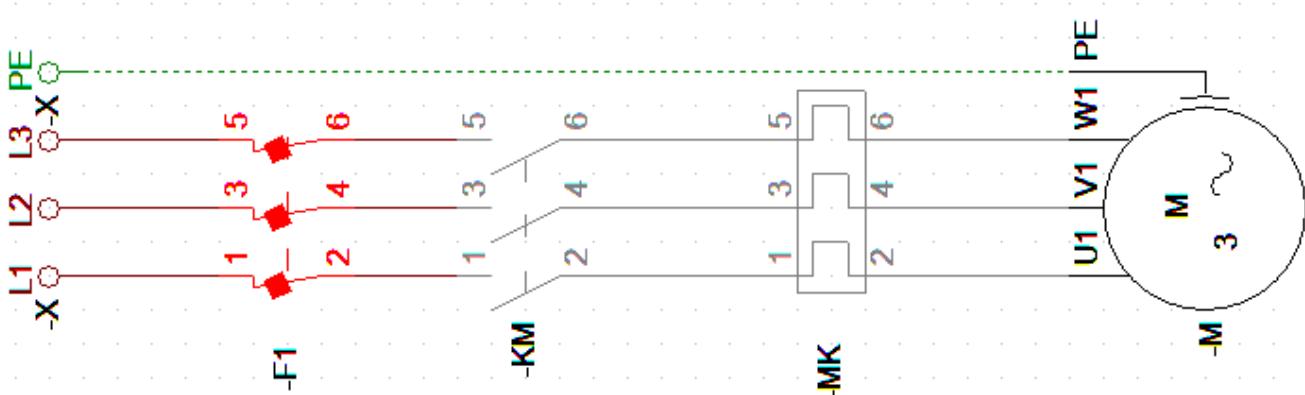
Üçgen Çalışma



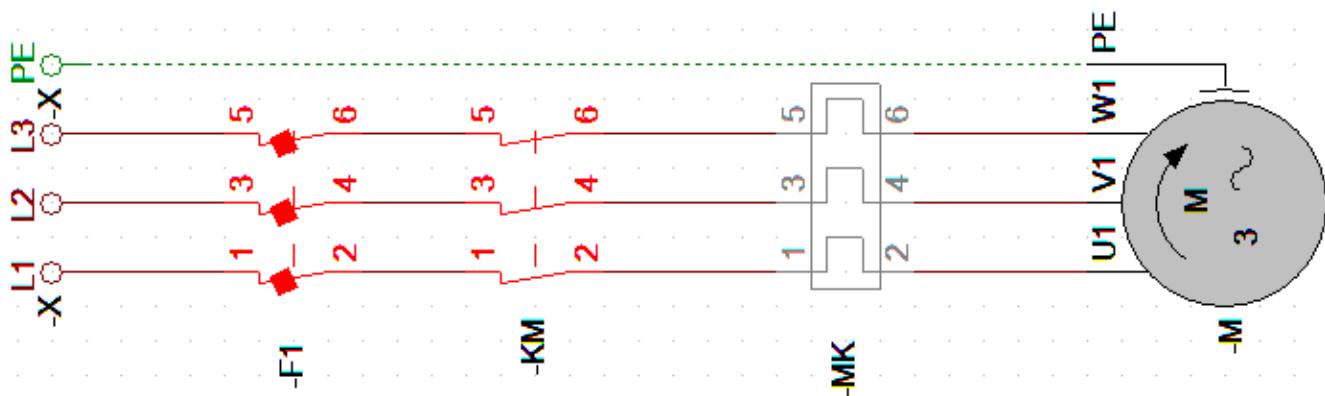
ÖRNEK 5

Kesik çalışma devresinin PLC çizimini ve güç devresini çiziniz.

Güç Devresi (Start Butonu Pasif)



Güç Devresi (Start Butonu Aktif)



PLC Çizimi (Start Butonu Pasif)



Şekil 1. Start Pasif

PLC Çizimi (Start Butonu Aktif)

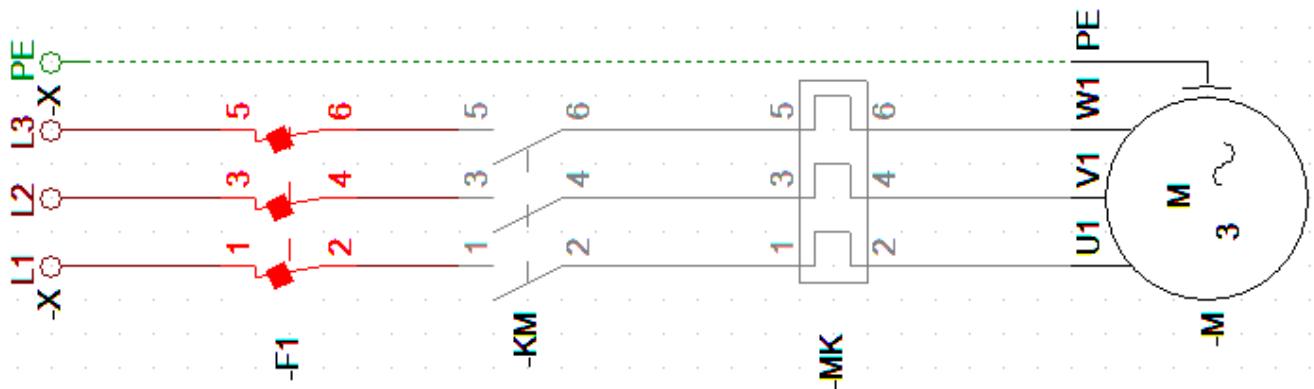


Şekil 2. Start Aktif

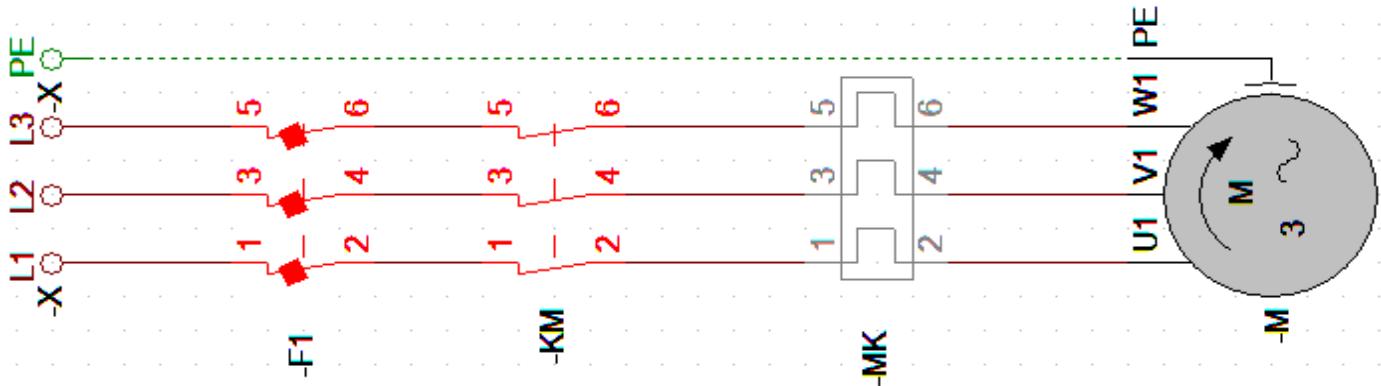
ÖRNEK 6

Sürekli çalışma devresinin PLC çizimini ve güç devresini çiziniz.

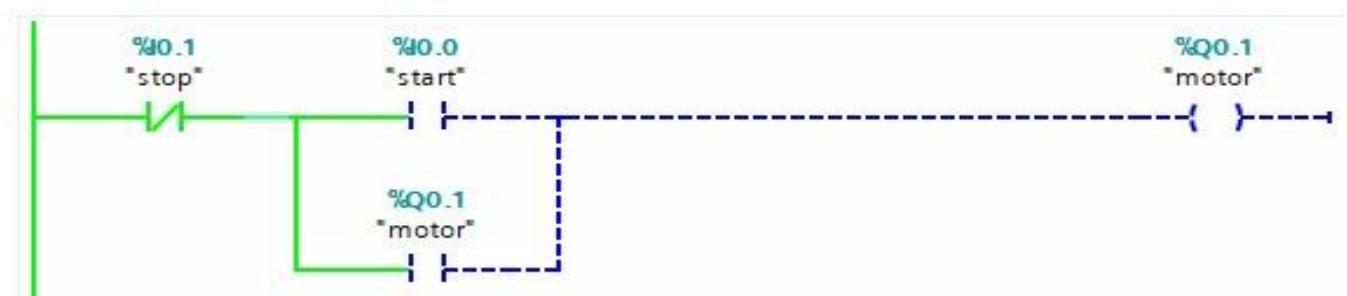
Güç Devresi (Start Butonu Pasif)



Güç Devresi (Start Butonu Aktif)

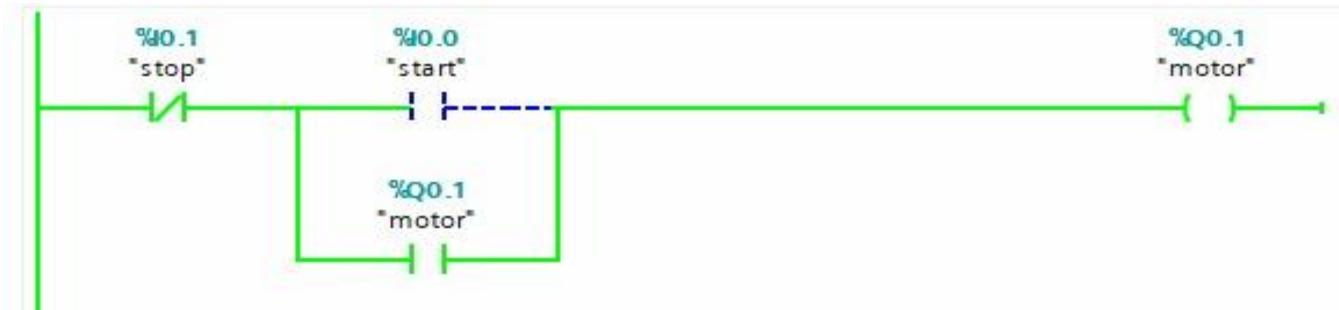


PLC Çizimi (Start Butonu Pasif)



Şekil 3. Start Pasif

PLC Çizimi (Start Butonu Aktif)

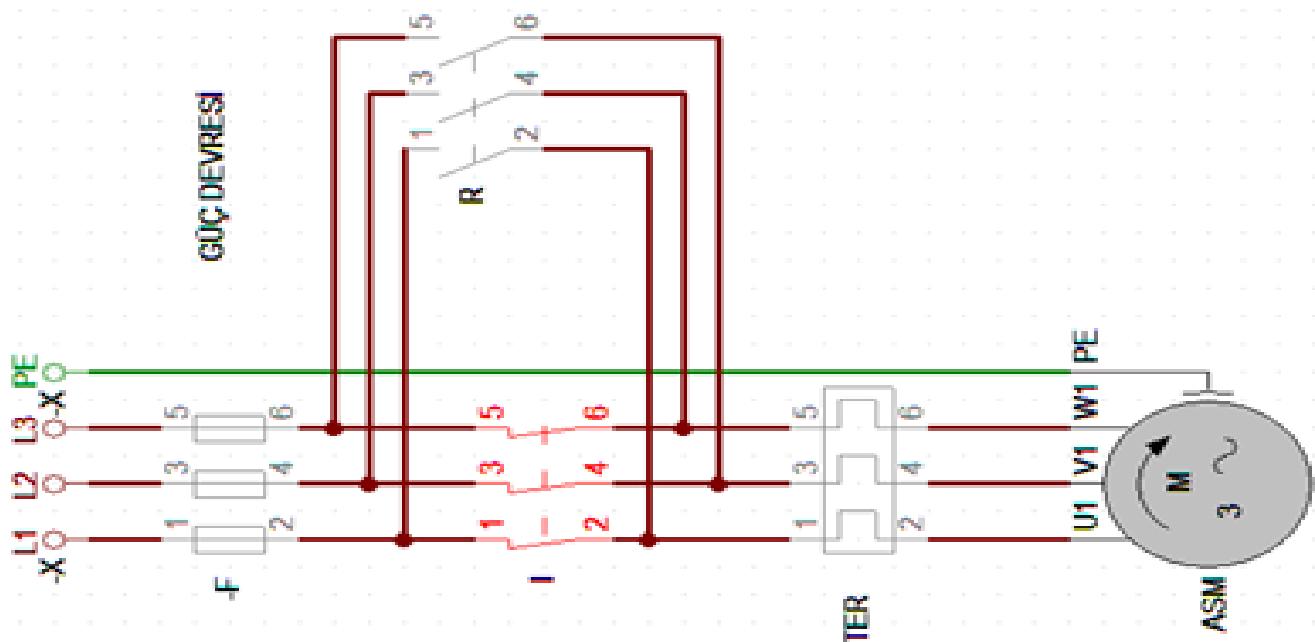


Şekil 4. Start Aktif

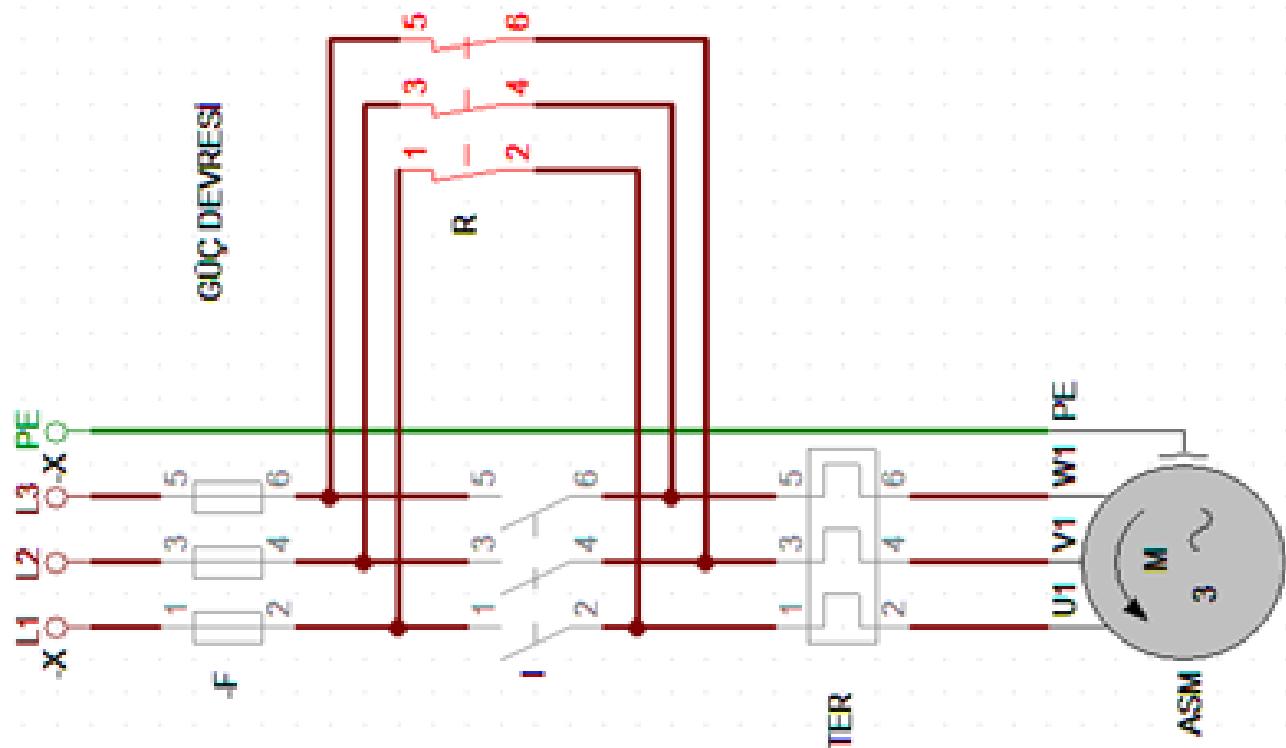
ÖRNEK 7

İleri - Geri çalışma devresinin PLC çizimini ve güç devresinin çizinizi.

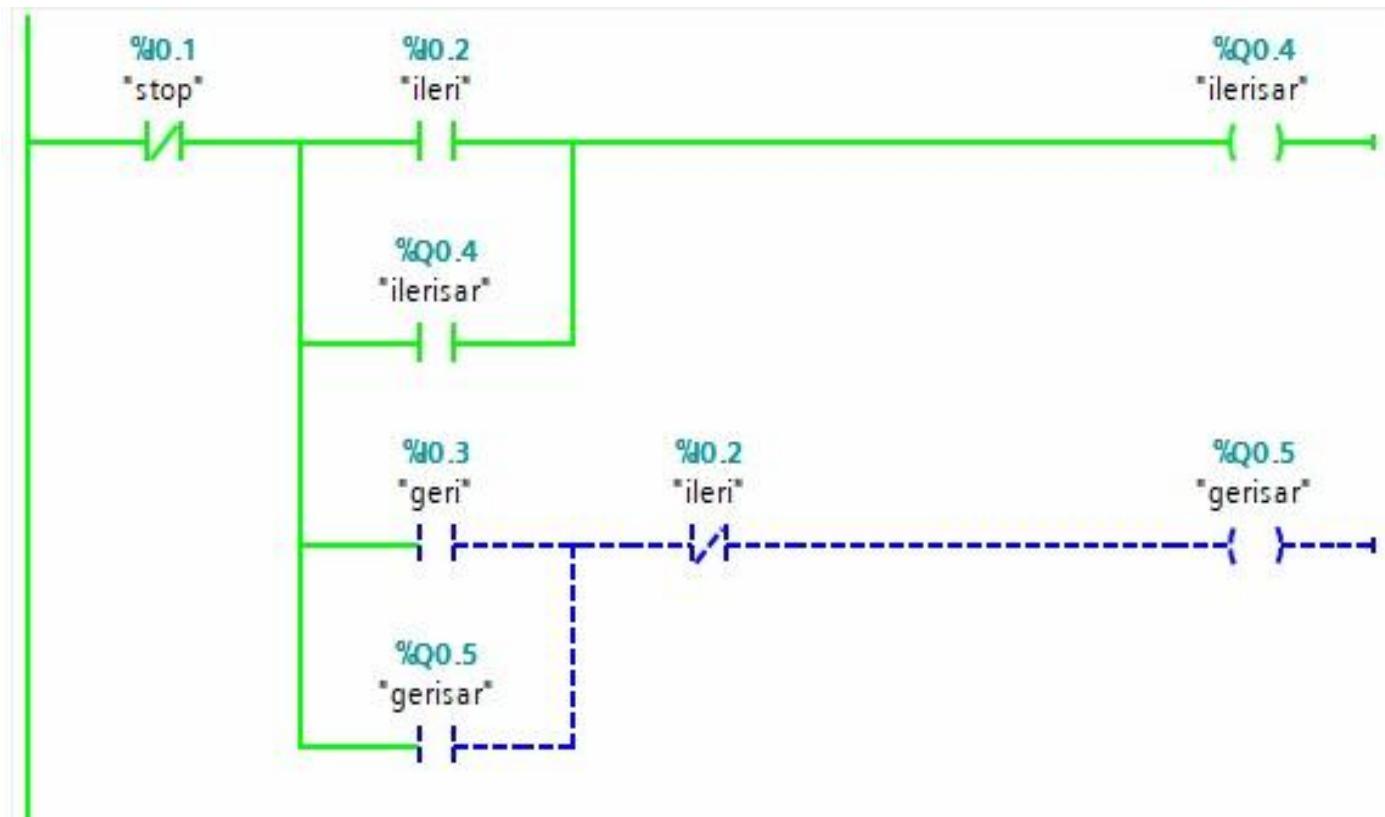
Güç Devresi (İleri Çalışma Aktif)



Güç Devresi (Geri Çalışma Aktif)

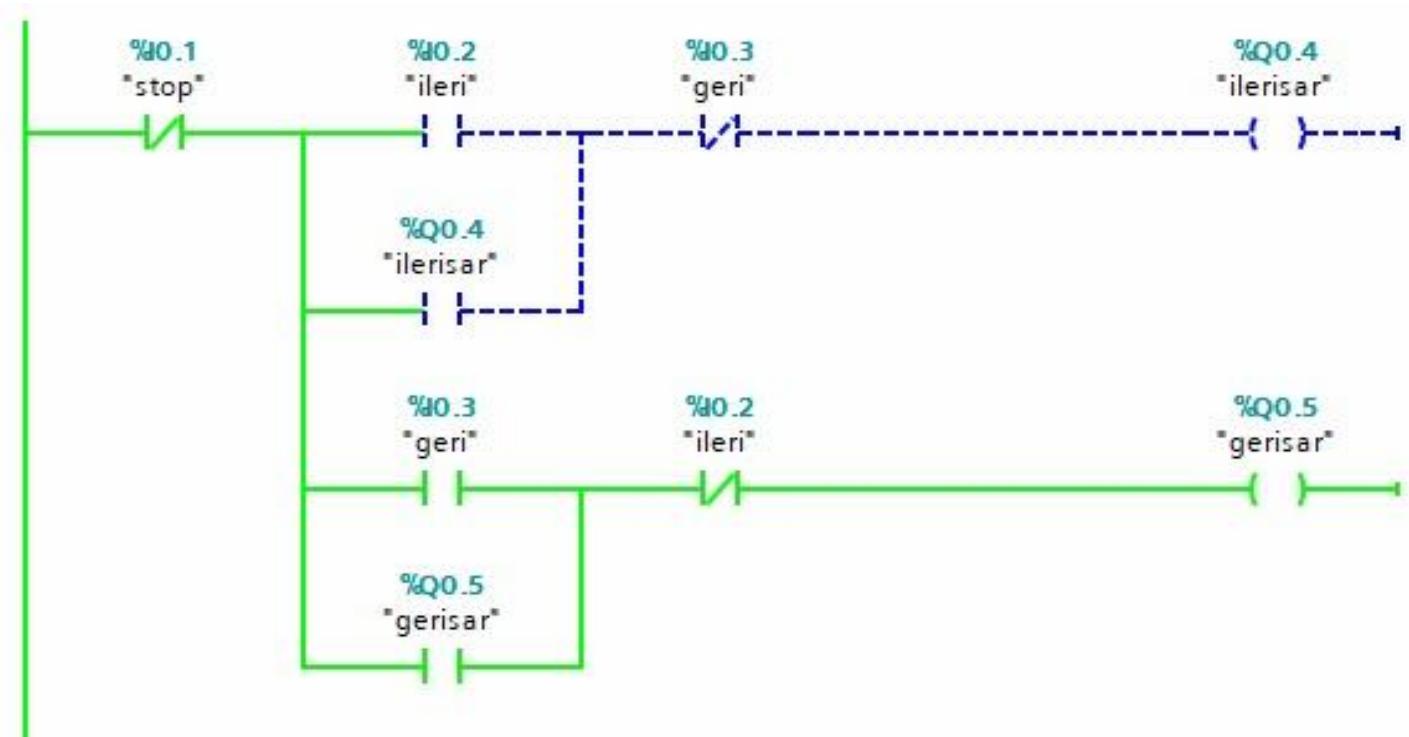


PLC Çizimi (İleri Çalışma)



Şekil 5. İleri Çalışma

PLC Çizimi (Geri Çalışma)

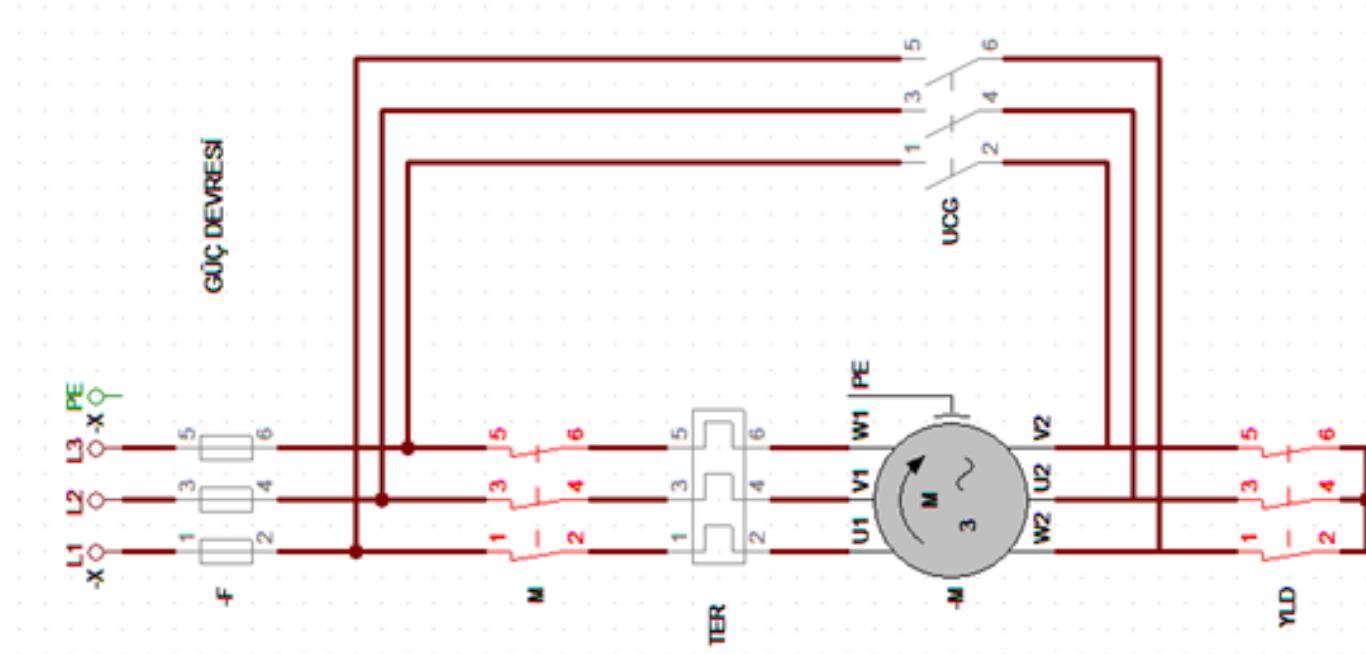


Şekil 6. Geri Çalışma

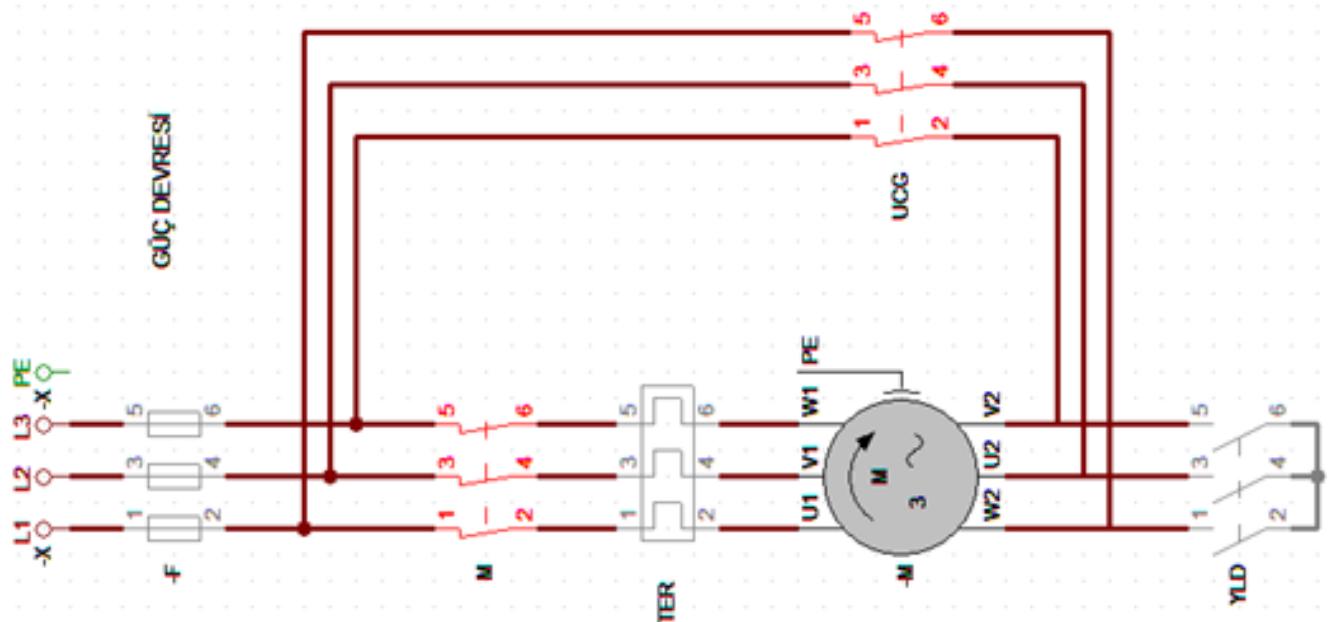
ÖRNEK 8

Yıldız – Üçgen yol verme devresinin PLC çizimini ve güç devresini çiziniz.

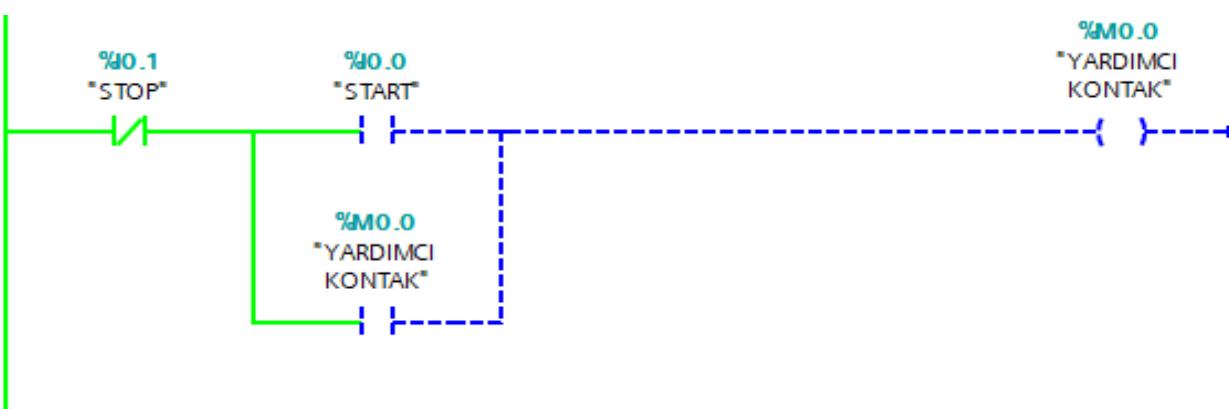
Güç Devresi (Yıldız Çalışma)



Güç Devresi (Üçgen Çalışma)



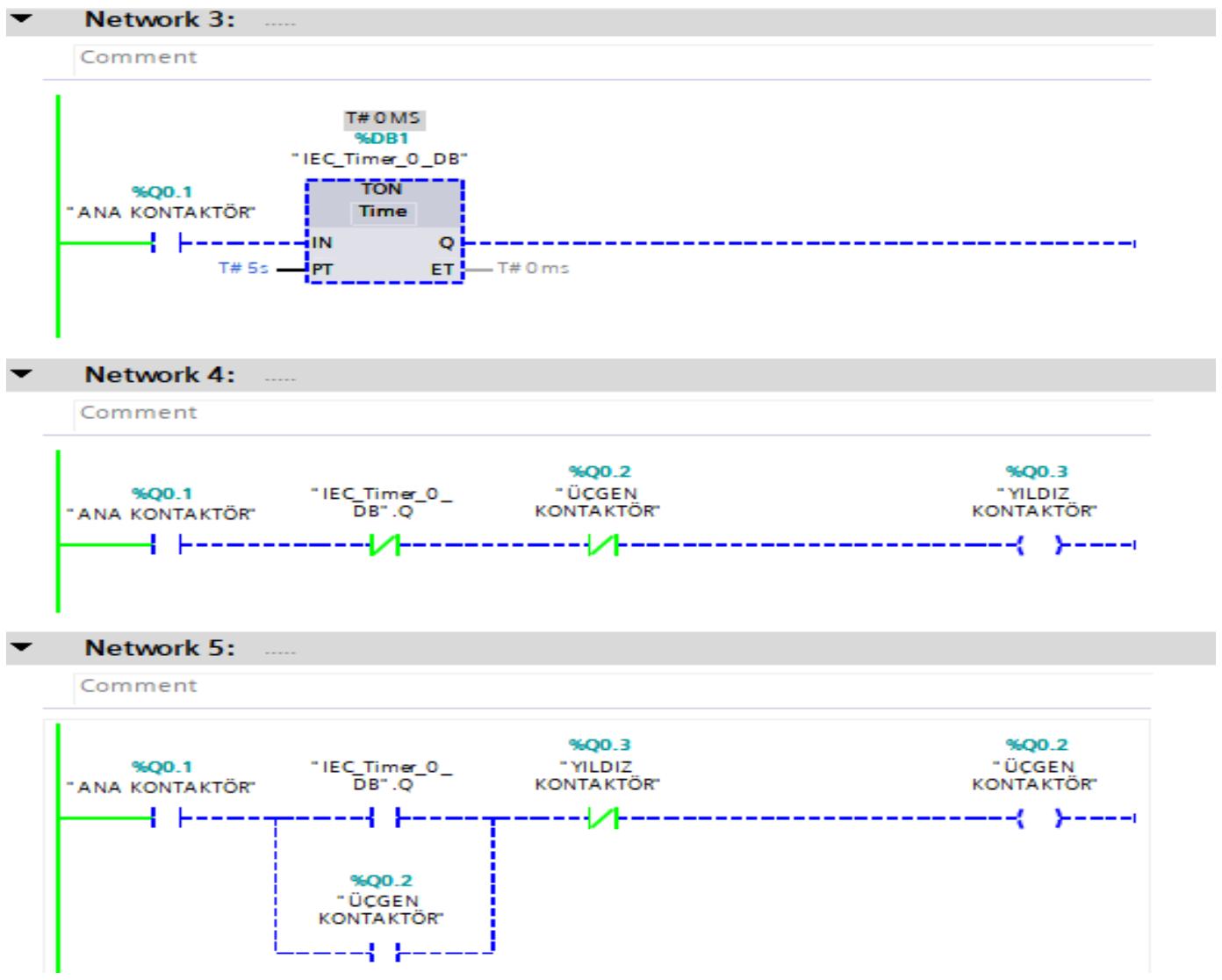
PLC Çizimi (Start Butonu Pasif)



Network 2:

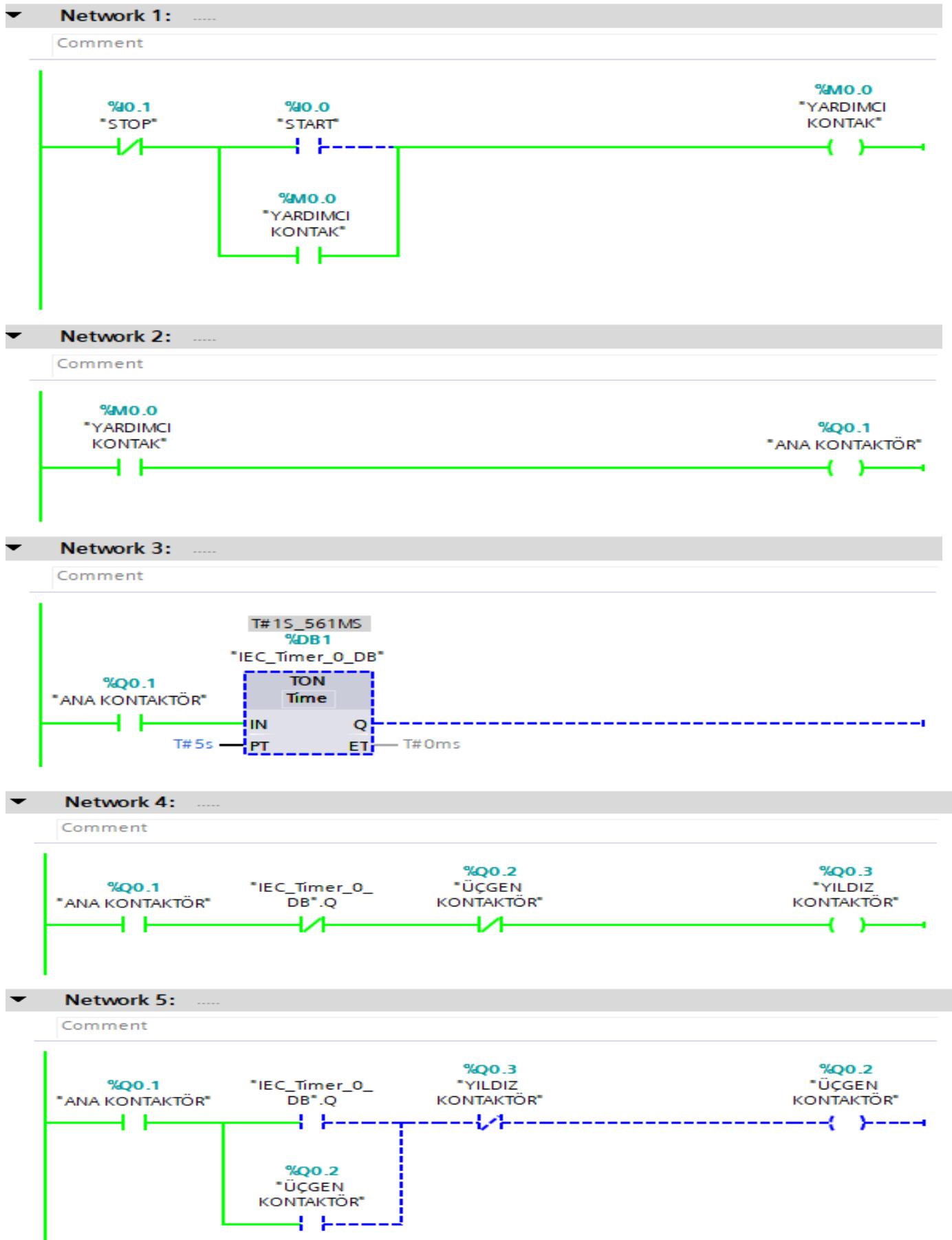
Comment





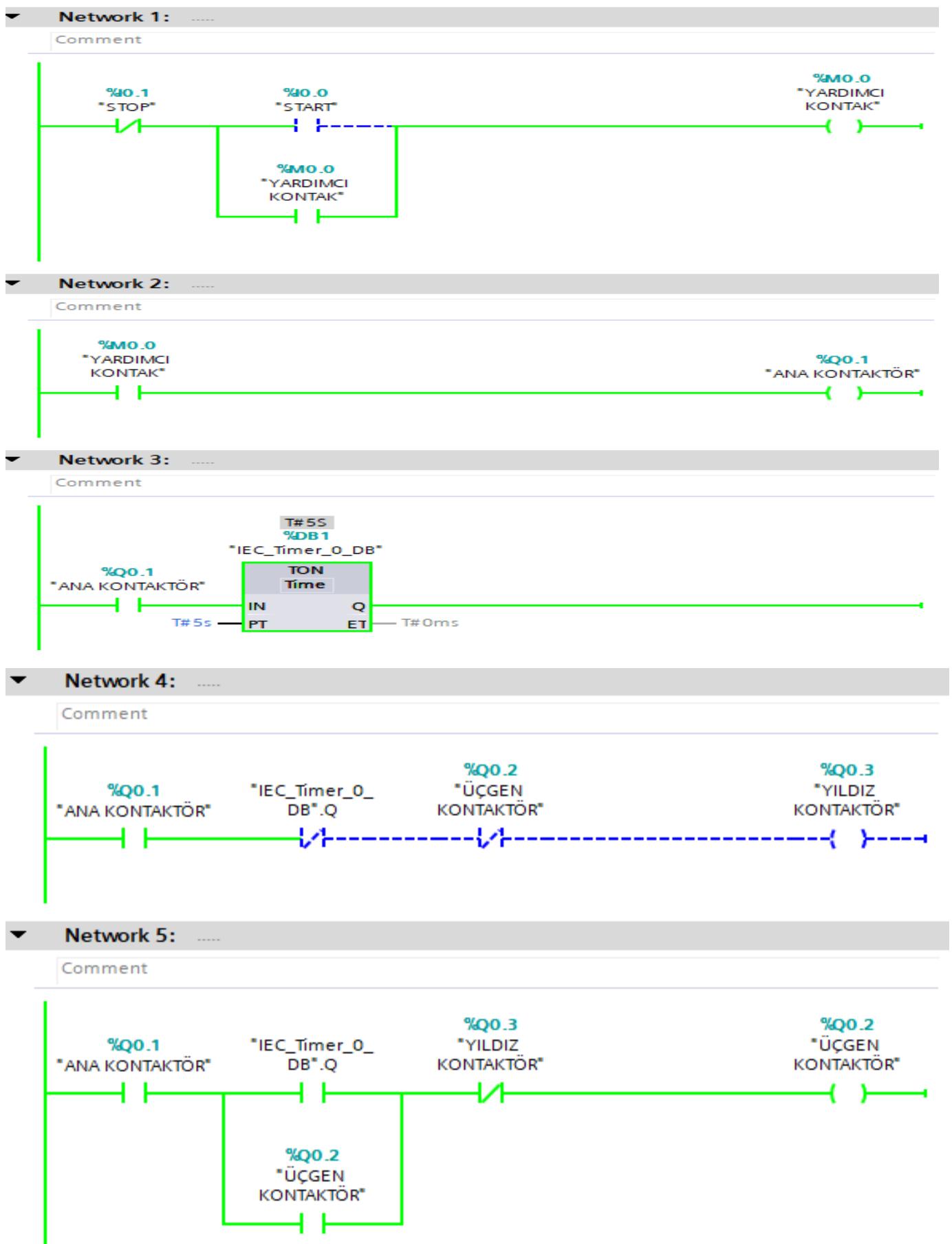
Şekil 7. Sistem (Start Pasif)

PLC Çizimi (Yıldız Çalışma)



Şekil 8. Sistem (Yıldız Çalışma)

PLC Çizimi (Üçgen Çalışma)



Şekil 9. Sistem (Üçgen Çalışma)

ÖRNEK 9

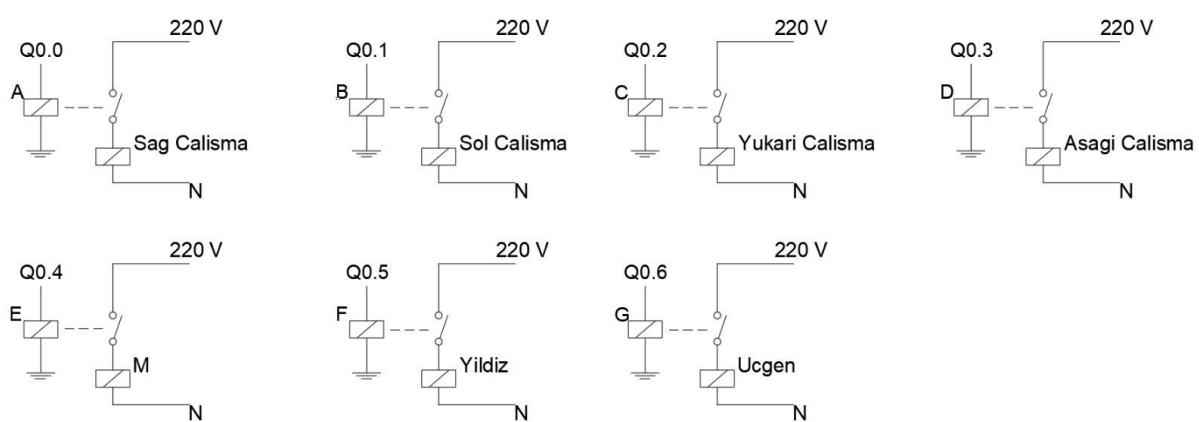
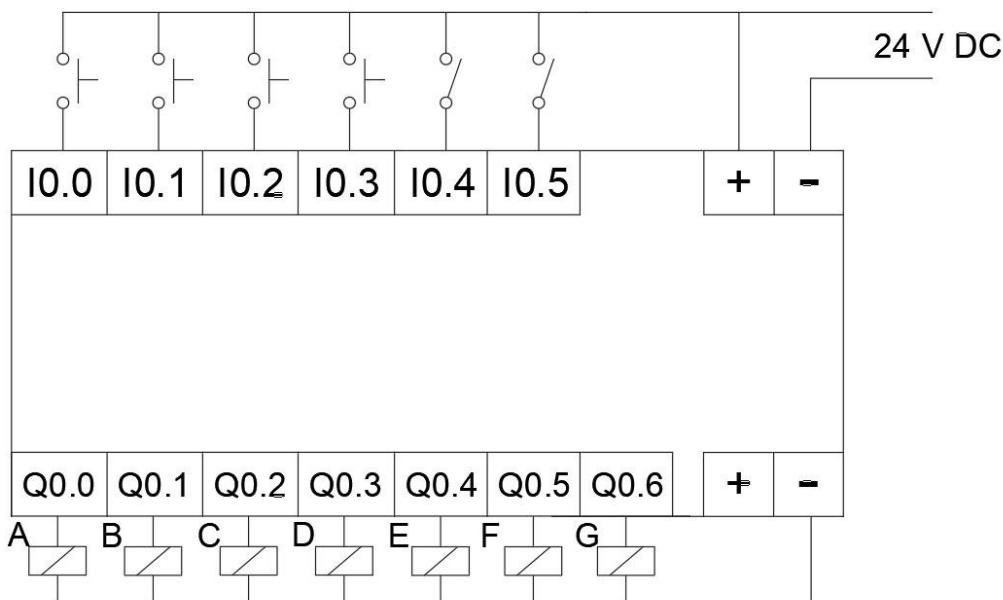
Vinç Kumandasının PLC çizimini ve güç devresini çiziniz.

Giriş – Çıkış

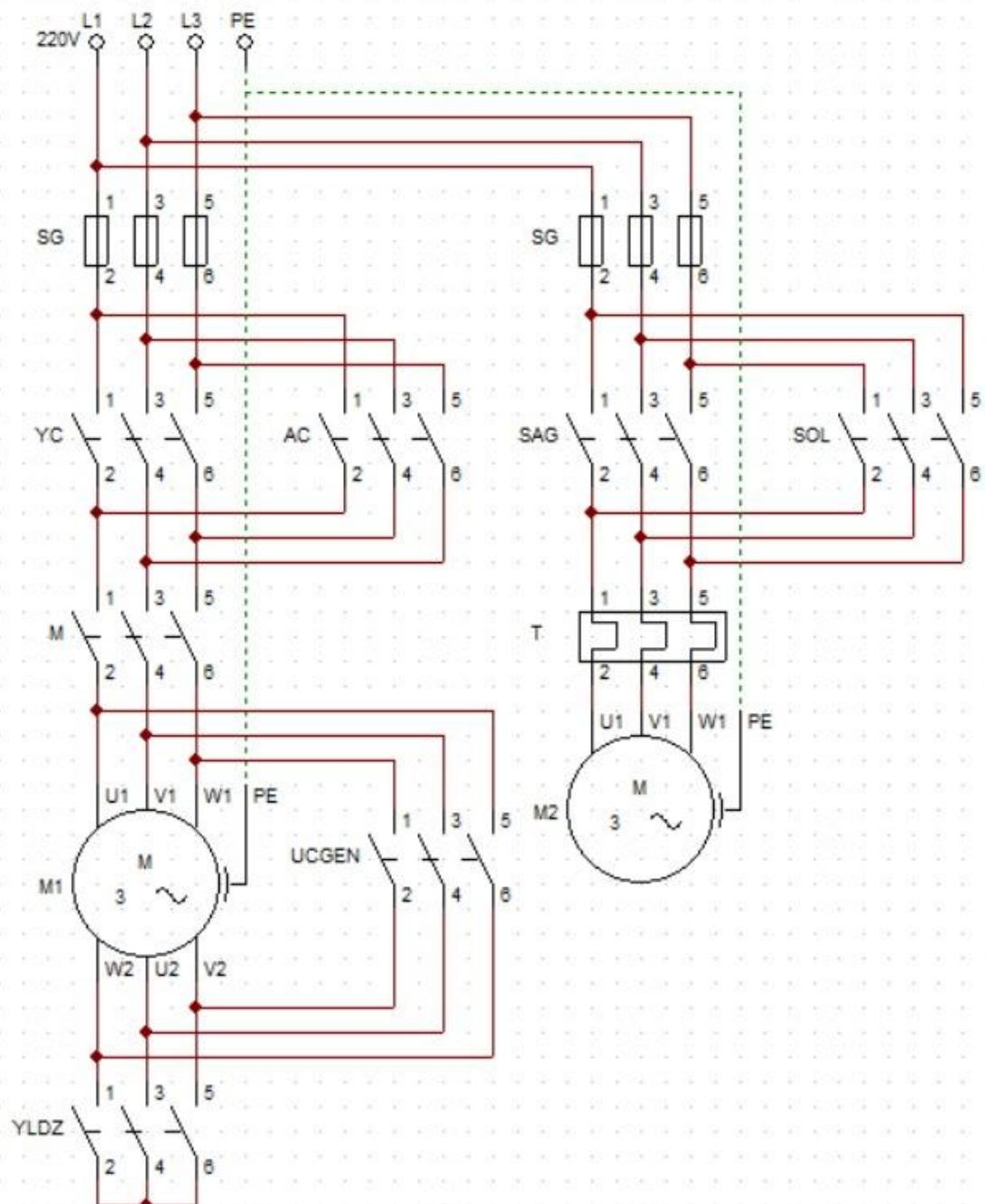
GİRİŞLER (6 GİRİŞ)	
SAĞ KONTROL	I0.0
SOL KONTROL	I0.1
YUKARI KONTROL	I0.2
AŞAĞI KONTROL	I0.3
SW 1	I0.5
SW 2	I0.4

ÇIKIŞLAR (7 ÇIKIŞ)	
SAĞ ÇALIŞMA	Q0.0
SOL ÇALIŞMA	Q0.1
YUKARI ÇALIŞMA	Q0.2
AŞAĞI ÇALIŞMA	Q0.3
MOTOR YILDIZ	Q0.5
MOTOR ÜÇGEN	Q0.6

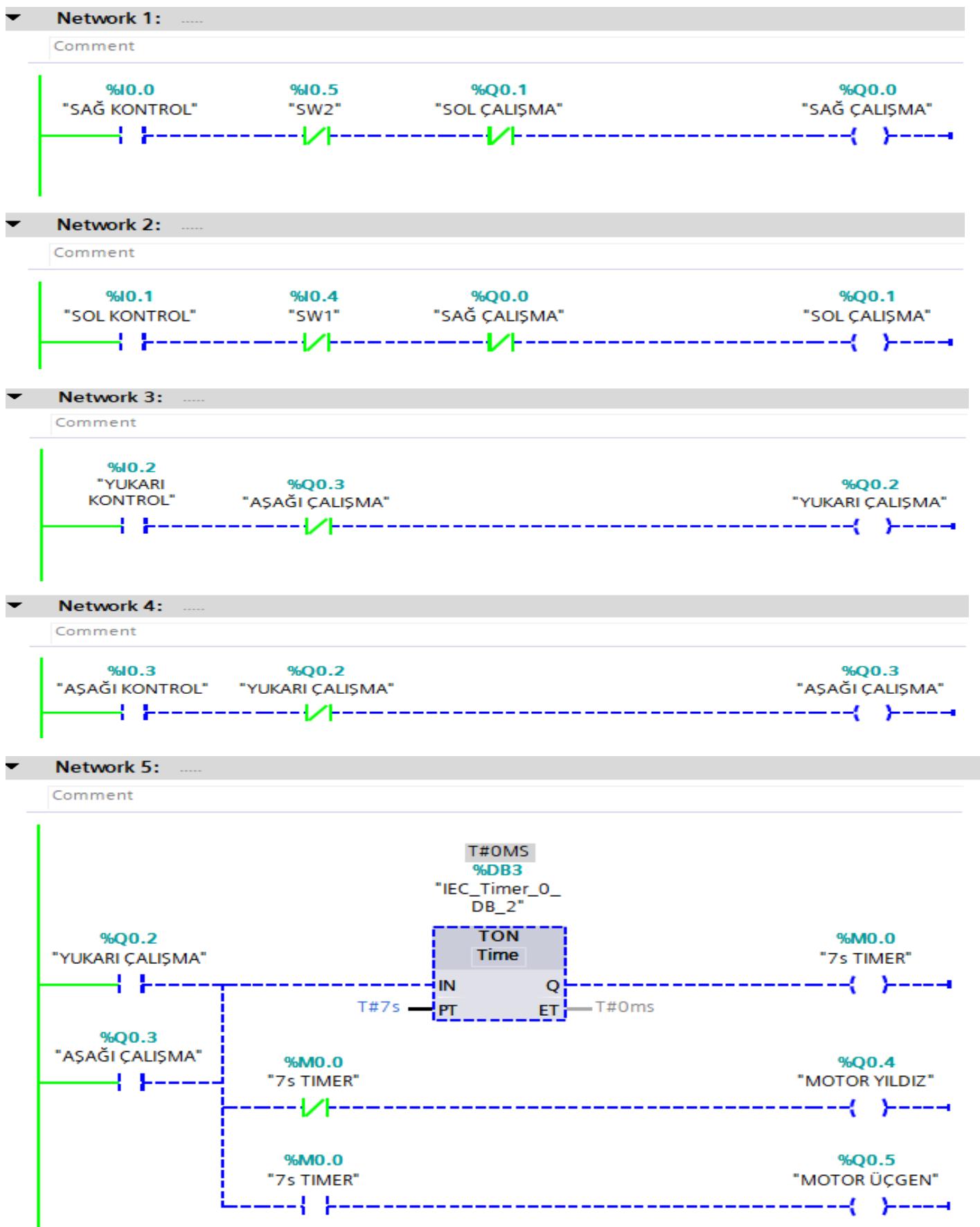
Dış Devre Bağlantı Şeması



Güç Devresi

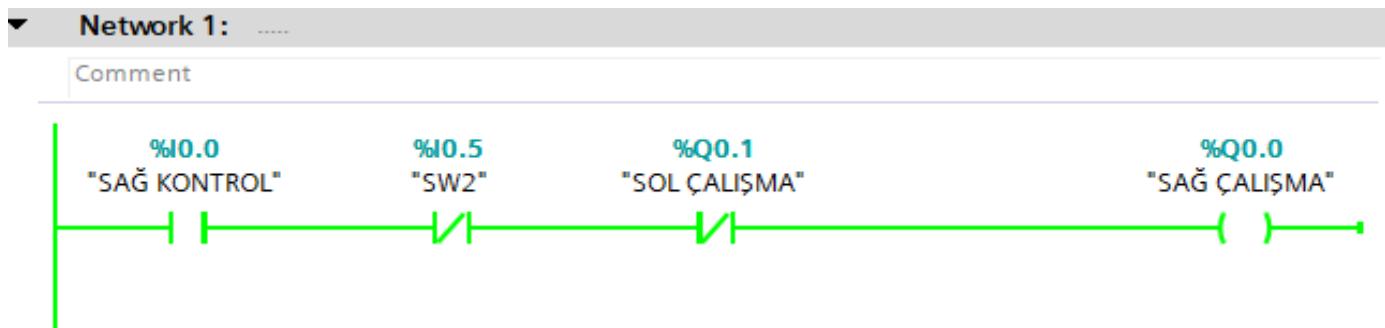


PLC Çizimi (Butonlar Pasif)

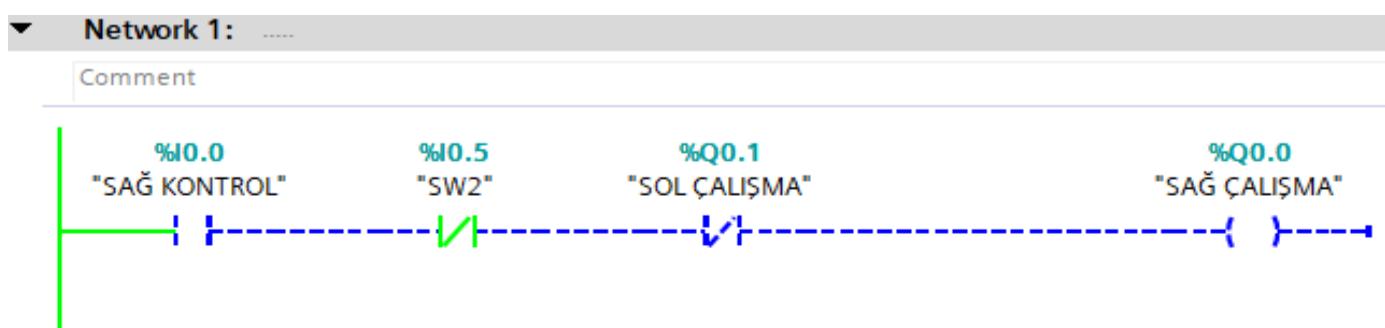


Şekil 10. Sistem (Butonlar Pasif)

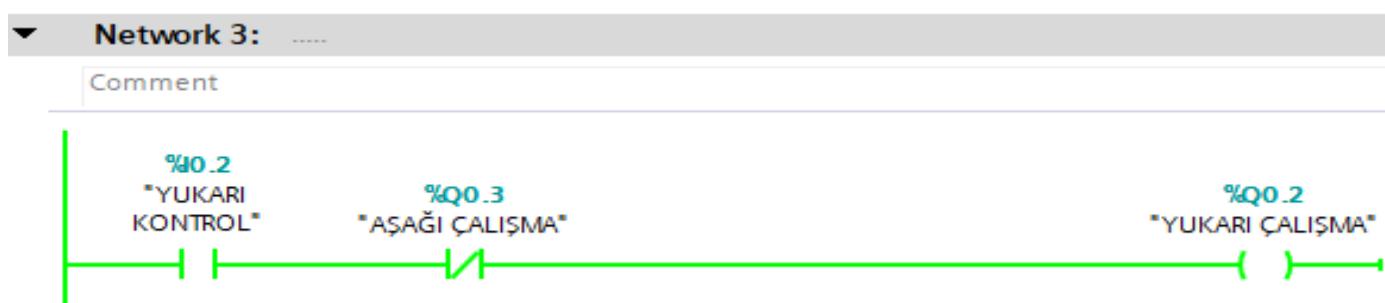
PLC Çizimi (Butonlar Aktif)



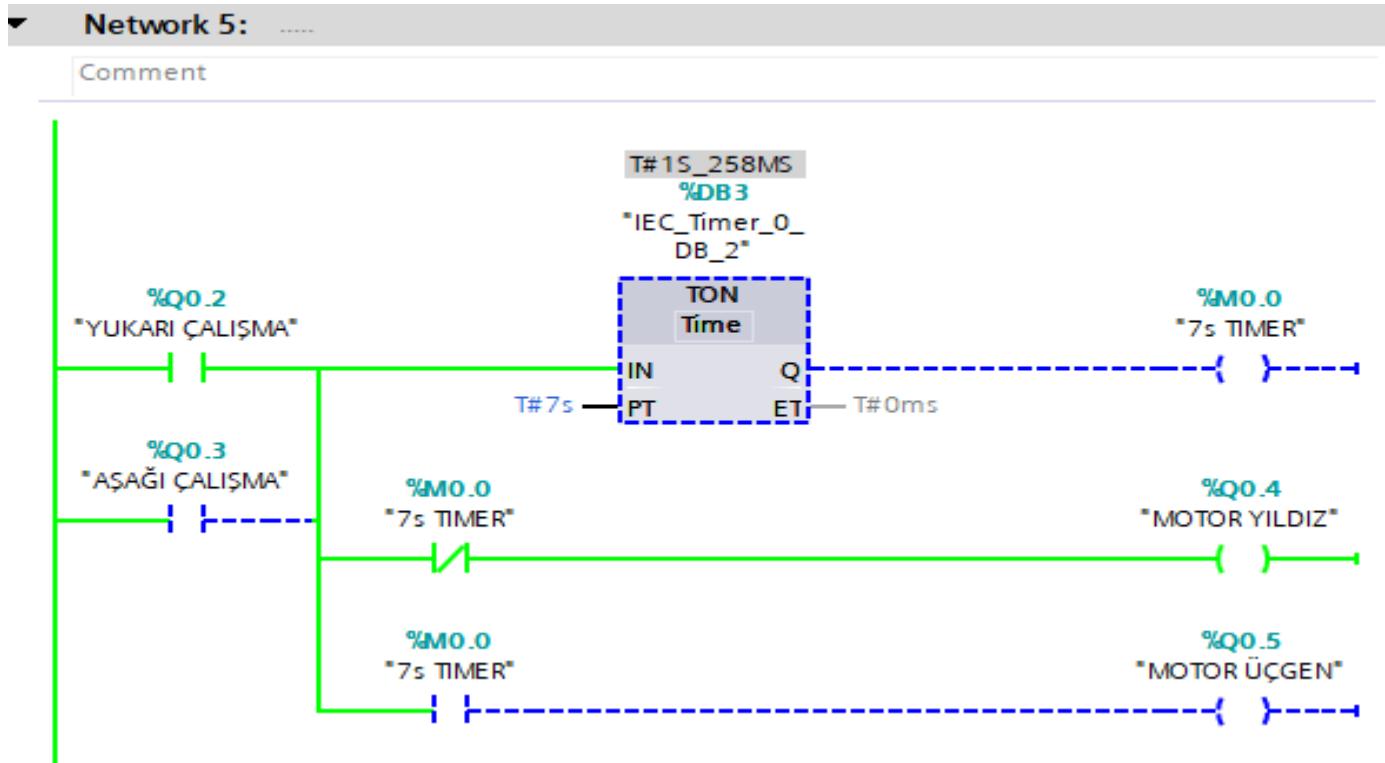
Şekil 11. Sağ Çalışma



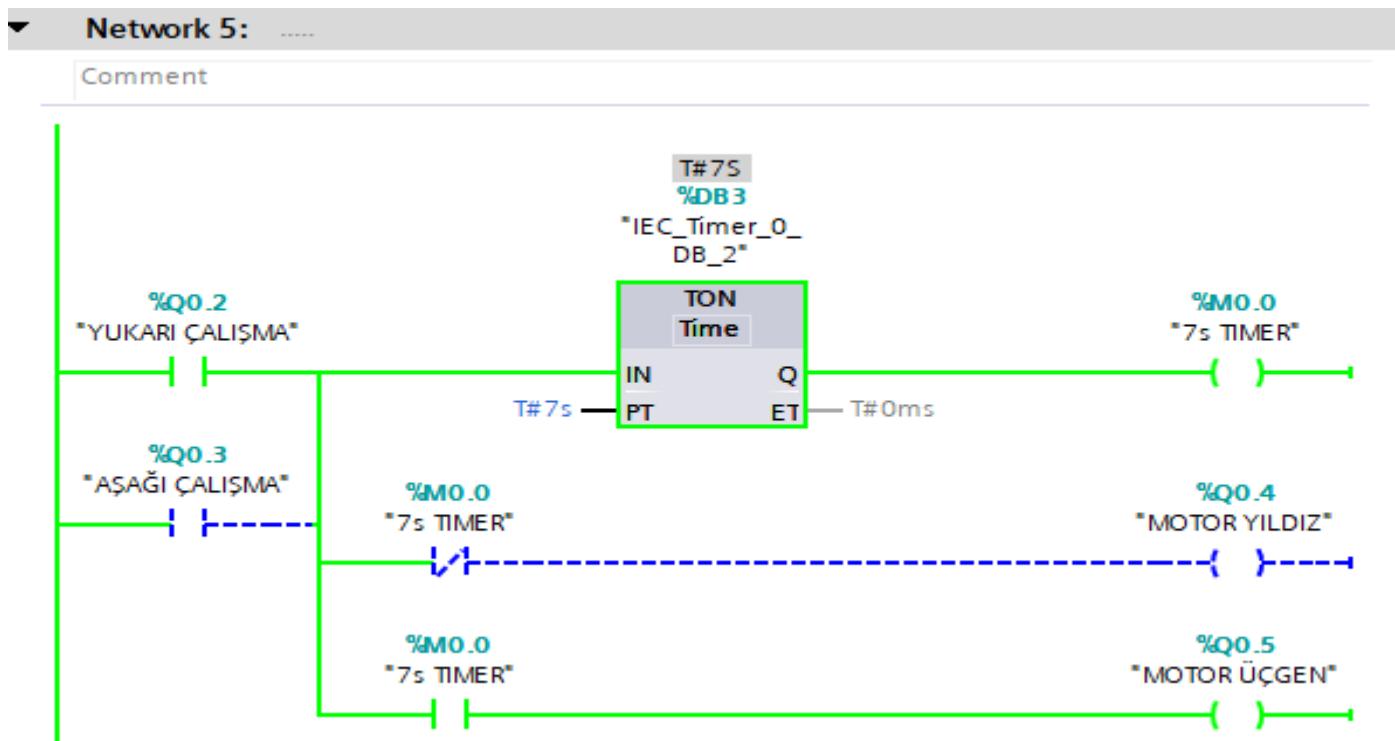
Şekil 12. Sol Çalışma



Şekil 13. Yukarı çalışma



Şekil 14. Yukarı Yıldız Çalışma



Şekil 15. Yukarı Üçgen Çalışma

ÖRNEK 10

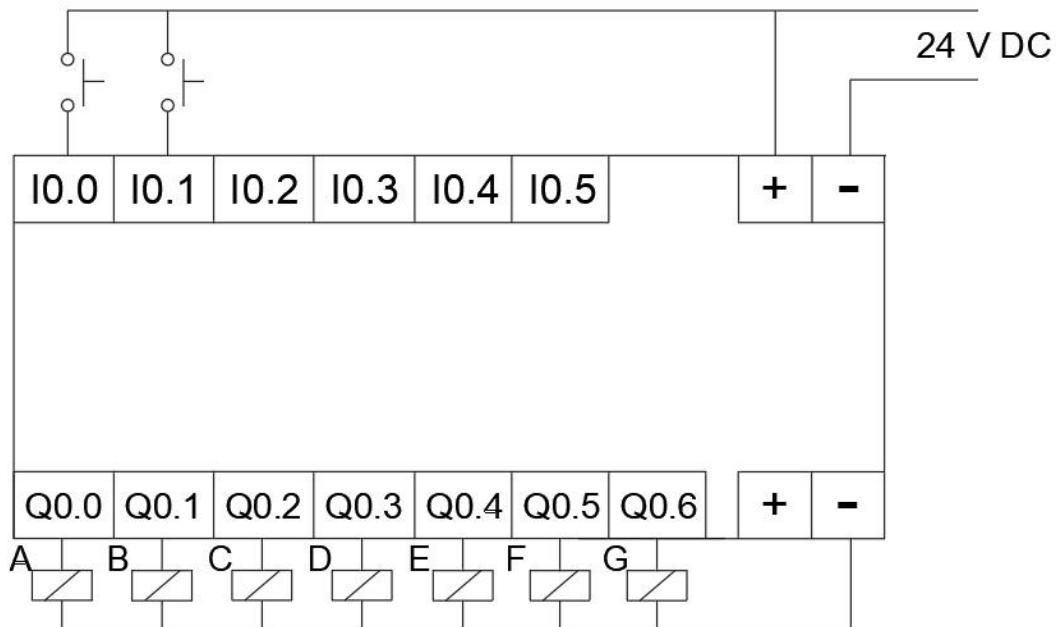
Start butonuna basıldığında m1 ve m3 motoru çalışacak m1 çalışıktan 10s sonra m2 motoru ileri yönde çalışacak m4 motoru da devreye girecek, m4 devreye girdikten 15s sonra m1 motoru duracak, m1 motoru durduktan 10s sonra m2 motoru ileri ve m3 duracak, m3 durduktan 20s sonra m2 motoru geri yönde 30s çalışıp tüm sistemi durduracak.

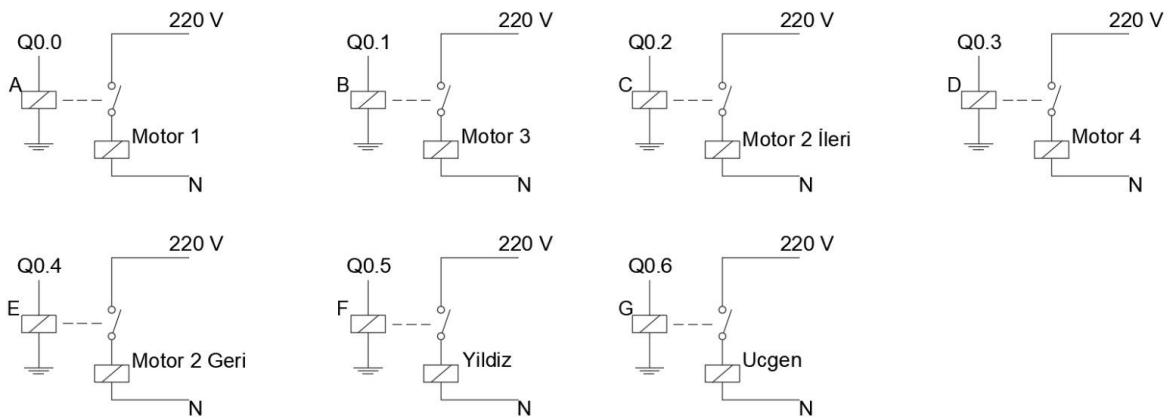
Giriş – Çıkış

GİRİŞLER	
STOP	I0.0
START	I0.1

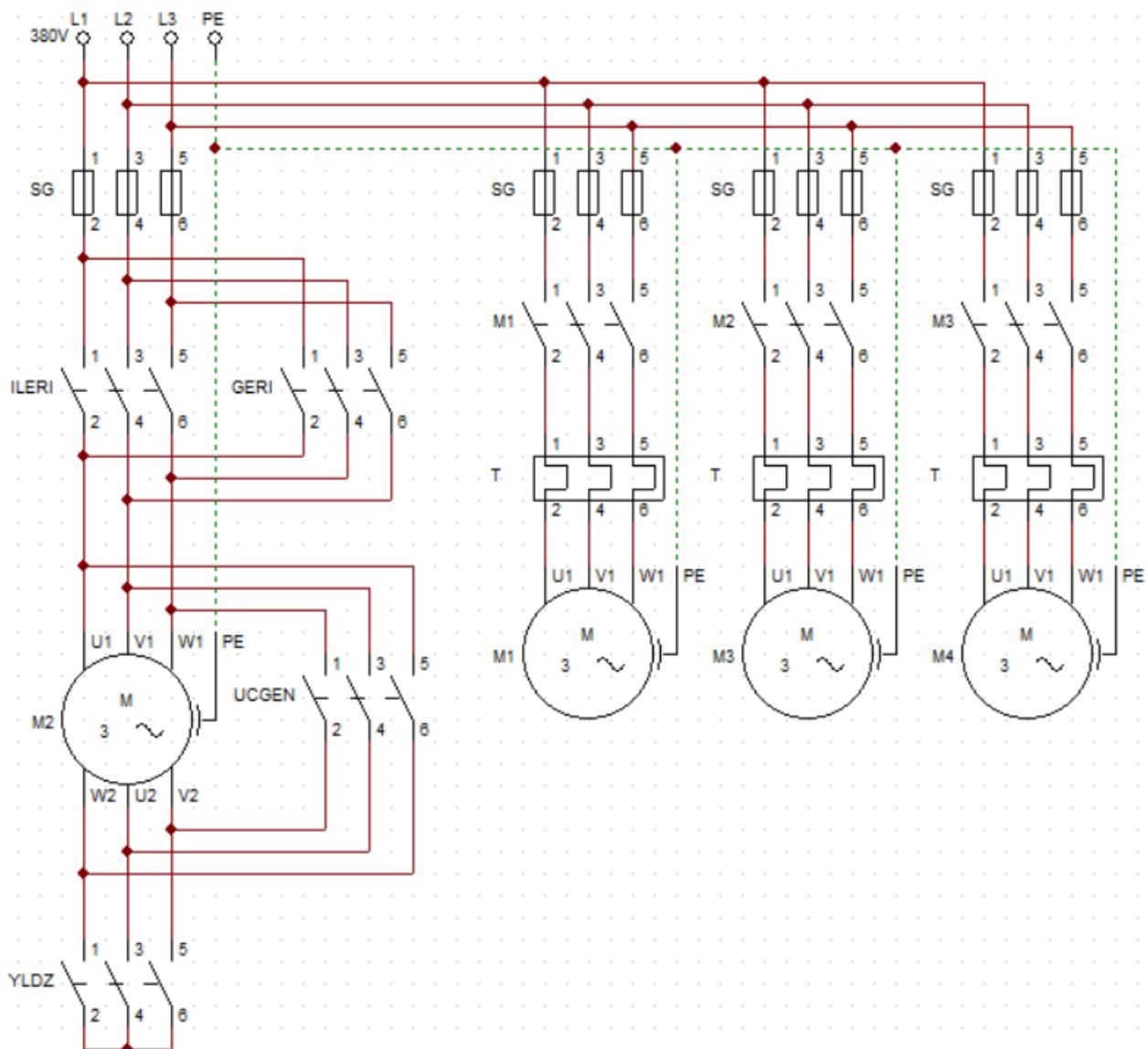
ÇIKIŞLAR	
MOTOR 1	Q0.0
MOTOR 2 (İLERİ)	Q0.1
MOTOR 3	Q0.2
MOTOR 4	Q0.3
MOTOR 2 (GERİ)	Q0.4
MOTOR 2 (YILDIZ)	Q0.5
MOTOR 2 (ÜÇGEN)	Q0.6

Dış Devre Bağlantı Şeması

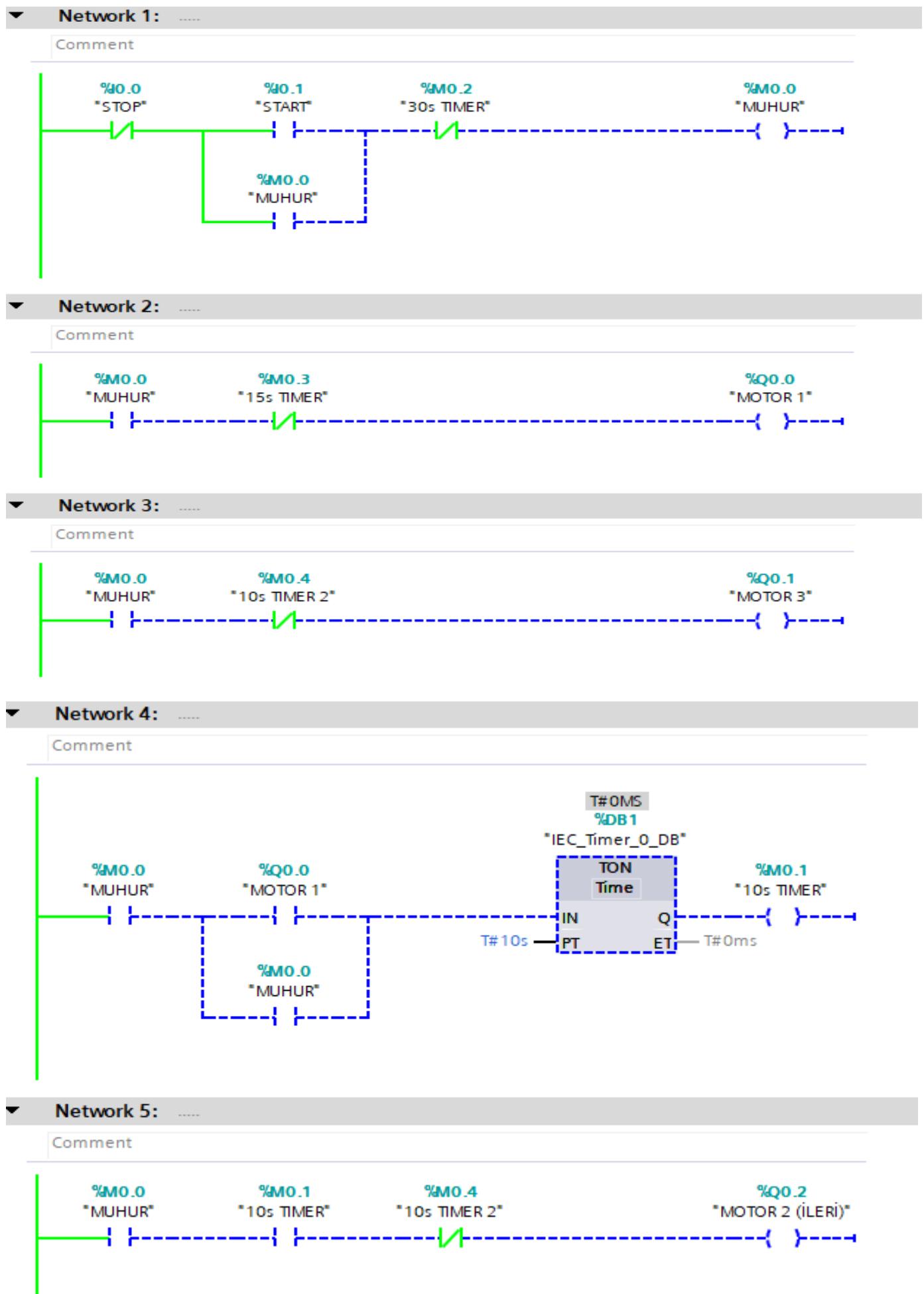




Güç Devresi



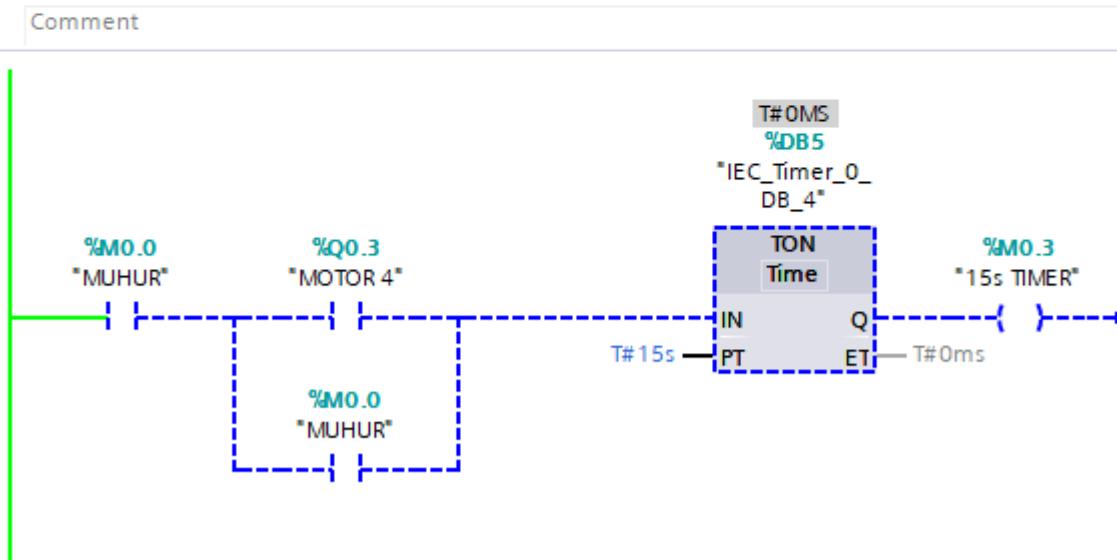
PLC Çizimi (Start Pasif)



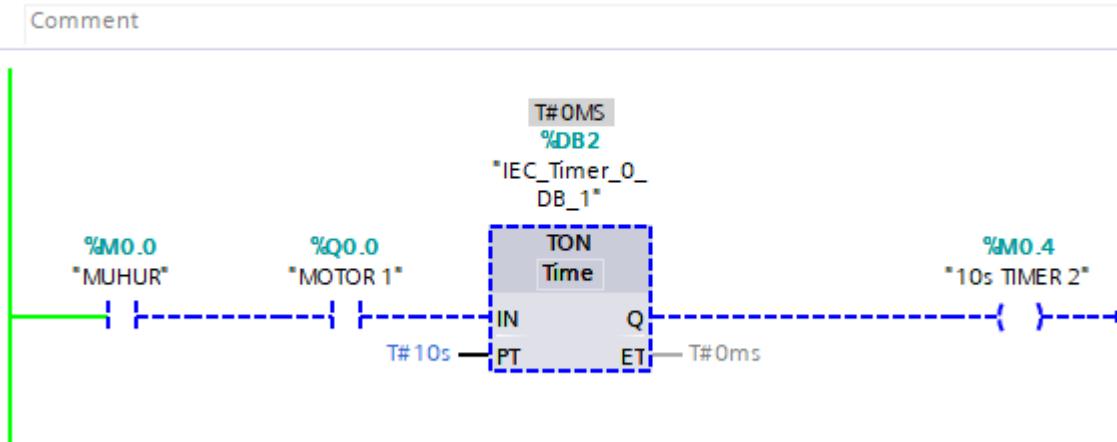
Network 6:



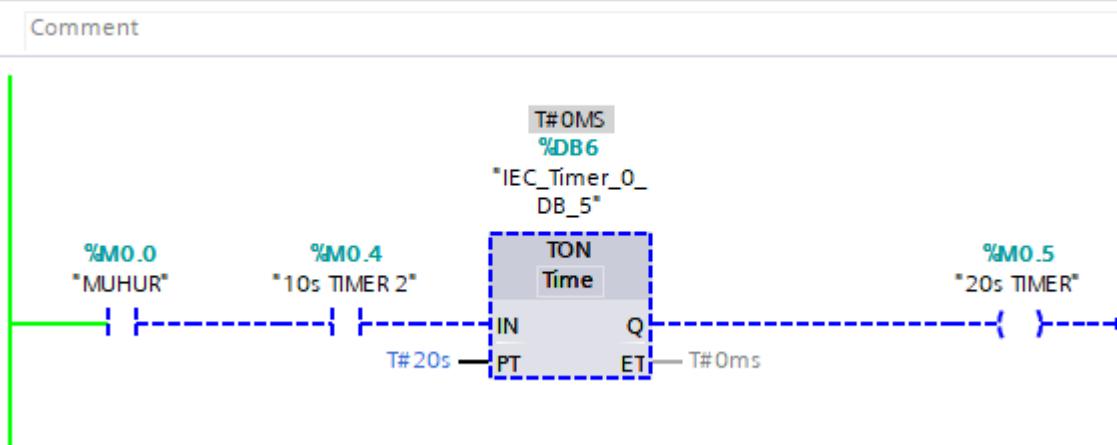
Network 7:

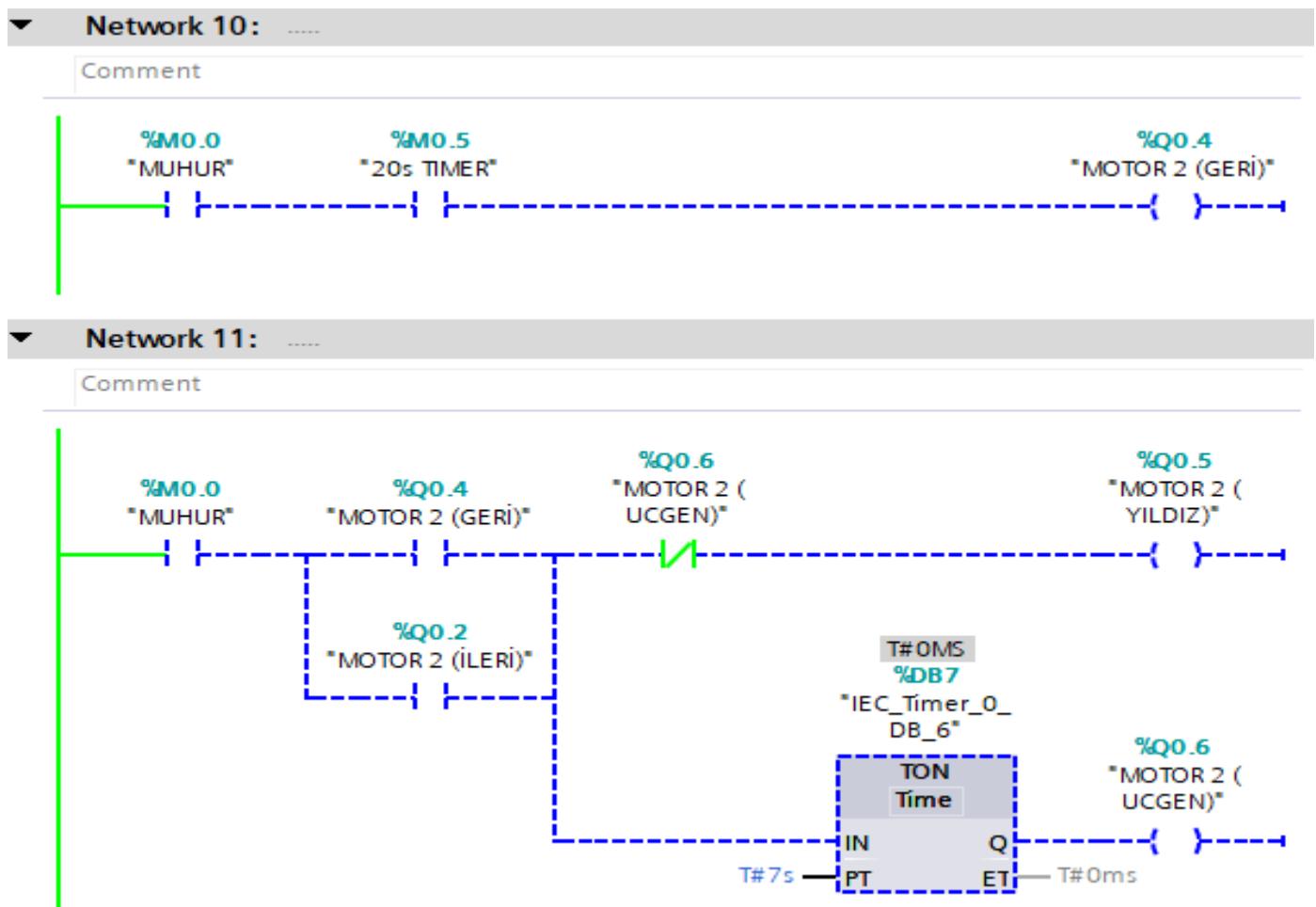


Network 8:



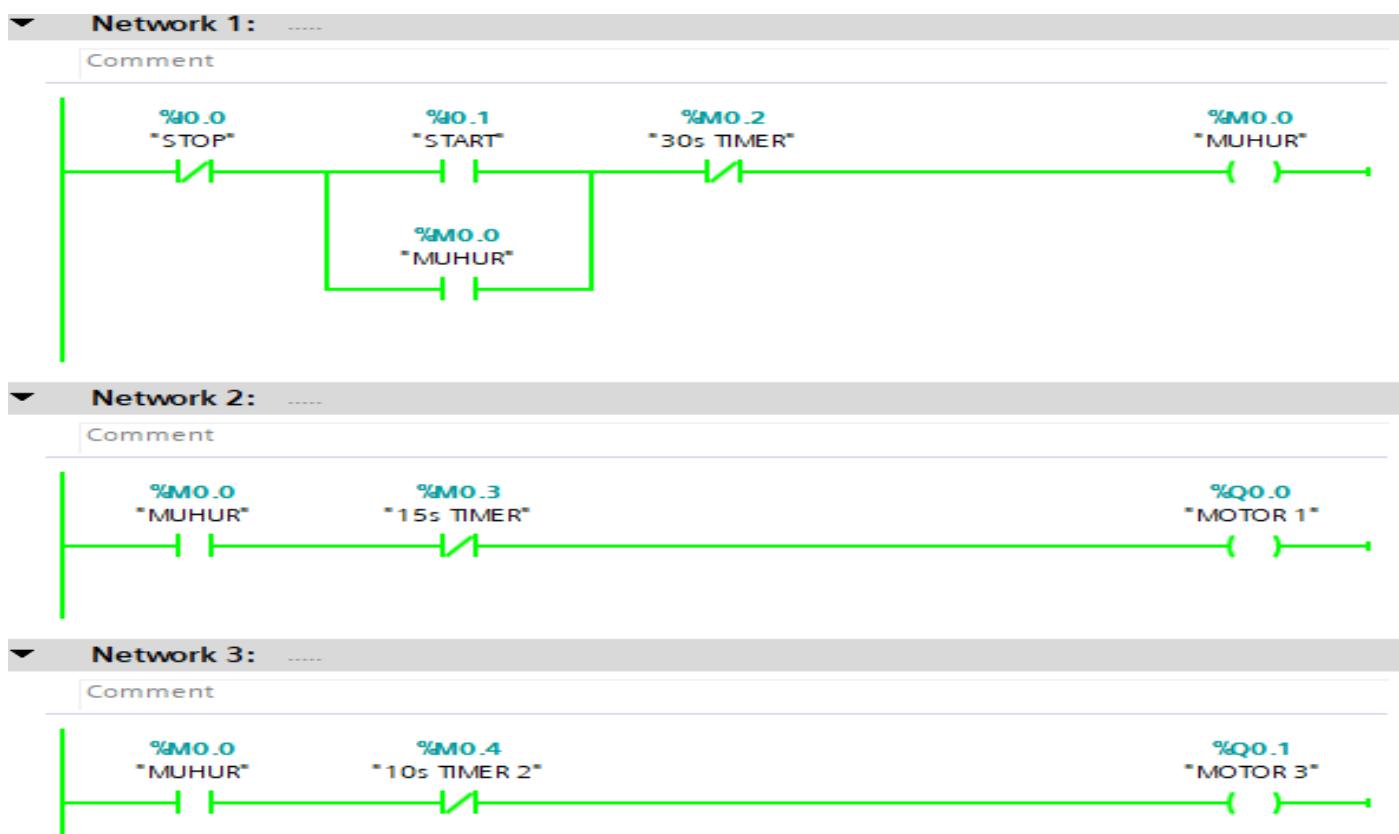
Network 9:





Şekil 16. Sistem (Start Pasif)

PLC Çizimi (Start Aktif)



Network 4:

Comment

%M0.0
"MUHUR"

%Q0.0
"MOTOR 1"

T#10S
%DB1
"IEC_Timer_0_DB"

T# 10s

TON
Time

IN
PT

Q

ET

%M0.1
"10s TIMER"

T#0ms

%M0.0
"MUHUR"

T# 10s

ET

Network 5:

Comment

%M0.0
"MUHUR"

%M0.1
"10s TIMER"

%M0.4
"10s TIMER 2"

%Q0.2
"MOTOR 2 (İLERİ)"

Network 6:

Comment

%M0.0
"MUHUR"

%M0.1
"10s TIMER"

%Q0.3
"MOTOR 4"

Network 7:

Comment

%M0.0
"MUHUR"

%Q0.3
"MOTOR 4"

T#15S
%DB5
"IEC_Timer_0_
DB_4"

T# 15s

IN
PT

TON
Time

ET

%M0.3
"15s TIMER"

ET

%M0.0
"MUHUR"

T# 0ms

ET

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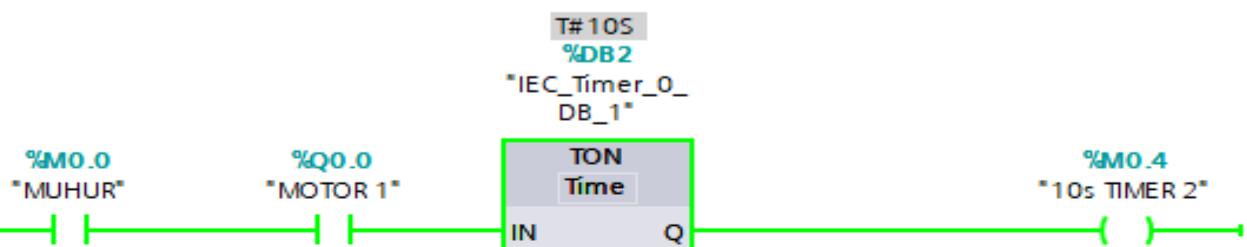
IN

PT

Q

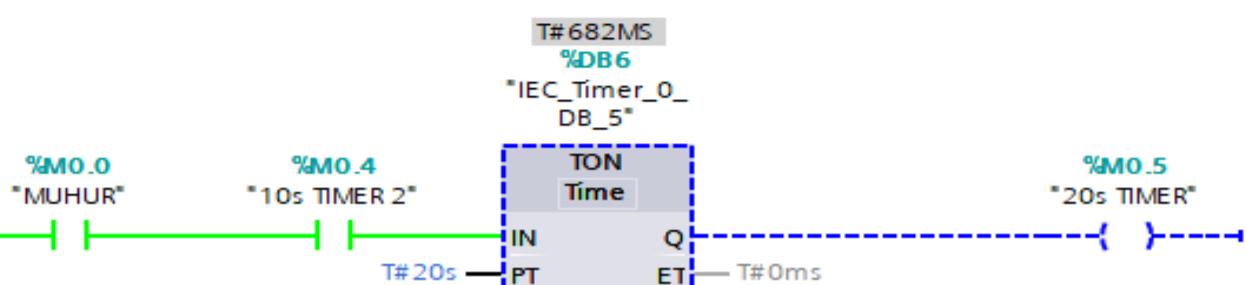
Network 8:

Comment



Network 9:

Comment



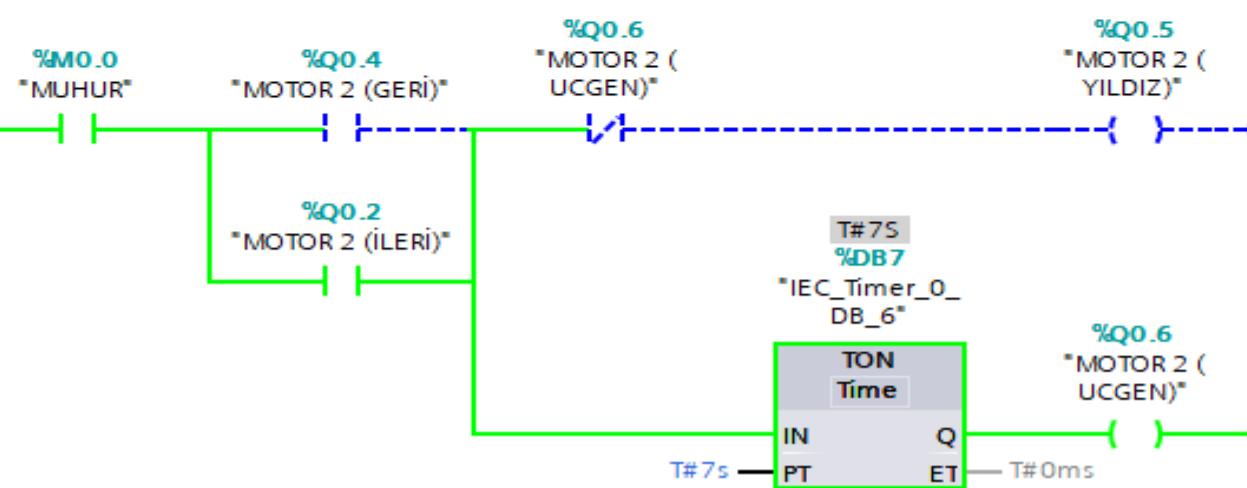
Network 10:

Comment



Network 11:

Comment



Şekil 17. Sistem (Start Aktif)

ÖRNEK 11

Bir sistemde 5 adet motor vardır. Starta basıldığında 2. Ve 5. Motor çalışmaya başlamaktadır. 2. Motor çalışıktan 10s sonra 1. Ve 3. Motor devreye girmektedir. 3. Motor çalışıktan 15s sonra 2. Motor devreden çıkış 4. Motor devreye girmektedir. 4. Motor çalışmaya başladıkten 20s sonra 5. Motor, 30s sonra 3. Motor devreden çıkmaktadır. 5. Motor devreden çıktıktan 12s sonra sistem tamamen duracaktır.

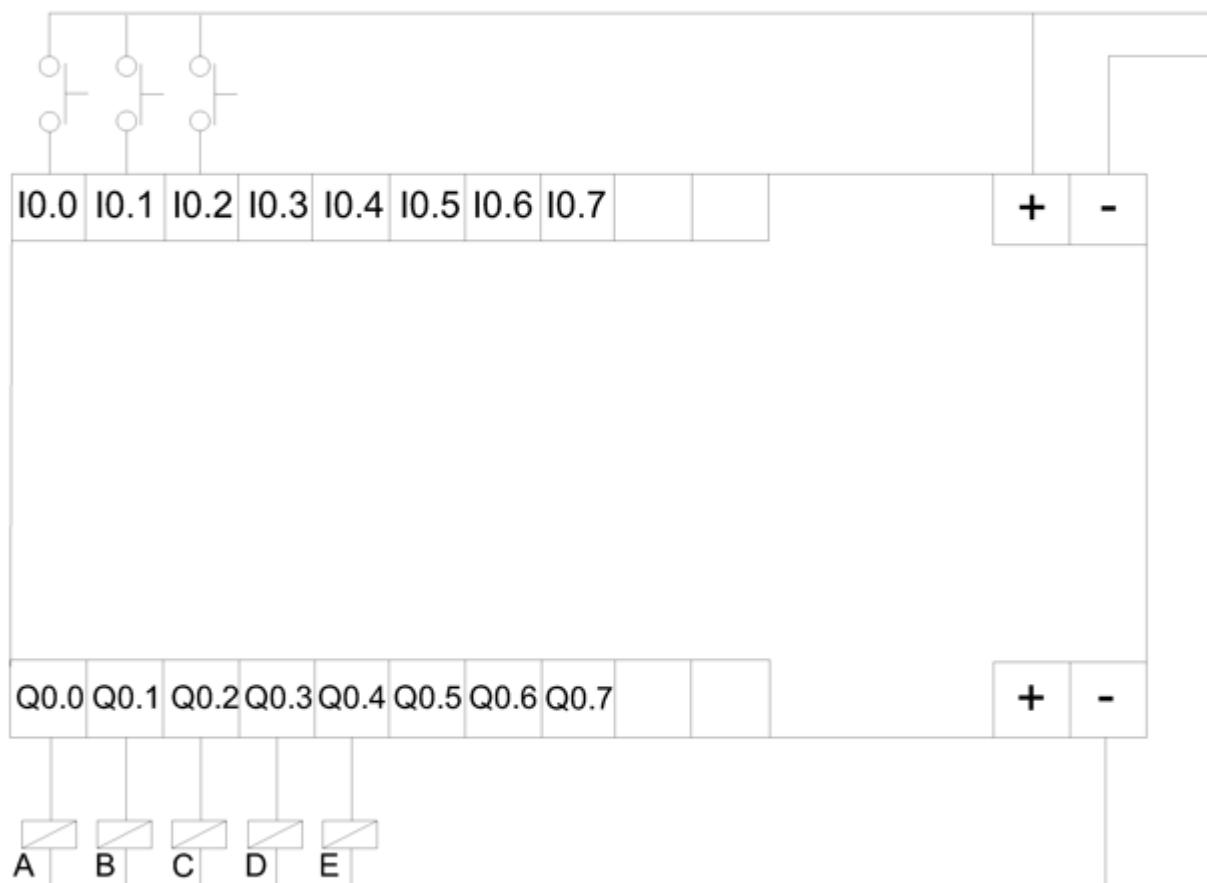
ÇÖZÜM 1

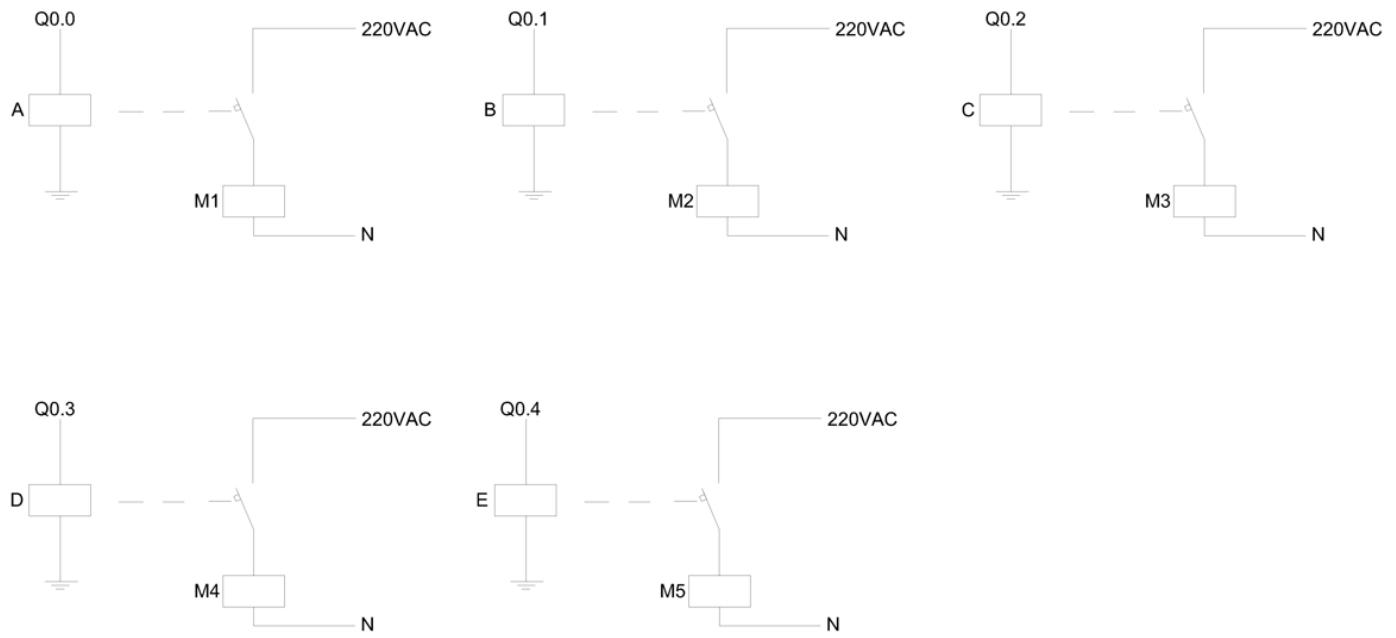
Giriş – Çıkış

GİRİŞLER	
STOP	I0.0
START	I0.1

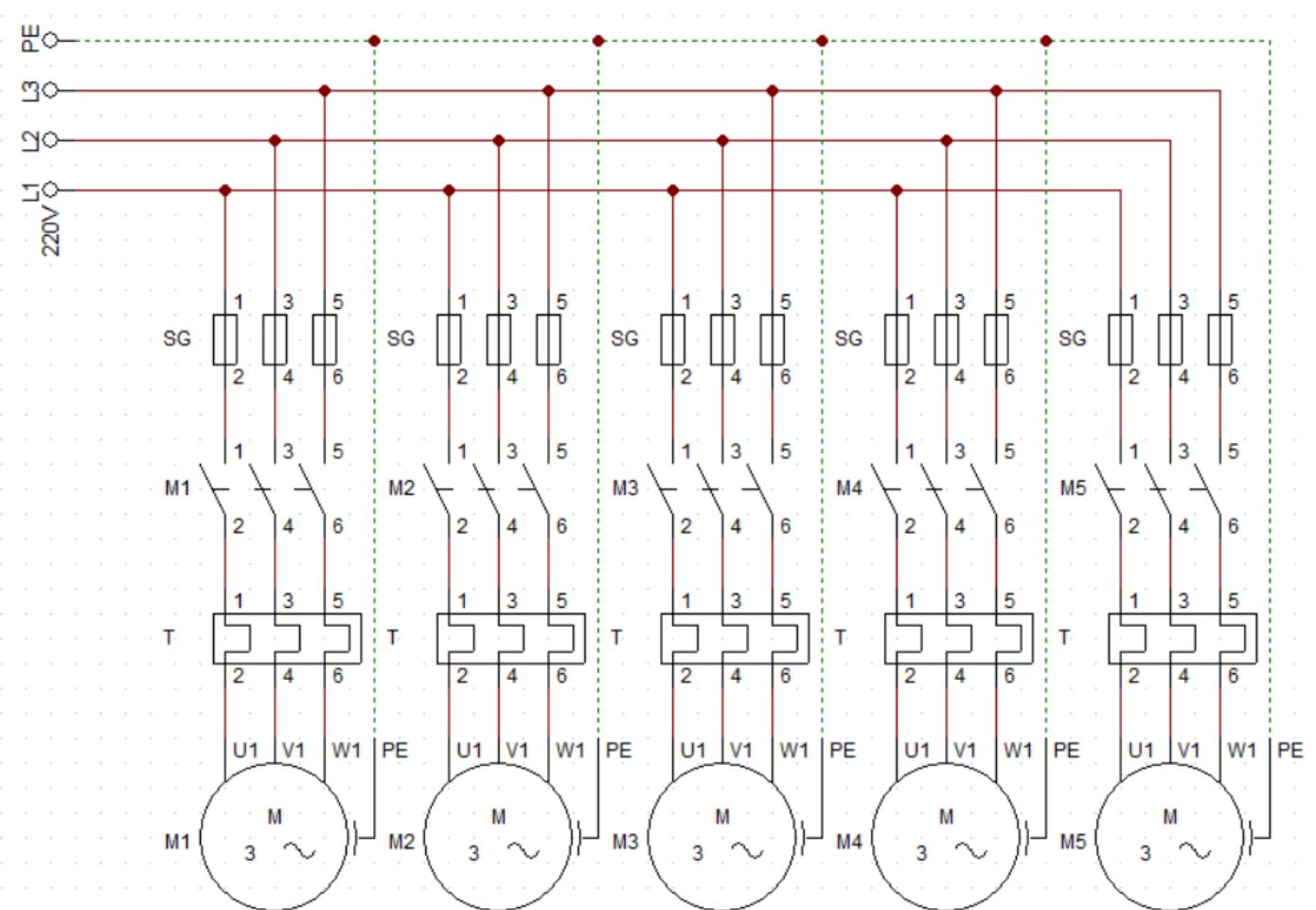
ÇIKIŞLAR	
MOTOR 1	Q0.0
MOTOR 2	Q0.1
MOTOR 3	Q0.2
MOTOR 4	Q0.3
MOTOR 5	Q0.4

Dış Devre Bağlantı Şeması





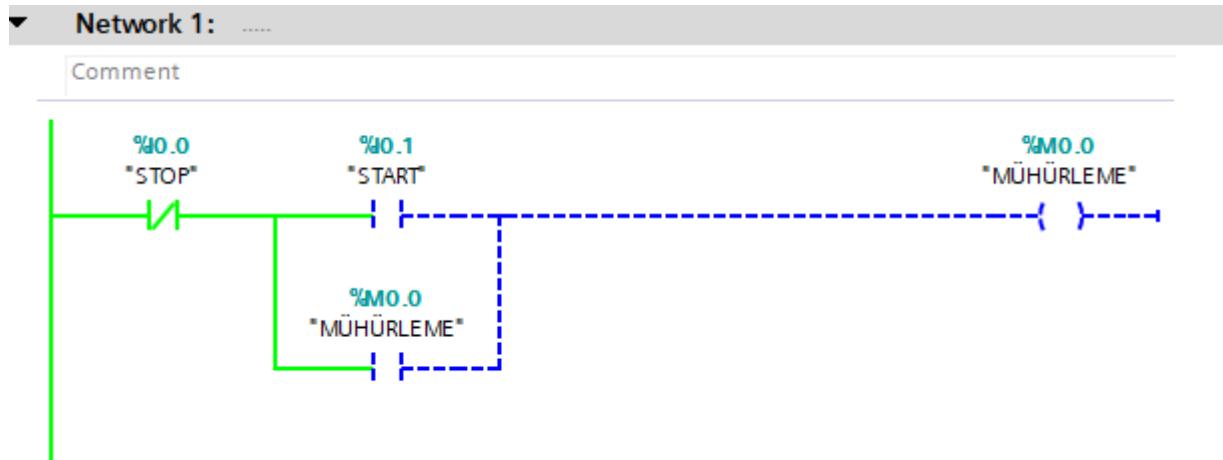
Güç Devresi



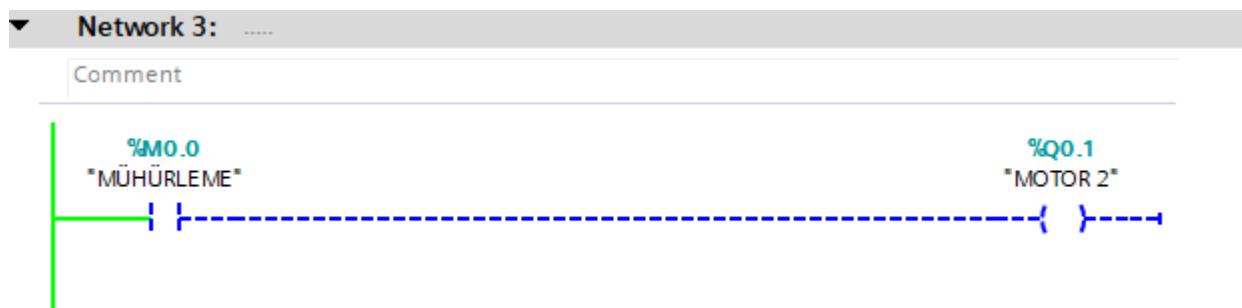
AŞAMA 1

Starta basıldığında 2. Ve 5. Motor çalışmaya başlamaktadır.

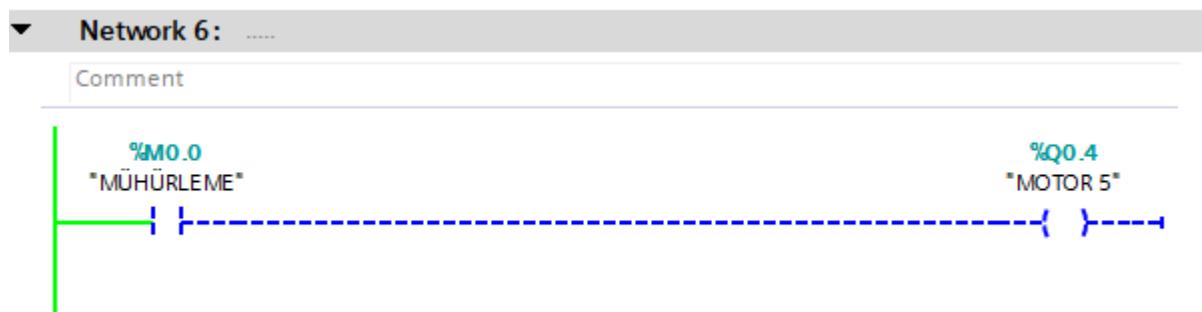
STARTA BASILMADAN ÖNCE



Şekil 18. STARTA BASILMADAN ÖNCE MÜHÜRLEME

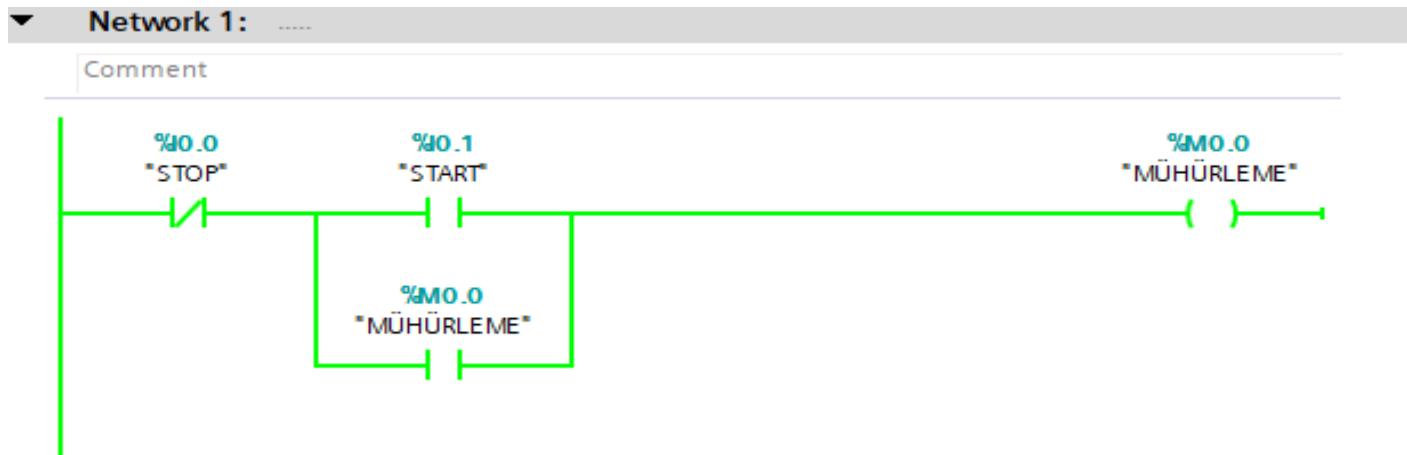


Şekil 19. STARTA BASILMADAN ÖNCE MOTOR 2

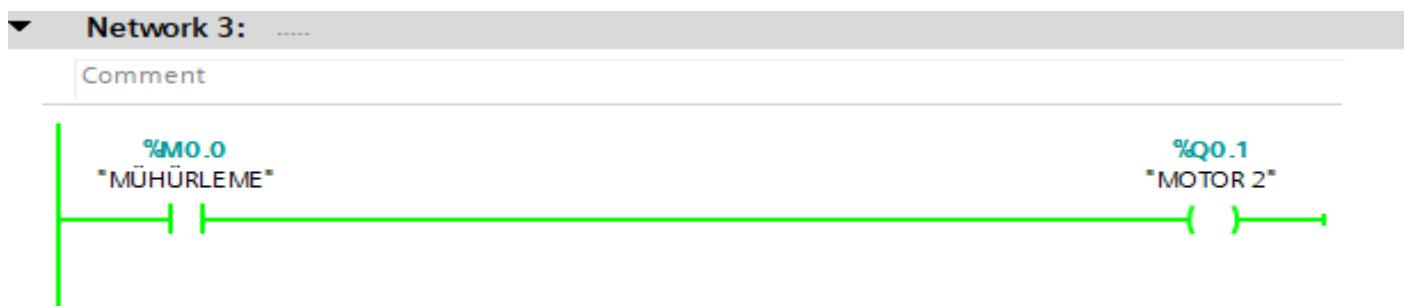


Şekil 20. STARTA BASILMADAN ÖNCE MOTOR 5

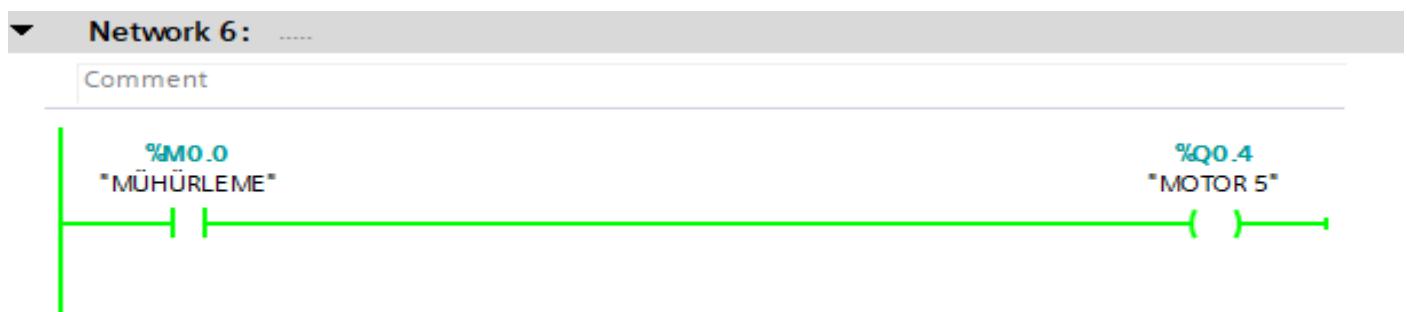
STARTA BASILDIKTAN SONRA



Şekil 21. STARTA BASILDIKTAN SONRA MÜHÜRLEME



Şekil 22.: STARTA BASILDIKTAN SONRA MOTOR 2



Şekil 23.: STARTA BASILDIKTAN SONRA MOTOR 5

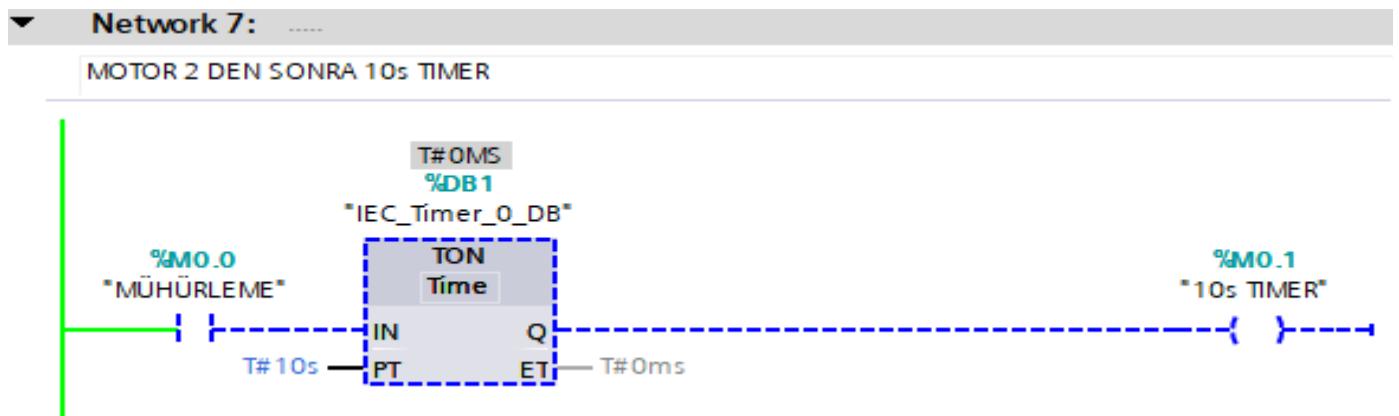
AŞAMA 2

2. Motor çalıştırıldıktan 10s sonra 1. Ve 3. Motor devreye girmektedir.

STARTA BASILMADAN ÖNCE

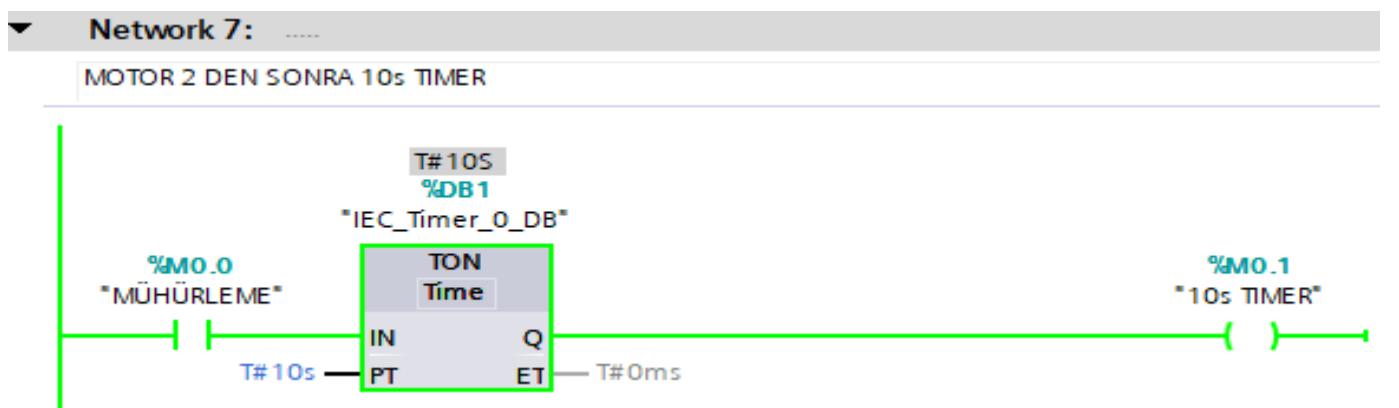


Şekil 24. STARTA BASILMADAN ÖNCE MOTOR 2

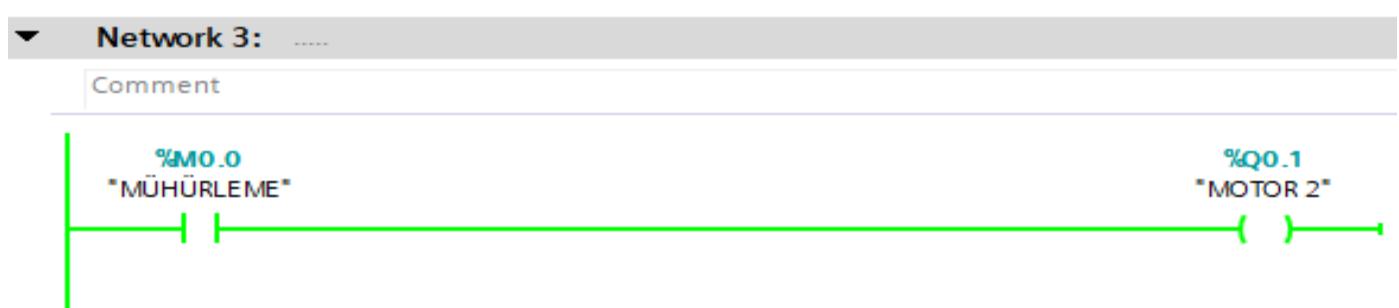


Şekil 25. STARTA BASILMADAN ÖNCE 10s TIMER

STARTA BASILDIKTAN ve 10s TIMER ÇALIŞTIKTAN SONRA



Şekil 26. STARTA BASILDIKTAN 10s SONRA TIMER



Şekil 27. 10s TIMER' dan SONRA MOTOR 1 ve MOTOR 3

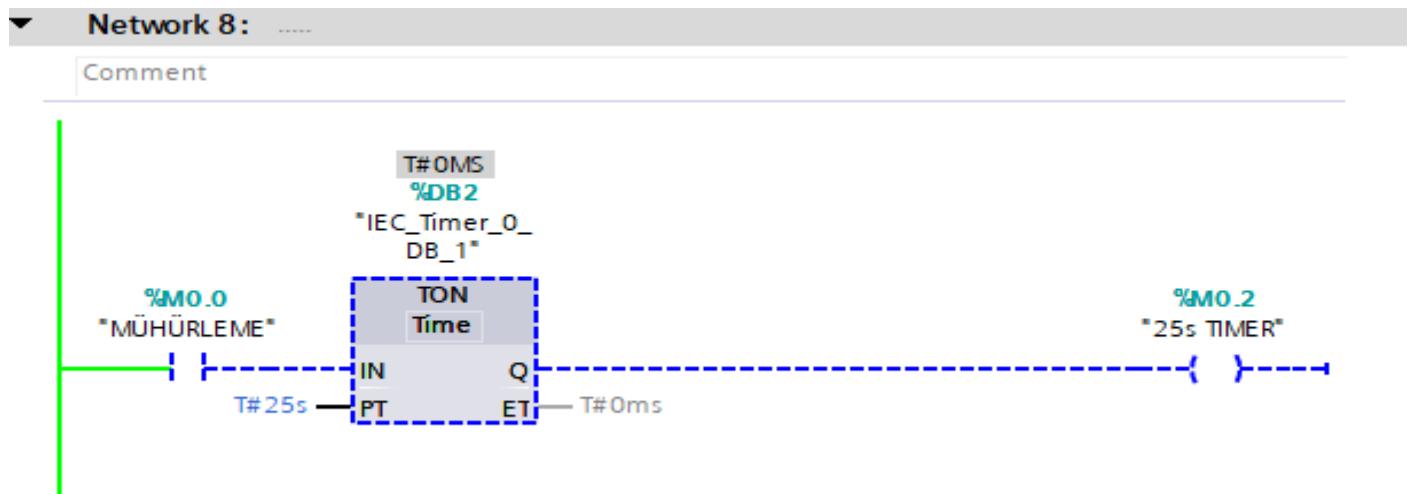
AŞAMA 3

3. Motor çalıştırıktan 15s sonra 2. Motor devreden çıkış 4. Motor devreye girmektedir.

STARTA BASILMADAN ÖNCE

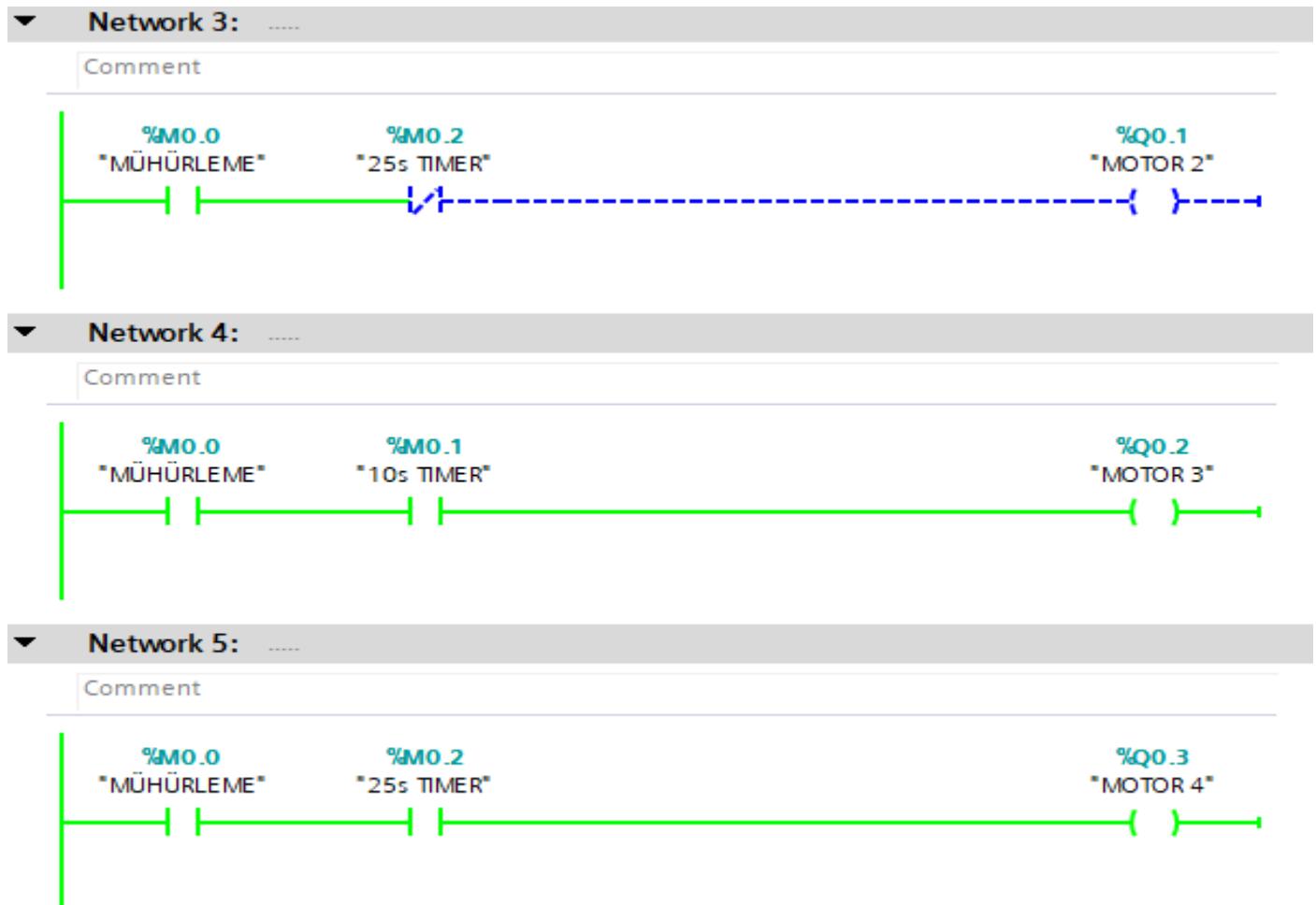


Şekil 28. STARTA BASILMADAN ÖNCE MOTOR 2, MOTOR 3 ve MOTOR 4

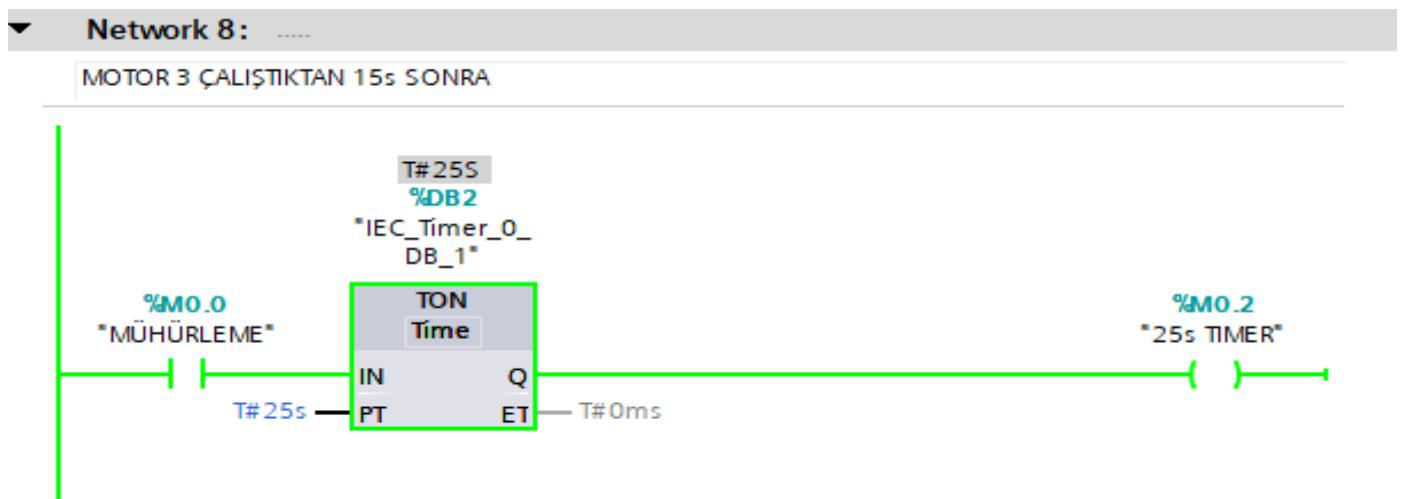


Şekil 29. STARTA BASILMADAN ÖNCE 25s TIMER

STARTA BASILDIKTAN ve MOTOR 3 ÇALIŞTIKTAN 15s SONRA



Şekil 30. STARTA BASILDIKTAN 25s SONRA MOTOR 2, MOTOR 3 ve MOTOR 4

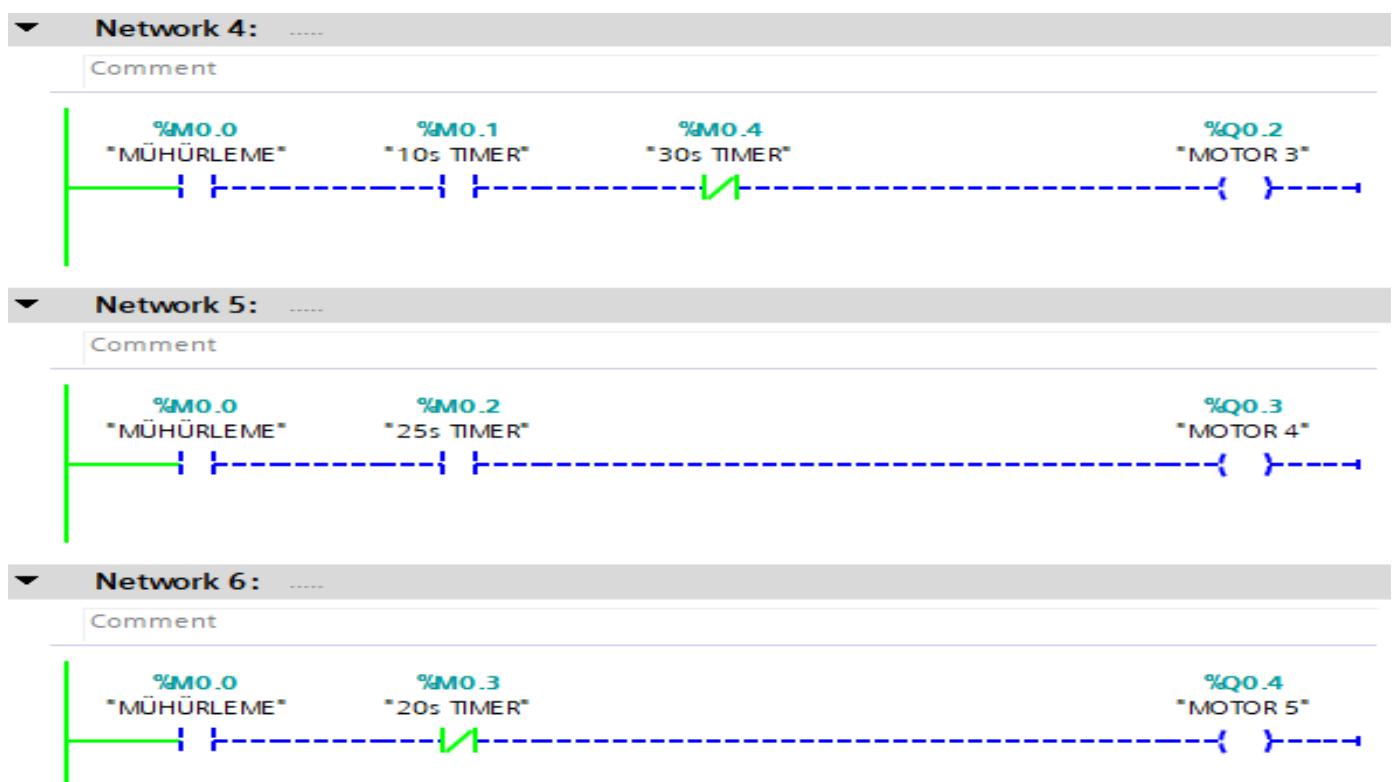


Şekil 31. STARTA BASILDIKTAN 25s SONRA TIMER

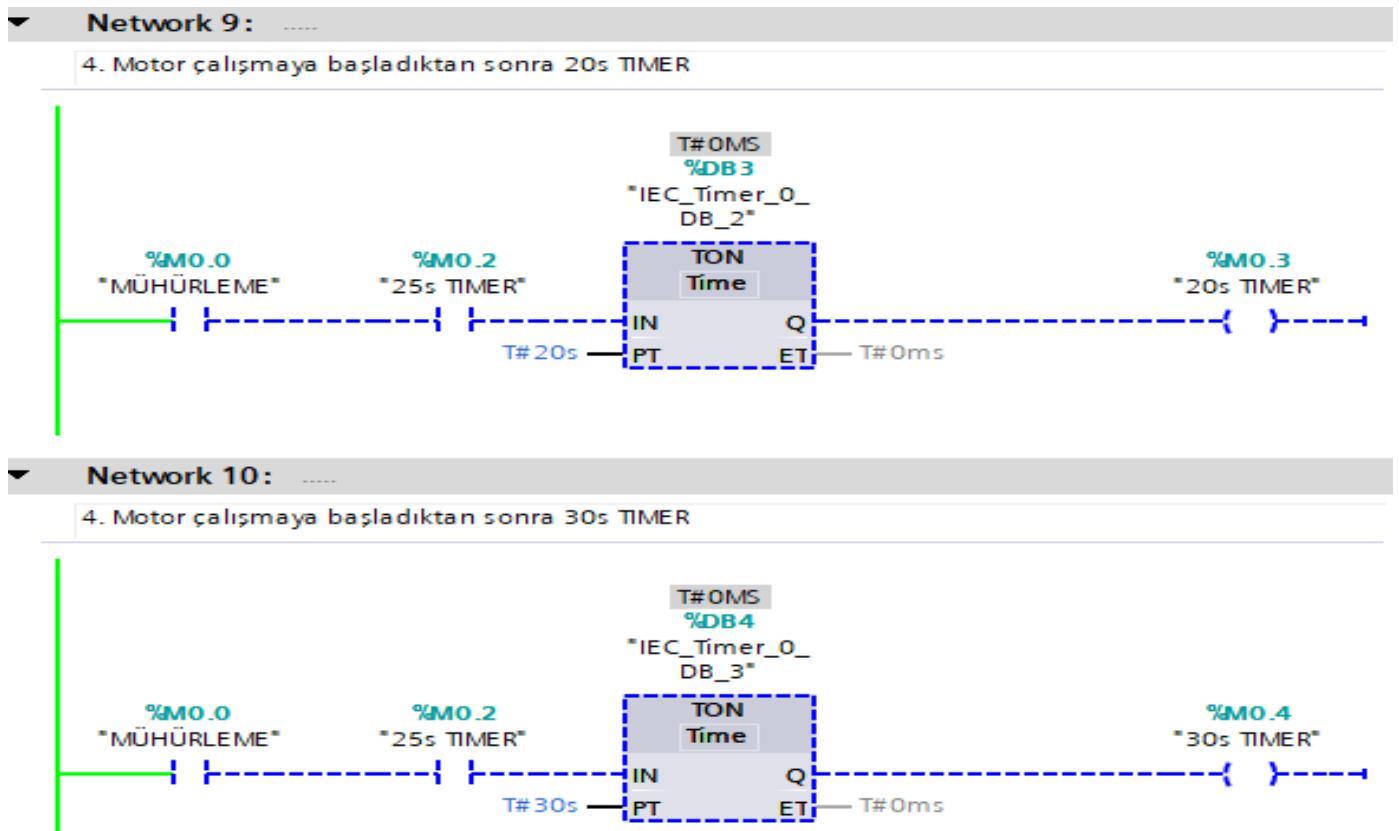
AŞAMA 4

4. Motor çalışmaya başladıkten 20s sonra 5. Motor, 30s sonra 3. Motor devreden çıkmaktadır.

STARTA BASILMADAN ÖNCE

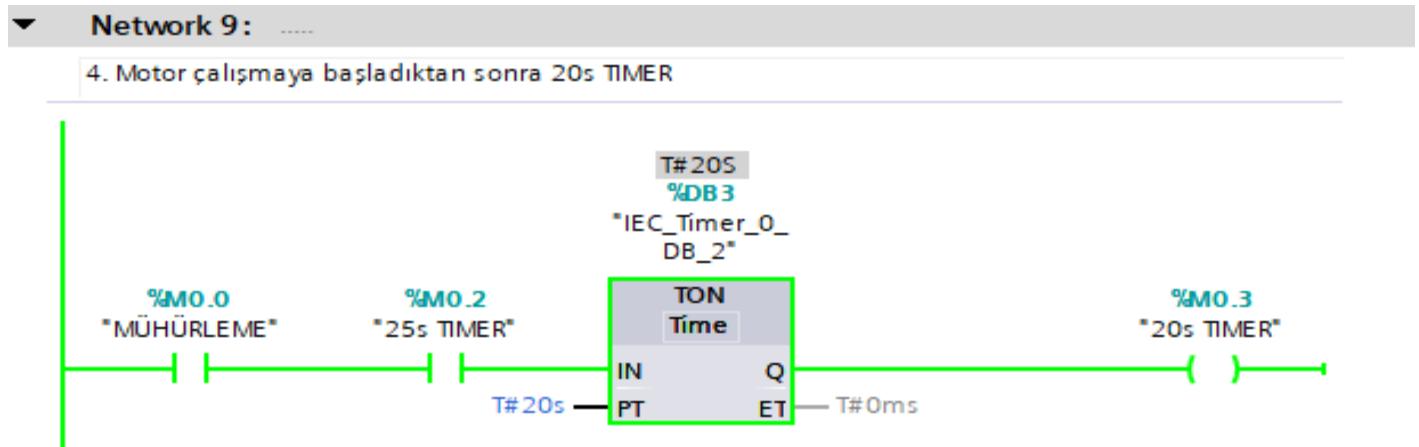


Şekil 32. STARTA BASILMADAN ÖNCE MOTOR 3, MOTOR 4 ve MOTOR 5

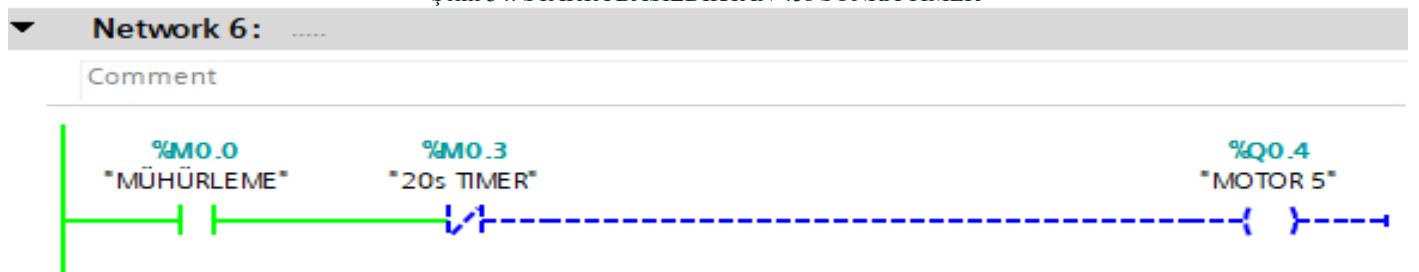


Şekil 33. STARTA BASILMADAN ÖNCE 20s TIMER ve 30s TIMER

STARTA BASILDIKTAN 45s SONRA

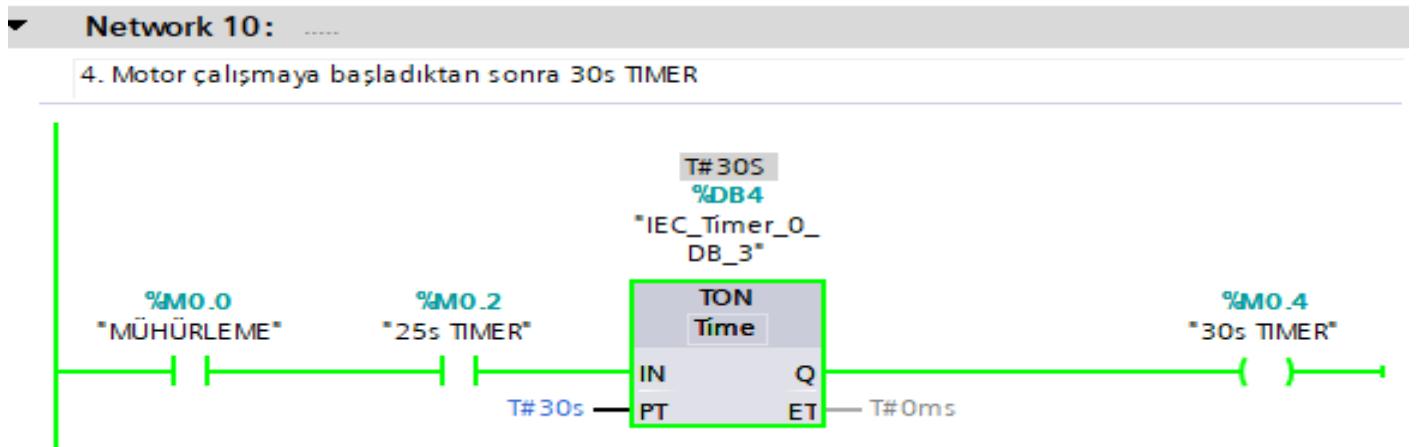


Şekil 34. STARTA BASILDIKTAN 45s SONRA TIMER

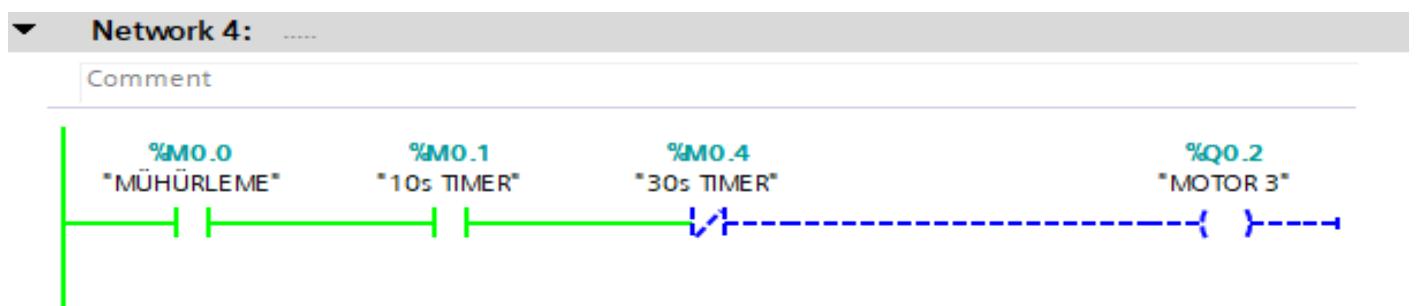


Şekil 35. MOTOR 4 ÇALIŞMAYA BAŞLADIKTAN 20s SONRA MOTOR 5

STARTA BASILDIKTAN 55s SONRA



Şekil 36. STARTA BASILDIKTAN 55s SONRA TIMER

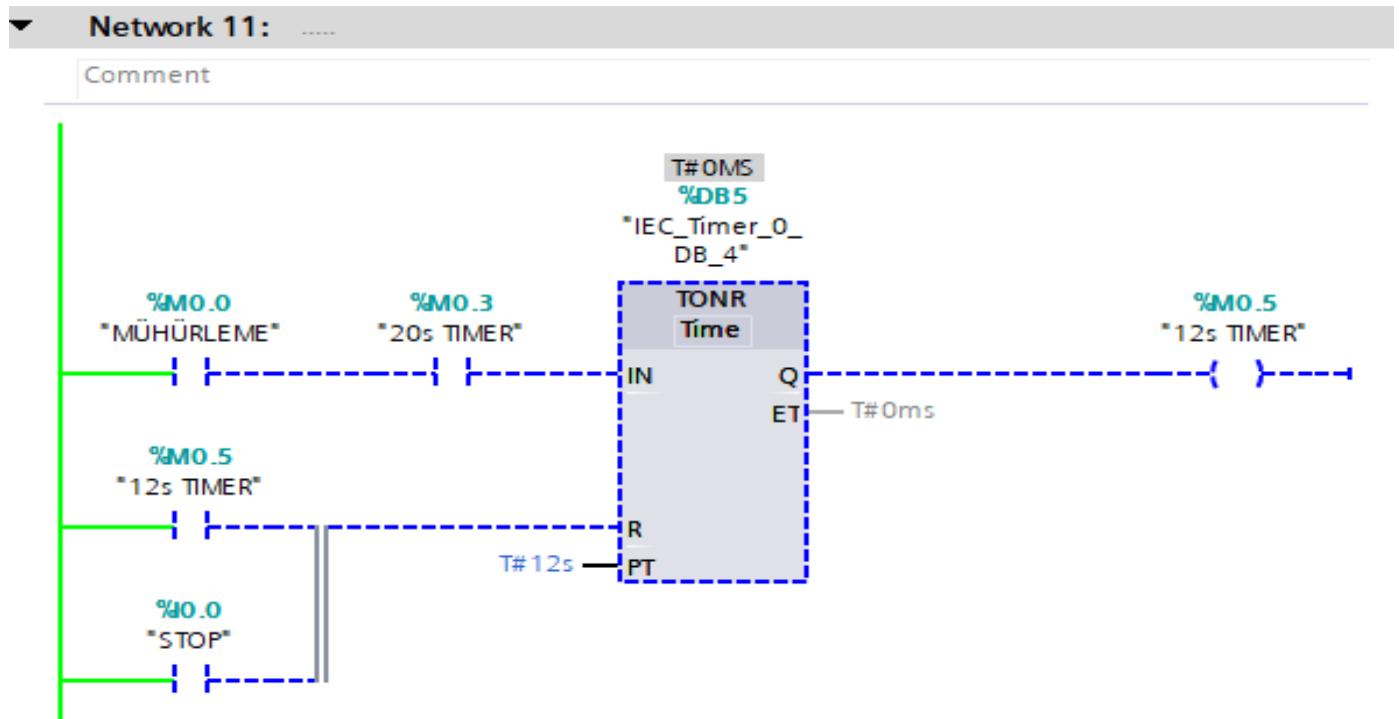


Şekil 37. MOTOR 4 ÇALIŞMAYA BAŞLADIKTAN 30s SONRA

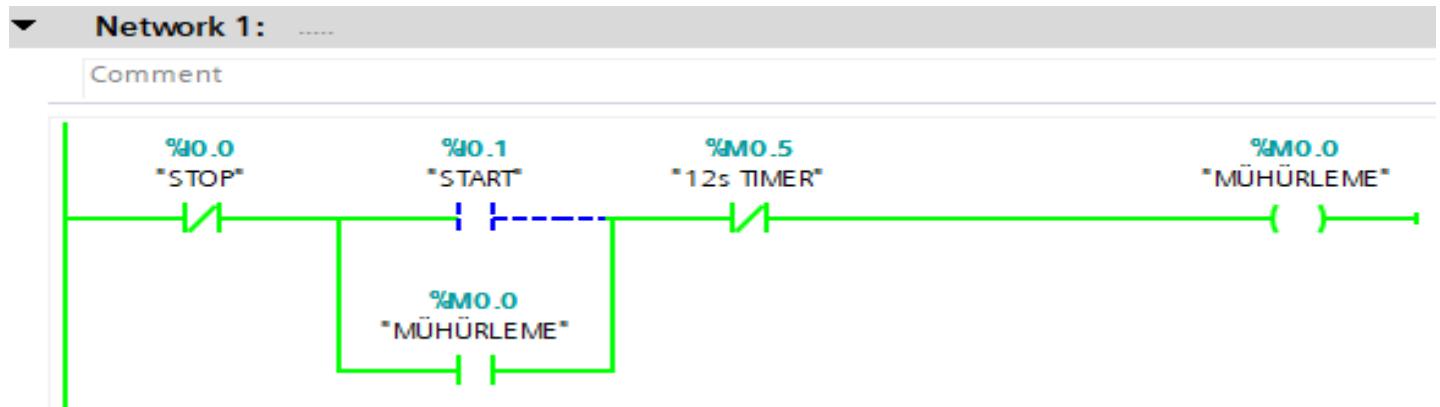
AŞAMA 5

5. Motor devreden çıktıktan 12s sonra sistem tamamen duracaktır.

STARTA BASILDIKTAN SONRA

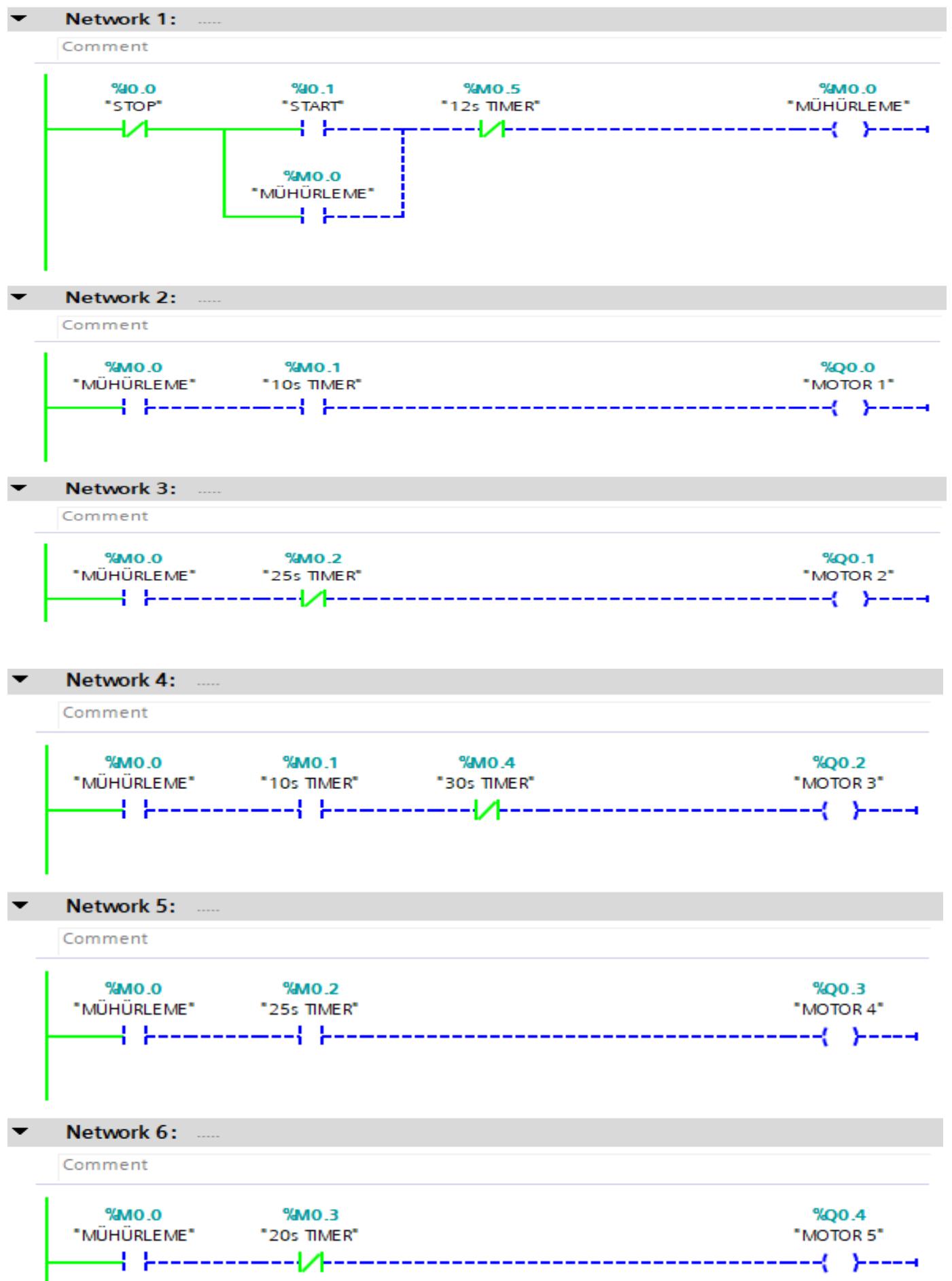


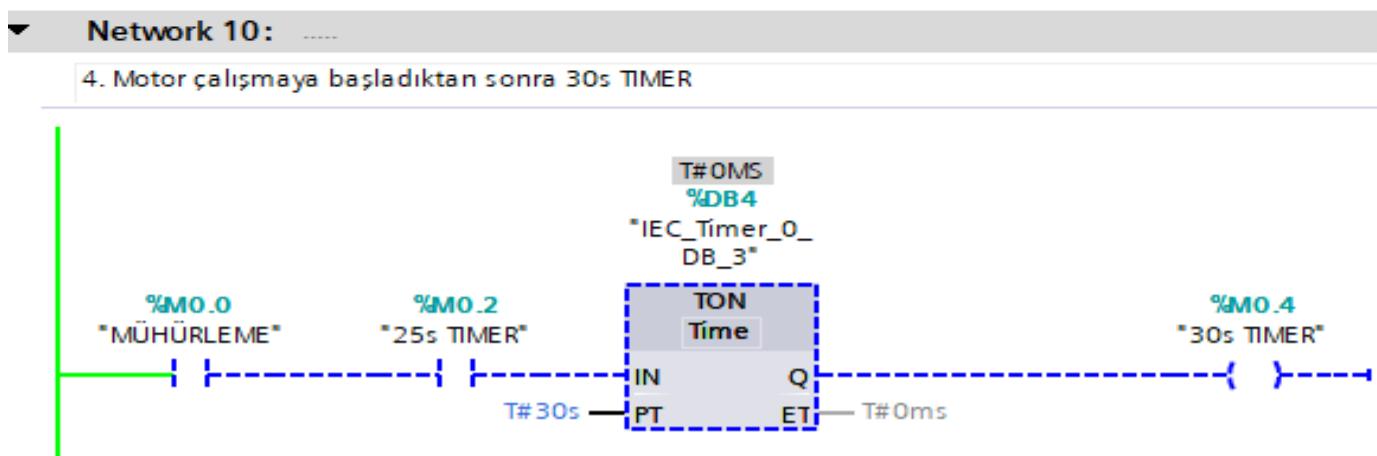
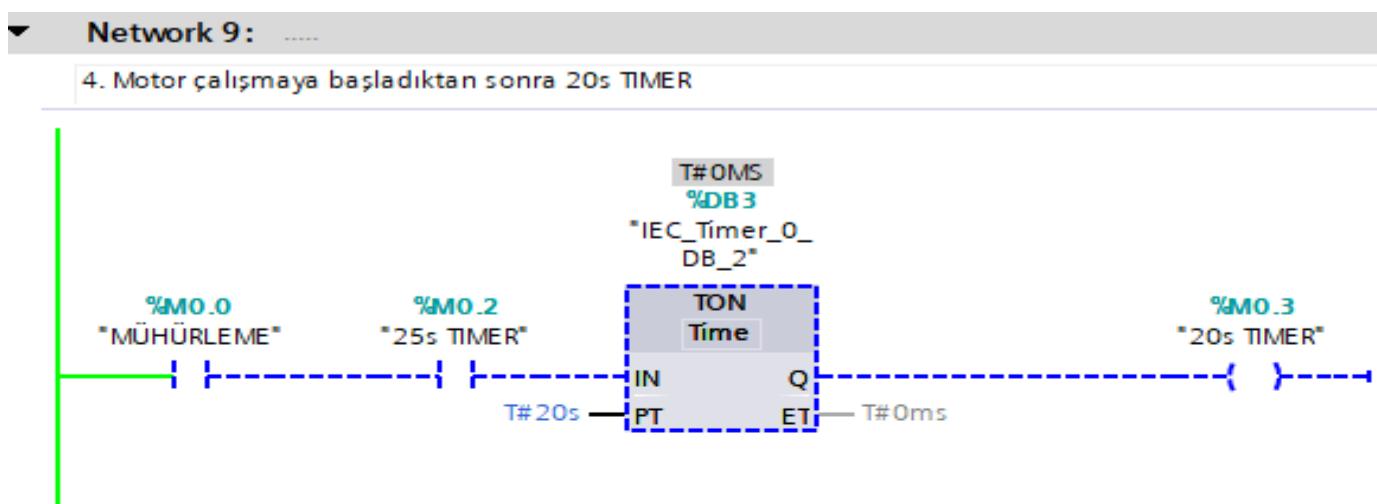
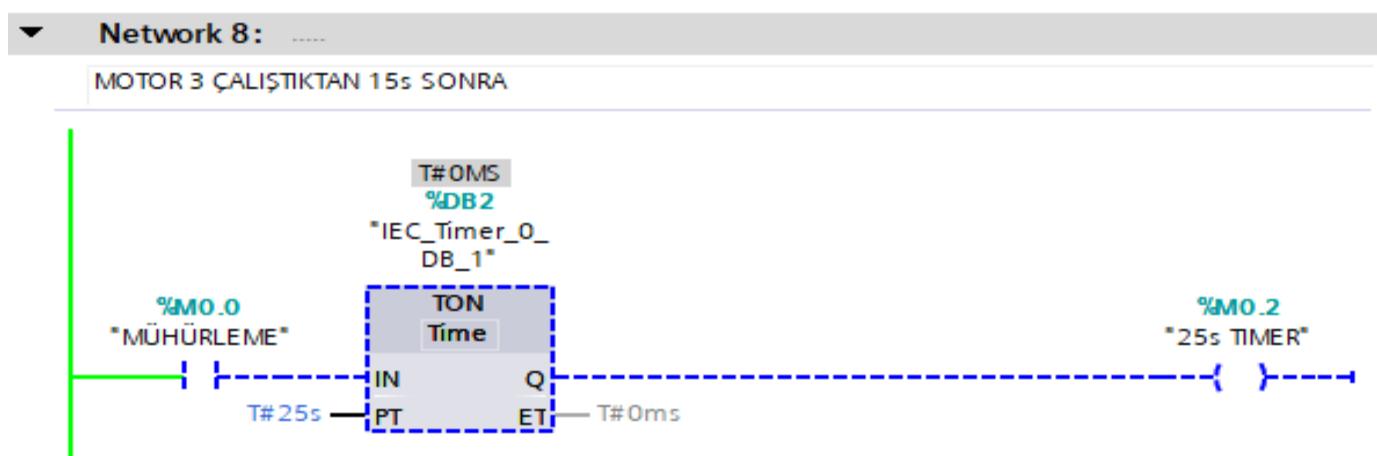
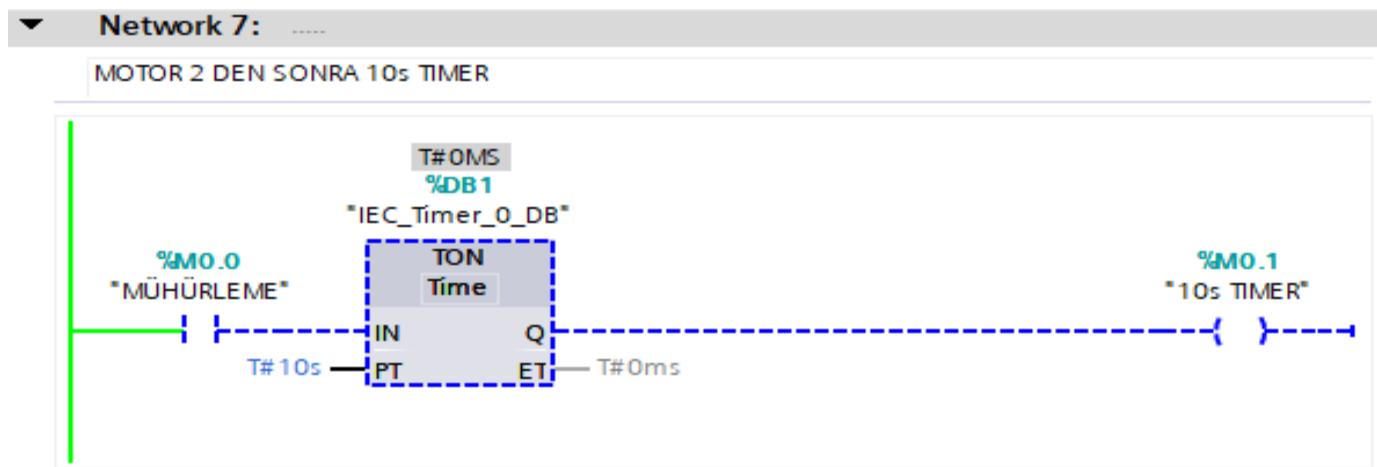
Şekil 38. MOTOR 5' den SONRA 12s SAYACAK TIMER

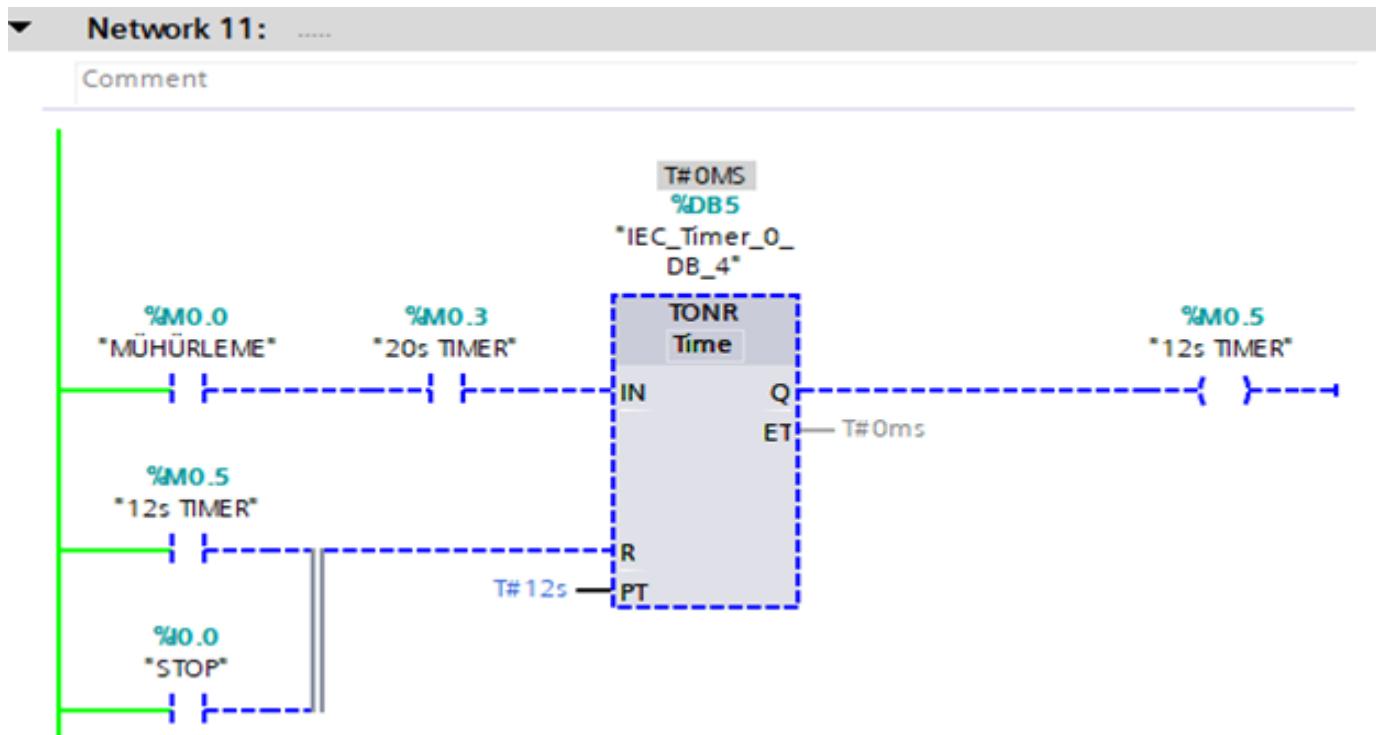


Şekil 39. 12s TIMER ile MÜHÜRLEMEYİ BOZMA

MOTOR 5' den 12s SONRA



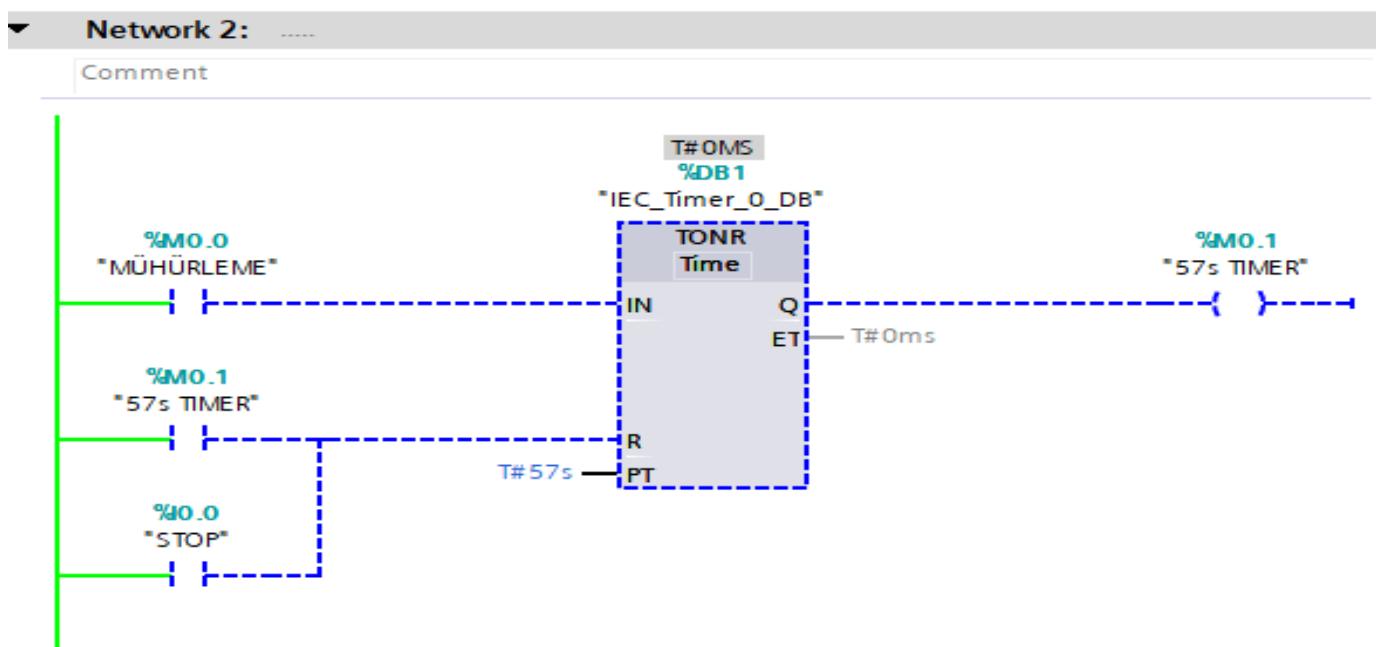
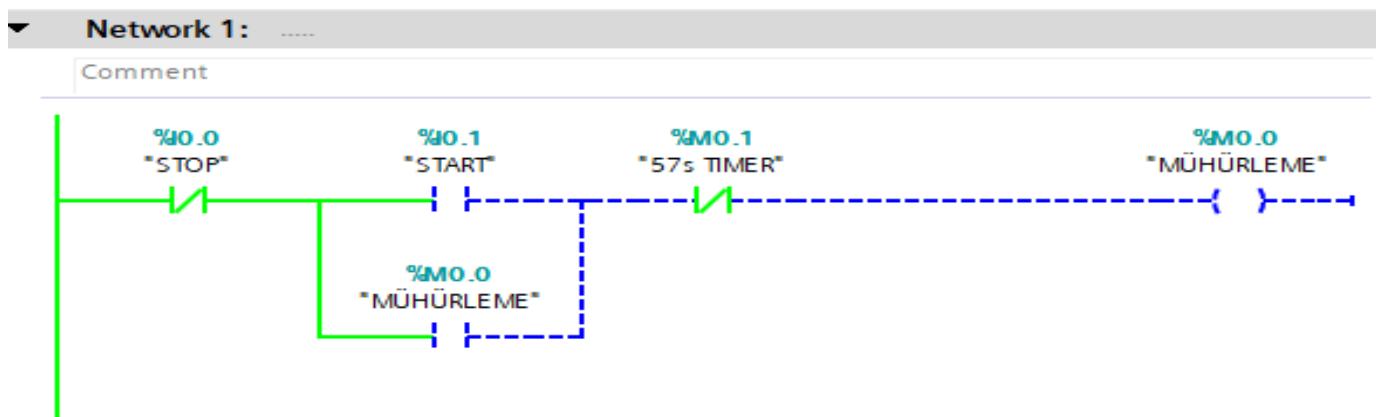


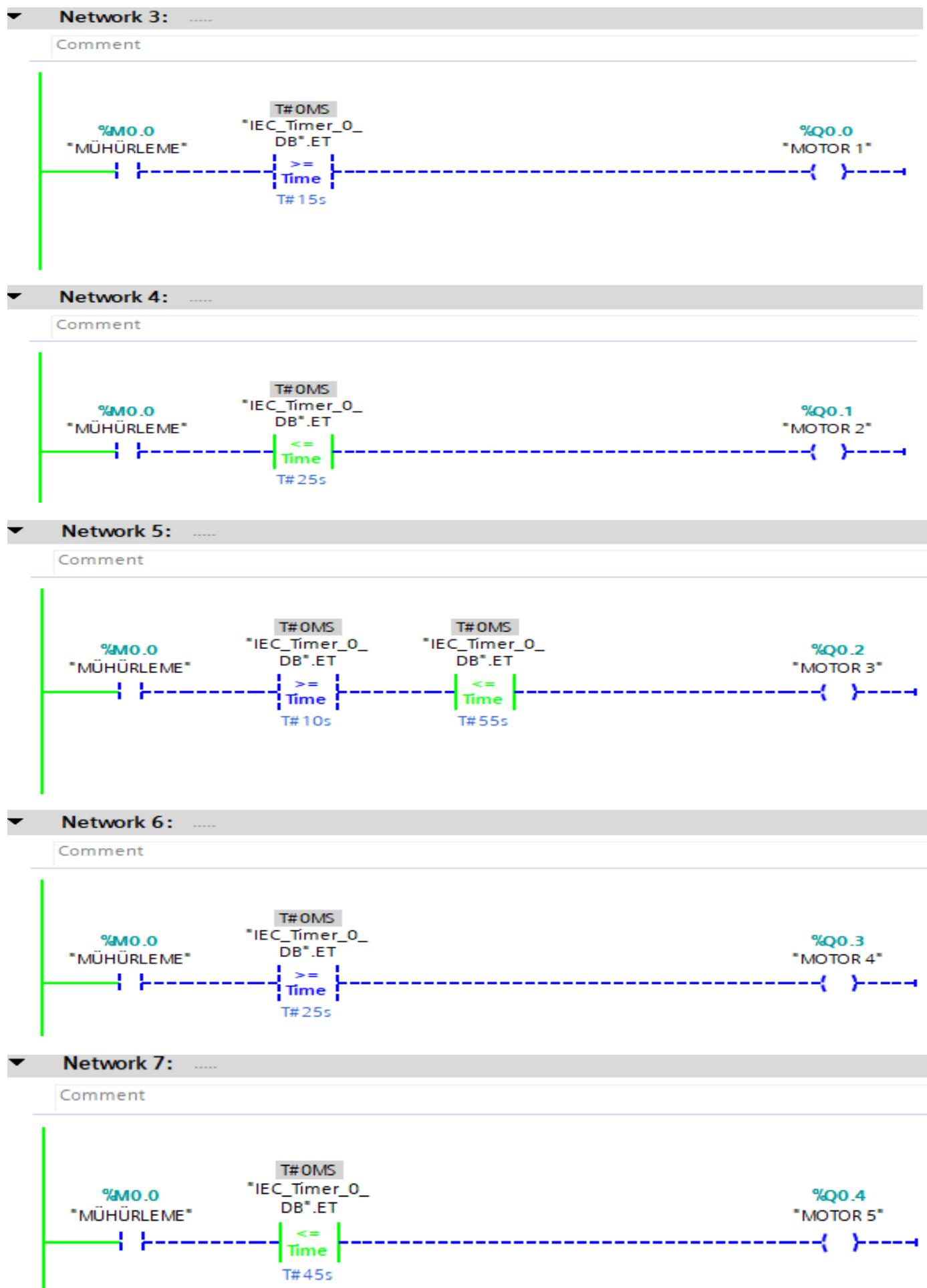


Şekil 38. Sistem

ÇÖZÜM 2

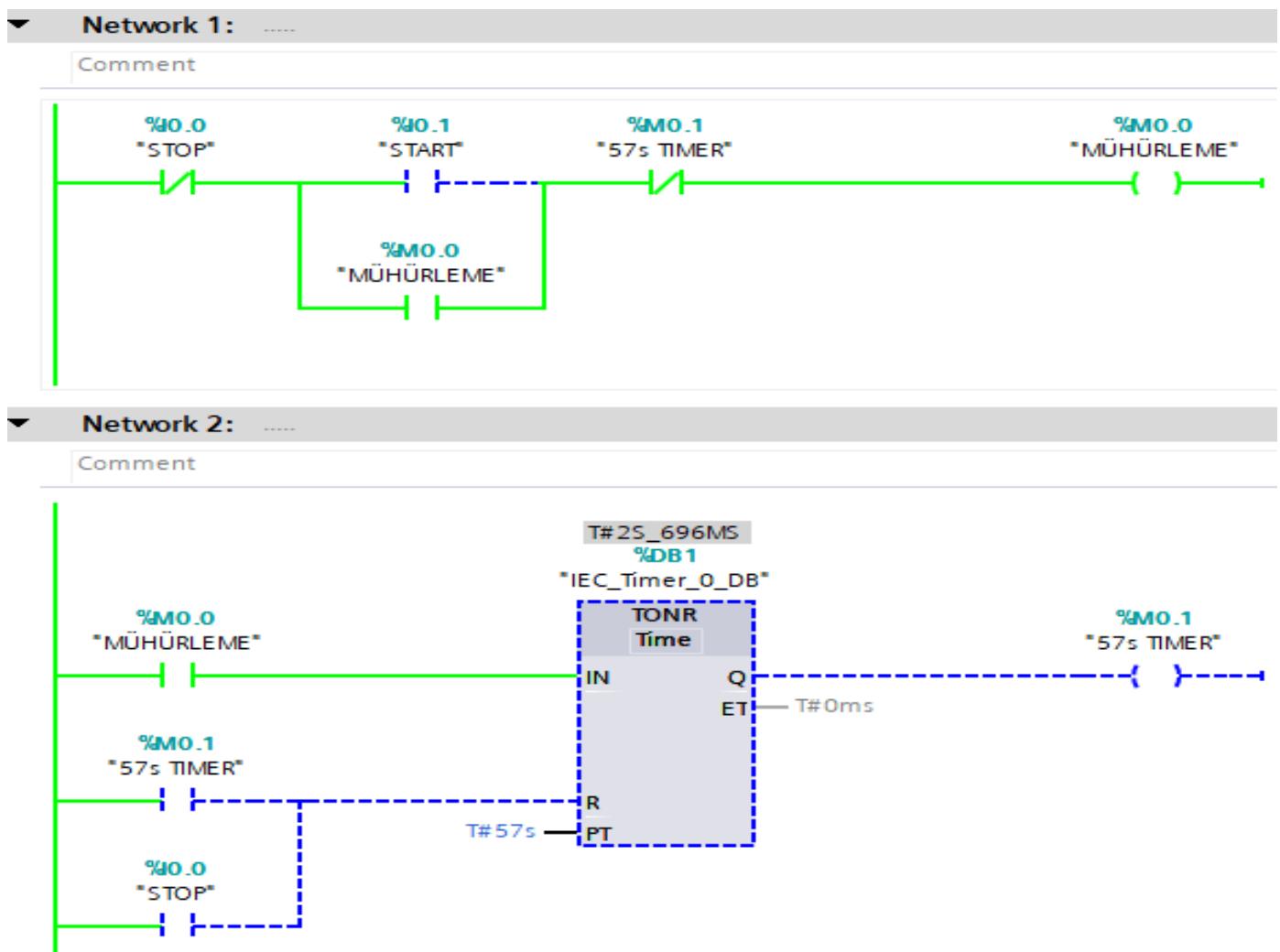
STARTA BASILmadAN ÖNCE



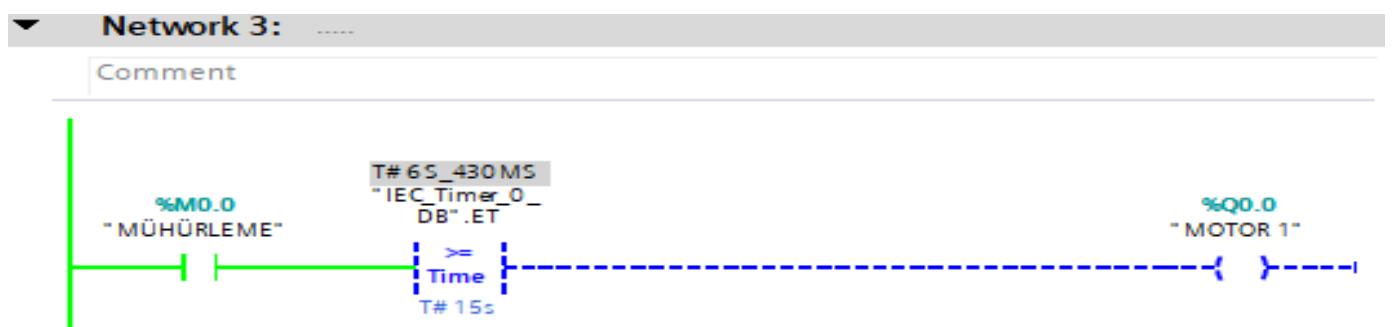


Sekil 39. Sistem (Starta Basılmadan Önce)

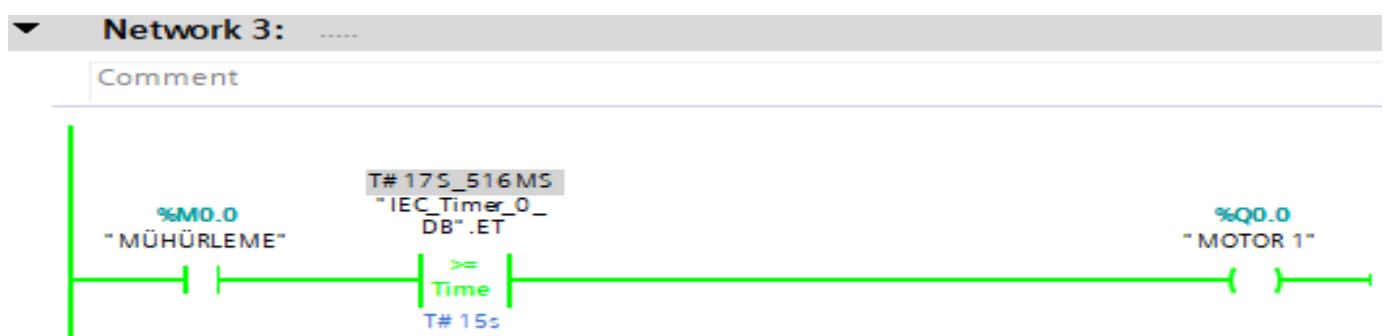
STARTA BASILDIKTAN SONRA



MOTOR 1

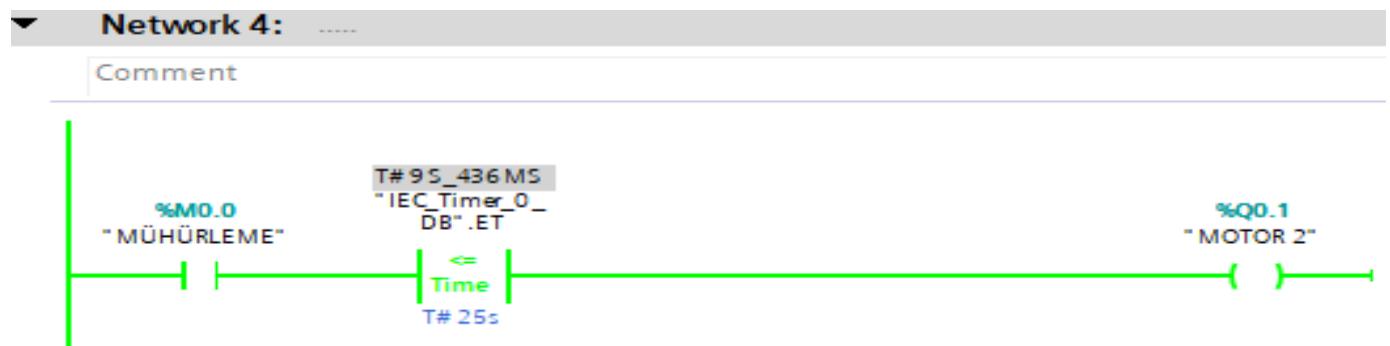


Şekil 40. 15s ÖNCE

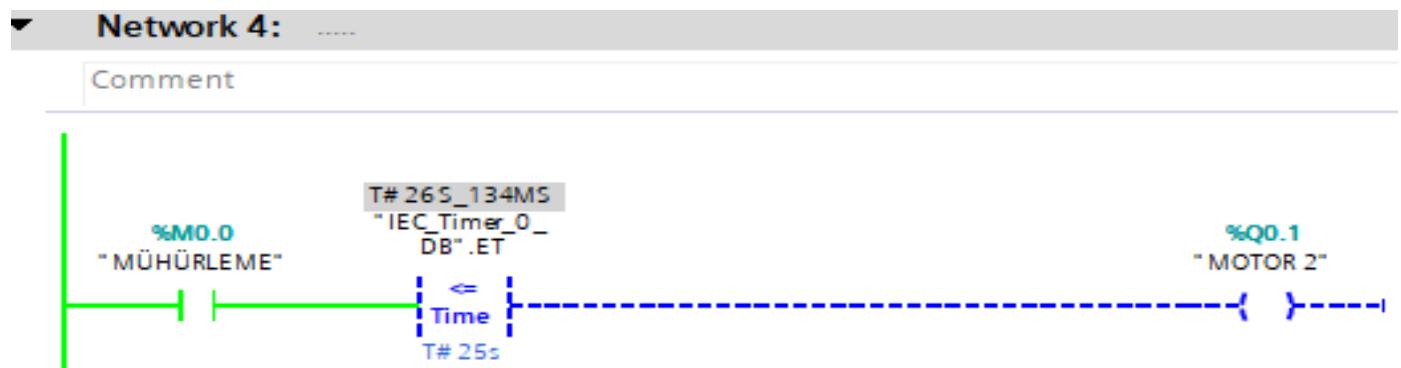


Şekil 41. 15s SONRA

MOTOR 2

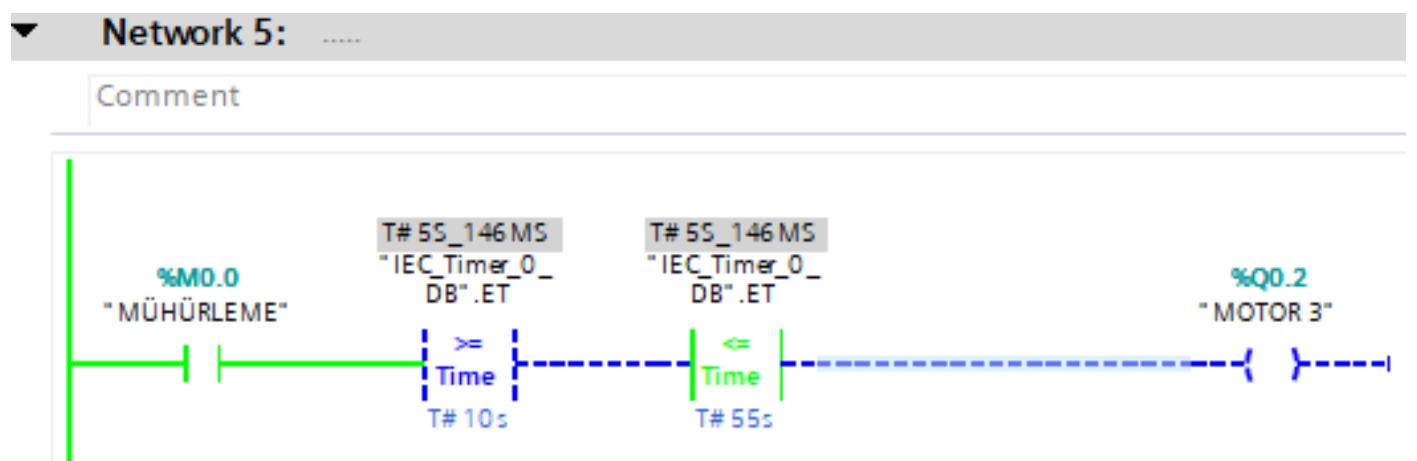


Şekil 42. 25s ÖNCE

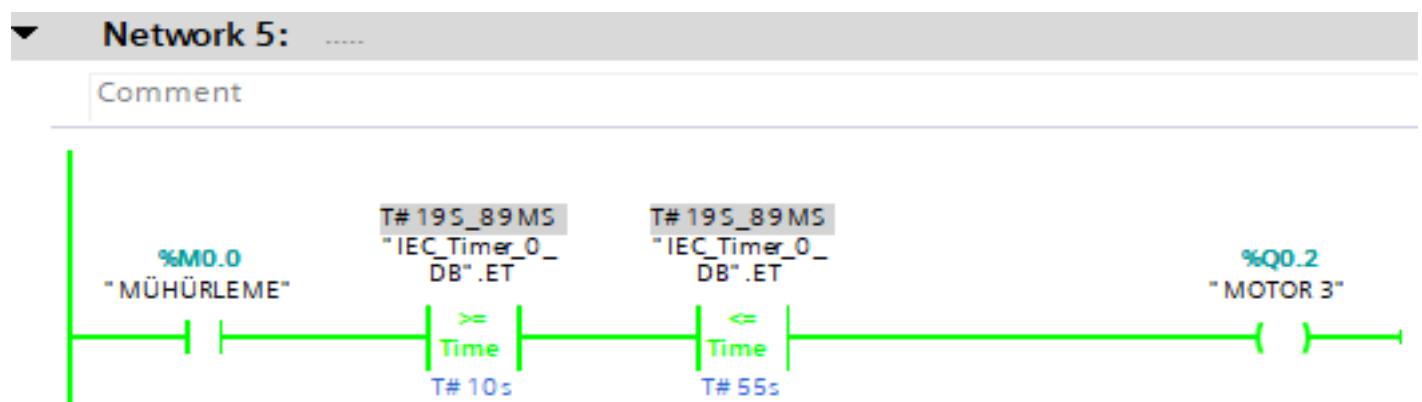


Şekil 43. 25s SONRA

MOTOR 3



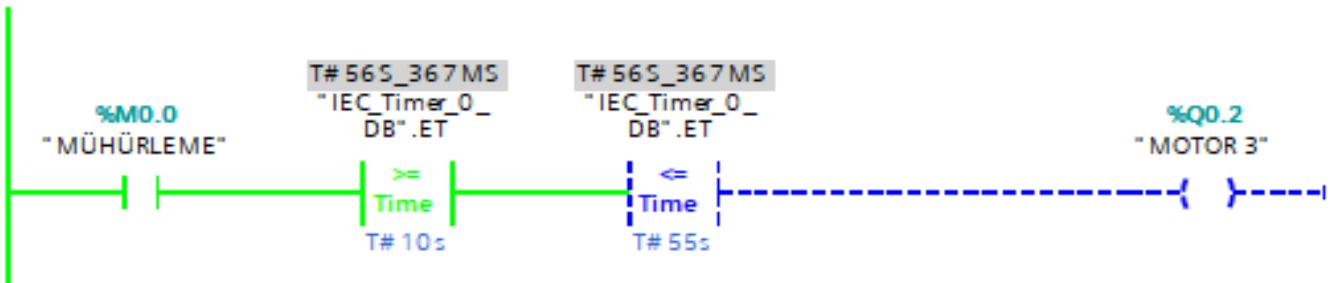
Şekil 44. 10s ÖNCE



Şekil 45. 10s ile 55s ARASINDA

Network 5:

Comment



Sekil 46. 55s SONRA

MOTOR 4

Network 6:

Comment



Sekil 18. 25s ÖNCE

Network 6:

Comment



Sekil 48. 25s SONRA

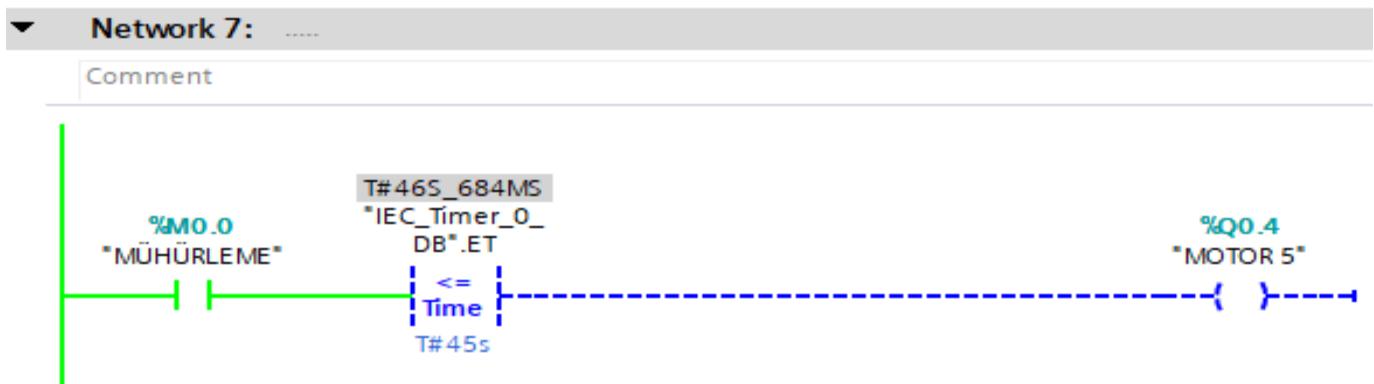
MOTOR 5

Network 7:

Comment



Sekil 49. 45s ÖNCE



Sekil 50. 45s SONRA

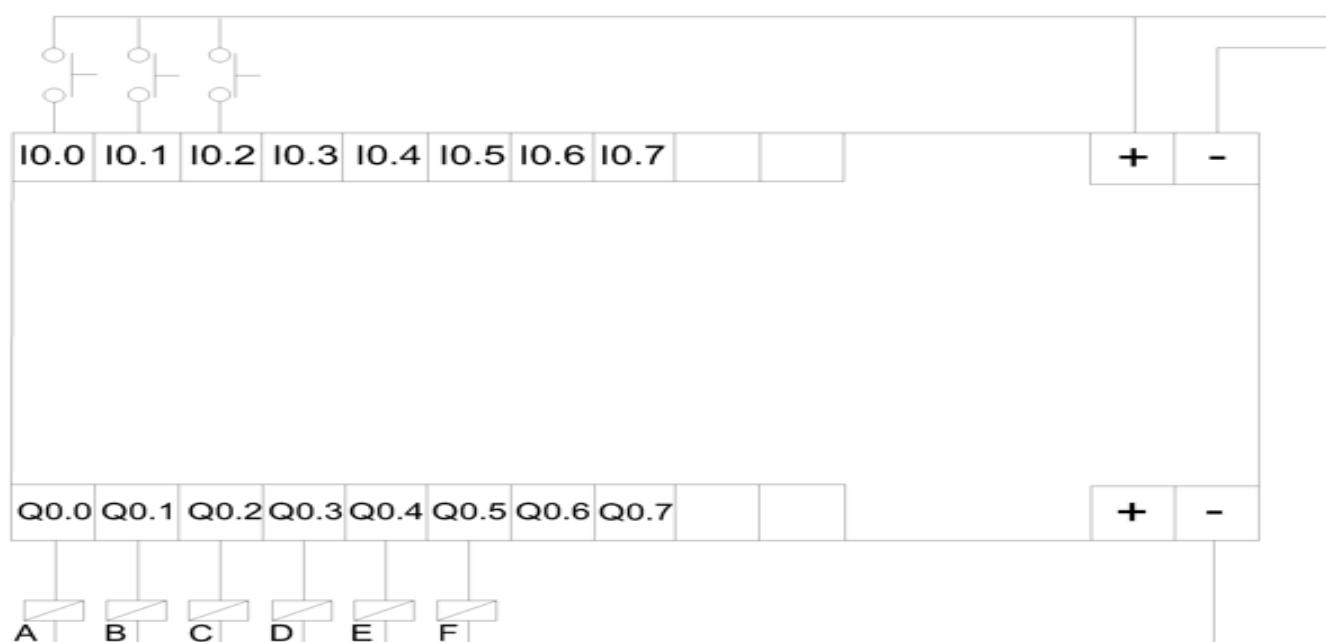
ÖRNEK 12

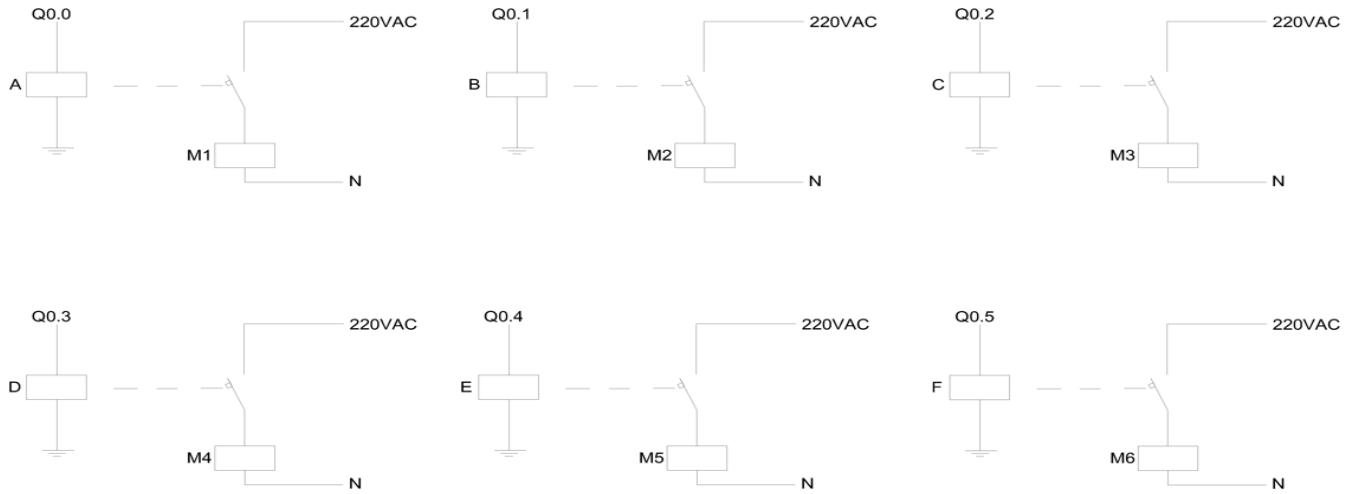
Giriş – Çıkış

GİRİŞLER	
STOP	I0.0
START	I0.1

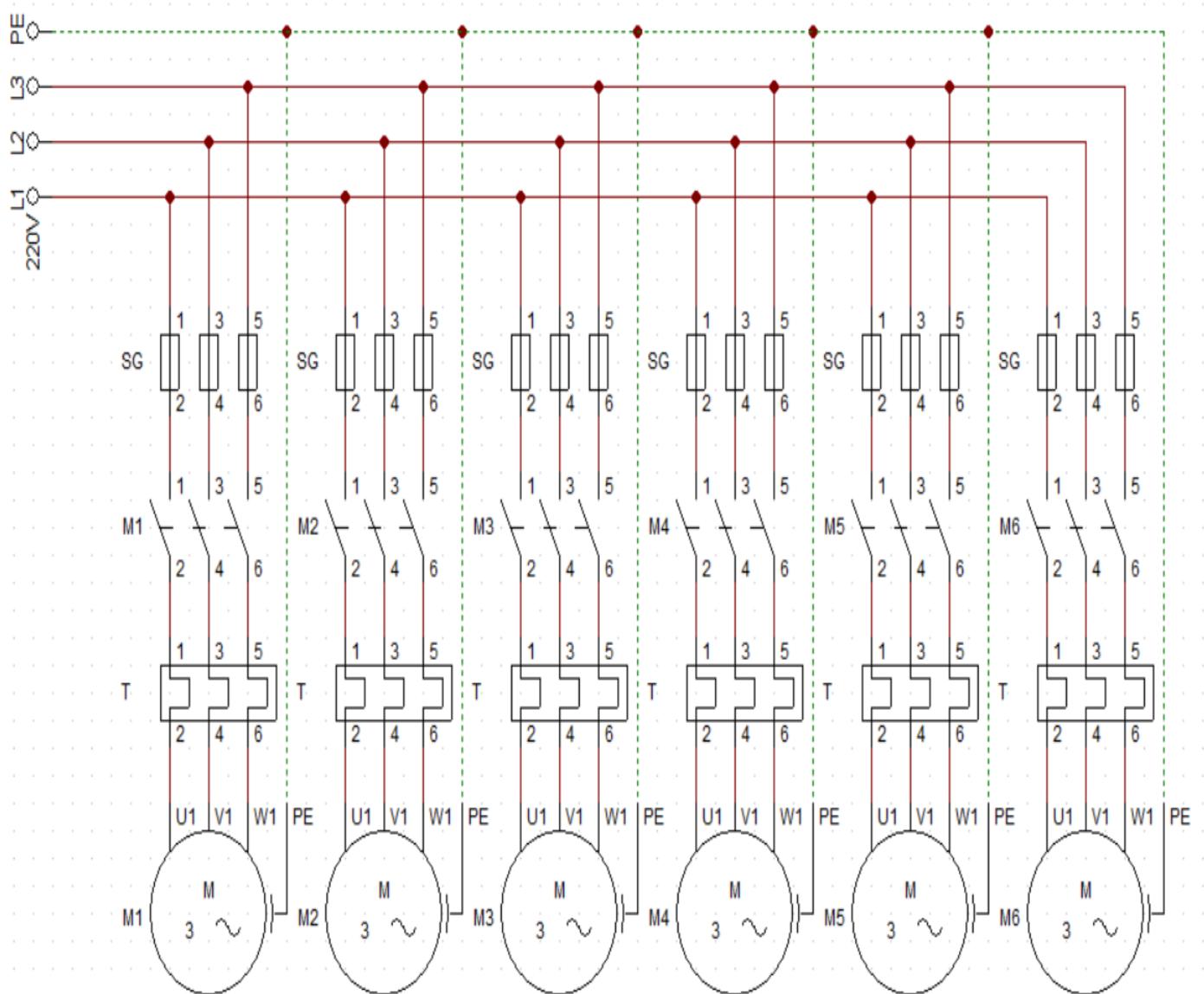
ÇIKIŞLAR	
MOTOR 1	Q0.0
MOTOR 2	Q0.1
MOTOR 3	Q0.2
MOTOR 4	Q0.3
MOTOR 5	Q0.4
MOTOR 6	Q0.5

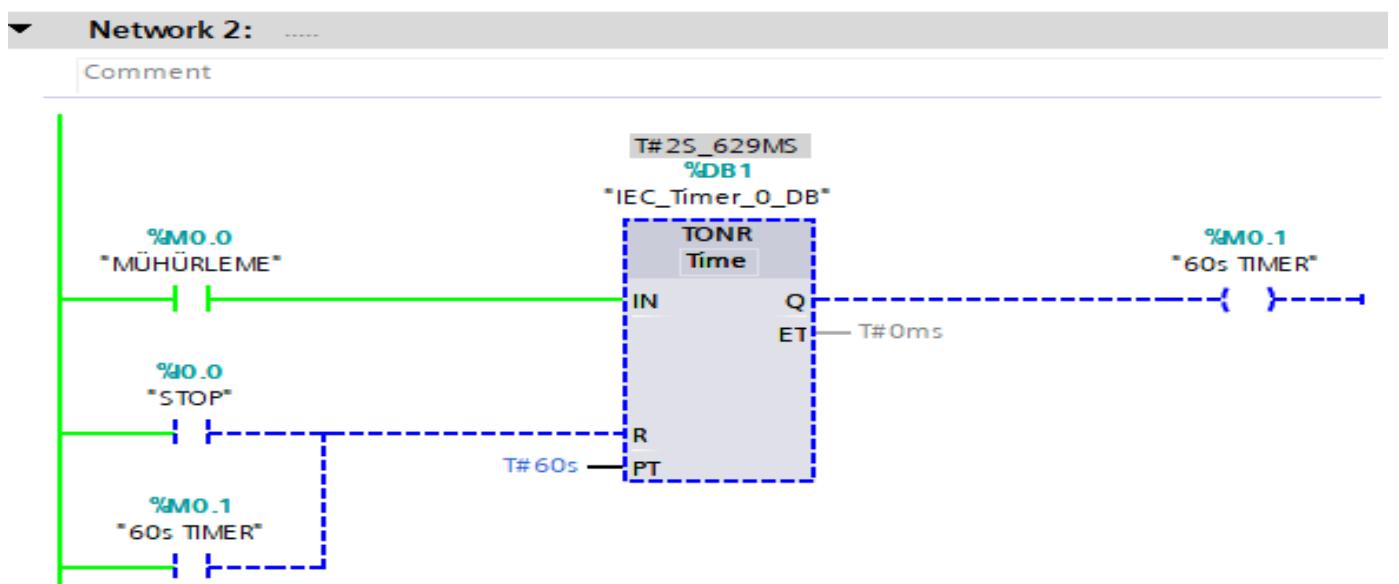
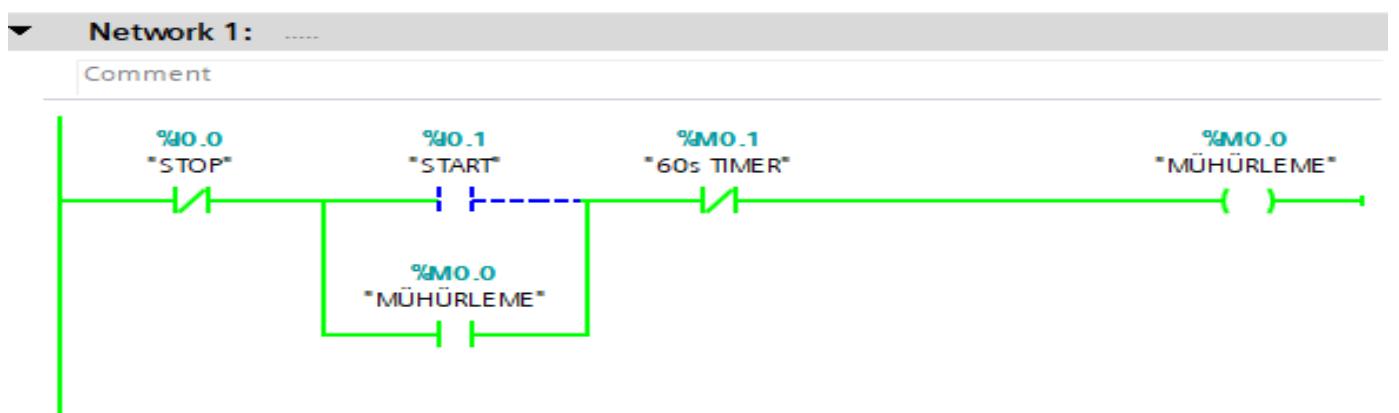
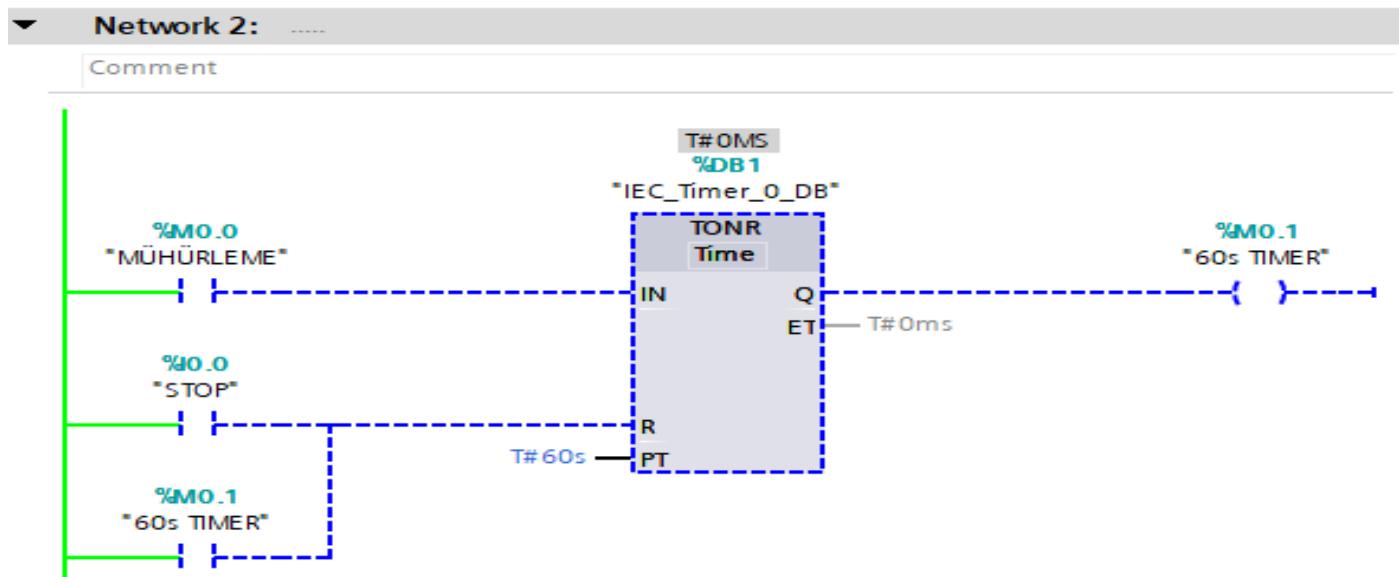
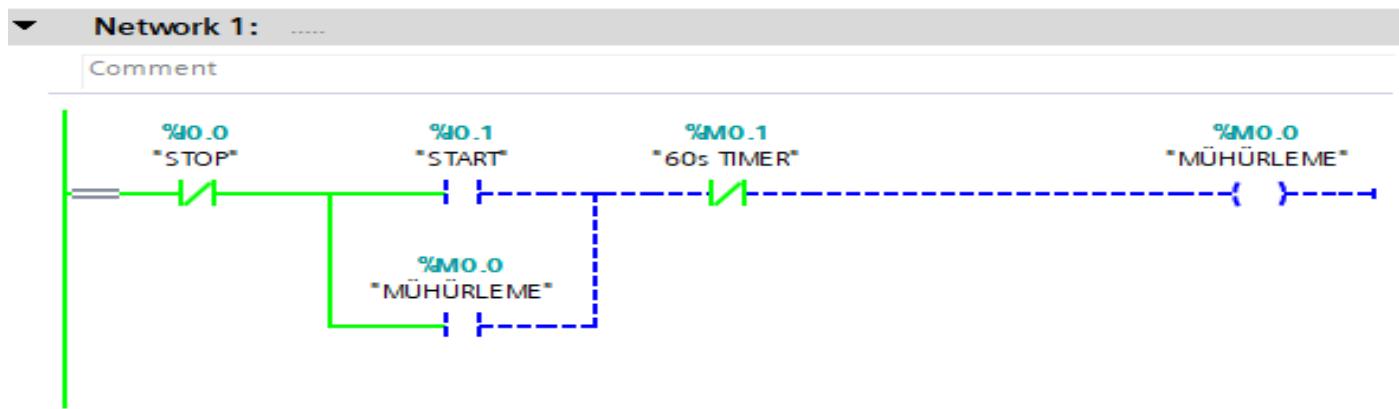
Dış Devre Bağlantı Şeması



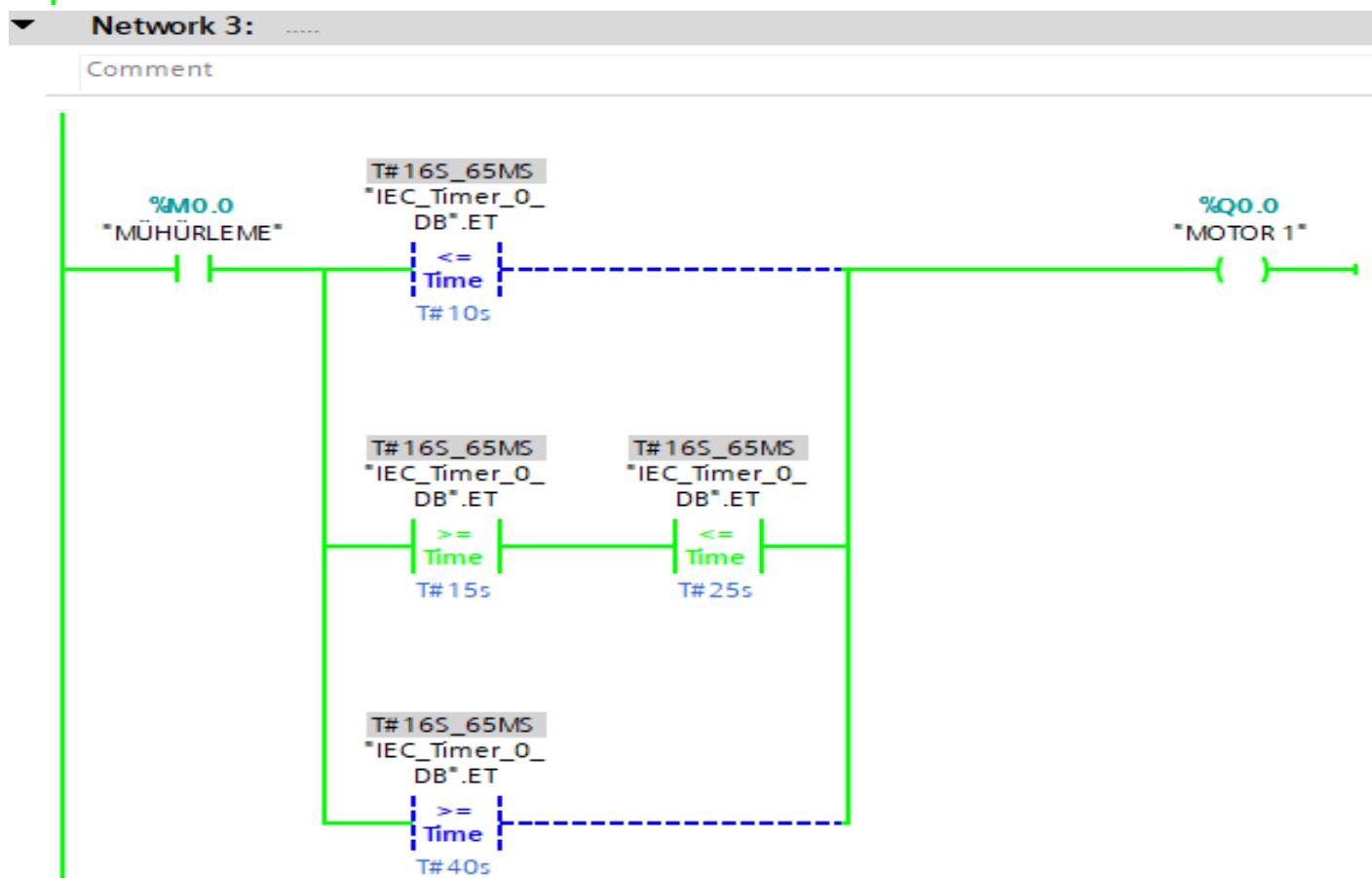
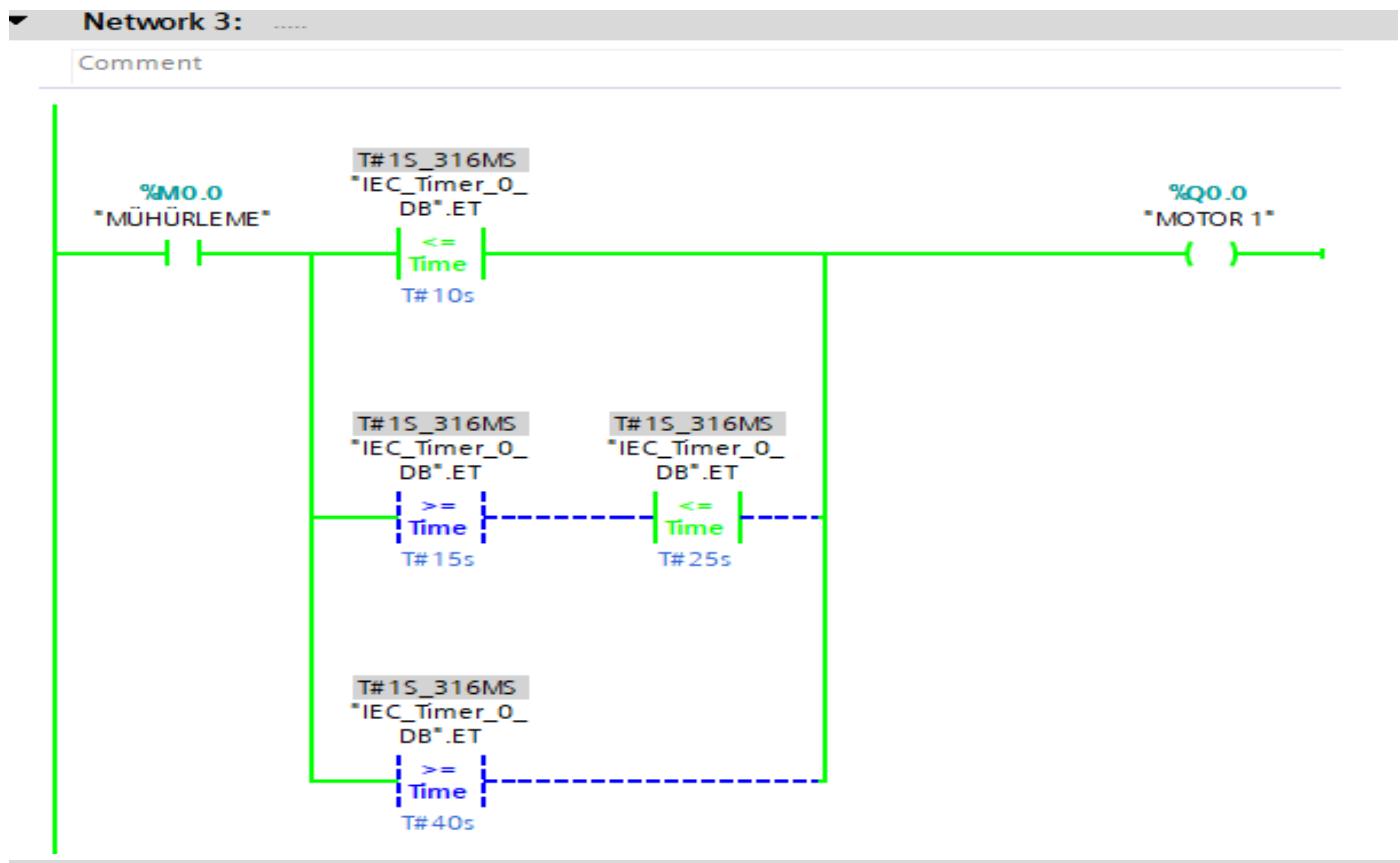


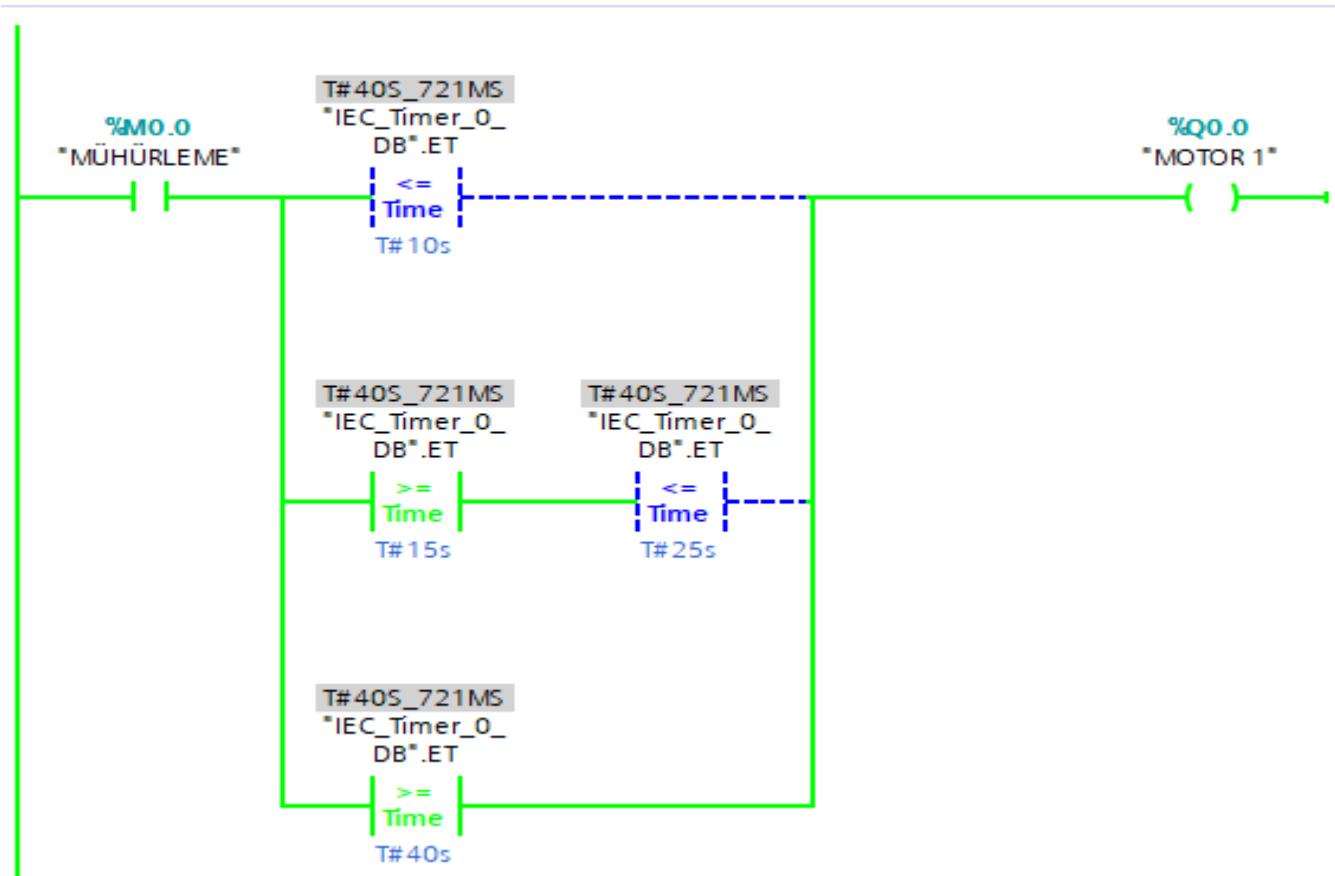
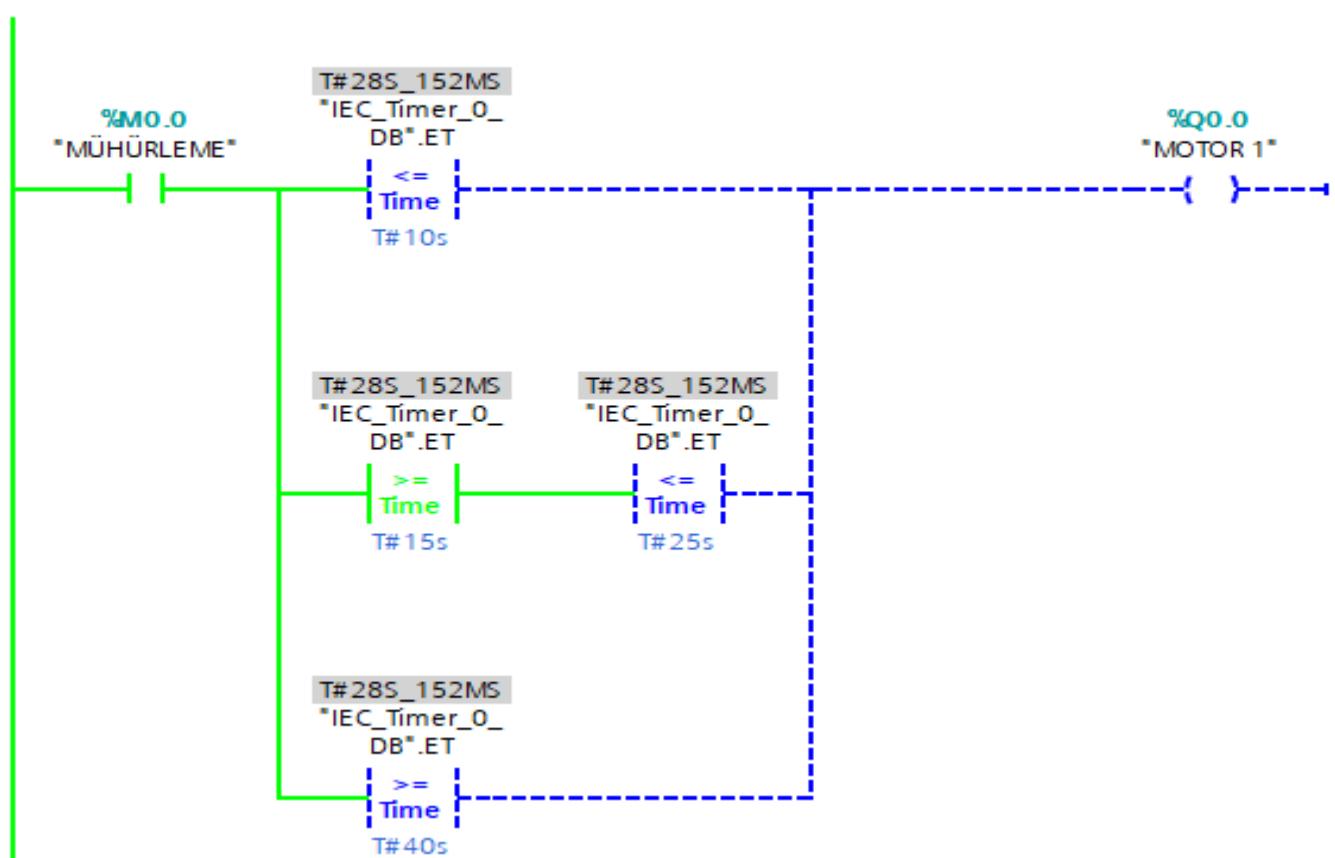
Güç Devresi



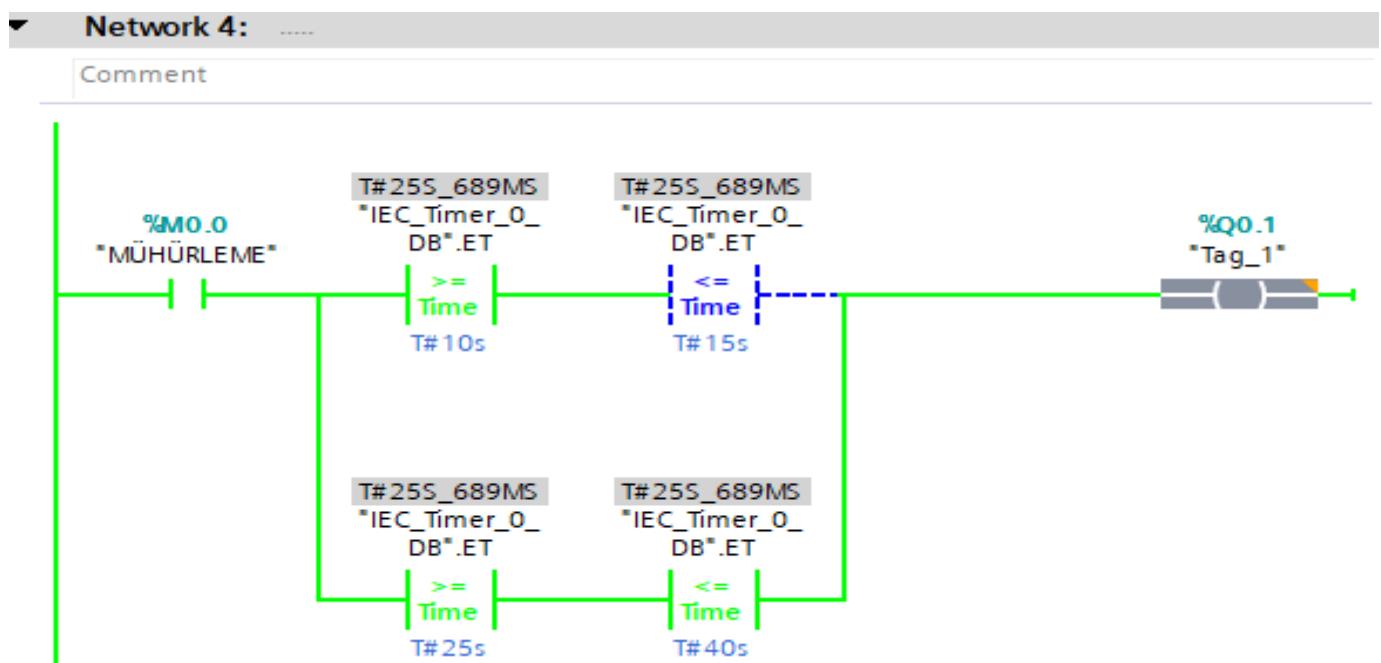
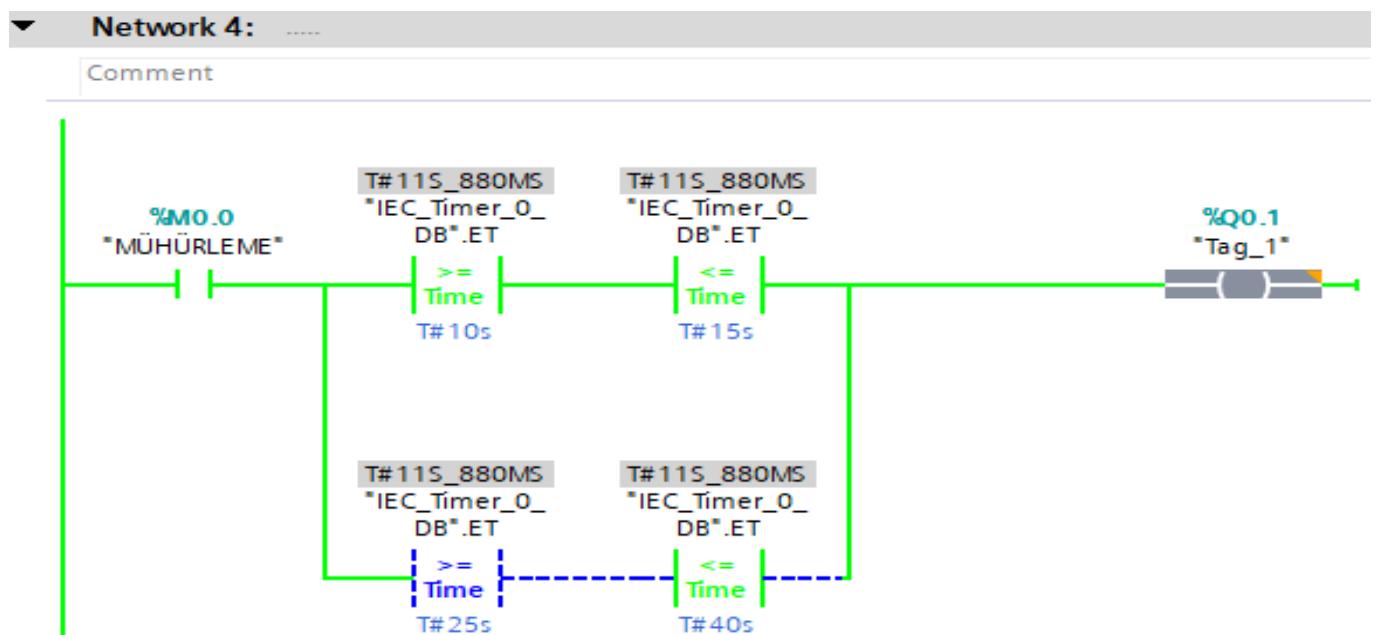
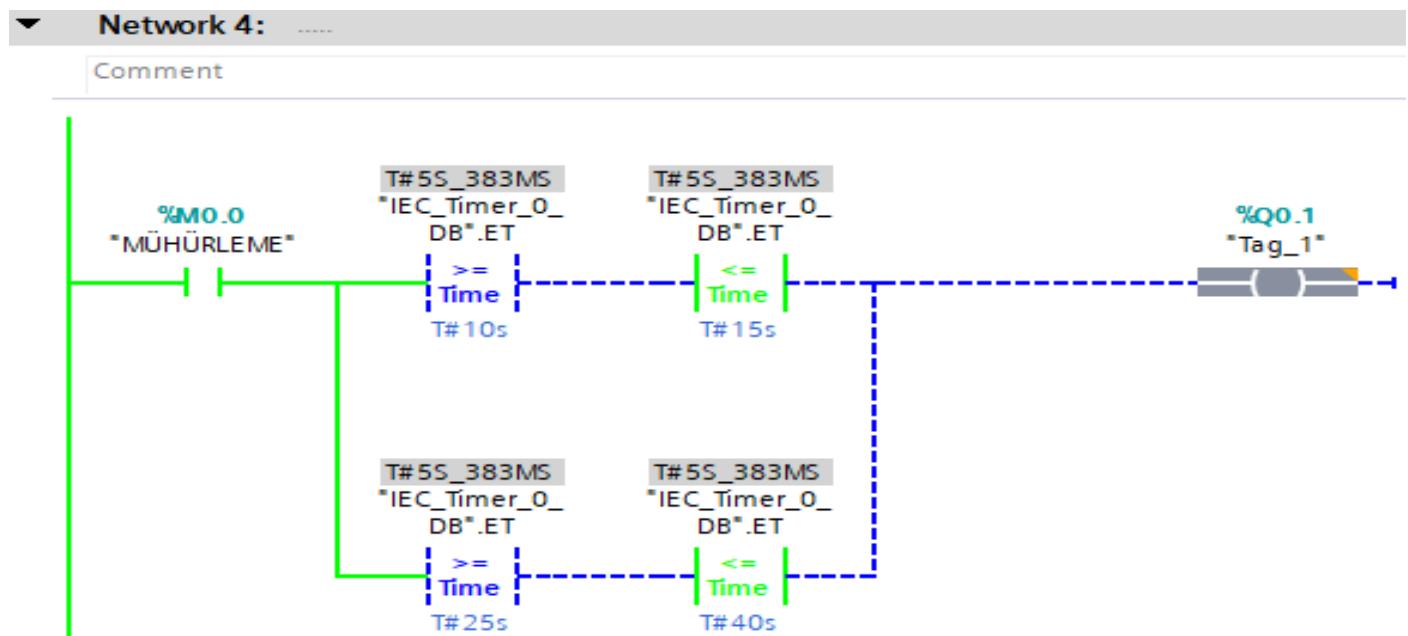


MOTOR 1

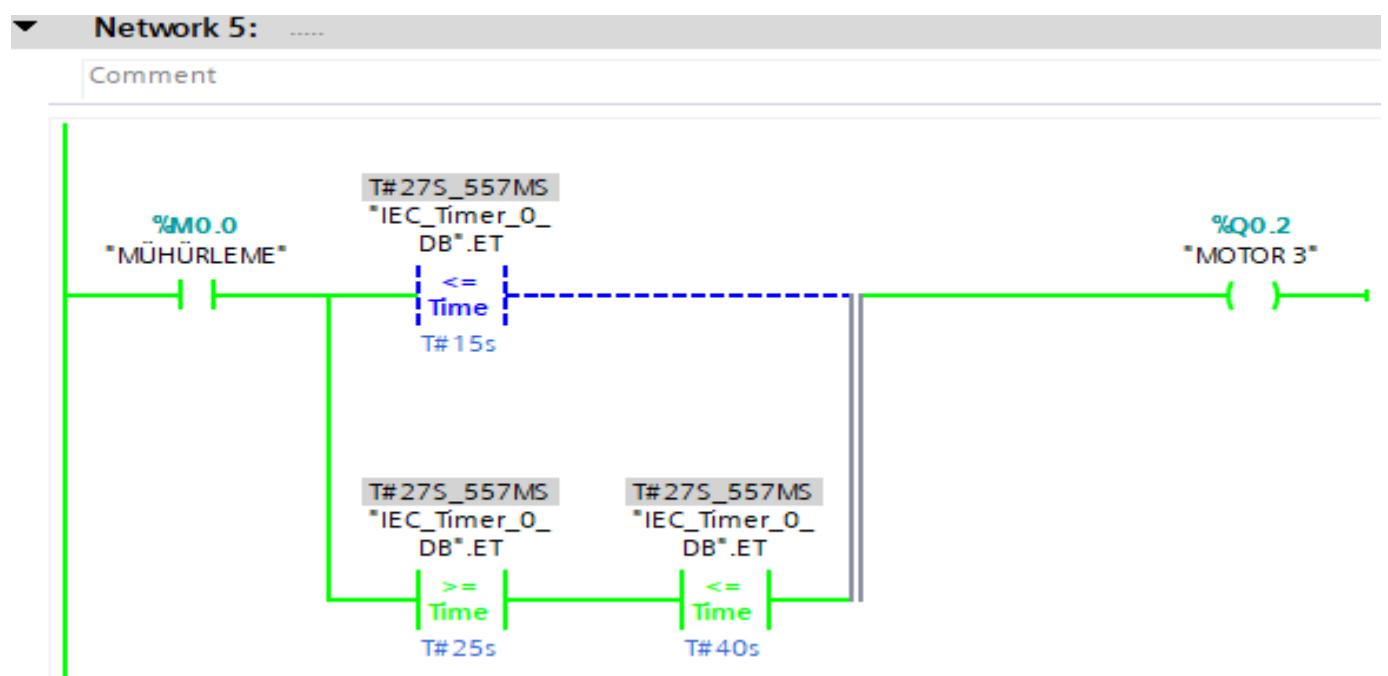
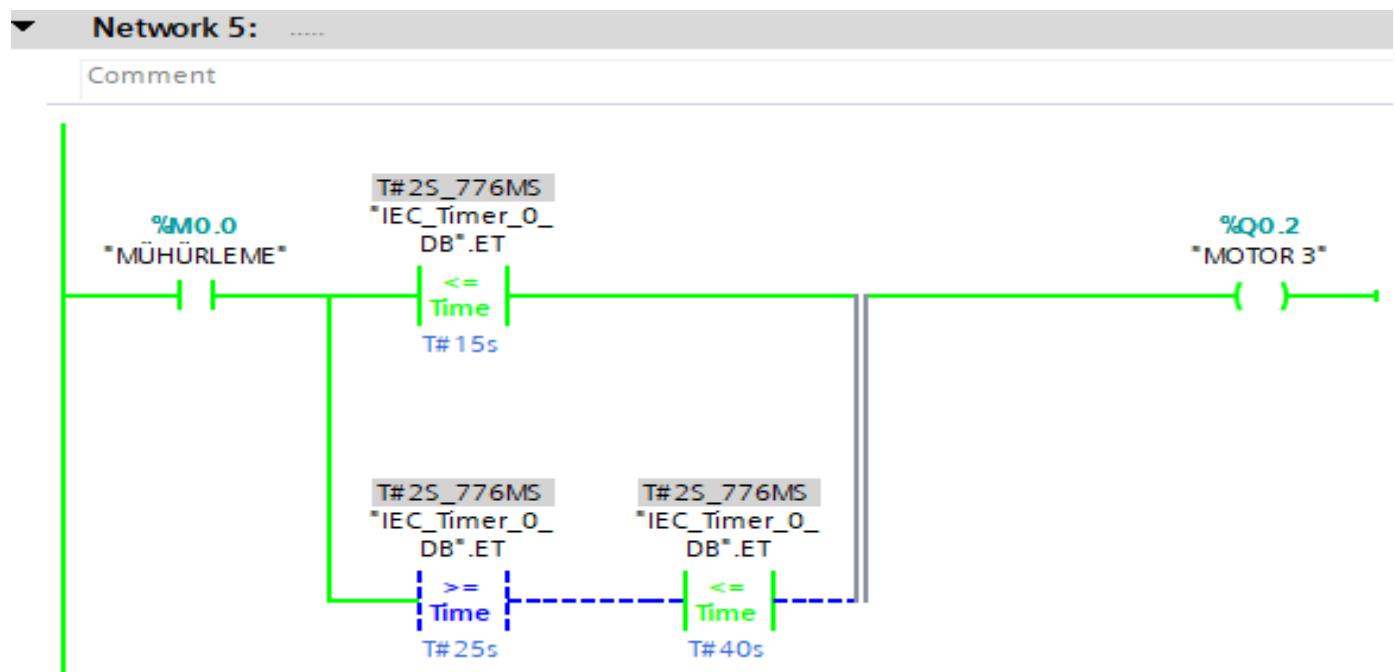




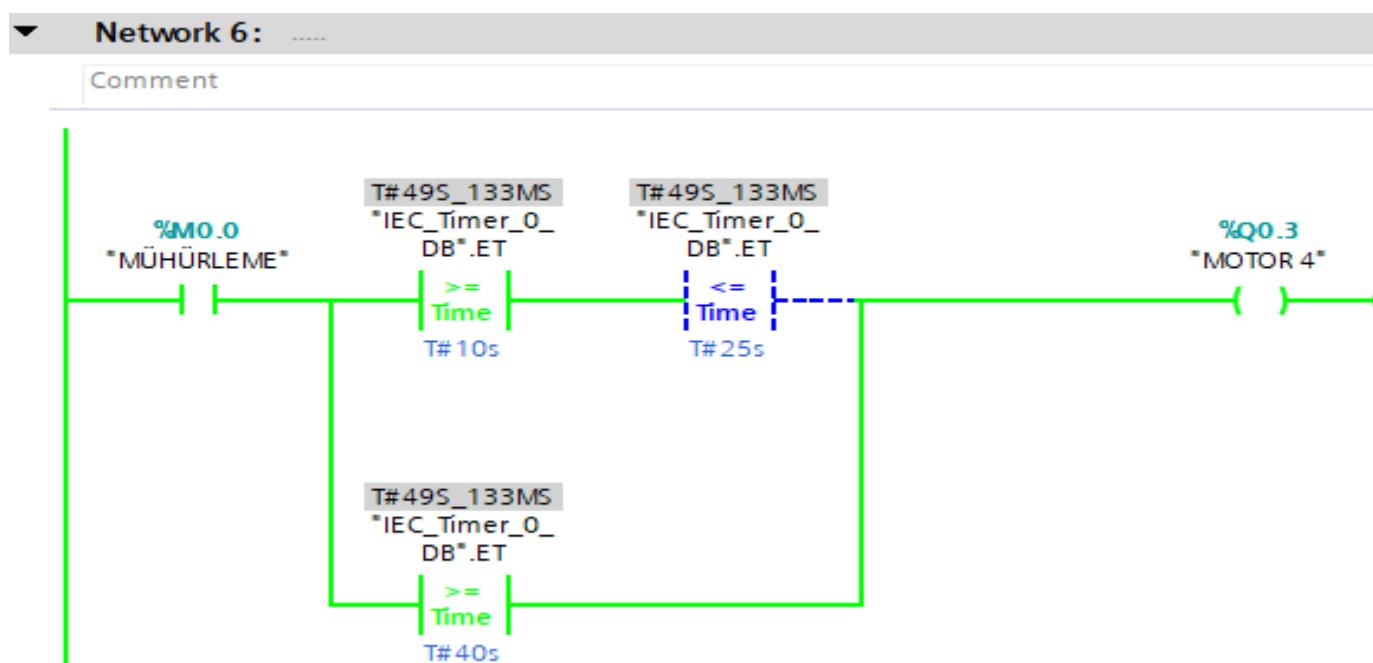
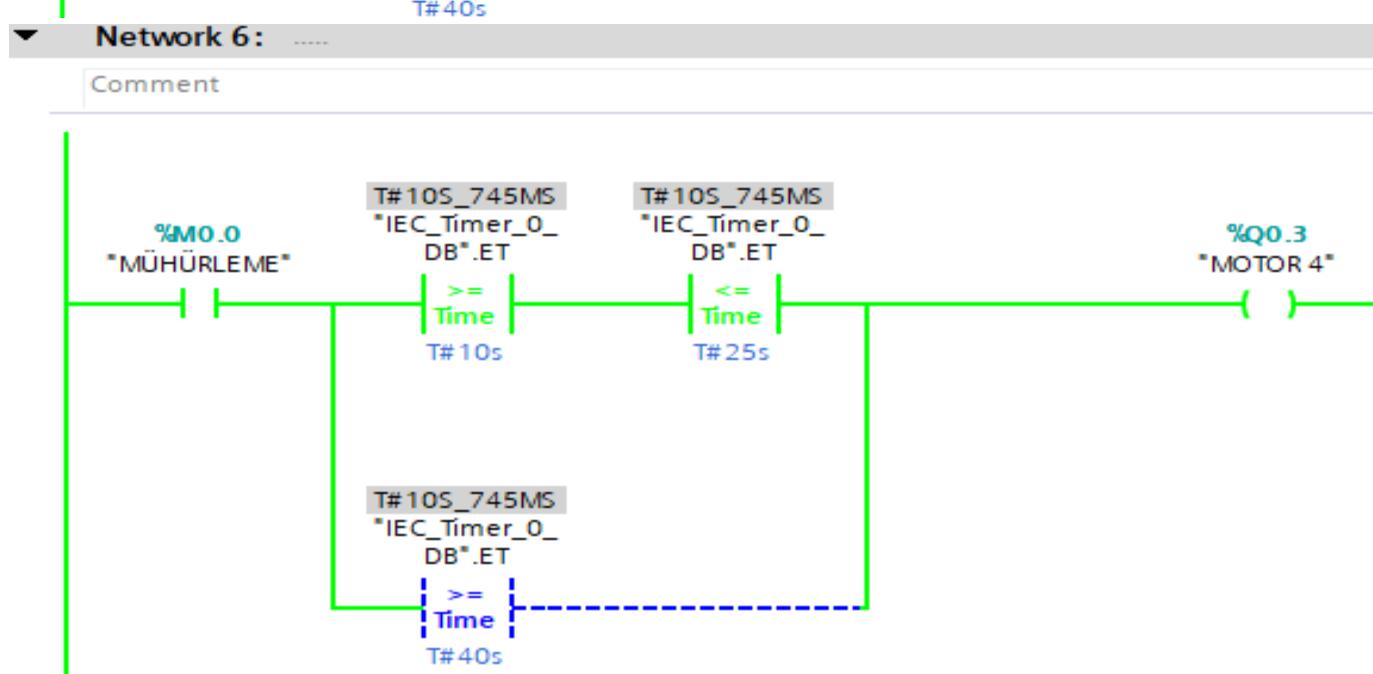
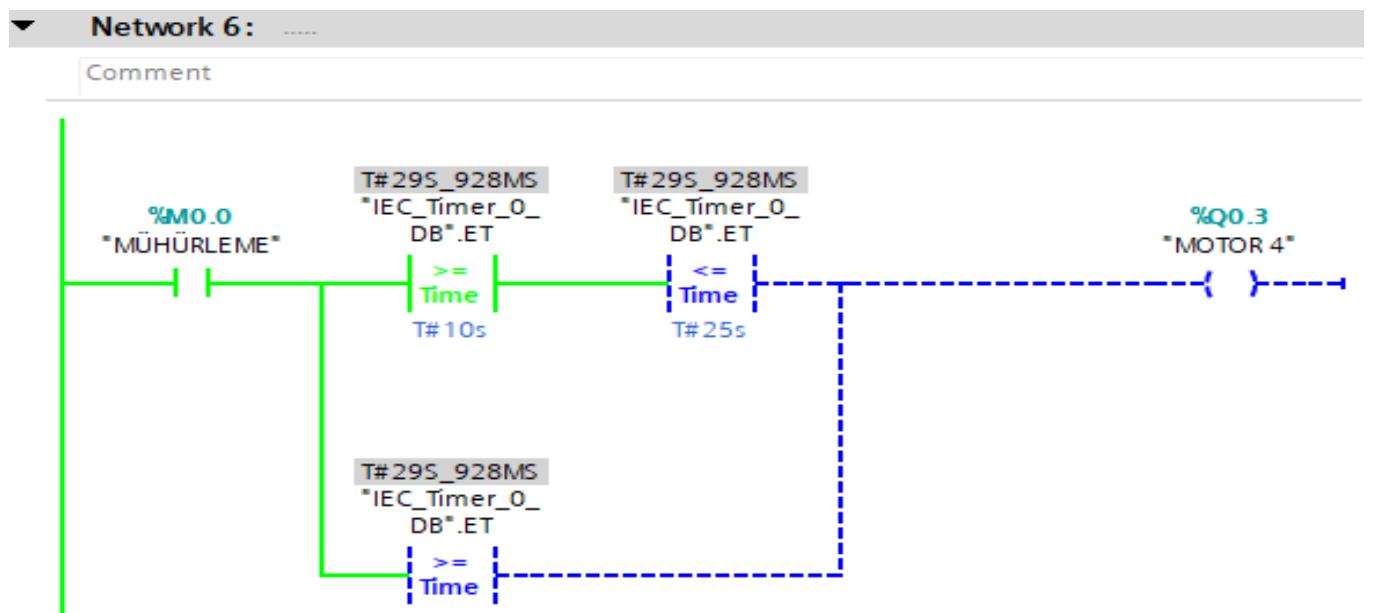
MOTOR 2



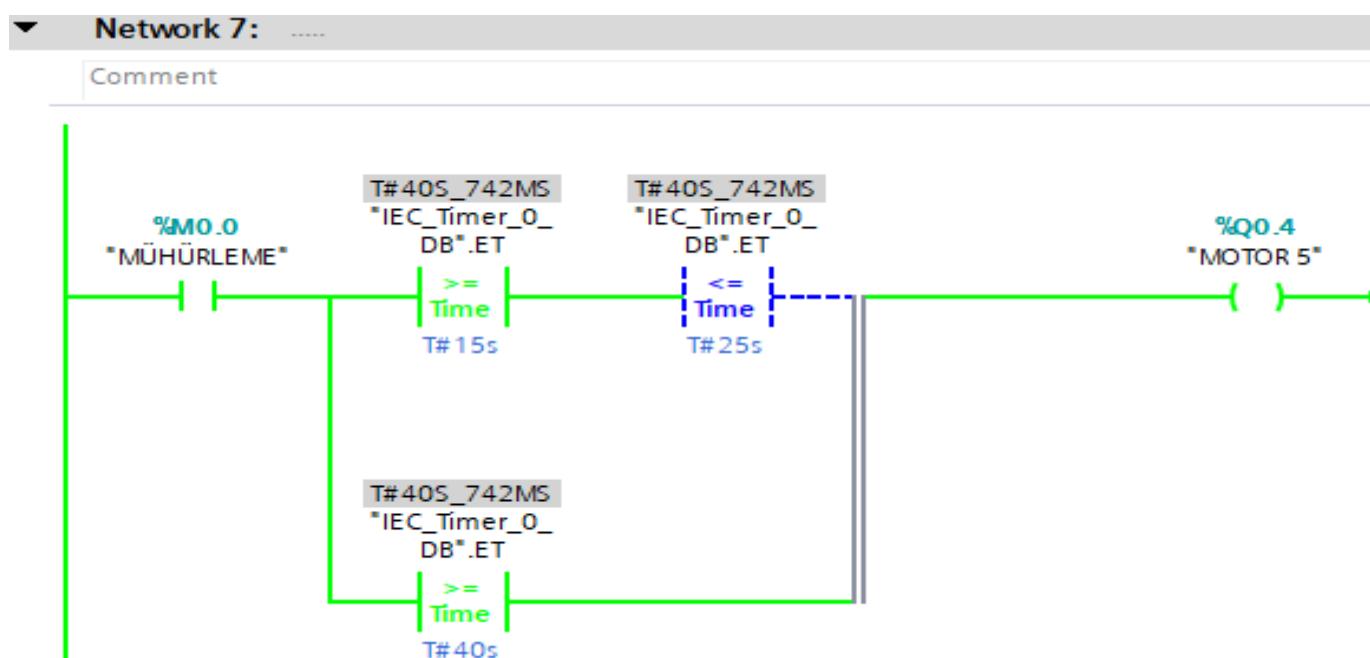
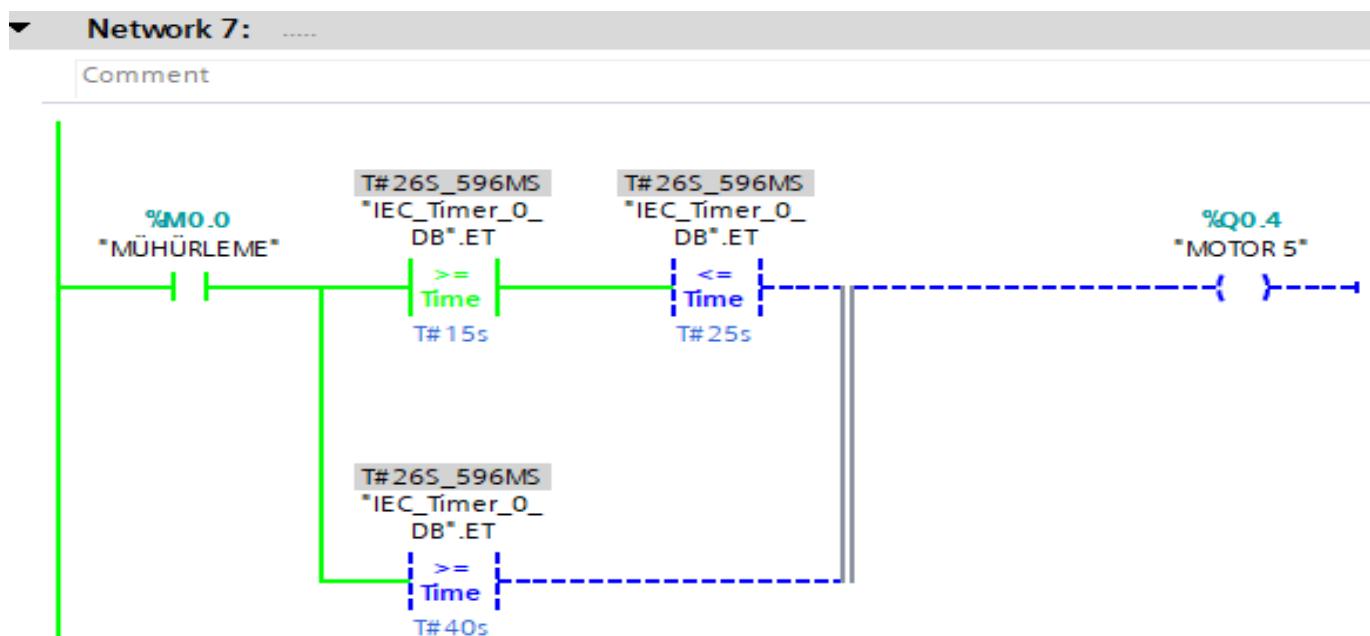
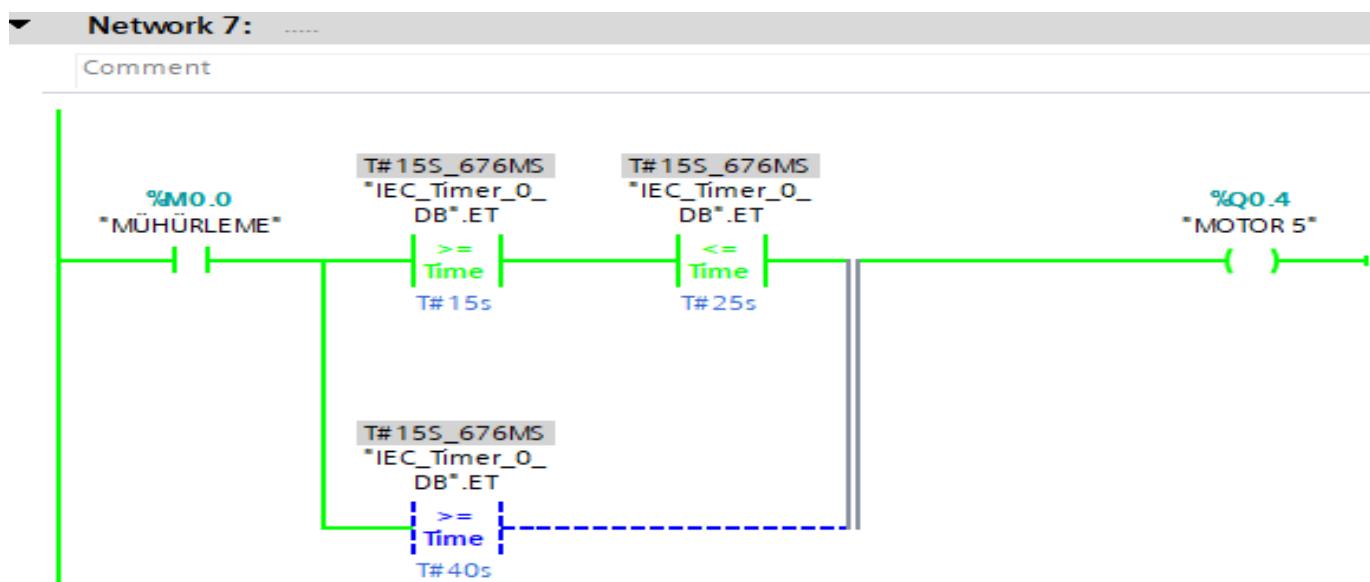
MOTOR 3



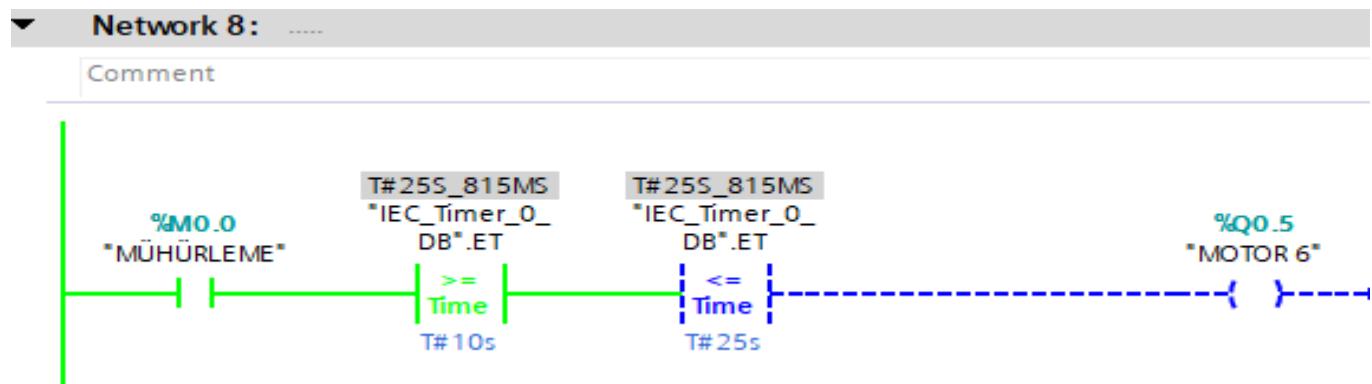
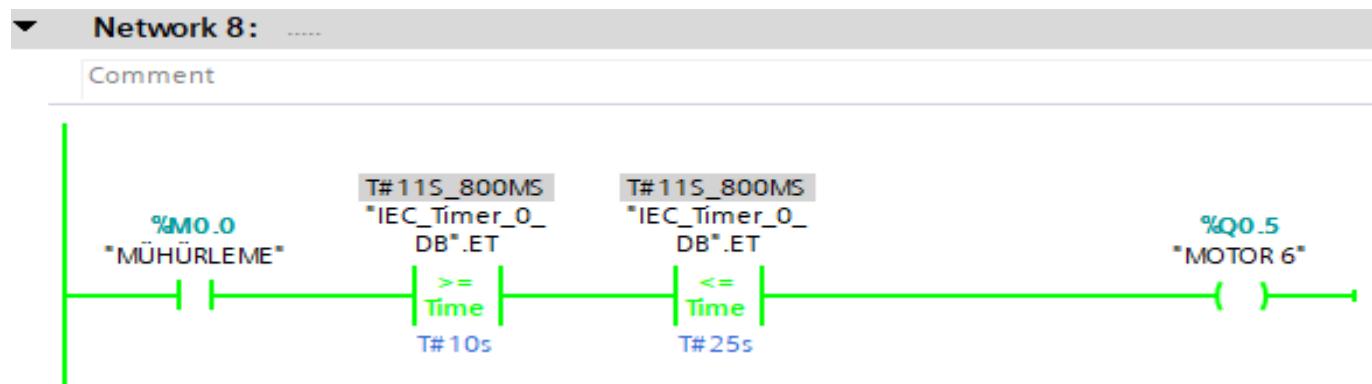
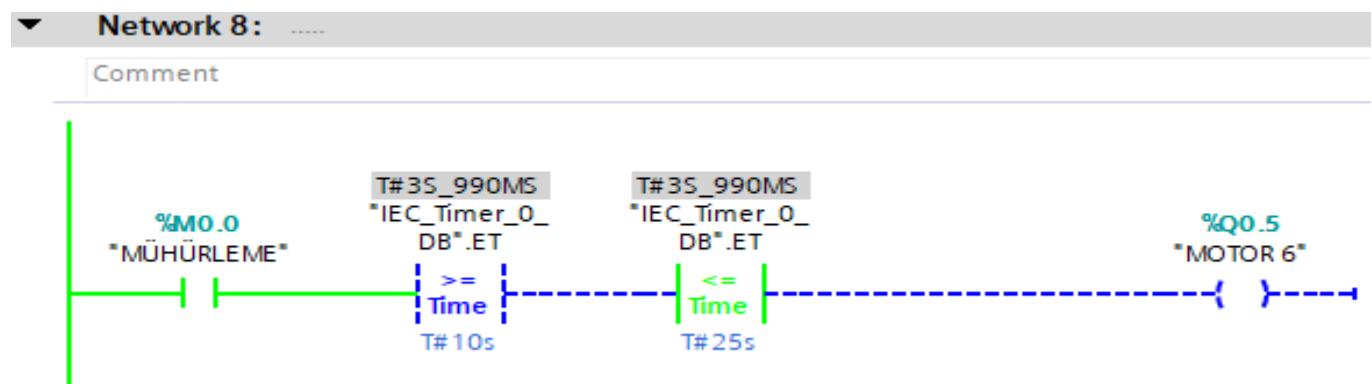
MOTOR 4



MOTOR 5



MOTOR 6



ÖRNEK 13

Starta basıldığında M1 motoru sola doğru 15s çalışacaktır. M3 aşağı SW6'ya çarpıncaya kadar çalışacaktır. SW6'ya ulaşıldığında M4 testere motoru ile M2 ileri motoru, SW4'e gelinceye kadar çalışacaktır. SW4'e ulaşıldığında M3 yukarı motoru çalışacak SW5'e geldiğinde duracaktır. Aynı zamanda M2 geri motoru çalışacaktır. M2 geri motoru SW3'e ulaşıldığında duracaktır. SW3'e ulaşıldığında M1 motoru tekrar sola doğru 15s çalışmaya başlayıp yukarıda ifade edilen çalışma durumu SW2'ye ulaşıncaya kadar tekrarlanacaktır. Bu işlem tamamlandığında M1 sağ motoru çalışmıp SW1'e vardığında tüm sistem duracaktır.

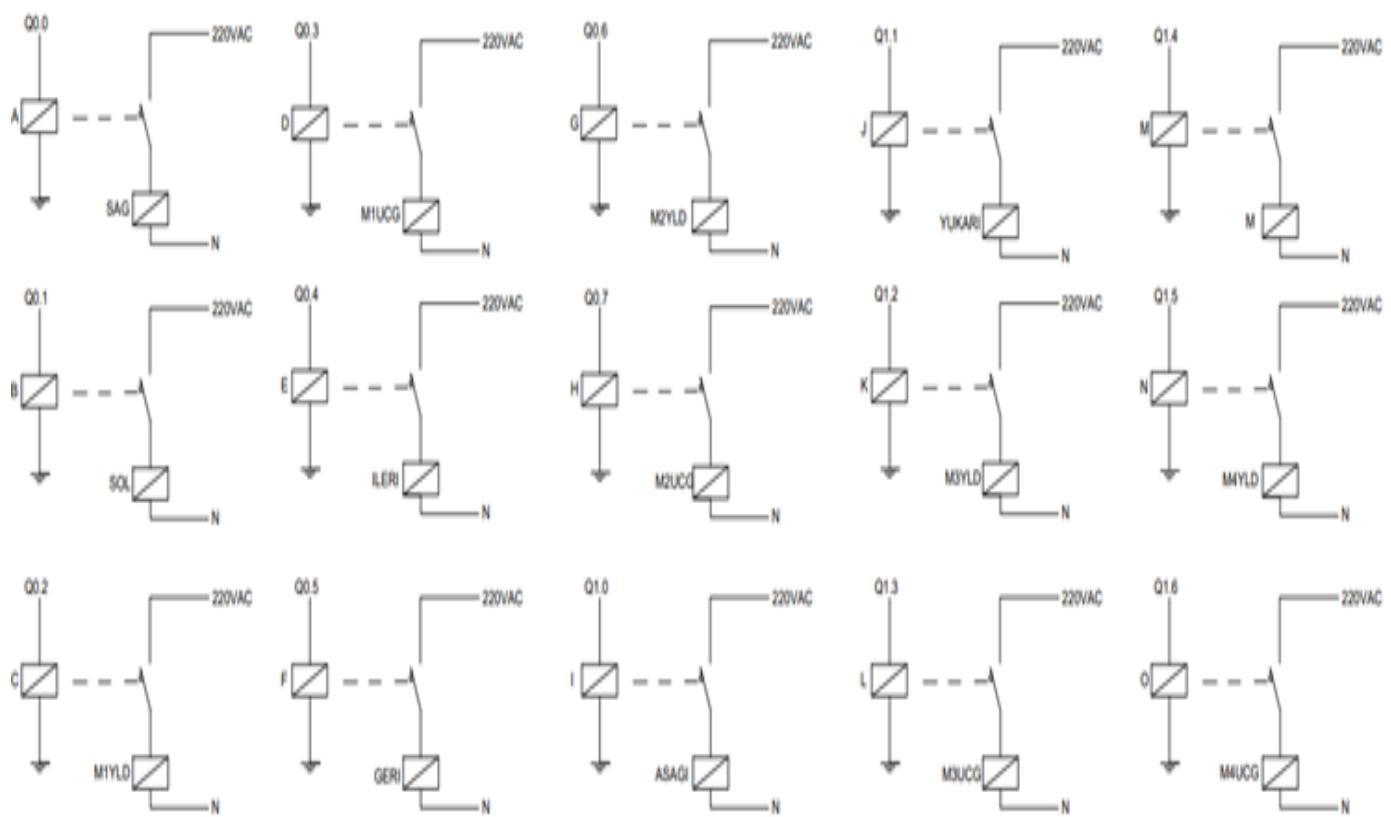
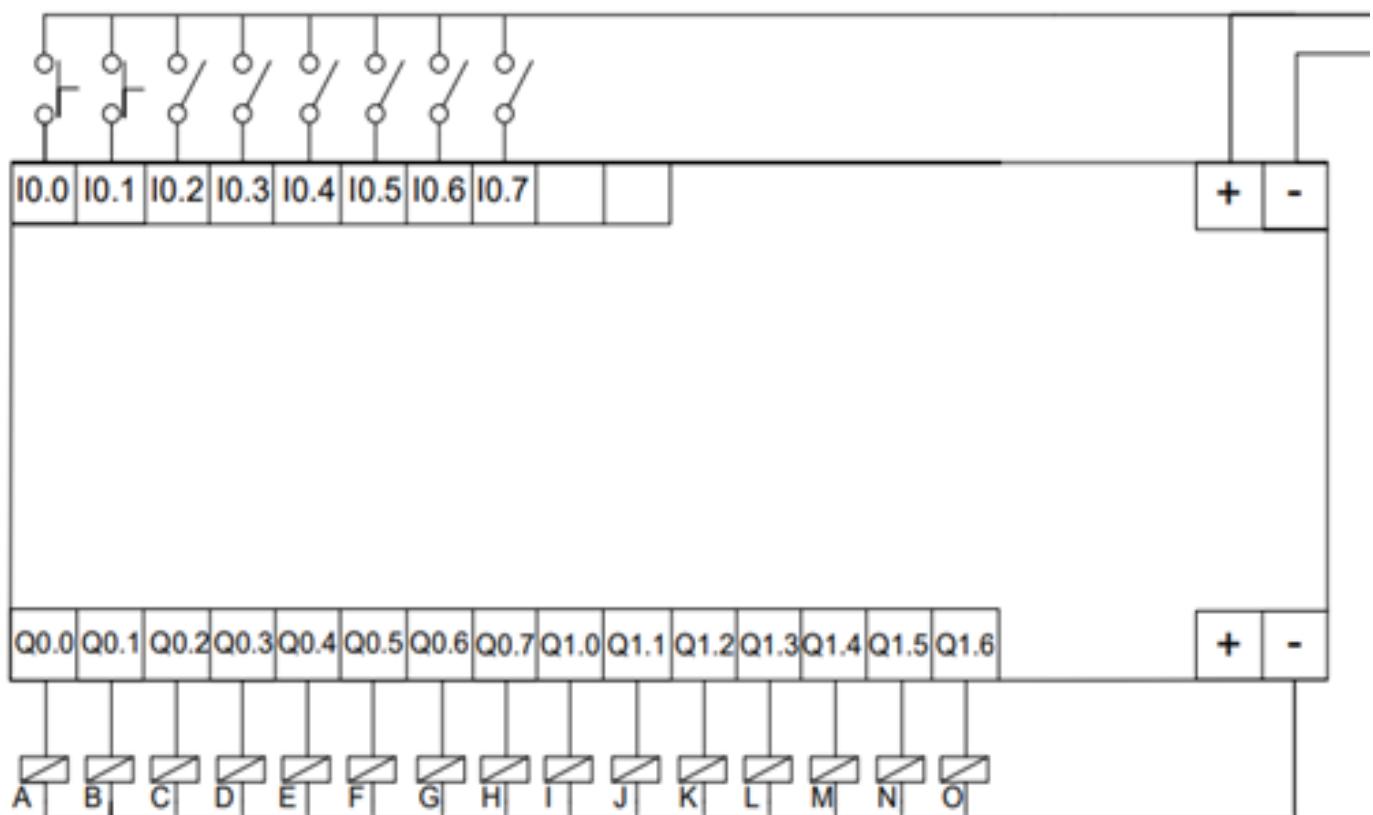
Giriş – Çıkış

GİRİŞLER (8 GİRİŞ)	
STOP	I0.0
START	I0.1
SW1	I0.2
SW2	I0.3
SW3	I0.4
SW4	I0.5
SW5	I0.6
SW6	I0.7

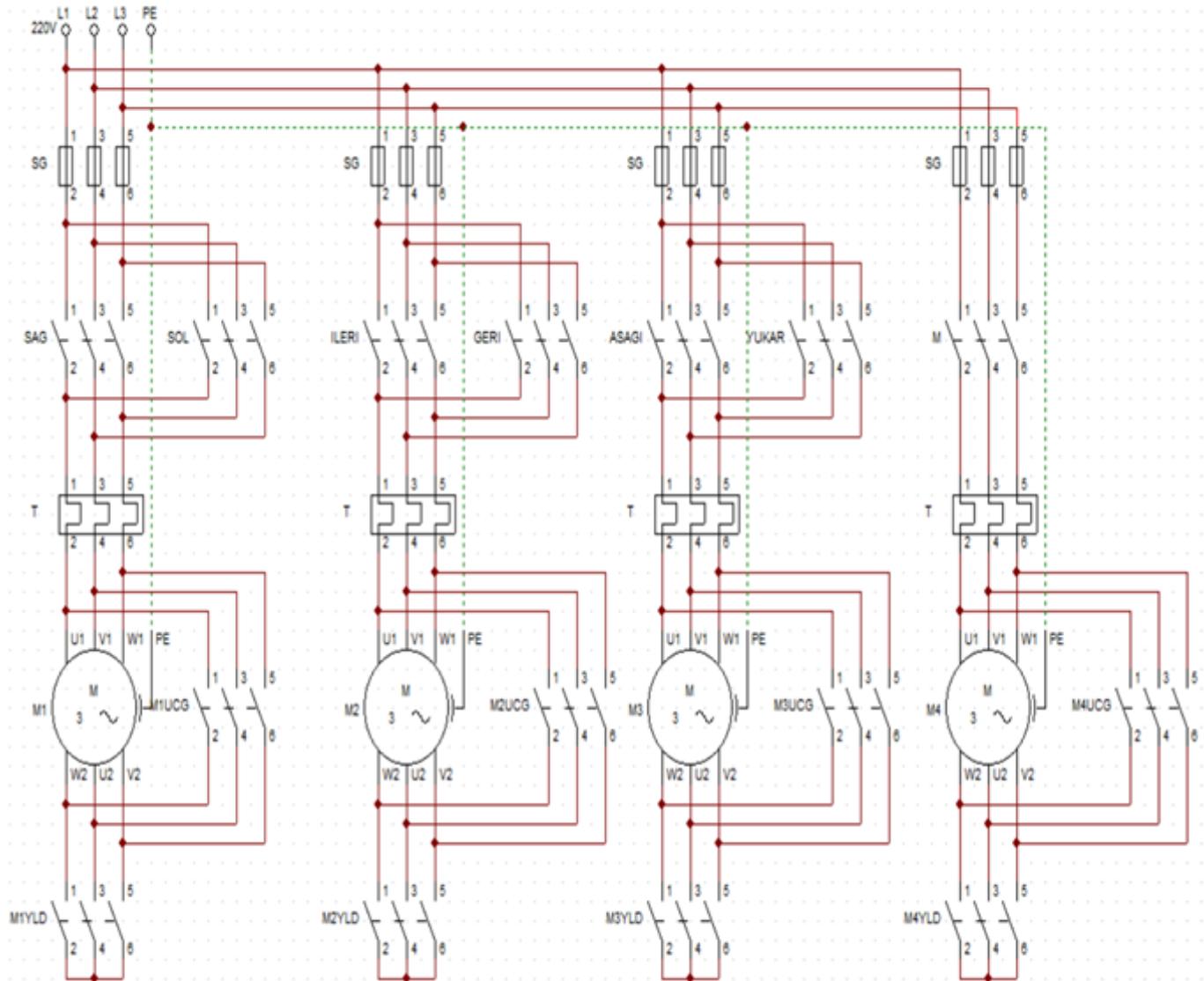
ÇIKIŞLAR (15 ÇIKIŞ)	
M1 - SAĞ	Q0.0
M1 - SOL	Q0.1
M1 - YILDIZ	Q0.2
M1 - ÜÇGEN	Q0.3
M2 - İLERİ	Q0.4
M2 - GERİ	Q0.5
M2 - YILDIZ	Q0.6
M2 - ÜÇGEN	Q0.7
M3 - AŞAĞI	Q1.0
M3 - YUKARI	Q1.1
M3 - YILDIZ	Q1.2
M3 - ÜÇGEN	Q1.3
M4 - M	Q1.4
M4 - YILDIZ	Q1.5
M4 - ÜÇGEN	Q1.6

Dış Devre Bağlantı Şeması

24V DC

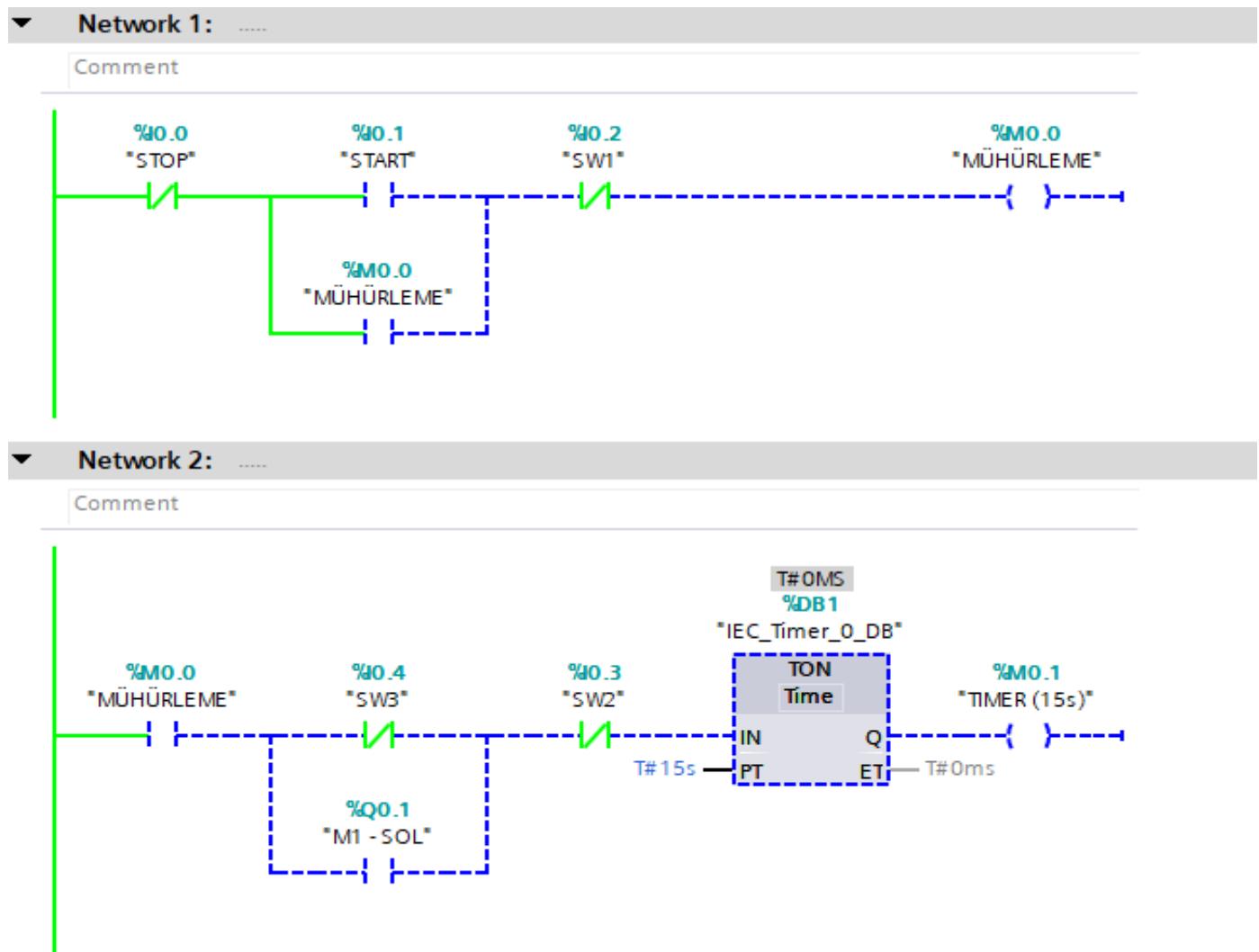


Güç Devresi

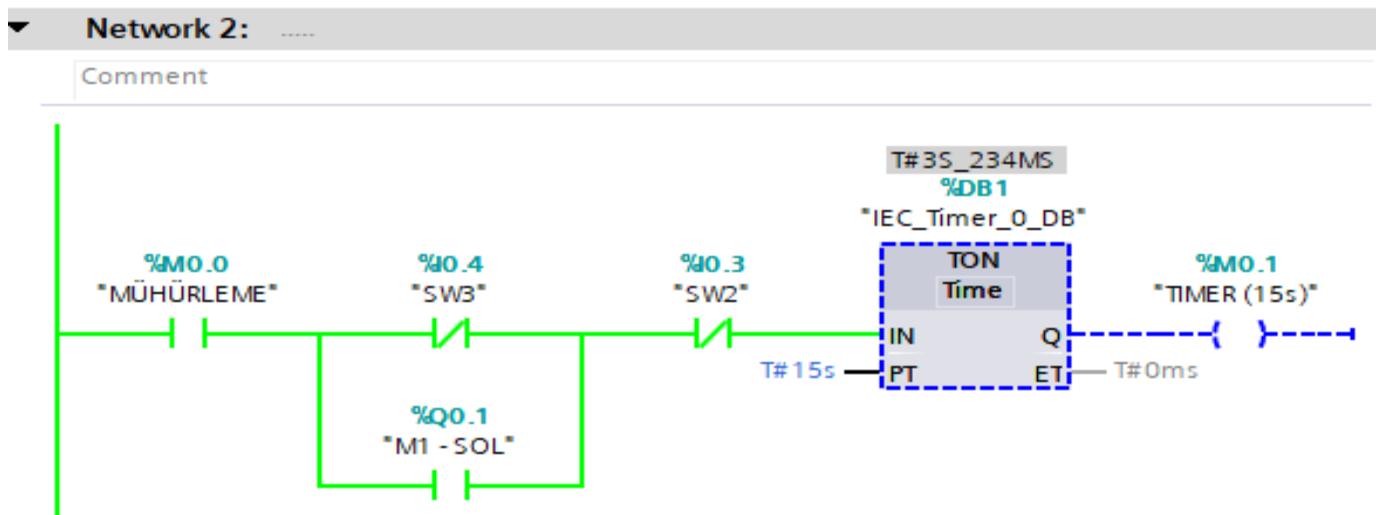
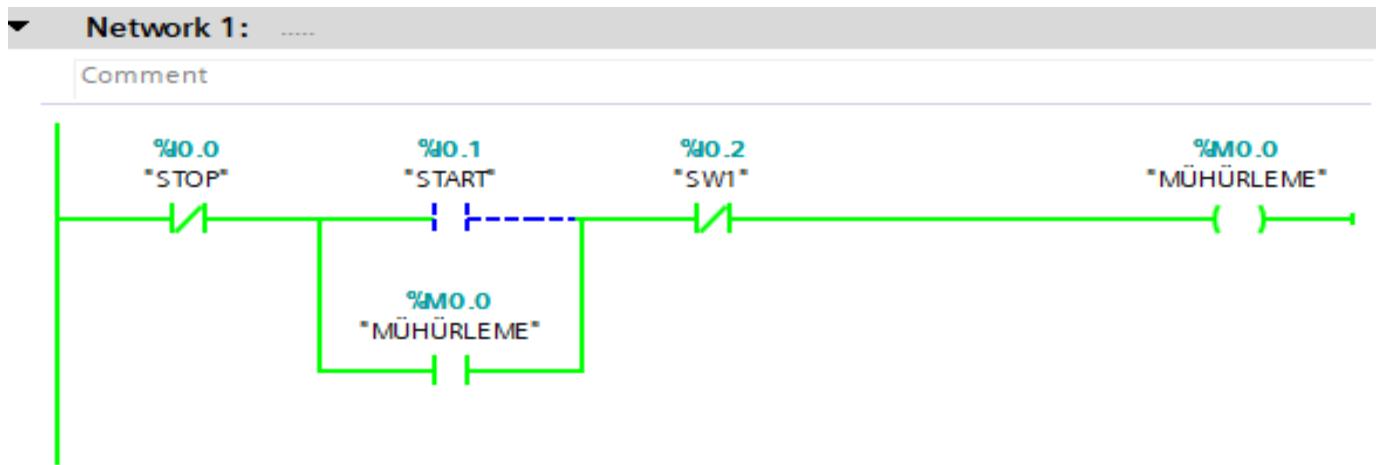


AŞAMA 1

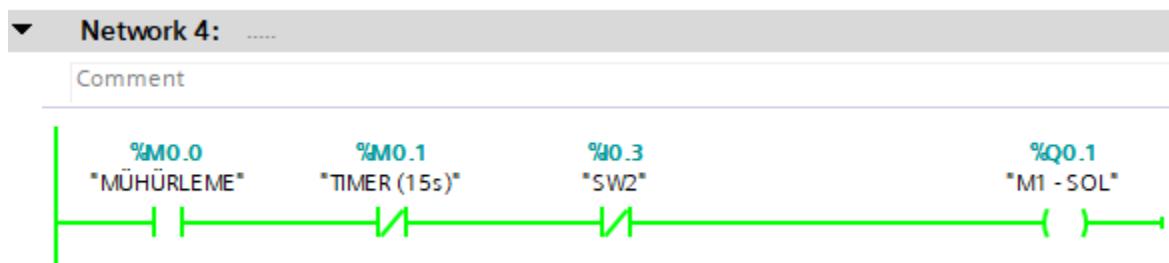
Starta basıldığında M1 motoru sola doğru 15s çalışacaktır. Sonra M3 aşağı motoru çalışacaktır.



Şekil 51. Starta basılmadan önce



Şekil 52. Starta basıldıktan sonra



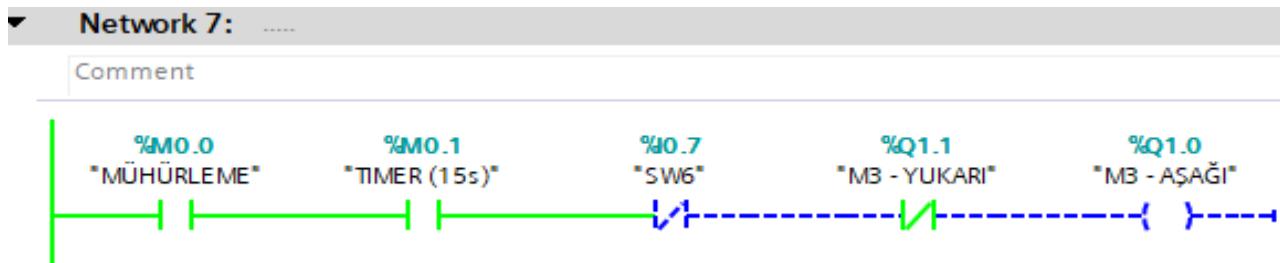
Şekil 53. Starta basıldıktan sonra M1-SOL



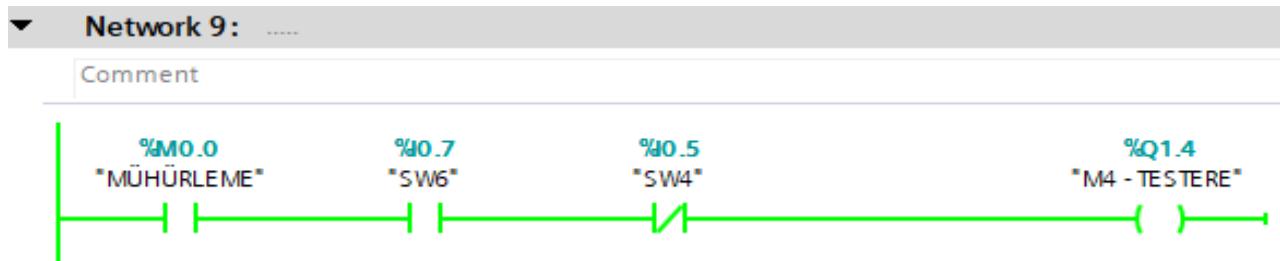
Şekil 54. Starta basıldıktan ve 15s geçtikten sonra M3-AŞAĞI

AŞAMA 2

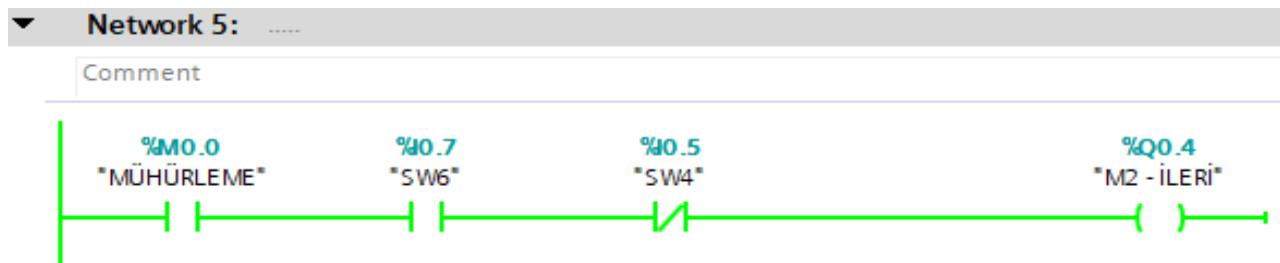
M3 aşağı SW6'ya çarpınca duracaktır. SW6'ya ulaşıldığında M4 testere motoru ile M2 ileri motoru çalışacaktır.



Şekil 55. SW6'ya çarpıldıktan sonra M3-AŞAĞI



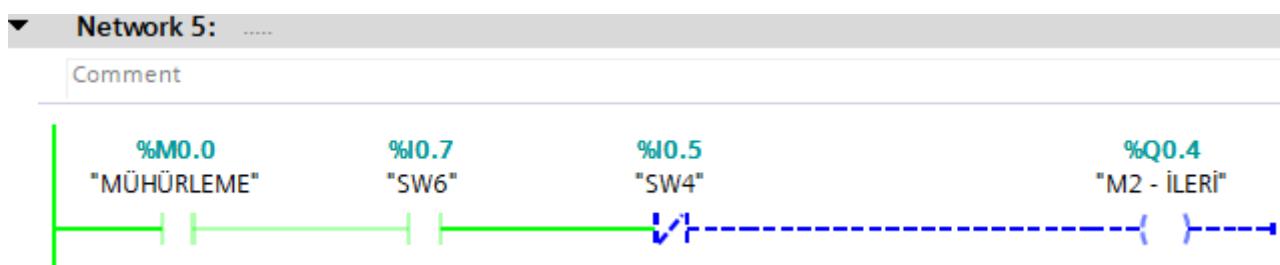
Şekil 56. SW6'ya çarpıldıktan sonra M4-TESTERE



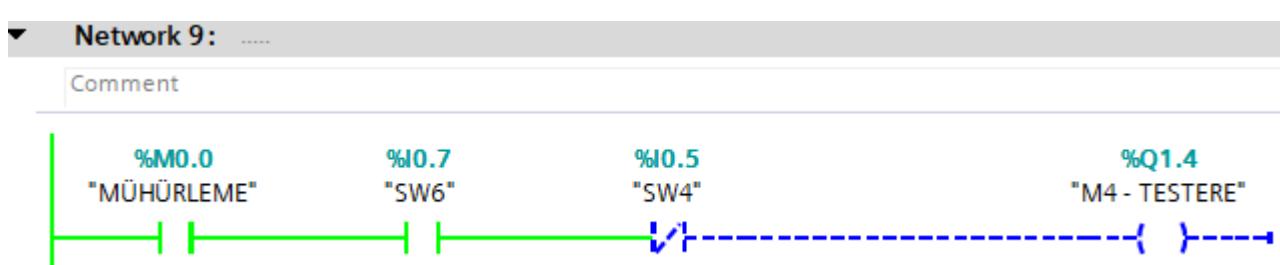
Şekil 57. SW6'ya çarpıldıktan sonra M2-İLERİ

AŞAMA 3

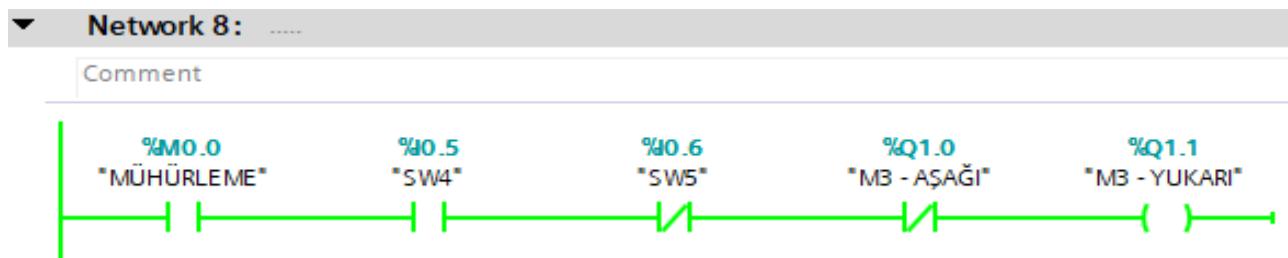
M4 testere motoru ile M2 ileri motoru, SW4'e gelince duracaktır. SW4'e ulaşıldığında M3 yukarı motoru çalışacaktır.



Şekil 58. SW4'e çarpıldıktan sonra M2-İLERİ



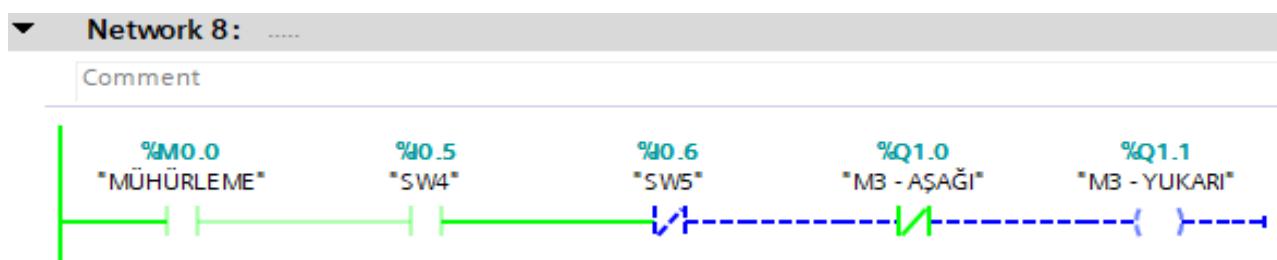
Şekil 59. SW4'e çarpıldıktan sonra M4-TESTERE



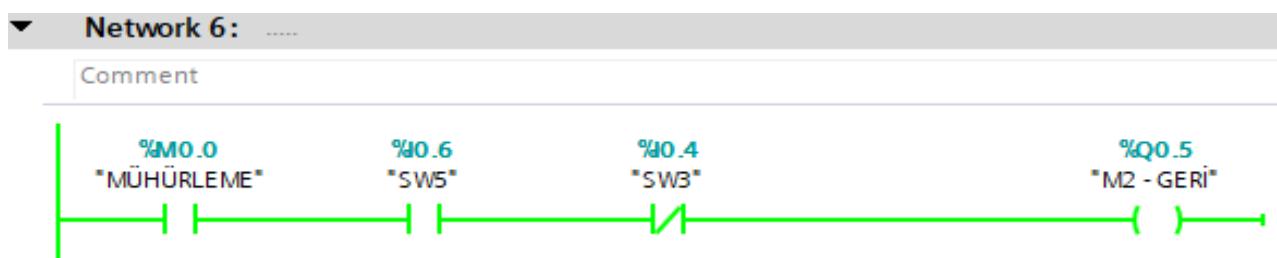
Şekil 60. SW4'e çarpıldıktan sonra M3-YUKARI

AŞAMA 4

M3 yukarı motoru SW5'e geldiğinde duracaktır. Aynı zamanda M2 geri motoru çalışacaktır.



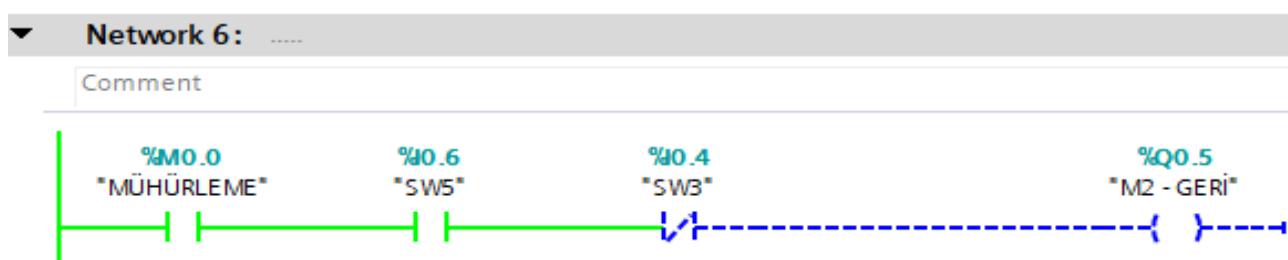
Şekil 19. SW5'e çarpıldıktan sonra M3-YUKARI



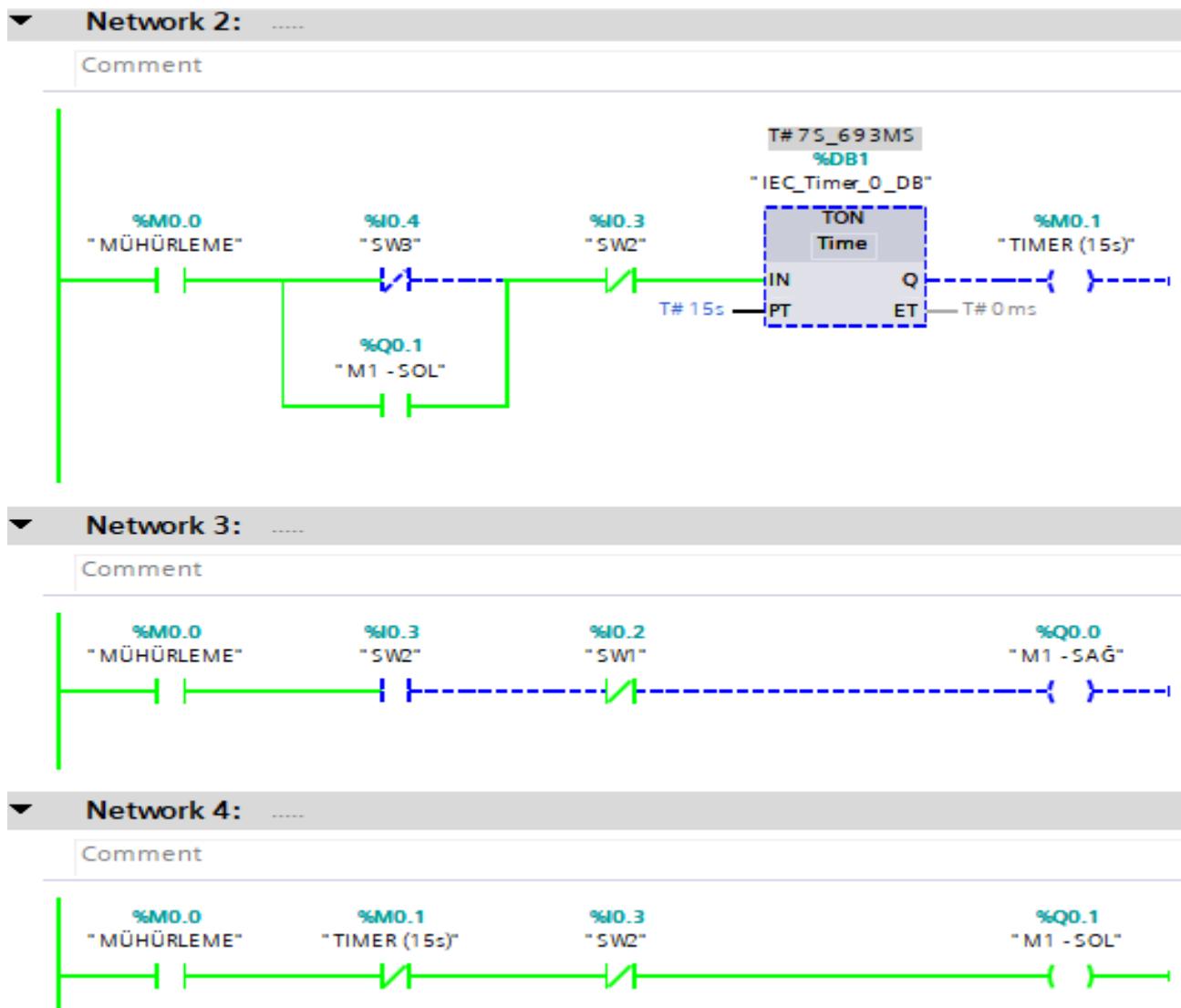
Şekil 61. SW5'e çarpıldıktan sonra M2-GERİ

AŞAMA 5

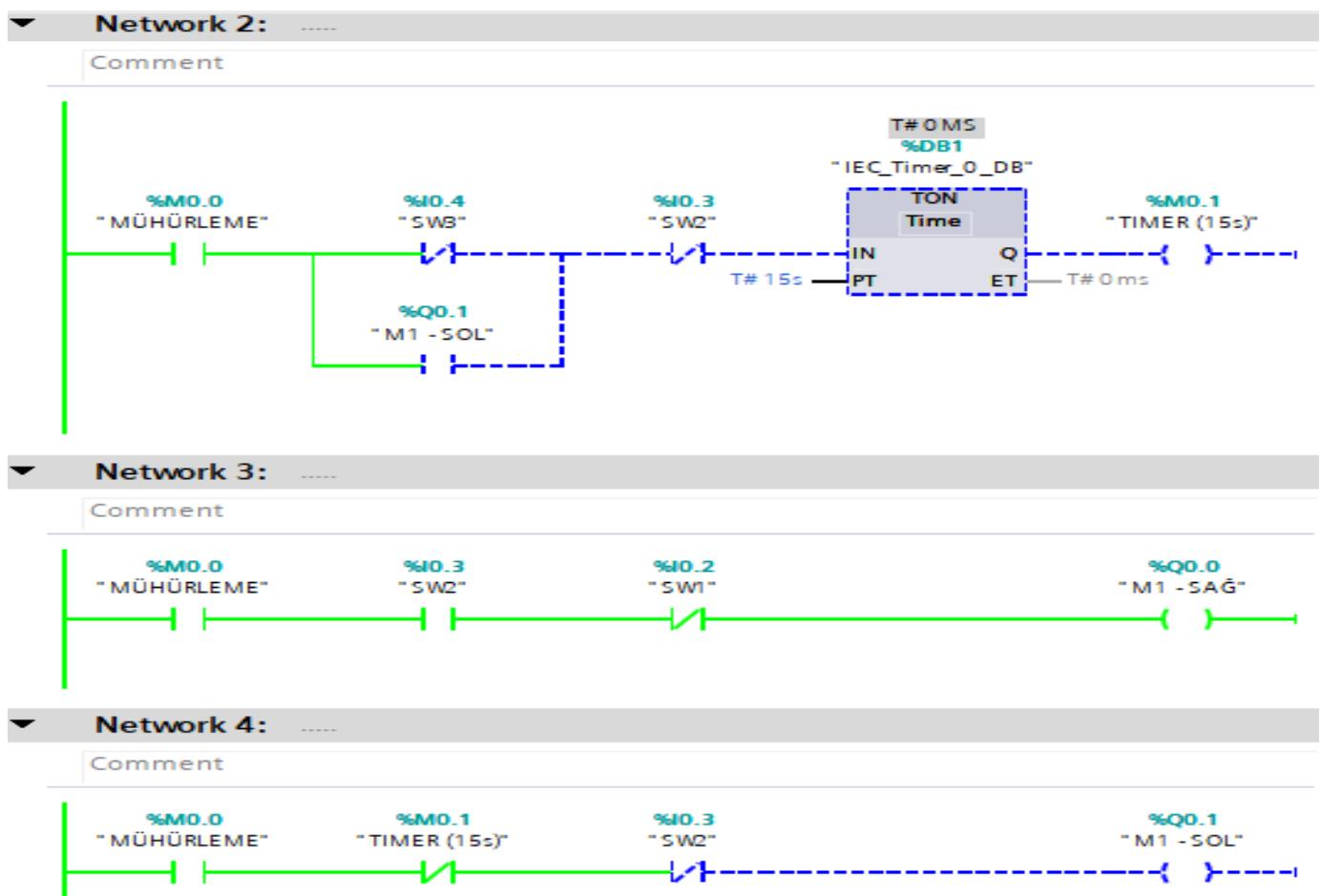
M2 geri motoru SW3'e ulaşıldığında duracaktır. SW3'e ulaşıldığında M1 motoru tekrar sola doğru 15s çalışmaya başlayıp yukarıda ifade edilen çalışma durumu SW2'ye ulaşınca kadar tekrarlanacaktır. Bu işlem tamamlandığında M1 sağ motoru çalışacaktır.



Şekil 62. SW3'e çarpıldıktan sonra M2-GERİ



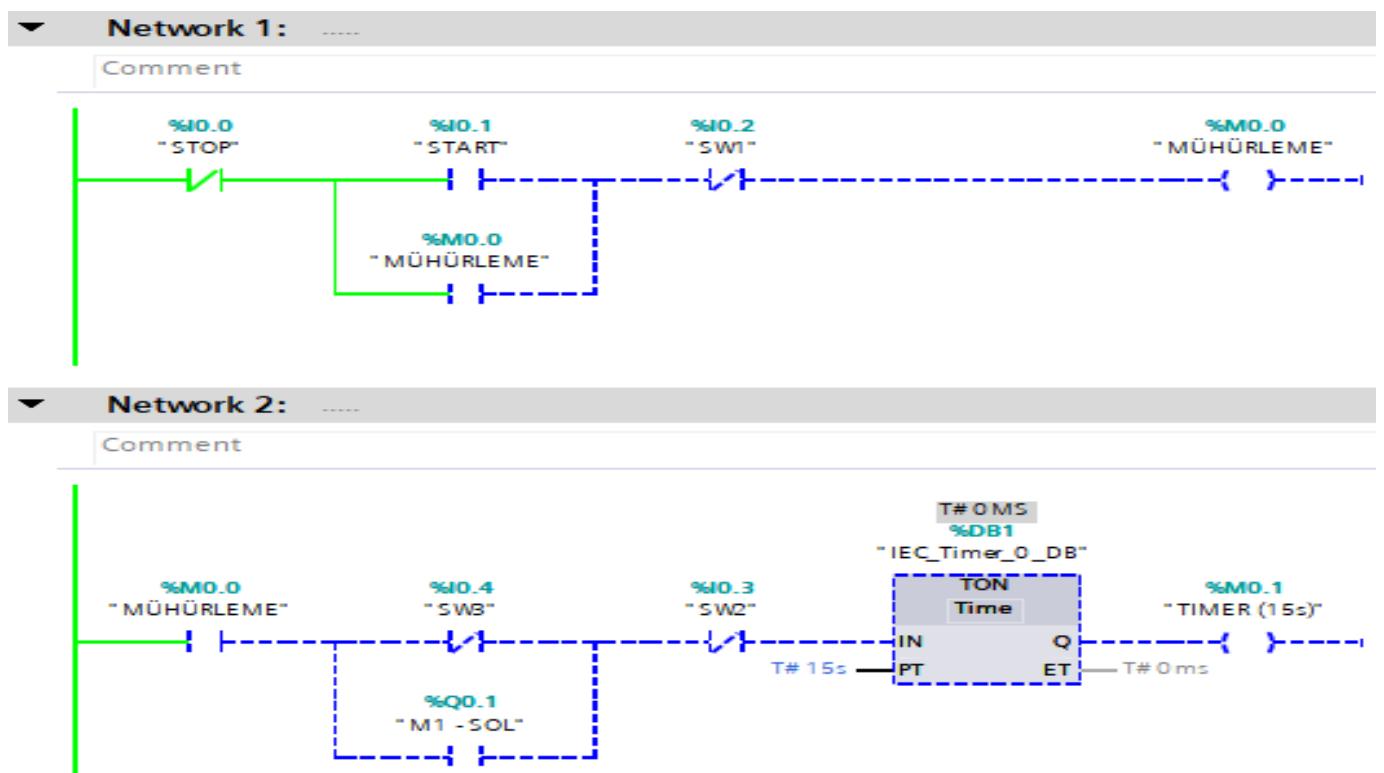
Şekil 63. SW3'e çarpıldıkten ve 15s TIMER'dan önce M1-SOL



Şekil 64. 15s TIMER'dan ve SW2'ye çarpıldıktan sonra M1-SOL

AŞAMA 6

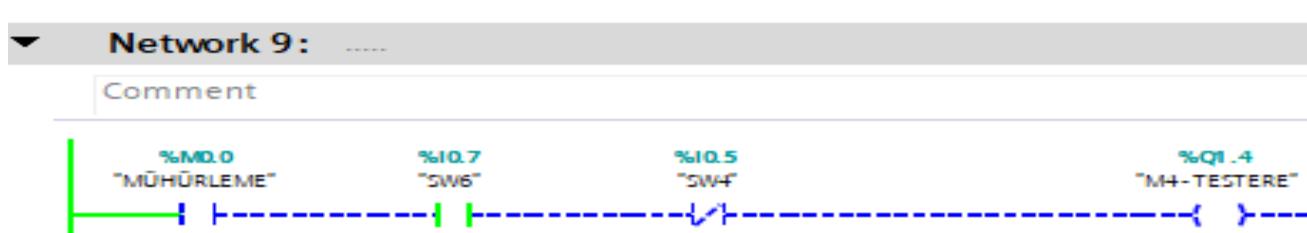
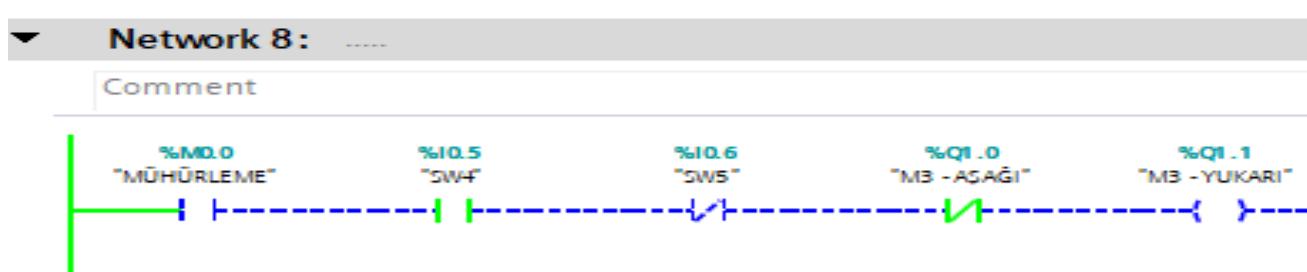
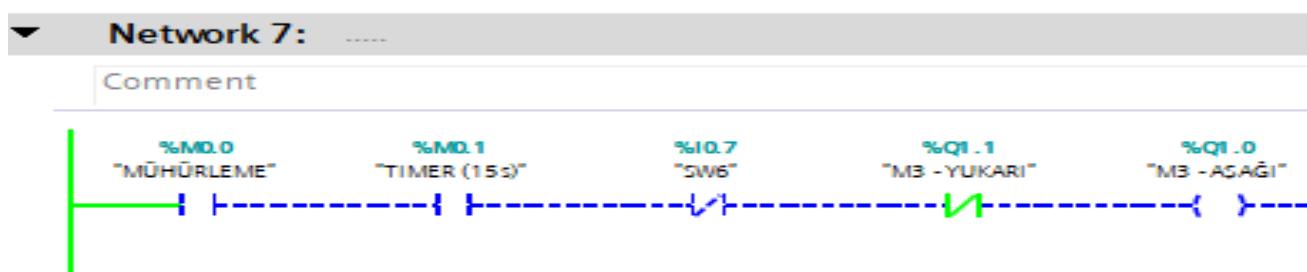
SW1'e vardığında tüm sistem duracaktır



Şekil 65. SW1'e çarpıldığında SİSTEM



Şekil 66. SW1'e çarpıldığında SİSTEM



Şekil 67. SW1'e çarpıldığında SİSTEM