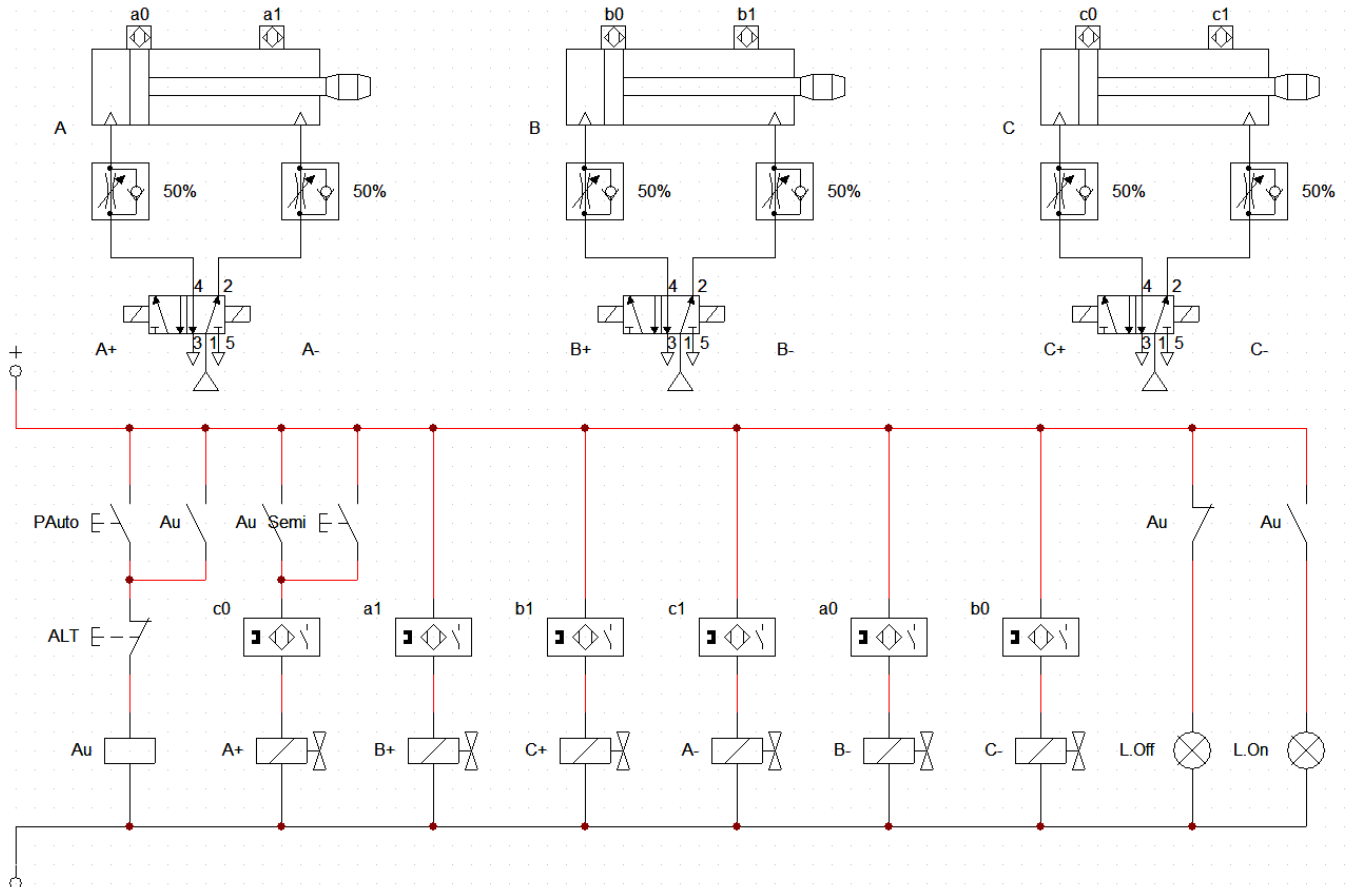


# PROGETTI DIDATTICI PLC Siemens Simatic S7-200

## ANALISI DEL PROBLEMA (Descrizione)

Comando automatico e semiautomatico di cilindri d.e, con elettrovalvole 5/2 bistabili, per la sequenza senza segnali bloccanti: **A+/B+/C+/A-/B-/C-**

## DIAGRAMMAZIONE (Schema elettrico funzionale)



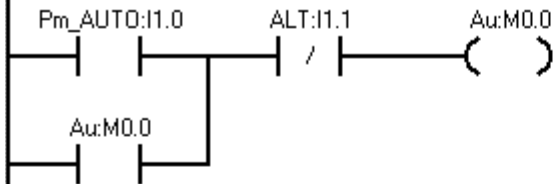
## CODIFICAZIONE (Assegnazione Input/Output I/O)

|    |  |  | Simbolo   | Indirizzo | Commento   |
|----|--|--|-----------|-----------|------------|
| 1  |  |  | Pm_AUTO   | I1.0      | INPUT      |
| 2  |  |  | ALT       | I1.1      | INPUT      |
| 3  |  |  | Pm_SEMI   | I1.2      | INPUT      |
| 4  |  |  | a_0       | IO.0      | INPUT      |
| 5  |  |  | a_1       | IO.1      | INPUT      |
| 6  |  |  | b_0       | IO.2      | INPUT      |
| 7  |  |  | b_1       | IO.3      | INPUT      |
| 8  |  |  | c_0       | IO.4      | INPUT      |
| 9  |  |  | c_1       | IO.5      | INPUT      |
| 10 |  |  | d_0       | IO.6      | INPUT      |
| 11 |  |  | d_1       | IO.7      | INPUT      |
| 12 |  |  | A_uscita  | Q0.0      | OUTPUT     |
| 13 |  |  | A_rientro | Q0.1      | OUTPUT     |
| 14 |  |  | B_uscita  | Q0.2      | OUTPUT     |
| 15 |  |  | B_rientro | Q0.3      | OUTPUT     |
| 16 |  |  | C_uscita  | Q0.4      | OUTPUT     |
| 17 |  |  | C_rientro | Q0.5      | OUTPUT     |
| 18 |  |  | D_uscita  | Q0.6      | OUTPUT     |
| 19 |  |  | D_rientro | Q0.7      | OUTPUT     |
| 20 |  |  | Au        | M0.0      | MEMORIA Au |
| 21 |  |  | LED_AUTO  | Q1.0      | OUTPUT     |
| 22 |  |  | LED_ALT   | Q1.1      | OUTPUT     |

## PROGRAMMAZIONE (Ladder/KOP)

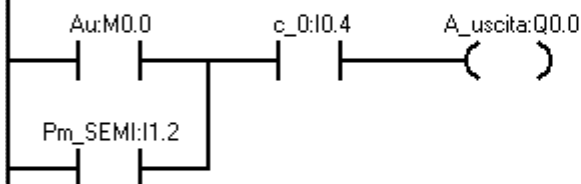
### Segmento 1 Titolo del segmento

Commento del segmento



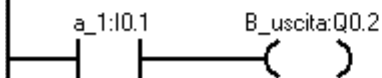
| Simbolo | Indirizzo | Commento   |
|---------|-----------|------------|
| ALT     | I1.1      | INPUT      |
| Au      | M0.0      | MEMORIA Au |
| Pm_AUTO | I1.0      | INPUT      |

### Segmento 2



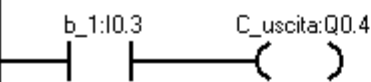
| Simbolo  | Indirizzo | Commento   |
|----------|-----------|------------|
| A_uscita | Q0.0      | OUTPUT     |
| Au       | M0.0      | MEMORIA Au |
| c_0      | I0.4      | INPUT      |
| Pm_SEMI  | I1.2      | INPUT      |

### Segmento 3



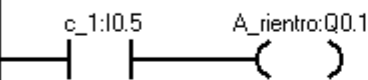
| Simbolo  | Indirizzo | Commento |
|----------|-----------|----------|
| a_1      | I0.1      | INPUT    |
| B_uscita | Q0.2      | OUTPUT   |

#### Segmento 4



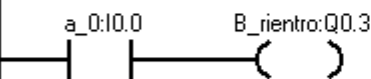
| Simbolo  | Indirizzo | Commento |
|----------|-----------|----------|
| b_1      | I0.3      | INPUT    |
| C_uscita | Q0.4      | OUTPUT   |

#### Segmento 5



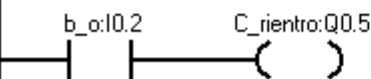
| Simbolo   | Indirizzo | Commento |
|-----------|-----------|----------|
| A_rientro | Q0.1      | OUTPUT   |
| c_1       | I0.5      | INPUT    |

#### Segmento 6



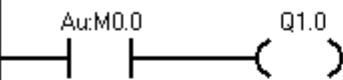
| Simbolo   | Indirizzo | Commento |
|-----------|-----------|----------|
| a_0       | I0.0      | INPUT    |
| B_rientro | Q0.3      | OUTPUT   |

#### Segmento 7



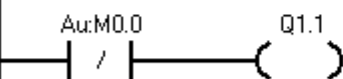
| Simbolo   | Indirizzo | Commento |
|-----------|-----------|----------|
| b_o       | I0.2      | INPUT    |
| C_rientro | Q0.5      | OUTPUT   |

#### Segmento 8



| Simbolo  | Indirizzo | Commento   |
|----------|-----------|------------|
| Au       | M0.0      | MEMORIA Au |
| LED_AUTO | Q1.0      | OUTPUT     |

#### Segmento 9



| Simbolo | Indirizzo | Commento   |
|---------|-----------|------------|
| Au      | M0.0      | MEMORIA Au |
| LED_ALT | Q1.1      | OUTPUT     |

## PROGRAMMAZIONE (Lista di istruzioni/AWL)

### Segmento 1      Titolo del segmento

Commento del segmento

```
LD  Pm_AUTO: I1.0
O   Au: M0.0
AN  ALT: I1.1
=   Au: M0.0
```

| Simbolo | Indirizzo | Commento   |
|---------|-----------|------------|
| ALT     | I1.1      | INPUT      |
| Au      | M0.0      | MEMORIA Au |
| Pm_AUTO | I1.0      | INPUT      |

### Segmento 2

```
LD  Au: M0.0
O   Pm_SEMI: I1.2
A   c_0: I0.4
=   A_uscita: Q0.0
```

| Simbolo  | Indirizzo | Commento   |
|----------|-----------|------------|
| A_uscita | Q0.0      | OUTPUT     |
| Au       | M0.0      | MEMORIA Au |
| c_0      | I0.4      | INPUT      |
| Pm_SEMI  | I1.2      | INPUT      |

### Segmento 3

```
LD  a_1: I0.1
=   B_uscita: Q0.2
```

| Simbolo  | Indirizzo | Commento |
|----------|-----------|----------|
| a_1      | I0.1      | INPUT    |
| B_uscita | Q0.2      | OUTPUT   |

### Segmento 4

```
LD  b_1: I0.3
=   C_uscita: Q0.4
```

| Simbolo  | Indirizzo | Commento |
|----------|-----------|----------|
| b_1      | I0.3      | INPUT    |
| C_uscita | Q0.4      | OUTPUT   |

### Segmento 5

```
LD  c_1: I0.5
=   A_rientro: Q0.1
```

| Simbolo   | Indirizzo | Commento |
|-----------|-----------|----------|
| A_rientro | Q0.1      | OUTPUT   |
| c_1       | I0.5      | INPUT    |

#### Segmento 6

LD a\_0I0.0  
= B\_rientroQ0.3

Simbolo  
a\_0  
B\_rientro

Indirizzo  
I0.0  
Q0.3

Commento  
INPUT  
OUTPUT

#### Segmento 7

LD b\_oI0.2  
= C\_rientroQ0.5

Simbolo  
b\_o  
C\_rientro

Indirizzo  
I0.2  
Q0.5

Commento  
INPUT  
OUTPUT

#### Segmento 8

LD Au:M0.0  
= LED\_AUTOQ1.0

Simbolo  
Au  
LED\_AUTO

Indirizzo  
M0.0  
Q1.0

Commento  
MEMORIA Au  
OUTPUT

#### Segmento 9

LDN Au:M0.0  
= LED\_ALTQ1.1

Simbolo  
Au  
LED\_ALT

Indirizzo  
M0.0  
Q1.1

Commento  
MEMORIA Au  
OUTPUT

#### Segmento 10

LD Pm\_SEMI:I1.2  
= Q1.2

Simbolo  
Pm\_SEMI

Indirizzo  
I1.2

Commento  
INPUT

# SIMULAZIONE (S7-200 Simulator/PC-SIMU)

- S7\_200

Program View Configuration PLC View/Hide Help

**KOP**

ORGANIZATION\_BLOCK MAIN:OB1

Network 1 // Titolo del segmento

```

I1.0 I1.1 M0.0
-----|/|-----
M0.0

```

Network 2

```

M0.0 I0.4 Q0.0
-----|/|-----
I1.2

```

Network 3

```

I0.1 Q0.2
-----|/|-----

```

Network 4

```

I0.3 Q0.4
-----|/|-----
 
```

Network 5

```

I0.5 Q0.1
-----|/|-----
 
```

Network 6

```

I0.0 Q0.3
-----|/|-----
 
```

Network 7

```

I0.2 Q0.5
-----|/|-----
 
```

Network 8

```

M0.0 Q1.0
-----|/|-----
 
```

Network 9

```

M0.0 Q1.1
-----|/|-----
 
```

Network 10

```

I1.2 Q1.2
-----|/|-----
 
```

PC\_SIMU - [A+B+C+A-B-C-.sim]

Program (OB1)

```

ORGANIZATION_BLOCK MAIN: C:\
TITLE=COMMENTII SUL PROGR
BEGIN
Network 1 // Titolo del segmento
I1.0 I1.1 M0.0
-----|/|-----
M0.0
AN I1.1
= M0.0
Network 2
I1.0 I1.2
-----|/|-----
I0.4 Q0.0
Network 3
I1.0 I0.1
-----|/|-----
Q0.2
Network 4
I1.0 I0.3
-----|/|-----
Q0.4
Network 5
I1.0 I0.5
-----|/|-----
Q0.1
Network 6
I1.0 I0.0
-----|/|-----
Q0.3
Network 7
I1.0 I0.2
-----|/|-----
Q0.5
Network 8
M0.0 Q1.0
-----|/|-----
Network 9
M0.0 Q1.1
-----|/|-----
Network 10
I1.2 Q1.2
-----|/|-----
 
```