

Siemens S7-1200

CPU 1212C AC/DC/Relay

Shift and Rotate Operations

- Shift Right
- Shift Left
- Rotate Right
- Rotate Left



Code and Compile
Learning Made Easy

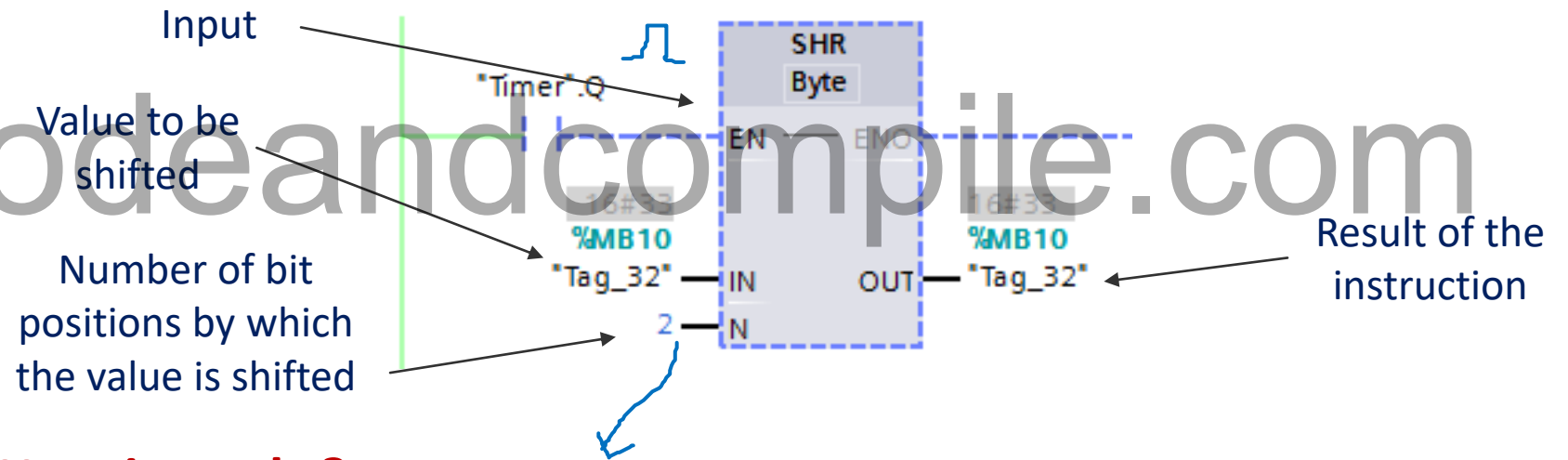
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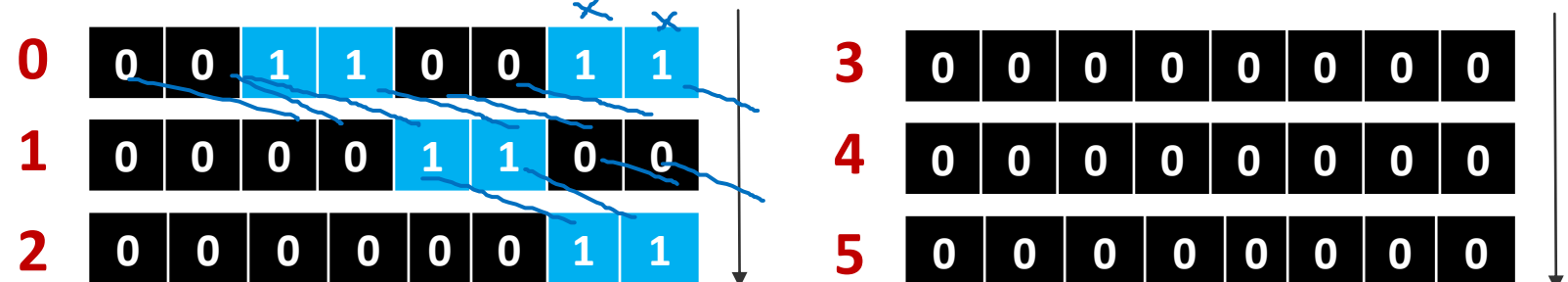


Shift Right

You can use the "**Shift right**" instruction to **shift the content of the operand at the input IN bit-by-bit to the right** and query the result at the OUT output. You use the **N** parameter to specify **the number of bit positions by which the specified value is to be shifted**.



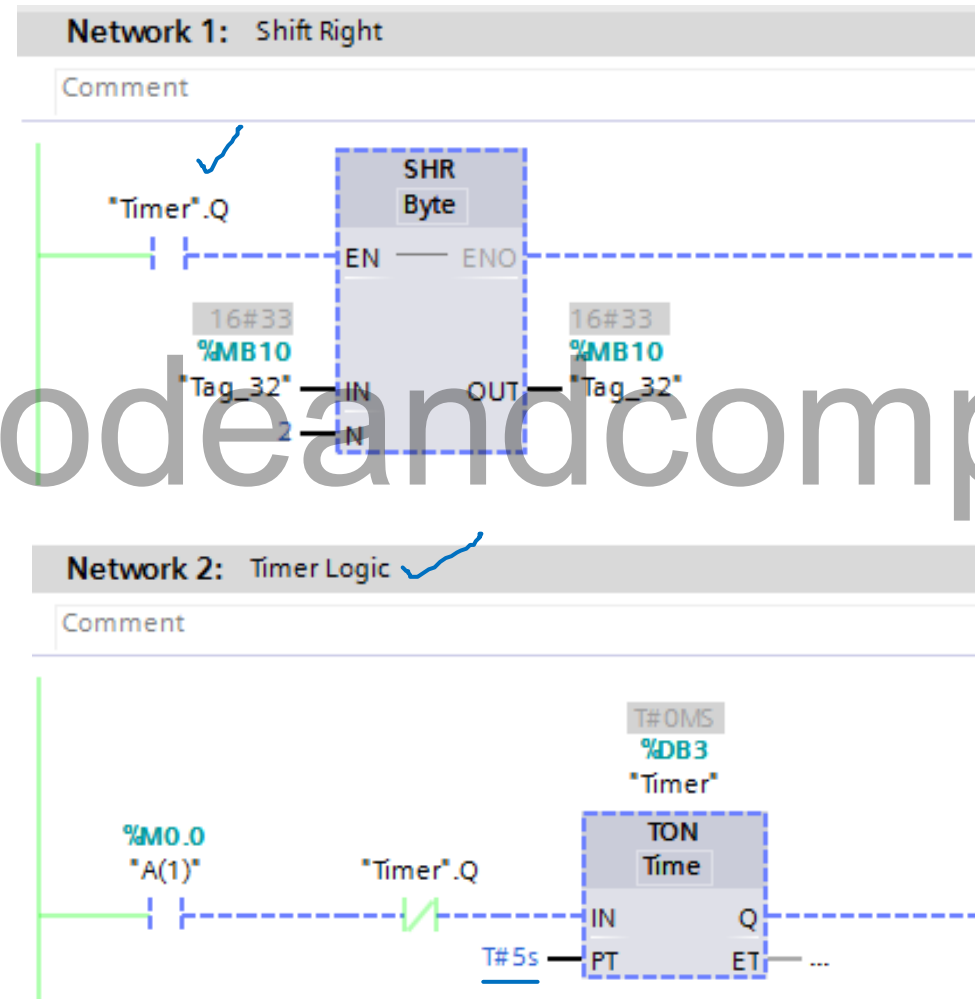
How it works?





Shift Right- Example

At every pulse!

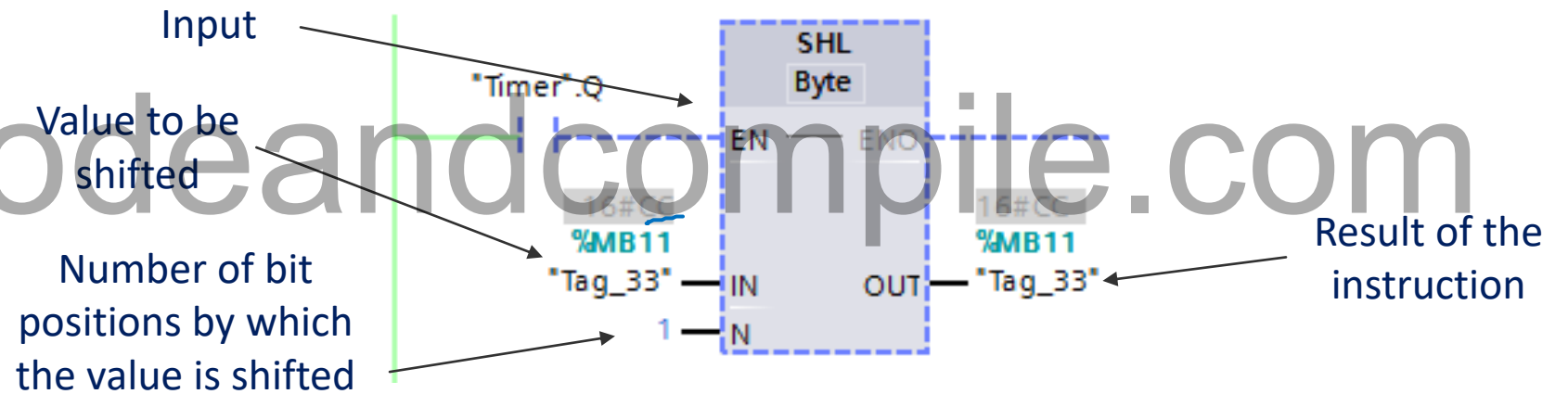


0	0	0	1	1	0	0	1	1
1	0	0	0	0	1	1	0	0
2	0	0	0	0	0	0	1	1
3	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0

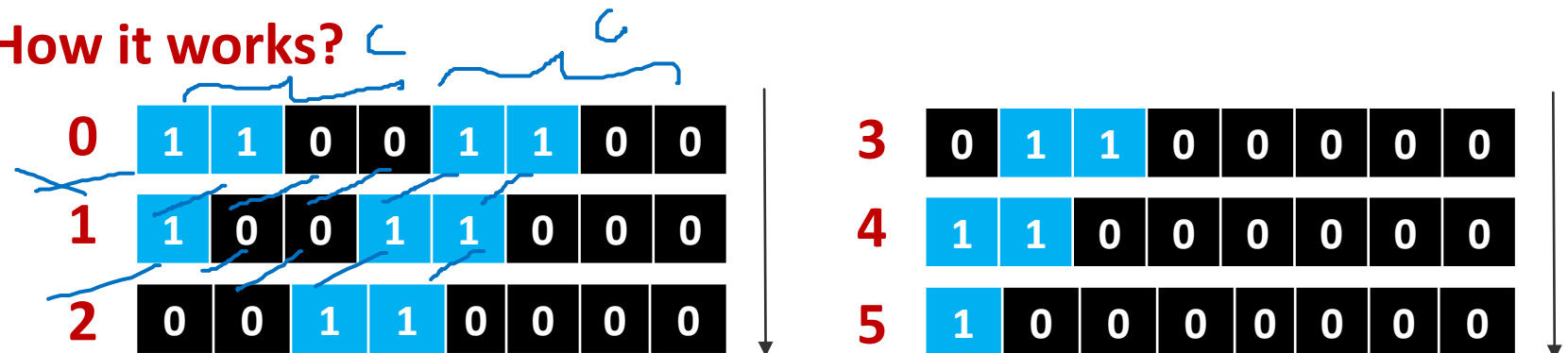


Shift Left

You can use the "Shift left" instruction to **shift the content of the operand at the input IN bit-by-bit to the left** and query **the result at the OUT output**. You use the **N** parameter to specify the number of bit positions by which the specified value is to be shifted.

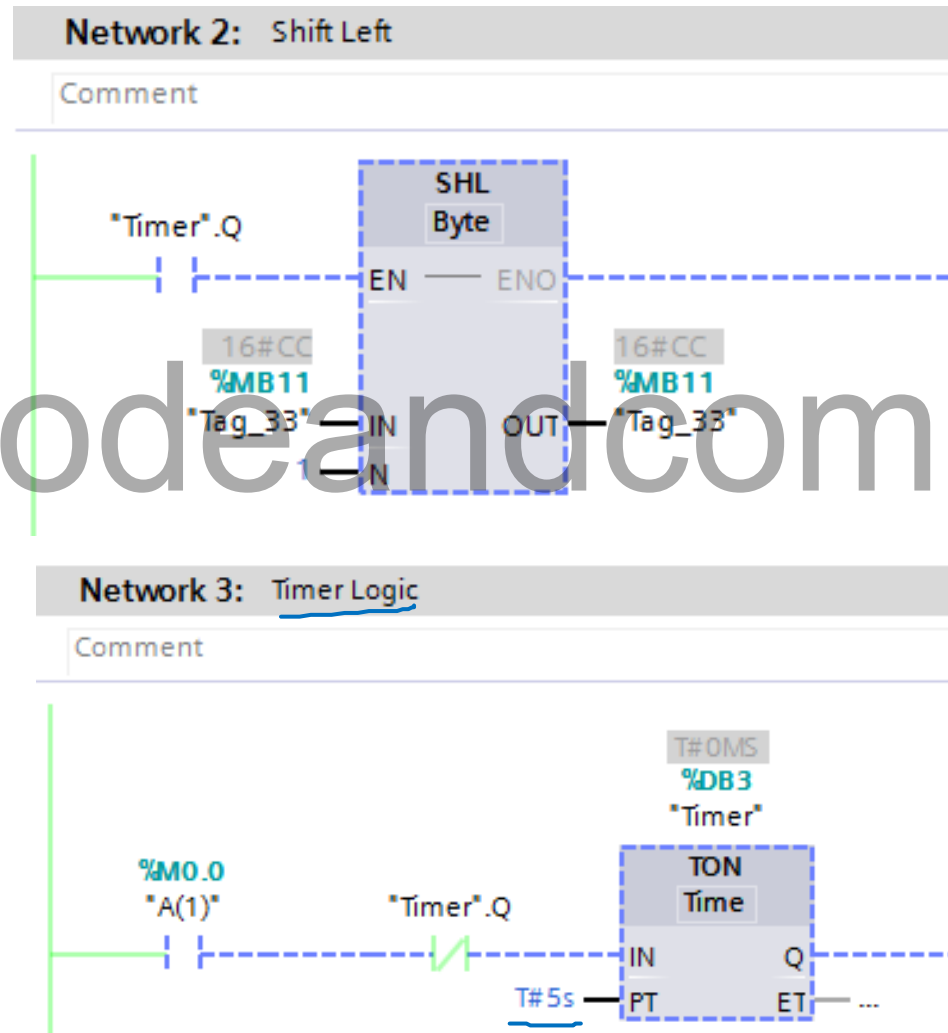


How it works?





Shift Left- Example



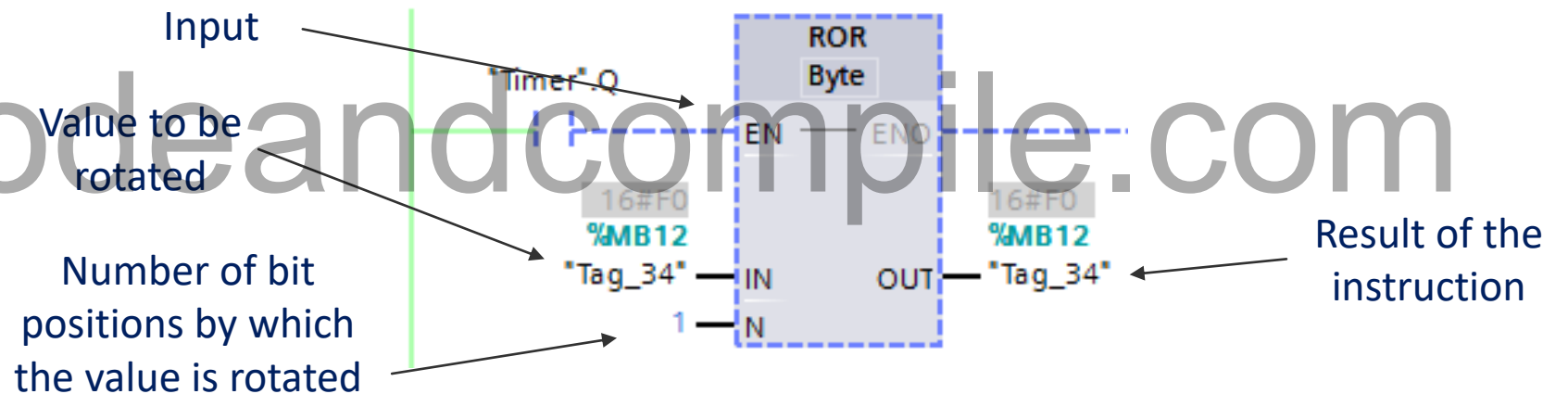
At every pulse!

0	1	1	0	0	1	1	0	0
1	1	0	0	1	1	0	0	0
2	0	0	1	1	0	0	0	0
3	0	1	1	0	0	0	0	0
4	1	1	0	0	0	0	0	0
5	1	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0

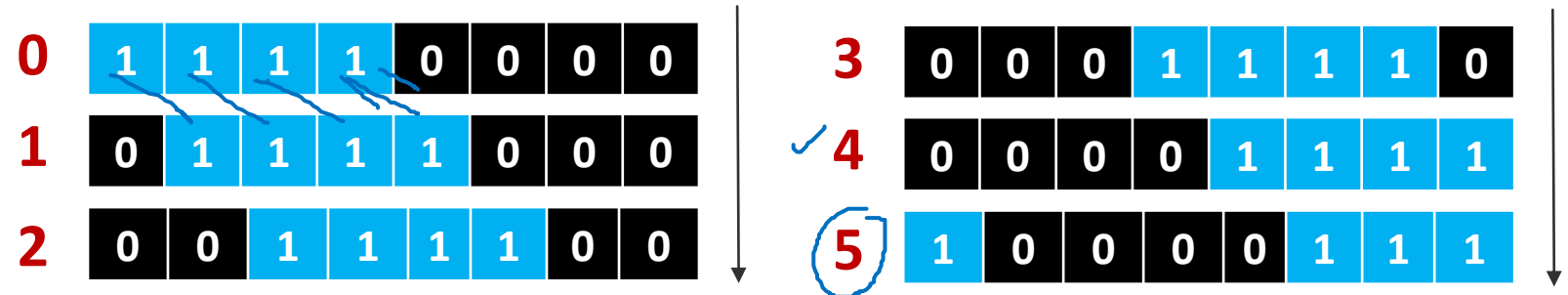


Rotate Right

You can use the "Rotate right" instruction to rotate the content of the operand at the input IN bit-by-bit to the right and query the result at the OUT output. You use the N parameter to specify the number of bit positions by which the specified value is to be rotated.



How it works?

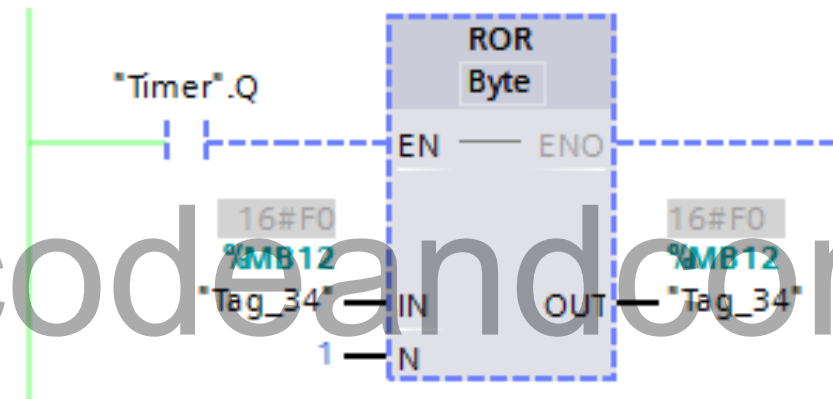




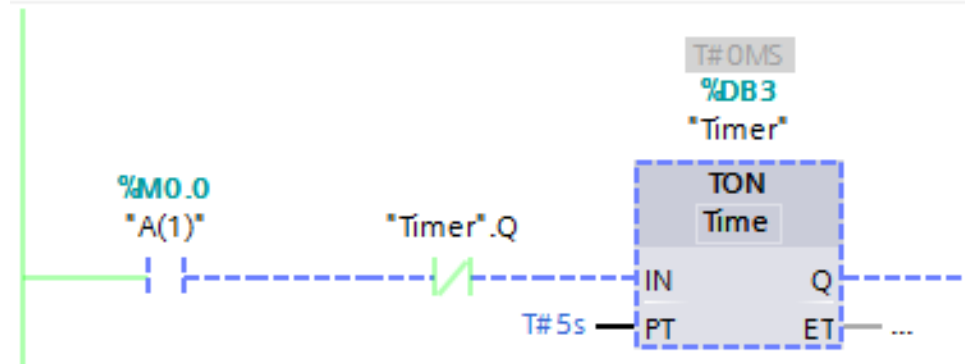
Rotate Right- Example

At every pulse!

Network 3: Rotate Right
Comment



Network 5: Timer Logic
Comment

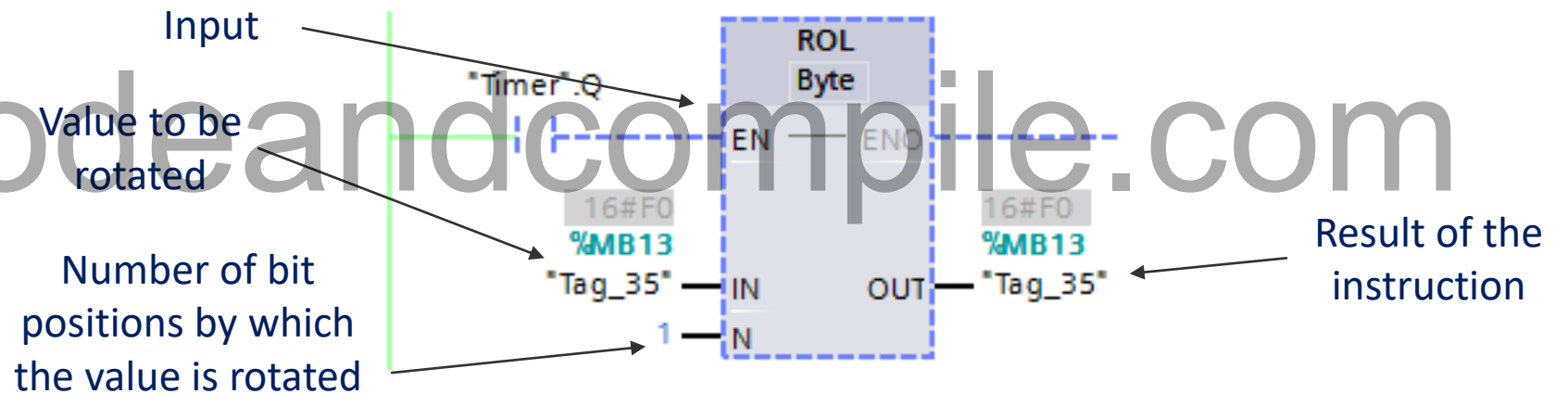


0	1	1	1	1	0	0	0	0
1	0	1	1	1	1	0	0	0
2	0	0	1	1	1	1	0	0
3	0	0	0	1	1	1	1	0
4	0	0	0	0	1	1	1	1
5	1	0	0	0	0	1	1	1
6	1	1	0	0	0	0	1	1
7	1	1	1	0	0	0	0	1
8	1	1	1	1	0	0	0	0



Rotate Left

You can use the "Rotate left" instruction to **rotate the content of the operand at the input IN bit-by-bit to the left** and **query the result at the OUT output**. You use the **N** parameter to specify the number of bit positions by which the specified value is to be rotated.



How it works?

0	1	1	1	1	0	0	0	0
1	1	1	1	0	0	0	0	1
2	1	1	0	0	0	0	1	1

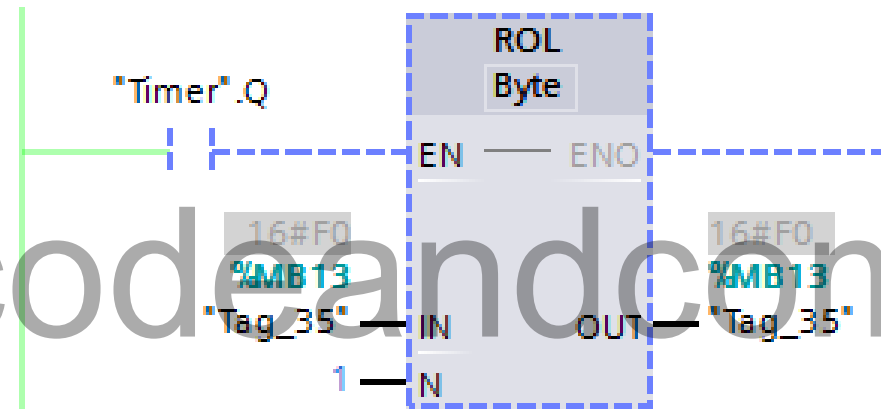
3	1	0	0	0	0	1	1	1
4	0	0	0	0	1	1	1	1
5	0	0	0	1	1	1	1	0



Rotate Left- Example

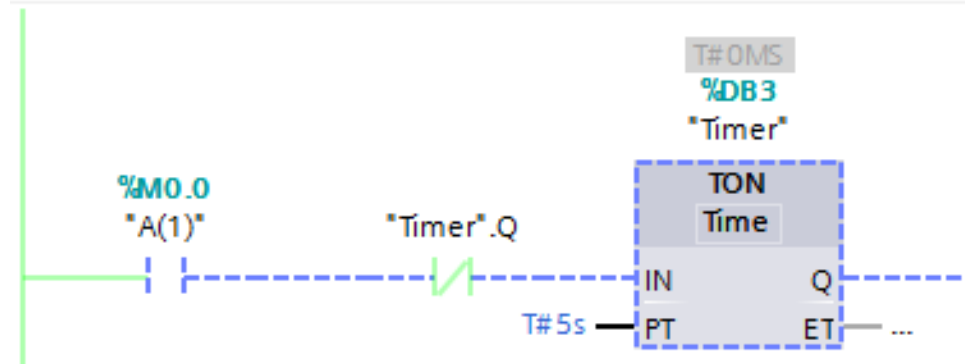
Network 4: Rotate Left

Comment

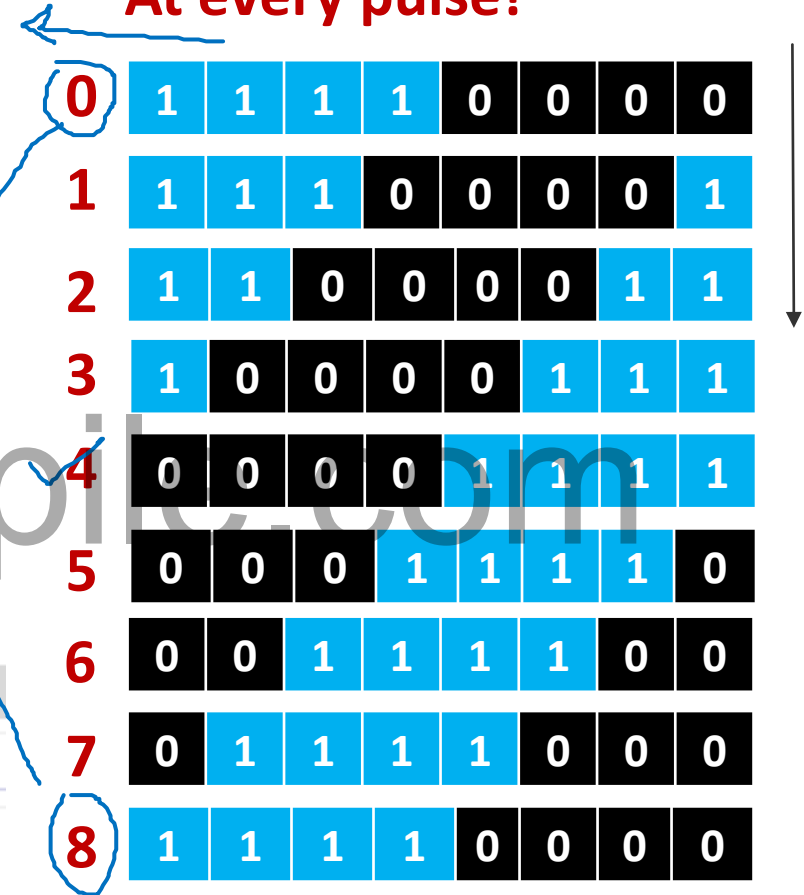


Network 5: Timer Logic

Comment



At every pulse!



What did we learn today?

- **Shift Right:** used to shift the content of the operand at the input IN bit-by-bit to the right and query the result at the OUT output
- **Shift Left:** used to shift the content of the operand at the input IN bit-by-bit to the left and query the result at the OUT output
- **Rotate Right:** used to rotate the content of the operand at the input IN bit-by-bit to the right and query the result at the OUT output
- **Rotate Left:** used to rotate the content of the operand at the input IN bit-by-bit to the left and query the result at the OUT output



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Thank you

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