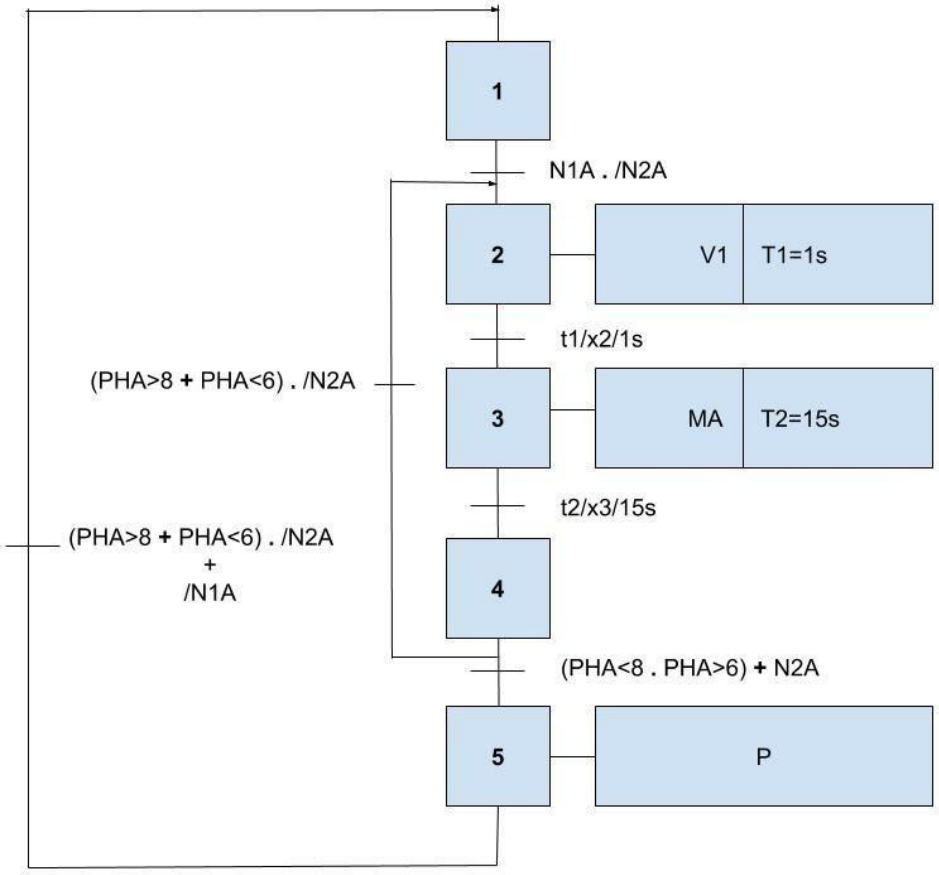
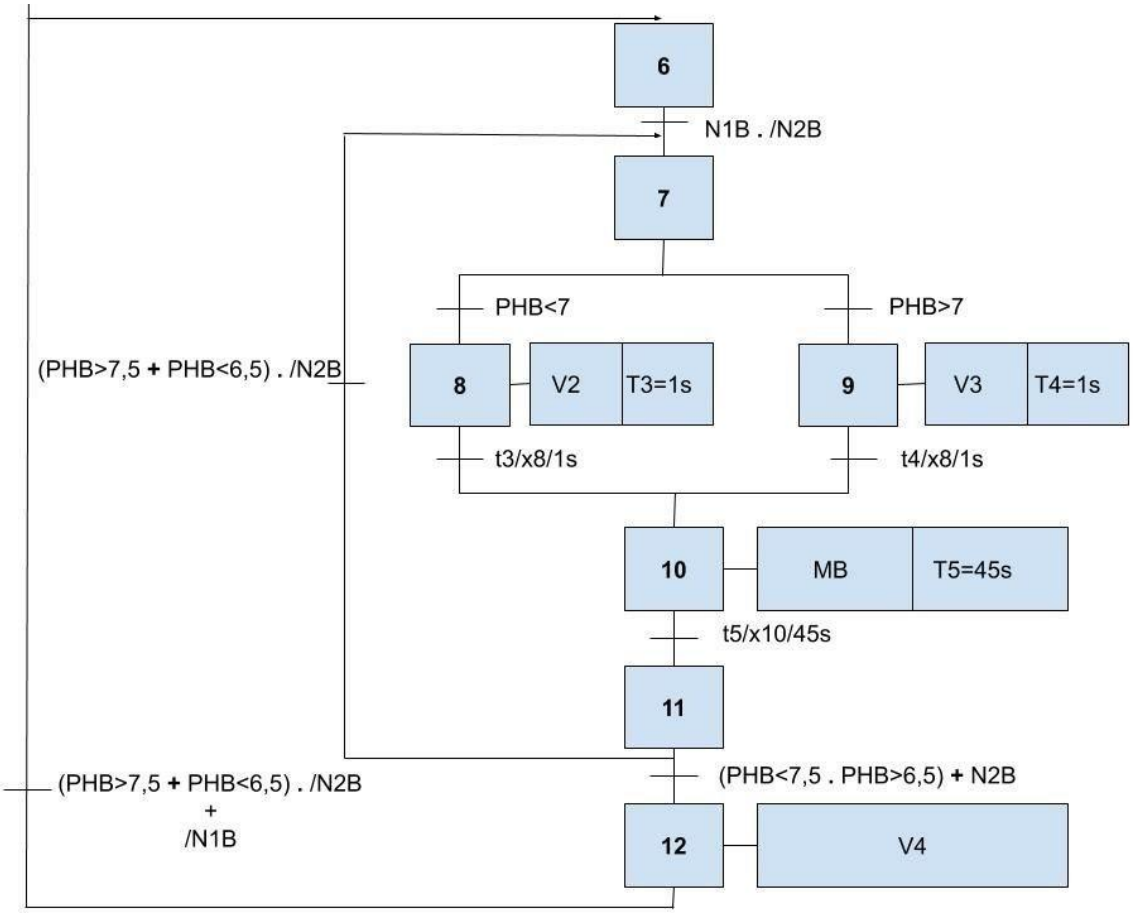
Projet:
Automatisation d'une station d'eaux usées sur TIA PORTAL

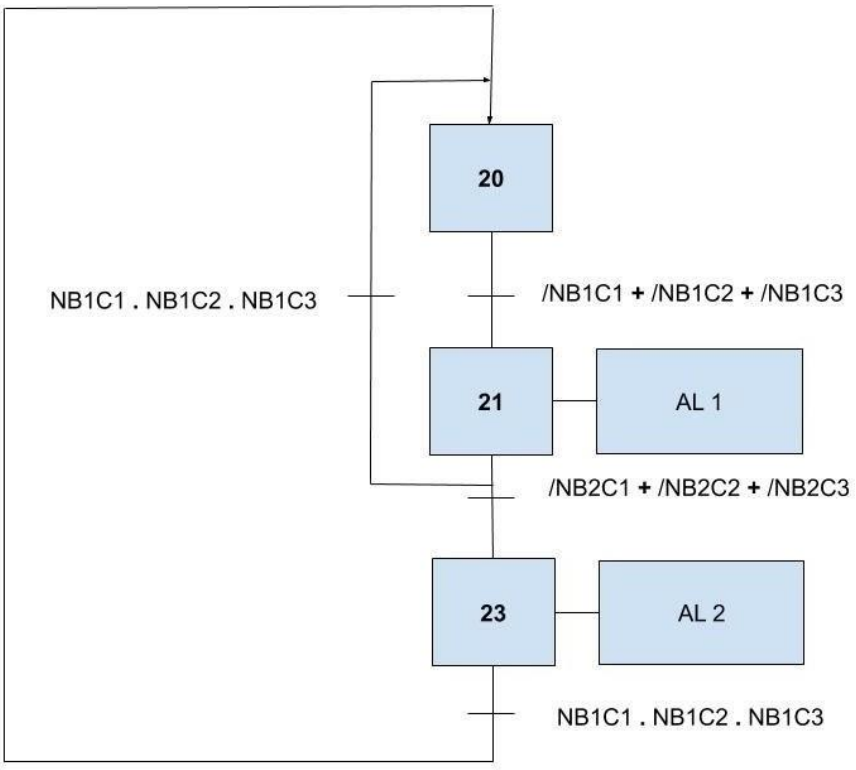
1- Grafcet 1 :



2- Grafcet 2 :


6
N1B . /N2B
7
PHB<7
PHB>7
(PHB>7,5 + PHB<6,5) . /N2B
8
V2
T3=1s
9
V3
T4=1s
t3/x8/1s
t4/x8/1s
10
MB
T5=45s
t5/x10/45s
11
(PHB<7,5 . PHB>6,5) + N2B
(PHB>7,5 + PHB<6,5) . /N2B
+
/N1B
12
V4

3- Grafcet 3 :



4- Programmation sur TIA PORTAL :

Eau usée / PLC_1 [CPU 1214C DC/DC/DC] / PLC tags

Default tag table [98]

PLC tags

	Name	Data type	Address	Retain	Accessible from HMI/OPC UA/Web API	Writable from HMI/OPC UA/Web API	Visible in HMI engineering	Supervision	Comment
	N1A	Bool	%I0.0	False	True	True	True		
	N2A	Bool	%I0.1	False	True	True	True		
	PHA	Int	%IW64	False	True	True	True		
	PHB	Int	%IW66	False	True	True	True		
	N1B	Bool	%I0.2	False	True	True	True		
	N2B	Bool	%I0.3	False	True	True	True		
	NB1C1	Bool	%I0.4	False	True	True	True		
	NB1C2	Bool	%I0.5	False	True	True	True		
	NB1C3	Bool	%I0.6	False	True	True	True		
	NB2C1	Bool	%I0.7	False	True	True	True		
	NB2C2	Bool	%I1.0	False	True	True	True		
	NB2C3	Bool	%I1.1	False	True	True	True		
	V1	Bool	%Q0.0	False	True	True	True		
	V2	Bool	%Q0.1	False	True	True	True		
	V3	Bool	%Q0.2	False	True	True	True		
	V4	Bool	%Q0.3	False	True	True	True		
	MA	Bool	%Q0.4	False	True	True	True		
	MB	Bool	%Q0.5	False	True	True	True		
	P	Bool	%Q0.6	False	True	True	True		
	AL1	Bool	%Q0.7	False	True	True	True		
	AL2	Bool	%Q1.0	False	True	True	True		
	TR12	Bool	%M0.0	False	True	True	True		
	TR23	Bool	%M0.1	False	True	True	True		
	TR34	Bool	%M0.2	False	True	True	True		
	TR42	Bool	%M0.3	False	True	True	True		
	TR45	Bool	%M0.4	False	True	True	True		
	TR52	Bool	%M0.5	False	True	True	True		
	TR67	Bool	%M0.6	False	True	True	True		
	TR78	Bool	%M0.7	False	True	True	True		
	TR79	Bool	%M1.0	False	True	True	True		
	TR810	Bool	%M1.1	False	True	True	True		
	TR910	Bool	%M1.2	False	True	True	True		
	TR1011	Bool	%M1.3	False	True	True	True		
	TR117	Bool	%M1.4	False	True	True	True		
	TR1112	Bool	%M1.5	False	True	True	True		
	TR127	Bool	%M1.6	False	True	True	True		
	TR2021	Bool	%M1.7	False	True	True	True		
	TR2120	Bool	%M2.0	False	True	True	True		
	TR2123	Bool	%M2.1	False	True	True	True		
	TR2320	Bool	%M2.2	False	True	True	True		
	X1	Bool	%M2.3	False	True	True	True		
	X2	Bool	%M2.4	False	True	True	True		
	X3	Bool	%M2.5	False	True	True	True		
	X4	Bool	%M2.6	False	True	True	True		
	X5	Bool	%M2.7	False	True	True	True		
	X6	Bool	%M3.0	False	True	True	True		
	X7	Bool	%M3.1	False	True	True	True		
	X8	Bool	%M3.2	False	True	True	True		
	X9	Bool	%M3.3	False	True	True	True		
	X10	Bool	%M3.4	False	True	True	True		
	X11	Bool	%M3.5	False	True	True	True		
	X12	Bool	%M3.6	False	True	True	True		
	X20	Bool	%M3.7	False	True	True	True		
	X21	Bool	%M4.0	False	True	True	True		
	X23	Bool	%M4.1	False	True	True	True		

	Name	Data type	Address	Retain	Accessible from HMI/OPC UA/Web API	Writable from HMI/OPC UA/Web API	Visible in HMI engineering	Supervision	Comment
	Tag_1	DWord	%MD14	False	True	True	True		
	Tag_2	Word	%MW14	False	True	True	True		
	Tag_3	Real	%MD100	False	True	True	True		
	Tag_4	Real	%MD50	False	True	True	True		
	Tag_5	Real	%MD54	False	True	True	True		
	Tag_6	Real	%MD56	False	True	True	True		
	Tag_7	Real	%MD58	False	True	True	True		
	Tag_8	Real	%MD62	False	True	True	True		
	TR51	Bool	%M4.2	False	True	True	True		
	TR126	Bool	%M4.3	False	True	True	True		
	Tag_13	Bool	%M4.4	False	True	True	True		
	Tag_15	Bool	%M4.5	False	True	True	True		
	Tag_9	Int	%MW0	False	True	True	True		

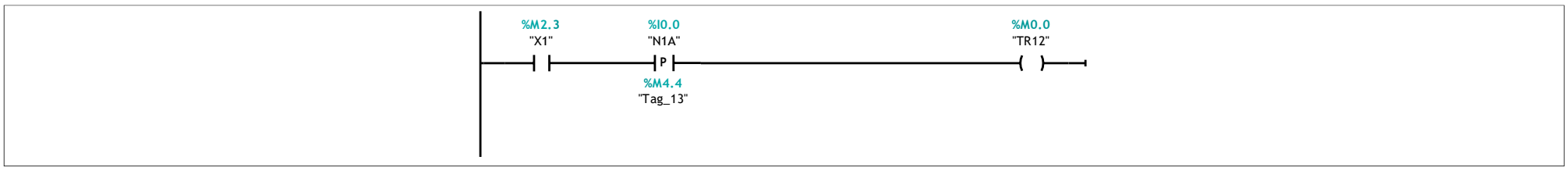
Eau usée / PLC_1 [CPU 1214C DC/DC/DC] / Program blocks

Transitions [FC1]

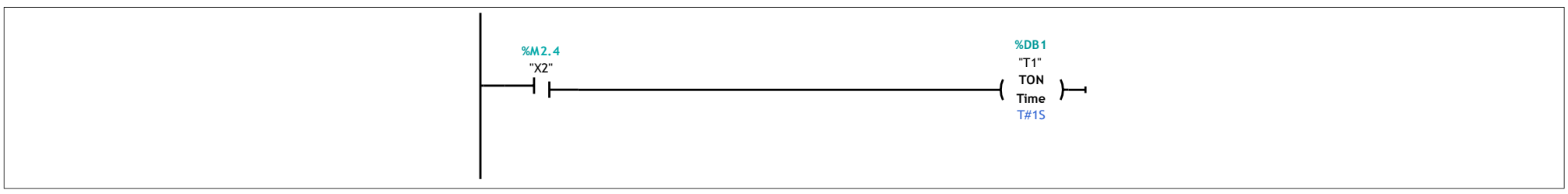
Transitions Properties							
General							
Name	Transitions	**Number**	1	**Type**	FC	**Language**	LAD
Numbering	Automatic						
Information							
Title		**Author**		**Comment**		**Family**	
Version	0.1	**User-defined ID**					

Transitions			
Name	**Data type**	**Default value**	**Comment**
Input			
Output			
InOut			
Temp			
Constant			
Return			
Transitions	Void		

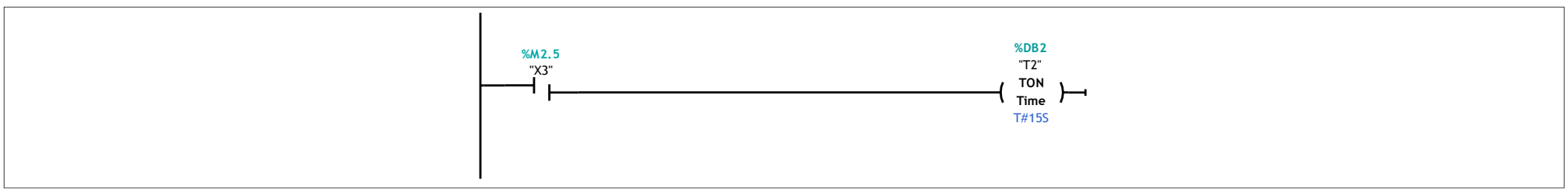
Network 1:



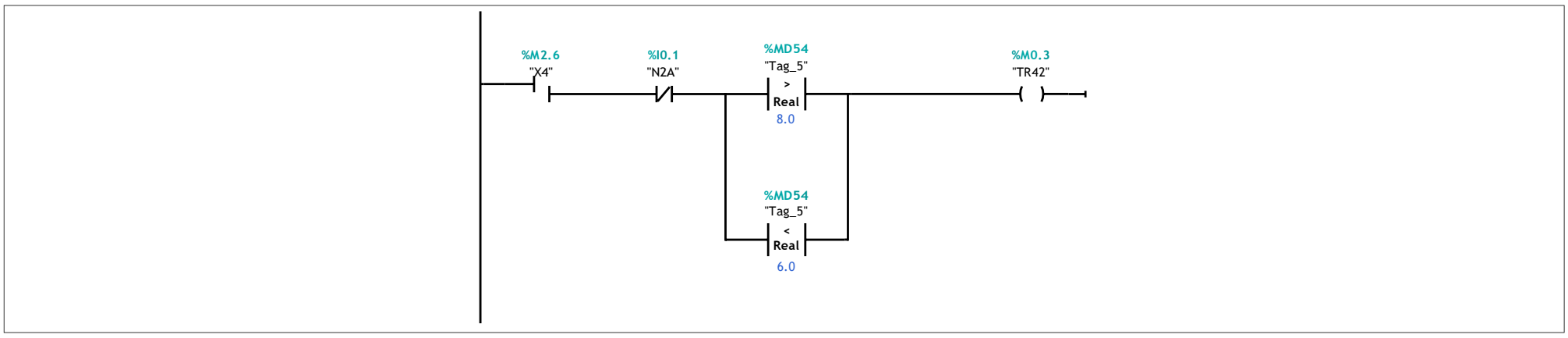
Network 2:



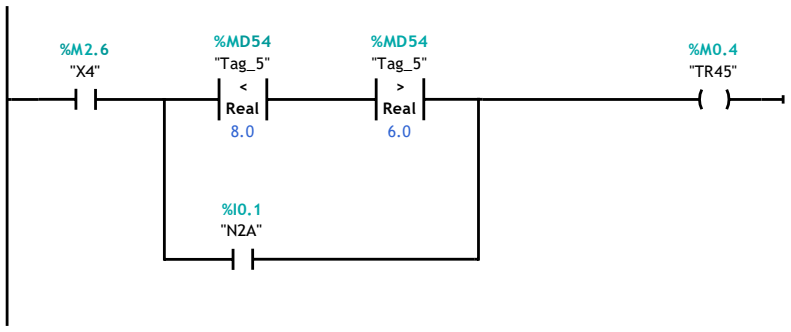
Network 3:



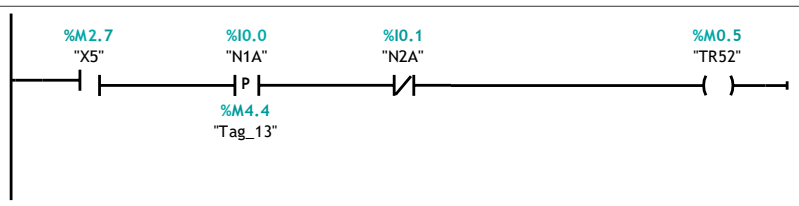
Network 4:



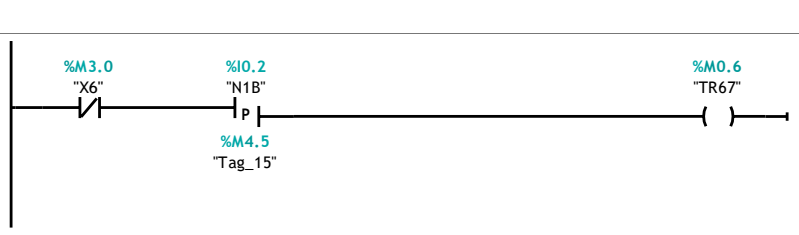
Network 5:



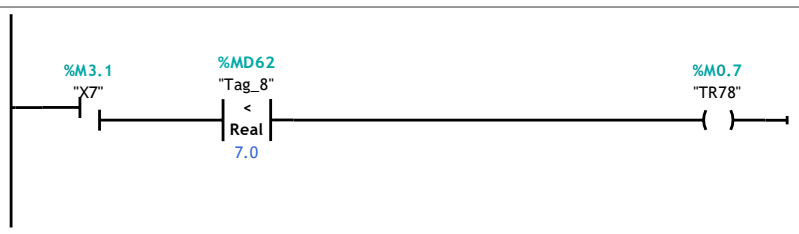
Network 6:



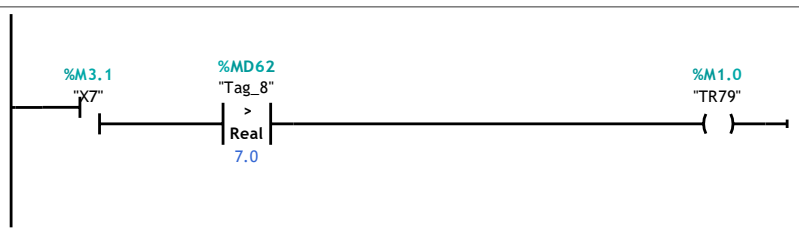
Network 7:



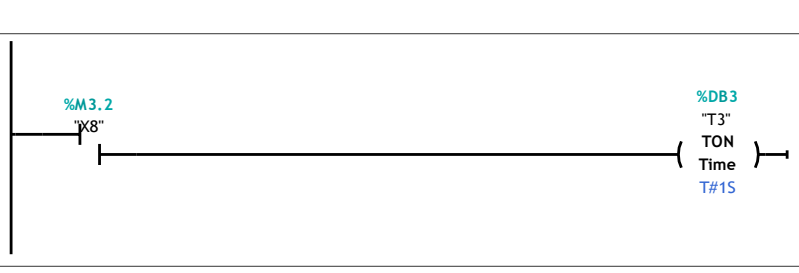
Network 8:



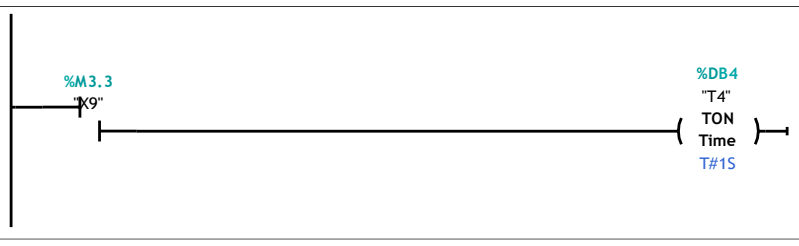
Network 9:



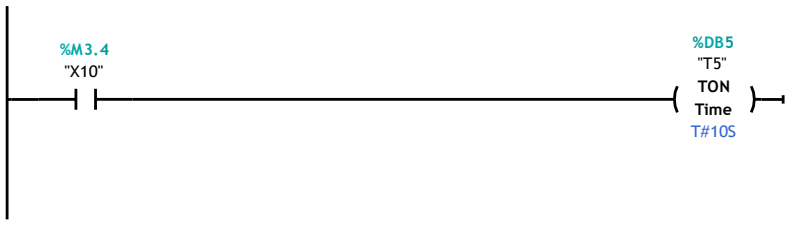
Network 10:



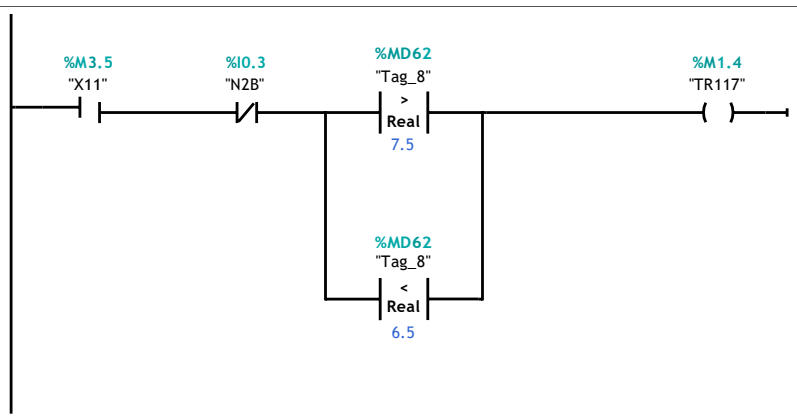
Network 11:



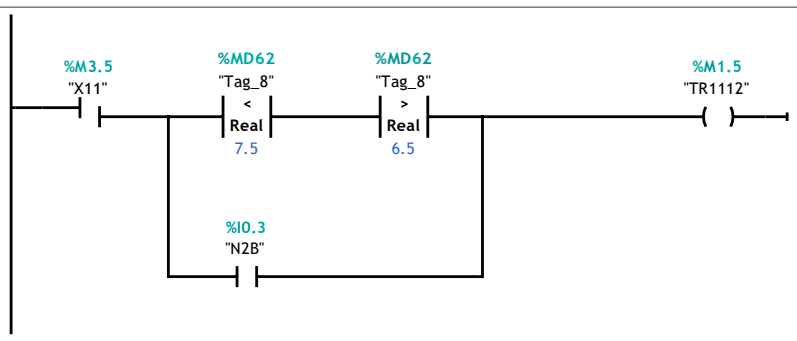
Network 12:



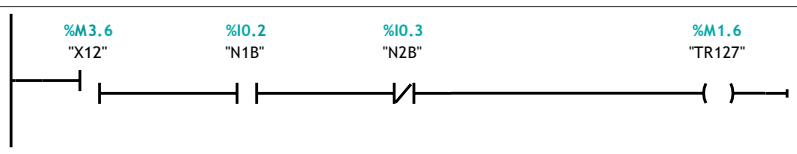
Network 13:



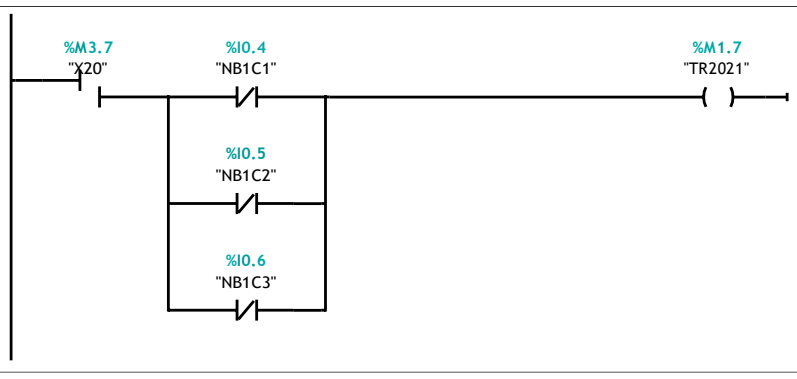
Network 14:



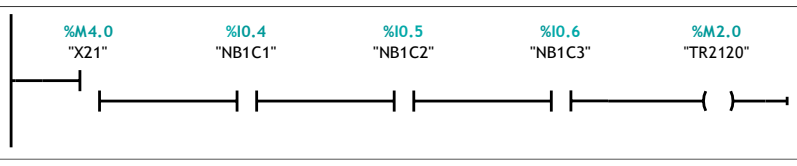
Network 15:



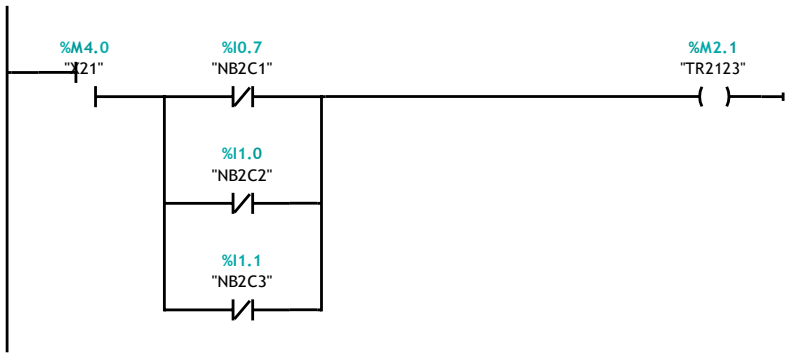
Network 16:



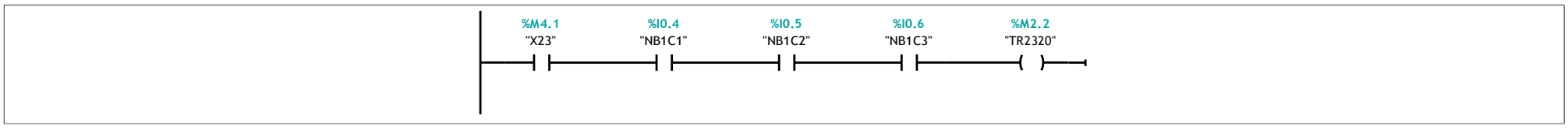
Network 17:



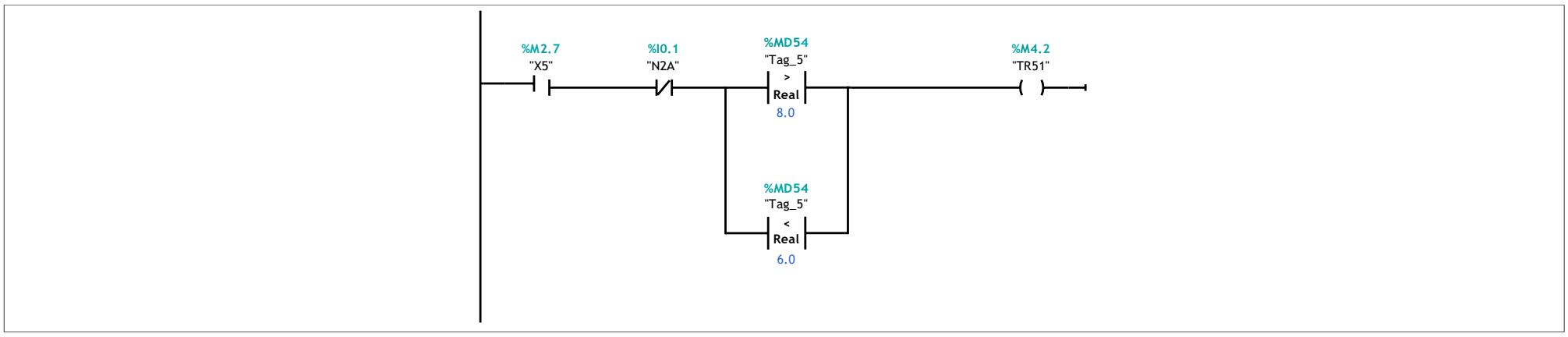
Network 18:



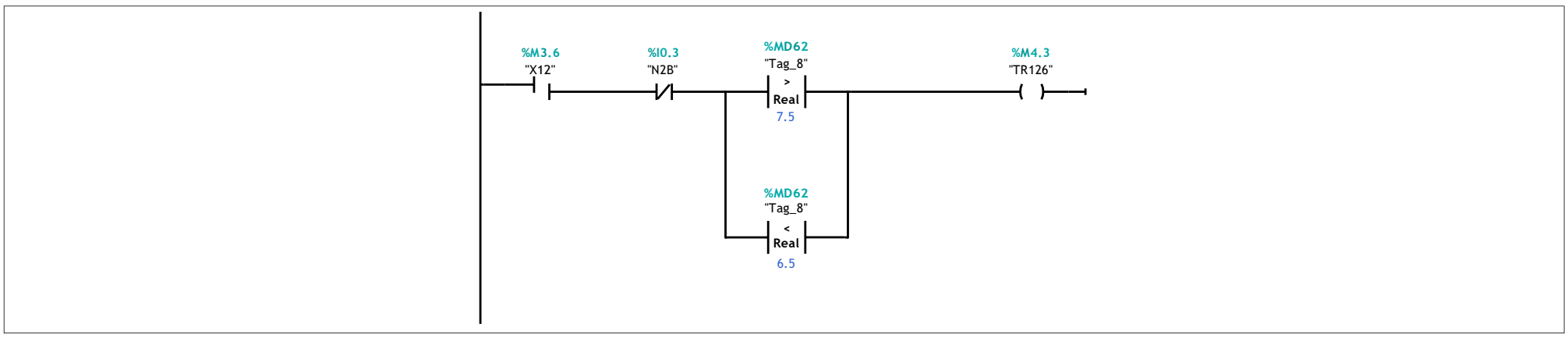
Network 19:



Network 20:



Network 21:



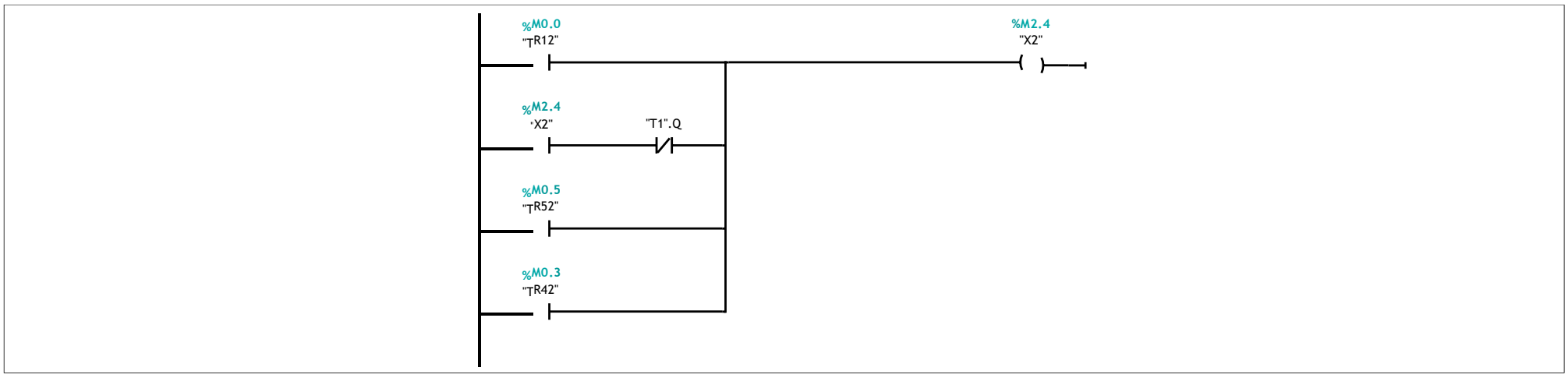
Eau usée / PLC_1 [CPU 1214C DC/DC/DC] / Program blocks

Actions [FC2]

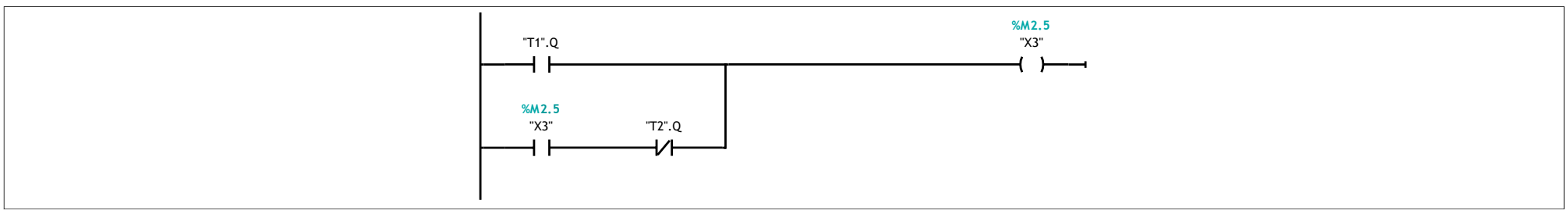
Actions Properties							
General							
Name	Actions	**Number**	2	**Type**	FC	**Language**	LAD
Numbering	Automatic						
Information							
Title		**Author**		**Comment**		**Family**	
Version	0.1	**User-defined ID**					

Actions			
Name	**Data type**	**Default value**	**Comment**
Input			
Output			
InOut			
Temp			
Constant			
Return			
Actions	Void		

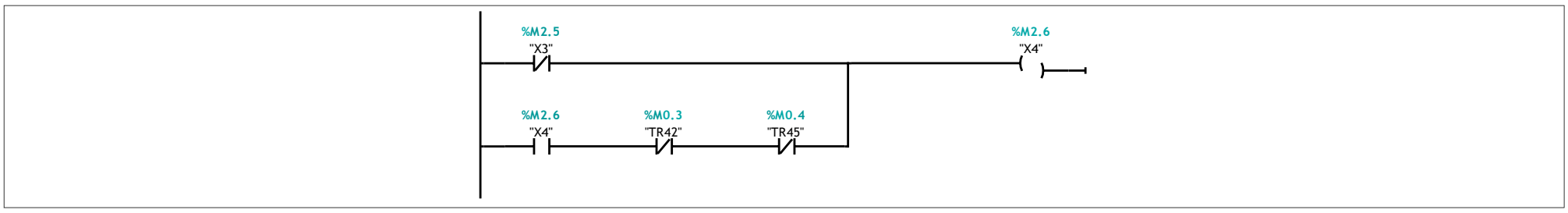
Network 1:



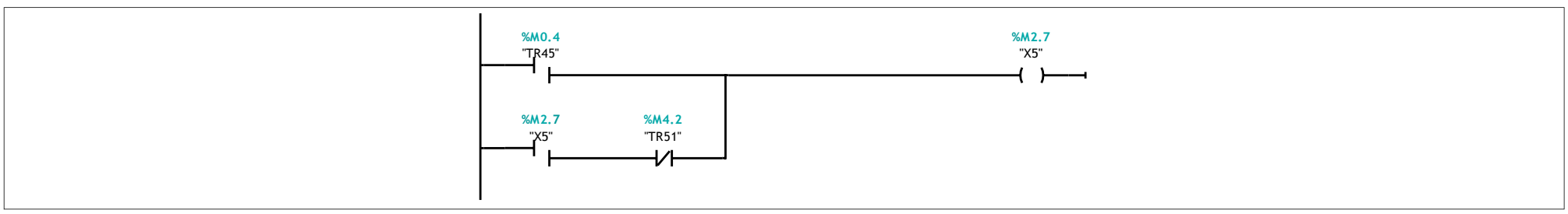
Network 2:



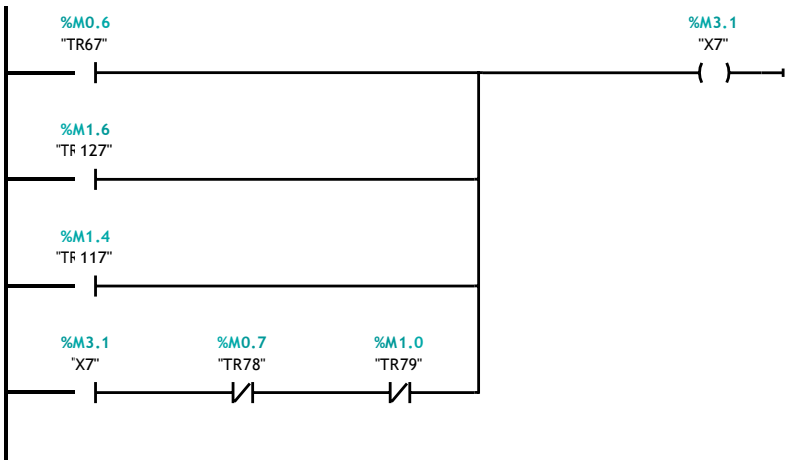
Network 3:



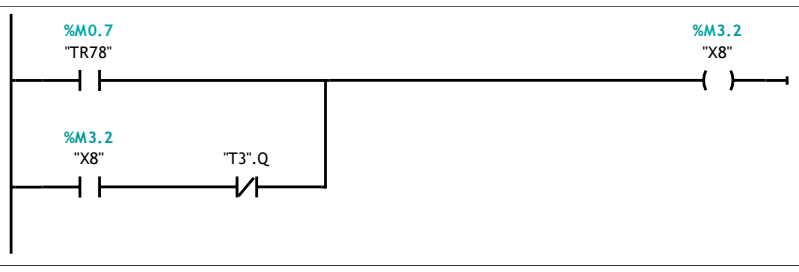
Network 4:



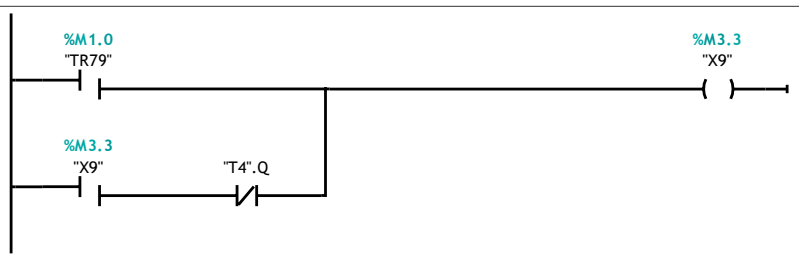
Network 5:



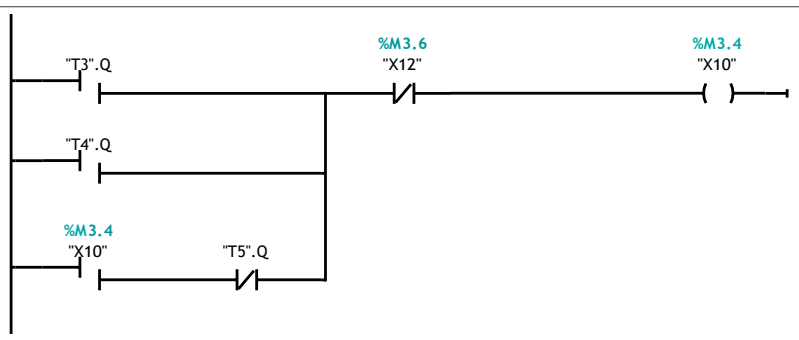
Network 6:



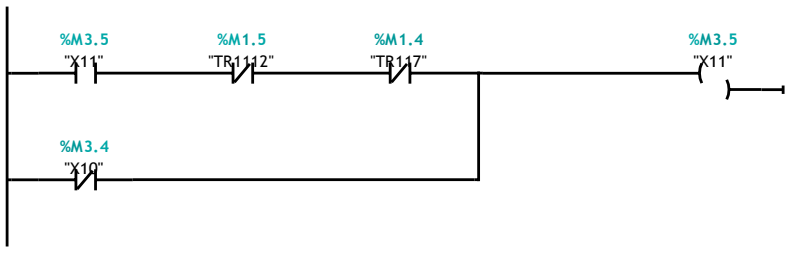
Network 7:



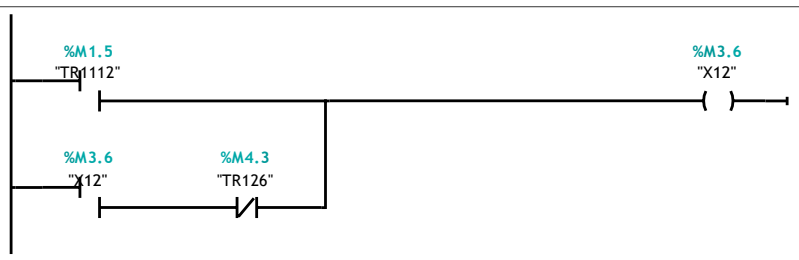
Network 8:



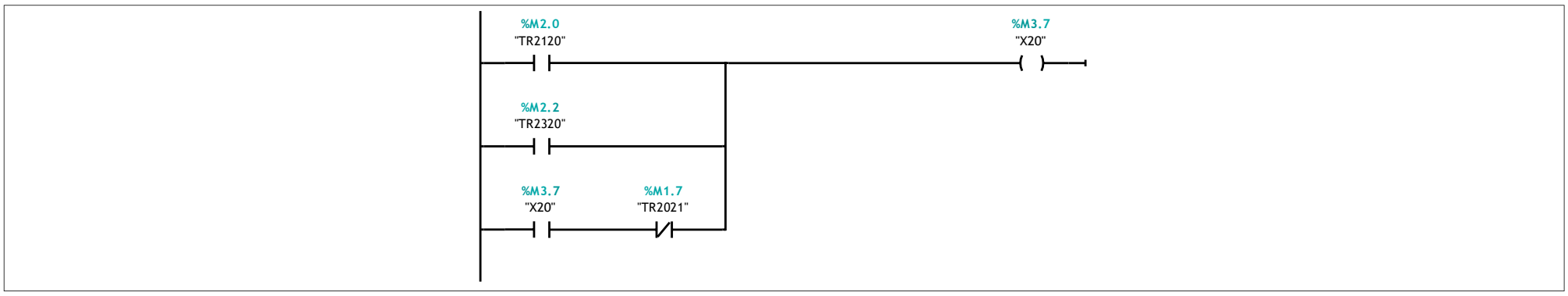
Network 9:



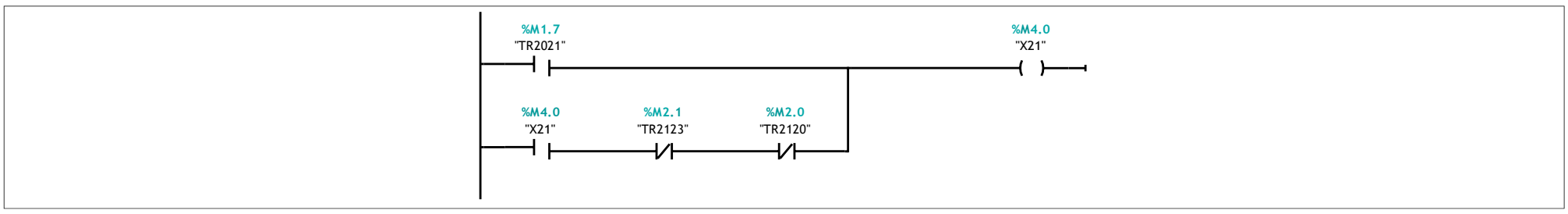
Network 10:



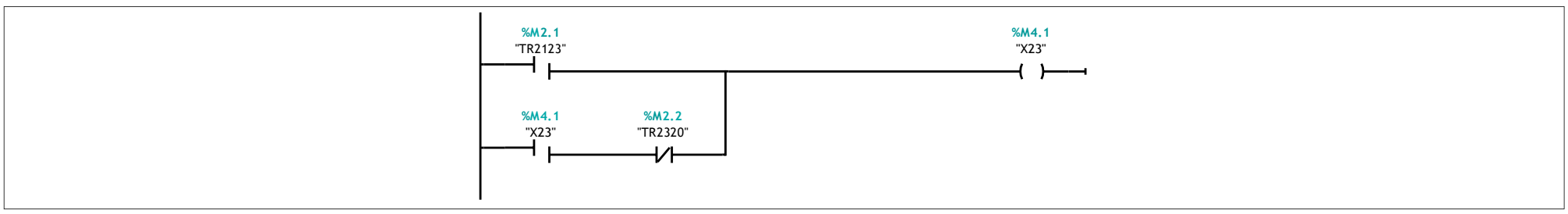
Network 11:



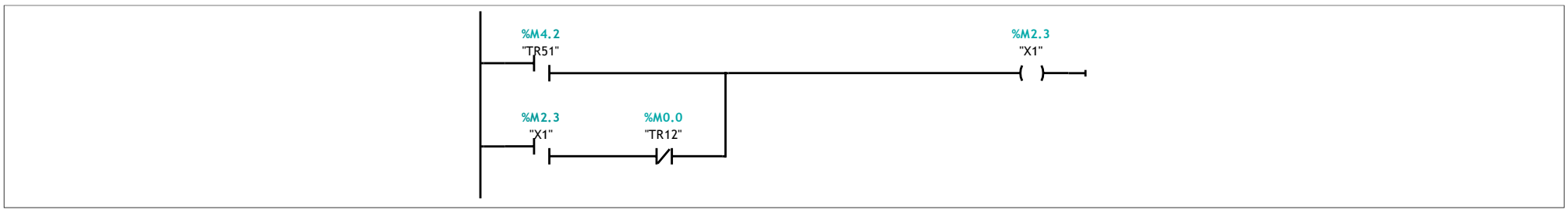
Network 12:



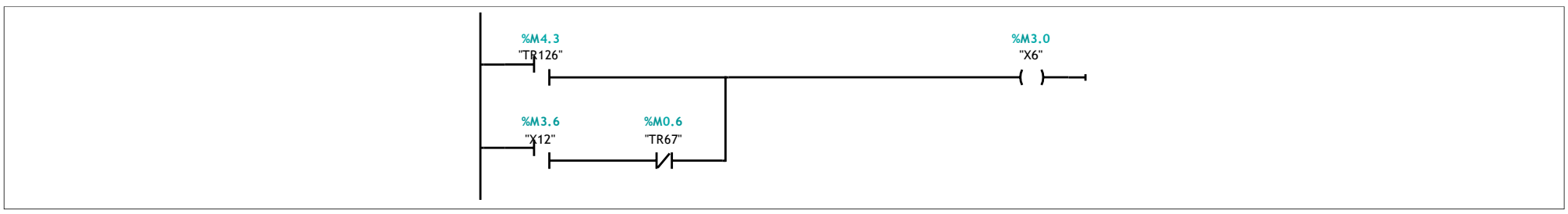
Network 13:



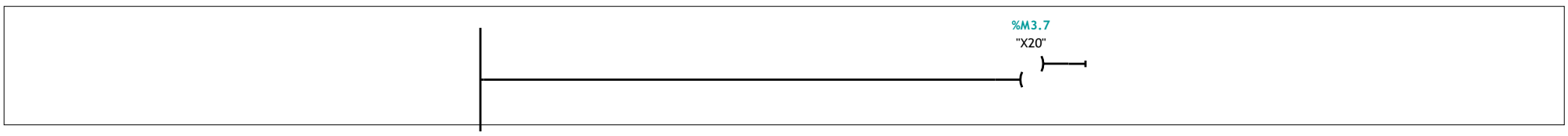
Network 14:



Network 15:



Network 16:

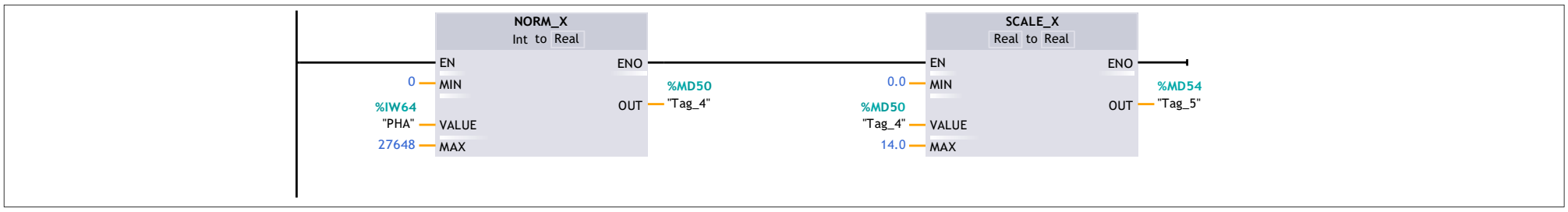


Mise à l'échelle [FC5]

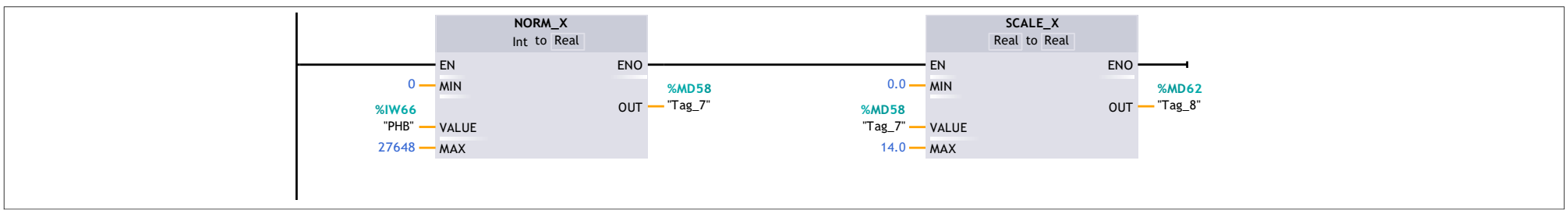
Mise à l'échelle Properties							
General							
Name	Mise à l'échelle	**Number**	5	**Type**	FC	**Language**	LAD
Numbering	Automatic						
Information							
Title		**Author**		**Comment**		**Family**	
Version	0.1	**User-defined ID**					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
Mise à l'échelle	Void		

Network 1:



Network 2:



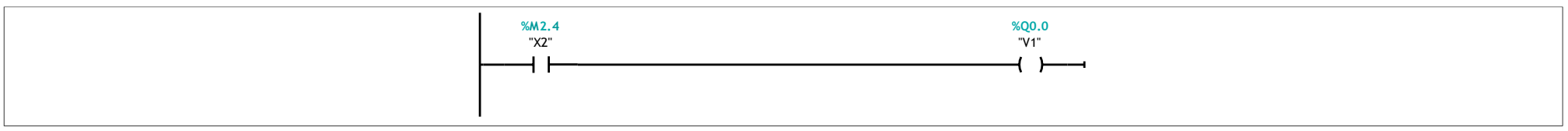
Eau usée / PLC_1 [CPU 1214C DC/DC/DC] / Program blocks

Sortie [FC3]

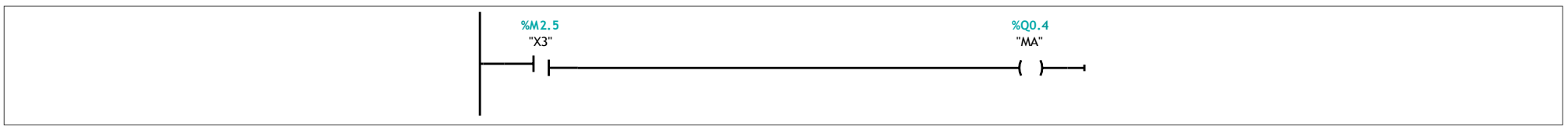
Sortie Properties							
General							
Name	Sortie	**Number**	3	**Type**	FC	**Language**	LAD
Numbering	Automatic						
Information							
Title		**Author**		**Comment**		**Family**	
Version	0.1	**User-defined ID**					

Sortie			
Name	**Data type**	**Default value**	**Comment**
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
Sortie	Void		

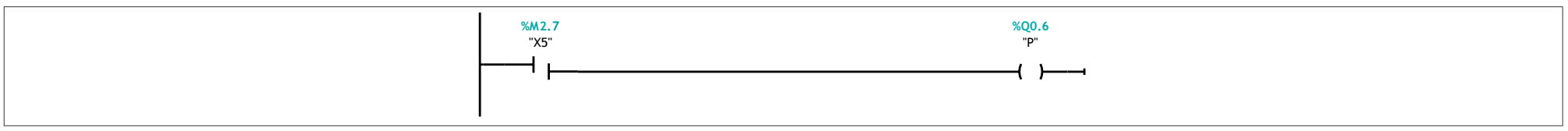
Network 1:



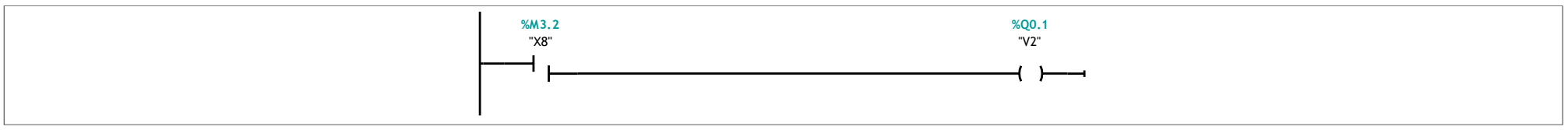
Network 2:



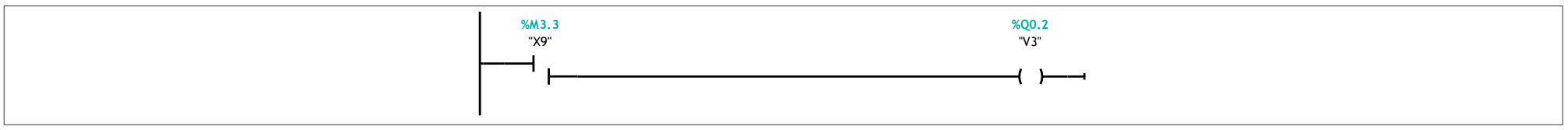
Network 3:



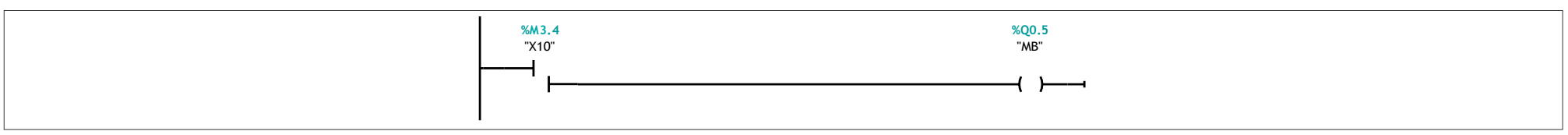
Network 4:



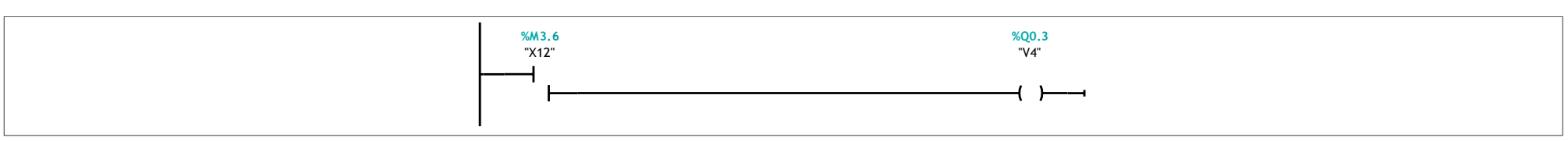
Network 5:



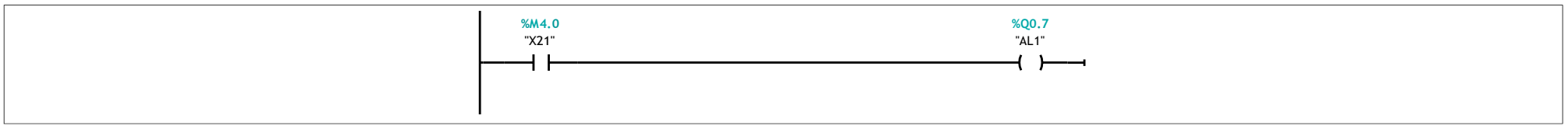
Network 6:



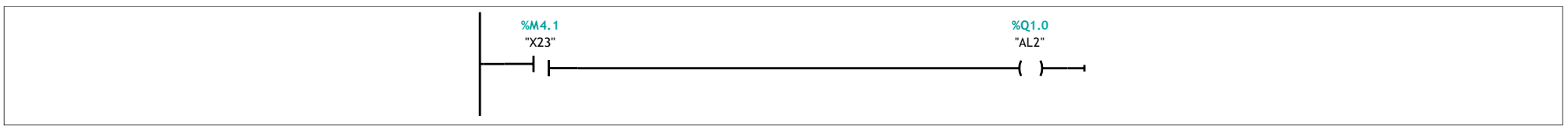
Network 7:



Network 8:



Network 9:



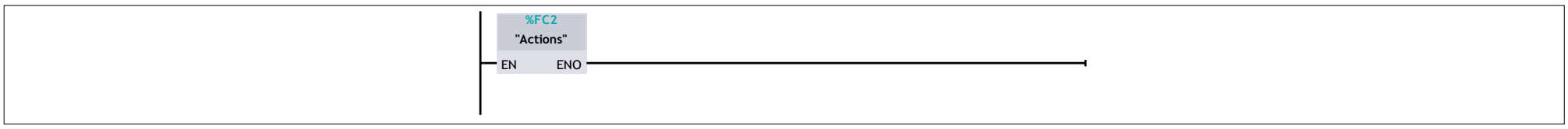
Eau usée / PLC_1 [CPU 1214C DC/DC/DC] / Program blocks

Main [OB1]

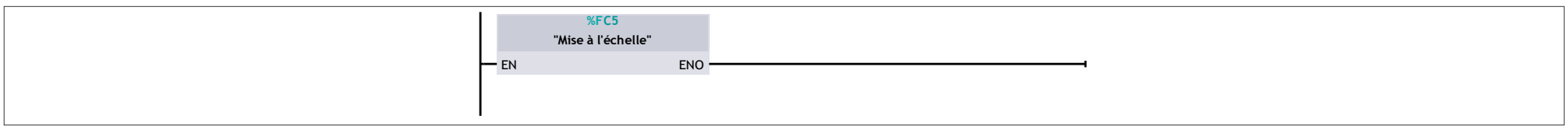
Main Properties							
General							
Name	Main	**Number**	1	**Type**	OB	**Language**	LAD
Numbering	Automatic						
Information							
Title	"Main Program Sweep (Cycle)"	**Author**		**Comment**		**Family**	
Version	0.1	**User-defined ID**					

Main			
Name	**Data type**	**Default value**	**Comment**
Temp			
Constant			

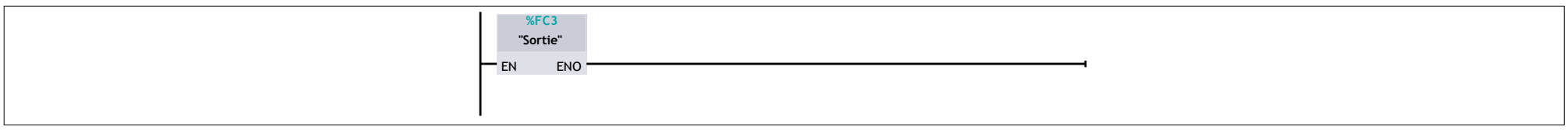
Network 1:



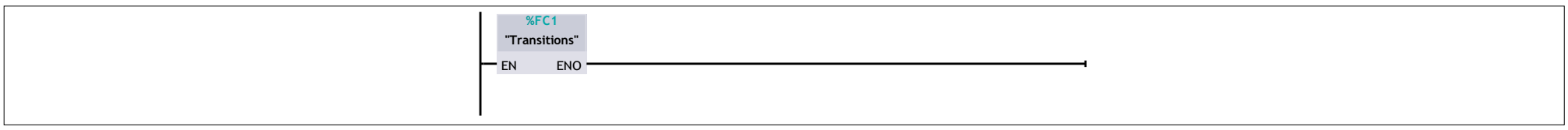
Network 2:



Network 3:



Network 4:



Eau usée / PLC_1 [CPU 1214C DC/DC/DC] / Program blocks

Startup [OB100]

Startup Properties							
General							
Name	Startup	**Number**	100	**Type**	OB	**Language**	LAD
Numbering	Automatic						
Information							
Title	"Complete Restart"	**Author**		**Comment**		**Family**	
Version	0.1	**User-defined ID**					

Startup			
Name	**Data type**	**Default value**	**Comment**
Input			
LostRetentive	Bool		True if retentive data are lost
LostRTC	Bool		True if date and time are lost
Temp			
Constant			

Network 1: