

Program blocks

Main [OB1]

Main Properties

General

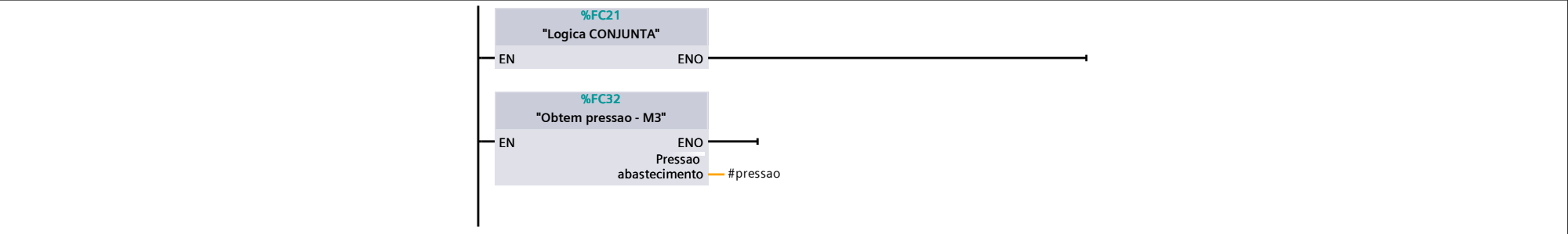
Name	Main	Number	1	Type	OB	Language	LAD
Numbering	Automatic						

Information

Title	"Main Program Sweep (Cycle)"	Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
▼ Input			
Initial_Call	Bool		Initial call of this OB
Remanence	Bool		=True, if remanent data are available
▼ Temp			
temperatura	Real		
pressao	Real		
Constant			

Network 1:



Program blocks

Aciona valvulas - M1 e M2 [FC1]

Aciona valvulas - M1 e M2 Properties

General

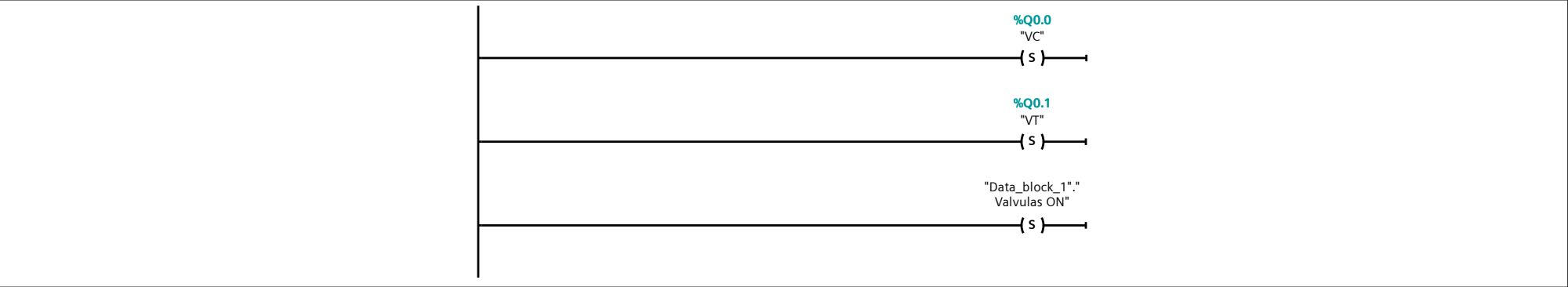
Name	Aciona valvulas - M1 e M2	Number	1	Type	FC	Language	LAD
Numbering	Automatic						

Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
Aciona valvulas - M1 e M2	Void		

Network 1: Acionando válvulas dos modos 1 e 2



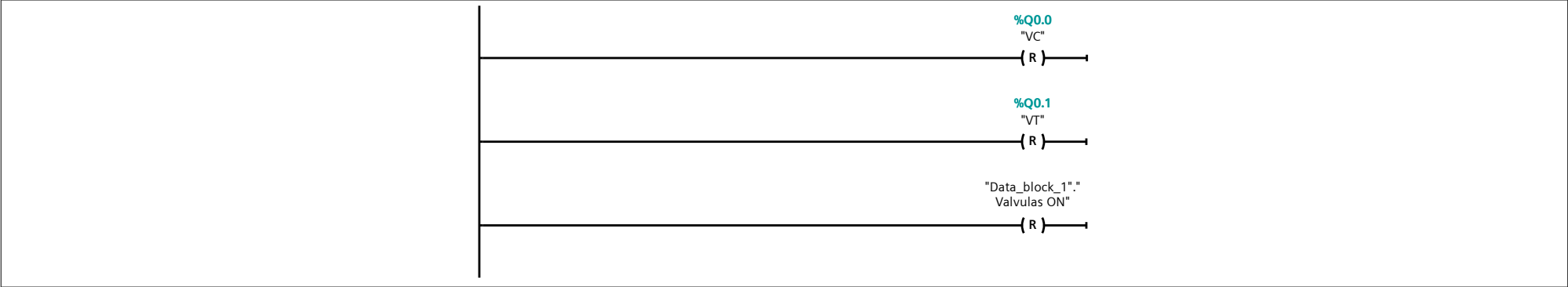
## Program blocks

## Desliga válvulas - M1 e M2 [FC2]

Desliga valvulas - M1 e M2 Properties							
General							
Name	Desliga valvulas - M1 e M2	Number	2	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			
Desliga valvulas - M1 e M2	Void		

### Network 1: Válvula on/off da entrada do sistema de compressores



Program blocks

Verifica valvulas 1 [FC3]

Verifica valvulas 1 Properties

General

Name	Verifica valvulas 1	Number	3	Type	FC	Language	LAD
Numbering	Automatic						

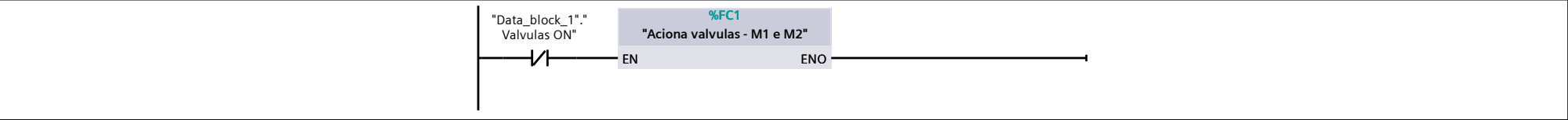
Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
Verifica valvulas 1	Void		

Network 1:

Se válvulas OFF



Program blocks

Verifica valvulas 2 [FC4]

Verifica valvulas 2 Properties

General

Name	Verifica valvulas 2	Number	4	Type	FC	Language	LAD
Numbering	Automatic						

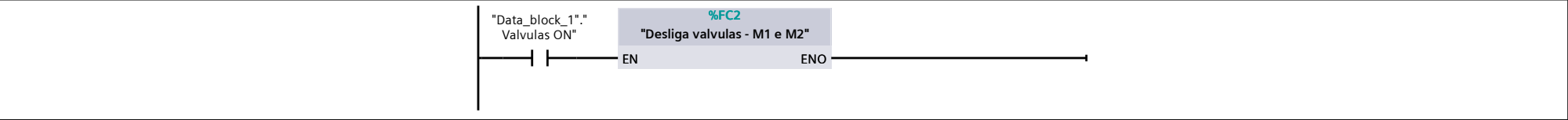
Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
Verifica valvulas 2	Void		

Network 1:

Se válvulas ON



Program blocks

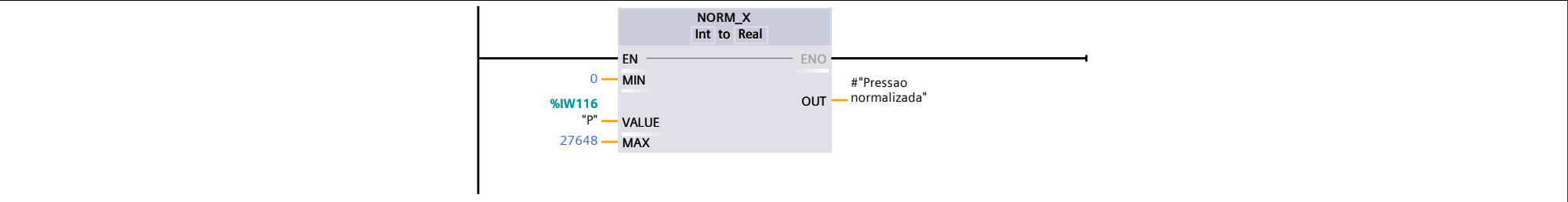
Obtem pressao [FC5]

Obtem pressao Properties							
General							
Name	Obtem pressao	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			
Pressao	Real		Pressão obtida
InOut			
▼ Temp			
Pressao normalizada	Real		Pressão normalizada
Constant			
▼ Return			
Obtem pressao	Void		

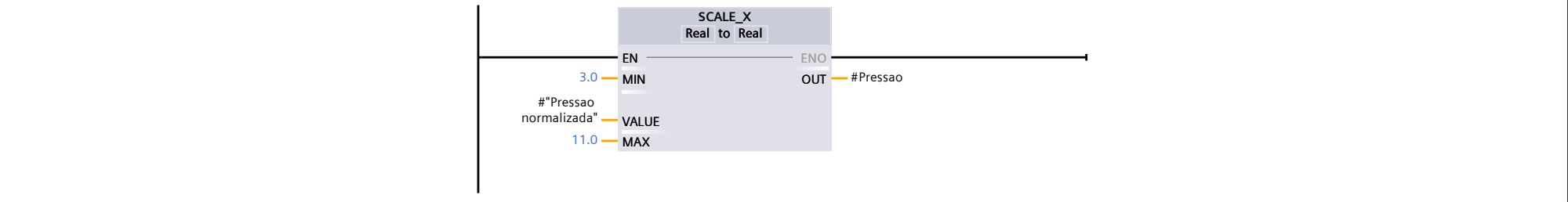
Network 1:

Normalização do valor de pressão lido do transmissor



Network 2:

Scale do valor da pressão normalizada para a faixa 0.5 a 2.5



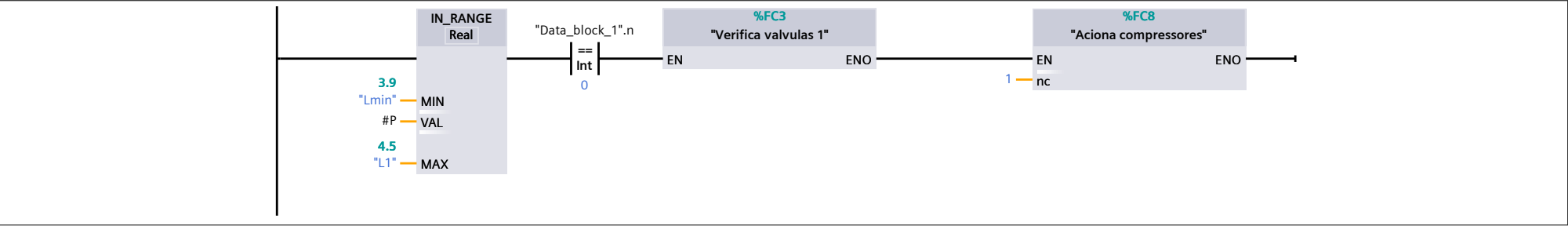
Program blocks

Pressao crescente [FC6]

Pressao crescente Properties							
General							
Name	Pressao crescente	Number	6	Type	FC	Language	LAD
Numbering	Automatic						
Information							
Title		Author		Comment		Family	
Version	0.1	User-defined ID					
Name		Data type	Default value		Comment		
▼ Input							
P		Real			Pressão no interior do tanque separador		
Output							
InOut							
Temp							
Constant							
▼ Return							
Pressao crescente		Void					

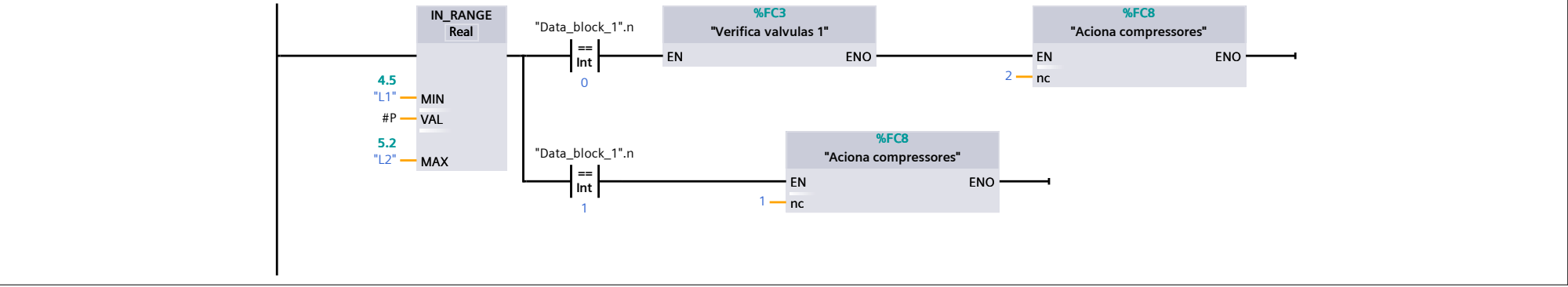
Network 1:

Se pressão entre Lmin e L1



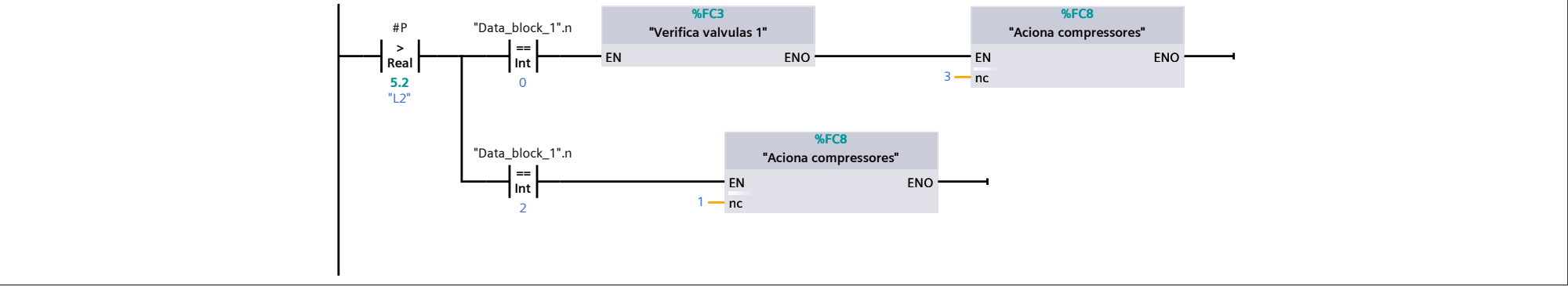
Network 2:

Se pressão entre L1 e L2



Network 3:

Se pressão maior que L2



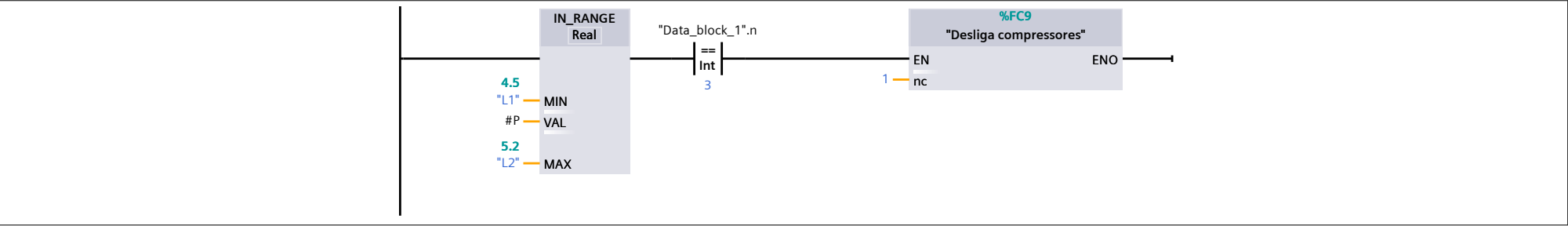
Program blocks

Pressao decrescente [FC7]

Pressao decrescente Properties							
General							
Name	Pressao decrescente	Number	7	Type	FC	Language	LAD
Numbering	Automatic						
Information							
Title		Author		Comment		Family	
Version	0.1	User-defined ID					
Name		Data type	Default value		Comment		
▼ Input							
P		Real			Pressão no interior do tanque separador		
Output							
InOut							
Temp							
Constant							
▼ Return							
Pressao decrescente		Void					

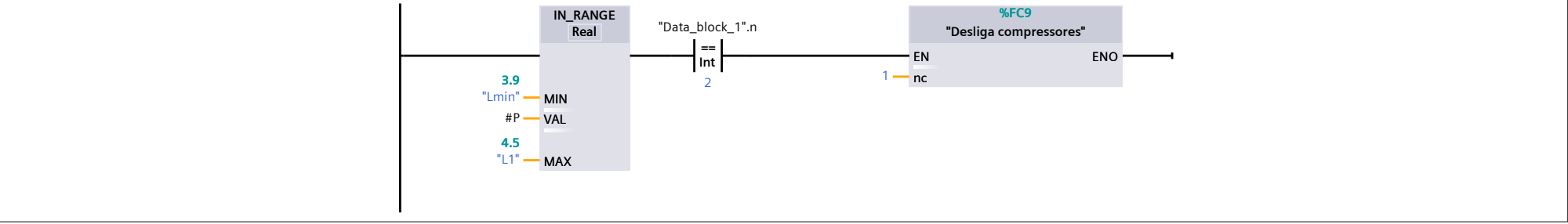
Network 1:

Se pressão entre L1 e L2



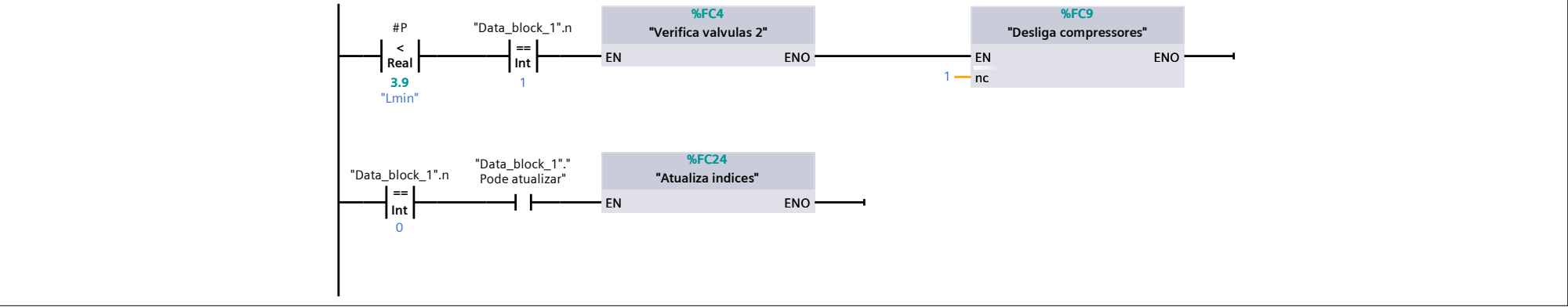
Network 2:

Se pressão entre Lmin e L1



Network 3:

Se pressão menor que Lmin





Totally Integrated Automation Portal

Program blocks

Data\_block\_1 [DB1]

Data\_block\_1 Properties

General

Name	Data_block_1	Number	1	Type	DB	Language	DB
Numbering	Automatic						

Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Start value	Retain	Accessible from HMI/OPC UA/Web API	Writ-able from HMI/ OPC UA/ Web API	Visible in HMI engi-neering	Setpoint	Supervi-sion	Comment
▼ Static									
n	Int	0	False	True	True	True	False		
Valvulas ON	Bool	false	False	True	True	True	False		
Valvulas ON - M3	Bool	false	False	True	True	True	False		
▼ Sequencia 1	Array[0..2] of Int		False	True	True	True	False		
Sequencia 1[0]	Int	1	False	True	True	True	False		
Sequencia 1[1]	Int	2	False	True	True	True	False		
Sequencia 1[2]	Int	3	False	True	True	True	False		
▼ Sequencia 2	Array[0..2] of Int		False	True	True	True	False		
Sequencia 2[0]	Int	3	False	True	True	True	False		
Sequencia 2[1]	Int	1	False	True	True	True	False		
Sequencia 2[2]	Int	2	False	True	True	True	False		
▼ Sequencia 3	Array[0..2] of Int		False	True	True	True	False		
Sequencia 3[0]	Int	2	False	True	True	True	False		
Sequencia 3[1]	Int	3	False	True	True	True	False		
Sequencia 3[2]	Int	1	False	True	True	True	False		
▼ Sequencia	Array[0..2] of Int		True	True	True	True	False		
Sequencia[0]	Int	1	True	True	True	True	False		
Sequencia[1]	Int	2	True	True	True	True	False		
Sequencia[2]	Int	3	True	True	True	True	False		
Tomada de decisao	Bool	false	False	True	True	True	False		
▼ Valores de pressao	Array[0..19] of Real		False	True	True	True	False		
Valores de pressao[0]	Real	0.0	False	True	True	True	False		
Valores de pressao[1]	Real	0.0	False	True	True	True	False		
Valores de pressao[2]	Real	0.0	False	True	True	True	False		
Valores de pressao[3]	Real	0.0	False	True	True	True	False		
Valores de pressao[4]	Real	0.0	False	True	True	True	False		
Valores de pressao[5]	Real	0.0	False	True	True	True	False		
Valores de pressao[6]	Real	0.0	False	True	True	True	False		
Valores de pressao[7]	Real	0.0	False	True	True	True	False		
Valores de pressao[8]	Real	0.0	False	True	True	True	False		
Valores de pressao[9]	Real	0.0	False	True	True	True	False		
Valores de pressao[10]	Real	0.0	False	True	True	True	False		
Valores de pressao[11]	Real	0.0	False	True	True	True	False		
Valores de pressao[12]	Real	0.0	False	True	True	True	False		
Valores de pressao[13]	Real	0.0	False	True	True	True	False		
Valores de pressao[14]	Real	0.0	False	True	True	True	False		
Valores de pressao[15]	Real	0.0	False	True	True	True	False		
Valores de pressao[16]	Real	0.0	False	True	True	True	False		
Valores de pressao[17]	Real	0.0	False	True	True	True	False		
Valores de pressao[18]	Real	0.0	False	True	True	True	False		
Valores de pressao[19]	Real	0.0	False	True	True	True	False		
index	Int	0	False	True	True	True	False		
index max	Int	20	False	True	True	True	False		
length	Int	20	False	True	True	True	False		
▼ Valores de pressao - M3	Array[0..999] of Real		False	True	True	True	False		
Valores de pressao - M3[0]	Real	0.0	False	True	True	True	False		
Valores de pressao - M3[1]	Real	0.0	False	True	True	True	False		
Valores de pressao - M3[2]	Real	0.0	False	True	True	True	False		
Valores de pressao - M3[3]	Real	0.0	False	True	True	True	False		
Valores de pressao - M3[4]	Real	0.0	False	True	True	True	False		
Valores de pressao - M3[5]	Real	0.0	False	True	True	True	False		
Valores de pressao - M3[6]	Real	0.0	False	True	True	True	False		
Valores de pressao - M3[7]	Real	0.0	False	True	True	True	False		
Valores de pressao - M3[8]	Real	0.0	False	True	True	True	False		
Valores de pressao - M3[9]	Real	0.0	False	True	True	True	False		













Totally Integrated Automation Portal														
Name		Data type	Start value	Retain	Accessible from HMI/OPC UA/Web API	Writ-able from HMI/ OPC UA/ Web API	Visible in HMI engi-neering	Setpoint	Supervi-sion				Comment	
Valores de pressao - M3[251]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[252]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[253]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[254]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[255]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[256]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[257]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[258]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[259]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[260]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[261]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[262]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[263]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[264]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[265]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[266]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[267]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[268]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[269]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[270]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[271]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[272]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[273]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[274]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[275]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[276]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[277]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[278]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[279]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[280]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[281]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[282]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[283]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[284]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[285]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[286]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[287]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[288]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[289]		Real	0.0	False	True	True	True	False						
Valores de pressao - M3[290]		Real	0.0	False	True	True	True	False						

















































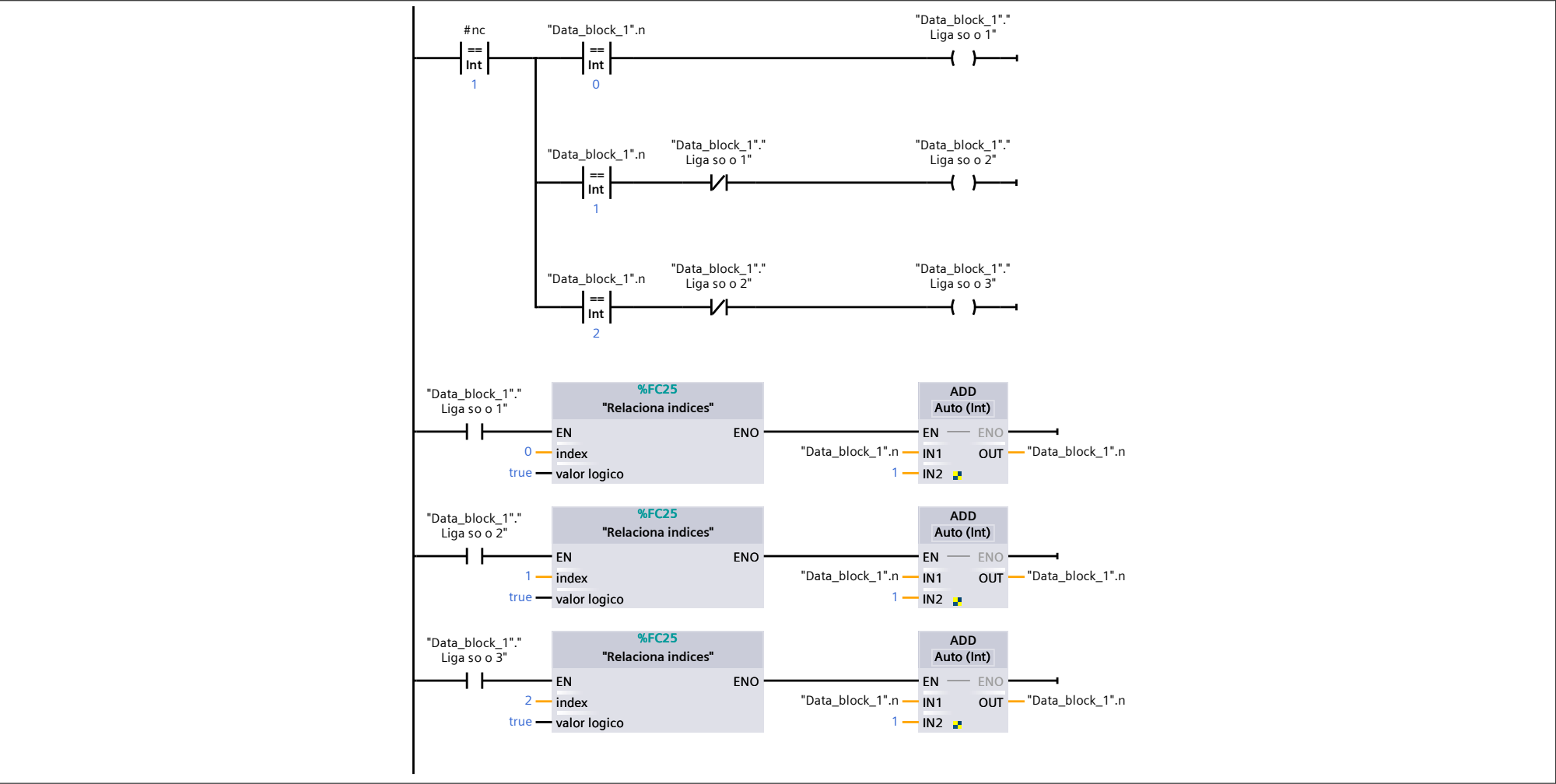
Program blocks

Aciona compressores [FC8]

Aciona compressores Properties							
General							
Name	Aciona compressores	Number	8	Type	FC	Language	LAD
Numbering	Automatic						
Information							
Title		Author		Comment		Family	
Version	0.1	User-defined ID					
Name		Data type	Default value		Comment		
▼ Input							
nc		Int			Número de compressores		
Output							
InOut							
Temp							
Constant							
▼ Return							
Aciona compressores		Void					

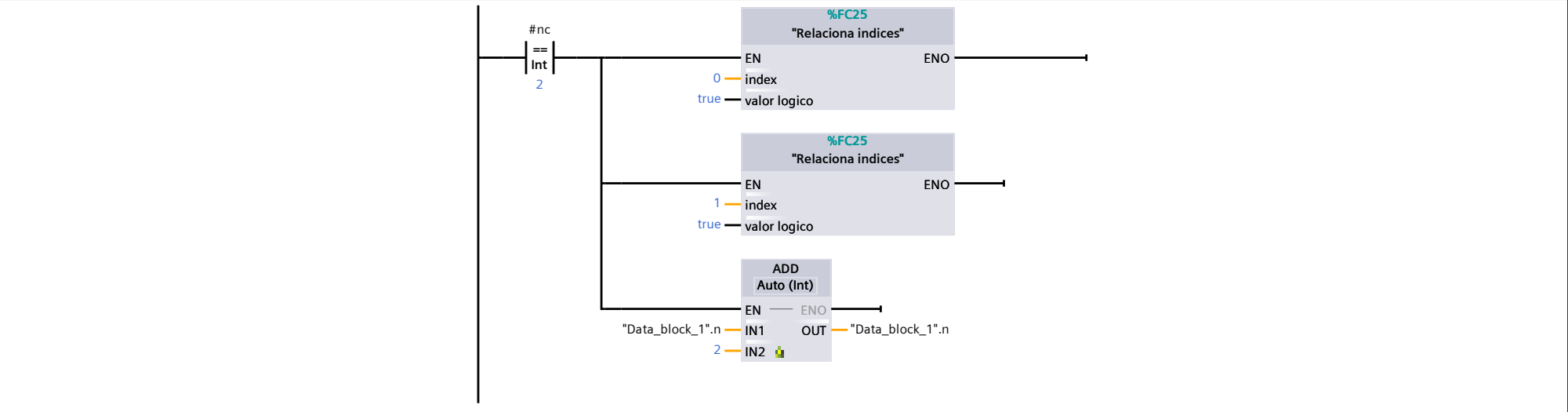
Network 1:

Apenas um compressor deve ser ligado



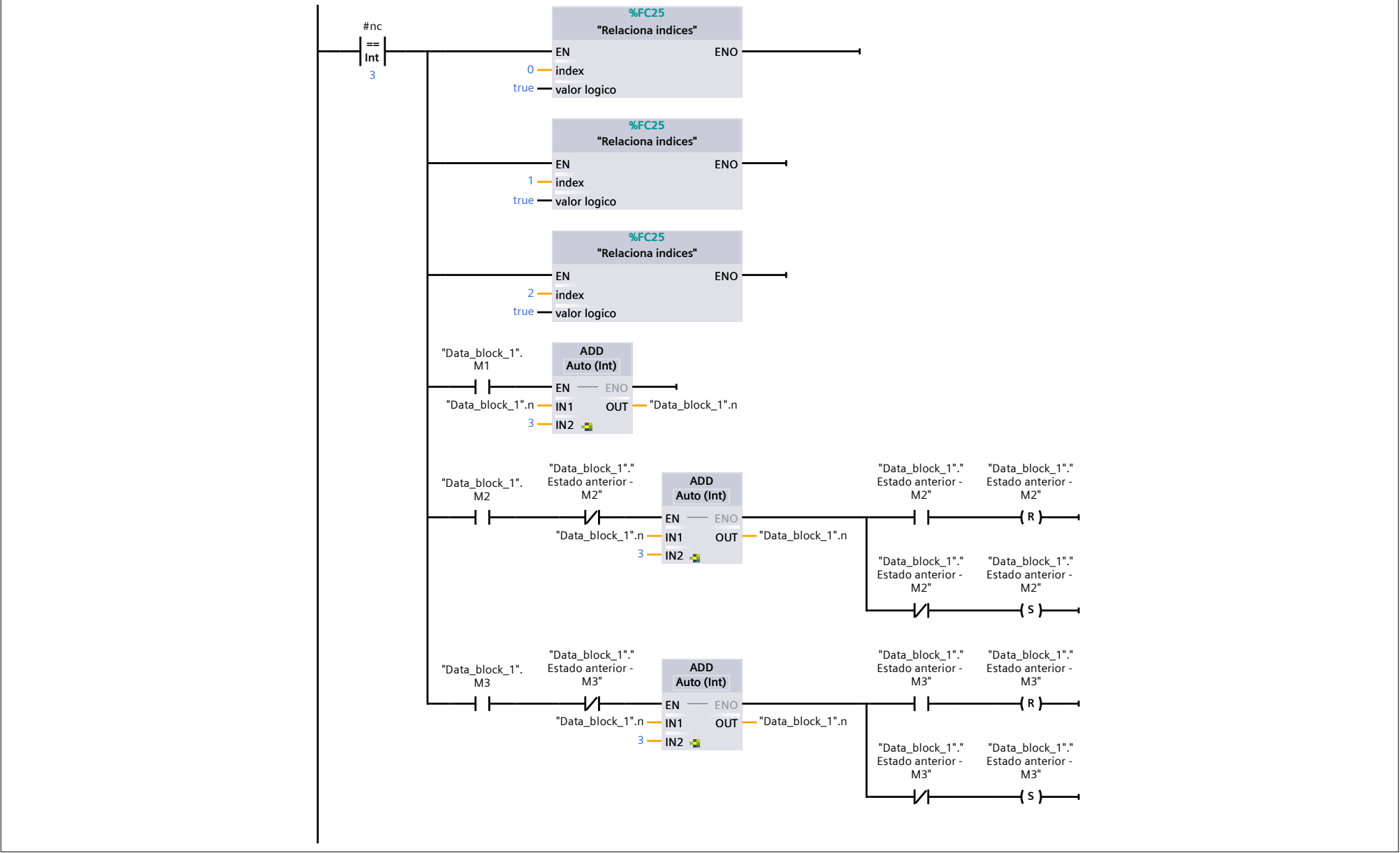
Network 2:

Dois compressores devem ser ligados



Network 3:

Três compressores devem ser ligados



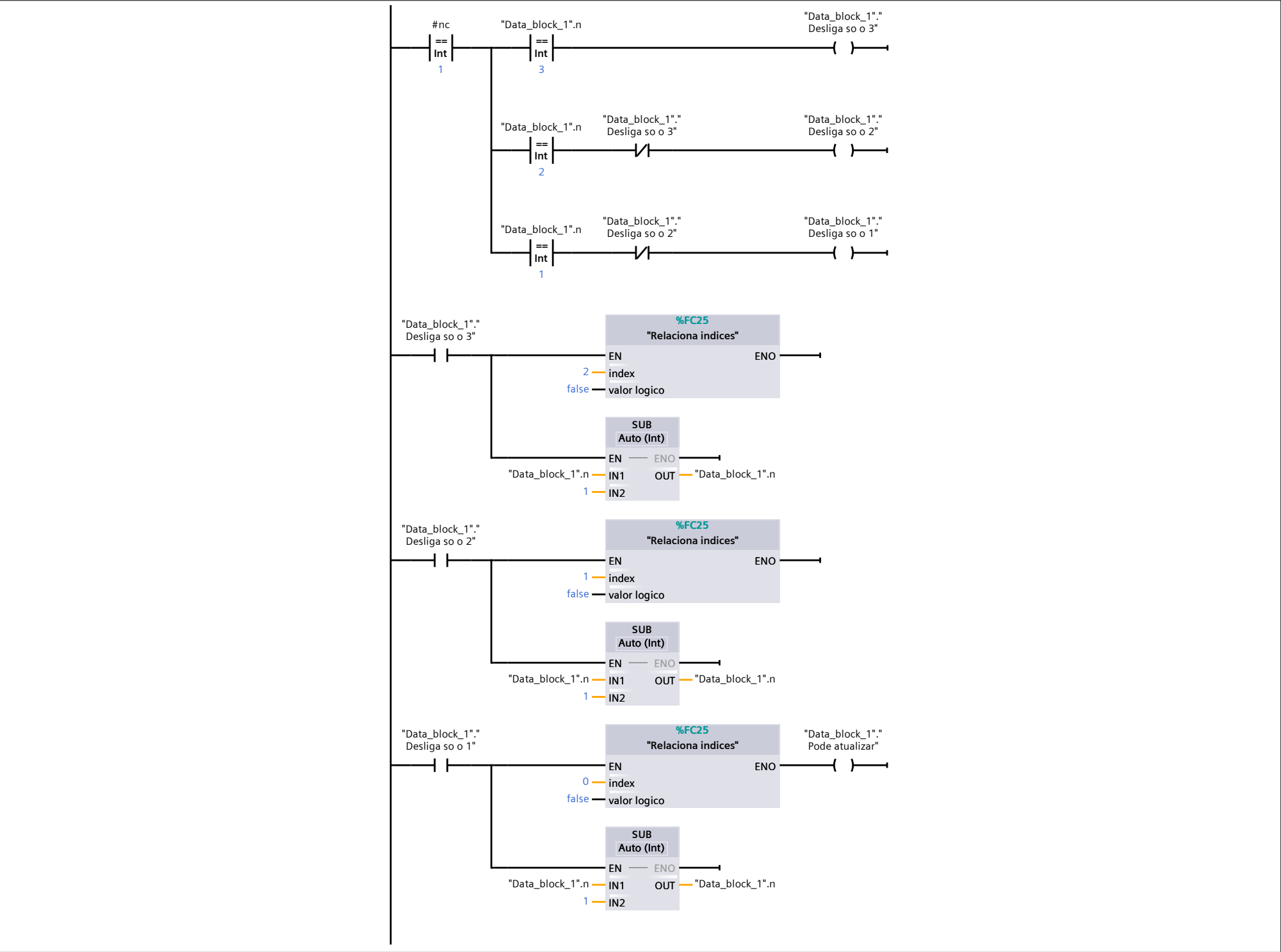
Program blocks

Desliga compressores [FC9]

Desliga compressores Properties							
General							
Name	Desliga compressores	Number	9	Type	FC	Language	LAD
Numbering	Automatic						
Information							
Title		Author		Comment		Family	
Version	0.1	User-defined ID					
Name		Data type	Default value		Comment		
▼ Input							
nc		Int			Número de compressores		
Output							
InOut							
Temp							
Constant							
▼ Return							
Desliga compressores		Void					

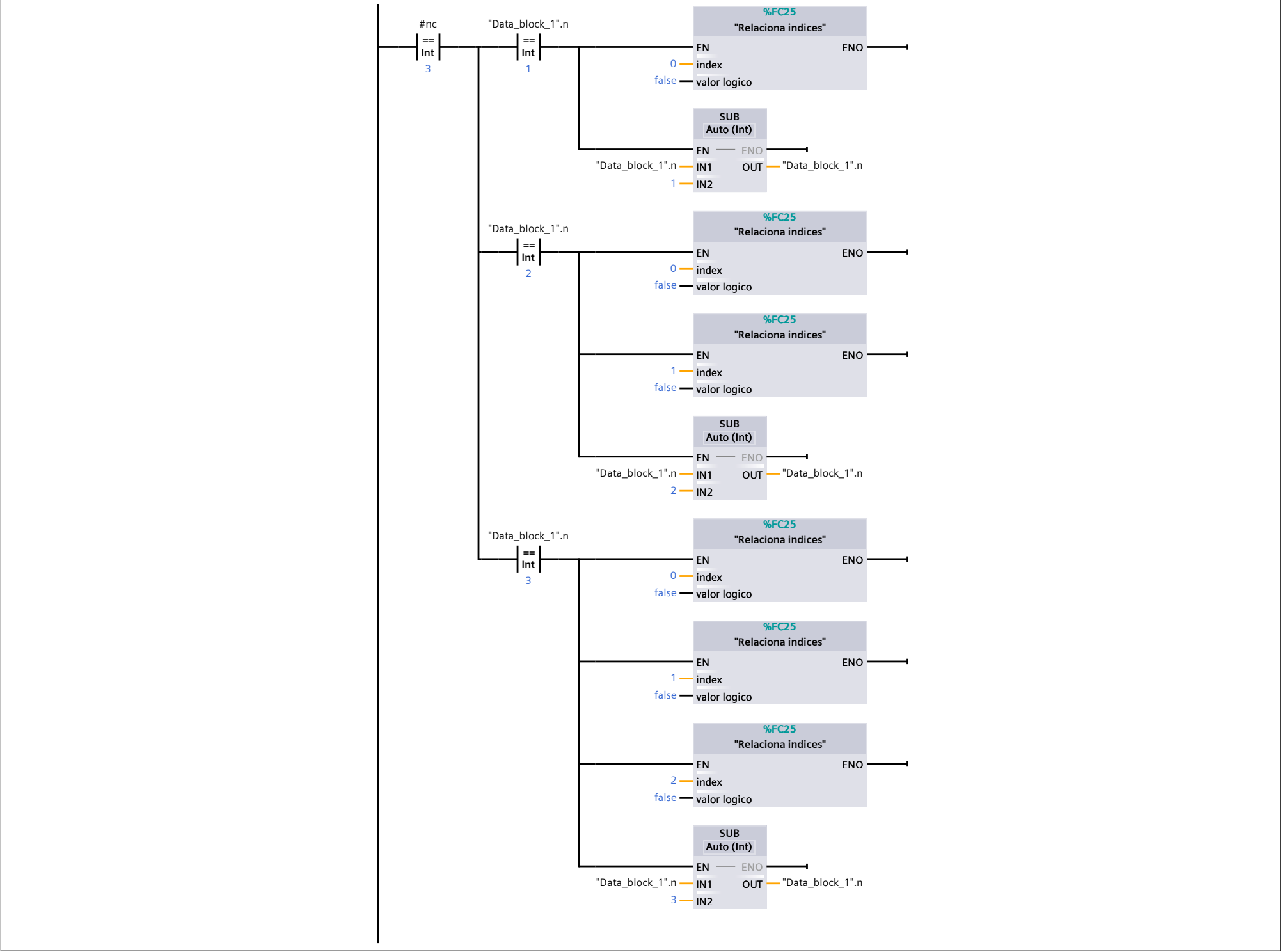
Network 1:

Apenas um compressor deve ser desligado



Network 2:

Devem ser desligados todos os compressores que estiverem ligados



Program blocks

Verifica compressores [FC10]

Verifica compressores Properties

General

Name	Verifica compressores	Number	10	Type	FC	Language	LAD
Numbering	Automatic						

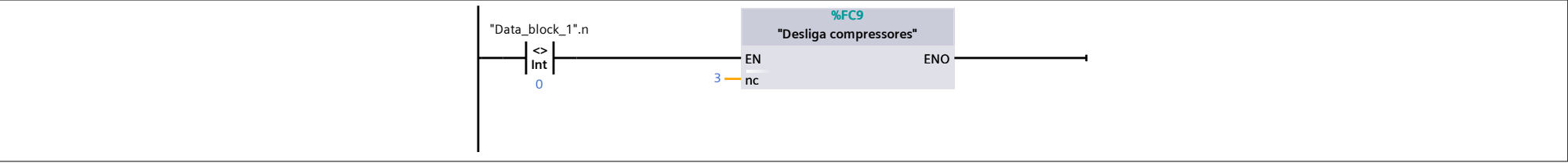
Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
Verifica compressores	Void		

Network 1:

Se houver algum compressor acionado



Program blocks

Finaliza operacao [FC11]

Finaliza operacao Properties

General

Name	Finaliza operacao	Number	11	Type	FC	Language	LAD
Numbering	Automatic						

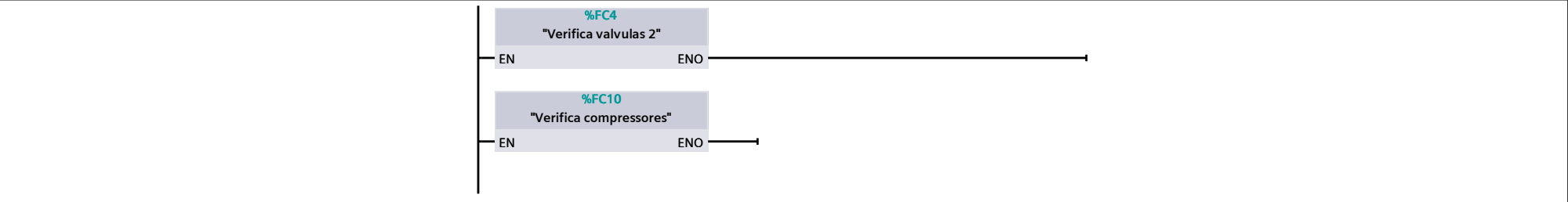
Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
Finaliza operacao	Void		

Network 1:

Finalizando operação





Program blocks

M2 - Operacao iniciada [FC12]

M2 - Operacao iniciada Properties

General

Name	M2 - Operacao iniciada	Number	12	Type	FC	Language	LAD
Numbering	Automatic						

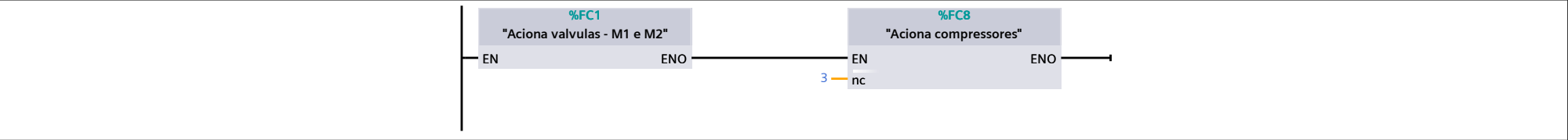
Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
M2 - Operacao iniciada	Void		

Network 1:

MODO MANUAL [M2] - Operação iniciada



Program blocks

M2 - Operacao finalizada [FC13]

M2 - Operacao finalizada Properties

General

Name	M2 - Operacao finalizada	Number	13	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			
M2 - Operacao finalizada	Void		

Network 1:

MODO MANUAL [M2] - Operação finalizada



Program blocks

Aciona valvulas - M3 [FC14]

Aciona valvulas - M3 Properties

General

Name	Aciona valvulas - M3	Number	14	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			
Aciona valvulas - M3	Void		

Network 1:

Acionando válvulas da linha direta



## Program blocks

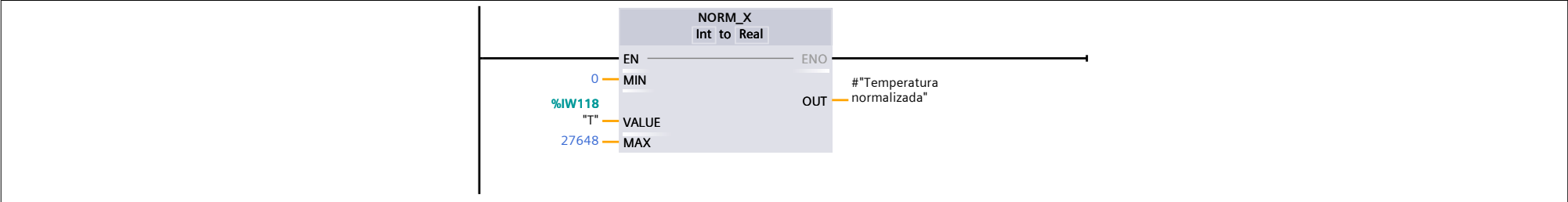
## Obtem temperatura [FC15]

Obtem temperatura Properties							
General							
Name	Obtem temperatura	Number	15	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			
Temperatura	Real		Temperatura obtida
InOut			
▼ Temp			
Temperatura normalizada	Real		Temperatura normalizada
Constant			
▼ Return			
Obtem temperatura	Void		

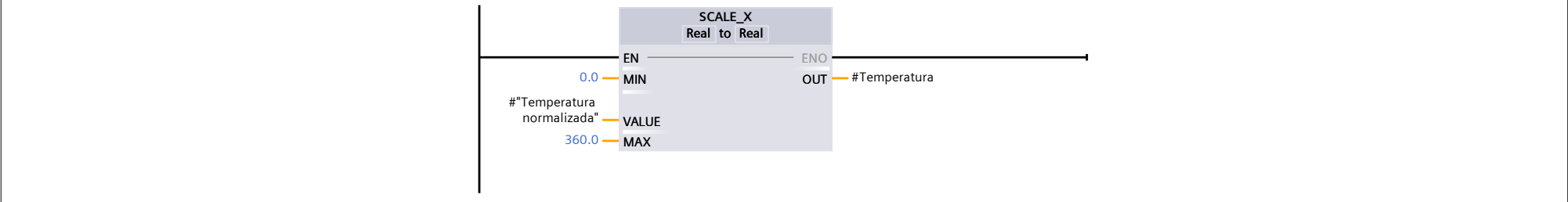
## Network 1:

## Normalização do valor de temperatura lido do transmissor



## Network 2:

Scale do valor de temperatura normalizada para a faixa 0.5 a 2.5



Program blocks

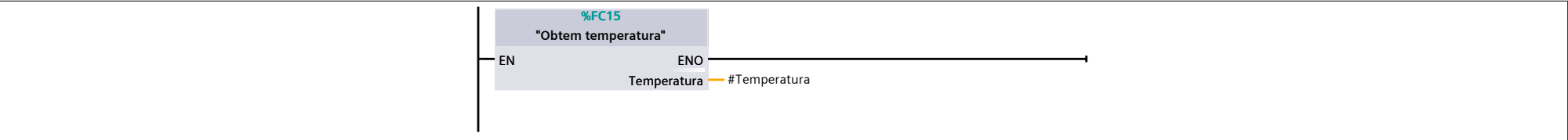
Atinge pressao de eq [FC16]

Atinge pressao de eq Properties							
General							
Name	Atinge pressao de eq	Number	16	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			
Threshold de Ta	Real		Threshold da temperatura ambiente
Temperatura	Real		Temperatura obtida
Constant			
▼ Return			
Atinge pressao de eq	Void		

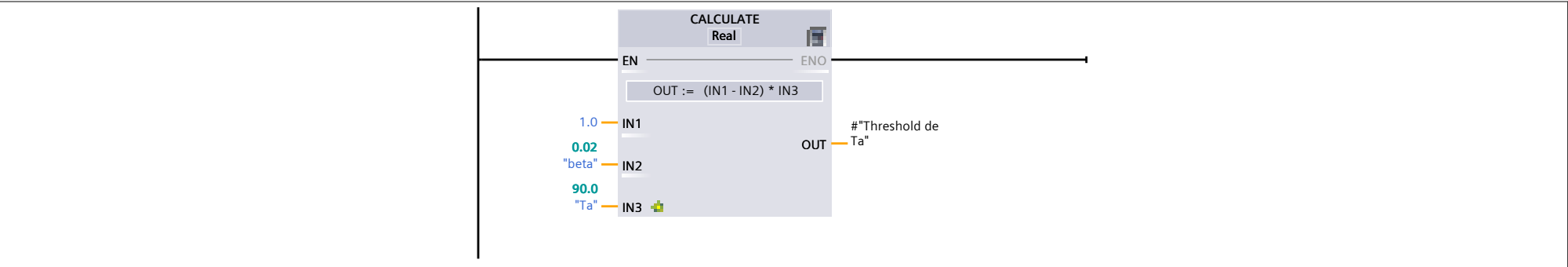
Network 1:

Monitora temperatura



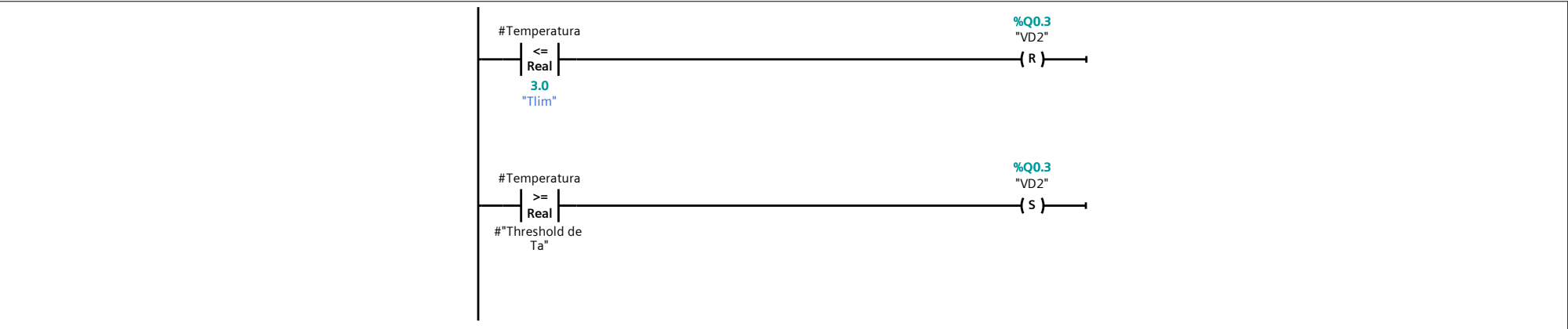
Network 2:

Calcula Threshold de Ta: (1 - beta)\*Ta



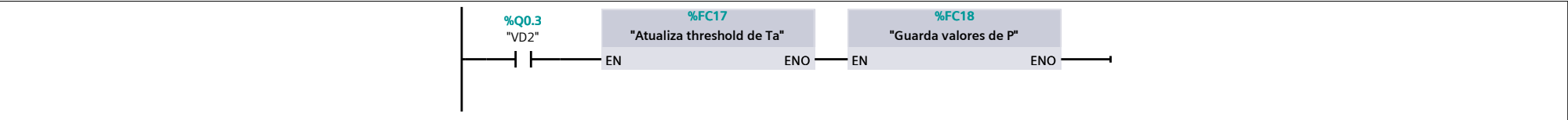
Network 3:

Testa as condições



Network 4:

Realiza ramo da Vd2 acionada



Totally Integrated Automation Portal

### Program blocks

#### Atualiza threshold de Ta [FC17]

Atualiza threshold de Ta Properties

General

Name	Atualiza threshold de Ta	Number	17	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			
Atualiza threshold de Ta	Void		

Program blocks

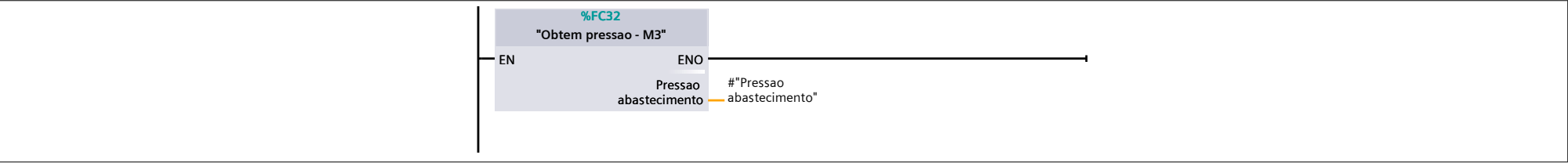
Guarda valores de P [FC18]

Guarda valores de P Properties							
General							
Name	Guarda valores de P	Number	18	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			
Pressao abastecimento	Real		
Constant			
▼ Return			
Guarda valores de P	Void		

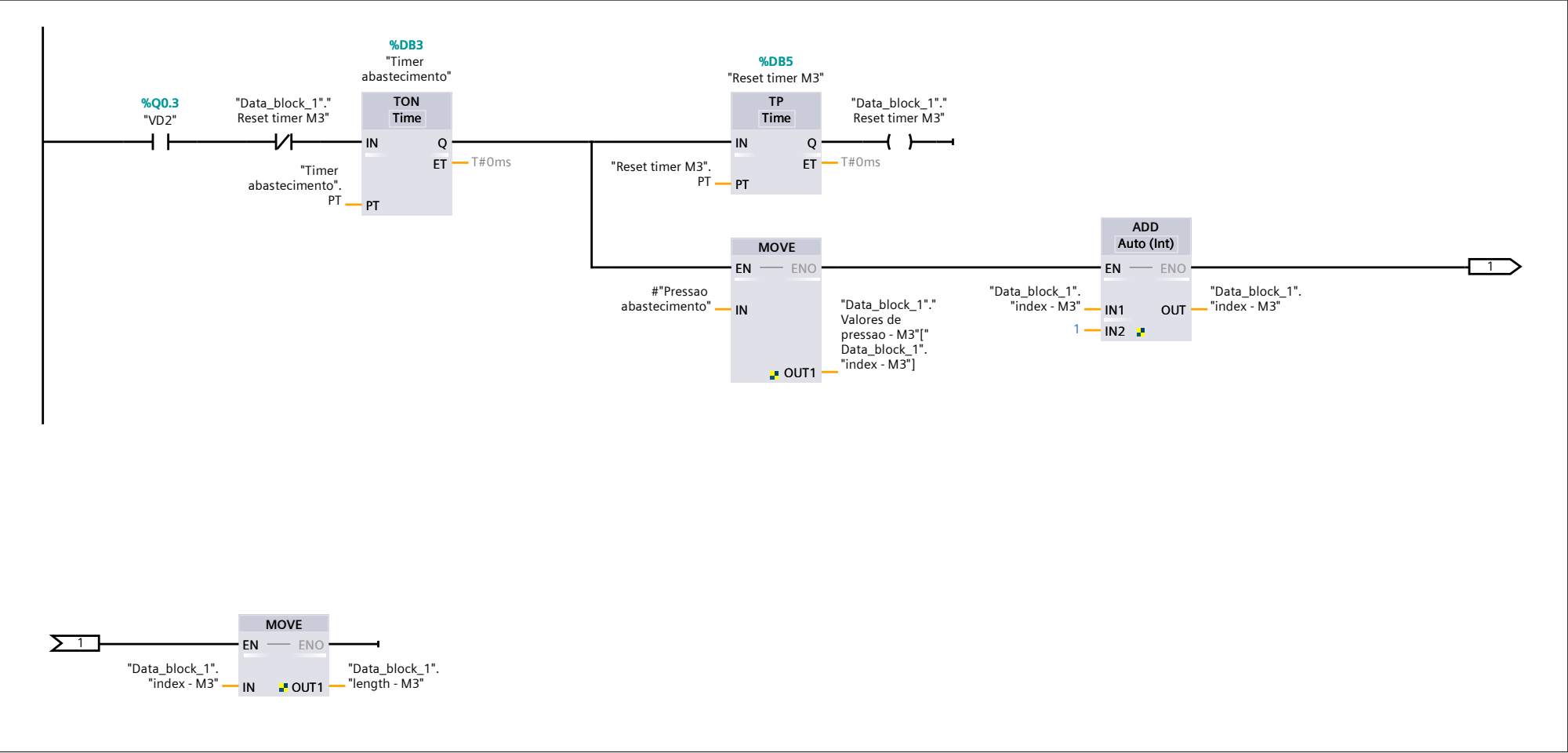
Network 1:

Obtém pressão do nó estendido



Network 2:

Aloca o array de valores da pressão de abastecimento



Program blocks

Protocolo de Emergencia [FC19]

Protocolo de Emergencia Properties

General

Name	Protocolo de Emergencia	Number	19	Type	FC	Language	LAD
Numbering	Automatic						

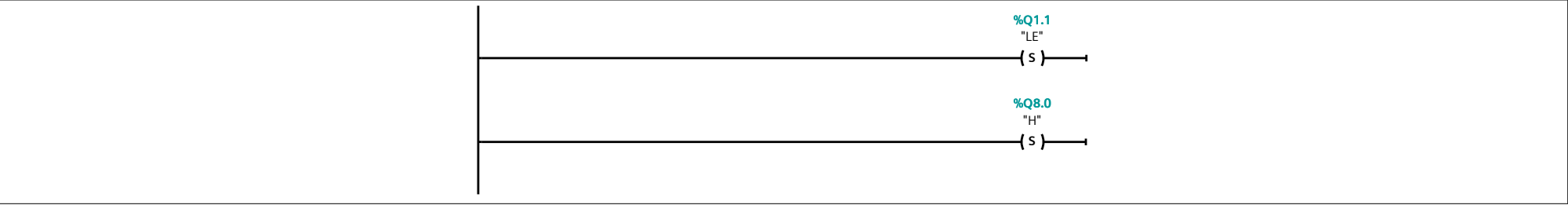
Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
Protocolo de Emergencia	Void		

Network 1:

Aciona LED de emergência e alarme H





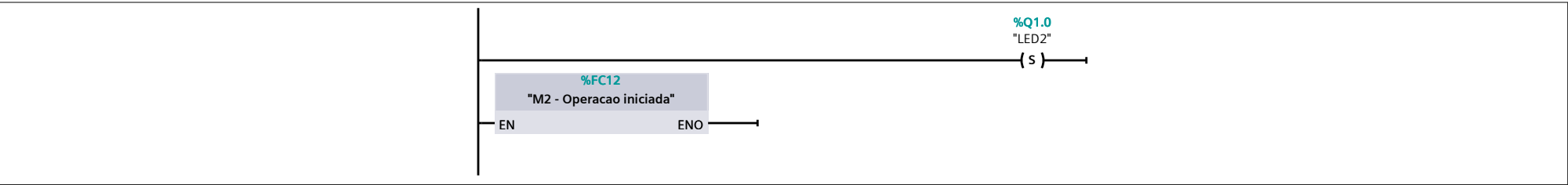
Program blocks

OPERACAO - M2 [FC20]

OPERACAO - M2 Properties							
General							
Name	OPERACAO - M2	Number	20	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							
OPERACAO - M2		Void					

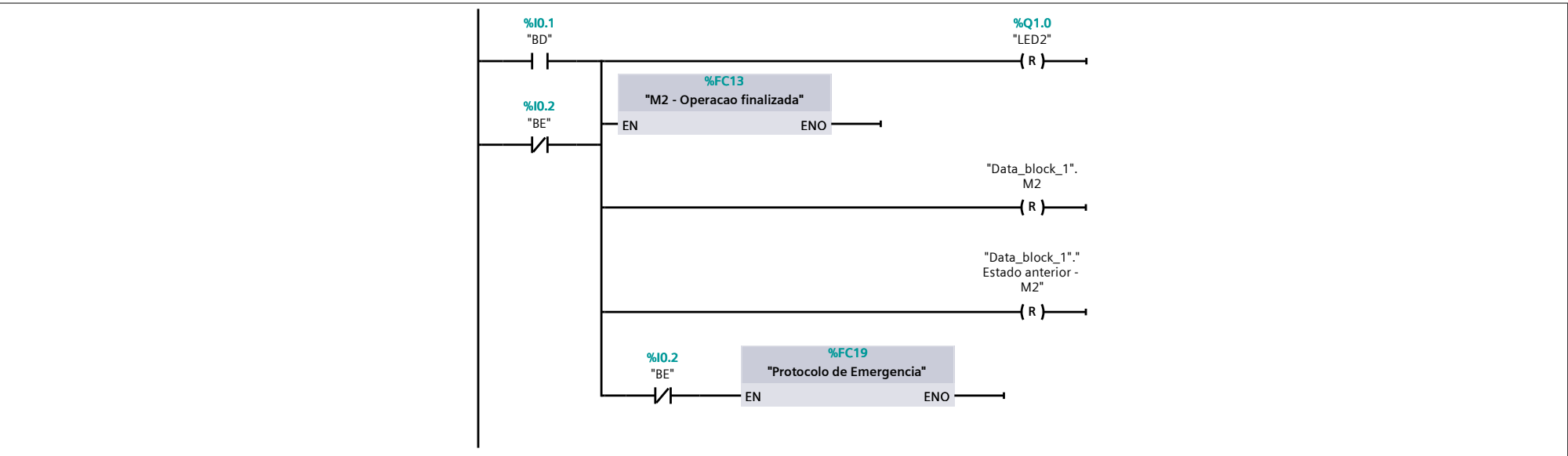
Network 1:

Em operação



Network 2:

Saindo da operação



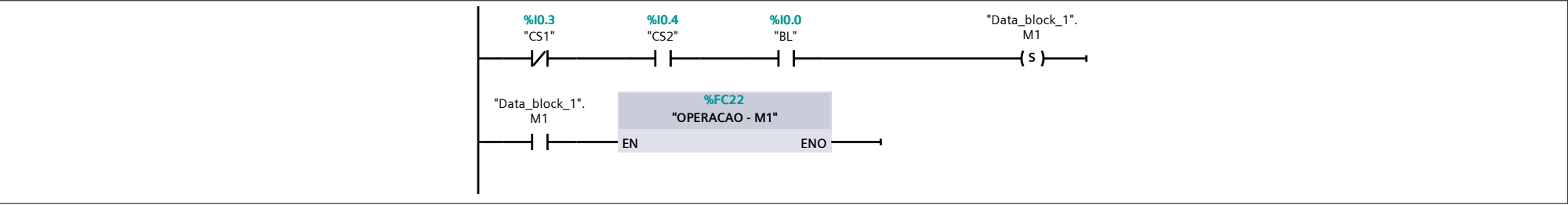
Program blocks

Logica CONJUNTA [FC21]

Logica CONJUNTA Properties							
General							
Name	Logica CONJUNTA	Number	21	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							
Pressao		Real			Pressão obtida		
Constant							
▼ Return							
Logica CONJUNTA		Void					

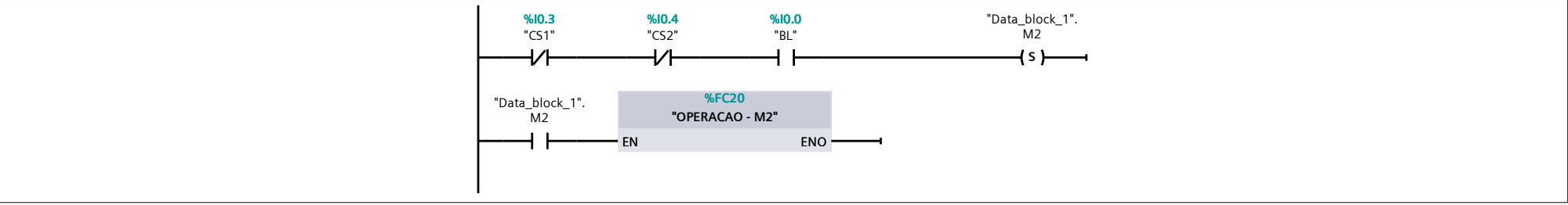
Network 1:

Chave seletora na posição 1



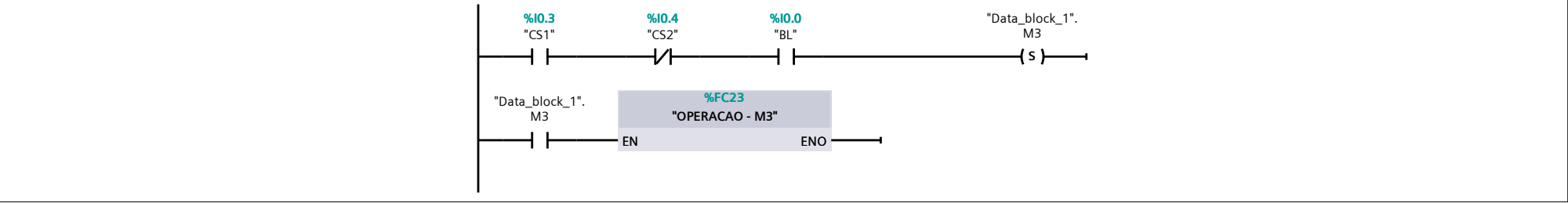
Network 2:

Chave seletora na posição 2



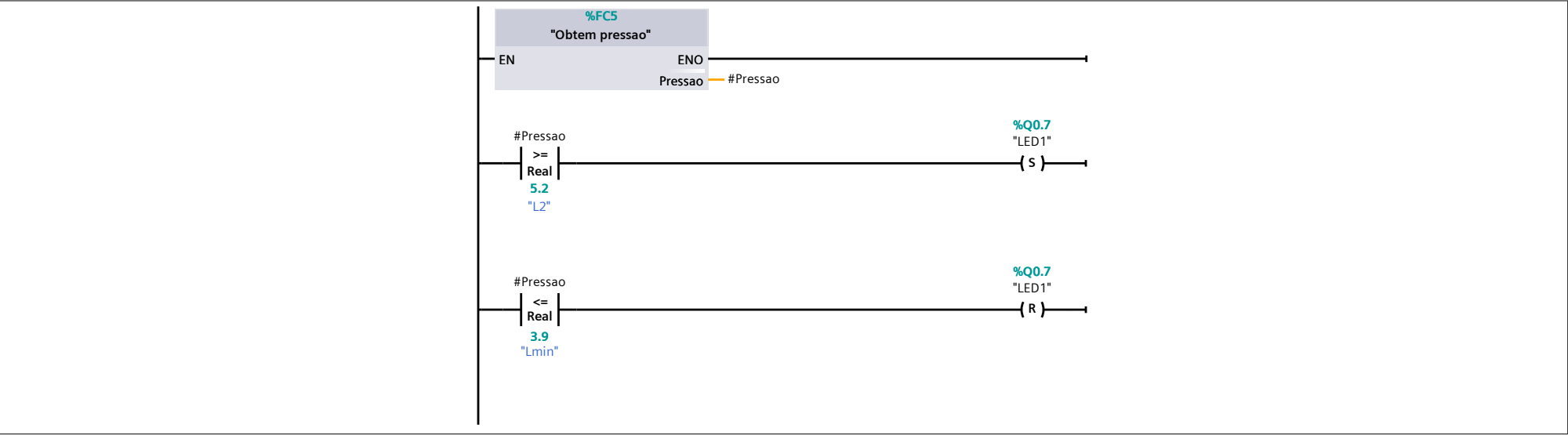
Network 3:

Chave seletora na posição 3



Network 4:

Verifica nível de pressão do tanque separador



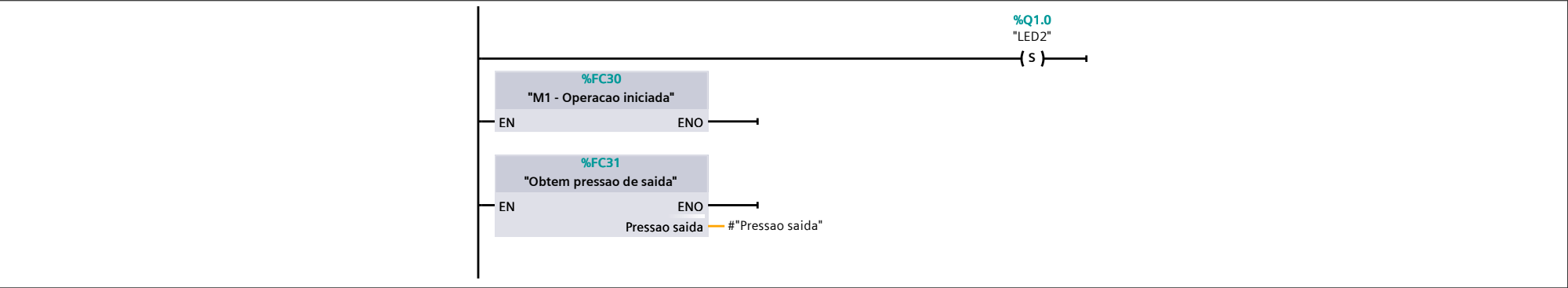
Program blocks

OPERACAO - M1 [FC22]

OPERACAO - M1 Properties							
General							
Name	OPERACAO - M1	Number	22	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							
Pressao saida		Real			Pressão na saída do conjunto de compressores		
Constant							
▼ Return							
OPERACAO - M1		Void					

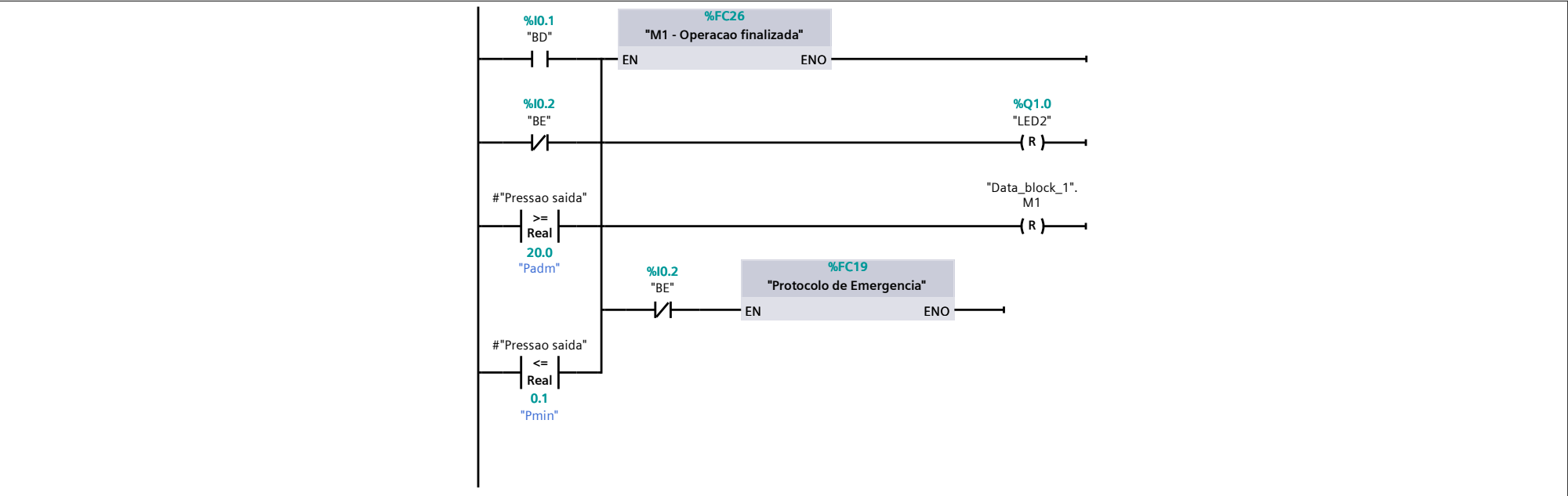
Network 1:

Em operação



Network 2:

Saindo da operação



Program blocks

OPERACAO - M3 [FC23]

OPERACAO - M3 Properties

General

Name	OPERACAO - M3	Number	23	Type	FC	Language	LAD
Numbering	Automatic						

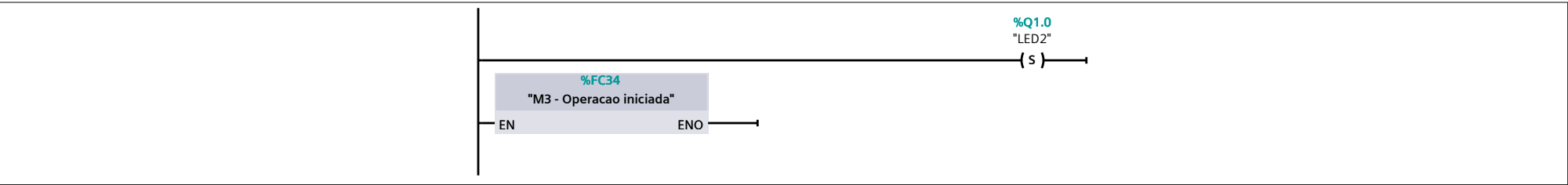
Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
OPERACAO - M3	Void		

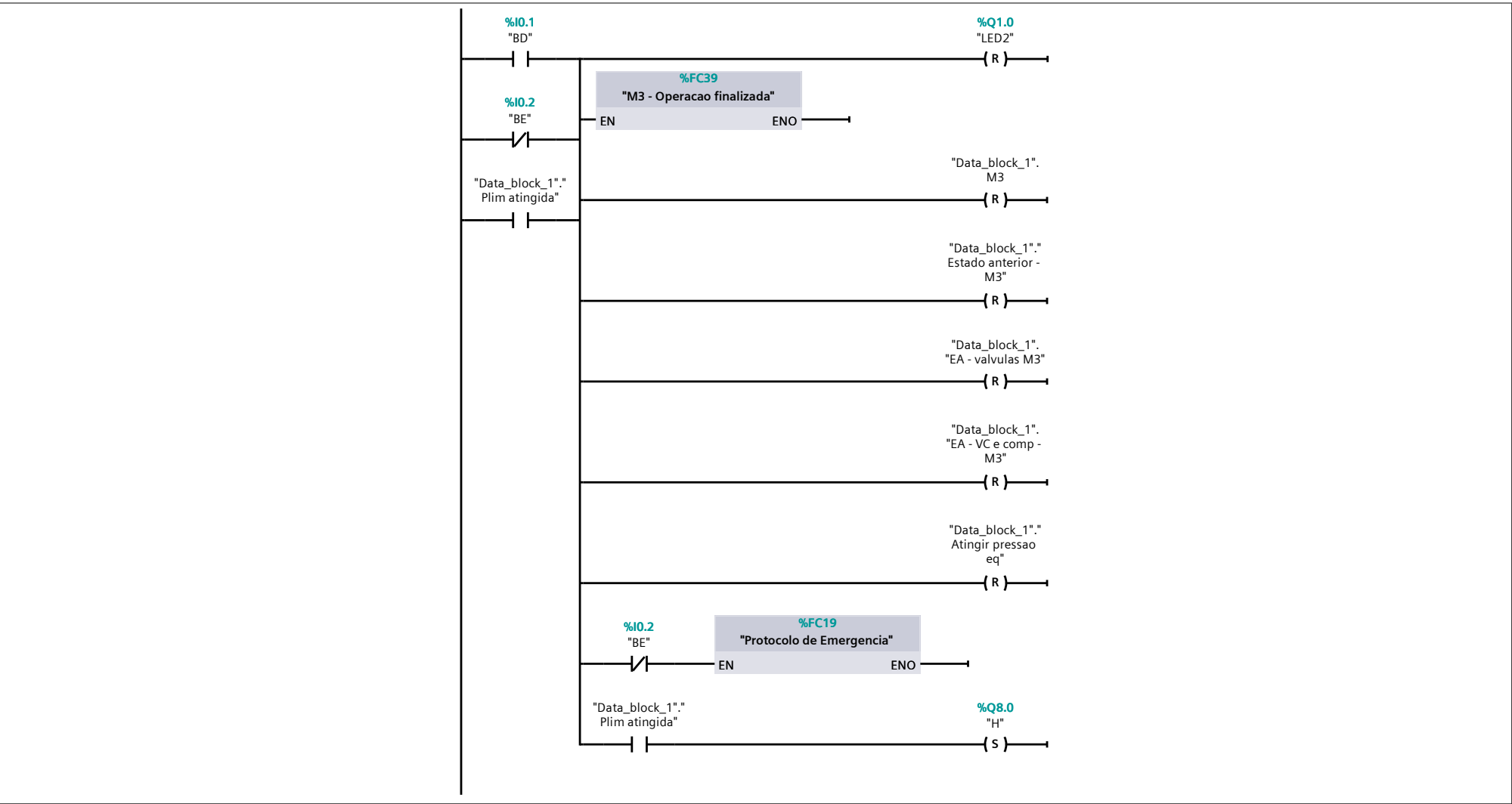
Network 1:

Em operação



Network 2:

Saindo da operação



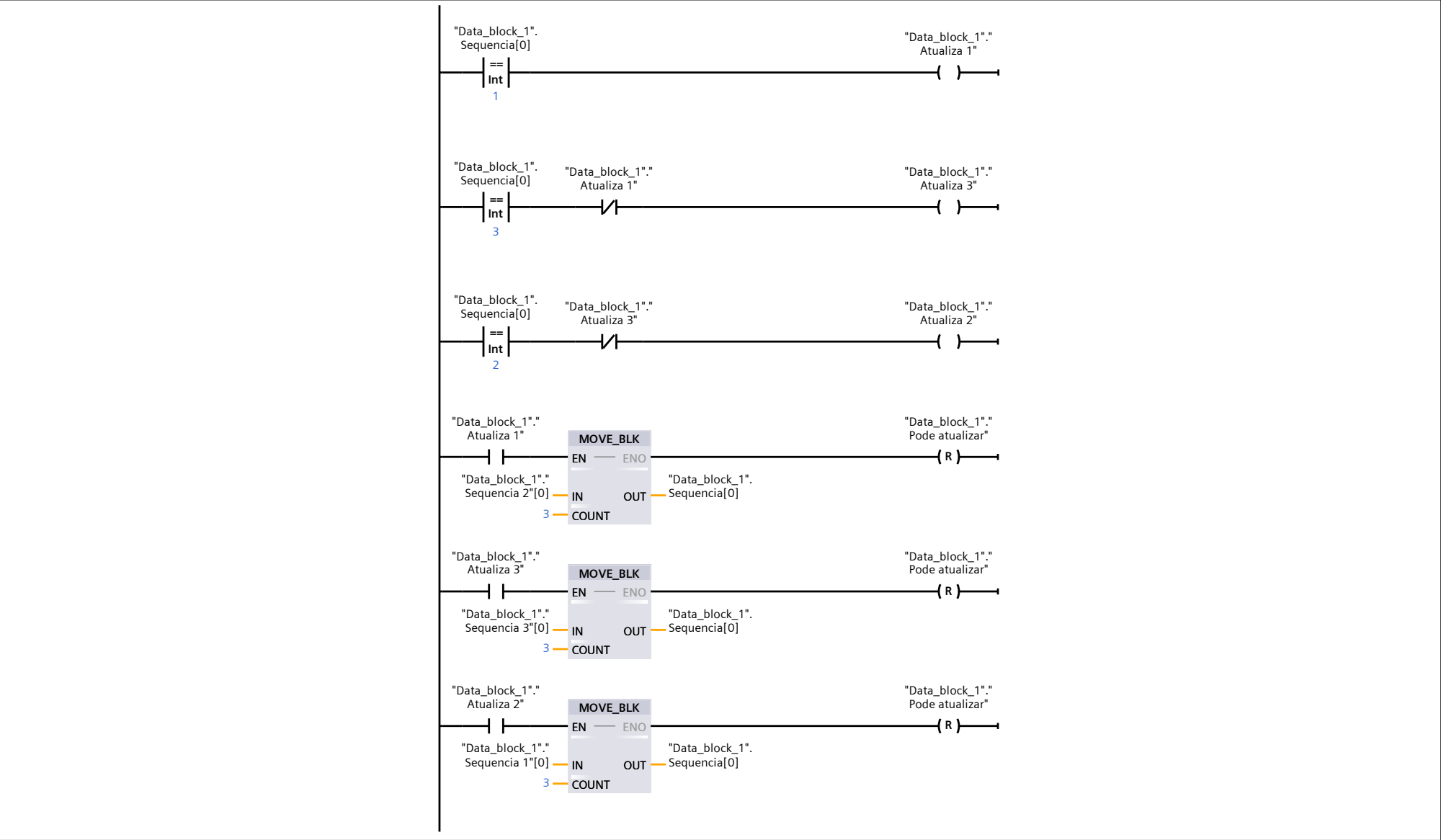
Program blocks

Atualiza indices [FC24]

Atualiza indices Properties							
General							
Name	Atualiza indices	Number	24	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							
Atualiza indices		Void					

Network 1:

Verifica primeiro elemento do array Sequencia e toma a decisão de atualização correspondente



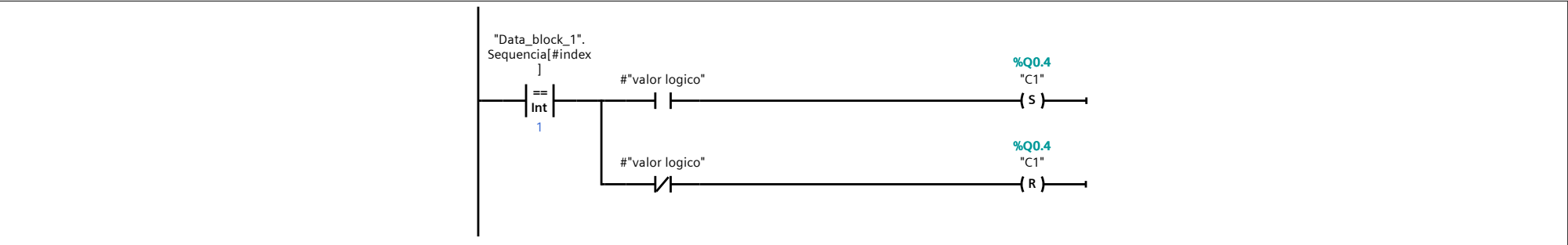
Program blocks

Relaciona indices [FC25]

Relaciona indices Properties							
General							
Name	Relaciona indices	Number	25	Type	FC	Language	LAD
Numbering	Automatic						
Information							
Title		Author		Comment		Family	
Version	0.1	User-defined ID					
Name		Data type	Default value		Comment		
▼ Input							
index		Int			Índice da sequência de compressores		
valor logico		Bool			Valor que determina se é preciso ligar ou desligar		
Output							
InOut							
Temp							
Constant							
▼ Return							
Relaciona indices		Void					

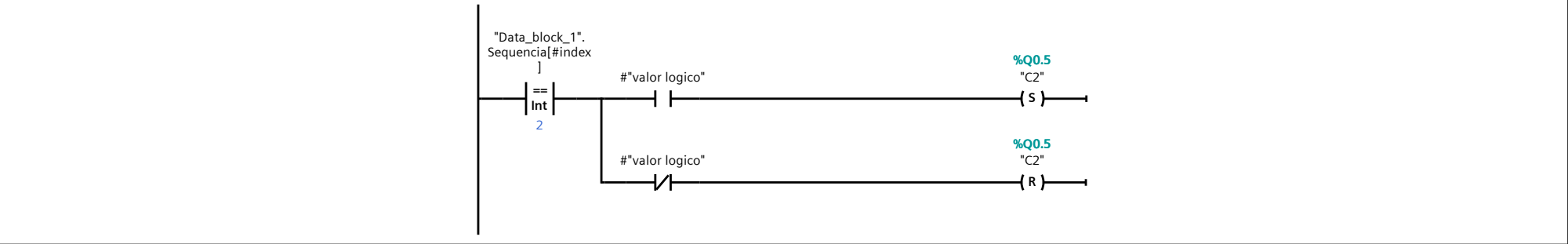
Network 1:

Seta ou reseta caso Sequencia[index] == 1



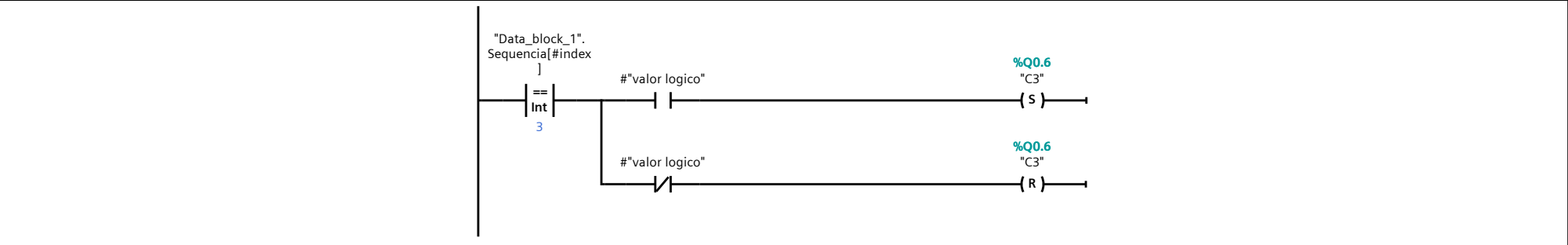
Network 2:

Seta ou reseta caso Sequencia[index] == 2



Network 3:

Seta ou reseta caso Sequencia[index] == 3



Program blocks

M1 - Operacao finalizada [FC26]

M1 - Operacao finalizada Properties

General

Name	M1 - Operacao finalizada	Number	26	Type	FC	Language	LAD
Numbering	Automatic						

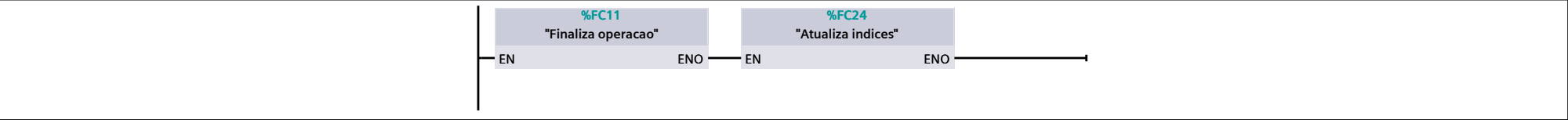
Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
M1 - Operacao finalizada	Void		

Network 1:

MODO AUTOMÁTICO [M1] - Operação finalizada



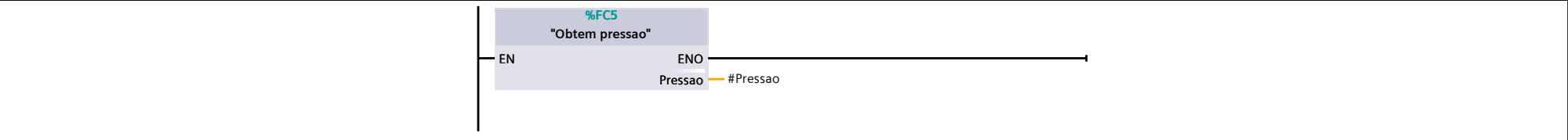
Program blocks

Monitora pressao [FC27]

Monitora pressao Properties							
General							
Name	Monitora pressao	Number	27	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							
Crescente		Bool			Pressão crescente ou decrescente		
InOut							
▼ Temp							
Pressao		Real			Pressao obtida		
Constant							
▼ Return							
Monitora pressao		Void					

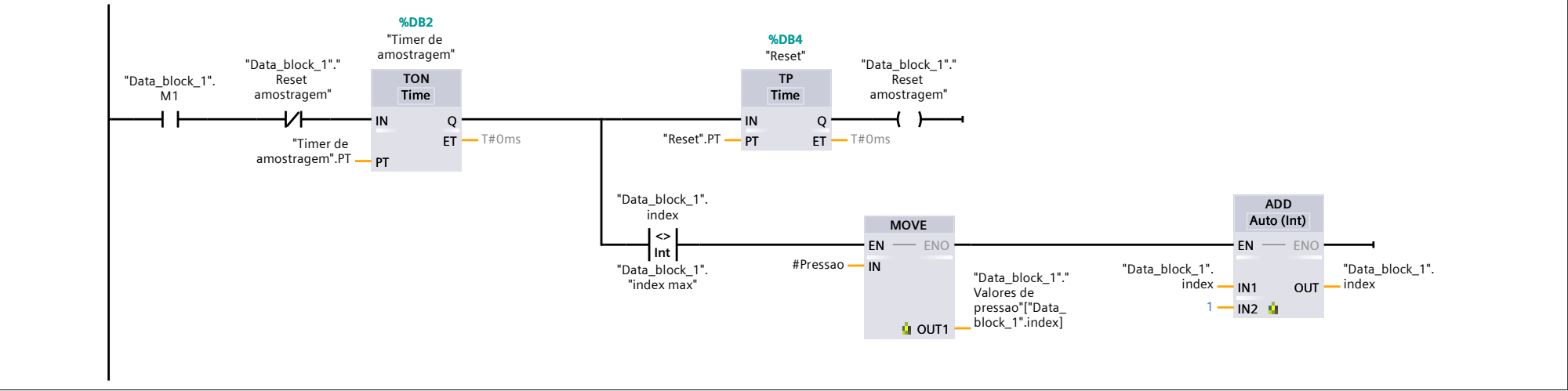
Network 1:

Lendo pressão



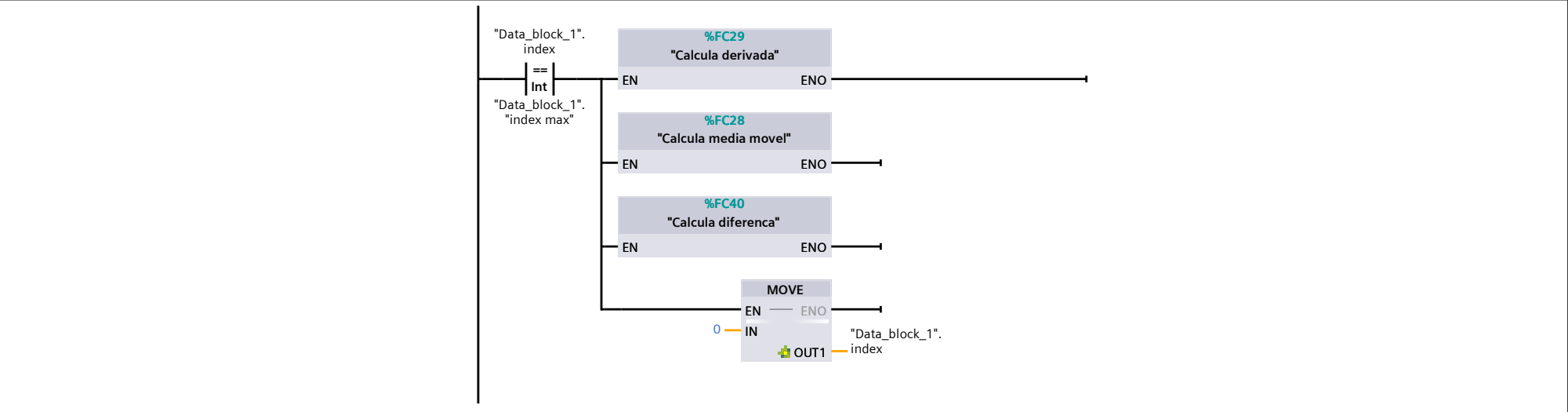
Network 2:

Loop

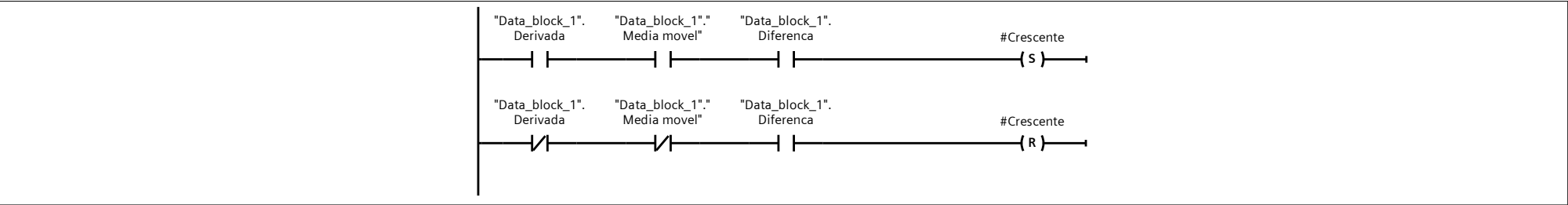


Network 3: Trava a aquisição quando index == 10

Realiza os cálculos da pressão e reseta o index



Network 4: Pressão crescente ou decrescente





Program blocks

Calcula media movel [FC28]

Calcula media movel Properties							
General							
Name	Calcula media movel	Number	28	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							
Soma 6		Real					
Soma 20		Real					
index		Int					
Media 6		Real					
Media 20		Real					
Constant							
▼ Return							
Calcula media movel		Void					

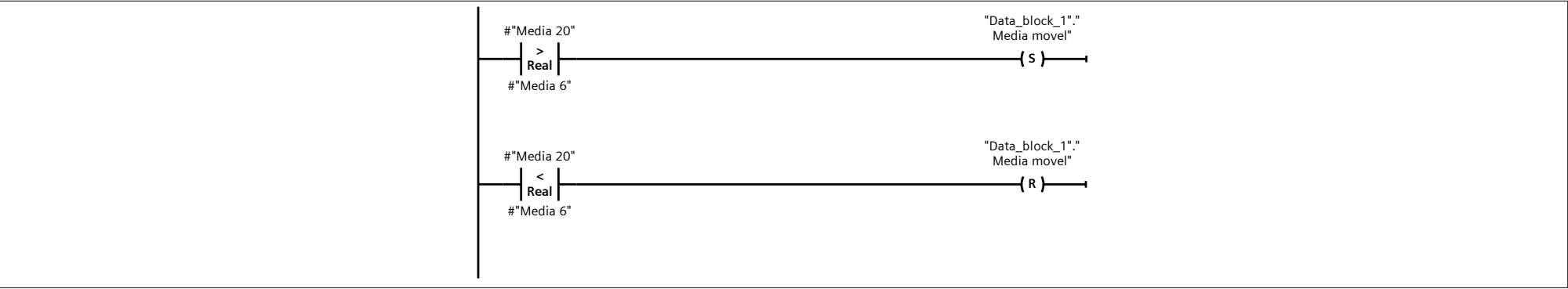
Network 1:

Calcula médias

```
0001 # "Soma 6" := 0.0;
0002 # "Media 6" := 0.0;
0003 # "Soma 20" := 0.0;
0004 # "Media 20" := 0.0;
0005
0006 FOR # "index" := 0 TO 19 DO
0007     // Statement section FOR
0008     IF (# "index" < 6) THEN
0009         // Statement section IF
0010         # "Soma 6" += "Data_block_1"."Valores de pressao" [# "index"];
0011     END_IF;
0012     # "Soma 20" += "Data_block_1"."Valores de pressao" [# "index"];
0013 END_FOR;
0014
0015 # "Media 6" := # "Soma 6" / 6;
0016 # "Media 20" := # "Soma 20" / 20;
0017
```

Network 2:

Atribui true ou false à variável Media movel



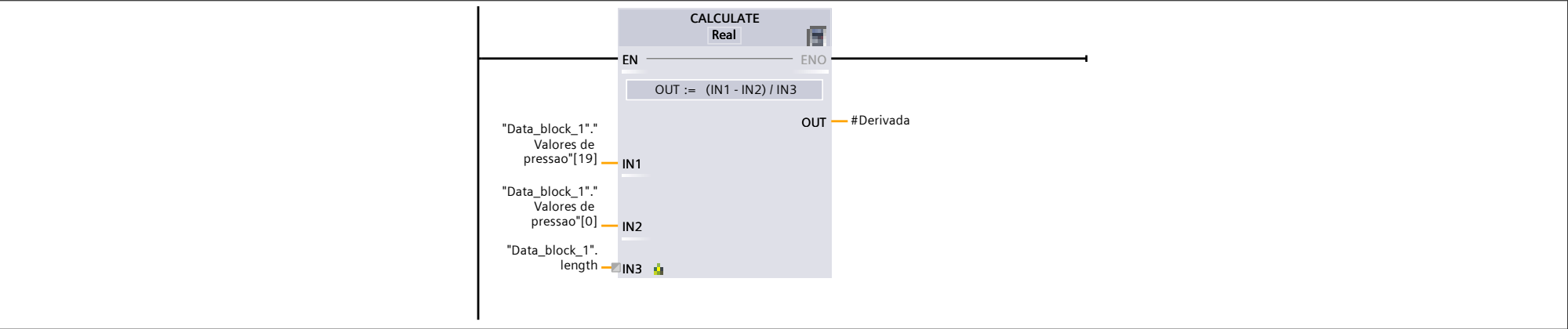
Program blocks

Calcula derivada [FC29]

Calcula derivada Properties							
General							
Name	Calcula derivada	Number	29	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							
Derivada		Real					
Constant							
▼ Return							
Calcula derivada		Void					

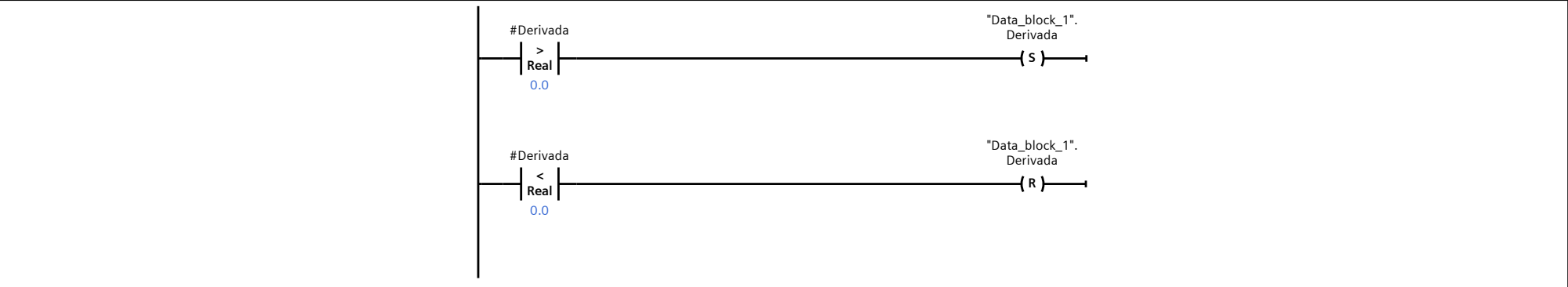
Network 1:

Calcula a derivada



Network 2: Indica se dP/dt > 0

Atribui verdadeiro ou falso para a variável Derivada



Program blocks

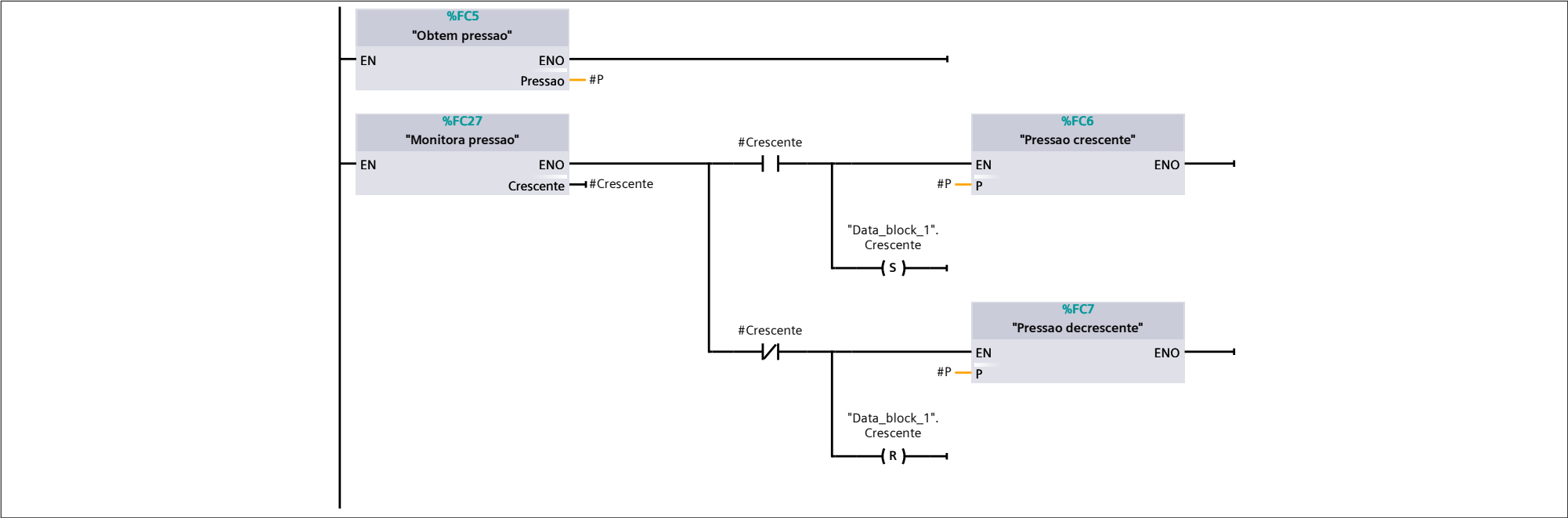
M1 - Operacao iniciada [FC30]

M1 - Operacao iniciada Properties							
General							
Name	M1 - Operacao iniciada	Number	30	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			
Crescente	Bool		Output da função Monitora pressão
P	Real		Pressão no interior do tanque separador
Constant			
▼ Return			
M1 - Operacao iniciada	Void		

Network 1:

MODULO AUTOMÁTICO [M1] - Operação iniciada



Program blocks

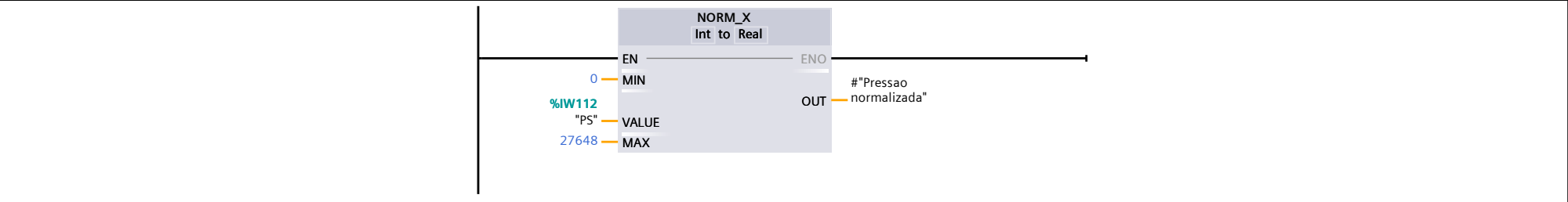
Obtem pressao de saida [FC31]

Obtem pressao de saida Properties							
General							
Name	Obtem pressao de saida	Number	31	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			
Pressao saida	Real		Pressão na saída do conjunto de compressores
InOut			
▼ Temp			
Pressao normalizada	Real		Pressão de saída normalizada
Constant			
▼ Return			
Obtem pressao de saida	Void		

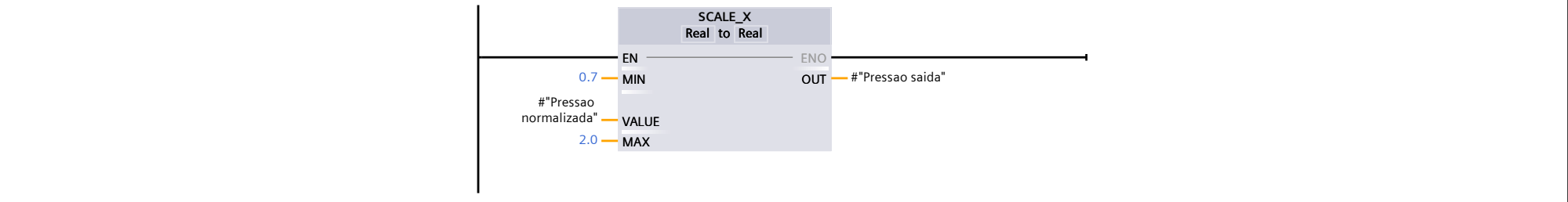
Network 1:

Normalização do valor de pressão lido do transmissor



Network 2:

Scale do valor da pressão normalizada para a faixa 0.7 a 2.0



## Program blocks

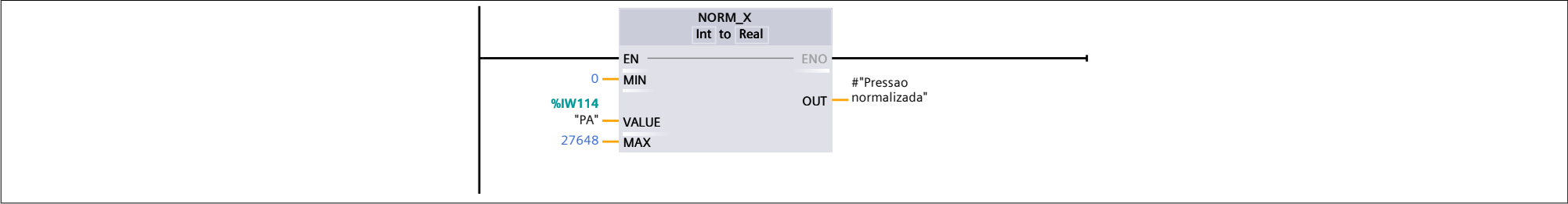
## Obtem pressao - M3 [FC32]

Obtem pressao - M3 Properties							
General							
Name	Obtem pressao - M3	Number	32	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			
Pressao abastecimento	Real		Pressão no nó estendido
InOut			
▼ Temp			
Pressao normalizada	Real		Pressão normalizada
Constant			
▼ Return			
Obtem pressao - M3	Void		

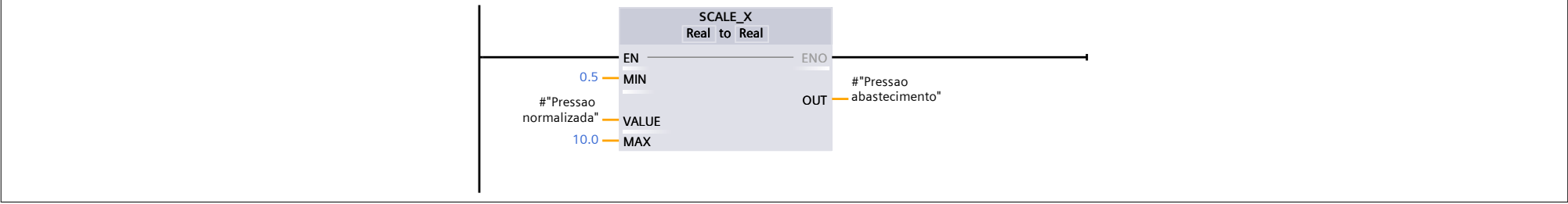
### Network 1:

### Normalização do valor de pressão lido do transmissor



## Network 2:

Scale do valor da pressão normalizada para a faixa de 0.5 a 10.0



Totally Integrated Automation Portal

### Program blocks

#### Calcula media - M3 [FC33]

Calcula media - M3 Properties

General

Name	Calcula media - M3	Number	33	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			
Media	Real		Média dos valores de pressão
InOut			
▼ Temp			
index	Int		
soma	Real		
Constant			
▼ Return			
Calcula media - M3	Void		

#### Network 1:

Calculando a média dos valores de pressão

```
0001 #index := 0;
0002 #soma := 0.0;
0003 #Media := 0.0;
0004
0005 FOR #index := 0 TO "Data_block_1"."length - M3" - 1 DO
0006     // Statement section FOR
0007     #soma += "Data_block_1"."Valores de pressao - M3"[#index];
0008 END_FOR;
0009
0010 #Media := #soma / "Data_block_1"."length - M3";
0011
```

Program blocks

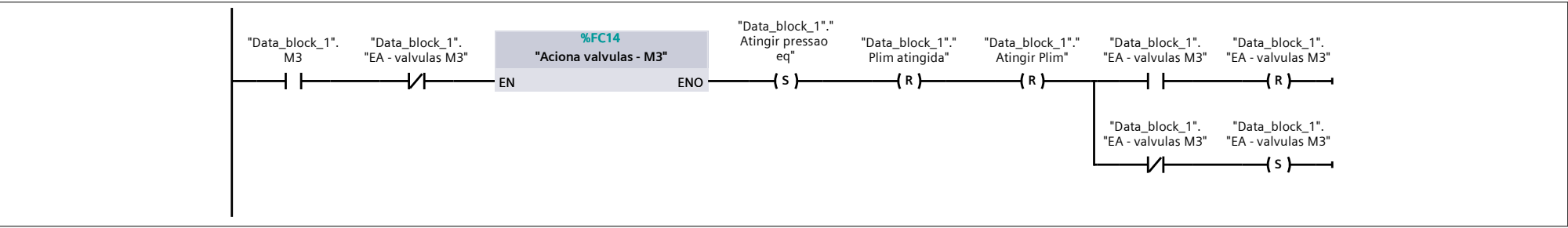
M3 - Operacao iniciada [FC34]

M3 - Operacao iniciada Properties							
General							
Name	M3 - Operacao iniciada	Number	34	Type	FC	Language	LAD
Numbering	Automatic						
Information							
Title		Author		Comment	MODO ABASTECIMENTO [M3] - Operação iniciada	Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
▼ Temp			
Media	Real		Média dos valores de pressão
Threshold menor de Peq	Real		(1 - gamma)*Peq
Threshold maior de Peq	Real		(1 + gamma)*Peq
Constant			
▼ Return			
M3 - Operacao iniciada	Void		

Network 1:

Acionando válvulas da linha direta



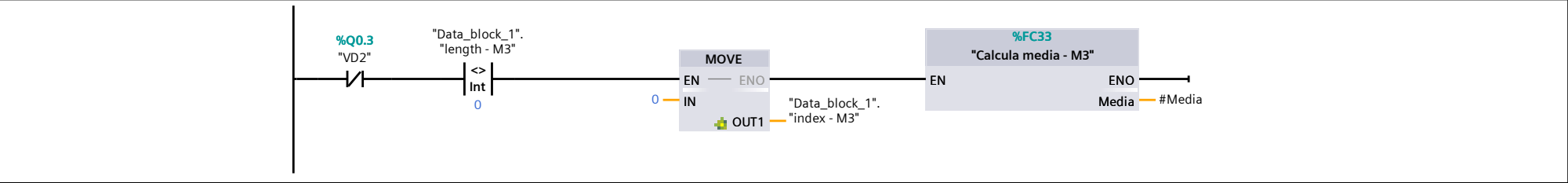
Network 2:

Atingindo pressão de equilíbrio na linha direta



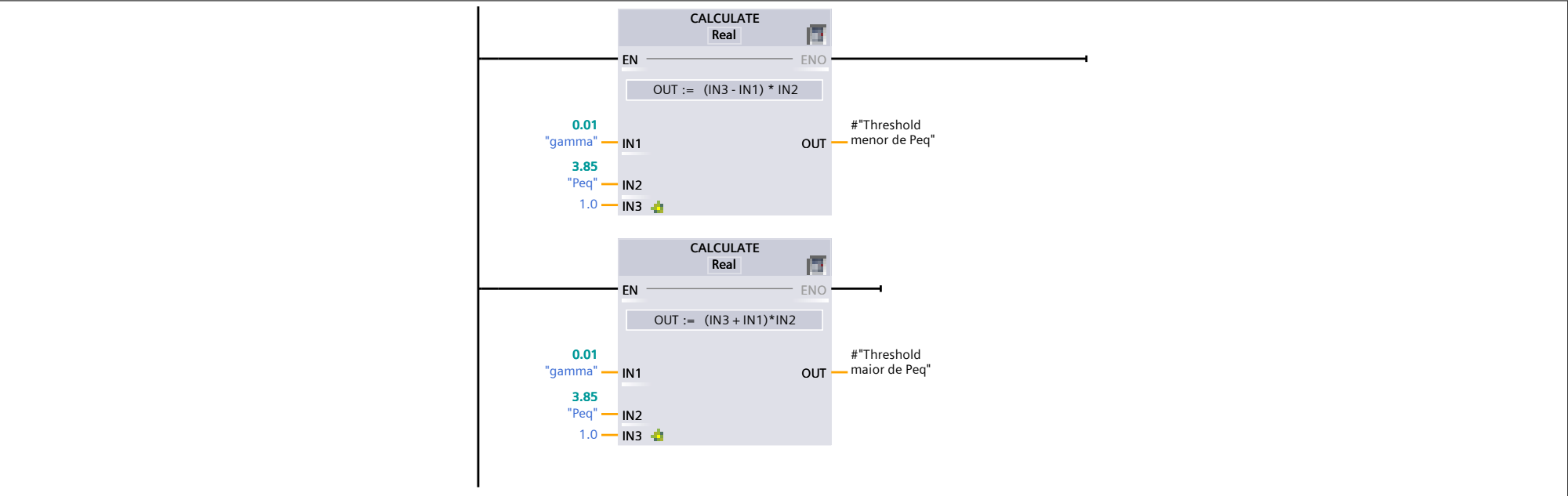
Network 3:

Calculando média da pressão



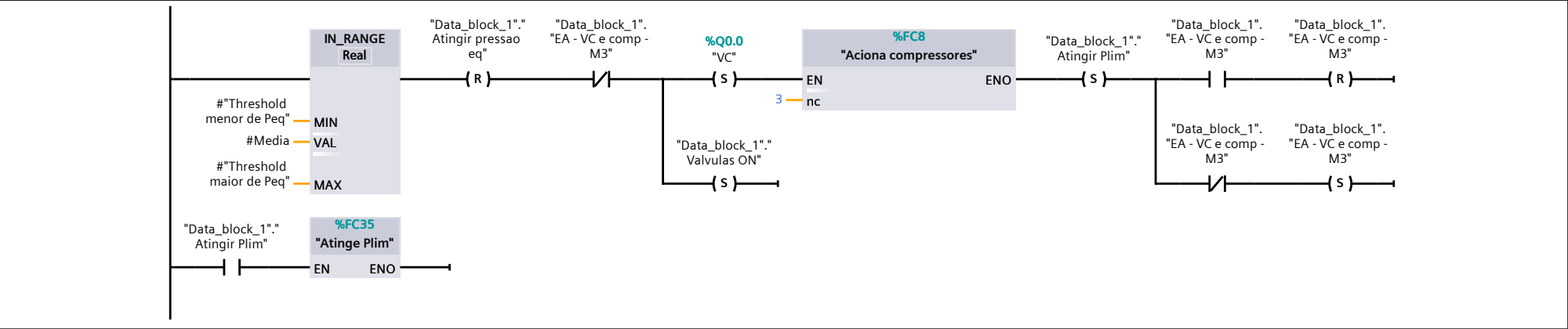
Network 4:

Obtendo o valor (1 - gamma)\*Peq



Network 5:

Acionando válvula do sistema de compressores e acionando os compressores





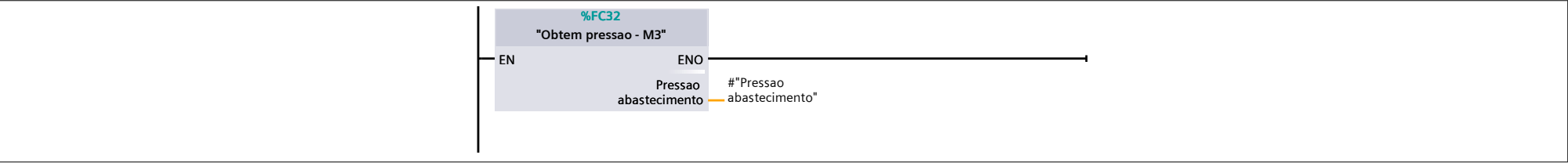
Program blocks

Atinge Plim [FC35]

Atinge Plim Properties							
General							
Name	Atinge Plim	Number	35	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							
Pressao abastecimento		Real					
Constant							
▼ Return							
Atinge Plim		Void					

Network 1:

Obtém pressão de abastecimento



Network 2:

Verifica se a pressão atingiu o valor mínimo



Program blocks

Desliga valvulas - M3 [FC36]

Desliga valvulas - M3 Properties

General

Name	Desliga valvulas - M3	Number	36	Type	FC	Language	LAD
Numbering	Automatic						

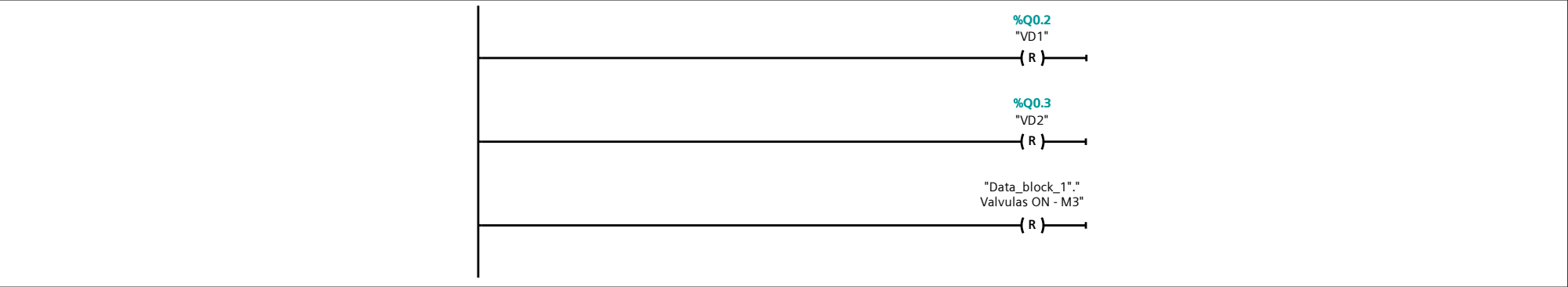
Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
Desliga valvulas - M3	Void		

Network 1:

Desliga as válvulas da linha direta



Program blocks

Verifica valvulas 3 [FC37]

Verifica valvulas 3 Properties

General

Name	Verifica valvulas 3	Number	37	Type	FC	Language	LAD
Numbering	Automatic						

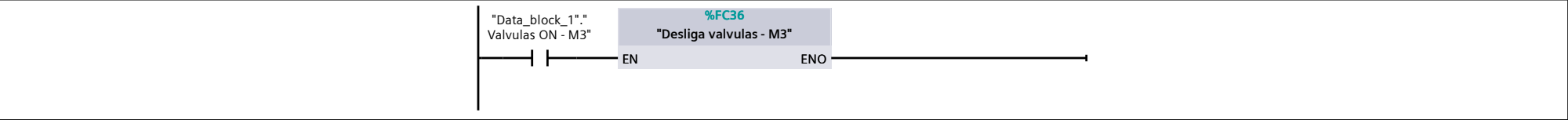
Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
Verifica valvulas 3	Void		

Network 1:

Desliga as válvulas da linha direta caso estejam ligadas



Program blocks

Finaliza operacao - M3 [FC38]

Finaliza operacao - M3 Properties

General

Name	Finaliza operacao - M3	Number	38	Type	FC	Language	LAD
Numbering	Automatic						

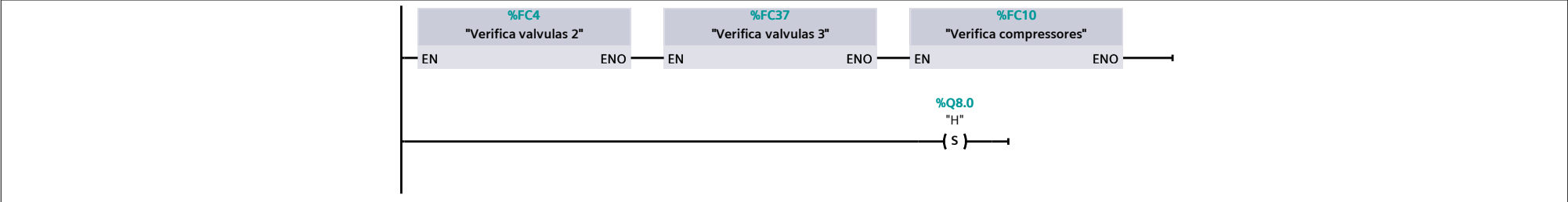
Information

Title		Author		Comment		Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment
Input			
Output			
InOut			
Temp			
Constant			
▼ Return			
Finaliza operacao - M3	Void		

Network 1:

Finalizando operação - M3



Program blocks

M3 - Operacao finalizada [FC39]

M3 - Operacao finalizada Properties

General

Name	M3 - Operacao finalizada	Number	39	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			
M3 - Operacao finalizada	Void		

Network 1:

MODO ABASTECIMENTO [M3] - Operação finalizada



Program blocks

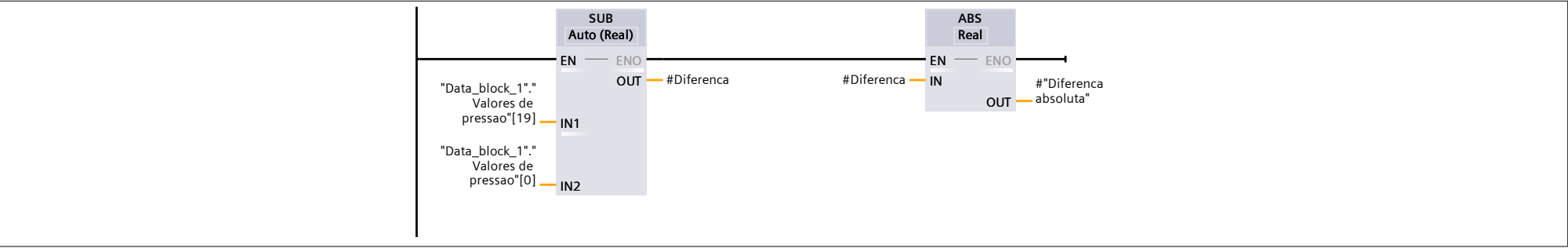
Calcula diferenca [FC40]

Calcula diferencia Properties							
General							
Name	Calcula diferencia	Number	40	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			
Diferenca	Real		Diferença entre primeiro e último elementos do vetor
Diferenca absoluta	Real		
Constant			
▼ Return			
Calcula diferenca	Void		

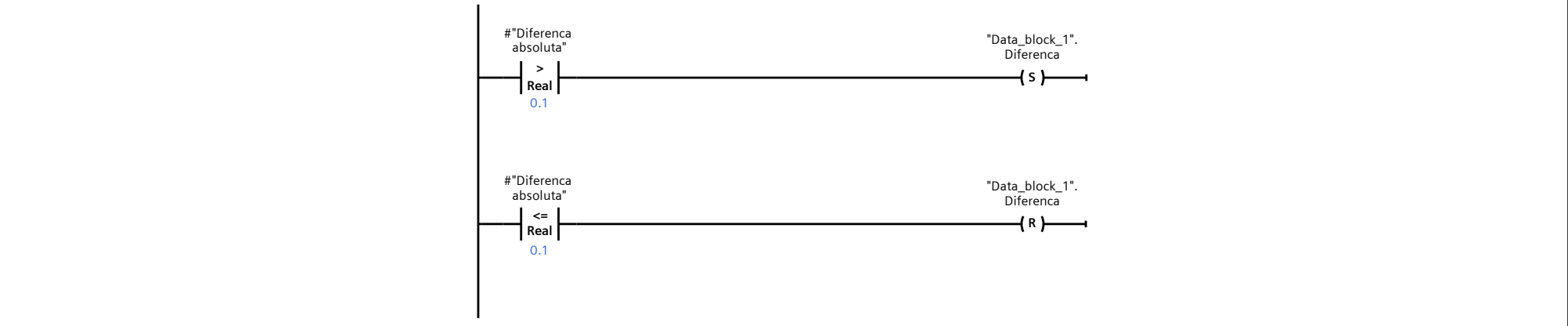
Network 1:

Calcula a diferença



Network 2:

Atribui true ou false à variável Diferenca



Program blocks / System blocks / Program resources

Timer de amostragem [DB2]

Timer de amostragem Properties												
General												
Name	Timer de amostragem	Number	2	Type	DB			Language	DB			
Numbering	Automatic											
Information												
Title		Author	Simatic	Comment				Family	IEC			
Version	1.0	User-defined ID	IEC_TMR									
Name		Data type	Start value	Retain	Accessible from HMI/OPC UA/Web API	Writ-able from HMI/OPC UA/ Web API	Visible in HMI engi-neering	Setpoint	Supervi-sion			Comment
▼ Static												
PT		Time	T#100MS	False	True	True	True	False				
ET		Time	T#0ms	False	True	False	True	False				
IN		Bool	false	False	True	True	True	False				
Q		Bool	false	False	True	False	True	False				

Totally Integrated Automation Portal

### Program blocks / System blocks / Program resources

#### Timer abastecimento [DB3]

Timer abastecimento Properties

General

Name	Timer abastecimento	Number	3	Type	DB	Language	DB
Numbering	Automatic						

Information

Title		Author	Simatic	Comment		Family	IEC
Version	1.0	User-defined ID	IEC_TMR				

Name	Data type	Start value	Retain	Accessible from HMI/OPC UA/Web API	Writ-able from HMI/ OPC UA/ Web API	Visible in HMI engi-neering	Setpoint	Supervi-sion	Comment
▼ Static									
PT	Time	T#100MS	False	True	True	True	False		
ET	Time	T#0ms	False	True	False	True	False		
IN	Bool	false	False	True	True	True	False		
Q	Bool	false	False	True	False	True	False		



Program blocks / System blocks / Program resources

Reset [DB4]

Reset Properties										
General										
Name	Reset	Number	4	Type	DB			Language	DB	
Numbering	Automatic									
Information										
Title		Author	Simatic	Comment				Family	IEC	
Version	1.0	User-defined ID	IEC_TMR							
Name		Data type	Start value	Retain	Accessible from HMI/OPC UA/Web API	Writ-able from HMI/ OPC UA/ Web API	Visible in HMI engi-neering	Setpoint	Supervi-sion	Comment
▼ Static										
PT		Time	T#10MS	False	True	True	True	False		
ET		Time	T#0ms	False	True	False	True	False		
IN		Bool	false	False	True	True	True	False		
Q		Bool	false	False	True	False	True	False		

Totally Integrated Automation Portal

### Program blocks / System blocks / Program resources

#### Reset timer M3 [DB5]

Reset timer M3 Properties

General

Name	Reset timer M3	Number	5	Type	DB	Language	DB
Numbering	Automatic						

Information

Title		Author	Simatic	Comment		Family	IEC
Version	1.0	User-defined ID	IEC_TMR				

Name	Data type	Start value	Retain	Accessible from HMI/OPC UA/Web API	Writ-able from HMI/ OPC UA/ Web API	Visible in HMI engi-neering	Setpoint	Supervi-sion	Comment
▼ Static									
PT	Time	T#10MS	False	True	True	True	False		
ET	Time	T#0ms	False	True	False	True	False		
IN	Bool	false	False	True	True	True	False		
Q	Bool	false	False	True	False	True	False		