Totally Integrated	
Automation Portal	

### Main [OB1]

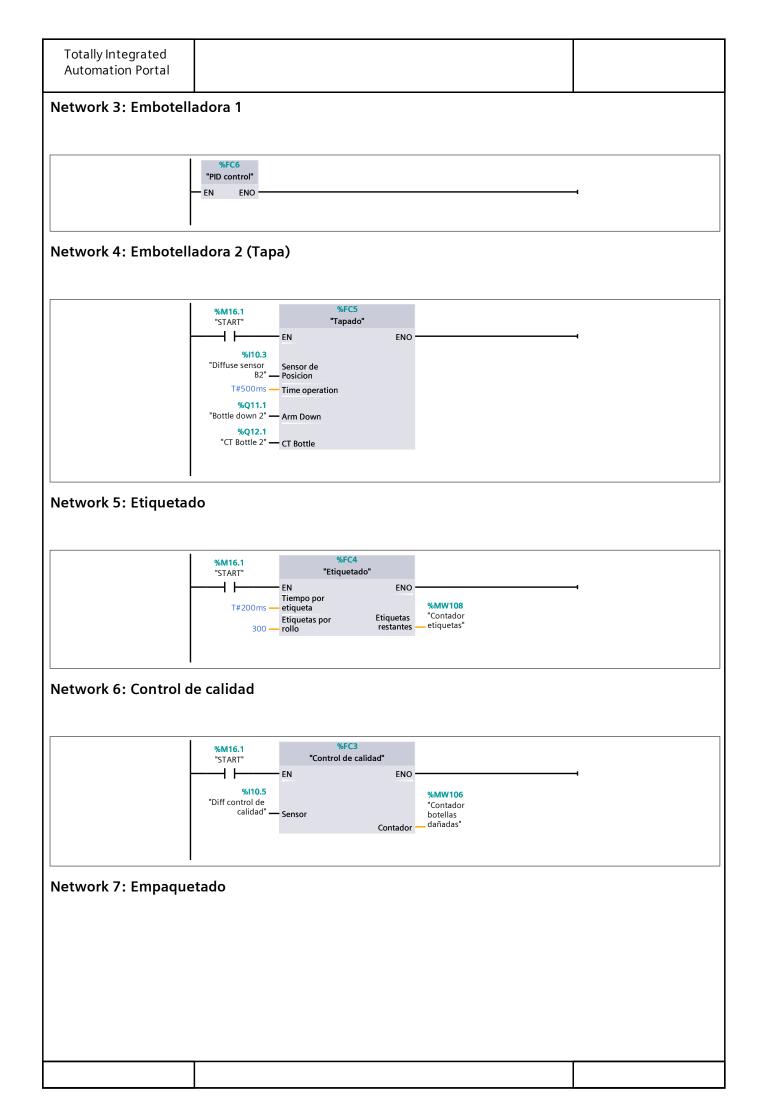
Main Properties						
General						
Name	Main	Number	1	Type	OB	
Language	LAD	Numbering	Automatic			
Information						
Title	"Main Program Sweep (Cycle)"	Author		Comment		
Family		Version	0.1	User-defined ID		

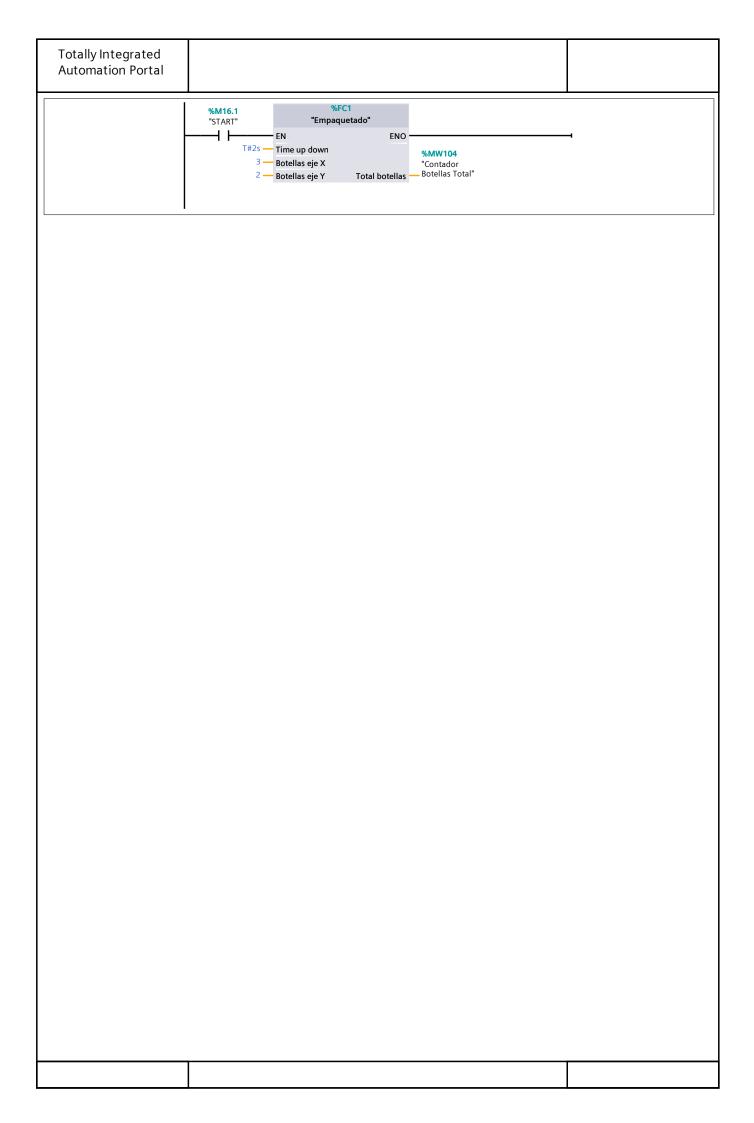
Name	Data type	Default value	Comment
<b>▼</b> Input			
Initial_Call	Bool		Initial call of this OB
Remanence	Bool		=True, if remanent data are available
Temp			
<b>▼</b> Constant			
cantidad de entradas	Int	1	
Tiempo de espera entradas	Time	T#10s	

#### **Network 1: Conexión Factory IO**

```
%FC9000
"Factory IO"
       ENO
                               %DB24
                          "HDMI values_DB"
                               %FB4
                            "HDMI values"
                                              ENO ·
        %I10.0
"DIF 1" -
                                                       %MW114
                                                       "Contador fila"
                 Sensor entrada
                                       Contador fila
                                                       %MD168
        %I10.2
"Diffuse sensor
B1" —
                                          Botella Its
                                                      Botella Its"
                 Sensor barrera
                                                      %MW116
                                     contador cajas
                                                     — "Contador cajas"
```

#### **Network 2: START**





ed rtal
tal

### Factory IO [FC9000]

Factory IO Properties						
General						
Name	Factory IO	Number	9000	Туре	FC	
Language	SCL	Numbering	Manual			
Information						
Title		Author		Comment		
Family		Version	0.1	User-defined		
				ID		

lame	Data type	Default value	Comment
Input			
Output			
InOut			
<b>▼</b> Temp			
rdTimeReturn	Int		
▼ outputTime	DTL		
YEAR	UInt		
MONTH	USInt		
DAY	USInt		
WEEKDAY	USInt		
HOUR	USInt		
MINUTE	USInt		
SECOND	USInt		
NANOSECOND	UDInt		
SyncVal	Byte		
forVal	Int		
forVal_2	Int		
Value	Byte		
<b>▼</b> Constant			
CompVal	Byte	16#34	
Value_01	Byte	16#11	
Value_01_DW	DWord	16#A165_D992	
Value_02_DW	DWord	16#58BE_4401	
<b>▼</b> Return			
Factory IO	Void		

```
0001
0002 #Value:=PEEK(area := 16#82,
0003 dbNumber := 0,
0004 byteOffset := 511);
0005 #Value := #Value + 1;
0006
0007 POKE (area := 16#82,
0008 dbNumber := 0,
0009
      byteOffset := 511,
0010 value := #Value);
0011
0012 POKE (area:=16#81,
0013 dbNumber:=0,
0014
      byteOffset:=1016,
```

```
value:=#Value 01 DW);
0015
0016 POKE (area := 16#81,
0017 dbNumber := 0,
0018
      byteOffset := 1020,
0019
      value := #Value 02 DW);
0020
0021 POKE (area := 16#81,
0022 dbNumber := 0,
      byteOffset := 511,
0023
0024 value := B#16#00);
0025
0026 FOR #forVal := 0 TO 120 DO
0027 FOR #forVal 2:=0 TO 10 DO
     #rdTimeReturn:=RD_SYS T(#outputTime);
0028
0029
       #rdTimeReturn := WR SYS T(#outputTime);
0030
       #rdTimeReturn := RD SYS T(#outputTime);
0031
       #rdTimeReturn := WR SYS T(#outputTime);
0032 END FOR;
0033 #SyncVal:= PEEK(area := 16#81,
0034
               dbNumber := 0,
               byteOffset := 511);
0035
0036 IF #SyncVal = #CompVal THEN
0037 GOTO M 1;
0038 END IF;
0039 END FOR;
0040 RETURN;
0041
0042 M 1:
0043 POKE (area := 16#81,
0044 dbNumber := 0,
0045 byteOffset := 511,
0046 value := B#16#0);
0047
0048
0049
```

Symbol	Address	Туре	Comment
#CompVal	16#34	Byte	
#forVal		Int	
#forVal_2		Int	
#outputTime		DTL	
#rdTimeReturn		Int	
#SyncVal		Byte	
#Value		Byte	
#Value_01_DW	16#A165_D992	DWord	
#Value_02_DW	16#58BE_4401	DWord	

|--|

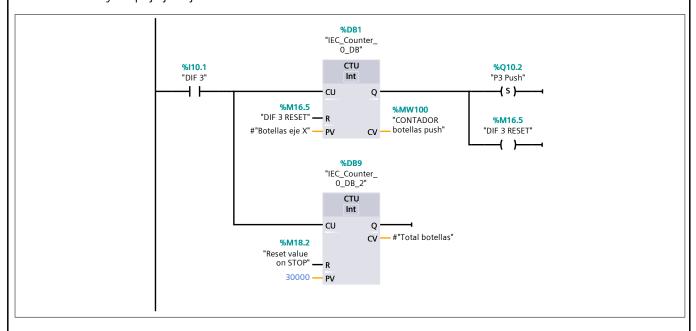
### Empaquetado [FC1]

Empaquetac	lo Properties					
General						
Name	Empaquetado	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				
Time up down	Time			
Botellas eje X	Int			
Botellas eje Y	Int			
▼ Output				
Total botellas	Int			
InOut				
Temp				
<b>▼</b> Constant				
T push extended	Time	T#1300ms		
T clamp	Time	T#1000ms		
<b>▼</b> Return				
Empaquetado	Void			

#### Network 1: Contador de cajas

Cuenta hasta 3 y empuja ja caja



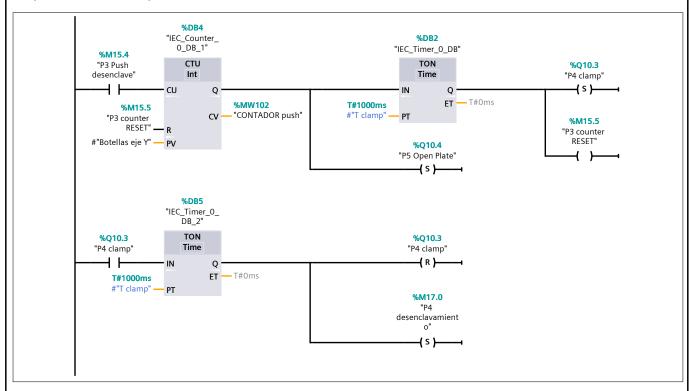
#### Network 2: Push paletiladora

Enclava el empuje durante 1 segundo

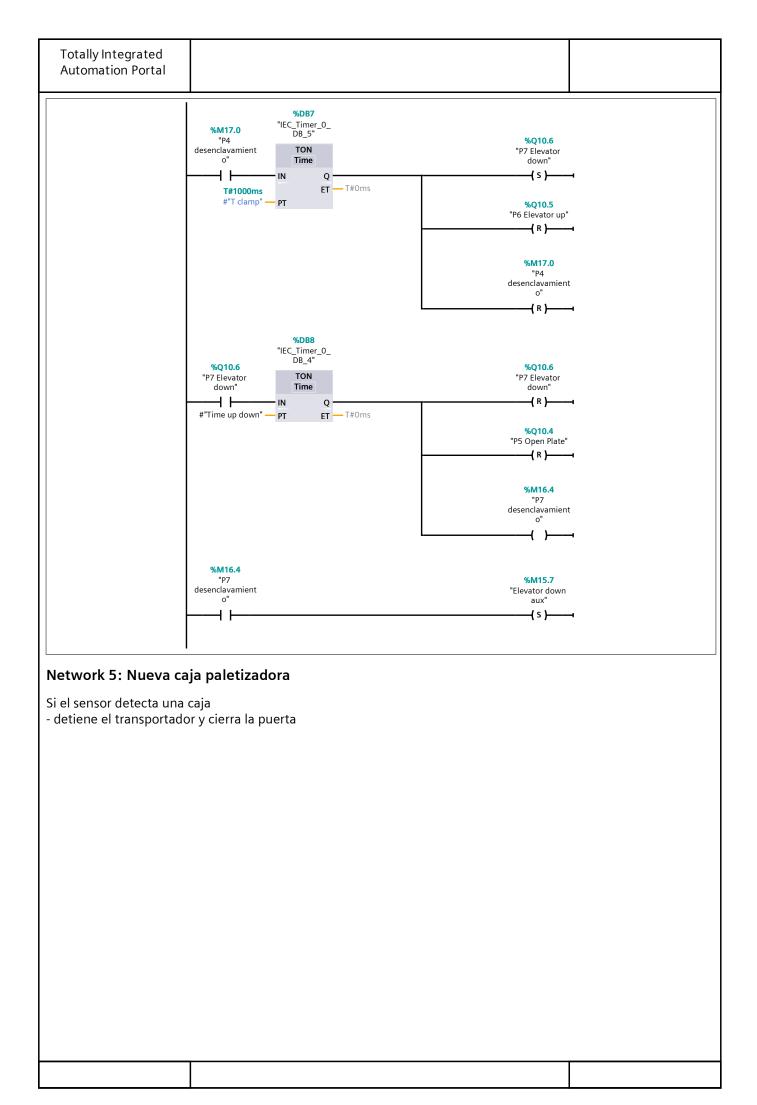
#### Totally Integrated **Automation Portal** %DB3 "IEC\_Timer\_0\_ DB\_1" TON %Q10.2 %Q10.2 "P3 Push" "P3 Push" -(R)-ET — T#0ms T#1300ms #"T push extended" — PT %M15.4 "P3 Push desenclave" ( )-

#### Network 3: Paletizadora

Abre la el piso y cierra las pinzas para acomodar las cajas despues de 1s abre las pinzas



Network 4: Bajar paletizadora



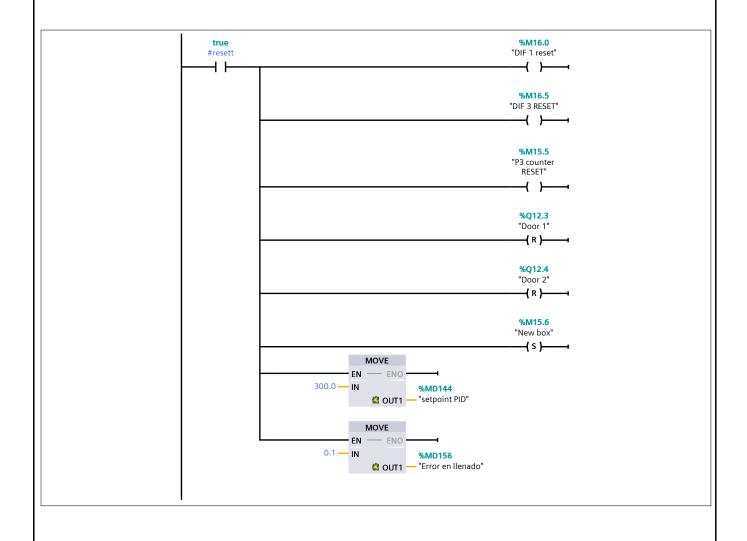
# Totally Integrated **Automation Portal** %I10.7 "Sensor Chain" **%Q10.7**"P8 Chain" <del>-</del>|/|-%Q12.5 "Door Chain" **%M15.7**"Elevator down aux" <del>//</del>} **-**| |-**%M16.6** "Disable P6" %Q10.5 "P6 Elevator up" %I10.7 "Sensor Chain" <del>-</del>//-**-(** s **)**- $\dashv \vdash$ %DB6 "IEC\_Timer\_0\_ DB\_3" %I10.7 "Sensor Chain" TON **%M16.6** "Disable P6" Time ┨┝ <del>(</del> )-- IN Q· T#100ms — PT ET — T#0ms %M15.7 "Elevator down aux" %I10.7 "Sensor Chain" <del>-</del>|/| -( R )-

### 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		

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			
resett	Bool	true	

#### Network 1:



Totally Integrated Automation Portal
---

### Etiquetado [FC4]

Etiquetado P	roperties				
General					
Name	Etiquetado	Number	4	Туре	FC
Language	LAD	Numbering	Automatic		
Information					
Title		Author		Comment	
Family		Version	0.1	User-defined	
				ID	

Name	Data type	Default value	Comment	
<b>▼</b> Input				
Tiempo por etiqueta	DInt			
Etiquetas por rollo	Int			
<b>▼</b> Output				
Etiquetas restantes	Int			
InOut				
Temp				
Constant				
▼ Return				
Etiquetado	Void			

#### Network 1:

El sensor difuso activa la maquina de etiquetado y el led indicador de funcionamiento

```
%I10.4

"Diffuse etiquetado"

(S)

%Q11.6

"Etiquetado on"

(S)

%Q11.6

"Etiquetado on"

(S)

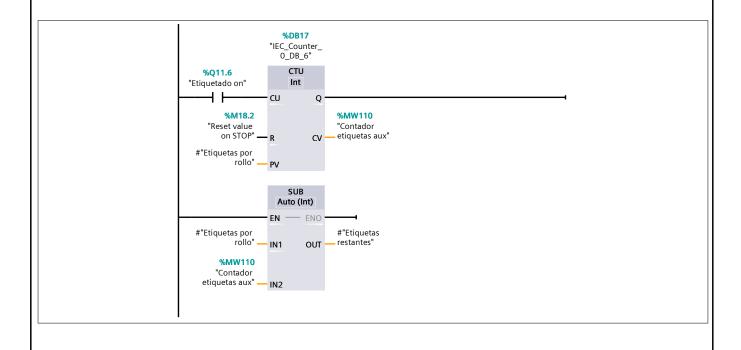
%Q11.7

"Etiquetado off"
```

#### Network 2:

```
%DB14
                                                                                      %DB16
                     "IEC_Timer_0_
DB_8"
                                                                                  "IEC_Counter_
0_DB_3"
                         TON
                                                                                       CTU
   %Q11.6
                                                                                                                              %Q11.4
                                                                                       Int
"Etiquetado on"
                     Time
                                                                                                                           "Etiquetado 1"
     4 F
                                                                                                                                (R)-
                                                                                              Q
                                ET — T#0ms
                                                                                             cv — 0
   #"Tiempo por
etiqueta" __
                                                                                                                          %Q11.6
"Etiquetado on"
                                                                                                                               -( R )-
    %I10.4
   "Diffuse
  etiquetado"
                                                                             1 — PV
```

#### Network 3:

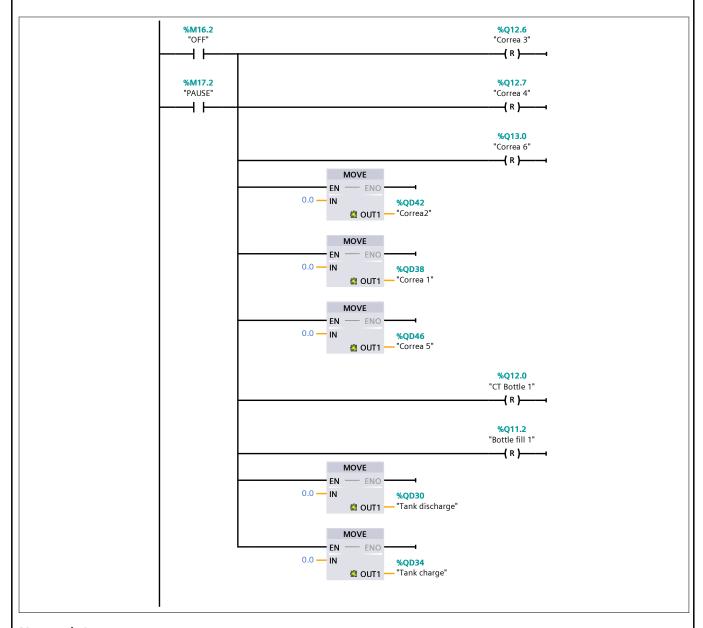


Totally Inte	egrated on Portal							
DI C 1 [/		IC DC/D/		1 / D <sub>1</sub> -		loska		
	CPU 1211 se Stop [F		C/DC	.] / Pr	ogram b	IOCKS		
	top Properties							
General Name	Ctart Dauco G		Numb	٥,	2		Type	FC
Language	Start Pause S	stop	Numb		Automatic		Туре	rc
Information	LND		Italiib	cring	ratornatic			
Title			Autho	r			Comment	
Family			Versio	n	0.1		User-defined ID	
Name		Data ty	/pe	Default	t value	Con	nment	
Input								
Output								
InOut								
Temp								
Constant								
<b>▼</b> Return								
Start Pa	use Stop	Void						

Totally Integrated Automation Portal		
letwork 1: (1.1 / 2.1)	l	
%M16.2 "OFF"	%Q12.3 "Door 1"	
	( R )	
	%Q12.4 "Door 2"	
	%M15.6 "New box"  { S }	
	MOVE EN ENO	
	300.0 — IN	
	MOVE FN FNO	
	0.1 — IN — ENO —	
	MOVE	
	0 - IN ENO - MW110	
	"Contador — etiquetas aux"	
	MOVE ENO ENO	
	0 — IN %MW120  ② OUT1 — "Contador fila A"	
	MOVE EN — ENO	
	0 — IN %MW118  — "Contador fila B"	
	MOVE EN — ENO	
	0 — IN %MW114  ② OUT1 — "Contador fila"	
	MOVE	
	EN ENO	
	MOVE	
	0 — IN — ENO — 6MW106	
	"Contador botellas dañadas"	
	MOVE	
	0 — IN — ENO ————————————————————————————————	
	"Contador Botellas Total"	
	MOVE EN — ENO	
	0IM	

Totally Integrated Automation Portal		
Network 1: (2.1 / 2.1)		
	1.1 ( Page7 - 2)	
	WMW100  "CONTADOR  diagram of the position of	
	%Q11.0	
	%Q11.0 "Bottle down 1"  ( R )	
	` ·	

#### Network 2:



#### Network 3:

Totally Integrated **Automation Portal %M16.3** "ON" %M16.2 "OFF" **%M17.2** "PAUSE" **%Q12.6** "Correa 3" <del>|</del> | |-<del>//</del>| <del>-</del>1/1-**-(** s **}**--**%Q12.7** "Correa 4" **-(** s )− **%Q13.0**"Correa 6" —( s )— MOVE MOVE 0.6 — IN — ENO — %QD38 OUT1 — "Correa 1" MOVE 

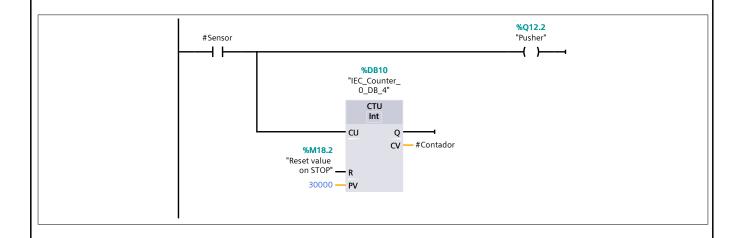
|--|

### Control de calidad [FC3]

Control de ca	alidad Properties				
General					
Name	Control de calidad	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	
<b>▼</b> Input				
Sensor	Bool			
▼ Output				
Contador	Int			
InOut				
Temp				
Constant				
<b>▼</b> Return				
Control de calidad	Void			

#### Network 1:



|--|

### Tapado [FC5]

Tapado Prop	erties				
General					
Name	Tapado	Number	5	Туре	FC
Language	LAD	Numbering	Automatic		
Information					
Title		Author		Comment	
Family		Version	0.1	User-defined	
				ID	

Name	Data type	Default value	Comment	
<b>▼</b> Input				
Sensor de Posicion	Bool			
Time operation	DInt			
Output				
▼ InOut				
Arm Down	Bool			
CT Bottle	Bool			
Temp				
Constant				
▼ Return				
Tapado	Void			

#### Network 1:

```
#"Sensor de
Posicion" #"CT Bottle"

| MM16.7 #"Arm Down"

| Pass bottle tapa" | NOT | | | |
```

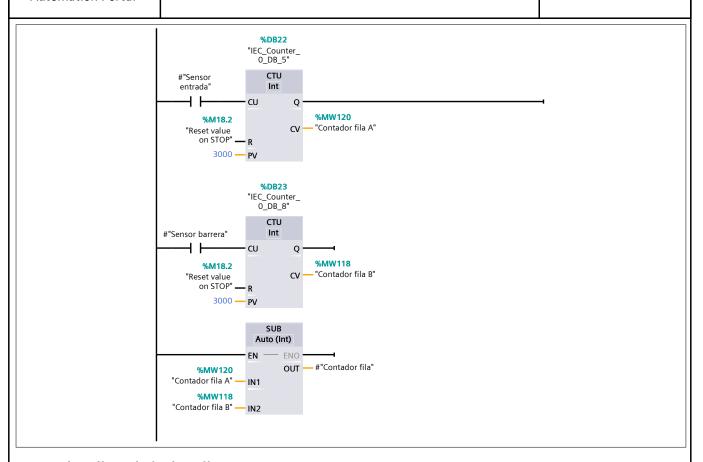
#### Network 2:

```
%DB11
"IEC_Timer_0_
DB_6"
                           TON
                                                                                            %M16.7
#"Arm Down"
                      Time
                                                                                       "Pass bottle tapa"
     +
                     - IN
                                   Q·
                                  ET — T#0ms
      #"Time
operation" — PT
#"Sensor de
Posicion"
                                                                                            %M16.7
                                                                                       "Pass bottle tapa"
     <del>-</del>|/}
                                                                                             _( R )_
```

Totally Int Automatio										
			C/DC/DC] / F	Program	block	S				
HDMI val										
HDMI values	Properties	S								
General										
Name	HDMI va	alues	Number	4			Type		FB	
Language Information	LAD		Numbering	Automatic						
Information Title			Author				Comm	ant.		
			Version	0.1			_	ent efined		
Family			version	0.1			ID	eimea		
Name		Data type	Default value	Retain	Acces- sible from HMI/OF C UA/We b API	ta- ble fro m	in HMI engi- neer- ing		Super- vision	Comment
<b>▼</b> Input										
Sensor	entrada	Bool	false	Non-retain	True	Tru e	True	False		
Sensor	barrera	Bool	false	Non-retain	True	-	True	False		

				sible from HMI/OP C UA/We b API	ble fro m	engi-	point	vision	
✓ Input									
Sensor entrada	Bool	false	Non-retain	True	Tru e	True	False		
Sensor barrera	Bool	false	Non-retain	True	Tru e	True	False		
▼ Output									
Contador fila	Int	0	Non-retain	True	Tru e	True	False		
Botella Its	Real	0.0	Non-retain	True	Tru e	True	False		
contador cajas	Int	0	Non-retain	True	Tru e	True	False		
InOut									
<b>▼</b> Static									
aux1	Real	0.0	Non-retain	True	Tru e	True	False		
Temp									
Constant									

Network 1: contador fila



#### Network 2: Ilenado Its botella

```
SUB
                                                                        SUB
               Auto (Real)
                                                                        Real
              EN
                      FNO
                                                                   - EN
                                                                            FNO
                      OUT -#aux1
                                                             5.0 — IN1
                                                                            OUT — #"Botella Its"
   %MD148
                                                           #aux1 — IN2
  "Nivel cm" -
              IN1
   %MD144
"setpoint PID" — IN2
```

#### Network 3: contador cajas

```
%DB25
"."
"Diff contador cajas"

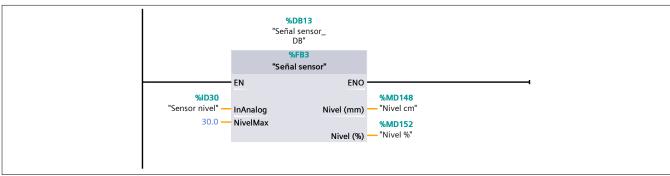
CTU Int

CU Q

%M18.2
"Reset value on STOP" — R

30000 — PV
```

PID contr	CPU 1211( ol [FC6]	. มตุมต	יטכן / פו	ogram bi	OCKS /	rib inten	10 1
PID control P	roperties						
General	DIDt		La constitución	c		<b></b>	FC
Name	PID control LAD		lumber	6 Automatic		Туре	FC
Language Information	LAU	N	lumbering	Automatic			
Title		Δ	uthor			Comment	
Family			ersion	0.1		User-defined ID	
Name		Data type	e Defau	lt value	Comm	ient	
Input							
Output							
InOut							
Temp							
Constant							
Return							
PID cor	ntrol	Void					
Network 1	:		<b>%DE</b> "Señal s DE	ensor_ " 33			
			"Señal s				



#### Network 2:

# Totally Integrated Automation Portal **%DB19**"Salida PID\_DB" **%M16.2** "OFF" "Salida Valvulas" <del>/</del>/} ENO · - EN **%QD30** - "Tank discharge" %MD148 "Nivel cm" -Nivel actual V desague %MD144 "setpoint PID" -**%QD34** "Tank charge" Setpoint V carga %MD156 %Q12.0 "Error en llenado" -Bottle Move — "CT Bottle 1" Error aceptable %Q11.0 %I10.2 "Diffuse sensor B1" = ■"Bottle down 1" Sensor de posicion bottle down %Q11.2 Bottle fill → "Bottle fill 1" %MD148 **%M17.2** "PAUSE" "Nivel cm" <= $\leftarrow$ Real

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on Portal	

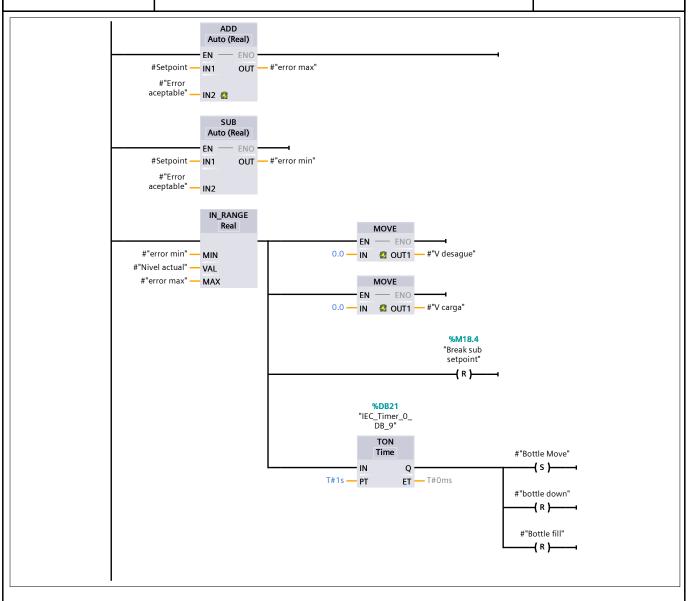
# PLC\_1 [CPU 1211C DC/DC/DC] / Program blocks / PID intento 1

### Salida Valvulas [FB2]

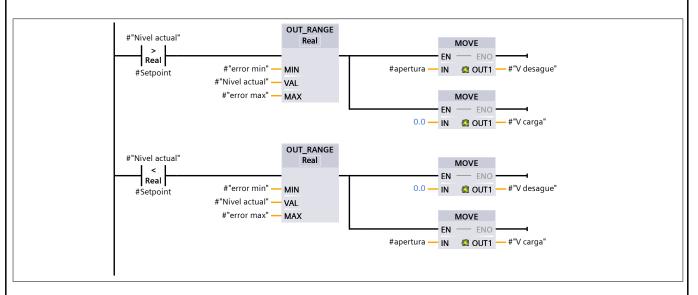
Salida Valvula	as Properties				
General					
Name	Salida Valvulas	Number	2	Туре	FB
Language	LAD	Numbering	Automatic		
Information					
Title		Author		Comment	
Family		Version	0.1	User-defined	
				ID	

me	Data type	Default value	Retain	Acces- sible from HMI/OP C UA/We b API	ta- ble fro m	Visible in HMI engi- neer- ing		Super- vision	Comment
Input									
Nivel actual	Real	0.0	Non-retain	True	e	True	False		
Setpoint	Real	0.0	Non-retain	True	Tru e	True	False		
Error aceptable	Real	0.0	Non-retain	True	Tru e	True	False		
Sensor de posi- cion	Bool	false	Non-retain	True	Tru e	True	False		
Output									
V desague	Real	0.0	Non-retain	True	Tru e	True	False		
V carga	Real	0.0	Non-retain	True	Tru e	True	False		
Bottle Move	Bool	false	Non-retain	True	Tru e	True	False		
bottle down	Bool	false	Non-retain	True	Tru e	True	False		
Bottle fill	Bool	false	Non-retain	True	Tru e	True	False		
InOut									
Static									
diferencia	Real	0.0	Non-retain	True	Tru e	True	False		
error min	Real	0.0	Non-retain	True	Tru e	True	False		
error max	Real	0.0	Non-retain	True	Tru e	True	False		
apertura	Real	0.0	Non-retain	True	Tru e	True	False		
aux	Real	0.0	Non-retain	True	Tru e	True	False		
apertura dis	Real	0.0	Non-retain	True	_	True	False		

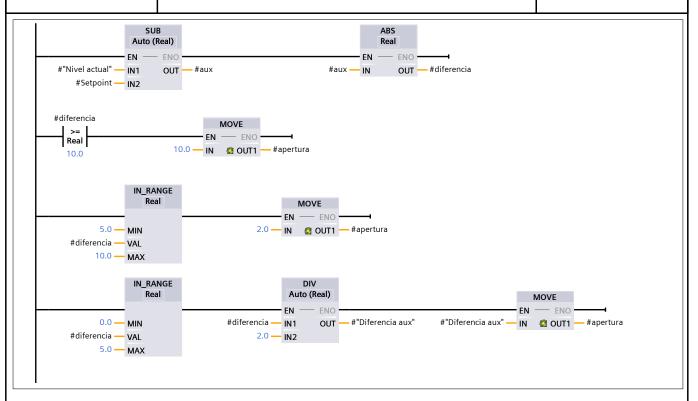
Alredy START Bool false Non-retain True True False aux door open Bool false Non-retain True True False Diferencia aux Real 0.0 Non-retain True True True False Constant	Alredy START Bool false Non-retain True True False aux door open Bool false Non-retain True True Ealse Pointerencia aux Real O.O Non-retain True True Ealse Temp	Alredy START Bool false Non-retain True Tru False aux door open Bool false Non-retain True True Palse Diferencia aux Real O.O Non-retain True True True False Constant	Alredy START Bool false Non-retain True Tru False aux door open Bool false Non-retain True True Palse Diferencia aux Real O.O Non-retain True True True False Constant	Alredy START Bool false Non-retain True Tru False aux door open Bool false Non-retain True True Palse Diferencia aux Real 0.0 Non-retain True True True Palse Temp  Constant	ame	Data type	Default value	Retain	Acces-	Wri	Visible in HMI	Set-	Super-	Comment
Alredy START Bool false Non-retain True Tru e False e Break resta Bool false Non-retain True True True False e aux door open Bool false Non-retain True True True False e Diferencia aux Real 0.0 Non-retain True True True False e True False e True False e True False e True True False e True True False e True False e True False e True False e True True False e True True False e True True False e True False e True True False e True True False e True True False e True False e True False e True True False e True True False e True True False e True False e True True False e True True E True False e True True False e True True E True True False e True True E	Alredy START Bool false Non-retain True Tru True False e Non-retain True True False e Non-retain True True False e True False e Non-retain True True False e Non-retain True True False e True False e True False e Temp Constant	Alredy START Bool false Non-retain True Tru True False e Non-retain True True False e Non-retain True True False e True False e Non-retain True True False e Non-retain True True False e True False e True False e Temp Constant	Alredy START Bool false Non-retain True Tru True False e Non-retain True True False e Non-retain True True False e True False e True False e Non-retain True True False e True True False e True False e True False e True False e True True True True True True True T	Alredy START Bool false Non-retain True Tru true False e Break resta Bool false Non-retain True True True False e aux door open Bool false Non-retain True True True False e Diferencia aux Real 0.0 Non-retain True True True False e True True False e True True False e True True False e True True True True True True True False e True True E True True False e True True E True True False e True True E True					from HMI/OF C UA/We	ble fro m HM I/O PC UA/ We b	engi- neer- ing			
Break resta  Bool  false  Non-retain  True  True  False  e  aux door open  Bool  false  Non-retain  True  True  True  False  e  Diferencia aux  Real  O.0  Non-retain  True  True  True  False  e	Break resta Bool false Non-retain True True False e  aux door open Bool false Non-retain True True False e Tr	Break resta Bool false Non-retain True True False e  aux door open Bool false Non-retain True True False e Tr	Break resta Bool false Non-retain True Tru e Tru False e  aux door open Bool false Non-retain True True False e	Break resta  Bool  false  Non-retain  True  Tru  True  False  e  Diferencia aux  Real  O.0  Non-retain  True  True  True  True  False  e  True  True  False  True  True  True  False  True  True  True  True  False  True  T	Alredy START	Bool	false	Non-retain	True	Tru	True	False		
aux door open Bool false Non-retain True Tru e False e Diferencia aux Real 0.0 Non-retain True True False e True False e Temp Constant	aux door open Bool false Non-retain True Tru e False e Diferencia aux Real 0.0 Non-retain True Tru True False e Temp Constant	aux door open Bool false Non-retain True Tru e False e Diferencia aux Real 0.0 Non-retain True Tru True False e Temp Constant	aux door open Bool false Non-retain True Tru e False e Diferencia aux Real 0.0 Non-retain True True False e Temp Constant	aux door open Bool false Non-retain True Tru true False Diferencia aux Real 0.0 Non-retain True Tru True False e Temp Constant	Break resta	Bool	false	Non-retain	True	Tru	True	False		
Diferencia aux Real 0.0 Non-retain True Tru False e  Temp Constant	Diferencia aux Real 0.0 Non-retain True True False e Temp Constant	Diferencia aux Real 0.0 Non-retain True True False e Temp Constant	Diferencia aux Real 0.0 Non-retain True Tru Ealse e Temp Constant	Diferencia aux Real 0.0 Non-retain True True False e Temp Constant	aux door open	Bool	false	Non-retain	True	Tru	True	False		
Constant	Constant	Constant	Constant	Constant	Diferencia aux	Real	0.0	Non-retain	True	Tru	True	False		



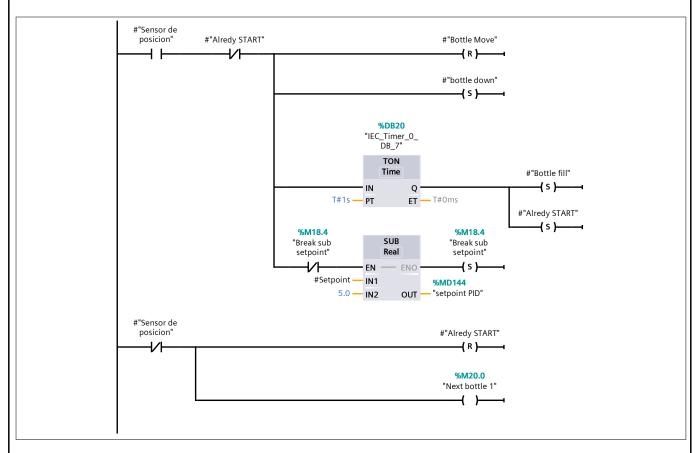
#### Network 2:



Network 3: Velocidad de llenado



#### **Network 4: BRAZO**



**Network 5: Door** 

# Totally Integrated Automation Portal **%M20.0**"Next bottle 1" %Q12.3 "Door 1" #"aux door open" $\dashv$ $\vdash$ $\dashv$ $\vdash$ -( R )-**%Q12.4** "Door 2" -( R )-**%I10.6**"Diff door" **%Q12.3** "Door 1" **-(** s **)**-**%Q12.4** "Door 2" **-(** s **)**-Network 6: **%DB15**"IEC\_Timer\_0\_ DB\_10" **%Q12.3** "Door 1" TON #"aux door open" - IN Q-T#2s — PT ET — T#0ms

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NivelMa	X	Real	0.0	N	on-retain	True	Tru	True	False		
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aux		Real	0.0	N	on-retain	True	I ru e	True	False		
Temp Constant											

