PLC_1 [CPU 1212C AC/DC/Rly]

PLC_1					
Project information					
Name	PLC_1	**Author**	stive	**Comment**	
Slot	1	**Rack**	0		
Catalog information					
Short designation	CPU 1212C AC/DC/Rly	**Description**	Work memory 100 KB; 120/240VAC power supply with DI8 x 24VDC SINK/SOURCE, DQ6 x relay and AI2 on board; 4 high-speed counters (expandable with digital signal board) and 4 pulse outputs on board; signal board expands on-board I/O; up to 3 communication modules for serial communication; up to 2 signal modules for I/O expansion; PROFINET IO controller, I-device, transport protocol TCP/IP, secure Open User Communication, S7 communication, Web server, OPC UA: Server DA	**Article number**	6ES7 212-1BE40-0XB0
Firmware version	V4.6		False		

Connection resources

	Station resources - Reserved - Maximum	Station resources - Reserved - Configured	Station resources - Dynamic - Configured	Module resources - PLC_1 [CPU 1212C AC/DC/Rly] - Configured
Maximum number of resources:		34	34	68
	Maximum	Configured	Configured	Configured
PG communication:	4	-	-	-
HMI communication:	12	2	0	2
S7 communication:	8	0	0	0
Open user communication:	8	0	0	0
Web communication:	2	-	-	-
OPC UA client/server communication:	0	-	-	-
Other communication:	-	-	0	0
Total resources used:		2	0	2
Available resources:		32	34	66

Overview of addresses\Overview of addresses\Overview of addresses

Inputs	True	**Outputs**	True	**Address gaps**	False
Slot	True				

Type	Addr. from	Addr. to	Module	PIP	Device name	Device number	Size	Master / IO system	Rack	Slot
I	64	67	AI 2_1	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 2
I	1000	1003	HSC_1	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 16
I	1004	1007	HSC_2	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 17
I	1008	1011	HSC_3	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 18
I	1012	1015	HSC_4	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 19
I	1016	1019	HSC_5	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 20
I	1020	1023	HSC_6	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 21
O	1000	1001	Pulse_1	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	2 Bytes	-	0	1 32
O	1002	1003	Pulse_2	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	2 Bytes	-	0	1 33
O	1004	1005	Pulse_3	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	2 Bytes	-	0	1 34
O	1006	1007	Pulse_4	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	2 Bytes	-	0	1 35
I	0	0	DI 8/DQ 6_1	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	1 Bytes	-	0	1 1
O	0	0	DI 8/DQ 6_1	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	1 Bytes	-	0	1 1

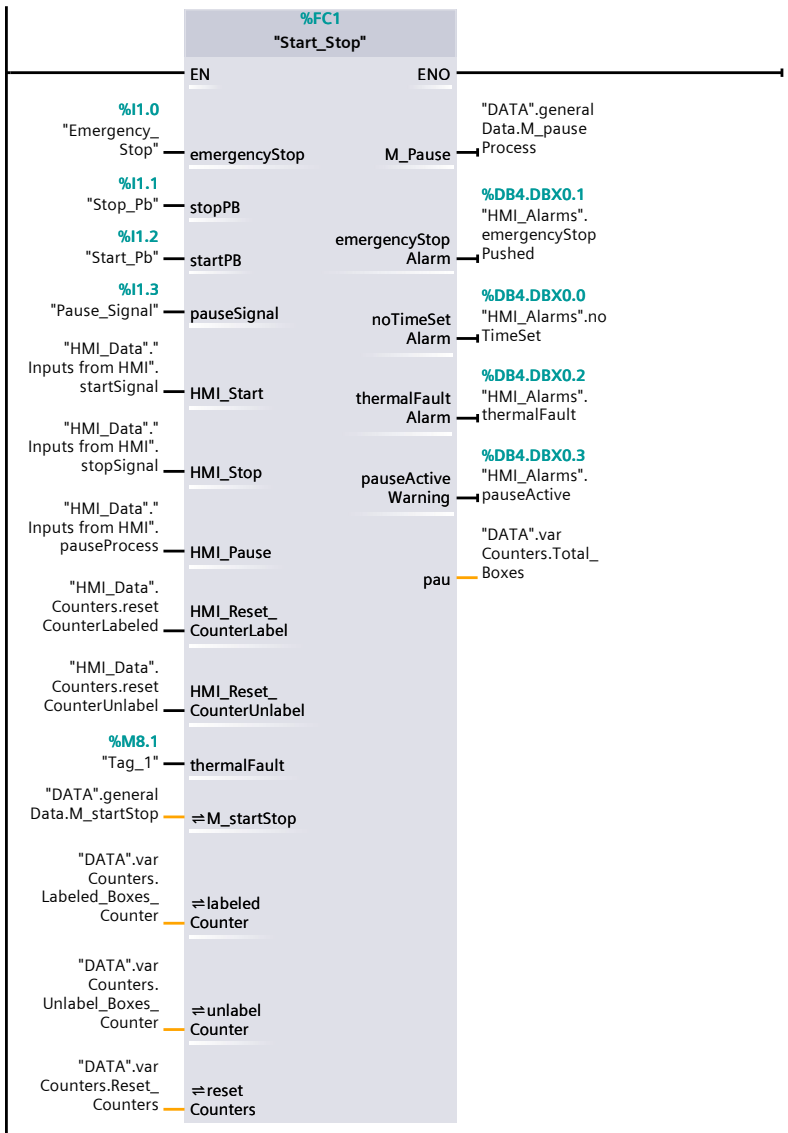
PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks

Main [OB1]

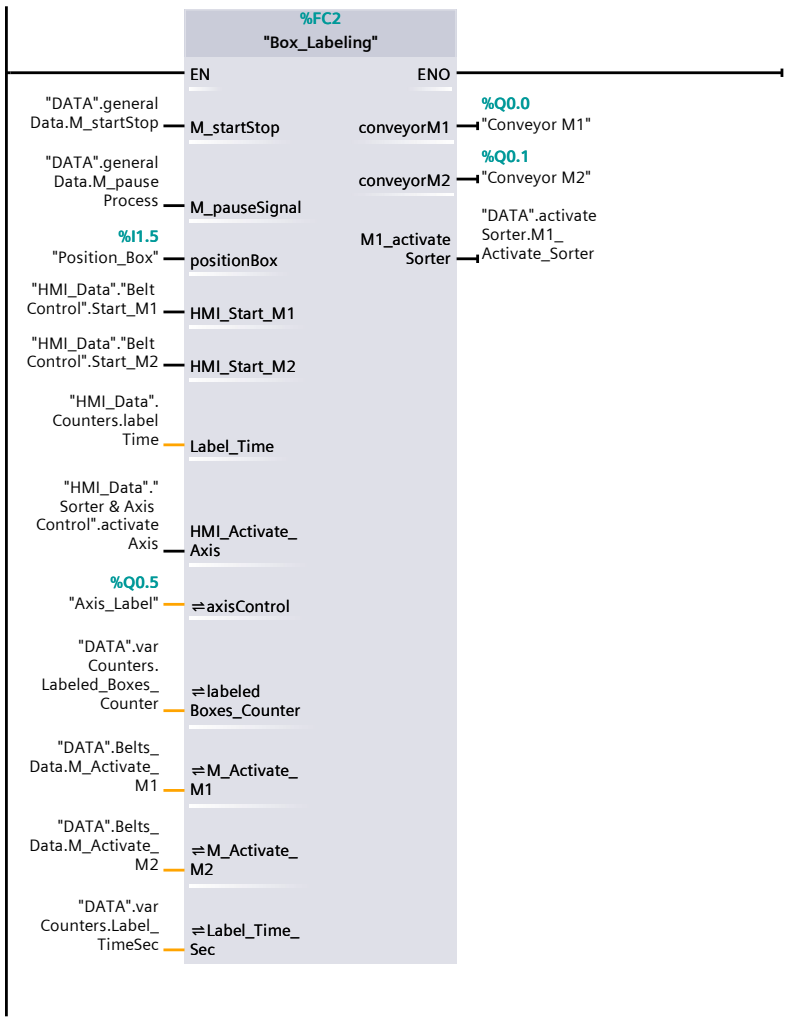
Main Properties							
General							
Name	Main	**Number**	1	**Type**	OB	**Language**	LAD
Numbering	Automatic						
Information							
Title	"Main Program Sweep (Cycle)"	**Author**		**Comment**		**Family**	
Version	0.1	**User-defined ID**					

Name	Data type	Default value
Input		
Initial_Call	Bool	
Remanence	Bool	
Temp		
Constant		

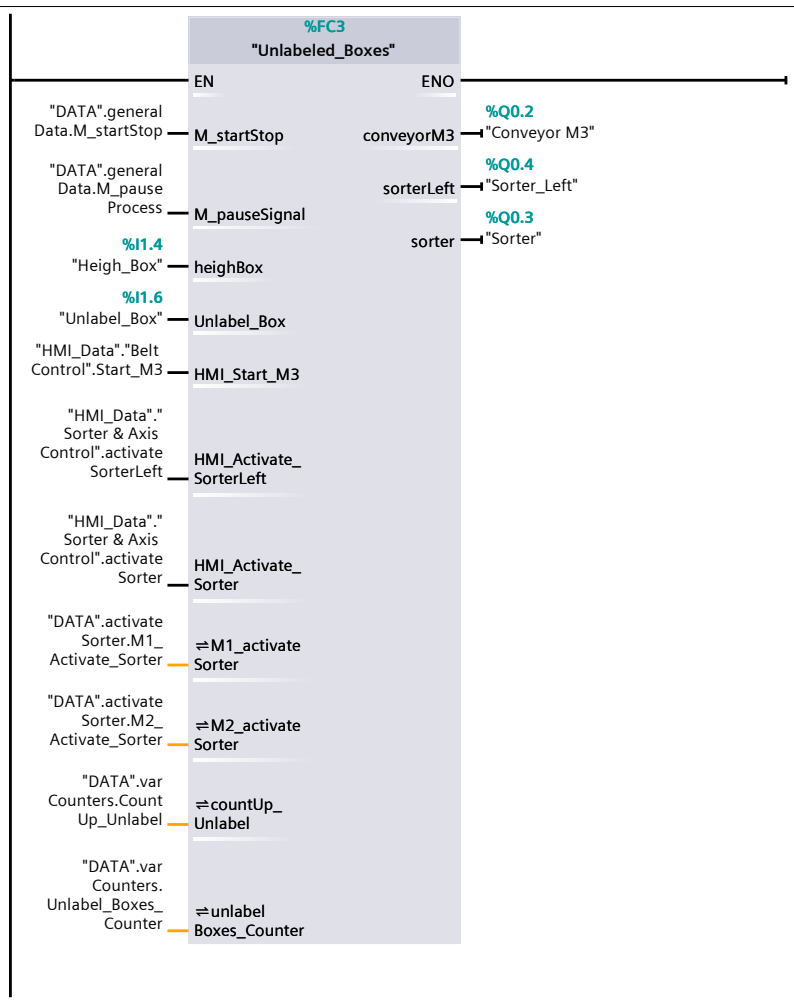
Network 1: Start-stop for all process



Network 2: Box labeling process



Network 3: Unlabeled boxes process



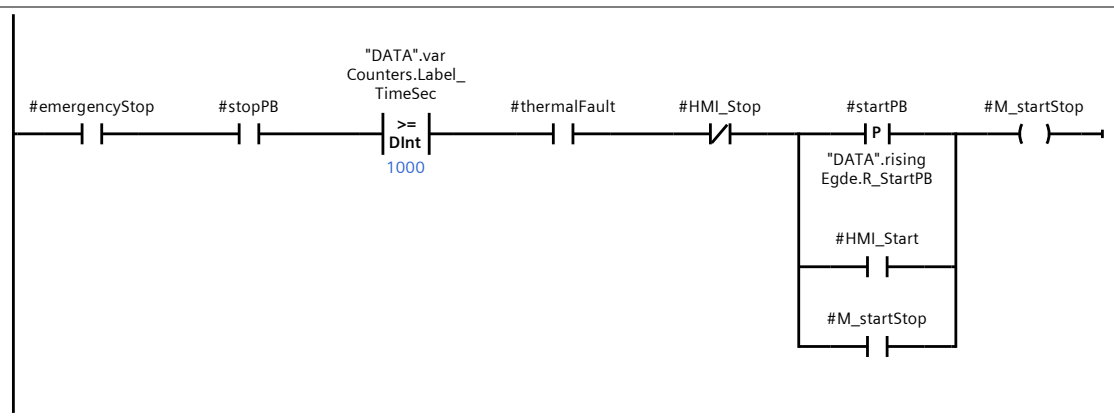
PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks

Start_Stop [FC1]

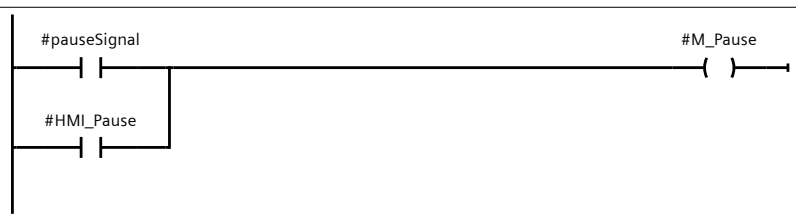
Start_Stop Properties							
General							
Name	Start_Stop	**Number**	1	**Type**	FC	**Language**	LAD
Numbering	Automatic						
Information							
Title	Start and Stop Block	**Author**	Stiven Perez	**Comment**	Start and stop conditions to all process	**Family**	
Version	0.1	**User-defined ID**					

Name	Data type	Default value
Input		
emergencyStop	Bool	
stopPB	Bool	
startPB	Bool	
pauseSignal	Bool	
HMI_Start	Bool	
HMI_Stop	Bool	
HMI_Pause	Bool	
HMI_Reset_CounterLabel	Bool	
HMI_Reset_CounterUnlabel	Bool	
thermalFault	Bool	
Output		
M_Pause	Bool	
emergencyStopAlarm	Bool	
noTimeSetAlarm	Bool	
thermalFaultAlarm	Bool	
pauseActiveWarning	Bool	
pau	Int	
InOut		
M_startStop	Bool	
labeledCounter	Int	
unlabelCounter	Int	
resetCounters	Bool	
Temp		
Constant		
Return		
Start_Stop	Void	

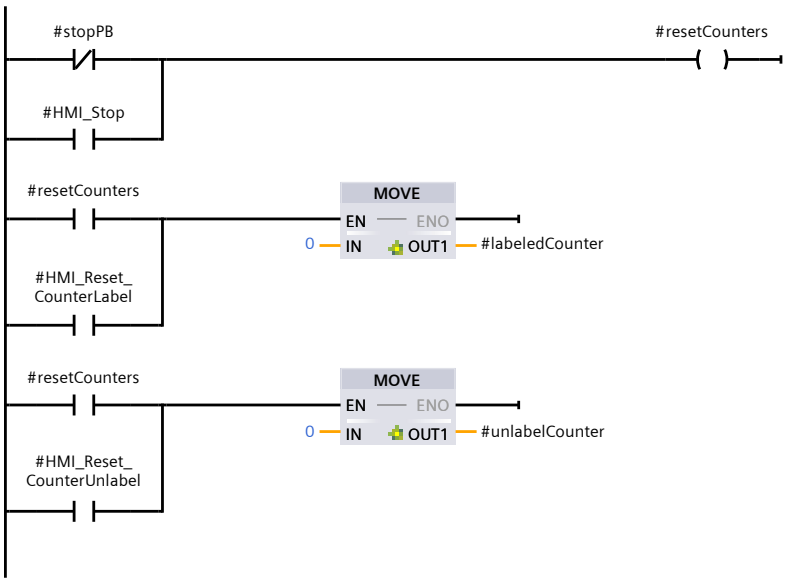
Network 1: Memory for Start Stop



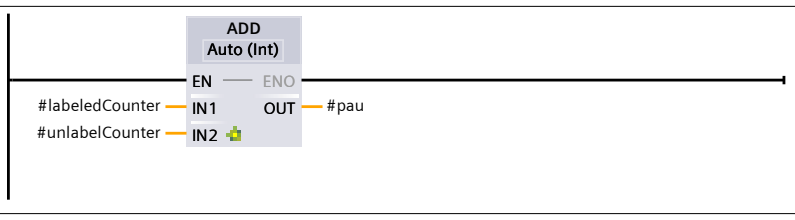
Network 2: Memory for Pause process



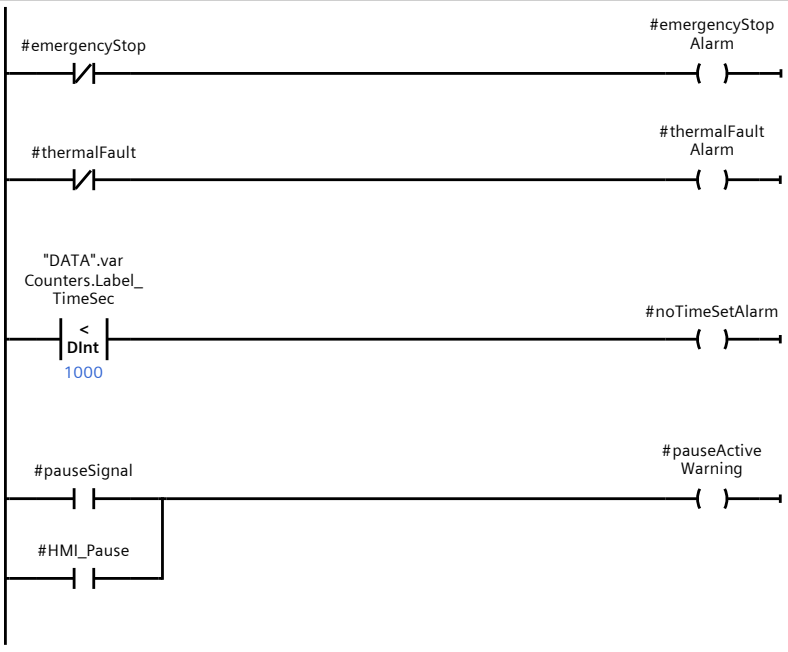
Network 3: Reset Labeled and Unlabel Boxes Counter



Network 4: Total Boxes Counter



Network 5: Alarms Indicators



PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks

DATA [DB1]

DATA Properties							
General							
Name	DATA	**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
▼ Static			
varCounters	Struct		False
activateSorter	Struct		False
risingEgde	Struct		False
generalData	Struct		False
Belts_Data	Struct		False

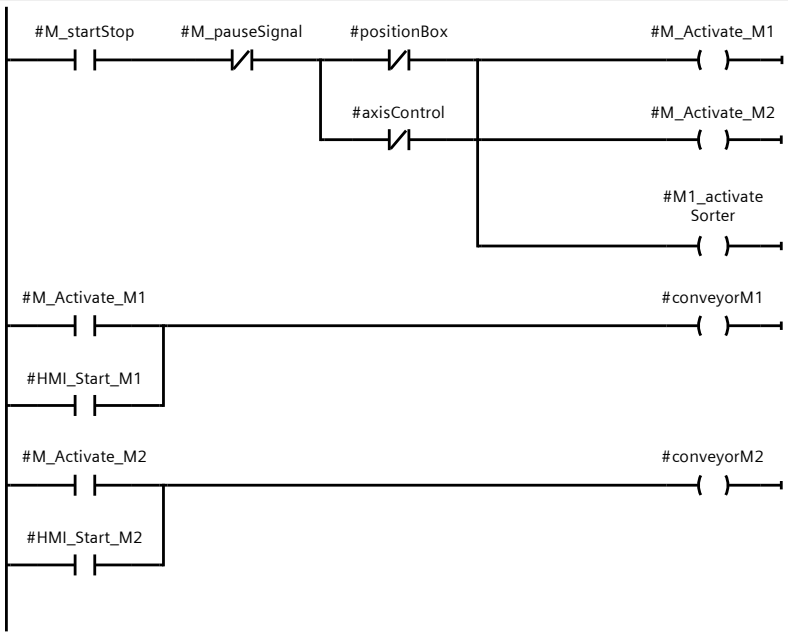
PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks

Box_Labeling [FC2]

Box_Labeling Properties							
General							
Name	Box_Labeling	**Number**	2	**Type**	FC	**Language**	LAD
Numbering	Automatic						
Information							
Title	Box Sorting Block	**Author**	Stiven Perez	**Comment**	Conditions to select the correct box to labeled	**Family**	
Version	0.1	**User-defined ID**					

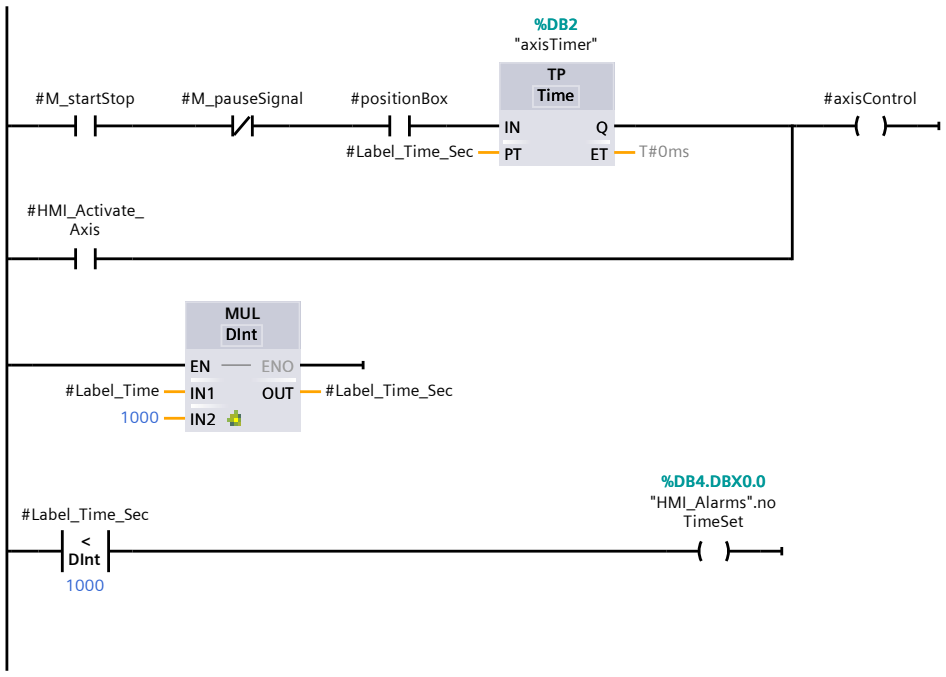
Name	Data type	Default value
Input		
M_startStop	Bool	
M_pauseSignal	Bool	
positionBox	Bool	
HMI_Start_M1	Bool	
HMI_Start_M2	Bool	
Label_Time	DInt	
HMI_Activate_Axis	Bool	
Output		
conveyorM1	Bool	
conveyorM2	Bool	
M1_activateSorter	Bool	
InOut		
axisControl	Bool	
labeledBoxes_Counter	Int	
M_Activate_M1	Bool	
M_Activate_M2	Bool	
Label_Time_Sec	DInt	
Temp		
Constant		
Return		
Box_Labeling	Void	

Network 1: Activate Conveyor Belts 1, 2 and Sorter

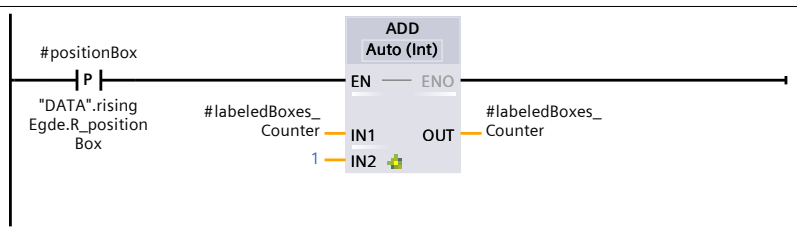


Network 2: Activate Axis

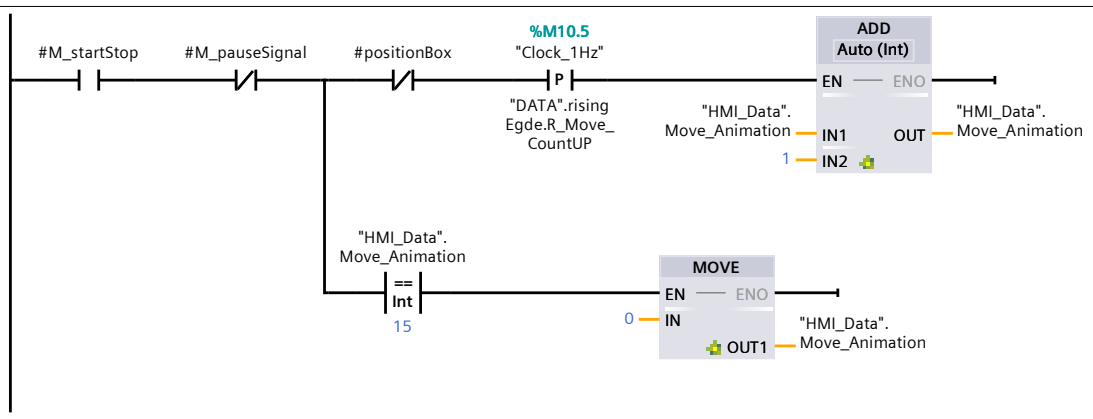
Activate axis and convert millisencods from hmi input to seconds



Network 3: Box Labeled Counter



Network 4: Box Movemente Animation HMI



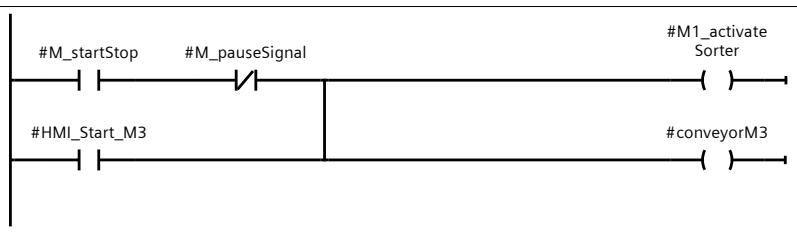
PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks

Unlabeled_Boxes [FC3]

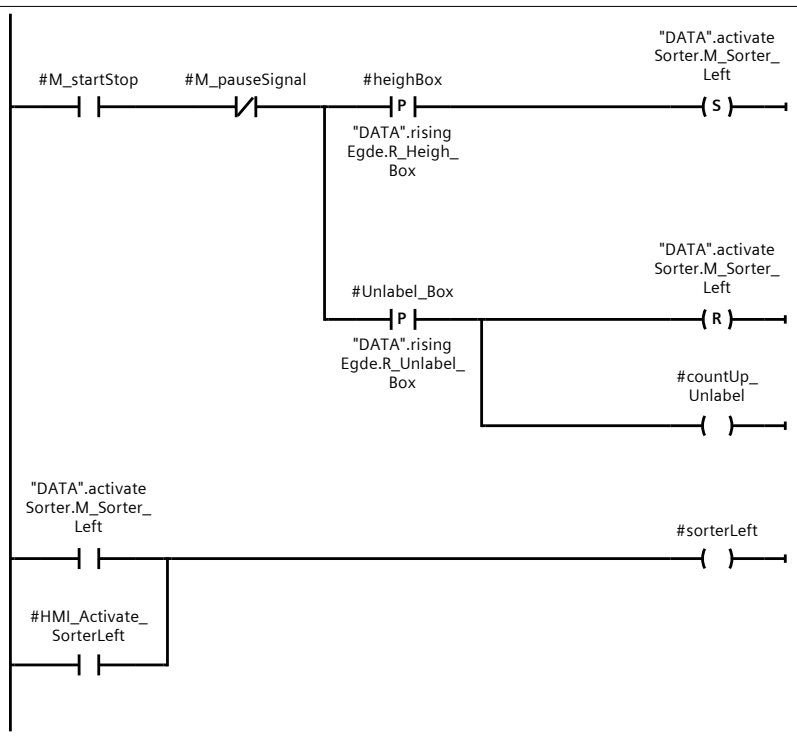
Unlabeled_Boxes Properties							
General							
Name	Unlabeled_Boxes	**Number**	3	**Type**	FC	**Language**	LAD
Numbering	Automatic						
Information							
Title	Unlabeled Boxes Block	**Author**	Stiven Perez	**Comment**	Conditions to activate left sorter and unlabeled counter, this function will be activate when the heigh box is out of range	**Family**	
Version	0.1	**User-defined ID**					

Name	Data type	Default value
Input		
M_startStop	Bool	
M_pauseSignal	Bool	
heighBox	Bool	
Unlabel_Box	Bool	
HMI_Start_M3	Bool	
HMI_Activate_SorterLeft	Bool	
HMI_Activate_Sorter	Bool	
Output		
conveyorM3	Bool	
sorterLeft	Bool	
sorter	Bool	
InOut		
M1_activateSorter	Bool	
M2_activateSorter	Bool	
countUp_Unlabel	Bool	
unlabelBoxes_Counter	Int	
Temp		
Constant		
Return		
Unlabeled_Boxes	Void	

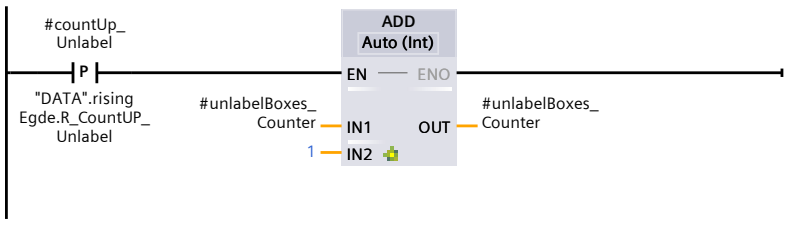
Network 1: Activate Belt Conveyor 3



Network 2: Activate and Deactivate Sorter Left



Network 3: Box Unlabel Counter



Network 4: Activate Sorter

PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks

HMI_Data [DB3]

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

Name	Data type	Start value	Retain
▼ Static			
Inputs from HMI	Struct		False
Move_Animation	Int	0	False
Belt Control	Struct		False
Sorter & Axis Control	Struct		False
Counters	Struct		False

PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks

HMI_Alarms [DB4]

HMI_Alarms Properties							
General							
Name	HMI_Alarms	**Number**	4	**Type**	DB	**Language**	DB
Numbering	Automatic						
Information							
Title		**Author**		**Comment**		**Family**	
Version	0.1	**User-defined ID**					

Name	Data type	Start value	Retain
▼ Static			
noTimeSet	Bool	false	False
emergencyStopPushed	Bool	false	False
thermalFault	Bool	false	False
pauseActive	Bool	false	False

PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks / System blocks / Program resources

axisTimer [DB2]

axisTimer Properties							
General							
Name	axisTimer	**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
▼ Static			
PT	Time	T#0ms	False
ET	Time	T#0ms	False
IN	Bool	false	False
Q	Bool	false	False

PLC_1 [CPU 1212C AC/DC/Rly]

Technology objects

This folder is empty.

PLC_1 [CPU 1212C AC/DC/Rly] / PLC tags / Inputs_FactoryIO [48]

PLC tags

PLC tags

	Name	Data type	Address	Retain
	Emergency_Stop	Bool	%I1.0	False
	Stop_Pb	Bool	%I1.1	False
	Start_Pb	Bool	%I1.2	False
	Pause_Signal	Bool	%I1.3	False
	Heigh_Box	Bool	%I1.4	False
	Position_Box	Bool	%I1.5	False
	Unlabel_Box	Bool	%I1.6	False
	Thermal_Fault	Bool	%I1.7	False
	Clock_Byte	Byte	%MB10	False
	Clock_10Hz	Bool	%M10.0	False
	Clock_5Hz	Bool	%M10.1	False
	Clock_2.5Hz	Bool	%M10.2	False
	Clock_2Hz	Bool	%M10.3	False
	Clock_1.25Hz	Bool	%M10.4	False
	Clock_1Hz	Bool	%M10.5	False
	Clock_0.625Hz	Bool	%M10.6	False
	Clock_0.5Hz	Bool	%M10.7	False
	Tag_1	Bool	%M8.1	False
	Tag_2	Bool	%M1.1	False

PLC_1 [CPU 1212C AC/DC/Rly] / PLC tags / Inputs_FactoryIO [48]

User constants

User constants			
	Name	Data type	Value

PLC_1 [CPU 1212C AC/DC/Rly] / PLC tags / Outputs [6]

PLC tags

PLC tags				
	Name	**Data type**	**Address**	**Retain**
	Conveyor M1	Bool	%Q0.0	False
	Conveyor M2	Bool	%Q0.1	False
	Conveyor M3	Bool	%Q0.2	False
	Sorter	Bool	%Q0.3	False
	Sorter_Left	Bool	%Q0.4	False
	Axis_Label	Bool	%Q0.5	False

PLC_1 [CPU 1212C AC/DC/Rly] / PLC tags / Outputs [6]

User constants

User constants			
	Name	Data type	Value

PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

System data types

This folder is empty.

PLC_1 [CPU 1212C AC/DC/Rly] / Watch and force tables

Force table

Name	Address	Display format	Force value

PLC_1 [CPU 1212C AC/DC/Rly]

Traces

Name

PLC_1 [CPU 1212C AC/DC/Rly] / Traces

Measurements

This folder is empty.

PLC_1 [CPU 1212C AC/DC/Rly] / Traces

Combined measurements

Name

PLC_1 [CPU 1212C AC/DC/Rly] / OPC UA communication

Server interfaces

This folder is empty.

PLC_1 [CPU 1212C AC/DC/Rly]

PLC alarm text lists

This folder is empty.

PLC_1 [CPU 1212C AC/DC/Rly] / Local modules

PLC_1 [CPU 1212C AC/DC/Rly]

PLC_1					
Project information					
Name	PLC_1	**Author**	stive	**Comment**	
Slot	1	**Rack**	0		
Catalog information					
Short designation	CPU 1212C AC/DC/Rly	**Description**	Work memory 100 KB; 120/240VAC power supply with DI8 x 24VDC SINK/SOURCE, DQ6 x relay and AI2 on board; 4 high-speed counters (expandable with digital signal board) and 4 pulse outputs on board; signal board expands on-board I/O; up to 3 communication modules for serial communication; up to 2 signal modules for I/O expansion; PROFINET IO controller, I-device, transport protocol TCP/IP, secure Open User Communication, S7 communication, Web server, OPC UA: Server DA	**Article number**	6ES7 212-1BE40-0XB0
Firmware version	V4.6		False		

Connection resources

	Station resources - Reserved - Maximum	Station resources - Reserved - Configured	Station resources - Dynamic - Configured	Module resources - PLC_1 [CPU 1212C AC/DC/Rly] - Configured
Maximum number of resources:		34	34	68
	Maximum	Configured	Configured	Configured
PG communication:	4	-	-	-
HMI communication:	12	2	0	2
S7 communication:	8	0	0	0
Open user communication:	8	0	0	0
Web communication:	2	-	-	-
OPC UA client/server communication:	0	-	-	-
Other communication:	-	-	0	0
Total resources used:		2	0	2
Available resources:		32	34	66

Overview of addresses\Overview of addresses\Overview of addresses

Inputs	True	**Outputs**	True	**Address gaps**	False
Slot	True				

Type	Addr. from	Addr. to	Module	PIP	Device name	Device number	Size	Master / IO system	Rack	Slot
I	64	67	AI 2_1	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 2
I	1000	1003	HSC_1	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 16
I	1004	1007	HSC_2	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 17
I	1008	1011	HSC_3	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 18
I	1012	1015	HSC_4	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 19
I	1016	1019	HSC_5	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 20
I	1020	1023	HSC_6	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	4 Bytes	-	0	1 21
O	1000	1001	Pulse_1	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	2 Bytes	-	0	1 32
O	1002	1003	Pulse_2	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	2 Bytes	-	0	1 33
O	1004	1005	Pulse_3	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	2 Bytes	-	0	1 34
O	1006	1007	Pulse_4	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	2 Bytes	-	0	1 35
I	0	0	DI 8/DQ 6_1	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	1 Bytes	-	0	1 1
O	0	0	DI 8/DQ 6_1	Automatic update	PLC_1 [CPU 1212C AC/DC/Rly]	-	1 Bytes	-	0	1 1