Author User-defined ID User-de	me Temp_Analog_I mbering Automatic	n I	Number	1			Туре	FB			Lanç	guage	LAD
Data type  Pefault value  Retain  Accessible  HMI opt  HMI/OPC  UA  ChannelAddress  Int  O  Non-retain  True  True  True  True  True  True  True  False  O  Output  InOut  PV  Real  O  Non-retain  True  True  True  True  True  True  True  True  False  Int  O  Non-retain  True	e O.1			ed ID			Comment	ture ( The T read,	Analog emper norma	gue Signal II ature signal Ilised and th	n). Lis	ily	
Input ChannelAddress Int 0 Non-retain True True False  HR Real 0.0 Non-retain True True True False  LR Real 0.0 Non-retain True True True False  PV Real 0.0 Non-retain True True True False Input reading  Static  Temp  Normalised Real Non-retain True True False Input reading  Temp  Normalised Real One Non-retain True True True False Input reading  Temp  Normalised Real One Non-retain True True False Input reading  Temp  Normalised Real One Normalised Input reading  Normalised Real One Normalised Input reading  Normalised One Normalised Input Pales Input True True True True True True True True	me					Retain	1	from HMI/OPC	able from HMI/ OPC	HMI engi- neering	Setpoint		Comment
ChannelAddress Int 0 Non-retain True True False   HR Real 0.0 Non-retain True True False   LR Real 0.0 Non-retain True True False   Output   InOut   PV Real 0.0 Non-retain True True True False   Input reading Static   Temp   Normalised Real   Normalised Real   Normalised Real   Normalised Real   Normalised Real   Normalising reading values (Scale 0 to 27648).	Input								UA				
LR Real 0.0 Non-retain True True False Output Information True True False Information True False Information True True False Information True False Information True True False Information T		Int	0			Non-retain	l	True	True	True	False		
Output InOut PV Real 0.0 Non-retain True True False Input reading Static Temp Normalised Real Normalised Constant Twork 1: Value Normalising. Imalising reading values (Scale 0 to 27648).  Normal Static Temp Normalised Real Normalising. Imalising reading values (Scale 0 to 27648).  Static True True False Input reading Normalised Normalised Normalised Normalised  Normalised Normalised  Normalised Static Normalised  SCALE X Real to Real Normalised Normalised  SCALE X Real to Real Normalised Normalised Normalised  SCALE X Real to Real Normalised No	HR												
InOut  PV Real 0.0 Non-retain True True False Input reading Static Temp  Normalised Real Normalised Constant  twork 1: Value Normalising. rmalising reading values (Scale 0 to 27648).    Normal   Normal   Normal   Normal		Real	0.0			Non-retain	l	True	True	Γrue	False		
PV Real 0.0 Non-retain True True False Input reading Static Temp Normalised Real Normalise Temperature Value Constant twork 1: Value Normalising. Imalising reading values (Scale 0 to 27648).  NORMAX Int to Real OUT FROmmalised  **CharnelAddress Value True True False Input reading Normalise Temperature Value  **Constant Out Out Out Out Out Out Out Out Out Ou	InOut												
Static Temp Normalised Real Normalise Temperature Value Constant twork 1: Value Normalising. Implication of the Normalise Temperature Value  O MIN OUT #Normalised  Itwork 2: Value Scaling. Iling Values from the Norm operation.  SCALE X Real Normalise  SCALE X Real Normalise  O MIN OUT #Normalised  INFORMATION OUT #Normalised  OUT #Normalised  INFORMATION OUT #Normalised  OUT #Normalised  INFORMATION OUT #Normalised		Real	0.0			Non-retain		True	True	True	False		Input reading
Normalised Real  Normalise Temperature Value  Constant  twork 1: Value Normalising.  rmalising reading values (Scale 0 to 27648).  NORM_X  int to Real  #Channel/Address — VALUE 27648 — MAX  SCALE X  Real to Real  #Romalised  SCALE X  Real to Real  #Normalised  NORM_X  int to Real  #Normalised	Static												-
twork 1: Value Normalising. rmalising reading values (Scale 0 to 27648).  NORM_X Int to Real  PChannelAddress — VALUE 27648 — MAX   SCALE_X Real to Real  #Normalised  WALUE  **Normalised	Temp												
twork 1: Value Normalising. rmalising reading values (Scale 0 to 27648).  NORM_X Int to Real  PNO MIN OUT #Normalised  **ChannelAddress VALUE 27648 — MAX  **MAX  **MAX  **Mormalised  **CALE X Real to Real #*Normalised  **AU **Mormalised  **AU **Mormalised  **AU **Mormalised  **AU **AU **AU **AU **AU **AU **AU **	Normalised	Real											
The state of the s	Constant												
#LR — MIN OUT — #PV #Normalised — VALUE				#ChannelAddress -	MIN VALUE	NORM_X Int to Real		malised					
#LR — MIN OUT — #PV #Normalised — VALUE	twork 2: Value Scaling.			#ChannelAddress -	MIN VALUE	NORM_X Int to Real		malised					
l	twork 2: Value Scaling.			#ChannelAddress -	MIN VALUE MAX	Int to Real	OUT — #Not	rmalised					
	work 2: Value Scaling.			#ChannelAddress = 27648 = 27648 = #LR = #Normalised = 27648 =	MIN VALUE MAX  EN MIN VALUE	Int to Real	OUT — #Not	rmalised					
	work 2: Value Scaling.			#ChannelAddress = 27648 = 27648 = #LR = #Normalised = 27648 =	MIN VALUE MAX  EN MIN VALUE	Int to Real	OUT — #Not	rmalised					

|--|

## Conveyor Belt [FC1]

Conveyor Belt	Properties						
General							
Name	Conveyor Belt	Number	1	Type	FC	Language	LAD
Numbering	Automatic						
Information							
Title		Author		Comment	Conveyor Related Operations: Conveyor Run. Piece Size Detection. Piece size Confirmation. Rejection Solenoid. Enable Furnace Operation. Furnace in Operation. Basket Size Reset.	Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment	
Input				
Output				
InOut				
Temp				
Constant				
<b>▼</b> Return				
Conveyor Belt	Void			

#### Network 1: Conveyor Run

Once size is selected AND System is Enabled (Automatic mode) OR Manual == Conveyor ON

### **Network 2: Piece Size detection**

Dection of Large OR Small for Selected Programme == SET {Detect\_Large OR Dectected\_Small} AND Reset {Detect\_Large OR Dectected\_Small} AND

New piece detected S1 == Reset basket size memory bit.

```
%M0.1
  %10.1
                       %10.2
"S1_Optical"
                    "S2_Optical"
                                                                               "Detected_Large"
                                                                                     -( s )-
                                                                                    %M0.2
                                                                                "Detected_Small"
                                                                                     -( R )-
                      %M0.1
                  "Detected_Large"
                                                                               "Detected_Small"
                                                                                     -( s )-
                                                                                    %M0.7
                                                                                  "Piece_Size_
Reset"
```

## Network 3: Confirms a piece has been detected.

Detected\_Large AND NOT Detected\_Small == Piece\_Detected OR

Detected\_Small AND NOT Detected\_Large == Piece\_Detected

### **Network 4: Rejection Solenoid**

IF (Dectected\_Small AND Reject\_For\_Small) = 1 AND S3 Detects Piece == Reject Small piece AND Piece size reset.

OR

IF (Detected\_Large AND Reject\_For\_Large) = 1 AND S3 Detects Piece == Reject Large piece AND Piece Size reset

"Piece\_Size\_ Reset"

-( s }-

"Reject\_for\_ Large"

#### **Network 5: Enable Furnace operation**

If (Detected\_small AND Reject\_for\_Large) = 1 AND Heat\_or\_Reject == Reset Conveyor AND Timer 5s (Furnace On)

%M0.1 "Detected\_Large'

If (Detected\_Large AND Reject\_for\_Small) = 1 AND Heat\_or\_Reject == Reset Conveyor AND Timer 5s (Furnace On) Then 5s passed == Conveyor Set

%M0.2 "Reject\_for\_ "S3\_Heat\_or\_ %M11.0 %M0.6

"Detected\_Small" | Furnace\_Enable" | Furnace\_Enable" |

%M0.1 "Reject\_for\_ "Detected\_Large" | Small" | Furnace\_Enable" |

%M0.1 "Reject\_for\_ Small" | Furnace\_Enable" |

%M0.2 "S3\_Heat\_or\_ %M11.0 %M0.6 |

"Temp\_in\_Range" "Furnace\_Enable" |

%M0.4 "Reject\_for\_ Small" |

%M0.5 "S3\_Heat\_or\_ %M11.0 %M0.6 |

"Temp\_in\_Range" "Furnace\_Enable" |

%M0.6 |

"Furnace\_Enable" |

%M0.7 |

%M0.8 |

%M0.9 |

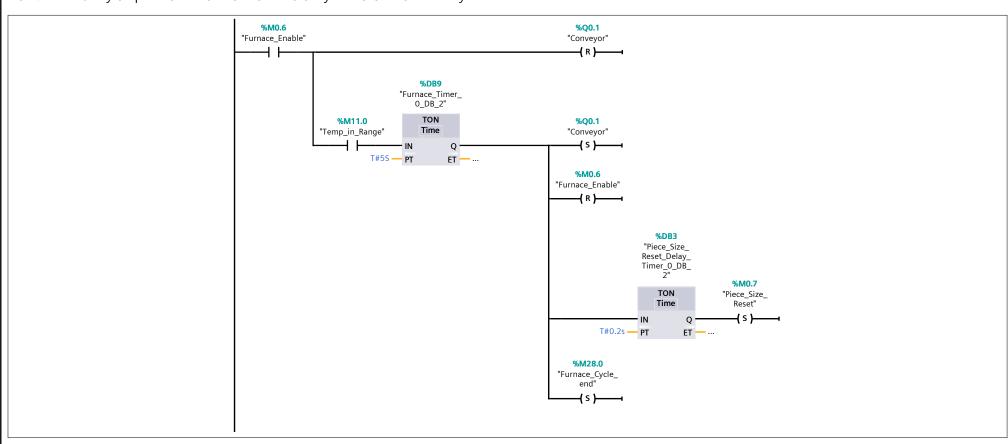
%M

#### **Network 6: Furnace in Operation**

IF Furnace enabled == stop Conveyor THEN Temp\_in\_Range == start 5s Timer

AND THEN at 5s == reset Conveyor AND Reset\_Piece\_Size AND SET Furnace\_Cycle\_end

Note: Timer delay on piece size reset to allow and of cycle tasks before new cycle.



#### **Network 7: Basket Size Reset**

Basket\_Size\_Reset set == Reset {Dectected\_Small ; Detected\_Large ; Furnace\_Cycle\_end}

```
*M0.7

"Piece_Size_
Reset"

*M0.2

"Detected_Small"

{ R }

*M0.1

"Detected_Large"
{ R }

*M28.0

"Furnace_Cycle_
end"
{ R }
```

Totally Integr Automation I									
Program l	blocks								
Main [OB1]	]								
Main Properties General									
Name Numbering Information	Main Automati	С	Number	1		Туре	ОВ	Language	LAD
Title	cle)"	gram Sweep (Cy-	Author			Comment	Main loop of the Programme. It contains: The System Controls and Conveyor Belt operation The read in value from the analogue temperature sensor. The Counter function.	Family	
Version	0.1		User-defi	ned ID					
Name ▼ Input			Data	type	Default value		Comment		
Initial_Cal	<u> </u>		Bool				Initial call of this OB		
Remanend			Bool				=True, if remanent data a	re available	
Temp Constant									
	roarama	ne main functio	ne						
Network 1: Programme main functions									
System_Controls: Link with the HMI interface. Allows piece sizes selection and programme selection (Automatic or Manual) Conveyor Belt: Conveyor belt, piece rejection and furnace operation.									
				%FC "System_C		%FC1 "Conveyor Belt"	ENO —		
Temperature A	nalogue R				ad in) then Norma	alises and Scales	s the value to be stored in F	V Memory	
neaus analogue	e signai iii	oni remperature s		I		ilises ariu scale:	the value to be stored in i	v_ivierriory.	
					%DB2 "Temp_Analog_ In_DB" %FB1 "Temp_Analog_In	" ENO			
	%IW64 "Temperature_								
Network 3:									
Temperature Functions: Set PID Controlling Furnace ON/OFF. Temperature within range confirmation.									
	"Temperature Function" — EN ENO								
Network 4: C	Counters			<u>.</u>					
Counters: Large pieces m Small pieces m Rejected pieces Errors counter.	anufacture counter.								
				%FC4 "Counters" — EN ENO					

_In_DB [DB2] B Properties  In_Analog_In_DB  In_DB  In_DB  In_Rea  Rea  Rea	ta type			True True True	able	Visible in HMI engi- neering True True True	False False False	Langua   Family   Supervi- sion		
Dar Dar Rea	Author User-de ta type	Start value  0 0.0 0.0	Retain  False False False	Accessible from HMI/OPC UA  True True True	Writ- able from HMI/ OPC UA True True	Visible in HMI engi- neering True True True	False False False	Family Supervi-	Comment	
Da Da Rea	Author User-de ta type	Start value  0 0.0 0.0	Retain  False False False	Accessible from HMI/OPC UA  True True True	Writ- able from HMI/ OPC UA True True	Visible in HMI engi- neering True True True	False False False	Family Supervi-	Comment	
Da' ss Int Rea	User-de	Start value  0 0.0 0.0	False False False	Accessible from HMI/OPC UA  True True True	able from HMI/ OPC UA True True	True True True	False False False	Supervi-	Comment	
SS Int Rea Rea	User-de	Start value  0 0.0 0.0	False False False	Accessible from HMI/OPC UA  True True True	able from HMI/ OPC UA True True	True True True	False False False	Supervi-	Comment	
ss Int Rea Rea	al	0 0.0 0.0	False False False	True True True	able from HMI/ OPC UA True True	True True True	False False False	Supervision		
Rea Rea	al al	0.0	False False	True True True	from HMI/ OPC UA True True True	True True True	False False	sion	Input reading	
Rea Rea	al al	0.0	False False	True True True	True True True	True True True	False False		Input reading	
Rea Rea	al al	0.0	False False	True True True	True True True	True True	False False		Input reading	
Rea Rea	al al	0.0	False False	True True	True True	True True	False False		Input reading	
Rea	al	0.0	False	True	True	True	False		Input reading	
									Input reading	
Rea	al	0.0	False	True	True	True	False		Input reading	
Rea	al	0.0	False	True	True	True	False		Input reading	

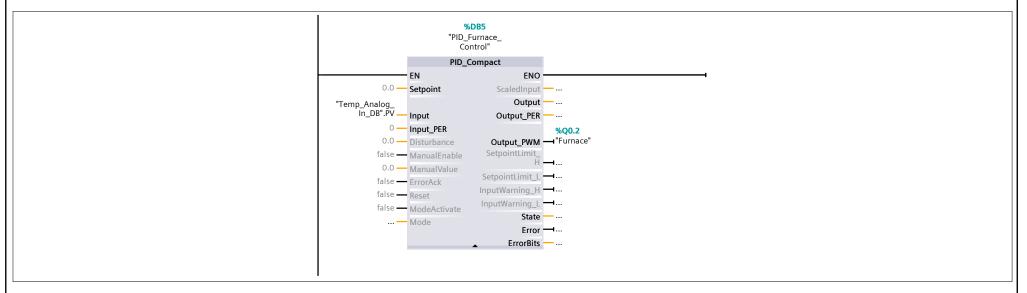
Totally Integrated Automation Portal	
Program blocks Cyclic interrupt [C	
Cyclic interrunt Properties	

Cyclic interrupt	Properties						
General							
Name	Cyclic interrupt	Number	30	Туре	OB	Language	LAD
Numbering	Automatic						
Information							
Title		Author		Comment	OB30 allows for background tasks to run at the same time time as the main programme: Furnace PID Control. Error Handling function.	Family	
Version	0.1	User-defined ID					

Name	Data type	Default value	Comment	
<b>▼</b> Input				
Initial_Call	Bool		Initial call of this OB	
Event_Count	Int		Events discarded	
Temp				
Constant				

#### **Network 1: PID Furnace Control**

PID is set ON by PB\_Funace\_Activation\_HMI on ManualEnable. PID is set OFF by PB\_Furnace\_Deactivation\_HMI on Reset.



### **Network 2: Error Handling function**

Error Handling Function: New Piece inserted before end of cycle Temperature too LOW or too HIGH

	%FC3 "Error_Handling"	
<u></u> E	ENO	

|--|--|

## **Temperature Function [FC2]**

Temperature F	Temperature Function Properties									
General	General									
Name	Temperature Function	Number	2	Туре	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			
Temperature Function	Void		

#### Network 1: PID Control of the Furnace Activation/Deactivation

 $\label{eq:linear_problem} \begin{array}{l} \text{IF Button "Funace Activation" pressed} == \text{PID Control ON} \\ \text{OR} \end{array}$ 

IF Button "Stop Furnace" pressed == PID Control OFF

```
%M10.7

"PB_Furnace_
Activation_HMl"

%M11.1

"PB_Furnace_
Deactivation_
HMl"

Wind Control*.

"PID_Furnace_
Control*.

"PID_Furnace_
Control*.Reset
```

#### **Network 2: Temperature in Range Confirmation**

IF PV (Temp Reading in) (SetPoint-20 $^{\circ}$ C) < Temperature IN < (SetPoint+20 $^{\circ}$ C) == Temperature is in range in

```
IN_RANGE
Real

*M11.0

"Temp_in_Range"

{ $ }

*MD24

"Temp_Limit
Low_Range" — MIN

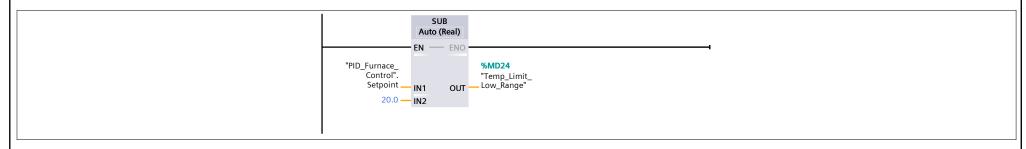
"Temp_Analog_
In_DB'.PV — VAL

*MD20

"Temp_Limit
High_Range" — MAX
```

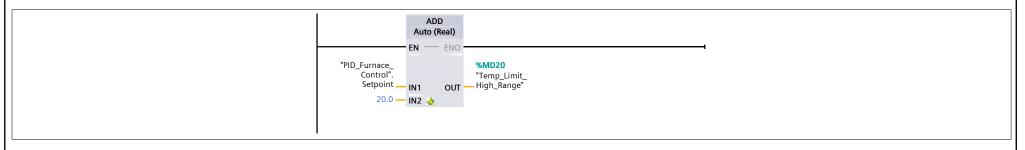
#### Network 3:

Temperature Min calculation == SetPoint - 2



### Network 4:

Temperature Max Calculation == SetPoint + 2



|--|

## Error\_Handling [FC3]

Error_Handling	rror_Handling Properties										
General	General										
NameError_HandlingNumber3TypeFCLanguageLAD											
Numbering Automatic											
Information											
Title		Author		Comment	Error Handling Function: Piece inserted before end of previous cycle Temperature is Too HIGH or too LOW.						
Version	0.1	User-defined ID		]			'				

Name	Data type	Default value	Comment	
Input				
Output				
InOut				
Temp				
Constant				
<b>▼</b> Return				
Error_Handling	Void			

### **Network 1: Rejection Solenoid**

Piece inserted before end of previous cycle:

Piece detected at Heating/Rejection point AND (S1 OR S2) triggered == Reject Part AND Stop/Reset Cycle AND Sets the Error Light ON on the HMI. Note: The Timer delays the reject to leave time for Auto\_Stop\_Reset and the Error Light to set ON.

### Network 2: Furnace Alarm Temperature too High bit

IF Temp reading IN (HIGHER or EQUAL) to Temp High Set Point == Temp Alarm High OR

IF Temp reading IN (LOWER or EQUAL) to Temp LOW Set Point == Temp Alarm Low

|--|--|

## Counters [FC4]

Countary Bran	Counters Properties									
•										
General	General Control of the Control of th									
Name	Counters	Number	4	Type	FC	Language	LAD			
Numbering	Automatic									
Information										
Title		Author		Comment	Counters in the process for each manufactured parts and for the number of errors.	Family				
Version	0.1	User-defined ID			•	-1	:			

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

#### Network 1: Large part manufactured counter.

IF Detected\_Large AND Reject\_for\_small AND Furnace\_Cycle\_end == Counter +1

```
%M0.1 "Reject_for_ "Furnace_Cycle_ end"

"Detected_Large" Small" end"

%M28.5
"Counter_Reset_ Large" R

5 — PV
```

### Network 2: Small part manufactured counter.

IF Detected\_Small AND Reject\_for\_Large AND Furnace\_Cycle\_end == Counter +1

```
*MO.5 *M28.0

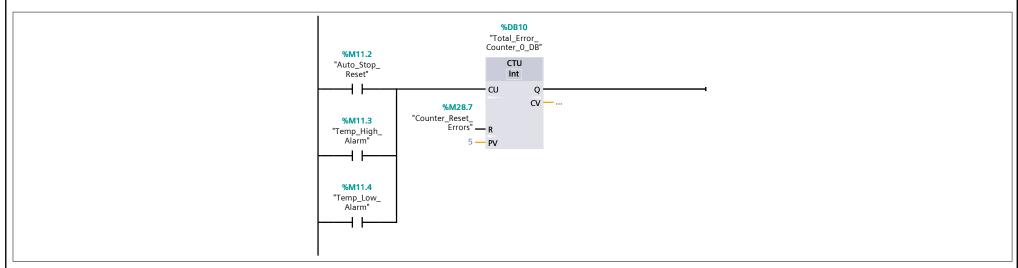
*MO.2 "Reject_for_ Large" "Furnace_Cycle_ end" CU Q

*MA28.6

*Counter_Reset_ Small" Reset_ Small Reset_ Sma
```

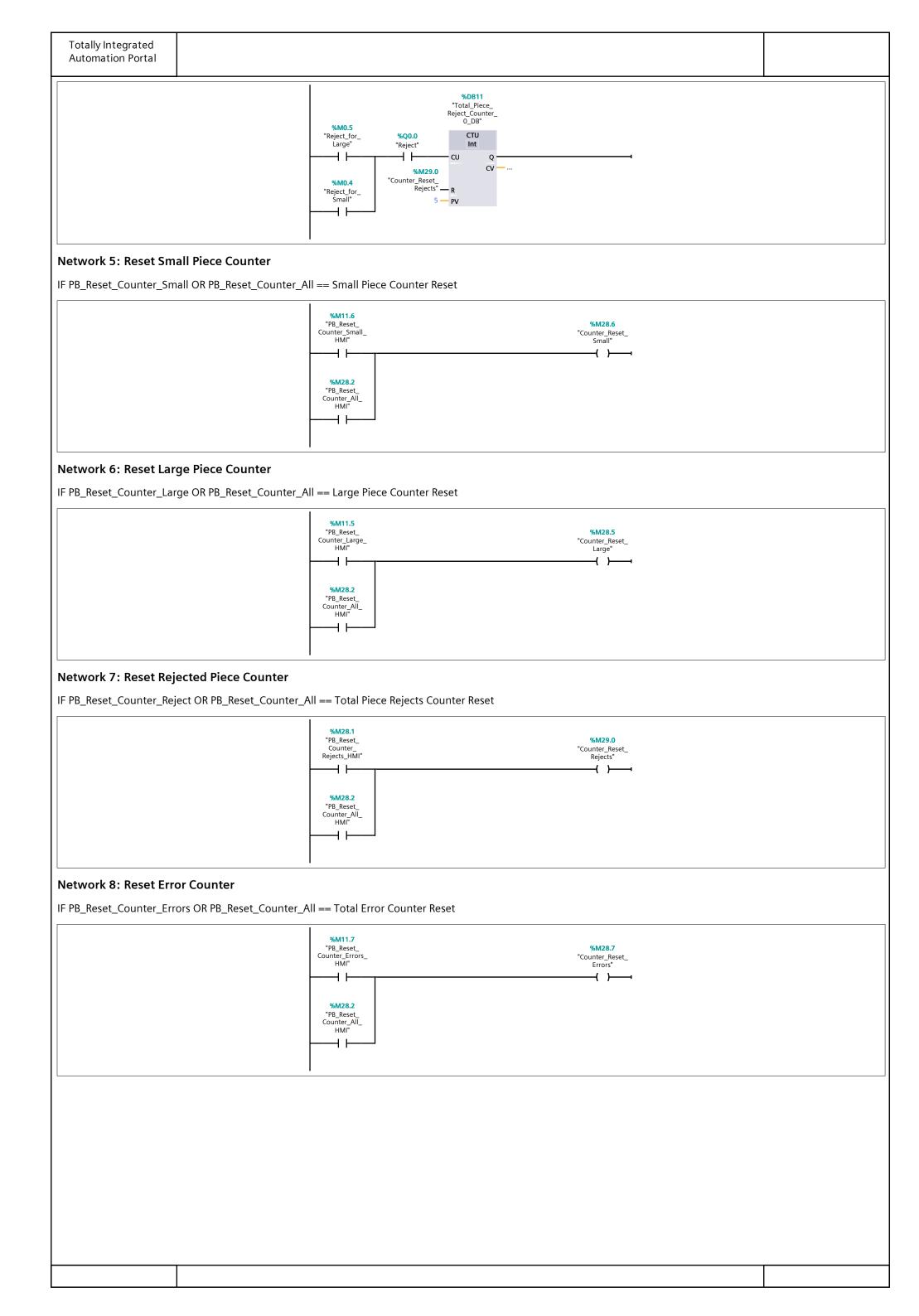
## **Network 3: Global Error Counter**

Temperature High + Temperature Low + New piece inserted before end of cycle == Global error count +1



## Network 4: Counter for Total Pieces Rejected.

 $\label{eq:reject_for_small} \mbox{Reject\_for\_Small AND Reject (solenoid activated) == counter + 1}$ 



|--|

## System\_Controls [FC5]

System Contro	System_Controls Properties									
General										
Name System_Controls Number 5 Type FC Language										
Numbering	Automatic						·			
Information	·									
Title	Systems_Controls	Author		Comment	Interface controls to enable the automatic mode. Stop/Reset on HMI and auto Reset operations. Piece size selection and confirmation operation.					
Version	0.1	User-defined ID					•			

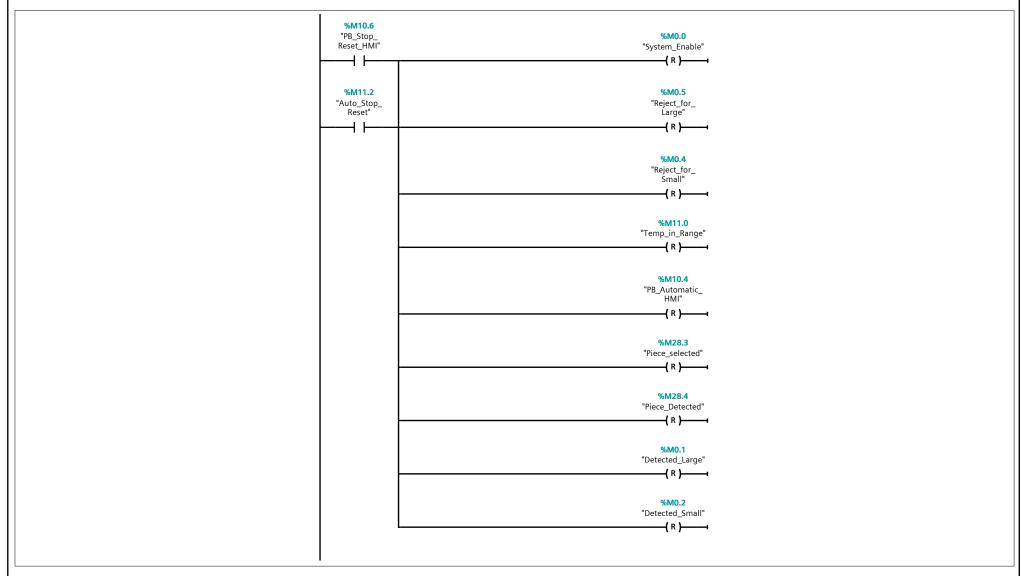
Name	Data type	Default value	Comment	
Input				
Output				
InOut				
Temp				
Constant				
▼ Return				
System_Controls	Void			

#### **Network 1: Automatic Mode System Enable**

Automatic Mode && Part Detected AND Temp in Range AND NOT Manual mode == System enabled AND Error\_Light for piece inserted reset.

#### **Network 2: Stop and Resets**

PB\_Stop\_Reset\_HMI OR Auto\_Stop\_Reset == Reset {System Enable ; Reject\_for\_Large ; Reject\_for\_Small ; Temp\_in\_Range ; PB\_Automatic\_HMI ; Piece\_selected ; Piece\_Detected ; Detected\_Large ; Detected\_Small}



#### **Network 3: Piece Selection Rejection**

Selection of piece to keep and locking to avoid double selection.

IF Small AND NOT Large == Set Reject\_for\_Large AND Reset Reject\_for\_Small

OR

 ${\sf IF\ Large\ AND\ NOT\ Small\ ==\ Set\ Reject\_for\_Small\ AND\ Reset\ Reject\_for\_Large}$ 

```
Totally Integrated
   Automation Portal
                                                                                                                                                                         %M0.4
                                                                                  %M10.0 %M10.2
"PB_Small_HMI" "PB_Large_HMI"
                                                                                                                                                                      "Reject_for_
Small"
                                                                                                                                                                          _( R )_
                                                                                                                                                                      %M0.5
"Reject_for_
Large"
                                                                                                                                                                          -( s )-
                                                                                                                                                                      %M0.5
"Reject_for_
Large"
                                                                                  %M10.2
"PB_Large_HMI"
                                                                                                      %M10.0
"PB_Small_HMI"
                                                                                                                                                                          –( R )–
                                                                                                                                                                      %M0.4
"Reject_for_
Small"
                                                                                                                                                                         -( s )--
Network 4: Part selected confirmation
IF Large OR Small piece selected == Piece_Selected
                                                                                  %M10.2
"PB_Large_HMI"
                                                                                                                                                                    %M28.3
"Piece_selected"
                                                                                       \dashv \vdash
                                                                                                                                                                          -( s )--
                                                                                  %M10.0
"PB_Small_HMI"
```

Totally Integrated
Automation Portal

# Program blocks / System blocks / Program resources

# PID\_Compact [FB1130]

PID_Compact	PID_Compact Properties									
General										
Name	PID_Compact	Number	1130	Туре	FB	Language	SCL			
Numbering	Automatic									
Information										
Title	Compact PID_Controller with self-tuning	Author	SIMATIC	Comment		Family	COMPPID			
Version	2.2	User-defined ID	PID_Cmpt		-	-				

Version 2.2	User-	defined ID PID_Cmpt							
Name	Data type	Default value	Retain	Accessible from HMI/OPC UA	able	Visible in HMI engi- neering	Setpoint	Supervi- sion	Comment
▼ Input					O/ C				
Setpoint	Real	0.0	Non-retain	True	True	True	False		controller setpoint input
Input	Real	0.0	Non-retain	True	True		False		actual value of process as
			-						REAL
Input_PER	Int	0	Non-retain	True	True	True	False		actual value of process from periphery
Disturbance	Real	0.0	Non-retain	True	True	True	False		disturbance intrusion
ManualEnable	Bool	false	Non-retain	True	True	True	False		activate manual input to overwrite output
ManualValue	Real	0.0	Non-retain	True	True		False		input for manual value
ErrorAck	Bool	false	Non-retain	True	True		False		reset error message
Reset	Bool	false	Non-retain	True	True		False		reset the controller
ModeActivate	Bool	false	Non-retain	True	True	True	False		enable mode
▼ Output									
ScaledInput	Real	0.0	Non-retain	True	True	True	False		scaled peripheral input valu from process
Output	Real	0.0	Non-retain	True	True	True	False		output value in REAL forma
Output_PER	Int	0	Non-retain	True	True	True	False		output value in peripheral format
Output_PWM	Bool	false	Non-retain	True	True	True	False		pulse width modulated out put value
SetpointLimit_H	Bool	false	Non-retain	True	True		False		setpoint is limited at highes level
SetpointLimit_L	Bool	false	Non-retain	True	True		False		setpoint is limited at lowest
InputWarning_H	Bool	false	Non-retain	True	True		False		input value exceeded high warning level
InputWarning_L	Bool	false	Non-retain	True	True		False		input value exceeded low warning level
State	Int	0	Non-retain	True	True	True	False		status of controller (0=INAC TIVE,1=SUT,2=TIR,3=AUTO- MATIC,4=HAND)
Error	Bool	false	Non-retain	True	True		False		error flag
ErrorBits	DWord	16#0	Retain	True	True	True	False		error message
<b>▼</b> InOut									
Mode ▼ Static	Int	4	Retain	True	True	True	False		mode selection
InternalDiagnostic	DWord	0	Non-retain	False	False	False	False		internal diagnostic and ver sion handling
InternalVersion	DWord	DW#16#02020001	Non-retain	True	True	True	False		version of controller
InternalRTVersion	DWord	0	Non-retain	False	False	False	False		version of runtime
Integral Reset Mode	Int	1	Non-retain	True	True	True	True		0 smooth, 1 clear, 2 keep, overwrite initial output
Overwrite Initial Output Value	Real	0.0	Non-retain	True	True	True	False		initialisation output value for override control
RunModeByStartup	Bool	true	Non-retain	True	True	True	True		go to last active state before reset or power cycle
LoadBackUp	Bool	false	Non-retain	True	True	True	False		restore last parameter set
SetSubstituteOutput	Bool	true	Non-retain	True	True	True	True		set output to last valid out- put value in Replacement Output state
PhysicalUnit	Int	0	Non-retain	True	True	True	True		unit of input and setpoint
PhysicalQuantity	Int	0	Non-retain	True	True	True	True		physical entity of input and setpoint
ActivateRecoverMode	Bool	true	Non-retain	True	True	True	True		FALSE - go to inactive by er ror, TRUE - activate error treatment
Warning	DWord	16#0	Retain	True	True	True	False		warning message
WarningInternal	DWord	16#0	Retain	True	True		False		warning message
Progress	Real	0.0	Non-retain	True	True		False		current progress in percent
CurrentSetpoint	Real	0.0	Non-retain	True	True		False		current active setpoint valu
CancelTuningLevel	Real	10.0	Non-retain	True	True		True		cancel level for setpoint change during tuning
SubstituteOutput	Real	0.0	Non-retain	True	True	True	True		substitute output value in case of error
▼ Config	PID_Compact-		Non-retain	True	True	True	False		configuration data set

Totally Integrated
<b>Automation Portal</b>

me	Data type	Default value	Retain	Accessible from HMI/OPC UA	able	Visible in HMI engi- neering	Setpoint	Supervi- sion	Comment
InputPerOn	Bool	true	Non-retain	True	True	True	True		activate peripheral input
InvertControl	Bool	false	Non-retain	True	True	True	True		invert control direction
InputUpperLimit	Real	120.0	Non-retain	True	True		True		input (Process Value) uppe limit
InputLowerLimit	Real	0.0	Non-retain	True	True		True		input (Process Value) lowe
InputUpperWarning	Real	3.402822e+38	Non-retain	True	True		True		input (Process Value) upper level warning
InputLowerWarning	Real	-3.402822e+38 100.0	Non-retain Non-retain	True True	True		True True		input (Process Value) lowe level warning output value upper limit
OutputUpperLimit OutputLowerLimit	Real	0.0	Non-retain	True	True		True		output value lower limit
SetpointUpperLimit	Real	3.402822e+38	Non-retain	True	True	True	True		setpoint upper limit value
SetpointLowerLimit	Real	-3.402822e+38	Non-retain	True	True	True	True		setpoint lower limit value
MinimumOnTime	Real	0.0	Non-retain	True	True	True	True		PWM minimum on time
MinimumOffTime	Real	0.0	Non-retain	True	True	True	True		PWM minimum off time
▼ InputScaling	PID_Scaling		Non-retain	True	True	True	False		input scaling
UpperPointIn	Real	27648.0	Non-retain	True	True	True	True		high value (input range o
LowerPointIn	Real	0.0	Non-retain	True	True	True	True		low value (input range of scaling)
UpperPointOut	Real	100.0	Non-retain	True	True	True	True		high value (output range scaling)
LowerPointOut	Real	0.0	Non-retain	True	True	True	True		low value (output range of scaling)
<b>▼</b> CycleTime	PID_CycleTime		Non-retain	True	True	True	False		data set for cycle time est
StartEstimation	Bool	true	Non-retain	True	True	True	False		start automatic estimation of call cycle time
En Estimation	Bool	true	Non-retain	True	True	True	True		enable estimation of call cle time
EnMonitoring	Bool	true	Non-retain	True	True	True	True		enable monitoring of call cle time
Value	Real	0.1	Non-retain	True	True	True	True		call cycle time
▼ CtrlParamsBackUp	PID_Compact- ControlParams		Non-retain	True	True		False		saved parameter set
Gain	Real	1.0	Non-retain	True	True	True	True		proportional gain
Ti	Real	20.0	Non-retain	True	True	True	True		reset time
Td	Real	0.0	Non-retain	True	True	True	True		derivative time
TdFiltRatio	Real	0.2	Non-retain	True	True	True	True		filter coefficient for deriv
PWeighting	Real	1.0	Non-retain	True	True	True	True		weigthing of proportiona
DW eighting	Real	1.0	Non-retain	True	True	True	True		part in direct, feedback p weigthing of derivative p in direct, feedback path
Cycle	Real	1.0	Non-retain	True	True	Truo	True		PID Controller cycle time
▼ PIDSelfTune	PID_Compact-	1.0	Non-retain	True	True		False		data set for self tuning
▼ SUT	SelfTune PID_Com-		Non-retain	True	True		False		data set for start up tunir
	pact_SUT								
CalculateParams	Bool	false	Non-retain	True	True	True	False		recalculate control paran ters with parameters of
TuneRule	Int	0	Non-retain	True	True	True	True		startup tuning tuning rule for SUT (0-CF
State	Int	0	Non-retain	True	True	True	False		PID,1-CHR PI) current phase of start up
<b>▼</b> TIR	PID_Com-		Non-retain	True	True	True	False		tuning data set for tuning in run
RunIn	pact_TIR Bool	false	Non-retain	True	True	True	False		activate run in setpoint w
CalculateParams	Bool	false	Non-retain	True	True	True	False		recalculate control param ters with parameters of to ing in run
TuneRule	Int	0	Non-retain	True	True	True	True		tuning rule for TIR (0-2-A auto,fast,slow;3-ZN PID;4 ZN PI;5-ZN P)
State	Int	0	Non-retain	True	True		False		current phase of tuning in
▼ PIDCtrl	PID_Compact- Control	0.0	Non-retain	True	True		False		data for controling part
IntegralSum  ▼ Retain	Real PID_Compac-	0.0	Non-retain Retain	True True	True True		False False		signal of integral part retain data
<b>▼</b> CtrlParams	tRetain PID_Compact- ControlParams		Retain	True	True	True	False		actual parameter set
Gain	Real	1.0	Retain	True	True	True	True		proportional gain
Ti	Real	20.0	Retain	True	True		True		reset time
Td	Real	0.0	Retain	True	True		True		derivative time
TdFiltRatio	Real	0.2	Retain	True	True		True		filter coefficient for deriv
PWeighting	Real	1.0	Retain	True	True	True	True		weigthing of proportional part in direct, feedback p

ance Oata type Default value Retain Acceptable Wint Visible in Section Supervision of the Market Profession Section Se	otally Integrated Automation Portal									
DWeighting Real 1.0 Retain True True True True weigthing of derivative in direct, feedback pat	me	Data type	Default value	Retain	HMI/OPC	from r HMI/ OPC	/isible in HMI engi- neering	Setpoint	Supervi- sion	Comment
Cycle Meal 1.0 Rotton True True True Proce Processor Cycles and True True True True True True True True	DWeighting	Real	1.0	Retain	True		rue	True		weigthing of derivative p
		Real	1.0	Retain	True	True T		True		in direct, feedback path PID Controller cycle time

Totally Integ Automation											
_arge_Pie	blocks / Syst	DB [DB		/ Program reso	ources						
ieneral											
lame	Large_Piece_Count	er_0_DB	Number	8		Туре	DB	Langua	ige	DB	
lumbering	Automatic										
nformation											
itle			Author	Simatic		Comment		Family	I	IEC	
/ersion	1.0		User-def	Fined ID CNTR							
Name		Data type	e S	Start value	Retain	Accessible from HMI/OPC UA	Writ-Visible in able HMI engifrom neering HMI/OPC	Supervi- sion	Commen	t	

UA

True True

False

False

False

False

False

False

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False

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**▼** Static

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eral ie ibering	r_0_DB_2 Properties Furnace_Timer_0_ Automatic		lumber	9		Туре	D	В		Langu	age	DB
ormation e sion	1.0		uthor ser-defined I	Simatic D IEC_TMR		Comment				Family	,	IEC
me		Data type	Start v	alue	Retain	Accessible from HMI/OPC UA	able	Visible in HMI engi- neering	Setpoint	Supervi- sion	Comm	nent
Static												
PT		Time	T#0ms		False	True	True		False			
ET		Time Bool	T#0ms false		False False	True True	False True		False False			
IN Q		Bool	false		False	True	False		False			

n <mark>eral</mark> ne	Piece_Size_Reset_	_De-	Numbe	er	3		Туре	DI	3		Langua	ige	DB	
nbering	lay_Timer_0_DB_ Automatic	_2	, Tunio				.,,,,							
rmation	ratomatic		Author		Simatic		Comment				Family		IEC	
ion	1.0				IEC_TMR		Comment				raillily		IEC	
ne		Data typ	oe	Start val	ue	Retain	Accessible from HMI/OPC UA	able	Visible in HMI engi- neering	Setpoint	Supervi- sion	Comm	ent	
Static				T#0		F 1	_		<b>-</b>	- 1				
PT ET		Time Time		T#0ms T#0ms		False False	True True	True False		False False				
IN Q		Bool Bool		false false		False False	True True	True False		False False				

Totally Integ	-										
Small_Pie	blocks / Syst	DB [DE		/ Prog	gram resour	ces					
General											
Name	Small_Piece_Count	er_0_DB	Numbe	r	7		Туре	DB	Langua	ge	DB
Numbering	Automatic										
Information											
Title			Author		Simatic		Comment		Family		IEC
Version	1.0		User-de	efined ID	CNTR			:			•
Name		Data typ	oe	Start val	ue	Retain		Writ- Visible i	Supervi- sion	Comme	nt

True

**▼** Static

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Bool

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HMI/OPC from neering
UA HMI/
OPC

UA

True True

False

False

False

False False

False

False

False

Totally Integr Automation F							
Total_Error	olocks / System bl _Counter_0_DB [DB		gram resources				
Total_Error_Cou	nter_0_DB Properties						
General							
Name	Total_Error_Counter_0_DB	Number	10	Туре	DB	Language	DB
Numbering	Automatic						
Information							
Title		Author	Simatic	Comment		Family	IEC
Version	1.0	User-defined ID	CNTR		+	-	

me	Data type	Start value	Retain	Accessible from HMI/OPC UA	able	HMI engi- neering		Supervi- sion	Comment
Static									
CU	Bool	false	True	True	True	True	False		
CD	Bool	false	True	True	True	True	False		
R	Bool	false	True	True	True	True	False		
LD	Bool	false	True	True	True	True	False		
QU	Bool	false	True	True	True	True	False		
QD	Bool	false	True	True	True	True	False		
PV	Int	0	True	True	True	True	False		
CV	Int	0	True	True	True	True	False		

otal_Piece_Re eneral	eject_Counter_0	_DB Properties	5										
ame	Total_Piece_Reter_0_DB	eject_Coun-	Number	r 11		Туре	D	В		Langua	ge	DB	
umbering formation	Automatic												
tle	1.0		Author	Simatic fined ID CNTR		Comment				Family		IEC	
ersion ame	1.0	Data typ		Start value	Retain	Accessible	Writ-	Visible in	Setnoint	Supervi-	Comm	ent	
		Jaka tyr				from	able	HMI engi- neering	Jesponie	sion			
Static		_				_							
CU CD		Bool Bool		false false	True True	True True	True True		False False				
R		Bool	1	false	True	True	True	True	False				
LD		Bool Bool		false false	True True	True True	True True		False False				
QU QD		Bool		false	True	True	True		False				
PV		Int		0	True	True	True	True	False				
CV		Int	(	0	True	True	True	True	False				

ame	Reject_on_Error_D	elay_Tim-	Numbe	r	12		Туре	D	В		Langua	ige	DB	
nbering	er_0_DB_3 Automatic													
ormation			Author		Simatic		Comment				Family		IEC	
sion	1.0			fined ID			-							
ne		Data typ	e	Start valu	e	Retain	Accessible from HMI/OPC UA	able	HMI engi- neering	Setpoint	Supervi- sion	Comm	ent	
Static														
PT ET		Time Time		T#0ms T#0ms		False False	True True	True False		False False				
IN		Bool		false		False	True	True	True	False				
Q		Bool		false		False	True	False	True	False				

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<b>Automation Porta</b>

# HMI Control Tag Table [14]

# PLC tags

PLC t	ags							
	Name	Data type	Address	Retain	Accessi- ble from HMI/OPC UA	Writable from HMI/OPC UA	Visible in HMI engi- neering	Comment
-60	PB_Furnace_Activation_HMI	Bool	%M10.7	False	True	True	True	Push Button: to Activate PID control of Furnace NO (Input)
40	PB_Small_HMI	Bool	%M10.0	False	True	True	True	Push Button: Small Size reject NO (Input)
40	PB_Large_HMI	Bool	%M10.2	False	True	True	True	Push Button: Large Size reject NO (Input)
40	PB_Manual_HMI	Bool	%M10.3	False	True	True	True	Push Button: Mode Manual Selected NO (Input)
40	PB_Automatic_HMI	Bool	%M10.4	False	True	True	True	Push Button: Mode Automatic Selected NO (Input)
40	PB_Reject_All_HMI	Bool	%M10.5	False	True	True	True	Push Button: Reject All Size of Pieces NO (Input)
40	PB_Stop_Reset_HMI	Bool	%M10.6	False	True	True	True	Push Button: Stop/Reset process cycle NO (Input)
40	PB_Furnace_Deactivation_HMI	Bool	%M11.1	False	True	True	True	Push Button: to deactivate PID control of Furnace NO (Input)
40	PB_Reset_Counter_Large_HMI	Bool	%M11.5	False	True	True	True	Push Button: to reset the large piece counter NO (Input)
-60	PB_Reset_Counter_Small_HMI	Bool	%M11.6	False	True	True	True	Push Button: to reset the small piece counter NO (Input)
-60	PB_Reset_Counter_Errors_HMI	Bool	%M11.7	False	True	True	True	Push Button: to reset the error counter NO (Input)
40	PB_Reset_Counter_Rejects_HMI	Bool	%M28.1	False	True	True	True	Push Button: to reset the rejects counter NO (Input)
40	PB_Reset_Counter_All_HMI	Bool	%M28.2	False	True	True	True	Push Button: to reset all the counters NO (Input)
40	Piece_inserted_Error_Light_HMI	Bool	%M29.1	False	True	True	True	Error Light on HMI for Piece inserted before end the of cycle (Output)

Totally Integrated Automation Portal					
HMI Control Tag	J Table [14]				
User constants					
User constants					
Name		Data type	Value	Comment	

Totally Integrated
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# Input/Output/Bit Tag Table [59]

# PLC tags

PLC to		Data type	Address	Potain	Accossi	Writable	Visible in Supervision	Comment
	Name	Data type	Address	Retain		from HMI/OPC UA	Visible in Supervision HMI engi- neering	Comment
-50	EMS	Bool	%10.0	False	True	True	True	Emergency Stop Button NC (Input)
-03	S1_Optical	Bool	%10.1	False	True	True	True	Optical Start Conveyor Sensor - NO (Input)
40	S2_Optical	Bool	%10.2	False	True	True	True	Optical Check Size Sensor NO (Input)
40	S3_Heat_or_Reject	Bool	%10.3	False	True	True	True	Optical Heat or Reject position Sensor NO (Input)
-60	Temperature_Read_in	Int	%IW64	False	True	True	True	Analogue Temperature (Input)
40	Reject	Bool	%Q0.0	False	True	True	True	Rejection Solenoid (Output)
40	Conveyor	Bool	%Q0.1	False	True	True	True	Conveyor Run (Output)
40	Furnace	Bool	%Q0.2	False	True	True	True	Furnace Heater (Output)
40	System_Enable	Bool	%M0.0	False	True	True	True	System Enable (Bit)
40	Detected_Large	Bool	%M0.1	False	True	True	True	Large piece (Detected) (Bit)
40	Detected_Small	Bool	%M0.2	False	True	True	True	Small piece (Detected) (Bit)
40	Reject_for_Large	Bool	%M0.5	False	True	True	True	Large Rejection (Selected) (Bit)
40	Reject_for_Small	Bool	%M0.4	False	True	True	True	Small Rejection (Selected) (Bit)
400	Furnace_Enable	Bool	%M0.6	False	True	True	True	Furnace conditions met (Bit)
40	Piece_Size_Reset	Bool	%M0.7	False	True	True	True	Reset the basket size (Bit)
40	PV_Memory	Real	%MD1	False	True	True	True	Present Value reading word (Word byte)
40	Temp_in_Range	Bool	%M11.0	False	True	True	True	Temperature in Range Confirmation (Bit)
40	Auto_Stop_Reset	Bool	%M11.2	False	True	True	True	Automatic Stop and Reset for errors (Bit)
40	Temp_High_Alarm	Bool	%M11.3	False	True	True	True	Furnace Alarm Temperature too High (Bit)
40	Temp_Low_Alarm	Bool	%M11.4	False	True	True	True	Furnace Alarm Temperature too Low (Bit)
-	Temp_High_Set_Point	Real	%MD12	False	True	True	True	High Temperature Setpoint (Bit)
40	Temp_Low_Set_Point	Real	%MD16	False	True	True	True	Low Temperature Setpoint (Bit)
40	Temp_Limit_High_Range	Real	%MD20	False	True	True	True	Temperature range confirmation High (Bit)
40	Temp_Limit_Low_Range	Real	%MD24	False	True	True	True	Temperature range confirmation Low (Bit)
40	Furnace_Cycle_end	Bool	%M28.0	False	True	True	True	End of Furnace cycle (Bit)
40	Piece_selected	Bool	%M28.3	False	True	True	True	Confirms a piece size has been selected. (Bit)
40	Piece_Detected	Bool	%M28.4	False	True	True	True	Confirms a piece has been detected. (Bit)
40	Counter_Reset_Large	Bool	%M28.5	False	True	True	True	Large Piece Counter Reset (Bit)
40	Counter_Reset_Small	Bool	%M28.6	False	True	True	True	Small Piece Counter Reset (Bit)
40	Counter_Reset_Errors	Bool	%M28.7	False	True	True	True	Error Counter Reset (Bit)
40	Counter_Reset_Rejects	Bool	%M29.0	False	True	True	True	Piece Reject Counter Reset (Bit)

Totally Integrated Automation Portal					
Input/Output/Bi	t Tag Table [59]				
User constants					
User constants Name		Data type	Value	Comment	

Totally Integrated Automation Porta					
HMI tag table					
General					
Name	Tag_ScreenNumber	Connection	<internal tag=""></internal>	Data type	UInt
Array elements	0	Length	2	Address	
Access mode	<symbolic access=""></symbolic>	PLC tag		Coding	Binary
PLC name	Coymbone decessor	i Le tug		couning	Billary
Settings					
Acquisition cycle	1 s	Acquisition mode	Cyclic in operation		
imits	1.3	Acquisition mode	cyclic iii operation		
Jpper 2		Lower 2	1		
inear scaling		LUVVEI Z			
Linear scaling Linear scaling	Unchecked	PLC value range end	10	PI C value range start	0
-inear scalling	Offichecked	value range end		PLC value range start value	O
HMI device value	100	HMI device value	0	Taluc	
range end value	1.50	range start value			
/alues		go start value			
D tag		Start value			
Comment		Start value			
Comment		Source comment			
		Source comment			
Multiplexing	II. la la d	landara ta m			
Multiplexing	Unchecked	Index tag			
PB_Large_HMI					
General			lunu -		<u>-</u>
Name	PB_Large_HMI	Connection	HMI_Connection_1	Data type	Bool
Array elements	0	Length	1	Address	
Access mode	<symbolic access=""></symbolic>	Coding	Binary	PLC name	PLC_1
Settings			_		
Acquisition cycle	1 s	Acquisition mode	Cyclic in operation		
Limits			_		
Jpper 2		Lower 2			
inear scaling					
inear scaling	Unchecked	PLC value range end value		PLC value range start value	0
HMI device value range end value	100	HMI device value range start value	0		
Values					
D tag		Start value			
Comment	D   D				
Comment	Push Button: Large Size reject NO (Input)	Source comment	Push Button: Large Size reject NO (Input)		
Multiplexing	11. 1. 1. 4	In decade			
Multiplexing	Unchecked	Index tag			
PB_Large_HMI					
PB_Small_HMI					
General					
	PB_Small_HMI	Connection	HMI_Connection_1	Data type	Bool
Name	I D_JIIIdii_I IIVII	Comiccion	THVII_COTTICCTION_T	Data type	5001
Name Array elements	0	Length	1	Address	

General					
Name	PB_Small_HMI	Connection	HMI_Connection_1	Data type	Bool
Array elements	0	Length	1	Address	
Access mode	<symbolic access=""></symbolic>	Coding	Binary	PLC name	PLC_1
Settings					
Acquisition cycle	1 s	Acquisition mode	Cyclic in operation		
Limits					
Upper 2		Lower 2			
Linear scaling					
Linear scaling	Unchecked	PLC value range end value	10	PLC value range start value	0
HMI device value	100	HMI device value	0		
range end value		range start value			
Values					
ID tag		Start value			
Comment					
Comment	Push Button: Small Size reject NO (Input)	Source comment	Push Button: Small Size reject NO (Input)		
Multiplexing					
Multiplexing	Unchecked	Index tag			
				-	

## PB\_Small\_HMI

## PB\_Automatic\_HMI

PB_Automatic_HMI	Connection	HMI_Connection_1	Data type	Bool	
0	Length	1	Address		
<symbolic access=""></symbolic>	Coding	Binary	PLC name	PLC_1	
1 s	Acquisition mode	Cyclic in operation			
	Lower 2				
	0	0 Length <symbolic access=""> Coding  1 s Acquisition mode</symbolic>	0	0 Length 1 Address <symbolic access=""> Coding Binary PLC name  1 s Acquisition mode Cyclic in operation</symbolic>	0 Length 1 Address Symbolic access> Coding Binary PLC name PLC_1  1 s Acquisition mode Cyclic in operation

near scaling	Ha de adre d	DI Caralas na na and	10	DI Caralara manana ataut	0
near scaling	Unchecked	PLC value range end value	10	PLC value range start value	0
MI device value inge end value	100	HMI device value range start value	0		
alues					
) tag omment		Start value			
omment	Push Button: Mode Automatic Selec-	Source comment	Push Button: Mode Automatic Selec-		
lultiplexing	ted NO (Input)		ted NO (Input)		
lultiplexing	Unchecked	Index tag			
B_Automatic_HM	11				
B_Stop_HMI					
eneral ame	PB_Stop_HMI	Connection	HMI_Connection_1	Data type	Bool
rray elements	0	Length	1	Address	
ccess mode ettings	<symbolic access=""></symbolic>	Coding	Binary	PLC name	PLC_1
cquisition cycle	1 s	Acquisition mode	Cyclic in operation		
mits pper 2		Lower 2			
near scaling					
inear scaling	Unchecked	PLC value range end value	10	PLC value range start value	0
MI device value ange end value	100	HMI device value range start value	0		
alues ) tag		Start value			
omment omment	Push Button: Stop/Reset process cycle NO (Input)	Source comment	Push Button: Stop/Reset process cycle NO (Input)		
lultiplexing			(input)		
lultiplexing	Unchecked	Index tag			
B_Stop_Reset_H	<b>Л</b> І				
B_Manual_HMI					
eneral ame	PB_Manual_HMI	Connection	HMI_Connection_1	Data type	Bool
rray elements	0	Length	1	Address	DI C. 4
ccess mode ettings	<symbolic access=""></symbolic>	Coding	Binary	PLC name	PLC_1
cquisition cycle mits	1 s	Acquisition mode	Cyclic in operation		
pper 2		Lower 2			
inear scaling inear scaling	Unchecked	PLC value range end	10	PLC value range start	0
		value		value	
MI device value ange end value alues	100	HMI device value range start value	0		
) tag omment		Start value			
omment	Push Button: Mode Manual Selected NO (Input)	Source comment	Push Button: Mode Manual Selected NO (Input)		
Iultiplexing Iultiplexing	Unchecked	Indov to a			
	OHERECKEU	Index tag			
B_Manual_HMI					
ID_Furnace_Cor	ntrol_Setpoint				
eneral ame	PID_Furnace_Control_Setpoint	Connection	HMI_Connection_1	Data type	Real
rray elements	0	Length	4	Address	
ccess mode LC name ettings	<symbolic access=""> PLC_1</symbolic>	PLC tag	PID_Furnace_Control.Setpoint	Coding	IEEE754
cquisition cycle mits	1 s	Acquisition mode	Cyclic in operation		
pper 2 inear scaling		Lower 2			
inear scaling	Unchecked	PLC value range end value	10	PLC value range start value	0
MI device value ange end value	100	HMI device value range start value	0	-	1
alues ) tag		Start value			
omment					
	controller setpoint input	Source comment	controller setpoint input		
omment Iultiplexina					
omment Iultiplexing Iultiplexing	Unchecked	Index tag			

DID F	ntrol ManualEnable				
	ntrol_ManualEnable				
General Name	PID_Furnace_Control_ManualEnable	Connection	HMI_Connection_1	Data type	Bool
Array elements Access mode	0 <symbolic access=""></symbolic>	Length PLC tag	1 PID_Furnace_Control.ManualEnable	Address Coding	Binary
PLC name	PLC_1	ric tag	FID_Fulliace_Collitiol.MailualEllable	Coung	Dillary
Settings					
Acquisition cycle Limits	1 s	Acquisition mode	Cyclic in operation		
Upper 2		Lower 2			
Linear scaling					I-
Linear scaling	Unchecked	PLC value range end value	10	PLC value range start value	0
HMI device value	100	HMI device value	0		
range end value Values		range start value			
D tag		Start value			
Comment Comment	activate manual input to overwrite	Source comment	activate manual input to overwrite		
Comment	output	Source comment	output		
Multiplexing	lue to to d	Use disease to see			
Multiplexing	Unchecked	Index tag			
PB_Furnace_Acti	vation				
General	DD Europea Activation	Connection	HMI Connection 1	Data tuna	Pool
Name Array elements	PB_Furnace_Activation 0	Connection Length	HMI_Connection_1 1	Data type Address	Bool
Access mode	<symbolic access=""></symbolic>	Coding	Binary	PLC name	PLC_1
Settings Acquisition cycle	1 s	Acquisition mode	Cyclic in operation		
Limits	1 3 	Acquisition mode	Cyclic III Operation		
Upper 2		Lower 2			
Linear scaling Linear scaling	Unchecked	PLC value range end	10	PLC value range start	0
Linear scannig	Offichecked	value		value	
HMI device value range end value	100	HMI device value range start value	0		
Values		runge start value			
D tag Comment		Start value			
Comment	Push Button: to Activate PID control of	Source comment	Push Button: to Activate PID control of		
	Furnace NO (Input)		Furnace NO (Input)		
Multiplexing Multiplexing		Index tag			
Multiplexing Multiplexing	Furnace NO (Input) Unchecked				
Multiplexing Multiplexing PB_Furnace_Activ	Furnace NO (Input)  Unchecked  ration_HMI				
Multiplexing Multiplexing PB_Furnace_Activ PB_Furnace_Dea	Furnace NO (Input)  Unchecked  ration_HMI				
Multiplexing Multiplexing PB_Furnace_Activ	Furnace NO (Input)  Unchecked  ration_HMI  ctivation		Furnace NO (Input)		Bool
Multiplexing Multiplexing PB_Furnace_Activ PB_Furnace_Dea General Name Array elements	Furnace NO (Input)  Unchecked  ration_HMI  ctivation  PB_Furnace_Deactivation 0	Index tag  Connection Length	Furnace NO (Input)  HMI_Connection_1 1	Data type Address	
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Multiplexing Multiplexing PB_Furnace_Activ PB_Furnace_Dea General Name Array elements Access mode Settings Acquisition cycle Limits Upper 2	Furnace NO (Input)  Unchecked  Vation_HMI  ctivation  PB_Furnace_Deactivation 0 <symbolic access=""></symbolic>	Connection Length Coding	Furnace NO (Input)  HMI_Connection_1 1 Binary	Data type Address	
Multiplexing Multiplexing PB_Furnace_Activ PB_Furnace_Dea General Name Array elements Access mode Settings Acquisition cycle Limits	Furnace NO (Input)  Unchecked  Vation_HMI  ctivation  PB_Furnace_Deactivation 0 <symbolic access=""></symbolic>	Connection Length Coding  Acquisition mode  Lower 2  PLC value range end	Furnace NO (Input)  HMI_Connection_1 1 Binary	Data type Address PLC name  PLC value range start	PLC_1
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Multiplexing Multiplexing PB_Furnace_Activ PB_Furnace_Dea General Name Array elements Access mode Settings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling HMI device value range end value	Furnace NO (Input)  Unchecked  Vation_HMI  ctivation  PB_Furnace_Deactivation 0 <symbolic access="">  1 s</symbolic>	Connection Length Coding  Acquisition mode  Lower 2  PLC value range end	HMI_Connection_1 1 Binary  Cyclic in operation	Data type Address PLC name  PLC value range start	PLC_1
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Multiplexing Multiplexing PB_Furnace_Activ PB_Furnace_Dea General Name Array elements Access mode Settings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling HMI device value range end value	Furnace NO (Input)  Unchecked  Vation_HMI  ctivation  PB_Furnace_Deactivation 0 <symbolic access="">  1 s  Unchecked</symbolic>	Connection Length Coding  Acquisition mode  Lower 2  PLC value range end value  HMI device value	HMI_Connection_1 1 Binary  Cyclic in operation	Data type Address PLC name  PLC value range start	PLC_1
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Multiplexing Multiplexing PB_Furnace_Activ PB_Furnace_Dea General Name Array elements Access mode Settings Acquisition cycle Limits Upper 2 Linear scaling HMI device value range end value Values ID tag Comment Comment Multiplexing Multiplexing Multiplexing PB_Furnace_Deac PV_Memory General Name Array elements Access mode Settings	Furnace NO (Input)  Unchecked  Pation_HMI  Ctivation  PB_Furnace_Deactivation 0 <symbolic access="">  1 s  Unchecked  100  Push Button: to deactivate PID control of Furnace NO (Input)  Unchecked  tivation_HMI  PV_Memory 0  <symbolic access=""></symbolic></symbolic>	Connection Length Coding  Acquisition mode Lower 2  PLC value range end value HMI device value range start value  Start value  Source comment  Index tag  Connection Length Coding	HMI_Connection_1 1 Binary  Cyclic in operation  10 0  Push Button: to deactivate PID control of Furnace NO (Input)  HMI_Connection_1 4 IEEE754	Data type Address PLC name  PLC value range start value	PLC_1
Multiplexing Multiplexing Multiplexing PB_Furnace_Activ PB_Furnace_Dea General Name Array elements Access mode Settings Acquisition cycle Limits Upper 2 Linear scaling HMI device value range end value Values ID tag Comment Comment Multiplexing Multiplexing Multiplexing PB_Furnace_Deac PV_Memory General Name Array elements Access mode Settings Acquisition cycle	Furnace NO (Input)  Unchecked  ration_HMI  ctivation  PB_Furnace_Deactivation 0 <symbolic access="">  1 s  Unchecked  100  Push Button: to deactivate PID control of Furnace NO (Input)  Unchecked  ctivation_HMI  PV_Memory 0</symbolic>	Connection Length Coding  Acquisition mode Lower 2  PLC value range end value HMI device value range start value  Start value  Source comment  Index tag  Connection Length	HMI_Connection_1  1 Binary  Cyclic in operation  10  0  Push Button: to deactivate PID control of Furnace NO (Input)  HMI_Connection_1  4	Data type Address PLC name  PLC value range start value  Data type Address	PLC_1  O  Real
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Multiplexing Multiplexing PB_Furnace_Activ PB_Furnace_Dea General Name Array elements Access mode Settings Acquisition cycle Limits Upper 2 Linear scaling HMI device value range end value Values ID tag Comment Comment Multiplexing Multiplexing Multiplexing PB_Furnace_Deac PV_Memory General Name Array elements Access mode Settings Acquisition cycle Limits Upper 2 Linear scaling	Furnace NO (Input)  Unchecked  ration_HMI  ctivation  PB_Furnace_Deactivation 0 <symbolic access="">  1 s  Unchecked  100  Push Button: to deactivate PID control of Furnace NO (Input)  Unchecked  ctivation_HMI  PV_Memory 0 <symbolic access="">  1 s  Temp_High_Set_Point</symbolic></symbolic>	Connection Length Coding  Acquisition mode Lower 2  PLC value range end value HMI device value range start value  Start value  Source comment  Index tag  Connection Length Coding  Acquisition mode  Lower 2	HMI_Connection_1  1 Binary  Cyclic in operation  10  Push Button: to deactivate PID control of Furnace NO (Input)  HMI_Connection_1  4 IEEE754  Cyclic in operation  Temp_Low_Set_Point	Data type Address PLC name  PLC value range start value  Data type Address PLC name	PLC_1  Real  PLC_1
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Automation Porta	al				
Values ID tag		Start value			
Comment Comment	Present Value reading word (Word byte)	Source comment	Present Value reading word (Word byte)		
Multiplexing Multiplexing	Unchecked	Index tag	byte		
PV_Memory	Offeneered	muck tug			
Temp_Low_Set_P	oint				
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Name Array elements	Temp_High_Set_Point 0	Connection Length	HMI_Connection_1 4	Data type Address	Real
Access mode	<symbolic access=""></symbolic>	Coding	IEEE754	PLC name	PLC_1
Settings					
Acquisition cycle	1 s	Acquisition mode	Cyclic in operation		
Limits Upper 2		Lower 2			
Linear scaling		= 0.10.1 =			
Linear scaling	Unchecked	PLC value range end	10	PLC value range start	0
HMI device value	100	value HMI device value	0	value	
range end value	.55	range start value	-		
Values		Charter			
ID tag Comment		Start value			
Comment	High Temperature Setpoint (Bit)	Source comment	High Temperature Setpoint (Bit)		
Multiplexing					
Multiplexing	Unchecked	Index tag			
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reliip_nigii_set_r	-oint				
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Name Array elements	Temp_Low_Set_Point 0	Connection Length	HMI_Connection_1 4	Data type Address	Real
Access mode	<symbolic access=""></symbolic>	Coding	IEEE754	PLC name	PLC_1
Settings	1.5	<b>3</b>		-	_
Acquisition cycle	1 s	Acquisition mode	Cyclic in operation		
Limits		Lower 2			
Upper 2 Linear scaling		Lower 2			
		PLC value range end	10	PLC value range start	0
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Linear scaling		value		value	
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Linear scaling  HMI device value range end value  Values ID tag  Comment	100	value HMI device value range start value Start value		value	
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Linear scaling  HMI device value range end value  Values ID tag  Comment  Comment	100	value HMI device value range start value Start value		value	
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Linear scaling  HMI device value range end value  Values ID tag  Comment  Comment  Multiplexing  Multiplexing  Temp_Low_Set_P	Low Temperature Setpoint (Bit) Unchecked	value HMI device value range start value  Start value  Source comment		value	
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Linear scaling  HMI device value range end value Values ID tag Comment Comment Multiplexing Multiplexing Temp_Low_Set_P LargePart_Count General Name Array elements Access mode PLC name	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_0_DB_CV  LargePart_Counter_0_DB_CV  0	value HMI device value range start value  Start value  Source comment Index tag  Connection Length	Low Temperature Setpoint (Bit)  HMI_Connection_1 2	Data type Address	
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Linear scaling  HMI device value range end value  Values ID tag Comment Comment Multiplexing Multiplexing  Temp_Low_Set_P  LargePart_Count General Name Array elements Access mode PLC name Settings Acquisition cycle	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_0_DB_CV  LargePart_Counter_0_DB_CV 0 <symbolic access=""></symbolic>	value HMI device value range start value  Start value  Source comment Index tag  Connection Length	Low Temperature Setpoint (Bit)  HMI_Connection_1 2	Data type Address	
Linear scaling  HMI device value range end value Values ID tag Comment Comment Multiplexing Multiplexing Temp_Low_Set_P LargePart_Count General Name Array elements Access mode PLC name Settings Acquisition cycle Limits	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_0_DB_CV  LargePart_Counter_0_DB_CV 0 <symbolic access=""> PLC_1</symbolic>	value HMI device value range start value  Start value  Source comment  Index tag  Connection Length PLC tag	Low Temperature Setpoint (Bit)  HMI_Connection_1 2 Large_Piece_Counter_0_DB.CV	Data type Address	
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Linear scaling  HMI device value range end value  Values ID tag Comment Comment Multiplexing Multiplexing  Temp_Low_Set_P  LargePart_Count  General Name Array elements Access mode PLC name Settings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling HMI device value range end value	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_0_DB_CV  LargePart_Counter_0_DB_CV 0 <symbolic access=""> PLC_1  1 s</symbolic>	value HMI device value range start value  Start value  Source comment  Index tag  Connection Length PLC tag  Acquisition mode  Lower 2  PLC value range end	Low Temperature Setpoint (Bit)  HMI_Connection_1 2 Large_Piece_Counter_0_DB.CV  Cyclic in operation	Data type Address Coding  PLC value range start	Binary
Linear scaling  HMI device value range end value  Values ID tag Comment Comment Multiplexing Multiplexing Temp_Low_Set_P LargePart_Count General Name Array elements Access mode PLC name Settings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling HMI device value range end value Values	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_0_DB_CV  LargePart_Counter_0_DB_CV 0 <symbolic access=""> PLC_1  1 s  Unchecked</symbolic>	Value HMI device value range start value  Start value  Source comment  Index tag  Connection Length PLC tag  Acquisition mode  Lower 2  PLC value range end value HMI device value range start value	Low Temperature Setpoint (Bit)  HMI_Connection_1 2 Large_Piece_Counter_0_DB.CV  Cyclic in operation	Data type Address Coding  PLC value range start	Binary
Linear scaling  HMI device value range end value  Values ID tag Comment Comment Multiplexing Multiplexing Temp_Low_Set_P LargePart_Count  General Name Array elements Access mode PLC name Settings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling HMI device value range end value Values ID tag	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_0_DB_CV  LargePart_Counter_0_DB_CV 0 <symbolic access=""> PLC_1  1 s  Unchecked</symbolic>	value HMI device value range start value  Start value  Source comment  Index tag  Connection Length PLC tag  Acquisition mode  Lower 2  PLC value range end value HMI device value	Low Temperature Setpoint (Bit)  HMI_Connection_1 2 Large_Piece_Counter_0_DB.CV  Cyclic in operation	Data type Address Coding  PLC value range start	Binary
Linear scaling  HMI device value range end values ID tag Comment Comment Multiplexing Multiplexing Temp_Low_Set_P LargePart_Count General Name Array elements Access mode PLC name Settings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling HMI device value range end value Values ID tag Comment	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_0_DB_CV  LargePart_Counter_0_DB_CV 0 <symbolic access=""> PLC_1  1 s  Unchecked</symbolic>	value HMI device value range start value  Start value  Source comment  Index tag  Connection Length PLC tag  Acquisition mode  Lower 2  PLC value range end value HMI device value range start value  Start value	Low Temperature Setpoint (Bit)  HMI_Connection_1 2 Large_Piece_Counter_0_DB.CV  Cyclic in operation	Data type Address Coding  PLC value range start	Binary
Linear scaling  HMI device value range end values ID tag Comment Comment Multiplexing Multiplexing Temp_Low_Set_P LargePart_Count General Name Array elements Access mode PLC name Settings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling HMI device value range end value Values ID tag Comment Comment	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_0_DB_CV  LargePart_Counter_0_DB_CV 0 <symbolic access=""> PLC_1  1 s  Unchecked</symbolic>	Value HMI device value range start value  Start value  Source comment  Index tag  Connection Length PLC tag  Acquisition mode  Lower 2  PLC value range end value HMI device value range start value	Low Temperature Setpoint (Bit)  HMI_Connection_1 2 Large_Piece_Counter_0_DB.CV  Cyclic in operation	Data type Address Coding  PLC value range start	Binary
Linear scaling  HMI device value range end value Values ID tag Comment Comment Multiplexing Multiplexing Temp_Low_Set_P LargePart_Count General Name Array elements Access mode PLC name Settings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling HMI device value range end value Values ID tag Comment Comment	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_0_DB_CV  LargePart_Counter_0_DB_CV 0 <symbolic access=""> PLC_1  1 s  Unchecked</symbolic>	value HMI device value range start value  Start value  Source comment  Index tag  Connection Length PLC tag  Acquisition mode  Lower 2  PLC value range end value HMI device value range start value  Start value	Low Temperature Setpoint (Bit)  HMI_Connection_1 2 Large_Piece_Counter_0_DB.CV  Cyclic in operation	Data type Address Coding  PLC value range start	Binary
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Linear scaling  HMI device value range end value  Values ID tag Comment Comment Multiplexing Multiplexing  Temp_Low_Set_P LargePart_Count  General Name Array elements Access mode PLC name Settings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling Linear scaling HMI device value range end value  Values ID tag Comment Comment Multiplexing Multiplexing SmallPart_Count	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_O_DB_CV  LargePart_Counter_O_DB_CV  0 <symbolic access=""> PLC_1  1 s  Unchecked  100  Unchecked  ter_O_DB_CV</symbolic>	value HMI device value range start value  Start value  Source comment  Index tag  Connection Length PLC tag  Acquisition mode  Lower 2  PLC value range end value HMI device value range start value  Start value  Source comment  Index tag	Low Temperature Setpoint (Bit)  HMI_Connection_1 2 Large_Piece_Counter_0_DB.CV  Cyclic in operation  10 0	Data type Address Coding  PLC value range start value	Binary
Linear scaling  HMI device value range end value  Values ID tag Comment Comment Multiplexing Multiplexing  Temp_Low_Set_P LargePart_Count  General Name Array elements Access mode PLC name Settings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling Linear scaling HMI device value range end value Values ID tag Comment Comment Multiplexing Multiplexing SmallPart_Count General Name	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_O_DB_CV  LargePart_Counter_O_DB_CV  0 <symbolic access=""> PLC_1  1 s  Unchecked  100  Unchecked  ter_O_DB_CV  SmallPart_Counter_O_DB_CV</symbolic>	value HMI device value range start value  Start value  Source comment  Index tag  Connection Length PLC tag  Acquisition mode Lower 2  PLC value range end value HMI device value range start value  Start value  Start value  Connection  Index tag  Connection	Low Temperature Setpoint (Bit)  HMI_Connection_1  Large_Piece_Counter_0_DB.CV  Cyclic in operation  10  0	Data type Address Coding  PLC value range start value	Binary
Linear scaling  HMI device value range end value  Values ID tag Comment Comment Multiplexing Multiplexing  Temp_Low_Set_P LargePart_Count  General Name Array elements Access mode PLC name Settings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling Linear scaling HMI device value range end value  Values ID tag Comment Comment Multiplexing Multiplexing SmallPart_Count	Low Temperature Setpoint (Bit)  Unchecked  oint  ter_O_DB_CV  LargePart_Counter_O_DB_CV  0 <symbolic access=""> PLC_1  1 s  Unchecked  100  Unchecked  ter_O_DB_CV</symbolic>	value HMI device value range start value  Start value  Source comment  Index tag  Connection Length PLC tag  Acquisition mode  Lower 2  PLC value range end value HMI device value range start value  Start value  Source comment  Index tag	Low Temperature Setpoint (Bit)  HMI_Connection_1 2 Large_Piece_Counter_0_DB.CV  Cyclic in operation  10 0	Data type Address Coding  PLC value range start value	Binary

Access mode	<symbolic access=""></symbolic>	PLC tag	Small_Piece_Counter_0_DB.CV	Coding	Binary
PLC name	PLC_1			-	
Settings Acquisition cycle	1 s	Acquisition mode	Cyclic in operation		
imits		1 2			
Jpper 2 Linear scaling		Lower 2			
Linear scaling	Unchecked	PLC value range end value	10	PLC value range start	0
HMI device value	100	HMI device value	0	value	
range end value Values		range start value			
values ID tag		Start value			
Comment					
Comment Multiplexing		Source comment			
Multiplexing	Unchecked	Index tag			
EC_Total_Piece_	Reject_Counter_0_DB_CV				
General					
Name	IEC_Total_Piece_Reject_Coun-	Connection	HMI_Connection_1	Data type	Int
Array elements	ter_O_DB_CV 0	Length	2	Address	
Access mode	<symbolic access=""></symbolic>	PLC tag	Total_Piece_Reject_Counter_O_DB.CV	Coding	Binary
PLC name Settings	PLC_1				
Acquisition cycle	1 s	Acquisition mode	Cyclic in operation		
Limits		Lower 2			
Upper 2 Linear scaling		LUWEI Z			
Linear scaling	Unchecked	PLC value range end value	10	PLC value range start value	0
HMI device value	100	HMI device value	0	value	
range end value Values		range start value			
D tag		Start value			
Comment Comment		Causes sammant			
Multiplexing		Source comment			
Multiplexing	Unchecked	Index tag			
General Name Array elements	IEC_Total_Error_Counter_0_DB_CV 0	Connection Length	HMI_Connection_1 2	Data type Address	Int
Access mode PLC name	<symbolic access=""> PLC_1</symbolic>	PLC tag	Total_Error_Counter_0_DB.CV	Coding	Binary
Settings	1.	A consisión o manda	Cualin in an austina		
Acquisition cycle Limits	1 s	Acquisition mode	Cyclic in operation		
Upper 2		Lower 2			
Linear scaling Linear scaling	Unchecked	PLC value range end	10	PLC value range start	0
		value		value	
HMI device value range end value	100	HMI device value range start value	0		
Values		Start value			
D tag Comment		Start value			
Comment	Total Error counter Block (+1 for each error)	Source comment			
Multiplexing Multiplexing	Unchecked	Index tag			
PB_Reset_Count		muex tag			
General Name	DR Pocot Country Large	Connection	HMI Connection 1	Data type	Rool
vallie	PB_Reset_Counter_Large 0	Length	HMI_Connection_1	Data type Address	Bool
Array elements	.aa. l. a l. a a a a a a a	Coding	Binary	PLC name	PLC_1
Access mode	<symbolic access=""></symbolic>				
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		Lower 2 PLC value range end	Cyclic in operation  10	PLC value range start	0
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Totally Integrated Automation Portal	ı				
PB_Reset_Counter_	Large HMI				
PB_Reset_Counte					
General					
Name	PB_Reset_Counter_Small	Connection	HMI_Connection_1	Data type	Bool
Array elements Access mode	0 <symbolic access=""></symbolic>	Length Coding	Binary	Address PLC name	PLC_1
Settings					_
Acquisition cycle Jimits	1 s	Acquisition mode	Cyclic in operation		
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inear scaling inear scaling	Unchecked	PLC value range end	10	PLC value range start	0
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D tag		Start value			
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Comment	Push Button: to reset the small piece counter NO (Input)	Source comment	Push Button: to reset the small piece counter NO (Input)		
Multiplexing Multiplexing	Unchecked	Index tag			
PB_Reset_Counter_	_Small_HMI				
PB_Reset_Counte	r_Rejects				
General	DD Decet Count of D	Commenting	LIMI Companying 1	Date to me	Dool
Name Array elements	PB_Reset_Counter_Rejects 0	Connection Length	HMI_Connection_1	Data type Address	Bool
Access mode	<symbolic access=""></symbolic>	Coding	Binary	PLC name	PLC_1
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imits	13	Acquisition mode	Cyclic III operation		
Jpper 2 .inear scaling		Lower 2			
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HMI device value ange end value	100	HMI device value range start value	0		
Values ID tag		Start value			
		Start value			
Comment					
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Comment  Multiplexing  Multiplexing  PB_Reset_Counter_  PB_Reset_Counte  General  Name	ter NO (Input)  Unchecked  Rejects_HMI  r_Errors  PB_Reset_Counter_Errors	Index tag  Connection		Data type	Bool
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Comment Multiplexing Multiplexing PB_Reset_Counter PB_Reset_Counte General Name Array elements Access mode Settings	ter NO (Input)  Unchecked  _Rejects_HMI  r_Errors  PB_Reset_Counter_Errors 0 <symbolic access=""></symbolic>	Connection Length Coding	ter NO (Input)  HMI_Connection_1  Binary	Data type Address	
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Comment  Multiplexing  Multiplexing  PB_Reset_Counter  PB_Reset_Counte  General  Name  Array elements  Access mode  Settings  Acquisition cycle  Limits  Jpper 2  Linear scaling	ter NO (Input)  Unchecked  _Rejects_HMI  r_Errors  PB_Reset_Counter_Errors 0 <symbolic access=""></symbolic>	Connection Length Coding  Acquisition mode Lower 2  PLC value range end	ter NO (Input)  HMI_Connection_1  Binary	Data type Address PLC name	PLC_1
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Comment  Multiplexing  Multiplexing  PB_Reset_Counter  PB_Reset_Counter  PB_Reset_Counter  General  Name  Array elements  Access mode  Settings  Acquisition cycle  Limits  Jpper 2  Linear scaling  Linear scaling  Linear scaling  MI device value  range end value  Values  D tag  Comment  Comment	ter NO (Input)  Unchecked  _Rejects_HMI  r_Errors  PB_Reset_Counter_Errors 0 <symbolic access="">  1 s  Unchecked  100</symbolic>	Connection Length Coding  Acquisition mode  Lower 2  PLC value range end value HMI device value range start value	HMI_Connection_1 1 Binary  Cyclic in operation	Data type Address PLC name	PLC_1
Comment  Multiplexing  Multiplexing  PB_Reset_Counter_  PB_Reset_Counte  General  Name  Array elements  Access mode  Settings  Acquisition cycle  Limits  Jpper 2  Linear scaling  Linear scaling  HMI device value  range end value	ter NO (Input)  Unchecked  _Rejects_HMI  r_Errors  PB_Reset_Counter_Errors 0 <symbolic access="">  1 s  Unchecked 100  Push Button: to reset the error coun-</symbolic>	Connection Length Coding  Acquisition mode  Lower 2  PLC value range end value HMI device value range start value  Start value	HMI_Connection_1 1 Binary  Cyclic in operation  10 0  Push Button: to reset the error coun-	Data type Address PLC name	PLC_1
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Multiplexing Multiplexing Multiplexing Multiplexing PB_Reset_Counter PB_Reset_Counte General Name Array elements Access mode Gettings Acquisition cycle Limits Upper 2 Linear scaling Linear scaling Linear scaling Multiplexing Multiplexing Multiplexing Multiplexing Multiplexing PB_Reset_Counter	ter NO (Input)  Unchecked  Rejects_HMI  r_Errors  PB_Reset_Counter_Errors 0 <symbolic access="">  1 s  Unchecked  100  Push Button: to reset the error counter NO (Input)  Unchecked  Errors_HMI</symbolic>	Connection Length Coding  Acquisition mode Lower 2  PLC value range end value HMI device value range start value  Start value  Source comment	HMI_Connection_1 1 Binary  Cyclic in operation  10 0  Push Button: to reset the error coun-	Data type Address PLC name	PLC_1
Multiplexing Multiplexing Multiplexing Multiplexing  PB_Reset_Counter PB_Reset_Counter General Name Array elements Access mode Settings Acquisition cycle Limits Jpper 2 Linear scaling Linear scaling Linear scaling Multiplexing Multiplexing Multiplexing Multiplexing  PB_Reset_Counter PB_Reset_Counter General	ter NO (Input)  Unchecked  Rejects_HMI  r_Errors  PB_Reset_Counter_Errors 0 <symbolic access="">  1 s  Unchecked  100  Push Button: to reset the error counter NO (Input)  Unchecked  Errors_HMI  r_AII</symbolic>	Connection Length Coding  Acquisition mode  Lower 2  PLC value range end value HMI device value range start value  Start value  Source comment  Index tag	ter NO (Input)  HMI_Connection_1  Binary  Cyclic in operation  10  0  Push Button: to reset the error counter NO (Input)	Data type Address PLC name  PLC value range start value	PLC_1  0
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Multiplexing Multiplexing Multiplexing Multiplexing PB_Reset_Counter PB_Reset_Counter General Name Array elements Access mode Settings Acquisition cycle Limits Jpper 2 Linear scaling Linear scaling Linear scaling Multiplexing Multiplexing Multiplexing Multiplexing Multiplexing PB_Reset_Counter PB_Reset_Counter General Name Array elements Access mode Settings Accquisition cycle Limits	ter NO (Input)  Unchecked  Rejects_HMI  r_Errors  PB_Reset_Counter_Errors 0 <symbolic access="">  1 s  Unchecked  100  Push Button: to reset the error counter NO (Input)  Unchecked  Errors_HMI  r_AII  PB_Reset_Counter_AII 0 <symbolic access=""></symbolic></symbolic>	Connection Length Coding  Acquisition mode Lower 2  PLC value range end value HMI device value range start value  Start value  Source comment  Index tag  Connection Length Coding	HMI_Connection_1 1 Binary  Cyclic in operation  10 0  Push Button: to reset the error counter NO (Input)  HMI_Connection_1 1 Binary	Data type Address PLC name  PLC value range start value  Data type Address	PLC_1  0  Bool
Multiplexing Multiplexing Multiplexing  PB_Reset_Counter  PB_Reset_Counter  PB_Reset_Counter  General  Name Array elements  Access mode  Settings  Acquisition cycle  Limits  Jpper 2  Linear scaling  Linear scaling  Linear scaling  Multiplexing  Multiplexing  Multiplexing  PB_Reset_Counter  PB_Reset_Counter  PB_Reset_Counter  PB_Reset_Counter	ter NO (Input)  Unchecked  Rejects_HMI  r_Errors  PB_Reset_Counter_Errors 0 <symbolic access="">  1 s  Unchecked  100  Push Button: to reset the error counter NO (Input)  Unchecked  Errors_HMI  r_AII  PB_Reset_Counter_AII 0 <symbolic access=""></symbolic></symbolic>	Connection Length Coding  Acquisition mode  Lower 2  PLC value range end value HMI device value range start value  Start value  Source comment  Index tag  Connection Length Coding  Acquisition mode	ter NO (Input)  HMI_Connection_1  Binary  Cyclic in operation  10  Push Button: to reset the error counter NO (Input)  HMI_Connection_1  Binary  Cyclic in operation	Data type Address PLC name  PLC value range start value  Data type Address	PLC_1  Bool  PLC_1

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Mattiplessing   Increased	Multiplexing	NO (Input)		NO (Input)		
System Enable		Unchecked	Index tag			
Secretary   System From Part	PB_Reset_Counter_	_AII_HMI				
Name	System Enable					
Array elements   0	General					
Access mode   Symbolic accessor   Coding   Brasy   PLC name   PLC 1   Settings   Acquisition mode   Eyric in operation   System Final PLC   Syst				HMI_Connection_1		Bool
Settings Acquisition region   1s				'		DIC 1
Acquisition myde		<symbolic access=""></symbolic>	Coding	Binary	PLC name	PLC_I
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Hitt device value range and value (arrange start value) Values Va	Linear scaling	Unchecked		10		0
Start value		100	HMI device value	0	value	
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Multiplexing		System Enable (Bit)	Source comment	System Enable (Bit)		
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Temp_High_Alarm   Connection   HMI   Connection   1					1	
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Name   Temp_High_Alarm   Connection   HML_Connection_1   Address   Aray elements   O   Coding   Binary   PLC name   PLC 1	Temp_High_Alarr	n				
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Values   Ditag		100		0		
Comment   Furnace Alarm Temperature too High (Bit)   Source comment (Bit) (Bit)   Source comment (Bit) (Bit)			range start value			
Furnace Alarm Temperature too High (Bit)   Source comment (Bit) (Bit) (Bit) (Bit)   Source comment (Bit) (Bit			Start value			
Multiplexing Unchecked Index tag  Temp_High_Alarm  Temp_Low_Alarm  General Name Temp_Low_Alarm Connection HMI_Connection_1 Data type Bool Array elements 0 Length 1 Address Acquisition eyele 1 s Acquisition mode Cyclic in operation  Limits Upper 2 Lower 2 Lower 2 Linear scaling Unchecked PLC value range end value range end value  HMI device value range end value  Undex comment Comment Comment Comment Furnace Alarm Temperature too Low (Bit) Multiplexing Multiplexing Temp_Low_Alarm  Temp_Low_			Source comment			
Multiplexing   Unchecked   Index tag	Multiplexing	(Bit)		(Bit)		
General Name   Temp_Low_Alarm   Connection   HMI_Connection_1   Data type   Bool   Array elements   0   Length   1   Address   Access mode   <symbolic access="">   Coding   Binary   PLC name   PLC_1   Settings   Acquisition cycle   1 s   Acquisition mode   Cyclic in operation   Umpter 2   Lower 2   Linear scaling   Unchecked   PLC value range end   value   Value   HMI device value   100   HMI device value   range start value   Value   Unchecked   Start value   Comment   Comment   Furnace Alarm Temperature too Low   (Bit)   Multiplexing   Unchecked   Index tag    Temp_Low_Alarm   Temp_in_Range</symbolic>		Unchecked	Index tag			
General Name   Temp_Low_Alarm   Connection   HMI_Connection_1   Data type   Bool   Array elements   0   Length   1   Address   Access mode   <symbolic access="">   Coding   Binary   PLC name   PLC_1   Settings   Acquisition cycle   1 s   Acquisition mode   Cyclic in operation   Umpter 2   Lower 2   Linear scaling   Unchecked   PLC value range end   value   Value   HMI device value   100   HMI device value   range start value   Value   Unchecked   Start value   Comment   Comment   Furnace Alarm Temperature too Low   (Bit)   Multiplexing   Unchecked   Index tag    Temp_Low_Alarm   Temp_in_Range</symbolic>	Temp_High_Alarm					
Name   Temp_Low_Alarm   Connection   HMI_Connection_1   Data type   Bool						
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Comment   Furnace Alarm Temperature too Low (Bit)   Source comment (Bit)   Furnace Alarm Temperature too Low (Bit)    Multiplexing   Unchecked   Index tag    Temp_Low_Alarm   Temp_in_Range			Start value			
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Name Temp_in_Range Connection HMI_Connection_1 Data type Bool		Temp_in_Range	Connection	HMI_Connection 1	Data type	Bool
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Piece_selected					
General Name	Piece_selected	Connection	HMI_Connection_1	Data type	Bool
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Automation Porta	i il					
Comment						
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Furnace_Cycle_e	nd					
General Name	Furnace_Cycle_end	Connection	HMI_Connection_1	Data type	Bool	
Array elements	0	Length	1	Address	BOOI	
Access mode Settings	<symbolic access=""></symbolic>	Coding	Binary	PLC name	PLC_1	
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Limits Upper 2		Lower 2				
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Piece_Detected						
General Name	Piece_Detected	Connection	HMI_Connection_1	Data type	Bool	
Array elements	0	Length	1	Address		
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Acquisition cycle Limits Upper 2 Linear scaling Linear scaling HMI device value range end value Values ID tag Comment Comment Multiplexing Multiplexing Reject Temp_Analog_In General Name Array elements Access mode	<pre><symbolic access="">  1 s  Unchecked  100  Rejection Solenoid (Output)  Unchecked DB_PV  Temp_Analog_In_DB_PV 0 <symbolic access=""></symbolic></symbolic></pre>	Coding  Acquisition mode  Lower 2  PLC value range end value  HMI device value range start value  Start value  Source comment  Index tag  Connection	Cyclic in operation  10  0  Rejection Solenoid (Output)  HMI_Connection_1	PLC value range start value  Data type	PLC_1	
Acquisition cycle Limits Upper 2 Linear scaling Linear scaling HMI device value range end value Values ID tag Comment Comment Multiplexing Multiplexing Reject Temp_Analog_In General Name Array elements	<pre><symbolic access="">  1 s  Unchecked  100  Rejection Solenoid (Output)  Unchecked DB_PV  Temp_Analog_In_DB_PV 0</symbolic></pre>	Coding  Acquisition mode  Lower 2  PLC value range end value  HMI device value range start value  Start value  Source comment  Index tag  Connection Length	Cyclic in operation  10  0  Rejection Solenoid (Output)  HMI_Connection_1 4	PLC value range start value  Data type Address	PLC_1  O	
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Acquisition cycle Limits Upper 2 Linear scaling Linear scaling HMI device value range end value Values ID tag Comment Comment Multiplexing Multiplexing Reject Temp_Analog_In General Name Array elements Access mode PLC name Settings	<pre><symbolic access="">  1 s  Unchecked  100  Rejection Solenoid (Output)  Unchecked DB_PV  Temp_Analog_In_DB_PV 0 <symbolic access=""> PLC_1</symbolic></symbolic></pre>	Coding  Acquisition mode  Lower 2  PLC value range end value  HMI device value range start value  Start value  Source comment  Index tag  Connection  Length  PLC tag	Cyclic in operation  10  0  Rejection Solenoid (Output)  HMI_Connection_1  4  Temp_Analog_In_DB.PV	PLC value range start value  Data type Address	PLC_1  O	

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Totally Integrated Automation Porta	l I						
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Totally Integrated Automation Portal	

# Course Work Conveyor / PLC\_1 [CPU 1214C DC/DC/DC] / Watch and force tables

# Force table

Name	Address	Display format	Force value	Comment
"Reject_for_Small"	%M0.4	Bool		To check right size selected and in memory.
"Reject_for_Large"	%M0.5	Bool		To check right size selected and in memory.
"Detected_Large"	%M0.1	Bool		To check right size detected.
"Detected_Small"	%M0.2	Bool		To check right size detected.
"System_Enable"	%M0.0	Bool		To check system is enabled at the same time as size selected.
"PB_Large_HMI"	%M10.2	Bool		To check piece selection from HMI.
"PB_Small_HMI"	%M10.0	Bool		To check piece selection from HMI.
"PB_Manual_HMI"	%M10.3	Bool		To check manual mode selection from HMI.
"PB_Automatic_HMI"	%M10.4	Bool		To check automatic mode selection from HMI.
"Temp_High_Alarm"	%M11.3	Bool		To check Alarm.
"Temp_Low_Alarm"	%M11.4	Bool		To check Alarm.
"Temp_in_Range"	%M11.0	Bool		To check Temperature is within range.