Energy_Drink_V15.1 / ENERGY_DRINK_PROC [CPU 314C-2 PN/DP] / Program blocks / FBs

INCREMENTAL_PULSE_VLV [FB4]

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

INCREMENTAL_PULSE_VLV

Name	Data type	Offset	Default value	Accessible from HMI/OPC UA	Writable from HMI/OPC UA	Visible in HMI engineering	Setpoint	Supervision	Comment
▼ Input									
Vlv_Open_Cmd	Bool	0.0	false	True	True	True	False		
Vlv_Close_Cmd	Bool	0.1	false	True	True	True	False		
Manual	Bool	0.2	false	True	True	True	False		
▼ Output									
Feedback	Bool	2.0	false	True	True	True	False		
Vlv_Opened_%	DInt	4.0	0	True	True	True	False		
PV	Int	8.0	0	True	True	True	False		
▼ InOut									
T_Increment	Time	10.0	T#0ms	True	True	True	False		
▼ Static									
Incremental_State	Bool	14.0	false	True	True	True	False		
Pulse_Loop	Bool	14.1	false	True	True	True	False		
FP_Start	Bool	14.2	false	True	True	True	False		
FP_Stop	Bool	14.3	false	True	True	True	False		
Ret_Val_Acel	Word	16.0	16#0	True	True	True	False		
Valve_Cmd	Int	18.0	0	True	True	True	False		
Increment	Real	20.0	0.0	True	True	True	False		
Max_Lim	Real	24.0	0.0	True	True	True	False		
Low_Lim	Real	28.0	0.0	True	True	True	False		
▼ Incremental_Timer	TP	32.0		True	True	True	True		
▼ Input									
IN	Bool	32.0	false	True	True	True	False		
PT	Time	34.0	T#0MS	True	True	True	False		
▼ Output									
Q	Bool	38.0	false	True	True	True	False		
ET	Time	40.0	T#0MS	True	True	True	False		
InOut									
▼ Static									
STATE	Byte	44.0	16#0	True	True	True	False		
STIME	Time	46.0	T#0MS	True	True	True	False		
ATIME	Time	50.0	T#0MS	True	True	True	False		
Temp									
Constant									

Network 1: /***************************PULSE INCREMENTAL MODE **/**

```
0001 // PULSAR MARCHA PARA ACTIVAR EL MOTOR CON RAMPA DE ACELERACION
0002       U     #Vlv_Open_Cmd
0003       FP    #FP_Start
0004       S     #Incremental_State
0005
0006 // RESET CONDITIONS ACELERATION STATE
0007       U     #Incremental_State
0008       U(
0009       L     #Valve_Cmd
0010       L     27648
0011       ==I
0012       )
0013       SPBN  INCR2
0014       L     0
0015       T     #Increment
0016       T     #Valve_Cmd
0017       T     #PV
0018 INCR2: NOP 0
0019
0020 // IF ACELERATION STATE IS ACTIVE => SEND COMMAND TO GRADUALLY INCREASE MOTOR VELOCITY
0021       U     #Incremental_State
0022       SPBN  _100
0023
0024 // ANOLOG SIGNAL UNSCALING TO GENEREATE THE INCREMENTAL ACTION BASED ON A TIMER
```

```
0025
0026        CALL  UNSCALE
0027           IN      :=#Increment
0028           HI_LIM  :=#Max_Lim
0029           LO_LIM  :=#Low_Lim
0030           BIPOLAR :=FALSE
0031           RET_VAL :=#Ret_Val_Acel
0032           OUT     :=#Valve_Cmd
0033
0034 // SETTING THE MAX LIMIT
0035        L     #T_Increment
0036        DTR
0037        T     #Max_Lim
0038
0039 // MAPPING VAR FOR CONSULTING
0040        L     #Valve_Cmd
0041        T     #PV
0042
0043 _100: NOP 0
0044
0045 // PERCENTAGE OF VALVE OPENED
0046        L     #Valve_Cmd
0047        L     100
0048        *I
0049        T     "Tag_28"
0050        L     "Tag_28"
0051        L     27648
0052        /I
0053        DTR
0054        RND
0055        T     #"Vlv_Opened_%"
0056
0057
0058 // IF INCREMENTA STATE = 1 AND NO TIMER.Q => SEND PULSE TO ACTIVATE TIMER
0059        U     #Incremental_State
0060        UN    #Incremental_Timer.Q
0061        =     #Pulse_Loop
0062
0063
0064 // TIMER TO GENERATE THE INCREMENTAL VARIABLE
0065        CALL  #Incremental_Timer
0066           Time
0067           IN :=#Pulse_Loop
0068           PT :=#T_Increment
0069           Q  :=
0070           ET :=#Incremental_Timer.ET
0071
0072
0073 // CONVERTIN THE ELAPSED TIME INTO REAL => TO ASIGN AS INPUT OF THE AO ACELERATION
0074        L     #Incremental_Timer.ET
0075        DTR
0076        T     #Increment
0077
0078 // MOTOR FEEDBACK
0079        L     #Valve_Cmd
0080        L     0
0081        >I
0082        =     #Feedback
0083
```

Network 2: /**************************** CLOSE MODE **/**

```
0001 // IF MOTOR OVERLOAD OR STOP BUTTON AND ACELERATION => EMERGENCY STOP
0002        UN    #Vlv_Close_Cmd
0003        FP    #FP_Stop
0004        SPBN  _108
0005        L     0
0006        T     #PV
0007        T     #Increment
0008        T     #Valve_Cmd
0009        R     #Incremental_State
0010 _108: NOP 0
0011
```

Network 3: /****************************MANUAL MODE **/**

```
0001 // MANUAL FULLY OPENED VALVE COMMAND
0002        U     #Manual
0003        SPBN  _2000
0004        L     27648
0005        T     #PV
0006        L     100
0007        T     #"Vlv_Opened_%"
0008
0009 _2000: NOP 0
0010
```

```
0011 // MANUAL FULLY CLOSED VALVE COMMAND
0012       UN    #Manual
0013       UN    #Incremental_State
0014       SPBN  _2001
0015       L     0
0016       T     #PV
0017
0018 _2001: NOP 0
0019
```