

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

MOTOR_ACELERATION_RAMP [FB3]

MOTOR_ACELERATION_RAMP Properties							
General							
Name	MOTOR_ACELERA-TION_RAMP	Number	3	Type	FB	Language	STL
Numbering	Automatic						
Information							
Title		Author		Comment		Family	
Version	0.1	User-defined ID					

MOTOR_ACELERATION_RAMP									
Name	Data type	Offset	Default value	Accessible from HMI/OPC UA	Writ-able from HMI/OPC UA	Visible in HMI engi-neering	Setpoint	Supervi-sion	Comment
▼ Input									
Start_Cmd	Bool	0.0	false	True	True	True	False		
Stop_Cmd	Bool	0.1	false	True	True	True	False		
Ovl_Cmd	Bool	0.2	false	True	True	True	False		
▼ Output									
Acel_Led	Bool	2.0	false	True	True	True	False		
Max_Speed_Led	Bool	2.1	false	True	True	True	False		
Decel_Led	Bool	2.2	false	True	True	True	False		
Stopped_Led	Bool	2.3	false	True	True	True	False		
Ovl_Led	Bool	2.4	false	True	True	True	False		
Motor_Feedback	Bool	2.5	false	True	True	True	False		
Motor_PV	Int	4.0	0	True	True	True	False		
▼ InOut									
T_Aceleration	Time	6.0	T#0ms	True	True	True	False		
T_Deceleration	Time	10.0	T#0ms	True	True	True	False		
▼ Static									
Aceleration_State	Bool	14.0	false	True	True	True	False		
Deceleration_State	Bool	14.1	false	True	True	True	False		
Full_load	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		
Ret_Val_Decel	Word	18.0	16#0	True	True	True	False		
Motor_Cmd	Int	20.0	0	True	True	True	False		
Aceleration	Real	22.0	0.0	True	True	True	False		
Deceleration	Real	26.0	0.0	True	True	True	False		
Max_Lim	Real	30.0	0.0	True	True	True	False		
Low_Lim	Real	34.0	0.0	True	True	True	False		
▼ Aceleration_Timer	TP	38.0		True	True	True	True		
▼ Input									
IN	Bool	38.0	false	True	True	True	False		
PT	Time	40.0	T#0MS	True	True	True	False		
▼ Output									
Q	Bool	44.0	false	True	True	True	False		
ET	Time	46.0	T#0MS	True	True	True	False		
InOut									
▼ Static									
STATE	Byte	50.0	16#0	True	True	True	False		
STIME	Time	52.0	T#0MS	True	True	True	False		
ATIME	Time	56.0	T#0MS	True	True	True	False		
▼ Deceleration_Timer	TP	60.0		True	True	True	True		
▼ Input									
IN	Bool	60.0	false	True	True	True	False		
PT	Time	62.0	T#0MS	True	True	True	False		
▼ Output									
Q	Bool	66.0	false	True	True	True	False		
ET	Time	68.0	T#0MS	True	True	True	False		
InOut									
▼ Static									
STATE	Byte	72.0	16#0	True	True	True	False		
STIME	Time	74.0	T#0MS	True	True	True	False		
ATIME	Time	78.0	T#0MS	True	True	True	False		
Temp									
Constant									

Network 1: /***** ACCELERATION MODE *****/

0001 // CONDITIONS TO SET ACELEREATION STATE

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<pre>0002 U #Ovl_Cmd 0003 U #Start_Cmd 0004 UN #Deceleration_State 0005 R #Deceleration_State 0006 S #Aceleration_State 0007 0008 // RESET CONDITIONS ACELERATION STATE 0009 U(0010 L #Motor_Cmd 0011 L 27648 0012 ==I 0013) 0014 R #Aceleration_State 0015 0016 // IF ACELERATION STATE IS ACTIVE => SEND COMMAND TO GRADUALLY INCREASE MOTOR VELOCITY 0017 U #Aceleration_State 0018 SPBN _100 0019 0020 // ANOLOG SIGNAL UNSCALING TO GENEREATE THE ACELERATION BASED ON A TIMER 0021 0022 CALL UNSCALE 0023 IN :=#Aceleration 0024 HI_LIM :=#Max_Lim 0025 LO_LIM :=#Low_Lim 0026 BIPOLAR :=FALSE 0027 RET_VAL :=#Ret_Val_Acel 0028 OUT :=#Motor_Cmd 0029 0030 // SETTING THE MAX LIMIT 0031 L #T_Aceleration 0032 DTR 0033 T #Max_Lim 0034 0035 // MAPPING VAR FOR CONSULTING 0036 L #Motor_Cmd 0037 T #Motor_PV 0038 _100: NOP 0 0039 0040 0041 // TIMER TO GENERATE THE ACELERETAION VARIABLE 0042 CALL #Aceleration_Timer 0043 Time 0044 IN :=#Aceleration_State 0045 PT :=#T_Aceleration 0046 Q := 0047 ET :=#Aceleration_Timer.ET 0048 0049 // CONVERTIN THE ELAPSED TIME INTO REAL => TO ASIGN AS INPUT OF THE AO ACELERATION 0050 L #Aceleration_Timer.ET 0051 DTR 0052 T #Aceleration 0053</pre> <p>Network 2: /***** DECELERATION MODE *****/</p> <pre>0001 // CONDITIONS TO SET THE DECELERATION STATE 0002 UN #Stop_Cmd 0003 FP #FP_Stop // IT IS AN FP DUE TO THE FACT THAT IS "NC" 0004 UN #Aceleration_State 0005 U(0006 L #Motor_Cmd 0007 L 0 0008 <>I 0009) 0010 S #Deceleration_State 0011 0012 // IF DECELERATION STATE IS ACTIVE => SEND COMMAND TO GRADUALLY DECREASE MOTOR SPEED 0013 U #Deceleration_State 0014 SPBN _105 0015 0016 // ANOLOG SIGNAL UNSCALING TO GENEREATE THE DECELERATION BASED ON A TIMER 0017 0018 CALL UNSCALE 0019 IN :=#Deceleration 0020 HI_LIM :=#Low_Lim 0021 LO_LIM :=#Max_Lim 0022 BIPOLAR :=FALSE 0023 RET_VAL :=#Ret_Val_Decel 0024 OUT :=#Motor_Cmd 0025 0026 // MAPPING VAR FOR CONSULTING 0027 L #Motor_Cmd 0028 T #Motor_PV 0029 0030 // SETTING THE MAX LIMIT 0031 L #T_Deceleration 0032 DTR</pre>		

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<pre>0033 T #Max_Lim 0034 0035 _105: NOP 0 0036 0037 0038 // TIMER TO GENERATE THE DECELERETAION VARIABLE 0039 CALL #Deceleration_Timer 0040 Time 0041 IN :=#Deceleration_State 0042 PT :=#T_Deceleration 0043 Q := 0044 ET :=#Deceleration_Timer.ET 0045 0046 0047 // CONVERTIN THE ELAPSED TIME INTO REAL => TO ASIGN AS INPUT OF THE AO DECELERATION 0048 L #Deceleration_Timer.ET 0049 DTR 0050 T #Deceleration 0051</pre> <p>Network 3: /*****STOPPING MODE *****/</p> <pre>0001 // IF MOTOR OVERLOAD OR STOP BUTTON AND ACELERATION => EMERGENCY STOP 0002 UN #Ovl_Cmd 0003 O(0004 UN #Stop_Cmd 0005 U #Aceleration_State 0006) 0007 SPBN _108 0008 L 0 0009 T #Motor_PV 0010 T #Motor_Cmd 0011 0012 _108: NOP 0 0013</pre> <p>Network 4: /*****LED ACTIVATIONS *****/</p> <pre>0001 // LED START ACTIVATION 0002 U #Aceleration_State 0003 U(0004 L #Motor_Cmd 0005 L 27648 0006 <I 0007) 0008 U(0009 L #Motor_Cmd 0010 L 0 0011 >I 0012) 0013 = #Acel_Led // ACELERATION LED ACTIVE 0014 0015 0016 // LED MAX SPEED ACTIVATION 0017 U(0018 L #Motor_Cmd 0019 L 27648 0020 ==I 0021) 0022 = #Full_load 0023 = #Max_Speed_Led // MAX SPEED LED ACTIVE 0024 0025 // DECELERATION LED ACTIVATION 0026 U #Deceleration_State 0027 U(0028 L #Motor_Cmd 0029 L 27648 0030 <I 0031) 0032 U(0033 L #Motor_Cmd 0034 L 0 0035 >I 0036) 0037 = #Decel_Led 0038 0039 // STOPPED LED ACTIVATION 0040 U(0041 L #Motor_Cmd 0042 L 0 0043 ==I 0044) 0045 R #Deceleration_State 0046 0047 // STOPPED LED DEACTIVATION 0048 U #Stop_Cmd</pre>		

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0049	UN	#Aceleration_State	
0050	UN	#Full_load	
0051	S	#Stopped_Led	
0052			
0053	U	#Start_Cmd	
0054	R	#Stopped_Led	
0055			
0056	// OVERLOAD LED ACTIVATION		
0057	UN	#Ovl_Cmd	
0058	=	#Ovl_Led	
0059			
Network 5: *****MOTOR FEEDBACK*****/			
0001	// CONDITIONS FOR MOTOR FEEDBACK		
0002	U	#Aceleration_State	
0003	O	#Full_load	
0004	=	#Motor_Feedback	